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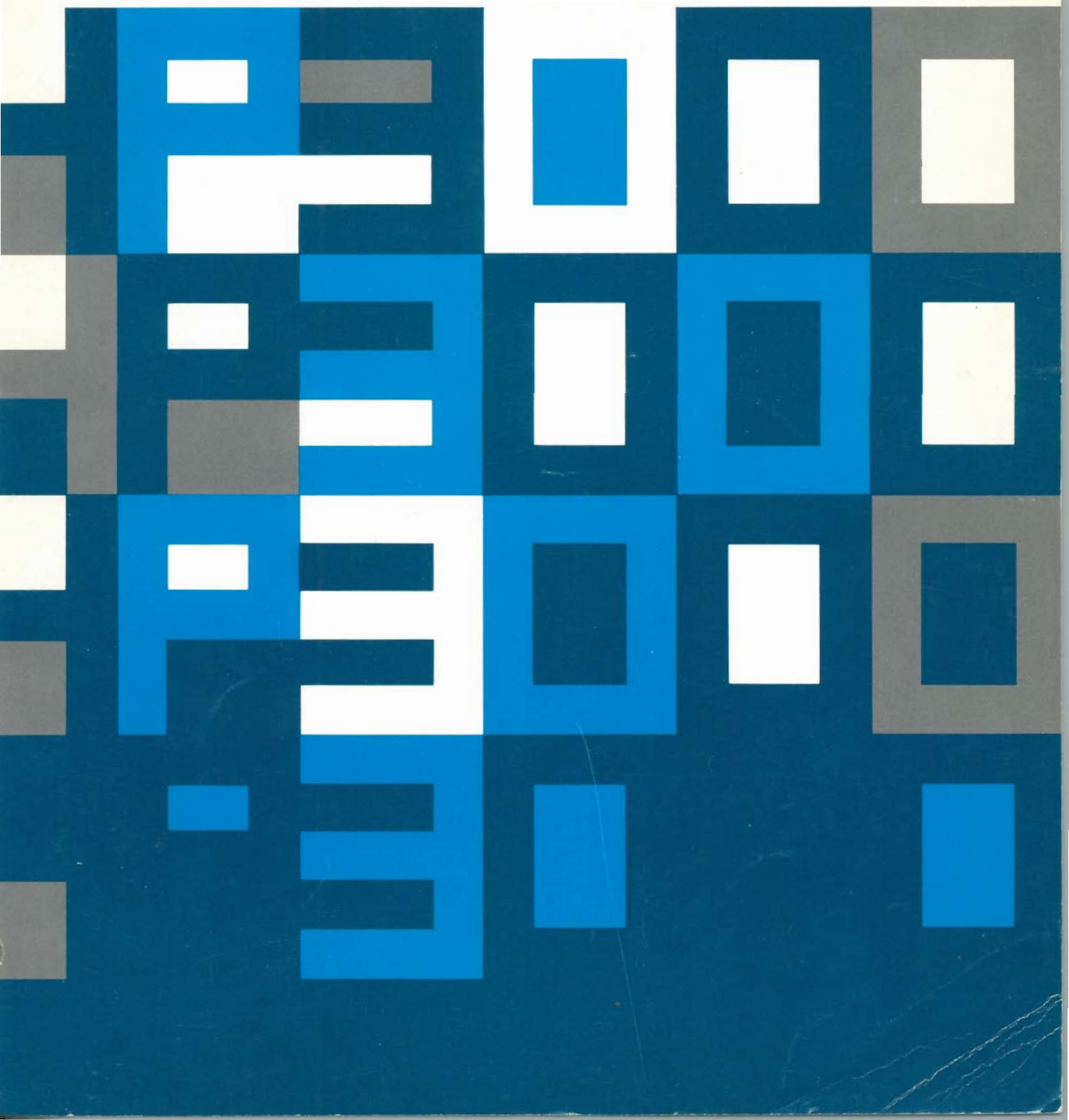

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EDITOR'S NOTE

You'll notice lots of new material in this issue, beginning with the redesigned cover, and finishing up with a special questionnaire for you DS/3000 fans.

The leading article discusses the details of several system packaging and software support changes which become effective August 1, 1979. We think you'll be excited about the new systems offerings as well as the increased flexibility you'll have in defining and supporting your system.

The 1918 software contains many special enhancements which are discussed in the article MPE 1918 RELEASE, followed by several articles on the various subsystem enhancements and changes, and last but not least, a comprehensive listing of system failure messages showing probable causes and recommended recovery procedures.

It may be worth mentioning here that the Note Files on your Installation Tape are the "official" Note Files. The reprints contained herein are a preview, and may not include some last-minute software changes implemented after the COMMUNICATOR went to print. If you do wish to see the latest Note Files, you may list the contents of the DOCUMENT group of the SYS account to your lineprinter by accessing the EDITOR, texting the files you are interested in, and then listing them offline.

Speaking of date codes and deadlines, a reference to date codes was made in the last issue of the COMMUNICATOR (#20), stating that "...a date code, such as 1906, is the expected date of release for the Installation Tape: not the date you receive the update, but the date we anticipate it will be ready to leave our factory." Some concerns have been raised recently regarding date codes: the fact that the Installation Tapes don't always reach our customers during the week indicated by the date code. Referring again to the above quotation, the key phrase is "expected date of release". The date codes are assigned well in advance of the actual IT release, and merely reflect the target date for software release. So don't be too concerned that your new software wasn't installed on your system by the 18th week.

Overall, you should find this to be a particularly good issue, which has something for everybody. Just keep those cards and letters comin' in, and remember that "HP" also stands for HAPPY PROGRAMMING!

Editor
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NEW SOFTWARE SUPPORT SERVICES

HP CUSTOMERS BENEFIT FROM REDUCED PRICES, INCREASED SERVICES

Hewlett-Packard has long been committed to providing customers with a wide range of products and services to meet their needs. Effective August 1, 1979, several new products and services will be offered to the business systems customer.

In the systems area, our primary objective was to package all of the hardware and software necessary for a customer to run and operate applications programs and tailor those applications to meet his own specific needs.

In redefining the HP 3000 to meet the above objective, we've included all of the software necessary to run programs written in any of HP's five main programming languages: SPL, BASIC, FORTRAN, COBOL, and RPG II.

The HP 3000 will also include KSAM, extending the system's file handling capabilities, IMAGE, HP's award-winning data base management capability, and VIEW/3000 and QUERY, which allow users to modify data entry forms and output reports without the need for using programming languages. Also included are the standard utilities which were previously in the system, i.e., EDITOR, FCOPY, etc.

Software necessary for new applications development such as compilers and data communications products remain unbundled.

In addition to providing more capability on the basic system, there are substantial benefits for customers with multiple systems. By including everything needed to run programs developed at other locations, it is unnecessary for volume customers and software OEM's to purchase compilers and other applications development capabilities at each of their multiple sites. This lowers the price of each installation for them, and gives them more central control over the applications used at remote locations. If multiple development sites are required, volume customers can purchase the rights-to-use these development products at a substantial reduction to the original list price.

We are also introducing, in addition to the software price incentives for volume purchases, a range of unbundled software support services from which the customer can choose the appropriate level of support for each site to meet their specific requirements. The new services can result in significant price reductions, for those who purchase systems in volume and yet do much of their software development at one site. Specifically, these services are:

CUSTOMER SUPPORT SERVICE (CSS)

Customer Support Service (CSS) is HP's standard software support product. It helps to ensure that the customer who is developing applications on an HP computer system receives all the tools necessary to be successful. It offers a comprehensive set of software services and the personal attention of a trained HP Systems Engineer. For those customers who centrally develop applications for other installations, incremental services are available for the central site to include the tools the customer needs to ensure success at additional locations.

SOFTWARE SUBSCRIPTION SERVICE (SSS)

Software Subscription Service (SSS) is available for those customers who choose to rely upon their in-house resources for their software support. No HP systems engineering assistance is provided under this service.

In addition to the above two alternative software support services, two Documentation Distribution Services are also available for the customer who wants to receive or maintain multiple sets of documentation material.

Also, a range of customer training and applications design consulting is available to aid customers in the proper use of HP computers. These products are described in the appropriate HP Computer System General Information Manual or Price/Configuration Guide.

Additional information can be obtained by contacting your sales representative.

MPE 1918 RELEASE

A BONANZA OF ENHANCEMENTS

Pete Sinclair
General Systems Division

The 1918 release of MPE will bring to your system five major enhancements designed to promote ease of use of your system while, at the same time, providing added flexibility and capabilities. These new enhancements are:

- MPE User Logging
- Console Enhancements/Distributed Console
- Spooler Enhancements
- Store/Restore Tape Labels
- MPE Resegmentation

Each one of these enhancements, including the exciting new distributed console capability, is described in detail below. With all of these new capabilities there is sure to be at least one that you will not be able to do without.

MPE USER LOGGING

A while ago our IMAGE users expressed an interest in having a built-in data base logging facility. Each time the data base was modified, a record of the change would be written to a mag tape or disc file. If for any reason the data base was lost, the log file and a backup tape of the data base could be used to recover the lost transactions.

After examining this request, we determined that all users, not just those using IMAGE, would benefit from a transaction logging capability. The result is the MPE User Logging Facility being introduced on 1918. This enhancement allows the user to interface logging to any subsystem with the aid of some new intrinsics. And, to satisfy the specific needs of IMAGE users, we have pre-programmed the logging and recovery routines into the data base subsystems (see related article about IMAGE Logging in this issue).

Using the logging intrinsics is very easy from any subsystem. If you are logging to disc, begin by creating the log file with the BUILD command. For example, to create a log file called DEMOLOG, enter

```
:BUILD DEMOLOG;DISC=3000,1,1;CODE=LOG
```

If you are logging to tape, no file need be built. Then use the GETLOG command to initialize and label the new log file.

```
:GETLOG LOGID;PASS=USER;LOG=DEMOLOG,DISC
```

LOGID is an eight character identifier of your logging process. It is created with the GETLOG command and referenced by the RELLOG, ALTLOG, LISTLOG, and LOG commands. Logging is then turned on with the new operator LOG command:

```
LOG LOGID,START
```

The new intrinsics, OPENLOG, WRITELOG, and CLOSELOG, can then be used programmatically to enter data into this new log file. As with other files on the system, a lockword can be placed on the log file for security. The user then need only write a recovery program according to his application to utilize the data stored in the log file.

The net result of this enhancement will be better system integrity with minimum impact on system throughput (typically unnoticeable throughput change). Further description of this facility will be provided in future updates to the MPE Commands and Intrinsics Reference Manuals.

USER CAUTION

If a user is logging to magnetic tape and a power failure occurs, the following recovery procedure MUST be followed in order to recover from the powerfail and continue logging.

1. After the power is back on and the system is running, the console will receive a "NOT READY" message for the tape drive that is being used for logging.

2. Press the following buttons on the tape drive in the exact order shown below. NO OTHER ORDER WILL WORK!

   a. LOAD
   b. RESET
   c. ONLINE

3. After the ONLINE button is pressed, the tape will move back to the beginning of data, and then move forward to recover the log records. Then the system will continue logging.

DO NOT try to bring the tape back to LOAD POINT. If this is done data will be lost, and the system may have to be WARMSTARTed.

CONSOLE ENHANCEMENTS/DISTRIBUTED CONSOLE

A number of console-related enhancements are being released with 1918, most of which will affect every user. Briefly, they are:

- Any terminal can now be designated as the system console;
- Console commands are now handled by the Command Interpreter, resulting in explanatory error messages, use of the HELP facility for operator commands, and eliminating the need to type control A before each command;
- The console operator can assign individual users the ability to execute specific console commands;
- Users can be associated with specific devices, allowing them to use the commands which control those devices;
- Users can be granted the ability to use operator job control commands on their own jobs.

The aim of these enhancements is to make the console capabilities more powerful by increasing their accessibility while at the same time making them more friendly. A more detailed description of each item follows. It is important, though, that you page through the manual updates to become completely familiar with all of the changes and additions resulting from these enhancements.

• The new CONSOLE command allows the console operator to move the entire console to any other terminal. To execute the command the operator types:

```
:CONSOLE ldev#
```

The console is then immediately moved to the specified device after printing a message telling where the console went. The old console is now just another session device; all console capabilities have been transferred to the other terminal.

The CONSOLE command should be used wisely and sparingly because of the power it carries. It is a good idea for the operator to give himself the capability to take the console back at any time by ALLOWing himself the use of the CONSOLE command before transferring the console to another device (see the new ALLOW command explained below). Also note that the console cannot be transferred over DS lines; it can only be transferred to terminal devices on the host system.

Note that the console is now a session device. The device specified as the console must be logged on to use the operator commands (if the device is logged off, the console messages will still be printed, though). Even though the user given the console logs off, the console capabilities remain with that device. The next person that logs on to that device becomes the console operator. An additional security feature has been added to the to the system in that a user must have the appropriate operator capabilities (assigned by the system manager) in order to access console capabilities. Note also that, for convenience, ldev 20, the traditional console device, will be automatically logged on to OPERATOR.SYS at system startup and "=LOGON" time to allow initial operator access to the system.

In addition to the manual usage of this new command, it can be used in a logon UDC to direct the console to any desired terminal at system startup time. For example, to have the console go immediately to ldev 31 at startup time, give OPERATOR.SYS the following UDC:

```
LOGON
OPTION LOGON, LIST
CONSOLE 31
BYE
```

When the system comes up, OPERATOR.SYS would be automatically logged on to ldev 20. This new logon UDC would be immediately executed, moving the console to ldev 31 and then logging off OPERATOR.SYS, making ldev 31 the system console and ldev 20 just another session device.

- All non-communications console commands will now go through the Command Interpreter. MPE commands have always used the command interpreter which is able to respond with intelligent error messages such as "EXPECTED ONE OF THE FOLLOWING:..." Now that console commands will go through the command interpreter, they will be provided with intelligent error messages as well as eliminating the need to type "control A" before each command. The online HELP facility will also be modified to include descriptions and examples of the operator commands. (The communications commands not covered by this enhancement are MRJE, DSLINE, and MPLINE. In addition, the three system commands LOGON, LOGOFF, and SHUTDOWN were not modified. These commands will still operate as they did before this change, that is, preceded by "control A".)

- Two new commands, ALLOW and DISALLOW, give the console operator the ability to distribute console capabilites among system users. For example, to give the user DEPT.HP the ability to execute the REPLY and ABORTIO commands, enter on the console:

```
:ALLOW DEPT.HP;COMMANDS=REPLY,ABORTIO
```

Then, until DEPT logged off or had the ability taken away with the DISALLOW command, he would be able to execute these operator commands from his terminal.

These two new commands can also be used in an indirect and subsystem mode. In the indirect mode, an editor file is created that contains the "user;commands" relations most often used. The syntax of each entry in the file is:

```
{   @.@     }
{user.@     }  ;COMMANDS=commandlist
{   @.acct  }
{user.acct  }
```

The indirect ALLOW/DISALLOW is then executed by entering at the console

```
:ALLOW FILE=filename[;SHOW]
```

which enables all of the relations listed in the editor file. This ability makes it easy to set up a standard "distributed console network" on the system.

To enter the subsystem mode, just type ALLOW or DISALLOW followed by a carriage return.

```
:DISALLOW
 >DEPT.HP;COMMANDS=REPLY,ABORTIO
 >EXIT
```

Note on the above that, unless the ALLOW and DISALLOW commands themselves have been ALLOWed, they can only be executed at the console. Also, the user receiving the capabilities must be logged on at the time and automatically loses the capability by logging off.

- Two new user commands, ASSOCIATE and DISASSOCIATE, allow a user to become the operator for a specific device class. For example, a specific line printer can now be associated with a user in the group that accesses it. The associated user in the group would then get the operator messages relating to the printer as well as have the ability to control it with the operator commands related to the device.

In order to use these new commands, the system manager must first create a device-user association table. The first step in creating this table is to run the utility ASSOCTBL. The utility will prompt the system manager to enter the association statements into the table using the following format:

```
deviceclassname=user.acct[,...,user.acct]
```

EXIT the utility after all of the entries have been made. The resulting table will be saved under the name ASOCIATE.PUB.SYS. Now, any of the users listed in the table can type the MPE command:

:ASSOCIATE deviceclassname

to be associated with the specified device. For convenience, the ASSOCIATE command can be included in a logon UDC.

The device messages for an ASSOCIATEd device will no longer go to the console; they will go to the terminal of the associated user. The messages will still be logged in the console log file if enabled, though. Also, only one user may be associated with a specific device at any one time. The association may be passed on by having the present owner execute a DISASSOCIATE command or log off, subsequently followed by an ASSOCIATE command by the new user. Also note that each user may be associated with multiple devices in the ASSOCTBL.

- The final new operator command, JOBSECURITY, allows users to use job-related console commands on their own jobs. The format of the new command is:

:JOBSECURITY $\left\{\begin{matrix}\text{HIGH}\\\text{LOW}\end{matrix}\right\}$

When set LOW, all users may use the commands ABORTJOB, ALTJOB, BREAKJOB, and RESUMEJOB on their own jobs. In addition, account managers will be able to use these commands on any job in their account. Setting JOBSECURITY HIGH would only allow execution of these commands from the console (unless they were individually ALLOWed). The default at system generation time is JOBSECURITY HIGH.

All of these enhancements represent significant increases in the flexibility and usefulness of the console capabilities. It is important that, before using them, you become familiar with their operation.

SPOOLER ENHANCEMENTS

There are two areas of spooler enhancements being released on 1918. The first involves a new device class capability. This allows one to use a device as unspooled while still retaining the ability to create spooled files for later output to the device when it is again spooled. This ability is most beneficial to users who wish to do MRJE unspooled printing while still having the ability to use the printer as a "delayed" spooling device. The second change involves a complete revamping of the console

commands for the spooler, making the commands easier to use and interpret. This change is especially helpful when combined with the association capability presented under the distributed console section.

Let's use an example to describe the new device class capability. Two device classes have been assigned to ldev 6: LP and MRJELP. The STARTSPOOL command (see description below) is used to define ldev 6 and LP as being spooled and MRJELP as being unspooled. All outputs to ldev 6, LP, or MRJELP will now be spooled since the ldev is spooled. The operator now sets ldev 6 as unspooled. Print references to MRJELP and ldev 6 will access the printer in the unspooled mode (that is, exclusive access). But, if one does a print using the LP device class, the output will be put into a spooled disc file. The file will then be maintained on disc until the ldev is again declared spooled by the operator, at which time the waiting spool files for the device will be printed. Thus, those who periodically use printers as unspooled devices will no longer have to completely eliminate user access to the device; it will just become a "delayed spool" device.

The commands SPOOL, DELETE, and ALTFILE have been replaced by a number of new commands. The new commands are listed below along with the old commands that they replace. (Note that the OUTFENCE command has not been modified).

```
STARTSPOOL  {ldev       }
            {deviceclass}
```

will replace the STARTOUT and STARTIN options for =SPOOL.

```
STOPSPOOL  {ldev       }
           {deviceclass}
```

will replace the STOP option of =SPOOL.

```
SUSPENDSPOOL    ldev [;FINISH]
```

will replace the =SPOOL ldev, WAIT command.

```
RESUMESPOOL ldev
```

will replace the =SPOOL ldev, RESUME command.

```
ALTSPOOLFILE  {#Onnn}  [;PRI=outputpriority]
              {ldev }  [;COPIES=numcopies  ]
                       [;DEV= {ldev     }  ]
                              {devclass }
                       [;DEFER            ]
```

will replace the =ALTFILE command. Note that now the file can be referred to by either the spool file name or the ldev number that it is active on. This new command will operate on all ready and open files.

```
DELETESPOOLFILE   { #Onnn }
                  { #Innn }
                  { ldev  }
```

will replace the =DELETE command. This new command will work with both active and ready spooler files.

The manual updates and the on-line HELP facility provide more detailed information on these new enhancements. You should find them easy to learn and use, making the spooler more friendly, flexible, and powerful.

STORE/RESTORE TAPE LABELS

With the release of 1918, STORE tapes will now be able to be labelled just as user tapes are. With labelling, lockwords can now be placed on STORE tapes, significantly increasing data security. Additionally, STORE tapes can be dated, further protecting their data from accidental destruction.

As with user tapes, labelling is an option to be specified in the FOPEN or FILE equations. (Note that IMAGE does not support labelled tapes.) The default is unlabelled. Also note that new labelled STORE tapes will not be readable by pre-1918 versions of STORE/RESTORE. If backward compatibility is required, use the unlabelled default which will produce tapes readable by previous software releases. Automatic forward compatibility is provided for pre-1918 STORE tapes, though, by just restoring them as unlabelled tapes.

MPE RESEGMENTATION

An overall resegmentation of MPE has resulted in about 9 fewer CST entries. This leaves more CST space for other sharable segments. No external changes will be noticed from this change. Those customers who work with the internals of MPE, though, might notice some modifications.

IN CLOSING

These are the major MPE enhancements coming out on 1918. In addition to those items just mentioned, the 1918 release of MPE contains numerous minor enhancements, performance improvements, and problem corrections. Check the Software Update section in this issue and all of the MPE manual updates coming out for more details. Good programming!

TIPS ON INSURING KSAM FILE INTEGRITY

ABSTRACT

This article describes the differences between KSAM's chronological and logical record pointers and how to properly use them in a multi-user environment in both random and sequential modes.

Introduction

There are two record pointers internally maintained by KSAM. A chronological record pointer points to records in the data file. The chronclogical pointer is set by the FPOINT and FREADDIR Intrinsics and is advanced by the FREADC Intrinsic. This pointer is used for chronological inquiries.

The second type of record pointer is the logical record pointer which is positioned to a designated key by the FFINDBYKEY, FREADBYKEY, FFINDN, FPOINT or FWRITE Instrinsics. It is advanced by the FREAD, FREMOVE or FSPACE Intrinsics.

I. PROPER USE OF THE CHRONOLOGICAL POINTER

It should be noted that the logical and chronological pointers act independently. For example, if the FFINDBYKEY Intrinsic is called it will position the logical record pointer to a given key on a given key chain. The chronological record pointer, however, is not modified to be in parallel with the position of the logical record pointer. This is critical to file integrity because the FREMOVE and FUPDATE intrinsics use the logical record pointer NOT the chronological pointer. Thus, the FREADDIR and FREADC Intrinsics cannot be used for chronological updates or deletes. Chronological updates can only be accomplished by preceding each FREMOVE or FUPDATE with an FPOINT which is the ONLY Intrinsic that modifies both the logical and chronclogical record pointers.

It should be noted that when attempting to use FUPDATE or FREMOVE following an FREADDIR or FREADC you will not be modifying or deleting the record which was just read but rather the record to which the logical record pointer is currently positioned.

II. SHARED ACCESS IN A MULTI-USER ENVIRONMENT

In discussing file integrity in shared access situations the difference between pointer-dependent and pointer-independent operations should be noted.

Pointer-dependent operations are those which depend on the current value of the logical record pointer. Pointer-dependent operations are:

SPL: FREAD, FREMOVE, FUPDATE, FSPACE
COBOL: CKREAD, CKDELETE, CKREWRITE
BASIC: BKREAD, BKDELETE, BKREWRITE

Pointer-independent operations are those which actually define or set the logical record pointer. They are:

SPL: FFINDBYKEY, FREADBYKEY, FWRITE, FFINDN & FPOINT
COBOL: CKSTART, CKREADBYKEY, CKWRITE
BASIC: BKSTART, BKREADBYKEY, BKWRITE

II.A RANDOM ACCESS

In a multi-user environment, the logical record pointer may become invalid any time a user exits from a lock/unlock sequence of file inquiries or updates. When a subsequent lock is issued the logical record pointer has to be re-established. This is accomplished by using one of the pointer independent intrinsics before any of the pointer-dependent intrinsics are called.

The following two examples are given to demonstrate this situation.

Example 1:

```
FLOCK
FREADBYKEY
FUNLOCK
.
.
.
FLOCK
FUPDATE
FUNLOCK
```

Example 2:

```
FLOCK
FREADBYKEY
FUPDATE
FUNLOCK
```

In example 1 a user wishes to read a record, check a value in the record and then decide how the record should be updated. He does not wish to lock the file while checking the various fields in the record, so he locks around the read and then around the update.

The first lock/unlock sequence establishes the logical record pointer by use of the pointer-independent intrinsic FREADBYKEY.

Operations within the second lock/unlock sequence involve dependency on that logical record pointer since FUPDATE is a pointer-dependent intrinsic. This will cause problems since the B-tree structure may have been modified, by another user, between the time the user issued the first FUNLOCK and the second call to

FLOCK. This would make the user's logical pointer invalid causing the FUPDATE to modify the wrong record. In order to use the example 1 method it is necessary to add a pointer-independent operation before the update operation in the second lock/unlock sequence.

Example 2 resolves this problem since the logical record pointer is established by the pointer-independent FREADBYKEY intrinsic AND then the update is carried out by the pointer-dependent FUPDATE intrinsic within a single FLOCK/FUNLOCK sequence.

Thus, a user doing random file modifications can insure file integrity by always using the following sequence of calls. (This applies to all languages.)

1. Lock the file
2. Issue a pointer-independent operation to establish the logical record pointer
3. Modify (or delete) the record
4. Unlock the file

II.B SEQUENTIAL ACCESS

In a shared environment the only way to guarantee file integrity while doing sequential access on a given key chain is by doing all sequential operations within a single lock/unlock sequence. This is true since sequential reads, FREAD, CKREAD, etc. are pointer-dependent operations. Thus, the logical record pointer, used for sequential access by one user, could be made invalid by the operations on the file of other users if he is dependent on the logical pointer's value to remain accurate between more than one lock/unlock sequence.

Example 3 is given to demonstrate this problem:

Example 3:

```
FLOCK
FFINDBYKEY (pointer-independent)
FREAD
FUPDATE
FUNLOCK
.
.
.
FLOCK
FREAD (sequential, pointer-dependent)
FUPDATE
FUNLOCK
```

In this example there is no guarantee that the second lock/unlock sequence will be using a valid logical record pointer.

Another user may have modified the file with a delete or an add, causing block splits, or contractions thus making the first user's logical record pointer inaccurate.

Some users insist that they must lock & unlock between sequential updates on a key chain in shared access. They may be able to use a strategy similar to that of Example 4. This is very awkward and still does not totally guarantee file integrity. The second FFINDBYKEY, for example, may not find the record because it was modified or deleted by another user.

Example 4:

```
FLOCK
FFINDBYKEY (pointer-independent)
LOOP
  FREAD    sequential updates
  FUPDATE
FREAD     (save the key of next record
           to be accessed)
FUNLOCK
.
.
.
FLOCK
FFINDBYKEY (pointer-independent)
LOOP:
  FREAD    Sequential Updates
  FUPDATE
FREAD      (save the key of next record to
            be accessed)
FUNLOCK
```

The only way to insure file integrity in this type of application, is for the user to do all of his sequential processing within a single lock/unlock sequence as in Example 5.

Example 5:

```
FLOCK
FFINDBYKEY   (pointer-independent)
LOOP
  FREAD      (All sequential updates)
  FUPDATE
FUNLOCK
```

If you are doing a sequential pass through a very large KSAM file a batch update program run at night against the file may be preferable to an on-line update program which locks the file for a long period of time.

