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HEWLETT PACKARD

MRJE/3000
Multileaving Remote Job Entry
Reference Manual

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This Package Documents
New Software Enhancements
For MRJE/3000

This new manual, *MRJE/3000 Multileaving Remote Job Entry Reference Manual*, part number 30249-90001, documents software enhancements for MRJE/3000 and replaces the existing *DSN/MRJE Multileaving Remote Job Entry Reference Manual*, part number 32192-90001. Continue to use the existing manual, part number 32192-90001, until the software enhancements are available. You may order this new manual beginning in September of 1984.

MRJE/3000
Multileaving Remote Job Entry

Reference Manual

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New editions are complete revisions of the manual. Update packages, which are issued between editions, contain additional and replacement pages to be merged into the manual by the customer. The dates on the title page change only when a new edition or a new update is published. No information is incorporated into a reprinting unless it appears as a prior update; the edition does not change when an update is incorporated.

The software code printed alongside the date indicates the version level of the software product at the time the manual or update was issued. Many product updates and fixes do not require manual changes and, conversely, manual corrections may be done without accompanying product changes. Therefore, do not expect a one to one correspondence between product updates and manual updates.

First Edition .... Aug. 1984 .... 30249A. 54. 00

NOTE

This supersedes the *DSN/MRJE Multileaving Remote Job Entry Reference Manual* (32192-90001)

The List of Effective Pages gives the date of the most recent version of each page of the manual. Within the manual, changes since the most recent edition are indicated by printing the date of the update on the bottom of the page, and by marking the changes with a vertical bar in the margin. If an update is incorporated when an edition is reprinted, these bars are removed but the dates are retained. No information is incorporated into a reprinting unless it appears as a prior update. To verify that your manual contains the most current information, check that the date printed at the bottom of the page matches the date listed below for that page.

Effective Pages   Date

All .... Aug. 1984

This is the reference manual for Multileaving Remote Job Entry (MRJE/3000). MRJE/3000 is a subsystem of the HP3000 computer system, and it provides for the submission of multiple batch job streams to remotely-located host computers operating HASP, JES2, JES3, ASP, or RSCS Job Entry Subsystems.

AUDIENCE

This manual addresses the following types of audience:

- **MRJE/3000 User:** The person who accesses the MRJE/3000 subsystem, in either batch or session mode, to submit jobs for processing on a host system.

- **The MRJE/3000 Manager:** The person who plans MRJE/3000 use and enters MRJE/3000 Manager commands to build MRJE/3000 Configuration Files and to monitor the activity of the subsystem.

- **MRJE/3000 Console Operator:** The person who operates the HP3000 master console and I/O devices and any other person authorized to control the communication links between the HP3000 and remote hosts from a terminal.

NOTE

Readers of this manual should be already familiar with the pertinent operating characteristics of their host systems.

ORGANIZATION

SECTION 1, Introducing MRJE, introduces you to the capabilities, structure and operation MRJE/3000.

SECTION 2, Planning MRJE Jobs, explains how to prepare job streams for entry to the host using MRJE/3000 and to prepare for output from the host.

SECTION 3, Commands Available to the MRJE User, describes MRJE/3000 commands available to the MRJE/3000 User and describes their function and syntax. Access to host console commands is also described.

SECTION 4, Managing MRJE/3000, discusses the management of MRJE/3000, including the construction and maintenance of management files, and describes MRJE/3000 Manager commands.

SECTION 5, Control of the Communications Link, explains the MRJE/3000 commands used to open, monitor, and close the HP3000-to-host communications link from the HP3000.

PREFACE (continued)

SECTION 6, MRJE/3000 Troubleshooting and Information Messages, describes several MRJE/3000 troubleshooting tools, lists information messages with explanations, and lists error messages with explanations and recovery procedures.

The appendices provide information on MRJE/3000 management file configuration, configuration of the HP3000, and configuration of the host for communication with the HP3000.

APPENDIX A, Configuration File Contents, provides information about MRJE/3000 management file configuration.

APPENDIX B, Installing MRJE/3000 on the HP3000, describes a suggested MRJE/3000 installation procedure.

APPENDIX C, Configuring MPE to Include MRJE/3000, states how to configure MRJE/3000 into the MPE I/O system.

APPENDIX D, Configuring the Host for Communication with MRJE/3000, provides guidelines for configuring the host system for communication with MRJE/3000.

APPENDIX E, Exit Procedure, describes how to develop and install a user-written exit procedure to process console special form *setup* messages.

APPENDIX F, Printing Output on an HP2680 Laser Printer describes a use of device class LPS and Environment Files in ENV2680A.SYS.

Output Management is the preferred method of printing on an HP Laser Printer. The method described in Appendix F continues to be supported for compatibility with previous versions of MRJE/3000.

APPENDIX G, Glossary, defines terms used throughout this manual.

APPENDIX H, ASCII/EBCDIC Character Tables, is a set of character conversion tables.

RELATED DOCUMENTS

Refer to these publications for supplemental information:

- *Communicator 3000* (5955-1770)

- *MPE V Commands Reference Manual* (32033-90006)

- *MPE Commands Reference Manual* (30000-90009)

- *MPE File System Reference Manual* (30000-90236)

- *MPE V Intrinsics Reference Manual* (32033-90007)

- *MPE Intrinsics Reference Manual* (30000-90010)

- *MPE V Utilities Reference Manual* (32033-90008)

- *Pascal/3000 Reference Manual* (32106-90001)

- *System Utilities Manual* (30000-90044)

- *System Operation and Resource Management Reference Manual* (32033-90005)

- *System Manager/System Supervisor Manual* (30000-90014)

- *Console Operator's Guide* (32002-90004)

- *Native Language Support Reference Manual* (32414-90001)

- *Synchronous Single Line Controller (SSLC) Installation and Service Manual* (30055-90001)

- *HP30010A Intelligent Network Processor (INP) Installation and Service Manual* (30010-90001)

- *HP30020A/B Intelligent Network Processor (INP) Installation and Service Manual* (HP 30020-90001)

- *Data Communications Handbook* (5957-4634)

- IBM documents for the host operating system, for example, OS/MFT, OSMVT, OS/VS2 (MVS and SVS).

- IBM documents related to the host job entry system, for example, JES2, JES3, ASP, HASP, and RSCS.

CONVENTIONS USED IN THIS MANUAL

NOTATION	DESCRIPTION

NOTATION

DESCRIPTION

nonitalics

Words in syntax statements which are not in italics must be entered exactly as shown. Punctuation characters other than brackets, braces and ellipses must also be entered exactly as shown. For example:

EXIT;

italics

Words in syntax statements which are in italics denote a parameter which must be replaced by a user-supplied variable. For example:

CLOSE *filename*

[ ]

An element inside brackets in a syntax statement is optional. Several elements stacked inside brackets means the user may select any one or none of these elements. For example:

$\begin{bmatrix} A \\ B \end{bmatrix}$ User *may* select A or B or neither.

{ }

When several elements are stacked within braces in a syntax statement, the user must select one of those elements. For example:

$\begin{Bmatrix} A \\ B \\ C \end{Bmatrix}$ User *must* select A or B or C.

...

A horizontal ellipsis in a syntax statement indicates that a previous element may be repeated. For example:

[,*itemname*]...;

In addition, vertical and horizontal ellipses may be used in examples to indicate that portions of the example have been omitted.

A shaded delimiter preceding a parameter in a syntax statement indicates that the delimiter *must* be supplied whenever (a) that parameter is included or (b) that parameter is omitted and any *other* parameter which follows is included. For example:

itema[,*itemb*][,*itemc*]

means that the following are allowed:

itema
itema,itemb
itema,itemb,itemc
itema,,itemc

CONVENTIONS (continued)

Δ   When necessary for clarity, the symbol Δ may be used in a syntax statement to indicate a required blank or an exact number of blanks. For example:

SET[(*modifier*)]Δ(*variable*);

underlining   When necessary for clarity in an example, user input may be underlined. For example:
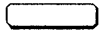
NEW NAME? ALPHA

In addition, brackets, braces or ellipses appearing in syntax or format statements which must be entered as shown will be underlined. For example:

LET *var*[[*subscript*]] = *value*

shading   Shading represents inverse video on the terminal's screen. In addition, it is used to emphasize key portions of an example.

⬭   The symbol ⬭ may be used to indicate a key on the terminal's keyboard. For example, (RETURN) indicates the carriage return key.

(CONTROL)*char*   Control characters are indicated by (CONTROL) followed by the character. For example, (CONTROL)Y means the user presses the control key and the character Y simultaneously.

CONTENTS

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FIGURES AND TABLES

The Multileaving Remote Job Entry (MRJE) subsystem of the HP3000 runs under the control of the Multiprogramming Executive (MPE) operating system. MRJE/3000 gives multiple users of the HP3000 access to any remotely connected host computer system that is using the HASP II (version 3.1 or subsequent), JES2, JES3, ASP, or RSCS Job Entry Subsystem. Jobs may be submitted from the HP3000 via the standard input devices (magnetic discs, magnetic tapes, card readers, and terminals); and output from the host may be routed to any of the standard HP3000 output devices (printers, discs, tapes, card punches, and terminals). Jobs may be submitted during an interactive session with MRJE/3000 or by means of a batch (stream) job.

In addition to accommodating multiple users, MRJE/3000 provides for an MRJE/3000 Manager who can interactively monitor and control job activity. Host console commands can be entered by the Manager from any HP terminal. Users may also be given access to one or more host console commands by the Manager.

MRJE/3000 handles a combination of eight logical print and logical punch streams, using a maximum of seven logical print streams or seven logical punch streams. MRJE/3000 also handles seven logical card reader streams and a command console input/output stream. These streams are all transmitted over the same communications line.

MRJE/3000 can run on suitably configured HP3000s (Series II or later) which have at least one operational communications controller. Depending on the model of HP 3000, controllers may be Synchronous Single Line Controllers (SSLCs) and Intelligent Network Processors (INPs).

Multiple hosts and multiple communications lines to the same host are supported by MRJE. Communications with the host(s) are governed by multileaving protocol and may take place over dial-up (switched) and leased lines. Modem speeds of up to 56000 bits per second are supported on appropriate communication lines.

Figure 1-1 shows a generalized MRJE/3000 communications system.
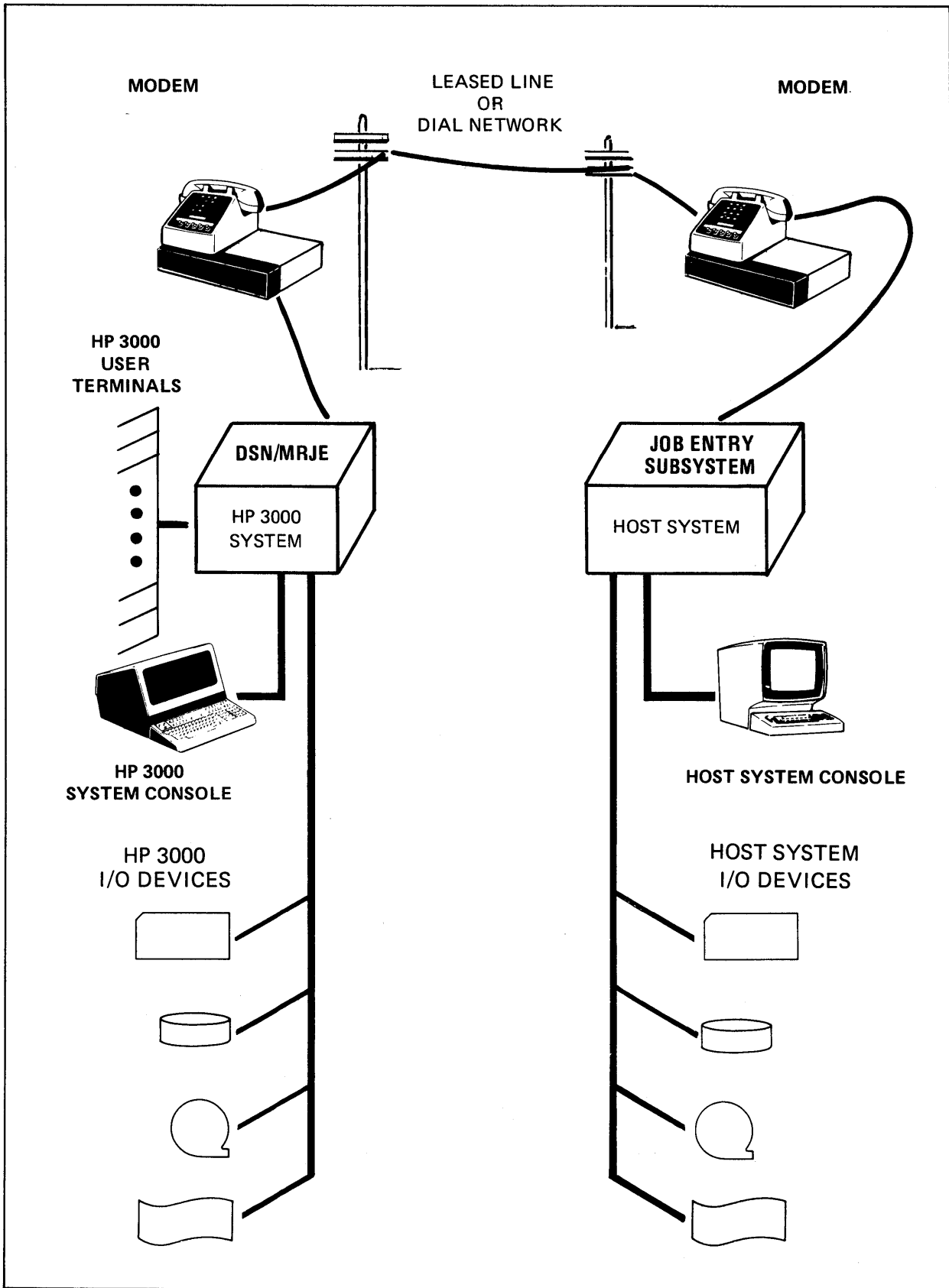
1471018-1

Figure 1-1. Elements of a Data Communication System

Introducing MRJE/3000

MRJE/3000 FEATURES

The MRJE/3000 subsystem provides commands for MRJE/3000 Users to:

- Specify a particular host machine for job processing.

- Submit jobs for execution on a host system.

- Specify job output disposition.

- Display the status of their jobs.

- Cancel their jobs.

- Exit MRJE.

- Execute MPE commands.

In addition, any user with the MPE System Supervisor (OP) capability can manage MRJE/3000 resources. The user MANAGER.SYS should have OP capability. A MRJE/3000 Manager can:

- Configure the files for MRJE/3000 operation, both required and optional.

- Display job status for any job being handled by MRJE.

- Cancel any job being handled by MRJE.

- Alter the current MRJE/3000 Configuration File.

- Maintain the MRJE/3000 Job Log File.

RUNNING MRJE

Your group and account must have a MAXPRI=CS or higher in order to use MRJE. To execute MRJE, log onto the HP3000 system with the standard HELLO or JOB and then issue the MRJE command from MPE. If the subsequent MRJE/3000 output (for example, listings produced by the DISPLAY command) is to be routed to a file as well as to $STDLIST, precede the command with a file equation as shown. If the file has not already been built, use the FILE command parameters ,NEW;SAVE.

```
:FILE LISTING=filename [,NEW;SAVE]
:MRJE
```

After the product identification is printed by MRJE/3000, all users can submit jobs to MRJE/3000, check job status, and cancel jobs. In addition, the Manager can monitor MRJE/3000 activity and perform other supervisory tasks. The Manager might, for example, define a new host machine by building or altering a configuration File, cancel users' jobs, or purge unwanted entries from the Job Log File.

1-3

PLANNING JOB INPUT AND OUTPUT

A job submitted to the host via MRJE/3000 may use the host application programs, utilities, and languages that are available to other remote users of the same host. Jobs are prepared by entering job control information, programs, and data into MPE files in card image format (as if they were being entered directly to the host on cards). MRJE/3000 builds job streams from the files and transmits the job streams to the host system(s). Users may create disc files to receive job output. Preparation of input and output files is discussed in Section 2, *Planning MRJE/3000 Jobs.*

Submitting Jobs

Submission of jobs to the host is a two-step process. They must first be submitted to MRJE. MRJE/3000 then submits them to the host. If the communications link to the host is open, MRJE/3000 transmits jobs as they are submitted (subject to MPE control). Otherwise, they are spooled until communications between the host and MRJE/3000 have been established. Spooling of job input occurs only if a pseudo reader has been spooled.

The submission of jobs is refused if the psuedo reader is not spooled and the host is offline, or if the pseudo reader is busy.

Jobs are submitted to MRJE/3000 in files. MRJE/3000 assigns a number to each job and displays its number at the submitter's terminal. The jobs may subsequently be referred to by this number.

Transmitting Jobs and Receiving Output

In order to transmit jobs to the host, the communications line between the HP 3000 and the host must be opened. This is done by issuing the distributed console command, MRJECONTROL START, or its equivalent. See Section 5, *Control of the Communications Link,* for further discussion of MRJECONTROL commands.

MRJE/3000 accesses any spooled input files that were created from input files specified in SUBMIT commands and transmits the jobs stored in them to the host system.

The host system then executes the jobs and returns output to the HP 3000 system. The return of output depends on factors such as host system execution time and job turn-around time.

MRJE/3000 receives the output, determines from its Job Log and Directory Files where the output is to be sent (for example, to a disc file or to a line printer), and then routes the output to the proper output device.

MRJE/3000 MANAGEMENT FILES

For each host machine configured into MRJE/3000 by the Manager, logged on as MANAGER.SYS, MRJE/3000 creates a set of three files in PUB.SYS:

• The Configuration File (MRJECON*h*).

• The Job Log File (MRJEJOB*h*).

- The Directory File (MRJEDIR*h*).

These files are accessed during MRJE/3000 execution.

MRJECON, MRJEJOB, and MRJEDIR are the names MRJE/3000 assigns to the set of files created for the default host machine. In multiple host environments, MRJE appends the first character of the host identification, *h* above, to the ends of these names to create unique file names. The names can subsequently appear in messages to users.

The Message Catalog File, MRJECAT, is installed as part of the MRJE/3000 product in the group and account PUB.SYS. This file contains most of the messages used by the subsystem.

Other files associated with MRJE can be created by the Manager, logged on as MANAGER.SYS, or by any user who can log on to the SYS account in the PUB group. These are:

- The Stream File (MRJESTR*h*).

- The Message File (MRJEMSG*h*).

- The Output Management File (MRJETABL).

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

One Output Management File, usually `MRJETABL.PUB.SYS`, serves all host systems.

The Stream File is *always* accessed when an MRJECONTROL START command is issued. The other files may be accessed during execution of the subsystem.

Configuration File

The Configuration File, MRJECON*h*.PUB.SYS, contains host machine configuration information. Entries exist for the host SIGNON card image, the default input/output devices for MRJE/3000, line connect/disconnect times and other information. The MRJE/3000 Manager can alter specific items in this file, or rebuild the entire file, if changes occur in the host or HP3000 system. The format and contents of a Configuration File are described in Appendix A.

Job Log File

The Job Log File, `MRJEJOB`*h*`.PUB.SYS`, contains information about each job submitted. Record items include the job number, the job name, the MPE logon ID of the User who submitted the job, the destination files specified for the job output (printer, punch, and special forms), the status of the job (if and when the job was transmitted or canceled), and, if the job was transmitted, the number assigned to it by the host. A sample Job Log File entry is:

```
JOB#=4 JOBNAME=MYJOB3 USER=PAT.DCA,M
PRINT="LP" PUNCH="CLPUN" FORMS="BANKFORM"
TRANSMITTED TO HOST TUE, MAY 23, 1980, 4:06 PM HOST#=2354
```

Directory File

This file, MRJEDIR*h*.PUB.SYS, is an index to entries in the Job Log file. It is used by MRJE/3000 to find entries more quickly. It is not accessible to users of MRJE/3000.

Message Catalog File

This file, MRJECAT.PUB.SYS, contains most of the messages that MRJE/3000 displays for the Console Operator, the MRJE/3000 Manager, and the User. The Message Catalog file is created when the subsystem is installed. Modify the Message Catalog File in those environments where users do not speak English.

<div style="border:1px solid">CAUTION</div>

If the Message Catalog is modified, remember to include any message parameters in the same sequence as was done in the original file.

Stream File

The Stream File, MRJESTR*h*.PUB.SYS, is *always* used whenever an MRJECONTROL START command is issued. It should be created by MANAGER.SYS, but may be created by any user with access to the PUB group of the SYS account. Security for this file should be restricted to MANAGER.SYS by using the MPE command ALTSEC, as described in the *MPE Commands Reference Manual*. The structure of this file is the same as for any stream file. The contents of a Stream File, MRJESTR*h*.PUB.SYS, must issue RUN MRJEMON.PUB.SYS, the MRJE/3000 monitor. A sample Stream File is included with the description of MRJECONTROL START in Section 5, *Control of the Communications Link*.

Message File

The Message File is used to receive host console messages, output messages from the host system, and a performance measurement data record which contains information about output data received. The Message File may be either an output system file, such as $STDLIST, or an actual file. If the Message File is an actual file, MRJEMSG*h*.PUB.SYS, then it should be created by MANAGER.SYS, and access to it should be limited to its creator. Use the ALTSEC command, as described in the *MPE Commands Reference Manual*. If the Message File is not an actual file, then a file equation must be in MRJESTR*h*.PUB.SYS. This is an example for a *default host*:

```
:FILE MRJEMSG=$STDLIST
```

This statement directs all messages to $STDLIST. Section 4, *Managing MRJE/3000*, describes the Message File. This file is optional. If it is absent all messages intended for it are lost.

1763e6d8fc8c28bd

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Do not confuse the Message File, MRJEMSG*h*, with the Message Catalog File,
MRJECAT.PUB.SYS.

Output Management File

MRJE/3000 interprets all form mounting instructions from the host as a directive to route output to a
destination as specified by an entry. One file, usually MRJETABL.PUB.SYS, is used to route output from
all configured hosts systems to destination devices. Each entry is composed of a fixed-length
eight-character FORMID, followed by parameter specifications permitted for a FILE command in MPE.
If an MRJETABL file is absent, then special forms output is processed using Configuration File values.

FORMID references, such as in SUBMIT command parameters and Configuration File items, are delimited
by single quotation marks,. For example,

```
SUBMIT MYJOB;PRINT='KENS'
```

causes all print streams except for special forms to be sent to the specification indicated by the KENS
entry. If the Configuration File item 20, is

```
20.  PRINT OUTPUT DEVICE='STD.'
```

then any print output, except for special forms, is sent to the specification indicated by theSTD. entry.

See *Output Management* in Section 4, *Managing MRJE/3000.*

MRJE/3000 ON A HIGH SPEED COMMUNICATION LINE

MRJE/3000 can communicate with a host system at 56000 bits-per-second (56Kb). When an HP2680 laser printer is connected to an HP3000, such as in an HP2685 Model 40 Print Station, you can have a very cost-effective remote print station for an IBM plug compatible host system that operates in a bisynchronous (BSC) network.

An HP3000 operating at 56Kb line speed must include:

- A Bell DDS communication line configured at 56Kb, or a local 4-wire circuit.

- An HP30020B Intelligent Network Processor (INP)

- An HP30221D (30221-60010) INP cable with a V.35 hood

- A Bell 500B Data Service Unit (DSU) modem or its equivalent, such as GTE L500A DSU as was used in testing.

- Multileaving buffers should be as large as possible to obtain performance benefits.

When operating at a high line speed you should consult with host system operations. Also, configure two printer streams for better subsystem performance at this speed.

When preparing jobs for a host, an MRJE/3000 User must consider host system characteristics, such as the type of Job Entry Subsystem and languages supported, as well as the HP3000 resources configured for MRJE/3000. Many host system characteristics are listed in the Configuration File. Consult the MRJE/3000 Manager or the host system manager for others. The contents of the Configuration File can be examined using the MRJE/3000 DISPLAY command. Section 3, *Commands Available to the MRJE/3000 User*, describes the DISPLAY command. The Configuration File is described in Appendix A.

JOB INPUT

Job input submitted to a host using a card reader normally consists of individual jobs composed of Job Control Language (JCL) cards, executable programs (also on cards), and data cards. The JCL, programs, and data are concatenated to form a job stream.

Construct jobs using MRJE/3000 as you would for direct submission to the host using a card reader. However, input with MRJE/3000 is in *card images* instead of physical cards. Each *card image* is a record that is 80 columns wide. These records are commonly combined into MPE files by the user; the files can then be submitted to MRJE/3000 for processing.

In the simplest case, a job stream is created from a single input file; in more complicated cases, a stream file is built from several files. MRJE/3000 concatenates your files into a single job stream, identifies the individual jobs within that stream, and transmits the jobs to the host one by one. They may be interleaved with jobs from other job streams as they are transmitted.

MRJE/3000 accepts input from up to three levels of *card image* files:

- Infiles

- Level-one FD files

- Level-two FD files

Infiles are specifically named in a SUBMIT command, while FD files are referenced indirectly by means of a *card image* pointer from an *infile* or another FD file. Only two levels of indirect file reference are permitted. *A level-two FD file may not point to another file.* Section 3, *Commands Available to the MRJE/3000 User*, describes the SUBMIT command.

Figure 2-1 illustrates the relationships among several *card image* files that have been merged into a single job stream. The names of the *infiles* were indicated by the user when submitting the job. First-level FD files, RED and BLUE, were specified indirectly by means of records, *card images*, contained in *infile* A. Two records within RED point to the two level-two files.

When MRJE/3000 processes a SUBMIT command, it opens each *infile* named directly in the command, and each FD file as it is referenced. Those files specified by an actual file designator are opened with the MPE semi-exclusive and read-only file restrictions. All others are opened with the MPE read-only/exclusive restrictions. Each file remains open until all of its records have been processed, at which time it is immediately closed.

Infiles

Infiles may contain complete or partial jobs. *Infiles* may contain ##FD cards that point to level-one or level-two FD cards. It is possible for an *infile* to consist solely of ##FD cards. An *infile* and any FD files must form complete jobs. An *infile* may be transmitted in transparent mode; however, MRJE/3000 Manager (OP) capability is required to do this. Its purpose is to allow transmission of host system JOB cards as data. This means that such jobs are not be entered into the Job Log File of the subsystem. An *infile* may also be transmitted without translation. Section 3, *Commands Available to the MRJE/3000 User*, describes the SUBMIT command. Appendix B, *Installing MRJE/3000 on the HP3000*, shows some sample input files.

FD Files

FD files are similar to *infiles* in that they may contain the same kind of information and are constructed in the same way. FD files may be transmitted transparently, as well as without translation. However, they are referenced directly by means of ##FD cards contained within the *infiles*. (See Figure 2-1.)

Files may not be nested to more than two levels. In other words, one file may reference another, which may itself reference another, but the third file may not reference any file. For example, file A in Figure 2-1 contains an ##FD card pointing to file RED; file RED has ##FD cards pointing to files WHITE and CLEAR. The second-level files, WHITE and CLEAR, can not reference any other files.

FD files may reference *infiles*; however, the same restrictions on levels of FD file nesting still apply.
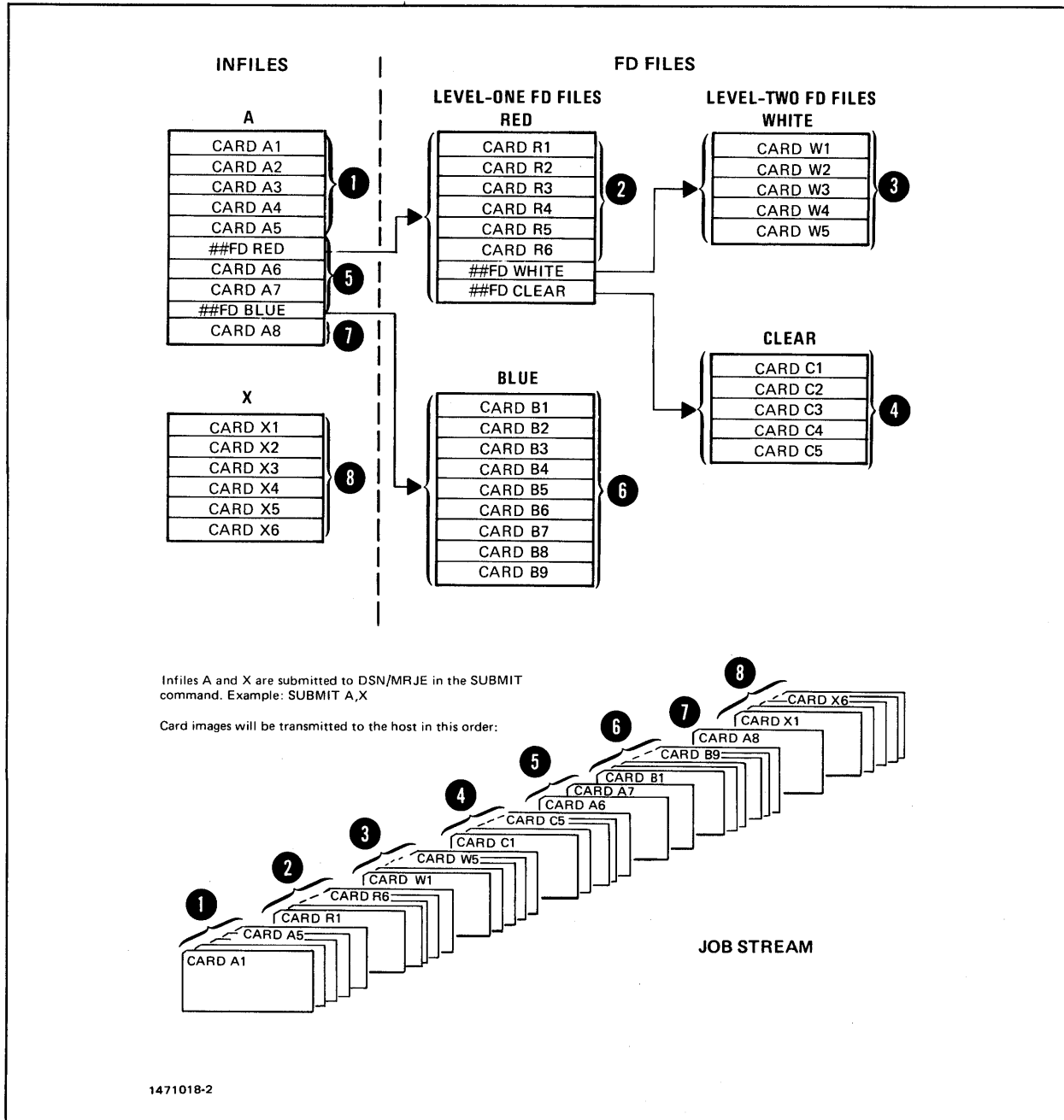
Figure 2-1. Relationship Among Files in a Job Stream.

##FD cards have the format:

Syntax

```
##FD filename  [ (N[OTRANSLATE][,T[RANSPARENT]]) ]  [comment]
                 (T[RANSPARENT][,N[OTRANSLATE]])
```

Parameters

##FD	File Definition. **##FD** must occupy columns 1 through 4.
filename	An MPE *filereference*. Files referenced by **##FD** may not be nested more than two levels.
NOTRANSLATE	No translation requests that the FD file be transmitted without translation. Refer to the SUBMIT command for more information about translation.
TRANSPARENT	Transparent transmission requests that all JOB cards in the FD file be passed to the host as data. As a result, all the JOB cards are ignored by MRJE/3000. If the (T) parameter is included, the proper JCL must still be included so the host also treats the JOB cards as data. Use the proper DD card.
comment	A character string. The *comment* becomes a prompting string when the *filename* is $STDIN.

Examples

```
##FD FILEB(T)  **Ignore JOB cards in FILEB**

##FD C (N,T)  **Do not translate C; ignore JOB cards**
```

If a file is built that requests input from $STDIN or $STDINX, the optional comment field on the ##FD card should be used to identify the type of input that is expected. Then, when the job input stream is constructed, the comment is printed at the user's terminal ahead of the standard MRJE/3000 message: ENTER INPUT ENDING WITH "MRJEOD". For example, if the *infile* DATA1 contains the record

```
##FD $STDIN  This input is for file DATA1.
```

the following appears at the terminal:

```
This input is for file DATA1.
ENTER INPUT ENDING WITH "MRJEOD"
>
```

Host System Job Control

MRJE/3000 does not check a job stream for conformity to all host job stream criteria before transmission. It does scan all input files for /*SIGNOFF cards and prints a warning message. The card is not transmitted to the host.

MRJE/3000 requires at least one JOB card whenever a SUBMIT command is issued. If the TRANSPARENT parameter is omitted from an *infile* reference, or from an FD *card image*, MRJE/3000 recognizes all JOB cards contained in the referenced file as job delimiters, not data.

Host system PRIORITY cards have no effect on the host when associated with the second or subsequent job in a job stream. Figure 2-2 shows two jobs are submitted to MRJE/3000 together. MRJE/3000 merges *infile* A with FD file RED. The first priority card has the desired effect on JOB1. The second priority card is transmitted to the host as part of JOB1 and therefore does not influence JOB2.

When priorities are important, each job should be submitted to MRJE/3000 separately.
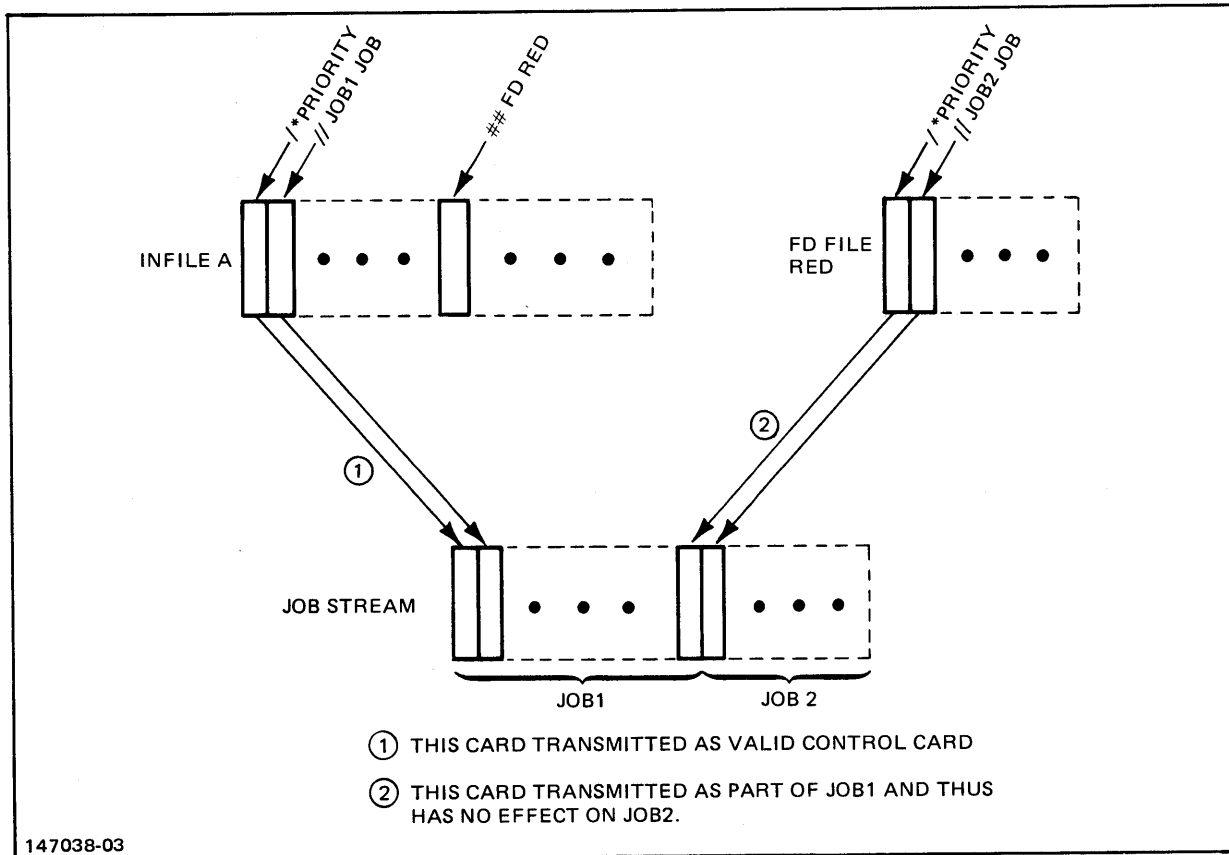
Figure 2-2. Priority Card to Job Stream Relationship

Input File Libraries

The job streaming feature of MRJE/3000 allows you to construct jobs from job control cards, programs, and data that already exist in disc files. You can create libraries of job modules that can be assembled into a variety of different jobs.

It is up to the MRJE/3000 user to ensure that *infiles* and FD files submitted together constitute a valid job according to host system requirements.

JOB OUTPUT

MRJE/3000 uses these criteria to determine the final destination of output for each data set received from the host:

- Is the output solicited or unsolicited.

- If solicited, did the user specify an output destination when the job was submitted. The SUBMIT command described in Section 3, *Commands Available to the MRJE/3000 User*, is used to specify a job output destination.

- Is *Output Management* in effect. MRJE/3000 uses the output routing table, usually MRJETABL.PUB.SYS, to identify output destinations. *Output Management* is described in Section 4, *Managing MRJE/3000*.

- What are the default output dispositions for solicited and unsolicited output as defined in the MRJE/3000 Configuration file, MRJECON*h*.PUB.SYS.

- Did the user route output to a special form with the JCL.

This hierarchy resolves any contradictions in destination:

```
                      SUBMIT Parameters

                         override

              JCL Special Forms Routing

                      which override

          MRJETABL and MRJECONh Default Values
```
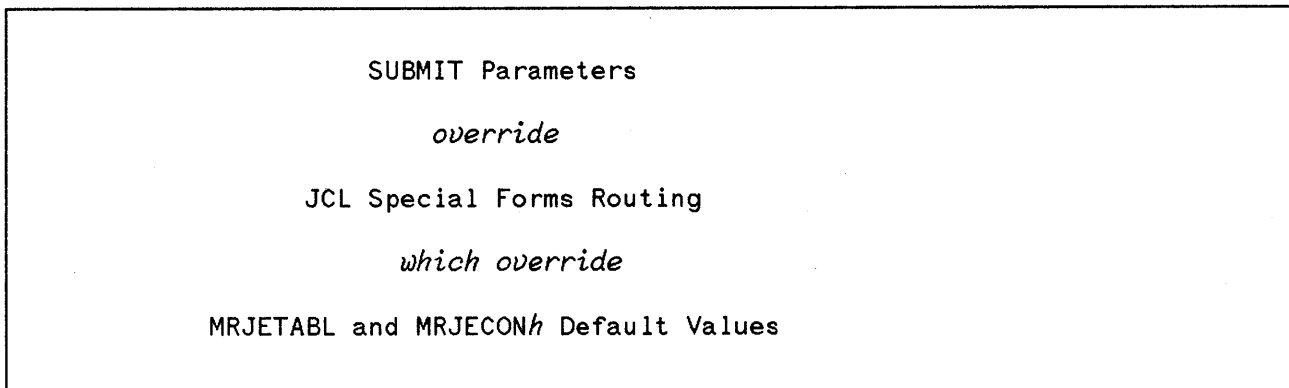
Figure 2-3. Job Output Destination Control Hierarchy

Job output can be routed to a disc file or to any output device by designating the output files in the SUBMIT command. Predefined output routing may take place to files designated whenever the MRJE/3000 monitor is started. All files can be formatted for print, punch, and special forms data.

Record Sizes

Record sizes should be:

- REC=-132,,F,ASCII;CCTL -- for print and special forms print files.

```
┌──────────────────┐
│      NOTE        │
└──────────────────┘
```

If printer output is to an HP3000 disc file, then you must specify a record
width, a *recsize* parameter of 133 bytes here, great enough for the carriage
control character. This can also be stated as

$$... \text{REC}=-133,,F,\text{ASCII};\text{NOCCTL} ...$$

in a FILE or BUILD statement. The maximum *recsize* value supported for
a host is 255 bytes.

- REC=-80,,F,ASCII;NOCCTL -- for punch and special forms punch files.

Specify record sizes at least as great as the record width of the MRJE/3000 output device configured on
the host. Output file specifications are explained by the SUBMIT command description, in Section 3
Commands Available to the MRJE/3000 User.

```
┌──────────────────┐
│      NOTE        │
└──────────────────┘
```

If a SUBMIT command names a disc output file, the file must be built with
sufficient extents allocated. MRJE/3000 does not allocate additional
extents if the need for them arises, although it does notify the system
operator when the limits of a file have been reached.

When MRJE/3000 receives job output from the host, the output file is opened with the default
specification of *append-only* access and the output is written to it. Output sent to spooled output devices
is owned by the user and account of the submitter. Sometimes output is not sent to the destination
specified by the user, but ends up going to a destination for unsolicited output. If this happens, check
with the MRJE/3000 Manager or the HP3000 system operator. MRJE/3000 may not recognize the
output from your job.

Kinds of Job Output

A job submitted through MRJE/3000 to a host system can produce these kinds of job output:

- Printer Output

- Punch Output

- Special Forms Output

Printer and punch output *without* special forms uses a standard form. A standard form is usually
identified as STD. by a host. Special forms output can apply to printer and punch output. Special forms
are usually identified as something other than STD. by a host. Special forms can apply to printer and
punch output.

FORMIDs, entries into MRJETABL, can be used in SUBMIT command PRINT, PUNCH, and FORMS
parameters, as well as in Configuration FIle items 20-35. Items 20 and 28 of the Configuration File

identify the default printer and punch output devices for solicited output. Items 21-27 are the unsolicited output devices for printers 1-7. Items 29-35 are the unsolicited output devices for punches 1-7.

Carriage Control Translation

The host normally sends carriage control information for printers with standard paper or special forms. Output for a card punch does not have carriage control information. Table 2-1 describes how MRJE/3000 translates host system carriage control information into carriage control characters.

Table 2-1. Host - HP3000 Carriage Controls

HOST SYSTEM CONTROL	HP3000 CONTROL CODE AND EXPLANTATION
Skip n spaces immediately, where $n < 3$	%2nn (nn < 3) A %101 sent before a %2nn sets up an *immediate* skip.
Skip immediately to channel nn, where nn < 13	%61 (channel 1, page eject), or %3nn (channel nn, where 2 < nn < 12) A %101 sent before a %61 or %3nn sets up an *immediate* skip.
Skip n lines after printing, where $n < 3$	%2nn (nn < 3) A %100 sent before a %2nn sets up skip *after* printing.
Skip to channel nn after printing, where nn < 13	%61 (channel 1, page eject), or %3nn (channel nn, where 2 < nn < 12) A %100 sent before a %61 or %3nn sets up a skip *after* printing.
Suppress space.	%53
All other host system control codes.	Single space

Output File Naming

MRJE/3000 usually assigns the *jobname* as the name of the output file. All special characters, and any leading numeric character in a *jobname* is replaced by an X character.

A default output file is named X by MRJE/3000 when it fails to decode a banner. Configuration File items 11 and 13 specify where job names are to begin in print and punch banners. These must be set correctly.

Overriding the Output File Naming Convention

Using the lookup table MRJETABL explained in Section 4, *Managing MRJE/3000*, a system administrator can designate alternate names for output files overriding the filename used by MRJE.

EBCDIC to ASCII Translation

In general, output is translated from EBCDIC to ASCII according to the specification in MRJE/3000 Configuration File entry #38 (Language ID for data translation). MRJE/3000 uses the TN print chain for a default EBCDIC to ASCII translation code.

Data translation is not done when:

- Output was solicited for which a user specified NOTRANSLATE in the SUBMIT command.

- Output was unsolicited and is going to a BINARY disc file.

Output Routing with Output Management

Output Management is a mechanism for routing output to a final destination based upon instructions sent by the host system to the remote system to control operation of the remote print devices. MRJE/3000 interprets an instruction from the host to *mount a special form* as a directive to *route output to the destination file FORMID*. A *FORMID* is the name of the special form. The output file characteristics for each FORMID are described in MRJETABL.PUB.SYS. MRJE/3000 uses this table to map from **forms** as understood by the host to **files** as understood by the HP3000.

Output Management can be activated by the system administrator by:

- First, setting MRJECON*h* items 20-35 (default output disposition) to the name of the default form as configured on the host. This entry must be delimited by single quotes ('). If the host standard form identification includes a period (.), then the period must be included in the Configuration File entry. Periods,or any alphanumeric or IBM national character (#, $ or @) may be used. For example, if the default standard form configured on the host is "STD." then Configuration File item 20 should be set as follows:

      20. PRINT OUTPUT DEVICE='STD.'

A similar entry should be made for each output device configured into the MPE I/O system.

- Second, build MRJETABL.PUB.SYS using a text editor such as EDITOR or TDP. This file must contain entries for any standard form identified in the MRJECON*h* file for all solicited and unsolicited output as well as entries for all "special" form identifiers to be supported on the remote. The file records are used as file equation specifications to identify output destinations for all *standard* and *special* forms. Additional information on MRJETABL is available in *Output Management* in Section 4, *Managing MRJE/3000*.

Special Forms Processing

When MRJE/3000 processes special forms *with* Output Management, a FORMID identifies a destination file. See *Output Routing with Output Management*. Additional information on *Output Management* is available in Section 4, *Managing MRJE/3000*.

MRJE/3000 processes special forms *without* Output Management as follows: Whenever special forms output destined for printers is received from the host system, the HP3000 console operator is prompted to mount the required special form on the printer. After the form has been mounted, MPE writes the output file to the printer. This is true for both spooled and unspooled (*hot*) printers. Use *hot* printers with caution, because data in transition may be lost.

Special forms can be designated using JCL commands in the user's job file to route output data sets to unique forms.

