

5280



GA21-9364-1
S5280-40

IBM 5280 Distributed Data System

Operator's Guide



GA21-9364-1
S5280-40

IBM 5280 Distributed Data System

Operator's Guide

Second Edition (February 1981)

This is a major revision of, and obsoletes, GA21-9364-0 and incorporates TNL GN20-9566.

Because the changes and additions are extensive, this publication should be reviewed in its entirety.

This edition applies to the following IBM 5280 programs and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters.

Release 3, modification 0 of the IBM 5280 DE/RPG Program Product (Program 5708-DE1)

Release 3, modification 0 of the IBM 5280 Utilities Program Product (Program 5708-UT1)

Release 3, modification 0 of the IBM 5280 Sort/Merge Program Product (Program 5708-SM1)

Release 3, modification 0 of the IBM 5280 Communications Utilities Program Product (Program 5708-DC1)

Release 3, modification 0 of the IBM 5280 System Control Programming Product (Program 5708-SC1)

Release 3, modification 0 of the IBM 5280-3270 Emulation Program Product (Program 5708-EM1)

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

Use this publication only for the purposes stated in the *Preface*.

It is possible that this material may contain reference to, or information about, IBM products (machines and programs), programming, or services that are not announced in your country. Such references or information must not be construed to mean that IBM intends to announce such IBM products, programming, or services in your country.

Publications are not stocked at the address below. Requests for copies of IBM publications and for technical information about the system should be made to your IBM representative or to the branch office serving your locality.

This publication could contain technical inaccuracies or typographical errors. Use the Reader's Comment Form at the back of this publication to make comments about this publication. If the form has been removed, address your comments to IBM Corporation, Information Design and Development, Department 997, 11400 Burnet Road, Austin, Texas 78758. IBM may use and distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever.

This operator's guide is intended primarily for persons who are using a 5280 system with DE/RPG programs or the Key Entry Utility (KEU). The following topics are discussed:

- General information about using the 5280 system.
- Procedures for operating the system.
- Specific information and procedures for using DE/RPG programs or KEU.
- Specific information about how the command keys and the function keys work with DE/RPG, KEU, or the utility programs.

This operator's guide also contains the program names required for using system control planning, utilities, sort/merge, and communications utility programs. More specific information on how these programs operate can be found in the related reference or reference/operation manual.

Specific information on how to operate the printer(s) attached to a 5280 system can be found in the printer operator's guide that is shipped with the printer.

Information concerning emulation of an IBM 3270 can be found in the *IBM 5280-3270 Emulation Reference Manual*.

Related Publications

- *IBM 5280 DE/RPG Reference Manual*, SC21-7787.
- *IBM 5280 Utilities Reference/Operation Manual*, SC21-7788.
- *IBM 5280 System Control Programming Reference/Operation Manual*, GC21-7824.
- *IBM 5280 Sort/Merge Reference/Operation Manual*, SC21-7789.
- *IBM 5280 Communications Reference Manual*, SC34-0247.
- *IBM 5280 Distributed Data System 5280-3270 Emulation Reference Manual*, SC34-0384.
- *IBM 5280 Message Manual*, GA21-9354.
- *IBM 5280 COBOL Programmer's Guide*, SL23-0032
- *IBM 5280 Machine Verification Manual*, GA21-9357

Note: A set of insert tabs are available for this manual to help you locate a section quickly.

Requests for these insert tabs (GX21-9366) should be made to your IBM representative or the IBM branch office serving your locality.

This page intentionally left blank.

You and This System	3	Record Number	41
Keyboard Overview	3	Automatic Duplicate/Skip	41
Display Screen Overview	3	Automatic Record Advance	41
Cursor	4	Format Number of Format ID	41
Status Line	4	Program Mode	41
Display Prompt	4	Record Verify/Record Mark (DE/RPG)	42
Control Panel Overview	5	Highest Format Number (KEU)	42
Diskette Overview	5	Error Conditions	42
Diskette Drive Overview	6	Keyboard Error or Program Detected Error	42
Getting Familiar with the System: A Short Exercise	7	Device Error	43
Entering Data to the Load Prompt	9	Partitions	47
Changing Data on the Load Prompt	10	Starting a Background Program	47
Recovering from an Error Condition	13	Background Program Request	48
Operating the System	17	Ending a Background Program	49
Starting the System (IPL)	17	Canceling a Background Program	49
Restarting the System After It Has Been Running	18	KEU Job	53
Keying Sequence	19	Processing a KEU Job	53
Power Switch	19	Loading KEU	53
Stopping the System	19	Preparing for Operation	54
Dumping the Error Log	19	Allocating a Data Set	56
Security Features	20	Entering Data	58
Keylock Feature	20	Updating Data	58
Magnetic Stripe Reader Feature	22	Verifying Data	59
Cleaning Your System	23	Correcting a Data Key Mismatch	59
Determining System Problems	23	Correcting a Dup or Skip Mismatch	60
Diskette	29	Inserting a Record or a Group of Records	61
Diskette Handling	29	What to Do When Interrupted While Verifying	62
Diskette Type	29	Ending a KEU Job	62
How to Insert the Diskette	30	Ending the Key Entry Utility	65
How to Remove a Diskette	32	Formats and Prompting Records	65
Diskette Wear	32	Loading a Format or Prompting Record	65
Defective Diskette Data Recovery	32	Saving a Format or Prompting Record on a Diskette	67
Printer	33	Selecting a Format or Prompting Record	67
Stopping the Printer	35	Displaying a Format or Prompting Record	68
Ending The Job After Stopping The Printer	36	Changing a Format or Prompting Record	68
Initiating End Of Job From The Printer	36	Updating a Format or Prompting Record on a Diskette	68
Printer Out Of Forms	36	Formats and Prompting Records	69
Status Line	39	Formats	69
Normal Operation	39	Making a KEU Format	70
Partition Number	40	Prompting Records	71
Input Record Character Position	40	How to Use a Prompting Record	72
Field Definition	40	How to Make a Prompting Record	72
Character Insert	40	Field Code Chart	73
Positions Remaining in a Field	40	Types of Fields Used in Formats	74
Hex Value	40	Format Chaining	75

DE/RPG Job	79	Command Keys	137
Starting a DE/RPG Data Entry Job	79	Auto Mark	137
Opening the Data Sets Used by the DE/RPG Data Entry Program	81	Change Format	138
Allocating a New Data Set Using DE/RPG Data Entry Program	83	Clear Screen	139
Entering Data Using a DE/RPG Data Entry Program	84	Comm Attention	140
Selecting Formats for Data Entry Programs	85	Comm Status	141
Updating Data Using a DE/RPG Data Entry Program	85	Delete Record	142
Verifying Data Using a DE/RPG Data Entry Program	86	Display Data	142
Correcting a Data Key Mismatch	86	Display Format	143
Correcting a Dup or Skip Mismatch	87	Display Verify Record	144
Correcting an Automatic Field	88	Dump/Trace File Open	145
Inserting a Record or Group of Records	88	Edit Release	145
Rerunning a Data Set Using a DE/RPG Data Entry Program	89	End Input	146
Ending a DE/RPG Data Entry Program	89	End of Job (EOJ)	147
Starting a DE/RPG Application Job	90	Hex	148
Opening Data Sets for a DE/RPG Application Program	91	Insert Record	149
Allocating a New Data Set for a DE/RPG Application Program	92	Load Format	150
Ending a DE/RPG Application Program	94	Mark Field	151
Writing Statistics for a DE/RPG Job	94	Return to Transaction Data Set	152
Compiling a DE/RPG Program	95	Review Second Data Set	153
Copying Records Using DE/RPG	102	Search Content	154
Printing Records Using DE/RPG	104	Search End of Data	155
Printing Records in Data Entry Programs	105	Search Record Number	156
Printing a Single Record Using a DE/RPG Program	106	Search Sequential Content	157
Printing a Block of Records Using a DE/RPG Program	106	Transfer Record	159
Record Insert/Record Delete	109	Function Keys	161
Inserting a Record	109	ALPH (Alphabetic Shift) Key	161
Deleting a Record	110	ATTN (Attention) Key	162
Search	113	AUTO ENTER Key	163
Search End of Data	113	CNCL (Cancel) Key	164
Search Relative Record Number	114	 (Character Advance) Key	165
Search Content	114	 (Character Backspace) Key	166
Search Sequential Content	115	CORR Key	167
Resuming the Search Content and Search Seq Content Operations	117	 (Cursor Down) Key	167
Canceling a Search Operation	117	 (Cursor Up) Key	168
System Control Programming (SCP), Utilities, and Sort/Merge	121	DEL (Character Delete) Key	169
Keyboards	125	DUP/SKIP Key	170
How to Identify Your Keyboard Type	125	DUP (Duplicate) Key	171
Data Entry Keyboard	125	ENTER/REC ADV (Enter/Record Advance) Key	172
Data Entry Keyboard with Proof Arrangement	126	ERASE INPT (Erase Input) Key	174
Typewriter Keyboard	127	ERROR RESET and RESET Key	175
Kinds of Keys	127	 (Field Advance) Key	176
Data Keys Overview	127	 (Field Backspace) Key	177
Function Keys Overview	128	FIELD CORR and CORR (Field Correct) Keys	178
Command Keys Overview	133	FIELD EXIT and FIELD + Keys	179
		FIELD – Key	181
		 (Field Minus/Dash) Key	186
		HELP Key	187
		HOME (Record Backspace) Key	188
		INS (Character Insert) Key	190
		 (New Line) Key	191
		NEXT FMT (Next Format) Key	192
		NUM (Numeric Shift) Key	193
		PAGE FWD (Page Forward) Key	194
		PRINT Key	195

REC CORR and CORR (Record Correct) Keys 196

SEL FMT (Select Format) Key 197

 (Shift) Key 198

 (Shift Lock) Key 199

SKIP Key 200

SYS REQ (System Request) Key 201

Communications 205

 Loading the Communications Execution Utilities 205

 Establishing a Communications Connection 206

 Removing the Communications Access Method
 Program from a Partition. 210

Appendix A 211

 Accented Data Characters 211

Glossary 215

Index 219

This page intentionally left blank.

YOU AND THIS SYSTEM3
KEYBOARD OVERVIEW3
DISPLAY SCREEN OVERVIEW3
 Cursor.4
 Status Line4
 Display Prompt.4
CONTROL PANEL OVERVIEW5
DISKETTE OVERVIEW.5
DISKETTE DRIVE OVERVIEW6
GETTING FAMILIAR WITH THE SYSTEM: A SHORT EXERCISE7
 Entering Data to the Load Prompt9
 Changing Data on the Load Prompt10
 Recovering from an Error Condition.13

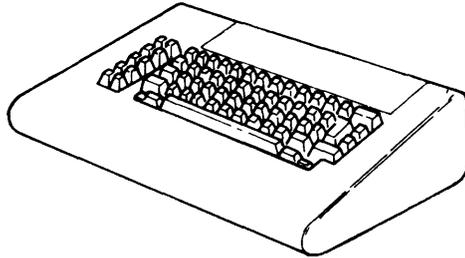
This page intentionally left blank.

As an operator, you can use the IBM 5280 system to process a number of business applications at your location.

The following overviews of the system keyboards, display screen, control panel, diskette, and diskette drives should help you become more familiar with the system. A short exercise at the end of the discussion allows you to start and operate the system.

KEYBOARD OVERVIEW

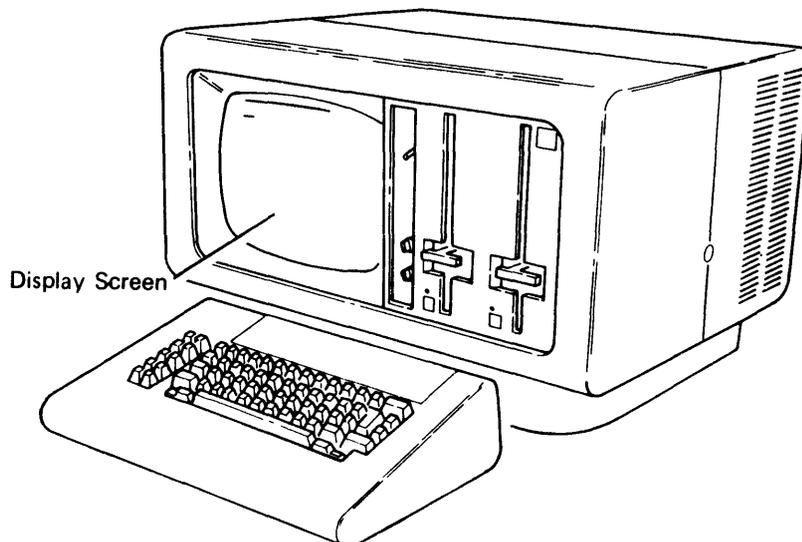
The keyboard on the 5280 system is an arrangement of keys that allows you to operate the system.



See *Keyboards* in this manual for a detailed discussion of the 5280 keyboards.

DISPLAY SCREEN OVERVIEW

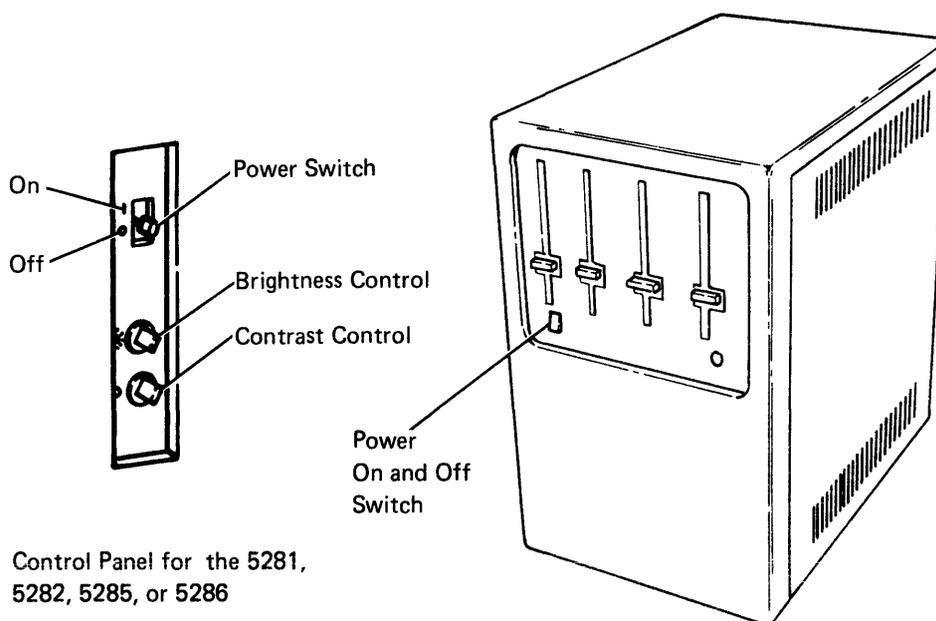
The display screen is the interface between you and the system. Data, messages, and other information are displayed on the screen.



CONTROL PANEL OVERVIEW

The data station control panel contains the Brightness control, Contrast control, and the Power switch. The Brightness control allows you to adjust the brightness of the display characters. The Contrast control allows you to adjust the brightness of the high intensity fields and of the cursor. The Power switch turns the device on or off.

The control panel on the 5288 contains the Power On and Off switch. Depending on your system, the control panel might also contain the diskette drive-in-use indicator(s) and/or the keylock feature. This information is presented later.

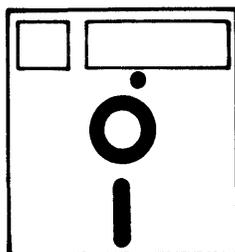


Control Panel for the 5281,
5282, 5285, or 5286

Control Panel for
5288

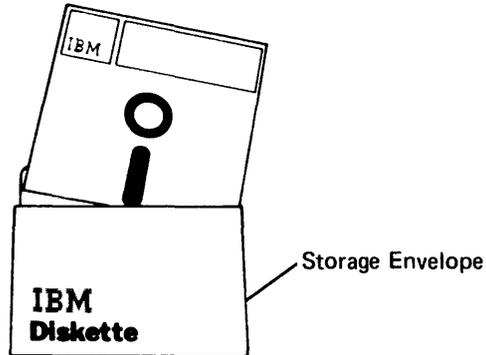
DISKETTE OVERVIEW

A diskette is a small, flexible, magnetic disk permanently enclosed in a protective jacket.



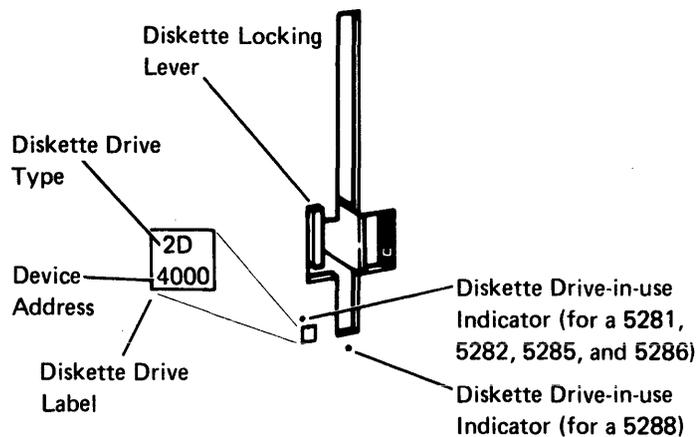
As an operator, you can load programs from the diskette, save information on the diskette, and retrieve information that has previously been entered on the diskette.

An additional storage envelope is provided to protect the diskette when it is not in use. The diskette must be handled carefully when it is removed from the envelope.



DISKETTE DRIVE OVERVIEW

The diskette drive is a device used to read and write data on diskettes. The diskette locking lever holds the diskette inside the drive during operation. The diskette drive label identifies the diskette drive type. There are two drive types: 1 and 2D. See *Diskettes* for information on what kind of diskettes can be inserted into the two drive types. When the diskette drive-in-use indicator is on, the diskette in that drive is being used.



GETTING FAMILIAR WITH THE SYSTEM: A SHORT EXERCISE

1. If your system is powered on and the following prompt is displayed, do the following exercise. If the prompt is not displayed, see *Starting the System* or contact your supervisor.

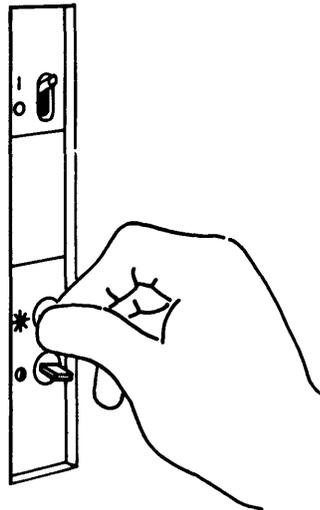
This number depends on which data station you are using.

```
0 0001      A 16 40
Program name: | | | | | | | | | | | | | | | | | | | | | |
Device address:
Partition number:

                Press ENTER                                05-00
```

2. Adjust the display screen for visual comfort:

To adjust the brightness of the cursor turn the  (Contrast control) to the left or right.

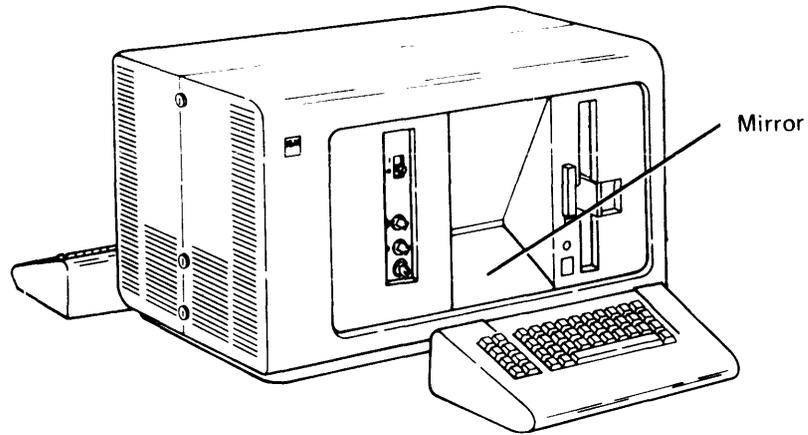


To adjust the brightness of the characters displayed on the display screen, turn the  (Brightness control) to the left or to the right. Turning it to the right makes the display image brighter; to the left, dimmer. There is no correct setting for the brightness of the image. Experiment with this control until you find the setting that is most convenient and comfortable for your viewing. You may find that you want to change the brightness as more characters are

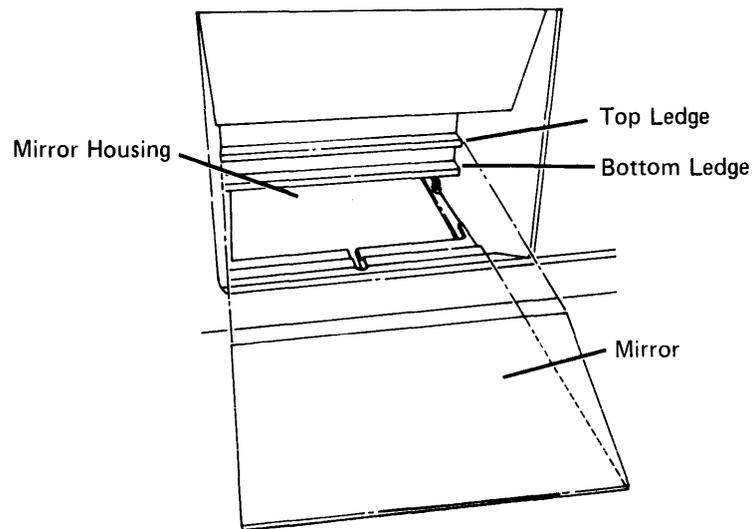
displayed on the display screen. Even the job you are working on might influence the brightness that you find comfortable.

Note: On the 5282 and 5286, one switch controls the brightness at both stations.

5282/5286 Mirror Adjustment

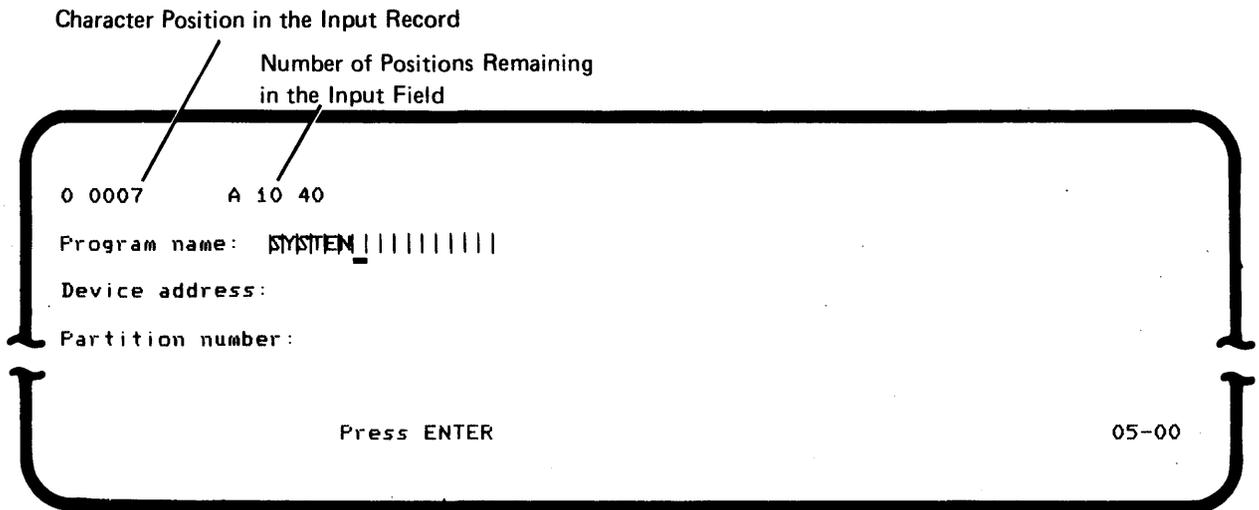


The mirror can be placed in one of two positions for your easiest viewing. To adjust the mirror, lift up on the mirror, as shown, and position its front edge on the top or bottom ledge of the mirror housing.



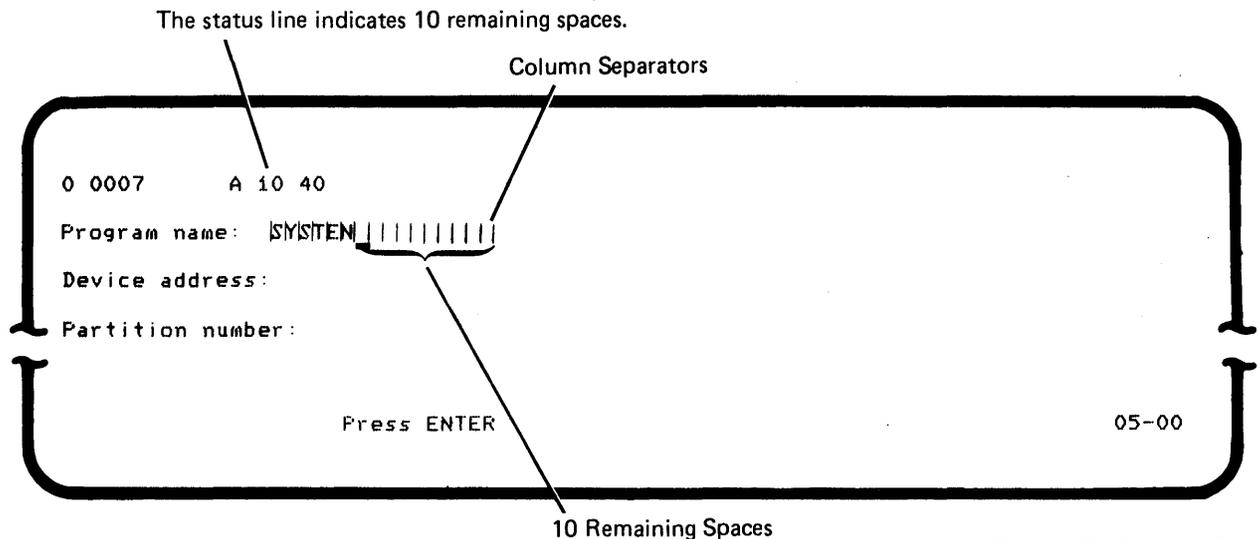
Entering Data To The Load Prompt

When you press a data type key, you should hear a click that indicates the keystroke is accepted. At the same time the character should appear on the screen. Some of the keys on the keyboard are typamatic keys. This means that the keys repeat their character or their function automatically if held down. Press and hold the S key until five or six S's appear on the display screen. Notice that when the key is held down, the character is automatically entered again. Always press and release a data key immediately, unless you want to enter multiples of that character. Now press and hold the  (Character Backspace) key until the cursor moves back to the beginning of the field. Before you perform the next task, write down the contents of the status line. Now key the word SYSTEN. The screen should look like this:



Now look at the status line; notice that the number of positions remaining in the input field changed from 16 to 10. Also, notice that the input record character position changed from 1 to 7.

The vertical bars on the screen are called column separators. Each space between the bars can contain one character. In the following example SYSTEN occupies 6 of the 16 spaces.



There are 10 remaining positions within the input field, as indicated on the status line.

Changing Data on the Load Prompt

To update or correct the displayed data, position the cursor under the character to be changed and then enter the correct data. Use the  (Character Backspace) key to position the cursor under the N in SYSTEM.

```
0 0006      A 11 D5
Program name: |SYSTEM| | | | | | | | | |
Device address:
Partition number:

Press ENTER
```

05-00

The  (Character Backspace) key did not erase the data, but only moved the cursor. This key along with the  (Character Advance) key, the  (Cursor Up) key, the  (Cursor Down) key, and the  (New Line) key are known as cursor movement keys. The cursor movement keys move the cursor in either the horizontal (left or right) or vertical (up or down) direction on the display screen. The Character Backspace key and the Character Advance key can always be used; whereas the Cursor Up key, the Cursor Down key, and the New Line key only work when format 0 is active. See the Glossary for a description of format 0.

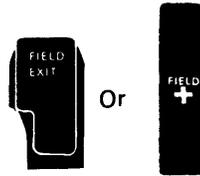
Now, enter the character M. The display looks like this:

```
0 0007      A 10 40
Program name: |SYSTEM| | | | | | | | | |
Device address:
Partition number:

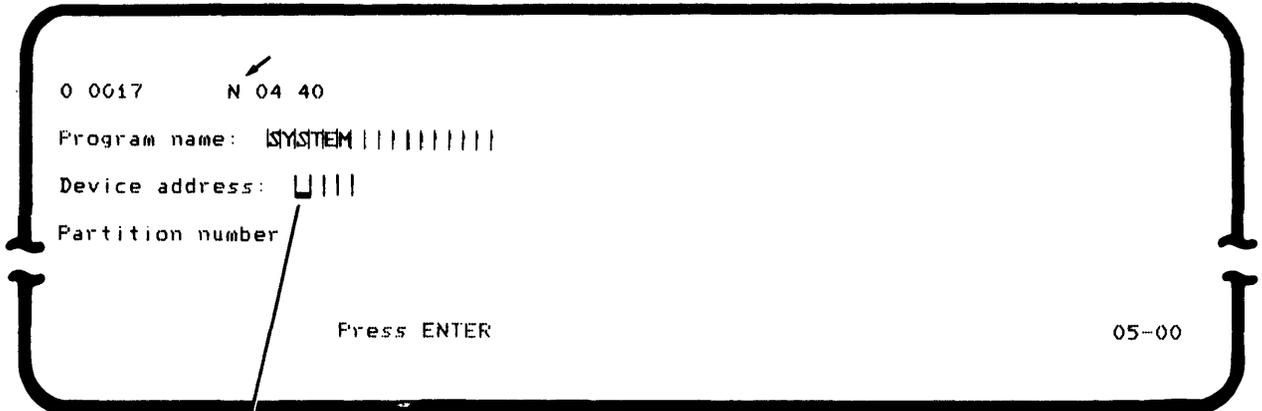
Press ENTER
```

05-00

Now press one of the following two keys, according to your keyboard type to move the cursor to the next input field.



The cursor is now at the next input field.



Next Input Field

The N shown on the status line indicates that the current input field is in *numeric shift*. When you are using a data entry keyboard, numeric shift means that the top character on a data key is entered when you press the key.



For example, if you press the key in numeric shift, the quote (") character is entered. To enter the bottom character on the key, press and hold the Alpha shift key and press the key. The character C is entered. If the keyboard is in alpha shift (an A replaces the N on the status line), you must press the Num key to enter the top character on the key. (If you are using a typewriter keyboard, the keyboard shift indicated on the status line does not determine which character is entered when a key is pressed.)

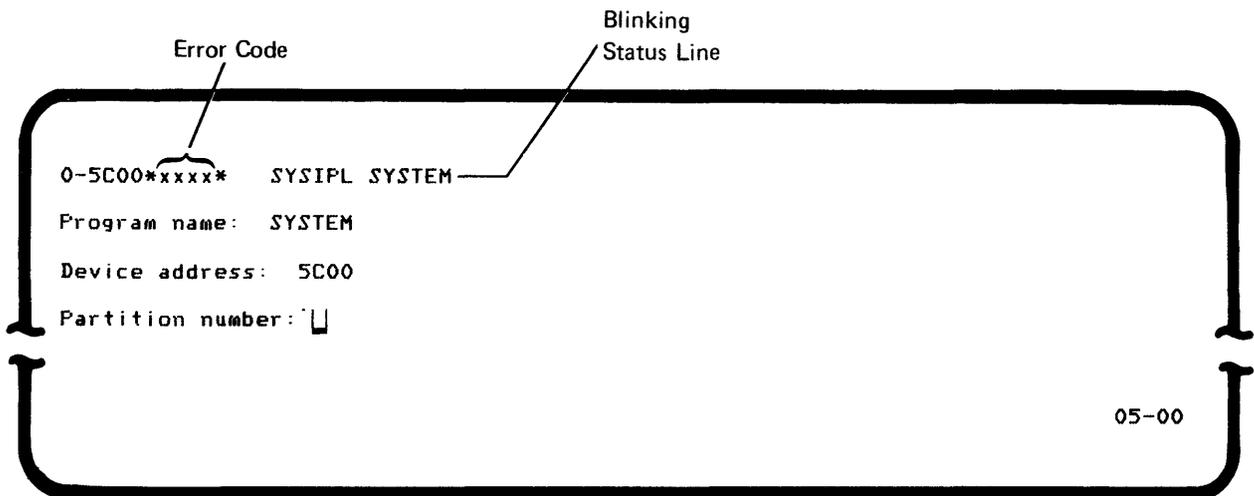
you must press a field exit key such as the Field Exit key or the  (Field Advance) key.

Now, for this exercise, remove the character 1 from the display prompt by first pressing the  (Character Backspace) key. (Notice that the cursor stopped blinking but did not move. Attempting to change or remove data when the cursor is blinking causes an error.) Now press the Spacebar once; the character 1 is deleted.