BASIC AND IMAGE

Gerrit Altena, Systems Engineer
HP - Amstelveen

Data in IMAGE files can be represented in several different forms:

I-J-K	integers
R	real/long
U-X	string
Z	string (zoned decimal)
P	packed decimal number

The type designators I-J-K-R-U-X can be used in BASIC according to the restrictions of Table 3-3 of the IMAGE Data Base Management Reference Manual.

The type designator Z can be used in BASIC by reading the information into a string and then converting the string to a numeric variable, for example:

```
XDBGET (--------,A$,----)
CONVERT A$ to X
```

In above example X will contain the numeric variable.

The type designator P can be used in BASIC but requires a special conversion routine. A packed decimal number (type P) is stored in nibbles of 4 bits per digit with the sign in the low order nibble. Because BASIC can only read a minimum of 8 bits, a special routine is required to separate the 8 bits into 2 sets of 4 bits (each representing a digit).

The routine is as follows:

```
100   DIM I$(6)                 input length 6 bytes (maximum
                                supported by COBOL is 18 digits)

8000  REM  --  assign sign and last digit

8010  C=LEN(I$)

8030  C1=NUM(I$(C;1))           assign the integer value of the last
                                byte to the numeric variable C1

8040  C2=INT(C1/16)             assign the integer value of the
                                first 4 bits of the byte to the
                                numeric variable C2
```

```
8050  C3=C1-(C2*16)              assign the value of the lower 4 bits
                                 to the numeric variable C3

8060  S$="P"                     assume value is positive

8070  IF C3=13 THEN S$="N"       if value of lower 4 bits of last
                                 byte equal to 13 then the value is
                                 negative, otherwise positive
                                 (=12 or =16)

8080  I=C2                       assign the last digit to the
                                 variable I

8090  REM  --  assign values to remaining bytes,
               working from right to left

8100  FOR X=C-1 to 1 STEP -1

8110  C1=NUM (I$(X;1)            see line 8030

8120  C2=INT (C1/16)             see line 8040

8130  C3=C1-(C1* 6)              see line 8050

8140  C3=C2*10+C3                set the value up for the two digits

8150  I=I+(C3*(10**((C-X)*2-1)))  add to the output with the
                                   correct power of 10

8160  NEXT X

8170  IF S$="N" THEN I=-I        reverse sign if negative

8180  RETURN
```

SYSTEM FAILURE MESSAGES

Susan Thompson
General Systems Division

The following is a current list of system failure messages. The MPE module or procedure where the error occured, the probable cause, and the recommended action are listed for each system failure number. The list applies to all HP systems operating under MPE III. However, for Series 33 systems, "Software Dump" should be substituted in place of "Cold Dump" as the recommended action.

FAILURE CATEGORIES

1- 99	SYSTEM INTERNALS	(CHECKER, HARDRES, SOFTRES, ININ, LOG, PCREATE, DATASEG, DISPATCH, FILESYS)
100-199	MEMORY MANAGEMENT	(SOFTRES, MMDISKR, DATASEG, DEBUG)
200-299	I/O SYSTEM	(HARDRES, IOTERM0, NRIO, ININ)
300-399	PROCESS AND USER RELATED	(MORGUE, PROCSEG, RINS, ABORTRAP, LOADER1, ALLOCATE, SPOOLCOMS, PROGEN)
400-499	FILE SYSTEM	(DIRC, LABSEG, ALLOCATE, FILESYS)
500-599	USER INTERFACE	(JOBTABLE,COMM´INT,STORE/RESTORE, MORGUE)
900-910	CS/3000 INTRINSICS	(COMSYS1 - COMSYS8, FILESYS)
911-920	DS/3000 USER RELATED PROBLEMS	(DSSEG1,DSSEG4,IODS0,DSMON)
1000-1100	SERIAL DISC	(SDISC)

SF#	MODULE/PROCEDURE	CAUSE	ACTION
1	CHECKER/REQUOP	UCOP REQUEST LIST FULL	ENLARGE UCOP TABLE
2	HARDRES/TIMER	I/O FAILURE TO CLOCK	RUN DIAGNOSTIC
3	HARDRES/TIMEREQ	TIMER REQUEST LIST FULL	ENLARGE TABLE
4	SOFTRES/PSEUDOINT	ILLEGAL PSEUDO INTERRUPT	COLD DUMP
5	SOFTRES/RESETDB	ABSOLUTE DB=0	COLD DUMP
6	SOFTRES/EXCHANGEDB	CALLED WITH ABSOLUTE DB	COLD DUMP
7	HARDRES/TICK	I/O FAILURE TO CLOCK	RUN DIAGNOSTIC
8	ININ/TESTCRUNCH	NON-RESPONDING MODULE WHEN MPE CODE EXECUTING	COLD DUMP Note 2
9	ININ/TESTCRUNCH	ILLEGAL ADDRESS IN MPE	COLD DUMP Note 2
10	ININ/TESTCRUNCH	BOUNDS VIOLATION, ILLEGAL ADDRESS, NON-RESPONDING MODULE IN MPE	COLD DUMP Note 2
11	ININ/SYSTEMPARITY	SYSTEM PARITY ERROR	RUN DIAGNOSTIC
12	ININ/ADDRESSPARITY	ADDRESS PARITY ERROR	RUN DIAGNOSTIC
13	ININ/DATAPARITY	DATA PARITY ERROR	RUN DIAGNOSTIC Note 1
14	ININ/MODULEINTERRUPT	MODULE INTERRUPT	RUN DIAGNOSTIC
15	ININ/GHOST	INTERRUPT FROM UNCONFIG-URED DEVICE, OR UNDEFINED INTERNAL INTERRUPT	RUN DIAGNOSTIC

SF#	MODULE/PROCEDURE	CAUSE	ACTION
16	ININ/DSTVIOLATION	DST VIOLATION INTERNAL INTERRUPT	COLD DUMP
17	ININ/STACKOVERFLOW	SECOND OVERFLOW WHILE INTERRUPTS OFF AND PSEUDO DISABLED	COLD DUMP
19	ININ/AWAKE	ATTEMPT TO WAKE PROCESS WITH INVALID PCB POINTER	COLD DUMP
21	SOFTRES/PUT´LIST	PCB POINTER INVALID, OR UNASSIGNED PIN	COLD DUMP
22	SOFTRES/PUT´LIST	PCB POINTER TO INVALID ENTRY	COLD DUMP
24	HARDRES/ABORTTIMEREQ	INVALID TIMER REQUEST LIST INDEX	COLD DUMP ENLARGE TABLE - Note 3
25	HARDRES/TIMEREQ	FREE LIST INVALID	COLD DUMP ENLARGE TABLE - Note 3
26	HARDRES/TIMEREQ	DIT OR PCB POINTER IS ZERO	COLD DUMP
27	HARDRES/TICK	DIT OR PCB POINTER IS ZERO	COLD DUMP
28	HARDRES/ABORTTIMEREQ	AN ATTEMPT WAS MADE TO RETURN A FREE ENTRY TO THE FREE LIST	COLD DUMP
30	LOG(PROCESS)	PROCESS AWAKENED WITH NON-FULL BUFFER TO BE WRITTEN	COLD DUMP
31	LOG(PROCESS)	WANTS TO SWITCH TO OTHER BUFFER BUT IS NOT EMPTY	COLD DUMP
32	PCREATE/LOG	INVALID LOG RECORD TYPE NUMBER	COLD DUMP
33	PCREATE/LOG	INVALID LOG RECORD PARAMETER TYPE NUMBER	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
34	DATASEG/DISPATCH H/W PCREATE/INSTRUCTION	DL IS GREATER (NUMERICALLY) DB REGISTER	COLD DUMP SOFTWARE PROBLEM
50	FILESYS LOG	FILE SYSTEM PROBLEM	IF ERROR OCCURS EVERY TIME FILE IS ACCESSED, DELETE FILENAME FROM DIRECTORY AND RECOVER LOST DISC SPACE; OTHERWISE PERFORM :SYSDUMP AND RELOAD
51	FILESYS/FPROCTERM	CLOSING A CS/3000 LINE WHEN CS/3000 IS NOT ON THE SYSTEM	CHECK FOR MISCONFIGURED I/O DEVICES SUCH AS RJE, ETC. Note 4
52	FILESYS/FPROCTERM	CLOSING A DS/3000 LINE WHEN DS/3000 IS NOT ON ON THE SYSTEM	CHECK FOR MISCONFIGURED I/O DEVICES SUCH AS TERMINALS OR RJE Note 4

SF#	MODULE/PROCEDURE	CAUSE	ACTION
100	SOFTRES/CSTCONV	EN>%300 BUT PIN=0~ILLEGAL CALL	COLD DUMP
101	SOFTRES/MAKEPRESENT	UNBLOCKED REQUEST FROM SOURCE OTHER THAN I/O SYSTEM	COLD DUMP
102	SOFTRES/MAKEPRESENT	PRESENCE REQUEST FOR UNASSIGNED DATA SEGMENT	COLD DUMP
103	SOFTRES/MAM	UNRECOVERABLE WRITE ERROR ON OVERLY REQUEST	POSSIBLE HARDWARE PROBLEM ON SYSTEM DISC, RUN DIAGNOSTIC IF IT RE-OCCURS
104	SOFTRES/ADDTOWS	WORKING SET IS FULL-NOTHING CAN BE DELETED, YET A NEW LOCATION MUST BE ADDED (PARADOX)	COLD DUMP
106	SOFTRES/MAM	MEMORY MANAGER RECEIVED A DISC READ ERROR FROM I/O SYSTEM WHEN ATTEMPTING TO MAKE A SEGMENT PRESENT	POSSIBLE HARDWARE PROBLEM; DELETE OR REASSIGN THE THE TRACK ON THE NEXT COLD LOAD, OTHERWISE, RUN DIAGNOSTIC
107	SOFTRES/MAM	INVALID ENTRY IN MAKE PRESENT REQUEST (I.E. SIZE=0)	COLD DUMP
108	SOFTRES/SOFTRES	ABSENCE TRAP WHILE PSEUDO DISABLED (PDISABLE)	COLD DUMP
109	SOFTRES/ENTRYINDEX	EN>%300 BUT PIN=0 ILLEGAL CALL	COLD DUMP
110	SOFTRES/MAMIO	INC ODD	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
111	SOFTRES/EXCHANGEDB	INDEX OUT OF RANGE	COLD DUMP
118	SOFTRES/EXCHANGEDB	ATTEMPT EXCHANGE DB TO UNINITALIZED ENTRY	COLD DUMP
119	SOFTRES/EXCHANGEDB	MORE THAN 15 PROCESSES IN CORE WITH DB @ THIS DATA SEGMENT, BUT NOT ON A LIST	COLD DUMP
124	MMDISKR/RELDATASEG	ATTEMPT MADE TO RELEASE A SYSTEM DEFINED (PERMANENT) DST	COLD DUMP
125	SOFTRES/ALLOCSECWS MMDISKR/	TABLE ERROR - ATTEMPTING TO ALLOCATE ALLOCATED ENTRY	COLD DUMP
126	SOFTRES/DEALLOCSECWS MMDISKR/	TABLE ERROR - DEALLOCATING UNASSIGNED ENTRY	COLD DUMP
127	MMDISKR/RELCODESEG /RELDATASEG	RELEASING A SEGMENT WHICH IS NON-OVERLAYABLE	COLD DUMP
129	DATASEG/STACKOVERFLOWS	STACK OVERFLOW WHILE ABORTING	COLD DUMP
130	SOFTRES/BUILDQENTRY	MTAB TABLE EMPTY	COLD DUMP
134	SOFTRES/LINKFA	INVALID MEMORY ADDRESS WHEN LINKING TO FREE LIST. FREE LIST MEMORY LINK HAS BEEN DESTROYED.	COLD DUMP
135	SOFTRES/DELINKFA	INVALID MEMORY ADDRESS WHEN DELINKING TO FREE LIST. FREE LIST MEMORY LINK HAS BEEN DESTROYED.	COLD DUMP
136	SOFTRES/MAMIO	ILLEGAL LDEV NO.	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
138	SOFTRES/MAM	INVALID FREE MEMORY LINK	COLD DUMP
139	SOFTRES	INVALID MEMORY LINK FOUND WHILE COMPACTING MEMORY	COLD DUMP
150	DATASEG/STACKOVERFLOW	STACK FROZEN, CORE RESIDENT OR LOCKED	COLD DUMP
160	DATASEG/ABORTDSEG	ATTEMPT TO DECREMENT JDT REFERENCE COUNTER FOR SHARED EXTRA DATA SEGMENT BELOW ZERO	COLD DUMP
175	MMDISKR/RELDATASEG /RELCODESEG	RETURNING ENTRY WHICH IS BEING FROZEN	COLD DUMP
176	MMDISKR	CST, DST,PCB,OR WSTAB LINK OUT OF RANGE	COLD DUMP
180	GETVDSPACE	IRRECOVERABLE DISC ERROR WHILE INITIALIZING	COLD DUMP
199	DEBUG	ILLEGAL CONDITION IN MANAGE-STOP, LOC=0	COLD DUMP

SF# MODULE/PROCEDURE	CAUSE	ACTION
200 HARDRES/TIP	DEVICE STATE (DSTATE) INDICATES READY, BUT SOFTWARE "PAIRCODE" IS NOT READY	COLD DUMP
201 HARDRES/TIP	I/O FAILURE, NON-RESPONDING DEVICE ON I/O INSTRUCTION (FREQUENT CAUSE MISCONFIGURATION)	RECONFIGURE OR RUN DIAGNOSTIC Note 5
202 HARDRES/RETURNTBUF	RELEASING A TERMINAL BUFFER LINK WHEN THE TERMINAL BUFFER IS ALREADY IN THE FREE POOL	COLD DUMP
203 IOTERMO/TERMIOM	INVALID TERMINAL CONDITION	COLD DUMP
204 HARDRES/RETURNTBUF	RETURNING I/O QUEUE ENTRY ALREADY IN FREE LIST	COLD DUMP
206 HARDRES/ATTACHIO	INVALID LOGICAL DEVICE	COLD DUMP
208 HARDRES/TIP	INCORRECT TRANSFER BYTE COUNT	COLD DUMP THEN WARMSTART
210 IOTERM0/TERMIOM	CANNOT EXECUTE SIOP/ HIOP SUCCESSFULLY	COLD DUMP THEN WARMSTART
249 HARDRES/CHECKINDEX	INVALID TBUF, SBUF, IOQ INDEX	COLD DUMP
250 NRIO/GETSYSBUF	BAD SYSBUF INDEX	COLD DUMP
251 HARDRES/RETURNSYSBUF	BAD SYSBUF INDEX	COLD DUMP
252 HARDRES/RETURNSYSBUF	BAD SYSBUF INDEX	COLD DUMP
260 HARDRES/SIODM	CORE WRAP AROUND ON DATA TRANSFER	CALL CE COLD DUMP
261 HARDRES/SIODM	COMPLETION INTERRUPT ON A COMPLETED REQUEST	COLD DUMP PERIPHERAL PROBLEM
262 HARDRES/PTRIP	BAD STATUS BACK FROM PAPERTAPE READER	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
271	NRIO/IOMESSPROC	DRIVER ASKED FOR REPLY FROM OPERATOR, BUT FAILED TO SUPPLY A DST NUMBER FOR THE REPLY	COLD DUMP
289	ININ/TRACE	INVALID SST ENTRY	COLD DUMP
290	HARDRES/SIODM	NO IOQ ELEMENT AVAILABLE FOR MAM REQUEST PROCESSING	COLD DUMP
299	HARDRES/SIODM	RETURN FROM IOUNFREEZE	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
300	MORGUE/EXPIRE	FREELOCRIN FAILED, RIN LOCKED	COLD DUMP
301	MORGUE/EXPIRE	UCOP DID NOT KILL PROCESS	COLD DUMP
302	PROCSEG/ABORTPROG	MAIN PROCESS DOES NOT HAVE A SON	COLD DUMP
303	RINS/FREELOCRIN	GLOBAL RIN IN LOCAL RIN LIST	COLD DUMP
310	ABORTRAP/ABORT	SYSTEM PROCESS ABORTED	COLD DUMP
311	ABORTRAP/ABORT	PROCESS ABORTING WHILE CRITICAL	COLD DUMP
314	MORGUE	PROCESS ABORTING WITH SIR	COLD DUMP
348	LOADER1	BAD LOADER SEGMENT TABLE	COLD DUMP
349	LOADER1	BAD LOADER SEGMENT TABLE	COLD DUMP
350	ALLOCATE/ALLOCENTRY	FAILED TO INCREMENT XDD SEGMENT FILE	COLD DUMP
351	ALLOCATE/DEALLOCENTRY	FAILED TO DECREMENT XDD SEGMENT FILE	COLD DUMP
352	ALLOCATE/SRELINKODD	LOGICAL DEVICE NOT FOUND IN ODD HEAD ENTRIES	COLD DUMP
353	ALLOCATE/SPUTXDD	LOGICAL DEVICE NOT FOUND IN XDD HEAD ENTRIES	COLD DUMP
360	ALLOCATE/GETCLASS	BAD CLASS TABLE POINTER	COLD DUMP
361	ALLOCATE	INVALID CLASS TABLE POINTER	COLD DUMP
362	ALLOCATE	BAD DEVICE NUMBER IN CLASS TABLE	COLD DUMP
363	ALLOCATE	INVALID LOGICAL DEVICE #	COLD DUMP
364	ALLOCATE	INVALID CLASS INDEX	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
365	ALLOCATE/GETCLASS	ILLEGAL PROCEDURE PARMS	COLD DUMP
366	ALLOCATE/DEALLOCATE	NEGATIVE USE COUNT UPON DEVICE DEALLOCATION	COLD DUMP
370	SPOOLCOMS/INITSPOOLING	INITIAL SPOOLING ATTEMPT FAILED	COLD DUMP
371	SPOOLCOMS/DELETJOB	ABORTJOB FAILED	COLD DUMP
372	PROGEN/CONSSHUTDOWN	UNABLE TO STOP SPOOLER	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
400	DIRC	DIRECTORY I/O ERROR	
401	DIRC	DIRECTORY I/O ERROR	
402	DIRC	DIRECTORY I/O ERROR	FOR ERRORS 401-418
405	DIRC	DIRECTORY I/O ERROR	COLD DUMP RELOAD OR
406	DIRC	INTERNAL DIRECTORY ERROR ON LOG ON OR LOG OFF	AVOID PORTION OF DIRECTORY CAUSING THE
407	DIRC	DIRECTORY I/O ERROR	ERROR IF IT CAN BE FOUND
415	DIRC/DIRECINSERT	DIRECTORY I/O ERROR	
418	DIRC	INTERNAL DIRECTORY ERROR WHILE BINDING OR UNWINDING A GROUP TO ITS HOME VOLUME SET	
420	ALLOCATE/DISKDEALLOC	NEGATIVE USECOUNT	COLD DUMP
421	ALLOCATE/DISCSPACE	NEGATIVE COUNT OF FREESPACE ENTRIES	COLD DUMP
422	ALLOCATE/DISCSPACE	RETURN SPACE THAT IS ALREADY FREE	COLD DUMP
450	FILESYS/FGETCB	BAD CONTROL BLOCK POINTER	COLD DUMP
451	FILESYS/FRELCB	BAD CONTROL BLOCK POINTER	COLD DUMP
452	FILESYS/LOCACB	BAD CONTROL BLOCK POINTER	COLD DUMP
453	FILESYS/UNLOCACB	BAD CONTROL BLOCK POINTER	COLD DUMP
454	FILESYS/FCREATECB	BAD VOLUME TABLE INDEX	COLD DUMP
457	FILESYS/FLOCKCB	VECTOR TABLE LOCK COUNT OVERFLOW	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
460	FILESYS/FCREATECB	BAD CB POINTER DST	COLD DUMP
461	FILESYS/FDELETECB	BAD CB POINTER DST	COLD DUMP
464	FILESYS/FCREATECB	CONTROL BLOCK POINTER OUT OF RANGE	COLD DUMP
465	FILESYS/FCREATECB	ATTEMPT TO CREATE DUPLICATE CB CST	COLD DUMP
466	FILESYS/FCREATECB	ILLEGAL STRATEGY	COLD DUMP
467	FILESYS/SCANFMAVT	OUT OF FMAVT SPACE	COLD DUMP
468	FILESYS/VCONVBLK	DISCDEALLOC ERROR	COLD DUMP
469	FILESYS/FOPENDA	DISCDEALLOC ERROR	COLD DUMP
470	FILESYS/FOPEN	DISCDEALLOC ERROR	COLD DUMP
471	FILESYS/FCLOSE	DISCDEALLOC ERROR	COLD DUMP
473	FILESYS/FOPENDA	DISACLLOC ERROR	COLD DUMP
475	FILESYS/FCONVBLK	ATTACHIO ERROR	COLD DUMP
476	FILESYS/FCNKEOF	WAITFORIO ERROR	COLD DUMP
478	FILESYS/FNOBUF	ATTACHIO ERROR	COLD DUMP
479	FILESYS/GETREC	WAITFORIO ERROR	COLD DUMP
480	FILESYS/FQUIESCEIO	ATTACHIO ERROR	COLD DUMP
481	FILESYS/FBREAK	LOCAB ERROR	COLD DUMP
482	FILESYS/FUNBREAK	LOCACB ERROR	COLD DUMP
483	FILESYS/FRSETEOF	LOCACB ERROR	COLD DUMP
484	FILESYS/FOPEN	DIRECFINDFILE ERROR	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
485	FILESYS/FOPEN	SPOOFLE ATTACHIO ERROR	COLD DUMP
486	FILESYS	DS RFALINE ERROR	COLD DUMP
487	FILESYS/IOWAIT	WAITFORIO ERROR	COLD DUMP
488	FILESYS/FRENAME	DELETEJENTRY ERROR	COLD DUMP
489	FILESYS/FCLOSE	FDELETE OLD $OLDPASS ERROR	COLD DUMP
490	FILESYS/FCLOSE	DIRECJTENTRY ERROR	COLD DUMP
491	FILESYS/FCLOSE	ATTEMPT TO DEALLOCATE UNALLOCATED SECTORS	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
500	JOBTABLE/REMJENTRY	FAILURE TO CONTRACT DST	COLD DUMP
501	JOBTABLE/XADDJLENTRY	INVALID POINTER	COLD DUMP
502	COMM'INT/CXNEWACCT	DIRECTORY CANNOT BE PURGED	COLD DUMP
503	COMM'INT/CXNEWACCT	DUPLICATE ENTRY IN DIRECTORY	COLD DUMP
504	COMM'INT/CXNEWGROUP	CANNOT FIND ACCOUNT LOGGED ON UNDER	COLD DUMP
	COMM'INT/CXALTGROUP	CANNOT FIND ACCOUNT LOGGED ON UNDER	COLD DUMP
	COMM'INT/CXNEWUSER	CANNOT FIND ACCOUNT LOGGED ON UNDER	COLD DUMP
	COMM'INT/CXALTUSER	CANNOT FIND ACCOUNT LOGGED ON UNDER	COLD DUMP
505	COMM'INT/CXNEWGROUP	NON-EXISTENT NAME IN DIRECTORY SEARCH	COLD DUMP
	COMM'INT/CXALTGROUP	NON-EXISTENT NAME IN DIRECTORY SEARCH	COLD DUMP
506	COMM'INT/CYDIRERR	CATASTROPHIC DIRECTORY ERROR	RELOAD
509	COMM'INT/INITJSMP MORGUE/STARTDEVICE /CLEANUPJOB	ERROR RETURNED BY COMMAND INTERPRETER LOG TABLE DURING "(COMMAND)" LOG ON OR LOG OFF	COLD DUMP
523	STORE/FRESTORE RESTORE/FRESTORE	FSF FAILED-FILE SKIPPED FORWARD TO TAPE MARK	COLD DUMP
524	STORE/FRESTORE RESTORE/FRESTORE	DISCSPACE ERROR: NSECT NO GOOD	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
525	STORE/FRESTORE RESTORE/FRESTORE	DISCSPACE ERROR: TABLE OVERFLOW	COLD DUMP
526	STORE/FRESTORE RESTORE/FRESTORE	DISCALLOC ERROR (1)	COLD DUMP
527	STORE/FRESTORE RESTORE/FRESTORE	DISCALLOC ERROR (5)	COLD DUMP
528	STORE/FRESTORE RESTORE/FRESTORE	XDISKSPACE ERROR (2)	COLD DUMP
529	STORE/FRESTORE RESTORE/FRESTORE	XDISKSPACE ERROR (3)	COLD DUMP
530	STORE/ADJUSTFPTR RESTORE/ADJUSTFPTR	FILE LEVEL <>0	COLD DUMP
531	STORE/FSTORE RESTORE/FSTORE	SECTOR COUNT >0D	COLD DUMP
533	STORE/ISTORE RESTORE/ISTORE	DIRECTORY PROBLEM	COLD DUMP
534	STORE/RCSTORE RESTORE/RCSTORE	DIRECTORY ERROR DURING STORE	COLD DUMP RELOAD MAY BE REQUIRED
777	FILESYS/IOWAIT	CSIOWAIT NOT IS SYSTEM	COLD DUMP CHECK FOR MISCONFIGURED I/O DEVICES SUCH AS RJE.

SF#	MODULE/PROCEDURE	CAUSE	ACTION
900	COMSYS1/CSIOWAIT COMSYS4/CREAD /CWRITE	I/O REQUEST NO LONGER ASSOCIATED WITH CALLER'S PROCESS	COLD DUMP
902	COMSYS3/CSDRIVERLOCK	UNABLE TO FREEZE OR UNFREEZE SEGMENT IN MAIN MEMORY	COLD DUMP
903	COMSYS3/CDRIVERLOCK /CRELEASE' COMSYS5/CCONTROL /CPOLLIST COMSYS6/CDELETETRACE-AREA	UNABLE TO LOCK OR UNLOCK SEGMENT IN MAIN MEMORY	COLD DUMP
904	COMSYS5/CCONTROL	UNABLE TO INCREASE DATA SEGMENT SIZE	COLD DUMP
905	COMSYS6/CDELETETRACEAREA	UNABLE TO DECREASE DATA SEGMENT SIZE	COLD DUMP
906	COMSYS3/CDRIVERUNLOCK COMSYS6/CPOLLIST	UNABLE TO UNFREEZE SEGMENT IN MAIN MEMORY	COLD DUMP
907	COMSYS3/CDRIVERUNLOCK	UNABLE TO UNLOCK SEGMENT IN MAIN MEMORY	COLD DUMP
911	COMSYS4/CREAD /CWRITE	UNEXPECTED I/O QUEUE VALUE	COLD DUMP

SF#	MODULE/PROCEDURE	CAUSE	ACTION
911	DSSEG1/MANAGEWRITECOMV	INVALID MESSAGE CLASS OR STREAM TYPE	COLD DUMP
912	DSSEG1/MANAGEWRITECOMV DSSEG4/CXRFA	RFA BUFFER SIZE LESS THAN 0	COLD DUMP
913	IODS0/DSDVRI	DSW AND DSWR COUNT DISAGREE	COLD DUMP
914	IODS0/DSDVRI DSTERMI	DS USE COUNT LESS THAN ZERO	COLD DUMP
915	DSMON	BAD DATA	COLD DUMP
916	DSMON	DEBUGON, 3 AND DS ERROR	COLD DUMP
1020	SDISC/SDISCIO	INVALID NUMBER OF DST ENTRIES ON ENTRY	COLD DUMP
1021	SDISC/SDISCIO	INVALID NUMBER OF DST ENTRIES ON EXIT	COLD DUMP

NOTES:

1 THE FOLLOWING MESSAGE IS PRINTED ON THE CONSOLE BEFORE THE SYSTEM FAILURE MESSAGE IS PRINTED:

```
PARITY ERROR
B=nnn (BANK NUMBER)
A=ADDR (ADDRESS)
```

2 CONTACT YOUR HP CUSTOMER ENGINEER. THESE SYSTEM FAILURES SOMETIMES MASK OTHER TYPES OF SOFTWARE/HARDWARE PROBLEMS.

3 THE TABLE MAY ALSO BE DESTROYED DUE TO SYSTEM PROBLEMS. IF THE PROBLEM OCCURS A SECOND TIME AFTER ENLARGING THE TABLE, CONTACT YOUR CUSTOMER ENGINEER.