Example

```
//EXAMPLE JOB (ACCOUNT),PROGRAMMER
//STEP EXEC PGM=TEST2680
//MAINOUT DD SYSOUT=(A,,F001)
//SECOUT  DD SYSOUT=(A,,F002)
```

In this example, the output for MAINOUT is printed on the special form F001. The output for SECOUT is printed on special form F002.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

To route output to special forms, the host system must be configured to AUTOMATIC forms mode for each printer. In addition, the output class must be set to one for which output is not held on the host for post processing (JES2 $x parameter). Typically, this is true of CLASS A. **MRJE/3000 supports special forms processing for both print and punch output.**

If you submit several jobs to a host with one SUBMIT command, any alternate output destinations in PRINT, PUNCH, or FORMS parameters override JCL specifications. Section 3, *Commands Available to the MRJE/3000 User* explains the SUBMIT command.

Printing on an HP Laser Printer

Routing output to an HP Laser Printer is described in *Output Management* in Section 4, *Managing MRJE/3000*. Appendix F, *Printing Output on an HP2680A* describes the use of device class LPS on an HP3000.

Output Routing to Message Files

To route output to an MPE Message File specify the NOLOCK access option in the MRJETABL file equation record. This entry in MRJETABL.PUB.SYS denotes a Message File:

```
message ;code=msg;nolock
```

To route all unsolicited output for printer 2 to this message file the MRJE/3000 Configuration File item #22 should be set to the following:

```
Unsolicited Print Disposition, Printer 2 = 'MESSAGE'
```

Routing Job Output to Pre-Defined Files

An MRJE/3000 user can route output to a configured device class or logical device number, or to an actual disc file. Output from a job may also be routed to a specific destination, such as a printer with an output priority below the outfence, or to an HP Laser Printer with a specific environment file, or to a tape with a particular blocking factor. Specific routing requires cooperation between the user who submits a job and the administrator of the system.

A user must specify a FORMID in a SUBMIT command output parameter:

SUBMIT .... ;PRINT=$'formid_i'$;PUNCH=$'formid_i'$;FORM=$'formid_i'$

A $formid_i$ value is an index into MRJETABL. A corresponding $formid_i$ entry must be in MRJETABL. See *Output Management* in Section 4, *Managing MRJE/3000.*

Routing Default Output to Unsolicited Devices

To route default output from a job to an unsolicited output device, set PRINT=0, PUNCH=0 or FORMS=0 in the SUBMIT command. This supersedes default output and special form disposition, and routes output to one of the unsolicited output disposition device classes, devices, or *FORMIDs.*

To submit a job with printer output to be sent to its default output device, use:

SUBMIT *infile*

This identifies the printer output device from configuration output file item 20 as the printer output device.

To submit a job with printer output to be sent to the unsolicited printer output devices use:

SUBMIT *infile*;PRINT=0

This identifies Configuration File items 21 through 27, unsolicited print disposition for printers 1 through 7, as the output devices for printer data streams 1 through 7. If FORMS=0 in a SUBMIT command, then unsolicited output is sent to the destination identified in items 21 through 27 also.

If PUNCH=0 in a SUBMIT command, then unsolicited output is sent to the destination identified in items 29 through 35 of the Configuration File.

You can alter Configuration File items 20 and 28, default printer and punch output disposition, and to set these values to zero. Then all default output would be sent to the unsolicited output destination devices.

The customary use of unsolicited output devices continues to remain in force, so that unidentified job output continues to be routed to unsolicited output devices.

CAUTION

Configuration file items 21-27 and 29-35, the unsolicited output devices, should always be set to legitimate values such as output device classes, logical device numbers, pre-defined files, *Form IDs,* or Global File statements.

These items should never be set to 0. If these values are set to 0 then job output for these devices is lost.

For additional information on Output Routing consult *Output Management* in Section 4, *Managing MRJE/3000.*

Unsolicited Output Device Routing

A user can route output from jobs not submitted using MRJE/3000 to unsolicited output devices. Use the JCL appropriate to the host system. Specify an output class in either the MSGCLASS parameter of a JOB card or the SYSOUT parameter of DD card associated with a printer or punch stream. For example, if the output class for printer 3 is K use the following:

```
//REROUTE JOB ... MSGCLASS=K ...
```

or

```
//        DD   SYSOUT=K ...
```

For additional information on Output Routing see *Output Management* in Section 4, *Managing MRJE/3000*.

Global File Statements

Global File Statements can be used to direct output when a job is submitted.

$$\boxed{\textbf{NOTE}}$$

Global File Statements are superseded by *Output Management*.

Global File Statements require:

- A FILE statement in an MRJESTR*h* file.

- A Reference from a SUBMIT command using the *formaldesignator* preceded by an exclamation mark (!) in a PRINT, PUNCH, or FORMS parameter.

$$\boxed{\textbf{NOTE}}$$

The length of the *formaldesignator* reference is limited to **seven** characters.

Assume these statement are in MRJESTR.PUB.SYS.

```
:FILE HOLDLP;DEV=LP,1
:FILE LARGEREF;DEV=LP
:FILE X=X,OLD
```

And a User enters:

```
SUBMIT INFILE;PRINT=!HOLDLP
```

```
...
```

```
SUBMIT AJOB;PRINT=!X
```

The first SUBMIT command directs all print output for its job to file HOLDLP. It specifies device class LP with an output priority of 1. The second SUBMIT command directs all print output for its job to disc file X.PUB.SYS, which must already exist.

No use can be made of the file statement LARGEREF from a SUBMIT command, because it has an eight character *formaldesignator*.

This section describes how to use MRJE/3000 User commands for planning and submitting jobs.

MRJE/3000 user commands are summarized in Table 3-1. In addition to those listed, the User may enter one or more host system console commands, depending on how the Configuration File for a given machine has been built. For more about console commands, refer to *Host Console Commands* at the end of this section.

MRJE/3000 USER COMMANDS

Before entering any User command, log onto the HP3000 system and initiate MRJE/3000 execution with the MRJE command from MPE. Table 3-1 summarizes commands available to the MRJE/3000 User. MRJE/3000 User commands are described in alphabetic order.

Table 3-1. Summary of MRJE/3000 User Commands

COMMAND	FUNCTION
CANCEL JOB $\left\{\begin{array}{l}job\#\\jobname\\joblist\end{array}\right\}$	Cancels one or more of the User's jobs
DISPLAY $\left[\begin{array}{ll}\text{HOST} & \\ \text{JOBLOG} & \left\{\begin{array}{l},job\#\\,jobname\\,joblist\end{array}\right\} \\ \text{STATUS} & \\ \text{CONFIG} & \left\{\begin{array}{l},item\#\\,itemlist\end{array}\right\}\end{array}\right]$	Displays ID of current host, status of User's jobs, line status (open or closed), and information about host machine configuration.
EXIT	Terminates MRJE/3000 and returns control to MPE.
HELP [command name]	Provides a means for Users and Managers of MRJE/3000 to obtain brief instructions about how to use the subsystem commands.
HOST [hostid]	Specifies the host system to be referenced by subsequent commands.
host console command	A HASP, JES2, JES3, ASP, or RSCS command that usually generates output on $STDLIST.
SUBMIT infile [(options)] & ... [infile[(options)]] & [;READER = pseudo reader] & [;PRINT = [!]fileref[(N)]] & [;PUNCH = [!]fileref[(N)]] & [;FORMS = [!]fileref[(N)]] options = $\begin{array}{l}N[,T]\\T[,N]\end{array}$ N = NOTRANSLATE T = TRANSPARENT	Enters a job for transmission to the current host.
&	An ampersand (&) is used at the end of a command string to continue it to another input line.

The *job#*, *jobname*, *joblist*, *item#*, and *itemlist* parameters are described in the *Glossary*.

Cancels one or more jobs.

Syntax

```
C[ANCEL]  [J[OBS]]    ⎧job#    ⎫
                      ⎨jobname ⎬
                      ⎩joblist ⎭
```

Discussion

The CANCEL command is used to cancel jobs that have been submitted for processing on the host system. For jobs not yet transmitted to the host, CANCEL deletes the specified job number, name, or list from the reader spool file and marks the corresponding entry in the Job Log File as cancelled. If the job has been transmitted and the host system is on-line when this command is issued, a cancellation command is sent to the host system and the Job Log File entry is marked as cancelled. If the job has been transmitted but the host system is off-line, the Job Log File entry is marked as cancelled; any output from the job that is received by MRJE/3000 when the communications line is re-opened is discarded.

```
┌──────────────┐
│    NOTE      │
└──────────────┘
```

This command should not be used with an RSCS job entry system.

Parameters

JOBS	Optional parameter, provided for consistency with the DISPLAY command. Omitting JOBS has no effect.
job#	The number MRJE/3000 assigned to the User's job upon submission to MRJE.
jobname	The name on a JOB card in the User's input files.
joblist	A list of job names and/or job numbers.

The job#, jobname and joblist are described in the *Glossary*.

Using Cancel

Since the CANCEL command always references the files that were created for the current host system, you should issue a HOST command beforehand. This assures access to the proper Job Log File.

CANCEL

After the CANCEL command has been issued, MRJE/3000 displays the status of each specified job and requests confirmation that each job is to be cancelled. A literal YES confirms the cancellation request, while any other response (including Y) causes the command to be ignored. Although a job may be referred to by its name or by its number, its number is preferable because it defines a unique job and results in a faster response. If a User specifies a job name for cancellation and more than one job with the same name has been submitted, MRJE/3000 prints:

jobname: DUPLICATE JOBNAMES IN JOBLOG. CANCEL REFUSED. A DISPLAY OF JOBS WITH THIS NAME WHICH YOU OWN (IF ANY) FOLLOWS:

The message is followed by a list of the User's jobs with the name and their assigned job numbers. No cancellation occurs even though all instances of the job belong to the User. You should cancel jobs by *job#*, job number.

Example

In the following example, two jobs are cancelled. The HOST command has been entered first to be certain all commands reference the correct set of files.

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
USER CAPABILITY IN EFFECT
#HOST P
PLMS IS THE CURRENT HOST MACHINE
#CANCEL 2,4
--JOB#=2 JOBNAME=TEST2  USER=PAT.DCA,M
  PRINT="LP"  PUNCH="LP"  FORMS="LP"
  WAITING TRANSMISSION TO HOST
VERIFY CANCEL WITH "YES"
YES
SPOOL FILE DELETED
JOB#2 CANCELED
--JOB#=4 JOBNAME=TEST4  USER=PAT.DCA,M
  PRINT="LP"  PUNCH="LP"  FORMS="LP"
  WAITING TRANSMISSION TO HOST
VERIFY CANCEL WITH "YES"
YES
SPOOL FILE DELETED
JOB#4 CANCELED
```

The next example illustrates the execution of the CANCEL command when jobs exist with duplicate names:

```
#CANCEL JOB TEST
TEST: DUPLICATE JOBNAMES IN JOBLOG. CANCEL REFUSED. A DISPLAY
OF JOBS WITH THIS NAME WHICH YOU OWN (IF ANY) FOLLOWS:
--JOB#=11 JOBNAME=TEST  USER=PAT.DCA,M
  PRINT="LP"  PUNCH="LP"  FORMS="LP"
  WAITING TRANSMISSION TO HOST
--JOB#=20 JOBNAME=TEST  USER=PAT.DCA,M
  PRINT="LP"  PUNCH="LP"  FORMS="LP"
  WAITING TRANSMISSION TO HOST
```

This example shows the cancellation of a job already sent to the host system. The communications link is currently open:

```
#CANCEL JOB 3
--JOB#=3 JOBNAME=MYJOB2  USER=PAT.DCA,M
  PRINT="LP"  PUNCH="LP"  FORMS="LP"
  TRANSMITTED TO HOST FRI, JUN 15, 1984, 3:20 PM HOST#=2018
VERIFY CANCEL WITH "YES"
YES
$CJ2018, 2018 CANCEL COMMAND WILL BE SENT TO HOST
$15.35.40 JOB 2018 ON RM.PR2 PRIO 9 PURGE
```

The last line of the example is a message from the host system in response to the $CJ2018 command that was sent.

DISPLAY

Displays job and system information.

Syntax

```
D[ISPLAY]  ⎡ H[OST]                      ⎤
           ⎢                   ⎧,job#    ⎫⎥
           ⎢ J[OBLOG]          ⎨,jobname ⎬⎥
           ⎢                   ⎩,joblist ⎭⎥
           ⎢ S[TATUS]                     ⎥
           ⎢ C[ONFIG]  ⎧,item#   ⎫        ⎥
           ⎣           ⎩,itemlist⎭        ⎦
```

Discussion

The DISPLAY command is used to display the name of the current host system, information about active and inactive jobs in the Job Log File, the status of the communications line to the host system, or the contents of the Configuration File for the current host system.

Use (CONTROL)Y in a session to halt the display of jobs and Configuration File entries.

If no parameters are used, then the JOBLOG options is assumed.

Parameters

HOST
Lists the current host system. This system is used by every SUBMIT, DISPLAY, or CANCEL command until the User issues the HOST command and selects another host system.

JOBLOG
Displays information about jobs that were submitted. One of the three parameters, *job#*, *jobname* or *joblist* must be specified. Use *job#* if possible, because it identifies a specific job and using it results in faster processing. This is the default parameter.

NOTE

This parameter should not be used with an RSCS job entry system. A job will always be identified as WAITING TRANSMISSION TO HOST because RSCS does not acknowledge that a data set has been received. Use a host console command to inquire about the status of a job.

STATUS
Reports whether the communications line to the current host system is open or closed.

CONFIG   Lists the contents of the Configuration File for the current host system. If
                          the User includes item numbers, only the entries identified by the numbers
                          are displayed.

                          Item 4, Host Signon Card Image, is displayed only to MRJE/3000 Managers.

                          Item numbers are entries in the Configuration File. Appendix A.
                          Configuration File Contents describes and explains these items.

The *job#, jobname, joblist, item#* and *itemlist* parameters are described in the *Glossary*.

Using Display

The DISPLAY command always references the set of MRJE/3000 files that were created for the current
host system. To verify the identity of the current host system, use a DISPLAY HOST command before
issuing any other commands which affects any files.

A User may only display jobs owned by the user. If the User specifies a job name in the JOBLOG
parameter and it is not a unique name, only those instances of that job which belong to the User are
displayed.

Example

In this example, information is requested about the status of a system other than the default host system:

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
USER CAPABILITY IN EFFECT
#HOST P
PLM2 IS THE CURRENT HOST MACHINE
#DISPLAY STATUS
PLM2 IS OFF LINE
TIME LINE DEACTIVATED=FRI, JUN 15, 1984,  4:38 PM
```

In the next example the status of a series of jobs is checked:

```
#DISPLAY JOB 5/7
JOB#5 IS NOT YOUR JOB
--JOB#=6 JOBNAME=TEST2   USER=PAT.DCA,M
  PRINT=USERPR NO TRANSLATION  PUNCH="LP"  FORMS=USERFORM
  WAITING TRANSMISSION TO HOST
JOB#7 IS NOT YOUR JOB
```

DISPLAY

The communications link has been established in the next example. The example shows the status of a single job. The last line of the example is a response from the host system to the $DJ3022 command sent.

```
#DISPLAY JOB 2
--JOB#=2 JOBNAME=TEST1  USER=PAT.DCA,U
  PRINT="LP" PUNCH="LP" FORMS="LP"
  TRANSMITTED TO HOST FRI, JUN 15, 1984, 4:05 PM HOST#=3022
$DJ3022      DISPLAY COMMAND WILL BE SENT TO HOST.
$14.11.32  JOB 3022  TEST1 EXECUTING PRIO 6
```

Terminates MRJE/3000 and returns control to MPE.

Syntax

```
E[XIT]
```

Discussion

MRJE/3000 may be terminated at any time after its prompt (#) has been displayed.

HELP

Provides a brief description of how to use an MRJE/3000 subsystem command.

Syntax

```
HELP [command name]
```

Discussion

The HELP command is used to obtain brief general information and instructions about how to use MRJE/3000 subsystem commands.

Use (CONTROL)Y in a session to halt the display from this command.

Parameter

command name

This parameter is optional. If absent a list of valid MRJE/3000 commands is provided. If this parameter is present it may be any valid command name.

Example

In this example help is requested for the HOST command.

```
#HELP HOST

H[OST] [hostid]
Select a particular host system to be current.

# ...
```

Selects a particular host system to be current.

Syntax

```
H[OST] [hostid]
```

Discussion

The system identified by *hostid* in this command is referenced in all subsequent commands except for HELP and EXIT.

Parameter

hostid The name of a host system for which the MRJE/3000 Manager built a Configuration File. The name can be spelled out or abbreviated to its first character. If this parameter is omitted, the default host system is selected.

Using Host

Use the HOST command only if more than one host system can be connected to the HP3000. One host system should always be designated as the *default host* system. Its *hostid* is a blank character. A session is automatically associated with the default host system, if it exists, when an MRJE command is issued from MPE. A different host may be selected by using another HOST command. To return to the default host, the HOST command is issued without using the *hostid* parameter. MRJE knows the default host only as *the default system*, and not by a *hostid*. Using a *hostid* in that situation may cause an error message to be sent to the User's terminal.

Example

In the following examples, PLM is the name of the default host system and COM2 is the name of a second host system.

```
#HOST
DEFAULT HOST ASSUMED
PLM IS THE CURRENT HOST MACHINE

#HOST C
COM2 IS THE CURRENT HOST MACHINE
```

SUBMIT

Submits one or more jobs to MRJE/3000 for transmission to a host system.

Syntax

```
S[UBMIT] infile[(options)] [,infile[(options)]] ...
        [;R[EADER]=pseudo reader]
        [;PR[INT]=[!]printfile[(N)]]
        [;PU[NCH]=[!]punchfile[(N)]]
        [;F[ORMS]=[!]formfile[(N)]]

options = {N[OTRANSLATE],T[RANSPARENT]}
          {[TRANSPARENT],N[OTRANSLATE]}
```

Discussion

Use the SUBMIT command to submit jobs to MRJE/3000. If the MRJE/3000 communications line to the host system is open, the job is sent to the host system. If the pseudo reader being used is spooled and communications are open, your job is assembled into a spool file before transmission. If the line is not open, and it has been configured with a spooled pseudo reader, the jobs are spooled until the line is brought up.

Output from all the jobs submitted in a single SUBMIT command can be sent to:

• A card punch (with or without special forms)

• A line printer (with or without special forms)

• A disc or tape file

• An HP Laser Printer.

Designate output to these devices by:

• A logical device number.

• An MPE device class name, enclosed in double quotation marks.

• An *unqualified* actual file designator.

• A *FormID*, enclosed in single quotation marks.

• A global file designator, an exclamation mark followed by a seven-character file name.

• A zero, to indicate unsolicited output.

The SUBMIT command prohibits specification of more than one HP3000 punch, more than one HP3000 standard printer, or more than one HP3000 special forms printer at a time. PRINT, PUNCH, or FORMS each indicate one output destination.

- The logical device number of a real MPE input device. (This allows input from a source other than a terminal or disc file.)

- The device class name of a real MPE input device enclosed in quotes, such as "TAPE".

Neither the NOTRANSLATE parameter, nor the TRANSPARENT parameter may be specified for $STDIN or $STDINX input files.

pseudo reader

Used to specify the particular MRJE/3000 pseudo reader through which the jobs in the input files are submitted. The user may input:

- The logical device number assigned an MRJE/3000 pseudo reader.

- A pseudo reader device class name, enclosed in quotation marks. This is acceptable only if the pseudo reader the user wants to use is the only reader configured with the device class name.

If the READER=*pseudo reader* parameter is omitted, the default pseudo reader listed in the Configuration File of the current host system is used. Display entry 19 of the Configuration File to see default reader value.

A pseudo reader can be used as an unspooled (*hot*) input device. A *hot* pseudo reader bypasses MPE spooling. You must meet these conditions to use a *hot* pseudo reader:

- The pseudo reader must not be spooled;

- The pseudo reader must not be busy, but available;

- The communication line to the current host system must be open.

printfile
punchfile
formfile

Used to specify files that are to receive the results of host system job processing. One of each type of file can be specified by:

- The logical device number of an MPE output device.

- An MPE device class name, enclosed in quotation marks.

- An *unqualified* actual file designator. The file must reside in the logon group and account.

- An exclamation mark prefixing a *seven* character formaldesignator which conforms to the file name specifications of MPE, such as !OUTFILE.

```
┌──────────────────┐
│       NOTE       │
└──────────────────┘
```

A FILE statement corresponding to the *formaldesignator* must be in MRJESTR*h*.PUB.SYS.

- A zero (0) character, to indicate use of an unsolicited output device, device class, actual file designator, or FORMID configured for the data stream.

- A *printfile, punchfile,* or *formfile* which refers to a record in MRJETABL.PUB.SYS. This must be delimited by single quote marks, as in:

    SUBMIT ... FORMS=*'form'*;PUNCH=*'tabcard'*

```
┌──────────────────┐
│       NOTE       │
└──────────────────┘
```

Do not use the PRINT, PUNCH, and FORMS parameters with an RSCS job entry system. These have no effect on output routing. All output is *unsolicited* and returned on Printer 1 with RSCS. Appendix E, *EXIT PROCEDURE* describes how to control output when RSCS is used.

The default output devices for print and punch files are in the Configuration File for the current host system. Display items 20 and 28 of the Configuration File to identify the default output devices. The default value for *formfile* is also the *printfile* default value.

Specific routing of job output to pre-defined files occurs when a *printfile, punchfile,* or *formfile* is identified with an exclamation mark followed by a legitimate seven character designation. This refers to a FILE statement in the MRJESTR*h* file.

Whenever a *printfile, punchfile,* or *formfile* is a zero character (0), output is routed to the printer or punch device associated with the output stream. See the discussion on *Routing Default Output to Unsolicited Output Devices* in Section 2, *Planning MRJE/3000 Jobs,* and *Output Management* in Section 4, *Managing MRJE/3000.*

Output sent to spooled output devices is owned by the user and account of the submitter.

SUBMIT

Using Submit

Jobs are always submitted to the current host system. Unless the HOST command has been used to specify another host system, the current host system is always the default host system. It is a good practice to precede a SUBMIT command with a HOST command to make sure jobs are transmitted to the correct host system.

An ampersand character (&) can be used in the SUBMIT command as often as needed as a line continuation character. Place the & after a file name, or after NOTRANSLATE or TRANSPARENT parameters.

File Names

Actual and formal file designators used to specify *infiles* can be qualified names. Actual file designators used for *printfile, punchfile,* and *formfile* may never be qualified names. If a *printfile, punchfile,* or *formfile* is a zero character, then output is routed to unsolicited output devices. If a *printfile, punchfile,* or *formfile* is a FORMID, an eight character string delimited by single quotation marks, *Output Management* of output takes place as indicated by a corresponding entry in MRJETABL. If a *printfile, punchfile,* or *formfile* begins with an exclamation mark, and is followed by a *seven* character file designator, then specific routing job output takes place.

Job Output

The PRINT=*printfile* and PUNCH=*punchfile* and FORMS=*formfile* parameters can specify the destination of printer, punch, and special forms output generated by the jobs submitted in one SUBMIT command. If any of these parameter are omitted, output is sent to the default output device unless JCL specifies otherwise. The default printer, Configuration File item 20, also serves as the default value for special forms printer output. The default punch, Configuration File item 28, serves as the default value for special forms punch output.

The PRINT, PUNCH, and FORMS parameters may be used only once in the SUBMIT command, regardless of the number of different forms called for in the host system JCL.

If the FORMS parameter is omitted but JCL of a job calls for special forms, the output is sent to the default device, *printer or punch,* given in the Configuration File. For example, if the default print device is a line printer, the output is printed on that machine in the format of the special form; that is, as if the form had been mounted on the printer.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

SUBMIT command destination parameters override JCL, which overrides MRJETABL and MRJECON*h* values.

If output from one or more of your jobs is treated by MRJE/3000 as unsolicited when you had correctly specified an output destination, check with the MRJE/3000 Manager or the system operator. The Job Log File, MRJEJOB*h*, may have been re-initialized since your jobs were sent to the host system.

Output directed to an HP 2680A Laser Printer can be printed with or without Environment Files. If Environment Files are used they can be named in the *forms* sub-parameter of the SYSOUT parameter of

the DD statement in JCL, or specified in an MRJETABL entry. Refer to Section 2, *Printing Output on an HP2680 Laser Printer* and *Specific Routing of Job Output to Pre-Defined Files* for more information. See *Job Output* in Section 2, *Planning MRJE/3000 Jobs*.

> **NOTE**
>
> Do not use the PRINT, PUNCH, and FORMS parameters with an RSCS job entry system. These have no effect on output routing. All output is *unsolicited* and returned on Printer 1 with RSCS. Appendix E, *EXIT PROCEDURE* describes how to control output when RSCS is used.

Job Input

The READER parameter can be used to select a configured pseudo reader other than the MRJE/3000 default reader for job input.

> **NOTE**
>
> Do not confuse a pseudo reader with a physical card reader attached to an HP3000.

Normally the default reader is spooled, so jobs can be submitted without concern for whether the communications link with the host system has been established. If the user wishes to submit jobs without spooling (*hot*), an unspooled pseudo reader must be used and the communications line to the current host must be open. A reader other than the default pseudo reader is specified in the SUBMIT command through the READER parameter. If the default pseudo reader is not spooled, the READER parameter need not be used for *hot* job submission.

> **NOTE**
>
> Whenever jobs are submitted through an *unspooled* pseudo reader, the communications line to the host system must be open in order for the SUBMIT command to execute successfully.

Two options are allowed for *infiles* and FD files, NOTRANSLATE and TRANSPARENT. When the NOTRANSLATE option is used with an *infile* or an FD file, the data to be sent to the host system is not translated according to Configuration File item 38. This option allows for the transmission of data already translated, or which should not be translated. Packed decimal data, for example, should not be translated. When the TRANSPARENT option is used with an *infile* only the first JOB card in that *infile* is identified, and all subsequent ones are ignored by MRJE.

SUBMIT

When the TRANSPARENT option is specified with an FD card, then all JOB cards are ignored by MRJE. Error-free JCL must always be included whenever the TRANSPARENT option is for the host system to treat the JOB cards as data. Use the proper DD card. One reason for submitting a JOB to a host system as data is to provide for conditional execution of a job.

As MRJE/3000 processes a SUBMIT command, it checks all input files and those FD files for which the TRANSPARENT parameter was not included. Whenever MRJE/3000 encounters a JOB card, it assigns a unique job number and enters the number in the Job Log File for the current host machine. The job numbers are returned to the User in $STDLIST so they can be noted for future reference to individual jobs.

When input originates from $STDIN or $STDINX, the end of every file must be marked with an MRJEOD record. This record must contain the characters MRJEOD in the first six columns. It is read by MRJE, but it is not sent to to the host system.

Example

In this example, two jobs are submitted to the default host sytem:

```
#SUBMIT TEST1,TEST2
JOB#=5 JOBNAME=JOB1 RECORDS READ=7 RECORDS WRITTEN=7
DEFAULT IS OFF LINE
JOB#=6 JOBNAME=JOB2 RECORDS READ=15 RECORDS WRITTEN=14
DEFAULT IS OFF LINE
```

In this example, output file specification is illustrated:

```
#SUBMIT TEST10(N),TEST11;PRINT=MGRPR;PUNCH=MGRPUN;FORMS=FORM
JOB#=7 JOBNAME=JOB3 RECORDS READ=20 RECORDS WRITTEN=20
DEFAULT IS OFF LINE
JOB#=8 JOBNAME=JOB3 RECORDS READ=7 RECORDS WRITTEN=7
DEFAULT IS OFF LINE
#DISPLAY JOB 7,8
--JOB#=7 JOBNAME=JOB3 USER=JIM.DCA,WILLITS
  PRINT=MGRPR  PUNCH=MGRPUN  FORMS=FORM
  WAITING TRANSMISSION TO HOST
--JOB#=8 JOBNAME=JOB3 USER=JIM.DCA,WILLITS
  PRINT=MGRPR  PUNCH=MGRPUN  FORMS=FORM
  WAITING TRANSMISSION TO HOST
```

The following example illustrates routing output to an alternate FORMID referencing a file equation record in the lookup table MRJETABL. A *formfile* must be delimited by single quotation marks.

```
SUBMIT TESTJOB;FORMS='OTHER'
```

A FORMID can be used only if MRJE/3000 can access a corresponding entry in MRJETABL.PUB.SYS. See *Output Management* in Section 4, *Managing MRJE/3000*.

The following example illustrates routing of default output to unsolicited output devices:

```
#SUBMIT ... ;PRINTER=0
# ...
```

This example illustrates specific routing of job output to pre-defined files. Assume a job is in execution using the following MRJESTR.PUB.SYS file from an MRJECONTROL START command:

```
!JOB MRJESTR,MANAGER.SYS
!COMMENT This job allows users to route output to
!COMMENT an HP2680 with a specific environment.
!FILE ELITE;DEV=LPS;ENV=ELITE.HPENV.SYS
!COMMENT Note that a stack dump has also been armed.
!SETDUMP DB,ST
!RUN MRJEMON;INFO=" "
!EOJ

:HELLO USER.ACCOUNT
:MRJE
```

SUBMIT

```
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
USER CAPABILITY IN EFFECT

#SUBMIT $STDIN;PRINT=!ELITE
# ...
```

This example illustrates the use of MRJEOD:

```
!JOB NEWJOB,PLM.DOC        Standard MPE job card.
!MRJE                      Calls MRJE.
SUBMIT $STDIN              Submits JOB1 to the default host
//JOB1 JOB  ...            system from a batch input device.


   ...


/*
MRJEOD                     Specifies end-of-file to MRJE.
DISPLAY JOB1               Displays job status on $STDLIST.
EXIT                       Exits MRJE.
!EOJ                       Terminates stream job.
```

If MRJEOD is on an input disc or tape file, its image is not transmitted to the host system.

This illustrates the use of the TRANSPARENT option with an *infile*. Assume that a *catalog* file is to be stored on the host system disc, and that it is to contain a job named CATALOG. The user should submit a job as follows:

```
#SUBMIT INPUT(TRANSPARENT)    The contents of file INPUT follow:

//JOB1 JOB   ...              MRJE recognizes JOB1.


    ...


//SYSUT1 DD DATA,DLM=$$        This must precede other jobs.
//CATALOG JOB    ...           This job is not recognized.


    ...


$$                             Terminates data.
/*                             Terminates JOB1.
```

HOST CONSOLE COMMANDS

Host job entry system console commands.

Syntax

```
special character command string
```

PARAMETERS

special character   A special character that begins a host job entry system console command. This is usually a currency symbol, $, or an asterisk, *.

<div align="center">

NOTE

</div>

A special character is required for RSCS even though MRJE/3000 removes it prior to transmitting a *command string* to the host.

command string   A Manager can use any legitimate job entry system command. An MRJE/3000 User must be additionally qualified by Configuration File item 6.

Discussion

An MRJE/3000 User can issue the host job entry console commands that are allowed in the current MRJE/3000 Configuration File. If the MRJE/3000 Manager has configured only a single character (for example, $), the User can enter commands beginning with that character. On the other hand, if a specific command is configured (for example, $DJ), only that console command is available to the User. The MRJE/3000 Manager can only allow access to job entry console commands that are allowed to the session between the HP3000 and the host system. The User may not be able to issue every command that can be entered at the host system master console.

The User can display items 6 and 7 of the current Configuration File (using the MRJE/3000 command DISPLAY) to see what console commands are available for use.

Host Console Commands:

- May be issued interactively while the communications line is active.

- May be issued as part of an IBM JCL deck.

- Must conform to the format and restrictions of the host system.

- Will be refused if issued interactively and any other User, including the Manager, is currently communicating with the host system.

HOST CONSOLE COMMANDS

Host system console commands usually generate output to $STDLIST. The host console communicates with only one terminal at a time; therefore, MRJE/3000 limits the User's listings to the configured host buffer size, regardless of the command entered. This permits other terminal users to enter host console commands and receive responses as well. A (CONTROL)Y can be used to halt a listing and to obtain an MRJE/3000 prompt for input (#). Host console commands issued by MRJE/3000 Users may occasionally be refused due to heavy console message traffic with the host system, or because someone else is using the console.

Example

```
#$DJ3022                               Display host job 3022.
14.11.32 JOB 3022 TEST1 EXECUTING PRIO 6    Host message response.
```

NOTE

The next host system message you receive after a command may not be in response to the command you sent.

Executes an MPE command that can be executed in BREAK mode.

Syntax

```
[:]An MPE command
```

Discussion

Any MPE command that can be executed in BREAK mode can be executed within MRJE. So, the RUN command can not be executed within MRJE.

Any command that is ambiguous is executed as an MRJE/3000 command unless it is preceded by a colon (:) character, which indicates an MPE command. When you enter:

#PURGE OLDJOBS

entries for cancelled jobs or jobs that are *timed out* are purged. This is an MRJE/3000 Manager command discussed in Section 4, *Managing MRJE/3000.*

When you enter:

#:PURGE OLDJOBS

a file named OLDJOBS in your logon group and account is purged.

An MRJE/3000 Manager:

- Plans data communication facilities;

- Configures the MRJE/3000 subsystem;

- Manages subsystem activities;

- Coordinates use of the MPE distributed console command MRJECONTROL.

MANAGEMENT SPECIAL CAPABILITIES

An MRJE/3000 Manager must have MPE System Supervisor (OP) capabilities and must be able to log on to MANAGER.SYS. The NEW and PURGE ALL commands can only be issued when an MRJE/3000 Manager is logged on as MANAGER.SYS,PUB. All other commands described in this section can be issued from any logon account and group by any user with OP capability.

MRJE/3000 HARDWARE

In addition to an HP3000 computer, MRJE/3000 requires:

- One or more communications lines to one or more remote hosts. The lines can be switched or leased and require compatible modems at each end of a communication line.

- A communications controller for each communications line used by an MRJE/3000.

- Terminals, tape drives, and card readers for communicating with MRJE/3000 and submitting jobs.

Communications Controllers

MRJE/3000 operation requires one of these communications interfaces:

- HP30020A/B Intelligent Network Processor (INP),

- HP30010A Intelligent Network Processor, the Series II/III INP,

- HP30055A Synchronous Single Line Controller, the Series II/III SSLC.

After the controllers have been installed by Hewlett-Packard, they must be configured into the MPE I/O system as described in Appendix C, *Configuring MPE to Include MRJE/3000.*

Modems

These modems can be used with MRJE/3000:

* Bell 201C, 201C-L1D, 208A, 208B, 209A;

* Bell Dataphone II 2024A, 2048A, 2096A;

* Bell Dataphone Digital Service (DDS), Data Service Unit (DSU);

* HP37230T.

Modem strappings are described in Section 3 of the *HP3000 Data Communications Handbook* (5957-4634).

MRJE/3000 SOFTWARE

MRJE/3000 software consists of these files:

* A user interface program, MRJE

* A communications monitor, MRJEMON

* A job logging process, MRJELOGR

* A host output data process for each output pseudo device, MRJEOUT

* A Message Catalog File, MRJECAT

* Pseudo Device Drivers: IOMRJE0, IOMRJE1, IOMCONS0, IOMPNLP0, and IOMRDR0,

* A download file for an INP, CSDMRJE0, CSDMRJE1 or CSDMRJE2, in addition to its driver

* A secondary driver for an SSLC, CSSBSC0 and CSSMRJE0 in addition to its driver

A description of required and optional MRJE/3000 Management Files follows.

BSC Link

MRJE/3000 requires BSC Link (HP30251A). The BSC Link is composed of software, an INP (HP30220B) and a cable (HP30221A). When the BSC Link is not used for MRJE/3000, it can be used for other products such as RJE/3000 (HP30248A) and IMF/3000 (HP30250A).

Pseudo Devices

MRJE/3000 software supports two pseudo line monitors, a pseudo console for operators, and up to seven pseudo card readers, seven pseudo line printers, and seven pseudo card punches. Configure a combination of no more than eight pseudo line printers and pseudo card punches. These pseudo devices are configured into the MPE I/O System as described in Appendix C, *Configuring MPE to Include MRJE/3000*.

BUILDING FILES FOR MRJE/3000 MANAGEMENT

The MRJE/3000 management files are:

- The Configuration File, MRJECON*h* (where *h* is the first character of the host identification);

- The Job Log File, MRJEJOB*h*;

- the Directory File, MRJEDIR*h*.

These files must be in PUB.SYS.

Other files associated with MRJE/3000 subsystem are:

- The Message Catalog File, MRJECAT.PUB.SYS;

- The Stream File, MRJESTR*h*.PUB.SYS;

- The Message File, MRJEMSG*h*;

- The Output Management File, MRJETABL.

Once the MRJE/3000 subsystem and the communications controllers have been configured into MPE, management files and other MRJE/3000 files are built. Use these steps as a guide:

1. Log onto the HP3000 as MANAGER.SYS,PUB

2. **Make certain that MANAGER.SYS has OP capability.**

3. Verify that the Message Catalog File, MRJECAT.PUB.SYS, exists and contains information and error messages for the MRJE/3000 subsystem. Use EDIT/3000 or TDP to maintain the Message Catalog File.

4. Build a Stream File, MRJESTR*h*.PUB.SYS, for each configured host system. The Stream File is used whenever an MRJECONTROL START command is issued from MPE. The contents of the Stream File must execute the MRJE/3000 monitor process, MRJEMON. The Stream File must contain the command RUN MRJEMON.PUB.SYS;INFO="*h*". In the case of a default host, the character *h* must be a blank.

    Even though *Output Management* is preferred, a Stream File can still contain FILE statements to which users of the MRJE/3000 subsystem can refer when specifically routing job output. See *Specific Routing of Job Output to Pre-Defined Files*, in Section 2, as well as the description of the SUBMIT command in Section 3, *Commands Available to the MRJE/3000 User*. This is a typical Stream File for a default host:

    ```
    !JOB MANAGER.SYS;HIPRI;RESTART;TIME=?
    !Comment       Users can route output to an HP Laser
    !Comment       Printer with a specific environment;
    !Comment       however, Output Management is preferred.
    !FILE ELITE;DEV=LPS;ENV=ELITE.HPENV.SYS
    !FILE HOLDLP;DEV=LP,1
    !Comment       The stack dump facility is armed to
    ```

```
!Comment          operate when an MRJEMON problem occurs.
!SETDUMP DB,ST
!Comment          Set up the Message File.  This is an option.
!Comment          If this is absent, messages are not retained.
!FILE MRJEMSG=$STDLIST
!RUN MRJEMON;INFO=" "
!EOJ
```

5.   This step is optional. Create a Message File, MRJEMSG*h*.PUB.SYS. This is *not* the Message Catalog File, described in step 3. This file receives host console messages, output messages from the host system, and a performance measurement data record on output data received. The Message File can be a system file, or an actual file. If this file does not exist, then all messages are lost; however, the subsystem continues to operate.

These ways can be used to specify an MRJEMSG*h* file:

•   Use a FILE equation with the process used to run the MRJE/3000 monitor. This is a sample for *host id* X,

    :FILE MRJEMSGX=$STDLIST

This statement should be in a stream job like step 4.

•   Build a *circular* type file. This is useful when the most recent set of messages from the host system need to be retained. This is how host B is identified:

    :BUILD MRJEMSGB;REC=-80,16,F,ASCII;DISC=1024,8,8;CIR

This Message File can hold the 1024 most recent messages from host B; however, this file can not be read until communication with the host system has ceased, or it is not accessed by any process writing to it.

•   Build a *pipe* or *message* file. This is useful when it is desirable to read the oldest message while writing to the file. The following is an example for a default host:

    :BUILD MRJEMSG;REC=-80,,V,ASCII;DISC=2048,8,8;MSG

These limitations apply to Message Files:

Messages are discarded if this type of Message File is filled and no active processes are reading it.

Communication to the host is suspended when this type of file is full, or until all processes reading this type of Message File have closed the file.

A record ceases to exist once it has been read. One process can be reading from this file while another is writing to it.

Initially the most desirable type of Message File for use at an installation can be one equated to $STDLIST because these are output spooled records.

Both the MRJELOGR and MRJEOUT processes write to a Message File. The file is opened with shared and append access. If this file is not accessible, then messages intended for it are lost, and MRJE/3000 operations continue normally.

6.   Enter MRJE, the MPE command to start execution of MRJE/3000 subsystem. The subsystem first displays the MRJE/3000 banner message, then a message confirming that Manager capability is in effect, and then MRJE/3000 prompts for input. For example:

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984    Banner Line
MANAGER CAPABILITY IN EFFECT                         Message
# ...                                                Prompt Character
```

7.   Finally, build the MRJE/3000 management files using the NEW command. When NEW is executed, it requests the following information:

- The number of jobs the Job Log File can accommodate.

- The name assigned to the host system, the *host ID*. None need be assigned when building management files.

- The type of host Job Entry Subsystem. These are HASP, JES2, JES3, ASP, or RSCS.

- The signon card format.

- The logical device numbers that were assigned to the pseudo console device and to the pseudo line monitor during MPE configuration.

- The kind of the host system console command an MRJE/3000 User can enter.

- Time when a job becomes *old*.

- If communications with the host uses a switched line without auto-dialing, then a telephone number is displayed at the HP3000 system console whenever an MRJECONTROL START command is issued from MPE for this line. This telephone number is for the modem at the host system.

NOTE

Communications can also take place over a switched line with auto-dialing, provided that an HP 30020B INP, and a Bell 801C auto-dialing unit, and an HP 30221G connecting cable are used. Telephone numbers can be supplied in the Configuration File. The MRJE/3000 telephone number, if present, takes precedence over the MPE-configured telephone number. No HP3000 system operator message is displayed during auto-dialing.

After the Manager responds to the prompt messages, MRJE/3000 initializes the job log and Directory Files, and initializes the Configuration File using the information just provided.

The remainder of the configuration items are initialized with MRJE/3000 default values. These can be changed later with the ALTER command. Formats and default values for Configuration File items are discussed in Appendix A, *Configuration File Contents*.

Before any jobs are submitted to the host, examine the Configuration File default values,

particularly those pertaining to the host print and punch banners and to the host console **ON** message, Items 8-13 and 37, and Items 15-17, respectively. If the default values do not correctly describe what your host does, change them using the ALTER command.

If you do not specify the host banner format, use ALTER to set Items 8 and 9 to a value of 0. Item 8 is the number of lines to check for print banner. Item 9 is the number of cards to check for punch banner. Leave the destination for unsolicited print and punch output, Items 21-27 and 29-35, configured as "LP" if Output Management is *not* being used. If Output Management, MRJETABL, is being used, set items 21-27 and 29-35 to the *Form ID* for the standard form value.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

If your HP3000 printers are configured with a device class name other than "LP", change Items 21-27 and 29-35 to the name used in the I/O configuration.

Then submit a dummy job to the host to create punch and print output. The output from this job is *unsolicited*, and the full banners are printed. Count the columns in the banners to find the values for Items 10-13. This job output also shows the values to enter for Items 8 and 9.

To find values for Items 15-17, you must communicate with the host in Command Mode. This is described later in this section in *Host Console Commands*. Then, from another terminal, submit a dummy job to capture the **ON** message on your terminal operating in Command Mode.

Also, see *Causes and Control of Unsolicited Output* in this section.

MAINTENANCE OF MANAGEMENT FILES

MRJE/3000 Configuration, Job Log, and Directory Files are created with permanent and modifiable information. The modifiable information in the Configuration File can be changed using the command ALTER; entries can be deleted from Job Log Files by using the PURGE command; the NEW command can be used to purge and rebuild Configuration Files and their associated Job Log and Directory Files. A description of maintenance of each file follows.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

The Configuration, Job Log, and Directory Files can not be altered if they are in use. Management files are in use when the associated communications line is active, or when another user is referencing one of these files.

Configuration File

When the MPE I/O system configuration is altered in a way that affects MRJE/3000, its Configuration Files may have to be modified to incorporate the change. Some items in the file can be modified using the ALTER command. Other items are fixed when the file is initialized. It is necessary to recreate the file in order to change some items. Table A-1 identifies items that cannot be altered.

If a NEW command specifies a host system for which management files exist, MRJE/3000 prints the name of the existing Configuration File and asks if it can recreate it. After a YES response, MRJE/3000 deletes the Configuration, Job Log and Directory files currently associated with the host and creates three new ones.

Job Log File

One Job Log File is associated with each MRJE/3000 Configuration File. Each Job Log File is used to maintain a record of jobs submitted to MRJE/3000 for transmission to the host, as defined in the Configuration File. The Job Log File is built automatically when the Manager uses the NEW command to create the Configuration File. The size of the Job Log File is specified by the Manager during execution of NEW command.

The MRJE/3000 Manager can delete entries from a Job Log File using the PURGE command and can thus maintain space in the file for new jobs. When the file is full, MRJE/3000 rejects new jobs. PURGE ALL causes all entries to be deleted from the file. PURGE OLDJOBS deletes only those jobs that have been cancelled, have *timed-out*, or were not transmitted successfully to the host.

Once built, it is not possible to expand a Job Log File. Enlarge this file with the NEW command; however, this means rebuilding the Configuration File.

Directory File

This file requires no maintenance; it is used by MRJE/3000 as an index to the Job Log File.

The Message Catalog File

The Message Catalog File is an MPE catalog file used by MRJE/3000 for almost all of the messages sent to users and to the system operator. Any modification to the Message Catalog File, MRJECAT.PUB.SYS, *must* be done according to MPE specifications. Section 6, *Management Files*, describes building and maintenance of files used by MRJE/3000.

Message File

The Message File receives host console messages, and other information. If the Message File is an actual file, such as MRJEMSG*h*.PUB.SYS, information can be read from it. Consideration must be given to the kind of file being used because information could be inadvertently destroyed or lost. See *Building Files for MRJE/3000 Management*.

Job Stream File

A Job Stream File, MRJESTR*h*.PUB.SYS, is used whenever an MRJECONTROL START command is issued from MPE. This file must contain the command RUN MRJEMON;INFO="*h*", where *h* is the first character of the host identification, or a blank character. Other commands can be included in a Job Stream File. Maintenance of this file can take place at any time except when a the job is being introduced, and the Job Stream File is busy. See *Building Files for MRJE/3000 Management* and the *MPE Commands Reference Manual*. Also consult *Troubleshooting MRJE*, and *Segementing Output Files* in this section. These provide information about options in running the MRJE/3000 monitor, MRJEMON.

Form File

The Form File, MRJEFRM*h*.PUB.SYS is used by MRJE/3000 to record the current forms in use by each MRJE/3000 output pseudo device. This is an ASCII file of fifteen 8-character records.

At startup, MRJE/3000 checks for the existence of the Form File. If it *does not* exist, MRJE/3000 builds it. MRJE/3000 initializes MRJEFRM*h* to the values in its Configuration File for *Unsolicited Output Disposition* if Output Management is being used, or to STD. if Output Management, MRJETABL, is not being used.

If the Form File *does* exist at startup, MRJE/3000 uses the values in this file to initialize its *current form* variables. The host typically remembers the form on each MRJE/3000 device from one of its sessions, a SIGNON, to another. So, MRJE/3000 synchronizes its use of forms with the host:

• MRJE/3000 reads the Form File every time communications are started;

• MRJE/3000 updates the Form File each time a command is received from the host to mount a new form on a printer.

This file can be read by FCOPY or EDIT/3000 to display the last form used on each pseudo device. The format of the file is:

Record:	Current FORMID for:
0	Unused.
1 - 7	Printer streams 1 - 7
8 - 15	Punch streams 1 - 7

> **NOTE**
>
> Although the Form File requires no maintenance, operator intervention is required if the host system was restarted since its last host session. A session begins when MRJECONTROL START successfully sends a SIGNON to the host. The host does not usually remember the names of special forms in use at remote sites from one startup to another. Then the HP3000 operator should purge the file MRJEFRM*h*.PUB.SYS before issuing an MRJECONTROL START command from MPE. MRJE/3000 rebuilds and reinitializes the file to configuration default values.

To override this feature, and to make MRJE/3000 start every host session with standard forms, precede the RUN MRJEMON command with a PURGE MRJEFRM*h*. This illustrates the sequence of commands when *host ID* B is used.

