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North American Response Centers

HP 3000 APPLICATION NOTE #26

HP 2680A, 2688A Error Trailer: Line-by-Line Explanation



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Error Trailers

This application note explains the HP 2680A and HP 2688A Laser Printer error trailer. The article originally appeared in the *Communicator*, Volume 2, Issue 1 (Part No. 5955-1770). We have revised it and added a discussion and quick reference guide on the various functions of FDEVICECONTROL.

If you select an undefined character set, move the pen off the page, or cause similar formatting errors, the printer reports an error to the host, along with the number of the record in error. The host system prints the errors in an error trailer at the end of the output.

The system will abort a job after more than 100 programming errors are reported by the printer. The first 100 errors will be listed with the message "***EXCEEDED 100 ERRORS FOR THIS JOB, SPOOLFILE DEFERRED". The output of aborted jobs is deferred, allowing the programmer to read the error trailer and examine the bad records with the SPOOK utility.

```
:RUN SPOOK.PUB.SYS
>TEXT devicefileid
>MODE CONTROLS=ON
>LIST firstrecnum/lastrecnum
>EXIT
```

Here is an annotated HP 2680/2688A Laser Printer error trailer:

```
*** 1 ERROR LOG FOR LDEV = 14 2 DFID = #0667 ***
3 REC = 1667, PHYS PAGE = 1, MOVED LOGICAL PEN OFF THE LOGICAL PAGE
***
*** ENVIRONMENTAL STATISTICS ***
***
4 BUFFER = 16 BLOCKS 5 BUCKETS AVAILABLE = 32051 6 BUCKETS USED = 1772
7 MEMORY = 1024K WORDS
8 3 VFCs; 9 1 FORMS; 10 7 CHARACTER SETS; 11 1 ACTIVE LOGICAL PAGES;
12 0 PICTURES
13 CHARACTER SETS = 43568 WORDS; 14 FORMS = 6256 WORDS; 15 VFCs = 192 WORDS;
16 PICTURES = 0 WORDS
17 PAGE LENGTH = 8.50 INCHES ( 21.59 CM)
18 PAGE WIDTH = 11.0 INCHES (27.94 CM)
19 FORMS CLIPPED = NO; 20 DATA TRUNC = NO; 21 CHARS CLIPPED = 77;
22 PICTURES CLIPPED = NO
23 TOTAL USER MEMORY = 50016 WORDS 24 DATE CODE = 2214
25 TOTAL PHYSICAL PAGES PRINTED = 1
```

1. ERROR LOG FOR LDEV = *xxx* : the logical device number of the Laser Printer that produced the error trailer.
2. DFID = #*Onnn* : the device file identification number of the output spool file that contained the error. If the output spool file is deferred, this number is used in SPOOK to identify the spool file (see above).

3. Certain errors will cause an error message to appear. The number of the record that caused the error and the physical page where the error occurred are listed, along with an error message. If the output is deferred, you can use SPOOK to view the record(s) which have errors. The specific error messages are listed below, along with a brief explanation of corrective action:

- NOT ENOUGH MEMORY FOR CHARACTER SET LOAD : There is not enough memory available to load the character set which is being sent to the laser printer.
- NOT ENOUGH MEMORY FOR FORMS LOAD : There is insufficient memory available to load the form which is being sent to the laser printer.
- NOT ENOUGH MEMORY FOR VFC LOAD : There is insufficient memory available to load the VFC which is being sent to the laser printer.
- OUT OF MEMORY - JOB ABORTED, SPOOLFILE DEFERRED : The main memory is completely occupied with character sets, VFCs, forms, and data so that the current input data is lost.
- NOT ENOUGH MEMORY FOR PICTURE DOWNLOAD : The main memory is completely occupied with character sets, VFCs, forms, and data so that the current picture cannot be downloaded.

To correct any of the above five errors, add additional memory to the Laser Printer, and/or reduce the amount of total user memory used (item 23). Look at the memory used for character sets (item 13), forms (item 14), VFCs (item 15), and pictures (item 16). Eliminate any of these that are not essential. If possible, limit the range of character sets in the environment (at the character font menu in IFS) by specifying the lowest and highest character codes actually used. Consider changing permanent (addressable) pictures to temporary (item 12).

- ATTEMPT TO SELECT AN UNDEFINED CHARACTER SET : The character set number specified is not in the environment file. The record is ignored and the currently selected character set remains active. Either add the character set to the environment (at the logical page menu in IFS) or change the character set reference to a valid one.
- AN UNDEFINED FORM WAS SELECTED : The form name referenced by the environment or an IFS/3000 procedure, or the form number referenced by an intrinsic, does not exist. Either correct the reference, download the form with an intrinsic, or remove a previous intrinsic call which deleted the form.
- ATTEMPT TO PRINT WITH NO VFC SELECTED : An attempt was made to print data and there is no currently selected VFC. VFCs were turned off, but an attempt was made to issue a channel call. The channel call is ignored and single spacing is performed. Either specify a VFC file for the environment (at the VFC selection menu in IFS) or specify a VFC file with an intrinsic, or eliminate the channel call.
- ATTEMPT TO PRINT WITH NO LOGICAL PAGE TABLE : An attempt was made to print data and there is no currently active logical page. Be sure to have a logical page active when printing data. Either select a logical page or make a logical page initially active in the environment (at the logical page menu in IFS).
- MOVED LOGICAL PEN OFF THE LOGICAL PAGE : An attempt was made to move the logical pen off the currently defined limits of the logical page. Either modify the "move

pen" command or change the size of the logical page.

