Global
System Manager Manual
Version 8.1

MSMMV8.1/26

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1. Introduction

Global System Manager is an environment for many business applications, which provides a sophisticated screen interface, print spooling and concurrent running of several programs on one screen.

The wide range of Global application modules interface to Global System Manager. Global System Manager always interfaces with a host operating system. This operating system may be Unix, BOS, MS-DOS, Novell etc. Consult the appropriate Global Operating Manual for details of using Global System Manager on a particular host operating system.

1.1 Running Application Programs

Global System Manager displays a menu on your screen as soon as it is initiated (to initiate Global System Manager, see your Global Operating Manual). The menu lists the application programs installed on the system. You can select a particular application, such as Global 3000 General Ledger, by merely keying the appropriate number.

When you select an application from the menu, Global System Manager picks up any special *unit assignments* necessary from the menu handler. These assignments inform Global System Manager where on disk the application program and its associated data, can be found, and sometimes which printer to use, or which diskette drive to use for taking security copies of data.

Global System Manager then loads the program into memory and passes control to it. From then on it will appear to the operator that the application is in complete control of the computer. However, whenever it needs to access a peripheral, the application program will send a message to Global System Manager of the form 'read next data record from unit SLD' or 'print the following characters to unit $PR'. Global System Manager then translates the unit assignments SLD or $PR into the appropriate physical addresses of the data unit or printer, and does the actual work of reading from the disk or writing to the printer.

Global System Manager also performs the vital task of file locking and record locking for applications. In multi-user or networking environments, a number of different users need to have simultaneous access to the same file. A mechanism is required which 'locks' a particular area of a file (a *record*) when one user is updating the data held there, but which leaves the rest of the file available for inspection or updating by other users. Similarly, there must be a facility to lock a whole file for certain processes (e.g. backup procedures) where simultaneous updating would be disastrous.

1.2 Global System Manager System Commands and System Requests

As well as providing an environment for application programs, Global System Manager offers you a number of facilities which can be invoked by means of *system commands* or *system requests*.

1.2.1 System Commands

System commands (see Chapter 5) are used to invoke about 50 different utility programs. The names of the commands all begin with a dollar sign and reflect their functions: $U (pronounced "dollar u") tells you about the *units* on your computer, while $F is used to list, copy or delete *files*. Commands fall into three main categories:

- Those which tell you about your system. For example, $T tells you about your terminal, $A lists current unit assignments;

- those which allow you to alter (or *customise*) your system. For example, $AUTH, $CUS and $ZAP;

- those which provide you with general facilities such as disk maintenance ($F) or message passing ($M).

You run a system command by typing its name, rather than a line number, to the Global System Manager menu selection prompt, but you can also set up a menu entry for a system command if you run it frequently.

1.2.2 System Requests

System requests (see Chapter 4) differ from system commands in that you can invoke them at any point when running Global System Manager. Not only can you invoke a system request from a Global System Manager menu, but you can also do so from the middle of an application program or system command. By pressing the SYSREQ key followed by a number or letter, you can ask Global System Manager to (among other things):

- change from one partition to another. Up to 9 different programs (usually 3 or 4) can be run simultaneously from a single screen, and by keying SYSREQ followed by the appropriate number you can bring the different programs to the screen instantaneously;

- invoke the screen calculator. This has all the usual pocket calculator functions, but with the bonus that you can pick numbers off the screen, perform calculations on them and return the result to an application program;

- invoke the Help facility. This displays context-sensitive Help information related to the application or utility you are running. In particular, all I/O error messages (which tell you, for example, that a printer is not ready when you have tried to print a report) have specific help messages to guide you as to what you should do;

- shift between different display windows in the same concurrent partition. Most screens can only show about 80 columns at a time. Global System Manager provides a windowing facility which lets you shift the display window to the left or right.

2. Disks and Unit-ids

Global System Manager uses a series of unit assignments to determine where a particular application module and its associated data are to be found, and where reports from the application are to be sent. The main purpose of unit assignments is to enable the same application programs to run on varying hardware configurations (i.e. computers with different combinations of peripherals) or on several different sets of data on the same computer.

2.1 Unit Addresses and Unit-Ids

Global System Manager translates, dynamically at run time, the logical *unit-ids* referred to by an application module into the *unit addresses* of actual peripheral devices. A program might require a report to be printed to logical unit ($PR). Global System Manager translates this into the physical address of a printer on a particular computer.

Certain assignments are set up permanently when Global System Manager is installed. These are mainly ones which Global System Manager itself needs to use. Assignments specific to a particular application (e.g. where the Sales Ledger data is to be found) are passed on to Global System Manager by the menu program, which holds details of the assignments required for each application listed in the menu.

2.1.1 Unit Addresses

Under single file server versions of Global System Manager, each unit address consists of a number between 100 and 599. These are allocated as follows:

> 100 – 199   refer to diskette formats on one or more drives (109 designates ultra-fast RAM disk, if present);
>
> 200 – 299   denote fixed or exchangeable hard disks;
>
> 300 – 399   reserved for future use;
>
> 400 – 499   reserved for future use;
>
> 500 – 599   reserved for printers.

An example should make this clearer: The computer on which this manual was written has one diskette drive, a hard disk, a RAM disk and one printer. The diskette drive has a unit address of 140, the hard disk is unit 200 (and is itself divided into 'sub-units' numbered from 201 to 299), the RAM disk is 109 and the printer is unit 501. If Global System Manager is already installed on your computer you can run the $U command (see section 5.46) to find out what devices are attached to it and their unit addresses.

Under multiple file server versions of Global System Manager (e.g. when Global System Manager is used in a network environment) each 'file server' is identified by a letter, and the following additional unit addresses are available:

> 600 – 699   for hard disks on the master server;
>
> a00 - a99   for diskette drives on server A;
> b00 - b99   for diskette drives on server B;
> …
> …

z00 - z99 for diskette drives on server Z;
A00 - A99 for hard disks on server A;
B00 - B99 for hard disks on server B;
…
…
Z00 - Z99 for hard disks on server Z.

Thus, if you are using computer C then units 200 - 299, the hard disk subunits directly connected to it, can also be referred to as units C00 - C99, and MUST be addressed in this way when accessed by any other computer on the network.

2.1.2 Unit-ids

You can check the table of assignments currently in force by running the $A command (see section 5.1). This displays on the screen a list of unit-ids and the corresponding unit addresses. These are the unit-ids you are most likely to come across:

$B the backup disk drive used either by the $SAVE and $RESTORE commands (see section 5.35) or by Global 2000 Business and Office software modules;

$CP the unit from which the Global System Manager commands are loaded. If Global System Manager fails to find a particular command program on $CP it will then look for it on $DP (see below);

$DP the unit from which diagnostic programs are loaded, and from which Global System Manager will try to load a command program if it fails to find it on $CP;

$M the unit on the master computer on a network where the user file is held;

$P the unit from which programs are loaded;

$PR the unit to which reports are sent to be printed (if a spooler is used this will be the disk unit which holds reports to be printed);

$RP the real printer on which spooled reports are printed;

$SW the unit used for the 'swap file' in multi-user systems.

A complete list of Global System Manager "dollar assignments" can be found in Chapter 2 of the Global Utilities Manual.

In practice the same unit address will often be assigned to several different unit-ids. This allows one disk drive, for example, to perform several different functions. Equally, a unit-id such as $P may well be assigned to different addresses at different times. For example, the Global Sales Ledger and Global Payroll programs may be held on different units on a hard disk. When you run either application Global System Manager will pick up the appropriate assignment of $P from the menu program, and will continue to use it (**within that partition**) until $P is assigned elsewhere.

3. Screen, Keyboard and Printer

The screen, keyboard and printer are the means by which you communicate with Global System Manager and it communicates with you.

In this chapter we explain how to use the keyboard to reply to messages and prompts which Global System Manager displays on the screen, including the use of the <SYSREQ> key to make a system request, and how to handle printers and stationery.

GENERAL PURPOSE KEYS		
Global name	**Usual keytop**	**Effect**
<CR>	RETURN or ENTER or ←' or CR	End of input field. Used to enter replies to prompts or to accept default replies.
<ESCAPE> or <ESC>	ESCAPE or ESC	Ends current level of dialogue.
<SYSREQ>	SYSREQ or highest number function key	Invoke a system request (see Chapter 4).
<CTRL G>		Planned interrupt, program dependent. Often interrupts printing of a report. Note that <CTRL G> cancels typed-ahead characters.
<CTRL U>		Cancel typed-ahead characters.
<CTRL V>		Software CAPS LOCK function. Only if the terminal does not include a special CAPS LOCK key.
<CTRL W>		Break (i.e. interrupt running program).

Table 3.1a – Function Key Usage (General Purpose Keys)

BASIC EDITING KEYS

Global name	Usual keytop		Effect
<RUBOUT>	or or	RUBOUT DELETE DEL	Delete the last character keyed (or, if in field editing mode, delete the character under the cursor).
<TAB>	or	TAB →¦	Tabs right up to 8 characters.
<CURSOR UP>			Restores initial value of input field. If keyed at start of a field during input of a form, skips back to previous field.

Table 3.1b – Function Key Usage (Basic Editing Keys)

	FIELD EDITING KEYS		
Global name	**Usual keytop**		**Effect**
CURSOR LEFT	←		Move cursor leftwards along the field and commence field editing.
CURSOR RIGHT	→		Move cursor rightwards along the field and commence field editing.
TAB	or	TAB →¦	Move cursor 8 characters to the right and commence field editing.
BACKTAB	or	SHIFT TAB ¦←	Move cursor 8 characters to the left and commence field editing.
RUBOUT	or or	RUBOUT DEL DELETE	Delete character under the cursor or, if at end of field, erase the rightmost character.
HOME	or	HOME CURSOR HOME	Move cursor alternatively between start and end of field and commence field editing.

CLEAR	CLEAR	Erases rest of field to right of cursor.
F1	F1 or PF1	Inserts space at current cursor position.
F2	F2 or PF2	Reverses case of letter under the cursor, and moves cursor to the right.

Table 3.1c – Function Key Usage (Field Editing Keys)

```
Global Windows Workstation                                    _ □ ×
 Window  Edit  Functions  Options  Help

 Global System Manager
 Global System Manager                          Sunday 30/01/00 12.02


                    Global Business Systems

                          MAIN MENU

                    Administration. . . . . . . . . 1
                    Development . . . . . . . . . . 2
                    Support/QC. . . . . . . . . . . 3
                    Technology. . . . . . . . . . . 4
                    Sign off ($E) . . . . . . . . . 5
                    Redisplay this menu . . . . .<CR>

                    Please select a function      :4




 Partition 1 Computer CA                                    CAPS NUM
```

Figure 3.1 - Replying to the selection prompt

```
 Global Windows Workstation                                        _ □ ×
 Window  Edit  Functions  Options  Help
 Global System Manager
 Global System Manager                              Sunday 30/01/00 12.02

                        Global Business Systems
                              MAIN MENU

                     Administration. . . . . . . . . 1
                     Development . . . . . . . . . . 2
                     Support/QC. . . . . . . . . . . 3
                     Technology. . . . . . . . . . . 4
                     Sign off ($E) . . . . . . . . . 5
                     Redisplay this menu . . . . .<CR>

                     Please select a function       :$STATUS




 Partition 1 Computer CA                                         CAPS NUM
```

Figure 3.2 - Running a system command

3.1   Replying to Prompts

The term *prompt* denotes a message from Global System Manager or an application to which you must reply before further processing can take place.

3.1.1 Prompts

Prompts normally end with a colon (:), but in more recent software they may end with a highlit or coloured area (or *field*) showing the maximum possible length for your reply. If Global System Manager needs to display 2 or more lines of message on the base line of the screen it displays a comma at the end of the first and then waits until you key <CR> (explained below) before displaying the next.

The simplest example of a prompt is the selection prompt at the bottom of a menu:

```
        Please select a function :
```

This asks you to select one of the programs listed by keying its number. In the example screen shown in figure 3.1, the operator has keyed 4.

3.1.2 Replies

In the example the operator replied by keying the number 4:

```
        Please select a function :4
```

(In dialogue examples in this manual we show replies underlined, though they will not appear in that form on the screen.)

However, keying the number 4 will cause that character to be displayed on the screen, but nothing will actually happen until the reply is entered. You enter a reply by terminating it with the RETURN key (marked on some keyboards ENTER, CR or <___').

We will represent the use of this key thus: <CR>. The letters CR stand for carriage return, and the angle brackets indicate that one key (rather than two) is to be used. The use of the <CR> key is usually 'understood' in this manual when a reply is shown, so 6/2/90 means: strike 6,/,2,/,9,0,<CR>.

If you key more characters than the program expects the terminal's bell (or bleep) will sound and the program will stop accepting input. You should then either press <CR> to enter your reply as displayed or, if you made a typing error, use the editing and correction keys. In any case, remember that until you enter your reply properly the characters, although shown on your screen, have not yet been passed to the program which requires them.

3.1.3 Accepting Default Replies

Wherever possible, programs provide *default* replies to prompts. In most cases the default is explicitly displayed under the cursor or in brackets before the colon, for example:

```
        Key system name:TIS SOFTWARE
```
or:
```
        Please key format code (O2A ):_
```

In either case you can press <CR> on its own to accept the default, or type an alternative reply. In the former case you can also field-edit (q.v.) the default offered.

In certain applications or utilities the default reply to a prompt is not made explicit, but will be clear from the context.

3.1.4 Editing and Correction Keys

In this manual we refer to keys by the names most frequently used for them, as given in the left hand column of Table 3.1; your keyboard may use different ones. Once you have identified the <CR> key you will be able to run the $T command (see section 5.42) to obtain a report explaining how your keyboard differs from the norm, and which keys must be used in place of the standard ones.

The keys used for basic editing and correction are:

<RUBOUT> Erases the rightmost character of your input and repositions the cursor under the previous character (when in field editing mode, erases the character currently under the cursor).

<TAB> Inserts spaces and moves the cursor right to the next tab location of the field you are keying. This is useful when you are supplying lengthy character input such as names and addresses.

<CURSOR UP> Erases what you have keyed and restores the original default (if any). In some applications which use 'form filling', when this is keyed as the very first character of your reply it enables you to 'backspace' to the previous field so that you can correct it. Use <CTRL J> or LINEFEED if your keyboard's cursor up key is unsuitable.

<CAPS LOCK> Causes all lower case letters keyed to appear as upper case. Using it a second time cancels the lock. On machines without a special caps lock key <CTRL V> is used.

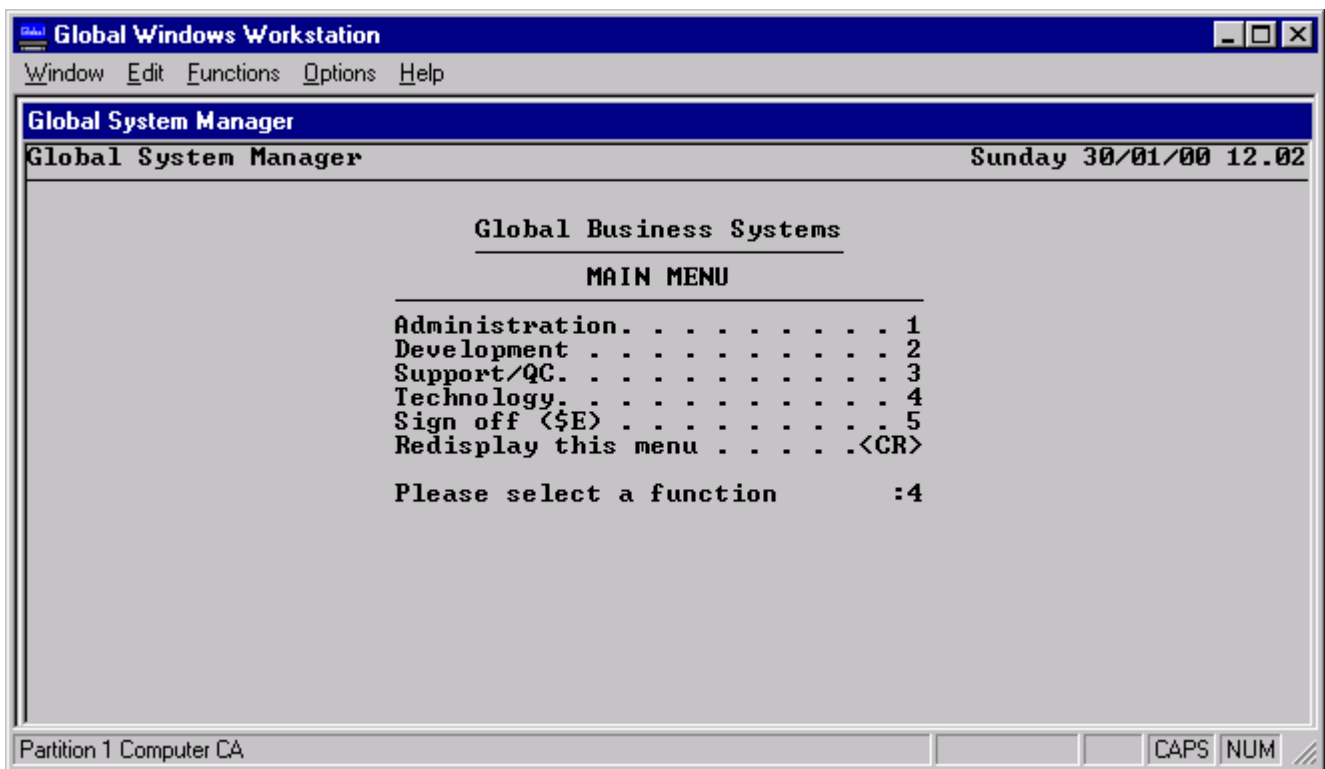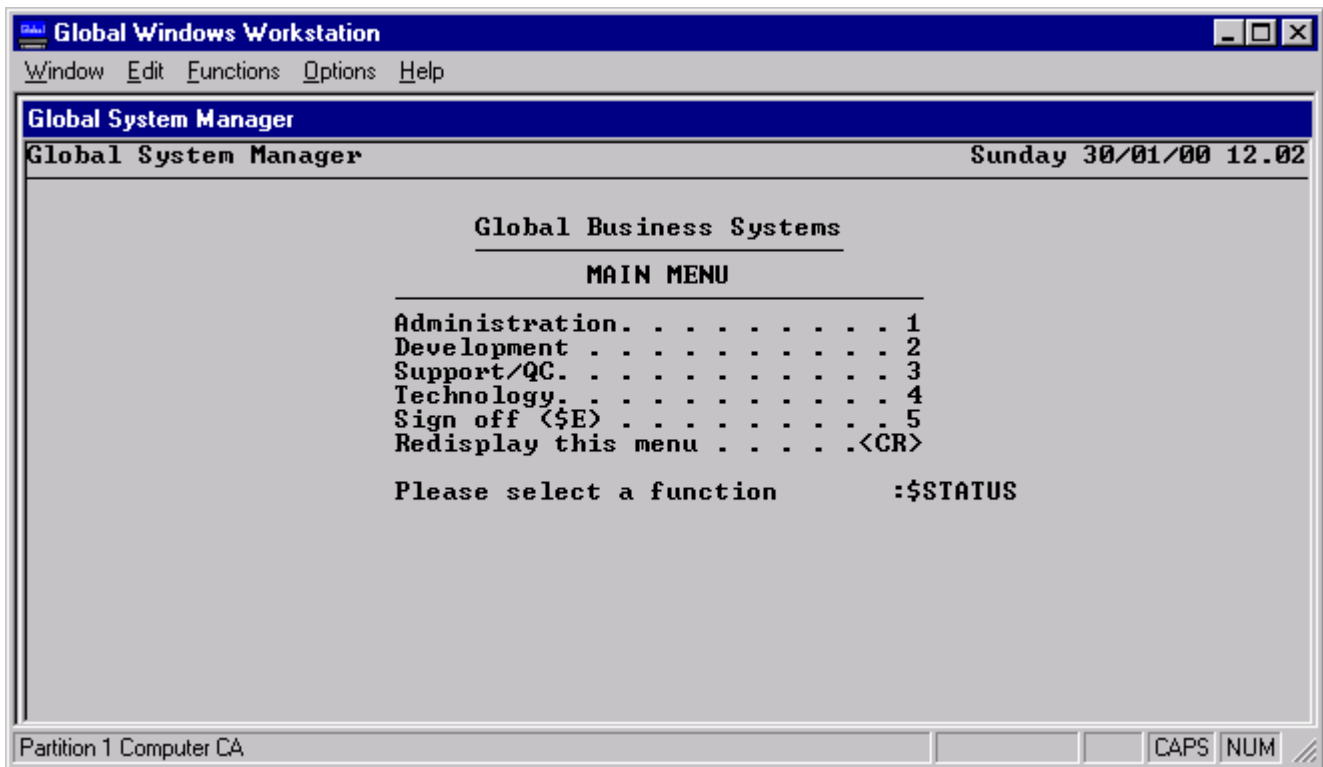

<BACKSPACE>   This has the same effect as either <RUBOUT> or <CURSOR LEFT>, depending on your keyboard.

3.1.5 Field Editing

When using Global System Manager a special facility referred to as *field editing* can be used. This allows you to do two things. Firstly, it gives you greater flexibility in correcting a field which you are typing in. Secondly, it allows you to correct a field which has already been input without having to retype the entire field.

Field editing uses the CURSOR LEFT and CURSOR RIGHT keys to move along the field being edited. The HOME key jumps alternately to the start and end of the field. The RUBOUT key deletes the character under the cursor or, if the cursor is at the end of the field, erases the last character and moves the cursor back. You may use TAB and BACKTAB to move along the field to the next standard tab position. The CLEAR key erases the remainder of the field from where the cursor is. The F1 key (Program Function 1) will insert a space under the cursor, and the F2 key (Program Function 2) will change the case of the character under the cursor, and advance the cursor one character.

To begin editing a field, you should normally use CURSOR LEFT or CURSOR RIGHT, although TAB and HOME are often suitable, depending on the screen you are using. The terminal description given by $T will inform you if the cursor keys are not suitable, and will indicate how
you should begin editing fields (some terminals require you to key <CTRL E>).

If you wish to replace a field completely, simply key the new value, and the old value will be cleared as you key the first character. If you do this by accident, or if you make a mistake editing a field, you can normally restore the original value it contained by keying CURSOR UP or <CTRL J> or LINEFEED.

3.1.6 The ESCAPE Key

The <ESCAPE> key is used by most Global software as meaning "end current level of dialogue and go to next higher level". For example, if you are 'form-filling' on the screen keying <ESCAPE> ends input of that screen of data. If you key it to a prompt at the bottom line of a screen it usually returns you to the previous menu, or in the case of most system commands takes you back to the menu or GSM P*n* READY: prompt. Note that in some cases, when abandoning the operation would destroy valuable work, the <ESCAPE> response is 'suppressed' by the program in control, and in this case <ESCAPE> is treated as though <CR> had been keyed.

On some screens, when you are in field-editing mode (or editing using the cursor keys in a program such as Global Writer) you may need to key <ESCAPE> twice before it takes effect.

3.1.7 SAA-style Menus

If a menu is displayed in SAA-style (see Chapter 7), keying a number to the menu prompt will result in the <CR> option on the menu moving to the selected entry. The up-arrow and down-arrow keys may be used to position the <CR> option on the desired menu line. When the <CR> option is positioned on the required line, key <CR> to execute that menu function.

To run a command program (e.g. $STATUS) directly, key the name with a dollar sign as usual. Note that the "$" character results in a 'command box' being displayed on the bottom left of the screen. The first character of the system command (i.e. the dollar sign) appears in the box. Key in the rest of the command name (in the example, STATUS) followed by a <CR> to execute the command program.

Note that the command box is also displayed, with an empty accept field, if <F1> (Program Function 1) is keyed to the menu prompt. This allows non-command programs (i.e. those that do not start with a 'dollar' character) to be keyed for an SAA-style menu.

Important note: The short-cut technique of keying "$" to produce an SAA-style menu command box cannot be used on a screen running the Global Windows Workstation. If you are using the Global Windows Workstation, only the <F1> key will produce a command box.

3.2 System Requests

System requests are instructions to Global System Manager which you can make at any time: When at a menu or the GSM P*n* READY: prompt, while using a utility such as $F or $S, or from the middle of an application program. *System commands*, such as $F or $S, can only be invoked from a menu selection prompt or from the GSM P*n* READY: prompt.

To invoke a system request you press the SYSREQ key (if your keyboard uses a different name for this, the $T system command will tell you what it is) followed by the key which indicates the action you require. On some terminals single keys may be used to have the same effect as <SYSREQ> H (the Help system request), <SYSREQ> F (the system request which invokes a programmed function key) or <SYSREQ> P (the system request which causes the current screen to be printed).

See Chapter 4 for a complete list of available system requests.

3.3 Special Replies - the CTRL Key

You may also make special replies by depressing the CTRL key simultaneously with certain letters or numbers. These replies are shown thus: <CTRL A>, <CTRL B>, <CTRL C> etc. In some circumstances they may be used instead of <CR> to terminate a normal reply. Replies using the CTRL key are specific to the program you are running: Check the relevant user manual.

3.3.1 <CTRL A> - Reassign Program Unit

If you want to run a program from a different address than usual, you can key its name to the menu selection prompt or GSM P*n* READY: prompt and terminate your reply with <CTRL A> instead of <CR>. Global System Manager will then display the following prompt:

        PLEASE ASSIGN $P :

or, if the program in question is a command program:

        PLEASE ASSIGN $CP:

to which you should reply with the appropriate unit address.

Note that the reassignment of $P, the program unit, or of $CP, the command program unit, will remain in force until overridden by a different assignment being made by a menu, the $A system command, the <SYSREQ> I system request, or until the operator signs-in again to Global System Manager and the $CUS permanent unit assignments are re-established.

In certain programs when you are 'form-filling' on the screen or selecting files from a list, keying <CTRL A> will cause all subsequent fields or files to be skipped.

3.3.2 <CTRL B>

In some system commands (e.g. $F), <CTRL B> has the effect of processing all subsequent files in a list in a specified way.

3.3.3 <CTRL C>
In certain system commands (e.g. $F), <CTRL C> enables you to skip back to the previous file in a list. Other uses are application-dependent.

3.3.4 Interrupt Keys
Certain CTRL key combinations can be used when there is no prompt outstanding, to cause what is known as an 'interrupt' to force Global System Manager to make an action which could not be predicted by the program in control. The combinations are:

<CTRL G>   Causes a planned interrupt (to suppress an unnecessary report, for example). The action taken depends on the particular application or utility you are using. Refer to the relevant documentation for details. It will always clear any characters you have typed ahead.

<CTRL U>   Clears any characters you have typed ahead in anticipation of the next prompt, useful if you realise you made an error doing this.

<CTRL W>   The break function, used by programmers to temporarily halt a program. **You should not normally use it as it can cause data loss or corruption**. If you key it by mistake the prompt:

```
$91 BREAK?:
```

appears, and your program stops. You should key N or <CR> to continue.

Note that the <SYSREQ> G, <SYSREQ>U and <SYSREQ> W system requests have identical effects to the corresponding interrupt keys.

3.4   Additional Facilities
Some TIS Software products, such as Global Writer and Global Planner, allow you to input and edit entire screenfuls of information rather than individual replies. In such applications a number of additional special keys provide extended control functions such as cursor movement and clearing the screen. Each product normally contains a 'Help' facility you can use to obtain a display or printed report describing the keys used for full screen editing.

3.5   Stationery and Printers
Global System Manager allows you to send *print files* (reports or documents produced by applications, system commands or system requests) either directly to a printer or to direct access devices (e.g. diskettes, hard disks or RAM disk). Those which are sent to disk can subsequently be redirected to a printer and printed out using the $PRINT command (see section 5.31) or, if your installation has a spool unit, using the spooler commands (see Chapter 8).

As explained in Chapter 2, Global System Manager employs two logical unit-id's for print functions: $PR and $RP. In any system where there is an actual printer attached $RP will be assigned a unit address in the range 500 - 599 (often 500 for parallel printers, 501 for serial printers). Many system commands and Global software modules send their reports to unit-id $PR. In a typical single-user system without a spool unit both $RP and $PR will be assigned to an actual printer address. Thus the program sends the report to $PR and Global System Manager redirects it to the actual printer at unit address 500, for example. In

multi-user systems where one or more printers are shared by a number of different users $PR will be assigned the unit address of a spool unit, usually a volume on hard disk. Reports to be printed are held on the spool unit and printed out using the spooler command $SP, which sends them to the $RP unit. Global System Manager then redirects them to the actual printer address.

The $P command enables you to throw a blank page on the printer assigned to $PR (if $PR is assigned to disk the command has no effect). This can be useful if you wish to remove a printed report without using the printer's manual controls. $P also allows you change the print format letter and page depth.

Global System Manager is usually able to detect *printer error conditions* and will send you a brief message detailing what is wrong; the paper may have run out, or be about to run out; the printer may not be switched on or in 'on-line' mode; or the ribbon may need replacing. In addition, there may be an error within the Printer Control File (see section 6.2 – Setting Up a Printer Control File). The message will state the type of problem and which printer it occurred on, and will be followed by a retry prompt.

You should correct the problem and then key <CR> or Y to continue. If you're uncertain what is wrong, you can invoke the Help facility (<SYSREQ> H), which will suggest various courses of action. If the problem cannot be rectified (the printer is broken, for example) then you should key N to the retry prompt and the report will be abandoned. On systems with less sophisticated printers Global System Manager cannot detect the specific problem and will report a non-specific "NOT READY" message. **For this reason we strongly recommend that you always check your printer and stationery are ready before you run programs.**

If a report needs to be printed on *special stationery* Global System Manager will send a message specifying which type of stationery should be loaded. You must load the required stationery and correctly align it before keying <CR> or Y to continue. If you cannot do this you should key N to the prompt; normally the program will then display its own message explaining that it cannot produce the report.

If you do not want to change the stationery but nevertheless wish to continue to print the report, key <CTRL A> to the stationery mount message. Global System Manager will print the report but will not update its internal flag which indicates the "current paper type".

Sometimes when you are using special stationery an *alignment pattern* page is printed once you inform Global System Manager that you have loaded the paper. This will typically consist of groups of X's or asterisks which should appear in certain positions on the paper. You will then be prompted to confirm that the alignment is correct; key Y or<CR> if it is. If it is not, adjust the paper and key N to cause the alignment pattern and subsequent prompt to be repeated. Continue until the paper is correctly aligned and you can key Y to the alignment prompt; the report which requires the special stationery will then be printed.

Important note: Some reports produced by older applications (i.e. those applications developed before Global System Manager V6.2) may need special customisations to be applied in $CUS (section 6.2) and $SP (Chapter 8) to behave correctly under Global System Manager V8.1.

4. System Requests

Global System Manager provides two different kinds of utilities: System commands and system requests. You run a system command by keying its name ($F, $V etc.) to the menu selection prompt ("Please select a function") or the READY prompt. The program requested is then loaded into the current partition's memory bank and executed. Typical system commands enable you to copy files, send messages to other users, or find out what units are attached to your computer.

System requests differ from system commands in that you can invoke them at any point when running a Global application, from a menu or the GSM P*n* READY: prompt, from the middle of an application program or system command, or even from within another system request! You press the SYSREQ key followed by a number or letter, and Global System Manager performs the action required. Typical system requests enable you to change from one partition to another, invoke the Global System Manager screen calculator, invoke the Help facility, or to shift between different display windows in the same concurrent partition.

It is important to note that if certain system requests (such as those which invoke the calculator, calendar, transfer and picture print facilities) are honoured (e.g. the calculator is on the screen), the program you were running when you made the request stops until you quit the system request. These system requests are marked with an asterisk in the table overleaf. Furthermore, the processing of such system requests involves Global System Manager creating a 31396 byte work-file (named P.OV*xx*, where *xx* are two characters that ensure a unique filename) on the SYSRES sub-volume. If the work file cannot be created (e.g. if there is insufficient free space on SYSRES or there are no more free directory entries) then the system request will not be honoured and the message "REQ. LOAD FAILED" will be displayed on the status line (see Appendix B).

If your keyboard doesn't have a key labelled SYSREQ, the screen information system command, $T (see section 5.42), will describe which key to use to make system requests. Usually this will be the highest numbered function key.

In this chapter we list all the system requests available in alphabetical order and explain what each one does. The following table provides a brief summary.

<SYSREQ>	Effect	Notes
1-9	Switch to the indicated concurrent partition.	
0	Causes the current screen to be redisplayed.	
+	Switch to next higher concurrent partition. For example, <SYSREQ> + in P2 will switch to P3.	
-	Switch to next lower concurrent partition. For example, <SYSREQ> - in P2 will switch to P1.	

=	Switch to previous concurrent partition.	
.	Return to host operating system. This system request is not available on all Global System Manager configurations. For further details, please consult the Global Operating Manual.	
<CR>	Equivalent to <ESCAPE>.	
<SPACE>	Display system request pop-up menu.	1
A	Displays an ASCII to Hexadecimal conversion table.	1
B	Used to establish key translation.	1,2
C	Invokes the calculator facility.	1,2
D	Invokes the calendar facility.	1,2
E	Invokes an end-user system request.	1,2
F	Activates a programmable function (0-9. A-Z)	
G	Equivalent to <CTRL G> (see section 3.3.4).	
H	Invokes the Help facility.	1,2
I	Amends the unit assignment table.	1,2
J	Jot telephone message.	1,2
K	Used to set up the programmable functions.	1,2
L	Shifts display window to the left if in pseudo-wide mode	

M	Causes a temporary status line to be displayed on screens which lack a permanent one, so that you can check which partition you are in.	
N	Read mail system request.	1,2
O	Invokes picture printing utility.	1
P	Prints current screen contents to unit $PR.	1,2
Q	Record/Playback system request.	1
R	Shifts display window to the right if in pseudo-wide mode.	
S	Specify screen reset sequence. This system request is not available on all Global System Manager configuration. For further details, please consult the Global Operating Manual.	1,2
T	Talk to another operator system request. **Important note:** For Global System Manager V8.1 the functionality of <SYSREQ> T has changed. For versions of Global System Manager earlier than V8.1, <SYSREQ> T was the "Display current tasks" system request (see <SYSREQ> ?).	1,2
U	Equivalent to <CTRL U> (see section 3.3.4).	
V	Equivalent to <CTRL V> (see section 3.3.4).	
W	The break function – interrupts running program. Equivalent to <CTRL W> (see section 3.3.4).	1
X	Invokes the screen transfer facility.	1,2
Y	List operator id's and full names.	1,2
Z	Blanks message are/removes message line display.	

*	Specify additional screen reset sequences.	1
?	Display current tasks.	1,2
:	Return diskette unit assignment.	1

Table 4.1 – System Requests

Note-1   These system requests temporarily stop the program running in that partition.

Note-2   These system requests may be selected from the pop-up menu displayed by <SYSREQ> <SPACE>.

4.1   <SYSREQ> 1-9 - Change Partitions

If you press the SYSREQ key followed a number between 1 and 9, Global System Manager will bring to the screen the program currently running in the partition specified. Although it is possible to have up to 9 partitions per screen, in practice you will usually only have three or four at most. If you select the number of a partition which is not actually present, the terminal's bell will sound and the request will be ignored.

When Global System Manager is first loaded the menu program is normally run automatically in all partitions. If you use the SYSREQ key to change partitions, the only visible difference will be the partition number displayed on the screen's status line. However, if you run an application program (e.g. Global Payroll) from the menu in one partition, when you go into another partition the first menu will still be displayed there, and you can select another option from it if you require. Of course, there is nothing to prevent you from running the same program simultaneously in different partitions, provided none of the operations require exclusive use of a particular data file.

For example, you might use partition 1 for word processing, run the Global Sales Ledger in partition 2, run Global Finder in partition 3, and leave the first menu displayed in partition 4. A lengthy process (such as printing or sorting of data) can be run automatically without your intervention, you might swap into another partition to use another program interactively, swapping back to the other partition from time to time in order to check on progress.

Note that a system request to change partitions will not be honoured in certain circumstances. If the request cannot be honoured, or because the partition does not exist (e.g. you keyed <SYSREQ> 5 but only have four partitions), the terminal's bell will sound. Global System Manager V8.1 honours requests to change partitions if you are currently using a system request (e.g. the calculator or calendar).

4.2   <SYSREQ> 0 (ZERO) - Redisplay Current Screen

This system request causes the current screen to be redisplayed. This can be useful if you wish to remove Help text from the screen without having to reply to an outstanding prompt.

4.3   <SYSREQ> +/-/= - Change Partitions

If you press the SYSREQ key followed "+" Global System Manager will switch to the next higher partition. If you key<SYSREQ> + from the highest partition you will be switched into P1.

If you press the SYSREQ key followed "-" Global System Manager will switch to the next lower partition. If you key <SYSREQ> - from P1 you will be switched into the highest partition.

If you press the SYSREQ key followed "=" Global System Manager will switch to the previous partition. Note that partition switches are not stacked so that repeated use of <SYSREQ> = will merely toggle between the current partition and the previous partition.

4.4   <SYSREQ> <SPACE> - Display System Request Menu

This system request displays a pop-up menu which allows most of the other Global System Manager system requests to be selected (see table 4.1). To select a menu entry, use the <CURSOR UP> and <CURSOR DOWN> keys to highlight the required menu entry then key <CR> to execute that function. For example, selecting the "Calculator" entry in the menu is equivalent to keying <SYSREQ> C. Key <ESC> to exit the pop-menu and return from the system request.

Selecting the "User system requests" menu option is equivalent to keying <SYSREQ> E.

The "Extra functions" menu option results in the display of a secondary pop-up menu which allows a User System Request to be selected directly thus avoiding the selection dialogue displayed by <SYSREQ> E. This option is only available if a User System Request menu file ($$UREQM) is present on the SYSRES unit.

4.5   <SYSREQ> A - Display ASCII to Hexadecimal Conversion Table

This system request causes Global System Manager to display a ASCII to Hexadecimal conversion table for programmer reference. The table will be displayed in the top half of the screen if the outstanding prompt is in the bottom half, or vice versa. The facility is particularly useful when setting up escape sequences for printers.

4.6   <SYSREQ> B - Establish Key Translation

Only supervisors are permitted to use this system request. Key translation enables you to generate a sequence of up to 7 characters for a single key on a particular terminal. Thus a single keystroke could invoke the system requests such as help text or the calculator, or could be used to invoke some application dependent function. This is mainly of use with terminals with a number of keys that are not normally used by Global System Manager. Used in conjunction with the function key programmer (see section 4.15) much longer sequences can be built from a single keystroke.

After keying <SYSREQ> B you will receive the following prompt:

```
        Program function keys - Key (C) to continue, <ESC> to exit:
```

Because of the serious consequences that may result from accidental misuse of this system request you must key C to continue. Any other reply (e.g. <u><CR></u> or <u><ESC></u>) will abort the system request immediately.

Once <u>C</u> has been keyed to continue with the system request, the following prompt is displayed:

```
        Select key to be translated, ? to list, E to end
```

If the next keystroke is not ? or E then it will be the key you wish to translate. You will get a warning if the key is already being used by Global System Manager. You will then be prompted for up to 7 characters to which this key is to be translated. The translation sequence is terminated by keying <CTRL G>. The <SYSREQ> key can be included in the translation sequence but it must be keyed twice. After

---

<CTRL G> has been keyed the prompt above is re-displayed. All the keystrokes are displayed in hexadecimal as they are keyed in.

It is possible to input the translation sequence in hexadecimal. If <CTRL A> is keyed, a "#" character is displayed allowing a 2-digit hexadecimal number to be specified. Input continues in hexadecimal mode until the reply to the "#" prompt is either <CR> (terminate translation sequence) or ^A (revert to character mode).

For example, either of the following replies will result in the selection function key being translated to "ABC":

        ABC<CTRL G>
or:
        <CTRL A>#41 #42 #43 #<CR>

To list all the keys currently translated, key ? to the prompt. The keystrokes are displayed in hexadecimal format.

To remove an existing entry, key <CTRL G> instead of the translation sequence. You will then get the prompt:

        Do you want to delete this entry? (Y):

 Key Y to delete the entry for the selected keystroke.

When you have finished adding translations key E. You will then get the prompt:

        Key A to abandon, S to save, <CR>:

Keying A will cancel all the translations made since keying <SYSREQ> B. Keying S will save the translations. Keying <CR> will repeat the "select key" prompt.

The translations will take effect immediately on all the partitions for the user who invoked <SYSREQ> B. It will take effect for other users on the computer with the same terminal type when they next sign-on.

On some terminals there may already be translations set up before <SYSREQ> B is used. These are being used for Global System Manager functions and should not normally be amended.

The translations can be used in conjunction with the function key programmer <SYSREQ> K (see section 4.15) to develop complex application dependent functions invoked at a single keystroke.

4.7 <SYSREQ> C - Invoke the Calculator

The calculator provides the facilities of a four function calculator, but with the great advantage over a pocket calculator that you can pick up columns or lines of figures directly from the screen and return the results of calculations to the program you are currently running.

To invoke the calculator, you press <SYSREQ> C. This causes a window to appear at the top right hand corner of the screen, as in the top illustration on the facing page. The register is initially set to 0, as with a pocket calculator.

4.7.1 Functions

As with an ordinary algebraic calculator, you use the number keys and the decimal point ('.') to input numbers, and the '+', '-', '*', and '/' keys for the four arithmetic functions. The % key works in the same way as on a standard calculator. Use the '=' key or the RETURN function to produce the result of the calculation. Use the CLEAR function (or the 'C' key if not in hexadecimal mode - see section 4.7.5) to zero the register display, and the RUBOUT key to edit or clear the current entry. One level of bracketing is allowed in a calculation, using the round bracket characters '(' and ')'. To enter negative numbers, key the number and use the backslash key '\' to change the sign. To leave the calculator use the 'ESCAPE' function (either <ESC> or <ESC><ESC>, depending on the terminal). There is no constant facility.

4.7.2 Memories
The calculator has ten memories (0-9), of which the first four (0-3) retain their contents within the current partition until you sign off (the remainder are lost when you quit the calculator). Use the 'S' key followed by the memory number to store the number in the register in a memory, and the 'R' key followed by the memory number to recall it later. You may also manipulate the data in a memory directly (without using the 'R' key) by using the sequence 'S'(*operator*)(*memory*). For example, S+0 will add the currently displayed number to the value in memory 0.

4.7.3 Special Functions
The 'Q' key takes the square root of the number in the register. The 'I' key removes all decimal places from the number, and the 'D' key followed by a number from 0 to 7 gives the number to that many decimal places (useful if you want to return the result to your program).

The 'H' key displays help information and the 'W' key toggles the calculator window between the top-left and bottom-right screen positions.

4.7.4 Taking Numbers From the Screen
In addition to its basic functions, the calculator has a number of extended facilities. The cursor may be moved around the screen using the cursor movement keys, and numbers may be picked up from the screen using the following function keys:

F1 puts the number under the cursor or immediately to the right of it into the register, and moves across the screen to the right of the number.

F2 puts the number under the cursor or immediately to the right of it into the register, and moves down the screen to the next line.

Note that if the cursor is in the middle of a number the digits to its left are ignored.
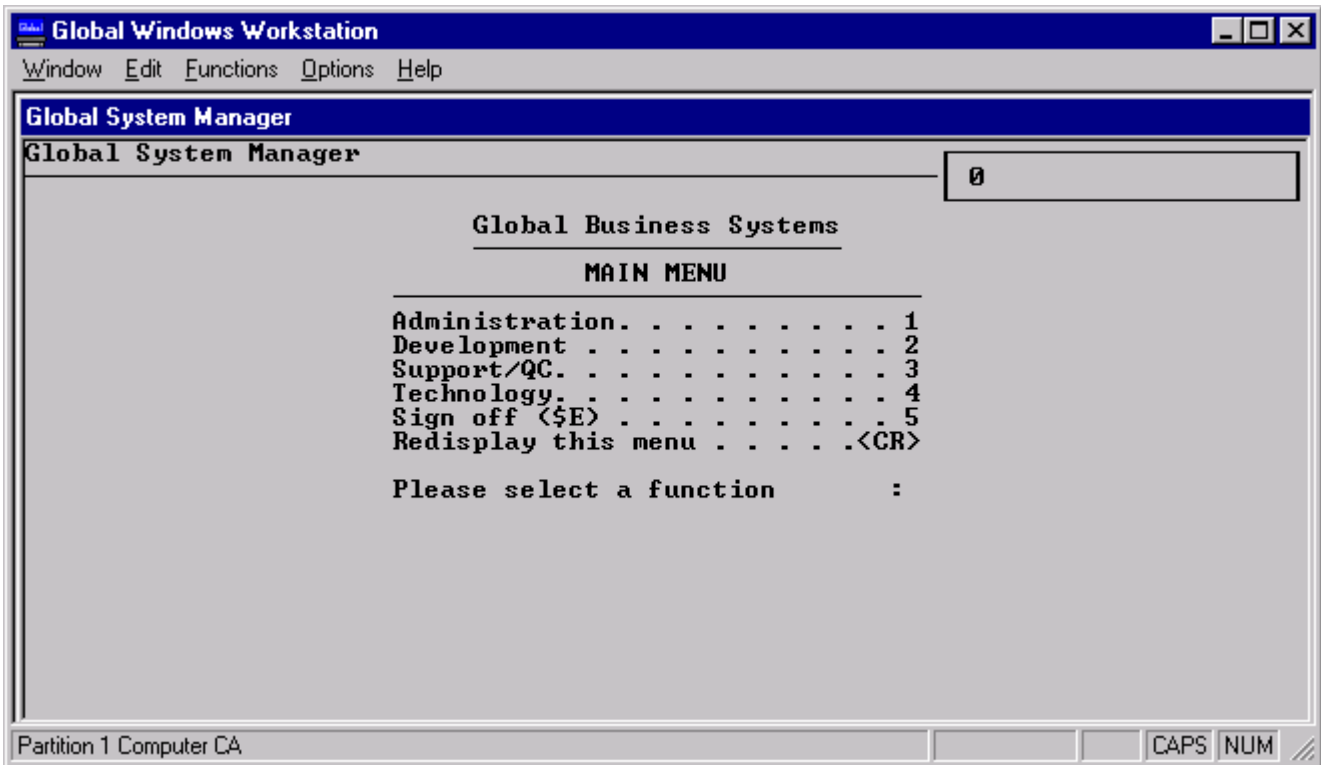
Figure 4.1 – The Calculator invoked from a menu
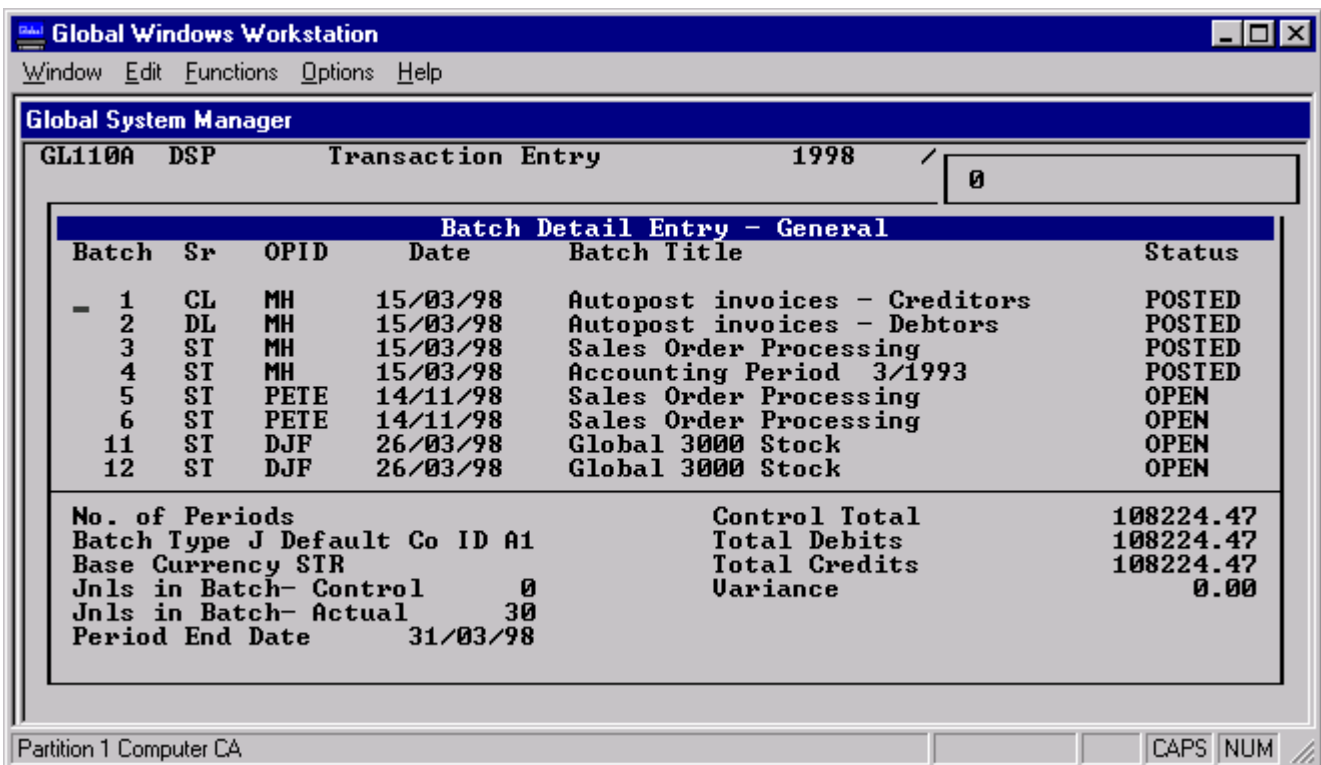
Figure 4.2 – The Calculator invoked from the middle of an application program

Furthermore, the current result displayed by the calculator may be returned as a reply to the outstanding prompt using the following function keys:

F3 returns the answer in the calculator display as the reply to the next prompt (the current prompt if there was one outstanding when the facility was invoked).