4 USER PROGRAMS MAY ALSO BE A CAUSE. PROGRAMMATIC ATTEMPTS TO CLOSE A CS OR DS LINE WHEN THESE PRODUCTS ARE NOT ON THE SYSTEM, ALSO CAN CAUSE THESE FAILURES.

5 THE FOLLOWING MESSAGE IS PRINTED ON THE CONSOLE BEFORE THE SYSTEM FAILURE MESSAGE IS PRINTED:

```
NONRESPONDING DEVICE DRT nnn, LDEV Idn
    (The LDEV may not always appear)
```

MPE III SERIES II-III SOFTWARE UPDATE

MULTIPROGRAMMING EXECUTIVE OPERATING SYSTEM SERIES II/III
****

CONTENTS OF INSTALLATION TAPE DATE CODE 1918

PRODUCTS WITH ASTERISKS ARE THE PRODUCT(S) UPDATED/CHANGED
BY THIS M.I.T. AND ALSO REFERENCE PERTINENT NOTE
FILES CONTAINING INFORMATION ABOUT THE MODIFICATIONS.
THESE FILES MAY BE LISTED USING EDITOR OR FCOPY.

****

PRODUCT NAME	PRODUCT NUMBER	LEVEL	DATE CODE
*MPE	32002B	01.00	1918
*SEGMENTER	32050A	01.01	1918
*SPL	32100A	07.02	1918
*BASIC	32101B	00.11	1918
*FORTRAN	32102B	01.02	1918
*BASIC COMPILER	32103B	00.11	1918
*RPG	32104A	04.04	1918
*APL/3000	32105A	01.02	1918
BUILDINT	32150A	03.01	1623
*DS/3000	32190A	02.04	1918
*MRJE	32192A	00.06	1918
*MTS	32193A	00.03	1918
*EDITOR	32201A	07.05	1918
SCIENTIFIC LIBRARY	32205B	00.04	1906
DEL/3000	32206A	01.09	1906
*KSAM/3000	32208A	03.00	1918
*VIEW/3000	32209A	00.01	1918
*COMPILER LIBRARY	32211D	00.09	1918
*FCOPY	32212A	03.09	1918
*COBOL	32213C	02.03	1918
SORT/MERGE	32214B	02.00	1906
*IMAGE	32215B	02.02	1918
*QUERY	32216A	04.01	1918
TRACE	32222A	03.03	1814
XA2100	32223A	01.03	1814
XL2100	32226A	02.00	1636
PROG CONTROLLER 30300B/30361B-BCS	30361B	00.00	1621
PROG CONTROLLER 30301B/30361B-1-RTE	30361B-1	00.02	1701
RJE 2780/3780	30130E	00.02	1814
CALCOMP PLOTTER	30126A	00.01	1640
*DIAGNOSTICS	32230A	-- --	1918

DIAGNOSTIC INFORMATION IS CONTAINED IN THE FILE N00N230A.

* NOTE FILES(N00NYYYZ) CONTAIN THE CHANGE INFORMATION

WHERE YYY =LAST THREE DIGITS OF THE PRODUCT NUMBER.
(E.G. MPE IS HP32002. THEREFORE YYY=002.)
Z =CURRENTLY RELEASED VERSION DIGIT OF PRODUCT.

MPE HP32002B.01.00

DATE CODE 1918, N00N002B.HP32002.SUPPORT

I. MPE 32002B.01.00

A. MODULES MODIFIED B.01.00

MODULE		CHANGE HISTORY											
NAME	NO	A.01.XX			B.00.XX			B.01.XX					
		1	2	MR	0	1	2	0	1	2	3	4	5	6
INITIAL	0	X		X	X	X	X	X						
SYSDUMP	1	X		X	X	X	X	X						
SEGPROC	2													
SEGDVR	3													
DISPATCH	4				X			X						
LOAD	5				X	X	X	X						
UCOP	7				X	X	X							
DEVREC	8				X	X	X	X						
PROGEN	9	X		X	X	X	X	XX						
ININ	10	X	X		X		X	X						
MEMLOGP	11				X			X						
LOG	12		X		X									
IOPTRD0	13				X									
IOPTPN0	14		X		X		X							
IOPLOT0	15				X									
IOMDISC0	16													
IOFDISC0	17													
IOTAPE0	18	X	X		X		X	X						
IOLPRT0	19				X		X	X						
IOCDRD0	20				X		X	X						
IOTERM0	22	X	X		X		X	X						
IOPRPN0	24		X		X		X	X						
IOREM0	25													
IOMDISC1	27		X		X									
PFAIL	30						X							
PVPROC	31				X	X								
VINIT	32				X	X	X							
MAKECAT	40				X		X	X						

	MODULE		CHANGE HISTORY											
	NAME	NO	A.01.XX			B.00.XX			B.01.XX					
			1	2	MR	0	1	2	0	1	2	3	4	5	6
	FILESYS	50	X	X	X	X	X	X	X						
	COMM'INT	51	X	X	X	X	X	X	X						
	STORE/RESTORE	52	X			X		X	X						
	DIRC	53				X	X	X	X						
	ALLOCATE	54	X	X		X	X	X	X						
*	HARDRES	55													
*	SOFTRES	56	X	X		X	X	X	X						
	MMDISKR	57	X	X		X	X	X	X						
*	ABORTDUMP	58		X		X		X							
	MESSAGE	59				X	X		X						
*	PROCSEG	60	X	X		X		X	X						
	NRIO	62	X	X		X		X	X						
	PCREATE	63		X		X		X							
	MORGUE	64	X	X		X		X	X						
	DATASEG	67	X	X		X	X	X	X						
	CHECKER	69				X	X	X							
	UTILITY	70	X	X		X			X						
	SEGUTIL	71													
	LOADER1	72		X		X	X	X	X						
	RINS	73					X	X	X						
	JOBTABLE	74	X	X		X	X	X	X						
	DEBUG	75				X		X	X						
	NURSERY	76				X	X	X	X						
	STKDUMP	77							X						
	FIRMWARESIM	78				X									
	SPOOLING	79	X	X		X		X	X						
	SPOOLCOMS	80	X	X		X		X	X						
	PVSYS	81				X	X	X							
	UDC	82				X		X	X						
	USER	83				X									
	HELPUSER	84				X									
**	OPCOMMAND	85							X						
	LABSEG	86				X	X	X	X						
	SDISC	87				X	X	X	X						
**	MEASIO	88							X						
**	LOGSEG1	90							X						
**	LOGSEG2	91							X						
	CATALOG					X	X	X	X						
	CICAT					X		X	X						

* REPLACEMENT MODULES
** NEW MODULES

SYSTEM	LAST CHANGE NUMBER
B.00.00	0066
B.00.01	0134
B.00.02	0472
B.01.00	0780

NOTE: Each change made to MPE is now identified by a unique change number in columns 64/72 (eg <<00120>>). This matrix provides the range of the change numbers used to build each version of MPE.

B. ENHANCEMENTS

FIX NUMBER	DESCRIPTION
506.	INITIAL (00) This change causes Initial to create and maintain User Logging data segments.
506.	COMMAND INTERPRETER (51) User logging commands added to the CI.
506.	MORGUE (64) Modified Morgue so that it will clean up User Logging entries on process termination.
506.	PROGEN (09) Progenitor modified so that it will accept the new =LOG commands for user logging.
506.	SYSDUMP (01) Sysdump modified so that the user can configure user logging tables in the system. The dialogue under "SYSTEM TABLE CHANGES" has been changed.
506.	CATALOG Messages for User Logging added.
525.	COMMAND INTERPRETER (51) Added capability to allow warnings to be passed back through Command Intrinsic as negative CI ERROR numbers. No warnings passed back through at this time.

FIX NUMBER	DESCRIPTION
526.	COMMAND INTERPRETER (51) Added code to check for missing C/R in command image to prevent CI stack from being clobbered.
535.	CATALOG Messages added for foreign disc facility.
537.	INITIAL (00) Initial now treats the number of sectors of Virtual Memory as a logical quantity.
550.	SYSDUMP (01) SYSDUMP will now allow Virtual Memory to be expanded to 64k sectors. Minimum virtual memory is 1024 sectors, maximum is 65535 sectors.
552.	CATALOG Addition of Operator Commands to CI OPCIERR messages.
552.	SPOOLCOMS (80) Add operator command to CI. Allow delete of active spoofles; adopt spooler to PROGEN, SHOWDEV, SHOWOUT, SHOWIN, & associated changes.
552.	NURSERY (76) Add Operator Commands to CI. Get global allow mask.
552.	DEBUG (75) Addition of operator commands to CI. Batch jobs can use Debug in break mode, and it will go to the console, even if the console is reassigned.
552.	UTILITY (70) Addition of operator commands to CI Console.
552.	MORGUE (64) Add operator commands to CI. Disassociate on termination of Job/Session.
552.	MESSAGE (59) Addition of operator commands to CI Console Code.
552.	ALLOCATE (54) Add operator commands to CI.
552.	COMMAND INTERPRETER (51) Addition of operator commands to CI.

FIX NUMBER	DESCRIPTION
552.	MAKECAT (40) Allow >20 message sets in message catalog.
552.	I0TERM0 (22) Addition of operator commands to CI - Console changes.
552.	PROGEN (09) Addition of operator commands to CI Console Code.
552.	INITIAL (00) Addition of operator commands to CI Association table.
555.	DATASEG (67) Stack expansions as result of stackoverflows, are now done in increments of 1024 words. If an ADDS of more than 255 words is done, additional space is given to accomodate this.
557.	LOAD (05) The system LOAD process program will now be prepared with DL=%1000 to decrease the number of DL area expansions and contractions.
570.	CATALOG Removes LOCKGLORIN error messages 20, 22, 23 and 24, as they no longer occur.
571.	IOLPRT0 (19) a. Console operator is now notified of successful VIC or Left Margin download. b. System no longer hangs if configured printer subtype doesn't match printer actually attached to system.
573.	MMDISKR (57) Only data segments for stacks and user extra data segments will be initialized to zeros.
575.	PROGEN (09) Measurement I/0 commands added.
575.	COMMAND INTERPRETER (51) Measurement I/0 Commands added.
575.	MMCORER (56) Measurement I/0 Commands added.

FIX NUMBER	DESCRIPTION
575.	NRIO (62) Measurement I/O Commands added.
575.	CATALOG Measurement I/O commands added.
577.	RESTORE (52) Set restore date & time into words 108-110 in file label on :RESTORE.
587.	CATALOG Add $SET1 MSG=22, "LDEV#! DOWNLOAD COMPLETE.
594.	CROUTINE (60) Handle break thru RIT wait as well as son wait.
594.	CATALOG Add message to handle break RIT request in CI.
594.	PROGEN (09) a. Delete old commands. b. Fix DISABLE bug. c. General listing cleanup.
594.	DISPATCH (04) Allow break thru RIT wait.
594.	COMMAND INTERPRETER (51) Allow only RECALL, REPLY, & RESUME during RIT break.
594.	MESSAGE (59) RIT wait uses UCOP rather than JUNK wait.
594.	PINT (66) Handle break thru RIT wait.
596.	CATALOG Added new messages for User Logging.
598.	SYSDUMP (01) Generates checksums for SL and SYS program files into a file neame "MPECHECK".
601.	COMMAND INTERPRETER (51) Add LOG command messages.
601.	DEBUG (75) Resolve system process & CI conflict.

FIX NUMBER	DESCRIPTION
614.	DATASEG (67) Data segments acquired through GETDSEG called in privileged mode, will not be zeroed.
615.	LABSEG (86) Modify Store/Restore to be able to store to and restore from labeled tape.
615.	STORE/RESTORE (52) Modify Store/Restore to be able to store to and restore from labeled tape.
629.	SYSDUMP (01) Under SL Changes, the replace and add SL segments, have been modified so that you may enter a code segment patch size.
629.	CI (51) A new parameter (PATCH) has been added to the PREP and PREPRUN commands. Using the PATCH parameter you may append a code segment patch area to the end of each of your code segments.
630.	FILESYS (50) "ALLOCATION DATE/TIME" added to file label. Time is in words 108/109 and date is in word 110.
630.	DIRC (53) Uncallable Routine "FDELETE", has been renamed to "FRELSPACE."
635.	ALLOCATE (54) Spooled Classes.
635.	OPCOMMND (85) Spooled Classes.
635.	FILESYS (50) Spooled Classes.
635.	CATALOG Spooled Classes.
661.	LABSEG (86) If a system crashes and labeled tapes are not physically rewound when system comes back up, then an attempt to allocate the tape will cause it to be AVRed beyond load point and called unlabelled.

FIX NUMBER	DESCRIPTION
706.	SPLINTR Add new user logging intrinsics.

C. CORRECTIVE SOFTWARE CHANGES

512. STKDUMP (77) SMR #6232
STACKDUMP has been altered (corrected) so that an extra data segment can be dumped by specifying the absolute DST # when:
a. Stackdump is called from privileged mode code.
b. Stackdump is called from programs having PM capability.

513. SDISC (87) SMR #5659
When Serial Disc Interface encountered an error, it could print the same error message several times. This fix causes SDI to print the error message only once.

519. LOADER1 (72) SMR #2883
Running a KSAM file destroys it. This corrects that situation.

523. CATALOG SMR #4849
A new message is added for reporting hardware failures as follows: "LDEV #n DEVICE ERROR; PLEASE NOTIFY C.E."

523. IOCDRDO (20) SMR #4849
Add logic to detect card reader stacker full and ready simultaneously. This is a diagnostic check for a common hardware problem.

527. CI (51) SMR #5819
Equate ENDOFFILEMSG changed from 11 to 9. Is used in CREATERROR.

528. NURSERY (76) SMR #6098
If the PRI specified in a job is higher than the maximum job PRI, then the max job PRI is assigned to the job. (Previously it got the default job PRI.)

530. STORE/RESTORE SMR #5629
Improved error message for RESTORE command.

FIX NUMBER	DESCRIPTION

530. CATALOG SMR #5501,5629
Added RESTORE error message 1062, modified SPEED error messages, and added error messages for STREAM.

531. ALLOCATE (54) SMR# 5854
A syntax error in the call to ASKOP is corrected. The error was causing problems recognizing input spool files.

532. FILESYS (50) SMR #5439, 5735
a. EOF on write did not reset error returned by FCHECK and PRINT'FILE'INFO to a zero if some other error had occured previously.
b. Writing beyond EOF, Rewinding and Reading gave EOF after first record when block factor was 1.

533. SYSDUMP (01) SMR #6011
In SYSDUMP under the DUMP FILE SUBSET(S) question if semicolon was imbedded in the string the scan stopped at the semicolon. An imbedded semicolon is now treated as an error condition.

534. SPOOLCOMS (80) SMR #3669, 4720
The STREAM command has been modified in several ways
a. More error information is returned. STREAM now tells the user about all errors and warnings that it encounters.
b. Negative CI error numbers are returned through the command intrinsic for CI warnings. (From the STREAM command only at this time.)
c. STREAMING now stops when an error occurs, i.e. remaining Jobs in STREAM file are not launched.
d. EOF on $STDIN is RESET after doing a programmatic STREAM so that the program can continue to read from $STDIN.

534. DEVREC (08) SMR #3669
Same as #534, SPOOLCOMS, above.

534. NURSERY (76)
Same as #534, SPOOLCOMS, above.

534. SPOOLING (79)
Same as #534, SPOOLCOMS, above.

FIX NUMBER	DESCRIPTION
536.	CROUTINE (60) Using a stack as an extra data segment no longer risks losing the real memory in which the stack resides.
537.	INITIAL (00) INITIAL now treats the number of sectors of Virtual Memory as a logical quantity.
538.	UDC (82) SMR #5499 The "^" will no longer be printed when an error occurs in a UDC in which option LIST has not been specified.
538.	COMMAND INTERPRETER (51) SMR #5499 Same as UDC, #538, above.
539.	COMMAND INTERPRETER (51) SMR #6270 An erroneous error message will no longer be printed when a user attempts to remove SM capability from himself.
540.	COMMAND INTERPRETER (51) SMR #6270 This fixes an infinite CI loop resulting from ":EOF" being entered from a subsystem, followed by a break.
541.	LOADER1 (72) SMR #6495 Log records for JOB or SESSION MAIN process termination will no longer have garbaged segment counts.
542.	PROGEN (09) SMR #5513 No system log records will be generated until after the system date and time have been entered.
544.	SPOOLING (79) SMR #6241 a. Reset sequence checking between jobs-don't check across job boundaries. b. Strip sequence field of STREAMed input data. Do not strip sequence field on spooled input data.
545.	FILESYS (50) SMR #2692 When FWRITE is called with carriage control %100 thru %103 and count=0, it is simulating an FCONTROL, and no I/O should occur. FWRITE is corrected so that this will be true.

FIX NUMBER	DESCRIPTION
546.	FILESYS (50) SMR #2573 Prohibits enabling BREAK on a terminal which is not the $STDIN/$STDLST device for the session. Also prohibits enabling BREAK from a batch Job.
547.	SPOOLCOMS (80) SMR #6261 SHOWJOB may now be executed from a PV group without the PV being mounted.
548.	SPOOLCOMS (80) SMR #6260 SHOWOUT/IN modified - may now be executed from a PV group without the PV being mounted.
553.	STORE (52) This fix, prevents users from bringing the second, third, etc., reel of a multi-reel store tape on-line before load point.
554.	LABSEG (86) SMR #6023 Corrected any tape being called IBM when mounted on same logical device where a previous IBM tape had been mounted, but not used.
559.	PROGEN (09) SMR #3126 Job and session counts in system shutdown log records will now correctly give the number of currently logged on jobs and sessions.
560.	MORGUE (64) SMR #6416 Allows a process to lock particular global or file RIN more than once and get CCE instead of CCL.
560.	FILESYS (50) SMR #6416 Allows a process without MR capability to FLOCK a particular file more than once and get a CCE back instead of CCL.
560.	RINS (73) SMR #6416 Allows a process without MR capability to lock a particular global or file RIN more than once and get CCE instead of CCL.
562.	IOTAPE0 (18) Makes it impossible for operator to put a tape on line before the load point, after a NO WRITE RING condition causes an unload.
565.	ALLOCATE (54) SMR #6378 Eliminates possible SF527 when reloading PV files onto non-PV disc.

FIX NUMBER	DESCRIPTION
566.	DATASEG (67) SMR #5610 PXFIXED and PXFILE area expansions in a process' PCBX will not result in SF34 when a NOMEM occurs while processing the expansion request.
566.	MMCORER (56) SMR #5610 PXFIXED and PXFILE area expansions in a process' PCBX will now not result in SF34 when a NOMEM occurs while processing the expansion request.
567.	FILESYS (50) Check ACBCARRIAGE instead of ACBCONTROL when deciding whether to automatically imbed the carriage control byte. This will correct the problem of printing the carriage control byte and truncating the line when the line printer is unspooled.
569.	NURSERY (76) SMR #6115 Valid INPRI values on JOB card are now 1-13.
576.	SPOOLCOMS (80) SMR #6288 Under certain conditions SHOWDEV would stop printing information when he tried to list a drive on which a tape was mounted. This problem has been fixed.
578.	SPOOLING (79) This fix corrects FORMS handling crash.
579.	CI (51) SMR #5958 The CI will now verify the device name (or class) specified in :FILE .....;DEV=.
580.	COMMAND INTERPRETER (51) An error is not detected when the `VS` parameter is used on NEWUSER or ALTUSER. The use of the parameter can have bizarre results. This problem has now been fixed.
581.	COMMAND INTERPRETER (51) In a :JOB, a blank line following a line ending in "&" (continuation) could result in a system failure. This is now fixed.
582.	COMMAND INTERPRETER (51) This fixes a problem in which a LISTACCT to a temporary file would result in problems if a permanent file already existed with the same name. (The temporary file was not closed and could not be accessed in any way; also a bad error message was generated.)

FIX NUMBER	DESCRIPTION
585.	MMDISKR (57) The bank with the most available space will be correctly selected for lock requests in the case when over one-half of a bank has locked segments.
586.	IOCPRTO (19) Removed cause of SF 28 (trying to release Timer Request List entry more than once).
590.	DEBUG (75) Fix DEBUG to distinguish properly between privileged user/private breakpoints/and system breakpoints.
593.	DATASEG (67) Using GETDSEG to get extra data segments could cause SF17 if the caller's stack is frozen or locked. This change causes GETDSEG to return an index value of 7.2003, denying the request for the data segment.
596.	COMMAND INTERPRETER (51) Changed logging capability set so that user logging commands can be executed by program.
597.	IOPRPNO (24) SMR #4281 IOPRPNO is fixed to operate as specified in the 2894A Reference Manual. Read/Write on the same card, interpretation, hopper/stacker select, and inhibit input feed now perform as specified. From now on, when punching (or interpreting) cards, a header and a trailer card will be punched and printed from hopper 2 to stacker 2.
597.	SPOOLING (79) SMR #4281 One parameter in a call to ATTACHIO is changed to allow the card reader/punch driver (IOPRPNO) to correctly handle header/trailer cards.
599.	STKDUMP (77) SMR #6532, 6533 Calling the STACKDUMP intrinsic with an invalid SELEC parameter will no longer cause the string "**AREA OUT OF BOUNDS**" to be moved to a random location.
600.	FILESYS (50) SMR #5473 A lockword containing binary zeroes is now considered equal to a lockword containing blanks.

FIX NUMBER	DESCRIPTION
602.	CATALOG SMR #6652 CI messages 301, 771 and console messages 69, 70 added to Catalog.
603.	NURSERY (76) SMR #6652 Prior to this fix, the error messages regarding missing IA and BA capability were reversed when sent to the system console.
605.	LOAD (05) SMR #5730 The Loader's error message "Incompatible parameters (procedure name)" has been expanded to "Incompatible function for (procedure name)"; "Incompatible number of parameters for (procedure name)"; and "Incompatible parameters for (procedure name), parameter(s) (Bad parameter list)".
606.	COMMAND INTERPRETER (51) SMR #6544 Prior to this fix, REDO would permit users to insert too many characters into the command.
607.	COMMAND INTERPRETER (51) SMR #6014 Prior to this fix, hitting BREAK when a program was being aborted (per user request) could result in a hung terminal.
608.	COMMAND INTERPRETER (51) SMR #6867 Commands which contain generic names (such as LISTF @B@), modified the CI command buffer. This was confusing if the user subsequently did a :REDO. This problem has now been fixed.
613.	FILESYS (50) a. Allows CS AFT to have multiple IOQ's outstanding. b. Correction of Boundschk subroutine in IOWAIT
616.	MESSAGE (59) This fix corrects scan beyond end of input buffer.
617.	COMMAND INTERPRETER (51) SMR #5162 Dates are now properly checked in the LABEL parameter of the :FILE command.
617.	COMMAND INTERPRETER (51) SMR #5815 When a CI error occurs within a UDC without option list, the line in which the error occurred is now printed unless OPTION NOHELP was selected.

FIX NUMBER	DESCRIPTION
619.	UDC (82) SMR #5815 Same as #617, CI, above.
621.	UTILITY (70) SMR #3569 The REPLY message to a PRINTOPREPLY (Intrinsic) request may now contain any character other than carriage return.
623.	FILESYS (50) SMR #6741 This change fixes possible stack overlfow for reel switch on labelled tape; also adds checking in FOPEN for write ring if the possibility of writing exists.
624.	PROGEN (09) =SHUTDOWN and =LOGOFF now correctly issue their termination messages.
625.	JOBTABLE (74) :TELL could result in system failures on half bank systems prior to this fix.
626.	DATASEG (67) SMR #6610 Calling FREEDSEG with a negative INDEX parameter previously could cause a SF 134. This change will cause it to simply return a CCL as described in the Intrinsics Manual.
641.	PROGEN (09) SMR #6735 Prior to this fix, =REPLY could result in a system failure when an invalid PIN# was given.
659.	LOAD (05) SMR #6771 Any procedures allocated with the :ALLOCATE command will no longer be allocated after the system is restarted. Also, system SL segments added with the "P" option in SYSDUMP may no longer be :DEALLOCATED.
671.	ALLOCATE (54) This fix prevents SF 353 when altering open spoofles.
671.	CATALOG Adds messages for switching console.
673.	ALLOCATE (54) If a labelled tape was opened, used and closed without rewind unload, if it was the last device in its class, "unavailable" would be returned. This change fixes the problem.

FIX NUMBER	DESCRIPTION
678.	INITIAL (00) This change allows the 7925 disc to be used as a serial disc.
684.	MEMLOGP (11) Memory errors occurring before system is started will not be logged.
685.	FILESYS (50) Changed FOPEN to not force a write ring check as done in a previous change. It was found that all Fortran programs would have required a write ring no matter if one intended to write to the tape or not.
686.	SPOOLCOMS (80) This change adds a working set of CI to the spooler.
687.	IOTAPE0 (18) This change enforces the correct handling of the NO WRITE RING condition on WRITE TAPE MARK and WRITE GAP operations.
692.	HARDRES (55) This change makes POWERFAIL and SUDDENDEATH work when the console is switched to a terminal other than the system console, and also when the console is not logged on.
697.	SOFTRES (56) The exchange-DB counter in the DST descriptor for a segment can be incorrect if any processes have terminated with DB set at that data segment. Also, it is possible for a process to mark itself absent and continue to run. This fix remedies both problems.
702.	MESSAGE (59) This fix remedies the problem of messages getting lost on the system console when no one is logged on it.
703.	CATALOG Adds error messages 191 and 192 for KSAM.
707.	OPCOMMAND (85) This fix freezes MEASIO segments when they are locked.
708.	INITIAL (00) This change fixes a reload problem.

FIX NUMBER	DESCRIPTION
709.	INITIAL (00) Configuring too many RINs, so that more than a record must be read from the RELOAD tape will cause the RIN table to be incorrectly initialized. This fix remedies the problem.
716.	LOGSEG0 (90) Modified the logging process to avoid system failure 206.
716.	OPCOMMAND (85) Changed CXVMOUNT so that VMOUNT status is secured across warmstarts.
716.	INITIAL (00) Modified INITIAL to save status of VMOUNT across warmstarts.
717.	INITIAL (00) Rin table disc allocation has been corrected.
719.	CATALOG Added missing message 3814, set=2. Corrected message 3815, set=2.
720.	LOGSEG1 (91) Modified the WRITELOG intrinsic to avoid a log record sequencing problem experienced during warmstarts. This change also fixes a system failure 310 problem.
721.	SPOOLING (79) Fixes system failure 310 on Series 33 due to stack underflow.
722.	FILESYS (50) This change incorporates three fixes; 1) log file label EOF=%17777777770, 2) EOF not updated on append disc files, and 3) EOT not reset for labelled tape unbuffered.
729.	LOG (12) Elimenates system failure 422 when attempting to purge log files which were open at the time the system went down or was stopped by method other than =SHUTDOWN.
732.	CATALOG Missing message SET=2, MESSAGE=1934, has been added to the message catalog.