- **DATA SATURATION - DATA WAS LOST** : The HP2680/26688A could not process all of the data fast enough to transfer it to the drum. The number of characters which may appear on any scan line is a function of the horizontal width and vertical height of each character. Wider and higher characters require greater processing than smaller ones, consequently fewer can be placed on a scan line. However, the maximum number of characters (excluding blanks) and form elements that can appear on any scan line is 255. Forms (including shading, boxes, and lines) and pictures will also reduce the number of characters which can be placed on one scan line. Blank scan lines between two adjacent rows of print may help solve this problem. This error can also occur if two logical pages are superimposed on each other so that the total items per scan line exceed the limits of the machine. The 255 limit may be exceeded if you underline characters or use overriding line spacing to overlay print lines.
- **SPOOLER BLOCK CONTAINS FORMAT ERROR** : The information in the spoolfile was not in the correct format for the HP2680/2688A to interpret it. This could be an invalid function code or an incorrect record or block size. Use SPOOK to analyze the record in error (explained at the beginning of this article).
- **A MULTI-COPY FORMS ERROR HAS OCCURRED** : An attempt was made to use the multi-copy forms table but the table has not been loaded for this job. Ensure that the multi-copy forms box is set to 'Y' on the IFS physical page menu or ensure that the multi-copy form overlay table is downloaded by an intrinsic.
- **EXCEEDED MAXIMUM COPIES PER PAGE** : The maximum number of copies per physical page has been exceeded. The physical page menu of the environment file allows you to specify how many times you want a physical page printed before the next physical page is printed. This error indicates that you specified a number greater than the maximum number of 32,767. However, the maximum value can be changed with the FDEVICECONTROL intrinsic. If this error occurs, only the maximum allowed will be printed. Note that this error is unrelated to the number of copies generated by the spooler.
- **EXPECTED JOB OPEN FROM SPOOLER** : A command or function code was received when no job was in progress. The printer expects that the first record received is a JOB OPEN.
- **SPACING PARAMETER IS ≤ 0 IN LPT FOR VFC** : The VFC linespacing is less than or equal to zero. The base height of the character set was non-positive. Check that word 10 (height of base character set) of the logical page table downloaded by the FDEVICECONTROL intrinsic is correct.
- **ATTEMPT TO SKIP TO A NON-EXISTENT VFC CHANNEL** : A non-existent VFC channel was selected. Change your VFC call to point to a valid channel, modify your VFC file to include that channel, or reference a VFC file which has that VFC channel.
- **LOGICAL PAGE WAS TRUNCATED TO FIT ON PAPER** : Modify the environment (using IFS) to change the logical page, physical page, or scaling on the logical page forms menu.
- **OPERATOR MOUNTED WRONG SIZE PAPER** : The page size requested by the user did not match the paper length set by the operator. The page length set by the operator will be used. Rerun using correct size paper, have the proper page length entered on the HP2680/2688A operator's panel, or change the physical page of the environment at the physical page menu in IFS. You will get this message if you print on the HP 2688A with an HP 2680A environment, or vice versa.

- ATTEMPT TO PRINT WITH NO CHARSET SELECTED : No character set was selected when a print record was processed. The record was skipped. Specify a valid character set in the environment (using IFS), or select a valid character set with a procedure or intrinsic.
 - ATTEMPT TO PRINT WITH TOO MANY PICTURES ON A PHYSICAL PAGE : An attempt was made to print more than 64 pictures on a physical page. This is a system constraint. Modify your program.
 - ATTEMPT TO PRINT A PICTURE WHICH IS NOT PRESENT : An attempt was made to print a picture which was not present in memory. Modify your program to reference a valid picture or make the picture available.
4. BUFFER = xx BLOCKS : The size of the incoming data buffer is 512 word blocks. Rather than receiving one data record at a time, the HP2680/2688A expects large multi-block transfers. Each transfer is composed of between one and eight 512-word blocks which were created by the host system spooler. This increases throughput and relieves the burden of deblocking from the host.
 5. BUCKETS AVAILABLE = xx : The number of buckets (i.e. 32-word blocks of memory) available. These buckets are used in data linking and command processing. The number of buckets will control how many pages the printer can process (link up) ahead of the actual printing.
 6. BUCKETS USED = xxx : The maximum number of buckets used since the beginning of the job. The number of buckets required to print a job is data dependent.
 7. MEMORY = xxxxx WORDS : The number of memory words in the HP 2680A/2688A Laser Printer, a minimum of 128K 16-bit words. Up to one megaword memory configurations are optionally available. The mainframe and power supply are capable of supporting up to one megaword.