F4 returns the answer in the calculator display as the reply to a prompt outstanding in another concurrent partition (and swaps you into that partition). You are prompted for the partition number required.

4.7.5 Modes

The calculator also supports several modes of operation. To change from one mode to another, key 'M' followed by one of the following mode change qualifiers:

A To return the calculator to algebraic mode.

R To change the calculator to operate in Reverse Polish notation. (In Reverse Polish mode, as used on certain Hewlett-Packard calculators, 2 plus 3 is entered as 2, <CR>, 3, +.) In this mode the RETURN function acts as an enter key, and there is a stack of 4 registers with automatic duplication of the top entry. The 'U' key rolls the stack and the 'Y', 'Z' and 'T' keys exchange the visible (X) register with the Y, Z, or T register as appropriate (registers are labelled conventionally as X, Y, Z, T).

D To return the calculator to decimal numeric mode.

H To place the calculator into hexadecimal arithmetic mode (any decimal fractions will be truncated when this mode is entered).

+,- To indicate that numbers read from the screen are to be added to or subtracted from the register. The + mode is particularly useful for totalling columns of figures in conjunction with the <F2> key.

* To indicate that numbers read from the screen are to be multiplied with the value in the register. Note that in this mode clearing the register sets its value to 1, rather than 0.

= To return the calculator to the mode where numbers read from the screen are placed in the register.

K Enable "Totalling mode". In this mode numbers entered or read from the screen using the <F1> or <F2> keys are added to the totaliser. The following sub-modes can be used to display details from the totaliser:

  K Clear the totaliser.

  N Display the number of values currently in the totaliser.

  V Display the total of values currently in the totaliser.

  A Display the average of the values currently in the totaliser (i.e. V/N).

The mode selected is displayed in the register display (a box at the top right hand corner of the screen), which is restored when the next operation is performed. Use '=' or '?' to restore the value in the display.

4.8 <SYSREQ> D - Invoke the Calendar Facility

The <SYSREQ> D system request causes a calendar to be displayed in a window at the top or bottom of the screen, depending on where the outstanding prompt is. Initially, the calendar shows the current month, with the cursor on the current date. However, an extensive range of functions allows you to display a calendar for every month from January 1063 to December 2699. You can move the cursor to different days within a month, or backwards or forwards in time by a specified number of days, and you can return the date under the cursor as a reply to the outstanding prompt (or into a word processing document) in three different formats.

The following functions are available:

F1   returns the cursor to the outstanding prompt, leaving the calendar display on the screen for reference purposes. It will be cleared automatically when you reply to the outstanding prompt, or if you key <SYSREQ> 0.

F2, F3, F4   return the date under the cursor as a reply to the outstanding prompt. The different functions select different formats for the reply:

F2   *dd/mm/yy*, e.g. 24/06/87

F3   *dd/mm/yyyy*, e.g. 24/06/1987

F4   *dd month yyyy*, e.g. 24 June 1988.

<CR>   displays a calendar for the following month, with the cursor on the current day number.

CURSOR RIGHT   displays a calendar for the following month, with the cursor on the current day number.

CURSOR LEFT   displays a calendar for the previous month, with the cursor on the current day number.

CURSOR UP   displays a calendar for the current month next year, with the cursor on the current day number.

CURSOR DOWN   displays a calendar for the current month last year, with the cursor on the current day number.

TAB   moves the cursor to the next day.

BACKTAB   moves the cursor to the previous day.

HOME   takes you back to today's date, whatever date is currently displayed.

+n   (followed by <CR>) adds the required number of days to the date, and displays the calendar for the appropriate month (if different from the current month) with the cursor on the new date.

-n   (followed by <CR>) subtracts the required number of days from the date, and displays the calendar for the appropriate month (if different from the current month) with the cursor on the new date.

n   (where *n* is any number between 1 (or 01) and 31) puts the cursor on the required date in the current month.

4.9   <SYSREQ> E - Invoke End-user System Request

The <SYSREQ> E system request allows you to run an end-user system request (e.g. Global Organiser Notepad or the Sales Suite product search). Key <SPACE> to the SYSTEM REQUEST: prompt to obtain a full list of the end-user system requests that are available on your system.

4.10 <SYSREQ> F - Invoke Programmed Function

To use a function key which you have programmed using the <SYSREQ> K system request (see section 4.15), simply key <SYSREQ> F followed by the required key (0-9, A-Z). Note that upper and lower case letters can be used interchangeably.

On many terminals a single key will generate the sequence <SYSREQ> F. Use the $T system command (see section 5.42) to determine if this is the case for your keyboard.

4.11 <SYSREQ> G - Application Dependent Planned Interrupt

The <SYSREQ> G system request is identical in effect to keying <CTRL G>, which causes an application-dependent planned interrupt.

4.12 <SYSREQ> H - Invoke the Help Facility

The <SYSREQ> H system request is used to display on the screen context-sensitive Help information. Broadly speaking, this falls into two categories.

Help information relating to Global System Manager utilities (such as the spooler, or $STATUS) or to Global System Manager messages (particularly I/O error messages) is held in a file called S.$HELP on SYSRES. Pressing <SYSREQ> H causes Help text relating to the utility or message currently on the screen to be read from this file and placed in a window on the screen. In particular, all Global System Manager I/O error messages (for example, * NOT READY ERROR ON 5" DISKETTE DRIVE - 150 * RETRY?:) have associated Help text to clarify what the problem is, while pressing <SYSREQ> H at the menu selection prompt or the READY prompt will cause a Help menu to be displayed, from which you can obtain help relating to all the system commands and requests. Normally the Help window will disappear as soon as you reply to the outstanding prompt, but you can also clear it from the screen by keying <SYSREQ> 0. An option in $CUS allows you to specify that Help text is to be displayed automatically whenever an I/O error occurs. See section 6.1.2.5 for more details.

Help text relating to individual application programs is held in a separate file for each application. You should consult the user manual for the application in question as to whether Help is available.

If you press <SYSREQ> H but the appropriate Help file cannot be found (e.g. because it has been deleted), the terminal's bell will sound and the request will be ignored.

On many terminals a single key will generate the sequence <SYSREQ> H. Use the $T system command (see section 5.42) to determine if this is the case for your keyboard.

4.13 <SYSREQ> I - Unit Assignments

This system request provides a means of changing non-critical unit assignments without recourse to $A. Note that the following logical units cannot be changed using this system request: $CP, $DP and $P.

The system request initially displays the current unit assignment table and then prompts you for a unit. To redisplay the assignments currently in force, key the single character ? in response to the unit prompt.

4.13.1 Making an Assignment

To make an assignment you must key the unit-id followed by the unit address. For example:

```
        Unit: PRD Address: 206
```

assigns 'logical' unit-id PRD to the 'physical' address 206, overriding any previous assignment of PRD. The logical unit-id cannot be of the same form as a valid physical unit address (i.e. it cannot take the form *nnn* or *xnn*).

If you attempt a new assignment when there is no room left in the assignment table the following error message is displayed:

```
        ASSIGNMENT TABLE FULL
```

No assignment is made and you must delete an existing unwanted assignment before you can add a new one. Up to 29 assignments can be held in the table.

4.13.2 Deleting Assignments

To delete an assignment you must key the unit-id you wish to remove in response to the unit prompt and key <CR> in response to the subsequent address prompt. A deletion request is always followed by a new unit prompt. If the unit-id you specified was not actually assigned, the tables will remain unchanged.

4.14 <SYSREQ> J - Jot Telephone Message

This system request is used in conjunction with the $MAIL system command (see section 5.27) and <SYSREQ> N (see section 4.18). <SYSREQ> J allows an operator to add a telephone message to the Global System Manager mailing system.

When <SYSREQ> J is invoked, the screen is cleared and a standard Telephone Message form is displayed. Your operator-id, and the current date and time are automatically included in the telephone message. The following details may be specified:

● Message recipient. A message recipient MUST be specified;

● The message may be flagged as "private" in which case only the actual recipient will be allowed to read the message. If the message is not private, any other operator who has access to the recipient's mailbox may read the telephone message;

● Up to 5 lines of message may be specified. Each line may be up to 70 characters in length;

● Details of the caller may be specified (including a phone number and a fax number);

● A number of standard attributes may be may be indicated. For example, the message may be marked as "urgent".

Once the form has been completed, key <ESC>. This will result in the following baseline message:

```
        Key A to amend, P to print, <CR> to send, <ESC> to abandon
```

After the message has been sent to the specified user another form is displayed to allow a subsequent message to be taken.

4.15 <SYSREQ> K - Program Function Keys

Only supervisors are permitted to use this system request. Function key programming enables you to generate a long sequence of keystrokes by using just two or three. This can be valuable if you need to key the same sequences regularly, or if a particular sequence is needed repeatedly during a session.

Global System Manager provides two system requests relating to function key programming: <SYSREQ> K is used to define up to 36 function keys you require (A-Z, 0-9), and <SYSREQ> F is used to invoke them.

Function key definitions are held in a file or files on unit $M (SYSRES on single and multi-user computers, SYSRES on the master computer in networked systems). Separate files can be defined for particular operators, as well as a common file for use by operators who do not have a personal file defined for them.

4.15.1 Defining/Listing/Amending/Deleting Function Keys

To define a function key, use the <SYSREQ> K system request. You are then prompted:

```
Select function key to be programmed (A-Z,0-9),? to list,<ESC> to finish
```

Key a suitably mnemonic character for the function you require, and you are prompted:

```
Now type the keys to be programmed for function key x, key <CTRL G> to finish
```

where x is the key you supplied to the first prompt. You should now enter the sequence of keystrokes required: these can include <CR>, <ESC>, F1 etc, but not interrupt keys or system requests. As you key them in they are shown on the screen: those key depressions (such as <CR>) which do not normally cause a character to be displayed are represented by a full stop (period). Note that you **cannot** use the editing keys, and that the maximum length allowed is 64 key depressions. You end the sequence by keying <CTRL G> - **not** <CR> as that would be interpreted as part of the sequence.

If the error message:

```
INSUFFICIENT SPACE TO PROGRAM THIS KEY.
```

appears, it indicates that the key definition you were defining would cause the total size of the function key definition file to exceed the function key buffer length defined for this terminal. The key remains undefined (or any previous definition stays unchanged). You can use the $CUS Configuration Maintenance option to increase the size of the buffer (see section 6.1.5.1).

To list the function keys currently defined, key ? to the prompt. The keys are listed together with the corresponding sequences of key depressions, and the prompt is repeated.

If you wish to amend a function key definition you should select it for programming and type in a new sequence of key depressions. You cannot field-edit an existing definition.

If you wish to delete a function key definition you should select it for programming and simply key <CTRL G> to the 'Now type the keys' prompt.

You are then prompted for the next key to be programmed. When you have finished, press <ESCAPE>, and you are prompted:

```
    Key Temporary override, Personal save, General save
```

4.15.1.1 Temporary Override
Key T to indicate a temporary override. This option updates the function key definitions in memory only; they will be lost when you sign off, as they are not written to disk. Use this option if you wish to set up one or more function keys for use only during a particular session.

4.15.1.2 Personal Save
Key P to indicate a personal save. This option creates a file of function key definitions for your own personal use, which will have the name $$FK*opid* where *opid* is the operator-id you gave when you signed on. You will only be able to use it in future if you use the same operator-id when signing on.

4.15.1.3 General Save
Key G to indicate a general save. This option creates a new file ($$FK) of function key definitions for use by operators on this computer or network of computers who do not have their own personal files defined. It is important to note that if you signed on using your own operator-id, and have your own file of function keys defined, it is this file (plus any changes you have made to it) which will be saved for general use. You may want to use a different operator-id when signing on before you update the function key definitions for general use.

Important note: You cannot abandon the process and thus cancel any changes. If you have made an error you should use the Temporary override option, and then sign off and on again. In this way the erroneous function key definitions will not be written to a file on disk.

4.15.2 Using Function Keys
To use a function key which you have programmed, simply key <SYSREQ> F (see section 4.10) followed by the required key. Note that upper and lower case letters can be used interchangeably.

On many terminals a single key can be made to generate the sequence <SYSREQ> F - by using the key translation (<SYSREQ> B) described in section 4.6.

4.16 <SYSREQ> L - Shift Display Window to the Left
Most computer screens can only display 79 or 80 columns horizontally at a time. However, in a number of applications (in particular, word processing of wide documents) it is useful to have the option of wider 'logical' displays of up to 192 columns. This is known as 'pseudo-wide' display mode, to distinguish it from the genuine wide display obtainable on some screens (normally this is achieved by a smaller, horizontally compressed character set being used).

In such cases, Global System Manager displays the 79 or 80 columns around where the cursor is currently positioned, but by using the <SYSREQ> L and R system requests (repeatedly if necessary) you can shift the display 50 or so columns to the left or right at a time. The request will be ignored if the screen is not in pseudo-wide mode. If the screen is already at the leftmost display window, the rightmost display window is shown.

4.17 <SYSREQ> M - Display Temporary Status Line
Most screens have a Status Line, a one line area at the top or bottom of the screen on which is shown the current partition number (and, on a network, the computer identification letter or number). Messages from other users also appear on the status line.

However, some serial screens cannot display a permanent status line. On such screens the status line will only appear if another user sends you a message, or if you use the <SYSREQ> M system request to cause a temporary status line to be displayed in order to find out which partition you are in. The status line will overwrite the top line of the screen, and can be cleared by use of the <SYSREQ> Z system request (see section 4.30).

4.18 <SYSREQ> N - Read Mail System Request

The <SYSREQ> N system request invokes the Global System Manager electronic mail system in a "read-only" mode. When <SYSREQ> N is invoked, the following base-line message is displayed:

        Mailbox, Telephone, Group, Computer, Broadcast, <ESC> to exit

On some Global System Manager configurations the base-line message will be:

        Mailbox, Telephone, Group, System, Broadcast, <ESC> to exit

Key M to read the contents of your mailbox, one item at a time starting from the most recent. Only unexpired mail messages that are marked as not being read are displayed by this system request.

Key T to read the telephone messages that have been sent to you, one item at a time starting from the most recent. Only those telephone messages that are marked as not being read are displayed by this system request.

Key G to read group mail messages. You will be prompted for the name of a mail-group. You must be a member of the specified group. Only those group messages that are marked as not being read by you are displayed by this system request.

Key B to read all unexpired broadcast messages.

Key C (or S) to read all unexpired computer (system) messages.

4.19 <SYSREQ> O - Invoke Picture Print Utility

The <SYSREQ> O system request is for use mainly by program developers when creating documentation of their products. Essentially, it is used to create a set of screen dumps in print file format. It was used to create the screen pictures in this manual.

On keying <SYSREQ> O, you are prompted for the name and unit address of *a picture file*, to which the screen images you select will be printed. If you key <CR> to both prompts a file called D.$PIC is created on unit $PR. You should specify a Global Writer archive unit if you wish to convert the picture file into a word processing document. Key <ESCAPE> to either prompt to quit without creating a picture file.

You are then prompted for a *reference*; this is a description, up to 60 characters long, which will be printed at the top of the screen image for reference purposes.

Finally, you are prompted for the character to be used to represent the cursor. The default if you press <CR> to the prompt is #5F, the underline character, but you can key any other character you wish to be used, or a 2 figure hexadecimal value if (for example) your printer has a block character you wish to use.

When you have replied to this prompt, a file of the maximum possible size is created on the unit specified, and the current screen image is written to it in print file format. Note that + signs are printed at the four corners of the screen image for alignment purposes.

The process is repeated when you next key <SYSREQ> O, but you can specify the name and unit of an existing picture file if you wish the current screen image to be added to others already there.

4.20 <SYSREQ> P - Print Current Screen Contents to Unit $PR

The <SYSREQ> P system request is used to print the current screen image to unit $PR. This has a number of uses. In particular, obtaining hard copy of an enquiry screen if no comparable feature exists within the program you are using.

If $PR is assigned to a real printer (i.e. a unit address in the range 500-599) the screen image is printed immediately. If $PR is assigned to a spool unit, the resulting print file will be treated like any other. If $PR is assigned to any other disk unit, the screen image can be printed out using the $PRINT system command. If $PR is assigned to a Global Writer archive unit, the print file can be converted into a Global Writer document. $PR can be reassigned temporarily using the <SYSREQ> I system request (see section 4.13), the $A system command (see section 5.1), or permanently using the $CUS Permanent unit assignments option (see section 6.1.2.8), but these assignments will be overridden if $PR is assigned explicitly by the menu entry for the application you are currently running.

If box or line drawing characters are not printed correctly, you may need to use $CUS to set up the appropriate printer translations. Under Global System Manager V8.0, and later, screen windows displayed by other system requests such as the calculator or calendar are treated as part of the screen image and are not ignored.

4.21 <SYSREQ> Q - Record/Playback Initiation

This system request is used in conjunction with $RCP, the record/playback handler, to record keystrokes typed in on the keyboard and to subsequently play them back to repeat the original processing. $RCP and <SYSREQ> Q are fully documented in section 5.32.

4.22 <SYSREQ> R - Shift Display Window to the Right

The <SYSREQ> R system request causes the display window to shift to the right in a pseudo-wide screen display (the request will be ignored if the screen is not in pseudo-wide mode). If the screen is already at the rightmost display window then display will be shifted to the leftmost window. See <SYSREQ> L (section 4.16) for a full account of pseudo-wide screen handling.

4.23 <SYSREQ> S - Specify Screen Reset Sequence

This system request is only available on Global System Manager (Unix) configurations and is fully documented in the Global Operating Manual (Unix).

4.24 <SYSREQ> T - Talk to Another Operator

Important note: For Global System Manager V8.1 the functionality of <SYSREQ> T has changed. For versions of Global System Manager earlier than V8.1, <SYSREQ> T was the "Display current tasks" system request (see <SYSREQ> ?).

<SYSREQ> T allows two operators on the same computer or network to converse electronically. The following initial baseline message is displayed:

```
     Key Start conversion, Join conversion, <ESC> to exit
```

Key <u>S</u> to start a conversion with another operator. When this option is selected you must specify the operator-id of the person you wish to have the conversion with. For example:

```
Operator-id of user to converse with ALAN
```

Once the target operator has been specified, the message "Talk started by *xxxx*" will be displayed on the status line of their screen and the system request will wait for that operator to respond:

```
Waiting for ALAN - Key <CTRL G> to abandon . . .
```

If the target operator does not respond, key <CTRL G> to abandon the conversation and exit from the system request.

The target operator must respond by keying <SYSREQ> T, selecting to join a conversation and specifying the operator-id of the person initiating the conversation.

When two operators have formed a two-way communication link (using <SYSREQ> T) they can indulge in a half-duplex conversation. While one operator is waiting for a message the other operator can use the standard text edit commands (see section 5.45) to update their section of the dialogue screen.

When the text-area update is complete (by keying <ESC> in text-edit mode) the ENTIRE message (consisting of up to 8 lines of 70 characters) is sent to the other operator. Note that individual characters or lines of the message are NOT sent to the other operator while it is being edited.

To terminate the conversion while in "transmit" mode, key <u><F3></u> followed by <u>1</u>. To terminate the conversion while in "receive" mode, key <u><CTRL G></u>.

4.25 <SYSREQ> U - Clear Type-Ahead Buffer
The <SYSREQ> U system request is identical in effect to keying <CTRL U> (see section 3.3.4). It clears the type-ahead buffer which holds keystrokes which you have typed ahead in anticipation of a prompt which has not yet appeared.

4.26 <SYSREQ> V - Software CAPS Lock
The <SYSREQ> V system request is identical in effect to keying <CTRL V> (see section 3.3.4). It acts as a software CAPS LOCK if your terminal does not contain a special CAPS LOCK key.

4.27 <SYSREQ> W - The Break Function
The <SYSREQ> W system request is identical in effect to keying <CTRL W> (see section 3.3.4). It acts as a break function, used by programmers to interrupt a running program.

4.28 <SYSREQ> X - Invoke Transfer Facility
The <SYSREQ> X system request is used to transfer blocks of text from one partition to another. A typical use might be copying names and addresses from a ledger enquiry screen in one partition into a word processing document or other application program in another.

To invoke the transfer facility, key <SYSREQ> X at any outstanding prompt. The message:

```
Move cursor to start, key F1
```

appears on the status line, or on the top line of the screen if there isn't a permanent status line. Move the cursor to the first character you wish to transfer (e.g. the top left hand corner of a block of text) and key F1. Note that to move the cursor more rapidly around the screen you can use the TAB and BACKTAB keys to move in steps to the right or left, and that the cursor movement keys wrap the cursor round the four sides of the screen. Thus you can move (for example) from the bottom right hand corner to the top left by a single key depression.

You are then prompted:

```
    Move cursor to end, key F1
```

Move the cursor to the last character you wish to transfer and key F1. The number of characters you can transfer from each line is limited by the size of the type-ahead buffer. This is normally 100 characters, but can be increased using $CUS Configuration Maintenance (see section 6.1.5.1). The last character to be transferred cannot be above or to the left of the first character to be transferred.

When you key F1 to indicate the end of the text you wish to transfer, the message:

```
    Send to partition?
```

appears on the status line (or on the top line of the screen if there isn't a permanent status line). Key the number of the partition to which you wish to transfer the text.

If the partition you specify does not exist, the terminal's bell will sound and the prompt is repeated.

Provided the partition specified exists and is in a state to receive a reply (i.e. you have not already started replying to the outstanding prompt) you are swapped into that partition and the text is supplied as a reply to the outstanding prompt; you will still normally need to enter it using the <CR> key.

If the outstanding prompt in the partition specified is not in a state to receive a reply, the following message will appear:

```
    UNABLE TO SEND - <CR> TO RETRY
```

You will have to swap into the partition specified and rectify the problem (perhaps by using <RUBOUT> or <CURSOR UP>) before swapping back into the partition from which you are sending text and keying <CR> to try again.

To quit the transfer facility without transferring text, key<ESCAPE> at any point.

4.29 <SYSREQ> Y - List Full Operator-id Details

The <SYSREQ> Y system request displays the full operator-id information from the $$OPID file established by the $OPID utility. The following information is displayed:

● 4 character operator-id;

● 35-character operator long description;

● 15-character operator details.

The following commands can be used to select an item from the operator-id list (key <u>H</u> to display a Help box):

CURSOR UP   select previous entry in list

CURSOR DOWN   select next entry in list

B   display previous page (i.e. back one page)

N   display next page

S   select operator-id of page start

When the desired entry from the operator list has been selected, the following actions are allowed:

F1   returns the 4-character operator-id to the outstanding prompt and exits the system request

F2   returns the 35-character operator long description to the outstanding prompt and exits the system request

F3   returns the 15-character operator details text to the outstanding prompt and exits the system request

<ESC>   Exits the system request

Note that the list of operators displayed by <SYSREQ> Y has no relationship to the list of operators actually signed on to Global System Manager (displayed by $STATUS and $M, for example).

4.30 <SYSREQ> Z - Remove Message/Display Temporary Status Line

Most Global System Manager screens have a Status Line, a one line area at the top or bottom of the screen on which is shown the current partition number and, on a network, the computer identification letter or number. Messages sent by other users also appear on the status line.

Some serial screens cannot display a permanent status line. On such screens messages from other users cause a temporary status line to overwrite the top line of the screen.

The <SYSREQ> Z system request is used to blank out the message area on terminals which have a permanent status line, or to remove a temporary status line on terminals which do not have a permanent one. In the latter case, the operator can cause the status line to be redisplayed (in order to find out which partition is on the screen) by using the <SYSREQ> M system request (see section 4.17).

4.31 <SYSREQ> * - Send Screen Reset Sequences

<SYSREQ> * allows you to customise two sets of screen reset sequences. Furthermore, this system request allows you to send either sequence directly to the terminal. These sequences can be used for resetting a screen that is being switched between Global System Manager and another operating system (e.g. Unix) by, for example, a T-switch.

When <SYSREQ> * is invoked, the following base-line message is displayed:

```
In-sequence, Out-sequence, <CR> to exit
```

Key I to send the "in-sequence". Key O to send the "out-sequence". Note that the "in" and "out" descriptions are purely arbitrary and merely serve to distinguish between the two sets of character-strings. It is expected that one string will be sent just before switching out from Global System Manager and the other, complementary string, will be sent immediately after switching in to Global System Manager.

To customise either string terminate the reply of I or O with <CTRL A> instead of the normal <CR> terminator. When customising a sequence you will enter the basic text editor (see section 5.45) which allows you to specify up to 99 lines of hexadecimal characters. By convention, the first line of the text file (named $$SC*oooo*, where *oooo* is the operator-id) is reserved as a comment line (indicated by the '*' character) including the current operator-id.

4.32 <SYSREQ> : - Convert Diskette Format Code to Unit Number

This system request simply converts a diskette format code (e.g. O2A) to a unit number (e.g. 140) and returns the 3 digit number to the outstanding accept.

4.33 <SYSREQ> ? - Display Task Information

Important note: For Global System Manager versions prior to V8.1 the functionality of <SYSREQ> ? was included in the <SYSREQ> T system request.

This system request displays the tasks active in all the partitions for this user. The name of the program running is displayed or the name of the application if a standard application is being used e.g. Global Writer. The cursor is placed over the current partition. To switch to a different partition use the <CURSOR UP> or <CURSOR DOWN> keys to place the cursor on the partition required and key <CR>.

5. System Commands

Global System Manager provides two different kinds of utilities: System commands and system requests. System requests (which enable you to change partitions, invoke the calculator or calendar facilities, etc.) are explained in Chapter 4.

Typical system commands enable you to copy files, send messages to other users, or find out what units are attached to your computer. You run a system command (or 'utility program') by keying its name ($F, $U etc.) to the menu selection prompt ("Please select a function") or ready prompt. The command name can be typed in lower or upper case letters. The program requested is then loaded into the current partition's memory bank and executed.

In this chapter we list in alphabetical order all the system commands available, with detailed operating instructions for those commands not covered in a separate chapter in this or another Global manual. The table overleaf gives references to the manual where each system command is documented.

We recommend that you run $S, $T and $U to obtain printouts describing your system, your screen(s) and the units supported by your computer. These can be used to make up a information file for your particular installation, which will be useful if you need to reinstall Global System Manager or modify it.

Table 5.1 summarizes the command programs available in Global System Manager. References in the form SM-5, SM-6, SM-7 and SM-8 are to the chapter in this manual where the command is covered in most detail. "UM" refers to the Global Utilities Manual. "TA" refers to the Global Tape Utility ($TAPE) Manual. "CL" refers to the Comms Support Pack documentation. References in the form OM-2 and OM-4 refer to the indicated chapter in the Global Operating Manual (the exact function of utilities documented in the Global Operating Manual depends on the operating system that is hosting Global System Manager).

COMMAND	FUNCTION	REFERENCE
$A	Inspect, amend and purge unit assignments	UM
$AUTH	Create/modify table of authorized users	SM-6
$BYE	Terminate Global System Manager	OM-4
$C	Clear screen	UM
$CALC	Calculate IS file/sort space requirements	UM
$CATAL	Create, maintain catalogue files	UM

$CONV	File creation/conversion	UM
$CUS	Modify installed Global System Manager	SM-6
$D	Display/modify system date and time	UM
$DIAL	Comms Support Pack dial utility	CL
$DIR	Directory Utility	UM
$DIRP	Extended directory utility	UM
$DIRCUS	$DIRP customisation utility	UM
$DLIB	Data Library Maintenance utility	UM
$E	Operator sign off	OM-4
$EXEC	Automatic program execution	UM
$F	File maintenance utility	UM
$FCOMM	Comms Support Pack file transfer utility	CL
$FIND	Find file or volume	UM
$GROUP	Maintain Group file	UM
$INSOFT	Install application software	OM-2
$INSPECT	Inspect text and print files	UM
$L	Display/print hexadecimal file dump	UM

$LIB	Library maintenance utility	UM
$LIBM	Library merge utility	UM
$LOG	Event logging utility	UM
$M	Send messages to other users	UM
$MAIL	Electronic mail utility	UM
$MH & MN	Menu handler and menu maintenance	SM-7
$OPID	Maintain operator-id file	UM
$P	Advance the printer	SM-5
$PRINT	Print/display files	UM
$RCP	Record/playback utility	SM-5
$REMOTE	Non-networked file transfer utility	OM-4
$REORG	Reorganise domain or volume utility	OM-4
$RESTORE	Restore files from backup copies	UM
$S	Display/print system information	SM-5
$SAVE	Backup data from hard disk to diskette	UM
$SORT	RS file sort utility	UM
$SP	Spooler utility	SM-8

$SPOOL	Start spooler command	SM-8
$SPS	Check spooler status (spooler scheduling)	SM-8
$STATUS	Control multi-user system or network	UM
$T	Display/print terminal information	SM-5
$TAPE	Streaming tape backup/restore utility	TA
$TDUMP	Tape backup/restore utility	OM-4
$TED	Text edit utility	SM-5
$U	Display/print unit information	UM
$USAGE	Display file control block usage utility	UM
$V	Volume maintenance utility	OM-4
$VOL	List volume directory utility	UM
$VOLSAV	Save/restore domain layout utility	UM
$ZAP	Apply software fix	SM-6

Table 5.1 – Global System Manager Commands

5.1 $A - Inspect, Amend and Purge Unit Assignments

In Chapter 2 we referred to the process of unit assignment by means of which Global System Manager and application programs map the unit-ids they use internally onto the unit addresses of the peripherals actually attached to your computer.

The assignments of unit addresses to unit-ids set up at installation or by the menu program are held in a separate table for each partition. The table can be inspected, amended or purged at any point by running command $A. We suggest that to help familiarize yourself with Global System Manager you run $A at first simply to inspect the current table of unit assignments, as follows:

```
Please select a function: $A
........
........ (list of unit-ids, together with their
........ corresponding unit addresses, appears)
........
UNIT:<ESC>
```

You can also use this command to add, modify, delete or purge assignments. The same techniques are used as when updating the unit assignments in a menu entry (see section 7.2.1.11). For a full description of $A, please consult the Global Utilities Manual.

5.2 $AUTH - Create/Modify Table of Authorized Users

For a full description of $AUTH, see section 6.3 of this manual.

5.3 $BYE - Terminate Global System Manager

For a full description of $BYE, please consult the Global Operating Manual.

5.4 $C - Clear Screen

$C is used to clear the screen, restore the cursor display and re-establish normal brightness - useful if a program error has led to a garbled display. For a full description of $C, please consult the Global Utilities Manual.

5.5 $CALC - Calculate IS File/Sort Space Requirements

$CALC allows you to calculate the space requirements of indexed sequential files and sort programs. For a full description of $CALC, please consult the Global Utilities Manual.

5.6 $CATAL - Create/Maintain Catalogue Files

$CATAL is used to create and maintain special files known as catalogues. These contain records of file locations which can be accessed by programs at run-time. For a full description of $CATAL, please consult the Global Utilities Manual.

5.7 $CONV - File Creation/Conversion

$CONV can create empty files, or convert a file of one type into another. For a full description of $CONV, please consult the Global Utilities Manual.

5.8 $CUS - Modify Installed Global System Manager

$CUS is used to modify Global System Manager after it has been installed. Its uses include setting up printers, altering memory allocation, enabling authorization checking and customization of colour usage. For a full description of $CUS, see section 6.1 of this manual.

5.9 $D - Display/Modify System Date and Time

When you sign on Global System Manager, you are asked to key in the date and time. The date and time are then passed on to applications and utilities for screen displays or printing in reports.

The $D system command can be run in mid-session to check that the date and time are correct, and to change them if they are not. $D only affects the date and time for a single partition. Any changes to the date and/or time **may** be lost when the operator signs out using $E (see the Global Utilities Manual for further details).

For a full description of $D, please consult the Global Utilities Manual.

5.10 $DIAL - Comms Support Pack Dial Utility
$DIAL is used to establish a communications link for the Comms Support Pack. For a full description of $DIAL, please consult the Comms Support Pack Notes and Comms Support Pack Manual.

5.11 $DIR, $DIRP - Directory Utilities
$DIR and $DIRP are used to manipulate files in a directory. For a full description of $DIR and $DIRP, please consult the Global Utilities Manual.

5.12 $DIRCUS - $DIRP Customisation Utility
$DIRCUS is used to customise the functionality of the $DIRP utility. For a full description of $DIRCUS, please consult the Global Utilities Manual.

5.13 $DLIB - Data Library Maintenance Utility
$DLIB is used to inspect, create or update data libraries. For a full description of $DLIB, please consult the Global Utilities Manual.

5.14 $E - Operator Sign-off
The $E system command is used by operators to sign off their screens. For a full description of $E, please consult the Global Operating Manual.

5.15 $EXEC - Automatic Program Execution
$EXEC is used to schedule and run programs automatically. For a full description of $EXEC, please consult the Global Utilities Manual.

5.16 $F - File Maintenance Utility
$F is used to list, copy, rename and delete files. When you run $F you are first prompted for the addresses of the units you are copying from and to; these are known as the *input* and *output* devices. Any valid address of a direct access device can be supplied, including addresses of hard disk drives, diskette drives or RAM disks on other computers linked to your own via a network. Thus, to copy a file from a diskette on computer Z to the RAM disk on computer G you might proceed as follows:

```
Please select a function: $F
$66 INPUT DEVICE: z50
$66 OUTPUT DEVICE: g09
$66 FILE MAINTENANCE
:
```

Note that you can also supply unit-ids to the device prompts, in which case Global System Manager will translate them into the appropriate unit addresses.

You may wish to perform a $F function (e.g. listing the contents of a volume) on one disk only: in that case give its address to the input prompt and key <CR> to the output prompt.

5.16.1 The Instruction Codes
When you have replied to both prompts the file maintenance prompt appears with a colon on the following line - indicating that further input is required. At this point you can key a 3-character code to perform a particular function, <CR> to return to the input and output prompts if you want to change them, or <ESC> to return to the ready prompt.

There are in fact some 58 different instructions available under $F; in the table below we list the 22 you are most likely to need to use, and in the rest of this chapter we will take you through the basic functions. We suggest that if you need to perform more complicated operations you should consult the Global Utilities Manual, which gives a complete description.

INSTRUCTION	FUNCTION
<CR>	Change input and output addresses
<ESC>	Leave $F and return to menu or ready prompt
LIS	Lists the contents of a volume on the screen
PRI	Prints a list of the contents of a volume
BAC	Copies all files from one volume to another
REP	Replicates input volume on output, track by track
SAV	Saves input volume as a single file on the output volume
RES	Restores the "saved" volume on the input
PRO	Sets scratch protection on output volume
REL	Releases scratch protection on output volume
PFI	Sets scratch protection on output file
RFI	Releases scratch protection on output file
CON	Condenses the output volume
COP	Copies specified files from one volume to another
MOV	Copies specified files and deletes them from the input volume
DEL	Deletes specified files on output volume
CFI	Compares "namesake" files on input and output volumes
REN	Renames files on the output volume
CHA	Changes the name of the output volume
VFI	Verifies specified output files
VER	Verifies output volume
DES	Amend volume description on output unit

Table 5.2 – Common $F Instructions

5.16.2 Listing the Contents of a Volume (LIS and PRI)

Before you copy data to or from a disk you may want to check what you have on it or how much spare space there is. These details are held in the volume directory, which can be displayed on the screen using the LIS instruction or printed out using PRI. You should proceed as follows, supplying the appropriate unit addresses for your purpose:

```
Please select a function:$F
$66 INPUT DEVICE:100
$66 OUTPUT DEVICE:101
$66 FILE MAINTENANCE
:LIS (or PRI) INPUT OR OUTPUT?:I (or O)
```

A list of the contents of the input or output volumes will appear on the screen or be printed, according to your replies.

The listing will show the name of the volume, with a separate line for each file giving the date of its creation, its size and type. The file type is given as a two letter code, the most common being PL (for program files or libraries), IS (for indexed sequential files) and RS (for relative sequential files, including print files). A complete list is given in the Global Utilities Manual.

The amount of spare space in the volume and the size of the largest unused area are also listed. If there is a substantial difference between the two figures you may need to use the CON instruction (see section 5.1.6.6).

5.16.3 Backing Up Diskettes (BAC, REP, SAV and RES)

If you simply want to copy the entire contents of one diskette onto another of the same type and capacity, and there is nothing on the output volume which you wish to preserve, you should use the BAC instruction. This erases the contents of the output volume, and then copies to it each file from the input volume in turn, indicating its progress on the screen. For example:

```
$66 FILE MAINTENANCE
: BAC BWAGOM ONTO BACKUP? Y
GOMB-1 COPIED
GOMB-2 COPIED
etc.
$66 FILE MAINTENANCE
```

Note that when you use the BAC instruction it asks you to confirm that the direction of data transfer is correct. If you wanted, in fact, to copy BACKUP onto BWAGOM (rather than the other way round) you could reply N or <CR> to return to the instruction prompt and abandon the backup operation. You must key Y (rather than <CR>) for the operation to take place.

Note also that the backup diskette must have been appropriately initialized or formatted using $V, the volume utility described in Chapter 4 of the Global Operating Manual. A few diskettes do not contain a valid Global System Manager directory (e.g. BACNAT diskettes in the format of the host operating system). You cannot copy such a disk using BAC. Instead you should use the REP instruction if you have two diskette drives, and otherwise SAV and RES (see below). The REP instruction copies the input volume track by track onto the output volume, without considering Global System Manager directories and files.

If you only have one diskette drive on your computer you can copy files to a hard disk volume and then back to diskette using BAC. However, this will not work with the system disks which contain a bootstrap (e.g. SYSIPL or SYSRES) and you will get the error message:

```
BOOTSTRAP CANNOT BE COPIED
```

To copy these disks you will need to use the SAV and RES instructions.

First you must give the diskette drive address as the input device, and the address of another device with sufficient capacity (e.g. a work unit on a hard disk) as the output device. Key SAV, supply a name for the 'save' file to be created on the output unit, and a complete image copy of the input diskette will be created as one file (with the name you gave) on the output volume.

You should then replace the diskette in the input drive with the backup diskette, key <CR> to the file maintenance prompt so that you can reverse the input and output addresses, and key RES followed by the save file name. The contents of the save file (i.e. the contents of the original diskette) will then be transferred to the backup diskette. For example:

```
$66 INPUT DEVICE: 100
$66 OUTPUT DEVICE: 219
$66 FILE MAINTENANCE
: SAV AS save-file-name SAVED
$66 FILE MAINTENANCE
:<CR> (to return to the device prompts)
$66 INPUT DEVICE: 219
$66 OUTPUT DEVICE: 100
```

```
$66 FILE MAINTENANCE
(mount backup diskette before replying)
: RES FROM: save-file-name RESTORED
$66 FILE MAINTENANCE
```

5.16.4 Backing Up Hard Disks (BAC)

The BAC instruction is also used to create backup copies of data on hard disks. As with diskettes, the backup must have been initialized using $V and be of adequate capacity.

To back up a hard disk volume you should give as the input and output devices the unit addresses of the volumes you wish to copy from and to. Key BAC, and it will ask you to confirm that the direction of data transfer is correct. Key Y, and all the files on the output volume will be erased and all the files on the input will be copied to it.

To back up a whole domain you should give as the input and output devices the unit addresses of the domains you wish to copy from and to. The output domain *must* contain volumes which correspond numerically to those you wish to copy on the input domain. Thus, if you wish to back up volumes with addresses 201, 202 and 207 on the domain whose unit address is 200 to a domain whose unit address is 230, that latter domain must have allocated on it volumes with the addresses 231, 232 and 237. Key BAC, and Global System Manager will ask you to confirm that the direction of data transfer is correct. Subvolumes on the output domain will be erased and the contents of the corresponding input volumes copied to them.

5.16.5 Release/Restore Scratch Protection (PRO, REL, PFI, RFI)

When a volume contains important data it can be 'scratch protected', using the PRO instruction, to guard against accidental erasure. You will not be able to use such a volume as the output volume in a BAC or RES operation until you have released the scratch protection by using the REL instruction. To re-protect your backup data you can use the PRO instruction again.

The PFI and RFI instructions enable you to apply or release scratch protection on individual files; if you protect a file the volume it occupies will automatically be protected as well. If, however, you release scratch protection from the last file so protected on a volume the volume itself will still be protected; you must use REL to release protection at volume level.

5.16.6 Condensing a Volume (CON)

As files are created and deleted the free space on a disk becomes more and more fragmented, which can lead to inefficient use of disk capacity. The CON instruction reorganises the output volume so that files are held in the most compact form, to maximize the amount of space available for other data. However, if the volume is nearly full, the CON instruction will have no effect. Instead you should use two BAC operations to copy the volume to a backup and then copy it back. This will automatically reorganize the volume into its most compact form. If the volume is on hard disk you can also use $REORG to reorganize it (see Chapter 4 of the Global Operating Manual).

5.16.7 Copy, Move, Delete and Compare Files (COP, MOV, DEL, CFI)

These four instructions are useful for dealing with individual files as opposed to whole disks. If you need to copy a file you should supply input and output addresses, key COP to the file maintenance prompt and identify the file as it appears in the volume directory. Text files, for example, will be prefixed "S.". Thus:

```
$66 FILE MAINTENANCE
: COP : S.$HELP TO:<CR> COPIED
$66 FILE MAINTENANCE
```

The two prompts TO: and SIZE: allow you to optionally change the name or increase the size of the file you are copying. You may often want to change the name of the output file (to indicate that it is a backup copy, for example) but you should not alter the size allocation **unless you are fully aware of the consequences**. Normally you should key <CR> to both prompts as shown above to accept the defaults (i.e. copy the file with its name and size unchanged).

Note that if there is a file of the same name on the output volume (e.g. an older version) Global System Manager will ask you:

```
FILE ALREADY EXISTS - DELETE?:
```

And you must key Y to overwrite the old file with the new one.

The MOV instruction is very similar to the COP instruction, but has the additional effect of erasing the original file from the input volume. The message MOVED will appear when it has been copied to the output volume.

The DEL instruction deletes files from the output volume, useful if you need to make room for new ones. The dialogue is similar to that for COP and MOV but the message DELETED appears when the operation is complete.

You may want to check that your data has been correctly copied across; the CFI instruction compares 'namesake' files on input and output volumes and confirms whether they are identical or not. If they are not, then either you have keyed <CR> instead of Y (and thus avoided the operation you were trying to perform) or there is a hardware error.

5.16.8 Renaming Files and Volumes (REN, CHA)
To rename a file when you have copied it to another disk you should use the REN instruction, which always operates on the output volume. To rename a whole volume use CHA.

5.16.9 Verifying Files and Volumes (VFI, VER)
To verify a file on the output volume (to make sure that all of it is readable) use the VFI instruction, and supply the file name to the subsequent prompt. To verify a whole volume use VER. If the verification process discovers a faulty track on a hard disk unit you will need to replace it with an alternate track using the $V command (see Chapter 4 of the Global Operating Manual).

5.16.10 Amending Volume Descriptions (DES)
Associated with every hard disk domain or sub-unit is a 50 character Volume Description. The DES instruction allows the Volume Description to be amended. Please consult the Global Utilities Manual for further details.

5.16.11 Using Selection Codes
Those $F instructions which operate on individual files as opposed to whole volumes can be used in conjunction with a selection code to speed up processing. Rather than giving a particular file name after an instruction code you can use a code to process a selection of files. For example:

<CR>　　　　　　selects each of the files in order, giving you a selection prompt before processing each one.

<CTRL B>　　　　　processes all files automatically.

---

x.<CR>   selects all files on the disk whose names start with the specified letter followed by a full stop, and gives you a selection prompt before processing each one.

x.<CTRL B>   selects all files with the specified prefix and processes them automatically.

The selection prompt you receive after using <CR>or *x*. as a selection code is to ascertain what you want done to the file. The prompt consists of the name of the file followed by a question mark and a colon. You may reply:

Y   to cause the file to be processed.

N or <CR>   to avoid processing the specified file, and move on to the next one selected.

<CTRL A>   to abandon processing files and obtain a new instruction prompt.

<CTRL B>   to process the current file and all that remain in the selection automatically.

<CTRL C>   to return to the previous file prompt.

For a more detailed description of selection codes and other $F facilities, please consult the Global Utilities Manual.

5.17 $FCOMM - Comms Support Pack File Transfer Utility

$FCOMM is used to transfer files between two computers running the Comms Support Pack software. For a full description of $FCOMM, please consult the Comms Support Pack Notes and Comms Support Pack Manual.

5.18 $FIND - Find File or Volume

$FIND is used to find a file or a volume on the computer's direct access devices. For a full description of $FIND, please consult the Global Utilities Manual.