```
!JOB MRJESTRB,MANAGER.SYS,PUB;HIPRI
!Comment        Always arm stack dump.
!SETDUMP DB,ST


...

!Comment        Overrides Form File feature.
!PURGE MRJEFRMB.PUB
!RUN MRJEMON.PUB.SYS;INFO="B"
```

Output Management File

The Output Management File MRJETABL is an optional file maintained by the system administrator. This is an 80-character ASCII file which can be built with an editor such as EDIT/3000 or TDP. There is only one Output Management file for an HP3000 system, *not one per configured host*. The Output Management file is required for any of these features:

• Output routing of unsolicited output.

• Output routing to an HP Laser Printer using environment files.

• Configuring standard forms other than STD.

• Support for non-alphanumeric form names.

Output Management in this section describes this file.

OUTPUT ON AN HP LASER PRINTER

For information on running output to an HP Laser Printer, consult *Output Management*.

SEGMENTING OUTPUT SPOOLFILES

When routing output to spooled printers it may be desirable to segment large output data sets into multiple spoolfiles. Use the RUN parameter PARM in the MRJE/3000 Stream File, MRJESTR*h*.PUB.SYS. Set this parameter to any non-zero positive value. MRJE/3000 counts the number of page eject characters received from the host for all print output destined for a spoolfile. When the number of page ejects equals the value supplied in PARM, MRJE/3000 closes the output spoolfile and opens a new spoolfile with the same file name and output file specifications. MRJE/3000 then prints a single page with five lines from the original banner page and continues processing. The PARM value is set to 1000 in the RUN command:

```
!JOB MRJE,MANAGER.SYS
!RUN MRJEMON.PUB;INFO=" ";PARM=1000
```

If MRJEMON, the MRJE/3000 monitor, receives more than 1000 page eject characters in a data set sent to a spoolfile, it segments the spoolfile. Segmenting can only occur for print output going to a spoolfile. Segmenting is not done for output sent to non-spooled devices, or for punch output.

```
  NOTE
```

MRJE/3000 output spoolfile segmenting is based upon the actual number of page ejects received from the host. The number of page ejects received may not necessarily match the number of logical pages received. This depends upon the host configuration for *maximum lines per page*, such as the JES2 $LINECT parameter. If the number of pages per segment printed by MRJE/3000 does not match the PARM value then first check the host configuration. Users can override this host parameter with the LINECT parameter of the JOBPARM control card.

MRJE/3000 outputs a five-line banner page in front of each subsequent segment.

OUTPUT MANAGEMENT

Output Management can be used to route host output to a final destination on an HP3000. It is based upon instructions sent by the host to the remote workstation to control operation of the remote print devices. MRJE/3000 interprets an instruction from the host to *mount a special form* as a directive to *route output to the destination file FORMID* where *FORMID* is the name of the special form present in MRJETABL. Host output can be either *solicited* or *unsolicited*. The output file characteristics for each FORMID are described in a lookup table, usually file MRJETABL.PUB.SYS. MRJE/3000 uses this table to perform a mapping from **forms** as understood by the host to **files** as understood by the HP3000. Output Management requires file MRJETABL.PUB.SYS, or a file equation to MRJETABL preceding MRJEMON execution.

Use Output Management with an RSCS job entry system as all output received is unsolicited. Appendix E, *Exit Procedure*, describes a method for processing host special forms setup messages.

Output Management is activated by the System Administrator by performing these two steps:

1. For each MRJE/3000 output device in use, set MRJECON*h* items 20 - 35 (default output disposition) to the name of the default form *as configured on the host*. Each entry must be delimited by single quotes (`'`). If the host standard form identification includes a period (`.`), then the period must be included in the Configuration File entry. Periods as well as any alphanumeric or IBM national character (`#`, `$` or `@`) can be used.

    If the default standard form configured on the host is STD., then Configuration File item 20 should be set as follows:

        20. PRINT OUTPUT DEVICE='STD.'

    An entry with STD. as a FORMID must be in MRJETABL.

    A similar entry should be made for each MRJE/3000 output device configured into the MPE I/O system.

2. Build file `MRJETABL.PUB.SYS` using EDIT/3000 or TDP. This file must contain entries for any standard form identified in the MRJECON*h* file for every solicited and unsolicited output as well as entries for all *special* forms to be supported on the remote workstation. Records of this file are used to form equation specifications to identify output destinations for all *standard* and *special* forms. A typical entry for the standard form STD. is:

        STD.   dev=epoc;env=lp602.hpenv

    A FILE statement equating MRJETABL to another file can precede MRJEMON execution; however, this limits use of the MRJECONTROL VERIFY command.

CONSIDERATIONS FOR BUILDING MRJETABL

Use the *MPE Commands Reference Manual* and the *MPE Intrinsics Reference Manual* for additional information on FILE equation-like specifications in MRJETABL.

One Output Management table file, MRJETABL, serves an HP3000 system. If multiple hosts are accessed from an HP3000 acting as a remote workstation, then each use of MRJE/3000 accesses the same table, usually MRJETABL.PUB.SYS.

Using a File Equation

MRJE/3000 allows file equations in opening of MRJETABL. If necessary, a system administrator can redirect the reference to an alternate file. The lookup table could be named MRJETBLX. A file equation in MRJESTR*h*.PUB.SYS such as

```
!file mrjetabl=mrjetblx
```

preceding MRJEMON execution causes MRJE/3000 to access the file MRJETBLX.

Record Specifications

An MRJETABL file can have data records up to 260 characters long. Data records less than the maximum are continued by using an ampersand (&) as the last *non-blank* character. For example,

```
LONGONE  ;dev=pp;&
Env=ABC.HPENV.SYS
```

is equivalent to

```
LONGONE  ;dev=pp;Env=ABC.HPENV.SYS
```

The file can be kept in numbered or unnumbered form.

FORMID Specifications

A FORMID identifies a record in an Output Management File. It is composed of alphanumeric and certain special characters. If a FORMID is less than eight characters long, it must be filled with trailing blanks. When a FORMID includes a period (.), it must be included as part in the table entry. For example, the default JES2 standard form is STD, not STD.

FORMIDs must begin in column one and can contain a maximum of 8 characters. Valid FORMID characters are:

- IBM *National* characters. These are #, a pound symbol; $, a dollar (currency) symbol; and @, an *at* symbol.

- A period (.) character.

- All alphanumeric characters.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

There is no distinction between upper and lower case characters

The first eight characters of an MRJETABL record are the FORMID. Characters beginning with the ninth position in an MRJETABL record are file attributes. A FORMID can begin with any alphanumeric or IBM national character. If a FORMID contains fewer than 8 characters, the remaining characters must be blanks. The remainder of the record must contain file equation specifications.

```
std.      ;dev=pp;env=lp602.hpenv
123456789                ...              80
```

The preceding record has a four-character FORMID, STD., followed by four blanks. This record causes all host output for the form 'STD.' to be routed to device class PP using environment file LP602.HPENV.SYS.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

The SYS account is *always* used in an entry unless an account name is specified.

MRJE/3000 searches MRJETABL linearly for a FORMID. So, the most frequently used FORMIDs should be at the beginning. MRJE/3000 recognizes the first occurrence of a FORMID.

MRJETABL entries can be added at any time; *however, changes and deletions must be made when MRJE/3000 is inactive.* It is not necessary to deactivate or *signoff* from MRJE/3000 before augmenting the table with new entries. These additions take effect immediately.

```
┌─────────────────┐
│    CAUTION      │
└─────────────────┘
```

You must signoff, MRJECONTROL SIGNOFF, before modifying or deleting an MRJETABL entry. Restart MRJE/3000 after MRJETABL has been changed. Do not attempt to delete or modify any records in MRJETABL while MRJE/3000 is active. MRJE/3000 supports additions to MRJETABL while active. MRJE/3000 does not support deletions or modifications to MRJETABL while active.

MRJE/3000 accesses the permanent file only when necessary to update its internal data structures. Output routing is unpredictable if any records are modified or deleted while MRJE/3000 is active. Refer to the *MRJE/3000 Operation with MRJETABL.*

MRJE/3000 OPERATION WITH MRJETABL

MRJE/3000 operation with MRJETABL applies to print and punch output.

Initialization: At startup, in Output Management mode, MRJE/3000 verifies *standard form* entries in MRJETABL and all entries that correspond to Configuration File items. The Error Recovery section. following describes how failures are processed.

Output Processing: MRJE/3000 continually monitors communications from the host to identify form *setup* messages, and output data sets. When a form *setup* message is received, MRJE keeps track of it as the *current form* in MRJEFRM*h*.PUB.SYS. All data sets received are tested to determine if the output is solicited or unsolicited. Solicited data sets are tested for an alternate form. MRJE/3000 always routes output to the *current form* unless an alternate form has been specified.

If a FORMID cannot be found in an internal copy of MRJETABL, MRJE reloads it and searches for the FORMID a second time before entering error recovery mode.

When MRJE/3000 retrieves a FORMID, it executes a file equation using the *jobname* obtained from the banner of the output data set as the file name. An X is substituted for any national characters (*#*, $ or @) in a *jobname*. An X also replaces a numeric first character in a *jobname*. So, a job named 1$2@ becomes XX2X.

MRJE/3000 opens the file corresponding to the output data set with these file system options, unless otherwise specified:

- Append access;

- ASCII, unless a *notranslate* option is specified by a solicited user;

- Shared access;

- Device Class DISC;

- Dynamic Locking, if a disc file;

- Old and Permanent, if a disc file;

- Carriage Control, if printer output;

- No Carriage Control, if punch output.

These file specifications correspond to aoptions = %343 for print and punch output, and foptions = %405 for print output, or foptions = %5 for punch output.

```
NOTE
```

> Specify any alternate output file characteristics in an MRJETABL record. File equation parameters override file opening, FOPEN, specifications. Consult the *MPE File System Reference Manual* for additional information.

ERROR RECOVERY, which follows, describes alternate procedures for output routing if an error occurs.

MRJETABL EXAMPLES

Each entry in MRJETABL is identified by a FORMID in positions 1 - 8. The parameters following a FORMID function like a FILE command from MPE.


```
std.      ;dev=pp;ENV=LP602.HPENV
```

This record causes all output for the form STD. to be routed to device class PP using environment file LP602.HPENV.SYS . The SYS account is assumed because it is the logon account of the user in the MRJESTR*h* job running MRJE. This is a JES2 default standard form. A period (.) is a part of the FORMID and must be included in the record entry. Assuming that standard form STD. is the most frequently used FORMID, make this the first entry in MRJETABL because MRJE/3000 performs a linear search when accessing the table. No distinction is made between upper and lower case characters.


```
I2        ;dev=EPOC,4,2;env=lplong.HPenv
```

This causes all output for form I2 to be routed to device class EPOC. The output priority is 4. Two copies are to be printed. The environment file is lplong.hpenv.sys .


```
5927      ;DEV=LPS,,5;ENV=LP60LONG.HPENV
```

This causes all output for form 5927 to be routed to output device class LPS. The environment file is lp60long.hpenv.sys . Five copies are requested. The HP3000 system default output priority is used. This is 8 if spoolfile logging is enabled, and 13 if it is disabled.


```
payroll ;DEV=EPOC,5,3;ENV=CHECKENV.HPENV;forms=checks.
```

This entry routes output for the special form PAYROLL to device class EPOC. The output priority is 5. The environment file is checkenv.hpenv.sys. When the spoolfile becomes active on the HP3000, a forms mount message is displayed on the system console for the special form CHECKS.

```
┌─────────────┐
│  NOTE       │
└─────────────┘
```

The **forms** parameter should always be placed after the **env** parameter.

The **payroll** FORMID has more than four characters. Some host systems support four characters or less for a special form identifier in their job control language. However, a user can direct forms output to this entry by using the SUBMIT command with solicited output this way:

```
SUBMIT jobname;FORMS='PAYROLL'
```

This payroll entry in MRJETABL creates three copies of all paychecks!

```
disc    =mydata.mrje,new;save
```

Output is routed to a disc file with the above entry. Output destined for the FORMID `disc` is sent to the disc file `mydata.mrje.sys`. The `,new` parameter overrides the default value of *old*. MRJE/3000 builds the file.

CAUTION

If the file already exists as a permanent file, then MRJE/3000 can not close the file successfully. In such cases the output is lost.

Files can not be built across accounts. Use the `,new` parameter to build files in the SYS account.

```
disc2   =disc2.mrje.myacct;acc=out
```

This entry causes all output for the FORMID `disc2` to be routed to disc file `disc2.mrje.myacct`. This file must be built in advance, as MRJE/3000 assumes that the file already exists unless the `,new` parameter has been specified. A `,new` option could not be used here because MRJE/3000 cannot build files across accounts. The `acc=out` parameter specifies *write* access. This supersedes the MRJE/3000 default access of `append`. Any data in the file is overwritten.

```
$@@long#;dev=pp;env=lp604.hpenv
```

A FORMID can begin with numeric or IBM national characters (as well as alphabetic characters) and can be up to 8 characters long. Output routed to FORMID `$@@long#` is sent to device class PP using environment file `lp604.hpenv.sys`.

```
test    =special;dev=pp,3;forms=special.
```

This entry causes the file system to override file naming convention used by MRJE. The output file is named SPECIAL rather than *jobname*. The period (.) in the `forms` parameter is required to designate a form. The device class is pp. The specified output priority is 3. The form name in this example matches the file name assigned to the spoolfile. This enables HP3000 operators to more readily identify the names of special forms required by spoolfiles as the SHOWOUT output indicates the name of the form required.

```
newfile ,new;save
```

This causes MRJE/3000 to build a new file in the MRJE/3000 logon group and account, PUB.SYS, using `jobname` as the filename. This entry provides a mechanism for routing either solicited or unsolicited output to disc, and building a new file using the name of the job as the filename.

CAUTION

You can only do this in PUB.SYS as file equations of this type apply only to the logon group and account.

Always use a unique *jobname* with this feature, otherwise data can be lost in an attempt to create duplicate permanent files.

Limitation

MRJE/3000 Output Management does not support any privileged mode file system options, NOWAIT I/O, or MR (multi-record access).

LASER Printers and Alternate Character Sets

If you use alternate character sets, include the special codes to switch from one set to the other. The special codes can be ASCII shift-in (SI) and shift-out (SO) control characters, or they can be imbedded in the data to cause a shift from one set to the other.

The special code is built in to each character by turning the bit eight on or off. When bit eight is off, the character is printed from your primary character set. When the bit eight is on, it is printed from your secondary character set.

Put the shift-in (%17) and shift-out (%16) characters in each data record wherever you want to switch between character sets. An SI character selects characters that follow from your primary set. An SO selects the subsequent characters from your secondary character set. Each SI and SO remains in force until the end of the record, or until another SI or SO character is encountered.

ERROR RECOVERY

MRJE/3000 Output Management executes error recovery procedures:

- `FORMID not found in MRJETABL ...` message.

- Invalid file equation record, a COMMAND intrinsic error message.

- Failure to open output file, an FOPEN intrinsic error message.

MRJE/3000 displays an error message on the HP3000 console whenever one of these error occurs and also prints a log of all errors on the $STDLIST device for the monitor process, the output of the MRJESTR*h* Stream File.

```
┌─────────┐
│  NOTE   │
└─────────┘
```

> MRJE/3000 also prints error messages on the $STDLIST device of the monitor process. This is output from the job initiated by the MRJESTR*h* file. In addition to these error message, a `PRINT'FILE'INFO` intrinsic file information display is printed on $STDLIST to describe the nature of the failure. Consult the *MPE Intrinsics Reference Manual* for additional information on `PRINT'FILE'INFO`.

FORMID Not Found ...

A *formid* can be requested by:

- MRJE/3000 receiving a *formid* setup message from the host.

- A SUBMIT command PRINT, PUNCH or FORM *formid* parameter specification.

If the *formid* is absent from MRJETABL, MRJE/3000 prints:

```
MRJE   WARNING: FORMID not found in MRJETABL.PUB.SYS.
MRJE   FORMID not found = form
MRJE   Used default FORMID of default for job jobname
MRJE   Used output priority of 2.
```

The standard form default values are MRJECON*h* Configuration File items. These are:

Item	Contents
20	DEFAULT DEVICE FOR PRINTER OUTPUT, for solicited printer output.
28	DEFAULT DEVICE FOR PUNCH OUTPUT, for solicited punch output.
21 - 27	UNSOLICITED PRINT DISPOSITION, for printers 1 - 7, respectively.
29 - 35	UNSOLICITED PUNCH DISPOSITION, for punches 1 - 7, respectively.

MRJE/3000 uses output priority 2. This usually means that the output is deferred. The system operator can work with the affected user to route output to its proper destination. Lowering the *system outfence* value to **1** causes all such output to become *ready*.

The system administrator can override an output priority 2 in a file equation record. File equations always override FOPEN specifications. In this case, the applicable message in MRJECAT.PUB.SYS file should be modified. This also routes all output to the standard form at the specified priority, instead of the system default value.

<div style="text-align:center">

NOTE

</div>

An exception exists to this error recovery procedure:

When communications with the host are started, MRJE/3000 checks for the existence of the standard FORMID in the table and attempts to open and then close it. If the file is spooled, MRJE/3000 deletes the output file.

If this procedure fails, then MRJE/3000 aborts with an error message. If the FORMID is not found, the message is:

```
ERROR: Config FORMID not found in MRJETABL.
FORMID not found = form
PRINTER (OR PUNCH) N TERMINATING
```

MRJE/3000 aborts if this error occurs at startup while attempting to verify Configuration File defaults.

Invalid File Equation Record ...

If an invalid file equation is encountered, MRJE/3000 uses the default FORMID identified in the MRJE/3000 Configuration File with an output priority of 2.

This error message appears on the HP3000 console if the FORMID is found in the lookup table, but MRJE/3000 COMMAND intrinsic fails:

```
MRJE  Failure to execute MPE "COMMAND" Intrinsic.
UNKNOWN DEVICE CLASS. (CIERR 344)
Command PARM = 3
MRJE  FORMID = form
MRJE  The following file equation was attempted:
FILE  jobname;DEV=NOTTHERE;ENV=ELITE.HPENV
MRJE  Used output priority of 2.
```

The line Command PARM = 3 in this message identifies the parameter number in error in the file equation that follows. Consult the *MPE Intrinsics Reference Manual* about the COMMAND intrinsic for additional information. In this example, the error was due to an invalid device class, NOTTHERE. If such errors occur, MRJE/3000 uses the default form identified in the Configuration File with an output priority of 2.

```
┌──────────────┐
│     NOTE     │
└──────────────┘
```

An exception is when an error occurs when starting communications with the host, while attempting to verify the configuration entries. A message equivalent to the above appears, with the last line replaced by:

```
ERROR : Failure to open default form
PRINTER (OR PUNCH) N TERMINATING
```

MRJE/3000 aborts if this error occurs at startup while attempting to verify Configuration File defaults.

Failure to Open Output File ...

If MRJE/3000 fails to open the output file, then the error recovery described for *Invalid File Equation Records* is performed.

This sample error message is sent to the HP3000 console if MRJE/3000 does find the FORMID, and successfully executes the MPE COMMAND intrinsic but fails to execute the FOPEN intrinsic:

```
MRJE   ERROR:  MRJEOUT, OPEN  FAILURE (154) ON MRJEOUT
ENVIRONMENT FILE OPEN ERROR (FSERR 154)
MRJE   FORMID = formname
MRJE   The following file equation was attempted:
FILE   jobname;DEV=PP;ENV=INVALID.HPENV
MRJE   Used default FORMID of default for job jobname
MRJE   Used output priority of 2.
```

In this example, the environment file does not exist. MRJE/3000 uses the default FORMID for this job with an output priority of 2.

MRJE/3000 aborts if this error occurs at startup while attempting to verify Configuration File default values.

VERIFYING THE CONTENTS OF MRJETABL

After building the lookup table MRJETABL.PUB.SYS, verify all records. Use the MRJECONTROL VERIFY command from MPE.

If MRJETABL.PUB.SYS contains 12 records, the following display appears when all records are successful.

:MRJECONTROL VERIFY

. . . .   MRJE/3000 prints a dot (.) as each record
is successfully verified.

ALL RECORDS PASSED

END OF PROGRAM

MRJE/3000 programmatically issues a file equation using the file name TEST*n* where *n* is an integer from 0 to 9999. MRJEOUT then calls FOPEN followed by FCLOSE. If the output file is spooled, MRJE/3000 deletes it.

If any records fail, then MRJE/3000 prints a COMMAND intrinsic failure message, or FOPEN intrinsic failure message, and then continues until all records have been tested. After testing the last record, MRJE prints this message:

N RECORD(S) FAILED

The MRJECONTROL VERIFY command can be terminated by a (BREAK) or (CONTROL)Y at any time.

```
        ┌─────────────────┐
        │     NOTE        │
        └─────────────────┘
```

An MRJECONTROL VERIFY can only be used for MRJETABL.PUB.SYS. It can not be used when FILE equation from MRJETABL exists to another file.

MANAGER COMMANDS

The MRJE/3000 Manager commands are summarized in Table 4-1. These commands are used during an MRJE/3000 session to configure MRJE/3000 and to supervise its use. The MRJE/3000 Manager can use all the User commands and has access to all host console commands available to a remote console. See Section 3, *Commands Available to the MRJE/3000 User*, and *CONVENTIONS*.

Table 4-1. Summary of MRJE Manager Commands

COMMAND	FUNCTION
ALTER $\begin{Bmatrix} item\# \\ itemlist \end{Bmatrix}$	Specifies the items to be changed in the Configuration File.
CANCEL JOBS $\begin{Bmatrix} job\# \\ jobname \\ joblist \end{Bmatrix}$	Cancels one or more jobs.
DISPLAY $\begin{bmatrix} HOST \\ JOBLOG \quad \begin{Bmatrix} ,job\# \\ ,jobname \\ ,joblist \end{Bmatrix} \\ STATUS \\ CONFIG \quad \begin{Bmatrix} ,item\# \\ ,itemlist \end{Bmatrix} \end{bmatrix}$	Displays name of currently selected host system, status of current and old jobs, line status (open or closed) and subsystem configuration information.
host console command	Transmits a HASP, JES2, JES3, ASP, or RSCS command to the host system. Output may be received at $STDLIST, and optionally at MRJEMSG*h*.
NEW [*hostid*]	Used to build or rebuild an MRJE/3000 Configuration File.
PURGE $\begin{Bmatrix} OLDJOBS \\ ALL \end{Bmatrix}$	Purges entries from the Job Log File.

Modifies entries in a Configuration File.

Syntax

$$A[LTER] \begin{Bmatrix} item\# \\ itemlist \end{Bmatrix}$$

Parameters

item#   The number assigned to an entry in the Configuration File. Some entries cannot be altered. These are indicated in Table A-1.

itemlist   A list of item numbers.

Additional information on *item#* and *itemlist* is in the *Glossary*, Appendix F.

Discussion

Configuration File entries and their corresponding item numbers are shown in Appendix A, *Configuration File Contents*. The ALTER command always references the Configuration File of the current host system. Use HOST to specify another host system. If the number of an unmodifiable entry is entered, MRJE/3000 prints an error message.

When the command executes, MRJE/3000 prints the description and current value of a designated item and then prompts for a new value. Enter a new value in the format shown in Appendix A, *Configuration File Contents*, or type a carriage return to retain the current value.

ALTER

Example

Notice the changes in the logical device numbers for the default host system after a change in MPE configuration. The HOST command was issued before ALTER to be certain the command would reference the correct set of files.

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
MANAGER CAPABILITY IN EFFECT
#HOST
DEFAULT HOST ASSUMED
PLM IS THE CURRENT HOST MACHINE
#ALTER 2,3
2. PSEUDO CONSOLE DEVICE=042

NEW VALUE=
46
3. PSEUDO LINE MONITOR DEVICE=040
NEW VALUE=
44
MRJECON SUCCESSFULLY ALTERED
```

An attempt has been made to change the number of entries a Job Log File can accommodate. The attempt failed because the size of the Job Log File cannot be altered without rebuilding the Configuration File:

```
#HOST C
COM2 IS THE CURRENT HOST MACHINE
#ALTER 18
18. MAXIMUM NUMBER OF JOBLOG ENTRIES=150
THIS ITEM NOT DYNAMICALLY CONFIGURABLE
MRJECONC NOT ALTERED
```

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Since COM2 is a system other than the default host system, the Configuration File name is MRJECONC.

Cancels one or more jobs.

Syntax

```
C[ANCEL] [J[OBS]]    ⎧job#   ⎫
                     ⎨jobname⎬
                     ⎩joblist⎭
```

Discussion

The CANCEL command is used to cancel jobs that have been submitted for processing on the host. For jobs not yet transmitted to the host, CANCEL deletes the specified job number, name or list, and marks the corresponding entry in the Job Log File as cancelled. If the job has been transmitted and the host is on-line when this command is issued, a cancellation command is sent to the host and the Job Log File entry is marked as cancelled.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Every cancellation identifies a job as an *old job*. Once a cancelled job has completed execution at the host, and any data sets have been transmitted and ignored by MRJE/3000, issue a PURGE OLDJOBS command from MRJE/3000. The command is described in this section.

If the job has been transmitted but the host is off-line, the Job Log File entry is marked as cancelled; any output from the job that is received by MRJE/3000 when the communications line is reopened is discarded. The CANCEL command does not delete entries from the Job Log and Directory Files. Every cancellation identifies a job as an *old job*. Once a cancelled job has completed execution at the host, and any data sets in process have been transmitted and discarded by MRJE/3000, issue a PURGE OLDJOBS command from MRJE/3000 to reclaim Job Log and Directory File entries.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Do not use this command with an RSCS job entry system.

Parameters

JOBS	Optional parameter, provided for consistency with the DISPLAY command. Omitting JOBS has no effect.
job#	The number MRJE/3000 assigned to a job at submission.
jobname	The name on a JOB card in an input file.

CANCEL

joblist   A list of job names and job numbers.

Additional information on *job#*, *jobname* and *joblist* is in the *Glossary*, Appendix F.

Using Cancel

Since the CANCEL command always refers to files that were created for the current host system, issue a HOST command first to be certain the proper Job Log File is used.

Following a CANCEL command, MRJE/3000 displays the status of the specified job(s) and asks for cancellation confirmation. A YES response confirms the cancel request while any other response *including* Y causes the command to be ignored.

Although either the number or the name of a job can be specified, the number is preferable because it defines a specific job and gives a faster response. If a job name is specified for cancellation and more than one job with the same name has been submitted, MRJE/3000 prints:

jobname: DUPLICATE JOBNAMES IN JOBLOG. CANCEL REFUSED. A DISPLAY OF JOBS WITH THIS NAME WHICH YOU OWN (IF ANY) FOLLOWS:

. . .

This is followed by a list of all jobs with the given name and their assigned job numbers. No cancellation occurs. With duplicate job names, the CANCEL command should include the unique job number, rather than a common job name.

Example

In the first example, job number 25 has been cancelled.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

The HOST command was issued first to be certain the command referenced the correct set of files.

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
MANAGER CAPABILITY IN EFFECT
#HOST P
PLM2 IS THE CURRENT HOST MACHINE
#CANCEL 25
--JOB#=25 JOBNAME=TESTJOB2   USER=PAT.DCA,M
PRINT="LP"  PUNCH="LP"  FORMS="LP"
WAITING TRANSMISSION TO HOST
VERIFY CANCEL WITH "YES"
YES
SPOOL FILE DELETED
JOB#25 CANCELED
```

In the next example, three jobs have been cancelled with one command.

```
        ┌─────────────┐
        │    NOTE     │
        └─────────────┘
```

MRJE/3000 JOB#=4 corresponds with HOST#=2018.

```
#HOST
DEFAULT HOST ASSUMED
PLM IS THE CURRENT HOST MACHINE
#CANCEL 22,3/4
--JOB#=22 JOBNAME=MYJOB   USER=PAT.DCA,M
  PRINT=USERPR NO TRANSLATION   PUNCH="LP"   FORMS=USERFORM
  WAITING TRANSMISSION TO HOST
VERIFY CANCEL WITH "YES"
YES
SPOOL FILE DELETED
JOB#22 CANCELED
--JOB#=3 JOBNAME=MYJOB2   USER=PAT.DCA,M
  PRINT="LP"   PUNCH="LP"   FORMS="LP"
  WAITING TRANSMISSION TO HOST
VERIFY CANCEL WITH "YES"
YES
SPOOL FILE DELETED
JOB#3 CANCELED
--JOB#=4 JOBNAME=MYJOB3   USER=PAT.DCA,M
  PRINT="LP"   PUNCH="LP"   FORMS="LP"
  TRANSMITTED TO HOST FRI, JUN 15, 1984, 3:20 PM HOST#=2018
VERIFY CANCEL WITH "YES"
YES
$CJ2018, 2018 CANCEL COMMAND WILL BE SENT TO HOST.
$15.35.40 JOB 2018 ON RM31.PR2 PRIO 9 PURGE
```

DISPLAY

Displays job and system information.

Syntax

```
D[ISPLAY]    ┌H[OST]                        ┐
             │                  ┌job#     ┐ │
             │J[OBLOG]     ▓    │jobname  │ │
             │                  └joblist  ┘ │
             │O[LDJOBS]                     │
             │S[TATUS]                      │
             │C[ONFIG]     ▓    ┌item#    ┐ │
             └                  └itemlist ┘ ┘
```
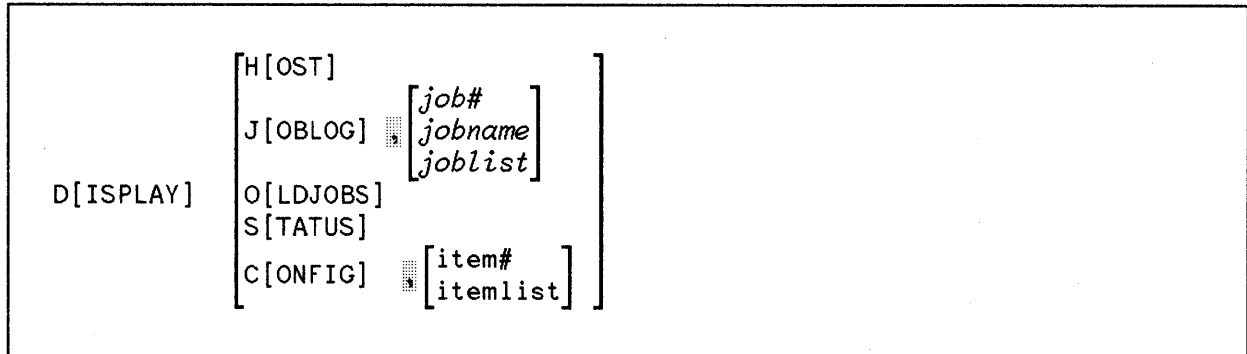
Discussion

The DISPLAY command is used to display the name of the current host, information about active and inactive jobs in the Job Log File, the status of the communications line to the host, or the contents of the Configuration File for the current host. Use (CONTROL)Y in a session to halt display command output.

If no parameters are used the JOBLOG option is assumed.

Parameters

HOST

Lists the current host system. This system is referenced by the SUBMIT, DISPLAY, ALTER, PURGE, and CANCEL commands until the HOST command is issued to select another system.

JOBLOG

Displays information about jobs. If neither *job#*, *jobname*, nor *joblist* is specified, the entire Job Log File for the current system is displayed.

JOBLOG is the default parameter for the DISPLAY command.

```
┌─────────────┐
│   NOTE      │
└─────────────┘
```

This parameter should not be used with an RSCS job entry system. A job will always be identified as WAITING TRANSMISSION TO HOST because RSCS does not acknowledge that a data set has been received. Use a host console command to inquire about the status of a job.

OLDJOBS

Reports entries for cancelled jobs and jobs that have *timed-out*. Timed-out jobs are jobs that have been in the Job Log File for a period of time, equal

to or greater than the time limit configured in item 42 of the Configuration File. The time limit is measured from the point of successful transmission to the host.

STATUS   Reports whether the communications line to the current host system is open or closed.

CONFIG   Lists the contents of the Configuration File for the current host system. If item numbers are included, only the corresponding entries are displayed. Appendix A, *Configuration File Contents*, describes the the Configuration File structure and its entries.

The *job#, jobname, joblist, item#,* and *itemlist* parameters are described in the *Glossary*, Appendix F.

You must be a Manager to DISPLAY

- Jobs that are not in your logon *username.acctname.*
- OLDJOBS
- Certain items in the Configuration File

Using Display

The DISPLAY command always references the set of files that were created for the current host system.

If a generic job name is specified with the JOBLOG parameter, all instances of that job name are displayed, whether they belong to one or several users.

If the DISPLAY JOBLOG command is entered with *jobname, job#,* or *joblist* during an interactive session and while the communications link is connected, MRJE/3000 sends a display command to the host to obtain the status of jobs already transmitted.

To obtain a line printer listing of a Configuration File, issue these commands:

```
:FILE LISTING;DEV=LP
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
MANAGER CAPABILITY IN EFFECT
#HOST C                 Defines host C to be the current host.

    . . .

#DISPLAY C 1/43         Also displays Configuration File items on $STDLIST.

    . . .

#EXIT
```

Example

This example displays the status of a single job. The communications link has been established:

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
MANAGER CAPABILITY IN EFFECT
#DISPLAY JOB 4
--JOB#=4 JOBNAME=JOBQA31   USER=MANAGER.SYS,PUB
  PRINT=MGRPR   PUNCH=MGRPUN   FORMS=MGRFORM
  TRANSMITTED TO HOST FRI, JUN 15, 1984,  3:20 PM HOST#=2018
$DJ2018       DISPLAY COMMAND WILL BE SENT TO HOST
$15.34.52  JOB 2018 JOBQA31 EXECUTING PRIO 6
```

This example displays line status for the current host system:

```
#DISPLAY STATUS
HP IS OFF LINE
TIME LINE DEACTIVATED=FRI, JUN 15, 1984,  4:38 PM
```

This example displays items in the Configuration File:

```
#DISPLAY CONFIG 6,7
6. USER HOST COMMAND=$DA
7. COMMAND CHARACTER=$
```

Creates or recreates the Configuration, Job Log, and Directory Files for a given host system.

Syntax

```
N[EW]  [hostid]
```

Discussion

The MRJE/3000 manager must be logged onto MANAGER.SYS to use this command.

In a single-host environment, *hostid* need not be specified. In a multi-host environment, a *hostid* should be assigned to each host. When a *hostid* is not assigned to a particular host, that host automatically becomes the *default host*. Establishing a default host in a multi-host environment can result in users erroneously sending jobs to the default host, because they failed to specify a host ID prior to using the SUBMIT command.

Parameter

hostid   Used primarily in multi-host environments. This parameter can consist of up to eight alphanumeric characters. If several host systems are defined, each hostid must have a unique first character.

Using New

The first step in MRJE/3000 operation is to create at least one set of MRJE/3000 management files for each communication line between the HP3000 and each host. The NEW command is used to create these files.

When *hostid* is omitted from the NEW command, MRJE/3000 assumes files are being built for the default host system. These files are named MRJECON, MRJEJOB, and MRJEDIR, to indicate their association with the default system.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Use this command when logged on as MANAGER.SYS,PUB. The Configuration, Job Log, and Directory Files are created in the logon group and account. These files are useless unless they are in PUB.SYS.

If several communications lines are connected at least one set of management files must be built for each. Care should be taken to avoid using host ID's with identical first characters. MRJE/3000 appends the first character of each host ID to MRJECON, MRJEJOB, and MRJEDIR to form unique names for each set of files. For example, if *hostid* is PLM2, the files for that host system are named MRJECONP, MRJEJOBP, and MRJEDIRP. When NEW executes, some items in the Configuration File are initialized

with the default values shown in Appendix A, *Configuration File Contents*. Other items are initialized with information provided by the MRJE/3000 Manager.

After entering the NEW command, the Manager receives these prompting messages:

```
MAXIMUM NUMBER OF JOBLOG ENTRIES = 1000
NEW VALUE =
```
> Enter a value, 25 to 1000. The Job Log File is created to accommodate the number of specified entries. A carriage return retains the 1000 value.

<div align="center">

┌─────────────────┐
│   **NOTE**   │
└─────────────────┘

</div>

> A large Job Log File increases search time, and therefore response time. A small Job Log File requires frequent purging.

```
HOST MACHINE =
```
> Enter an alphanumeric name up to eight characters in length. If *hostid* was included in the NEW command, enter that name. For the default host system, enter any name.

```
PSEUDO CONSOLE DEVICE =
```
> Enter the logical device number that was assigned to the pseudo console during MPE configuration for Unit 2, driver IOMCONS0. See Appendix C, *Configuring MPE to Include MRJE/3000*.

```
PSEUDO LINE MONITOR DEVICE =
```
> Enter the logical device number that was assigned to the first line monitor for Unit 0, driver IOMRJE0. See Appendix C, *Configuring MPE to Include MRJE/3000*.

```
SIGNON CARD IMAGE =
```
> The format of a signon card is determined by host system personnel. Enter the response exactly as they specify.

```
HOST SYSTEM =
```
> Respond HASP, JES2, JES3, ASP, or RSCS as appropriate.

```
USER HOST COMMAND =
```
> Users can send one or more host console commands to the current host system while the line is active. The response to this prompt establishes which commands can be used. For example, if the manager enters $D, Users can enter all host console commands that begin with $D. If $DA is entered, which is a unique command, Users are limited to only that command. Be sure to enter a valid response. MRJE/3000 does not check whether your entry is valid. If you make a mistake here, MRJE/3000 Users receive an error message when they attempt to issue host console commands.

```
PHONE NUMBER IN MRJECONTROL START COMMAND =
```
> This number appears in a dial message on the HP3000 terminal at which the :MRJECONTROL START command is entered. Unlike the previous prompts, a reply here is optional. To omit a telephone number, press (RETURN).

(CONTROL)Y can be used to terminate the NEW command at any time in the dialogue. However, if it is entered before the phone number prompt message, no new files are created and all information supplied up to that point is lost.

If the Configuration, Job Log, and Directory Files for a given host system already exist when this command is used, they are purged and rebuilt.

```
┌─────────┐
│  NOTE   │
└─────────┘
```

This command does not affect files MRJEMSG*h*, the Message File; MRJESTR*h*, the Stream File; MRJEFRM*h*, the Form File; MRJECAT, the Message Catalog File; or MRJETABL, the Output Management File.

PURGE

Purges entries from a Job Log File.

Syntax

```
P[URGE]    {O[LDJOBS]}
           {A[LL]    }
```

Parameters

OLDJOBS

Purges entries for cancelled jobs and jobs that have *timed-out*. A *timed-out* job has been in the Job Log File for a period of time, equal to or greater than the time limit configured in item 42 of the Configuration File. The time limit is measured from the point of successful transmission to the host.

This parameter also causes entries for jobs that were transmitted to the host but were not acknowledged as having been received to be purged.

ALL

Purges all entries from a Job Log File. An MRJE/3000 Manager can use this parameter only while logged as MANAGER.SYS,PUB.

Using Purge

Use ALL to empty the Job Log File. If any entries exist for jobs other than OLDJOBS, MRJE/3000 prints the warning message:

    n JOBS ARE IN THE JOBLOG. VERIFY PURGE WITH "YES"

where *n* is a number.

The purge request must be confirmed with a YES response. A Y response, or any other response causes the PURGE command to be ignored.

Example

This example shows the purging of all jobs, both active and inactive. The HOST command was issued before purging, to be sure the command would reference the correct set of files.

```
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
MANAGER CAPABILITY IN EFFECT
#HOST PLN2
PLM2 IS THE CURRENT HOST MACHINE
#PURGE ALL
6 JOBS ARE IN THE JOBLOG. VERIFY PURGE WITH "YES"
YES
MRJEJOBP COMPLETELY PURGED.
```

In this example, only old jobs are purged:

```
    ...

#HOST
DEFAULT HOST ASSUMED
PLM IS THE CURRENT HOST MACHINE
#PURGE OLDJOBS
MRJEJOB 10 JOBLOG ENTRIES CLEARED. 25 FREE ENTRIES NOW EXIST.
```

A TYPICAL MANAGER'S SESSION

In the following example, the MRJE/3000 Manager builds a Configuration file, submits a job, displays the
job's status, exits MRJE/3000, and exits MPE.

```
:HELLO MANAGER.SYS
HP3000 / MPE IV.C.B1.A2 (EREHWON) FRI, JUN 15, 1984, 10:40 AM
:MRJE
HP30249A.54.00 MRJE/3000 HEWLETT-PACKARD CO. 1984
MANAGER CAPABILITY IN EFFECT
#NEW
DEFAULT HOST ASSUMED
MAXIMUM NUMBER OF JOBLOG ENTRIES=100
NEW VALUE=
1000
FOLLOWING MUST BE INITIALIZED IN CONFIGURATION FILE:
HOST MACHINE=
MFRM
PSEUDO CONSOLE DEVICE=
112
PSEUDO LINE MONITOR DEVICE=
110
SIGNON CARD IMAGE=
/*SIGNON        REMOTE31 PASSWORD
HOST SYSTEM=
JES2
USER HOST COMMAND=
$DA
PHONE NUMBER IN MRJE CONTROL START COMMAND=
408-259-2442
MFRM FILES CREATED
#SUBMIT IBMJOB1
JOB#=1 JOBNAME=RJEDEMO1 RECORDS READ=14 RECORDS WRITTEN=14
MFRM IS OFF LINE
#DISPLAY 1
--JOB # 1  JOBNAME=RJEDEMO  USER=JIM.DCA,WILLITS
   PRINT="LP"  PUNCH="LP"  FORMS="LP"
   WAITING TRANSMISSION TO HOST
...
```

Assume an MRJECONTROL START command is issued now, and the communications line to the default host, MFRM, is successfully opened. The Manager displays Job 1 again and then leaves MRJE/3000.

```
#DISPLAY 1
--JOB#=1 JOBNAME=RJEDEMO1 USER=JIM.DCA,WILLITS
  PRINT="LP"  PUNCH="LP"  FORMS="LP"
  TRANSMITTED TO HOST FRI, JUN 15, 1984, 11:03 AM HOST#=4340
$DJ4340      HOST DISPLAY COMMAND SENT
$11.04.30 JOB 4340 RJEDEMO1 EXECUTING PRIO 6
#EXIT

:BYE

CPU=3. CONNECT=17. FRI, JUN 15, 1984
```

MANAGING MRJE/3000

HOST CONSOLE COMMANDS

The MRJE/3000 Manager has access to all host console commands that are available at remote host consoles. The MRJE/3000 Manager is responsible for determining which of the remote console commands to make available to all MRJE/3000 Users. By entering a specific symbol or symbols in the Configuration File, the Manager defines which commands the MRJE/3000 User can employ.

Host console commands:

• May be issued interactively while the communications line is connected.

• May be issued as part of an IBM JCL deck.

• Must conform to the format and restrictions of the host system.

• Are refused, when issued interactively, if any other MRJE/3000 User is currently communicating with the host system.

Once a MRJE/3000 Manager issues a host console command, *Console Command Mode* is in effect. *Console Command Mode* remains in force until that Manager issues a (CONTROL)Y to return the session to MRJE/3000 command mode. No MRJE/3000 prompts are issued. Everything entered is transmitted to the host as a console command. When the Manager is in *Console Command Mode*, MRJE/3000 does not transmit host console commands that are entered by any other user.

Output from the host console is unpredictable because it depends on host system activity. Usually a host console command generates a response at the Manager's terminal. If the terminal falls behind in printing this response, some host console output can be lost, unless MRJE/3000 console logging, described in this section, is operating.

The Manager can exit console command mode at any time by entering (CONTROL)Y, which returns the session to MRJE/3000 command mode.