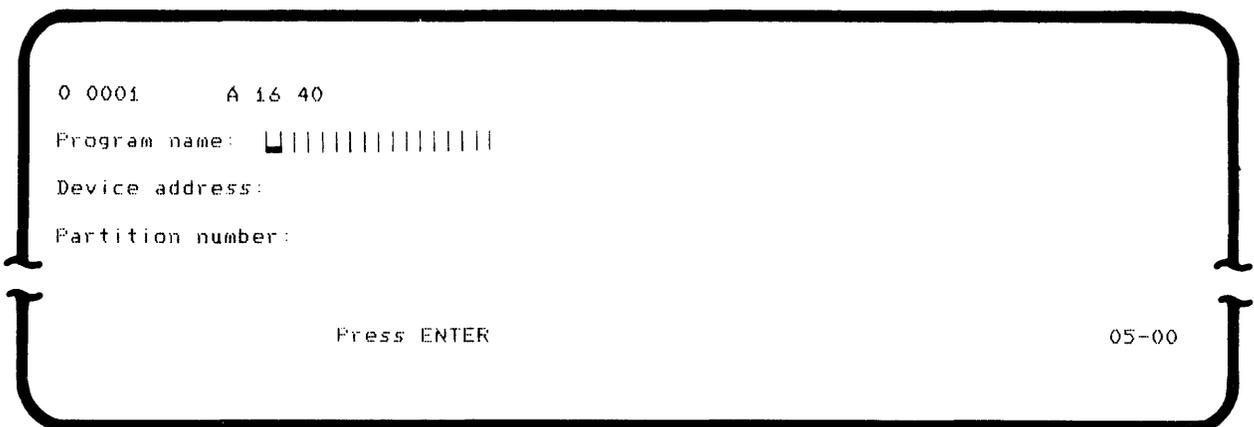
For more information on removing data from the display screen, see *Command Keys and Function Keys*.

Recovering from an Error Condition

Press the Enter key; this causes an error for this exercise. Notice a blinking status line.



The error code means that you pressed the wrong key or you entered the wrong information. Normally, when you encounter an error condition, you should refer to the *Message Manual* for the correct recovery procedure. For this example, press the Reset key or the Error Reset key to bring back the load prompt.



The operations that you have just performed are very basic operations on the 5280 system. Operations or procedures for performing specific tasks on the system, such as entering and updating records, are presented in various sections of this manual.

OPERATING THE SYSTEM	17
STARTING THE SYSTEM (IPL)	17
RESTARTING THE SYSTEM AFTER IT HAS BEEN RUNNING	18
Keying Sequence	19
Power Switch	19
STOPPING THE SYSTEM	19
DUMPING THE ERROR LOG	19
SECURITY FEATURES	20
Keylock Feature	20
Magnetic Stripe Reader Feature	22
CLEANING YOUR SYSTEM	23
DETERMINING SYSTEM PROBLEMS	23

This page intentionally left blank.

This section describes the basic functions and procedures for:

- Starting the system
- Stopping the system
- Dumping the error log
- Operating the security features
- Cleaning the system
- Determining system problems

STARTING THE SYSTEM (IPL)

Whenever the system has been powered off, you must start the system.

1. Unlock the keylock feature if it is installed on your device; turn the key to the right. Only one of the two keys supplied with your system allows you to turn the key to the right. For the location of the keylock on your controller, see *Keylock Feature* in this section.



Turn Right

2. If there are auxiliary data stations (5281s or 5282s) attached to your 5280 system, set the Power switch on each of these devices to the I (On) position.
3. Insert the IPL diskette into any diskette drive and close the diskette locking lever.

Make sure that only one IPL diskette is inserted into the system.

Although the IPL program can be loaded from any diskette drive, the system indicators are displayed (during system checkout) at keyboard 0 only. Keyboard 0 can be identified by a label in the upper left corner of the keyboard.

4. Set the Power switch on the controller (5285, 5286, or 5288) to the I (On) position.

Keying Sequence

1. Insert the IPL diskette and close the diskette locking lever.
2. Press the Cmd key, press and hold the Num key or the  (Shift key), and then press the G key.

Power Switch

1. Remove all diskettes from the system.
2. Set the Power switch on the controller (5288, 5286, or 5285) to the 0 (Off) position.
3. Insert the IPL diskette and close the diskette locking lever.
4. Wait at least 10 seconds, and then set the Power switch to the I (On) position.

STOPPING THE SYSTEM

1. Be sure that all programs have completed processing:
 - a. All red (diskette drive-in-use) indicators are off (data sets closed).
 - b. Load prompts are displayed on all data stations (that are powered on).
2. Check with your supervisor to be sure that no background programs are active.
3. Remove all diskettes.
4. Dump the error log (see the next procedure).
5. Set the switch on the control unit to the 0 (Off) position.

DUMPING THE ERROR LOG

The error log is information that will assist your service representative when your system requires service. Do the following:

1. Begin this procedure with the load prompt displayed.
2. Insert the machine verification diskette.
3. Enter TSYSLOG, and press the Field Exit key or the Field + key.
4. Enter the device address of the diskette drive that contains the machine verification diskette, and press the Enter key.

When the program is loaded, the following display appears.

```
TSYSLOG in process.
```

55-03

When the error log has been written on diskette, the following display appears.

```
Test complete
```

```
Options are
```

```
1. Restart
```

```
2. Exit
```

```
Select option:  Press ENTER
```

55-78

5. Enter 2 and press the Enter key. The load prompt is displayed.
6. Remove the verification diskette, insert it into its protective jacket, and return it to the binder.

SECURITY FEATURES

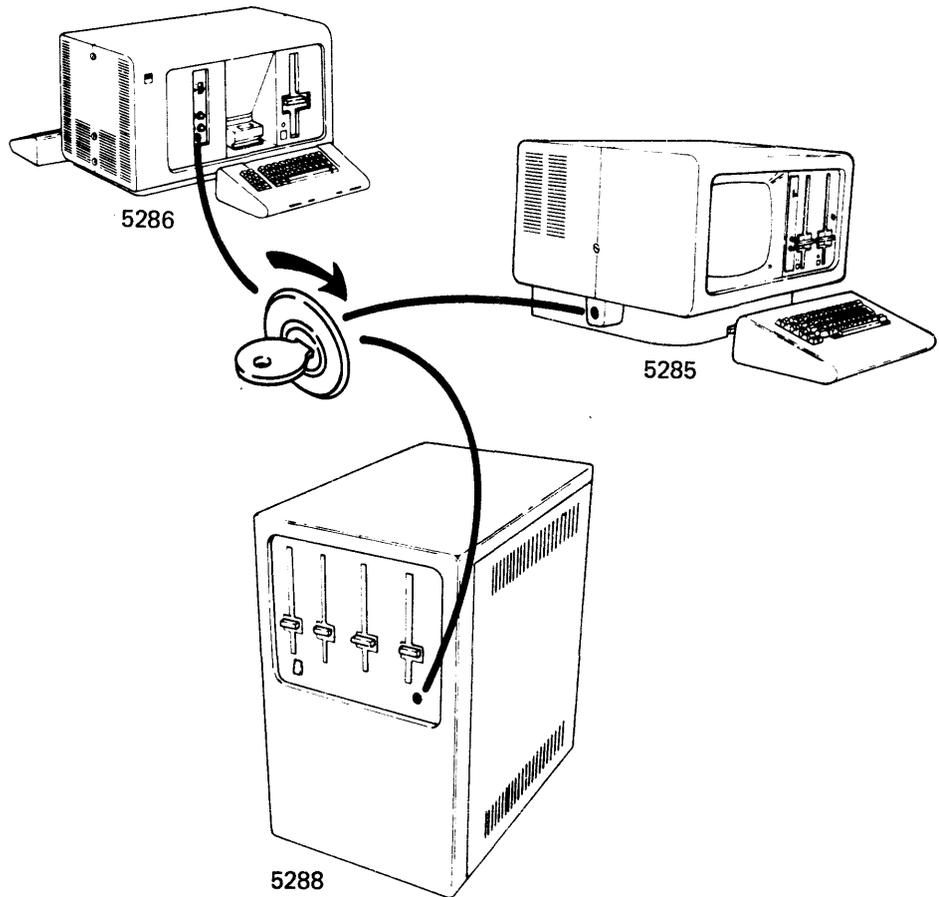
Some IBM 5280 devices are equipped with a keylock and/or magnetic stripe reader(s).

Keylock Feature

The keylock feature prevents the entry and the display of data at all data stations when the key is in the locked position.

How To Use The Keylock Feature

The keylock, if present, is in different locations on the 5288, 5286, and 5285 as indicated.



If your controller has the keylock feature, use procedure (a) for normal operation, such as data entry or running a utility. Use procedure (b) for setting up a communications job. Use procedure (c) for preventing the use of any or all of the keyboards attached to the 5280 system.

Separate keys are required for normal operations and for setting up communications jobs. Also, the keys can be inserted and removed only in the upright (locked) position.

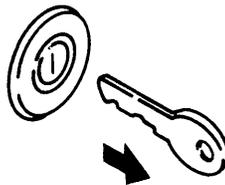
- a. For normal operation, insert the correct key and turn it to the right.



- b. To set up a communications job, insert the correct key and turn it to the left. Once the communications job has been set up, turn the keylock to the right for normal operation (see step a).



- c. To prevent the use of your system, turn the key to the upright (locked) position and remove the key. After a 5280 has been set up for an unattended communications job, it is recommended that you position the key in the locked position to prevent accidental data entry.



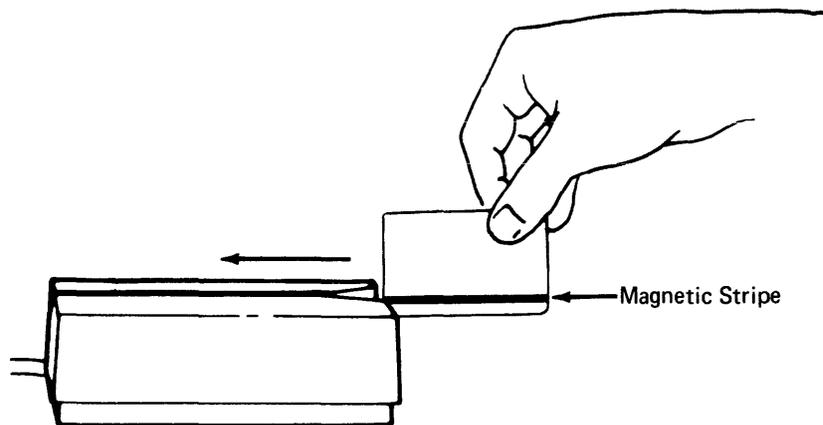
Magnetic Stripe Reader Feature

The magnetic stripe reader is an optional feature that reads magnetic encoded stripes on identification cards.

How To Use The Magnetic Stripe Reader

To use the magnetic stripe reader:

1. If your device has the keylock feature, you must turn the key to the left or right before you can use the magnetic stripe reader.
2. Place the card to be read, as shown:



3. Move the card smoothly and continuously from right to left through the reader. (The card must remain against the bottom surface of the slot.)

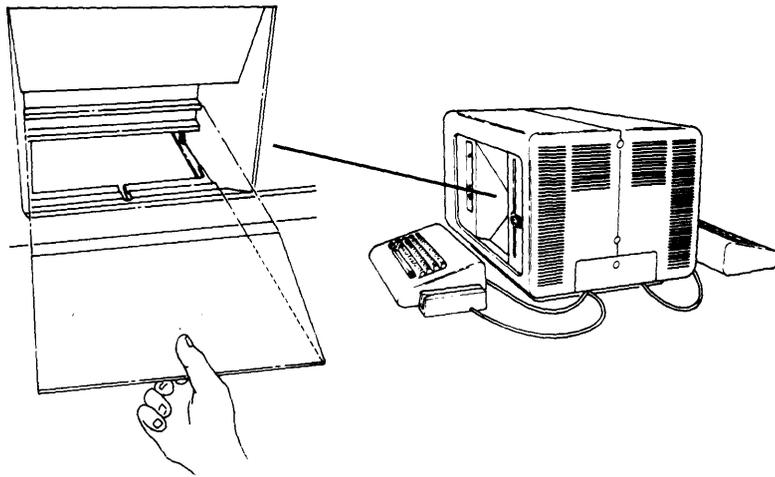
CLEANING YOUR SYSTEM

CAUTION

Do not use a cleaner that contains isopropyl alcohol, which can damage the surface of the 5280 system.

Use a cloth dampened with a mild soap solution to clean the covers, the keyboard, the display tube face, and the display mirror (5282 and 5286 only).

To remove the mirror: lift up on the edge of the mirror and slowly pull it out.



To replace the mirror: lay the mirror on the top or bottom ledge of the mirror housing; then lower the bottom of the mirror into its position.

DETERMINING SYSTEM PROBLEMS

The following checks can help you determine what is wrong with your system. If the problem cannot be fixed with the following checks, contact your supervisor.

PROBLEM	ACTION
Blank Screen	<ol style="list-style-type: none">1. Check to make sure that the Power switch is set to the I (On) position at all devices.2. Check the key position on the keylock. It must not be in the upright (locked) position.3. Make sure that the Brightness control is turned to the right far enough for you to see the display.

<u>PROBLEM</u>	<u>ACTION</u>
Continued	<ol style="list-style-type: none"> 4. Check to make sure that the device is plugged into a grounded receptacle. 5. Check to make sure that you have power at the receptacle. 6. Check to make sure that the correct IPL diskette was used for the IPL of the system. 7. Check with your supervisor to make sure that the system has been configured correctly. 8. Make sure that the auxiliary data station cables are connected properly.
Display too dark	<ol style="list-style-type: none"> 1. Turn the Brightness control to the right.
Display too bright	<ol style="list-style-type: none"> 2. Turn the Brightness control to the left.
System Indicator checkout sequence halts (the indicators appear on keyboard 0 only, during the IPL).	<p>Twelve system indicators (■) appear on the display screen, in a column. As each part of the 5280 is checked, the indicator changes to a (-) dash. If the checkout sequence stops, the 5280 has encountered a problem.</p> <p>If the checkout sequence stops with six indicators remaining on the display screen, one of the following problems has occurred:</p> <ol style="list-style-type: none"> 1. The IPL diskette has not been properly inserted into a diskette drive. Check to see that the diskette is in a diskette drive, and that the diskette locking lever is down. The IPL will continue. 2. The IPL diskette has been inserted into a defective diskette drive. Move the IPL diskette to another diskette drive. The IPL will continue. 3. The IPL diskette is defective. Use another IPL diskette. The IPL will continue. <p>If the checkout sequence stops with two indicators remaining on the display screen, there might be a problem with the user-written IPL diskette. Contact your programmer.</p>

3. Move the card smoothly and continuously from right to left through the reader. (The card must remain against the bottom surface of the slot.)

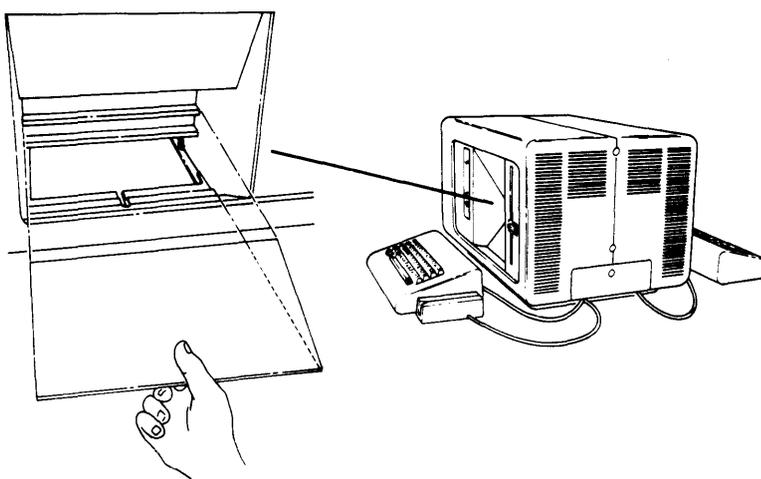
CLEANING YOUR SYSTEM

CAUTION

Do not use a cleaner that contains isopropyl alcohol, which can damage the surface of the 5280 system.

Use a cloth dampened with a mild soap solution to clean the covers, the keyboard, the display tube face, and the display mirror (5282 and 5286 only).

To remove the mirror: lift up on the edge of the mirror and slowly pull it out.



To replace the mirror: lay the mirror on the top or bottom ledge of the mirror housing; then lower the bottom of the mirror into its position.

DETERMINING SYSTEM PROBLEMS

The following checks can help you determine what is wrong with your system. If the problem cannot be fixed with the following checks, contact your supervisor.

PROBLEM	ACTION
Blank Screen	<ol style="list-style-type: none">1. Check to make sure that the Power switch is set to the I (On) position at all devices.2. Check the key position on the keylock. It must not be in the upright (locked) position.3. Make sure that the Brightness control is turned to the right far enough for you to see the display.

PROBLEM	ACTION
Continued	<ol style="list-style-type: none"> 4. Check to make sure that the device is plugged into a grounded receptacle. 5. Check to make sure that you have power at the receptacle. 6. Check to make sure that the correct IPL diskette was used for the IPL of the system. 7. Check with your supervisor to make sure that the system has been configured correctly. 8. Make sure that the auxiliary data station cables are connected properly.
Display too dark	<ol style="list-style-type: none"> 1. Turn the Brightness control to the right.
Display too bright	<ol style="list-style-type: none"> 2. Turn the Brightness control to the left.
System Indicator checkout sequence halts (the indicators appear on keyboard 0 only, during the IPL).	<p>Twelve system indicators (■) appear on the display screen, in a column. As each part of the 5280 is checked, the indicator changes to a (-) dash. If the checkout sequence stops, the 5280 has encountered a problem.</p> <p>If the checkout sequence stops with six indicators remaining on the display screen, one of the following problems has occurred:</p> <ol style="list-style-type: none"> 1. The IPL diskette has not been properly inserted into a diskette drive. Check to see that the diskette is in a diskette drive, and that the diskette locking lever is down. The IPL will continue. 2. The IPL diskette has been inserted into a defective diskette drive. Move the IPL diskette to another diskette drive. The IPL will continue. 3. The IPL diskette is defective. Use another IPL diskette. The IPL will continue. <p>If the checkout sequence stops with two indicators remaining on the display screen, there might be a problem with the user-written IPL diskette. Contact your programmer.</p>

PROBLEM	ACTION
Continued	<p>If the checkout sequence stops with one indicator remaining on the display screen, one of the following has occurred:</p> <ol style="list-style-type: none"> <li data-bbox="678 338 1365 453">1. There was not a 10-second wait between turning the system off and turning it on again. Turn off the system, wait 10 seconds, then turn it on and perform another IPL. <li data-bbox="678 495 1354 590">2. The IPL diskette has a configuration that requires more storage than is available in your system. Contact your supervisor or programmer. <p>If the system checkout stops at any other position, call your service representative.</p> <p>When no display indicators are present, the checkout process is complete.</p>
Blinking Status Line	<p>If there is an error code, see the <i>Message Manual</i>. Otherwise, press the Reset key.</p>
Keystrokes are not accepted	<ol style="list-style-type: none"> <li data-bbox="678 957 1162 1020">1. Check to make sure that the keyboard cable is plugged in. <li data-bbox="678 1052 1162 1083">2. Check the key position in the keylock. <li data-bbox="678 1115 1308 1178">3. Make sure that the auxiliary data station cables are connected. <li data-bbox="678 1209 1354 1272">4. Check to make sure that the correct IPL diskette was used for the IPL of the system. <li data-bbox="678 1325 1382 1388">5. Check with your supervisor to make sure that the system has been configured correctly.
Keystrokes are not displayed as they are shown on the keytops.	<p>The keyboard is configured wrong for that partition or the keyboards have been changed. Check with your supervisor or programmer.</p>

This page intentionally left blank.

DISKETTE	29
DISKETTE HANDLING	29
DISKETTE TYPE	29
HOW TO INSERT THE DISKETTE	30
HOW TO REMOVE A DISKETTE.....	32
DISKETTE WEAR	32
DEFECTIVE DISKETTE DATA RECOVERY	32

This page intentionally left blank

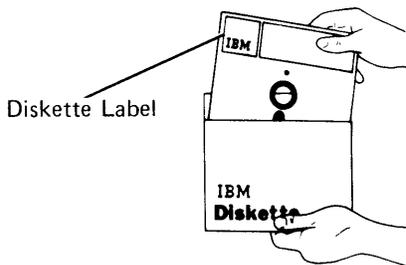
DISKETTE HANDLING

Some helpful hints for protecting diskettes:

- When you are not using the diskette, keep it in the protective envelope.
- Put the diskette in the envelope before writing on the label so that the label is visible through the cutaway front of the envelope.
- Always handle the diskette by the label area to avoid touching the recording surface. Fingerprints on the surface can cause permanent diskette errors.
- Use a file folder or a carrier envelope to carry the diskette.
- Keep magnets away from the diskette.
- If you are mailing diskettes, place them in a box or a heavy cardboard mailer to prevent bending that might be encountered in normal shipping and handling.

DISKETTE TYPE

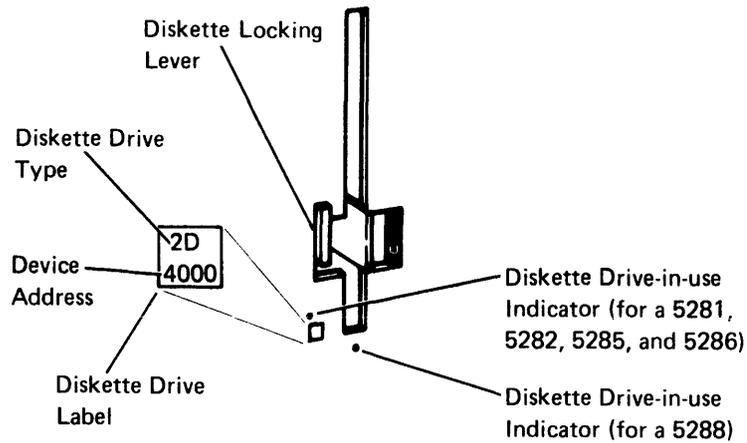
You can determine a diskette type by looking at the label on the diskette.



There are three diskette types. The labels for the three diskette types are:



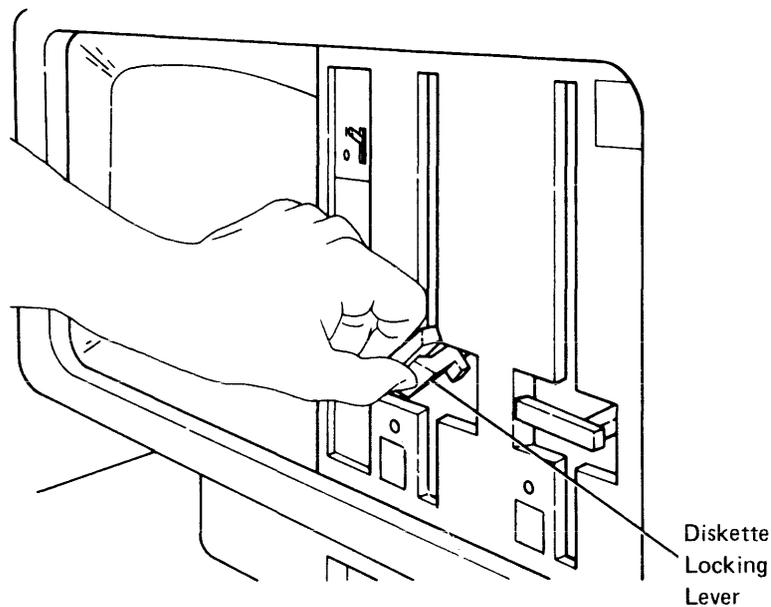
A diskette 1 can be used in either a type 1 or type 2D diskette drive; however, diskettes 2 and 2D can be used only in the 2D diskette drive. The diskette drive type is located near the diskette drive.



Note: If a diskette 2 or 2D is inserted into a type 1 diskette drive, a 3151 error code is displayed when the program attempts to use the data set.

HOW TO INSERT THE DISKETTE

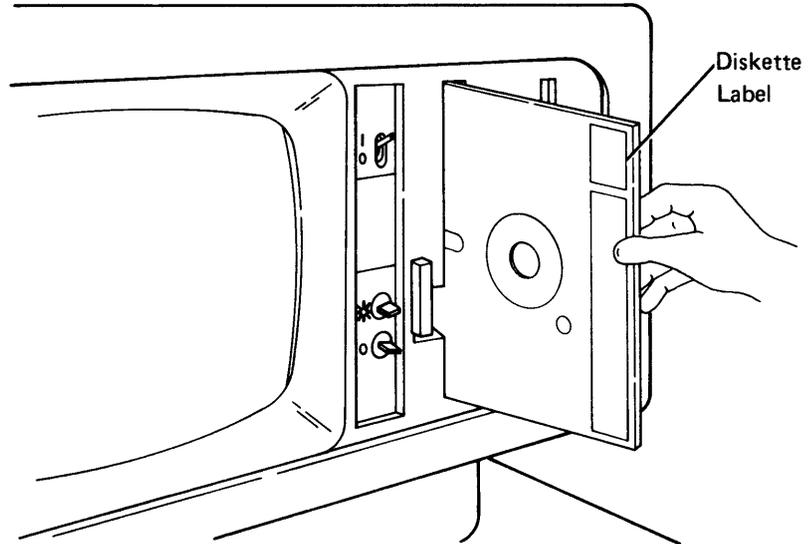
1. Make sure that the diskette type you insert matches the diskette drive type. (Diskettes 2 and 2D cannot be used in a type 1 diskette drive).
2. Make sure that the diskette drive-in-use indicator is off. Turn the diskette locking lever up. If there is a diskette in the diskette drive, remove it and place it in the protective envelope.



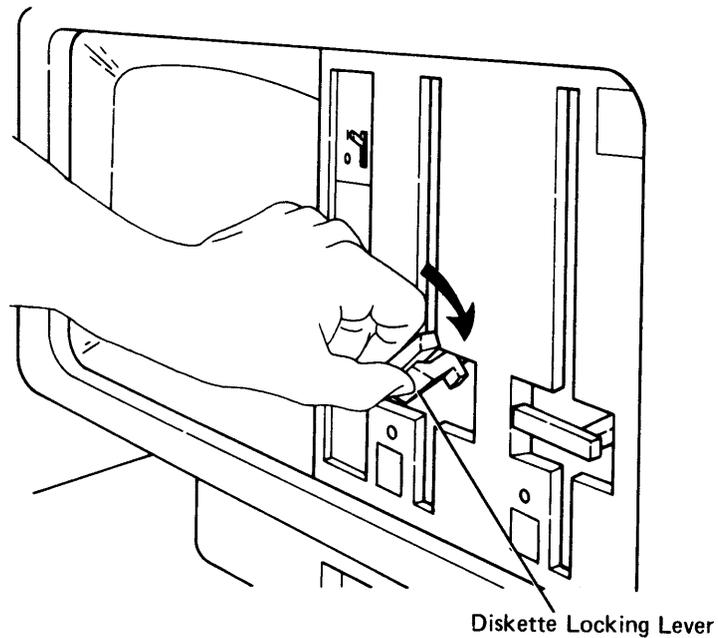
CAUTION

Insert the diskette slowly to ensure that it is seated properly in the drive. If it is not resting against the back of the drive, the diskette might be damaged when you turn the diskette locking lever.

3. Remove the diskette from the envelope and insert the diskette into the drive with the label facing to the left, as shown.



4. Turn the diskette locking lever down.



HOW TO REMOVE A DISKETTE

CAUTION

Do not remove a diskette when the diskette drive-in-use indicator is on (the data set is open and data can be lost). Removing a diskette when the diskette drive-in-use indicator is on causes a loud buzzing sound. If this sound is heard, close the diskette locking lever without removing the diskette.

1. Turn the diskette locking lever up.
2. Pull the diskette from the drive.
3. Put the diskette in its envelope and label it, if you have not already done so.

DISKETTE WEAR

The use of flexible diskette storage provides some significant advantages, such as low cost, compact size, multiple system functions, and ease of media handling and storage. It should be recognized, however, that during recording and reading, the read/write head is in contact with the media, causing diskette wear over time. Variations in the rate of wear will depend on the particular operating environment and application characteristics. Care in the storage, use and handling can also affect diskette life. Excessive wear, handling, or contamination can cause possible failures in recording and/or reading.

Ultimate wear is to some extent dependent upon total usage of individual tracks. Care taken to distribute data so that accessing occurs over the entire recording surface with about the same frequency can extend the useful life of the diskette. Actual experience with individual applications and environments will allow development of guidelines as to when the media should be replaced.

Unpredictable circumstances such as contamination or severe handling can cause an early error to occur.

DEFECTIVE DISKETTE DATA RECOVERY

CAUTION

Use this procedure only if you are familiar with diskette labels and the data on the diskette.

If a diskette becomes defective after data is already stored on it, data can be lost. To recover the maximum amount of data from a defective diskette, use the diskette data recovery procedure (SYSRCVR) in the *Machine Verification Manual*.

PRINTER	33
Stopping the Printer	35
Ending the Job After Stopping the Printer	36
Initiating End of Job from the Printer	36
Printer Out of Forms	36

This page intentionally left blank

STOPPING THE PRINTER

If you must stop the printer to adjust the forms or observe the printed output, follow the procedure for your type of printer.

If your printer has a control panel with a Stop or Stop/Reset switch, such as the 5256 or 5225 printers:

1. Press the Stop switch on the control panel. The printer will stop after printing a few lines.
2. Adjust the forms or observe the printed output.
3. When you are ready to continue printing, press the Start switch on the printer control panel.
4. Press the Reset key on the keyboard. This will clear the error message on the display screen and start the printer.

If your printer does not have a control panel, such as the 5222 printer, follow this procedure from the keyboard attached to the partition controlling the printer.

1. Press the Sys Req key. The Load prompt is displayed. The printer will stop after printing a few lines.
2. Adjust the forms or observe the printed output.
3. When you are ready to continue, press the Cncl key. This cancels the Load prompt and starts the printer.

ENDING THE JOB AFTER STOPPING THE PRINTER

To end a job after pressing Stop to stop printing:

1. Press Start on the printer to empty the internal buffers of the printer.
(If this is not done, any data left in the internal buffers will be held and printed when Start is pressed.)
2. Press Command and End of Job, and select Exit at the exit prompt.

INITIATING END OF JOB FROM THE PRINTER

To end a job from the printer or to stop printing without data held in the internal buffers, press Cancel on the printer (if the printer is so equipped). This causes an error message (2601) on the display screen and the printer will print the remaining data contained in the internal buffers. To change or align forms after the printer ceases printing, press Stop.

You now have the option of continuing with the job by pressing Start on the Printer and Reset on the keyboard, or ending the job by pressing Command and End of Job.

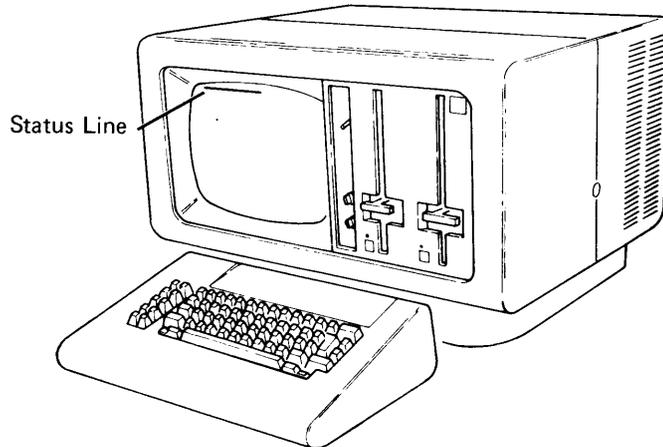
PRINTER OUT OF FORMS

When a printer out of form condition occurs, the 2150 message code will be displayed. The necessary action in response to this message varies according to the type of printer. See the IBM 5280 Messages Manual for the action required for your printer.

STATUS LINE	39
NORMAL OPERATION.	39
Partition Number	40
Input Record Character Position	40
Field Definition	40
Character Insert	40
Positions Remaining In a Field.	40
Hex Value	40
Record Number	41
Automatic Duplicate/Skip	41
Automatic Record Advance	41
Format Number or Format ID.	41
Program Mode	41
Record Verify/Record Mark (DE/RPG).	42
Highest Format Number (KEU)	42
ERROR CONDITIONS	42
Keyboard Error or Program Detected Error	42
Device Error.	43

This page intentionally left blank

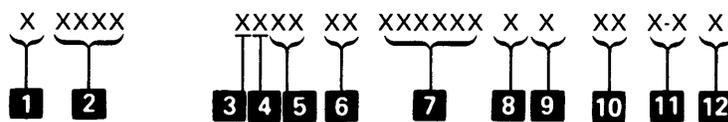
The status line is the first line of information on the display. It is displayed after the system has been started and during the loading and execution of DE/RPG programs, KEU programs, and some utilities.



This section describes the first 39 positions of the status line. The status line is displayed in one of two ways: for normal operation or for error conditions.

Note: During COBOL program execution, the contents of the status line will be different than described in this section. See the *IBM 5280 COBOL Programmer's Guide* for the correct description.

NORMAL OPERATION



- | | |
|--|--|
| 1 Partition number | 8 Automatic duplicate/skip function |
| 2 Input record character position | 9 Automatic record advance function |
| 3 Field definition | 10 Format number or format ID |
| 4 Character insert mode | 11 Program mode |
| 5 Positions remaining in a field | 12 Record verify/Record mark |
| 6 Hex value | 12 Highest format number |
| 7 Record number | |

Partition Number

The partition number indicates the partition to which your keyboard is attached.

Input Record Character Position

Indicates the position in the record where the next character will be stored. When awaiting record advance, this position equals 0.

Field Definition

Indicates the keyboard shift of the current field. One of the following characters is displayed.

A—Alphabetic shift	Y—Numeric only
N—Numeric shift	D—Digits only
H—Hexadecimal	W—Right half shift
X—Alpha only	V—Right half only

For definitions, see the *DE/RPG Reference Manual* or the *Utilities Reference/Operation Manual*.

Character Insert

The symbol (>) is displayed when character insert mode is active.