5.19 $GROUP - Maintain Group File

$GROUP is used to maintain the Global System Manager Group file ($$GROUP). For a full description of $GROUP, please consult the Global Utilities Manual.

5.20 $INSOFT - Install Application Software

When Global System Manager is first installed, one of the entries on the menu (possibly the only entry if the spooler is not installed) is described "Install Global software". This invokes the $INSOFT system command, which runs the installation programs supplied on the distribution diskettes for application programs.

You may want to update the menu and remove this entry after you have installed your application programs, to avoid confusing operators. $INSOFT can still be run by keying its name to the menu selection prompt or ready prompt.

For a full description of $INSOFT, please consult Chapter 2 of the Global Operating Manual.

5.21 $INSPECT - Inspect Text and Print Files

$INSPECT will display text and relative sequential print files. It can also be used to extract parts of files, concatenate them and convert text format to relative sequential format and vice-versa. For a full description of $INSPECT, please consult the Global Utilities Manual.

5.22 $L - Display/Print Hexadecimal File Dump

$L produces a hexadecimal listing with parallel ASCII translation of all or part of a file or volume of any type. For a full description of $L, please consult the Global Utilities Manual.

5.23 $LIB - Library Maintenance Utility

$LIB is used to inspect, create or update compilation and program libraries. For a full description of $LIB, please consult the Global Utilities Manual.

5.24 $LIBM - Library Merge Utility

$LIBM is used by installation jobs to create new program libraries and merge new members into them. For a full description of $LIBM, please consult the Global Utilities Manual.

5.25 $LOG - Event Logging Utility

$LOG is used to process the event logging files and produce reports. For a full description of $LOG, please consult the Global Utilities Manual.

5.26 $M - Send Messages to Other Users

$M provides the same functionality as the MES command of $STATUS (see section 5.41). It is provided to allow users without supervisor status to send messages to other users. For a full description of $M, please consult the Global Utilities Manual.

5.27 $MAIL - Electronic Mail Utility

$MAIL is used to send mail messages to other users of Global System Manager. $MAIL is also used to inspect mail messages sent by other users. For a full description of $MAIL, please consult the Global Utilities Manual.

5.28 $MH - Global System Manager Menu Handler

$MH is a special system command, which is normally run automatically by Global System Manager when you sign on. It displays an initial menu from which the operator can select different application programs or system commands by keying a number.

Menus and submenus can be created and updated manually or updated automatically by installation programs for applications.

For a full description of menus and how to customize them, see Chapter 7 of this manual.

5.29 $OPID - Maintain Operator-id File

$OPID is used to maintain the Global System Manager Operator-id file ($$OPID). For a full description of $OPID, please consult the Global Utilities Manual.

5.30 $P - Advance the Printer

This command is for use in systems where the printer is *not* controlled by a spooling program. It causes the printer assigned to $PR (see Chapter 2) to throw a page, and avoids you having to use its manual controls when you wish to remove a report. It also provides a useful test of whether the printer is on-line and functioning.

In addition, $P allows you to specify a default print format letter and page length. The default format is used when a file which has no associated format is printed. The same changes can be made using $CUS to edit the printer control file, but using $P can, under some circumstances, be more convenient.

If $PR, the standard printer unit is assigned to a spool unit then $P exits immediately without doing anything. Use the spooler's P instruction (see section 8.4.10) to throw a page on the printer.

If $PR is assigned to a physical printer unit (500-599) but no printer control file has been created using $CUS then $P can be used simply to throw a page, as in the following dialogue:

```
GSM READY: $P
Do you want to throw a page:Y
........
........ (page throw on printer)
........
GSM READY:
```

Normally, when all is well, $P advances the paper and returns immediately to the menu or ready prompt as illustrated in the example above. If the printer is not correctly set up an I/O error may occur. For example:

```
GSM READY: $P
Do you want to throw a page: Y
* NOT READY ERROR ON PARALLEL PRINTER - 500
* RETRY?:
```

In this case you would ensure the printer is powered up and on-line, consulting the manufacturer's handbook if necessary, then key <CR> to the retry prompt to continue:

```
* RETRY?: <CR>
........
........ (page throw on printer)
........
GSM READY:
```

If you run $P when the assignment of $PR to a particular unit address has not been made, you will be prompted to make the assignment:

```
GSM READY: $P
PLEASE ASSIGN $PR:
```

You should use the $U command to find the unit address to use. For example, suppose it is 501:

```
PLEASE ASSIGN $PR:501
........
........ (page throw on printer)
........
Please select a function:
```

If a printer control file has been created then $P prompts for the default print format and page length to be used as well as asking if a page throw is required:

```
GSM READY: $P
The default format letter for printer (nnn) is currently f
paper-desc with paper depth dd
Default format letter: f
```

Where *nnn* is the physical printer address, *f* is the current default printer letter, *paper-desc* is included in the mount message used when the default format is required, and *dd* the current default depth.

If you leave the format letter unchanged then $P asks if you wish to throw a page as before. If you choose to change the format letter, $P also prompts for a new default paper description and paper depth. For example:

```
GSM READY: $P
The default format letter for printer (nnn) is currently f
paper-desc with paper depth dd
Default format letter: X
Paper description:New-paper-description
Paper depth:66
Do you want to throw a page:Y
........
........ (page throw on printer)
........
GSM READY:
```

Subsequently, if you print a file which does not have its own associated print format then the default format and depth will be used. If you have printed files that use other print letters then a mount message of the form:

```
PLEASE MOUNT new-paper-desc ON UNIT nnn:
```

is displayed. In some instances $P itself will display a mount message before throwing a page.

If the reply to the default format letter is terminated with<CTRL B> the start sequences for the printer will be sent immediately before the next file is printed.

5.31 $PRINT - Print/Display Files

The $PRINT command enables you to print out text files or report files that have been written to a disk unit. You can also use it to display such files on the screen. For a full description of $PRINT, please consult the Global Utilities Manual.

5.32 $RCP - Record/Playback Utility

The $RCP command is used in conjunction with <SYSREQ> Q (the record/playback system request) to record keystrokes typed on the keyboard in a text file (the record script) and to subsequently play them back to repeat the original processing.

The minimum authorization level at which the record and playback will operate is defined in the $CUS 'customize configuration' function (see section 6.1.2.13). The default authorization level is set to supervisor status.

5.32.1 Recording Keystrokes

To record keystrokes key <SYSREQ> Q at the required point in the processing at which you want to start recording. This will normally be at some well defined commencement point such as the main menu for the system. <SYSREQ> Q allows you to select one of two options, record or playback. To record keystrokes you must select the record option.

You must now switch to another partition, and run the $RCP command which manages the actual recording of the keyed data. You are first asked to identify the partition which you wish to record as follows:

```
GSM READY: $RCP
Record/Playback Maintenance

Target Partition:
```

You should specify the number of the partition in which you loaded <SYSREQ> Q - $RCP will check that this partition is record-mode (i.e. <SYSREQ> Q has been used), that it is resident in memory and otherwise suitable to be recorded. If there is some problem an error or warning message is displayed, which will suggest the appropriate recovery action that must be taken.

Having selected the partition to be recorded, $RCP will prompt for the filename and unit of the script file to be created. If the file already exists the prompt:

```
FILE ALREADY EXISTS - DELETE?:
```

will appear. If you reply Y then the existing file will be deleted and be replaced by the new file you are creating. If you reply N then you are asked if you wish to extend the existing file. If you choose not to extend the existing file then you will be prompted again or the script file to be created. If you wish to extend the existing file then you will be asked to select a filename and unit for the new script file to be created. The contents of the existing file will be copied into the new file and will have the current record session appended to it.

[*Note that it will be most common to use this latter facility to extend an existing script after playing it back to position the dialogue in the appropriate place. This facility is most useful when it has been necessary to break off creating a script for some reason*.]

Having selected the new script file to be created you are returned to the partition in which <SYSREQ> Q was run to begin typing the keystrokes to be recorded.

Please note that the keystrokes accepted by some Global applications will not be recorded. These applications include Writer, Planner, Finder and Reporter. Likewise, the interrupt keys, in particular the BREAK key (<CTRL W>), <CTRL G> and system requests such as <SYSREQ> R which do not run programs will not be recorded. Variable dialogue which is sensitive to the keying of an interrupt key, such as <CTRL G>, or to the presence of type-ahead may not be successfully recorded. The activation of such dialogue during the creation of a script is strongly discouraged.

5.32.2 Annotating the Script File and Data Checking

At any point during the creation of a script you may make annotations to the file by switching to the partition where $RCP is being run. In this partition you will see a list of the lines which have been created in the script file. You may enter maintenance mode by keying <CTRL G>. This will take you into a text editor which may be used to amend the last 50 lines created for the script. For details of the $RCP editor functions, please refer to the description of $TED (see section 5.45). You may move around these lines, adding comments (a line commencing with a '*' character which usually describes the purpose of the line for future reference and maintenance), deleting spurious lines (such as the response to an inadvertent break prompt) and establishing the checking of screen data.

To check data, position the cursor at the appropriate point in the script for checking to be performed and key Command (i.e. < F3>) followed by the number 1, 2, 3 or 4 to select one of the check windows. The windows are initially positioned at the top-left, top-right, bottom-left and bottom-right corners of the screen respectively. However, the current position of each window is remembered during a session of recording so that check windows may be established over areas of the screen which are likely to be of interest.

You should position the window using the cursor keys, and when it is in the correct position key <F1>. The size of the window may be changed using the cursor keys. If necessary, <F1> may be used to return to positioning. Note that the extent of the data checked covers **all** the characters enclosed by the displayed box, including those overlayed by the box edges.

Checking will take place before the processing of any subsequent keystrokes, and should usually be inserted at the end of the current script.

When the appropriate data has been selected for checking key<CR> to cause CHECK statements to be generated in the script file. If you decide that checking is not required, key <ESC> to return to script editing.

Once changes to the script are complete you should key <ESC> to exit from editing and return to the recorded partition to enter more keystrokes.

5.32.3 Finishing Record Script Creation

When you have finished creating your record script, key<SYSREQ> Q again in the partition you are recording. This stops the recording process and switches you to the partition running $RCP so that you may make any final editing changes to the script.

When the final changes to the script file are complete, key <ESC>. $RCP will write out the remaining lines of script to the file and return to the main menu.

5.32.4 Playing Back a Script

To initiate the playback of a script file, key <SYSREQ> Q and select the playback option in the partition you want to playback the script in. You must then switch to another partition and run $RCP, specifying the original partition as the one into which playback is to be directed.

You are then asked to select a playback filename and unit, and whether this is a simple playback or debugging test. In the former case you are returned to the original partition and playback commences, whereas in the latter case you are asked to specify a breakpoint in the playback first (see below).

Once playback has started $RCP will control the partition until the playback has run its course. The playback will be stopped by one of the events described below. Additionally, the execution of the script may be interrupted by the operator.

5.32.4.1 End of Script

At the end of a script the playback is terminated and the partition once again accepts operator input.

5.32.4.2 <SYSREQ> Q

If a line in the script asks for <SYSREQ> Q to be loaded this terminates the playback and the partition once again accepts operator input.

5.32.4.3 Failed CHECK

If a CHECK does not match the contents of the screen this condition will be reported and the playback terminated with an error.

5.32.4.4 Syntax Error

If a line in the script file contains a syntax error this condition will be reported and the playback terminated with an error.

5.32.4.5 Program Error
If an error message (which rings a BELL) is executed and there is not a corresponding BELL in the script (indicating that the BELL arose when the script was originally created, and is hence presumably dealt with by subsequent dialogue) this condition will be reported and the playback terminated with an error.

5.32.4.6 Keystroke (Accept) Mismatch
If the wrong kind of keystroke is encountered this condition will be reported and the playback terminated with an error.

5.32.5 Interrupting and Debugging Scripts
At any stage during playback you may switch to the partition running $RCP (where a list of lines read from the script file is displayed) and key <CTRL G> to interrupt. Playback will also be interrupted when a breakpoint is encountered.

When playback is interrupted, you are prompted as follows:

```
Key Breakpoint, Single Step, Q to quit:
```

If you key <CR> then execution resumes (but note that any interruption of execution, even by the operator keying<CTRL G>, clears any outstanding breakpoints). The following options are available.

5.32.5.1 Breakpoint
You may specify a breakpoint by selecting a script filename, unit and line number. Execution will be interrupted just before that line of the named file is processed. This feature is typically used to locate problems in a set of playback scripts.

5.32.5.2 Single Step
This causes the script to be run for the next processing statement, then execution is suspended again until the operator keys <CR> to proceed to the next step. Keying <ESC> terminates single step mode and returns to the interrupt prompt. Because single step operations involve considerable partition switching, it is normally most convenient to set a breakpoint in the vicinity of a piece of suspect code and then single step through it.

5.32.5.3 Quit
If the debugging session is finished and there is no point in attempting to run the remainder of the script, the operator may quit from the playback file. This will leave the partition running the playback dialogue exactly where it was in the script.

5.32.6 Record or Playback Failure
In some situations the partition which is being recorded, or into which data is being played back, may be left 'hung up' when the $RCP program terminates abnormally. If this should happen simply run $RCP again, specifying the appropriate partition, to cause the following message to appear:

```
INVALID PLAYBACK STATE x - CANCEL mode?:
```

If you reply <u>Y </u>to this prompt the record or playback process will be disconnected and the partition returned to accept operator dialogue from the console in the normal way.

Please remember that while $RCP is in editor mode (i.e. while the script file is being edited) you cannot key responses to the partition that is being recorded. In this case, to restart recording, switch to the partition that is running $RCP and key <ESC> to exit from edit mode.

5.32.7 Requirements for Running Record and Playback Software

The record and playback facilities are only available under Global System Manager V8.0 and later. In addition, only Cobol applications developed using V8.1 Global Cobol and Speedbase applications developed using the V8.0, or later, Speedbase Development System, and running under the V8.0 Speedbase Presentation Manager, or later, can be recorded.

5.33 $REMOTE - Non-networked File Transfer Utility

The $REMOTE system command is only available on some host operating systems. For a full description of $REMOTE, please consult the Global Operating Manual.

5.34 $REORG - Reorganise Domain or Volume Utility

The $REORG system command is only available on some host operating systems. For a full description of $REORG, please consult the Global Operating Manual.

5.35 $RESTORE - Restore Files from Backup Copies

Please see under $SAVE below.

5.36 $S - Display/Print System Information

You run the $S command to obtain a screen of information describing your system, which you can print on the unit assigned to $PR if you wish:

```
Please select a function: $S
........
........ (system information screen)
........
Key P to print, <ESC> to exit: P
(information on the screen is printed)
Please select a function:
```

If you do not want to print the system information, key <ESC> to exit from the command back to the ready prompt.

Note that if you are running Global System Manager with a spooler, $PR will be assigned to a disk unit and your request will simply result in a file being written. The same will be true when you run $T (see section 5.42) and $U (see section 5.46). You can print the files involved by running the spooler as described in Chapter 8.

5.37 $SAVE, $RESTORE - Backup Data from Hard Disk to Diskette

Systems with diskettes and large fixed disks, but no exchangeable hard disks or tape drives, may have hard disk volumes allocated which are far larger than the individual diskettes. Most Global software (in particular all the business modules) has built-in routines to back up such a volume on a cycle of two or more diskettes; however, if your software does not contain these data security routines you must run the $SAVE command to preserve the data.

Do not use $SAVE or $RESTORE with Global 3000 applications, Global 2000 applications or Global Finder - it could cause serious problems with the identification of different backup cycles.

5.37.1 Using $SAVE to Backup Data from Hard Disk to Diskette

First you prepare a pool of BACKUP volumes (i.e. a collection of diskettes each initialized, or formatted) to have the volume-id BACKUP. It is not sufficient to simply rename an old diskette as BACKUP using the CHA instruction in $F. Then choose a *backup cycle-id* - a letter, A to Z – and a *title*, no more than 30 characters in length, by which the backup is to be known.

The following dialogue shows how you run $SAVE to back up a volume called SAMPLE occupying unit 201 onto three diskettes of cycle A, entitled SAMPLE DATA COPY:

```
Please select a function: $SAVE
........
........ (explanatory text)
........
Key C to use a Catalogue, or S to save single file or unit (S):S
Key name of file to save, or <CR> for whole unit:<CR> unit:201
Backup cycle code (A):A (or <CR>)
Backup volumes should be labelled S-A1, S-A2, etc.
Verify diskettes after backup (Y)?:Y (or <CR>)
MOUNT BACKUP S-A1 ON 1ST DISKETTE DRIVE - 150 AND KEY<CR>:<CR>
Backup title:SAMPLE DATA COPY
... copying file1 from SAMPLE on 201 .....
... copying file2 from SAMPLE on 201 .....
      etc, etc
... verifying Backup diskette 1
MOUNT BACKUP S-A2 ON 1ST DISKETTE DRIVE - 150 AND KEY <CR>:<CR>
... copying file3 from SAMPLE on 201 .....
... copying file4 from SAMPLE on 201 .....
      etc, etc
... verifying Backup diskette 2
MOUNT BACKUP S-A3 ON 1ST DISKETTE DRIVE - 150 AND KEY <CR>:<CR>
... continuing file4 from SAMPLE on 201 .....
... copying file5 from SAMPLE on 201 .....
... copying file6 from SAMPLE on 201 .....
      etc, etc
... verifying Backup diskette 3
SAVE COMPLETE - REMOVE BACKUP VOLUME FROM 1ST DISKETTE DRIVE - 150
Print report (Y)?:Y (or <CR>)

      (Report detailing save operation is printed keep it for
       reference)
```

This example dialogue results in three BACKUP diskette volumes called BACKUP S-A1, BACKUP S-A2 and BACKUP S-A3 being produced. $SAVE calls for BACKUP volumes until all the data involved has been transferred, so you should make sure you prepare enough of them to have some spare in case you miscalculated the number needed.

In the example the diskette drive at unit 150 was selected to be the backup device. The actual unit address employed depends on the assignment of the $B unit-id. If this assignment was not made when Global System Manager was installed the prompt:

```
PLEASE ASSIGN $B:
```

will appear when you run $SAVE. You must reply with the address of the diskette unit you require to use.

5.37.2 Using $RESTORE to Restore Data from a Diskette Cycle

To restore a volume from a backup cycle previously created by $SAVE, you must first of all prepare a new copy of the volume, if necessary using $V (see Chapter 4 of the Global Operating Manual). If you are going to re-use the existing volume, you should bear in mind that the restore process will destroy any files that are currently on it. You run the $RESTORE command. The dialogue which follows shows how you would use this to recover SAMPLE data from the backup cycle created in the previous example:

```
Please select a function:$RESTORE
........
........ (explanatory text)
........
Key name of first backup volume:S-A1
```

```
    Key F for full restore, S for selective restore, L to list backup
                                                                  (F):<CR>

        (Selective restoration of files should only be done by Service Centres
        and development staff. The List function is useful to check you have the
        right diskettes.)

    Key first/only unit to restore to:201
    MOUNT BACKUP S-A1 ON 1ST DISKETTE DRIVE - 150 AND KEY <CR>:<CR>
    Restore SAMPLE DATA COPY of 22/11/90 13.45.07 (N)?:Y

        (This prompt allows you to cancel the restore operation, by keying N, if
        the title or date on which the backup copy was taken are not as
        expected. Following your reply of Y data is transferred from the first
        backup volume.)

    ... restoring file1 to SAMPLE on 201
    ... restoring file2 to SAMPLE on 201
        etc etc.

    MOUNT BACKUP S-A2 ON 1ST DISKETTE DRIVE - 150 AND KEY <CR>:<CR>
    ... restoring file3 to SAMPLE on 201
    ... restoring file4 to SAMPLE on 201
        etc etc.
    MOUNT BACKUP S-A3 ON 1ST DISKETTE DRIVE - 150 AND KEY <CR>:<CR>
    ... restoring file4 to SAMPLE on 201
    ... restoring file5 to SAMPLE on 201
    ... restoring file6 to SAMPLE on 201
        etc etc.
    RESTORE COMPLETE - REMOVE BACKUP DISKETTE FROM 1ST DRIVE - 150
    Please select a function:
```

The hard disk volume SAMPLE is now restored to its original state on unit 201. You should, of course, keep the backup diskettes in case you need to repeat the operation.

5.38 $SORT - RS File Sort Utility

$SORT is used to arrange a relative sequential file in the order specified by as many as 9 different keys. For a full description of $SORT, please consult the Global Utilities Manual.

5.39 $SP, $SPS - Start Spooler/Check Spooler Status

For a full account of these system commands, please see Chapter 8 of this manual.

5.40 $SPOOL - Start Spooler Command

For a full account of this system command, see Chapter 8 of this manual.

5.41 $STATUS - Control Multi-User System or Network

The $STATUS command is provided with multi-user and network systems. It is used to find out which other users are signed-on, and whether they are active. It can also be used by supervisors to send messages to other users, to cancel or restart a user's screen that has failed, to prevent further users from signing on, or to obtain exclusive use of one's own computer.

When you run $STATUS it displays the status report, an example of which (taken from a networked system) is shown below.

The user column lists the user numbers associated with each screen; on a networked the computer identification character and description appears as well. An asterisk appears beside your own user number.

The operator column shows the operator-id of the currently signed-on user, or is blank if no one is signed-on. It is followed by the authorization code; S or higher indicates a supervisor who can use the $STATUS task control instructions.

```
Global Windows Workstation                                          _ □ ×
Window  Edit  Functions  Options  Help

Global System Manager
USER OPERATOR ─────────────────────── STATUS ─────────────── 12.10.52

COMPUTER 1B IN USE     - Thin-client server for Global Dev
   1    1B   (S)  712      SIGNED ON               SEPARATE COMPUTER
   3    AJU2 (S)  711      SIGNED ON               SEPARATE COMPUTER
   9                    NOT SIGNED ON              SEPARATE COMPUTER
  15                    NOT SIGNED ON              SEPARATE COMPUTER
  21                    NOT SIGNED ON              SEPARATE COMPUTER
  27                    NOT SIGNED ON              SEPARATE COMPUTER
  33                    NOT SIGNED ON              SEPARATE COMPUTER
  39                    NOT SIGNED ON              SEPARATE COMPUTER
  45                    NOT SIGNED ON              SEPARATE COMPUTER
  51                    NOT SIGNED ON              SEPARATE COMPUTER
  57                    NOT SIGNED ON              SEPARATE COMPUTER
  63                    NOT SIGNED ON              SEPARATE COMPUTER
  69                    NOT SIGNED ON              SEPARATE COMPUTER
  75                    NOT SIGNED ON              SEPARATE COMPUTER
  79                    NOT SIGNED ON              SEPARATE COMPUTER
  83                    NOT SIGNED ON              SEPARATE COMPUTER
  87                    NOT SIGNED ON              SEPARATE COMPUTER
  91                    NOT SIGNED ON              SEPARATE COMPUTER
  95                    NOT SIGNED ON              SEPARATE COMPUTER
COMPUTER 1C IN USE     - Thin-client server for Global Support
$47 NEXT PAGE?:

Partition 1 Computer CA                                       CAPS NUM
```

Figure 5.1 – A typical $STATUS report

The two status columns show the status of each partition for users who are on your processor; for users on other processors, information about each partition is not available. The status may be any of the following:

ACTIVE	a program is running
INACTIVE FOR *nnn* MINUTES	the partition has been waiting for input for the time stated.
SUSPENDED	the program is waiting for something to happen (e.g. the spooler is idle)
NOT SIGNED ON	screen not currently being used
AWAITING SCREEN	the screen is being used by the $DEMO utility (available with the Global Common Development System)
CANCELLED	has been cancelled using the CAN instruction (see below)
NOT CONNECTED	the screen is not connected to the system
LINE DOWN	the line connecting the screen is out of service (e.g. if no one is using a dial-up line)

WAITING FOR <CTRL Q> the screen has been halted by keying <CTRL S> and will not continue until <CTRL Q> is keyed

SCREEN I/O ERROR   the screen cannot be accessed

SWAP I/O ERROR   an error on the swap file has caused this user to fail (further messages should appear on the affected screen)

SEPARATE COMPUTER   the screen is attached to a separate computer

SEPARATE SYSTEMS   the screen is attached to a separate system

NOT IN USE   computer not currently being used

If you have supervisor status then following the status report the prompt:

```
$47 TASK CONTROL:
```

appears. You may key:

?   to list the other task control instructions

<CR> to redisplay the status report

<ESCAPE>   to quit

CAN   to cancel the programs of a specified user

COM   to display a cut-down status report, listing all computers which have booted onto the network since the user file was last purged, together with their current status (IN USE, NOT IN USE or ** OURS **) and associated description (networked systems only)

DES   to amend the table of computer descriptions (networked systems)

DIS   to disconnect a user from their screen

FIL   to list the files currently in use on your computer (including those being used by users from other computers in a networked system). On networked systems you can list files in use on other file servers.

GET   to get exclusive use of your processor (causing any other users to be "locked out" until released)

LIL   list only those computers that are currently "IN USE"

LIS   list details of a selected computer only

LOC   to list any outstanding locks on files on your computer or outstanding locks on any file server on the network

LOG   to write a message to the Event logging file detailing some system event

---

MES   to send a message to a specific user or users, identified by their operator-id or user number, or (by keying<CTRL A> to the USER: prompt) to a group of users, or (by keying <CTRL B> to the USER: prompt) to all the users on a particular computer or all users on a network

MON   monitor terminals using modem control lines

PRI   print the details displayed by the <CR>, FIL and LOC instruction

PUR   to purge and reallocate the user file when Global System Manager is next loaded on the master computer, thus clearing it of irrelevant, incorrect or out of date information

QUI   to quiesce the system so that no further users can sign on (you can cancel the quiesce process by repeating the QUI instruction and replying N to the "ARE YOU SURE?:" prompt)

REL   to release exclusive control

RES   to restart a specified user

TER   to terminate execution of Global System Manager

The CAN and RES instructions require you to key the user number or operator-id as shown in the status report, and will cancel all the partitions for that user. Note that both the CAN and RES instructions only affect partitions on the same computer (or system). They cannot be used to cancel or restart users on another computer (or system).

For a more detailed description of $STATUS facilities, please consult the Global Utilities Manual. Not all of these instructions are available under some host operating systems, please consult the Global Operating Manual for further details.

5.42 $T - Display/Print Terminal Information

The $T command is used to obtain two screens of information about your terminal that can, if required, be printed. The first screen will help you identify any keys whose names differ from the standard ones described in Chapter 3. The second will show you which keys are used for the extended control functions employed by some applications:

```
Please select a function: $T
........
........ (first screen of terminal information)
........
Key P to print, <CR> to page, <ESC> to exit:<CR>
........
........ (second screen of terminal information)
........
Key P to print, <CR> to page, <ESC> to exit:P
........
........ (second screen redisplayed once both screens
........ have been printed)
........
Key P to print, <CR> to page, <ESC> to exit:<ESCAPE>
Please select a function:
```

Note that the special response of "TEST" to the prompt causes the Test menu to be displayed, so you can check that your screen is working properly. Note also that the special response of "DIAG" to the prompt causes a special Diagnostic menu to be displayed. The Diagnostic menu is of particular interest if you are developing your own Terminal Attribute Program (TAP) as described in the Global Cobol Screen Support Manual.

5.43 $TAPE - Streaming tape Backup/Restore Utility

The $TAPE system command is fully described in the Global Tape Utility ($TAPE) Manual.

5.44 $TDUMP - Tape Backup/Restore Utility

The $TDUMP system command is only available on some host operating systems. For a full description of $TDUMP, please consult the Global Operating Manual.

5.45 $TED - Text Edit Utility

The $TED system command enables you to create and amend small text files up to 99 lines in length, with a maximum text width of 72 columns. The command has all the functions of a full screen editor, with box and line drawing capabilities.

When you run the command, you are first prompted for the name of the text file you wish to create or edit and the unit on which it is to be created or on which it is currently held:

        EDIT TEXT FILE: UNIT:

Reply with the name (up to 6 characters) and unit address or unit-id. If no file of that name exists on that unit, you are asked to confirm that you wish to create a new file:

        New file?:

Reply y or Y if this is the case, or n or N to return to the EDIT TEXT FILE: prompt if you made a mistake.

When you have specified the text file, the first 23 lines are displayed on the screen, with line numbers down the left hand side, followed by the baseline prompt:

        Key <ESC> or <ESC><ESC> to finish edit. Key <SYSREQ> H for help

In the case of a new file, only the line numbers will appear.

Once the first screenful of the text file is displayed, you can commence editing. You can overtype existing text, delete and insert text, and type new text at the end of the current area, much like a simple word-processor. Keying <SYSREQ> H displays Help screens summarizing the information below.

The following functions are recognised:

Function	Effect
F1	Insert a space under the cursor
F2	Flip the case of the character
F3	Special editing command (see below)
F4	Next window of text
F5	Previous window of text

<ESCAPE>   Exit from text editing
<CR> Move to a new line
RUBOUT   Delete character (or line if blank)

The special editing commands introduced by pressing F3 are as follows:

Command   *Effect*

B   Draw a box into text area
C   Copy lines
D   Delete lines
E   Go to end of text area
F   Find text string
G   Go to selected line number
I   Insert a blank line
L   Draw a line into text area
M   Move lines
S   Go to start of text area
U   Wrap up next line

The text editing routine automatically adjusts typed-in text for word-wrapping at end of line. It also recognises and preserves paragraph breaks in the original text. To add a paragraph break press <CR> at the end of a line, and if necessary delete any blank line resulting. To remove a paragraph break use the Wrap Up command.

To end the edit, press <ESCAPE> (on some screens this may need to be pressed twice). The number of changes you have made is displayed, and the EDIT TEXT FILE prompt is repeated so that you can edit this or another text file. Press <ESCAPE> to return to the menu or ready prompt.

At the end of an edit, the amended file is written back to the original unit with the name S.*filename*. The previous version assumes the name B.*filename*.

5.46 $U - Display/Print Unit Information

You run the $U command to obtain a series of screens describing the units supported on your system. You can print this information if you wish:

```
Please select a function: $U
........
........ (first screen of unit information)
........
Key P to print, <CR> to page, <ESC> to exit:<CR>
........
........ (second screen of unit information)
........
Key P to print, <CR> to page, <ESC> to exit:<CR>
........
........(eventually the display will wrap round, and the first
........ 'page' will reappear)
........
Key P to print, <CR> to page, <ESC> to exit:P
........
........(all the information is printed)
........
Please select a function:
```

You should keep this and the other printouts of system information for reference purposes.

On networked systems you can also find out what units are supported by other computers on the network. In this case the final prompt is of the form:

```
Key P to print, C for different computer, <CR> to page, etc.
```

If you key C a further prompt will appear:

```
Specify computer-id (X):
```

For some Global System Manager configurations, the above prompt may appear as:

```
Key P to print, S for different system, <CR> to page, etc.
```

If you key S a further prompt will appear:

```
Specify system (X):
```

The default given in brackets will be the computer identification letter of the master computer (or system process) on the network. You should key <CR> to obtain details of the units it supports, or key the computer identification letter of another file server computer. **Important Note**: Information about printer units is not given for other computers (or systems) on the network.

You may find that sometimes more than one unit address is used for the same diskette drive. This enables different diskette formats (not diskettes of different physical sizes) to be used on the same drive, providing the appropriate address is specified. Normally you will work with the addresses associated with the highest capacity format available. Other addresses, if present, may be employed for accessing diskettes formatted on other machines or the special format SYSIPL volume, if one is used by the bootstrap procedure.

For a more detailed description of $U, please consult the Global Utilities Manual.

5.47 $USAGE - Display File Control Block Usage Utility
$USAGE allows you to monitor some internal parameters within Global System Manager. For a full description of $USAGE, please consult the Global Utilities Manual.

5.48 $V - Volume Maintenance Utility
$V is used to prepare disks and diskettes for use. For a full description of $V, please consult the Global Operating Manual.

5.49 $VOL - List Volume Directory Utility
$VOL is used to produce a detailed volume directory report. For a full description of $V, please consult the Global Utilities Manual.

5.50 $VOLSAV - Save/Restore Domain Layout Utility
$VOLSAV is used to save the layout of a domain directory. The same utility may be used to restore a previously saved domain layout. For a full description of $VOLSAV, please consult the Global Utilities Manual.

5.51 $ZAP - Apply Software Fix
$ZAP is used to modify installed software. For a full description of $ZAP, see section 6.4 of this manual.

6.   Customising Global System Manager

This chapter describes the three main system commands which can be used to modify Global System Manager after it has been installed: $CUS, $AUTH and $ZAP.

The $CUS command allows you to tailor Global System Manager; you can modify customisation options selected during installation or add extra customisation, such as setting up a second printer, which is not part of the standard installation procedure. Not all of the customisation options described in this chapter may be available on a particular configuration. Please refer to the Global Operating Manual for more details.

The $AUTH command allows you to set up and modify a table of authorized operators with associated passwords and authorization codes. **Note that for authorization vetting to take effect, $CUS Sign-on Customisation must be used to specify $AUTH as the authorization vetting program to be used.**

The $ZAP command is used to apply a small 'patch' to the code of a program to correct a fault.
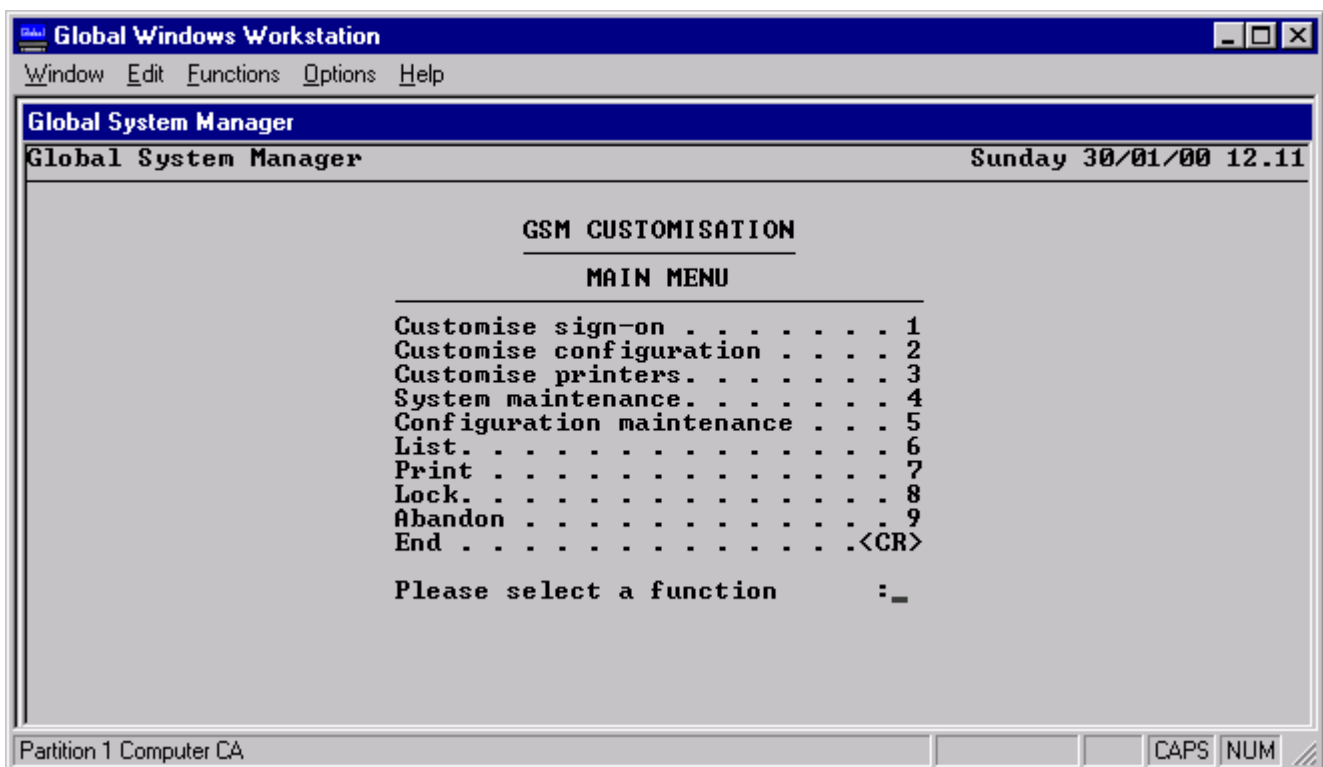
Figure 6.1 – The $CUS main menu

```
Global Windows Workstation                              _ □ ×
Window  Edit  Functions  Options  Help

Global System Manager

                    GSM CUSTOMISATION

                CONFIGURATION CUSTOMISATION

            Box drawing characters. . . . . 1
            Colour usage. . . . . . . . . . 2
            Date format . . . . . . . . . . 3
            Decimal point character . . . . 4
            Error message help facility . . 5
            Permanently loaded modules. . . 6
            Standard printer page size. . . 7
            Permanent unit assignments. . . 8
            System name . . . . . . . . . . 9
            System requests . . . . . . . .10
            Time-slice interval . . . . . .11
            Century start date. . . . . . .12
            Record/Playback authorization .13
            Language code . . . . . . . . .14
            Unload Speedbase services . . .15
            Additional customisations . . .16
            Exit. . . . . . . . . . . . .<CR>

            Please select a function      :

Partition 1 Computer CA                            CAPS NUM
```

Figure 6.2 – The Configuration Customisation submenu

6.1 $CUS - Modify Installed Global System Manager

To customise Global System Manager you must run $CUS from the main menu or ready prompt. You will be prompted for a password if you have previously specified a password for $CUS using the appropriate function from its menu (see section 6.1.8). **You are strongly recommended to always establish a password for $CUS.**

$CUS commences by displaying the menu shown in figure 6.1. The various options from this menu are described below.

6.1.1 Sign-on Customisation

The first option in the $CUS main menu allows you to modify the sign-on dialogue and subsequent prompts. When you select this function a subsidiary menu is displayed, giving the options described below. **These customisations are not effective immediately: You must reload Global System Manager to enable the new options**.

6.1.1.1 Authorization Vetting

Authorization vetting is used to specify the program which checks operator-ids and passwords during sign-on. This is usually $AUTH (see section 6.3). Use this function if you decide to use $AUTH after having installed a system without authorization vetting, or if you are using your own special authorization program.

6.1.1.2 Automatic Bootstrap

Enabling this option causes the computer to bootstrap automatically after a specified time period if there is no response to the date prompt. If the date and time cannot be supplied by the computer, a time of 00.00 and a date of 1/1/1980 are assumed. Use automatic bootstrapping if you intend leaving the computer permanently switched on, and want it to recover on its own from a power failure.

6.1.1.3 Initial Program

This option allows you to specify the name of the program which is to be run after sign on (if any). Usually, this is the standard Global System Manager menu handler, $MH. This option can be used with the $AUTH automatic sign-on and menu selection option to cause a particular function from the main menu to be selected automatically when each operator signs on (see section 6.3.11).

6.1.1.4 Terminal Type

This option allows you to suppress the terminal type prompt, and use a fixed terminal type for every screen on the computer; to specify that Global System Manager is to prompt each user for their terminal type when they sign on (the default); or to request that each screen uses the previously selected terminal type. This last option is for use on systems with multiple screen types. You should not use a fixed terminal type for each screen if another computer on the network with a different type of screen bootstraps from this computer.

6.1.2 Configuration Customisation

The second option in the $CUS main menu allows you to customise certain aspects of the Global System Manager configuration. When you select this function a subsidiary menu is displayed, giving the options described below.

6.1.2.1 Box Drawing Characters

This customisation enables you to inspect or modify the characters used on the screen for vertical lines, horizontal lines and junctions when your screen does not have its own line drawing characters.

6.1.2.2 Colour Usage

Colour usage customisation allows you to enable colour working and to set up the standard colour combinations to be used with standard Global software. Colour combination 1 is used for menus and software that have not been updated to use colour.

6.1.2.3 Date Format

This customisation allows you select European (DD/MM/YY) or American MM/DD/YY) format for dates accepted or displayed by Global System Manager.

6.1.2.4 Decimal Point Character

This customisation allows you to use a comma instead of a full stop (period) as the decimal point.

6.1.2.5 Error Message Help Facility

This customisation allows you to specify that Help text should appear automatically whenever an I/O error message is displayed. The default is for Help text not to be displayed unless you request it by keying <SYSREQ> H.

6.1.2.6 Permanently Loaded Modules

This customisation allows you to specify up to 10 modules to be loaded into the system stack during startup. You should only use this if told to do so in the installation notes for a particular software module.

6.1.2.7 Standard Printer Page Size

This customisation allows you to alter the page length for reports produced on standard stationery. This is initially set to 66 lines, and cannot be less than 30. The page length should be set to 0 if you are using a laser printer or a printer with a single-sheet feeder. You can also alter the page width, but most reports are printed with a fixed width of 132 columns irrespective of the standard page width.

6.1.2.8 Permanent Unit Assignments

This customisation allows you alter the unit assignments established whenever a user signs on. For example, you may want to change the assignment of $B (the backup unit) or $PR (the standard printer). The current assignments will be shown followed by a unit-id prompt. Key the unit-id you want to add, update or delete and then reply to the subsequent address prompt with the new address or <CR> to delete the assignment. Note that it is also possible to delete an existing assignment by terminating the reply to the unit-id prompt with <CTRL A> instead of the normal <CR>. Key <CTRL C> to the unit-id prompt to redisplay the current assignments. Key <CR> to the unit-id prompt to return to the menu. Up to 19 permanent unit assignments may be customised.

To purge the table of permanent unit assignments, key <CTRL A> to the unit-id prompt.

Note that it is NOT possible to customise the $CP, $DP or $M unit assignments (these 3 assignments are made dynamically as Global System Manager is loaded). If any of these 3 logical units are customised they MUST be removed by keying *xxx*<CTRL A> to the unit-id prompt (where *xxx* is $CP, $DP or $M).

Important note: The new unit assignment becomes effective immediately in the current partition only. In general, the change does not affect any other users or any other partitions on your screen until you reload Global System Manager. However, for most configurations, $E (or a $STATUS REStart) will establish the new permanent assignment table in the first partition (i.e. P1) but retain the old assignment table in all other partitions (e.g. P2, P3 and P4). To prevent possible confusion, you are strongly advised to always reload Global System Manager after customising the Permanent Unit Assignments.

6.1.2.9 System Name
This option may be used to define a system description of up to 30 characters, which will appear on the top line of menus.

6.1.2.10 System Requests
This customisation allows you to disable system requests (such as the calculator or screen print utility) which when invoked open a temporary work file on SYSRES (or a work volume if the $OV unit is assigned). You will want to do this in the extremely unlikely event that your SYSRES is demountable.

6.1.2.11 Time-slice Interval
This customisation allows you to vary the length of time the computer spends on each Global System Manager user before swapping to the next (the 'swap interval'). Decreasing the interval will give a smoother response at each screen, although it will slightly degrade overall performance. Intervals in the range 50-300 ms are usually best: experiment where necessary (see the Global Configurator Manual for more details). Note that whatever interval you specify will be rounded to be a multiple of the clock 'tick' period, as displayed by the $S command.

6.1.2.12 Century Start Date
This customisation allows you to specify the year before which dates are regarded as being in the 21st century rather than the 20th. This date controls the way in which short format dates (e.g. 6/2/56) are converted into long dates (e.g. 6/2/1956). The current start year (the default is 1900) is displayed. A new start year (0 to 99) may be specified. For example, specify a century start year of 1950 to allow short dates to cover the range from 1/1/1950 to 31/12/2049).

6.1.2.13 Record/Playback Authorization
This option allows you to specify the minimum authorization level at which the record/playback utility, $RCP, can be used. The default record/playback authorization level is S.

6.1.3 Printer Customisation

The third option in the $CUS main menu allows you to configure printers. When you select this function a subsidiary menu is displayed, giving you three further options. You will probably need to use the first two options if you have more than one printer configured. You are strongly recommended to use the third option (Printer Control File customisation) for every printer, even if you only have a single printer configured. Furthermore, a Printer Control File is mandatory if you are using a Novell spooler on a Global System Manager (Novell NetWare) configuration (see the Global Operating Manual (Novell NetWare) for further details).

When any one of the three Printer Customisation options is selected you are prompted for a printer unit. For example:

```
PRINTER UNIT: 500
```

Important note: The first two Printer Customisation options (i.e. Printer Page Size and Printer Characteristics customisations, see sections 6.1.3.1 and 6.1.3.2, respectively) both modify an 8-entry table in the $STARB customisation file. Consequently, there is a limit of 8 printers that can be customised using either of these options. If it is ever necessary to customise 9, or more, printers then the Configuration Maintenance option of $CUS (see section 6.1.5.6) or Global Configurator must be used to effect the changes. The third Printer Customisation option (i.e. Printer Control File customisation, see section 6.1.3.3) operates directly on the Printer Control File. Consequently, there is no limit on the number of printers customisable using this option.

Furthermore, if the $STARB file includes a customisation record for a printer that does not exist (either because its entry has been deleted from the configuration file or if the device driver has failed to detect the presence of the required hardware) the following warning message will be displayed when Global System Manager is loaded:

```
$57 INITIATION WARNING 410 CUSTOMIZATION OF NON-EXISTENT PRINTER
```

To remove a printer customisation entry from the $STARB customisation file, key the unit number of the non-existent printer and terminate the reply with <CTRL A> instead of the normal <CR>. This facility is only available in the Printer Page Size and Printer Characteristics customisations.

6.1.3.1 Printer Page Size

This option allows you to alter the page width and page depth defined for a particular printer. The page depth sets the number of lines per page if the printer does not perform form-feed itself, or if the page size thrown by a form feed is not what you want. Normally this is set to zero, indicating that the printer's form-feed can be used. The width must be at least 132 columns for reports produced by Global software, and cannot be greater than 250. For example:

```
PRINTER UNIT:508  Hyperport printer chan-8
A page depth of 0 will cause hardware form-feed to be used

PRINTER PAGE DEPTH (currently hardware form feed):<CR>
PRINTER PAGE WIDTH (currently 132):<CR>

Customize printer immediately (N):
```

If the option to customise the printer immediately is not taken, the new page depth and/or page width will not be recognised until Global System Manager is reloaded.

6.1.3.2 Printer Characteristics

This option allows you to select the baud rate and protocol used by the printer, and the printer time-out period (the length of time Global System Manager will wait for the printer to become ready before

signalling a NOT READY error). If the time-out period is set to zero, no time-out checking takes place and Global System Manager will appear to hang if the printer goes off-line for any reason. Most printers require time-out periods of 30-60 seconds. If you make it too short you will get spurious NOT READY errors, often during page throws.

The "Auto LF after CR" option allows Global System Manager to handle printers that automatically advance a line after printing. If possible, alter the printer option switches to avoid using this facility, as it precludes overprinting which is used by some Global software. If you use auto-LF you must set the page depth explicitly (see section 6.1.3.1) rather than relying on the printer to control form-feed.

