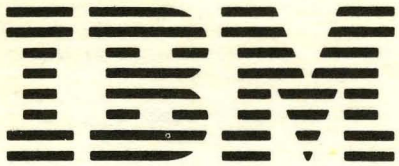

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IBM System/34
Operator's Guide

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IBM System/34
Operator's Guide

Eighth Edition (January 1982)

This is a major revision of, and obsoletes, SC21-5158-6. See Chapters 2, 3, and 4 for additions to the CHANGE and STATUS commands. Additional changes or additions to the text and illustrations are indicated by a vertical line to the left of the change or addition.

This edition applies to release 8, modification 0 of IBM System/34 and the System Support Program Product (5726-SS1), Utilities Program Product (5726-UT1), RPG II Program Product (5726-RG1), FORTRAN IV Program Product (5726-FO1), Basic Assembler and Macro Processor Program Product (5726-AS1), COBOL Program Product (5726-CB1), BASIC Program Product (5726-BA1), Ideographic Generator/Sort Program Product (5726-IG1; Far East countries only), and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

Changes are periodically made to the information herein; these changes will be reported in Technical Newsletters or in new editions of this publication.

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This manual provides the information you need to operate the IBM System/34 and the System Support Program Product (5726-SS1). In addition, this manual provides the information you need to run the Utilities Program Product (5726-UT1), RPG II Program Product (5726-RG1), FORTRAN IV Program Product (5726-FO1), Basic Assembler and Macro Processor Program Product (5726-AS1), COBOL Program Product (5726-CB1), BASIC Program Product (5726-BA1), and the Ideographic Generator/Sort Program Product (5726-IG1; Far East countries only).

This manual explains the following:

- How to operate a display station
- How to operate a subconsole display station
- How to operate the system console
- How to operate the Utilities Program Product
- How to operate the RPG II, FORTRAN IV, Basic Assembler and Macro Processor, COBOL, and BASIC Program Products
- Data communications operation
- Problem determination information

The ideographic version of the SSP, the Ideographic Generator/Sort Program Product, and all ideographic devices are available in Far East countries only.

Note: This manual follows the convention that *he* means *he* or *she.*

Related Publications

- *IBM System/34 Displayed Messages Guide,* SC21-5159
- *IBM System/34 System Support Reference Manual,* SC21-5155
- *IBM System/34 Installation and Modification Reference Manual: Program Products and Physical Setup,* SC21-7689
- *IBM System/34 Command and OCL Statements Reference Summary,* GX21-7690
- *IBM System/34 Planning Guide,* GC21-5154
- *IBM System/34 Data Communications Reference Manual,* SC21-7703
- *IBM System/34 Data File Utility Reference Manual,* SC21-7656
- *IBM System/34 Source Entry Utility Reference Manual,* SC21-7657
- *IBM System/34 Sort Reference Manual,* SC21-7658
- *IBM System/34 Work Station Utility Reference Manual,* SC21-7663
- *IBM System/34 RPG II Reference Manual,* SC21-7667
- *IBM System/34 Basic Assembler and Macro Processor Reference Manual,* SC21-7705
- *IBM 5251 Display Station Models 1 and 11/5252 Dual Display Station Operator's Guide,* GA21-9248
- *IBM 5251 Models 2 and 12 Display Station Operator's Guide,* GA21-9323
- *IBM 5256 Printer Operator's Guide,* GA21-9260
- *IBM 5211 Printer Models 1 and 2 Component Description and Operator's Guide,* GA24-3658
- *IBM System/34 Screen Design Aid Programmer's Guide and Reference Manual,* SC21-7716
- *IBM System/34 FORTRAN IV Reference Manual,* SC21-7706
- *IBM 3262 Printer Models A1 and B1 Component Description and Operator's Guide,* GA33-1530
- *IBM System/34 Interactive Communications Feature Reference Manual,* SC21-7751
- *IBM System/34 System Measurement Facility Reference Manual,* SC21-7828

- *IBM System/34 COBOL Reference Manual*, SC21-7741
- *IBM System/34 Concepts and Design Guide*, SC21-7742
- *IBM System/34 BASIC Reference Manual*, SC21-7835
- *IBM System/34 3270 Device Emulation User's Guide*, SC21-7868
- *IBM System/34 Bibliography*, GH30-0231
- *IBM System/34 Master Index*, SC21-7739
- *IBM 5250 Information Display System (Ideographic Language Implementation) Introduction, Model 1* (Japan), GA09-1621; *Model 2* (Taiwan), GA09-1625
- *IBM System/34 Character Generator Utility User's Guide and Reference Manual*, SC21-7845
- *IBM System/34 Ideographic Sort Reference Manual*, SC21-7850
- *IBM 5255 Display Station Operator's Guide, Model 1*, GA09-1623
- *IBM 5255 Display Station Operator's Guide, Model 2*, GA09-1626
- *IBM 5225 Printer Models 1, 2, 3, and 4 Operator's Guide*, GA34-0054
- *IBM 5225 Printer Models 11 and 12 Operator's Guide*, GA34-0089
- *IBM 5224 Printer Models 1 and 2 Operator's Guide*, GA34-0092
- *IBM 5224 Printer Model 12 Operator's Guide*, GA34-0095

IBM publications are available that describe the IBM-supplied ideographic characters and list their corresponding IBM codes. Contact your country representative for further information.

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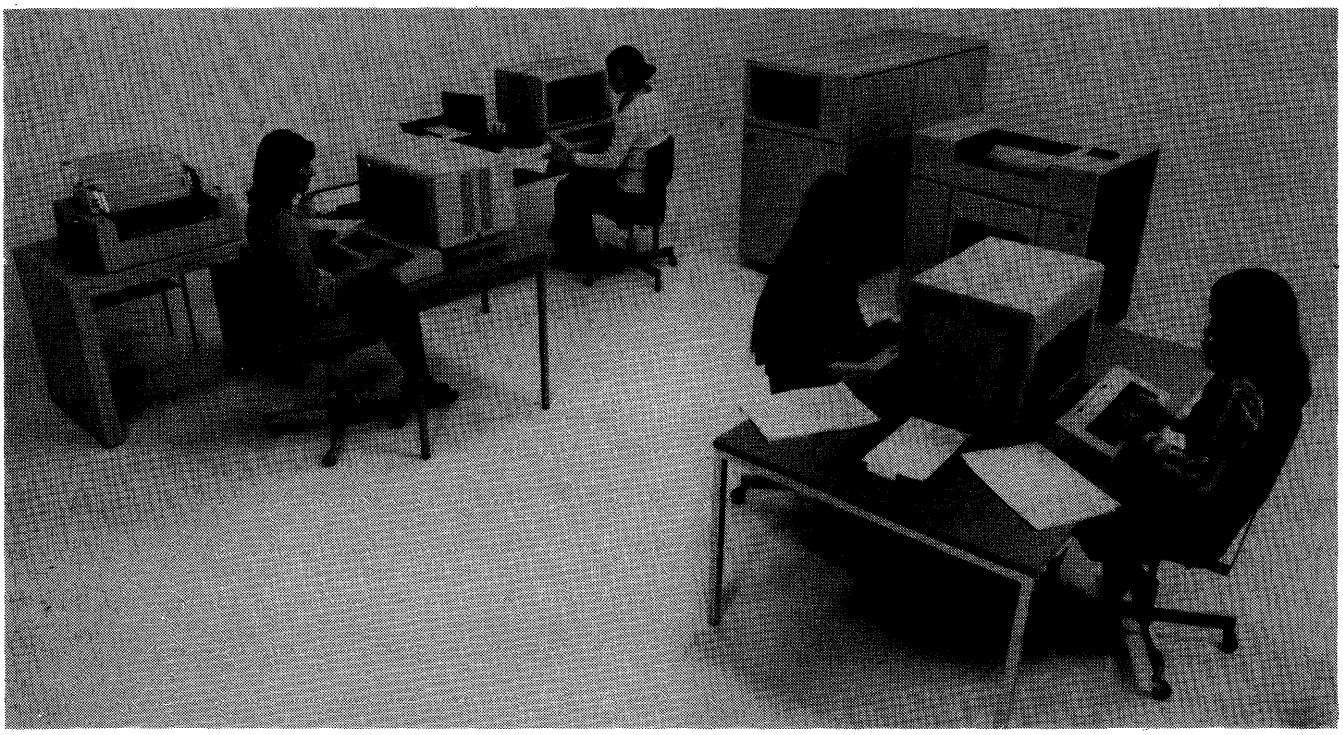
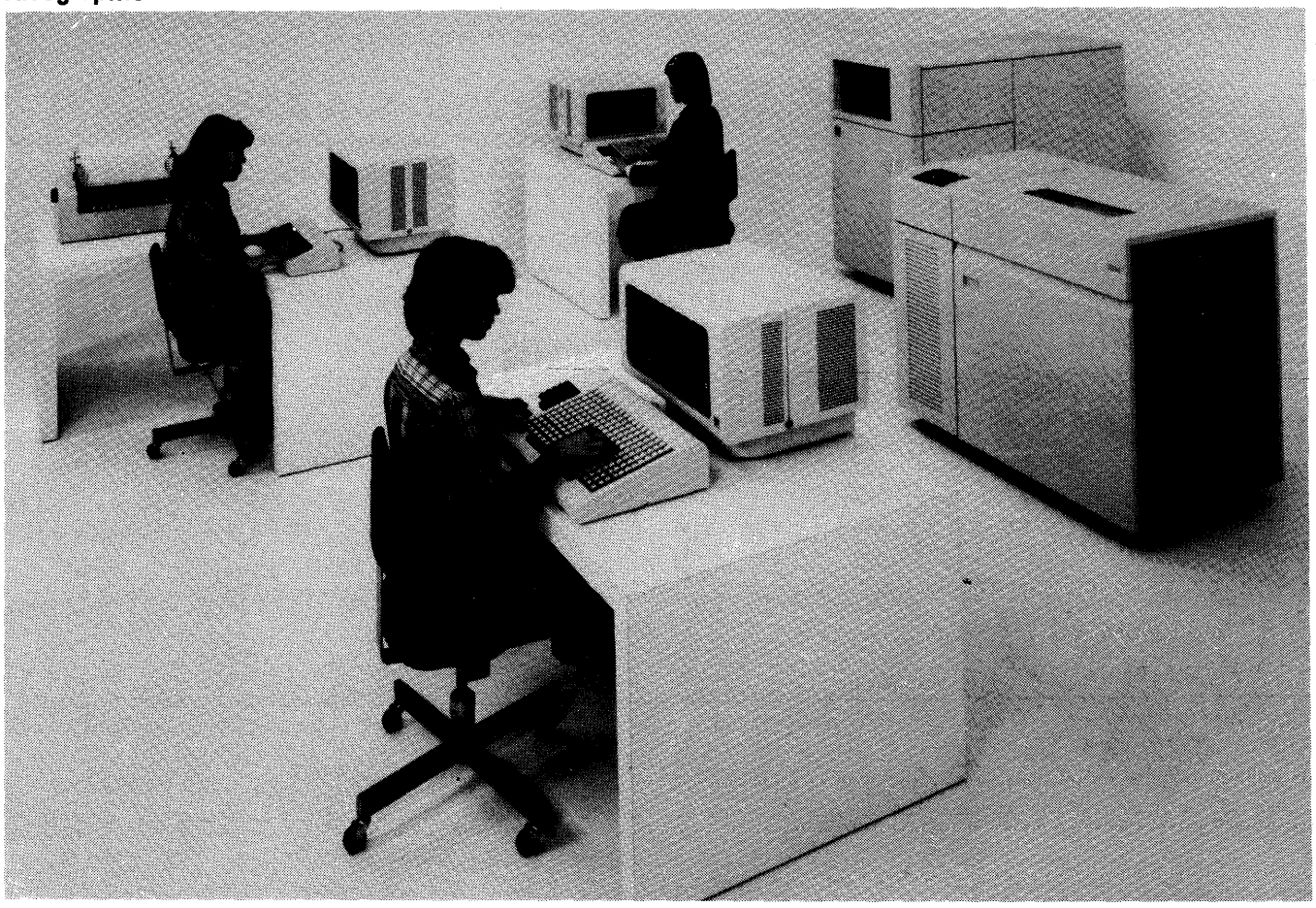
Nonideographic



Ideographic



Note: Ideographic devices shown in this publication are design models.

Chapter 1. Introduction

As an operator, you can use the IBM System/34 to perform a wide variety of data processing functions. You may be a display station operator, a subconsole operator, or a system console operator. Each operator has different capabilities and functions. Some of these relate directly to the type of display station you will operate. Others relate to System/34 utilities or program products. In addition, you may have data communications equipment. And, at times, you may need to do problem determination for your work station. This manual is divided into chapters that present operating information for each of these areas.

Display Station Operation

Chapter 2 describes functions you can perform as a display station operator. These functions include signing on, using the HELP procedure, and displaying the status of the following: your work session, your communications support, the system devices, the spool file, and the job queue. This chapter also tells you how to run jobs, send and reply to messages, place jobs on the input job queue, interrupt an executing program, and sign off. Control commands for these functions are described, and the screens that appear on your display screen when you enter these control commands are shown and explained. All operators should read this chapter.

Subconsole Operation

Chapter 3 describes the functions you can perform as a subconsole operator in subconsole mode. These functions include specifying subconsole mode and displaying the status of the system devices, of your communications support, and of your spool file entries. This chapter also tells you how to start, stop, restart, and cancel your spool file entries, and how to change the number of printed copies or the forms number, or the printer ID for your spool file entries. Finally, the chapter describes sending or replying to a message, displaying the time, and signing off a subconsole. Subconsole control commands are described, and displays that appear when you enter these control commands are shown and explained.

System Console Operation

Chapter 4 explains how the system console operator operates the system by performing tasks such as inserting diskettes, operating the system unit operator panel, using the CE panel, and operating the system printer. The system operator is also given information for controlling jobs, the input job queue, print spooling, and for starting and ending system operation. Control commands that the system console operator uses to perform these and other functions are described in this chapter. The displays that appear on the system console screen are shown and explained.

SSP Utility Programs

In past editions of the *Operator's Guide*, the SSP utility programs were listed according to utility name, function, and procedure name; they were not described in detail. In this release, the listing of the SSP utilities by function was moved from the *Operator's Guide* to the *Command and OCL Statements Reference Summary.* This list is also in the *Introduction* to the *SSP Reference Manual.* The procedures used to operate the utilities are described in detail in the *SSP Reference Manual.*

System/34 Utilities

Chapters 5 through 9 describe utilities that you can use in your data processing. Instructions for operating the work station utility (WSU), data file utility (DFU), source entry utility (SEU), screen design aid (SDA), and SORT are described in the appropriate chapters.

Program Products

Chapters 10 through 14 describe System/34 program products. These chapters explain command statements you can use to operate RPG II, Basic Assembler and Macro Processor, FORTRAN IV, COBOL, and BASIC.

Data Communications

Actions required to initiate communications are described in Chapter 15.

Problem Determination

Steps you can take for problem determination for the system unit, display stations, or printers are described in Chapter 16.

Character Generator Utility and Ideographic Sort

Appendix A contains a brief summary of the information you need to operate both the character generator utility, including the use of ideographic command keys, and the ideographic sort program.

Chapter 2. Display Station Operation

If your display station is a subconsole, you should also read Chapter 3, *Subconsole Operation.*

If your display station is the system console, you should also read Chapter 4, *System Console Operation.*

As a display station operator, your responsibilities may vary depending on how the system is used. If display stations are used for interactive job processing, your responsibilities include starting jobs, monitoring them as they execute, and responding to situations that may require your action. If display stations are used for entering data, your responsibilities include entering data and updating that data for a particular application.

Display stations from which you can start jobs and enter data are called *command display stations.* Display stations from which you can only enter data are called *data display stations.* Your display station's capabilities (command and data or data only) are determined during system configuration.

This chapter describes the functions you might perform as a display station operator:

- How to determine operating modes
- How to sign on
- How to use the HELP procedure
- How to display the status of your work session
- How to display the status of your communications support
- How to display the status of the system devices
- How to set your work session environment (a work session begins when you sign on and ends when you sign off)
- How to run jobs
- How to send messages and reply to messages
- How to display the status of your spool file entries
- How to use the input job queue
- How to interrupt an executing program
- How to sign off

Note: If your system has the ideographic version of the SSP, and if your display station is ideographic capable, many of the input fields on your display screen are open fields. In an open field, both alphanumeric and ideographic characters can be entered. Refer to the *5255 Display Station Operator's Guide* for information on how to use open fields.

OPERATING MODES

Display stations have five modes of operation: system console mode, subconsole mode, command mode, standby mode, and data mode.

System console mode is used by the system operator to perform system console functions. Refer to Chapter 4 for a complete description of system console operation.

Subconsole mode is used by subconsole operators to control printers assigned to their display stations. Refer to Chapter 3 for a complete description of subconsole mode operation.

A display station can operate in command mode, standby mode, and data mode. Command display stations can operate in any of the modes; data display stations can operate only in standby mode or data mode. You can initiate jobs only from a display station in *command mode*. The operations described in this chapter, as well as the operations described in Chapters 5 through 15, are done in command or data mode.

A display station in *standby mode* is waiting to be acquired and used by a program running on the system. When an operator signs on to a data display station, the display station is automatically in standby mode. A command display station is automatically in command mode after you sign on; it can be placed in standby mode by using the MODE command.

A display station is in *data mode* when it is acquired by a program, whether the display station requested the program or the display station was acquired while in standby mode. You cannot initiate jobs from a display station in data mode, but you can use the display station for data entry and for interactive job processing.

During interactive processing, the display station communicates with the program. The program can prompt you for specific information and you can respond by entering that information.

OPERATOR CONTROL COMMANDS

Various commands can be used by display station operators, subconsole operators, and system console operators. In some cases, a command can be entered by all of these operators. Other commands are restricted to specifically configured display stations, such as the system console or a command display station. The following chart shows the operator control commands and the modes from which they can be entered:

Command Name	Display Station Operator (Command or Data Mode)	Subconsole Operator (Subconsole Mode)	System Console Operator (Console Mode)
ASSIGN			X
CANCEL	X	X	X
CHANGE	X	X	X
CONSOLE	X		
HOLD	X	X	X
IDELETE	X		X
JOBQ	X		
MENU	X		
MODE	X		
MSG	X	X	X
OFF	X		
PRTY	X		X
RELEASE	X	X	X
REPLY		X	X
RESTART		X	X
START		X	X
STATUS	X	X	X
STOP		X	X
TIME	X	X	X
VARY			X

DISPLAY STATION OPERATOR CONTROL COMMANDS

The following control commands are discussed in this chapter. All can be entered at a display station in command mode. Only MODE, MSG, and OFF can be entered from data mode.

CANCEL JOBQ 2-77
(C) (J)

CANCEL PRT 2-67
(C) (P)

CHANGE COPIES. 2-71
(G)

CHANGE DEFER 2-70
(G)

CHANGE FORMS. 2-72
(G)

CONSOLE . . . . . For a description of CONSOLE, see Chapter 4.

HOLD PRT 2-68
(H) (P)

IDELETE 2-60

JOBQ 2-74
(J)

MENU. 2-47

MODE. 2-3

MSG 2-58

OFF 2-81

PRTY 2-50

RELEASE PRT. 2-69
(L) (P)

STATUS COMM 2-23
(D) (C)

STATUS JOBQ. 2-76
(D) (J)

STATUS PRT. 2-63
(D) (P)

STATUS REMOTES 2-39
(D) (R)

STATUS SESSION 2-17
(D) (S)

STATUS SUBSESS 2-31
(D) (N)

STATUS SUBSYS. 2-28
(D) (I)

STATUS WORKSTN 2-34
(D) (W)

STATUS WRT 2-65
(D)

TIME 2-81

The commands and the command formats found in this chapter are fully explained in the *System Support Reference Manual* and are listed in the *Command and OCL Statements Reference Summary*.

HOW TO SIGN ON

Before you begin a work session, you must sign on, which prepares your display station for running jobs, entering data, or acquisition by an application program. To sign on:

Step 1. While holding down the Shift key, press the Sys Req key. Release both keys, then press the Enter/Rec Adv key. If you try to sign on during IPL, the IPL display appears (Figure 2-1).

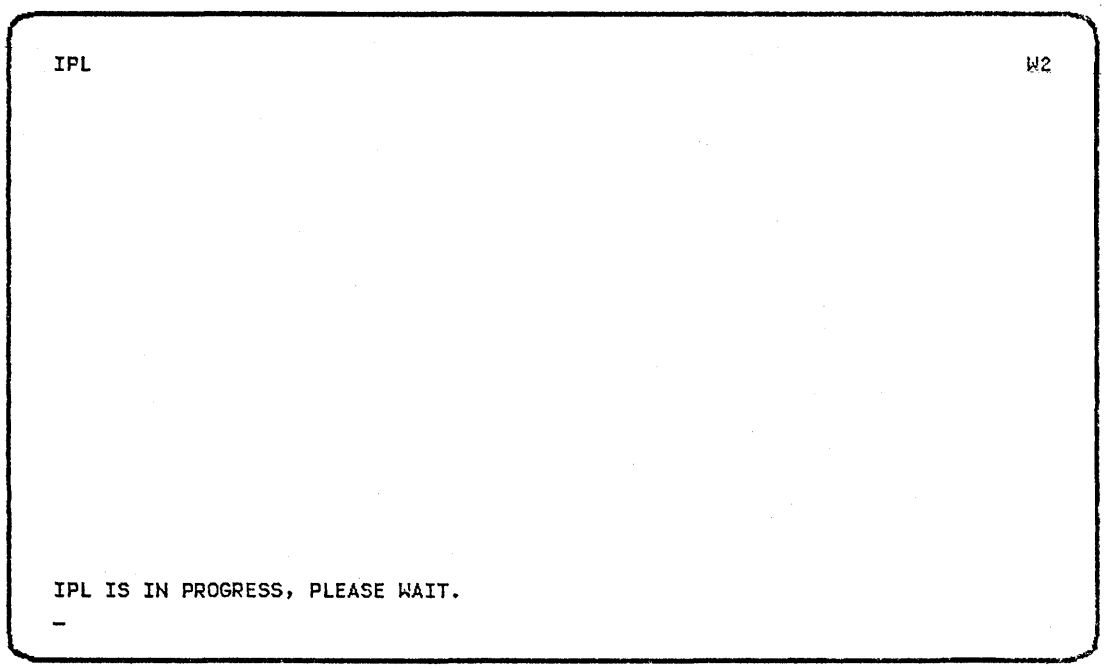


Figure 2-1. IPL Display

Wait until the Sign On display appears before continuing to step 2.

Step 2. If the following Sign On display (Figure 2-2) appears, your display station is a command display station. Respond to prompts (A) through (F); do (G). If the Sign On display shown in Figure 2-4 appears, your display station is a data display station. Go to step 3.

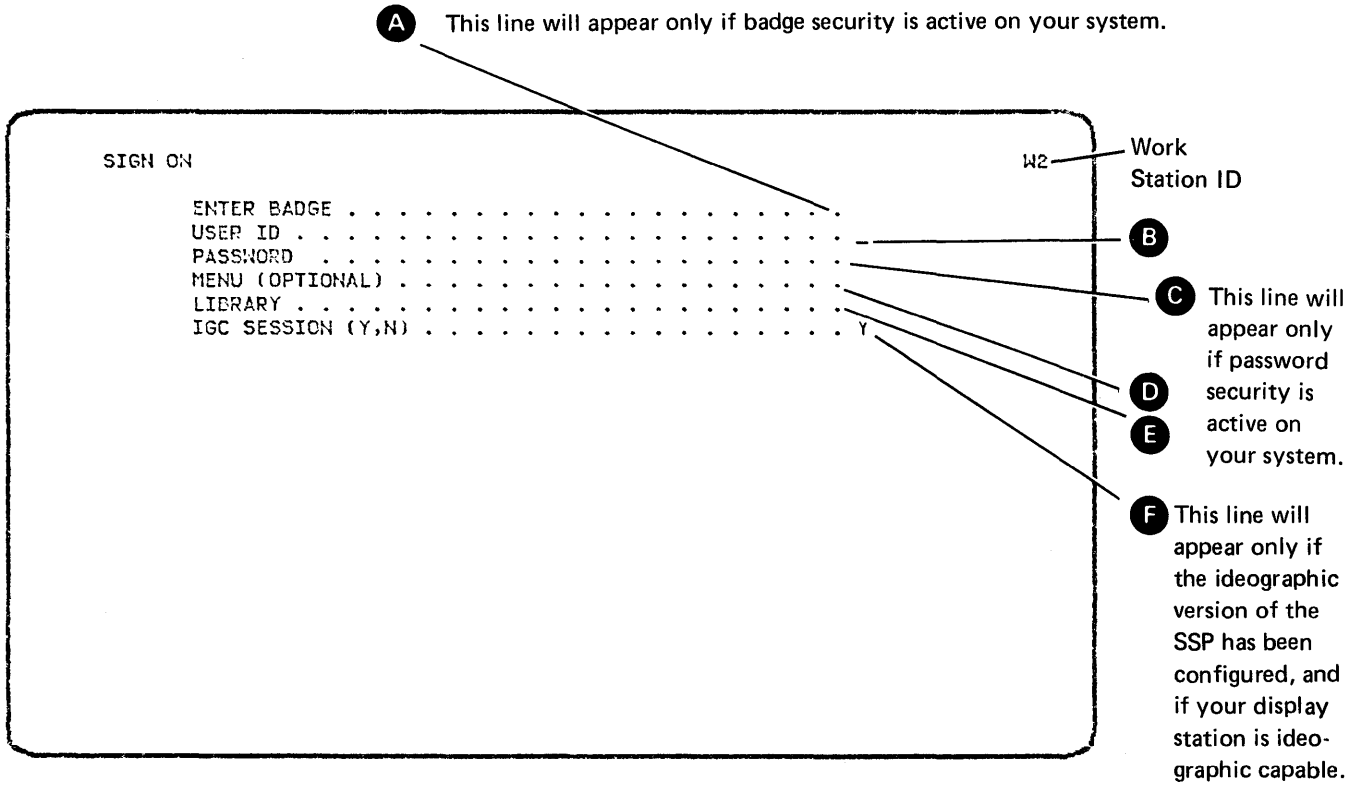


Figure 2-2. Command Display Station Sign On Display

A If ENTER BADGE is not on the Sign On display, badge security is not active at your display station. Go to B. If ENTER BADGE is on the display, insert your badge in the magnetic stripe reader.

B Enter your user ID. You must respond to this prompt. If password security is active, your user ID is the ID previously assigned for you by your security officer. This ID must conform to the following rules:

- Eight characters or less
- Cannot contain imbedded blanks or commas
- First character must be A through Z, #, $, or @
- Should not be the same as any work station ID (in this example, W2)

C If the word PASSWORD is not on the Sign On display, password security is not active. Go to D. If the word PASSWORD is on the display, enter your four-character password which you obtain from your security officer. This password does not appear when you enter it.

D Enter the name of a menu that you want to use following sign on. Skip this entry if you do not want to use a menu following sign on or if you want to use the default menu assigned you by your security officer. If you are not restricted to a menu, you can override a default menu by entering another menu name, or by entering 000000.

Note: If you are restricted to using the menu previously assigned you by your security officer, and the system cannot find that menu in either the sign on or the system library, you will be unable to sign on. See your security officer if this should happen. If you are not restricted to a menu, you can override a default menu by entering another menu name, or by entering 000000.

E This line contains the active user library for the work session. If no library name appears, or if you want a different user library, you can enter the name of the desired user library. Leave this entry blank if you wish to use the default library assigned by your security officer. If you leave this entry blank or if you enter all zeros and a user library is not specified among the OCL statements or procedure commands you execute, the active library will be the system library. If you enter the name of a secured user library and resource security is active, you must be authorized to execute programs from this user library.

F This prompt appears only if the system configuration includes the ideographic version of the SSP and if your display station is ideographic capable. If you specify Y (yes), you can enter ideographic characters, and system messages and screen formats are displayed using ideographic characters. If you specify N (no), the system will display only alphanumeric characters on system displays, but you can still enter and display ideographic characters on user defined formats.

Figure 2-3 is an example of a completed Sign On display at a command display station.

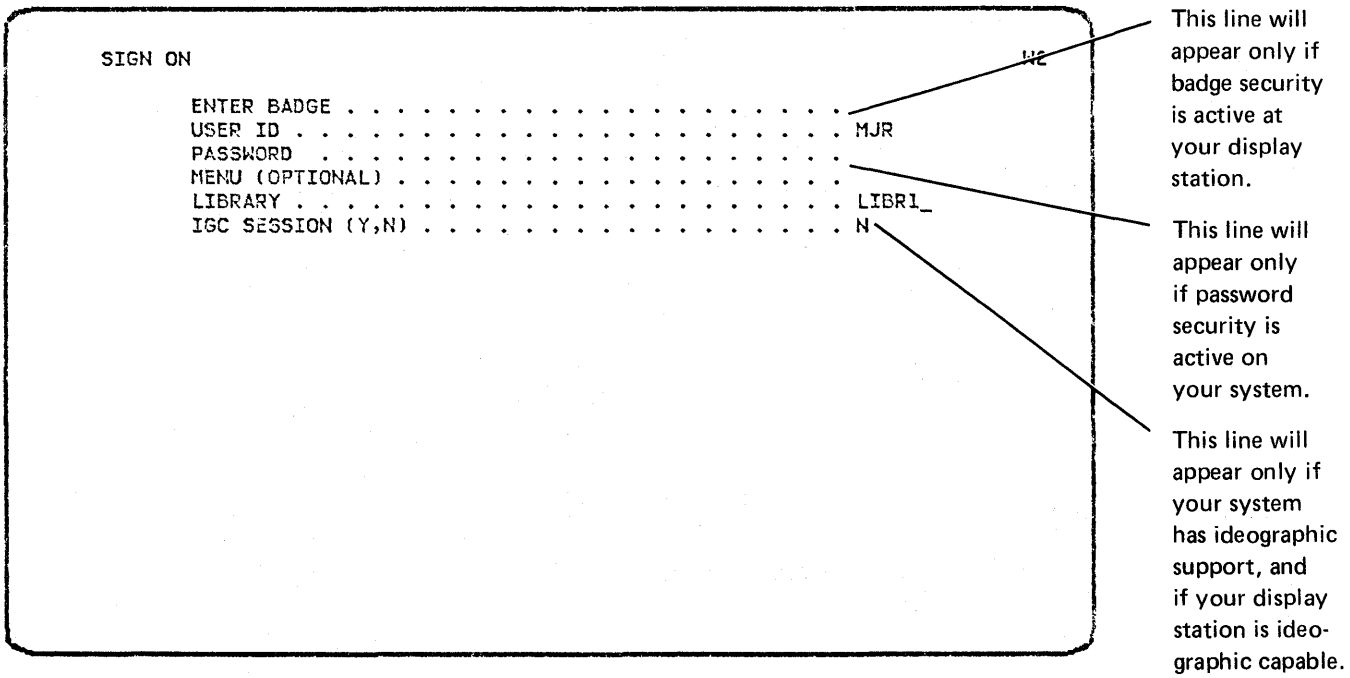


Figure 2-3. Completed Sign On Display at a Command Display Station

G Press the Enter/Rec Adv key to go to step 4.

Step 3. If the following display appears (Figure 2-4), your display station is a data display station. Do (A) through (D) which follow.

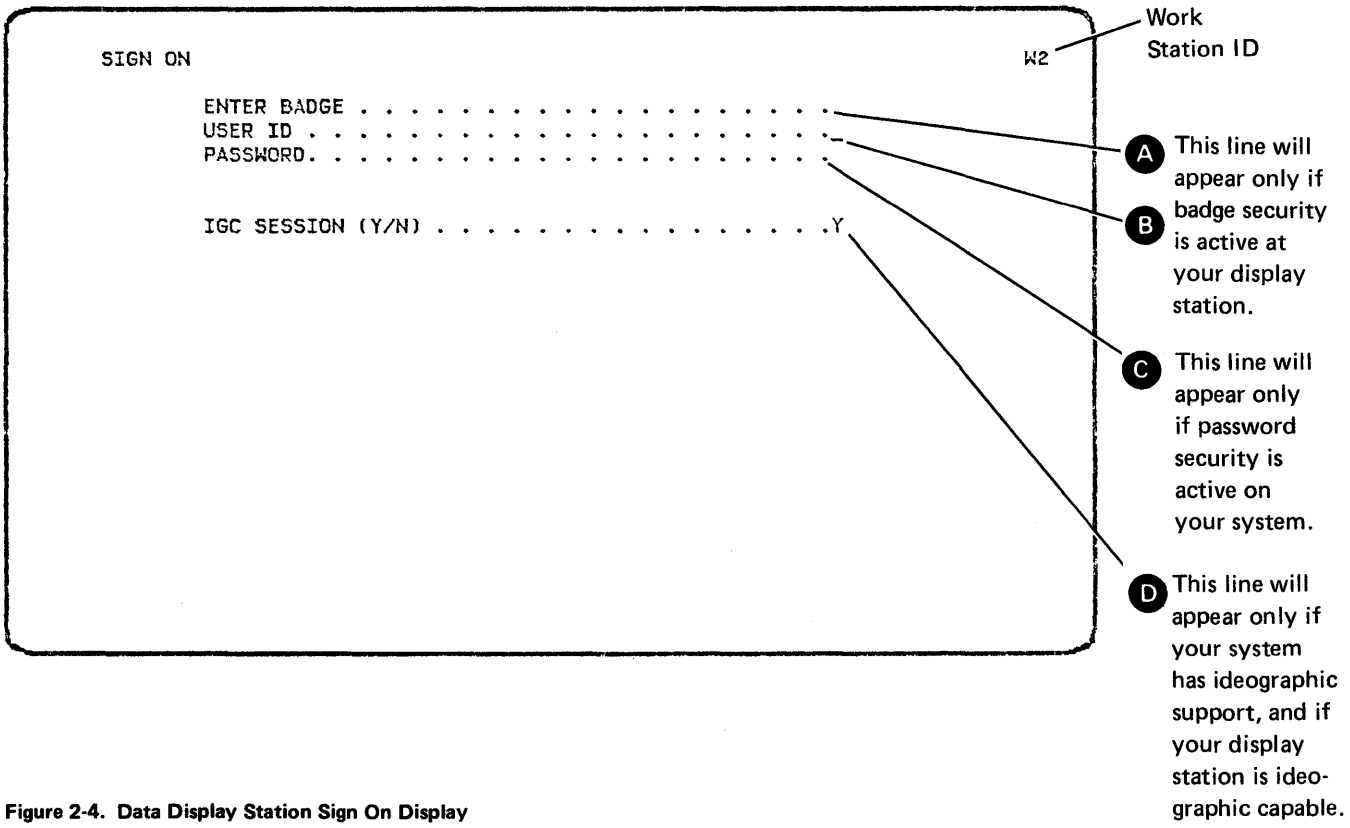


Figure 2-4. Data Display Station Sign On Display

(A) If ENTER BADGE is not on the Sign On display, badge security is not active at your display station. Go to (B). If ENTER BADGE is on the display, insert your badge in the magnetic stripe reader.

(B) Enter your user ID. If password security is active, your user ID is the ID previously assigned for you by your security officer. This ID must conform to the following rules:

- Eight characters or less
- Cannot contain imbedded blanks or commas
- First character must be A through Z, #, $, or @
- Should not be the same as any work station ID (in this example, W2)

(C) If the word PASSWORD is not on the Sign On display, password security is not active. If your display station is ideographic capable, go to (D). If your display station is not ideographic capable, go to (E). If the word PASSWORD is on the display, enter your four-character password which you obtain from your security officer. This password does not appear when you enter it.

(D) This prompt appears only if the system configuration includes the ideographic version of the SSP and if your display station is ideographic capable. If you specify Y (yes), you can enter ideographic characters, and system messages and screen formats are displayed using ideographic characters. If you specify N (no), the system will display only alphanumeric characters on system displays, but you can still enter and display ideographic characters on user defined formats.

(E) Press the Enter/Rec Adv key.

Step 4. The work session has begun. If you have signed on to a command display station, the Command display appears (either with or without a menu). See Figures 2-5 and 2-6. If you have signed on to a data display station, the Standby display appears (Figure 2-7).

```
COMMAND                                                          W2
                              MENU:  MENU01
 1. CUSTOMER BILLING KEYING              13. DISPLAY MENU2
 2. LUMBER IN STOCK                      14.
 3. LUMBER ON ORDER                      15.
 4. ACCOUNTS RECEIVABLE                  16.
 5. ACCOUNTS PAYABLE                     17.
 6. PAYROLL                              18.
 7. INVENTORY CHECKLIST                  19.
 8. NEW ACCOUNTS                         20.
 9.                                      21.
10. BUILDER CONTRACTS                    22.
11. PRINT LUMBER IN STOCK                23.
12. PROCESS STATEMENTS                   24. SIGN OFF




ENTER NUMBER, COMMAND, OR OCL.
_                                                        <- READY
```

Figure 2-5. Command Display with Menu

A Command display with a menu signals that your display station is in command mode and allows you to enter a number from the menu to specify a command or an OCL statement. You can also enter commands or OCL from this display. If you are restricted to this menu, you can only enter a number from the menu, the OFF command, or the MSG command. Refer to *How to Run Jobs*, later in this chapter, for an explanation of menus.

If your display station has a 960-character display screen, the first two lines of the display and items 1 through 6 and 13 through 18 will be displayed first. To display the second half of the menu, press the Enter/Rec Adv key.

If the display station has a 960-character display screen and a free-format menu is selected, lines 1 through 8 of the display and the ENTER NUMBER, COMMAND, or OCL line will be displayed first. If the Enter/Rec Adv key is pressed without any data entered, lines 1, 2, and 9 through 14 will be displayed, along with the line for operator action. Lines 15 through 20 of the menu are not displayed.

Note: If a menu is built with ideographic characters for a 5255 Display Station, it cannot be displayed at a device other than a 5255 Display Station.

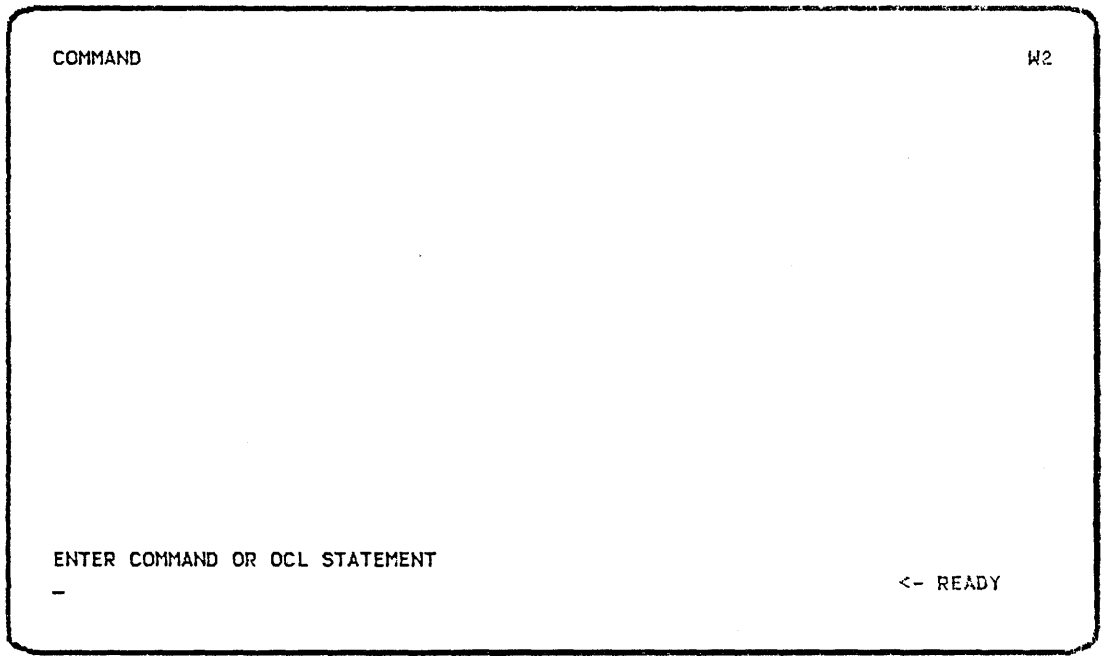


Figure 2-6. Command Display without Menu

The Command display signals that the display station is in command mode and allows you to enter control commands, procedure commands, or OCL. Refer to *How to Run Jobs,* later in this chapter, for an explanation of the Command display.

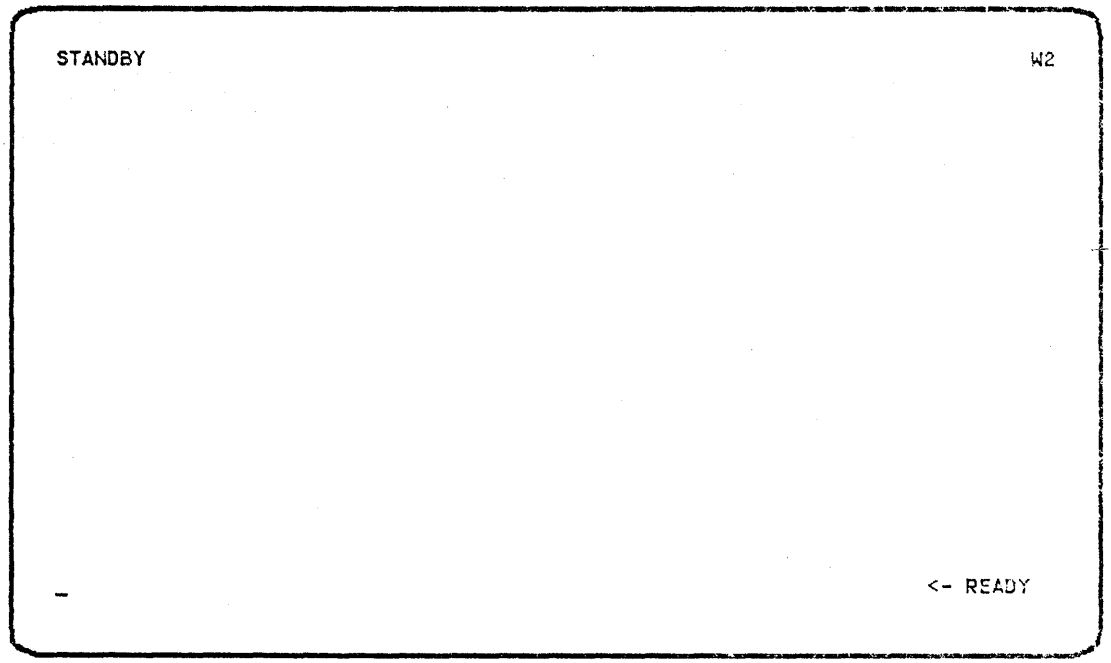


Figure 2-7. Standby Display

The Standby display signals that your data display station is in standby mode, which allows it to be acquired by a user program.

At a command display station, you can switch between command mode and standby mode.

To switch from command mode to standby mode, enter MODE and the Standby display appears.

From the Standby display, you can:

- Have your display station acquired by an application program
- Send messages to other operators by using the MSG control command
- Receive messages through the MSG control command
- Sign off by using the OFF control command

To switch from standby mode to command mode, enter MODE.

HOW TO USE THE HELP PROCEDURE

$HELP is an SSP utility designed to aid System/34 operators in executing many System/34 functions. Many of the procedures now on the System/34 require as many as 10 parameters that are order dependent; that is, they must be entered in the order shown in the command format. The HELP procedure prompts you for these parameters. In addition, the HELP procedure provides descriptive text for SSP commands, OCL statements, and procedure control expressions.

To invoke the HELP procedure, either press the Help key when your display station is in command mode, or key in the word HELP at your display station. The following menu will appear:

```
                        SYSTEM/34 HELP CATEGORIES

1. SSP Procedure Commands

2. Control Commands

3. Operation Control Language - OCL

4. Procedure Control Expressions

5. Utilities - DFU,SDA,SEU,SORT,WSU

6. Languages & Compilers - ASM,BASIC,COBOL,FORTRAN,OLINK,RPG

7. Data Communications Procedures

8. Service Aid Procedures


ENTER NUMBER OF CATEGORY--->                    CMD KEY 1 - FUNCTIONS
                                                CMD KEY 7 - CANCEL
```

Press command key 1 for a description of the options available to you. Press command key 7 to cancel the HELP procedure and return to the Command display.

The following display appears if you select option 1 (SSP Procedure Commands):

```
                        SYSTEM/34 SSP PROCEDURES

ALTERBSC - Alter BSC Parameters          CONDENSE - Free Library Space
ALTERSDL - Alter SDLC Parameters         COPYII   - Copy Diskette
BACKUP   - Backup System Library         COPYPRT  - Copy From Spool File
BLDFILE  - Create Disk File              CREATE   - Generate Message Member
BLDLIBR  - Create User Library           CRESTART - Restart Checkpoint Task
BLDMENU  - Create Menu                   DATE     - Change Session Date
BUILD    - Correct Disk Data             DELETE   - Delete File Or Library
CATALOG  - Display VTOC                  DISABLE  - Disable Subsystem
COMPRESS - Free Disk Space               DISPLAY  - Display Data File

ENTER PROCEDURE NAME TO BE EXECUTED --->                  Roll To Continue
```

You may select a procedure from this screen or press the Roll ↑ (roll up) key to display the next screen of SSP procedures.

For procedures, a description of each parameter and an input field are displayed. Default values and optional parameters are also displayed. For example, the following display appears if you enter BLDMENU:

```
                        BLDMENU PROCEDURE                  OPTIONAL-(O)

          Creates the library members required to display a menu.

Menu Name ..................................................

Name Of The Display Text Source Member .....................          (O)

Library That Contains The Source Message Member ..... #LIBRARY

Library To Contain The Format Load Member ..... #LIBRARY

If The New Member Will Replace An Existing Load Member,
     Enter REPLACE .........................................          (O)

If The Load Member Is To Remain In The Output Library,
     Enter KEEP ............................................          (O)

If Creating A Free-Format Menu, Enter FREEFORM .............

If Text Should Be Displayed As IGC, Enter IGC ..............          (O)
```

This line appears only if you have the ideographic version of the SSP.

Once all required parameters have been entered, you can execute the procedure by pressing the Enter/Rec Adv key or command key 4. Command key 4 will put the procedure on the input job queue.

The following display appears if you select option 2 (Control Commands) from the first Help display:

```
                        OPERATOR CONTROL COMMANDS (nonexecutable)

ASSIGN   - Change Workstation ID's     MSG      - Send/Receive Message
CANCEL   - Cancel Job(s)               OFF      - Terminate Session
CHANGE   - Change Job Information      PRTY     - Assign Priority To Job
CONSOLE  - Become System Console       RELEASE  - Release Job For Printing
HOLD     - Prevent Job Printing        REPLY    - Respond To Message
IDELETE  - Control Message Display     RESTART  - Restart Printing
JOBQ     - Place Job On Input JOBQ     SETDUMP  - Address Compare Stop/Dump
MENU     - Display Menu                START    - Start System Activities
MODE     - Change Operating Mode       STATUS   - Display Status Information

ENTER COMMAND NAME --->                                  Roll To Continue
```

If you enter the name of a control command, a description of the command that specifies all parameters, default values, and abbreviations is displayed. For example, the following display appears if you enter JOBQ:

```
Display Station Only                JOBQ COMMAND

JOBQ (jobq prty) (library name),procname,parm1,parm2...
 (J)

* Places a job on the input job queue.
* 'jobq prty' defines the position on the job queue where the job is to be
  placed; it can have a value of 1-5, 5 being the highest.
* If library name is not specified, #LIBRARY is assumed.
```

These screens contain only descriptive information. The operator control commands cannot be executed using the HELP procedure.

If you select option 3 (Operation Control Language – OCL), a list of OCL statements is displayed. From this list you can select the statement for which reference information is wanted. OCL statements cannot be executed from the Help display.

Selecting option 4 (Procedure Control Expressions) will display a list of procedure control expressions. From this list you can select the procedure control expression for which reference information is wanted. Procedure control expressions cannot be executed from the Help display.

If you select option 5 (Utilities – DFU, SDA, SEU, SORT, WSU), a list of the System/34 Utilities Program Products is displayed. From this list you can select the utilities program product for which help is wanted. Refer to related chapters for further information on the utilities and Help functions.

If you select option 6 (Languages & Compilers – ASM, BASIC, COBOL, FORTRAN, OLINK, RPG), a list of System/34 languages and compilers is displayed. From this list you can select the language or compiler for which reference information is wanted.

Selecting option 7 (Data Communications Procedures) will display a list of the data communications procedures. This list includes DCFORMS, DCPRINT, DEFINEID, DEFINEPN, EM3270, ES3270, MRJE, SRJE, STARTM, and STOPM. From this list you can select the data communications procedure for which help is wanted.

If you select option 8 (Service Aid Procedures), a list of service aids is displayed. This list includes APAR, APPLYPTF, DFA, DUMP, ERAP, PATCH, SEC, SMF, and TRACE. From this list you can select the service aid for which help is wanted.

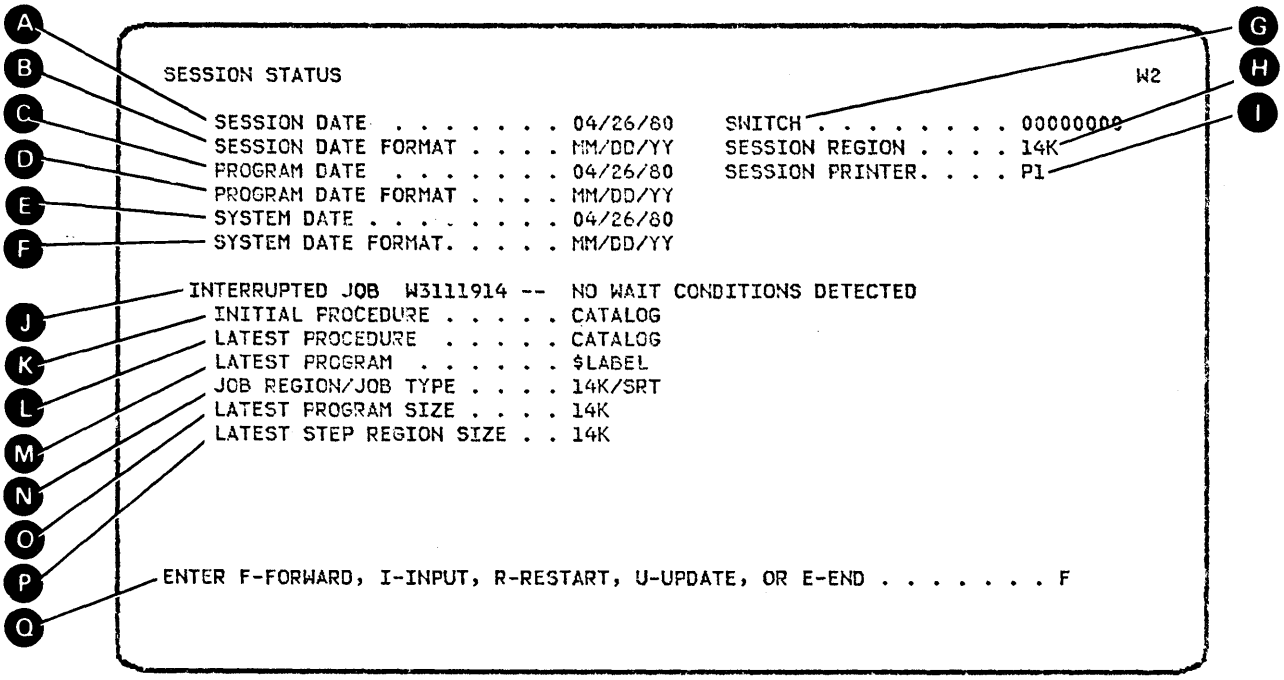
HOW TO DISPLAY THE STATUS OF YOUR WORK SESSION

The Session Status displays inform you about the status of your current work session.

To display the status of your work session enter:

STATUS [SESSION (D) / (S)]

After you enter the command, the first Session Status display appears:



A SESSION DATE: the date that is being used by the session.

B SESSION DATE FORMAT: YYMMDD, MMDDYY, or DDMMYY where YY means year, DD means day, and MM means month.

C PROGRAM DATE: the date being used by the program if one is running.

D PROGRAM DATE FORMAT: YYMMDD, MMDDYY, or DDMMYY.

E SYSTEM DATE: the date assigned at IPL sign-on time.

F SYSTEM DATE FORMAT: YYMMDD, MMDDYY, or DDMMYY.

G SWITCH: the current switch setting as set by the SWITCH OCL statement or a program you executed. To see the current switch setting while a program is executing, see *How to Interrupt a Job (Inquiry)* in Chapter 2.

H SESSION REGION: the region size for your session.

I SESSION PRINTER: the ID of the printer that is associated with your display station for this session.

Fields (J) through (P) will be blank if you did not interrupt a job (inquiry).

(J) INTERRUPTED JOB: The first 8 characters of this field will be a job name if the session status is displayed under inquiry (while interrupting a job). This job name is the name of the job that was interrupted by inquiry. Following this job name is an explanation of the job status at the time of inquiry. The following is a list of possible status indications:

- JOB IS IN TERMINATION
- JOB IS IN INITIATION

} Fields (K) through (P) are not filled if either of these appears.

- JOB IS BEING CANCELED
- NO WAIT CONDITIONS DETECTED
- STOPPED BY SYSTEM OPERATOR
- STOPPED BY I/O ERROR
- WAITING FOR TASK WORK AREA
- WAITING FOR PRINTER
- WAITING FOR COMMUNICATION LINE (only if data communications is on system)
- WAITING FOR DISKETTE
- WAITING FOR DISK SPACE
- INITIATOR WAITING FOR RESOURCES
- WAITING ON MULTIPLE REQUESTING PROGRAM; MAXIMUM USERS REACHED
- WAITING FOR FILE EXTENSION
- MESSAGE PENDING TO SYSTEM OPERATOR
- WAITING FOR CHECKPNT COMPLETION

(K) INITIAL PROCEDURE: the outermost procedure name that was entered at the keyboard.

(L) LATEST PROCEDURE: the name of the procedure that was active at the time of the inquiry.

(M) LATEST PROGRAM: the name of the program that was active at the time of the inquiry.

(N) JOB REGION: the size of the job region. JOB TYPE can be:

- SRT—single requestor terminal
- MRT—multiple requestor terminal
- NEP—never-ending program

(O) LATEST PROGRAM SIZE: the size of the program that was active.

(P) LATEST STEP REGION SIZE: the region size for this step.

(Q) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes one of the following actions:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

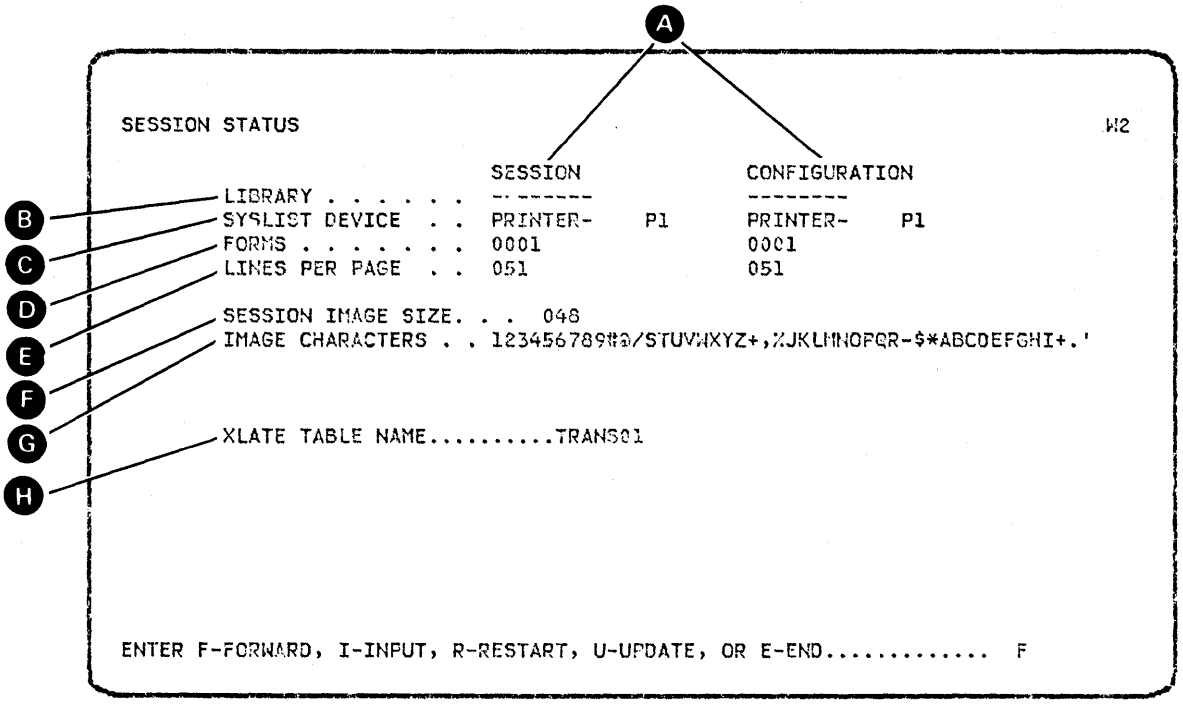
I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

Enter F and press the Enter/Rec Adv key to see the next Session Status display.



A The session values are the values that are current for this session. The configuration values are the values that are found in the work station configuration record.

B LIBRARY: the session user library name.

C SYSLIST DEVICE: the output device used for the system list. Possible values include a printer ID, SYSTEM PRINTER, CRT, or OFF.

D FORMS: the four-character default forms name.

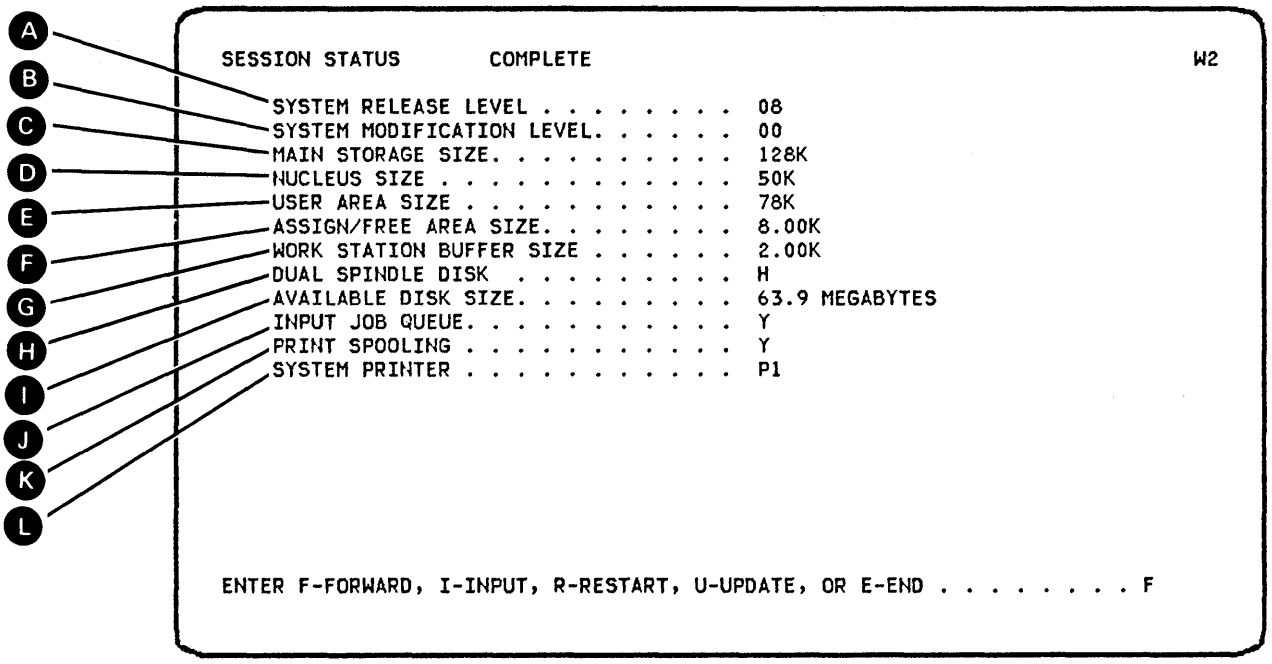
E LINES PER PAGE: the number of lines that will be printed per page.

F SESSION IMAGE SIZE: the length of the following print image.

G IMAGE CHARACTERS: the characters in this session's print image.

H XLATE TABLE NAME: the name of the source member containing the translate table.

Enter F and press the Enter/Rec Adv key to see the last Session Status display, or enter I, R, U, or E to take one of the other actions as described on the first Session Status page.



A SYSTEM RELEASE LEVEL: the level of the SSP that is currently on the system.

B SYSTEM MODIFICATION LEVEL: the level of modification that has been put on the current SSP release.

C MAIN STORAGE SIZE: the number of bytes of main storage expressed in units of K bytes (K = 1024).

D NUCLEUS SIZE: the amount of main storage used by the nucleus.

E USER AREA SIZE: the amount of main storage available for user programs.

Note: Nonswappable programs decrease the size of the user area so that when nonswappable programs are active, user area plus nucleus does not equal main storage size.

F ASSIGN/FREE AREA SIZE: the number of bytes in the assign free area (expressed in units of K bytes), which is set at configuration time or changed by IPL overrides.

G WORK STATION BUFFER SIZE: the number of bytes in the work station buffer (expressed in units of K bytes) which is set at configuration time or changed by IPL overrides.

(H) DUAL SPINDLE DISK: indicated by a Y at the end of this line. If the system does not have the dual spindle disk, an N appears.

(I) AVAILABLE DISK SIZE: the total disk size for the system.

(J) INPUT JOB QUEUE: function is indicated by a Y at the end of this line. If the input job queue function is not active, an N appears at the end of this line.

(K) PRINT SPOOLING: indicated by a Y at the end of this line. If print spooling is not active, this line will have an N.

(L) SYSTEM PRINTER: the system printer ID.

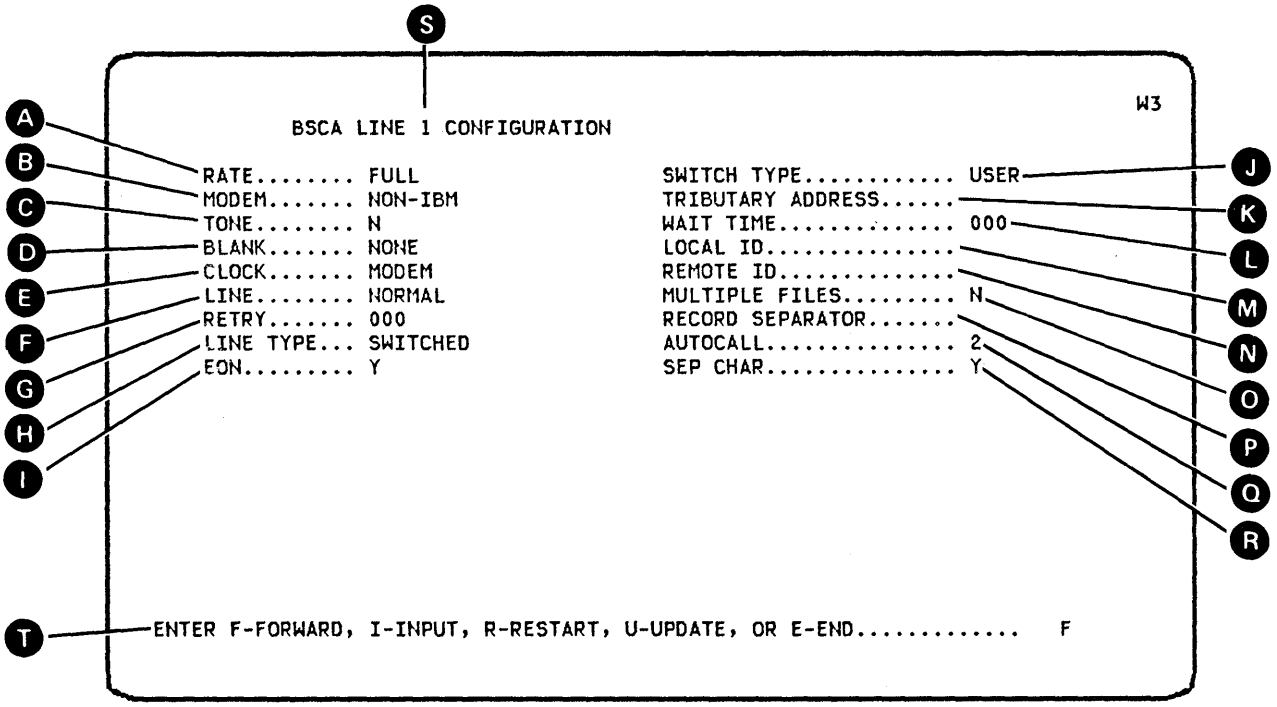
COMPLETE signifies that this is the last display in the session status series.

HOW TO DISPLAY THE STATUS OF YOUR COMMUNICATIONS SUPPORT

The communications support can be displayed by entering:

STATUS	COMM
(D)	(C)

After you enter the command, the first Communications Support display appears.



A RATE: if FULL, the full rated speed of the modem is used; if HALF, half the rated speed of the modem is used.

B MODEM: whether the modem used with your data communications adapter is an IBM modem or a non-IBM modem.

C TONE: Y specifies that a non-US special tone is required for manual answer and automatic answer. N specifies that a non-US special tone is not required.

D BLANK: means blank compression is used. An entry of NONE means blank compression is not used. Other possible entries are TRUNCATION and COMPRESSION.

E CLOCK: MODEM specifies that the clocking is provided by the modem or by another external source; INTERNAL specifies that the clocking is provided by the internal clock feature in the system.

F LINE: NORMAL specifies that you are using the normal line for your modem. STANDBY indicates switched network backup.

G RETRY: the number of times BSC error recovery procedures are attempted.

(H) LINE TYPE: USER says that the line type specified in the user program has not been overridden and is being used. If the specified line type has been overridden, the possible entries are LEASED, TRIBUTARY, and SWITCHED.

(I) EON: displayed when AUTOCALL is configured to indicate that end-of-number characters are automatically removed from the phone number before being presented to the AUTOCALL unit.

(J) SWITCH TYPE: USER says that the switch type specified in the user program has not been overridden and is being used. If the specified switch type has been overridden, the possible entries are AUTO ANSWER, MANUAL ANSWEF AUTOCALL, or MANUAL CALL.

(K) TRIBUTARY ADDRESS: the address of this station on the multipoint line. An entry of 00 means the address has not been overridden.

(L) WAIT TIME: how long a user program may wait before the BSC line is disabled.

(M) LOCAL ID: the local identification. An entry of all zeros means the local ID is not specified.

(N) REMOTE ID: the remote identification. An entry of all zeros means the remote ID is not specified.

(O) MULTIPLE FILES: whether or not IBM 3740 Data Entry System multiple files are supported by data communications.

(P) RECORD SEPARATOR: the means used to separate records. An entry of 00 means record separator has not been overridden.

(Q) AUTOCALL: the line number for which the AUTOCALL line is installed and used in conjunction with this line. BSCA line configuration will not be present for the AUTOCALL line.

An entry of X.21 LINE is displayed when the X.21 line is configured.

(R) SEP CHAR: displayed when AUTOCALL is configured to indicate that separator characters are to be removed from the phone number before being presented to the AUTOCALL unit. The system provides a 3-second spacing before sending the next digit.

(S) LINE NUMBER: the line number of this BSCA configuration. Line numbers can be 1, 2, 3, or 4.

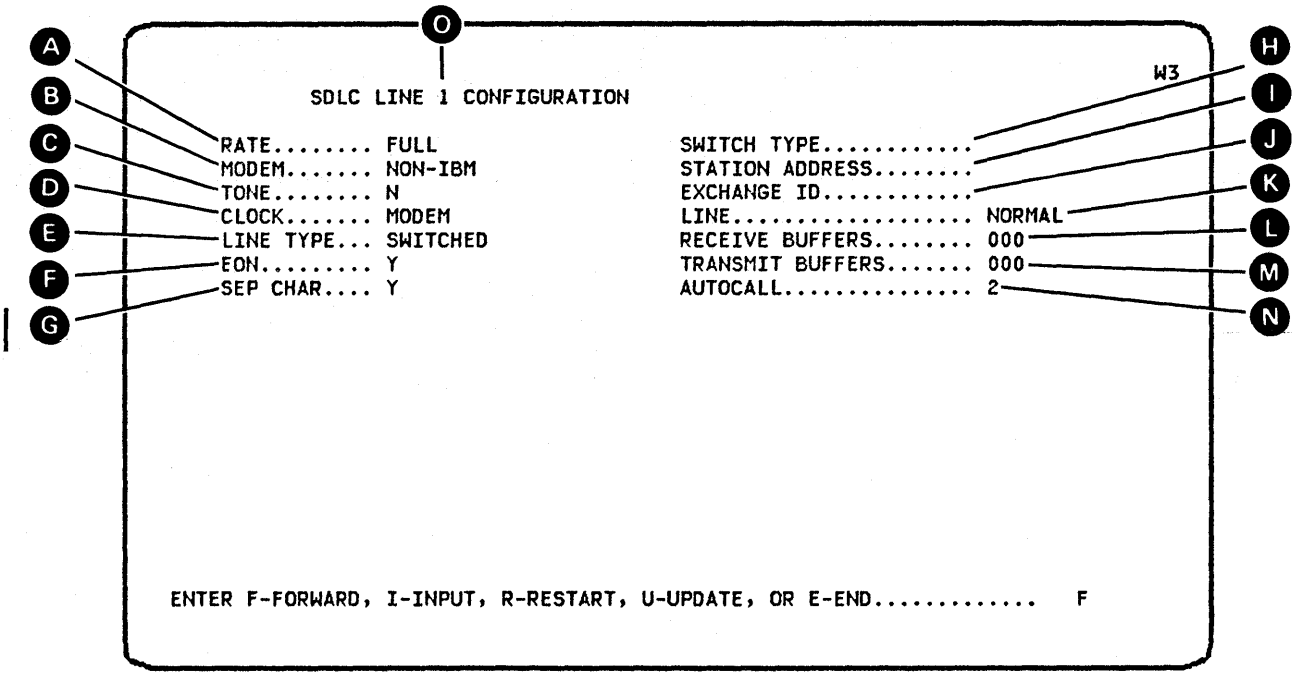
(T) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

If you have a 960-character display screen, the following displays will appear when you enter the STATUS COMM command. Notice that there are two displays for each communication line:

```
    BSCA LINE 2 CONFIGURATION                                          W2

RATE ............. HALF          SWITCH TYPE ............ USER
MODEM ............ NON-IBM       TRIBUTARY ADDRESS ......
TONE ............. N             WAIT TIME .............. 000
BLANK ............ NONE          LOCAL ID ...............


ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END .................  F
```

After you press the Enter/Rec Adv key, the second BSC screen appears.

```
    BSCA LINE 2 CONFIGURATION                                          W2
CLOCK ............ MODEM         REMOTE ID ..............
LINE ............. NORMAL        MULTIPLE FILES ......... N
RETRY ............ 000           RECORD SEPARATOR .......
LINE TYPE ........ SWITCHED      AUTOCALL ............... 1
EON .............. N             SEP CHAR ............... N


ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END ...............  F
```



A RATE: if FULL, the full rated speed of the modem is used; if HALF, half the rated speed of the modem is used.

B MODEM: whether the modem used with your data communications adapter is an IBM modem or a non-IBM modem.

C TONE: Y specifies that a non-US special tone is required for manual answer and automatic answer. N specifies that a non-US special tone is not required.

D CLOCK: MODEM specifies that the clocking is provided by the modem or by another external source; INTERNAL specifies that the clocking is provided by the internal clock feature in the system.

E LINE TYPE: the possible entries are SWITCHED, LEASED, and MULTIPOINT.

F EON: displayed when AUTOCALL is configured to indicate that end-of-number characters are automatically removed from the phone number before being presented to the AUTOCALL unit.

G SEP CHAR: displayed when AUTOCALL is configured to indicate that separator characters are removed from the phone number before being presented to the AUTOCALL unit. The system provides a 3-second spacing before sending the next digit.

H SWITCH TYPE: the possible entries are AUTO ANSWER, MANUAL ANSWER, AUTOCALL, MANUAL CALL, and blank.

I STATION ADDRESS: the address of this station on the SDLC line.

J EXCHANGE ID: five hex digits to become the last five hex digits of the exchange ID returned by SDLC.

K LINE: NORMAL specifies that you are using the normal line for your modem. STANDBY indicates switched network backup.

L RECEIVE BUFFERS: specifies the number (in decimal) of receive buffers to be assigned for this SDLC line.

M TRANSMIT BUFFERS: specifies the number (in decimal) of transmit buffers to be assigned for this SDLC line.

N AUTOCALL: the line number for which the AUTOCALL line is installed and used in conjunction with this line. SDLC line configuration will not be present for the AUTOCALL line.

An entry of X.21 LINE is displayed when the X.21 line is configured.

O LINE NUMBER: the line number of this SDLC configuration. Line numbers are 1, 2, 3, or 4.

If you have a 960-character display screen, the second part of the Communications Support display will appear on two screens.

```
     SDLC LINE 2 CONFIGURATION          COMPLETE                                W2
 CLOCK ............ MODEM            LINE .................... NORMAL
 LINE TYPE ........ SWITCHED         RECEIVE BUFFERS ........ 000
 EON .............. N                TRANSMIT BUFFERS ....... 000
 SEP .............. N


ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END .................  F
```

After you press the Enter/Rec Adv key, the second SDLC screen appears.

```
     SDLC LINE 2 CONFIGURATION          COMPLETE                                W2
 CLOCK ............ MODEM            LINE .................... NORMAL
 LINE TYPE ........ SWITCHED         RECEIVE BUFFERS ........ 000
 EON .............. N                TRANSMIT BUFFERS ....... 000
 SEP CHAR ......... N                AUTOCALL ............... 2


ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END .................  F
```

HOW TO DISPLAY THE STATUS OF THE SSP-ICF SUBSYSTEMS

Command Format

STATUS	SUBSYS
(D)	(I)

Parameters

SUBSYS: Displays status information about the enabled SSP-ICF subsystems.

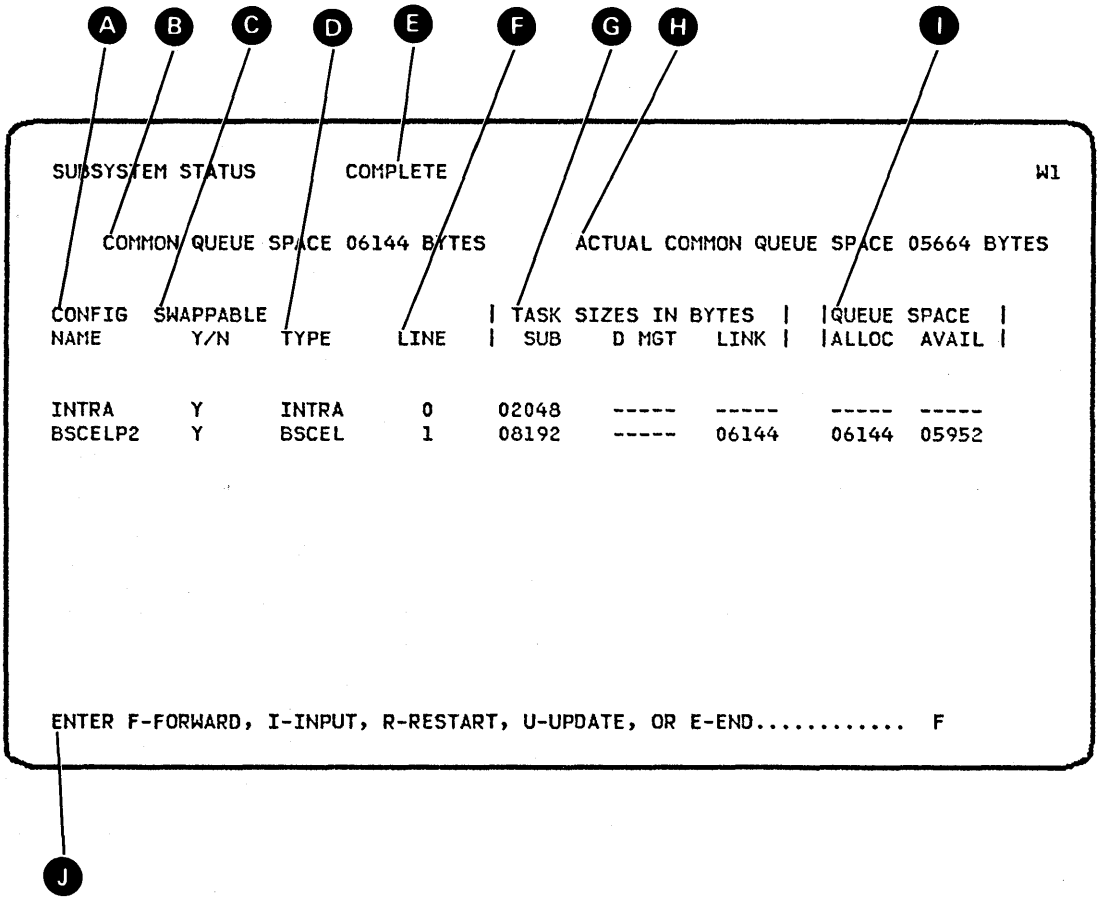
Example

You enter:

STATUS SUBSYS or

D I

The following display appears:



A CONFIG NAME: shows a list of subsystem configuration names currently enabled or being enabled.

B This field describes the allocated common queue space for the SSP-ICF subsystems. This field may be blank if no subsystem is fully enabled.

C SWAPPABLE: indicates whether or not the subsystem task is swappable. A value of Y indicates that it is swappable. If a data management task is required for the subsystem task, the data management task swap status is the same as the subsystem task swap status.

D TYPE: describes the type of subsystem.

SNUF – SNA upline facility
CCP – CCP
CICS – CICS/VS
IMS – IMS/VS
BSCEL – BSC equivalence link
INTRA – Intra System/34
SNA PEER – SNA peer
3270BSC –BSC 3270
3270SDLC – SNA 3270
FINANCE – Finance

E COMPLETE appears only on the last page of a status function.

F LINE: describes the communications line allocated to the subsystem configuration currently enabled or being enabled.

G TASK SIZES IN BYTES: SUB indicates the size of the subsystem task. D MGT indicates the size of the subsystem's data management task if one is required. LINK indicates the size of the subsystem's communication link task if one is required. If the link task is SDLC, the value displayed is the sum of the link task size plus line buffers.

H This field shows the amount of common queue space currently available. This is the sum of all the free areas. This field may be blank if no subsystem is fully enabled.

I QUEUE SPACE: The fields under this heading indicate the status of the subsystem task's queue space. ALLOC indicates the amount of subsystem queue space allocated to the subsystem task. AVAIL indicates the actual amount of subsystem queue space currently available. It is the sum of all the free areas in the subsystem task's queue space.

(J) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

HOW TO DISPLAY THE STATUS OF THE SSP-ICF SUBSYSTEM SESSIONS

Command Format STATUS SUBSESS
(D) (N)

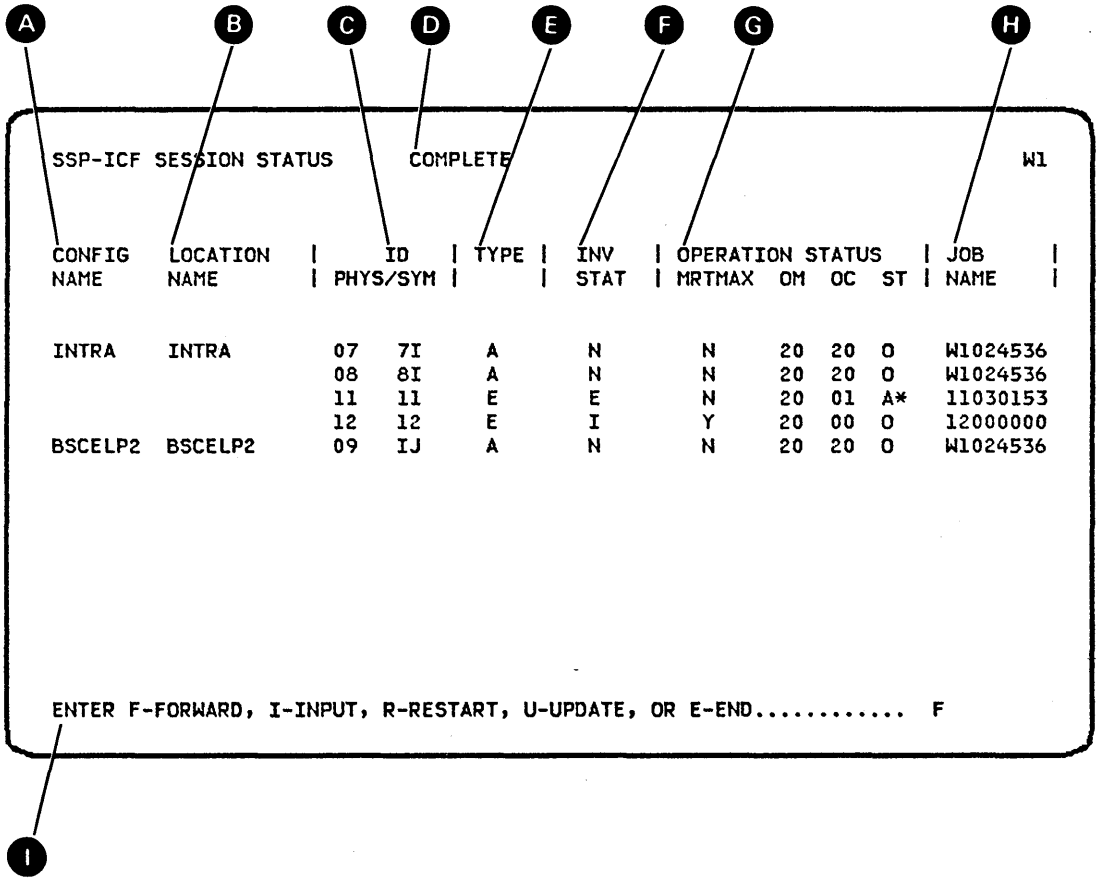
Parameters *SUBSESS:* Displays status information about the SSP-ICF subsystem sessions.

Example You enter:

STATUS SUBSESS or

D N

The following display appears:



A CONFIG NAME: contains a list of subsystem configuration names currently enabled or being enabled.

B This field is a list of location names. The location name will appear in any messages logged by the subsystem or SSP for this subsystem configuration. For SNA peer, this is the remote location name.

C This field is a list of the subsystem session IDs. PHYS indicates this is the system defined ID. SYM indicates the symbolic session ID used by the program owning the session. The SYM ID is used by a program for outgoing communication with an SSP-ICF session.

D COMPLETE appears only on the last page of a status function.

E TYPE: indicates the session type. A indicates this session is an acquired session. E indicates this session is an evoked session. * indicates a non-communicating peer station.

F INV STAT (invite status):

E: program has requested data from the session.

I: the SSP has marked the session complete to satisfy an accept input issued by the program owning the session.

N: program does not want data from the session.

O: program has requested data from the session and the data is now available.

G OPERATION STATUS: these four fields indicate the status of the session.

MRTMAX: if this session is attached to an MRT, and the session is waiting because the maximum number of requestors has been reached, this field will have a Y displayed. Otherwise, an N will appear.

The following three fields are primarily for diagnostic purposes. They indicate the state of the SSP-ICF sessions when the STATUS SUBSESS command was entered.

OM: this is the current operation command modifier.

OC: this is the current operation command code.

ST: this is a two-character field. The first character is either an A (operation active), O (operation complete), or I (operation in an initial status). The second character is either blank or an asterisk (*). If this character is an asterisk, the program is currently waiting for this session to complete.

(H) JOBNAME: displays the name assigned to the process to which the session is attached.

(I) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

HOW TO DISPLAY THE STATUS OF THE SYSTEM DEVICES

The Workstation Status display shows the status of the diskette drive and display stations and printers that are locally attached and the status of display stations and printers that are remotely attached and not offline.

To display the status of the diskette drive and all locally attached and remotely attached and not offline display stations and printers, enter:

```
STATUS WORKSTN [, ws-id ]
(D)    (W)
```

Parameters

WORKSTN: Displays status information about: local and non-offline remote display stations and printers, the diskette drive, or a selected display station or work station printer.

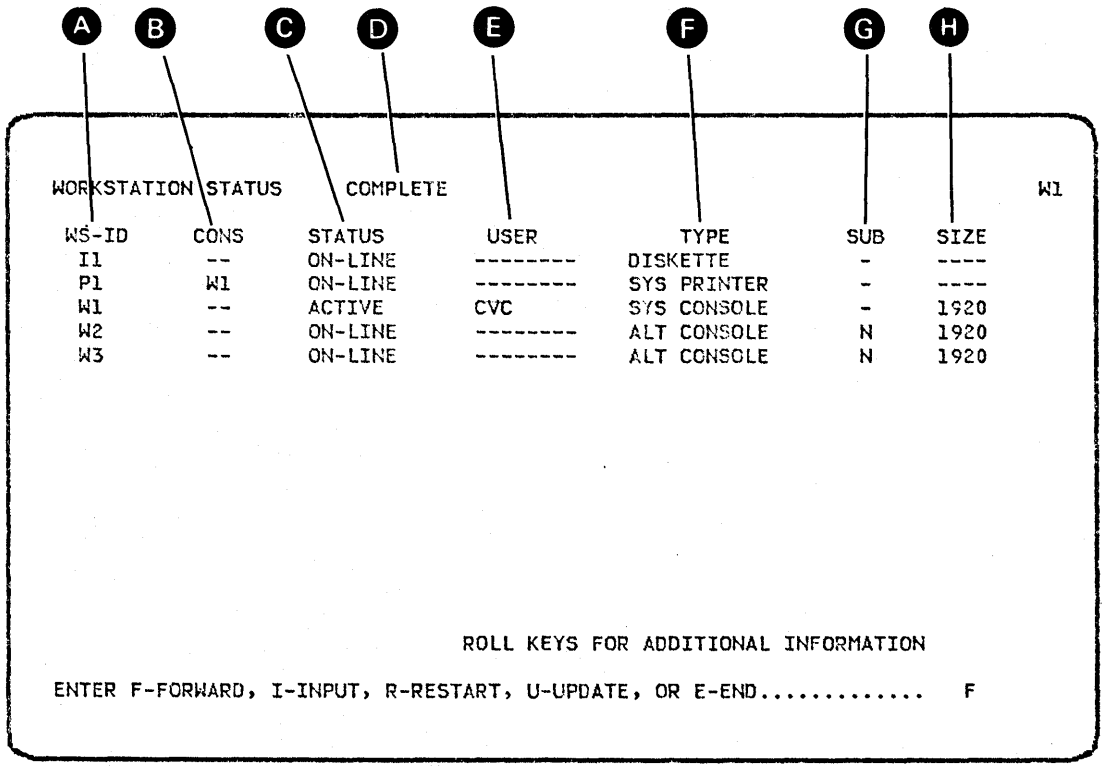
ws-id: The ID of the display station or printer for which status information is displayed. If you do not specify an ID, status information for all display stations and printers is displayed.

Example

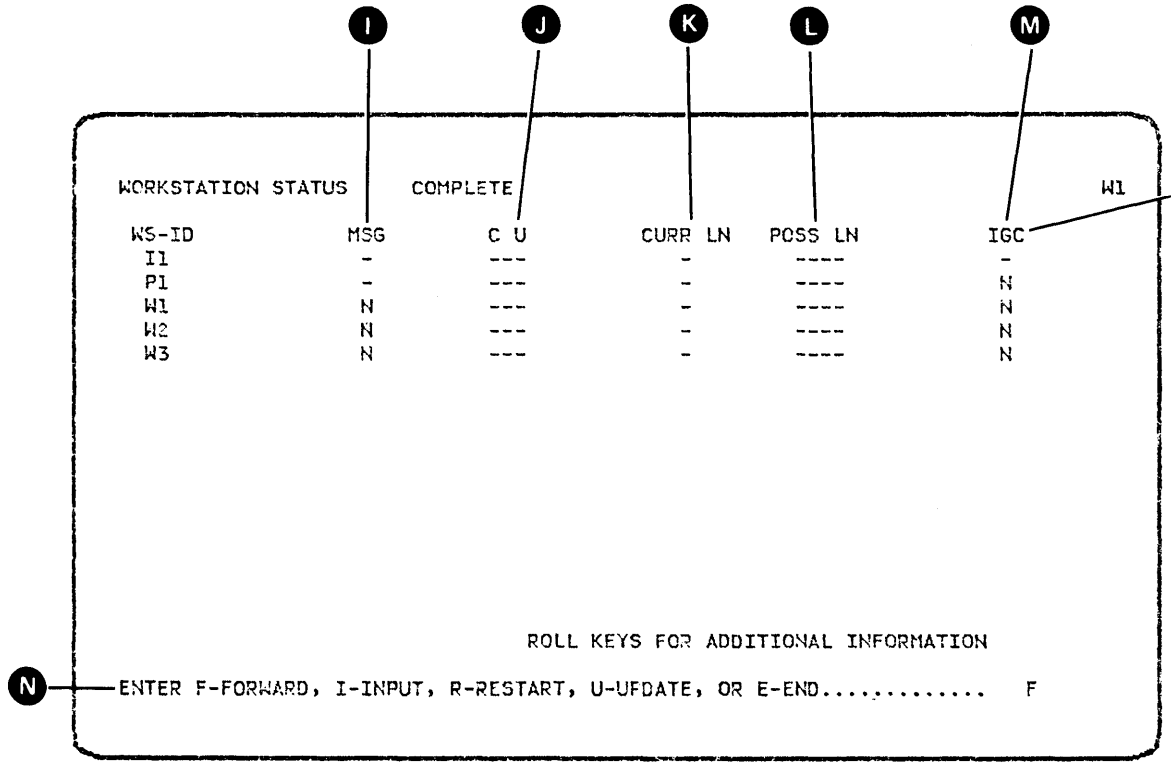
You enter:

```
STATUS   WORKSTN    or

D   W
```

The following two-part display appears if you do not enter ws-id:



After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the STATUS WORKSTN display appears.



(A) WS-ID: a list of the diskette drive, display stations, and printers that are locally attached or are remotely attached and are active, online, or pending. I1 is the ID of the diskette, and the other IDs are defined at system configuration time.

(B) CONS: shows the ws-id of the controlling console for each printer.

(C) STATUS: the current status of each device. Possible entries are:

ON-LINE – The device is online but is not presently being used.
OFF-LINE – The device has been taken offline by the system operator.
ACTIVE – The device is currently being used.
PENDING – The remote device is in the process of being varied online or offline.

(D) COMPLETE appears only on the last page of a status function.

(E) USER: the user ID that was entered at sign-on time for each active display station. Fields for nonactive display stations, printers, and the diskette show hyphens (----) for the user ID.

(F) TYPE: describes each device listed on this display.

DISKETTE indicates the diskette drive.
SYS PRINTER indicates the system printer.
PRINTER indicates a printer other than the system printer.
DATA indicates that this device is a data display station.
COMMAND indicates that this is a command display station.
SYS CONSOLE indicates that this is the system console.
SUBCONSOLE indicates that this is a subconsole display station.
ALT CONSOLE indicates that this is an alternative system console.

(G) SUB: shows whether a subconsole or an alternative console is currently active as a subconsole (receiving messages for a printer).

(H) SIZE: if the device is a display station, shows the size of the display screen.

960-character display
1920-character display

(I) MSG: indicates that messages sent via the MSG command to all display stations failed to get to a display station. Y indicates that the system operator sent a message to all the display stations but this display station did not receive the message because its message queue was full. This field is valid for display stations only; for printers and the diskette drive, this field contains a hyphen (-).

(J) C U: if the device is attached via a communications line, shows the control unit ID.

(K) CURR LN: if the device is online and attached via a communications line, shows the line number (line 1, 2, 3, or 4).

(L) POSS LN: if the device is attached via a communications line, shows the numbers of all possible lines on which an offline device can communicate (lines 1, 2, 3, or 4). If the device is pending, shows the line number it will communicate on when it is online (line 1, 2, 3, or 4).

(M) IGC: appears only if you have the ideographic version of the SSP.

- D Appears if only the display station is ideographic capable.
- Y Appears if both the display and the keyboard are ideographic capable, or if the device is an ideographic capable printer.
- N Appears for nonideographic devices.
- \- Appears for the diskette drive.

(N) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes one of the following actions:

- F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.
- I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.
- R Restarts (or redisplays) the first page of this status function.
- U Updates the display for more current information.
- E Ends this status display.

If you enter the STATUS WORKSTN [,ws-id] command and include a work station ID, the following two-part display appears. In this example, work station W3 requested the status of work station W1.

```
WORKSTATION STATUS     COMPLETE                                                W3

 WS-ID      CONS      STATUS        USER          TYPE          SUB     SIZE
  W1         --       ACTIVE        KSA        SYS CONSOLE       -      1920

                                  ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.............   F
```

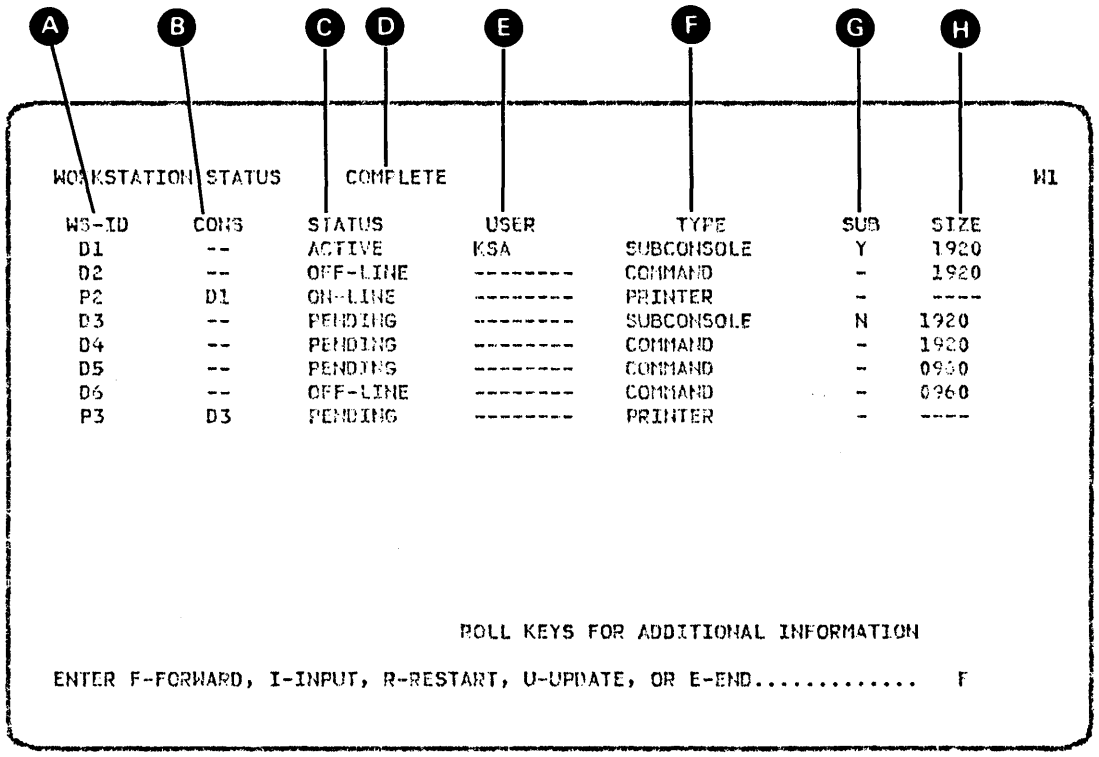
After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the display appears.

```
WORKSTATION STATUS     COMPLETE                                                W3

 WS-ID            MSG        C U        CURR LN   POSS LN
  W1               N         ---           -        ----
  W2               N         ---           -        ----
  W3               N         ---           -        ----

                                  ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.............   F
```

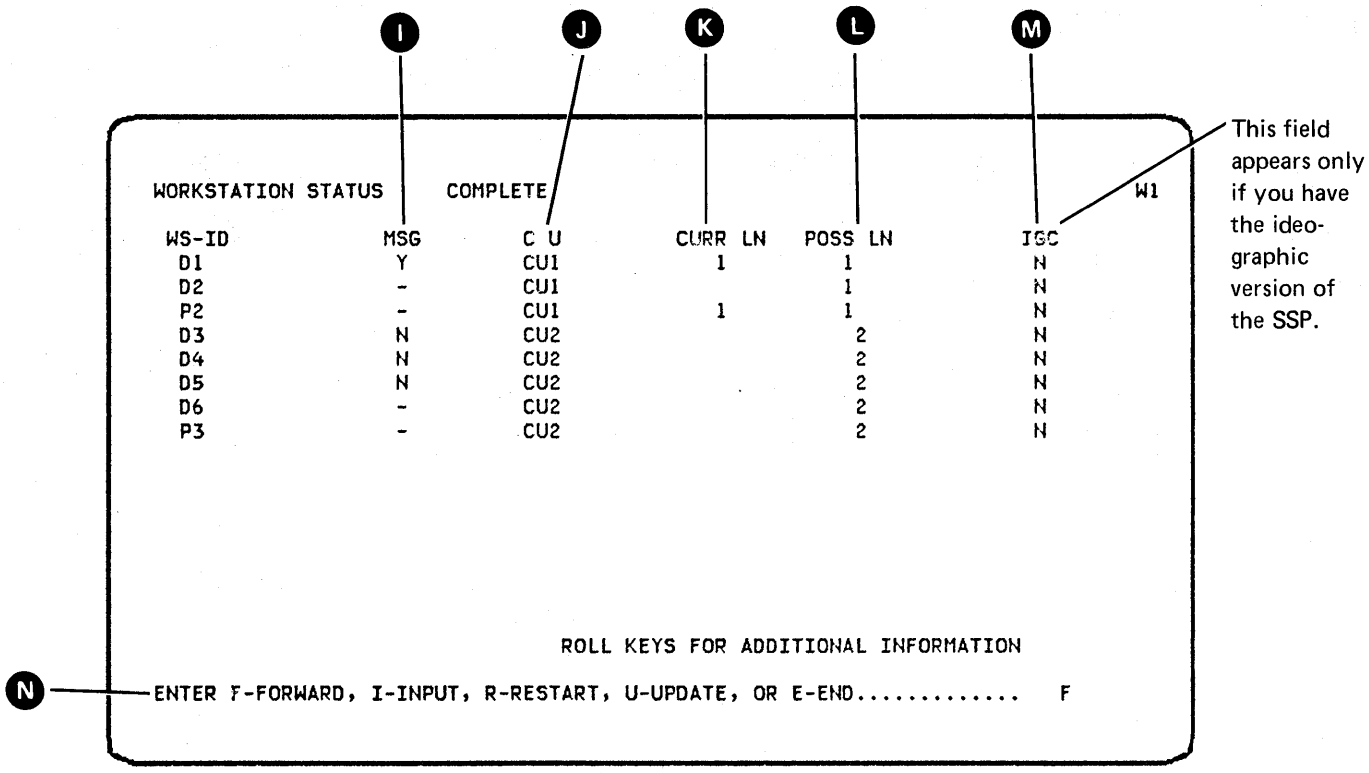
To display the status of all remote display stations and printers, enter:

STATUS (D) REMOTES (R) [, ws-id]

The following two-part display appears if you do not enter ws-id:



After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the STATUS REMOTES display appears.