Approximately 23,000 words of the printer's memory are allocated to exclusive use by the printer for system tables and cannot be accessed by the user. These system tables are invariant in size regardless of the amount of memory installed. The remainder of memory is available to the user and is called the user area. This memory space contains all character sets, forms, VFCs and pictures which are downloaded into the user area. It also contains buckets (32-word blocks) which are used in data linking and command processing.

8. xxx VFCs : The number of VFCs which are loaded in the printer. The printer will support up to 32 VFCs simultaneously, one for each defined logical page. A VFC consists of a two-word descriptor block and a table of N words. Each bit in a word corresponds to one of the 16 VFC channels. Each word in the table corresponds to one line of the logical page. When a VFC command is received, the printer calculates the line on the page where the pen is currently located. It then accesses the VFC table at this particular address PLUS one, and starts searching the VFC table looking for a word with the bit set corresponding to the VFC channel being skipped to. When the bit is found, the pen is moved down the page to the new line position and the pen is left justified on the logical print line.

If a VFC bit is not found before the end of the table or the end of the page, then a logical page eject occurs and the VFC table of the next logical page is scanned from the beginning, looking for the bit. If no bit is found on that VFC table then the pen is placed on the first line of that VFC table.

9. FORMS = xx : The number of electronic forms loaded in the printer. The HP2680 can print electronic forms on plain paper thus eliminating costly, pre-printed forms. The printer allows a physical page to be divided into a maximum of 32 logical pages. In addition each logical page may have up to two forms overlaid on it. A check is made to see if the form overflows the physical

page, but no check is made to see if the form overflows the logical page. A single form, stored only once in the HP2680 memory, can be used by several different logical pages. The printer will properly place each copy of the form on the corresponding logical page. The orientation of a form is dependent on the rotation of the logical page. The number of logical page form overlays on any physical page cannot exceed 30 forms.

In addition, the user can specify two forms to be overlaid on the physical page, (multi-copy forms). For each copy of the same sheet of paper, the printer can be instructed to overlay two different forms on each of the first eight copies. This feature is controlled by the multi-copy forms overlay table. This means that a total of 32 forms may be placed on one sheet of paper.

10. CHARACTER SETS = *xxx* WORDS : The number of character sets loaded in the printer. The maximum is 32.
11. *xxx* ACTIVE LOGICAL PAGES : The number of active logical pages. The term logical page refers to any rectangular area on the physical page to which text or graphics may be written. The HP2680 allows up to 32 logical pages per physical page.
12. *xxx* PICTURES : The number of permanent (addressable) pictures currently loaded. The maximum is 32. A user wishing to output graphics to the HP2680 will do so by using a construct called a picture. A picture is a dot/bit image of a print area which has been partitioned into a set of picture cells, (i.e. small subsections of the complete picture).

Two types of pictures are provided, temporary and permanent (addressable). A temporary picture is downloaded, then printed as data, and then deleted from memory. A permanent picture is downloaded, stored in memory, and is then available to the user for printing on demand. These two picture types give the HP2680 the flexibility to efficiently address conflicting requirements:

- A job which prints multiple copies of the same picture on the same or different pages may use permanent pictures, as directed by the programmer or creator of the job. The job downloads the picture, assigns it an index, and references the picture by index whenever desired. Permanent pictures minimize data communication overhead when the same picture must be printed many times. However, memory limitations may become a problem.
- Jobs which print many pictures, but rarely repeat them, use temporary pictures. Whenever the job requires a picture to be printed, it issues a print picture command which downloads the picture, prints it, and deletes it from memory.

The HP2680/2688A supports up to 32 permanent pictures and 64 total pictures depending on memory limitations. Both types of pictures may be used simultaneously within the same job in any manner the creator chooses. The only absolute restrictions are memory availability and the performance limitations of the HP2680.

13. CHARACTER SETS = *xxx* words : The number of HP2680A/2688A memory words used for character set definition.
14. FORMS = *xxx* WORDS : The number of HP2680A/2688A memory words used for form definition.
15. VFCs = *xxx* WORDS : The number of HP2680A/2688A memory words used for VFCs.
16. PICTURES = *xxx* WORDS : The number of HP2680A/2688A memory words used for pictures.
17. PAGE LENGTH = *xxx* INCHES (*yy* cm) : The length of the page in the direction of motion, in .25-inch increments (or corresponding 1 centimeters). The page length handled by the HP

2680A/2688A may vary from 3 to 17 inches (76.20 to 431.8 mm) in .5 in increments. The page length of the HP 2688A is 11.8 inches (297 mm).