Example

In this example, the MRJE/3000 Manager uses the JES2 host console command $DA to display those jobs that are currently active at the host. This initiates Console Command Mode.

```
#$DA                                    Enter Console Command Mode.
$15.33.04 JOB 388 JOB0A31 EXECUTING PRIO 6
$15.33.04 JOB 390 JOB0A32 EXECUTING PRIO 6
$15.33.04 JOB 392 JOB0A33 EXECUTING PRIO 6


   . . .                                Still in Console Command Mode.


(CONTROL)Y
#  . . .                               Returned to MRJE/3000 Command mode.
```

HOST CONSOLE MESSAGE LOGGING FACILITY

MRJE/3000 can log all host console messages to a Message File, an optional file. Host console message logging does not interfere with normal console operation. Message Files must be built or defined for each host. *Message Files*, MRJEMSG*h*, are described in this section.

PERFORMANCE MEASUREMENT

A limited performance measurement facility is provided through the use of the *Host Console Message Logging Facility* in an MRJEMSG*h* file. This facility measures the turn around time for host job output received by MRJE/3000. In addition, output from host jobs can be located by searching through this file for a performance measurement record. A record is written in the MRJEMSG*h* file for each job received. The format of the record is:

Characters:	Description:
3-6	Job Number
9-16	Job Name
22-29	Start receiving time, hh:mm:ss.
35-42	End receiving time, hh:mm:ss.
39-54	Total time in seconds.
61-68	Number of characters received.
74-80	Number of records received.

CAUSES OF UNSOLICITED OUTPUT

If MRJE/3000 receives output from the host that is not directed, **is unsolicited**, it can be because:

- The output has been directed to an unsolicited output device through this kind of a submit command:

    ```
    #SUBMIT ... ;PRINT=0
    ```

- The host or another remote station has routed data to your station.

- MRJE/3000 was not able to interpret the print or punch banners because they are not standard: that is, they do not conform to the default Configuration File parameters for banners. See *Building Files for MRJE/3000 Management* in this section, and Appendix A, *Configuration File Contents*, for information on MRJE/3000 recognition of banners.

- MRJE/3000 can't read the host console ON message because:

    Items 15-17 in the Configuration File did not match the message.

    The host does not send an ON message upon receipt of jobs.

- There was a significant lag between the time the host received a job and the time the host returned output to MRJE/3000. During this lag, the contents of the Joblog File, including output routing information for your job, were purged.

- You have suppressed printing or punching of banners. This took place in your JCL, or by means of a host console command.

CONTROLLING UNSOLICITED OUTPUT

If the host is waiting to transmit output to MRJE/3000 and you know that output will be treated by MRJE/3000 as unsolicited, you may still direct it to a specific destination file. Use one of these methods:

1.   **SPOOK:**

Raise Outfence on the MPE Spooler.

Receive output at the Spooler.

Use the MPE utility SPOOK to *COPY* the output data set to another disc file, or *OUTPUT* the data set to tape.

2.   **A disc file:**

Build a *large* disc file in PUB.SYS for print or punch output. This could be an MSG file, depending on the type of output you expect. Include the carriage control character in *recsize* count, and also specify CCTL.

Specify the name of the disc file in Items 21-27, unsolicited print disposition, or Items 29-35, unsolicited punch disposition, in the Configuration File.

3.   **Output Management:**

Define FORMIDs for items 21-27, unsolicited print disposition, or items 29 - 35, unsolicited punch disposition, with corresponding entries in file MRJETABL.PUB.SYS. See *Output Management*.

4.   **Global File Equation:**

Define deferred output spool files within the Stream File MRJESTR*h* for each configured pseudo printer and punch before communication with the host system is initiated, and modify items 21 - 27, unsolicited print disposition, and 29 - 35, unsolicited punch disposition, to refer to these files.

```
:FILE UNSLPR1;DEV=LP,1
:FILE X=X,OLD;DEV=DISC
```

Alter the unsolicited output items of the Configuration file, items 21-27 for printers and 29-35 for punches, to refer to the files defined in the step above. For example, alter item 21, unsolicited printer disposition for printer 1, to the value !UNSLPR1 for low priority line printer output, or !X for disc output -- File X must exist -- then, initiate communication with the host system using an MRJECONTROL START statement. The

5.   **MRJE/3000:**

Revise MRJE/3000 Configuration File parameters to conform to the output destination you want.

CONTROL OF THE COMMUNCATIONS LINK

INTRODUCTION

An MRJE/3000 Console Operator controls the communcations link. A Console Operator

- Opens and closes the MRJE/3000 communications link with a host,

- Changes the number in the transmission error retry counter parameter,

- Turns on and off the CS trace diagnostic facility,

- Checks the version update and fix levels of MRJE/3000 software,

- Verifies the contents of the Output Management table, MRJETABL.

DESIGNATING AN MRJE/3000 CONSOLE OPERATOR

Any MRJE/3000 User who has been authorized by the HP 3000 system console operator to use the MRJECONTROL commands of MPE can carry out the MRJE/3000 Console Operator functions. Use is authorized by means of the ALLOW command, as described in *MPE Commands Reference Manual.* The format of ALLOW command is:

ALLOW *user.acct*;COMMANDS=MRJECONTROL

MRJECONTROL commands are summarized in Table 5-1.

Table 5-1. MRJECONTROL Commands

COMMAND SYNTAX	FUNCTION
MRJECONTROL START [,*hostid*] [;*trace function*]	Used to open a communications link, initiate transmission over the link, turn on the CS TRACE facility.
MRJECONTROL SIGNOFF [,*hostid*]	Used to close the communications link in an orderly fashion. A /*SIGNOFF is sent to the host.
MRJECONTROL KILL [,*hostid*]	Used to close communications link immediately and in an unorderly fashion, without "SIGNOFF".
MRJECONTROL RETRIES, [*hostid*], *retrynum*	Used to set a limit on the number of times MRJE/3000 requests re-transmission of block of data not received successfully from host.
MRJECONTROL TRACE, [*hostid*], ON [*trace options*]	Used to activate the CS communications link trace facility.
MRJECONTROL TRACE, [*hostid*], OFF	Used to deactivate the CS communications link trace facility.
MRJECONTROL CHECK	Used to check the version, update and fix levels of the MRJE/3000 software currently on your system.
MRJECONTROL VERIFY	Used to verify that each record in the lookup table MRJETABL represents a valid file equation record.

Opens communications link and can initiate communications tracing.

Syntax

```
MRJECONTROL START [,hostid] [;trace function]
```

Parameters

hostid   Requests connection to system identified by *hostid*.

trace function

$$\text{TRACE}, \begin{Bmatrix} \text{ON} & [trace\ options] \\ \text{OFF} \end{Bmatrix}$$

TRACE, ON turns on CS tracing with the parameter list indicated in *trace options*. These parameters are described with MRJECONTROL TRACE in this section.

trace options   [,[ALL] [,[mask] [,[numentries] [, [WRAP] [,filename]]]]]

These parameters are described with MRJECONTROL TRACE in this section.

Discussion

Use an MRJECONTROL START command to open the communication line to a host and to initiate transmission over the line. The CS TRACE diagnostic may also be activated at this time. For more information on CS TRACE, see *MRJECONTROL TRACE*, in this section.

Contact your Hewlett-Packard representative to find out the most appropriate way to use the trace function.

Prior to issuing an MRJECONTROL START check to see if the stream file exists for the *hostid*. The stream file is named MRJESTR*h*.PUB.SYS, where *h* is the host identification character. An MRJECONTROL START command causes a corresponding MRJESTR*h*.PUB.SYS file to be streamed. Each *host identifier* must have its own stream file.

Sample Stream File

Use EDIT/3000 or TDP to create a stream file. This is a sample stream file for a default host:

```
!JOB MANAGER.SYS;HIPRI;RESTART;TIME=?
!COMMENT
!COMMENT        Although Output Management is preferred,
!COMMENT        this allows users to route output to
!COMMENT        an HP2680 with a specific environment.
!FILE ELITE;DEV=LPS;ENV=ELITE.HPENV.SYS
!COMMENT
!COMMENT        Although Output Management is preferred,
!COMMENT        this allows users to route output to
!COMMENT        a file that will be deferred.
!FILE HOLDLP;DEV=LP,1
!COMMENT
!COMMENT        This establishes the Message File.
!COMMENT        It records console message output
!COMMENT        on $STDLIST.
!FILE MRJEMSG=$STDLIST
!COMMENT
!COMMENT        The stack dump facility is armed to
!COMMENT        operate when an MRJEMON problem occurs.
!SETDUMP DB,ST
!RUN MRJEMON;INFO=" "
!EOJ
```

Access to stream files like the one above should be limited to their creator by using the MPE command ALTSEC, as described in the *MPE Commands Reference Manual.*

Opening a Communcations Line

If communications are on a private (leased) line, or on a switched line with an auto-dial capability, connection occurs shortly after the MRJECONTROL START command is issued, and a message is received at the HP3000 master console like the following

```
10:51/24/MRJE: SIGNON COMPLETED
```

If the communication link is a *switched* line without auto-dialing, a message similar to the following is printed at the HP3000 master console after MRJECONTROL START is issued:

```
10:55/24/MRJE: DIAL REMOTE 408-259-2442
```

The telephone number printed in this message is item 39 of the Configuration File.

If the MRJECONTROL START command includes *hostid*, the first character of the *hostid* is appended to "MRJE" in the console message. For example, if the *hostid* is BRUNO, then an MRJECONTROL START command is:

```
:MRJECONTROL START,B
```

and the console message for switched lines without auto-dialing is similar to the following:

```
11:03/24/MRJEB: DIAL REMOTE 408-259-2442
```

Following the display of this console message, the MRJE/3000 Console Operator should:

1.   Place the call at the dial-up modem telephone.

2.   Listen for the answer carrier tone.

3.   Press the DATA button, if the modem so requires, when the answer tone becomes audible.

4.   Check the system console terminal for a message similar to the following:

```
10:51/24/MRJEB: SIGNON COMPLETED
```

5.   If the readers, printers, and punches for your remote station have been *drained* at the host system, start those you need with host system console commands. A *drained* device at the host is like a *downed* device on an HP3000.

Once the communications link has been established:

• MRJE/3000 automatically transmits jobs to the host system and routes output from the host system to the designated HP3000 output files.

• MRJE/3000 Users, working at their terminals, can transmit host system console commands and receive responses from the host system.

• The MRJE/3000 Manager, if working at a terminal, can monitor host system activity.

• The MRJE/3000 Console Operator if working at a terminal can monitor for MRJE/3000 messages.

Each time the MRJECONTROL START command is issued, MRJE/3000 checks whether the correct MRJE/3000 modules are installed. If version or update levels do not match among modules, the following message is issued:

```
INCOMPATIBLE MRJE MODULES
```

The MRJECONTROL CHECK command should then be entered to identify the incorrect module.

MRJECONTROL SIGNOFF

Closes a communications link in a systematic fashion.

Syntax

```
MRJECONTROL SIGNOFF [,hostid]
```

Parameter

hostid   Initiates systematic closing of line to host system identified by *hostid*. The default is to close the default host system.

Discussion

After the command has been issued, MRJE/3000 may print one of these messages:

```
CS WARNING   103

CS WARNING   207

MRJE TERMINATING
```

This depends on the host system configuration. Although the message can normally be ignored, the MRJE/3000 Manager may occasionally ask for the warning number.

MRJE/3000 communicating with JES2 work stations prints:

```
MRJE TERMINATING
```

When the MRJECONTROL SIGNOFF command is entered, any currently active readers finish transmitting before the command takes effect.

If an MRJECONTROL SIGNOFF command is issued while a file is being transmitted to or from the host system, transmission continues until all of the file has been sent. Then the line is disconnected. In this way no data is lost.

RSCS Restriction

Do not use this command with an RSCS job entry system on a switched line. After making sure that transmission between the HP3000 and the host are completed, always use MRJECONTROL KILL instead. RSCS automatically deactivates a line upon *signoff*. Host system operations must intervene to reactivate the line for any subsequent SIGNON if you use MRJECONTROL SIGNOFF.

Causes all communication with the host system to halt immediately.

Syntax

```
MRJECONTROL KILL [,hostid]
```

Parameter

hostid   Identifies the host system where all communication is to cease immediately.
                           The default value is the default host system.

Discussion

Occasionally, an emergency may occur, a SIGNOFF command may fail to produce the MRJE
TERMINATING message, or a dial-up line may be busy--making it necessary to terminate the subsystem
abnormally with the KILL command.

> **CAUTION**
>
> The command MRJECONTROL KILL should be used in emergencies only,
> **except with RSCS,** because error free recovery from the command is not
> certain.

Following an MRJECONTROL KILL command, it may be necessary to enter the
MRJECONTROL START command several times. If repeated attempts to make the connection fail,
consult with the host system operator.

RSCS Exception

Use this command to terminate a session with a host with an RSCS job entry system on a switched line.
Make certain that transmission between the HP3000 and the host are completed. Do not use
MRJECONTROL SIGNOFF.

MRJECONTROL RETRIES

Regulates the MRJE/3000 driver.

Syntax

```
MRJECONTROL RETRIES, [hostid], retrynum
```

Parameters

hostid   Is the name by which the host system is identified. If this parameter is not used, MRJE/3000 assumes the default host system is intended.

retrynum   Is an integer between 1 and 255, inclusive. **This parameter is required.** The initial value depends on the communications controller being configured.

Discussion

You can regulate the number of times MRJE/3000 repeats its attempt to receive a block of data from the host system. Transmission errors may be occurring because of a *dirty* communications line. Issue the command MRJECONTROL RETRIES from MPE. You can issue this command anytime the line is active.

CAUTION

Since this command adjusts a communications driver retry counter, its use could affect processing speed and system performance.

Enables and disables communications link tracing.

Syntax

```
MRJECONTROL TRACE, [hostid],{ON  [trace options]}
                            {OFF              }
```

Parameters

hostid   Is the name by which the host system is identified. If this parameter is omitted, MRJE/3000 assumes the default host system is intended.

ON   Keyword used to initiate tracing.

OFF   Keyword used to terminate tracing.

trace options   [,[ALL] [,[mask] [,[numentries] [, [WRAP] [,filename]]]]]

ALL   A keyword; when present tracing generates a record of all transmission activity. When omitted, trace records are written only when transmission errors occur.

mask   Is an octal number preceded by a percent symbol that specifies the type of events to trace. Use the default mask, %37, unless your Hewlett-Packard representative recommends another value. The values of *mask* are:

BIT   Meaning when on:

0   Not used for MRJE/3000. *Most significant.*
1   INP interconnect entries. Not used for MRJE/3000.
2   PSTN entries. Default=OFF.
3   POPR and PEDT entries. Default=ON.
4   PRCT entries. Default=ON.
5   PRTX entries. Default=ON.
6   PSCT, PPOL, PSEL entries. Default=ON.
7   PSTX entries. Default=ON. *Least significant.*

> **NOTE**
>
> INP interconnect and PSTN (state transition) entries should not be traced except at the request of your Hewlett-Packard representative. This generates many trace entries.

numentries	Is the number of entries per record. (Default is 24. Maximum is 248.) For an INP use 24.
WRAP	A keyword, when present causes trace entries that overflow the trace record (that exceed *numentries*) to overlay the first entries written to that record. If omitted, the overflow entries are discarded.
	This parameter is applied to entries within records, not records within files. If trace records overflow a trace file, CS TRACE automatically starts writing them over the first records in the file.
filename	Is the name of the file where the trace records are to be stored. If this parameter is omitted, CS TRACE creates file in MRJETRC*h*.PUB.SYS with the name, where *h* is the first character of the host system ID. If another file is used, it must be identified or built before executing MRJECONTROL TRACE.

Discussion

The CS TRACE facility can be enabled by an MRJECONTROL TRACE, or MRJECONTROL START command. Contact your Hewlett-Packard representative to find out the most appropriate way to use this command. This command can be entered any time the line is open.

Listing Trace File Contents

The CS TRACE dump utility program CSDUMP.PUB.SYS can be used to format and print the contents of trace files generated by the trace facility. An example of the commands required to list the files to a line printer is:

```
:FILE CSTRACE=filename
:FILE LIST;DEV=LP              "LP", or other designation for "printer"
:RUN CSDUMP.PUB.SYS[,HEX]
```

where *filename* is the name of the trace output file name specified in the MRJECONTROL TRACE or MJRECONTROL START command. If no trace output *filename* was specified there, use MRJETRC*h*.PUB.SYS,, where *h* is the host system identification. The secondary entry point CSDUMP.PUB.SYS,*HEX* allows raw data to be output in hexadecimal.

Contact your Hewlett-Packard representative for assistance in interpreting trace file contents.

Checks the version, update, and fix levels of each MRJE/3000 module.

Syntax

```
MRJECONTROL CHECK
```

Discussion

This command has no parameters. The MRJECONTROL CHECK command can be used to check the version, update and fix levels of each MRJE/3000 module. This can be particularly useful in verifying the correct installation of MRJE.

When the command is issued, a table showing each MRJE/3000 module and its levels of revision is printed at the user's terminal. The format of the table is as follows:

```
MODULE          VERSION
                (REVISION)

MRJEMISC1/2     V.UU.FF
MRJE            V.UU.FF
MRJEMON         V.UU.FF
MRJEOUT         V.UU.FF
MRJELOGR        V.UU.FF
IOMPNLPO        V.UU.FF
IOMCONSO        V.UU.FF
IOMRDRO         V.UU.FF
IOMRJEO         V.UU.FF
IOMRJE1         V.UU.FF
```

V, UU, and FF are integers. V stands for *version*, UU for *update*, and FF for *fix*. If a module is not present in the system, the following message is printed in place of $V.UU.FF$:

```
*UNABLE TO ACCESS MODULE*
```

If a module is present but no revision levels can be determined, the following message is printed in place of $V.UU.FF$:

```
*NO VERSION LEVEL*
```

Each time the MRJECONTROL START command is issued, MRJE/3000 checks whether the correct MRJE/3000 modules are installed. If version or update levels do not match between modules, the following message is issued:

```
INCOMPATIBLE MRJE MODULES
```

The MRJECONTROL CHECK command should then be issued to identify the incorrect module.

MRJECONTROL VERIFY

Determines that each record in the lookup table represents a valid file equation record.

Syntax

```
MRJECONTROL VERIFY
```

Discussion

The MRJECONTROL VERIFY command can be used to verify that each record in the lookup table MRJETABL represents a valid file equation record. This example illustrates verification of a file with 12 records:

```
#MRJECONTROL VERIFY
```

. . . .   A dot is printed as a record is successfully verified.

```
ALL RECORDS PASSED
```

```
END OF PROGRAM
```

For each record, MRJE/3000 programmatically issues a file equation using the file name TEST*n* where *n* is an integer from 0 to 9999. MRJE/3000 then performs an FOPEN and an FCLOSE. If the output file is spooled, it is deleted. MRJE/3000 prints a dot (.) on the screen as each record is successfully verified.

If any records fail, then MRJE/3000 prints a COMMAND intrinsic failure message, or an FOPEN intrinsic failure message, and continues until all records have been tested. Upon testing the last record, MRJE/3000 prints the following message on the screen instead of the ALL RECORDS PASSED message:

```
N RECORD(S) FAILED
```

An MRJECONTROL VERIFY command may be interrupted with (BREAK) as well as with (CONTROL)Y.

See *Output Management* in Section 4, *Managing MRJE/3000*, for additional information on the use of MRJETABL.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

This command can only verify MRJETABL.PUB.SYS. If you identify another lookup table by using a FILE statement in MRJESTR*h*.PUB.SYS, this command fails.

MRJE/3000 troubleshooting tools described in this section are:

- Error Message Logging;

- DBUG and DBUGLINES entry points into MRJEMON;

MRJE/3000 information messages sent to Users, Managers, and the HP3000 system console are included with an interpretation and, when applicable, a suggested corrective action.

ERROR MESSAGE LOGGING

MRJE/3000 keeps a log of all error messages by printing them to the $STDLIST device of the monitor process. An MRJECONTROL START,*h* command from MPE streams file MRJEJESTR*h*.PUB.SYS to initiate the MRJE/3000 monitor process MRJEMON. If a file system error occurs, MRJE/3000 calls PRINT'FILE'INFO, an intrinsic which lists a file system information display on the $STDLIST device, and also sends a message the HP3000 console. Other information listed on the $STDLIST device includes the contents of MRJETABL and MRJE/3000 version numbers.

This information is always listed on the $STDLIST device:

- MRJE/3000 Module Version Numbers.

- Contents of MRJETABL if it exists.

- All messages sent to the HP3000 console.

- PRINT'FILE'INFO line information display for all file system errors.

THE DBUG ENTRY POINT

The DBUG entry point into MRJEMON causes the output process for PRINTER 1 to perform an internal trace of all activity and lists this information onto $STDLIST. In addition, the MRJELOGR process, which monitors all messages sent to the remote console, lists any *setup* messages sent by the host.

```
|  NOTE  |
```

DBUG-related tracing can be enabled for the Printer 1 process only (MRJE Configuration File Item #21). Error messages, however, are reported by the other MRJE processes to $STDLIST as necessary.

To gain maximum benefit from this facility, all output devices other than Printer 1 should be DRAINED at the host system. This limits the possibility of error messages from other processes being interleaved with Printer 1 tracing. Also, all host output should be directed to Printer 1.

This example shows a Stream File for the default host. Notice the DBUG entry point used to activate tracing.

```
!JOB MRJEMON,MANAGER/password.SYS,PUB
!RUN MRJEMON,DBUG;INFO=" "
```

Do not confuse the DBUG entry point with a DEBUG run command parameter.

This is a typical DBUG internal tracing output for *hostid* N :

```
:JOB MRJEMONN,MANAGER.SYS,PUB
PRIORITY = DS; INPRI = 8; TIME = UNLIMITED SECONDS
JOB NUMBER = #J2
THU, MAY  3, 1984,  3:15 PM
HP3000 / MPE V  G.00.00 (BASE G.00.00).
COMMENT **** FILE EQUATIONS SET:                          Logon UDC output.
FILE T;DEV=TAPE
FILE LP;DEV=LP
FILE LIST;DEV=LP,2
:RUN MRJEMON,DBUG;INFO="n"

     MODULE       VERSION
MRJEMISC1/2    A.54.00
MRJE           A.54.00
MRJEMON        A.54.00
MRJEOUT        A.54.00
MRJELOGR       A.54.00
IOMPNLP0       A.54.00
IOMCONS0       A.54.00
IOMRDR0        A.54.00
IOMRJE0        A.54.00
IOMRJE1        A.54.00

MRJETABL contents :

STD.     ;DEV=PP;ENV=LP602.HPENV
I2       ;ACC=OUT;DEV=EPOC,4,2;ENV=LPLONG.HPENV
LP602    ;DEV=LPS,2;ENV=LP602.HPENV
I3       ;DEV=EPOC,5,3;ENV=LP604.HPENV
I4       ;DEV=PP,3,4;ENV=PICA2.HPENV
I5       ;ACC=OUT;DEV=LPS,,5;ENV=LP60LONG.HPENV
I7       ;DEV=EPOC,4,7;ENV=LP60LONG.HPENV
BAD      ;DEV=NOTTHERE;ENV=ELITE.HPENV
I10      ;DEV=EPOC,,10
I8       =DISC.MRJE.SYS,OLD
I9       =DISC2.MRJE.SYS,NEW;ACC=OUT;NOCCTL
##@@     ;DEV=LP,3;FORMS=CHECKS.
$#$@@@##;DEV=PP;ENV=LP2BAR.HPENV.SYS
LONG     ;DEV=LPS,7;ENV=LP602.HPENV
LONGNAME;DEV=PP;ENV=LP604.HPENV
HOST     ;DEV=LPS;ENV=LP60LONG.HPENV
I6       ;DEV=LP,3
11       ;DEV=PP,,11
```

```
NEW      ;DEV=EPOC,2,9;ENV=LP2BAR.HPENV
TEST     =SPECIAL;DEV=PP,3;FORMS=SPECIAL.
```

End of MRJETABL

```
MRJE (N) SIGNON COMPLETED
BEGIN TRACING FOR PRINTER 1
DEFAULT SOLICITED OUTPUT DESTINATION = 'STD.'
DEFAULT UNSOLICITED OUTPUT DESTINATION = 'STD.'
CURRENT FORM = I2                    This value came from MRJEFRMN.
```

A SETUP message was detected prior to receiving the first dataset:

```
15.24.53 JOB  120 $HASP190 I          SETUP -- R9.PR1    -- F = STD. -- C = 6
```

Use form STD. for job I.

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE I        ;DEV=PP;ENV=LP602.HPENV
FILE SUCCESSFULLY OPENED FOR SOLICITED JOB I
HOST JOB NUMBER = 120
EBCDIC TO ASCII TRANSLATION: YES
SPOOLED: YES.   OUTPUT NUMBER = #030    The MPE Spoolfile is #O30.
PRINT = 'STD.'   FORMS = 'STD.'         PRINT and FORMS values are from
CURRENT FORM = STD.                     the MRJE/3000 Job Log. Form
                                        STD. is now on the printer.
```

```
+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+    The PRINT'FILE'INFO
! FILE NAME IS I                                 !    intrinsic produces
! FOPTIONS: NEW,ASCII,FORMAL,U,CCTL,FEQ,NOLABEL !     a file information
! AOPTIONS: OUTPUT,NOMR,LOCK,SHR,BUF,NOMULTI     !     display.
!          WAIT,NOCOPY                           !
! DEVICE TYPE: 32    DEVICE SUBTYPE: 0           !
! LDEV: 5       DRT: 0        UNIT: 0            !
! RECORD SIZE: 134    BLOCK SIZE: 136   (BYTES) !
! EXTENT SIZE: 0      MAX EXTENTS: 0             !
! RECPTR: 61          RECLIMIT: 0               !
! LOGCOUNT: 61           PHYSCOUNT: 61           !
! EOF AT: 0              LABEL ADDR: %00500000000 !
! FILE CODE: 0      ID IS           ULABELS: 0  !
! PHYSICAL STATUS: ???????????????               !
! ERROR NUMBER: 85    RESIDUE: 18       (BYTES) !
! BLOCK NUMBER: 61           NUMREC: 1          !
+-----------------------------------------------+
OUTPUT FILE FOR JOB I SUCCESSFULLY CLOSED
************************************************
```

Another SETUP message received; Job I8 requires form I8:

```
15.25.17 JOB  121 $HASP190 I8         SETUP -- R9.PR1    -- F = I8   -- C = 6
```

```
FILE EQUATION ISSUED BY PRINTER 1:      The FOPEN of this file failed.
FILE  I8       =DISC.MRJE.SYS,OLD
MRJE(N) ERR135: MRJEOUT, OPEN FAILURE (52) ON MRJEOUT
NONEXISTENT PERMANENT FILE  (FSERR 52)


+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+
!  ERROR NUMBER: 52    RESIDUE: 0                 !
!  BLOCK NUMBER: 0             NUMREC: 0          !
+------------------------------------------------+
```

The next five lines duplicate console error messages.

```
MRJE  FORMID = I8
MRJE (N) The following file equation was attempted:
FILE  I8       =DISC.MRJE.SYS,OLD
MRJE  Used default FORMID of STD.      for job I8
MRJE (N) Used output priority of 2.
```

MRJE/3000 tries again using the standard form.

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE  I8       ;DEV=PP;ENV=LP602.HPENV
FILE SUCCESSFULLY OPENED FOR SOLICITED JOB I8
HOST JOB NUMBER = 121
EBCDIC TO ASCII TRANSLATION: YES
SPOOLED: YES.    OUTPUT NUMBER = #032
PRINT = 'STD.'   FORMS = 'STD.'
CURRENT FORM = I8


+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+
!  FILE NAME IS I8                                !
!  FOPTIONS: NEW,ASCII,FORMAL,U,CCTL,FEQ,NOLABEL  !
!  AOPTIONS: OUTPUT,NOMR,LOCK,SHR,BUF,NOMULTI     !
!           WAIT,NOCOPY                           !
!  DEVICE TYPE: 32    DEVICE SUBTYPE: 0           !
!  LDEV: 4       DRT: 0        UNIT: 0            !
!  RECORD SIZE: 134   BLOCK SIZE: 136   (BYTES)  !
!  EXTENT SIZE: 0     MAX EXTENTS: 0              !
!  RECPTR: 61         RECLIMIT: 0                 !
!  LOGCOUNT: 61          PHYSCOUNT: 61            !
!  EOF AT: 0          LABEL ADDR: %00400000000    !
!  FILE CODE: 0       ID IS           ULABELS: 0  !
!  PHYSICAL STATUS: ??????????????                !
!  ERROR NUMBER: 85    RESIDUE: 18       (BYTES)  !
!  BLOCK NUMBER: 61             NUMREC: 1         !
+------------------------------------------------+
OUTPUT FILE FOR JOB I8 SUCCESSFULLY CLOSED
**************************************************
```

Another change of forms message is received.

```
15.25.34 JOB  122 $HASP190 I6        SETUP -- R9.PR1   -- F = I6   -- C = 6
```

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE  I6       ;DEV=LP,3
FILE SUCCESSFULLY OPENED FOR SOLICITED JOB I6
HOST JOB NUMBER = 122
EBCDIC TO ASCII TRANSLATION: YES
SPOOLED:  YES.   OUTPUT NUMBER = #033
PRINT = 'STD.'   FORMS = 'STD.'
CURRENT FORM = I6


+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+
!  FILE NAME IS I6                               !
!  FOPTIONS: NEW,ASCII,FORMAL,U,CCTL,FEQ,NOLABEL !
!  AOPTIONS: OUTPUT,NOMR,LOCK,SHR,BUF,NOMULTI    !
!            WAIT,NOCOPY                         !
!  DEVICE TYPE: 32     DEVICE SUBTYPE: 0         !
!  LDEV: 4         DRT: 0          UNIT: 0       !
!  RECORD SIZE: 134    BLOCK SIZE: 136   (BYTES) !
!  EXTENT SIZE: 0      MAX EXTENTS: 0            !
!  RECPTR: 1           RECLIMIT: 0               !
!  LOGCOUNT: 1          PHYSCOUNT: 1             !
!  EOF AT: 0           LABEL ADDR: %00400000000  !
!  FILE CODE: 0      ID IS          ULABELS: 0   !
!  PHYSICAL STATUS: ???????????????              !
!  ERROR NUMBER: 85   RESIDUE: 0                 !
!  BLOCK NUMBER: 1           NUMREC: 1           !
+-----------------------------------------------+
OUTPUT FILE FOR JOB I6 SUCCESSFULLY CLOSED
****************************************************
15.25.46 JOB  123 $HASP190 I4      SETUP -- R9.PR1   -- F = I4   -- C = 6
```

The file equation failed for this record.

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE  I4       ;DEV=NOTTHERE;ENV=ELITE.HPENV
MRJE (N) Failure to execute MPE "COMMAND" Intrinsic.
UNKNOWN DEVICE CLASS. (CIERR 344)
Command PARM = 3
MRJE  FORMID = BAD
MRJE (N) The following file equation was attempted:
FILE  I4       ;DEV=NOTTHERE;ENV=ELITE.HPENV
MRJE  Used default FORMID of STD.     for job I4
MRJE (N) Used output priority of 2.
```

Standard form is used.

Notice that FORMS are routed to FORMID 'BAD':

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE  I4       ;DEV=PP;ENV=LP602.HPENV
FILE SUCCESSFULLY OPENED FOR SOLICITED JOB I4
HOST JOB NUMBER = 123
EBCDIC TO ASCII TRANSLATION: YES
SPOOLED:  YES.   OUTPUT NUMBER = #034
PRINT = 'STD.'   FORMS = 'BAD'
CURRENT FORM = I4
```

```
+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+
! FILE NAME IS I4                                  !
! FOPTIONS: NEW,ASCII,FORMAL,U,CCTL,FEQ,NOLABEL !
! AOPTIONS: OUTPUT,NOMR,LOCK,SHR,BUF,NOMULTI    !
!           WAIT,NOCOPY                          !
! DEVICE TYPE: 32    DEVICE SUBTYPE: 0.          !
! LDEV: 4       DRT: 0         UNIT: 0           !
! RECORD SIZE: 134    BLOCK SIZE: 136   (BYTES) !
! EXTENT SIZE: 0    MAX EXTENTS: 0               !
! RECPTR: 61         RECLIMIT: 0                 !
! LOGCOUNT: 61           PHYSCOUNT: 61           !
! EOF AT: 0           LABEL ADDR: %00400000000   !
! FILE CODE: 0     ID IS            ULABELS: 0   !
! PHYSICAL STATUS: ???????????????              !
! ERROR NUMBER: 85    RESIDUE: 18        (BYTES) !
! BLOCK NUMBER: 61           NUMREC: 1           !
+------------------------------------------------+
OUTPUT FILE FOR JOB I4 SUCCESSFULLY CLOSED
**************************************************
```

Another forms change is received:

```
15.26.40 JOB  124 $HASP190 I       SETUP -- R9.PR1   -- F = STD. -- C = 6
```

Now all print output is routed to FORMID 'TEST' :

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE  I       =SPECIAL;DEV=PP,3;FORMS=SPECIAL.
FILE SUCCESSFULLY OPENED FOR SOLICITED JOB I
HOST JOB NUMBER = 124
EBCDIC TO ASCII TRANSLATION: YES
SPOOLED:  YES.   OUTPUT NUMBER = #036
PRINT = 'TEST'   FORMS = 'STD.'
CURRENT FORM = STD.
```

Now TEST *defines an alternate file name for the output spoolfile.*

```
+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+
!  FILE NAME IS SPECIAL                          !
!  FOPTIONS: NEW,ASCII,FORMAL,U,CCTL,FEQ,NOLABEL !
!  AOPTIONS: OUTPUT,NOMR,LOCK,SHR,BUF,NOMULTI    !
!            WAIT,NOCOPY                         !
!  DEVICE TYPE: 32    DEVICE SUBTYPE: 0          !
!  LDEV: 4       DRT: 0         UNIT: 0          !
!  RECORD SIZE: 134    BLOCK SIZE: 136   (BYTES) !
!  EXTENT SIZE: 0    MAX EXTENTS: 0              !
!  RECPTR: 1         RECLIMIT: 0                 !
!  LOGCOUNT: 1           PHYSCOUNT: 1            !
!  EOF AT: 0          LABEL ADDR: %00400000000   !
!  FILE CODE: 0     ID IS           ULABELS: 0   !
!  PHYSICAL STATUS: ???????????????             !
!  ERROR NUMBER: 85    RESIDUE: 7       (BYTES)  !
!  BLOCK NUMBER: 1           NUMREC: 1           !
+------------------------------------------------+
```

```
OUTPUT FILE FOR JOB I SUCCESSFULLY CLOSED
*************************************************
MRJE (N) FINAL TERMINAL SIGNOFF
MRJE (N) MRJE TERMINATING. . .
```

THE DBUG'LINES ENTRY POINT

The DBUG'LINES entry point to MRJEMON causes the Printer 1 output process to trace each line received from the host and list it to $STDLIST. ASCII carriage control information is displayed in octal in the first four positions, followed by a space, and then the record received. Transaction tracing enabled by the DBUG entry point is also enabled.

Any unsupported carriage control command characters sent by the host are translated into single space controls by MRJE. Consult the MRJE/3000 Reference Manual for additional information on translation of carriage control information. The *MPE Intrinsics Reference Manual* describes how the FWRITE intrinsic uses carriage control values.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

> As with the DBUG entry point, this level of tracing can be activated for Printer 1 only.

To enable this level of internal tracing, modify the RUN MRJEMON command in the MRJESTR*h* file:

```
RUN MRJEMON,DBUG'LINES;INFO= ...
```

The DBUG'LINES entry point activates line tracing for the Printer 1 process for the default host.

This illustrates typical output received when DBUG'LINES tracing is enabled:

```
MRJE (N) SIGNON COMPLETED
BEGIN TRACING FOR PRINTER 1
DEFAULT SOLICITED OUTPUT DESTINATION = 'STD.'
DEFAULT UNSOLICITED OUTPUT DESTINATION = 'STD.'
CURRENT FORM = I2
```

The first line received is a carriage control to set post-space movement.

```
%100
```

The next line is sent to the remote console and is printed by MRJELOGR:

```
22.27.41 JOB  159 $HASP190 I5       SETUP -- R9.PR1    -- F = I5    -- C
```

This line is the first banner line with single space CCTL:

```
%201 *A START JOB  159 I5        0001 0001 R0009    MILES
```

Since the first line was successfully decoded, the output file is now opened.

```
FILE EQUATION ISSUED BY PRINTER 1:
FILE  I5       ;ACC=OUT;DEV=LPS,,5;ENV=LP60LONG.HPENV
FILE SUCCESSFULLY OPENED FOR SOLICITED JOB I5
HOST JOB NUMBER = 159
EBCDIC TO ASCII TRANSLATION: YES
SPOOLED: YES.   OUTPUT NUMBER = #O147
```

```
PRINT = 'STD.'    FORMS = 'STD.'
CURRENT FORM = I5


+-F-I-L-E---I-N-F-O-R-M-A-T-I-O-N---D-I-S-P-L-A-Y+
! FILE NAME IS I5                                 !
! FOPTIONS: NEW,ASCII,FORMAL,U,CCTL,FEQ,NOLABEL !
! AOPTIONS: OUTPUT,NOMR,LOCK,SHR,BUF,NOMULTI     !
!           WAIT,NOCOPY                          !
! DEVICE TYPE: 32    DEVICE SUBTYPE: 0           !
! LDEV: 4       DRT: 0        UNIT: 0            !
! RECORD SIZE: 134   BLOCK SIZE: 136    (BYTES) !
! EXTENT SIZE: 0     MAX EXTENTS: 0              !
! RECPTR: 29         RECLIMIT: 0                 !
! LOGCOUNT: 29          PHYSCOUNT: 29            !
! EOF AT: 0             LABEL ADDR: %00400000000 !
! FILE CODE: 0       ID IS        ULABELS: 0     !
! PHYSICAL STATUS: ???????????????               !
! ERROR NUMBER: 85   RESIDUE: 18       (BYTES) !
! BLOCK NUMBER: 29           NUMREC: 1           !
+-------------------------------------------------+
```

Remaining banner lines follow. The last banner line uses a page eject (%061) carriage control:

```
%201 *A START JOB  159 I5       0001 0001 R0009    MILES
%201 *A START JOB  159 I5       0001 0001 R0009    MILES
%201 *A START JOB  159 I5       0001 0001 R0009    MILES
%201 *A START JOB  159 I5       0001 0001 R0009    MILES
%061 *A START JOB  159 I5       0001 0001 R0009    MILES
```

Text begins:

```
%203                    J E S 2  J O B  L O G  --  S Y S T E M ...
%201
%201 22.27.38 JOB  159 $HASP373 I5      STARTED - INIT  A - CLASS A -
%202 22.27.39 JOB  159 $HASP395 I5      ENDED
%203 ------ JES2 JOB STATISTICS ------
%203  03 MAY 84 JOB EXECUTION DATE
%203        89 CARDS READ
%203       115 SYSOUT PRINT RECORDS
%203         0 SYSOUT PUNCH RECORDS
%061      0.02 MINUTES EXECUTION TIME
%201      1    //I5 JOB ,MILES MSGCLASS=A
%201           ***JOBPARM ,F=I5
%201      2    // EXEC PGM=IEBGENER
%201      3    //SYSIN DD DUMMY
%201      4    //SYSUT1 DD *
%201      5    //SYSUT2 DD SYSOUT=A
%201      6    //SYSPRINT DD SYSOUT=A
%061           //
%201
%201 IEF236I ALLOC. FOR I5
%201 IEF237I DMY  ALLOCATED TO SYSIN
%201 IEF237I JES2 ALLOCATED TO SYSUT1
%201 IEF237I JES2 ALLOCATED TO SYSUT2
```

```
%201 IEF237I JES2 ALLOCATED TO SYSPRINT
%201 IEF142I I5 - STEP WAS EXECUTED - COND CODE 0000
%201 IEF285I    JES2.JOB00159.SI0101                           SYSIN
%201 IEF285I    JES2.JOB00159.SO0102                           SYSOUT
%201 IEF285I    JES2.JOB00159.SO0103                           SYSOUT
%201 IEF373I STEP /        / START 84124.2227
%201 IEF374I STEP /        / STOP  84124.2227 CPU    0MIN 00.43SEC SRB
%201 IEF375I  JOB /I5      / START 84124.2227
%061 IEF376I  JOB /I5      / STOP  84124.2227 CPU    0MIN 00.43SEC SRB
%201 tuvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 uvwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 vwxyzABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 wxyzABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 xyzABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 yzABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 zABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 ABCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 BCDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 CDEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 DEFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 EFGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 FGHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 GHIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 HIJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 IJKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 JKLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 KLMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 LMNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 MNOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 NOPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 OPQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 PQRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 QRSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 RSTUVWXYZ!@#$%&*()_+-=~ ;'
%201 STUVWXYZ!@#$%&*()_+-=~ ;'
%201 TUVWXYZ!@#$%&*()_+-=~ ;'
%201 UVWXYZ!@#$%&*()_+-=~ ;'
%201 VWXYZ!@#$%&*()_+-=~ ;'        %2nn = space nn lines after printing.
%201 WXYZ!@#$%&*()_+-=~ ;'
%061 XYZ!@#$%&*()_+-=~ ;'
%201 YZ!@#$%&*()_+-=~ ;'
%201 Z!@#$%&*()_+-=~ ;'
%201 !@#$%&*()_+-=~ ;'
%201 @#$%&*()_+-=~ ;'
%201 #$%&*()_+-=~ ;'
%201 $%&*()_+-=~ ;'
%201 %&*()_+-=~ ;'
%201 &*()_+-=~ ;'
%201 &*()_+-=~ ;'
%201 *()_+-=~ ;'
%201 ()_+-=~ ;'
%201 )_+-=~ ;'
%201 _+-=~ ;'
%201 +-=~ ;'
```

```
%201 -=~ ;'
%201 =~ ;'
%201 ~ ;'
%201   ;'
%201 ;'
%061 '
%203 DATA SET UTILITY - GENERATE
%201 IEB352I WARNING : OUTPUT RECFM/LRECL/BLKSIZE COPIED FROM INPUT
%201
%061 PROCESSING ENDED AT EOD
%201 *A  END  JOB  159 I5     0001 0001 R0009    MILES
%201 *A  END  JOB  159 I5     0001 0001 R0009    MILES
%201 *A  END  JOB  159 I5     0001 0001 R0009    MILES
%201 *A  END  JOB  159 I5     0001 0001 R0009    MILES
%201 *A  END  JOB  159 I5     0001 0001 R0009    MILES
%061 *A  END  JOB  159 I5     0001 0001 R0009    MILES
%000
OUTPUT FILE FOR JOB I5 SUCCESSFULLY CLOSED
********************************************************
```

COMMAND ERRORS

MRJE/3000 command errors fall into four general categories.

• Syntax errors -- These include invalid commands as well as commands in improper format.

• Inaccessible files -- A job is refused if any file named in the SUBMIT command cannot be opened. A command is refused if it contains the name of a nonexistent Job Log or Configuration File.

• Invalid user ID -- A command is refused if a MRJE/3000 User attempts to cancel or display a job they do not own.

• Full Job Log File -- If a MRJE/3000 User attempts to submit a job and the Job Log File is full, the SUBMIT command is refused. The MRJE/3000 Manager can make space in the file by purging old jobs or by purging all jobs.

In each of the above categories, MRJE/3000 sends an appropriate message to the user's output device.

OPERATING FAILURES

A failure is identified as a Local Failure, or a Remote Failure. A Local Failure is an HP3000 hardware or software failure. A Remote Failure is a host system or communication line failure.

Local Failures

After an HP3000 failure, jobs that were submitted to the MPE spooler and jobs that the spooler was actively writing to the host card reader are recovered if the system is restarted with a WARMSTART; however, any purged extents are lost. Jobs that were being submitted to a non-spooled host card reader are lost and must be resubmitted.

Line printer and punch output being received by the HP3000 when a failure occurs is recovered during a WARMSTART. Output received by a non-shareable device before the failure is saved whether the device was spooled or not spooled. Output in the process of being written to a disc file may be lost.

After a failure and subsequent restart, the DISPLAY command should be used to determine the status of suspect files and jobs. For example:

• A User submits a job but does not receive a job number or error message. To see whether the job has been submitted, the User should enter:

DISPLAY J,*jobname*

• A User cancels a job but does not receive a "JOB CANCELED" message or an error message. To check if the job was canceled, the User should enter:

DISPLAY J,*job#*

It may be desirable to check host system output queues.

- If you are the MRJE/3000 Manager using the ALTER command to change the Configuration File and do not receive a response after entering a new value, you should verify that the file has been updated by entering:

DISPLAY C,*item#*

In most cases, an interrupted command must be reentered. This is also true for a host console command if the host has not responded.

If the HP3000 fails while the line to a host is open, the line will automatically be closed. After system restart, you must issue MRJECONTROL START command again to reopen the line.

Remote Failures

Following a host system or communication line failure, MRJE/3000 automatically terminates the connection in an orderly manner. It sends a termination message to the HP3000 system console, enters the termination time in the Configuration File, and shuts down any spooled host card readers it is controlling. Spooled files are deferred.

After the host system has been restarted or the line problems solved, the Console Operator must issue the MRJECONTROL START command to restart the subsystem. At the same time the Console Operator should assign the deferred spool files a higher priority.

After a failure, any jobs shown by the DISPLAY command to have been transmitted may not be necessarily completely transmitted. For this reason, it may be necessary to do a host console display command after the line is reestablished to determine which jobs are on the host system.

MRJE/3000 MESSAGES

These messages relate to MRJE/3000 activity:

- **User messages:** These are printed on a user's output device. They are listed alphabetically in Table 6-1.

- **MRJECONTROL distributed console messages:** These are sent to the terminal of the user who issued the MRJECONTROL command. These messages are in Table 6-2 in Command Interpreter Error (CIERR) number order.

- **Console Operator messages:** These are sent to the system console. They are listed alphabetically in Table 6-3.

The messages that report an error or failure also include the cause and instructions for corrective action. The messages that report information include an interpretation of the message.