A WS-ID: lists the remote display stations and printers defined for the system.

B CONS: shows the ws-id of the controlling console for each printer.

C STATUS: displays the current status of each device. Possible entries are:

ON-LINE – The device is online but is not presently being used.
OFF-LINE – The device has been taken offline by the system operator.
ACTIVE – The device is currently being used.
PENDING – The remote device is being varied on or off.

D COMPLETE: appears only on the last page of a status function.

E USER: lists the user ID that was entered at sign-on time for each active remote display station. Fields for nonactive display stations and printers show hyphens (----) for the user ID.

F TYPE: describes each device on this display.

PRINTER indicates a printer other than the system printer.
DATA indicates that this device is a data display station.
COMMAND indicates that this is a command display station.
SUBCONSOLE indicates that this is a subconsole display station.

(G) SUB: shows whether a subconsole is currently active as a subconsole (receiving messages for a printer).

(H) SIZE: if the device is a display station, shows the size of the display screen.

960-character display
1920-character display

(I) MSG: indicates that messages sent via the MSG command to all display stations failed to get to a display station. Y indicates that the system operator sent a message to all the display stations but this display station did not receive the message because its message queue was full. This field is valid for display stations only; for printers, this field contains a hyphen (-).

(J) C U: shows the control unit ID of remote devices (different from address).

(K) CURR LN: if the device is online and attached via a communications line, shows the line number (line 1, 2, 3, or 4).

(L) POSS LN: if the device is attached via a communications line, shows the numbers of all possible lines on which an offline device can communicate (line 1, 2, 3, or 4). If the device is pending, shows the line number it will communicate on when it is online (line 1, 2, 3, or 4).

(M) IGC: appears only if you have the ideographic version of the SSP.

Y Appears if the device is an ideographic-capable printer.

N Appears for nonideographic devices.

(N) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes one of the following actions:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

If you enter the STATUS REMOTES [,ws-id] command and include a remote work station ID, the following two-part display appears. In this example, work station W3 requested the status of work station D1.

```
WORKSTATION STATUS     COMPLETE                                          W3

 WS-ID      CONS      STATUS        USER          TYPE          SUB    SIZE
  D1         --      ACTIVE        KSA           COMMAND        -     1920









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.............  F
```

After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the display appears.

```
WORKSTATION STATUS     COMPLETE                                          W3

 WS-ID              MSG         C U          CURR LN    POSS LN
  D1                 N          CU1             1          1









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.............   F
```

HOW TO SPECIFY THE SESSION DATE

The session date is the date used by programs run during your work session. Specify this date by entering the DATE procedure command before you run the first program:

DATE {mmddyy / ddmmyy / yymmdd}

For example, enter DATE 011479 to specify the session date as January 14, 1979. If you do not specify a session date, the system date (the date assigned by the system operator at IPL sign-on) is used. You can use the STATUS SESSION command to determine the current system date. The session date must be in the current session format.

The session date and session date format can both be set via the SET command.

HOW TO SPECIFY THE NUMBER OF LINES PER PAGE

To specify the number of lines printed per page by the printer assigned to your display station, enter the LINES procedure command:

LINES [number / 66] , [cpi value] , [lpi value]

Parameters

number: The number of lines per page, which can vary from 1 to 112, with 66 as the default value.

cpi value: The number of characters per inch. The value can be either 10 or 15, with 10 as the default value. This parameter is valid for the 5225 Printer (models 1 through 4) and for the 5224 Printer (models 1 and 2).

lpi value: The number of lines per inch. The line density can be 4, 6, or 8 lines per inch. This parameter is valid for the 5224/5225 Printer.

Your changes remain in effect until the next LINES command or until you end your work session.

The number of lines per page can also be set via the SET procedure command. This change remains in effect until the next time you use a SET procedure, or until the next IPL.

Note that the actual printed output depends on:

- The number of lines per page
- The setting of the number of characters per inch (5225 Printer models 1 through 4 and 5224 Printer models 1 and 2)
- The setting of the number of lines per inch on the printer (5224/5225 Printer)
- The correct alignment of the forms to the first line

If you specify the number of lines as one, printed output that contains vertical spacing of more than one space may not print correctly.

HOW TO CHANGE THE SYSTEM LIST DEVICE

The system list device is that printer assigned to print output from most system utility programs or system procedures, or that display station assigned to show this output. You can change the current system list device via the SYSLIST procedure command. To determine the current system list device, use the STATUS SESSION command. The SYSLIST DEVICE for the session is shown on the second Session Status display.

The changes you can make and the command for each change are:

- List output on the printer that was assigned to your display station during system configuration (SYSLIST PRINTER)
- List output on another printer (SYSLIST ws-id)
- Show output on the display screen (SYSLIST CRT)
- Do not list any output from SSP utility programs or SSP procedures (SYSLIST OFF)
- Process extended character (ideographic) codes (SYSLIST PRINTER, EXTN)

Your change remains in effect until you change the system list device with another SYSLIST command or you end your work session.

The SSP utility programs (for example, $MAINT and $SFGR), except the data communications utility programs and service aids, use the system list function. RPG II, SEU, WSU, and DFU (during the execution phase), data communications programs, service aids, and all user programs, except possibly assembler programs, use the printer data management function. Assembler programs can use either the system list function or the printer data management function.

HOW TO MODIFY WORK SESSION ITEMS VIA OCL

OCL (Operation Control Language)

OCL is a special language composed of statements that describe data processing jobs to the SSP.

The SSP requires certain information, or instructions, before it can perform a job. For example, the SSP needs the names of any files it must process, the type of output, the date printed on the output, and any additional required information. The programmer writes the OCL that describes this information.

You can change your work session environment via OCL. The changes remain in effect until you end the work session (when items return to the values they had before you signed on) or until you change them again during the work session. The following lists the OCL statements that you can use to modify work session items, describes the functions of each, and explains where you should enter each statement.

OCL Statement	Function	Placement
// FORMS	Specifies the number of lines printed per page, the number of characters per inch, and the forms number to be used during a work session. *Note:* Characters per inch is valid for the 5225 Printer (models 1 through 4) and for the 5224 Printer (models 1 and 2).	Anywhere among the OCL statements.
// LIBRARY	Specifies the active user library for a work session. The system searches the active user library, and then the system library, for load programs, procedures to be executed, active menus, message members, and screen formats. *Note:* If resource security is active and the library is secure, you must be authorized access to the library.	Anywhere among the OCL statements except between a LOAD statement and a RUN statement.
// LOCAL	Modifies a specified portion of the local data area that is available for your display station.	Anywhere among the OCL statements.
// MEMBER	Specifies the active message members for a work session.	Anywhere among the OCL statements.

Refer to the *System Support Reference Manual* for complete detail about each of these OCL statements.

HOW TO RUN JOBS

You can run jobs by:

- Entering a number from a menu
- Entering a procedure command
- Entering the JOBQ control command
- Entering OCL (operation control language)

All jobs must be requested from a display station in command mode.

The system assigns a unique job name to each job that you request. The name has the format wwhhmmss, where:

ww	is the 2-character ID of your display station.
hh	is the hour (based on the 24-hour clock) you request the job.
mm	is the minute you request the job.
ss	is the second you request the job.

For example, job name W1143000 was requested at 2:30 p.m. by display station W1.

Command Statements

Command statements are of two types: procedure commands and control commands.

A *procedure* command tells the SSP to execute a procedure. A procedure is a group of OCL statements that are stored in a library on disk and describe a specific job. The procedure can contain all of the information necessary to run the job or the procedure can request additional information from you. Entering one procedure command is equivalent to entering all of the OCL statements in the procedure. See *Example of How to Run Jobs* later in this chapter.

The system support program includes a number of procedure commands that control most of the system operation. Programmers can also create procedures for user programs, assign a name to the procedure, and that name becomes a procedure command.

Control commands are simple, often one-word statements. Through these commands, you control job execution, communicate with other display stations, and display status information. An example of the control command to activate the menu function and display the specified menu is:

```
MENU menuname [,library]
```

The *System Support Reference Manual* describes the control commands and procedure commands that you can enter.

Menus

A menu is a list of numbers and job descriptions that appears on the display screen.

The menu feature of System/34 provides an easy way to run a job. You can present a display (a menu) of sequentially numbered job descriptions by entering a menu name during sign on, by default at sign on (if menu security is active), or by entering the MENU command. (See the *System Support Reference Manual* for a description of the MENU command.) Each number on a menu can represent commands or OCL that execute a particular job (for example, payroll). The menu allows you to select a job by entering a number rather than by entering all of the display station commands, procedures, or OCL statements necessary for the job.

A sample menu is shown in Figure 2-8.

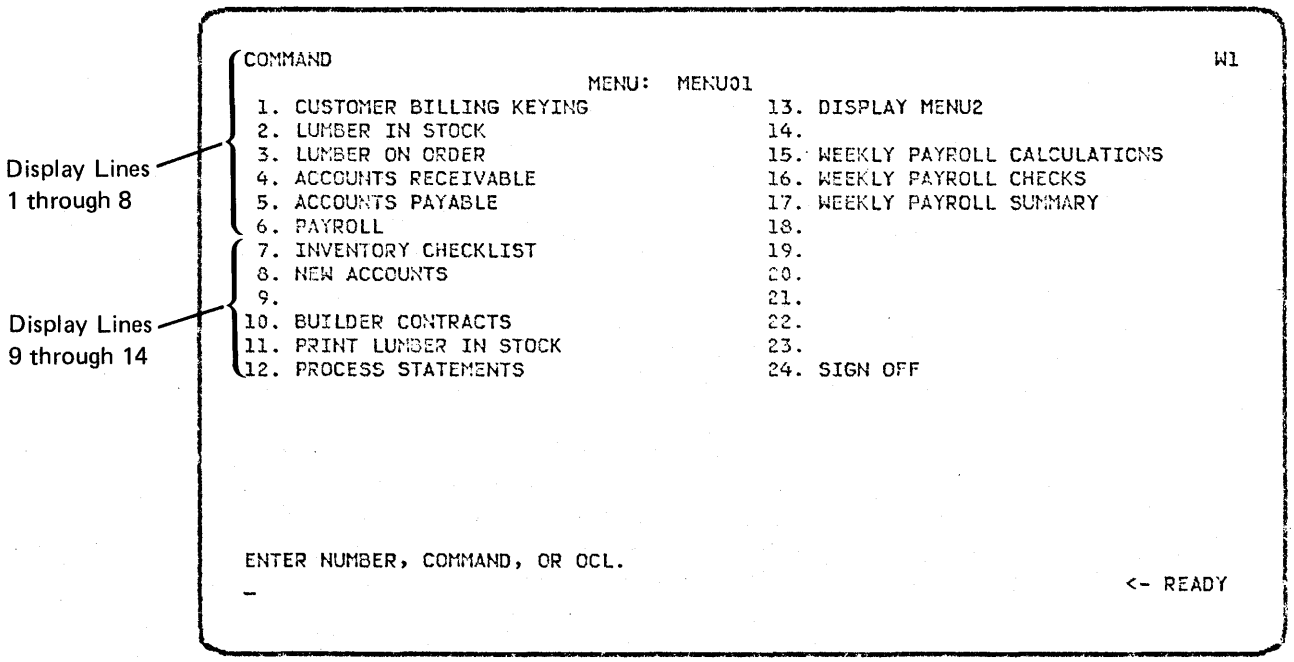


Figure 2-8. Sample Menu

If your security officer has restricted you to this menu, you can select a number from the menu, enter the OFF command, or enter the MSG command.

If you are not restricted to this menu, you can enter a zero (0) to terminate this menu without selecting any of the options.

On a 960-character display screen, the first two lines of the display and menu items 1 through 6 and 13 through 18 will be displayed first. To display the second half of the menu, press the Enter/Rec Adv key.

If the display station has a 960-character display screen and a free-format menu is selected, lines 1 through 8 of the display and the ENTER NUMBER, COMMAND, or OCL line will be displayed first. If the Enter/Rec Adv key is pressed without data entered, lines 1 and 2, and 9 through 14 will be displayed, along with the line for operator action. Lines 15 through 20 of the menu are not displayed.

Note: If a menu is built with ideographic characters for a 5255 Display Station, it cannot be displayed at a device other than a 5255 Display Station.

Example of How to Run Jobs

The following example illustrates the differences between OCL, command statements, and menus. You do not have to understand all of the OCL or command statements; the purpose of the example is to compare how much information you must enter in each case.

To run your payroll, three different programs could do the necessary work. The first program (PAYCALC) takes the information, such as hours worked and rate of pay, from an existing file (WEEKHRS) and calculates the weekly pay for each employee. PAYCALC saves the results, including gross pay, itemized deductions, and other related information, in a file (PAYFILE) for later use.

The second program (CHEKWRIT) uses the information from PAYFILE to print the payroll checks and to update each employee's payroll record in another file (EMPLOYEE).

The third program (PAYSUMM) summarizes the results from PAYFILE and uses this summary to update a third file (TOTLFILE) for your entire payroll record.

To run payroll using OCL, you enter the following:

First program

```
// LOAD PAYCALC
// DATE 061779
// FILE NAME-PAYFILE,RECORDS-100,RETAIN-T,DISP-NEW
// FILE NAME-WEEKHRS,RETAIN-P,DISP-OLD
// RUN
```

Second program

```
// LOAD CHEKWRIT
// FORMS LINES-10,FORMSNO-CHECKS
// FILE NAME-PAYFILE,RETAIN-T,DISP-OLD
// FILE NAME-EMPLOYEE,RETAIN-P,DISP-OLD
// RUN
```

Third program

```
// LOAD PAYSUMM
// FILE NAME-PAYFILE,RETAIN-S,DISP-OLD
// FILE NAME-TOTLFILE,RETAIN-P,DISP-OLD
// RUN
```

To run payroll using procedure commands, enter the following:

First procedure

```
PAYCALC WEEKLY,061779,WEEKHRS
```

Second procedure

```
CHEKWRIT WEEKLY
```

Third procedure

```
PAYSUMM WEEKLY
```

To run payroll using the sample menu shown in Figure 2-8, select the correct number:

- 15 (to do weekly payroll calculations)
- 16 (to do weekly payroll checks)
- 17 (to do weekly payroll summary)

How to Assign Priority to Jobs

The PRTY control command assigns execution priority to the next job that you run. If you enter the JOBQ command immediately after PRTY, then PRTY will only affect the job's priority after it is taken off the job queue. The PRTY command no longer affects the position of a job on the job queue. You must use the *jobq prty* parameter of the JOBQ command to assign a job a position on the job queue.

The format of this command is:

```
PRTY [,HIGH  ]
     [,ON    ]
     [,MEDIUM]
     [,OFF   ]
     [,NORMAL]
     [,LOW   ]
```

Parameters

HIGH: The highest level priority you can set for your job's execution. System resources are assigned to a high priority job before they are assigned to any other job.

ON: The default. ON is equivalent to HIGH.

MEDIUM: The second level of priority for a job's execution.

NORMAL: The third level of priority for a job's execution. NORMAL overrides any other priority specified within the job.

OFF: The equivalent of NORMAL, but does not override any other priority specified in the job.

LOW: The lowest level of priority you can set for your job's execution. System resources are assigned to any higher priority jobs before they are assigned to a job with low priority.

You should reserve HIGH or ON for jobs that must have the highest available priority.

For a job with high priority requirements, key in PRTY ,HIGH or PRTY ,ON or just PRTY. Press the Enter key and then enter the OCL statements, procedure, or menu number for the job you want to execute.

To assign a job a specified position on the input job queue, use the JOBQ command. See the sections on JOBQ later in this chapter.

How to Specify Printer Information for a Job

You can use the PRINTER OCL statement to specify the following:

- Number of lines per page
- Characters per inch for the 5225 Printer (models 1 through 4) and for the 5224 Printer (models 1 and 2)
- Lines per inch for 5224/5225 Printer
- Forms number
- Whether or not printer output should be spooled
- Number of copies of spooled output to be printed
- Whether or not printing of spooled output can begin before the job step completes
- The priority of the spooled printed output
- The printer to be used for the printed output
- The file name used by the program to refer to the printer
- Whether or not the printer should be capable of printing ideographic data (ideographic version of SSP only)
- Whether EXTN character processing should be done

You can use the STATUS PRT control command to display the current values of these items, except characters per inch. The PRINTER statement must be between the LOAD statement and associated RUN statement for the program. Refer to the *System Support Reference Manual* for details about the PRINTER OCL statement.

How to Specify the Region Size for a Job

You can use the REGION OCL statement to specify the region size available for a job or a job step. Refer to the *System Support Reference Manual* for details about the REGION OCL statement. You can use the STATUS control command to display the region size. You can use the SET command to specify the default region size for a work station.

How to Set Display Station Indicators

You can use the SWITCH OCL statement to set one or more of the external indicators for the display station on or off. SWITCH can be anywhere among OCL statements. Refer to the *System Support Reference Manual* for details about the SWITCH OCL statement. You can use the STATUS session control command to display these indicators.

MESSAGES

Messages can appear at your display station to indicate errors diagnosed by the system or by programs that you have submitted, device errors, and, in some cases, information or instructions to you.

Messages can appear anywhere on the display, but most appear on the bottom line or bottom two lines of the display.

While you operate the display station, you may hear a buzzer or see the Message Waiting indicator to indicate that there is a message waiting for you. The following types of indications and messages can occur at your display station:

- Buzzer, no Message Waiting indicator:
  - A system log message at the bottom of the display. The message may have options (0, 1, 2, 3) that must be responded to.

- No buzzer, no Message Waiting indicator:
  - Control command errors that require correction, or
  - Informational messages from a procedure that require no action

- Buzzer and Message Waiting indicator: message sent by an MSG command from another display station or a message routed to both the system console and the display station.

- Flashing four-digit number in lower-left corner of screen, no buzzer, no Message Waiting indicator: keyboard error which must be corrected. Either press the Error Reset key and correct the error, or press the Help key for additional information.

Note: If the buzzer sounds and no apparent message has been sent, it may be because the job that sent the message completed processing and the message was deleted. This happens if the configuration option to keep informational messages at end of job was not taken.

System messages (along with OCL statements and commands) are written to the history file on disk. This occurs when the message is issued and again when (and if) you respond to the message.

Figure 2-9 shows and explains a sample message that can appear at a display station.

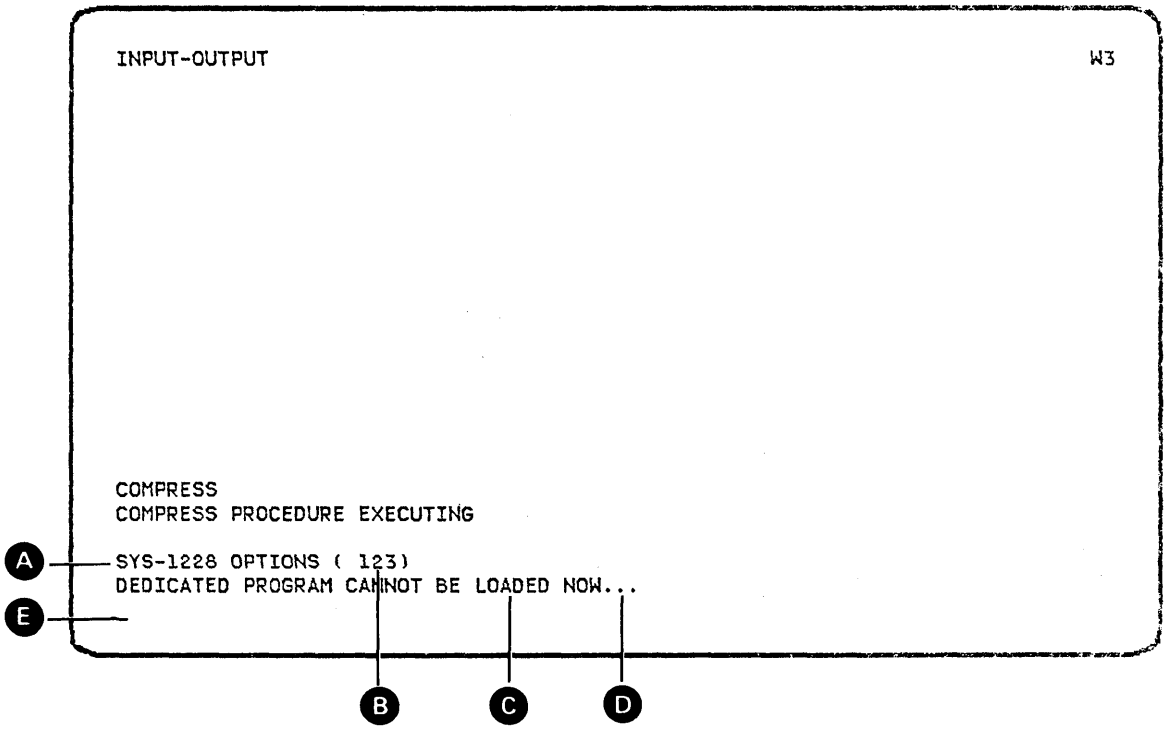


Figure 2-9. Sample Message that Can Appear at a Display Station

A Message Identifier, which consists of three or four characters followed by four numbers. Each message that has an identifier other than USER is documented in the *Displayed Messages Guide.* You can use the character code to find the appropriate chapter in the guide. The codes are:

SYS—System Support Program
KBD—Keyboard
RPG—RPG II
SORT—Sort Program
DFU—Data File Utility
SEU—Source Entry Utility
WSU—Work Station Utility
ASM—Assembler
SDA—Screen Design Aid
FORT—FORTRAN
CBL—COBOL
BAS—BASIC
EMU—3270 Device Emulation
ESU—3270 Device Emulation
CGU—Character Generator Utility
SRTX—Ideographic sort

The messages are listed in sequence within each chapter according to the four-digit number. (This number is called a message identification code.)

B Options list the valid responses for the message. Each message contains only the options that apply to that message. Possible options are:

Option 0: when you select this option, generally the error is ignored and the job continues. Always refer to the *Recovery* part of each message description in the *Displayed Messages Guide* for specific details before selecting this option.

Option 1: when you select this option, generally you can retry the operation causing the error and continue the job. Always refer to the *Recovery* part of each message description in the *Displayed Messages Guide* before selecting this option.

Option 2: when you select this option, generally you can end the job step. If option 2 ends the job step, any new data created up to this point is preserved, and the job can continue with the next job step.

Option 3: select this option to cancel the job. Any new data created or work done by a previous job step is preserved; however, any new data created or work done by the current job step is lost.

C Message text.

D Three periods at the end of message text indicate that there is additional information that you can display for the message. Press the Enter/Rec Adv key to cause the additional information to appear. See Figure 2-10 for a sample Additional Information display.

E Key your response here.

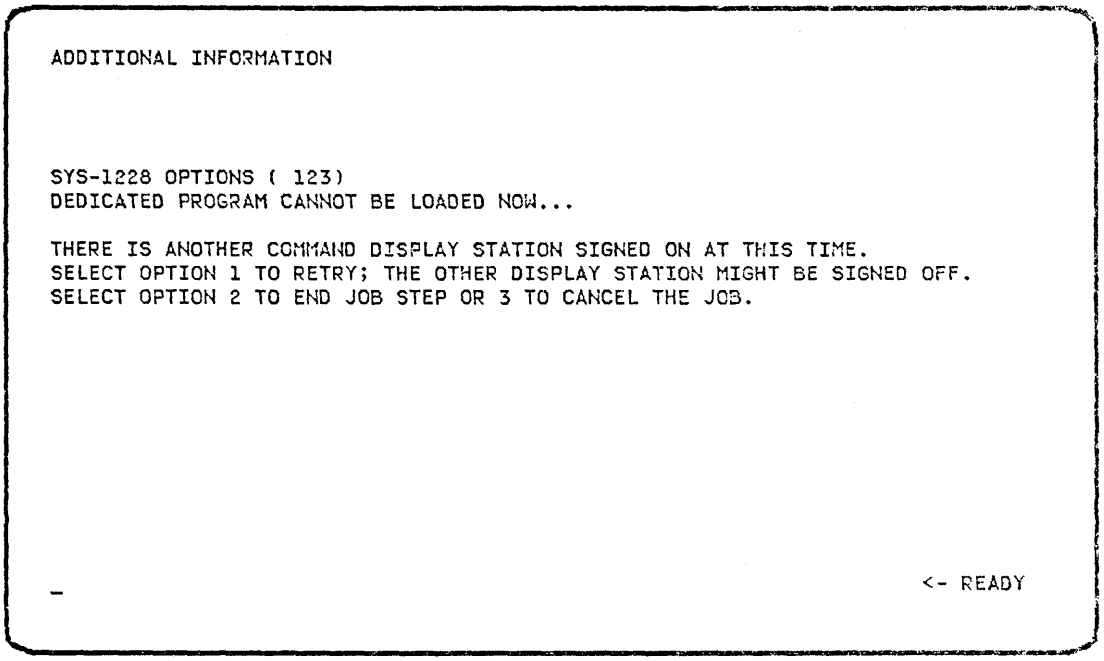


Figure 2-10. Sample Additional Information Display

The Additional Information display (Figure 2-10) gives you more information about a displayed message. Enter your response (1, 2, or 3) at the cursor and press the Enter/Rec Adv key.

Figure 2-11 is a guide to help you respond to messages that appear at a display station. This guide assumes that a one-line or two-line message is on the display.

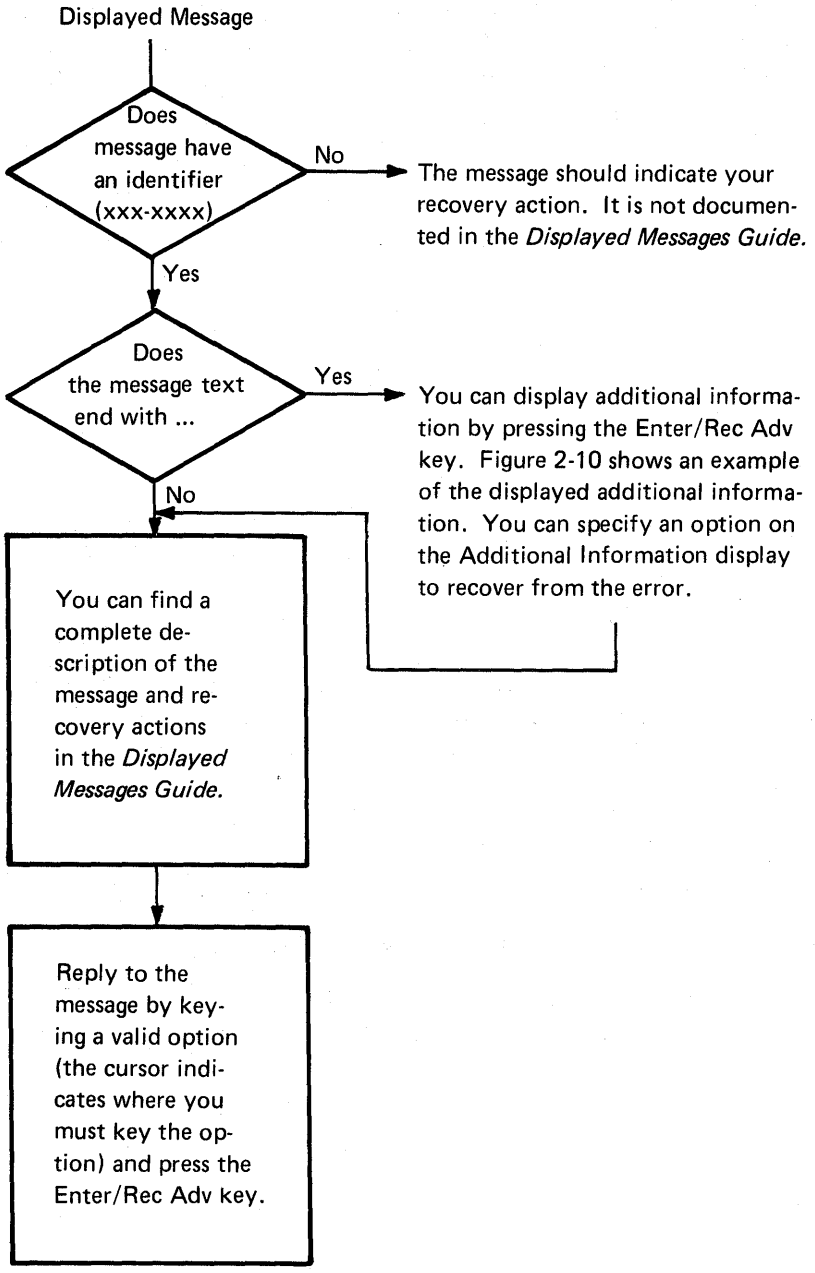


Figure 2-11. Guide to Responding to Messages at a Display Station

Keyboard Errors

Keyboard errors are indicated by a flashing four-digit number in the lower-left corner of the display; the Message Waiting indicator does not come on and the buzzer does not sound. If you know the cause of the error, press the Error Reset key and reenter the required data. If you do not know the cause of the error, press the Help key. A message appears on the bottom line of the display (see Figure 2-12). If you need an explanation of the message, refer to the KBD section of the *Displayed Messages Guide* for an explanation and then take the recommended recovery action.

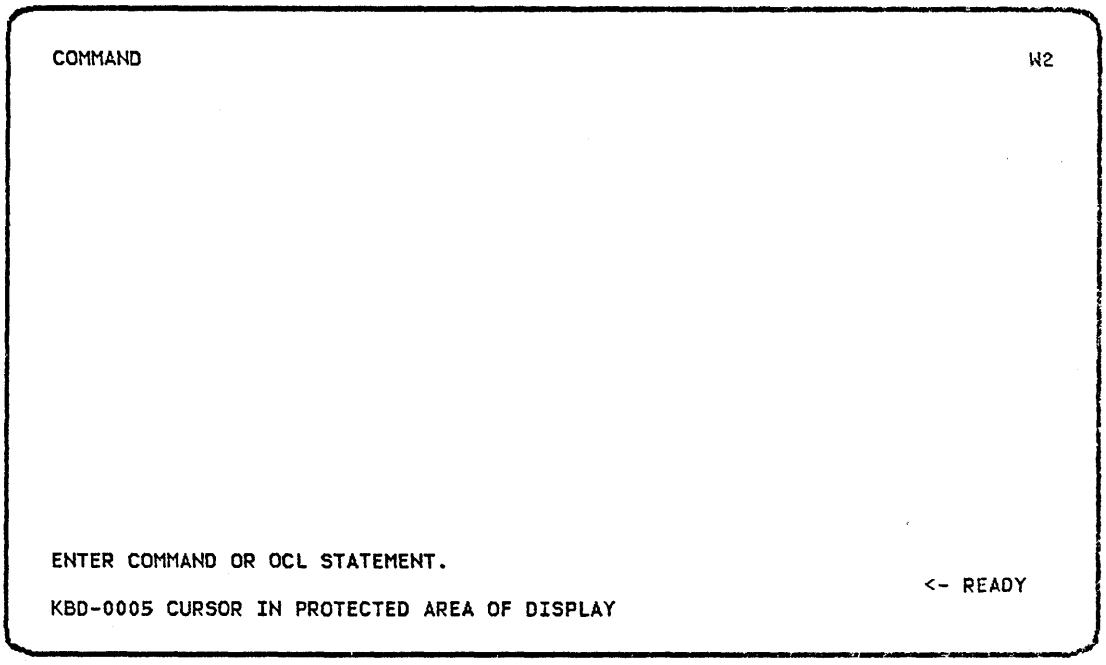


Figure 2-12. Sample Keyboard Message, after the Help Key Has Been Pressed

How to Send a Message

The MSG control command allows you to send a message to the system console, to a selected display station, or to a display station operator.

Command Format

MSG [[ws-id / user-id] , message text]

Parameters

ws-id: The two-character ID of the work station to receive the message. You can use the STATUS WORKSTN control command to determine the work station ID.

user-id: The ID of the operator who is to receive the message. Each operator enters a user ID on the sign-on display to start the work session. You can use the STATUS WORKSTN control command to determine the user ID.

Note: If you omit the user-id and ws-id, the message is sent to the system console.

message text: As many as 60 characters of text are allowed. If you need to send a message that is longer than 60 characters, you will have to send more than one message.

Example

You, a display station operator, are ready to submit a job that requires diskette BFILE. To inform the system operator that this diskette is required, enter:

```
MSG  ,NEXT JOB REQUIRES DISKETTE BFILE
```

Note: If you specify Y (yes) for IGC session at sign-on, and if you are sending a message to an ideographic-capable display station, the message text might contain ideographic characters.

If you are sending a message with ideographic characters, you must key in MSG, the work station ID, and the comma in alphanumeric mode. You can then enter ideographic characters. Refer to the *5255 Display Station Operator's Guide* for further information.

How to Display Messages Sent from Other Display Stations

Messages sent to your display station from other operators by the MSG command are not always displayed immediately but might be held for you to display as soon as convenient. Each time a message comes to your display station from the MSG command, the display station buzzer sounds and the Message Waiting indicator turns on. A maximum of 15 MSG command messages can be held at one time. If 15 messages have been received but not yet displayed, additional messages sent by the MSG command are not accepted, and the sender receives a message that the message failed to get to your display station.

You can use the MSG control command to display any messages that are waiting for you. To enter the MSG control command, your display station must be in command mode, standby mode, or inquiry mode. Enter MSG with no parameters. Figure 2-13 shows an example of the display that appears.

Press the Enter/Rec Adv key to exit from the MSG display.

If you do not use the MSG command to display the waiting messages, they are not displayed until the job that is executing ends.

Messages sent to a display station that is not signed on are automatically displayed after sign-on.

When you sign off, any messages that were waiting to be displayed at your display station are lost.

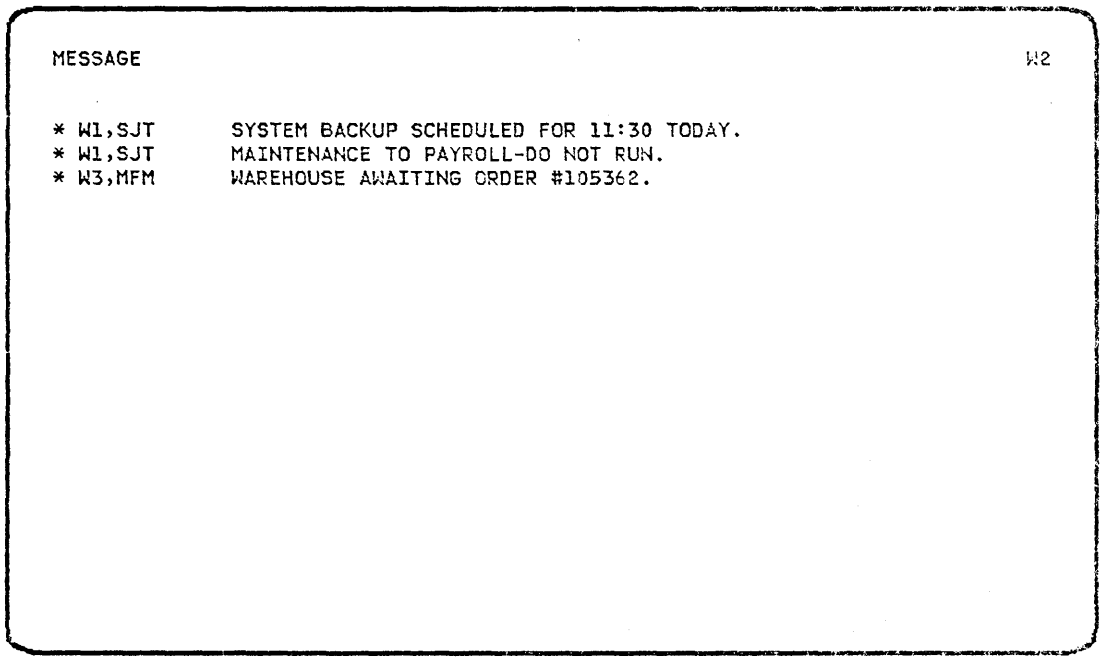


Figure 2-13. Sample Display of Messages Sent from Other Display Stations

How to Display Dually Routed Messages

Messages routed to both your display station and the system console by SYSLOG are displayed via the MSG command. Messages can also be dually routed from subconsoles to your display station. The display station buzzer sounds and the Message Waiting indicator turns on. To display the message, your display station must be in command mode, standby mode, or inquiry mode. Enter MSG with no parameters. Figure 2-14 shows an example of the display that appears.

Press the Enter/Rec Adv key to exit from the MSG display.

If you do not use the MSG command to display the waiting messages, they are not displayed until the job that is executing ends.

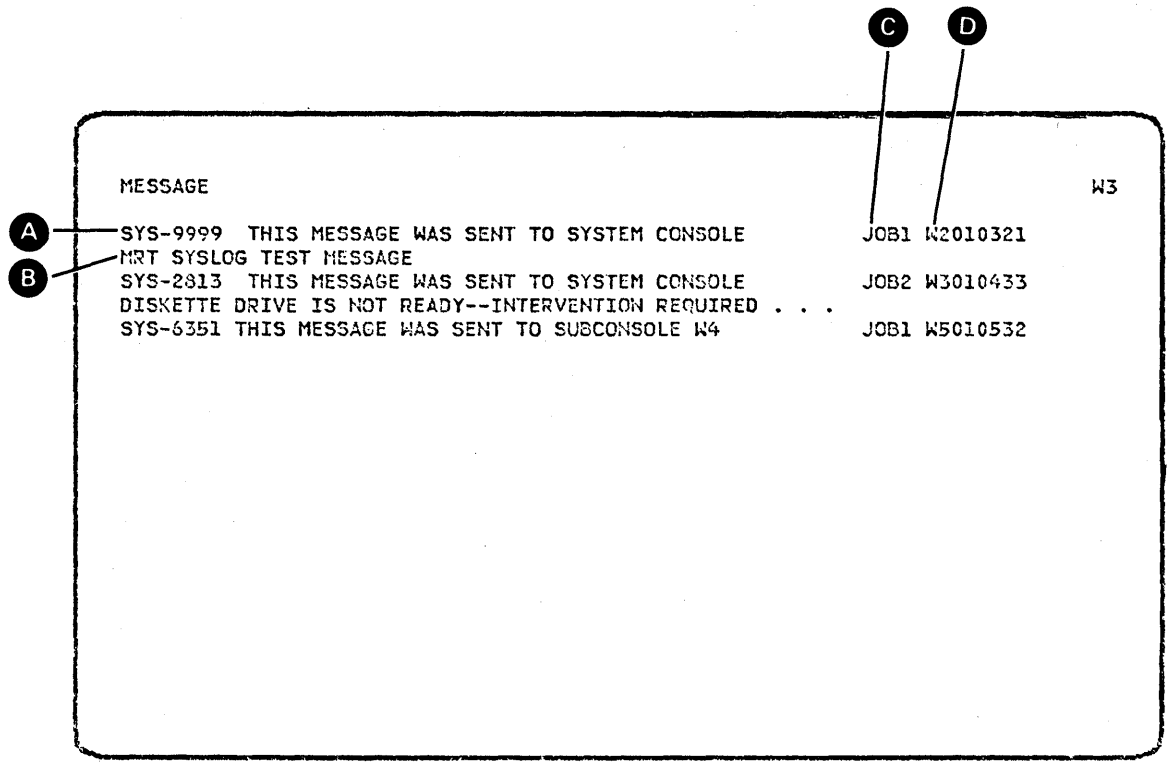


Figure 2-14. Sample Display of Messages Rerouted from the System Console

A MIC: number of the rerouted message.

B Text of the rerouted message.

C JOB1 or JOB2: indicates whether the rerouted message is for the job on the main program level (JOB1) or for the job run under inquiry (JOB2).

D Job name assigned by the system.

Note: If the system console has specified Y (yes) for IGC session, and if your display station is not ideographic capable, rerouted messages will contain periods in place of ideographic characters.

How to Suppress Informational Messages

The IDELETE control command specifies whether informational messages should be displayed. An informational message is one that does not require an operator response. If IDELETE is active (ON), informational messages will not be displayed unless the Input/Output display is active. IDELETE is useful when you do not want to see informational messages.

Command Format IDELETE [ON / OFF]

Parameters
ON: Informational messages are not displayed.
OFF: Informational messages are displayed.

COMMAND FUNCTION KEYS AND FUNCTION CONTROL KEYS

Command function keys are the row of numeric keys at the top of the keyboard. They function as command keys when you press the CMD key (CMD) followed by either lowercase ! 1 through + = or the uppercase values of these keys (| through *). Function control keys are the Print, Roll↑ (roll up), Roll↓ (roll down), Clear, Help, and Home keys.

Your programmer can decide which command function keys and function control keys to enable for your system's uses. Your programmer must then tell you which function control keys are enabled and which command key calls each selected function. For example, your programmer may decide to have command key 7 enabled to end a job. To end a job, you would press the CMD key and the & 7 key. To perform a different function, assigned to command key 14, press the CMD key, press and hold the shift key ⇧ and press the @ 2 key. Refer to the table that follows for the command key numbers and their corresponding numeric keys.

If you press one of these keys when it is not enabled, an error message appears and no data transfer occurs. To continue, press the Error Reset key and the correct key.

Lowercase Value		Uppercase Value	
Command Key 1	1	Command Key 13	|
Command Key 2	2	Command Key 14	@
Command Key 3	3	Command Key 15	#
Command Key 4	4	Command Key 16	$
Command Key 5	5	Command Key 17	%
Command Key 6	6	Command Key 18	¬
Command Key 7	7	Command Key 19	&
Command Key 8	8	Command Key 20	*
Command Key 9	9	Command Key 21	(
Command Key 10	0	Command Key 22	)
Command Key 11	-	Command Key 23	_
Command Key 12	=	Command Key 24	+

Note: On ideographic keyboards, the command keys are different. See Appendix A for illustrations of the Kanji and Taiwan ideographic keyboards and the ideographic function control keys.

DUP KEY

The SSP has enabled the Dup key on the input fields of the Input-Output display. When you press the Dup key in a field programmed to allow duplication, an asterisk with an overscore ($\overline{*}$) is placed in the cursor position and all the following positions of that field. This special symbol represents a request to the program to duplicate the information from the same field in the previous record. If you press the Dup key in a field not programmed to accept duplication, an error is displayed.

If you specified Y (yes) for IGC session, the Dup key will not function.

PRINT SPOOLING

Print spooling is a part of the System/34 SSP that stores print data on disk for later printing. With print spooling, job output for a printer is intercepted and stored on disk in a spool file. Upon operator request, the stored output prints while another job executes. The other job may also have printed output that is spooled. Processing with print spooling allows additional programs to execute without waiting for a printer.

As a display station operator, you can:

- Display your entries on the spool file
- Display the status of the spool writer(s)
- Cancel your entries on the spool file
- Hold your entries on the spool file
- Release your entries on the spool file
- Change defer status or forms number for your spool file entries
- Change the number of printed copies of your spool file entries

In addition, user access to the spool file allows you to display data that is being stored on the spool file without having to print it out. You can cancel the entry or can release the entry to print by specifying parameters on the COPYPRT procedure. If you specify CANCEL, the program will cancel the spool file entry before it is displayed on the screen. You can also leave the status of the entries unchanged. See the *System Support Reference Manual* for additional information on the COPYPRT procedure.

How to Display Spool File Entries

The Spooled Print Status display shows your entries that are in the spool file.

Command Format

```
STATUS PRT [,ws-id]
(D)    (P)
```

Parameter

PRT: Displays your spool file entries. Refer to Figure 2-15 for an explanation of the display that appears.

ws-id: Displays only your spool file entries that are destined for the printer with the specified work station ID. If you do not enter a work station ID, all your spool file entries are displayed.

Example

STATUS PRT or

D P

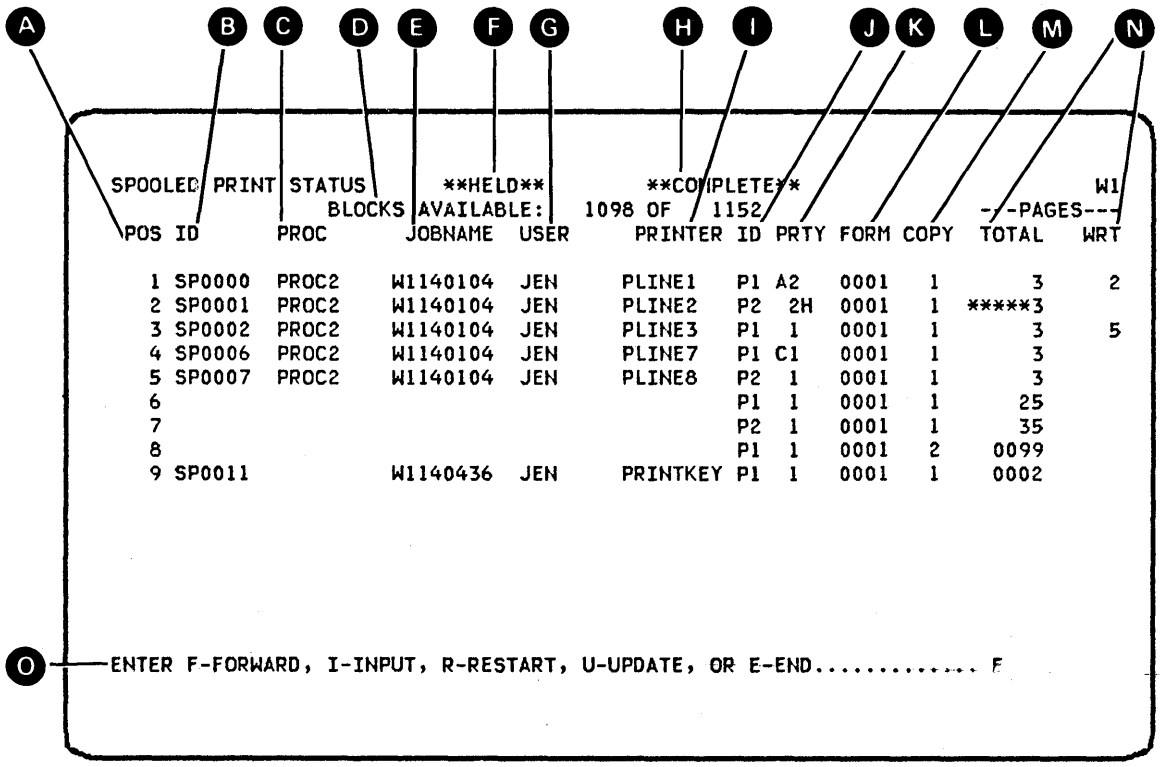


Figure 2-15. Spooled Print Status Display

A POS: the relative position of the entry in the spool file. In Figure 2-15, notice that lines 6, 7, and 8 are partially blank because the entries in these positions belong to a different display station operator.

B ID: the name assigned by the system to this print file. This is the spool-id used with the spool commands. Only spool-ids for your jobs are displayed.

C PROC: the outermost procedure name associated with this entry. If this entry is blank, the job was run through OCL (// LOAD), or belongs to a different display station operator.

D BLOCKS AVAILABLE: the number of blocks available in the spool file or the extents that can still be allocated on disk out of the total number that can be allocated if space is available. The spool file is full when the first number is zero.

E JOBNAME: the job name assigned by the system (work station ID and time).

F HELD: indicates that the entire spool file is being held. No jobs can be printed until the spool file is released by the RELEASE PRT command. Jobs can still be written to the spool file.

G USER: the user ID associated with this entry. Only entries with your user ID will be completely displayed.

H COMPLETE: appears only on the last screen of the Spooled Print Status display.

I PRINTER: the printer file name associated with this job.

J ID: the ID of the printer that output is to be routed to.

K PRTY: the priority assigned to this job from the printer statement. An A indicates that the spool writer is currently printing this entry. A C indicates that the spool file entry is being copied by the user access to spool (COPYPRT) procedure. An H indicates that the spool file entry is held.

L FORM: the form number assigned to this job.

M COPY: the number of copies remaining to be printed; default is 1 unless changed on a PRINTER statement or by the CHANGE command. If the job is being printed, this value includes the copy being printed.

N TOTAL: the total number of pages of output generated. If the number is preceded by one or more asterisks, the print entry is still being created and the number indicates which page is being created. If the page count is zero and there are no asterisks displayed with the zero, the system failed before the spool file entry was completed.

WRT: the page number that is being printed. If a spool file entry is being printed by the spool writer, this column indicates the page number that is being printed. If the spool writer is stopped while printing a spool file entry, this column indicates the page number that was being printed by the spool writer when it was stopped.

O This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were entered.

How to Display the Spool Writer Status

The Spool Writer Status display shows the status of the spool writer for each printer.

Command Format

STATUS WRT [,ws-id]
(D)

Parameter

WRT: Displays the status of the spool writer for each printer. Refer to Figure 2-16 for an explanation of the display that appears.

ws-id: The printer ID for which the spool writer status information is to be displayed. If you do not specify a printer ID, the spool writer status information for all printers is displayed.

Example

STATUS WRT or

D WRT

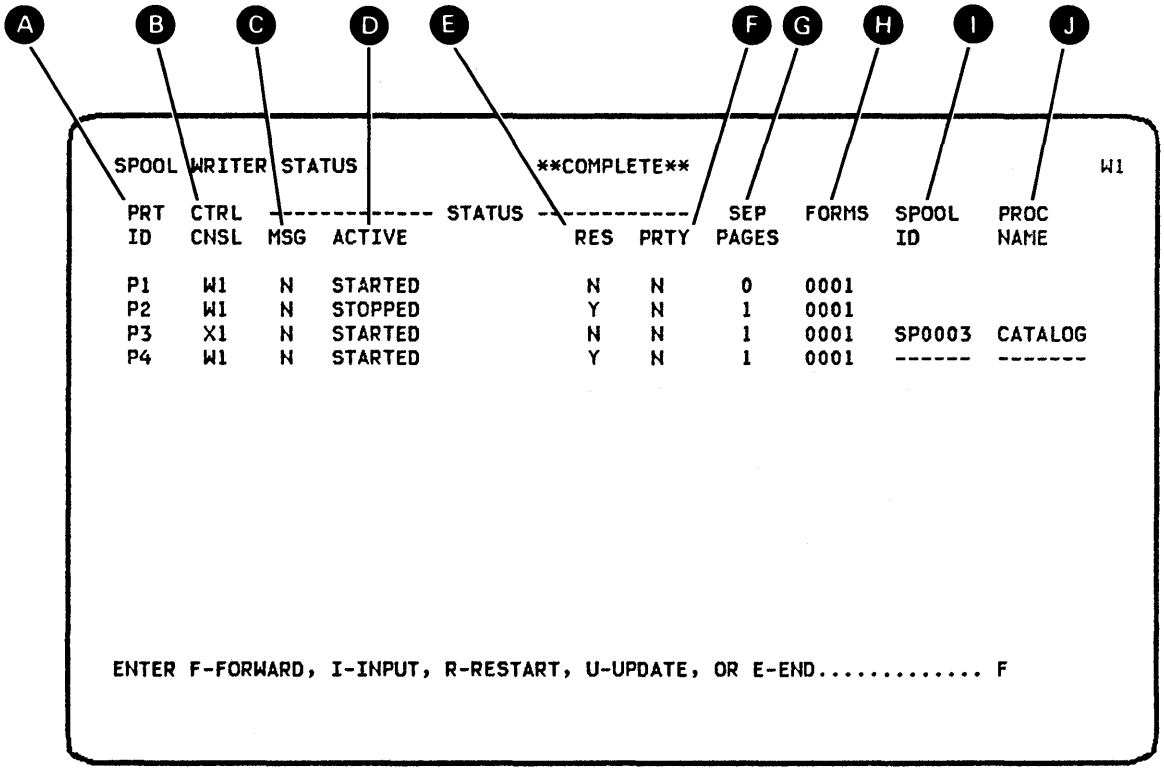


Figure 2-16. Spool Writer Status Display

(A) PRT ID: the ID of the printer.

(B) CTRL CNSL: the ID of the display station that controls the printer. If the printer is currently controlled by a subconsole, the ID of the subconsole is displayed; if the printer is not currently controlled by a subconsole, the system console ID is displayed.

(C) MSG: Y specifies that a spool writer message is pending. N specifies that no spool writer messages are pending.

(D) ACTIVE: indicates one of the following for the status of the spool writer:

- STARTED: indicates that the spool writer is started.
- STARTED forms number: indicates that the spool writer is started and will print only the entries that require the forms number that was specified with the START PRT command.
- RESTARTED: indicates that the subconsole operator or the system operator has entered the RESTART command and that the spool writer has been restarted.
- STOPPED: indicates that the spool writer is stopped.
- STOP PAGE: indicates that the spool writer will be stopped when it finishes printing the current page because the STOP PRT command was entered with the PAGE parameter.
- STOP JOB: indicates that the spool writer will be stopped when it finishes printing the current job because the STOP PRT command was entered with the JOB parameter.
- STOP SYSTEM: indicates that the spool writer is started but that the system operator has entered a STOP SYSTEM command; therefore, the spool writer cannot perform any printing until the system operator enters a START SYSTEM command.
- QUEUE HELD: indicates that the spool writer is started but that the system operator has entered the HOLD PRT command; therefore, the spool queue is held and the spool writer cannot perform any printing until the system operator enters a RELEASE PRT command.

(E) RES: Y specifies that the spool writer is resident. N specifies that the spool writer is swappable.

(F) PRTY: indicates the priority assigned to this spool writer: H indicates a high priority and N indicates a normal priority.

(G) SEP PAGES: indicates the number of separator pages that are printed preceding each spool file entry.

(H) FORMS: indicates the forms number that the spool writer is currently using for printing.

I SPOOL ID: is the 6-character system-assigned name of the entry on the spool file that the spool writer is currently printing.

J PROC NAME: is the name of the procedure that created the spool file entry that the spool file writer is currently printing.

Notes:

1. The spool-id and the procedure name are both blank if the spool writer is not currently printing a spool file entry.
2. The spool-id and the procedure name are both displayed if the spool writer is currently printing a spool file entry that you created.
3. — (dashes) are displayed instead of the spool-id and the procedure name if the spool writer is currently printing a spool file entry that you did not create.

How to Cancel a Spool File Entry

Command Format

```
CANCEL PRT,spool-id
(C)    (P)
```

Parameters

PRT: Cancels the specified entry (spool-id) from the spool file.

spool-id: The 6-character spool file ID, beginning with the characters SP. You can use the STATUS PRT control command to determine the spool file ID of the entry to be canceled.

Note: As a display station operator, you can cancel only entries you have placed on the spool file.

Example

To cancel an entry with a spool file ID of SP0036, enter:

```
CANCEL PRT,SP0036 or
C P,SP0036
```

How to Hold a Spool File Entry

Command Format

HOLD PRT,spool-id
(H) (P)

Parameters

PRT: Holds the specified entry (spool-id) on the spool file so that the entry is not printed.

spool-id: The 6-character spool file ID, beginning with the characters SP, of the entry to hold. You can use the STATUS PRT control command to determine the spool file ID of the entry to be held.

Notes:

1. As a display station operator, you can hold only entries you have placed on the spool file.
2. If you specify a HOLD command for an entry while it is printing, the spool writer no longer prints that entry but begins printing the next entry on the spool file. The held entry will not be printed until a RELEASE control command is entered for the held entry.

Example

To hold entry SP0036 on the spool file, enter:

```
HOLD PRT,SP0036 or
H P,SP0036
```

How to Release a Spool File Entry

Command Format

RELEASE PRT,spool-id
(L) (P)

Parameters

PRT: Indicates that a specified entry with the specified ID on the spool file should be released. The RELEASE command releases the spool file entry that is held and makes it available for printing. You can use the STATUS PRT control command to determine the spool file ID of the entry to be released.

Notes:

1. As a display station operator, you can release only entries you have placed on the spool file.
2. When a spool file entry is released, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the sub-console or system operator.
   - The system has been stopped by the system operator.
   - The spool file has been held by the system operator. Use the STATUS PRT command to determine if the spool file has been held.
   - The spool file entry is not available for printing because the entry is still being created, is being copied by the COPYPRT procedure, or requires different forms than the spool writer is using (if the spool writer was started with a forms number specified).
   - There are insufficient system resources to allow the spool writer to begin printing.
   - The printer is offline, is not powered on, or requires some other kind of operator intervention, such as correcting a paper jam. The spool writer attempts to start printing and issues a message when any of these conditions are detected.

Example

To release entry SP0036 on the spool file, enter:

```
RELEASE PRT,SP0036 or
L P,SP0036
```

How to Change the Defer Status of a Spool File Entry

Command Format

CHANGE DEFER, [YES / NO] ,spool-id
(G)

Parameters

DEFER: Indicates whether the spool file entry can be printed while it is being created or only after it has been created.

YES: Indicates that the spool file entry is to be printed only after it has been created.

NO: Indicates that the spool file entry can be printed while it is being created. NO is the default.

spool-id: The 6-character, system-assigned name of the entry on the spool file, which begins with SP. You can use the STATUS PRT control command to determine the spool file ID of the entry for which the defer status is to be changed.

Notes:

1. As a display station operator, you can change the defer status for only those entries you have placed on the spool file.
2. When the defer status of a spool file entry that is still being created is changed to NO, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because the entry is held, is being copied by the COPYPRT procedure, or requires different forms than the spool writer is using (if the spool writer was started with a forms number specified).
   - There are insufficient system resources available to allow the spool writer to begin printing.
   - The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

3. If you change the defer status to YES for an entry that is being both created and printed, the spool writer will no longer print that entry, but begins printing the next entry in the spool file. The entry for which the defer status was changed can be printed after it has been created, or if the defer status is changed back to NO.

Example

To print entry SP0023 while it is being created, enter:

```
CHANGE DEFER,NO,SP0023 or

G DEFER,,SP0023
```

How to Change the Number of Printed Copies of a Spool Entry

Command Format

```
CHANGE COPIES,nn,spool-id
(G)
```

Parameters

COPIES: Changes the number of copies of printed output for an entry on the spool file. You can use the STATUS PRT control command to determine the number of copies remaining to be printed in the spool file.

nn: The number of copies to print for the entry. This parameter can be from 1 through 99.

spool-id: The 6-character, system-assigned name of the entry on the spool file, which begins with SP. You can use the STATUS PRT control command to determine the spool file ID of the entry for which the number of copies is to be changed.

Note: As a display station operator, you can change the number of copies only for the entries you have placed on the spool file.

Example

To change entry SP0011 on the spool file to print five copies of output, enter:

```
CHANGE COPIES,5,SP0011 or
G COPIES,5,SP0011
```

How to Change the Forms Number of a Spool Entry

Command Format

CHANGE FORMS,xxxx,spool-id
(G)

Parameters

FORMS: Changes the forms number to be used for an entry on the spool file.

xxxx: The forms number of the forms to be used for the entry. You can specify from 1 to 4 characters.

spool-id: The 6-character, system-assigned name of the entry on the spool file. You can use the STATUS PRT control command to determine the spool file ID of the entry on the spool file and to determine the forms number for the entry.

Notes:

1. As a display station operator, you can change the forms number only for entries you have placed on the spool file.
2. An error message is issued if you attempt to change the forms number for an entry that is being printed by the spool writer.
3. If the spool writer was started with a specified forms number so that only the spool file entries that required the specified forms are printed, and if the CHANGE command is used to change the forms number required by a spool file entry to the forms number that the spool writer is printing, then the spool writer normally begins printing the spool file entry if the spool writer is not already printing another spool file entry. You can use the STATUS WRT command to determine if the spool writer was started with a specified forms number. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because it is held, is still being created, or is being copied by the COPYPRT procedure.
   - There are insufficient system resources available to allow the spool writer to begin printing.

- The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

Example

To change the forms number of entry SP0011 to PT1, enter

```
CHANGE FORMS,PT1,SP0011 or
G FORMS,PT1,SP0011
```

INPUT JOB QUEUE

The input job queue is an area on disk that contains a list of jobs waiting to be executed on System/34. You can place jobs on the input job queue, cancel jobs you have placed on the queue, and assign priority to jobs before you place them on the queue. By placing a job on the input job queue, you can continue with other activities instead of waiting for the job to execute.

How to Put a Job on the Input Job Queue

Command Format

Parameters

jobq prty: Specifies where a job will be placed on the input job queue. You may enter values 1, 2, 3, 4, or 5. The default is 3. The highest level you can choose is 5. All job queue priority 5 jobs are placed ahead of job queue priority 4, 3, 2, and 1 jobs on the input job queue.

Note: The execution priority of a job is determined by the PRTY command.

library name: Specifies the active user library for this job. The system searches the active user library and then the system library for the procedures and load programs to be executed in this job, and for any active message members or active formats used in this job.

Note: If resource security is active and the library is secured, you must be authorized access to the library. This error is not detected until the job is executing.

procname: The name of the procedure that defines the job to be placed on the input job queue.

parm1 ,parm2 ,. . .: Parameters required by the procedure.

Examples

To place the PAYROLL job (which is in the system library) on the input job queue, enter:

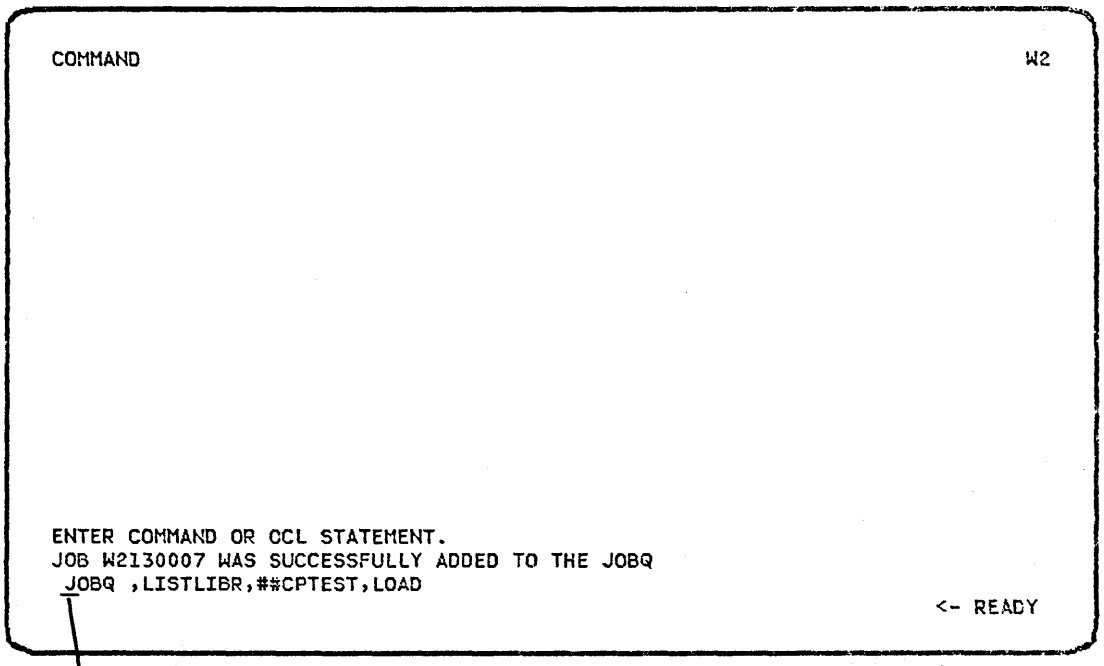
```
JOBQ  ,PAYROLL or
J   ,PAYROLL
```

To give the PAYROLL job a high position on the input job queue, enter:

```
JOBQ 4,,PAYROLL or
J 4,,PAYROLL
```

When you put a job on the input job queue via the JOBQ control command, the name that the system has assigned to the job is displayed.

Press the Enter/Rec Adv key once to submit the job to the input job queue. Pressing the Enter/Rec Adv key several times will cause multiple copies of your job to be submitted to the input job queue.



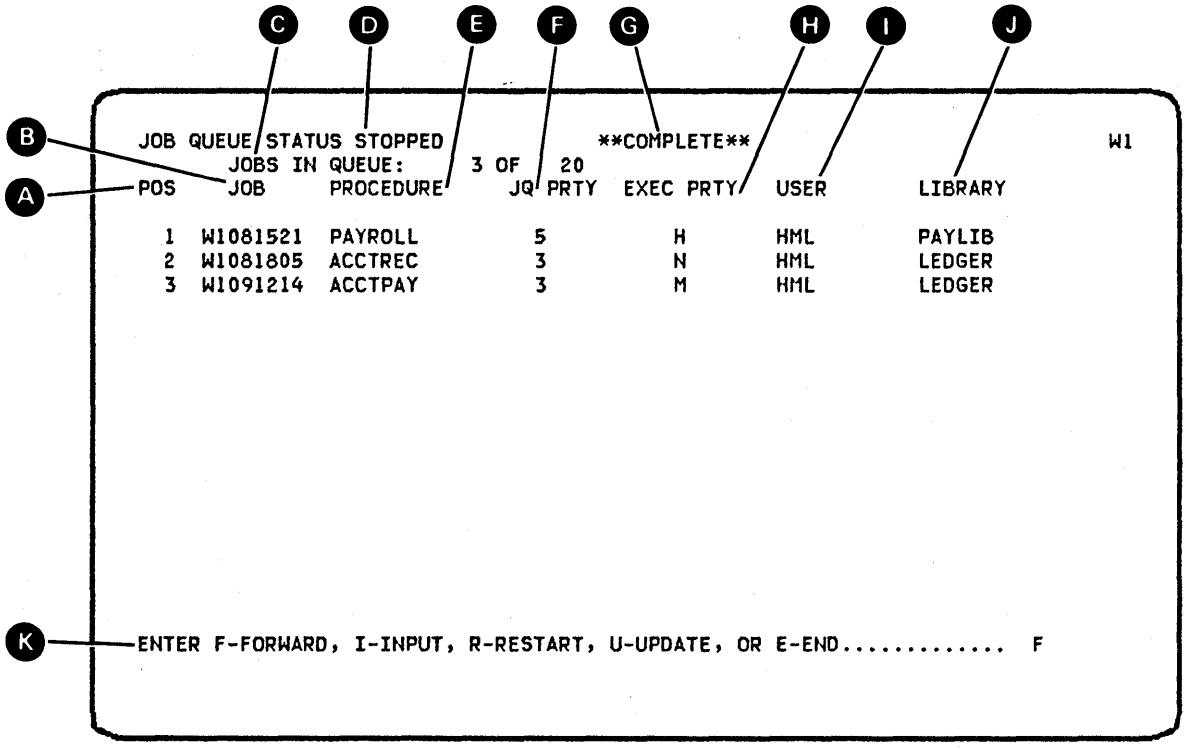
How to Display the Status of One or All Jobs on the Input Job Queue

To display status information about one or all jobs that are on the input job queue and are from your display station with your user ID, enter:

```
STATUS JOBQ [,jobname]
(D)    (J)
```

If [,jobname] is omitted, the display shows the status of all jobs on the input job queue that were entered from your display station with your user ID.

The following display appears:



- **A** POS: the relative position of the job in the queue.
- **B** JOB: the assigned name of this job.
- **C** JOBS IN QUEUE: the number of jobs currently in the queue out of the maximum that can be in the queue.
- **D** STOPPED: appears if processing of jobs on the input job queue has not started.
- **E** PROCEDURE: the procedure name of this job.
- **F** JQ PRTY: the position of a job on the input job queue. Jobs with a job queue priority of 5 are the first to be taken from the queue for execution.

(G) COMPLETE: appears if the entries shown on the screen are the last entries for this display station.

(H) EXEC PRTY: indicates a job's execution priority. Jobs with high priority are run with the least number of interruptions.

- H: High execution priority
- M: Medium execution priority
- N: Normal execution priority
- L: Low execution priority

(I) USER: the user ID of the submitter.

(J) LIBRARY: the optional user library that the procedure is to come from.

(K) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

How to Cancel Jobs on the Input Job Queue

The CANCEL control command cancels a job on the input job queue that you previously entered via the JOBQ control command. The CANCEL command must come from the same display station and the same user-id that were used to place the job on the input job queue.

Command Format

```
CANCEL JOBQ, jobname
(C)    (J)
```

Parameters

JOBQ: Cancels a job on the input job queue.

jobname: The 8-character, system-assigned name of the job that you want to cancel. To cancel job W1001111 on the input job queue, enter:

```
CANCEL JOBQ,W1001111 or

C J,W1001111
```

To see what your job name is, use the STATUS JOBQ command.

How to Assign Priority to Jobs to be Placed on the Input Job Queue

The jobq prty parameter of the JOBQ command assigns a job a specified position on the input job queue. See *How to Put a Job on the Input Job Queue* earlier in this chapter.

To assign execution priority to a job, use the PRTY command discussed earlier in this chapter.

HOW TO INTERRUPT A JOB (INQUIRY)

The inquiry function of System/34 allows you to interrupt an executing job so that you can run another job (inquiry job), cancel a job, or enter commands. For example, you might interrupt a job to retrieve and display information from a data file. When your inquiry completes, you can resume the interrupted job's execution from the point of interruption. If no job is active when you inquire, the system ignores your request. If your display station is in standby mode when it is acquired by a program, you cannot use the inquiry function. Inquiry cannot be done from a data display station.

Press the Attn key to interrupt a job. There may be a short delay before the Inquiry display appears because the system does not allow the Attn key at this time. In most cases, however, the Inquiry display will appear in a few moments.

If the program you interrupted is an SRT (single requestor terminal) program or non-interactive program, the system suspends that job's execution and displays:

```
INQUIRY OPTIONS                    INTERRUPTED JOB W1090606          W3

  0. RESUME INTERRUPTED JOB.

  1. REQUEST COMMAND DISPLAY

  2. CANCEL JOB AND CLOSE FILES.  NEW DATA IS PRESERVED.

  3. CANCEL JOB AND DO NOT CLOSE FILES.  NEW DATA IS LOST.

  4. SET INQUIRY CONDITION FOR PROGRAM.

  5. DISPLAY SESSION STATUS




ENTER NUMBER TO SELECT OPTION OR ENTER MSG CONTROL COMMAND.
-
```

The options you can select are:

0: Resume the interrupted job.

1: Request Command display. When you select this option, the Command display appears. From the Command display, you can run any number of jobs before you return to the interrupted job.

You can interrupt a job running under inquiry (a job you have run via option 1 on the inquiry display), but you cannot run another job at that time. You can also execute control commands.

When a program is interrupted and option 1 is chosen, the switch settings, the active message members, the menu members, and the user library that were active prior to the start of the interrupted program will be active during the inquiry.

For example, if a procedure containing the statement

```
// LIBRARY NAME-JOBLIB
```

is interrupted, the active library for the inquiry would be the library that was active before the procedure started (not JOBLIB).

Note: Some programs will not allow you to select option 1. If the program you are working on does not allow this option, the line showing option 1 will not appear on the screen.

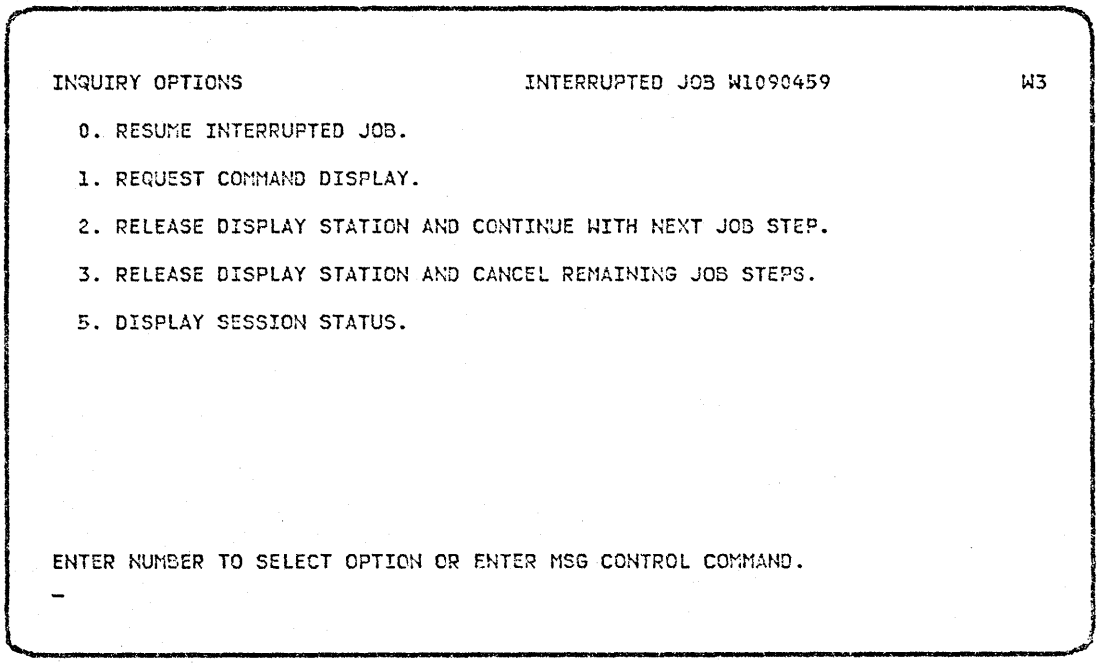
2: End the interrupted job and save new data that has been created.
3: End the interrupted job and do not save the new data that has been created.
4: Set an indicator in the system that can be used by the interrupted job. Select this option only upon programmer request.
5: Display session status.
MSG: Display messages sent to your work station, or send a message to another work station.

Note: When you select a 2 or 3 option cancel, the content of your data files may be unpredictable.

An asterisk (*) appearing next to an option means that the option will be delayed. This means that the program will be resumed until the option can be serviced. An asterisk can appear next to options 1, 2, and 3. If you select one of these options and an asterisk appears, there may be a short delay before the Command display appears.

To return to the interrupted job, select the 0 option or select the 1 option and press Cmd key 1 from the command display.

If the program that you interrupted is an MRT (multiple requestor terminal) program, the system stops processing information from your display station (but continues processing information from the other display stations attached to the MRT program). Your inquiry request will be accepted only if the program has invited input from the display station. Normally, the Input Inhibited light is off when input has been invited from the display station. The following display appears:



The options you can select are:

- 0: Return to the interrupted job.
- 1: Request Command display. When you select this option, the Command display appears. From the Command display, you can run any number of inquiry jobs before you return to the interrupted job.

  You can interrupt a job running under inquiry, but you cannot run another job at that time. You can also execute control commands.
- 2: Release your display station from the program and continue by processing the next step in the job.
- 3: Release your display station from the program and cancel the remaining steps in the job.
- 5: Display session status.
- MSG: Send a message via the MSG command.

To return to the interrupted job, select the 0 option or press the Cmd key and the 1 key.

HOW TO DISPLAY THE TIME

The TIME control command displays the time of day and the system date.

Command Format TIME

Example TIME-14:56:23 DATE 07/19/80

HOW TO SIGN OFF A LOCAL OR REMOTE DISPLAY STATION

Enter the OFF control command to sign off a local display station or a remote display station on a leased line. Your work session will end and the Sign On display will appear.

Command Format OFF [DROP / HOLD]

When using the OFF DROP command to sign off the last remote display station on a switched line, you should not power off the control unit and the display station until the following sequence has occurred:

1. The system clears the display screen.

2. The system turns off the line synchronization light on the display station and the control unit.

Enter OFF HOLD to sign off a remote display station on a switched line and hold the communications line connection. Your work session ends, but the Sign On display will appear. When the Sign On display reappears, you have successfully signed off.

HOW TO DROP A SWITCHED COMMUNICATIONS LINE

If no printer is active, enter OFF or OFF DROP to sign off a remote display station on a switched line. The communications line will be dropped when all remote display stations on the line have signed off using the OFF DROP command and no printer on the line is active. When you enter OFF DROP at a remote display station on a switched line, the Sign On display will not appear.

If you are trying to drop a switched communications line and a printer is active, you must make the printer inactive and then drop the line. To make the printer inactive, perform one of the following steps from the system console, or have the system console operator do one of the following:

- Wait for the printer to complete all jobs.
- If print spooling is active, stop the spool writer for that printer by using the STOP PRT command.
- If print spooling is not active, cancel the program that is using this printer by entering the CANCEL command.

After the printer is inactive, drop the communications line by doing one of the following:

- Using the VARY command to vary the printer off line.
- Signing on one of the remote display stations on that communications line and then using the OFF DROP command to sign it off.

See Chapter 4 of this manual or see the *System Support Reference Manual* for more information on the STOP PRT, CANCEL and VARY commands.

Chapter 3. Subconsole Operation

Subconsole support is part of the optional SSP. Installation of this support is done during CNFIGSSP. For further information about installing subconsole support, refer to the *Installation and Modification Reference Manual.*

Subconsole display stations can be remote or local. Any command display station can be designated as a subconsole display station. During system configuration, subconsoles and printers assigned to them can be specified.

Subconsole mode is used by operators to control printers assigned to their subconsole display station. If security is active, you must be designated as a subconsole operator, system operator, or security officer before you can operate in subconsole mode.

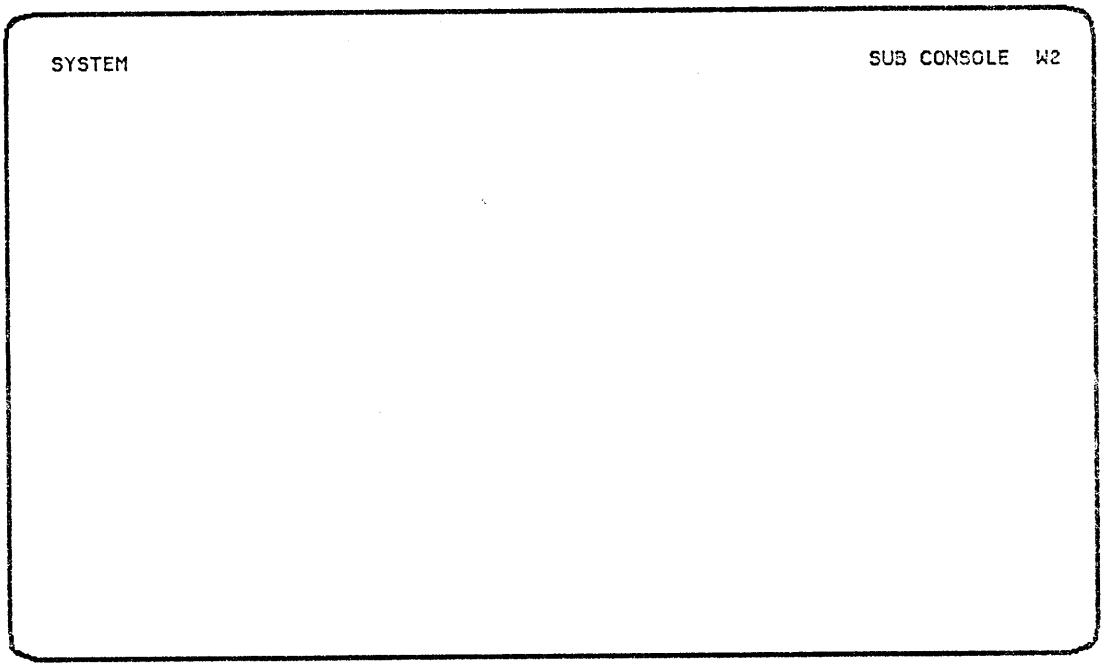
To receive messages intended for a subconsole display station and to control a printer, a subconsole operator must be signed on to a display station that is in subconsole mode.

This chapter describes the functions you can perform as a subconsole operator:

- How to specify subconsole mode
- How to display the status of the system devices
- How to display the status of your communications support
- How to display the status of the input job queue
- How to display the status of your spool file entries
- How to start, stop, and restart spool writers
- How to display the status of spool writers
- How to cancel spool file entries
- How to hold and release your spool file entries
- How to change the number of printed copies for spool file entries
- How to change the defer status of spool file entries
- How to change the forms number for spool file entries
- How to change the printer ID for spool file entries
- How to change the order of spool file entries
- How to change the priority of spool writers
- How to change the resident/swappable attribute of spool writers
- How to change the number of separator pages printed by spool writers
- How to reply to a message
- How to send a message
- How to display the time
- How to sign off a subconsole

HOW TO SPECIFY SUBCONSOLE MODE

To switch to subconsole mode from command mode, hold the Shift key and press the Sys Req key. Then press the Enter/Rec Adv key. The following display will appear to indicate that you are in subconsole mode:



If this subconsole display does not appear, one of the following applies:

- Security is active and you are not designated as a subconsole operator or higher.
- Your display station is not configured as a subconsole display station.
- Your display station is configured as a subconsole display station, but no printers are assigned to it.
- Your display station is configured as a subconsole display station, but the system operator has used an ASSIGN NOSUB control command which restricts your display station from operating in subconsole mode.
- Your subconsole display station is configured as an alternative system console, and was made the system console via the CONSOLE command. After another display station becomes the system console, your subconsole returns to alternative status. The system operator must assign the subconsole attribute for your subconsole display station to reactivate the subconsole function.

A message is displayed indicating one of the above. After viewing the message, press the Reset key.

You may get a blank screen instead of a subconsole display. This will happen if you use a STATUS command in subconsole mode and do not end the status display by entering E (end), but sign off with the status display still active. The screen will be blank the next time you sign on and go to subconsole mode. The system will have deleted all answered messages and will have to rebuild the screen display.

Once you are in subconsole mode, you may reply to all messages relating to the printers that your subconsole display station controls. Refer to *Messages* in Chapter 4 for a discussion on handling messages at the subconsole display station.

SUBCONSOLE OPERATOR CONTROL COMMANDS

The following control commands are discussed in this chapter. All can be entered from subconsole mode.

CANCEL JOBQ 3-20

CANCEL PRT 3-29
(C) (P)

CHANGE COPIES. 3-33
(G)

CHANGE DEFER 3-34
(G)

CHANGE FORMS. 3-36
(G)

CHANGE PRT 3-40
(G) (P)

CHANGE PRTY 3-41
(G)

CHANGE RES 3-42
(G)

CHANGE SEP 3-43
(G)

CHANGE ID 3-38
(G)

HOLD PRT 3-30
(H) (P)

MSG 3-45

RELEASE PRT. 3-31
(L) (P)

REPLY 3-44
(R)

RESTART PRT 3-25
(T) (P)

START PRT. 3-23
(S) (P)

STATUS JOBQ. 3-18
(D) (J)

STATUS PRT. 3-21
(D) (P)

STATUS REMOTES 3-10
(D) (R)

STATUS SUBSESS 3-16
(D) (N)

STATUS SUBSYS. 3-14
(D) (I)

STATUS WORKSTN 3-5
(D) (W)

STATUS WRT 3-26
(D) (WRT)

STOP PRT 3-24
(P) (P)

TIME 3-46

HOW TO DISPLAY THE STATUS OF THE SYSTEM DEVICES

Command Format

STATUS WORKSTN [,ws-id]
(D) (W)

Parameters

WORKSTN: Displays status information about the local and non-offline remote display stations and printers, and the diskette drive, or displays status information about a selected display station or work station printer.

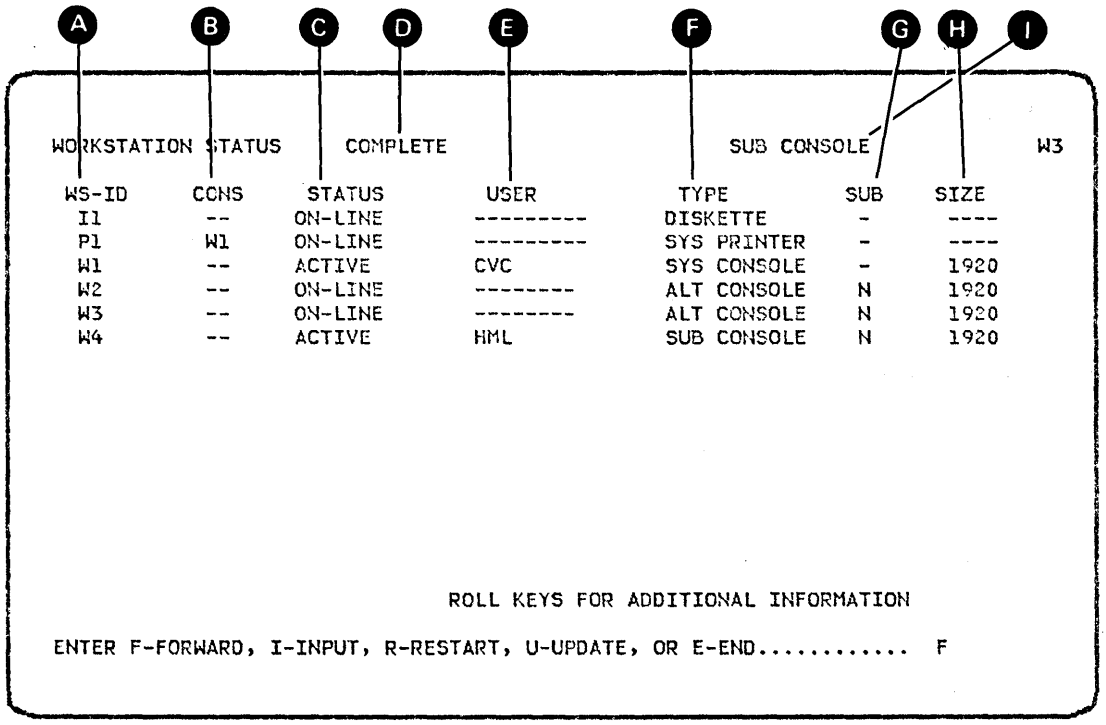
ws-id: The ID of the display station or printer for which status information is displayed. If you do not specify an ID, status information for all display stations and printers is displayed.

Example

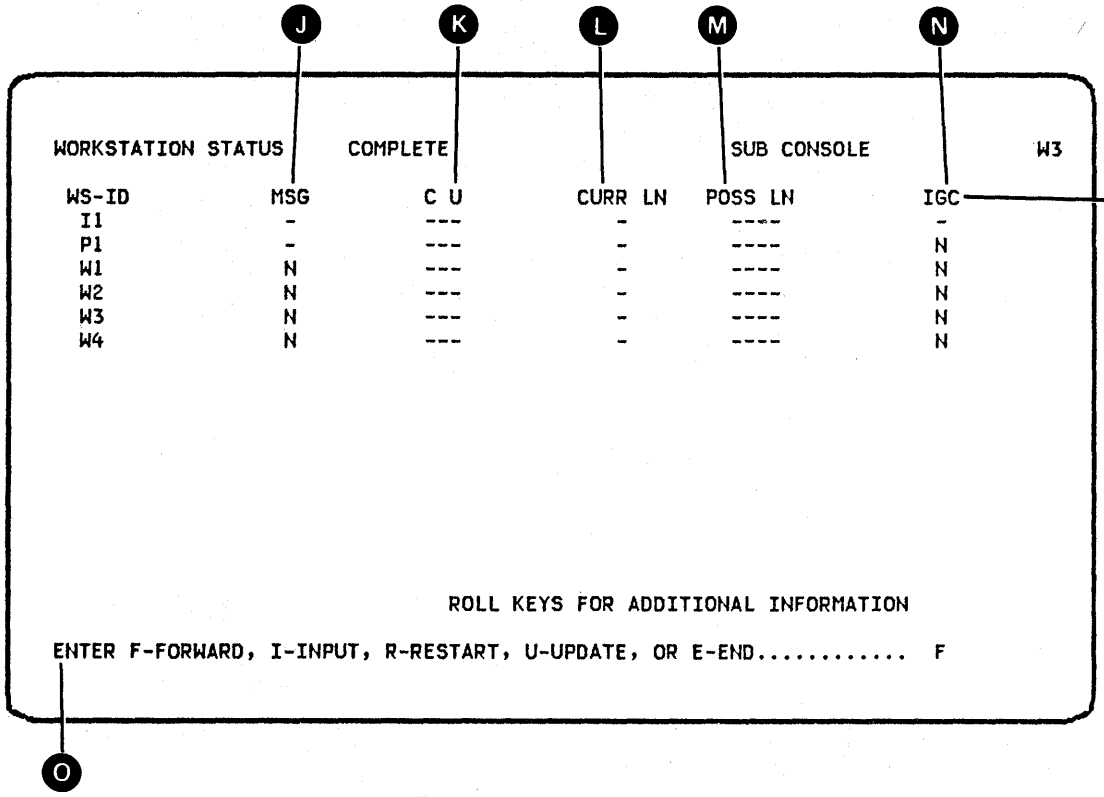
You enter

STATUS WORKSTN or
D W

The following two-part display appears if you do not enter ws-id:



After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the STATUS WORKSTN display appears.



This field appears only if you have the ideographic version of the SSP.

A WS-ID: lists the diskette drive, all local display stations, all local printers, and the remote devices that are active, online, or pending. I1 is the ID for the diskette, and the other IDs are defined at system configuration time.

B CONS: shows the ws-id of the controlling console configured for each printer.

C STATUS: lists the current status of each of the devices. Possible entries are:

ON-LINE — The device is online but is not presently being used.
OFF-LINE — The device has been varied offline by the system operator.
ACTIVE — The device is currently being used.
PENDING — The remote device is being varied on or off.

D COMPLETE appears only on the last page of a status function.

E USER: lists the user ID that was entered at sign-on time for each active display station. Fields for inactive display stations, printers, and the diskette show hypens (----) for the user ID.

(F) TYPE: describes each device listed on this display.

DISKETTE: The diskette drive
SYS PRINTER: The system printer
PRINTER: A printer other than the system printer
DATA: A data only display station
COMMAND: A command display station
SYS CONSOLE: A system console
ALT CONSOLE: An alternative system console
SUBCONSOLE: A subconsole display station

(G) SUB: shows whether a subconsole or an alternative system console is currently active as a subconsole (receiving messages for a printer).

(H) SIZE: shows the size of the display station display screen.

960-character display screen
1920-character display screen

(I) SUBCONSOLE: indicates that the STATUS WORKSTN command was issued from subconsole mode and subconsole commands except REPLY are valid with the I option.

(J) MSG: indicates that broadcast messages failed to get to this display station. Y indicates that the system operator sent a broadcast message to all display stations but this display station did not receive the message because its message queue was full. This field is valid for display stations only; for printers and the diskette drive, this field contains a hyphen (-).

(K) C U indicates the control unit ID of the remote device.

(L) CURR LN: if the device is online and attached via a communications line, shows the line number (line 1, 2, 3, or 4).

(M) POSS LN: if the device is attached via a communications line, shows the numbers of all possible lines on which an offline device can communicate (line 1, 2, 3, or 4). If the device is pending, shows the line number it will communicate on when it is online (line 1, 2, 3, or 4).

(N) IGC: appears only if you have the ideographic version of the SSP.

D Appears if only the display station is ideographic capable.

Y Appears if both the display and the keyboard are ideographic capable, or if the device is an ideographic-capable printer.

N Appears for nonideographic devices.

\- Appears for the diskette drive.

O This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

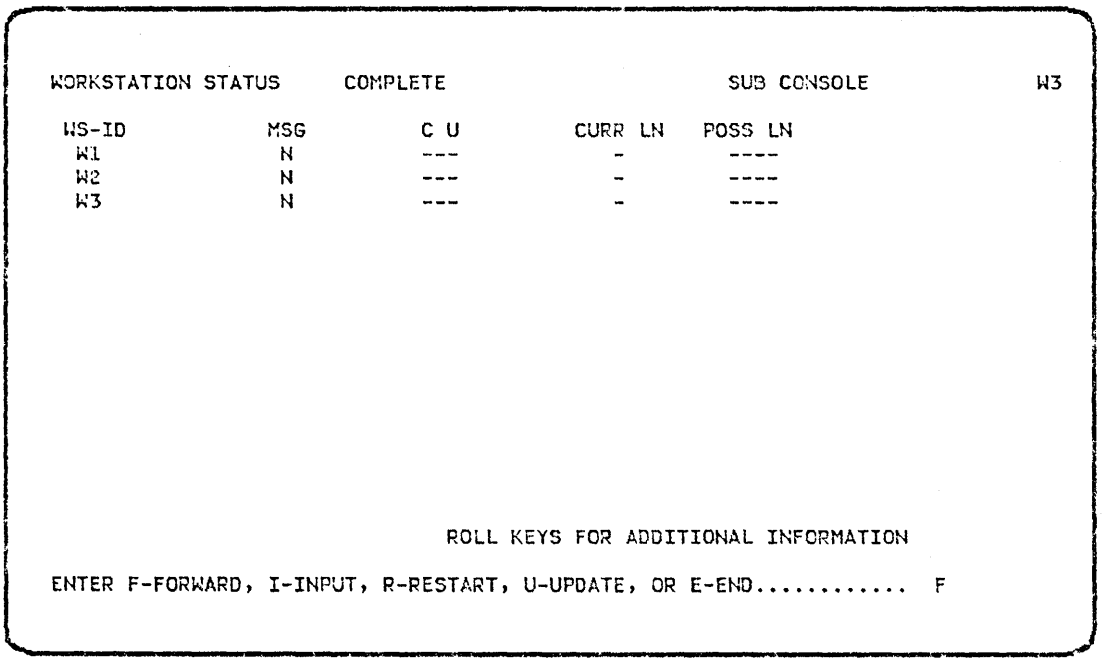
U Updates the display for more current information.