18. PAGE WIDTH = *xx* INCHES (*yy* cm) : The width of the page in .1-inch increments (and corresponding width in centimeters). The page width from tractor to tractor may vary from 6.5 inches (165mm) to 12.7 inches (322mm). The maximum print width is 11.38 inches. The page width on the HP 2688A is 8.5 inches (210 mm).
19. FORMS CLIPPED = (YES/NO) : If yes, one or more forms were not printed on a physical page because the form started in the non-printable area of the physical page (i.e. within 1/4 inch of the perforation between pages). Either a programming error occurred or the operator used the registration buttons to locate the form off the page.
20. DATA TRUNC = (YES/NO) : If yes, data was truncated from the top or bottom of the physical page. Either a programming error occurred or the operator moved the print off the page with the registration buttons.
21. CHARS CLIPPED = *xxx* : The number of non-blank characters clipped (i.e. not printed). As characters are processed, the bounds of each character cell are computed to insure that the entire character cell is within the limits of the active logical page. If a character cell fails this check, it is skipped and no attempt is made to print it. If a character cell is not completely within a logical page, the character is truncated and the number of characters clipped for this job is incremented. The actual pen position remains unchanged.

Note: There is an exception to this rule. If a character cell is oriented in the same direction as the logical page, and the character cell is off the bottom of the logical page, a logical page eject is performed and the character is placed in the first cell position of the next logical page.
22. PICTURES CLIPPED = (YES/NO) : If yes, one or more pictures were not printed because they started in the non-printable area of the page (i.e. within 1/4 inch of the perforation between pages). Either a programming error occurred or the operator used the registration buttons to locate the picture off the page.
23. TOTAL USER MEMORY = *xxx* WORDS : The number of user area words actually loaded.
24. DATE CODE = *yyww* : The date code of the DCS firmware ROMS installed, in the form *yy/ww*. The *yy* show the year since 1960, and *ww* shows the week of the year in the range 1 to 52. Date code 1905 translates: to the fifth week of 1979 (1960+19=1979).
25. TOTAL PHYSICAL PAGES PRINTED = *xxx* : Total number of physical pages printed since the beginning of the job.

FDEVICECONTROL Functions

The following discussion reviews how to find errors in a spool file that is producing an error trailer. The use of the ;ENV= parameter in a file statement causes calls to be made to the system intrinsic FDEVICECONTROL. The spooler places these calls within the body of the spool file. When looking at the spool file with the SPOOK utility, the first part of the file may look like this:

```

:RUN SPOOK5.PUB.SYS
>TEXT devicefileid
>LIST firstline/lastline

0
1 ...B..... .. .0.(.0. .8. .0.(.1. .8. .0.*.0. .8. .1.(.0.
.....(.0. .8. ....d.....
2 . .0...2._...d..... .p.4.....
.....
3 .....
```

To change these lines into understandable commands issue the following:

```
>MODE CONTROLS=ON
```

Now if you use the >LIST command the file should look like this:

```

0 FOPEN
1 FDEVICECONTROL FUNC= 138 P1=% 000000 P2=% 000000 LEN=144
2 FDEVICECONTROL FUNC= 134 P1=% 000000 P2=% 000007 LEN=166
3 FDEVICECONTROL FUNC= 134 P1=% 000000 P2=% 100007 LEN=166
```

The following table is a quick reference guide to the various functions of FDEVICECONTROL. A more complete description of each of the control codes can be found in the MPE V Intrinsic Manual (Part No. 32033-90007).

FDEVICECONTROL Functions

Control Code	Function
128	Select Primary/Secondary Character Font.
129	Activate/Deactivate Logical Page.
130	Move Pen Relative to Current Position.
131	Move Pen to Absolute Position.
132	Define Job Characteristics.
133	Define Physical Page.

FDEVICECONTROL Functions (continued)

Control Code	Function
134	Download/Delete Character Set.
135	Download/Delete Form.
136	Download Logical Page Table.
137	Download Multicopy Form Table.
138	Download/Delete Vertical Format Control.
139	Download/Delete Picture.
140	Page Control.
141	Clear Environment.
142	Job Open.
143	Load Default Environment.
144	Print Picture.
145	End of Job.
146	Device Extended Capability Mode.

READER COMMENT SHEET

North American Response Centers
HP 3000 Application Note #26: HP 2680A, 2688A Error Trailer
RC Questions & Answers (April 15, 1987)

We welcome your evaluation of this Application Note and attached RC Questions & Answers Sheet. Your comments and suggestions help us to improve our publications. Please explain your answers under Comments, below, and use additional pages if necessary.

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Advanced User Documentation From VPLUS

The VPRINTSCREEN Intrinsic and Viewing the VPRINTSCREEN Demo



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The VPRINTSCREEN Intrinsic

A new intrinsic, VPRINTSCREEN, provides the capability to print the entire contents of a terminal screen during VPLUS execution. Currently, VPLUS provides the intrinsic VPRINTFORM which prints the current form with the data contained in the form data buffer; function keys, appended forms, line drawing characters, etc. are not printed. With VPRINTSCREEN, these limitations no longer exist.

The largest demand for this functionality has been from documentation and training departments. In the past, the only method for obtaining a complete "snapshot" of a screen was through the use of the internal printers available on some HP terminals.

There are two approaches a user can take to produce copies of VPLUS screens. One is to incorporate the use of VPRINTSCREEN into an end-user application so that screen images can be captured at run time. This allows actual screen and data to be captured in production mode. The other method is to develop a simple utility which would only be used to produce hard copies of screens. The utility should allow data to be entered into the screens before calling VPRINTSCREEN to produce the image. The advantage of this method is that it removes the overhead of using VPRINTSCREEN from the application, but still provides a mechanism for including reproductions of the screens and data in product literature.