CS ERRORS

Occasionally failures causing irrecoverable errors occur on a communication system (CS) link. CS errors are reported on the system console by code number. The error numbers are included within relevant error messages.

The *Data Communications Handbook* describes CS Irrecoverable Error codes and CS Recoverable Error codes. An error is *irrecoverable* when the system is unable to recover from the error without human intervention. The system can recover from a Recoverable Error and no action is required by the user; a Recoverable Error code may follow an Irrecoverable Error code, thus informing the user that both types of errors have occurred.

GATHERING INFORMATION FOR PROBLEMS

This provides you with the information on how to:

• Determine what kind of information to gather when you encounter a problem.

• Help you during the initial steps of problem solving.

• Work with your Hewlett-Packard representative when a problem occurs.

It is in these categories:

• *Common Information*, which you **always** provide when you encounter a problem.

• *Communications Link Information*, which you provide when a problem appears to be transmission-related.

• *MRJE/3000 Information*, which you provide when a problem appears to be MRJE/3000-related.

You and your Hewlett-Packard representative decide what information to prepare for eventual problem resolution.

Common Information

This information is invariably needed to resolve a problem.

• Characterize the problem. Describe the events leading up to and including the problem. Attempt to determine the source of the problem. Describe and understand the symptoms of the problem.

Your characterization should include: MPE commands; Communication subsystem commands; Job streams; Result codes and messages; Data that can reproduce the problem. (Actual data is desirable; however, you may require that it be synthetic.)

Illustrate as clearly as possible the context of any message. Prepare copies of HP3000 system console and user terminal information.

Include a history of the site: when was the product installed; when do problems appear; what other data communications products are installed; what other products were in use when the problem took place.

• Obtain the version, update, and fix information of all software.

Identify the INP, HP30020A, HP30020B, or HP30010A, and the name of the download file in use.

This allows Hewlett-Packard to determine if the problem is already known, and the correct software is installed at your site.

- Record all result messages and numbers that appear at the terminal of the user as well as the HP3000 system console for additional analysis by your Hewlett-Packard representative.

- Always obtain a copy of the generation of the host system you are using for JES2, VTAM, and NCP. Determine if there are any differences from your expectations. Retain this for your Hewlett-Packard representative.

- Run LISTLOG2.PUB.SYS, a supported utility, to list the contents of of the highest numbered HP3000 system log file. Inspect the output to determine if there are apparent errors. Create a copy of this HP3000 system log file for your Hewlett-Packard representative for additional analysis.

- Try to determine the general area within the software where you think the problem exists. Based on the part-specific sections that follow, prepare the information indicated.

- Issue the MPE command SHOWCOM *ldev*;ERRORS, where *ldev* identifies the logical device number of the INP related to the problem. This provides a listing of the status of the INP. Retain this output for your Hewlett-Packard representative for additional analysis.

- Document your interim, or *workaround* solution. The cause of a problem can sometimes be found by comparing the circumstances in which it occurs with when it does not occur.

- Create duplicate copies of all active or in-use trace files for additional analysis by your Hewlett-Packard representative. When you format these trace files using CSDUMP, these files describe the communications link activity.

- **Take a full memory dump whenever the system fails or is deadlocked (*hung*).**

```
NOTE
```

Retain a copy of the file LOADMAP.PUB.SYS with the unformatted dump tape for your Hewlett-Packard representative.

- **Always retain unformatted trace and dump files. Your HP representative may need them for additional information.**

Communications Link Information

When a communications link problem appears, in addition to the *Common Information* described earlier in this section, you and your Hewlett-Packard representative need to prepare the following information:

- If an INP failure has taken place, give the file INPLOGxx.PUB.SYS to your Hewlett-Packard representative for additional analysis.

  If the problem is easily reproducible, and tracing was inactive when the problem took place, turn on trace using the MPE command MRJECONTROL TRACE...ON ... . When the problem has been reproduced, turn off trace and give a duplicate of this trace file to your Hewlett-Packard representative for additional analysis.

NOTE

It is important to give a copy of the unformatted INP dump that took place while link level tracing was enabled to your Hewlett-Packard representative for additional analysis.

- If an INP or SSLC failure has not taken place, turn on trace using the MPE command

  MRJECONTROL TRACE...ON...

  to create a trace file. This allows your Hewlett-Packard representative to study the line activity.

- Working with your Hewlett-Packard representative, use DSM, a Hewlett-Packard utility, to provide you with additional diagnostic information.

MRJE/3000 Information

When a problem is evident in MRJE/3000, in addition to *Common Information* described in this section, you and your Hewlett-Packard representative need to evaluate this information:

- File MRJESTR*h*.PUB.SYS. Prepare a listing of this file.

- Copies and listings of the Job Log File and the Configuration File, MRJEJOB*h*.PUB.SYS and MRJECON*h*.PUB.SYS.

- A copy of the MPE I/O device configuration generated by SYSDUMP.

- If a failure took place during processing output, attempt to reproduce it on Printer 1 with DBUG tracing. Prepare a listing of this output.

Table 6-1. MRJE/3000 User Messages

"ALL" OR "OLDJOBS" ARE ONLY VALID PURGE PARAMETERS.

A PURGE keyword parameter other than ALL or OLDJOBS was entered. Reenter PURGE command with no parameter (for OLDJOBS) or with ALL or OLDJOBS. This error causes program termination in batch mode.

"BS", "CS", "DS", OR "ES" REQUIRED.

BS, CS, DS, or ES are the only valid values for output process priority in the Configuration File. ES is the recommended output process priority. This error causes program termination in batch mode.

$\left\{ \begin{matrix} jobname \\ job\# \end{matrix} \right\}$ CANCELED.

Specified job has been canceled as requested.

$\left\{ \begin{matrix} jobname \\ job\# \end{matrix} \right\}$ CAN'T BE CANCELED.

Named job cannot be canceled because of an error in writing to or reading from a Job Log File. Retry the CANCEL. This error causes program termination in batch mode.

$\left\{ \begin{matrix} \$CJ\ host\#,host\# \\ \$CJ\ host\#,P \end{matrix} \right\}$ CANCEL COMMAND WILL BE SENT TO HOST.

When an interactive User/Manager cancels a job which has been transmitted to the host and the host is on-line, MRJE/3000 automatically sends the appropriate host cancel command and prints the host response.

COMMA OR NUMBER REQUIRED.

Comma or number is required. This error causes program termination in batch mode.

COMMA OR SLASH REQUIRED TO SEPARATE PARAMETERS.

Comma or slash required to separate parameters in *joblist* or *itemlist*. This error causes program termination in batch mode.

COMMA REQUIRED TO SEPARATE PARAMETERS.

Comma is required to separate positional parameters, DAYS, HOURS, MINUTES. This error causes program termination in batch mode.

$\left\{ \begin{matrix} DEFAULT\ HOST \\ HOST\ hostname \end{matrix} \right\}$ CONFIGURATION FILE SET CANNOT BE ACCESSED.

Named host Configuration File cannot be accessed because of an open or read error. Determine the reason for the I/O failure from the MPE file error number. This error causes program termination in batch mode.

CONTINUATION LINE EXPECTED.

When an ampersand (&) is entered at the end of a line in a command, MRJE/3000 expects the following line to be a continuation of the command. Reenter the entire command with the continuation line as required. This error causes program termination in batch mode.

CONTROL-Y IS THE ONLY VALID INPUT DURING HOST COMMAND PROCESSING.

A User may only enter (CONTROL)Y during host console command processing. A (CONTROL)Y halts output. Any other input causes this error message and returns the # prompt. If all output has not been received, reenter the host console command. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

filename RECORD *m* CTRANSLATE FAILED.
> An error occurred while translating a SUBMIT input file from ASCII to EBCDIC (or EBCDIK, depending on the translation type). This is an internal software failure. Contact your Hewlett-Packard representative for assistance. This error causes program termination in batch mode.

DAYS, HOURS, MINS CAN'T BE ZERO.
> The maximum time a job remains in the Job Log File after transmission cannot be zero. This error causes program termination in batch mode.

DEFAULT HOST ASSUMED.
> If no host name is given in a HOST or NEW command, MRJE/3000 assumes the default host is desired.

DIGIT OR SPECIAL CHARACTER REQUIRED.
> Host system character must be a digit or a special character. Reenter command. This error causes program termination in batch mode.

n DIGITS ARE THE MAX ALLOWED FOR THIS NUMBER.
> A number with too many digits has been entered. Reenter command with no more than *n* digits. This error causes program termination in batch mode.

$DJ *host#* DISPLAY COMMAND WILL BE SENT TO HOST.
> When an interactive User/Manager displays a job that has been transmitted to the host and the host is on-line, MRJE/3000 automatically sends the appropriate host display command and prints the host response.

jobname: DUPLICATE JOBNAMES IN JOBLOG. CANCEL REFUSED. A DISPLAY OF JOBS WITH THIS NAME WHICH YOU OWN (IF ANY) FOLLOWS:
> A CANCEL by job name is refused if duplicate names exist in the Job Log File. Reenter the CANCEL command, specifying *job#* rather than *jobname*.

EMBEDDED BLANKS NOT ALLOWED IN QUALIFIED NAME.
> A qualified actual file designator may not contain embedded blanks. Reenter. This error causes program termination in batch mode.

END OF FILE ON $STDINX. FURTHER INPUT IMPOSSIBLE. FATAL ERROR!
> End-of-file on standard input device. Further input is impossible. MRJE/3000 terminates. A user may have entered an :EOD after issuing a SUBMIT $STDINX command. Run the job again and do not use :EOD or :EOF in SUBMIT. Use MRJEOD to terminate input. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

ENTER INPUT ENDING WITH "MRJEOD".
    This message followed by a prompt (>) requests input from $STDIN/$STDINX during SUBMIT. If
    $STDIN or $STDINX are FD files, any comment on the ##FD card appears ahead of this message.
    For example, assume *infile* DATA1 contains the record

                    ##FD $STDIN This input is for file DATA1.

    When this ##FD card is read by MRJE/3000, the following appears on the terminal:

            This input is for file DATA1.
            ENTER INPUT ENDING WITH "MRJEOD"
            >

EXTRANEOUS INFORMATION AFTER VALID ITEM.
    Some extra information has been included that MRJE/3000 does not recognize. Reenter with
    only the required information. This error causes program termination in batch mode.

##FD CARDS NOT PERMITTED IN LEVEL 2 FILE.
    File Definition cards may be contained only in an *infile* (level 0) or a first-level FD file. Remove
    the ##FD card from the named level 2 file, reconstruct input files as required, and resubmit job(s).
    This error causes program termination in batch mode.

FILE ERROR *nn*, *filename* CAN'T BE CLOSED.
    Named SUBMIT file (input or output) cannot be closed. SUBMIT processing continues.
    Determine the reason for the failure from MPE file system error number (*nn*).

FILE ERROR *nn*, *filename* CAN'T BE CLOSED. FATAL ERROR!
    Named file (Configuration, Directory, Job Log, or host console device) cannot be closed.
    MRJE/3000 terminated. Determine the reason for the failure from MPE file system error
    number (*nn*). This error causes program termination in batch mode.

FILE ERROR *nn*, *filename* CAN'T BE OPENED.
    Named file cannot be opened. Determine the reason for the failure from MPE file system error
    number (*nn*). This error causes program termination in batch mode.

FILE ERROR *nn*, *filename* CAN'T BE OPENED. FATAL ERROR!
    Named list file (if other than $STDLIST) cannot be opened. MRJE/3000 terminated. Determine
    the reason for the failure from MPE file system error number (*nn*). This error causes program
    termination in batch mode.

FILE ERROR *nn*, MRJEJOB*h* RECORD *m* CAN'T BE POSTED.
    Record *m* of Job Log MRJEJOB*h* cannot be physically transferred from the I/O buffer to the disc
    file. Determine the reason for the I/O failure from MPE file system error number (*nn*). This
    error causes program termination in batch mode.

FILE ERROR *nn* $\left\{ \begin{array}{l} filename \text{ RECORD } m \\ \text{HOST CONSOLE OUTPUT} \\ \text{STANDARD INPUT FILE} \end{array} \right\}$ CAN'T BE READ.
    Determine the reason for I/O failure from MPE file system error number (*nn*). This error causes
    program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

`FILE ERROR` *nn*`,` *filename* `RECORD` *m* `CAN'T BE WRITTEN.`
> Record *m* of the named file cannot be written. Determine the reason for the I/O failure from the MPE file system error number (*nn*). This error causes program termination in batch mode.

`FILE ERROR` *nn*`,` *filename* `RECORD` *m* `CAN'T BE WRITTEN. FATAL ERROR!`
> Output record *m* cannot be written to the named list file. MRJE/3000 terminated. Determine the reason for the I/O failure from the MPE file system error number (*nn*). This error causes program termination in batch mode.

`FILE ERROR` *nn*`,` $\begin{Bmatrix} \textit{filename} \text{ RECORD } m \\ \text{MONITOR CARD} \end{Bmatrix}$ `CAN'T BE WRITTEN TO HOST READER.`
> Record *m* of the SUBMIT input file, or the monitor card can not be written to the host reader. A Monitor Card associates a host job with a pseudo reader. Determine the reason for the I/O failure from the MPE file system error number (*nn*). This error causes program termination in batch mode.

`FILE ERROR` *nn*`, CAN'T CLOSE $STDINX. HOST CONSOLE COMMANDS CAN'T BE SENT.`
> $STDINX (standard input device) must be closed, then reopened for NOWAIT I/O, in order to send host console commands. Determine the reason for the failure from the MPE file system error number (*nn*). This error causes program termination in batch mode.

`FILE ERROR` *nn*`, HOST BUSY. CONSOLE COMMAND NOT SENT.`
> Host pseudo console device has received more messages from the host than it can handle. Determine the reason for the failure from the MPE file sytem error (*nn*).

`FILE ERROR` *nn*`, HOST CONSOLE CAN'T BE OPENED.`
> Host pseudo console device specified in the configuration file cannot be opened. Most commonly another someone else is using the console. Determine the reason for the failure from MPE file system error number (*nn*). This error causes program termination in batch mode.

`FILE ERROR` *nn*`, HOST CONSOLE COMMAND CAN'T BE WRITTEN.`
> Host console command cannot be written to the host pseudo console device specified in the configuration file. Determine the reason for the I/O failure from the MPE file system error number (*nn*). This error causes program termination in batch mode.

hostname `FILES CREATED.`
> The Configuration File set for the named host has been created as requested in the NEW command.

`FOLLOWING MUST BE INITIALIZED IN CONFIGURATION FILE:`
> When creating a new Configuration File, certain items that do not have default values must be initialized.

`FORMID MUST CONSIST OF 1 TO 8 CHARACTERS`
> A FORMID, the key into MRJETABL, may consist of 1 to 8 alphanumeric, IBM national, or period (.) characters delimited by single quotes ('). Reenter. This error causes program termination in batch mode.

`FORMID MUST BE TERMINATED WITH A SINGLE QUOTE (').`
> A FORMID, the key into MRJETABLE, must be delimited with single quote (') characters. Reenter. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

FORMS SPECIFIED TWICE.
> The FORMS file is specified twice in a SUBMIT command. Reenter the SUBMIT command, specifying FORMS only once. This error causes program termination in batch mode.

GET PRIVILEGED MODE FAILURE. FATAL ERROR!
> An error occurred in the GETPRIVMODE intrinsic. This is an internal software failure. Contact your Hewlett-Packard representative for assistance. This error causes program termination in batch mode.

GET USER MODE FAILURE. FATAL ERROR!
> An error occurred in the GETUSERMODE intrinsic. This is an internal software failure. Contact your Hewlett-Packard representative for assistance. This error causes program termination in batch mode.

HOSTNAME MUST START WITH SAME CHAR AS HOSTID
> The first character of a host name must be the same as the first character of the host ID given in the NEW command. Reenter. This error causes program termination in batch mode.

jobname IN DIRECTORY (ENTRY *n*) BUT NOT IN JOB LOG. FATAL ERROR!
> A *jobname* has been found in Directory File entry *n*, but cannot be found in the Job Log. MRJE/3000 terminated. This is an internal software failure. Do not permit further jobs to be submitted to this Job Log. When all jobs in it have completed, use FCOPY to list the Directory and Job Log Files:

```
:FILE L;DEV=LP
:FCOPY
>FROM=MRJEJOBh;TO=*L;OCTAL;CHAR
>FROM=MRJEDIRh;TO=*L;OCTAL;CHAR
>EXIT
```

> *h* is the host ID. Show the listing to your Hewlett-Packard representative. Use the PURGE ALL command to reinitialize the Directory and Job Log Files. This error causes program termination in batch mode.

INPUT FILE NAME(S) REQUIRED.
> SUBMIT requires at least one input file name. Reenter the command. This error causes program termination in batch mode.

INTEGER OF O TO 255 REQUIRED
> The translation type for Configuration Item 38 is out of bounds. Reenter.

INPUT MUST BE NUMERIC
> Numeric input required. Reenter. This error causes program termination in batch mode.

INTERACTIVE TERMINAL REQUIRED FOR HOST CONSOLE COMMANDS.
> User/Manager must run MRJE/3000 interactively in order to send host console commands from a terminal. Console commands may also be sent as part of an IBM JCL deck, but they must be in batch format.

Table 6-1. MRJE/3000 User Messages (continued)

INVALID ACTUAL FILE DESIGNATOR
> A fully qualified actual file designator is:
>
> *filename/lockword. groupname. accountname*
>
> where ...*names* and *lockword* each have a maximum of eight alphanumeric characters, and the first character is alphabetic. No embedded blanks are permitted. Reenter. This error causes program termination in batch mode.

INVALID COMMAND.
> MRJE/3000 does not recognize the input as a command. Enter a valid MRJE/3000 or host Job Entry Subsystem command. This error causes program termination in batch mode.

INVALID DEVICE CLASS SPECIFICATION.
> A valid device class specification *name* has a maximum of eight alphanumeric characters, starting with an alphabetic character. No embedded blanks are permitted. Quotation marks are required, as follows: *"name"*. Reenter. This error causes program termination in batch mode.

INVALID FILE EQUATION SPECIFICATION
> Name must be less than or equal to seven characters. Consult your system administrator for more details. This error causes program termination in batch mode.

INVALID HOST SYSTEM.
> HASP, JES2, JES3, ASP, and RSCS are the only valid host Job Entry Subsystems. Reenter. This error causes program termination in batch mode.

INVALID HOSTID. MUST BE ALPHANUMERIC, <=8 CHARS.
> Valid host ID has a maximum of eight alphanumeric characters. Reenter. This error causes program termination in batch mode.

INVALID JOBNAME--TOO LONG.
> Eight characters is the maximum length for host job name. Reenter. This error causes program termination in batch mode.

INVALID KEYWORD.
> Valid keywords are READER, PRINT, PUNCH, FORMS. Reenter SUBMIT command. This error causes program termination in batch mode.

INVALID OCTAL NUMBER.
> Octal number cannot contain blanks or the digits 8 and 9. Reenter. This error causes program termination in batch mode.

Invalid output specification. Valid designations are:
FORMID record in MRJETABL, using single quotation marks (').
Device class name, using double quotation marks (").
Logical device number.
Actual file designator.
Zero (0).
> An output specification was improperly delimited, or contained an illegal value. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

INVALID PARAMETER FOR DISPLAY COMMAND.
> Valid DISPLAY parameters are CONFIGURATION, DIRECTORY, HOST, JOBLOG, OLDJOBS, STATUS. Reenter DISPLAY command with correct parameter. This error causes program termination in batch mode.

INVALID SPECIAL CHARACTER.
> Reenter using one of the following special characters only:

> , $ # @ / = " ( ) > % ; : & ! < ^ + - '

> This error causes program termination in batch mode.

INVALID SUBMIT PARAMETER.
> Valid SUBMIT parameters are *infile*, (N), (N,T), (T,N), (T) and the keywords READER, PRINT, PUNCH, and FORMS. Reenter SUBMIT command. This error causes program termination in batch mode.

device IS AN INVALID PSEUDO LINE MONITOR DEVICE. FATAL ERROR!
> MRJE/3000, in determining whether the host is on-line or off-line, has found that the pseudo line monitor logical device number in the Configuration File is invalid. Ensure that the logical device number in the Configuration File correctly indicates the pseudo line monitor device configured on the 3000. This error causes program termination in batch mode.

jobname IS NOT YOUR JOB.
> Requested job is not canceled or displayed because the user's logon ID does not match that in the Job Log File entry. Reenter CANCEL or DISPLAY with correct job name or job number. This error causes program termination in batch mode.

hostname IS OFF-LINE.
> The named host is off-line.

hostname IS OFF-LINE. HOST CONSOLE COMMAND CAN'T BE SENT.
> Host console command cannot be sent because named host is off-line. Reenter command when host is on-line.

hostname IS OFF-LINE. JOB CAN'T BE CANCELED AT HOST.
> Job to be canceled has been transmitted to host, but the host is now off-line, so a CANCEL command cannot be sent to host. However, the cancel flag in the job log entry is set so that any output from the job is flushed. This error causes program termination in batch mode.

hostname IS ON-LINE.
> The named host is on-line.

hostname IS THE CURRENT HOST MACHINE
> The named host is the host to which all succeeding commands are directed.

n IS THE MAX LEVEL OF NAMES IN THIS ACTUAL FILE DESIGNATOR.
> Lockword, groupname, and accountname are the only permissible file name qualifications. This error causes program termination in batch mode.

n IS THE MAXIMUM NUMBER OF CHARACTERS FOR THIS PARAMETER.
> Certain inputs, such as phone number in the configuration file, cannot exceed a specified length. Reenter. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

command IS THE ONLY VALID CONSOLE COMMAND.
> A User can enter only the host console commands designated by the Manager in the Configuration File in Item 6. Reenter. This error causes program termination in batch mode.

m TO *n* IS THE VALID RANGE FOR THIS PARAMETER.
> The number specified is not within valid range. Reenter. This error causes program termination in batch mode.

ITEM 4 ONLY DISPLAYED FOR MANAGER.
> Item 4 in the Configuration File, the host SIGNON card image, is displayed only for the MRJE/3000 Manager.

ITEM NOT USED WITH THIS HOST SYSTEM.
> Items 11 and 17 in a Configuration File are not used with a JES3 or ASP host. Item 14 is not used with JES2 or HASP. Items 10, 15-17, 20, 22-28, 30-35 and 42 are not used by RSCS. This error causes program termination in batch mode.

ITEM NUMBER REQUIRED.
> When altering a Configuration File, item number is required. Reenter with an item number. This error causes program termination in batch mode.

JOB ALREADY CANCELED.
> A CANCEL request has been entered for a job which has already been canceled. The Job Log File entry is displayed.

JOB *nn* CAN'T BE CANCELED DUE TO A PREVIOUS SYSTEM FAILURE.
> This message occurs if the system is restarted between the time a job is submitted and the time a CANCEL request is issued. A system restart invalidates the spool file numbers that would normally be used in a cancelation procedure. Thus, the CANCEL request fails. After receiving all output for all jobs, issue a PURGE OLDJOBS from MRJE/3000.

JOB CAN'T BE CANCELED AT HOST FOR NON-INTERACTIVE USER.
> Job to be canceled has been transmitted to the host, but since the User/Manager is not running MRJE/3000 interactively the CANCEL command cannot be sent to the host. However, the cancel flag in the Job Log File entry is set so that any output from the job is discarded. This error causes program termination in batch mode.

JOB NOT CANCELED.
> When any user requests that a job be canceled, the job log entry is displayed. In an interactive session MRJE/3000 then asks for verification of the CANCEL. If the response is anything other than YES, the job is not canceled.

n JOBS ARE IN THE JOBLOG. VERIFY PURGE WITH "YES".
> When the Manager enters the PURGE ALL command MRJE/3000 checks to see whether there are any jobs in the job log. These jobs may not have completed. If there are remaining jobs, then a Manager running interactively is asked to verify the PURGE request by typing YES.

JOB *nn* NO JOBLOG ENTRY.
> No Job Log File entry exists for the job specified in a CANCEL or DISPLAY command. Display by job name to determine the correct job number.

LOGICAL DEVICE NUMBER OR DEVICE CLASS REQUIRED.
> A logical device number or device class is the only valid input. Back-references not permitted. Reenter. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

MANAGER CAPABILITY IN EFFECT.
>This user has OP, System Supervisor, capability.

MANAGER CAPABILITY REQUIRED FOR THIS COMMAND
>This command is not available to a user without OP, System Supervisor, capability. This error causes program termination in batch mode.

MAXIMUM OF 5 INPUT FILES ALLOWED.
>A SUBMIT command accepts a maximum of five explicit input files. Reenter the SUBMIT command. This error causes program termination in batch mode.

MISSING RIGHT PARENTHESIS.
>Closing right parenthesis has been omitted from the (NOTRANSLATE) or (TRANSPARENT) parameter. Reenter the SUBMIT command. This error causes program termination in batch mode.

MRJECON*h* FILE ALREADY EXISTS. REPLY "YES" TO RECREATE.
>The host named in NEW command already has a set of Configuration Files. In an interactive session the Manager is asked to verify that the existing files are to be deleted and new ones created. Reply YES to delete the existing set of Configuration Files. Any other response retains the existing files.

MRJECON*h* NOT ALTERED.
>No change has been made to the named configuration file because of an I/O error, invalid input, or no new value being entered when requested. If a change is required, reenter the ALTER command.

MRJECON*h* SUCCESSFULLY ALTERED.
>The named Configuration File has been successfully altered as requested.

MRJEJOB*h* COMPLETELY PURGED OF ALL JOB ENTRIES.
>The named Job Log has been completely purged as requested.

MRJEJOB*h* DIRECTORY FULL. NO FURTHER JOBS CAN BE SUBMITTED.
>The Directory File of the named Job Log indicates that the Job Log is full. PURGE the named Job Log File of old, inactive jobs. This error causes program termination in batch mode.

MRJEJOB*h* DIRECTORY/JOBLOG UPDATE CAN'T BE COMPLETED. FATAL ERROR!
>Some or all entries have been deleted from the Job Log File during PURGE, but the Job Log or Directory File cannot be updated because of an I/O error. MRJE/3000 terminated. Rebuild the set of Configuration Files for this host using the NEW command. This error causes program termination in batch mode.

MRJEJOB*h* END OF FILE.
>An end-of-file has been reached in a search of the named job log.

MRJEJOB*h* *n* JOBLOG ENTRIES CLEARED. *m* FREE ENTRIES NOW EXIST.
>A PURGE command cleared *n* entries from the named job log file by:

- Deleting canceled jobs
- Deleting timed out jobs
- Clearing Directory File entries that were reserved for jobs that failed during SUBMIT.

Table 6-1. MRJE/3000 User Messages (continued)

MRJEJOB*h* NOT PURGED.
> The named Job Log has not been purged because the Manager negated the request, or an I/O error occurred. If PURGE is required, determine the reason for failure from the MPE file error number given in the I/O error message and reenter the PURGE command.

MRJEJOB*h n* OLD JOBS IN THIS FILE.
> The named Job Log contains *n* old jobs. An *old job* has either timed-out, or has been canceled. It is subject to purging.

MRJEJOB*h n* OLD JOBS PURGED THUS FAR.
> An error has occurred during PURGE processing which makes a Directory or Job Log File update impossible. However, *n* old jobs have already been deleted from the Job Log File. Rebuild the Configuration Files for this host using the NEW command.

current command character MUST BE FIRST CHAR IN USER HOST CMD.
> The specified command character must be the first character entered in the User host command. For example, if the host system command character is a dollar sign ($), the User host command cannot be %DA. This error causes program termination in batch mode.

NO BLANKS ALLOWED IN FORMAL FILE DESIGNATOR
> Embedded blanks are not permitted within a back referenced file designator. Reenter. This error causes program termination in batch mode.

NO CLOSING QUOTE ON DEVICE CLASS NAME.
> A valid device class must be enclosed in quotes. Reenter. This error causes program termination in batch mode.

NO FILE DESIGNATOR ON ##FD CARD.
> An ##FD card with no file designator has been found in a SUBMIT input file. Correct the ##FD card and resubmit. This error causes program termination in batch mode.

NO JOB CARD FOUND.
> MRJE/3000 has read and spooled or transmitted all SUBMIT input (*infiles* and FD files) without finding a host JOB card with the form:

> *//jobname* JOB *optional information*

> Add a valid host job card and resubmit.

NO NEW FILES CREATED.
> If an error occurs or the MRJE/3000 Manager enters (CONTROL)Y during NEW command processing, no new set of Configuration Files is created. If new files are required, determine the reason for failure from the MPE file error number given in the I/O error message and reenter the NEW command. This error causes program termination in batch mode.

NO PARAMETERS ALLOWED.
> No parameters are allowed in this command. Reenter the command.

NO SPOOL FILE FOUND.
> Message occurs when a job is canceled and no spool file exists that contains information to be transmitted for the canceled job.

Table 6-1. MRJE/3000 User Messages (continued)

jobname NOT FOUND.

> The job named in a CANCEL or DISPLAY command is not in the Job Log. Ensure that job name is correct and reenter the command. The Manager may DISPLAY the entire Job Log to check job names.

$\begin{Bmatrix} jobname \\ JOB \end{Bmatrix}$ NOT SUBMITTED.

> The job identified as *jobname*, or JOB if MRJE/3000 did not find a host card, was not submitted to the host. Make certain the job has a recognizable job card.

NOTRANSLATE CAN'T BE SPECIFIED FOR $STDIN/$STDINX.

> Input from the standard input file is always translated from ASCII to EBCDIC or EBCDIK, depending on translation type. Reenter SUBMIT command, deleting the (NOTRANSLATE) parameter from $STDIN/$STDINX. This error causes program termination in batch mode.

"NOTRANSLATE" REQUIRED.

> (NOTRANSLATE) or (TRANSPARENT) are the only parenthesized parameters allowed in the SUBMIT command. Reenter command. This error causes program termination in batch mode.

NUMERIC PARAMETER EXPECTED.

> Numeric input is expected after a comma. Reenter. This error causes program termination in batch mode.

ONLY 3 PARAMETERS ARE ALLOWED.

> Only three values, *days*, *hours*, and *minutes*, can be given to specify the maximum time a job remains in the Job Log after transmittal. Reenter. This error causes program termination in batch mode.

outfile : OUTPUT FILE DOES NOT EXIST.

> The *outfile* named in a PRINT, PUNCH, or FORMS parameter of a SUBMIT command does not exist. Build the named output file and resubmit. This error causes program termination in batch mode.

PARAMETERS REQUIRED.

> The given command requires parameters. Reenter the command. This error causes program termination in batch mode.

PRINT SPECIFIED TWICE.

> A PRINT parameter is specified twice in a SUBMIT command. Reenter the command, specifying PRINT once. This error causes program termination in batch mode.

PUNCH SPECIFIED TWICE

> A PUNCH parameter is specified twice in a SUBMIT command. Reenter the command, specifying PUNCH once. This error causes program termination in batch mode.

reader READER CANNOT BE CLOSED.

> The named pseudo *reader* cannot be closed. Determine the reason for the failure from subsequent MPE file system error message number. This error causes program termination in batch mode.

READER SPECIFIED TWICE.

> The READER parameter is specified twice in a SUBMIT command. Reenter the command, specifying READER once. This error causes program termination in batch mode.

Table 6-1. MRJE/3000 User Messages (continued)

SPOOL FILE DELETED.
> You see this message when a job is canceled before it is transmitted to the host, and the spool file containing it is deleted.

SPOOL FILE NOT IN READY STATE. UNABLE TO DELETE.
> You see this message when a job is canceled while it is being transmitted to the host. The spool file is busy and cannot be deleted. The *cancel* flag is still set.

STANDARD INPUT FILE CAN'T BE OPENED. FATAL ERROR!
> $STDINX cannot be opened. MRJE/3000 terminates. This error causes program termination in batch mode.

STANDARD INPUT FILE CAN'T BE OPENED FOR NOWAIT I/O.
> The $STDINX file must be opened for NOWAIT I/O in order to send host console commands. This error causes program termination in batch mode.

$STDIN, $STDINX, $OLDPASS ARE ONLY SYSTEM INPUT FILES ALLOWED.
> Only those system files named in the message can be used for *infiles* or FD files. Other system files are prohibited. Reenter SUBMIT with valid input files. This error causes program termination in batch mode.

THIS ITEM NOT DYNAMICALLY CONFIGURABLE.
> Items 1, 18, 40, and 41 cannot be altered after the Configuration File has been created. In order to change these items, use the NEW command to reconstruct the Configuration File. This error causes program termination in batch mode.

USER CAPABILITY IN EFFECT.
> You do not have OP (System Supervisor) capability, and cannot carry out MRJE/3000 Manager functions.

VALID RESPONSE MUST BE GIVEN.
> When creating a new set of Configuration Files, items that do not have default values must be initialized. MRJE/3000 continues to ask for a valid response until one is given or until the Manager enters (CONTROL)Y, in which case no new files are created. This error causes program termination in batch mode.

VERIFY CANCEL WITH "YES".
> When User/Manager requests that a job be canceled, the Job Log entry is displayed. In an interactive session MRJE/3000 then asks for verification of the CANCEL. Reply YES to verify cancellation.

WARNING: HOST COMMAND CARD FOUND IN INPUT-NOT TRANSMITTED.
> MRJE/3000 did not transmit the record to the host. SUBMIT processing continues.

WARNING: MRJEOD CARD FOUND IN INPUT-NOT TRANSMITTED.
> An MRJEOD card is only required when an input file (*infile* or FD file) is $STDIN or $STDINX. If an MRJEOD card is found in any other input file, it is not transmitted to the host. SUBMIT processing continues.

Table 6-1. MRJE/3000 User Messages (continued)

WARNING: SIGNOFF CARD FOUND IN INPUT-NOT TRANSMITTED.
A signoff card has the form:

/*SIGNOFF

MRJE/3000 did not transmit this record to the host. SUBMIT processing continues.

"YES" OR "NO" REQUIRED.
YES or NO is the only valid response. Reenter. This error causes program termination in batch mode.

YOU MUST LOG ON MANAGER.SYS TO CREATE/PURGE CONFIG FILES.
The MRJE/3000 Manager must be logged on to MANAGER.SYS,PUB to create the Configuration File, the Job Log File, and the Directory File with a NEW command, or to purge all entries from the Job Log File with a PURGE ALL command. These files are in PUB.SYS. This error causes program termination in batch mode.

MRJECONTROL CONSOLE MESSAGES

The messages in Table 6-2 can be received by MRJE/3000 users while using MRJECONTROL commands.

Table 6-2. MRJECONTROL Console Messages

Command Interpreter Error (CIERR) Number	Message, Meaning, and Recovery
4200	EXPECTED ONE OR MORE OF THE CONTROL FUNCTIONS: START, TRACE, RETRIES, SIGNOFF, KILL, CHECK, OR VERIFY. Entering MRJECONTROL alone is incorrect. Enter MRJECONTROL with one of the control command parameters listed in this message.
4201	EXCEEDED MAXIMUM NUMBER OF PARAMETERS. Look up syntax of MRJE/3000 command and reenter using no more than the maximum number of parameters allowed.
4202	START ALREADY REQUESTED. The MRJECONTROL START command has already been issued, but the line is not fully open. Before the command can again be successfully issued, the MRJECONTROL SIGNOFF or MRJECONTROL KILL command must be executed.
4203	EXPECTED TWO PARAMETERS, HOSTID AND RETRYNUM. Reenter command using both parameters.
4204	UNABLE TO OPEN CONFIGURATION FILE FOR THIS HOST. These are some reasons for this message: • The wrong host ID may have been used in the command. • Someone may be altering or rebuilding the Configuration File. • There may be no Configuration File for this host.
4205	UNABLE TO ACCESS CONFIGURATION FILE FOR THIS HOST. An FWRITE or FREAD intrinsic for this file failed.
4206	INSUFFICIENT CAPABLITIES FOR MRJECONTROL COMMANDS. A user must be authorized to use MRJECONTROL commands through the MPE ALLOW command.
4207	UNABLE TO CREATE MRJEMON. Issue LISTF MRJEMON.PUB.SYS to see if the file exists. If it does not exist, check the MPE configuration.
4208	UNABLE TO ACTIVATE MRJEMON. Issue LISTF MRJEMON.PUB.SYS to see if the file exists. If it does, check MPE configuration.

Table 6-2. MRJECONTROL Console Messages (continued)

4209   MRJE ALREADY ACTIVE.
Line already open. Command is ignored.

4210   NUMBER OF RETRIES MUST BE IN RANGE 1 - 255.
Reenter command with RETRIES within range.

4211   SIGNOFF ALREADY REQUESTED.
Command in process. If the line won't close, it may be necessary to issue an MRJECONTROL KILL.

4212   KILL ALREADY REQUESTED.
An MRJECONTROL KILL command already has been requested. If the line won't close, it may be necessary to physically disconnect it.

4213   INVALID DEVICE FOR MRJEO.
The logical device numbers for items 2 and 3 of the Configuration File differ from those in the MPE I/O system configuration. Alter the Configuration File.

4214   EXPECTED AT LEAST ONE PARAMETER, "ON" OR "OFF".
Issue MRJECONTROL TRACE with an ON or an OFF parameter.

4215   MRJE NOT ACTIVE.
Issue an MRJECONTROL START command, and then reissue command.

4216   NO SYSTEM BUFFER AVAILABLE. COMMAND FAILED.
Reissue command until it succeeds. If problem persists, contact your Hewlett-Packard representative.

4217   "TRACE" ONLY VALID COMMAND HERE.
No other parameters are allowed.

4218   MRJEMON ADOPT FAILURE.
Contact your Hewlett-Packard representative.

4219   HOST ID MUST BE ALPHANUMERIC.
Host ID may not contain a special character.

4220   SIGNOFF INVALID UNTIL HOST CONNECTION COMPLETED.
MRJECONTROL SIGNOFF cannot be executed until the communications line is open.
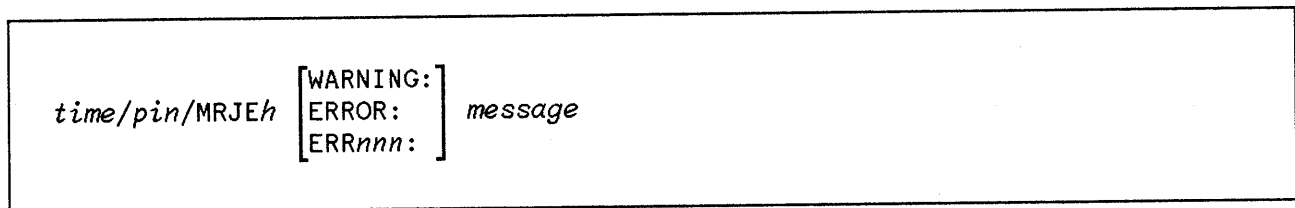
MRJE/3000 MESSAGES SENT TO SYSTEM CONSOLE

MRJE/3000 sends messages described in Table 6-3 to the HP3000 system console in the format that follows.

When the system console is used for MRJECONTROL commands, messages described in Table 6-2 can appear. When the system console is used as a user terminal, messages described in Table 6-1 can appear.

Console Message Format

The format of MRJE/3000 system console messages always includes the time when the message was sent, the MPE process identification number of MRJEMON, a *host id* letter, and message from Table 6-3.

$$time/pin/\text{MRJE}h \begin{bmatrix} \text{WARNING:} \\ \text{ERROR:} \\ \text{ERR}nnn: \end{bmatrix} message$$

Console Message Items

time	The time of day the message was sent.
pin	The MPE process identification number of MRJEMON.
MRJE*h* or MRJE	Indicates MRJE/3000 generated the message and that the message concerns the host system whose ID begins with the alphanumeric character *h*. If *h* is absent, this message applies to the default host system.
message	The message text, as in Table 6-3.
WARNING:	This message reports a potential problem.
ERROR:	This message reports a failure.
ERR*nnn*:	Indicates a failure where *nnn* >= 100, and identifies an MRJE/3000 software error.

File System Error Messages

All File System error messages consist of two lines:

- The first line indicates the affected MRJE/3000 process, the type of failure, the File System error number, and the name of the file on which the error occurred.

- The second line is the File System error message and corresponds to the File System error number on the first line.

Errors can occur on these files:

- MRJECON*h*, the MRJE/3000 Configuration File.

- MRJEO, the MRJE/3000 pseudo driver IOMRJEO.

- CS DEVICE, the INP (or SSLC on Series III) communications controller.

- MRJEDIR*h*, the MRJE/3000 job Directory File.

- MRJEJOB*h*, the MRJE/3000 Job Log File.

- MRJE1, the MRJELOGR pseudo driver IOMRJE1.

- MRJEOUT, the output file.

- MRJE'PNLP, the MRJEOUT pseudo driver IOMPNLPO.

- BANNER, a temporary file used to save host output banners.

- MRJETABL, the permanent file MRJETABL.PUB.SYS.

- MRJETBL*h*, a temporary file and a copy of MRJETABL.PUB.SYS.

- MRJEFRM*h*, a permanent file in PUB.SYS used to retain the name of the form currently being used.

- MRJEMSG*h*, a permanent **non-IPC** disc file, name.group.acct, used for logging host console messages sent to the remote workstation.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

A file system error on these files is usually a symptom of an internal software problem, except as described in messages that follow.

If an error message can be duplicated, contact your Hewlett-Packard representative.

All messages sent to the system console are also printed on the $STDLIST device for the MRJE/3000 Monitor process. The output of the Stream File MRJESTR*h* contains a record of all MRJE/3000 console messages. For file system errors, a PRINT'FILE'INFO file information display is output to the $STDLIST device.

Console Messages

Table 6-3 lists MRJE/3000 messages sent to the system console in alphabetical order. Each message is followed by an explanation, and may be followed by a solution.

Table 6-3. MRJE Messages Sent to System Console

ACTIVATE FAILURE ON MRJEMON.
> Internal software error. Contact your Hewlett-Packard representative.

CONFIG FORMID NOT FOUND IN MRJETABL
FORMID NOT FOUND = *formname*
> Fatal error. A *formname* for either solicited or unsolicited output references a record in MRJETABL which was not found. Insure that the record does exist. A *formname* begins in column 1, and is padded with blanks to column 8. Items 20 - 35 of a Configuration File can refer to a *formname*, as follows:
>
> *'formname'*
>
> If a FORMID is accessed frequently, it should be near the beginning of the table to optimize performance.

CONFIGURED BUFFER SIZE INVALID.
> The buffer size in the MRJE/3000 Configuration File Item 43 is invalid. The MRJE/3000 Manager must alter the item in the Configuration File to be compatible with the host system buffer size.

CONSMRJE, OPEN FAILURE (*nn*) ON $NULL.
> File system error *nn*. Contact your Hewlett-Packard representative.

CONSMRJE, OPEN FAILURE (*nn*) ON MRJECON*h*.
> The specified MRJE/3000 Configuration File could not be opened. If the Configuration File exists, determine the cause of the failure from the file system error number (*nn*) and take corrective action.

CONSMRJE, READ FAILURE (*nn*) ON MRJECON*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

CONSMRJE, WRITE FAILURE (*nn*) ON MRJECON*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

CREATE FAILURE ON MJOBLOGR.
> The job-logging process could not be created. Ensure that MRJELOGR is present in PUB.SYS.

CREATE FAILURE ON MRJEMON.
> The MRJE/3000 monitor process could not be created. Ensure that MRJEMON is present in PUB.SYS.

CREATE FAILURE ON MRJEOUT.
> An MRJE/3000 output process could not be created. Ensure that MRJEOUT is present in PUB.SYS.

Table 6-3. MRJE Messages Sent to System Console (continued)

CS, OP AND SM REQUIRED TO RUN MRJEMON
    The MRJE/3000 Monitor process can only be run by a user whose capabilities include CS, OP, and SM.

DATA RECEIVED FOR INVALID UNIT #*nn*.
    The host system has sent data to an unconfigured pseudo device.

1.	Backspace the host device corresponding to unit *nn*. For example, Printer 1 corresponds to Unit 3.
2.	Halt the host device corresponding to Unit *nn*. Drain the host device corresponding to Unit *nn*. Reroute output from the host device to Printer 1, Unit 3, which should *always* be configured on an HP3000.
3.	As soon as convenient, reconfigure the MRJE/3000 pseudo I/O devices so that the host and the HP3000 system have the same configuration.

MRJE/3000 pseudo devices must be configured with these unit numbers:

Unit:	Corresponding Device:
0 - 1	Line monitors.
2	Pseudo console.
3 - 9	Pseudo line printers 1 thru 7.
10 - 16	Pseudo punches 1 thru 7.
17 - 23	Pseudo readers 1 thru 7.

ERROR: DEFAULT FORMID NOT FOUND AFTER STARTUP.
    Fatal error. The default FORMID was successfully verified when MRJE/3000 was started; however, the lookup table MRJETABL.PUB.SYS was altered after initialization. The default FORMID for either solicited or unsolicited output cannot be found.

DIAL REMOTE *number*.
    The communications link has been initially established. Dial the *number* shown in the message and complete the connection. This message is printed only when the INP or SSLC is configured for a non-autodial switched line.

Table 6-3. MRJE Messages Sent to System Console (continued)

oldfilereference EOF. FILE REBUILT? Y/N
> An end of file has been encountered while MRJEOUT was writing to *oldfilereference*. Use this procedure to recover:
>
> 1. Issue RENAME *oldfilereference*, *newfilereference* from MPE.
>
> 2. Issue BUILD *oldfilereference* from MPE, increasing the DISC=*numrec* parameter, and duplicating all other specifications from *newfilereference*.
>
> 3. Use FCOPY to move the contents of *newfilereference* into *oldfilereference*.
>
> 4. Reply Y to this message.
>
> If you reply N to this message, MRJE/3000 prints the next message at the console:
>
> ```
> To SAVE a job MRJE must terminate.  The host will queue the job for
> retransmission.  MRJECONTROL KILL must be issued by the operator after
> replying 'S' for SAVE.  All jobs currently printing will be requeued on the
> host.  To FLUSH a job MRJE will not terminate.  The rest of the job will be
> lost.  If the job is easily resubmitted or if MRJE should not terminate,
> reply 'F' for FLUSH.
> ```
>
> ?SAVE or FLUSH job (S/F)? S⟨RETURN⟩ or F⟨RETURN⟩

FAILURE TO ACCESS MRJETABL.PUB.SYS
> Fatal error. An entry in the Configuration File references a record in MRJETABL. A Configuration File entry is delimited by single quotes:
>
> *'formid'*
>
> Either MRJETABL does not exist, or it can not be opened. Insure that the lookup table does exist as an ASCII file with records no greater than 80 bytes.