E Ends this status display.

If you enter the STATUS WORKSTN [,ws-id] command and include a work station ID, the following display appears. In this example, work station W3 requested the status of work station W1 (D W, W1).

```
WORKSTATION STATUS     COMPLETE                        SUB CONSOLE                W3

 WS-ID      CONS      STATUS        USER          TYPE          SUB     SIZE
  W1         --      ACTIVE        KSA           SYS CONSOLE     -      1920




                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END............  F
```

After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the display appears.



Note: The status of all work stations is displayed after you press the Roll key instead of only the specified work station.

HOW TO DISPLAY THE STATUS OF THE REMOTE SYSTEM DEVICES

Command Format STATUS REMOTES [,ws-id]
(D) (R)

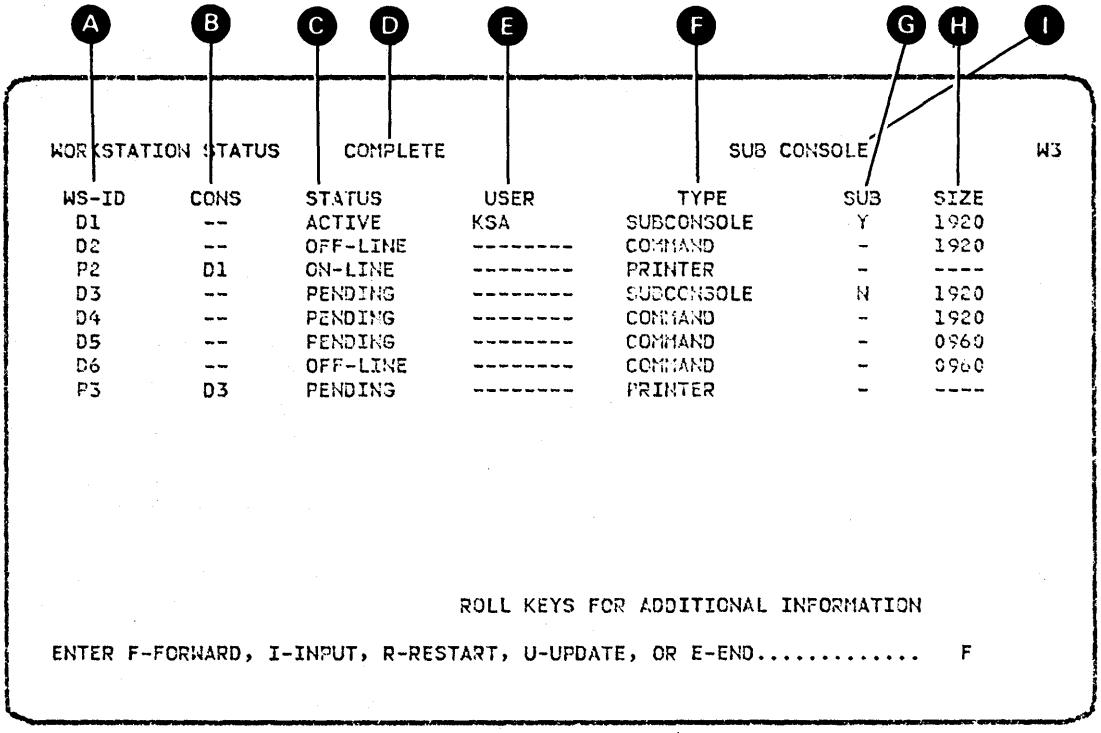
Parameters

REMOTES: Displays status information about the remote display stations and printers, or displays status information about a selected remote display station or work station printer.

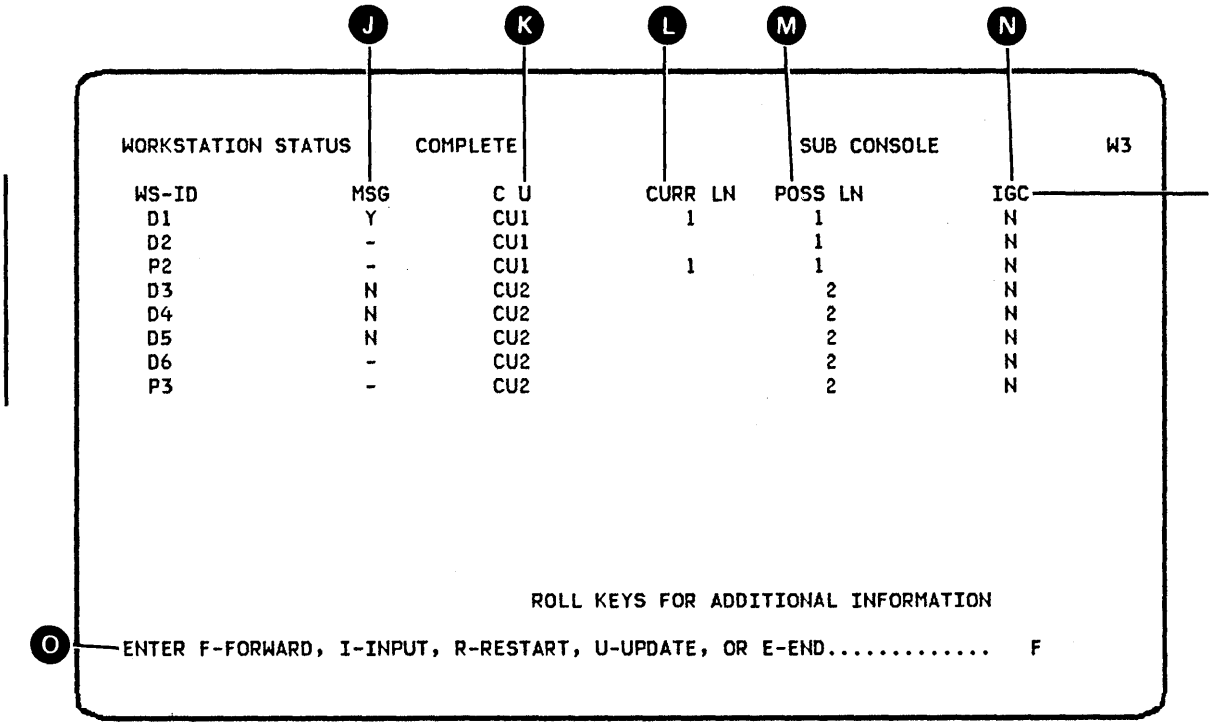
ws-id: The ID of the remote display station or printer for which status information is displayed. If you do not specify an ID, status information for all remote display stations and printers is displayed.

Example

You enter
STATUS REMOTES or
D R
The following display appears:



After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the STATUS REMOTES display appears.



A WS-ID: lists the remote display stations and printers defined for the system.

B CONS: shows the controlling console configured for each printer.

C STATUS: lists the current status of each of the devices. Possible entries are:

ON-LINE – The device is online but is not presently being used.
OFF-LINE – The device has been varied offline by the system operator.
ACTIVE – The device is currently being used.
PENDING – The remote device is being varied on or off.

D COMPLETE appears only on the last page of a status function.

E USER: lists the user ID that was entered at sign-on time for each active remote display station. Inactive remote display stations and printers show hyphens (----) for the user ID.

F TYPE: describes each device listed on this display.

PRINTER: A printer other than the system printer
DATA: A data only display station
COMMAND: A command display station
SUBCONSOLE: A subconsole display station

G SUB: shows whether a subconsole or an alternative system console is currently active as a subconsole (receiving messages from a printer).

(H) SIZE: shows the size of the display station display screen.

960-character display
1920-character display

(I) SUBCONSOLE: indicates that the STATUS REMOTES command was issued from subconsole mode, and subconsole commands are valid with the I option.

(J) MSG: indicates whether broadcast messages failed to get to this display station. Y indicates that the system operator sent a broadcast message to all display stations but this display station did not receive the message because its message queue was full. This field is valid for display stations only; for printers and the diskette drive, this field contains a hyphen (-).

(K) C U: indicates the control unit ID of the remote device.

(L) CURR LN: if the device is online and attached via a communications line, shows the line number (line 1, 2, 3, or 4).

(M) POSS LN: if the device is attached via a communications line, shows the numbers of all possible lines on which an offline device can communicate (line 1, 2, 3, or 4). If the device is pending, shows the line number it will communicate on when it is online (line 1, 2, 3, or 4).

(N) IGC: appears only if you have the ideographic version of the SSP.

Y Appears if the device is an ideographic-capable printer.

N Appears for nonideographic devices.

(O) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

If you enter the STATUS REMOTES [,ws-id] command and include a remote work station ID, the following display appears. In this example, work station W3 has requested the status of work station D1.

```
WORKSTATION STATUS     COMPLETE                    SUB CONSOLE          W3

 WS-ID      CONS      STATUS        USER          TYPE          SUB     SIZE
  D1         --      ACTIVE        KSA           COMMAND        -      1920









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.....  F
```

After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the display appears.

```
WORKSTATION STATUS     COMPLETE                    SUB CONSOLE          W3

 WS-ID            MSG          C U          CURR LN    POSS LN
  D1               N           CU1             1          1









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.....  F
```

HOW TO DISPLAY THE STATUS OF THE SSP-ICF SUBSYSTEMS

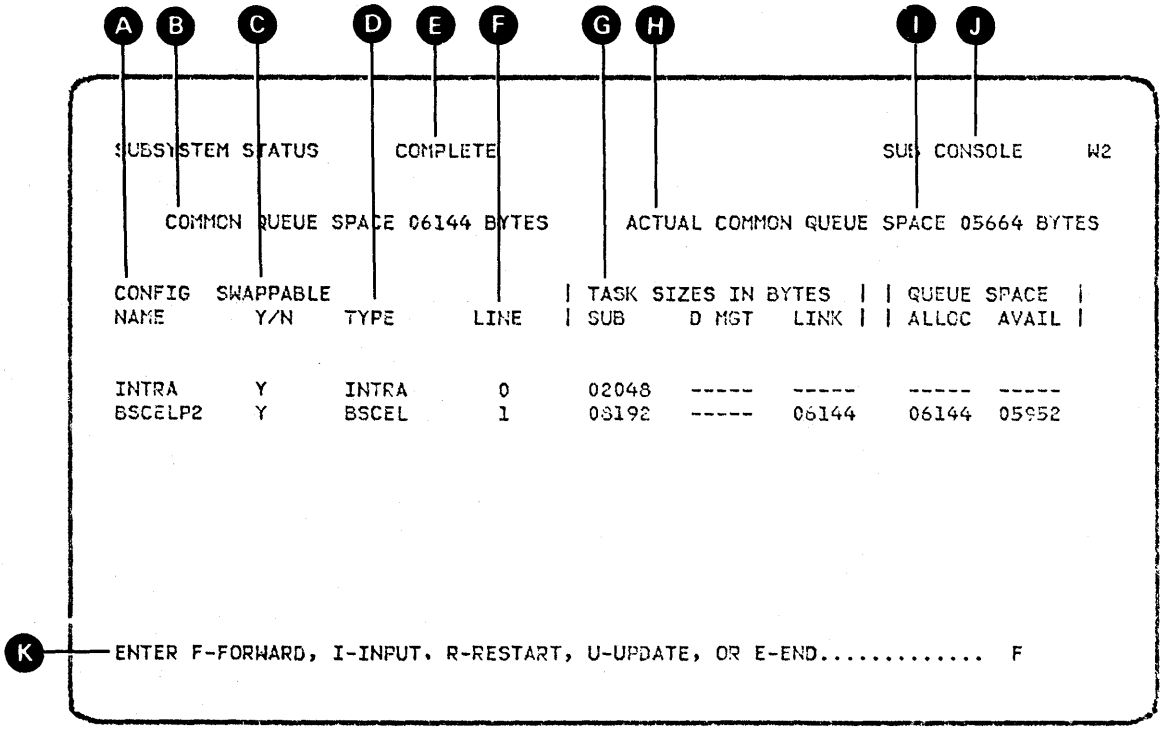
Command Format STATUS SUBSYS
(D) (I)

Parameters *SUBSYS:* Displays status information about the enabled SSP-ICF subsystems.

Example: You enter:

STATUS SUBSYS or
D I

The following display appears:



(A) CONFIG NAME contains a list of subsystem configuration names currently enabled or being enabled.

(B) This field contains the allocated common queue space for the SSP-ICF subsystems. This field may be blank if no subsystem is fully enabled.

(C) SWAPPABLE indicates whether or not the subsystem task is swappable. A value of Y indicates that it is swappable. If a data management task is required for the subsystem task, the data management task swap status is the same as the subsystem task swap status.

(D) TYPE describes the type of subsystem.

SNUF – SNA upline facility
CCP – CCP
CICS – CICS/VS
IMS – IMS/VS
BSCEL – BSC equivalence link
INTRA – Intra System/34
SNA PEER – SNA peer
3270BSC – BSC 3270
3270SDLC – SNA 3270
FINANCE – Finance

(E) COMPLETE appears only on the last page of a status function.

(F) LINE describes the communications line allocated to the subsystem configuration currently enabled or being enabled.

(G) TASK SIZES IN BYTES: SUB indicates the size of the subsystem task. D MGT indicates the size of the data management task for the subsystem if one is required. LINK indicates the size of the communication link task for the subsystem if one is required. If the link task is SDLC, the value displayed is the sum of the link task size plus line buffer size.

(H) This field contains the amount of common queue space currently available. This is the sum of all the free areas. This field may be blank if no subsystem is fully enabled.

(I) QUEUE SPACE indicates the status of the subsystem task's queue space. ALLOC indicates the amount of subsystem queue space allocated to the subsystem task. AVAIL indicates the actual amount of subsystem queue space currently available and is the sum of all the free areas in the queue space for the subsystem task.

(J) SUBCONSOLE indicates that the STATUS SUBSYS command was issued from subconsole mode, and subconsole commands are valid with the I option.

(K) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

HOW TO DISPLAY THE STATUS OF THE SSP-ICF SUBSYSTEM SESSIONS

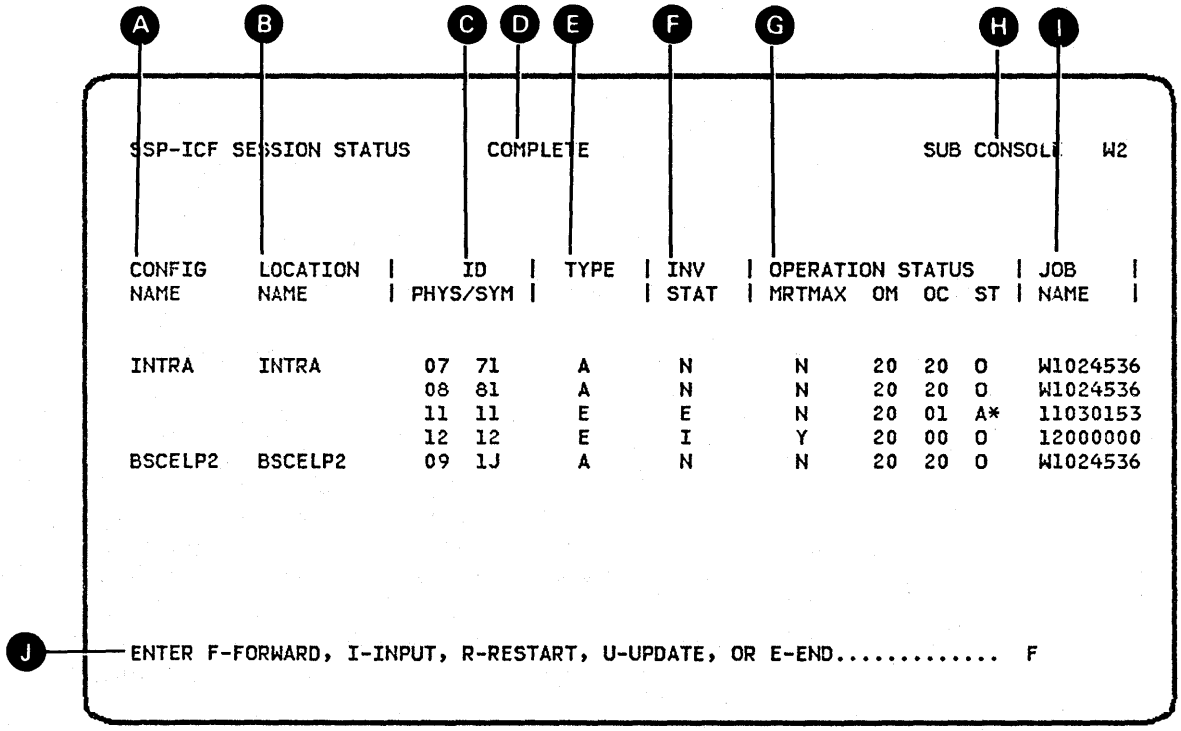
Command Format: STATUS SUBSESS
(D) (N)

Parameters: *SUBSESS:* Displays status information about the SSP-ICF subsystem sessions.

Example: You enter:

STATUS SUBSESS or
D N

The following display appears:



A CONFIG NAME contains a list of subsystem configuration names currently enabled or being enabled.

B This field contains a list of location names. The location name will appear in any messages logged by the subsystem or SSP for this subsystem configuration. For SNA peer, this is the remote location name.

C This field contains a list of subsystem session IDs. PHYS indicates this is the system defined ID. SYM indicates this is the symbolic session ID used by the program owning the session. This ID is used by a program for outgoing communications with an SSP-ICF session.

(D) COMPLETE appears only on the last page of a status function.

(E) This field describes the session type. A indicates this session is an acquired session. E indicates this session is an evoked session. * indicates a non-communicating peer station.

(F) INV STAT:

E Program has requested data from the session.

I SSP has marked the session complete to satisfy an accept input issued by the program owning the session.

N Program does not want data from the session.

O Program has requested data from the session and the data is now available.

(G) The following four fields indicate the operation status of the session:

MRTMAX If this session is attached to an MRT and the session is waiting because the maximum number of requestors has been reached, this field will have a Y displayed. Otherwise, an N will appear.

The following three fields are primarily for diagnostic purposes. They indicate the state of the SSP-ICF sessions when the STATUS SUBSESS command was entered.

OM This is the current operation command modifier.

OC This is the current operation command code.

ST This is a 2-character field. The first character is either an A (operation active), O (operation complete), or I (operation in an initial status). The second character is either blank or an asterisk (*). If this character is an asterisk, the program is currently waiting for this session to complete.

(H) SUBCONSOLE indicates that the STATUS SUBSESS command was issued from subconsole mode, and subconsole commands are valid with the I option.

(I) JOBNAME contains the job name assigned to the process to which the session is attached.

(J) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

HOW TO DISPLAY THE STATUS OF THE INPUT JOB QUEUE

The job queue status display shows all entries from the requesting display station on the input job queue.

Command Format

STATUS JOBQ [,jobname]
(D) (J)

Parameters

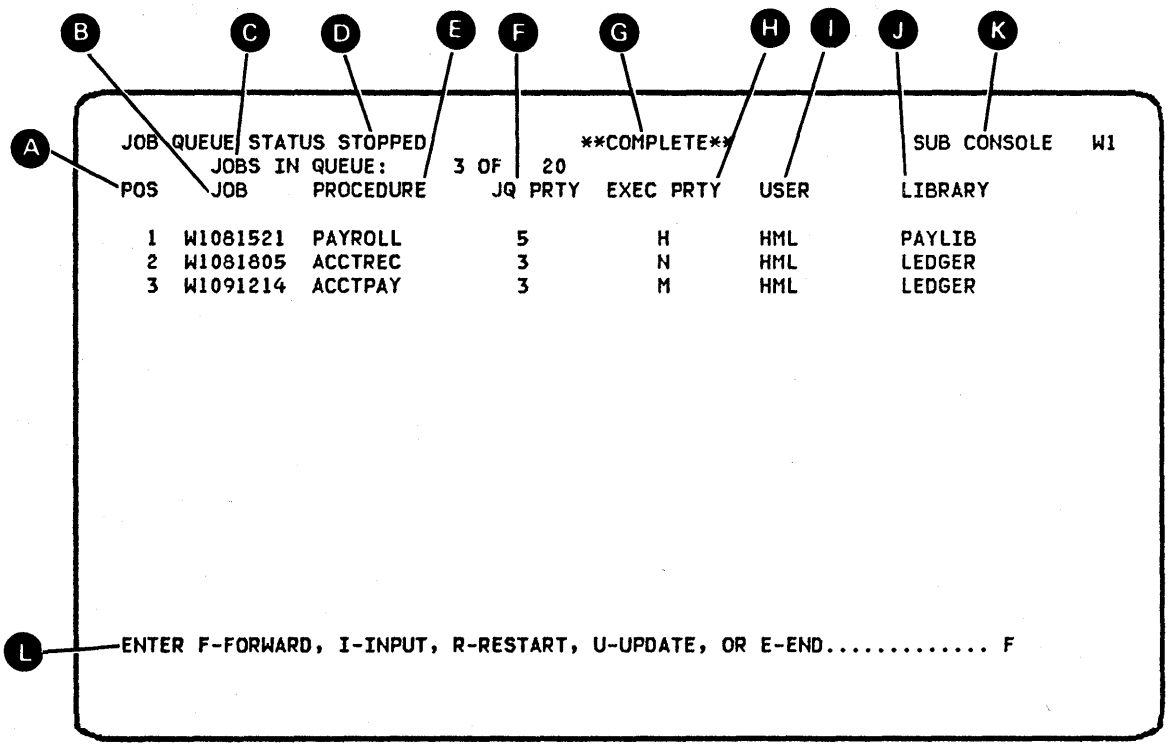
JOBQ: Displays one or all entries on the input job queue.

jobname: The 8-character, system-assigned name of the job for which status information is displayed. If jobname is omitted, the display shows the status of all jobs on the input job queue for the requesting display station.

Example

STATUS JOBQ or
D J

The following display appears:



A The relative position of the job in the queue.

B JOB lists the jobname assigned to this job.

C The number of jobs currently in the queue out of the maximum that can be in the queue.

D STOPPED appears if the JOBQ has not been started.

E PROCEDURE lists the procedure name of this job.

(F) JQ PRTY indicates a job's position on the input job queue. Jobs with a job queue priority of 5 are the first to be taken from the queue for execution.

(G) COMPLETE appears only if the entries shown on the screen are the last entries for this display station

(H) EXEC PRTY indicates a job's execution priority. Jobs with high priority are run with the least number of interruptions.

- H: High execution priority
- M: Medium execution priority
- N: Normal execution priority
- L: Low execution priority

(I) USER lists the user ID of the submitter.

(J) LIBRARY lists the optional user library the procedure is to come from.

(K) SUBCONSOLE indicates that the STATUS JOBQ command was issued from subconsole mode and subconsole commands are valid with the I option.

(L) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

HOW TO CANCEL JOBS ON THE INPUT JOB QUEUE

The CANCEL control command cancels a job on the input job queue that you previously entered via the JOBQ control command. The CANCEL command must come from the same display station and the same user-id that were used to place the job on the input job queue.

Command Format

```
CANCEL  JOBQ,jobname
(C)     (J)
```

Parameters

JOBQ: Cancels a job on the input job queue.

jobname: The 8-character, system-assigned name of the job that you want to cancel. To cancel job W1001111 on the input job queue, enter:

```
CANCEL JOBQ,W1001111 or

C J,W1001111
```

To see what your job name is, use the STATUS JOBQ command.

HOW TO DISPLAY SPOOL FILE ENTRIES

The Spooled Print Status display shows entries for printers controlled by your subconsole display station that are in the spool file.

Command Format

```
STATUS PRT [,ws-id]
(D)    (P)
```

Parameters

PRT: Displays entries on the spool file. Refer to Figure 3-1 for an explanation of the display that appears.

ws-id: Displays only the entries to be printed on the printer with the specified work station ID. If you do not enter this parameter, all entries are displayed.

Example

STATUS PRT or

D P

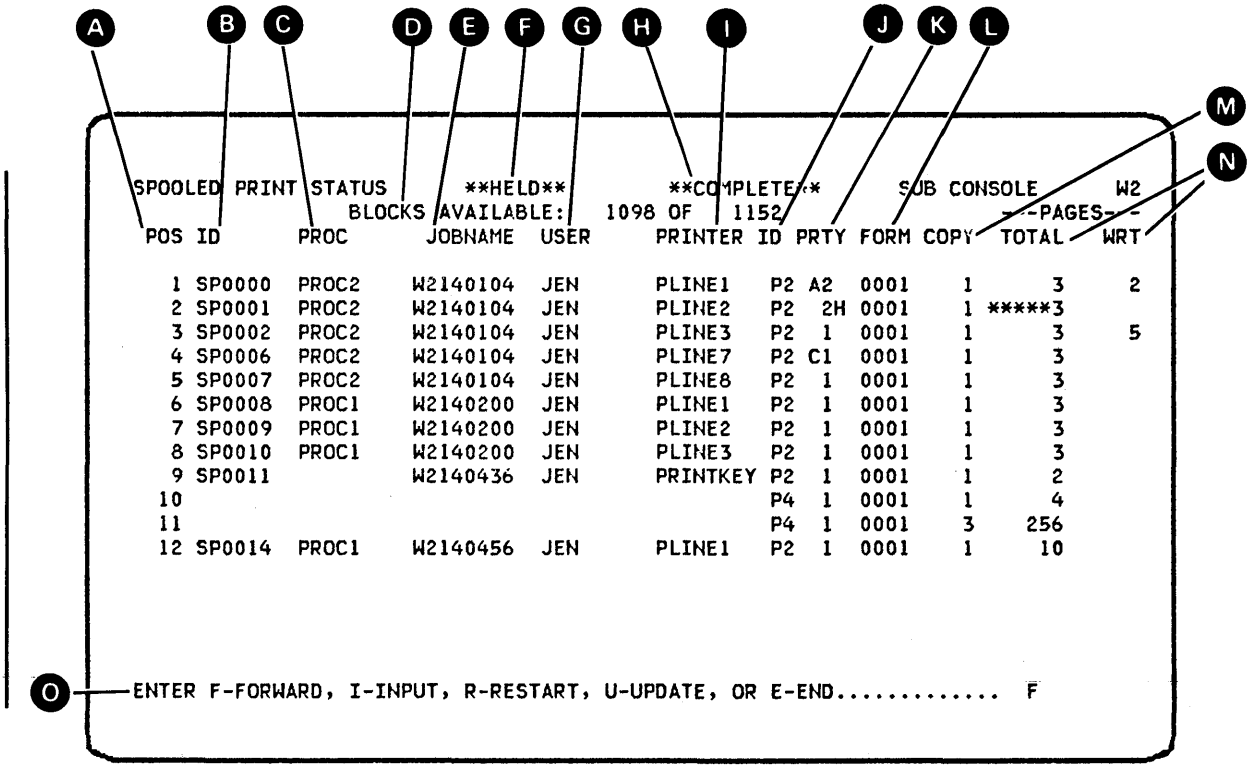


Figure 3-1. Spooled Print Status Display

(A) POS: the relative position of the entry in the spool file.

(B) ID: the name assigned by the system to this job step's spooled data. This is the spool ID used with the spool commands. Only the spool IDs that pertain to your subconsole will be displayed. The blanks at lines 10 and 11 indicate that this subconsole does not control those spool IDs.

(C) PROC: the outermost procedure name associated with this entry. If this entry is blank, the job was run through OCL (// LOAD) or this entry does not pertain to your subconsole display station.

(D) BLOCKS AVAILABLE: the number of blocks available in the spool file or the extents that can still be allocated on disk out of the total number that can be allocated if space is available. The spool file is full when the first number is zero.

(E) JOBNAME: the job name assigned by the system (work station ID and time).

(F) HELD: indicates that the entire spool file is being held. No jobs can be printed until the spool file is released by the RELEASE PRT command. Jobs can still be written to the spool file.

(G) USER: the user ID associated with this job. The user ID will appear only if the entry is controlled by your subconsole.

(H) COMPLETE: appears only if this is the last screen of the Spooled Print Status display.

(I) PRINTER: the printer file name associated with this job.

(J) ID: the ID of the printer that output is to be routed to.

(K) PRTY: the priority assigned to this job from the printer statement. An A indicates that the spool writer is currently printing this entry. A C indicates that the spool file entry is being copied by the user access to spool (COPYPRT) procedure. An H indicates that the spool file entry is held.

(L) FORM: the form number assigned to this job.

(M) COPY: the number of copies remaining to be printed; default is 1 unless changed on a PRINTER statement or by the CHANGE command. If the job is being printed, this value includes the copy being printed.

(N) TOTAL: the total number of pages of output generated. If the number is preceded by one or more asterisks, the print entry is still being created and the number indicates which page is being created. If the page count is zero and there are no asterisks displayed with the zero, the system failed before the spool file entry was completed.

WRT: the page number that is being printed. If a spool file entry is being printed by the spool writer, this column indicates the page number that is being printed. If the spool writer is stopped while printing a spool file entry, this column indicates the page number that was being printed by the spool writer when it was stopped.

(O) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were entered.

HOW TO START A SPOOL WRITER

Command Format

START PRT, [forms number] { ,ALL / ,ws-id }
(S) (P)

Parameters

PRT: Starts the spool writers for the printers controlled by your subconsole display station. The PRT parameter can be used to start the spool writer(s) after IPL. (If the auto-writer function is active, the spool writers are automatically started during IPL and you need not enter a START PRT command.) The PRT parameter can also be used to start the spool writer(s) after the STOP PRT command has been entered to stop the spool writer(s); when a spool writer is started, printing begins with the first available entry on the spool file.

forms number: Only entries using the specified forms number are printed. Up to four characters can be specified. If a forms number is not specified, all entries can be printed regardless of the forms number that is required.

ws-id: The work station ID of the printer for which the spool writer is to be started. This work station ID must be a printer controlled by your subconsole display station. If you omit this parameter, the spool writer for the printer assigned as the system printer will be started, if the system printer is controlled by your subconsole display station.

ALL: Starts spool writers for all printers that are controlled by your subconsole display station.

Note: When a spool writer is started, printing normally begins with the first available spool file entry. However, printing may not begin for one of the following reasons:

- The entire spool file has been held by the system operator.
- The system has been stopped by the system operator.
- The spool file is empty or does not contain any entries that are available for printing on the specified printer. Spool file entries may not be available for printing if they are held, being copied by the COPYPRT procedure, still being created, or if they require different forms than the spool writer is using (if the spool writer was started with a forms number specified).
- There are insufficient system resources available to allow the spool writer to begin printing.
- The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

HOW TO STOP A SPOOL WRITER

Command Format

```
STOP PRT,[PAGE] {,ALL   }
(P)  (P) [JOB ] {,ws-id }
```

Parameters

PRT: Stops the spool writers for the printers controlled by your subconsole display station. If an entry is being printed, printing stops. You can restart the printing by entering the START PRT control command or the RESTART PRT control command. You can stop the spool writers for only the printer(s) controlled by your subconsole display station. Entries can be added to the spool file when the writer is stopped, but the entries cannot be printed until the spool writer is started or restarted.

PAGE: Stops the spool writer at the end of the current page.

JOB: Stops the spool writer at the end of the spool file entry currently being printed.

ALL: The spool writers are stopped for all the printers that are controlled by the subconsole display station.

ws-id: The work station ID of the printer for which the spool writer is to be stopped. You can only enter the ID of a printer controlled by your subconsole. If you omit this parameter, the spool writer for the printer assigned as the system printer will be stopped if your subconsole display station controls the system printer.

HOW TO RESTART A SPOOL WRITER

Command Format

```
RESTART PRT, [page number] {,ws-id}
(T)     (P)
```

Note: Use this control command either to resume printing by restarting the spool writer after it was stopped, or to restart the printing of a spool file entry that is currently being printed by the spool writer.

Parameters

PRT: Restarts the spool writer for the specified printer if the printer is controlled by your subconsole display station.

page number: The number of the page where printing is to be restarted. If the page number is not specified, printing restarts at the beginning of the printed output. The maximum page number you can specify is 65,535.

ws-id: The work station ID of the printer for which the spool writer is to be restarted. This work station ID must be for a printer that is controlled by your subconsole display station. If you omit this parameter, the spool writer is restarted for the printer assigned as the system printer if your subconsole display station controls the system printer.

Note: If a RESTART command is entered and the spool writer is not printing a spool file entry and no entries on the spool file were being printed when the writer was stopped, the first entry on the spool file that you have control of will be printed starting from page 1 even if a page number was specified.

Example

Example A
To restart printing of the current entry on the spool file at the top of page 6, on printer P2, enter:

```
RESTART PRT,6,P2 or
T P,6,P2
```

Example B
The entry currently being printed contains 300 pages of printed output on printer P2. Only the last 50 pages of output are required. Once the job has begun printing, the operator can use the following command to print the last 50 pages:

```
RESTART PRT,251,P2 or
T P,251,P2
```

HOW TO DISPLAY THE SPOOL WRITER STATUS

The Spool Writer Status display shows the status of the spool writer for each printer.

Command Format

STATUS WRT [,ws-id]
(D)

Parameters

WRT: Displays the status of the spool writer for each printer. Refer to Figure 3-2 for an explanation of the display that appears.

ws-id: The work station ID of the printer for which the spool writer status information is to be displayed. If you do not specify a printer ID the spool writer status information for all printers is displayed.

Example

STATUS WRT or

D WRT

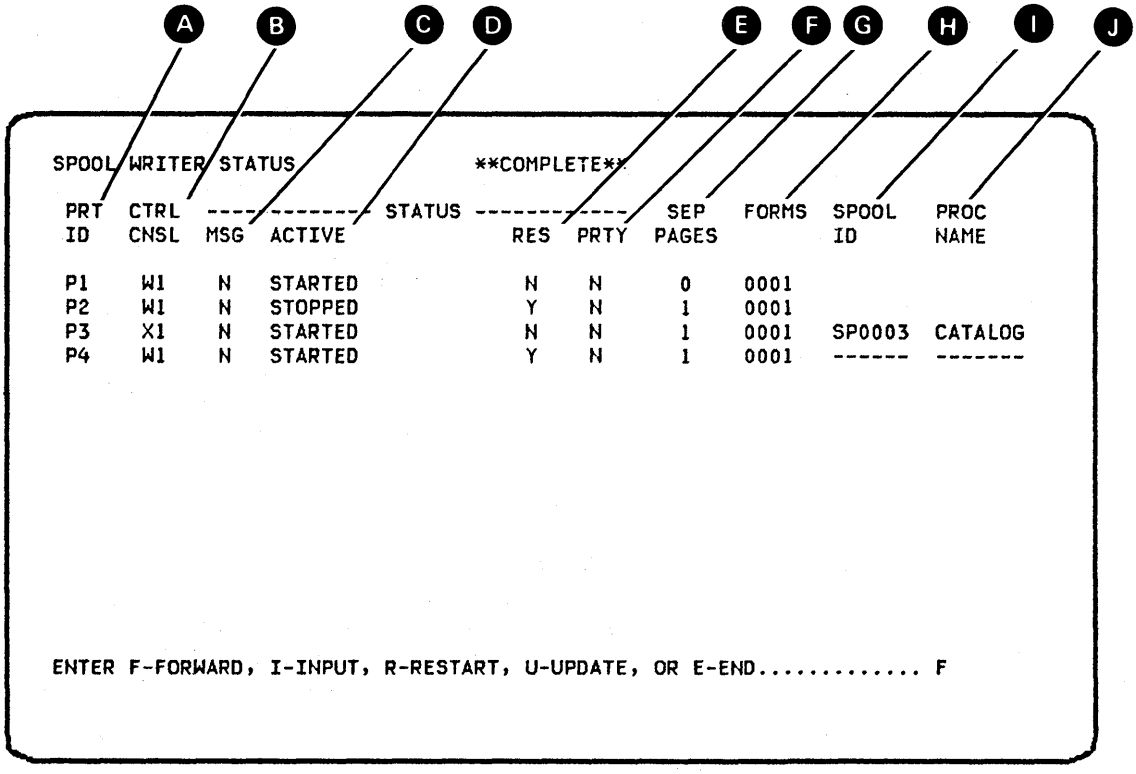


Figure 3-2. Spool Writer Status Display

(A) PRT ID: the work station ID of the printer.

(B) CTRL CNSL: the work station ID of the display station that controls the printer. If the printer is currently controlled by a subconsole, the work station ID of the subconsole is displayed; if the printer is not currently controlled by a subconsole, the system console work station ID is displayed.

(C) MSG: Y specifies that a spool writer message is pending. N specifies that no spool writer messages are pending.

(D) ACTIVE: indicates one of the following for the status of the spool writer:

- STARTED: indicates the spool writer is started.
- STARTED forms number: indicates the spool writer is started and will print only the jobs that require the forms number that was specified with the START PRT command.
- RESTARTED: indicates that the subconsole operator or the system operator has entered the RESTART command and that the spool writer has been restarted.
- STOPPED: indicates that the spool writer is stopped.
- STOP PAGE: indicates that the spool writer is stopped when it finishes printing the current page because the STOP PRT command was entered with the PAGE parameter.
- STOP JOB: indicates that the spool writer is stopped when it finishes printing the current job because the STOP PRT command was entered with the JOB parameter.
- STOP SYSTEM: indicates that the spool writer is started but that the system operator has entered a STOP SYSTEM command; therefore, the spool writer cannot perform any printing until the system operator enters a START SYSTEM command.
- QUEUE HELD: indicates that the spool writer is started but that the system operator has entered the HOLD PRT command; therefore, the spool queue is held and the spool writer cannot perform any printing until the system operator enters a RELEASE PRT command.

(E) RES: Y specifies that the spool writer is resident. N specifies that the spool writer is swappable.

(F) PRTY: indicates the priority assigned to this spool writer: H indicates a high priority and N indicates a normal priority.

(G) SEP PAGES: indicates the number of separator pages that are printed preceding each spool file entry.

(H) FORMS: indicates the forms number that the spool writer is currently using for printing.

I SPOOL ID: is the 6-character system-assigned name of the entry on the spool file that the spool writer is currently printing.

J PROC NAME: is the name of the procedure that created the spool file entry that the spool writer is currently printing.

Notes:

1. The spool-id and the procedure name are both blank if the spool writer is not printing a spool file entry.
2. The spool-id and the procedure name are both displayed for printers you control if the spool writer is currently printing an entry from the spool file.
3. – (dashes) are displayed instead of the spool-id and the procedure name for printers you do not control if the spool writer is currently printing an entry from the spool file.

HOW TO CANCEL SPOOL FILE ENTRIES

Command Format

```
CANCEL  PRT  { ,spool-id }
(C)     (P)  { ,ALL     }
             { ,ws-id   }
```

Parameters

PRT: Cancels the specified entry (spool-id) or all spool file entries for all printers or for a specific printer controlled by your subconsole display station.

spool-id: Deletes the entry identified by the 6-character spool file ID, beginning with the characters SP. You can use the STATUS PRT control command to determine the spool file ID of the entry to be canceled. This entry must be destined for a printer controlled by your subconsole display station.

ALL: Deletes all entries controlled by your subconsole display station from the spool file, except any entries being copied by the COPYPRT procedure or any entries that are still being created.

ws-id: Deletes all entries from the spool file for the specified printer that is controlled by your subconsole display station, except any entries being copied by the COPYPRT procedure, or any entries that are still being created.

Note: When ALL or a printed ID is specified, the system indicates the CANCEL command is successful, even though there may not have been any spool file entries cancelled by the command.

Example

To cancel all entries controlled by your subconsole display station on the spool file, enter:

```
CANCEL PRT,ALL or
C P,ALL
```

HOW TO HOLD SPOOL FILE ENTRIES

Command Format

HOLD PRT {,spool-id / ,ws-id}
(H) (P)

Parameters

PRT: Holds the specified entry (spool-id) or all spool file entries for a specified printer controlled by your subconsole display station. The spool-id parameter or ws-id parameter must be specified.

spool-id: The 6-character spool file ID, beginning with the characters SP, of the entry to hold. You can use the STATUS PRT control command to determine the spool file ID of the entry to be held.

ws-id: All entries for the specified work station ID are held. The specified printer must be controlled by your subconsole display station.

Notes:

1. You can enter the HOLD command before the program creating the spool file entry has terminated.
2. If you specify a HOLD command for an entry while it is printing, the spool writer no longer prints that entry but begins printing the next entry on the spool file. The held entry will not be printed until a RELEASE control command is entered for the held entry.
3. If you specify a HOLD command for all spool file entries destined for a printer you control while the spool writer is printing an entry on that printer, the spool writer will no longer print that entry nor any other entry in the spool file. As new entries are added to the spool file they may be printed, but entries that were in the spool file when the HOLD command was entered cannot be printed until they are released by the RELEASE command.

Example

To hold entry SP0036 on the spool file, enter:

```
HOLD PRT,SP0036 or
H P,SP0036
```

Entry SP0036 will stop printing.

HOW TO RELEASE SPOOL FILE ENTRIES

Command Format

```
RELEASE PRT{ ,spool-id }
  (L)   (P){ ,ALLH    }
           { ,ws-id   }
```

Parameters

PRT: Indicates that a specified entry or all entries on the spool file for all printers or for a specific printer controlled by your subconsole display station should be released. The RELEASE command releases the spool file entry that is held and makes it available for printing.

spool-id: The 6-character spool file ID, beginning with the characters SP, of the entry to release. You can use the STATUS PRT control command to determine the spool file ID of the entry to be released. The entry must be for a printer controlled by your subconsole display station.

ALLH: Releases all entries controlled by this subconsole that were either individually held or put in the spool file with a PRINTER OCL statement that specified PRIORITY-0. The ALLH parameter does not release the entire spool file if it was held by the system operator. Use the STATUS PRT command to determine if the spool file has been held.

ws-id: All entries for the specified printer are released. The printer must be controlled by your subconsole display station.

Note: When a spool file entry is released, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

- The spool writer has been stopped by the subconsole or system operator.
- The system has been stopped by the system operator.
- The entire spool file has been held by the system operator. Use the STATUS PRT command to determine if the spool file has been held.
- The spool file entry is not available for printing because the entry is still being created, is being copied by the COPYPRT procedure, or requires different forms than the spool writer is using (if the spool writer was started with a forms number specified).

- There are insufficient system resources to allow the spool writer to begin printing.

- The printer is offline, is not powered on, or requires some other kind of operator intervention, such as correcting a paper jam. The spool writer attempts to start printing and issues a message when any of these conditions are detected.

Example

To release entry SP0036 on the spool file, enter:

```
RELEASE PRT,SP0036 or
L P,SP0036
```

HOW TO CHANGE THE NUMBER OF PRINTED COPIES OF SPOOL FILE ENTRIES

Command Format

CHANGE COPIES,nn,spool-id
(G)

Parameters

COPIES: Changes the number of copies of printed output for an entry on the spool file. You can use the STATUS PRT control command to determine the number of copies remaining to be printed for all entries in the spool file. You can change the number of copies only for those entries for a printer controlled by your subconsole display station.

nn: The number of copies to print for the entry. This parameter can be from 1 through 99.

spool-id: The 6-character, system-assigned name of the entry on the spool file, which begins with SP. You can use the STATUS PRT control command to determine the spool file ID of the entry for which the number of copies is to be changed.

Example

To change entry SP0011 on the spool file to print five copies of output, enter:

```
CHANGE COPIES,5,SP0011 or
G COPIES,5,SP0011
```

HOW TO CHANGE THE DEFER STATUS OF A SPOOL FILE ENTRY

Command Format

CHANGE DEFER, [YES / NO] ,spool-id
(G)

Parameters

DEFER: Indicates whether the spool file entry can be printed while it is being created or only after it has been created.

YES: Indicates that the spool file entry is to be printed only after it has been created.

NO: Indicates that the spool file entry can be printed while it is being created. NO is the default.

spool-id: The 6-character, system-assigned name of the entry on the spool file, which begins with SP. You can use the STATUS PRT control command to determine the spool file ID of the entry for which the defer status is to be changed.

Notes:

1. As a subconsole operator, you can change the defer status for only those spool file entries that will be printed on the printers controlled by your subconsole display station.
2. When the defer status of a spool file entry that is still being created is changed to NO, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because the entry is held, is being copied by the COPYPRT procedure, or requires a different form than the spool writer is using (if the spool writer was started with a forms number specified).
   - There are insufficient system resources available to allow the spool writer to begin printing.
   - The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

3. If you change the defer status to YES for an entry that is being both created and printed, the spool writer will no longer print that entry, but begins printing the next entry in the spool file. The entry for which the defer status was changed can be printed after it has been created, or if the defer status is changed back to NO.

Example

To print entry SP0023 while it is being created, enter:

```
CHANGE DEFER,NO,SP0023 or

G DEFER,,SP0023
```

HOW TO CHANGE THE FORMS NUMBER OF SPOOL FILE ENTRIES

Command Format

CHANGE FORMS,xxxx,spool-id
(G)

Parameters

FORMS: Changes the forms number to be used for an entry on the spool file. The entry must be to a printer controlled by your subconsole display station.

xxxx: The forms number of the forms to be used for the entry. You can specify from 1 to 4 characters.

spool-id: The 6-character, system-assigned name of the entry on the spool file. You can use the STATUS PRT control command to determine the spool file ID of the entry on the spool file and to determine the forms number for the entry.

Notes:

1. As a subconsole operator, you can change the forms number for only those spool file entries that will be printed on the printers controlled by your subconsole display station.
2. An error message is issued if you attempt to change the forms for an entry that is being printed by the spool writer.
3. If the spool writer was started with a specified forms number so that only the spool file entries that required the specified forms are printed, and if the CHANGE command is used to change the forms number required by a spool file entry to the forms number that the spool writer is printing, then the spool writer normally begins printing the spool file entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because it is held, is still being created, or is being copied by the COPYPRT procedure.
   - There are insufficient system resources available to allow the spool writer to begin printing.
   - The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

Example

To change the forms number of entry SP0011 to PT1, enter:

```
CHANGE FORMS,PT1,SP0011 or
G FORMS,PT1,SP0011
```

HOW TO CHANGE THE PRINTER ID

Command Format

CHANGE ID,ws-id { ,spool-id / ,ws-id1 }
(G)

Parameters

ID: Changes the printer ID for a spool file entry or for all spool file entries that are to be printed on a specified printer.

ws-id: This is the ID of the newly assigned printer. This work station ID need not be controlled by the subconsole operator.

spool-id: The 6-character, system-assigned name of the entry on the spool file. Only entries for a printer controlled by your subconsole display station can be changed. You can use the STATUS PRT control command to determine the spool file ID of the entry to be changed.

ws-id1: This is the work station ID of a printer. This printer must be controlled by your subconsole display station. All spool file entries that are to be printed on this printer will be changed to be printed on the printer indicated by ws-id, except any print file that is currently being printed by the spool writer.

Notes:

1. If ws-id1 is specified in this command, the system indicates that the change was successful even though there were no spool file entries to be changed.
2. If ws-id1 is specified, the command applies only to the spool file entries that were in the spool file when the command was entered. Spool file entries added afterward are not affected by the command.
3. If a spool-id is specified, an error message is issued if the specified spool file entry is being printed by the spool writer.
4. When the printer destination of a spool file entry is changed, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because it is held, is still being created, is being copied by the COPYPRT procedure, or requires different forms than the spool writer is using (if the spool writer was started with a forms number specified).
   - There are insufficient system resources available to allow the spool writer to begin printing.
   - The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

Example

To change all spool file entries with an ID of P2 to a printer with a work station ID of P1, enter:

```
CHANGE  ID,P1,P2, or
G  ID,P1,P2
```

To change the entry SP0035 to have a printer with a work station ID of P2, enter:

```
CHANGE  ID,P2,SP0035
G  ID,P2,SP0035
```

HOW TO CHANGE THE ORDER OF SPOOL FILE ENTRIES

Command Format

CHANGE PRT,spool-id [,spool-id1]
(G) (P)

Parameters

PRT: Changes the position of an entry in the spool file.

spool-id: The 6-character, system-assigned name of the entry on the spool file. The entry being changed (spool-id) is placed after the entry with spool-id1 and is assigned the same priority as the entry with spool-id1. If you do not specify spool-id1, the spool-id is the first entry in the spool file and has a priority of 5.

Note: You can only change the position of spool file entries (spool-id) that are for a printer controlled by your subconsole display station. You do not have to control the spool file entries (spool-id1) to change the position of the spool-id.

Example

To move entry SP0036 ahead of all entries on the spool file, enter:

```
CHANGE PRT,SP0036 or
G P,SP0036
```

HOW TO CHANGE THE PRIORITY OF A SPOOL WRITER

Command Format

CHANGE PRTY,[HIGH / NORMAL] [,ws-id]
(G)

Parameters

PRTY: Changes the priority of a spool writer. Use the STATUS WRT command to determine the priority of a spool writer.

HIGH: The spool writer is to have high priority.

NORMAL: The spool writer is to have normal priority. NORMAL is the default value if a priority is not specified.

ws-id: The ID of the printer for which the spool writer priority is to be changed. The ID specified must be for a printer controlled by your subconsole display station. If a printer ID is not specified, the ID of the system printer is assumed if your subconsole display station controls the system printer.

Example

To assign high priority to the spool writer for printer P2, enter:

```
CHANGE PRTY,HIGH,P2 or
G PRTY,HIGH,P2
```

HOW TO CHANGE THE RESIDENT/SWAPPABLE ATTRIBUTE OF A SPOOL WRITER

Command Format

CHANGE RES,[YES / NO] [,ws-id]
(G)

Parameters

RES: Changes the resident/swappable attribute of a spool writer. Use the STATUS WRT command to determine the status of the resident/swappable attribute.

YES: The writer is to be resident when loaded into main storage.

NO: The writer can be swapped when loaded into main storage. NO is the default value.

ws-id: The ID of the printer for which the resident/swappable attribute of the spool writer is to be changed. The ID specified must be for a printer controlled by your subconsole display station. If a printer ID is not specified, the ID of the system printer is assumed if your subconsole display station controls the system printer.

Note: This command cannot be entered while the spool writer is in main storage. To ensure that the spool writer is not in main storage, use the STOP command to stop the spool writer.

Example

To make the spool writer for printer P2 swappable, enter:

```
CHANGE  RES,NO,P2 or
G  RES,,P2
```

HOW TO CHANGE THE NUMBER OF SEPARATOR PAGES PRINTED BY A SPOOL WRITER

Command Format

CHANGE SEP, [0 / 1 / 2 / 3] [,ws-id]
(G)

Parameters

SEP: Changes the number of separator pages printed by the spool writer before each spool file entry. Use the STATUS WRT command to determine the number of separator pages that are printed.

0,1,2,3: The number of separator pages to be printed by the spool writer before each spool file entry. The default value is 0 if a number is not specified.

ws-id: The ID of the printer for which the number of separator pages printed by the spool writer is to be changed. The ID specified must be for a printer controlled by your subconsole display station. If a printer ID is not specified, the ID of the system printer is assumed if your subconsole display station controls the system printer.

Example

To have no separator pages printed on printer P2 by the spool writer, enter:

```
CHANGE SEP,0,P2 or
G SEP,,P2
```

HOW TO REPLY TO A MESSAGE

You must use the REPLY control command to reply to all messages that have reply IDs. After you have responded to a message, the screen shows two asterisks (**), replacing the reply ID. Messages that you have replied to roll up and off the top of the display. Messages that you have not replied to do not roll off the display until you reply.

Command Format

REPLY (R) { I | C | msg-id [,response] }

Parameters

I: Responds to all informational messages on the display. (You must enter either R or REPLY and I.)

C: Compresses a display so that only messages that need responses are displayed. (You must enter R or REPLY and C.)

msg-id: The ID of the message that you are responding to. You can omit the left zero of a reply ID; R 01,3 and R 1,3 are equivalent responses. The command name (REPLY or R) is not required when msg-id is used.

response: Your response to the message (blank, 0, 1, 2, or 3).

Example

To respond with a 3 option to message 02, enter:

REPLY 2,3 or
R 2,3 or
2,3 (For the REPLY control command, you can enter only the message ID and option.)

For those messages that are classified as printer intervention required, the REPLY control command has no effect. You should ready the printer to reply to the message.

HOW TO SEND A MESSAGE

When used as a subconsole control command, the MSG command sends a message to the system console or to a selected display station or display station operator.

Command Format

MSG [ws-id / user-id] ,message text

Note: If the first parameter is not entered but the second one is, the message is sent to the system console.

Parameters

ws-id: The 2-character work station ID of the display station to which the message is sent. The STATUS WORKSTN control command can be used to determine the work station IDs. If you specify the work station ID of the system console, the message is sent to the Command display at the system console. If you do not enter the first parameter, and you enter a message text, the message is sent to the Console display at the system console.

user-id: The 1- to 8-character user ID that identifies the operator to whom the message is sent. Each display station operator enters a user ID on the Sign On display when the session is started. The STATUS WORKSTN control command can be used to determine user IDs. If you specify the system operator's user ID, the message is sent to the Command display at the system console. If you do not enter the first parameter, the message is sent to the Console display at the system console.

message text: Up to 60 alphameric characters.

Example

A subconsole operator wishes to give the system operator control of the printers that the subconsole operator currently controls. To inform the system operator of this, the subconsole operator enters:

```
MSG ,PLEASE TAKE CONTROL OF PRINTER P3
```

HOW TO DISPLAY THE TIME

The TIME control command displays the time of day and the system date.

Command Format TIME

Example TIME-14:56:23 DATE 07/19/80

HOW TO SIGN OFF A SUBCONSOLE

To sign off a subconsole, you must place your display station in command mode. Press the Shift key and the Sys Req key. Then press the Enter/Rec Adv key. When you get a Command screen, you may enter the OFF command. See Chapter 2 for additional information.

Chapter 4. System Console Operation

The system console is the display station that monitors and controls the system. As system console operator, you are responsible for operating the systems, which includes tasks such as:

- Inserting correct diskettes in the diskette unit
- Operating the system unit operator panel
- Using the CE panel on the side of the system unit when necessary
- Operating the system printer (see the *5211 Operator's Guide*, the *3262 Component Description and Operator's Guide*, the *5256 Operator's Guide*, the *5224 Printer Operator's Guide*, or the *5225 Printer Operator's Guide* for information on how to operate the printer)

These tasks are discussed early in this chapter. In addition, the system console operator controls:

- Jobs
- Input job queue
- Print spooling
- Starting and ending system operation

SYSTEM CONSOLE OPERATOR CONTROL COMMANDS

The control commands that you will use to perform these and other functions are listed below with the page numbers on which they are discussed.

ASSIGN 4-56
(A)

CANCEL jobname. 4-73
(C)

CANCEL JOBQ 4-116
(C) (J)

CANCEL PRT 4-85
(C) (P)

CHANGE COPIES. 4-89
(G)

CHANGE DEFER 4-90
(G)

CHANGE FORMS. 4-92
(G)

CHANGE ID 4-94
(G)

CHANGE JOBQ 4-116
(G) (J)

CHANGE PRT 4-96
(G) (P)

CHANGE PRTY 4-97
(G)

CHANGE RES 4-98
(G)

CHANGE SEP 4-99
(G)

CONSOLE. 4-37

HOLD PRT 4-86
(H) (P)

IDELETE 4-64

MSG. 4-62

PRTY jobname. 4-74

RELEASE PRT. 4-87
(L) (P)

REPLY 4-63
(R)

RESTART PRT 4-81
(T) (P)

START JOB. 4-72
(S)

START JOBQ. 4-115
(S) (J)

START PRT. 4-79
(S) (P)

START SESSION 4-71
(S) (N)

START SYSTEM 4-65
(S) (S)

START WORKSTN. 4-72
(S) (W)

STATUS JOBQ. 4-114
(D) (J)

STATUS MESSAGE 4-53
(D) (G)

STATUS PRT. 4-76
(D) (P)

STATUS REMOTES 4-43
(D) (R)

STATUS SUBSESS 4-51
(D) (N)

STATUS SUBSYS 4-49
(D) (I)

STATUS SYSTASK 4-47
(D) (T)

STATUS USERS 4-67
(D) (U)

STATUS WORKSTN 4-38
(D) (W)

STATUS WRT 4-82
(D) (WRT)

STOP JOB 4-70
(P)

STOP JOBQ 4-115
(P) (J)

STOP PRT 4-80
(P) (P)

STOP SESSION 4-71
(P) (N)

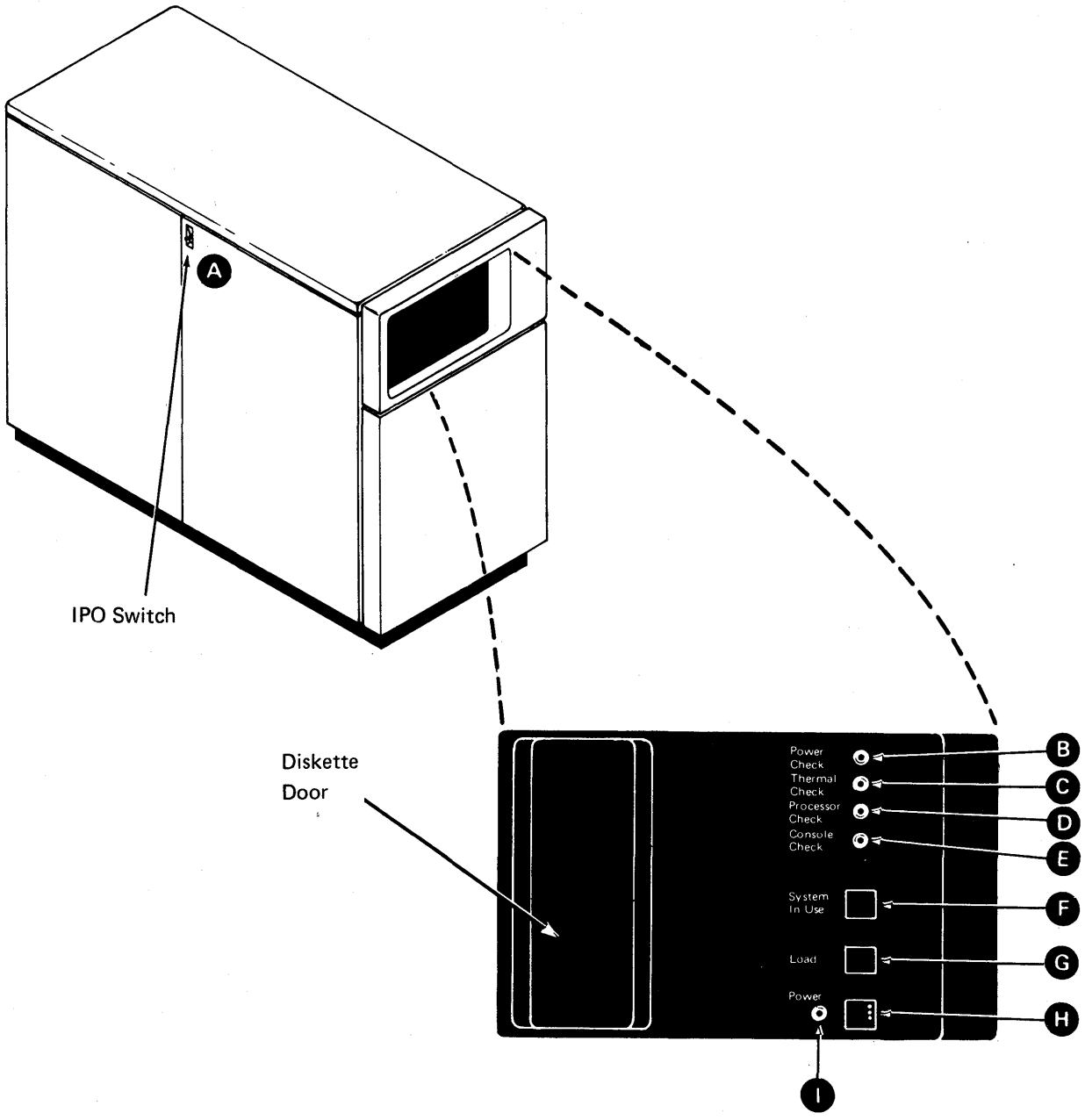
STOP SYSTEM 4-65
(P) (S)

STOP WORKSTN 4-70
(P) (W)

TIME 4-65

VARY 4-55
(V)

OPERATOR PANEL



The operator panel, on the front of the system unit, contains:

A IPO (Immediate Power Off) Switch: The IPO (Immediate Power Off) switch on the left side of the 5340 system unit should be used only to turn the 5340 System Unit off in an emergency. This switch must remain set to the 1 (on) position during normal system operation. Set this switch to the 0 (off) position to remove system power in an emergency.

B Power Check Light: The Power Check light comes on and the system turns off when a voltage problem or current problem occurs. Refer to Chapter 16, *Problem Determination*, for suggested ways to resume operating after a power check.

C Thermal Check Light: The Thermal Check light comes on and the system turns off when the system overheats. To power on the system, set the Power switch **H** to the 0 position, wait for the system to cool, and then set the Power switch to the 1 position. Before restarting the system, try to find the cause of the thermal check. Refer to Chapter 16, *Problem Determination*, for suggestions.

D Processor Check Light: The Processor Check light comes on when the processing unit detects an error that the system cannot correct. Refer to Chapter 16, *Problem Determination*, for suggested ways to resume operating after a processor check.

E Console Check Light: The Console Check light comes on for a system console or work station controller feature when certain errors are detected. The Console Check light goes off when the error is corrected. Refer to Chapter 16, *Problem Determination*, for the types of errors and suggested ways to resume operating after a console check.

F System In Use Light: The System In Use light comes on when programs are executing. When this light is on, you should not press the Load switch or power off the system.

G Load Switch/Light: Press the Load switch to start the system. The Load light comes on while the system starts IPL. This light goes out when the disk comes up to speed.

H Power Switch: Set the Power switch to the 1 (on) position to power on the system. After a few seconds, the Power light comes on. Set the Power switch to the 0 (off) position to power off the system.

Note: The main line circuit breaker (located behind the front cover) and the IPO switch **A** must both be on.

I Power Light: The Power light is on when the system power is on. This light is off when the system power is off.

CE PANEL

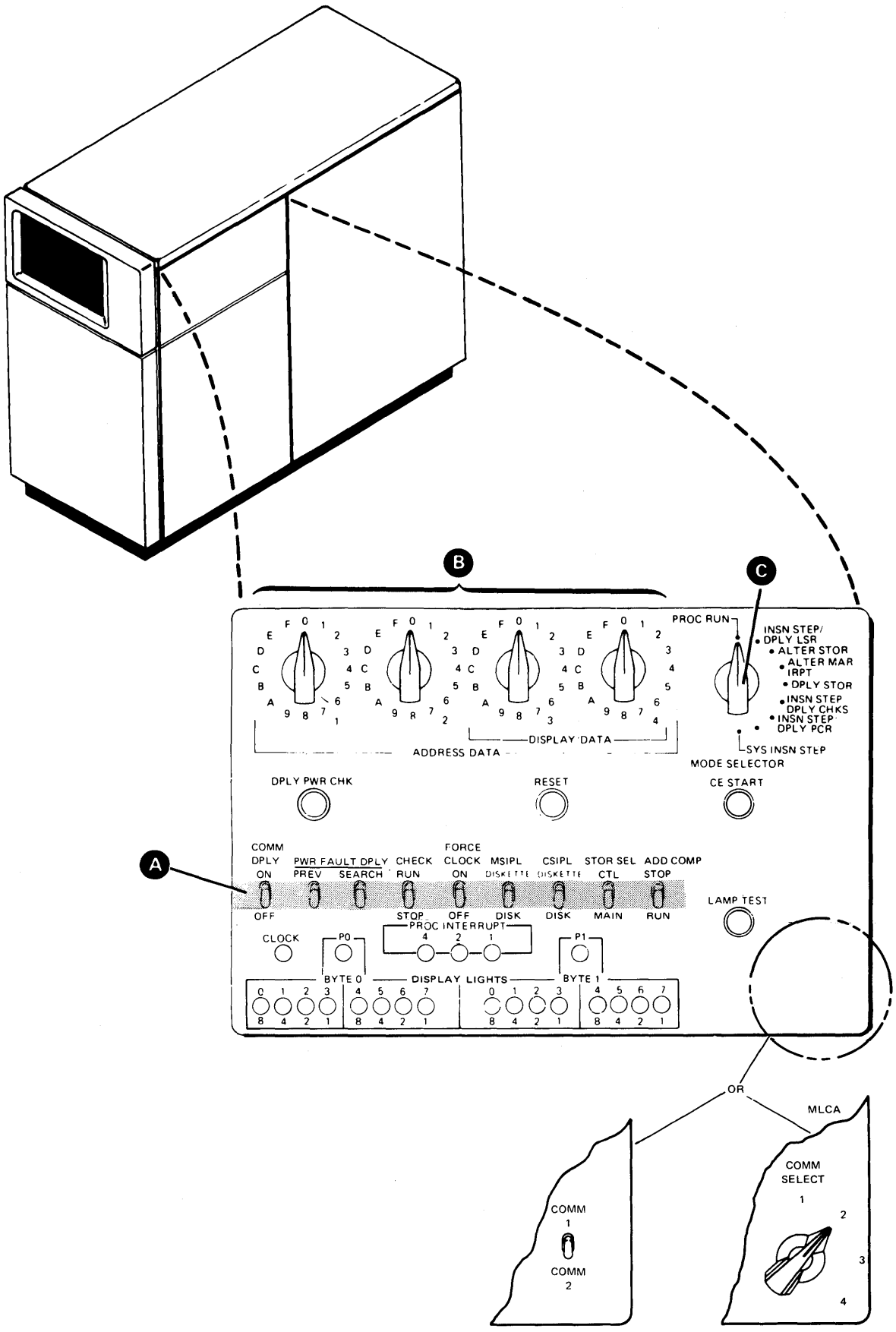
The CE panel, behind the door on the side of the system unit, is intended primarily for use by customer engineers.

To remove the CE panel cover:

1. Open the door.
2. Support the weight of the door with your left hand and remove the two thumbscrews that fasten the door to the system frame.
3. Use both hands to remove the door from the frame.

During normal operation:

- **A** These switches should be down. To run the SETDUMP command, the Add Comp (Address Compare) switch should be in the Stop position.
- **B** The Address/Data switches must be set to 0000.
- **C** The Mode Selector switch must be set to the Proc Run position.


B
C
A
PROC RUN
INSN STEP/
DPLY LSR
ALTER STOR
ALTER MAR
IRPT
DPLY STOR
INSN STEP
DPLY CHKS
INSN STEP
DPLY PCR
SYS INSN STEP
MODE SELECTOR
DISPLAY DATA
ADDRESS DATA
DPLY PWR CHK
RESET
CE START
COMM
DPLY
ON
PWR FAULT DPLY
PREV
SEARCH
CHECK
RUN
FORCE
CLOCK
ON
MSIPL
DISKETTE
CSIPL
DISKETTE
STOR SEL
CTL
ADD COMP
STOP
OFF
STOP
OFF
DISK
DISK
MAIN
RUN
LAMP TEST
CLOCK
P0
PROC INTERRUPT
4 2 1
P1
BYTE 0
DISPLAY LIGHTS
BYTE 1
OR
MLCA
COMM
1
COMM
2
COMM
SELECT
1
2
3
4

DISKETTE HANDLING

- Do not use damaged diskettes. They will cause errors.
- Put the diskette in its envelope when you are not using it or when you are writing on its label.
- Always handle the diskette by its label area to avoid touching the recording surface.
- Never write on a diskette with an erasable pencil. IBM recommends using fiber-tip pens for labeling diskettes.
- Do not use paper clips.
- Do not touch or clean the recording surface.
- Keep the diskette away from magnets. Any diskette exposed to a magnetic field may lose information.
- Do not expose the diskette to excessive heat or sunlight.
- Do not place heavy objects on the diskette.
- If mailing diskettes, place them in a box or heavy cardboard mailer.

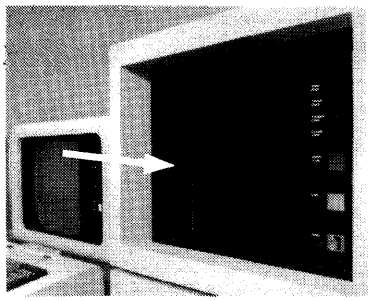
In short, HANDLE WITH CARE.

HOW TO INSERT AND REMOVE DISKETTES AND MAGAZINES

Before inserting a diskette in the diskette unit, check to be certain that you are using the correct type of diskette for your unit. While a diskette 1 can be used in either a diskette 1 unit or a diskette 2D unit, the diskette 2D can be used only in a diskette 2D unit. You can use diskette 1s or diskette 2Ds in the diskette magazine unit.

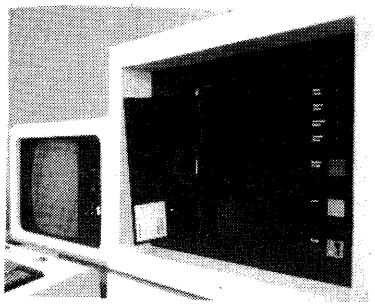
How to Insert a Diskette in the Diskette 1 or Diskette 2D Unit

1. Press as shown and slide the cover to the right. Check to make sure that slot is empty.

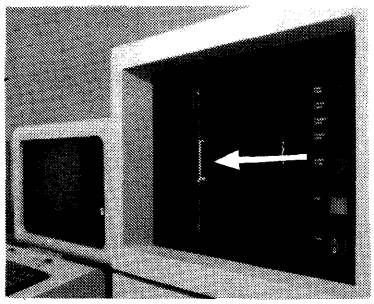


CAUTION:
Be sure that you insert the diskette so that it rests against the back of the slot. Insert the diskette slowly, because it can bounce away from the back of the slot and not be fully seated. If it is not in all the way, the diskette can be damaged, and data may be lost.

2. Remove the diskette from its envelope and insert the diskette in the slot with the labels facing you as shown.

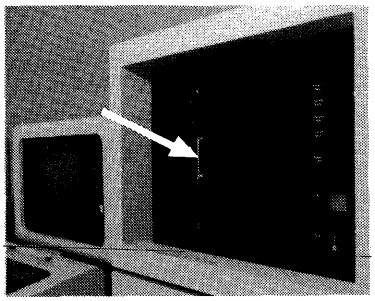


3. Close the cover by sliding it to the left until it latches.

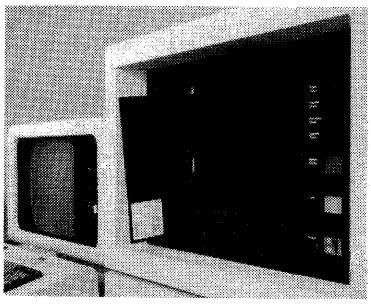


How to Remove a Diskette from the Diskette 1 or Diskette 2D Unit

1. Press as shown and slide the cover to the right.



2. Pull the diskette from the slot.



3. Put the diskette in its envelope and label the diskette if required.

How to Insert Diskettes in Slot 1, 2, or 3 of the Diskette Magazine Unit

1. Remove the diskette from its envelope.

2. Insert the diskette between the guide wires of the selected slot. (The diskette must be placed in the slot with the diskette label facing to the right).

3. Push the diskette in toward the diskette window until the diskette clears the stop, then pull the diskette back until the edge of the diskette touches the stop.

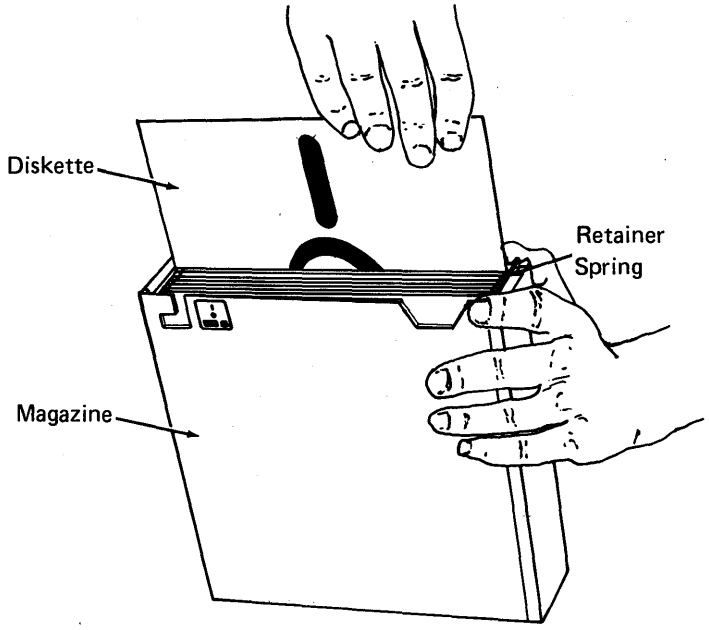
4. Close the diskette magazine unit cover.

How to Remove Diskettes from Slot 1, 2, or 3 of the Diskette Magazine Unit

1. Open the diskette magazine unit cover.
2. Pull the diskette back until the edge of the diskette touches the stop.
3. Lift the diskette slightly, to clear the stop, and remove the diskette from the slot.
4. Put the diskette in its envelope.

How to Insert Diskettes into the Magazine

1. Remove the diskette from its envelope.
2. Push down the diskette retainer spring and insert the diskette, as shown on the magazine label (slot positions are numbered 1 through 10, counting from right to left, when you face the open end of the magazine).
3. Carefully push the diskette in until the retainer spring clears the edge of the diskette (spring tension causes the spring to return to its original position) and locks the diskette in place inside the magazine.

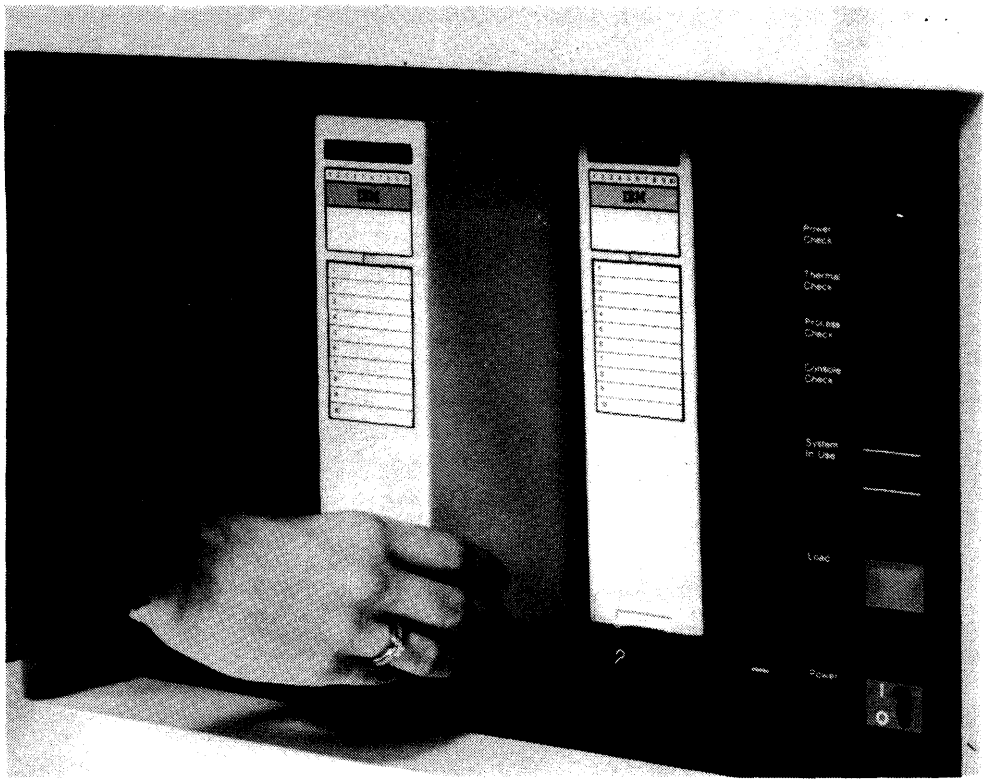


How to Remove Diskettes from the Magazine

1. Remove the diskette from the magazine by pushing the diskette retainer spring away from the diskette and then pulling the diskette out.
2. Put the diskette in its envelope.

How to Insert a Magazine in the Diskette Magazine Unit

1. Remove the magazine cover.
2. Place the magazine between the guide rails of the position selected (1 or 2), with the open end of the magazine facing the diskette window.
3. Push the magazine in toward the diskette window until the magazine retainer spring locks the magazine in place.
4. Close the diskette magazine unit cover.



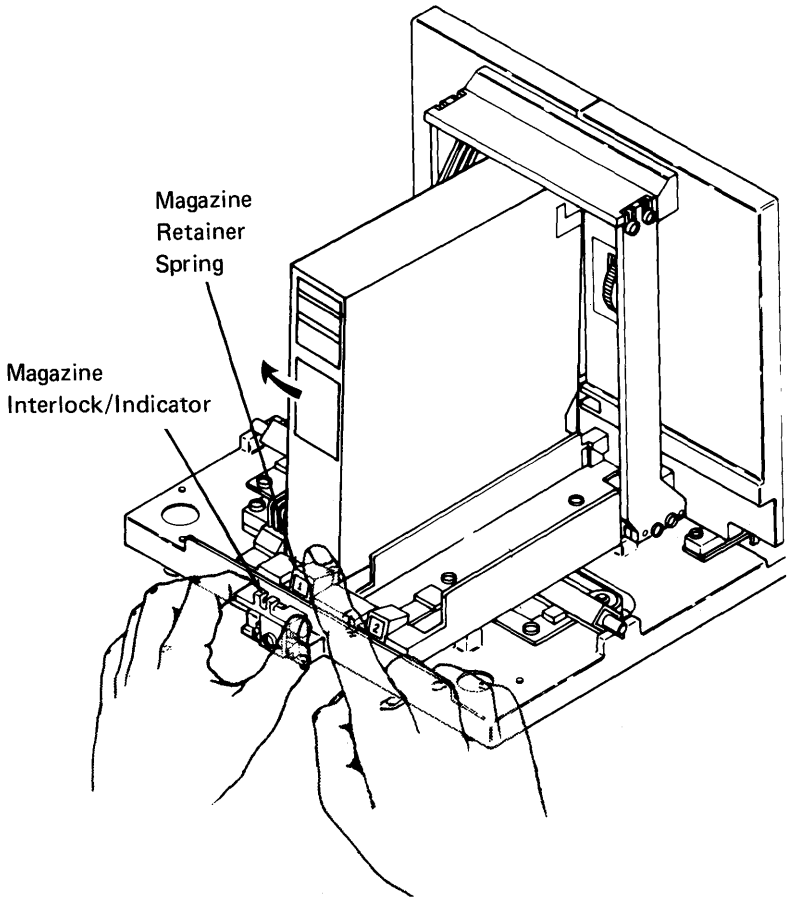
How to Remove a Magazine from the Diskette Magazine Unit

1. Open the diskette magazine unit cover.
2. Press the magazine retainer spring to eject the magazine.
3. Lift the closed end of the magazine (end nearest you) slightly to clear the stop, and remove the magazine.
4. Put the magazine cover on the magazine.

How to Clear a Magazine Diskette Jam

To remove a jammed magazine diskette:

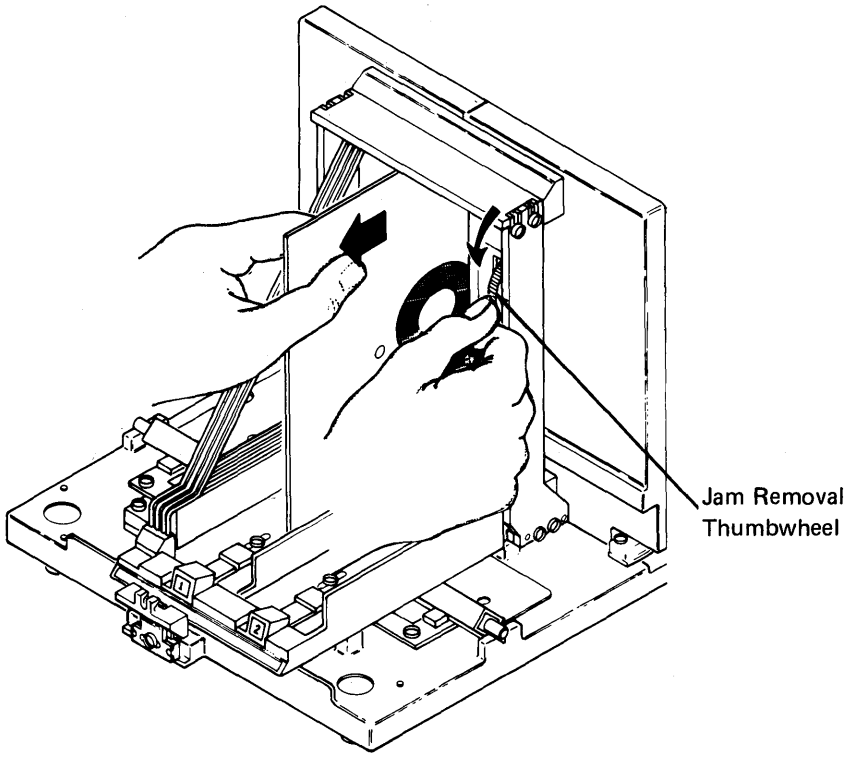
1. Enter the STOP SYSTEM command at the system console.
2. Wait for the STOP SYSTEM COMPLETED message at the system console.
3. Power off the system.
4. Press the magazine interlock/indicator down to move it away from the carriage bed. Press the magazine retainer spring and remove the magazine.



How to Clear a Diskette I/O Slot Jam

To remove a jammed diskette from slot 1, 2, or 3:

1. Power off the system.
2. Push in on the jam removal thumbwheel and turn it in a downward direction until the jammed diskette starts to move forward.
3. Release the thumbwheel and pull the diskette out.



INITIAL PROGRAM LOAD FROM THE SYSTEM CONSOLE

Every time you turn the power on (set the Power switch on the operator panel to the 1 position), you must perform an IPL (initial program load).

IPL causes the SSP (System Support Program Product) to be loaded into storage from either disk or diskette. Normal operation is from disk; an IPL from a diskette is needed only when installing the system library, or in the case of certain system failures (current system not working correctly).

If IBM has reconfigured your system to allow 256 K bytes of main storage, the system library (#LIBRARY) was destroyed when the CUSTOMIZ program was run after reconfiguration. Therefore, the first time you perform IPL after reconfiguration, you must perform an IPL from diskette to reload #LIBRARY. If you try to perform this IPL from disk, a processor check will occur.

IPL from Disk

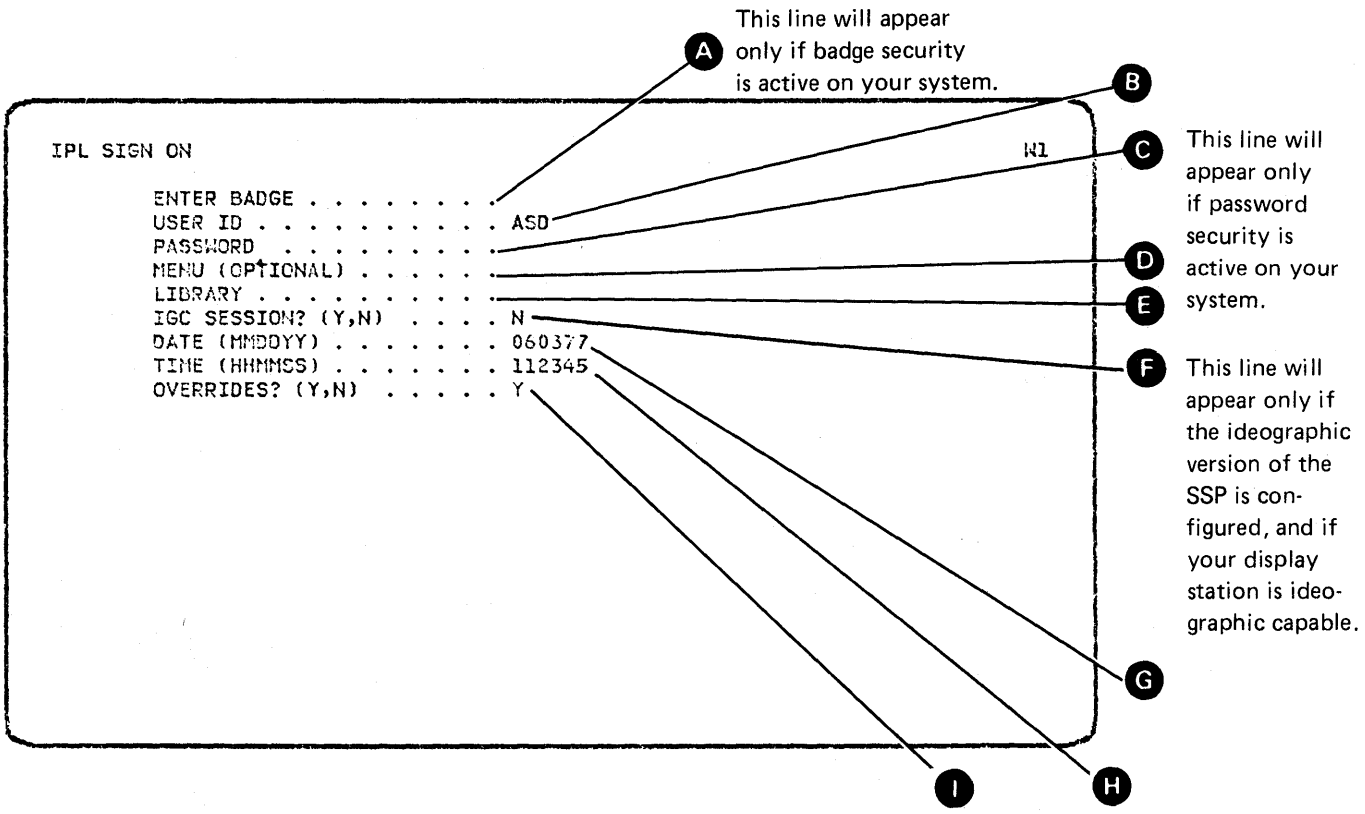
Before starting an IPL, make certain that the system printer is on.

1. Make sure the Address/Data switches on the CE control panel are set to 0000.

2. Make sure the MSIPL and CSIPL switches on the CE control panel are set to the Disk position.

3. Press the Load switch on the front of the system unit. After a few seconds, the IPL Sign On display that follows appears on the system console. If the IPL Sign On display that appears is not the same as that shown, this means only that your system has a different configuration than the system that this menu represents. If the IPL Sign On display does not appear, refer to Chapter 16, *Problem Determination*, for recommended steps to continue.

   Note: After you enter a field, use the Field Exit key to advance the cursor from field to field on this display.



(A) Insert your badge in the magnetic stripe reader. If badge security is not active, ENTER BADGE is not on the IPL Sign On display; skip this step.

(B) Enter your user ID. If password security is active, enter the user ID assigned you by your security officer.

(C) Enter your four-character password (it will not appear on the display). Your security officer will assign your password. If password security is not active, PASSWORD is not on the IPL Sign On display; skip this step.

(D) Enter the name of the menu you want to have active after IPL. Skip this entry if you do not want to use a menu following an IPL, or if you want to use the default menu assigned you by your security officer. If you are not restricted to a menu, you can override a default menu by entering another menu name, or by entering 000000.

Note: If you are restricted to using the menu previously assigned you by your security officer, and the system cannot find that menu in either the sign on or the system library, you will be unable to sign on. See your security officer if this should happen.

(E) If a library name appears on the display, that library is the designated user library for your work session. If no library name appears, or if you want a different user library, you can enter the name of the desired user library. If this entry is set to blank or all zeros, no user library will be active unless a user library is specified among the OCL you execute. If you enter the name of a secured user library and resource security is active, you must be authorized to execute programs from this user library. Leave this entry blank if you wish to use the default library assigned by your security officer.

(F) This prompt appears only if the system configuration includes the ideographic version of the SSP and if your display station is ideographic capable. If you specify Y (yes), you can enter ideographic characters, and system messages and screen formats are displayed using ideographic characters. If you specify N (no), the system will display only alphanumeric characters on system displays, but you can still enter and display ideographic characters on user-defined formats.

(G) The date format may be YYMMDD, DDMMYY, or MMDDYY; where YY means year, MM means month, and DD means day.

The current system date is shown to the right of the prompt. Either update the date (be sure you do not change the order of month, day, and year), or leave the date unchanged.

(H) Enter the current time; hours, minutes, seconds.

This entry activates a timer which establishes the actual time displayed on the display screen or printed on the printed output thereafter. Specify hours according to the 24-hour clock. For example, for an IPL at 4:30 p.m., enter 163000 for the time.

1. If you want to override system configuration options, enter Y. The IPL File Rebuild-System Options display appears. After you respond to that display, respond to the remaining IPL displays.

   If you do not want to override system configuration parameters, enter N. The IPL File Rebuild-System Options display appears. Press the Enter/Rec Adv key to complete IPL.

Reformatting after a Power Failure or a Program Check

If the system goes down because of a power failure or a program check while spooling or executing from the input job queue, the spool and input job queue files may not be usable. Either specify a reformat of the files at IPL time or attempt to retrieve as much data as possible. However, the usability of the files is not guaranteed.

For more information on the processor check light, refer to *Processor Check Light On* in Chapter 16 of this manual. For more information on the reformatting of the spool and input job queue, refer to the IPL Overrides—Spooling Parameters display and the IPL Overrides—Input Job Queue Parameters display later in this section.

```
IPL FILE REBUILD-SYSTEM OPTIONS

       1. EXAMINE AND VERIFY THE DISK VTOC?     (Y,N)     Y

       2. DELETE IRREPARABLE FILES?             (Y,N)     N

       3. EXAMINE OLD FILES ALSO?               (Y,N)     Y

       4. DISPLAY FILE LABELS IN ERROR?         (Y,N)     Y

       5. REMOVE CHECKPOINT STATUS?             (Y,N)     N
```

This display allows you to determine the status of all the files on the disk. The file rebuild function should be run when the status of a file or files is in question (for example, in the case of a system failure or when files are being updated or if a processor check occurs during a COMPRESS). The entries shown on the display are the default values (those that will be used unless you change them).

1. Y (yes) must be given here or items 2 through 5 are ignored. Y causes the file rebuild utility to be run as specified by the values given in items 2 through 5. N causes no action.

   Note: The file rebuild function runs in dedicated mode, which means no other task can be started until file rebuild is completed.

2. Y causes files that cannot be repaired or corrected to be deleted. N does not delete the files.

   Files that are irreparable are those with one or more of the following conditions:
   a. Invalid latest date indicator (neither * nor binary zero)
   b. Invalid data flag
   c. Invalid retention – neither P nor T
   d. Invalid file type – not sequential, direct, indexed, or a combination of types
   e. End of key beyond end of record
   f. Start of key before beginning of record
   g. Starting sector and/or ending sector of file is not on a block boundary or the sector address is not within the bounds of the user disk area
   h. Record length exceeds 4096 bytes

   Note: If a processor check occurs during a COMPRESS, IPL file rebuild will call COMPRESS to complete its function. If any of the messages numbered 1900 through 1909 are issued and option 2 is taken, the file will not be deleted, no further processing of files will occur, and IPL file rebuild will end. This will allow the user to take corrective action on the disk files and then perform the IPL.

However, files with the following conditions are considered reparable:

a. If the file contains more records than the VTOC indicates, IPL file rebuild will correct the VTOC to indicate the correct number of records.

   Note: If the system was performing IPL or a power failure occurred during an output, update, or add, the last record may be only partially written.

b. If the VTOC for an indexed file (1) is updated to reflect the number of records, (2) has the invalid index flag set, or (3) has an unequal number of index entries compared to the number of records, then the index will be reconstructed from the records in the file.

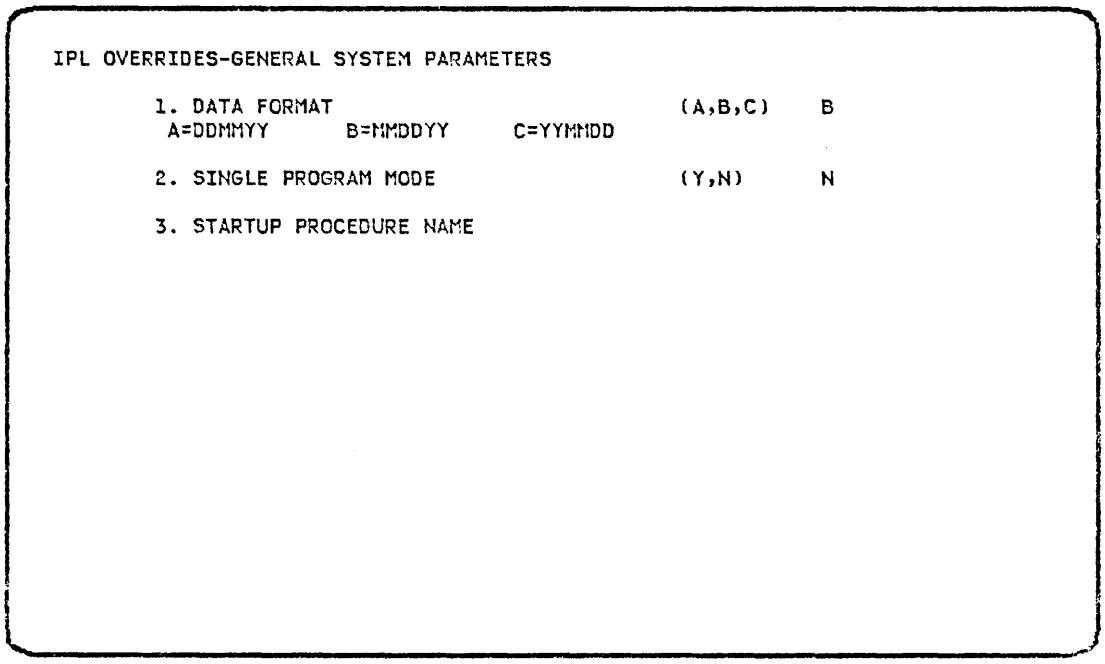
3. Y causes file rebuild to examine the old files in addition to looking at the new files. N means the old files are not looked at.

   New files are those created for the first time or recreated by loading an existing file. When the file is deallocated, the *new* flag is removed and the file is now *old.* A file used for update or add is not new.

4. Y causes the file labels of all irreparable files to be displayed. N means the labels are not displayed.

5. Y causes the files created for the purpose of checkpoint/restart to be deleted. In addition, the checkpoint status flag is turned off in all user files and libraries that have been checkpointed. N means all checkpoint record files and checkpoint active files are ignored. This line is not displayed if the checkpoint/restart feature is not configured.

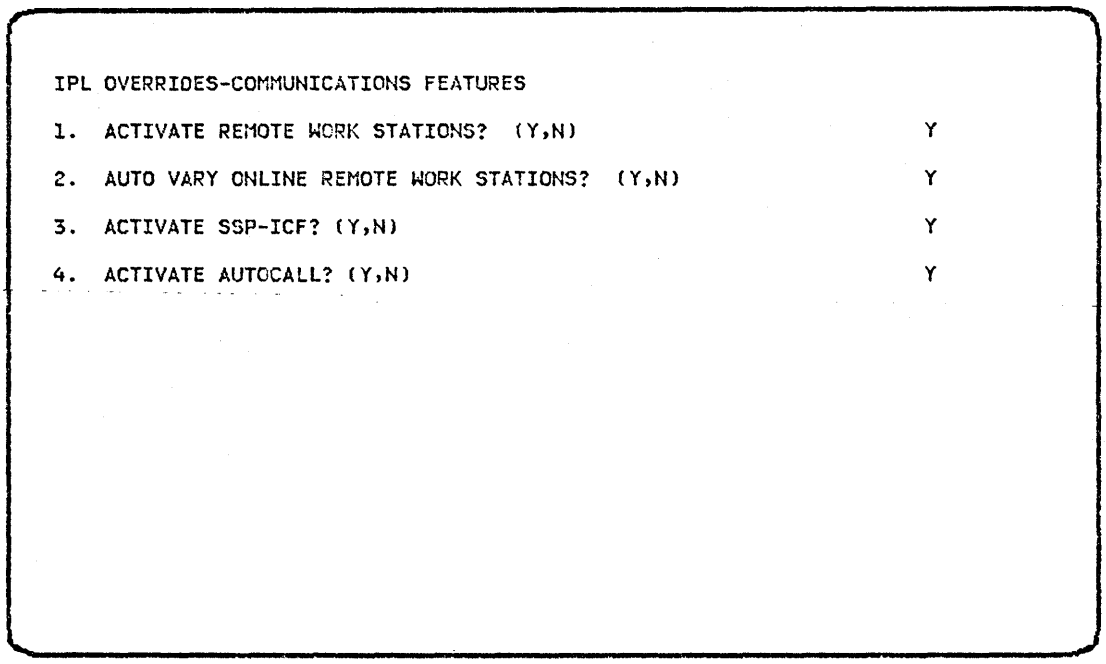
Note: If N is specified for 3 (examine old files also) and Y is specified for 5 (delete checkpoint files), 3 (examine old files also) is treated as if Y were specified.