The next series of prompts displayed by the Printer Characteristics function depend on the type of printer and you may need to refer to the printer manufacturer's handbook. For parallel printers there is a single prompt allowing you to select polled or busy line operation. For serial printers you can specify the baud rate (except where this is selected by switch settings on the computer), whether X-ON/X-OFF or busy line operation is required, the number of data bits and stop bits, and parity. **These options may not be applicable on all configurations (please consult the Global Operating Manual and Global Configuration Notes for more details).** Usually the only thing you will need to change is whether X-ON/X-OFF or busy line protocol is used. Note that for the purposes of this customisation option a "parallel printer" is defined as one that includes the word "PARALLEL" in the printer description text (a "serial printer" does not include the word "PARALLEL" in the printer description text). Note also that these prompts will not appear for Global System Manager (Unix) configurations or if the bottom six bits of the Printer Characteristics Byte (see section 6.1.5.6) are all clear.

A further prompt allows you to specify if you wish the printer to throw a page when Global System Manager is loaded. You will not normally wish to do this unless the bootstrap procedure causes some spurious characters to be sent to the printer port (some computers send a sign-on message to all serial devices attached for example). Obviously if characters are sent you will wish to throw a page so that printing may begin on a clean sheet of paper.

The next prompt allows you to prevent the printer from throwing a page at the end of each report.

Finally, a prompt appears asking whether you want to apply the customisation immediately, or wait until the next time Global System Manager is loaded.

6.1.3.3 Printer Control File
This option allows you to tailor the use of your printer to your particular requirements by setting up a Printer Control File which defines any start-up sequences which may be required to place your printer into a particular operating mode, along with sequence details for a number of format letters. Unless otherwise specified, the start sequence is sent to the printer when it is first used by Global System Manager. Each format letter specifies the character set, pitch etc used to print reports and the sequences used for various kinds of emphasis. **In order for a Print Control File to be used, a Printer Translation Buffer must be defined in the configuration file (see section 6.1.5.2).**

You are strongly recommended to create a Printer Control File for every printer. Furthermore, a Printer Control File is mandatory if you are using a Novell spooler on a Global System Manager Novell) configuration (see the Global Operating Manual (Novell NetWare) for further details).

Because setting up a Printer Control File is very complicated it is covered in a separate section (see section 6.2).

IMPORTANT NOTE: ALL PRE-V8.1 PRINTER CONTROL FILES MUST BE RUN THROUGH V8.1 $CUS TO UPGRADE THEM TO THE V8.1 STANDARD. IF YOU ATTEMPT TO USE A PRE-V8.1 PRINTER CONTROL FILE UNDER GLOBAL SYSTEM MANAGER V8.1, A STOP CODE 405 WILL OCCUR.

6.1.4 System Maintenance

When the fourth option in the $CUS main menu is selected a subsidiary menu is displayed, allowing a number of varied customisations described below. Note that all the customisations selected from this menu are applied immediately: The "Abandon customisation" option from the $CUS main menu does not reverse any customisations applied using the System Maintenance option.

Note that some of the System Maintenance functions will require one or more of the installation diskettes (i.e. BACRES, BEA or HAA) to be mounted before they can proceed. When an installation diskette is required you will be prompted by an appropriate mount message. **Note also that Global System manager must be reloaded for the customisations to become effective.**

6.1.4.1 Apply Nucleus Update

This option copies new nucleus components (i.e. +.*a*0, +.*am* and %.*xxxxxx*) supplied on a BACRES disk onto the SYSIPL or SYSRES disk as appropriate. On a network system this function must be run for every SYSIPL or SYSRES disk in use.

6.1.4.2 Install Extra TAP(s)

This option installs one or more new Terminal Attribute Programs (TAPs) to support new types of screen you want to attach to your computer. Note that these extra TAPs are copied to SYSRES as stand-alone files. They are not merged into the P.$TAP library.

6.1.4.3 Alter Memory Allocation

This option allows you to change the system stack size, memory bank size and number of memory banks. See Appendix A Section A.16) in the Global Operating Manual for further details.

6.1.4.4 Apply Upgrade Key

This option allows you to use a special upgrade key you have been given in order to change the status of your Global software, for example to upgrade demonstration software to fully licenced software. This option is rarely used and can be considered obsolete.

6.1.4.5 Save System Customisation

When this option is selected you will be prompted to save the customisation on either a diskette or a subvolume on a hard-disk:

```
      Key S to save onto a subvolume, D to save onto a diskette:
```

Key <u>D</u> to select the pre-V8.1 compatible option. This option will copy the various customisation files to a BACSAV diskette (using the $B unit assignment). Note that a suitably initialised diskette must be available in order to use this option.

Key <u>S</u> to take a complete copy of SYSRES onto a hard-disk sub-volume. This option creates a new subvolume named BACSAV, if necessary, then copies **all** the files from SYSRES to BACSAV.

6.1.4.6 Restore System Customisation

This option restores all the customisation files previously saved using the "Save System Customisation" diskette option (see section 6.1.4.5) from the BACSAV diskette to SYSRES. Please note that the $F COP

instruction must be used if it is necessary to restore to SYSRES any files that have been saved on a BACSAV sub-volume.

6.1.4.7 Create SYSRES Diskette
This option creates a bootable "emergency SYSRES" diskette that can be used to load Global System Manager if for any reason, the SYSRES sub-volume on hard-disk becomes corrupted.

It is expected that the "emergency SYSRES" diskette will be used in conjunction with $VOLSAV (to restore a previously saved domain layout) and $TAPE (to restore from a backup tape) to allow a complete system to be recreated in the event of a catastrophic hard-disk failure.

If $TAPE (or $TAPED) is not present on SYSRES, the following warning message is displayed:

```
        Warning - $TAPE not present on SYSRES, key <CR> to continue
```

Ignore this warning message if $TAPE has been installed on a separate TEPROG volume.

6.1.4.8 Alter Master Node Address
This option allows you to permanently change the master computer unit on a network configuration. Note that in order to ensure network-wide consistency, this function must be run for every bootstrap disk (i.e. once for each computer on the network).

6.1.4.9 Edit Contract Description
This option can be used to make up to 10 changes to the contract description displayed on the sign-on screen. For example, this option is frequently used to correct a mis-spelling of your company's name or address. The function uses the same editing techniques as $TED (see section 5.45). **DO NOT ATTEMPT TO CHANGE THE MEANING OF THE MESSAGE, AS THIS WOULD CONSTITUTE A BREACH OF YOUR LICENCE AGREEMENT.**

6.1.4.10 Apply Price Upgrade Key
This option allows you upgrade the price-level of an installed Global System Manager. In order to use this option a BACRES diskette, generated with the new price-level, must be available. This upgrade customisation is subject to the following restrictions:

- It is not possible to use this customisation option to upgrade special "reseller systems" (i.e. this option cannot be used on a BACRES that has not been serialised using the SETUSER utility). The error message "INVALID BACRES *nn*" (where *nn* is an error code) will be displayed if this is attempted;

- It is not possible to use this customisation option to upgrade the VERSION of Global System Manager. For example, it is not possible to upgrade from V8.1 to V8.2 using this option;

- It is not possible to upgrade from a single-screen Global System Manager (1 screen; level 3) to a multi-user Global System Manager (2-3 screens; level 4);

- It is not possible to upgrade from a single-screen Global System Manager (1 screen; level 3) to a multi-user Global System Manager (4, or more, screens; level 5);

- It is not possible to upgrade from a multi-user Global System Manager (2-3 screens; level 4) to a multi-user Global System Manager (4, or more, screens; level 5).

6.1.4.11 Apply Presentation Manager Expiry Date Password

This function, which is only available on Global System Manager PM, can be used if your current Presentation Manager licence is about to expire. If you have obtained a new expiry date password you may apply it directly to your system using this function without the necessity to reload Global System Manager. This option will accept passwords in either upper-case or lower-case.

6.1.4.12 Apply Windows Option Password

This function must be used to licence your Global System Manager for use with the Global Windows Workstation. If you have obtained a Global Windows Workstation licence password you must apply it to your system using this function. This option will accept passwords in either upper-case or lower-case.

6.1.4.13 Install Extra Facilities

This option allows you to install some of the functions which you may not have customised when Global System Manager was installed. On a network configuration, it is advisable to firstly install any new facility on the network master and then on all other computers.

Note that if you chose to save the existing customisation when upgrading from a pre-V8.1 Global System Manager to V8.1, you **must** use this option to install the Group file and Mail handling.

Selecting the "Install Extra Facilities" option allows you to select a number of detailed options from a sub-menu.

6.1.4.13.1 Install Event Logging

This option allocates a SYSLOG subvolume, allowing you to specify the size, and copies $$MLOG, P.$LOG and P.BR from the HAA diskette to SYSLOG. Logical unit $LG is permanently assigned to the SYSLOG subvolume. Note that if you are running on any computer other than the master in a network configuration this option merely assigns $LG to the SYSLOG subvolume on the master computer.

6.1.4.13.2 Install Group File

This option copies the $$GROUP file from the HAA diskette to SYSRES. In a network configuration, this option has no effect if it is attempted on any computer other than the master.

6.1.4.13.3 Install Mail Handling

This option allocates a SYSML subvolume, allowing you to specify the size, and copies $$MAIL from the HAA diskette to SYSML. Logical unit $ML is permanently assigned to the SYSML subvolume. Note that if you are running on any computer other than the master in a network configuration this option merely assigns $ML to the SYSML subvolume on the master computer.

6.1.4.13.4 Install Spooler

This option allocates a spool unit (SPOOL), allowing you to specify the size. Logical unit $PR is permanently assigned to the SPOOL subvolume.

6.1.4.13.5 Install Work Unit

This option allocates a work unit (SYWORK), allowing you to specify the size. Logical unit $WK is permanently assigned to the SYWORK subvolume.

6.1.5 Configuration Maintenance

The Configuration Maintenance option allows you to make **limited** changes to the configuration file used when Global System Manager is loaded. The *configuration file* is used by Global System Manager to determine hardware parameters (such as the number of screens attached and their port addresses) and how memory is to be allocated for buffers, RAM disk or cache. Some of these options will have no effect on some configurations. Please consult the Global Operating Manual for more details.

Note that all the customisations selected from this menu are applied to the configuration file immediately: The "Abandon customisation" option from the $CUS main menu does not reverse any customisations applied using the Configuration Maintenance option. Global System Manager must be reloaded for these customisations to become effective.

The Configuration Maintenance option within $CUS only allows you to change a limited number of configuration file parameters. In particular, it only allows you modify existing records - it does not allow you to add new entries or delete existing entries. In order to add or delete records in a configuration file you will have to use Global Configurator (see the Global Configurator Manual for further details). The Global Configurator Manual also contains complete descriptions of all the parameters described in sections 6.1.5.1 to 6.1.5.7.

Warning: Do not use any of the configuration customisation options unless you are sure what you are doing. Failure to calculate the ramifications of changes to memory allocation may make it impossible to reload Global System Manager on your computer, or to use all the screens attached to it. You should NEVER alter the configuration file on your BACRES volume, so that you can use it as an emergency backup if problems arise. Further information on buffer allocation can be found in the Global Configurator Manual.

You are prompted for the name and unit address of the configuration file; the defaults are the file and address used when Global System Manager was last loaded. For example:

```
Enter configuration file name (++5700AX): Unit (201):
```

Once the configuration file has been specified, a sub-menu is displayed which allows you to select a number of detailed options. These options are described in the following sections.

6.1.5.1 Console Control Blocks

This option allows you to alter the size of the various screen buffers allocated on your computer. When this option is selected the following prompt is displayed:

```
Apply changes to all nn screens (N):
```

where *nn* is the number of consoles defined in the configuration file.

The usual reply to this prompt will be <CR> which allows you to modify the parameters for each screen in turn. If you wish to modify the parameters for just one screen, reply <CTRL A> and specify the console number of the desired screen. The following example dialogue allows you to modify the parameters for the 2nd console in a 7-user configuration:

```
Apply changes to all 7 screens (N):<CTRL A>
Specify CA-block number:2
```

If you select to apply the changes specified for the first screen to all the other screens then you should be aware of a potential problem if the first screen is memory-mapped. If you change the screen width of a memory-mapped screen, the Display Buffer length is automatically changed (see below). The new Display Buffer length will propagate, invisibly, to all the other screens in the configuration file.

For each console in turn, or for a specific console only, you are prompted for the following parameters:

- Number of partitions per screen, between 1 and 9. A value of zero indicates that the screen is disabled. **If the number of partitions is changed, the $STATUS PUR command must be used to purge the User File**;

    If the customisation causes the total number of partitions to exceed 99, the following warning message is displayed:

    ```
    The total number of partitions in the system must be less than 100 (nnn)
    ```

    If the customisation causes the highest screen number to exceed 255, the following warning message is displayed:

    ```
    The highest partition number in the system must be less than 256 (nnn)
    ```

    See the Global Configurator Manual for further details;

- Depth of screen image in lines (normally 24 or 25). A value of zero indicates that no screen image is kept;

- Width of screen image (normally 132);

- Length of display buffer. For serial screens, the length of the display buffer must be at least 12 higher than the width of the screen image. For memory-mapped screens this prompt does not appear (it is replaced by the message "This screen is memory-mapped") and the length of the display buffer is set automatically to 12 more than the screen width (see above);

- Length of type ahead buffer. It may be necessary to increase the type-ahead buffer length if you are using $DIAL or the <SYSREQ> X system request;

- Length of function key buffer. It may be necessary to increase the function key buffer length if you are making extensive use of the <SYSREQ> K system request;

- Number of stored attribute bytes. This value should normally be 1 for monochrome screens and 2 for colour screens;

- Character translation enable flag. Character translation must be enabled if you intend to use a screen that requires character translation in the TAP (see Appendix A) or if you intend to use the <SYSREQ> B system request;

- Console executive flag byte. This parameter is fully explained in the Global Configurator Manual.

A reply of<CTRL B> to any of the prompts will complete the processing of the current console and allow you customise the next console defined in the configuration file.

6.1.5.2 Printer Buffers
This option allows you to alter three parameters that control the allocation of printer buffer resources:

- Length of printer buffers. There is normally no requirement to change this value from the default of 250. Note, unlike earlier versions of Global System Manager, V8.1 does not require printer buffers to be set to 250 if a printer control file is being used (see below);

- Number of printer buffers. It may be necessary to increase this value in order to increase printing performance. In general, printing will be faster the more printer buffers there are but other factors (e.g. the speed of the interface or bottlenecks imposed by the host operating system) may limit the performance of printers. There must be at least one printer buffer for each printer defined in the configuration file. Note, unlike earlier versions of Global System Manager, V8.1 does not require additional printer buffers to serve as translation tables (see below);

- Number of printer translation tables. There must be one printer translation table for every Printer Control File in use by Global System Manager (see section 6.1.3.3) otherwise ERROR Z will appear when attempting to print. There is no benefit to be gained by customising more printer translation tables than Printer Control Files.

6.1.5.3 File Control Blocks
This option allows you to alter three parameters that control the allocation of file buffer and control block resources:

- Number of File Channels. An insufficient number of file channels may result in the "* TOO MANY OPEN FILES" error appearing when using Global System Manager. Use the $USAGE utility (see the Global Utilities Manual) to monitor the use of file channels. A file channel is required each time an application opens a file (regardless of whether the file is already open by another user);

- Number of File Blocks. An insufficient number of file blocks may also result in the "* TOO MANY OPEN FILES" error appearing when using Global System Manager. Use the $USAGE utility (see the Global Utilities Manual) to monitor the use of file blocks. A file block is required for each distinct open file;

- Number of Lock Tables. An insufficient number of lock table entries may also result in the "* TOO MANY OPEN FILES" error appearing when using Global System Manager. Use the $USAGE utility (see the Global Utilities Manual) to monitor the use of lock table entries. The number of Lock Table entries must be between 1 and 198, inclusive. It is extremely unlikely that this value should ever be customised to exceed 100.

Note that it is NOT possible to customise the Number of File Buffers. This parameter can only be modified by using Global Configurator.

6.1.5.4 LAN Buffers
This option, which is only available for some configurations, allows you to alter the number of LAN buffers allocated in memory. Heavily used file servers may require more than the default, but full LAN buffers are expensive in terms of memory required. N.B. Global System Manager V6.2, and later, requires the total number of LAN buffers (long + short) to be at least as large as the number of computers on your network. If this requirement is not met, ERROR K's will occur when attempting to access data across a network.

6.1.5.5 RAM Disk/Cache
This option, which is only available for some configurations, enables you to use surplus memory as RAM disk or cache (or both when sufficient memory is available). Please refer to the Global Operating Manual for further details.

6.1.5.6 Printer Control Blocks
This option allows you to alter the parameters that affect the operation of an individual printer. Note that some of these parameters can be customised using the Printer Customisation option of $CUS (see

sections 6.1.3.1 and 6.1.3.2). There is an important difference between the printer customisations described in this section and those described in sections 6.1.3.1 and 6.1.3.2: The customisations in the Configuration Maintenance section of $CUS apply directly to the configuration file (and are only effective when Global System Manager is re-loaded). The customisations in the Printer Customisation section of $CUS apply to the $STARB customisation file and may, optionally, be applied without the requirement to re-load Global System Manager.

For each printer in turn, you are prompted for the following parameters:

● Printer page depth. If the page depth is 0, indicating that a hardware form-feed is to be used, this prompt will be replaced by the message "Hardware form-feed". Note that it is not possible to use this customise option to modify a page depth of zero to non zero (or vice-versa);

● Printer page width;

● Printer time-out. This value is in units of "tens of seconds" so that, for example, a value of 3 specifies a time-out period of 30 seconds;

● Printer Executive spooler bits. This parameter is fully explained in the Global Configurator Manual;

● Printer Executive flag byte. This parameter is fully explained in the Global Configurator Manual;

● Printer Characteristics byte. This parameter is fully explained in the Global Configurator Manual.

A reply of <CTRL B> to any of the prompts will complete the processing of the current printer and allow you to customise the next printer defined in the configuration file.

6.1.5.7 Network Control Block
This option, which is only available for some configurations, allows you to alter the parameters that affect the operation of the LAN executive:

● Polls to wait between accesses. This parameter is fully described in the Global Configurator Manual;

● Normal time-out period (in seconds). This parameter is fully described in the Global Configurator Manual;

● Time-out on first access (in seconds). This parameter is fully described in the Global Configurator Manual;

● LAN Executive retry count. This parameter is fully described in the Global Configurator Manual;

● WAN master node-id. This parameter is reserved for future use. **DO NOT ATTEMPT TO MODIFY THIS PARAMETER;**

● LAN Executive flag byte. This parameter is reserved for future use. **DO NOT ATTEMPT TO MODIFY THIS PARAMETER.**

6.1.5.8 Extended Customisation
This option invokes the configuration specific customisation utility, =.*NNNN* (where *NNNN* is the numeric part of the configuration code). This option is only available for some configurations. Please refer to the Global Operating Manual for further details.

6.1.5.9 Print Configuration Customisation

This option allows you to produce a full report of the customisations that have been applied to the configuration file. You are prompted for both a report file and unit. For example:

```
SPECIFY REPORT FILE (D.$CUSA):<CR> UNIT ($PR):<CR>
```

6.1.6 List Current Customisation

This option displays the customisations currently applied for:

- Sign-on Customisation (see section 6.1.1);

- Configuration Customisation (see section 6.1.2);

- Printer Page Size customisation (section 6.1.3.1);

- Printer Characteristics customisation (section 6.1.3.2).

6.1.7 Print Current Customisation

This option allows you to produce a full report of the customisations displayed by the "List" option (see section 6.1.6). You are prompted for a listing unit:

```
LISTING UNIT:
```

The default listing unit is $PR. The name of the report file is always D.$CUS.

6.1.8 Lock Customisation With Password

You are strongly advised to use this option to set a password to prevent illicit use of $CUS. A reply of <CTRL A> to the password prompt means no password is required to use $CUS. Note that the CUSTOMISATION PASSWORD: prompt issued by $CUS by-passes normal Job Management so that jobs can be written to apply Global System Manager customisations.

6.1.9 Abandon Customisation

This option allows you to abandon the customisation without making any modifications to the $STARB customisation file. Note that the following customisations are applied immediately and cannot be abandoned:

- Printer Control File customisation (section 6.1.3.3);

- System Maintenance (section 6.1.4);

- Configuration maintenance (section 6.1.5).

6.1.10 End Customisation (updating the $STARB customisation file)

This option updates the $STARB customisation file, applying any of the customisations described in section 6.1.1 (Sign-on customisation), section 6.1.2 (Configuration customisation), section 6.1.3.1 (Printer Page Size customisation) or section 6.1.3.2 (Printer Characteristics customisation).

6.2 $CUSP - Setting up a Printer Control File

A printer control file is divided into two parts, the Header Record, which contains the basic definitions of the printer sequences, and the individual Format Definitions, each of which specifies one mode of use of the printer. We shall look at each of these areas in turn.

When you select the Printer Control file option from the Printer customisation menu and specify a printer unit, the Printer maintenance summary screen (which includes a summary of the 26 possible format letters) appears, and you are prompted:

```
Key Amend format letter, Print, Test, Update header, <ESC>:
```

Key <ESC> to return to the Printer customisation menu.

You can run Printer Control File customisation directly (i.e. without going via the $CUS main menu) by using the $CUSP command program and specifying the unit address of the printer you wish to customise. If the reply is terminated by <CTRL A> you will be allowed to specify the network-id and unit number of the Printer Control File. For example, to update $$P508X on unit X01:

```
Printer unit:508<CTRL A>
LAN-ID of file to amend:X on unit:X01
```

6.2.1 Updating the Header Record

To update the Header Record you reply U to the baseline prompt from the summary screen shown in figure 6.3. This takes you to the header details screen (see figure 6.4) where you may amend the printer description within the control file, establish special customisation flags, establish a default format letter for the file with its associated page depth and stationery description, specify if a mount stationery prompt is to appear at the start of each print, and establish an extension startup file.

Keying <CR> to the baseline prompt on the Header Details screen proceeds to the start sequences screen shown in figure 6.5. On this screen you may set up the Start Sequences Global System Manager will send to the printer when it is first used (see section 6.2.1.2). Key A to amend all of the sequence element lines, or a line number to amend details for just that line. You may also key I to insert a new sequence element into the current set.

Keying <CR> proceeds to the first of the Utility Sequences screens, shown in figure 6.6 (see section 6.2.1.3). You set up Utility Sequences in the same way as Start Sequence elements, and may key <CR> to move to the second and subsequent utility sequences screens (there are four in total, each one showing details of 20 sequences).

On all the header update screens a reply of <CR> moves to the next screen in sequence, and a reply of B moves back to the previous screen (when you move forward from the last utility sequences screen you return to the header details screen, and vice versa). You may key P to print out the details of just this screen, and R to restore the details of the screen to the values they had when you originally entered printer maintenance. Keying<ESCAPE> confirms all updates made, writing them to the control file on disk, and returns to the summary screen.

6.2.1.1 Header Details Screen
The individual options on the Header Details screen are explained below.

6.2.1.1.1 Description
The first prompt on the Header Details screen is the 30-character description of the printer for which the file has been created (e.g. HP LaserJet 4).

6.2.1.1.2 Stationery Sequences Sent Always?

By default, Global System Manager will not send the utility sequences (see section 6.2.1.3) for a format to the printer, for a report whose format letter is the same as the previous report printed to that printer. If this flag is set then every time a report is printed the utility sequences for its particular format will be sent and a mount message will be displayed. You may wish to set this flag to Y for some single page feed printers.

6.2.1.1.3 Mount Messages Never Displayed?

If this flag is set to Y then the mount message normally displayed when printer format utility sequences are sent will be suppressed even if there has been a change in format type. If both this flag and the 'stationery sequences sent always' flag (see 6.2.1.1.2) are set to Y, then the utility sequences will be sent for every print file but the mount message will never appear. You may wish to set both these flags when a printer is shared between Global System Manager and the host operating system (e.g. Unix). **Warning:** Great care must be taken in the use of this flag if stationery changes for the particular printer are required.

6.2.1.1.4 Honour Mount Messages in the Middle of File?

Although most "well-behaved" applications produce print reports that have stationery mount messages at the beginning of the file, certain mature applications (including Global Writer in certain circumstances) produce print reports that have mount messages within the body of the report. By default, all mount messages in the middle of print reports are ignored. If you are using any of these applications you may wish to set this flag to Y. The mount message will appear on the screen, but any new utility sequences that would, under normal circumstances, accompany the stationery change will not be honoured.

6.2.1.1.5 Never Print Alignment Pattern?

If this flag is set to Y then, if a report file includes an alignment pattern (i.e. if the 4th byte of the stationery mount line within the print file contains an "="), then the alignment pattern will not be printed. You may wish to set this flag to Y if the reports are being printed to a spooler controlled by the host-operating system to prevent superfluous stationery mount messages.

6.2.1.1.6 Default Format Letter

This is the format letter which will be used for print reports that do not include a special stationery mount message. Any default format letter established by the $SP spooler will override this default.

6.2.1.1.7 Description

This is simply the description of the default format letter.

6.2.1.1.8 Depth

The depth is used by Global System Manager to create its own forms control record to preface any standard reports printed to this printer. This is the paper depth, in lines, for the printer. You would normally set this to 0 implying that the default page depth is in use.

6.2.1.1.9 Stationery Description

This is description of the standard stationery used for the printer.

6.2.1.1.10 Start-up Extension File and Unit

This extension file is a binary file which will be sent to the printer whenever the start sequence is sent, allowing you to send much more data that the 132 bytes allowed in the start sequence itself. Typically you would use an extension file if you wished to download a font into the printer, or to set up some complex parameters in a laser printer macro language. The downloaded data will normally apply to all the formats to be used on the printer (contrast with the extension files described in section 6.2.2.1.5). Global System Manager does not include any utilities for creating extension files. If you wish to use an

extension file you must create it yourself using the Basic Direct Access Method (refer to the Global Development File Management Manual).

6.2.1.2 Start Sequences

The next screen of the Printer Control File header information allows you to define the *Start Sequences* for the printer. Start sequences may be required to perform one or more of the following functions:

● to reset the printer to a standard state;

● to select a particular typeface out of several available in the printer (e.g. Elite or Courier);

● to select a particular character set out of several available on the printer (this is typically done in order to print the appropriate currency sign and/or alphabet for your country);

● to select between different print modes; for example, on some printers you can choose between draft mode and slower higher quality output. Similarly, you might want to choose between bi-directional and unidirectional printing;

● to set up the print margins; i.e. the width of the paper in characters and its depth in lines; the number of lines to skip from the top of the page to the first printed line; the number of character positions to skip at the left hand margin;

● to establish the vertical motion index, i.e. the number of lines per inch to be printed vertically;

● to select either portrait or landscape orientation (typically available on laser printers);

● to specify the horizontal motion index, i.e. the character spacing across the line.

Start up sequences may be up to a total of 132 characters in length, and are displayed on the screen as up to 20 elements each of up to 10 characters (20 hexadecimal digits on the screen). Obviously not all of the 20 elements may be of the maximum length.

Which functions are set up in the start sequence will depend on the purpose of the different formats you will define. For example if all the formats will be in Portrait orientation, or use letter quality printing, then you might well establish those functions in the start sequence. However, if some formats will be in Landscape orientation, or will use draft quality print, then it would be inappropriate to specify those functions in the start sequence. You would instead include them in the *Utility Sequences* as described below.

Often the start sequence merely contains a printer reset sequence, followed by some commands to set the limits of the paper margins.

In the example shown in figure 6.5, which is from the standard printer control file for the Hewlett Packard Laserjet II printer, the start sequence issues a printer reset, sets the line spacing (vertical motion index or VMI) to 1/8 inch and establishes Legal paper size. The last element of the sequence causes a 'PC LOAD LEGL' message to be displayed on the microscreen of the printer, requiring the operator to press the Continue key to proceed. It is established to enable more of the A4 page to be used for printing than is standardly possible.

Associated with each element of the start sequence is a 30 character description, so that you can record what the purpose of each part of the start sequence was for later reference.

Any startup sequence sent to a printer will remain in force until the printer is switched off or until cancelled by directly contradictory instructions.

6.2.1.3 Utility Sequences

The final four screens of the Printer Control File header information allows you to define up to 80 *Utility Sequences*. Each utility sequence may be up to 10 characters (20 hexadecimal digits on the screen), and has an associated description in the same way as the *Start Sequence* elements. Utility sequences are normally defined to do things such as enable bold or underline mode, or to select a particular character typeface or size. They are referenced in the format records, to select particular printer options for use with that record.

In the example file a large number of utility sequences are defined, but only a small number of them are used by the formats defined. The others are provided to assist in extending the printer control file to your individual requirements.
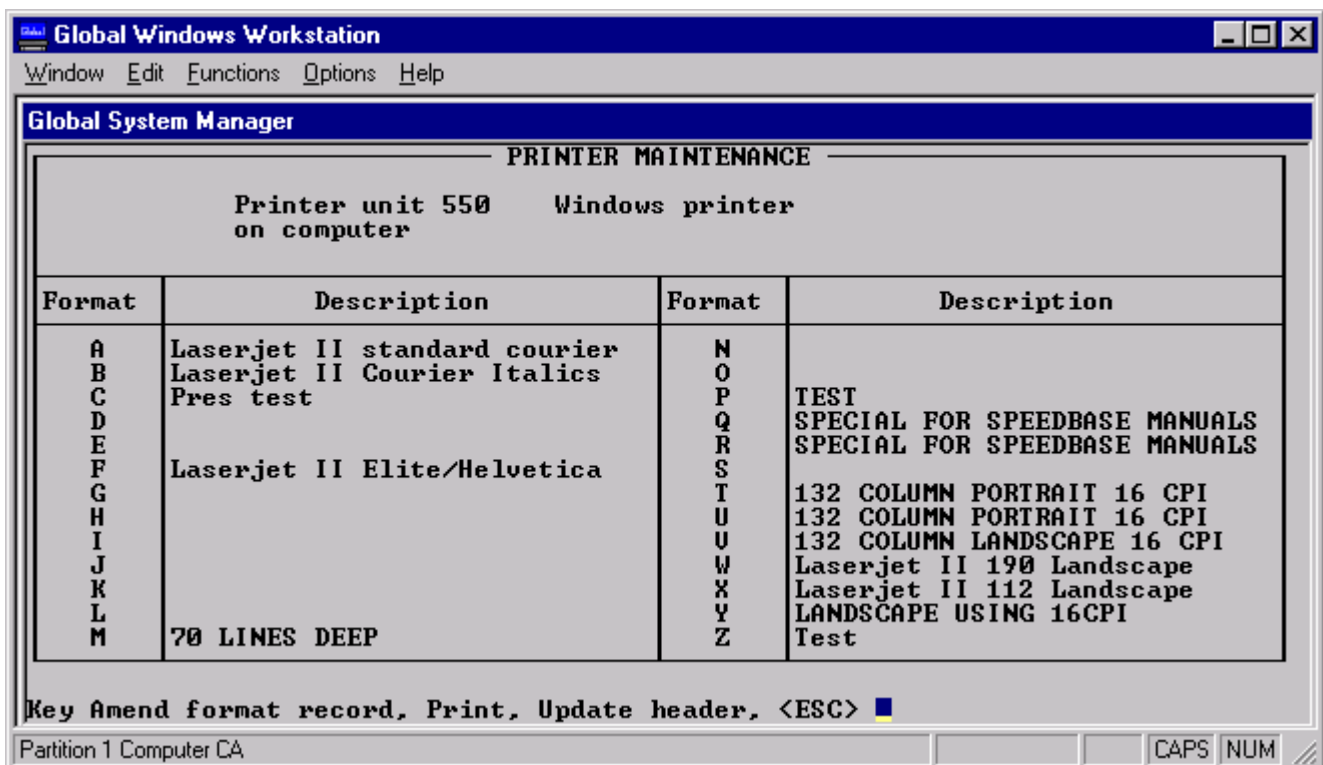
Figure 6.3 – The Printer Maintenance summary screen

```
Global Windows Workstation                                    _ □ ×
Window  Edit  Functions  Options  Help

Global System Manager
┌─────────────── PRINTER MAINTENANCE – HEADER DETAILS ───────────────┐
│                                                                    │
│        Printer unit 550      Windows printer                       │
│                                                                    │
│        Description  Unisys Laserjet 2 compatible                   │
│                                                                    │
├────────────────────────────────────────────────────────────────────┤
│        Stationery sequences sent always?              Y            │
│                                                                    │
│        Mount messages never displayed?                Y            │
│                                                                    │
│        Honour mount messages in the middle of file?   N            │
│                                                                    │
│        Never print alignment pattern                  N            │
├────────────────────────────────────────────────────────────────────┤
│        Default format letter A   Description Laserjet II standard courier │
│                                                                    │
│        Depth      0                                                │
│                                                                    │
│        Stationery description A4                                   │
│                                                                    │
│        Startup extension file                  unit               │
└────────────────────────────────────────────────────────────────────┘
Key Amend, Back, Print, Restore, <CR> for next, <ESC> ■
Partition 1 Computer CA                                      CAPS NUM
```

Figure 6.4 – Printer Maintenance, header details

6.2.2 Format Records and How They Are Used

To update a Format Letter, reply <u>A</u> to the baseline prompt from the summary screen shown in figure 6.3. You will then be prompted:

```
Key format letter to amend, <ESC> to exit:
```

Key the letter A-Z of the record you wish to update or (if no details exist for it) to create a new format record. The first of the four screens detailed above will then appear, allowing you to provide the required information. Each screen has a baseline prompt of the form:

```
Key Amend, Back, Copy, Print, Restore, <CR> for next, <ESC>:
```

Key <ESC> to return to the Printer maintenance summary screen. Any changes you may have made to the record will be preserved.

Key <CR> to proceed to the next screen of this record.

Key <u>R</u> to restore the contents of this screen to their initial state, if you have made an error while editing it.

Key <u>P</u> to print the details on the screen to unit $PR.

Key <u>C</u> to copy the information on the screen from another format record; you will be asked to specify which one.

Key <u>B</u> to display the previous screen of this format record.

Key <u>A</u> to amend all the items on the screen, stepping through them from the top of the screen down, pressing <CR> to leave an item unchanged or keying an alternative value.

Each application you run under Global System Manager might have a different requirement for using the printer. Reports printed by Global accounting software are generally in the same layout, but printouts from Finder, Planner and Writer might well have completely different layouts and requirements. You would therefore set up different format records in the printer control file for each of the various situations in which you wish to use the printer.

The use of format records is not compulsory. If all your reports sent to a particular printer are printed without a format letter defined, then whatever start sequence and default format you specified in the control file will determine the way they are printed.

If you use format records for some reports sent to a particular printer and not for others, those printed without a format record specified will be printed with the default format record as defined in the control file header. You must define a default format record as this is used to control the use of translations and graphics characters.
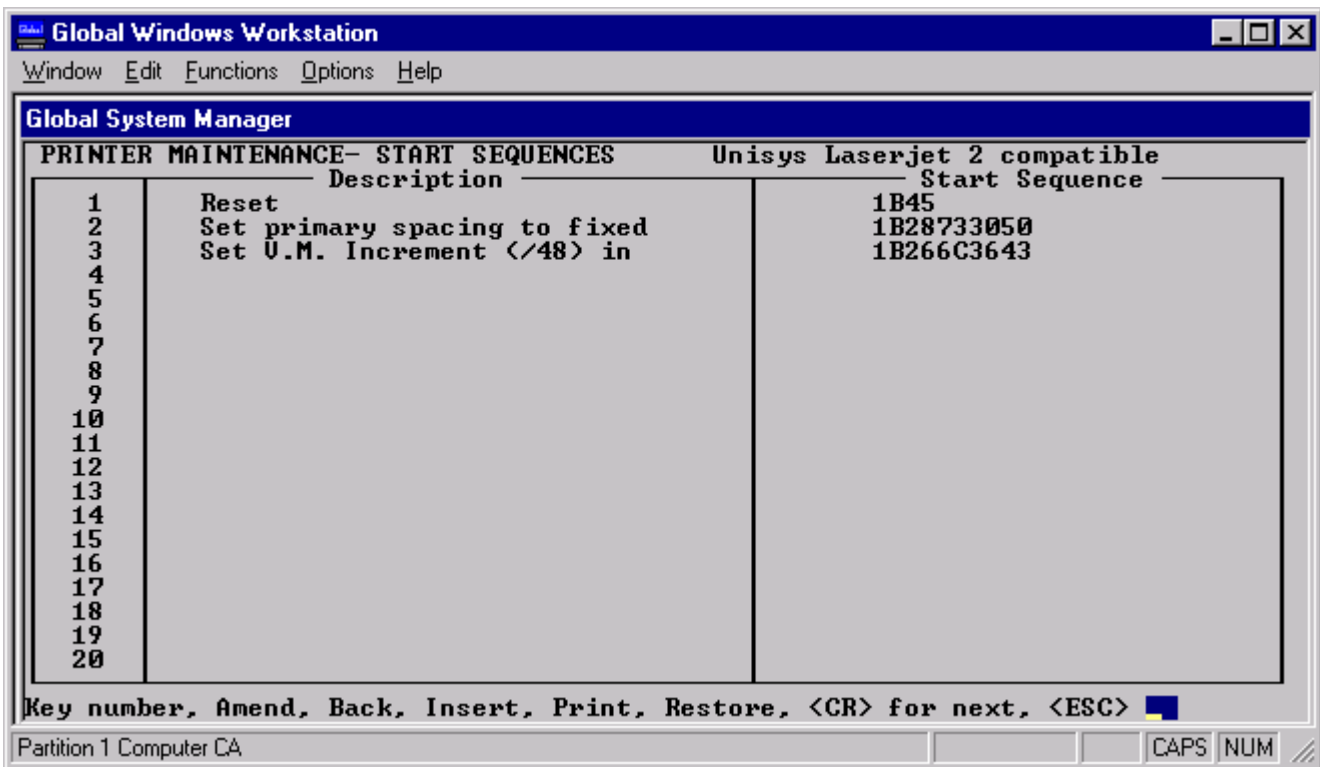
Figure 6.5 – Printer Maintenance, start sequences
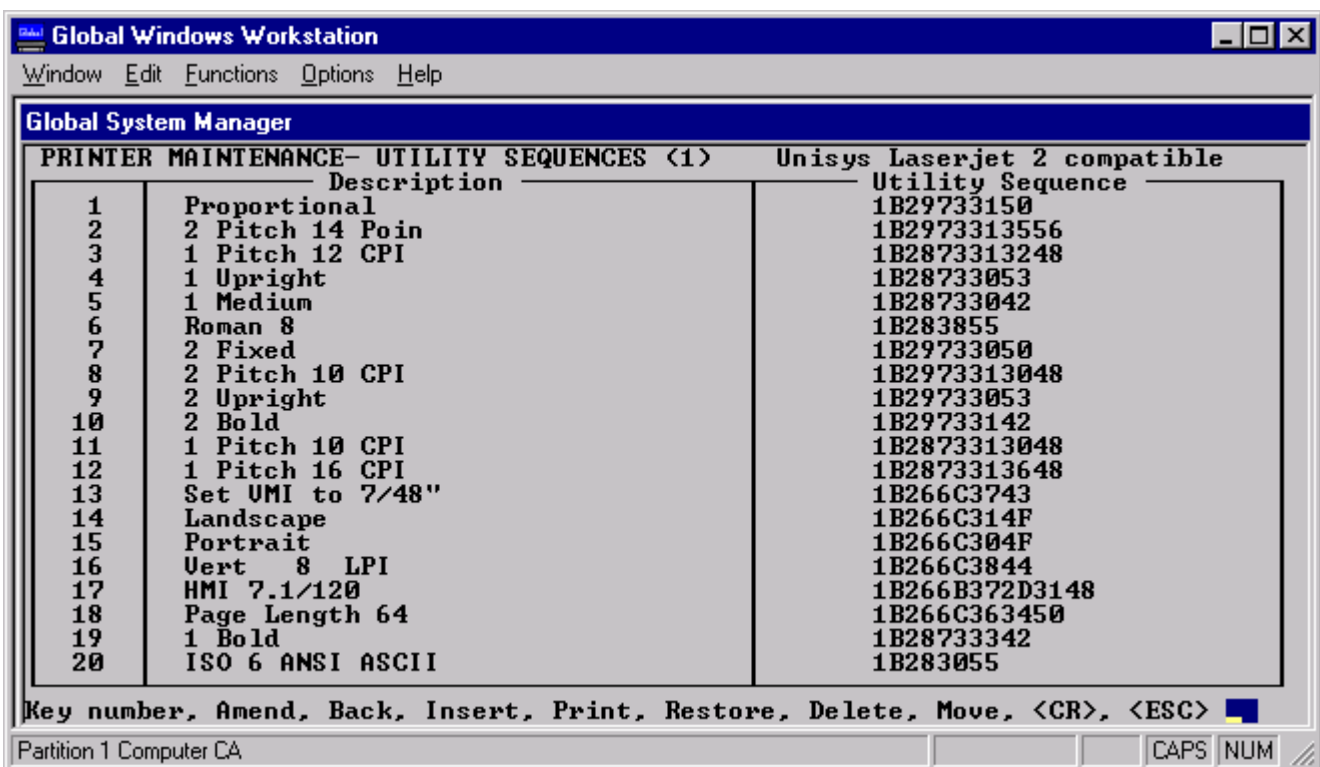
Figure 6.6 – Printer Maintenance, utility sequences

Each format record, identified by a letter A-Z, consists of some control information, such as a description of the format, along with a set of printer control sequences which perform some or all of the following functions:

Utility sequences	Those selected are sent to the printer at the start of the report to set it up as required (e.g. to specify the primary and secondary typefaces, character set, line spacing or form length).
Emphasis control	Whenever a report uses one of the six possible emphases (by use of the special characters #90 to #9F in the report) the appropriate sequence is sent to the printer.
Line spacing	Used by some applications to handle format line spacing.
Hopper control	Used by some applications when the page layout for the document or the print options selected by the operator require that different pages of the document are to be printed on different stationery fed from hoppers on the printer.
Graphics	Whenever a report sends a graphics character (one of the characters #80 to #8F) to a printer, Global System Manager sends any graphics selection sequences required and replaces it with the correct graphical character for the printer.
Translations	Any translations specified will be in effect while the format letter is selected.

Translations are normally required when a character generated by the keyboard, and thus embedded in a file, causes the wrong character to appear on the printer when it is printed. This tends to happen frequently with currency symbols and accented characters. In such a case you would set up a translation for your format records to translate every occurrence of the character keyed at the keyboard to the desired character determined by reference to the printer manual.

In fact Global System Manager can be used to set up a translation of any single character into up to 4 others. This facility is sometimes used to create special characters not otherwise available on your printer. One common case is where it is imperative to be able to print the "pound" character on those printers where hex 23 is printed as "hash". This is often achieved by translating a seldom used character, for example hex 7E (the tilde character), into the byte(s) which are printed as the "pound" sign. This technique allows both the "hash" and "pound" signs to appear in the same report or document.

Let us now examine an actual format record from the Laserjet II control file. As this control file is for a laser printer it is rather complicated.

6.2.2.1 Format Letter Specification
Each format record is defined on six separate screens; the first screen for this record is shown in figure 6.7. The fields on this screen contain general details identifying the format record.

6.2.2.1.1 Format Letter
This is the upper case letter A-Z (T in this example) by which the format record is identified. It cannot be changed.

6.2.2.1.2 Description
This is the description of the format letter which appears on the printer maintenance summary screen, in this example "Letter print - Portrait". Up to 30 characters may be used. In general, you should use it to identify the purpose of the record or the main typeface employed by it.

6.2.2.1.3 Mount Message Extension

The message defined here (up to 20 characters long) supplements and is **appended** to any stationery control message used by a report. Thus if the stationery control message for a report is "A4 plain" and the mount message extension for the format record is "with cartridge A", when the report is printed you will be prompted:

```
PLEASE MOUNT A4 plain with cartridge A ON UNIT uuu:
```

If you use the same font cartridge, daisy wheel or built-in fonts for all reports you should leave this item blank. Additionally if any format uses only built-in fonts then its mount message extension should be left blank to avoid spurious mount messages appearing.

The example format needs font cartridge A to provide the italics characters used by the italics sequence defined on a later screen. If you do not possess this font cartridge then you will be unable to use the italic characters defined in the format.

6.2.2.1.4 Printer Width

The width you define here is for information purposes only, and is intended to guide anyone looking through the available formats. It is used by the Test function, but not by any other part of Global System Manager.

6.2.2.1.5 Start-up File

You may define a start-up extension file for a particular format letter, in much the same way as you can for the Printer Control File itself (see section 6.2.1.1.10). As before, the file you specify is an binary file which will be sent to the printer whenever the format letter is used afresh. Typically you would use this to download a font or establish a forms overlay using a printer control language.

6.2.2.2 Sequence Usage

The second and third screens of the format record, of which the former is shown in figure 6.8, are used to define the sequences sent to the printer at the beginning of a report which uses this format.

For each of the 80 utility sequences defined in the print control file header (see section 6.2.1.3) you may choose whether to use that sequence for this format record. All the sequences you select are sent (in order of their sequence number) whenever this format record is selected by a report, and are followed by the start-up file (if any) defined on the first screen.

In the example shown, sequences are selected which will select Portrait paper orientation, fix the top and left hand margins, select standard Courier characters (10 cpi, upright, medium) as the primary typeface and bold Courier characters as the secondary typeface (10 cpi, upright, bold), using the ROMAN-8 character set at 6 lines per inch. Notice that there is no express selection of Courier as the typeface, it is a consequence of the character spacing and other attributes selected - different attribute selection would give rise to other typefaces, as is the case in other formats defined in this control file.

6.2.2.3 Emphasis control, Line spacing and Hopper Selection

The sections in the fourth screen of the format record, shown in figure 6.9, are used to define sequences for emphasis control, line spacing and hopper selection. The items are broken down as follows:

6.2.2.3.1 Emphasis Control

The six emphases are listed in order. The default names and uses for the emphases are Bold, Underline, Italics, Heading, Superscript and Subscript, although they may be altered if you wish.