FAILURE TO ACQUIRE EXTRA DATA SEGMENT.
> Internal software error. Contact your Hewlett-Packard representative if this error can be duplicated.

FAILURE TO ACQUIRE A LOCAL RIN.
> A RIN is a resource identification number. This is an internal software error. Contact your Hewlett-Packard representative if this error can be duplicated.

Table 6-3. MRJE Messages Sent to System Console (continued)

MRJE FAILURE TO EXECUTE MPE "COMMAND" INTRINSIC.
MPE Command Interpreter Error Message.
COMMAND PARM = *n*
MRJE FORMID = *form*
MRJE THE FOLLOWING FILE EQUATION WAS ATTEMPTED:
FILE *jobname;file equation specifications*
MRJE USED DEFAULT FORMID OF *default* FOR JOB *jobname*
MRJE USED OUTPUT PRIORITY OF 2.

    Warning. This message is displayed if an invalid record identified by *form* is found in the lookup table MRJETABL.PUB.SYS. MRJE/3000 uses the default standard form entry with a deferred output priority of 2 in such cases. To minimize the probability of this message occurring, use the MRJECONTROL VERIFY command to insure that each entry is a valid file equation record before starting MRJE.

    The message line COMMAND PARM = *n* concerns the MPE COMMAND intrinsic parameter PARM. The value of *n* is the erroneous parameter number in the file equation. Consult the *MPE Intrinsics Reference Manual* for additional information on this parameter.

FAILURE TO LOCK A LOCAL RIN.

    A RIN is a *resource identification number*. This is an internal software error. Contact your Hewlett-Packard representative if this error can be duplicated.

FAILURE TO MOVE DATA FROM EXTRA DATA SEGMENT.

    Internal software error. Contact your Hewlett-Packard representative if this error can be duplicated.

FAILURE TO MOVE DATA TO EXTRA DATA SEGMENT.

    Internal software error. Contact your Hewlett-Packard representative if this error can be duplicated.

FAILURE TO OPEN DEFAULT FILE AFTER STARTUP

    Fatal error. Although the default destination file was verified at startup, the lookup table MRJETABL.PUB.SYS may have been modified The default form is no longer valid.

FAILURE TO OPEN DEFAULT FORM
MPE/FILE SYSTEM error message
MRJE ATTEMPTED THE FOLLOWING FILE EQUATION:
FILE MRJETEST *file equation specifications*

    Fatal error. The FORMID from the Configuration File was found in the table MRJETABL but a file equation using this record and subsequent FOPEN could not be executed successfully. A file system error message and file equation attempted are also displayed. Check the record in MRJETABL. Insure that the file equation specification does not begin before column 9 in the record.

FAILED TO OPEN UNSOLICITED OUTPUT DEVICE

    MRJE/3000 failed to open the unsolicited device and the printer process has terminated. Issue an MRJECONTROL KILL command. Then modify the Configuration File item for unsolicited output disposition to rectify the problem.

Table 6-3. MRJE Messages Sent to System Console (continued)

FAILURE TO DELETE TEST SPOOLFILE.

Warning. This message apears when MRJETABL and a default output file disposition refer to an entry in the table which is spooled. MRJE/3000 opens, closes and deletes MRJETEST, a test spoolfile. This message can appear when the output priority in the file equation record is above the outfence for the device. The spoolfile can become ACTIVE after a spoolfile has been closed and before it is deleted. Once ACTIVE, the spoolfile cannot be deleted. So, the output priority parameter in the file equation record should always designate deferred output.

FAILURE TO OPEN SOLICITED OUTPUT DEVICE.

Fatal error. This error occurs when using MRJETABL. The *formid* specified for default solicited output destination, Configuration File items 20 or 27, refers to an invalid record in the lookup table. Correct the entry and retry.

FINAL TERMINAL SIGNOFF

The remote computer issued a sign off to MRJE.

WARNING: FORMID NOT FOUND IN MRJETABL
FORMID NOT FOUND = *formname*
USED DEFAULT FORMID OF *default* FOR JOB *jobname*
USED OUTPUT PRIORITY OF 2

A *formid* could not be found in MRJETABL. Either MRJE/3000 received a host setup message to mount *formname* for a printer, or a user submitted a job for which the SUBMIT print, punch or forms parameters were set to *formname*. In this situation MRJE/3000 automatically uses the *default* FORMID referenced by the unsolicited output disposition entry in the Configuration File at an output priority of 2. This file equation record can override the FOPEN output priority of specification MRJE/3000 if the output priority is indicated in the file equation. Contact the user affected.

FWRITE ERROR (*nn*) RECOVERY (Y/N)?

File system error *nn* has taken place during execution of MRJEOUT.

If you reply Y to this message, then MRJEOUT resumes processing.

If you reply N to this message, the next message appears at the system console:

To SAVE a job MRJE must terminate. The host will queue the job for retransmission. MRJECONTROL KILL must be issued by the operator after replying 'S' for SAVE. All jobs currently printing will be requeued on the host. To FLUSH a job MRJE will not terminate. The rest of the job will be lost. If the job is easily resubmitted or if MRJE should not terminate, reply 'F' for FLUSH.

?SAVE or FLUSH job (S/F)? S RETURN or F RETURN

HOST BLOCK SEQUENCE (*n1,n2*).

A block sequence error occurred on the CS device. Block *n2* was received when block *n1* was expected. Normally, MRJE/3000 recovers from this condition. If the problem recurrs, contact your Hewlett-Packard representative.

HOST BUFFER SIZE (*nnnn*) EXCEEDS MAXIMUM.

The value specified in the MRJE/3000 Configuration File for the host buffer size is greater than 2048. The MRJE Manager should alter Item 43 in the configuration file.

Table 6-3. MRJE Messages Sent to System Console (continued)

HOST ID IS TOO LONG
> When RUN MRJEMON;INFO="*h*" was issued, the *h* was more than one character long.

HOST # NOT ENTERED FOR 3000 JOB #*nnn*.
> All output received from job *nnn* was sent to one of the unsolicited output device specified in MRJE/3000 Configuration File.

INVALID BUFFER RECEIVED FROM HOST.
> The last buffer of data received from the host had contradictory or invalid control information. Contact your Hewlett-Packard representative.

INVALID DEVICE FOR MRJEO.
> The logical device number configured in the MRJE/3000 Configuration File for the pseudo line, Configuration File item 3, is not the same as the number configured into MPE for IOMRJE0. The MRJE/3000 Manager must change the logical device number in the Configuration File using the ALTER command.

INVALID LDEV NUMBER *n*
> Logical device number *n*, referenced by MRJE, has not been configured within the system.

INVALID UNIT NUMBER DETECTED BY MRJEOUT.
> Internal software error. Contact your Hewlett-Packard representative if this error can be duplicated.

KILL ALREADY REQUESTED.
> The MRJECONTROL KILL message has already been issued, but it was unsuccessful. Subsequent KILL commands for the same host cause this message. If MRJE/3000 does not disconnect the line, you may need to physically disconnect it. If MRJE/3000 repeatedly fails to close the line after the KILL command is issued, contact your Hewlett-Packard representative.

LOCKSEG FAILURE.
> LOCKSEG Intrinsic failure. Internal software problem. Contact your Hewlett-Packard representative.

n1 BLOCK SEQUENCE RECOVERY. EXPECTED BLOCK *n2*. RECEIVED BLOCK *n3*.
> While data was being transmitted to the host system, block *n3* was received when block *n2* was to have been sent. There were *n1* blocks recovered. MRJE/3000 normally recovers from this condition. If the problem persists, contact your Hewlett-Packard representative.

MRJE ERR137: MRJEOUT, OPEN FAILURE ON MRJETBL*h*
> This error message can appear when Printer 1 is *not* configured for *Output Management* mode using MRJETABL, while other print or punch output devices *are* configured to run in this mode.
>
> Either all or none of the output processes should be configured to use MRJETABL for output routing.

MRJELOGR, FINFO FAILURE (*nn*) ON MRJEDIR*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJELOGR, JOB TRANSMITTED TO WRONG HOST.
> An HP3000 system configured with several host systems can transmit jobs to the wrong host if the same pseudo card reader is configured in more than one MRJE/3000 Configuration File.

Table 6-3. MRJE Messages Sent to System Console (continued)

`MRJELOGR, OPEN FAILURE (nn) ON $NULL.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, OPEN FAILURE (nn) ON MRJECONh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, OPEN FAILURE (nn) ON MRJEDIRh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, OPEN FAILURE (nn) ON MRJEJOBh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, READ FAILURE (nn) ON MRJECONh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, READ FAILURE (nn) ON MRJEDIRh.`
File system error nn. If severe, contact your Hewlett-Packard representative

`MRJELOGR, READ FAILURE (nn) ON MRJEJOBh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, WRITE FAILURE (nn) ON MRJEDIRh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJELOGR, WRITE FAILURE (nn) ON MRJEJOBh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJEMON, OPEN FAILURE (nn) ON CS DEVICE.`
The MRJE/3000 monitor could not open the line. The CS error number (nn) identifies the reason for the failure. CS error codes are described in the *Data Communications Handbook*.

`MRJEMON, OPEN FAILURE (nn) ON $NULL.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJEMON, OPEN FAILURE (nn) ON MRJEO.`
The MRJE/3000 pseudo line monitor file could not be opened. (nn) specifies the MPE file system error number which identifies a reason for the failure. If the problem is severe, contact your Hewlett-Packard representative.

`MRJEMON, OPEN FAILURE (nn) ON MRJECONh.`
File system error nn. If severe, contact your Hewlett-Packard representative

`MRJEMON, READ FAILURE (nn) ON CS DEVICE.`
The communication link to the host failed. The CS error number (nn) identifies the reason for the failure. CS errors are described in the *Data Communications Handbook*. If the problem is severe, contact your Hewlett-Packard representative.

`MRJEMON, READ FAILURE (nn) ON MRJEO.`
File system error nn. If severe, contact your Hewlett-Packard representative.

`MRJEMON, READ FAILURE (nn) ON MRJECONh.`
File system error nn. If severe, contact your Hewlett-Packard representative.

Table 6-3. MRJE Messages Sent to System Console (continued)

MRJEMON, WRITE FAILURE (*nn*) ON CS DEVICE.
> If this message appears as a WARNING, a communication problem developed and MRJE/3000 sent a SIGNOFF command prior to disconnecting the line. The host system probably has accepted the command and is closing the communications link.
>
> If this message appears as an ERROR, the communications link failed unexpectedly. The CS error number references the reason for the failure. These errors are described in the *Data Communications Handbook* (5957-5634). Contact your Hewlett-Packard representative, if such errors persist.

MRJEMON, WRITE FAILURE (*nn*) ON MRJEO.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEMON, WRITE FAILURE (*nn*) ON MRJECON*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, CLOSE FAILURE (*nn*) ON MRJECON*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, FINFO FAILURE (*nn*) ON MRJE'PNLP.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, FINFO FAILURE (*nn*) ON MRJEOUT
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, OPEN FAILURE (*nn*) ON $NULL.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, OPEN FAILURE (*nn*) ON MRJE'PNLP.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, OPEN FAILURE (*nn*) ON MRJECON*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, OPEN FAILURE (*nn*) ON MRJEDIR*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, OPEN FAILURE (*nn*) ON MRJEJOB*h*.
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

MRJEOUT, OPEN FAILURE (*nn*) ON MRJEOUT.
> MRJE/3000 couldn't open a User's output file. Output destined for the file was sent to the unsolicited output device. This message appears when Output Management is *not* being used. File system error *nn* was encountered. If severe, contact your Hewlett-Packard representative.

Table 6-3. MRJE Messages Sent to System Console (continued)

```
MRJE ERROR: MRJEOUT, OPEN FAILURE (nnn) ON MRJEOUT
File System Error Message (FSERR nnn)
MRJE FORMID = formname
MRJE The following file equation was attempted:
FILE jobname;file equation specifications
MRJE Used default FORMID of default for job jobname
MRJE Used output priority of 2.
```
> MRJE/3000 failed to perform an FOPEN successfully using a file equation record from MRJETABL referenced by the form *formname*. MRJE/3000 uses the default FORMID from the table with an output priority 2. Use an MRJECONTROL VERIFY command from MPE to verify that each entry is a valid file equation record before starting MRJE.

```
MRJEOUT, READ FAILURE (nn) ON MRJE'PNLP.
```
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

```
MRJEOUT, READ FAILURE (nn) ON MRJECONh.
```
> File system error *nn*. If severe, contact your Hewlett-Packard representative.

```
MRJEOUT, READ FAILURE (nn) ON MRJEDIRh.
```
> File system error *nn*. Contact your Hewlett-Packard representative.

```
MRJEOUT, READ FAILURE (nn) ON MRJEJOBh.
```
> A message with *nn*=0 indicates that unsolicited output was received that does not belong to any entry in the Job Log File. A message with *nn* ≠ 0 indicates that an internal software error has occurred. In the latter case, contact your Hewlett-Packard representative.

```
MRJEOUT, WRITE FAILURE (nn) ON MRJE'PNLP.
```
> This message should be ignored.

```
MRJEOUT, WRITE FAILURE (nn) ON MRJEOUT.
```
> MRJE/3000 couldn't write to a user's file. Output for the file is irrecoverable. Notify MRJE/3000 users that output was lost. Contact your Hewlett-Packard representative.

```
MRJESTRh FILE DOES NOT EXIST
```
> An MRJECONTROL START,*h* has been issued, but there is no Stream File MRJESTR*h* for host id *h*. The stream file is used to initiate MRJE/3000 communication with the host system.

```
MRJETABL RECORDS > 260 BYTES
```
> Fatal error. Records in this file must not exceed 260 bytes. Rebuild the file.

```
NO 3000# FOR HOST JOB# nnnn, jobname.
```
> Internal software problem. All output received for host JOB# *nnnn* was sent to the unsolicited output devices specified in the MRJE/3000 Configuration File. If the problem is severe, contact your Hewlett-Packard representative.

```
NO SYSTEM BUFFER FOR SIGNOFF.
```
> An MRJECONTROL SIGNOFF command failed because no HP3000 system buffers were available. Wait and try again. If this problem occurs frequently, contact your Hewlett-Packard representative.

```
PRINTER 0 TERMINATING.
```
> Internal software error. A printer or punch output process terminated, but MRJE/3000 cannot determine which one. Contact your Hewlett-Packard representative.

Table 6-3. MRJE Messages Sent to System Console (continued)

PRINTER *n* TERMINATING.
> Internal software error. The MRJE/3000 output process corresponding to printer *n* terminated.

1.   If no SIGNON COMPLETED message has been received, enter this command:

                      MRJECONTROL KILL [,*hostid*]

2.   If a SIGNON COMPLETED message has been received, enter this command:

                      MRJECONTROL SIGNOFF [,*hostid*]

3.   Always contact your Hewlett-Packard representative.

PUNCH *n* TERMINATING.
> Internal software error. The MRJE/3000 output process corresponding to punch *n* terminated.

1.   If no SIGNON COMPLETED message has been received, enter this command:

                      MRJECONTROL KILL [,*hostid*]

2.   If a SIGNON COMPLETED message has been received, enter this command:

                      MRJECONTROL SIGNOFF [,*hostid*]

3.   Always contact your Hewlett-Packard representative.

SIGNOFF ALREADY REQUESTED.
> The MRJECONTROL SIGNOFF command has already been entered. If the SIGNOFF command is issued while the host is transmitting, transmission continues until the current data set has been received; then the line is disconnected.

SIGNON COMPLETED.
> The MRJECONTROL START command has successfully executed and the communication link is now open. If jobs have been submitted, MRJE/3000 automatically begins transmitting data and accepting output.

SYSTEM ALREADY ACTIVE.
> The MRJECONTROL START command was issued for a host that is already connected.

SYSTEM NOT ACTIVE.
> An MRJECONTROL SIGNOFF (or KILL) command was issued for a host that is not connected.

Table 6-3. MRJE Messages Sent to System Console (continued)

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TERMINATING.

The MRJE/3000 monitor process terminated. When printed without any accompanying ERROR or WARNING message, the termination was normal.

UNLOCKSEG FAILURE.

The UNLOCKSEG intrinsic failed. Internal software error. To reclaim the stack of the line monitor, COOLSTART the system. Contact your Hewlett-Packard representative.

ZSIZE ERROR.

The ZSIZE intrinsic failed. Internal software error. Contact your Hewlett-Packard representative.

MRJE/3000 MESSAGE CATALOG

The message catalog file is used by MRJE/3000 for error messages and information messages. MRJECAT.PUB.SYS is the message catalog for MRJE/3000. The method of maintaining file MRJECAT.PUB.SYS is discussed in the *MPE Intrinsics Reference Manual,* in the discussion of the MPE Message System. The contents of file MRJECAT.PUB.SYS are shown in Table 6-4, *MRJE/3000 Message Catalog.* All parameters passed to messages in the catalog are shown as grey exclamation marks (!).

Table 6-4, MRJE/3000 Message Catalog

```
$ Note: if you plan to change the content of the file, please
$         observe the followings:
$
$    1)  The file must be built from a standard numbered editor file.
$    2)  No message can be longer than 1024 characters
$    3)  No line of a message can be longer than 56, 66 and 66 for
$           the master console, subsystem and help facility respec.
$    4)  "\&" must be put at the end of a line of a message except
$           the last line to signal as a delimiter of the line.
$    5)  Never delete or add any "!" into the file
$    6)  Never change any message or set number within the file
$    7)  RUN makecat.pub.sys to rebuild the MRJECAT file.
$              Before running MAKECAT you'll need two file equats:
$                  a). FILE input=your'new'file
$                  b). FILE catalog=mrjecat.pub.sys
$              Then run MAKECAT.PUB
$              Then SAVE mrjecat.pub
$    8)  Refer to MPE Intrinsic Message System for more information
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
$SET 1 MESSAGE 1 TO 62 FOR MASTER CONSOLE
1 MRJE █ ERROR: CONFIGURED BUFFER SIZE INVALID
2 MRJE █ ERROR: CREATE FAILURE ON █ PROCESS
3 MRJE █: DIAL REMOTE █
4 MRJE █ ERROR: LOGSEG FAILURE
5 MRJE █ SIGNON COMPLETED
6 MRJE █ ERROR: HOSTBUFFER SIZE (█) EXCEEDS MAXIMUM        \&
        CONFIGURATION
7 MRJE █ WARNING: █ BLOCK SEQUENCE ERROR RECOVERY,         \&
        EXPECTED BLOCK █, RECEIVED BLOCK █
8 MRJE █ ERROR: ZSIZE ERROR
9 MRJE █ ERROR: UNLOCKSEG FAILURE
10 MRJE █ ERROR: NO SYSTEM BUFFER FOR SIGNOFF
11 MRJE █ MRJE TERMINATING. . .
12 MRJE █ ERROR: INVALID DEVICE FOR MRJEO
13 MRJE █ ERROR: MRJE ALREADY ACTIVE.
14 MRJE █ ERROR: CREATE FAILURE ON MRJEMON
15 MRJE █ ERROR: ACTIVATE FAILURE ON MRJEMON
16 MRJE █ WARNING: SIGNOFF ALREADY REQUESTED
17 MRJE █ WARNING: KILL ALREADY REQUESTED
18 MRJE █ WARNING: SYSTEM NOT ACTIVE
19 MRJE █ ERROR: HOST # NOT ENTERED FOR 3000 JOB# █
20 MRJE █ ERROR: NO 3000# FOR HOST JOB# █,█
21 MRJE █ ERROR: █ █ TERMINATING. . .
22 MRJE █ ERROR: DATA RECEIVED FOR INVALID UNIT# █
23 MRJE █ ERROR: INVALID BUFFER RECEIVED FROM HOST
24 MRJE █ ERROR: (MRJELOGR) JOB TRANSMITTED TO WRONG HOST
25 MRJE █ ERROR: SON PROCESS DEAD
26 MRJE █ WARNING: MRJECONTROL KILL REQUESTED
27 MRJE █ FINAL TERMINAL SIGNOFF
28 MRJE █ ERROR: MRJESTR█ DOES NOT EXIST
29 MRJE █ ERROR: CS, SM AND OP REQUIRED TO RUN MRJEMON
30 MRJE █ ERROR: HOST ID █ IS TOO LONG
31 MRJE █ ERROR: INVALID LDEV NUMBER █
32 MRJE █ ERROR: Failure to access file MRJETABL.PUB.SYS
33 MRJE █ ERROR: Config FORMID not found in MRJETABL.
34 MRJE █ ERROR: Failure to open default form.
35 MRJE █ WARNING: Failure to delete test spoolfile.
36 MRJE █ ERROR: MRJETABL.PUB.SYS records > 260 bytes.
37 MRJE █ Failure to execute MPE "COMMAND" Intrinsic.
38 MRJE █ WARNING: FORMID not found in MRJETABL.PUB.SYS.
39 MRJE █ Failed to open unsolicited output device.
40 MRJE █ WARNING: FWRITE error.
41 MRJE █ Output process terminating per operator \&
request.
42 MRJE █ Failure to acquire a local RIN.
43 MRJE █ The following file equation was attempted:
44 MRJE █ Used output priority of 2.
45 MRJE █ \&
To SAVE a job, MRJE must terminate.  The host will queue\&
the job for retransmission.  MRJECONTROL KILL must be   \&
issued by the operator after replying 'S' for SAVE. All \&
jobs currently printing will be requeued on the host.   \&
=======================================================\&
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
To Flush a job, MRJE will not terminate.  The rest of  \&
the job will be lost.  If the job is easily resubmitted \&
or if MRJE should not terminate, reply 'F' for FLUSH.
46 MRJE █ Failure to lock a local RIN.
47 MRJE █ Failed to acquire extra data segment.
48 MRJE █ Failed to move data to extra data segment.
49 MRJE █ Failed to move data from extra data segment.
50 MRJE █ Error: Default FORMID not found after startup.
51 MRJE █ Failure to open solicited output device.
52 MRJE █ Invalid unit number detected by MRJEOUT.
53 MRJE █ Configured record width is invalid.
54 MRJE █ Failure to open default file after startup.
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
$SET 2 MESSAGE 1 TO 62 FOR MRJE SUBSYSTEM
1 MANAGER CAPABILITY IN EFFECT
2 USER CAPABILITY IN EFFECT
3 FILE ALREADY EXISTS REPLY "YES" TO RECREATE.
4 FOLLOWING MUST BE INITIALIZED IN CONFIGURATION FILE:
5 DEFAULT HOST ASSUMED
6  IS OFFLINE
7 VERIFY CANCEL WITH "YES".
8  IS CURRENT HOST MACHINE
9  WARNING: SIGNOFF CARD FOUND IN INPUT.  NOT TRANSMITTED.
10  FILES CREATED.
11  SUCCESSFULLY ALTERED
12  IS ON LINE
13 ENTER INPUT ENDING WITH "MRJEOD"
14  END OF FILE
15  WARNING: MRJEOD FOUND IN INPUT. CARD IS NOT TRANSMITTED.
16  CAN'T BE CLOSED
17  NOT FOUND
18  JOBLOG IS EMPTY
19 :DUPLICATE JOBNAMES IN JOBLOG. CANCEL REFUSED. A DISPLAY
20  OF JOBS WITH THIS NAME WHICH YOU OWN (IF ANY) FOLLOWS:
21  NOT SUBMITTED
22 JOB NOT CANCELED.
23  IS NOT YOUR JOB.
24  NOT PURGED.
25  NO JOBLOG ENTRY.
26 GET PRIVILEGED MODE FAILURE. FATAL ERROR.
27 GET USER MODE FAILURE. FATAL ERROR.
28 JOB ALREADY CANCELED.
29  CANCELED.
30 CANCEL COMMAND WILL BE SENT TO HOST.
31 INTERACTIVE TERMINAL REQUIRED FOR HOST CONSOLE COMMANDS.
32  WARNING: HOST COMMAND CARD FOUND IN INPUT-NOT TRANSMITTED.
33 ITEM 4 ONLY DISPLAYED FOR MANAGER.
34 DISPLAY COMMAND WILL BE SENT TO HOST.
35  FREE ENTRIES NOW EXIST.
36  OLD JOBS IN THIS FILE.
37  OLD JOBS PURGED THUS FAR.
38  JOBS ARE IN THE JOB LOG. VERIFY PURGE WITH "YES"
39  COMPLETELY PURGED OF ALL JOB ENTRIES.
40  IS OFFLINE. HOST CONSOLE COMMAND CAN'T BE SENT.
41  NOT ALTERED
42 NO SPOOL FILE FOUND.
43 SPOOL FILE DELETED.
44 SPOOL FILE NOT IN READY STATE. UNABLE TO DELETE.
45 FORM ID MUST CONSIST OF FROM 1 TO 8 CHARACTERS.
46 MISSING RIGHT PARENTHESIS
47 MANAGER CAPABILITY REQUIRED FOR THIS COMMAND
48 "NOTRANSLATE" REQUIRED
49 READER SPECIFIED TWICE.
50 INVALID COMMAND
51 INVALID HOSTID. MUST BE ALPHANUMERIC, <=8 CHARS
52 PRINT SPECIFIED TWICE
53 PUNCH SPECIFIED TWICE
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
54 INVALID HOST SYSTEM
55 INPUT MUST BE NUMERIC
56 DIGITS ARE THE MAX ALLOWED FOR THIS NUMBER
57 FORMS SPECIFIED TWICE
58
59 DIGIT OR SPECIAL CHARACTER REQUIRED.
60 LOGICAL DEVICE NUMBER OR DEVICE CLASS REQUIRED
61 INVALID DEVICE CLASS SPECIFICATION
62 NO CLOSING QUOTE ON DEVICE CLASS NAME
63 INVALID FILE EQUATION SPECIFICATION. NAME MUST BE LESS THAN OR \&
EQUAL TO 7 CHARACTERS. PLEASE CONSULT YOUR SYSTEM ADMINISTRATOR  \&
FOR MORE DETAILS.
64 INVALID SUBMIT PARAMETER
65 INVALID ACTUAL FILE DESIGNATOR
66  IS THE MAX LEVEL OF NAMES IN THIS ACTUAL FILE DESIGNATOR
67 EMBEDDED BLANKS NOT ALLOWED IN QUALIFIED NAME
68 IS THE VALID RANGE FOR THIS PARAMETER.
69 "ALL" OR "OLDJOBS" ARE ONLY VALID PURGE PARAMETERS.
70 "BS", "CS", "DS" OR "ES" REQUIRED.
71  (CURRENT CMD CHAR) MUST BE FIRST CHAR IN USER HOST CMD.
72 COMMA OR NUMBER REQUIRED
73 ONLY 3 PARAMETERS ARE ALLOWED
74 NUMERIC PARAMETER EXPECTED
75 DAYS, HOURS, MINS CAN'T ALL BE ZERO
76 HOSTNAME MUST START WITH SAME CHAR AS HOSTID
77
78 INVALID PARAMETER FOR DISPLAY COMMAND
79 Integer from 0 to 255 required.
80 ITEM NUMBER REQUIRED
81 $STDIN,$STDINX,$OLDPASS ARE ONLY SYSTEM INPUT FILES ALLOWED
82 NOTRANSLATE CAN'T BE SPECIFIED FOR $STDIN/$STDINX
83 EXTRANEOUS INFORMATION AFTER VALID ITEM
84 INVALID JOBNAME--TOO LONG
85 INVALID SPECIAL CHARACTER
86 COMMA OR SLASH REQUIRED TO SEPARATE PARAMETERS.
87 Invalid output file specification.  Valid designations are\&
   FORMID record in MRJETABL using single quotes (')\&
   Device Class using double quotes (")        \&
   Device Number   \&
   Actual File Designator   \&
   Formal File Designator using exclamation mark (!)\&
   Zero (0)
88 INPUT FILE NAME(S) REQUIRED
89 NO BLANKS ALLOWED IN FORMAL FILE DESIGNATOR
90 MAXIMUM OF 5 INPUT FILES ALLOWED
91 INVALID KEYWORD
92 PARAMETERS REQUIRED
93 NO PARAMETERS ALLOWED
94 IS THE MAXIMUM NUMBER OF CHARACTERS FOR THIS PARAMETER.
95 INVALID OCTAL NUMBER
96  IS THE ONLY VALID CONSOLE COMMAND.
97 COMMA REQUIRED TO SEPARATE PARAMETERS
98 "YES" OR "NO" REQUIRED
99 FORM ID MUST BE TERMINATED WITH A SINGLE QUOTE (').
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
100 IS AN INVALID PSEUDO LINE MONITOR DEVICE. FATAL ERROR.
101 THIS ITEM NOT DYNAMICALLY CONFIGURABLE.
102 STANDARD INPUT FILE CAN'T BE OPENED. FATAL ERROR.
103
104  CAN'T BE WRITTEN
105  CAN'T BE CLOSED. FATAL ERROR.
106 You must log on as MANAGER.SYS to use this command.
107 VALID RESPONSE MUST BE GIVEN
108 CAN'T BE WRITTEN TO HOST READER
109  CAN'T BE READ
110  DIRECTORY FULL. NO FURTHER JOBS CAN BE SUBMITTED.
111 CONFIGURATION FILE SET CANNOT BE ACCESSED.
112  IS NOT YOUR JOB.
113 NO NEW FILES CREATED.
114 CONTINUATION LINE EXPECTED
115 : OUTPUT FILE DOES NOT EXIST
116 NO FILE DESIGNATOR ON ##FD CARD.
117  CTRANSLATE FAILED
118  CAN'T BE OPENED.
119  READER CANNOT BE CLOSED
120 NO JOB CARD FOUND.
121  CAN'T BE POSTED
122 END OF FILE ON $STDINX. FURTHER INPUT IMPOSSIBLE. FATAL ERROR.
123  ##FD CARDS NOT PERMITTED IN LEVEL 2 FILE
124  NO JOBLOG ENTRY.
125  CAN'T BE CANCELED.
126  IS OFFLINE. JOB CAN'T BE CANCELED AT HOST.
127 HOST CONSOLE COMMAND CAN'T BE WRITTEN.
128 HOST CONSOLE CAN'T BE OPENED.
129 UNABLE TO CLOSE $STDINX. HOST CONSOLE COMMANDS CAN'T BE SENT.
130 STANDARD INPUT FILE CAN'T BE OPENED FOR NOWAIT I/O.
131 CONTROL-Y IS THE ONLY VALID INPUT DURING HOST COMMAND PROCESSING.
132
133  BUT NOT IN JOBLOG. FATAL ERROR.
134 JOB CAN'T BE CANCELED AT HOST FOR NON-INTERACTIVE USER.
135  NOT PURGED.
136 DIRECTORY/JOBLOG UPDATE CAN'T BE COMPLETED. FATAL ERROR.
137  CAN'T BE CANCELED DUE TO A PREVIOUS 3000 SYSTEM FAILURE
138 *** ITEM NOT USED WITH THIS HOST SYSTEM.
139  HOST BUSY. CONSOLE COMMAND NOT SENT
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
$SET 3   MESSAGE 1 TO 62 FOR HELP FACILITY
1 S[UBMIT] infile1 [(N[,T])] .............. [, infile5 [(N[,T])]]]\&
   [; R[eader]=pseudo reader]        [; PR[INT]=printfile [(N)]]\&
   [; PU[NCH]=punchfile [(N)]        [; F[ORMS]=formfile  [(N)]]\&
   Submit a job or several jobs for transmission.  Parameters are:\&
           (N) = NOTRANSLATION from ASCII to EBCDIC for infiles, or\&
                 NOTRANSLATION from EBCDIC to ASCII for print file,\&
                 punch file or formsfile.\&
           (T) = only first job card is recognized.\&
                 MRJE manager capability required.\&
           Infile = 5 infiles may be specified.\&
           Print, punch or forms file = may be any of the following:\&
              FORMID record in MRJETABL using single quotes (')\&
              Logical device class using double quotes (")\&
              Logical device number\&
              Actual file designator\&
              Formal file designator using exclamation mark (!)\&
              Zero (0)\&
           Note:  the formal file designator must be defined by the\&
           system administrator.
2 D[ISPLAY] [H[OST], J[OBLOG] {job#, jobname, joblist}, O[LDJOBS], \&
             S[TATUS], C[ONFIG] {item#, itemlist}    ]           \&
   Display job and system information.                           \&
   DIRECTORY = list the contents of the job directory.          \&
   HOST      = list the current host machine.                   \&
   JOBLOG    = information about jobs. (The default option).     \&
   OLDJOBS   = display canceled or time-out jobs.               \&
   STATUS    = display the status of the current host line.      \&
   CONFIG    = list the contents of the configuration file.
3 C[ANCEL] [J[OBS]] {job#, jobname, joblist}                    \&
   Cancel one or more jobs and note the event in the job log file. \&
   JOBS    = optional parameter.                                \&
   job#    = number MRJE/3000 assigned to a job at submission time.\&
   jobname = the name on a JOB card in an input file.           \&
   joblist = list job names and/or job numbers.
4 E[XIT] command is used to exit the subsystem.
5 A[LTER] {item#, itemlist}.\&
   You must have System Supervisor (OP) capability to use ALLTER.\&
   Specifies items in the configuration file are to be changed.  \&
   item#    = number assigned an entry in the configuration file. \&
   itemlist = a list of item numbers.
6 P[URGE] {O[LDJOBS], A[LL]}.\&
   Purges entries from a job log file.\&
   System Supervisor (OP) capability is required to use PURGE OLD.\&
   You must log on as MANAGER.SYS to use PURGE ALL.\&
   Oldjobs  = Purge entries for cancelled and timed-out jobs.
7 H[OST] [hostid].\&
   Select a particular host machine to be the current host machine.
8 N[EW] [hostid].  \&
   You must log on as MANAGER.SYS to use this command.    \&
   Creates or recreates the configuration, joblog and directory   \&
   files for a given host machine.                               \&
   hostid    = Used in a multiple host environments.  Hostid can\&
               have up to eight alphanumeric characters.  If\&
```

Table 6-4, MRJE/3000 Message Catalog (continued)

```
                    several machines are defined, each hostid has a \&
                    unique first character.
 9 Commands are: Alter, Cancel, Display, Host, New, Purge, Submit    \&
   Enter HELP <<command>> for the syntax of the <<command>>
```

This describes the contents of the MRJE/3000 Configuration File.

SUMMARY OF CONFIGURATION FILE ENTRIES

This information is provided for each Configuration File entry in Table A-1, *Configuration File Contents.*

- ENTRY NUMBER AND DESCRIPTION: MRJE/3000 accesses entries in the file by number. This is also called *item.*

- ENTRY/TYPE: These are literal entries or character types.

UPPER CASE	a literal entry
n	a numeric entry. Acceptable range of values is shown.
an	an alphanumeric entry.
sp	special character. Non-alphanumeric.
*	One of the following:

  - The numeric value of a Logical Device Number (LDN).

  - An alphanumeric value, enclosed in *double* quotation marks indicating a Device Class (DC), as in the *"devclass"* string.

  - An actual file designator (AFD), as in *filename.groupname.acctname.*

  - An exclamation mark followed by a *seven* character alphanumeric formal file designator, indicating predefined routing, as in the *!filenam* string.

  - An alphanumeric value, enclosed in *single* quotation marks indicating a FORMID entry in MRJETABL, as in the *'formname'* string.

- ASCII BYTES: Indicates the maximum number of characters that can be entered.

- DEFAULT VALUE: When MRJE/3000 provides more than one value, the values are identified by Job Entry System.

• NOTES:

Number	Meaning
1.	The ALTER command can not alter this entry. To change it, you must rebuild the Configuration File. Use the NEW command.
2.	This entry is displayed to MRJE/3000 Managers only.
3.	The first character of the User host console command must be identical to entry number 7. MRJE/3000 automatically alters this when entry number 7 is altered.
4.	This entry is automatically changed whenever Item 5--Job Entry Subsystem--is changed. The new value is the default value for the new Subsystem.
5.	If this entry is a positive number, then MRJE/3000 passes along all *nnn* lines, even if it fails to recognize its value as a banner. However, if this entry is a negative number, then MRJE/3000 discards *nnn* lines of print, or card punch images.
6.	RSCS may use this item in another manner, or not at all. See the description of the Configuration File item following Table A-1.

A description of each Configuration File item follows Table A-1.

Table A-1. MRJE/3000 Configuration File Entries

ENTRY NUMBER AND DESCRIPTION	ENTRY/ TYPE	ASCII BYTES	DEFAULT VALUE	NOTES
1. Host system ID	an	8	(none)	1
2. Pseudo console (logical device number)	n 0-999	3	(none)	
3. Pseudo line monitor (logical device number)	n 0-999	3	(none)	
4. Signon card image	an, sp	80	(none)	2
5. Job Entry Subsystem on host	HASP, JES2, JES3, ASP, or RSCS	4	(none)	
6. User host console command(s)	an	10	(none)	3,6
7. Host console command character	n or sp	1	$ (HASP) $ (JES2) * (JES3) * (ASP) $ (RSCS)	4
8. Number of lines to check for print banner	n -999 to +999	2 An integer	10 (HASP) 60 (JES2) 60 (JES3) 60 (ASP) 35 (RSCS)	4,5,6
9. Number of cards to check for punch banner	n -999 to +999	2 An integer	1	4,5,6
10. For HASP and JES2--column where host-assigned job number begins in the print banner	n 6-129	3	33 (HASP) 14 (JES2)	4,6
For JES3 and ASP--width of a block letter in the print banner Not used by RSCS.	n 6-129	3	13 (JES3) 13 (ASP)	4,6

Table A-1. MRJE/3000 Configuration File Entries (continued)

ENTRY NUMBER AND DESCRIPTION	ENTRY/ TYPE	ASCII BYTES	DEFAULT VALUE	NOTES
11. Column where job name begins in print banner (Not used by JES3, or ASP)	n 0-124	3	79 (HASP) 19 (JES2) 13 (RSCS)	4,6
12. Column where host-assigned job number begins in the punch banner. Not used by RSCS.	n 1-76	2	44 (HASP) 44 (JES2) 21 (JES3) 21 (ASP)	4,6
13. Column where job name begins in punch banner.	n 0-72	2	0 (HASP) 0 (JES2) 35 (ASP) 0 (RSCS)	4,6
14. Not used by JES2, HASP or RSCS. For JES3--column where **JOB NAME** begins in special forms console message For ASP--column where **JOB** begins in special forms console message	 n 1-120 n 1-120	 3 3	 18 (JES3) 16 (ASP)	6
15. Column where **JOB** begins in console *job received* message. Not used by RSCS.	n 1-99	2	11 (HASP) 10 (JES2) 18 (JES3) 16 (ASP)	4,6
16. Column where job name begins in console *job received* message Not used by RSCS.	n 1-99	2	35 (HASP) 28 (JES2) 30 (JES3) 28 (ASP)	4,6
17. Column where **ON** begins in console *job received* message. Not used by JES3, ASP, or RSCS.	n 1-99	2	20 (HASP) 37 (JES2)	4,6
18. Maximum number of Job Log file entries	n 25-1000	4	100	1
19. Default device for input to MRJE/3000 (LDN or DC)	*	10	"MRDR1"	

Table A-1. MRJE/3000 Configuration File Entries (continued)

ENTRY NUMBER AND DESCRIPTION	ENTRY/ TYPE	ASCII BYTES	DEFAULT VALUE	NOTES
20. Default device for printer output from MRJE/3000 (LDN, DC, AFD, or FORMID)	*	10	"LP"	6
21. Unsolicited print disposition, printer 1 (LDN, DC, AFD, or FORMID)	*	26	"LP"	
22. Unsolicited print disposition, printer 2 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
23. Unsolicited print disposition, printer 3 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
24. Unsolicited print disposition, printer 4 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
25. Unsolicited print disposition, printer 5 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
26. Unsolicited print disposition, printer 6 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
27. Unsolicited print disposition, printer 7 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
28. Default device for punch output from MRJE/3000 (LDN, DC, AFD, or FORMID)	*	10	"LP"	6
29. Unsolicited punch disposition, punch 1 (LDN, DC, AFD, or FORMID)	*	26	"LP"	
30. Unsolicited punch disposition, punch 2 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
31. Unsolicited punch disposition, punch 3 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6

Table A-1. MRJE/3000 Configuration File Entries (continued)

ENTRY NUMBER AND DESCRIPTION	ENTRY/ TYPE	ASCII BYTES	DEFAULT VALUE	NOTES
32. Unsolicited punch dis- position, punch 4 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
33. Unsolicited punch dis- position, punch 5 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
34. Unsolicited punch dis- position, punch 6 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
35. Unsolicited punch dis- position, punch 7 (LDN, DC, AFD, or FORMID)	*	26	"LP"	6
36. MRJE/3000 output process priority	BS, CS, DS, or ES	1	ES	
37. Number of characters to test in job name	n 0-8	1	8	
38. Language ID for data translation	nnn 0 to 255	1 An integer	0	
39. Host system phone number	n	16	(none)	
40. Time communications line opened (set by MRJE/3000 when MRJECONTROL START executes)	(no user input)	6	(none)	1
41. Time communications line closed (set by MRJE/3000 when MRJECONTROL SIGNOFF or KILL executes)	(no user input)	7	(none)	1
42. Maximum time job remains active in Job Log after transmittal (days,hrs,min)	n	6	1/0/0	6
43. Host buffer size (bytes)	n 100-2000	5	400	

DESCRIPTION OF CONFIGURATION FILE ENTRIES

Entry: Description

1.   **Host system ID**: This name identifies the host for which this Configuration File is being built. MRJE/3000 users access the host system by using this name or the first character of this name.

2.   **Pseudo console**: The logical device number of the MRJE/3000 pseudo console. *This should be configured as Unit 2.* See *Configuring MPE to Include MRJE/3000*, in Appendix C.

3   **Pseudo line monitor**: The logical device number of the first line monitor configured in MPE for this communications line. *This should be configured as Unit 0.* See Appendix C, *Configuring MPE to Include MRJE/3000* .

4.   **Signon card image**: An exact image of the identification card sent by MRJE/3000 to the host system. The format of this card is specified by host system personnel and typically begins with /*SIGNON or LOGON.

5.   **Job Entry Subsystem on Host**: Specifies the name of the Job Entry Subsystem in use at the remote host site. This entry implicitly defines the formats of the host cancel and display commands, the signoff card image, and the host console commands that can be sent through a job stream. The formats are:

	HASP:	JES2:	JES3 or ASP:	RSCS:
cancel	$CJ n,n	$CJ n,P	*F,J=(n),C	Not applicable.
display	$DJ n	$DJ n	*I,J=(n)	Not applicable.
command	/*$	/*$	/**	/*$

An n is a host job number.

A signoff is always /*SIGNOFF.

This entry also implicitly defines defaults for entries 7 through 17 in the Configuration File.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

Entry 6, User host console command, is not affected by this entry.

6.   **User Host Console Command:** This entry specifies the characters that can be typed by a User and transmitted to the host system as a host system console command. If the host Job Entry Subsystem is either HASP or JES2 and a dollar sign ($) is entered here, any command beginning with $ may be issued by the User. For ASP and JES3, if an asterisk is entered here, the User may issue any command beginning with an * character.

       For RSCS: this is used by MRJE/3000 to indentify user entries intended for the host system. This character is removed before transmitting the command to conform with host system requirements.

7.   **Host console command character:** This is the first character of all host console commands. If this is altered, item 6 is automatically changed so that the new command character is inserted in the User's host command. Also changed are the host cancel and display commands and the host command image, such as /*$, which begins JES2 and HASP commands.

       For RSCS: this is used by MRJE/3000 to indentify user entries intended for the host system. This character is removed before transmitting the command to conform with host system requirements.

8.   **Number of lines to check for print banner:** When print output is returned to MRJE/3000 from a host system, MRJE/3000 must identify the data set and route it to the appropriate output device or file. Each output data set is separated from others by a banner page. This entry specifies how many lines to scan for the print banner or separator page. Scanning begins at the first line following the end of the previous data set.

       MRJE/3000 typically prints the banner whether or not it is decoded successfully, recognizing the job name and number. When you specify a negative number for this item (-*nnn*), MRJE/3000 discards $|nnn|$ lines, if it fails to recognize a banner. When you specify a positive number for this item, MRJE passes along as output those *nnn* lines it has failed to recognize.

       For RSCS: Only the nth line is checked. Lines *1* through *n-1* are not checked, but ignored. Use MRJEMON with the DBUG'LINES secondary entry point to identify the number of banner lines sent with a data set.

9.   **Number of cards to check for punch banner:** When punch output is returned to MRJE/3000 from a host system, MRJE/3000 must identify the data set and route it to the appropriate output device or file. Each output data set is separated from others by a banner. This entry specifies how many cards to scan for the punch banner or separator card(s). Scanning begins with the first card following the end of the previous data set.

       MRJE/3000 typically punches the banner whether or not it is decoded successfully, recognizing the job name and number. When you specify a negative number for this item (-*nnn*), MRJE/3000 discards $|nnn|$ card images, if it fails to recognize a banner. When you specify a positive number for this item, MRJE passes along as output those *nnn* card images it has failed to recognize.

10. **Column where host-assigned job number begins in print banner (HASP and JES2)**: This specifies the starting column of a host system job number in a print banner. MRJE/3000 expects the host-assigned job number to follow the word JOB, TSU, or STC, with one blank character between it and the job number, and with at least one non-alphanumeric character following the job number:

$$\ldots \quad \left\{\begin{matrix} \text{JOB} \\ \text{STC} \\ \text{TSU} \end{matrix}\right\} \Delta \textit{job number} \blacksquare$$

▓ is a non-alphanumeric (special) character.