1. The date format can be DDMMYY, MMDDYY, or YYMMDD where DD means day, MM means month, and YY means year. If the format is changed, the current date is changed to reflect the new format.

2. This entry defines whether you will be in single program mode after IPL.

3. The name of a user-written initialization procedure that can be run at IPL. A blank entry indicates no procedure will be run.



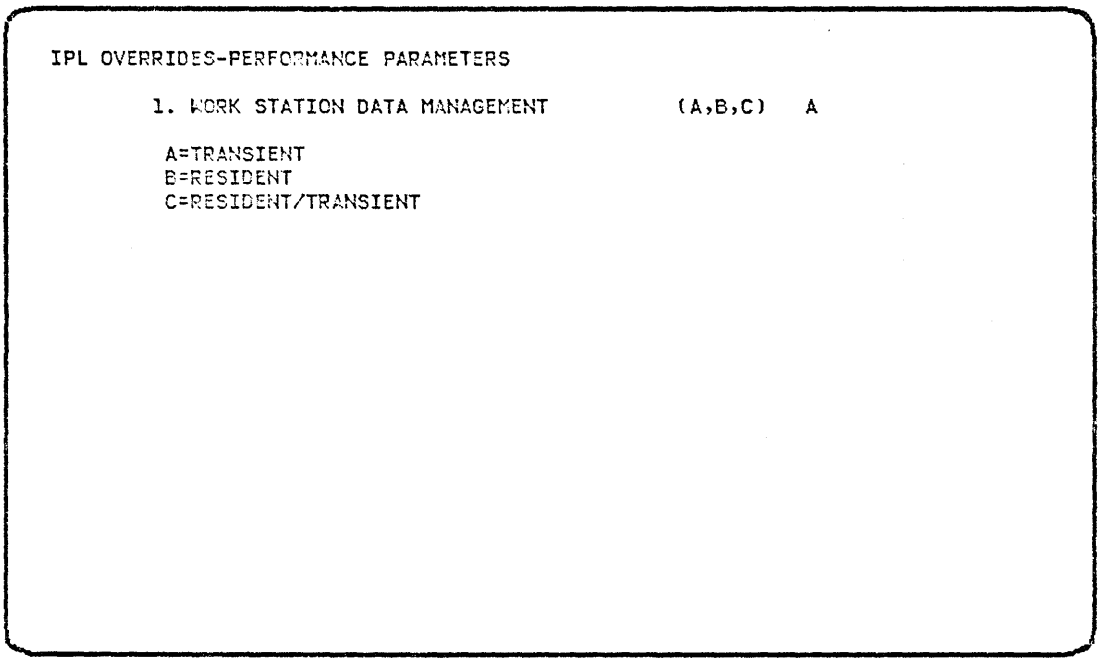
1. Changing this response to N cancels remote work stations only for this IPL. This option will not be displayed if remote work stations are not configured.

2. Changing this response to N indicates that those work stations selected for auto vary during system configuration will not be brought online at IPL. This option is not displayed if you did not specify any remote work stations as auto vary on.

3. Changing this response to N indicates that the SSP-ICF feature will not be active for this IPL. This option will not be displayed if SSP-ICF is not configured.

4. Changing this response to N indicates that the AUTOCALL feature will not be active for this IPL. This option will not be displayed if the autocall feature is not configured.

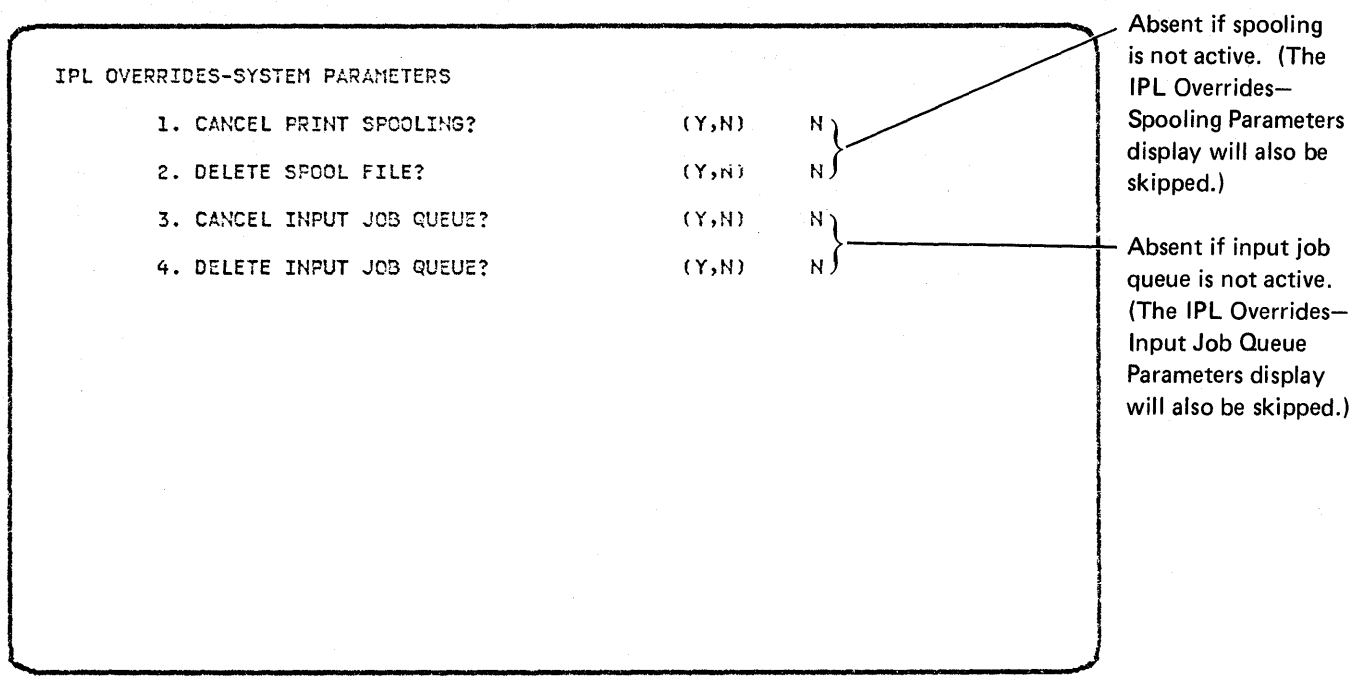
Note: This screen will not be displayed if neither communications feature is configured.



With the response of A, work station data management is not loaded into the nucleus at IPL time; instead, the work station data management stays in the transient area and is brought into the nucleus on an as-called basis. If remote work stations are active, A = TRANSIENT is not displayed and only options B and C are valid for this display.

Notes:

1. This screen will not appear if single program mode has been selected.
2. This screen will not appear if the ideographic version of the SSP is loaded and if ideographic-capable devices are configured.



1. Changing this response to Y cancels the print spooling function for this IPL only.

2. If you cancel the print spooling function, you can also delete the print spool file. Any data on the print spool file is lost.

3. Changing this response to Y cancels the input job queue function only for this IPL.

4. If you cancel the input job queue function, you can also delete the input job queue. All jobs on the queue are lost.

```
IPL OVERRIDES-SPOOLING PARAMETERS

        1. SPOOL ALL PRINTERS                        (Y,N)      N

        2. SPOOL WRITER BUFFER SIZE                (1-4 HK)     1

        3. AUTOWRITER                                (Y,N)      N

        4. SPOOL FILE SIZE           (12-12800 BLOCKS)          12

        5. SPOOL FILE SEGMENT SIZE       (1-16 BLOCKS)          6

        6. SPOOL FILE PREFERRED LOCATION           (A1,A2)      A2

        7. REFORMAT SPOOL FILE                       (Y,N)      N
```

1. N indicates that spooling will be only to the system printer by default. Other printers can be spooled by specifying SPOOL-YES on the appropriate PRINTER OCL statement(s).

2. This size is a performance factor for the line printer.

3. Y indicates that the spool writer(s) will be automatically started during IPL. N indicates the spool writer(s) will not be automatically started. The START PRT command must be entered to start the spool writers.

4. The number of blocks on disk to be reserved for the spool file. When necessary, the spool file will be extended up to 6 times this size. The value specified is rounded down to the nearest multiple of the spool file segment size.

   Note: If an override size is not given and the spool file is empty, the size is set to the configured size, not the last size set.

5. The number of blocks on disk for each spool file segment (the smallest unit of the spool file). There must be between 2 and 800 segments for each extent of the spool file.

6. You can specify the preferred location for the spool file if you have multiple disk drives.

7. Y removes any entries that may exist on the spool file. If the size was changed in entry 4 or 5, Y must be specified here.

Note: If the processor check light goes on when you attempt to IPL after a power failure, do the following:

- Attempt another IPL and answer Y to the Overrides prompt on the Sign On display.
- Specify Y for option 7 on the Spooling Parameters display.
- Then specify Y for option 2 on the Input Job Queue Parameters display.

All other override values will default.

```
IPL OVERRIDES-INPUT JOB QUEUE PARAMETERS

       1. INPUT JOB QUEUE SIZE  (20-120 JOBS)            020

       2. REFORMAT INPUT JOB QUEUE?          (Y,N)       N

       3. START INPUT JOB QUEUE?             (Y,N)       N
```

1. This is the maximum number of jobs that can be placed on the input job queue (at two jobs per sector).

   Note: If an override size is not given and the input job queue is empty, the size is set to the configured size, not to the last size set.

2. Y removes any jobs that currently are on the input job queue. If the size was changed in entry 1, Y must be specified here.

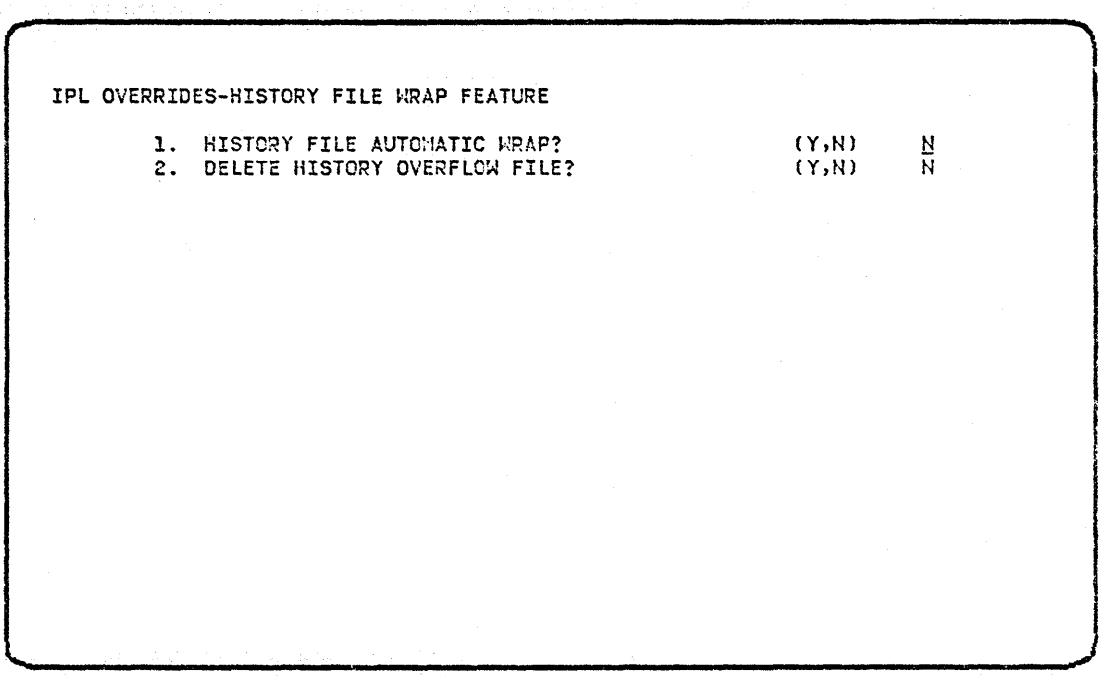
3. Y indicates the input job queue is to be started at IPL time; N indicates the input job queue is to be started by the system operator.

Note: If the processor check light goes on when you attempt to IPL after a power failure, do the following:

- Attempt another IPL and answer Y to the Overrides prompt on the Sign On display.
- Specify Y for option 7 on the Spooling Parameters display.
- Then specify Y for option 2 on the Input Job Queue Parameters display.

All other override values will default.

For more information, refer to *Reformatting after a Power Failure or a Program Check* earlier in this chapter.



1. Y causes previous entries to be overwritten when the history file is full; N requires that the history file be copied into the history overflow file before any entries are overwritten.

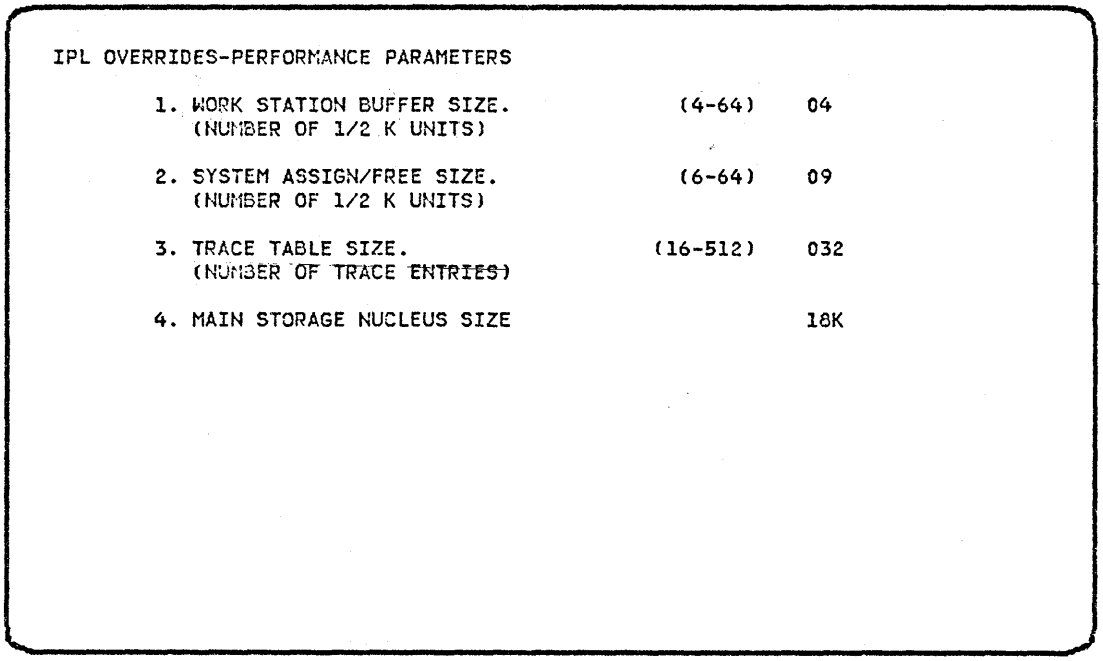
2. Y causes the history overflow file to be deleted if it is empty. Y is valid only when Y is selected for 1.

```
IPL OVERRIDES-HISTORY FILE WRAP FEATURE

      1.  HISTORY OVERFLOW FILE SIZE?              (1-8)     07
          (NUMBER OF HISTORY FILE MULTIPLES)

      2.  REFORMAT OVERFLOW FILE?                  (Y,N)     N

      3.  PREFERRED LOCATION?                      (A1,A2)   A2
```

1. This is the number of multiples of the history file size that should be allocated to the history overflow file.

2. Y causes the history overflow file to be marked as empty; N does not permit any change to the overflow file.

3. This is the preferred spindle location.



Note: Different limits are displayed when remote work stations are active.
- Work station buffer size (8-64)
- System assign/free size (9-64)

The values that appear in items 1 through 3 were entered at system configuration time. These values may be changed on this IPL override display. For information about choosing these values, see the *Installation and Modification Reference Manual* and the *Planning Guide*.

1,2. These values are a function of the number of command display stations configured to the system.

3. Trace table size is set at system configuration time; the primary purpose of the trace table is to aid in problem resolution.

4. This value is informational only. This is the total size of the fixed nucleus and all the components of the variable nucleus. You alter this value by changing the values of items 1 through 3.

When no further changes are made that affect the main storage nucleus size, press the Enter/Rec Adv key.

IPL is complete. The message #IPLPROC IS RUNNING appears, followed by the command display.

IPL from Diskette

IPL is from diskette when installing a new system library or in the case of certain system failures.

To perform System/34 IPL using diskettes:

1. The Address/Data switches should be set to 0000 to perform an IPL from diskette. The only exception is to perform an IPL from diskette location 1 in magazine 1. In this instance, set the Address/Data switches to 0011.

2. Set the MSIPL switch on the CE panel to the Diskette position.

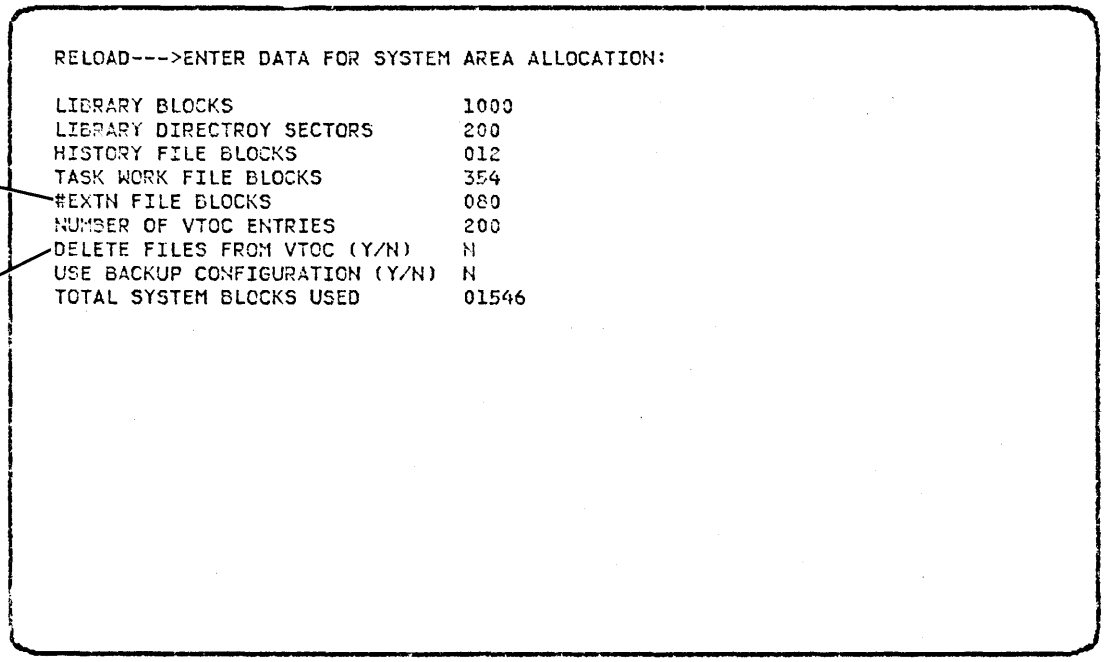
3. Insert the first diskette or magazine. (The diskette must go in slot 1 of diskette magazine 1.)

4. Press the Load key on the front of the system unit.

5. The following display appears if the correct diskette was inserted. (Otherwise, the system will probably process check.) You can change any of the values on this display. Press the Enter/Rec Adv key and go to step 6.

This line appears only if the ideographic version of the SSP is loaded.

This line does not appear if security is on your system.



Note: If you have the diskette magazine unit, the following RELOAD parameters are assumed when IPL is from diskette:

S1 (or M1.01) and AUTO

Refer to the *System Support Reference Manual* for more information on the RELOAD command parameters.

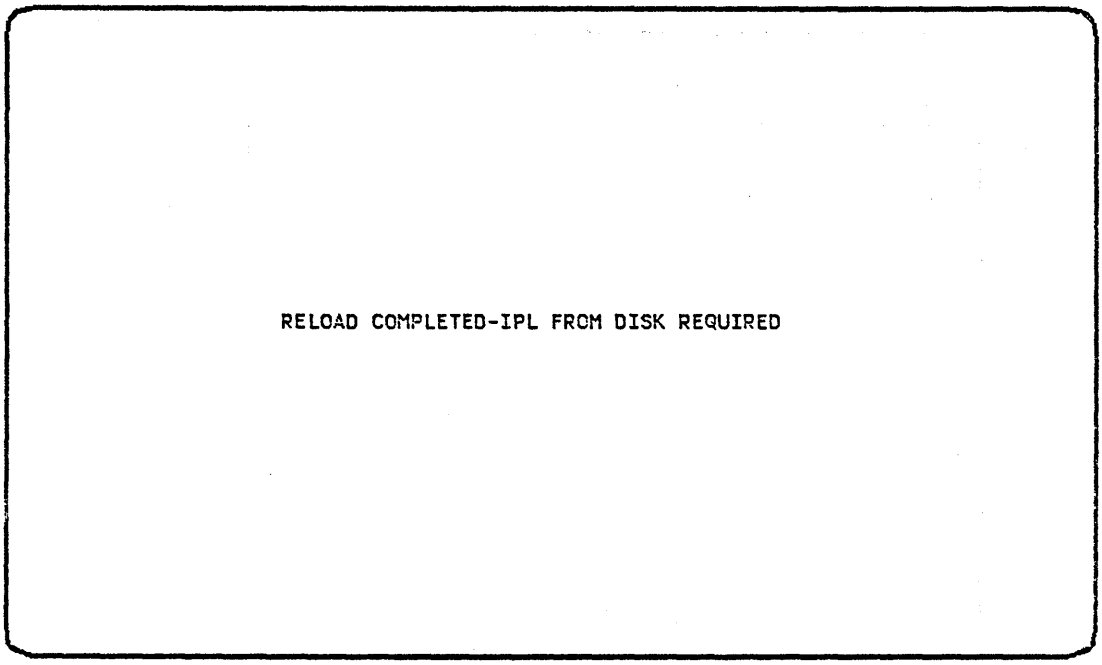
6. The following display appears. Insert the second diskette, then press the Enter/Rec Adv key. If you have more than two diskettes, this display reappears for each diskette until the last diskette has been read. Then the display in step 7 appears.

```
PRESS ENTER TO CONTINUE:

INSERT DISKETTE VOLUME WITH
FILE LABEL- #LIBRARY
FILE DATE- 770804
SEQUENCE NUMBER- 002


SYS-3907 END OF VOLUME--INSERT NEXT DISKETTE
```

7. The following display appears when the last diskette has been read. Press the Enter/Rec Adv key and go to step 8.

```
PRESS ENTER TO CONTINUE:



REMOVE LAST DISKETTE VOLUME
```

8. When the following display appears, set the MSIPL switch back to the Disk position and press the Load switch to perform an IPL from disk. Sign on to the system.



Using the RELOAD Command to Perform an IPL from Diskettes

If you need to reload the system library, you can do the following:

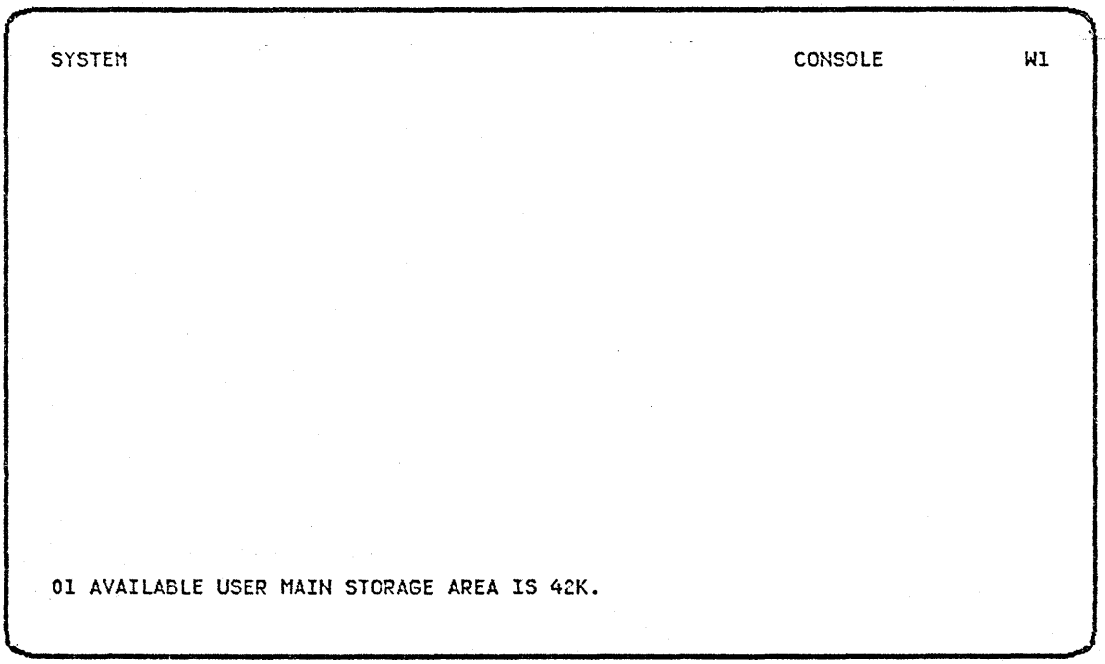
1. Insert the first diskette or a magazine.

2. Enter the RELOAD procedure command. RELOAD cannot be run while any other jobs are being run or while a user is signed on at any other display station. Refer to the *System Support Reference Manual* for the RELOAD command parameters.

3. The system goes from the the reload procedure to IPL from diskettes automatically. The first display for IPL from diskette, the Reload display, appears.

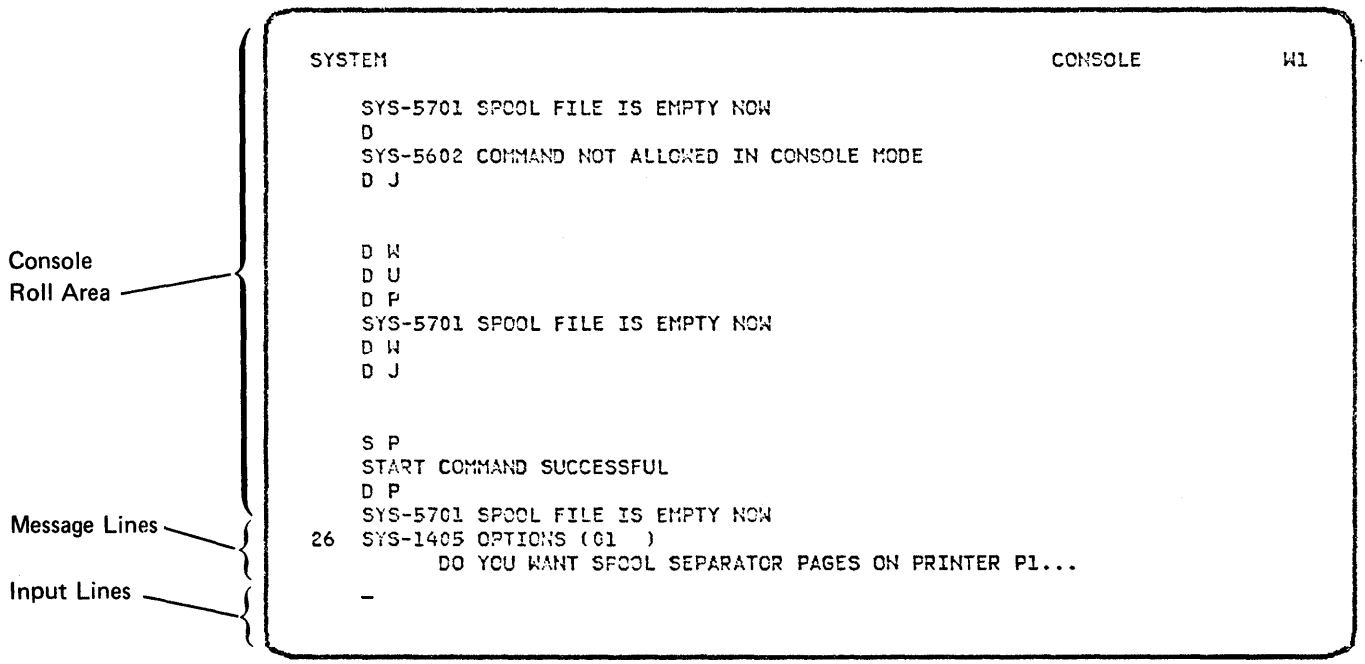
4. Complete IPL from diskette as shown in the previous section. When you complete the IPL from diskette, IPL from disk takes place automatically.

After IPL and IPL sign on are complete, either from disk or diskette, the message #IPLPROC IS RUNNING appears, followed by the Command display. Hold the Shift key down and press the Sys Req key. Press the Enter/Rec Adv key and the System display appears. On the System display, an informational message appears that reminds you of the available user main storage area, as shown in the following example:



The System display indicates that the system console is in console mode. From the System display, you can enter system console control commands only. These commands allow you to control and monitor system activity. (This chapter explains how you can use these commands. The *System Support Reference Manual* also provides a description of each of these commands.)

System Display



The console roll area shows a history of output to the system console and input from the system console. When this area is full, the old (top) entries roll up and off the display and the new entries appear at the bottom of the display. Messages that you have not responded to will not roll off the display. If the screen is full of active messages, you must clear (respond to) some of the current messages to get any new messages. Message lines contain output from the system to you. Input lines are lines on which you enter system control commands or reply to system messages.

Note: If the Message Waiting indicator is on, but no more messages are being rolled into the console roll area, it may be that the roll area is full. In this case, respond to the messages in the roll area to provide room for additional messages.

If you are operating from an ideographic terminal and you change from IGC SESSION-Y to IGC SESSION-N at sign on, you will get a blank screen. The system is rebuilding the screen display.

HOW TO USE THE SYSTEM CONSOLE AS A DISPLAY STATION

You can use the system console for entering commands and OCL statements just like a command display station.

To switch from system console mode to command mode, hold down the Shift key and press the Sys Req key, release them and press the Enter/Rec Adv key.

If you are using the system console as a command display station for data entry or for interactive jobs and the system requires the console for a system console function, you are notified by the Message Waiting indicator on the display screen and a buzzing from the console. When you finish entering the current data on the screen, you can switch from command mode to system console mode to accept the system message. To do this, hold down the Shift key and press the Sys Req key, then press the Enter/Rec Adv key.

After taking proper action, you can switch the system console back to a command display station (by holding down the Shift key and pressing the Sys Req key, and then pressing the Enter/Rec Adv key) and continue entering data.

After you switch from command mode to system console mode, the system cannot send you messages pertaining to a job you entered in command mode. You may want to switch back to command mode periodically to check for messages, or leave the system console in command mode until the job ends.

ALTERNATIVE SYSTEM CONSOLE

You can switch to the alternative system console either during IPL or at any time that the system console becomes inoperative. To switch during IPL, go to the designated alternative system console, and press the Sys Req key with the Shift key and then press the Enter/Rec Adv key. The message IPL IS IN PROGRESS, PLEASE WAIT appears. Disregard this message and enter the CONSOLE control command on the display of the alternative system console (see the following example). Then press the Enter/Rec Adv key. The IPL Sign On display will then appear at that display station. Complete the IPL Sign On display, which causes that display station to become the system console.

To switch consoles if the system console becomes inoperative at any time other than during IPL, sign on to the alternative system console and enter the CONSOLE control command. The CONSOLE command can be entered only from command mode. The alternative system console activated after IPL is complete must have a display screen that is the same size or larger than the system console. The system console and alternative system console are specified during system configuration. To determine which devices have an attribute of alternative system console, use the STATUS WORKSTN control command.

```
IPL




IPL IS IN PROGRESS, PLEASE WAIT.
CONSOLE_
```

Notes:

1. If the CONSOLE command is entered after IPL has completed, the alternative system console from which the command is entered must have the same or larger size screen (1920-character) as the current system console. If the CONSOLE command is entered before IPL has completed, the alternative system console can be assigned to a smaller size (960-character) screen.
2. If an alternative console is made the system console via the CONSOLE command and then made an alternative console again, it will have NOSUB attribute. To reactivate the subconsole function, the system console operator must issue the ASSIGN SUB command.

HOW TO DISPLAY THE STATUS OF THE SYSTEM DEVICES

Command Format

STATUS WORKSTN [,ws-id]
(D) (W)

Parameters

WORKSTN: Displays status information about: local and non-offline remote display stations and printers, the diskette drive, or a selected display station or work station printer.

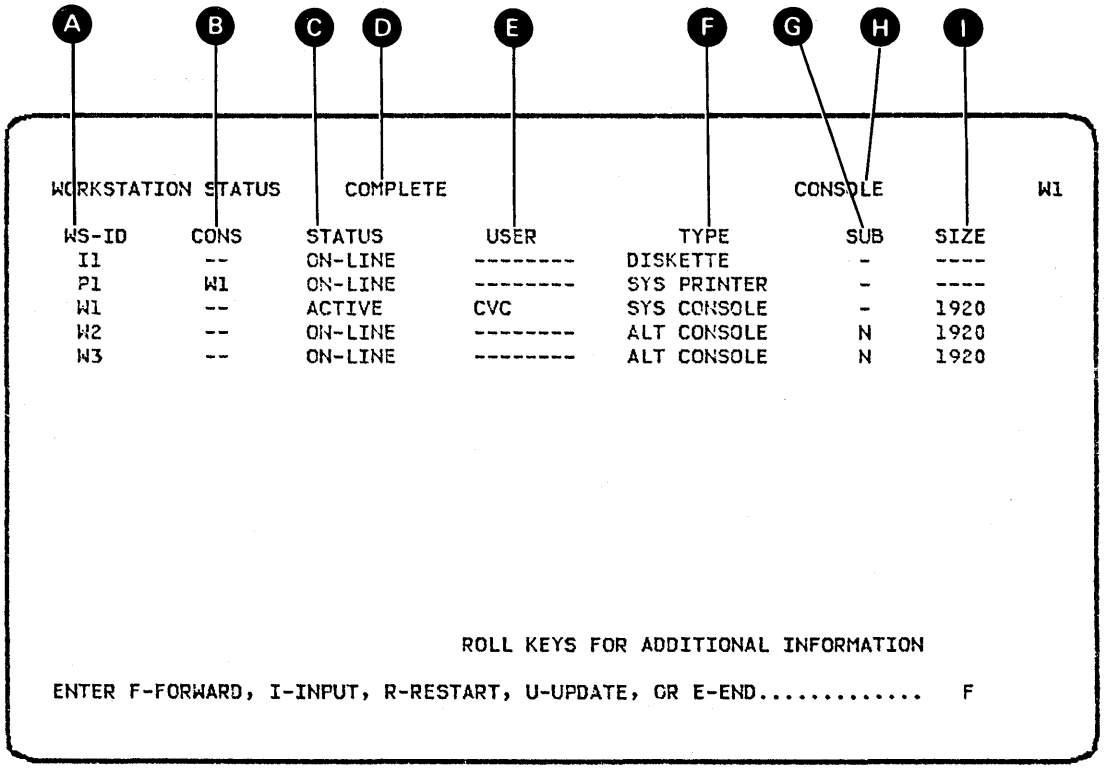
ws-id: The ID of the display station or printer for which status information is displayed. If you do not specify an ID, status information for all display stations and printers is displayed.

Example

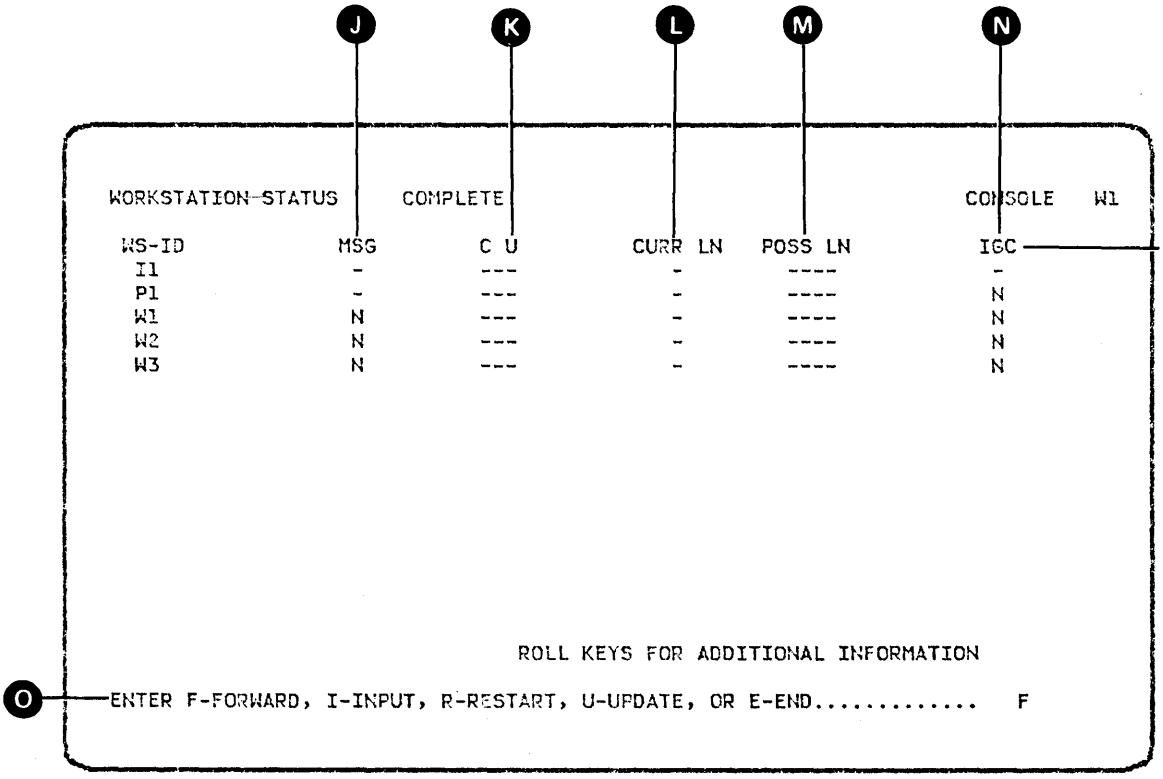
You enter

STATUS WORKSTN or
D W

The following two-part display appears:



After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the STATUS WORKSTN display appears.



A WS-ID is a list of the diskette drive, all local display stations, all local printers, and the remote devices that are active, online, or pending. I1 is the ID for the diskette, and the other IDs are defined at system configuration time.

B CONS shows the controlling console configured for each printer.

C STATUS lists the current status of each of the devices. Possible entries are:

ON-LINE – The device is online but is not presently being used.
OFF-LINE – The device has been varied offline by the system operator.
ACTIVE – The device is currently being used.
PENDING – The remote device is being varied on or off.

D COMPLETE appears only on the last page of a status function.

E USER lists the user ID that was entered at sign-on time for each active display station. Inactive local display stations, local printers, and the diskette show hyphens (----) for the user ID.

F TYPE describes each device listed on this display.

DISKETTE: The diskette drive.
SYS PRINTER: The system printer.
PRINTER: A printer other than the system printer.
DATA: This device is a data only display station.
COMMAND: This is a command display station.
SYS CONSOLE: This is a system console.
ALT CONSOLE: This is an alternative console.
SUBCONSOLE: This is a subconsole display station.

G SUB shows whether a subconsole or an alternative console is currently active as a subconsole (receiving printer related messages).

H CONSOLE indicates that the STATUS WORKSTN command was issued from console mode and console commands are valid with the I option.

I SIZE shows the size of the display station display screen.

960-character display screen
1920-character display screen

J MSG indicates whether broadcast messages failed to get to this display station. Y indicates that the system operator sent a broadcast message to all display stations but this display station did not receive the message because its message queue was full. This field is valid for display stations only; for printers and the diskette drive, this field contains a hyphen (-).

K C U indicates the control unit ID of the remote device.

L CURR LN: if the device is online and attached via a communications line, shows the line number (line 1, 2, 3, or 4).

M POSS LN: if the device is attached via a communications line, shows the numbers of all possible lines on which an offline device can communicate (line 1, 2, 3, or 4). If the device is pending, shows the line number it will communicate on when it is online (line 1, 2, 3, or 4).

N IGC: appears only if you have the ideographic version of the SSP.

D Appears if only the display station is ideographic capable.

Y Appears if both the display and the keyboard are ideographic capable, or if the device is an ideographic-capable printer.

N Appears for nonideographic devices.

\- Appears for the diskette drive.

O This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

If you enter the STATUS WORKSTN [,ws-id] command and include a work station ID, the following two-part display appears. In this example, work station W2 requested the status of work station W1.

```
WORKSTATION STATUS     COMPLETE                          CONSOLE              W2

 WS-ID      CONS      STATUS        USER          TYPE          SUB     SIZE
  W1         --      ACTIVE        KSA           SYS CONSOLE     -      1920




                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END............  F
```

After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the display appears.

```
WORKSTATION STATUS     COMPLETE                          CONSOLE          W2

 WS-ID          MSG          C U          CURR LN    POSS LN
  W1             N           ---            -         ----
  W2             N           ---            -         ----
  W3             N           ---            -         ----









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.....  F
```

HOW TO DISPLAY THE STATUS OF THE REMOTE SYSTEM DEVICES

Command Format

```
STATUS  REMOTES [,ws-id]
(D)     (R)
```

Parameters

REMOTES: Displays status information about the remote display stations and printers, or displays status information about a selected remote display station or work station printer.

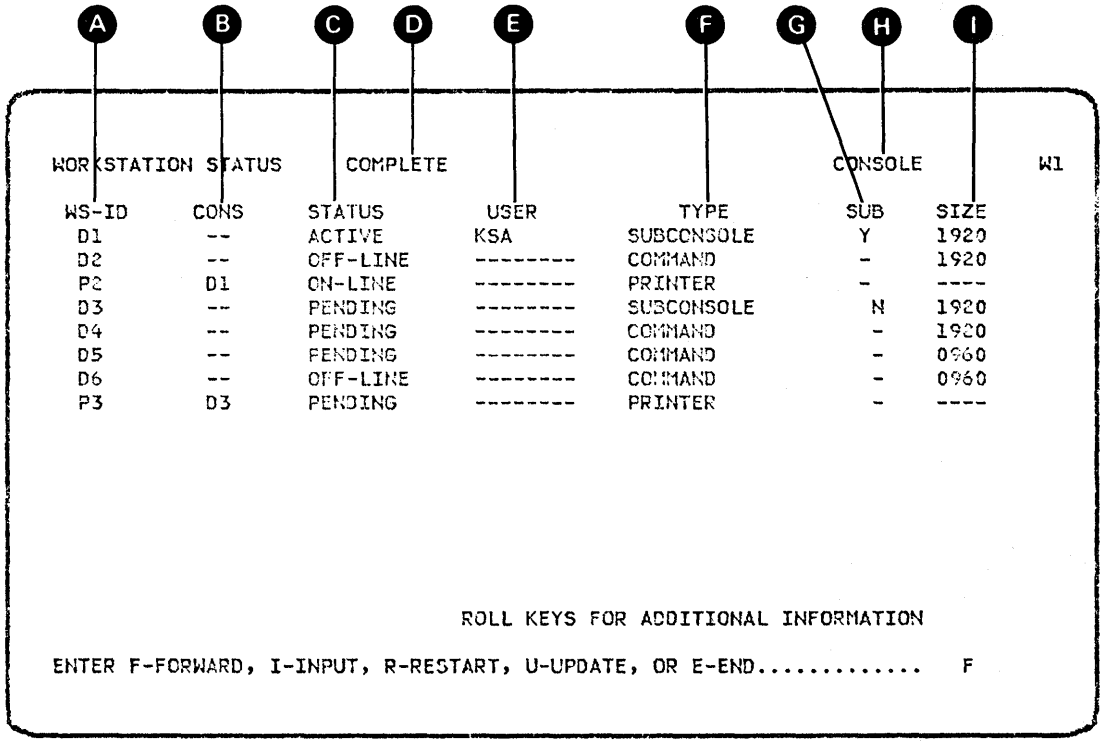
ws-id: The ID of the remote display station or printer for which status information is displayed. If you do not specify an ID, status information for all remote display stations and printers is displayed.

Example

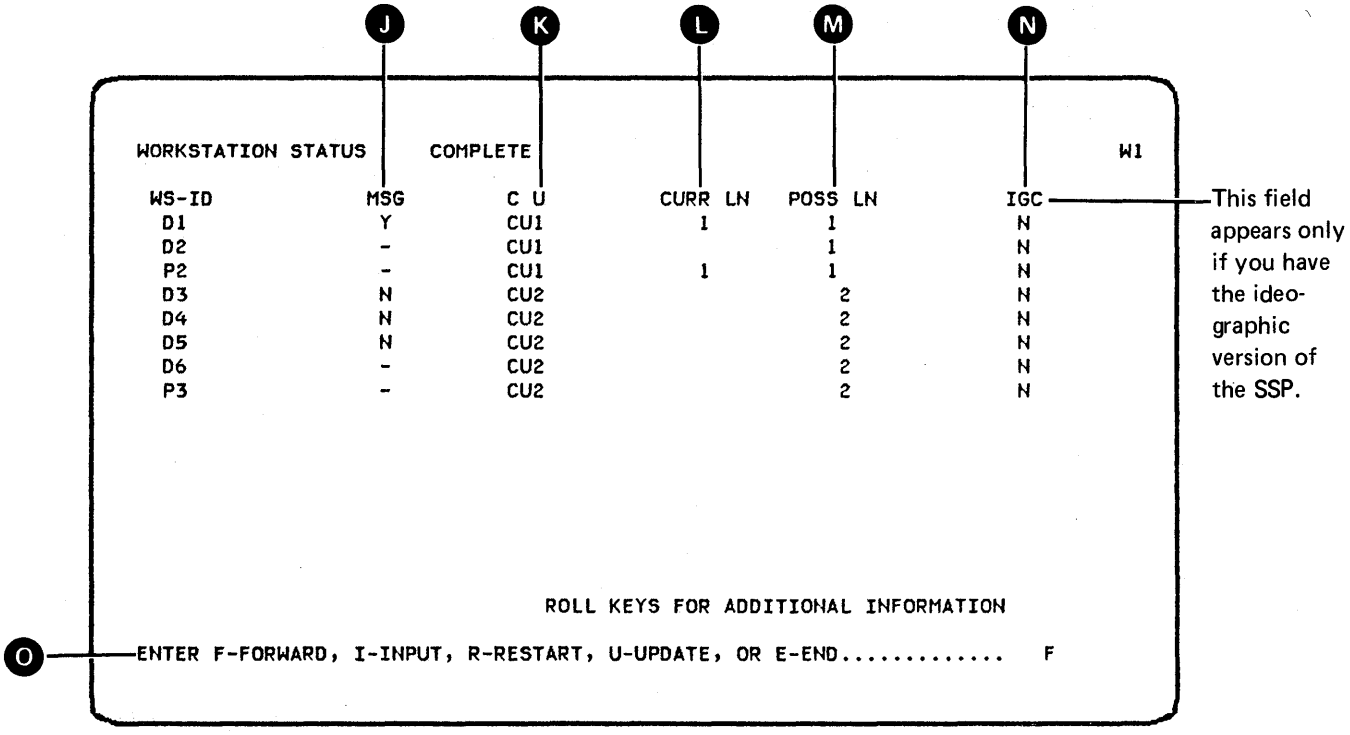
You enter

```
STATUS  REMOTES or
D       R
```

The following display appears:



After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the STATUS REMOTES display appears.



A WS-ID is a list of the remote display stations and printers defined for the system.

B CONS: shows the controlling console configured for each printer.

C STATUS lists the current status of each of the devices. Possible entries are:

ON-LINE – The device is online but is not presently being used.
OFF-LINE – The device has been varied offline by the system operator.
ACTIVE – The device is currently being used.
PENDING – The remote device is being varied on or off, or the remote device is in slow poll mode.

D COMPLETE appears only on the last page of a status function.

E USER lists the user ID that was entered at sign-on time for each active remote display station. Inactive remote display stations and printers show hyphens (----) for the user ID.

F TYPE describes each device listed on this display.

PRINTER: A printer other than the system printer.
DATA: A data only display station.
COMMAND: A command display station.
SUBCONSOLE: A subconsole display station.

G SUB: shows whether a subconsole or an alternative system console is currently active as a subconsole (receiving printer related messages).

(H) CONSOLE indicates that the STATUS REMOTES command was issued from console mode, and system console commands are valid with the I option.

(I) SIZE shows the size of the display station display screen.

960-character display screen
1920-character display screen

(J) MSG indicates whether broadcast messages failed to get to this display station. Y indicates that the system operator sent a broadcast message to all display stations but this display station did not receive the message because its message queue was full. This field is valid for display stations only; for printers and the diskette drive, this field contains a hyphen (-).

(K) C U indicates the control unit ID of the remote device.

(L) CURR LN: if the device is online and attached via a communications line, shows the line number (line 1, 2, 3, or 4).

(M) POSS LN: if the device is attached via a communications line, shows the numbers of all possible lines on which an offline device can communicate (line 1, 2, 3, or 4). If the device is pending, shows the line number it will communicate on when it is online (line 1, 2, 3, or 4).

(N) IGC: appears only if you have the ideographic version of the SSP.

Y Appears if the device is an ideographic-capable printer.

N Appears for nonideographic devices.

(O) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end the current STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

If you enter the STATUS REMOTES [,ws-id] command and include a remote work station ID, the following display appears. In this example, work station W3 has requested the status of work station D1.

```
WORKSTATION STATUS     COMPLETE                                          W3

 WS-ID      CONS      STATUS        USER          TYPE          SUB    SIZE
  D1         --      ACTIVE        KSA           COMMAND        -     1920









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.....  F
```

After you press the Roll↑ (roll up) or Roll↓ (roll down) key, the next part of the display appears.

```
WORKSTATION STATUS     COMPLETE                                          W3

 WS-ID            MSG          C U          CURR LN    POSS LN
  D1               N           CU1             1          1









                                ROLL KEYS FOR ADDITIONAL INFORMATION

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END.....  F
```

HOW TO DISPLAY THE TASKS IN THE SYSTEM

Command Format

STATUS SYSTASK [,jobname / ,system task id]
(D) (T)

Parameters

SYSTASK: Displays the job name and the task control block address of the job, or displays the system task name and task control block address.

jobname: The name of the user job.

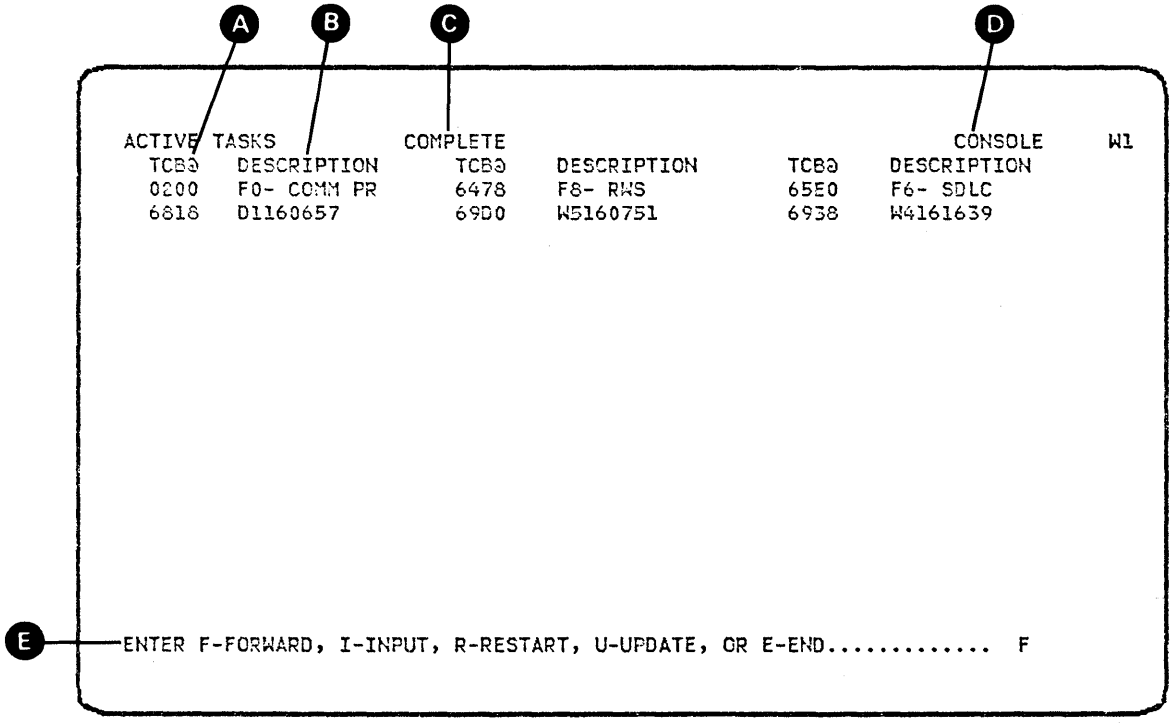
system task id: The two-character code that identifies the task control block as a system task.

Example

You enter

STATUS SYSTASK or
D T

The following display appears:



(A) TCB@ is a list of the Task Control Block Addresses active in the system.

(B) DESCRIPTION indicates the user job name or system task description that is associated with the task control block.

(C) COMPLETE appears only on the last page of a status function.

(D) CONSOLE indicates that the STATUS SYSTASK command was issued from console mode and system console commands are valid with the I option.

(E) This line is for operator action. Entering one of these characters and pressing the Enter/Rec Adv key causes the following action:

F Causes forward paging. If the display is already on the last page and more than one page exists, the display will wrap around to the first page. If only one page exists, that page will be displayed again. If you enter any character other than I, R, U, or E, the system will respond as if F were pressed.

I When entered along with a command or OCL on the input fields below the prompt, causes the command or OCL to be processed. You can end this STATUS session by entering a procedure command, an OCL statement, a MENU, OFF, or MODE control command, or another STATUS command.

R Restarts (or redisplays) the first page of this status function.

U Updates the display for more current information.

E Ends this status display.

HOW TO DISPLAY THE STATUS OF THE SSP-ICF SUBSYSTEMS

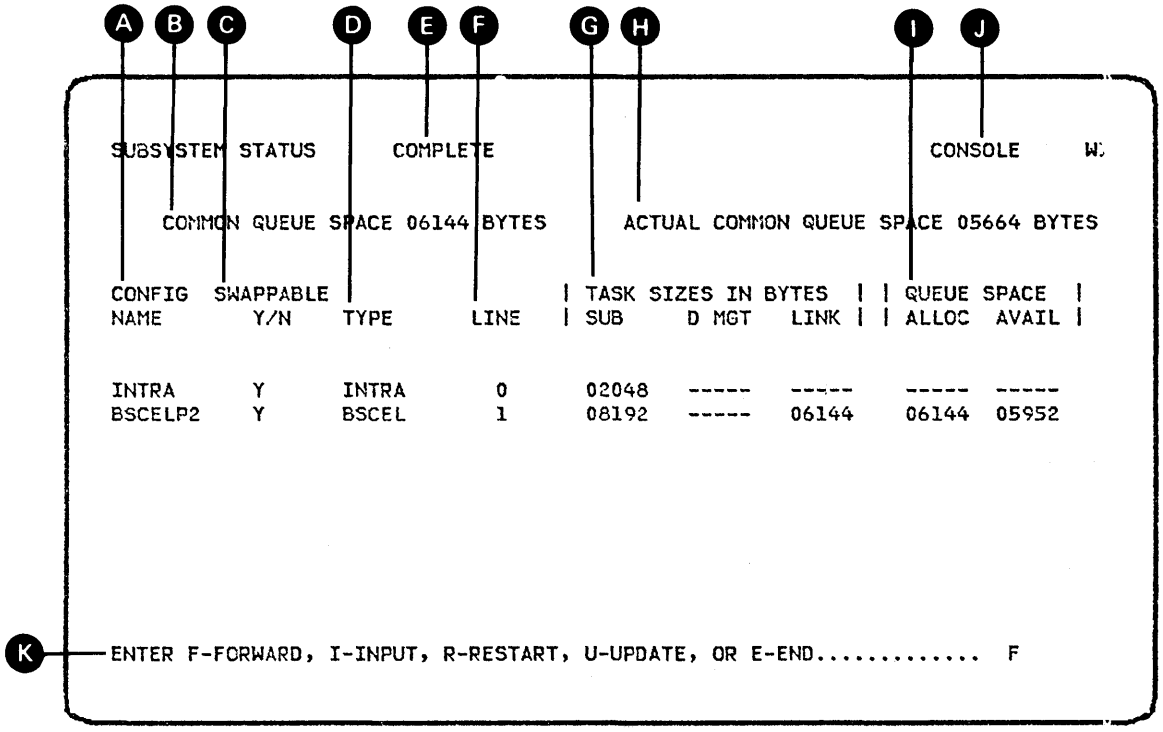
Command Format STATUS SUBSYS
(D) (I)

Parameters *SUBSYS:* Displays status information about the enabled SSP-ICF subsystems.

Example: You enter:

STATUS SUBSYS or
D I

The following display appears:



(A) CONFIG NAME contains a list of subsystem configuration names currently enabled or being enabled.

(B) This field contains the allocated common queue space for the SSP-ICF subsystems. This field may be blank if no subsystem is fully enabled.

(C) SWAPPABLE indicates whether or not the subsystem task is swappable. A value of Y indicates that it is swappable. If a data management task is required for the subsystem task, the data management swap status task is the same as the subsystem task swap status.

(D) TYPE describes the type of subsystem.

SNUF – SNA upline facility
CCP – CCP
CICS – CICS/VS
IMS – IMS/VS
BSCEL – BSC equivalence link
INTRA – Intra System/34
SNA PEER – SNA peer
3270BSC – BSC 3270
3270 SDLC – SNA 3270
FINANCE – Finance

(E) COMPLETE appears only on the last page of a status function.

(F) LINE describes the communications line allocated to the subsystem configuration currently enabled or being enabled.

(G) TASK SIZE IN BYTES: SUB indicates the size of the subsystem task. D MGT indicates the size of the data management task for the subsystem if one is required. LINK indicates the size of the communication link task for the subsystem if one is required. If the link task is SDLC, the value displayed is the sum of the link task size plus line buffer size.

(H) This field contains the amount of common queue space currently available. This is the sum of all the free areas. This field may be blank if no subsystem is fully enabled.

(I) QUEUE SPACE indicates the status of the subsystem task's queue space. ALLOC indicates the amount of subsystem queue space allocated to the subsystem task. AVAIL indicates the actual amount of subsystem queue space currently available and is the sum of all the free areas in the queue space of the subsystem task.

(J) SUBCONSOLE indicates that the STATUS SUBSYS command was issued from subconsole mode, and subconsole commands are valid with the I option.

(K) This line is for operator action. If you press any character other than I, R, U, or E, the system will page forward as if F were pressed.

HOW TO DISPLAY THE STATUS OF THE SSP-ICF SUBSYSTEM SESSIONS

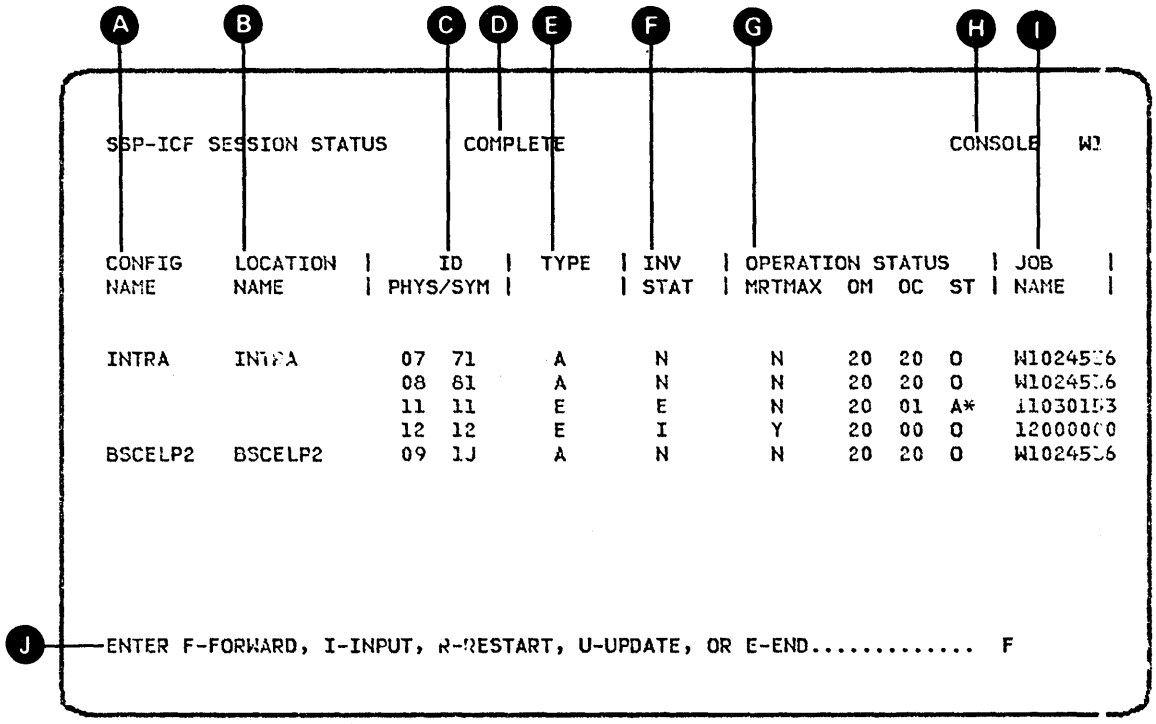
Command Format STATUS SUBSESS
(D) (N)

Parameters *SUBSESS:* Displays status information about the SSP-ICF subsystem sessions.

Example You enter:

STATUS SUBSESS or
D N

The following display appears:



(A) CONFIG NAME contains a list of subsystem configuration names currently enabled or being enabled.

(B) This field contains a list of location names. The location name will appear in any messages logged by the subsystem or SSP for this subsystem configuration. For SNA peer, this is the remote location name.

(C) This field contains a list of subsystem session IDs. PHYS indicates this is the system defined ID. SYM indicates this is the symbolic session ID used by the program owning the session. This ID is used by a program for outgoing communications with an SSP-ICF session.

(D) COMPLETE appears only on the last page of a status function.

(E) This field describes the session type. A indicates this session is an acquired session. E indicates this session is an evoked session. * indicates a non-communicating peer station.

(F) INV STAT:

E Program has requested data from the session.

I SSP has marked the session complete to satisfy an accept input issued by the program owning the session.

N Program does not want data from the session.

O Program has requested data from the session and the data is now available.

(G) The following four fields indicate the status of the session:

MRTMAX If this session is attached to an MRT and the session is waiting because the maximum number of requestors has been reached, this field will have a Y displayed. Otherwise, an N will appear.

The following three fields are primarily for diagnostic purposes. They indicate the state of the SSP-ICF sessions when the STATUS SUBSESS command was entered.

OM This is the current operation command modifier.

OC This is the current operation command code.

ST This is a two-character field. The first character is either an A (operation active), O (operation complete), or I (operation in an initial status). The second character is either blank or an asterisk (*). If this character is an asterisk, the program is currently waiting for this session to complete.

(H) CONSOLE indicates that the STATUS SUBSESS command was issued from console mode, and console commands are valid with the I option.

(I) JOBNAME contains the job name assigned to the process to which the session is attached.

(J) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

HOW TO DISPLAY THE STATUS OF MESSAGES AT SUBCONSOLE DISPLAY STATIONS

Command Format

STATUS MESSAGE [,ws-id]
(D) (G)

Parameters

MESSAGE: Displays messages that have been sent to subconsoles and have not been replied to.

ws-id: The two-character work station ID of a subconsole display station. If this parameter is specified, only messages that have been sent to that particular subconsole are displayed. If you do not specify a ws-id, all messages that have been sent to all subconsole display stations and have not been replied to are displayed.

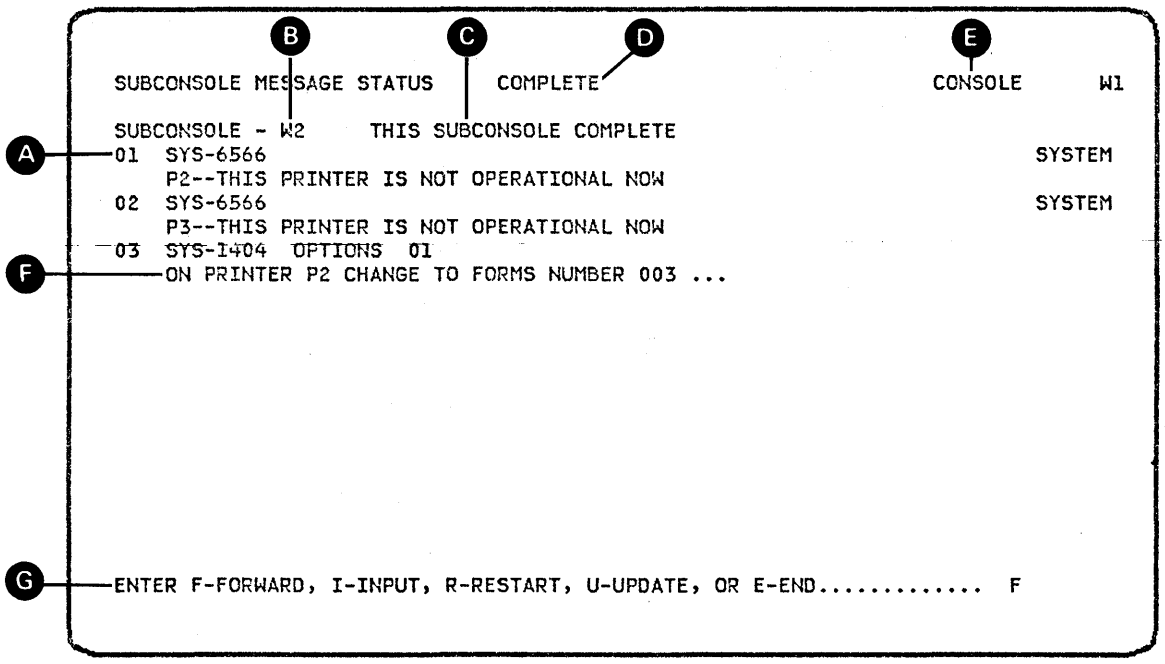
Note: If messages sent to a subconsole contain ideographic characters, but the system console is not ideographic capable, periods will appear in place of ideographic characters on the system console display.

Example

You enter:

```
STATUS MESSAGE or
D G
```

The following display appears.



You can reply to any message which is at the subconsole whose messages you are displaying. To do this, key in I (for INPUT) followed by an appropriate version of the REPLY control command.

A This is the reply ID of the message. Use this to reply to the message.

B This is the work station ID of the subconsole display station whose messages you are displaying. The Status Message display shows the messages for one subconsole display station at a time.

C This field appears on the last page of the status function for each subconsole display station. If there are enough messages at one subconsole display station to overflow one page, only the last page shows THIS SUBCONSOLE COMPLETE.

D This field appears when all the messages at all subconsole display stations have been displayed. If there is more than one subconsole, or if there is more than one page of messages for this subconsole, only the last page shows COMPLETE.

E CONSOLE indicates that the STATUS MESSAGE control command was issued from console mode, and system console commands are valid with the I option.

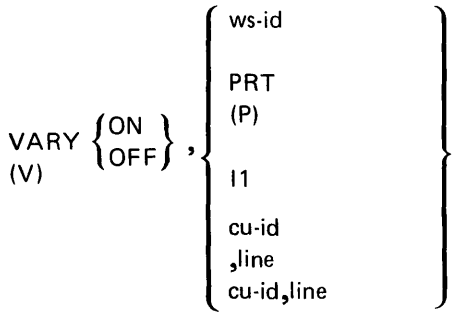
F The ellipsis shows that additional information is available for this message. To view this information enter I followed by REPLY or R and the message ID, or I followed by the message ID.

G This line is for operator action. If you enter any character other than I, R, U, E, or F, the display will continue to display the same page.

HOW TO TAKE LOCAL OR REMOTE DEVICES ONLINE AND OFFLINE (VARY COMMAND)

The VARY control command changes the status of a display station, a printer, or the diskette drive from online to offline or from offline to online. (The VARY command varies the system configuration.) Offline devices cannot be used by programs on the system. You cannot use VARY to take an active device offline. To determine the current status of devices on the system, use the STATUS WORKSTN or STATUS REMOTES control command.

Command Format



Parameters

ON: Place the specified device online.

OFF: Place the specified device offline.

Note: If the device varied offline is a subconsole, any messages that were queued to that subconsole are sent to the system console.

ws-id: The ID of a display station or printer. The status of this device is changed.

PRT: The status of the system printer is changed.

I1: The status of the diskette drive is changed.

cu-id: A 3-character ID of a control unit. All work stations associated with this control unit that are not active will be varied online or offline. If the line parameter is not specified with this parameter, the default is the line(s) specified at configuration time.

line: 1, 2, 3, or 4. When entered without the cu-id parameter, all control units and work stations associated with this line that are not active will be varied online or offline.

cu-id,line: Places a control unit online or offline on a specified line. This parameter is invalid for nonswitched lines.

Notes:

1. Normally, the diskette drive and system printer are varied offline only in the event of failures.
2. After a VARY ON command has been entered, press the Shift key and the Sys Req/Attn key, and the Enter key before trying to sign on.

Example

The system printer has been taken offline. To place the printer online, enter:

```
VARY ON,PRT or
V ON,PRT or
V ON,P
```

HOW TO EXCHANGE DEVICE IDs (ASSIGN COMMAND)

The ASSIGN control command temporarily exchanges the IDs of two display stations or two printers, or temporarily assigns another printer as the system printer. You can use ASSIGN to assign an alternative display station or printer for an inoperative display station or printer. The original IDs are restored the next time you do an IPL. The ASSIGN command can also activate or de-activate subconsole display stations.

When you exchange the IDs of two devices, both devices must be offline. Refer to *How to Take Local or Remote Devices Online and Offline (VARY Command)* in this chapter for further information.

Command Format

```
ASSIGN   { ws-id1 }
(A)      { NOSUB  }
         { SUB    } ,ws-id2
         { PRT    }
         { (P)    }
```

Parameters

ws-id1: The ID of the display station or printer that will have the new ID, ws-id2.

NOSUB: De-activates the subconsole function for the subconsole specified by ws-id2.

SUB: Activates the subconsole function for the subconsole specified by ws-id2.

PRT: Assigns the printer specified by ws-id2 as the system printer.

ws-id2: The temporary ID given to the device with ws-id1, or the ID of a display station that will either be assigned or revoked subconsole support. If PRT is entered in the first parameter position, ws-id2 is the work station ID of a printer that is to be assigned as the system printer.

Note: ASSIGN SUB is needed in only two cases:

- If ASSIGN NOSUB has been issued for that work station
- If the subconsole is an alternative console and was returned to alternative status because another display station was made the system console

Example

Work station W3 is inoperative; to exchange IDs with work station W1, enter:

```
ASSIGN W1,W3 or
A W1,W3
```

MESSAGES

Messages can appear at the system console to indicate (1) incorrect program operation (of programs run either from your display station or from other display stations), (2) device errors, or (3) information or instructions for you. A message intended for the system console operator is called a system log message.

Messages originally appear at the bottom of the display but are rolled up as additional messages come to your display station.

While you operate the system console, you may hear a buzzer or see the Message Waiting indicator. The following types of indications and messages can occur at your system console:

- Buzzer, no Message Waiting indicator:
  - A system log message at the bottom of the display. The message may have options (0, 1, 2, 3) that must be responded to.

- No buzzer, no Message Waiting indicator:
  - Control command errors that require correction
  - Informational messages from a procedure that requires no action

- Buzzer and Message Waiting indicator:
  - A message sent by an MSG command from a display station
  - Printer-intervention-required messages that require you to resolve the problem before you reply to the message

- Flashing four-digit number in the bottom left corner of the screen, no buzzer, no Message Waiting indicator: a keyboard error that must be corrected. Either press the Error Reset key and correct the error, or press the Help key for additional information.

Note: If the buzzer sounds and no apparent message has been sent, it may be because the job that sent the message completed processing and the message sent during processing was destroyed. This happens if the configuration option to keep informational messages at end of job was not taken.

If the Message Waiting indicator remains on after all messages currently displayed have been handled, do the following to display the message:

1. Press the Enter/Rec Adv key.

2. If the message appears, respond to the message. (If no message appears but the Message Waiting indicator turns off, the system has recovered from the error.)

3. If no message appears but the indicator remains on, you must switch to display station mode.
   a. Press the Sys Req key with the Shift key.
   b. Press the Enter/Rec Adv key.
   c. Enter MSG to display the message.

System messages (along with OCL statements and commands) are written to the history file on disk. This occurs when the message is issued and again when (and if) you respond to the message. The history file will contain a log of everything that has occurred in the system, in the order in which it occurred, up to the capacity of the file. The history file is a wrap-around area; when the file is full, the newest entry replaces the oldest entry.

Figure 4-1 shows an example of messages displayed at the system console.

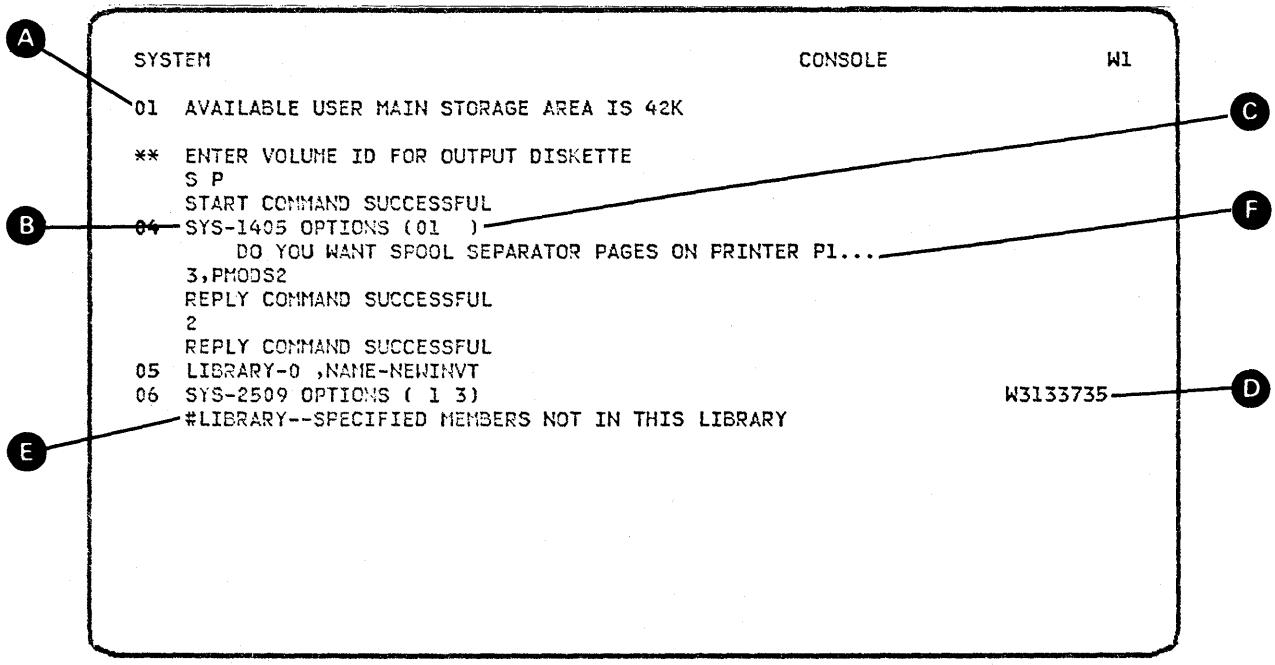


Figure 4-1. Example of Messages Displayed at the System Console

A The reply ID, used with the REPLY command when responding to this message. Some informational messages do not have reply IDs.

B The message identifier, which consists of three or four characters followed by four numbers. Each message that has an identifier other than USER is documented in the *Displayed Messages Guide.* You can use the character code to find the appropriate chapter in the guide. The character codes are:

SYS—System Support Program Product
KBD—Keyboard
RPG—RPG II
SORT—Sort Program
DFU—Data File Utility
SEU—Source Entry Utility
WSU—Work Station Utility
ASM—Assembler
SDA—Screen Design Aid
FORT—FORTRAN
CBL – COBOL
BAS – BASIC
CGU – Character Generator Utility
SRTX – Ideographic Sort
EMU – 3270 Device Emulation
ESU – 3270 Device Emulation

The messages are listed in sequence within each chapter according to the four-digit number (this number is called a message identification code).

C The options list: the valid responses for this message. See the *Displayed Messages Guide* for a complete description of the options. Possible options and responses are:

Option 0: When you select this option, generally the error is ignored and the job continues. Always refer to the *Recovery* part of each message description in the *Displayed Messages Guide* for specific details before selecting this option.

Option 1: When you select this option, generally you can retry the operation causing the error and continue the job. Always refer to the *Recovery* part of each message description in the *Displayed Messages Guide* before selecting this option.

Option 2: Select this option to end the job step. Any new data created up to this point is preserved and you can continue with the next job step.

Option 3: Select this option to cancel the job. Any new data created or work done by a previous job step is preserved; however, any new data created or work done by the current job step is lost.

Option D: This option is available at the system console whenever an option 3 is shown on the display screen; however, option D is never shown on the display and is seldom in the message description in the *Displayed Messages Guide.* When you select option D, the contents of main storage are copied to the dump area on disk, unless a protected dump exists in the dump area on disk. The system action described for option 3 occurs.

After a dump is taken, you should save the information in the dump area on disk by using the APAR procedure or the DUMP procedure.

D The eight-character, system-assigned ID of the job that received the message. This field will show SYSTEM if this message was issued by a system function. If this message is from a display station via the MSG command, this ID does not appear. Instead, the ID of the display station that sent the message appears at the front of the message text.

E The message text. If the console was switched from ideographic capable to nonideographic, messages that contained ideographic characters will display periods.

F Three periods at the end of the message text indicate that there is additional information that you can display for the message. Refer to Figure 4-2 and 4-3 for sample Additional Information display and an explanation of how to show the additional information.

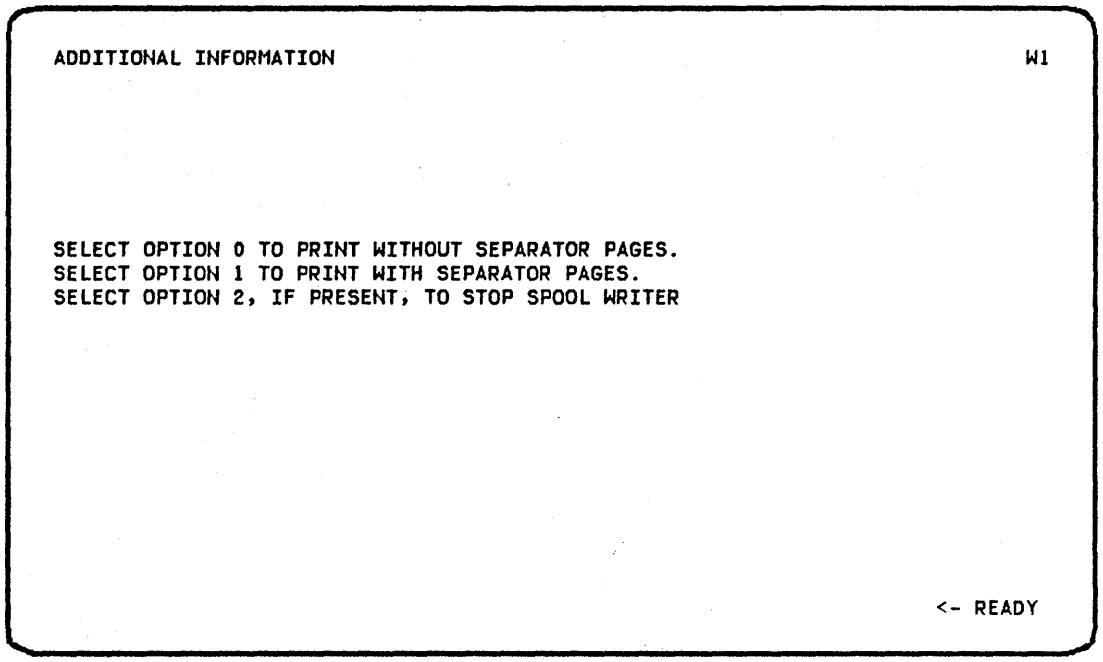


Figure 4-2. Sample Additional Information Display for Message SYS-1405

Press the Enter/Rec Adv key to return to the original display so that you can respond to the message.

Figure 4-3 is a guide to help you respond to messages that appear at the system console. This guide assumes that a one-line or two-line message is on the display.

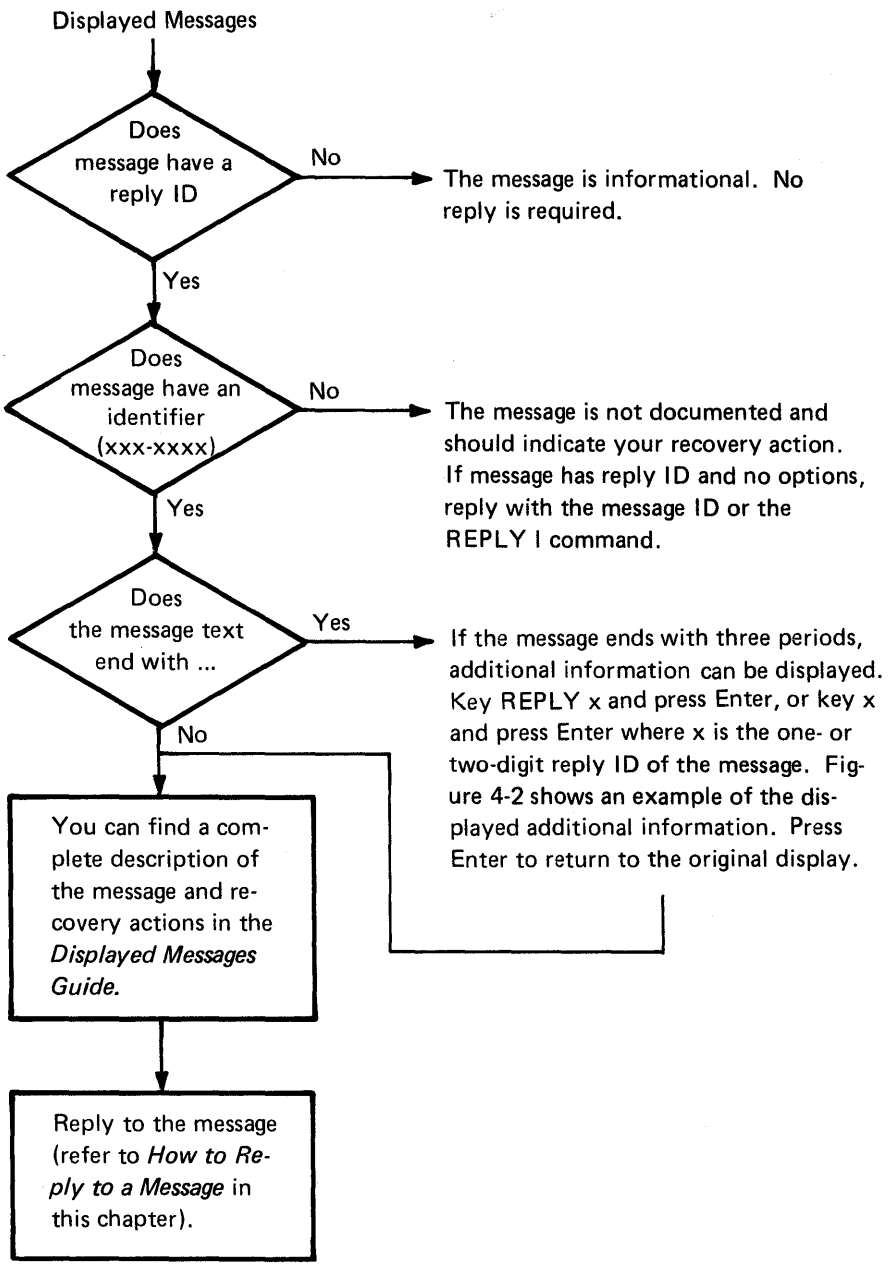


Figure 4-3. Guide to Responding to a Message at the System Console

Keyboard Errors

Keyboard errors are indicated by a flashing four-digit number in the lower-left corner of the display. If you know the cause of the error, press the Error Reset key and rekey the required data. If you do not know the cause of the error, press the Help key. A message appears on the bottom line of the display (see Figure 4-4). If you need an explanation of the message, refer to the KBD section of the *Displayed Messages Guide* and then take the recommended recovery action.

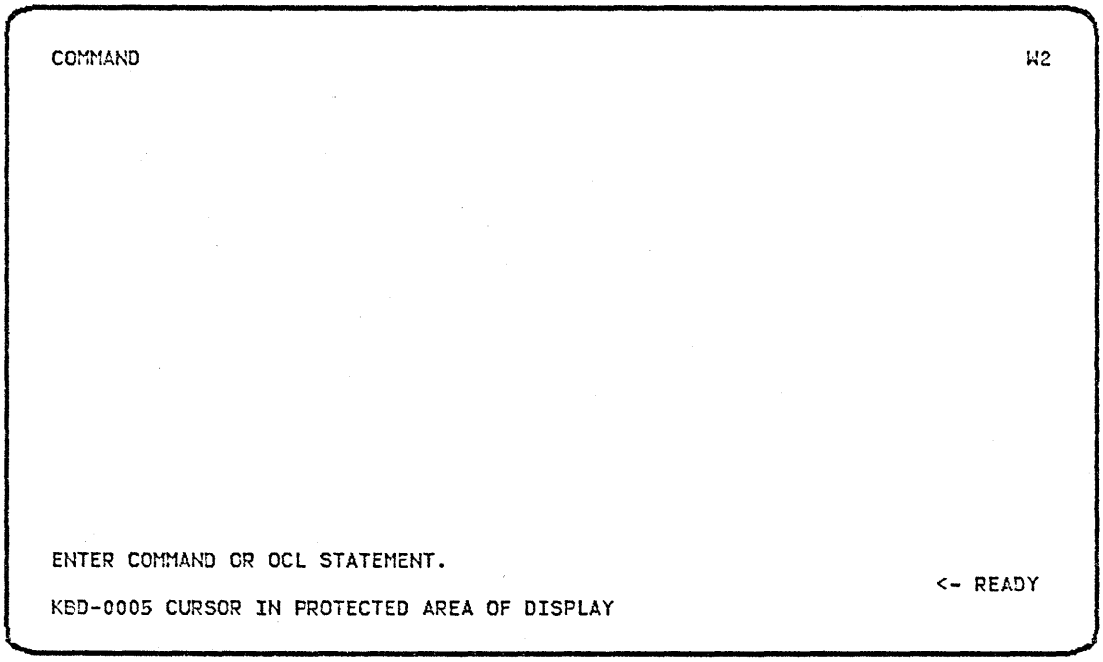


Figure 4-4. Sample Keyboard Error Display, After the Help Key Has Been Pressed

How to Send a Message

Command Format

$$\text{MSG} \left\{ \begin{matrix} \text{ALL} \\ \text{ws-id} \\ \text{user-id} \end{matrix} \right\}, \text{message text}$$

Parameters

ALL: Sends the message to all display stations that are varied online. If the message contains ideographic characters, only ideographic-capable devices will receive the message.

ws-id: The two-character ID of the work station that receives the message. You can use the STATUS WORKSTN control command to determine work station IDs.

user-id: The user ID of the operator that receives the message. Each operator enters a user ID on his Sign On display to start his work session. You can use the STATUS WORKSTN control command to determine user IDs.

Note: If you enter either a work station ID or a user ID that is not on the system, the system will return a diagnostic message informing you of this. If you send a message with user-id in parameter 1 and that user is signed on at more than one work station, the message is sent to only one of the work stations.

message text: As many as 60 characters of text are allowed. If you need to send more than 60 characters, you will have to send more than one message.

Note: If you specify Y (yes) for IGC session at sign on, and if you are sending a message to an ideographic-capable display station, the message text may contain ideographic characters.

How to Reply to a Message

If you are operating the system console in command or data entry mode and a message is sent to the system console, the buzzer will sound and the message light will turn on. There are two ways to reply to the message and then resume the data entry job. You can press the shift and Sys Req keys and the Enter key. This will put your display station in system console mode, and the message will be displayed. By pressing the shift and Sys Req keys and the Enter key again, you can return to command or data entry mode. The second way to respond to message indicators is to press the Attn key, placing your display station in inquiry mode. If the message is a system message, enter MSG. Respond to the message if necessary and press the Enter key. The Inquiry display will appear. Take option 0 (resume interrupted job) to return to your job.

You must use the REPLY control command to reply to all messages that have reply IDs. After you have responded to a message, the screen shows two asterisks (**) replacing the reply ID. Messages that you have replied to roll up and off the top of the display. Messages that you have not replied to do not roll off the display until you reply.

Control Command

REPLY (R) { I | C | msg-id [,response] }

Parameters

I: Responds to all informational messages on the display. (You must enter either R or REPLY and I.)

C: Compresses a display so that only messages that need responses are displayed. (You must enter either R or REPLY and C.)

msg-id: The ID of the message that you are responding to. You can omit the left zero of a reply ID; R 01,3 and R 1,3 are equivalent responses. The command name (REPLY or R) is not required when msg-id is used.

response: Your response to the message (blank, 0, 1, 2, 3, or D). The comma should not be keyed in if your response is blank.

Example

To respond with a 3 option to message 02, enter:

REPLY 2,3 or
R 2,3 or
2,3 (For the REPLY control command, you can enter only the message ID and option.)

For those messages that are classified as printer intervention required, the REPLY control command has no effect. You should ready the printer to reply to the message.

See the *Displayed Messages Guide* for explanations of response options. Also see the *System Support Reference Manual* for an explanation of the D (dump) option.

How to Suppress Informational Messages

The IDELETE control command specifies whether informational messages directed to the system console are immediately displayed. An informational message is one that does not require an operator response. If IDELETE is active (ON), messages that do not need a response will not cause the buzzer to sound and will not turn on the Message Waiting indicator. Informational messages generated by system security, however, are not suppressed. For example, if you make a typing error when entering your user ID, a message is displayed. Informational messages might also be overlaid by other messages and therefore might not be displayed. IDELETE is useful when you are operating as a system console operator and do not want to be interrupted by informational messages.

Command Format

IDELETE [ON / OFF]

Parameters

ON: Informational messages are automatically replied to and might not be displayed.

OFF: Informational messages are displayed and should be replied to with the REPLY control command.

Note: If you sign off and messages designated for the system console are still pending, these messages will be displayed the next time you sign on the system console.

HOW TO DISPLAY THE TIME

The TIME command displays the time of day and the system date.

Command Format TIME

Example TIME-14:56:23 DATE-07/19/80

HOW TO SHUT DOWN SYSTEM/34

Command Format STOP SYSTEM [,SORT / ,NOSORT]
(P) (S)

The STOP SYSTEM control command causes the following to occur:

- For each input operation to a program, a condition code indicating STOP SYSTEM is returned to the program along with the input data. Programs can check for this condition, save their data files, and end as soon as possible.

- Initiation of jobs and certain control commands on the system stops. New jobs cannot be initiated from the system console, any display station, the input job queue, or the spool file.

  You must respond to all messages at the console that require responses before shutdown can complete. When the system has stopped, a message is displayed at the system console informing you of this.

  When all activity stops (indicated by the System In Use light turning off), enter OFF and, if necessary, set the Power switch on the operator panel to the 0 position to turn power off.

  If you allow the SORT default, index keys are sorted as part of the system shutdown.

  If you specified NOSORT, indexed keys are not sorted.

HOW TO RESTART SYSTEM/34

The START SYSTEM control command resumes the system activity that was stopped by a STOP SYSTEM control command. If you turned power off after the STOP SYSTEM control command, you must do an IPL to resume system activity; the START SYSTEM control command is not required after IPL.

Command Format START SYSTEM
(S) (S)

SETTING THE PRINT BELT IMAGE AFTER CHANGING THE PRINT BELT

After changing the print belt on the line printer (see the *5211 Operator's Guide* or the *3262 Operator's Guide* for instructions), you must change the print belt image to match the new belt. To change this image, use the SET procedure command with only the source name parameter:

SET, source name — *source name:* The name of the print belt member that contains the new print belt characters for the line printer.

The print belt member names are listed in the following table.

Print Belt Member Name	Associated Printers
BELT48	5211 or 3262 Printers
BELT64	5211 Printer
BELT96	5211 or 3262 Printers
BELT188	5211 Printer
BELT48HN	5211 or 3262 Printers
BELT64B Standard	3262 Printer
BELT64C Optimized	3262 Printer
BELT188B	3262 Printer

Note: The belt member name is referred to as the UCSB (Universal Character Set Buffer) in the *3262 Printer Operator's Guide*.

You can verify that you have selected the correct characters by entering the STATUS SESSION command and checking the IMAGE CHARACTERS line on the second session status screen. Refer to *How to Display the Status of Your Work Session* in Chapter 2 of this Manual.

Refer to the *System Support Reference Manual* for additional information on the SET procedure.

JOB CONTROL FROM THE SYSTEM CONSOLE

This section explains how to:

- Display job status
- Stop job initiation
- Stop job execution
- Restart job initiation
- Restart job execution
- Cancel an executing job
- Change the priority of an executing job

If job initiation is stopped, display station operators cannot start jobs. If job execution is stopped, only the specified job is stopped and display station operators can still start jobs.

How to Display Job Status

The Users Status display shows the status of jobs that are running on the system.

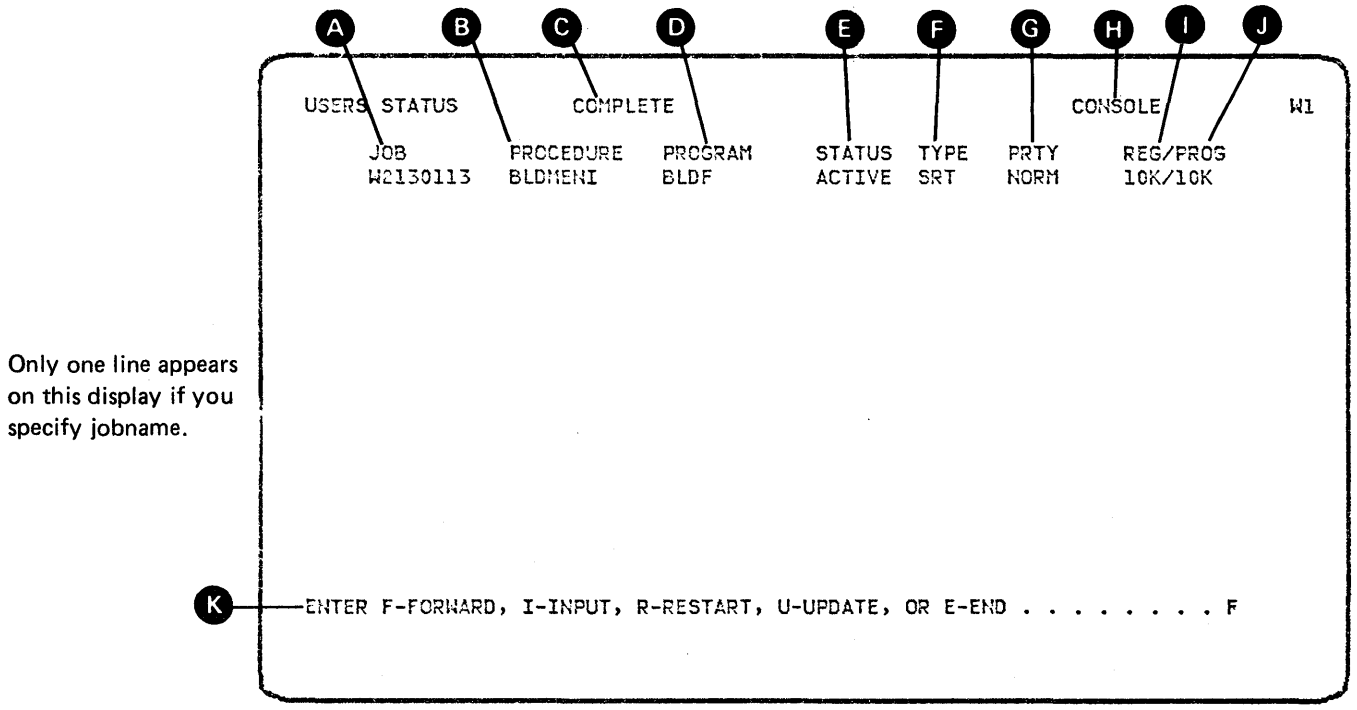
Command Format

STATUS USERS [,jobname]
(D) (U)

Parameters

USERS: Displays the status of all user jobs running on the system (if you do not specify a jobname) or displays the status of one job (the jobname). Figure 4-5 shows and explains the Users Status display.

jobname: The 8-character, system-assigned name of the job for which status information is displayed.