Many printers provide a method of switching between a 'primary' and a 'secondary' font with a short control sequence. You should consider using this feature in emphatic sequences to reduce the sequence length.
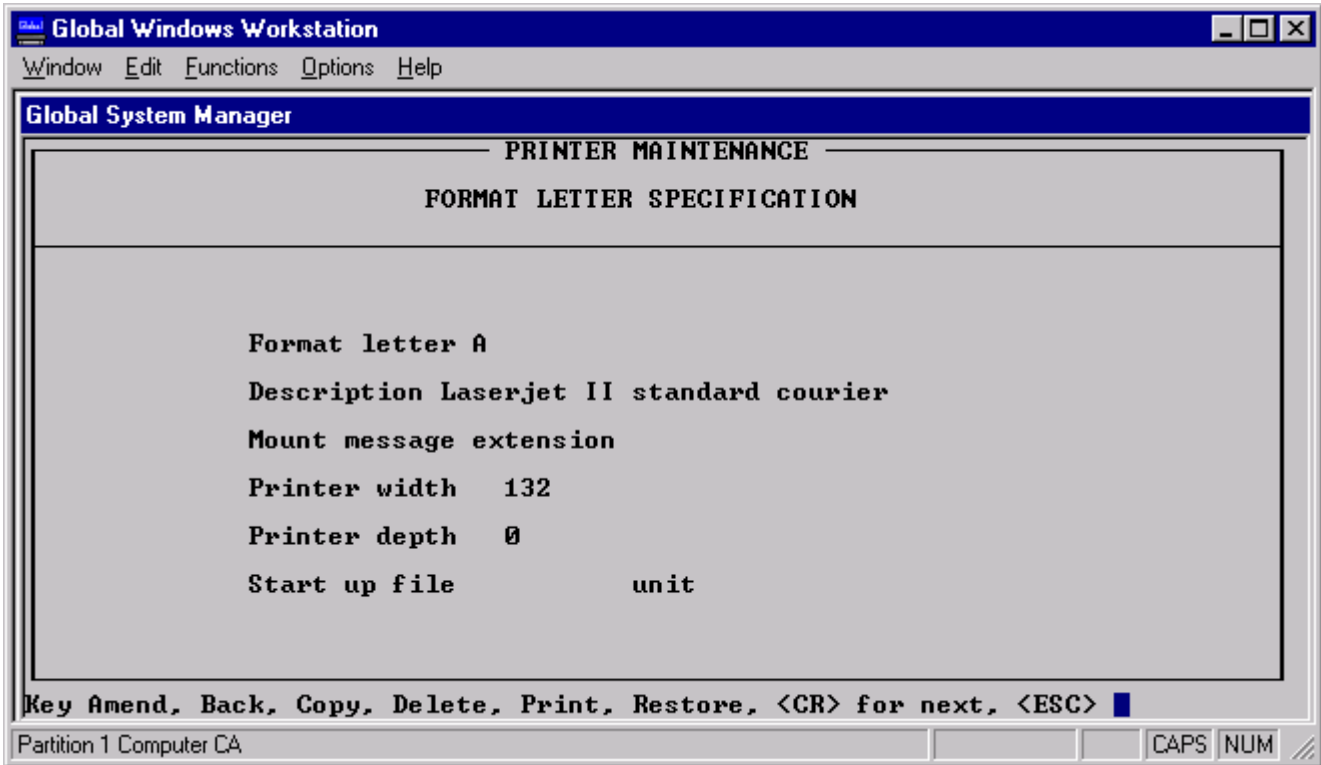
Figure 6.7 – Format letter specification
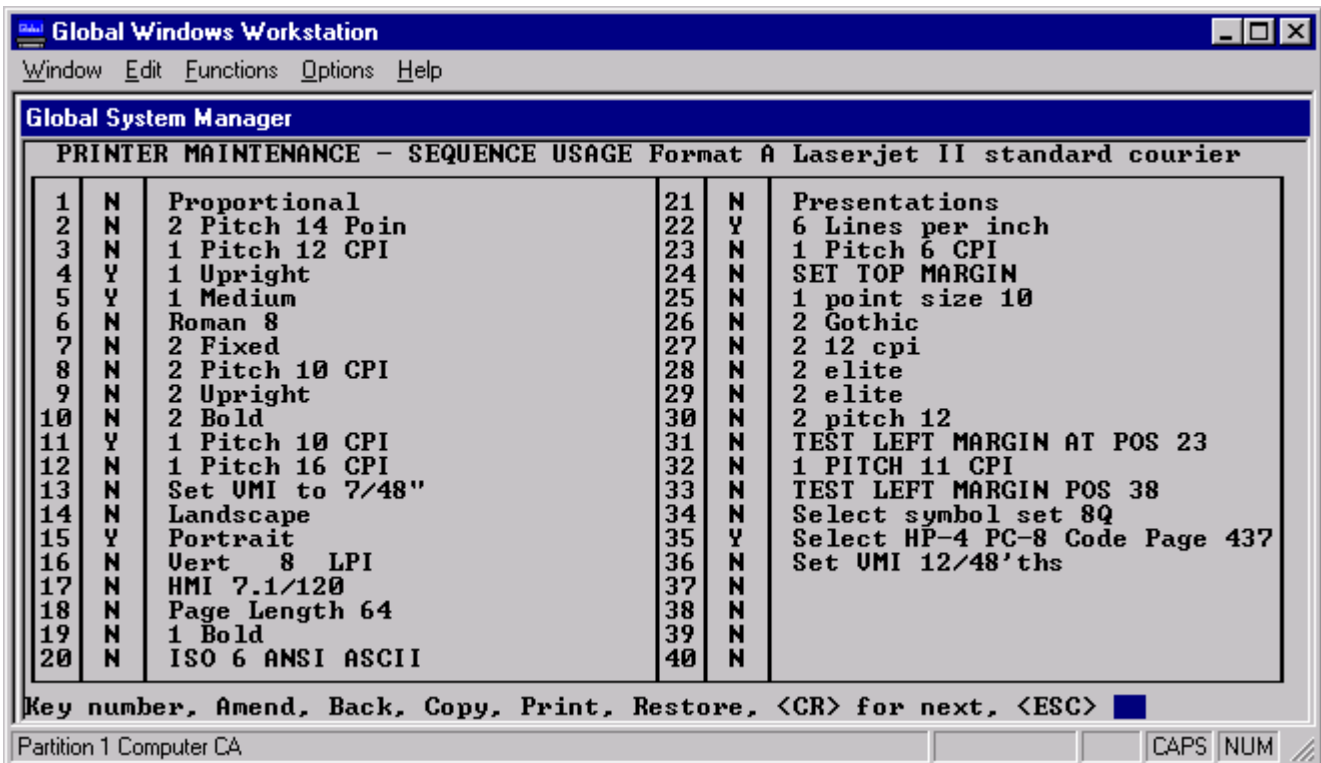
Figure 6.8 – Utility sequence usage

6.2.2.3.1.1 On Sequence (In Hex)
Up to 10 characters (20 hexadecimal digits) can be entered here to get the printer to emphasise subsequent text in one of the six possible ways. This sequence is sent to the printer whenever a start emphasis character is encountered.

6.2.2.3.1.2 Off Sequence (In Hex)
Up to 10 characters (20 hexadecimal digits) can be entered here to get the printer to cease emphasising text. This sequence is sent to the printer whenever an end emphasis character is encountered.

6.2.2.3.2 Line Spacing
These fields are used to define control sequences for the five possible format line spacings you can set in a Global Writer document. Whenever a format line is encountered when printing a document, the corresponding line spacing control sequence is sent to the printer, and this remains in force until another format line is found. Sequences may consist of up to 10 characters (20 hexadecimal digits).

6.2.2.3.3 Hopper Selection
If the printer supports multiple hoppers for paper feeding, you can use these two fields to specify to the printer the hopper control sequences required. Note that these sequences are only used by specialised applications (e.g. Global Writer). If you print a document with the print option "Feed paper from hopper?" set to 2/1, Global Writer will send the Tray 2 sequence before the first page, and then the Tray 1 sequence before the second page. For example, you might have letterhead paper in tray 2 and standard continuation paper in tray 1.

Each hopper selection sequence may be up to 10 characters (20 hexadecimal digits).

For printers without multiple hoppers (as in the example record) no hopper selection sequences need be defined. If a hopper selection sequence is sent to the printer it will remain in force until another hopper selection sequence is sent, or until some other sequence causes the hopper selection to be overridden. We would therefore recommend that your utility sequences contain an entry which selects the 'standard' hopper, and that all format records send this sequence.

For each format record a maximum of two hoppers can be used. If your printer has three (or more) hoppers you can still use them all, but you must either set up different format records to use different hoppers.

In the example, sequences are defined for all standard emphases, and all line spacings. Use of the italics emphasis requires format cartridge A as already mentioned, but all other emphases are available built-in. If you do not possess a cartridge A you should delete the Italics emphasis line from the record (although its presence will do no harm, as it will simply be ignored by the printer if no cartridge containing italicised characters is available).

```
┌─ Global Windows Workstation ──────────────────────────────── _ □ X ┐
│ Window  Edit  Functions  Options  Help                              │
├─────────────────────────────────────────────────────────────────────┤
│ Global System Manager                                                │
│  ┌────────────────── PRINTER MAINTENANCE ──────────────────────┐     │
│  │       Format letter A    Laserjet II standard courier       │     │
│  ├──────────────────────┬──────────────────────┬──────────────┤     │
│  │   Emphasis control   │ On Sequence (In Hex) │ Off Sequence (In Hex) │
│  ├──────────────────────┼──────────────────────┼──────────────┤     │
│  │    Bold              │ 1B28733342           │ 1B28733042    │     │
│  │    Underline         │ 1B266444             │ 1B266440      │     │
│  │    Italics           │ 1B28733153           │ 1B28733053    │     │
│  │    Heading           │ 1B28733342           │ 1B28733042    │     │
│  │    Superscript       │ F3F6                 │ F3F7          │     │
│  │    Subscript         │ F3F8                 │ F3F9          │     │
│  ├──────────────────────┴──────────┬───────────┴──────────────┤     │
│  │       Line Spacing               │      Hopper Selection     │     │
│  ├──────────────────────────────────┼───────────────────────────┤    │
│  │  0 NO SPACING     F143           │                           │     │
│  │  H HALF LINE      F13443         │   Tray One —              │     │
│  │  1 ONE LINE       F13843         │                           │     │
│  │  W ONE AND HALF   F1313243       │   Tray Two —              │     │
│  │  2 TWO LINE       F1313643       │                           │     │
│  ├──────────────────────────────────┴───────────────────────────┤    │
│  │   E for Emphasis       H for hopper selection    L for line spacing │
│  │ Key option, Amend, Back, Copy, Print, Restore, <CR> for next, <ESC> ■ │
│  └──────────────────────────────────────────────────────────────┘    │
│ Partition 1 Computer CA                                  CAPS NUM     │
└──────────────────────────────────────────────────────────────────────┘
```

Figure 6.9 – Emphasis, Line Spacing and Hopper Control
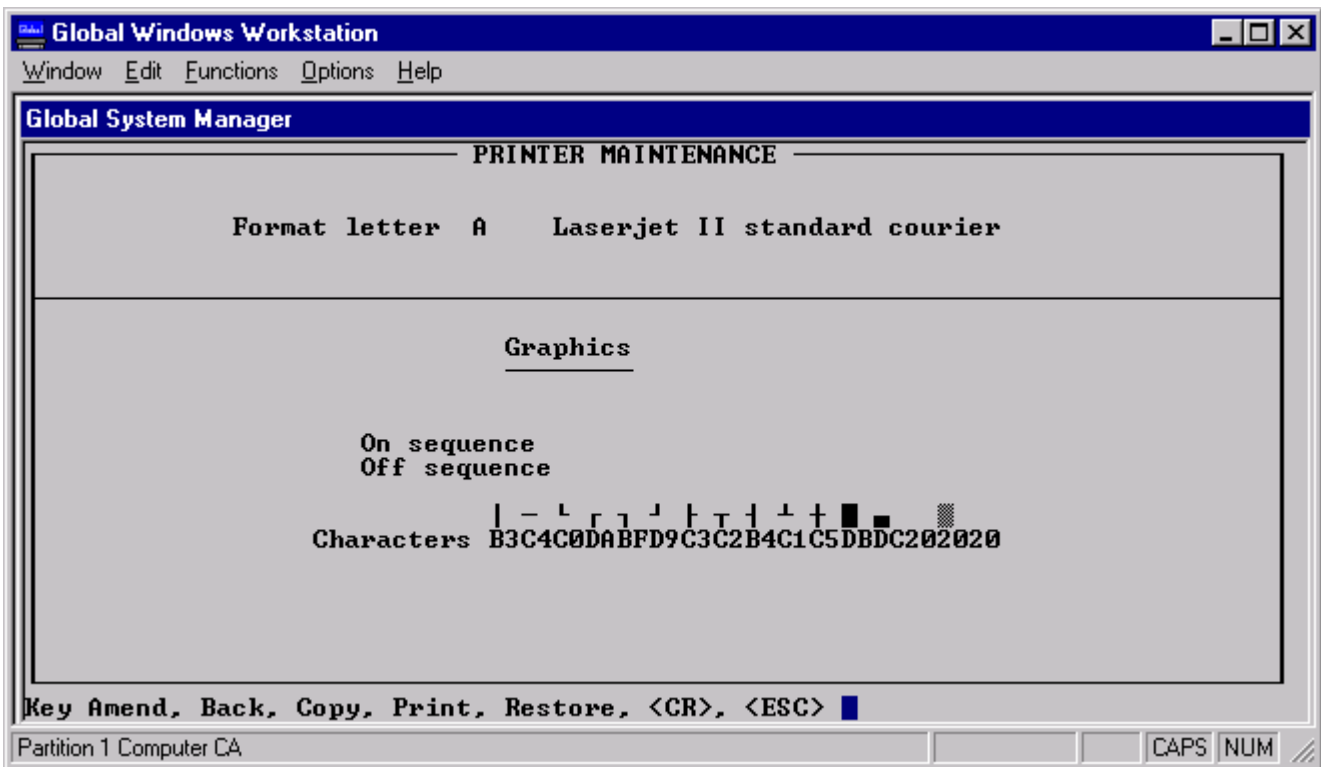
Figure 6.10 – Graphics sequences

6.2.2.4 Graphics Sequences

The fifth screen of the format record, shown in figure 6.10, is used to set up graphics characters. The items for which you are prompted are broken down as follows:

6.2.2.4.1 Graphics On Sequence

A sequence of up to 10 characters (20 hexadecimal digits) which is sent to enable printing of graphics characters. This is required for printers where the graphics characters are part of an alternate character set, as in the example where a different character set (IBM PC extended) is chosen.

6.2.2.4.2 Graphics Off Sequence

A sequence of up to 10 characters (20 hexadecimal digits) which is sent to disable printing of graphics characters, the counterpart of the graphics on sequence. In the example this reselects the ROMAN-8 character set.

6.2.2.4.3 Graphics Characters

The actual characters sent to the printer to print the indicated line drawing and block graphics characters. Where a graphics on and off sequence have been defined these will be the appropriate characters from the alternate character set. Otherwise they will be the actual characters recognised by the printer.

It is important that you define some graphics characters for your printer, as some reports will assume their existence. If your printer does not have line drawing characters in its character set you should set up sensible ASCII characters such as vertical bar (|, #7C), hyphen (-, #2D) and plus (+, #2B) for use as vertical line, horizontal line and junction characters (which is in fact the default state of the record).

6.2.2.5 Translation Sequences

The sixth screen of the format record, shown in figure 6.11, is used to set up translation sequences. Up to 32 translations may be defined, one on each of the 32 numbered lines of the screen. Note that versions of

Global System Manager prior to V8.1 only allowed 16 translations. The items for which you are prompted are broken down in to three sections.

6.2.2.5.1 Translation Number
A number in the range 1-32 to be specified if you wish to amend an individual line.

6.2.2.5.2 Translate
This heading covers the character to be translated. If you key a single character this will be taken to be the actual character you wish to translate. Alternatively you can key two hexadecimal digits to identify the character to be translated.

6.2.2.5.3 To Sequence
In this column is shown the hexadecimal translation defined for the character in the previous column. Each sequence may be up to 4 characters long (8 hexadecimal digits); thus #F1 in line 2 is translated into #1B266C for compatibility with pre-V6.0A Writer systems, whereas the tilde sign in line 1 is translated into #AF, the hex character for a ~ sign on the printer and character set in question.
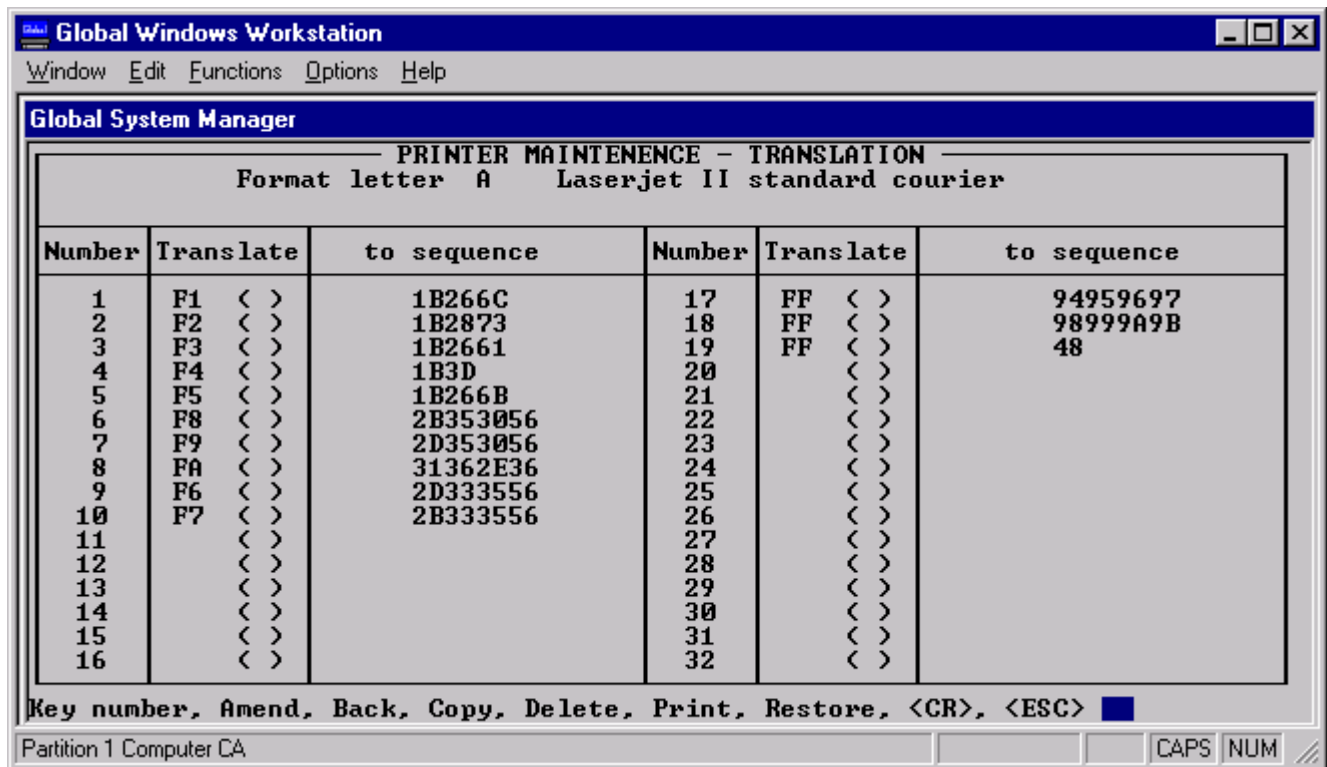
Figure 6.11 – Translation sequences

```
Global Windows Workstation                                    _ □ X
Window  Edit  Functions  Options  Help

Global System Manager
Global System Manager                          Sunday 30/01/00 12.32


                    PRINTER MAINTENANCE
                    _____

                         Test Menu
                    _____
              Character set print . . . . . . 1
              Emphasis print. . . . . . . . . 2
              Combined test . . . . . . . . . 3
              Hopper selection test . . . . . 4
              Line spacing test . . . . . . . 5
              Printer depth/width test. . . . 6
              Exit. . . . . . . . . . . . .<CR>

              Please select a Function        ■



Partition 1 Computer CA                            CAPS NUM
```
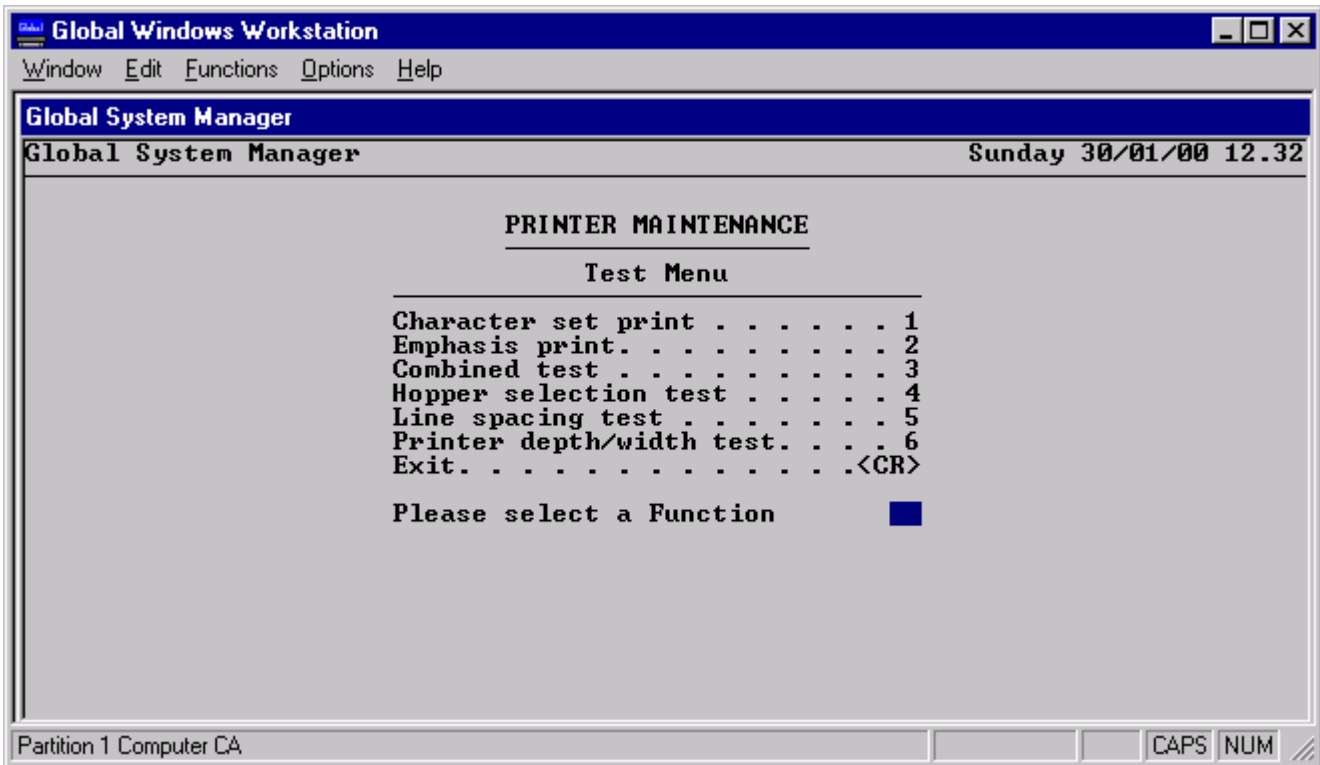
Figure 6.12 – The Printer Control File Test menu

6.2.3 Testing Format Records

Key T to test a format record. You will be prompted for which format record you wish to test. You will be presented with a test menu (see figure 6.11), from which you may select appropriate options to test various aspects of the format record you have chosen. Note that the reports generated by the options on the test menu are always printed directly to the printer unit (i.e. 5nn) rather than the $PR logical assignment.

6.2.4 Printing Printer Control File Details

Key P to the baseline prompt shown in figure 6.3 to print details of the control file to unit $PR. You will be asked which format record you wish to print details for. Key <CR> to print details for all format records in the control file.

6.2.5 Printer Control File Extra Information

Format records can take a considerable amount of work to devise. You are strongly advised to get printed copies of them and to take a copy of the Printer Control File (in which they are held) at regular intervals, to guard against loss of or damage to the file.

The naming convention and location of Printer Control Files depends on the host operating system as follows:

Host o/s	Filename	Unit
BOS (non networked)	$$P5nn	$DP
BOS (network)	$$P5$nnxx$	$DP
MSDOS (non-networked)	$$P5nn	$DP
MSDOS (network)	$$P5$nnxx$	$DP
Unix	$$P5nn	$M

Novell (units 500 - 549, and 599)	$$P5*nnxx*	$DP
Novell (units 550 - 598)	$$P5*nn*	$M

Where *nnn* is the unit address of the printer and *xx* is the network computer-id of the computer to which it is attached (this will be spaces on a non-network configuration). Please consult the Global Operating Manual for further details.

Global System Manager automatically sends the appropriate sequences to the printer when it is first used, and whenever the format in use is changed. If the printer should be turned off for any reason, causing the start sequence information and the current format sequences to be lost, you must instruct Global System Manager to re-initialise it either by using the $P command, or by using the spooler's I instruction.

6.3 $AUTH - Create/Modify Table of Authorized Users

When Global System Manager is installed in the normal fashion it does not prompt for passwords or perform any security checking. To establish security checking within Global System Manager you must:

● Use $AUTH to set up a table of authorized operators with associated passwords, authorization levels, and menu entries;

● Specify $AUTH as the authorization program either at installation or by sign-on customisation (see section 6.1.1.1). **In order for operator and password checking to take place $AUTH must be specified as the authorization program explicitly**. To ensure a secure system on a network environment, $CUS must be run on EVERY computer on the network to establish $AUTH as the authorization program. If a computer has not been customized to use $AUTH, it may provide a loophole in the security.

Specifying $AUTH as the authorization program means that it is run immediately after you key your operator-id in order to sign-on at a screen, and allows $AUTH to control access to the computer. The authorization information is held within the authorization file, $$AUTH on unit $M. On a network environment $M is a unit on the master computer, consequently authorization information is held centrally for the whole network.

IMPORTANT NOTE: V8.1 $AUTH is incompatible with pre-V8.1 $$AUTH authorization files. If you are upgrading to Global System Manager V8.1 from a previous version and $AUTH authorization is enabled you MUST run the existing $$AUTH file through $AUTH (see section 6.3.13).

When run as system utility (i.e. from the main menu or the READY prompt), $AUTH allows you set up and modify a table of authorized operators with associated passwords and authorization codes. It can only be run by supervisors (those with an authorization code of S or higher).

In addition to security functions $AUTH can be used to control some other operator-id related facilities:

● Automatic sign-on for particular screens;

● The amount of processor resources allocated to each operator can be controlled using the time-slice for that operator.

The authorization level of an operator is represented by a letter between A (lowest) and Z (highest). An operator with an authorization level of S or higher is deemed to be a supervisor.
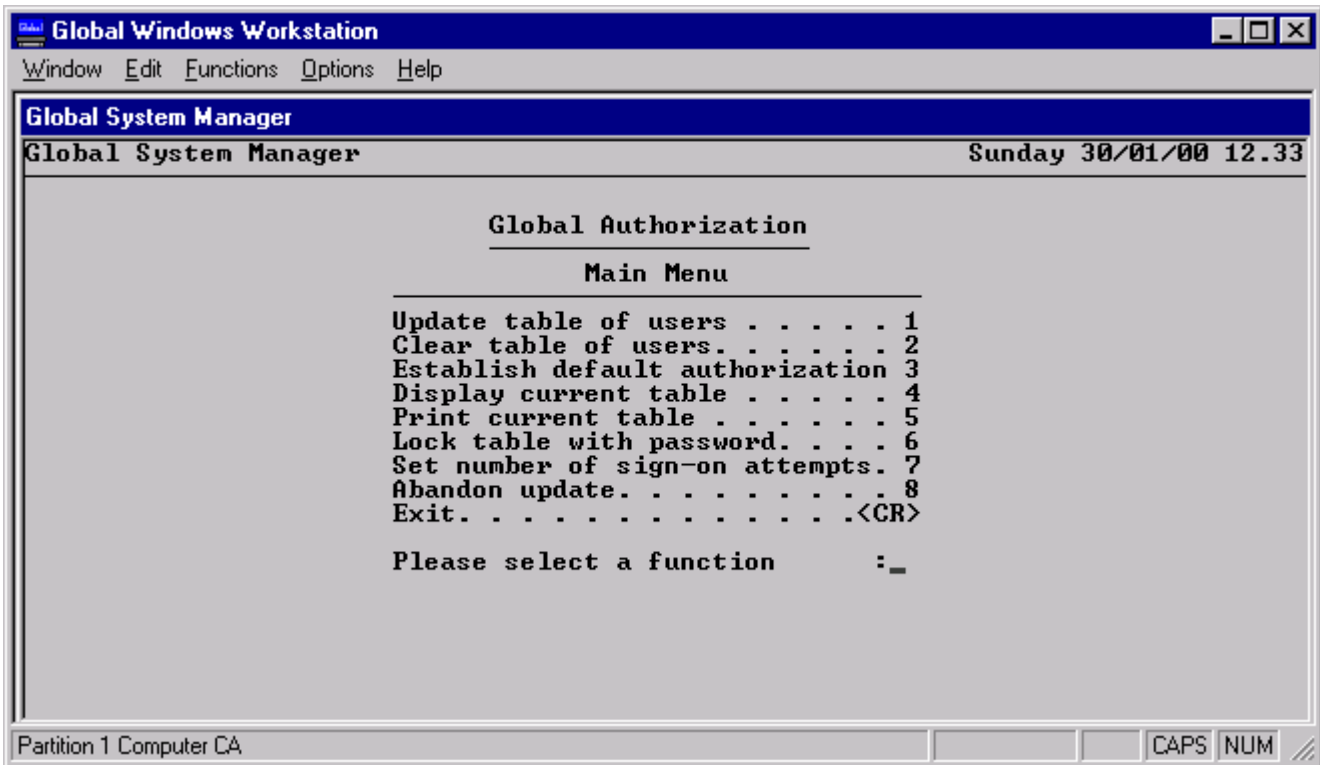
Figure 6.13 – Authorisation menu
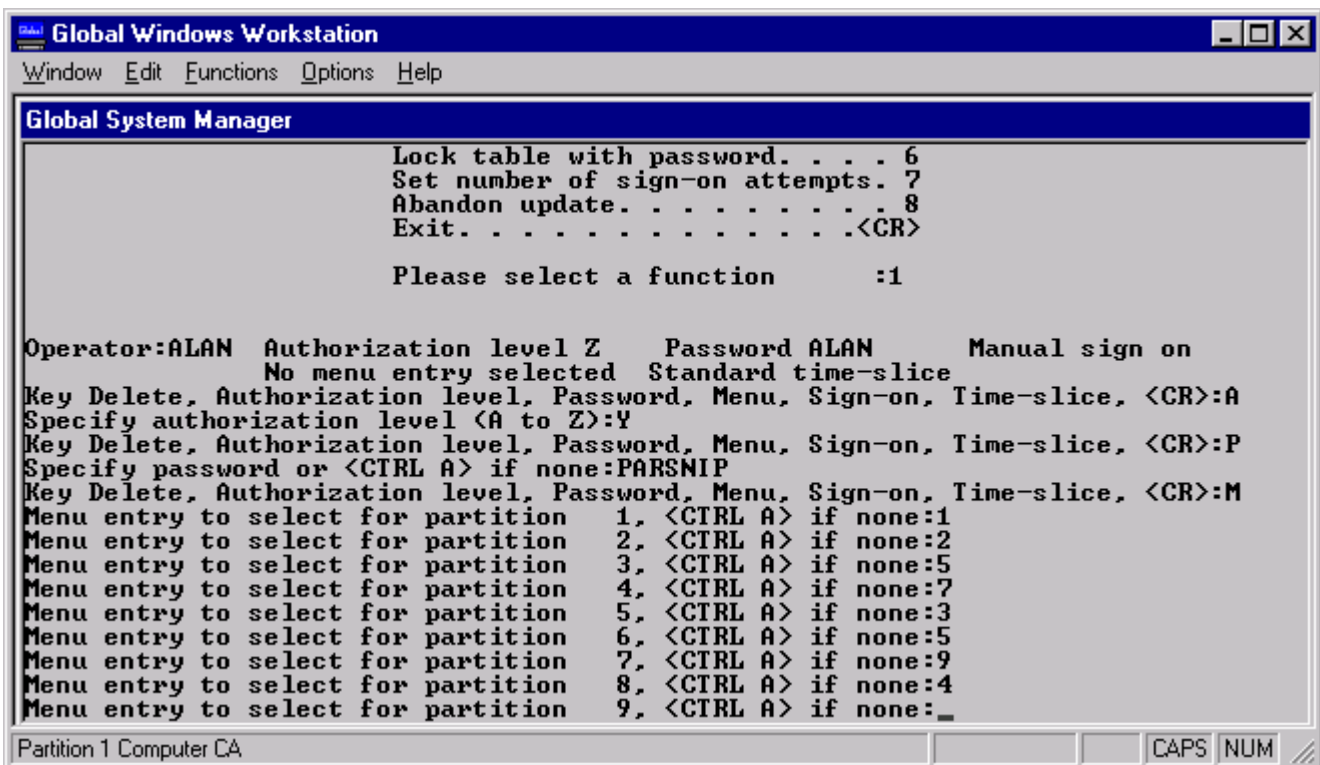
Figure 6.14 – Updating a User Entry

The following programs and facilities are not allowed or work in a different way (usually in a more limited fashion) if they are used by operators with an authorization level lower than S:

$AUTH $MAIL $VOLSAV

$CUS	$MH	<SYSREQ> B
$GROUP	$STATUS	<SYSREQ> K
$L	$V	<SYSREQ> S

For example, $STATUS can only be used to display the status information if it is used by a non-supervisor: it cannot be used to cancel or restart other operators.

You can also associate an authorization level with each entry in a menu so that only operators with that level or higher will be allowed to select that entry.

To update the table of users you must run $AUTH from the Global System Manager menu or ready prompt. You will be prompted for a password if you have previously specified a password for $AUTH using the appropriate function from its menu. **You are strongly recommended to always establish a password for $AUTH.**

When the $AUTH menu appears, you will typically update the table of users, display or print out the result, and then exit to cause the updates to be written to disk. You can clear the table to start afresh or abandon the update instead if you make a mistake.

6.3.1 Update Table of Users

To add, modify or delete entries in the table select function 1, "Update table of users". You'll be prompted for the operator-id (1-4 characters) of the entry you want to update (key <u><CTRL C></u> to display a list of all the operators who are in the table). If there is no existing entry, a new entry is created with authorization level S and a password the same as the operator-id. The entry for the operator specified is then displayed, and can be updated by keying one of the following:

A   to amend the authorization code;

D   to delete the entry;

M   to specify the menu entries for each partition (see section 6.3.11);

P   to change the password. A reply of <CTRL A> to the password prompt means no password is required for that operator and the password prompt is to be suppressed;

S   to specify automatic or manual sign-on (see section 6.3.10);

T   to change the time-slice for that operator (overriding the swap interval - see section 6.3.12);

<CR>   to complete the update for the particular operator and return to the operator prompt.

When you have finished updating the table key <CR> to the operator-id prompt to return to the $AUTH main menu.

6.3.2 Clear Table of Users

Use this option to clear the table of users. You must reply Y to the "Clear table - are you sure prompt?" in order to expedite this function.

6.3.3 Establish Default Authorization

This function is used to allow operators not in the table of users to sign on anyway. You do this by selecting the default authorization function, and specifying the authorization level (A to Z) to be given to operators who are not in the table. The initial default of $AUTH is not to allow sign-on by operators other than those in the table.

To make sure that security is not compromised when using this facility you must perform the following:

- Define a default authorization level between A and R;

- Define an initial menu using the sign-on customisation function in $CUS;

- Use the menu customisation program to specify that command programs cannot be run from the menu prompt (see section 7.2.6.2);

- Use the menu customisation program to specify authorization levels for sensitive menu entries that are higher than the default authorization level (7.2.1.7).

6.3.4 Display Current Table
This option displays the details of every operator with an entry in the authorization table.

6.3.5 Print Current Table
This option prints the details of every operator with an entry in the authorization table. The report file, default name D.$AUTH, is created on the list unit you specify (the default is $PR). The name of the report file may be changed from the default name if the terminator to the reply to the "Listing unit" prompt is <CTRL C>.

6.3.6 Lock Table With Password
You are strongly advised to use this option to set a password to prevent illicit use of $AUTH. A reply of <CTRL A> to the password prompt means no password is required to use $AUTH.

6.3.7 Set Number of Sign-on Attempts
This option allows you to restrict the number of attempts an operator may make to sign-on to Global System Manager. The default number is 3. A value of 0 means that there is no limit on the number of attempts to sign-on to Global System Manager (for compatibility with earlier versions).

During sign-on, if the sign-on retry maximum has been reached and the operator has not keyed in a valid operator-id and/or password the following error message is displayed:

```
YOU HAVE REACHED THE MAXIMUM NUMBER OF SIGN-ON ATTEMPTS
THIS SCREEN IS NOW LOCKED
```

The locked screen can only enabled again by using the $STATUS 'RES' command, or by reloading Global System Manager, as documented in the Global Operating Manual.

6.3.8 Abandon Update
This option allows you to abandon the update without making any modifications to the $$AUTH authorization file.

6.3.9 Exit (updating $$AUTH authorization file)
The $$AUTH authorization file is not updated until you select this option to exit $AUTH.

6.3.10 Automatic Sign-on

A powerful feature of $AUTH is automatic sign-on for an operator. If this option is enabled, then if there is no reply to the operator-id prompt within 3 seconds the operator who last signed on at that screen will be signed on again. You can use this feature in conjunction with automatic menu selection (see section 6.3.11) to run a program without any operator intervention. For example, to run the print spooler, $SP, automatically on one particular screen and partition.

To select automatic sign-on key <u>S</u> when updating the table of users (see section 6.3.1).

Note that selecting automatic sign-on causes the password prompt for that operator to be suppressed. To preserve the security of the system other entries in the initial menu should have a higher authorization level than the level associated with the operator that is signed on automatically.

Note also that you must sign the operator on explicitly once before the automatic sign-on will take effect.

6.3.11 Automatic Menu Selection

You can use $AUTH to cause a particular function from the main menu (usually $MH with $$MENUS) to be selected automatically when the operator signs on. Different selections can be made for each operator, and indeed, for each of the 9 partitions for one operator. Thus, by using submenus as described in Chapter 7, each operator can be routed automatically to the appropriate menu. If the submenus are set up with no way of returning to the main menu, then you can use this to restrict the functions available to a particular operator.

To specify menu entries to be selected key <u>M</u> when updating the authorization table using $AUTH (see section 6.3.1). You will be prompted for the menu entry to select for each of the 9 possible partitions provided you are using a V8.1 standard authorization file.

6.3.12 Time-slice

Processor time is divided between the programs that are active at any one time. Each program executes for the number of milliseconds given by its time-slice period before execution passes to the next program. When Global System Manager is first installed all operators have the same time-slice period, a value specified in the Nucleus Options section of the configuration file. This value also be customised without recourse to Global Configurator (see section 6.1.2.11). Using $AUTH time-slices of different lengths can be established for different operators thus giving more processor time and priority to some operators and the programs they use.

To specify a time-slice period key <u>T</u> when updating the table of users (see section 6.3.1). $AUTH prompts for the time-slice in milliseconds. Note that a time-slice of 0 is invalid.

6.3.13 Upgrading pre-V8.1 $$AUTH Authorization Files

If you attempt to run V8.1 $AUTH on a pre-V8.1 authorization file you will be asked if you wish to upgrade the file to the V8.1 standard. Because of the severe implications involved when upgrading a pre-V8.1 authorization file to V8.1 standards (see below) you are asked to confirm that you wish to upgrade:

```
Upgrade authorization file (N)?Y
Upgrade - Are you sure (Y):<CR>
```

Global System Manager V8.1 will continue to work with pre-V8.1 authorization files (albeit with reduced functionality) PROVIDED THE $$AUTH FILE HAS BEEN RUN THROUGH $AUTH V8.1. However, pre-V8.1 Global System Manager will NOT work with V8.1 authorization files. If

Global System Manager V8.1 is installed on a network configuration you must not upgrade the authorization file (although you must run it through V8.1 $AUTH) until ALL the computers have been upgraded to Global System Manager V8.1. None of the new features of V8.1 $AUTH (i.e. limiting the number of sign-on attempts and allowing partitions P5 to P9 to have unique menu entries) will be recognised until the pre-V8.1 authorization file has been upgraded to V8.1 standards.

NOTE ALSO THAT V8.1 $AUTH WILL REFUSE TO RUN UNLESS A VALID AUTHORISATION FILE ($$AUTH ON UNIT $M) IS PRESENT. THIS INSISTENCE FOR A $$AUTH FILE PREVENTS USERS BY-PASSING GLOBAL SYSTEM MANAGER AUTHORISATION VALIDATION BY DELETING OR RENAMING THE $$AUTH FILE.

6.3.14 Changing the Password At Sign-on

If a $AUTH password has been specified for a particular operator, that user can change his or her password at sign-on time (without running $AUTH explicitly). If the reply to the PLEASE KEY PASSWORD prompt is correct (i.e. the password expected for that operator) and is terminated by <CTRL B>, instead of the normal <CR>, the operator is prompted for a new password. The following example dialogue changes the password for operator "ALAN" from "CELERY" to "CELERIAC":

```
PLEASE KEY YOUR OPERATOR-ID:ALAN
PLEASE KEY TERMINAL CODE ( 519):<CR>
PLEASE KEY PASSWORD:CELERY<CTRL B>  (not echoed)
KEY NEW PASSWORD: CELERIAC
```

Important note: If the length of the password is 8 characters (as in the new password in the above example) the auto-terminate feature of the password accept does not allow <CTRL B> to be keyed as the terminator.

6.3.15 Sign-on Dialogue

For Global System Manager V8.1, the $AUTH dialogue at sign-on time has been changed to issue a spurious PLEASE KEY PASSWORD prompt for those operators that are not allowed to sign-on. This change has been implemented to tighten security - a potential hacker cannot deduce valid operator-id's by noting the presence or absence of a password prompt.

6.4 $ZAP - Apply Software Fix

The $ZAP command is used to apply a small 'patch' to the code of a program to correct a fault. Zaps may be distributed in two different ways: shorter ones come in paper form, and you must key then in by hand; longer ones come in the form of a file on a disk.

A paper zap consists of a number of lines, each 6 letters long, the first of which is always "ZZZZZZ". When you run $ZAP you are asked to key it in a line at a time (any mis-keying will be rejected); the message "ZAP VALID" will appear when you have keyed in the last line. Note that either lower-case or upper-case letters are allowed.

If you have been supplied with a zap file on a disk you should key<CTRL A> to the "PLEASE KEY ZAP" prompt, and supply the name of the zap file (with or without the "Z." prefix) and the unit address of the disk on which it's held. The message "ZAP VALID" will then appear, provided the disk is correctly mounted. For example:

```
GSM READY: $ZAP
$98 Key zap starting with ZZZZZZ or <CTRL A> for zap file
:<CTRL A>
$98 ZAP FILE NAME:Z.ZAP1 UNIT:287
```

```
$98 ZAP VALID
$98 FILE:
```

NOTE THAT THE MESSAGE "ZAP VALID" ONLY INDICATES THAT THE ZAP IS VALID IN FORM, NOT THAT IT HAS BEEN APPLIED TO THE FAULTY CODE.

If the zap is for a program, subroutine or an unspecified file you will now be prompted for the name of the file to be zapped and its unit address; if the zap is for a specific file you will be prompted only for its unit address. When you have supplied these, and the zap has been applied, the message "ZAPPED" will appear on the same line. The same prompts will then reappear, in case there are two copies of the same program which need to be zapped. Key <ESCAPE> to exit. For example:

```
GSM READY: $ZAP
$98 Key zap starting with ZZZZZZ or <CTRL A> for zap file
:<CTRL A>
$98 ZAP FILE NAME:Z.ZAP1 UNIT: 287
$98 ZAP VALID
$98 FILE:EXAMPLE UNIT: 201 ZAPPED
$98 FILE (EXAMPLE):
```

Four different error messages may appear:

```
FILE NOT FOUND

LIBRARY MEMBER NOT FOUND

ALREADY APPLIED CODE nnnn

MATCH NOT FOUND CODE nnnn
```

The first message means that the file was not found at the unit address you gave for it - the wrong disk is mounted or the wrong address specified.

The second occurs when the library specified as the target of the zap does not actually contain the program to which the zap applies.

The third message indicates that the zap has already been applied (or sometimes that you are applying it to the wrong version of a file).

The fourth message indicates that you have tried to zap the wrong version of the file: this could be because the zap has already been applied, or a previous zap must be applied before the current zap can be used, or that the zap is intended for another version of the product.

Normally the accompanying documentation will clarify these last two points.

The special reply of<CTRL C> to the FILE or UNIT prompt allows another zap to specified. For example:

```
GSM READY: $ZAP
$98 Key zap starting with ZZZZZZ or <CTRL A> for zap file
: ZZZZZZ
: QYZHRH
;
; rest of the zap
;
$98 ZAP VALID
$98 FILE: EXAMPLE UNIT:201 ZAPPED
$98 FILE (EXAMPLE): <CTRL C>
$98 KEY ZAP STARTING WITH ZZZZZZ
```

```
                  :
```

$ZAP can be used to remove the effect of a previously applied zap. To reverse the changes introduced by a zap, terminate the unit of the target file with<CTRL A>. For example:

```
GSM READY: $ZAP
$98 Key zap starting with ZZZZZZ or <CTRL A> for zap file
: ZZZZZZ
: QYZHRH
;
; rest of the zap
;
$98 ZAP VALID
$98 FILE: EXAMPLE UNIT:201<CTRL A> UNZAPPED
$98 FILE (EXAMPLE):
```

If you key <CTRL B> to the "PLEASE KEY ZAP" prompt, $ZAP will create a zap file from a paper zap. You must supply the name of the zap file (with or without the "Z." prefix) and the unit address of the volume on which it is to be created. For example:

```
GSM READY: $ZAP
$98 Key zap starting with ZZZZZZ or <CTRL A> for zap file
:<CTRL B>
$98 SPECIFY NEW ZAP FILE NAME:Z.ZAPNEW UNIT: 287
ZZZZZZ
etc.
```

7. Menus

The menu command $MH and the menu maintenance utility MN allow you to create a set of menus tailored to your installation's requirements without the need for programming. When you add a line to a menu you define the program to be run when this line is selected, the units and volumes on which the data is held, and access rights needed to use that function. You can also specify the name, unit and start book of a Help file for use with the program, and optional dialogue to be executed when the line is selected.

In a network environment, MN is installed only on the master, so always run MN from $M if there is no menu entry to run menu maintenance.

Most Global software installation procedures will add suitable lines to the main menu if required, and this is usually sufficient for small installations. If, however, your installation has more than 15 menu functions you may prefer to construct a main menu and several submenus, so that each menu is less crowded. Also, if you are running a networked system you may want different menus on different computers.

The menu handler and menu maintenance utility are both very complex. In order to prevent repetition in other manuals some advanced features are documented in this chapter. Sections 7.5 to 7.10 describe the advanced features of the menu handler that can be ignored by most users.

Figure 7.1 – Full Screen Menu

Figure 7.2 – SAA-style menus

7.1 Introduction to Menu Maintenance

The menu maintenance facilities have been designed to meet the requirements of all users, no matter what their level of technical expertise. They can be used by everyone from application development staff wanting to set up protected access systems to end users with a no programming knowledge who wish simply to add an entry to a menu.

End users who would like to be able to set up straightforward menu entries with passwords should just read this introduction and section 7.2 - Amend menus.

7.1.1 MN, $MH and Menu Files

The menu system consists of three parts: a program to create and amend menus (MN); a program to display the menus on the screen and pass control to the selected programs ($MH); and the menu file itself, which contains an associated group of menus – their text, valid responses and passwords etc.