FIX NUMBER	DESCRIPTION
735.	OPCOMMAND (85) Fixes the clobbering of DB+6 on any incorrect syntacs in typing the :LOG command.
736.	OPCOMMAND (85) Fixes randon hanging of system on use of BREAKJOB and RESUMEJOB commands.
737.	ALLOCATE (54) Fixed free device to prevent device unavailable for labelled tape when only one device in class.
738.	LABSEG (86) Corrected limitation of labelled tape not allowing VOLID of less than six characters.
751.	SPOOLING (79) In JOBs, the STREAM command will no longer stop STREAMing when it encounters an error in the JOB card of a STREAM file which contains multiple jobs. An attempt will be made to launch all jobs which have valid job cards.
751.	SPOOLCOMS (80) Same as SPOOLING above.
769.	IOLPRT0 (19) 1. No longer causes SPOOLEE I/O ERROR - timeout when taken offline while in prespace mode. 2. Removed delay between taking printer offline and displaying LDEV #__ NOT READY.
770.	IOLPRT0 (19) Does not automatically reset default VFC and left margin in 2608 at the end of printing job.
772.	PROGEN (09) Fixed bug that prevents eight character log ID's from terminating on =SHUTDOWN.
773.	IOLPRT0 (19) LP driver now correctly processes a prespace request containing only an imbedded carriage control byte.
775.	OPCOMMAND (85) Correct declarations for :LMOUNT and :LDISMOUNT commands.

FIX NUMBER	DESCRIPTION
776.	PVSYS (81) 1. Associate the PIN of the caller of MOUNT to the volume set being mounted rather than the JOB/SESSION main process (CI). 2. Correct output of VSUSER command a. Eliminate garbage from volume set name (8 character name only) b. Make <jobname> format consistent with <jobname> format of SHOWJOB command.
776.	LOADER1 (72) Cause mounts (of volume sets) being performed by the load mechanism to be associated with the PIN of the process being loaded or of the PIN of the process invoking a LOADPROC rather than the PIN of the JOB/SESSION main process (CI).
777.	SYSDUMP (01) Permit SYSDUMP to accept wild card characters in file name in response to "ENTER DUMP FILE SUBSET(S)".
778.	SYSDUMP (01) Use an expandable buffer in the DL area to hold file set names given in response to "ENTER DUMP FILE SUBSET(S)".
779.	SYSDUMP (01) Permit leading imbedded and trailing blanks in dump file subsets entry.
780.	OPCOMMAND (85) Fix :DELETESPOOLFILE to prevent random write of word in memory.

II. SUPPORTED UTILITIES

A. UTILITIES MODIFIED

UTILITY	LEVEL
DISKED2	00.01
*DPAN2	00.03
FREE2	00.01
*LISTDIR2	00.03
LISTEQ2	00.00
*LISTLOG2	01.00
PATCH	00.01
MEMLOGAN	00.00
MEMTIMER	00.00
SADUTIL	00.00
SLPATCH	00.00
SPOOK	00.03
RECOVER2	00.00

* INDICATES UTILITY UPDATED/CHANGED BY THIS M.I.T.

B. ENHANCEMENTS

750. DPAN2
Fixes two bugs introduced via MIT 1918. These problems are a result of the resegmentation of MPE and the changes to STORE/RESTORE.

734. LISTDIR2
Modified LISTDIR2 to display user logging capability.

C. CORRECTIVE SOFTWARE CHANGES

542. LISTLOG2
LISTLOG2 will no longer suppress printing of the first log record.

SEGMENTER HP32050A.01.01

DATE CODE 1918, N00N050A.HP32050.SUPPORT

A. ENHANCEMENTS

564. SEGDVR (03)
Change version in header message from A.01.00 to A.01.01.

572. SEGPROC (02)
Permanently allocated SL segments are now marked as such in their SL Directory entry. This allows the loader to skip searching these segments for unresolved external references.

629. SEGPROC (02)
Segproc has been modified to allow appending a patch area to code segments.

629. SEGDVR (03)
A parameter ("Patch") has been added to the PREPARE command.

629. SEGUTIL (71)
An other parameter was added to an internal MPE procedure "SEGMENTER".

B. CORRECTIVE SOFTWARE CHANGES

660. SEGPROC (02)
a. Error message #94,#84 from CLEANUSL command has been changed. Stringparml now is USL or NEWUSL
b. An error message will now be printed when the NEWUSL file can not be created in the CLEANUSL command.
c. The segmenter will no longer abort on the next USL command after a CLEANUSL operation fails.

660. SEGUTIL (71)
The procedure CLEANUSL has been changed to allow the cleaning of $OLDPASS.

665. SEGPROC (02)
The AUXUSL is now opened with semi-exclusive, read only access so that another Job or Session may use the same AUXUSL at the same time.

648. SEGPROC (02)
The segmenter commands COPYUSL, CLEANUSL, will no longer give an ERROR #122 DUPLICATE FILE NAME when a new file is not specified.

666. SEGPROC (02)
$OLDPASS will now work with the segmenter command, COPYUSL.

551. SEGPROC (02)
Segmenter will no longer end up in an endless loop when an error #43 (UNABLE TO ACCESS PROCEDURE) occurs. The manual's explanation of error #43 has been changed to read, CALLS FROM EXTERNALS SEGMENTS MAY REFERENCE ONLY THE FIRST 128 ENTRIES OF THE STT.

563. SEGPROC (02)
Segmenter commands RL and USL will not open files if you do not have write access to them. A new error message #96 INVALID FILE ACCESS has been added to handle this condition; this prevents the Segmenter aborting with a file error #40 when trying to modify a file you do not have correct access to.

591. SEGPROC (02)
The LISTUSL report of DIR. USED; words vs record and words didn't agree.

595. SEGPROC (02)
Error #45 was in some cases reported when nothing was wrong. This happened when segmenter is comparing the parameters of externals of check 3 during a prep. Error #45 has been broken into 3 seperate error messages now. Error #45 Actual Parameters Incompatible with Formal Parameters. Error #49 Actual Function Incompatible with Formal Function. Error #50 Incompatible Number of Parameters. Also in the case of error #45, a list of the actual parameters in error will be given. In the case of all 3 errors, the procedure name as well as the external name, will be supplied.

649. SEGUTIL (71)
The segmenter command, CLEANUSL, will now work with USLs containing CP type entries.

SPL/3000 HP32100A.07.02

DATE CODE 1918, N00N100A.HP32100.SUPPORT

NOTE: The complete reformatting and resequencing of the SPL compiler source is being considered. If this presents any difficulties, please let us know.

A. ENHANCEMENTS

The $INCLUDE option has been added to permit inclusion of text from another file into the SPL source file. The format of the control card is:

$INCLUDE <filename>;

Where <filename> is the fully qualified name of the file to be included. The included file may contain other $INCLUDE cards, to a maximum inclusion level of 10.

B. CORRECTIVE SOFTWARE CHANGES

1. SMR # 5947 - The code generated for long variables was not affected by the $TWENTY and $THIRTY control cards, and would default to the the machine type used for the compile. The correct code is now generated.

2. SMR #6183 - The nesting of SPL procedures with call-by reference parameters resulted in the reference parameters of the outer calls being passed incorrectly. The parameters are now correctly passed.

3. SMR # 6640 - The compiler would at times abort with a BOUNDS VIOLATION when processing statements which contained byte-comparisons. The situation was very data dependent and occurred very rarely. This has been fixed.

4. SMR # 7369 - The address bits of the USL Header Type 8 (Primary DB) were initialized improperly, causing some DB-relative variables initialized at compile-time to have erroneous values at run-time. The bits are now initialized properly.

BASIC/3000 HP32101B.00.11

DATE CODE 1918, N00N101B.HP32101.SUPPORT

A. ENHANCEMENTS

1. SR #7346. The BASIC Interpreter, when being run from a MODEM, would "die" whenever a transmission error occurred due to NOISE on the line. An enhancement will appear in version B.00.12 which will allow up to 5 reiterations of INPUT from the user.

2. SR #7356. The INVOKEFILE size has been made larger to allow more INVOKEs to occur within a series of related programs during a RUN from the BASIC INTERPRETER.

B. CORRECTIVE SOFTWARE CHANGES

1. SR #8055. BASIC was giving a blank line after each line of output to the "OUT" file if the "OUT" file was not equal to the INPUT file and NOECHO was specified. This problem has been corrected in B.00.11.

2. SR #3779. In VARIABLE LENGTH USER FILES VARIABLE LENGTH records were not being READ or WRITTEN correctly in BASIC:

   READING of VARIABLE LENGTH records would sometimes result in an EOF when the last record was read instead of when reading past the last record.

   WRITING of VARIABLE LENGTH records would sometimes result in an EOF before the last record was written to the file.

   Now, VARIABLE LENGTH records will be treated the same as FIXED-Length records with respect to EOF.

   This problem has been corrected in B.00.11.

3. SR #4597. Programatic PURGE of a file with an unknown LOCKWORD resulted in a value of 3 for the ERROR return variable, which means "NO SUCH FILE". This value was changed to 2, which means "SECURITY VIOLATION". This problem has been corrected in B.00.11.

4. SR #8156. ERROR MSG for NESTED GOSUBS has been changed to say "MORE THAN 20 GOSUBS" as the new level of GOSUB NESTING is now 20. This problem has been corrected in B.00.11.

5. SR #9187. CONVERT statement didn't branch to label number when INTEGER OVERFLOW occurred. This problem has been fixed in version B.00.11.

6. SR #6856. BASIC would abort with a bounds violation at %10.%2461 if a program containing a file (MAT) PRINT USING statement was modified and had been previously RUN or SAVEd FAST. This problem has been fixed in B.00.11.

7. SR #7291. When the RENUM command was given, the BASIC Interpreter failed to renumber IMAGE line number references within file (MAT) PRINT USING statements. This has been corrected in B.00.11.

8. SR #7212. BASIC Interpreter could incorrectly renumber a program when the RENUM command was given after the APPEND command had been used and lines had been deleted from the APPENDED program with the with the DEL command. This has been fixed in B.00.11.

9. SR #7225. When a BASIC program was RUN with FREQ option and the program contained an ELSE statement within a GOSUB, BASIC would abort at %6.%3552. This problem has been corrected in B.00.11.

10. SR #7226. The last line of a FREQ table contained string "####". It now correctly says "SYSTEM OVERHEAD". This problem has been corrected in B.00.11.

11. SR #7282. The BASIC Interpreter treated a lower case "m" as an "S" rather than as an upper case "M" in the IMAGE of a (MAT) PRINT USING statement. This has been corrected in B.00.11.

12. SR #8025. When a RENUMBER command contained a legal FIRSTLINE and a legal DELTA (ex RENUM 20,10000) and there were enough lines in the BASIC program to create line numbers > 16000, at times the RENUM command would not catch the error early enough, and the user's program would lose all lines with line numbers greater than 16000. This problem has been fixed in version B00.11.

13. SR #8023. In a BASIC program with File Print Statement the RENUMBER command would go into an infinite loop. This problem has been fixed in version B.00.11.

14. SR #5837. If a program with an ENTER statement is run from the SYSTEM CONSOLE, the timing mechanism is not reset properly after the ENTER statement has been executed. This problem is not a problem with

The BASIC INTERPRETER.The problem will be investigated by MPE.

15. SR #8256. At times,a GET followed immediately by an APPEND causes an INTERPRETER abort. This problem was fixed in version B00.11.

16. SR #8121. An UNBREAK command referencing BREAK lines which have not been "broken" will sometimes cause an INTERPRETER abort with a bounds violation. This problem has been corrected in B.00.11.

17. SR #8157. Under certain conditions, RENUMBERing after an XEQ command causes the BASIC interpreter to abort. This prcblem has been corrected in B.00.11.

FORTRAN/3000 HP32102B.01.02

DATE CODE 1918, N00N102B.HP32102.SUPPORT

A. CORRECTIVE SOFTWARE CHANGES

1. SMR #4579 - When the code which the compiler generated for statement functions exceeded %600, incorrect code was generated for the last record of code. The compiler was changed to correct this problem.

2. SMR #6524 - The compiler generated incorrect code for comparisons which involved a type character varriable with dynamically specified length and a character constant. An extra DEL instruction was generated and the stack was destroyed. This has been fixed.

3. SMR #6622 - The compiler control option CROSSREF ALL functioned only if "ALL" appeared in capital letters. The command now works for any combination of upper or lower case letters.

4. SMR #3386,#4133 - If a constant was assigned to a symbolic name through the use of a PARAMETER statement, all the symbols on any line which later referenced that name would have incorrect CROSSREF line numbers listed. (This is assuming that $CONTROL CROSSREF is in effect.) This has been fixed.

5. SMR #3385 - In a program in which $CONTROL LOCATION was in effect and a compilation error occurred, source lines which were longer than the record length of the list file were sometimes output incorrectly. These lines are now listed correctly.

6. SMR #3393 - Integer simple variables which appeared in auxiliary I/O statements did not have a crossreference listing for those statements when $CONTROL CROSSREF was in effect. The crossreference listing now appears correctly.

7. SMR #3791 - Whenever a symbolic name of more than 16 characters appeared in the iolist of a READ, WRITE, ACCEPT, or DISPLAY statement, and $CONTROL CROSSREF was in effect, the compiler would abort with a BOUNDS VIOLATION. This problem has been fixed.

8. SMR #3775 - Calls to INDEX of the form

```
INDEX ("ABCD","C")
```

did not always return the correct value. This has been fixed.

9. SMR #2763 - If a FORTRAN/3000 statement contained a call to the intrinsic INDEX, the compiler did not always generate correct code for subsequent function calls. Correct code is now produced.

0. SMR #4941 - If a subroutine was passed as a parameter to a FORTRAN subroutine which contained alternate entry points, and that subroutine parameter was passed from there to another subroutine, then the second time the parameter was passed, the address of the subroutine was evaluated incorrectly. This would cause the program to behave erratically. The compiler has been changed to generate the correct address of the subroutine parameter in this case.

1. SMR #4009 - The compiler generated incorrect code for very long READ and WRITE statements. This caused the compiled program to behave irratically. This problem has been fixed.

2. SMR #3207 - If a generic function was passed as a first parameter an expression containing a character constant, ERROR #154 - EXPECTED ARITHMETIC PRIMARY would result. This type of expression is now handled correctly, and no error message is produced.

B. DOCUMENTATION CHANGES

1. In the April, 1978 update to the FORTRAN/3000 Manual, parentheses were incorrectly used as substring designators on page 3-6. The notation has been changed to brackets.

3. Section 7-39 was updated to note that for free-field outputs, a carriage control character is embedded in the first byte of each output record.

4. Labeled common blocks which differ in size between program units are now acceptable. Section 5-10 was changed to note this fact. The segmenter, however, will issue a warning when the uslfile is prepared in order to draw attention to the size difference.

5. Sections 6-9 and 8-10 were changed to note that the BACKSPACE option may not be requested for variable-length record files. Such a request will cause the program to abort with the message FILE SYSTEM ERROR ON UNIT #xx.

6. Chapter 10 was updated to clarify the type information which is needed for the use of statement functions, function subprograms, FORTRAN/3000 intrinsic functions, basic external functions, and generic functions. Basically, type information is required for all functions except FORTRAN/3000 intrinsic functions and generic functions.

6. Chapter 9 was changed to note that if $CONTROL LOCATION is in effect and and error exists in the program unit, then the CROSSREF and LABEL options are disabled.

7. The FORTRAN/3000 compiler cannot always detect the omission of commas between specifications in FORMAT statements. Such omissions may instead result in runtime errors. Section 7-1 was updated with this information.

BASICOMP/3000 HP32103B.00.11

DATE CODE 1918, N00N103B.HP32103.SUPPORT

A. ENHANCEMENTS

B. CORRECTIVE SOFTWARE CHANGES

1. SR #7088. A STRING multiple LET statement with a USER DEFINED FUNCTION on the right-hand side and a subscripted array variable on the left-hand side did not work.
   This problem has been corrected in B.00.11.

2. SR #9200. A BASIC compiled program with a SUBSCRIPTED long ARRAY set equal to a long FUNCTION within a FOR-NEXT loop would produce erroneous results at run-time. This problem has been corrected in B.00.11.

3. SR #5066. In VARIABLE LENGTH USER FILES VARIABLE LENGTH records were not being READ or WRITTEN correctly in BASIC COMPILED programs.

   READING of VARIABLE LENGTH records would sometimes result in an EOF when the last record was read instead of when reading past the last record.

   WRITING of VARIABLE LENGTH records would sometimes result in an EOF before the last record was written to the file.

   Now, VARIABLE LENGTH records will be treated the same as FIXED-Length records with respect to EOF.

   This problem has been corrected in B.00.11.

4. SR #4923. When a READ statement is executed and there is insufficient DATA, a BASIC COMPILED program will go into an INFINITE LOOP. This problem is the result of a problem in the SPL compiler, rather than a problem originating in BASIC. The problem has been referred to SPL for solution.

5. SR #5119. When a program had an image with multiple occurances of special string characters of a single digit the BASIC COMPILER would abort with a bounds violation.

   EX: PRINT USING "3A,'9,3A,'9,3A,'9,3A";A$,B$,C$,D$

   This problem has been fixed in version B.00.11.

6. SR #8021.A COMPILED BASIC program would ABORT at RUNTIME when PRINT USING contained a field which was smaller than a string variable's actual size. This problem has been fixed in version B.00.11.

7. SR #6941. A COMPILED BASIC program would ABORT giving "ERROR 26: INVALID FILE NUMBER" if it contained an ARRAY ELEMENT as a RETURN VARIABLE of an ASSIGN statement.

   EX: ASSIGN "FILE",1,S(1)

   This problem has been fixed in version B.00.11.

8. SR #7781. A "READ # PRINT USING" loop which referenced a BASIC FORMATTED file resulted in the printing of only one line of output when more was expected. This problem has been corrected in B.00.11.

9. SR #7782. A BASIC binary file was written into in error when a PRINT USING statement was in the program. This problem has been corrected in B.00.11.

10. SR #8209. Use of a FILE EQUATION for an OUTPUT FILE when running a BASIC compiled program resulted in I/O to the wrong file. This problem has been corrected in version B.00.11.

11. SR #7409. Use of a USER DEFINED FUNCTION on the right side of an ASSIGNMENT statement when a double subscripted array is on the left side of the ASSIGNMENT statement causes an ABORT with a bounds violation when the BASIC program is running. This problem has been corrected in version B.00.11.

RPG HP32104A.04.04

DATE CODE 1918, N00N104A.HP32104.SUPPORT

NOTE

IMPORTANT RPG PRINTER SPACING CORRECTION

The 1918 IT software corrects the long-standing printing problem which resulted in one extra blank line being printed at the top of the first page of any RPG line printer output.

As this is a physical form movement, unknown to RPG line counting, LINE-ORIENTED printing will show each page shifted down one extra line and CHANNEL-ORIENTED will show just the first page shifted. (See MPE SR# 2692 or FIX# 545 in Communicator 21.) Note that the MPE SR should state that one, and not two extra lines are printed.

The original workaround was either to physically move the forms back down one line after the normal setting of hardware top-of-form to account for the erroneous extra line, or to correct the problem programmatically.

ALL WORKAROUNDS FOR THIS PROBLEM SHOULD BE REMOVED UPON INSTALLATION OF THE 1918 IT SOFTWARE.

A. CORRECTIVE SOFTWARE CHANGES

1. SMR6459 An RPG program that compiled and preped without errors went into an infinite loop at execution. The loop was at a call to an external SPL routine. The problem was that a branch instruction was not being resolved correctly.

2. SMR6907 Total time operations conditioned by LR was not being performed when the primary input file was equated to $NULL. This problem is now fixed.

3. SMR8120 Because of the addition of several new error messages version 4.02 of the RPG compiler would not load on a Series I with default segment size. The large segment that caused the problem has now been split.

4. SMR7185 The RPG-VIEW interface event #12 returned the field length passed by the action 74 (GETFLD) rather than the actual length of the field. This has been corrected. Now the length returned in columns 23-26 of the event 12 record will be the actual length of the data returned in the record.

5. SMR7979 The matching record indicator remained on when the secondary file was forced in calcs for a program using forced files and matching records. The manual states on page 8-48 that MR will be off while a forced record is being processed.

6. SMR7894 The MOVEL operation moved the sign when moving data from a numeric field to a different length alpha field. MOVEL now handles the sign in a numeric to alpha move as follows:

   (Positive zone never moves.)

   Result shorter than source -> zone not moved
   Result same length as source -> neg. zone moved
   Result longer than source -> neg. zone moved

   This is the same way that IBM system 3 RPG handles the zone for numeric to alpha moves.

   SMR7912 After the fix for SMR4447 edit code X no longer wrote the zone (as it should) that fix has been removed.

7. SMR7563 & 7763 RPG programs using IMAGE data bases take a long time (15-100 seconds) to initialize. This is caused by the program erroneously using LOADPROC on the IMAGE intrinsics. The problem has been fixed.

APL\3000 HP32105A.01.02

DATE CODE 1918, N00N105A,HP32105.SUPPORT

In addition to the program file, APL requires a set of PROMs mounted on the EIS board. This contains the extra instructions which APL executes. Without these instructions an illegal instruction error will occur.

Helpful definitions:

1. Arithmetic Progression Vector (APV) -The data structure used to represent simple integer vectors. It consists of three integers: start, increment and length.
2. Beaten Expression -An expression for which the code has been optimized by the compiler. The functions TAKE, DROP, REVERSAL, TRANSPOSE and SUBSCRIPT manipulate the data descriptors, not the data itself.

A. ENHANCEMENTS

1. The internal algorithm used for grade-up and gradedown has been changed to improve performance. The most notable improvement will be in grading large (>1000 elements) real vectors. Grading a vector which is totally or nearly sorted will also be much faster.

2. The commercial formatter ([]FMT) has been enhanced to handle output where there is not the same number of elements in each column.

B. CORRECTIVE SOFTWARE CHANGES

1. When a function is)COPY'ed,all information resulting from previous executions of that function should BE discarded. A bug in the)COPY algorithm permitted some of this information to accompany the function into the new workspace. The effect of this is probably negligible but it has been fixed.

2. A SYSTEM ERROR was occurring during a batch APL job IF the print width ([]PW) was set greater than 131. THIS has been corrected.

3. KSAM has been modified to produce an error #192 when attempting to open an APL data file that was tied during a system crash. KSAMUTIL should be used to repair the damaged file before it can be tied.

4. When a function containing no constants was)COPYed from an 'old APL' workspace (version 00.05 and BEFORE to a 'new APL' workspace (version 01.00 and LATER), a certain internal address became garbaged. THIS meant that subsequent)COPY operations on that FUNCTION would cause it to be flagged as a 'dirty' ITEM. ALSO, attempting to)ERASE or)EDIT that FUNCTION WOULD probably cause a SYSTEM ERROR. The PROBLEM HAS NOW been fixed.

DS/3000 HP32190A.02.04

DATE CODE 1918, N00N190A.HP32190.SUPPORT

A. ENHANCEMENTS.

1. Three new IMAGE intrinsics for transaction logging:

```
DBBEGIN
DBEND
DBMEMO
```

may now be used with remote data bases.

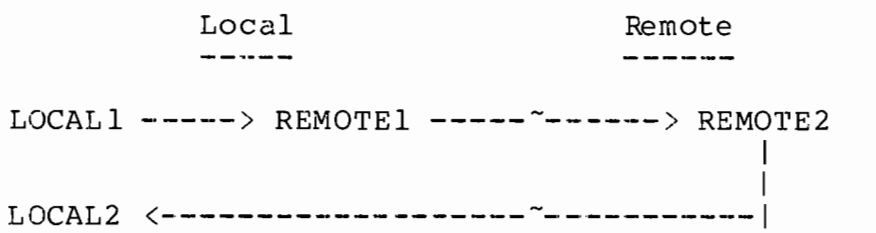
2. Lowercase characters may now be used in the responses to questions from the DSTEST program.

B. CORRECTIVE SOFTWARE CHANGES.

1. It is now possible to do Remote File Access with remote file equations looping back to the local session. An example of this would be the following (highly unadvised) use of FCOPY:

```
:REMOTE HELLO user.acct;DSLINE=dsdevice
:BUILD LOCAL1
:FILE REMOTE1=REMOTE2;DEV=dsdevice#
:REMOTE FILE REMOTE2=LOCAL2;DEV=#
:RUN FCOPY.PUB.SYS
>FROM=LOCAL1;TO=*REMOTE1;NEW
```

These file equations result in this structure:



Previously, the FCLOSE on the file REMOTE2 resulted in a System Failure 206 on the remote system.

2. A problem involving line bid timeouts on nonswitched lines that would occassionally cause :DSLINE commands to fail has been corrected.

3. Sometimes when a DS user with several lines open got an error on one of them and then logged off, another user logging on later found that s/he received a residual error status when attempting to open a DS line. DS now properly cleans up these residual error conditions.

4. Devious use of the PTOP intrinsics GET and ACCEPT could allow a non-privileged user to alter memory outside of his/her data space. These security holes have now been plugged.

5. A problem involving reads to a pseudo terminal that caused read requests with large data lengths to actually read only one fourth of the requested length has been corrected. This problem, which appeared on the 1906 MIT, was responsible for the EDITOR only accepting up to 64 characters per line when used in a remote session.

MRJE/3000 HP32192A.00.06

DATE CODE 1918, N00N192A.HP32192.SUPPORT

A. ENHANCEMENTS

1. JULY 30, 1978
   -Enhanced MRJE output routing to send recieved print/punch data to the unsolicited output device if the user specified file couldn't be opened succesfully.
   -Enhanced MRJE so that if the joblogger or output process terminate unexpectedly, the MRJE system will shutdown. Also added message: "MRJE(hostid) ERROR: SON PROCESS DEAD" if this event occurs.

2. AUGUST 31, 1978
   -Enhanced MRJE such that no console messages are lost if a user is in the console mode of the MRJE user subsystem.
   -Enhanced the MRJE user subsystem so that when one issues a DISPLAY JOB command with various job numbers and ranges of job numbers, only enough EOF messages are issued to make clear what happened instead of having one EOF message per violation.

3. NOVEMBER 1, 1978
   -Changed message resulting from purging all of the job log so that it no longer seems that the file itself is purged.
   -Added messages that indicate whether or not the spool file associated with a submitted job is purged as the result of a CANCEL command. Necessitates rebuilding of the config, directory, and job;og files with a NEW command.
   -Enhanced the CANCEL command and the job log so that if a system failure occurs between the time that a job is submitted and the time that a CANCEL command is issued for it, the wrong spool file will be deleted. In fact no spool files are deleted in such a situation.

4. FEBRUARY 10, 1979
   -Themnumber of retries upon recieving a bad transmission has been upped to 255.
   -FD files have been given a new option concerning the recognition of JOB cards. If the the word TRANSPARENT or just the letter T is placed in the parentheses where the NOTRANSLATE option is placed all job cards

will be ignored by the MRJE user subsystem. The proper JCL will still have to be arranged so that the host will also view them in this manner(i.e. use the proper DD card).