Only one line appears on this display if you specify jobname.

Figure 4-5. Users Status Display

(A) JOB gives the system assigned jobname for each user task in the system. System tasks such as spool writer are not listed. The jobname is of the format WWHHMMSS where:

WW = work station ID of the display station which initiated this job
HHMMSS = the time in hours, minutes, and seconds when the job was submitted.

(B) PROCEDURE gives the initial procedure name if the job was run from a procedure. This is the name of the outermost procedure.

(C) COMPLETE appears only on the last page of the job status.

(D) PROGRAM is the currently active program name. This changes from one job step to another. If the screen has been displayed for a while, the program name displayed may not be the currently active program. To see the currently active program name, enter a U (update) and press the Enter/Rec Adv key.

(E) STATUS is one of the following:

ACTIVE:	The job is not swapped out and no wait conditions were detected.
INITIATOR:	The job is in the initiator initiating the next step. Since some of the job status data, such as PROCEDURE and PROGRAM, is not predictable when the job is in the initiator, these fields will contain -----.
IO ERROR:	The job has been suspended due to an input/output error.
STOPPED:	The job has been stopped by the system operator via the STOP command
SETDUMP:	The job has been suspended because the SETDUMP command was entered.
TERMINATE:	The job is in termination. As with INITIATOR, some of the other data is unpredictable and the fields will contain -----.
SWAPPED:	The job has been swapped out to disk.
INQUIRY:	The user was running the job and interrupted with inquiry.
IN CANCEL:	The job has been canceled but is not yet gone.
TWA-WAIT:	The job is waiting for space in the task work area. *Note:* If this condition occurs frequently, it may be necessary to expand the size of the task work area by reconfiguring the system.
PRT-WAIT:	The job is waiting to allocate the printer.
LINE-WAIT:	The job is waiting for a communications line.
I1-WAIT:	The job is waiting for the diskette drive.
DISK-WAIT:	The job is waiting for disk space.
INIT-WAIT:	The initiator is waiting for resources (this also causes dashes in some of the other fields).

MSG-WAIT: The job is waiting for a message response from the system operator.

EDF-WAIT: File extension is currently taking place.

CHECKPNT: A checkpoint is currently taking place.

(F) TYPE contains three fields of data. The first field, if it is not blank, indicates that the job is a never-ending-program (NEP). The second field indicates what type of program is running (MRT, SRT, NRT, or JBQ). The third field appears only for MRTs, and it indicates the number of MRT requesters. If the task is being checkpointed, a -C will appear immediately after the last non-blank field.

(G) PRTY identifies the priority of the job. HIGH indicates the program is running with user defined high priority; MEDIUM indicates the program is running with medium priority; NORM indicates the program is running with normal priority; LOW indicates the program is running with low priority.

Note: Normal priority is equivalent to medium priority unless the job is a batch job. In that case, the system may change a job from normal to medium-low priority. (Medium-low priority cannot be assigned by an operator.)

(H) CONSOLE indicates the STATUS USERS command was issued from console mode, and system console commands are valid with the I option.

(I) REG is the number of bytes (in K) of the region being used by this task. This value is the actual amount of region reserved by the task.

(J) PROG is the number of bytes (in K) of the actual storage size being used by this task.

(K) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

How to Stop Job Initiation

Command Format

```
STOP  WORKSTN { ,ws-id }
(P)   (W)     { ,ALL   }
```

Parameters

WORKSTN: Stops the initiation of jobs and entry of the JOBQ control command from one or all display stations. Any jobs that are already running when you enter the STOP control command will run to completion.

ws-id: Display station ID. The command applies to the specified display station.

ALL: The command applies to all display stations.

Example

To stop initiation of jobs from display station W1, enter:

```
STOP  WORKSTN,W1 or
P  W,W1
```

How to Stop Job Execution

You can use the STOP control command to:

- Suspend a job that appears to be holding control of the system
- Suspend individual jobs in order to run an important job or a job that must be run when no other jobs are running

Note: If you stop a job that has been taken off the input job queue and the job is running, no new jobs will be taken from the input job queue for processing.

Command Format

```
STOP  JOB { ,jobname }
(P)       { ,ALL     }
```

Parameters

JOB: Suspends the execution of one or all jobs and the initiation of jobs (except from the system console).

jobname: The 8-character, system-assigned job name of the job to be stopped. You can use the STATUS USERS control command to determine the job's name.

ALL: The command applies to all currently running tasks and prevents initiation of other user tasks.

Example:

To stop job W2010112, enter:

```
STOP  JOB,W2010112 or
P  JOB,W2010112
```

How to Stop SSP-ICF Subsystem Sessions

You can use the STOP control command to stop requests to evoke any SSP-ICF subsystem sessions.

Command Format

```
STOP  SESSION
(P)   (N)
```

Parameters

SESSION: Stops the initiation of jobs from incoming SSP-ICF sessions.

Example

To stop initiation of jobs from incoming SSP-ICF sessions, enter:

```
STOP  SESSION or
P  N
```

How to Start SSP-ICF Subsystem Sessions

You can use the START command to initiate SSP-ICF subsystem sessions after they have been stopped.

Command Format

```
START  SESSION
(S)    (N)
```

Parameters

SESSION: Resumes the system activity that was stopped by a STOP SESSION control command.

Example

To start initiation of jobs from incoming SSP-ICF sessions, enter:

```
START  SESSION or
S  N
```

How to Restart Job Initiation

You can use the START control command to resume initiation of one or all jobs that you stopped via a STOP control command.

Command Format

```
START  WORKSTN  {,ws-id}
(S)    (W)      {,ALL }
```

Parameters

WORKSTN: Allows initiation of jobs and entry of control commands from one or all display stations for which you entered a STOP WORKSTN control command.

ws-id: Display station ID. The command applies to the specified display station.

ALL: Allows the operator to initiate jobs and enter control commands.

Example

To restart initiation of jobs from display station W1, enter:

```
START  WORKSTN,W1 or
S  W,W1
```

How to Restart Job Execution

Command Format

```
START  JOB  {,jobname}
(S)         {,ALL   }
```

Parameters

JOB: Resumes execution of one job or all jobs stopped by a STOP JOB control command.

jobname: The 8-character, system-assigned name of the job to be started. You can use the STATUS USERS control command to determine the job's name.

ALL: Resumes execution of all jobs stopped by STOP JOB control command(s).

Example

To start job W2010112 enter:

```
START  JOB,W2010112 or
S  JOB,W2010112
```

How to Cancel an Executing Job

You can cancel an executing job via a CANCEL control command.

Command Format

CANCEL jobname [,2 / ,3 / ,DUMP (D)]
(C)

Parameters

jobname: The 8-character, system-assigned name of the job to cancel. You can use the STATUS USERS control command to determine the job's name.

2: Specifies a controlled cancel. All files used by the job are closed. Remaining job steps do not execute.

3: Specifies an immediate cancel. Files used by the current job step are not closed and new files created by the current job step are lost. Remaining job steps do not execute.

DUMP: Specifies an immediate cancel; in addition, main storage and control storage assigned to the job is written to the dump area on disk (unless a protected dump exists in the dump area). Remaining jobs steps do not execute, files used by the current job step are not closed, and new files created by the current job step are lost.

Example

To cancel job W2010112 and close files that the job uses, enter:

```
CANCEL W2010112,2 or
C W2010112,2
```

How to Change the Priority of an Executing Job

The PRTY command can be used to change the execution priority of a job. If priority is specified for a certain job, that job will be given priority for resources over other interactive or batch jobs running on the system. This will usually result in faster job completion. However, other jobs running on the system may experience a decrease in response.

Command Format

PRTY jobname[,HIGH / ON / MEDIUM / OFF / NORMAL / LOW]

Parameters

jobname: The 8-character system-assigned name of the job whose priority changes. You can use the STATUS USERS control command to determine the job's name. If the job is on the input job queue, you can use the STATUS JOBQ command to determine its name.

HIGH: The highest level priority you can set for your job's execution. System resources are assigned to a high priority job before they are assigned to any other job.

ON: The default. ON is equivalent to HIGH.

MEDIUM: The second level of priority for a job's execution.

NORMAL: The third level of priority for a job's execution. NORMAL overrides any other priority specified within the job.

OFF: The equivalent of NORMAL, but does *not* override any other priority specified within the job.

LOW: The lowest level of priority you can set for your job's execution. System resources are assigned to any higher priority jobs before they are assigned to a job with low priority.

You should reserve HIGH or ON for jobs that must have the highest available priority.

For a job that requires high priority, key in PRTY ,HIGH or PRTY ,ON or just PRTY. Press the Enter key and then enter the OCL statements, procedure, or menu number for the job you want to execute.

To assign a job a specified position on the input job queue, use the JOBQ command. See the sections on JOBQ in Chapter 2.

Example

To assign high priority to job W2010112, enter:

```
PRTY W2010112,HIGH
PRTY W2010112,ON
PRTY W2010112
```

PRINT SPOOLING–CONTROL FROM THE SYSTEM CONSOLE

This section contains all of the operating information necessary for the system operator to control print spooling. For further information about print spooling, refer to the following manuals:

- The *Planning Guide*, which contains general information on print spooling.
- The *Concepts and Design Guide*, which contains additional general information as well as performance considerations for print spooling.
- The *System Support Reference Manual*, which contains a detailed description of the PRINTER OCL statement, which can be used by the programmer to control spooled output. Chapter 3 of the *System Support Reference Manual* also describes the operator commands for controlling print spooling. However, that description gives the programmer only general information about the control commands and their functions.
- The *Installation and Modification Reference Manual*, which contains information on the different print spooling options available at system configuration time.

In an environment that generates a large amount of printer output, the system frequently must wait for a printer to complete printing before it can continue processing. Print spooling allows you to make more efficient use of the processing unit and printers. Print spooling is a part of the System/34 SSP that stores print data on disk for printing later. It can be used with batch processing to allow the processing unit and a printer to operate as fast as possible. Print spooling normally reduces program execution time.

With print spooling, job output for a printer is intercepted and stored on disk in a spool file. Upon your request, the stored output prints while another job executes. The other job may also have printed output that is spooled. Processing with print spooling allows programs to execute without waiting for a printer.

Print spooling is selected during system configuration. At that time, the autowriter option can also be chosen. The autowriter option causes the spool writer(s) to be started automatically during IPL. If the autowriter option is not selected, you must enter the appropriate START PRT command in order to start the spool writer(s). Once the spool writers have been started, they will begin printing whenever there is data ready to print.

Once configured in System/34, you can modify spooling during IPL in the following ways:

- Cancel print spooling
- Delete the spool file
- Specify the default (spool—yes or no) for work station printers that are not the system printer
- Change the spool writer buffer size
- Change the autowriter option
- Change the size of the disk area reserved for the spool file
- Change the size of the spool file segments
- Change the preferred location of the spool file
- Delete all existing entries in the spool file

Refer to *IPL from Disk*, earlier in this chapter, for an explanation of the displays that allow these modifications.

Control of Print Spooling

To control the spool file, the system operator uses the control commands described on the following pages.

How to Display Spool File Entries

The Spooled Print Status display shows entries that are in the spool file.

Command Format

```
STATUS PRT [,ws-id]
(D)    (P)
```

Parameter

PRT: Displays entries in the spool file. Refer to Figure 4-6 for an explanation of the display that appears.

ws-id: Displays only the entries to be printed on the printer with the specified work station ID. If you do not enter this parameter, all entries are displayed.

Example

```
STATUS PRT or
D P
```

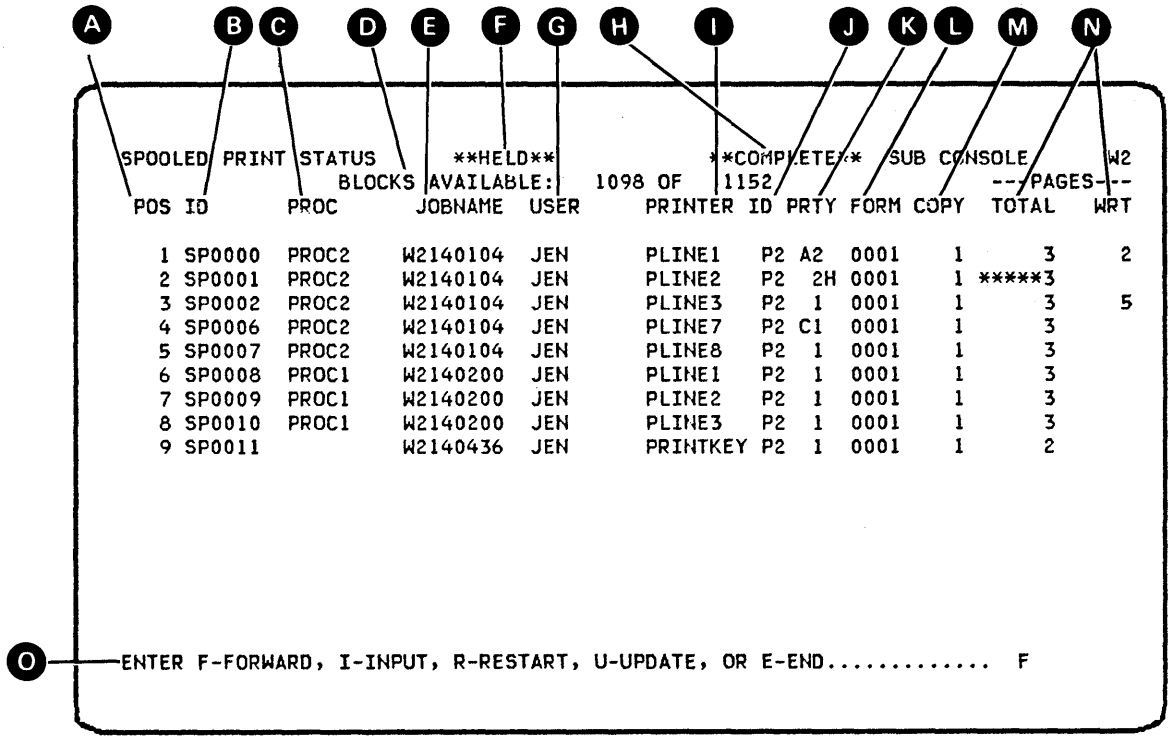


Figure 4-6. Spooled Print Status Display

(A) POS: the relative position of the entry in the spool file.

(B) ID: the name assigned by this system to this print file. This is the spool ID used with the spool commands.

(C) PROC: the outermost procedure name associated with this entry. If this entry is blank, the job was run through OCL (// LOAD).

(D) BLOCKS AVAILABLE: the number of blocks available in the spool file or the number of extents that can still be allocated on disk out of the total number that can be allocated if space is available. The spool file is full when the first number is zero.

(E) JOBNAME: the job name assigned by the system (work station ID and time).

(F) HELD: indicates that the entire spool file is being held. No jobs can be printed until the spool file is released by the RELEASE PRT command. Jobs can still be written to the spool file.

(G) USER: the user ID associated with this entry

(H) COMPLETE: appears only if this is the last screen of the Spooled Print Status display.

(I) PRINTER: the printer file name associated with this job.

(J) ID: the ID of the printer that output is to be routed to.

(K) PRTY: the priority assigned to this job from the printer statement. An A indicates that the spool writer is currently printing this entry. A C indicates that the spool file entry is being copied by the user access to spool (COPYPRT) procedure. An H indicates that the spool file entry is held.

(L) FORM: the form number assigned to this job.

(M) COPY: the number of copies remaining to be printed; default is 1 unless changed on a PRINTER statement or by the CHANGE command. If the job is being printed, this value includes the copy being printed.

(N) TOTAL: the total number of pages of output generated. If the number is preceded by one or more asterisks, the print entry is still being created and the number indicates which page is being created. If the page count is zero and there are no asterisks displayed with the zero, the system failed before the spool file entry was completed.

WRT: the page number that is being printed. If a spool file entry is being printed by the spool writer, this column indicates the page number that is being printed. If the spool writer is stopped while printing a spool file entry, this column indicates the page number that was being printed by the spool writer when it was stopped.

(O) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were entered.

How to Start a Spool Writer

Command Format

```
START PRT, [ forms number ] [ ,ws-id ]
(S)   (P)                   [ ,ALL   ]
```

Parameters

PRT: Starts spool writers for the printers. The PRT parameter can be used to start the spool writer(s) after IPL. (If the autowriter function is active, the spool writers are automatically started during IPL and you need not enter a START PRT command.) The PRT parameter can also be used to start the spool writer(s) after the STOP PRT command has been entered to stop the spool writer(s); when a spool writer is started, printing begins with the first available entry on the spool file.

forms number: Only entries using the specified forms number are printed. Up to four characters can be specified. If a forms number is not specified, all entries can be printed regardless of the forms number that is required.

ws-id: ID of the printer for which the spool writer is to be started. If you omit this parameter, the spool writer for the printer assigned as the system printer will be started.

ALL: Start spool writers for all printers.

Note: When a spool writer is started, printing normally begins with the first available spool file entry. However, printing may not begin for one of the following reasons:

- The entire spool file has been held by the system operator.
- The system has been stopped by the system operator.
- The spool file is empty or does not contain any entries that are available for printing on the specified printer. Spool file entries may not be available for printing if they are held, being copied by the COPYPRT procedure, still being created, or if they require different forms than the spool writer is using (if the spool writer was started with a forms number specified).
- There are insufficient system resources available to allow the spool writer to begin printing.
- The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

How to Stop a Spool Writer

Command Format

```
STOP PRT,[ PAGE ][ ,ws-id ]
(P)  (P) [ JOB  ][ ,ALL  ]
```

Parameters

PRT: Stops spool writers for the printers. If an entry is being printed, printing stops. You can restart the printing by entering the START PRT control command or the RESTART PRT control command. Entries can be added to the spool file when the writer is stopped, but the entries cannot be printed until the spool writer is started or restarted.

PAGE: Stops the spool writer for the specified printer (ws-id) after the current page has completed printing.

JOB: Stops the spool writer for the specified printer (ws-id) after the current spool file entry has completed printing.

ws-id: ID of the printer for which the spool writer is to be stopped. If you omit this parameter, the spool writer for the printer assigned as the system printer will be stopped.

ALL: Stops the spool writers for all printers.

How to Restart a Spool Writer

Command Format

```
RESTART PRT, [page number] [,ws-id]
(T)     (P)
```

Note: Use this control command either to resume printing by restarting the spool writer after it was stopped, or to restart the printing of a spool file entry that is currently being printed by the spool writer.

Parameters

PRT: Restarts the spool writer for the specified printer.

page number: The number of the page where printing of the current entry restarts. If the page number is not specified, printing restarts at the beginning of the printed output. The maximum page number you can specify is 65,535.

ws-id: The work station ID of the printer for which the spool writer is to be restarted. If you omit this parameter, the spool writer for the printer assigned as the system printer will be restarted.

Note: If a RESTART command is entered and the writer is not printing a spool file entry and no entries on the spool file were being printed when the writer was stopped, the first entry on the spool file will be printed starting from page 1 even if a page number was specified.

Example

Example A

To restart printing of the current spool file entry at the top of page 6 on the system printer, enter:

```
RESTART PRT,6 or
T P,6
```

Example B

The entry currently being printed contains 300 pages of printed output to the system printer. Only the last 50 pages of output are required. Once the job has begun printing, the operator can use the following command to print the last 50 pages:

```
RESTART PRT,251 or
T P,251
```

How to Display the Spool Writer Status

The Spool Writer Status display shows the status of the spool writer program for each printer.

Command Format

```
STATUS WRT [,ws-id]
(D)    (WRT)
```

Parameters

WRT: Displays the status of the spool writer for each printer. Refer to Figure 4-7 for an explanation of the display that appears.

ws-id: The work station ID of the printer for which the spool writer status information is to be displayed. If you do not specify a printer ID, the spool writer status information for all printers is displayed.

Example

```
STATUS WRT or
D      WRT
```

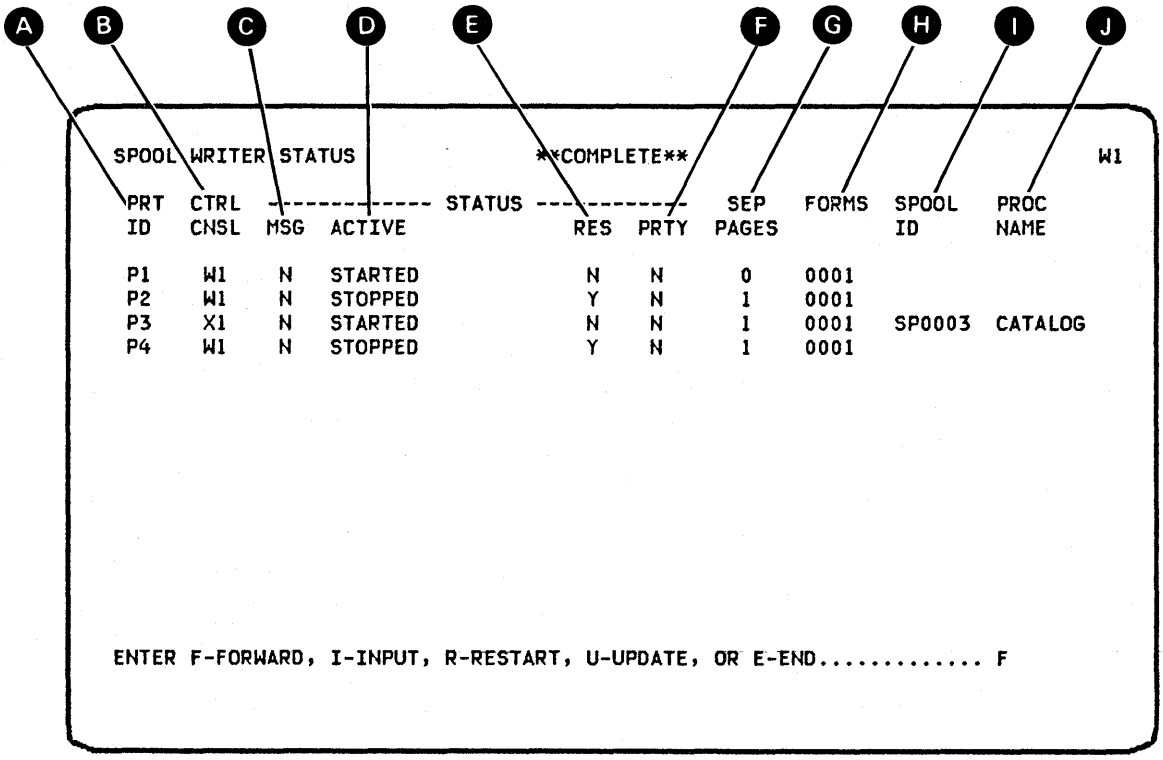


Figure 4-7. Spool Writer Status Display

(A) PRT ID: the work station ID of the printer.

(B) CTRL CNSL: the work station ID of the display station that controls the printer. If the printer is currently controlled by a subconsole, the work station ID of the subconsole is displayed; if the printer is not currently controlled by a subconsole, the system console work station ID is displayed.

(C) MSG: Y specifies that a spool writer message is pending. N specifies that no spool writer messages are pending.

(D) ACTIVE: indicates one of the following for the status of the spool writer:

- STARTED: indicates that the spool writer is started.
- STARTED forms number: indicates that the spool writer is started and will print only the jobs that require the forms number that was specified with the START PRT command.
- RESTARTED: indicates that the subconsole operator or the system operator has entered the RESTART command and that the spool writer has been restarted.
- STOPPED: indicates that the spool writer is stopped.
- STOP PAGE: indicates that the spool writer is stopped when it finishes printing the current page because the STOP PRT command was entered with the PAGE parameter.
- STOP JOB: indicates that the spool writer is stopped when it finishes printing the current job because the STOP PRT command was entered with the JOB parameter.
- STOP SYSTEM: indicates that the spool writer is started but that the system operator has entered a STOP SYSTEM command; therefore, the spool writer cannot perform any printing until the system operator enters a START SYSTEM command.
- QUEUE HELD: indicates that the spool writer is started but that the system operator has entered the HOLD PRT command; therefore, the spool queue is held and the spool writer cannot perform any printing until the system operator enters a RELEASE PRT command.

(E) RES: Y specifies that the spool writer is resident. N specifies that the spool writer is swappable.

(F) PRTY: indicates the priority assigned to this spool writer: H indicates a high priority and N indicates a normal priority.

(G) SEP PAGES: indicates the number of separator pages that are printed preceding each spool file entry.

(H) FORMS: indicates the forms number that the spool writer is currently using for printing.

(I) SPOOL ID: is the 6-character system-assigned name of the entry on the spool file that the spool writer is currently printing.

(J) PROC NAME: is the name of the procedure that created the spool file entry that the spool writer is currently printing.

Notes:

1. The spool-id and the procedure name are both blank if the spool writer is not printing a spool file entry.
2. The spool-id and the procedure name are both displayed if the spool writer is currently printing a spool file entry.

How to Cancel Spool File Entries

Command Format

```
CANCEL  PRT  { ,spool-id }
(C)     (P)  { ,ALL     }
             { ,ws-id   }
```

Parameters

PRT: Cancels the specified entry (spool-id), all spool file entries for a specified printer (ws-id), or all spool file entries on the spool file.

spool-id: The 6-character spool file ID, beginning with the characters SP. You can use the STATUS PRT control command to determine the spool file ID of the entry to be cancelled.

ALL: Deletes all entries from the spool file except any entries being copied by the COPYPRT procedure or any entries that are still being created.

ws-id: The work station ID of the printer for which all entries are to be cancelled. Any entries being copied by the COPYPRT procedure or any entries that are still being created are not cancelled.

Note: When ALL or a printer ID is specified, the system indicates the CANCEL command is successful, even though there may not have been any spool file entries cancelled by the command.

Example

To cancel all entries on the spool file, enter:

```
CANCEL PRT,ALL or
C P,ALL
```

How to Hold Spool File Entries

Command Format

```
HOLD  PRT [ ,spool-id ]
(H)   (P) [ ,ws-id    ]
```

Parameters

PRT: Holds the specified entry (spool-id) or all spool file entries on the spool file to be printed on the specified printer. If neither the spool-id parameter nor the ws-id parameter is specified, the entire spool file is held.

spool-id: The 6-character spool file ID, beginning with the characters SP, of the entry to hold. You can use the STATUS PRT control command to determine the spool file ID of the entry to be held.

ws-id: The work station ID of the printer for which all entries are to be held.

Notes:

1. You can enter the HOLD command even before the program creating the spool file entry has terminated.
2. If you specify a HOLD command for an entry while it is printing, the spool writer no longer prints that entry but begins printing the next entry on the spool file. The held entry will not be printed until a RELEASE command control is entered for the held entry.
3. If you specify a HOLD command for all spool file entries for a printer while the spool writer is printing an entry on that printer, the spool writer will no longer print that entry nor any other entry in the spool file. As new entries are added to the spool file they may be printed, but entries that were in the spool file when the HOLD command was entered cannot be printed until they are released by the RELEASE command.
4. If you enter a HOLD command without specifying a spool-id or a ws-id, the entire spool file is held. Spool file entries currently being printed are allowed to finish printing, but no other spool file entries can be printed until the RELEASE PRT command is entered (with no other parameters). Holding and releasing the entire spool file in this way has no effect on the held status of individual spool file entries.

Example

To hold entry SP0036 on the spool file, enter:

```
HOLD  PRT,SP0036 or
H  P,SP0036
```

Entry SP0036 will stop printing immediately.

How to Release Spool File Entries

Command Format

```
RELEASE PRT  [,spool-id]
(L)     (P)  [,ALLH   ]
             [,ws-id  ]
```

Parameters

PRT: Indicates that a specified entry or all entries on the spool file for all printers or for a specific printer should be released. The RELEASE command releases spool file entries that are held and makes them available for printing. If a spool-id, the ALLH parameter, or a ws-id is not specified, the entire spool file is released, except for entries that were held individually.

ALLH: Releases all entries that were either individually held or put in the spool file with a PRINTER OCL statement that specified PRIORITY-0. The ALLH parameter does not release the entire spool file if the entire file was held.

spool-id: The 6-character spool file ID, beginning with the characters SP, of the entry to release. You can use the STATUS PRT control command to determine the spool file ID of the entry to be released.

ws-id: The work station ID of the printer for which all entries are to be released for printing.

Note: When a spool file entry is released, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

- The spool writer has been stopped by the subconsole or system operator.
- The system has been stopped by the system operator.
- The entire spool file has been held by the system operator.
- The spool file entry is not available for printing because the entry is still being created, is being copied by the COPYPRT procedure, or requires a different form than the spool writer is using (if the spool writer was started with a forms number specified).
- There are insufficient system resources to allow the spool writer to begin printing.
- The printer is offline, is not powered on, or requires some other kind of operator intervention, such as correcting a paper jam. The spool writer attempts to start printing and issues a message when any of these conditions are detected.

Example

Example A

To release entry SP0036 on the spool file, enter:

```
RELEASE PRT,SP0036 or
L P,SP0036
```

Example B

To release the entire spool file if previously held using the HOLD PRT command with no other parameters specified, enter:

```
RELEASE PRT or
L P
```

Note: Individually held entries will continue to be held.

How to Change the Number of Printed Copies of Spool File Entries

Command Format

CHANGE COPIES,nn,spool-id
(G)

Parameters

COPIES: Changes the number of copies of printed output for an entry in the spool file. You can use the STATUS PRT control command to determine the number of copies remaining to be printed for all entries in the spool file.

nn: The number of copies to print for the entry. This parameter can be from 1 through 99.

spool-id: The 6-character, system-assigned name of the entry on the spool file, which begins with SP. You can use the STATUS PRT control command to determine the spool file ID of the entry on the spool file and the number of copies that the entry prints.

Example

To change entry SP0011 on the spool file to print five copies of output, enter:

```
CHANGE COPIES,5,SP0011 or
G COPIES,5,SP0011
```

How to Change the Defer Status of a Spool File Entry

Command Format

CHANGE DEFER, [YES / NO] ,spool-id
(G)

Parameters

DEFER: Indicates whether the spool file entry can be printed while it is being created or only after it has been created.

YES: Indicates that the spool file entry is to be printed only after it has been created.

NO: Indicates that the spool file entry can be printed while it is being created. NO is the default.

spool-id: The 6-character, system-assigned name of the entry on the spool file, which begins with SP. You can use the STATUS PRT control command to determine the spool file ID of the entry for which the defer status is to be changed.

Notes:

1. When the defer status of a spool file entry that is still being created is changed to NO, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because the entry is held, is being copied by the COPYPRT procedure, or requires a different form than the spool writer is using (if the spool writer was started with a forms number specified).
   - There are insufficient system resources available to allow the spool writer to begin printing.
   - The printer is being used by another program, is offline, is not powered on, or required some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

2. If you change the defer status to YES for an entry that is being both created and printed, the spool writer will no longer print that entry, but begins printing the next entry in the spool file. The entry for which the defer status was changed can be printed after it has been created, or if the defer status is changed back to NO.

Example

To print entry SP0023 while it is being created, enter:

```
CHANGE DEFER,NO,SP0023 or
G DEFER,,SP0023
```

How to Change the Forms Number of Spool File Entries

Command Format

CHANGE FORMS,xxxx,spool-id
(G)

Parameters

FORMS: Changes the forms number to be used for an entry on the spool file.

xxxx: The forms number of the forms to be used for the entry. You can specify from 1 to 4 characters.

spool-id: The 6-character, system-assigned name of the entry on the spool file. You can use the STATUS PRT control command to determine the spool file ID of the entry on the spool file and the forms number for the entry.

Notes:

1. An error message is issued if you attempt to change the forms for an entry that is being printed by the spool writer.
2. If the spool writer was started with a specified forms number so that only the spool file entries that required the specified forms are printed, and if the CHANGE command is used to change the forms number required by a spool file entry to the forms number that the spool writer is printing, then the spool writer normally begins printing the spool file entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because it is held, is still being created, or is being copied by the COPYPRT procedure.
   - There are insufficient system resources available to allow the spool writer to begin printing.
   - The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

Example

To change the forms number of entry SP0011 to PT1, enter:

```
CHANGE FORMS,PT1,SP0011 or
G FORMS,PT1,SP0011
```

How to Change the Printer ID

Command Format

CHANGE ID, (G) { ,spool-id / ,ws-id1 }

Parameters

ID: Changes the printer ID for a spool file entry or for all spool file entries that are to be printed on a specified printer.

ws-id: This is the ID of the newly assigned printer.

spool-id: The 6-character, system-assigned name of the entry on the spool file. You can use the STATUS PRT control command to determine the spool file ID of the entry to be changed.

ws-id1: This is the work station ID of a printer. All spool file entries that are to be printed on this printer will be changed to be printed on the printer indicated by ws-id, except any print file that is currently being printed by the spool writer.

Notes:

1. If ws-id1 is specified in this command, the system indicates that the change was successful even though there were no spool file entries to be changed.
2. If ws-id1 is specified, the command applies only to the spool file entries that were in the spool file when the command was entered. Spool file entries added afterward are not affected by the command.
3. If a spool-id is specified, an error message is issued if the specified spool file entry is being printed by the spool writer.
4. When the printer destination of a spool file entry is changed, the spool writer normally begins printing the entry if the spool writer is not already printing another spool file entry. However, printing may not begin for one of the following reasons:

   - The spool writer has been stopped by the subconsole or system operator.
   - The system has been stopped by the system operator.
   - The entire spool file has been held by the system operator.
   - The spool file entry is not available for printing because it is held, is still being created, is being copied by the COPYPRT procedure, or requires different forms than the spool writer is using (if the spool writer was started with a forms number specified).

- There are insufficient system resources available to allow the spool writer to begin printing.

- The printer is being used by another program, is offline, is not powered on, or requires some other operator intervention, such as correcting a paper jam. In any of these cases, the spool writer attempts to begin printing and issues a message when the condition is detected.

Example

To change all spool file entries with an ID of P2 to printer ID P1, enter:

```
CHANGE ID,P1,P2 or
G ID,P1,P2
```

To change the entry SP0035 to have a printer ID of P2, enter:

```
CHANGE ID,P2,SP0035
G ID,P2,SP0035
```

How to Change the Order of Spool File Entries

Command Format

```
CHANGE  PRT ,spool-id [,spool-id1]
(G)     (P)
```

Parameters:

PRT: Changes the position of an entry in the spool file.

spool-id: The 6-character, system-assigned name of the spool file entry to be changed. You can display the spool file via the STATUS PRT control command to determine an entry's name.

spool-id: The 6-character, system-assigned name of an entry on the spool file, which begins with SP. The entry being changed (spool-id) is placed *after* the entry with spool-id1 and is assigned the same print priority as the entry with spool-id1. If you do not specify spool-id1, spool-id becomes the *first* entry in the spool file with a priority of 5.

Example

To move entry SP0036 ahead of all entries on the spool file, enter:

```
CHANGE  PRT,SP0036 or
G  P,SP0036
```

How to Change the Priority of a Spool Writer

Command Format

CHANGE PRTY, [HIGH / NORMAL] [,ws-id]
(G)

Parameters

PRTY: Changes the priority of a spool writer.

HIGH: The spool writer is to have high priority.

NORMAL: The spool writer is to have normal priority. NORMAL is the default value if a priority is not specified.

ws-id: The ID of the printer for which the spool writer priority is to be changed. If a printer ID is not specified, the ID of the system printer is assumed.

Example

To assign high priority to the spool writer for printer P2, enter:

```
CHANGE PRTY,HIGH,P2 or
G PRTY,HIGH,P2
```

How to Change the Resident/Swappable Attribute of a Spool Writer

Command Format

CHANGE RES, [YES / NO] [,ws-id]
(G)

Parameters

RES: Changes the resident/swappable attribute of a spool writer. Use the STATUS WRT command to determine the status of the resident/swappable attribute.

YES: The writer is to be resident when loaded into main storage.

NO: The writer can be swapped when loaded into main storage. NO is the default value.

ws-id: The ID of the printer for which the resident/swappable attribute of the spool writer is to be changed. If a printer ID is not specified, the ID of the system printer is assumed.

Note: This command cannot be entered while the spool writer is in main storage. To ensure that the spool writer is not in main storage, use the STOP command to stop the spool writer.

Example

To make the spool writer for printer P2 swappable, enter:

```
CHANGE  RES,NO,P2 or
G  RES,,P2
```

How to Change the Number of Separator Pages Printed by a Spool Writer

Command Format

CHANGE SEP, [0 / 1 / 2 / 3] [,ws-id]
(G)

Parameters

SEP: Changes the number of separator pages printed by the spool writer before each spool file entry.

0,1,2,3: The number of separator pages to be printed by the spool writer before each spool file entry. The default value is 0 if a number is not specified.

ws-id: The ID of the printer for which the number of separator pages printed by the spool writer is to be changed. If a printer ID is not specified, the ID of the system printer is assumed.

Example

To have no separator pages printed on printer P2 by the spool writer, enter:

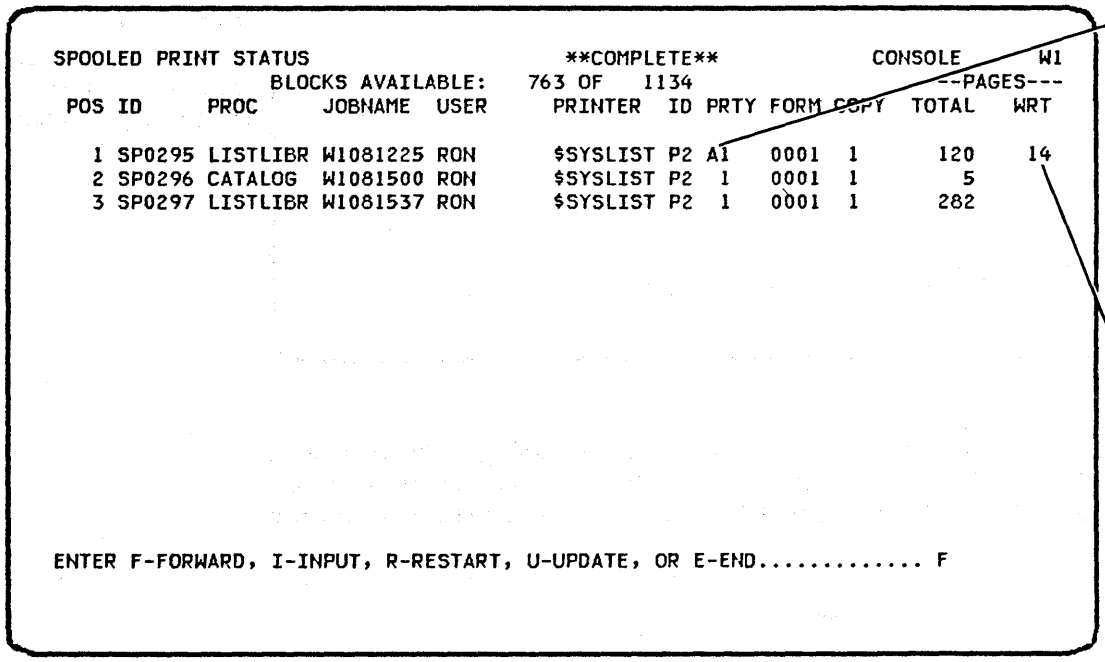
```
CHANGE SEP,0,P2 or
G SEP,,P2
```

General Spooling Examples

There are several ways to accomplish the tasks required in Example 1 and Example 2. The ways that are described show how spooling commands can be used together to give you control of the spool file.

Example 1

You have three entries in the spool file. SP0295 has 120 pages of printed output, SP0296 has five pages of printed output, and SP0297 has 282 pages of printed output. You have started the spool writer either by entering the START PRT command or by using the autowriter function, and SP0295 has started printing. You decide to print the five-page job (SP0296) without having to wait for the 120-page job (SP0295) to complete printing. By entering the STATUS PRT control command at this time, the status display would look like this:



Notice the A in the PRTY (priority) column. This tells you that the spool writer is currently printing SP0295.

The 14 in the WRT column tells you that the spool writer is currently printing page 14.

To print SP0296 before SP0295 has completed printing, you must first stop the printing of SP0295. This can be done by stopping the spool writer using the STOP PRT control command. Enter:

```
STOP PRT,,P2
(P)    (P)
```

When you enter the STOP PRT command, the following display is shown:

Notice that the A in the PRTY (priority) column is no longer displayed, indicating that the spool writer is not printing SP0295.

```
SPOOLED PRINT STATUS                    **COMPLETE**                CONSOLE     W1
                 BLOCKS AVAILABLE:  763 OF   1134                    ---PAGES---
POS ID      PROC      JOBNAME  USER      PRINTER  ID PRTY FORM COPY  TOTAL   WRT

  1 SP0295 LISTLIBR W1081225 RON       $SYSLIST P2  1   0001  1      120    14
  2 SP0296 CATALOG  W1081500 RON       $SYSLIST P2  1   0001  1        5
  3 SP0297 LISTLIBR W1081537 RON       $SYSLIST P2  1   0001  1      282

SPOOL WRITER STOPPED FOR PRINTER P2
ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END............. I
 P P,,P2
```

With the absence of the A in the PRTY (priority) column, the 14 in the WRT column indicates that the spool writer was printing page 14 when it was stopped.

Now you have stopped the printing of SP0295. To begin printing the five-page job (SP0296) ahead of SP0295, move SP0296 to the top of the spool queue, ahead of SP0295. This can be done using the CHANGE PRT control command. Enter:

```
CHANGE  PRT,SP0296
(G)     (P)
```

When you enter the CHANGE PRT command, the following display is shown:

Notice that SP0296 has been moved to the top of the spool queue, ahead of SP0295.

```
SPOOLED PRINT STATUS                    **COMPLETE**            CONSOLE      W1
                 BLOCKS AVAILABLE:   763 OF   1134                  ---PAGES---
 POS ID      PROC      JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL    WRT

   1 SP0296 CATALOG  W1081500 RON      $SYSLIST P2  5   0001  1        5
   2 SP0295 LISTLIBR W1081255 RON      $SYSLIST P2  1   0001  1      120     14
   3 SP0297 LISTLIBR W1081537 RON      $SYSLIST P2  1   0001  1      282

CHANGE COMMAND SUCCESSFUL
ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END............. I
 G P,SP0296
```

The priority of SP0296 has been changed to the maximum value (5) because it was moved to the top of the spool queue.

The spool file entries are now in the desired sequence for printing. To begin printing, use the START PRT control command to start the spool writer. Enter:

```
START PRT,,P2
(S)   (P)
```

When you enter the START PRT command, the following display is shown:

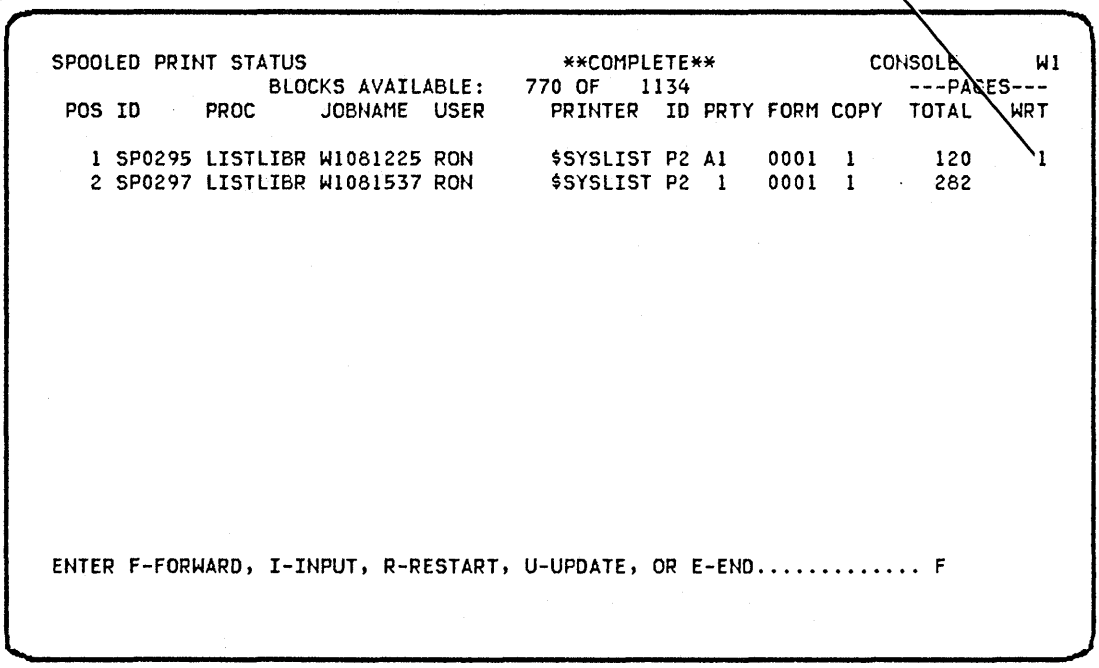
Notice the A in the PRTY (priority) column. This tells you that the spool writer has begun printing SP0296.

```
SPOOLED PRINT STATUS                    **COMPLETE**              CONSOLE      W1
                BLOCKS AVAILABLE:   763 OF   1134                  ---PAGES---
 POS ID      PROC     JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL   WRT

   1 SP0296 CATALOG  W1081500 RON      $SYSLIST P2 A5   0001  1        5     1
   2 SP0295 LISTLIBR W1081255 RON      $SYSLIST P2  1   0001  1      120    14
   3 SP0297 LISTLIBR W1081537 RON      $SYSLIST P2  1   0001  1      282


SPOOL WRITER STARTED FOR PRINTER P2
ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END..... F
 S P,,P2
```

The 1 in the WRT column tells you that the writer is currently printing page 1.

When SP0296 has completed printing, it is removed from the spool file, and the spool writer begins printing SP0295 because it is next on the queue.

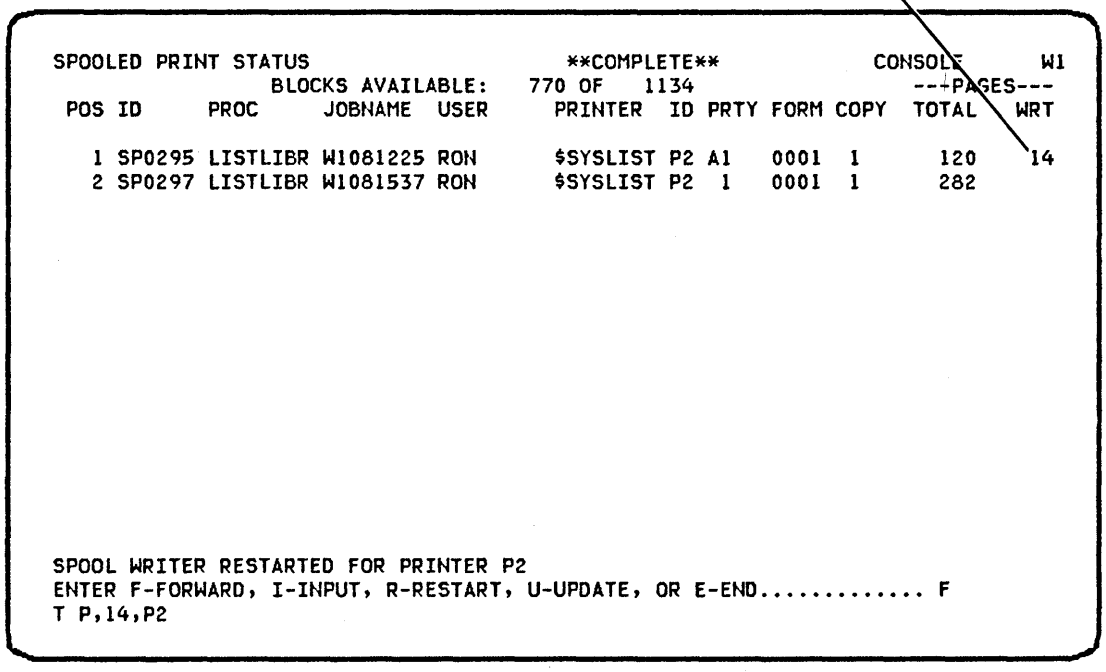
Notice that SP0296 is no longer on the spool queue. The spool writer has begun printing SP0295 and is currently on page 1.



Because the first 13 pages of SP0295 were printed prior to stopping the spool writer, you may not want to print them again. If not, you can use the RESTART PRT control command to restart the spool writer on page 14. Enter

```
RESTART PRT,14,P2
(T)         (P)
```

Notice that the spool writer now begins printing page 14.



```
SPOOLED PRINT STATUS                    **COMPLETE**            CONSOLE      W1
                 BLOCKS AVAILABLE:   770 OF   1134                  ---PAGES---
 POS ID      PROC      JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL   WRT

   1 SP0295 LISTLIBR W1081225 RON      $SYSLIST P2 A1   0001  1      120     14
   2 SP0297 LISTLIBR W1081537 RON      $SYSLIST P2  1   0001  1      282

SPOOL WRITER RESTARTED FOR PRINTER P2
ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END............. F
T P,14,P2
```

Example 2

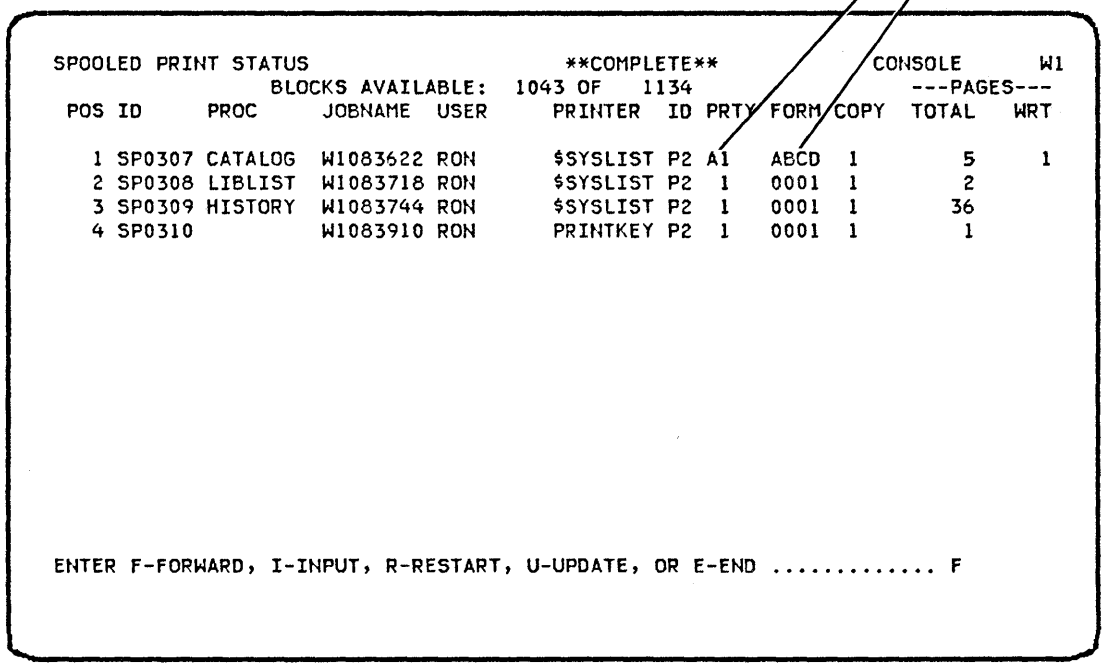
You have several entries in the spool file to be printed. One of the entries requires form ABCD, and the remaining entries require form 0001. The spool writer is currently printing entry SP0306, using form 0001. By entering the STATUS PRT control command at this time, the status display would look like this:

```
SPOOLED PRINT STATUS                    **COMPLETE**              CONSOLE      W1
                BLOCKS AVAILABLE:  1029 OF   1134                    ---PAGES---
 POS ID      PROC      JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL   WRT

   1 SP0306 CATALOG  W1082600 RON      $SYSLIST P2 A1   0001  1        5      3
   2 SP0307 CATALOG  W1083622 RON      $SYSLIST P2  1   ABCD  1        5
   3 SP0308 LIBLIST  W1083718 RON      $SYSLIST P2  1   0001  1        2
   4 SP0309 HISTORY  W1083744 RON      $SYSLIST P2  1   0001  1       36
   5 SP0310          W1083910 RON      PRINTKEY P2  1   0001  1        1

ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END ..... F
```

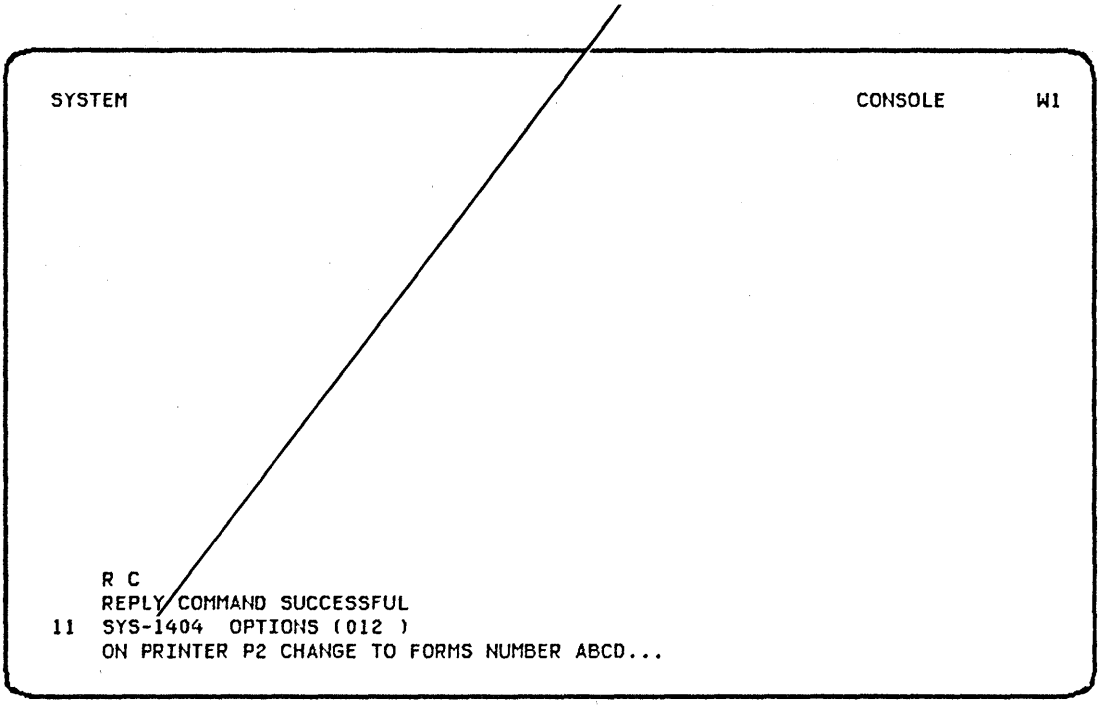
Notice in the FORM column there are several entries to be printed on form 0001 and one entry to be printed on form ABCD.

When SP0306 has been printed, it is removed from the spool queue, and the spool writer begins printing SP0307. Prior to beginning the printing of SP0307, the spool writer determines that form ABCD is required, and the spool writer issues a message asking you to mount form ABCD on printer P2.

Notice that SP0306 has been removed from the spool file, and that the spool writer is attempting to print SP0307 requiring form ABCD.



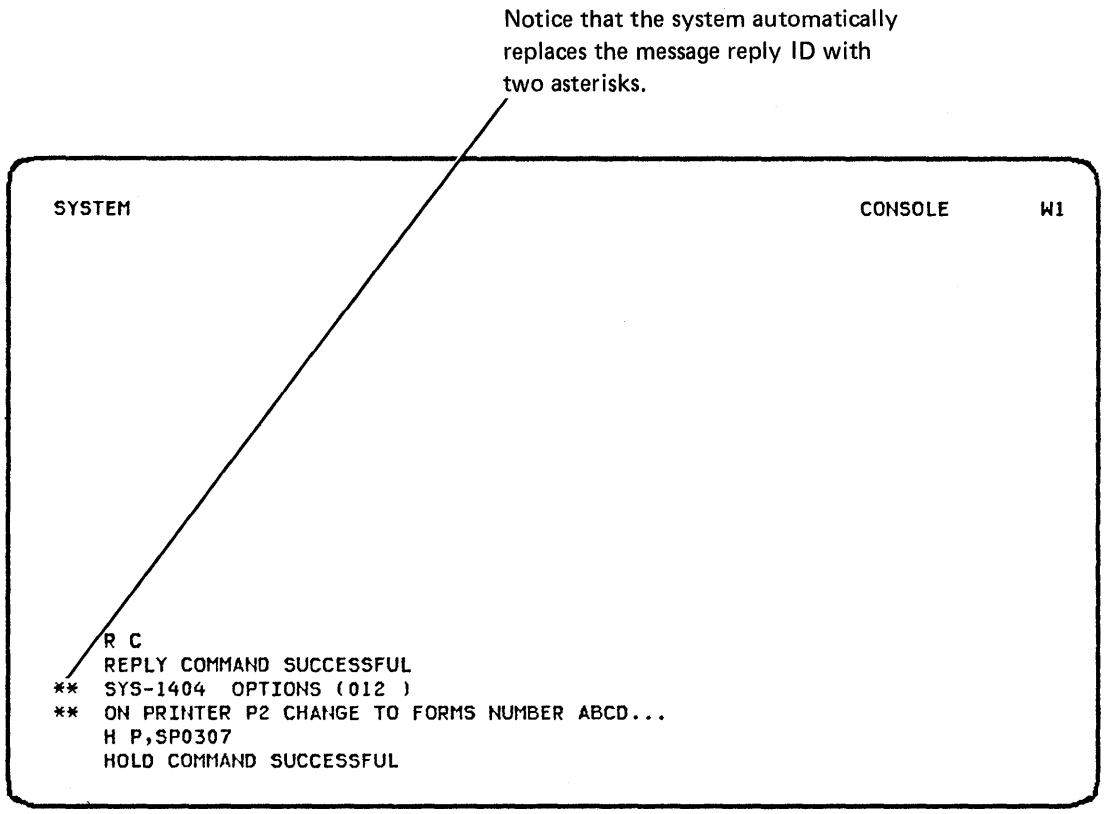
If you end the STATUS PRT display and return to the console display, you will see the spool writer message (SYS-1404) asking you to change the forms.



You would like to change the forms as few times as possible. Remembering the STATUS PRT display showed the normal sequence of printing would require you to change to form ABCD to print one entry from the spool file and then change back to form 0001 to print the remaining entries, you decide instead to print SP0307 after all the other entries have been printed.

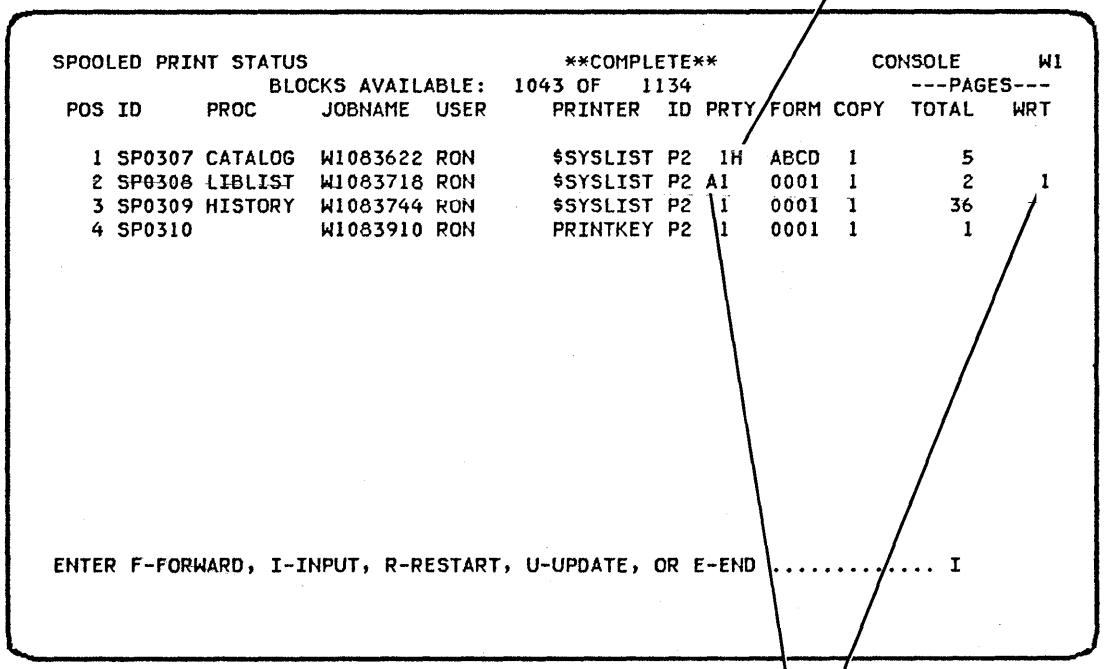
This can be done by using the HOLD PRT control command to hold entry SP0307 for later printing. Instead of responding to message SYS-1404, enter:

```
HOLD  PRT,SP0307
(H)   (P)
```



To return to the STATUS PRT display, enter the STATUS PRT control command.

Notice that the A is no longer displayed in the PRTY (priority) column for SP0307, indicating that the spool writer is no longer attempting to print SP0307, and that an H is displayed in the PRTY (priority) column indicating that SP0307 has been held.



Notice that the A is displayed in the PRTY (priority) column for SP0308, indicating that the spool writer has begun printing SP0308. The 1 in the WRT column indicates that the spool writer is printing page 1.

As each entry that requires form 0001 is printed, the entry is removed from the spool queue so that only SP0307 (held) remains to be printed.

```
SPOOLED PRINT STATUS                    **COMPLETE**              CONSOLE      W1
                  BLOCKS AVAILABLE:  1078 OF   1134                   ---PAGES---
 POS ID     PROC     JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL   WRT

   1 SP0307 CATALOG  W1083622 RON      $SYSLIST P2  1H  ABCD  1        5



ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END ..... F
```

Because SP0307 is held, it must be released before it can be printed. You can use the RELEASE PRT control command to release the entry. Enter:

```
RELEASE PRT,SP0307
(L)         (P)
```

When the release command has been entered, the spool writer will begin printing SP0307. Prior to printing SP0307, the spool writer will issue a message asking you to change the forms to ABCD. After you have changed the forms, respond to the message with option 1, and printing will begin.

```
SPOOLED PRINT STATUS                    **COMPLETE**              CONSOLE      W1
                BLOCKS AVAILABLE:  1078 OF   1134                   ---PAGES---
 POS ID     PROC     JOBNAME  USER     PRINTER  ID PRTY FORM COPY  TOTAL   WRT

   1 SP0307 CATALOG  W1083622 RON      $SYSLIST P2 A1   ABCD  1        5     1









RELEASE COMMAND SUCCESSFUL
ENTER F-FORWARD, I-INPUT, R-RESTART, U-UPDATE, OR E-END ..... F
 L P,SP0307
```

Notice that the H is no longer displayed in the PRTY (priority) column because SP0307 is no longer held and the spool writer has begun printing SP0307.

INPUT JOB QUEUE—CONTROL FROM THE SYSTEM CONSOLE

A display station operator can enter a job and then continue with other activities, without waiting for that job to execute, by using the SSP facility called input job queue. The input job queue is a list of jobs that have been submitted for execution but are not currently executing.

Waiting for a job to execute can waste time and decrease the productivity of the system. If a job does not require input from an operator during execution, the job can be placed on the input job queue. You would typically want to place long running jobs and jobs that require minimal attention (perhaps only form changing, for example) on the input job queue.

The default size of the input job queue is 20 jobs. Jobs must be a command statement or an OCL statement (LISTLIBR or CATALOG, for example). At IPL, you can change the size of the input job queue, remove existing jobs from the queue, and specify whether or not to begin executing jobs from the queue. Refer to *IPL from Disk*, earlier in this chapter, for an explanation of how to override the current parameters.

Only one job executes at a time from the input job queue, and informational message output is directed to the system console and/or system printer or disk.

You control the order of initiation of the queued jobs and give them priority as required. Specifically, you can use control commands to:

- Display the queue
- Start initiation of jobs from the queue
- Stop initiation of jobs from the queue
- Cancel one job or all jobs on the queue
- Change the order of jobs on the queue

This section explains each of these activities.

Once a job is initiated from the input job queue, it can be controlled (started or stopped) by using the START JOB or STOP JOB control command.

How to Display the Input Job Queue

The job queue status display shows all entries on the input job queue.

Command Format

```
STATUS JOBQ [,jobname]
(D)    (J)
```

Parameters

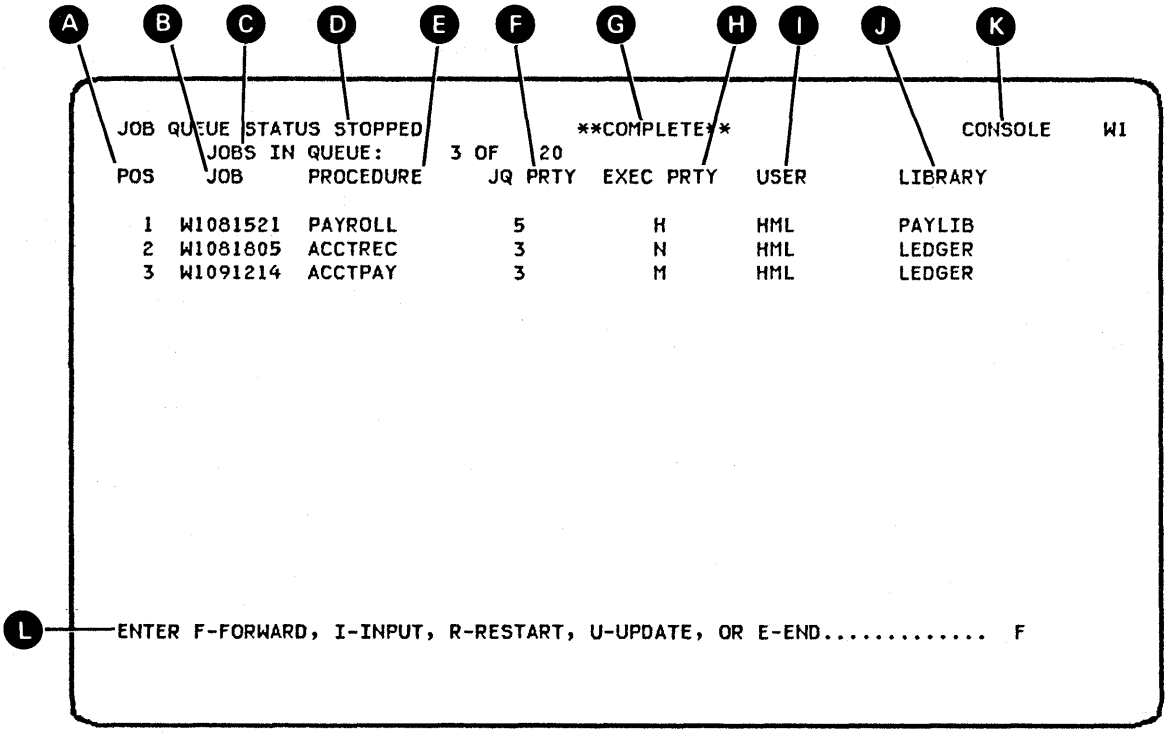
JOBQ: Displays one or all entries on the input job queue.

jobname: The 8-character, system-assigned name of the job for which status information is displayed. If jobname is omitted, the display shows the status of all jobs on the input job queue for the requesting display station.

Example

STATUS JOBQ or
D J

The following display appears:



A The relative position of the job in the queue.

B JOB lists the jobname assigned to this job.

C The number of jobs currently in the queue out of the maximum that can be in the queue.

D STOPPED appears if the JOBQ has not been started.

E PROCEDURE lists the procedure name of this job.

(F) JQ PRTY indicates a job's position on the input job queue. Jobs with a job queue priority of 5 are the first to be taken from the queue for execution.

(G) COMPLETE appears if the entries shown on the screen are the last entries listed for this display station.

(H) EXEC PRIORITY indicates a job's execution priority. Jobs with high priority are run with the least number of interruptions:

- H: high execution priority
- M: medium execution priority
- N: normal execution priority
- L: low execution priority

(I) USER lists the user ID of the submitter.

(J) LIBRARY lists the optional user library the procedure is to come from.

(K) CONSOLE indicates that the STATUS JOBQ command was issued from console mode and system console commands are valid with the I option.

(L) This line is for operator action. If you enter any character other than I, R, U, or E, the system will page forward as if F were pressed.

How to Start the Input Job Queue

Command Format

```
START  JOBQ
(S)    (J)
```

Parameter

JOBQ: Starts running jobs on the input job queue. If the input job queue becomes empty, running of jobs begins automatically when one or more jobs are placed on the queue.

Example

The initiation of jobs from the input job queue was stopped by a STOP JOBQ control command. To start running jobs from the queue, enter:

```
START JOBQ or
S J
```

How to Stop the Input Job Queue

Command Format

```
STOP  JOBQ
(P)   (J)
```

Parameter

JOBQ: Stops the initiation of jobs from the input job queue. The job that was running continues until it completes.

Example

```
STOP JOBQ or
P J
```

How to Cancel Jobs on the Input Job Queue

Command Format

CANCEL JOBQ {,ALL / ,jobname}
(C) (J)

Parameters

JOBQ: Cancels the specified job or all jobs on the input job queue.

ALL: Cancels all jobs from the input job queue.

jobname: Specifies the job to cancel.

Examples

- To cancel all jobs on the input job queue, enter:

  CANCEL JOBQ,ALL or
  C J,ALL

- To cancel only job W2001820 on the input job queue, enter:

  CANCEL JOBQ,W2001820 or
  C J,W2001820

How to Change the Order of Jobs on the Input Job Queue

Command Format

CHANGE JOBQ,jobname [,jobname1]
(G) (J)

Parameters

JOBQ: Changes the position of a job on the input job queue.

jobname: The 8-character, system-assigned job name of the job to be moved. You can display the input job queue via the STATUS JOBQ control command to determine a job's name.

jobname-1: The 8-character, system-assigned job name of a job on the input job queue. The job being moved (jobname) is placed on the input job queue following the job with the name specified by jobname-1. In addition, the job being moved assumes the same job queue priority as jobname-1. If jobname-1 is not specified, the job being changed is moved to the front of the queue and becomes a job queue priority 5 job.

See *How to Put a Job on the Input Job Queue* in Chapter 2 of this manual for more information on job queue priority.

Example

To move job W3083001 on the input job queue so that it follows job W1051050, enter:

CHANGE JOBQ,W3083001,W1051050 or
G J,W3083001,W1051050

The work station utility (WSU) provides a way to code data entry, data edit, data correction and inquiry programs for System/34. This chapter explains how you generate WSU source programs that the programmer has written; how you use a WSU program that is the result of the generation; and how you can interactively enter data for a WSU program. You can enter, review, delete, and insert records. You can also switch work sessions to correct or update records. A WSU Aid Display shows options that are valid when you are not in enter mode and when you are required to direct WSU processing.

If your system supports the ideographic version of the SSP, WSU allows file data to be ideographic. WSU allows ideographic literals on the D and C specifications only if ideographic support is indicated by an entry on the J specification. All work stations that sign on to a WSU program will be required to be of the same type (alphanumeric or ideographic).

WSU COMMAND STATEMENT

WSU generation begins when you enter the WSU procedure command. You can use the HELP procedure to enter the WSU procedure command. Enter HELP WSU to be prompted for the WSU procedure command parameters. The procedure command format is:

```
WSU source program name, [library name  ], [number of blocks], [HALT   ], [LIST   ], [PROC   ], [N], [0]
                         [#LIBRARY      ]  [50              ]  [NOHALT ]  [NOLIST ]  [NOPROC ]  [Y]  [1]
                                                               [NOSTOP ]  [NOLISTS]  [PGM    ]       [2]
                                                               [REPLACE]  [NOLISTW]
```

source program name: Specifies the name of the member that contains the source program. This name is a required parameter. If you omit it, WSU prompts for it.

library name: Specifies the name of the library that contains the source program. If you specify a library name but WSU cannot find the source program in that library, an error message is issued and program generation does not occur. If you omit the library name, WSU assumes that the system library (#LIBRARY) contains the WSU specifications.

number of blocks: Specifies the number of blocks allocated for a work file. If you omit the number of blocks, WSU allocates 50 blocks for a work file.

HALT: When a program generation terminal error occurs or a duplicate member is found, processing stops and a message that requires an operator's reply is issued. HALT is the default.

NOHALT: When a terminal error occurs during program generation, processing does not stop and a message is not issued.

NOSTOP: A combination of the functions indicated by NOHALT and REPLACE. Processing does not stop for terminal errors, and existing members are replaced automatically with the newly generated program, procedure, $SFGR source member, or $SFGR object member. If neither NOSTOP nor REPLACE is specified, a message appears for the operator each time a member with a duplicate name is found.

REPLACE: Any existing members that have the same name as the generated program, procedure, $SFGR source member, or $SFGR object member are automatically replaced by the members created during this generation.

LIST: A complete WSU program generation listing is printed. A complete listing includes source information, diagnostic information, and $SFGR information.

NOLIST: Source statements, certain diagnostic information, and $SFGR information are *not* printed in the WSU program generation listing. Only main storage requirements, disk storage requirements, the procedure generated for program execution, and diagnostic text are printed.

NOLISTS: $SFGR information is *not* printed in the WSU program generation listing. Only source information and diagnostic information are printed.

NOLISTW: Source statements and certain diagnostic information are *not* printed in the WSU program generation listing. Only the main storage requirements, disk storage requirements, the procedure generated for program execution, diagnostic text, and $SFGR information are printed.

PROC: A procedure that calls the WSU program is generated. PROC is the default when this parameter is omitted.

NOPROC: A procedure that calls the WSU program is not generated.

PGM: Only the WSU program is generated. A procedure, display screen source, and display screen formats are not generated.

N: Do not place the job on the input job queue. N is the default value when the parameter is omitted.

Y: Place the job on the input job queue.

0: Only the following sections are printed in the WSU program generation listing:

- Source information
- Extended diagnostics
- Undefined indicators
- Multiply defined field names
- Undefined field names
- Main storage requirements
- Disk storage requirements
- Procedure generated for WSU program execution
- Diagnostic text

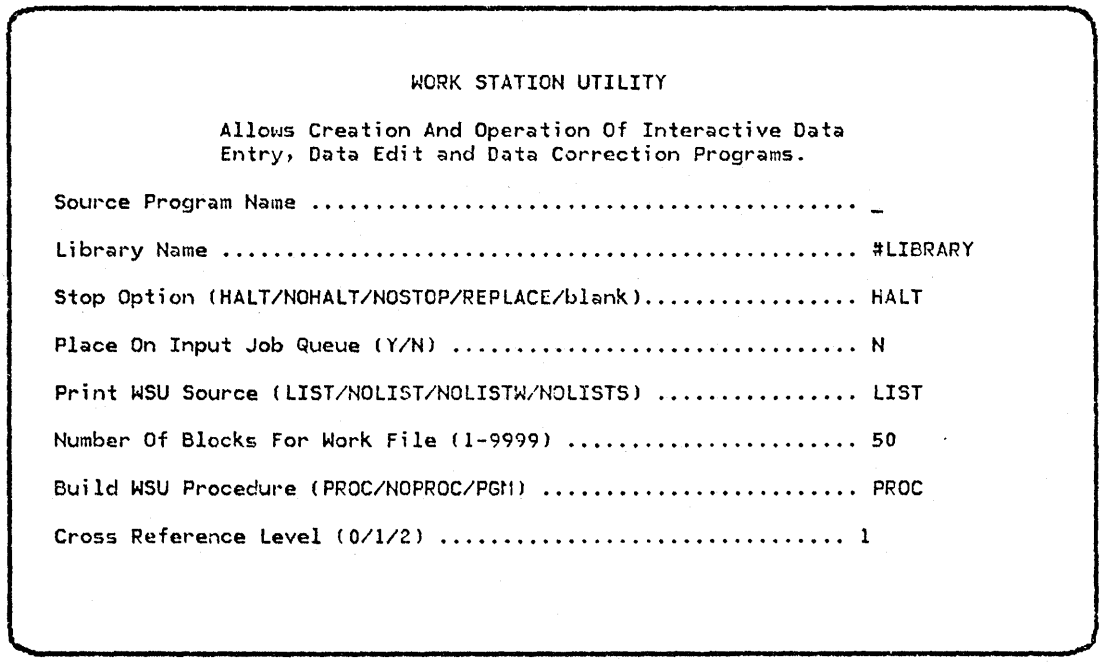
1: Certain cross-reference information, the *Indicator Name Usage* and *Field Name and Program Label Usage* sections, is not printed in the WSU program generation listing. The default value when the parameter is omitted is 1.

2: Cross-reference information, the *Indicator Name Usage* and *Field Name and Program Label Usage* sections, is printed in the WSU program generation listing.

WSU PROMPT DISPLAY

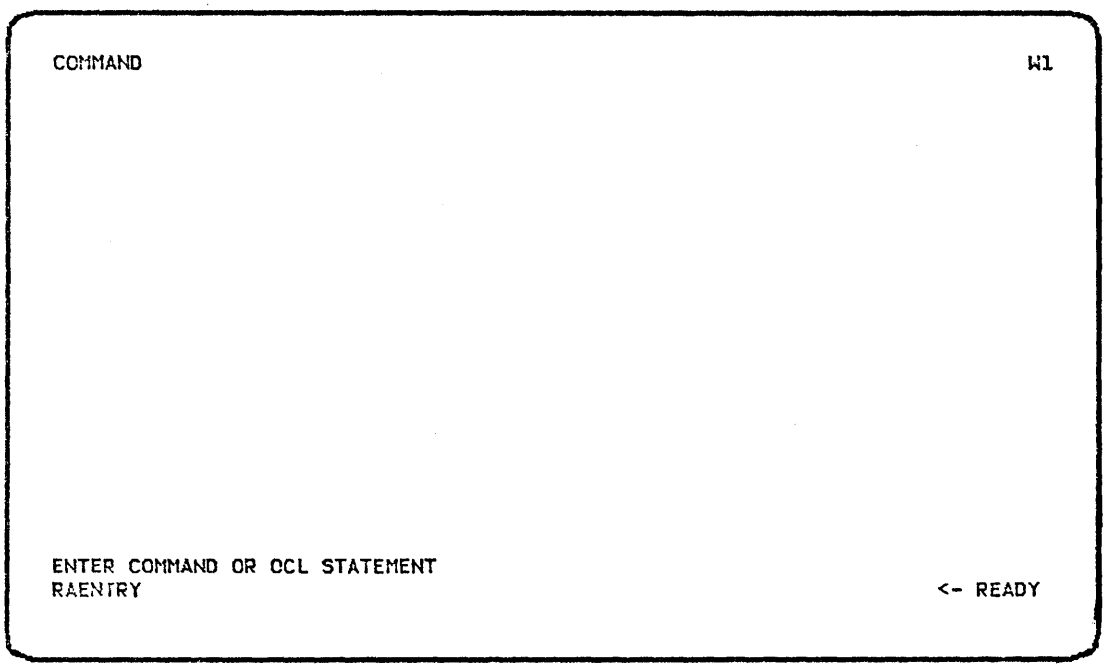
System/34 provides a prompt display as an alternative means of entering the WSU procedure command and its parameters. This display appears when the WSU procedure command is entered and the first parameter (source program name) is missing or when the HELP WSU command is entered. Those parameters that have been specified on the WSU procedure command are shown on the display. Default values are shown for parameters that have not been specified.

The fourth line of the prompt display, which allows a WSU job to be placed on the input job queue, can also be done via the JOBQ operator control command, the JOBQ OCL statement, or the WSU procedure command. Refer to the *System Support Reference Manual* for descriptions of the JOBQ control command and the JOBQ OCL statement.



HOW TO SIGN ON

To use a WSU program, enter the name of the WSU program as shown on the following display (in this example, the name of the WSU program is RAENTRY):

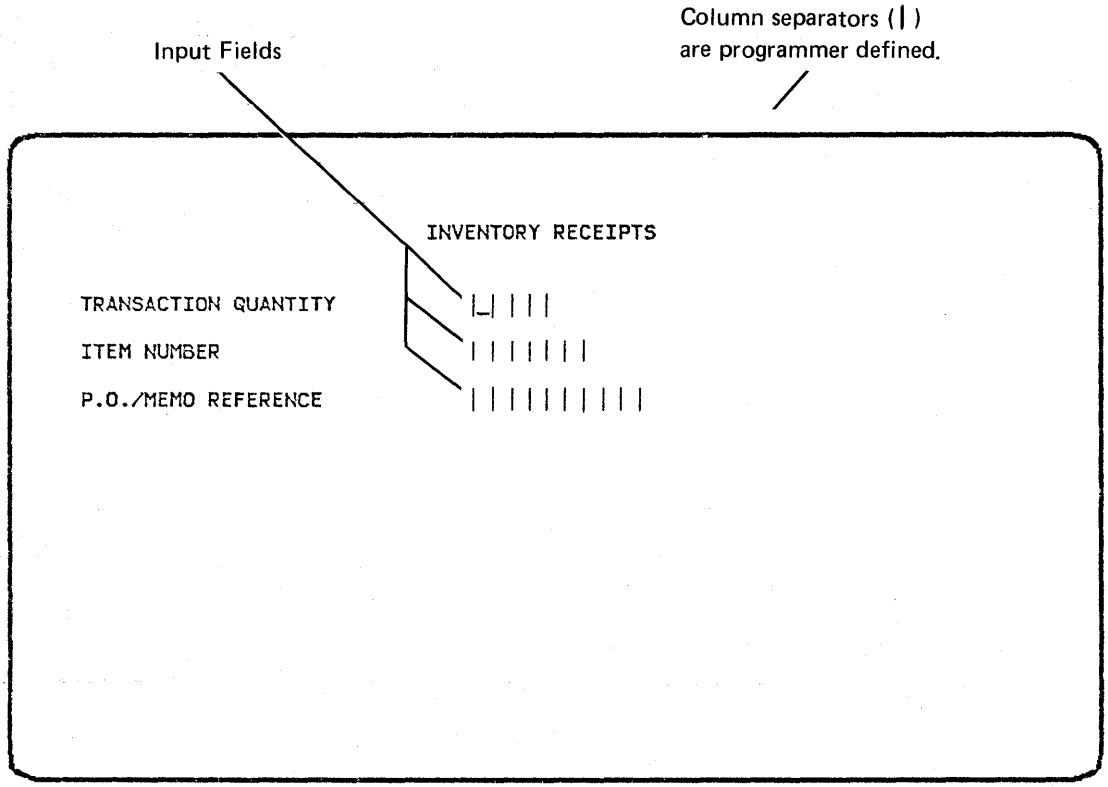


ENTER MODE

Enter mode is the initial operating mode, which allows you to enter records into the transaction file.

How to Key Data on a Display

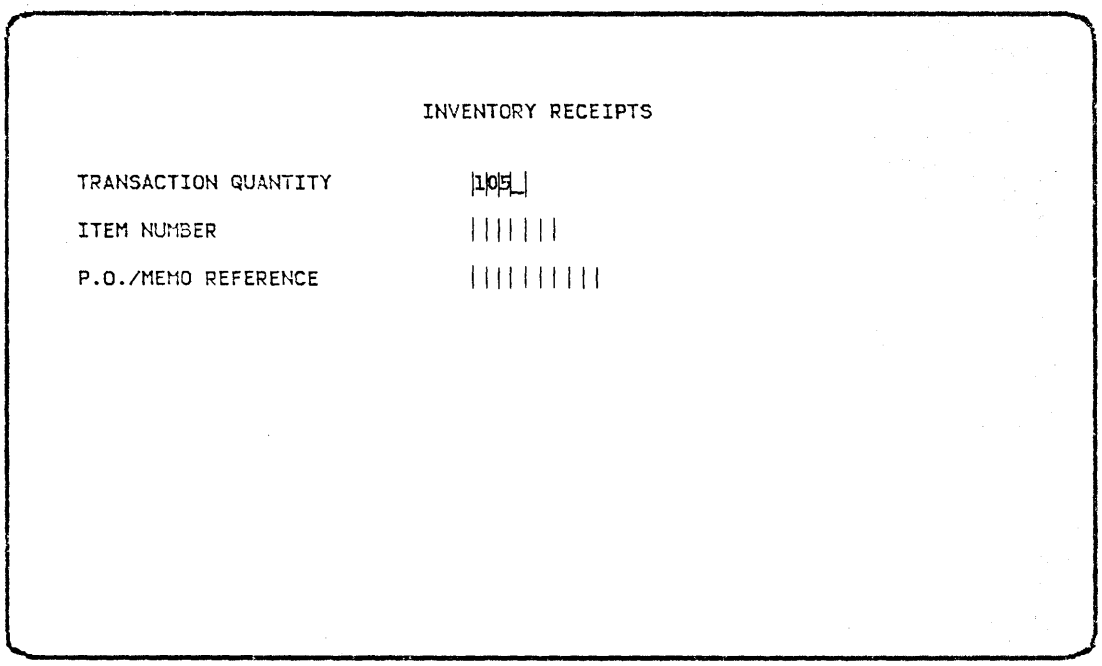
When a display appears, the cursor is at the first input field as shown on the following sample display:



As you key data in a field, the cursor moves left to right across the field. For some fields that you fill, the cursor will automatically jump to the next input area when you have keyed the last digit or character in the field. For fields that you do not fill or for fields that the cursor does not automatically exit, you will have to press a field exit key (Field Exit, Field+, or Field-) to enter the field (see Figure 5-1 later in this chapter for key locations). Numeric fields will be right-adjusted when the field is entered; alphameric fields will be left adjusted when the field is entered, unless the program specifies right-adjust.

To enter a negative value in a field, enter the value and then press Field-. The field will be right-adjusted and the minus sign will follow the last digit. For example, if you enter 50 and press the Field- key, 50- is displayed.

As you enter fields, the cursor advances from left to right across a line as shown below. When the rightmost input field has been entered, the cursor advances to the leftmost input field on the next line.

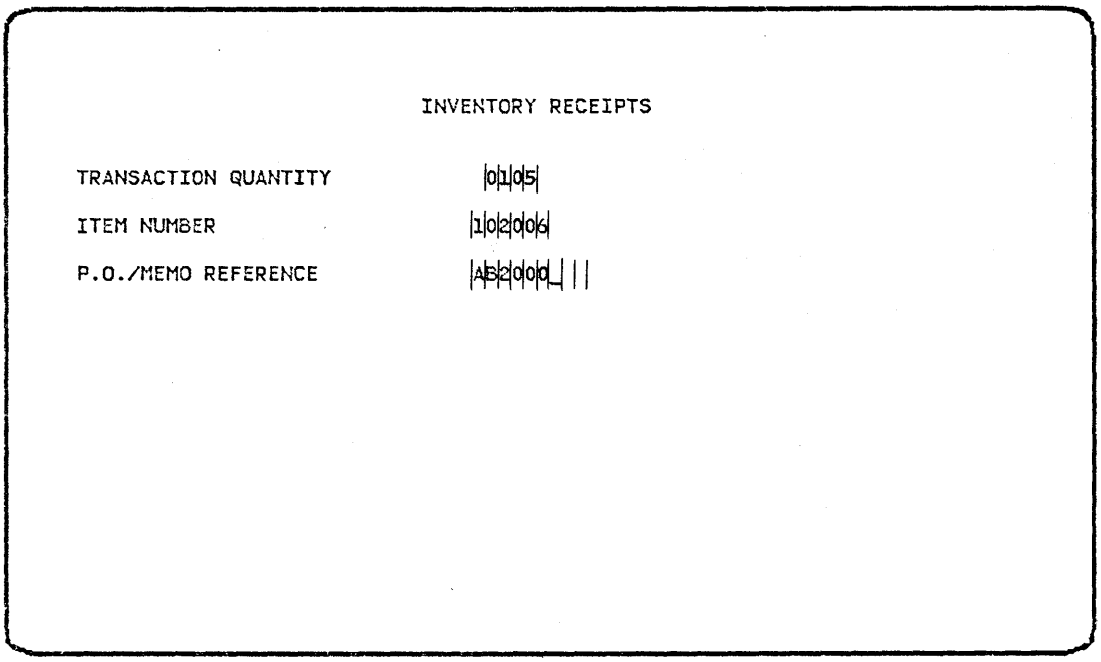


Now press a field exit key to enter the transaction quantity. The quantity will be right-adjusted and the cursor will move to the next input field (item number).

You can use any field exit key to skip over a field if a value in that field is not required by the program.

When you complete a display, enter it by pressing the Enter/Rec Adv key or a user command function key.

Note: Certain fields, when you complete them or enter them, can cause entry of all input fields on the display.



Now press the Enter/Rec Adv key or a user command function key to enter this display.

REVIEW MODE

Review mode is the operating mode that lets you look at records in the transaction file. If the program allows review and update, you can also update records in the transaction file.

How to Review Records

You can select review mode in one of the following ways:

- Hold the Shift key down and press the Page Backward Record key (Roll↓)
- Hold the Shift key down and press the Page Forward Record key (Roll↑)
- Press the Page Backward Group command key (command key 5)
- Press the Page Forward Group command key (command key 6)
- Specify a review record number on the WSU menu
- Hold the Shift key down and press the Resume Review command key (command key 15) to display the last record you reviewed

You can select alternative displays (if any) by pressing the Bypass Display command key (command key 2) or by entering a two-character ID on the WSU menu. The *WSU Command Function Keys and Function Control Keys* section later in this chapter describes the WSU command keys that you can use in review mode.

To go from review mode to enter mode, press the Resume Entry command key (command key 3).

REVIEW/DELETE MODE

Review/delete mode lets you logically delete a record or group of records in the transaction file, if the program you are using allows you to review records.

How to Delete a Record

You may be able to delete the last record you reviewed. First hold the Shift key down and press the Delete command key (command key 14) to enter review/delete mode. Then press the Enter/Rec Adv key or a user-defined command key to delete the record.

If the deleted record was a header record, all detail records in the group are deleted also.

To avoid deleting a selected record, press one of the WSU function or WSU command keys other than the Bypass Display key (command key 2), or press command key 1 to display the WSU menu and make an entry other than a display ID on the menu.

You can press command key 13 to prevent a record from being deleted without requesting an additional function at the same time.

INSERT MODE

Insert mode is the operating mode that lets you logically insert a record between records in the transaction file, if your program allows it.

How to Insert a Record

To insert a record you must first review the record that is to precede the inserted record (refer to the explanation of review mode for ways to do this) and then press the Insert Mode command function key (command key 4). WSU selects a display that you can use to insert a record. You can select alternative displays (if any) via the Bypass Display command function key (command key 2) or via a two-character ID on the WSU menu.

Refer to *WSU Command Function Keys and Function Control Keys* later in this chapter for a description of the keys you can use in insert mode.

HOW TO SELECT A DIFFERENT WORK SESSION

When you enter the name of a WSU program on the command display, the work session ID assigned to you is the same as the ID of your work station. WSU does not allow you to enter or access records for any session other than the one you are using.

Your programmer has the option of allowing you to switch to a work session other than the one assigned to you. Switching sessions allows you to update or correct records that another operator has entered, or to access your own records from a work station other than the one you used to enter the records.

To enter, review, delete, or insert records for a different session, enter a session selection identifier on the WSU menu display. (Refer to *WSU Menu* later in this chapter.) The session you are in ends normally, except that your work station is not released. The WSU menu reappears to show you the session you have selected. If you want to restart that session, press the Enter/Rec Adv key. After you have started or restarted a session in this way, you may process records for the session you selected in any of the normal WSU modes.

Your programmer may limit the number of operators who can switch WSU sessions, or may assign this capability to a particular work station. If so, your programmer will tell you whether you or your work station is authorized to switch sessions.

When you have finished a work session, you can return to the WSU menu by pressing command key 1. From the menu, you can switch WSU sessions or restart the current session by entering a session selection identifier, or you can end the work session.

HOW TO END A WORK SESSION

End a work session by pressing the WSU Menu command function key (command key 1) and specifying EW on the menu or by following a special programmer directed action (for example, pressing a specific user command function key).

HOW TO RESTART A WSU PROGRAM

You can restart an execution program to do further entry, review, deletion, or insertion of records in the transaction file:

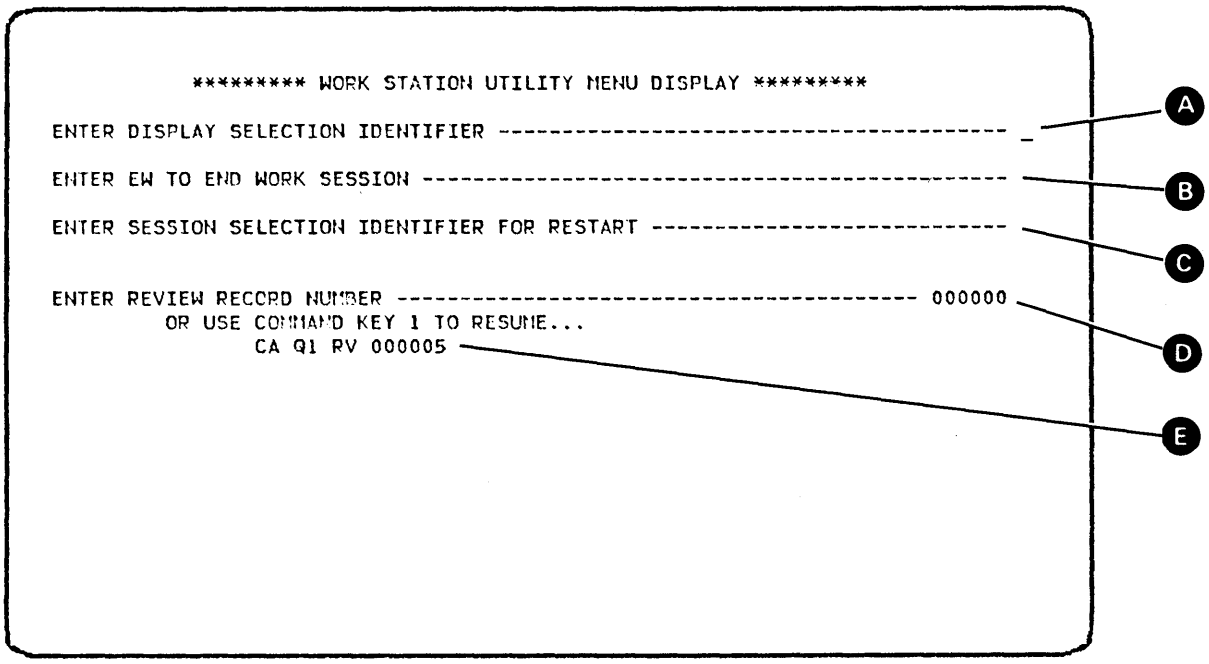
- After you have successfully ended your work session.
- After a System/34 error occurred that did not allow you to successfully end your work session, and all other work sessions have ended.

Restart by entering the name of the WSU program on the Command display.

WSU MENU

The WSU menu appears when you press the WSU Menu command function key (command key 1). You can select this menu anytime a display is waiting for input from you.

The WSU menu allows you to select a display by its ID, end your work session, restart a session, or review a record. You can also leave the WSU menu without making a selection. The following shows and explains the WSU menu:



A You select a display by entering its two-character ID on the WSU menu.