The demo program, VPRTEMO, is an example of this type of utility. Refer to the article "Viewing the VPRINTSCREEN Demo" for specifics on how to access and use the demo program. Any user interested in the VPRINTSCREEN intrinsic should use this demo with existing forms before attempting to modify existing applications.

The remainder of this article will concentrate on the process of calling VPRINTSCREEN from a user program. This procedure was implemented using the Pascal heap procedures to perform stack allocation. This introduces a high risk of conflict for applications which use the DLSIZE intrinsic for stack allocation. In the case of VPLUS, DLSIZE is used by the existing intrinsics when the application is written in COBOL, FORTRAN/66, or SPL. However, since VPRINTSCREEN always uses the heap procedures, applications written in one of these specified languages must follow two rules when calling VPRINTSCREEN.

1. The language id in the COMAREA must be set to 5
2. The INTRINSIC calling mechanism must be used when calling the VPLUS intrinsics from the main and all interacting parts of the application. For example, with COBOL the application must use:

```
CALL INTRINSIC <intrinsic name>
```

Refer to Appendix E of the VPLUS Reference Manual, and the COBOL and Pascal reference manuals for more information on these calling mechanisms.

For applications which use a language-id of 5 in the VPLUS COMAREA (Pascal, FORTRAN/77, HPBUSINESS BASIC), VPLUS uses the HEAP procedures for stack allocation. The new intrinsic can be called in the standard format from an application of this type.

VPRINTSCREEN

VPRINTSCREEN records the contents of the current screen to an offline list device. A documentation option allows formatting for printing to a laser printer (See MODES OF OPERATION). A VPLUS supported terminal is required during execution. TDP is required for the laser printer output.

```
VPRINTSCREEN {COMAREA, READSIZE}
```

Parameters

comarea The following COMAREA items must be set before calling VPRINTSCREEN (unless previously set):

CSTATUS	Set to zero.
COMAREALEN	Set to the total number of 2-byte words in COMAREA.
PRINTFILENUM	Set to the file number of the list file to which form is printed. If set to 0, VPRINTSCREEN opens the device "LP" as the list file and sets PRINTFILENUM to the file number of the opened list file.

VPRINTSCREEN may set the following COMAREA values:

PRINTFILENUM	If VPRINTSCREEN opened the list file, set to the file number of the opened file.
CSTATUS	Set to a nonzero value if call is unsuccessful.
FILEERRNUM	Set to the MPE error code if an MPE file error is encountered.

readsize 2-byte INTEGER. Reserved for system use. Must be set to 0.

A possible implementation of this feature would be to define a function key which is available to the user for printing the screen contents in any transaction. This feature would be useful for providing immediate output of documents and data during production. This new intrinsic is demonstrated with the program, VPRTDemo. See the article titled "Viewing the VPRINTSCREEN Demo" in this publication for directions on obtaining the demo.

MODES OF OPERATION

VPRINTSCREEN operates in two modes; normal and documentation. Both of these modes are discussed in detail below.

Normal Mode

This is the default calling mode of VPRINTSCREEN. When called, the value in the PRINTFILNUM word of the COMAREA is used to determine the list device. If the calling program opens the list file, it must supply the file number of this file in PRINTFILNUM. VPRINTSCREEN opens the list file with the formal and actual file designator FORMLIST, assigns it to the device class LP, and specifies its length as 80 characters. This is equivalent to using the file equation:

```
:FILE FORMLIST;DEV=LP;REC=-80
```

A user may change any of these characteristics with a :FILE command.

It is recommended that VPRINTSCREEN and VPRINTFORM not be used together within the same program. Since the same list file is used for both listings, output from the two calls will be intermixed.

Another visible difference between VPRINTFORM and VPRINTSCREEN is that VPRINTFORM gives you the option to underline fields. This option is NOT available with VPRINTSCREEN (LP mode).

A PAGE EJECT is performed each time VPRINTSCREEN is called (at the completion of the print operation).

Documentation Mode

The output provided in this mode of operation is intended for manual writers and/or programmers who are familiar with TDP. The user must already have TDP on their system or must purchase it to use VPRINTSCREEN in this mode.