Width of a block letter in the print banner (JES3 and ASP): The block character usually is 12 or 13 characters wide. *All letters are expected to be 12 characters tall.*

This entry is not used by RSCS. All output is unsolicited.

11. **Column where job name begins in a print banner (HASP, JES2, and RSCS)**: This entry specifies the column number in which the job name begins in a print banner. MRJE/3000 expects at least one blank following the job name. If you enter a zero, MRJE/3000 does not look for a job name.

This item is not used by JES3 and ASP.

12. **Column where host-assigned job number begins in punch banner**: This item is identical to item 10 except it appears at the beginning of a host punch data set.

This entry is not used by RSCS. All output is unsolicited.

13. **Column where job name begins in punch banner**: This item is identical to Item 11 except it appears at the beginning of a host punch data set. A non-zero indicates a standard punch code.

If you enter a zero, MRJE/3000 does not look for a job name and will expect the job number to be in special code. These are the special codes and the MRJE/3000 interpretation:

Special Code Hexadecimal:	Graphic:	MRJE/3000 Interpretation
6A	|	Blank
70		0
91	j	1
92	k	2
93	l	3
94	m	4
95	n	5
96	o	6
97	p	7
98	q	8
99	r	9

14.   **This entry is not used by HASP and JES2.** MRJE/3000 automatically parses a console *setup* message sent by the host to mount a new form for HASP and JES2. The message must be denoted by a string containing HASP190 immediately following the console command character identified in item 7. The remote number and print or punch number must be the first non-blank characters immediately following the first occurrence of one or more hyphens, -. The FORMID must be the first string immediately following the first occurrence of an equal sign, =, and must be delimited by blank characters.

For JES3: The column where a *JOB NAME* begins in special forms console message. MRJE/3000 locates the job name in the *forms mount* message and searches from there to the end for keywords associated with the form name and for remote device identification.

For ASP: The column where JOB appears in special forms console message. MRJE/3000 locates the word JOB in the *forms mount* message and searches from there to the end for keywords associated with the form name and for remote device identification.

For RSCS: If the *exit* procedure MRJECONSOLE*h* is in SL.PUB.SYS, then a *setup* message is parsed according to its operation. Appendix E describes MRJECONSOLE*h*. If an *exit* procedure is absent, the *setup* message is parsed according to the JES2 use, above, which will fail.

15.   **Column where JOB begins in console job received message:** When a job is submitted to a host system, MRJE/3000 is sent a console message indicating the host-assigned job number. This entry specifies the column in which the word JOB begins in the message. MRJE/3000 expects the host-assigned job number to follow JOB, and for at least one blank to follow the job number: `JOB hostnumber`.

This entry is not used by RSCS. All output is unsolicited.

16.   **Column where job name begins in console job received message:** This entry refers to the same message as entry 15, but specifies the column where the job name begins. MRJE/3000 expects at least one blank to follow the job name.

This entry is not used by RSCS. All output is unsolicited.

17.   **For JES2 and HASP, the column where ON begins in console job received message:** This entry refers to the same message as items 15 and 16, but specifies the column where the word ON begins. MRJE/3000 expects at least one blank to follow the word ON.

This entry is not used by JES3 or ASP.

This entry is not used by RSCS. All output is unsolicited.

18.   **Maximum number of Job Log File entries:** A number in the range from 25 to 1000 that specifies the number of entries the Job Log File can accommodate. See the NEW command in Section 4, *Managing MRJE/3000* .

19. **Default input device:** The logical device number or device class name of the device MRJE/3000 uses, by default, to send jobs to the host system. This is the spooled pseudo card reader identified in Appendix C, *Configuring MPE to Include MRJE/3000* in *Part 3 -- MRJE/3000 Pseudo Device Configuration Dialog.* It is commonly Unit 17.

20. **Default print output device:** The destination logical device number, device class name, actual file designator, or FORMID (delimited by single quotes) identifying the file or device for print output. This is used if the user does not specify a print or forms output destination in the SUBMIT command.

    This entry is not used by RSCS. All output is unsolicited.

21. **Unsolicited print disposition, printer stream 1:** The destination logical device number, device class name, actual file designator, or FORMID (delimited by single quotes) identifying the device or file for print output on print stream 1. This is used if MRJE/3000 cannot recognize where printer output should be sent.

22-27. **Unsolicited print disposition, printer streams 2-7:** Same as entry 21, except applies to output on print streams 2-7.

    This entry is not used by RSCS. Only one printer can be configured.

28. **Default punch output device:** The destination logical device number, device class name, actual file designator, or FORMID (delimited by single quotes) identifying the file or device for punch output. This is used if a punch output destination is not present in the SUBMIT command.

    This entry is not used by RSCS. All output is unsolicited.

29. **Unsolicited punch disposition, punch stream 1:** The destination logical device number, device class name, actual file designator, or FORMID (delimited by single quotes) identifying the file or device for punch output, if MRJE/3000 cannot recognize where punch output should be sent.

30-35. **Unsolicited punch disposition, punch streams 2-7:** Same as 29, except applies to output on punch streams 2-7.

    This entry is not used by RSCS. Only one punch can be configured.

36. **MRJE/3000 output process priority:** The output processes, MRJEOUT, of MRJE/3000 handle all data sets received from the host. An MRJE/3000 Manager may declare their collective output priority on the HP3000 to be in the BS, CS, DS, or ES subqueue. (The MPE System Manager/System Supervisor Reference Manual discusses processing priority.) A lower priority output processes loads MPE less than a higher one. The ES subqueue is recommended.

37.   **Number of characters to test in job name:** Whenever MRJE/3000 receives a message or an output data set from the host system, it checks the job name in the message or data set against the entries in the Job Log File. The number of characters to be checked is set in this entry. Since some host installations append a job number to the job name, the MRJE/3000 Manager should be certain that the value entered here does not allow MRJE/3000 to read beyond the end of the job name.

38.   **Language ID for translation:** MRJE/3000 uses the Native Language Intrinsics EBCDIC-ASCII translation table for translation of all data sent between the remote workstation and the host. Enter the appropriate language identification number. A default value of zero 0 refers to NATIVE/3000 as described in the *Native Language Support Reference Manual.* (32414-90001)

39.   **Host system telephone number:** The number specified is displayed to the MPE console operator after an MRJECONTROL START has been issued. If the communications line is a permanent connection, or auto-dialing is configured on an HP30020B with a telephone number, no number need be entered here.

40.   **Time communications line opened:** If a time is shown, it is the last time when the line was opened. An entry does not mean that the line is now open. This entry is maintained by MRJE/3000 and cannot be modified.

41.   **Time communications line closed:** If a communications line was opened and subsequently closed, the time of closure is shown in this entry. This entry is automatically set by MRJE/3000 l window

42.   **Maximum time job remains active in Job Log after transmittal:** The time specified (days,hours,minutes) determines an interval after a job is transmitted to the host before the job is reclassified as an *old job.* See the PURGE command in Section 4, *Managing MRJE/3000.*

43.   **Host buffer size:** The size of the host transmission buffer, in bytes. The buffer size is specified by host system personnel. Also see Appendix D, *Configuring the Host.*

INSTALLING MRJE/3000

Modify this MRJE/30000 installation procedure to suit your needs.

1.   Obtain an Installation Tape (IT).

2.   Make certain that the necessary hardware has been installed and is operational. Hardware includes communications line controllers, INPs or SSLCs, and modems.

3.   Any user exit procedures, those named MRJECONSOLE*h*, to process console special forms setup messages, must be added to the system Segmented Library (SL) at step 5. Follow Appendix C, *Configuring MPE to Include MRJE/3000* Part 4, beginning at "SYSTEM SL CHANGES?" for the procedure. Also see *EXIT PROCEDURES*, Appendix E.

Make certain that the communication subsystem (CS) is configured into the system. Add the necessary segments to the system SL at step 5.

4.   Restore these program, data, and pseudo device driver files to group and account PUB.SYS using the MPE command `RESTORE`.

Program and data files.

`Name:`	Function:
`MRJE`	User interface.
`MRJEMON`	Communications Monitor.
`MRJECAT`	Message Catalog File, a data file.
`MRJEOUT`	Host output data process.
`MRJELOGR`	Job logging process.

Pseudo device driver files.

`Name:`	Pseudo device:
`IOMRJEO`	First psuedo line.
`IOMRJE1`	Second pseudo line.
`IOMCONSO`	Pseudo console.
`IOMPNLPO`	Pseudo line printer and pseudo punch.
`IOMRDRO`	Pseudo reader.

MRJE/3000 running on an INP requires IOINPO as a driver, and one of these download files:

- `CSDMRJEO` for an HP 30010A;
- `CSDMRJE1` for an HP 30020A;
- `CSDMRJE2` for an HP 30020B.

MRJE/3000 running on an SSLC requires CSSBSCO as a driver, and CSSMRJEO as an additional and secondary driver.

5.   Configure MRJE/3000 into the MPE I/O system using these commands:

```
:FILE L;DEV=LP
:FILE T;DEV=TAPE
:SYSDUMP *T,*L
```

Configure the INP or SSLC with the driver and download file or secondary driver restored in the previous step.

MRJE/3000 pseudo device drivers are:

• IOMRJE0 for the first line monitor, unit 0;

• IOMRJE1 for the second line monitor, unit 1;

• IOMCONS0 for the pseudo console, unit 2;

• IOMPNLP0 for each pseudo printer, units 3 - 9, and pseudo punch, units 10 - 16.

• IOMRDR0 for each pseudo reader, units 17 - 23.

Do not over-configure pseudo peripheral devices. Configure only as many pseudo line printers, punches, and readers as you expect to need. A desirable minimum is two pseudo line printers and a spooled pseudo reader. Dump the new configuration to tape with all files from the group and account PUB.SYS.

6.   Using **COLDSTART**, load the system using the tape created in Step 5.

7.   Using the **UPDATE** command, update the tape described in step 1. This completes the installation of MRJE/3000.

8.   Issue an MRJECONTROL CHECK command to make certain all the necessary MRJE/3000 software modules have been correctly installed.

If an UPDATE has preceded the system, then a useable cold load tape has been created.

Follow this sequence for trouble-free installation:

FIRST: **BACK UP THE ENTIRE SYSTEM.**

Then: Restore files from an IT, mentioned in Step 1.

                   Update the system from the IT, mentioned in Step 1.

                   Create a new system tape with a new configuration using SYSDUMP.

Finally: Coldstart the system from the tape created.

BUILDING MRJE/3000 CONFIGURATION FILES

Follow these steps to build a separate configuration file for each host system.

1. Refer to Appendix A, *Configuration File Contents*, for a description of the contents of the MRJE/3000 configuration file.

2. Use the NEW command to build your configuration files. Before issuing this command, examine the list of prompting messages associated with the command in Section 4, *Managing MRJE/3000*.

3. Log onto the HP3000 as MANAGER.SYS,PUB.

4. Enter the MRJE command from MPE.

5. Enter the NEW command and respond to the prompts.

6. Enter DISPLAY CONFIG and check the configuration. Pay particular attention to items 7-17, 37, 38, 42 and 43. MRJE/3000 assigns default values for these items. If any of the values is not correct for your system, you may change it by using the MRJE/3000 ALTER command. The command is described in Section 4, *Managing MRJE/3000*.

BUILDING MRJE/3000 STREAM FILES

A separate stream file must be built for each host system. The stream file is used whenever an MRJECONTROL START command is issued. The stream file must be MRJESTR*h*.PUB.SYS where *h* is the first letter of the host identification. It can be created by any user with access to the PUB group of the SYS account. The structure of this file is the same as for any stream file. The contents of this stream file must execute the monitor proces MRJEMON.PUB.SYS.

The stream file MRJESTR*h*.PUB.SYS must contain the command RUN MRJEMON;INFO="*h*" as the command preceding an EOJ. The stream file can contain other commands, such as SETDUMP. Use EDIT/3000 or TDP to create this kind of stream file:

```
!JOB MANAGER.SYS;HPRI;RESTART;TIME=?
!COMMENT
!COMMENT          This allows users to route output to
!COMMENT          an HP2680 with a specific environment.
!COMMENT
!COMMENT          This can be omitted if Output Management
!COMMENT          is used.
!COMMENT
!FILE ELITE;DEV=LPS;ENV=ELITE.HPENV.SYS
!FILE HOLDLP;DEV=LP,1
!COMMENT
!COMMENT          The stack dump facility is armed to
!COMMENT          operate when an MRJEMON problem occurs.
!COMMENT
!SETDUMP DB,ST
!COMMENT
!COMMENT          The Message File is $STDLIST.
!COMMENT
!FILE MRJEMSGN=$STDLIST
!RUN MRJEMON;INFO=" "
!EOJ
```

The FILE commands in this stream file can be used by SUBMIT commands. See *Global File Specification.*

Access to a stream file, such as the one created in the example above, should be limited to the creator through the use of the MPE command ALTSEC. This command is described in the *MPE Commands Reference Manual* (32033-90006).

BUILDING HOST CONSOLE MESSAGE LOGGING FILES

If you intend to log the console messages sent by the host, you must build a log file. Build a separate file for each host whose messages you want to log.

Logging file records must contain fixed-length ASCII records at least 80 bytes long. The files must be named MRJEMSG*h*, where *h* is the first character of the host ID. For the default host, the name is MRJEMSG. The file can be an MSG file, if desired; however, this is not required. Logging files must reside in PUB.SYS. Access to host console message logging files should be limited to their creator, MANAGER.SYS. Access may be limited through the use of the MPE command ALTSEC. This command is described in the *MPE V Commands Reference Manual* (32033-90006). Refer to *Host Console Message Logging Facility* in Section 4, *Managing MRJE/3000*, for further information.

VERIFYING MRJE/3000 INSTALLATION

A verification test is included in the MRJE/3000 software. The test activates MRJE/3000 and submits two jobs that produce printer, punch, and special form (C001) output.

The verification test uses three files:

• T00T249A

• T01T249A

• T02T249A

T00T249A, when streamed, activates MRJE/3000 and submits the two jobs contained in the files T01T249A and T02T249A. Figure B-1 shows the contents of the three files. These files were built for submission to a HASP system. They may need to be modified to your host installation. File T00T249A was constructed to be streamed by a user with read access to all files in the group and account HP30249.HPPL87. Modify this file to activate the test from another logon group and account.

1. Configure MRJE/3000 into the MPE system according to the instructions in this section and in Appendix C, *Configuring MPE to Include MRJE/3000.*

2. Use EDIT/3000 or its equivalent to modify the test file identified above.

```
┌──────────────┐
│     NOTE     │
└──────────────┘
```

Do not put any sequence numbers on the test files.
The tests will fail if sequence numbers are present.

3. Use the NEW command to create the Configuration, Directory and Job Log files.

4. Use the STREAM command to stream T00T249A.

5. Issue an MRJECONTROL START command from MPE and make connection with the host system.

The jobs are transmitted, processed by the host; and their output returned through MRJE/3000. If these steps do not complete successfully, recheck T00T249A, and T02T249A. If these files appear correct, recheck the configuration.

```
• TOOT249A:

!JOB TOOT249A,FIELD.HPPL87,HP30249;RESTART
!MRJE
SUBMIT T01T249A
D J
E
!EOJ


• T01T249A:

//MRJEDEM5 JOB (1548,HPA),SFA,CLASS=X
//S1     EXEC PGM=IEBGENER
//SYSPRINT  DD SYSOUT=A
//SYSUT1  DD *
//SYSUT2  DD SYSOUT=A
//SYSIN DD DUMMY
##FD T02T249A


• T02T249A:

//MRJEDEM2  JOB (1548,HPA),SFA,CLASS=X
//FORT EXEC FORTGCLG
//FORT.SYSPUNCH DD DUMMY
//FORT.SYSIN DD *
      DO 100 I=1,5
      DO 100 J=111111,1111110,111111
      K=J-111111
  100 WRITE(6,1000) K,K,K,K,K,K,K,K,K,K,K,K,K,K,K,K,K,K,K,K
 1000 FORMAT (1H ,20I6)
      STOP
      END
/*
//GO.FT06F001 DD SYSOUT=(A,,C001)
//
```

Figure B-1. MRJE/3000 Verification Jobs

CONFIGURING MPE TO INCLUDE MRJE/3000

This describes how to configure MRJE/3000 into the MPE I/O system.

CONFIGURATION REQUIREMENTS

Each MRJE/3000 communications line to a host must be configured separately into the MPE I/O system; each configuration must be compatible with its corresponding host system configuration.

One communications controller must be configured into the MPE I/O system for each of the MRJE/3000 communications lines to be operated concurrently. Before configuration can begin, all controllers should be installed as described in their respective installation manuals. (See the Preface for a list of manuals.) During installation, note the hardware DRT setting for each controller, as the DRT numbers are requested during MPE configuration.

These are the specifications for the devices that are configured into MPE for each MRJE/3000 communications line. Some devices are required for each line; others are optional.

Communications Controller

One communications controller is required.

	SSLC	INP
Device Type:	18	17
Unit number:	0	0
Driver:	CSSBSCO	IOINPO
Driver changeable:	YES	NO
Secondary driver. *Applies to SSLC only*:	CSSMRJEO	
Download file. *Applies to INP only*:		• CSDMRJEO, for an HP30010A • CSDMRJE1, for an HP30020A • CSDMRJE2, for an HP30020B

Each communications controller can be used by other HP3000 communications subsystems (such as AdvanceDS) when it is not being used by MRJE/3000. Guidelines for configuring multiple data communications subsystems appear in Table C-1.

Complete details of the configuration process are contained in the *System Operation and Resource Management Reference Manual* (32033-90005).

Pseudo Line Monitors

Two pseudo line monitors are required. They *must* be configured as Units 0 and 1.

Device Type:	22
Device Subtype:	0
Unit Number:	0
Driver Name:	IOMRJE0
Device Type:	22
Device Subtype:	0
Unit Number:	1
Driver Name	IOMRJE1

Pseudo Console

One pseudo console is required. It must be configured as Unit 2.

Device type:	22
Device subtype:	0
Unit number:	2
Driver:	IOMCONS0

Pseudo Line Printers

Up to seven pseudo line printers can be configured as Units 3 - 9. One pseudo line printer is required, starting with Unit 3. Do not skip Unit numbers. The combination of pseudo line printers and punches must not exceed 8.

Although MRJE/3000 provides for up to seven pseudo printers and seven pseudo punches, the number that can be configured is limited to the number of printers and punches configured on the host. Furthermore, configuring a large number of printers and/or punches causes more overhead for the HP3000 system.

Configure only as many printers and punches as you need. Two pseudo printers are a desirable minimum.

Device type:	22
Device subtype:	0
Unit numbers:	**3 - 9**
Driver:	IOMPNLP0

Pseudo Card Punches

Up to seven pseudo card punches can be configured as Units 10 - 16. No pseudo card punches are required. Do not skip Unit numbers. The combination of pseudo line printers and punches must not exceed 8.

Although MRJE/3000 provides for up to seven pseudo printers and seven pseudo punches, the number that can actually be configured is limited to the number of printers and punches configured on the host. Furthermore, configuring a large number of printers and/or punches causes more overhead for the HP3000 system.

Configure only as many printers and punches as you need.

Device type:	22
Device subtype:	0
Unit numbers:	**10 - 16**
Driver:	IOMPNLP0

Pseudo Card Readers

Up to seven pseudo card readers can be configured as Units 17 - 23. One pseudo card reader is required, starting with Unit 17. Do not skip Unit numbers. Only one pseudo card reader should be initially spooled. Another pseudo card reader can be configured as unspooled, and used as a *hot* reader.

Device type:	22
Device subtype:	0
Unit numbers:	**17 - 23**
Driver:	IOMRDR0

Additional Drivers

One additional driver is required when an SSLC is configured as the communications controller. Its name is CSSMRJE0. It is configured without a logical device number or DRT number.

Download Files

Download files are required for an INP.

Download file for HP30010A: CSDMRJE0

Download file for HP30020A: CSDMRJE1

Download file for HP30020B: CSDMRJE2

General Pseudo Device Information

MRJE/3000 pseudo devices are not physical devices. They do not have hardware DRT numbers. When prompted for their DRT number during the configuration dialog, respond with a pound sign (#) followed by the *ldev* number of the controller for this line.

The pound sign convention is illustrated in Figure C-1:

- SSLC1 is configured with logical device number 13;

- The associated pseudo devices have all been configured with DRT numbers of #13.

If more than one communications controller is to be configured for use by MRJE/3000, each controller must have a unique logical device number and its associated pseudo devices must have that number as their DRT number.

LOG DEV #	DRT #	U N I T	C H A N	T Y P E	SUB TYPE	TERM TYPE	TERM SPEED	REC WIDTH	OUTPUT DEV	MODE	DRIVER NAME	DEVICE CLASSES
1	4	0	0	0	6			128	0		*IOMDISC1	SPOOL DISC
2	5	1	0	0	8			128	0		*IOMDISC1	SPOOL DISC
5	13	0	0	8	0			40	LP	JA	IOCDCD0	CARD
6	14	0	0	32	2			66	0	S	IOLPRT0	LP
7	6	0	0	24	0			128	0		IOTAPE0	TAPE
8	6	1	0	24	0			128	0		IOTAPE0	TAPE
9	6	2	0	24	0			40	LP	JA	IOTAPE0	JOBTAPE
13	18	0	0	17	0			0	0		IOINP0	INP1
20	7	0	0	16	0	10	??	40	20	JAID	IOTERM0	TERM
21	7	1	0	16	0	10	??	40	21	JAID	IOTERM0	TERM
22	7	2	0	16	0	10	??	40	22	JAID	IOTERM0	TERM
40	#13	0	0	22	0			40	0		IOMRJE0	MRJE1
41	#13	1	0	22	0			40	0		IOMRJE1	MRJE2
42	#13	2	0	22	0			67	0		IOMCONS0	MCONS
43	#13	3	0	22	0			67	0		IOMPNLP0	MLP1
44	#13	4	0	22	0			67	0		IOMPNLP0	MLP2
45	#13	5	0	22	0			67	0		IOMPNLP0	MLP3
46	#13	6	0	22	0			67	0		IOMPNLP0	MLP4
47	#13	7	0	22	0			67	0		IOMPNLP0	MLP5
48	#13	8	0	22	0			67	0		IOMPNLP0	MLP6
49	#13	9	0	22	0			67	0		IOMPNLP0	MLP7
50	#13	10	0	22	0			40	0		IOMPNLP0	MPNCH1
51	#13	11	0	22	0			40	0		IOMPNLP0	MPNCH2
52	#13	12	0	22	0			40	0		IOMPNLP0	MPNCH3
53	#13	13	0	22	0			40	0		IOMPNLP0	MPNCH4
54	#13	14	0	22	0			40	0		IOMPNLP0	MPNCH5
55	#13	15	0	22	0			40	0		IOMPNLP0	MPNCH6
56	#13	16	0	22	0			40	0		IOMPNLP0	MPNCH7
57	#13	17	0	22	0			40	0	S	IOMRDR0	MRDR1
58	#13	18	0	22	0			40	0		IOMRDR0	MRDR2
59	#13	19	0	22	0			40	0		IOMRDR0	MRDR3
60	#13	20	0	22	0			40	0		IOMRDR0	MRDR4
61	#13	21	0	22	0			40	0		IOMRDR0	MRDR5
62	#13	22	0	22	0			40	0		IOMRDR0	MRDR6
63	#13	23	0	22	0			40	0		IOMRDR0	MRDR7

LDN	PM	PRT	LCL MOD	TC	RCV TMOUT	LCL TMOUT	CON TMOUT	MODE	TRANSMIT SPEED	TM	BUFFER SIZE	D C	DRIVER OPTIONS
13	0	1	1	1	20	60	900	OIA	600	1	1024	Y	0

LDN	CTRL LEN	PHONE NUMBER LIST	LOCAL ID SEQUENCE REMOTE ID SEQUENCE
13	0		

ADDITIONAL CS DRIVERS

047038-04

Figure C-1. MRJE/3000 Configured into MPE.

The communications interface is an INP. Configure only as many pseudo printers, punches, and readers as you actually need; these pseudo devices consume system resources.

THE CONFIGURATION DIALOG

This configuration dialog includes only those steps that pertain to MRJE/3000. If the communication controllers are to be used by multiple communications subsystems, refer also to Table C-1, SSLC and INP Configuration Summary.

The configuration dialog below is divided into four parts.

- Parts 1 and 4, both named *Dialog Common to All Devices*, apply whether an SSLC, an INP, or an MRJE/3000 pseudo device is being configured; the dialog is common to all three.

- Part 2 describes the portion of the dialog that applies only to the SSLC and INP;

- Part 3 describes the dialog that applies only to MRJE/3000 pseudo devices.

Whenever indicated in the dialog, press the (RETURN) key in response to the prompting message. User responses are highlighted to distinguish them from HP3000 prompts. You can substitute Y or N for YES or NO responses.

Follow the steps in *Installing MRJE/3000*. Then, to begin the configuration process, log onto the system, define the output device files, and initiate a SYSDUMP:

```
:HELLO MANAGER.SYS
HP3000 / MPE IV C.A1.A2. (EREHWON) FRI, JUN 15, 1984 8:57 AM


   . . .


:FILE T;DEV=TAPE
:FILE L;DEV=LP
:SYSDUMP *T,*L


   . . .
```

> **NOTE**
>
> The file equations used with SYSDUMP command from MPE must reflect the tape and line printer device class names actually configured on the HP3000 system. They might not be configured as TAPE and LP on your system.

PART 1 -- DIALOG COMMON TO ALL DEVICES

Step No.	Dialog

1   ANY CHANGES? YES

2   SYSTEM ID = HP 32002.$v.uu.ff$? (RETURN)

       A version letter, v, and update and fix numbers, $uu.ff$ are printed.

3   MEMORY SIZE = xxx.? (RETURN)

4   I/O CONFIGURATION CHANGES? YES

5   LIST I/O DEVICES? YES

       All I/O devices currently configured on the system are listed with these column headings:

LOG DEV	Logical device number
DRT #	Hardware device address
UNIT #	Number of the device on its controller
CHAN	Always 0 for MRJE/3000 devices
TYPE	Device type:
	Always 17 for INP
	Always 18 for SSLC
	Always 22 for MRJE/3000 pseudo devices
SUBTYPE	Device subtype.
	Always 0 for MRJE/3000 pseudo devices
TERM TYPE	Terminal type
REC WIDTH	Record width, decimal words
OUTPUT DEV	Device class name or device number
MODE	J = Accept jobs
	A = Accept data
	I = Interactive device
	D = Duplicative device
	S = Spooled device
DRIVER NAME	Driver name
DEVICE CLASSES	Class names assigned

6   LIST CS DEVICES? YES

This prompt appears only if a communications device is currently configured in the system. The list is printed with the following column headings:

LDN	Logical device number
PM	Port mask. Always 0 for MRJE/3000 devices
PRT	Protocol
LCL MOD	Local mode
TC	Transmission code
RCV TMOUT	Receive timeout
LCL TMOUT	Local timeout
CON TMOUT	Connect timeout
MODE	O = Dial out
	I = Manual answer
	A = Automatic answer
	D = Dual speed
	H = Half speed
	C = Speed changeable
TRANSMIT SPEED	Transmission speed in characters per second
TM	Transmission mode
BUFFER SIZE	Default buffer capacity in words
DC	Driver changeable, or not changeable
DRIVER OPTIONS	Driver options

If the MPE system currently has a switched device, a dial-up telephone line, then additional information is printed in the following columns:

LDN
CTRL LEN
PHONE NUMBER LIST
LOCAL ID SEQUENCE
REMOTE ID SEQUENCE

7   HIGHEST DRT = xx.?   return or nn > xx or (RETURN)

xx denotes the current highest hardware device number that can be assigned. Enter (RETURN) if the number displayed is large enough to include the devices that are being added. Otherwise, enter a higher DRT number.

If an SSLC or INP is being configured, continue on to *Part 2 -- SSLC and INP Dialog*. If configuring a pseudo device, proceed to *Part 3 -- MRJE/3000 Pseudo Device Configuration Dialog*.

PART 2 -- CONFIGURATION DIALOG FOR AN INP OR SSLC

Use this part for configuring an INP or an SSLC.

```
Step                                    Dialog
No.
```

8   `LOGICAL DEVICE #?` nnn

Enter a unique number within the range 1 to maximum allowed by MPE. All devices are recognized by this number. This prompt is repeated later in the dialog to allow for configuration of more than one SSLC or INP.

9   `DRT #?` nnn

Enter the hardware DRT number of the INP or SSLC. Enter 0 to cancel response to the previous prompt.

10   `UNIT #?` 0

An INP or SSLC should *always* be assigned unit number 0 on its controller.

11   `SOFTWARE CHANNEL #?` 0

MRJE/3000 pseudo devices do not use software channels.

12   `TYPE?` 17   Always 17 for the INP.
                18   Always 18 for the SSLC.

13   `SUBTYPE?` 0 or 1

Reply 0 for a synchronous switched line with modem, telephone dial network. A subtype of zero enables Data Terminal Ready (DTR).

Reply 1 for a synchronous non-switched line with modem, leased line.

If an INP is being configured, the dialog skips to step 20.

17   `PROTOCOL?` nnn

Enter an integer 1 to 255. MRJE/3000 does not use your response.

18   `LOCAL MODE?` nn

Enter an integer 1 to 15. MRJE/3000 does not use your response.

19   `TRANSMISSION CODE?` nn

Enter an integer 1 to 63. MRJE/3000 does not use your response.

20   `RECEIVE TIMEOUT?` (RETURN)

MRJE/3000 ignores your response.

21   LOCAL TIMEOUT? (RETURN)

            MRJE/3000 ignores your response.

22   CONNECT TIMEOUT? (RETURN)

            MRJE/3000 ignores response.

If the INP or SSLC was configured as subtype 0 in Step 13, because it is connected to a switched telephone line, the dialog continues with the next prompt. If the SSLC or INP was configured as subtype 1 in Step 13, because it is connected with a non-switched leased line, the dialog skips to Step 29

23   DIAL FACILITY? (RETURN) or nnn, where *nnn* is an *ldev*.

            Enter *ldev* to show an HP 30020B, connecting to a Bell 801C auto-dialing unit with a special auto-dialing cable (HP30221G). If this device is installed, then calls are dialed automatically.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

            The *ldev*, the same value as entered in Step 8, must be entered here to indicate that automatic dialing of calls may occur. This feature is supported for an INP 30020B connected to a Bell 801C Automatic Calling unit with an HP 30221G cable.

24   ANSWER FACILITY? YES or (RETURN)

            Reply YES if *ldev* is specified in Step 23 and an HP 30020B is configured, and is used for auto-dialing. Otherwise, reply (RETURN) .

25   AUTOMATIC ANSWER? YES or (RETURN)

            Reply YES if *ldev* is specified in Step 23 and an HP 30020B is configured, and is be used for auto-dialing. Otherwise, reply (RETURN) .

26   DUAL SPEED? YES Local modem is dual speed; European models only.
                        NO Local modem is single speed.

            After a NO response to Step 26, the dialog skips the next step.

27   HALF SPEED?   For European models only.

                        YES   Modem operates at half speed.
                        NO   Modem operates at full speed.

            After a response to this prompt, the dialog skips the next step.

28   SPEED CHANGEABLE? YES or NO

            This is ignored for modems that provide internal clocking signals.

29   TRANSMISSION SPEED? nnnnn

            Enter the line transmission speed in characters per second:

```
Characters per Second          Bits per second
        250                         2000
        300                         2400
        600                         4800
        900                         7200
       1200                         9600
       7000                        56000
```

            Specified transmission speed is ignored for modems with internal clocking signals. So, modems of different speeds may be used without reconfiguring MPE. **You must use a 30221D (39221-60010) cable at 56000 bits per second.**

30   TRANSMISSION MODE? 0 or 1

                         0 Full Duplex.
                         1 Half Duplex.

            Configure the INP or SSLC to operate in Full Duplex (0) mode if communications take place over one of the following:

            • A leased four-wire point-to-point line.

            • A dial network with two lines (four-wire).

            • A dial network with Wide Band Service.

            Configure the INP or SSLC to operate in Half Duplex (1) if communications are over a dial network with a single-line (two-wire).

31   PREFERRED BUFFER SIZE? 1024   MRJE/3000 ignores the response.

32   DRIVER CHANGEABLE? YES   SSLC only.
                               NO   INP only.

33   DRIVER OPTIONS? 0

34   DRIVER NAME? IOINPO   for an INP
                          CSSBSCO   for an SSLC


```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

For auto-dial support on an HP30020B, the download file is
CSDBSC2.

Steps 44 through 47 apply to SSLCs or INPs that use a synchronous switched telephone line. These are
type 17, subtype 0 for INP; type 18, subtype 0 for SSLC. For SSLCs or INPs configured as subtype 1,
synchronous non-switched leased line, the dialog skips to Step 48.

44   PHONELIST? (RETURN), YES or NO

            A YES causes the next step to be executed. A NO causes step 48 to be executed.

45   PHONE NUMBER? nnnnnnnnnnnnnnnnnnnnn

            A string of numbers and hyphens not to exceed 30 characters.


```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

MRJE/3000 Configuration Files allow 16 characters.

46   LOCAL ID SEQUENCE? (RETURN)   MRJE/3000 ignores the response.

47   REMOTE ID SEQUENCE? (RETURN)   MRJE/3000 ignores the response.

48   DEVICE CLASSES? (RETURN)   MRJE/3000 ignores the response.

The dialog returns to Step 8 to allow configuration of another SSLC or INP or configuration of the pseudo
devices. If all devices have been defined, press (RETURN) in response to the LOGICAL DEVICE#? prompt
and proceed to *Part 4 -- Dialog Common to All Devices.*

PART 3 -- MRJE/3000 PSEUDO DEVICE CONFIGURATION

Use this as a guide to configure MRJE/3000 pseudo devices.

Step No.   Dialog

8   LOGICAL DEVICE #? nnn

Enter a unique number within the range 1 to maximum allowed by MPE. All devices are recognized by this number. This prompt is repeated later in the dialog to allow for configuration of more than one INP or SSLC.

9   DRT #? #nnn

Enter a pound symbol (#) followed by a number identical to the logical device number of the INP or SSLC for which this pseudo device is being configured.

Refer to *CONFIGURATION REQUIREMENTS* at the beginning of this appendix.

10   UNIT#? 0 - 23

Pseudo device Unit numbers must be assigned this way:

UNIT NUMBER		DRIVER NAME	PSEUDO DEVICE
0	[1]	IOMRJE0	First line monitor.
1	[1]	IOMRJE1	Second line monitor.
2	[1]	IOMCONS0	Pseudo console.
3	[1]	IOMPNLP0	First pseudo printer.
4 - 9	[2]	IOMPNLP0	Other pseudo printers
10 - 16	[2]	IOMPNLP0	Pseudo punches.
17	[1]	IOMRDR0	First pseudo reader.
18 - 23	[2]	IOMRDR0	Other pseudo readers

[1] = This device is required.
[2] = Use Unit numbers in ascending order, lowest first.

11   SOFTWARE CHANNEL #? 0

Pseudo devices do not use software channels.

12   TYPE? 22

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

All pseudo devices are type 22.

13   SUBTYPE? 0

```
 ┌────────────┐
 │    NOTE    │
 └────────────┘
```

All MRJE/3000 pseudo devices are subtype 0.

34   RECORD WIDTH? nnn in *words*.

    40   Pseudo line monitor, card reader, and card punch.
    67   Pseudo console.
    67 - 128   Pseudo line printer.

```
 ┌────────────┐
 │    NOTE    │
 └────────────┘
```

A maximum record width of 255 *bytes* is supported for pseudo line printers.

35   OUTPUT DEVICE? 0

36   ACCEPT JOBS/SESSIONS? NO

37   ACCEPT DATA? NO

38   INTERACTIVE? NO

39   DUPLICATIVE? NO

41   INITIALLY SPOOLED? YES or NO

Spool the first pseudo card reader, Unit 17, as an output device. *All other pseudo devices should not be spooled.*

Although the pseudo line printers should never be spooled, at least one actual MPE line printer should be spooled to handle MRJE/3000 output. The spooled printer should be specified as the default output device in entry number 20 of the MRJE/3000 configuration file that corresponds to this configuration.

42   INPUT OR OUTPUT? OUTPUT

This question is asked if the response to the preceding prompt was YES.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

The pseudo card reader is configured as an MPE spooled *output* device, because it is used to send data from an HP3000 to another system. It should be specified as the default input device in entry number 19 of the MRJE/3000 Configuration File, because it is used for input to the host system.

43   DRIVER NAME?   See the Unit Number in Step 10, above.
                        IOMRJE0   First pseudo line monitor, Unit 0.
                        IOMRJE1   Second pseudo line monitor, Unit 1.
                        IOMCONS0   Pseudo console, Unit 2.
                        IOMPNLP0   Pseudo line printers and card punches,
                                    Units 4 - 16.
                        IOMRDR0   Pseudo card readers, Units 18-23.

48   DEVICE CLASSES? (RETURN) or name

          (RETURN)   **Line monitor, pseudo console, pseudo printers, pseudo punches:**
                      MRJE/3000 does not use names for these pseudo devices. Names may be
                      provided for documentation within MPE. If names are used, they must
                      be unique.

          name or   **Pseudo card readers:** A unique name of up to eight alphanumeric
          (RETURN)   characters in length, or (RETURN).

          name   **SPOOLED pseudo card reader:** The default class name of an MRJE/3000
                      spooled pseudo reader is **MRDR1**. If another name is entered here, modify
                      item 19 of the MRJE/3000 Configuration File with an ALTER
                      command.

The dialog now returns to Step 8 to allow configuration of additional devices. If all I/O devices have been configured, press the RETURN key in response to the LOGICAL DEVICE#? prompt and continue with *Part 4 -- Dialog Common to All Devices.*

PART 4 -- DIALOG COMMON TO ALL DEVICES

Use this part when configuring all devices.

Step   Dialog
No.

51   MAX # OF OPEN SPOOLFILES = xx.? (RETURN)

52   LIST I/O DEVICES? YES

53   LIST CS DEVICES? YES

54   CLASS CHANGES? (RETURN)

66   LIST I/O DEVICES? (RETURN)

          The prompt for Step 67 is issued only if a communications device is currently configured in
          the system, or if additional drivers exist.

67   ADDITIONAL DRIVER CHANGES? NO for an INP, YES for an SSLC.

68   LIST ADDITIONAL DRIVERS? (RETURN)

69   DELETE DRIVERS? (RETURN)

71   ADD DRIVERS? YES for an SSLC only.

72   DRIVER NAME? CSSMRJE0 for SSLC only.

72   DRIVER NAME? (RETURN)

73   LIST ADDITIONAL DRIVERS? YES

4   I/O CONFIGURATION CHANGES? (RETURN)

74   SYSTEM TABLE CHANGES? (RETURN)

          You may need IOQ and ICS entries. If necessary, contact your Hewlett-Packard
          representative for assistance.

92   MISC CONFIGURATION CHANGES? (RETURN)

108   LOGGING CHANGES? (RETURN)

115   DISC ALLOCATION CHANGES? (RETURN)

129   SCHEDULING CHANGES? (RETURN)

130   SEGMENT LIMIT CHANGES? (RETURN)

137   SYSTEM PROGRAM CHANGES? (RETURN)

139   SYSTEM SL CHANGES? YES or (RETURN)

Answer YES if:

- This is the *first* communications controller to be configured into the system;

- A user exit procedure, MRJECONSOLE*h*, is to be configured into the system. *EXIT PROCEDURE*, Appendix E, describes user exit procedures to process special forms setup messages.

Answer NO if:

- The system already has its INPs or SSLCS configured.

- User exit procedures, MRJECONSOLE*h*, do not require configuration.

140   LIST LIBRARY? NO

141   DELETE SEGMENT? NO

143   REPLACE SEGMENT? NO

145   ADD SEGMENT? NO

146   ENTER SEGMENT NAME, USLFILE NAME [,S/C/P]?

```
?COMSYS1,U00U251A.HP30251.HPPL87,S
?COMSYS2,U00U251A.HP30251.HPPL87,S
?COMSYS3,U00U251A.HP30251.HPPL87,S
?COMSYS4,U00U251A.HP30251.HPPL87,S
?COMSYS5,U00U251A.HP30251.HPPL87,S
?CSUTILTY,U01U251A.HP30251.HPPL87,S
?BSCLCM,U03U251A.HP30251.HPPL87,S
?BSCSLCP0,U04U251A.HP30251.HPPL87,S
?DVRSSLC,U05U251A.HP30251.HPPL87,S
?MRJESEG,MRJEUSL.PUB.SYS  <<See NOTE following.>>
?(RETURN)
```

```
┌──────────────┐
│     NOTE     │
└──────────────┘
```

Both *MRJESEG* and *MRJEUSL.PUB.SYS* are put here to remind you that any user exit procedures, MRJECONSOLE*h* in Appendix E, are configured in this step.

148   ENTER DUMP DATE? 0, (RETURN), or *mm/dd/yy*

0   Copies the entire system: MPE, the current accounting structure, and all files. This is appropriate with files @.PUB.SYS, as indicated in Step 149.

(RETURN)   **Copies the modified MPE:** When this copy is used to COLDSTART the system, the accounting structure and all files remain intact.

mm/dd/yy   **Where** *mm/dd/yy* **is a date in the future:** Copies the modified MPE and the current accounting, but no files.

mm/dd/yy   **Where** mm/dd/yy **is usually the date of the most recent system backup:** Copies the modified MPE, the current accounting structure, and any files that were changed on or since the specified date.

149   ENTER DUMP FILE SUBSETS? (RETURN), or *fileset* list.

(RETURN) is the equivalent of @.@.@. You can also enter a file name, a series of file names, or a *fileset* like @.PUB.SYS.

150   LIST FILES DUMPED? NO

151   The HP3000 system operator now issues a REPLY console command to assign a destination storage device for SYSDUMP output.

After the SYSDUMP is complete, the tape produced should be used to COLDSTART the system. During a COLDSTART, the old I/O device configuration is replaced with the new one from the SYSDUMP tape.

CONFIGURING AN INP OR SSLC FOR SEVERAL SUBSYSTEMS

If several subsystems use an INP or SSLC, it must be configured to be compatible for all. Table C-1 summarizes the configuration choices available for each subsystem when it is the *sole* user of an INP or SSLC. Select the choices that permit your set of subsystems to use an INP or SSLC.

Table C-1. INP and SSLC Configuration Summary

Step No.	MPE Prompt and the Recommended Response for Each Data Communications Subsystem
10	UNIT #? 0
11	SOFTWARE CHANNEL #? 0
12	TYPE? 17 for an INP. 18 for an SSLC.
13	SUBTYPE? 0, 1, 3, 7

Subtype values allowed are:

- 0 = Synchronous, switched line with a modem;

- 1 = Synchronous, non-switched line with a modem;

- 3 = Synchronous hardwired line;

- 7 = Asynchronous hardwired line;

Specify subtype for subsystems as follows:

- 0 or 1 for AdvanceDS, RJE/3000, MRJE/3000;

- 0, 1, 3 or 7 for MTS;

- 1 for IMF/3000.

17	PROTOCOL? 1

Table C-1. INP and SSLC Configuration Summary (continued)

18   LOCAL MODE? 1 or 2.

The values for local mode are:

- 1 = Local is multipoint control station or primary contention station.

- 2 = Local is secondary contention station.

Set local mode as follows:

- 1 or 2 for AdvanceDS, or RJE/3000;

- 1 for MTS and IMF/3000.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

MRJE/3000 overrides this setting.

19   TRANSMISSION CODE? 1, 2, or 3

Values allowed are:

- 1 = Automatic code sensing;

- 2 = ASCII;

- 3 = EBCDIC.

Specify 1, 2, or 3 for AdvanceDS or RJE/3000.

```
┌─────────────────┐
│      NOTE       │
└─────────────────┘
```

MRJE/3000, MTS, and IMF/3000 override the response.

Table C-1. INP and SSLC Configuration Summary (continued)

20   `RECEIVE TIMEOUT?` `0` - `32000` seconds, or `(RETURN)`

The default value is 20 seconds.

Use 0 - 32000, or `(RETURN)` for AdvanceDS, RJE/3000, MTS, and IMF/3000.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

MRJE/3000 overrides your response.

21   `LOCAL TIMEOUT?` `0` - `32000` seconds, or `(RETURN)`.

The default is 60 seconds.

Use 0 - 32000, or `(RETURN)` for AdvanceDS, RJE/3000, MTS, and IMF/3000.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

MRJE/3000 overrides your response.

22   `CONNECT TIMEOUT?`

The default is 900 seconds.

Recommended values are:

- `300` for AdvanceDS, RJE/3000, and MTS.

- `900` + for IMF/3000.

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

MRJE/3000 overrides your response.

Table C-1. INP and SSLC Configuration Summary (continued)

23   DIAL FACILITY? YES, NO, nnn, where *nnn* is an *ldev*, or
      RETURN.

      AdvanceDS, RJE/3000, and MTS use your response.

      MRJE/3000 *with* auto-dial uses the *ldev* response.

      MRJE/3000 *without* auto-dial, and IMF/3000 do not use response.

<div style="text-align:center">

NOTE

</div>

The *ldev*, the same value as entered in Step 8, must be entered
here to indicate that automatic dialing of calls may occur.
This feature is supported for an INP 30020B connected to a
Bell 801C Automatic Calling unit, with an HP 30221G cable.

24   ANSWER FACILITY? YES, or RETURN

      AdvanceDS, RJE/3000, and MTS use response. MRJE/3000 uses this if an *ldev* is used in
      Step 23, and only when an auto-dialer is connected to an HP 30020B INP with an HP
      30221G cable.

      IMF/3000 does not use response.