Examples:

```
##FD FILENAME(T)   **Ignore job cards**

##FD FILENAME(N,T) **Ignore job cards and**
##FD FILENAME(T,N) **do not translate**
```

Other than these changes the FD option operates just as it used to.

B. CORRECTIVE SOFTWARE CHANGES

1. JUNE 13, 1978
   - -Corrected incorrect reply to a special forms message in HASP 3.1 hosts.
   - -Corrected incorrect print banner decoding in HASP 3.1 hosts.
   - -Corrected incorrect $S RM##.PR# console message generated in responce to a LOAD FORMS request.
   - -Corrected problem with display of user host command, if the command has imbedded blanks.
   - -Corrected problem with punch output being routed incorrectly if the jobnumber had an imbedded zero.
   - -Corrected problem with "NO 3000 JOB NUMBER FOR HOST JOB XXXX" whenever a job is on the JES2 reader and a $DA is entered on the JES2 console.
   - -Corrected potential protocol problem; MRJE sometimes responded with text to a host wait-a-bit message.
   - -Corrected a problem of writing to a KSAM file a record because trailing blanks were truncated.
   - -Corrected a problem with routing returned data to a spooled reader-punch.
   - -Corrected a problem with MRJE being active, but a kill insists the system is not active.

2. NOVEMBER 1, 1978
   - -Corrected condition where the end of file record for an incoming punch file went unrecognized. SMR6158

C. DOCUMENTATION CHANGES

An MRJE/3000 Reference Manual is available (32192-90001).

An MRJE/3000 manual update is available (32192-90001 UPDATE).

D. KNOWN PROBLEMS

1. It has been reported, but not verified, that occasionally a spool file containing a submitted job will hang. Please get a dump of this situation if it occurs.

MTS/3000 HP32193A.00.03

DATE CODE 1918, N00N193A.HP32193.SUPPORT

A. CORRECTIVE SOFTWARE CHANGES

1. If the line is shut due to an irrecoverable error, the
B. main process associated with the terminal is killed only if the terminal belongs to a session.

2. Calls to FCONTROL to allocate a terminal are not needed. FOPEN is now sufficient to allocate a terminal.

3. If a termial was used in session environment and a disconnect occured, it was not possible to log on again on that terminal after the line was reopened. This problem is now solved.

EDIT/3000 HP32201A.7.05

DATE CODE 1918, N00N201A.HP32201.SUPPORT

A. ENHANCEMENTS

1. EDITOR will now print out the C.I. error message in addition to the number returned by the ":" command. Because of this change, invalid MPE commands now return error 975 with the appropriate message. Also any file system errors will be printed. Any C.I. warnings (currently only :STREAM returns one) will come out in the following form:

   ** COMMAND WARNING xx,yy

   This is done by LOADPROCs on FERRMSG and GENMESSAGE so it will cause some delay the first time.

   Any EDITOR errors that also return a file system error message will now also print out the text of the file system error.

2. SMR #3064, 3387 - A new option in the SET and VERIFY
   commands lets you set the number of lines per page for the LIST OFFLINE function. The default is 60, the minimum is 10 and the maximum is 9999. This includes a 3 line title. For example, to change:

   SET LINES=30
   To check:
   VERIFY LINES

3. The VERIFY command has been modified to accept any leading subset of the characters in each keyword. Eg.

   VERIFY LI will verify lines per page.

4. The KEEP and TEXT command will not print the account of the file for the default forms or the verification of intention to purge, if it is the same as the log-on account.

5. TEXTing in a file with EOF equal to 0 will produce a message but the FLAG will not be set.

6. If EDITIN and EDITOUT are equated to a non log-on terminal device then these terminal(s) will be allocated. They will work the same as session devices except for CONTROL-Y. NEW files with ACC=INOUT will not need an operator REPLY.

7. SMR #6045 - if a numbered file contains invalid sequence numbers well into the file, then the record number will be printed before TEXTing it in unnumbered.

8. SMR #7006, 7922 - BASICENTRY will KEEP a file unnumbered if it was TEXTed in that way.

9. BASICENTRY will have TEXTed the file in before you receive the "/" prompt.

10. The ADD command will accept * or an existing line number. The actual line number is calculated to be between that line and the next, with DELTA being a power of ten.

11. There will now only be one open for disc files that have odd byte lengths.

B. CORRECTIVE SOFTWARE CHANGES

1. SMR #2996 - CHANGE will not change text past RIGHT margin, but might push text past it.

2. SMR #8022, 8292 - CHANGE "abc" to "def" will no longer point to the second occurrence of "abc" if there is one within the next five lines. The pointer will be left immediately after "def".

3. SMR #3086 - if the KEEP file exists then any lockword supplied will not be echoed, only the file name returned by FGETINFO.

4. TEXT of a device file over DS that requires two opens now works.

5. SMR #6933 - the form /K ,UNN will now return error 2.

6. Sometimes while ADDing after a crash, the pointers will form a loop. Thus the ADD command without a line number will get into a loop. The KEEP command will get an EOF on keep file. The forward pointer is set to the end, but the backward pointer will still be incorrect.

7. When entering the second statement in a WHILE loop there is a possibility of bounds violation or the message INVALID. This has been corrected.

8. When EDITOUT is equated to $NULL, EDITOR will no longer get into a hard loop.

9. When using the CHANGE command to change strings that span more than one line the following things would happen:

   If last line in a range was deleted then the range would extend to LAST.
   One character of the last line in a range, or next line would be deleted.

10. BASICENTRY has been fixed so the EXIT command acts the same as /KEEP;EXIT. I.e. there will be a second question if the answer to the first is don't purge old file and modifications were made.

C. DOCUMENTATION CHANGES

1. Include examples of the new error messages for the ":" command. Also note this is limited to SERIES III only.

2. Include examples of file system errors.

3. Describe the new option, LINES, to the SET and VERIFY commands. Cross reference this to the LIST command.

4. Describe new additions to ADD command.

5. Change explanation of Basicentry.

KSAM/3000 HP32208A.03.00

DATE CODE 1918, N00N208A.HP32208.SUPPORT

A. ENHANCEMENTS

1. A KSAM "crash" flag (combination of cold load id & access count) will now be set if a system failure occurs while a KSAM file is open for non read-only access. Subsequent FOPENS will not be allowed if this "crash" flag is set. Error message #192 (SYSTEM FAILURE OCCURRED WHILE THE KSAM FILE WAS OPENED) will be returned. In order to reset the flag, the user must run the KEYINFO command of KSAMUTIL. The KEYINFO command will detect and reset the "crash" flag, recover the KSAM file automatically by resetting the EOF of the key and data file, and deleting any invalid key values pointing to data records beyond the EOF.

2. When resetting the "crash" flag of a KSAM file with KEYINFO command, the user,group,account and home group are stored in words 81-96 of the second record of the key file.

3. A new option, RECOVER, has been added to the KEYINFO command to force recovery of a KSAM file. Usually, if a KSAM file does not encounter any system failures then the KEYINFO command only displays the key file information, but the user can force KEYINFO to recover the KSAM file by specifying the new option, RECOVER, to ensure that all EOFs are consistent and to check for invalid key values. If this option is specified, then "RESET DATE" and the current user, group, account, home group will be stored, but the system failure count will not be incremented.
   Note: This option can be used to workaround MPE SR# 3131.

4. A new option NOCHECK has been added to the VERIFY command of KSAMUTIL so that a KSAM file can be verified even though it was opened for non read-only access when a system failure occurred.

5. The following three new items have been added to the output produced by the VERIFY command of KSAMUTIL:

   a. accessor count - which displays, under the heading ACCESSORS=, the current number of non read-only opens of the KSAM file. The count is incremented by 1 for each non read-only access open and decremented by 1 for each close. Therefore the count is non-zero only if the KSAM file was opened for non

read-only access when a system failure occurred. The count will be reset to zero by the KEYINFO command.

b. System failure count - which displays, under the heading "SYSTEM FAILURE", the number of times the "crash" flag has been reset by the KEYINFO command. Each time the KEYINFO command is run against a KSAM file which was open when a system failure occurred the system failure count is incremented by 1. Therefore if the NOCHECK option of the command VERIFY is specified then the system failure count displayed is the old count.

c. Reset date - which displays, under the heading "RESET DATE" (in format DDD/YY) the last date the KEYINFO command was run to reset the "crash" flag.

B. CORRECTIVE SOFTWARE CHANGES

1. SR #6869 KSAM FOPEN always allocated space for 3 key block buffers instead of the default buffer assignments listed in TABLE B-1 of the KSAM manual.

2. SR #6861 KSAMUTIL's VERIFY command displayed the data file lockword or a portion of it if the data file name is less than 7 characters.

3. SR #6854 When a KSAM file was opened, GETDSEG allocated 31,000 words of memory for an extra data segment. KSAM has been revised to specify 12,000 words of memory for the initial extra data segment.

4. SR #7275 When the intrinsic FSPACE was called to move the logical pointer in the key file the chronological pointer in the data file was not adjusted to point to the corresponding record.

5. SR #7285 VERIFY, KEYSEQ and KEYDUMP commands of KSAMUTIL returned error message "invalid operation for multiple file access" if the KSAM file was open with read-only, shared access and dynamic locking by other user.

6. SR #5989 Loss of old and new record while updating a variable length record in a KSAM file.

7. SR #6029 If FWRITE failed due to a duplicate key, sequentially reading the file retrieved records in the key sequence starting with the key where a duplicate key has been detected; not primary key sequence or sequence denoted by the last FREADBYKEY or FFINDBYKEY call.

8. SR #7284 If the addition of a variable length record must be included in a new data block, but the addition was unsuccessful because of a duplicate key error, then subsequent record additions will result in an EOF error condition.

   If the addition of a variable length record can be included in the last data block, but the addition was unsuccessful because of a duplicate key error, a one word byte count (invalid) for this record will be added to the file. A subsequent successful record addition will result in another one word byte count for this record, but the previous invalid byte count will be used if the chronological file access method is used.

9. SR #7501 When creating a large KSAM file (with KSAMUTIL's BUILD command or FOPEN intrinsic) the execution time was noticeably longer depending on the number of keys, the size of the keys, and the number of records.

10. SR #7502 If FUPDATE is called immediately after FWRITE, the wrong record was updated. This combination of intrinsics are not normally used, except by RPG in certain cases.

11. SR #7510 When using KSAMUTIL's KEYDUMP command with the SORT option the following error message will result:

    ```
    SORTLIB: NO RECLEN PARAMETER SPECIFIED OR L=0
    NONEXISTENT TEMPORARY FILE (FSERR 53).
    ```

    Ignore the above error; the command is properly executed. This is due to a problem with SORT/MERGE. See SORT/MERGE SR #7511.

12. SR #7558 The intrinsic FSPACE with parameter N spaced N-1 records.

13. SR #9279 When reading a variable length KSAM file chronologically, (using FREADC or KEY=0 option of FCOPY) the last byte of an odd byte length record was not returned.

14. SR #9399 Procedure CKREWRITE (random or dynamic mode) generated some unnessary disc I/O.

15. SR #9021 KSAMUTIL did not print out its version number.

16. SR #9624 When opening a KSAM file using the default exclusive (AOPTIONS.(8:2)) values, the key file was corrupted and subsequent opens would cause the system failure #206.

17. SR #9267 The key file of a variable length KSAM file, programmatically created by FOPEN, was smaller than that created by KSAMUTIL's BUILD.

18. SR #9723 Copying a variable length KSAM to another variable length KSAM file using FCOPY caused a binary -1 to be inserted in the first word of some records.

19. SR #9785 If EOF condition was encountered on the key file while writing to a variable length KSAM file, the key file was corrupted.

20. SR #10278 A new heading FREE KEYBLK has been added in KSAMUTIL to display the number of free key blocks in the free key block chain.

21. SR #9958 KSAM error #192 (SYSTEM FAILURE OCCURRED WHILE KSAM FILE WAS OPEN) even though the KSAM file was not open when a system failure occurred.

VIEW/3000 HP32209A.00.01

DATE CODE 1918, N00N209A.HP32209.SUPPORT

A. CORRECTIVE SOFTWARE CHANGES

1. [SMR# 6800] The procedure VPUTFIELD would not work when called from a COBOL program. This procedure has been corrected.

2. [SMR# 6914] VIEW/3000 would not run over MTS at speeds other than 9600 baud. VIEW/3000 will now run at any baud rate over MTS.

3. [SMR# 6946] FORMSPEC contained an 8K code segment. It has been resegmented so that no segment is larger than 4K.

B. KNOWN PROBLEMS

1. [SMR# 6108]
In FORMSPEC, a MATCH statement with an even number of "!" characters (the transparency operator) immediately preceding a left or right brace ("π" or "→") is not correctly interpreted. (A blank after the last "!" will correct this.)

2. [SMR# 6110]
In ENTRY, the keyboard is not locked while displaying appended forms. If keys are pressed while the appended form is being written on the screen, the form will not be correctly displayed. (REFRESH function key will correct this.)

3. [SMR# 6106]
In FORMSPEC, the keyboard is not locked while displaying parts of the FIELD MENU. (Specifically, the processing specifications and the lines of the screen that contain the field being described.) If keys are pressed while the form is being written on the screen, the form will not be correctly displayed. (REFRESH function key will correct this.)

4. [SMR# 6760]
If an MPE system failure occurs while creating or modifying a forms file in FORMSPEC or a reformat file in REFSPEC, the file may be left in an unusable state. (When in doubt, use FORMSPEC to list the forms file, correct, and recompile it.)

5. [SMR# 6109]
Transmit-only fields (an HP2645 terminal feature invoked by using escape-brace in screen design) which are set to empty are not always correctly cleared in a form that repeats in place. (Do not rely on a transmit-only field being set to $EMPTY or to blanks.)

6. [SMR# 6107]
If the intrinsic VCLOSETERM is called while the stack is less than 176 (%260) words, an abort with a bounds violation will occur. (Insure that S is at least 176 (%260) words before calling VOPENTERM or VCLOSETERM.)

7. [SMR# 6439]
FORMSPEC sets the default error enhancement to IUHB rather than IU as per reference manual.

8. [SMR# 6647]
VIEW/3000 ENTRY source for COBOL (Version A.00.00) does not allow an old batch file to be used when the corresponding forms file has been recompiled, even though the user responds YES to continue using same batch file.

9. [SMR# 6794]
ENTRY does not change "RETURN" to "ENTER" during request message for forms file or batch file if the terminal is running over MTS.

10. [SMR# 7059]
When a negative value is entered into a field with processing specifications "JUSTIFY RIGHT" and "FILL LEADING '0'", the negative sign is not properly positioned after the edits.

11. [SMR# 6948]
The BASIC source version of the ENTRY program contains an error in line 3410. It should read:
E$="The DELETE key is only defined for BROWSE mode"

12. [SMR# 6842]
The processing statements "FINISH" and "STRIP ALL '.'" does not convert "6." to "6" when the field type is character and the field is 2 characters long.

13. [SMR# 6840]
VIEW/3000 does not maintain save field values for a batch file between sessions.

14. [SMR# 6839]
FORTRAN source version of the ENTRY program does not close the forms file if the user does not wish to continue with an outdated batch file.

15. [SMR# 6820]
COBOL source version of the ENTRY program contains a paragraph called DISPLAY-MSG. This paragraph is superfluous and should be removed.

16. [SMR# 6776]
A line in a form being freeze appended to & containing at least one unprotected field, has the 80th column replaced with a blank.

17. [SMR# 6767]
If an invalid entry is keyed into the ENH field of a FIELD MENU, FORMSPEC allows the forms file to compile without error. Although FORMSPEC internally maintains default of HI for the field in error, the FIELD MENU still displays the invalid entry.

20. [SMR# 6841]
REFORMAT aborts when the TESTLIST option is required and records have been deleted from the batch file.

21. [SMR# 6329]
If the form definition contains a shift out followed by "[", FORMSPEC incorrectly interprets that this is the start of a field.

C. DOCUMENTATION CHANGES

1. The intrinsic VOPENTERM performs a reset terminal function. If a tape cassette is not at the load point, this causes the cassette to rewind, and can cause VOPENTERM to fail due to a status request read timeout. (Remove or put cassette at load point before running ENTRY, FORMSPEC, REFSPEC, or any program that uses VOPENTERM.)

2. In FORMSPEC, if format mode is turned on manually when designing or modifying a screen, format mode must be manually turned off before ENTER is pressed.

3. When using FORMSPEC or REFSPEC, if lockwords are present on forms files, reformat files, or key files, the lockword must be given with the file name, unless a file equation containing the lockword was given before running FORMSPEC or REFSPEC. This is due to the fact that FORMSPEC and REFSPEC prompt for the file names in block mode with format mode on and the system will automatically prompt for the lockword(s) expecting a character mode terminal.

4. When using FORMSPEC, REFSPEC, ENTRY, or the intrinsics VREADFIELDS or VSHOWFORM, there must be sufficient terminal buffers available for all concurrently executing terminal I/O operations. It is recommended that the number of terminal buffers be at least 150. Creating, modifying, or displaying a form of 4000 characters requires 134 terminal buffers. Terminal buffers may be set to a maximum of 255, shared by all processes. (See configuration dialogue in System Manager manual.)

5. When using a remote terminal via the DS facility, some forms over 255 characters long are not correctly displayed. This occurs when the LINEBUF parameter is not used in the DSLINE command. When forms larger than 255 characters are being used, include LINEBUF=n in the DSLINE command, where "n" is the number of words required by the screen image of the largest form in the forms file.

6. In the intrinsics VINITFORM, VFIELDEDITS, and VFINISHFORM, because all leading and trailing blanks are stripped from a field before a MATCH statement is executed, any pattern that requires leading or trailing blanks will always fail.

7. If some of the parts of COMAREA that should be initially set to zero have non-zero initial values, the results of some intrinsics are unpredictable. A program must insure that the initialization of COMAREA is done before the first call to the first VIEW/3000 intrinsic invoked. The values in COMAREA should not be changed between calls to VIEW/3000 intrinsics except under documented conditions.

8. The contributed utility program RESTORE (:RUN RESTORE...) will not correctly copy records over 2000 bytes. If a forms file or a reformat file is copied from a store tape to a disc file using this program, the results are unpredictable. (Use the command :RESTORE and FCOPY.)

9. Field language run-time error handling:

   a. An edit statement failure causes the current field to be flagged in "ERROR" and processing to stop for the current field.

   b. Any run-time processing failure (e. g. divide by zero; illegal indexed retrieve statement; etc.) causes the current field to be flagged in "ERROR" and processing to stop for the current field.

   c. If any field used in a statement is in "ERROR", the processing simply stops for the current field.

10. The beginning delimiter of a field ([) can be used as the terminating delimiter for the previous field.

COMPILER LIBRARY/3000 HP32211D.00.09

DATE CODE 1918, N00N211D.HP32211.SUPPORT

A. CORRECTIVE SOFTWARE CHANGES

SMR #6669 - The packed decimal division procedure DIVD which is called by COBOL and RPG programs sometimes returned an incorrect remainder. The remainder would appear incorrectly as a negative number. This has been fixed.

SMR #4347 - When a user-defined trap procedure for INTEGER*4 OVERFLOW was enabled, an integer overflow would result in a BOUNDS VIOLATION error message instead of an INTEGER OVERFLOW message. The run-time trap handler has been changed to issue the correct error message.

B. DOCUMENTATION CHANGES

1. Page 3-4 was changed to note that the N parameter of the procedure INEXT' is a reference parameter of type long.

FCOPY/3000 HP32212A.3.09

DATE CODE 1918, N00N212A.HP32212.SUPPORT

A. ENHANCEMENTS

1. FCOPY's MPE command facility, ":command", has been enhanced to print out any command interpreter or file system error messages that result. Also any command warnings will come out in the form:

   ** COMMAND WARNING xx,yy

   Previously the warning was only returned by the :STREAM command.

2. FCOPY will now do the LOADPROC on FERRMSG and GENMESSAGE only when necessary.

3. SMR #4556,4967 - FCOPY has been enhanced to differentiate between prespacing and postspacing when copying a COBOL file to a printer. The solution was to change COBOL's runtime library so only FWRITEs are used and not FCONTROLs and to change FCOPY to specially handle these records so that extra blank lines are not produced.
   Note: Prespaced spool files do not have the trailing blanks truncated.

4. SMR #6949 - FCOPY has been changed so the default will be to copy only one file from tape. . Previously FCOPY copied all files unless SUBSET was used. FILES= can be used to get multiple files, if necessary.

B. CORRECTIVE SOFTWARE CHANGES

1. SMR #5568, 6373 - Previously the SUBSET option was performed entirely by reads. FCOPY will now use FSPACE whenever it can on tape, disc, serial disc, and cartridge. It will use reads to get to the block, then skips, and finally reads to get to the correct record. This will decrease the time required to space through large files. This enhancement only applies to unlabeled tapes since FSPACE can not be done on labeled tapes. Also, the SUBSET option now skips correctly when used with the DEBLOCK option. Note: Tape copies can also be speeded up by specifying NOBUF in the :FILE equation and then using the DEBLOCK option to divide the blocks back into records.

2. SMR #5618 - VERIFY and COMPARE options no longer forget to compare the last record in a range, causing the next range to get an error. Also performance speed has been improved as for SMR #5568 when a range is specified with these options.

3. FCOPY version A.3.08 would allow the FILES= option with cartridges. This later would not work on the second file. This has been disallowed again.

4. The DEBLOCKing buffer is now flushed after skipping files so leftover records will not be inserted in the wrong place. This change will allow FROM=*;DEBLOCK.

5. When FCOPY asks for another cartridge on a TO=$CTUx operation, it will no longer return a meaningless error.

6. Echoing will now be turned on when copying from cartridge to cartridge and from $STDIN to cartridge. Note: Either of these copies can be done more efficiently by using the terminal cartridge functions.

7. ASCII cartridges will be done the same way for both MULTIPOINT and POINT-to-POINT.

8. SMR #7283 - $STDIN will be forced to have record characteristics of F instead of default MPE value of U.

9. SMR #7429 - The error no longer occurs when appending a second file onto a tape from disc using SKIPEOF=,+1. This problem was introduced in version A.3.08. Also when appending to the end of a file to make one file, an EOF mark is no longer put between the records.

10. SMR #7304 - Use of any partial character translation feature followed by a request for translation of the whole record, would only use the fields defined for the partial translation. This has been corrected.

11. SMR #7546 - The fix for SMR #5956 has disallowed specifying NEXT as the sequence number for labeled tapes. This has been corrected. One other change was made so the TO file will not be reopened each time if FILES= is used and the FROM file is a labeled tape. Note: Neither of these cases works unless the tape label name is exactly six characters long. In fact, if it is less than six characters and the file is FCLOSEd with DISP=3 as FCOPY will do for FILES= or when using the same

file name twice, a system failure or a tape request for the already positioned tape may occur.

C. DOCUMENTATION CHANGES

Documentation will be changed to reflect that the default for "FILES=" is now 1.

COBOL C HP32213C.02.03
COBOL B HP32213B.03.03

DATE CODE 1918, N00N213C.HP32213.SUPPORT
DATE CODE 1918, N00N213B.HP32213.SUPPORT

A. ENHANCEMENTS

1. Omnibus code optimizations:

   ORI will be used instead of LDI and OR in moves to unsigned COMP-3. START table initialization will initialize one code segment at a time instead of a SECTION at a time. One program with many SECTIONs all of the same priority number had code reduction of %1000. MOVE of literal to field of PIC X will use STB.

2. SMR #4369 - word addresses will be computed at compile time for the CALL statement if possible.

3. SMR #6801 - error 200, USL overflow will no longer grace you with all 32K words of the compiler's stack.

4. The maximum size of the USL directory will now be 128 records instead of 127. This is effective if USL file is bigger than the default.

5. Any questionable errors will set bits in the USL file to prod you about possible errors.

6. PCAL's to the same run-time routine or from CALL statements will no longer generate a separate HEADER 1 for each. Since there is a limit of about 1000 of these, this might get some large sections to work when they did not before. This should also save space in the USL file.

7. SMR #5325 - a check is made at compile time for differing number of parameters to CALLed subprograms. This error will set the WARN flag in the RBM and also print an error message, but it will not be treated as a COBOL error.

8. SMR #6845 - omnibus enhancements:

   TEMP CELLs will be released sooner so they can be reused, saving 9 words per TEMP CELL.
   RUNNING PICTURES will not be generated unless needed by the run time library, or for the LINKAGE SECTION. One program whose stack was %47467 was reduced to %45434. Since this program used a table

of %40000 words this improvement was more nearly from %7467 to %5434. For a program that uses the LINKAGE SECTION a lot, there will not be that much improvement. This gets rid of about 3 to 4 words per data item.

The MAP will flag inefficient use of HP/3000 data types. These include COMP items on byte boundarys, COMP and COMP SYNC of more than 2 words, COMP-3 with even number of digits, and unsigned arithmetic data items.

Also the paragraphs and non level 77, FD, SD, and 01 will be indented one space.

9. Internal compiler errors will print the paragraph and section names to localize the problem.

10. More than approximately 1000 value clauses will produce error 212, along with a message stating too many value clauses.

B. CORRECTIVE SOFTWARE CHANGES

1. SMR #3058 - a MOVE from or to an item that has a DEPENDING ON clause will no longer move the whole item, but will use the DEPENDING ON item for the length.

2. SMR #4854 - use of level 88 whose condition variable had a PICTURE of 9(5) thru 9(9) with USAGE COMP will no longer cause error 205. This bug thought to be fixed on 1906 was broken worse, such that now the error message might not appear, and the code generated is always incorrect.

3. SMR #4968 - compiler produces bad code or has error 403 on COBDTAB for all arithmetic statements. This occurs rarely when symbol table is full but the data table contains enough space. The cause of this error has been fixed, but if the same thing happens the compiler will produce error 205 during pass 1.

4. SMR #5495 - a SEARCH ALL statement in the THEN clause of an IF statement would cause bounds violation.

5. SMR #6278 - when PERFORMing a paragraph in another section no check was made if this paragraph happened to be in two different sections.

6. SMR #6669 - COMPILER LIBRARY was returning incorrect results for a DIVIDE with remainder. If the remainder is between 32K and 64K then it would be returned as a negative number.

7. SMR #6890 - when an ACTUAL KEY was more than 9 digits a questionable error is produced and now this item is correctly truncated to 9 digits. Also if an out of bounds KEY is used, MPE will return an error on the next valid request. This is an MPE error.

8. SMR #6902 - if a PERFORM variable TIMES statement follows an arithmetic statement that has to shift an item for alignment, this alignment is performed on varible too, causing a power of ten times as many PERFORMS. There should be no more problems like this.

9. SMR #7031 - MOVE of special registers, CURRENT-DATE and TIME-OF-DAY would ignore subscripting for table elements. DEPENDING ON now works.

10. SMR #7062 - if 01 levels had the same name in two different FD levels, then a REDIFINE of a common sub-item would produce error 21. The compiler thought that 01 levels were unique.

11. A MOVE of a literal to a JUSTIFIED item that was one bigger would not JUSTIFY or blank fill.

12. Level 77 INDEX-DATA items will be flaged if they have a PICTURE clause. A default PICTURE for DISPLAYing them is 99999.

