GA27-2837-5
File No. S360/S370/S3/4300/8100-09

Systems

IBM 3270
Information Display System
Character Set Reference

IBM

Preface

This manual describes the keyboards, the alphanumeric language keyboard layouts, and the input/output (I/O) interface codes that are available with the 3270 Information Display System both in the United States and in World Trade (WT) countries. It provides management personnel, programmers, and systems analysts with general reference material relating to the 3270 Information Display System keyboards and to the I/O interface codes that support various languages.

The 3270 Information Display System comprises the following units:

- IBM 3271 Control Unit Models 1, 2, 11, and 12
- IBM 3272 Control Unit Models 1 and 2
- IBM 3274 Control Unit:
  - Models 1A, 1B, 1C, and 1D
  - Models 21A, 21B, 21C, and 21D
  - Models 31A, 31C, and 31D
  - Models 41A, 41C, and 41D
  - Model 51C
  - Model 61C
- IBM 3178 Display Station Models C1, C2, and C3
- IBM 3275 Display Station Models 1, 2, 11, and 12
- IBM 3276 Control Unit Display Station Models 1, 2, 3, 4, 11, 12, 13, and 14
- IBM 3277 Display Station Models 1 and 2
- IBM 3278 Display Station Models 1, 2, 3, 4, and 5
- IBM 3279 Color Display Station Models S2A, S2B, S3G, 2X, and 3X
- IBM 3290 Information Panel
- IBM 3230 Printer Model 2
- IBM 3262 Line Printer Models 3 and 13
- IBM 3268 Printer Model 2
- IBM 3284 Printer Models 1, 2, and 3
- IBM 3286 Printer Models 1 and 2
- IBM 3287 Printer Models 1, 1C, 2, and 2C
- IBM 3288 Line Printer Model 2
- IBM 3289 Line Printer Models 1 and 2
- IBM 4250 Printer
- IBM 5210 Printer Models G01 and G02

Sixth Edition (September 1983)

This major revision obsoletes GA27-2837-4. It includes new chapters on the 3178 Display Station keyboards and 3290 Information Panel keyboards and keypads. Swiss-French and Swiss-German keyboards have been included for the 3278 Display Station. The Swiss-French and Swiss-German I/O interface code and the French (AZERTY) 105-character I/O interface code have been added. Significant changes or additions to the specifications in this publication will be reported in subsequent revisions or Technical Newsletters. Before using this publication in connection with the installation and operation of IBM equipment, refer to the *IBM System/360 Bibliography*, GC20-0360, and *IBM System/370 and 4300 Processors Bibliography*, GC20-0001, for the editions that are applicable and current.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates.

Publications are not stocked at the address given below. Requests for IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

A form for readers' comments is provided at the back of this publication. If the form has been removed, address comments to IBM Corporation, Department 52Q, Neighborhood Road, Kingston, N.Y., U.S.A. 12401. IBM may use or distribute whatever information you supply in any way it believes appropriate without incurring any obligation to you.

Contents

Figures

Chapter 1. Introduction

This manual shows the various keyboard layouts, arranged alphabetically by language, for the following 3270 Information Display System display stations:

- 3178 Display Station Models C1, C2, and C3
- 3275 Display Station Models 1, 2, 11, and 12
- 3276 Control Unit Display Station Models 1, 2, 3, 4, 11, 12, 13, and 14
- 3277 Display Station Models 1 and 2
- 3278 Display Station Models 1, 2, 3, 4, and 5
- 3279 Color Display Station Models S2A, S2B, S3G, 2X, and 3X
- 3290 Information Panel

In addition, this manual gives the I/O interface code charts for the following alphanumeric language requirements:

Austrian/German	French
Belgian	International
Brazilian	Italian
Brazilian/Portuguese	Japanese English
Canadian Bilingual	Japanese Katakana
Canadian French	Portuguese
Danish/Norwegian	Spanish
English (U.K.)	Spanish-Speaking
English (U.S.)	Swiss-French
Finnish/Swedish	Swiss-German

Also included are the I/O interface code charts for the following features:

- APL Character Set
- TEXT Character Set
- Magnetic media readers

The I/O interface code charts are applicable to the following machines in addition to those listed previously:

- 3230 Printer Model 2
- 3262 Line Printer Models 3 and 13
- 3268 Printer Model 2
- 3271 Control Unit Models 1, 2, 11, and 12
- 3272 Control Unit Models 1 and 2
- 3274 Control Unit Models 1A, 1B, 1C, 1D, 21A, 21B, 21C, 21D, 31A, 31C, 31D, 41A, 41C, 41D, 51C, and 61C
- 3284 Printer Models 1, 2, and 3
- 3286 Printer Models 1 and 2
- 3287 Printer Models 1, 1C, 2, and 2C
- 3288 Line Printer Model 2
- 3289 Line Printer Models 1 and 2
- 4250 Printer
- 5210 Printer Models G01 and G02

Chapter 2. 3275 and 3277 Display Station Keyboards

Keyboard Definitions

Six keyboard types are defined in this chapter: four are common to the 3275 and 3277 display stations; two are used only with the 3277 Model 2. The keyboard types are shown in Figures 2-1 and 2-2 with English (U.S.) as the keyboard language. All the keyboards have special symbol keys and control keys for entering data. The type of keyboard determines the characters and symbols that can be key-entered from the display station, but does not determine which type of characters and symbols can be transmitted from the system for the display image. Variations among keyboards include 66-key and 78-key versions. The 66-key keyboard provides all the basic operator keys. The 78-key keyboard provides expanded operator-to-program message flexibility with 12 additional keys (program function keys) that may be defined to fit the requirements of the application program.

The keyboards are:

Typewriter Keyboard (3275 and 3277): This keyboard provides the basic typewriter key layout. Alphanumeric keys are encoded with both lowercase and uppercase codes. The typewriter keyboard is available both with program function keys PF1 through PF12 (78-key version) and without them (66-key version).

Data Entry Keyboard (3275 and 3277): This keyboard provides the basic data-entry key layout. When characters are entered in a numeric field, the keyboard is automatically upshifted to take advantage of the grouped numeric keys (bold-outlined in Figure 2-1). The data entry keyboard contains 66 keys, including program function keys PF1 through PF5.

Data Entry Keypunch Keyboard (3275 and 3277): This keyboard has the same keys and features as the data entry keyboard. The key layout of this keyboard more closely resembles the layout of the 029 Card Punch and 129 Card Data Recorder. In many cases the layout is identical with that of the keypunch units except for the function key designations. This keyboard is recommended for data entry applications.

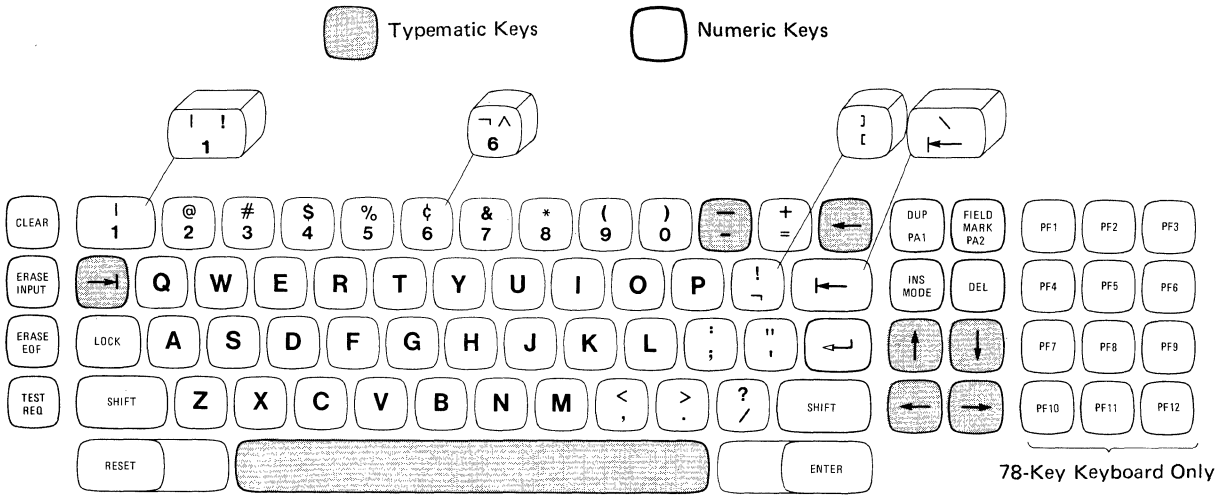
Operator Console Keyboard (3275 and 3277): This keyboard provides an IBM 1052 Model 7 key layout. It has 78 keys, including program function keys PF1 through PF12.

APL Keyboard Feature (3277 Model 2 Only): The 66-key (without program function keys) and 78-key versions of the APL keyboard permit the entry of 169 characters oriented to APL programming applications. In addition to the dual-case U.S. extended binary-coded decimal interchange code (EBCDIC) character set, this keyboard has the APL character set to permit the direct entry and display of underscored uppercase alphabetic and compound APL characters.

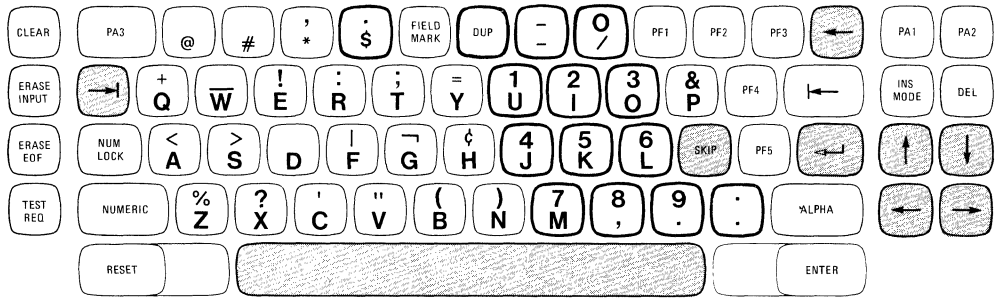
Text Keyboard Feature (3277 Model 2 Only): This 78-key keyboard is used in conjunction with the 3277 Model 2 Display Station to enable customers to enter and display a mono- or dual-case character set or a TN (Text) character set in text-processing operations. The keyboard is also capable of performing double-speed typematic operations.

Keyboard Layouts

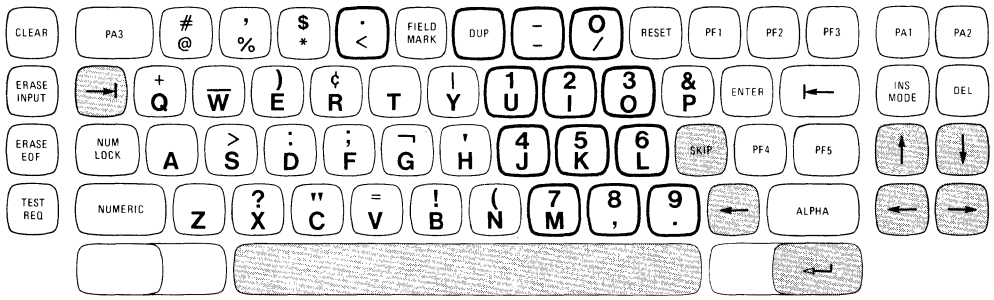
The keyboards for the United States and for World Trade countries are illustrated in Figures 2-1 through 2-13. Note that Figures 2-1 and 2-2, which show the keyboard types, also represent the English (U.S.) keyboard-language version of these keyboards.



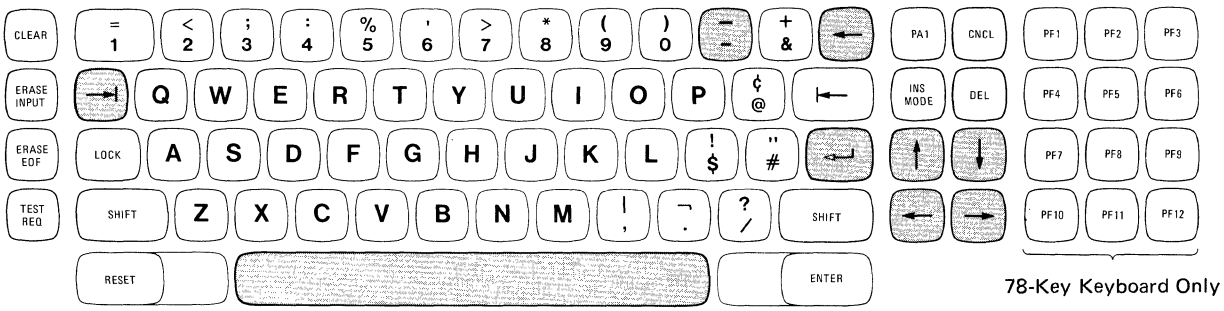
Typewriter Keyboard (EBCDIC) – The American National Standard Code for Information Interchange (ASCII) typewriter keyboard, which accommodates both ASCII-A and ASCII-B character-set options, has four different keys, shown above keyboard.



Data Entry Keyboard

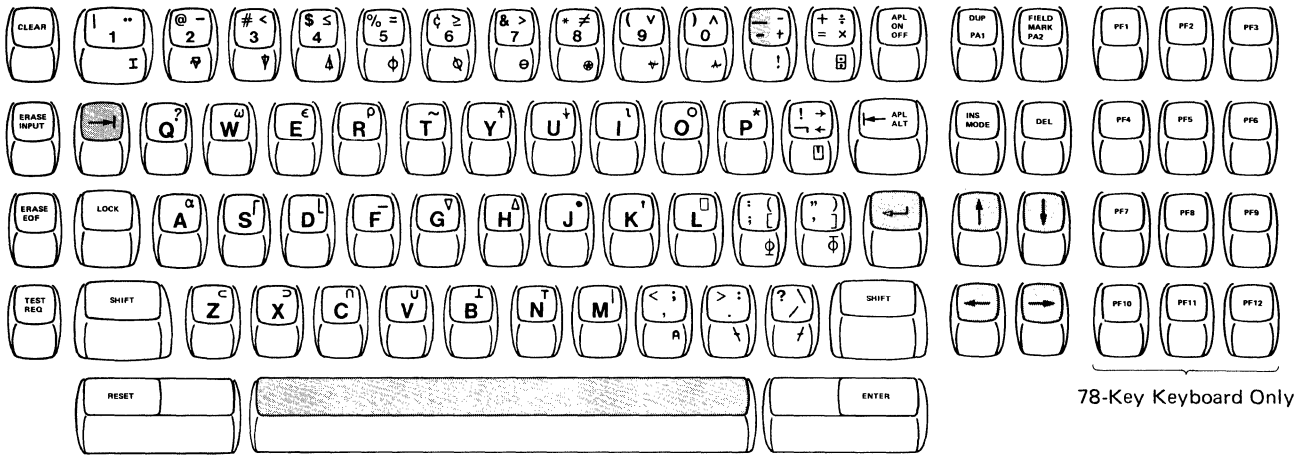


Data Entry Keypunch Keyboard



Operator Console Keyboard

Figure 2-1. Basic Keyboards for 3275 and 3277 Display Station [English (U.S.) Language]

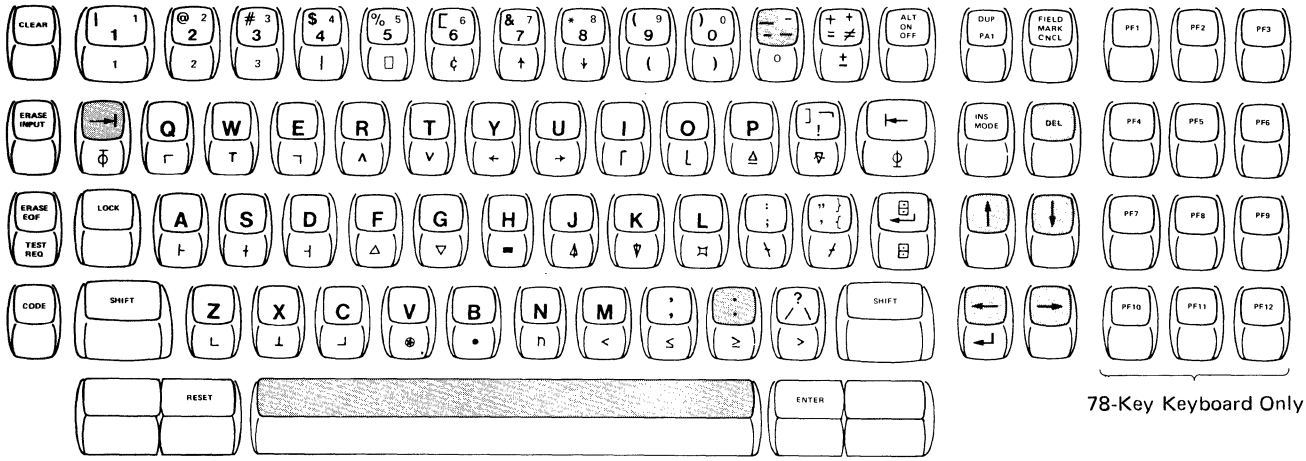


Legend:

Typematic Keys

Typematic Key (APL Off)

APL Keyboard

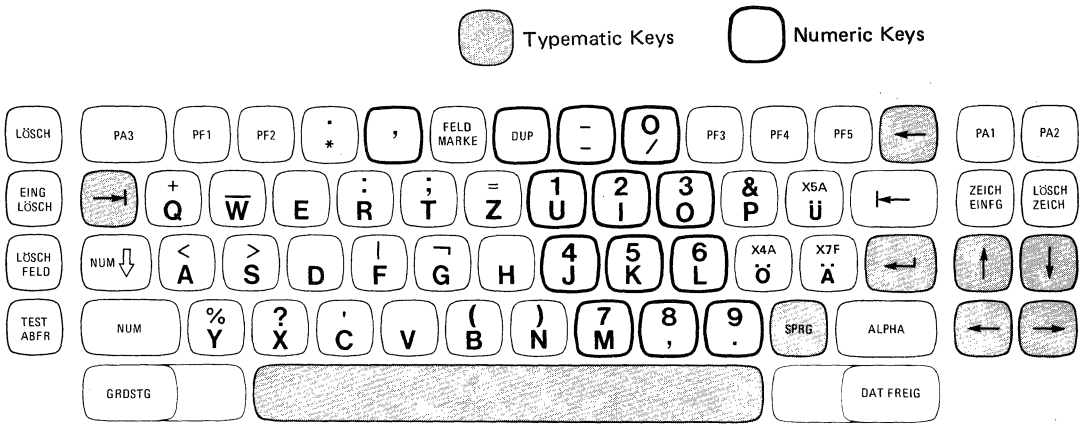


Legend:

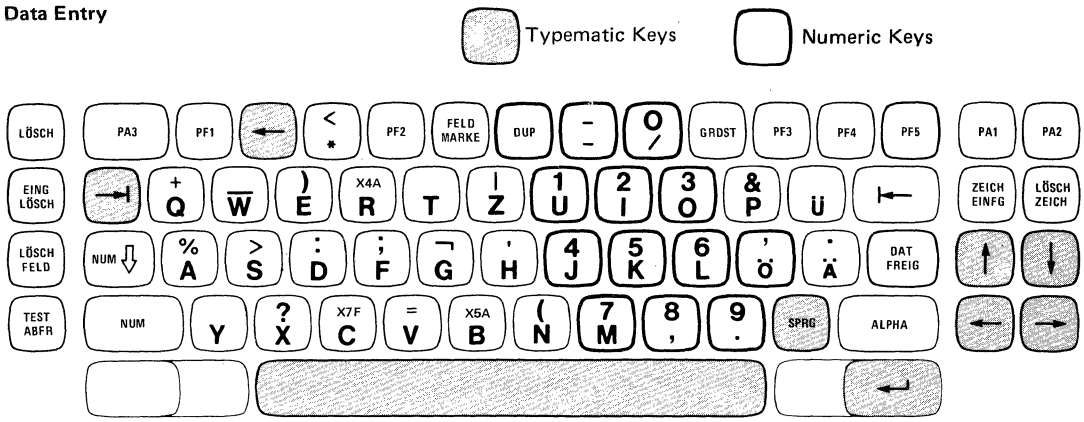
Typematic Keys

Text Keyboard

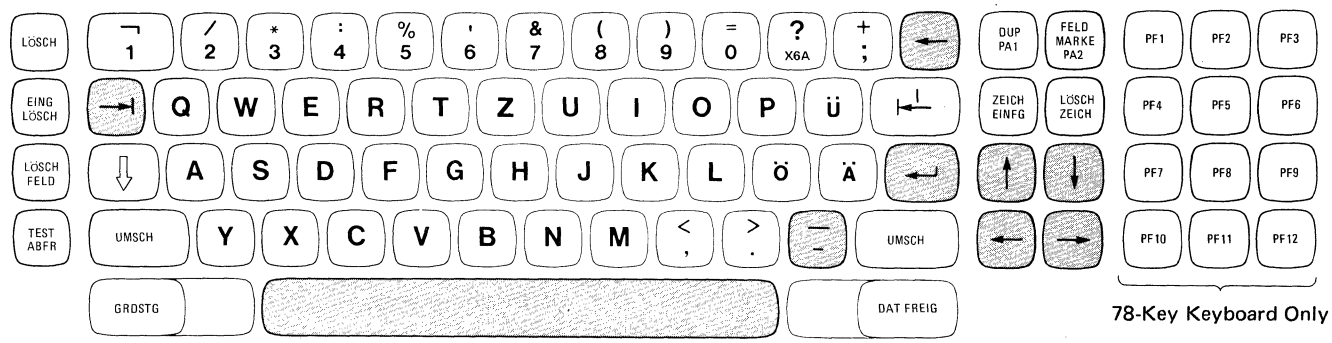
Figure 2-2. Special Feature Keyboards for 3277 Model 2 Display Station [Available Only with English (U.S.) Language Shown]



Data Entry

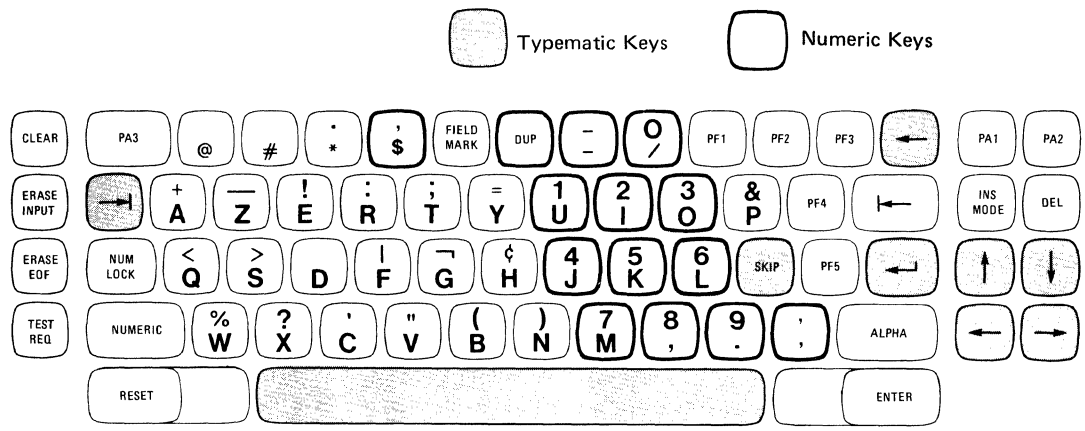


Data Entry Keypunch Layout

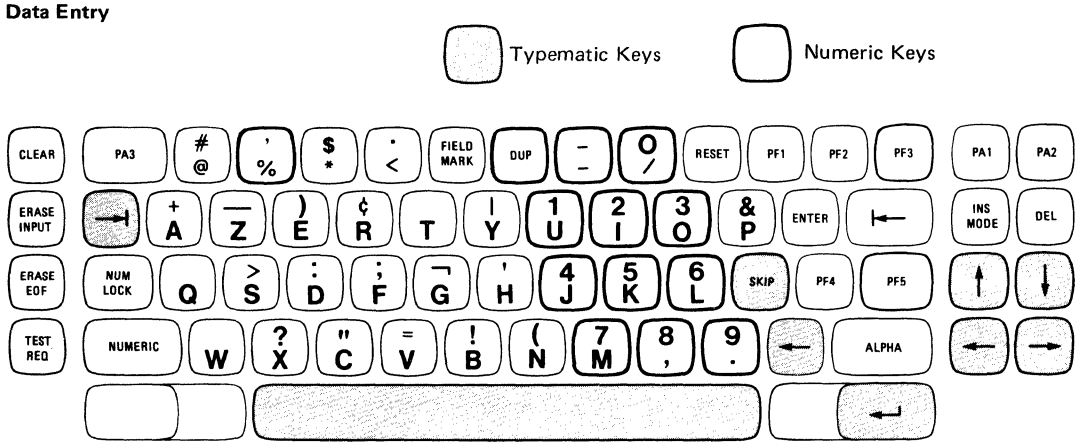


Typewriter

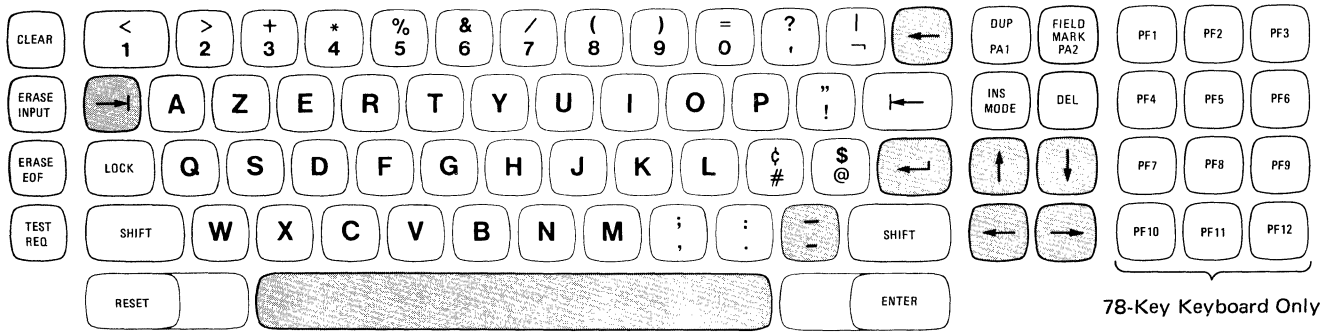
Figure 2-3. Austrian/German Keyboards



Data Entry

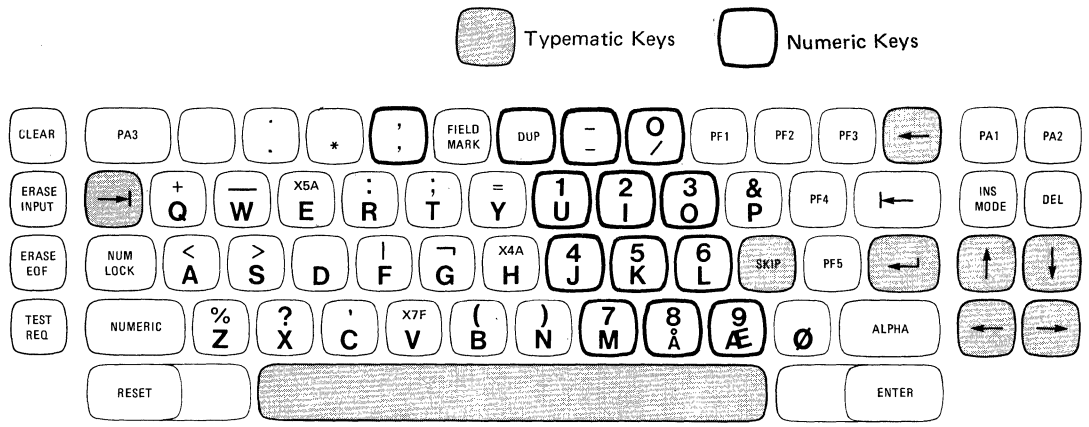


Data Entry Keypunch Layout

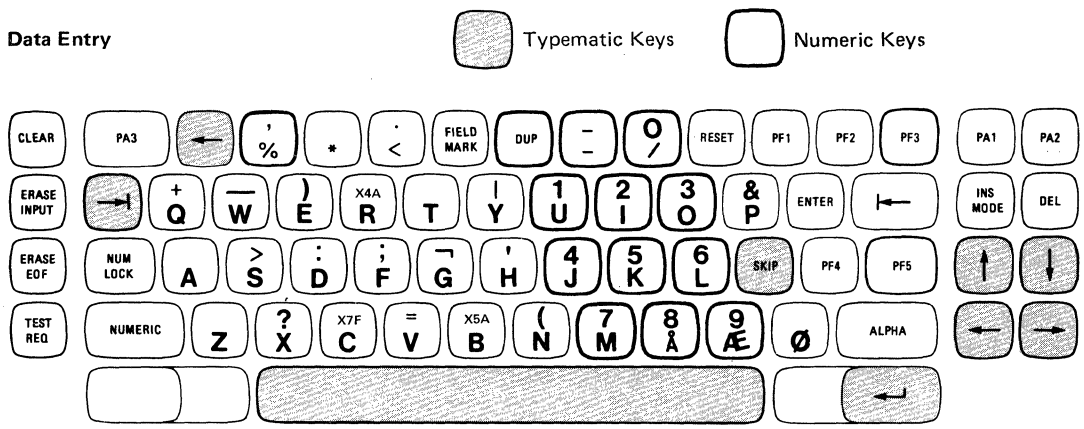


Typewriter

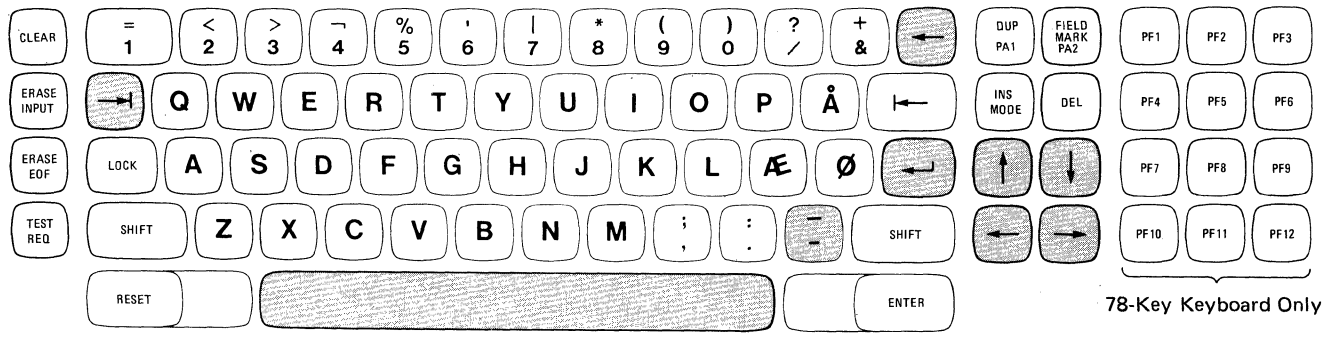
Figure 2–4. Belgian Keyboards



Data Entry

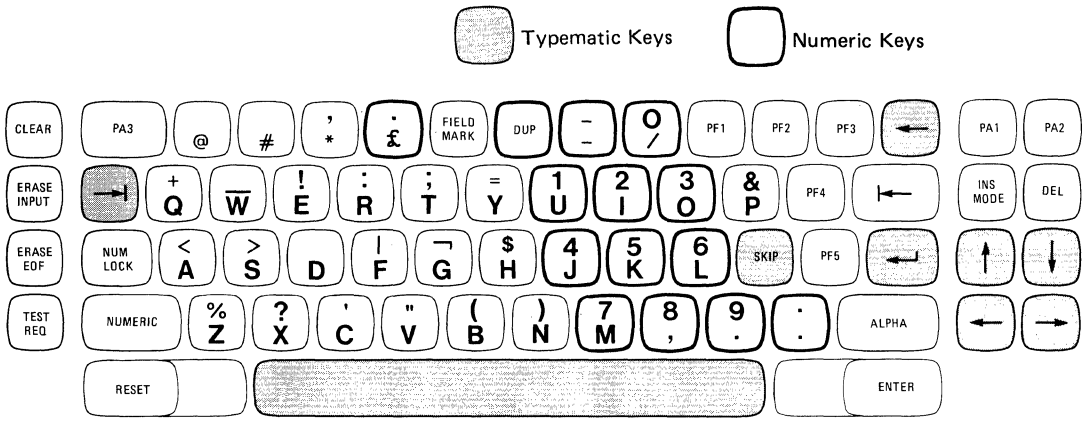


Data Entry Keypunch Layout

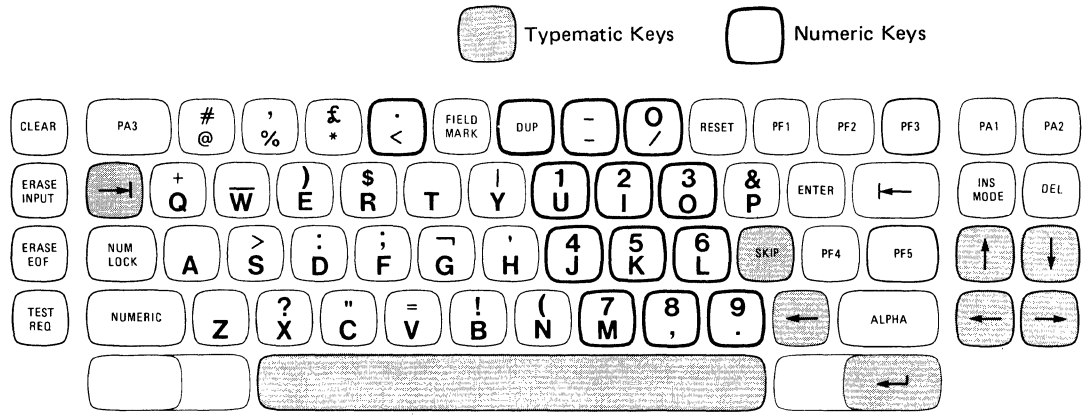


Typewriter

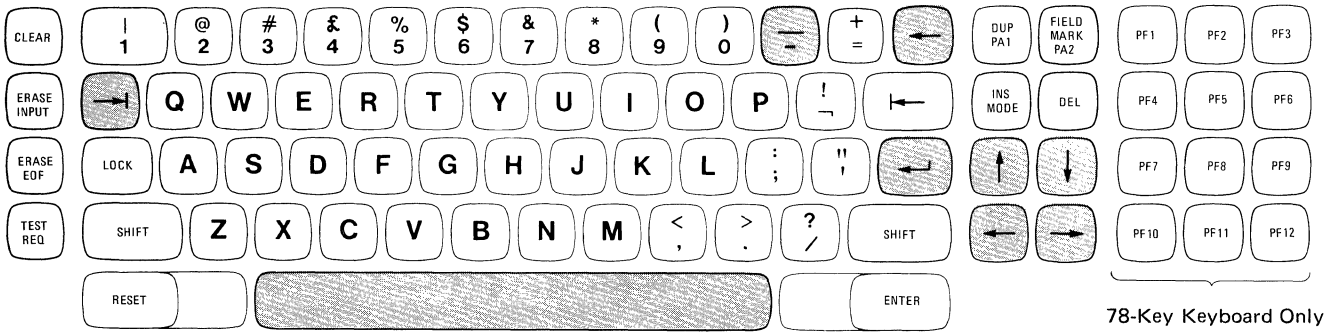
Figure 2-5. Danish Keyboards



Data Entry

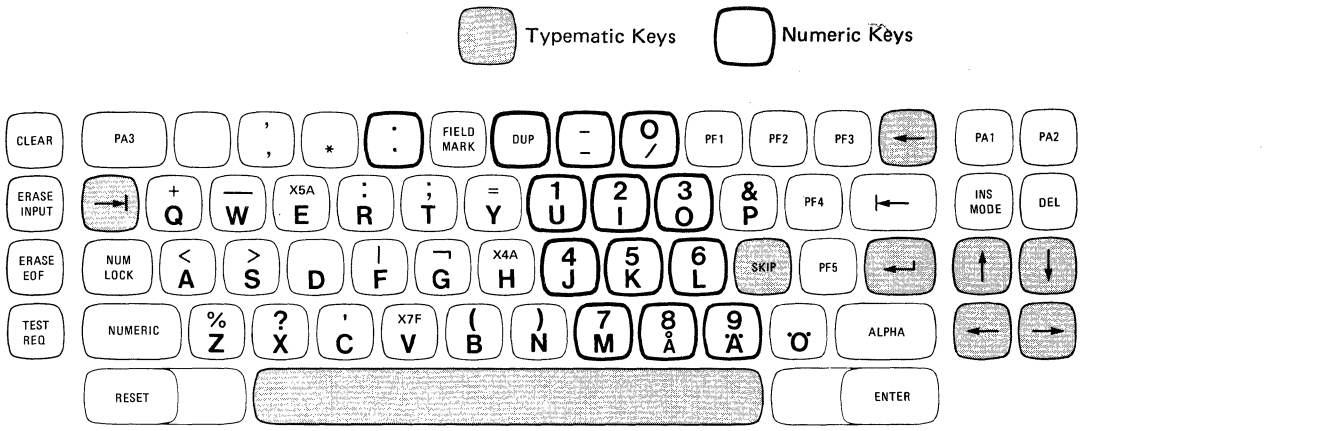


Data Entry Keypunch Layout

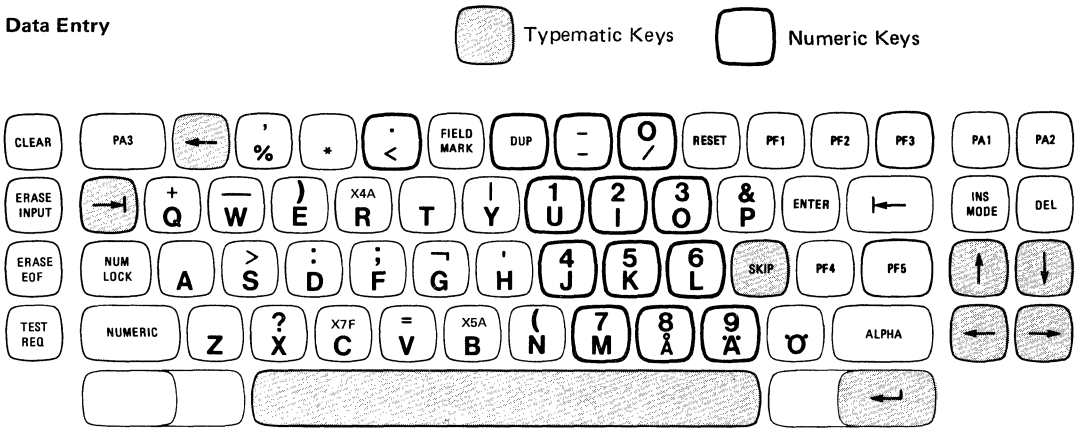


Typewriter

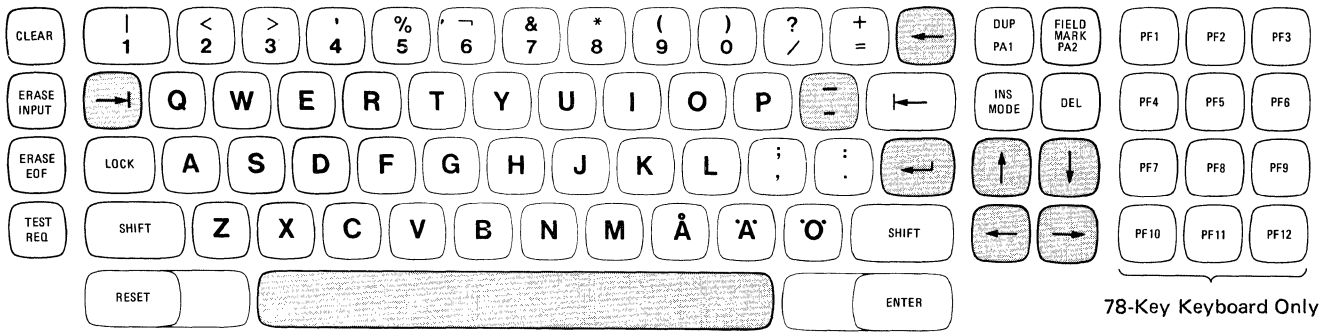
Figure 2-6. English (U.K.) Keyboards



Data Entry

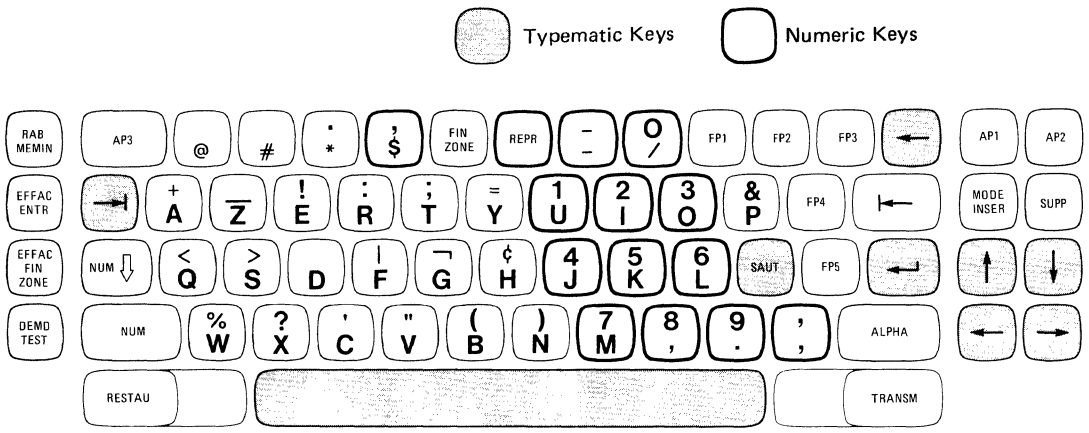


Data Entry Keypunch Layout

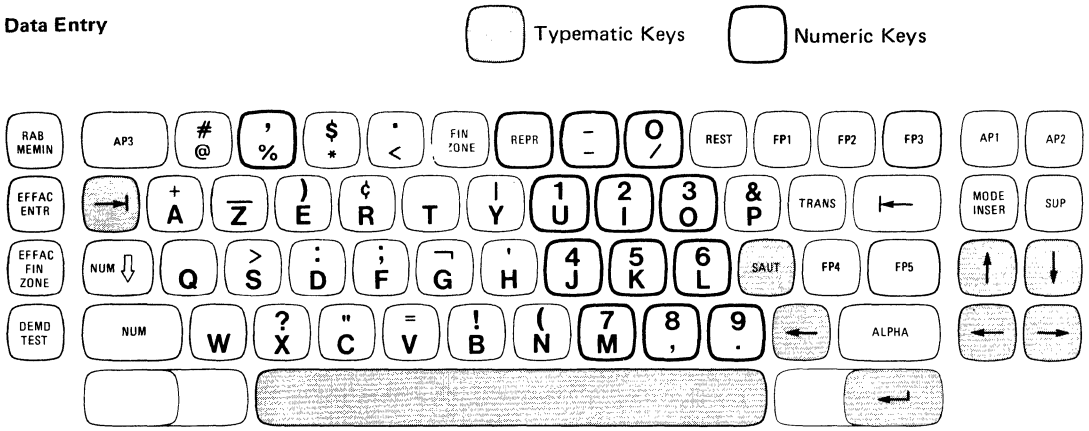


Typewriter

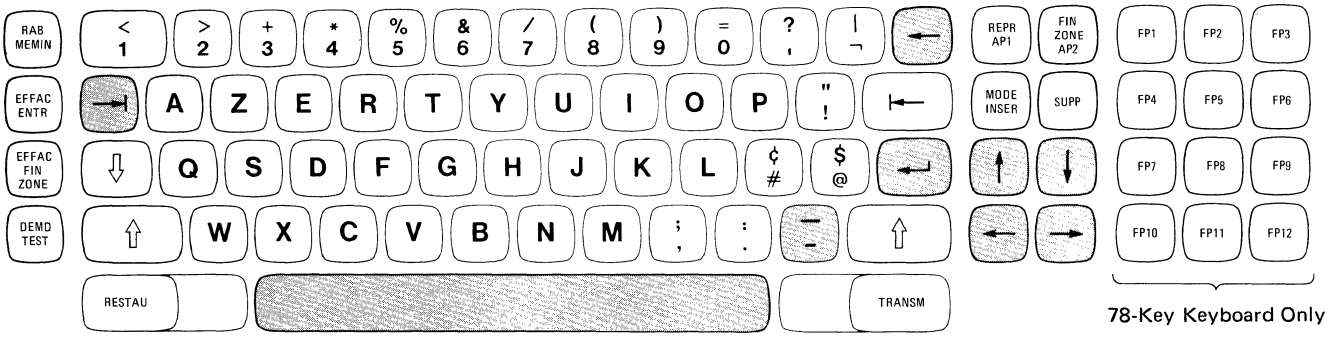
Figure 2-7. Finnish/Swedish Keyboards



Data Entry

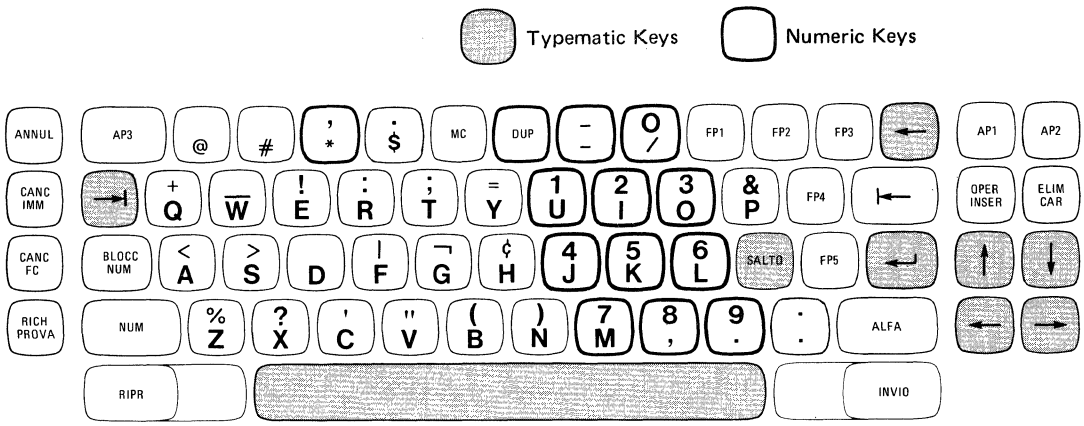


Data Entry Keypunch Layout

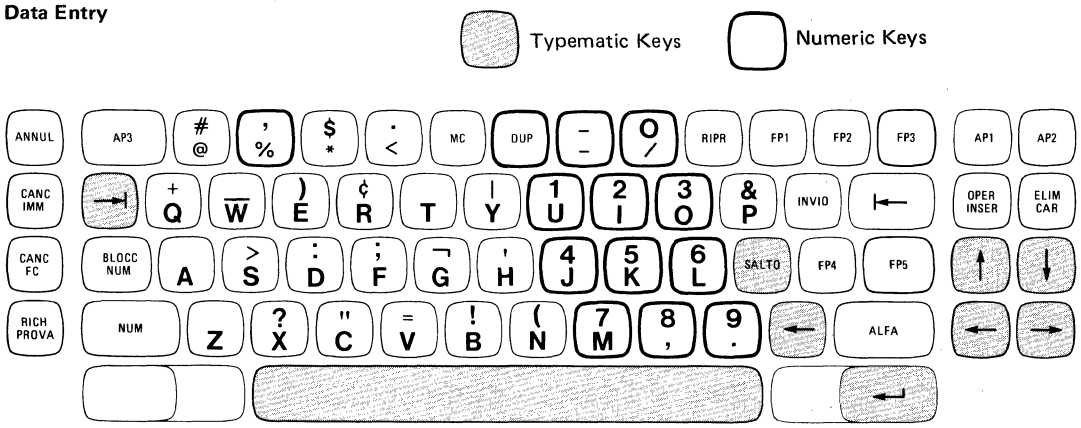


Typewriter

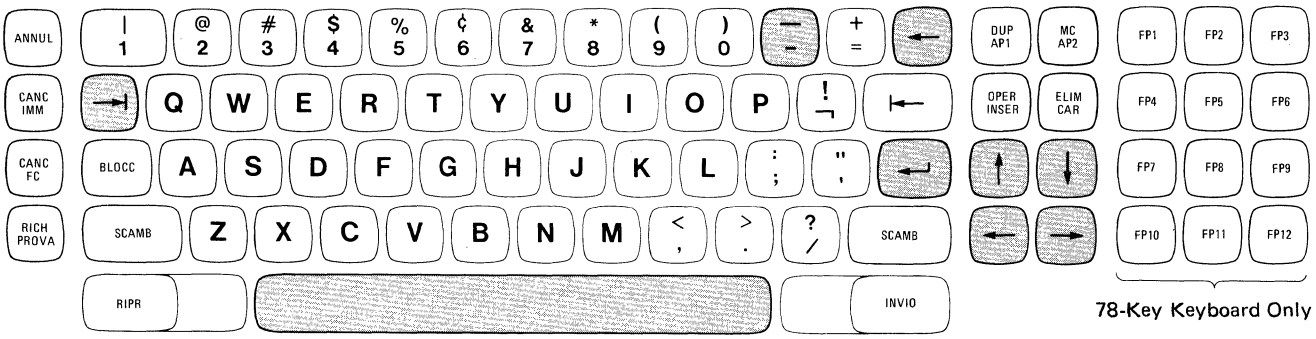
Figure 2-8. French Keyboards



Data Entry

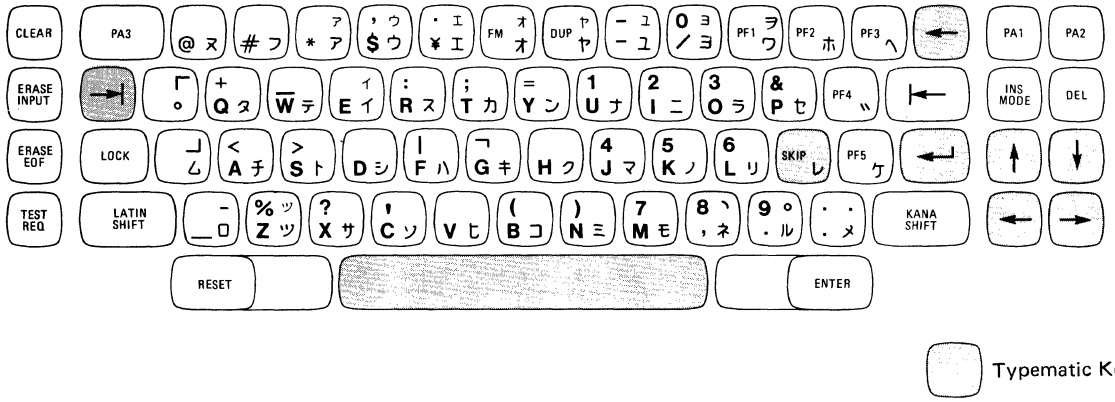


Data Entry Keypunch Layout

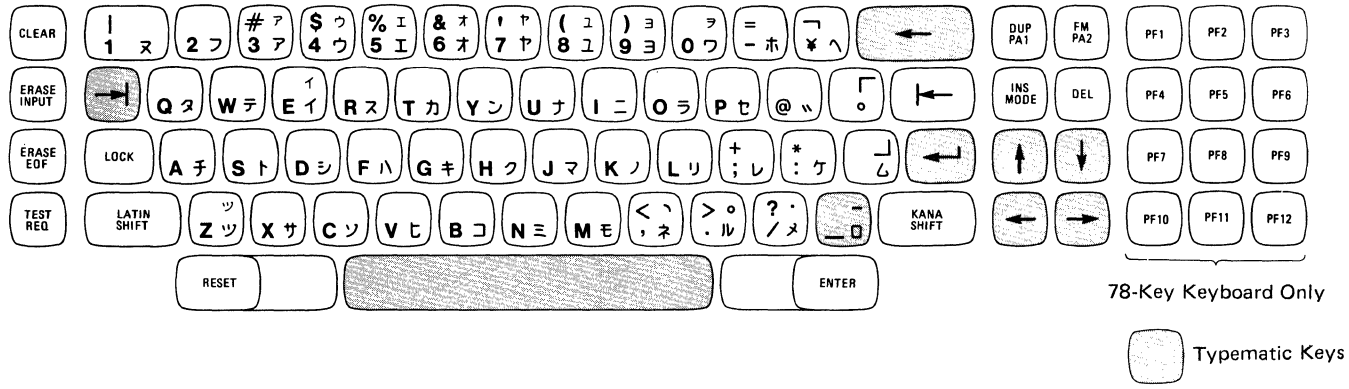


Typewriter

Figure 2-9. Italian Keyboards



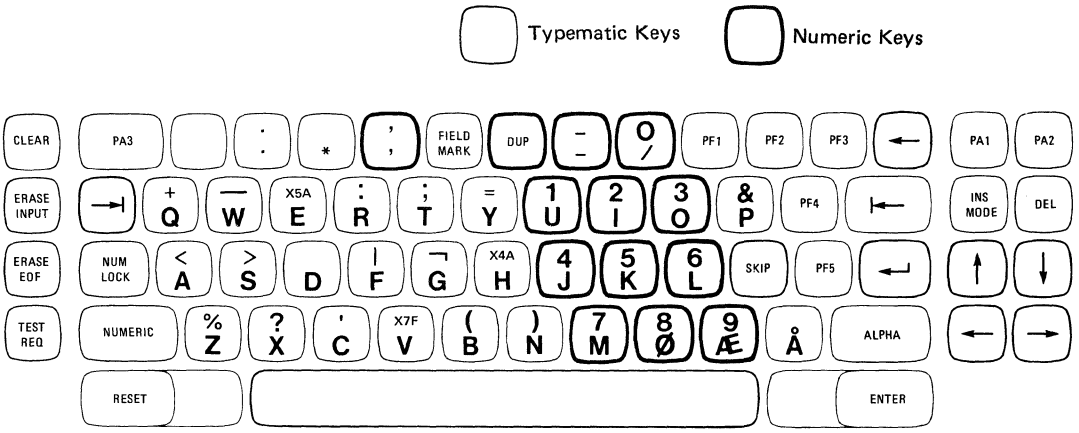
Data Entry



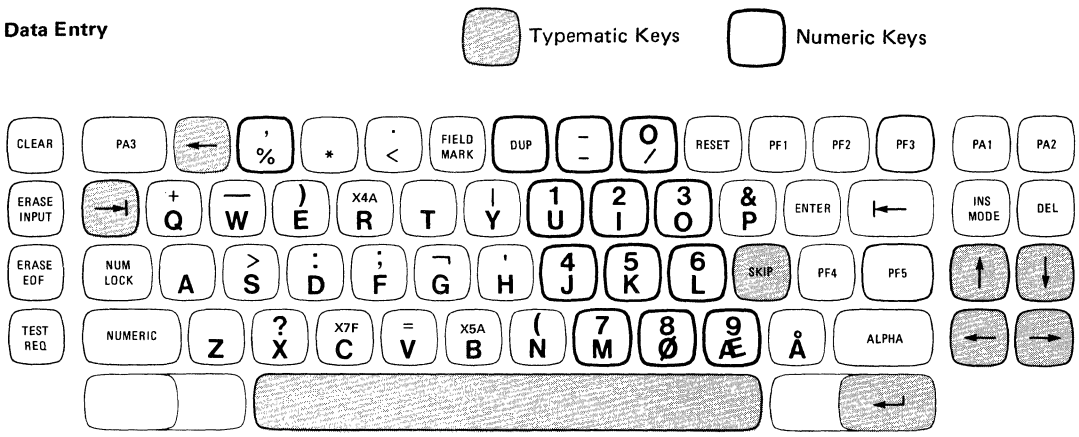
Typewriter

Note: Only the underscore (—) character on the key is typematic.