Positions Remaining In A Field

Indicates the number of character positions remaining in the current field as follows:

- When the number of positions remaining to be keyed is greater than 99, two asterisks (**) are displayed.
- When the cursor is in the first position of a field, the field length is displayed.
- When the cursor is in the last position of a field, 01 is displayed.
- When the cursor is in the last position of a field and awaiting field exit, the cursor is flashing and 01 is displayed.
- When the cursor is in the last position of a record and awaiting record advance, the cursor is flashing and 00 is displayed.

Hex Value

Indicates the hexadecimal value of the character in the current record that corresponds to the current cursor position.

Record Number

Indicates the number of the record in the data set for the record currently displayed. This number includes both data records and deleted records.

Automatic Duplicate/Skip

Displays the reverse image **D** when the automatic duplicate/skip function is on. When this function is off, this position is blank.

Automatic Record Advance

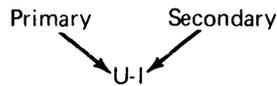
Displays the reverse image **R** when the automatic record advance function is on. When this function is off, the position is blank.

Format Number or Format ID

Indicates the number or ID of the format that you are currently using.

Program Mode

Indicates the mode in which the program is operating. The mode appears in one or two parts. The first part indicates the primary mode. The second part indicates a secondary mode:



The valid mode combinations are:

Mode	Code	
Enter	E	
Update	U	
Update-Insert Record	U-I	
Update-Search	U-S	
Verify	V	
Verify-Record Correct	V-C	
Verify-Insert Record	V-I	
Verify-Search	V-S	
Verify-Display	V-D	
Rerun	R	} DE/RPG Only
Rerun-Display	R-D	
Copy	C	
Copy-Search	C-S	
Copy-Transfer	C-T	
Print	P	
Execute	X	

Record Verify/Record Mark (DE/RPG)

This position contains a V if the record has been verified or an E if the record has been marked.

Highest Format Number (KEU)

Indicates the highest format number available for the current KEU job.

ERROR CONDITIONS

There are two types of status lines that display error conditions: the keyboard or program detected error and the device error.

Keyboard Error or Program Detected Error

When this type of error occurs, the system displays an error code, as shown below. The status line blinks.

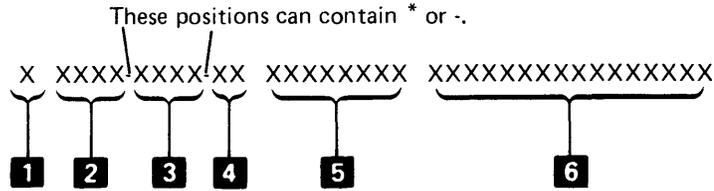
```
X XXXX-XXXX-XXXX XX XXXXXX XX XX X-X X  
           Error Code
```

The information on the status line is the same as the status line for normal operation, except for the error code (—XXXX—). See the *IBM 5280 COBOL Programmer's Guide* for an explanation of the format of the error codes while COBOL program is executing.

Note: When an error code appears, do not press the Reset key until you write the error code on a piece of paper or know the correct recovery procedure. See the *Message Manual* for description of the recovery procedures.

Device Error

When this type of error occurs, the system displays an error code and changes the status line. The status line blinks. The device error status line is different from the status line used for normal operation, as shown.



- 1** Partition number
- 2** Device address
- 3** Error code
- 4** Logical device ID
- 5** Program name
- 6** Data set name

Partition Number

The partition number indicates the partition to which your keyboard is attached.

Device Address

Displays the address of the device where the error occurred.

Error Code

Displays the error code for the error that occurred.

Note: When an error code appears, do not press the Reset key until you write the error code on a piece of paper or know the correct recovery procedure. See the *Message Manual* for a description of the recovery procedures.

Logical Device ID

Indicates the logical ID of the device where the error occurred.

Program Name

Displays the name of the program that is loaded. If an error occurs when you are loading a program, the name of a previously loaded program might be displayed.

Data Set Name

Displays the name of the data set for which the error occurred. If an error occurs when you are loading a program, the name of the program you attempted to load is displayed.



PARTITIONS. 47
STARTING A BACKGROUND PROGRAM. 47
BACKGROUND PROGRAM REQUEST 48
ENDING A BACKGROUND PROGRAM. 49
CANCELING A BACKGROUND PROGRAM. 49

This page intentionally left blank.

All programs operate in partitions. Two kinds of partitions exist: foreground and background. Every foreground partition is automatically attached to a keyboard. A background partition can be temporarily attached to a keyboard for one of the following reasons:

- To start a job in a background partition.
- To respond to a program that is operating in the background partition and wants your attention (a program request).
- To interrupt a program operating in a background partition (ending or cancelling a background program).

Use one of the following procedures to attach to a background partition.

STARTING A BACKGROUND PROGRAM

To start a job in the background partition while the load prompt is displayed in a foreground partition:

1. Respond to the load prompt and enter the background partition number where the program is to be loaded. After you press the Enter key, the partition number on the status line changes to indicate which background partition you are in. Note, that for some utilities, the status line is not displayed.
2. Start the program. If you are executing a utility program, wait until the *utility in process* prompt is displayed before you go to step 3.
3. Press the Attn key to return to the foreground partition. The partition number on the status line changes to indicate which partition you are in.

Note: If the load prompt is not completely displayed, press the Attn key to redisplay the load prompt.

To start a job in the background partition while processing a job in the foreground partition:

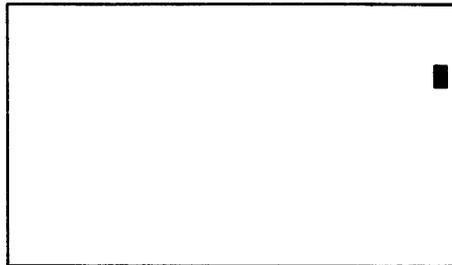
1. Press the Sys Req key. The load prompt is displayed.
2. Respond to the load prompt and enter the background partition number where the program is to be loaded. After you press the Enter key, the partition number on the status line changes to indicate which background partition you are in. Note, that for some utilities, the status line is not displayed.
3. Start the program. If you are executing a utility program, wait until the

utility in process prompt is displayed before you go to step 4.

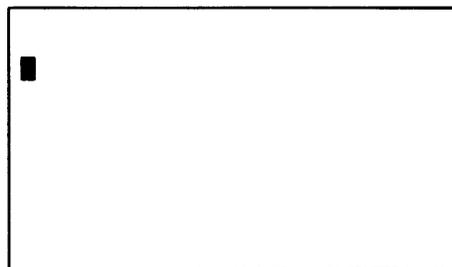
4. Press the Attn key to return to the foreground partition. The partition number on the status line changes to indicate which partition you are in.

BACKGROUND PROGRAM REQUEST

A program operating in a background partition can request operator intervention by displaying a solid rectangular block, located in the rightmost position of the 6th line on the display. On a secondary display of a dual data station (5282 and 5286), the indicator appears in the leftmost position of the 6th line on the display.



5281, 5282, 5285, and 5286
(Side with the Power Switch)



5282 and 5286
(Side without the Power Switch)

To respond to a background program request:

1. Complete the record or prompt you are entering and press the Enter/Rec Adv key.
2. Press the Attn key to connect to the background partition.
3. Respond to the program request. If you select an option that ends the program, the system automatically returns to the foreground partition. Otherwise, go to step 4.
4. Press the Attn key to return to the foreground partition. If more than one background partition is active, you may have to press the Attn key more than once to get back to the foreground partition.

ENDING A BACKGROUND PROGRAM

When you are in a foreground partition and a background program has completed executing, you should respond to the program request that is displayed. A program request is discussed in the previous procedure.

CANCELING A BACKGROUND PROGRAM

To cancel a program in the background partition which does not have a program request displayed:

1. Press the Cmd key, the C key, the B key, and the partition number to connect to the background partition.
2. See the appropriate section (*KEU Job*, *DE/RPG Job*, or *Communications*) for the procedures for ending a job. For other utilities, see the appropriate reference/operation manual.
3. Once the program in the background partition ends, the system automatically returns to the foreground partition.

Note: If the load prompt in the foreground partition is not completely displayed, press the Attn key to redisplay the load prompt.

This page intentionally left blank

KEU JOB	53
PROCESSING A KEU JOB	53
Loading KEU	53
Preparing for Operation	54
Allocating a Data Set	56
Entering Data	58
Updating Data	58
Verifying Data	59
Correcting a Data Key Mismatch	59
Correcting a Dup or Skip Mismatch	60
Inserting a Record or a Group of Records	61
What to Do When Interrupted While Verifying	62
Ending a KEU Job	62
Ending the Key Entry Utility	65
FORMATS AND PROMPTING RECORDS	65
Loading a Format or Prompting Record	65
Saving a Format or Prompting Record on a Diskette	67
Selecting a Format or Prompting Record	67
Displaying a Format or Prompting Record	68
Changing a Format or Prompting Record	68
Updating a Format or Prompting Record on a Diskette	68
FORMATS AND PROMPTING RECORDS	69
Formats	69
Making a KEU Format	70
Prompting Records	71
How to Use a Prompting Record	72
How to Make a Prompting Record	72
Field Code Chart	73
Types of Fields Used in Formats	74
Format Chaining	75

This page intentionally left blank



The KEU (key entry utility) allows you to enter data without the use of a compiled program. The utility has three primary modes of operation: enter, update, and verify.

The key entry utility can also be used to create, change, and save formats and prompting records. A format is a set of codes that control how data is entered into a record. The codes indicate the position, type, and length of each field in the record. A prompting record contains messages that can be displayed to identify the contents of the fields in the associated format.

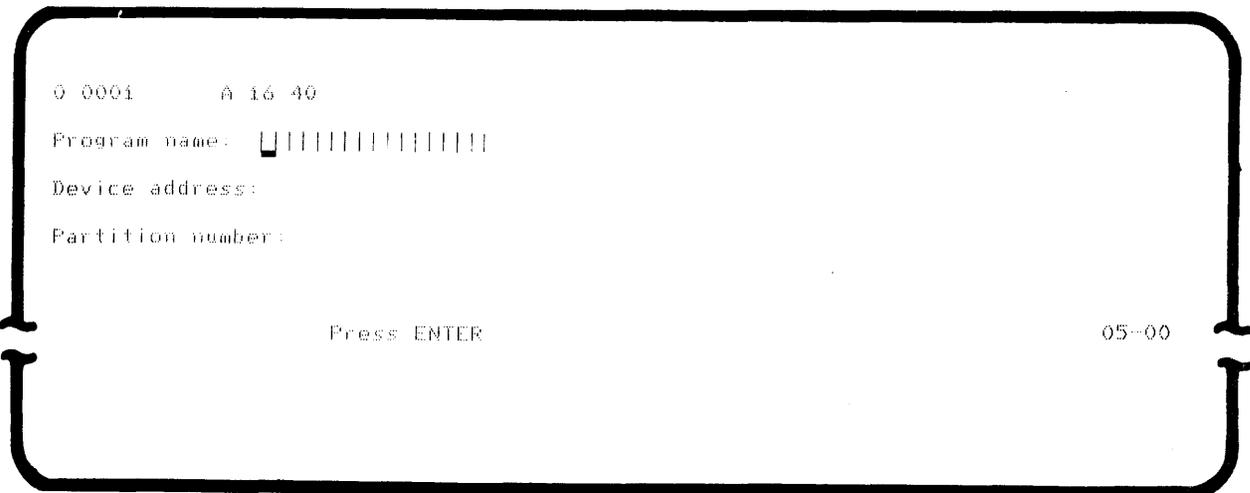
Production statistics, such as the number of keystrokes used for a specific job, are accumulated by the system during data entry operations. These statistics can be written to a diskette at the end of a KEU job.

This section gives an overview of the procedures required to create and maintain data sets in the system using KEU. The second part of this section describes how to create and maintain formats and prompting records.

PROCESSING A KEU JOB

Loading KEU

1. Begin this procedure with the load prompt on your display.



2. Insert the diskette containing the KEU program.

3. **Program name:** Enter SYSKEU and press the Field Exit key or the Field + key.
4. **Device address:** Enter the device address of the diskette drive containing the KEU program.
5. **Partition number:** When using the key entry utility, no entry is required. Press the Enter key. The primary mode menu appears, as follows:

```
0 0001      D 01 40
```

```
SYSKEU - KEY ENTRY UTILITY
```

```
Options are
```

- | | |
|--|--------------|
| 1. Enter-NEW/ <input type="text" value="REPLACE"/> | 3. Verify |
| 2. Update | 4. Enter-ADD |

```
Select option:  Press ENTER
```

```
06-81
```

Preparing for Operation

1. Select the mode of operation. The modes function as follows:

The enter-NEW/REPLACE mode begins with the first record of a data set. It is normally used only for initial entry of data; all data previously entered for this data set is lost.

The enter-ADD mode begins at the record following the last record of the data set. It is normally used to add data to an existing data set.

The update mode begins with the first data record in the data set. It is normally used to correct or change data in an existing data set.

The verify mode begins with the first data record in the data set. It is normally used to check the accuracy of entered data.

After you select the mode and press the Enter/Rec Adv key, the following prompt appears:

redisplayed with the information you entered in steps 3 and 4. Press the Enter key again. If you did not enter the correct owner identifier, you are not allowed to access the diskette and the volume protected prompt is redisplayed.

6. If the data set you specified was not found on the diskette and you selected option 1 (enter-NEW/REPLACE) on the primary mode menu, the following prompt appears:

```
0 0001      D 01 40          F
Data set open failed
Options are
  1. Retry
  2. Allocate
Select option:  _ Press ENTER
```

06-83

Retry: Select option 1 and press the Enter key to redisplay the data set open prompt. Selecting this option allows you to insert the correct diskette, correct the data set name, or correct the device address. Then return to step 3.

Allocate: If you select enter-NEW/REPLACE, you can use option 2 to create a new data set for this job, then press the Enter key. See *Allocating a Data Set*, next in this section.

7. When the data set is opened, the display screen is blank if you selected enter-NEW/REPLACE), enter-ADD, or verify. The first record is displayed if you select update.

You are now ready to enter, update, or verify the data set, depending on the option you selected in response to the primary mode menu. Continue with the job by following the appropriate procedure listed under *Entering Data*, *Updating Data*, or *Verifying Data* in this section.

Allocating A Data Set

1. The following prompt is displayed containing information about the data set you tried to open.

```

0 0001      A 26 xx      E
Enter data for data set allocate
Data set name:  xxxxxxxx
Device address:  xxxx  Owner ID:
Exchange type:  I  Number of records:  000000  Record length:  128
                Press ENTER

```

06-84

2. **Data set name:** If the data set name is correct, press the  (Field Advance) key. Otherwise, correct the data set name, then press the Field + key or the Field Exit key. Blanks are not allowed in a data set name. The system will use only the part of the data set name before the blank.
3. **Device address:** If the device address is correct, press the  (Field Advance) key. Otherwise, correct the device address, then press the Field + key or the Field Exit key.
4. **Owner ID:** If the owner ID (identification code) is correct or if no owner ID is required, press the  (Field Advance) key. Otherwise, enter the correct owner ID, then press the Field + key or the Field Exit key.
5. **Exchange type:** If the exchange type shown is correct, press the  (Field Advance) key. Otherwise, enter a blank (space) for basic exchange, enter an H for H exchange, or enter an I for I exchange.
6. **Number of records:** If the remainder of the space on the diskette is to be allocated for this job, leave the value 000000 and press the  (Field Advance) key. Otherwise, enter the number of data records to be allocated in the data set, then press the Field + key or the Field Exit key to exit the field and right-adjust the entry.
7. **Record length:** Enter the record length (1 through 128) for the data set, then press the Field + key or the  (Field Advance) key to exit the field and right-adjust the entry. If the entry for the record length is not changed, press the  (Field Advance) key and the maximum record length (128 characters) is used.

When you are allocating a data set for production statistics, the record length must be 128.

8. Press the Enter key. After the data set has been allocated it is automatically opened.

Entering Data

If you selected option 1 (enter-NEW/REPLACE), the cursor is at the first input position of the first data record. If you selected option 4 (enter-ADD), the cursor is at the first input position of the record following the last record in the data set.

If the auto record advance function is active, the next record is automatically displayed when you complete the current record. If the auto record advance function is not active, you must press the Enter/Rec Adv key when you finish keying the current record. To activate the auto record advance function, press the Auto Enter key.

1. Select a format, if required (see *Selecting a Format or Prompting Record*).
2. Key the data for each input field in the record.
3. If the auto record advance function is not active, press the Enter/Rec Adv key when you have keyed all of the data for that record.
4. Repeat steps 2 and 3 for each source record.
5. When you have entered all the source records for the job, see *Ending A KEU Job* in this section.

Updating Data

This procedure allows you to review data records and to make changes to them.

If the auto record advance function is active, the next record is automatically displayed when you complete the current record. If the auto record advance function is not active, you must press the Enter/Rec Adv key when you finish keying the current record. To activate the auto record advance function, press the Auto Enter key.

1. Use the Enter/Rec Adv key, or the Page Fwd key, or the Home key, (see *Function Keys*) or use one of the search functions (see *Search*) to find the record you want to update.
2. Select a format, if required (see *Selecting a Format or Prompting Record*).
3. Move the cursor (by pressing the  Field Advance key or the  (Character Advance) key) to the field in the record to be updated.
4. Enter the new data over the data you want to update.
5. After you have updated the data record, press the Enter/Rec Adv key. The updated record is written back to the data set.
6. Repeat steps 1 through 5 for each record that requires a change.

7. If you update the last record in the data set, the mode changes from update to enter mode.
8. To end the job, see *Ending a KEU Job* in this section.

Verifying Data

This procedure is valid in the verify (V) mode. Verify mode can be selected only from the primary mode menu.

After the data set is opened, you are ready to verify the first record of the data set. The cursor is at the beginning of the first input field. The data record is not displayed.

If the auto record advance function is active, you do not need to press the Enter/Rec Adv key when you have completed the current record. To activate the auto record advance function, press the Auto Enter key.

1. Select a format, if required (see *Selecting a Format or Prompting Record*).
2. Enter the data from the source document. As you enter each data character, it appears on the screen if it matches the original character in the record. If the data character keyed does not match the original character, an error code is displayed (see *Correcting a Data Key Mismatch*). If an error results from a duplicate or skip field, see *Correcting a Dup or Skip Mismatch* in this section.
3. At the end of each record, press the Enter/Rec Adv key. The record is written back to the data set if changes were made.
4. When the last record in the data set is verified, the system automatically closes the data set and displays the end-of-job prompt. See *Ending a KEU Job* in this section.

Correcting A Data Key Mismatch

When a data key mismatch occurs, the system displays an error on the status line and the remainder of the field is displayed.

1. See the *Message Manual* for the proper recovery procedures, then press the Reset key or the Error Reset key.
2. If the character mismatch resulted from a keying error, rekey the original character.

If the character mismatch resulted from an incorrect character in the record in the data set, rekey the correct character.

Changes made to the record are updated on the diskette after you finish verifying the record and advance to the next record.

Note: A character is accepted only if it is keyed twice in succession or if it matches the original character.

To correct several characters or an entire field:

1. Press the Corr key or Field Corr key (see *Function Keys*). The system fills the field with blanks, and the cursor moves to the first position of the current field so you can rekey the field as you would in enter mode.
2. Enter the correct field data. When the field is completed, the system displays blanks in the field, and the cursor returns to the first position of the field so you can verify it.
3. Rekey the field to verify it.

To correct an entire record:

1. Press the Rec Corr key or press and hold the Num key, then press the Corr key (see *Function Keys*). The system displays the entire record with the cursor in the first position of the record. The mode indicator on the status line changes from V to V-C.
2. Enter the correct record data (as if in the update mode). When the record is complete, press the Enter/Rec Adv key if the auto record advance function is not active. The system displays a blank record with the cursor in the first position of the record so you can verify it. The mode indicator changes back to V.
3. Rekey the record to verify it.

Correcting a Dup or Skip Mismatch

If a mismatch occurs when using the Dup or Skip key, or when a dup field or skip field is being automatically verified, the following sequence occurs:

1. The cursor stops at the position that caused the mismatch.
2. The entire field is displayed.
3. An error code for a verify mismatch is displayed on the status line.

To correct a dup mismatch:

1. Press the Reset key.
2. If the character from the corresponding position of the previous record is correct, press the Dup key. The character from the previous record replaces the character in the current record. The system then continues automatic verification to the end of the field.
3. If the character in the current record is correct, rekey that character, then press the Dup key. The system then continues automatic verification to the end of the field.

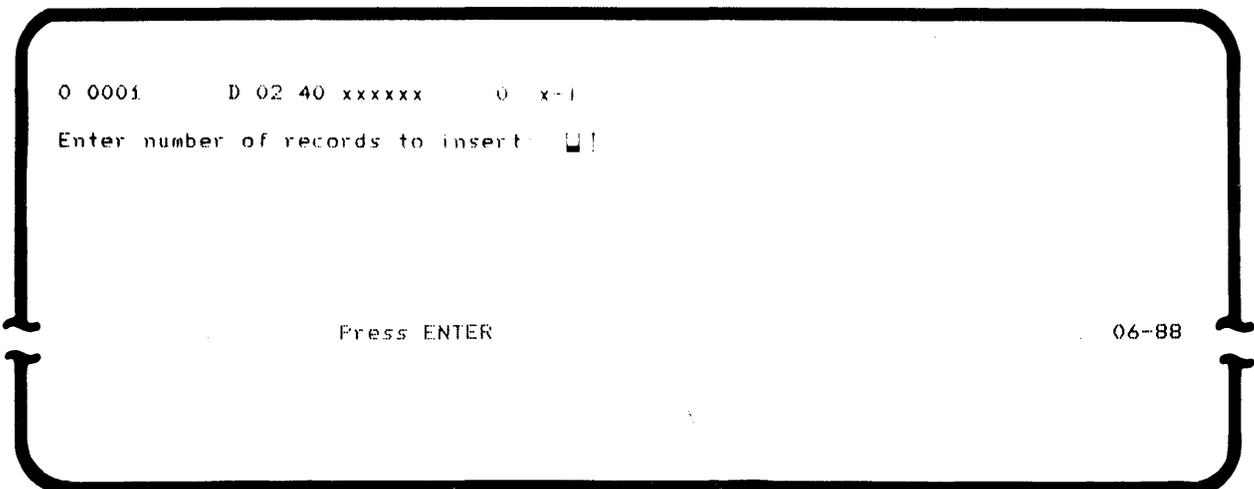
To correct a skip mismatch:

1. Press the Reset key.
2. If the record is supposed to contain a blank in that position, press the Skip key. A blank replaces that position in the record. The system then continues to check the remainder of the field for blanks.
3. If the character in the record is correct, rekey that character, then press the Skip key. The system then continues to check the remainder of the field for blanks.

Inserting a Record or a Group of Records

If an entire record or a group of records is missing:

1. Write down the record number that is displayed on the status line. (This is the record number of the first record inserted.)
2. Press the Cmd key, then press the Insert Record key.
3. The following prompt is displayed:



4. Enter the number of records to be inserted. (Valid entries are 1 through 99.) Press the Field + key or the Field Exit key, then press the Enter key. (The system displays a blank screen with format 0 selected.)
5. Select a format, if required (see *Selecting a Format or Prompting Record*).

6. Key in the record and press the Enter/Rec Adv key. Repeat this step until insert mode ends. Insert mode ends when one of the following conditions occurs:
 - a. You have inserted the number of records that you specified in step 4.
 - b. You press the Cancel key and then the Rec Adv key. In this case, deleted records are automatically inserted until the number of records you specified in step 4 has been satisfied. The cursor is positioned in the first manual position of the next record.
 - c. You press the Home key while the cursor is in the first manual position of a record. In this case, deleted records are automatically inserted until the number of records you specified in step 4 has been satisfied. The cursor is positioned in the first manual position of the last record inserted.

Note: After you have keyed the last insert record, the status line positions that indicate the program mode blinks until the insert function has been inserted.

When the insert mode ends, the mode indicator on the status line changes back to V so you can verify the records you just inserted.

7. To verify the records, press the Home key or use one of the search keys (see *Search*) to return to the record number that you wrote down in step 1. Verify the records.

What To Do When Interrupted While Verifying

1. Finish verifying the current record.
2. Write down the record number of the last record verified (see *Status Line*).
3. See *Ending a KEU Job*.

To continue an interrupted job:

1. Do the steps necessary to open the data set (see *Loading KEU*) and/or *Preparing for Operation*).
2. Use the Search Record Number key to find the data record (see *Search*).
3. Continue verifying (see *Verifying Data*).

Ending A KEU Job

1. Press the Cmd key, then press the End of Job key. If you press the End of Job key while at a prompt (except the primary mode menu) and the data set is not open, the primary mode menu is automatically displayed. Otherwise, the following prompt is displayed:

```
0 0001      D 01 40          E
End of job.   Do you want to write statistics?

Options are
  1. Yes
  2. No

Select option:   Press ENTER                                06-89
```

2. Select and enter one of the options. (If you select option 1, the following prompt is displayed; continue with step 3. If you select option 2, go to step 4).

```
0 0001      A 26 40          x
Enter data for data set open
Data set name:   | | | | | | | | | | | | | | | | | | | | | | | | | | | |
Device address:

Press ENTER                                06-82
```

3. **Data set name:** Enter the name of the data set to which you want the production statistics written.

Device address: Enter the device address of the diskette drive containing the diskette on which the production statistics will be written.

Press the Enter key. If the data set does not exist, the data set open failed prompt is displayed to allow you to allocate a data set. The data set you allocate must have a record length of 128. (See *Allocating A Data Set*). After you have allocated the data set or if the data set already exists, the following prompt appears:

```
0 0001      0 01 40      1
Select statistics to be written
Options are
  1. Job      3. Both
  2. Station
Select option:   Press ENTER                                06-90
```

To write the statistics for your job, select option 1. To write the statistics for your station, select option 2. To write statistics for both job and station, select option 3. Press the Enter key. The statistics are written to the specified data set on your diskette.

- 4. If you select option 2 in step 2, or after the statistics have been written to the diskette, the primary mode menu is displayed:

```
0 0001      D 01 40
SYSKEU - KEY ENTRY UTILITY
Options are
  1. Enter-NEW/  REPLACE      3. Verify
  2. Update      4. Enter-ADD
Select option:   Press ENTER                                06-81
```

At this time you can start another KEU job or end the key entry utility. To run another KEU job, go to step 1 in *Preparing for Operation*.

Ending the Key Entry Utility

When the primary mode menu is displayed, press the Cmd key, then press the End of Job key. The load prompt will appear.

FORMATS AND PROMPTING RECORDS

A format is a set of codes that control how data is entered into a record. A prompting record can be associated with a format to identify the contents of each field in the record.

Loading a Format or Prompting Record

There are three ways to load a format or prompting record:

- From a diskette
- From the keyboard with the primary mode menu displayed
- From the keyboard when a data set is open (during enter or update modes only)

The loaded formats and prompting records normally are retained until you exit from the utility (to the load prompt) or until you load another format or prompting record with the same format number.

From a Diskette

Loading formats or prompting records from a diskette is a KEU job in itself. This means that after you have loaded the formats and/or prompting records, you must end that job as described in *Ending a KEU Job*. After the job has been ended, the primary mode menu is displayed to allow you to select the mode of operation for the job whose formats you have just loaded.

1. Begin this procedure with the primary mode menu on your display.
2. Select option 2 for update mode.
3. Insert the diskette containing the formats (and prompting records) you want to use.
4. Respond to the data set open prompt.

Data set name: Enter the name of the data set that contains the formats and/or prompting records you want to load.

Device address: Enter the device address of the diskette drive containing the diskette with the formats or prompting records.

Press the Enter key.

5. Press the Enter/Rec Adv key, the Page Fwd key, or use one of the search keys (see *Search*) until the format or prompting message you want to use is displayed.
6. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Load Format key.
7. Key in a format number (1, 2, 3, 4, 5, 6, 7, 8, or 9). After loading the format or prompting record, the system displays a blank screen.
8. To load more formats or prompting records, repeat steps 5 through 7.
9. End the job (see *Ending a KEU Job* in this section).

From the Keyboard with the Primary Mode Menu displayed

1. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Clear Screen key. The system automatically selects format 0 and displays a blank screen.
2. Key in the format or prompting record (see *Making a KEU Format* and *Making a Prompting Record* in this section).
3. Press the Cmd key, hold down the Num key or the  (Shift) key, and press the Load Format key.
4. Key in a format number (1, 2, 3, 4, 5, 6, 7, 8, or 9). After loading the format or prompting record, the system displays a blank screen.
5. To load more formats or prompting records, repeat steps 2 through 4.
6. End the job (see *Ending a KEU job* in this section).

From the Keyboard When a Data Set is Open

1. Begin this procedure while you are in the enter mode (E) or update mode (U) only.
2. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Clear Screen key. The system automatically selects format 0 and displays a blank screen.
3. Make sure that the auto record advance and auto Duplicate/Skip functions are off.
4. Key in the format or prompting record (see *Making a KEU Format* and *Making a Prompting Record* in this section).
5. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Load Format key.

6. Key in a format number (1, 2, 3, 4, 5, 6, 7, 8, or 9). After loading the format or prompting record, the system displays a blank screen.
7. To load more formats or prompting records, repeat steps 4 through 6.
8. You can now select the desired format and continue entering or updating data records. To redisplay the record that was displayed before you began this procedure, press the Cmd key, hold down the Num key or the  (Shift) key, then press the Display Data key.

Saving A Format or Prompting Record On A Diskette

Formats and prompting records can be saved in a data set after they are created and loaded into the system.

1. Begin this procedure while the primary mode menu is displayed.
2. Insert the diskette (on which the formats or prompting records will be saved) into a diskette drive.
3. Select the enter-NEW/REPLACE or enter-ADD mode and respond to the data set open prompt.
4. Select the format or prompting record (see *Selecting a Format or Prompting Record*).
5. Press the Cmd key, hold down the Num or  (Shift) key, then press the Change Format key. (The format or prompting record is displayed.)
6. Press the Enter/Rec Adv key. (The format or prompting record is written to the data set.)
7. Repeat steps 4 through 6 until all formats and prompting records are saved on the diskette.
8. Go to *Ending a KEU Job* in this section.

Selecting a Format or Prompting Record

1. Press the Sel Fmt key on the data entry type keyboards, or press the Cmd key and then press the Sel Fmt key on the typewriter keyboard.
2. Key in the format number (0, 1, 2, 3, 4, 5, 6, 7, 8, or 9) for the format or prompting record you want to select. You select a prompting record only if you want to perform some operation on the prompting record itself (such as to display or change the prompting record).
3. If you have selected a format, the format and any associated prompting record is now active. If you have selected a prompting record, error code 9413 is displayed. In this case, press the Reset key or the Error Reset key. The prompting record is now selected and can be displayed or changed.

Displaying a Format or Prompting Record

1. Select the format or prompting record you want to display:
 - a. Press the Sel Fmt key on the data entry type keyboards, or press the Cmd key and then press the Sel Fmt key on the typewriter keyboard.
 - b. Key in the format number (1, 2, 3, 4, 5, 6, 7, 8, or 9) for the format or prompting record you want to select.

Note: If you selected a prompting record, error code 9413 is displayed. Press the Reset key and continue.

2. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Display Format key. The format or prompting record is displayed.
3. To redisplay the data, you must press the Cmd key, hold down the Num key or the  (Shift) key, then press the Display Data key.

Changing a Format or Prompting Record

1. Select the format or prompting record to be changed:
 - a. Press the Sel Fmt key on the data entry type keyboards, or press the Cmd key and then press the Sel Fmt key on the typewriter keyboard.
 - b. Key in the format number (1, 2, 3, 4, 5, 6, 7, 8, or 9) for the format or prompting record you want to select.

Note: If you selected a prompting record, error code 9413 is displayed. Press the reset key and continue.

2. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Change Format key. (The format or prompting record is displayed and format 0 is active.)
3. Change the format or prompting record, as desired.
4. To load the changed format or prompting record, press the Cmd key, hold down the Num key or the  (Shift) key, then press the Load Format key.
5. Key in a format number (1, 2, 3, 4, 5, 6, 7, 8, or 9).

A blank screen is now displayed and the system remains at the same record position. The changed format or prompting record is loaded and ready to be selected and used. To continue keying, select the desired format and continue.

Updating a Format or Prompting Record on a Diskette

Use this procedure if you have updated a format or prompting record since you loaded it from a diskette and you want to save the updated version.

1. Begin this procedure with the primary mode menu on the display.

2. Select update mode (option 2).
3. Insert the diskette that contains the formats and prompting records.
4. Respond to the data set open prompt.

Data set name: Enter the name of the data set containing the format or prompting record that you want to update.

Device address: Enter the device address of the diskette drive containing the diskette with the formats and/or prompting records.

Press the Enter key.

5. Press the Enter/Rec Adv key or the Page Fwd key until the format or prompting record you want to update is displayed, or do a search operation (see *Search*).
6. Select the altered format or prompting record:
 - a. Press the Sel Fmt key on the data entry type keyboards, or press the Cmd key and then press the Sel Fmt key on the typewriter keyboard.
 - b. Key in the format number (1, 2, 3, 4, 5, 6, 7, 8, or 9) for the format or prompting record you want to select.

Note: If you selected a prompting record, error code 9413 is displayed. Press the Reset key and continue.

7. Press the Cmd key, hold down the Num key or the  (Shift) key, then press the Change Format key. The format or prompting record is displayed.
8. Key the first character of the format or prompting record. (For example, if the first character in the format is an N, press N.)
9. Press the Enter/Rec Adv key. The format or prompting record is written to the diskette.
10. If you have other formats or prompting records to update on the diskette, repeat steps 5 through 9.
11. Go to *Ending a KEU Job* in this section.