In documentation mode, VPRINTSCREEN in conjunction with TDP, provides the capability to print screen contents on a laser printer (HP2680A and HP2688A). With this mode, borders, field highlighting (other than color), alternate character sets, and active function keys are captured, and converted to the appropriate font for printing on the laser printer. Documentation mode is enabled by setting a JCW before running the program:

```
:SETJCW VPRINTJCW=1
```

When VPRINTJCW is set to "1", the list file, FORMLIST is NOT opened. Instead, a temporary ASCII disc file, EPOCLIST, is created (or appended to, if it already exists). This file can be saved and renamed on completion and then input to TDP and "finaled". A documenter can also add text to the file, or have a separate file, and use the TDP "include" statement to access the screens. (Refer to the TDP Reference Manual for a detailed discussion on USE and INCLUDE files. p/n 36578-90004)

In order to print the forms to a laser printer, an environment file must be created. (See the IFS/3000 Reference Guide, p/n 36580-90001) We have supplied sample environment files which can be used if

the user does not already have his/her own files. If other environment files are used, then they must include the font ids shown under LIMITATIONS. The supplied files are:

- VENV80 - environment file for the HP2680 laser printer
- VENV88 - environment file for the HP2688 laser printer
- VSETUP - TDP include file which sets parameters for
TDP listings and references the environment files
- VEPOCUSE - TDP USE file which separates each screen contained
in EPOCLIST into separate files
- VPRTDemo - Demo program which demonstrates the use of the
VPRINTSCREEN intrinsic

NOTE

These are sample files. They are not considered part of the VPLUS product and will therefore not be supported as a component of VPLUS.

See the article titled "Viewing the VPRINTSCREEN Demo" for information on obtaining these files.

Printing Screens from TDP

By default, EPOCLIST uses the VSETUP file to reference the supplied environment files. These files must be accessible by TDP before EPOCLIST can be printed. If a different environment file is used, then EPOCLIST must be modified to reference the appropriate environment file. In addition, the font definitions from VENV80 and VENV88 must be included in the environment file used. (Refer to the fonts listed in the LIMITATIONS section)

Following are the steps involved to print the entire contents of EPOCLIST to a laser printer:

- o :PURGE (or :RENAME) EPOCLIST
- o :SETJWC VPRINTJWC = 1
- o :Run your application program.
- o Access the PRINT function wherever it's available to save screen contents in EPOCLIST. Remember, all the data entered by the user will also be saved as part of the screen.
- o Exit application.
- o :SAVE EPOCLIST (EPOCLIST is the temporary file which was created in the above step. It contains the contents of all the screens printed.)
- o :RENAME EPOCLIST, <new name> If not renamed, the next time the application is run, the output will be APPENDED to the existing file.

- o :RUN TDP.PUB.SYS

- o Execute the following command:

"FINAL from <new name> to *HP2680"

or "FINAL from <new name> to *HP2688".

These final two steps could be specified in a job stream.

The screens will be printed out one per page.

Merging Screens with a TDP File

Instead of printing the screens out separately, you may want to include them into an existing TDP file. A special file, VEPOCUSE, is provided to facilitate the user in this task. The VSETUP file must be included as one of the first statements of your TDP document file. It will set up the reference to the correct environment file necessary for printing the screens in EPOCLIST. Note, if you want to use a different environment file, you must include the font definitions from VENV80 or VENV88 in your environment file. (Refer to the fonts listed in the LIMITATIONS section)

The first step is to separate the screens in EPOCLIST. VEPOCUSE can be used to do this by following these steps:

- o :RUN TDP. Clear workspace.
- o USE VEPOCUSE. Answer the prompts: filename, number of occurrences, and desired PREFIX. VEPOCUSE will then split the file into 'n' files, all prefixed with the PREFIX entered.
- o Text in your document, and include the appropriate screen file in the appropriate location.

It is recommended that the screen files are "included" into the file, since EPOCLIST has a record size of 168 bytes, and most document files are set to 80 bytes.

Sample EPOCLIST File

```
*>> DATE: FRI, MAY 3, 1986, 11:19AM
if main in hpvsetup.pub
image 28
need 28
>>>>screen formatting commands<<<<<<
*>> END VPRINTSCREEN B.04.20
```

Sample EPOCLIST Screen from TDP

This is a sample screen used to demonstrate the VPRINTSCREEN intrinsic.

Name:	[]		
Street Address:	[]		
City:	[]	State:	[]
Phone:	[]		

ADD	CHANGE	DELETE	REVIEW		HELP	PRINT	EXIT
-----	--------	--------	--------	--	------	-------	------

LIMITATIONS

The Intrinsic, VPRINTSCREEN

- o Procedure calls must be modified in order to call the intrinsic from a language which does not use a VPLUS language id of 5 in the COMAREA. (COBOL, SPL, FORTRAN/66).
- o Uses additional stack resources.

The Environment Files

- o Native Language support is NOT available for VPRINTSCREEN. To print a screen in another language, a LOCALIZED environment file is required. This localized environment file must map to the following fonts:
 - c = full bright
 - g = half bright inverse video
 - d = normal
 - l = line draw
 - m = math
- o There is no distinction between fullbright and halfbright provided with the current environment files. However, the code is set up to distinguish between them. (See the above fonts.) Currently, the fontids 'c' and 'g' map to the same font in the VSETUP file.
- o Screen images cannot be scaled. In other words, fonts are provided in one size only. A "scaled font" environment file which maps to the same fonts above, would need to be created.
- o Sample files are provided. They can be modified or the user can create their own using the font ids defined above.