B You can enter EW to end your work session.

C You can select the identifier of a work session you want to start or restart by entering the work session ID **C** from an authorized work station or by entering the work session ID **C** and also entering the required authorization ID on the EW line **B**.

D You can review a specific record in the transaction file by entering the review record number. If you are in enter mode, WSU switches the operating mode to review mode. WSU issues a message if the record you selected is not in the chain for your session; you will still be in review mode.

If the record you requested from the WSU menu is not in your chain, it may be in the chain for a session other than the one you are using. If you immediately redisplay the menu, this session ID will be shown as the default session selection/identifier.

E The status line shows the display or level ID, the session ID, the mode or processing level, the add/update relative record number, and the chain end indicator. This information may help you remember what you were doing just before you requested the menu display. See the *WSU Reference Manual* for a more detailed explanation.

To leave the WSU menu without making a selection, you can press any of the review mode function keys—command function keys 3–6 and 14–15, Roll↑ (roll up), and Roll↓ (roll down). You also can press the Enter/Rec Adv key while the review record number is zeros or press command key 1 to return to the previous display. If you are not in enter mode and cannot return to a current display, you must press a function key, enter EW, enter a session ID, or enter a valid review record number to leave the menu.

Note: You cannot use the bypass key or user-defined command keys from the WSU menu.

How to Use the Status Line

The status line on the WSU menu shows the ID of the display you interrupted to go to the WSU menu. You may want to remember this ID so that you can use it later to select that display from the WSU menu.

The ID of the session you are using appears on the status line. You can use this ID to restart this session.

The status line shows what mode you are in and the number of the record you are about to add or update.

The chain end indicator shows three asterisks (***) if your paging reference point is out of the chain. In this case, you previously received and cleared a not-in-chain message (WSU-0706). Refer to the *WSU Command Function Keys* and *WSU Function Control Keys* charts to see when WSU issues a not-in-chain message. Whenever your paging reference point is out of the chain, you can:

- Page forward to the first record in the chain by pressing the Roll↑ key with the Shift key
- Page backward to the last record in the chain by pressing the Roll↓ key with the Shift key
- Page forward to the first header record in the chain by pressing command key 6
- Page backward to the last header record in the chain by pressing command key 5

WSU AID DISPLAY

The WSU Aid Display shows options that are valid when you are not in enter mode and when WSU requires you to make a new request. The WSU Aid Display appears automatically if you press the Enter/Rec Adv key or a user-defined command key when you should have keyed in a new request. It also appears automatically if you use command key 13 when you are not in enter mode.

```
         ********* WORK STATION UTILITY AID DISPLAY *********
         DO ONE OF THE FOLLOWING TO SELECT ALTERNATE PROCESSING...
PRESS COMMAND KEY  1 THEN USE THE WSU MENU TO END OR RESTART THIS SESSION
PRESS COMMAND KEY  1 THEN USE THE WSU MENU TO SELECT A RECORD TO REVIEW
PRESS COMMAND KEY  3 TO RESUME ENTER MODE PROCESSING
PRESS COMMAND KEY  4 TO INSERT AFTER THE CURRENT REVIEW RECORD
PRESS ROLL DOWN KEY  TO REVIEW THE PREVIOUS RECORD
PRESS ROLL UP KEY    TO REVIEW THE NEXT RECORD
PRESS COMMAND KEY  5 TO REVIEW THE PREVIOUS HEADER RECORD
PRESS COMMAND KEY  6 TO REVIEW THE NEXT HEADER RECORD
PRESS COMMAND KEY 14 TO DELETE THE MOST RECENT REVIEW RECORD OR GROUP
PRESS COMMAND KEY 15 TO REVIEW THE MOST RECENT REVIEW RECORD




         DO ONE OF THE FOLLOWING TO REQUEST ADDITIONAL INFORMATION...
PRESS COMMAND KEY  1 THEN USE THE WSU MENU TO SELECT A USER HELP SCREEN
PRESS COMMAND KEY 13 TO REDISPLAY THE MOST RECENT STATUS ALTERING MESSAGE
```

WSU COMMAND KEYS AND TEMPLATE

Figure 5-1 shows the WSU command function keys and template.

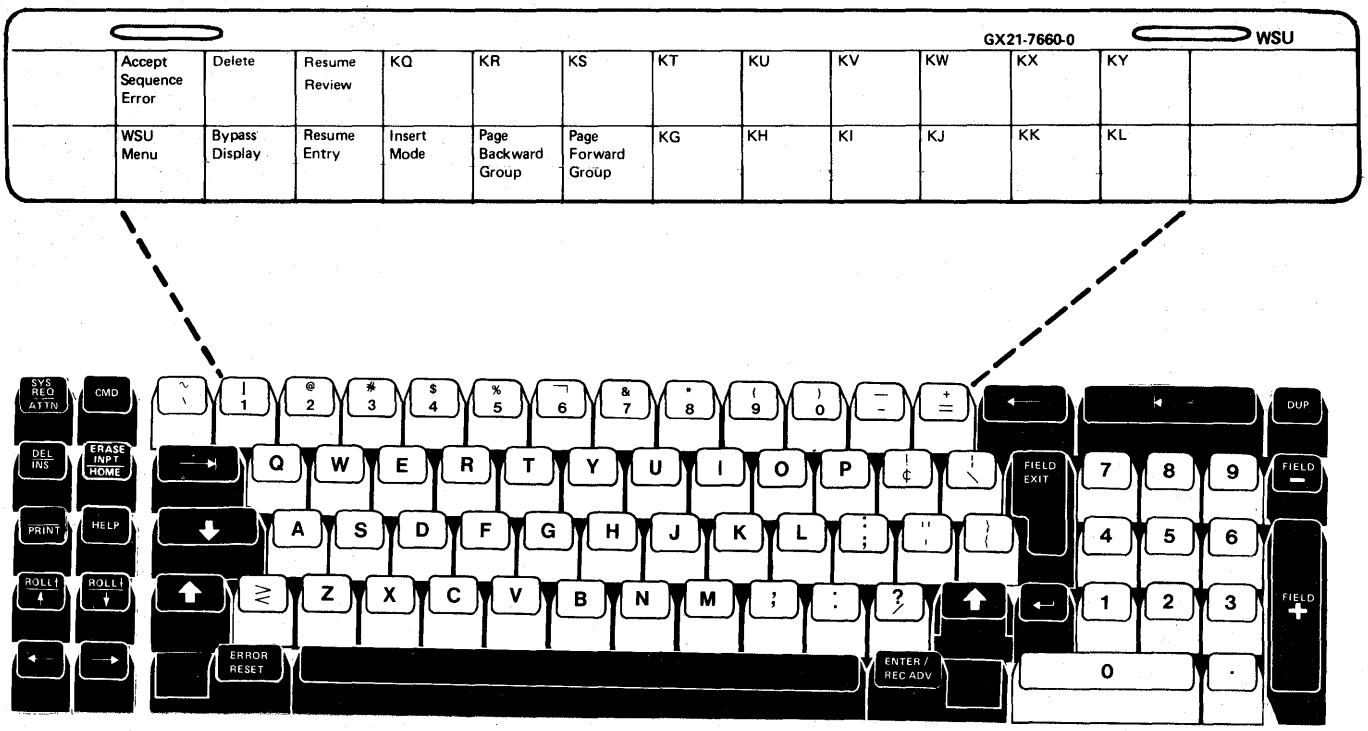


Figure 5-1. WSU Command Keys and Template

WSU COMMAND FUNCTION KEYS AND FUNCTION CONTROL KEYS

Figure 5-2 describes the lowercase command function keys and how they can be used in each operating mode. Figure 5-3 describes the uppercase command function keys and how they can be used in each operating mode. Figure 5-4 shows and explains the function control keys that can be used to view records in the transaction file.

Key	Command Function Key	Enter Mode	Review Mode	Review/Delete Mode	Insert Mode
1	WSU Menu	Causes the WSU menu to appear. Refer to *WSU Menu* in this chapter for a description of the menu.			
2	Bypass Display	Causes the next display to appear. For a nonsequenced display, this command key causes the most recently shown sequenced display to reappear. You can use this command key to advance from a repeated display.	Causes the next valid review mode display to appear.		Causes the next valid insert mode display to appear.
3	Resume Entry	Not allowed.	Switches the operating mode to enter mode. WSU displays the most recently shown enter mode user display, and allows you to continue interrupted data entry.		
4	Insert Mode	Not allowed.	Switches the operating mode to insert mode and presents display for you to insert a record.	Not allowed.	
5	Page Backward Group	Switches the operating mode to review mode. Causes WSU to show the previous header record in the transaction file, or to issue a not-in-chain message.			
6	Page Forward Group	Switches the operating mode to review mode and causes WSU to issue a not-in-chain message.	Switches the operating mode to review mode. Causes WSU to show the next header record in the transaction file, or to issue a not-in-chain message.		
7	User Command Key (KG)	Enters the display, sets indicator KG on, and sets all other indicators from KA through KY off.			
8	User Command Key (KH)	Enters the display, sets indicator KH on, and sets all other indicators from KA through KY off.			
9	User Command Key (KI)	Enters the display, sets indicator KI on, and sets all other indicators from KA through KY off.			
0	User Command Key (KJ)	Enters the display, sets indicator KJ on, and sets all other indicators from KA through KY off.			
-	User Command Key (KK)	Enters the display, sets indicator KK on, and sets all other indicators from KA through KY off.			
=	User Command Key (KL)	Enters the display, sets indicator KL on, and sets all other indicators from KA through KY off.			

Figure 5-2. WSU Lowercase Command Function Keys

Figure 5-3. WSU Uppercase Command Function Keys

Key	Command Function Key	Enter Mode	Review Mode	Review/Delete Mode	Insert Mode
1	Accept Sequence Error	Allows you to bypass a required display if the AE indicator is on.	Allows you to stop current processing. Displays WSU Aid Display.		
@	Delete	Switches the operating mode to review/delete mode. Causes WSU to display the most recently reviewed record (or a record selected for you by the program) or to issue a not-in-chain message. WSU deletes the record only if the function is allowed to end normally.			
#	Resume Review	Switches the operating mode to review mode. Causes WSU to display the most recently reviewed record (or a record selected for you by the program) or to issue a not-in-chain message.			
$	User Command Key (KQ)	Enters the display, sets indicator KQ on, and sets all other indicators from KA through KY off.			
%	User Command Key (KR)	Enters the display, sets indicator KR on, and sets all other indicators from KA through KY off.			
¬	User Command Key (KS)	Enters the display, sets indicator KS on, and sets all other indicators from KA through KY off.			
&	User Command Key (KT)	Enters the display, sets indicator KT on, and sets all other indicators from KA through KY off.			
*	User Command Key (KU)	Enters the display, sets indicator KU on, and sets all other indicators from KA through KY off.			
(	User Command Key (KV)	Enters the display, sets indicator KV on, and sets all other indicators from KA through KY off.			
)	User Command Key (KW)	Enters the display, sets indicator KW on, and sets all other indicators from KA through KY off.			
_	User Command Key (KX)	Enters the display, sets indicator KX on, and sets all other indicators from KA through KY off.			
+	User Command Key (KY)	Enters the display, sets indicator KY on, and sets all other indicators from KA through KY off.			

Function Control Key		Enter Mode	Review Mode	Review/Delete Mode	Insert Mode
Roll↓ with Shift	Page Backward Record	Switches the operating mode to review mode. Causes WSU to show the previous record in the transaction file, or to issue a not-in-chain message.			
Roll↑ with Shift	Page Forward Record	Switches the operating mode review mode and causes WSU to issue a not-in-chain message.	Switches the operating mode to review mode. Causes WSU to show the next record in the transaction file, or to issue a not-in-chain message.		

Figure 5-4. WSU Function Control Keys

Chapter 6. How to Operate DFU

INTRODUCTION

The data file utility (DFU) processes your data files. There are four basic uses of DFU. They are:

- Enter—Creating data files
- Update—Maintaining data files (changing, adding, and deleting information)
- Inquiry—Displaying information from data files
- List—Preparing and printing reports from information in data files

DFU is a two-step program. The first step is to define the job by responding to a series of prompts that appear on the display screen. The responses are used by DFU to build a format description—information about the job that can be given a name, stored in the system library or a specified user library, and made available for future use.

In the future, if you want to do the same job (that is, process the same or an identical file in the same manner), you can skip the first step if the format description has been saved.

The second step involves running the job—doing the actual entering, updating, displaying and listing of the data file.

In most cases, the job will be defined for you and you will begin with the second step. For this reason, this section explains how to run (execute) a DFU job that has been previously defined.

This chapter explains how you can use DFU to:

- Enter records
- Update records
- Insert records
- Delete records
- Display records
- List records

IDEOGRAPHIC DFU

The ideographic version of DFU is compatible with the alphanumeric version of DFU. When you sign on to DFU in ideographic mode from an ideographic-capable display station, all error messages, formats, and keywords will be in ideographic form. (The Taiwanese systems will display alphanumeric messages.) When you sign on to DFU in alphanumeric mode but your DFU format contains IGC field types, IGC constants, or IGC sort types, then all formats and keywords will be in ideographic mode if your display station is ideographic capable.

The following information assumes that a format description already exists. If the format description does not exist, refer to the *Data File Utility Reference Manual* for assistance in creating the format description before proceeding.

COMMAND FUNCTION KEYS, FUNCTION CONTROL KEYS, AND DFU TEMPLATE

A preprinted template (GX21-7660, or equivalent) shows the DFU command function key assignments. Insert the template when you are using DFU. Figure 6-1 shows the keyboard and inserted DFU template.

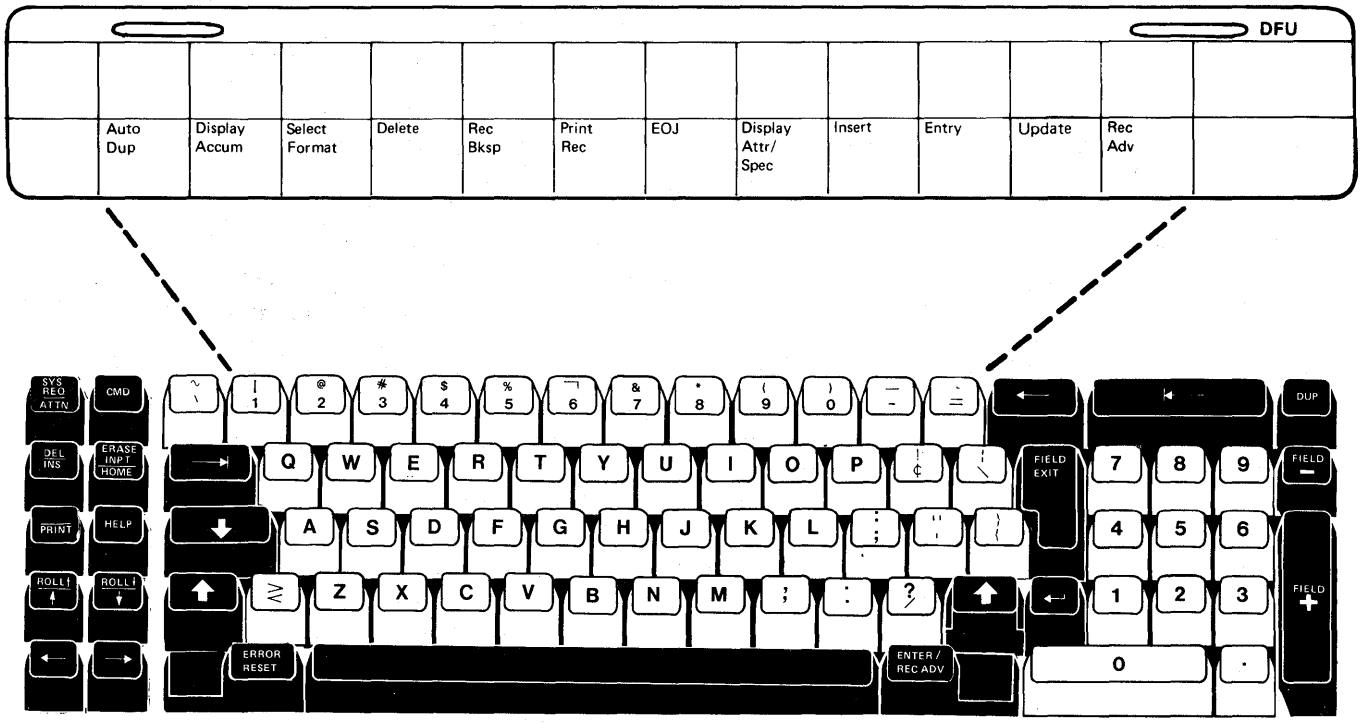


Figure 6-1. Keyboard with DFU Template Inserted

Command function keys are used to request specific DFU functions. The following list names and describes each command function key (Figure 6-2) that DFU allows:

Key	Command Function Keys	Description	When Used
! 1	Auto Dup	Reverses the status of the auto-dup indicator (ON or OFF). When ON, fields specified as auto-dup fields at job setup time are displayed with the corresponding data from the previous record processed; you can not alter the auto-duplication data.	Enter/ update
@ 2	Display Accum	Displays the current values of the batch accumulators, and resets them to zero after adding them to the total accumulators. If a printer has been used with the job, these values are printed.	Enter/ update
# 3	Select Format	Positions the cursor at the record type field so that you can request a new record type. If in entry mode, and the DFU format specifies sequenced record types, this key automatically displays the next record type in the sequence.	Enter/ update, inquiry
$ 4	Delete	Marks the current record for deletion.	Enter/ update
% 5	Rec Bksp	Backs up a step in the processing, with the results dependent on the situation at the time the key is pressed. – When the current record requires more than one display and the first display is not shown, this key displays the first display for a record. – If the first display is currently being processed: Entry or insert mode causes the previous record processed to be retrieved, and allows you to update that record. Update mode key prompt—retrieves the previous record processed and allows you to update that record.	Enter/ update, inquiry

Figure 6-2 (Part 1 of 3). DFU Command Function Keys

Key	Command Function Keys	Description	When Used
	Rec Bksp (continued)	Update mode data prompt—ignores the current record and prompts you for a new record to update. *Note:* If the previous record is being reviewed, the key is ignored. Inquiry mode—resets to start of processing for the current record.	
	Print Rec	Prints the currently displayed record. Prints the DFU attributes and specifications.	Inquiry Job setup
	EOJ	Ends your entry, update, or inquiry job processing.	Enter/ update, inquiry, job setup
	Display Attr/Spec	Reverses the display of DFU attributes to DFU specifications or DFU specification to DFU attributes depending on which is being displayed. This key is not used during enter/update or inquiry execution.	Job setup
	Insert	Allows you to insert a new record into a data file. If DFU is generating record keys for entry mode while processing an indexed file, you must supply record keys that are less than the next generated record key. If you are using relative record numbers, the record corresponding to the relative record number inserted must currently be all blanks.	Enter/ update

Figure 6-2 (Part 2 of 3). DFU Command Function Keys

Key	Command Function Keys	Description	When Used
0	Entry	Allows you to add records to a data file. If you are using record keys, the record key entered must not already exist in the file. If you are using relative record numbers, the record corresponding to the relative record number entered must currently be all blanks. If the format description indicates that DFU is to generate record keys or record numbers, pressing this key causes generation of the next sequential record key or record number in the file.	Enter/ update
-	Update	Allows you to change existing records in a data file. When using record keys, the key entered must be for an existing record. When using relative record numbers, the record corresponding to the relative record number entered must not currently be blank.	Enter/ update
+ =	Rec Adv	Indicates that the current record or prompt is complete.	Enter/ update/ inquiry, job setup

Figure 6-2 (Part 3 of 3). DFU Command Function Keys

Function control keys are used to specify system functions. The following list (Figure 6-3) names and describes each function control key that DFU allows.

Key	Function Control Key	Description
CMD	Cmd	Pressing this key and one of the command function keys causes that function to be performed.
DUP	Dup	Causes information to be duplicated into a field from the previous record processed. ⁼* is placed in the cursor position and every position to the right in the current field; this key then functions as the Field Exit key. DFU replaces these characters with data from the corresponding positions of the previously processed record. This key is valid only during enter/update or inquiry execution. *Note:* For update mode, DFU assumes the previous record processed to be the same as the current record being processed.
ENTER/ REC ADV	Enter/Rec Adv	Returns control to DFU to process the data entered on the current display. During enter/update, this key shows the next display of the record. If the last or only display is already shown, proceed to the next record. During inquiry execution, this key scrolls forward through the displays of a record when a different record is not requested.
ERASE INPT HOME	Home	Valid only during enter/update or inquiry execution. Its function depends on the cursor position when the key is pressed: 1. If the cursor is not at the initial cursor position, the cursor is returned to that position. 2. If the cursor is at the initial cursor position, the following occurs: a. If the first or only display for a record is being shown for update mode, the record is reset to its values before any updates. b. If the first or only display for a record is being shown for entry or insert mode, or a new entry is being prompted for in update mode, the prompting is reset to the start of the current mode; any data entered to this prompt or record is lost. c. If the first display for a record is not being shown, the display is reset to the preceding one for that record. Any data entered or changed on the current display is not saved.

Figure 6-3 (Part 1 of 2). DFU Function Control Keys

Key	Function Control Key	Description
	Field Exit	Moves the cursor to the first position of the next unprotected field on the display. For alphanumeric fields, characters to the right of, and including, the current cursor position in the exited field are blanked. For numeric fields, the exited field is right adjusted and leading zeros are inserted. If DFU is in enter, update, or inquiry execution, and the cursor is in the record type field, this key functions the same as the Enter/Rec Adv key. This key also functions as the Enter/Rec Adv key when the last data field on the display is entered.
	Field –	Causes a negative sign to be placed after the rightmost character in the current numeric field; it then functions as the Field Exit key.
	Field +	Indicates a positive numeric field by placing a blank after the rightmost position of the current numeric field; it then functions as the Field Exit key.
	Roll ↑ (Roll Up)	When processing by record key in inquiry mode, scrolls to the next record in key sequence in the file. When processing by record number in inquiry or update mode, scrolls to the next nonblank record in the file. *Note:* For a discussion of record key or number retrieval, see the section *Retrieving Records by Scrolling* in this chapter.
	Roll ↓ (Roll Down)	When processing by record key in inquiry mode, scrolls to the preceding record in key sequence in the file. When processing by record number in inquiry or update mode, scrolls to the preceding nonblank record in the file. *Note:* For a discussion of record key or number retrieval, see the section *Retrieving Records by Scrolling* in this chapter.

Figure 6-3 (Part 2 of 2). DFU Function Control Keys

A Field Exit, Field –, or Field + function control key must be pressed to complete a field; DFU provides no automatic skipping from field to field when you are entering data or are responding to DFU job setup prompts.

COMMAND PARAMETERS

You can use the HELP procedure to display the DFU procedures. Enter HELP DFU to be prompted for the DFU procedures. The following display appears:

```
                    DATA FILE UTILITY PROCEDURES

0 - Exit From DFU Processing

1 - ENTER Procedure, Creates a Data File

2 - INQUIRY Procedure, Displays a Data File

3 - LIST Procedure, Sorts/Prints a Data File

4 - UPDATE Procedure, Changes a Data File




ENTER NUMBER OF OPTION REQUIRED --->
```

The following parameters make up the DFU commands. Figure 6-4 shows each DFU command and its associated parameters.

If you omit the first or second parameter (filename or DFU format name) when initially keying any DFU command, DFU prompts for all the parameters associated with that command on a single display.

Command	Parameter 1	Parameter 2	Parameter 3	Parameter 4	Parameter 5	Parameter 6	Parameter 7	Parameter 8	Parameter 9	Parameter 10
DFU										
ENTER	Filename	DFU format name	RPG II source name	Number of records	File type	DFU source processing	DFU source name		User library	Display source name
UPDATE	Filename	DFU format name	RPG II source name	Number of records	File type	DFU source processing	DFU source name		User library	Display source name
INQUIRY	Filename	DFU format name	RPG II source name		File type	DFU source processing	DFU source name		User library	Display source name
LIST	Filename	DFU format name	RPG II source name	SORT/ NOSORT	File type	DFU source processing	DFU source name	Master file name	User library	

Figure 6-4. Command Statement Parameters

filename: This is the name of the file to be processed. DFU prompts for all parameters for the function on a single display if you omit it on the initial command. DFU prompts for the file name individually if omitted on the Command Parameters display.

DFU format name: This is the name of the format description (job processing information) to be used to process the data files. DFU prompts for all parameters for the function on a single display if you omit it on the initial command.

RPG II source name: This is the name of the source member containing RPG II specifications that describe the file to be processed. This parameter is required only if the DFU format description does not exist, and job setup must be invoked. It is prompted for in this situation.

number of records: When used with the ENTER command, this parameter specifies the maximum number of records you wish to enter in the file. DFU prompts for this parameter if you omit it on the initial ENTER command, or on the DFU Enter Command Parameters display. When used with the UPDATE command, this parameter specifies the number of records by which to extend a file when it is full. Values of zero or blank indicate no file extension. If your system is not configured with the Extended Disk Data Management (EDM), or if you are processing a sequential file, this parameter will be ignored for the UPDATE command.

SORT/NOSORT: This parameter indicates whether the file is to be sorted prior to listing. The default for this parameter is NOSORT.

file type: This indicates the type of file that DFU processes. It must be blank or D to indicate a data file.

DFU source processing: This two-character parameter is applicable if the format description does not exist and the job setup must be executed. It indicates whether the DFU source specifications for this job are saved already, or are to be saved when the job setup is completed.

DFU source name: This is the name of the source member that contains, or will contain, saved DFU specifications. This parameter is required only for job setup.

master file name: This is the name of the indexed file containing the master file information for the file to be listed (if needed). If required for the job, it must be entered on the initial List command or on the Command Parameters display. DFU will not prompt for the master file name individually.

user library: This is the name of an optional user library. All library members associated with the DFU job are looked for or stored in this library. If this parameter is not specified, DFU uses the system library.

display source name: This parameter is only valid when you are doing a job setup of enter, update, or inquiry. It indicates the name under which the display format source specifications that DFU generates are to be stored. If omitted on the initial command and on the Parameter Prompt display, DFU generates a name, and then removes the source member after the corresponding display load member has been created.

ENTER MODE AND UPDATE MODE

The ENTER and UPDATE commands are described together since the same functions are performed for both commands:

- Add new records to a file
- Change existing records in a file
- Delete existing records in a file

The only difference is that you sign on with the ENTER command when the file does not exist, and you sign on with the UPDATE command when the file exists.

Enter Mode

To create a new data file, key the word ENTER and press the Enter/Rec Adv key. DFU prompts for all the ENTER parameters as shown in Figure 6-5.

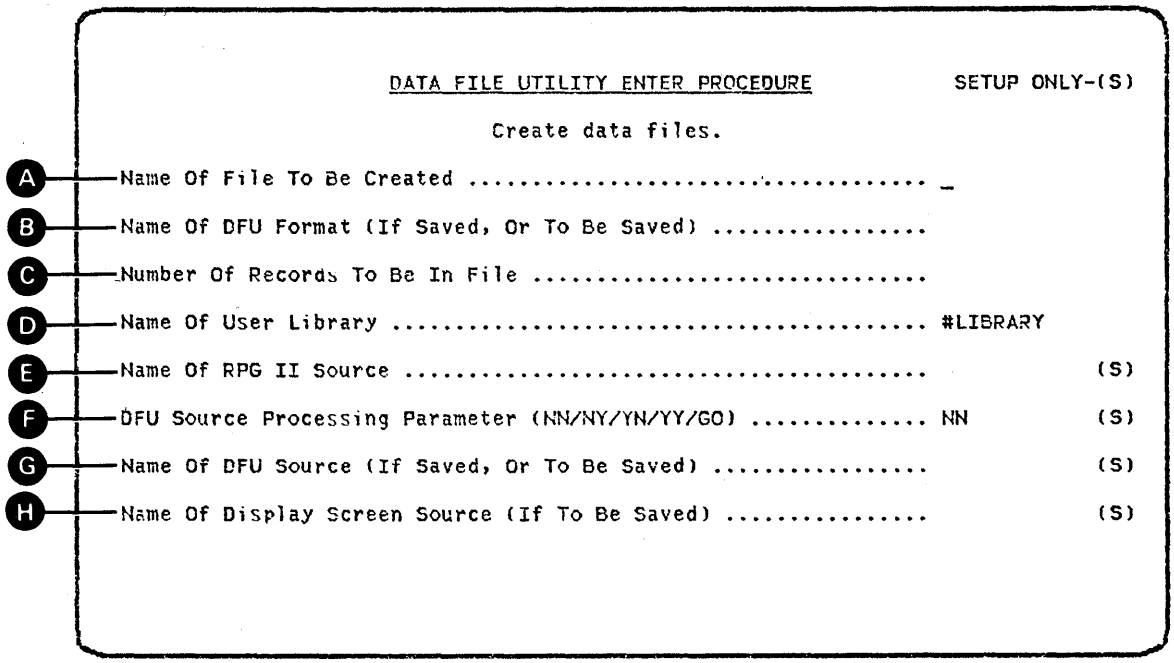


Figure 6-5. DFU ENTER Command Parameters

You should key responses to prompts A through D. These are required for ENTER execution. Respond to prompts E through H only if the job was not previously defined and saved. Press the Enter/Rec Adv key after all necessary prompts are complete.

A Specify the name of the file to be created. The filename can be up to eight characters long and must start with an alphabetic character. The filename must not duplicate an existing file.

B Specify the name of the format description that is used to enter the file. A null response indicates DFU is to create a default format, which is to be removed from the library at the end of the job; in this case, DFU enters the job setup prompting routine.

C Specify the total number of records that you expect to eventually be in the file, not just the number you expect to enter this session.

D Specify the name of the library that contains the DFU format member for the job. Note that DFU assumes your format is in the system library (#LIBRARY) if you do not enter a user library or if you enter blanks.

You can skip the preceding prompting sequence by initially keying in the complete command:

ENTER filename,DFU format name,, number of records,,,,,user library

Note: The user library parameter is required if the DFU format description is in a library other than the system library. If so, you must enter the command with the user library specified if you do not use DFU prompt screens; DFU does not prompt for this parameter if it is omitted.

A sample command for the enter function (if not using the display that prompts for all parameters) is:

```
ENTER SALESORD,ORDERFMT,,50
```

Update Mode

To update a data file, key the word UPDATE and press the Enter/Rec Adv key. DFU prompts as shown in Figure 6-6 for all the UPDATE parameters.

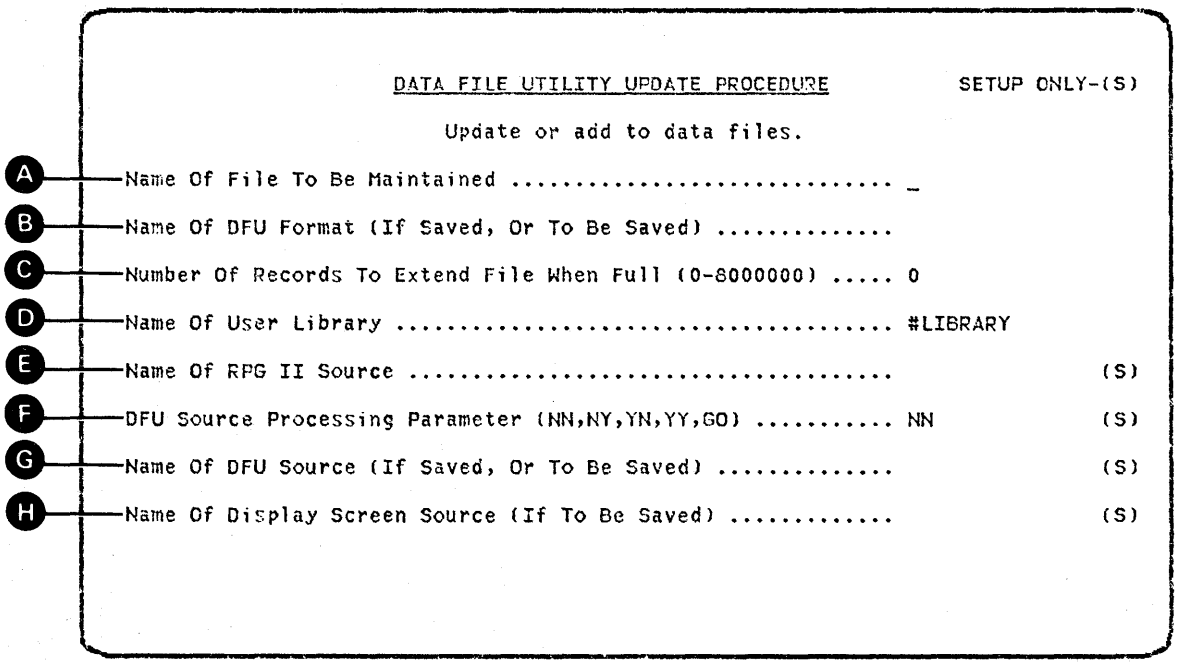


Figure 6-6. DFU UPDATE Command Parameters

You should key responses to prompts A through D. These are required for UPDATE execution. Respond to prompts E through H only if the job was not previously defined and saved. Press the Enter/Rec Adv key after all necessary responses are entered.

A Specify the name of the data file being updated. The file name must already exist.

B Specify the name of the format description that is used to update the file. A null response indicates DFU is to create a default format, which is to be removed from the library at the end of the job; in this case, DFU enters the job setup prompting routine.

C Specify the number of records to extend the file when it is full. Values of zero or blank indicate no file extension. If your system is not configured with Extended Disk Data Management (EDM), or if you are processing a sequential file, this parameter will be ignored.

D Specify the name of the library that contains the DFU format member for the job. Note that DFU assumes your format is in the system library (#LIBRARY) if you do not enter a user library or if you enter blanks.

You can skip the preceding prompting sequence by initially keying in the complete command:

UPDATE filename,DFU format name,,,,,,,user library

Note: When you key in the complete command, you must enter the user library parameter if the DFU format description is not in the system library. If you do not specify a library, DFU will not prompt you for this parameter.

A sample command for the update function (if not using the display that prompts for all parameters) is:

UPDATE SALESORD,ORDERFMT

After you have entered this information, a display similar to either Figure 6-7 or 6-8 appears. If you key in the ENTER command, a display similar to Figure 6-7 appears, allowing you to add records. If you key in the UPDATE command, a display similar to Figure 6-8 appears, allowing you to request existing records that you want to modify.

Figure 6-7 is an example of the ENTER command where DFU generates the record keys. If DFU is not generating record keys, periods will appear next to *KEY, and the cursor will be positioned at the first period.

Figure 6-8 is an example of the initial display for the UPDATE command. You can request a PART number to be updated, or press the ENTRY or INSERT command keys to add new records.

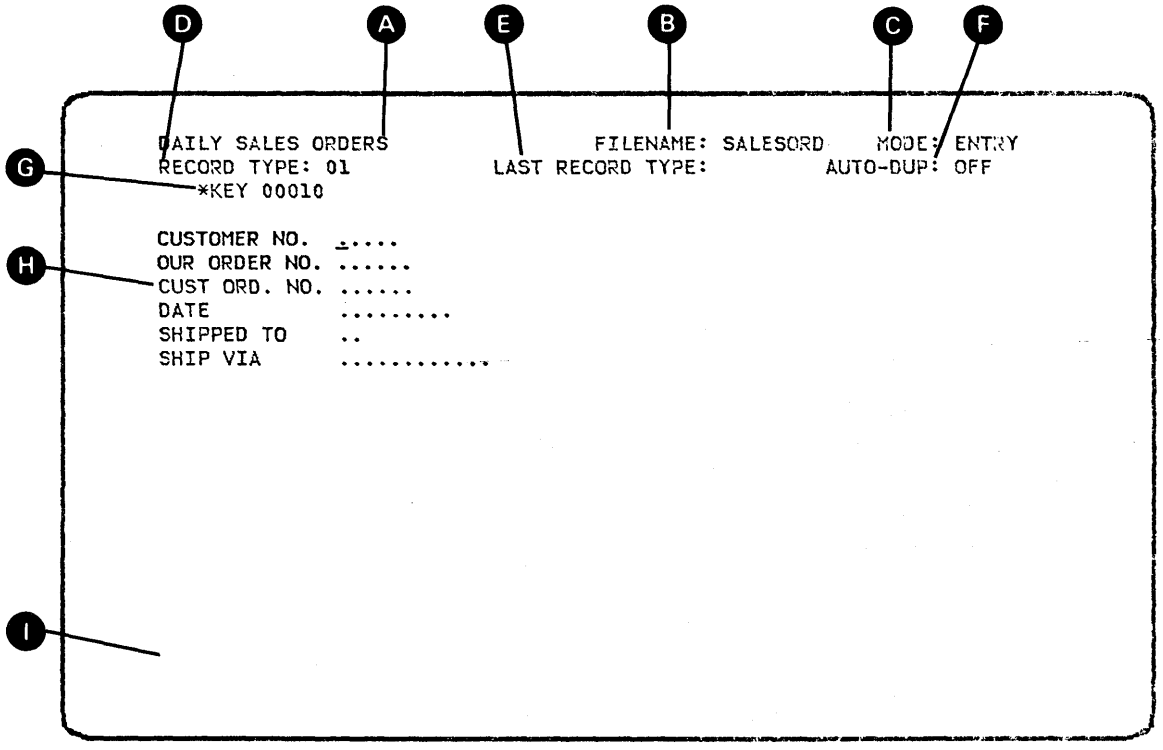


Figure 6-7. Initial ENTER Command Sample Display (DFU-Generated Keys)

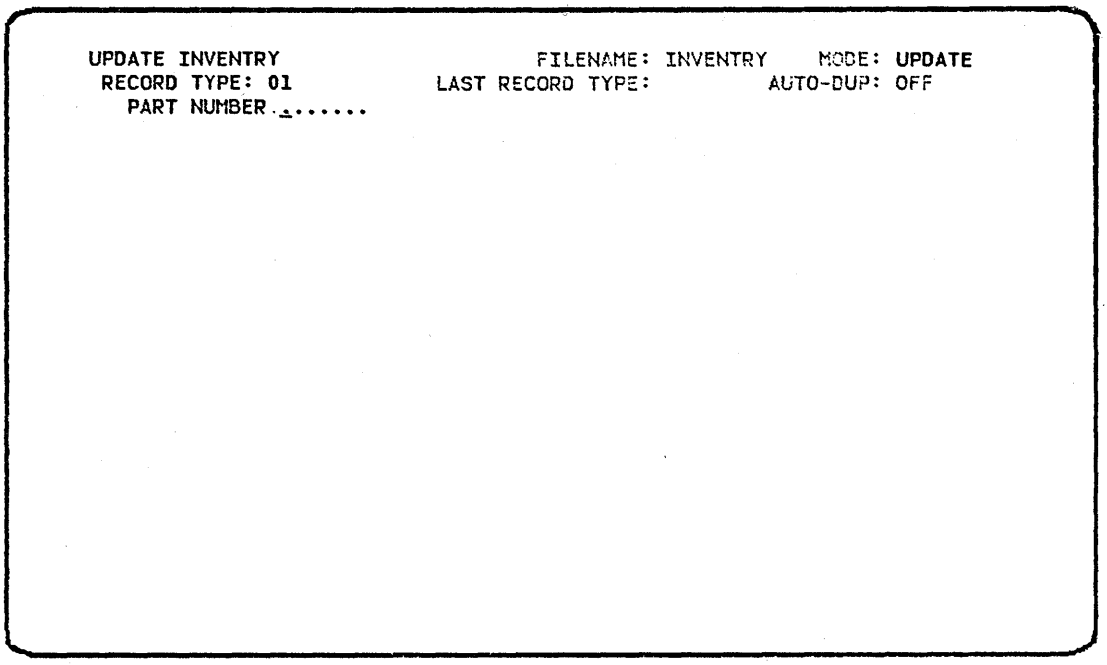


Figure 6-8. Initial UPDATE Command Sample Display

Enter/Update Display Format

The display format is similar within the enter/update functions. An explanation of the DFU display screen follows.

Status Information

Lines 1 and 2 of the display (Figure 6-7) contain the status information for the current enter/update DFU job. You cannot enter over this information except to change the current record type.

Ⓐ Title: The job title, which appears on any printout for this job.

Ⓑ FILENAME: The name of the file being processed.

Ⓒ MODE: ENTRY—A new record is being entered into a file.
UPDATE—An existing record is being altered.
INSERT—A record is being added between existing records in the file.

Ⓓ RECORD TYPE: What record type is being processed. You can change this value by entering a new value after positioning the cursor at this field. (Pressing the Select Format command function key positions the cursor here when automatic record sequencing is not being used.) This information is not displayed when a new record is being prompted for in update mode.

Ⓔ LAST RECORD TYPE: The type of the last record processed. If updating a record, this corresponds to the record type of the current record being updated. It is blank for the first record processed. It is also blank if a record is retrieved while in update mode, and DFU is unable to determine the record type.

(F) AUTO-DUP: This indicator is either ON or OFF to indicate whether auto-duplication is in effect or not. You can reverse the status of this field by pressing the Auto Dup command function key. When ON, fields specified as auto-duplication fields at job setup time are automatically inserted with the corresponding data from the previous record processed.

(G) Record Key or Record Number and Headings: This area contains the prompts and response areas for the record key or record number of the record to be processed. Each record to be processed is identified by a unique record key or record number. The record key consists of one to five fields. Beginning on line 3, the heading and data for each field that makes up the record key can be supplied to the data file. When using record numbers, the heading and data for the entire record number field are displayed on line 3. There are two ways in which record keys or record numbers can be supplied to the data file. You can supply them or DFU supplies them for you. This choice is made during job setup. In enter mode, if a value for the record key or record number is displayed, DFU is generating record keys or record numbers for you. If no value is shown for the record key or record number, you must specify the record key or record number.

Operator Specified Record Keys or Record Numbers: When you specify record keys or record numbers, the initial display prompts for (1) the key or number of the record to be processed, and (2) all of the fields for that record type that fit on the first display you enter. The record key or record number appears on any succeeding displays along with remaining field prompts required to complete the record; however, the record key or record number cannot be modified after the first display is entered.

DFU Generated Record Keys: When DFU generates the record keys, the initial display contains the first record key and prompts for the first set of fields for the record type indicated. DFU starts with a key value of 00010 when a file is created. When an existing file is being updated, DFU locates the highest record key and starts generating record keys at the next multiple of 10.

You can specify a new record key that is less than the next record key to be generated by pressing the Insert command function key to switch DFU to the insert mode. You can update existing records by pressing the Update command function key. To return to DFU generated record keys when in insert or update modes, you must press the Entry command function key.

Note: DFU suspends automatic record key generation if one of the following occurs:

- The record key to be generated is greater than 99990 (DFU's maximum generated number).

- A duplicate record key is encountered when DFU attempts to write a record for which it had generated the record key. In this case it is assumed that another operator is already having DFU generate record keys for this file.

In these cases, you can still process in entry, update or insert modes, but keys are no longer generated for you in entry mode.

DFU Generated Record Numbers: When DFU is generating the record numbers, the initial display contains the first record number and prompts for the first set of fields for the record type indicated. DFU starts with the record number of the first blank record in the file, and increments the record numbers by one for each successive record.

You can specify your own record number by pressing the Insert command function key to switch to insert mode. You can update existing records by pressing the Update command function key. To return to DFU generated record numbers when in insert or update modes, you must press the Entry command function key.

Note: DFU suspends record number generation if one of the following occurs:

- The record number to be generated is higher than the last record which can be in the file.
- The record number to be generated is too large for the record number field.
- The record number to be generated corresponds to a record that is not currently blank.

In these cases, you can still process in entry, insert, or update modes, but record numbers are no longer generated for you in entry mode.

H Data Fields and Headings: This area contains the prompts and response areas for the data in the current record. The data fields for a record follow the record key on the display. If a record requires more data than fits on the first display, additional displays appear to allow completion of the record. If space allows, a blank line is inserted by DFU to separate the data fields from the record key or record number on the display. New data to be entered is identified by periods on the display. If existing data is to be changed, the actual data appears on the display.

When a new display appears, the cursor is at the first field where you can enter data.

Numeric fields have one more position than the actual field size. This is the rightmost position in the field which contains the sign (blank or -). When processing alphanumeric data fields keyed by the operator, DFU replaces all trailing periods with blanks. For numeric fields, all periods are replaced with zeros. A Field Exit function control key is required to right-adjust and to zero-fill a numeric field.

I Errors. The last line of the display shows error messages. This line is blank until an error is detected; at which time the field, field heading, and error message are displayed and highlighted. The MIC (message identification code) is also displayed so you can easily look up the error in the *Displayed Messages Guide.*

Selecting a Record Type for Processing

When you are creating or changing records, and the current record type (RECORD TYPE) is not correct, you can request a new record type for processing in one of the following ways:

1. Field Backspace (⇤) to the RECORD TYPE status field, key in the record identifying indicator for the record type desired, and press the Field Exit key.

2. Press the Select Format command function key. This causes one of the following:

   - If in entry mode, and sequenced record types were defined at job setup, DFU automatically displays the record format of the next record type in the sequence; if there are no more record types in the sequence, the first sequenced record type is selected.

   - If in update or insert mode, or if sequenced record types are not defined for entry mode, the cursor is positioned at the RECORD TYPE field. Key the record identifying indicator for the record type desired, and press the Field Exit key.

   Note: If in entry mode with sequenced record types, and you wish a nonsequenced record type or a record type out of sequence, you must use step 1 to select the record type. After completing a record, the record type is reset to the last sequenced record type displayed.

Duplicating Data from a Previous Record

To eliminate the need for keying data that is repeated from the previous record, you can use one of the following methods for duplicating data:

1. Auto-duplication of data—fields that were specified as auto-duplication fields in the format description are duplicated from the previous record processed whenever the Auto-Dup indicator is ON; in this situation, the duplicated data is displayed and you can not key over it. Reverse the status of the Auto-Dup indicator (ON or OFF) by pressing the Auto Dup command function key. If all the fields on a screen are defined as auto-duplication fields and the Auto-Dup indicator is ON, the fields will be processed but the screen will not be displayed.

2. Duplication with the Dup function control key—you can indicate data is to be duplicated into a field from the previous record by pressing the Dup function control key; the characters $\overline{*}$ are placed in the positions to be duplicated for that field. This key is valid when:

   - The field being duplicated is a record key or a record number field.
   - The previous record is the same record type as the current record.
   - The previous record is a different record type than the current record, but the field to be duplicated is defined as an auto-duplication field and the Auto-Dup indicator is OFF.

   Note: For update mode, DFU does not duplicate data from the preceding statement. Instead, the DUP key ignores your update to that field and restores the field to its original state.

Displaying Batch Accumulators

After a record is complete, DFU updates the batch accumulator for any accumulator fields the record may contain. This update is as follows:

Entry or insert mode: Accumulators are added to the appropriate batch totals.

Update mode:

- If a record is deleted, accumulators are subtracted from the batch totals.
- If a deleted record is changed to nondeleted status (by changing the delete code), the accumulators are added to the batch totals.
- If a record is changed, changes to the accumulator fields are reflected in the batch totals.

Note: If you change the format (record type) of a record and update the resulting record, only the accumulators for that record type will be updated.

When the batch accumulators are updated, it is possible for the values to overflow their respective hold areas. The accumulator value before overflow is displayed and printed if a printer has been used for this job. The current values in these accumulators can be displayed at any time by pressing the Display Accum command function key; the values are printed if a printer has already been used for this job. The values in the batch accumulators are then added to the total accumulators (end of job total) and the batch accumulators reset to zero.

Entering a New Record

To enter data:

1. Check line 1 of the display to ensure you are in entry mode. If not, press the Entry command function key. When DFU returns to entry mode from any other mode, the record type is reset to the last record type processed in entry mode.

2. Check that the record type on the second line of the display is the same as the record type to be entered. If not, select the correct record type for processing (described earlier in this chapter).

3. Check the status of the Auto-Dup indicator. Use the Auto-Dup command function key to set the Auto-Dup indicator ON or OFF.

4. The heading on each line names the field to be keyed. Key the data for each field, including the record key or record number if DFU is not generating keys or record numbers. As each field is keyed, press one of the Field Exit function control keys to advance the cursor to the next field. When a Field Exit function control key is pressed after the last field on the display, the data is returned to DFU to be placed in the record. If you do not key data into the last data field in the display (or you cannot because of auto-duplication), press the Enter/Rec Adv key to return the data to DFU for processing.

5. If a record requires more displays, the next display now appears. Key data as in step 4, except you cannot alter the record key or record number. Repeat step 5 until all displays for the record type are keyed. If you wish to bypass remaining displays for the record, indicate the record is complete by pressing the Rec Adv command function key. In this case, auto-duplication of data will occur as applicable and packed numeric fields will be initialized to packed zero values in any succeeding displays for the record.

6. When the record is complete, it is written in the file and printed (if the print option was specified in the format description). Return to step 2 to enter the next record.

Updating an Existing Record

To change data in an existing data file proceed as follows:

1. If the mode displayed on line 1 of the display is not update, press the Update command function key.

2. Check the status of the Auto-Dup indicator. If you need to change data that is in an Auto-Dup field, the Auto-Dup indicator must be off. Use the Auto Dup command function key to set the Auto-Dup indicator ON or OFF.

3. Key the field or fields that make up the record key or record number of the record you want to alter. As each field is keyed, press one of the Field Exit function control keys to advance the cursor to the next field. When a Field Exit function control key is pressed after the last field on a display, the data is returned to DFU to retrieve the record. If you do not key data into the last data field on the display, press the Enter/Rec Adv key to return the data to DFU for processing.

4. DFU displays the data fields and associated headings. You can modify all fields except:

   - The record key or record number.

   - Auto-duplication fields, if the Auto-Dup indicator is ON. Turning the Auto-Dup indicator OFF allows you to modify these fields.

   To update a field in the record, press the [→|] (Field Advance) key until the cursor is positioned at the field to be updated. The data in each field bypassed with the Field Advance [→|] key remains unchanged. Update the field and press a Field Exit function control key to advance the cursor to the next field on the display. When a Field Exit function control key is pressed after the last displayed data field, the data is returned to DFU to be placed in the record. If you do not key data into the last data field on the display, press the Enter/Rec Adv key to return the data to DFU for updating the record. Repeat step 4 if the record requires more than one display. To bypass succeeding displays for the record, press the Rec Adv command function key. In this case, data in succeeding displays for the record will not be altered.

5. When the record is complete, it is written in the file and printed (if the print option was specified in the format description). Return to step 2 to enter the next record.

Deleting an Existing Record

The following instructions assume that you have entered a DFU ENTER or UPDATE command and are operating in entry, update, or insert mode. To delete a record in an existing data file proceed as follows:

1. If the mode displayed on line 1 of the display is not update, press the Update command function key.

2. Check the status of the Auto-Dup indicator. Use the Auto Dup command function key to set the Auto-Dup indicator ON or OFF.

3. Key the field or fields that make up the record key or record number of the record you want to delete. As each field is keyed, press one of the Field Exit function control keys to advance the cursor to the next field. When a Field Exit function control key is pressed after the last field on a display, the data is returned to DFU to retrieve the record to be deleted. If you do not key data into the last data field on the display, press the Enter/Rec Adv key to pass the record key or record number to DFU.

4. To delete the record displayed, press the Delete command function key. The record is marked for deletion and a RECORD DELETED message is printed along with the record if printing is specified. Return to step 2 to delete another record.

   Note: Deleted records are not physically removed until the ORGANIZE procedure is run against the file.

A message appears on the next display:

PREVIOUS RECORD PROCESSED WAS DELETED

Inserting a Record Between Existing Records

The following instructions assume that you have entered a DFU Enter/Update command and are operating in entry, update, or insert modes. To insert records in an existing data file proceed as follows:

1. Check line 1 of the display to ensure you are in insert mode. If not, press the Insert command function key. The record type will be set to that of the last valid record type to be displayed.

2. Check that the record type on the second line of the display is the same as the record type to be entered. If not, select the correct record type for processing (described earlier in this chapter).

3. Check the status of the Auto-Dup indicator. Use the Auto Dup command function key to set the Auto-Dup indicator ON or OFF.

4. The heading on each line names the field to be keyed. Key the data for each field, including the record key or record number. As each field is keyed, press one of the Field Exit function control keys to advance the cursor to the next field. When a Field Exit key is pressed after the last field on the display, the data is returned to DFU to be placed in the record. If you do not key data into the last data field in the display, press the Enter/Rec Adv key to return the data to DFU for processing.

5. If a record requires more displays, the next display now appears. Key data as in step 4, except you cannot alter the record key or record number. Repeat step 5 until all displays for the record type are keyed. If you wish to bypass remaining displays for the record, indicate the record is complete by pressing the Rec Adv command function key. In this case, auto-duplication of data will occur as applicable and packed numeric fields will be initialized to packed zero values in any succeeding displays for the record.

6. After the record is complete it is written in the file and printed (if the print option was specified in the format description). Return to step 2 to insert the next record.

Retrieving the Previous Record Processed

If you are starting a new record in entry, update, or insert mode, you can retrieve the previous record processed as follows:

1. Press the Rec Bksp command function key. This causes the mode to switch to update, and displays the last record processed.

2. Update or delete the record as specified in the *Updating an Existing Record* or *Deleting an Existing Record* section of this chapter. After completing the record, the mode returns to that exited when you pressed the Rec Bksp command function key.

Retrieving Records by Scrolling

If you are processing a file by record number in update mode, you can retrieve records for update or deletion with a scrolling technique.

1. Press the Roll ↑ (Roll Up) key to retrieve the next nonblank record in the file, or the Roll ↓ (Roll Down) key to retrieve the preceding nonblank record in the file. The scroll is from the last record processed, whether it was created, updated, or simply displayed for update.

2. Update or delete the record as specified under *Updating an Existing Record* or *Deleting an Existing Record.* After completing the record, you will be prompted for the record number of the next record to be processed.

Note: The scrolling capability is not available when you are currently reviewing the last record processed; that is, if you retrieved the record for update by pressing the Rec Bksp key.

The scrolling capability is available any other time you are in update mode; that is, during the prompt for the record number of the next record to be updated or during the display of the record (when the data fields and associated headings are displayed). Because the scroll involves reading records sequentially until a nonblank record is retrieved, the time required before the next record is displayed depends on the number of intervening blank records.

Terminating an Enter/Update Job

To end a job after you have completed processing (added, deleted, or updated records):

1. Press the EOJ command function key.

2. Retain the default (Y) supplied by the end-of-job display (Figure 6-9) and press the Enter/Rec Adv key.

3. If accumulators were specified for processing, the next display shown will be the batch accumulator display (Figure 6-10). After viewing this display, press the Enter/Rec Adv key.

4. The next display shown will be the total accumulator display (Figure 6-11). After viewing this display, press the Enter/Rec Adv key.

   Note: The batch and total accumulators are printed if printing has occurred during job processing.

5. The job processing is now completed.

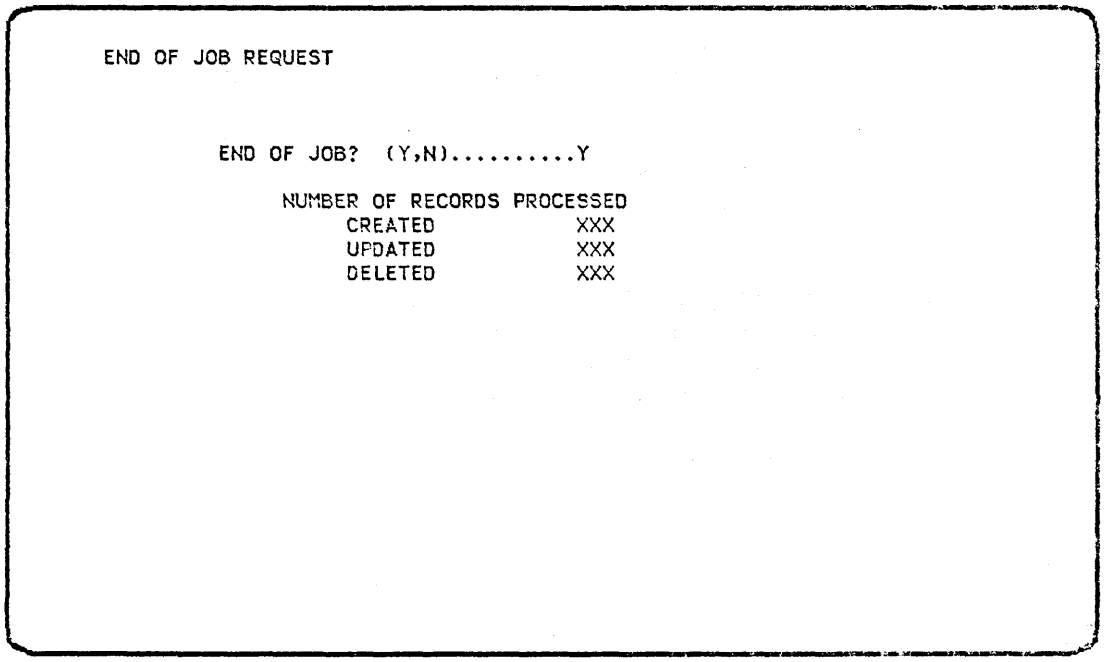


Figure 6-9. Enter/Update End of Job Display

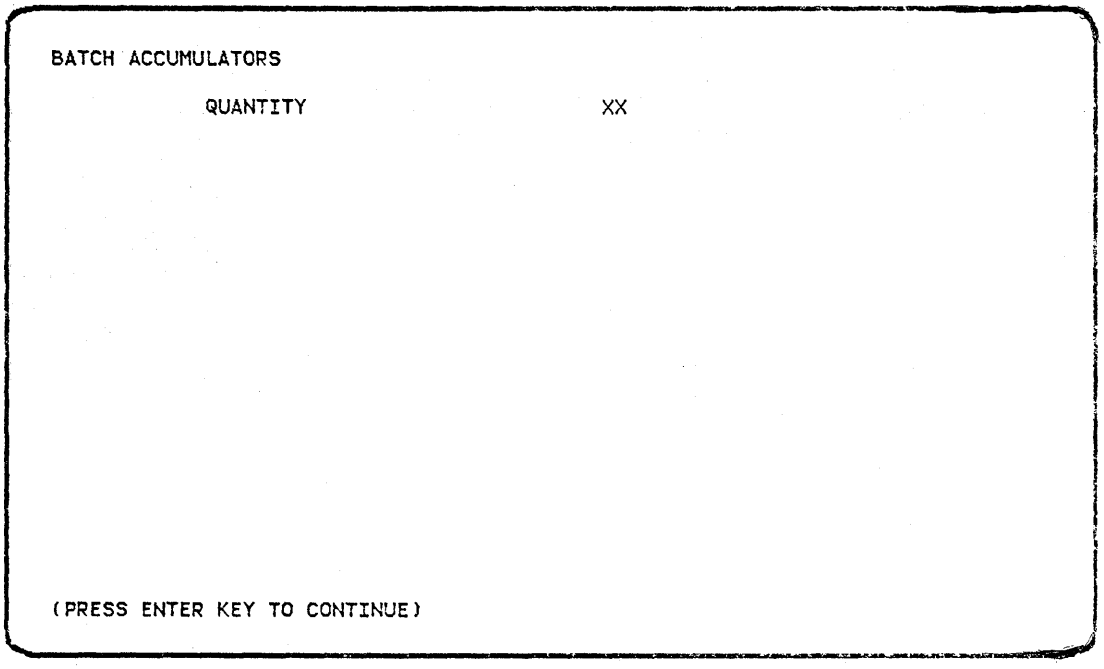


Figure 6-10. Enter/Update Batch Accumulator Display

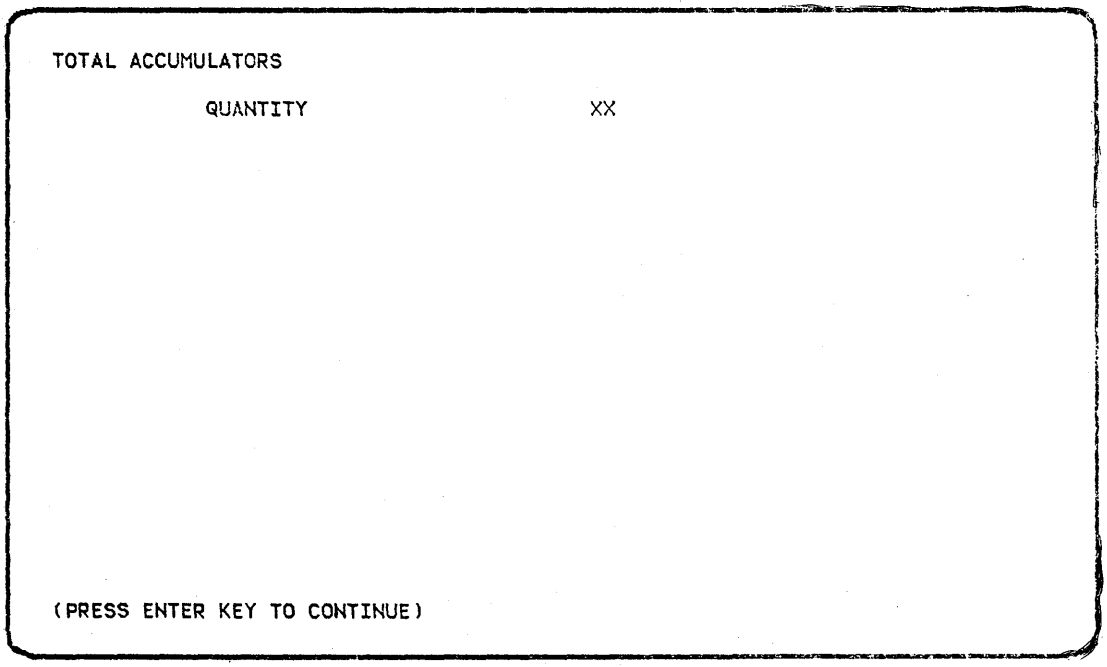


Figure 6-11. Enter/Update Total Accumulator Display

INQUIRY

To display records from a data file, key the word INQUIRY and press the Enter/Rec Adv key. DFU prompts as shown in Figure 6-12 for all the Inquiry parameters.

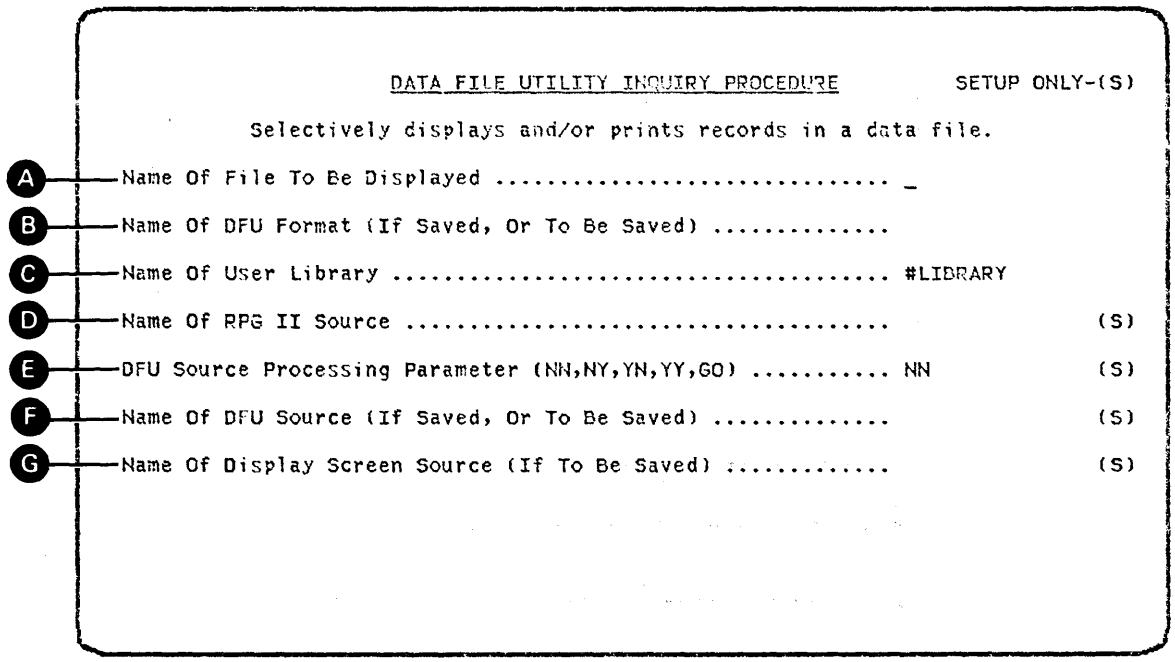


Figure 6-12. DFU Inquiry Command Parameters

You should key responses to prompts A, B, and C. These are required for Inquiry execution. Respond to prompts D through G only if the job was not previously defined and saved. Press the Enter/Rec Adv key after all necessary responses are entered.

A Specify the name of the file to be displayed. The file name must already exist.

B Specify the name of the format description that is used to display the file. A null response indicates DFU is to create a default format, which is to be removed from the library at the end of the job; in this case, DFU enters the job setup prompting routine.

C Specify the name of the library that contains the DFU format member for the job. Note that DFU assumes your format is in the system library (#LIBRARY) if you do not enter a user library or if you enter blanks.

You can skip the preceding prompting sequence by initially keying the complete command:

INQUIRY filename,DFU format name,,,,,,user library

Notes:

1. The user library parameter is required if the DFU format description is in a library other than the system library. If so you must enter the command with the user library specified if you do not use the DFU Inquiry Command Parameters display because DFU does not prompt for this parameter if it is omitted.
2. See *Command Parameters* earlier in this chapter for parameter descriptions.

A sample command (if not using the display that prompts for all parameters) for the inquiry function is:

INQUIRY SALESORD,ORDERFMT

After you key the INQUIRY command, the first record in the file is displayed on the screen (Figure 6-13).

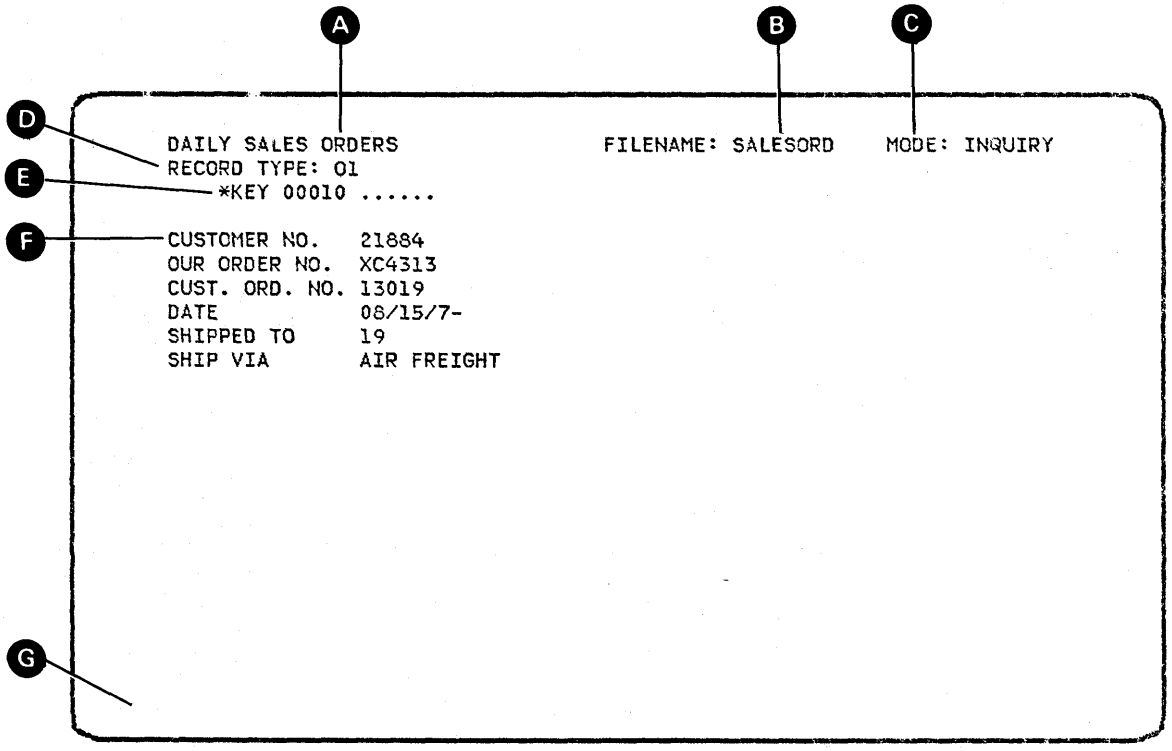


Figure 6-13. Inquiry Sample Display

Inquiry Display Format

The display format for inquiry is explained in the following paragraphs.

Status Information

Lines 1 and 2 of the display (Figure 6-13) contains the status information for the current DFU inquiry job. You cannot key over this information except to change the current record type.

Ⓐ Title: This is the job title which appears on any printout for this job.

Ⓑ FILENAME: This is the name of the file being processed.

Ⓒ MODE: INQUIRY—Displaying and printing operator selected records.

Ⓓ RECORD TYPE: This shows what record type is being processed. You can change this value by keying a new value after positioning the cursor at this field. (Pressing the Select Format command function key positions the cursor here).

Ⓔ Record Key or Record Number and Headings: When processing by record key, this area identifies the key of the current record being displayed, and prompts for the key of the next record to be displayed. The record key consists of one to five fields. Beginning on line 3, the headings and data for each field that makes up the record key (one field per line) are displayed. Each line of the record key contains:

- Key field heading to identify the field displayed.
- Current record key field to show the key of the record currently on display.
- Next record key field to prompt for the key of the next record to be displayed.

When processing by record number, line 3 contains the record number heading, the record number of the current record on display, and a space (next record number field) where you can enter the record number of the next record desired. The cursor is positioned at this record number request area.

Ⓕ Data Field and Headings: This area displays the data for the current record. If a record requires more data than fits on the first display, additional displays appear to allow completion of the record. If space allows, a blank line is inserted by DFU to separate the data fields from the record key or record number on the display.

Ⓖ Errors: The last line of the display shows error messages. This line is blank until an error is detected; at which time the field, field heading, and error message is displayed and highlighted. The MIC (message identification code) is also displayed so you can easily look up the error in the *Displayed Messages Guide.*

Selecting Records to be Displayed

There are three ways in which you can display a record while in Inquiry:

1. Key over the periods in the next record key or the record number area to request the next record you want displayed. As each field is keyed, press a Field Exit function control key to advance the cursor to the next field. When a Field Exit function control key is pressed after the last field, the data is returned to DFU to retrieve the record. If you do not key data into the last field on the display, press the Enter/Rec Adv key to pass the data to DFU.

   Note: When processing by record key, if a key field in the next record to be displayed is the same as the key field currently displayed, press the Dup function control key to duplicate that data. The $\overline{*}$ characters will appear when the key is pressed, and DFU replaces these characters with the corresponding data when the record is retrieved.

2. Press the Roll↑ (roll up) key to display succeeding records. For indexed files, if a record key has been entered in the record key response area, DFU displays the next record key value with a key value equal to or greater than the record key value entered; if this key is higher than the last key in the file, the last record is displayed. For direct or sequential files, DFU displays the next non-blank record with a record number equal to or greater than the record number entered; if this record number is beyond the last non-blank record in the file or beyond the end of the file, the last non-blank record is displayed. When scrolling from a specified record number in direct or sequential files, you should specify a record number as close to a non-blank record as possible for performance reasons. If no record key or number is entered in the response area, DFU displays the next record relative to the currently displayed record.

3. Press the Roll↓ (roll down) key to display preceding records. When processing by record key, the preceding record in key sequence is displayed. When processing by record number, the preceding nonblank record is displayed.

When a record is retrieved that has more data than fits on a single display, you can view the subsequent displays of the record by pressing the Enter/Rec Adv key without keying any data.

Note: If a field of the record key or the record number field is numeric, you need enter only the rightmost digits and press a Field Exit function control key. The field is automatically right-justified and leading zeros are inserted before the record is displayed.

Printing Records from Display

To print a record when it is displayed on the screen, press the Print Rec command function key and the record will be printed for you.

Terminating an Inquiry Job

To end a job after you have inquired into a file:

1. Press the EOJ command function key.
2. Retain the default (Y) supplied by the end-of-job display (Figure 6-14), and press the Enter/Rec Adv key.
3. The job processing is now completed.

```
END OF JOB REQUEST

        END OF JOB? (Y,N).........Y
```

Figure 6-14. Inquiry End of Job Display

LIST

To list records from a data file, key the word LIST and press the Enter/Rec Adv key. DFU prompts as shown in Figure 6-15 for all the LIST parameters.

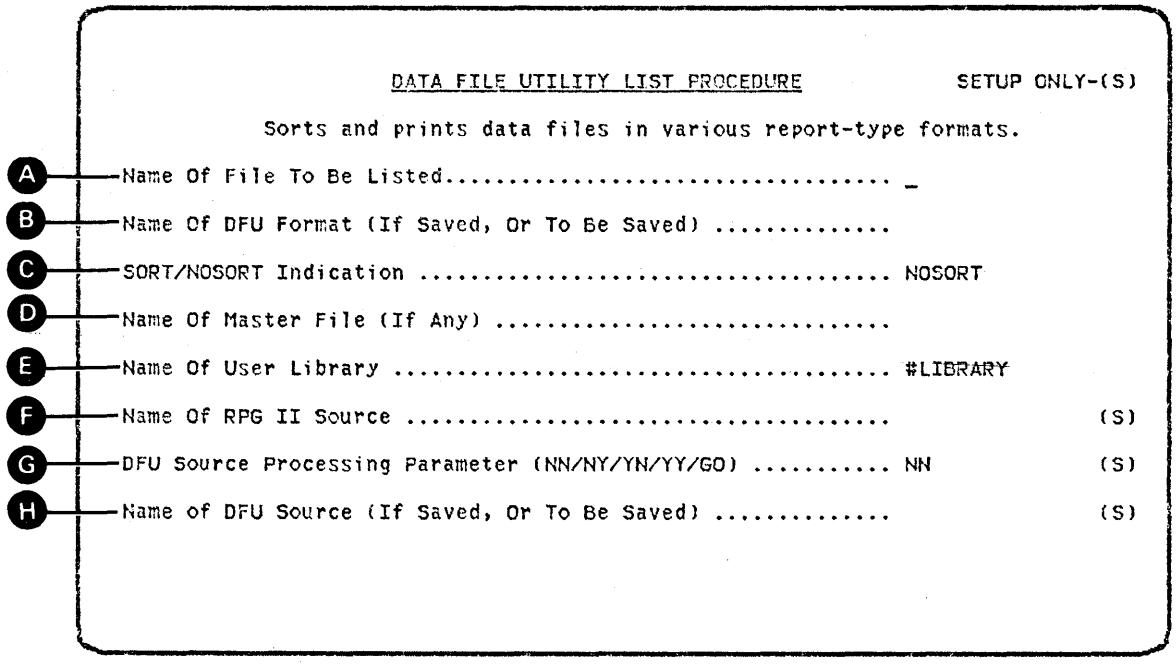


Figure 6-15. DFU LIST Command Parameters

You should key responses to prompts A through E. These are required for list execution. Respond to prompts F, G, and H only if the job was not previously defined and saved. Press the Enter/Rec Adv key after all necessary prompts are completed.

A Specify the name of the file to be listed. The file named must already exist.

B Specify the name of the format description that is used to display the file. A null response indicates DFU is to create a default format, which is to be removed from the library at the end of the job. In this case, DFU enters the job setup prompting routine.

C Specify whether or not the data file is to be sorted prior to listing. Note that DFU assumes the file will not be sorted (NOSORT) if you do not change the displayed default to SORT.

D Specify the name of the related master file associated with this list. Leave this entry blank if there is no master file.

E Specify the name of the library that contains the DFU format member for the job. Note that DFU assumes your format is in the system library (#LIBRARY) if you do not enter a user library or if you enter blanks.

You can skip the preceding prompting sequence by initially keying the complete command:

LIST filename,DFU format name,,SORT,,,,master file,user library

Notes:

1. The user library parameter is required if the DFU format description is in a library other than the system library. If so, you must enter the command with the user library specified if not using the DFU Prompt display because DFU does not prompt for this parameter if it is omitted.
2. The master file parameter is required if the DFU format description specifies that a master file be used by DFU during job execution. If so, you must enter the command with the master file specified if not using the DFU Prompt display because DFU does not prompt for this parameter if it is omitted.

After you have entered the LIST command, the message:

YOUR DATA FILE IS NOW BEING SORTED

appears momentarily on the screen if you have requested that your data file be sorted. The message:

YOUR DATA FILE IS NOW BEING LISTED

will then appear on the screen until the job is complete.

Note: See *Command Parameters* earlier in this chapter for parameter descriptions.

A sample command for the list function (if not using the display that prompts for all parameters) is:

LIST SALESORD,ORDERFMT,,SORT

Chapter 7. How to Operate SEU

The source entry utility (SEU) allows you to enter and maintain source and procedure members in the system or user library. With the ideographic version of the SSP, SEU allows ideographic characters to be entered in source statements of those languages and utilities that provide ideographic support. There are six modes of SEU operation:

- *Enter/Update* allows new statements to be entered or existing ones to be modified.
- *Delete* allows selected statements to be deleted from an existing member.
- *Move/Copy* allows statements to be moved or copied to a new location in a member. The move mode copies statements to the new location while deleting them from their original location. The copy mode allows statements to be copied to a new location while leaving the statement in the original location.
- *Include* copies to the member any statements that exist in a library.
- *Scan* searches a member for a statement that contains a given sequence of characters. Once you are in the scan mode, *Scan to Update* allows you to update the statement by displaying it in the enter/update mode. A *Scan and Replace* option allows you to replace a string of characters within a record.
- *Message Translate Aid* allows you to create a message source member that contains two languages for each message.

HOW TO SIGN ON

You sign on SEU by entering the SEU command. You can use the HELP procedure to enter the SEU command. Enter HELP SEU to be prompted for the SEU command parameters. The format of the SEU command is:

```
                  { A }
                  { R }
                  { S }
SEU  member name, { F } , [ #SE@XTRA          ] , [statement length] ,
                  { W }   [ format member name ]
                  { P }
                  { T }

  [ library name ]
  [ #LIBRARY     ]
```

member name: The name of the member you are going to create or change. If you do not enter this parameter, the SEU Command Prompts display appears. If the name identifies an existing member in the specified library (library name parameter), SEU assumes that the member is to be changed. If the name does not identify an existing member, SEU assumes that the member is to be created.

member type: The type of contents of the member to be created or changed. If this parameter is not entered, the SEU Command Prompts display appears.

Type	Contents of Member
A	Auto report specifications (syntax checking available)
R	RPG II specifications (syntax checking available)
S	Source statements such as RPG II or auto report specifications, sort sequence specifications, work station utility specifications, display screen format specifications, or statements for a message source member (syntax checking not available)
F	SFGR formats selected by SEU to match the statement being processed
W	WSU (work station utility) formats selected by SEU to match the statement being processed
P	Procedure
T	Message translate function to process a message source member

format member name: The name of a load member containing display screen formats that this job uses in addition to the formats in #SE@FORM. #SE@FORM contains many of the display screen formats supplied with SEU. For a list of the display screen formats supplied with SEU, see *SEU Display Screen Formats* later in this chapter. The SEU supplied display screen formats that are in the member #SE@XTRA are used by default if this parameter is not entered. (#SE@FORM or #SE@FMT must not be entered as the format member name.)

If a user member name is entered, the formats in #SE@XTRA will not be available for that session. However, the formats in #SE@FORM will be available for that session.

If you enter a format member name, the system searches the active user library for the member if an active user library exists. If the member is not found in the active user library, or if an active user library does not exist, the system searches the system library (#LIBRARY). If the member is not found in the active user library or in the system library, SEU displays an error message.

Load members required for execution that have names beginning with #SE must all reside in either the active user library or in #LIBRARY. Load members that contain formats (#SE@FORM, #SE@XTRA, or a user format member) required by an SEU job can reside either in the active user library or in the system library or in both. If format members reside in both, then SEU will use the member residing in the active user library. In order to use the member in #LIBRARY, a user library should not be specified when signing on to the display station.

statement length: The length of the statements to be entered or changed. If you do not enter a length or if you enter an invalid length, SEU supplies a default length.

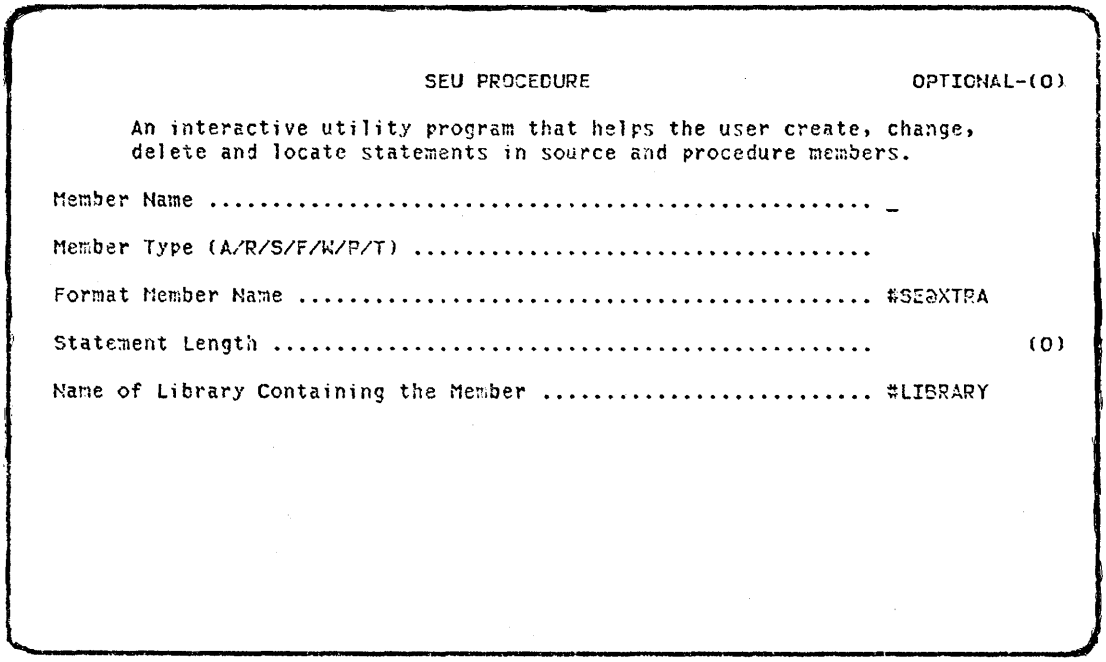
Member Type	Valid Statement Length	Default Length
A	80-96[1]	96
R	80-96[1]	96
S	40-120[1]	96
F	40-120[1]	96
W	40-120[1]	96
P	40-120[1]	120
T	40-120	80

[1] If the actual statement length of a member is 80 characters, but a statement length of 96 is specified in the SEU command, SEU automatically changes the statement length of the member from 80 to 96. If the actual statement length of a member is greater than specified in the SEU command, SEU displays an error message. When signing on to an existing member, SEU will default to the existing statement length if no length is specified.

library name: The name of the library that contains the member you are going to change, or the name of the library that will contain the member you are going to create. If the library is not found, SEU displays an error message. If you do not enter a name, SEU assumes the name to be #LIBRARY, the name of the system library.

If you do not enter both the member name and the member type, the SEU Command Prompts display appears. Any parameters that were keyed on the initial command appear to the right of the corresponding prompts on this display. The default value of #LIBRARY appears if no library name is entered. If you enter blanks for the library, #LIBRARY is assumed. Any parameters displayed can be changed before the information is entered into the system.

A sample SEU Command Prompts display is shown below:

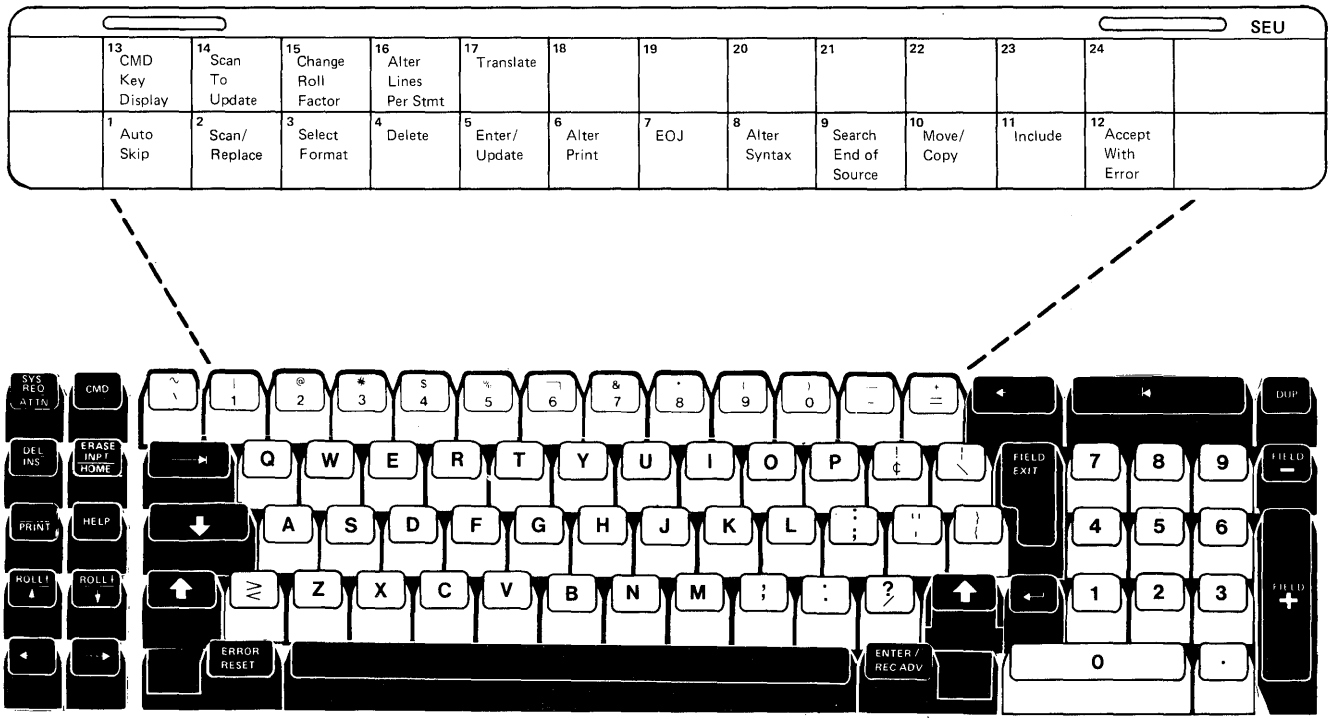


Following is an example of a command statement. Assume that (1) you want to create a procedure member named PROCM, (2) the display screen formats created especially for this kind of job reside in the member named MRTFORM, (3) the statement length for the procedure member is 96, and (4) the new procedure member will reside in the library named USERLIB2. The SEU command you would enter to begin an SEU job to create PROCM is:

```
SEU PROCM,P,MRTFORM,96,USERLIB2
```

COMMAND FUNCTION KEYS AND TEMPLATE

SEU assigns 17 command function keys, including one command function key that displays the position and purpose of all of the SEU command function keys. A keyboard template, GX21-7660, is also available to identify the name and position of each SEU command function key.



Throughout this chapter you will find the terms *key* and *enter*. *Key* means only to press one of the keyboard data keys—those keys that are like the keys on a typewriter—to display data on the display screen, whether the data is for a statement or is a response to a prompt. *Enter* means to press the Enter/Rec Adv key to cause SEU to store data displayed on the display screen, to accept one or more of the responses you have keyed, or to proceed to the next step in the current mode of operation.

Figures 7-1 through 7-14 summarize the SEU command function keys and the function control keys for each SEU mode.

Key	Command Function Key	When Prompted with ENTER/UPDATE STATEMENT NUMBER	When Statement Is Being Entered or Updated
1	Auto Skip	Reverses status of auto skip option and auto skip indicator.	
2	Scan/Replace	Changes mode to scan mode.	Ignores data keyed for displayed statement and changes mode to scan mode.
			The Scan key is invalid if no statements exist in the member.
3	Select Format	Allows you to select a different display screen format.	
4	Delete	Changes mode to delete mode.	Ignores data keyed for displayed statement and changes mode to delete mode.
			The Delete key is invalid if no statements exist in the member.
5	Enter/Update	Repeats prompt ENTER/UPDATE STATEMENT NUMBER.	Ignores data keyed for displayed statement and repeats prompt ENTER/UPDATE STATEMENT NUMBER.
6	Alter Print	Reverses status of print option and print indicator.	
7	EOJ	Displays end-of-job options.	
8	Alter Syntax	Reverses status of syntax checking option and syntax checking indicator.	
9	Search End Of Source	Displays last statement in member.	Ignores data keyed for displayed statement and displays last statement in member.
			The Search End Of Source key is invalid if no statements exist in the member.
0	Move/Copy	Changes mode to move/copy mode.	Ignores data keyed for displayed statement and changes mode to move/copy mode.
			The Move/Copy key is invalid if no statements exist in the member.
-	Include	Changes mode to include mode.	Ignores data keyed for displayed statement and changes mode to include mode.
=	Accept With Error	Not allowed.	Allowed only if syntax checking option is on and error exists in an RPG II or auto report statement. Places statement with error into member.
!	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.	

Figure 7-1 (Part 1 of 2). Command Function Key Summary for Enter/Update Mode

Key	Command Function Key	When Prompted with ENTER/UPDATE STATEMENT NUMBER	When Statement Is Being Entered or Updated
@	Scan To Update	Scans for a statement and displays it in the enter/update mode. Changes mode to scan if no statement is found or an error occurs.	
			Invalid if no statements exist in the member.
*	Change Roll Factor	Allows you to change the roll factor.	Not allowed.
$	Alter Lines Per Stmt	Changes the number of lines reserved for the display of each statement.	Not allowed.
%	Translate	Changes mode to translate mode when T is entered as the member type. Allows you to enter the translation of a new or existing message.	Ignores data keyed for displayed statement and changes mode to translate mode. The translate key is invalid if no statements exist in the member. Changes mode to translate mode when T is entered as the member type.

Figure 7-1 (Part 2 of 2). Command Function Key Summary for Enter/Update Mode

Key	Function Control Key	When Prompted with ENTER/UPDATE STATEMENT NUMBER	When Statement Is Being Entered or Updated
ENTER / REC ADV	Enter/Rec Adv	Indicates that you have finished keying a response. Causes SEU to display the selected statement.	Causes the displayed statement to be placed in the member.
ERASE INPT HOME	Home	Cursor is moved to the first cursor position as defined by the current display screen format.	When cursor is in first position for a statement, displays preceding statement. Cursor is positioned at first position where operator can enter data.
DUP	Dup	Not allowed.	Fills a field or part of a field with data copied from corresponding positions in another statement. If a new statement is being entered, the data is copied from the preceding statement; if an existing statement is being updated, data is copied from the original statement.
ROLL ↑	Roll↑	Displays next statements as determined by the roll factor and redisplays the enter/update prompt.	Ignores data keyed for the displayed statement, displays next statements as determined by the roll factor, and redisplays the enter/update prompt. The Roll↑ key is invalid if no statements exist in the member.
ROLL ↓	Roll↓	Displays preceding statements as determined by the roll factor and redisplays the enter/update prompt.	Ignores data keyed for the displayed statement, displays preceding statements as determined by the roll factor, and redisplays the enter/update prompt. The Roll↓ key is invalid if no statements exist in the member.

Figure 7-2 (Part 1 of 2). Function Control Key Summary for Enter/Update Mode

Field Exit Function Control Keys		
	Alphameric Field Not Right Adjust	**Alphameric Right Adjust Field or Numeric Field**
Filled	Cursor automatically advances to next field	Press: → (Cursor Right), →| (Field Advance), Field Exit, or Field +
Partially Filled	Press: → (Cursor Right), →| (Field Advance), Field Exit[1], or Field +[1]	To right-adjust, press: Field Exit or Field + No right-adjust[2], press: → (Cursor Right) or →| (Field Advance)

[1] The Field Exit and Field + keys are destructive exit keys for alphameric fields that are not right-adjust fields. That is, the field positions skipped by the cursor when the Field Exit or Field + key is pressed are set to blanks if the field is not defined as a right-adjust field.

[2] A partially filled numeric field is not right-adjusted and padded to the left with blanks. The unchanged positions of the field retain the values they had before the operator keyed new data into part of the field.

Figure 7-2 (Part 2 of 2). Function Control Key Summary for Enter/Update Mode

Key	Command Function Key	When Prompted with DELETING STATEMENT NUMBER and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Deleted
1	Auto Skip	Not allowed.	
2	Scan/Replace	Changes mode to scan mode. No statements are deleted.	
3	Select Format	Not allowed.	
4	Delete	Repeats prompts DELETING STATEMENT NUMBER and ENDING STATEMENT NUMBER. No statements are deleted.	
5	Enter/Update	Changes mode to enter/update mode. No statements are deleted.	
6	Alter Print	Reverses status of print option and print indicator.	
7	EOJ	Displays end-of-job options.	
8	Alter Syntax	Not allowed.	
9	Search End Of Source	Displays last statement in member.	Displays last statement in member and repeats prompt ENDING STATEMENT NUMBER. No statements are deleted.
0	Move/Copy	Changes mode to move/copy mode. No statements are deleted.	
-	Include	Changes mode to include mode. No statements are deleted.	
=	Accept With Error	Not allowed.	
!	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.	
@	Scan To Update	Not allowed.	
*	Change Roll Factor	Allows you to change the roll factor.	
$	Alter Lines Per Stmt	Changes the number of lines reserved for the display of each statement.	
%	Translate	Changes mode to translate mode when T is entered as the member type. No statements are deleted.	

Figure 7-3. Command Function Key Summary for Delete Mode

Key	Function Control Key	When Prompted with DELETING STATEMENT NUMBER and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Deleted
ENTER / REC ADV	Enter/Rec Adv	Indicates that you have finished keying one or both of the responses.	Causes the selected statement(s) to be deleted.
ERASE INPT HOME	Home	Not allowed.	
DUP	Dup	Not allowed.	
ROLL↑	Roll↑	Displays next statements as determined by the roll factor. Redisplays the delete prompts and the responses keyed.	Displays next statements as determined by the roll factor, redisplays the delete prompts, displays the first response if it was entered, and blanks the response to ENDING STATEMENT NUMBER if it was entered.
ROLL↓	Roll↓	Displays preceding statements as determined by the roll factor. Redisplays the delete prompts and the responses keyed.	Displays the preceding statements as determined by the roll factor, redisplays the delete prompts, displays the first response if it was entered, and blanks the response to ENDING STATEMENT NUMBER if it was entered.

Figure 7-4. Function Control Key Summary for Delete Mode

Key	Command Function Key	When Prompted with REPLACE CHARACTERS, NUMBER OF REPLACE CHARACTERS, SINGLE COLUMN SCAN, END OF REPLACE AREA, and LAST STATEMENT NUMBER
1	Auto Skip	Not allowed.
2	Scan/Replace	Repeats scan prompts.
3	Select Format	Not allowed.
4	Delete	Changes mode to delete mode.
5	Enter/Update	Changes mode to enter/update mode.
6	Alter Print	Reverses status of print option and print indicator.
7	EOJ	Displays end-of-job options.
8	Alter Syntax	Not allowed.
9	Search End Of Source	Displays last statement in member and redisplays the replace prompts and responses.
0	Move/Copy	Changes mode to move/copy mode.
-	Include	Changes mode to include mode.
=	Accept With Error	Not allowed.
!	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.
@	Scan To Update	Not allowed.
*	Change Roll Factor	Allows you to change the roll factor.
$	Alter Lines Per Stmt	Changes the number of lines reserved for the display of each statement.
%	Translate	Changes mode to translate mode if member type is T.

Figure 7-5. Command Function Key Summary for Replace Mode

Key	Function Control Key	When Prompted with REPLACE CHARACTERS, NUMBER OF REPLACE CHARACTERS, SINGLE COLUMN SCAN, END OF REPLACE AREA, and LAST STATEMENT NUMBER
ENTER / REC ADV	Enter/Rec Adv	Indicates that you have keyed at least a response to the REPLACE CHARACTERS or the NUMBER OF REPLACE CHARACTERS prompt and that you want the scan and replace to begin.
ERASE INPT HOME	Home	Not allowed.
DUP	Dup	Not allowed.
ROLL↑	Roll↑	Displays next statements as determined by the roll factor, redisplays the scan prompts, and displays any responses that were entered.
ROLL↓	Roll↓	Displays the preceding statements as determined by the roll factor, redisplays the replace prompts, and displays any responses that were entered.