FORMATS AND PROMPTING RECORDS

Formats

Here is what a typical format looks like.

A.....N-----A....D----R....S....E

The letters, except for the E, begin a data field and, hence, are called *Field Definition Characters*.

Making A KEU Format

1. Start each field with a field definition character.
2. After the field definition character, put the number of continuation characters, a – (dash) for numeric shift and a period . (period) for alphabetic shift, needed to complete the length of the field.

Picture check fields (fields that contain both alphabetic and numeric subfields) can also be defined. Start the field with the field definition character that applies to the first position of the field. Use the appropriate continuation characters to identify the shift for each subfield.

For example, assume that a picture check field has a length of ten characters. The field consists of four subfields. The first subfield is for alphabetic shift and is three positions long. The second subfield is numeric shift and is four positions long. The third subfield is alphabetic shift and is two positions long, and the fourth is a one-position numeric shift.

The field definition is:

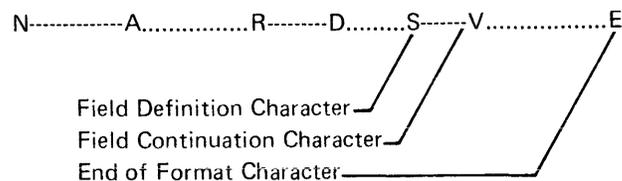
A..-----.-

3. Put an E one position past the end of your format (unless the length of the format equals the record length for the data set, in which case the E is not required). For example, if the record length is 80 and you have a 50-character format, you would put the E in position 51.

In effect, the E tells the system where the end of your format is. That is, when the system reads the E in your format, it bypasses any remaining positions of your record.

Use the *Format Code Chart* (provided later in this section) when you make your KEU format.

The following shows a sample format for a 79-position record as displayed after keying. Note that the format supplies a code for each of the 79 positions.



When a format is loaded in the system, it is given a format number. The valid numbers for formats are 1, 2, 3, 4, 5, 6, 7, 8, and 9.

Prompting Records

The prompting record assists you by displaying a prompting message as you enter data. Here is a typical prompting record:

```
*COMPANY NAME*ADDRESS*CITY AND STATE*DUP*SKIP*
```

Or if you did not want a message in the dup and skip fields:

```
*COMPANY NAME*ADDRESS*CITY AND STATE***
```

The prompting message is displayed on line two.

```
X XXXX      X XX XX      X  
COMPANY NAME _____ First prompting message
```

—
Cursor is at the beginning of the first manual field.

```
X XXXX      X XX XX      X  
ADDRESS _____ Second Prompting Message (After the operator enters the company name  
and advances to the next field).
```

IBM

—
Cursor is at the beginning of the second manual field.

How To Use a Prompting Record

You key in a prompting record the same way you would key in a format. You then load the prompting record into an even-numbered format (2, 4, 6, or 8) the same way you would load a format. When you select an odd-numbered format, the prompting record is automatically activated. For example, when you select format 1, the prompting record in format 2 is also selected.

How To Make a Prompting Record

1. Put an asterisk in position 1.
2. If you have a prompting message for the first field, key in the message and an asterisk. If you do not have a prompting message for the first field, key in only the asterisk in position 2.
3. If you have a prompting message for the next field, key in the message and an asterisk. If you do not have a message for this field, key in only the asterisk.
4. Repeat step 3 for the remaining fields in the format.

When you have finished, you should have an asterisk in position 1 plus an asterisk for each field in the format.

The following example shows a source document, its format, and a typical prompting record that might be used for a job.

	1_____20	21_____40	41_____60	61__70	71__80																				
Source Document	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 33%;">Company Name</th> <th style="width: 33%;">Address</th> <th style="width: 33%;">City and State</th> <th style="width: 10%;">Dup</th> <th style="width: 10%;">Skip</th> </tr> </thead> <tbody> <tr> <td>Viking Stereo Co.</td> <td>1122 20 St NW</td> <td>Elba, Minn</td> <td></td> <td></td> </tr> <tr> <td>Eau Galle Cheese</td> <td>1314 11 Ave SW</td> <td>Eau Galle, Wis</td> <td></td> <td></td> </tr> <tr> <td>NCS, Inc.</td> <td>2020 19 Ave SE</td> <td>New York, NY</td> <td></td> <td></td> </tr> </tbody> </table>					Company Name	Address	City and State	Dup	Skip	Viking Stereo Co.	1122 20 St NW	Elba, Minn			Eau Galle Cheese	1314 11 Ave SW	Eau Galle, Wis			NCS, Inc.	2020 19 Ave SE	New York, NY		
	Company Name	Address	City and State	Dup	Skip																				
	Viking Stereo Co.	1122 20 St NW	Elba, Minn																						
	Eau Galle Cheese	1314 11 Ave SW	Eau Galle, Wis																						
NCS, Inc.	2020 19 Ave SE	New York, NY																							
Format A.....N-----A.....D-----S.....E																									
Prompting Record	*COMPANY NAME*ADDRESS*CITY AND STATE*DUP*SKIP*																								
	OR IF YOU DIDN'T WANT A MESSAGE IN THE DUP AND SKIP FIELDS																								
	*COMPANY NAME*ADDRESS*CITY AND STATE***																								

Field Code Chart

	Format Codes	Keyboard Shift ²	Function ³
Field Definition Characters	N	Numeric	Manual field
	A	Alphabetic	Manual field
	J	Numeric	Right-adjust, blank fill
	R	Numeric	Right-adjust, zero fill
	I	Alphabetic	Right-adjust, blank fill
	B	Alphabetic	Bypass
	D	Numeric	Automatically duplicates
	U	Alphabetic	Automatically duplicates
	S	Numeric	Automatically skips
	K	Alphabetic	Automatically skips
	C ¹	Numeric	Manual field
	H ¹	Numeric	Manual field
	F ¹	Numeric	Automatically skips
	G ¹	Numeric	Automatically skips
	M ¹	Numeric	Automatically duplicates
	L ¹	Numeric	Automatically duplicates
	V	Numeric	Manual field, verify bypass
	W	Alphabetic	Manual field, verify bypass
	Y	Numeric	Right-adjust, blank fill, verify bypass
	X	Numeric	Right-adjust, zero fill, verify bypass
Z	Alphabetic	Right-adjust, blank fill, verify bypass	
Field Continuation—		Numeric	Continues field in numeric shift
Characters		*Alphameric	Continues field in alphabetic shift
End of Format Character	E		Marks end of format

¹Self-check is not performed by the key entry utility. Thus the footnoted codes are supported for compatibility with the IBM 3740 System, but they only function as they are described.

²Keyboard shifts have no meaning when a typewriter keyboard is used. All lowercase alphabetic characters are automatically converted to uppercase by this utility.

³See the *IBM 5280 Utilities Reference/Operation Manual* for a detailed description of the formats.

For the data entry keyboard, the keyboard shifts function as follows:

- Alpha shift: The system automatically selects the lower character on the key top.
- Numeric shift: The system automatically selects the upper character on the key top.

Field totals are not supported by the key entry utility and any digit in the format is interpreted by the system as a numeric continuation character.

Types of Fields Used in Formats

Manual Fields

Manual fields define the length of a field and the keyboard shift. The keyboard shift is either numeric or alpha. But the shift specified by the format can be overridden by pressing the Num Shift key or the Alpha Shift key on the data entry type keyboards.

A is the field definition character for alpha shift fields; N is the field definition character for numeric shift fields.

Duplicate Fields

Duplicate fields are used when you want data from the corresponding field or positions of the previous record automatically entered or verified in the current record when the auto dup/skip function is active. In other words, you eliminate keying repetitious material (see Dup/Skip in *Function Keys*).

The field definition characters are D (numeric) and U (alpha). However, the shifts specified by these characters are ignored by the system except when you are manually keying into a duplicate field.

Skip Fields

Skip fields are used when you want the system to automatically fill or verify fields with blanks when the auto dup/skip function is active. (See Dup/Skip in *Function Keys*).

The field definition characters are S (numeric) and K (alpha). However, the shifts specified by these characters are ignored by the system except when you are manually keying data into a skip field.

Bypass Fields

Bypass fields are used when you want the system to pass over a field and not allow you to key into it. This field is not affected by the Auto dup/skip function.

The field definition character is B. Since you cannot enter data in a bypass field, the shift is meaningless. But you must use either a . (period) or a – (dash) for field continuation characters.

Verify Bypass Fields

Verify bypass fields are used when you want the system to pass over a field only when in verify (V) mode. The data in the field is not verified. The field definition characters are V, W, X, Y, and Z. In enter (E) and update (U) modes, these five characters have the same functions as the characters N, A, R, J, and I respectively, as shown in the *Format Code Chart*.

Right-Adjust Fields

Right-adjust fields allow you to move data in the current field to the right field boundary by pressing the Field Exit key, or the Field + key, or the Field- key, or the – (dash) (data entry type keyboards only) key. Right-adjust fields must be at least two characters long; they can be as long as a whole record.

After moving the data to the right field boundary, the system inserts fill characters to the left of the first keyed character. The fill characters are either blanks or zeros depending on the field definition character you use. Field definition character R is for a numeric right-adjust field with zeros for fill characters; J is for a numeric right-adjust field with blanks for fill characters; I is for an alpha right-adjust field with blanks for fill characters.

Field definition characters X (zero fill character) and Y (blank fill character) are numeric, right-adjust, verify-bypass fields. Field definition character Z (blank fill character) is an alpha, right-adjust, verify-bypass field. These fields are bypassed in verify (V) mode. In enter (E) and update (U) modes, X, Y, and Z have the same function as R, J, and I respectively.

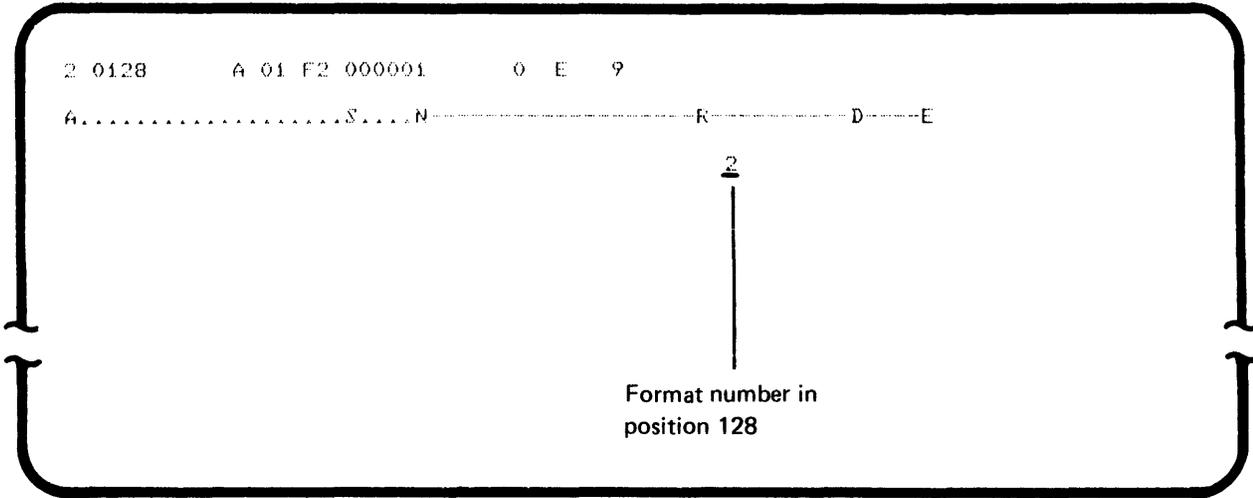
A picture check field cannot be specified as a right-adjust field.

Format Chaining

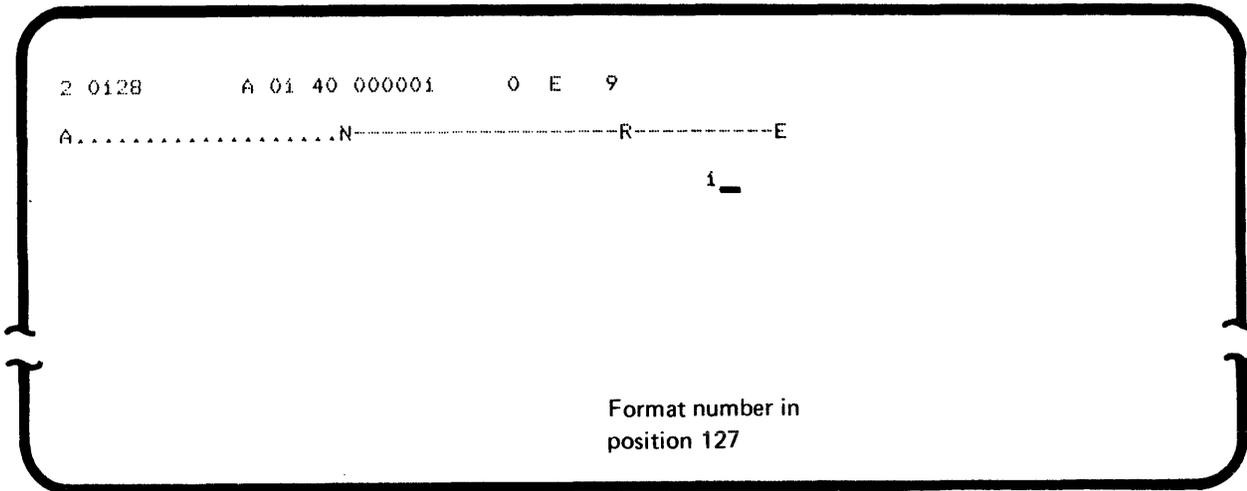
Format chaining allows you to program the system so that it automatically switches from one format to another. Positions 127 and 128 of the format are the key to format chaining. Position 127 indicates the next format to select when a record backspace occurs. Position 128 indicates the next format to

select when a record advance occurs. Acceptable characters for format chaining are numbers 0 through 9.

In the following example, the format number is entered in position 128 to show the format that the system is to select automatically when a record advance occurs:



In the following example, the format number is entered in position 127 to show the format that the system is to select automatically when a record backspace occurs:



DE/RPG JOB	79
STARTING A DE/RPG DATA ENTRY JOB	79
OPENING THE DATA SETS USED BY THE DE/RPG DATA ENTRY PROGRAM	81
ALLOCATING A NEW DATA SET USING DE/RPG DATA ENTRY PROGRAM	82
ENTERING DATA USING A DE/RPG DATA ENTRY PROGRAM	84
SELECTING FORMATS FOR DATA-ENTRY PROGRAMS	85
UPDATING DATA USING A DE/RPG DATA ENTRY PROGRAM	85
VERIFYING DATA USING A DE/RPG DATA ENTRY PROGRAM	86
Correcting a Data Key Mismatch	86
Correcting a Dup or Skip Mismatch	87
Correcting An Automatic Field	88
Inserting a Record or Group of Records	88
RERUNNING A DATA SET USING A DE/RPG DATA ENTRY PROGRAM	89
ENDING A DE/RPG DATA ENTRY PROGRAM	89
STARTING A DE/RPG APPLICATION JOB	90
OPENING DATA SETS FOR A DE/RPG APPLICATION PROGRAM	91
ALLOCATING A NEW DATA SET FOR A DE/RPG APPLICATION PROGRAM	92
ENDING A DE/RPG APPLICATION PROGRAM	94
WRITING STATISTICS FOR A DE/RPG JOB	94
COMPILING A DE/RPG PROGRAM	95
COPYING RECORDS USING DE/RPG	102
PRINTING RECORDS USING DE/RPG	104
PRINTING RECORDS IN DATA ENTRY PROGRAMS.	105
Printing a Single Record Using a DE/RPG Program	106
Printing a Block of Records Using a DE/RPG Program	106

This page intentionally left blank.

0 0001 D 01 40

Select initial data entry mode

Options are

- | | | |
|------------------------------|--------------|----------|
| 1. Enter-NEW/ REPLACE | 3. Verify | 5. Rerun |
| 2. Update | 4. Enter-ADD | |

Select option: 1 Press ENTER

06-81

The following actions depend on the mode that is selected.

The enter-NEW/REPLACE mode always begins with the first record of a data set. It is normally used only for initial entry of data; all data previously entered for this data set is lost.

The enter-ADD mode begins at the record following the last record of the data set. It is normally used to add data to an existing data set.

The update mode begins with the first data record in the data set. It is normally used to correct or change data in an existing data set.

The verify mode begins with the first data record in the data set. It is normally used to check the accuracy of entered data.

The rerun mode begins with the first data record in the data set. It is normally used to update automatically generated fields. When it reaches the end of the data set, the mode automatically changes to enter.

The next step in using a DE/RPG program is opening the data sets that are used.

OPENING THE DATA SETS USED BY THE DE/RPG DATA ENTRY PROGRAM

The mode of operation that is selected affects the following sequence. Steps 4 through 7 indicate the relationship of the mode and the open sequence.

1. Immediately after you have selected the mode of operation for the DE/RPG program, the following data set open prompt appears:

```
0 0001      A 26 xx          E
Enter data for data set open
Data set name:  | | | | | | | | | | | | | | | | | | | | | |
Device address:  xxxx

                          Press ENTER

                                06-82
```

2. This prompt contains the name of the transaction data set and the device number.

Unless otherwise specified by your supervisor, accept the values that are displayed and press the Enter key. What follows depends on whether or not the data set that is named in the open prompt exists, whether it is volume protected, and the mode that is in effect.

3. If the data set exists and the diskette is volume protected, the volume protect prompt is displayed.

```
0 0001      A 14 40          E
Diskette is volume protected.
Device _xxxx Data set xxxxxxxx
Enter owner identifier to access volume:
| | | | | | | | | | | | | | | | | | | | | |

                          Press ENTER

                                05-01
```

You must respond to this prompt before you can access the data set. If you do not know the owner identifier, contact the supervisor or programmer. When you have entered this information, press the Enter key. The data set open prompt is redisplayed. Press the Enter key.

4. If the data set exists and the mode that you selected is either enter-NEW/REPLACE or enter-ADD, the next display shows the first format in the program (display prompts and literals) but does not contain data.

Note: If the mode is enter-NEW/REPLACE, the record that is entered is the first record in the data set. If the mode is enter-ADD, the record that is entered is the one after the last data record in the data set.

5. If the data set exists, is not volume protected, and the mode that you selected is update, verify, or rerun, the next display shows the first format in the program and may display the data. The exact sequence of events for these modes is described in the appropriate topic later in this section.
6. If the data set does not already exist and you are in enter-ADD, update, verify, or rerun mode, a 3215 error occurs. The data set open prompt reappears when you press the Reset key. See the *Message Manual* for information on how to recover from this error.
7. If, however, you are in enter-NEW/REPLACE mode and the data set does not already exist, you can allocate it immediately. This procedure is described in the next topic.

ALLOCATING A NEW DATA SET USING DE/RPG DATA ENTRY PROGRAM

1. The data set open failed prompt appears when there is no data set that matches the one named in the specified drive of the data set open prompt.

```
0 0001      D 01 40          E
Data set open failed
Options are
  1. Retry
  2. Allocate
Select option:   Press ENTER
```

06-83

If you select option 1, the data set open prompt is redisplayed, allowing you to correct the name or address.

```
0 0001      A 26 xx          xx C
Enter data for data set open
Data set name:  xxxxxxxx
Device address:  xxxx

                          Press ENTER                                06-82
```

If you select option 2, the allocate prompt is displayed, allowing you to specify the conditions of the allocation.

```
0 0001      A 26 xx
Enter data for data set allocate
Data set name:  xxxxxxxx
Device address:  xxxx  Owner ID:
Exchange type:  1  Number of records:  000200

                          Press ENTER                                06-84
```

The cursor will be positioned at the beginning of the first field. If you do not want to change the data in a field, exit the field with the  (Field Advance) key.

If you do change the data in a field, exit the field with the Field + key or the Field Exit key.

You can change the name of the data set and the device address. Before you do, you should check with your supervisor.

The owner ID entry allows you to specify the user name under which the data set can be accessed. Do not enter anything in this field unless instructed by the supervisor.

The exchange type field also contains a system-supplied entry. You can change this value if necessary. The programmer should tell you which value to use. The values that are valid in this field are as follows:

Space = Basic exchange

H =H exchange

I =I exchange

Normally a system-supplied number appears in the number of records entry. Change this number if so instructed by the supervisor or programmer. If the remainder of the space on the diskette is to be allocated for this data set, enter the value 000000 and use the Field Exit key or the Field + key to leave the field.

When you have completed the entries for this display, press the Enter key.

ENTERING DATA USING A DE/RPG DATA ENTRY PROGRAM

To enter data, you must have selected either option 1 (enter-NEW REPLACE) or option 4 (enter-ADD) from the select initial data entry mode prompt. If you selected option 1, you are at the first data record in the data set, and the remainder of the records are blank. If you selected option 4, you are at the next available data record in the data set, and the preceding records (if any) contain data.

1. The first format in the DE/RPG program is displayed. Enter the data for the input fields.
2. If the auto record advance function is active, the next record is automatically available for data entry upon completion of the current record. If the auto record advance function is not active, you must press the Enter key when you have completed the current record.

If you want to manually select formats to use for entering data, see the topic *Selecting Formats for Data-Entry Programs* in this section.

3. Repeat steps 1 and 2 until all the data has been entered.

4. End the job by following the procedure in *Ending a DE/RPG Data Entry Program*.

SELECTING FORMATS FOR DATA-ENTRY PROGRAMS

1. To select a format within the program.

For data entry type keyboards: press the Sel Fmt key followed by the format identifier. If the format identifier contains an alphabetic character, press and hold the Alpha shift key to enter the alphabetic character.

For typewriter keyboards: press the Cmd key and the Sel Fmt key followed by the format identifier.

2. To select the next format in the program.

For data entry type keyboards: press the Next Fmt key.

For typewriter keyboards: press the Cmd key and the Next Fmt key.

UPDATING DATA USING A DE/RPG DATA ENTRY PROGRAM

If you selected option 2 from the select initial data entry mode prompt to update data, you are at the first data record in the data set.

1. Press the Enter/Rec Adv key or the Page Fwd key, or use a search function to display the record you want to change. You may need to select the proper format.
2. Move the cursor to the field that is to be changed and enter the new data.
3. After you have updated the data record, press the Enter/Rec Adv key. The updated record is written in the data set.

Note: If the DE/RPG job has mandatory enter fields, you must reenter the field or press the Cmd key and the Edit Release key to bypass these fields before you can advance to the next record.

4. Locate the next record to be updated using the Enter/Rec Adv key, the Page Fwd key, or the Home key, or the search functions.
5. Repeat steps 2, 3 and 4 until you have updated all the data records within the data set. At EOD (end of data), the mode changes to enter mode. See *Entering Data Using a DE/RPG Data Entry Program*.
6. End the job by following the procedure in *Ending a DE/RPG Data Entry Program*.

VERIFYING DATA USING A DE/RPG DATA ENTRY PROGRAM

To verify data, you must have selected option 3 of the select initial data entry mode prompt. The first data record in the data set is the record that is displayed. Input fields are not displayed.

If the auto record advance function is active, you do not need to press the Enter/Rec Adv key when you have completed the current record. To activate the auto record advance function, press the Auto Enter key.

1. Enter the data from the source document. As you enter each data character, the character appears on the display if it matches the original character in the record. If a data character does not match the original character in the record, an error code is displayed (see *Correcting a Data Key Mismatch*).
2. At the end of each record, press the Enter/Rec Adv key. The record is written back to the data set if changes were made.
3. When the last record is verified, the program automatically ends. (See *Ending a DE/RPG Data Entry Program*.)

Correcting a Data Key Mismatch

When a data key mismatch occurs, the system displays an error on the status line and the remainder of the field is displayed.

1. See the *Message Manual* for the proper recovery procedures, then press the Reset key or the Error Reset key.
2. If the data character mismatch resulted from a keying error, rekey the original character.

If the data character mismatch resulted from an incorrect character in the record in the data set, rekey the correct character.

Changes made to the record are updated on the diskette after you finish verifying the record and advance to the next record.

Note: A character is accepted only if it is keyed twice in succession or if it matches the original character.

To correct several characters or an entire field:

1. Press the Rec Corr key, or press and hold the Num key, and then press the Corr key (see *Function keys*). The system fills the field with blanks, and the cursor moves to the first position of the current field so you can rekey the field as you would in enter mode.
2. Enter the correct field data. When the field is complete, the system displays blanks in the field, and the cursor returns to the first position of the field so you can verify it.
3. Rekey the field to verify it.

To correct an entire record:

1. Press and hold the Num key, then press the Corr key, or press the Cmd key, then press the Rec Corr key (see *Function Keys*). The system displays the entire record with the cursor in the first position of the record. The mode indicator on the status line changes from V to V-C.
2. Enter the correct data (as if in update mode). When the record is complete, press the Enter/Rec Adv key if the auto record advance function is not active. The cursor returns to the first manual position of the record so you can verify it. The mode indicator changes back to V.
3. Rekey the record to verify it.

Correcting a Dup or Skip Mismatch

If a mismatch occurs when using the Dup or Skip key, or when a dup field or skip field is being automatically verified, the following sequence occurs:

1. The cursor stops at the position that caused the mismatch.
2. The entire field is displayed.
3. An error code for a verify mismatch is displayed on the status line.

To correct a dup mismatch:

1. Press the Reset key.
2. If the original character from the field being duplicated is correct, press the Dup key. The original character from the field being duplicated replaces the character in the current record. The system then continues automatic verification to the end of the field.

If the character in the current record is correct, rekey that character, then press the Dup key. The system then continues the automatic verification to the end of the field.

Note: If the AUXDUP keyword is specified for the field, the field being duplicated is a field in storage. If the AUXDUP keyword is not specified for the field, the corresponding field in the previous record is the field being duplicated.

To correct a skip mismatch:

1. Press the Reset key.
2. If the record is supposed to contain a blank in that position, press the Skip key. A blank replaces that position in the current record. The system then continues to verify the remaining positions of the field for blanks.

If the character in the data set record is correct, rekey that character, then press the Skip key. The system then continues to verify the remaining positions of the field for blanks.

Correcting An Automatic Field

Verification of fields with insert or substitution data (INSERT or SUBST keywords were used in a DE/RPG program) is automatic. A unique verify mismatch error is displayed for automatic fields. (See the *Message Manual*.)

To correct an automatic field mismatch:

1. Press the Reset key.
2. If the data in the field is correct, press the  (Field Advance) key.
3. If the data in the field is incorrect, initiate the field correct function. The data being supplied by the DE/RPG program replaces the data in the record.

Inserting a Record or Group of Records

If an entire record or a group of records is missing, follow these procedures:

1. Write down the record number that is displayed on the status line. (This is the record number of the first record inserted.)
2. Press the Cmd key, then press the Insert Record key.
3. The following prompt is displayed:

```
0 0001      D 02 40 xxxxxx      0  x-I
Enter number of records to insert:  |
```

Press ENTER

06-88

4. Enter the number of records to be inserted. (Valid entries are 1 through 99.) Press the Field + key or the Field Exit key, then press the Enter key. (The system displays a blank screen with format 0 selected.)

5. Select a format, if required (see *Selecting Formats for Data Entry Programs* in this section).
6. Key in the record and press the Enter/Rec Adv key. Repeat this step until insert mode ends. Insert mode ends when one of the following conditions occurs:
 - a. You have inserted the number of records that you specified in step 4.
 - b. You press the Cncl key and then the Rec Adv key. In this case, deleted records are automatically inserted until the number of records you specified in step 4 has been satisfied. The cursor is positioned in the first manual position of the next record.
 - c. You press the Home key while the cursor is in the first manual position of a record. In this case, deleted records are automatically inserted until the number of records you specified in step 4 has been satisfied. The cursor is positioned in the first manual position of the last record inserted.

Note: After you have keyed the last insert record, the status line positions that indicate the program mode blink until the insert function has been completed. When insert mode ends, the status line positions change back to V so you can continue to verify records.

7. To verify the records you just inserted, return to the record number you wrote down in step 1. You can return to this record number by pressing the Home key, or by using one of the search functions (see *Search*). Verify the records using the procedures described in this section.

RERUNNING A DATA SET USING A DE/RPG DATA ENTRY PROGRAM

To rerun a data set, you must have selected option 5 on the select initial data entry mode prompt. The first record in the data set is displayed, and each succeeding record is displayed without operator interaction.

When all data records in the data set have been displayed, the system displays the next record past the end of data as if enter-ADD mode were in effect. If an error is detected during the rerun mode, the program stops and displays the error code.

1. If data in the record is in error, press the Reset key to stop the status line from blinking. Press the Cmd key and the Mark Field key to mark the field in error.
2. If data in the record is correct, press the Reset key to stop the status line from blinking. Press the Cmd key and the Edit Release key to proceed to the next field.

ENDING A DE/RPG DATA ENTRY PROGRAM

The program determines the way in which the DE/RPG job must be ended. If the DE/RPG programs contains an EOJ (end of job) operation, the program automatically ends when the EOJ is encountered. If the program does not

contain an EOJ operation, the operator must end the program by using the Cmd key and the End of Job key.

When a DE/RPG program is ended, the following prompt may be displayed:

```
0 0001      D 01 40 xxxxxx      xx E
End of job.  Do you want to write statistics?
Options are
  1. Yes
  2. No
Select option:   Press ENTER
```

06-89

To respond to this prompt, see *Writing Statistics for DE/RPG Jobs* in this section.

The programmer can include an operation in the program that prevents this prompt from being displayed. If the prompt is not displayed, the load prompt is immediately displayed.

STARTING A DE/RPG APPLICATION JOB

1. Begin with the load prompt.

```
0 0001      A 16 40
Program name:  | | | | | | | | | | | | | | | | | |
Device address:
Partition number:
Press ENTER
```

05-00


```
0 0001      A 14 40
Diskette is volume protected.
Device xxxx Data set xxxxxxxx
Enter owner identifier to access volume:
|||||
```

Press ENTER

05-01

You must respond appropriately to this display before you can access the data set. If you do not know the owner identifier for the data set, ask your supervisor or programmer to help you. When you have entered this information, press the Enter key. The data set open prompt is displayed again. Press the Enter key.

4. If the data set exists and is not volume protected, the processing begins.
5. If the data set does not already exist and allocation is not allowed, a 3215 error occurs. The data set open prompt reappears when you press the Reset key. See the *Message Manual* for information on how to recover from this error.
6. If the data set does not already exist and allocation is allowed, you can allocate it immediately. This procedure is described in the next topic.

ALLOCATING A NEW DATA SET FOR A DE/RPG APPLICATION PROGRAM

1. When the data set is not on the diskette, the data set open failed prompt is displayed.

```
0 0001      D 01 40
Data set open failed
Options are
  1. Retry
  2. Allocate
Select option: 2 Press ENTER
```

06-83

Space = Basic exchange

H =H exchange

I =I exchange

Normally a system-supplied number appears in the number of records entry. Change this number if so instructed by the supervisor or programmer. If you do change the entry in the number of records field, use the Field Exit or Field + key to leave the field and right-adjust the entry.

When you have completed the entries for this display, press the Enter key.

ENDING A DE/RPG APPLICATION PROGRAM

To end the DE/RPG application program, follow the procedure described in *Ending a DE/RPG Data Entry Program* in this section.

WRITING STATISTICS FOR A DE/RPG JOB

When the job statistics prompt is displayed, you have the option of either writing statistics or of bypassing the statistics. If you choose option 2 and press the Enter key, the load prompt is immediately displayed and you are ready to load the next program.

If you select option 1 and press the Enter key, the following prompt is displayed.

```
0 0001      A 26 xx xxxxxx      xx E
```

```
Enter data for data set open
```

```
Data set name:  xxxxxxxx
```

```
Device address:  xxxx
```

```
Press ENTER
```

```
06-82
```

1. Enter the name of the data set that will contain the production statistics and its device address. Press the Enter key.
2. If the data set that will be used for statistics does not already exist, the data set open failed prompt is displayed. See the procedure in *Allocating a Data Set for a DE/RPG Application Program* in this section. Your supervisor or programmer should supply the data set name.

3. The next prompt requests the selection of the type of statistics.

```
0 0001      D 01 40 xxxxxx      xx E
```

Select statistics to be written

Options are

1. Job 3. Both

2. Station

Select option: Press ENTER

06-90

Select the appropriate option and press the Enter key. The statistics are written in the data set specified in the open prompt (or allocated in the allocate prompt).

4. When the statistics have been written, the load prompt appears.

COMPILING A DE/RPG PROGRAM

1. Begin at the load prompt.

```
0 0001      A 16 40
```

Program name: | | | | | | | | | | | | | | | |

Device address:

Partition number:

Press ENTER

05-00

2. Insert the compiler diskette into one drive and the diskette that contains the source program (program to be compiled) into another drive.
3. Enter the name SYSDERPG in the program name entry. Enter the device address for the compiler in the device address entry. Press the Enter key.

Note: Enter a number in the partition number entry only if you want to use a background partition.

The following prompt is displayed.

```
0 0001      A 16 E2      DE/RPG COMPILER
Enter the following information for      Source file.
Data set name:  SYSIN
Device address:  xxxx

                          Press ENTER                                12-01
```

The device address depends on the location of the source program.

4. Enter the name of the source program (replace SYSIN) and press the Field + key or the Field Exit key.
5. Enter the device address for the source program.
6. Press the Enter key for the next display.

The next three displays have values supplied by the system. This means that you can accept the allocated data set name and address, for example, SYSUT001 and 4400 (as shown in the following display) or you can enter your own allocated data set name and address. Steps 7 and 8 assume that you accept the values supplied by the system. If not, enter your own data set name and address.

```
0 0001      A 16 E2
Enter the following information for      Work file 1.
Data set name:  SYSUT001
Device address:  xxxx

                          Press ENTER                                12-01
```

In the preceding display, the data set name appearing on the display means that the name for work file 1 in the compiler diskette has been defined as SYSUT001. This is a system default work file name.