Use of TDP

- o The maximum TDP record size is 168 characters. A single line of a display screen can contain multiple escape sequences, and easily exceed this limit (e.g. line draw, full bright, many single character fields). If this limit is exceeded the line may be truncated.
- o TDP Macros '5' through '9' are used to alleviate this truncation, but some screens are complicated enough to reach this limit anyway. If you use your own macros 5-9 (other than as temporary macros), some inconsistencies may exist when merging text and screens.
- o TDP may indicate errors have occurred, when in fact, there are no errors. The most common messages are: "Unrecognizable command" and "x Characters have been truncated".

Viewing the VPRINTSCREEN Demo

The new VPLUS intrinsic, VPRINTSCREEN, can be demonstrated with the program VPRTDemo. You can simply run VPRTDemo and specify a forms file name. The application will present the forms in alphabetical order and call the VPRINTSCREEN intrinsic when the user selects the PRINT function key, F3. At the beginning of execution, the user will have the option to automatically print all forms in the forms file.

Several sample and demo files have been supplied as examples for the user. They are contained on the installation tape in the HPPL89 account and HP32209 group. They should be restored to a local group and account. Some name modifications may be necessary (see below).

- **VENV80.** This is the environment file required for printing to the HP2680 printer.
- **VENV88.** This is the environment file required for printing to the HP2688 printer.
- **VSETUP.** This is a TDP "include" file which selects and sets up the proper environment for the printer selected. This file should be modified so the references to VENV80 and VENV88 are properly qualified by the GROUP.ACCOUNT they reside in. If the document you are printing resides in a separate group and account than the VSETUP, then a file equation must be issued to reference VSETUP. This also applies if the user renames the VSETUP file to a local name. In either case a file equation must be issued, for example:

:FILE VSETUP = VSETUP.MYGROUP.MYACCT

-OR-

:FILE VSETUP = MYSETUP.MYGROUP.MYACCT

- **VEPOCUSE.** This is a TDP "use" file, potentially needed when merging text with screens.
- **VPRTDemo.** This is a demo program which demonstrates the use of the VPRINTSCREEN intrinsic. It can be run in normal or documentation mode. Following are instructions for running the demo.

Running VPRTDemo

- o **:PURGE (or :RENAME) EPOCLIST**
- o **:SETJCW VPRINTJCW = 1**
- o **:RUN VPRTDemo.**
- o Accessing the PRINT function wherever it's available to save screen contents in EPOCLIST. Remember, all the data entered by the user will also be saved as part of the screen.
- o Exit VPRTDemo.
- o **:SAVE EPOCLIST** (EPOCLIST is the temporary file which was created in the above step. It contains the contents of all the screens printed.)

- o :RENAME EPOCLIST, <new name> If not renamed, the next time the application is run, the output will be APPENDED to the existing file.
- o :RUN TDP.PUB.SYS
- o Execute the following command:

"FINAL from <new name> to *HP2680"

or "FINAL from <new name> to *HP2688".

These final two steps could be specified in a job stream.

The screens will be printed out one per page.

If you answered "Y" to the automatic print prompt, the forms will be displayed and printed in alphabetic order. At completion, you will have EPOCLIST. If the VPRINTJCW is not set then a FORMLIST file will be created.

If manual print mode was selected, then the first form in alphabetic order is displayed. If local function keys were defined for the form, then these keys will be displayed. However, the action performed by VPRTDEMO when a key is selected is defined below:

Key 1 =	FIRST FORM	<displays first form in file>
Key 2 =	not defined	
Key 3 =	PRINT	<prints screen design to EPOCLIST or FORMLIST>
Key 4 =	REFRESH	<refresh current screen design>
Key 5 =	PREV FORM	<displays previous form in file>
Key 6 =	NEXT FORM	<displays next form in file>
Key 7 =	SELECT FORM	<prompts for name of form to be displayed>
Key 8 =	EXIT	<exit VPRTDEMO>


**HEWLETT
PACKARD** **RESPONSE CENTER QUESTIONS & ANSWERS**

HP 3000 Questions Commonly Received by the North American Response Centers

Q. Are the values in the *System Operation and Resource Management Reference Manual* (Part No. 32033-90005) correct for the maximum allowable accounts, groups, users, and files in the System Directory?

A. The values in the manual are not completely correct. The following are the estimated values allowed for MPE IV and MPE V (assuming that the accounts, groups, users, and files were added to the system in alphabetical order). Note that the actual maximums may be higher or lower depending on the order in which you set up and modify the directory.

DIRECTORY	MPE IV	MPE V
Total number of accounts in system	561	561
Total number of groups per account	96	311
Total number of users per account	193	623
Total number of files per group	1322	1322

Q. On occasion, I don't get any of the "normal" VPLUS error messages; for example, instead of getting the message THE REQUIRED FIELD IS EMPTY, I get V EDIT ERROR 202. What has happened, and what do I need to do to fix it?