A single menu file can contain a complete tree of menus, although you can also create a number of menu files with one file passing control to another. The main menu used by Global System Manager itself is called $$MENUS.
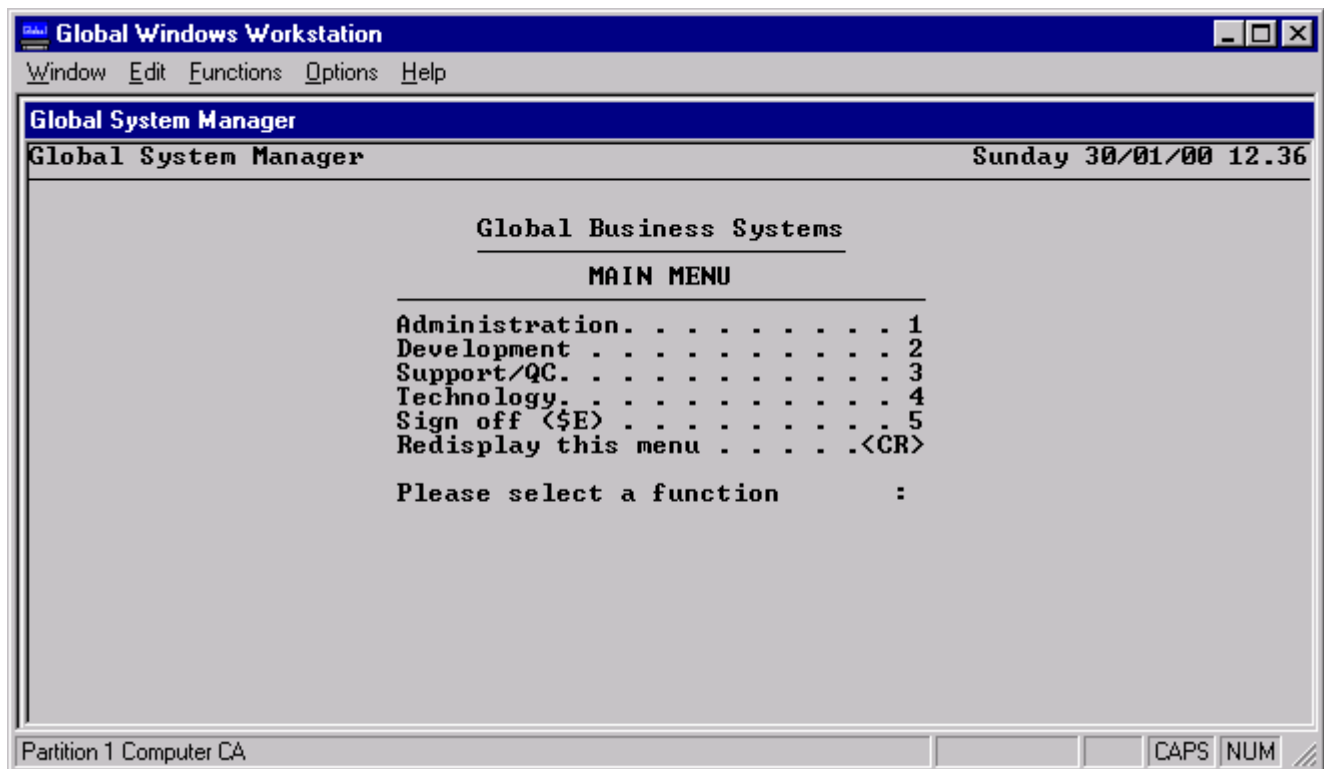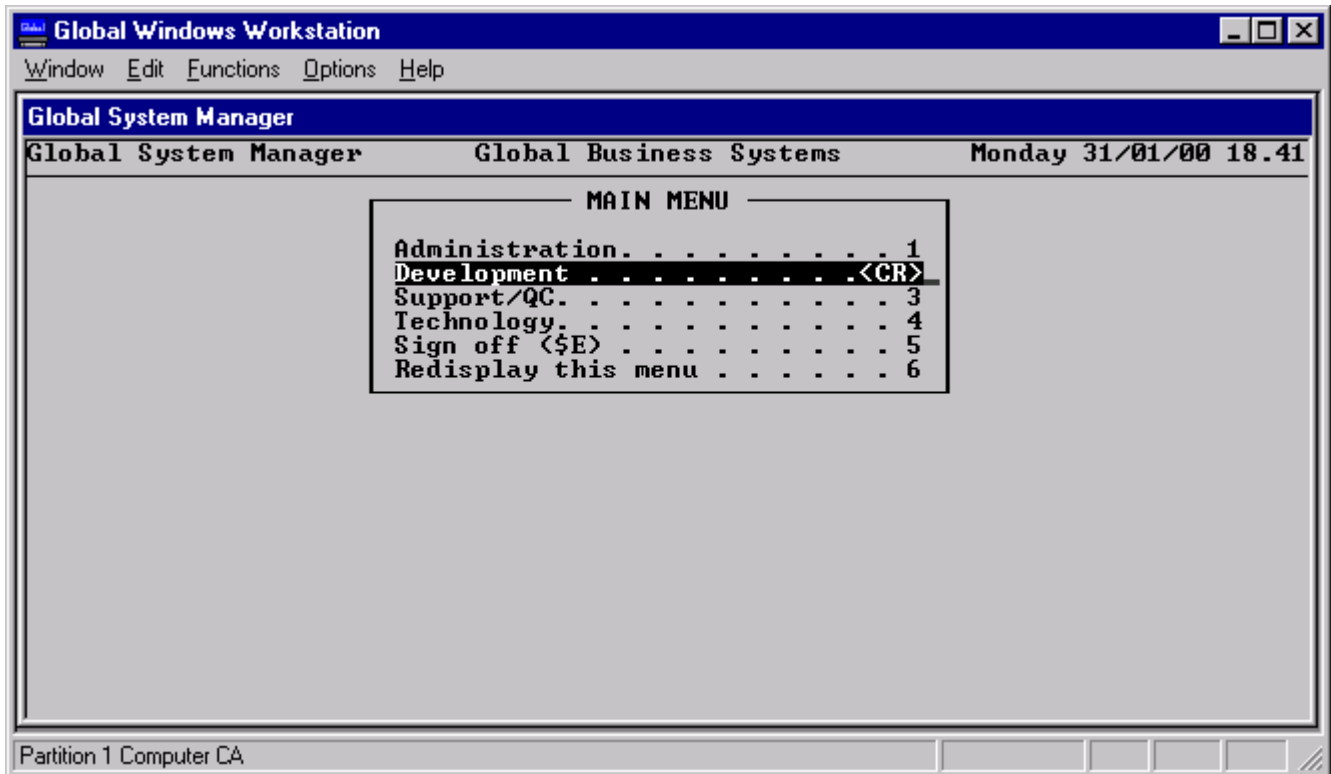
7.1.2 Menu Display Formats

The menu system can display menus in two basic forms; these are the full screen menu (figure 7.1) and overlayed menus (figure 7.2) referred to as "SAA" (System Application Architecture) style. You can also choose how menu entries are selected: by number; by cursor up/down; by one- or two- character mnemonics; or by all of these.

Once the menus have been set up, simply changing the parameters causes the display format to change throughout the menus defined in the file.

7.1.3 Access Rights

An access right is a privilege that an operator can obtain to gain access to a certain group of menu lines. Each access right is identified by a 25 character name. For example, you might have access rights called ENQUIRY, CUST-MAINT, DATA-ENTRY, REPORTS and SUPERVISOR.

An access right can be obtained either by keying the corresponding password that was specified when the access right was created, or it can be granted automatically according to your operator-id, or the two can be combined so that entry requires both the operator-id and the password.

```
Global Windows Workstation                                  _ □ ✕
 Window  Edit  Functions  Options  Help

Global System Manager
Global System Manager                      Monday 31/01/00 18.43


                        GLOBAL SYSTEM MANAGER
                        ────────────────────
                          MENU MAINTENANCE
                        ────────────────────
                   Amend menus . . . . . . . . . 1
                   Operator's access rights. . . 2
                   Amend data access keys. . . . 3
                   Amend access rights . . . . . 4
                   Amend menu parameters . . . . 5
                   Amend display parameters. . . 6
                   System access control codes . 7
                   Reallocate menu file. . . . . 8
                   Print menu file . . . . . . . 9
                   Exit. . . . . . . . . . . .<CR>

                   Please select a function      :



Partition 1 Computer CA
```

Figure 7.3 – The Menu Maintenance Main Menu

```
Global Windows Workstation                                    _ □ ✕
Window  Edit  Functions  Options  Help

Global System Manager
──────────────── SELECT MENU FOR AMENDMENT ────────────────
     Menu          number    1
                                    ──────── MENU OPTIONS ────────
 Administration. . . . . . . . 1
 Development . . . . . . . . . 2       Special auto-selection menu? N
 Support/QC. . . . . . . . . . 3       Allow system commands? Y
 Technology. . . . . . . . . . 4       Allow logoff? Y
 Sign off ($E) . . . . . . . . 5       Sign off delay
 Redisplay this menu . . . . .<CR>     Menu selection causes
                                                logged event Y
                                       Select default <CR> line? Y
                                       Update time? N


                                  A  to amend       M  to move
                                  D  to delete      O  for options
                                  H  to hold        T  for text
                                  I  to insert      Z  to zeroise

 Key option or line number, <ESC> to exit ■
Partition 1 Computer CA
```

Figure 7.4 - Amending a menu

Each menu line can have one or more access rights specified: this means that possession of any one of these rights will allow access. If all the lines on a menu are to have the same access rights, then you only need set up the access rights on the menu line (or lines) that select that menu. Products from the Global range have a small number of access rights set up as standard, and these will be sufficient for most installations, but you can set up far more complex structures if you wish, typically for large sites where responsibilities are divided between more people.

7.1.4 Initial entry
When you first run the menu maintenance function, program MN, you are prompted for the name and unit of the menu file that you want to amend. You will be presented with a default of the current menu wherever possible.

If you key a two character code to the menu file prompt then MN assumes you want to create or update an application menu file with the default name. For example:

```
        Key menu file to amend, <ESC>: SL
        Key menu file to amend, <ESC>: SL-Menus
```

You are then asked for the menu file unit. You are offered a default of $DP (usually 201) if the menu file name you have specified begins with a $. If you keyed a 2-character code for the menu file name then you are offered a default of the same two characters followed by "D" (i.e. the appropriate data unit for a typical application is assumed).

```
        Key menu file unit, <ESC>:SLD
```

This can be overtyped if invalid or incorrect. Similarly, you are asked for the work unit. The default here is $WK for system menus or the 2-character code followed by "W" for application menus:

```
    Key work unit, <ESC>:SLW
```

If the menu file is not found, this message is displayed:

```
    MENU FILE NOT FOUND. Key installation unit, C to create, <ESC> to exit:
```

You may have mis-keyed the name or unit of the menu file; if so, key <ESC> and you will be returned to the menu file prompt. If you accidentally delete a menu file then you should restore from backup or reinstall the product and create new data.

If the menu file on the unit you have selected is currently being updated, then the following message is displayed:

```
    MENU FILE CURRENTLY BEING UPDATED - TRY LATER  Key <CR>:
```

Wherever possible, amend the menu file inside the product by running MN from a menu within the software that allows commands to be run. Not only will the menu file and the unit be correctly defaulted, but you will also be able to test the result of your amendment much more easily.

The Menu maintenance main menu is now displayed, as shown in figure 7.3. It offers nine functions, which will be documented in turn:

7.1.5 General Operating Notes

Although the menu file can be increased or decreased in size (see the "Reallocate menu file" option described in section 7.9) any particular menu file has a fixed number of slots for holding the various menu file constructs, menus, lists of access rights etc. This layout is fundamental to the way the menu system and maintenance programs work.

For example: A menu file contains a parent menu and a child menu, the two menus are linked via one of the lines in the parent menu. If you delete the line linking the parent and child menus, the child menu is not itself deleted. It is not possible to delete a menu from the menu file, but you can re-use it, either in the same form or overtyped with new menu lines.

Again, access rights cannot be deleted. They can be nullified by indicating that they do not apply to any menu lines, and they can be re-used by associating them with different groupings of active operators and network-ids etc.

It is also important to realise that the same effect on the menu file can be achieved from widely different places within the menu maintenance program. For example: it is possible to associate an access right with a menu line from both the "Amend menus" option and the "Amend access rights" option.

By far the most complex area of the menu system concerns access rights. To simplify things it is easiest to approach the allocation of access rights in an orderly fashion:

● First use option 2 "Operator's access rights" to add all of the potential operators to the menu file;

● Then use option 4 "Amend access rights" to do the following:

    ● create access rights;

    ● associate operators with access rights;

● associate the access rights to menu lines.

7.2 Amend Menus

Choose function 1from the main menu to select this option. When you enter this function, the menu to be amended is displayed on the left side of the screen, as in figure 7.4, and the following baseline prompt is shown:

```
Key option or line number, <CR> to exit:
```

The eight available options are shown in the lower right-hand corner of the screen.

7.2.1 A to amend

There are three ways of amending menu entries:

1. Key A to amend at the above baseline prompt and you will be asked to supply the number of the line you wish to alter - you should type the line number then key <CR>.

2. If you know that a particular menu entry does not lead you to a submenu, then at the above prompt you can just type its entry number and key <CR> to amend it.

3. If you wish to avoid keying A to amend at the above prompt and go straight to the Menu file maintenance screen for an entry then you can simply type the required line number and key <ESC> instead of keying <CR>.

You amend existing details on the screen shown in figure 7.5, and you may modify a number of details. The fields described below are displayed, although one or more may be suppressed if certain parts of the menu file are not used or if a high-level password has been set. If the master password has been set up on a menu file then you will be prevented from altering certain fields, for example the field for line type code (this feature is intended to prevent end users corrupting applications menus).

Once you have chosen the "amend" option, the Menu file maintenance screen appears, featuring the relevant details and the following baseline prompt:

```
Key Amend, Type-ahead, <ESC>to exit:
```

Key A to amend the relevant fields (a complete description of the fields is given in sections 7.2.1.1 to 7.2.1.12, below).

Key T to the "Key Amend, Type-ahead..." prompt to alter the type-ahead fields only. If access rights have been associated with this menu entry then the option "key R for access rights" will have been added to the baseline prompt. You can use this option to associate/disassociate them from the menu line.

Key <ESC> to return to the Select menu for amendment screen, shown in figure 7.4.

Figure 7.5 – Amending a menu line

Figure 7.6 – Amending the Assignment Table

7.2.1.1 Line type code
This code refers to the type of menu being amended, which can be any one of the following:

A   Application module (e.g. a program in Sales Ledger, or some other Global software package);

F   Frame (used with Speedbase);

G   Global System Manager READY prompt (i.e. exit from the menu system to the READY: prompt);

M   Menu file - used to invoke another menu file;

N   Next Menu - used to move to a child menu within the same menu file;

R   Return to parent menu - the opposite of the N menu type above;

S   Stand-alone program (e.g. $F).

7.2.1.2 Narrative
The narrative can be up to 30 characters in length. Keying <F3> allows you to highlight up to two characters that can be used as mnemonics if SAA-style menus are used.

7.2.1.3 Program or command, Library and Notepad as applicable.
You are prompted for a program or command, library and notepad each of up to eight characters if you have keyed A for application menu or S for stand-alone menu. The term "notepad" refers to the Global Organiser Notepad facility.

7.2.1.4 New menu file on unit
This is the menu file name of up to eight characters and the unit on which it resides which you are prompted to supply if you have specified M for menu file.

7.2.1.5 Next menu number
This is the number of the menu to which this entry takes you. When you have finished setting up this line you are taken into the next menu if it exists or else given the opportunity to set it up. (The menu numbers are allocated sequentially from 1 as you define menus, and are displayed on the top line when the menus are amended.) You are prompted for this if you have keyed N for next menu.

7.2.1.6 Help File, Unit and Start help book
These are used if there is a help file associated with this entry. This facility should only be used by application developers.

7.2.1.7 Authorization level
The operator's authorization must be equal to or higher than this in order to gain use of this entry. This should be left blank if authority checking is not required.
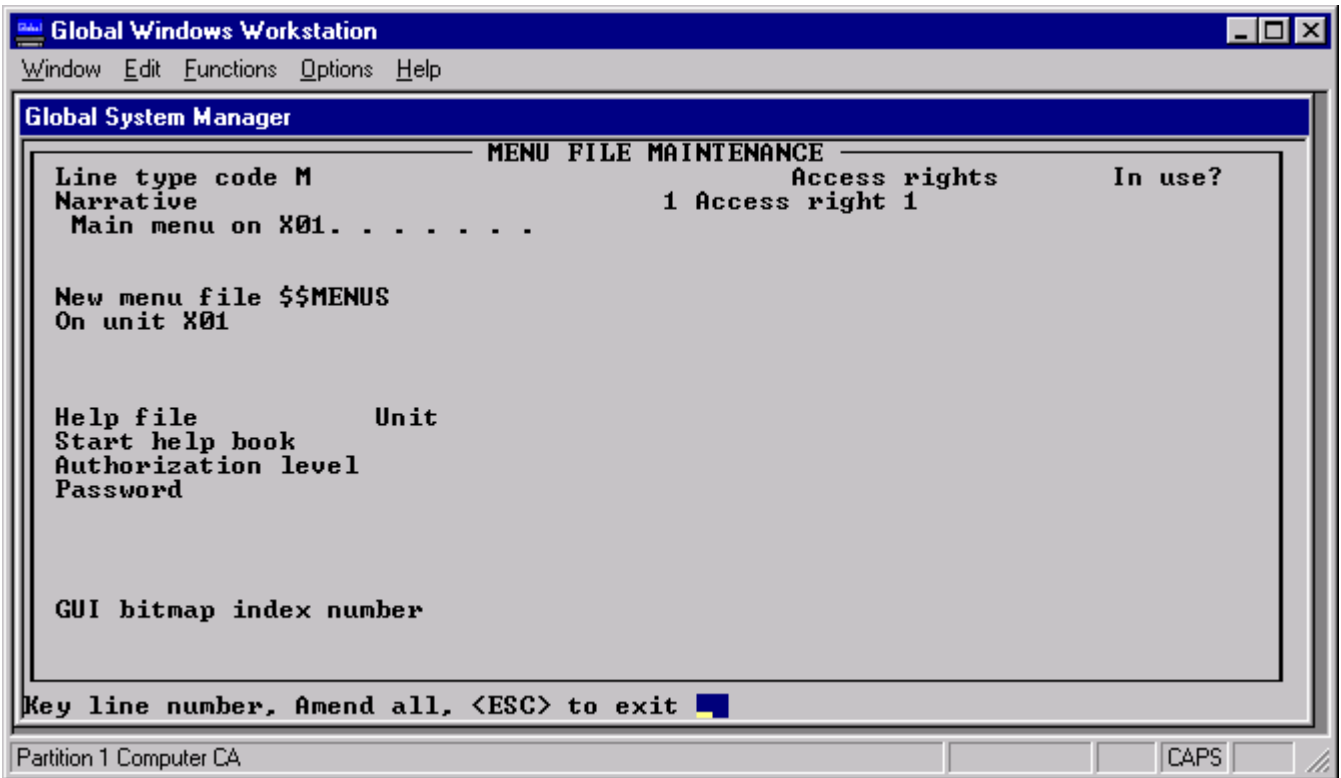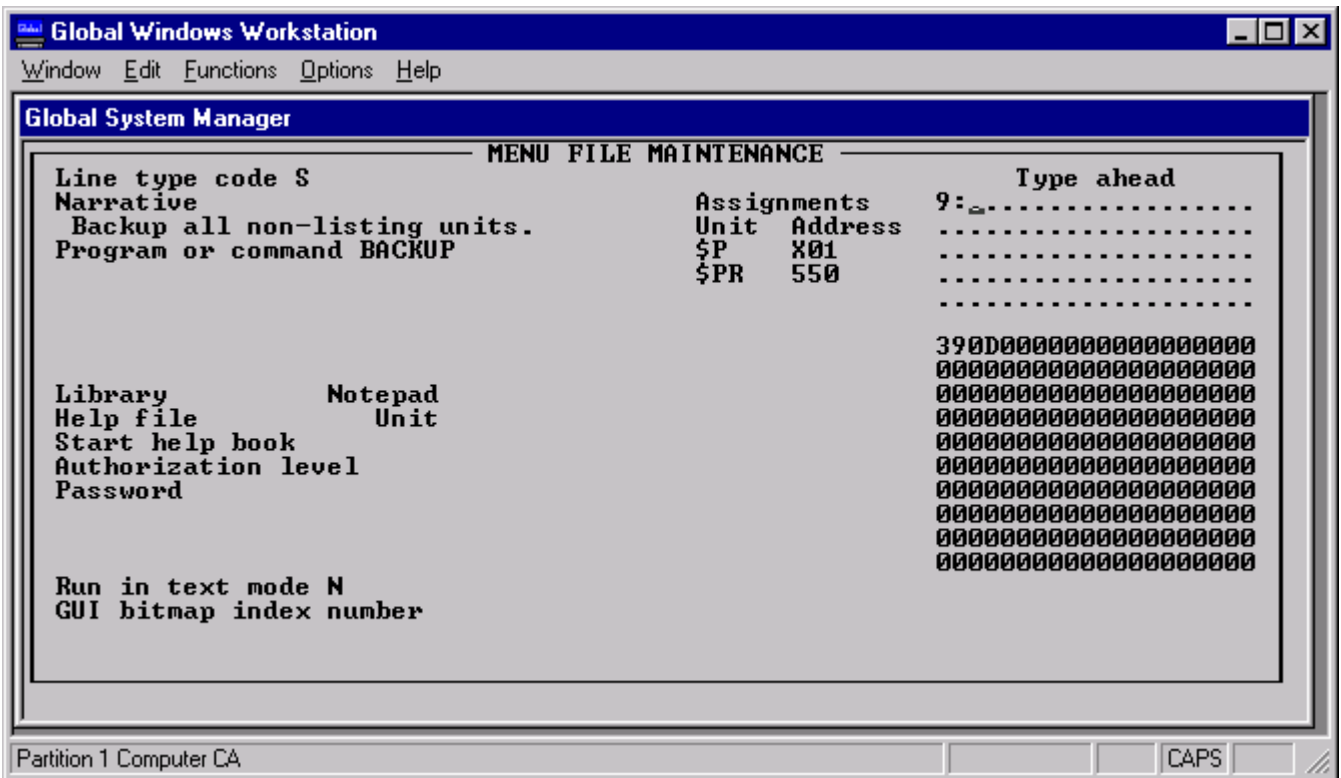
Figure 7.7 – Amending access rights

Figure 7.8 – Type-ahead

7.2.1.8 Password

If a password (of up to eight characters) is typed in, then this password will have to be keyed every time that this menu entry is selected. The following related fields are prompted for when you are dealing with an application menu:

7.2.1.9 first numeric and first text
See section 7.2.10 (below).

7.2.1.10 second numeric and second text
These fields are only prompted for if you have specified a line type of A (menus associated with an application), and even then only if the application makes use of them. These four values would parameterise the application. The prompt text "first numeric" etc. would be replaced in real set of application menus by something more meaningful and specific - the text can be modified by the "Amend menu parameters" function of the main MN menu. For details of how these fields are used within an application please refer to the Global Cobol Screen Presentation Manual.

7.2.1.11 Unit and Address
Here you are prompted to assign up to eight logical unit-ids to their associated physical addresses. The special address of 000 causes the unit to be deallocated when the menu entry is selected. To remove a unit-id from the table, delete its address field. Typing <CTRL A> and keying <CR> allows you to purge the table of all assignments. Key <ESC> to skip over these fields and go on to type-ahead.

Note that it is NOT possible to establish assignments for either the $CP or $DP units.

7.2.1.12 Type-ahead
There are two areas displayed on the right side of the screen which are used for any type ahead dialogue that you may want to include in the menu entry. The top area contains an ASCII representation of the type-ahead dialogue, with non-displayable characters replaced by dots, <CR>s by colons and <ESCAPES>s by semi-colons. The lower area contains a hexadecimal representation of the dialogue. Use the cursor and tab keys to move about the blocks; insert, delete, change case, home and clear functions are also available. Note that the values you type are echoed in both blocks.

Keying <F3> lets you move between the ASCII block and the hexadecimal block. Amending the hexadecimal representation allows you to key in values that you cannot key in the ASCII block, for example, any of the control keys (e.g. <CTRL A>, for which you should key 01; or <CTRL B>, for which you should key 02) or special characters (e.g. colon, for which should key 3A; or semicolon, for which should key 3B).

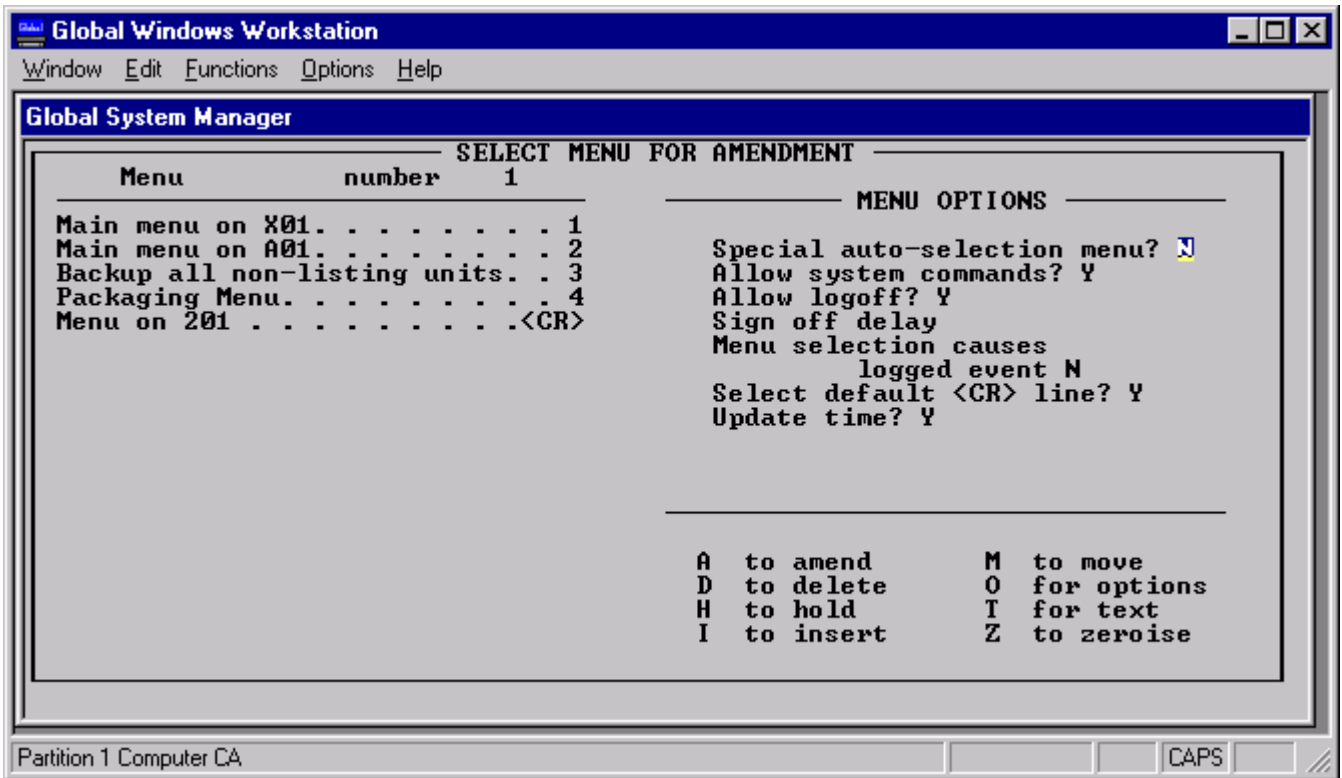Keying <ESC> will return you to the baseline prompt.

```
Global Windows Workstation                                    _ □ ×
Window  Edit  Functions  Options  Help

Global System Manager
                       ──── SELECT MENU FOR AMENDMENT ────
      Menu          number    1
  ─────────────────────────────────      ──── MENU OPTIONS ────
  Main menu on X01. . . . . . . . 1
  Main menu on A01. . . . . . . . 2      Special auto-selection menu? N
  Backup all non-listing units. . 3      Allow system commands? Y
  Packaging Menu. . . . . . . . . 4      Allow logoff? Y
  Menu on 201 . . . . . . . . .<CR>      Sign off delay
                                         Menu selection causes
                                                 logged event N
                                         Select default <CR> line? Y
                                         Update time? Y


                                         ──────────────────────────

                                         A  to amend      M  to move
                                         D  to delete     O  for options
                                         H  to hold       T  for text
                                         I  to insert     Z  to zeroise



Partition 1 Computer CA                                     CAPS
```

Figure 7.9 – Amending the options

```
Global Windows Workstation                                    _ □ ×
Window  Edit  Functions  Options  Help

Global System Manager
                       ──── MENU FILE PARAMETERS ────
  Display parameter file      $$MPARAM     Master password         - None -
               on unit           $DP       Menu file version          6.10
                                           Displayed version code
  Sign off delay in use?          Y        Memory limit (in hex)      9400
  Menu option "Allow logoff" in use? Y     Beta test release?            N
  Allow commands?                 Y        Update sequence number     4362
  Advance date at midnight?       Y        New sequence required?        Y
  Purge unit assignments if full  N        Prompts for application data
  Event logging option            A          (used during maintenance only)
  Amend password             ?             first numeric     second numeric
  Initial help file                        first text        second text
           on unit                         Function key program
        start book                         Function key program unit
                                                            Days of week
  Access right name in password prompt?            Y        Sunday
  First part of password prompt  Please key                 Monday
  Second part of password prompt password                   Tuesday
  Selection prompt          Please select a function        Wednesday
  Application name          Global Business Software         Thursday
  Main menu title          MAIN MENU                         Friday
  Critical assignments                                       Saturday

Key Amend, <CR> to continue ■

Partition 1 Computer CA                                     CAPS
```
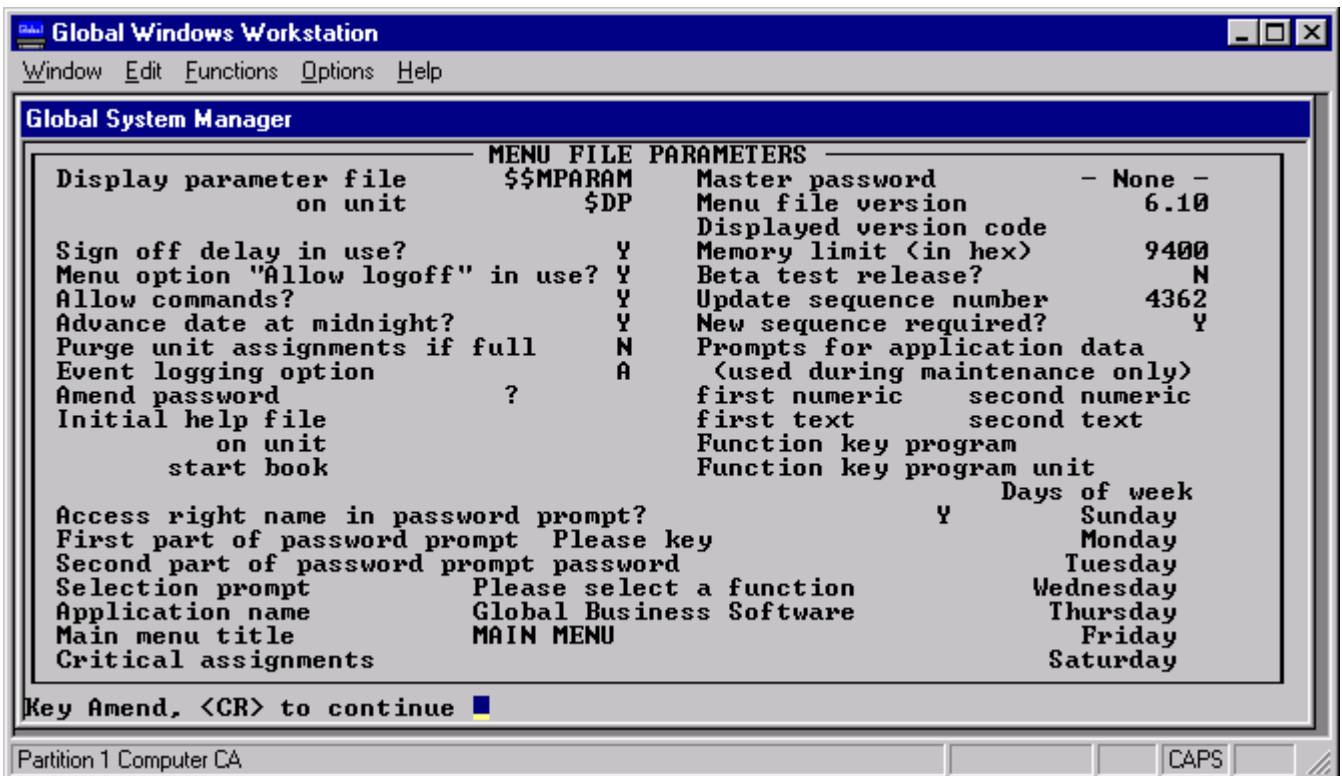
Figure 7.10 – The menu parameter screen

If the supplied type-ahead dialogue is not terminated by either a colon (representing a <CR>) or a semi-colon (representing an <ESC>), a colon is automatically appended to the string. This action is normally useful if you forget to append the final <CR> to a type-ahead string. To prevent the colon from being

appended to the string, so that the string may be terminated with neither <CR> nor <ESC>, terminate the string with a "@" character. This special meta-character is not considered part of the string. For example, key either "ABC:" or "ABC" to specify a string consisting of the characters:

      A   B   C   <CR>

Key "ABC@" to specify a string consisting of just the characters:

      A   B   C

7.2.2 D to Delete

Key D if you wish to delete an entry on the displayed menu and you will be prompted to supply the line number to be deleted. Once you have done this and keyed <CR>, the line will be erased from the menu. If you have deleted a line by accident that was set up last session, then you can limit the damage by finishing the present session, but keying A to abandon the changes you have made, so that they are not written back to the menu file (so the line entry will be preserved).

If a line is held in the buffer when a Delete is carried out, (for example, when you have used options H for Hold or M for Move) then keying D performs a straightforward delete and the deleted line can only be retrieved by abandoning the amendment when you finish the session. However, if the buffer is empty then the line will be moved into the buffer before deletion so that it can be restored using Insert if required.

7.2.3 H to Hold

The menu handler maintains a line buffer which is used to provide the defaults for an insert or a move operation. Key H and then specify the relevant line number if you wish to copy it to the buffer so that it can be inserted elsewhere. This is done by using the Insert option afterwards. You can key Z at any point to zeroise the buffer if you want to clear it. Note that the line buffer only holds one line so that an outstanding move operation will be overwritten if you choose to hold a menu line to insert elsewhere.

7.2.4 I to Insert

Key I to insert a line placed in the buffer by the Hold or Move options (if there was not a previous Hold or Move, then you are required to supply values for all the fields on the Menu file maintenance screen). A default is offered of the next consecutive number after the existing end of menu. Either key <CR> to accept the default offered, or key the required number.

7.2.5 M to Move

This function deletes the line from its present position and moves it to the buffer so that it may be placed elsewhere using the Insert command. However, it is important to note that if you exit from this option, or move or copy another line before inserting this line in the required position, **the contents of the buffer will be lost.**

7.2.6 O for Options

Keying O for options displays the screen shown in Figure 7.9 and allows you to specify the run-time options for the menu (see sections 7.2.6.1 to 7.2.6.7, below). If there are any technical reasons why you should not change these options for a particular product, they should be explained in the manual for that application.

7.2.6.1 Special auto-selection menu

In order to select this option, you must have set up at least one menu line indicating operator-id, LAN computer-id and partition number, in the form *OOOO/L/P* where *OOOO* is operator-id, *L* is the LAN

computer-id and *P* represents the partition number. This option should be used only by experienced applications programmers. Note that a blank value in any of these fields will match with any id or number. If no matching line can be found for the user, the last line will be taken automatically.

7.2.6.2 Allow system commands

Here you may specify whether system commands such as $A or $F can be run from the menu. There may be a technical reason for system commands being forbidden from the menu or you may wish to enhance system security. Note that allowing system programs to be run can compromise system security (see the description of $AUTH in section 6.3).

7.2.6.3 Allow log off?

With this option you can specify whether it is safe to log off from this particular menu, so that, for example, running $E in partition 1 does not force you to exit from the application in partition 2; instead, it is automatically terminated.

Note that if the "Allow logoff" flag is set to 'N' in the menu file parameters (option 5 from the main menu - see section 7.3.3) then no notice is taken of the value of this flag.

7.2.6.4 Log off delay

If this is set to a number between 1 and 999, and the "Allow log off" field has been set to Y, then the partition will log off if left idle at this menu for the specified number of minutes.

Note that if the "Logoff delay in use?" field is set to N in menu file parameters (option 5 from the main menu - see section 7.3) then you will not be given the opportunity to supply a figure here.

7.2.6.5 Menu selection causes logged event

If this option is enabled then a log record is written to the event log file, $$LOG, each time a menu entry is selected (see Chapter 22 of the Global Utilities Manual). This feature is only available with Global System Manager V6.0 and later.

7.2.6.6 Select default <CR> line

If this option is enabled then the last line of the menu is selected when <CR> is keyed.

7.2.6.7 Update time?

Key Y here if you want the time on the screen to be updated to tell the correct time even if you have not used your computer for some time.

Use of this option has severe ramifications on the performance of your computer. If you have a swap file on disk (i.e. if there are insufficient memory banks for all users) then the act of swapping in all users (and indeed all partitions) can cause a heavy load on the computer whenever the time is updated. In addition, since each partition is regularly activated, the information provided by $STATUS concerning inactive users becomes useless - all users will always appear active. This option should be left disabled unless there are strong and cogent reasons for its use.

7.2.7 T for text

This option is used when you want to alter the text within a menu without needing to alter any of the other information. For example, you may want to translate the menu lines of a product for non-UK use. Keying T allows you to change the menu title as well as each of the entries. Key <CR> after you have finished with each entry in order to go on to the next one. Changing the menu title and giving it a "pseudo-name" is useful for reference if there are several similar menus. (A future version of the menu handler may search these names and go directly to that menu.)

7.2.8 Z to zeroise

Key Z if you wish to clear the contents of the buffer. Be careful about using this option after keying M to move, because it means that the buffer contents are irretrievably lost.

7.2.9 Finishing menu amendment

After you have amended the menus, key <CR> to take you back to the Menu maintenance menu. You should then key <CR> again to take you to the following prompt:

```
        Key Abandon, Resume, <CR> to overwrite:
```

Key A to abandon the changes you have just made, or key R if you want to continue making amendments. Key <CR> to overwrite the existing menu file with the changes you have made.

7.3   Amend Menu Parameters

Choose function 5 from the main menu to select this option. The screen shown in figure 7.10 will be displayed. Key A to amend the following fields:

7.3.1 Display parameter file (on unit)

This allows you to keep separate sets of display options for use by different terminal types.

7.3.2 Logoff delay in use?

If you key Y to this field, then the "Log off delay" field held in each set of menu options will be tested (see section 7.2.6). After being idle for the specified time the application will automatically close down and sign off. If this flag is set to N, the "log off delay" field in each set of menu options is ignored.

7.3.3 Allow logoff?

If this flag is set to Y then the equivalent flag held in each set of menu options will be tested to see if logoff is allowed (see section 7.2.6.3). If this flag is set to N, the "Allow log off" field in each set of menu options is ignored.

7.3.4 Allow commands?

If this field is set to Y then the equivalent flag held in each menu will be tested to see if system commands may be run directly from a menu. It also provides the default for each menu created.

7.3.5 Advance date at midnight?

If set to Y then the "advance date at midnight" routine is called every time that the menu handler is invoked. If work is unlikely to proceed beyond midnight then you will save processing time by leaving this set to N.

7.3.6 Amend password

This field of up to eight characters can be used by an end-user to protect access to a menu file. The user will be prompted to supply the password keyed here at the relevant point.

7.3.7 Initial help file

Key the initial help file to be used with the menu here.

7.3.8 on unit

Key the unit number where the above help file resides.

7.3.9 start book
Key the two-character name of the first book in the help file.

7.3.10 Access right name in password prompt?
Key Y if you want to include the access right names in the prompts for the end-user password.

7.3.11 First part of password prompt
Key up to 25 characters for the first part of the password prompt.

7.3.12 Second part of password prompt
Key up to 25 characters for the second part of the password prompt.

7.3.13 Selection prompt
Key up to 30 characters that will appear as the selection prompt on the menu.

7.3.14 Application name
Key a name of up to 30 characters for the name of the application (e.g. Global Sales Ledger).

7.3.15 Critical assignments
This can only be amended if the master application password has been keyed. If, for example, you change the data unit assignment using $A, the menu handler cannot resume from where it was, but needs to restart the system discarding any stored information about the previous data. If one of these assignments change then the message:

```
ERROR - CRITICAL ASSIGNMENT uuu HAS CHANGED. Key <CR>:
```

will be displayed so that the software does not appear to be going wrong. This also prevents the access right definitions from one instance of the application (e.g. sample data) being used on another (e.g. live data).

7.3.16 Master password
This is a hidden password of up to eight characters for which the user is not prompted. It is a password which prevents the menu system from being tampered with, protecting menu parameters from being changed by end users.

Note that this prompt, and the 6 that follow (see below), do not appear if a password is associated with the menu file. To cause these sensitive prompts to appear the password must be keyed to the main menu (see figure 7.3) **before** keying 5 to amend the menu parameters. Note however, that this obscure technique is NOT possible if the menu is displayed in "SAA" style.

7.3.17 Menu file version
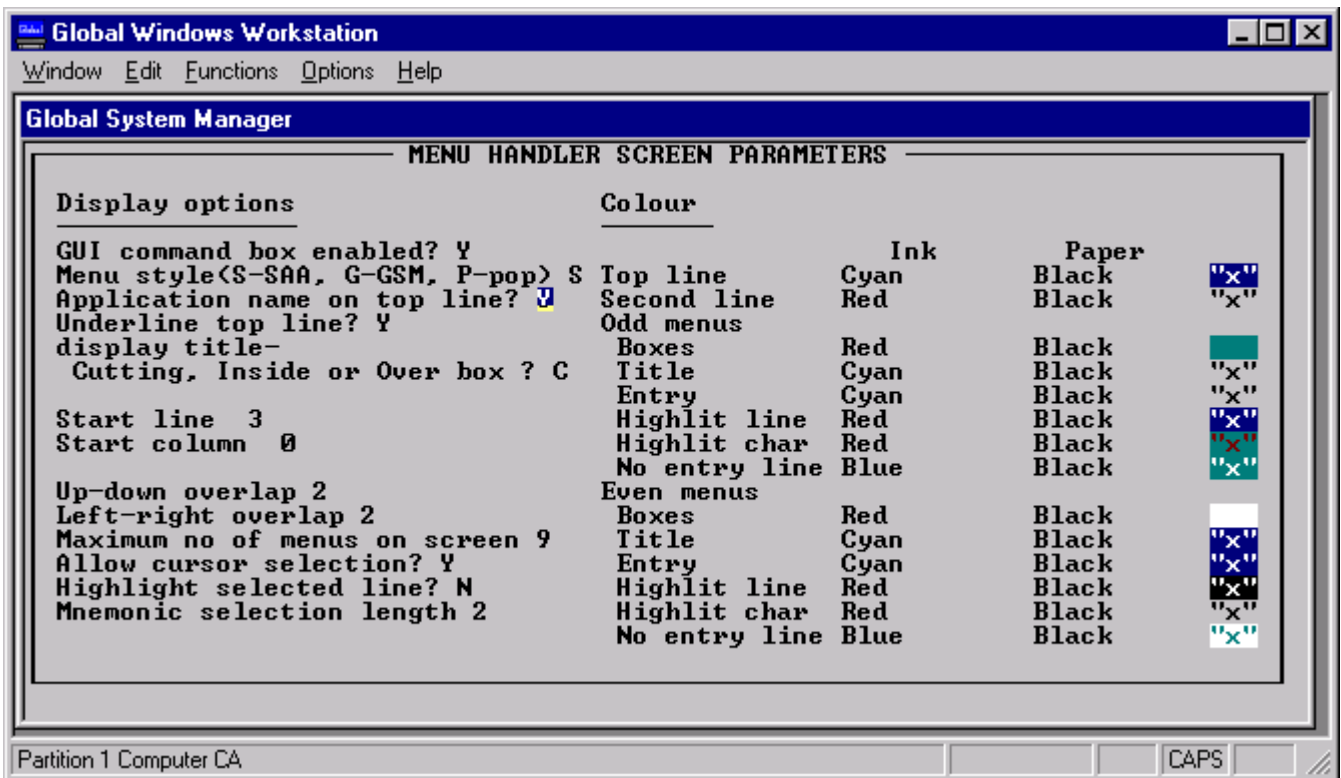This is the version of the menu file whose parameters you are currently trying to alter.

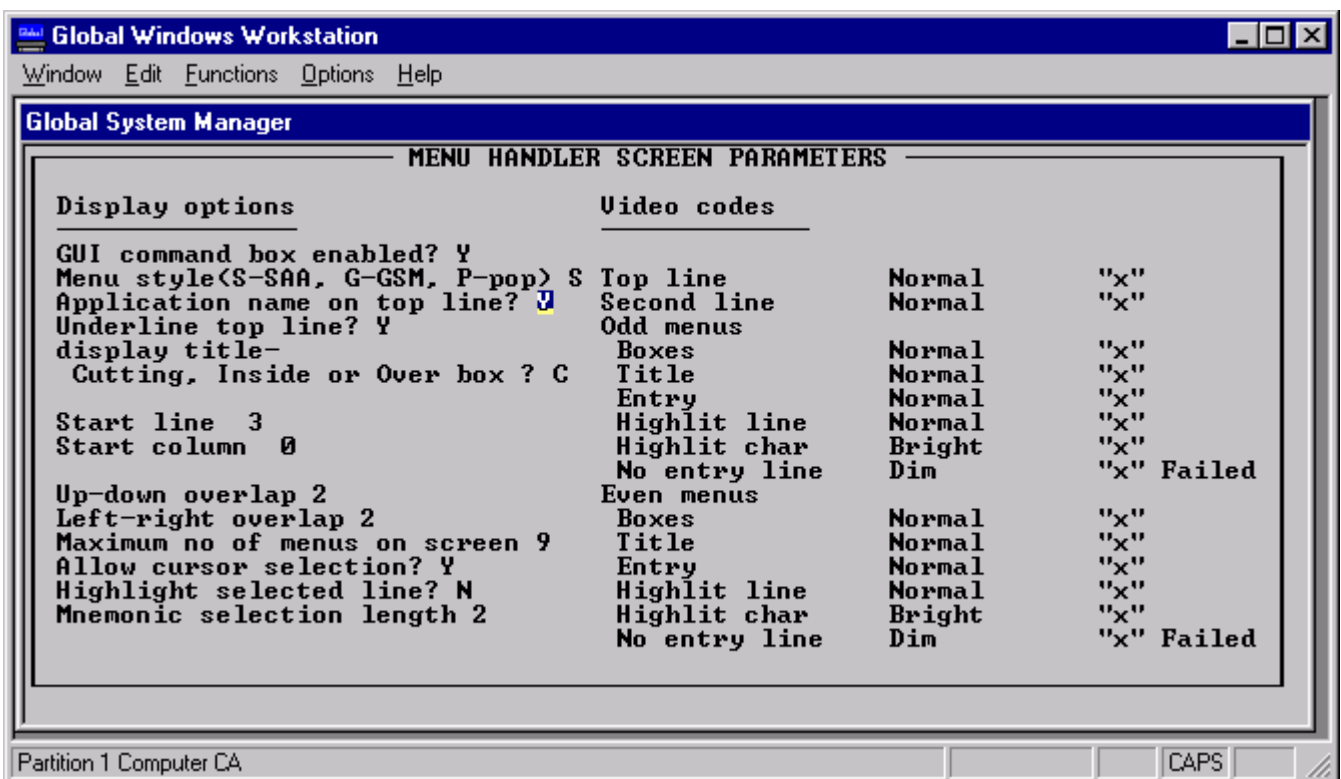**Figure 7.11 – Screen parameters (colour display)**

Figure 7.12 – Screen parameters (monochrome)

7.3.18 Displayed version code

This is a five character version code (not including the initial V) which if set up is displayed near the top left hand corner of the menus.