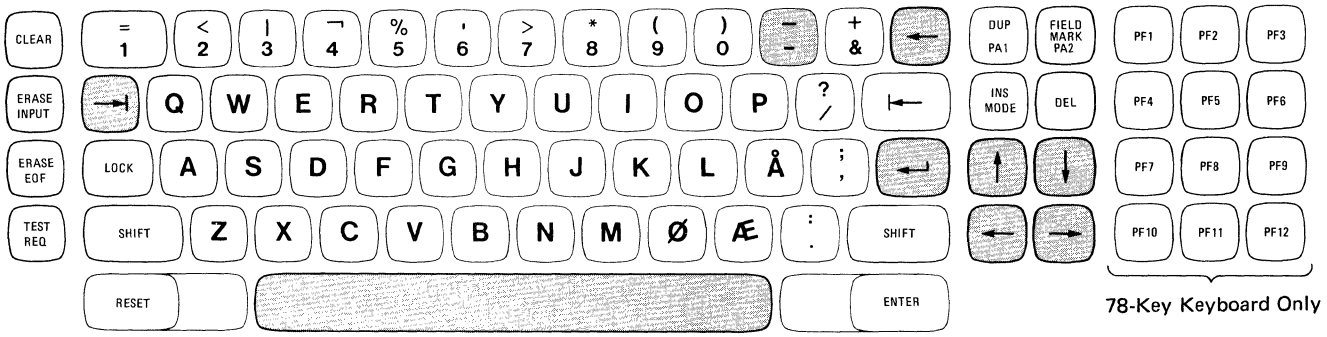
Figure 2-10. Japanese Katakana Keyboards



Data Entry

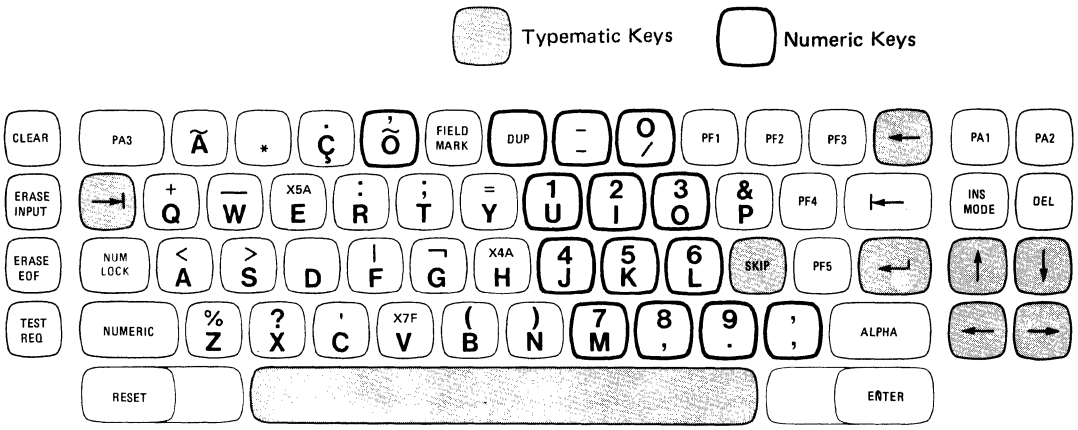


Data Entry Keypunch Layout

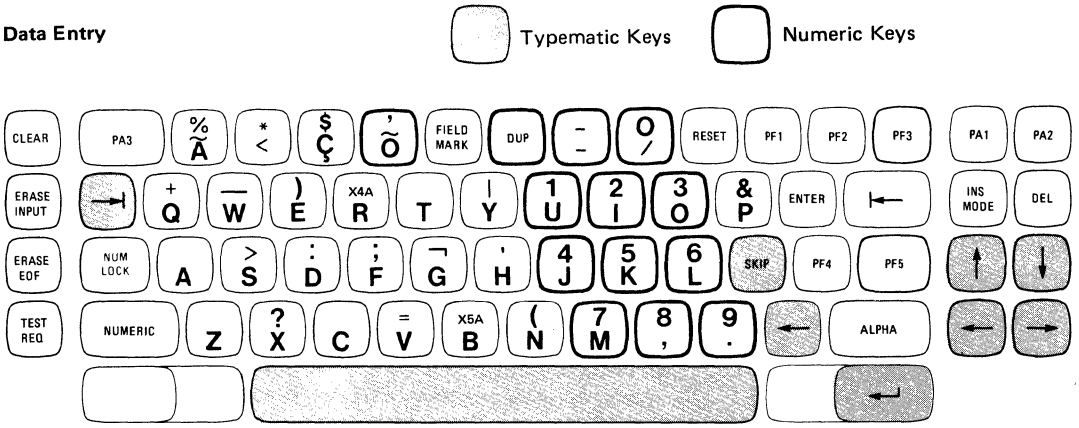


Typewriter

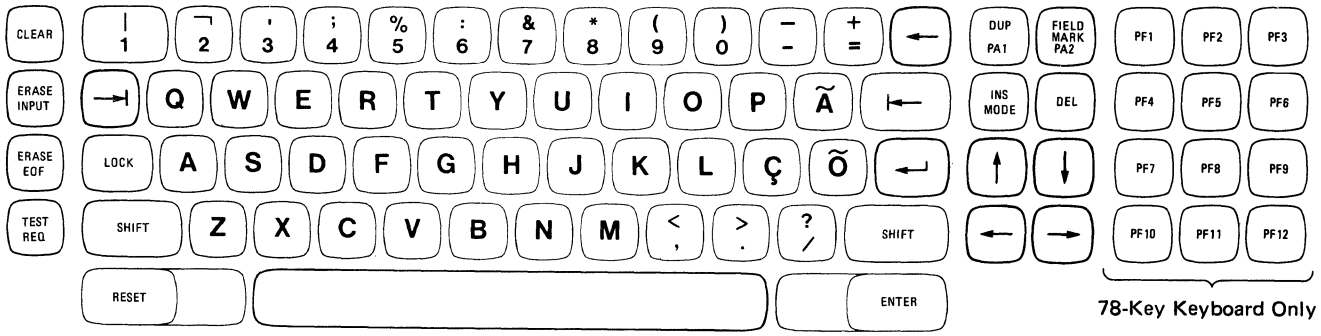
Figure 2-11. Norwegian Keyboards



Data Entry

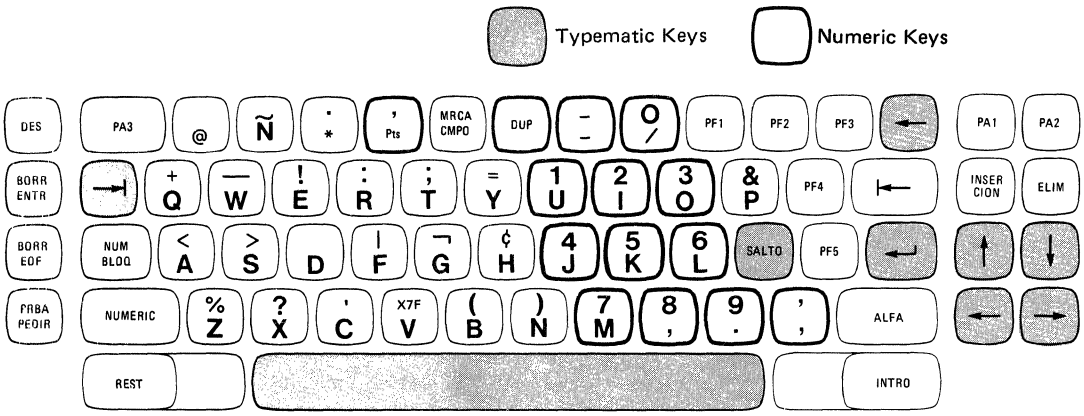


Data Entry Keypunch Layout

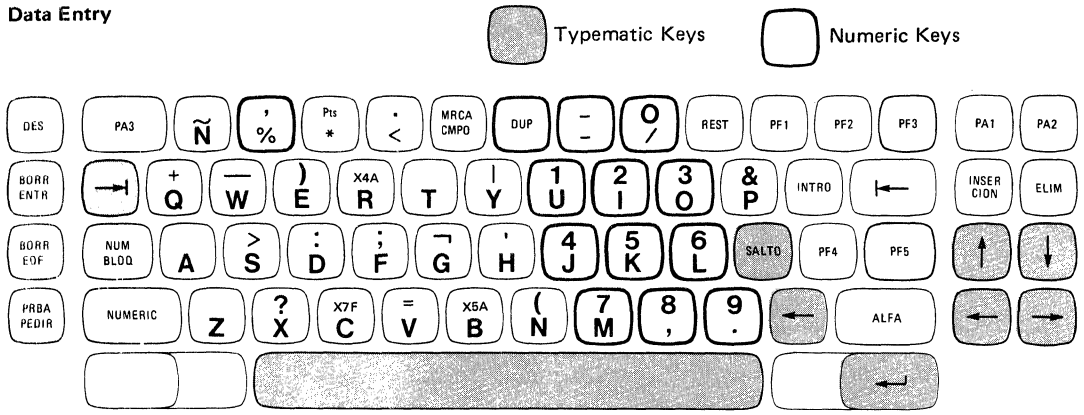


Typewriter

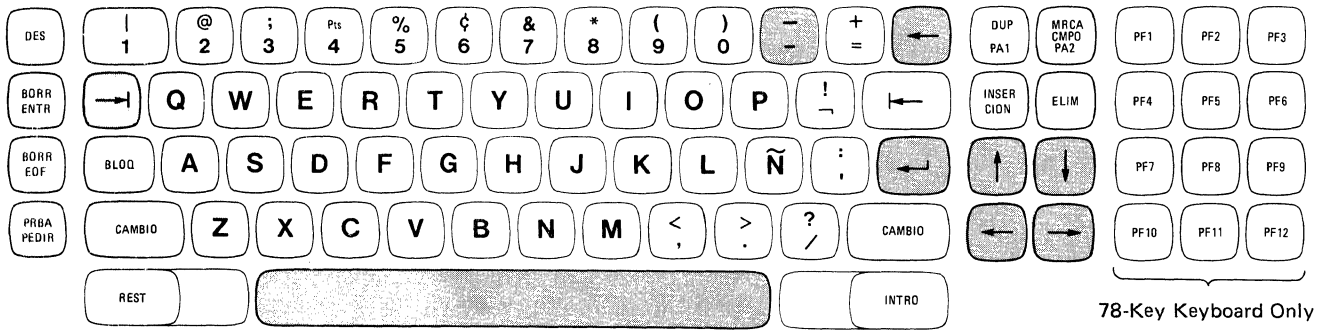
Figure 2-12. Portuguese Keyboards



Data Entry



Data Entry Keypunch Layout



Typewriter

Figure 2-13. Spanish Keyboards

Chapter 3. 3276 Control Unit Display Station, 3278 Display Station, and 3279 Color Display Station Keyboards

Keyboard Definitions

Seventy-five- and 87-key keyboards are used with the 3276, 3278, and 3279 displays. One key is added for the Katakana versions.

Displays with typewriter, data entry, or data entry keypunch keyboards may be mixed when used with the 3274 Control Unit or the 3276 Control Unit Display Station, provided that the keyboard languages are the same. One keyboard language cannot be interchanged with another keyboard language.

Twelve of the keys on the top row of the 75-key or 76-key keyboard are standard program function keys PF1 through PF12. (APL keyboards do not have PF keys in the top row: see Note below.) On 87-key and 88-key keyboards, an additional group of 12 program function keys is provided on the right-hand side of the keyboard. When an 87-key or 88-key keyboard is attached to a 3278 Model 2, 3, or 4, or to a 3279 Model 2B or 3B, the additional program function keys may have extended functions. The added functions control the extended attributes: highlighting, programmed symbols, and, on the 3279, color.

Note: On 87-key and 88-key APL and Text keyboards, the 12 program function keys to the right of the keyboard are numbered PF1 through PF12. Where these keys also control attribute selection, their function is the same as on other 87-key and 88-key keyboards.

The keyboards are:

75-Key Typewriter Keyboard: This keyboard has 49 data keys and 26 control keys. Twelve program function (PF) keys are included in the keyboard. The Japanese English and Japanese Katakana typewriter keyboards each contain one additional control key. The Swiss-French and Swiss-German typewriter keyboards have dead keys that provide a circumflex with lowercase a, e, i, o, and u, and a grave accent with lowercase a, e, i, o, and u. Another dead key provides a diaeresis with lowercase a, e, i, o, and u, and uppercase A, O, and U. The diaeresis, circumflex, and grave accent may also be combined with a space. Pressing a dead key causes the accent mark shown on the key to appear in the position marked by the cursor, but the cursor does not move. The letter that is to receive the accent is keyed next. Refer to the typewriter keyboard figure for each national language.

75-Key Data Entry Keyboard: This keyboard has 35 data keys, 10 program function keys, and 30 control keys. This keyboard layout is available in a 75-key keyboard only (76-key for Japanese Katakana). Refer to the data entry keyboard figure for each national language.

75-Key Data Entry Keypunch Keyboard: This keyboard has 35 data keys, 10 program function keys, and 30 control keys. This keyboard layout has a *reset key* function and an *enter key* function to facilitate "one-hand" typing. Refer to the data entry keypunch keyboard figure for each national language.

87-Key Typewriter Keyboard: This keyboard has 49 data keys, 26 control keys, and 12 additional program function keys. The Japanese English and Japanese Katakana keyboards each contain one additional control key, resulting in an 88-key keyboard.

Note: The extra 12 program function keys (PF13 through PF24) have been omitted from the national language keyboard figures (Figures 3-1 through 3-22) in this chapter because of art-space limitations. Figures 3-23 and 3-24, however, show an 87-key keyboard.

87-Key EBCDIC Typewriter/APL Keyboard: This keyboard has modified keytops to allow entry of 81 APL specific characters in addition to the dual-case 94-character EBCDIC set. An APL ON/OFF key is used to place the keyboard in EBCDIC typewriter or APL mode. In contrast to the 87-key typewriter keyboard *without APL,* the program function keys (PF1 through PF12) have been relocated from the top-row keyfaces of the main keyboard to the right side of the main keyboard area.

105-Character French (AZERTY) Typewriter/APL Keyboard: This keyboard looks the same as the French AZERTY, but use of the dead key provides 105 characters. A dead-key operation provides a diaeresis with lowercase e, i, u, and y, and a circumflex with lowercase a, e, i, o, and u. The diaeresis and the circumflex may also be combined with a space. Pressing a dead key causes the accent mark shown on the key to appear in the position designated by the cursor, but the cursor does not move. The letter that is to receive the accent is keyed next. There is no dead-key operation on the French AZERTY Data Entry and Data Entry Keypunch keyboards.

87-Key EBCDIC Typewriter/Text Keyboard: This keyboard has modified keytops to allow entry of 65 Text specific characters in addition to the dual-case 94-character EBCDIC set. A Text ON/OFF key is used to place the keyboard in either EBCDIC typewriter or Text mode. In contrast to the 87-key typewriter keyboard *without Text,* the program function keys (PF1 through PF12) have been relocated from the top-row keyfaces of the main keyboard to the right side of the main keyboard area.

87-Key EBCDIC Typewriter Overlay Keyboard: This typewriter layout keyboard is similar to the 87-key EBCDIC Typewriter keyboard. The 48 character keys in the typewriter section of the keyboard have smaller keytops. Blank overlays are available for the user to mark up special characters or symbols assigned to these keys when using programmed symbols (PS). The keytops of the 12 program function keys at the right of the keyboard are modified to show the attribute select functions. (See Figure 3-24.)

87-Key EBCDIC Attribute Select Typewriter Keyboard: This typewriter layout keyboard is similar to the 87-key EBCDIC typewriter keyboard. The keytops of the 12 program function keys at the right of the keyboard are modified to show the attribute select functions. (See Figure 3-23.)

87-Key EBCDIC Attribute Select Typewriter/APL Keyboard: This typewriter layout keyboard is similar to the 87-key EBCDIC typewriter/APL keyboard. The keytops of the 12 program function keys at the right of the keyboard are modified to show the attribute select functions. (See Figure 3-23.)

88-Key Japanese English and Japanese Katakana Typewriter/APL Keyboards: These keyboards have modified keytops to allow entry of 81 APL specific characters in addition to their respective national language character sets. An APL ON/OFF control key is used to place the keyboards from the national language modes in APL mode. In contrast to the 88-key national language typewriter keyboards (English/Katakana), the program function keys (PF1 through PF12) have been relocated from the top-row keyfaces of the main keyboard to the right side of the main keyboard area.

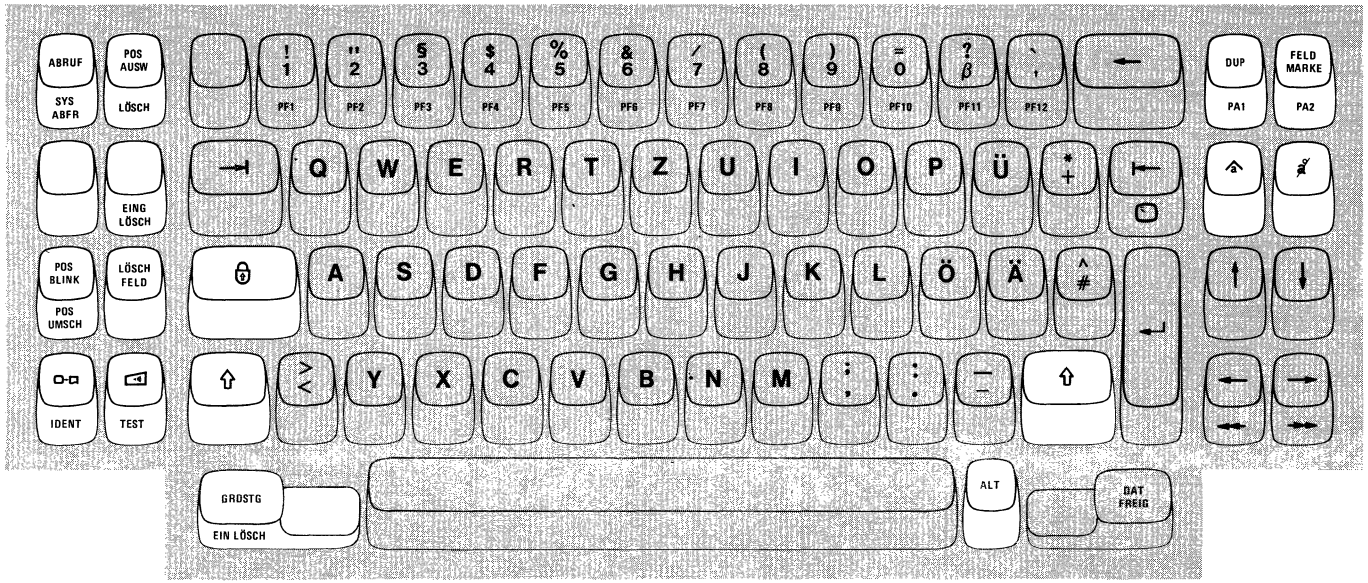
88-Key Japanese English and Japanese Katakana Typewriter Overlay Keyboards: These typewriter layout keyboards are similar to the 88-key Japanese English and Japanese Katakana typewriter keyboards. The 48 character keys in the typewriter section of the keyboard have smaller keytops. Blank overlays are available for the user to mark up special characters or symbols assigned to these keys when using programmed symbols (PS). The keytops of the 12 program function keys at the right of the keyboard are modified to show the attribute select functions. (See Figure 3-24.)

88-Key Attribute Select Japanese English and Japanese Katakana Typewriter Keyboards: These typewriter layout keyboards are similar to the 88-key Japanese English and Japanese Katakana typewriter keyboards. The keytops of the 12 program function keys at the right of the keyboard are modified to show the attribute select functions. (See Figure 3-23.)

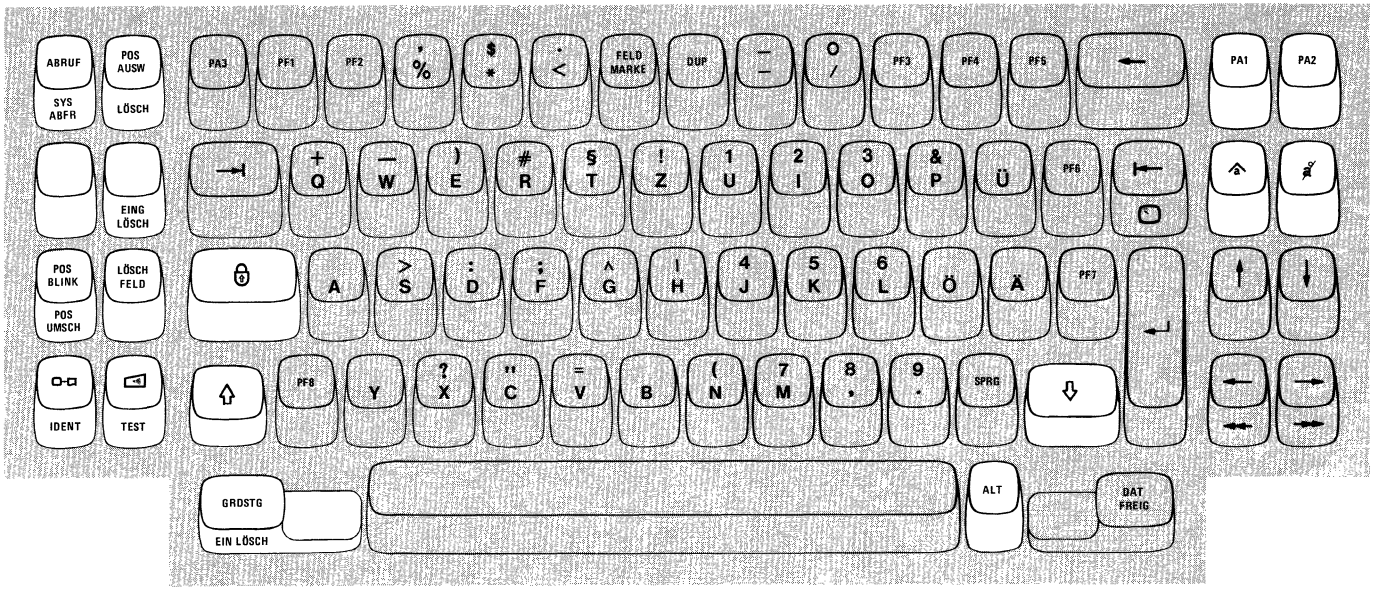
88-Key Attribute Select Japanese English and Japanese Katakana Typewriter/APL Keyboards: These typewriter layout keyboards are similar to the 88-key Japanese English and Japanese Katakana typewriter/APL keyboards. The keytops of the 12 program function keys at the right of the keyboard have been modified to show the attribute select functions. (See Figure 3-23.)

Keyboard Layouts

Figures 3-1 through 3-22 illustrate the keyboard layouts for the various national languages. Figures 3-23 and 3-24 illustrate the attribute select and overlay keyboards with English (U.S.) used as the sample language.