A. VPLUS gets all of its messages from a specially-formatted file named VERRMSG.SYS. This file should always be in what is called "catalog format". If for some reason it is *not* in catalog format when your VPLUS program accesses it (via calls to the VPLUS intrinsics), you will get the odd messages rather than the text you expected. VERRMSG.SYS can be knocked out of catalog format in many ways; the most common is when the user labels for VERRMSG.SYS get corrupted. If you run into this situation, first try doing a :RESTORE of VERRMSG.SYS from a backup tape. If, however, you cannot find a "good" copy of the file on a backup tape, you will need to format the file yourself. This is a simple, straightforward procedure, as follows:

1. Sign on as MANAGER.SYS,PUB
2. Issue the two file equations:

```
:FILE INPUT=VERRMSG.SYS
:FILE CATALOG=VNEW,NEW;SAVE
```
3. Make sure a file called VNEW does not exist by trying to :PURGE it. If the PURGE command fails, then go on to the next step.
4. Next, use a utility program to format the message file by issuing the command:

```
:RUN MAKECAT.PUB.SYS
```

This program will format the input file (that is, the formal file designator INPUT) into a catalog format file, and will output the result (to the formal file designator CATALOG).
5. At your first convenience, have all people accessing any part of VPLUS (a block-mode user program, ENTRY.PUB.SYS, FORMSPEC.PUB.SYS, or any other program which utilizes VPLUS in any way) exit their programs. Once the last person has terminated their program, just :PURGE VERRMSG.SYS and :RENAME VNEW,VERRMSG.SYS. This will put the newly-formatted error message file under the name with which VPLUS will access it.

You should now receive the correct VPLUS messages when appropriate.

more...

Q. Due to disc drive capacity differences, I would like to have four times as many user disc files built on logical device 2 as on logical device 1. I tried to use SYSDUMP to reconfigure logical device 2 to have device classes of "DISC,DISC,DISC,DISC", but Sysdump considers that illegal input. How do I accomplish this?

A. You're right, SYSDUMP will not allow "DISC,DISC,DISC,DISC" as a response for the DEVICE CLASS? prompt. Instead, you must use the class changes dialogue to delete and re-add class DISC, specifying LDEV 2 four times in the LOGICAL DEVICE # list.

For example:

```
:SYSDUMP *TAPE

ANY CHANGES? YES
.
.
I/O CONFIGURATION CHANGES? YES
.
.
CLASS CHANGES? YES
LIST CLASSES? YES <or carriage return>
DELETE CLASSES? YES
CLASSES? DISC <remove "DISC" temporarily from device class table>
ADD CLASSES? YES
CLASS NAME? DISC <add "DISC" back into device class table...
LOGICAL DEVICE #'S? 1,2,2,2,2 and assign logical devices to it>
SERIAL DISC CLASS? NO
FOREIGN DEVICE CLASS? NO
CLASS NAME? <carriage return>
LIST CLASSES? YES <or carriage return>
LIST IO DEVICES? <carriage return>
.
.
.
```

When SYSDUMP completes, use the tape it created to perform a COLDSTART. This installs your changes on the system.

Note that the device class to logical device number entry actually builds a round-robin logical device number list for device class "DISC" such that files will be built starting with logical device 1, then the next four on logical device 2, then logical device 1 again, and so on. In this manner, the desired 4-to-1 allocation ratio is created for device class "DISC".

The same procedure can be used to create allocation ratios for other disc device related device classes, such as "SPOOL".

**HEWLETT
PACKARD****RESPONSE CENTER QUESTIONS & ANSWERS**

HP 3000 Questions Commonly Received by the North American Response Centers

SPECIAL EDITION: LaserJet Series II (HP 33440A)

Q. I just purchased a new LaserJet Series II (HP 33440A). Can I configure it for use on my HP 3000?

A. Yes. The new printer, part number #33440A, is still a LaserJet and part of the 2686A family. You can configure it as a spooled RS-232 serial printer. Follow the guidelines for the 2686A printer presented in Application Note #4, *Printer Configuration Guide*.

Q. I have an HP2680A/2688 and have created several Environment files for it. Can I use those environment files with the LaserJet?

A. No: Environment files created with the Interactive Formatting System (IFS) will not work the LaserJet family. There is a major difference in the design of the printers. The 2686A family uses Printer Control Language (PCL), instead of the Printer Support Package (PSP). The various System Intrinsic included with the PSP package do not address the PCL printers.

Note: The LaserJet printers use simple escape sequences to perform the same functions as the PSP Intrinsic.

Q. Can the character fonts in the group CHARSET.SYS be used with the LaserJet?

A. No. Again these fonts were created for use with the HP2680A and 2688A. Currently, there is no way to download character fonts from the HP 3000 to the LaserJet printers.

Q. Can I print 132 characters across and 66 Lines per page with my LaserJet?

A. The answer to this question depends on which LaserJet you have. If you have a new LaserJet Series II, you can easily select the 16.66 CPI font in Landscape orientation and the 66 LPP option via the front panel. This will allow printing like a "normal" line printer.

If you have a 2686A, LaserJet, LaserJet+, or LaserJet 500 you will need to purchase a character font cartridge. The cartridge will need to have a 16.66 CPI font with Landscape orientation. (Refer to the Technical Reference for the printer manual for the escape sequences needed to select the character font and orientation.) Cartridges A,B,C,G,H,L and Y will currently meet the requirements. Point size uses cannot be greater than 8.5.