Figure 7-6. Function Control Key Summary for Replace Mode

Key	Command Function Key	When Prompted with MOVE/COPY TO STATEMENT NUMBER, MOVE/COPY FROM STATEMENT NUMBER, and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Moved
1	Auto Skip	Not allowed.	
2	Scan/Replace	Changes mode to scan mode. No statements are moved/copied.	
3	Select Format	Not allowed.	
4	Delete	Changes mode to delete mode. No statements are moved/copied.	
5	Enter/Update	Changes mode to enter/update mode. No statements are moved/copied.	
6	Alter Print	Reverses status of print option and print indicator.	
7	EOJ	Displays end-of-job options.	
8	Alter Syntax	Not allowed.	
9	Search End Of Source	Displays last statement in member.	Displays last statement in member and repeats last prompt. No statements are moved.
0	Move/Copy	Repeats prompt MOVE/COPY TO STATEMENT NUMBER. No statements are moved.	
-	Include	Changes mode to include mode. No statements are moved/copied.	
=	Accept With Error	Not allowed.	
!	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.	
@	Scan To Update	Not allowed.	
#	Change Roll Factor	Allows you to change the roll factor.	
$	Alter Lines Per Stmt	Changes the number of lines reserved for the display of each statement.	
%	Translate	Changes mode to translate mode when T is entered as the member type. No statements are moved/copied.	

Figure 7-7. Command Function Key Summary for Move/Copy Mode

Key	Function Control Key	When Prompted with MOVE/COPY TO STATEMENT NUMBER, MOVE/COPY FROM STATEMENT NUMBER, and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Moved/Copied
ENTER / REC ADV	Enter/Rec Adv	Indicates that you have finished keying one or more of the responses.	Causes the selected statement(s) to be moved and the original statement number(s) to be deleted, or the selected statements to be copied and the original statements remain.
ERASE INPT HOME	Home	Not allowed.	
DUP	Dup	Not allowed.	
ROLL↑	Roll↑	Displays next statements as determined by the roll factor. Redisplays the move/copy prompts and the responses keyed.	Displays next statements as determined by the roll factor, redisplays the move/copy prompts, displays any responses that were entered, and blanks the response to ENDING STATEMENT NUMBER if it was entered.
ROLL↓	Roll↓	Displays preceding statements as determined by the roll factor. Redisplays the move/copy prompts and the responses keyed.	Displays preceding statements as determined by the roll factor, redisplays the move/copy prompts, displays any responses that were entered, and blanks the response to ENDING STATEMENT NUMBER if it was entered.

Figure 7-8. Function Control Key Summary for Move/Copy Mode

Key	Command Function Key	When Prompted with INCLUDE LIBRARY NAME, INCLUDE MEMBER NAME, or INCLUDING AT STATEMENT NUMBER	When Prompted with INCLUDING FROM STATEMENT NUMBER and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Included
1	Auto Skip	Not allowed.		
2	Scan/Replace	Changes mode to scan mode. No statements are included. The Scan key is invalid if no statements exist in the member.		
3	Select Format	Not allowed.		
4	Delete	Changes mode to delete mode. No statements are included. The Delete key is invalid if no statements exist in the member.		
5	Enter/Update	Changes mode to enter/update mode. No statements are included.		
6	Alter Print	Reverses status or print option and print indicator.		
7	EOJ	Displays end-of-job options.		
8	Alter Syntax	Not allowed.		
9	Search End Of Source	Displays last statement in signed-on member. The Search End of Source key is invalid if no statements exist in the member.	Displays last statement in include member.	Displays last statement in include member and repeats last prompt. No statements are included.
0	Move/Copy	Changes mode to move/copy mode. No statements are included. The Move/Copy key is invalid if no statements exist in the member.		
-	Include	Repeats prompt INCLUDE LIBRARY NAME.	Repeats prompt INCLUDING AT STATEMENT NUMBER. No statements are included.	
=	Accept With Error	Not allowed.		

Figure 7-9 (Part 1 of 2). Command Function Key Summary for Include Mode

Key	Command Function Key	When Prompted with INCLUDE LIBRARY NAME, INCLUDE MEMBER NAME, or INCLUDING AT STATEMENT NUMBER	When Prompted with INCLUDING FROM STATEMENT NUMBER and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Included
( )	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.		
@	Scan To Update	Not allowed.		
*	Change Roll Factor	Allows you to change the roll factor.		
$	Alter Lines Per Stmt	Changes the number of lines reserved for the display of each statement.		
%	Translate	Changes mode to translate mode when T is entered as the member type. No statements are included. The Translate key is invalid if no statements exist in the member.		

Figure 7-9 (Part 2 of 2). Command Function Key Summary for Include Mode

Key	Function Control Key	When Prompted with INCLUDE LIBRARY NAME, INCLUDE MEMBER NAME, INCLUDING AT STATEMENT NUMBER, INCLUDING FROM STATEMENT NUMBER, and ENDING STATEMENT NUMBER	When A Statement(s) Is Ready to Be Included
ENTER / REC ADV	Enter/Rec Adv	Indicates that you have finished keying one or more responses.	Causes the selected statement(s) to be included in the signed-on member.
ERASE INPT HOME	Home	Not allowed.	
DUP	Dup	Not allowed.	
ROLL↑	Roll↑	Displays the next statements as determined by the roll factor. Redisplays the include prompts and the responses keyed. The Roll ↑ key is invalid if no statements exist in the member.	Displays the next statements as determined by the roll factor, redisplays the include prompts, displays any responses that were entered, but blanks the response to ENDING STATEMENT NUMBER if it was entered.
ROLL↓	Roll↓	If statements from the include member are not being displayed, displays preceding statements as determined by the roll factor, and redisplays the include prompts and the responses entered. If the include member is being displayed, the Roll ↓ key is invalid. The Roll ↓ key is invalid if no statements exist in the member.	Not allowed.

Figure 7-10. Function Control Key Summary for Include Mode

Key	Command Function Key	When Prompted with SCAN CHARACTERS, STARTING POSITION, and NUMBER OF SCAN CHARACTERS
1	Auto Skip	Not allowed.
2	Scan/Replace	Repeats scan prompts. No scan is performed.
3	Select Format	Not allowed.
4	Delete	Changes mode to delete mode. No scan is performed.
5	Enter/Update	Changes mode to enter/update mode. No scan is performed.
6	Alter Print	Reverses the status of print option and print indicator.
7	EOJ	Displays end-of-job options.
8	Alter Syntax	Not allowed.
9	Search End Of Source	Displays last statement in member and redisplays the scan prompts and responses.
0	Move/Copy	Changes mode to move/copy mode. No scan is performed.
-	Include	Changes mode to include mode. No scan is performed.
=	Accept With Error	Not allowed.
!	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.
@	Scan To Update	Alternative to the Enter/Rec Adv key. Changes to enter/update mode so that you can update the statement located by scan.
#	Change Roll Factor	Allows you to change the roll factor.
$	Alter Lines Per Stmt	Changes the number of lines reserved for the display of each statement.
%	Translate	Changes mode to translate mode when T is entered as the member type. No scan is performed.

Figure 7-11. Command Function Key Summary for Scan Mode

Key	Function Control Key	When Prompted with SCAN CHARACTERS, STARTING POSITION, and NUMBER OF SCAN CHARACTERS
ENTER / REC ADV	Enter/Rec Adv	Indicates you have keyed at least a response to SCAN CHARACTERS or NUMBER OF SCAN CHARACTERS and you want the scan to begin.
ERASE INPT HOME	Home	Not allowed.
DUP	Dup	Not allowed.
ROLL↑	Roll↑	Displays next statements as determined by the roll factor, redisplays the scan prompts, and displays any responses that were entered.
ROLL↓	Roll↓	Displays the preceding statements as determined by the roll factor, redisplays the scan prompts, and displays any responses that were entered.

Figure 7-12. Function Control Key Summary for Scan Mode

Key	Command Function Key	When Prompted with ENTER MESSAGE NUMBER
1	Auto Skip	Not allowed.
2	Scan/Replace	Changes mode to scan mode. Keyed data is ignored.
3	Select Format	Not allowed.
4	Delete	Changes mode to delete mode. Keyed data is ignored.
5	Enter/Update	Changes mode to enter/update mode. Keyed data is ignored.
6	Alter Print	Reverses the status of print option and print indicator.
7	EOJ	Displays end-of-job options.
8	Alter Syntax	Not allowed.
9	Search End Of Source	Displays last statement in member and redisplays the translate prompt.
0	Move/Copy	Changes mode to move/copy mode. Keyed data is ignored.
-	Include	Changes mode to include mode. Keyed data is ignored.
=	Accept With Error	Not allowed.
!	Cmd Key Display	Displays keyboard keys used as SEU command function keys and displays a brief description of each key.
@	Scan To Update	Not allowed.
*	Change Roll Factor	Not allowed.
$	Alter Lines Per Stmt	Not allowed.
%	Translate	Changes mode to translate mode.

Figure 7-13. Command Function Key Summary for Translate Mode

Key	Function Control Key	When Prompted with ENTER MESSAGE NUMBER
ENTER / REC ADV	Enter/Rec Adv	Indicates you have keyed a response to ENTER MESSAGE NUMBER, or you have keyed all the translated information and want it entered.
ERASE INPT HOME	Home	Not allowed.
DUP	Dup	Not allowed.
ROLL↑	Roll↑	Displays next statements. Up to eight statements are displayed. The translate prompt is displayed.
ROLL↓	Roll↓	Not allowed.

Figure 7-14. Function Control Key Summary for Translate Mode

SEU DISPLAYS

SEU uses the display screen to display status information, statements in a member, and display screen formats as well as prompts, responses, messages, and data that you key.

On a 960-character display screen (12 lines), use the Roll↑ (roll up), Roll↓ (roll down), or Enter/Rec Adv keys to display any additional lines of data (lines 13-24).

SEU highlights the following information on the displays:

- Status line
- Each new statement being entered and its statement number
- Each statement being changed and its statement number
- Data keyed in response to the SEU prompts
- Messages

Status Line

Line 1 of the display screen is the status line, which is highlighted.

Figure 7-13 gives an example of an SEU status line.

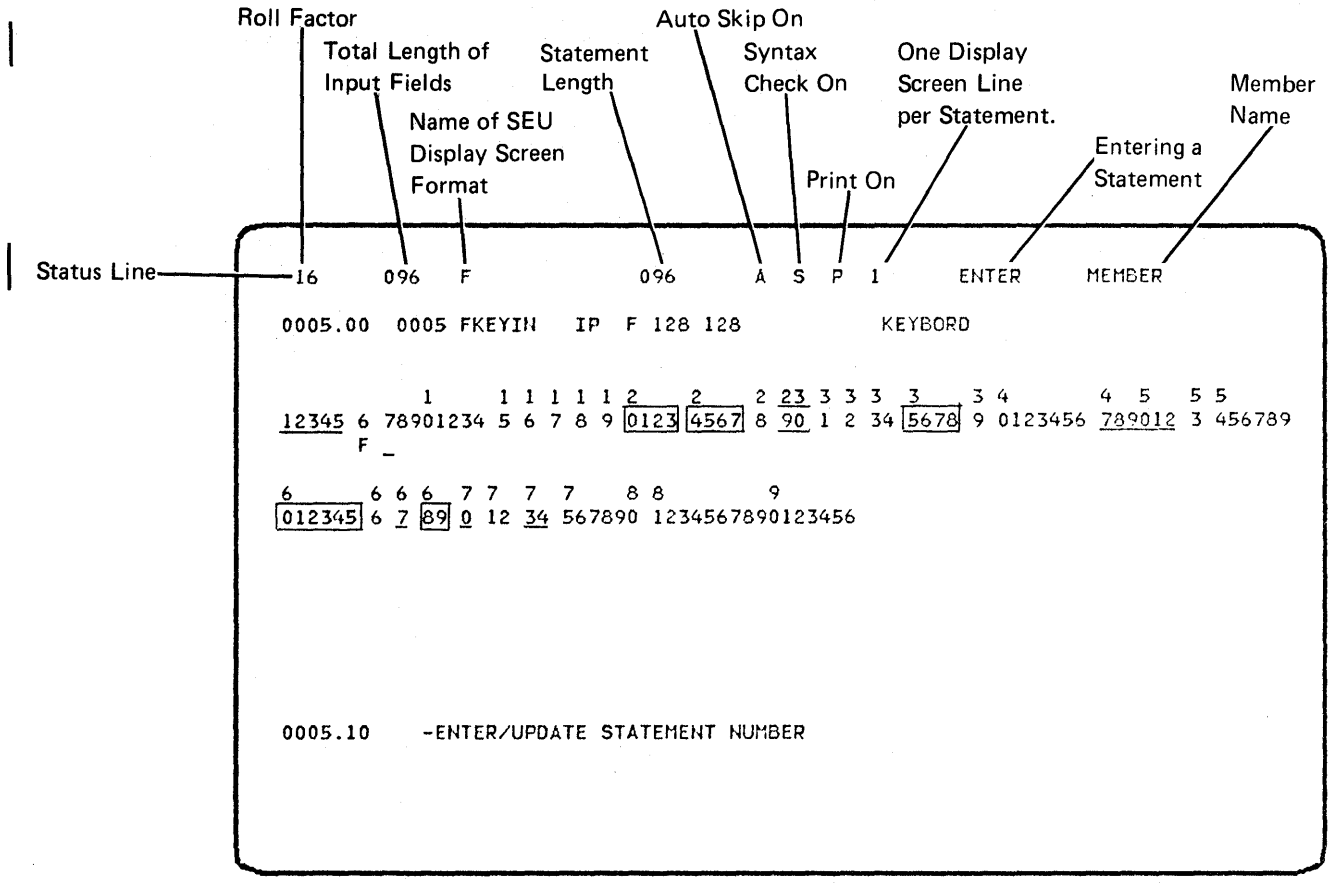


Figure 7-15. Sample SEU Status Line

- Positions 2 and 3: roll factor, 1 through 99
- Positions 10 through 12: total length of input fields for selected display screen format
- Positions 16 through 23: name of selected display screen format
- Positions 30 through 32: statement length
- Position 39: status of auto-skip option; A if on, blank if off
- Position 42: status of syntax checking option; S if on, blank if off
- Position 45: status of print option; P if on, blank if off
- Position 48: one display screen line per statement
- Positions 55 through 62: ENTER if entering and UPDATE if updating statements
- Positions 65 through 72: name of the member that was signed on
- Positions 76 through 79: number of consecutive statements being deleted, moved, or included

The sort program allows you to rearrange records in a file, change the format of records in a file, and drop records from a file.

RUNNING THE SORT PROGRAM

To run the sort program, you can enter either the SORT command and its associated parameters, or enter only the word SORT or the phrase HELP SORT and use the HELP procedure to enter the SORT command.

If you enter the SORT command, you can use the following format:

SORT input file label,source member,output file label,number of records,

[user library name / #LIBRARY] , [Y / N]

input file label: Label of the existing data file on disk to be sorted.

source member: Name of the source member that contains the sort sequence specifications.

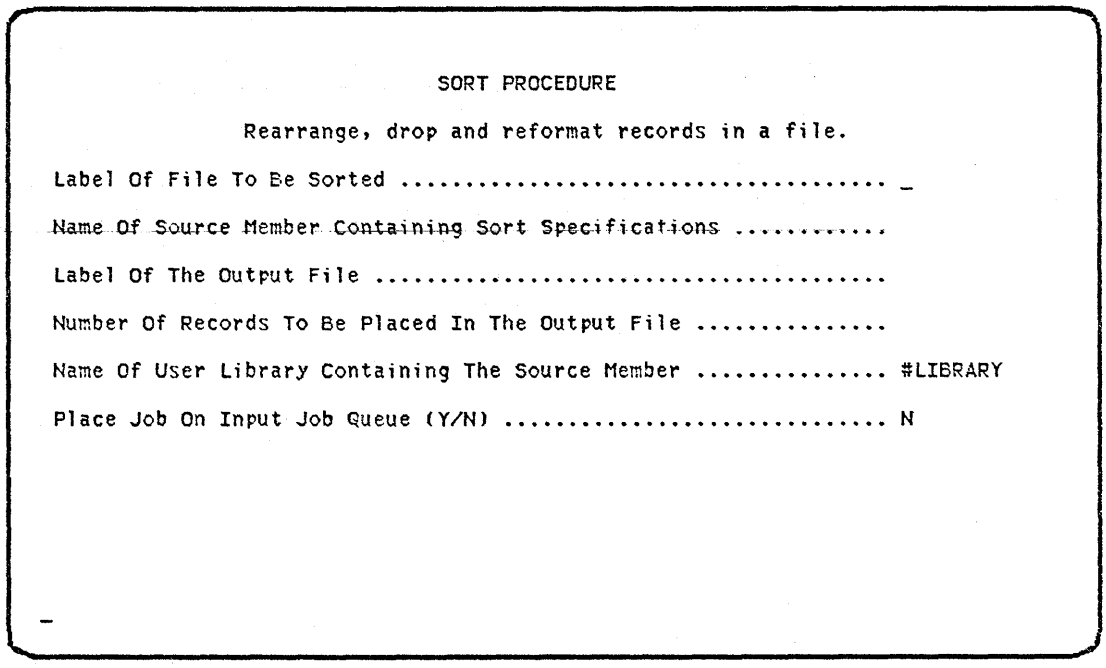
output file label: Label of the file that will contain the sorted data. This label must not be an existing file label.

number of records: Number of records that the new output file will contain.

user library name: Name of the user library that contains the source member. If the user library name is omitted, the sort program searches the system library (#LIBRARY) for the source member.

Y / N: Place the sort job on the input job queue. Y specifies that the sort job should be placed on the input job queue. N (default) specifies that the sort job should not be placed on the input job queue. If this parameter is used to place a sort job on the input job queue, the sort program must be contained in the system library (#LIBRARY).

If you enter only the word SORT or HELP SORT, the following display appears, which prompts for all the parameters:



Use of only the word SORT or the phrase HELP SORT to run a sort job places limitations on the input and output files, and requires that the sort sequence specifications be stored as a source member in a library.

You can also run the sort program by executing your own sort procedure stored on disk, or by entering your own sort procedure through a display station keyboard.

For further information about the sort program and the OCL required for user-supplied sort procedures, see the *Sort Reference Manual.*

Chapter 9. How to Operate Screen Design Aid (SDA)

The screen design aid utility (SDA) helps you create and maintain display screen formats and menus.

If you have the ideographic version of the SSP, SDA allows ideographic characters to be entered as constant data when you define screen formats or menus. Also, when you create or update screen formats, fields may be defined as input or output, allowing either alphanumeric or ideographic characters.

HOW TO SIGN ON

You can use the HELP procedure to enter the SDA command. Enter HELP SDA to be prompted for the SDA command parameters. The format of the SDA command is:

SDA [source name] , [inlib] , [sfgrload] ,[sfgrprint] , [outlib] , [sfgrlib]

The parameters you enter depend on the SDA functions being requested.

source name: The name of the source member to be processed. If you are processing formats, the default is SCRNSPEC. If you are building a menu (SDA menu option 7), the maximum length of the name is 6 characters and the default is SCRNSP.

inlib: The name of the library where SDA will find the member to process or display. The default is the system library (#LIBRARY). If you enter a name in this parameter , it will be the default for parameter 5 (outlib) and parameter 6 (sfgrlib).

sfgrload: The name you want assigned to the load member created by $SFGR. If you do not enter a name, $SFGR will not be run when you finish running SDA, and the load member formats will not be generated.

sfgrprint: This parameter controls printing by $SFGR on the system list device. (SDA printing is controlled by command function key 6.) Use YES, NO, or PARTIAL. The default is YES.

- YES causes printing of information including the S- and D-specifications, input and output buffer descriptions, warning or termination errors, and a list of indicators used.
- NO causes only termination errors to be printed along with the statement causing the error.
- PARTIAL causes the printing of input and output library names, and the screen format member names, and all messages together with their related statements.

outlib: The name of the library where SDA writes the created or updated source member or the menu members. The default is the system library (#LIBRARY) or the library name you entered in parameter 2 (inlib).

sfgrlib: The name of the library in which $SFGR writes the object format member. The default is the system library (#LIBRARY) or the library name you entered in parameter 2 (inlib).

After you enter the SDA command, the SDA menu is displayed.

1. Entering SDAH presents an explanation of the utility.

2. If you do not enter a source member name, or if you enter HELP SDA, SDA displays the Screen Design Aid screen, which shows the required parameters.

```
                          SCREEN DESIGN AID                    OPTIONAL-(O)

        SDA is a utility program that aids the user interactively
        to create and maintain display formats, menus, and WSU or
        RPG II program specifications.

Source Member Name ..................................... SCRNSPEC

Input Library Name ..................................... #LIBRARY

$SFGR Load Member Name ..................................          (O)

Print $SFGR Specifications (YES/NO/PARTIAL) ..................... YES

Output Library Name For Source Member ...................          (O)

Output Library Name For $SFGR Load Member ...............          (O)
```

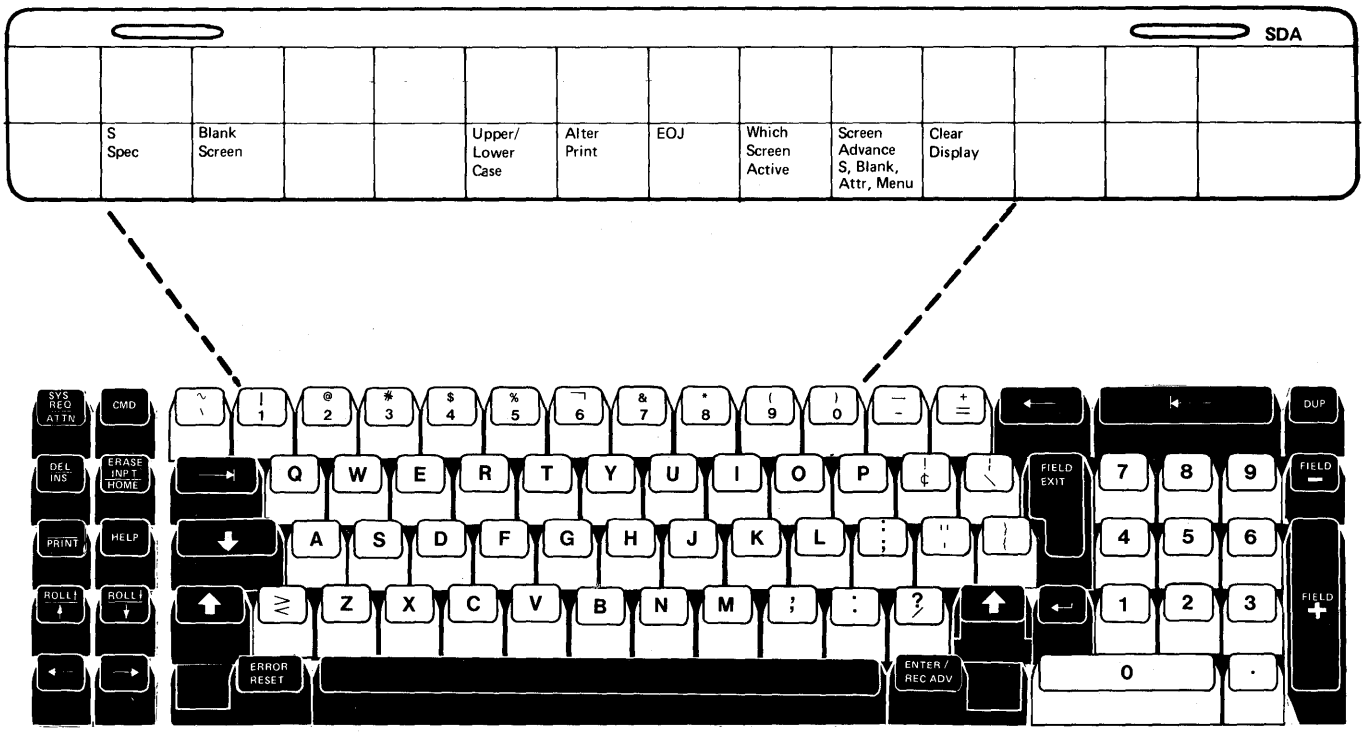
You can use this display to enter or change any SDA sign-on parameter. Defaults are displayed, but you can enter your own parameters in place of the defaults. See the *SDA Programmer's Guide and Reference Manual* for additional information on the parameters you can enter.

If the system is in ideographic mode, you must use nonideographic characters to name source members and formats.

SDA COMMAND FUNCTION KEYS AND TEMPLATE

SDA supports command function key operations as shown on the SDA portion of the *IBM System/34 Keyboard Template,* GX21-7660.

The template and command function key meanings are as follows:



See Appendix A for the ideographic keyboard and command keys.

Command Function Key	Definition
1	Return to the S specification display and begin the cycle again (valid only for create or add).
2	Display the Blank screen (valid only for create or add).
3	Not used by SDA.
4	Not used by SDA.
5	Lowercase letters allowed. Valid on blank display and skeleton menu display. Lowercase prints on the 5256, 5224, and 5225 Printers, and on the 3262 and 5211 Printers when the correct print belt and translation table are used. This key performs the Enter/Rec Adv function during update. The Attribute display allows lowercase letters without using this key during update.
6	Reverse print status. If SDA information is being printed, command function key 6 will suppress printing and vice versa. Command function key 6 is valid only on S, blank, and attribute displays.
7	End of job. Command key 7 during a menu option terminates the option; during the SDA menu display, it terminates SDA.
8	For create, add, or update, indicates that you are in Blank or Attribute display. The halt message indicates which display is active. Take a 0 option to return to the current operation.
9	Use to exit S, Blank, Attribute, and menu build displays.
0	Use when displaying formats to blank the screen before the next format is displayed.

Notes:

1. The command function keys are processed the same as the Enter/Rec Adv key on the system Input-Output display.
2. Keys 1, 2, and 6 are valid only on S, Blank, and Attribute displays.
3. Key 5 is valid only on Blank and Attribute displays.

Help Displays

If you enter HELP SDA, SDA displays the SDA Procedure display that accepts the required parameters.

SDA also provides you with an SDA Help Menu display. This display allows you to select other displays that explain many of the basic functions of the SDA program.

To display the menu, either:

1. At sign on, enter SDAH on the Command display, or

2. At any other time:
   a. Press the Attn key.
   b. When the Inquiry display appears, take the 1 option.
   c. Enter SDAH.
   d. Select the needed help option from the Help menu.
   e. End SDAH by pressing command function key 7.
   f. Resume the interrupted task with command function key 1.

The SDA Help Menu appears as follows:

```
                    SDA HELP MENU

1. PROCEDURE PARAMETER DESCRIPTIONS
2. COMMAND KEY DESCRIPTIONS
3. CREATE/ADD/UPDATE SCREEN SEQUENCE DESCRIPTION
4. CREATE/ADD/UPDATE FEATURE DESCRIPTIONS
5. SDA MENU OPTION DESCRIPTIONS
6. SDA SOURCE MANIPULATION VIA SEU
7. TABLE OF FIELD ATTRIBUTES AND UPDATE FUNCTIONAL CHARACTERS
8. BUILD A MENU INTERACTIVELY
9. BUILD RPG II OR WSU SOURCE PROGRAM SPECIFICATIONS


ENTER OPTION DESIRED_
```

For more information about SDA Help displays, see the *Screen Design Aid Programmer's Guide and Reference Manual*.

Chapter 10. How to Process RPG II Programs

RPG II is a programming language used to write application programs. This chapter explains how you compile RPG II source programs that the programmer has written; how you execute an RPG II object program, which is the result of the compilation; and how you can interactively enter data for an RPG II program that contains a CONSOLE file, a KEYBORD file, or a WORKSTN file.

If you have the ideographic version of the SSP, ideographic characters can be present in RPG II programs in literals, constants, fields, tables, and arrays. Ideographic characters can also be present in RPG comments. If a display station is in ideographic mode, RPG displayed messages are displayed as ideographic.

RPG II provides two subroutines to support ideographic data. One moves the data into a field and deletes the shift-out and shift-in control characters. The other moves the data into a field and adds the shift-out and shift-in control characters.

COMPILING RPG II SOURCE PROGRAMS

Four command statements are provided for RPG II:

- The RPG command statement compiles an RPG II source program.
- The RPGR command statement executes the RPG II format generator after the source program has been compiled.
- The RPGX command statement executes the RPG II cross-reference program for a successfully compiled RPG II source program.
- The AUTO command statement compiles an RPG II source program that includes auto report specifications.

For more information about the command parameters that are summarized in this chapter, see the *RPG II Reference Manual.*

RPG Command Statement

To compile an RPG II source program enter the RPG command. You can use the HELP procedure to enter the RPG command. Enter RPG or HELP RPG to be prompted for the RPG command parameters. The format of the RPG command is:

```
                                                  [NOSTOP  ]
RPG program name, [source file size] , [work file size] , [REPLACE ] ,
                  [20                ]  [20            ]  [NOHALT  ]
                                                  [HALT    ]

[source program library name] , [object program library name] , [mrtmax value] , [YES] ,
[#LIBRARY                    ]  [#LIBRARY                    ]  [0           ]  [NO  ]

[NOGEN  ] , [special options]
[GEN960 ]  [00              ]
[GEN    ]
```

program name: The name of the source program to be compiled. If this parameter is not specified and no other parameters are specified, the system displays a menu requesting the name of the source program and listing the default values for all of the parameters (see Figure 10-1). The default values can be overridden at this time. If this parameter is not specified but other parameters are specified, the system displays a menu requesting the program name and listing the user-specified parameter values and the defaults for all unspecified parameters. These values can be overridden at this time. If the RPG procedure is placed on the input job queue, the program name must be specified. See the description of the special options parameter for an explanation of how to direct the RPG procedure to place the job on the input job queue after you enter values into the menu.

source file size: The number of blocks (each block is 2,560 bytes) for the $SOURCE file. If this parameter is not specified, the default is 20 blocks.

work file size: The number of blocks for the $WORK file. If this parameter is not specified, the default is 20 blocks.

NOSTOP: Specifies that neither duplicate member halts nor terminal error halts occur. REPLACE specifies that duplicate member halts do not occur. NOHALT specifies that the system does not halt for terminal diagnostics. HALT specifies that the system halts for terminal diagnostics and duplicate members. The default is HALT.

source program library name: The name of the library that contains the source program. If this parameter is not specified, the system library, #LIBRARY, is assumed.

object program library name: The name of the library that will contain the compiled object program. If this parameter is not specified, the system library, #LIBRARY, is assumed.

mrtmax value: Specifies the maximum number of display stations that can attach themselves to the program. The mrtmax value can be a decimal number from 0 through 99. If the mrtmax value is 0 or if it is not specified, the object program is not an MRT program. If the value specified here is equal to or greater than one, the value can be overridden by an ATTR statement when the object program is executed.

YES: Specifies the object program as an NEP (never-ending-program). If the parameter is not used, it defaults to NO (the program is not executed as an NEP). The NEP attribute can be overridden by an ATTR statement when the object program is executed.

NOGEN/GEN960: NOGEN specifies that the RPG II format generator will not execute unless you enter an RPGR command. If NOGEN is omitted and a CONSOLE file is specified in the program, the RPG II format generator executes automatically to generate source input to the $SFGR utility program, which provides display screen formats for the CONSOLE file. The source specifications for the $SFGR utility are not saved when the RPG II format generator is executed by the RPG procedure. GEN960 specifies that the format generator generate source input to the $SFGR utility program to provide display screen formats for the 960-character display screen. To save the source specifications, specify NOGEN and then use the RPGR command statement.

special options: Two-number code that specifies which special options are chosen. If the first number is 0, the job is not placed on the input job queue. If the first number is 1, the job is placed on the input job queue. If the second number is 0, a cross-reference listing of symbols is not provided. If the second number is 1, a cross-reference listing of symbols is provided. The default is 00.

```
                    RPG II PROCEDURE

Name Of Source Program To Be Compiled ..................... _

Number Of Blocks For $SOURCE File (1-999) ................. 20

Number Of Blocks For $WORK File (1-999) ................... 20

Informational Messages (HALT/NOHALT/REPLACE/NOSTOP) ....... HALT

Input Library Name For Source Member ...................... #LIBRARY

Output Library Name For RPG II Load Member ................ #LIBRARY

MRTMAX Value (0-99) ....................................... 0

NEP (YES/NO) .............................................. NO

Generate Console Screen Formats (GEN/NOGEN/GEN960) ........ GEN

Special Options   YES-1 / NO-0
JOBQ 0    XREF 0
```

Figure 10-1. Menu Displayed When Only the Command Name RPG is Entered

Note: If parameters are entered with the command statement, the parameters override the corresponding entries on the menu.

RPGX Command Statement

The special compile options parameter on the RPG command statement allows you to specify that a cross-reference listing of symbols be provided for the program being compiled. The RPGX command statement allows you to request this cross-reference listing for a program that has already been successfully compiled. You can use the HELP procedure to enter the RPGX command. Enter RPGX or HELP RPGX to be prompted for the RPGX command parameters. The RPGX command statement is:

RPGX program name, [source and symbol file size / 20] , [source program library name / #LIBRARY]

program name: The name of the RPG source program. This parameter is required. If it is not specified, a prompt requests the name of the source program.

source and symbol file size: The number of blocks (each block is 2,560 bytes) for the files used by the cross-reference programs. If this parameter is not specified, the default is 20. You should specify the same value for this parameter that you specified when the program was being compiled.

source program library name: The name of the library containing the RPG II source program. If a source program library name is not specified, the system library, #LIBRARY, is assumed.

```
                          RPGX PROCEDURE

          Requests cross reference for RPG II source program.

Program Name ..................................................... _

Number Of Blocks For Source File (1-999) ..................... 20

Input Library Name ........................................... #LIBRARY
```

Figure 10-2. Menu Displayed When Only the Command Name RPGX is Entered

RPGR Command Statement

You must compile the RPG II source program that includes a CONSOLE file by using the RPG command before you use the RPGR command statement. If the NOGEN parameter is specified in the RPG command statement and the program contains a CONSOLE file, enter the following command to execute the RPG II format generator:

```
RPGR program name, [source and format file size / 20] , [NOSAVE / SAVE] ,

[source program library name / #LIBRARY] , [load module library name / #LIBRARY] , [GEN960 / GEN] ,

[REPLACE / null]
```

You can use the HELP procedure to enter the RPGR command statement. Enter RPGR or HELP RPGR to be prompted for the RPGR command statement parameters.

program name: The name of the RPG II source program. This parameter is required. If program name is not specified, a prompt requests the name of the source program.

source and format file size: The number of blocks (each block is 2,560 bytes) for the source file and SFGR file. If a source and format file size is omitted, the default is 20 blocks.

NOSAVE: The source statements for the $SFGR utility program are not to be saved. If NOSAVE is omitted, the source statements are saved in the library specified as the source program library name, and are catalogued under the program name plus FM.

source program library name: The name of the library that contains the RPG II source program. If source program library name is not specified, the system library, #LIBRARY, is assumed.

load module library name: The name of the library that will contain the load module created by the $SFGR utility program. If load module library name is not specified, the system library, #LIBRARY, is assumed.

GEN960: The source statements generated will be in the format for the 960-character display screen.

REPLACE: Duplicate member halts will not occur. If REPLACE is not specified, the procedure will halt if it encounters a program with the same name.

```
                              RPGR PROCEDURE                    OPTIONAL-(O)

                   Executes The RPG II Format Generator.

Program Name ............................................ _

Number Of Blocks For Source File (1-999) ................... 20

$SFGR Source (SAVE/NOSAVE) ................................ SAVE

Input Library ............................................ #LIBRARY

Output Library ........................................... #LIBRARY

Screen Format Size (GEN/GEN960) ........................... GEN

To Replace An Existing Member, Enter REPLACE ...............            (O)
```

Figure 10-3. Menu Displayed When Only the Command Name RPGR is Entered

AUTO Command Statement

To compile an RPG II source program that includes auto report specifications, enter the AUTO command. You can use the HELP procedure to enter the AUTO command statement. Enter AUTO or HELP AUTO to be prompted for the AUTO command statement parameters. The format of the AUTO command is:

```
AUTO program name, [source file size] , [work file size] , [NOSTOP  ] ,
                   [20              ]   [20             ]   [REPLACE ]
                                                            [NOHALT  ]
                                                            [HALT    ]

[source program library name] , [object program library name] ,
[#LIBRARY                    ]   [#LIBRARY                   ]

[mrtmax value] , [YES] , [NOGEN  ] , [special options] ,
[0            ]  [NO ]   [GEN960 ]   [000           ]
                         [GEN    ]
```

program name: The name of the source program to be compiled. If this parameter is not specified and no other parameters are specified, the system displays a menu requesting the name of the source program and listing the default values for all of the parameters (see Figure 10-1). The default values can be overridden at this time. If this parameter is not specified but other parameters are specified, the system displays a menu requesting the program name and listing the user-specified parameters. These values can be overridden at this time. If the AUTO procedure is placed on the input job queue, the program name must be specified. See the description of the special options parameter for an explanation of how to direct the AUTO procedure to place the job on the input job queue after you enter values into the menu.

source file size: The number of blocks (each block is 2,560 bytes) for the $WORK2 or the $SOURCE file. If this parameter is not specified, the default is 20 blocks.

work file size: The number of blocks (each block is 2,560 bytes) for the $WORK file. If this parameter is not specified, the default is 20 blocks.

NOSTOP: Specifies that neither duplicate member halts nor terminal error halts occur. REPLACE specifies that duplicate member halts do not occur. NOHALT specifies that the system does not halt for terminal diagnostics. HALT specifies that the system halts for terminal diagnostics and duplicate members. The default is HALT.

source program library name: The name of the library that contains the source program. If this parameter is not specified, the system library, #LIBRARY, is assumed.

object program library name: The name of the library that will contain the compiled object program. If this parameter is not specified, the system library, #LIBRARY, is assumed.

mrtmax value: The maximum number of display stations that can attach themselves to the program. The mrtmax value can be a decimal number from 0 through 99. If the mrtmax value is 0 or if it is not specified, the object program is not an MRT program. If the value specified here is equal to or greater than one, it can be overridden by an ATTR statement when the object program is specified.

YES: Specifies the object program as an NEP (never-ending-program). If the parameter is not used, it defaults to NO (the program is not executed as an NEP). The NEP attribute can be overridden by an ATTR statement when the object program is executed.

NOGEN/GEN960: NOGEN specifies that the RPG II format generator will not execute unless you enter an RPGR command. If NOGEN is omitted, and the CONSOLE file is specified in the program, the RPG II format generator executes automatically to generate source input to the $SFGR utility program, which provides display screen formats for the CONSOLE file. GEN960 specifies that the format generator generate source input to the $SFGR utility program to provide display screen formats for the 960-character display screen. When NOGEN is specified, the RPGR command should be used to save the source specifications.

special options: Three-number code that specifies which special options are chosen. If the first number is 0, the job is not placed on the input job queue. If the first number is 1, the job is placed on the job input queue. If the second number is 0, a cross-reference listing of fields and indicators is not provided. If the second number is 1, a cross-reference listing of fields and indicators is provided. If the third number is 0, the RPG II compiler is run after Auto Report generation. If the third number is 1, the RPG II compiler is not run after Auto Report generation. The default is 000.

```
                        AUTO REPORT PROCEDURE

Name Of Source Program To Be Compiled ..................... _

Number Of Blocks For $SOURCE File (1-999) ................. 20

Number Of Blocks For $WORK File (1-999) ................... 20

Informational Messages (HALT/NOHALT/REPLACE/NOSTOP) ....... HALT

Input Library Name For Source Member ...................... #LIBRARY

Output Library Name For RPG II Load Member ................ #LIBRARY

MRTMAX Value (0-99) ....................................... 0

NEP (YES/NO) .............................................. NO

Generate Console Screen Formats (GEN/NOGEN/GEN960) ........ GEN

Special Options   YES-1 / NO-0
JOBQ 0    XREF 0         AUTO ONLY 0
```

Figure 10-4. Menu Displayed When Only AUTO is Entered

Note: If parameters are entered with the command statement, the parameters override the corresponding entries on the menu.

EXECUTING AN RPG II OBJECT PROGRAM

You can execute an RPG II object program by entering certain OCL statements, by entering the name of a user-written procedure, or by selecting the procedure from a menu. For more information on executing a program, see *How to Restart Job Execution* in Chapter 4.

The person responsible for choosing the tasks you run should provide you with a run book or an equivalent set of instructions. These instructions usually include how you begin executing a program, when and in what order you execute programs, what data you enter, and other actions required to perform the tasks.

DATA ENTRY FOR A CONSOLE FILE

The following procedure for data entry for a CONSOLE file is valid only if the generated display formats for the CONSOLE file have not been altered.

When CONSOLE file is used in an RPG II program, you can enter input data for the program while it is executing. Figure 10-4 shows a sample initial display screen that appears when you start to enter data.

Note: From one to four columns appear on the display screen, depending on the number and length of the fields defined for the CONSOLE file. However, line 1 of the display is in the format shown in Figure 10-4, regardless of the number of columns displayed.

Command Function Keys for a CONSOLE File

For a CONSOLE file, command function keys 1 through 9 and 0 correspond to the record identifying indicators assigned to the record types in the CONSOLE file. Use the appropriate command function key to select the record type for which data is to be entered. (The record types that can be selected are shown in line 1 of the display. See (D) and (E) in Figure 10-5.)

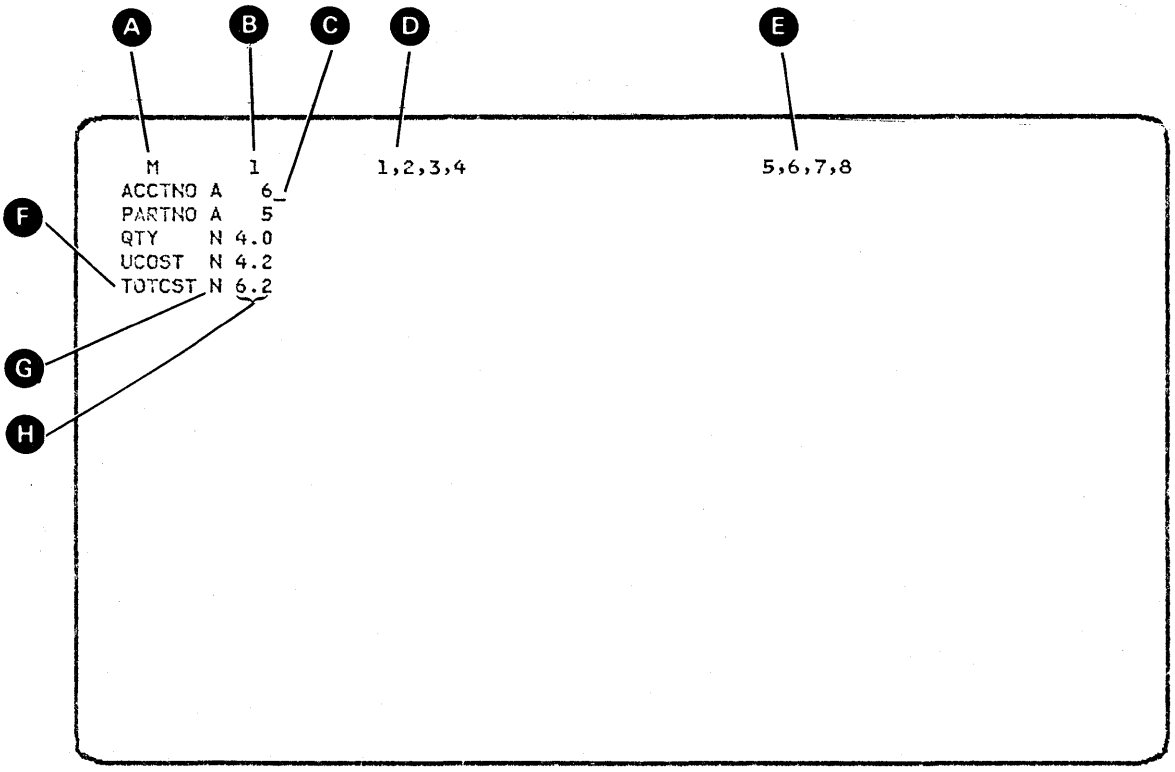


Figure 10-5. Sample Initial Display for a CONSOLE File

Legend:

(A) Record identification code for the record being displayed.

(B) Record identifying indicator for the record being displayed.

(C) The cursor is positioned to accept your entry for the first field in the record.

(D) Record identifying indicators for other record types that can be selected before you enter data for this display.

(E) Record identifying indicators for other record types that can be selected after you enter data for this display.

(F) Name of field to be entered.

(G) Field type (A for alphameric or N for numeric).

(H) Field length (in the form xx or xx.y where xx indicates the number of positions in the field and y indicates the number of decimal positions in a numeric field).

Figure 10-6 shows the command function keys and their corresponding record identifying indicators ((D) and (E) in Figure 10-5) for a CONSOLE file. You can use these keys before or after you enter data for the current display. To use a command function key, you must first press the Cmd key and then press the appropriate digit key.

Function Control Keys for a CONSOLE File

The following function control keys can be used when you are entering data for a CONSOLE file: Field Advance, Field Backspace, Field Exit, Field+, Field-, Enter/Rec Adv, and Error Reset.

Command Function Key (Lowercase Position)	Function
1	Record identifying indicator 1
2	Record identifying indicator 2
3	Record identifying indicator 3
4	Record identifying indicator 4
5	Record identifying indicator 5
6	Record identifying indicator 6
7	Record identifying indicator 7
8	Record identifying indicator 8
9	Record identifying indicator 9
0	Record identifying indicator 10
=	End of file (end of input) for the CONSOLE file

Figure 10-6. Command Function Keys for a CONSOLE File

Steps in Entering Data

When the initial display appears, follow these steps to enter data for the program:

1. Check that the record identifying indicator on line 1 of the display is correct for the record you will enter (see B in Figure 10-5). If not, press the appropriate command key to select the correct record type (see D in Figure 10-5).

   The leftmost heading on line 2 of the display names the first field to enter. The field name is followed by a designation of the field type and the field length (see Figure 10-5). The cursor indicates the first position in which to enter data.

2. Key the data into the field. Then press the Field+, Field–, or Field Exit key for a numeric field, or press the Field Exit key for an alphameric field.

   A negative number field is indicated by a minus sign adjacent to the right-most digit of the field (for example, 21546–).

   Note: If you enter an alphameric character in a numeric field, or if you enter too many characters in a field, a four-digit error code flashes in the lower-left corner of the screen, indicating your error. Press the Error Reset key and reenter the field.

   After you have entered the last field for the record, you can enter the record and select a new format by pressing the appropriate command key for the next record to be entered (see E in Figure 10-5). or enter the record only and retain the same format by pressing the Enter/Rec Adv key. You are prompted for the first field in the next record. If you have more records to enter, return to Step 1. If no more records are to be entered, go to Step 3.

3. Press the Cmd key, then press the [+ =] key (command function key 12) to end input for the CONSOLE file.

DATA ENTRY FOR A KEYBORD FILE

When a KEYBORD file is used in an RPG II program, you can enter input data for the program while it is executing. To allow you to enter data into the program, the programmer codes a KEY operation, a SET operation, or a combination of SET/KEY. Your response to the displayed prompt depends on the operation coded by the programmer.

KEY Operation

When the KEY operation is used, the prompt appears on the screen in one of two formats:

- The display can consist of six lines, with 40 characters per line, centered both vertically and horizontally on the screen (see Figure 10-7). The prompt appears on line 14 for a 1920-character display screen or line 8 for a 960-character display screen and you enter data on the next line (see Figure 10-7).

- The display can consist of 24 lines for a 1920-character display screen or 12 lines for a 960-character display screen with 79 characters per line. The prompt appears on line 23 for a 1920-character display screen or line 11 for a 960-character display screen and you enter data on the next line (see Figure 10-7).

In response to the prompt for a KEY operation, you can:

- Enter the data on line 5 or line 24 for a 1920-character display screen or line 9 for a 960-character display screen. Then press the Field Exit, Field+, or Field- key if the field is numeric; or press the Field Exit, Field+, or Enter/Rec Adv key if the field is alphameric. If not all positions of a field are filled, numeric fields are right-adjusted and filled to the left with zeros; alphameric fields are filled to the right with blanks.

- Enter no data, but press the Field Exit, Field+, Field-, or Enter/Rec Adv key, which causes any data in the field to be changed to zeros or blanks.

- Enter no data, but press the Dup key. Then press the Field Exit, Field+, Field-, or Enter/Rec Adv key, which does not change the data in the field.

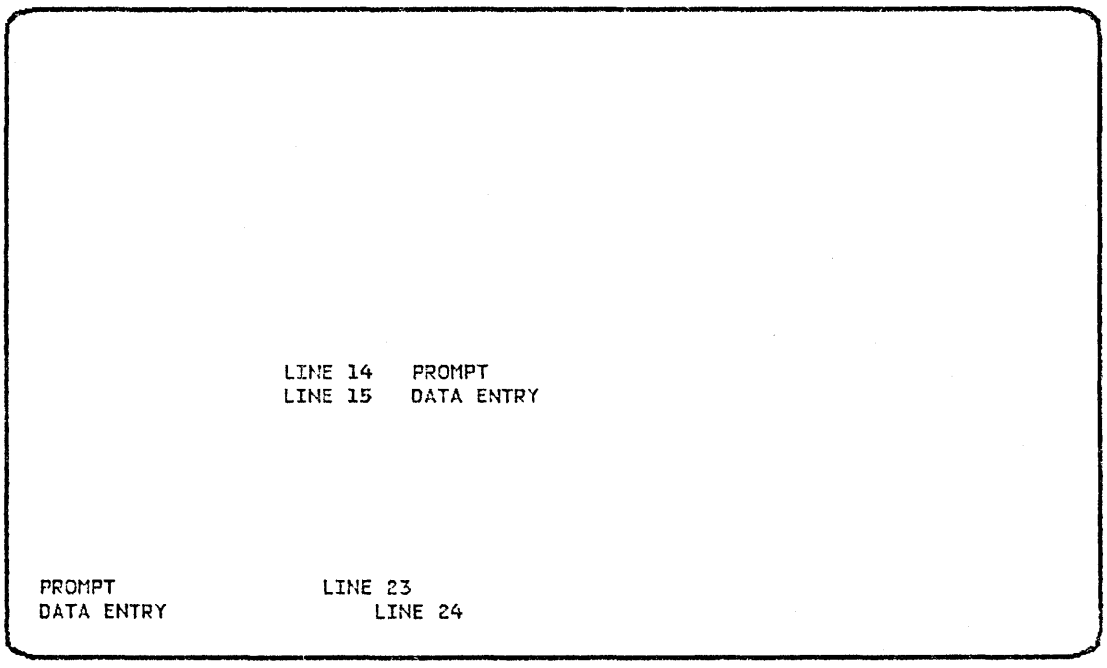


Figure 10-7. Displays Generated for a KEY Operation

SET Operation

The SET operation allows the programmer to specify what command keys you can press at a specific point in the RPG II program. For the SET operation on a 1920-character display screen the prompt, which tells you which command key to press, appears on line 15 (if the six-line display is generated) or on line 24 (if a 24-line display is generated). For the SET operation on a 960-character display screen, the prompt which tells you which command key to press, appears on line 9 (if the six-line display is generated) or on line 12 (if a 12-line display is generated). You enter your response on the same line as the prompt. Figure 10-8 shows the command keys that can be specified for a SET operation.

Responding to a SET Operation

To respond to a SET prompt, you must:

- Press the Cmd key.
- Press the appropriate command key.
- Then press the Field Exit, Field+, Field–, or Enter/Rec Adv key.

Note: If you are to press more than one command key, you must press the Field Exit, Field+, Field–, or Enter/Rec Adv key only after you have pressed the last command key.

Lowercase Position		Uppercase Position	
Command Key 1	1	Command Key 13	!
Command Key 2	2	Command Key 14	@
Command Key 3	3	Command Key 15	#
Command Key 4	4	Command Key 16	$
Command Key 5	5	Command Key 17	%
Command Key 6	6	Command Key 18	¬
Command Key 7	7	Command Key 19	&
Command Key 8	8	Command Key 20	*
Command Key 9	9	Command Key 21	(
Command Key 10	0	Command Key 22	)
Command Key 11	-	Command Key 23	—
Command Key 12	=	Command Key 24	+

Figure 10-8. Command Function Keys for SET Operation and WORKSTN File

Correcting a Keying Error

If you have erroneously pressed a command key specified on the SET operation and have not pressed the Field Exit, Field+, Field-, or Enter/Rec Adv key, you can reset the command keys in the following manner:

- Press the Cmd key.
- Press the Character Backspace (Clear) key while holding down the Shift key.

You can then press the correct command keys.

If you have incorrectly pressed a command key that was not specified on the SET operation, you must respond to the RPG II error message, which is displayed on line 24 on a 1920-character display screen or line 12 on a 960-character display screen in the following manner:

- Press the Error Reset key.
- Press the correct command key(s).

SET/KEY Combination

When the programmer uses a SET/KEY combination in an RPG II program, you can press a command function key, enter a field, and then press the Field Exit, Field+, Field-, or Enter/Rec Adv key only once. If the SET/KEY combination is not used, you must press a field exit key or the Enter/Rec Adv key each time you end the SET or KEY operation.

If you use the Field Exit, Field+, or Field- key in response to a SET/KEY operation, you must enter your response in the following order:

- Press the command key.
- Enter the field.
- Press the Field Exit, Field+, or Field- key.

Note: Field Exit, Field+, or Field- must be used for a numeric field.

However, if you use the Enter/Rec Adv key to enter an alphameric field, you can also enter the data first, then press the command key, and then press the Enter/Rec Adv key.

DATA ENTRY FOR A WORKSTN FILE

When a WORKSTN file is used in an RPG II program, you can enter input data to the program while it is executing. The format of each screen you see and use while entering data for an RPG II program with a WORKSTN file has been designed by the programmer. The programmer should provide you with instructions on how to complete the job.

Command Function Keys for a WORKSTN File

For a WORKSTN file, command function keys 1 through 24 (see Figure 10-8) may cause a specific action to occur. This action is defined by the programmer in the RPG II program. You should have instructions from the programmer that explain what command keys you can use and what action to expect after you press a command key. When you press a command key, the contents of the display are returned to the program.

Function Control Keys for a WORKSTN File

You can use the following function control keys when entering data for a WORKSTN file: Field Advance, Field Backspace, Field Exit, Field+, Field-, Enter/Rec Adv, and Error Reset.

RPG II MESSAGES

While you are running an RPG II program, messages may appear on the display screen. For information about these messages, see the *Displayed Messages Guide.*

Chapter 11. How to Operate Basic Assembler and Macro Processor Program Product

This chapter shows the command statements you can use with the Basic Assembler and Macro Processor. If you require additional information about this product, refer to the *Basic Assembler and Macro Processor Reference Manual.*

BASIC ASSEMBLER AND MACRO PROCESSOR COMMAND STATEMENTS

This product includes two procedures, which you can invoke through command statements to perform common functions. You can use the HELP procedure to enter the ASM and OLINK command statements. Enter HELP ASM or HELP OLINK to be prompted for the command parameters. The format of the assembler command is:

```
ASM source, [source library  ] , [obj-module library ] , [MAC   ] , [source blocks] ,
            [#LIBRARY        ]   [source library      ]   [NOMAC]   [30           ]

            [$ASMINPT blocks] , [$WORK blocks] , [$WORK2 blocks]
            [45             ]   [10          ]   [36           ]
```

source: The source program name.

source library: The library where the source is found (defaults to #LIBRARY).

obj-module library: The library where the object module should be placed (defaults to the source library).

MAC/NOMAC: Indicates whether or not the macro processor is to be invoked (default is MAC, invoke the macro processor).

source blocks: The file size in blocks for $SOURCE (default is 30 blocks).

$ASMINPT blocks: The file size in blocks for $ASMINPT (default is 45 blocks).

$WORK blocks: The file size in blocks for $WORK (default is 10 blocks).

$WORK2 blocks: The file size in blocks for $WORK2 (default is 36 blocks).

If the source parameter is omitted, the Asm Command Prompts display appears. The following example shows how the display appears:

```
                              ASM PROCEDURE

                        Invokes The Assembler And Optionally
                        Calls The Macro Processor.

Source Program Name ..................................................... _

Input Library Name ...................................................... #LIBRARY

Output Library Name ..................................................... #LIBRARY

Macro Expansion Required (MAC/NOMAC) .................................... MAC

Number Of Blocks For $SOURCE FILE (1-999) ............................... 30

Number Of Blocks For $ASMINPT File (1-999) ............................... 45

Number Of Blocks For $WORK File (1-999) .................................. 10

Number Of Blocks For $WORK2 File (1-999) ................................. 36

Place On Input Job Queue (YES/NO) ........................................ NO
```

The format of the OLINK command is:

OLINK module name, [object library / #LIBRARY], [load module name / module name],

[load module library / #LIBRARY] [attr1 / null], [attr2 / null], [mrtmax / 0], [sublib1,sublib2 / #LIBRARY]

module name: Name of object module to be link-edited.

object library: Library containing object module (default is #LIBRARY).

load module name: Name appearing in load module directory (default is parameter 1 name).

load module library: Library where load module is to be placed (default is #LIBRARY).

attr1,attr2: Attributes of the module being link-edited.

Possible attributes are:

COM – Program common supported
DED – Dedicated module
NEP – Never ending program
NEX – Not executable
NIQ – Noninquirable module
NSW – Nonswappable module
LSC – Load only from system console
SIS – Scientific mode
SRQ – Source required
UCS – Reads utility control statements

mrtmax: Maximum number of active requesting display stations that can be allocated to the program.

sublib1, sublib2: Libraries containing user subroutines to be link-edited (default is #LIBRARY).

If the module name parameter is omitted, the Olink Command Prompts display appears. The following example shows how the display appears:

```
                                OLINK PROCEDURE                    OPTIONAL-(O)

        Invokes the overlay linkage editor to create a load module.

Name Of The Module To Be Link-Edited................................ _

Input Library Name ................................................ #LIBRARY

Load Module Name ...................................................        (O)

Output Library Name ................................................ #LIBRARY

Attribute1 (COM/DED/NEP/NEX/NIQ/NSW/LSC/SIS/SRQ/UCS) ...............

Attribute2 (COM/DED/NEP/NEX/NIQ/NSW/LSC/SIS/SRQ/UCS) ...............

Mrtmax Value (0-255) ............................................... 0

User Subroutine Library1 ........................................... #LIBRARY

User Subroutine Library2 ........................................

Place On Input Job Queue (YES/NO) .................................. NO
```

BASIC ASSEMBLER AND MACRO PROCESSOR MESSAGES

While you are running the assembler, a message may appear on the display screen. For information about an assembler program message, refer to the *Displayed Messages Guide*. For information about printed messages, refer to the *Assembler Reference Manual*.

Chapter 12. How to Operate FORTRAN IV

This chapter describes the command statements you can use with the FORTRAN IV language. If you require additional information about this program product, refer to the *FORTRAN IV Reference Manual.*

IBM supplies several library procedures for use with System/34 FORTRAN. When you enter an appropriate command statement, the IBM-supplied library procedure is either executed or placed on the input job queue.

Library procedures provide for FORTRAN compile and link-editing, execution of FORTRAN programs, output of a FORTRAN debug file, movement of a diagnosed source file to a library, and screen prompts by using the following command statements:

Command Statement	Function
FORTP	Provides screen prompts for compiling and executing FORTRAN programs.
FORTC	Compiles a FORTRAN program.
FORTG	Executes a FORTRAN program.
FORTGO	Executes a FORTRAN program with user-provided procedures for additional OCL statements.
FORTCG	Compiles and executes a FORTRAN program.
FORTPRNT	Prints a FORTRAN debug file.
FORTMOVE	Moves a FORTRAN diagnosed source file to a library.

FORTP Command Statement

If you enter FORTP or HELP FORTP, the following display screen appears:

```
                              FORTP PROCEDURE

0 -           Exit From FORTRAN IV Processing

1 - FORTC     Compiles a FORTRAN IV Program

2 - FORTGO    Executes a Previously Compiled FORTRAN IV Program

3 - FORTCG    Compiles and Executes a FORTRAN IV Program

4 - FORTMOVE  Moves a Diagnosed Source File To a Library

5 - FORTPRNT  Prints a FORTRAN IV Debug File




 ENTER NUMBER OF OPTION REQUIRED -->
```

From this display you can get the help display for the FORTC, FORTGO, FORTCG, FORTMOVE, and FORTPRNT command statements. Refer to the appropriate command statement for an illustration of the display that is presented. After you have selected an option from the menu and it has executed, the FORTP display is displayed again. You can then execute another FORTRAN command statement. If no further execution is necessary, a response of 0 terminates the FORTP procedure.

FORTC Command Statement

The FORTC command statement compiles a FORTRAN source program so that the compiler is loaded into main storage. The FORTC command statement format is:

FORTC [program name] , [# of blocks / 20] , [inlib / #LIBRARY] , [outlib / #LIBRARY] ,

[dsflabel] , [Y / N]

program name: The name of the source program to be compiled. If this parameter is not specified, the source statements must follow the FORTC command statement within the system input stream.

# of blocks: The number of blocks allocated for the work files used by the compiler. The default is 20 blocks. Generally, one additional block is required for each group of 10 program source statements over 200.

inlib: The name of the library that contains the source program. If this parameter is not specified, the system library (#LIBRARY) is assumed.

outlib: The name of the library that will contain the object and load member. If this parameter is not specified here or on the *PROCESS source statement, the system library (#LIBRARY) is assumed.

dsflabel: The file label of the diagnosed source file. If this parameter is not specified, a diagnosed source file will not be created.

Y/N: Specifies whether the FORTC procedure is to be put on the input job queue or entered from a work station. If Y is specified, the procedure is submitted to the input job queue for execution. If N or blank is specified, the job is executed from the work station. The default is N.

You can enter the FORTC command statement by one of four ways:

- Enter FORTC with the appropriate parameters following it.
- Enter the FORTP procedure and select option 1.
- Enter HELP FORTC.
- Enter FORTPC.

If you enter the FORTP command and select option 1, enter HELP FORTC, or enter FORTPC, the following display will appear:

```
                          FORTC PROCEDURE                    OPTIONAL-(O)

                    Compiles a FORTRAN IV Program.

Name Of Source Program To Be Compiled .....
Input Library Name ..................................... #LIBRARY
Output Library Name .................................... #LIBRARY
File Label For Diagnosed Source File ..........                (O)
Number Of Blocks For $WORK And $SOURCE Files (1-999) ..... 020
Place On Input Job Queue (Y/N) ..................................... N
```

Refer to the FORTC parameter descriptions under *FORTC Command Statement* for a description of the prompts on this display.

FORTG Command Statement

The FORTG command statement executes a load member. The command statement format is:

FORTG [program name / ##MAIN] , [debug file label] , [# of debug file blocks / 20] , [loadlibname]

program name: The name of the load member to be executed. If a program name is not specified, the FORTRAN default load member name ##MAIN is used.

debug file label: The file label for the FORTRAN debug file, FTDEBUG. If this parameter is not specified, the FILE statement for the debug file is not generated.

# of debug file blocks: The number of blocks allocated for the FORTRAN debug file. If this parameter is not specified and a debug file label was specified, the default value is 20 blocks.

loadlibname: The name of the library that contains the load member to be executed. If this parameter is not specified, the system searches for the load member in the active user library and then in the system library.

FORTGO Command Statement

The FORTGO command statement executes a load member and allows you to enter specialized OCL statements. The command statement format is:

FORTGO [program name / ##MAIN] , [proc name] , [debug file label] , [# of debug file blocks / 20]

, [loadlibname] , [Y / N]

program name: The name of the load member to be executed. If a program name is not specified, the FORTRAN default load member name ##MAIN is used.

proc name: The name of the procedure containing FILE statements that is to be used during the execution of the load member.

debug file label: The file label for the FORTRAN debug file, FTDEBUG. If this parameter is not specified, the FILE statement for the debug file is not generated.

# of debug file blocks: The number of blocks allocated for the FORTRAN debug file. If this parameter is not specified and a debug file label was specified, the default value is 20 blocks.

loadlibname: The name of the library that contains the load member to be executed. If this parameter is not specified, the system searches for the load member in the active user library and then in the system library.

Y/N: Specifies whether the load member is to be put on the input job queue or entered from a work station. If Y is specified, the load member is submitted to the input job queue for execution. If N or blank is specified, the job is executed from a work station. The default is N.

You can enter the FORTGO command statement by one of four ways:

- Enter FORTGO with the appropriate parameters following it.
- Enter the FORTP procedure and select option 2.
- Enter HELP FORTGO.
- Enter FORTPGO.

If you enter the FORTP command and select option 2, enter HELP FORTGO, or enter FORTPGO, the following display will appear:

```
                        FORTGO PROCEDURE

                  Executes a FORTRAN IV Program.

Load Module To Be Executed ..................................... ##MAIN

Procedure Containing File Statements ...........................

Debug File Label ...............................................

Input Library ..................................................... #LIBRARY

Blocks For Debug File (1-9999) ................................. 20

Place On Input Job Queue (Y/N) ................................. N
```

Refer to the FORTGO parameter descriptions under *FORTGO Command Statement* for a description of the prompts on this display.

FORTCG Command Statement

The FORTCG command statement compiles a FORTRAN source program, link-edits the source program, and executes the load member. The command statement format is:

FORTCG program name, [# of blocks / 20], [inlib / #LIBRARY], [outlib / #LIBRARY], [dsflabel],

[debug file label], [# of debug file blocks / 20], [loadlibname], [N / Y]

program name: The name of the source program to be compiled. This parameter is required.

# of blocks: The number of blocks for the work files used by the compiler. If this parameter is not specified, the default value is 20 blocks. Generally, one additional block is required for each group of 10 program source statements over 200.

inlib: The name of the library that will contain the source program. If this parameter is not specified, the system library (#LIBRARY) is assumed.

outlib: The name of the library that will contain the object and load members. If the library is not specified on the *PROCESS statement or by using this parameter, the default is the system library.

dsflabel: The file label for the diagnosed source file. If this parameter is not specified, a diagnosed file will not be created.

debug file label: The file label for the FORTRAN debug file, FTDEBUG. If this parameter is not specified, the FILE statement for the debug file is not generated.

# of debug file blocks: The number of blocks for the FORTRAN debug file. If this parameter is not specified and a debug file label was specified, the default value is 20 blocks.

loadlibname: The name of the library that contains the load member to be executed. If this parameter is not specified, the system searches for the load member in the active user library and then in the system library.

Y/N: Specifies whether the load member is to be put on the input job queue or entered from a work station. If Y is specified, the load member is submitted to the input job queue for execution. If N or blank is specified, the job is executed from a work station. The default is N.

You can enter the FORTCG command statement by one of four ways:

- Enter FORTCG with the appropriate parameters following it.
- Enter the FORTP procedure and select option 3.
- Enter HELP FORTCG.
- Enter FORTPCG.

Note: If a compilation has terminal errors, the FORTCG command detects the errors and skips the execution step.

If you enter the FORTP command and select option 3, enter HELP FORTCG, or enter FORTPCG, the following display will appear:

```
                         FORTCG PROCEDURE                          OPTIONAL-(O)

              Compiles and Executes a FORTRAN IV Program.

Source Program To Be Compiled ..................................

Source Input Library ........................................... #LIBRARY

Output Library ................................................. #LIBRARY

Diagnosed Source File Name ....................................          (O)

Blocks For Compiler Work Files (1-9999) ........................ 020

Debug File Label ...............................................          (O)

Load Module Library ............................................ #LIBRARY

Blocks For Debug File (1-9999) ................................. 020

Place On Input Job Queue (Y/N) ................................. N
```

Refer to the FORTCG parameter descriptions under *FORTCG Command Statement* for a description of the prompts on this display.

FORTPRNT Command Statement

The FORTPRNT command statement prints a FORTRAN debug file. The command statement format is:

$$\text{FORTPRNT debug file label} \left[, \begin{matrix} S \\ \hline T \\ P \end{matrix} \right]$$

debug file label: The file label for the FORTRAN debug file, FTDEBUG. This parameter is required.

S/T/P: Specifies the retention value for the debug file. Valid values are S, T, and P. S causes the system to scratch the file when the program completes execution. Values T and P cause the file to maintain its previous status.

You can enter the FORTPRNT command statement by one of three ways:

- Enter FORTPRNT with the appropriate parameters following it.
- Enter the FORTP procedure and select option 5.
- Enter HELP FORTPRNT.

If you enter the FORTP command and select option 5 or enter HELP FORTPRNT, the following display appears:

```
                        FORTPRNT PROCEDURE

                  Prints a FORTRAN IV Debug File.

Label For The FORTRAN IV Debug File ..........................

File Type (S/T/P) ............................................ S
```

Refer to the FORTPRNT parameter descriptions under *FORTPRNT Command Statement* for a description of the prompts on this display.

FORTMOVE Command Statement

The FORTMOVE command statement moves a diagnosed source file to a library. The command statement format is:

FORTMOVE dsflabel, [dsflib / #LIBRARY] , [R / P] , [DELETE]

dsflabel: The file label of the diagnosed source file. This parameter, which is required, will become the source member name.

dsflib: The name of the library that is to receive the source member. If this parameter is not specified, the default is the system library (#LIBRARY).

R/P: The retention parameter of the source member in the library. Valid values are P and R. P means a permanent new member and R means replace. If this parameter is not specified, the default is P.

DELETE: Specifies whether the diagnosed source file should be deleted. If this parameter is not specified, the diagnosed source file will not be deleted.

You can enter the FORTMOVE command statement by one of three ways:

- Enter FORTMOVE with the appropriate parameters following it.
- Enter the FORTP procedure and select option 4.
- Enter HELP FORTMOVE.

If you enter the FORTMOVE command and select option 4 or enter HELP FORTMOVE, the following display appears:

```
                        FORTMOVE PROCEDURE

                Moves a Diagnosed source file to a library.

Label For The Diagnosed Source File .............................

Output Library Name ............................................ #LIBRARY

File Permanent, or Replace Existing Member (R/P) ................ P

Remove Source File (DELETE) .....................................
```

Refer to the FORTMOVE parameter descriptions under *FORTMOVE Command Statement* for a description of the prompts on this display.

FORTRAN Data Switch Procedure

Sixteen data switches are provided for use by the programmer to permit operator-to-program communication similar to the switch facilities of the IBM 1130 System and IBM System/32.

Switch settings 0 through 7 can be initialized by using the SWITCH OCL statement. Switch settings 8 through 15 are initialized to 0.

If the program uses the DATSW subroutine, the following procedure can be used to change the switch settings from a work station:

1. To change the switch settings during execution, the user must press the Attn key to interrupt the program and display an Inquiry Options menu. The operator selects option 4, which sets an indicator informing the DATSW subroutine that the user wants to display the current switch settings.

```
INQUIRY OPTIONS                    INTERRUPTED JOB: R2113308

  0. RESUME INTERRUPTED JOB.

  1. REQUEST COMMAND DISPLAY.

  2. CANCEL JOB AND CLOSE FILES. NEW DATA IS PRESERVED.

  3. CANCEL JOB AND DO NOT CLOSE FILES. NEW DATA IS LOST.

  4. SET INQUIRY CONDITION FOR PROGRAM.

  5. DISPLAY SESSION STATUS.




ENTER NUMBER TO SELECT OPTION OR ENTER MSG CONTROL COMMAND

4
```

2. When the DATSW subroutine is entered, a message is issued that displays the current switch values in hexadecimal notation.

```
INPUT-OUTPUT









FORT-4362 OPTIONS (01   )
  4A70  IS THE OLD DATA SWITCH SETTING
```

The hexadecimal value may be represented in binary notation to show the status of the switch settings.

The valid responses to this message are:

0 – Leave the switch settings as displayed, and resume program execution.
1 – Modify the switch settings with new values, and resume program execution.

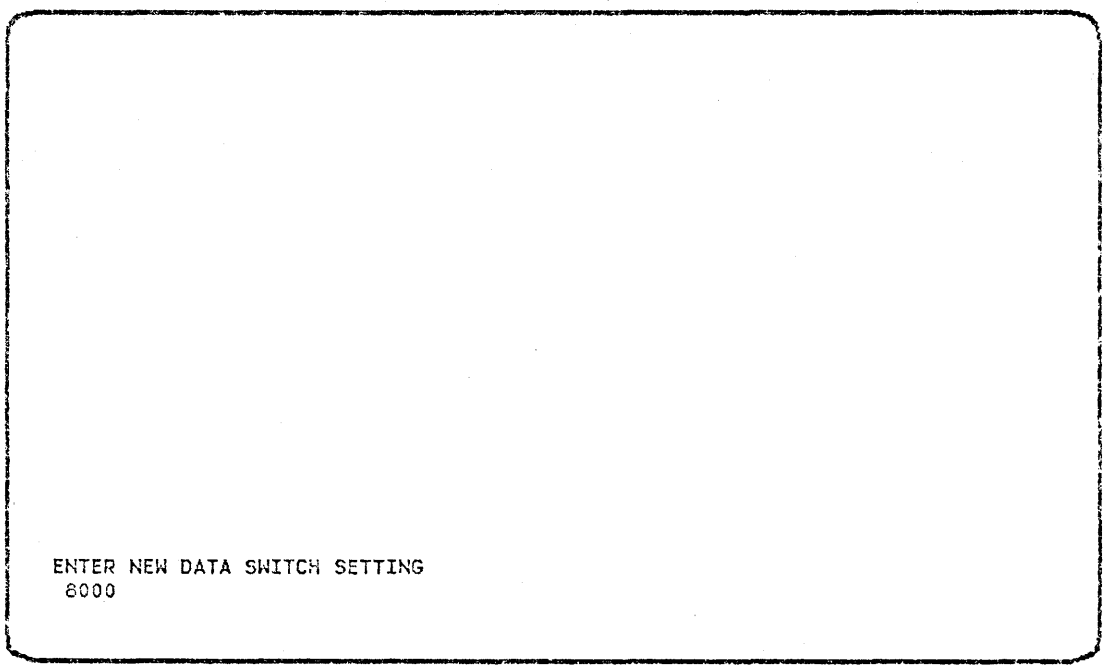
													1	1	1	1	1	1				
Switch Number	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5						
Entry Position		1				2				3				4								

Binary Switch Setting for Each Entry Position	Hexadecimal Character
0001	1
0010	2
0011	3
0100	4
0101	5
0110	6
0111	7
1000	8
1001	9
1010	A
1011	B
1100	C
1101	D
1110	E
1111	F

Note: The values that can be specified for the SWITCH OCL statement are 1 through 8. Values 1 through 4 relate to data switch values 0 through 3, and values 5 through 8 relate to data switch values 4 through 7.

Data Switch	0123	4567	11 8901	1111 2345
Hexadecimal setting of data switches	4	A	7	0
Binary setting of the corresponding data switches	0100	1010	0111	0000

3. When option 1 is selected, the user is allowed to enter new switch values in hexadecimal notation in four entry positions. The valid input characters are 0 through 9 and A through F. In the following example, switches 1, 4, 6, 9, 10, and 11 are set off and switch 0 is set on.



4. The switch values can be altered again by repeating steps 1 through 3.

FORTRAN Messages

While you are running a FORTRAN program, messages may appear on the display screen. For information about these messages, see the *Displayed Messages Guide.*

Chapter 13. How to Operate COBOL

This chapter describes the command statements you can use with the COBOL language. If you require additional information about this program product, refer to the *COBOL Reference Manual.*

If you have the ideographic version of the SSP, ideographic characters can be present in COBOL programs in literals and comments. If a display station is in ideographic mode, COBOL displayed messages are displayed as ideographic.

COBOL provides two subroutines to support ideographic data. One moves the data into a field and deletes the shift-out and shift-in control characters. The other moves the data into a field and adds the shift-out and shift-in control characters.

IBM supplies several library procedures for use with System/34 COBOL. When an appropriate command statement is entered, the IBM-supplied library procedure is either executed or placed on the input job queue.

Library procedures provide for COBOL compilation and link-editing, execution of COBOL programs, movement of a diagnosed source file to a library, and screen prompts, by using the following command statements:

Command Statement	Function
COBOLP	Provides screen prompts for entering, compiling, executing, and correcting COBOL programs.
COBOL	Compiles a COBOL program.
COBOLCG	Compiles and executes a COBOL program.
COBOLG	Executes a COBOL program with user-provided procedures for additional OCL statements.
COBSYSIN	Compiles and link-edits a COBOL program entered from the current system input device.
COBMOVE	Moves a COBOL-diagnosed source file to a library.

COBOLP Command Statement

If you enter COBOLP or HELP COBOLP, the following display screen appears:

```
                              COBOLP PROCEDURE

0 -           Exits From COBOL Processing

1 - COBOL     Compiles a COBOL Program

2 - COBOLG    Executes a COBOL Program

3 - COBOLCG   Compiles and Executes a COBOL Program

4 - SEU       Creates Or Updates a COBOL Module

5 - COBMOVE   Moves Diagnosed Source File To Library




ENTER NUMBER OF OPTION REQUIRED -->
```

From this display you can get the Help display for the COBOL, COBOLCG, COBOLG, COBOL SEU (not a command statement), and COBMOVE command statements. Refer to the appropriate command statement for an illustration of the display that is presented. After you have selected an option from the menu and it has executed, the COBOLP display is displayed again. You can then execute another COBOL command statement. There are some entries that can appear in more than one display. For user convenience, some entered values are carried forward onto following displays until COBOLP processing is terminated. If no further execution is necessary, a response of 0 terminates the COBOLP procedure.

COBOL Command Statement

The COBOL command statement compiles and link-edits a COBOL source program so that the compiler is loaded into main storage. The COBOL command statement format is:

COBOL pgname , [blocksize / 24] , [inlib / #LIBRARY] , [outlib / #LIBRARY] , [mrtmax / 0]

, [YES / NO] , [diagnosed source file]

pgname: The name of the source program to be compiled (maximum length is eight characters).

blocksize: The number of blocks allocated for the work files used by the compiler (each block is 2,560 bytes). If this parameter is not specified, the default value is 24 blocks. Generally, one additional block is required for each group of 10 program source statements over 200.

inlib: The name of the library that contains the source program. If this parameter is not specified, the system library (#LIBRARY) is assumed.

outlib: The name of the library that will contain the object and load member. If this parameter is not specified and the library was not specified on the PROCESS statement, the default is the system library (#LIBRARY).

mrtmax: Identifies the program being compiled as an MRT program and specifies the maximum number of active requesting display stations that can be attached to the program. If this parameter is not specified, the default is 0, and the program is not an MRT program.

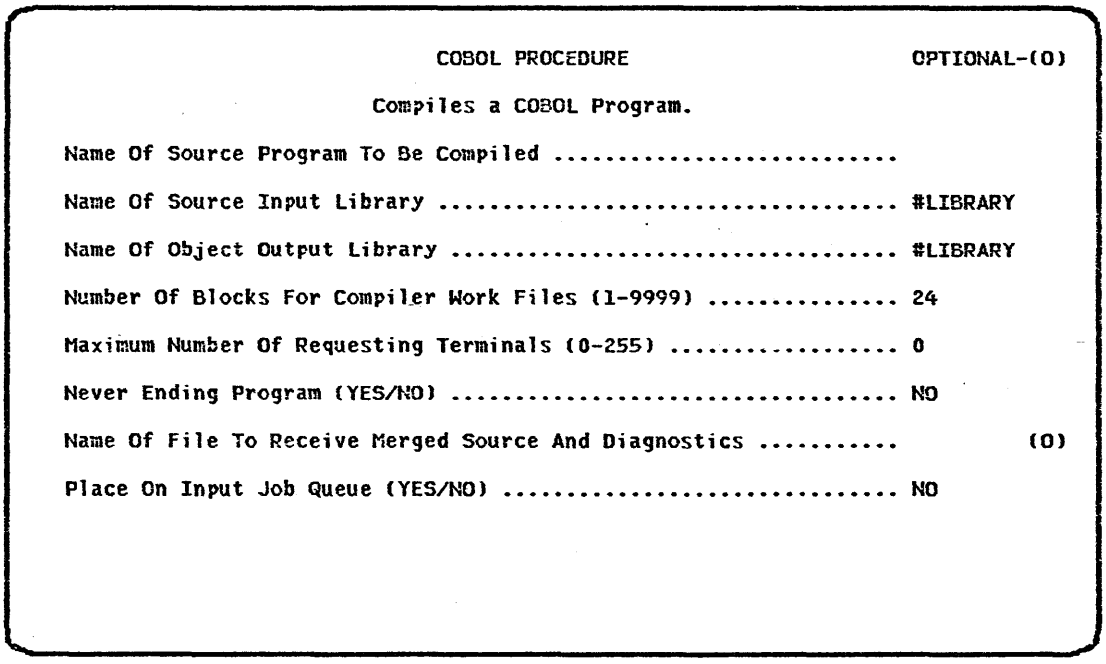
YES/NO: Indicates whether the program to be compiled is a never-ending program. Valid values are YES and NO; the default value is NO.

diagnosed source file: Specifies the file label for the diagnosed source file. If this parameter is not specified, a diagnosed source file will not be created.

You can enter the COBOL command statement by one of three ways:

- Enter COBOL with the appropriate parameters following it.
- Enter the COBOLP procedure and select option 1.
- Enter HELP COBOL.

If you enter the COBOLP command and select option 1 or enter HELP COBOL, the following display appears:



Refer to the COBOL parameter descriptions under *COBOL Command Statement* for a description of the prompts on this display.

COBOLCG Command Statement

The COBOLCG command statement compiles, link-edits, and executes a COBOL program. The COBOLCG command statement format is:

```
COBOLCG pgname , [blocksize] , [inlib    ] , [outlib    ]
                 [24       ]   [#LIBRARY]   [#LIBRARY]

, [oclmmbr] , [userlib] , [mrtmax] , [YES]
                          [0     ]   [NO ]

, [diagnosed source file]
```

pgname: The name of the source program to be compiled (maximum length is eight characters).

blocksize: The number of blocks for the work files used by the compiler. If this parameter is not specified, the default value is 24 blocks. Generally, one additional block is required for each group of 10 program source statements over 200.

inlib: The name of the library that contains the source program. If this parameter is not specified, the system library (#LIBRARY) is assumed.

outlib: The name of the library that will contain the object and load members. If this parameter is not specified and the library was not specified on the PROCESS statement, the default is the system library (#LIBRARY).

oclmmbr: The name of the procedure that contains the FILE OCL statements to be used when executing the designated program.

userlib: The library that contains the COBOL load member to be executed and will also be used for the *oclmmbr* search. If this parameter is not specified, the system first searches the library specified by the outlib parameter, then searches the active user library, and finally searches the system library for the load member.

mrtmax: Identifies the program being compiled as an MRT program and specifies the maximum number of active requesting display stations that can be attached to the program. If this parameter is not specified, the default is 0, and the program is not an MRT program.

YES/NO: Indicates whether the program to be compiled is a never-ending program. Valid values are YES and NO; the default is NO.

diagnosed source file: Specifies the file label for the diagnosed source file. If this parameter is not specified, a diagnosed source file will not be created.

You can enter the COBOLCG command statement by one of three ways:

- Enter COBOLCG with the appropriate parameters following it.
- Enter the COBOLP procedure and select option 3.
- Enter HELP COBOLCG.

If you enter the COBOLP command and select option 3 or enter HELP COBOLCG, the following display appears:

```
                          COBOLCG PROCEDURE                    OPTIONAL-(O)

                    Compiles and Executes a COBOL Program.

Name Of Source Program To Be Compiled .....
Input Library For Source Member ..... #LIBRARY
Output Library For Load Member ..... #LIBRARY
Number Of Blocks For Work File (1-9999) ..... 24
Maximum Number Of Requesting Terminals (0-255) ..... 0
Never Ending Program (YES/NO) ..... NO
Name Of Procedure Containing OCL .....                    (O)
Name Of File To Receive Merged Source And Diagnostics .....    (O)
Name Of Library Containing Program To Be Executed .....       (O)
Place on Input Job Queue (YES/NO) ..... NO
```

Refer to the COBOLCG parameter descriptions under *COBOLCG Command Statement* for a description of the prompts on this display.

COBOLG Command Statement

The COBOLG command statement executes a load member and allows you to enter specialized OCL statements. The command statement format is:

COBOLG [pgname] , [oclmmbr] , [userlib]

pgname: The name of the COBOL load member to be executed.

oclmmbr: The name of the procedure containing the FILE OCL statements to be used when the designated program is executed.

userlib: The library that contains the COBOL load member to be executed and will also be used for the *oclmmbr* search. If this parameter is not specified, the system first searches the active user library, and then searches the system library (#LIBRARY) for the load member.

You can enter the COBOLG command statement by one of three ways:

- Enter COBOLG with the appropriate parameters following it.
- Enter the COBOLP procedure and select option 2.
- Enter HELP COBOLG.

If you enter the COBOLP command and select option 2 or enter HELP COBOLG, the following display appears:

```
                         COBOLG PROCEDURE                        OPTIONAL-(O)

                      Executes a COBOL Program.

Name Of Program To Be Executed ..................................

Name Of Procedure Containing User OCL ...........................          (O)

Name Of Library Containing Program To Be Executed ...............          (O)

Place Job On The Input Job Queue (YES/NO) ....................... NO
```

Refer to the COBOLG parameter descriptions under *COBOLG Command Statement* for a description of the prompts on this display.

COBSYSIN Command Statement

The COBSYSIN command statement compiles and link-edits a COBOL source program that is entered from the current system input device. The command statement format is:

COBSYSIN

If the COBSYSIN command is entered from the keyboard, the user is allowed to enter COBOL source statements, one at a time. If the COBSYSIN command is contained in a user-provided procedure, records are read from the procedure. If the last source statement within the procedure does not contain a /*, reading continues from the keyboard. The last source statement must be followed by a /* termination record.

COBMOVE Command Statement

The COBMOVE command statement moves a diagnosed source file to a library. The command statement format is:

COBMOVE diagnosed source file , [library name / #LIBRARY] , [REPLACE] , [DELETE]

diagnosed source file: The file label for the diagnosed source file. This parameter is required.

library name: The name of the library that is to receive the source member. If this parameter is not specified, the default is the system library (#LIBRARY).

REPLACE: Specifies the disposition of the source member in the library. If this parameter is not specified, and if a source member exists with the same name, a displayed message is issued and requests replacement.

DELETE: Specifies whether the diagnosed source file should be deleted. If this parameter is not specified, the diagnosed source file will not be deleted.

You can enter the COBMOVE command statement by one of three ways:

- Enter COBMOVE with the appropriate parameters following it.
- Enter the COBOLP procedure and select option 5.
- Enter HELP COBMOVE.

If you enter the COBOLP command and select option 5 or enter HELP COBMOVE, the following display appears:

```
                        COBMOVE PROCEDURE                    OPTIONAL-(O)

              Moves a Diagnosed Source File To a Library.

Label For The Diagnosed Source File .............................

Output Library Name ..................................... #LIBRARY

To Replace An Existing Member, Enter REPLACE ..................        (O)

To Remove Source File, Enter DELETE ...........................        (O)
```

Refer to the COBMOVE parameter descriptions under *COBMOVE Command Statement* for a description of the prompts on this display.

COBOL Messages

While you are running a COBOL program, messages may appear on the display screen. For information about these messages, see the *Displayed Messages Guide.*

Chapter 14. How to Operate BASIC

This chapter describes the command statements you can use with the BASIC language. If you require additional information about this program product, refer to the *BASIC Reference Manual*.

System/34 BASIC has four procedure commands:

Procedure Command	Function
BASIC	Allows you to enter, edit, save, and run BASIC programs and procedures.
BASIC MRT	Allows you to execute BASIC multiple requestor terminal (MRT) programs.
BASICP	Allows you to execute BASIC procedures.
BASICR	Allows you to execute BASIC programs.
BASICS	Allows you to convert a library source member that contains a BASIC program into a library subroutine member.

If you have the ideographic version of the SSP, BASIC allows ideographic characters to be entered as character data.

PROGRAM EXECUTION RESTRICTION

System/34 BASIC and either FORTRAN (5726-FO1) programs or programs using the Scientific Instruction Set (5726-SS1) cannot be executed at the same time. The Scientific Instruction Set is a group of macroinstructions that is compiled by the ASM procedure command and used with either FORTRAN or basic assembler programs.

BASIC PROCEDURE COMMAND

The BASIC procedure command allows you to enter, edit, save, and/or immediately run BASIC programs and procedures. This command also allows you to enter, edit, and save other data. You can use all of the BASIC commands. There is no separate compile step between entering the program and running that program.

To start the BASIC procedure, enter the BASIC procedure command on the System/34 command display. The syntax of the BASIC procedure command is:

```
BASIC [library name        ], [region size] , [work area size] , [procedure]
      [active user library ]   [24         ]
```

library name: The name of the library to be used as the current library. The default is the active library. The current library is used when BASIC:

- Executes BASIC commands such as LOAD and SAVE
- Executes the CHAIN statement
- Executes the intrinsic function MSG$
- Opens library members or the work station record file with the OPEN statement

region size: The amount of storage to be used by the BASIC session. The number entered specifies the number of K bytes (K = 1,024) to reserve and must be an even decimal integer from 24 through 64. If no number is entered, 24K bytes is assumed. An odd value can be entered, but the next greater even value is used.

work area size: A whole number from 0 through 99 specifying the work area size in K bytes. If zero is entered or no entry is made, BASIC automatically calculates the work area size based on the region size specified.

procedure: The name of the System/34 library procedure (PROC or P) member that contains OCL statements to be used with executing BASIC programs. The procedure member must be in the specified library or in #LIBRARY.

The following keys can be used with the BASIC procedure command:

Keys	Description
Enter/Rec Adv	Enters the input field. Causes a specified command to be executed or a line to be added to the BASIC work space. Returns from the BASIC Help facility.
Roll↑	Rolls the display up one line and blanks the input field.
Roll↓	Rolls the display down one line and places the last line displayed into the input field.
Command key 3	Switches between allowing only uppercase letters and allowing both uppercase and lowercase letters. If BASIC is being run from an ideographic keyboard, switches between allowing only uppercase letters and allowing uppercase and ideographic characters.
Help	Enters the BASIC Help facility.

When you enter a command or statement that is not syntactically correct, an error message and message identifier are displayed on the last line of the display. The input field remains as entered, and the cursor is placed in the position of the error. You can press the Help key to enter the BASIC Help facility (if it is installed). A screen will appear describing the statement or command in error.

You can terminate the BASIC procedure command and return to the System/34 command display in one of two ways:

- Enter the OFF command.
- Press the Attn key and take option 2 or 3 unless ON ATTN GOTO or ON ATTN IGNORE is active.

You can interrupt an executing BASIC program or procedure by pressing the Attn key and taking option 4 if ON ATTN GOTO or ON ATTN IGNORE is not active.

BASIC MRT PROCEDURE COMMAND

A BASIC MRT procedure command allows you to execute a BASIC MRT program that was saved as a library subroutine member. This command allows an MRT program to be used by an operator who is not familiar with BASIC.

You must write a BASIC MRT procedure for each BASIC MRT program that you want to execute; the procedure must be in the current library. The MRT program specified in the BASIC MRT procedure is retrieved from the specified library and executed by the System/34. To start a BASIC MRT procedure, enter its name on the Command display. Refer to the *BASIC Reference Manual* for information on how to write your BASIC MRT procedure.

You can terminate the BASIC MRT program and return to the System/34 Command display in one of four ways:

- The program executes either a STOP or an END statement.
- The requesters sign off and there are no new requesters.
- The operator signs off the program.
- The operator presses the Attn key and takes option 2, 3, or 4 of the Inquiry display. However, if an ON ATTN IGNORE statement is in effect when the operator presses the Attn key, the request is saved until the ON ATTN IGNORE statement is not in effect. If an ON ATTN GOTO statement is in effect when the operator takes option 4, the program branches to the line given in the GOTO statement.

If a program error occurs, the system displays a message and message identifier that describe the error and allow one or more options. Refer to the *Displayed Messages Guide* for a detailed description of the messages and options.

BASICR PROCEDURE COMMAND

The BASICR procedure command allows you to execute BASIC programs that have been saved as library subroutine (SUBR or R) members. This command allows a BASIC program to be used by an operator not familiar with BASIC. The BASIC program specified in the BASICR procedure command is retrieved from the specified library and executed by System/34.

To start the BASICR procedure, enter the BASICR procedure command on the System/34 command display. The syntax of the BASICR procedure command is:

BASICR member name, [library name / active user library], [region size / 24], [work area size], [procedure], [status]

member name: The name of the library subroutine (SUBR or R) member that contains the BASIC program to be run.

library name: The name of the library containing the specified member name and the default library to be used when BASIC executes the CHAIN statement, opens library members or the work station file with the OPEN statement, or executes the MSG$ intrinsic function. The default is the active user library.

region size: The amount of storage to be used by the BASIC program. The number entered specifies the number of K bytes (K = 1,024) to reserve and must be an even decimal integer from 24 through 64. The default is 24 K bytes. An odd value can be entered, but the next greater even value is used.

work area size: A whole number from 0 through 99 specifying the work area size in K bytes. If zero is entered or no entry is made, BASIC automatically calculates the work area size based on the region size specified.

procedure: The name of the System/34 library procedures (PROC or P) member that contains OCL statements to be used with the executing BASIC program. The procedure member must be in the specified library or in #LIBRARY.

status: Prints the information that would be displayed if you entered the HELP STATUS command.

You can terminate the executing BASIC program and return to the System/34 command display by one of four ways:

- If the program executes either a STOP or an END statement.
- If the operator presses the Attn key and takes option 2 or 3 unless ON ATTN IGNORE is active.
- If the operator presses the Attn key and takes option 4 unless ON ATTN GOTO or ON ATTN IGNORE is active.
- If an error occurs in a running program.

If a program error occurs, a message and message identifier are displayed that describe the error and allow one or more options. Refer to the *Displayed Messages Guide* for a description of the message and options.

BASICP PROCEDURE COMMAND

The BASICP procedure command allows you to execute BASIC procedures that have been saved as library source (SOURCE or S) members. This command allows a BASIC procedure to be used by an operator not familiar with BASIC. The procedure specified in the BASICP procedure command is retrieved from a specified library and executed by System/34.

To start the BASICP procedure, enter the BASICP procedure command on the System/34 command display. The syntax of the BASICP procedure command is:

BASICP member name, [library name / active user library], [region size / 24], [work area size], [procedure], [status]

member name: The name of the library source (SOURCE or S) member that contains the BASIC procedure to be executed.

library name: The name of the library to be used as the current user library. The default is the active user library. The current user library is used when BASIC:

- Executes BASIC commands such as LOAD and SAVE
- Executes the CHAIN statement
- Executes the intrinsic function MSG$
- Opens library members or the work station record file with the OPEN statement

region size: The amount of storage to be used by the BASIC session. The number entered specifies the number of K bytes (K = 1,024) to reserve and must be an even decimal integer from 24 through 64. If no number is entered, 24 K bytes is assumed. An odd value can be entered, but the next greater even value is used.

work area size: A whole number from 0 through 99 specifying the work area size in K bytes. If zero is entered or no entry is made, BASIC automatically calculates the work area size based on the region size specified.

procedure: The name of the System/34 library procedure (PROC or P) member that contains OCL statements to be used with executing BASIC programs. The procedure member must be in the specified library or in #LIBRARY.

status: Prints the information that would be displayed if you entered the HELP STATUS command.

You can terminate the executing BASIC procedure and return to the System/34 command display by one of three ways:

- End the outermost BASIC procedure.
- Press the Attn key and take option 2 or 3 unless ON ATTN GOTO or ON ATTN IGNORE is active.
- Specify the OFF or CLEAR PROC commands in the BASIC procedure.