7.3.19 Memory limit (in hex)
The minimum user area in hexadecimal required to run the associated product. This allows the available memory to be checked as soon as the operator attempts to run the package, and gives an error message if it is insufficient.

7.3.20 Beta test release?
This can only be amended if the master application password has been keyed. If set to Y then "BETA TEST" is displayed on each menu. This field will not be usable if a beta test site upgrades their data from a version of the software which already uses the menu handler.

7.3.21 Update sequence number
This field is only relevant to applications programmers.

7.3.22 New sequence number required?
This field is only relevant to applications programmers.

7.3.23 Prompts for application data
You can use this text to customise the following prompts that appear on the Menu file maintenance screen when amending an applications menu to make them specific to that application:

> **first numeric second numeric**
> **first text second text**

7.3.24 Days of the week
You can type the days of the week in another language if necessary (this is for the date display at the top right hand of the screen).

7.4   Amend Display Parameters
Choose function 6 from the main menu to select this option. The display parameters are different for colour (figure 7.11) and monochrome (figure 7.12) screens as the colour combinations set up on one screen may not look as effective on another. Pseudo-colour screens are treated as monochrome screens.

7.4.1 Display Options
The display parameter file is normally $$MPARAM on the $DP unit, but you may change this using option 5 so that, for example, every user on the network can specify their own display parameters.

The display option values that you are most likely to use are set up as defaults when you select either SAA (System Application Architecture) style menus or full screen type menus.

7.4.1.1 SAA-style menus?
Key Y to use SAA-style menus, or key N to use full screen menus. This will set up the default values for the display options and colours/video codes.

7.4.1.2 Application name on top line?
Key Y if you wish the application name to be on the top line of the screen, N if you want it to be underlined on line 5 of the screen.

7.4.1.3 Underline top line?

Key Y to underline the top line or N if you don't want this.

7.4.1.4 Display title - Cutting, Inside or Over box?

The main title (e.g. MAIN MENU) may be displayed in one of three places relative to the "underline". Key C if you want the title and "underline" to be on the same line, like this:

```
─────────────────────────  MAIN MENU  ─────────────────────────
```

Key I if you want the title below the "underlining":

```
────────────────────────────────────────────────────
                       MAIN MENU
```

Key O if you want the title above the "underlining":

```
                       MAIN MENU
────────────────────────────────────────────────────
```

7.4.1.5 Start line and Start column

These can be specified explicitly to position the menu in a fixed location on the screen. If the column is set to zero, however, this indicates that auto-centering is to be used.

7.4.1.6 Up-down overlap and Left-right overlap

These fields are only used with SAA-style menus. Both should usually be set to 2 as higher values can cause performance degradation when overlapped menus are displayed.

7.4.1.7 Maximum no. of menus on screen

Up to nine SAA-type menus can be layered on the screen, overlapping the previous menus. Once the maximum number of menus have been displayed subsequent menus are displayed directly over the previous menu.

7.4.1.8 Allow cursor selection?

Keying Y here allows CURSOR UP and CURSOR DOWN keys to be used to determine which line of the menu is selected by keying <CR>.

7.4.1.9 Highlight selected line?

Key Y to this field to cause the line marked by <CR> to be highlighted.

7.4.1.10 Mnemonic selection length

If this is used then the one- or two-character mnemonic set up using the <F3> highlighting facility in the line narratives can be keyed to access the entry. If you set this length to zero then, for SAA style menus, keying any non-numeric character will result in the command box being displayed (i.e. there is no need to key <F1> or $ to allow commands to be keyed when the menu is displayed in SAA style).

7.4.2 Colour combinations

On a colour screen, the permitted colours for the "ink" and "paper" are Black, Blue, Cyan, Green, Magenta, Red, White and Yellow. On a monochrome screen the video codes allowed are Bright, Dim, Highlit, Normal, Reverse and Underline. It is sufficient to key the first letter of each of the colours or codes to display them on screen. If these are not available on the screen you are using then the word "Failed" will be displayed. On certain screens you should not attempt to use video attributes when displaying graphic characters, but you may still use video attributes when displaying text.

7.5   Amend Access Rights

Choose function 4 from the main menu to select this option.

An access right defines a set of menu lines, groups of operator-ids, a subset of computers on the network, a range of valid user numbers and the permitted access between them. The sets and groups defined by two access rights may be totally distinct or they may overlap. When the groups do not overlap, especially when there is only one access right used to control access to a particular menu, then it is quite clear what will happen under a given circumstance.

All the specified criteria for the access right must be met (i.e. specified as something other than "no access") for it to be usable, (for example, the right operator on the wrong computer will not be permitted access). When someone enters the menu system, if "no access" is indicated next to one of the current fields (operator-id, network computer-id or partition number) then they will not be able to use that access right. If they have some mix of automatic and prompt access, then the net result will be automatic access. Otherwise, attempting to enter that menu line will cause them to be prompted for a password.

If there are no access rights on a menu line, then anyone will be able to use it. If you imagine that putting an access right on a menu entry is like locking the door to a building, then putting two access rights on a menu entry is the equivalent of having two separate doors, both locked, rather than having a single door with two locks on it. This enables you to specify two access rights on a menu line, with completely distinct sets of circumstances. No-one using the system will be able to gain both access rights at the same time, but so long as they can gain access to one they will be allowed to enter the menu line.

When you enter this function, the existing access rights (if any have been set up) are listed. You can page through these, select a line by keying the required line number or key A to add a new access right (see figure 7.14). The access right details are as follows:

7.5.1 Description

The description is the most important part of the access right. Key up to 25 characters to indicate what access protection it is supposed to cover (e.g. "Managers & Directors" or "Transaction Entry"). In other words, it can be operator-based or function-based. It is not advisable to accept default descriptions for this, since this might well appear meaningless to other users and could easily cause confusion.

7.5.2 Owner

Key up to four characters here. The owner is the only operator who can amend this access right. Other operators will be informed that the access right is protected when they try to amend it. Key spaces here if you do not want to restrict amendment to a particular operator.

7.5.3 Password

Up to eight characters can be keyed for the password. As soon as the password is entered it is encoded and removed from the screen and a question mark appears in its place. The special value "- none -" indicates that no password is in force.
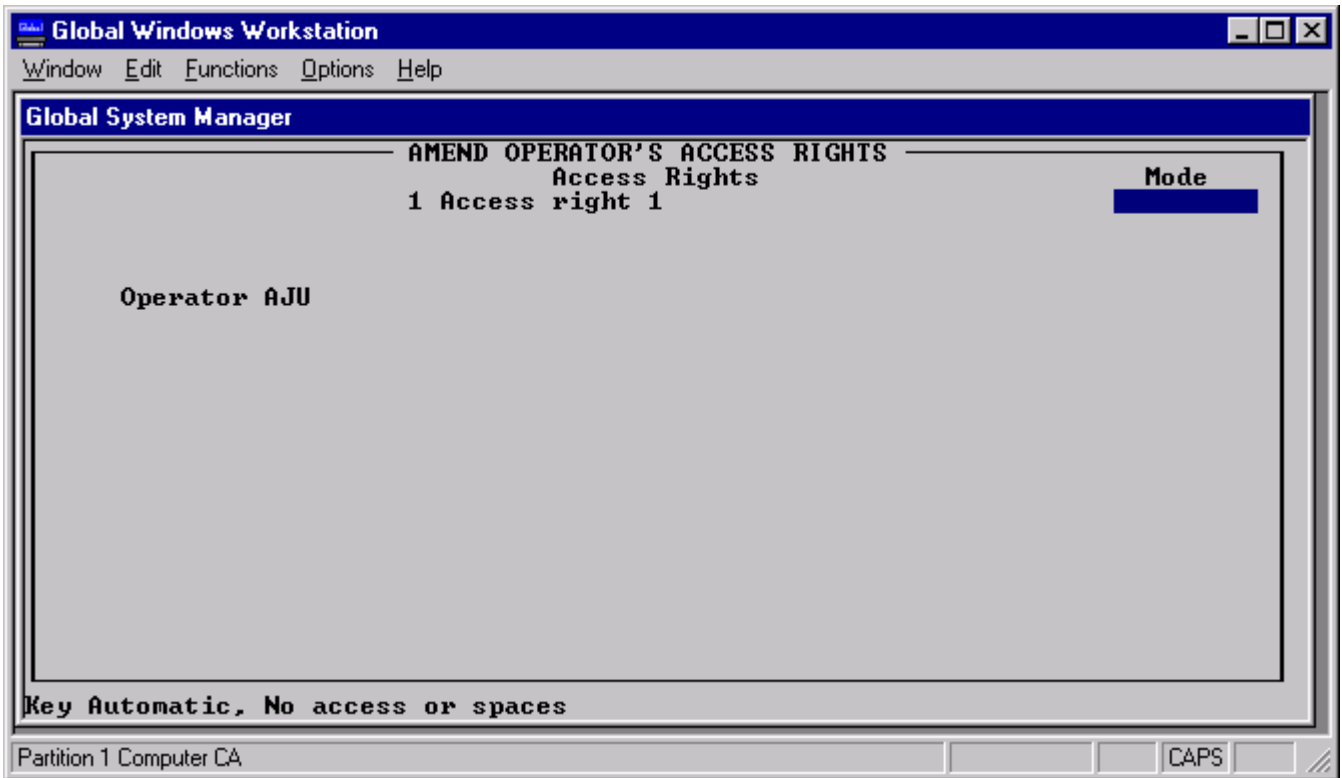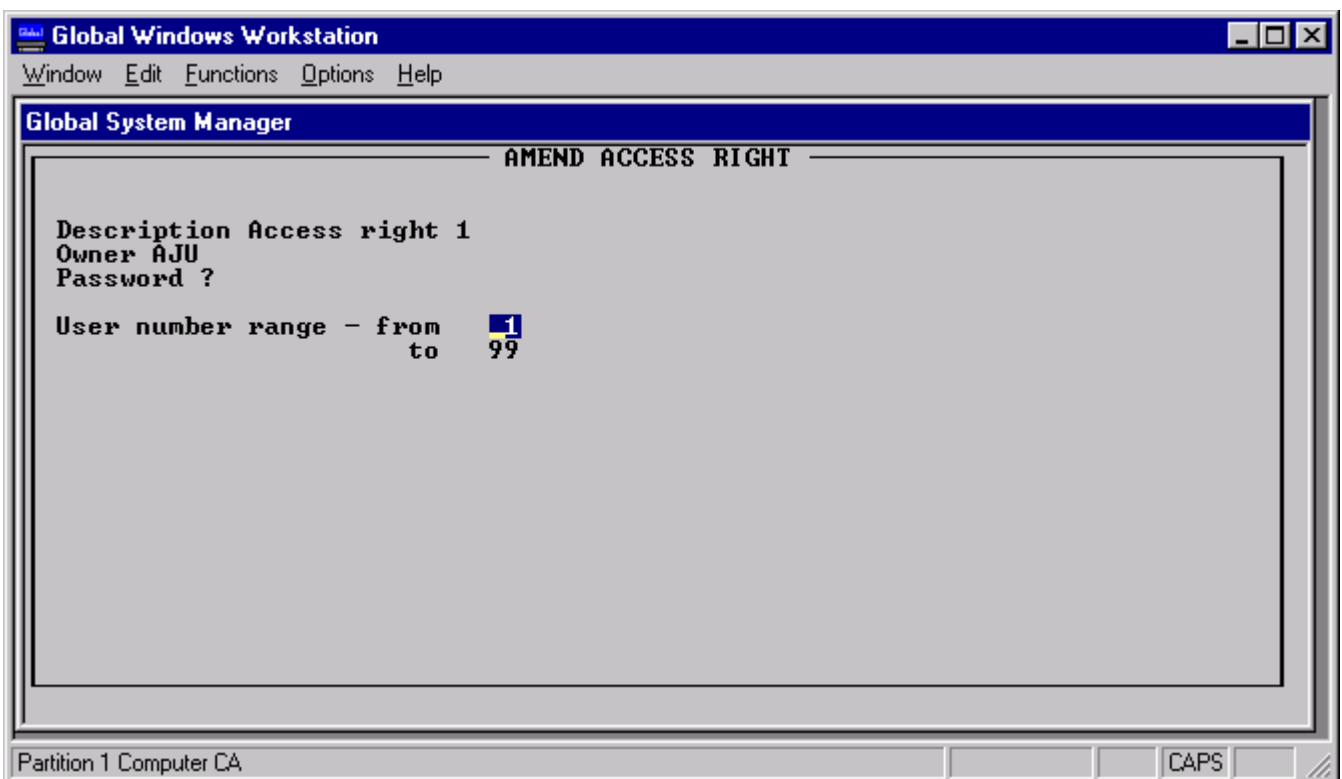
Figure 7.13 – The Operator Access Rights Screen

Figure 7.14 – Amending an access right

7.5.4 User number range

The user number range allows you to specify the range of user numbers on the network which may or may not have access to certain menus or lines. This should only be used on a extended network or stand-alone systems as any change to the configuration of a restricted network system can alter the user numbers and render the values supplied here incorrect.

7.5.5 The Amend Access Right Baseline Prompt

Once you have supplied the above details, the following baseline prompt is displayed:

```
Key Amend, Lan-ids, Menus, Operators, <CR> to exit:
```

Key A to amend the details.

Keying L for LAN-ids displays all the computer-ids which have either "no access" or automatic access to this access right. The computers do not have to exist - the menu handler does not check what you have keyed. If you key L again then all of the possible 254 LAN-ids and their modes will be displayed and can be amended.

Keying M causes the main menu you were working on in option 1 to appear on the right of the screen so that you can indicate whether the access right applies to each line. To indicate that the access right is to apply to a particular line on the menu key the line number. This will allow you to select whether the access right is to apply to the selected line.

Keying O for operator-ids allows you to define the user groups for that set of menu lines. Operator-ids set as "Automatic" will not be required to key a password. Those set to spaces will need to key a password. Those set to "no access" will not be able to enter that line except via another access right.

Key <CR> to take you back to the previous prompt.

7.6   Amend Data Access Keys

Choose function 3 from the main menu to select this option. These features are only of use to application programmers.

The use of data access keys is similar to that of access rights, except that data access keys may contain question marks (?) as wild-card characters - to match a range of accounts or products, for example, rather than defining a set of menu entries. The user manual for the particular application should indicate whether or not data access keys are supported and there should be information in the system maintenance section detailing how to set them up for that product.

You should key A to add a data access key (see figure 7.15), or the number of the line you wish to update, and you will be required to supply details in the following fields:

7.6.1 Description

Up to 15 characters to describe the data access key.

7.6.2 Owner

Key the operator-id here. Note that the owner is the only operator who can amend this access key, so take care to key the correct initials here. Set the field to spaces if you do not wish the access key to be protected.

7.6.3 Password

Up to eight characters can be keyed. Note that once you have keyed the password, it is encoded and removed from the screen, and a question mark appears in its place. To clear the password, key spaces at this field.

7.6.4 User number range from/to

Limit the use of the access key to a specified range of partitions by keying a range between 1 and 99. This range refers to the user numbers listed in the $STATUS command. Note that this should not be used on Global System Manager V6.0 restricted networks as any alteration to the configuration of a restricted network may alter the user numbers.

7.7   Operator's Access Rights

Choose function 2 from the main menu to select this option. This option enables you to define a set of operator-ids, together with a general operator-id which matches any operator-id not already listed.

An access right is associated with a set of menu entries and a group of operator-ids and defines the manner in which they may gain access or be refused access to those menu entries. This option is used to inform the system that the specified operator-ids exist and to maintain the operator groups defined by access rights. All operator-ids are held in upper case and match the equivalent operators signed on in upper, lower or mixed case.

When you first choose option 2 from the main menu, the following baseline prompt is displayed if operator-ids have already been set up (see figure 7.12):

```
Key operator-id, Hold, Delete, Start from, <CR> to list,<ESC>:
```

If there are no existing operator-ids, then this prompt appears:

```
Key operator-id, <CR> to list, <ESC>:
```

You may key an operator-id directly, or key <CR> to list all the current ids.

Key S in order to list a selected part of the operator-id table. Add a new operator-id by keying the required initials from this prompt. Operator-ids that are no longer required can be deleted by keying D and then the appropriate initials.

Key H for the Hold function, which is used to "remember" the details of the operator-id specified and optionally sets up these details for the next operator-id that you create or amend.

Once an operator-id has been selected, if access rights or data keys have been set up, then you are prompted whether you wish to amend them. If access rights or data keys have *not* been set up, then the following message appears:

```
NO ACCESS RIGHTS OR DATA KEYS DEFINED. Key <CR>
```

Key <CR> and set up either one or both of the above, using option 3 or 4 from the main menu.

After the access rights or data keys have been set up, you will find that you are prompted to type the line number whose mode you want to alter. The available modes are described below.

7.7.1 Automatic

Key A to indicate that this operator should be allowed to enter the function without having to key a password.

7.7.2 No access

Key N to indicate that this operator-id should not be allowed access to this function - but the line will only be "starred out" if all other access rights specified on this line are also set to "no access" for this operator-id.

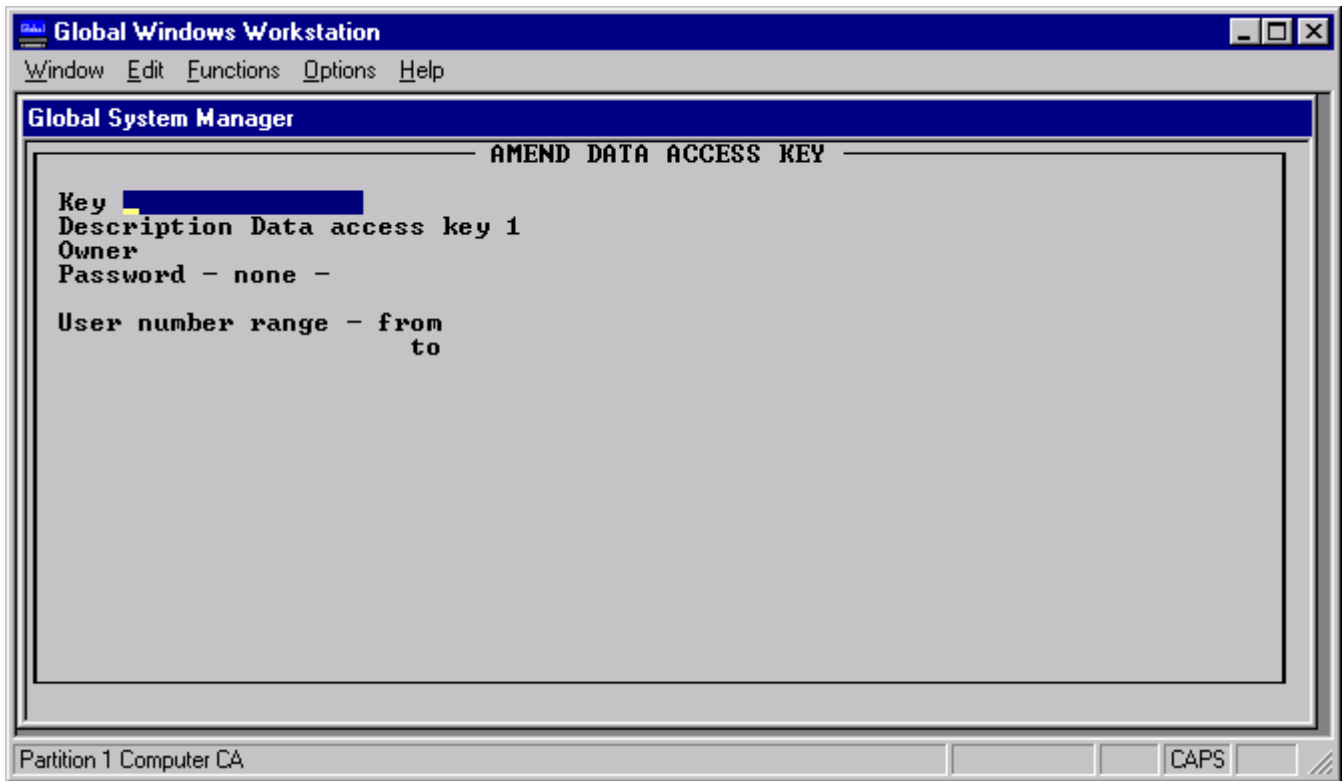If the field is blank then a password must be supplied.

Figure 7.15 – Amend data access keys

Note that if the access key is displayed as **Protected**, then it has been set up by another operator and can only be amended by that operator. If you wish to set up an access key without having it protected, you should set the owner id to spaces on the Amend access rights screen.

7.8   System Access Control Codes

Choose function 7 from the main menu to select this option. These features are only of use to application programmers.

System access control codes are used by the application and must not be amended by end users. If a master password is set up, then the user is prevented from gaining access to this option.

A system access control code is a simple two-character mnemonic code which the application can use to restrict access to menu entries.

For example, suppose you need to print out a control report before printing invoices. Create the system access control code "IN" and mark this as being used on the Print Invoices line. This requires you to set up the two-character mnemonic using this option and then use option 1 to put it on specific menu lines.
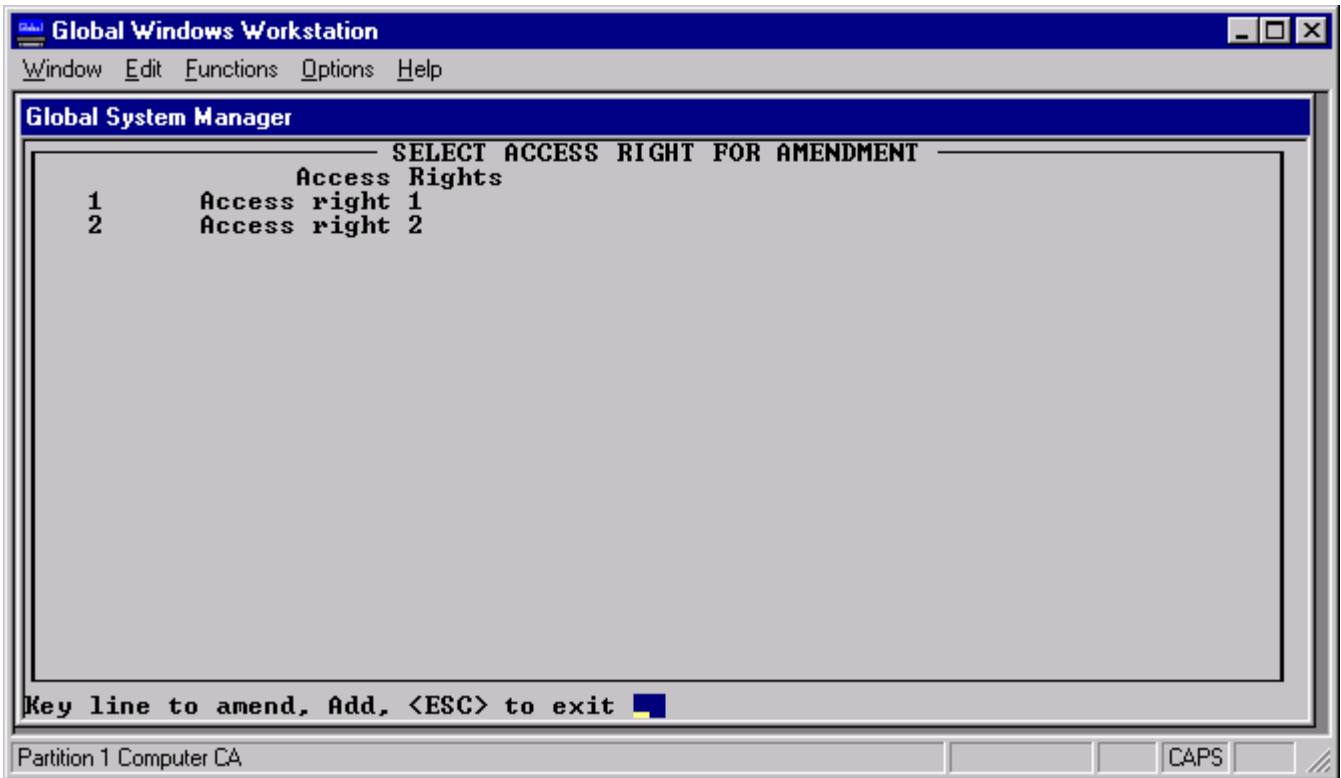
```
Global Windows Workstation                                          _ □ ×
Window  Edit  Functions  Options  Help

Global System Manager

              ─── SELECT ACCESS RIGHT FOR AMENDMENT ───
                    Access Rights
        1         Access right 1
        2         Access right 2




















Key line to amend, Add, <ESC> to exit ■

Partition 1 Computer CA                                           CAPS
```

Figure 7.16 – Amend Access Rights

7.9   Reallocate Menu File

Choose function 8 from the main menu to allow you to re-allocate menu files (see figure 7.17).

Key A to amend and the cursor moves to the column marked 'New' so that you can supply new values then key <CR> so that the new figures can be written to file. Key <ESC> to return to the Menu maintenance menu if you decide against increasing the file size.

While it may be possible to copy the menu file to a larger or smaller size in order to change the number of free menu slots in the file, this will not allow you to change the number of operator-ids, data access keys, access rights or system access control codes on menus which have been allocated using $F instead of this program.

You clearly cannot allocate fewer entries than are already used and for internal reasons the number of data access keys and the number of access rights are rounded up to the next whole multiple of eight. The current limits on each item are:

> 562 menus;

> 1000 operator-ids;

> 200 data access keys;

> 200 access rights.

Note that increasing these numbers will not necessarily increase the space required in proportion. For example, increasing the number of access rights also increases the size of the menus, and going from 1 to 2 operators only changes from 2456 to 2466 bytes.

7.10 Print Menu File

It is recommended that you keep an up-to-date print-out of the menu file for reference at all times. Choose function 9 from the main menu to print out the contents of the menu file in order to do this.

The screen in figure 7.18 will be displayed, with the following baseline prompt:

```
Key only phase, Amend, Options, View, <CR> to print, <ESC> to exit:
```

If you just want to print one of the nine listed phases, then type the number beside it and key <CR>. The default on that phase will automatically be defaulted to Y, while all the other phases will be defaulted to N.

Key A if you want to amend each line of the list in turn.

Keying O or V takes you into report options and viewing facilities which allow you view the report on screen while it is being printed, re-format it on screen by selectively suppressing columns or to search for particular names or figures.

Key <CR> to print the menu file, and accept the defaults set up.

Key <ESC> to return to the Menu maintenance menu and the message 'Report cancelled' will appear at the bottom left hand side of the screen.

Figure 7.17 – Re-allocating the Menu File

```
Global Windows Workstation                                    _ □ ✕
Window  Edit  Functions  Options  Help

Global System Manager
┌─────────────────────── MENU FILE PRINT ───────────────────────┐
│                                                               │
│                                                               │
│         1    Menu file parameters              Y              │
│         2    Operator access                   Y              │
│         3    Detailed operator access          Y              │
│         4    LAN access over-rides             Y              │
│         5    Screen access over-rides          Y              │
│         6    System access control codes       Y              │
│         7    Data dependent access keys        Y              │
│         8    Access rights                     Y              │
│         9    Menus                             Y              │
│                                                               │
│                                                               │
├───────────────────────────────────────────────────────────────┤
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
│                                                               │
Key only phase, Amend, Options, View 1st screen, <CR> to print, <ESC> to exit ■

Partition 1 Computer CA                              CAPS
```
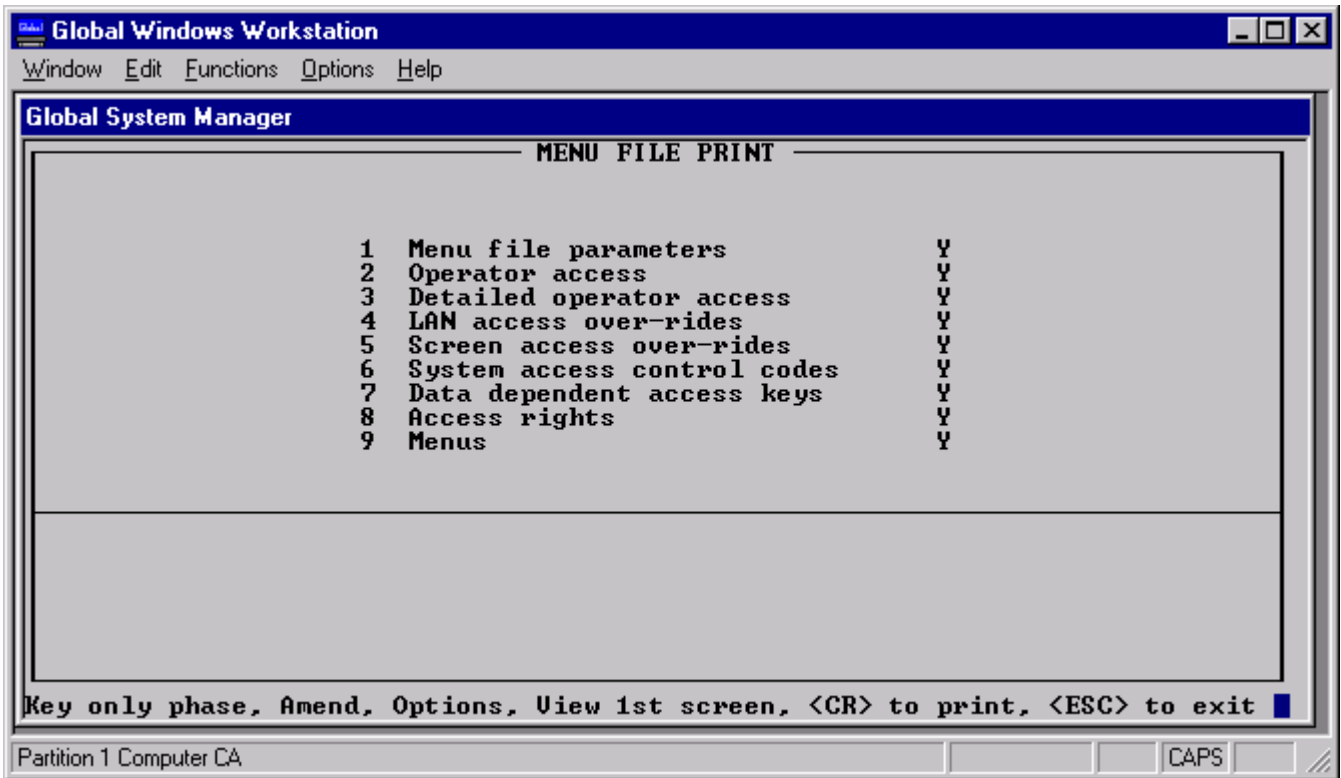
Figure 7.18 – Printing the Menu File

8. The Spooler

When Global System Manager is installed you can specify a hard disk volume and an associated real printer to be used for spooling. The logical printer unit, $PR, will then be assigned to that hard disk volume so that reports produced by Global software and other programs will be written to the disk rather than directly to the printer. The spooler commands, $SP and $SPS, are then responsible for the actual printing of the information and for checking the spooler status respectively.

The advantage of a spooler is that it enables a number of operators in a multi-user or networked system to share a single printer in a controlled way. Performance is also improved, since programs can send reports to disk faster than they can to a printer, always a relatively slow device; the spooler occupies a partition of its own and requires relatively little processor time to keep the printer running at full speed. A powerful set of instructions gives you complete control over the order in which reports are output, so you can print priority work first.

The two spooler commands, $SP and $SPS, correspond, respectively, to the Start Spooler and Check Spooler Status functions on the initially installed menu. Normally you will use $SP to examine or modify the print schedule or to perform actual printing. $SPS can be run from another screen while $SP is active in order to change the print schedule, but unlike $SP it is not actually able to start the printer, commence or end spooling.

Installations with more than one printer may have more than one spool unit defined. You might also set up extra spool units to hold reports which are not to be printed immediately. For example, to assemble invoices so that they can be printed together. When you have several spoolers $SP and $SPS are still the only commands used since unit assignments (made within the main menu) are used to identify the spool unit (from $PR) and the real printer involved (from $RP). This chapter assumes you are running the installed spooler, but is equally applicable to any extra ones.

A third program, $SPOOL, merely chains to $SP after giving you the option of changing the spool unit ($PR) and real printer ($RP) assignments.

Instruction	Description
INSTRUCTIONS TO DISPLAY SPOOLER INFORMATION	
? (Help)	Display list of available instructions
L (List)	Display the active part of the schedule table
N (Next)	Display next screen page of table
B (Back)	Display previous screen page of table

INSTRUCTIONS TO PRINT	
C (Commence)	Commence printing on specified page
P (Page)	Throw a blank page
<CR>	Print according to schedule table
INSTRUCTIONS TO CONTROL PRINT SCHEDULE	
A (Alter)	Alter the priority of a file/selection
D (Delete)	Delete an unwanted file/selection
H (Hold)	Hold a file/selection to stop printing until "Released"
R (Release)	Release cancels a previous "Hold"
I (Initialise)	Re-send $CUS start-up sequence to printer
K (Keep)	Keep file after printing
M (Multiple)	Print multiple copies of a file/selection
S (Stop)	Stop after printing a specified file
T (Terminate)	Terminate printing the current file
U (Unclutter)	Unclutter unit - delete multiple copies of file, keeping only the latest (mainly for programmers)
MISCELLANEOUS INSTRUCTIONS	

E (End)	End spooling ($SPS simply exits)
V (View)	Display file contents on the screen
INSTRUCTIONS TO CHANGE SPOOLING OPTIONS	
F (Format)	Associate print format with file
O (options)	Modify options (see table 8.2)

Table 8.1 - $SP Instruction Codes

Option	Description
?	Display options in force
AL	Assume pre-V6.2 print files always have an alignment pattern
CO	Specify default number of copies
DE	Operator specific defaults
EV	Force reports to an even number of pages
FL	Default printer format letter
HO	New files not held when created
LI	Number of lines before refreshing schedule
ME	Message sent to originator

OP	Operator clustering
SC	Change scan rate during idling
SE	Report separators
SP	Only print split files on completion
ST	Stationery clustering

Table 8.2 - $SP Options

8.1   Introduction to the Spooler

The Global System Manager print spooler system is based around a special subvolume called the spool unit, and two programs ($SP and $SPS) that control the files written to the unit and the way they are printed.

To use the spooler your application or program must write the print file to the spool unit instead of directly to the printer device. This is normally done by assigning the logical printer unit $PR to a subvolume rather than a physical unit in the 500 range.

The spool program $SP then sends the print files to the true print unit. $SP allows you to control the printing of files in a number of ways. You can associate priorities with files, hold files back so they are not printed immediately, or delete them from the print queue altogether.

$SP is normally started at the start of day and left running. Files arriving on the spool unit are detected by $SP and printed automatically.

The spooler status program $SPS performs many of the same tasks as $SP; you can view the spooler schedule table and manipulate it. $SPS can be used from any screen or partition of a multi-user or network system to control the spool queue remotely. $SPS cannot, however, affect a print that is already in progress.

8.2   The Spooler Screen

When you run $SP from the READY prompt or a menu the program immediately examines the spool unit (which is defined by the assignment of $PR) to determine the current status, which it displays in the form of a schedule table. The table consists of a **Header** identifying the program, the operator, and the date and time; **Detail Lines** for each file printed or awaiting printing; and finally a **Trailer** showing how much free space remains on the spool unit and how many directory entries are free.

When you start the spooler for the first time there will probably be no files on the unit and therefore no detail lines. When there are, each detail line is laid out in columns as follows:

      SEQ   a unique sequence number allocated by the spooler and used to identify the file;

OPER the operator-id of the person responsible for creating the file, followed by a separating "/" and the number of the partition from which it originated;

FILE the file name;

FORM a single upper-case character in the range A-Z used to describe the format to be used when printing the file. Differing formats allow you to control the orientation of the paper, the available emphases, and other features of the page layout;

COPY the number of copies required;

DURATION estimated print time in minutes;

COMPLETE actual or estimated time of completion;

STATUS typically either "Printed and deleted", "nn% printed", "Scheduled", "Held" or "In use" (e.g. still being created by a program running in another partition). Information about the priority of a file is also displayed in this column.

The schedule table can become too large to fit on one screen. When this is the case only the **active** part of the table is displayed; files which are scheduled appear - in the order they are to be printed - in preference to files already printed.

8.3 $SP and $SPS Prompts

Commands to $SP and $SPS are given in response to three main prompts:

● the "instruction" prompt;

● the "print interruption" prompt;

● the "options" prompt.

$SPS cannot directly affect printing. Printing is the sole preserve of the spooler program $SP. Consequently, "print interruption" commands, and some of the commands made available by $SP at the "instruction" and "options" prompts, are not usable by $SPS.

The Print Interruption prompt is displayed if the spooler is actively printing a file, and you key <CTRL G> to interrupt it. If the spooler is idle, i.e. if this message is displayed on the base-line:

```
Spooler idle - no files to print. Key <CTRL G> for instruction prompt:
```

then keying <CTRL G> will return you directly to the Instruction Prompt.

$SP displays the following message on the base-line:

```
WAITING FOR SPOOLER STATUS TO COMPLETE
```

to indicate that another partition is using $SPS to determine the spooler status. **All printing (via $SP) is suspended while the spooler status command (i.e. $SPS) is running.**

8.4 The Instruction Prompt

The Instruction Prompt is the main way of directing the print spooler system. Both $SP and $SPS display the instruction prompt when they are first run from the READY prompt or a menu. The Instruction Prompt in $SP is also displayed if you key <u>I</u> in response to the Print Interruption prompt.

$SP displays a prompt of the form:

```
Key spooler instruction, <CR> to start printing:
```

$SPS displays the following prompt:

```
Please key spooler status instruction:
```

A line listing some of the available commands (but by no means all) is displayed above these baseline prompts. The commands that can be used at both prompts are largely similar, so they are dealt with together with any differences highlighted.

The commands are used mainly to affect the schedule of files yet to be printed and attempting to use some commands on a file that is being printed will result in the following message:

```
(seq-no operator/partition) PRINTING,
```

key <CR> to return to the instruction prompt.

Note that if $SPS is left at the command prompt for 30 seconds without any operator intervention it will automatically exit. This is to avoid unnecessary locking of the spooler status file by $SPS (if the spooler status file is locked by $SPS then $SP is prevented from printing).

8.4.1 File Selection
Many of the instructions detailed below can apply to just a single file or to a selection of files, depending on how you reply to the subsequent "Sequence number (or filename)" prompt:

| | :*number* | the instruction applies only to the one file identified by its sequence number |
| or: | :*filename* | or name; |

    :<CTRL B>   the instruction applies to all eligible files;

    :<CR> the instruction will apply to files originated by the operators/partitions identified by the subsequent "Operator" prompt.

The "Operator" prompt appears when you key <CR>. It allows you to select all eligible files originated by a certain operator (by keying his or her operator-id) or all files from a particular operator's partition (by supplying the operator-id followed by a / character and the partition number). For example:

```
Operator:AJU                selects all files originated by AJU
```

```
Operator:AJU/1              selects all files from AJU in partition 1
```

If you terminate your response to the "Operator" prompt with a <CTRL B> rather than a <CR> then the instruction will be applied automatically to all relevant files. For example:

```
Operator:AJU/1<CTRL B>
```

In the case of a Hold, the Hold will apply to all future files created by the affected operator/partition, and can only be removed by a similar Release instruction. Normally, when <CR> is used there will be a selection prompt for each file involved and you can reply Y to process it, <CR> to skip, <CTRL A> to end the selection, and <CTRL B> to process the current file and all that remain. (This is deliberately similar to the selection prompt technique used by $F.)

8.4.2 <CR> - Start Printing ($SP only)

The simplest instruction of all - <CR> by itself - is probably the one you will use most often. It simply starts printing the files in the order implied by the schedule table. You would use this command when first running $SP, or when you wish to continue, having earlier interrupted printing by keying <CTRL G>.

8.4.3 <ESC> - Exit the Spooler

The <ESC> command causes $SP to stop printing and terminates the program, returning to the READY prompt or menu. Using the command in $SPS simply causes the program to exit, but has no effect on printing.

8.4.4 ? - Display Spooler Help

Key ? in response to the instruction prompt to display help text describing the spooler commands and options.

8.4.5 L, N and B - Display Schedule Table

The L command causes the active part of the schedule table to be displayed on the screen. This can be useful if you have used the N or B commands to display other parts of the table, or if other spooler commands have caused the screen to scroll.

The N (Next) command allows you to display the next screenful of information from a large schedule table; the information usually concerns files yet to be printed. The B (Back) command allows you to display the previous screenful of information; the information usually concerns files that have already been printed.

8.4.6 C - Commence Printing from Specified Page ($SP only)

C (Commence) allows you to specify the page at which the first report should start printing - useful if a printer error occurs during a long report. Note that in order for the Commence instruction to print an alignment pattern, the discriminator in the format message must be "=" rather than "/" (refer to the Global Development File Management Manual for further details).

8.4.7 D and U - Delete files and Unclutter Spool Unit

The D (Delete) command allows you to delete a file or a selection of files from the spool unit. If an attempt is made to delete a single file, the spooler will require you to confirm the filename.

The U (Unclutter) command deletes all but latest copy of files on the spool unit with the same name. The command works on an operator basis, so if a spool unit contained the following files:

File	Operator	Creation Time
D.$L	AJU	9.45
D.$F	SJ	9.46
D.$L	SJ	9.48
D.$L	SJ	9.50
D.$F	SJ	9.55

then after using the U command the schedule would look like this:

File	Operator	Creation Time
D.$L	AJU	9.45
D.$L	SJ	9.50
D.$F	SJ	9.55

8.4.8 A, H and R - Alter Priority, Hold and Release

The A (Alter Priority) command allows you to affect the ordering of the spooler schedule table by associating a priority with a file or a selection of files. The highest priority is 1, the lowest 9. If no priority is explicitly specified files are given a priority of 5. Files with high priorities are printed before those with lower priorities.

The H (Hold) command can be used to hold a file or a selection of files so they are not printed. The R (Release) command reverses the affect of the hold command so that files resume their place in the schedule.

8.4.9 K and M - Keep and Multiple Copies

The K (Keep) command allows you to specify that a file or a selection of files should be kept after printing. The files are therefore retained, perhaps for subsequent inspection by the (V) View command, or for re-printing. Files that have been printed and then kept can be released by using the R command.

By using the M (Multiple Copies) command you can cause the spooler to repeat the printing of a file or a selection of files. Up to 99 copies can be printed in this way.

8.4.10 P and I - Blank page, Initialise Printer ($SP only)

The P (Page) command can be used to separate printouts from one another by throwing a blank page.

The I (Initialise) command causes the spooler to send a full set of Initialisation Sequences to the printer before printing the next file. The command has no affect on the file currently printing, if there is one. The Initialisation Sequences are obtained from the Printer Control File (see section 6.2 for further details).

8.4.11 S, T and E - Stop, Terminate ($SP only) and Exit

The S (Stop) command causes the spooler to stop printing after current file. If no printing is in progress the command has no effect.

The T (Terminate) command cancels any printing in progress. The file is not deleted from the schedule, and will be re-printed if the spooler is re-started. A line of asterisks is printed after the last line printed from the file.

The E (Exit) command causes $SP to stop printing and terminates the program, returning to the READY prompt or menu. Using the command in $SPS simply causes the program to exit, but has no effect on printing.

8.4.12 V - View Files

The V (View) command allows you to inspect files in the spooler schedule table that have not yet been printed. The files are displayed on the screen, and commands allow you to move forwards and backwards through the file.

Important note: The View command only recognises the first 10 segments of a report (print reports larger than the allocation size of the spool unit are split into a number of segments). The
size of each segment, except the last, is equal to the allocation size of the spool unit (or the largest free area on the spool unit, if this is smaller than the allocation size). The size of the last segment will be between 1 byte and the allocation size of the spool unit (depending on the total size of the print report).

Having first keyed V, you are then prompted for the sequence number or file name of the file you wish to inspect. The first screenful of the file is then displayed followed by a baseline prompt which allows you to navigate through the file. The screen acts as a window (normally of 23 lines in length) into the file.

Keying a positive or negative number (*nnnn* or *-nnnn*) causes the window to move forwards or backwards the number of lines specified.

The N and B commands move the window forwards or backwards one complete screenful.

The F (Find) command allows you to search the file for a particular string of characters. The search operates in a circular fashion - it proceeds forwards from the current position in the file (the line at the top of the screen is the current line) but wraps round at the end of the file to search lines earlier than the current position.

The C (Column) command can be used to define columns of useful information that you want to view. Areas of the file that are not defined as visible are not displayed, and the remaining areas are compressed. This feature is particularly useful if you wish to view a 132 wide report on an 80 character wide screen.

When you key C in response to the "view" prompt a line of x's is displayed at the top of the screen. Each x corresponds to a column of characters that will be retained on the display. Over-striking the x's with spaces means that those columns will be omitted from the display. You can use the cursor keys to move left and right; F2 to restore x's to all columns, and F1 to restore all x's to the right of the current cursor position. Key <CR> to re-display the file with the new cropping.

The R (Resume) command or <ESC> can be used to return to the $SP or $SPS instruction prompt.

8.4.13 F - Default Format
The F (Format) command allows you to associate a print format with a particular file or a selection of files. The print formats are used to control things like the paper orientation and printer emphases. The default print format is used if a specific format is not specified.

8.4.14 O - Default Options
The O (Options) command displays a further prompt which allows you to specify the options to be used by the spooler (see section 8.6, below).

8.5   The Print Interruption Prompt
Once you use <CR> in $SP to start printing, the spooler runs continuously and can only be interrupted by your keying <CTRL G>. When you do this the current schedule table is redisplayed. If there is no document currently being printed the Instruction Prompt is displayed. Otherwise, there is a partially printed current document in existence which you may need to handle specially, so a modified Print Interruption prompt appears:

```
        Key Continue, Delete, Reprint, Terminate, Instruction Mode:
```

You may key:

C (Continue)   to resume printing as though it had never been interrupted;

D (Delete)   to delete the current document, then continue printing from the next one;

R (Reprint)   to cancel the current printout and begin it again;

T (Terminate)   to cancel the current printout and go to the Instruction Prompt;

I (Instruction Mode)   to go to the Instruction Prompt.

8.6   The Options Prompt

Key O (Option) at the main Instruction Prompt if you wish to change the options used by the spooler. Options can be modified from both $SP and $SPS, although $SPS is more limited in its powers.