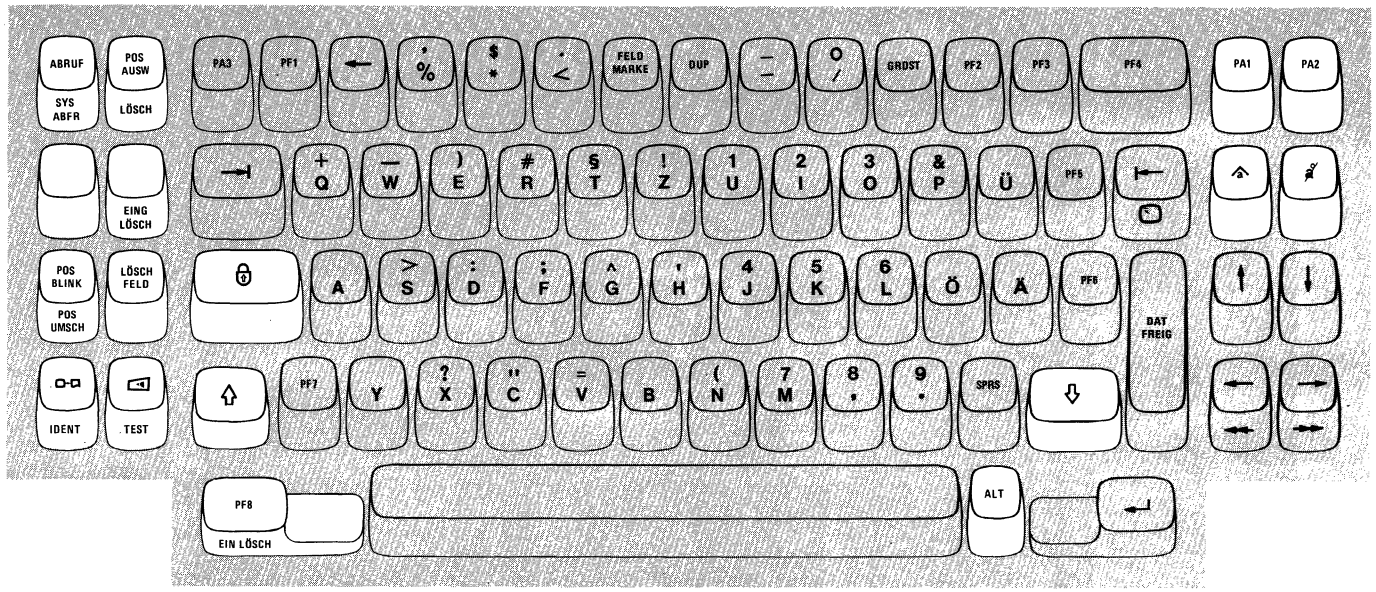


Typewriter Keyboard

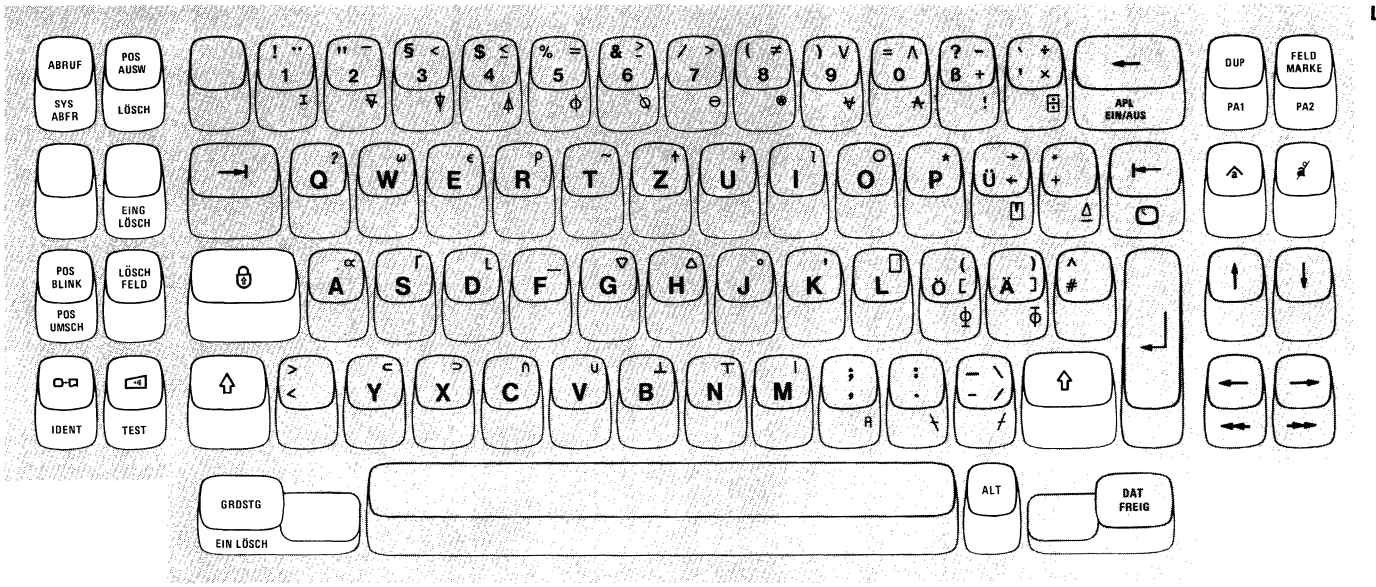


Data Entry Keyboard

Figure 3-1 (Part 1 of 2). Austrian/German Keyboards

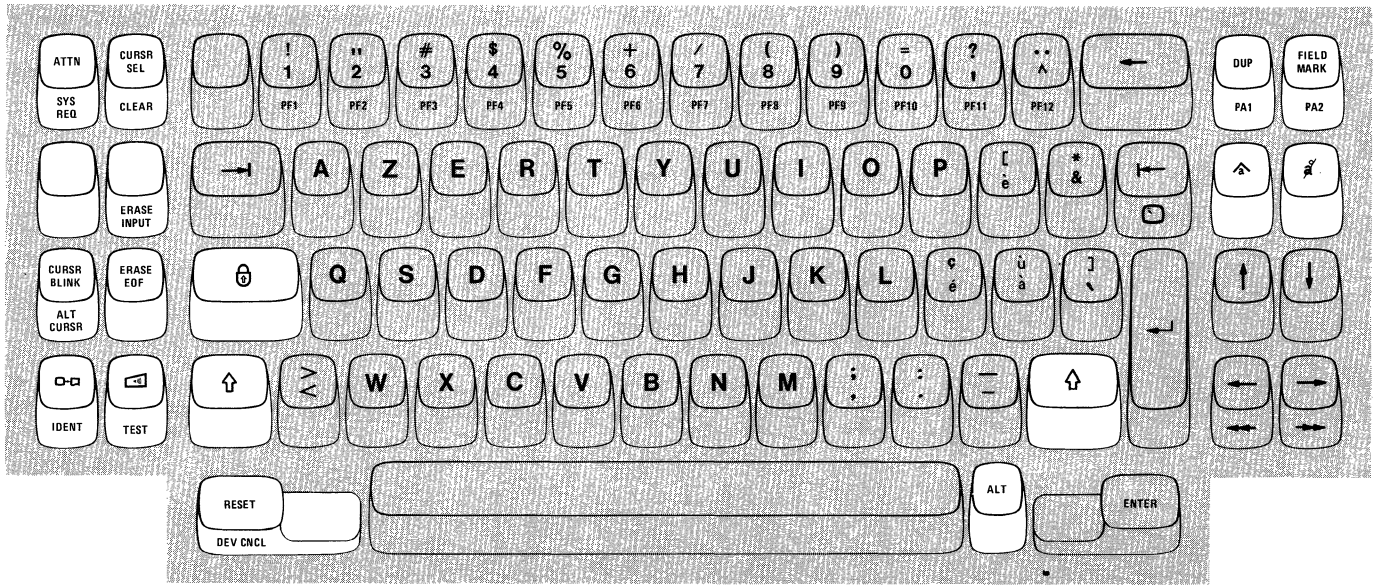


Data Entry Keypunch Keyboard

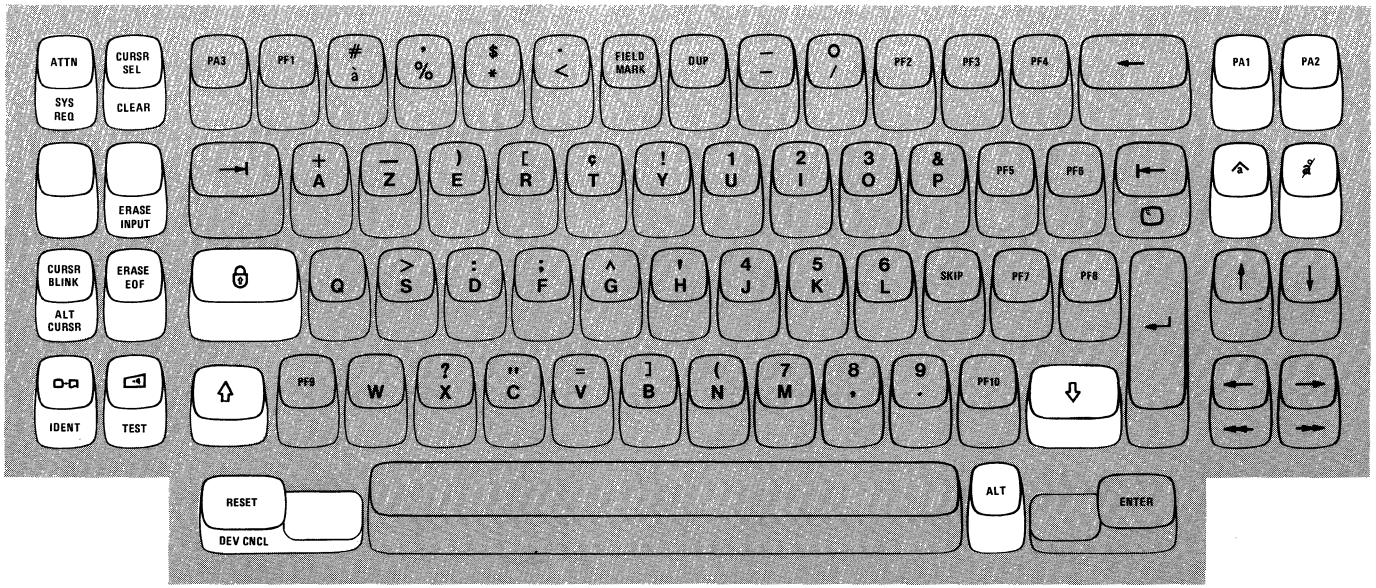


APL Keyboard

Figure 3-1 (Part 2 of 2). Austrian/German Keyboards

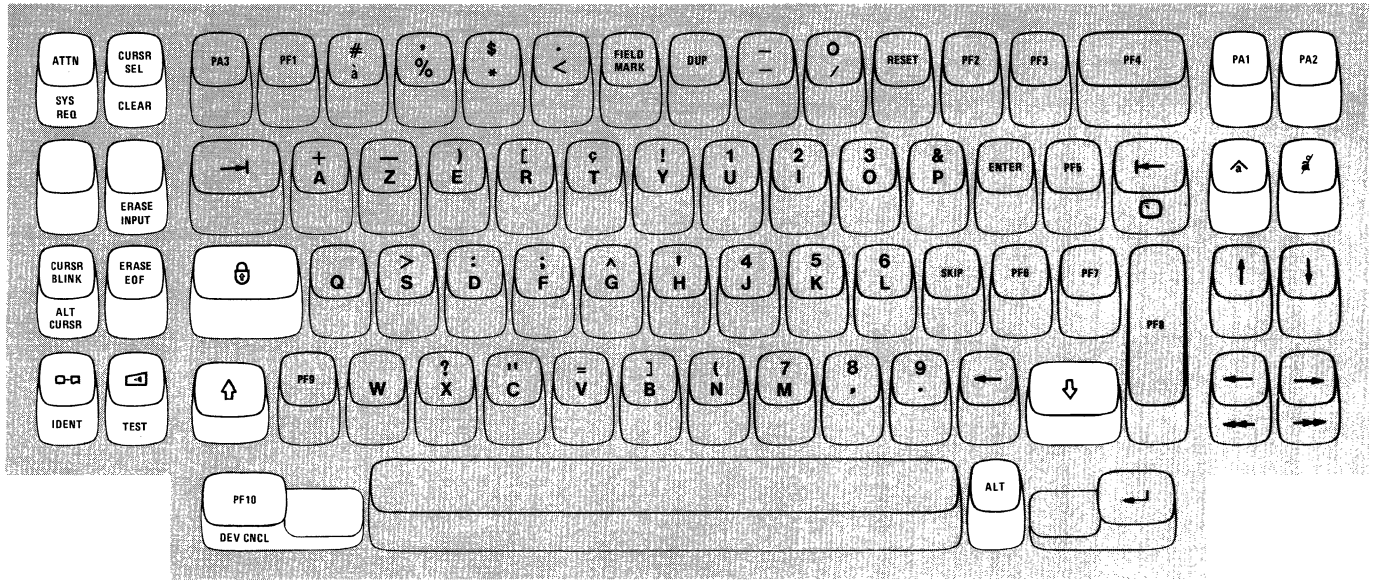


Typewriter Keyboard

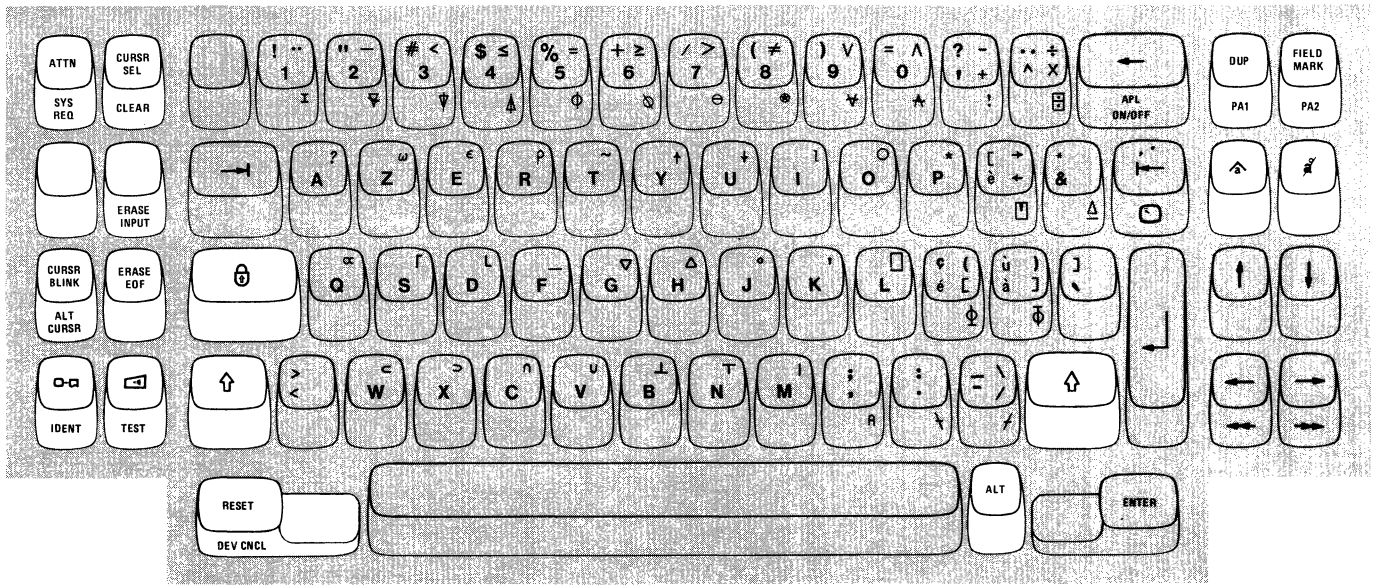


Data Entry Keyboard

Figure 3-2 (Part 1 of 2). Belgian Keyboards

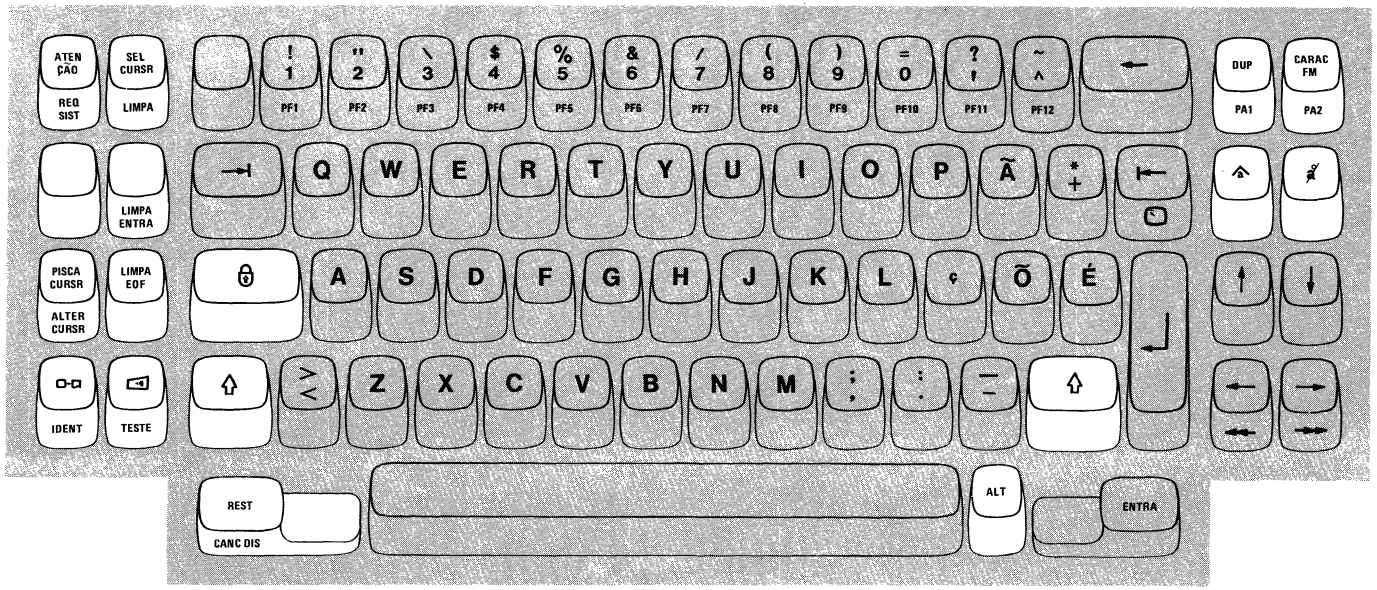


Data Entry Keypunch Keyboard

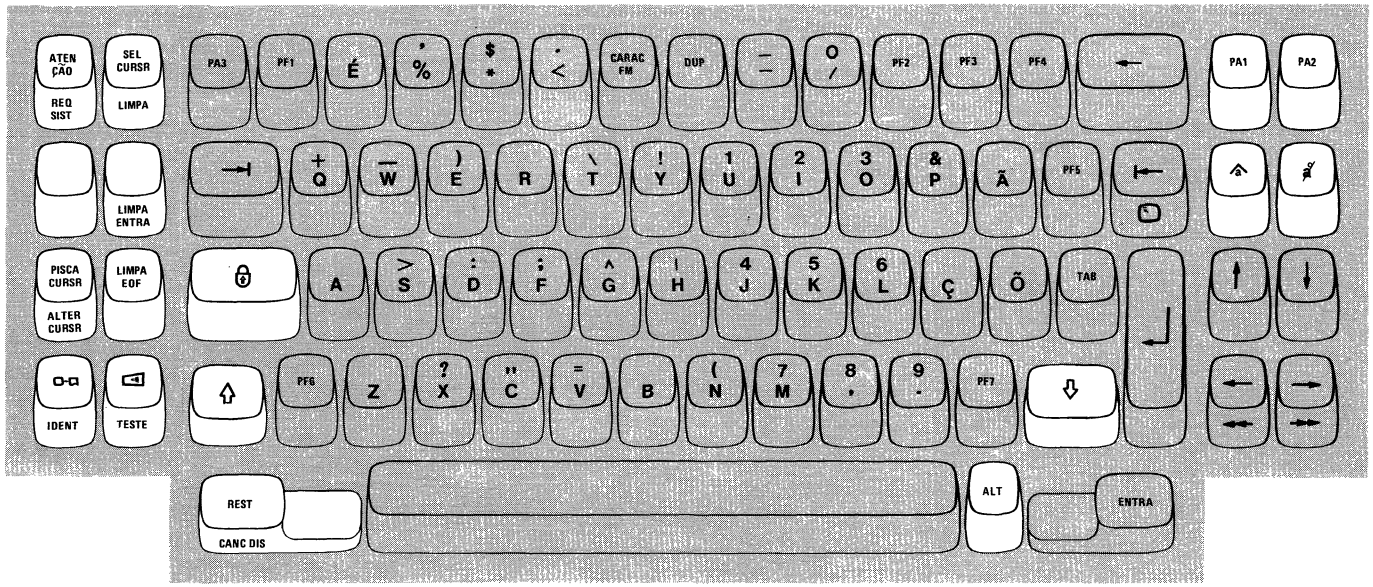


APL Keyboard

Figure 3-2 (Part 2 of 2). Belgian Keyboards

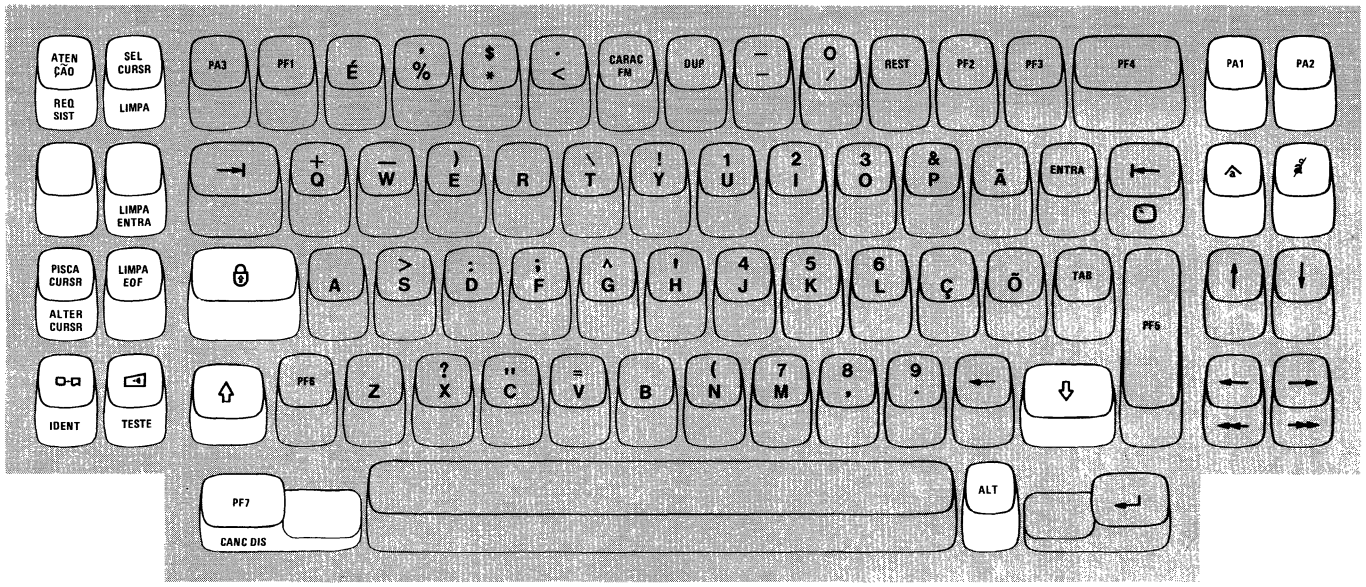


Typewriter Keyboard

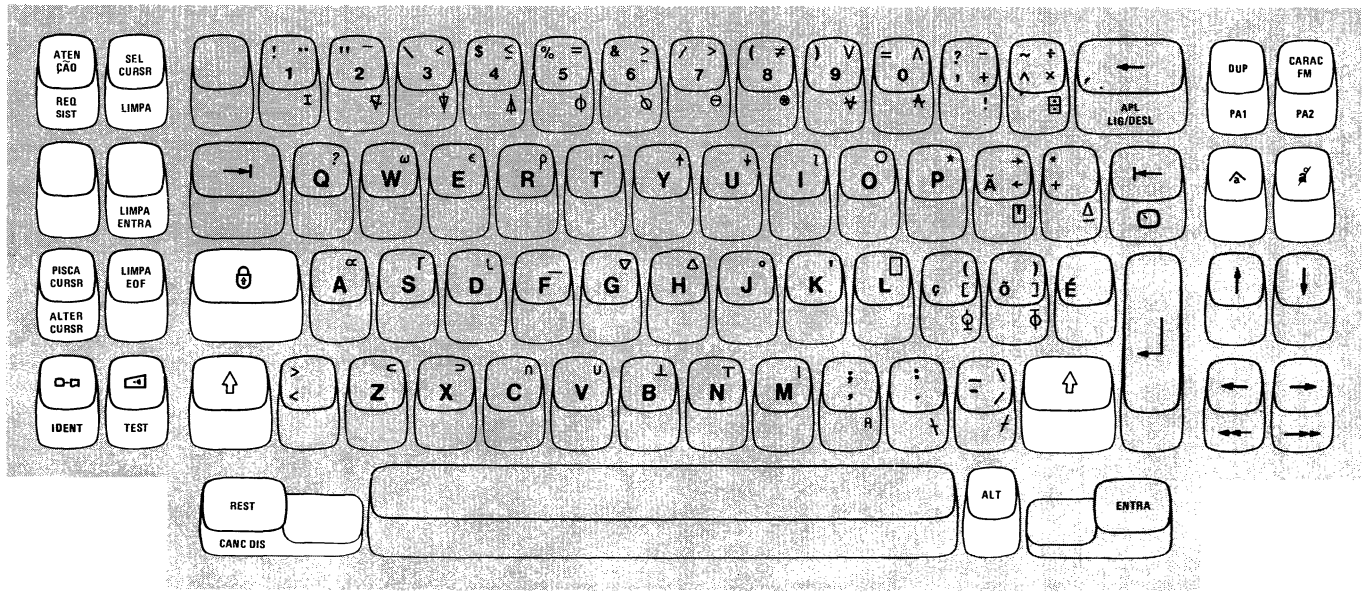


Data Entry Keyboard

Figure 3-3 (Part 1 of 2). Brazilian Keyboards

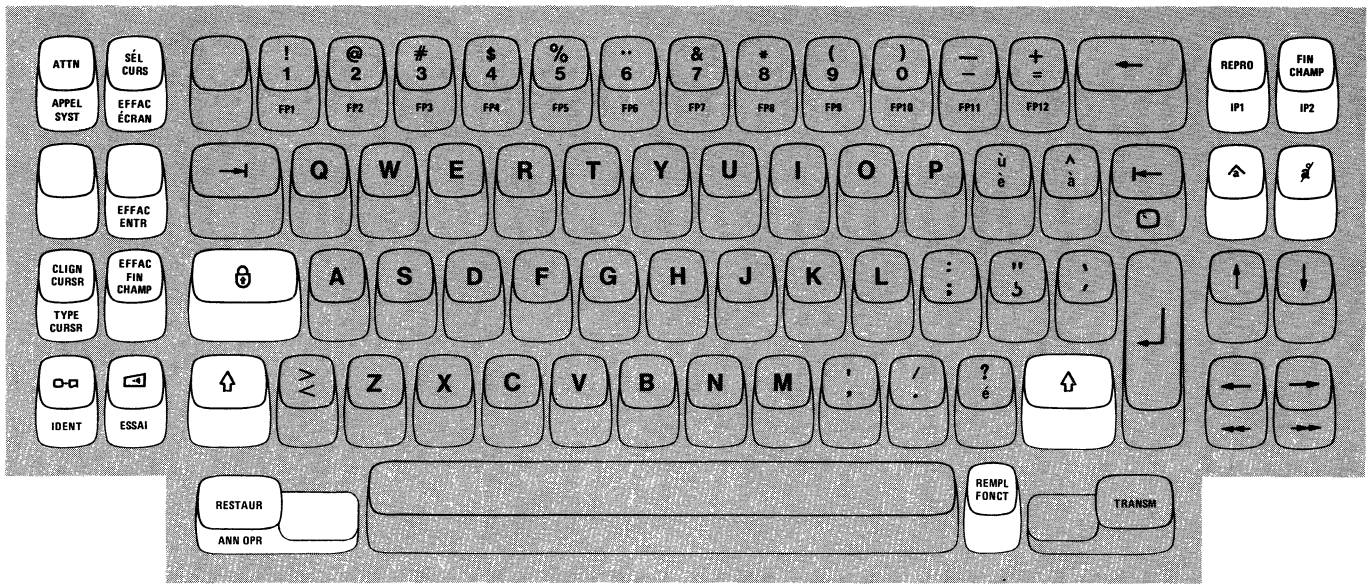


Data Entry Keypunch Keyboard

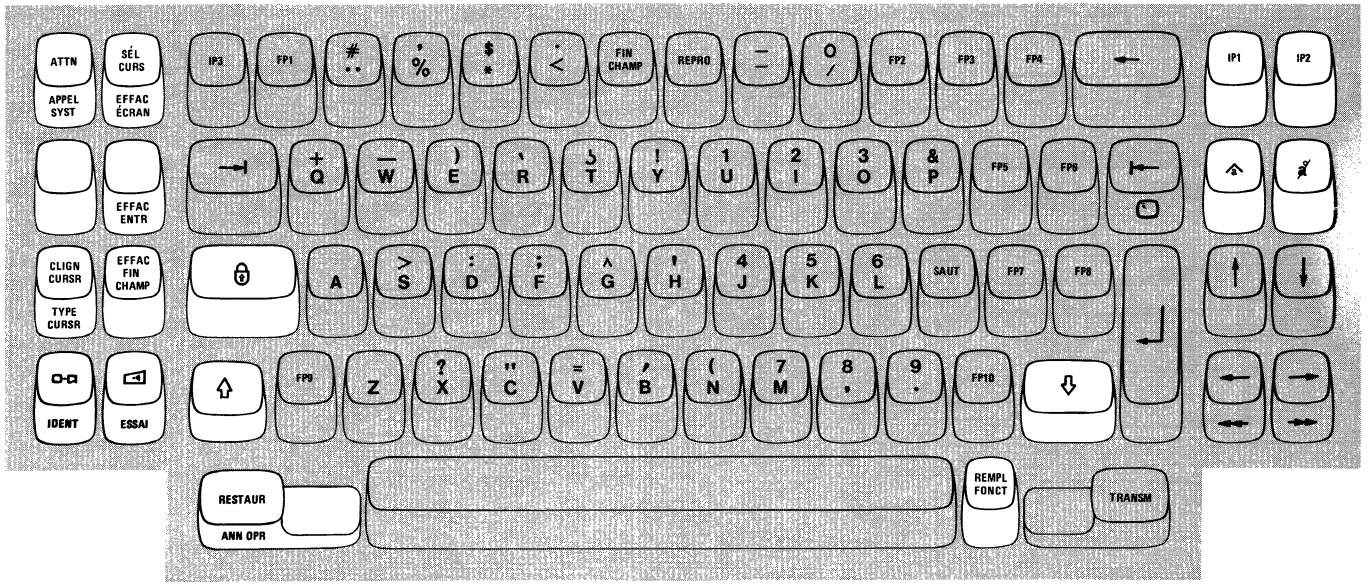


APL Keyboard

Figure 3-3 (Part 2 of 2). Brazilian Keyboards

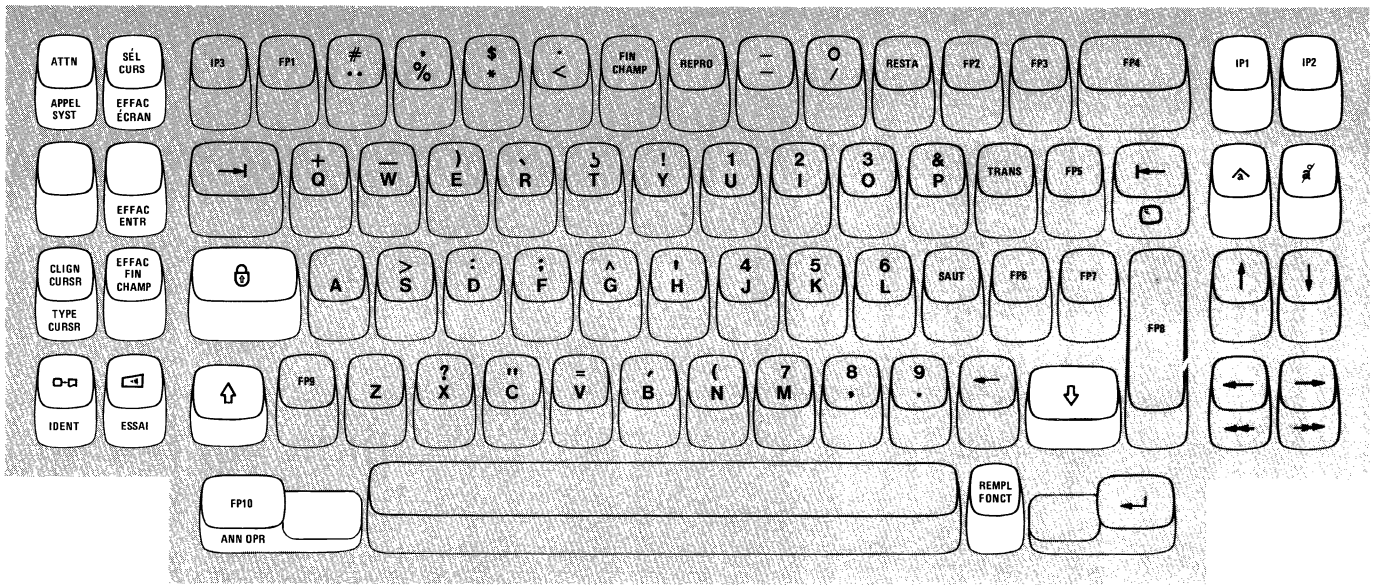


Typewriter Keyboard

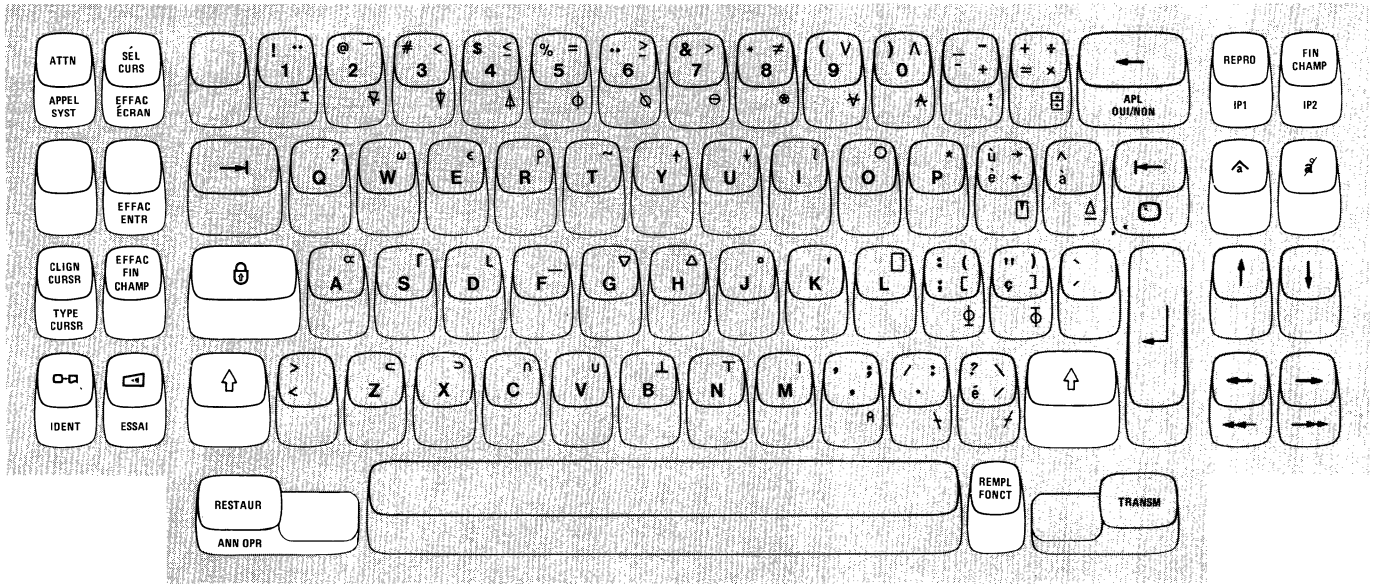


Data Entry Keyboard

Figure 3-4 (Part 1 of 2). Canadian-French Keyboards

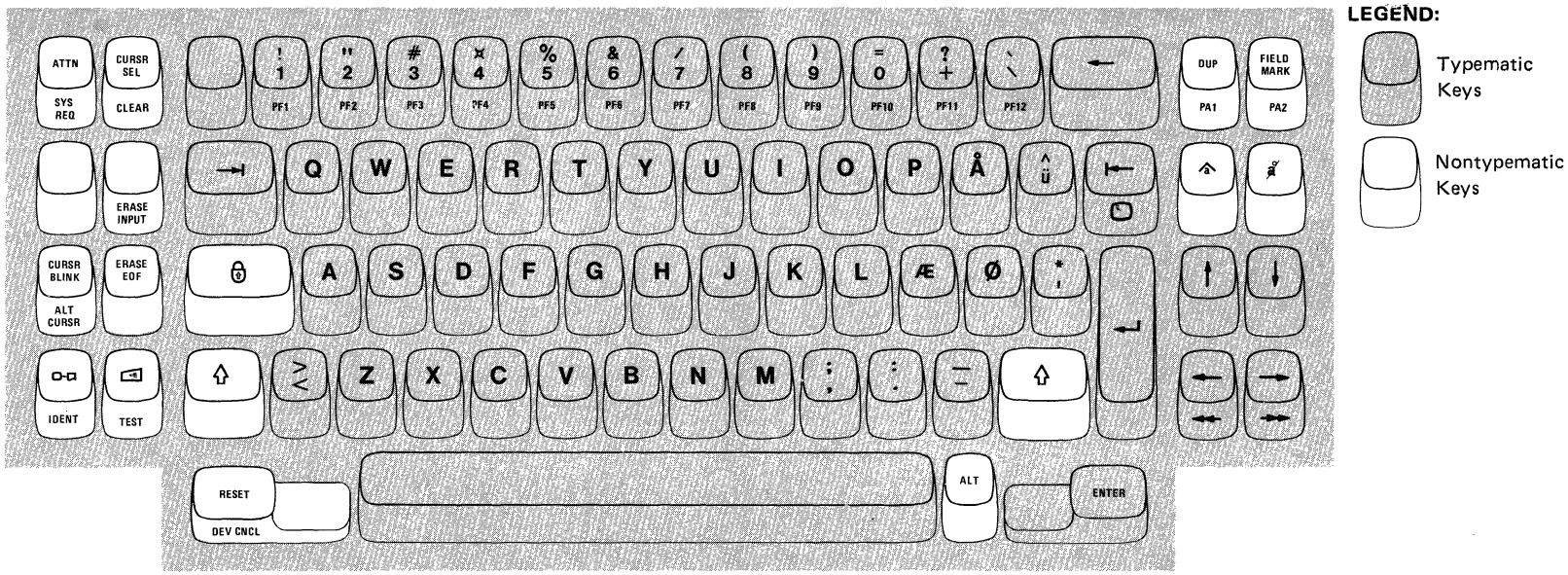


Data Entry Keypunch Keyboard

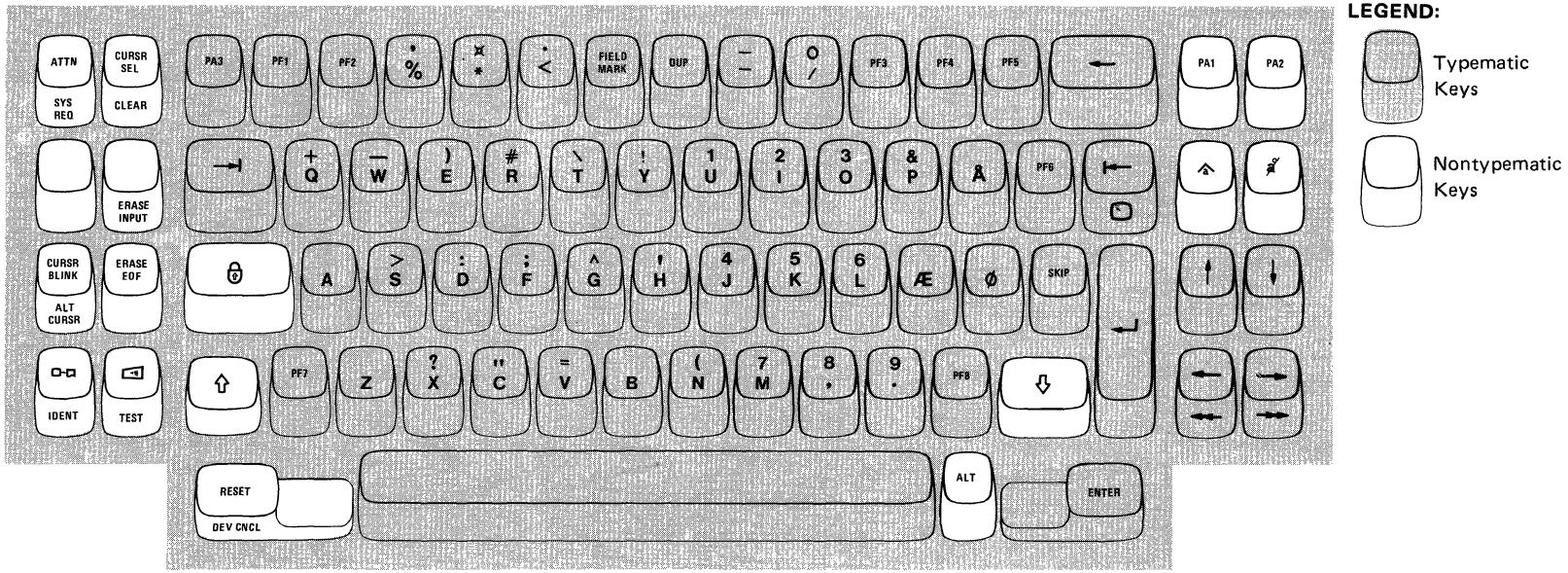


APL Keyboard

Figure 3-4 (Part 2 of 2). Canadian-French Keyboards

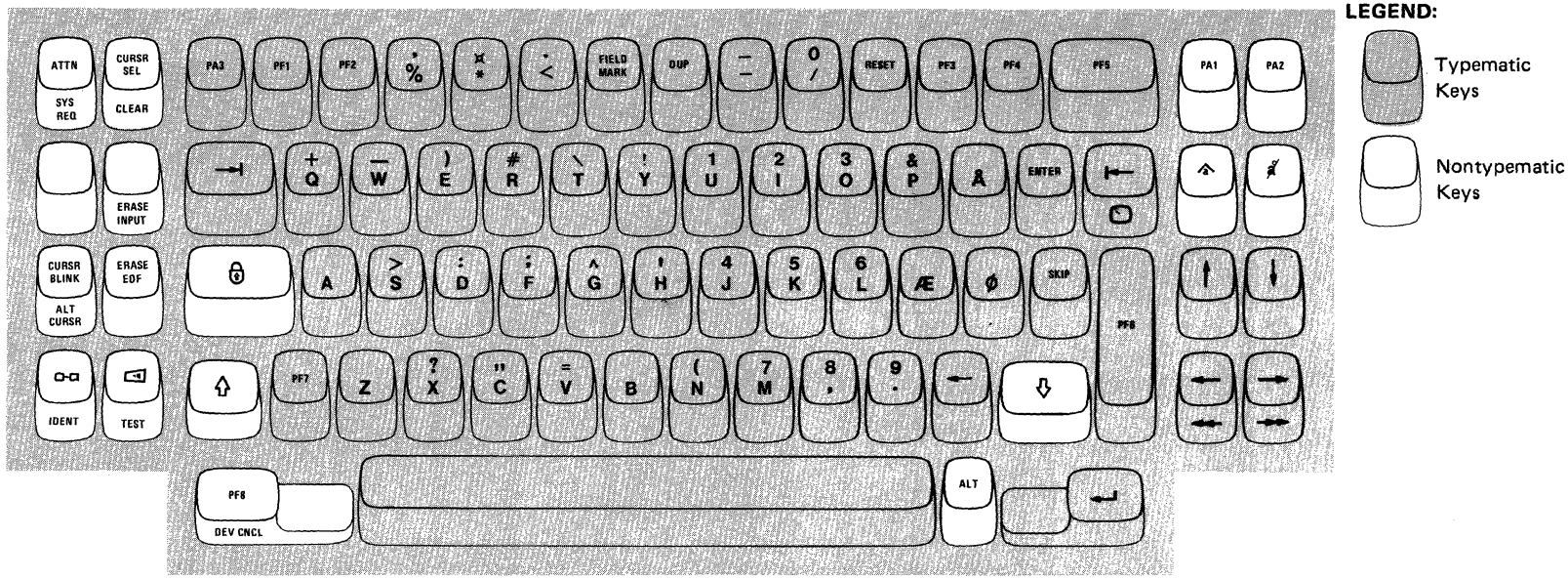


Typewriter Keyboard

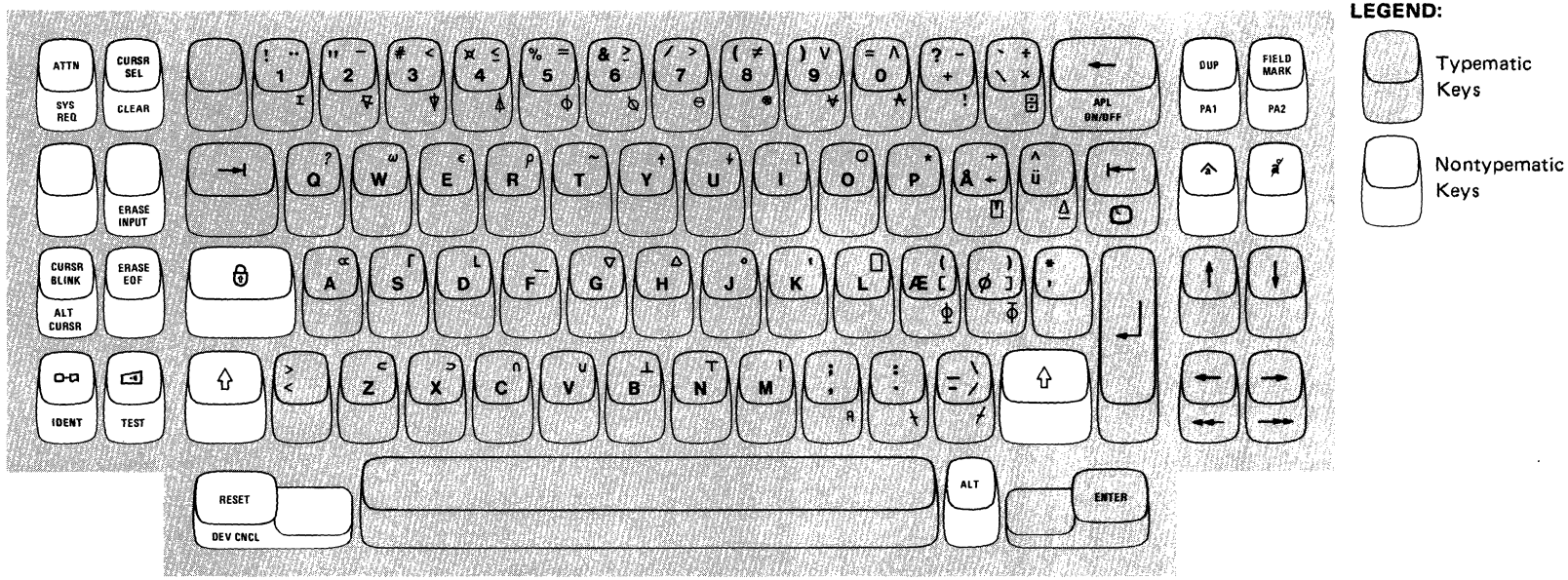


Data Entry Keyboard

Figure 3-5 (Part 1 of 2). Danish Keyboards

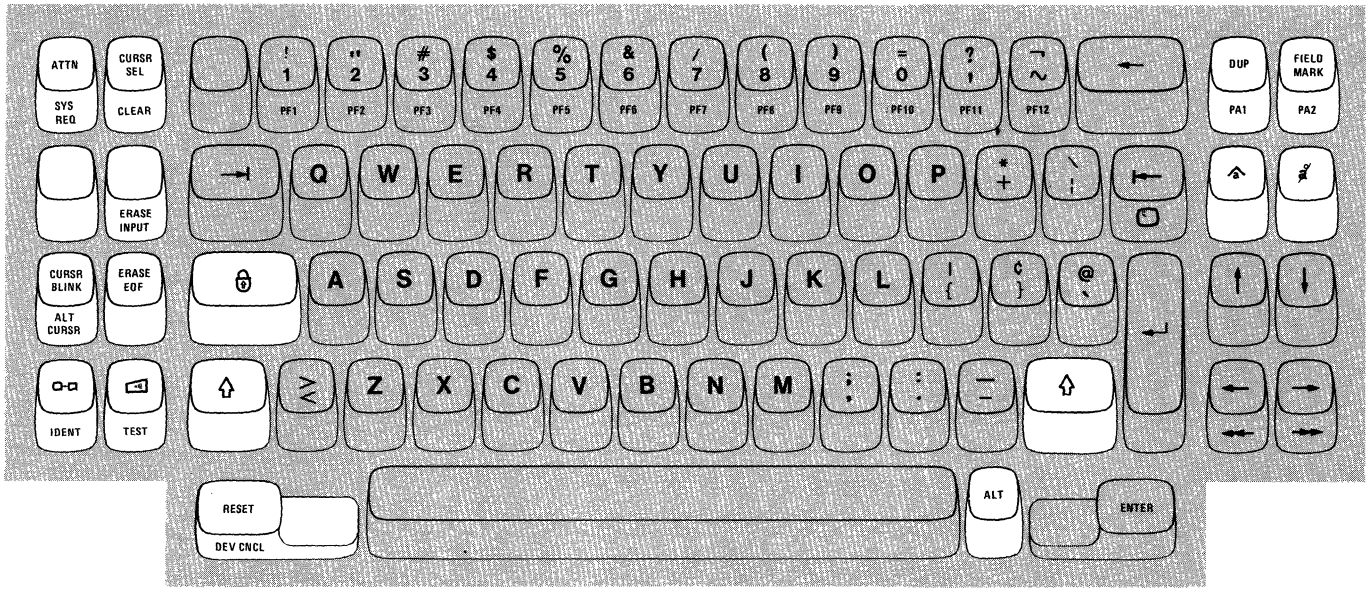


Data Entry Keypunch Keyboard

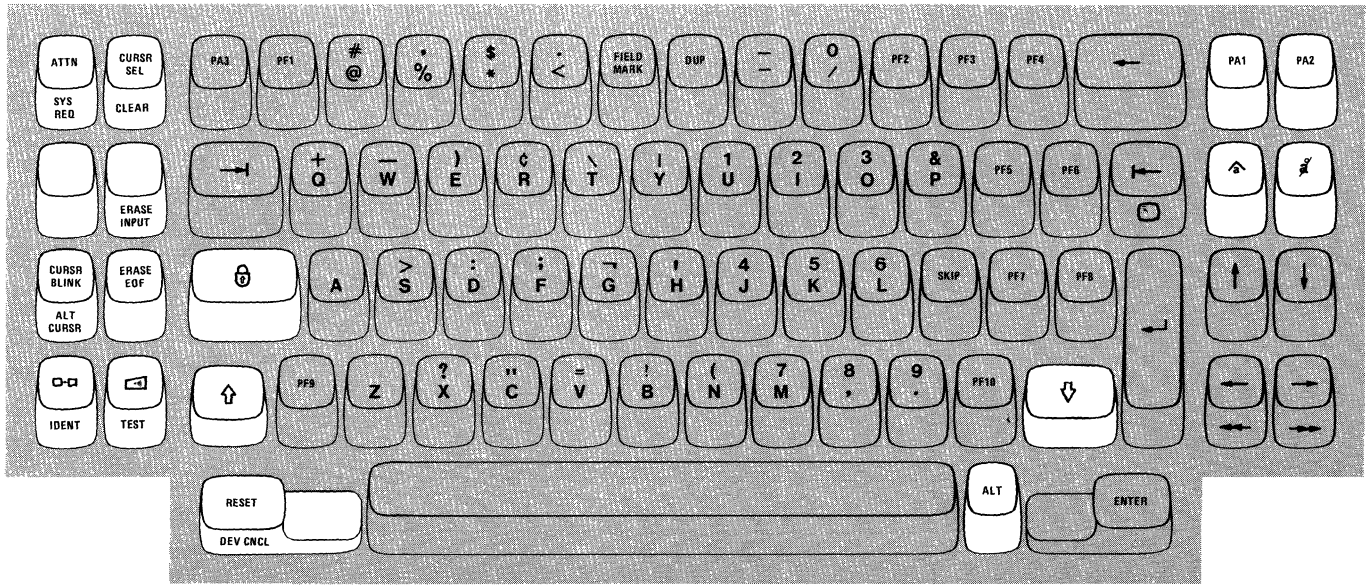


APL Keyboard

Figure 3-5 (Part 2 of 2). Danish Keyboards

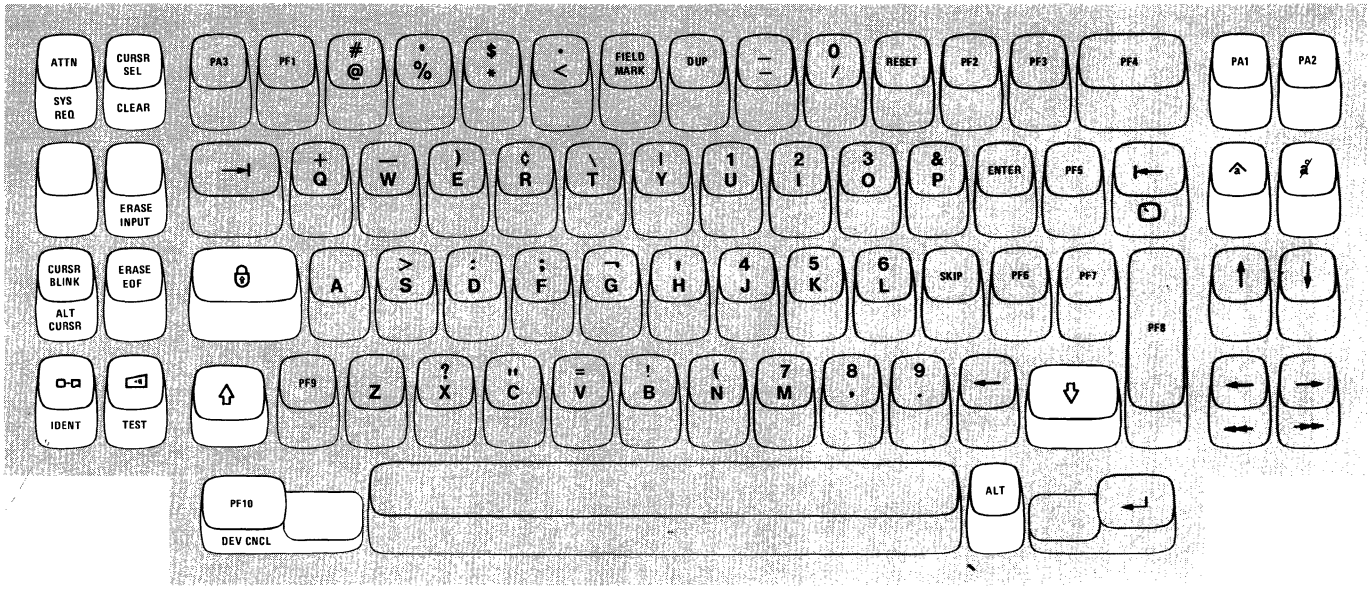


Typewriter Keyboard

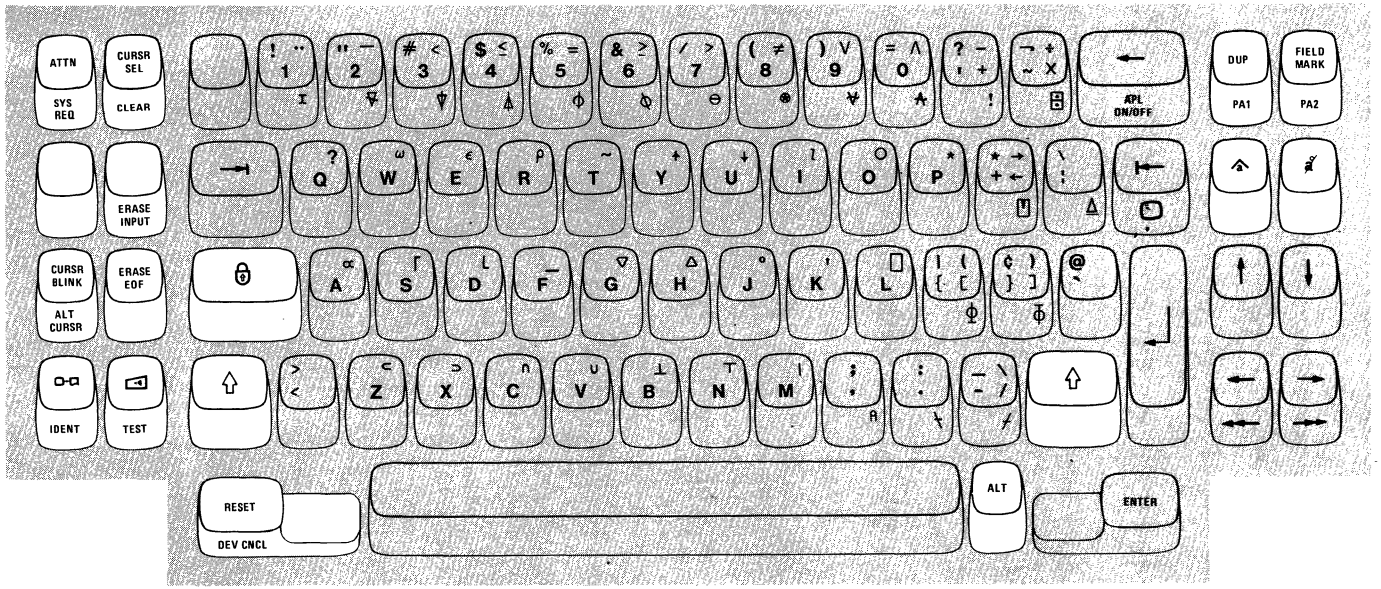


Data Entry Keyboard

Figure 3-6 (Part 1 of 2). EBCDIC (WT) Keyboards

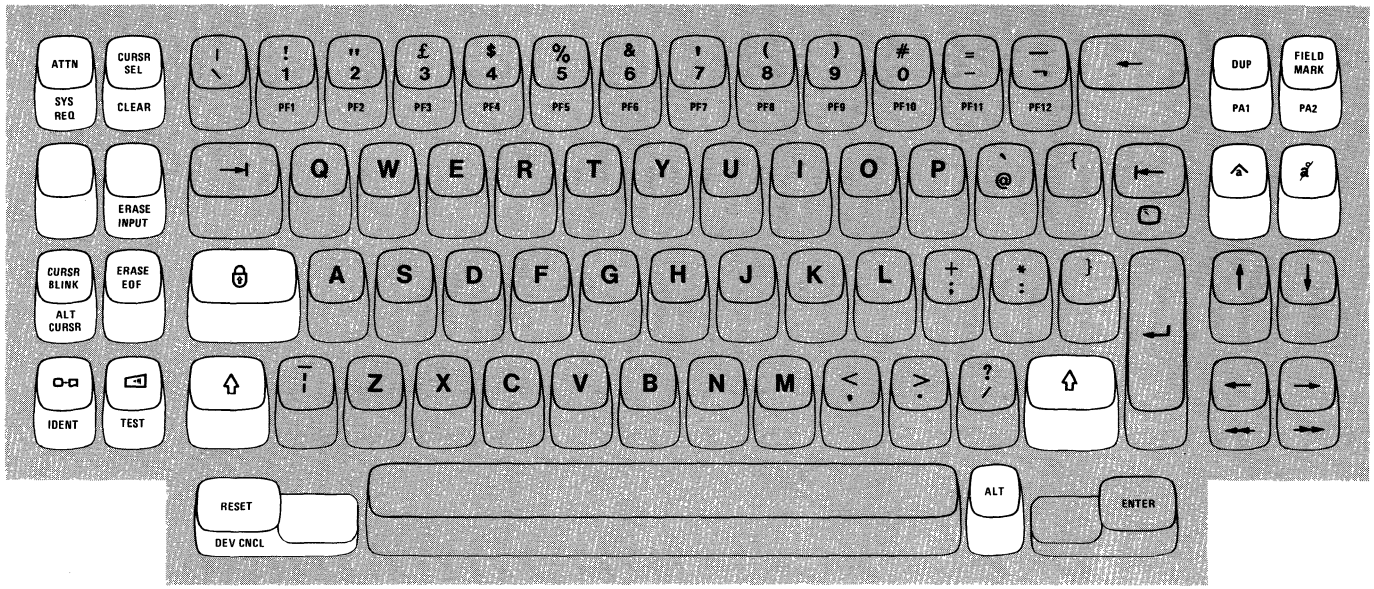


Data Entry Keypunch Keyboard

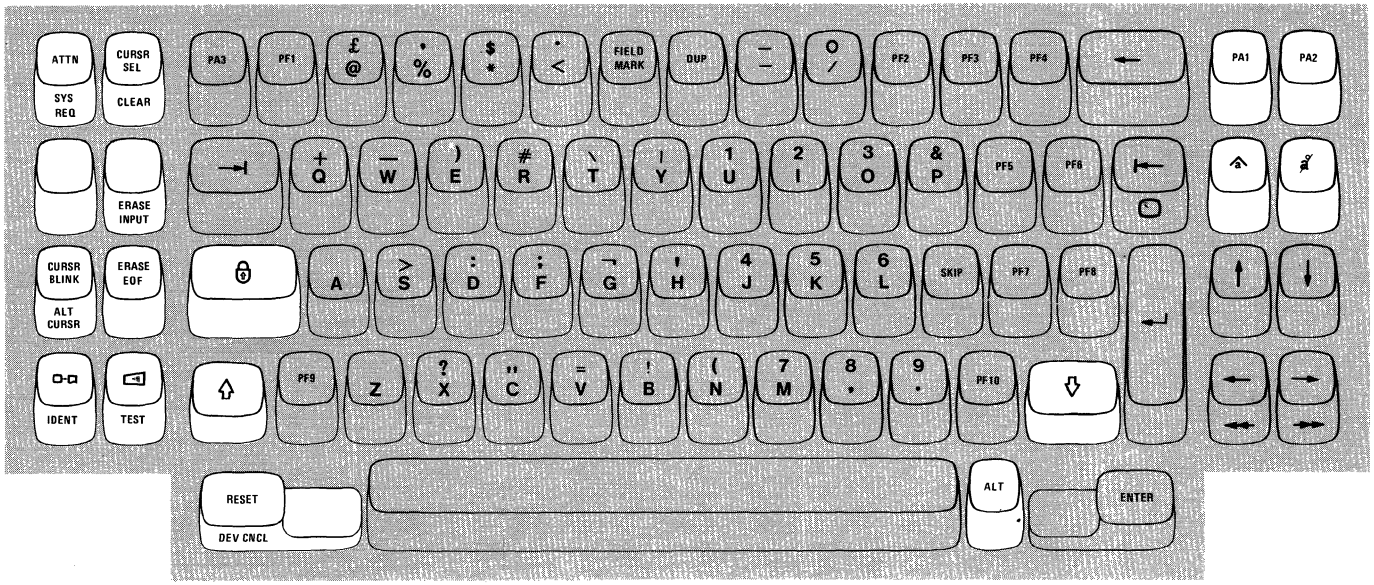


APL Keyboard

Figure 3-6 (Part 2 of 2). EBCDIC (WT) Keyboards

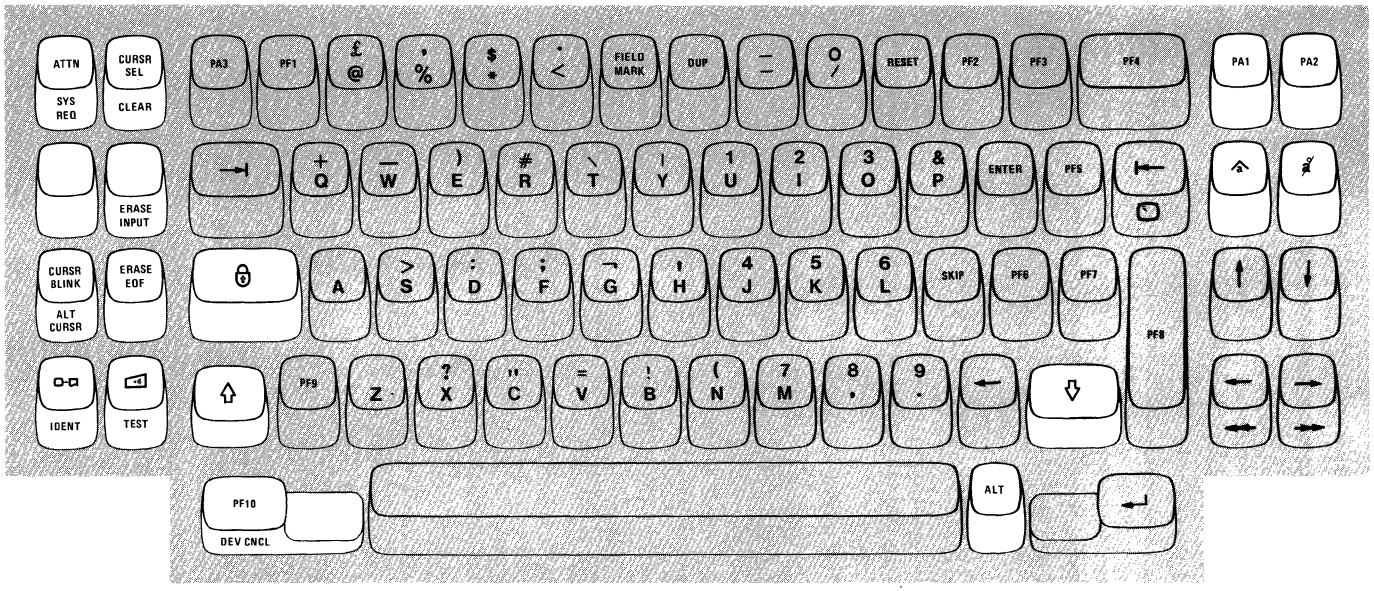


Typewriter Keyboard

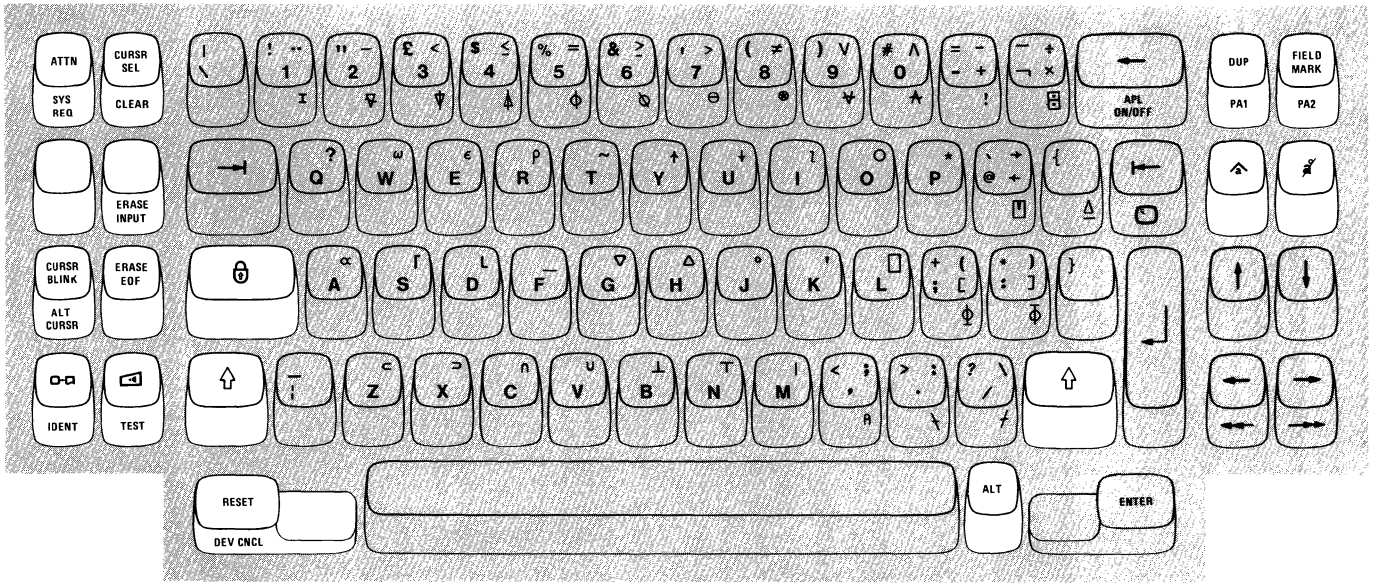