25   AUTOMATIC ANSWER?   YES or RETURN

      Reply YES if an *ldev* is specified in Step 23, and an HP 30020B is configured, and is used for
      auto-dialing; otherwise, reply RETURN .

26   DUAL SPEED? YES or NO

      YES or NO for AdvanceDS, RJE/3000, MRJE/3000.
      YES for European modems, only.
      NO for MTS.
      IMF/3000 doesn't use your response.

27   HALF-SPEED? YES or NO

      AdvanceDS, RJE/3000, MRJE/3000 use your response.

      MTS AND IMF/3000 do not use your response.

28   SPEED CHANGEABLE? YES or NO

      Your response is overridden for modems with internal clocking.

Table C-1. INP and SSLC Configuration Summary (continued)

29   TRANSMISSION SPEED? 250, 300, 600, 900, 1200, 7000.

Enter the line transmission speed in characters per second.

IMF/3000 overrides your response.

```
NOTE
```

You must use a DDS Modem and a 30221D (30221-60010) cable with a V.35 hood at a speed of 7000 characters per second.

30   TRANSMISSION MODE? 0   Full duplex
                        1   Half duplex

31   PREFERRED BUFFER SIZE? 0 - 4095 words

Recommended values are:

- A 1024 word maximum for an INP.

- A 4095 word maximum for an SSLC.

- Use 1024 recommended for AdvanceDS.

- Use 500 recommended for MTS.

```
NOTE
```

MRJE/3000, RJE/3000 and IMF/3000 override your response.

32   DRIVER CHANGEABLE?

Use YES MRJE/3000, and MTS with *SSLC* only. Use NO for all other subsystems and configurations.

33   DRIVER OPTIONS? 0

43   DRIVER NAME? IOINP0 for an INP, CSSBSC0 for an SSLC

Table C-1. INP and SSLC Configuration Summary (continued)

44   PHONE LIST? YES or NO

AdvanceDS, RJE/3000, and MTS use your response. MRJE/3000 without auto-dialing and IMF/3000 override your response.

A phone list is used only for auto-dialing and when connected to an HP 30020B INP. The telephone number in item 39 of a MRJE/3000 configuration file (MRJECON*h*) always over-rides the phone list. When auto-dialing is specified for an HP 30020B, and when there is no telephone number in item 39 of the configuration file, the phone list is used. *In all other situations the phone list is used for MRJE/3000.*

MRJE/3000 reads only the first number in the phone list. This is the MRJE/3000 default number.

An HP 30020B must be connected with a Bell 801C auto-dialing unit using a special HP 30221G cable.

A NO response causes the next step to be skipped.

46   LOCAL ID SEQUENCE? id character string or (RETURN)

AdvanceDS uses your response. MTS, RJE/3000, MRJE/3000, and IMF/3000 do not use your response.

47   REMOTE ID SEQUENCE? id character string or (RETURN)

AdvanceDS uses response. MTS, RJE/3000, MRJE/3000, and IMF/3000 do not use response.

48   DEVICE CLASSES?

classname or (RETURN) for AdvanceDS, MRJE/3000, MTS, and IMF/3000.

RJLINE for RJE/3000. Additional names are optional; see *RJE/3000 Reference Manual* (30000-90047), for a discussion of the RJLINE subsystem command.

CAUTION

Do not use the same class name for both an INP and an SSLC.

67   ADDITIONAL DRIVER CHANGES?

YES for MRJE/3000 and MTS with *SSLC* only.
NO for all other subsystems and configurations.

71   ADD DRIVERS? YES or NO

72   DRIVER NAME? CSSMRJE0 for MRJE/3000 with an SSLC, CSSBSC1 for MTS with an SSLC.

LOG DEV #	DRT #	U N I T	C H A N	T Y P E	SUB TYPE	TERM TYPE	TERM SPEED	REC WIDTH	OUTPUT DEV	MODE		DRIVER NAME	DEVICE CLASSES
1	4	0	0	0	6			128	0			*IOMDISC1	SPOOL DISC
2	5	1	0	0	8			128	0			*IOMDISC1	SPOOL DISC
5	13	0	0	8	0			40	LP	JA		IOCDCD0	CARD
6	14	0	0	32	2			66	0		S	IOLPRT0	LP
7	6	0	0	24	0			128	0			IOTAPE0	TAPE
8	6	1	0	24	0			128	0			IOTAPE0	TAPE
9	6	2	0	24	0			40	LP	JA		IOTAPE0	JOBTAPE
13	18	0	0	17	0			0	0			IOINP0	INP1
20	7	0	0	16	0	10	??	40	20	JAID		IOTERM0	TERM
21	7	1	0	16	0	10	??	40	21	JAID		IOTERM0	TERM
22	7	2	0	16	0	10	??	40	22	JAID		IOTERM0	TERM
40	#13	0	0	22	0			40	0			IOMRJE0	MRJE1
41	#13	1	0	22	0			40	0			IOMRJE1	MRJE2
42	#13	2	0	22	0			67	0			IOMCONS0	MCONS
43	#13	3	0	22	0			67	0			IOMPNLP0	MLP1
44	#13	4	0	22	0			67	0			IOMPNLP0	MLP2
50	#13	10	0	22	0			40	0			IOMPNLP0	MPNCH1
51	#13	11	0	22	0			40	0			IOMPNLP0	MPNCH2
57	#13	17	0	22	0			40	0		S	IOMRDR0	MRDR1
58	#13	18	0	22	0			40	0			IOMRDR0	MRDR2

LDN	PM	PRT	LCL MOD	TC	RCV TMOUT	LCL TMOUT	CON TMOUT	MODE	TRANSMIT SPEED	TM	BUFFER SIZE	D C	DRIVER OPTIONS
13	0	1	1	1	20	60	900	OIA	600	1	1024	Y	0

LDN	CTRL LEN	PHONE NUMBER LIST	LOCAL ID SEQUENCE REMOTE ID SEQUENCE
13	0		

ADDITIONAL CS DRIVERS

```
┌─────────────┐
│    NOTE     │
└─────────────┘
```

This configuration has two printers, two punches, and two readers. More could be configured.

CONFIGURING THE HOST

Follow these guidelines when configuring the host system for communication with MRJE/3000.

CONFIGURING A JES2 SYSTEM

For a JES2 system, specify:

• Remote terminal type: S/360.

• The terminal should have:

  a. A console.
  b. A multileaving interface.
  c. The text transparency feature.

• For each remote printer configured at a remote terminal:

  a. Automatic forms mode.
  b. Automatically started printer.
  c. No FCB support.
  d. Separator pages.
  e. Printer width: 255 characters or less.

• For each remote card punch configured at a remote terminal:

  a. Automatic forms mode.
  b. Automatically started punch.
  c. Separator cards.

• For each remote card reader configured at a remote terminal: Automatically started (*hot*) card reader.

• A standard forms name of STD. in the standard forms parameter or use STD. as the name of standard forms for both printers and punches.

```
NOTE
```

If Output Management, MRJETABL, is being used, specify an entry with STD. as a *FORMID*.

• Communication line:

  a. Full or half duplex
  b. Speed: less than or equal to 9600 bits per second for communication through an SSLC. Less than or equal to 56000 bits per second for communication through an INP.
  c. EBCDIC and transparent.

- Multileaving buffer size: Not to exceed 2000 characters. A large buffer size improves performance when the communication line operates at 56Kb.

- All other generation parameters should be specified consistent with practices at the host site.

Make note of the value being configured for the number of print lines per page. This value should be used as item number 8 in the MRJE/3000 configuration file for this host.

<div align="center">

NOTE

</div>

Consult with host system operations when your communications line is configured at 56Kb. Also, configure two printer streams for better subsystem performance at this speed.

CONFIGURING A JES3 OR ASP SYSTEM

For a JES3 or ASP system, specify the following:

- Remote terminal type: S/360

- The terminal should have:

  a. A console.
  b. A multileaving interface.
  c. The text transparency feature.

- For each remote printer configured at a remote terminal:

  a. Automatically started printer.
  b. No FCB support.
  c. Printer width of 255 characters or less.
  d. Separator pages.

- For each remote card punch configured at a remote terminal:

  a. Automatically started punch.
  b. Separator cards.

- For each remote card reader configured at a remote terminal: Automatically started (*hot*) card reader.

- A standard forms name of STD. in the standard forms parameter, or use STD. as the name of standard forms for both printers and punches.

NOTE

If Output Management, MRJETABL, is being used, specify an entry with
STD. as a *FORMID*.

- Communication line:

  a. Full or half duplex
  b. Speed: less than or equal to 9600 bits per second for communication through an SSLC. Less than or
     equal to 56000 bits per second for communication through an INP.
  c. EBCDIC and transparent.

- Multileaving buffer size: Not to exceed 2000 characters. A large buffer size improves performance
  when the communication line operates at 56Kb.

- All other generation parameters should be specified consistent with practices at the host site.

Make note of the value being configured for the number of print lines per page. This value should be
used as entry number 8 in the MRJE/3000 configuration file for this host.

NOTE

Consult with host system operations when your communications line is
configured at 56Kb. Also, configure two printer streams for better
subsystem performance at this speed.

CONFIGURING A HASP SYSTEM

For a HASP system, specify:

- Terminal type: System/360, model 25 or higher.

- Line printer width: 255 characters or less.

- Console support: YES

- Transparency: YES

- Communications line:

  a. Full or half duplex
  b. Speed: less than or equal to 9600 bits per second for communication through an SSLC. Less than or
     equal to 56000 bits per second for communication through an INP.
  c. EBCDIC and transparent.

- Multileaving buffer size: Not to exceed 2000 characters. A large buffer size improves performance
  when the communication line operates at 56Kb.

- A standard forms name of STD. in the standard forms parameter, or use STD. as the name of standard forms for both printers and punches.

NOTE

If Output Management, MRJETABL, is being used, specify an entry with STD. as a *FORMID*.

- All other generation parameters should be specified consistent with practices at the host site.

Make note of the value being configured for the number of print lines per page. This value should be used as entry number 8 in the MRJE/3000 configuration file for this host.

NOTE

Consult with host system operations when your communications line is configured at 56Kb. Also, configure two printer streams for better subsystem performance at this speed.

CONFIGURING AN RSCS SYSTEM

RSCS requires DMTSML as a driver. This defines the multileaving BSC protocol for a HASP workstation, with a console, one reader, one printer, and one punch at the host system.

The host system operator must issue this command to start the line:

    START 'linkid' AUTO

```
NOTE
```

A host system operator should omit SETUP PAGES from the START command. This is a manual setup option.

These characteristics are in effect:

• Remote terminal type: S/360 is implicit from the driver DMTSML configured at the host.

• The terminal has these characteristics implied from the DMTSML driver:

   a. A console.
   b. A multileaving interface.
   c. The text transparency feature.

• One remote printer configured at a remote terminal:

   a. Automatic forms mode.
   b. Automatically started printer.
   c. No FCB support.
   d. Separator pages.
   e. Printer width: 255 characters or less.

• One remote card punch configured at a remote terminal:

   a. Automatic forms mode.
   b. Automatically started punch.
   c. Separator cards.

• One remote card reader configured at a remote terminal: Automatically started (*hot*) card reader.

• STANDARD is the default host standard forms parameter name. This is configurable.

```
NOTE
```

Output Management, file MRJETABL, should be used. Specify an entry to match the standard forms name. If the default standard forms parameter name is used, specify STANDARD as a *FORMID*.

- Communication line:

  a. Full or half duplex
  b. Speed: less than or equal to 9600 bits per second for communication through an SSLC. Less than or equal to 56000 bits per second for communication through an INP.
  c. EBCDIC and transparent.

- Multileaving buffer size: Not to exceed 2000 characters. A large buffer size improves performance when the communication line operates at 56Kb.

- All other generation parameters should be specified consistent with practices at the host site.

Only the nth line of a banner is checked. Lines 1 through $n-1$ are not checked. Use MRJEMON with the DBUG'LINES secondary entry point to determine the number of lines sent in the printer stream. This value should be used as item number 8 in the MRJE/3000 configuration file for this host.

NOTE

Consult with host system operations when your communications line is configured at 56Kb. Also, configure two printer streams for better subsystem performance at this speed.

EXIT PROCEDURE

INTRODUCTION

This appendix describes an *exit* procedure from MRJE/3000 used to process console special form *setup* messages from the host system.

EXIT PROCEDURE OPERATION

When communication with a host begins, MRJE/3000 determines that a procedure named MRJECONSOLE*h*, the exit procedure, exists in SL.PUB.SYS. It prints this message at the system console, and on $STDLIST of the job or session issuing MRJECONTROL START,*h*:

    MRJE EXIT PROCEDURE MRJECONSOLEh ACCESSED

MRJE/3000 calls MRJECONSOLE*h* whenever a console message is received from the host system. MRJECONSOLE*h* returns a Unit number, a special form identification, and a host reply command to MRJE/3000 whenever a valid special form setup message is detected.

MRJECONSOLEh PROCEDURE

An exit procedure to parse host console setup messages to change forms.

Syntax

```
Type small_int = 0..16;

Function MRJECONSOLEh (VAR WORK_AREA : PACKED ARRAY [1..10] OF CHAR;
                       VAR RECORD    : PACKED ARRAY [1..82] OF CHAR;
                           LENGTH    : 0..82;
                       VAR FORM      : PACKED ARRAY [1..8] OF CHAR;
                       VAR REPLY     : PACKED ARRAY [1..11] OF CHAR):
                                                            SMALL_INT;

{ h is the MRJE/3000 host id, an alphanumeric or blank character.}
```

```
  NOTE
```

This syntax is in PASCAL/3000.

Parameters

MRJECONSOLEh, the Function Return

The function, MRJECONSOLEh should return zero (0) for all messages received in RECORD which were not host *setup* console messages. When a MRJECONSOLEh detects a *setup* message, it should return an MPE Unit Number for the applicable pseudo printer or pseudo punch device. Printers 1 through 7 correspond to MPE Units 3 through 9, respectively. Punches 1 through 7 correspond to MPE Units 10 through 16, respectively. Any MRJECONSOLEh Function Return outside of the range of 3 through 16 is ignored by MRJE/3000.

WORK_AREA

An input and output array reserved for MRJECONSOLEh to use as its own global storage. It is initialized to ASCII blank characters by MRJE/3000 but never modified by it. MRJECONSOLEh can use WORK__AREA for its own flags.

RECORD

An input byte array up to 82 bytes long. This array contains a message sent by the host. All characters are in ASCII. The actual number of characters in RECORD is in LENGTH. While there may not be trailing blank characters in RECORD, the last character, RECORD[LENGTH], is a carriage return, a %15 or hexadecimal 0D.

LENGTH

An input variable. The actual number of characters *including the final carriage return* in RECORD is in LENGTH.

FORM

An output byte array 8 characters long. If MRJECONSOLEh issues a

legitimate Function Return, 3-16, to MRJE/3000, then this array must contain a valid form name left-justified with trailing blank characters. MRJE/3000 initializes this array to blank characters.

REPLY   An output byte array 11 characters long. This array should contain a host job entry system command to be transmitted by MRJE/3000 to the host to *start* the printer or punch corresponding to the Function Return value. See the *Discussion* for valid Function Returns. If you set the Function Return to 3, indicating Printer 1, then REPLY must contain a host job entry system command to *start* Printer 1.

If the MRJECONSOLE*h* Function Return is a value outside of the range of 3-16, then REPLY has no meaning.

Discussion

This procedure is named MRJECONSOLE*h*, where *h* corresponds to a *host ID* letter or number; otherwise this procedure is named MRJECONSOLE.

This procedure should issue a Function Return integer from 3 to 16 when a host console special forms *setup* message is detected in RECORD. If this function detects a special forms *setup* message in RECORD it should:

• Return an integer to indicate a printer or punch:

Return Value	Device
3	Printer 1
4	Printer 2
5	Printer 3
6	Printer 4
7	Printer 5
8	Printer 6
9	Printer 7
10	Punch 1
11	Punch 2
12	Punch 3
13	Punch 4
14	Punch 5
15	Punch 6
16	Punch 7

• Return a special form name, left-justified with trailing blank characters in FORM.

• Return a host console command in REPLY to *start* transmitting the next applicable data set to a printer or punch. The values of the MRJECONSOLE*h* Function Return and REPLY must correspond.

MRJECONSOLEh PROCEDURE

Example

This Pascal/3000 program contains a sample exit procedure, and is supplied with MRJE/3000 in file
Z00Z249A.HP30249.HPPL87.   It is compiled into segment MRJESEG.

```
$CHECK_ACTUAL_PARM 0;CHECK_FORMAL_PARM 0;STANDARD_LEVEL'HP3000'$
$SEGMENT 'MRJESEG';SUBPROGRAM 'MRJECONSOLEV*';XREF ON$
PROGRAM MRJE_EXIT_OB;

TYPE
  small_int          = 0..16;
  record_length      = 0..82;
  work_area_type     = packed array[1..10] of char;
  record_type        = packed array[1..82] of char;
  form_type          = packed array[1..8] of char;
  reply_type         = packed array[1..11] of char;

PROCEDURE PRINT; INTRINSIC;

FUNCTION MRJECONSOLEV (var work_area : work_area_type;
                       var console   : record_type;
                           length    : record_length;
                       var form      : form_type;
                       var reply     : reply_type) : small_int;
```

This function is called by MRJE/3000 with *host id* V to parse *setup* messages. A typical message
generated by a host running VM/370 with RSCS follows:

```
DTMAXM113I LINK DIAL01 PRINT MOUNT REQUIRED CLASS * FORM formid AUTO
1234567890123456789012345678901234567890123456789012345678901234567890123456789012345678
```

The string formid at column 58 is the name of the form to be mounted on Printer 1, MPE Unit 3. This
function assumes all forms output is destined for Printer 1. The string DMTAXM113I uniquely identifies
this message. The command to be sent back to the host to tell it to *start* Printer 1 is the START string
passed into the reply array.

```
VAR
  char_count,
  form_pos : integer;       {Location of the form name in the record}
  cmd_id : string[10];      {ID of the "change forms" command}

begin

  mrjeconsolev := 0;        {Initialize}
  if (length > 10) then     {Insure there are enough chars to check}
    begin
      strmove(10,console,1,cmd_id,1);  {Move to string variable}
      setstrlen(cmd_id,10);      (Insure correct length for str compare)
      if cmd_id = 'DMTAXM113I' then
      begin                         {'Change Forms' cmd. received!}
```

```
        char_count := 0;
        form_pos := 58;
        print(console,-length,0); {This prints the record to $STDLIST}
        while (console[form_pos + char_count] <> ' ') and (char_count < 8) do
          char_count := char_count + 1;        {Find position of the blank}
        strmove(char_count,console,form_pos,form,1);    {Move to 'FORM'}
        reply := 'START';          {To return 'start' command}
        mrjeconsolev := 3;         {Unit 3, printer 1}
      end;                         {If change forms command received}
    end;                           {If length > 10}
end;                               {Function mrjeconsolev}

begin
{Null outer block}
end.
```

Installing an Exit Procedure

This sample stream job compiles a Pascal/3000 source file, ZOOZ249A.HP30249.HPPL87 into *usl* file MRJEUSL.PUB.SYS Then SYSDUMP adds the segment MRJESEG, which contains the procedure MRJECONSOLEV as a relocatable binary module, to the system SL.

```
!job install,manager.sys,pub
!purge mrjeusl
!build mrjeusl;code=usl
!continue
!pascal ZOOZ249A.HP30249.HPPL87,mrjeusl
!if jcw<warn then
! file systape;dev=tape
! sysdump *systape
    Y                <<CHANGES?>>
                     <<SYSTEM ID>>
                     <<MEMORY SIZE>>
    N                <<IO CHANGES>>
    N                <<TABLE CHANGES>>
    N                <<MISC CHANGES>>
    N                <<LOGGING CHANGES>>
    N                <<DISC ALLOCATION CHANGES>>
    N                <<SCHEDULING CHANGES>>
    N                <<SEGMENT LIMIT CHANGES>>
    N                <<SYSTEM PROGRAM CHANGES>>
    Y                <<SYSTEM SL CHANGES>>
    N                <<LIST LIBRARY>>
    N                <<DELETE SEGMENT>>
    N                <<REPLACE SEGMENT>>
    Y                <<ADD SEGMENT>>
    MRJESEG,MRJEUSL  <<SEG NAME, USL FILE NAME>>
                     <<RETURN FOR NEXT SEGMENT PROMPT>>
    N                <<LIST LIBRARY>>
    9/9/99           <<DUMP DATE>>
    MRJE@.PUB.SYS    <<DUMP FILE SUBSETS>>
    N                <<LIST FILES>>
! TELLOP SYSDUMP COMPLETED.
! TELLOP PERFORM AN UPDATE FROM THE SYSTAPE.
!ELSE
! TELLOP PROGRAM COMPILE FAILED.
!END IF
!EOJ
```

INTRODUCTION

MRJE/3000 can match environment file names with form names to print host job output on HP 2680A Laser Printers; however, the more flexible method described in *Output Management* is preferred.

Method

In order to route MRJE job output to an HP2680A, the printer must be spooled and must have been configured with a device class of LPS.

It is not necessary to use Environment Files when directing output to the HP2680A; some or all of the output data sets from a job may be printed without using Environment Files. If Environment Files are not used, output will be printed as on a standard printer.

Do the following to print output using Environment Files:

- **The group ENV and account HP2680 are required..** If it does not exist, it must be created.

- Log on to group ENV and account HP2680 and build your Environment Files.

NOTE

The names of Environment Files to be referenced by MRJE/3000 as special forms must be *four* characters long, or less.

- Enter the name of the file in the *forms* subparameter of the SYSOUT parameter in your job's JCL. The *forms* subparameter is the third subparameter of the SYSOUT parameter in the DD statement.

- Then, when your output is received from the host, MRJE/3000 will use the file named in *forms* to create the forms and print the output contained in the SYSOUT data set. If MRJE/3000 is unable to find the Environment File in ENV.HP2680, a forms message for the data set will be sent to the console, asking the operator to mount special forms.

- Different data sets in the same job can specify different Environment Files, or no file at all.

If you are using alternate character sets, include the special codes needed to switch from one set to the other. The special codes may be built into each ASCII character in your data, or the ASCII Shift-In and Shift-Out characters may be embedded in the data to cause a shift from one set to the other. The special code is built into each character by turning the character's eighth bit on or off. When the bit is off, the character is printed from your primary character set; when the bit is on it is printed from your secondary character set. As an alternative to this method, you may embed the Shift-In and Shift-Out characters in

each data record wherever you want to switch between character sets. The Shift-In character (octal 17) causes the characters that follow to be from your primary set. Shift-Out (octal 16) causes the subsequent characters to be from your secondary character set. Each Shift-In or Shift-Out remains in force until the end of the record, or until another Shift-In or Shift-Out character is encountered.

If no special codes are included in your data, all characters will be printed from your primary character set.

Environment Files cannot be specified for JCL message output.

Example of the Use of Environment Files

```
//EXAMPLE JOB (ACCOUNT),PROGRAMMER
//STEP EXEC PGM=TEST2680
//MAINOUT DD SYSOUT=(A,,F001)
//SECOUT DD SYSOUT=(A,,F002)
```

In this example, the output for MAINOUT will be printed using Environment File F001.ENV.HP2680. The output for SECOUT will be printed using Environment File F002.ENV.HP2680. No forms-mount messages will be displayed when the output is printed.

If MRJE/3000 is unable to find file F002.ENV.HP2680, a forms mount message for SECOUT will be displayed on the HP 3000 system console.

Refer to *Interactive Formatting System Reference Guide*, HP 36580-90001, for more information on the use of Environment Files.

GLOSSARY

INTRODUCTION

This is a selected glossary of terms related to MRJE/3000.

These are some comprehensive data processing dictionaries:

- *Computer Dictionary*, C. J. Sippl & R. J. Sippl; Howard W. Sams & Co, Inc. ,1982

- *Data Communications Dictionary*, C. J. Sippl; Van Nostrand Reinhold, 1976

- *Data Processing Glossary* (IBM GC20-1699)

!	The initial character of a *Global File Equation* reference in a SUBMIT command.
"	A pair of *double* quotation marks identify an MPE device class name, *"name"*.
#	This (#) is the MRJE/3000 subsystem prompting character for terminal input. It is displayed at the terminal of a user whenever MRJE/3000 is ready to accept a command.
&	When used at the end of an MRJE/3000 command line, or an entry in MRJETABL, an ampersand (&) that information is continued on the next line.
'	A pair of *single* quotation marks indentifies an entry in MRJETABL, *'name'*.
, and /	See *delimiters*.
actual file	A file resident on disc.

blanks

Commands can be preceded by blanks; they need not start in column 1 of a card image. At least one blank or a comma is required to separate command parameters.

Valid Commands:

```
#DISPLAY C,9
#DISPLAY C, 9
#  DISPLAY C,9
```

Invalid Command:

```
#DISPLAYC,9
```

card	The word *card* is interchangeable with *card image*. Each represents an 80-character record of stored information.
Console Operator, MRJE/3000	The person who operates a HP3000 system console and I/O devices, and any other person authorized to control a communication link between a HP3000 and a remote host.
current host	The host to which all jobs and host console commands are sent, until another host is selected by means of the HOST command. Unless the MRJE/3000 user issues the HOST command, the *current host* is always the same as the *default host*.
default host	The host system which is selected, by default, for MRJE/3000 job and host console command processing when an MRJE command is issued from MPE. All jobs and commands are sent to this host until another host is specified by a HOST command. A *default host* is also a host system whose communication line is affected when a *Console Operator* issues an MRJECONTROL command from MPE without specifying a *host ID*.

delimiters   Commas are optional except within *joblist* or *itemlist*. A slash (*/*) signifies a range of values beginning with the number to its left of the slash and ending with the number to the right.

Valid Commands:

    #DISPLAY JOB 25
    #DISPLAY,JOB,25

    #ALTER 5,7   *Items 5 and 7 are affected.*
    #ALTER 5/7   *Items 5 through 7 are affected.*

Invalid Command:

    #ALTER 5 6

A comma must separate 5 from 6.

Form ID   A form identifier in MRJETABL. A *Form ID* is a string of eight characters, or less. It is composed of alphanumeric characters, *IBM National* characters (#, $, or @), or a period. A *Form ID* reference, as in a SUBMIT command, or a configuration file item, must be delimited by single quote marks.

host   A mainframe system on which jobs and host console commands submitted and executed through MRJE/3000. It is not an HP3000. Multiple hosts can be attached to an HP3000.

host ID   An alphanumeric name by which a host is identified. A user of MRJE/3000 specifies a *host ID*, or its first character, in the *hostid* parameter that is part of several MRJE/3000 commands. MRJE/3000 uses only the first character of the host ID in its communication with MRJE/3000 Users and Managers. If a blank character or no character is used as a *host ID*, the default host is intended.

host number   A number the host system assigns to a job when it is received. The user need not usually remember this number.

itemlist or joblist   Some commands permit a list or range of parameters to be specified:

```
job#,job#/job#

    . . . .

jobname,jobname,jobname

    . . . .

item# [,item#][/item#]
```

In these commands the parameters can be repeated and *job#* and *jobname* intermixed.
```
ALTER 25
ALTER 2/7,25,1,12/15

CANCEL JOB 6
CANCEL JOB 3/5, JOBXYZ,8
```

The last command cancels jobs 3 through 5 , JOBXYZ, and 8.

job name   A user-assigned name to identify a job. It need not be unique. The MRJE/3000 User specifies *job names* on host system job control language JOB cards in job input files, and in the *jobname* parameter that is part of several MRJE/3000 commands.

job number   A number MRJE/3000 assigns to a job when it is submitted. Note this number for future commands that reference the job.

MRJE/3000 Manager *or* Manager, capitalized   The person who plans MRJE/3000 use and enters MRJE/3000 manager commands to build MRJE/3000 Configuration Files and to monitor the activity of the subsystem.

MRJE/3000 User *or* User, capitalized   A person who accesses the MRJE/3000 subsystem, in either batch or session mode, to submit jobs for processing on a host system. A *Manager* can also be an *MRJE/3000 User*.

output   See *solicited output* and *unsolicited output*.

solicited output   Solicited output consists of data sets received from a host that are recognized by MRJE/3000 as jobs that were submitted, *solicited*, through it. Output received is recognized as originating from a remote workstation.

system file   A system defined file designator indicating those files that MPE identifies for a job or session. These are $STDIN, $STDINX, $STDLIST, $NULL, $OLDPASS, and $NEWPASS.

unsolicited output   Unsolicited output consists of data sets received from a host that are not recognized by MRJE/3000 as jobs that were submitted, *solicited*, through it. Output received is *not* recognized as originating from a remote workstation.

user
(in lower case)

Anyone; a *Manager*, *User*, or *Console Operator* who uses MRJE/3000.

ASCII/EBCDIC CHARACTER TABLES

Table H-1. ASCII Character Set

ASCII Character	First Character Octal Equivalent	Second Character Octal Equivalent	ASCII Character	First Character Octal Equivalent	Second Character Octal Equivalent
A	040400	000101	ACK	003000	000006
B	041000	000102	BEL	003400	000007
C	041400	000103	BS	004000	000010
D	042000	000104	HT	004400	000011
E	042400	000105	LF	005000	000012
F	043000	000106	VT	005400	000013
G	043400	000107	FF	006000	000014
H	044000	000110	CR	006400	000015
I	044400	000111	SO	007000	000016
J	045000	000112	SI	007400	000017
K	045400	000113	DLE	010000	000020
L	046000	000114	DC1	010400	000021
M	046400	000115	DC2	011000	000022
N	047000	000116	DC3	011400	000023
O	047400	000117	DC4	012000	000024
P	050000	000120	NAK	012400	000025
Q	050400	000121	SYN	013000	000026
R	051000	000122	ETB	013400	000027
S	051400	000123	CAN	014000	000030
T	052000	000124	EM	014400	000031
U	052400	000125	SUB	015000	000032
V	053000	000126	ESC	015400	000033
W	053400	000127	FS	016000	000034
X	054000	000130	GS	016400	000035
Y	054400	000131	RS	017000	000036
Z	055000	000132	US	017400	000037
			SPACE	020000	000040
a	060400	000141	!	020400	000041
b	061000	000142	"	021000	000042
c	061400	000143	#	021400	000043
d	062000	000144	$	022000	000044
e	062400	000145	%	022400	000045
f	063000	000146	&	023000	000046
g	063400	000147	'	023400	000047
h	064000	000150	(	024000	000050
i	064400	000151	)	024400	000051
j	065000	000152	*	025000	000052
k	065400	000153	+	025400	000053
l	066000	000154	,	026000	000054
m	066400	000155	-	026400	000055
n	067000	000156	.	027000	000056
o	067400	000157	/	027400	000057
p	070000	000160	:	035000	000072
q	070400	000161	;	035400	000073
r	071000	000162	<	036000	000074
s	071400	000163	=	036400	000075
t	072000	000164	>	037000	000076
u	072400	000165	?	037400	000077
v	073000	000166	@	040000	000100
w	073400	000167	[	055400	000133
x	074000	000170	\	056000	000134
y	074400	000171	]	056400	000135
z	075000	000172	Δ	057000	000136
			—	057400	000137
0	030000	000060	`	060000	000140
1	030400	000061	{	075400	000173
2	031000	000062	|	076000	000174
3	031400	000063	}	076400	000175
4	032000	000064	~	077000	000176
5	032400	000065	DEL	077400	000177
6	033000	000066			
7	033400	000067			
8	034000	000070			
9	034400	000071			
NUL	000000	000000			
SOH	000400	000001			
STX	001000	000002			
ETX	001400	000003			
EOT	002000	000004			
ENQ	002400	000005			

First Character — Second Character

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |

Table H-2. ASCII-EBCDIC-Hollerith Conversions

HOW TO USE THIS TABLE

- The table is sorted by character code, each code being represented by its decimal, octal, and hexadecimal equivalent.

- Each row of the table gives the ASCII and EBCDIC meaning of the character code, the ASCII↔EBCDIC conversion code, and the Hollerith representation (punched card code) for the ASCII character.

The following examples describe several ways of using the table:

Example 1: Suppose you want to determine the ASCII code for the $ character. Scan down the ASCII graphic column until you locate $, then look left on that row to find the character code — 36 (dec), 044 (oct), and 24 (hex). This is the code used by an ASCII device (terminal, printer, computer, etc.) to represent the $ character. Its Hollerith punched card code is 11-3-8.

Example 2: The character code 5B (hex) is the EBCDIC code for what character? Also, when 5B is converted to ASCII (for example, by FCOPY with the EBCDICIN option), what is the octal character code? First, locate 5B in the hex character code column and move right on that row to the EBCDIC graphic which is $. The next column to the right gives the conversion to ASCII, 044. As a check, find 044 (oct) in the character code column, look right to the ASCII graphic column and note that $ converted to EBCDIC is 133 (oct) which equals 5B (hex).

CHAR CODE			ASCII			EBCDIC	
Dec	Oct	Hex	Cntl/Gph	to EBCDIC (Oct)	Hollerith	Cntl/Gph	to ASCII (Oct)
0	000	00	NUL	000	12-0-1-8-9	NUL	000
1	001	01	SOH	001	12-1-9	SOH	001
2	002	02	STX	002	12-2-9	STX	002
3	003	03	ETX	003	12-3-9	ETX	003
4	004	04	EOT	067	7-9	PF	234
5	005	05	ENQ	055	0-5-8-9	HT	011
6	006	06	ACK	056	0-6-8-9	LC	206
7	007	07	BEL	057	0-7-8-9	DEL	177
8	010	08	BS	026	11-6-9		227
9	011	09	HT	005	12-5-9		215
10	012	0A	LF	045	0-5-9	SMM	216
11	013	0B	VT	013	12-3-8-9	VT	013
12	014	0C	FF	014	12-4-8-9	FF	014
13	015	0D	CR	015	12-5-8-9	CR	015
14	016	0E	SO	016	12-6-8-9	SO	016
15	017	0F	SI	017	12-7-8-9	SI	017
16	020	10	DLE	020	12-11-1-8-9	DLE	020
17	021	11	DC1	021	11-1-9	DC1	021
18	022	12	DC2	022	11-2-9	DC2	022
19	023	13	DC3	023	11-3-9	TM	023
20	024	14	DC4	074	4-8-9	RES	235
21	025	15	NAK	075	5-8-9	NL	205
22	026	16	SYN	062	2-9	BS	010
23	027	17	ETB	046	0-6-9	IL	207
24	030	18	CAN	030	11-8-9	CAN	030
25	031	19	EM	031	11-1-8-9	EM	031
26	032	1A	SUB	077	7-8-9	CC	222
27	033	1B	ESC	047	0-7-9	CU1	217
28	034	1C	FS	034	11-4-8-9	IFS	034
29	035	1D	GS	035	11-5-8-9	IGS	035
30	036	1E	RS	036	11-6-8-9	IRS	036
31	037	1F	US	037	11-7-8-9	IUS	037
32	040	20	SP	100	Blank	DS	200
33	041	21	!	117	12-7-8	SOS	201
34	042	22	"	177	7-8	FS	202
35	043	23	#	173	3-8		203
36	044	24	$	133	11-3-8	BYP	204
37	045	25	%	154	0-4-8	LF	012
38	046	26	&	120	12	ETB	027
39	047	27	'	175	5-8	ESC	033
40	050	28	(	115	12-5-8		210
41	051	29	)	135	11-5-8		211
42	052	2A	*	134	11-4-8	SM	212
43	053	2B	+	116	12-6-8	CU2	213
44	054	2C	,	153	0-3-8		214
45	055	2D	-	140	11	ENQ	005
46	056	2E	.	113	12-3-8	ACK	006
47	057	2F	/	141	0-1	BEL	007

CHAR CODE			ASCII			EBCDIC	
Dec	Oct	Hex	Cntl/Gph	to EBCDIC (Oct)	Hollerith	Cntl/Gph	to ASCII (Oct)
48	060	30	0	360	0		220
49	061	31	1	361	1		221
50	062	32	2	362	2	SYN	026
51	063	33	3	363	3		223
52	064	34	4	364	4	PN	224
53	065	35	5	365	5	RS	225
54	066	36	6	366	6	UC	226
55	067	37	7	367	7	EOT	004
56	070	38	8	370	8		230
57	071	39	9	371	9		231
58	072	3A	:	172	2-8		232
59	073	3B	;	136	11-6-8	CU3	233
60	074	3C	<	114	12-4-8	DC4	024
61	075	3D	=	176	6-8	NAK	025
62	076	3E	>	156	0-6-8		236
63	077	3F	?	157	0-7-8	SUB	032
64	100	40	@	174	4-8	SP	040
65	101	41	A	301	12-1		240
66	102	42	B	302	12-2		241
67	103	43	C	303	12-3		242
68	104	44	D	304	12-4		243
69	105	45	E	305	12-5		244
70	106	46	F	306	12-6		245
71	107	47	G	307	12-7		246
72	110	48	H	310	12-8		247
73	111	49	I	311	12-9		250
74	112	4A	J	321	11-1	¢	133
75	113	4B	K	322	11-2	.	056
76	114	4C	L	323	11-3	<	074
77	115	4D	M	324	11-4	(	050
78	116	4E	N	325	11-5	+	053
79	117	4F	O	326	11-6			041
80	120	50	P	327	11-7	&	046
81	121	51	Q	330	11-8		251
82	122	52	R	331	11-9		252
83	123	53	S	342	0-2		253
84	124	54	T	343	0-3		254
85	125	55	U	344	0-4		255
86	126	56	V	345	0-5		256
87	127	57	W	346	0-6		257
88	130	58	X	347	0-7		260
89	131	59	Y	350	0-8		261
90	132	5A	Z	351	0-9	!	135
91	133	5B	[	112	12-2-8	$	044
92	134	5C	\	340	0-2-8	*	052
93	135	5D	]	132	11-2-8	)	051
94	136	5E	^	137	11-7-8	;	073
95	137	5F	_	155	0-5-8	¬	136

Table H-2. ASCII-EBCDIC-Hollerith Conversions (continued)

Dec	Oct	Hex	ASCII Cntl/Gph	ASCII to EBCDIC (Oct)	Hollerith	EBCDIC Cntl/Gph	EBCDIC to ASCII (Oct)
96	140	60	`	171	1-8	–	055
97	141	61	a	201	12-0-1	/	057
98	142	62	b	202	12-0-2		262
99	143	63	c	203	12-0-3		263
100	144	64	d	204	12-0-4		264
101	145	65	e	205	12-0-5		265
102	146	66	f	206	12-0-6		266
103	147	67	g	207	12-0-7		267
104	150	68	h	210	12-0-8		270
105	151	69	i	211	12-0-9		271
106	152	6A	j	221	12-11-1	!	174
107	153	6B	k	222	12-11-2	,	054
108	154	6C	l	223	12-11-3	%	045
109	155	6D	m	224	12-11-4	_	137
110	156	6E	n	225	12-11-5	>	076
111	157	6F	o	226	12-11-6	?	077
112	160	70	p	227	12-11-7		272
113	161	71	q	230	12-11-8		273
114	162	72	r	231	12-11-9		274
115	163	73	s	242	11-0-2		275
116	164	74	t	243	11-0-3		276
117	165	75	u	244	11-0-4		277
118	166	76	v	245	11-0-5		300
119	167	77	w	246	11-0-6		301
120	170	78	x	247	11-0-7		302
121	171	79	y	250	11-0-8	`	140
122	172	7A	z	251	11-0-9	:	072
123	173	7B	{	300	12-0	#	043
124	174	7C	|	152	12-11	@	100
125	175	7D	}	320	11-0	'	047
126	176	7E	~	241	11-0-1	=	075
127	177	7F	DEL	007	12-7-9	"	042
128	200	80		040	11-0-1-8-9		303
129	201	81		041	0-1-9	a	141
130	202	82		042	0-2-9	b	142
131	203	83		043	0-3-9	c	143
132	204	84		044	0-4-9	d	144
133	205	85		025	11-5-9	e	145
134	206	86		006	12-6-9	f	146
135	207	87		027	11-7-9	g	147
136	210	88		050	0-8-9	h	150
137	211	89		051	0-1-8-9	i	151
138	212	8A		052	0-2-8-9		304
139	213	8B		053	0-3-8-9		305
140	214	8C		054	0-4-8-9		306
141	215	8D		011	12-1-8-9		307
142	216	8E		012	12-2-8-9		310
143	217	8F		033	11-3-8-9		311
144	220	90		060	12-11-0-1-8-9		312
145	221	91		061	1-9	j	152
146	222	92		032	11-2-8-9	k	153
147	223	93		063	3-9	l	154
148	224	94		064	4-9	m	155
149	225	95		065	5-9	n	156
150	226	96		066	6-9	o	157
151	227	97		010	12-8-9	p	160
152	230	98		070	8-9	q	161
153	231	99		071	1-8-9	r	162
154	232	9A		072	2-8-9		313
155	233	9B		073	3-8-9		314
156	234	9C		004	12-4-9		315
157	235	9D		024	11-4-9		316
158	236	9E		076	6-8-9		317
159	237	9F		341	11-0-1-9		320
160	240	A0		101	12-0-1-9		321
161	241	A1		102	12-0-2-9	~	176
162	242	A2		103	12-0-3-9	s	163
163	243	A3		104	12-0-4-9	t	164
164	244	A4		105	12-0-5-9	u	165
165	245	A5		106	12-0-6-9	v	166
166	246	A6		107	12-0-7-9	w	167
167	247	A7		110	12-0-8-9	x	170
168	250	A8		111	12-1-8	y	171
169	251	A9		121	12-11-1-9	z	172
170	252	AA		122	12-11-2-9		322
171	253	AB		123	12-11-3-9		323
172	254	AC		124	12-11-4-9		324
173	255	AD		125	12-11-5-9		325
174	256	AE		126	12-11-6-9		326
175	257	AF		127	12-11-7-9		327
176	260	B0		130	12-11-8-9		330
177	261	B1		131	11-1-8		331
178	262	B2		142	11-0-2-9		332
179	263	B3		143	11-0-3-9		333
180	264	B4		144	11-0-4-9		334
181	265	B5		145	11-0-5-9		335
182	266	B6		146	11-0-6-9		336
183	267	B7		147	11-0-7-9		337
184	270	B8		150	11-0-8-9		340
185	271	B9		151	0-1-8		341
186	272	BA		160	12-11-0		342
187	273	BB		161	12-11-0-1-9		343
188	274	BC		162	12-11-0-2-9		344
189	275	BD		163	12-11-0-3-9		345
190	276	BE		164	12-11-0-4-9		346
191	277	BF		165	12-11-0-5-9		347
192	300	C0		166	12-11-0-6-9	{	173
193	301	C1		167	12-11-0-7-9	A	101
194	302	C2		170	12-11-0-8-9	B	102
195	303	C3		200	12-0-1-8	C	103
196	304	C4		212	12-0-2-8	D	104
197	305	C5		213	12-0-3-8	E	105
198	306	C6		214	12-0-4-8	F	106
199	307	C7		215	12-0-5-8	G	107
200	310	C8		216	12-0-6-8	H	110
201	311	C9		217	12-0-7-8	I	111
202	312	CA		220	12-11-1-8		350
203	313	CB		232	12-11-2-8		351
204	314	CC		233	12-11-3-8	ʃ	352
205	315	CD		234	12-11-4-8		353
206	316	CE		235	12-11-5-8	⊔	354
207	317	CF		236	12-11-6-8		355
208	320	D0		237	12-11-7-8	}	175
209	321	D1		240	11-0-1-8	J	112
210	322	D2		252	11-0-2-8	K	113
211	323	D3		253	11-0-3-8	L	114
212	324	D4		254	11-0-4-8	M	115
213	325	D5		255	11-0-5-8	N	116
214	326	D6		256	11-0-6-8	O	117
215	327	D7		257	11-0-7-8	P	120
216	330	D8		260	12-11-0-1-8	Q	121
217	331	D9		261	12-11-0-1	R	122
218	332	DA		262	12-11-0-2		356
219	333	DB		263	12-11-0-3		357
220	334	DC		264	12-11-0-4		360
221	335	DD		265	12-11-0-5		361
222	336	DE		266	12-11-0-6		362
223	337	DF		267	12-11-0-7		363
224	340	E0		270	12-11-0-8	\	134
225	341	E1		271	12-11-0-9		237
226	342	E2		272	12-11-0-2-8	S	123
227	343	E3		273	12-11-0-3-8	T	124
228	344	E4		274	12-11-0-4-8	U	125
229	345	E5		275	12-11-0-5-8	V	126
230	346	E6		276	12-11-0-6-8	W	127
231	347	E7		277	12-11-0-7-8	X	130
232	350	E8		312	12-0-2-8-9	Y	131
233	351	E9		313	12-0-3-8-9	Z	132
234	352	EA		314	12-0-4-8-9		364
235	353	EB		315	12-0-5-8-9		365
236	354	EC		316	12-0-6-8-9	Ⱶ	366
237	355	ED		317	12-0-7-8-9		367
238	356	EE		332	12-11-2-8-9		370
239	357	EF		333	12-11-3-8-9		371
240	360	F0		334	12-11-4-8-9	0	060
241	361	F1		335	12-11-5-8-9	1	061
242	362	F2		336	12-11-6-8-9	2	062
243	363	F3		337	12-11-7-8-9	3	063
244	364	F4		352	11-0-2-8-9	4	064
245	365	F5		353	11-0-3-8-9	5	065
246	366	F6		354	11-0-4-8-9	6	066
247	367	F7		355	11-0-5-8-9	7	067
248	370	F8		356	11-0-6-8-9	8	070
249	371	F9		357	11-0-7-8-9	9	071
250	372	FA		372	12-11-0-2-8-9	|	372
251	373	FB		373	12-11-0-3-8-9		373
252	374	FC		374	12-11-0-4-8-9		374
253	375	FD		375	12-11-0-5-8-9		375
254	376	FE		376	12-11-0-6-8-9		376
255	377	FF		377	12-11-0-7-8-9	EO	377

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