13. If an EOF occured on the LISTFILE while paging, this might have caused a loop.

14. New virtual symbol table scheme for C.2.02 might actually take up to twice as much cpu time as the previous version. This occured in a program of 3000 lines that used lots of MOVE CORRESPONDING. This program also had 8 times as much I/O to its virtual symbol table. It turns out on C.2.01 65% of the cpu time was spent in this procedure and the code put in to decrease I/O requests increased this figure to 83%. This version decreased the cpu time from 5.74 minutes to 4.3 minutes. The amount of I/O over C.2.01 was also decreased slightly. SAMPLER2 runs provided data in order to hand code these slow loops.

15. INDEX names that belong to tables in the LINKAGE SECTION will no longer have their base in the MAP be LINK, but Q or OWN.

16. SMR #7273 - use of the THRU option in level 66 causes items in the LINKAGE SECTION to be mistakenly put into the FILE section.

17. SMR #7338 - use of subscripted condition names whose associated variable is used as a search key will no longer produce error messages. This occured in both IF and SEARCH ALL statements. Also use of a numberic literal in the WHEN clause of a SEARCH ALL statement to get around this problem would cause a bounds violation at run time. This has been corrected.

18. Use of REMAINDER option in DIVIDE statement with the ROUNDED option would produce illegal decimal digit at run time.

19. SMR #7404 - when an integer overflow or divide by zero occurs, COBOLTRAP just sets the CARRY bit. This caused problems when a user wanted to detect integer overflows by his own trap routine. The COBOL initialization segment would cause overflows which aborted the job. It is recommended that ON SIZE ERROR be used to detect overflows since the compiler generates code to calculate addresses that may cause overflows if the byte address spans the 32k byte boundary. What was fixed was code to finalize the GO TO table for subprograms. Code to finalize the GO TO addresses was done before the table was initialized. Another problem that was fixed that could affect programs was that the priority numbers recorded in the table were incorrect and might un-ALTER GO TOs. This also randomly caused integer overflows.

20. Certain cases of value THRU value in level 88 incorrectly gave error 140.

21. Changes to the COBOL/3000 run-time library:

    a. The STOP literal statement would put its message randomly anywhere in memory.

    b. The GO TO MORELABELS will now correctly process up to 8 userlabels. Before only the first was processed.

c. If the ACCEPT statement was used on an item of over 200 characters long, an MPE intrinsic error would occur. This limit has been increased to 256 characters can be read at a time, with special checks to avoid this error.

d. SMR #6890 - an ACTUAL KEY with a negative value will return to the ACTUAL KEY clause instead of a run time abort.

e. SMR #7031 - MOVE from special registers will correctly blank out and justify the target item.

f. Files produced by COBOL will have the following characteristics: Files with CCTL will have pre-spacing and no-auto page eject FWRITTEN into them. FCOPY has been enhanced to copy these disc files back to a printer correctly. Files with NOCCTL will have no-auto page eject only if they are spool files. Prespacing has no real effect for the printer, but it wastes spool file space since trailing blanks are not truncated.

C. DOCUMENTATION CHANGES

Document flags appearing on the MAP, with an example.

* B version B only.
C version C only.

IMAGE/3000 HP32215B.02.00

DATE CODE 1918, N00N215B.HP32215.SUPPORT

A. ENHANCEMENTS

1. IMAGE has been enhanced to provide transaction logging and recovery. A new utility program DBRECOV has been added to permit database recovery from a logfile. IMAGE requires the MPE User logging system.

2. DBUTIL has been modified so that the process of ACTIVATEing a text file into a data-base-access file is monitored on $STDLIST on a line-by-line basis. Syntax and semantic errors are fully described.

B. CORRECTIVE SOFTWARE CHANGES

1. IMAGE and MPE have been jointly modified to eliminate a potential for a system crash associated with data base STOREing while open and subsequent RESTOREing.

2. DBUTIL has been fixed to eliminate 'bugs' in the ACTIVATEion of data-base-access files.

3. DBOPEN has been modified to eliminate 'bugs' in the use of data-base-access files.

C. DOCUMENTATION CHANGES

The IMAGE logging/recovery enhancement is currently documented in the manual review copy.

The manual review copy has also been modified to reflect the changes to DBUTIL with respect to its handling of data-base-access-files.

D. MISCELLANEOUS

This version of IMAGE replaces release 32215B.01.01. It will operate only under a version of MPE III which includes the User Logging facility.

Systems running versions of MPE III without user logging should continue to use IMAGE B.01.01.

Systems running versions of MPE II should continue to use the lastest version of IMAGE A (A.04.06).

The IMAGE intrinsics have been resegmented into eleven (11) segments instead of the previous fifteen (15). The support file A00A215B has been modified so that the install file I00I215B will work correctly.

QUERY/3000 HP32216A.04.01

DATE CODE 1918, N00N216A.HP32216.SUPPORT

A. CORRECTIVE SOFTWARE CHANGES

The following 'bugs' have been fixed:

- the first line of a report beginning on page 2 instead of on page 1
- UPDATE requiring LOCKOPTION to be ON
- JOB termination for NON-critical errors
- a cosmetic flaw in the prompting and masking of the PASSWORD = part of the DEFINE command when using an XEQ file in JOB mode

B. MISCELLANEOUS

1. QUERY has been modified to recognize the new error codes returned by IMAGE.

   As a consequence, the cryptic QUERY message

   ```
   DBML ERROR P1,P2,P3
   ```

   no longer occurs, since the IMAGE intrinsic DBERROR is now used to translate the new error codes.

   QUERY precedes this call to DBERROR with the message

   ```
   IMAGE Error Message:
   ```

   which will appear on the line preceding the message printed by DBERROR. In the event that DBERROR cannot recognize the condition word, the following message will occur:

   ```
   UNRECOGNIZED CONDITION WORD: P1
   ```

N00N230A

Release issue of HP 32230A Series II diagnostics.
** DATE CODE 1918 **

Magnetic tapes associated with HP32230A

Source	32230-1X001
CPU Coldload	30000-1X016
NON-CPU C/L	30000-1X017

Manuals associated with HP 32230A

32230-60001
32230-60002

*** CPU *** 30000-1X016 1906

SECTION 1	PD420A	01.00
SECTION 2	PD420A1	01.00
SECTION 3	PD420A2	01.01
SECTION 4	PD420A3	01.03
SECTION 5	PD420A4	01.00
SECTION 6	PD420A5	01.00
SECTION 7	PD420A6	01.00
SECTION 8	PD420A7	01.00
SECTION 9	PD420A8	01.00
SECTION 10	PD420A9	01.00
SECTION 11	PD420A10	01.00
SECTION 12	PD420A11	01.00
SECTION 13	PD420A12	01.01
SECTION 14	PD420A13	01.00

*** STAND-ALONE *** 30000-1X017 1918

SLEUTH	PD411A	01.04	(01)	
SDUPII	PD417A	01.03		
CART DISC-7905A	PD419A	01.04	(02)	
MEMORY PATTERN	PD421A	01.00	(03)	
MULTIPLEXOR CHAN	PD422A	01.02	(04)	
DISC FILE-2888A	PD423A	01.00	(05)	
CART DISC-7900A	PD424A	01.00	(06)	
SYSTEM CLOCK	PD425A	01.00	(07)	
SYS CLK/FLI	PD426A	00.00	(10)	
TERMINAL DATA	PD427A	01.01	(11)	
FIXED HEAD DISC	PD428A	01.00	(12)	
SELECTOR CHAN	PD429A	01.01	(13)	
FAULT CORRECTING MEM.	PD430A	01.01	(14)	
MEMORY DIAGNOSTIC	PD430B	00.00 **	(15)	NEW RELEASE
EXTENDED INSTRUC SET	PD431A	01.00	(16)	
HSI DIAG.	PD432A	01.00	(17)	
MAGNETIC TAPE	PD433A	01.04 **	(20)	

*** STAND-ALONE *** 30000-1X017 1918 % FILE NO.

SSLC INTERFACE	PD434A	01.03	(21)
ASLC INTERFACE	PD434B	01.04	(22)
UI DIAG	PD435A	01.01	(23)
SPECIAL HSUI DIAG	PD436A	00.00	-----
TERMINAL CONTROL	PD438A	01.00	(24)
CALCOMP PLOTTER	PD439A	01.01	(25)

*** ONLINE ***

CARD READER	PD465A	01.00	
LINE PRINTER	PD466A	01.02 **	
2617j line printer	pd466j	01.00	
2640 TERMINAL	PD469A	01.00	
TERM-2635A	PD474A	00.00	
TERM-2762A/B	PD475A	01.00	
term-2645k	pd476a	00.00	
DISPLAY TERMINAL 2644	PD477A	01.00	
TERM-2615A	PD478A	01.00	
CARD-READ/PUNCH	PD479A	01.00	
OPTICAL MARK READER	PD480A	00.00	

UTILITY FILES

SLEUTH BATCH FILES

```
**************************************************
*                                                *
*  THESE FILES MAY ONLY BE USED IN CONJUNCTION   *
*  WITH THE SLEUTH PROGRAM. REFER TO THE SLEUTH  *
*  MANUAL FOR INFORMATION ON HOW THEY MAY BE     *
*  LOADED.                                       *
**************************************************
```

FILE NAME	FUNCTION
SLEUTH01	
SLEUTH02	
SLEUTH03	
SLEUTH04	
SLEUTH05	
SLEUTH06	
SLEUTH07	DISC VERIFIER-7905,7906,7920,&7925
SLEUTH08	
SLEUTH11	LONG CARD READER DIAG-SECTION1
SLEUTH12	LONG CARD READER DIAG-SECTION2
SLEUTH13	LONG CARD READER DIAG-SECTION3
SLEUTH14	LONG CARD READER DIAG-SECTION4

STAND-ALONE DIAGNOSTIC TAPE CREATORS

```
**********************************************
*                                            *
* THESE FILES ARE STREAMABLE JOB FILES WHICH  *
* WILL CREATE CONFIGURED CPU DIAGNOSTIC TAPES *
* AND NON-CPU DIAGNOSTIC TAPE.                *
*                                            *
**********************************************
```

FILE NAME	FUNCTION
CPU064	CPU TAPE CONFIGURED FOR 64K OF MEMORY
CPU096	CPU TAPE CONFIGURED FOR 96K OF MEMORY
CPU128S2	CPU TAPE CONFIGURED FOR 128K OF MEMORY
CPU128S3	CPU TAPE CONFIGURED FOR 128K OF MEMORY
CPU160	CPU TAPE CONFIGURED FOR 160K OF MEMORY
CPU192	CPU TAPE CONFIGURED FOR 192K OF MEMORY
CPU224	CPU TAPE CONFIGURED FOR 224K OF MEMORY
CPU256S2	CPU TAPE CONFIGURED FOR 256K OF MEMORY
CPU256S3	CPU TAPE CONFIGURED FOR 256K OF MEMORY
CPU384S3	CPU TAPE CONFIGURED FOR 384K OF MEMORY
CPU512S3	CPU TAPE CONFIGURED FOR 512K OF MEMORY
CPU640S3	CPU TAPE CONFIGURED FOR 640K OF MEMORY
CPU768S3	CPU TAPE CONFIGURED FOR 768K OF MEMORY
CPU896S3	CPU TAPE CONFIGURED FOR 896K OF MEMORY
CPU1KS3	CPU TAPE CONFIGURED FOR 1024K OF MEMORY
DIAGIOTP	NONCPU TAPE (%25 FILES SEE ABOVE FOR NEW FILE REFERNCE TABLE)

SUPPLEMENTAL FILES FOR DIAGNOSTICS

```
************************************************************
*                                                          *
*  THESE FILES ARE REQUIRED BY THE INDICATED DIAGNOSTIC    *
*  TO OPERATE PROPERLY.                                    *
*                                                          *
************************************************************
```

FILENAME	DIAG NO.	FUNCTION
VFCTEST	D466A	DATA FILE FOR 2608 LP
STDVFC	D466A	DATA FILE FOR 2608 LP

** IMPLIES FIXED THIS TIME

****

FIX LEVEL .00 MEMORY DIAGNOSTIC

D430B.00.00

THIS IS A NEW RELEASE. THIS DIAGNOSTIC TESTS THE SERIES III MEMORY
BOARDS AND THE FLI.

****

FIX LEVEL.04 "30115A 9-TRACK MAGNETIC TAPE DIGNOSTIC OFF-LINE
D433A.01.04

1. - The Interrupt status will be listed anytime, when a different exit from the SIO program than expected. (02/17/79)

2. - The first three (3) data errors will be listed only when an error occured during comparing between READ and WRITE buffers. Only one error will be counted for every executed SIO program with one or more read errors. There will be no more correct data listing unless EXTRA LISTING selected (Bit 8 of the SECTION REGISTER set). (02/17/79)

3. - The ERROR FLAG control was fixed. (02/17/79)

4. - The ERROR Counting was fixed. (01/31/79)

5. - The Maximum Error listing is preset = %7777 when default. (02/17/79)

6. - The time evaluation in steps 471 and 474 are skipped because of the new clock frequency for the SYSTEM III/LC. (02/17/79)

7. - The next message is added to STATUS display explaying the error code at bits 12,13, and 14 of the Device Status when TRANSFER ERROR,(%2), COMMAND REJECTED (%4), TAPE RUNAWAY (%6), or TAPE ERROR (%12) ocurred. (03/12/79)

8. - Proper execution of Step %267 fixed. (03/12/79)

****

FIX LEVEL .02 LINE PRINTER

D466A.01.02

This fix makes sure that the 2608 VFC is downloaded only when the 2608 is at top-of-form. This was previously not so. The 2608 assumes that it is at top-of-form whenever a download occurs. Without the current fix, the top-of-form after running Section 9 is different from that set by the operator before running Section and will remain offset after D466A terminates.

MPE III SERIES 33 SOFTWARE UPDATE

MULTIPROGRAMMING EXECUTIVE OPERATING SYSTEM SERIES 33
****

CONTENTS OF INSTALLATION TAPE DATE CODE 1918

PRODUCTS WITH ASTERISKS ARE THE PRODUCT(S) UPDATED/CHANGED BY THIS I.T. AND ALSO REFERENCE PERTINENT NOTE FILES CONTAINING INFORMATION ABOUT THE MODIFICATIONS. THESE FILES MAY BE LISTED USING EDITOR OR FCOPY.

PRODUCT NAME	PRODUCT NUMBER	LEVEL	DATE CODE
*MPE	32033A	01.00	1918
*SEGMENTER	32050A	01.01	1918
*SPL	32100A	07.02	1918
*BASIC	32101B	00.11	1918
*FORTRAN	32102B	01.02	1918
BASIC COMPILER	32103B	00.10	1906
*RPG	32104A	04.03	1918
BUILDINT	32150A	03.01	1623
*EDITOR	32201A	07.05	1918
SCIENTIFIC LIBRARY	32205B	00.04	1906
DEL/3000	32206A	01.09	1906
*KSAM/3000	32208A	02.04	1918
*VIEW/3000	32209A	00.01	1918
*COMPILER LIBRARY	32211D	00.09	1918
*FCOPY	32212A	03.09	1918
*COBOL	32213C	02.03	1918
SORT/MERGE	32214B	02.00	1906
*IMAGE	32215B	02.00	1918
*QUERY	32216A	04.01	1918
XA2100	32223A	01.03	1814
XL2100	32226A	02.00	1636
*DIAGNOSTICS	32231A	-- --	-- --

DIAGNOSTIC INFORMATION IS CONTAINED IN THE FILE N00N230A.

* NOTE FILES(N00NYYYZ) CONTAIN THE CHANGE INFORMATION

WHERE YYY =LAST THREE DIGITS OF THE PRODUCT NUMBER.
(E.G. MPE IS HP32002. THEREFORE YYY=002.)
Z =CURRENTLY RELEASED VERSION DIGIT OF PRODUCT.

MPE HP32033A.01.00

DATE CODE 1918, N00N033A.HP32033.SUPPORT

I. MPE 32033A.01.00

A. MODULES MODIFIED A.01.00

	MODULE		CHANGE HISTORY									
	NAME	NO	A.00.XX	A.01.XX								
			0	0	1	2	3	4	5	6	7	8	9
	INITIAL	00	X	X									
	ININ	10	X	X									
	IOTAPE0	18	X	X									
	IOLPRT0	19	X										
	IOLPRT1	21	X										
	IOTERM0	22	X	X									
	IOFLOP0	23	X										
	IOMDISC1	27	X										
	PFAIL	30	X										
*	SDFCHECK	33	X										
*	SDFLOAD	33	X										
	SDFGEN	34	X										
**	HARDRES	55	-	X									
	NRIO	62	X	X									
***	MEASIO	88	-	X									

* Both program files are generated as part of module 33
** New module - result of CLOCKIO and CRIO merger
*** New module

NOTE: These module are all MPE modules which differ in code and source between the Series II/III and the Series 33. For changes to modules which are common to both the Series II/III and the Series 33, see the note file for the 1918 MIT.

All these modules are fuctionally equivalent to 1918 modules of Series II/III with same module number/name or are new modules for new peripheral support. Details are as follows:

1. INITIAL (00)
   Functional equivalent to 1918 version of Series II/III INITIAL.

2. ININ (10)
   Functional equivalent to 1918 version of Series II/III ININ.

3. IOTAPE0 (18)
   Functional equivalent to 1918 version of Series II/III IOTAPE0.

4. IOLPRT0 (19)
   Functional equivalent to 1918 version of Series II/III IOLPRT0.

5. IOLPRT1 (21)
   Driver for 2631A lineprinter. Roughly equivalent to IOLPRT0.

6. IOTERM0 (22)
   Functional equivalent to 1918 version of Series II/III IOTERM0.

7. IOFLOP0 (23)
   Driver for flexible disc(7902). Roughly functional equivalent to IOMDISC1.

8. IOMDISC1 (27)
   Functional equivalent to 1918 version of Series II/III IOMDISC1.

9. PFAIL (30)
   Functional equivalent to 1918 version of Series II/III PFAIL.

10. SDFCHECK (33)
    Command file syntax verifier for Soft Dump Facility. See Console Operator's Guide for further discussion on Soft Dump Facility.

10.1 SDFLOAD (33)
    Soft Dump memory image loaded to invoke memory dump. See Console Operator's Guide for further discussion on Soft Dump Facility.

11. SDFGEN (34)
    Generator for stand alone serial disc to used for See Console Operator's Guide for further discussion on Soft Dump Facility.

12. HARDRES (55)
Functional equivalent to 1918 version of Series II/III MEASIO. On MIT 1918 the result of combining modules CLOCKIO (61) and CRIO (68).

13 NRIO (62)
Functional equivalent to 1918 version of Series II/III NRIO.

14 MEASIO (88)
Functional equivalent to 1918 version of Series II/III MEASIO.

SYSTEM	LAST CHANGE NUMBER
A.00.00	0485
A.01.00	0709

B. ENHANCEMENTS

637. IOTERM0 (22)
Added capabilities to support TERMTYPEs 4,6, and 9.

637. NRIO (62)
Added capabilities to support TERMTYPEs 4,6, and 9.

694. NRIO (62)
Implement MEASIO for Series 33.

C. CORRECTIVE SOFTWARE CHANGES

(NOTE: The unique fix identification number appears on the first line of each description, followed by the module name, module number (in parenthesis), and related SMR number, if any).

690. INITIAL (00)
Moves the ADCC initialization from PB relative to SYSDB relative so that IOTERM0 can run in all banks.

691. IOTAPE0 (18)
Addition of function code 15 which is used to obtain the status of the last I/O performed by the driver.

693. ININ (10)
STACKOVERFLOW´ passes current instruction and users top of stack value before trap to STACKOVERFLOW procedure.

701. HARDRES (55)
IOTERM0 (22)
When bringing up a system, this fix now allows one to logon (even if the user "OPERATOR" does not exist) at all terminal baud speeds.

709. INITIAL (00)
Configuring too many RINs, so that more than a record must be read from the RELOAD tape will cause the RIN table to be incorrectly initialized. This change fixes this problem.

D. KNOWN PROBLEMS AND UNDOCUMENTED FEATURES:

1. After powerfail 264X terminal quite often comes in a state which can not be cleared by software. This problem must be cleared by a manual reset of the terminal.

   The problem can be prevented by disabling strap U of the terminal. However strap U must be enabled to use the terminal over 202 modems. The system console is shipped with strap U disabled.

2. When the 7906 is configured as two disc´s and ldev 1 is the lower portion, then the Soft Dump Facility will only work in stand alone (backup) mode. See Console Operator´s Guide for further discussion on Soft Dump Facility.

3. The COOLstart option does exist on the Series 33 and operates the same as on Series II/III. Use of the WARMstart button on the front panel will result in the operator being asked to chose between the WARM and COOL options as is done on the Series II/III when loading form the system disc.

4. Whenever the system is loaded with UPDATE or COLDLOAD(of course RELOAD also) the SDFCOM (Soft Dump Facility command) file on the system disc is replaced by what is on the coldload media.See Console Operator´s Guide for further discussion on Soft Dump Facility and system program file replacement on COLDLOAD and UPDATE.

RELEASE ISSUE OF HP 32231A SERIES 33 DIAGNOSTICS AND UTILITIES
** 1918 IT **

Cartridge tapes associated with HP32231A:

Maintenance Interface and Cold Load Self Test	30070-10401
Maintenance Display Software	30070-10402
Remote Maintenance/Console Facility	30070-10403

Flexible disc associated with HP32231A:

Diagnostic and Utility System	30070-13401

Manual associated with HP 32231A:

30070-60068

Utilities on MIT: DUSCOPY Version 0.02

*** Maintenance Interface and Cold Load Self Test Cartridge Tape ***
** 30070-10401 Rev 1909 **

Maintenance Interface Diagnostic	Version 0.00
Cold Load Self Test	Version 0.05

TO GENERATE AN MI DIAGNOSTIC AND CLST TAPE ON THE RIGHT CARTRIDGE TAPE, RUN FCOPY.PUB.SYS AND ENTER THE FOLLOWING COMMANDS:

```
>FROM=MIDHEAD;TO=$CTUR
>FROM=MIDLBINS;TO=$CTUR;SKIPEOF=,2
>FROM=CLSTHEAD;TO=$CTUR;SKIPEOF=,3
>FROM=CASET4;TO=$CTUR;SKIPEOF=,4
>EXIT
```

*** Maintenance Display Software Cartridge Tape ***
** 30070-10402 Rev 1910 **

Maintenance Display Software	Version 0.01

TO GENERATE A MAINTENANCE DISPLAY TAPE ON THE RIGHT CARTRIDGE TAPE, RUN FCOPY.PUB.SYS AND ENTER THE FOLLOWING COMMANDS:

```
>FROM=MPHEAD;TO=$CTUR
>FROM=MPLINKBS;TO=$CTUR;SKIPEOF=,2
>EXIT
```

*** Remote Maintenance/Console Facility Cartridge Tape ***
** 30070-10403 Rev 1835 **

Remote Maintenance/Console Facility Version 0.00

TO GENERATE A REMOTE TAPE ON THE RIGHT CARTRIDGE TAPE, RUN FCOPY.PUB.SYS AND ENTER THE FOLLOWING COMMANDS:

```
>FROM=REMHEAD;TO=$CTUR
>FROM=REMLINKB;TO=$CTUR;SKIPEOF=,2
>EXIT
```

*** Diagnostic and Utility System Flexible Disc ***
** 30070-13401 Rev 1918 **

Diagnostic Utility System Version 0.35 **

ININ	PD570A	
SADS	PD590A	
AID	PD550A	Version 0.31
ADCCDIAG	PD509A	Version 0.10
GICDIAG	PD508A	Version 0.19
MEMDIAG	PD507A	Version 0.05
SADUTIL	PD575A	Version 0.05
IOMAP	PD560A	Version 0.04
D7902	PD513A	Version 0.04
D13037	PD511A	Version 0.03 **
D7970S13	PD514A	Version 0.07 **
D7970S45	PD515A	Version 0.03
D7970S68	PD516A	Version 0.03
VERIFIER	PD512A	Version 0.04
SLEUTHSM	PD555A	Version 0.04

This note describes how to create the DUS flexible disc. A binary image of the DUS flexible disc is in the file DUS.HP32231.SUPPORT. This image may be placed on a previously formatted flexible disc (must be serialized - see note below) by running the program DUSCOPY.HP32231.SUPPORT. This program writes the flexible disc and then reads back the data to ensure that the data is correct.

NOTE: Serializing a Flexible Disc.

Once a flexible disc has been formatted it can be serialized in the following manner:

a) On the system console - down the ldev for the flexible disc.
b) Log on and enter VINIT. Install flexible disc.
c) When prompted (>) enter - serial (ldev) i.e serial 3.
d) The program will return another prompt (>) when complete. Enter exit to end the program.

e) On the system console - up the flexible disc (up ldev).

NOTE: A diskette can also be formatted with VINIT by entering FORMAT (ldev).

****

Fix Level .07 D7970S13

PD514A Version 0.07

Step 119 was changed to expect the correct status on a rewind.

****

Fix Level .03 D13037

PD511A Version 0.03

Step 152 was added to test the 12745 buffer. Step 148 was changed to not test clock offset. Clock offset was previously deleted in the 13037 controller.

****

Fix Level .35 DUS - SADS

PD590A Version 0.35

DUS now auto-recognizes the HP300 flexible disc (DUS) and prints a warning message. This allows transfer of AID programs between families. 110 and 150 baud operation was corrected. Control Y will always cause a break when the driver is writing at 9600 baud.