If SYSUT001 and SYSUT002 are not present, you can automatically allocate them by selecting option 2 from the data set open failed prompt. Then press the Enter key.

Note: If you automatically allocate these data sets, they are deleted when the normal end of job for the compile occurs.

7. Press the Enter key. The next prompt is displayed.

```
0 0001      A 16 E2
Enter the following information for      Work file 2.
Data set name:  SYSUT002
Device address:  xxxx

                          Press ENTER                                12-01
```

8. Press the Enter key. The next prompt is displayed.

```
0 0001      A 16 E2
Enter the following information for      Object file.
Data set name:  SYSOUT
Device address:  xxxx

                          Press ENTER                                12-01
```

9. If there is no data set existing with this name, the data set open failed prompt is displayed:

```
O 0001      D 01 40
```

```
Data set open failed
```

```
Options are
```

1. Retry
2. Allocate

```
Select option:  Press ENTER
```

06-83

If you select option 1, the object file prompt reappears allowing you to change the name or address. Make the corrections and press the Enter key. The listing prompt appears next.

If you select option 2, the listing prompt appears. (The compiler automatically allocates the object data set at the completion of the compilation).

```
O 0001      D 01 40
```

```
Select listing option
```

1. List to printer
2. List to diskette
3. No list

```
Select option:  Press ENTER
```

12-03

10. Select one of the three options and press the Enter key. If you select option 1, follow steps 11 through 13. If you select option 2, follow step 14. If you select option 3, follow step 15.
11. If you selected **option 1**, make sure that the printer switch is set to the I (On) position and that the Start key has been pressed. The following display appears:

12. Always use the name SYSPRINT. However, the device address and form length defaults (8000 and 066) can be changed. Respond to the preceding prompt and press the Enter key. The compilation begins and the listing is printed. The following prompt appears:

```
0
DE/RPG compile in process.
```

12-04

13. If the compiler encounters an error in the program, a message is displayed. The following message appears only when you are listing to a printer.

```
0 0001      D 01 40
```

```
Warning errors have occurred in this program.
```

```
Options are
```

1. Terminate compile .
2. Continue compile

```
Select option:   Press ENTER
```

12-06

You have the option to continue the compilation or to end the compilation. If you select option 2, the compilation continues until you end the job or the compilation is complete. Go to step 16.

COPYING RECORDS USING DE/RPG

Copying records from a data set into a transaction data set is done in the enter mode only and only with programs that contain the CFILE and TFILE keywords.

Note: If you select enter-NEW/REPLACE, the system will copy the record to the beginning of an empty data set. If you select enter-ADD, the system will copy the record to the end of an existing data set.

1. Press the Cmd key and the Review Second Data Set key to begin the copy operation. The data set open prompt for the data set to be copied from appears.

```
0 0001      D 01 40          E
Enter data for data set open
Data set name:  xxxxxxxx
Device address:  xxxx
```

Press ENTER

06-82

2. Change the name or address (if necessary) and press the Enter key. If the data set exists but is volume protected, follow the procedure in steps 3 and 4 of the topic *Opening the Data Sets Used by the DE/RPG Data Entry Program*. Return to this procedure after completing step 4.

If the data set exists and is not volume protected, the first record is displayed and format 0 is automatically selected. If the data set does not exist, error 3215 occurs. If the data set does not exist, you cannot continue with this operation. End the job using the Cmd key and the End of Job key. Call the supervisor.

Go to the topic *Copying Records One at a Time* or *Copying Groups of Records* as needed.

Copying Records One at a Time

1. Locate the record you want to copy. When the record you want to copy is displayed you can make changes. Press the Cmd key and the Transfer Record key, and the record is copied into the transaction data set. If you changed data in the record, the changes are copied, but the original record is not affected.

2. When you have completed the copy operation, press the Cmd key and the Return to Transaction Data Set key, and the current format for the DE/RPG program is displayed.

You can continue entering or updating data in the data set as needed. To end the job see the topic *Ending a DE/RPG Data Entry Program* in this section.

Copying Groups of Records

Deleted records are never copied.

1. If the Auto record advance function is active, press the Auto Enter key to turn it off.
2. Locate the beginning record of the block of records you want to copy.
3. Press the Cmd key, then press either the Search Record Number key or the Search Content key, depending on the type of search you want.

If you use the search record number function, the following prompt is displayed:

```
0 0001      D 06  40 xxxxxxxx 0 C-S  
Enter number for search relative record: █| | | | |
```

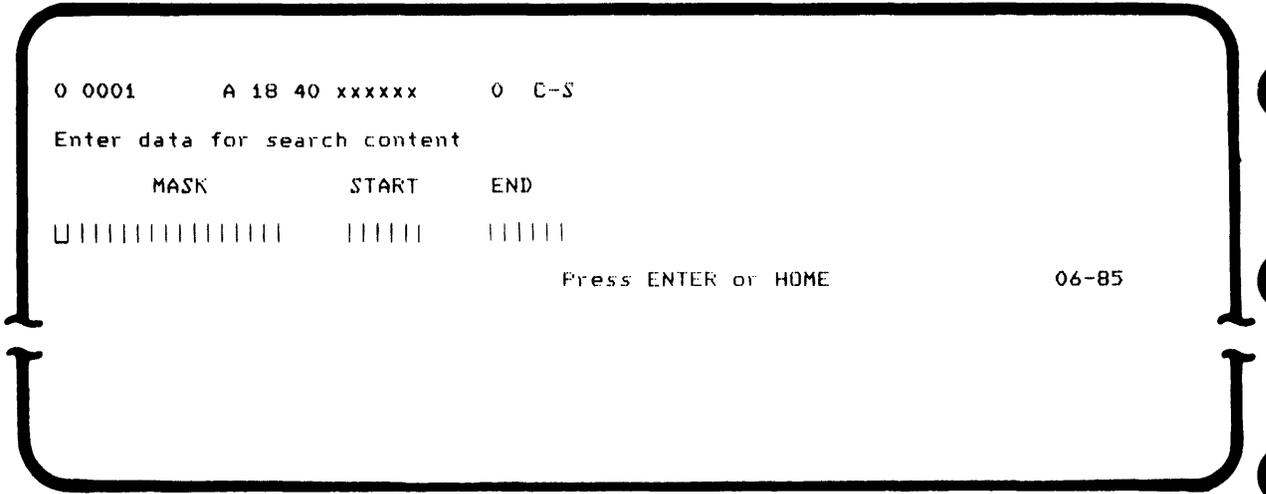
Press ENTER

06-87

- a. Enter the relative record number of the record that follows the last record you want to copy. (Do not press the Enter key. This starts a search function rather than a copy function and you must return to step 1 to copy the records.)
- b. Press the Field Exit key or the Field + key.
- c. Press the Cmd key, then press the Transfer Record key. The mode indicator on the status line changes to C-T.

The records from the current record up to, but not including, the specified record number are copied to the transaction data set. The record with the specified record number is displayed.

If you use the Search Content key, the following prompt is displayed:



- a. Enter a search mask, enclosed in apostrophes. For example, 'Minnesota' could be entered for the mask. If fewer than 18 positions are used for the mask, use the Field Exit key or the Field + key to exit the field.
- b. Enter the position within the record where the mask begins. For example, if the word Minnesota begins in the first position of the record, enter 1. Use the Field Exit key or the Field + key to exit the field.
- c. Enter the position within the record where the mask ends. If left blank, the length of the mask determines the end position. For example, if the word Minnesota begins in position 1, it ends in position 9. Use the Field Exit key or the Field + key to exit the field.

You can repeat steps a through c to enter more search masks, up to three masks. The masks are used to search up to three fields of the record. (Do not press the Enter key or the Home key. This starts a search function rather than a copy function and you must return to step 1 to copy the records.)

- d. Press the Cmd key, then the Transfer Record key. The mode indicator on the status line changes to C-T.

The records are copied up to, but not including, the first record that contains a match on the masks. If no match is found, all records up to, but not including, the last record in the data set are copied.

- 4. Press the Cmd key and the Return to Transaction Data Set key to end the copy operation.
- 5. Terminate the job using the procedure described in the topic *Ending a DE/RPG Data Entry Program* in this section.

PRINTING RECORDS USING DE/RPG

Records can be printed by data entry DE/RPG programs by using the Print key or by application DE/RPG programs by using the formatted print operation.

PRINTING RECORDS IN DATA ENTRY PROGRAMS

Printing a record in a DE/RPG data entry program is valid in enter, update, verify, or copy mode. If an error code is displayed when you press the Print key, see the *Message Manual*.

1. Begin at the load prompt.

```
0 0001      A 16 40
Program name: ████████████████████
Device address:
Partition number:

                Press ENTER                                05-00
```

2. Enter the name and address of the DE/RPG program containing the PRTFILE operation. Press the Enter key. The select initial data entry mode prompt appears.
3. Respond to the select initial data entry mode prompt and press the Enter key. The data set open prompt appears.

```
0 0001      A 26 xx                xx E
Enter data for data set open
Data set name:  xxxxxxx
Device address:  xxxx

                Press ENTER                                06-82
```

4. Follow steps 2 through 7 in the topic *Opening the Data Sets Used by the DE/RPG Data Entry Program* in this section and the topic *Allocating a New Data Set Using a DE/RPG Data Entry Program*.

5. Locate and display the record you want printed. If this is a new data set, you must first enter the record, press the Enter/Rec Adv key and then press the Home key to redisplay the record.
6. Check to make sure that the printer is ready.

Go to the topic *Printing a Single Record Using a DE/RPG Program* or *Printing a Block of Records Using a DE/RPG Program*.

Printing a Single Record Using a DE/RPG Program

1. Press the Print key. If the data set for the print operation has not already been opened, the data set open prompt is displayed.

The printed data does not necessarily represent the format of the displayed data. (This is due to reformatting. The printed record exactly matches the diskette record.)

2. You can display the next record you want printed and repeat the process in step 1 until all records are printed.
3. To terminate the job, see the topic *Ending a DE/RPG Data Entry Program* in this section.

Printing a Block of Records Using a DE/RPG Program

1. Press the Auto Enter key (a reverse image R appears in the status line).
2. Press the Print key.

If the data set for the print operation has not been opened, the data set open prompt is displayed. Respond to the data set open prompt.

The printed data does not necessarily represent the format of the displayed data. (This is due to reformatting. The printed record matches the diskette record.)

3. Successive records are printed until one of the following conditions has been met:
 - a. You press the Auto Enter key again to turn off the auto enter function.
 - b. The end of the data is reached.
 - c. You press the Cncl key.
4. To terminate the job, see the topic *Ending a DE/RPG Data Entry Program* in this section.

RECORD INSERT/RECORD DELETE..... 109
INSERTING A RECORD..... 109
DELETING A RECORD..... 110

{

{

{

.

.

{

.

.

This page intentionally left blank.

INSERTING A RECORD

This procedure is valid only in update and verify modes, to open one or more spaces within a data set:

1. Display the record that will immediately follow the records to be inserted.
2. Press the Cmd key and the Insert Record key. The following prompt appears.

```
0 0001      D 02 40 xxxxxx      0  x-I  
Enter number of records to insert:  |
```

Press ENTER

06-88

3. Enter the number of records to be inserted (1 through 99). Press the Field + key or the Field Exit key, and then press the Enter key.

The system displays a blank screen, with format 0 selected for the creation of the first record to be inserted.

4. Select a format, if required.
5. Key in the record and press the Enter key.

6. Repeat step 5 until insert mode ends. Insert mode ends when one of the following conditions occur:
 - a. You have inserted the number of records that you specified in step 3.
 - b. You press the Cncl key and then the Enter/Rec Adv key. In this case, deleted records are automatically inserted until the number of records you specified in step 3 has been satisfied. The cursor is positioned in the first manual position of the next record.
 - c. You press the Home key while the cursor is in the first manual position of a record. In this case, deleted records are automatically inserted until the number of records you specified in step 3 has been satisfied. The cursor is positioned in the first manual position of the last record inserted.

Note: After you have keyed the last insert record, the status line positions that indicate the program mode blinks until the insert function has been completed.

DELETING A RECORD

Deleted records take up space in the data set and are included in the numbering of the records in the data set. To delete one or more records in the data set:

1. Make sure you are in the enter, update or verify mode.
2. Press the Page Fwd key, or use one of the search functions, until the record you want to delete is displayed.
3. Press the Cmd key and the Delete Record key to delete the record.

In enter mode, pressing the Delete Record key blanks the display screen, transfers a deleted record to the data set, and positions the cursor to the first manual field of the next record.

In update or verify modes, pressing the Delete Record key causes the currently displayed record to be deleted in the data set and the next sequential record is displayed.

4. Repeat steps 2 and 3 for each record to be deleted.

SEARCH	113
SEARCH END OF DATA	113
SEARCH RELATIVE RECORD NUMBER	114
SEARCH CONTENT	114
SEARCH SEQUENTIAL CONTENT	115
RESUMING THE SEARCH CONTENT AND SEARCH SEQUENTIAL CONTENT OPERATIONS	117
CANCELLING A SEARCH OPERATION	117

This page intentionally left blank.

There are four ways to search a data set that has been opened:

- Search end of data
- Search relative record number
- Search content
- Search sequential content

These search operations can be used during the following modes:

- DE/RPG—Copy, update, and verify
- KEU—Update and verify

When a search operation is active, the program mode positions on the status line contain x-S.

Search content and search sequential content differ as follows:

- When searching sequential content, data in fields being searched must be in ascending alpha (A through Z), numeric (0 through 9), or alphameric (A through Z, then 0 through 9) sequence.
- Search sequential content is faster.
- Search content searches only in the specified direction; forward to the end of the data set or backward to the beginning of the data set. Search sequential content searches in both directions (forward and backward) for the desired record.
- Search content uses from 1 to 3 search masks. Search sequential content uses only one search mask.

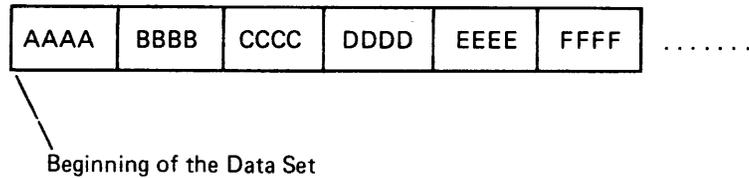
SEARCH END OF DATA

This search operation finds the last record in a data set. When the search is completed, the last record in the data set is displayed. To use this search:

1. Press the Cmd key, hold down the Num key or the  (Shift) key, and press the Search End of Data key.

SEARCH RELATIVE RECORD NUMBER

This search operation finds a particular record by its relative record number within the data set. The relative record number is the physical location of a record relative to the beginning of the data set. For example, if a data set contains the following records:



Record DDDD has a relative record number of 4, because it is in the fourth physical record location from the beginning of the data set.

When the search is complete, the record at the specified relative record number position is displayed. To use this search:

1. Press the Cmd key and the Search Record Number key.
2. When the following prompt appears:

```
0 0001      D 06 40 xxxxxx      0  x-S
Enter number for search relative record: 4| | | | |
                                     Press ENTER                                06-87
```

Enter the relative record number of the record you want to display.

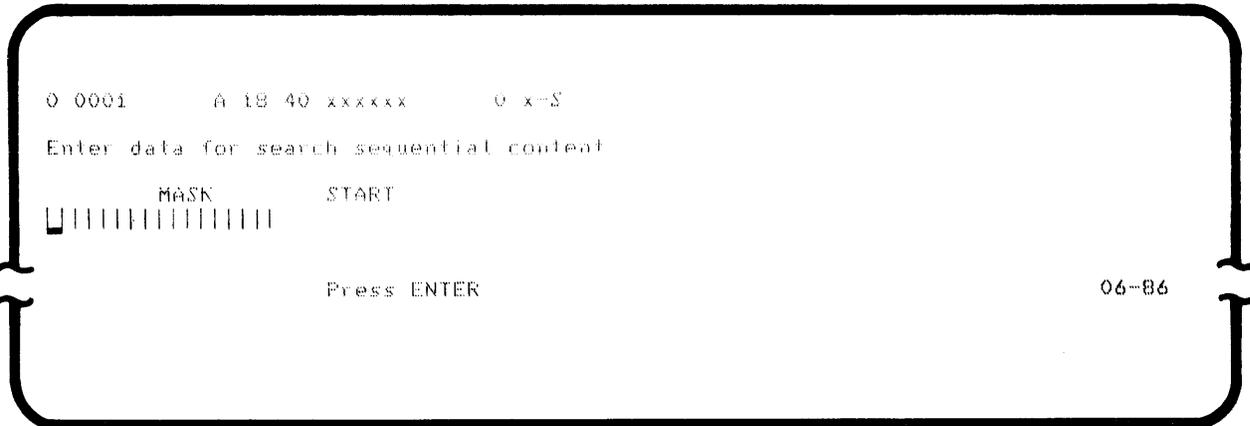
3. Press the Field Exit key or the Field + key.
4. Press the Enter key.

SEARCH CONTENT

This search operation finds the record in a data set that contains specified data. The data can be located in up to three different areas in the record. If a record containing the specified data is found, that record is displayed. If a record is not found, an error occurs. When the Reset key is pressed, the first

when the search begins. If a record containing the specified data is found, that record is displayed. If a record is not found, an error occurs. When the Reset key is pressed, the record in the ascending order that would follow a record containing the specified data is displayed. To use this search:

1. Press the Cmd key and the Search Seq Content key.
2. The following prompt is displayed:



- a. **Mask**—Enter the data for the record for which you are searching. The mask can consist of up to 16 characters, and is must begin and end with an apostrophe. For example, 'MINNESOTA'. If you do not fill the mask field, press the Field Exit key or the Field + key.
- b. **Start**—Enter the starting position where the data you specified is located in the record, and then press the Field Exit key or the Field + key. If the starting position is not specified, position 1 of the record is used as the starting position.

3. Press the Enter key to start the search.

The search might not stop on the first record of a group of records containing the data specified in step 2. If the search stops at a record not sought, perform a record backspace or a record advance operation to find the record sought.

Notes:

1. If records in the data set are not in ascending order, the record being searched for might not be found using search sequential content even though the record exists in the data set.
2. If the record cannot be found, return to the first record in the data set and do a search content operation.

RESUMING THE SEARCH CONTENT AND SEARCH SEQ CONTENT OPERATIONS

If you have used a search content or search sequential content operation for the current data set, the next time you use these searches, the old search mask you previously specified appears. You can either reuse these values or enter new ones.

CANCELLING A SEARCH OPERATION

A search operation (search record number, or search content, or search sequential content) can be canceled while the search prompt is displayed, by pressing the Num key or the  (Shift) key and the Cncl key. When the search is canceled, the record from which the search was requested is displayed. Once the search operation has started, it cannot be canceled.

This page intentionally left blank

SYSTEM CONTROL PROGRAMMING (SCP), UTILITIES,
AND SORT/MERGE 121

This page intentionally left blank.

Sort/Merge Program Product (Use the Sort/Merge diskette)	Program Name
Command Data Set Display	SYSCMDSP
Sort	SYSSORT
Merge	SYSMERGE

For more information on how to use these programs, see the following manuals:

SCP programs—see the *System Control Programming Reference/Operation Manual*.

Utilities—see the *Utilities Reference/Operation Manual*.

Sort, Merge, or Command Data Set Display—see the *Sort/Merge Reference/Operation Manual*.

KEYBOARDS	125
HOW TO IDENTIFY YOUR KEYBOARD TYPE	125
Data Entry Keyboard.	125
Data Entry Keyboard with Proof Arrangement.	126
Typewriter Keyboard.	127
KINDS OF KEYS	127
Data Keys Overview.	127
Function Keys Overview.	128
Command Keys Overview.	133

This page intentionally left blank.

This section describes the keyboards and the location of each key. Three basic types of keyboards are available:

- Data entry keyboard
- Data entry keyboard with the proof arrangement
- Typewriter keyboard

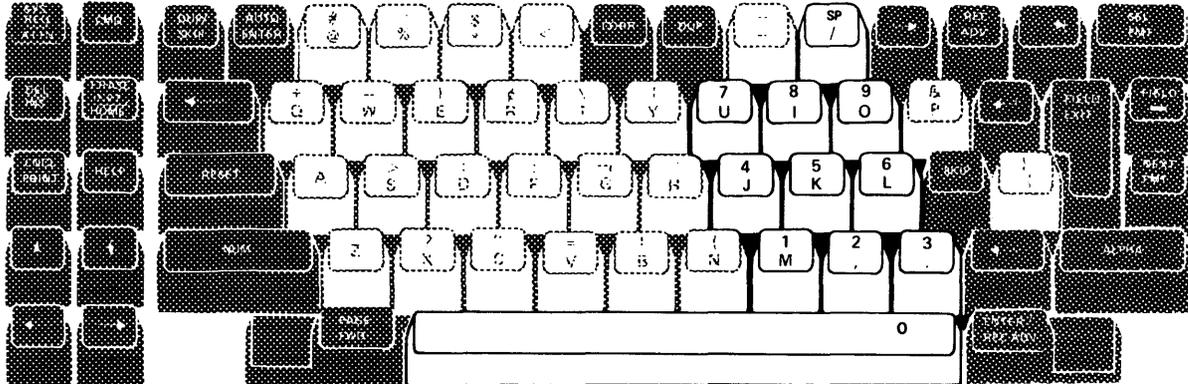
HOW TO IDENTIFY YOUR KEYBOARD TYPE

The following drawings show the keyboard types. An easy way to identify your keyboard type is to look at the U key:  is data entry;  is data entry with proof arrangement; and,  is typewriter.

Data Entry Keyboard

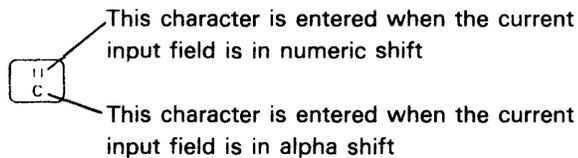


Data Entry Keyboard With Proof Arrangement



The data entry and data entry with proof arrangement keyboards are identical, except for the location of the numeric keys and the spacebar function. When using the data entry keyboard with proof arrangement, the Spacebar functions as a dual purpose key. When the keyboard is in alpha shift, pressing the Spacebar creates a space (blank character). When the keyboard is in numeric shift, pressing the Spacebar creates a zero (0) character. In addition to the Spacebar, the  key can be used to create a space (blank character). The space function on the  key is only active when the keyboard is in numeric shift. Both keyboards support only the uppercase (A through Z) alphabetic characters.

For data entry type keyboards, the field definition position on the status line indicates whether the current input field is in alpha or numeric shift. When the current input field is in alpha shift, the bottom character on the key is entered when you press the key. When the current input field is in numeric shift, the top character on the key is entered when you press the key. For example:



You can use the Num key or the Alpha key to change the shift and the character entered when you press a key. For example, if the current input field is in numeric shift, you can press and hold the Alpha key and then press  to enter the character C.

Typewriter Keyboard

The typewriter keyboard supports the entry of both uppercase (A through Z) and lowercase (a through z) alphabetic characters.

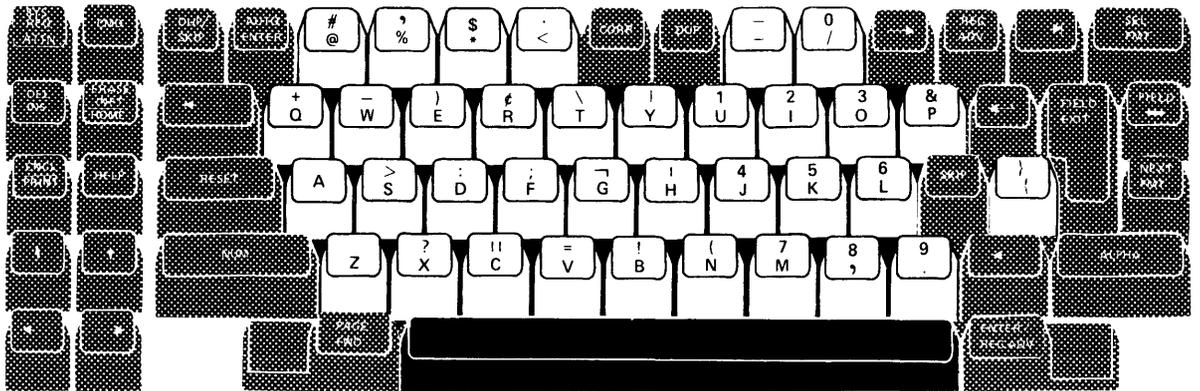


KINDS OF KEYS

Each keyboard has three basic kinds of keys: data keys, function keys, and command keys.

Data Keys Overview

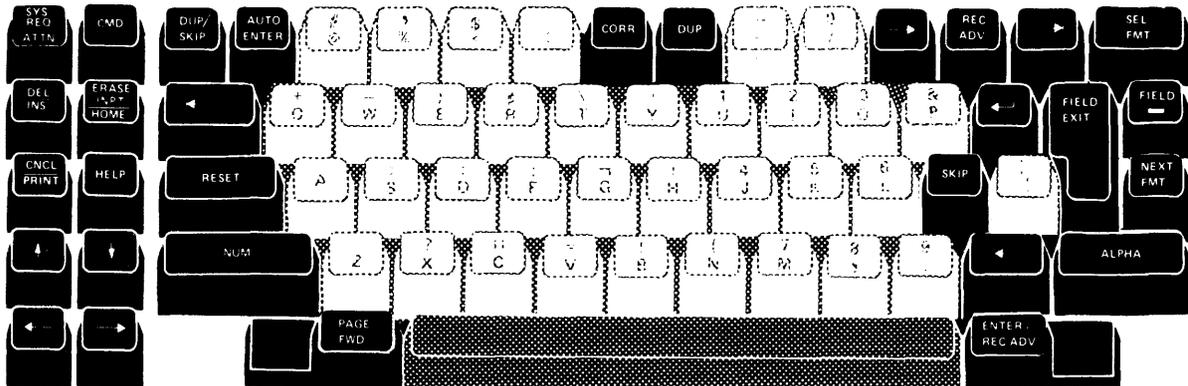
The following illustrations show the data keys on the 5280 keyboard. All data keys are typamatic. This means that when the key is held down, it repeats its character until the key is released.



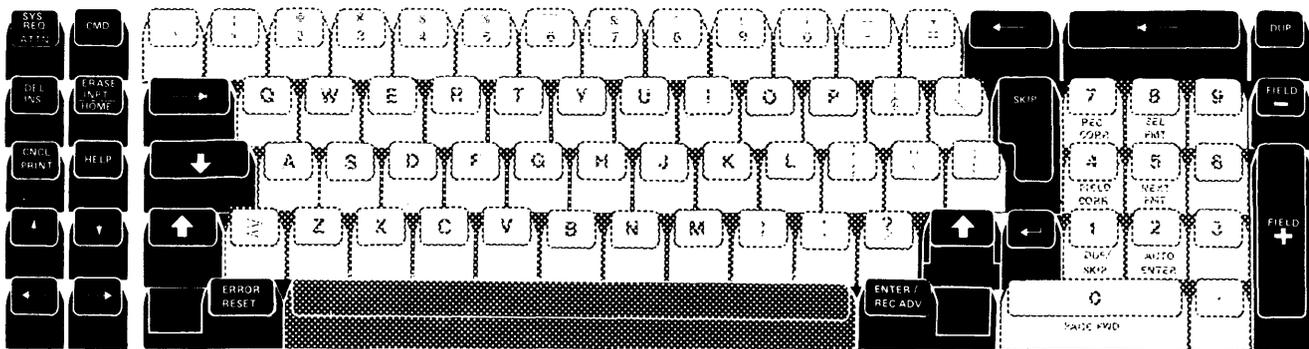
Data Entry Keyboard

Function Keys Overview

The following illustrations show the function keys on the 5280 keyboards.



Data Entry Keyboard



Typewriter Keyboard

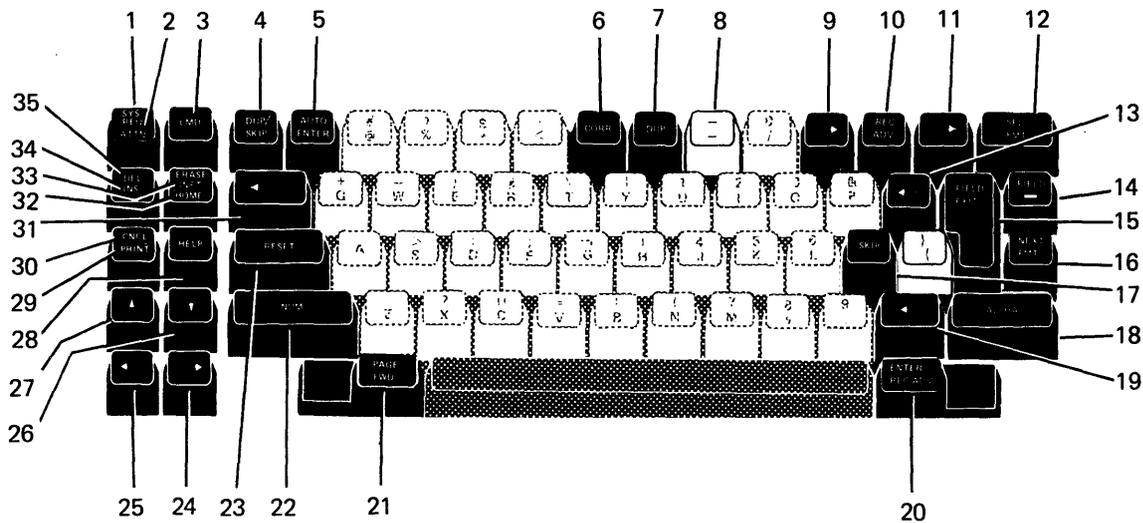
Some function keys are typamatic. For information on how to operate the function keys, see *Function Keys*.

The purpose of the following two charts is to help you locate and identify the function keys.

Where To Find A Function Key On A Data Entry Type Keyboard

Name of Key	Meaning	Location on the Keyboard
SYS REQ	System Request	1
ATTN	Attention	2
CMD	Command	3
DUP/SKIP	Automatic Duplicate/Skip Switch	4
AUTO ENTER	Automatic Record Advance Switch	5
CORR	Record Correct (when the Num key is held down)	6
CORR	Field Correct	6
DUP	Duplicate	7
	Dash or Field Minus	8
	Character Advance	9, 24
REC ADV	Record Advance	10
	Field Advance	11
SEL FMT	Select Format	12
	New Line	13
FIELD	Field Minus	14
FIELD EXIT	Field Exit	15
NEXT FMT	Next Format	16
SKIP	Skip	17
ALPHA	Alphabetic Shift	18
	Character Backspace	19, 25
ENTER/REC ADV	Enter/Record Advance	20
PAGE FWD	Page Forward	21
NUM	Numeric Shift	22
RESET	Reset	23

Name of Key	Meaning	Location on the Keyboard
	Cursor Down	26
	Cursor Up	27
HELP	Help	28
PRINT	Print	29
CNCL	Cancel	30
	Field Backspace	31
HOME	Home (Record Backspace)	31
ERASE INPT	Erase Input	33
INS	Character Insert	34
DEL	Character Delete	35



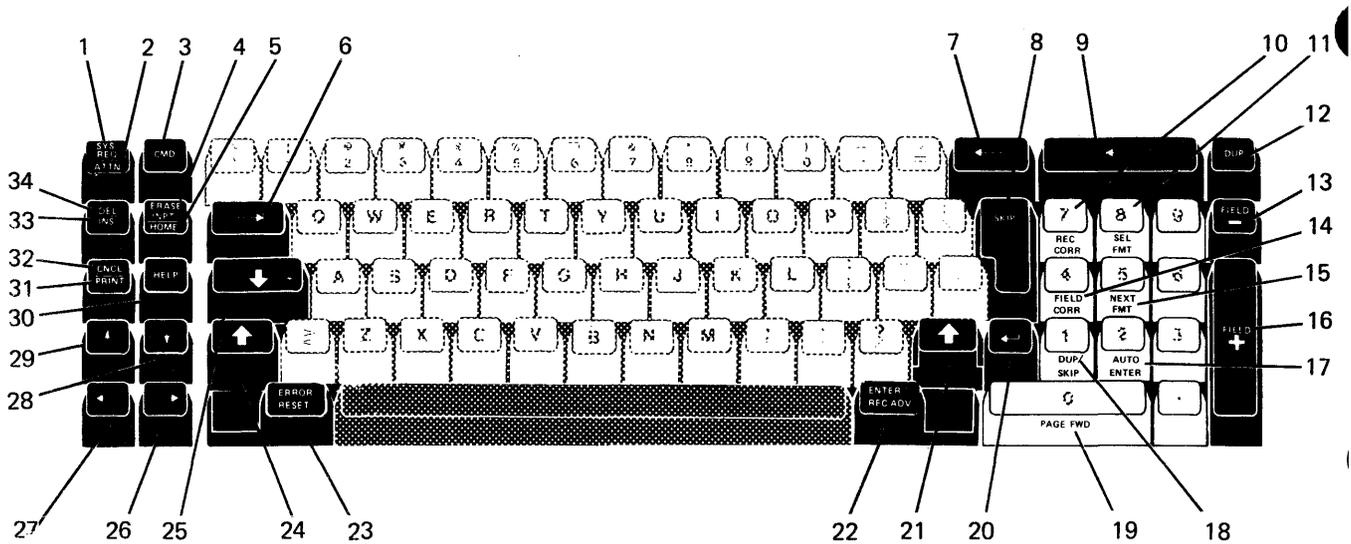
Data Entry Type Keyboard

Where To Find A Function Key On A Typewriter Keyboard

Name of Key	Meaning	Location on the Keyboard
SYS REQ	System Request	1
ATTN	Attention	2
CMD	Command	3
ERASE INPT	Erase Input	4
HOME	Home (Record Backspace)	5
	Field Advance	6
	Character Backspace	7, 27
SKIP	Skip	8
	Field Backspace	9
REC CORR	Record Correct	10*
SEL FMT	Select Format	11*
DUP	Duplicate	12
FIELD -	Field Minus	13
FIELD CORR	Field Correct	14*
NEXT FMT	Next Format	15*
FIELD +	Field Plus	16
AUTO ENTER	Automatic Record Advance Switch	17*
DUP/SKIP	Automatic Duplicate/Skip Switch	18*
PAGE FWD	Page Forward	19*
	New Line	20
	Shift Key	21, 24
ENTER/REC ADV	Enter/Record Advance	22

Name of Key	Meaning	Location on the Keyboard
ERROR RESET	Error Reset	23
	Shift Lock	25
	Character Advance	26
	Cursor Down	28
	Cursor Up	29
HELP	Help	30
PRINT	Print	31
CNCL	Cancel	32
INS	Character Insert	33
DEL	Character Delete	34

*These functions are activated by first pressing the Cmd key and then pressing the function key.