Data Entry Keyboard

Figure 3-7 (Part 1 of 2). English (U.K.) Keyboards

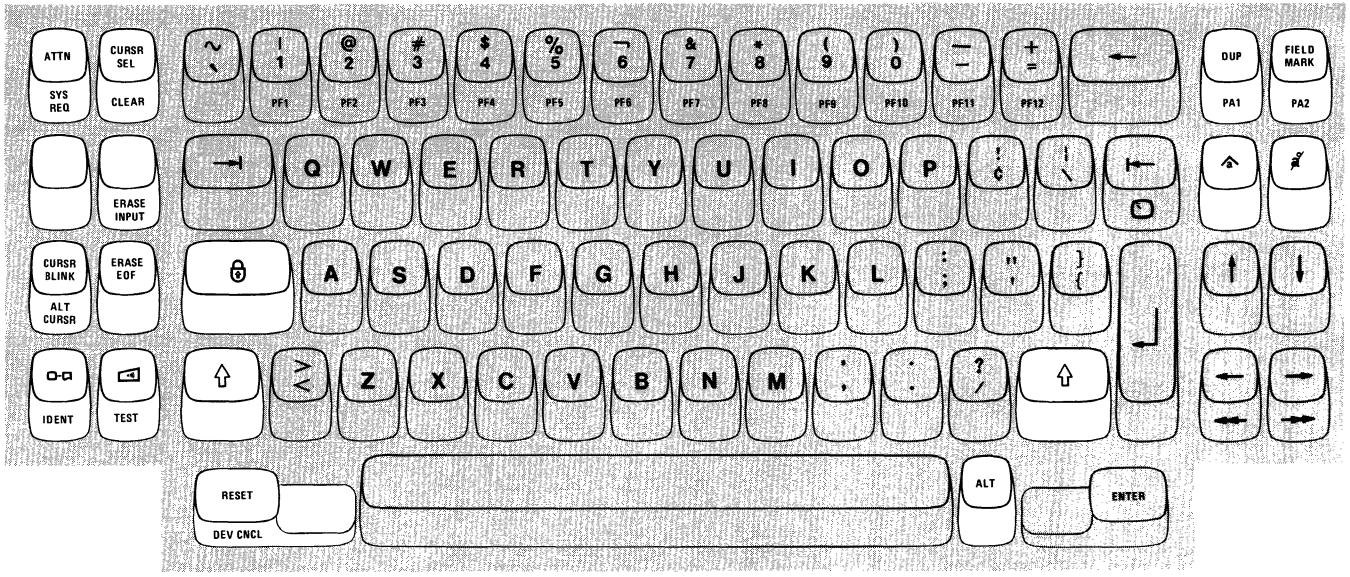


Data Entry Keypunch Keyboard

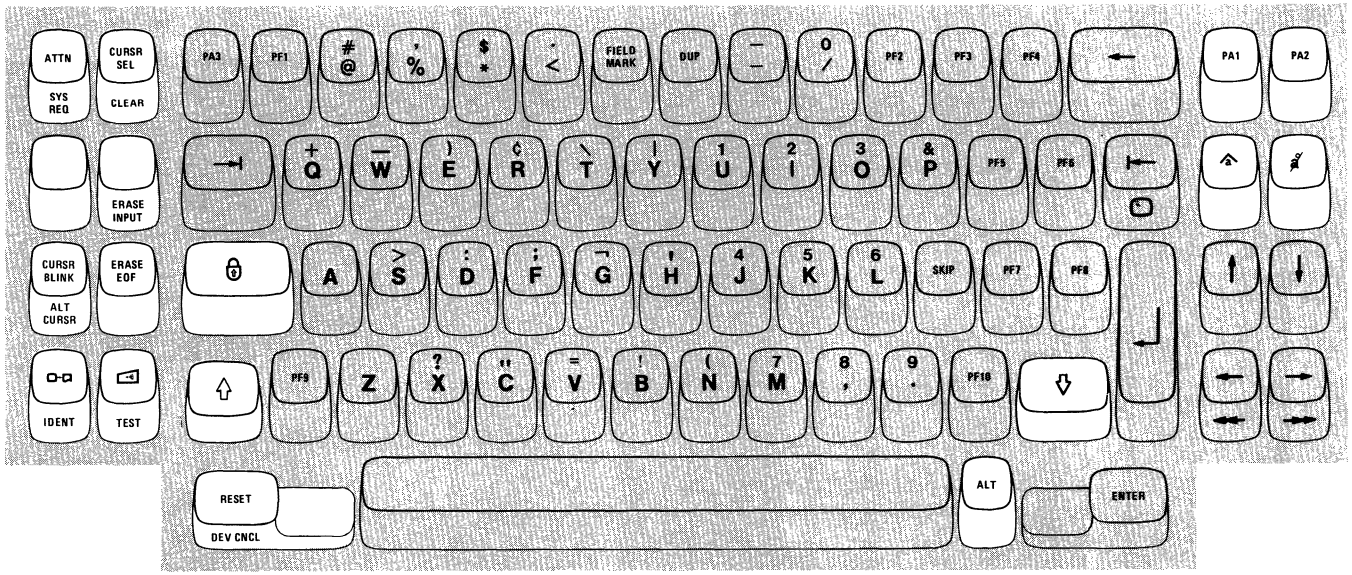


APL Keyboard

Figure 3-7 (Part 2 of 2). English (U.K.) Keyboards

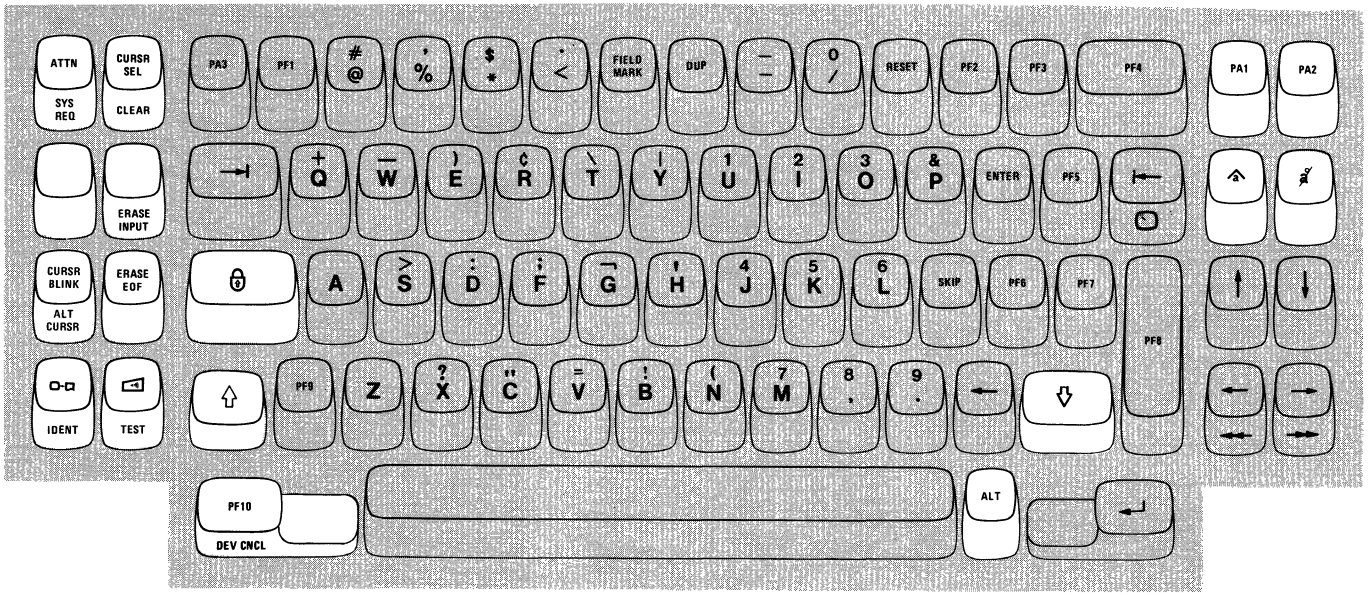


Typewriter Keyboard

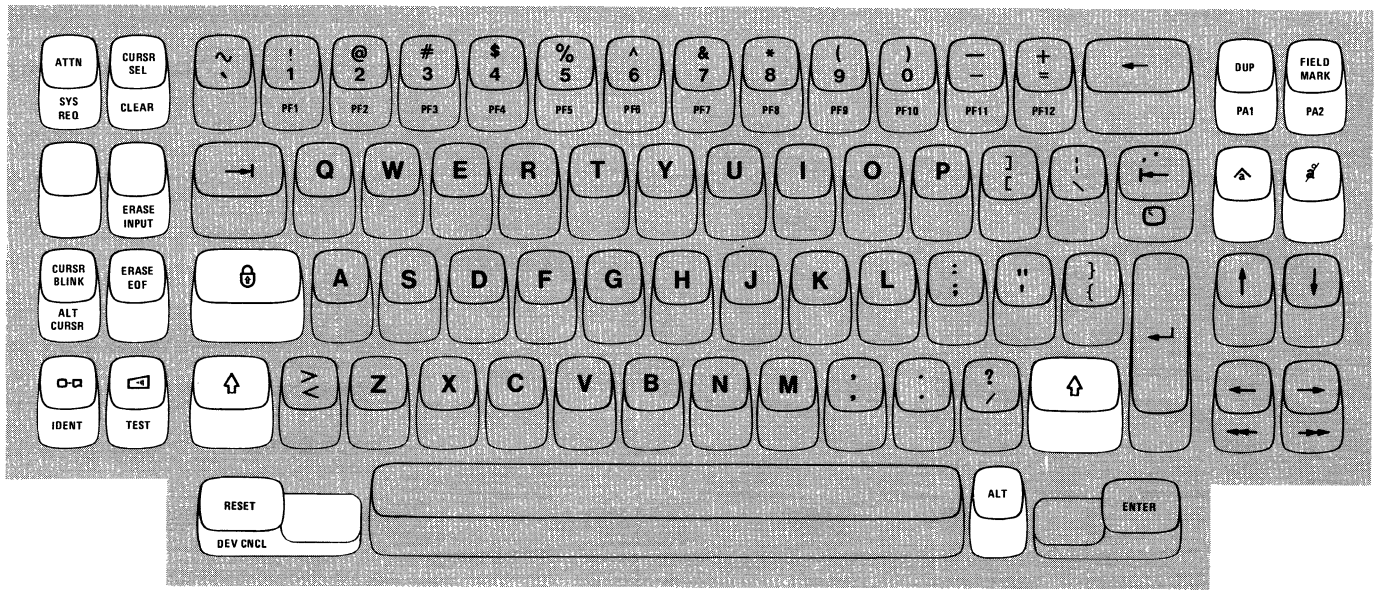


Data Entry Keyboard

Figure 3-8 (Part 1 of 3). English (U.S.) Keyboards

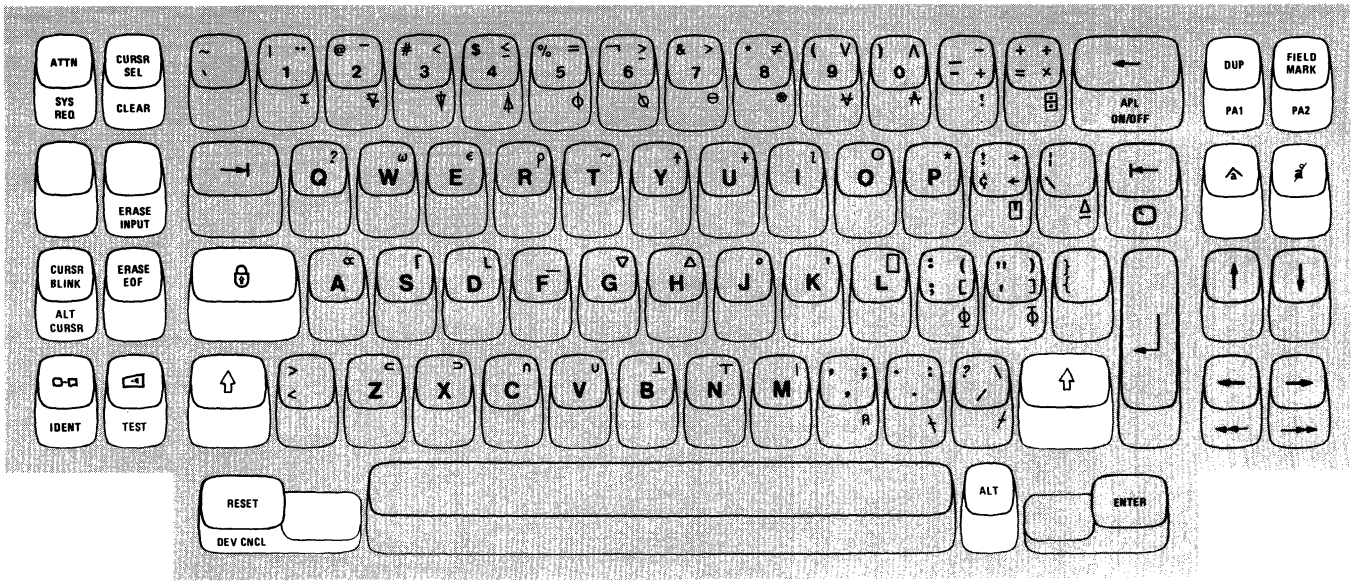


Data Entry Keypunch Keyboard

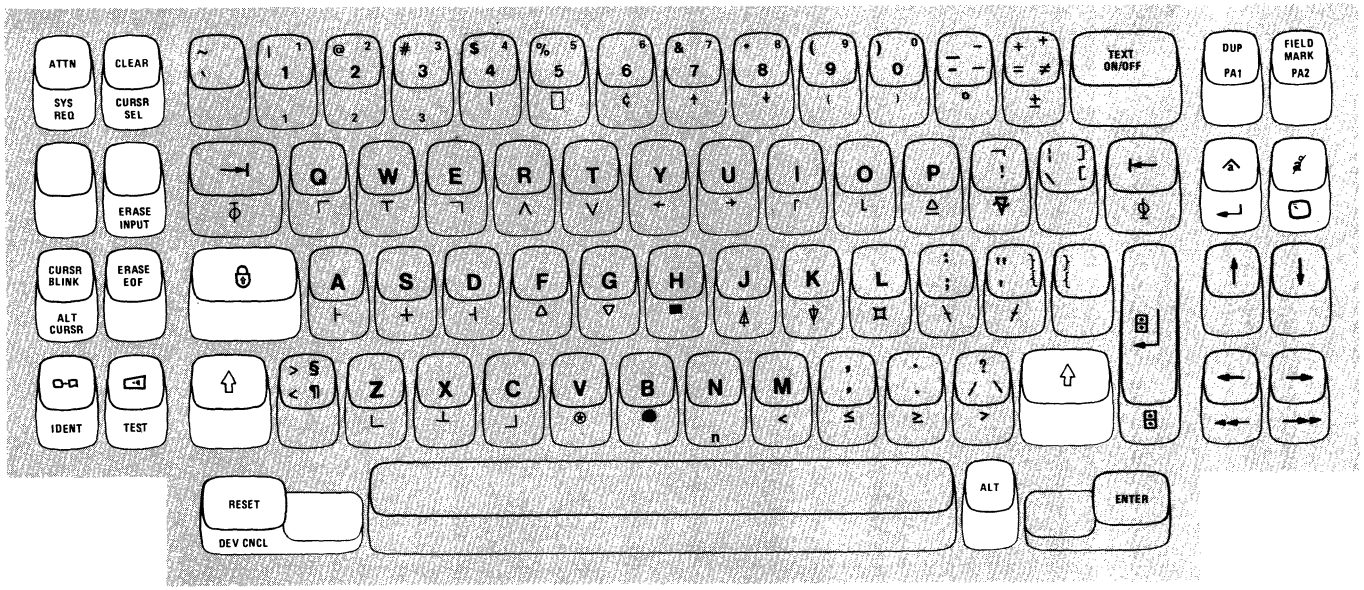


ASCII Typewriter Keyboard

Figure 3-8 (Part 2 of 3). English (U.S.) Keyboards

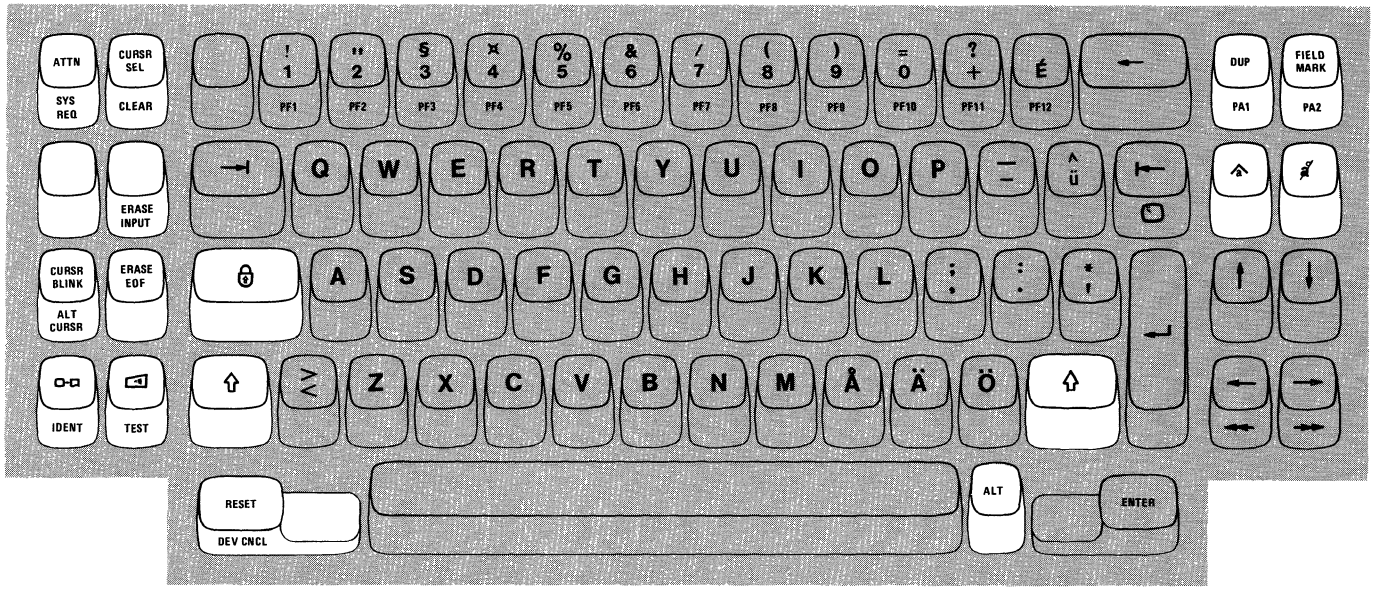


APL Keyboard

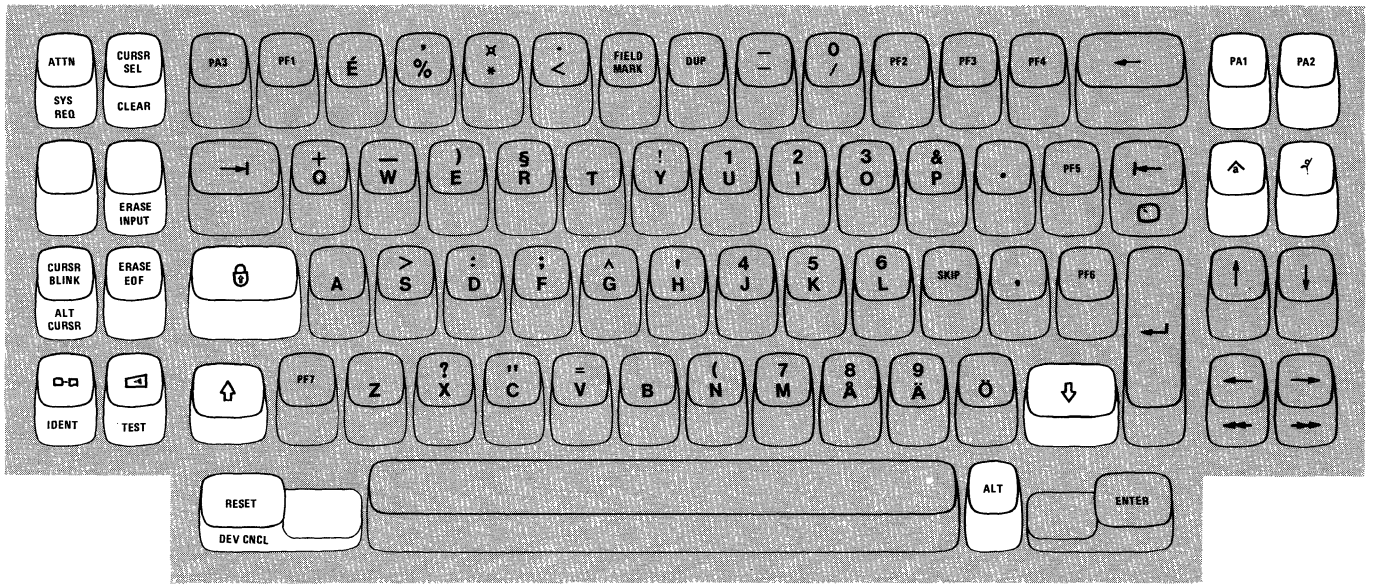


Text Keyboard

Figure 3-8 (Part 3 of 3). English (U.S.) Keyboards

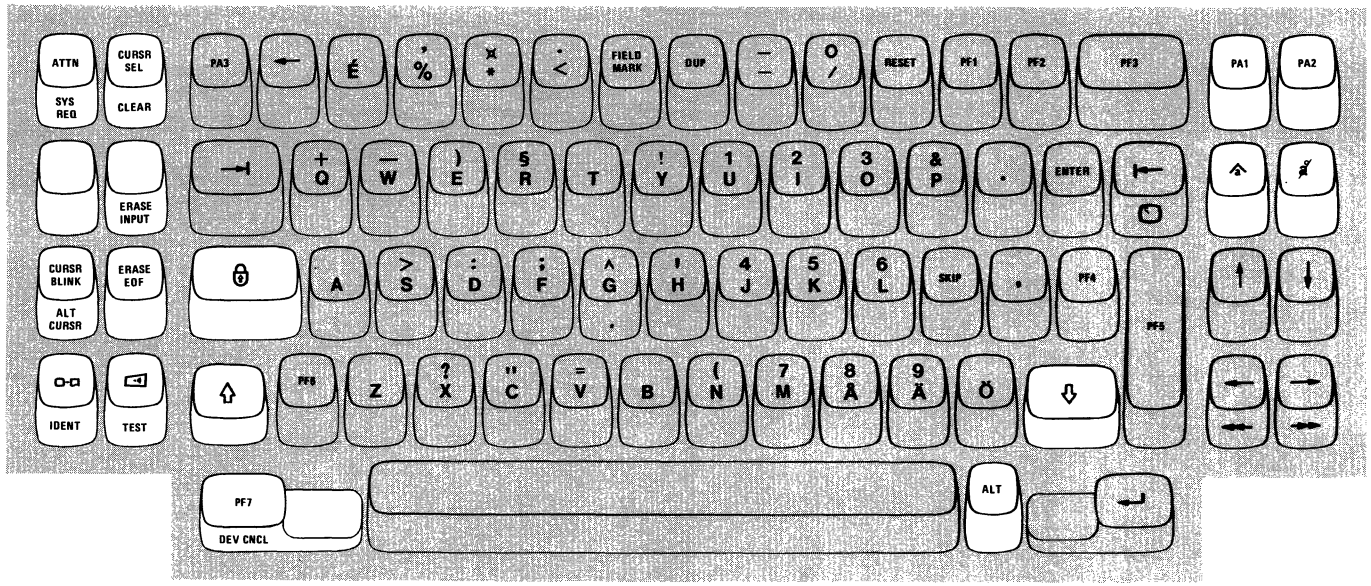


Typewriter Keyboard

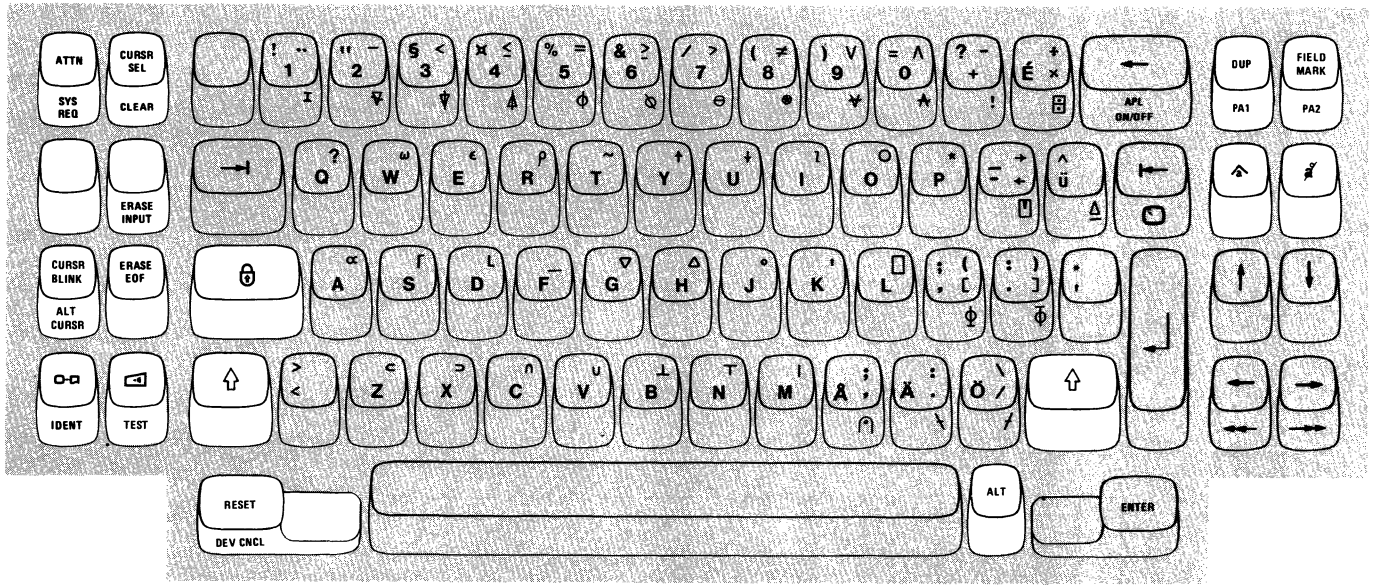


Data Entry Keyboard

Figure 3-9 (Part 1 of 2). Finnish Keyboards

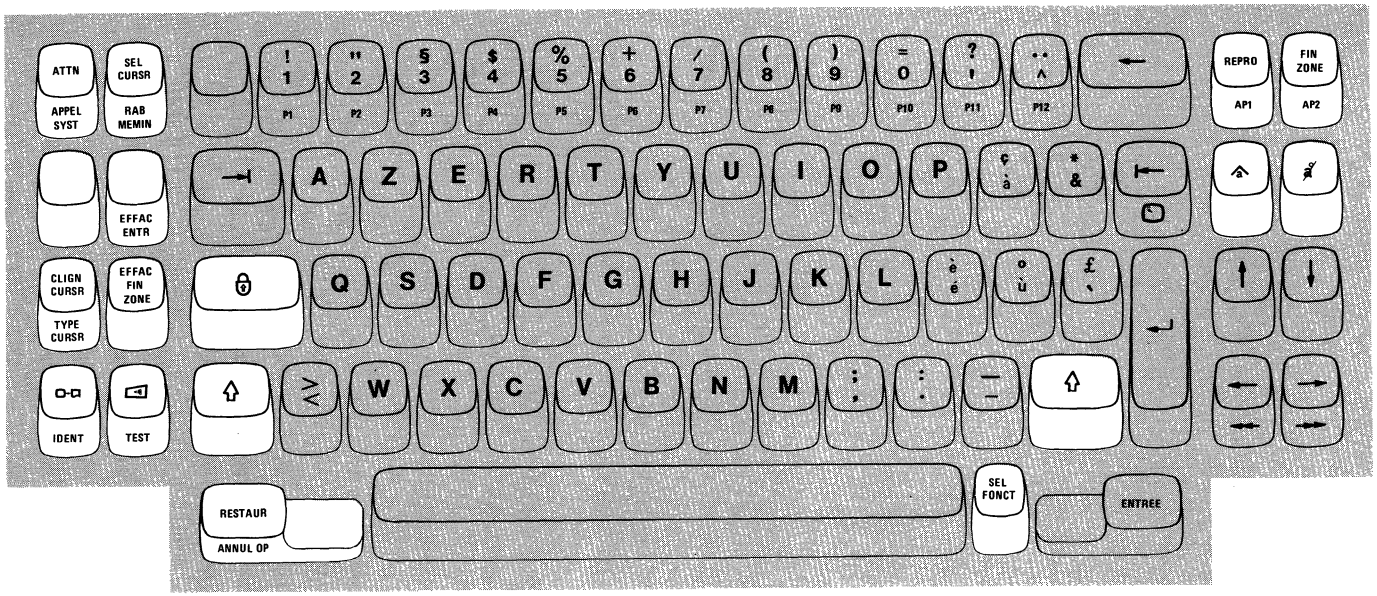


Data Entry Keypunch Keyboard

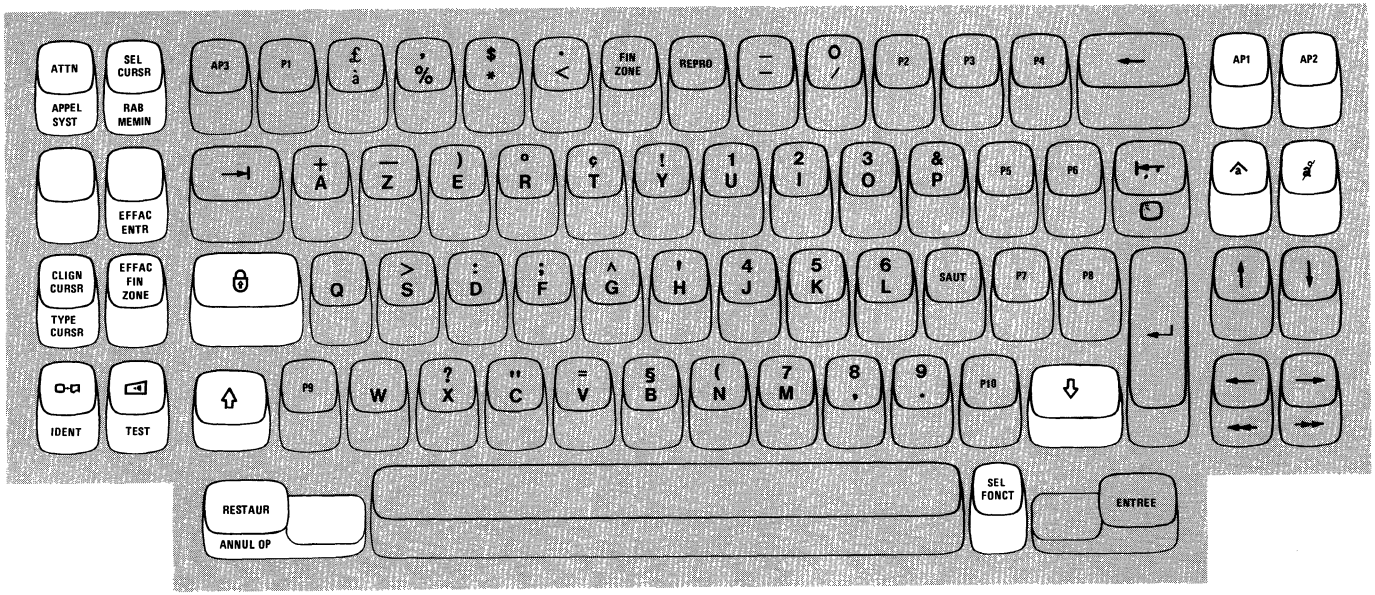


APL Keyboard

Figure 3-9 (Part 2 of 2). Finnish Keyboards

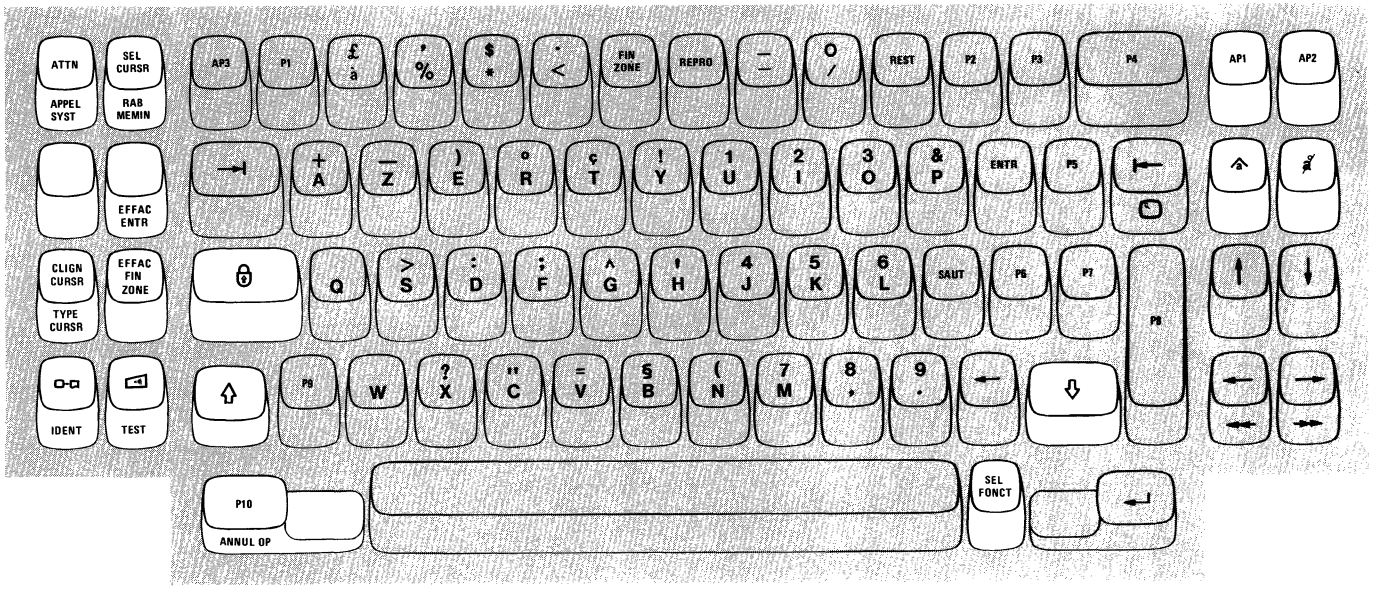


Typewriter Keyboard

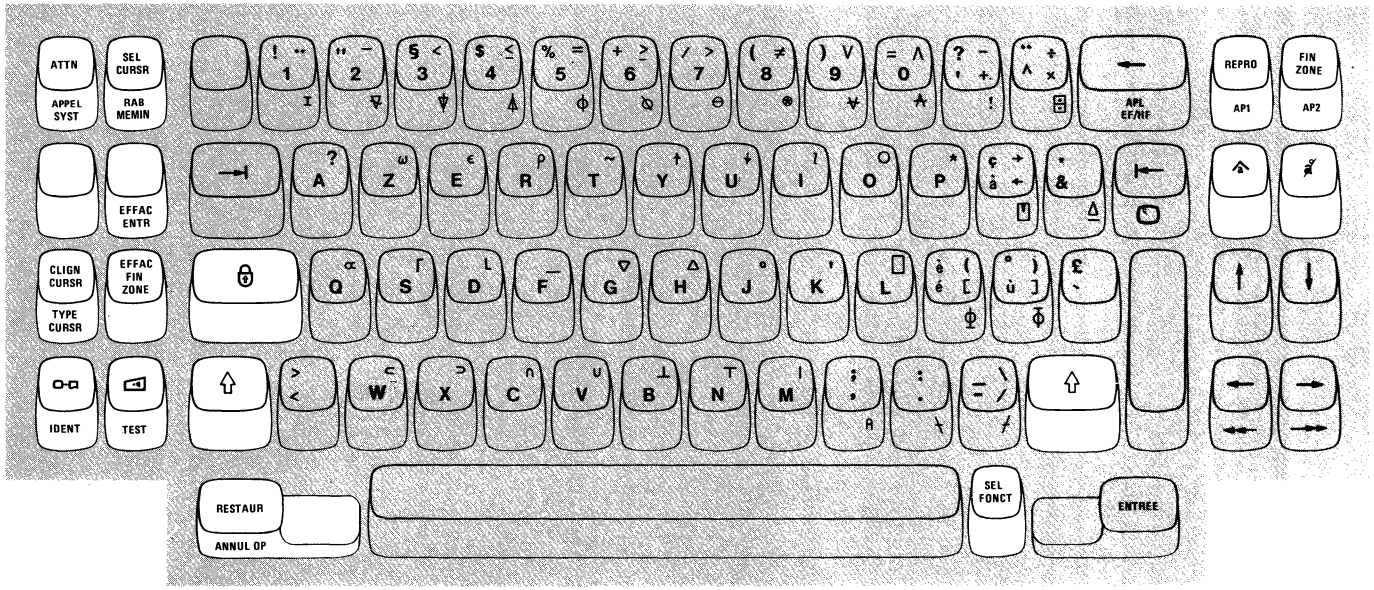


Data Entry Keyboard

Figure 3-10 (Part 1 of 2). French (AZERTY) Keyboards

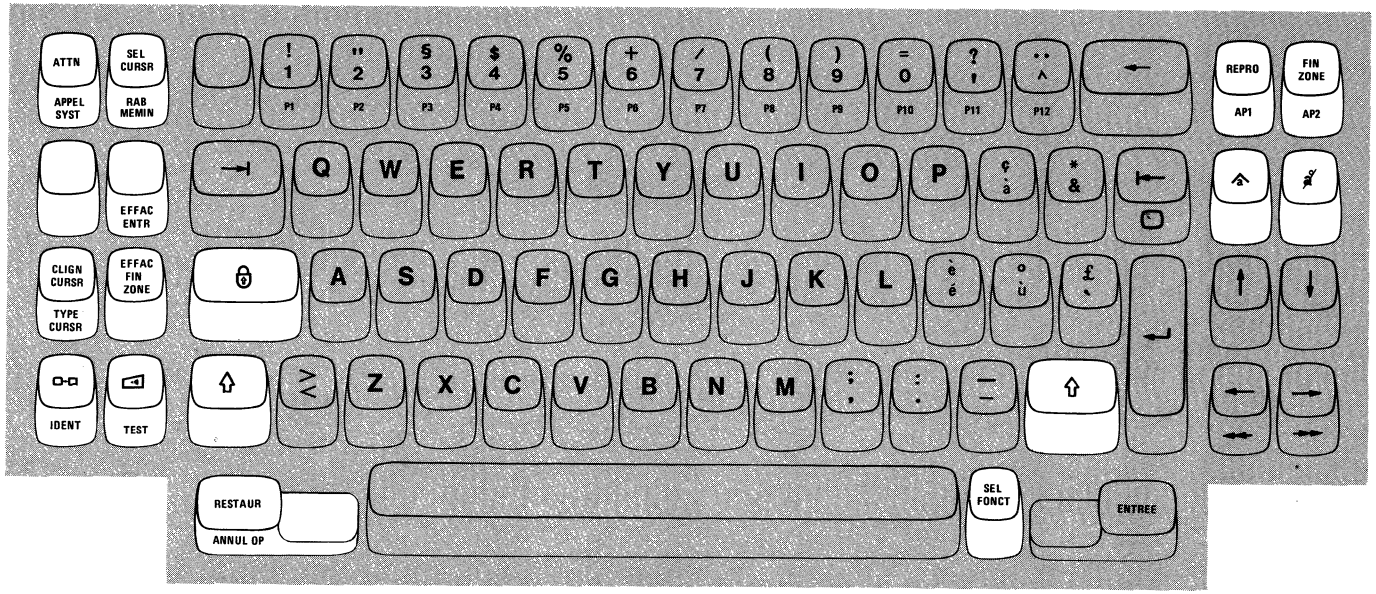


Data Entry Keypunch Keyboard

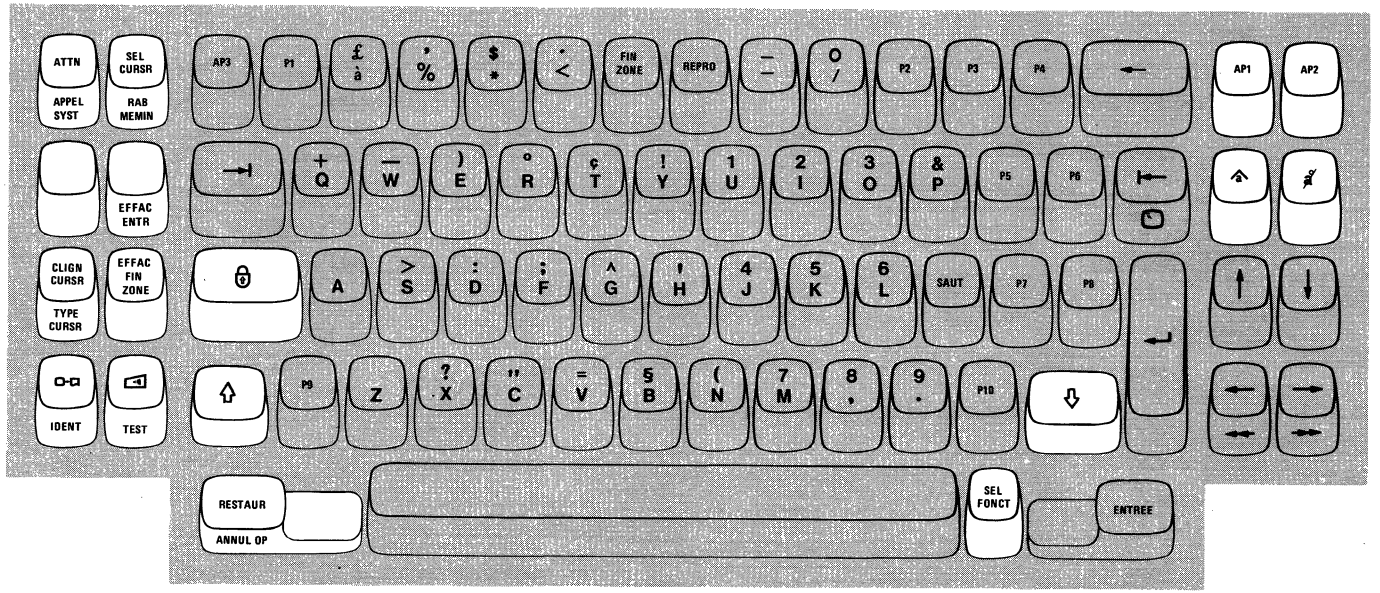


APL Keyboard

Figure 3-10 (Part 2 of 2). French (AZERTY) Keyboards

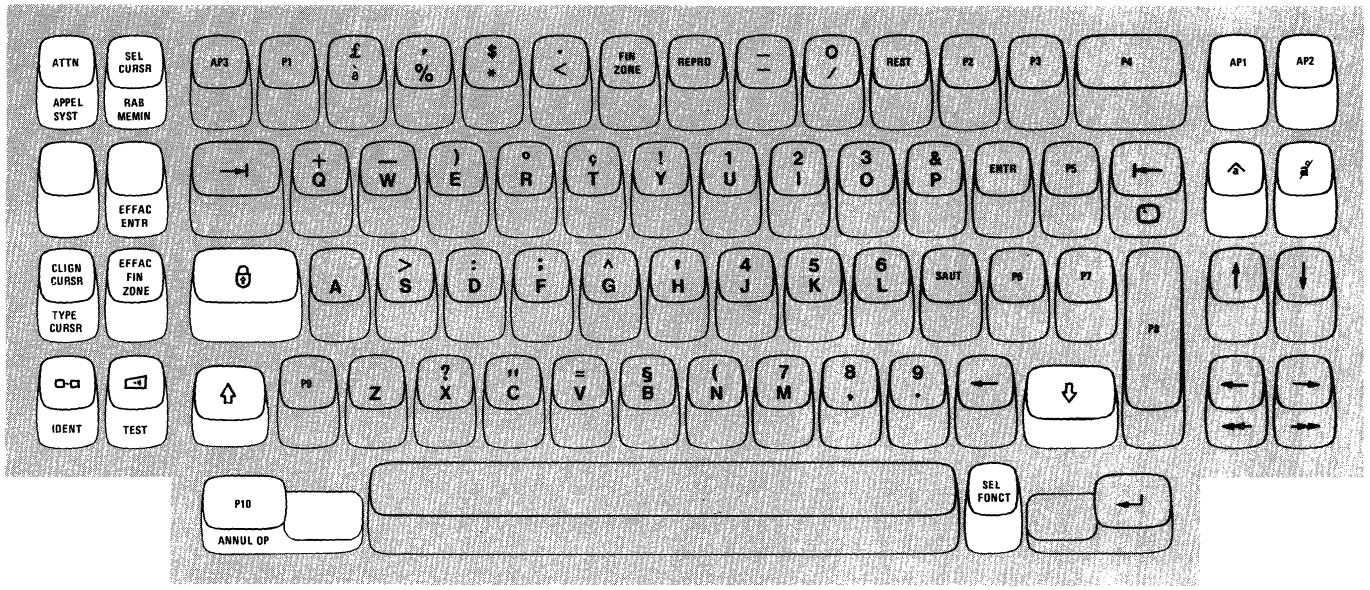


Typewriter Keyboard

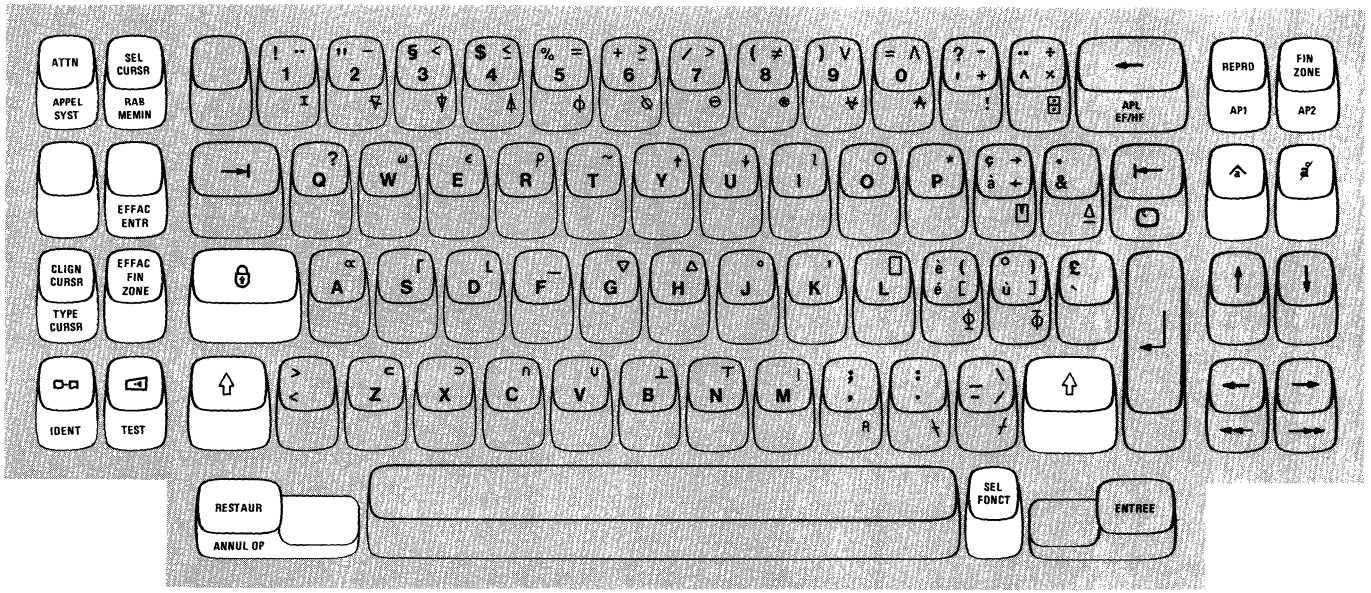


Data Entry Keyboard

Figure 3-11 (Part 1 of 2). French (QWERTY) Keyboards

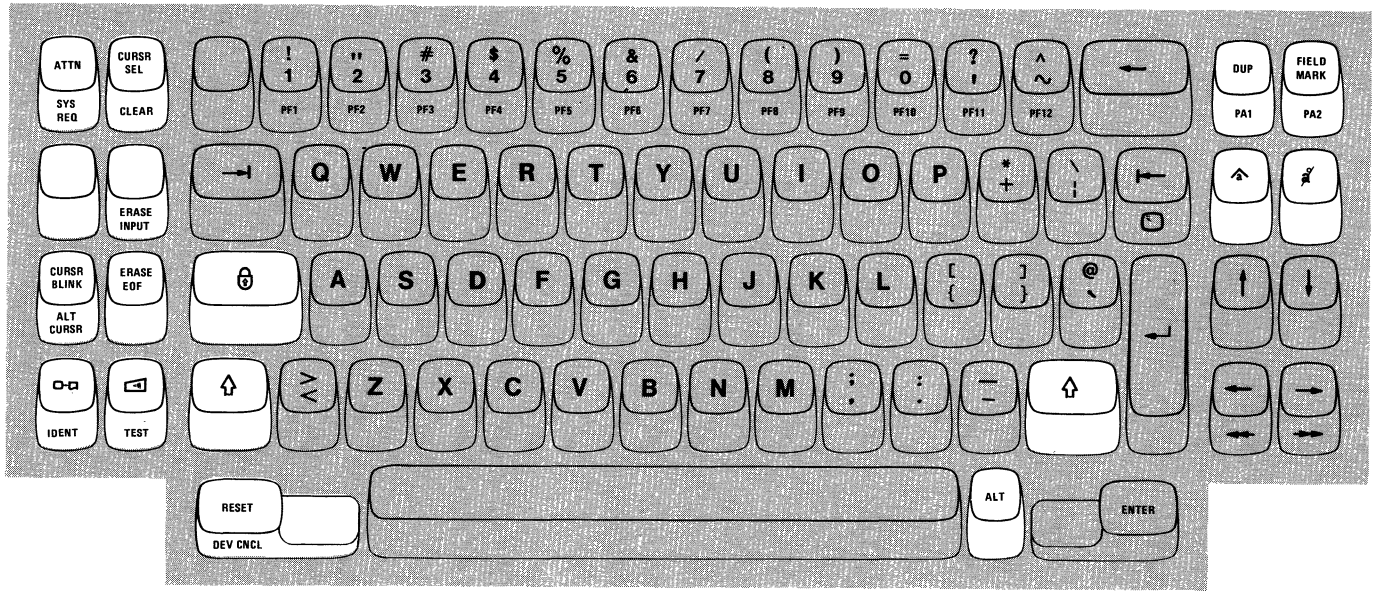


Data Entry Keypunch Keyboard

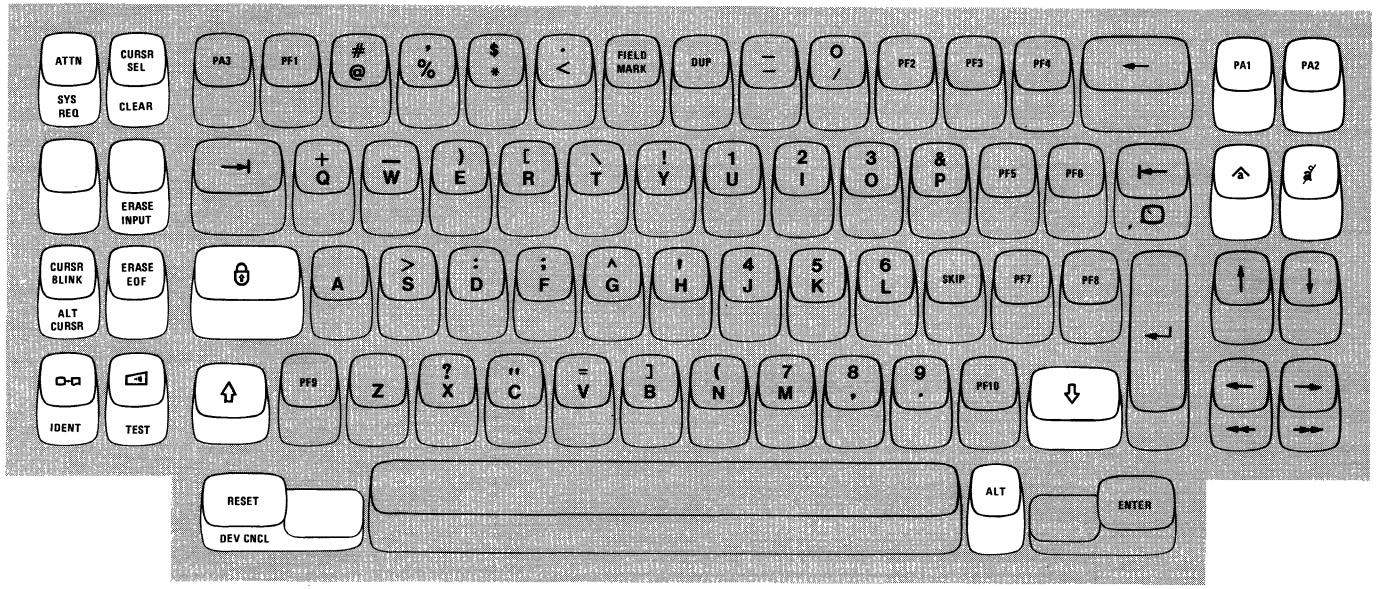


APL Keyboard

Figure 3-11 (Part 2 of 2). French (QWERTY) Keyboards

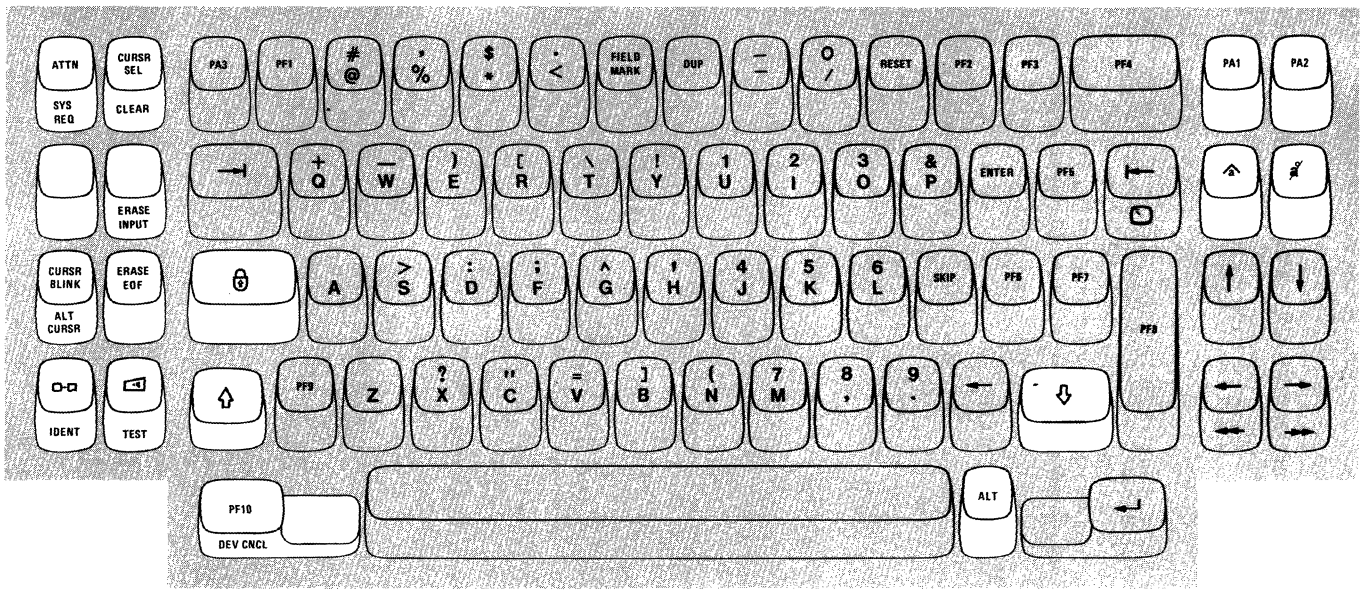


Typewriter Keyboard



Data Entry Keyboard

Figure 3-12 (Part 1 of 2). International Keyboards

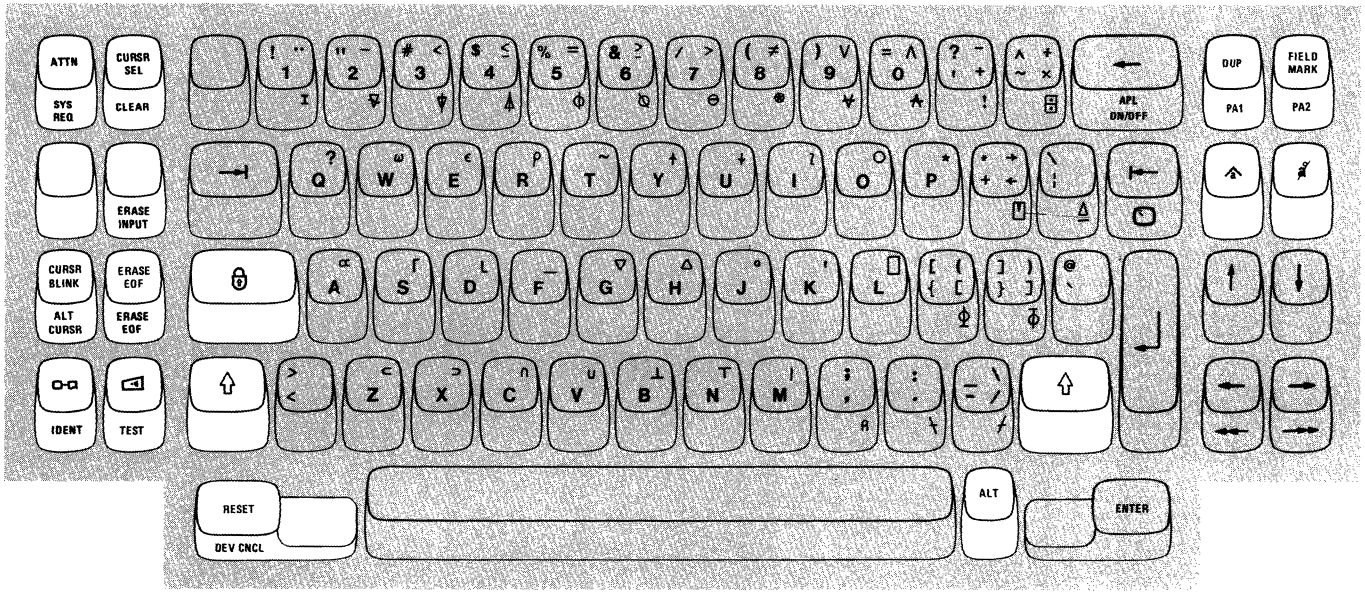


LEGEND:

Typematic Keys

Nontypematic Keys

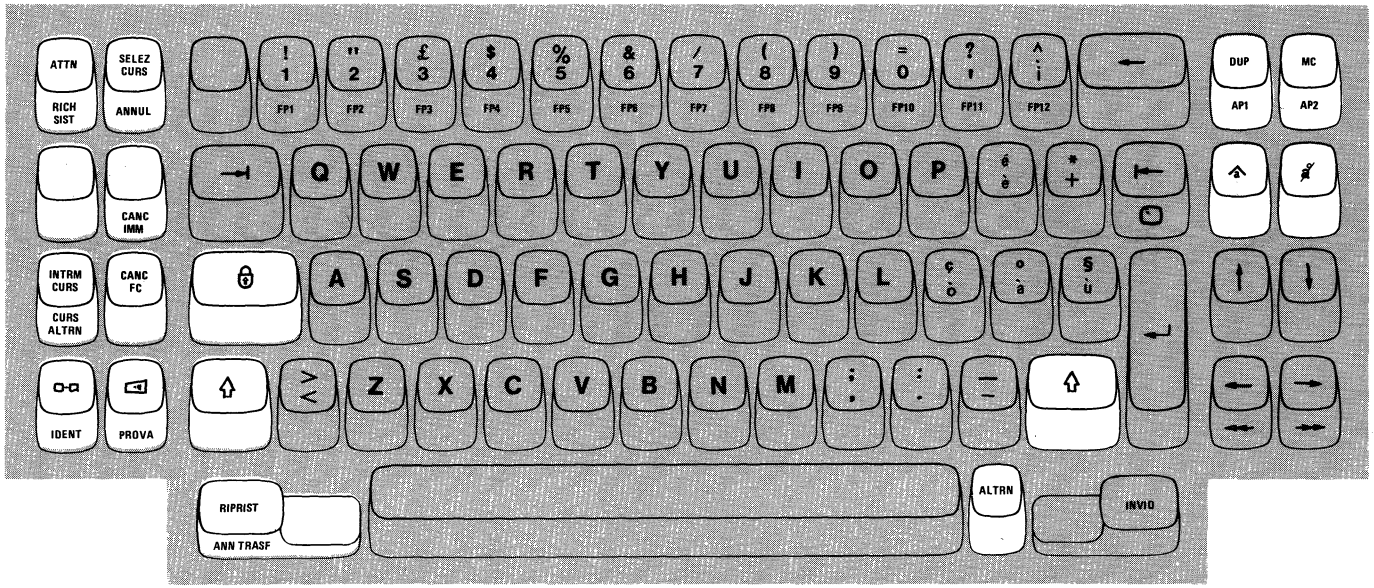
Data Entry Keypunch Keyboard



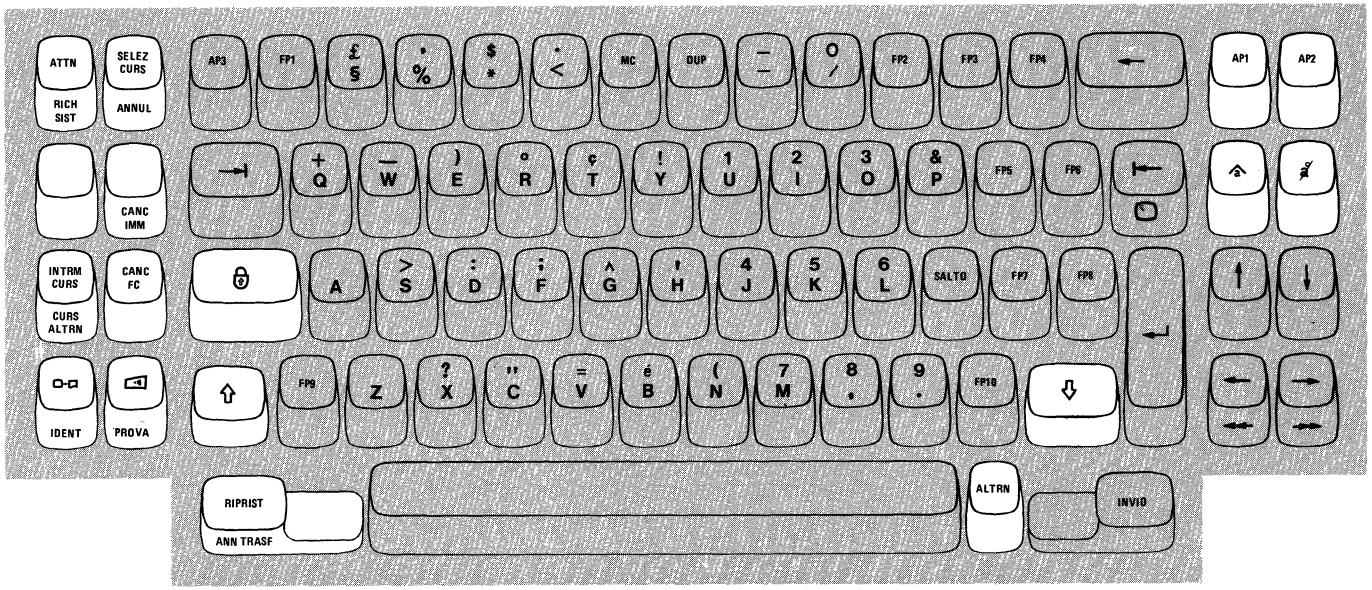
LEGEND:

Typematic Keys

Nontypem Keys

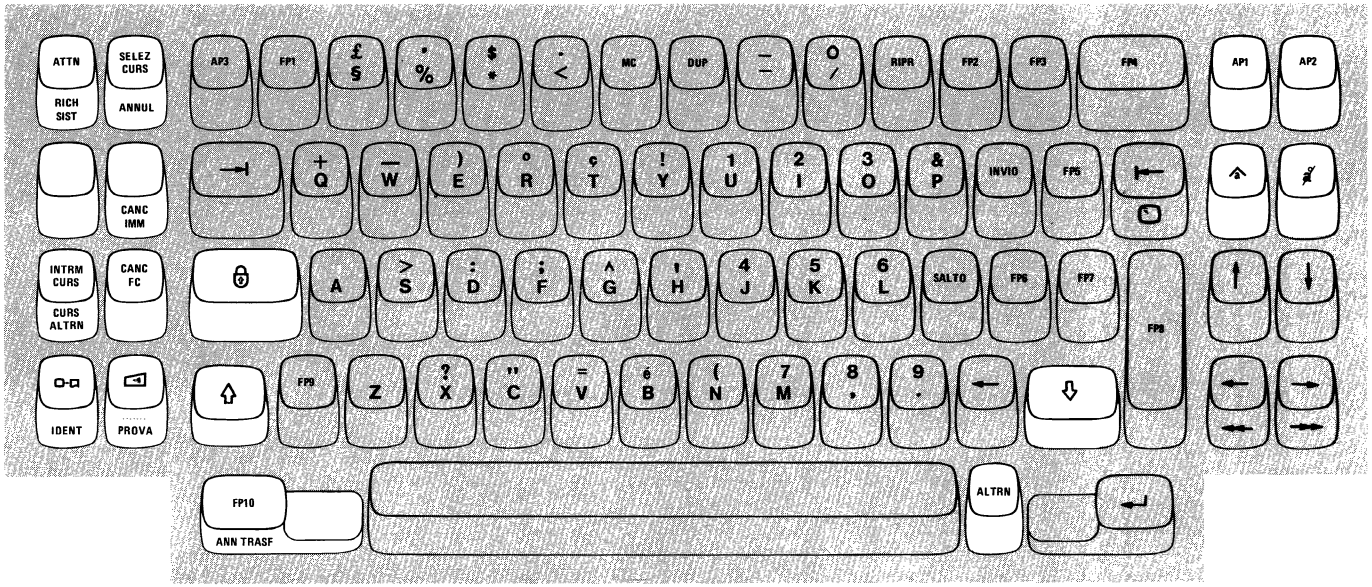


Typewriter Keyboard

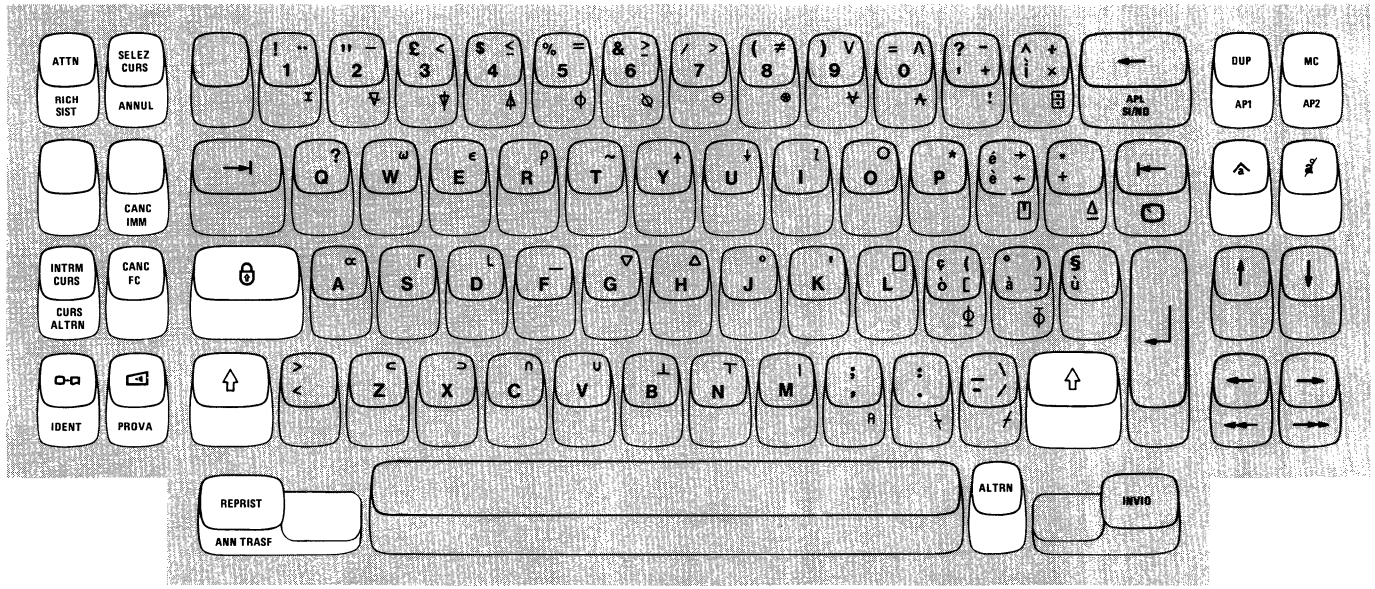


Data Entry Keyboard

Figure 3-13 (Part 1 of 2). Italian Keyboards

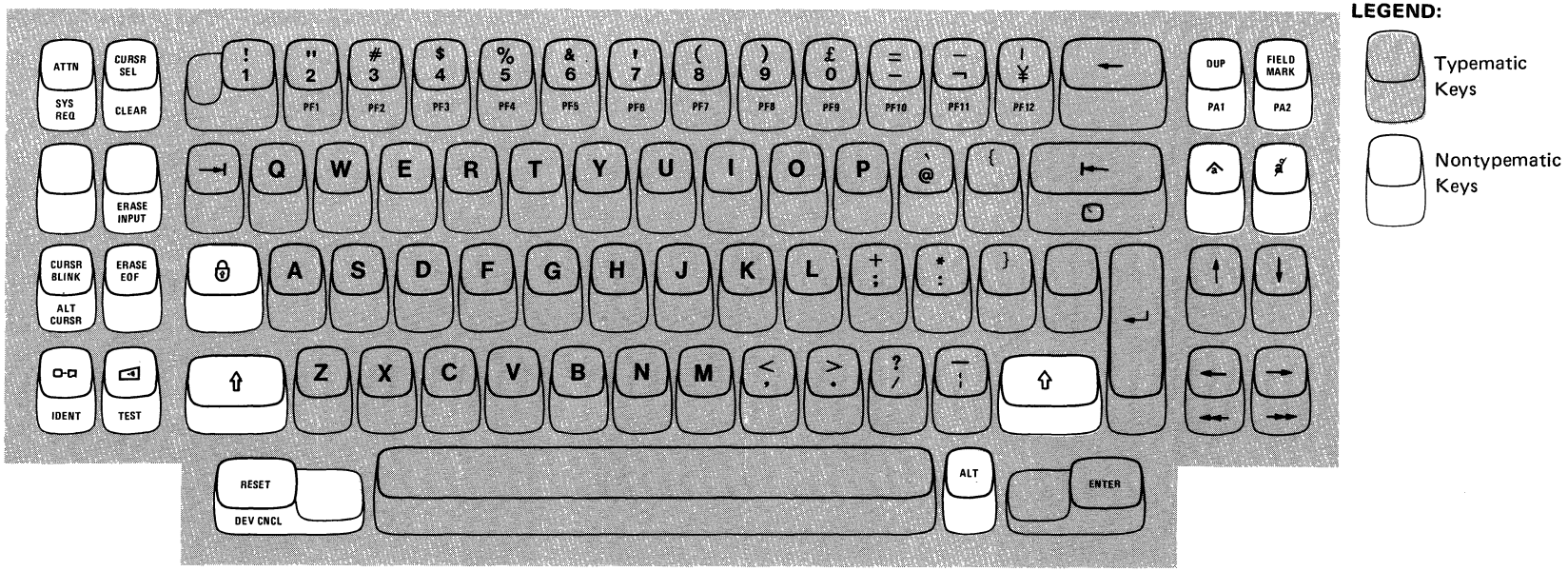


Data Entry Keypunch Keyboard

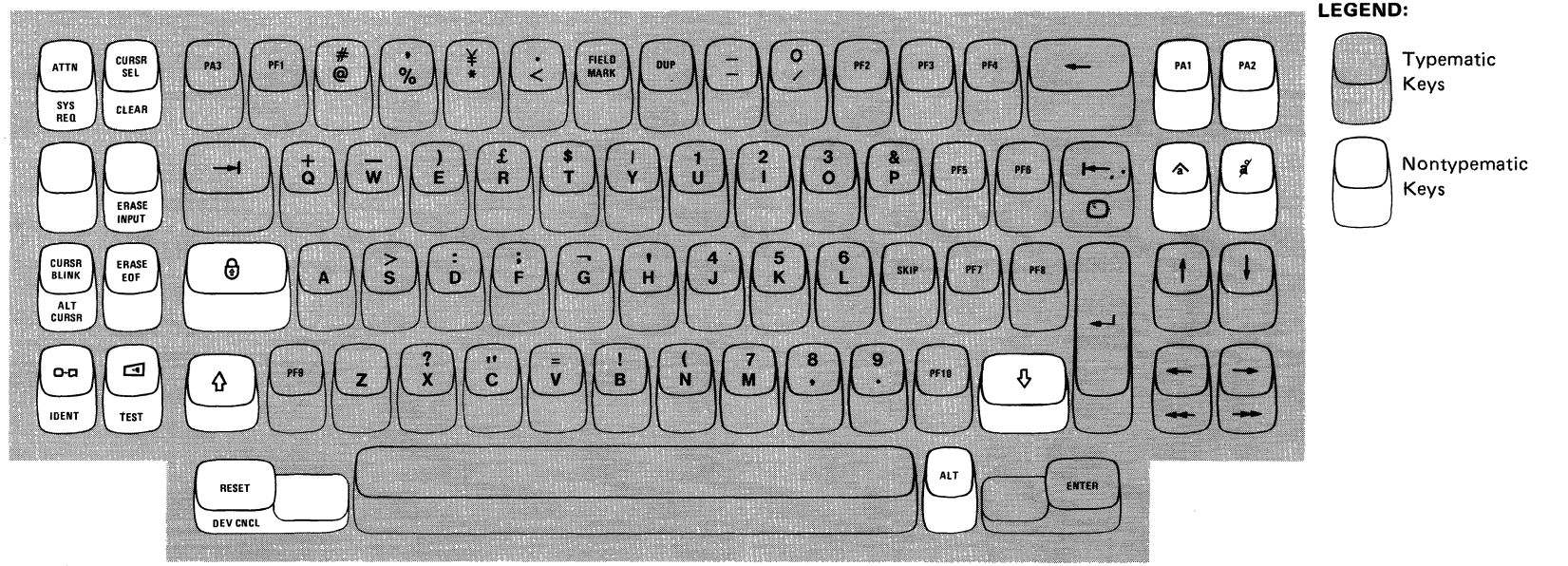


APL Keyboard

Figure 3-13 (Part 2 of 2). Italian Keyboards

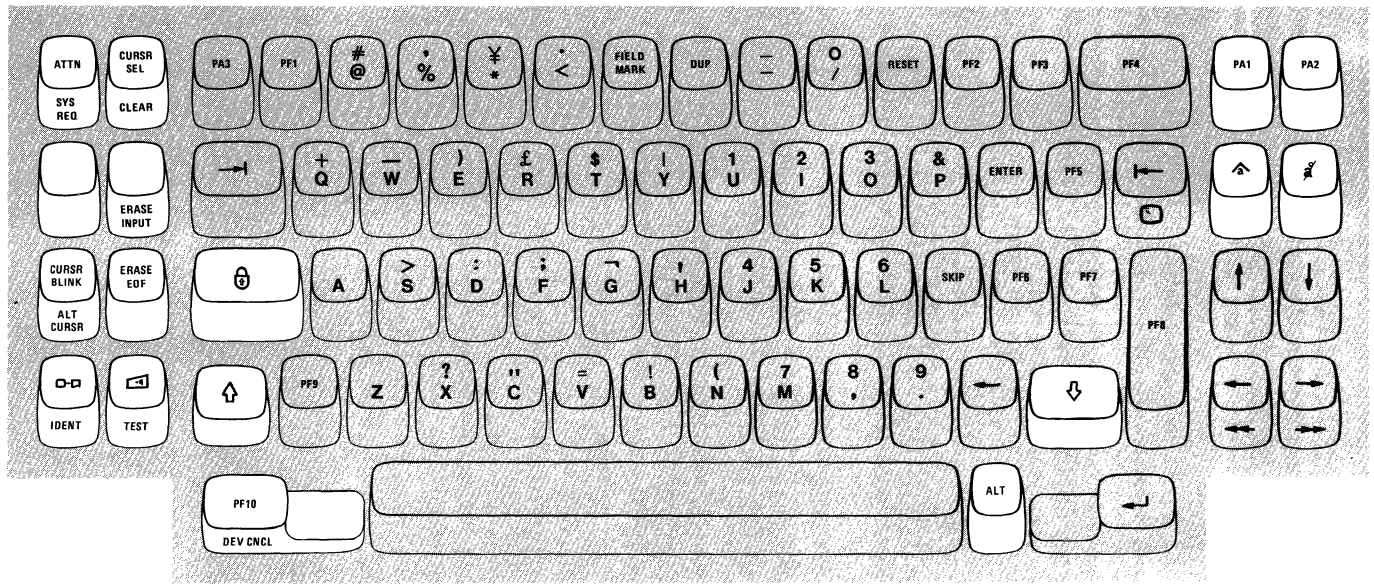


Typewriter Keyboard

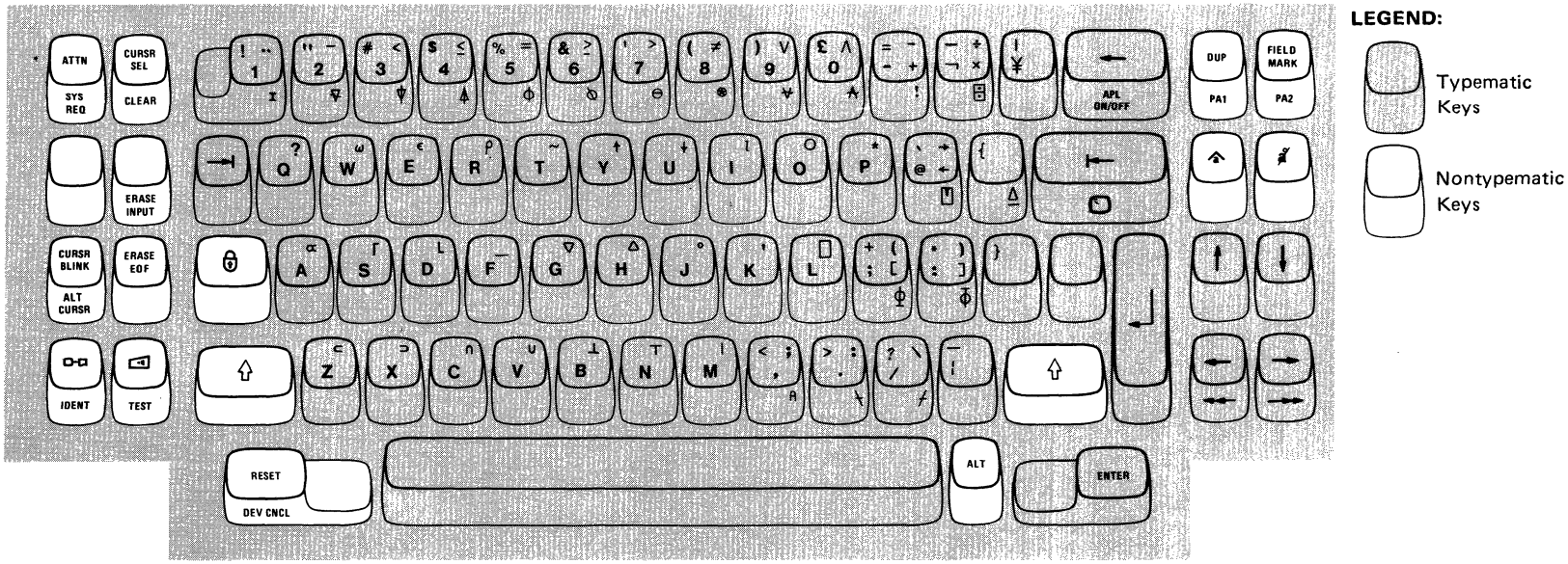


Data Entry Keyboard

Figure 3-14 (Part 1 of 2). Japanese English Keyboards

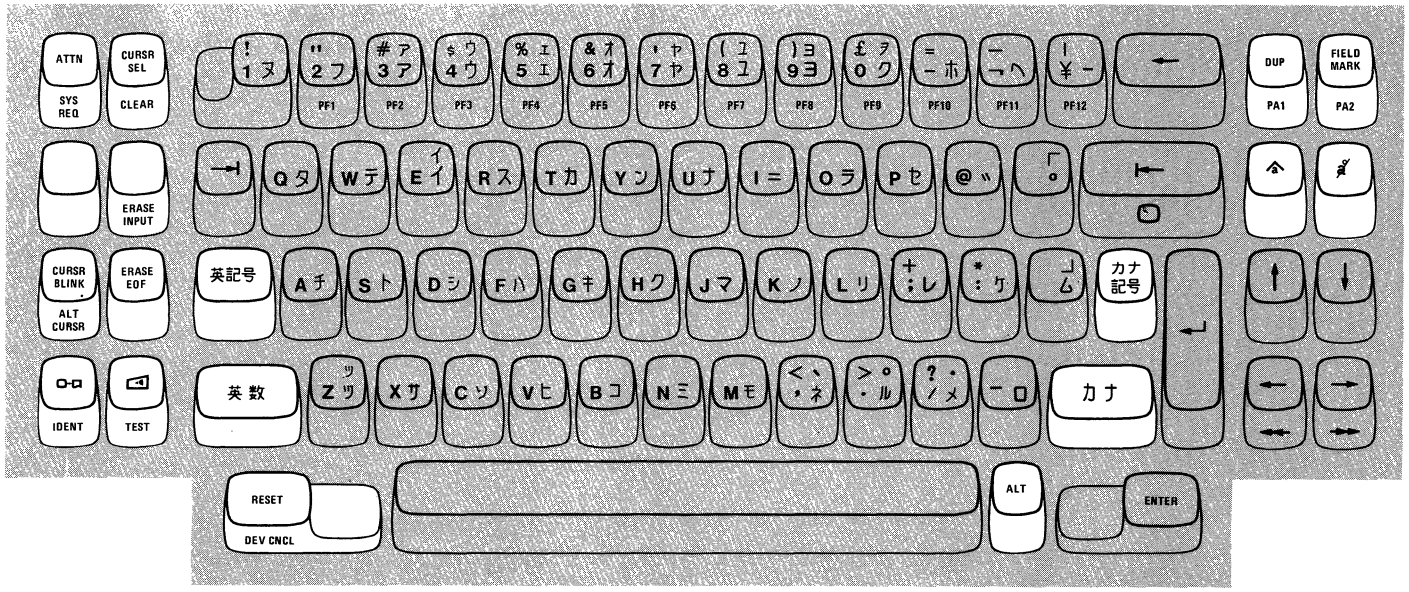


Data Entry Keypunch Keyboard

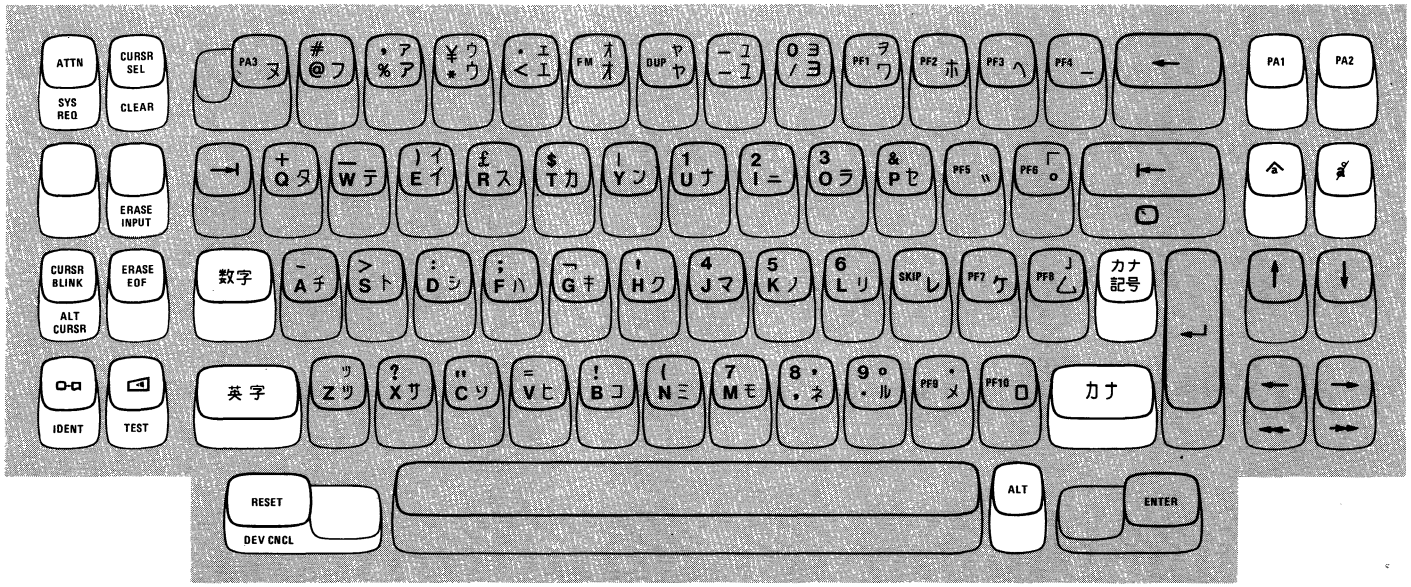


APL Keyboard

Figure 3-14 (Part 2 of 2). Japanese English Keyboards

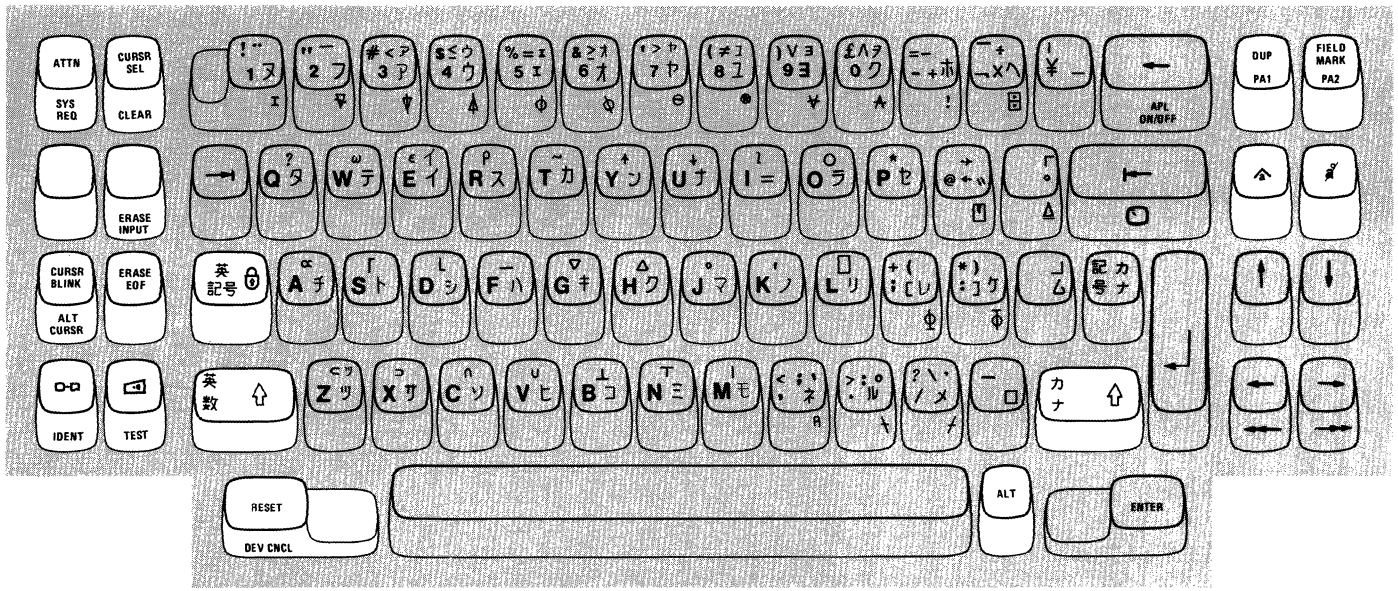


Typewriter Keyboard



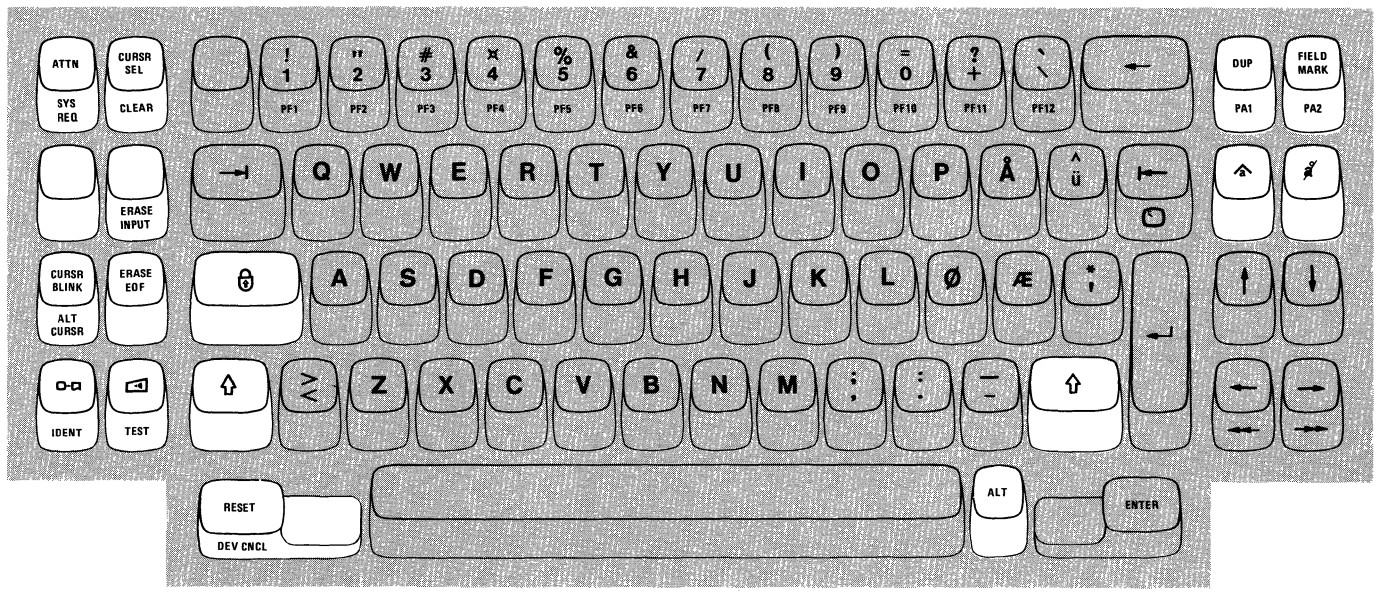
Data Entry Keyboard

Figure 3-15 (Part 1 of 2). Japanese Katakana Keyboards

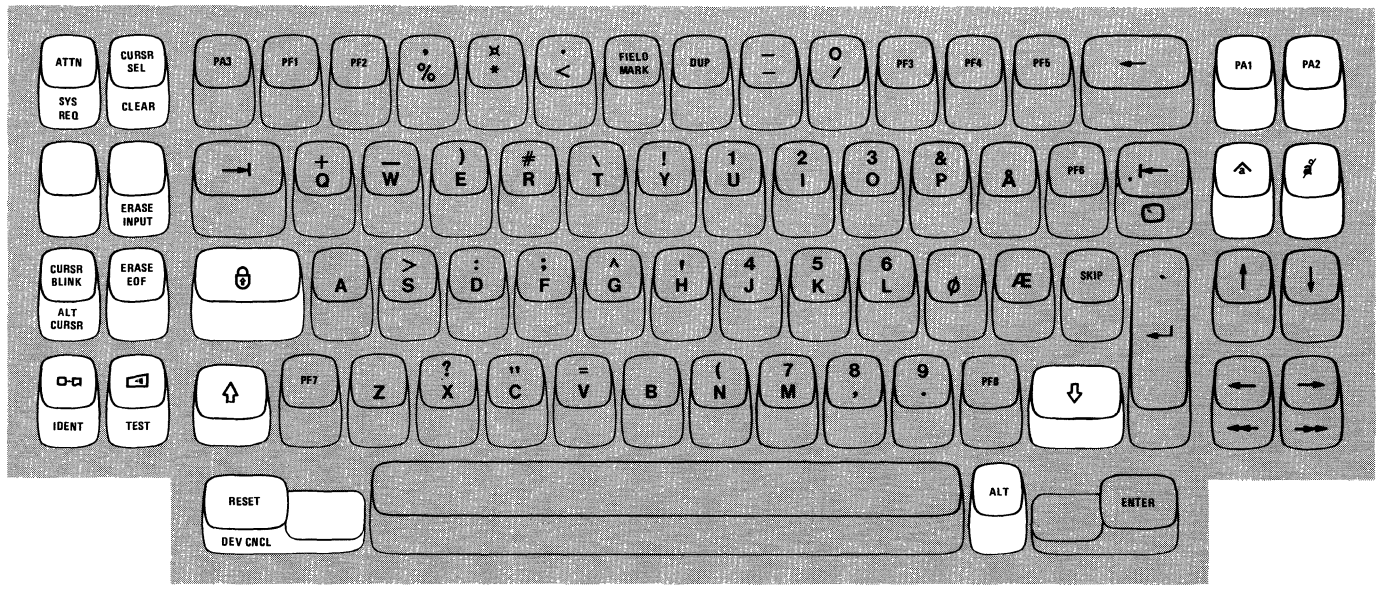


APL Keyboard

Figure 3-15 (Part 2 of 2). Japanese Katakana Keyboards

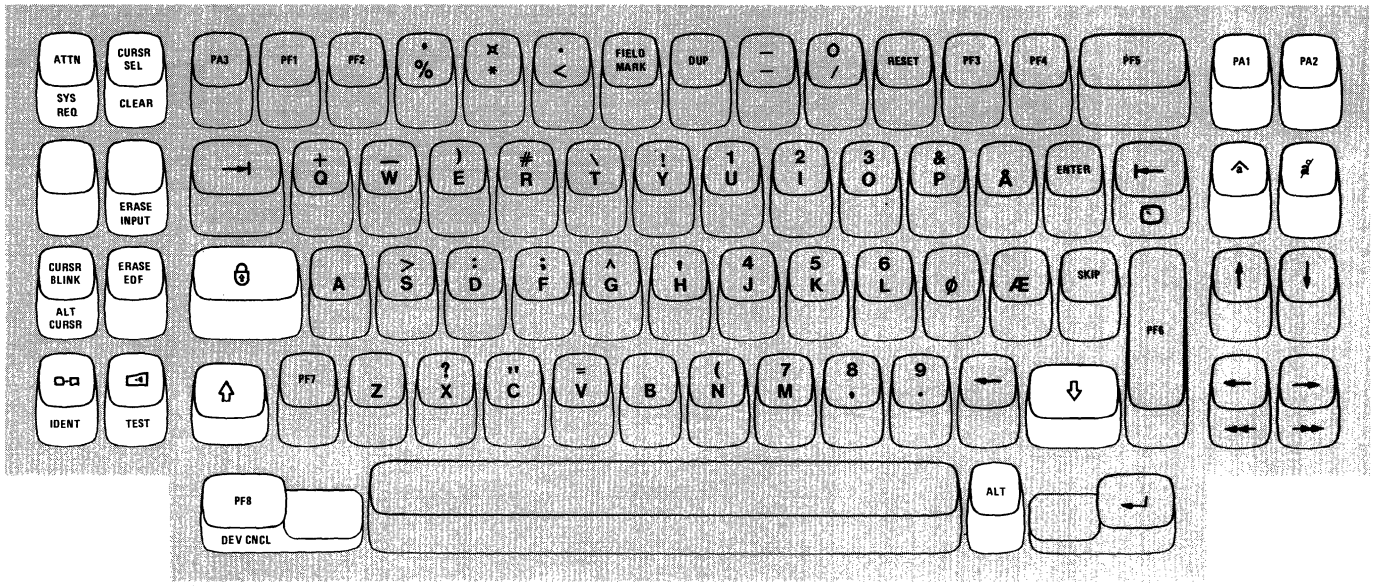


Typewriter Keyboard

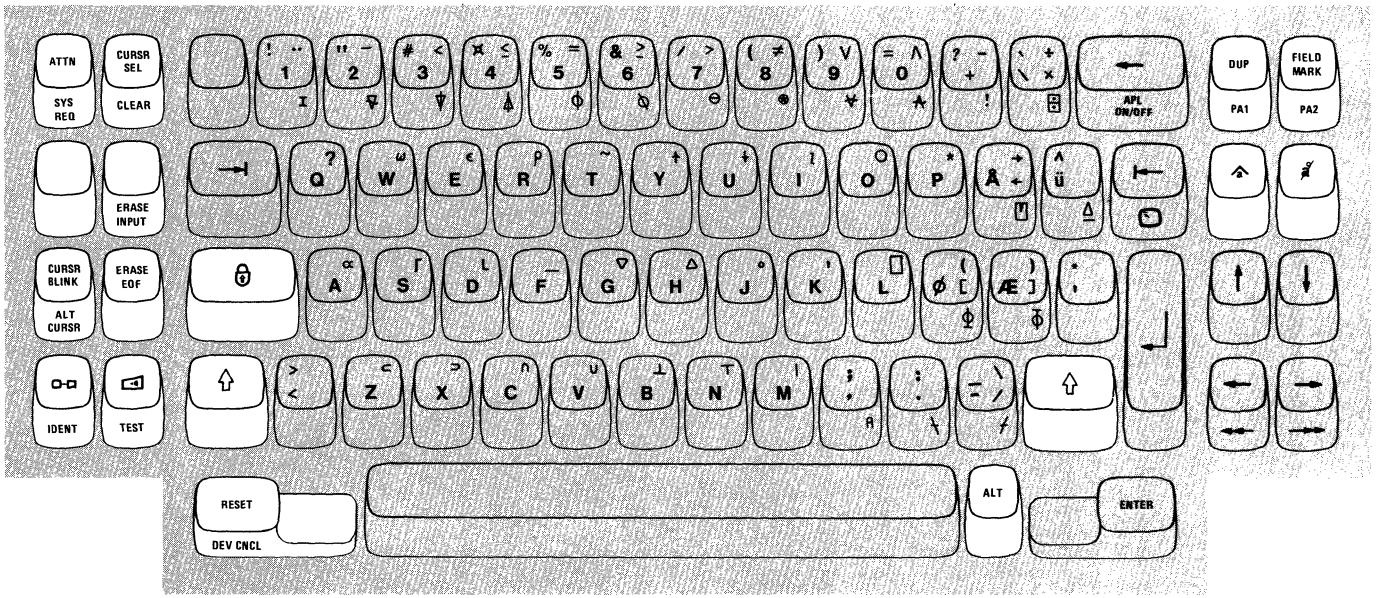


Data Entry Keyboard

Figure 3-16 (Part 1 of 2). Norwegian Keyboards

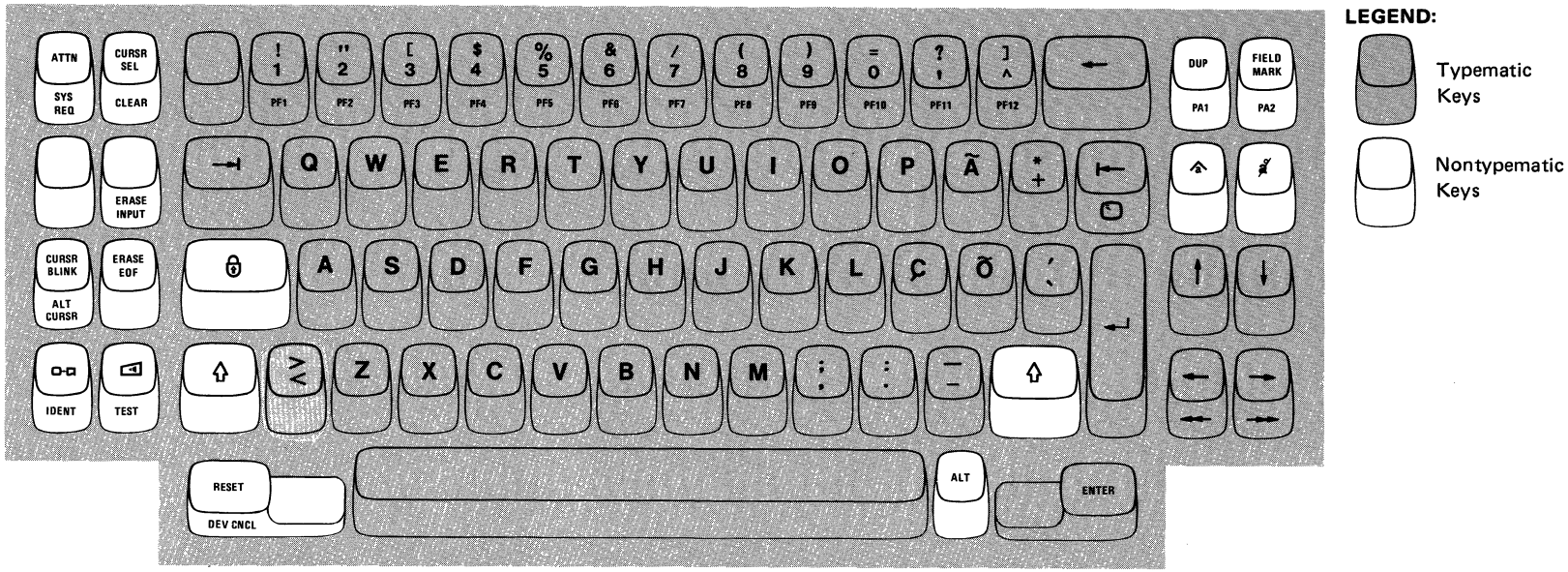


Data Entry Keypunch Keyboard

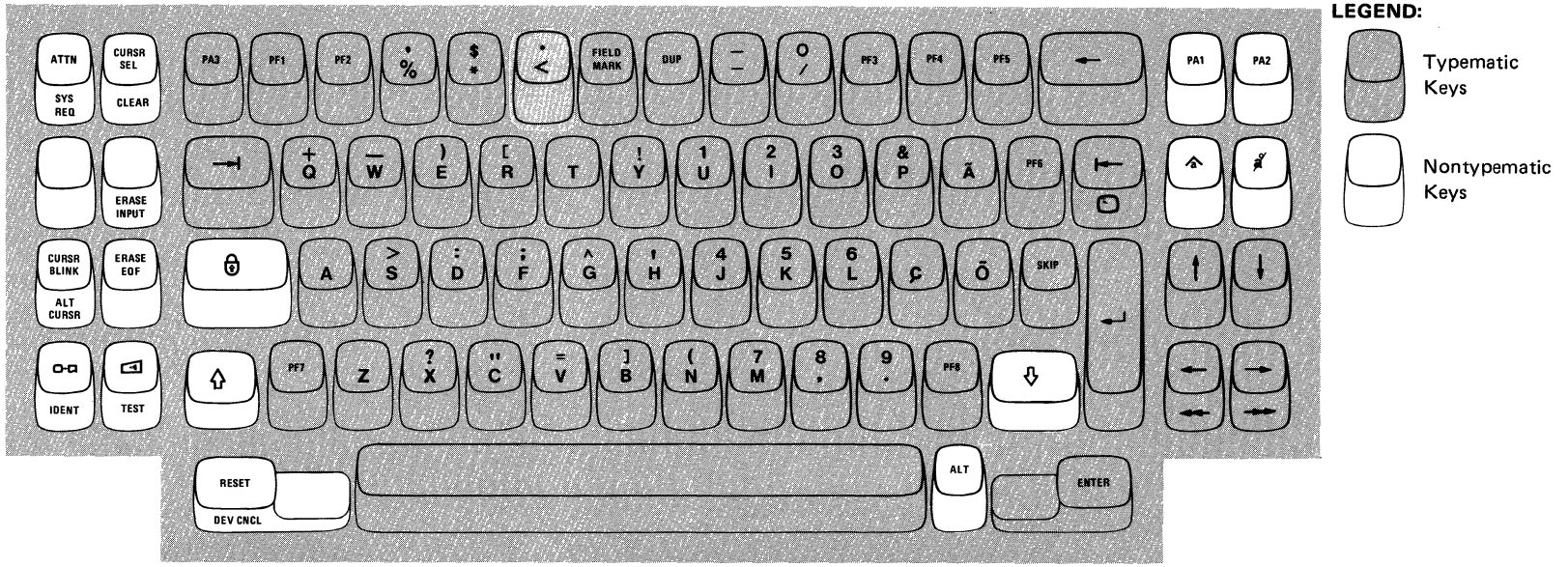


APL Keyboard

Figure 3-16 (Part 2 of 2). Norwegian Keyboards

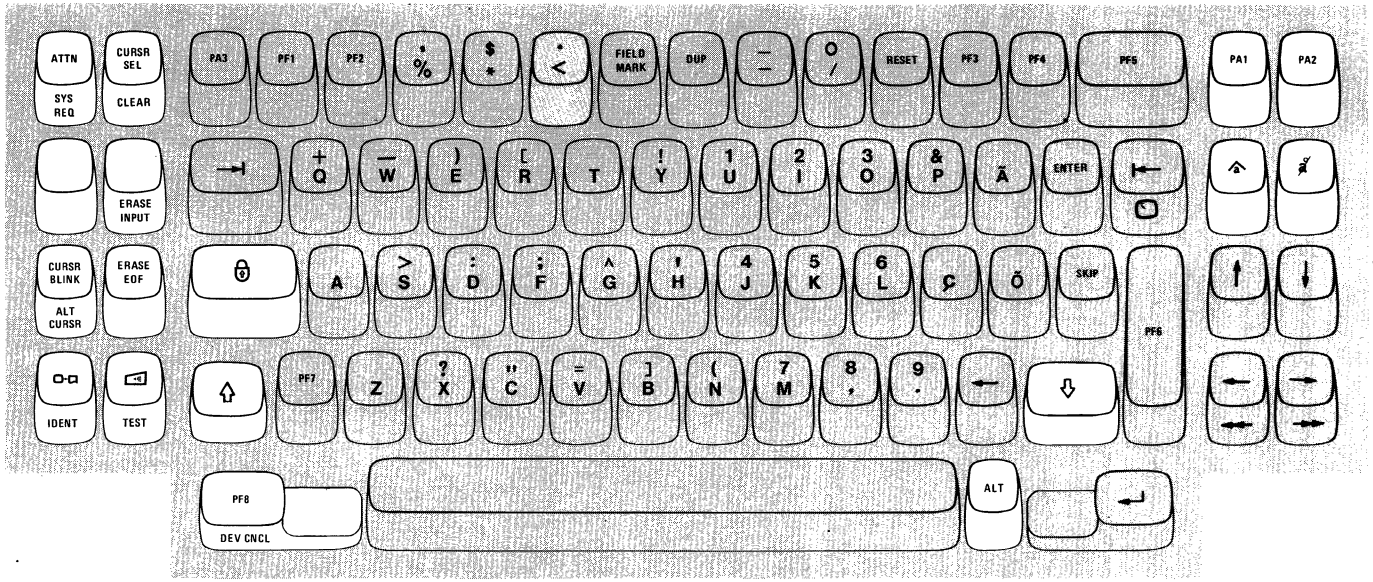


Typewriter Keyboard

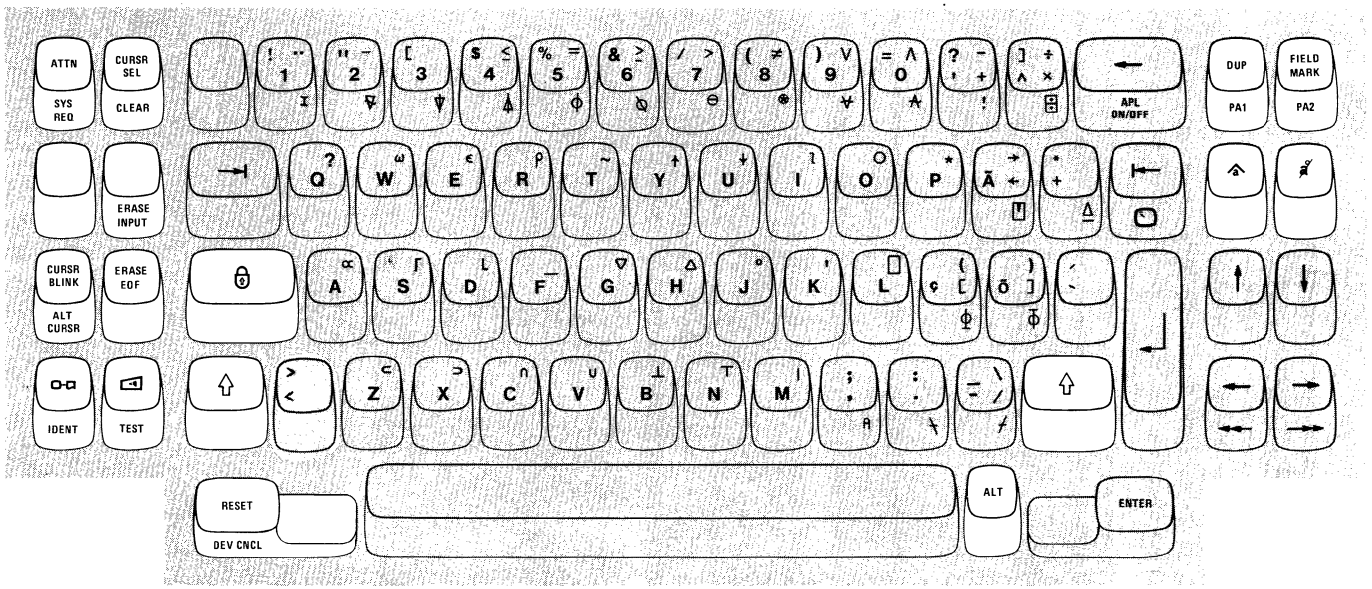


Data Entry Keyboard

Figure 3-17 (Part 1 of 2). Portuguese Keyboards

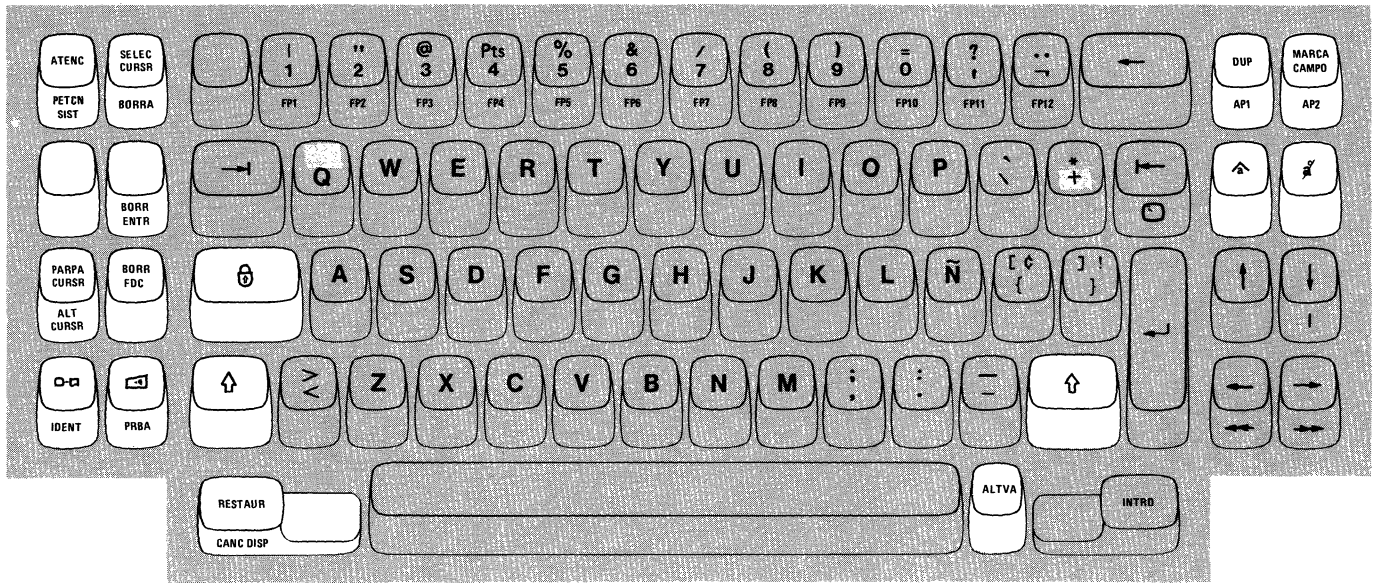


Data Entry Keypunch Keyboard

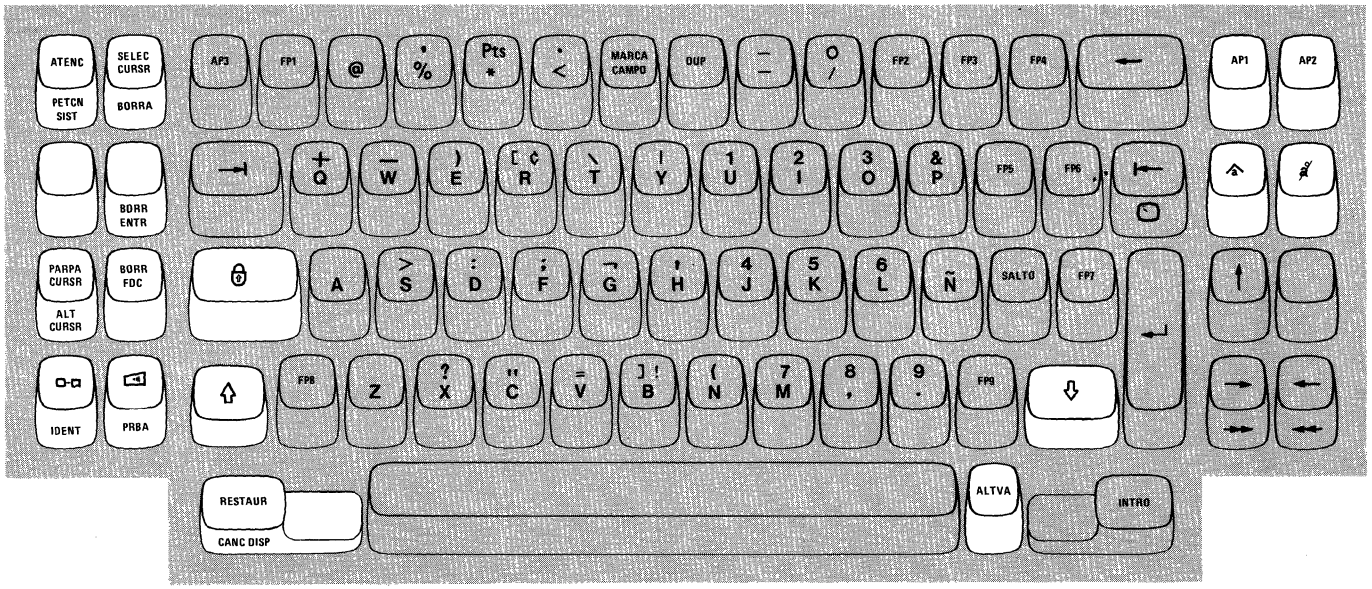


APL Keyboard

Figure 3-17 (Part 2 of 2). Portuguese Keyboards

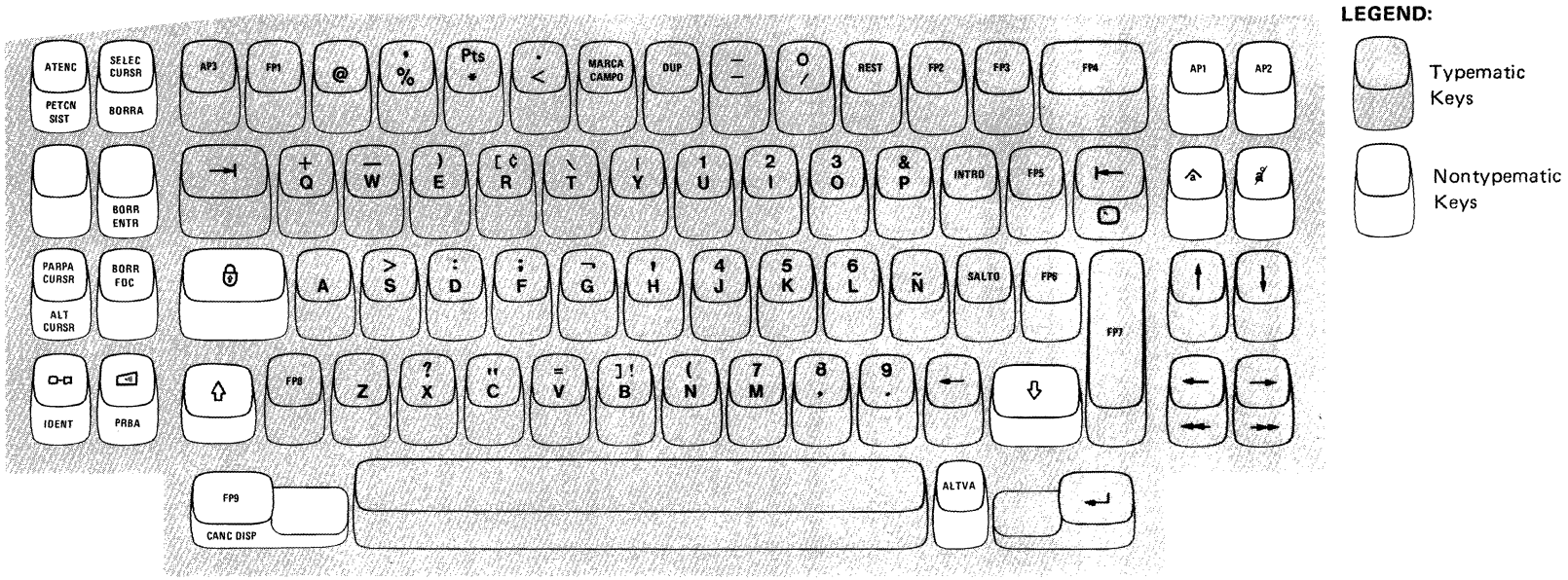


Typewriter Keyboard

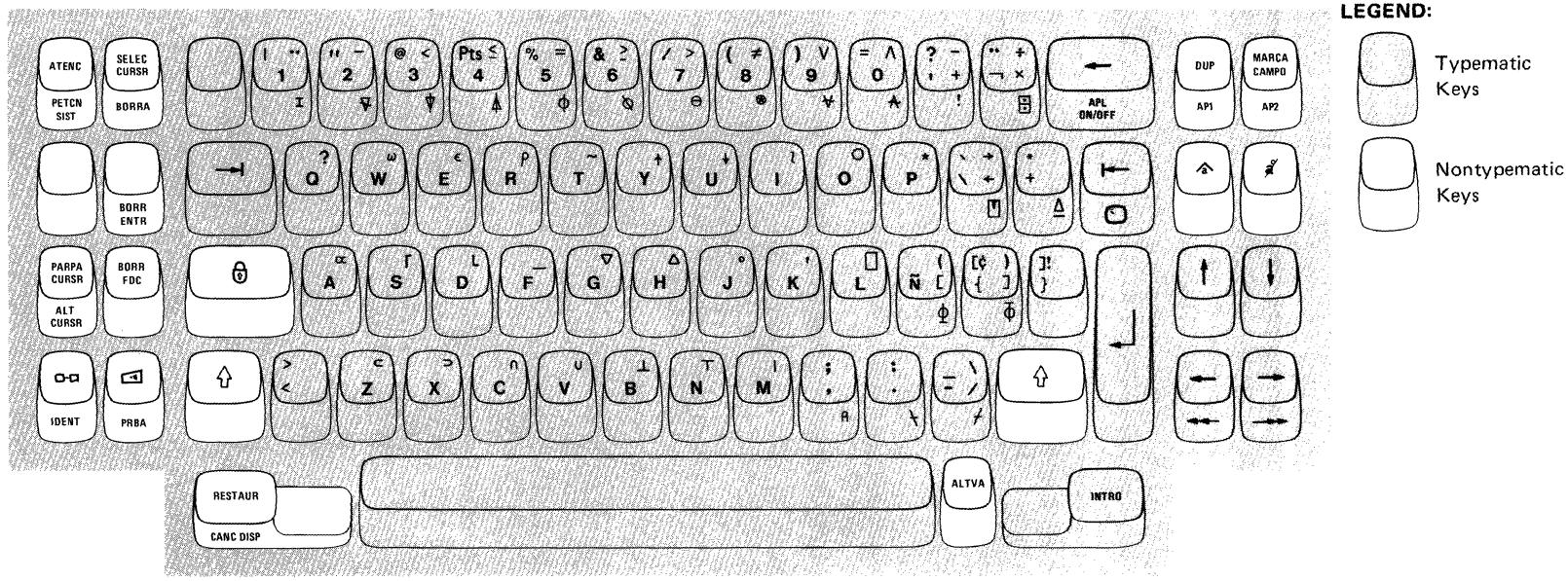


Data Entry Keyboard

Figure 3-18 (Part 1 of 2). Spanish Keyboards

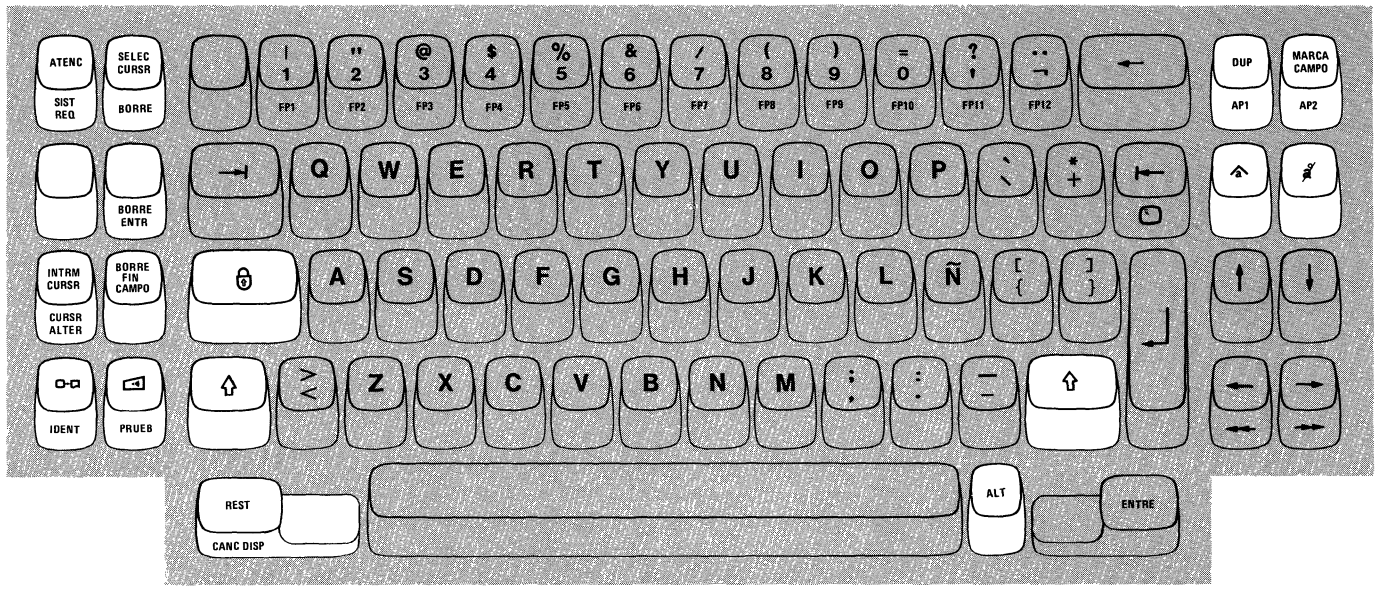


Data Entry Keypunch Keyboard

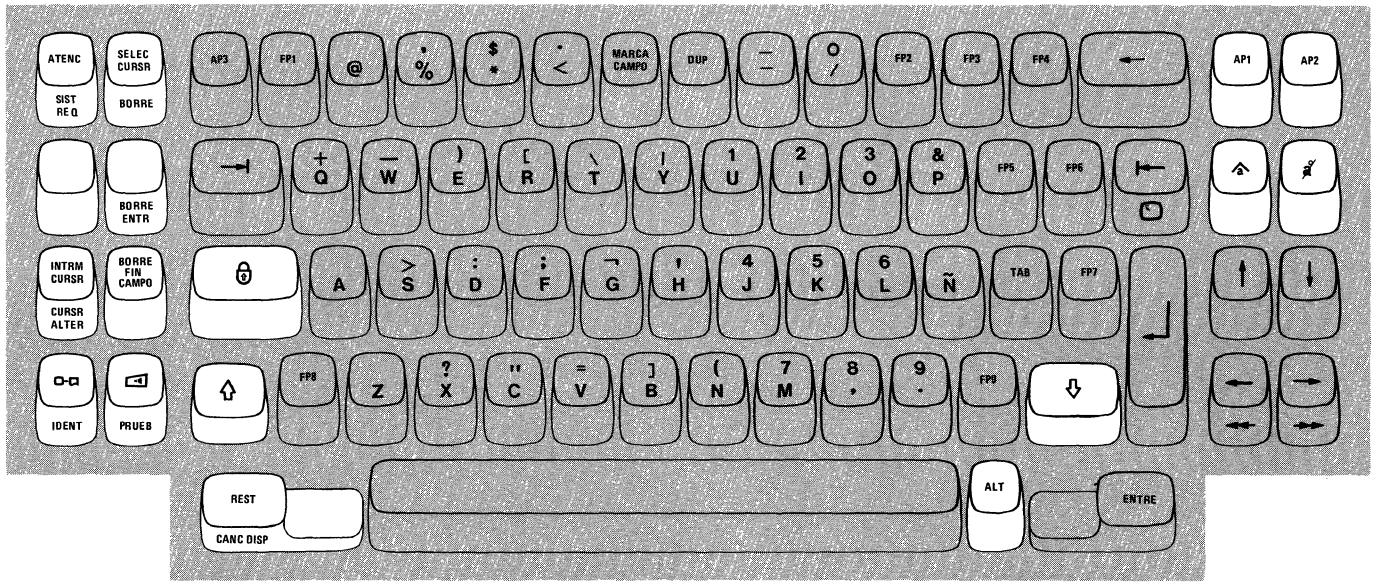


APL Keyboard

Figure 3-18 (Part 2 of 2). Spanish Keyboards

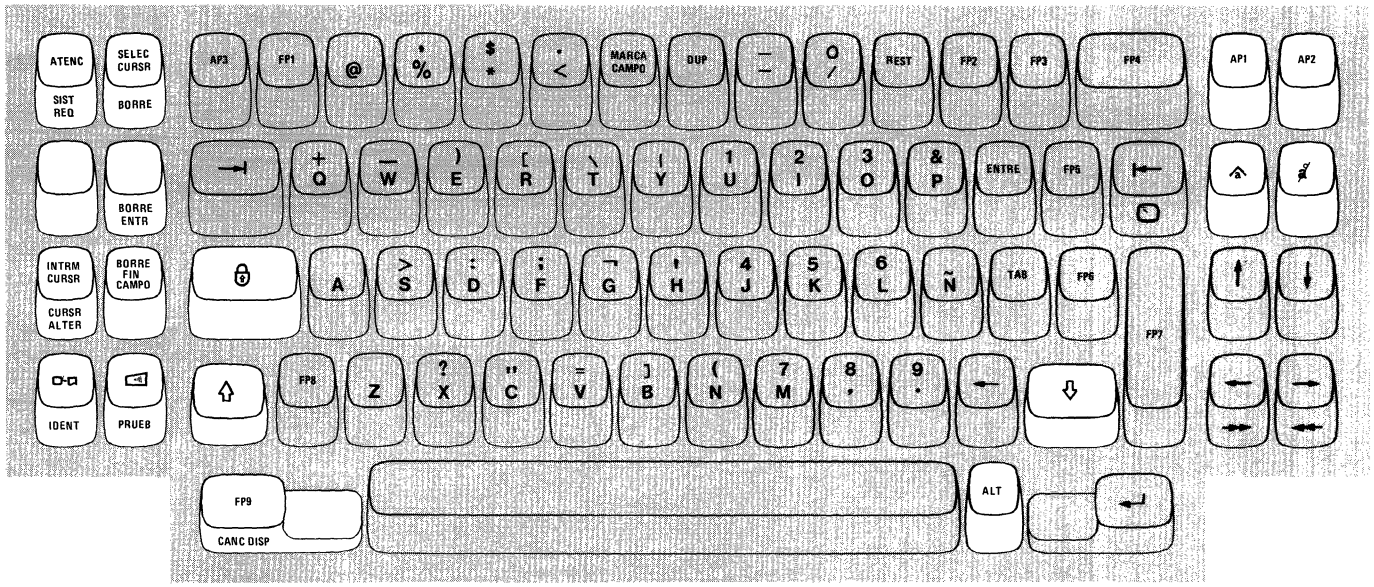


Typewriter Keyboard

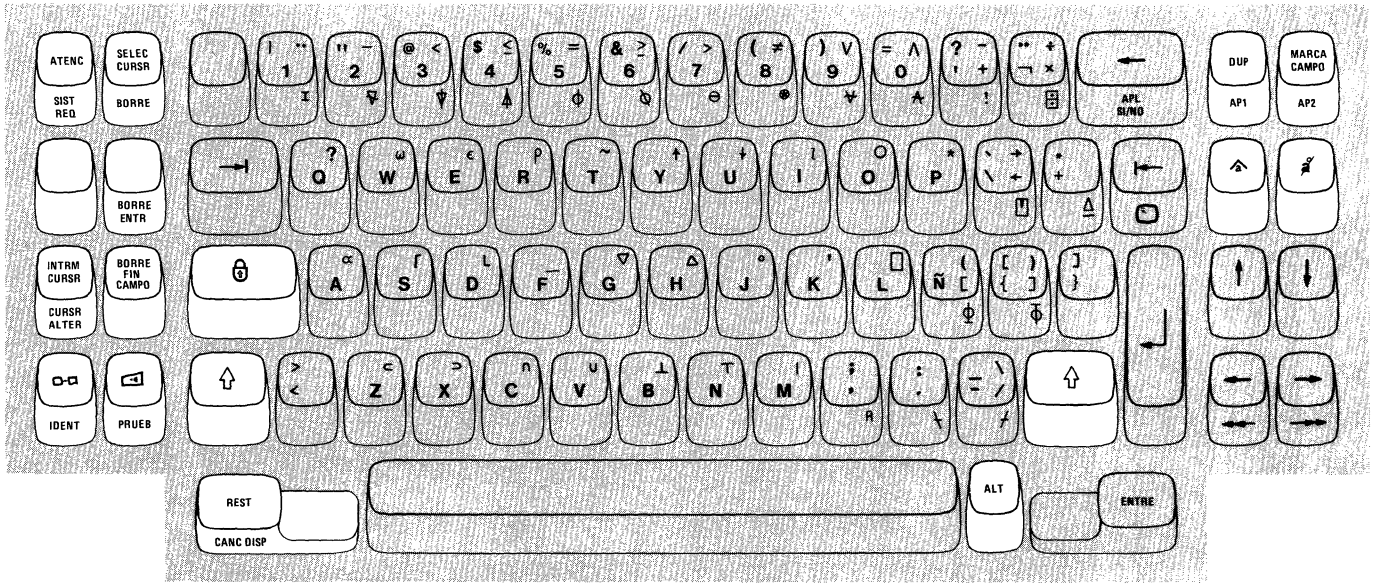


Data Entry Keyboard

Figure 3-19 (Part 1 of 2). Spanish-Speaking Keyboards

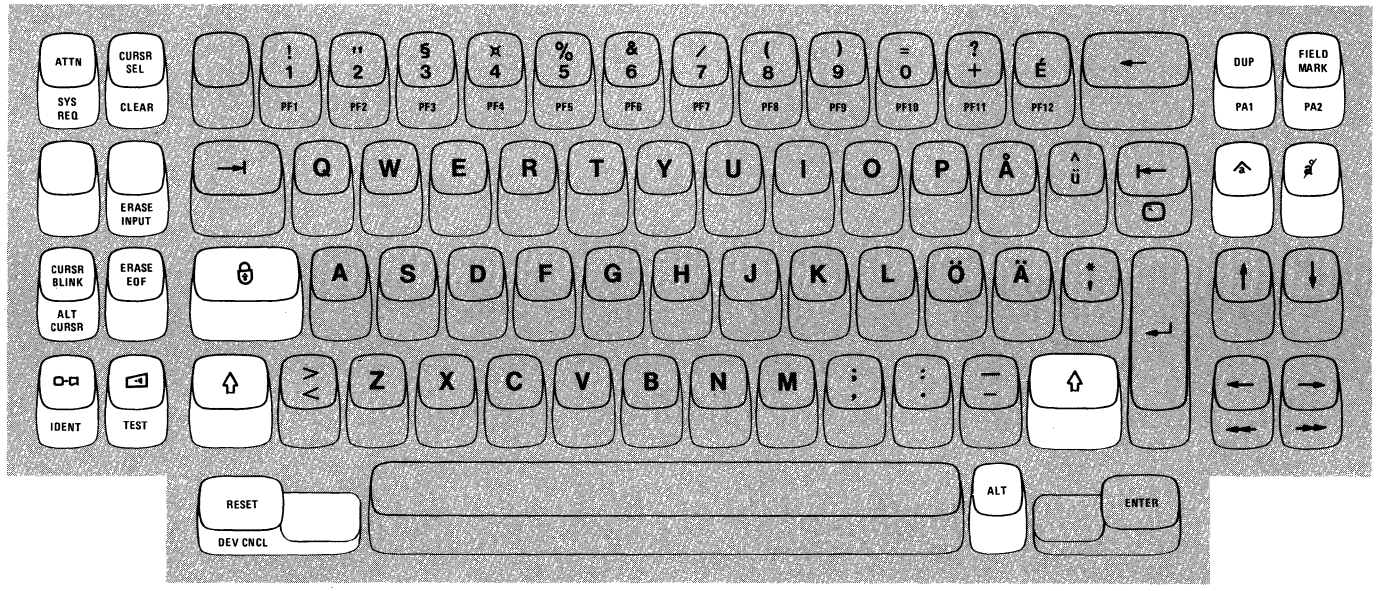


Data Entry Keypunch Keyboard

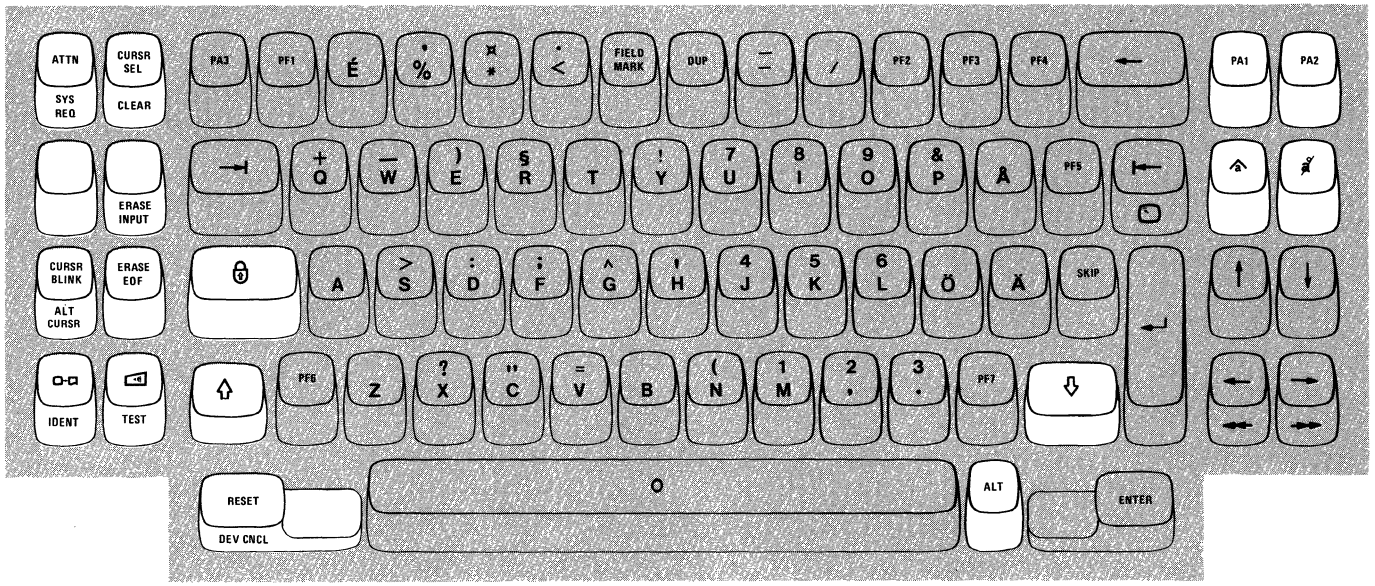


APL Keyboard

Figure 3-19 (Part 2 of 2). Spanish-Speaking Keyboards

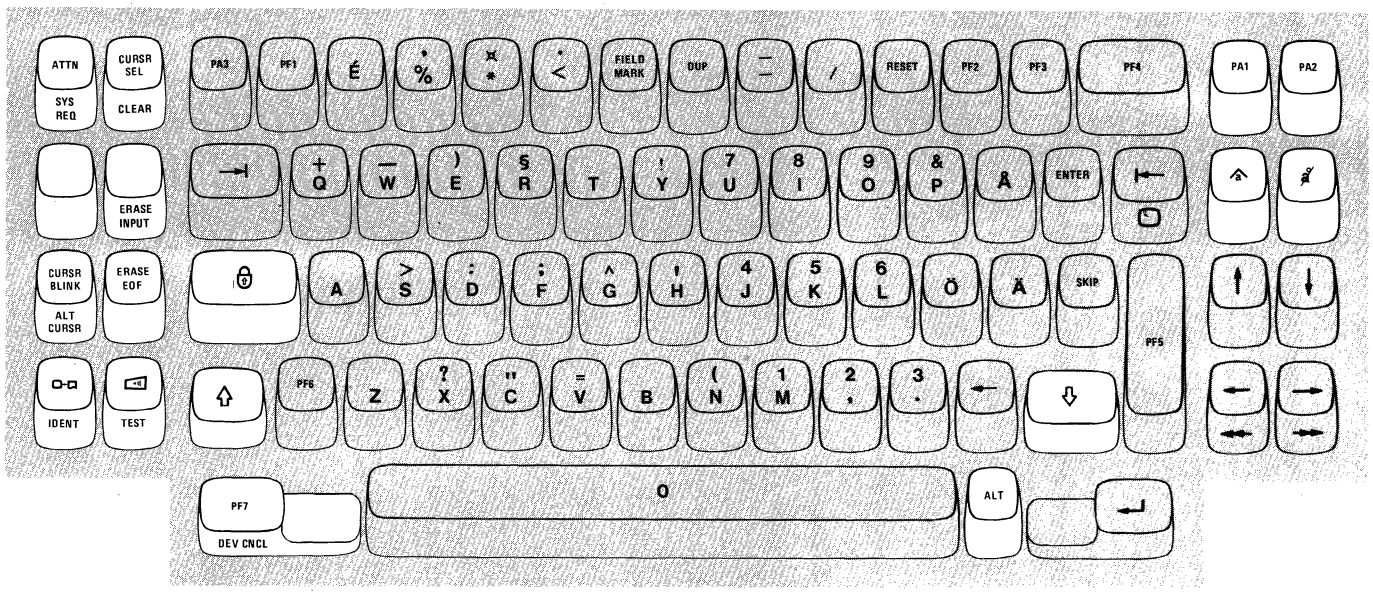


Typewriter Keyboard

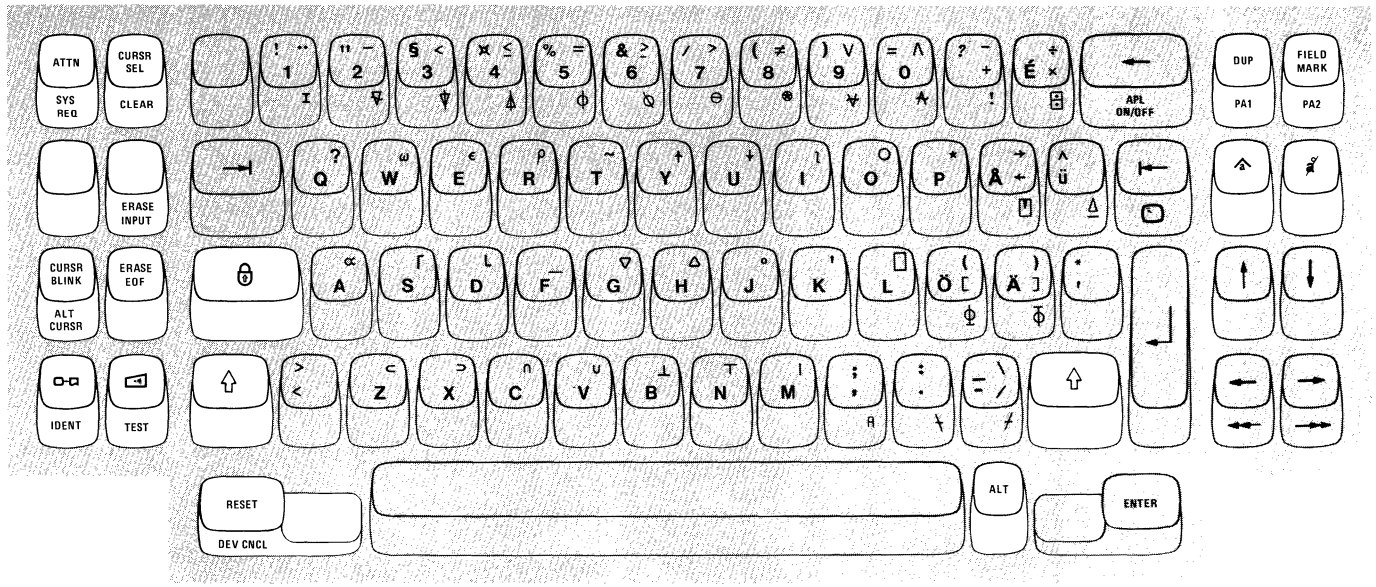


Data Entry Keyboard

Figure 3-20 (Part 1 of 2). Swedish Keyboards

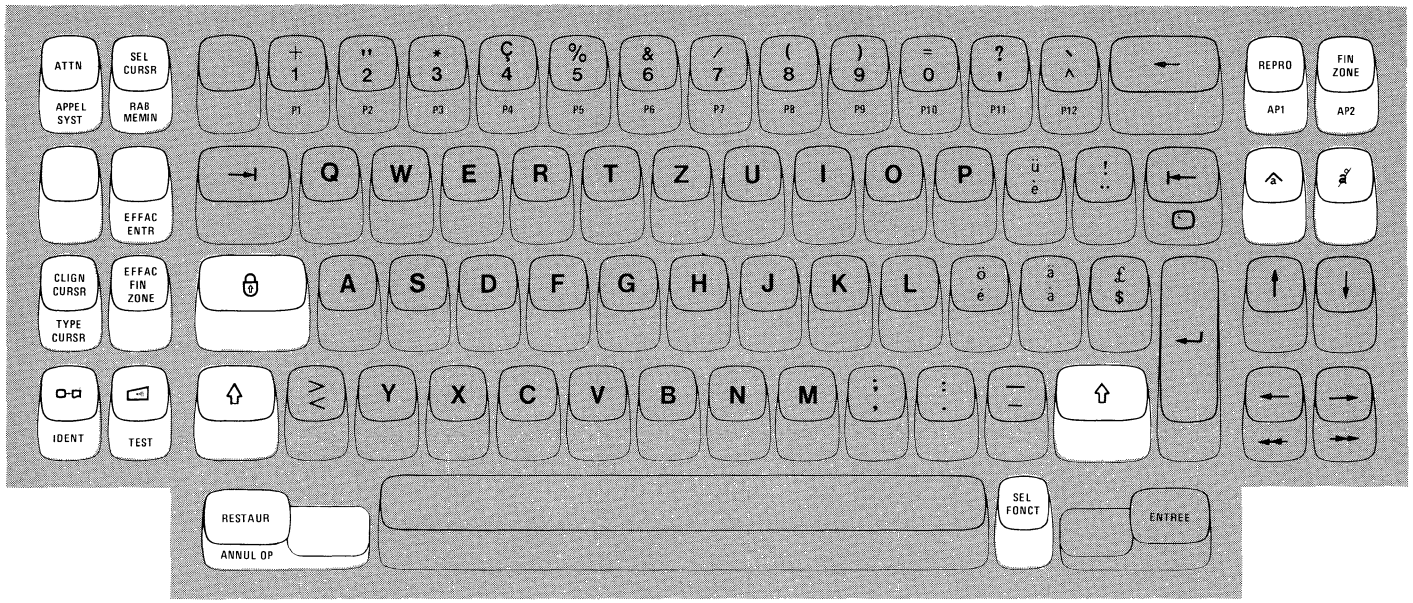


Data Entry Keypunch Keyboard

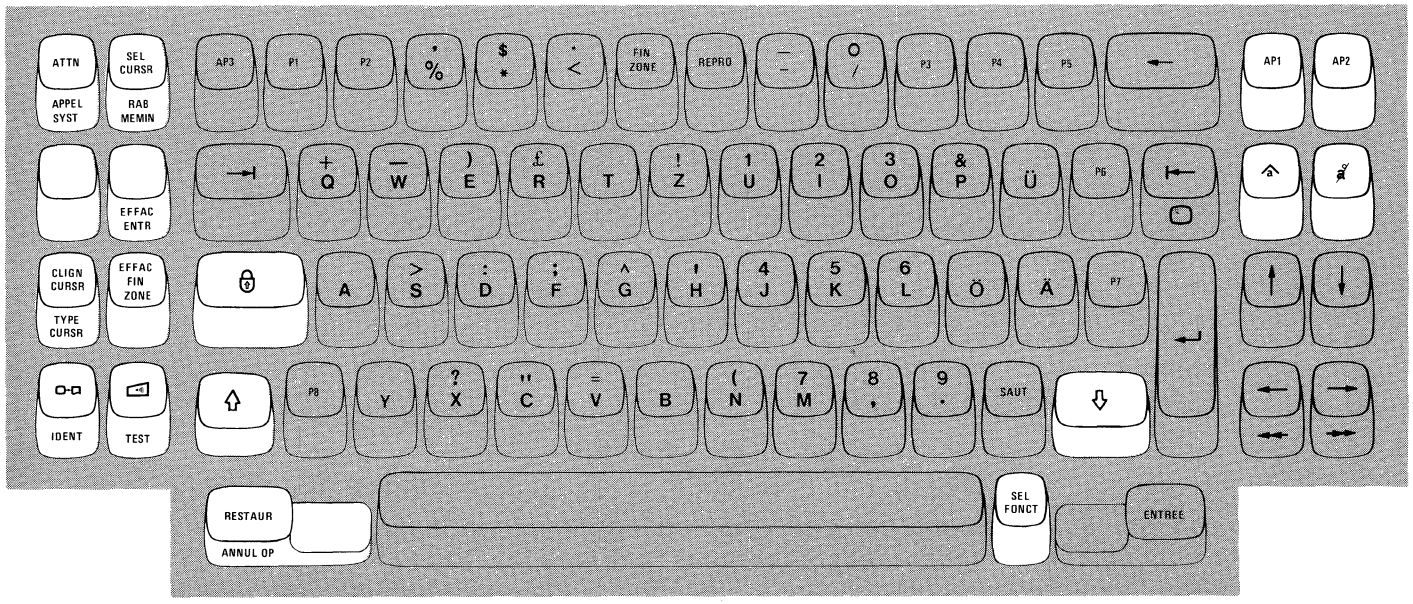


APL Keyboard

Figure 3-20 (Part 2 of 2). Swedish Keyboards



Typewriter Keyboard



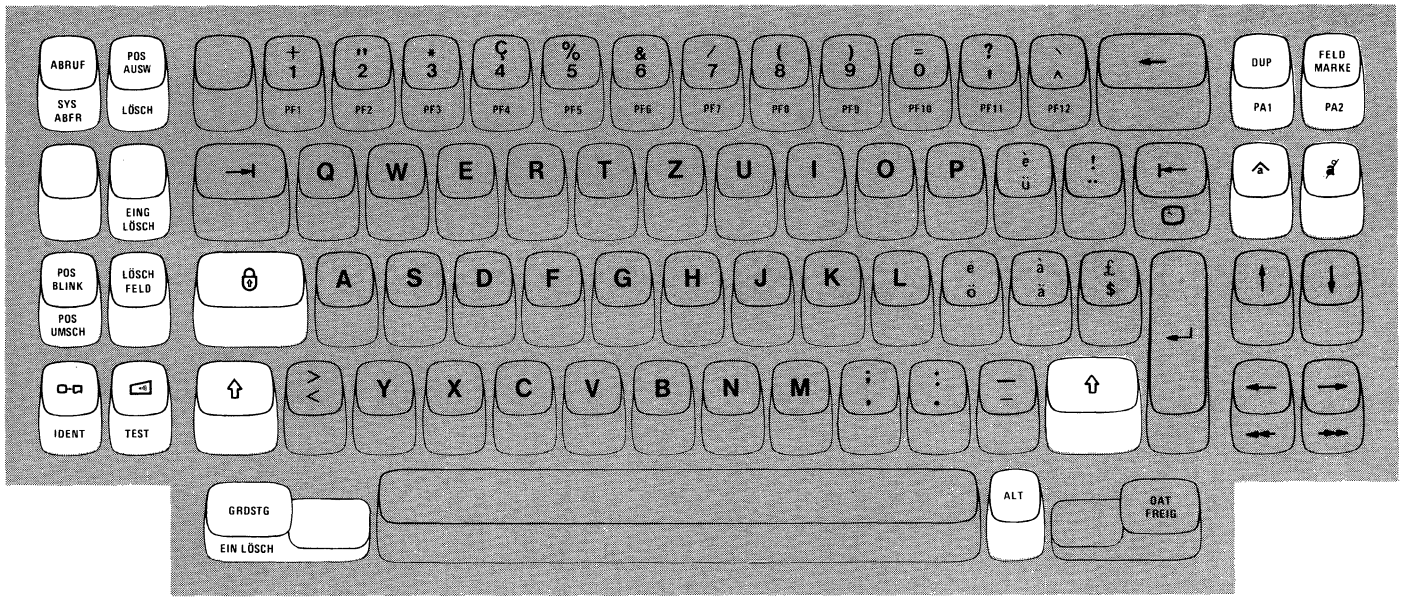
Data Entry Keyboard

Legend:

Typematic Keys

Nontypematic Keys

Figure 3-21. Swiss-French Keyboards

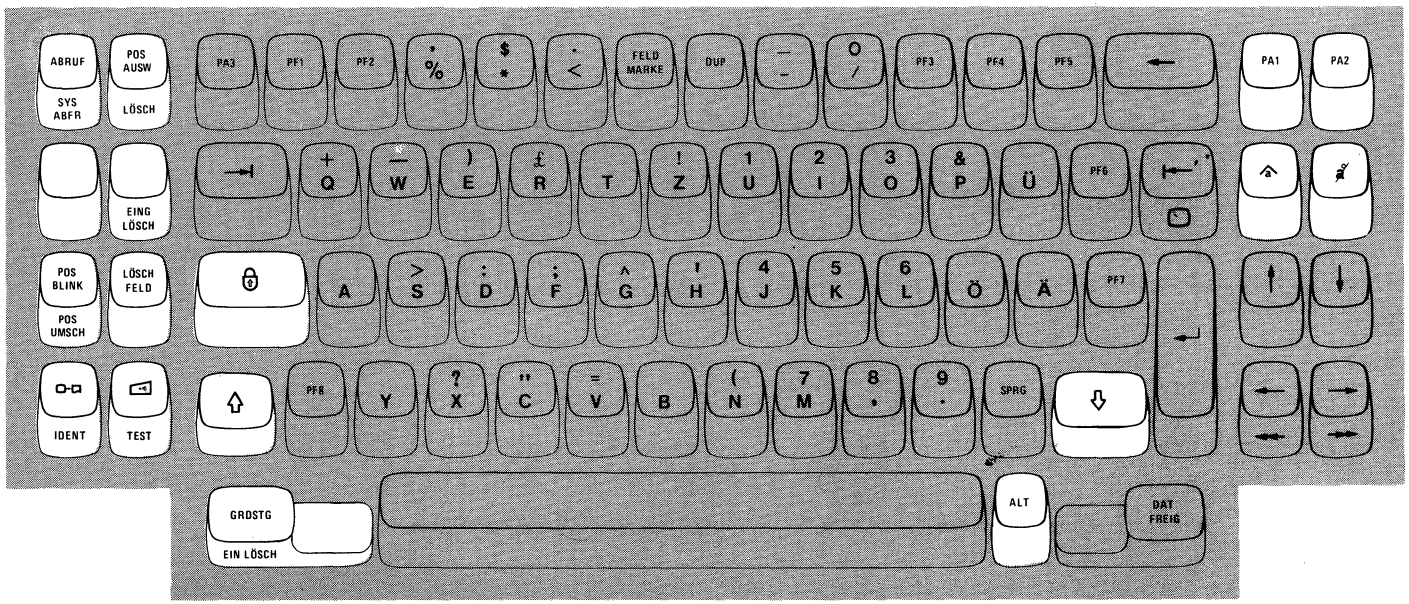


Typewriter Keyboard

Legend:

Typematic Keys

Nontypematic Keys



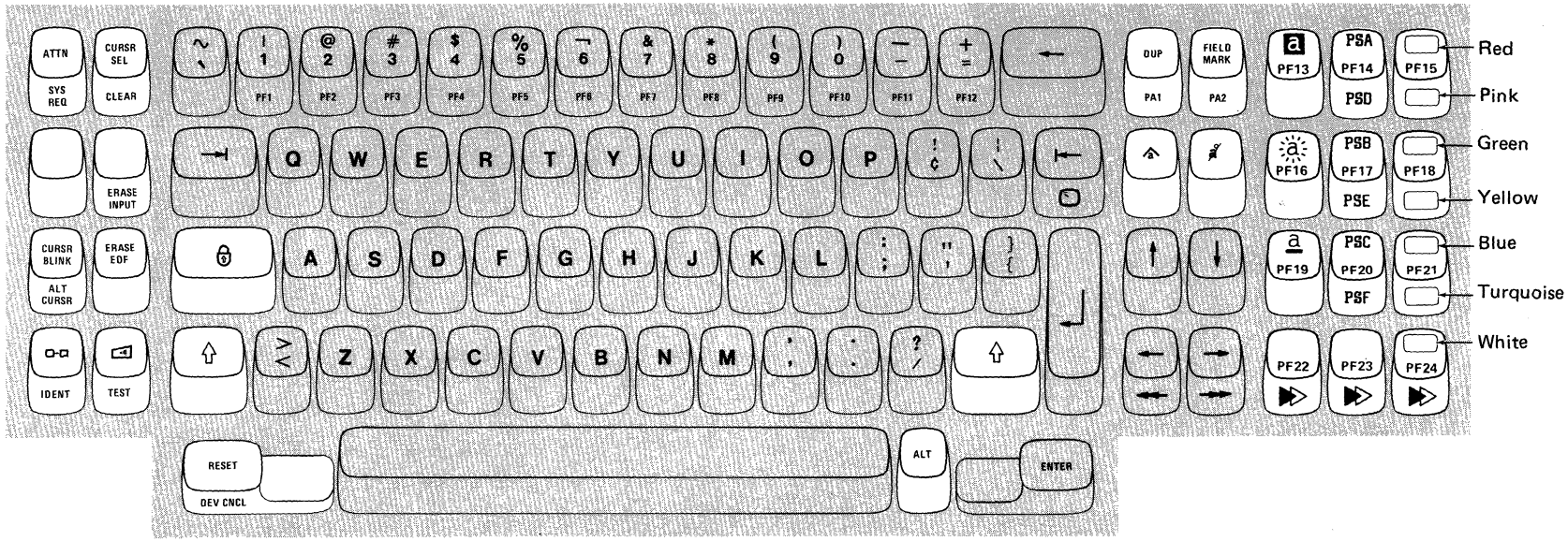
Data Entry Keyboard

Legend:

Typematic Keys

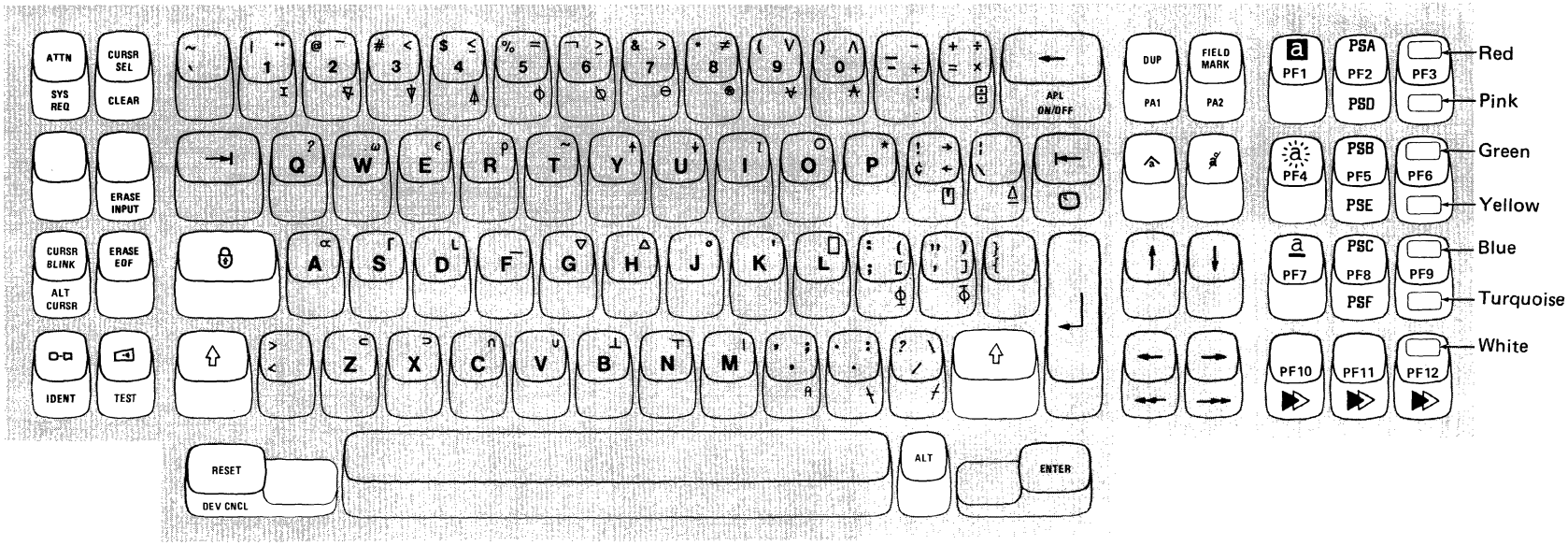
Nontypematic Keys

Figure 3-22. Swiss-German Keyboards



Attribute Select Typewriter Keyboard

Figure 3-23 (Part 1 of 2). Attribute Select Keyboard [English (U.S.) Shown]



LEGEND:

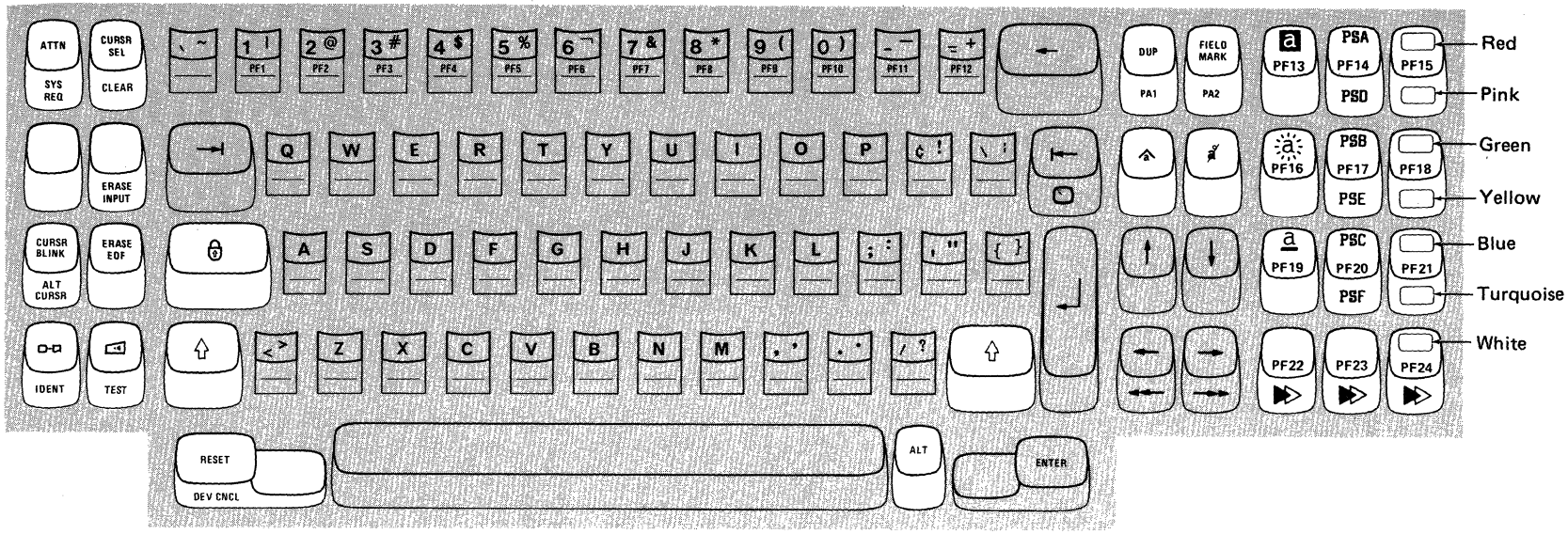
Typematic Keys

Nontypematic Keys

Note: On 87-key and 88-key APL keyboards, program function keys are assigned PF1 through PF12 rather than PF13 through 24.

Attribute Select Typewriter/APL Keyboard