****

MPE-C SOFTWARE UPDATE

MULTIPROGRAMMING EXECUTIVE OPERATING SYSTEM SERIES I
****

CONTENTS OF I.T. DATE CODE 1918

PRODUCT NAME	PRODUCT NUMBER	LEVEL	DATE CODE
*MPE	32000C	01.03	1918
SEGMENTER	32050A	01.00	1906
SPL	32100A	06.06	1831
BASIC	32101B	00.09	1831
FORTRAN	32102B	00.10	1831
BASIC COMPILER	32103B	00.09	1831
RPG	32104A	03.08	1831
BUILDINT	32150A	03.01	1623
EDITOR	32201A	07.03	1831
STAR	32204A	01.00	1603
SCIENTIFIC LIBRARY	32205A	02.04	1814
DEL/3000	32206A	01.07	1814
INDEX	32207A	01.02	1814
SDM	32210A	05.00	1508
COMPILER LIBRARY	32211C	04.07	1831
FCOPY	32212A	03.07	1831
COBOL	32213B	03.01	1814
COBOLC	32213C	02.01	1814
SORT/MERGE	32214B	01.07	1814
IMAGE	32215A	04.05	1814
QUERY	32216A	03.05	1831
TRACE	32222A	03.03	1814
XA2100	32223A	01.03	1814
XL2100	32226A	02.00	1636
CALCOMP PLOTTER	30126A	00.01	1640
2780/3780 EMULATOR	30130D	00.02	1814
PROG CTRLR/BCS	30300A/ 30361A	00.00	1621
PROG CTRLR/RTE-C	30301A/ 30361A-1	00.02	1701
ONLINE DIAGNOSTICS		-- --	1814
OFFLINE DIAGNOSTICS		-- --	1831

* UPDATED/CHANGED IN THIS IT

I. MPE 32000C.01.03

A. MODULES MODIFIED

MODULE	CHANGE HISTORY									
NAME	NO	C.00.XX						C.01.XX		
		11	12	13	14	15	16	00	01	02	03
INITIAL	0	X	X	X		X		X	X	X	X
SYSDUMP	1		X		X	X	X	X			X
SEGPROC	2							##			
SEGDVR	3		X					##			
DISPATCH	4	X	X								X
LOAD	5		X					X	X		
MAPP	6						X				
UCOP	7										
DEVREC	8										
PROGEN	9		X			X	X	X			
ININ	10	X		X				X	X		X
EXIN	11	X			X	X		X	X		
LOG	12										
IOPTRD0	13										
IOPTPN0	14					X					
IOPLOT0	15										
IOMDISK0	16							X			
IOFDISK0	17					X		X			
IOTAPE0	18										
IOLPRT0	19		X	X					X	X	
IOCDRD0	20										
IOCLTTY0	21							X			
IOTERM0	22	X					X	X			
IOCDPN0	23										
IOPRPN0	24	X	X			X		X			
IOREM0	25										
IOBSC0	26										
IOMDISK1	27					X		X			X
PFAIL	30										

MODULE		CHANGE HISTORY									
NAME	NO	C.00.XX					C.01.XX				
		11	12	13	14	15	16	00	01	02	03
FILESYS	50	X	X	X	X	X	X	X	X	X	X
COMM'INT	51	X	X		X	X	X	X			X
STORE/RESTORE	52		X			X					
DIRC	53			X							
ALLOCATE	54	X	X			X	X				
DISKSPC	55										
MMCORER	56	X					X	X	X		
MMDISKR	57	X			X		X		X		
ABORTRAP	58	X		X			X				
MESSAGE	59	X				X	X	X			
CROUTINE	60	X					X	X			
IOUTILTY	61				X	X	X	X			X
TTYINT	62					X	X	X			
PCREATE	63						X				
MORGUE	64						X	X	X	X	
PROCMAIL	65						X		X		
PINT	66	X		X		X					
DATASEG	67										X
IOPM	68	X	X				X	X			X
CHECKER	69										
UTILITY	70			X	X		X	X			
SEGUTIL	71		X		X	X		X		##	
LOADER1	72				X			X	X		X
RINS	73		X								
JOBTABLE	74						X				X
DEBUG	75						X		X		
NURSERY	76						X				
SYSDPLY	77			X							
FIRMWARESIM	78	X					X				
SPOOLING	79	X		X		X	X				
SPOOLCOMS	80		X			X	X	X			
MESSAGE CAT	--		X	X				X			

- The SEGMENTER modules have been moved to group HP32050 in the SUPPORT account.

B. CORRECTIVE SOFTWARE CHANGES

1. The full spelling of "ACCOUNTS" will now work when specifying this RELOAD option. (INITIAL)

2. File system errors will be produced when attempting to :BUILD or :PURGE a non-disc file. (FILESYSTEM and COMMAND INTERPRETER)

3. The GETDSEG intrinsic will now recognize requests for existing data segments and will not create a new segment. (DATASEG)

4. The following file equation sequence will no longer hang a job/session:

```
:FILE A.B.C=X
:FILE B=*A.B.C
:FILE B=D
```

(JOBTABLE)

5. The null procedure INITLOADCACHE has been added to LOADER1 for SEGMENTER compatibility with MPE III. (LOADER1)

6. Modules SYSDUMP and COMM'INT have been changed to make them compatibilable with the new version of SEGMENTER.

7. DC3 characters will no longer be output to terminals of type 10 and above before issuing a line-terminating carriage return. (IOUTILTY)

8. A modem disconnect on a :DATA terminal will no longer cause the job/session with the :DATA file open to be aborted. (IOPM)

9. Disc I/O operations to sectors preceeding deleted tracks will no longer cause subsequent I/O operations to the same track to give irrecoverabl I/O errors. (IOMDISC1)

10. It is now possible to configure IOPM core residen (DISPATCH)

11. Use of CTL-A on the console can no longer lead to word zero of SYSGLOB being clobbered. (ININ)

E. KNOWN PROBLEMS

See current Software Status Bulletin

II. SUPPORTED UTILITIES

A. UTILITIES MODIFIED

UTILITY	C.00.XX						C.01.XX			
	11	12	13	14	15	16	00	01	02	03
DISKEDIT										
DPAN		X				X				
FREE							X			
LISTDIR										
LISTEQ		X				X				
LISTLOG										
PATCH										
RECOVER							X			
SAEDIT					X		X			
SAVIOUR					X		X			
SLPATCH										

No utilities have been modified for this software update.

MFG 3000 SOFTWARE UPDATE

EDC/3000 HP32380A.01.00

DATE CODE 1914, N00N380A.HP32380.SUPPORT

A. ENHANCEMENTS

Includes the necessary changes for Standard Product Costing.

B. CORRECTIVE SOFTWARE CHANGES

The following problems have been corrected in EDC.

1. SMR #5953 - In the routing retrieval, the unit run time was being truncated to a single decimal. This problem has been fixed in EDC0250P.EDCPGM.

2. SMR #6127 - The Engineering Change screens did not allow the user to blank the Effective Date field with a '$'. This problem has been fixed in files EDC0100P.EDCPGM, EDC0570P.EDCPGM, and PROCLIB.UTILITY.

3. SMR #6883 - The indented bill of material with cycle times did not handle lead offsets correctly. The lead offset was being subtracted from the lead time instead of being added. This problem has been fixed in EDC2100P.EDCPGM.

4. SMR #7149 - EDC2200 aborted if a summarized bill was requested for a part with engineering changes. This problem has been fixed in file EDC2200P.EDCPGM.

5. SMR #7236 - Illegal field numbers entered on an Item Data free form update produced erroneous error messages and possible abort conditions. This problem has been fixed in files EDC0370P.EDCPGM, EDC0570P.EDCPGM, EDC0580P.EDCPGM, EDC0590P.EDCPGM, and EDC0800P.EDCPGM.

C. KNOWN PROBLEMS

1. SMR #5302 - If the direct screen override feature is being used and an invalid originator is entered, EDC does not discover the error until the user attempts to enter a transaction.

2. SMR #5715 - TBL0100 does not recognize MPE III command intrinsic errors.

3. SMR #5942 - TBL0100 does not detect the error when a user defines more than 20 originators.

4. SMR #7264 - The indented bill of material only picks up the first engineering change on parts with multiple engineering changes.

IOS/3000 HP32384A.01.00

DATE CODE 1914, N00N384A.HP32384.SUPPORT

A. ENHANCEMENTS

Includes the necessary changes for Standard Product Costing.

B. CORRECTIVE SOFTWARE CHANGES

All of the following known problems have been corrected in IOS.

1. SMR #5716 - The user was not allowed to enter a negative amount in the Quantity Rejected field when receiving parts from inspection on a closed work order. This problem has been fixed in program files INV0100P.IOSPGM, IOS0200P.IOSPGM, IOS0610P.IOSPGM, and IOS0720P.IOSPGM.

2. SMR #5948 - The user was not allowed to re-open a closed work order when entering a negative receive against it. This problem has been fixed in program files INV0100P.IOSPGM, IOS0200P.IOSPGM, IOS0610P.IOSPGM, and IOS0720P.IOSPGM.

3. SMR #6763 - If you had received a negative quantity against a closed purchase order, the purchase order remained closed with QTY-LEFT-TO-RECEIVE not being updated. This problem has been fixed in program files INV0100P.IOSPGM, IOS0200P.IOSPGM, IOS0610P.IOSPGM, and IOS0720P.IOSPGM.

4. SMR #7143 - If the user made an entry in the Where-Used field on an Extra Usage allocation, that field was not being updated in the allocation record. This problem has been fixed in program files INV0100P.IOSPGM, IOS0200P.IOSPGM, IOS0610P.IOSPGM, and IOS0720P.IOSPGM.

5. SMR #7375 - IOS0720 did not handle date driven engineering changes correctly. This problem has been fixed in file IOS0720P.IOSPGM.

C. KNOWN PROBLEMS

1. SMR #5239 - The Inventory Report does not show a total inventory value for all controllers.

2. SMR #5241 - The Inventory Value Report should be sorted by controller, six month requirement, and then by part number.

3. SMR #5242 - There is no separate column heading for configuration code in IOS reports.

4. SMR #5243 - The Material Requisition Report contains only 21 characters for the description field (the description field is truncated).

5. SMR #5244 - The Purchase Committment Report truncates the report total after $9,999,999.99.

6. SMR #5245 - The column headings for the Pick List are not right justified.

7. SMR #5258 - The Inventory Control portion of IOS allows a user without ADD/DELETE capability to add and delete allocations.

8. SMR #5273 - There is no way for a user to enter the date a purchase order is confirmed.

9. SMR #5274 - It is possible to create multiple backorder records for a single extra usage order number.

10. SMR #5276 - IOS screen ORDFMT19 incorrectly infers that released orders can be deleted.

11. SMR #5648 - The part description displayed on screen INVRET06 is truncated.

12. SMR #5649 - IOS0800 does not list the records it deletes from the ORDER and STOCK-ACTIVITY data sets nor does it create a historical file.

13. SMR #5651 - When originator 95 is deleted, the error message displayed in the Allocation Maintenance Jobstream refers to originator 99.

14. SMR #5714 - IOS07020 aborts when the shop calendar is used and the pull date is outside the range of the shop calendar.

15. SMR #5718 - Entering all 9's in an Adjust On Hand transaction results in the inventory balance being adjusted by a "-1".

16. SMR #5721 - The routine to partially fill backorders loops through the backorder chain only once rather than continuing to fill with partial quantities until all backorders are filled or until the quantity received is exhausted.

17. SMR #5932 - The logging program UTS0500P.PUB abort with a file error 54: user lacks multi-rin capability.

18. SMR #5950 - Material receivers and backorder fill documents sometimes are printed on the serration between the pages.

19. SMR #5952 - When the Material requistion limit feature of the material requistion job stream is used, IOS0610P.IOSPGM does not continue to activate allocations after having reached the limit.

20. SMR #6209 - When IOS0200 aborts there is no information to indicate how many records have been processed.

21. SMR #6438 - IOS0400 does not update the CTRL field on the inventory dataset and not all IOSDB datasets.

22. SMR #7077 - The allocation maintenance jobstream aborts if there are no orders to be exploded.

MRP/3000 HP32388A.01.00

DATE CODE 1914, N00N388A.HP32388.SUPPORT

A. ENHANCEMENTS

Includes the necessary changes for Standard Product Costing.

B. CORRECTIVE SOFTWARE CHANGES

All of the following known problems have been corrected in MRP.

1. SMR #7145 - There was no indication on the Exception Reports that the start date of the order was prior to the run date of MRP. This problem has been fixed in MRP3000P.MRPPGM.

2. SMR #7146 - There was no date on the 'Exception Report - Orders Within Window' which indicated a date three weeks prior to the start date of the order, that is, a date by which the order should be entered. This problem has been fixed in MRP3000P.MRPPGM.

C. KNOWN PROBLEMS

1. SMR #7068 - In some cases, MRP2020 does not correctly calculate the order quantity for the order point order policy when it suggests the first order.

2. SMR #7093 - MRP2500 does not explicitly close the ERROR-FILE.

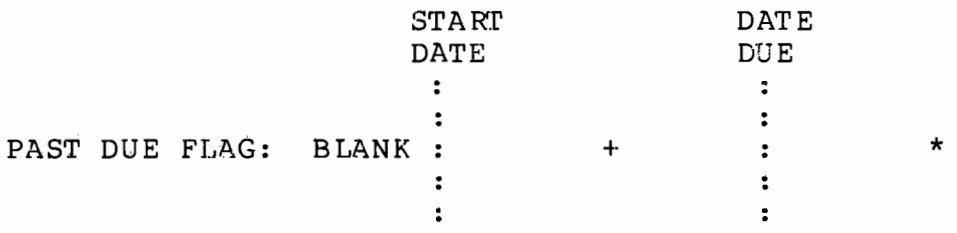
3. SMR #7094 - MRP1050 does not explicitly close files.

4. SMR #7142 - When the order point order policy is used, MRP does not suggest an order when the quantity available is equal to the order point.

D. MISCELLANEOUS

Two changes were made to the exception reports in MRP/3000 in the fixing of SMR's #7145 and #7146:

The first change affects the past due flag which is adjacent to the 'NEW DATE-DUE' column. Previously, this flag was either blank or a '*' depending on whether or not the run date of MRP was before or after the new date-due. This flag has now been changed to include an indication of whether or not the run date is past the start date and before the new date due. If so, it is represented by a '+'. This is illustrated below:



This diagram shows the three possible cases which can occur (the run date of MRP being in each of the three intervals).

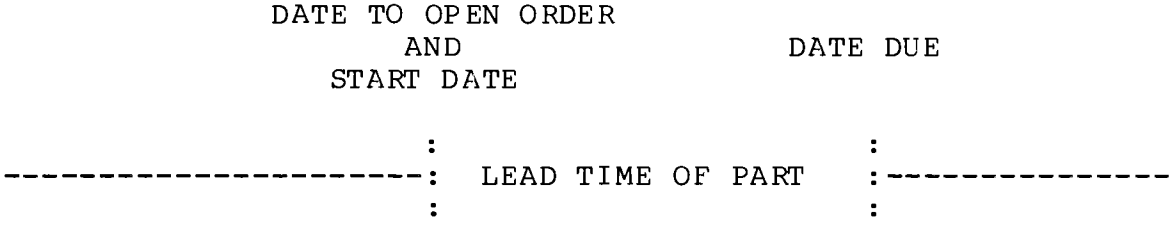
The second change which was made affects only the 'orders within window' report. A new column was added (called 'DATE TO OPEN ORDER'). This date is calculated as follows:

1) If the part class = P (for a purchase part), then the date to open order is the start date.

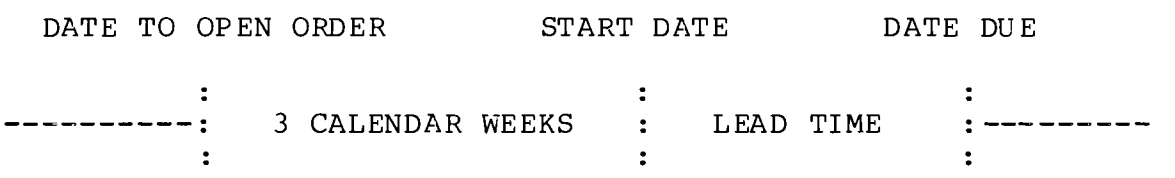
2) If it is not a purchase part, then the date to open order is three calendar weeks before the start date.

This open order date represents the date by which the controller should add this order to the database.

For a purchase part:



For other parts:



The start date is calculated from the lead time (using the shop calendar). The date to open order is calculated from the start date using a three week gregorian calendar offset.

SPC/3000 HP32392A.00.00

DATE CODE 1914, N00N392A.HP32392.SUPPORT

THIS IS THE FIRST RELEASE FOR SPC/3000.

DOCUMENTATION

The tables at the end of this section list currently available customer manuals for HP 3000 Computer Systems products. This list supersedes the lists in previous issues of the COMMUNICATOR 3000.

Manuals and updates can be ordered through your local HP Sales and Service office. The address and telephone number of the office nearest you is listed in the back of all customer manuals. Prices are subject to change without notice.

Customers in the U.S. may also order manuals directly by mail. Simply list the name and part number of the manual(s) you need on the Parts and Supplies Order Form found in the back of this publication.

TERMS

A few words about documentation terms and procedures:

NEW — A new manual refers to the first printing of the first edition of the manual. When first printed, a manual is assigned a part number that is retained for the life of the manual.

UPDATE — An update is a supplement to an existing manual which contains new or changed information. Updates generally are issued at the same time IT's are. However, THERE IS NO DIRECT CORRELATION BETWEEN SOFTWARE FIXES AND MANUAL UPDATES. Software enhancements that require documentation changes will be accompanied by manual updates, but software fixes and manual corrections may be made independently.

Updates are retroactively inclusive, that is, whenever successive updates are issued, the later update contains the previous one. This means that one need obtain only the latest update to have all the information added or changed since the last printing of the manual.

Update packages have no part numbers, they are numbered sequentially from the time the last edition was issued.

Updates are supplied upon request at no charge. When a manual is ordered, both the current edition of the manual and the current update, if one exists, are delivered.

NEW EDITION

When major changes must be made to a manual, issuing an update package may be inappropriate or impractical. When this is the case, a new edition is printed. A new edition obsoletes all previous versions of the manual and its updates. A list of the dates of all previous editions and updates is kept on the Printing History page of every manual. The date on the title page and back cover is the printing date of the new edition. The manual part number remains the same.

When further updates are required, they are made to the new edition.

REPRINTING

When our stocks of a manual fall below a certain level, we reprint it. The printing date of the edition remains the same on the title page and back cover, and the date of the reprinting is added to the back cover and Printing History page.

INCORPORATED REPRINTING

Often there are updates outstanding to the manual when we reprint it. Any existing updates to the manual are incorporated into the reprinting at this time. THERE IS NO CHANGE TO THE CONTENT OF THE CURRENT VERSION OF THE MANUAL. An incorporated manual has precisely the same content as the current edition plus the latest update.

The printing date of the edition remains the same on the title page and back cover, and the date of the incorporated reprinting is added to the back cover and Printing History page.

The existing update that was incorporated for reprinting is kept in stock for six months to supply those users of the current edition who have not yet requested the update.

Updates made following the printing of an incorporated manual continue to be numbered sequentially from the point of the latest edition. Such updates only contain corrections to the current version of the manual.

COMMUNICATOR BACK ISSUES

If you want to order past issues of the COMMUNICATOR, please note that supplies are now limited and only the following issues are available:

Issues # 13, 14, 15, 16, 17, 18, 19, and 20.

NEW MANUALS

VIEW/3000 Pocket Guides
part numbers 32209-90002, 32209-90003
May, 1979

Documentation for the VIEW/3000 system now includes two pocket guides that are very handy tools for VIEW/3000 users. One guide is for the programmer or forms designer, the other is for the data entry operator who uses the ENTRY program.

If you use VIEW/3000 in an applications program or design forms with VIEW/3000, the Programmer/Designer's Pocket Guide (part number 32209-90002) is indispensable. This fold-out card, which fits in a pocket, contains the complete syntax for the FORMSPEC, REFSPEC, and REFORMAT programs and also for the VIEW/3000 procedures that interface with COBOL, BASIC, FORTRAN, SPL, and RPG programs. The price of this guide is $1.00.

If you, or anyone working for you, uses the ENTRY program for on-line data entry then you will want copies of the ENTRY Operator's Quick Reference Guide (part number 32209-90003). This small (5-1/2 by 6 inch) spiral-bound guide summarizes in 14 pages all the rules for running ENTRY, collecting data to a VIEW/3000 batch file, browsing the collected data records, and making changes to this data. Every data entry operator should have a copy to take to the terminal for quick review of the ENTRY procedures. The price of this guide is $2.50.

MFG/3000 MANUALS

MFG/3000 is a set of applications designed to help manage the material planning and control functions of a discrete manufacturing company. MFG/3000 consists of four products:

EDC/3000 Engineering Data Control software which maintains descriptive, cost, and planning information and Bills of Material and routing data about the parts in a manufacturing operation.

IOS/3000 Inventory and Order status software which tracks planned issues (allocations) and planned receipts (workorders and purchases), and maintains stockroom inventory balances.

MRP/3000 Material Requirements Planning software which generates the materials plan with recommendations about what and how much material to order, and when to order it.

SPC/3000 Standard Product Cost software which performs the calculations necessary to determine the current total cost of a product and each of its components, as well as set standard costs for each product and its components.

MFG/3000 is documented in two kinds of manuals:

USER'S MANUAL. This manual is addressed to the individual who will use MFG/3000 on a daily basis as part of their job in the stockroom, on the receiving dock, or as a production engineer, buyer, scheduler, or expediter. It shows how to access the product and explains the screens. It also describes the responses and what action each causes. Inquiry screens and their responses are also described.

ADMINISTRATOR'S MANUAL. This manual describes how to implement the product, including how to initialize the data bases, make modifications to terminal screens (without effecting the source code or internal system logic), maintain the data base and edit tables, backup and recover the system, use QUERY as it relates to the MFG/3000 data base, and schedule batch jobs.

The six MFG/3000 manuals currently available are listed in the Catalog of Customer Publications in this COMMUNICATOR under "Manufacturing Applications Manuals."

KSAM/3000 Reference Manual -2nd Edition
part number 30000-90079
May, 1979

This new edition describes all the changes made to KSAM for both the 1906 and the 1918 ITs. In particular, it describes three new KSAMUTIL commands and contains new material on internal techniques.

The KSAMUTIL commands provide details about the key file. KEYSEQ verifies the sequence of key values for any key; KEYDUMP issues a formatted dump of the key file; KEYINFO displays information about key file structure and also helps file recovery in case the key structure is damaged.

A new appendix describes techniques for shared access to KSAM files, and describes recovery procedures to be used in case a system failure occurs when a KSAM file is open.

IMAGE Data Base Management Reference Manual -2nd Edition
part number 32215-90003
May, 1979

This new edition of the IMAGE Reference Manual documents the new version of IMAGE (B.02.00) being released on the 1918 IT. The primary enhancement to IMAGE is a transaction logging and recovery system, which allows application programs to log all data base transactions to a logfile. The logfile may reside on either tape or disc. In the event of a system failure, the data base administrator restores the latest backup data base copy and runs the recovery system which re-enters transactions from the logfile. The recovery system also provides statistics and user recovery files which enable application programs to determine the extent of recovery and to inform users where to resume transactions. The programmatically accessible logfile is also useful as an audit trail.

The new version of IMAGE also contains corrections relevant to the creation and use of data base access files.

HP 30055A Synchronous Single-Line Controller
Stand-Alone Diagnostic Manual
part number 30055-90008
April, 1979

This new edition documents the replacement of the Interconnecting Cable Assembly, part number 30055-60008, with a new cable assembly, part number 30055-60011. The new cable enables SSLC users to connect HP modems to their systems. Customers not planning to use HP modems do not need this new cable.

UPDATES

QUERY Reference Manual -Update #2
part number 30000-90042
May, 1979

This update documents the new version of QUERY (A.04.00). The manual update explains two commands, ASSIGN and SHOW, which are used in conjunction with a lock option. The errors associated with page breaks, group breaks, and headers in the report facility have been corrected with changes to the SKIP and SPACE logic. In job mode, QUERY now terminates on file read or write errors. Passwords encountered from job steams and XEQ files are no longer echoed. Several other errors have been fixed, and two new error messages have been added.

HP 30055A Synchronous Single-Line Controller
Installation and Service Manual
part number 30055-90011
April, 1979

The second update to this manual documents the new Interconnecting Cable Assembly, part number 30055-60011. The new cable replaces part number 30055-60008 and enables SSLC users to connect HP modems to their systems. Customers not planning to use HP modems do not need this new cable.

FCOPY Reference Manual -Update #2
part number 03000-90064
February, 1979

This second update to the fifth edition of the FCOPY Reference Manual documents the following enhancements:

- You can supply the FCOPY prompt, ">", in batch and stream file mode. You can now exit FCOPY by typing "E".
- The BCDICIN and BCDICOUT conversion routine has been improved, so that, with the exception of a few characters, it is equivalent to the EBCDIC character set.
- If any dump option (CHAR, HEX, OCTAL, etc.) is used without the NORECNUM parameter, duplicate lines are suppressed, and the message, SAME TO XXXXXX-1, is returned, where XXXXXX is a line number. Furthermore, hexadecimal record numbering is used at the top of each record.
- CONTROL-Y no longer purges a new file that was just built.
- Several MPE commands can be issued from within FCOPY by preceding them with a colon.
- FCOPY reads and writes ASCII as well as binary cartridges. Whether the to-file is ASCII or binary, of course, depends upon the from-file.
- You are no longer required to switch to half-duplex mode when copying to (or from) a cartridge from (or to) some other type of device file, since echoing is now automatically turned off and on in such a case.
- When a cartridge file is closed, it is automatically rewound.
- Using SUBSET=0,0 allows you to write user labels to the to-file, rather than the entire contents of the from-file.
- You may use the NOBUF option in file equations to increase the copying speed from one file to another.
- You can use the formal file designator, HARD, to change the logical record size for $HARD.

The aforementioned enhancements were documented mistakenly in the Issue No. 20 of the Communicator, although this particular update to the FCOPY Reference Manual was not available at that time. Also, it was erroneously referred to as the first update instead of the second update. We apologize for any inconvenience or confusion this may have caused.

FORTRAN/3000 Reference Manual -Update #3
part number 30000-90040
May, 1979

Update package #3 to the FORTRAN/3000 Reference Manual corrects all known documentation errors. The size of a particular labelled common block referenced in a program unit need not be the same as the size of the same common block declared in any other program unit.

FORTRAN/3000 Pocket Guide -3rd Edition
part number 32102-90002
May, 1979

This third edition is issued to correct minor errors in the second edition. The new MORECOM option of the $CONTROL compiles command is now included.

MPE MANUAL CHANGES

The MPE manuals listed below have recently been revised to reflect the new enhancements being released for the 1918 IT.