Typewriter Keyboard

Command Keys Overview

The Cmd key makes it possible to use the functions named on the template located above the top row of keyboard keys.

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



To use the functions listed on the bottom row of the template, press the Cmd key and then press the key located below the function shown on the template.

To use the functions listed on the top row of the template, press the Cmd key, press and hold the Num key or the  (Shift) key and then press the key located below the function shown on the template.

To cancel a pending function selection after only the Cmd key has been pressed, press the Reset key or the Error Reset key.

Note: When attached to a partition executing COBOL programs, the functions of the command keys may be different. See your supervisor or programmer for more information.

This page intentionally left blank

COMMAND KEYS	137
AUTO MARK.	137
CHANGE FORMAT	138
CLEAR SCREEN	139
COMM ATTENTION.	140
COMM STATUS	141
DELETE RECORD	142
DISPLAY DATA.	142
DISPLAY FORMAT	143
DISPLAY VERIFY RECORD	144
DUMP/TRACE FILE OPEN	145
EDIT RELEASE	145
END INPUT.	146
END OF JOB (EOJ).	147
HEX.	148
INSERT RECORD	149
LOAD FORMAT.	150
MARK FIELD	151
RETURN TO TRANSACTION DATA SET	152
REVIEW SECOND DATA SET	153
SEARCH CONTENT	154
SEARCH END OF DATA.	155
SEARCH RECORD NUMBER.	156
SEARCH SEQUENTIAL CONTENT.	157
TRANSFER RECORD.	158

This page intentionally left blank.

Command Keys

AUTO MARK

Valid Programs: DE/RPG only

Valid Modes: Enter, update, verify, copy, execute, and rerun.

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Trans- action Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



To turn the auto mark function on:

1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, and then press the key below the Auto Mark label.

The record verify position of the status line is displayed in reverse image.

To turn the auto mark function off:

Repeat the same keying sequence that was used to turn the function on.

Use this function when you want the system to automatically mark fields in a record which contain editing checks (such as a range check, a table lookup, etc.) and an error occurs. In this case, the error is not displayed and the field is automatically marked in the leftmost position of the field replacing the data in that position with a solid rectangular block.

The auto mark function remains active until the job that is running is ended or until the function is turned off.

CHANGE FORMAT

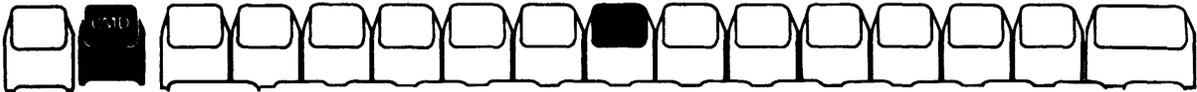
Valid Programs: KEU only

Valid Modes: Enter and update

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key below the Change Format label.

Use the change format function to display the current format (1 through 9) for modification. After this function is selected, the system automatically selects format 0. The displayed format can be modified and then loaded back into the system (see the Load Format command key). After it is loaded into the system, it can be selected to control data entry (see *KEU Job*).

CLEAR SCREEN

Valid Programs: DE/RPG, KEU

Valid Modes

DE/RPG: Enter, update, and copy

KEU: Enter, and update

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Clear Screen label.

When entering data, use the clear screen function to clear the screen of data and user prompts. The system automatically selects format 0.

COMM ATTENTION

Valid Programs: Communication utilities SYSMRJE and SYSSRJE

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Comm Attention label.

Use the comm attention function to use the keyboard for input. This key must be used each time you want to enter input from the keyboard. To make multiple successive entries, you must use this key after each time you press the Enter key.

COMM STATUS

Valid Programs: Communication utilities SYSBDCU, SYSBBTU, SYSMRJE, SYSSDCU, and SYSSRJE

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Comm Status label.

Use the comm status function to display job or function statistics. (The utility continues processing while the statistics are displayed.)

SYSBDCU, SYSSDCU, SYSMRJE, and SYSSRJE display this information as scrolled data. To stop the scrolling, press the  (Cursor Down) key. When the utility has additional output for the display, error code 9113 occurs. Press the Reset key to recover from the error and resume scrolling.

If this function is selected during an error recovery prompt, while using SYSBBTU, you must press the Enter key to return to the error recovery prompt.

DELETE RECORD

Valid Programs: DE/RPG and KEU

Valid Modes Enter, update, and verify

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Delete Record label.

Use the delete record function to delete the displayed record from the data set (see the *Record Insert/Record Delete* section).

DISPLAY DATA

Valid Programs: KEU only

Valid Modes: Enter, update, and verify

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Display Data label.

Use the display data function to return to the current record after a format has been displayed or loaded.

DISPLAY FORMAT

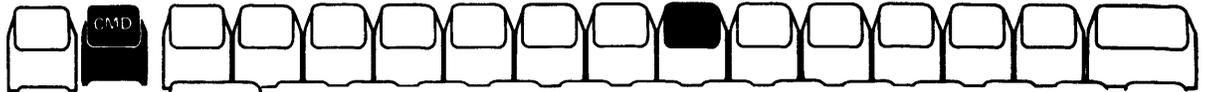
Valid Programs: KEU only

Valid Modes: Enter, update, and verify

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Display Format label.

Use the display format function to display the current format (1 through 9). The format is displayed but cannot be changed. To redisplay the current record, you must use the display data function.

DISPLAY VERIFY RECORD

Valid Programs: DE/RPG and KEU

Valid Mode: Verify

Operation:

Template

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Display Verify Record label.

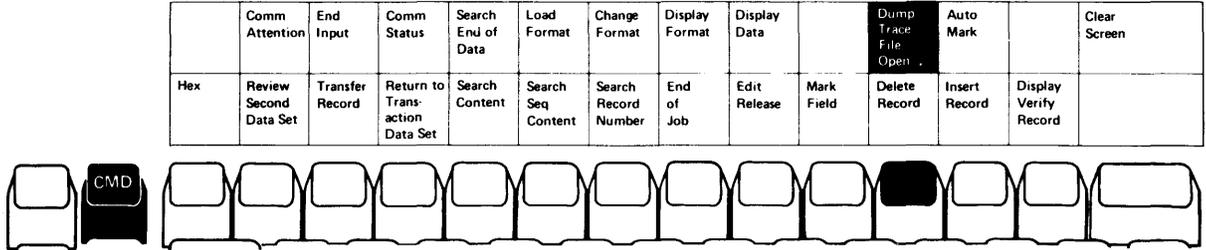
Use the display verify record function to display the entire record, currently being verified. The record is displayed (but cannot be changed) and the mode indicator on the status line changes to V-D. To resume verification, press the same command key sequence again. The mode changes to V, and the cursor is positioned to the first manual position of the record.

DUMP/TRACE FILE OPEN

Valid Programs: DE/RPG (if enabled), KEU, COBOL, and some utilities

Valid Modes: All modes

Operation:



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Dump Trace File Open label.

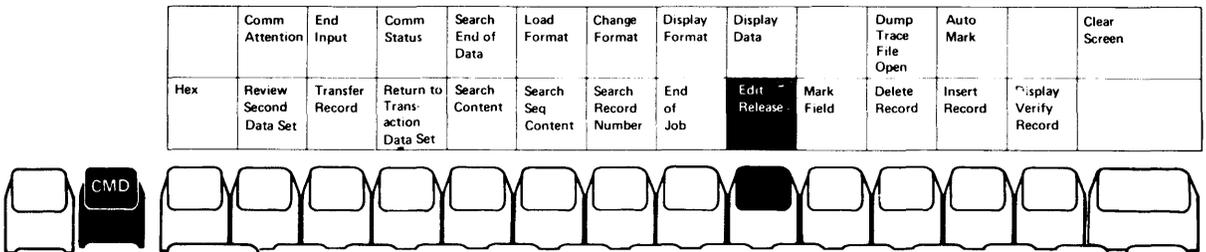
The dump/trace file open function is used to open a data set for use with the dump trace function.

EDIT RELEASE

Valid Programs: DE/RPG only

Valid Mode: Enter, update, verify, copy, and execute

Operation:



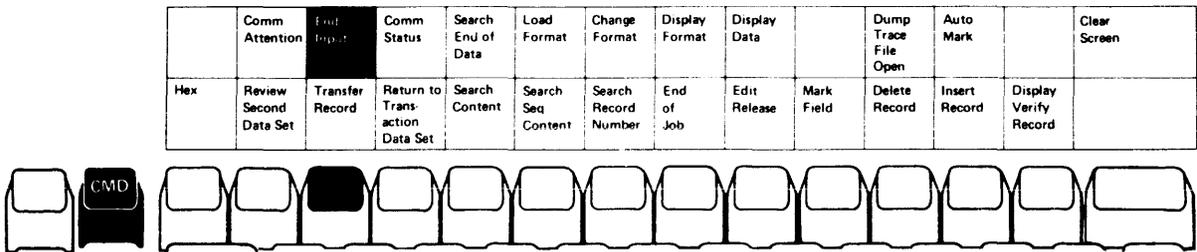
1. Press the Cmd key.
2. Press the key under the Edit Release label.

Use the edit release function only in response to an edit error that cannot be corrected. When an error occurs, press the Reset Key and use edit release function to continue entering data. This allows you to continue data entry on the remainder of the field, unless another edit error occurs.

END INPUT

Valid Programs: Communication utilities SYSCCU, SYSBDCU, and SYSSDCU

Operation:



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the End Input label.

SYSCCU only:

Use the end input function to indicate that all updates to the communications configuration record have been completed.

SYSBDCU and SYSSDCU:

This key is valid during an inquiry function or when the utility executing is transmitting data from the keyboard. The key indicates that no more data will be entered from the keyboard.

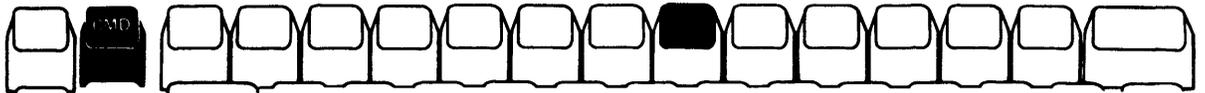
END OF JOB (EOJ)

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Dataset	Transfer Record	Return to Transaction Dataset	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the End of Job label.

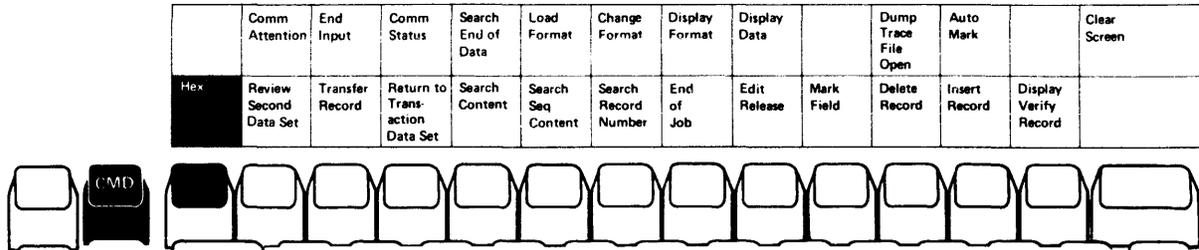
Use the end-of-job function to stop program processing. All data sets associated with the job are closed and you must respond to the prompts that are displayed.

HEX

Valid Programs: DE/RPG, KEU and utilities

Valid Modes: All modes

Operation:



1. Press the Cmd key and then press the key under the Hex label.
2. Key in two hex digits. For the data entry type keyboards, using the Num key or the Alpha key is not required.
3. Repeat steps 1 and 2 for each hex character.

Hex digits are: 0 1 2 3 4 5 6 7 8 9 A B C D E F

Use the hex function to enter the EBCDIC code for a character that cannot be entered from the keyboard. The next two keystrokes (from 0 through 9 and A through F) are combined to make one of the 256 EBCDIC codes.

To cancel the hex function, press the Reset key before entering the second hex digit.

INSERT RECORD

Valid Programs: DE/RPG and KEU

Valid Modes: Update and verify

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Insert Record label.

Use the insert record function to create one or more spaces within a data set so that data records can be added. To cancel the insert function at the insert record prompt, press the Cncl key.

For more information, see the *Record Insert/Record Delete* section.

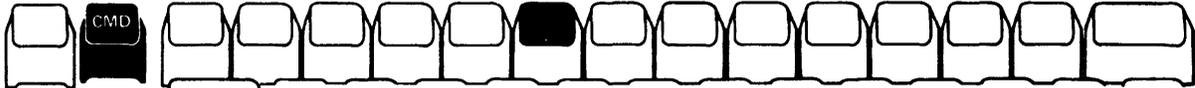
LOAD FORMAT

Valid Programs: KEU only

Valid Modes: Enter and update

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (Shift) key, then press the key under the Load Format label.
3. Enter the format number (1 through 9). For data entry type keyboards, the Num key is not required when entering the format number.

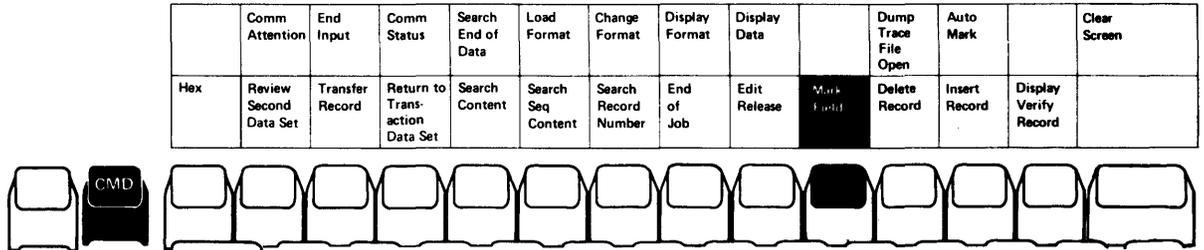
Use the load format function to load formats or prompting records into the system. After the format is loaded, the screen is blanked.

MARK FIELD

Valid Programs: DE/RPG only

Valid Modes: Enter, update, verify, copy, rerun, and execute

Operation:



1. Press the Cmd key.
2. Press the key under the Mark Field label.
3. Press the  (Field Advance) key to exit the field that is marked.

Use the mark field function to mark an incorrect data field. All remaining edits (such as range check, sequence check, table lookup and so on) are ignored.

The mark field function can be used while the cursor is in any position in the field to be marked. When you use this function, a solid rectangular block is placed in the leftmost position of the field.

RETURN TO TRANSACTION DATA SET

Valid Programs: DE/RPG only

Valid Mode: Copy

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Return to Transaction Data Set label.

Use the return to transaction data set function to change from copy mode to normal operation. This function is used in conjunction with the review second data set function and the transfer record function. See *DE/RPG Jobs* for more information on copying data sets.

REVIEW SECOND DATA SET

Valid Programs: DE/RPG only

Valid Mode: Enter

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Review Second Data Set label.

Use the review second data set function to display or copy the record or records from an existing data set. Changes made to the displayed records can only be written to the transaction data set. This function is used in conjunction with the return to transaction data set function and the transfer record function. See *DE/RPG Jobs* for more information on copying data sets.

SEARCH CONTENT

Valid Programs: DE/RPG and KEU

Valid Modes

DE/RPG: Update, verify, and copy

KEU: Update and verify

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Search Content label.

Use the search content function to initiate a search for a record using one or more masks. The mask(s) specify the data you want to search on within a data record.

You can cancel the search content function by pressing the Cmd key only when the search prompt is displayed.

For more information, see *Search*.

SEARCH END OF DATA

Valid Programs: DE/RPG and KEU

Valid Modes

DE/RPG: Update, verify, and copy

KEU: Update and verify

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press and hold the Num key or the  (shift) key, then press the key under the Search End of Data label.

Use the search end of data function to find the last record in the data set. For more information, see *Search*.

SEARCH RECORD NUMBER

Valid Programs: DE/RPG and KEU

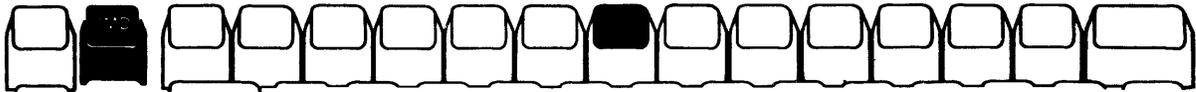
Valid Modes

DE/RPG: Update, verify, and copy

KEU: Update and verify

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Search Record Number label.

Use the search record number function key to find the record in the data set that has the specified record number.

You can cancel the search record number function by pressing the Cncl key only when the search prompt is displayed.

For more information, see *Search*.

SEARCH SEQUENTIAL CONTENT

Valid Programs: DE/RPG and KEU

Valid Modes

DE/RPG: Update, verify, and copy

KEU: Update and verify

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Search Seq Content label.

Use the search sequential content function to search for a record containing specific data in the current data set. The records must be in ascending sequential order (that is, the search field of each succeeding record must have a higher value than the previous record). This data must be in the same positions in all records.

You can cancel the search sequential content function by pressing the Cncl key only when the prompt is displayed.

For more information, see *Search*.

TRANSFER RECORD

Valid Programs: DE/RPG only

Valid Modes: Copy

Operation:

	Comm Attention	End Input	Comm Status	Search End of Data	Load Format	Change Format	Display Format	Display Data		Dump Trace File Open	Auto Mark		Clear Screen
Hex	Review Second Data Set	Transfer Record	Return to Transaction Data Set	Search Content	Search Seq Content	Search Record Number	End of Job	Edit Release	Mark Field	Delete Record	Insert Record	Display Verify Record	



1. Press the Cmd key.
2. Press the key under the Transfer Record label.

Use the transfer record function to transfer the displayed record or records to the transaction data set. After the records are transferred, the next sequential record is displayed. This function is used in conjunction with the return to transaction data set function and the review second data set function. See *DE/RPG Jobs* for more information on copying records from one data set to another.

FUNCTION KEYS	161
ALPH (ALPHABETIC SHIFT) KEY	161
ATTN (ATTENTION) KEY	162
AUTO ENTER KEY	163
CNCL (CANCEL) KEY	164
 (CHARACTER ADVANCE) KEY	165
 (CHARACTER BACKSPACE) KEY	166
CORR KEY	167
 (CURSOR DOWN) KEY	167
 (CURSOR UP) KEY	168
DEL (CHARACTER DELETE) KEY	169
DUP/SKIP KEY	170
DUP (DUPLICATE) KEY	171
ENTER/REC ADV (ENTER/RECORD ADVANCE) KEY	172
ERASE INPT (ERASE INPUT) KEY	174
ERROR RESET AND RESET KEY	175
 (FIELD ADVANCE) KEY	176
 (FIELD BACKSPACE) KEY	177
FIELD CORR AND CORR (FIELD CORRECT) KEYS	178
FIELD EXIT AND FIELD + KEYS	179
FIELD -KEY	181
 (FIELD MINUS/DASH) KEY	186
HELP KEY	187
HOME (RECORD BACKSPACE) KEY	188
INS (CHARACTER INSERT) KEY	190
 (NEW LINE) KEY	191
NEXT FMT (NEXT FORMAT) KEY	192
NUM (NUMERIC SHIFT) KEY	193
PAGE FWD (PAGE FORWARD) KEY	194
PRINT KEY	195
REC CORR AND CORR (RECORD CORRECT) KEYS	196
SEL FMT (SELECT FORMAT) KEY	197
 (SHIFT KEY)	198
 (SHIFT LOCK) KEY	199
SKIP KEY	200
SYS REQ (SYSTEM REQUEST) KEY	201



Function Keys

ALPHA (ALPHABETIC SHIFT) KEY

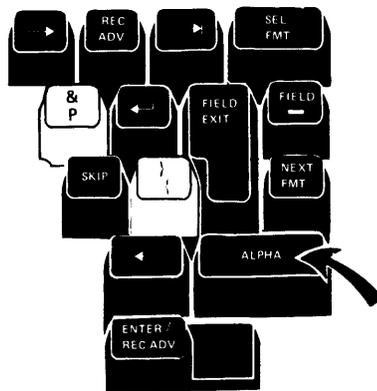
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Keyboard: Data entry type only

Operation:

1. Press and hold the Alpha key.
2. Key the character you want to enter.



Data Entry Type Keyboards

Use this key if the cursor is in a field programmed for numeric shift and you want to enter alphabetic characters.

ATTN (ATTENTION) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press the Attn key.



All Keyboards

Use this key when you want to:

- Respond to a program operating in a background partition when a program request appears.
- Return to the foreground partition from a background partition.

Note: If there are multiple background partitions executing programs, you might have to press the Attn key more than once to return to the foreground partition.

For more information, see *Partitions*.

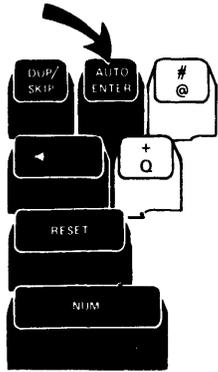
AUTO ENTER KEY

Valid Programs: DE/RPG, COBOL, and KEU

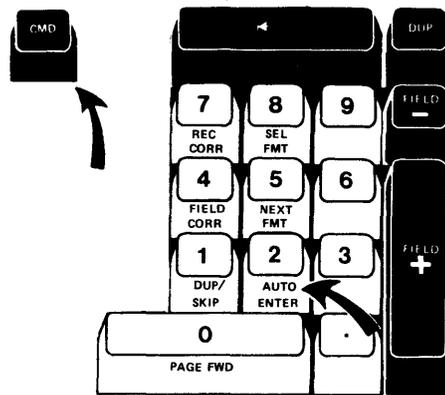
Valid Modes: All modes

Operation:

For the data entry type keyboards, press the Auto Enter key. For the typewriter keyboard, press the Cmd key and the Auto Enter key.



Data Entry Type Keyboards



Typewriter Keyboard

This key acts as a switch to turn the auto record advance function on and off. When the auto record advance function is on, you automatically advance to the next record when the current record is completed. Therefore, it saves you the time of pressing the Enter/Rec Adv key.

To turn the auto record advance function on, press the key once. A reverse image R appears on the status line when the auto record advance function is active. To turn auto record advance function off, press the key again. When the auto record advance function is off and the current record is completed, the cursor blinks beneath the last character in the record and the input record character position counter on the status line is 0.

Note: When the auto record advance function is active, you do not need to press the Enter key after you have supplied the information requested by a prompt.

(CHARACTER ADVANCE) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press one of the (Character Advance) keys.



All Keyboards



Data Entry Type Keyboards

Use a character advance key to advance the cursor (in all modes except verify) one position without changing the character stored in that position.

Pressing a character advance key moves the cursor to the next character position within a field.

If a character advance key is pressed while the cursor is in the last field position, the cursor advances to the next field.

In verify mode, a character advance key is valid only when awaiting field exit.

(CHARACTER BACKSPACE) KEY

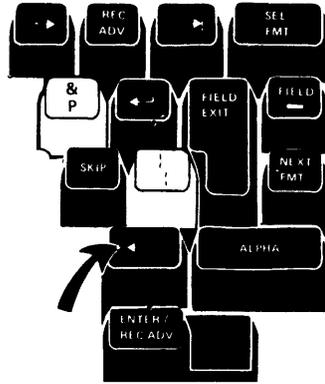
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes.

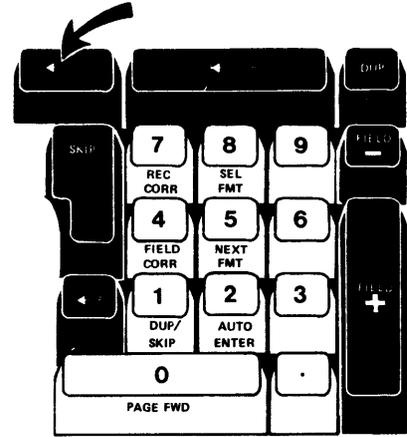
Operation: Press one of the  (Character Backspace) keys.



All Keyboards



Data Entry Type Keyboards



Typewriter Keyboard

When the cursor is within a field, a character backspace key moves the cursor back one position.

When the cursor is in the first position of a field, a character backspace key moves the cursor back to the last position of the previous manual field.

If the cursor is blinking and is in the last field position or in the last record position, pressing the character backspace key stops the cursor from blinking; the cursor remains in the same position.

When you press a character backspace key in verify mode, the character position(s) passed over on the display screen are blanked and must be reverified.

CORR KEY

See the *Field Corr and Corr (Field Correct) Key* or the *Rec Corr and Corr (Record Correct) Key* in this section.

(CURSOR DOWN) KEY

Valid Programs: DE/RPG and KEU

Valid Modes

DE/RPG: Enter, update, copy, and record correct

KEU: Enter, update, and record correct

Operation: Press the  (Cursor Down) key



All Keyboards

Use the  (Cursor Down) key to move the cursor down to the next line on the display. An attempt to move the cursor outside the data record causes an error code 1112.

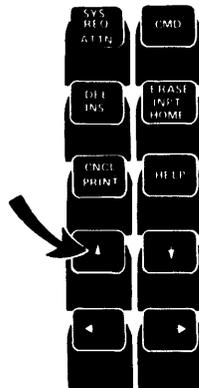
Note: The  (Cursor Down) key is valid only in format 0. See the *Glossary* for information about format 0.

 (CURSOR UP) KEY

Valid Programs: DE/RPG and KEU

Valid Modes: Enter, update, and verify (except field correct)

Operation: Press the  (Cursor Up) key.



All Keyboards

Use the  (Cursor Up) key to move the cursor up one line on the display. Attempting to move the cursor outside the data record causes an error code 1112.

In verify mode, the characters passed over are blanked on the screen and must be reverified.

Note: The  (Cursor Up) key is valid only in format 0. See the *Glossary* for information about format 0.

DEL (CHARACTER DELETE) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes

DE/RPG: Enter, update, execute, copy, record correct, and field correct.

KEU: Enter, update, record correct, and field correct.

Operation: Press and hold the Num key or the  (Shift) key and then press the Del key.



All Keyboards

Use the Del key to delete one character at a time from the display screen. To delete a character, position the cursor below the character you want to delete. All characters to the right of the cursor (in the same field) are shifted to the left one position. A blank is inserted into the empty position at the end of the field.

If the field is picture check, character delete works within the current subfield only. That is, the character above the cursor is deleted and all data to the right of the cursor within the current subfield is shifted one position to the left. A blank is inserted into the empty position at the end of the subfield.

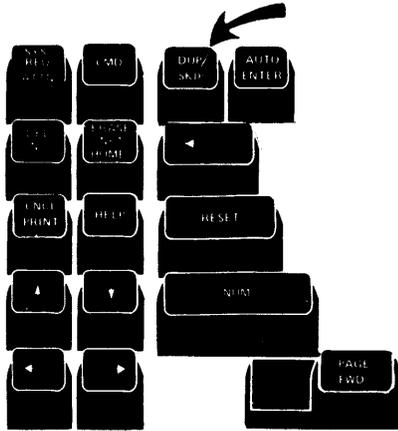
DUP/SKIP KEY

Valid Programs: DE/RPG, COBOL, and KEU

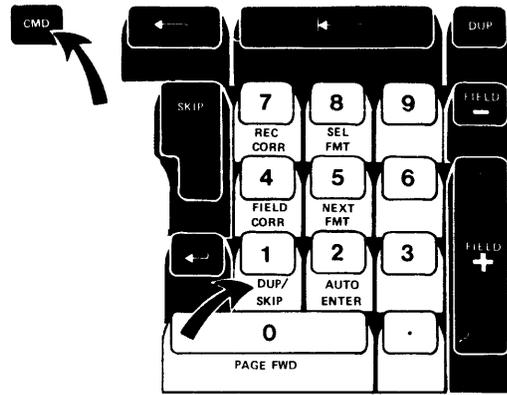
Valid Modes: All modes (except record insert)

Operation:

For data entry type keyboards, press the Dup/Skip key. For the typewriter keyboard, press the Cmd key and then press the Dup/Skip key.



Data Entry Type Keyboards



Typewriter Keyboard

This key acts as a switch to turn the auto duplicate/skip function on or off. To turn auto duplicate/skip function on, press the Dup/Skip key once. A reverse image D appears on the status line when this function is active; the system automatically duplicates or skips fields defined as auto duplicate or auto skip. In addition, if the field is specified as Aux Store in a DE/RPG program, the system automatically stores the data from the field into storage.

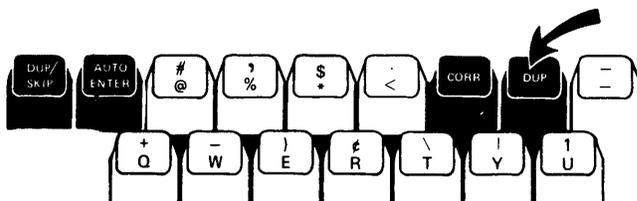
To turn the auto duplicate/skip function off, press the Dup/Skip key again. When this function is not active, the auto duplicate and auto skip fields are processed as manual fields.

DUP (DUPLICATE) KEY

Valid Programs: DE/RPG, COBOL, and KEU

Valid Modes: All modes

Operation: Press the Dup key



Data Entry Keyboards



Typewriter Keyboard

Use this key to transfer data from the previous record or storage to the current record.

Enter and Update Modes

When you press the Dup key, data is duplicated from the corresponding field in the previous data record into the current field, from the cursor position to the rightmost position of the field. If the Dup key is used in the first record, blanks are placed in the fields for which the Dup key was used. For DE/RPG, the data can be duplicated either from the previous record or from storage.

Verify Mode

When you press the Dup key, the data is automatically verified from the cursor position to the rightmost position of the field. The data in the current record is compared with the data in the corresponding positions of the previous record. For DE/RPG, the data in the current record can be compared either with the data in the previous record or with data in storage.

If a mismatch error occurs while duplicated data is being verified, the cursor stops at the position in error and the entire field is displayed. If you press the Dup key after you press the Reset key, the character from the previous record or storage replaces that character in the current record. Automatic verification then continues to the end of the field.

Record Insert Mode

When you press the Dup key, unpredictable results can occur.

ENTER/REC ADV (ENTER/RECORD ADVANCE) KEY

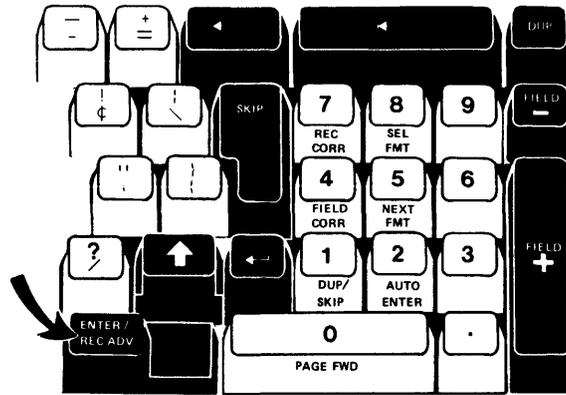
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press the Enter/Rec Adv key.



Data Entry Keyboard



Typewriter Keyboard

Use this key to indicate that the information entered on the display screen is ready for processing.

Enter Mode

Pressing the Enter/Rec Adv key in this mode causes the system to:

1. Process all remaining fields in the record.
2. Write the record to the data set.
3. Position the cursor at the first manual position of the next record.

Update Mode

Pressing the Enter/Rec Adv key in this mode causes the system to:

1. Process all remaining fields in the record.
2. Write the current record to the data set if changes were made.
3. Position the cursor at the first manual position of the next record.

Verify Mode

Pressing the Enter/Rec Adv key in this mode causes the system to:

1. Process all remaining fields in the record.
2. Verify all remaining manual fields for blanks.
3. Write the current record to the data set, if it was changed.
4. Position the cursor at the first manual position of the next record (not displayed).
5. End the job if end of data (EOD) is encountered.

If a verify mismatch error occurs in a manual field, the cursor stops at the position in error and the entire field is displayed. If you press the Enter/Rec Adv key after pressing the Reset key, a blank replaces the character in the current record and automatic verification continues to the end of the record.

Pressing the Enter/Rec Adv key in record correct mode positions the cursor at the first manual position of the current record for verification.

Copy and Execute Mode

Using the Enter/Rec Adv key in copy mode displays the next record.

Using this key in the execute mode writes the current record to the data set.