The options assume default values when the spooler is installed which will prevail unless you change them. To examine the list of options currently in force key ? in response to the "Option" prompt displayed by the O instruction. To change an option key the two character name in response to the "Option" prompt. The following options can be used:

AL   **Assume pre-V6.2 print files always have an alignment pattern**. Some older Global applications produce print files in a pre-V6.2 standard. Such files contain alignment patterns which are followed by a free-format stationery mount messages (e.g. "IS ALIGNMENT SATISFACTORY?"). Recent Global applications produce print files containing stationery mount messages which conform to the V6.2 programming standard (i.e. the first two characters preceding the stationery mount message consist of an upper-case letter followed by a "/" or "=" character).

Note that a stationery mount message that is preceded by an upper-case letter followed by a "/" character indicates to the Global System Manager printer handling that no alignment pattern follows the forms control record. Whereas a stationery mount message that is preceded by an upper-case letter followed by a "=" character indicates to the Global System Manager printer handling that an alignment pattern DOES follow the forms control record.

By default, the spooler treats all pre-V6.2 print files as requiring standard (non-aligned) stationery so it prefixes the pre-V6.2 stationery mount message with "x/" (where x is default format letter). Thus, when the Global System Manager printer handling processes the forms control records in a file containing a pre-V6.2 stationery mount message and subsequent alignment pattern it will indiscriminately print the alignment pattern even though the stationery has not been changed. This results in extraneous stationery mount prompts and printed alignment patterns.

By setting the "AL" option, the spooler will assume that all pre-V6.2 print files include an alignment pattern so it prefixes a pre-V6.2 stationery mount message with "x=" (where x is default format letter). Thus, when the Global System Manager printer handling processes the forms control records in a file containing a pre-V6.2 stationery mount message and subsequent alignment pattern, it will suppress the printing of the alignment pattern if the stationery format has not changed since the previous print.

Warning: This option must be used with extreme caution, since if an alignment pattern is not present in the pre-V6.2 print file, and the stationery has not changed, none of the file will be printed because the Global System Manager printer handling will search in vain (i.e. to the end of the file) when attempting to suppress the printing of the alignment pattern!

CO   **Default Number of Copies**. This option allows you to specify the number of copies of a file that the spooler will normally print. The maximum number of copies is 99. The default after installation is 1.

DE   **Operator Specific Defaults**. The other commands allow you to specify options which apply to all operators. Using the DE command some options can be made specific to a particular operator. As soon as the operator sends a file to the spool unit these defaults are associated with it.

     The operator's files can be automatically kept or held, or a priority or number of copies associated with them.

     If you key <CTRL C> to the operator-id prompt displayed by the DE option, full details (i.e. operator-id and associated defaults) of all the operators who have defaults will be displayed.

EV   **Even Number of Pages**. Causes the spooler to output blank pages if necessary so that each report (and separator if specified) occupies an even number of pages. You can ensure that reports always start on a facing page of fanfold paper.

FL   **Spooler Default Format**. Some applications, such as Global Writer, explicitly specify the print format they want used. Other applications simply make use of a default. A number of defaults can, however, be in force. A default printer letter is associated with the printer unit itself and will be used if reports are sent directly to the printer. But default formats can also be specified for spoolers (there may be more than one spooler active) and files without an intrinsic format will be printed with the spooler default.

HO   **Hold Files**. If this option is in force all new files are held as they are created and have to be specifically released if they are to be printed. Using the DE command the "hold" option can be made specific to an operator.

LI   **Schedule Re-display Frequency**. When the spooler is idle the re-analysis and display of the spool unit is performed at time intervals specified using the SC option. When the spooler is printing, the schedule table is re-analysed and displayed after some number of lines have been printed. The LI option allows you to specify the number of lines that are printed before the schedule is re-displayed.

ME   **Message to Originator**. If this option is turned on, a message is sent to the originator of a file when its printing is complete.

OP   **Operator Clustering**. Causes the spooler to print all reports produced by one operator together; thus although the first report printed will be the oldest (assuming they all have the same priority), any others for the same operator will be printed next. However, high priority reports are still printed in preference to low priority.

SC   **Scan Rate**. Controls how often the spooler, when idle, scans the spool unit for files to be printed. If it does this more often it reduces the time the spooler spends idle unnecessarily, but increases the time wasted scanning when there is nothing to print. Between full scans the spooler will perform several fast scans which only check files that were still being created last time it did a full scan.

SE   **Separators**. You may choose to separate reports from one another by a blank page or (by selecting print over fold) two pages printed across the fold which identify the report immediately preceding them.

SP   **Print Split Files on Completion**. This option allows you to start the printing of large files (which may have been created as a number of small files) as soon as the first section is complete. Otherwise printing is delayed until the entire file has been sent to the spool unit.

ST   **Stationery Clustering**. Like operator clustering, but prints all reports using the same stationery together.

When the spooler is installed the options are set as follows:

● there is no operator or stationery clustering;

● no page separators are employed;

● split files are printed on completion;

● spool unit scanned every 60 seconds with 5 fast scans between;

● default number of copies is 1;

● schedule table re-built every 250 lines when printing;

● reports are not forced to an even number of pages;

● message sent to file originator on print completion;

● files are not held on creation;

● there is no default spooler print format;

● there are no operator specific defaults;

● pre-V6.2 files are treated as requiring standard stationery.

Appendix A – Messages and Prompts

This appendix summarizes messages and prompts from Global System Manager which may appear on your screen from time to time when you are running programs or commands. If you get a message which begins with a $ sign this is normally produced by the command program that you are running at the time, and will be described in the same place as the command. The exceptions to this rule are:

$57 *message*	see Appendix B of the Global Operating Manual
$66 *message*	see Appendix B of the Global Operating Manual
$78 *message*	see Appendix B of the Global Operating Manual
$91 *message*	see Appendix A, B, C and D of the Global Utilities Manual and the end of this appendix
$99 *message*	see Appendix B of the Global Operating Manual

The error messages are listed below in alphabetic order, ignoring any preceding asterisk. When a message is followed by a retry prompt, you can key <CR> to retry, F to display the name of the file (if any) in error, or N to abandon. Messages which begin with a $ sign are listed last.

ALREADY IN ERROR MAP

You are attempting to add track to the domain error map using function 8 of $V (see your Global Operating Manual) but the track specified is already included.

ANOTHER USER IS ALREADY CUSTOMIZING THE SYSTEM

This message is displayed by $CUS if another operator is customising Global System Manager.

* ASSIGNMENT ERROR ON *description - uuu*

The unit number shown is invalid. This probably results from an incorrect assignment in a menu.

AUTHORIZATION FILE IS ALREADY BEING UPDATED - CANNOT CHANGE PASSWORD NOW

This message is displayed by $AUTH if another operator is updating the $$AUTH authorization file preventing you from changing your password.

AUTHORIZATION FILE IS ALREADY BEING UPDATED - PLEASE TRY AGAIN LATER

This message is displayed by $AUTH if another operator is updating the $$AUTH authorization file.

AUTHORIZATION FILE IS MISSING OR INVALID
COPY FROM BACKUP OR REINSTALL GLOBAL SYSTEM MANAGER

This message is displayed when an operator attempts to sign-on to Global System Manager if $AUTH authorization is enabled but no valid $$AUTH authorization file is present on the $M

volume. This is usually caused by a nefarious attempt to breach Global System Manager security by deleting or renaming the $$AUTH file.

This message may also be displayed when attempting to run $AUTH If no valid $$AUTH authorization file is present on the $M volume.

* BUFFER WRITE ERROR ON *description - uuu*

An error occurred when you tried to add new records to a file. This normally results from a read or write error on the disk, but may also occur if you remove a disk while there are still files open on it. You may need to restore the file from a backup.

CANNOT RUN FROM CONSOLE

This message will appear if you attempt to run $DETAP from the READY prompt. $DETAP cannot be run from the console as a command program.

* COMPUTER NOT AVAILABLE ON *description - uuu* - RETRY?:

The computer corresponding to the first letter of the unit address is not available. Make sure the computer is turned on and is running Global System Manager, then key <CR> to retry. If the computer **is** running Global System Manager check it uses the same master computer. If so, the error indicates a network fault.

CONTINUE WITH NEW BACKUP VOLUME?:

This prompt appears if you are using the Global System Manager data security system to save information on diskettes, and a fault develops on one of them. You will have replied N to a previous retry prompt to indicate that the error is irrecoverable.

You have the opportunity to replace the faulty diskette with a new one, and then continue unaffected, by keying Y. If you do this the new volume must previously have been prepared with the name BACKUP. You should take care to transfer the information on the faulty diskette's adhesive label to the new one, so that you will be able to recognize it later.

If you have not got a spare BACKUP diskette available you must key N to abandon the save operation and return to the ready prompt or main menu. You will then have to use $V as explained in your Global Operating Manual to initialise a replacement BACKUP volume.

* DIRECTORY FULL ON *description - uuu* - RETRY?:

You have tried to create a new file on this unit, but it is already full. The limit is usually between 63 and 99 files on a diskette or between 99 and 250 files on hard disks.

DOMAIN *unit* NOT INITIALIZED

You have specified a volume's address to the unit prompt in $V, but the domain to which it belongs has not yet been initialized (or formatted).

* ERROR *x* ON *description - uuu* - RETRY?:

The error code, *x,* is one of the letters in the list below:

A   Invalid Access Option. The Access Option on the volume label is invalid or the Access option supplied for a Format or Close Update operation is invalid.

B   See * BUFFER WRITE ERROR ON...

C   See * SUBVOLUME NOT ALLOCATED ON...

D   See * ASSIGNMENT ERROR ON...

E   See * OUT OF PAPER ON...

F   See * IN USE ERROR ON…

G   See * OUT OF RIBBON ON...

H   Hardware error. Global System Manager is unable to access the disk because of a fault in the drive mechanism. Get it serviced by an engineer.

I   Interface error. Invalid user number, invalid operation code, attempt by Close Update to increase extent size or Format work area too small. This error usually indicates that the program being used has become corrupt.

J   See * HARDWARE PROTECTION ON...

K   The translation of a line written to the printer was longer than the buffer. You must use Global Configurator to increase the Maximum Page Width in the Printer Controllers section of the configuration file, thus increasing the buffer length.

        This error may also when printing if the series of print lines containing translation records and hopper selection sequences are out of sequence.

        This error may also occur if you attempt to access a Discrete Data File Domain (a.k.a. Separated Subvolume Domain) but, for some reason, the controller is unable to open the native format subvolume file.

        This error may also occur if there are insufficient LAN buffers configured. The total number of LAN buffers must be at least as large as the number of computers configured on the network.

L   See * NETWORK ERROR ON...

M   Mount error or stationery not available.

N   Invalid operation sequence. A program has attempted to read from or write to a file that was not open; or unlock a record that was not locked. This usually indicates a program error.

O   The operation attempted is not supported on a device. The most common causes of this error are attempts to: read from a printer; write to a read-only disk format (e.g. single

tracking 5¼" diskettes on a double tracking drive); or format a disk not on this computer on a network.

P   See * SOFTWARE PROTECTION ON...

Q   See * COMPUTER NOT AVAILABLE ON...

R   See * READ ERROR ON...

S   See * INSUFFICIENT SPACE ON...

T   See * TOO MANY OPEN FILES ON...

U   See * NOT READY ERROR ON...

V   See * WRONG VOLUME FORMAT ON...

W   See * WRITE ERROR ON...

X   See * DIRECTORY FULL ON...

Y   The disk directory is inconsistent. List the directory (see Chapter 5) and if there is an obviously faulty file delete it; this may recover the remaining files.

Z   An internal error in the File Executive has been detected (either corruption of the File Executive or its work areas, or invalid configuration data). Reload Global System Manager again; if the error persists reinstall Global System Manager.

        This error may also occur when printing if there are no free Printer Translation tables available.

        This error may also occur if you attempt to list a Discrete Data File Domain (a.k.a. Separated Subvolume Domain) that includes one or more native format files with the same subvolume identifier.

ERROR MAP NOT SUPPORTED

You are attempting to amend the domain error map using function 8 of $V (see your Global Operating Manual) but the domain format specifies that a domain error map is not allowed.

ERROR MAP FULL

You are attempting to add track to the domain error map using function 8 of $V (see your Global Operating Manual) but the domain error map is full. You must reformat the hard-disk or map out bad-tracks using the low-level firmware options on the hard disk controller.

ERROR ON DESCRIPTION FILE

A read error has occurred when attempting to read the file that holds the Long Volume Descriptions.

FACILITY NOT SUPPORTED

You have attempted function 3, 4, 6, 7 or 8 in $V (see your Global Operating Manual) but the operation is not supported on Global System Manager (Unix).

FILE ALREADY EXISTS - DELETE?:

A file of the same name as the one you are about to create already exists. Key Y to delete the old file and continue. Key N to leave the existing file and return to a previous prompt in order to change the file name or unit of the new file you are creating. If the prompt occurs in $F during a process such as a multiple file copy, replying N will simply cause this file to be skipped, <CTRL C> will cause a reply of N to be assumed for this and all remaining files that already exist, and <CTRL B> causes a reply of Y to be assumed for this and all remaining files.

FORMATTING NOT SUPPORTED

You have attempted function 3 or 4 in $V (see your Global Operating Manual) but the hardware is incapable of formatting the unit you have specified.

FUNCTION NOT AVAILABLE

You have attempted function 7 or 8 in $V (see your Global Operating Manual) but the operation is not supported on a Discrete Data File Domain (a.k.a. Separated Subunit Domain - volume format T*nnn*Z).

* HARDWARE PROTECTION ON *description - uuu* - RETRY?:

The disk in the drive is hardware write protected, but you are attempting to write to it. Remove the write protection and key <CR> to retry if you want to continue. The manufacturer's manual for your computer will explain how disks are write protected.

INCOMPATIBLE VERSION OF TAP

The version of $TAP used to create the TAP is incompatible with the version of Global System Manager you are using. The TAP must be recreated using the correct version of $TAP.

INCORRECT AUTHORIZATION FILE VERSION
RELOAD THE STARTER SYSTEM AND RUN $AUTH TO UPGRADE THE AUTHORIZATION FILE

The version of the $$AUTH authorization file is incompatible with the version of Global System Manager. $AUTH must be run, from the Starter System (i.e. BACRES), to upgrade the authorization file.

INCORRECT TERMINAL DEPTH

See the description for the message "INVALID TERMINAL DEPTH" described below.

INCORRECT TERMINAL WIDTH

See the description for the message "INVALID TERMINAL WIDTH" described below.

INPUT REQUIRED:

You have keyed <CR>, or <CTRL A>, <CTRL B> or <CTRL C> by itself, where character or numeric input was required. Supply a correct value to continue.

INSUFFICIENT FREE MEMORY

The user area is not large enough to hold the track memory image required to format a volume or reformat a track. If this error occurs when $V is run under job management it may still be possible to perform the required format operation interactively, since the available user area is larger when job management is not in control. It can be helpful to sign off using $E and then sign on again since this ensures that the maximum user area is made available.

INSUFFICIENT SPACE

While trying to initialise a new volume you have requested more space than is actually available. Alternatively, you keyed 0 (zero) to the size prompt to obtain the maximum possible, but there is insufficient for even a volume directory.

* INSUFFICIENT SPACE ON *description - uuu* **- RETRY?:**

There is insufficient contiguous free space on the unit to allocate the new file required. Make space available either by deleting unwanted files or by using $F's CON (condense) instruction to merge the free areas together.

* IN USE ERROR ON *description - uuu* **- RETRY?:**

You have tried to open a file which is already open for exclusive use by another user, or to open a file exclusively which is opened for shared access by another user, or to open a file on a unit which is being reorganized. Either wait until the file is available and key <CR> to continue, or key N to abandon.

INVALID:

You have keyed a number wrongly. This includes supplying a negative value when only a positive one is acceptable, or a decimal fraction when an integer is required. Supply a correct value to continue.

INVALID FORMAT TAP

The TAP file is either corrupt of the version of $TAP used to create the TAP is incompatible with the version of Global System Manager you are using. The TAP must be recreated using the correct version of $TAP.

INVALID LOCATION

The hexadecimal cylinder and head number of the track you have asked to reformat is outside the limits imposed by the physical drive containing the unit specified.

INVALID ON DOMAIN DIRECTORY

You cannot replace the first track of a domain, which is used for the domain directory itself, with an alternate track.

INVALID - REINPUT

You supplied an invalid response to the previous prompt, which will be redisplayed so that you can correct your error.

INVALID TERMINAL TYPE

Your reply to the PLEASE KEY TERMINAL CODE prompt is invalid. You have attempted to load a Terminal Attribute Program (TAP) for a serial screen on a memory-mapped console or vice-versa.

INVALID TERMINAL DEPTH

Your reply to the PLEASE KEY TERMINAL CODE prompt is invalid. The terminal depth, specified in the Terminal Attribute Program (TAP) is greater than the screen image depth, specified in the configuration data. Use $CUS (Configuration Maintenance) or Global Configurator to increase the screen image depth for the appropriate console.

INVALID TERMINAL WIDTH

Your reply to the PLEASE KEY TERMINAL CODE prompt is invalid. The terminal width, specified in the Terminal Attribute Program (TAP) is greater than the screen image width, specified in the configuration data. Use $CUS or Global Configurator to increase the screen image width for the appropriate console.

LIBRARY *name* REQUIRED ON *description - uuu*:

See under PROGRAM name REQUIRED ON etc.

MOUNT BACKUP *name* ON *description - uuu* AND KEY <CR>:

This prompt is produced by the Global System Manager data security routines used to preserve a copy of a data volume on one or more diskettes. You should mount the named BACKUP volume on the indicated unit and key <CR> to continue.

If you cannot find the required diskette you must key N to abandon the save or restore operation and return to the ready prompt or main menu.

MUST BE A DOMAIN

The unit address specified under functions 5 or 7 of $V (see your Global Operating Manual) must be a domain address.

MUST NOT BE A SUBUNIT

You have specified a subunit address when attempting a format, format and verify, or track reformat operation. The address must be that of a discrete direct access volume or domain.

* NETWORK ERROR ON *uuu* **- RETRY?:**

> If the unit address starts with a letter then there has been an error on the network: the most likely cause is that the computer identified by the first letter of the unit address has been turned off while you were accessing a file on it. If the unit address is in the range 800 - 999 then the error is on the RS232 link used with $REMOTE (see your Global Operating Manual).

NO ALTERNATES

> You are attempting to replace a faulty track with an alternate using function 7 of $V (see your Global Operating Manual), but the domain format specifies that alternates are not allowed.

NO ROOM FOR DESCRIPTIONS

> There is no room in the Long Volume Description area for the new description. The area reserved for descriptions must be increased by re-initialising the domain using Global System Manager V8.1. Note that re-initialising the domain will destroy all the data on the hard-disk.

NOT A SUBUNIT

> You are attempting to deallocate a subvolume, but the address you supplied previously is not that of a subunit.

NOT FOUND
NOT FOUND OR WRONG TYPE

> The file you specified could not be found, or was the wrong type of file for the operation you were attempting to perform.

NOT INITIALIZED

> The domain whose subunits you are trying to scratch using $V has not yet been initialized (or formatted).

* NOT READY ERROR ON *description - uuu* **- RETRY?:**

> If this error occurs on a disk drive then there is no disk in the drive or the disk is not properly mounted, or it is the wrong type of disk; mount the disk and key <CR> to continue. If it occurs on a printer then the printer is probably off-line, although some printers give this error if they run out of paper or ribbon. Correct the fault and key <CR> to continue.

* OUT OF PAPER ON *description - uuu* **- RETRY?:**
* OUT OF RIBBON ON *description - uuu* **- RETRY?:**

> The printer indicated has run out of paper, or a single strike ribbon needs replacing. Correct the problem, realigning the paper if you change it, and key <CR> to continue.

OUTSIDE UNIT

The faulty track location you specified when attempting to allocate an alternate is not within the domain you specified.

PLEASE ASSIGN *unit-id***:**

Global System Manager requires to know the physical unit address to be associated with the logical unit-id which appears in the prompt. This usually means that the assignments in the menu are incomplete.

If the unit-id starts with a $ sign then it is one of the standard operating system units described in Chapter 2. Otherwise the unit is one used by the software module you are running and will be explained in the corresponding user manual.

If you are unable to make an assignment, key <CR> to the assign prompt. An assignment error message will appear and the current program will normally be cancelled, returning you to the ready prompt or main menu.

You may suppress any particular assign prompt by using the permanent assignment customization described in Chapter 6 or by adding the assignment to the appropriate menu line as described in Chapter 7.

PLEASE KEY PASSWORD FOR *file***:**

The file you require to access has been password protected. You must supply the password in order for the program to continue.

If you do not know the password you should key <CR> to return to the ready prompt or main menu.

PLEASE MOUNT *volume-name* **ON** *description - uuu* **AND KEY <CR>:**

Global System Manager requires the indicated volume to be online on the specified unit in order to access the file named in the prompt. The volume-id should correspond to the name on the adhesive label attached to the required disk or diskette. You should mount this on the indicated unit and then key <CR> to continue.

If you cannot find the necessary volume you should key N to return to the ready prompt or main menu.

If the correct disk is mounted but the message is repeated when you retry, then the disk is probably faulty. Try to list it using $F (see Chapter 5).

PLEASE MOUNT *stationery-mount-message* **ON UNIT 5***xx***:**

This prompt indicates that you must load special stationery on the printer at the indicated unit address. The actual message used differs according to the application and the Mount Message Extension as defined in the Printer Control File.

You must load the required stationery and correctly align it before keying <CR> or Y to continue. If you cannot do this you should key N to the prompt; normally the application will display its own message explaining that it cannot produce the report. If you do not want to change the

stationery but nevertheless wish to continue to print the report, key <CTRL A> to the stationery mount message. Global System Manager will print the report but will not update its internal flag which indicates the "current paper type".

PLEASE MOUNT TAPE *name*:

$TDUMP (see your Global Operating Manual) requires you to load the first or next cartridge tape required for a save or restore operation. Reply Y or <CR> once you have done so, or N if no tape is available, in which case the operation will be abandoned.

PROGRAM *name* REQUIRED ON *description - uuu*:
PROGRAM *name* IN LIBRARY *name* REQUIRED ON *description - uuu*:
LIBRARY *name* REQUIRED ON *description - uuu*:

These three prompts are variations on the same theme. Global System Manager needs to access a program, command, or library but it is not present on the indicated unit.

Mount one of the program volumes belonging to the application with which you are working and key <CR> to continue.

Note that if you load the wrong volume by mistake no damage will be done, but the prompt will simply be repeated to allow you to correct your error.

If you cannot find the required program or library, or if you realize that the prompt has occurred because you keyed the wrong name in response to a previous prompt, simply key N to return to the ready prompt or main menu.

* READ ERROR ON *description - uuu* - RETRY?:

An error has occurred trying to read the volume on the indicated drive. If the error occurs on a diskette it may be because you have mounted one of the wrong format. You can key <CR> to retry; the error may be recoverable. Sometimes removing the diskette from the drive and remounting it will allow you to continue. If the error persists key N to abandon the operation. If it is a diskette in error, replace it. If it is a hard disk then proceed as described in Chapter 4 of your Global Operating Manual. In either case you will need to restore the files from a backup.

A reply of ? will give the location on the disk where the error occurred as a cylinder/head/sector and may be followed by an error code. The location is given in hexadecimal and could be used to specify an alternate track, using $V, as described in Chapter 4 of the Global Operating Manual. The error code if it appears will be computer dependent.

SELECTION ALGORITHM $.*nnnnnn* NOT FOUND

The TAP requires a selection algorithm to allow function keys to be recognised. The selection algorithm, defined in the TAP (as *nnnnnn*), is not present in the P.$TAP library (as member $.*nnnnnn*) on SYSRES.

SELECTION ALGORITHM EXCEEDS MAXIMUM SIZE OF 80 BYTES

The TAP requires a selection algorithm to allow function keys to be recognised. The selection algorithm defined in the TAP is too large.

SIZE 0 INVALID

You have attempted to use function 1 or 2 of $V (see your Global Operating Manual) to initialise a sub-volume on a Discrete Data File Domain (a.k.a. Separated Subunit Domain - volume format T*nnn*Z) with a size of 0. This is not permitted.

* SOFTWARE PROTECTION ON *description - uuu*

The file being written to on the indicated unit has been software write protected using the PRO or PFI instructions in $F. If you want to write to the volume you must use $F's REL or RFI instruction to release the protection.

SUBVOLUME IN USE

You are attempting to process a domain while another user is still working with one of its subvolumes.

SUBVOLUME NOT ALLOCATED

You are attempting to deallocate a subvolume, but the one whose address you specified has never been allocated any space.

* SUBVOLUME NOT ALLOCATED ON *description - uuu*

The indicated subvolume has not been allocated. See your Global Operating Manual for a description of how to allocate a subvolume if you need to allocate one, or alternatively correct a faulty assignment to this unit.

TERMINAL TYPE *nnnn* **NOT FOUND**

No Terminal Attribute Program (TAP), $.*nnnn*, is present on SYSRES, either in the P.$TAP library or as a stand-alone file.

THE USER FILE HAS BEEN PURGED.
Key <CR> to terminate process

The user file has been purged using the $STATUS PUR command. You MUST reload Global System Manager on all computers on the network commencing with the master computer.

THERE IS MAIL IN YOUR MAILBOX
Key Mailbox, <ESC> to exit:

The Global System Manager mailing system has detected that a message has been sent to your mailbox. Key M to enter $MAIL to read the message. Key <ESC> to continue with the sign-on. The prompt may include more options if other types of mail messages have been sent to you.

THERE ARE ENTRIES ON THE BROADCAST NOTICE BOARD
Key Broadcast, <ESC> to exit:

The Global System Manager mailing system has detected that a broadcast message has been sent. Key <u>B</u> to enter $MAIL to read the message. Key <ESC> to continue with the sign-on. The prompt may include more options if other types of mail messages have been sent to you.

THERE ARE ENTRIES ON THE COMPUTER NOTICE BOARD
Key Computer, <ESC> to exit:

The Global System Manager mailing system has detected that a message has been sent to your computer. Key <u>C</u> to enter $MAIL to read the message. Key <ESC> to continue with the sign-on. The prompt may include more options if other types of mail messages have been sent to you.

THERE ARE ENTRIES FOR GROUP *gggggggg* ON THE GROUP NOTICE BOARD
Key Group, <ESC> to exit:

The Global System Manager mailing system has detected that a message has been sent to a group of which you are a member. Key <u>G</u> to enter $MAIL to read the message. Key <ESC> to continue with the sign-on. The prompt may include more options if other types of mail messages have been sent to you.

THERE ARE ENTRIES ON THE SYSTEM NOTICE BOARD
Key System, <ESC> to exit:

The Global System Manager mailing system has detected that a message has been sent to your system. Key <u>S</u> to enter $MAIL to read the message. Key <ESC> to continue with the sign-on. The prompt may include more options if other types of mail messages have been sent to you.

THERE ARE TELEPHONE MESSAGES FOR YOU
Key Telephone, <ESC> to exit:

The Global System Manager mailing system has detected that a telephone message has been sent to you. Key <u>T</u> to enter $MAIL to read the message. Key <ESC> to continue with the sign-on. The prompt may include more options if other types of mail messages have been sent to you.

TOO LARGE:

The number you have supplied has too many digits in front of the decimal point for the program to handle. Key a smaller value to continue.

TOO LONG:

You have keyed too many characters for the program to handle. You must re-input a shorter field.

* TOO MANY OPEN FILES ON *description - uuu* - RETRY?:

The operating system limit on the number of open files has been exceeded. This limit depends on the configuration used, and can be varied using Global Configurator. To increase the limit, you must increase one or more of the number of file channels (which determines the maximum number of open files, counting each shared file as the number of users it has); the number of file blocks (which determines the maximum number of separate open files) and the number of lock table entries. On a networked system the limits are separate for each computer. You may be able to recover by stopping some other program which has files open and then keying <CR>. The

$USAGE utility allows you to monitor the usage of file channels, file blocks and lock table entries.

This error may also occur if you attempt to print to a real printer when there are no printer buffers defined in the configuration file.

TRACK REFORMATTING NOT SUPPORTED

The hardware is not capable of reformatting an individual track on the unit you have specified.

UNABLE TO ADD ALTERNATES TO ERROR MAP

You are attempting to add a faulty track to the domain error map using function 8 of $V (see your Global Operating Manual) but the track specified has already been allocated an alternate track.

UNABLE TO LOAD TRANSLATION TABLE

Your reply to the PLEASE KEY TERMINAL CODE prompt is invalid You have attempted to load a Terminal Attribute Program (TAP) that requires character translation but this option has not been enabled in the configuration file. Use $CUS (Configuration Maintenance) or Global Configurator to enable character translation for the appropriate console. [This message is displayed if there is an error loading the translation table defined in the TAP is being processed.]

UNIT 5*xx* *message-requesting-alignment*:

Sometimes when you are using special stationery an alignment pattern page is printed once you have loaded the paper. Then Global System Manager will output a prompt of the form indicated above. The actual message used depends on the application, but the prompt might, for example, appear as:

UNIT 5*xx* IS ALIGNMENT SATISFACTORY?:

If the pattern - usually groups of X's or asterisks which should fit certain preprinted boxes - is in the right position, you should key <CR> to cause the program to continue and print the required report.

If the pattern shows that the alignment is not yet correct, adjust the paper and then key N. The alignment pattern will be reprinted and the prompt will reappear. You can key N over and over again until you get the paper perfectly aligned. Then you should key <CR> to continue.

UNIT 5*xx* *message-requesting-special-stationery*:

This prompt indicates that you must load special stationery on the printer at the indicated unit address. The actual message used differs according to the application. A typical special stationery prompt might be:

```
UNIT 500 LOAD INVOICE STATIONERY:
```

You should load the paper requested, align it correctly at the top of a new page, and then key <CR> to continue.

If you cannot comply with the request - because, for example, you cannot find the paper - you should key N to return to the ready prompt or main menu.

Note that a prompt of this form will not appear if a Printer Control File has been defined for the printer.

USER FILE ERROR

This message appears if a user on a network attempts to sign off, sign on, reload Global System Manager (see your Global Operating Manual) or otherwise access the user file on the master computer, and the user file cannot be accessed for some reason. (The user file holds details of which computers and users are signed on to the network.) Check the master computer (reloading Global System Manager if necessary) and try again.

WAITING FOR SPOOLER STATUS TO COMPLETE

This message is displayed by the spooler, $SP, if it is unable to rebuild its schedule table because another partition is running the spooler status command, $SPS.

WARNING - RESET FILE ERROR

The file containing the terminal specific reset sequences, $$RS*tttt*, where *tttt* is the TAP number, is corrupt. Delete the file and use <SYSREQ> S to create a new one.

WARNING - START SEQUENCE LENGTH EXCEEDED

The start sequence, defined in the TAP is longer than 1024 bytes. The TAP must be recreated, using $TAP, to include a smaller start sequence.

WARNING - TRANSLATION NOT ENABLED

Your reply to the PLEASE KEY TERMINAL CODE prompt is invalid. You have attempted to load a Terminal Attribute Program (TAP) that requires character translation but this option has not been enabled in the configuration file. Use $CUS (Configuration Maintenance) or Global Configurator to enable character translation for the appropriate console. [This message is displayed if there is an error loading the translation table defined in the $$SC*oooo* file (created using <SYSREQ> B) is being processed.]

* WRITE ERROR ON *description - uuu* - RETRY?:

If this error occurs on a printer it is probably caused by the printer being out of paper: replace the paper, align it and key <CR> to retry. If the error is on a disk it has occurred attempting to write to the volume on the indicated drive. See the description of "* READ ERROR" for recovery action.

* WRONG FORMAT VOLUME ON *description - uuu* - RETRY?:

The format of the volume mounted does not correspond to the unit number. This may indicate that the volume has not been initialized, or that the wrong format volume is being used, or that the volume is corrupt.

WRONG TYPE

The file you have specified is the wrong type of file for the operation you are attempting to perform.

YOU HAVE REACHED THE MAXIMUM NUMBER OF SIGN-ON ATTEMPTS
THIS SCREEN IS NOW LOCKED

This message appears if an operator has exceeded the number of sign-on attempts specified in the $AUTH authorization file. The screen is now locked (to prevent further attempts at signing in to Global System Manager) and can only be restarted by a supervisor using the $STATUS RES instruction.

$17 JOB MANAGEMENT TERMINATED

This message appears if a program running under job management terminates in error. Usually the reason will be clear if you examine the preceding dialogue on the screen. It may be due to an error being detected by the program, or the job supplying an invalid reply to the program.

$90 *program-name* TOO LARGE

The user area is too small to allow this program to be run. Command $S will show you how large the user area is. You may need to increase the size of the user area as described in Chapter 5. Note that using job management will temporarily reduce the size of the user area.

$91 BREAK?:

This prompt appears if you key <CTRL W> when there is no prompt outstanding. It allows you to temporarily halt a program, or interrupt one which is producing an unwanted report, or which you suspect to be looping.

You should key N or <CR> in reply to the prompt to cause the interrupted program to be resumed as though the break had never occurred. This is useful if you temporarily halted the program, or keyed <CTRL W> by mistake.

If you key Y to the BREAK? prompt Global System Manager responds with the diagnostics prompt, described next, so that you can obtain information about a program which you suspect to be looping.

If you do not wish to produce diagnostic information key Q to quit the current program and return to the ready prompt or main menu.

$91 PGM CHECK *number* AT *location*
$91 TERMINATED - STOP *code*
$91 TERMINATED - EXIT *code*
$91 TRAP AT *location*

Following any of the above four messages, or in response to your keying Y to the BREAK? prompt, Global System Manager displays the diagnostics prompt:

```
Activate debugger, key D for Diagnostics report, H for Help, <ESC> to exit:
```

Note that if the screen is being used in formatted mode the initial error prompt ($91 PGM CHK etc.) is displayed on the baseline followed by a "," prompt. You must therefore key <CR> to cause the diagnostics prompt to be displayed.

If you are using $DEBUG to debug a program then errors are dealt with differently - you should consult your Global Cobol User Manual.

You may key one of the following responses:

H   to display a screenful of help text.

D<CTRL A>   to display diagnostic information on the screen;

D   to send the diagnostic information to the standard printer device
                            $PR. You can associate up to 10 lines of text with the diagnostic
                            report. The cursor keys and other editing keys can be used to enter
                            the text. Note that until you have left the text edit mode by keying
                            <ESC> you cannot switch partitions;

<ESC>   to abandon your program and return to the READY prompt or the menu
                            without producing a diagnostic report.

Note that although earlier versions of Global System Manager allowed R (to resume), do not attempt this as unpredictable results will occur.

If the diagnostics prompt appears unexpectedly you should reply D or <CR> to cause a diagnostic report to be written to the standard printer assigned to $PR. If you know what is wrong and do not need to produce a report, simply key <ESC> to return to the READY prompt or menu in the normal way. The following prompt:

```
Full memory dump?:
```

will be displayed to allow you to produce, in addition, a dump of the whole of memory (typically 20-50 pages). You should reply N or <CR> if you do not want the full dump, or Y to produce the dump. Normally just the diagnostic report and a description of the immediately preceding dialogue will provide sufficient information for your supplier to fix the problem.

Appendices A, B, C and D of the Global Utilities Manual describe the various "$91" messages in complete detail.

$94 I/O ERROR *x* ON SWAP FILE *sense message*

An I/O error *x* on the swap file ($$SWAP on $DP) is preventing your partition from continuing. You can restart your partition using $STATUS, but if the error persists you will have to allocate an alternate track as described for $V in your Global Operating Manual. The *sense message* will provide more details about the I/O error.

$94 PLEASE DO NOT SIGN ON - SYSTEM SHUTDOWN IS IMMINENT

Global System Manager is about to be shut-down by a supervisor. Please do not attempt to sign-on.

$94 SESSION CANCELLED BY SUPERVISOR

A supervisor has used the $STATUS CAN command to cancel the Global System Manager session on your screen. To restart Global System Manager use the $STATUS RES command.

$94 YOU ARE NOT AUTHORIZED TO SIGN ON - PLEASE CONTACT A SUPERVISOR

Either the operator-id you keyed was invalid, or you supplied an incorrect password.

Appendix B – Status Line Messages

This appendix summarizes messages from Global System Manager which may appear on your status line from time to time when you are running programs or commands.

Note that <SYSREQ> Z can be used to remove the message from the status-line (see section 4.30).

CANNOT FIND USER REQU.

> This message appears when an attempt to run an end user system request fails because the system request is not present in the $$UREQ system request data library.

NO USER REQ. HERE

> This message appears when it is not possible to run a user system request. For example, when automatic help is being invoked.

MOUNT VOLUME IN P *n*

> This message is displayed when a program running in partition *n* has issued a "PLEASE MOUNT" message and is waiting for the operator to insert a diskette and key <CR>.

PGM ERROR IN P*n*

> This message is displayed when a program running in partition *n* fails with a program check, stop code or exit code.

REQ. LOAD FAIL

> This message appears when an attempt to run a Global System Manager system request fails. This may be due to the 'no system requests allowed' flag being set (see $CUS) or an I/O error occurring when attempting to open a system request work file on SYSRES. The most common cause of this error message is when there is insufficient space on SYSRES to open a system request work file (see Chapter 4).

PRES. MAN. LICENCE EXPIRED

> The Menu Handler has detected that your Speedbase Presentation Manager licence has expired. Please contact the "Emergency Rental Review Department" and use the System Maintenance option in $CUS to apply the new expiry date password.

xxxxxxx* printed at *hh.mm.ss

> This message is displayed by the spooler to indicate that file *xxxxxxx* has finished printing at time *hh.mm.ss*.

***hh.mm.ss* printing screen**

> This message is displayed by the Screen Print system request, <SYSREQ> P, to indicate that a screen print is in progress.

---

hh.mm.ss **UNABLE TO PRINT**

This message is displayed by the Screen Print system request, <SYSREQ> P, to indicate that it is unable to print the contents of the current screen. The most likely cause of this message is because $PR is assigned to a non-functioning printer.

NO HELP AVAILABLE

This message is displayed by the Help system request, <SYSREQ> H. It indicates that the current help file or help book cannot be found on the current help unit.

Move cursor to start, key F1

This message is displayed by the Screen Transfer system request, <SYSREQ> X, when it is invoked. You should move the cursor to the start of the area you wish to transfer and key <F1>.

Move cursor to end, key F1

This message is displayed by the Screen Transfer system request, <SYSREQ> X, after you have indicated the start of the area you wish to transfer. You should move the cursor to the end of the area you wish to transfer and key <F1>.

Send to partition?

This message is displayed by the Screen Transfer system request, <SYSREQ> X, after you have indicated the area which you wish to transfer. You must key the partition number of the partition to which you wish to send the data.

LINE(S) TOO LONG - KEY <CR>

This message is displayed by the Screen Transfer system request, <SYSREQ> X, if it impossible to transfer the text because the type-ahead buffer is too short. The type-ahead buffer of the target partition must be large enough to accept a complete line. Key <CR> to abort the screen transfer.

UNABLE TO SEND - <CR> TO RETRY

This message is displayed by the Screen Transfer system request, <SYSREQ> X, if it temporarily unable to transfer the text because the type-ahead buffer of the receiving partition is full. Key <CR> to retry the operation or <ESC> to abort the screen transfer.

hh.mm **Talk started by** *oooo*

This message is displayed by the Talk system request, <SYSREQ> T, when operator *oooo* has started a conversation with you. <SYSREQ> T should be keyed if you wish to join the conversation.

hh.mm.ss **Conversation terminated**

This message is displayed by the Talk system request, <SYSREQ> T, to indicate that the operator with whom you have been conversing has terminated the conversation.

hh.mm **TELEPHONE MESSAGE**

This message is displayed by the Global System Manager mailing system. It indicates that a telephone message has been taken for you (using $MAIL or <SYSREQ> J) at time *hh.mm*. You can use $MAIL, or <SYSREQ> N, to view the message.

hh.mm **REPLY FOR YOU FROM** *oooo*

This message is displayed by the Global System Manager mailing system. It indicates that operator *oooo* has replied, at time *hh.mm*, to some mail that you sent (using $MAIL). You may use $MAIL, or <SYSREQ> N, to review the reply.

hh.mm ggggggggg **MAIL FM** *oooo*

This message is displayed by the Global System Manager mailing system. A message has been sent (using $MAIL) to group *ggggggggg* (of which you are a member) by operator *oooo* at time *hh.mm*. You may use $MAIL, or <SYSREQ> N, to review the mail item.

hh.mm **MAIL FOR YOU FROM** *oooo*

This message is displayed by the Global System Manager mailing system. A message has been sent (using $MAIL) to you by operator *oooo* at time *hh.mm*. You may use $MAIL, or <SYSREQ> N, to review the message.

hh.mm **BROADCAST NOTICE FM** *oooo*

This message is displayed by the Global System Manager mailing system. A broadcast message has been sent (using $MAIL) by operator *oooo* at time *hh.mm* to all users of the system. You may use $MAIL, or <SYSREQ> N, to review the notice.

hh.mm **COMPUTER NOTICE FM** *oooo*

This message is displayed by the Global System Manager mailing system. A message has been sent by operator *oooo* to users of your computer at time *hh.mm*. You may use $MAIL, or <SYSREQ> N, to review the message.

hh.mm **NOT FOUND IN OPID FILE**

This message is displayed by the Global System Manager mailing system. You have attempted to send a mail message or a telephone message to an operator-id that is not present in the $$OPID operator file. This message should serve as a mild warning because it may indicate that you have mis-keyed the 4 character operator-id.

hh.mm **SYSTEM NOTICE FM** *oooo*

This message is displayed by the Global System Manager mailing system. A notice has been sent by operator *oooo* to all users of your system at time *hh.mm*. You may use $MAIL or, <SYSREQ> N, to review the notice.

UNABLE TO SAVE STATUS

This message is displayed by the $DIRP utility to indicate that there is no space on SYSRES to save the current directory status (when processing an entry selected from the menu displayed by the <F1> or <F2> function). On returning from the menu the current directory will be reset.

CANNOT START PLAYBACK UNDER JM

This message is displayed by the Record and Playback system request, <SYSREQ> Q. Record and playback cannot run while job management is in force.

END RECORD - STOP $RCP

This message is displayed by the Record and Playback system request, <SYSREQ> Q, after it has terminated the recording of a script. It will return you to the record and playback partition so that the script file may be edited and record and playback mode exited.

PLAYBACK COMPLETE

This message is displayed by the Record and Playback utility, $RCP, and indicates that a playback run has been completed.

PLAYBACK ERROR DETECTED

This message is displayed by the Record and Playback utility, $RCP, and indicates that an error has been detected in the currently running playback script.

PLAYBACK INTERRUPTED

This message is displayed by the Record and Playback utility, $RCP, and indicates that a playback stop instruction has been initiated and the playback script has stopped at the required line.

PLEASE ESTABLISH PLAYBACK FILE

This message is displayed by the Record and Playback system request, <SYSREQ> Q. It is produced when the playback option has been selected. $RCP must be run in another partition to select a playback file at this point otherwise the partition will remain locked.

PLEASE RUN $$RCP IN ANOTHER PAR

This message is displayed by the Record and Playback system request, <SYSREQ> Q, after a request to either start recording or to play back a script. $RCP must be run at this point otherwise the partition will remain locked.

oooo message

Operator *oooo* has sent you a status-line message using $M or the $STATUS MES command. The text of the 25-character *message* is free-format.

Appendix C – Terminal Attribute Programs

This appendix lists the Terminal Attribute Programs (TAPs) for serial terminals that are distributed with Global System Manager V8.1. Up to 4 of these TAPs may be copied from the P.$UTAP on BACRES to the P.$TAP library on SYSRES during Global System Manager installation (see section A.15 in the Global Operating Manual).

$.2	Lear-Siegler ADM 3A
$.19	Basic DEC VT100
$.24	Adds Regent 25
$.26	Lear-Siegler ADM 31
$.68	Lyme 5000
$.78	Televideo 910
$.81	Standard Newbury Labs 8000
$.95	Televideo 925
$.116	KDS7362
$.118	Systime Syscope MK6
$.137	Qume QVT-108 series
$.155	Televideo 914
$.159	Qume QVT101
$.161	Microcolour M2200
$.162	Wang 2110
$.163	Wyse WY-50+
$.164	Wyse-WY-50+ (79 Cols, supports Reverse Video)
$.165	Wyse WY-30
$.166	Wyse-WY-50+ (79 Cols, supports Reverse Video)
$.167	Wyse 60/120 (PC/AT keyboard)
$.169	Wyse 60/120 (Standard keyboard)
$.170	Wyse 60/120 (for use with wyse60tis Unix terminfo)
$.171	Sperry SVT-1210
$.172	Microcolour M2100
$.173	Future Computers FX0
$.174	UVT-1224
$.175	Olivetti WS 685
$.176	Microcolour M2220
$.177	NDR 9500 Data Terminal
$.178	Qume QVT102
$.179	Facit Twist 24 lines
$.180	Facit twist 72 lines
$.181	DEC VT200 Range
$.182	DEC VT300 Range
$.183	Altos V (five)
$.184	Altos IV (four)
$.185	Qume QVT101+
$.186	Systime 3761
$.187	Wyse-370 (ANSI keyboard)
$.188	ABS ORB
$.189	Cashwise 3L
$.190	Wyse-370 (enhanced PC keyboard)
$.191	Wyse-370 (ASCII keyboard - reprogrammed mode-1)
$.192	Wyse-370 (ASCII keyboard - reprogrammed mode-2)

$.193	Wyse-370 (enhanced PC keyboard - reprogrammed)
$.194	IBM 3151 ANSI (80 columns)
$.195	IBM 3151 ANSI (132 columns)
$.196	IBM 3151 native
$.197	TCL NyCE Colour terminal (obsolete)
$.198	Qume QVT-203+
$.199	Contel C-320
$.200	IBM 3151 PS/2-ASCII mode
$.201	DEC VT200 Range (8-bit mode)
$.202	TCL NyCE colour terminal (pound character)
$.203	TCL NyCE colour terminal (hash character)
$.204	TCL NyCE colour terminal (pound character)
$.205	TCL NyCE colour terminal (hash character)
$.208	Wyse 60/120 (PC/AT keyboard)
$.209	Wyse 60/120 (standard keyboard)
$.210	Wyse 370 (enhanced PC keyboard)
$.216	Wyse 60/120 (no status line)
$.702	Global PC Workstation monochrome (obsolete)
$.703	Global PC Workstation colour (obsolete)
$.704	Global PC Workstation monochrome (132 columns)
$.705	Global PC Workstation colour (132 columns)
$.706	Global PC Workstation monochrome (80 columns)
$.707	Global PC Workstation colour (80 columns)
$.710	Global Windows Workstation (pre-release)
$.711	Global Windows Workstation
$.724	Global PC Workstation monochrome (132 columns)
$.725	Global PC Workstation colour (132 columns)
$.726	Global PC Workstation monochrome (80 columns)
$.727	Global PC Workstation colour (80 columns)
$.800	Basic teletype support for Comms Support Pack only

Note that several configuration-dependent TAPs may be copied from the P.*nnnn*T library on BACRES, where *nnnn* is the configuration code, to the P.$TAP library on SYSRES during Global System Manager installation. Configuration-dependent TAPs, if any, are listed in the Global Configuration Notes.