Series II/III Console Operator's Guide -3rd Edition
part number 30000-90013 July, 1979

Series 33 Console Operator's Guide -2nd Edition
part number 30070-90025 July, 1979

MPE Commands Reference Manual -3rd Edition
part number 30000-90009 July, 1979

MPE Intrinsics Reference Manual -Update #1
part number 30000-90010 July, 1979

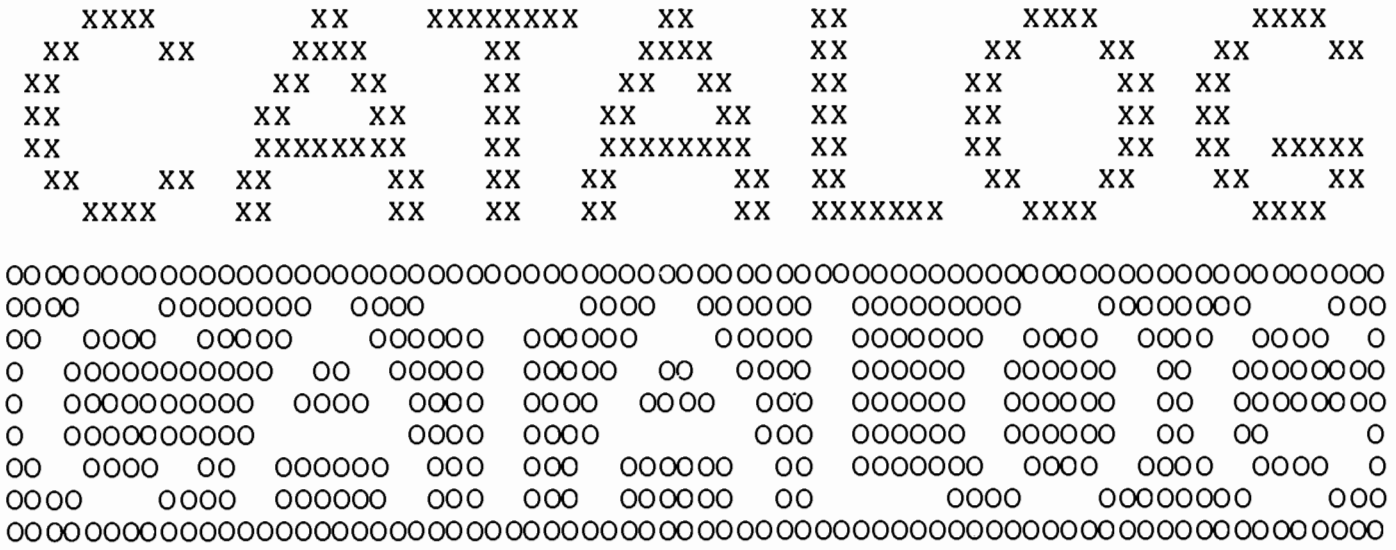
System Manager/System Supervisor Reference Manual -3rd Edition
part number 30000-90014 July, 1979

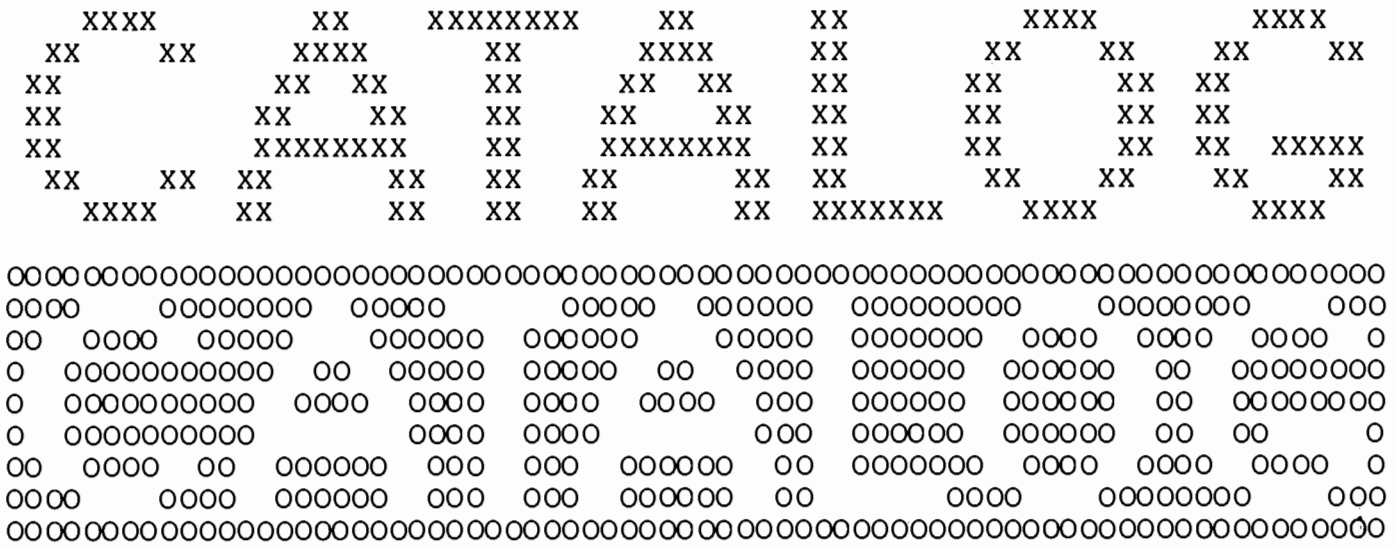
MPE System Utilities Reference Manual -Update #3
part number 30000-90044 July, 1979

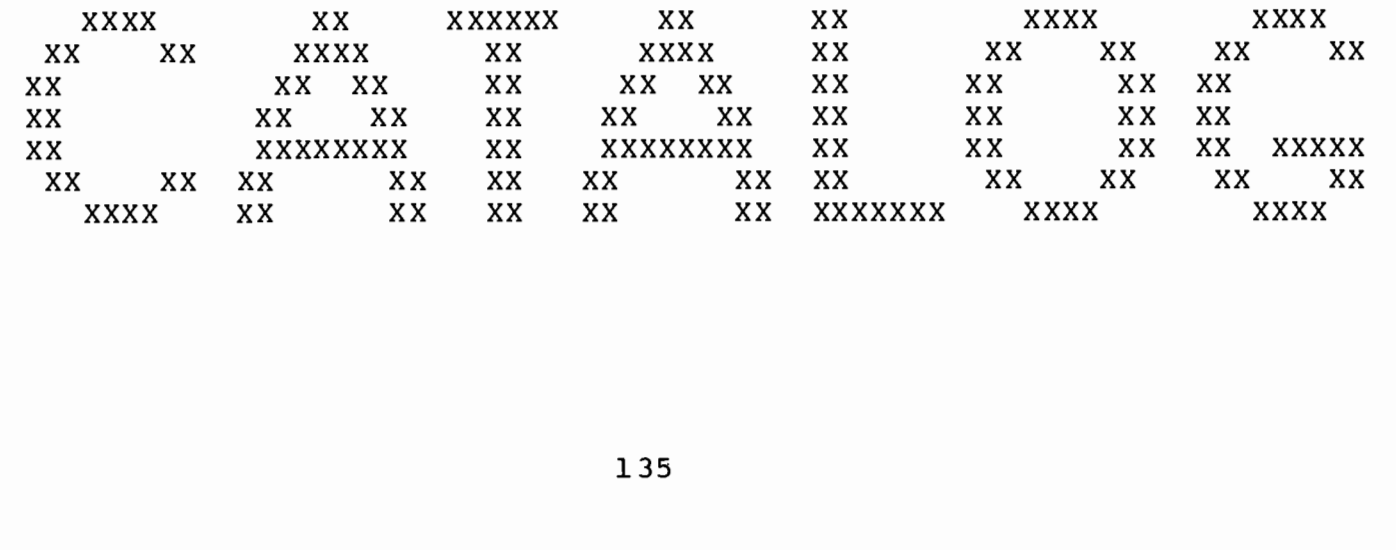
These manuals include discussions on:

- -MPE User Logging
- -New Console Capabilities
- -Spooler Enhancements
- -Storing/Restoring Tape Labels
- -Increasing Virtual Memory

For a further explanation on each of these enhancements refer to the opening article in this issue.







KEY

Manual entries noted by an asterisk (*) in the leftmost column have changed since the last edition of the catalog. An asterisk in the "Price" column indicates that the price of the manual was not available at catalog printing.

If the V (version) column contains a #, the manual is applicable to systems running MPE III and to those running MPE C. Manuals which apply to MPE C systems only are listed under "MPE C MANUALS".

HP 3000 COMPUTER SYSTEMS

SYSTEM MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	Using the HP 3000: An Introduction to Interactive Programming	#	03000-90121	6.50	1/79		
	General Information Manual (Series II/III)		30000-90008	5.25	10/78		
*	MPE Commands Reference Manual		30000-90009	13.50	4/78		
*	MPE Intrinsics Reference Manual		30000-90010	20.00	4/78		

SYSTEM MANUALS (continued)

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	MPE Segmenter Reference Manual	#	30000-90011	3.50	2/77		
	MPE Debug/Stack Dump Reference Manual	#	30000-90012	4.50	9/76	6/77	10/78
*	Series II/III Console Operator's Guide		30000-90013	13.50	4/78		
*	System Manager/System Supervisor Manual		30000-90014	12.75	4/78	11/78	5/79
*	Error Messages and Recovery Manual		30000-90015	18.50	6/76	5/78	2/79
*	HP 3000 Series II/III System Reference Manual		30000-90020	8.25	7/78	1/79	8/77
*	HP 3000 Series II/III Machine Instruction Set		30000-90022	5.50	6/76	7/78	
*	MPE System Utilities Reference Manual		30000-90044	5.00	3/77	11/78	9/78
	Index to MPE Reference Documents		30000-90045	3.75	8/78		
	Software Pocket Guide		30000-90049	5.25	4/78		
	Instruction Decoding Pocket Guide		30000-90057	1.00	9/78		
	Using Files	#	30000-90102	4.50	4/78		
	Instruction Decoding Pocket Guide - Series 33		30070-90024	.75	9/78		
*	Console Operator's Guide Series 33		30070-90025	12.75	11/78		

LANGUAGE MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	BASIC for Beginners	#	03000-90025	6.00	11/72		
	BASIC/3000 Pocket Guide	#	03000-90050	1.25	9/74		
	System Programming Language Reference Manual	#	30000-90024	9.50	9/76	2/77	12/77
	System Programming Language Textbook	#	30000-90025	7.50	6/76	1/77	9/77
	BASIC Interpreter Manual		30000-90026	10.50	6/76	8/78	11/78
*	FORTRAN Reference Manual		30000-90040	8.50	6/76	5/79	5/77
	SPL Pocket Guide	#	32100-90001	2.00	11/76		
*	FORTRAN Pocket Guide	#	32102-90002	2.50	9/77		
	BASIC Compiler Reference Manual	#	32103-90001	3.00	11/74	6/76	9/77
*	RPG/3000 Compiler Reference Manual	#	32104-90001	22.00	2/77	11/78	4/79
	RPG Listing Analyzer	#	32104-90003	.50	2/77		
	APL Reference Manual		32105-90002	35.00	1/79		
	APL Pocket Guide		32105-90003	4.50	11/76		
*	COBOL Reference Manual	#	32213-90001	12.00	7/75	2/79	4/79
	Using COBOL: A Guide for the COBOL Programmer	#	32213-90003	6.50	3/78		

DATA COMMUNICATIONS MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	Guidebook to Data Communications		5955-1715	3.00	1/77		
	2780/3780 Emulator Reference Manual(RJE/3000)	#	30000-90047	7.50	6/77		
	Data Communications Handbook		30000-90105	14.00	10/78		
*	HP 30032B Asynchronous Terminal Controller Ins. & Service Manual		30032-90004	14.00	1/74	7/76	2/77
*	HP 30055A Synchronous Single-line Controller Ins and Service Manual	#	30055-90001	6.25	12/77	4/79	11/78
*	HP 30055A Synchronous Single-line Controller Stand-alone Diagnostic Manual (D434)	#	30055-90008	1.55	4/79		
*	Hardwired Serial Interface, Installation and Service Manual		30360-90001	6.00	3/77		
	Hardwired Serial Interface Stand-alone Diagnostic Mnl (D432)		30360-90007	2.50	3/77	4/77	
*	DS/3000 Reference Manual		32190-90001	19.00	3/77	5/78	2/79
	DS/3000 to DS/1000 Reference Manual		32190-90005	7.25	1/78		
	MRJE/3000 Reference Manual		32192-90001	8.75	1/78	5/78	11/78
	MTS/3000 Site Preparation and Installation Manual		32193-90001	7.00	5/78	9/78	
	MTS/3000 Reference Mnl		32193-90002	6.50	5/78	8/78	

TRANSACTION PROCESSING MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
*	QUERY Reference Manual	#	30000-90042	7.50	6/76	5/79	11/78
	Data Entry Library Mnl	#	30000-90050	7.00	5/78		
*	KSAM Reference Manual		30000-90079	*	5/79	4/78	6/77
*	VIEW/3000 Reference Manual		32209-90001	12.75	11/78		
*	VIEW/3000 Programmer/ Designer Pocket Guide		32209-90002	1.00	2/79		
*	VIEW/3000 ENTRY Program Operator's Quick Reference guide		32209-90003	2.50	2/79		
*	IMAGE Data Base Manage-ment Reference Manual		32215-90003	*	5/79	9/78	

MANUFACTURING APPLICATIONS MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
*	EDC/3000 User Reference Manual		32380-90001	20.00	3/78	4/78	
*	EDC/3000 System Admin. Reference Manual		32380-90002	8.50	3/78	4/78	
*	IOS/3000 User Reference Manual		32384-90001	25.00	3/78		
*	IOS/3000 System Admin. Reference Manual		32384-90002	11.00	3/78		
*	MRP/3000 User-Admin. Reference Manual		32388-90001	19.50	8/78		
*	SPC/3000 User Reference Manual		32392-90001	*	4/79		

SUBSYSTEM MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
*	EDIT Reference Manual	#	03000-90012	6.00	8/75	2/79	1/79
	Trace Reference Manual	#	03000-90015	4.50	6/76		
*	FCOPY Reference Manual	#	03000-90064	4.50	2/78	2/79	9/78
	Scientific Library Reference Manual		30000-90027	4.25	6/76	2/77	9/77
	Compiler Library Reference Manual		30000-90028	8.50	11/76		
	SORT Reference Manual	#	32214-90001	3.50	8/76		

EDUCATIONAL APPLICATION MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	Student Information System Reference Manual	#	32900-90001	13.00	9/74	8/76	
	Student Information System Technical Mnl	#	32900-90005	32.00	3/75		
	Student Assignment System Reference Manual	#	32901-90001	15.50	8/78	8/76	
	Student Assignment System Technical Manual	#	32901-90005	9.75	8/78		
	College Information System Reference Manual	#	32902-90003	13.00	1/78		
	College Information System Technical Mnl	#	32902-90005	10.50	2/78		

ADDITIONAL MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	HP 3000 Series System Support Log		03000-90117	17.50	10/78	1/79	
	HP 3000 CX to HP 3000 Series II Program Conversion Guide		30000-90046	3.50	6/76		
*	Site Preparation Manual Series II/III		30000-90082	7.00	9/78		
	Site Planning Workbook Series II/III		30000-90086	6.00	9/77		
	Guide to a Successful Installation	#	30000-90135	3.25	5/79		
	Series III(32435A) Site Preparation Manual		30000-90145	1/79			
	Series III(32435A) Site Planning Workbook		30000-90146	1/79			
*	Series 33 Computer Systems Site Preparation Planning Guide		30070-90007	4.00	10/78	2/79	
*	Series 33 Installation Manual		30070-90021	5.25	10/78		
	Series 33 Computer Systems Site Planning Wkb		30070-90029	6.00	9/78		
	Series 33 Diagnostic Manual Set		30070-60068	*			
	HP 2894A Card Reader Punch Operating Manual		30119-90009	11.50	10/76		
	Line Printer Operating and Programming Manual		30209-90008	6.75	6/76		
	IBM System/3 to HP 3000 Conversion Guide	#	32104-90004	5.75	7/78		

MPE C MANUALS

	Manual Title	V	Part Number	Price	Print Date	Up-dated	Incor
	System Reference Manual Series I		03000-90019	24.00	9/73	3/77	
	Software Pocket Guide		03000-90126	2.70	7/78		
	MPE Intrinsics Reference Manual		30000-90087	20.00	4/77	4/78	
	MPE Commands Reference Manual		30000-90088	20.00	4/77	4/78	
	System Manager/System Supervisor Manual		30000-90089	12.50	4/77	4/78	
	Console Operator's Guide		30000-90090	11.00	4/77	4/78	
	General Information Manual (Series I)		30000-90091	9.25	4/77		
	Site Preparation Manual Series I		30000-90096	5.25	4/77		
	Site Planning Workbook Series I		30000-90100	6.00	4/77	5/78	
	MPE System Utilities Reference Manual		32000-90008	2.05	10/75		
	BASIC Interpreter Reference Manual		03000-90008	9.75	7/75		
	FORTRAN Reference Manual		32102-90001	10.00	3/76		
	2780/3780 Emulator Subsystem Reference Mnl		30130-90001	9.00	12/74	2/76	
	IMAGE Data Base Management Reference Manual		30000-90041	7.00	12/76	5/78	
	INDEX/3000 Reference Mnl		30000-90095	10.50	6/77	4/78	
	Compiler Library Reference Manual		03000-90009	11.50	2/76		
	Scientific Library Reference Manual		03000-90010	5.75	7/75		
*	IBM 1130/1800 to HP 3000 FORTRAN Conversion Gd		36995-90013	4.70	2/75	5/75	1/79

NOTE

In the last issue of the COMMUNICATOR (#20), the print date of the SORT Reference Manual was incorrectly printed as 1/79 (pages 151 and 154). We apologize for any inconvenience or confusion this may have caused.

BAUD LINE

THE NEW APL/3000

Jim Kennedy
General Systems Division

APL/3000 has been enhanced with seven major new features available with the 1906 MIT. APL/3000 s new functional capabilities can provide you with a product that will more cost-effectively meet your APL application processing needs. These enhancements provide advantages as indicated in the table below:

NEW APL/3000 FEATURE	APL USER ADVANTAGE
1. APL Component File System	• Simplified file creation and manipulation for APL data • Ease of conversion from large APL timesharing systems
2. Error Handling	• Secure applications environment (e.g., User-defined functions handle execution errors)
3. Commercial Formatter	• Easy design of a variety of reports • Ease of conversion from large APL timesharing systems
4. Programmatic Access to System Commands	• Expanded use of 3000 system capabilities • Ease of conversion from large APL timesharing systems

5.	External Procedure Calls	• Efficient use of HP 3000 subsystem resources • Ease of conversion from large APL timesharing systems
6.	Distributed Systems Extensions	• Expand APL capabilities to distributed networks
7.	Double Word Integers	• Large Vector/Matrix Dimensions • Ease of conversion for APL applications with large array processing requirements

By expanding the power of APL/3000, these new capabilities provide a means to more efficient use of your HP 3000.

TIPS FOR USING VIEW/3000

Carla Klein
General Systems Division

Here is a collection of helpful hints and techniques for effectively using VIEW/3000.

1. During compilation of a forms file, one code record is generated for each form. This record must contain all of the information needed to display the screen and edit all fields at run time. The maximum size of the code record is 8000 bytes. If you are encountering the error "Too many statements; code is too big" during compilation, the code record for one of the forms is too large. You should then review each form considering the custom error messages, extensive editing, and number of fields (maximum of 128 per form). Reducing these factors will reduce the amount of code generated and help produce a successful compile.

2. Application programs which use VIEW/3000 procedures will generally require the MAXDATA parameter at PREP or RUN time. The value used depends on the size of the program and the size of the largest form. VIEW/3000 must acquire space in the DL to DB area of the stack, so most programs will require a larger stack to accommodate this area.

3. Forms files and reformat files are KSAM files. They can be built, renamed, or purged using the utility KSAMUTIL. FORMSPEC and REFSPEC create files with 100 records, but you may need a larger file if a LISTF shows that your file is approaching the file limit. First build a larger file with the following KSAMUTIL command:

```
>BUILD filename;KEYFILE=keyfilename;&
>REC=-8000,1,V,ASCII;DISC=# of records,16;&
>KEY=B,1,32;KEYENTRIES=1000;&
>CODE=1035 (for a forms file) or
      1037 (for a reformat file)
```

   Then use FCOPY to copy the existing file to the new file.

```
>FROM=oldfilename;TO=newdatafilename
```

   FCOPY can also be used to create exact copies of KSAM files with this command:

```
>FROM=oldfilename;TO=(newdatafilename,newkeyfilename)
```

The new file will have the same number of records as the old file.

To rename a KSAM data file or key file, you MUST use the KSAMUTIL RENAME command.

```
>RENAME olddatafilename,newdatafilename
>RENAME oldkeyfilename,newkeyfilename
```

The KSAMUTIL PURGE command will purge both the data file and key file with one command.

```
>PURGE datafilename
```

4. When using VIEW/3000, there must be sufficient terminal buffers available to handle the block mode transfers for all concurrently executing terminals. The minimum number of buffers necessary is 100, but if there will be many parallel users or large transfers, more buffers will be required. The maximum number that can be configured is 255, shared by all processes.

5. When a form is rolled off the screen or under a frozen form by the next form, it cannot be retrieved again using the scrolling keys. These may only be used when a single form occupies more than one screen.

6. On the keyboard interface card of a 2640B terminal, the A, C, and H straps should be closed and the D, E, F, and G straps should be open. Opening the E strap allows the operator to use the function keys without also pressing the CNTL key. This is much more convenient for the operator! Remember to power off the terminal before changing the strapping and then power it on so that the new strapping takes effect.

7. Two new VIEW/3000 publications may now be ordered. They are the VIEW/3000 Pocket Guide for Programmers/Designers (32209-90002) and the VIEW/3000 ENTRY Program Operator's Quick Reference Guide (32209-90003). These guides are concise, easy-to-use references for VIEW/3000 users.

8. When using FORMSPEC and REFSPEC, a source record is generated each time ENTER is pressed for a menu. So, if all defaults are taken on a particular menu, use the NEXT function key (f6) to advance to the next menu rather than using the ENTER key. This prevents unnecessary source records from being written to the forms file or reformat file.

9. An alternative to using CNTL f2 and CNTL f3 as nondisplaying field delimiters is to use ESC [and ESC]. Both methods define the beginning and end of an unprotected field.

If you have found any other helpful techniques, please let me know so that I can share them with all VIEW/3000 users.

SPC/3000 JOINS MFG/3000 FAMILY

Pete Van Kuran
General Systems Division

STANDARD PRODUCT COSTING (SPC/3000)

Standard Product Costing (SPC/3000) is one of four software products included in MFG/3000, an integrated on-line system developed by Hewlett-Packard for managing the materials planning and control function of a manufacturing operation.

SPC/3000 performs the calculations necessary to determine the current total cost for each sub-assembly, assembly, and end-item in a manufacturer's material planning and control system. It can also set standard costs for each product and its components.

The three other MFG/3000 software products are: Engineering Data Control (EDC/3000), Inventory and Order Status (IOS/3000), and Material Requirements Planning (MRP/3000).

USING SPC/3000

SPC/3000 uses customer supplied current cost information entered through the EDC/3000 data entry screens and maintained in the EDC/3000 data base. This information might normally be entered by purchasing personnel for material costs, production control personnel for workcenter and routing information, and accounting personnel for labor and overhead rates.

Cost editing identifies current costs that have not been properly initialized or have logical inconsistencies, such as a purchased part with no material cost. A Cost Roll-Up Edit Report is printed that identifies all detected conditions that could cause an unreliable or inconsistent Cost Roll-Up.

Cost Roll-Up is a major function of SPC/3000. Roll-Up may be accomplished non-stop through all assembly levels, or it may be stopped at the completion of each level. Specific part selection, using one of four different criteria, provides a high degree of flexibility. Costs at each level are accumulated and then combined with the costs for all lower levels before being rolled-up to the next higher level. The Roll-Up continues until the current cost is determined for the selected part. The Roll-Up is accomplished without affecting the standard cost for the selected part

and each of its fabricated components. These reports can then be used by the finance or accounting department to determine the acceptability of the calculated costs for their use as standard costs.

Cost Roll-over converts the results of the latest Cost Roll-up to standard costs by replacing the old standard cost values with the existing current cost values. Standards are established only after all information is edited, accumulated, and verified. Standard costs are carefully determined costs and may be used for setting goals, establishing budgets, measuring performance, or determining product prices.

TRANSACTION LOGGING AND RECOVERY

Jutta Kernke
General Systems Division

IMAGE/3000 has been enhanced to provide transaction logging and recovery to bring data bases back to a semblance of their state at the time of a system failure. This enhancement is being released with the 1918 IT, and requires the MPE III User Logging system.

The IMAGE logging system provides a mechanism to log data base transactions to a logfile on tape or disc; the recovery system reads this logfile to re-execute transactions against a data base backup copy in the event of a failure. Secondarily, the transaction logging system can be a useful tool for auditing. The logfile is actually a record of all modifications of items in the data base, providing information about previous entries as well as the current state of the data base. The logged intrinsic DBMEMO, containing user text, facilitates accessing and interpreting the logfiles for future reference.

The data base administrator is responsible for enabling or disabling the logging and recovery processes and generating back-up data base copies, making logging a global function controlled at the data base level rather than at the individual user level.

The IMAGE logging and recovery system is designed to restore data bases to a consistent state, both structurally and logically. The concept of a "logical transaction" is central to this process. A transaction is defined as a sequence of one or more modifications which transfer a data base from one consistent state to another.

If the system fails while the data base is being modified, two forms of damage to the data base could result. A logical inconsistency might result if the failure occurs between modifications of a multiple-step transaction. Secondly, structural damage (such as broken chains) can result if the failure occurs during the execution of an IMAGE procedure.

The IMAGE/3000 recovery system is designed to restore the data base to a consistent state both structurally and logically. Therefore, those modifications that belong to transactions that failed to complete due to a system failure are suppressed by the recovery system. Consequently, although one or more data base

modifications may be lost upon recovery, the resulting data base will be consistent. The IMAGE logging and recovery system is not intended to be a solution for transactions which fail to complete in real time due to a program abort.

For detailed examples, refer to the May edition of the IMAGE Data Base Management Reference Manual.

NEW TERMINALS, OPTICAL MARK READER ON THE SERIES 33

Pete Sinclair
General Systems Division

As of the 1918 IT, the HP 3000 Series 33 will support term types 4, 6, and 9. This is in addition to the currently supported term types 10, 11, 12, 15 and 16. With the addition of types 4, 6, and 9, a wide variety of non-HP terminals, as well as all HP terminals, can be attached to the Series 33 ADCC. Check the Communications Handbook or the MPE III Software Pocket Guide for complete details.

In addition to the new term types, the 7260A Optical Mark Reader will be supported on the Series 33 with the 1918 release of MPE. The 7260A will read mark sense cards as well as punched cards (on a limited basis). The unit operates in conjunction with any RS232C terminal on the system and transmits data in a serial ASCII mode. The MPE FCARD intrinsic completely controls the 7260A and is callable from most languages. Check the latest Price/Configuration Guide for more details.

Good Programming!

DS 3000 QUESTIONNAIRE

DS/3000 was initially released about two years ago. Since that time, other HP systems (HP1000, HP2026) have added the capability to be nodes in a DS/3000 network. The GSD 3000 lab is currently considering enhancement alternatives for DS, and is very interested in current DS user input. The purpose of the following questionnaire is to gather information about current user networks and their future needs. If you use DS today, or are planning to implement an HP network, and you are interested in giving some input to the lab, please fill out the questionnaire and send it in to us. The questionnaire is a single self-addressed sheet which can be folded into thirds to make its own mailer. If the space provided in any area is not sufficient for your comments, feel free to attach additional pages.

1. Draw a diagram on the back of this sheet describing your DS network. Label all links as to type (HSI, SSLC (Leased, Switched, Satellite)) and speed, and all systems as to type (3000, 1000, 2026, IBM).

2. Describe your typical functional usage of DS by assigning a percentage to each of the following:

___ Remote Terminals	___ Remote File Transfer
___ Remote Peripheral Access	___ Remote Data Base Access
___ Remote File Access	___ Program to Program

3. If you do remote file transfers, what program do you use to copy the files? _____

4. Describe the typical traffic per link by assigning a percentage to each of the following:
   - ___ Single DS user per system; data transfer across the link in only one direction at a time.
   - ___ Multiple DS users per system; data transfer across the link in only one direction at a time.
   - ___ Multiple DS users per system; data transfer across the link in both directions simultaneously.

5. If you anticipate using satellite links on your DS network, how soon and at what speed? _____

6. How would Public Packet Switching Network support (access to Telenet, Datapac) be used in your network if HP provided it?
   - ___ I don't know enough about Public Packet Switched Networks to answer this question.
   - ___ Would not use it.
   - ___ Cost effective alternative for long distance HP to HP Communication.
   - ___ A way to connect HP to non-HP systems.
   - ___ Have Packet Switched Network act as a terminal concentrator for HP system.
   - ___ Would want terminals on HP system to be able to access other (non-HP) systems on the Packet Switched Network.
   - ___ Other. Please explain. _____

7. Could you briefly describe your network expansion plans?

   _____

8. What do you like most about DS today? _____

   _____

9. What do you like least about DS today? _____

   _____

10. Any additional comments? _____

    _____

SITE NAME: _____

YOUR NAME: _____

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_____

PHONE (optional): _____

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