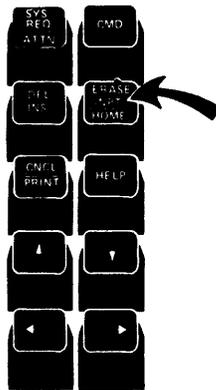
ERASE INPT (ERASE INPUT) KEY

Valid Programs: DE/RPG and KEU

Valid Modes: All modes

Operations:

Press and hold the Num key or the  (Shift) key and then press the Erase Inpt key.



All Keyboards

Enter and Update Mode

Use this key to erase the data on the screen. The cursor returns to the first manual position of the current record. Now data can be rekeyed into the current record.

Verify Mode

Use this key when the entire record needs to be corrected.

Pressing this key changes the program on the status line from verify to verify correct (V-C) mode and blanks the current record. The cursor is positioned to the first manual position of the record.

After the record has been entered, the Enter/Rec Adv key changes the program mode on the status line to verify, clears the data on the display, and positions the cursor to the first manual position of the same record. The new data is ready for you to verify.

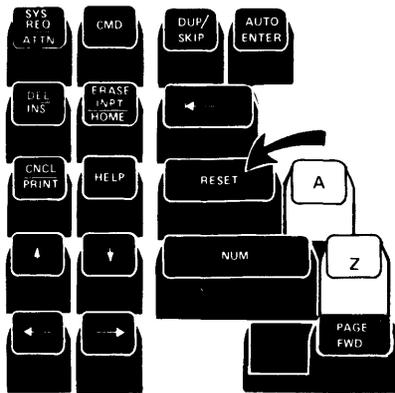
ERROR RESET AND RESET KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

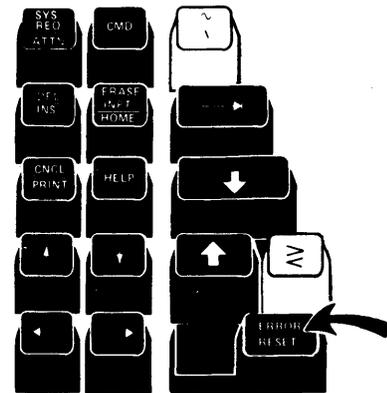
Valid Modes: All modes

Operation:

For the data entry type keyboards, press the Reset key. For the typewriter keyboard, press the Error Reset key.



Data Entry Type Keyboards



Typewriter Keyboard

Use the Error Reset key or the Reset key to reset an error condition. This key also cancels the character insert function, the hex function, and command function.

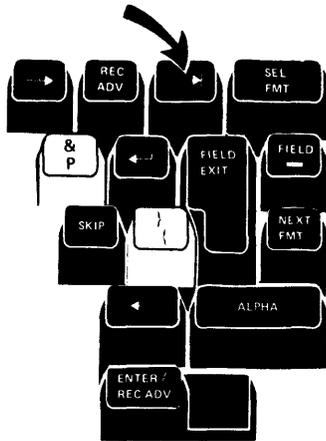
Command functions are canceled if the Error Reset key or the Reset key is pressed before the keying sequence is completed.

 (FIELD ADVANCE) KEY

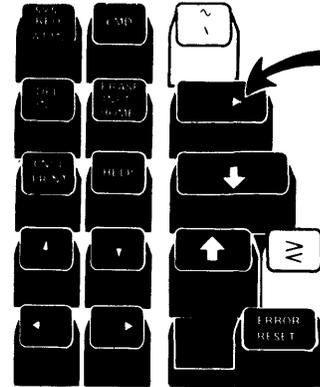
Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press the  (Field Advance) key.



Data Entry Type Keyboards



Typewriter Keyboard

Use this key to move the cursor to the first position of the next manual field (in all modes except verify).

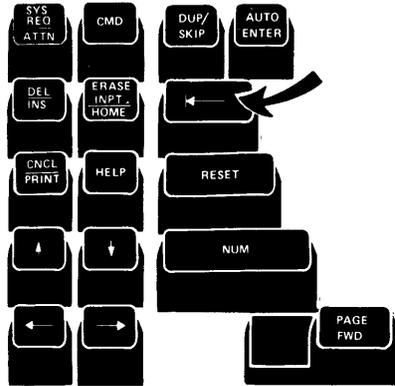
In verify mode, the  (Field Advance) key is valid only when awaiting field exit.

 (FIELD BACKSPACE) KEY

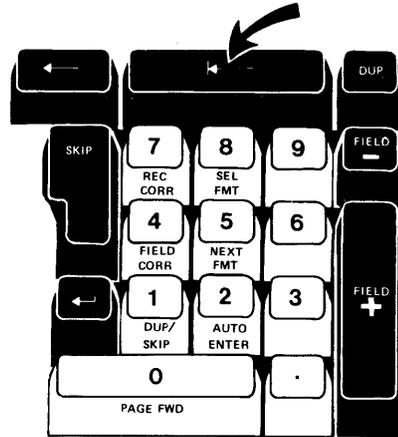
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press the  (Field Backspace) key.



Data Entry Type Keyboards



Typewriter Keyboard

Use this key to move the cursor back to the first position of the field.

If the cursor is in the first position of the field, it moves to the first position of the preceding manual field.

When the  (Field Backspace) key is pressed in verify mode, the character positions passed over on the display screen are blanked and must be reverified.

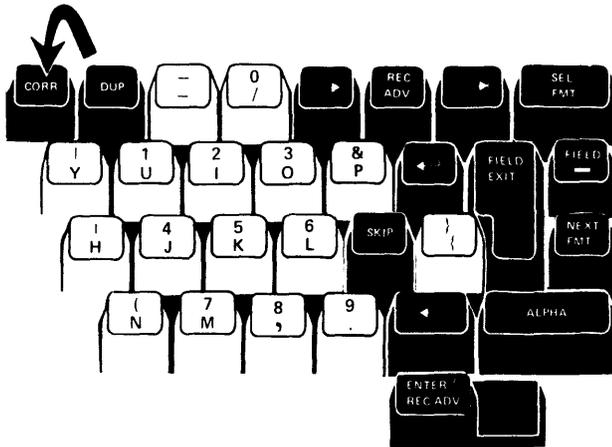
FIELD CORR AND CORR (FIELD CORRECT) KEYS

Valid Programs: DE/RPG and KEU

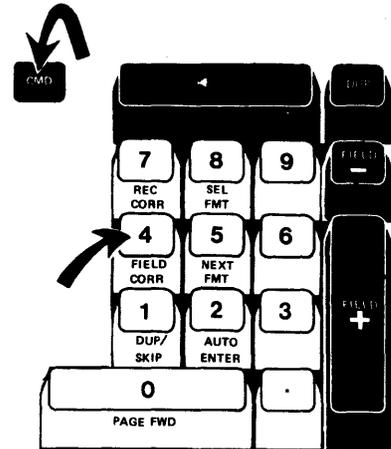
Valid Mode: Verify

Operation:

For the data entry type keyboards, press the Corr key. For the typewriter keyboard, press the Cmd key and then the Field Corr key.



Data Entry Type Keyboards



Typewriter Keyboard

Use this key to correct an entire field while in verify mode. The cursor moves to the first position of the current field and the field is filled with blanks. You can reenter the field as if in enter mode.

When the field is exited, the cursor moves back to the first position of the field for reverification.

The field correct function is invalid when format 0 is active. See the *Glossary* for information about format 0.

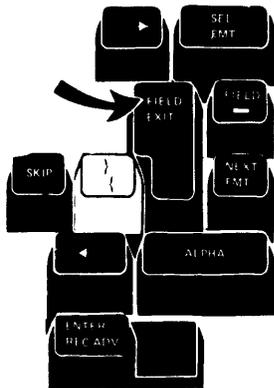
FIELD EXIT AND FIELD + KEYS

Valid Programs: DE/RPG, KEU, COBOL, and utilities

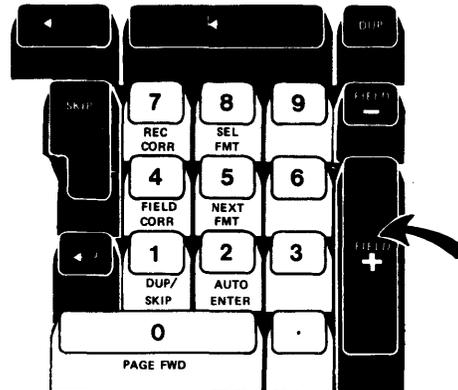
Valid Modes: All modes

Operation:

For the data entry type keyboards, press the Field Exit key. For the typewriter keyboard, press the Field + key.



Data Entry Type Keyboard



Typewriter Keyboard

Enter, Update, Field Correct, and Record Correct Modes

Use this key to exit the current field.

If the key is pressed while awaiting field exit, the field is exited and the data is left unchanged.

If not awaiting field exit, operations are performed on the data in the field depending on the current field definition.

Non-Right-Adjust Field

If the key is pressed when the cursor is within a non-right-adjust field, blanks are inserted from the cursor to the end of the field.

Signed Numeric Field

The data to the left of the cursor is shifted right to the position next to the rightmost position of the field on the screen. The vacated positions to the left of the data are filled with zeros. The rightmost field position, which is reserved for the sign, is blanked to indicate a positive sign.

If the key is pressed when the cursor is in the leftmost position of a signed numeric field, all positions except the rightmost position are filled with zeros, and the rightmost position is set to blank.

Right-Adjust Field

In a right-adjust field that is not signed numeric, the data to the left of the cursor is shifted to the right. The vacated positions to the left of the data are filled with the appropriate fill character (zeros or blanks as specified by the field definition).

If the key is pressed when the cursor is in the leftmost position of the field, the entire field is filled with the appropriate fill character.

Verify

Non-Right-Adjust Field

If awaiting field exit in a non-right-adjust field, the field is exited.

If not awaiting field exit in a non-right-adjust field, all positions above and to the right of the cursor are verified for blanks.

If a verify mismatch error occurs, the entire field is displayed with the cursor positioned under the character that caused the error. If the Field Exit key is pressed after the Reset key is pressed, the nonblank character in the record is replaced with a blank and automatic verification continues to the end of the field.

Right-Adjust Field

In a right-adjust field, the Field Exit key is valid only when the cursor is in the leftmost position of a field or while awaiting field exit.

If the key is pressed when the cursor is in the leftmost position of a field, the entire field is verified for the appropriate fill character (zeros or blanks as specified by the field definition). If a verify mismatch error occurs, the entire field is displayed with the cursor positioned under the character that caused the error. If the Field Exit key is pressed after the Reset key is pressed, the character in the record is replaced with the fill character and automatic verification continues to the end of the field.

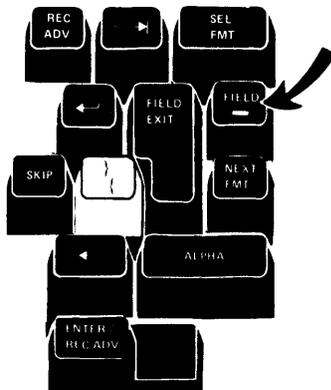
If the key is pressed while awaiting field exit, the sign of the data (if numeric) is verified for a positive value. If a verify sign mismatch error occurs and if the Field Exit key is pressed after the Reset key is pressed, the sign of the data is changed to positive and the field is exited.

FIELD - KEY

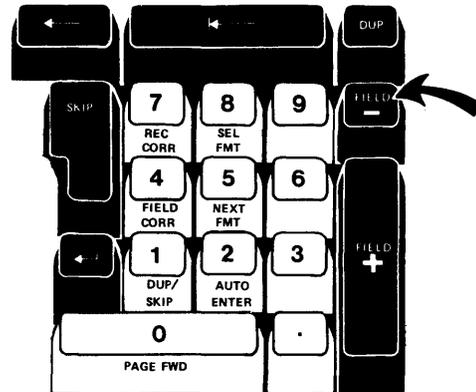
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press the Field - (Field Minus) key.



Data Entry Type Keyboard



Typewriter Keyboard

The Field - key is valid only when the cursor is positioned within one of the following types of input fields:

- Numeric shift
- Numeric only (DE/RPG and COBOL)
- Digits only (DE/RPG and COBOL)
- Signed numeric (DE/RPG and COBOL)

Enter, Update, Field Correct, and Record Correct Modes

Pressing the Field - key assigns a negative value to the field, and exits the field.

If the key is pressed while awaiting field exit, the last character in the field is checked for a digit (0-9). If it is not a digit, an error occurs. If it is a digit, a negative value is assigned to the field in the record. If the field is signed numeric, a minus sign is displayed to the right of the field. If the field is not signed numeric, the negative graphic for the digit replaces the rightmost digit in the field on the screen. The negative graphic that is displayed depends on the field type and the rightmost digit, as follows.

Field type	Rightmost Digit										
	0	1	2	3	4	5	6	7	8	9	
Numeric shift:	}	J	K	L	M	N	O	P	Q	R	Negative graphics
Numeric only and digits only:	0̄	1̄	2̄	3̄	4̄	5̄	6̄	7̄	8̄	9̄	

If the key is pressed while not awaiting field exit, operations are performed on the data in the field, depending on the current definition, as follows.

Non-Right-Adjust Field

The positions from the cursor to the next-to-the-last position in the field are set to blanks. The last position in the field is set to negative zero in the record. The negative zero graphic is displayed in the last field position. (Negative zero is displayed as } for a numeric shift field, and 0̄ for a numeric only or digits only field.)

Signed Numeric Field

The data to the left of the cursor is shifted right. The positions to the left of the data are filled with zeros. The rightmost character is checked for a digit (0-9). If it is not a digit, an error occurs. If it is a digit, a minus sign is displayed in the sign position.

If the key is pressed when the cursor is in the leftmost position of the field, the field positions are filled with zeros, and a minus sign is displayed in the sign position.

Right-Adjust Field

If the field is a right-adjust field that is not signed numeric, the data to the left of the cursor is shifted right. The positions to the left of the data are filled with the appropriate fill character (zeros or blanks as specified by the field definition). The rightmost character is checked for a digit (0-9). If it is not a digit, an error occurs. If it is a digit, it is replaced on the screen with the negative graphic for the digit (as described above).

If the key is pressed when the cursor is in the leftmost position of the field, the field positions, except the rightmost position, are filled with the appropriate fill character. The rightmost position is set to a negative zero, and displayed as a negative zero (} for numeric shift, 0̄ for digits only or numeric only).

The following chart shows the operations performed on the data in the different types of fields if the Field - key is pressed: **A** when the cursor is in the leftmost position of the field, **B** while not awaiting field exit, and **C** while awaiting field exit.

	A Cursor in First Position	B Cursor within Field	C Awaiting Field Exit
Non-Right Adjust Fields	Before After	Before After	Before After
Numeric Shift:	<input type="text"/> }	1 2 <input type="text"/> 1 2 }	1 2 3 4 <input type="text"/> 1 2 3 4 N
Numeric Only or Digits Only:	<input type="text"/> 0	1 2 <input type="text"/> 1 2 0	1 2 3 4 <input type="text"/> 1 2 3 4 5
Right-Adjust, Zero-Fill Fields	Before After	Before After	Before After
Numeric Shift:	<input type="text"/> 0 0 0 0 }	1 2 <input type="text"/> 0 0 0 1 K	1 2 3 4 <input type="text"/> 1 2 3 4 N
Numeric Only or Digits Only:	<input type="text"/> 0 0 0 0 0	1 2 <input type="text"/> 0 0 0 1 2	1 2 3 4 <input type="text"/> 1 2 3 4 5
Signed Numeric:	<input type="text"/> 0 0 0 0 0 -	1 2 <input type="text"/> 0 0 0 1 2 -	1 2 3 4 <input type="text"/> 1 2 3 4 5 -
Right-Adjust, Blank-Fill Fields		Before After	Before After
Numeric Shift:		1 2 <input type="text"/> 1 K	1 2 3 4 <input type="text"/> 1 2 3 4 N
Numeric Only or Digits Only:	Invalid because the rightmost position is not a digit (0 through 9); an error occurs. *	1 2 <input type="text"/> 1 2	1 2 3 4 <input type="text"/> 1 2 3 4 5

Verify

Verification depends upon the current field definition.

Non-Right-Adjust-Adjust Field

If the key is pressed while awaiting field exit, the rightmost character in the field is checked for a negative value. If the character is negative 0 through 9, the digit is replaced on the screen with the corresponding negative graphic, and the field is exited. If the character does not have a negative value, a verify sign mismatch error occurs. If the Field - key is pressed after the Reset key is pressed, the value is changed to negative, and the field is exited.

If not awaiting field exit, the positions above and to the right of the cursor, except the last field position, are verified for blanks. If a nonblank character is encountered, a verify mismatch error occurs and the entire field is displayed with the cursor positioned under the character that caused the error. If the Field - key is pressed after the Reset key is pressed, the nonblank character in the record is replaced with a blank, and the verification continues. The last field position is verified for a negative zero. If it is a negative zero, the graphic for negative zero is displayed, and the field is exited. If it is not a negative zero, a verify mismatch error occurs and the entire field is displayed. If the Field - key is pressed after the Reset key is pressed, the character in the record is replaced with a negative zero and the field is exited.

Signed Numeric

The key is valid only while awaiting field exit or when the cursor is in the leftmost position of the field.

If the key is pressed while awaiting field exit, the rightmost character in the field is verified for a negative value. If the character is negative, a minus sign is displayed in the sign position and the field is exited. If the character does not have a negative value, a verify sign mismatch error occurs. If the Field - key is pressed after the Reset key is pressed, the sign of the data is made negative and the field is exited.

If the key is pressed when the cursor is in the leftmost position of the field, all positions are verified for zeros. If a character other than a zero is encountered, a verify mismatch error occurs, and the entire field is displayed with the cursor under the character that caused the error. If the Field - key is pressed again after the Reset key is pressed, the character in the record is replaced with a zero and the verification continues. The rightmost character in the field is verified for a negative zero. If it is a negative zero, a minus sign is displayed in the sign position and the field is exited. If it is a positive zero, a verify sign mismatch error occurs. If the Field - key is pressed after the Reset key is pressed, the rightmost field position in the record is replaced with a negative zero and the field is exited.

Right-Adjust Field

In a right-adjust field that is not signed numeric, the key is valid only while awaiting field exit or when the cursor is in the leftmost position of the field.

While awaiting field exit, the character in the rightmost position is verified for a negative value. If the character is negative 0 through 9, the character on the screen is replaced with the corresponding negative graphic, and the field is exited. If the character does not have a negative value, a verify sign mismatch error occurs. If the Field - key is pressed after the Reset key is pressed, the character in the record is replaced with the corresponding negative value and the field is exited.

If the key is pressed when the cursor is in the leftmost position of the field, all positions of the field are verified for the appropriate fill character (zeros or blanks, depending on the field definition). If a character other than the fill character is encountered, a verify mismatch error occurs, and the entire field is displayed with the cursor under the character that caused the error. If the Field - key is pressed after the Reset key is pressed, the character is replaced with the fill character, and verification continues. The rightmost position of the field is verified for a negative value. If it is a negative value, the negative graphic is displayed in the rightmost position of the field on the screen, and the field is exited. If it is not a negative value, a verify sign mismatch error occurs. If the Field - key is pressed after the Reset key is pressed, a negative value replaces the character in the record and the field is exited.

 (FIELD MINUS/DASH) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

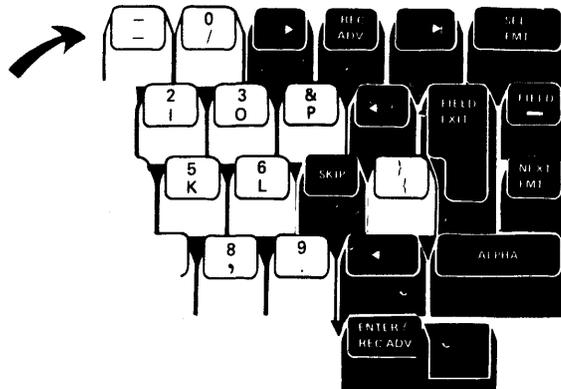
Keyboards: Data Entry type only

Operation:

To select a dash character, hold down the Num or shift key while pressing the  (Field Minus/Dash) key. A dash will also be selected if the field definition is not numeric only, digits only, signed numeric, or numeric shift, even though the Num or shift key is not held down.

To select a field minus character, the field definition must be numeric, numeric only, digits only, signed numeric, or numeric shift, with the Num or shift key not held down.

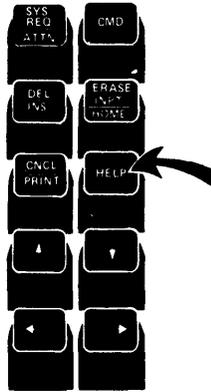
For more information, see Field - (Field Minus) key.



Data Entry Type Keyboard

HELP KEY

Reserved



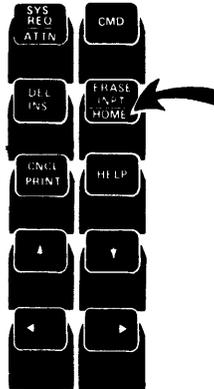
All Keyboards

HOME (RECORD BACKSPACE) KEY

Valid Programs: DE/RPG, COBOL, and KEU

Valid Modes: All modes

Operation: Press the Home (Record Backspace) key.



All Keyboards

Pressing the Home (Record Backspace) key returns the cursor to the first manual position of the record or performs a record backspace if the cursor is in the first manual position of the record.

Enter or Update Mode

Pressing the Home (Record Backspace) key when the cursor is in the first manual position of the record causes the previous record to be displayed. If in enter mode, the mode changes from enter to update when the previous record is displayed. If this is the first record of the data set, the key is ignored.

Verify Mode

The operation of the Home key in this mode is the same as the operation in the enter and update modes, with one exception. When you press the Home key in verify mode, the data on the display is blanked and the record must be reverified.

Record Insert Mode

Pressing the Home key in the first manual position of the record cancels record insert mode.

Execute Mode (DE/RPG Only)

Pressing the Home key in the first manual position of the record is ignored.

INS (CHARACTER INSERT) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes

DE/RPG: Enter, update, copy, execute, field correct and record correct

KEU: Enter, update, field correct, and record correct

Operation: Press the Ins key.



Use the Ins key to activate the character insert mode. This allows you to insert one or more characters into a field. To insert characters in a field, there must be blanks at the end of the field. For picture check, the character insert function works in the current subfield only.

To insert one or more characters:

1. Press the Ins key. The insert (>) symbol appears in the character insert mode position on the status line.
2. Position the cursor at the location where the data is to be inserted.
3. Enter the character to be inserted. The character is entered above the cursor, then the cursor and original data are shifted to the right one position.
4. Repeat steps 2 and 3 until all the data has been inserted into this field.
5. To cancel the character insert function, press the Reset or Error Reset Key.

Note: Attempting to exit a field while character insert mode is active causes an error.

 (NEW LINE) KEY

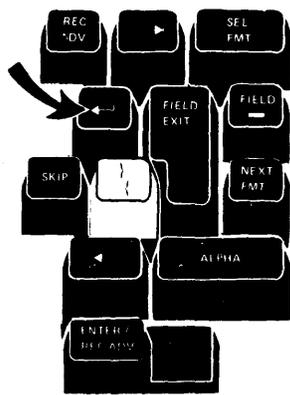
Valid Programs: DE/RPG, KEU, and Utilities

Valid Modes

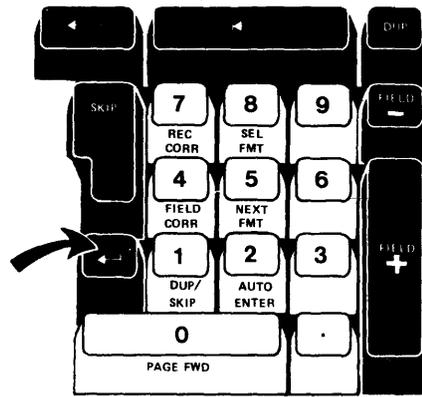
DE/RPG: Enter, update, copy, and record correct

KEU: Enter, update, and record correct

Operation: Press the  (New Line) key.



Data Entry Type Keyboards



Typewriter Keyboard

Use the  (New Line) key to position the cursor at the beginning of the next line on the display screen. An attempt to move the cursor outside the data record causes an error code 1112. This key is valid only in format 0. See the *Glossary* for information about format 0.

NEXT FMT (NEXT FORMAT) KEY

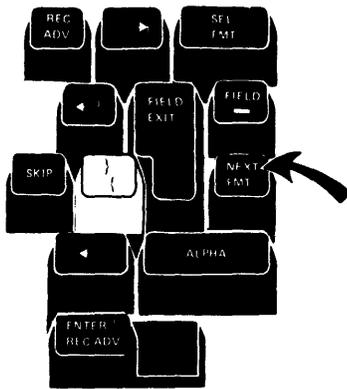
Valid Programs: DE/RPG

Valid Modes

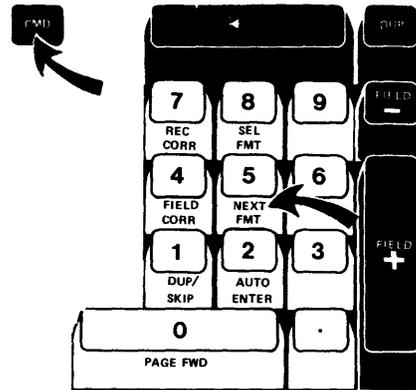
DE/RPG: Enter, update, verify, and copy

Operation:

For the data entry type keyboards, press the Next Fmt key. For the typewriter keyboard, press the Cmd key and then press the Next Fmt key.



Data Entry Type Keyboards



Typewriter Keyboard

Use the Next Fmt key to select the next format. The current record is redisplayed using the new format. Any changes made to the current record using the previous format are ignored.

Depending on the DE/RPG program, pressing this key can cause the end of job sequence to be processed.

NUM (NUMERIC SHIFT) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Keyboards: Data Entry type only

Operation: Press and hold the NUM key and then press the character you want to enter.



Data Entry Type Keyboard

Use this key to:

- Select a data character or function from the top half of the key.
- Enter numeric characters in a field programmed for alpha shift.
- Select a function on the top half of the keyboard template, after the CMD key has been pressed.

PAGE FWD (PAGE FORWARD) KEY

Valid Program: DE/RPG and KEU

Valid Modes:

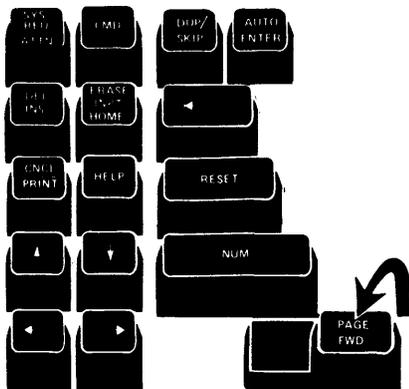
DE/RPG: Update, verify, and copy

KEU: Update and verify

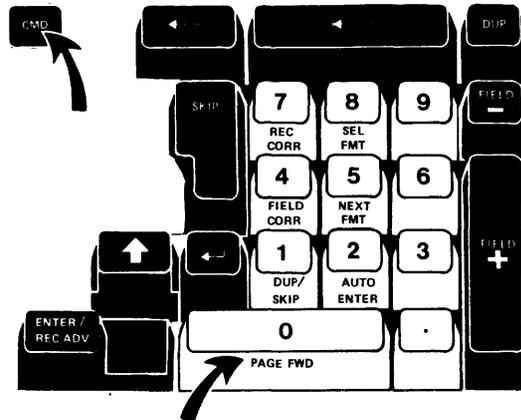
Operation:

For the data entry type keyboards, press the Page Fwd key. For typamatic operation, press and hold the Page Fwd key.

For the typewriter keyboard, press the Cmd key and then press the Page Fwd key. For typamatic operation, press and hold both the  (Shift) key and the Page Fwd key.



Data Entry Type Keyboards



Typewriter Keyboard

When you want to bypass the remaining fields of the record, and you do not want the record updated on the data set, use the Page Fwd key to advance to the next record. This key allows you to advance quickly through a data set.

PRINT KEY

Valid Programs: DE/RPG, if specified in the program

Valid Modes: Enter, update, verify, and copy

Operation: Press the Print key.



All Keyboards

Use the Print key to print a data record or a group of records, starting at the current record.

The first time the Print key is pressed, a prompt is displayed that requests print information.

If the auto record advance function is active, printing continues record by record until end of data (EOD). To stop printing, turn the auto record advance function off, or press the Cncl key.

RECORD ADVANCE KEY: See *Enter/Rec Adv (Enter/Record Advance) Key* in this section.

RECORD BACKSPACE KEY: See *Home (Record Backspace) Key* in this section.

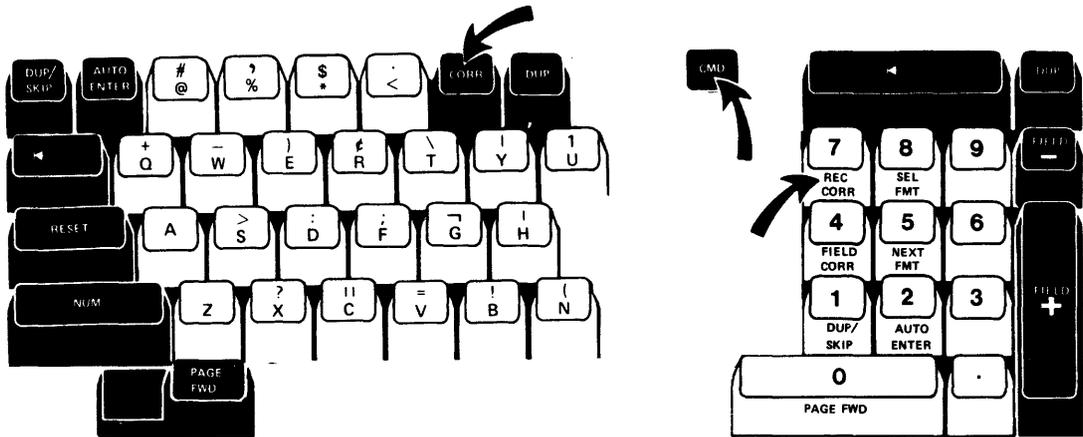
REC CORR AND CORR (RECORD CORRECT) KEYS

Valid Programs: DE/RPG and KEU

Valid Mode: Verify mode

Operation:

For data entry type keyboards, press and hold the Num key while pressing the Corr key. For the typewriter keyboard, press the Cmd key and the Rec Corr key.



Data Entry Type Keyboards

Typewriter Keyboard

Use this key (in verify mode only) when the entire record needs to be corrected.

Pressing this key changes the program mode on the status line from the verify to verify correct (V-C) mode and displays the current record. The cursor is positioned to the first manual position of the record.

After the record has been reentered, the Enter/Rec Adv key changes the mode to verify, clears the data on the display, and positions the cursor to the first manual position of the same record. The new data is now ready to be verified.

RESET: See Error Reset And Reset Keys In This Section

SEL FMT (SELECT FORMAT) KEY

Valid Programs: DE/RPG and KEU

Valid Modes:

DE/RPG: Enter, update, verify, and copy

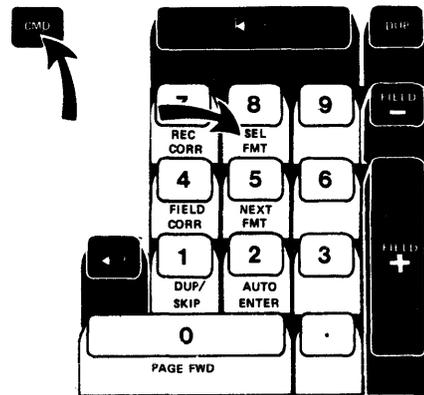
KEU: Enter, update, and verify

Operation:

For data entry type keyboards, press the Sel Fmt key, followed by the format number or identifier. For the typewriter keyboard, press the Cmd key and the Sel Fmt key, followed by the format number or identifier.



Data Entry Type Keyboards



Typewriter Keyboard

Use the Sel Fmt key to activate the format you want to use. On data entry type keyboards, the keyboard shift is numeric when you are entering the format number or identifier; you must press the Alpha key to enter a letter. As you enter the format number or identifier, it is displayed on the status line. After you have selected a format, the current record is redisplayed according to the new format. Any changes made to the current record using the previous format are ignored.

 (SHIFT) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Keyboards: Typewriter only

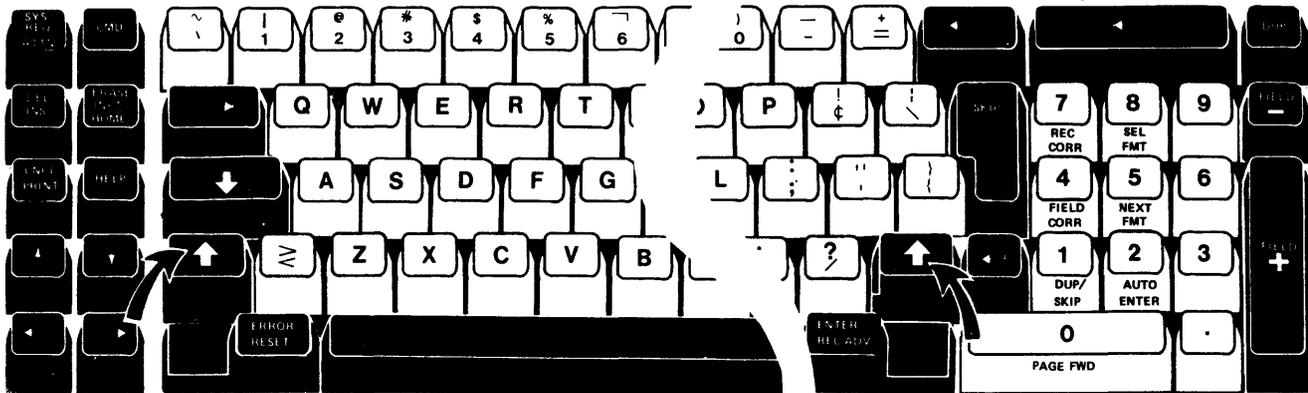
Operation:

Press and hold one of the  (Shift) keys and then press a second key. This allows you to:

- Enter uppercase alphabetic characters (A through Z).