BASICS PROCEDURE COMMAND

The BASICS procedure command allows you to convert a library source (SOURCE or S) member that contains a BASIC program into a library subroutine (SUBR or R) member and to obtain a listing of the program and any syntax errors in it. You can then use the BASICR procedure command to execute the BASIC program saved as a library subroutine member, or you can use the BASIC procedure command or SEU to correct any syntax errors in the program.

To start the BASICS procedure, enter the BASICS procedure command on the System/34 command display. The syntax of the BASICS procedure command is:

```
BASICS subroutine member name, [subroutine library name] , [REPLACE] ,
                               [active user library]

    [LIST] , [region size] , [source member name] ,
             [24          ]   [subroutine member name]

    [source library name]
    [subroutine library name]
```

subroutine member name: The name of the library subroutine member to be created.

subroutine library name: The name of the library to contain the subroutine member. The default is the active user library.

REPLACE: The program in the source member is to replace the contents of a subroutine member. If REPLACE is not specified and the subroutine member already exists, an error message is issued with an option 0 to replace the member or an option 3 to halt execution.

LIST: The library source member is to be printed as it is read, along with any syntax error messages (if any errors occurred). If you do not specify LIST and either there are syntax errors in the library source member or the region size is too small, you must terminate the procedure with an option 3 to halt execution.

region size: The amount of storage to be reserved for running the BASICS procedure. This entry specifies the number of K bytes to reserve, and must be an even decimal integer from 24 through 64. The default is 24 K bytes. An odd value can be entered, but the next greater even value is used.

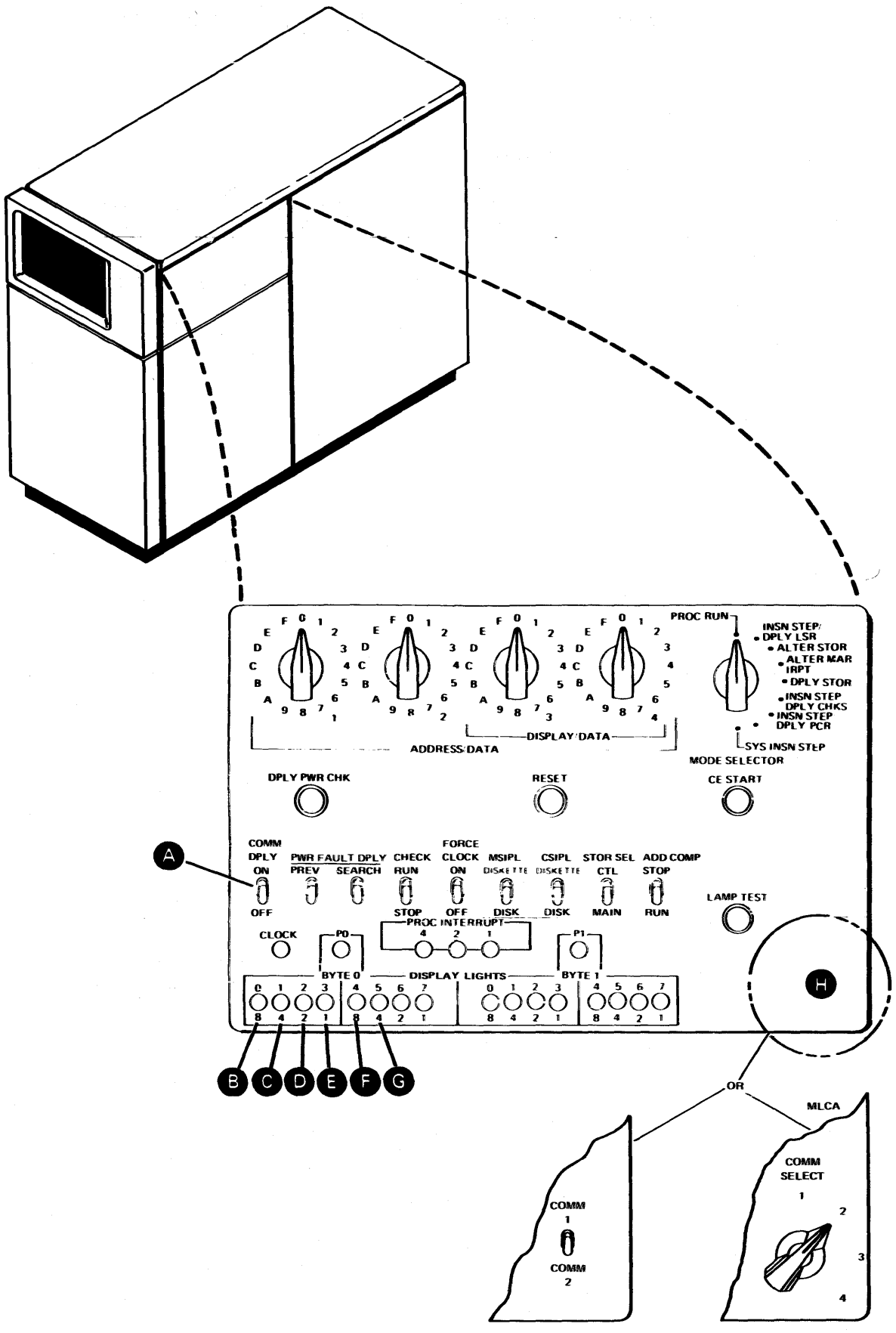
source member name: The name of the library source member containing the BASIC program. The default is the subroutine member name.

source library name: The name of the library containing the source member. The default is the subroutine library name.

Chapter 15. How to Operate the Data Communications Adapter (BSC, SDLC)

CONSOLE DISPLAY LIGHTS AND SWITCH

The lights and switch that indicate data communications processing are on the CE control panel.


PROC RUN
INSN STEP/
DPLY LSR
ALTER STOR
ALTER MAR
IRPT
DPLY STOR
INSN STEP
DPLY CHKS
INSN STEP
DPLY PCR
SYS INSN STEP
MODE SELECTOR
ADDRESS/DATA
DISPLAY/DATA
DPLY PWR CHK
RESET
CE START
COMM DPLY ON
PWR FAULT DPLY PREV
SEARCH
CHECK RUN
FORCE CLOCK ON
MSIPL DISKETTE
CSIPL DISKETTE
STOR SEL CTL
ADD COMP STOP
OFF
STOP
OFF
DISK
DISK
MAIN
RUN
LAMP TEST
CLOCK
P0
PROC INTERRUPT
4 2 1
P1
BYTE 0
DISPLAY LIGHTS
BYTE 1
A
B
C
D
E
F
G
H
OR
MLCA
COMM 1
COMM 2
COMM SELECT

(A) Set the Comm Dply switch to the ON position to display the indicators (B, C, D, E, F, and G). When these lights are on, they indicate the following for the line selected with the COMM switch ((H)). Indicators are not used on a line with autocall installed.

(B) Light 0 indicates that the adapter and the System/34 are ready for use (data terminal ready).

(C) Light 1 indicates that the modem is ready for use (data set ready).

(D) Light 2 indicates that the System/34 was requested to send data (request to send).

(E) Light 3 indicates that the modem has acknowledged a request to send data and allows the data to be sent (clear to send).

(F) Light 4 indicates that data is being transmitted (send data).

(G) Light 5 indicates that data is being received by the System/34 (receive data).

(H) Set this switch to COMM1 to display lights for line 1, to COMM2 to display lights for line 2, to COMM3 to display lights for line 3, and to COMM4 to display lights for line 4.

DATA COMMUNICATIONS

When a job involves data communications, the action required by the System/34 operator varies with the particular component involved (MRJE, BSC, SNA, SDLC, and SRJE) and the type of line being used (nonswitched or switched).

BSC

BSC requires a program (RPG II or assembler) be loaded on the System/34. Depending upon the line type, the following actions are required:

Point-to-Point Nonswitched Line

1. If the BSC program is to transmit data first:
   a. Ensure that the receiving system is ready to receive data.
   b. Load the BSC program. Communications will begin.

2. If the BSC program is to receive first, load the program. Communications will begin whenever the remote system begins transmitting.

Multipoint Line

Load the BSC program. Communications will begin when the host system polls or selects the System/34.

Switched Line

If the line is an autocall line and a phone list has been specified on the // COMM statement, communications will begin as soon as the BSC program is loaded. No operator intervention is required.

If the System/34 is to answer automatically, load the BSC program. Communications will begin when the remote system places the call.

If you are calling manually, load the BSC program. Message SYS-3295, directing you to place the call, will be displayed.

If you are answering the call manually, load the BSC program. Message SYS-3290, directing you to answer the phone when it rings, will be displayed.

Switched Network Backup

To enable a switched network backup, the operator must use the ALTERBSC procedure and must specify the SLINE-Y parameter, which activates a switched network backup. After specifying SLINE-Y, and if a batch RPG II or a BSC basic assembler job is running, the operator can use the OVERRIDE procedure to specify manual call, manual answer, or automatic answer. Otherwise, the connection defaults to manual call if the first operation is a transmit operation, or to manual answer if the first operation is a receive operation. For an additional explanation of the ALTERBSC procedure, see the *System Support Reference Manual.*

Interactive Communications (SSP-ICF)

When an SSP-ICF subsystem is being used, the first action required is to enable the subsystem on the desired line. The steps you take after that depend upon whether the SSP-ICF user program is to be initiated from your System/34 or from the remote system, which SSP-ICF subsystem is being used, and the type of line.

Point-to-Point Nonswitched Line

1. If the SSP-ICF program is being initiated by the remote system, no further action is necessary.

2. If the program is to be initiated in this System/34, load the program. The program you load will, in most instances, cause the remote system to load a program and communications will begin.

3. If you have enabled the BSCEL subsystem and the remote system is a terminal such as a 3741, follow the steps listed under *Batch BSC, Point-to-Point Nonswitched Line.*

Multipoint Line

1. If the SSP-ICF program is being initiated by the remote system, no further action is necessary.

2. If the program is to be initiated in your System/34, load the program. Communications will then begin.

Switched Network Backup

To enable a switched network backup, the system console operator must use the ALTERBSC procedure and must specify the SLINE-Y parameter, as described above. See the *System Support Reference Manual* for additional information.

Switched Line – BSC Subsystems

Note: If the line is an autocall line and a phone list has been specified during configuration or on the // SESSION OCL statement, no operator intervention is required.

1. If the SSP-ICF program is to be initiated by the remote system, put your modem in auto-answer mode. Communications will begin when the remote system transmits a procedure start request.

2. If the program is to be initiated in this System/34 or if the remote system is a terminal such as a 3741, the call will usually originate from this system.

   If you are initiating the call, do the following:
   a. Load the SSP-ICF program.
   b. Message SYS-8105, directing you to place the call, will be displayed when the program acquires an SSP-ICF session or evokes a transaction.

   If you are receiving the call, do the following:
   a. Load the SSP-ICF program.
   b. Message SYS-8104, directing you to answer the phone when it rings, will be displayed when the program acquires an SSP-ICF session or evokes a transaction.

   If the System/34 is to answer automatically, do the following:
   a. Load the SSP-ICF program.
   b. Put the modem in auto-answer mode. Communications will begin when the remote system places the call.

Switched Line – SNA Subsystems

Note: If the line is an autocall line and a phone list has been specified during configuration or on the // SESSION OCL statement, no operator intervention is required.

If you are initiating the call, message SYS-3401, directing you to place the call, will be displayed when you enable the subsystem.

If you are receiving the call, message SYS-3400, directing you to answer the phone when it rings, will be displayed when you enable the subsystem.

If the System/34 is to answer automatically, place the modem in auto-answer mode.

Remote Work Stations

When remote work station support is being used, the first action required is using the VARY command to place at least one remote device online. See Chapter 4 of this manual or the *System Support Reference Manual* for an explanation of the VARY command. The steps you take after that depend upon whether the communications line is switched or nonswitched.

Nonswitched Line

For nonswitched lines, no further action is necessary.

Switched Lines

1. If you are initiating the call, message SYS-3401, directing you to place the call, will be displayed after the VARY command.

2. If you are receiving the call, message SYS-3400, directing you to answer the phone when it rings, will be displayed after the VARY command.

3. If the System/34 is to answer automatically, place the modem in auto-answer mode. No further operator intervention is required.

Note: If a switched line connection is terminated abnormally, all devices on the line must be varied off and the above procedure must be repeated. The line will be unusable until this is done.

MRJE/SRJE

Switched Line

If the line is an autocall line and a phone list has been specified on the // COMM statement or the MRJE or SRJE procedures, communications will begin as soon as the BSC and SDLC program is loaded. No operator intervention is required to complete the call.

If you are initiating the call, do the following:

1. Start the RJE utility.

2. Message SYS-3401 for SRJE or SYS-4691 for MRJE, directing you to place the call, will be displayed.

If you are receiving the call, do the following:

1. Start the RJE utility.

2. Message SYS-3400 for SRJE, directing you to answer the phone when it rings, will be displayed. No message is issued for MRJE.

If the System/34 is to answer automatically, do the following:

1. Start the RJE utility.

2. Put the modem in auto-answer mode. Communications will begin when the remote system places the call.

For additional information on MRJE and SRJE, refer to the *Data Communications Reference Manual.*

Equalization for the IBM 2400 bps Integrated Modem

Line equalization (adjusting the modem to communications line characteristics) is done at installation time for nonswitched lines only, but may need to be repeated if transmission errors increase. Changes in the communications line characteristics can cause transmission errors. Equalization usually corrects these errors.

To do line equalization, open the left front cover of the system unit and use the 2400 modem operator panel (see Figure 15-1). If your system has two communications lines, each with a 2400 integrated modem, you may have two modem operator panels on your system unit. Be sure you are using the modem operator panel associated with the line you want to equalize (the line 1 operator panel is toward the front of the 5340). Follow the equalization procedure for the type of network you have: point-to-point or multipoint tributary network.

For either procedure, begin by telephoning the remote operator; then, together coordinate the equalization procedure over the phone.

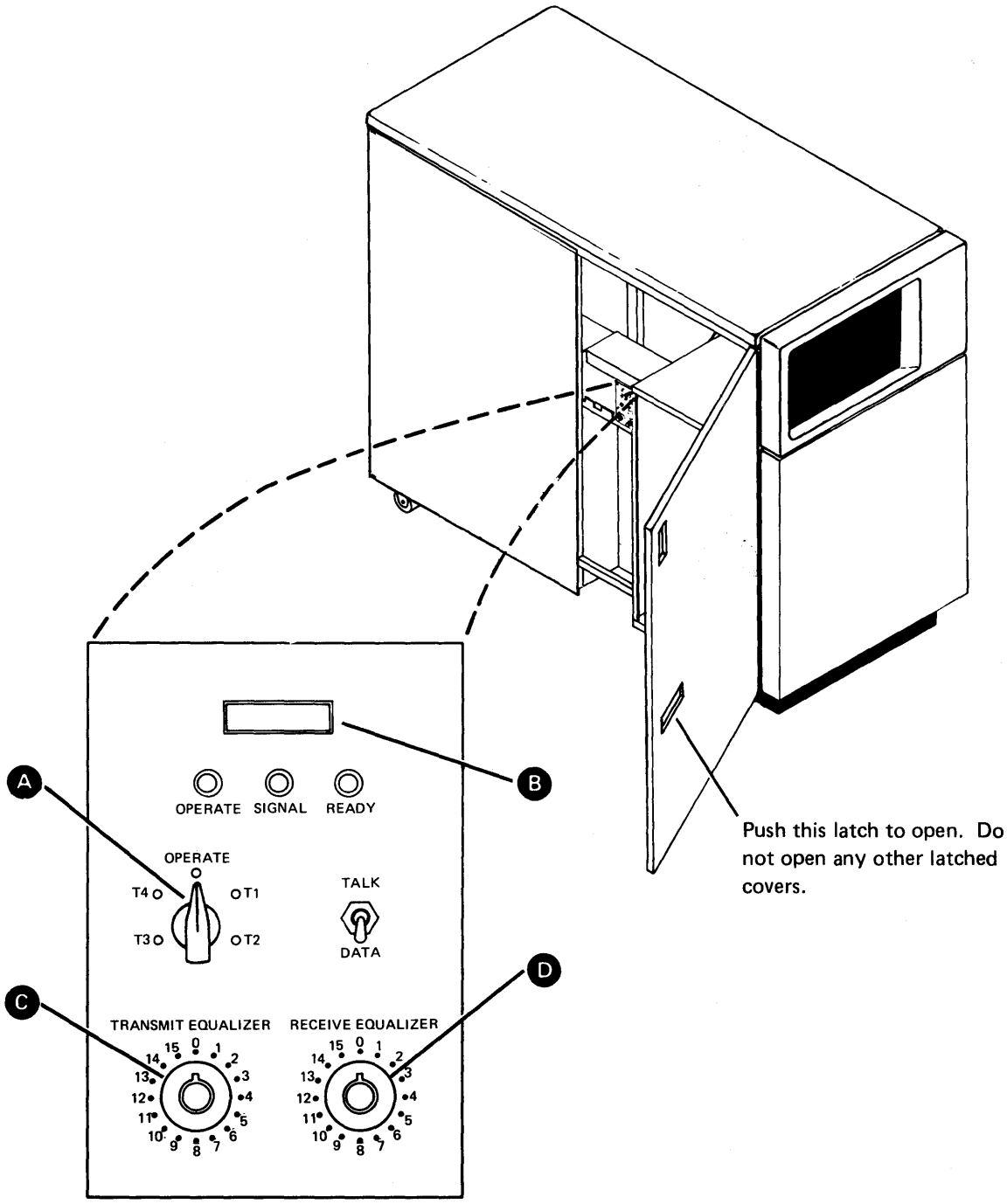


Figure 15-1. 2400 Integrated Modem Operator Panel

Point-to-Point Nonswitched Network

1. Set your Test/Operate switch (A) to the T3 position.

2. Tell the remote operator to set the Test/Operate switch to the T4 position, and the Receive Equalizer switch (D) to the 0 position.

3. Tell the remote operator to turn the Receive Equalizer switch to each position and, for best operation, to set it at the position that produces the lowest meter reading.

4. Set your Test/Operate switch to the T4 position and your Receive Equalizer switch to the 0 position.

5. Tell the remote operator to set the Test/Operate switch to the T3 position.

6. Turn your Receive Equalizer switch to each position and, for the best operation, set it at the position that produces your lowest meter reading (B).

7. Set your Test/Operate switch to the Operate position, and also tell the remote operator to set the Test/Operate switch to the Operate position.

Multipoint Nonswitched Network

1. Set your Test/Operate switch (A) to the T4 position.

2. Tell the remote multipoint control operator to set the Test/Operate switch to the T3 position.

3. Turn your Receive Equalizer switch (D) to each position and, for best operation, set it at the position that produces your lowest meter reading (B).

4. Set your Test/Operate switch to the T3 position.

5. Tell the multipoint control operator to set the Test/Operate switch to the T4 position.

6. Turn your Transmit Equalizer switch (C) to each position and, for best operation, set it at the position that produces the lowest meter reading at the multipoint control station meter.

7. Set your Test/Operate switch to the Operate position, and tell the multipoint control operator to set the Test/Operate switch to the Operate position.

4800 bps Integrated Modem Manual Test Procedures

Manual tests for the 4800 bps integrated modem require operator intervention at either the modem attached to System/34, the remote modem, or both modems. For some of these tests, you will have to contact the operator at the remote location to verify the status of the remote modem. For normal operation, the Manual Tests switch must be set to the Operate position. See Figure 15-2.

You should perform the lamp test before running any of the other manual tests.

Lamp Test

The lamp test checks that all indicator lights on the operator panel can be turned on.

To check the lights:

1. Ensure that power is turned on at the System/34.
2. Turn the Manual Tests switch on the modem operator panel to the Lamp position.
3. Check that all the operator panel lights come on. See Figure 15-2.
4. Turn the Manual Tests switch to the Operate position.

Self Test

The self test checks the modem operation by wrapping a test pattern from the transmit section to the receive section of the modem, and then checking for errors. A communications line is not required for this test. You can run the self test on a nonswitched multipoint tributary network without interfering with the normal operation of the rest of the network. If you run the self test on a switched line network, however, you must terminate the switched line connection.

To run the self test:

1. Turn the Manual Tests switch to the ST (Self Test) position.
2. Check that the Test light comes on and that the Data Quality Good light flashes approximately every 4 seconds. If no errors are detected, the test continues running with the Data Quality Good light flashing approximately every 4 seconds. See Figure 15-2. If an error is detected, the test stops and the Modem Check light comes on.
3. If no errors are detected, stop the test by turning the Manual Tests switch to the Operate position.

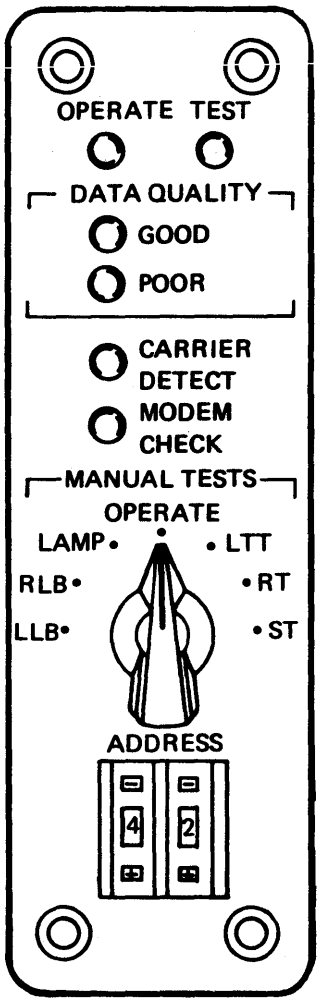


Figure 15-2. 4800 bps Integrated Modem Operator Panel (Nonswitched)

Transmit/Receive Test (Switched Line Networks Only)

Notes:

1. The steps of this test must be done in the order listed below.
2. If the remote work station (such as a 5251 Model 2 or 12) or the remote system has an integrated modem without a customer accessible operator panel, a customer engineer must be present at the remote location while this test is being run.

The transmit/receive test checks the transmit section of the modem, the switched communications line, and the receive section of the remote modem. The modem transmits a test pattern over the switched communications line to the remote modem where it is checked for errors.

To run the transmit/receive test:

1. Have the remote modem's Function or Manual Tests switch turned to the RT (Receive Test) position.

2. Turn the Manual Tests switch to the LTT (Transmit Test) position on the local modem.

3. Ensure that the modem's telephone is in voice mode. Then establish the connection by dialing the remote modem's telephone number. When you hear the answer tone, replace your handset. The Transmit/Receive test then starts running.

4. Check that the Test light is on while the test is running. The remote modem's Data Quality Good and Test lights are also on while the test is running. An error causes the remote modem's Modem Check light to come on.

5. Now run the test in the opposite direction to test the receive portion of the local modem. Perform the following steps.

6. Turn the Manual Tests switch to the RT position on the local modem.

7. Have the remote modem's Function or Manual Tests switch turned to the LTT position. The transmit/receive test then starts running.

8. Check at local modem that the Data Quality Good and Test lights are on while the test is running. The remote modem's Test light is also on while the test is running. An error causes the Modem Check light to come on.

9. Stop the test by turning the Function switches on both modems to the Operate position.

Loop/Transmit Test (Nonswitched Line Networks Only)

The loop/transmit test can only be run from System/34 if the System/34 is a multipoint control station or point-to-point primary station. The test checks the modem operation, the communications line, and the remote modem operation. The modem transmits a test pattern over the communications line to the remote modem. The remote modem loops the received test pattern back to the System/34, which compares this pattern with the pattern transmitted. See Figure 15-3.

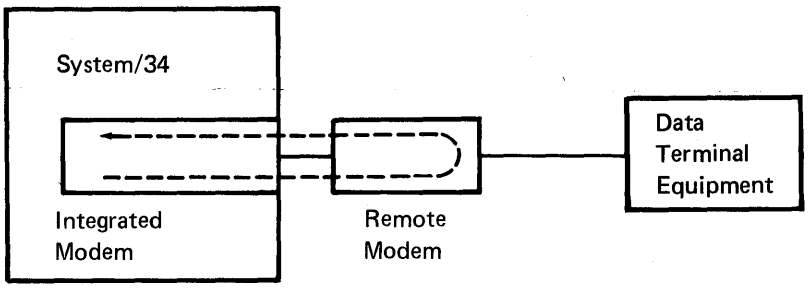


Figure 15-3. Loop/Transmit Test

To run the loop/transmit test:

Note: The remote modem's Function or Manual Tests switch must be in the Operate position. Usually it will be in that position; if it is, operator intervention at the remote modem is not required.

1. In multipoint networks only, set the modem's address switch to the address of the remote modem to be tested. To change the displayed address, press the plus (+) or minus (-) switches on the address switch until the correct number appears.

2. Turn the Manual Tests switch to the LTT position.

3. Check that the Data Quality Good and Test lights are on. The remote modem's Data Quality Good, Carrier Detect, and Test lights are also on while the test is running. Run this test for at least one minute. A data compare error is indicated by the Modem Check light coming on.

4. Stop the test by turning the Manual Tests switch to the Operate position.

PRIMARY SDLC ERROR RETRY COUNTS (SETRETRY PROCEDURE)

General Information

The SETRETRY procedure displays the configured Primary SDLC error retry count values for each communications line and allows the values to be changed. The value is the number of multiples of 7 retries that Primary SDLC uses to attempt to contact a secondary station. If the secondary station does not respond during the specified number of retries, a permanent time-out error is reported.

Some modems such as the IBM 3865 require more time to equalize than the default error retry count allows. Thus, a permanent time-out error may be reported when the modems are equalizing (not a permanent error situation). Increasing the error retry count value from the default (a value of 1 that equals 7 retries) prevents a permanent time-out error in this situation.

It is recommended that the default value of 1 be used unless a problem has been identified. This value only affects the operation of Primary SDLC and its associated SNA task (Remote Work Station Support, SNA Peer Support —Primary only, System/34 Finance Support, and SDLC Station Test).

Note: The communications line must be VARIED OFF/DISABLED for the change to become effective.

Operation

Run the SETRETRY procedure by entering SETRETRY at the system console. The following screen is displayed.

```
                    PRIMARY SDLC ERROR RETRY COUNTS


                    LINE        VALUE
                     1           1
                     2           1
                     3           1
                     4           1


The value is the number of multiples of 7 retries used by Primary SDLC
to contact a secondary station.  If the secondary station does not
respond within the specified number of retries, a permanent timeout
error is reported.  Valid values are 1-5.
```

SDLC STATION TEST

General Information

You can use the SDLC Station Test to determine whether a communications line is operational, and whether remote System/34s, remote 3601 finance controllers, and remote work station controllers are operational.

You can run the test on either a switched or nonswitched connection. On a multipoint line, you can test up to seven secondary remote stations with a single test. The autocall feature cannot be used for this test.

The system that you are working from will send out a TEST command to the remote locations you specify. If the remote stations respond with a TEST response, the transmission is classed as successful. If the remote stations respond in any other form, or do not respond at all, the transmission is classed as unsuccessful.

After you have begun test transmissions, no remote work station can be varied online until the test is completed. If, at any time, you wish to end the test, you can do so by pressing command key 7. You may also end the test by pressing the Attention key and then selecting option 2 or 3.

Operation

Run the SDLC Station Test by entering the procedure STATEST at the system console. The first screen to appear is shown in Figure 15-4.

```
                        PRIMARY SDLC STATION TEST

Communication Line Number (1/2/3/4) ............................... 4

Number of Test Transmissions (1-999) .............................. 02

Number of Seconds Between Transmissions (0-20) .................... 1

Log Successful Transmissions to History File? (No-0 Yes-1) ......... 0




ENTER - Continue                CMD KEY 7 - End
```

Figure 15-4. Primary SDLC Station Test Screen with Sample Values

You can select values for any of the prompts. After you complete your entries and press the Enter key, the screen shown in Figure 15-5 appears.

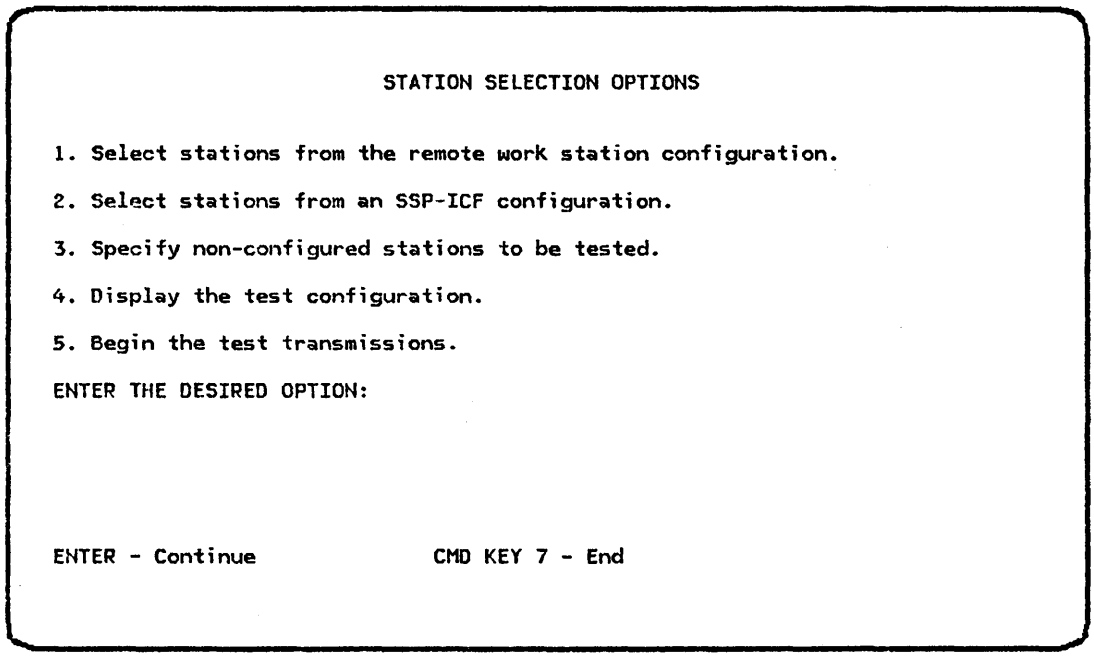


Figure 15-5. Station Selection Options Menu

Respond to this screen as you would to any system menu, by keying in a number for the type of remote unit you want to test. If you select option 1, a screen appears that displays all remote work stations configured on the line you selected. Figure 15-6 is a sample of this screen.

If, after choosing options 1, 2, or 3, you decide that the option was not correct, you may return to the Station Selection Options menu by pressing the Enter key with no data entered.

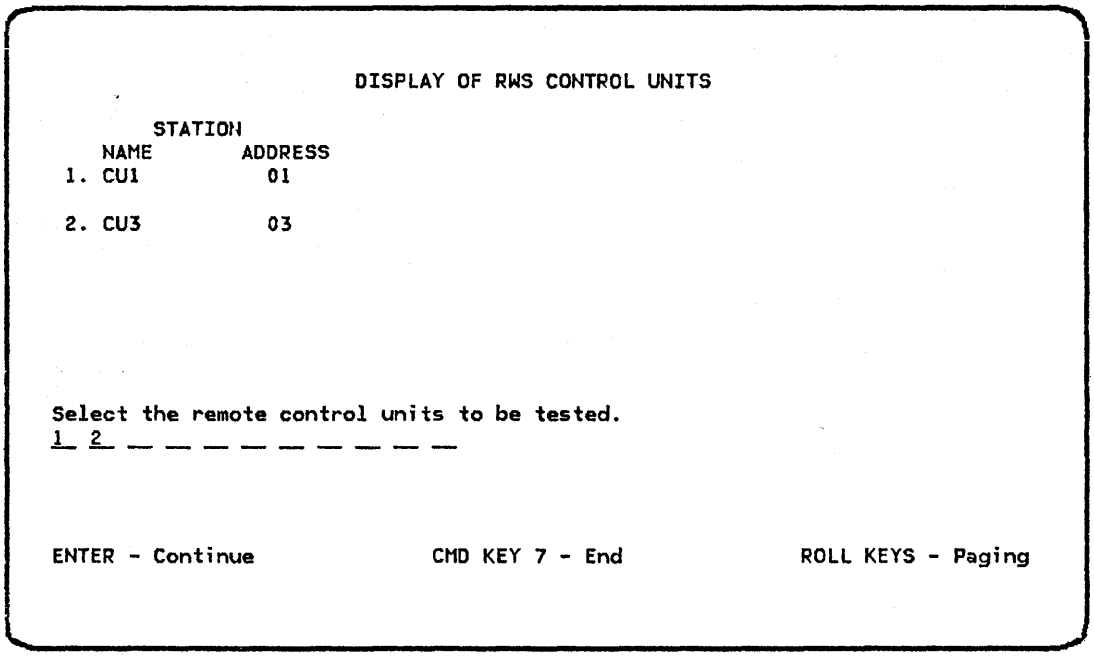


Figure 15-6. Sample Remote Work Stations Screen

This screen allows you to select the remote control units you want to test. Enter the number of the locations in the underscore areas on the screen. In the sample screen, the operator decided to test control units 1 and 2. When you have filled in the correct information, press the Enter key to return to the Station Selection Options menu (Figure 15-5).

If you select option 2 from the Station Selection Options menu, the following screen is displayed (Figure 15-7).

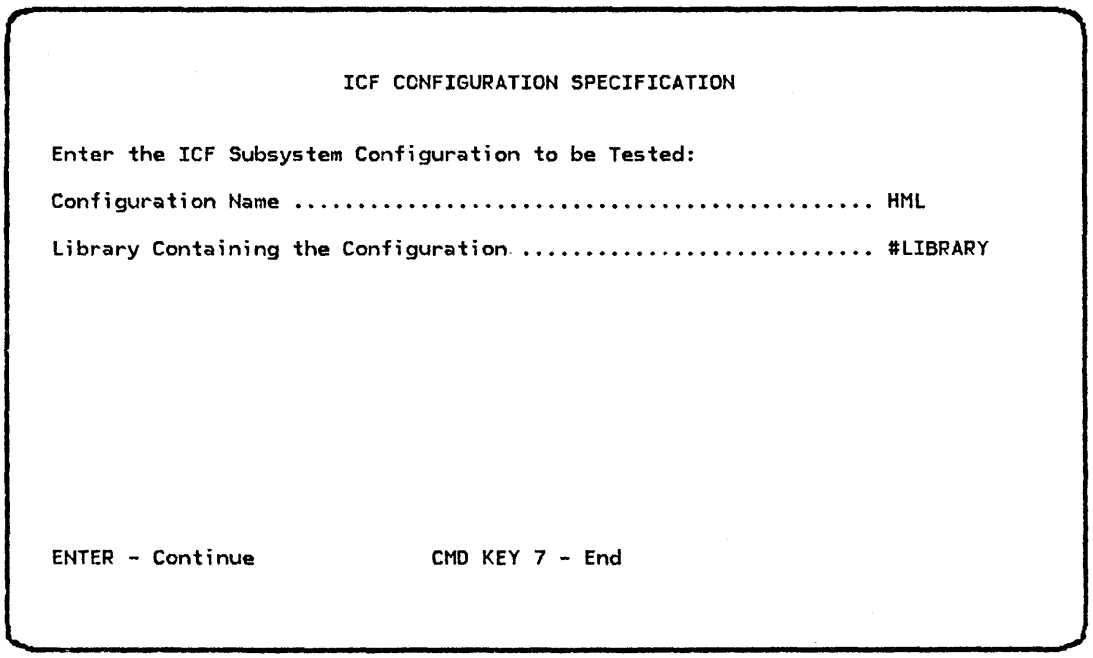


Figure 15-7. Sample ICF Configuration Specification Screen

Enter the name of the ICF configuration containing the locations you want to test in the space to the right of the first line of periods. The configuration must be either a primary SNA peer configuration or an SNA finance configuration. Enter the name of the library containing the configuration in the space to the right of the second line of periods. In the sample screen, the ICF configuration name is HML, and #LIBRARY contains the ICF configuration.

Note: You can use the STATUS SUBSESS command to determine the configuration name of your ICF subsystem.

When you have entered the required data on the screen shown in Figure 15-7, press the Enter key. The screen that appears allows you to select the ICF locations you choose to test (Figure 15-8).

```
                    DISPLAY OF ICF LOCATIONS

        LOCATION                              LOCATION
    NAME        ADDRESS                   NAME        ADDRESS

 1. LOC1          A0

 2. LOC2          A1

 3. LOC3          A2


Select the Locations to be tested.
1 2 _ _ _ _ _ _ _ _ _ _

ENTER - Continue          CMD KEY 7 - End          ROLL KEYS - Paging
```

Figure 15-8. Sample Display of ICF Locations

Enter the numbers of the locations in the underscore areas. For example, if you wanted to test LOC1 and LOC2, you would enter 1 and 2 above the first two underscores. Press the Enter key to return to the Station Selection Options menu (Figure 15-5).

If you select option 3 from the Station Selection Options menu, the screen shown in Figure 15-9 appears. Enter the address of the stations you want to test in the address blanks indicated by the underscores (left column). If you know the names of the stations to be tested, enter the names in the underscore spaces in the right column (Station Name).

```
                NON-CONFIGURED STATION SPECIFICATION

Enter the Addresses of the Stations to be Tested:

   ADDRESS    STATION NAME (optional)

1. 03         STATION1
2. 05         STATION2
3. ____       _________
4. ____       _________
5. ____       _________
6. ____       _________
7. ____       _________

ENTER - Continue              CMD KEY 7 - End
```

Figure 15-9. Sample Non-Configured Station Specification Screen

After you have entered all necessary data for the tests that you want to run, you may return to the Station Selection Options menu and select option 4. This option displays the test configuration that you have selected. Figure 15-10 shows a sample test configuration.

```
                DISPLAY OF TEST CONFIGURATION

  Line Number:  4        Transmissions:  002       Interval: 01 seconds

                          NAME            ADDRESS

                     1. STATION1            03
                     2. STATION2            05
                     3.
                     4.
                     5.
                     6.
                     7.

ENTER - Continue              CMD KEY 7 - End
```

Figure 15-10. Sample SDLC Station Test Configuration

If all the stations displayed on the screen are stations that you want to test, press the Enter key to return to the Station Selection Options menu (Figure 15-5). If you do not want to test one or more of the stations displayed, you must press command key 7 to end the procedure and enter STATEST again.

When the test configuration display is correct, select option 5 on the Station Selection Options menu, and the SDLC Station Test will begin.

Successful test transmissions result in informational messages that are logged to the history file if you responded yes to that prompt in the Primary SDLC Station Test screen (Figure 15-4). Unsuccessful transmissions result in messages that require operator response; these messages are always logged to the history file. All messages are documented in the *Messages Guide*.

If you receive a message that a transmission is unsuccessful, you must respond by taking one of the following options:

- Continue transmissions to all stations.
- Halt transmissions to the station that responded unsuccessfully, but continue transmissions to all other stations.
- Select a new test configuration.
- Discontinue the SDLC Station Test.

The SDLC Station Test can be completed without having all stations respond successfully to the TEST command. When the SDLC Station Test is complete, a display showing the results of the test appears. Figure 15-11 is a sample of this display.

```
                    STATION TEST STATUS

Number of Requested Transmissions:          002
Number of Complete Transmissions:           002


                THE STATION TEST IS COMPLETE
```

Figure 15-11. Sample Station Test Status Display

After the test is completed, this display remains on the screen for approximately 3 seconds. Then the display immediately returns to the SDLC Station Test screen (Figure 15-4), but only if the test is complete. (If the test does not complete, you will get an error message.) After the SDLC Station Test screen appears, you may enter data for a new test, or end the test by pressing command key 7.

Notes on Operation

When displaying remote work stations or ICF locations and more than eight stations are in the configuration, you may have to press the Roll keys to display the station you want. Press the Roll Up (Roll↑) key to page forward and the Roll Down (Roll↓) key to page backward.

If a station you are trying to test does not respond correctly, make sure that it is in the correct status for the test. For a remote work station, the control unit must be powered on and varied offline. For SNA finance stations, the 3601 unit must be powered on and IPL must have been performed if necessary. For a peer connection (System/34), the remote station must have been enabled via the ENABLE procedure.

When you are running the SDLC Station Test to another System/34 on a switched or leased one-line or two-line communciations hook-up, the secondary peer configuration will be disabled after the test is complete. A message appears that shows the name of the location tested and says PERMANENT SDLC HARDWARE ERROR. This message is followed by message SYS-3403, which says SYSTEM WRAP TEST. You must select option 2 for this message. The appearance of these messages is normal, but you must re-enable the peer configuration via the ENABLE procedure.

Note: The peer configuration will not be disabled if you have run the SDLC Station Test to a System/34 connected by a multiline communications adapter (MLCA) via a point-to-point connection.

Nonswitched Network

Set the CE panel Comm Dply switch to on. Set the COMM switch to the line in error. The Modem Ready light (the second light from the left on the bottom of the CE panel) should be on while the program is executing. (The Modem Ready light will be off on a switched line until the connection is established.) If it turns off, check that the modem is plugged in. If you cannot determine the cause of the loss of power to the modem, call your modem service representative.

If no lights on the CE panel are flashing while the program is executing, check the Data Terminal Ready light (the leftmost light on the CE panel). If it is off, reload your program. If it is on, do the following:

1. Contact the operator of the remote terminal or system and check that the proper program is being executed.

2. Before you call for service, check that all of the communication equipment involved is operating properly.

If you have the 2400-bps integrated modem, see *Equalization for the IBM 2400 bps Integrated Modem* earlier in this chapter before you call for service.

In the event of an inoperable point-to-point nonswitched line to a remote system or terminal such as a remote work station controller (5251 models 2 and 12), a point-to-point switched connection can be made to permit continued operations providing the necessary modem feature (switched network backup) and telephone facilities are available. The following steps are necessary to make the point-to-point switched connection:

1. Modify the modem/telephone facilities to a point-to-point switched environment at the System/34 and the remote system or the terminal locations. You can use the ALTERBSC or ALTERSDL procedures to do this. See the *System Support Reference Manual* for additional information.

2. Ensure that both local and remote programs are loaded, unless you are making the switched connection for remote work stations.

3. Make the manual call (either direction) and go to 'data' on the data sets.

4. Enter the VARY ON command at the system console for remote terminals.

5. See *Switched Network* if you encounter problems.

Notes:

1. If the remote 5251 Model 2 or 12 switches have not been changed from a point-to-point nonswitched environment to a point-to-point switched environment, no time-out will occur between going to 'data' and the execution of the VARY ON command. If the remote 5251 Model 2 or 12 switches have been changed to a point-to-point switched environment, 30 seconds is allowed between going to 'data' and the execution of the VARY ON command before a time-out occurs.
2. When the VARY ON command is entered, the system console screens will be the same as for a point-to-point nonswitched connection (no call message will appear).
3. After the VARY OFF command has been executed, the line will not automatically be dropped if the switches on the 5251 Model 2 or 12 were left in the leased position. The user must manually disconnect the line (this is done automatically by the 5251 Model 2 or 12 after 30 seconds of no activity if the switches indicate a switched environment).

Switched Network

If you initiate a call and talk to the operator of the called terminal or system, but fail to complete the network connection:

Contact the operator of the called terminal or system and check that their modem was in data mode and that their program was properly loaded and ready to receive data before the operator replaced the receiver on the modem.

Retry the call, following the steps for initiating a call in the *Data Communications* section earlier in this chapter.

Before you call for service, check that all of the communication equipment involved is operating properly.

If you initiate a call and the operator of the called terminal or system has placed the modem in the auto-answer mode:

If that modem does not stop ringing, the called terminal or system is not ready to begin communications. Contact the operator and request that the terminal or system be made ready for communication.

If you receive a busy signal, the called terminal or system may be communicating with another terminal or system or the communication equipment may have failed. Contact the operator of the called terminal or system.

If the modem stops ringing but you do not hear a high-pitched tone, there may be a poor connection. Replace your receiver on the modem, then reattempt to make the connection. If this continues to occur, the operator of the called terminal or system should check that equipment.

If you receive a call and talk to the operator of the calling terminal or system but fail to complete the network connection:

Repeat the steps for receiving a call and talking to the calling operator in the *Data Communications* section earlier in this chapter. Be sure that you do each step in its proper sequence. Also check that you load the proper program and that you place your modem in talk mode *before* the caller enters data mode.

Before you call for service, check that all of the communication equipment involved is operating properly.

If you receive a call and your modem answered automatically:

Did your modem ring?
Yes **No**

The calling operator has specified the wrong program or has dialed the wrong number; a calling terminal modem error has occurred or a line problem has occurred. Contact the operator of the calling terminal or system.

Set the CE panel Comm Dply switch on. Set the COMM switch to the desired communications line. **Did the Modem Ready light (second light from the left on the CE panel) turn on?**
Yes **No**

Call your modem service representative.

If the program does not begin within the expected amount of time, reload the program. Before you call for service, check that all of the communication equipment involved is operating properly.

Autocall

If you have the autocall feature and the call is being placed automatically, a SYS-86xx message will be displayed indicating the number or numbers that could not be reached.

Was the message SYS-8603?
Yes **No**

A hardware error occurred. Contact your IBM representative.

Check the phone number(s) in the phone list that was specified. **Are the correct number(s) specified?**
Yes **No**

Update the phone list and reestablish communications.

The other end could not be reached. Contact the remote operator to ensure that the remote terminal or system was ready for communications. It may not have been set up or it may have been in communications with another system.

MLCA Controller and Communications Line (Japan Only)

If only one communications line is failing, run the MLCA Communication Line Test that follows. If all communications lines are failing, run the MLCA Controller Test that follows.

Note: When you run the Communications Line Test on a communications line, that line must not be in use. When you run the MLCA Controller Test, no communications lines may be in use.

MLCA Communication Line Test

Note: Set the modem cable switch to the Test position before running the test. Set the switch to Operate after the test is complete. Check that all cables and connectors to the NTT facilities are in place and secure, that power to the NTT equipment (where applicable) is on and that all switches, etc. ..., are in the correct operating position.

1. Enter COMMTST at any display station.
2. Insert the B5ML diagnostic diskette when prompted.
3. Select the line wrap test option.
4. Select the communications line you wish to test.
5. If an error is indicated, call the appropriate service representative.
6. Press the Enter/Rec Adv key after results of the test are displayed.
7. End the test.

MLCA Controller Test

1. Enter COMMTST at any display station.
2. Insert the B5ML diagnostic diskette when prompted.
3. Select the controller wrap test option.

   Note: System message 8585 (MLCA controller check) will be posted automatically on the system console when this test is invoked. Ignore the message.
4. If an error is indicated, call your service representative.
5. Press the Enter/Rec Adv key after the results of the test are displayed.
6. End the test.

Chapter 16. Problem Determination

System *down time,* time during which you cannot operate the system because of system problems, can be substantially reduced if you can determine problems and perform appropriate recovery actions. The following pages provide descriptions of problem situations and actions that you can take before, or instead of, calling for service.

In general, always follow the operating instructions and recovery actions described in your application operating instructions. Remember that it is not always possible to retry a failing job without either restoring disk information that was partially updated or removing information that was being created on the disk. For some failures, the system library must be reloaded from diskettes to disk.

If you were entering a large amount of information when the failure occurred, it may be possible to save the records already entered in a disk file. Perform IPL from disk and sign on. When the IPL File Rebuild override screen appears, enter a Y (yes) to examine the disk VTOC and continue as needed.

LOCATING THE PROBLEM

For any problem that occurs on the system, you may be able to resume operation by checking the following:

What to Check	What to Look For
Plugs and lights	• System plugged in.
	• Power light on (if it is not on, check that it is working by pressing the Lamp Test Switch on the CE control panel).
	• IPO switch on the left side of the 5340 System Unit and mainline circuit breaker both on.
Printer	• Proper forms used.
	• Proper adjustment of forms and the print belt.
	• Proper character density.
	• Print unit closed (on the line printer and 5225 Printer).
Diskette drive	• Proper diskette inserted correctly.
	• Door latched.

What to Check	What to Look For
Work station	• Cable plugged into work station.
	• Power on.
	• Address switches set properly.
	• Cable Terminator switch set correctly.
	• STATUS switch on NORMAL.
Switches	• Proper setting of the MSIPL and CSIPL switches on the CE panel (normally, both switches are set to the Disk position), and the operator panel Power switch set to the 1 position (on).
	• Mode Selector switch on the CE panel set to the Proc Run position.
	• Proper setting of the Brightness control on the system console.
	• Each Address/Data switch on the CE panel set to 0.
Data	• Proper data files restored to the disk.
	• Correct commands and parameters entered for each job.
Commands	• Proper commands and parameters entered in correct sequence.

If you cannot correct the problem, call your service representative. You may be able to reduce the time required to resume system operation by collecting needed information (for example, by recording error messages and saving any program output) and having this information available.

DETERMINING THE PROBLEM

1. **Does the system power turn on when you set the operator panel Power switch to the 1 position (on)?**

   Yes **No**

   Is the Thermal Check light on the operator panel on?

   No **Yes**

   See *Thermal Check Light On* in this chapter.

   Is the Power Check light on the operator panel on?

   No **Yes**

   See *Power Check Light On* in this chapter.

   See *No System Power* in this chapter.

2. **Is the Processor Check light on the operator panel on?**

   No **Yes**

   See *Processor Check Light On* in this chapter.

3. **Is the Console Check light on the operator panel on?**

   No **Yes**

   See *Console Check Light On* in this chapter.

4. **Can you complete the initial program load (IPL)?** See *Initial Program Load from the System Console* in Chapter 4, to determine what should appear on your screen after IPL.

   Yes **No**

   See *Cannot IPL* in this chapter.

5. **Are you trying to run a data communications program?**

   No **Yes**

   See *Data Communications Problem Determination* in Chapter 15.

6. **Is there visible system action (either the System In Use light on the operator panel is on or a job has ended and the System Available light on the display screen is on)?**

   Yes **No**

   See *No Visible System Action* in this chapter.

7. **Was correct output received from the job?**

   Yes **No**

   See *Incorrect Output for the Job* in this chapter.

8. Retry your job. If the problem continues to occur, call your service representative.

Thermal Check Light On

Warm temperatures have caused the system power to turn off. Check the room temperature. If it is extremely warm, let the system and room temperatures return to normal. Then set the Power switch on the operator panel to the 0 position (off) and return it to the 1 position (on). If the Thermal Check light turns on again, call your service representative.

Power Check Light On

A power problem has caused the system power to turn off. You may be able to recover by doing the following:

1. Set the Power switch on the operator panel to the 0 position (off).
2. Set the Power switch back to the 1 position (on).

If the Power Check light remains on, do the following:

1. Set the Power switch on the operator panel to the 0 position (off).
2. Set the main line circuit breaker (CB1) inside the left front cover of the 5340 System Unit to off. Then return the main line circuit breaker to on.
3. Make certain the IPO switch on the left side of the 5340 System Unit is set to the 1 position (on).
4. Set the Power switch on the operator panel to the 1 position (on).

   If neither of these procedures corrects the problem, press the Dply Pwr Chk switch on the CE panel and record the information that appears in the display lights for your service representative. Contact your service representative and give him this information.

No System Power

Check that the IPO switch on the left side of the 5340 System Unit is set to the 1 position (on). Set the Power switch on the operator panel to the 0 position (off). Press the Lamp Test switch on the CE panel. If the Thermal Check and Power Check lights on the operator panel turn on, set the Power Switch on the operator panel to the 1 position (on). If you cannot continue, call your service representative. If the Thermal Check and the Power Check lights do not turn on, check that the system is plugged in and that the power in the building or room is on. Set the Power switch to the 1 position (on) and press the Load switch on the operator panel to continue processing.

Processor Check Light On

The processor has detected an error. Set the Mode Selector switch on the CE panel to the Insn Step/Dply Chks position (C in Figure 16-1). Check the display lights (D in Figure 16-1).

Note: If the Processor Check light goes on when you attempt to IPL after a power failure, refer to *Reformatting after a Power Failure or a Program Check* in Chapter 4 of this manual.

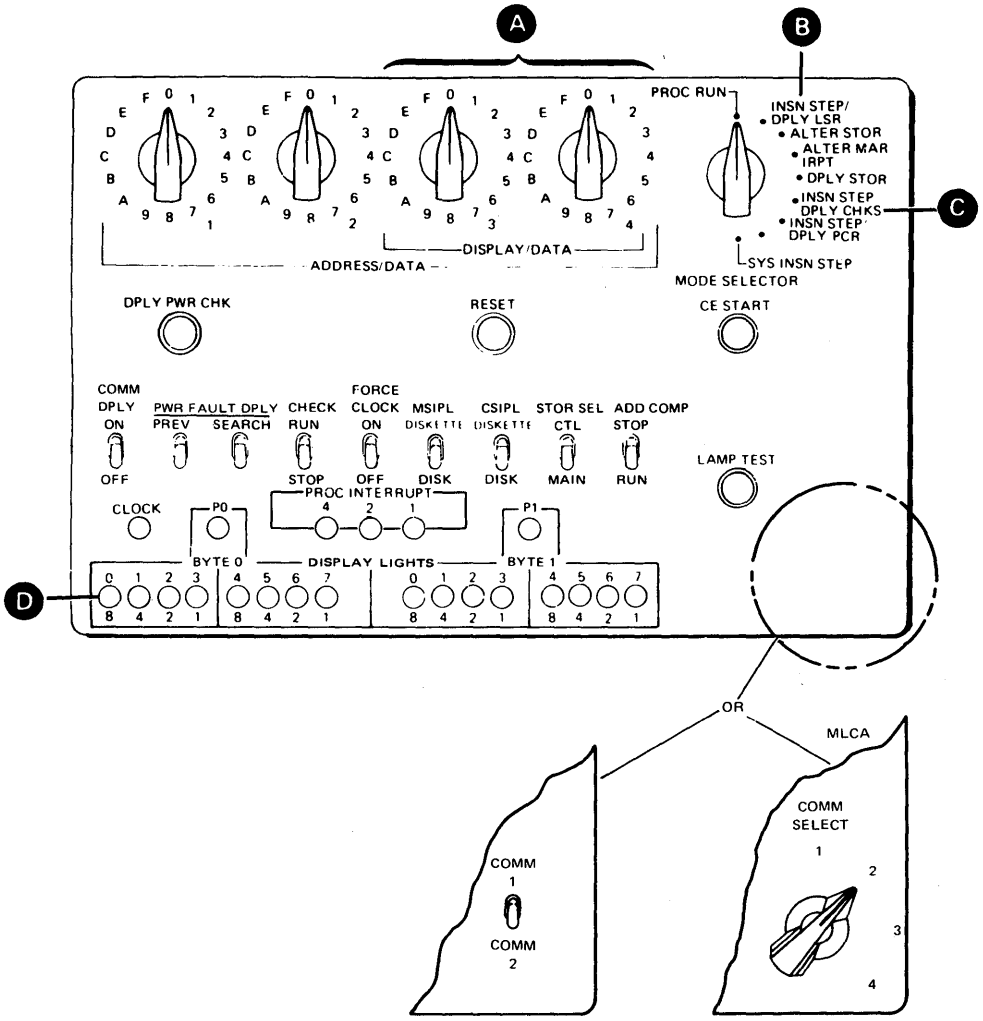


Figure 16-1. CE Panel

If no display lights in the lower row D are on (disregard the P0, proc interrupt 4, 2, and 1, and the P1 lights), refer to *No CE Display Lights On* in this chapter.

If any display light in the lower row is on, refer to *CE Display Lights On* in this chapter.

No CE Display Lights On

If no display lights on the CE panel come on, the error is probably a programming error. Be sure the COMM DPLY switch is off. The system cannot display the message. To find out what the message is:

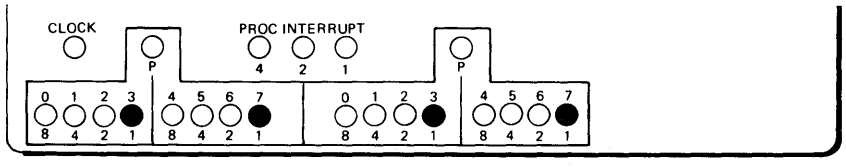
1. Set the Mode Selector switch on the CE panel to the Insn Step/Dply LSR position (B in Figure 16-1).

2. Set the Display/Data switches (A in Figure 16-1) to the first MAR value shown in the table below.

MAR Value
0C
0E
28
2C
2E
08

3. Check the display lights on the bottom of the CE panel (D in Figure 16-1).

4. If the display lights do not look like the following diagram, set the Display/Data switches to the next MAR value in the table (see step 2) and check the display lights again. Repeat step 4 until the display lights on your CE panel look like the lights shown here. (○ indicates light is off; ● indicates light is on).



5. When the display lights on your CE panel look like the display lights shown in the diagram in step 4, set the Display/Data switches (A in Figure 16-1) to the Error LSR number that corresponds to the MAR value on your Display/Data switches.

MAR Value	Error LSR
0C	12
0E	1A
28	22
2C	32
2E	3A
08	02

6. Record the condition of each of the display lights (whether on or off). Keep this record. These values will be needed by your service representative if you continue to have difficulty with the system.

7. Return the Mode Selector switch on the CE panel to the Proc Run position.

8. Set the Display/Data switches back to 00.

9. Perform IPL from disk.

10. Enter the APAR command statement to save the recorded information on a diskette.

11. Retry the failing operation. If you cannot continue, call your service representative.

CE Display Lights On

If a processor check occurs and the display lights are on, record their status (press the Lamp Test switch on the CE panel to check that all the lights are working). Return the Mode Selector switch to the Proc Run position. Perform IPL again. This causes the hardware error to be automatically recorded in the error recording tables on the disk, provided you have not pressed the Reset and CE Start switches.

If you suspect that the hardware error is being caused by the program (for example, if you rerun the program and the same hardware error occurs), press the Reset and CE Start switches on the CE panel to take a dump. This dump is taken unless a protected dump exists in the dump area on disk. The information required to analyze the problem is recorded in the dump file of the disk. Perform IPL again. Enter the APAR command statement to save the recorded information on a diskette.

If you are not able to resume processing, call your service representative and give him or her the information that you have recorded.

Taking a Dump when the Dump Area on Disk is Protected

If you want to take a dump but the dump file on disk is protected, you can use the following procedure to take a dump. Be aware, however, that when you use this procedure, the protected dump is overlaid by the dump being taken.

1. Set the Address switches on the CE panel (switches 1 and 2) to DD.

2. Press the Reset and CE Start switches on the CE panel to take a dump.

3. Set the Address switches (switches 1 and 2) back to 00.

4. Perform IPL from disk.

5. Use the DUMP or APAR procedure to save the dump.

Console Check Light On

If the Console Check light comes on, check the following:

- System console is powered on.
- System console Address switches (if any) are set at 000 and the Terminator switch is set to the 2 position (if another work station is attached). Otherwise, the Terminator switch should be set to the 1 position.
- System console Status switch is at the Normal position.
- System console is correctly cabled to port 0 of the 5340 System Unit.

Otherwise, the system console may have an unrecoverable hardware error.

To recover, either:

- Correct the error and try IPL again, or
- Sign on the alternative console by entering the CONSOLE control command.

If you cannot sign on the alternative system console, call your service representative.

Cannot IPL

- The Brightness control on the display station may be set so low that the System Available light on the display screen is not visible. Check the adjustment.
- Check that the system console is powered on.
- The MSIPL and CSIPL switches on the CE panel may be incorrectly set. They should both be set to the Disk position unless you are reloading from diskettes. The switches to the left and right of the MSIPL and CSIPL switches should be in the down position (set to the STOP, OFF, MAIN, and RUN positions). Check these switches, set them correctly, and press the Load switch on the operator panel again.
- The Mode Selector switch on the CE panel should be set to the Proc Run position.
- Each Address/Data switch on the CE panel should be set to 0.
- If message SYS-0019 is shown on the display screen, one or more errors have been detected during the IPL. See the *Displayed Messages Guide* for more information about this message. Record the entries exactly as they appear and then retry the IPL. If the error occurs again, call your service representative and give him the information you have recorded.

- The SSP or control storage program may have been accidentally modified. If you are doing an IPL from disk, reload the system support program product and other programs by doing a reload from diskettes (see *IPL from Diskette* in Chapter 4).

  If this does not work, the control storage program may have been accidentally modified. If so, it must be reloaded from diskette by your service representative.

- If you cannot correct the problem after checking the above possible causes, call your service representative.

No Visible System Action

- If the System In Use light on the operator panel is lit, your program is running. Do not take any action unless you are sure that some expected system action is overdue. Some programs require significant amounts of processing time with no visible changes occurring in the system.

- If the Stop light on the CE subpanel below the CE panel is lit, check the system for any possible problem that may have caused someone to press the Stop switch. Press the Start switch on the CE subpanel to continue.

- The Enter/Rec Adv key may not have been pressed. Check the display screen. If the cursor is still displayed following the last keyed entry and the Input Inhibited light is off, press the Enter/Rec Adv key to continue.

- The program may be looping. This means that a program failure on another error is causing the program to execute the same series of instructions repeatedly.

- The program may be waiting for resources that are being used by another program. To determine if this is the case, use the Sys Req/Attn key to interrupt processing and select option 5 to display the session status. The Status Active column for the job will contain INIT-WAIT if the program is waiting for resources.

If you want to have the programmer check the program for a possible error you can take a dump in one of the following ways:

1. Set Display/Data switches 3 and 4 (Ⓐ in Figure 16-1) on the CE panel to CE. If a protected dump exists, set Address/Data switches 1 and 2 to DD to override the protected dump. Press the Stop key. A dump will be taken and a message sent to the system console informing the operator of the dump. This dump does not require an IPL and gives the programmer the opportunity to investigate the problem further. The programmer could cancel the program by inquiring and selecting option 2 or 3.

2. Press the Reset and CE Start switches on the CE panel. An IPL is required to continue processing the next job.

The information required to analyze the possible program failure is recorded on the disk dump file.

Enter the DUMP or APAR command statement for information on how to save the dump.

If you want to cancel the looping program so that you can retry this job or another job, press the Attn key and select the cancel option (option 3) to terminate the job. The job should be retried after checking that:

1. Correct input data was entered.

2. Correct sequence of jobs was executed.

3. Correct diskettes were provided.

4. Data on the disk will not be incorrectly modified if you retry this job. Check your application running instructions if you are running an application.

   Note: Remember that you may have to execute the backup and restore procedures for the job (refer to the job run book) in order to retry the job.

If the same failure occurs again, use the CANCEL command to cancel the job with a dump. Consult the programmer responsible for the program.

Incorrect Output for the Job

- If you receive incorrect output for a job, you should first check your application operating instructions. When running your application, you should follow the procedures for checking output and making corrections or rerunning the job.

- The output may indicate an error in the input that was provided. Check the input, correct it if it is not correct, then rerun the job.

- Check that you have run the jobs in the correct sequence. You may have omitted a job that processes the data in error. Rerun the sequence of jobs involved.

- Check that the print image matches the print belt on the printer. If the printed output contains incorrect or meaningless characters, the wrong print image may be defined or the wrong belt may be on the printer. Check the proper setup instructions and, if necessary, the restart procedures from the operating instructions for this job. Either put the proper print belt on the printer or use the SET command statement to correct the print belt image in main storage.

- Ensure that device-dependent output, such as ideographic characters or output at 15 characters per inch, has been sent to the appropriate printer.

- If you cannot correct the problem, call the person responsible for the program for further assistance.

3262/5211 Printer Indicator Lights On

If the printer indicator lights come on, check the following table for causes:

Printer Indicator Lights				Condition	Recovery Action
Check	Forms	Ready	Power		
1	0	0	1	Print check or carriage pedestal check (3262 only)	1
1	1	0	1	Carriage check	2
0	1	0	1	End of forms	3
0	0	0	1	Not ready, CE switch on	4
0	0	1	1	Program check	5
0	0	0	0	Not powered on (3262 only)	7

1 = Light on or blinking
0 = Light off

3262/5211 Printer Recovery Procedures

1 *Print Check or Carriage Pedestal Check Recovery:* Clear the error that produced the check and press the printer Stop key to clear the Check light. Press the Ready key and the operation will be retried (with possible overprinting). If the error occurred due to an unprintable character check, processing will resume at the command following the print line that contained the unprintable character.

2 *Carriage Check Recovery:* The printer attachment controller has detected improper carriage motion. To recover from this problem:

- Clear the paper problems.
- Press the Stop key to reset the check condition.
- Press the Carriage Restore switch.
- Manually align the forms to line 1.
- Press the Ready key. When the Ready key is pressed, the forms will advance to the line that was being accessed when the error occurred.

3 *End of Forms:* The printer has detected the end of the forms. The printer may have more forms remaining below the print line. To process these forms, press the Stop key to reset the check. Then press the Ready key to process one more form. If you continue printing, you may lose vertical registration on the bottom of the form, or the 5211 Printer may print beyond the end of the forms.

To change forms, press the Stop key to reset the check, load the new forms, and then press the Ready key to proceed.

4 *Not Ready, CE Switch On:* The printer is not ready and is unable to execute the requested operation. Check for printer power on (5211 only) or an interlock indication (caused by the print unit open or belt cover not in place). This condition could be caused by a CE switch being on in the printer, in which case it must be turned off. Press the Ready key to make the printer ready. If the not ready condition is caused by an interlock condition (Interlock light flashing) or by the printer not powered on, correct the error condition, press the Stop key to reset the check, and then press the Ready key to make the printer ready. If message SYS-2850 appears on the screen again, you may need to perform an IPL to make the printer ready. If the printer does not become ready, you may need to call the service representative.

5 *Program Check:* A programming or system error has occurred. Cancel the job.

6 *Temporary Error:* An error was sensed but recovery was automatic.

7 *Not Powered On:* The printer is not ready because it has powered off. Set the Unit Emergency switch (on right side of printer) to the Power Off position. Wait 5 seconds and then set switch to the Power Enable position. Press Stop/Reset and press Ready.

For further information, see the *3262 Printer Models A1 and B1 Component Description and Operator's Guide* or the *5211 Printer Models 1 and 2 Component Description and Operator's Guide.*

5256 Printer Indicator Lights On

If the printer indicator lights come on, check the following table for causes:

Printer Indicator Lights					Condition	Recovery Action
Line Check	Unit Check	Forms	Ready	Graphic Check		
0	1	0	0	0	Print check	1
0	1	1	0	0	Carriage check	2
0	0	1	0	0	End of forms	3
0	0	0	0	0	Not ready	4
0	0	0	1	0	Program check	5
1	0	0	1	0	Twinaxial interface check	7
0	0	0	0	1	Graphic check	1

5256 Printer Recovery Procedures

1 *Print Check Recovery:* Clear the error that produced the check and press the printer Stop key to clear the Check light. Press the Start key and the operation will be retried (with possible overprinting).

Graphic Check Recovery: Processing will resume at the command following the print line that contained the unprintable character. Press the printer Stop key to clear the Check light. Press the Ready key and the operation will be retried (with possible overprinting).

2 *Carriage Check Recovery:* The printer controller has detected improper carriage motion. To recover from this problem:

- Clear the paper problems.
- Press the Stop key to reset the check condition.
- Press the Forms Feed key.
- Manually align the forms to line 1.
- Press the Start key. When the Start key is pressed, the forms will advance to the line that was being accessed when the error occurred.

3 *End of Forms:* The printer has detected the end of forms. To change forms, press the Stop key to reset the check, load the new forms, and then press the Start key to proceed.

4 *Not Ready:* The printer is not ready and is unable to execute the requested operation. Press the Start key to make the printer ready.

5 *Program Check:* A programming or system error has occurred. Cancel the job.

6 *Temporary Error:* An error was sensed but recovery was automatic.

7 *Twinaxial Interface Check:* An error occurred on the twinaxial interface to the work station. Cancel the job.

For further information, see the *5256 Printer Operator's Guide.*

5224/5225 Printer Error Recovery Procedures

1 *Print Check Recovery:* An error occurred during printing. The Attention light is on and the Ready light is off. The LED display contains one of the following values:

Value	Meaning
31, 32 34-36 38, 39	Print check
77	Cover/platen check
81	Machine check
83-85	Print check
86, 87	Machine check
88, 89	Ribbon jam
99	Graphic check

Note: To display the second digit, press the 2nd Mode key (the first digit is displayed again when you release the 2nd Mode key). The error might be indicated by a message with no options on the display screen, indicating that operator intervention is required.

Operator action:

1. Correct the error condition for cover/platen open and ribbon jam.
2. Press the Stop key to reset the check condition (LED display goes off).
3. Press the Start key (Ready light comes on).

Printer recovery: Except for a graphic check, where the printing continues with the next character, the operation is automatically tried again.

Note: If the printer does not respond after you press the Start key, you may do the following. Cancel the job from the system console, set the Power switch to 0 and then to 1, manually align the forms to line 1, and press the Start key. If the printer still does not respond, call your service representative.

2 *Carriage Check Recovery:* Forms carriage movement was incorrect. The Attention light is on and the Ready light is off. The LED display contains one of the following values:

Value	Meaning
41-43 45, 46 48	Forms check

Note: To display the second digit, press the 2nd Mode key (the first digit is displayed again when you release the 2nd Mode key).

The error might be indicated by a message with no options on the display screen, indicating that operator intervention is required.

Operator action:

1. If a forms jam exists, clear the forms jam.
2. Press the Stop key to reset the check condition (LED display goes off).
3. Press the New Page key to set the current line to 1 and manually position the forms you want printing to continue on to line 1.
4. Press the Start key (Attention light goes off and Ready light comes on).

Printer recovery: When the printer is ready, it skips to the line to which it was going when the error occurred. Printing continues.

Note: If the printer does not respond after you press the Start key, you may do the following. Cancel the job from the system console, set the Power switch to 0 and then to 1, manually align the forms to line 1, and press the Start key. If the printer still does not respond, call your service representative.

For more information about positioning the forms in the printer, see the Operator's Guide for the printer that the error occurred on.

3 *End of Forms Recovery:* The printer is out of forms. The Attention light is on and the Ready light is off. The LED display contains an E (end of forms). The error might be indicated by a message with no options, indicating that the printer is out of forms.

Operator action:

1. Insert additional forms.
2. Press the New Page key to set the current line counter to 1.
3. Manually align the forms to line 1.
4. Press the Stop key to reset the check condition (LED display goes off).
5. Press the Start key (Attention light goes off and Ready light comes on).

Printer recovery: After you press the Start key, the printer skips to the line where printing is to start.

Notes:

1. When the end-of-forms condition occurs on a 5225 printer, printing may have stopped before the end of the page. You can print to the end of the page by pressing the Stop key and then the Start key. Each time you press these keys another line will print until the end of the page is reached or until pressing the switches will not reset the check.
2. When the system continues processing, it expects the forms to be positioned on line 1. For more information about positioning the forms in the printer, see the Operator's Guide for the printer the error occurred on.

4 *Not Ready:* The printer is not ready. The Attention light is on; the Ready light and LED displays are off. The operator might receive a message directing the operator to press the Start key on the printer.

Operator action: Press the Start key (Attention light goes off and Ready light comes on).

Printer recovery: The printer automatically tries the operation again.

5 *Program Check:* A programming or system error has occurred. Cancel the job.

Printer recovery: None. The printer is ready for the next job.

6 *Temporary Error Condition:* An error was sensed but recovery was automatic.

7 *Coaxial/Twinaxial Interface Check:* An error occurred on the coaxial/twinaxial interface to the work station. Lights and indicators at the printer are unpredictable.

Operator action:

1. Cancel the job.
2. Ensure that the printer is properly attached to the system and correctly configured, and that the printer is online.
3. Turn the Power switch to 0 and then to 1, manually align the forms to line 1, and press the Start key (Attention light goes off and Ready light comes on).

Printer recovery: None. The printer is ready for the next job.

Note: If operator action does not correct the problem, there may be a hardware error.

8 *Communications Network Interface Check:* An error occurred on the communications network interface. Lights and indicators at the printer are unpredictable.

Operator action:

1. Cancel the job. (If the error continues to occur, call your service representative.)

Printer recovery: None. The printer is ready for the next job.

Note: If operator action does not correct the problem, there may be a hardware error.

9 *Hardware Check:* A hardware check has occurred at the printer. Lights and indicators at the printer are unpredictable.

Operator action:

1. Cancel the job.
2. Ensure that the printer is properly attached to the system and correctly configured, and that the printer is online.
3. Turn the Power switch to 0 and then to 1, manually align the forms to line 1, and press the Start key (Attention light goes off and Ready light comes on).

Printer recovery: None.

Note: If the error condition cannot be corrected or if it continues to occur, call your service representative.

Appendix A. Utilities for Ideographic Character Generation and Sort

HOW TO OPERATE THE CHARACTER GENERATOR UTILITY

The character generator utility allows you to maintain a file of user-defined ideographic characters not in the IBM-supplied ideographic character set. This utility allows the work station operator to do the following:

- Define new ideographic characters. These user-defined ideographic characters are placed in the same disk file as the IBM-supplied extended ideographic character set.
- Change existing user-defined ideographic characters.
- Delete existing user-defined ideographic characters.
- Print existing user-defined and IBM-supplied ideographic characters excluding Katakana, Hiragana, alphabetic, numeric, Greek and Russian characters, Roman numerals, and special symbols.
- Update and specify sorting information for user-defined ideographic characters. In addition, you can update the single pronunciation for IBM-supplied extended ideographic characters.

The character generator utility must be initiated from a 5255 Display Station. Only one copy of the character generator utility can be executing at a time. To run the character generator utility, enter the CGU command.

CGU [printer-id]

When you sign on using the CGU command you are automatically in ENTRY mode. This allows you to define ideographic characters.

By pressing certain command function keys, you can perform any of the following functions (see *Function Control Keys* later in this appendix).

- ENTRY, which is used to define new ideographic characters.
- UPDATE, which is used to change existing user-defined ideographic characters.
- DELETE, which is used to delete existing user-defined ideographic characters.
- LIST, which is used to print all or a subset of the user-defined ideographic characters, IBM-supplied ideographic characters excluding Katakana, Hiragana, alphabetic, numeric, Greek, Russian, Roman numerals, special symbols, and associated sort information.
- SORT, which is used to change existing information for ideographic characters.
- EOJ, which terminates the job.

For further information on the character generator utility, refer to the *Character Generator Utility User's Guide and Reference Manual.*

Command Function Keys

The character generator utility program supports 12 command function keys. Figures A-1 and A-2 show the alphanumeric and ideographic keyboards. The 12 command function keys are located on the top row of each keyboard. The keyboard template immediately above the top row of keys identifies the function of each key. Detailed descriptions of the function control keys (A through E) follow the keyboards.

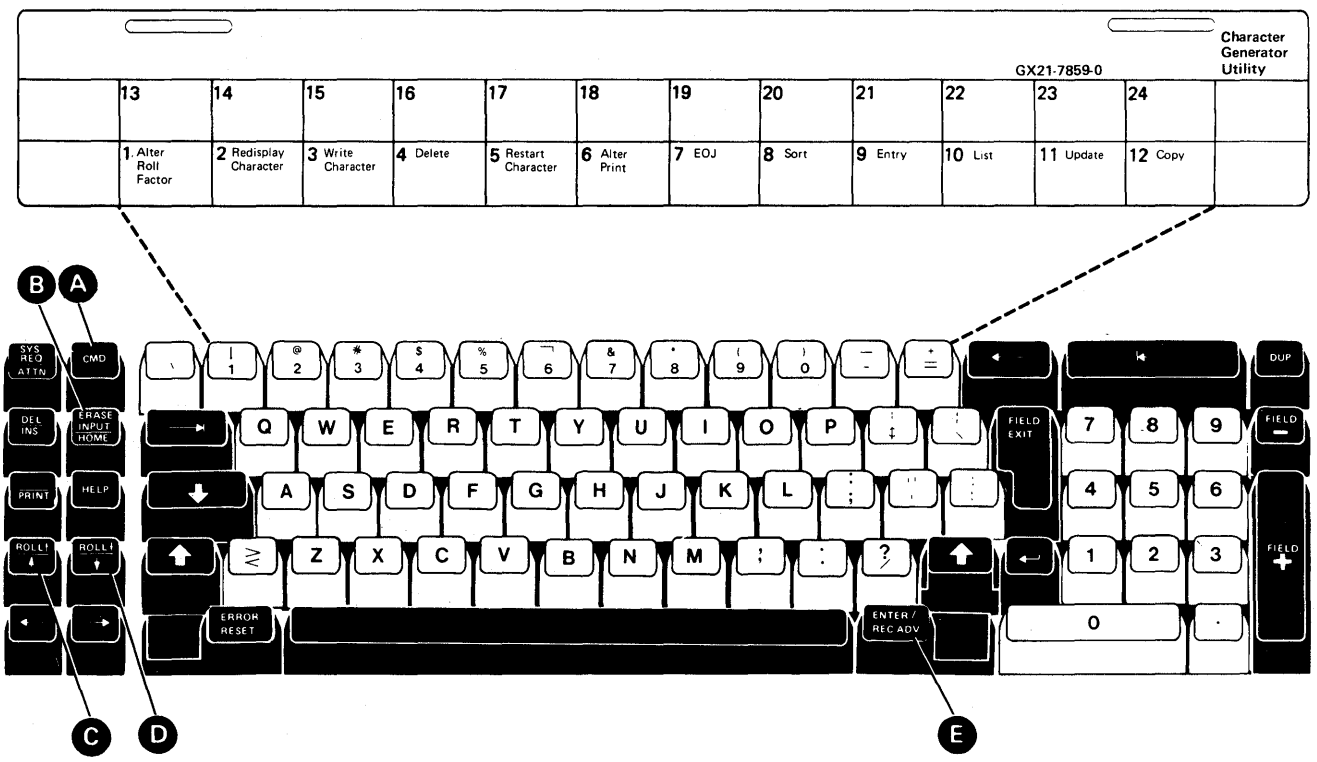


Figure A-1. Alphanumeric Keyboard with Command Function Keys, Keyboard Template, and Function Control Keys

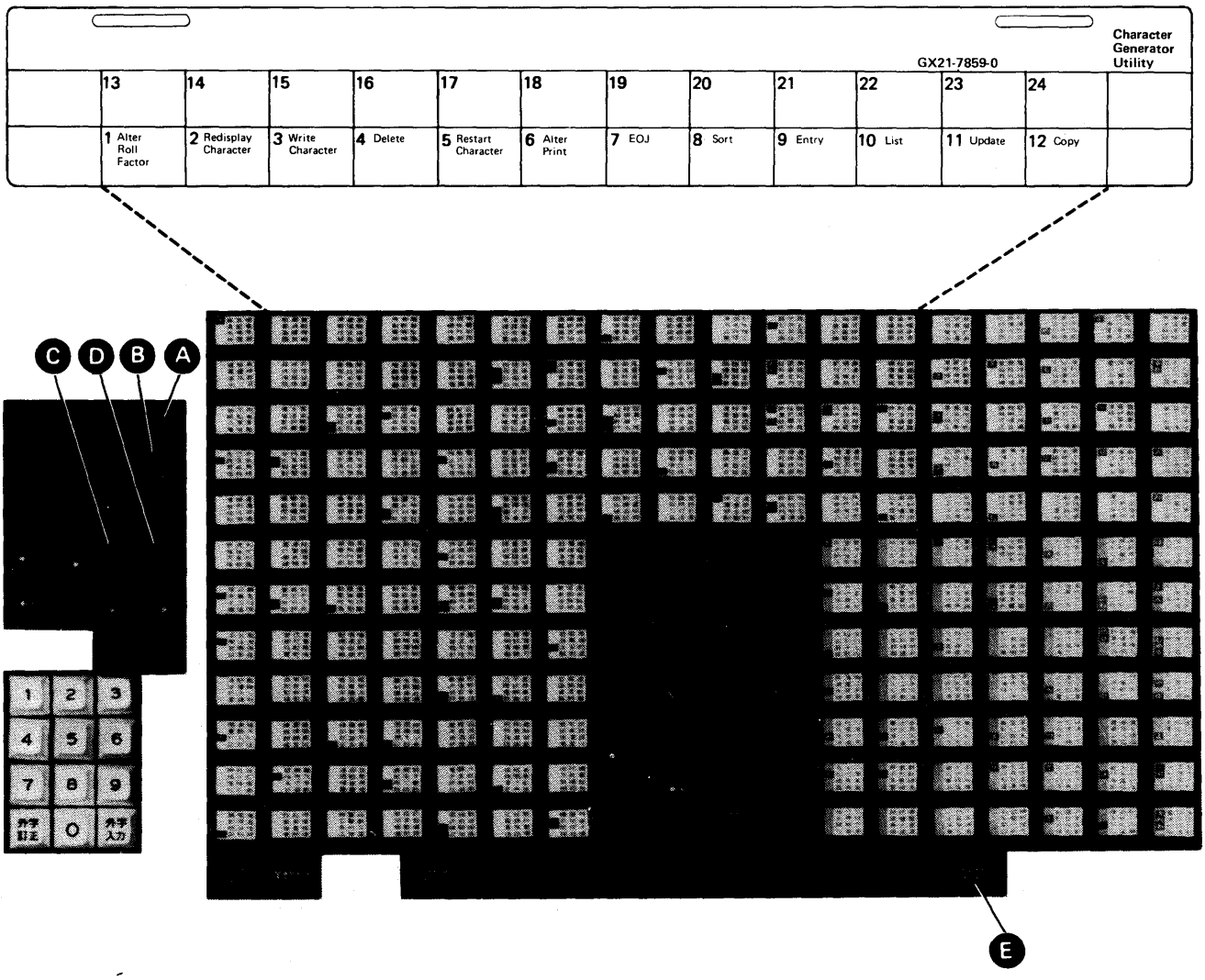
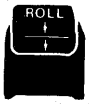
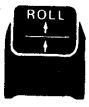


Figure A-2. Ideographic Keyboard with Command Function Keys, Keyboard Template, and Function Control Keys

Function Control Keys

The following function control keys are used to specify system functions for the character generator utility program (see Figures A-1 and A-2 for the location of the keys):

Location on Keyboard (See Figures A-1 and A-2)	Ideographic Keys	Alphanumeric Keys	Description
A			*Cmd function control key:* Press this key and a command function key to cause a function to be performed.
B			*Home function control key:* Press this key to return the cursor to its initial position. If the cursor is already in its initial position, the program reprompts you, resetting any data already entered by the operator to its original value.
C			*Roll↓ function control key:* If the program is in update or entry mode, press this key to roll the work area back.
D			*Roll↑ function control key:* If the program is in update or entry mode, press this key to roll the work area ahead.

Location on Keyboard (See Figures A-1 and A-2)	Ideographic Keys	Alphanumeric Keys	Description
E			*Enter Rec/Adv function control key:* Press this key to return control to the character generator utility program. The program processes the data entered on the current display. If you are defining an ideographic character in entry or update mode, this key displays the next rows (nine rows at a time) of an 18 row matrix, in an area on the display screen called the work area. If the current rows of the work area displayed include row 18, the following occurs: • If no new data is entered into these rows and the Enter Rec/Adv key is pressed, the program assumes the character is complete and prompts you for the sort information. • If new data is entered into these rows and the Enter Rec/Adv key is pressed, the program writes the new data in another matrix called the display area. The same rows of the work area are displayed again.

HOW TO OPERATE IDEOGRAPHIC SORT

The ideographic sort program has two functions: the sort active table build function and the sort function. The sort active table build function allows you to:

- Select records based on ideographic and/or alphanumeric fields
- Specify ideographic and/or alphanumeric fields as control fields
- Sort ideographic control fields into the following sequences:
  - Single Pronunciation/Radical/Stroke/Tie-Breaker
  - Single Pronunciation/Stroke/Radical/Tie-Breaker
  - Radical/Stroke/Tie-Breaker
  - Stroke/Radical/Tie-Breaker
  - Character-Type
- Sort EBCDIC kana fields into seion kana sequence.

Combinations of the preceding sequences can be used to sort ideographic fields into your own ideographic sequences and into known Japanese sequences, for example, Japanese Word Dictionary.

The ideographic sort program also allows you to rearrange records in a file, reformat records in a file, and drop records from a file.

Running the Ideographic Sort Program

To run the ideographic sort program, enter the SRTX command with its associated parameters. You can also use the HELP procedure to enter the SRTX command. Enter HELP SRTX to be prompted for the SRTX command parameters. The format of the SRTX command is:

SRTX input file label,source member,output file label,number of records,

[user library name / #LIBRARY] , [Y / N]

input file label: Label of the existing data file on disk to be sorted.

source member: Name of the source member that contains the sort sequence specifications.

output file label: Label of the file that will contain the sorted data. This label must not be an existing file label.

number of records: Number of records that the new output file will contain.

user library name: Name of the user library that contains the source member. If the user library name is omitted, the ideographic sort program searches the system library (#LIBRARY) for the source member.

Y
N: Place the ideographic sort job on the input job queue. Y specifies that the ideographic sort job should be placed on the input job queue. N (default) specifies that the ideographic sort job should not be placed on the input job queue. If this parameter is used to place an ideographic sort job on the input job queue, the ideographic sort program must be contained in the system library (#LIBRARY).

If you enter SRTX or HELP SRTX, the following display appears.

```
                          SRTX PROCEDURE

              Rearrange, drop and reformat record in a file.

Label Of File To Be Sorted ..................................... _

Name of Source Member Containing Sort Specifications ...........

Label Of The Output File .......................................

Number Of Records To Be Placed To The Output File ..............

Number Of User Library Containing The Source Member ............. #LIBRARY

Place Job On Input Job Queue (Y/N) .............................. N
```

This method of running the ideographic sort requires the sort sequence specifications to be stored as a source member in a library.

You can also run the ideographic sort program by executing your own sort procedure stored on disk, or by entering your own sort procedure through a display station keyboard.

For further information about the ideographic sort program and the OCL required for user-supplied sort procedures, see the *Ideographic Sort Reference Manual.*

Running the Sort Active Table Build Function

To run the sort active table build function, enter the SRTXBLD procedure. The format of the SRTXBLD procedure is:

```
SRTXBLD
```

acquire: To assign a nonrequesting display station to a program.

alphanumeric: Consisting of both letters and numbers and often other symbols (such as punctuation marks and mathematic symbols). Contrast with *ideographic.*

alternative system console: A display station that can be designated as the system console when the configured system console is not functioning.

Assembler: Basic Assembler and Macro Processor Program Product.

auto dup feature: A feature of the data file utility program that allows certain types of information from predetermined fields in a previous record to be duplicated in the current record.

auto skip feature: The SEU option that, if on, causes the cursor to skip all auto skip fields in statements displayed by SEU.

autocall: In data communications, the capability of a station to initiate, without operator intervention, a call over a switched line.

block: (1) A record or a collection of contiguous records recorded or processed as a unit. (2) In System/34, a 10-sector unit of disk storage that contains 2560 bytes.

BSC: Binary synchronous communications.

buzzer: An audible alarm at the display station that is intended to direct attention to the display.

CE panel: A panel that contains indicator lights and switches used by the CE during system maintenance.

character generator utility: Part of the Ideographic Generator/Sort Program Product that is used to create, maintain, and display ideographic characters.

checkpoint: A reference point in a program at which information about the contents of main storage can be recorded so that, if necessary, the program can be restarted at an intermediate point.

checkpoint active file: A fixed disk file that is being used by either a task that is currently being checkpointed or a checkpointed task that failed and has not yet been restarted.

checkpoint active library: A library that is being used by either a task that is currently being checkpointed or a checkpointed task that failed and has not yet been restarted.

checkpoint record file: A disk file containing a collection of checkpoint records.

checkpoint restart: The process of resuming a job at a checkpoint within the job step that caused an abnormal termination.

checkpoint/restart facility: A facility for restarting the execution of a program at some point other than the beginning, after the program was terminated due to a program or system failure. The restart begins at a checkpoint and uses checkpoint records to reinitialize the job.

column separators: Vertical lines that precede each position in a field. These lines do not occupy a position on the display.

command display station: (1) A display station defined during system configuration as able to request and initiate jobs, as well as able to be acquired by an executing program. (2) A display station that can be used for data entry or interactive processing. (See *data display station.*)

command function keys: The 12 keys on the top row of a display station keyboard that are used with the Cmd function control key to request functions of program products and user programs. By using both lowercase and uppercase shift, 24 different key functions are available.

command mode: A display station mode. In command mode, a display station can request jobs or initiate jobs. (See *command display station.*)

command statement: A statement that requests the performance of a particular function. A command statement always contains the name of the command, and may include parameters or data. The two types of command statements are control commands and procedure commands. (See *control command* and *procedure command.*)

control command: A command statement used by an operator to control system or display station operation. A control command does not run a procedure and cannot be used in a procedure. (See *command statement* and *procedure command.*)

cursor: A movable character (underscore) on a display screen, used to indicate where the next character keyed will appear.

data display station: (1) A display station that was defined during system configuration as capable only of being acquired by an executing program. A data display station cannot request or initiate jobs. (2) A display station that can be used for data entry only. (See *command display station.*)

data mode: (1) A display station mode. In data mode, a display station can be used only for data entry. (See *data display station.*) (2) In data communications, a time during which BSC is transmitting or receiving characters on the communications line.

diskette: (1) A thin, flexible magnetic disk permanently sealed in a cover that protects it. (2) A single removable disk contained in its own envelope.

diskette 1: (1) Refers to a 33FD diskette. A diskette that can contain data on one side only. Contrast with diskette 2D.

diskette 2D: Refers to a 53FD diskette. A diskette that can contain data on both sides, with two times the number of bytes being stored in the same physical space as diskette 1. Contrast with diskette 1.

display screen: The part of a display station on which data, messages, or other information is displayed.

display station: An input/output device that contains a display screen on which data is displayed and an attached keyboard from which data is entered. It can be used to request jobs and/or enter data. A display station can be designated as the system console or as a command or data display station at system configuration time.

DFU (data file utility): Part of the Utilities Program Product used to create, maintain, and display or print data files.

dump: (1) To copy the contents of all or part of storage, usually to an output device. (2) Data that has been dumped.

end of extent: End of the area on a disk or diskette allocated for a file.

file: An organized collection of related records treated as a unit.

ID: Identification.

ideographic character (IGC): A pictogram or graphic that requires 2 bytes of storage. Contrast with *alphanumeric character.*

ideographic character set: A character set that contains pictograms or graphics that can be used to represent ideas (such as Japanese).

Ideographic Generator/Sort Program Product: The program product (program 5726-IG1) that consists of the character generator utility and the ideographic sort utility.

ideographic sort utility: A part of the Ideographic Generator/Sort Program Product that is used to (1) arrange records (or their relative record numbers) in a predetermined sequence according to data contained in one or more specific fields within the records and (2) rebuild the tables which contain the predetermined sequence if the user wants to alter the predetermined sequence.

IGC: See *ideographic character.*

initial program load: A sequence of events that loads the system programs and prepares the system for execution of jobs.

input job queue: A list of jobs waiting to be processed by the system. The list is maintained on the disk. Each entry in the list references a procedure stored in a library on disk.

inquiry: (1) A request (entered from a display station) for information in storage. (2) A request for information that puts the system into inquiry mode. (The operator initiates an inquiry by pressing the Attn key.)

IPL: Initial program load.

IPO switch: Immediate Power Off switch.

job name: The name assigned to a job by the system. This name consists of the two-character ID of the work station that requested the job and the time expressed in hours, minutes, and seconds.

library: An area on disk that can contain load members, procedure members, source members, and subroutine members. (See *user library* and *system library*.)

library member: A named collection of records or statements in a library.

MAR: Microinstruction address register.

member: See *library member*, *message member*, and *procedure members*.

menu: A displayed list of items (usually jobs) from which the operator makes a selection.

message member: A library load member in which each record contains a message.

MIC (message identification code): A 4-digit number that identifies a record in a message member. This number can be part of the message identifier.

modem (modulator/demodulator): A device that connects a communications adapter to a communications line.

MRT (multiple requestor terminal program): A program that can process requests concurrently from more than one requesting display station. Compare with SRT.

multiline communications adapter (MLCA): A feature on System/34 supporting up to four communications lines. It allows a total speed of up to 65,600 bits per second.

multinational character set (MCS): A feature on System/34 that makes an expanded set of 188 characters available to countries with supported language groups.

multivolume file: A diskette file that resides on more than one disk.

NEP (never-ending program): A program that will own system resources for a long period of time.

nucleus: That portion of the System/34 SSP that is resident in main storage.

OCL: Operation control language.

offline multivolume file: A multivolume file that a system processes in segments. Each segment is processed before the next segment is copied to or from the disk.

operator panel: A panel containing controls, switches, and lights for use by the operator.

parameter: (1) A variable that is assigned a particular value for a specific purpose or process. (2) A value specified in a command statement or a control statement.

point-to-point line: A data communications facility that connects a single remote station to a data processing system. A point-to-point line can be either switched or nonswitched.

print spooling: A part of the System Support Program Product that provides temporary storage of print data on disk.

priority: Preference in the use of system resources.

procedure command: A command statement that runs a procedure. (See *command statement* and *control command*.)

procedure member: A procedure that is stored in a library.

processing unit: The parts of a computer that perform the processing and control functions for the system, perform operations on data, and control output. These units include main storage, main storage processor, control storage, and control processor.

program: A sequence of instructions to a computer that are written in a special form the computer can interpret. A program tells the system where to get input, how to process it, and where to put the results.

record: (1) A collection of related data that is treated as a unit. For example, one line of an invoice could constitute a record. A complete set of records could form a file. (2) To store data on a reusable input/output medium, such as a disk, diskette, or punched cards.

record key: A field within a record that identifies the record in a file.

region: The amount of main storage available for a task.

SDA (screen design aid): Part of the Utilities Program Product that is used to create, add, update, and delete entire formats in an SFGR load member.

SDLC (synchronous data link control): A discipline for the management of information transfer over a data communications channel.

SEU (source entry utility): Part of the Utilities Program Product used by the operator to enter and update procedures and source programs in a library.

SNA (systems network architecture): An IBM communications protocol for controlling data transfer in a data communications network.

Sort: Part of the Utilities Program Product used to arrange records (or their relative record numbers) in a predetermined sequence, according to data contained in one or more specific fields within the records.

source member: A collection of records (such as RPG II specifications or sort sequence specifications) that is used as input for a program. Source members are stored in a library.

source statement: A statement written in symbols of a programming language.

spool file: An area on disk where spooled printer output is stored while waiting to be printed.

spool writer: A program that causes printer output, which has been stored in the spool file, to be printed.

spooling: A part of the SSP that provides temporary storage of print data on disk.

SRT (single requestor terminal program): A program that can process requests from only one requesting display station at a time. Contrast with *MRT*.

SSP: System Support Program Product.

SSP-ICF (system support program interactive communications feature): A feature of the SSP that includes interactive support for BSC and SNA communications as well as communications between programs within the system.

SSP-ICF session: A logical information route between a System/34 application and a remote subsystem.

standby mode: A method of operation in which a display station is waiting to be acquired and used by a program running on the system.

statement number: In SEU, a number assigned to a statement by the program for reference by the operator. Statement numbers are not permanent.

subconsole: A display station that controls a printer or printers assigned to it.

subsystem: An IBM supplied SSP-Interactive Communications Feature module which runs as a System/34 task and provides specific data management, and, if applicable, link-level functions. All functions provided by the SSP-ICF for the System/34 user require one of the defined subsystems.

syntax: (1) The structure of expressions in a language. (2) The rules governing the structure of a language.

syntax checking option: The SEU option that, if on, causes SEU to check for syntax errors in each RPG II and auto report specification entered or updated under control of the RPG II display screen formats provided with SEU.

system console: A display station designated to activate specific system functions, and to control and monitor system operation, in addition to functioning as a command display station.

system library: The library containing the members that are part of the SSP. The system library is labeled #LIBRARY and cannot be deleted from disk. (See *library* and *user library*.)

system log message: A message, intended for the system console operator, that is logged into the history file.

system printer: The printer, designated at system configuration time, that is used for system and display station printed output, unless the output is specifically directed to another printer.

task: A unit of work for the main storage processor; therefore, the basic multiprogramming unit under the control program.

transient area: An area of main storage or control storage used for temporary storage of transient routines.

unprintable character: A character that cannot be printed by the printer being used by the system.

user ID: An identification of a user.

user library: A library created by the user. A user library is in addition to the system library, and may contain any type of library member.

work station: A device that lets a person transmit information to or receive information from a computer, or both, as needed to perform his job; for example, a display station or printer.

work station ID: The identification assigned to a work station at configuration time.

WSU (work station utility): A part of the Utilities Program Product that performs an interactive data entry and edit function.

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