Note: In KEU, alphabetic characters are always uppercase.

- Select a data character or function from the top half of a key.
- Select a command function from the top half of the keyboard template, after pressing the Cmd key.



Typewriter Keyboard

 (SHIFT LOCK) KEY

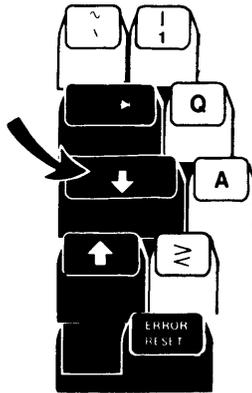
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Keyboards: Typewriter only

Operation:

Press the  (Shift Lock) key to lock the keyboard in upper shift. To unlock it, press the  (Shift) key.



Typewriter Keyboard

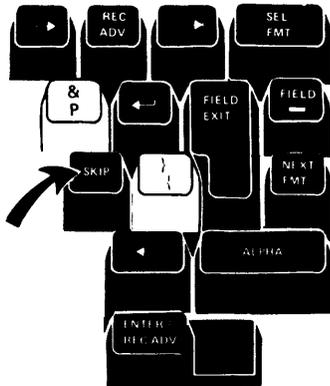
Use the  (Shift Lock) key to lock the keyboard in upper shift when entering data. When the keyboard is locked in upper shift, the upper character of a data key is automatically selected. However, the shift lock does not automatically select the upper function on a function key. You must use the  (Shift) key to select the upper function on a function key.

SKIP KEY

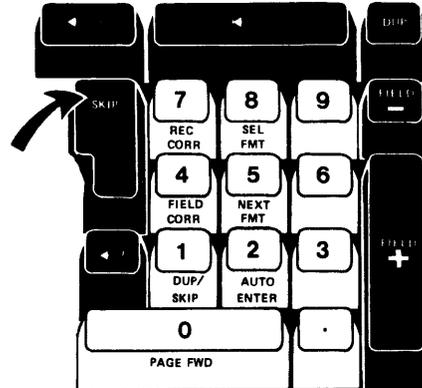
Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation: Press the Skip key



Data Entry Type Keyboards



Typewriter Keyboard

Use the Skip key to enter blanks from the cursor position to the end of the field, and to exit that field.

In verify mode, pressing the Skip key causes the characters from the cursor position to the end of the field to be verified for blanks. If a nonblank character is found, the cursor stops at that character and an error is displayed. If the Skip key is pressed again following the reset, a blank replaces the character in the current record, and automatic verification continues to the end of the field.

SYS REQ (SYSTEM REQUEST) KEY

Valid Programs: DE/RPG, KEU, COBOL, and utilities

Valid Modes: All modes

Operation:

Press and hold the Num or  (Shift) key and then press the Sys Req key.



All Keyboards

Use the Sys Req key to temporarily discontinue the execution of a program in a partition in order to load a program into a background partition. For more information, see *Partitions*.

To cancel the system request function, press the Cncl key.

This page intentionally left blank

COMMUNICATIONS.	205
LOADING THE COMMUNICATIONS EXECUTION UTILITIES.	205
ESTABLISHING A COMMUNICATIONS CONNECTION.	206
REMOVING THE COMMUNICATIONS ACCESS METHOD PROGRAM FROM A PARTITION	210

This page intentionally left blank.

3. If the keylock feature is installed on your 5280 system, insert the proper key and turn it to the left.



Note: See *Keylock Feature* for information about the keylock settings.

4. Enter the required information for the load prompt.

Program name: Enter the program name for the communications utility and press the Field Exit key or the Field + key.

Device address: Enter the device address of the diskette drive containing the communications utility.

Partition number: Enter the number of the partition where you want to load the communications utility. The utility can execute in either a foreground or background partition. The run book should provide the correct partition number.

5. Press the Enter key.
6. Respond to the prompts that are displayed.

ESTABLISHING A COMMUNICATIONS CONNECTION

The following message is displayed by the communications utility when the communications connection should be established.

ESTABLISH CONNECTION IF NECESSARY.

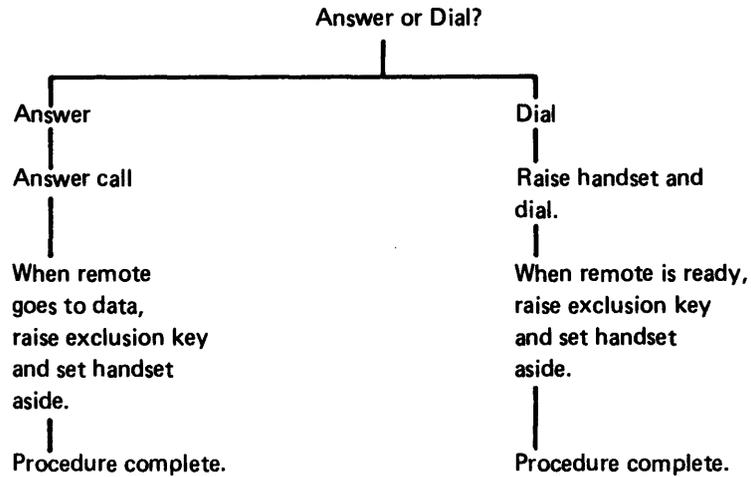
If the communications line is switched and the connection type is manual call, dial the system with which the 5280 is to communicate. Place the modem in the data mode when the answer tone is received. The run book should provide the correct telephonic number to dial and the appropriate procedures required to place the modem in data mode.

If the line is switched and the connection type is manual answer, answer the telephone when it rings and place the modem in data mode; if the connection is auto answer, it is necessary only to ensure that the modem is in answer mode.

If the line is nonswitched, no action is required and the previous message appears only briefly.

The following diagrams show the procedures for establishing a communications connection.

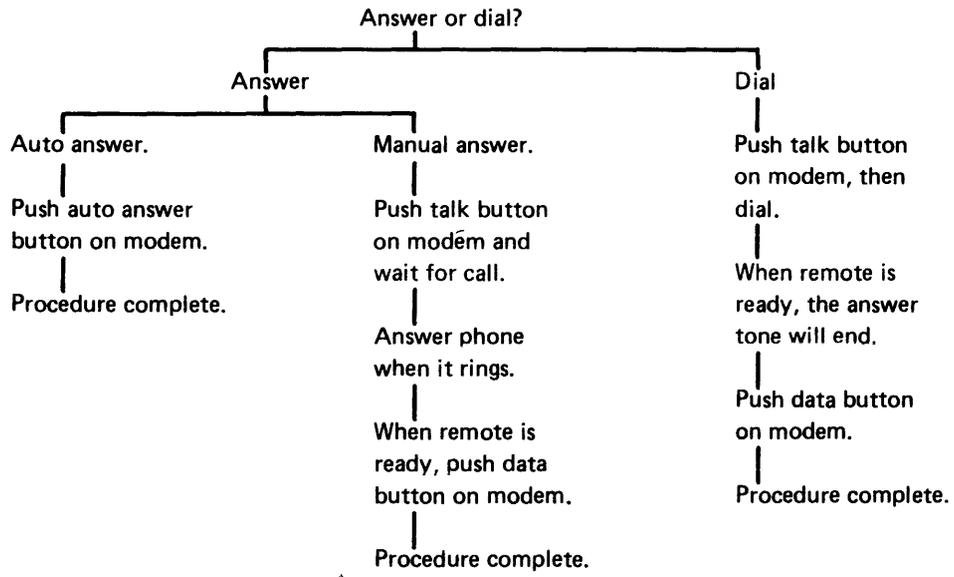
**Integrated Manual Answer Modem
or
External Manual Answer Modem With Exclusion Key**



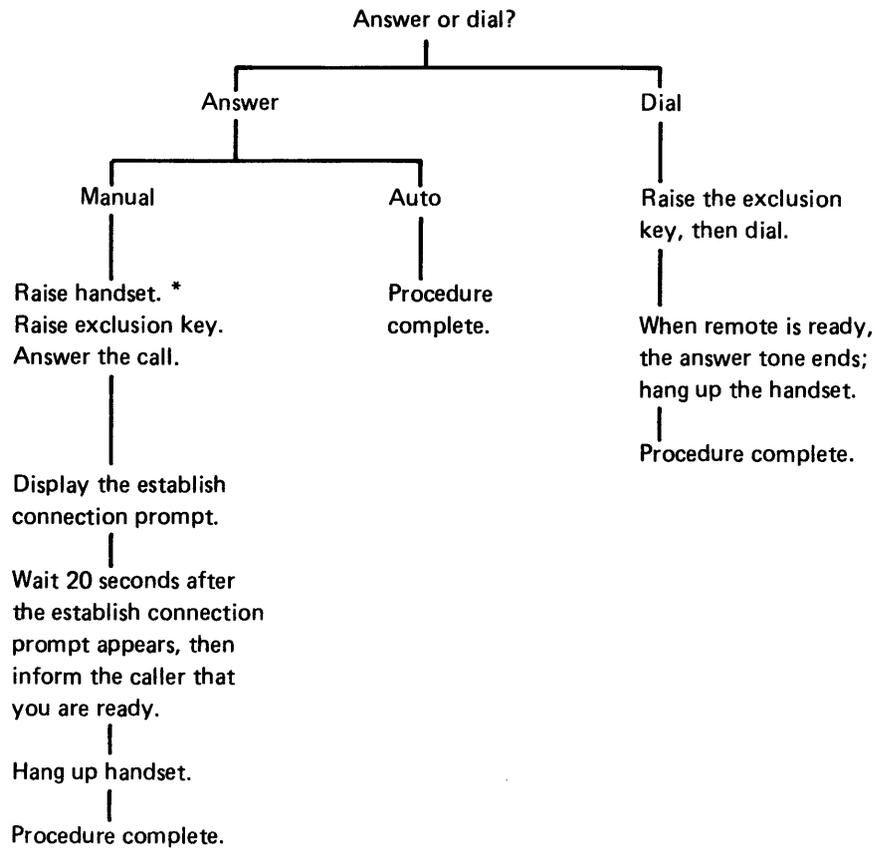
If you have an external modem, it should have a Talk/Data switch. This switch must be in the talk position until just prior to raising the exclusion key.

Note: When you wish to break the connection, you must hang up the handset. If a Talk/Data switch is provided by the modem, return the Talk/Data switch to the talk position.

External Auto Answer Modem Without Exclusion Key



**Integrated Auto Answer Modem
or
External Auto Answer Modem With Exclusion Key**



* This must be done before you display the establish connection prompt.

REMOVING THE COMMUNICATIONS ACCESS METHOD PROGRAM FROM A PARTITION

After you have run all your communications jobs, using either a user-written application program or one of the IBM-supplied DB/DC utilities (SYSBBTU, SYSBDCU or SYSSDCU), you should remove the CAM from its partition.

Use the keyboard/display that was used to load the CAM. The CAM was either loaded automatically by one of the communications execution utilities or by you using SYSCLU. Determine from the run book if the program was loaded into a background partition or a foreground partition.

If the communications access method program is in a foreground partition:

1. Press the Cmd key.
2. Press the End of Job command key.

If the communications access method program is in a background partition:

1. Press the following keys in sequence.
Cmd
C
B
2. Enter the partition number where the CAM is loaded.
3. Press the Cmd key.
4. Press the End of Job command key.

If a communications job, using either a user-written application program or any of the IBM-supplied communications execution utilities, does not terminate normally, it may be necessary to cancel the CAM. This will also remove the CAM from its partition. To cancel the CAM, follow the same procedure as described above, but instead of using the End of Job command key in step 2 and step 4, do the following:

Press and hold the Num key or the  (Shift) key, then press the Cncl key.

ACCENTED DATA CHARACTERS

There are three methods of keying characters that are accented.

The first method is to press a key that has the accented character on the keytop. This method is identical to keying any data character. The following keyboard shows an example of a key with an accented character on the keytop.



The second method is to press a combination of keys to obtain the desired accented character. The keyboard shows an example of a key with an accent mark on the keytop. To use this method, the following conditions must exist:

- The accent mark must be on a keytop.
- The IPL diskette used must have been configured to select the multinational character set for this keyboard.
- The combination of the accent mark and the data character must be valid (the chart at the end of this appendix shows the valid characters).

To use this method:

1. Key the accent mark. The accent is displayed but the cursor does not advance to the next position. If the cursor advances, or if the cursor blinks, this keyboard was not configured for the multinational character set.
2. Key the data character. The combined data character is displayed and the cursor advances to the next position.

To enter an accent character only, press the key containing the Accent character and then press the spacebar.

If an error occurs because an invalid data character is keyed, press the Reset key or the Error Reset key and then rekey the accent character followed by a valid data character.

The third method is to use the hex key function to enter an accented character that cannot be entered by using one of the previous methods.

To use the hex key function do the following:

- 1) Press the Cmd key and then press the key below the Hex label on the keyboard template.
- 2) Key the two hex characters that represent the desired accented character (see the following chart for accented characters and corresponding Hex values).

If an error occurs because an invalid hex character is keyed, press the Reset key or the Error Reset key and then repeat steps 1 and 2.

Hex	Graphic	Name	Hex	Graphic	Name	Hex	Graphic	Name
42	à	a Circumflex, Small	74	è	E Grave, Cap:	FB	Û	U Circumflex, Cap.
43	ä	a Diaeresis, Small	75	í	I Acute, Cap:	FC	Ü	U Diaeresis, Cap.
44	à	a Grave, Small	76	ï	I Circumflex, Cap:	FD	Ù	U Grave, Cap.
45	á	a Acute, Small	77	ï	I Diaeresis, Cap:	FE	Ú	U Acute, Cap.
46	ã	a Tilde, Small	78	ı	I Grave, Cap			
47	â	a Overcircle, Small	79	˘	Grave Accent			
48	ç	c Cedilla, Small	8D	ÿ	y Acute, Small			
49	ñ	n Tilde, Small	90	°	Degree, Overcircle			
51	é	e Acute, Small	9D	¸	Cedilla			
52	ê	e Circumflex, Small	A1	˜	Tilde Accent			
53	ë	e Diaeresis, Small	AD	ÿ	Y Acute, Cap:			
54	è	e Grave, Small	BD	¨	Diaeresis, Umlaut Accent			
55	í	i Acute, Small	BE	´	Acute Accent			
56	ï	i Circumflex, Small	CB	ö	o Circumflex, Small			
57	ï	i Diaeresis, Small	CC	ö	o Diaeresis, Small			
58	ì	i Grave, Small	CD	ò	o Grave, Small			
5F	ˆ	Circumflex Accent	CE	ó	o Acute, Small			
62	Â	A Circumflex, Cap:	CF	õ	o Tilde, Small			
63	Ä	A Diaeresis, Cap:	DB	ü	u Circumflex, Small			
64	À	A Grave, Cap:	DC	ü	u Diaeresis, Small			
65	Á	A Acute, Cap:	DD	ù	u Grave, Small			
66	Ã	A Tilde, Cap:	DE	ú	u Acute, Small			
67	Â	A Overcircle, Cap:	DF	ÿ	y Diaeresis, Small			
68	Ç	C Cedilla, Cap:	EB	Ö	O Circumflex, Cap:			
69	Ñ	N Tilde, Cap:	EC	Ï	O Diaeresis, Cap:			
71	É	E Acute, Cap:	ED	Ò	O Grave, Cap:			
72	Ê	E Circumflex, Cap:	EE	Ó	O Acute, Cap:			
73	Ë	E Diaeresis, Cap:	EF	Ï	O Tilde, Cap:			

This page intentionally left blank.

alpha only field: A field in which only the following characters are valid: the characters of the alphabet (both uppercase and lowercase), comma, period, dash, and blank. If any other character is entered into this type of field, an error results. The keyboard shift is positioned to automatically select the lower symbol on each keytop.

alphabetic shift field: A field type in which all characters are valid. The keyboard shift is positioned to automatically select the lower symbol on each keytop.

application program: A program that processes user data to perform a particular data processing task; for example, inventory control or payroll.

auto dup: Automatic duplication. 1. In enter and update modes, the process of automatically copying the contents of a field in a previous record or in storage into the corresponding positions of the current record. 2. In verify mode, the process of automatically comparing the contents of a field in the current record with the contents of the corresponding positions of a previous record or in storage.

auto record advance: Automatic record advance. The process of automatically advancing to the next sequential record when the current record is complete.

auto skip: Automatic skip. 1. In enter mode and update mode, the process of automatically filling a field with blanks and advancing to the next field. 2. In verify mode, the process of verifying that all the positions in the field are blank.

awaiting field exit: A condition indicated by a blinking cursor and by the positions remaining in the field counter on the status line being equal to 1. This means that the input field (which has been specified as a field exit required field) has been filled with data. You must press a field exit key to continue.

awaiting record advance: A condition indicated by a blinking cursor and by the input record character position counter on the status line being equal to 0. This means that the record or prompt has been filled with data. You must press the Enter/Rec Adv key to continue.

backup diskette: A diskette that contains information that was copied from another diskette and is used in case the original information is unintentionally altered or destroyed.

background job: A job that is run in a partition which does not have immediate access to a keyboard/display unit.

blank fill: In a right-adjust field, the process of filling the positions to the left of the data with blanks.

compiler: A program that translates (compiles) a series of instructions, written in a programming language, into a program the system can execute.

copy: To duplicate data from one place to another, leaving the original data unchanged.

data set: A collection of data records treated as a unit and existing on a diskette.

data set label: An area on the diskette that describes a data set.

data set name: The name associated with a data set. Blanks cannot appear between characters in a name.

default value: A value automatically chosen by the system when a value is not specified by the user.

device address: The characters used to identify a device such as a diskette drive or printer.

digits only field: A field in which only the characters 0 through 9 are valid. If any other character is entered into this type of field, an error results. For data entry type keyboards, the keyboard shift is positioned to automatically select the upper symbol on each data key. For typewriter keyboards, the keyboard shift is positioned to automatically select the lower symbol on each data key.

EBCDIC: Extended binary-coded decimal interchange code.

edit: To check or modify the form or format of data.

execute mode: The process of carrying out the instructions of a computer program.

field: One or more characters of related information in a record.

field length: The number of positions in a field.

field correct mode: A sub-mode of verify mode, which allows the operator to correct an entire field with a minimum of keystrokes.

file: The collection of related records.

foreground job: A job that is run in a partition that has immediate access to a keyboard/display unit.

format: DE/RPG: A specific arrangement of information used to display a record. KEU: A specific arrangement of field definition characters and field continuation characters that define the fields in a data record.

format chaining: Defined sequence of formats to be used in entering, verifying, or updating data records.

format 0 (zero): A format that is simple character alpha shift fields. The length of the format is the record length of the opened data set.

hex: Hexadecimal.

hexadecimal field: A field in which only the following characters are valid: 0 through 9, and A through F. If any other character is entered into this type of field, an error results. Each pair of hex digits entered into the field is combined to form one position within the field. For data entry type keyboards, the keyboard shift is positioned to automatically select the upper symbol on each data key. For typewriter keyboards, the keyboard shift is positioned to automatically select the lower symbol on each data key.

host ID: The identification of the system that the 5280 is connected to for the purpose of data communication.

initial program load (IPL): A sequence of events that loads the system programs and prepares the system for execution of jobs.

job: A program and associated data that can be processed in a partition.

mark: To place an indicator in a field or record.

marked record: A record that contains a mark that indicates that one or more data fields in the record are incomplete or incorrect.

menu: A displayed list of items from which the operator makes a selection.

numeric only field: A field in which only the following characters are valid: 0 through 9, comma, period, dash, plus sign, and blank. If any other character is entered into this type of field, an error results. For data entry type keyboards, the keyboard shift is positioned to automatically select the upper symbol on each data key. For typewriter keyboards, the keyboard shift is positioned to automatically select the lower symbol on each data key.

numeric shift field: A field type in which all characters are valid. For data entry type keyboards, the keyboard shift is positioned to automatically select the upper symbol on each data key. For typewriter keyboards, the keyboard shift is positioned to automatically select the lower symbol on each data key.

partition: An area of storage in which a program can be stored and processed.

print file: The organization of data for formatted printing and for printer forms control.

production statistics: Statistics related to keyboard activities occurring during data entry operations.

program: A set of sequential instructions that tells the system where to get input, how to process it, and where to put the results.

program listing: A computer printout that gives information about a program.

prompt: A displayed message usually requesting the operator to enter information.

record correct mode: A sub-mode of verify, which allows the operator to correct an entire record with a minimum of keystrokes.

record length: The number of characters positions in a record.

right adjust: To shift the contents of a field so that the last character keyed is in the rightmost position of the field.

right-adjust field: A field in which data is automatically right-adjusted if the Field Exit key or the Field + key, or the Field - key is used to exit the field.

search: To find a record or data set using search arguments provided by the user.

search mask: A pattern of characters used to find data records.

signed numeric field: A right-adjust, zero fill, digits only field in which the rightmost position of the field on the screen is reserved for the sign of the data in the field.

storage: The area in the system where programs and data are loaded and processed.

transaction data set: A data set that contains records associated with a specific job.

unattended operation: The processing of data by a data station at which an operator is not present.

verify mark: An indication on a record or a data set that it has been verified.

work file: An area on diskette that is reserved for temporary storage of data being processed.

zero fill: In a right-adjust field, the process of filling the positions to the left of the data with zeros.

This page intentionally left blank.

- advance key
 - character 164
 - field 176
 - record 172
- allocating a data set (DE/RPG) 83
- allocating a data set (KEU) 56
- alphabetic (ALPHA) key 161
- attention (ATTN) key 162
- auto enter key 163
- auto mark 137
- automatic duplicate/skip 41
- automatic record advance 41

- background
 - ending a program 47
 - program request 48
 - starting a program 47
- backspace
 - character 166
- BSC Batch Transfer Utility (BBTU) 205
- BSC Data Communications Utility (BDCU) 205

- cancel (CNCL) key 164
- canceling a background program 49
- change format (see command keys)
- character advance key 165
- character backspace key 166
- character insert (see status line)
- character insert key 40
- cleaning your system 23
- clear screen (see command keys)
- code chart, field 73
- command keys
 - auto mark 137
 - change format 138
 - clear screen 139
 - communication attention (comm attention) 140
 - communication status (comm status) 141
 - delete record 142
 - display data 142
 - display format 143
 - display verify record 144
 - dump/trace file open 145
 - edit release 145
 - end input 146
 - end of job (EOJ) 147
- command keys (continued)
 - HEX 148
 - insert record 149
 - load format 150
 - mark field 151
 - return to transaction data set 152
 - review second data set 153
 - search content 154
 - search EOD (End Of Data) 155
 - search record number 156
 - search sequential content 157
 - transfer record 158
- communications
 - establishing line connection 201
 - loading the communications utility 201
 - removing the CAM 210
- compiling a DE/RPG program 95
- content, search 114
- content, search sequential 115
- control panel overview 5
- control programs, system (SCP) 121
- copying records (DE/RPG) 102
- correct key, field 178
- correct key, record 167
- cursor 3
 - down 167
 - up 168

- data
 - keys 127
 - search end of 113
- data entry keyboard 125
- data entry keyboard with proof arrangement 126
- data set
 - allocating (DE/RPG) 83
 - allocating (KEU) 56
 - name (see status line)
 - opening (DE/RPG) 81
 - opening (KEU) 54
 - rerunning 89
 - return to transaction (command key) 152
 - review second (command key) 153
 - search 113
- DE/RPG job
 - allocating a new data set 83
 - application program 92
 - compiling a DE/RPG program 95

DE/RPG job (continued)

- copying records using DE/RPG 102
- ending a DE/RPG program 89
- entering data 84
- entry program 81
- opening the data sets 81
- printing records in data entry programs 105
 - printing a block of records 106
 - printing a single record 106
- printing records using DE/RPG 104
- rerunning a data set 89
- selecting formats for a data entry program 85
- starting a DE/RPG application job 90
- starting a DE/RPG data entry job 79
- updating data 85
- verifying data 86
 - correcting a data key mismatch 86
 - correcting a dup or skip mismatch 87
 - correcting an automatic field 88
 - inserting a record or group of records 88
- writing job statistics for a DE/RPG program 94

delete key 169

delete record 110

device address (see status line)

device error (see status line)

diskette

- defective 32
- drive overview 6
- handling 29
- how to insert 30
- how to remove 32
- in use indicator 6
- label 6
- locking lever 6
- type 29
- wear 32

display

- data 142
- format 143
- prompt 4
- screen overview 3
- verify record (command key) 144

displaying a format 67

displaying a prompting record 67

dump/trace file open 145

dumping the error log 19

dup/skip key 170

duplicate (DUP) key 171

edit release (command key) 145

end input (command key) 146

end of data, search (command key) 113

end of job (command key) 147

end of job (printer) 36

ending a job

- DE/RPG 89
- KEU 61

enter/record advance key 172

entering data

- DE/RPG 81, 84 85
- KEU 60

erase input key 174

error code (see status line)

error condition, recovering from 13

error log, dumping 19

error reset key 175

error, device (see status line)

features, security 20

field 177

- (minus) 181
- advance key 176
- backspace key 177
- correct (CORR) key 178
- exit key/+ key 179
- mark (command key) 151
- minus/dash key 186
- record (see home key)

field code chart 73

field definition (see status line)

file open, dump/trace 145

format 68

- changing 67
- displaying 67
- ID (see status line)
- load (command key) 150
- loading 64
- making a KEU 69
- number (see status line)
- saving 66
- selecting 66
- types of fields 73
- updating 67

function keys

- alpha key 161
- attention (ATTN) key 162
- auto enter key 163
- cancel (CNCL) key 164
- character advance 165
- character backspace 166
- correct/record correct (CORR) key 167, 196
- cursor down 167
- cursor up 168
- delete key 169
- dup/skip key 170
- duplicate (DUP) key 171
- enter/record advance (ENTER/REC ADV) 172
- erase input (ERASE INPT) key 174
- error reset and reset key 175
- field - (minus) key 181
- field advance key 176
- field backspace key 177
- field correct (FIELD CORR) or correct (CORR) key 178
- field exit/field + (plus) key 179
- field minus/dash key 186
- help 187
- home key 188
- insert (INS) key 190

function keys (continued)

new line 191
next format (NXT FMT) key 192
numeric (NUM) key 193
page forward (PAGE FWD) key 194
print key 195
record advance (REC ADV) key (see enter/record
adv key)
record backspace key (see home key)
record correct (REC CORR) (see correct/record
correct)
reset (see error reset key)
select format (SEL FMT) key 197
shift key 198
shift lock key 199
skip key 200
system request (SYS REQ) 201

handling a diskette 29

help key 187
HEX (command key) 148
HEX value (see status line)
highest format number (see status line)
home key 188

initiating end of job (printer) 36

input erase (INPT ERASE) key 139
input record character position (see status line)
input, end (command key) 146
insert (INS) key 190
insert a diskette, how to 30
insert record 149
inserting a record 109
IPL, starting the system 17

job

ending a DE/RPG job 89, 94
ending a KEU job 61
entry utility (MRJE), multi-leaving remote 205
entry utility (SRJE), SNA remote 205
processing a DE/RPG job 79
processing a KEU job 53

KEU

allocating a data set 56
changing a format or prompting record 67
correcting a data key mismatch 59
correcting a dup or skip mismatch 60
displaying a format or prompting record 67
ending a KEU job 61
ending a key entry utility 64
entering data 59

KEU (continued)

field code chart 72
format chaining 74
formats 70
how to make a prompting record 71
how to use a prompting record 71
inserting a record or a group of records 5
loading a format or prompting record 64
loading KEU 53
making a KEU format 69
preparing for operation 54
prompting records 70
saving a format or prompting record 66
selecting a format or prompting record 66
types of fields used in formats 73
updating a format or prompting record
on diskette 67
updating data 58
verifying data 59
what to do when interrupted while verifying 61

keyboards

data entry keyboard 125
data entry keyboard with proof arrangement 126
kinds of keys
command keys 133
data keys 127
function keys 128
overview 3
typewriter keyboard 127

keylock feature 20

keys

command 137
function 157
kind of 127

label, diskette 6

load format (see command keys)

load prompt

changing data on the 10
entering data to the 9
loading a format 64

locking lever, diskette 6

log, dumping the error 19
logical device ID (see status line)

magnetic stripe reader 22

mark field (see command keys)

merge, sort/ 121

mismatch

correcting a data key entry 59
correcting a dup or skip entry 60
mode, program (see status line)
multi-leaving remote job entry
utility (MRJE) 205

- name
 - data set (see status line)
 - program (see status line)
- new line key 191
- next format (NXT FMT) key 190
- number
 - highest format (see status line)
- numeric (NUM) key 193

- opening a data set 54, 77, 91
- operating the system 17
 - cleaning your system 23
 - determining system problems 23
 - dumping the error log 19
 - starting the system (IPL) 17
 - stopping the system 19

- page forward key 194
- panel overview, control 5
- partition 40
 - record (see status line)
 - search record (see search)
- partition number 40, 41
- partitions 47
- positions remaining in a field (see status line)
- print key 195
- printer 33
- printer, stopping 35
- printing (DE/RPG) 104, 105
- problems, determining system 23
- program
 - application 92
 - canceling a background 49
 - ending a program in a background
 - partition 49
 - entry 81, 89
 - mode (see status line)
 - request 48
 - starting a program in a background
 - partition 47
 - system control (SCP) 121
- prompt, display 4
- prompting record 70
 - how to make 71
 - changing 67
 - displaying 67
 - how to use 71
 - loading 64
 - saving 66
 - selecting 66
 - updating 67
- reader, magnetic stripe 22
- record
 - advance key (see function keys)
 - advance, enter 172
 - backspace key (see home)
 - copying 102, 103
 - correct 167, 196
 - delete (see command keys)
 - deleting 110
 - insert (see command keys)
 - inserting 109
 - number (see status line)
 - printing 104, 105, 106
 - search 114
- record number, search 156
- release, edit (command key) 145
- request key, system 201
- request, program 48
- rerunning a data set 89
- return to transaction data set (command key) 152
- review second data set (command key) 153

- screen, display 3
- search
 - cancelling 117
 - content 114
 - end of data 113
 - relative record number 114
 - resuming 117
 - sequential content 115
- search content
- search end of data (EOD command key) 155
- search record number (command key) 156
- security features 20
- select format key 197
- sequential content (command key) 158
- shift key 198
- shift lock key 199
- skip key 200
- skip, dup/ (see status line)
- SNA
 - communication utility (SDCU) 205
 - remote job entry utility (SRJE) 205
- sort/merge 121
- statistics, writing job (DE/RPG) 94
- status line 4, 39
 - automatic duplicate/skip 41
 - automatic record advance 41
 - character insert 40
 - data set name 44
 - device address 43
 - device error 43
 - error code 43
 - field definition 40
 - format number or format ID 41
 - HEX value 40
 - highest format number (KEU) 42
 - input record character position 40
 - logical device ID 43

status line (continued)

partition number 40, 43

F positions remaining in a field 40

program mode 41

program name 43

record number 41

record verify/record mark (DE/RPG) 42

status, communications (see command keys)

system

F cleaning your 23

control programs (SCP) 121

dumping the error log 19

getting familiar with 7

problems, determining 23

restarting 18

security features 20

r starting 17

stopping 19

system control programming (SCP) 121

system request key 201

trace file open, dump 145

transaction data set, return to 152

transfer (command key) 156

verify display (see command keys)

This page intentionally left blank.

READER'S COMMENT FORM

Please use this form only to identify publication errors or request changes to publications. Technical questions about IBM systems, changes in IBM programming support, requests for additional publications, etc, should be directed to your IBM representative or to the IBM branch office nearest your location.

Error in publication (typographical, illustration, and so on). **No reply.**

Page Number *Error*

Inaccurate or misleading information in this publication. Please tell us about it by using this postage-paid form. We will correct or clarify the publication, or tell you why a change is not being made, provided you include your name and address.

Page Number *Comment*

IBM may use and distribute any of the information you supply in any way it believes appropriate without incurring any obligation whatever. You may, of course, continue to use the information you supply.

Name _____

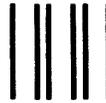
Address _____

Cut Along Line

Fold and tape

Please do not staple

Fold and tape

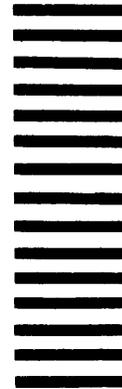


NO POSTAGE
NECESSARY IF
MAILED IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 40 ARMONK, N. Y.

POSTAGE WILL BE PAID BY ADDRESSEE

IBM CORPORATION
Information Design And Development
Department 997
11400 Burnet Road
Austin, Texas 78758



IBM 5280 Operator's Guide (File No. S5280-40) Printed in U.S.A. GA21-9364-1

Fold and tape

Please do not staple

Fold and tape



International Business Machines Corporation

General Systems Division
4111 Northside Parkway N.W.
P.O. Box 2150
Atlanta, Georgia 30055
(U.S.A. only)

General Business Group/International
44 South Broadway
White Plains, New York 10601
(International)

2

.

.

.

1

1

.

1

.

.

.



International Business Machines Corporation

General Systems Division
4111 Northside Parkway N.W.
P.O. Box 2150
Atlanta, Georgia 30055
(U.S.A. only)

General Business Group/International
44 South Broadway
White Plains, New York 10601
(International)

IBM 5280 Operator's Guide (File No. 55280-40) Printed in U.S.A. GA21-9364-1