Figure 3-23 (Part 2 of 2). Attribute Select Keyboard [English (U.S.) Shown]



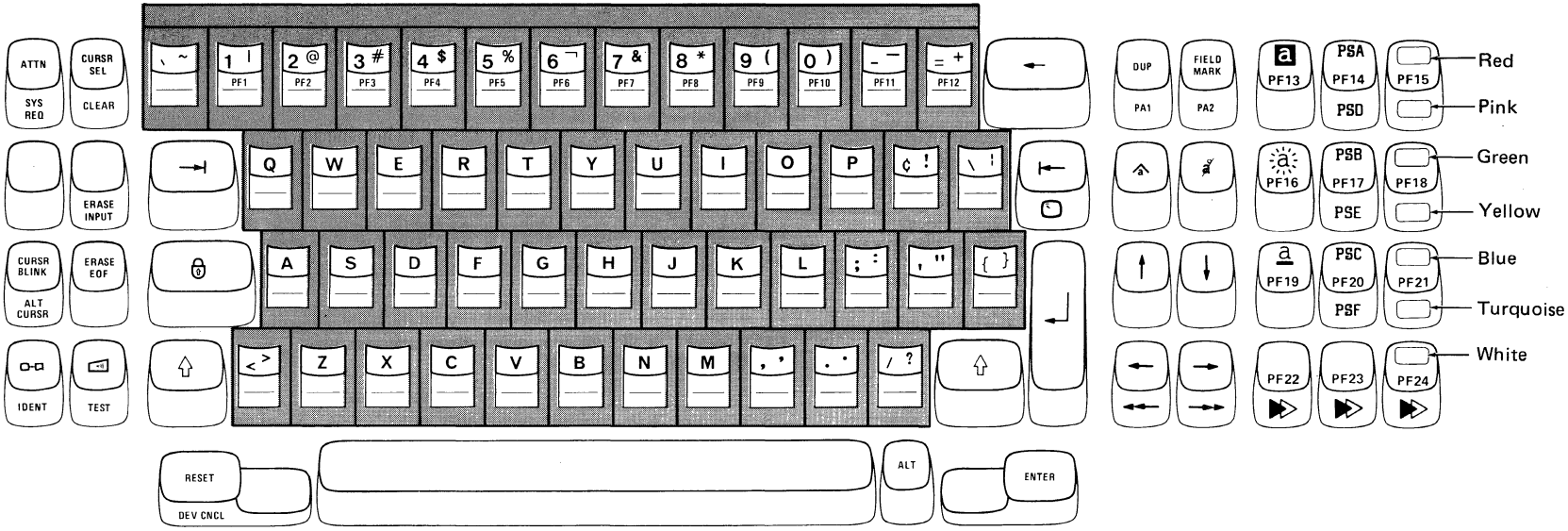
LEGEND:

Typematic Keys

Nontypematic Keys

Typewriter Overlay Keyboard

Figure 3-24 (Part 1 of 2). Typewriter Overlay Keyboard [English (U.S.) Shown]



Overlay Mask Location for Typewriter Overlay Keyboard

Figure 3-24 (Part 2 of 2). Typewriter Overlay Keyboard [English (U.S.) Shown]

Chapter 4. 3178 Display Station Keyboards

Keyboard Definitions

The IBM 3178 Display Station is available in three models: C1, C2, and C3. Model C1 has a 75-key data entry keyboard. Model C2 has an 87-key typewriter keyboard. One key is added for the Katakana versions of Models C1 and C2. Model C3 (available in U.S. English only) is a typewriter keyboard similar to Model C2, redesigned with a numeric keypad that has the function keys positioned on it.

The keyboards are:

Model C1 75-Key Data Entry Keyboard: This keyboard has 34 data keys, 10 program function keys, and 31 control keys. The Japanese Katakana data entry keyboard has one additional control key, resulting in a 76-key keyboard. The 10 standard program function keys are arranged around the alphabetic keys. The function of each program function key is determined by the application program.

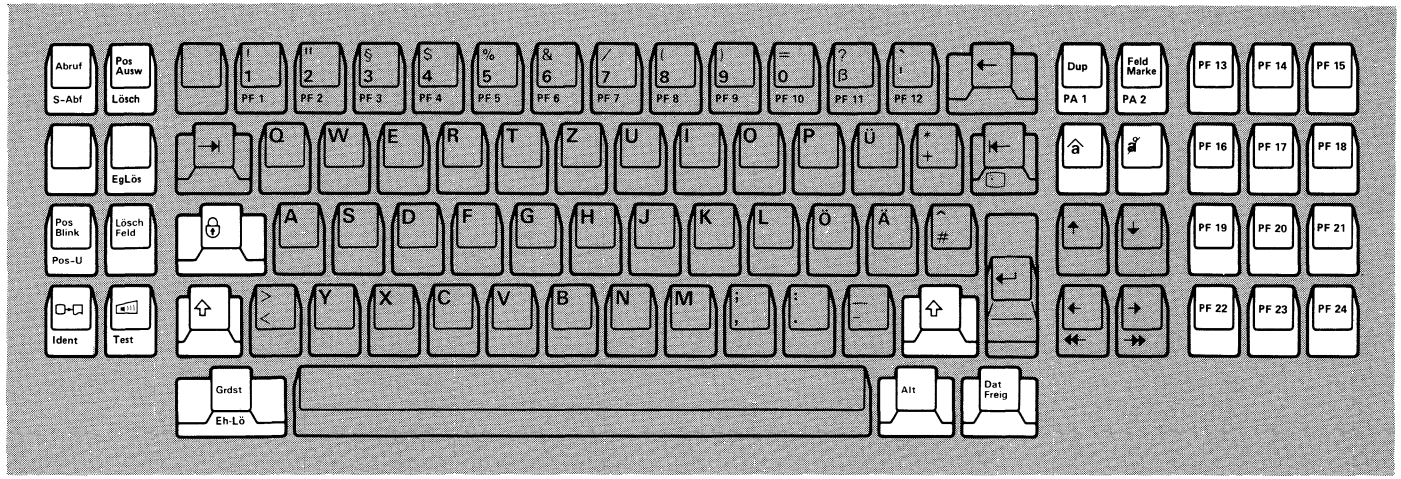
Model C2 87-Key Typewriter Keyboard: This keyboard has 48 data keys, 27 control keys, and 24 program function keys. The Japanese Katakana typewriter keyboard contains one additional control key, resulting in an 88-key keyboard. Standard program function keys PF1 through 12 are on the top row. The additional group of 12 keys is located on the right-hand side of the keyboard. The user may define the 12 additional program function keys to fit the requirements of an application program.

Model C3 87-Key Typewriter Keyboard: This keyboard has 48 data keys, 27 control keys, and a 12-key numeric pad that also houses the 24 program function keys. This keyboard is available in U.S. English only. A SYS $ key, useful for JES2 programmers, is added to the control keys on the left. The Clear key can be activated without pressing the Alt key first.

In uppercase mode, the numeric keys on the keypad print 0 through 9, plus decimal and tab, in adding-machine format. In lowercase, the numeric keys function as program function keys 1–12. When the Alt key is pressed first and then the numeric key, program function keys 13–24 can be activated.

Keyboard Layouts

Figures 4-1 through 4-17 illustrate the keyboard layouts for the various national languages.



Typewriter Keyboard

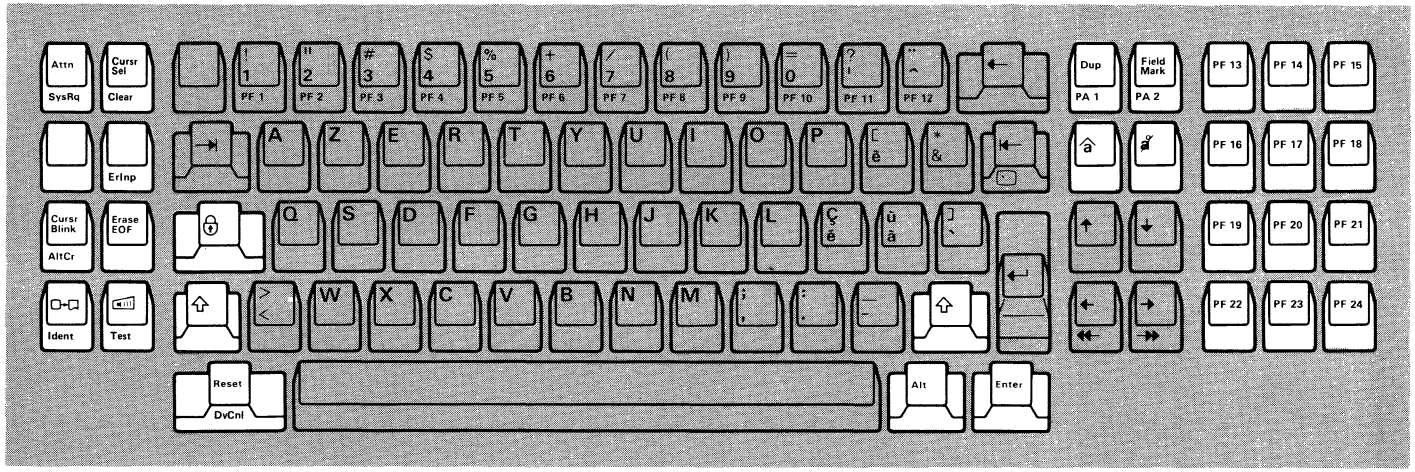
Data Entry Keyboard

LEGEND:

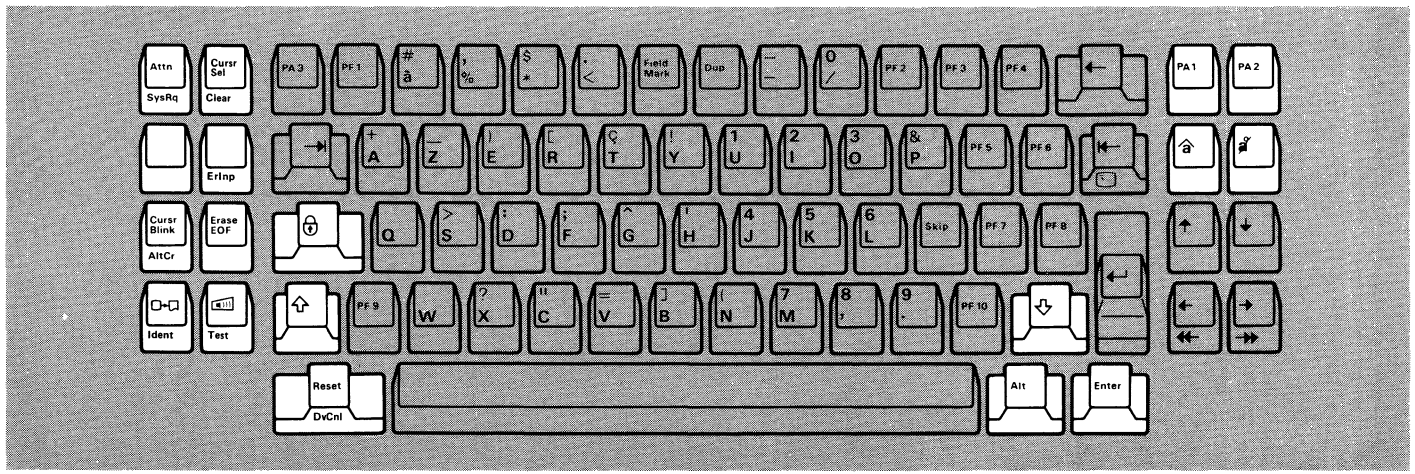
Typematic Keys

Nontypematic Keys

Figure 4-1. Austrian/German Keyboards



Typewriter Keyboard



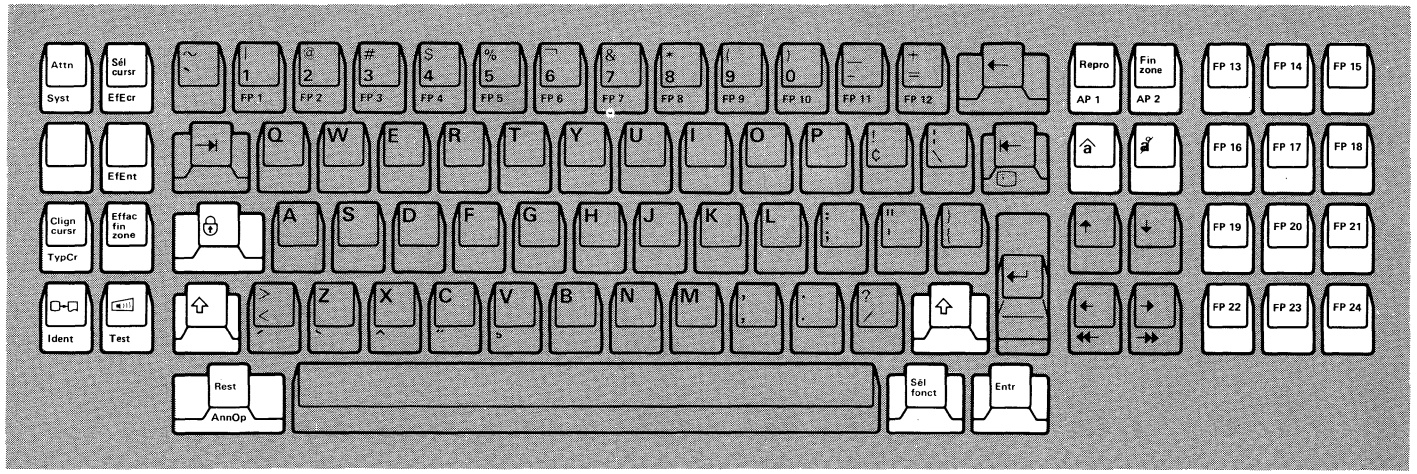
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-2. Belgian Keyboards



Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

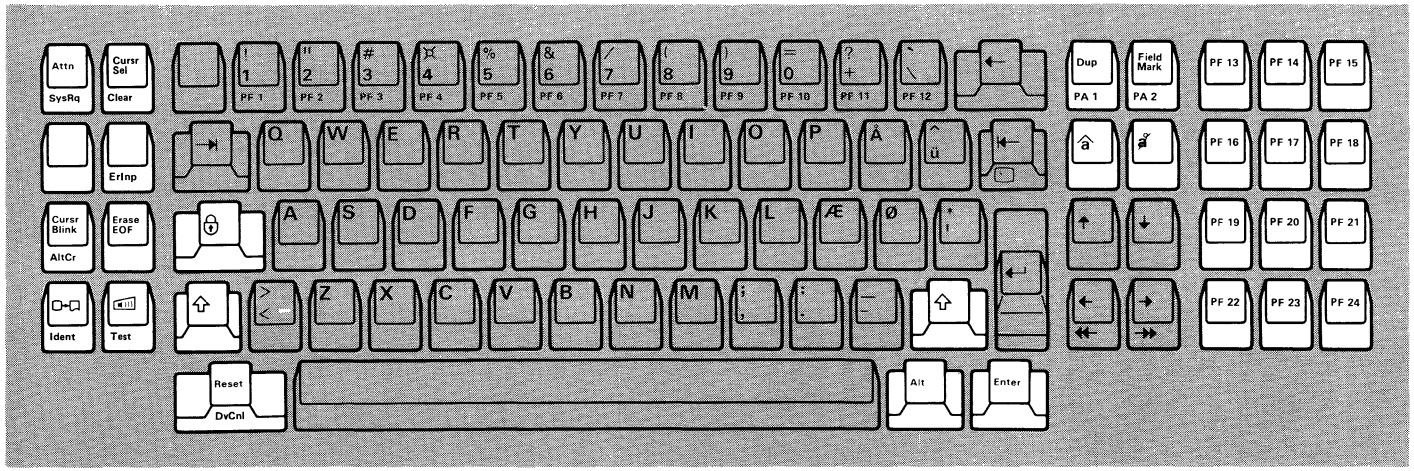
Data Entry Keyboard

LEGEND:

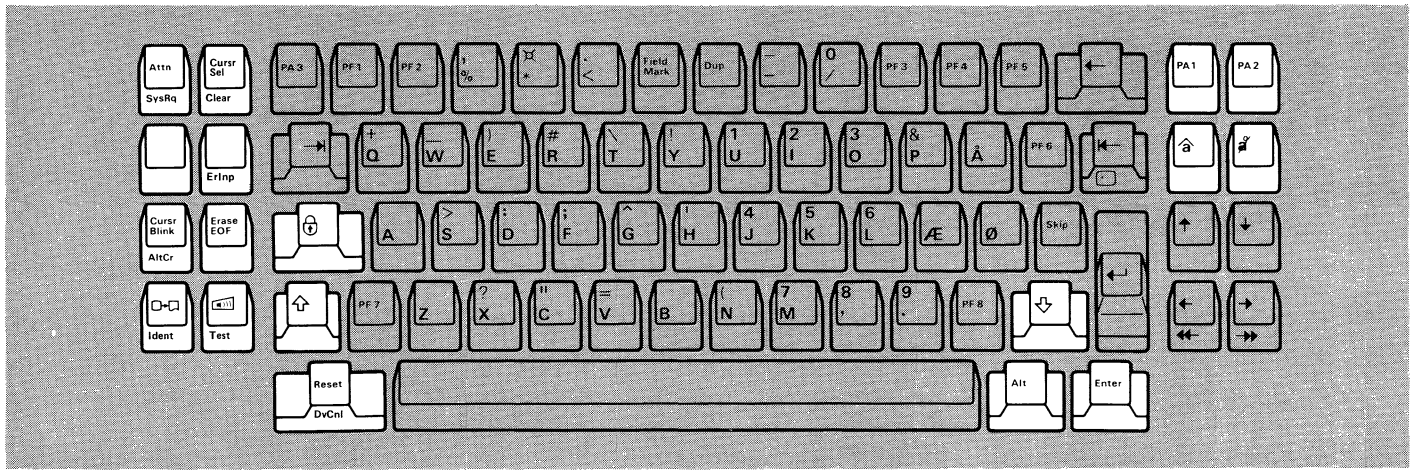
Typematic Keys

Nontypematic Keys

Figure 4-3. Canadian-French Bilingual Keyboards



Typewriter Keyboard



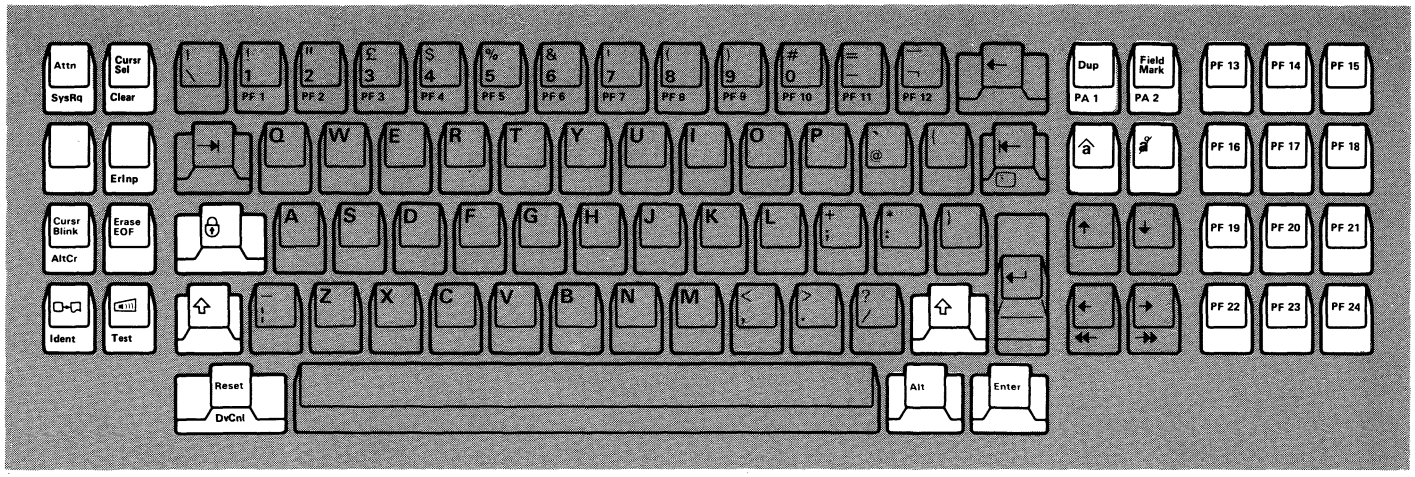
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-4. Danish Keyboards



Typewriter Keyboard

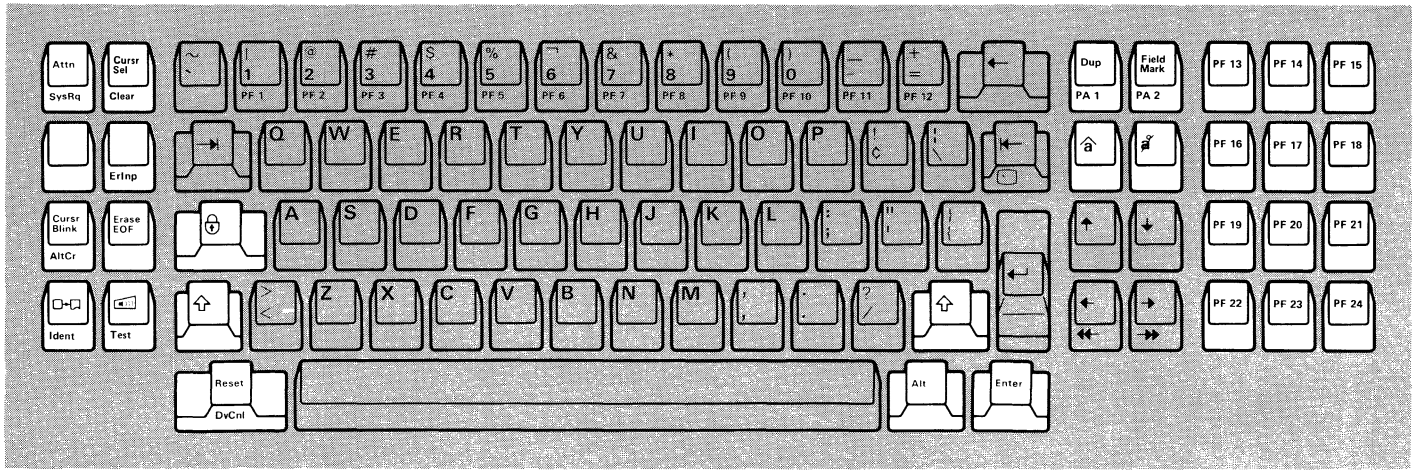
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-5. English (U.K.) Keyboards



Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

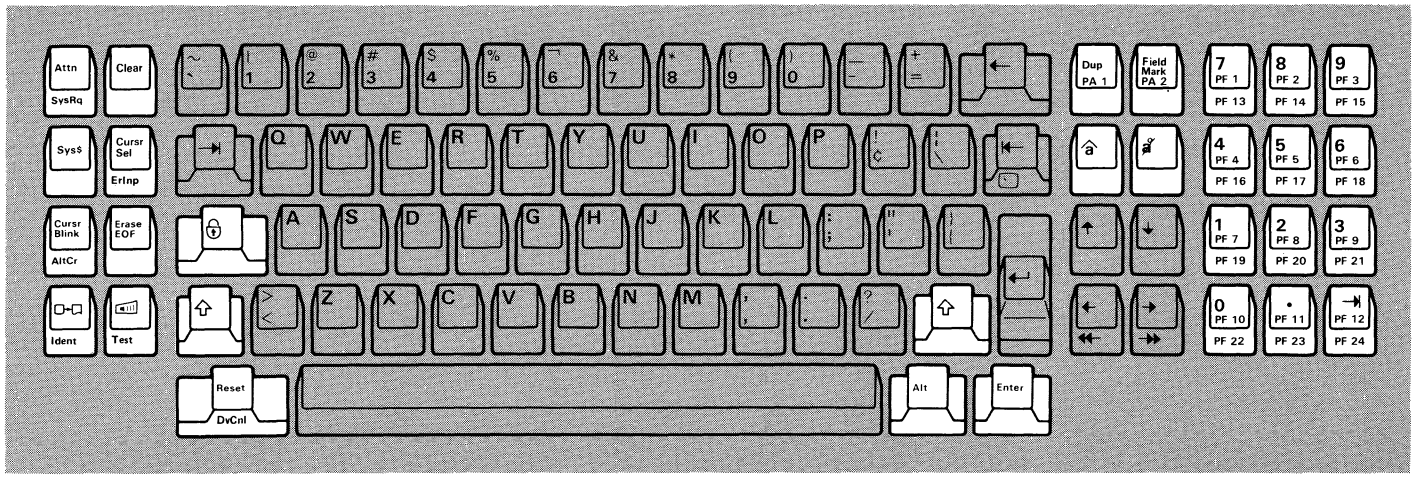
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-6 (Part 1 of 2). English (U.S.) Keyboards



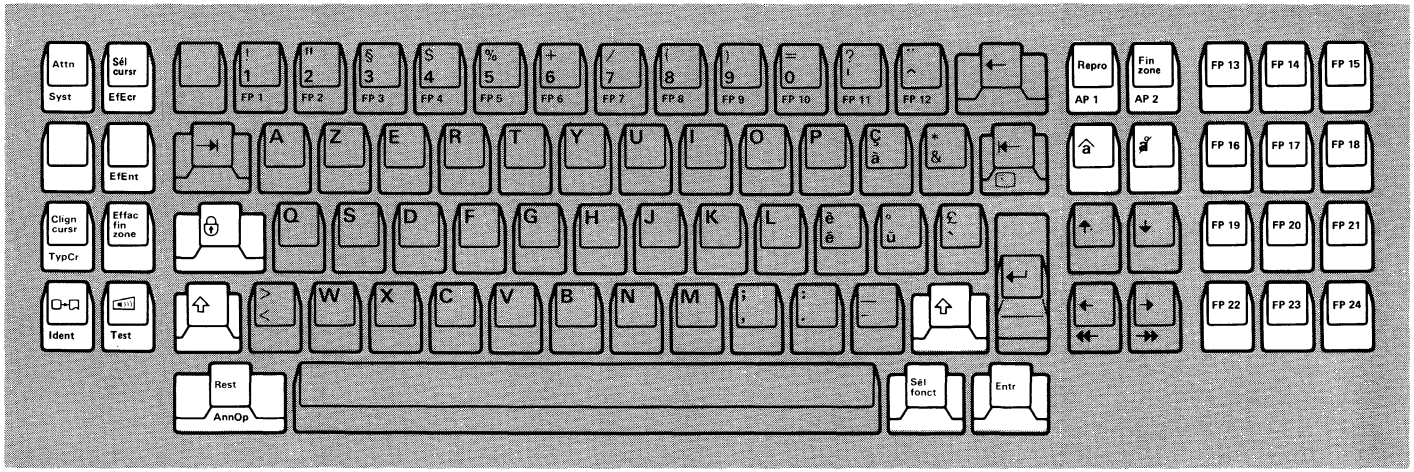
LEGEND:

Typematic Keys

Nontypematic Keys

Typewriter Keyboard with Numeric Keypad

Figure 4-6 (Part 2 of 2). English (U.S.) Keyboards

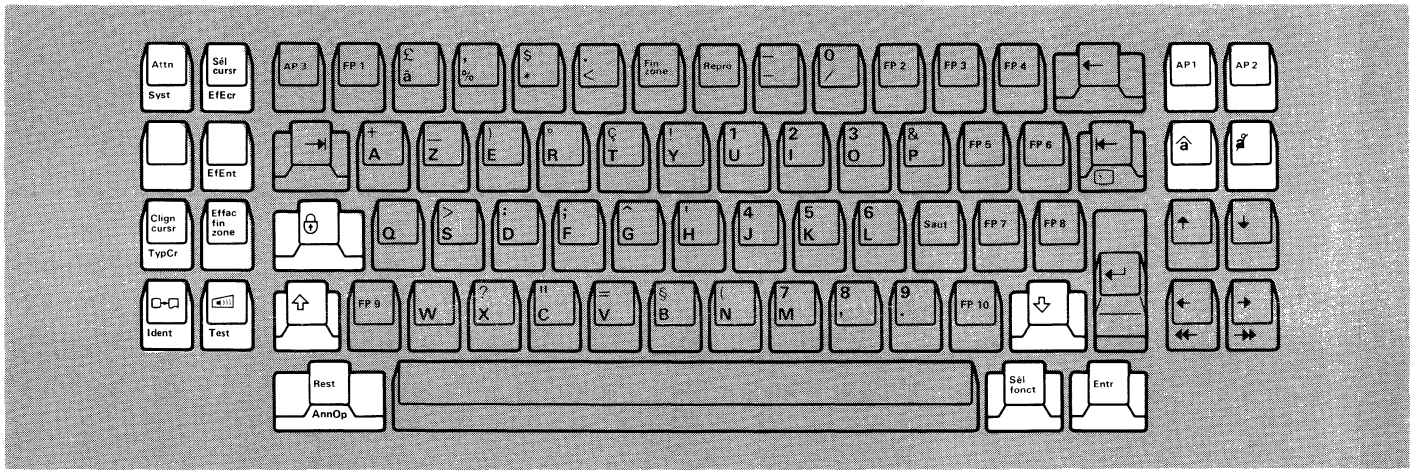


Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys



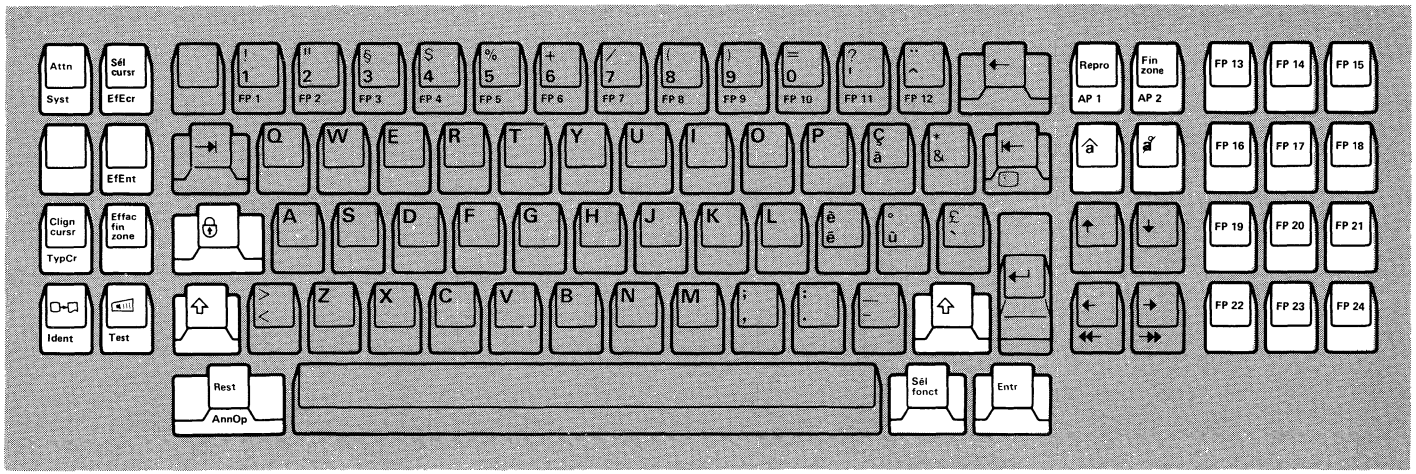
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-7. French (AZERTY) Keyboards

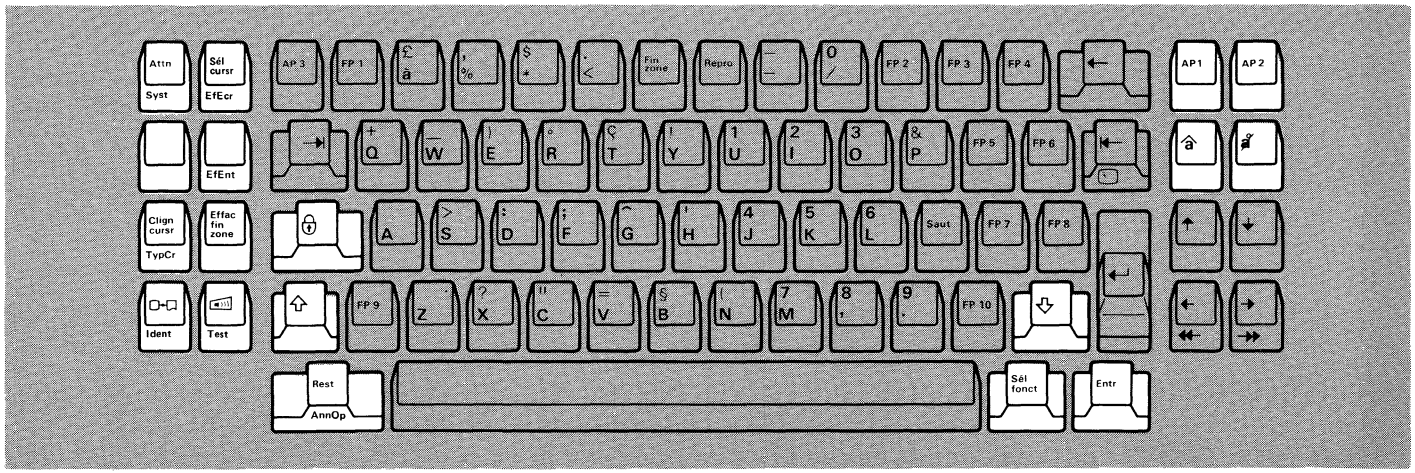


LEGEND:

Typematic Keys

Nontypematic Keys

Typewriter Keyboard



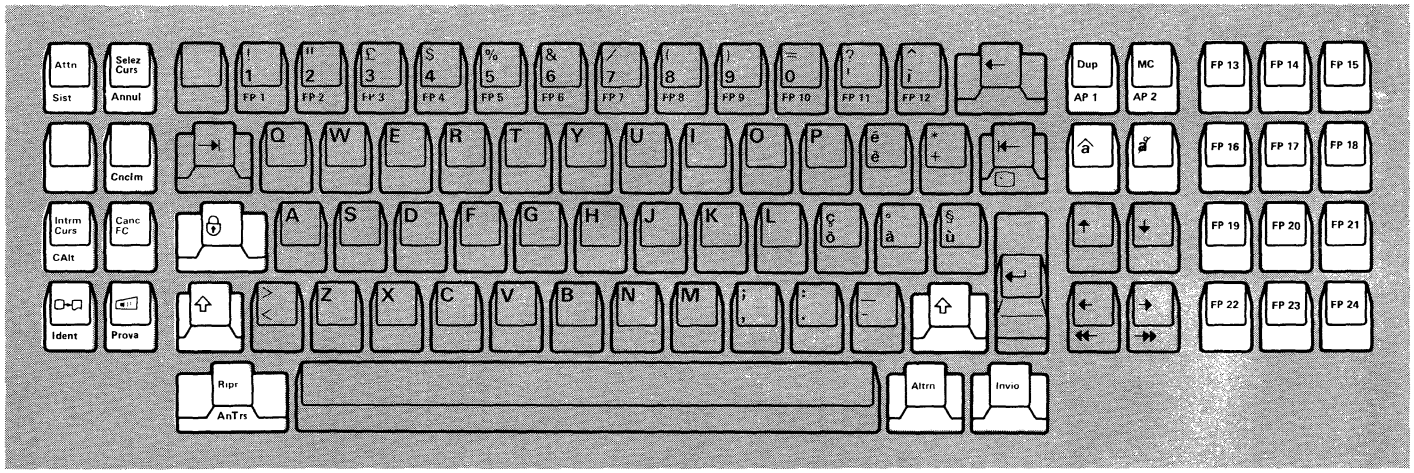
LEGEND:

Typematic Keys

Nontypematic Keys

Data Entry Keyboard

Figure 4-8. French (QWERTY) Keyboards



Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

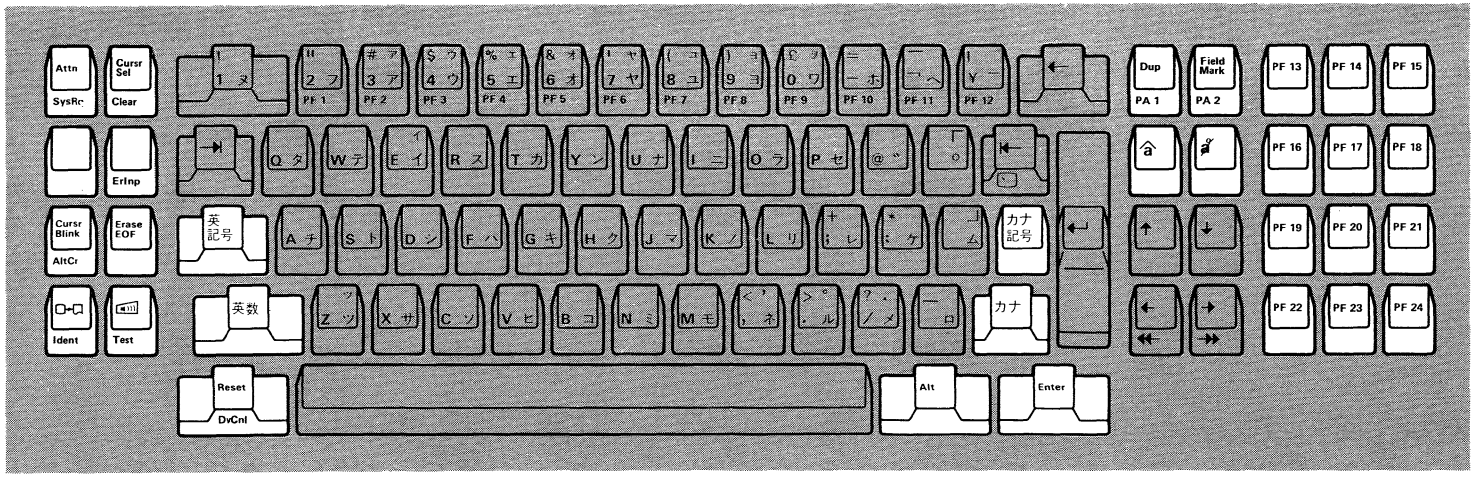
Data Entry Keyboard

LEGEND:

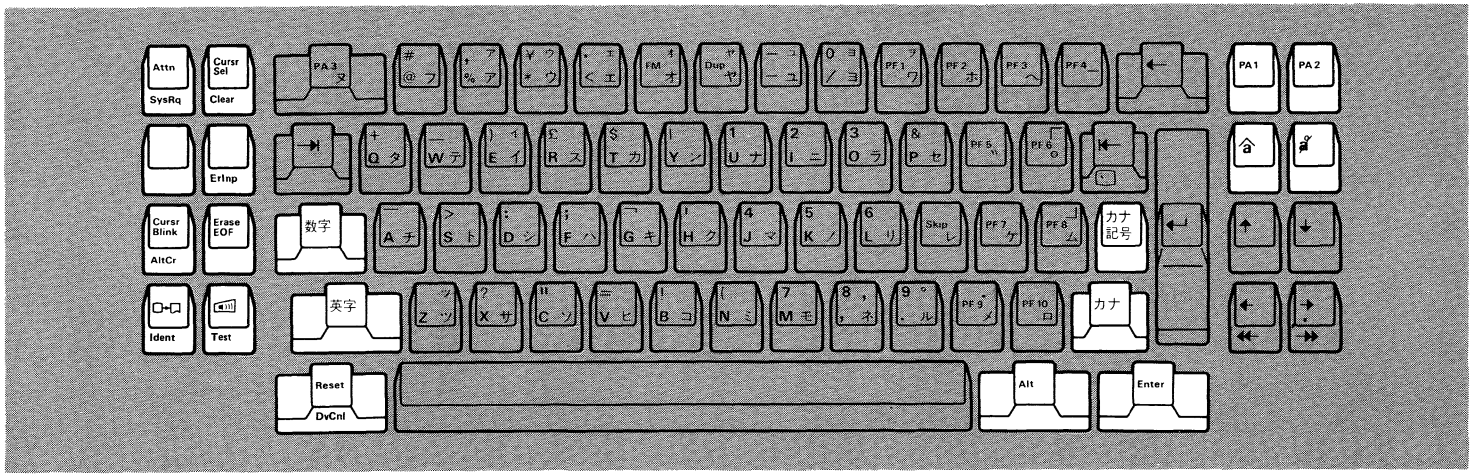
Typematic Keys

Nontypematic Keys

Figure 4-9. Italian Keyboards



Typewriter Keyboard



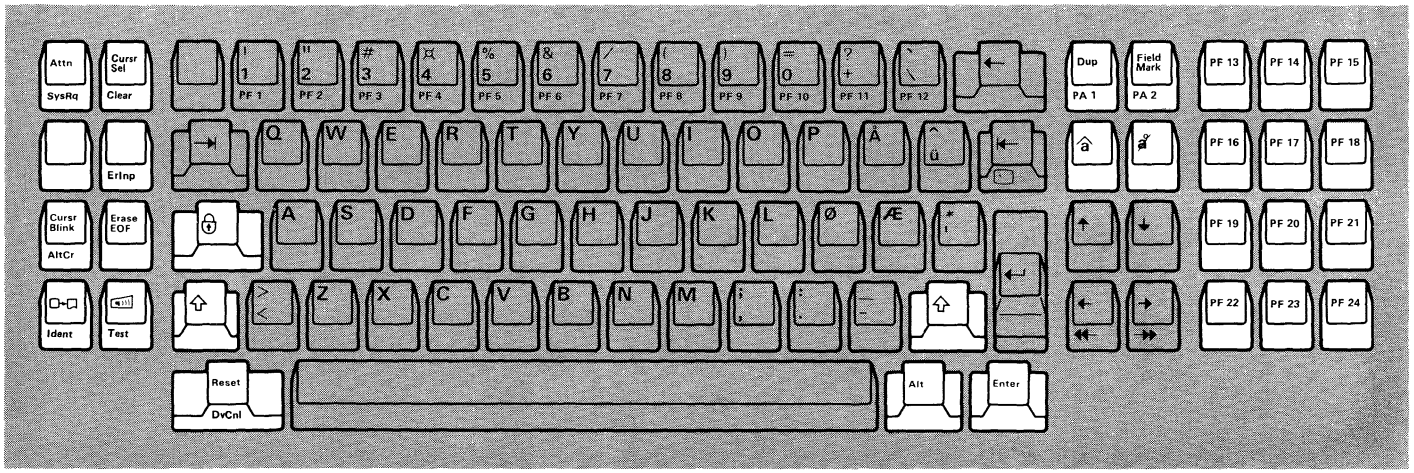
Data Entry Keyboard

LEGEND:

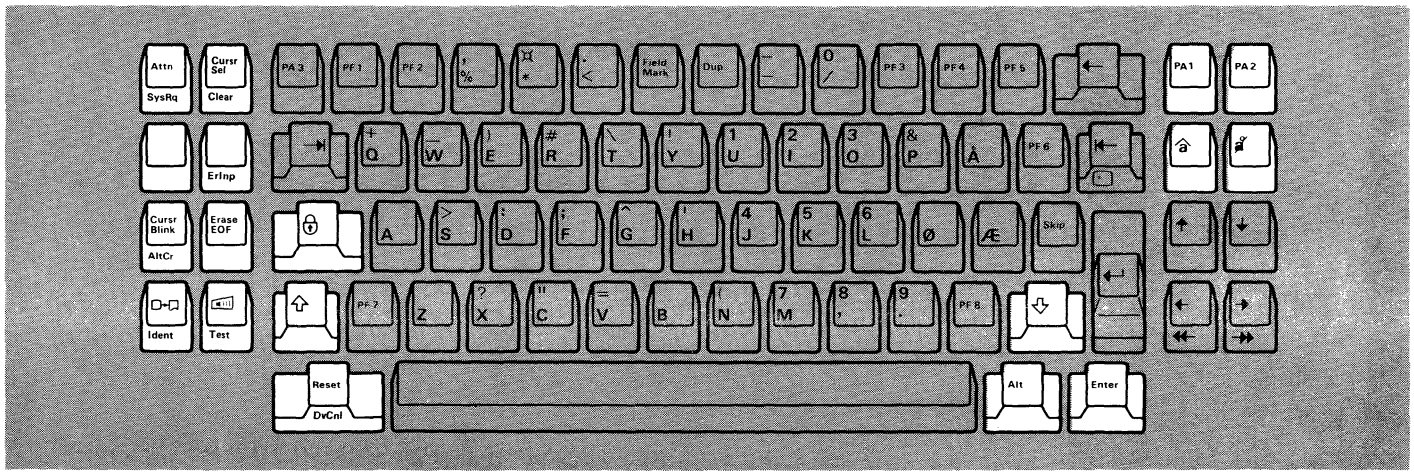
Typematic Keys

Nontypematic Keys

Figure 4-10. Japanese Katakana



Typewriter Keyboard



Data Entry Keyboard

LEGEND:

Typematic Keys

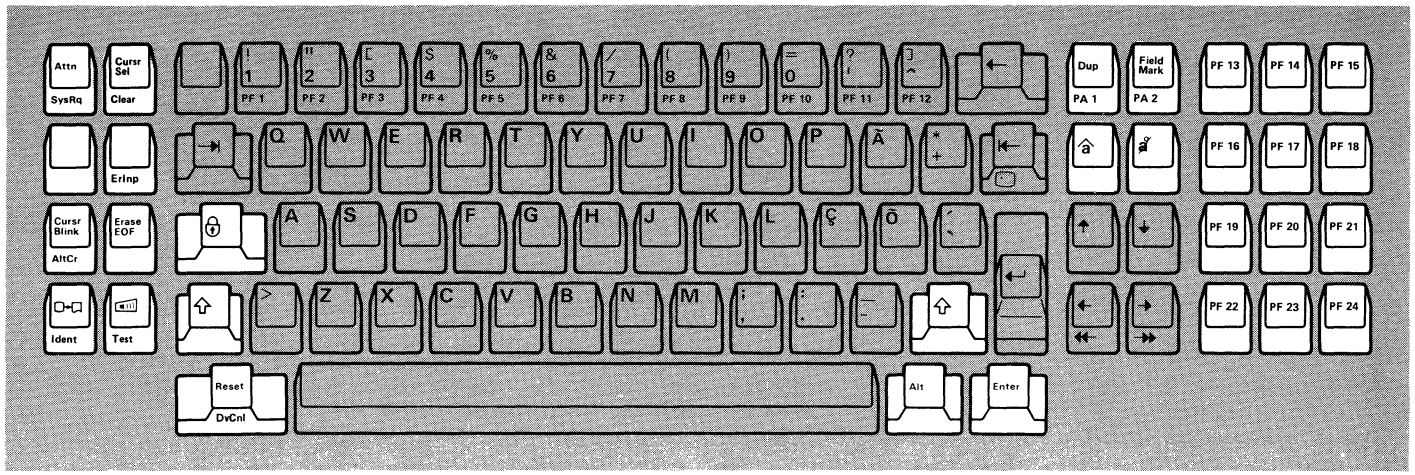
Nontypematic Keys

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-11. Norwegian Keyboards

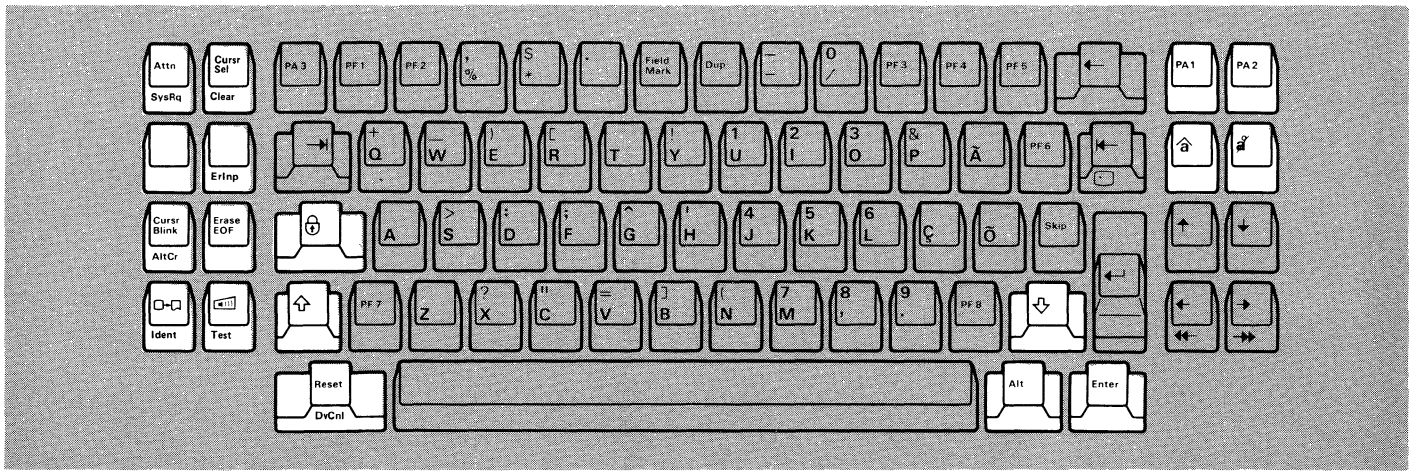


LEGEND:

Typematic Keys

Nontypematic Keys

Typewriter Keyboard



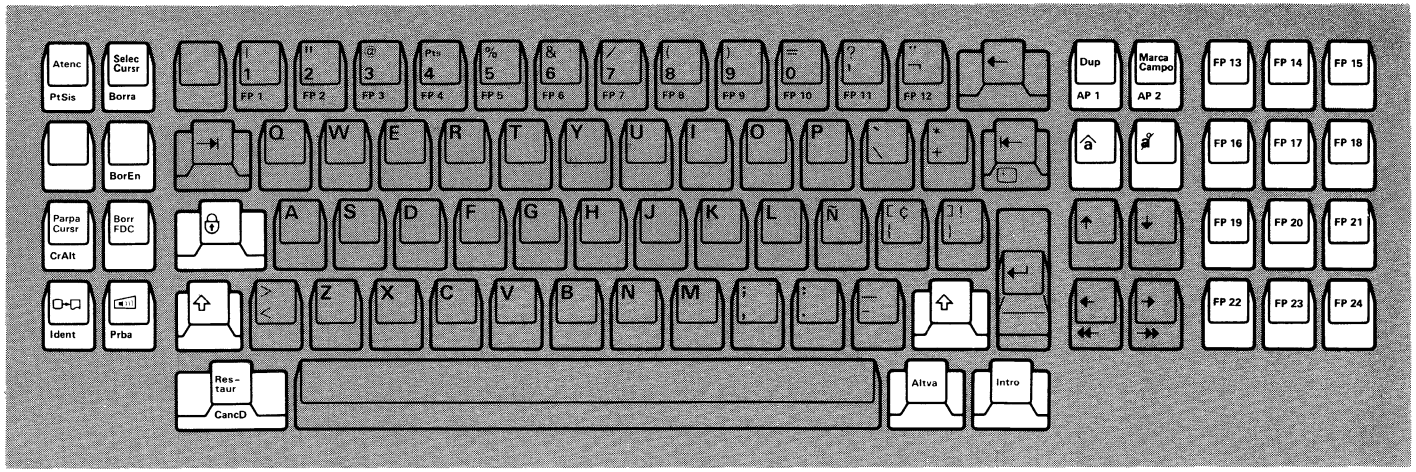
LEGEND:

Typematic Keys

Nontypematic Keys

Data Entry Keyboard

Figure 4-12. Portuguese Keyboards



Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

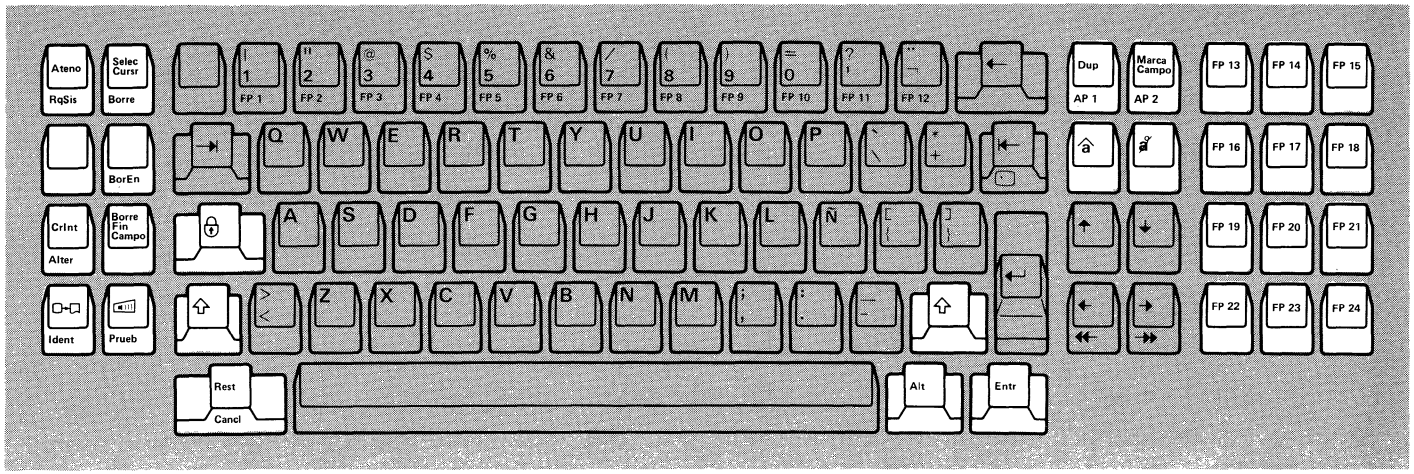
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-13. Spanish Keyboards

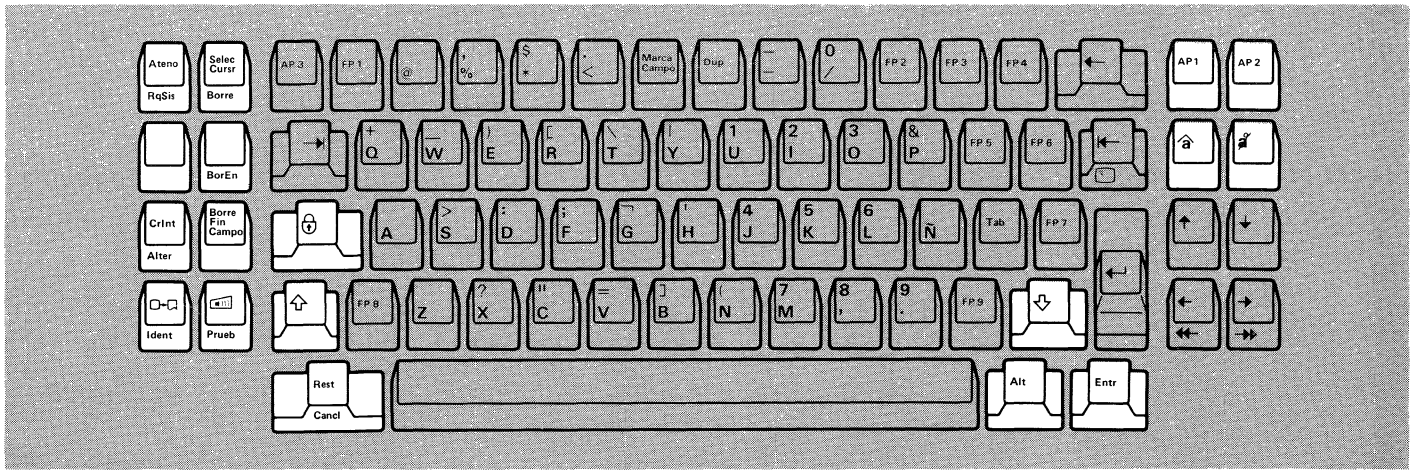


Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys



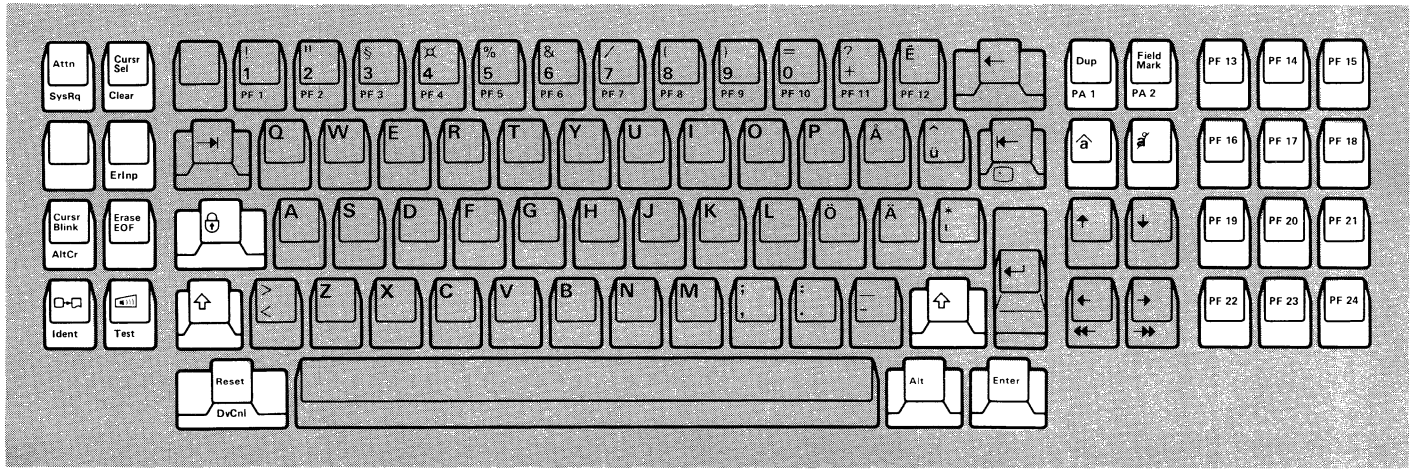
Data Entry Keyboard

LEGEND:

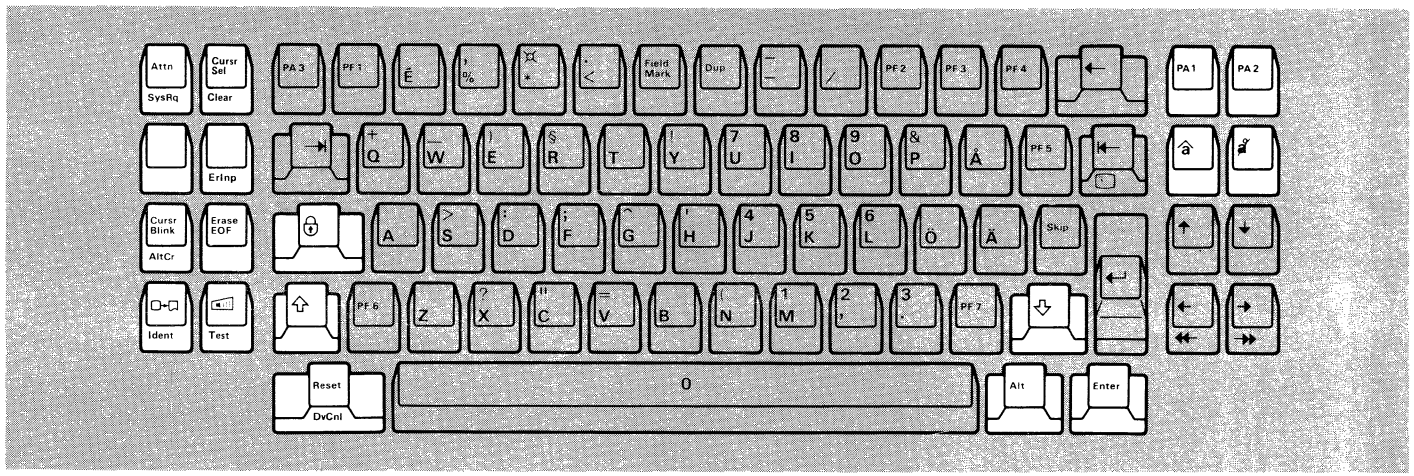
Typematic Keys

Nontypematic Keys

Figure 4-14. Spanish-Speaking Keyboards



Typewriter Keyboard



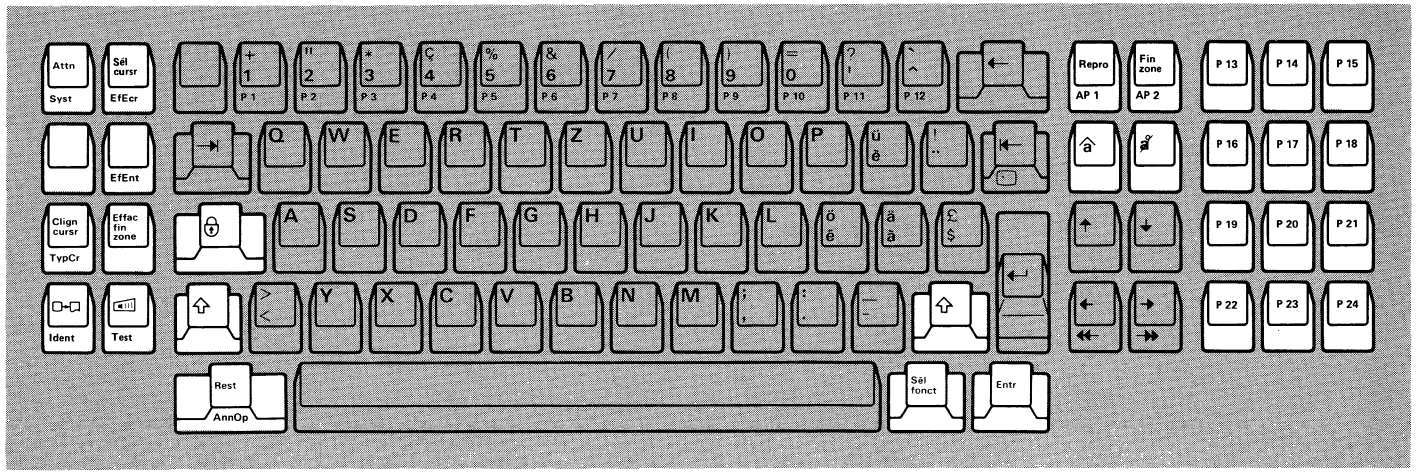
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-15. Swedish Keyboards

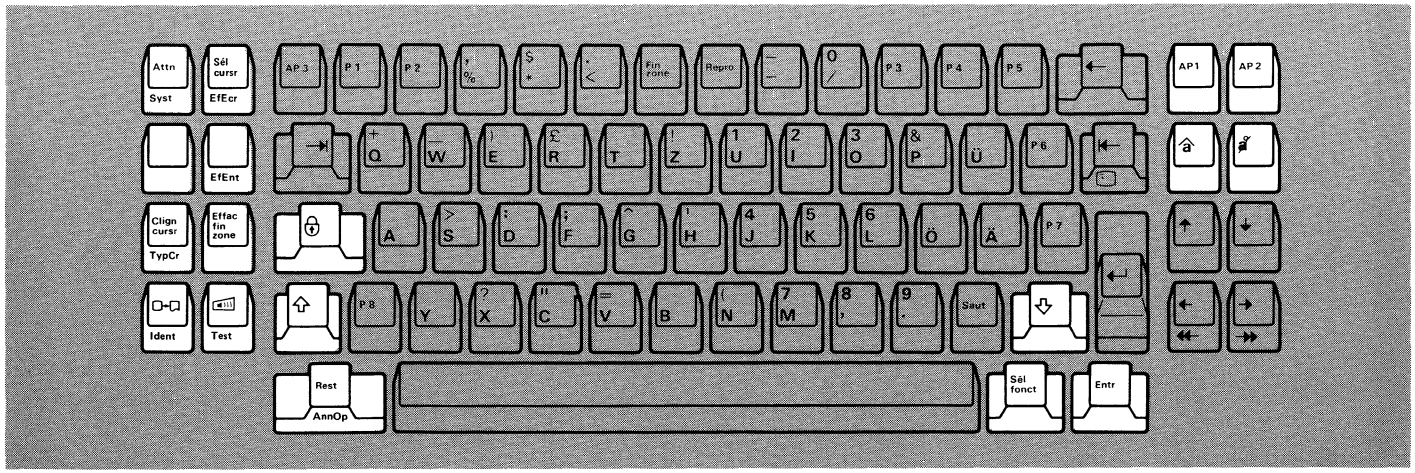


Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys



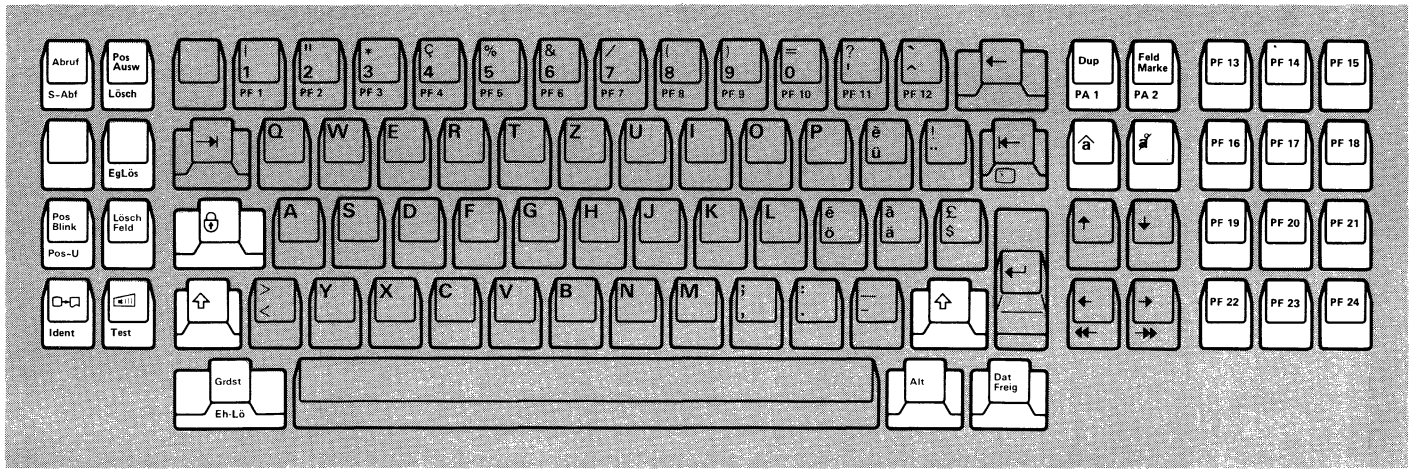
Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-16. Swiss-French Keyboards

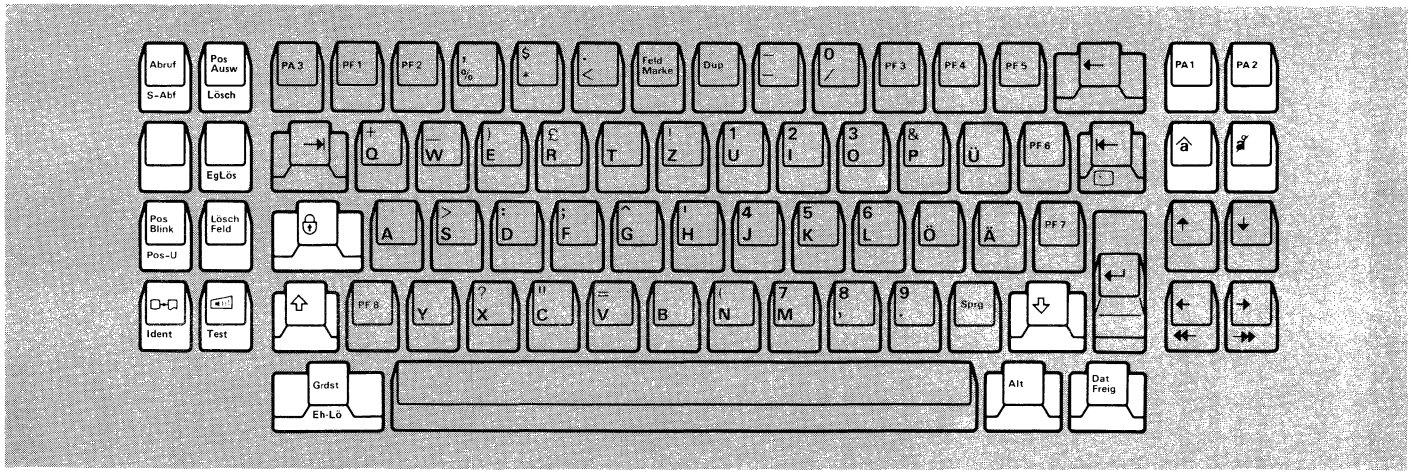


Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys



Data Entry Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 4-17. Swiss-German Keyboards

Chapter 5. 3290 Information Panel Keyboards

Keyboard Definitions

The 3290 keyboard is available in either a typewriter or APL layout. The keyboard has 104 keys in the versions for the U.S. and most World Trade countries, 105 keys in the Japanese English version, and 106 keys in the Japanese Katakana version. The 3290 typewriter keyboard includes these function keys: Clear Partition, Jump Screen, Jump Partition, Modify, Zoom (Enlarge), Rule, Scroll Up, and Scroll Down. The 104-key, 105-key, and 106-key keyboards differ only in their data sections.

Though physically different from the other 3270 keyboards now available, the 3290 keyboard can operate compatibly with the 75/76-key and the 87/88-key keyboards in the 3270 system.

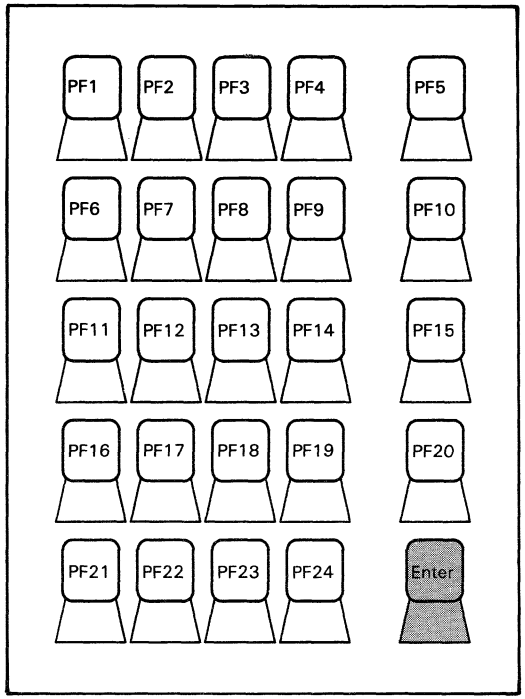
104-Key Typewriter/APL Keyboard: A typical 104-key typewriter/APL keyboard consists of a data section with 49 keys and 10 control keys; a control-key section of 10 keys on the left side; a control-key section of 11 keys on the right side; and a program-function section with 24 keys.

3290 Keypad: There are four separately housed keypads, available as an optional feature, for program function and numeric data entry applications:

- A 25-key program function keypad
- Three numeric keypads, with slightly different layouts:
  - For the U.S. and Canada, a 24-key layout
  - For World Trade countries, a choice of two 25-key layouts. The two keypads differ in the location of the comma and of the decimal point.

Keyboard Layouts

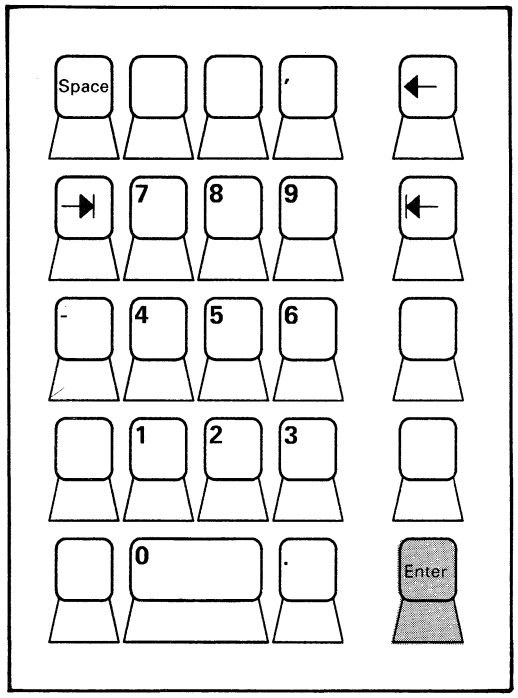
Figures 5-1 through 5-3 illustrate the keyboard and keypad layouts for the various national languages.



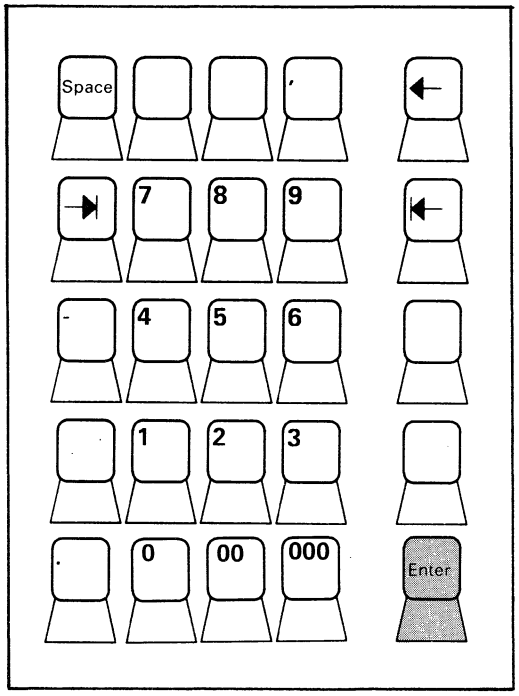
Program Function Keypad

Enter:	
Austrian/German:	Dat Freig
Brazilian/Portuguese:	Entra
Canadian-French:	Entr
French (AZERTY):	Entr
French (QWERTY):	Entr
Italian:	Invio
Spanish:	Intro
Spanish-Speaking:	Entre

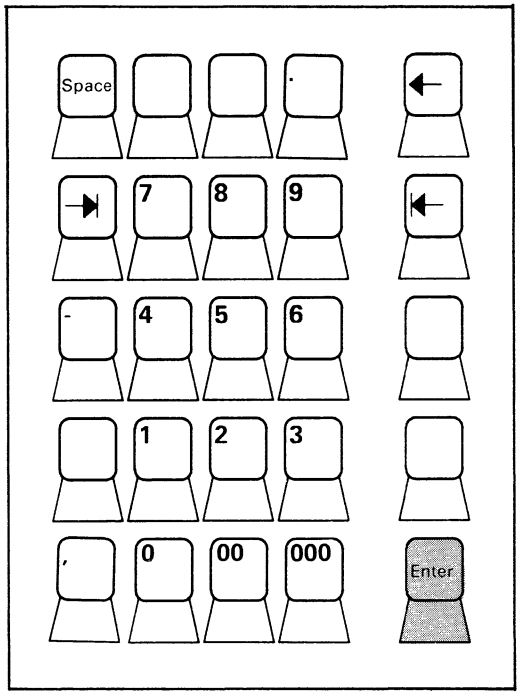
Figure 5-1 (Part 1 of 2). Program Function and Numeric Keypads



Numeric Keypad: U. S. and Canada



Numeric Keypad: World Trade Countries

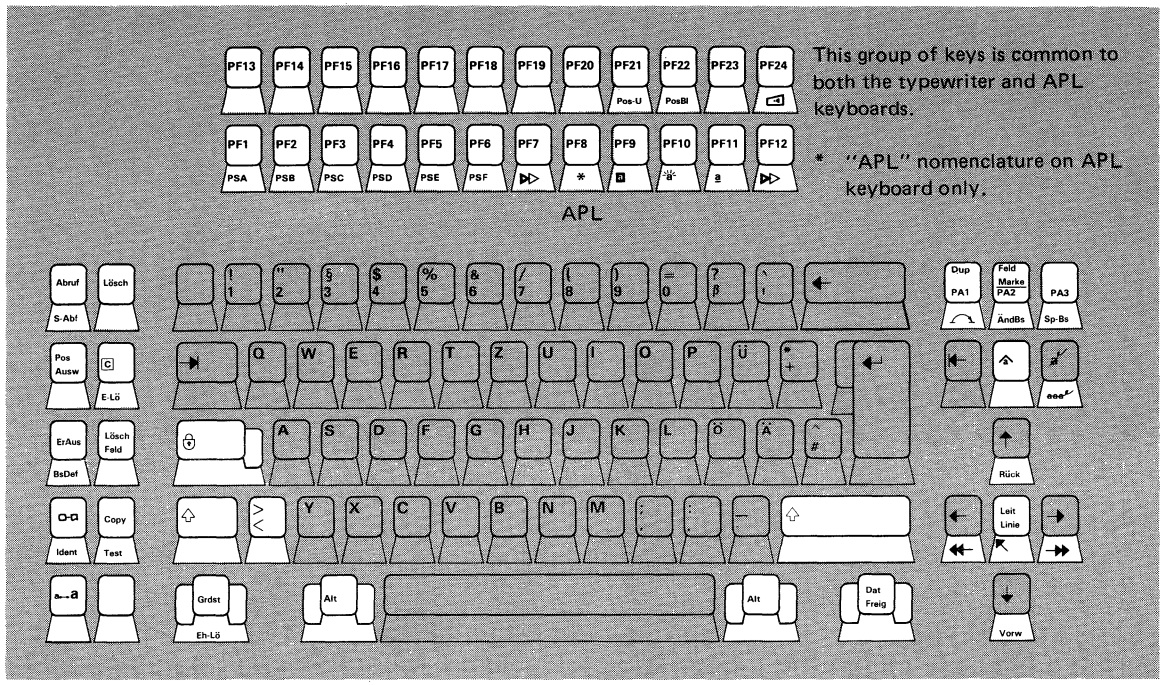


Numeric Keypad: World Trade Countries

Enter:

Austrian/German:	Dat Freig
Brazilian/Portuguese:	Entra
Canadian-French:	Entr
French (AZERTY):	Entr
French (QWERTY):	Entr
Italian:	Invio
Spanish:	Intro
Spanish-Speaking:	Entre

Figure 5-1 (Part 2 of 2). Program Function and Numeric Keypads

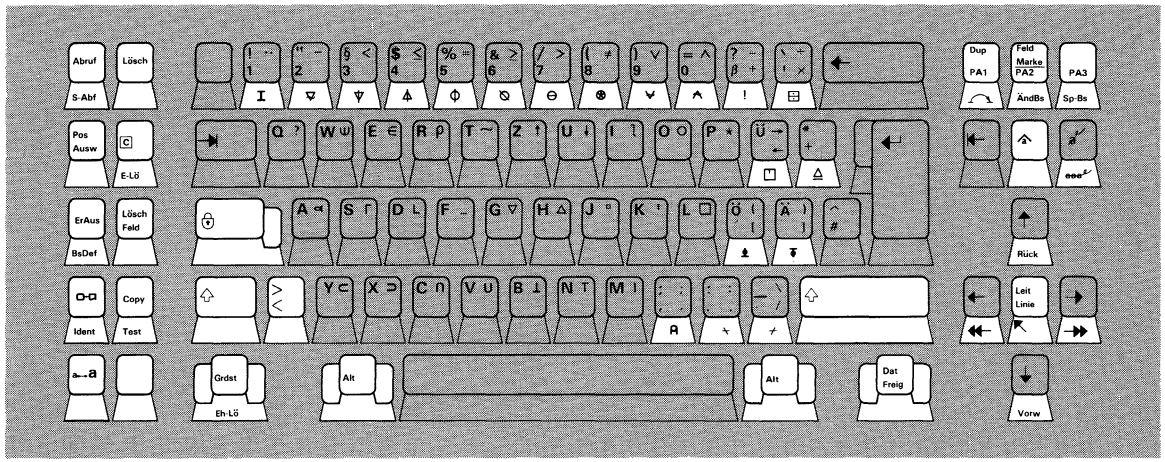


Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys



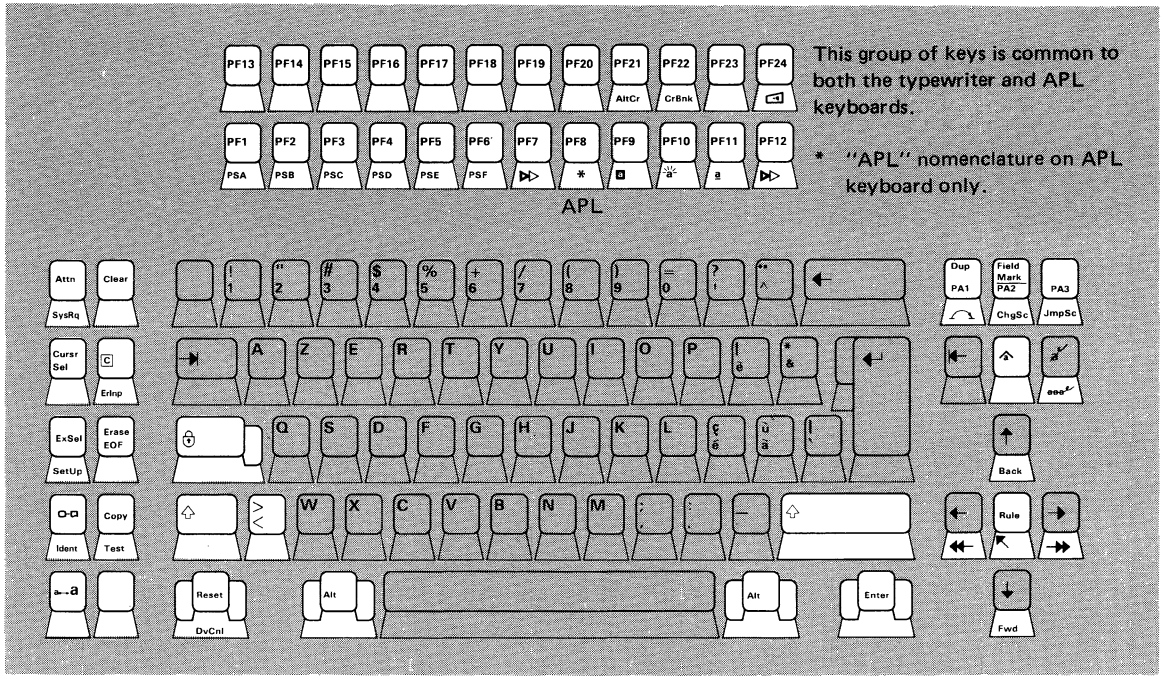
APL Keyboard

LEGEND:

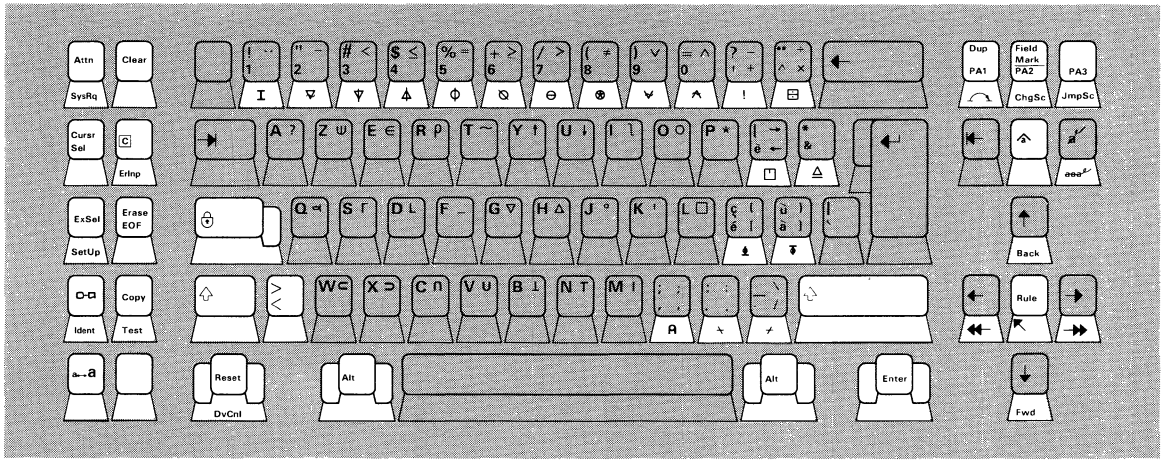
Typematic Keys

Nontypematic Keys

Figure 5-2. Austrian/German Keyboards



Typewriter Keyboard



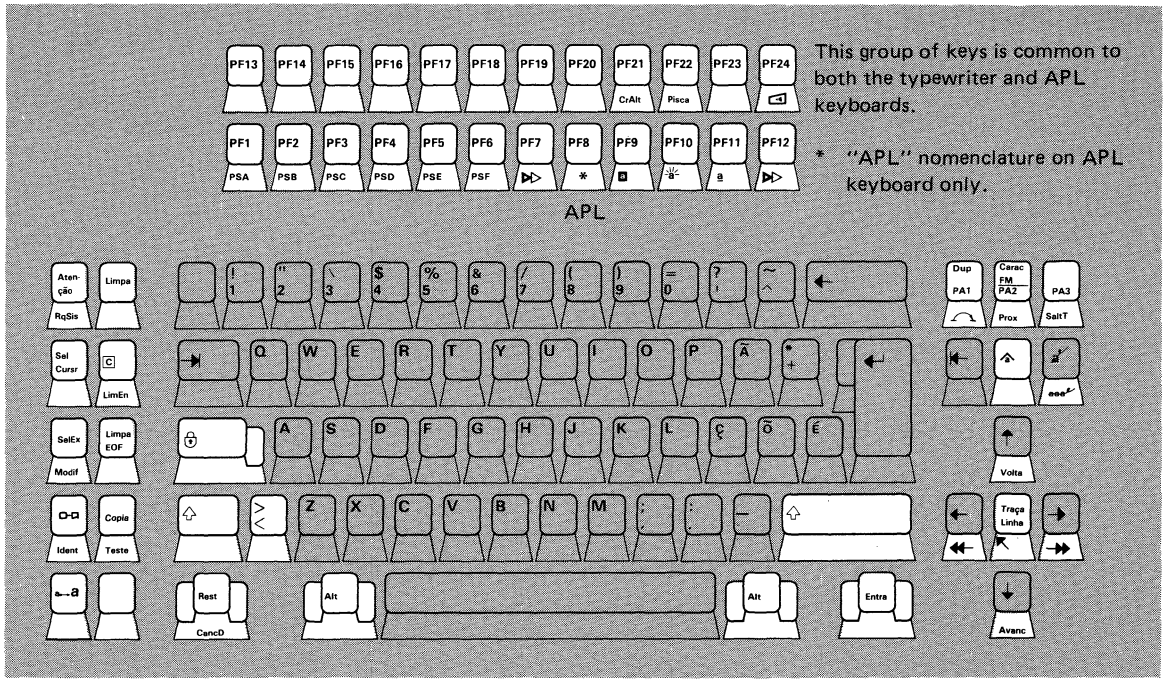
APL Keyboard

LEGEND:

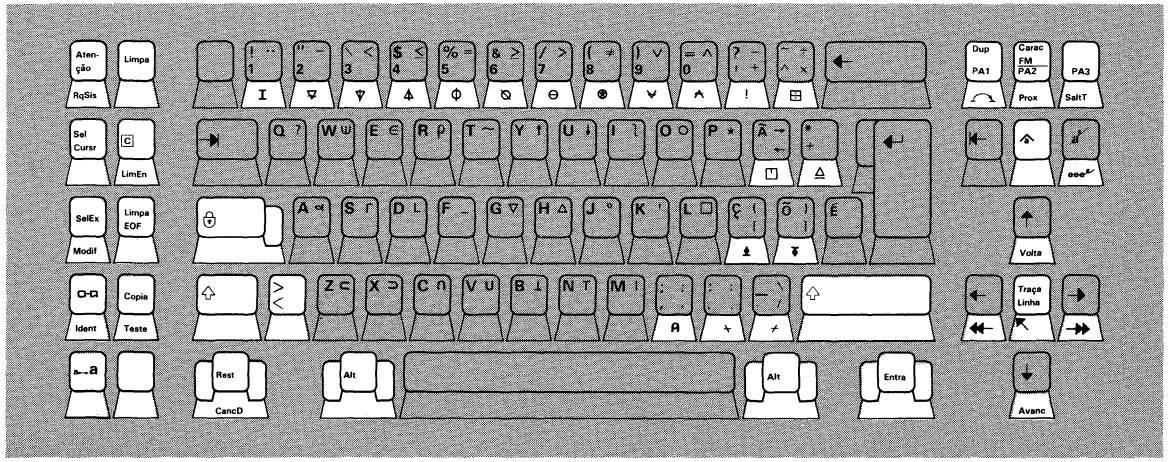
Typematic Keys

Nontypematic Keys

Figure 5-3. Belgian Keyboards



Typewriter Keyboard



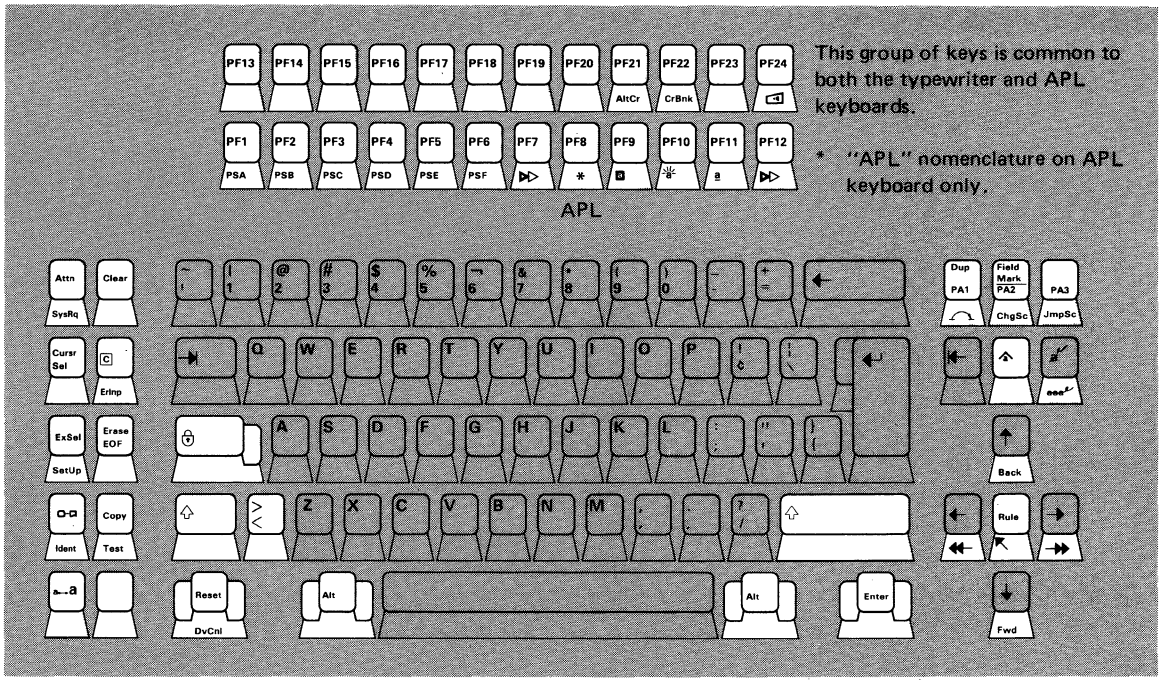
APL Keyboard

LEGEND:

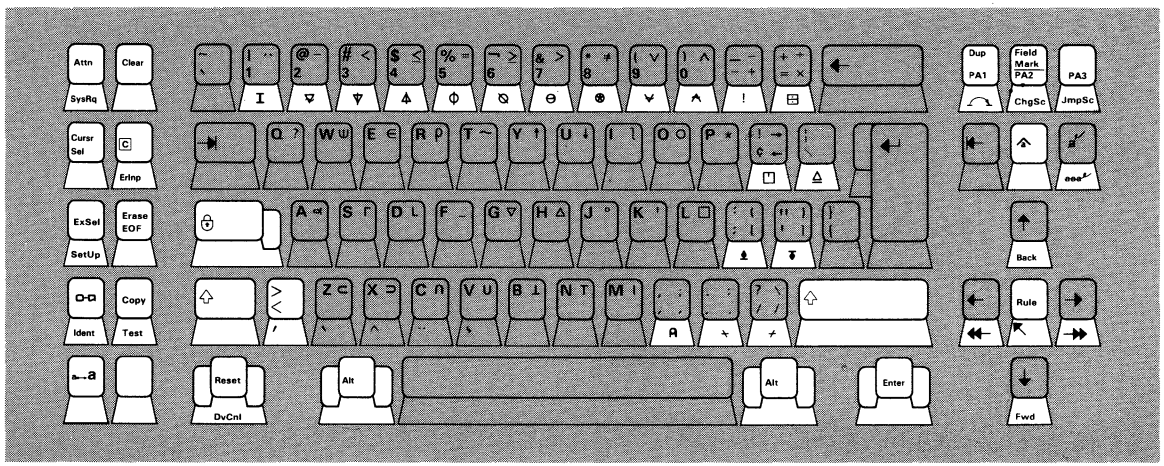
Typematic Keys

Nontypematic Keys

Figure 5-4. Brazilian/Portuguese Keyboards



Typewriter Keyboard



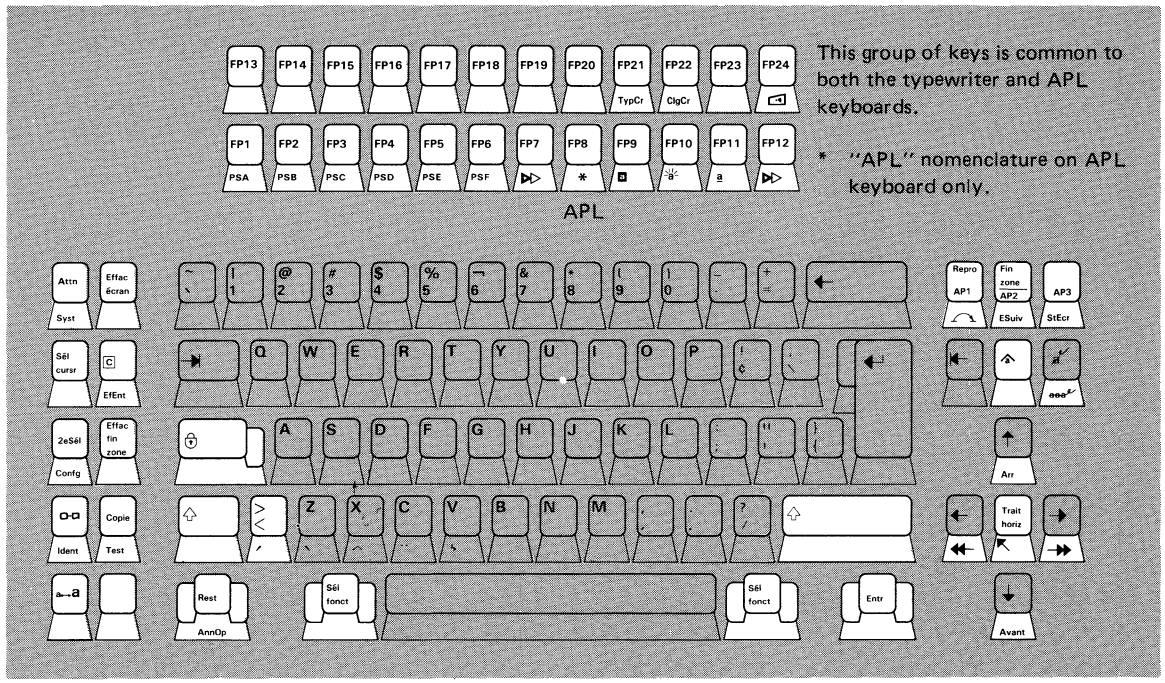
APL Keyboard

LEGEND:

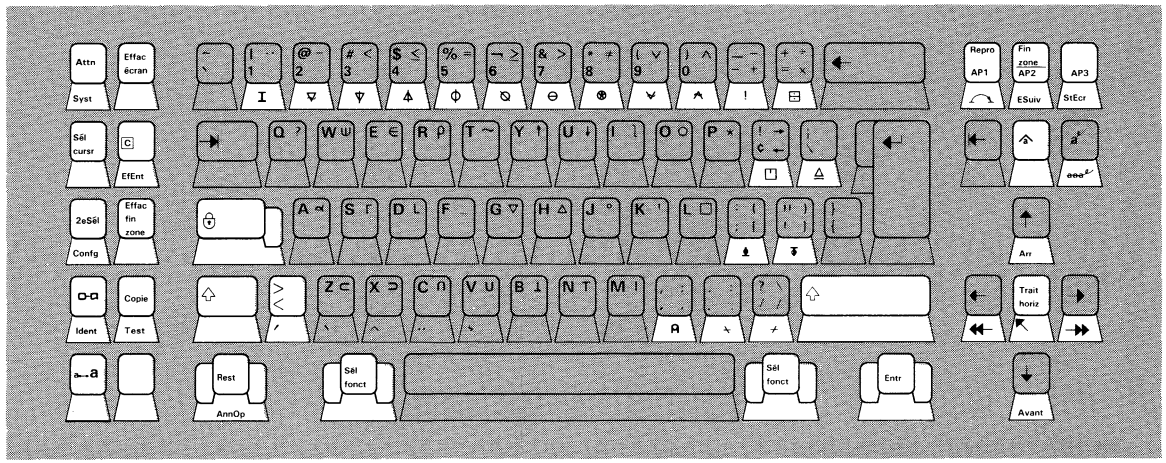
Typematic Keys

Nontypematic Keys

Figure 5-5. Canadian-English Bilingual Keyboards



Typewriter Keyboard



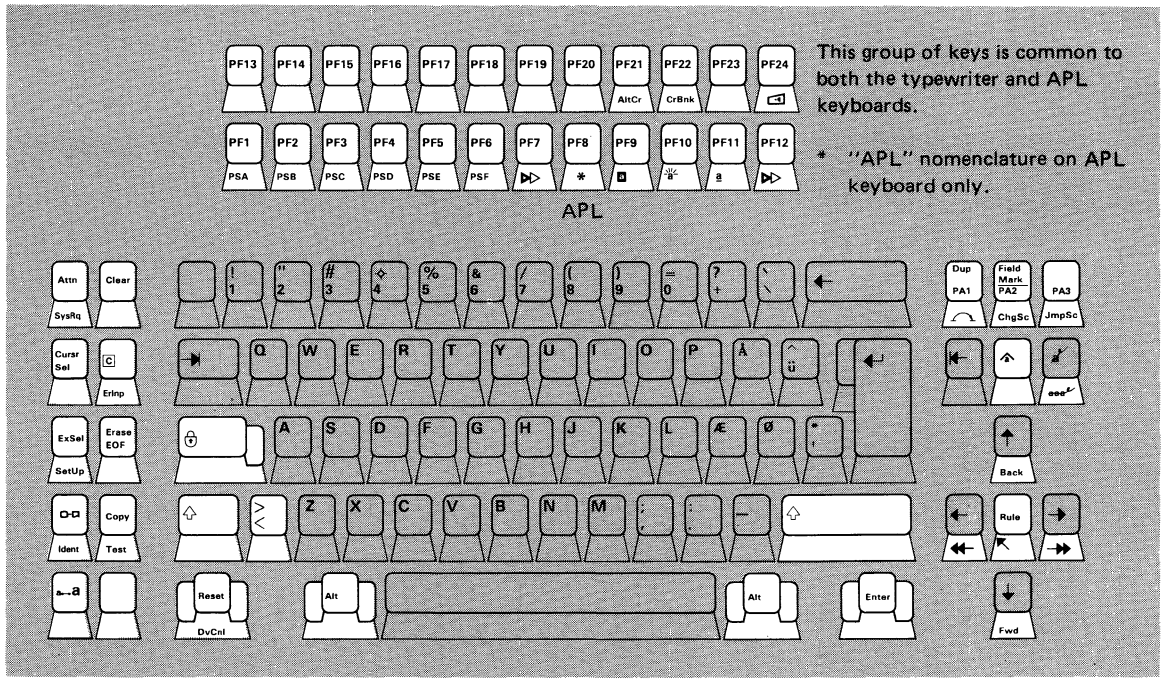
APL Keyboard

LEGEND:

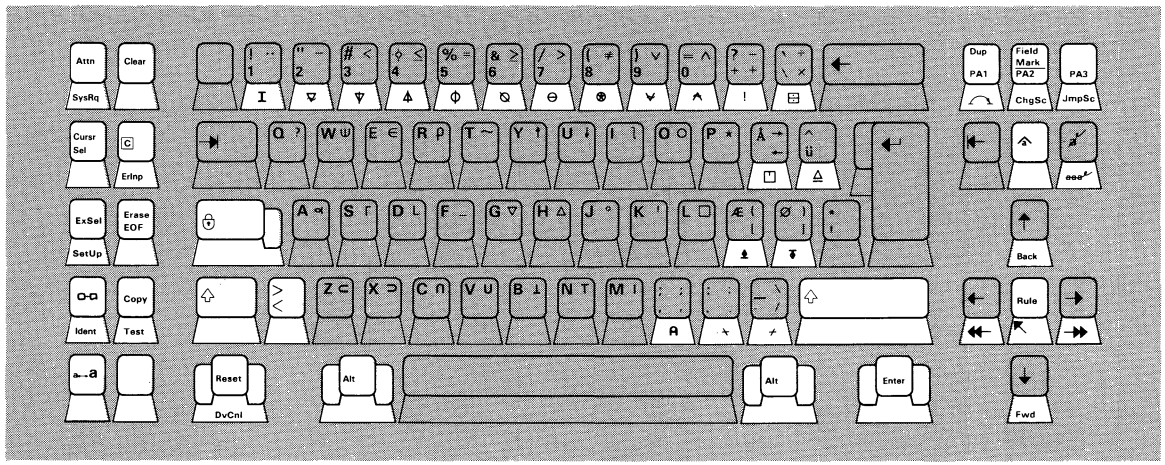
Typematic Keys

Nontypematic Keys

Figure 5-6. Canadian-French Bilingual Keyboards



Typewriter Keyboard



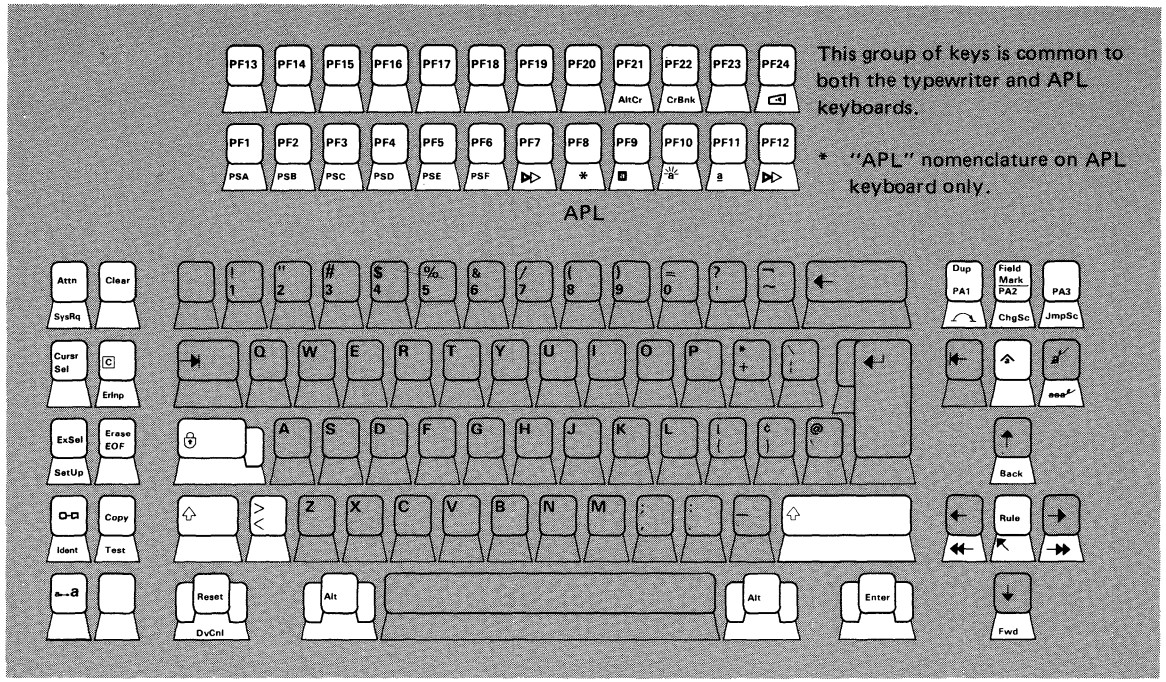
APL Keyboard

LEGEND:

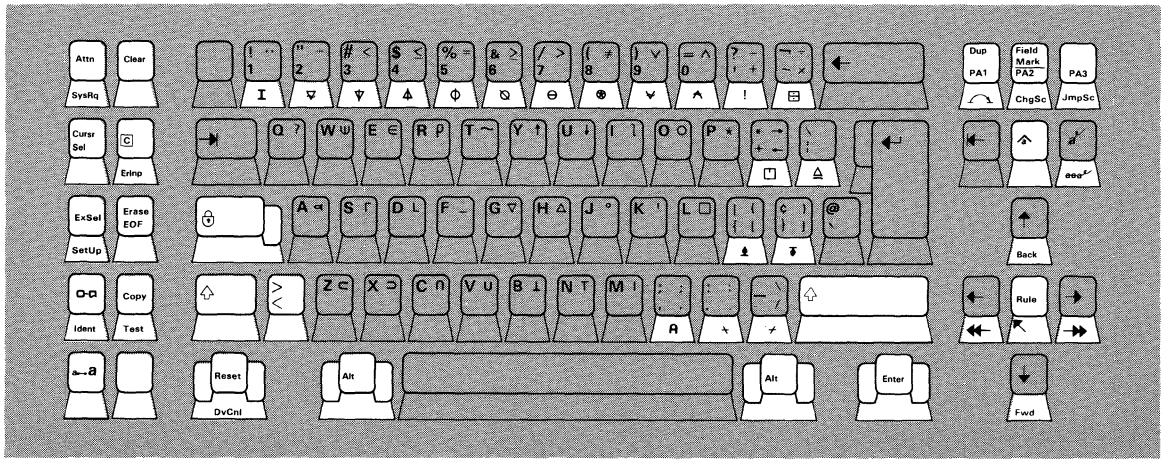
Typematic Keys

Nontypematic Keys

Figure 5-7. Danish Keyboards



Typewriter Keyboard



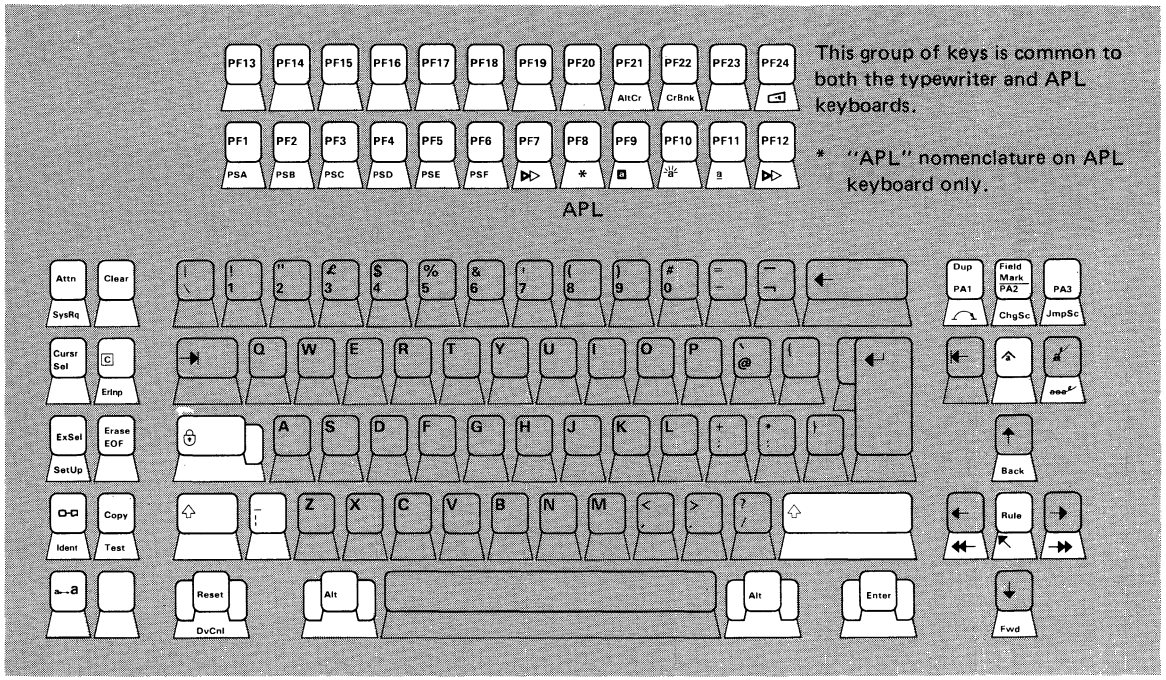
APL Keyboard

LEGEND:

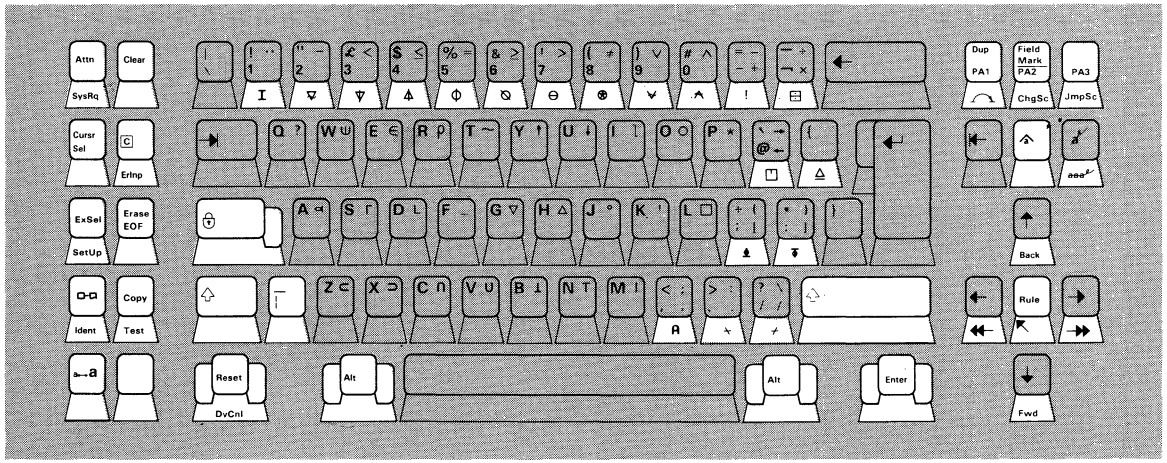
Typematic Keys

Nontypematic Keys

Figure 5-8. EBCDIC (World Trade) Keyboards



Typewriter Keyboard



APL Keyboard

LEGEND:

Typematic Keys

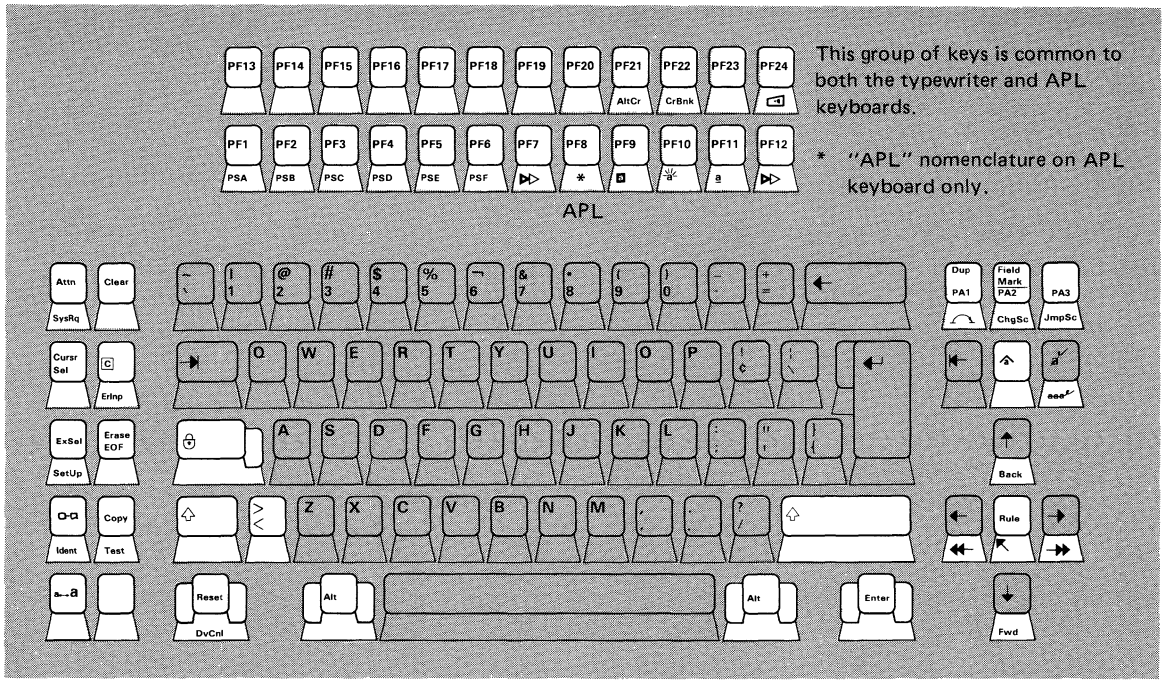
Nontypematic Keys

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 5-9. English (U.K.) Keyboards

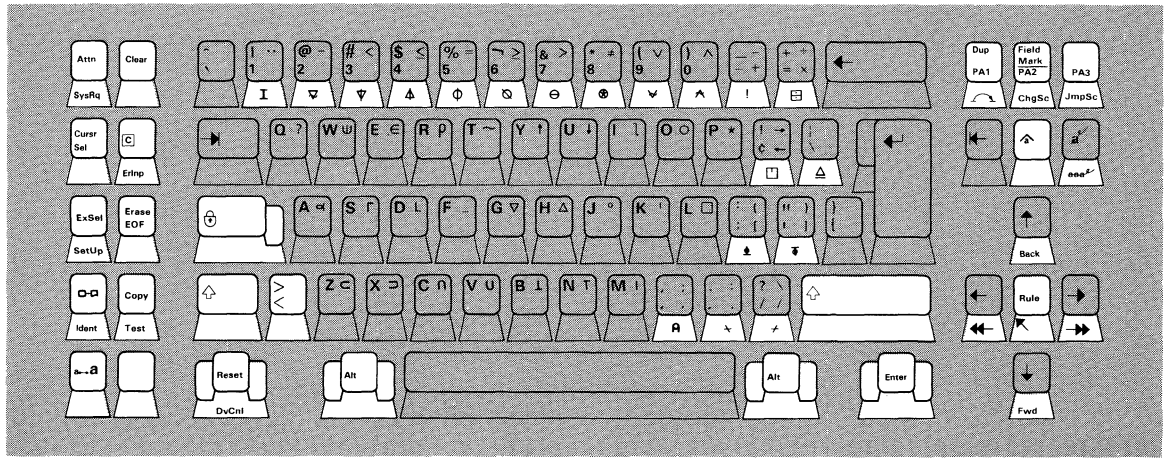


Typewriter Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys



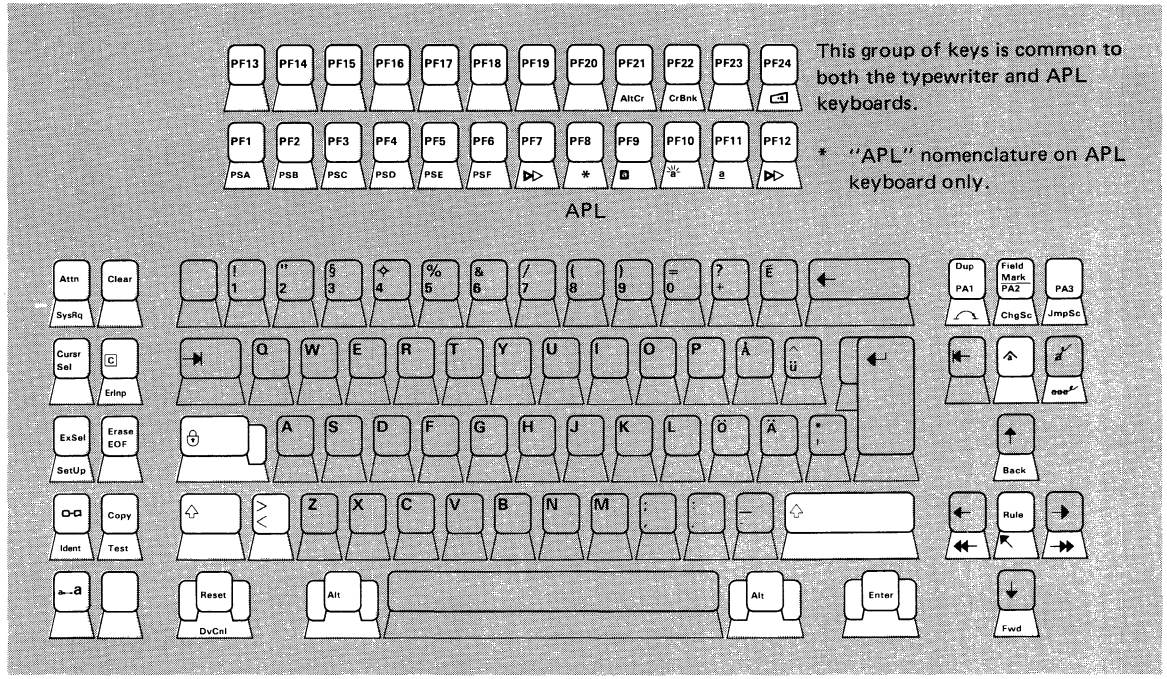
APL Keyboard

LEGEND:

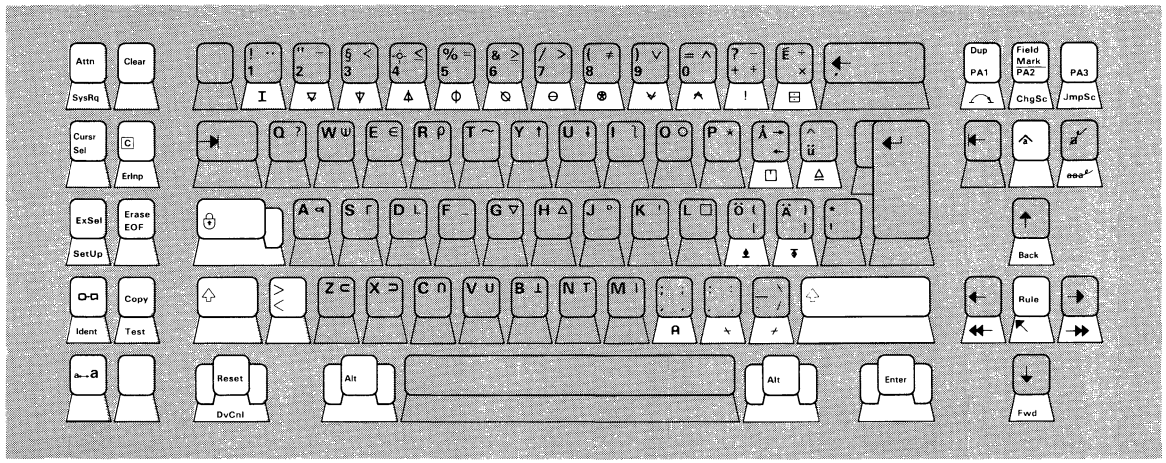
Typematic Keys

Nontypematic Keys

Figure 5-10. English (U.S.) Keyboards



Typewriter Keyboard



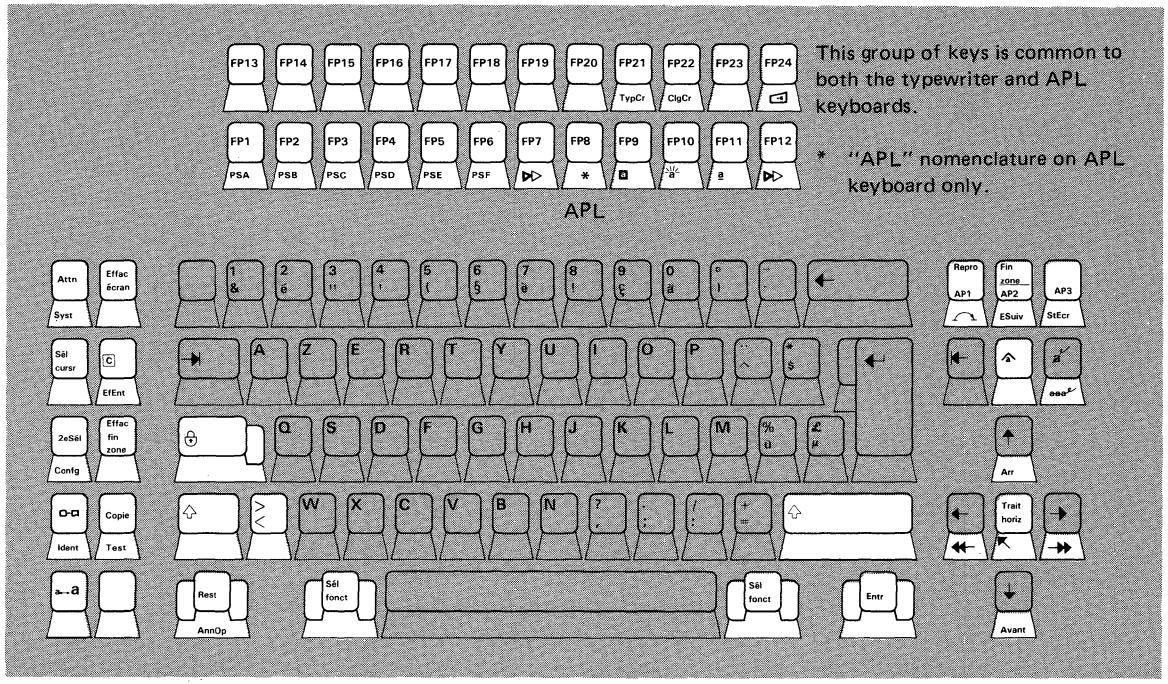
APL Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 5-11. Finnish Keyboards



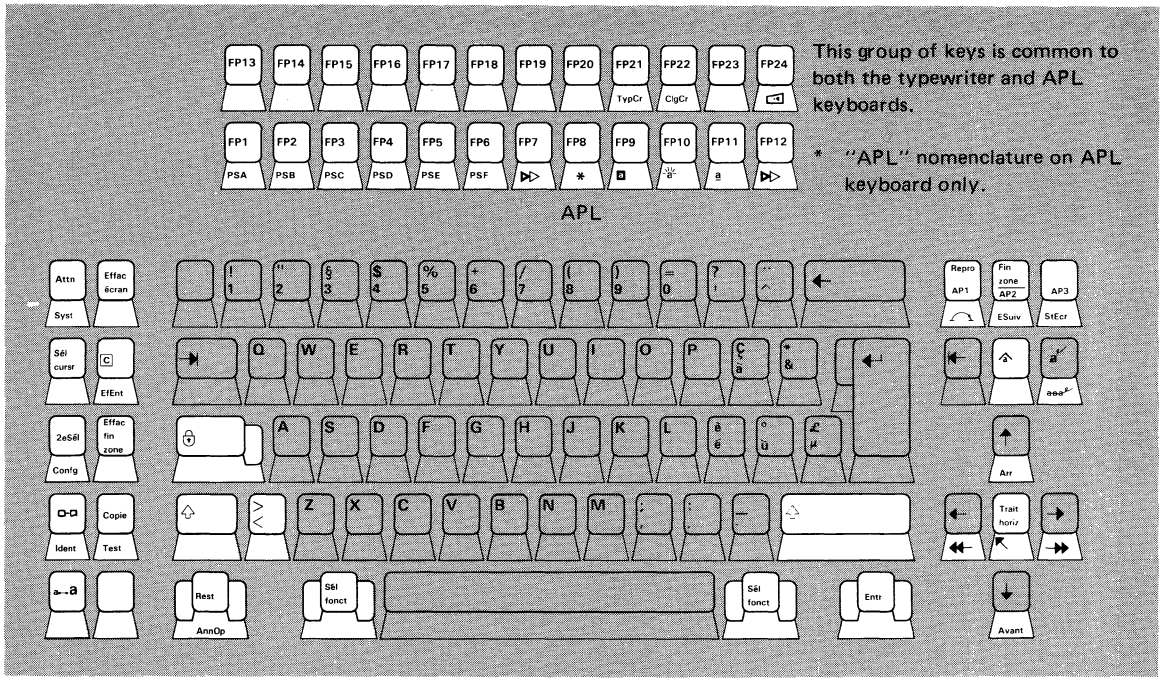
LEGEND:

Typematic Keys

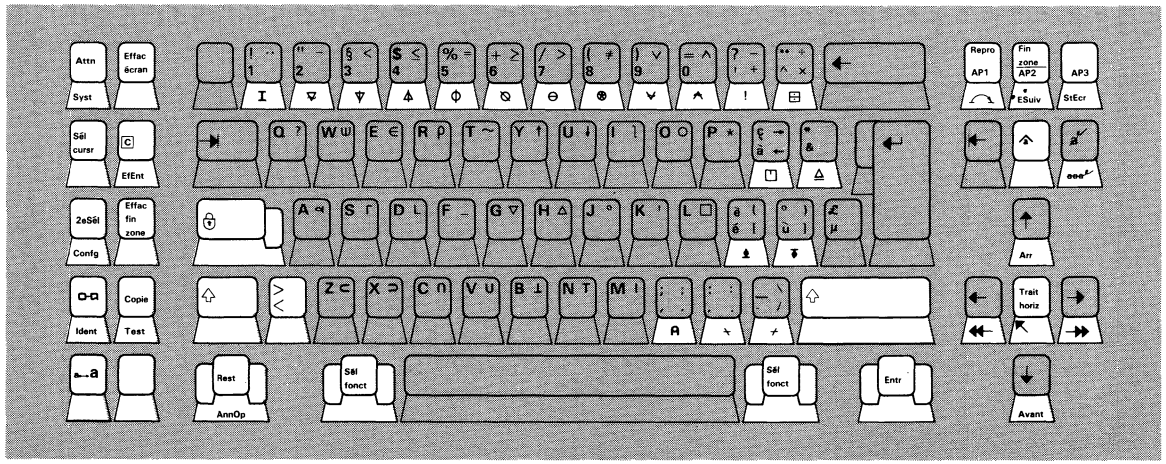
Nontypematic Keys

Typewriter Keyboard

Figure 5-12. French (AZERTY) Keyboard



Typewriter Keyboard



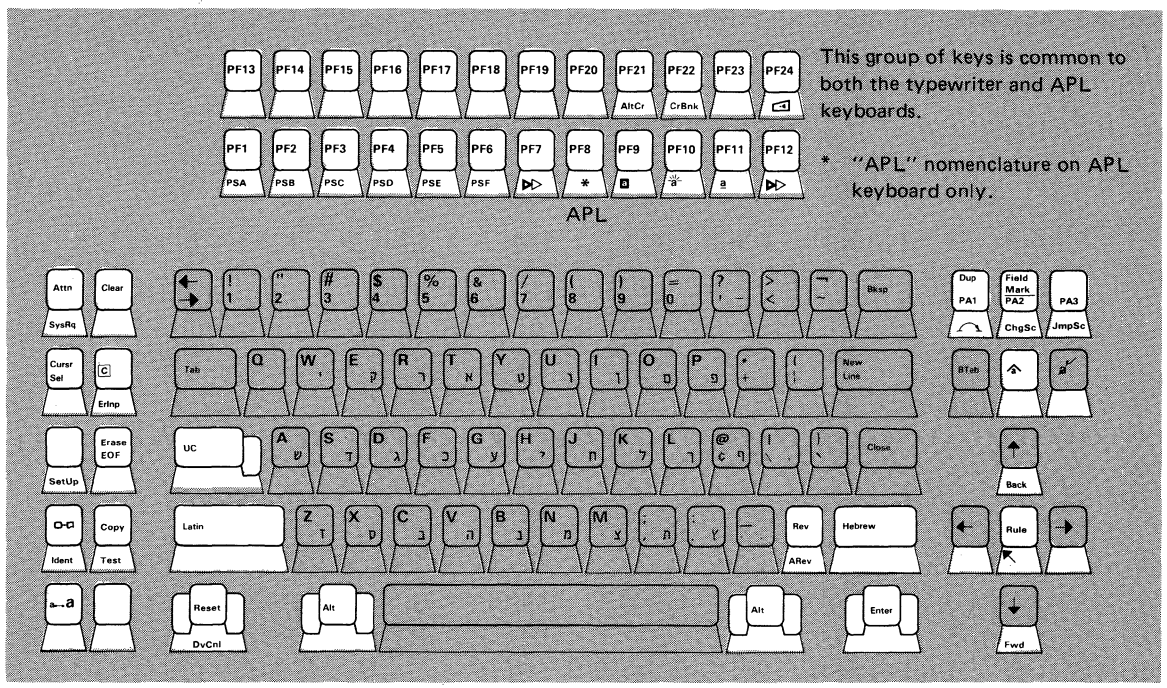
APL Keyboard

LEGEND:

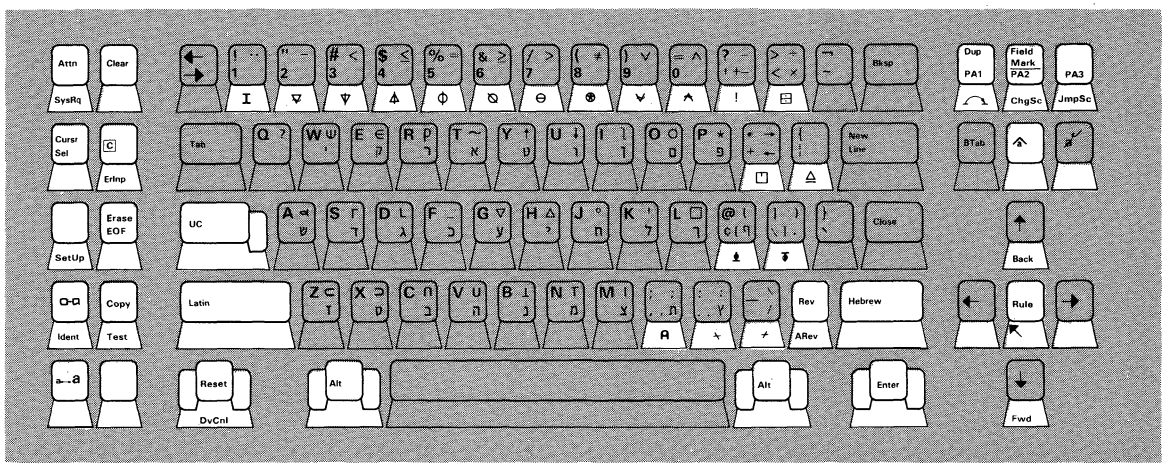
Typematic Keys

Nontypematic Keys

Figure 5-13. French (QWERTY) Keyboards



Typewriter Keyboard



APL Keyboard

LEGEND:

Typematic Keys

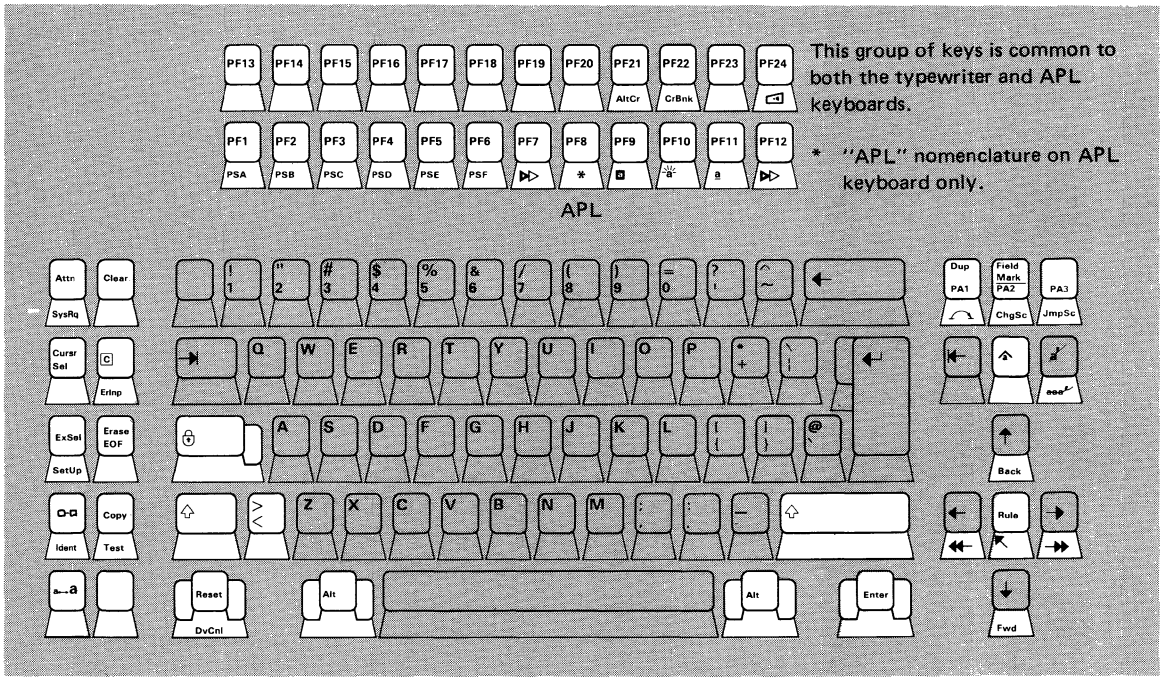
Nontypematic Keys

LEGEND:

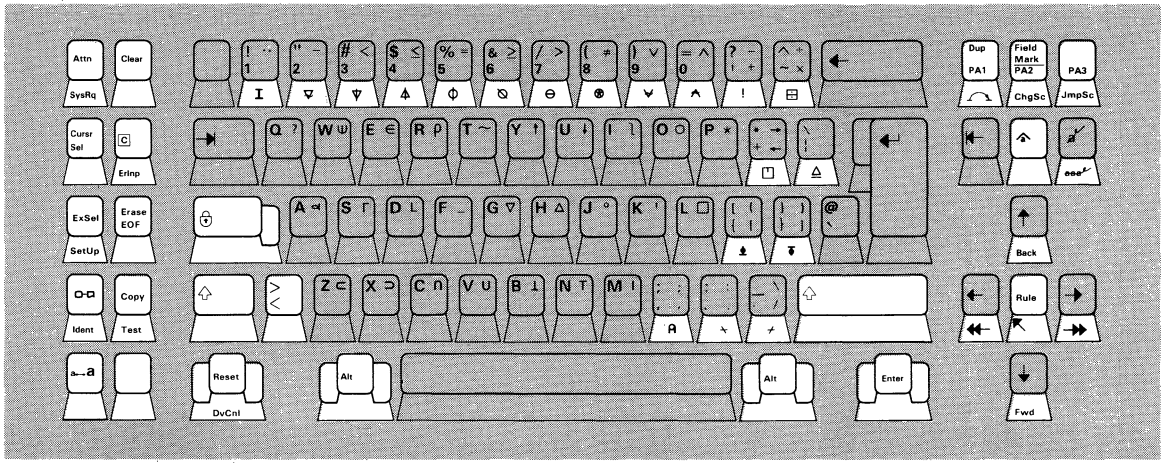
Typematic Keys

Nontypematic Keys

Figure 5-14. Hebrew Keyboards



Typewriter Keyboard



APL Keyboard

LEGEND:

Typematic Keys

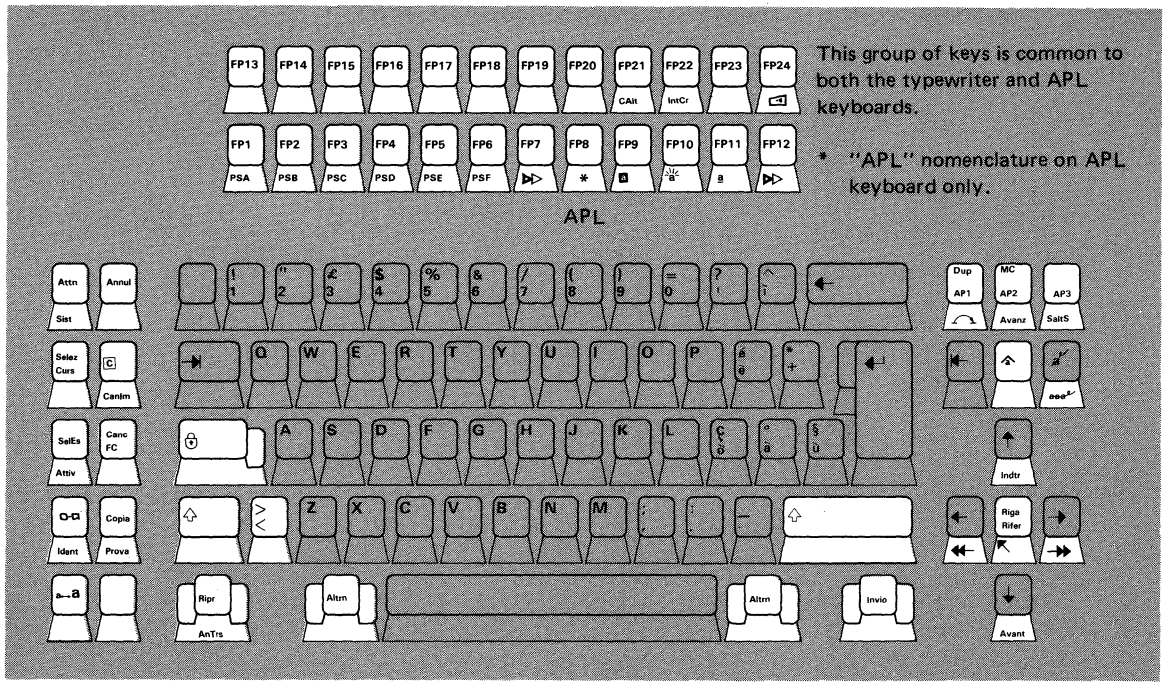
Nontypematic Keys

LEGEND:

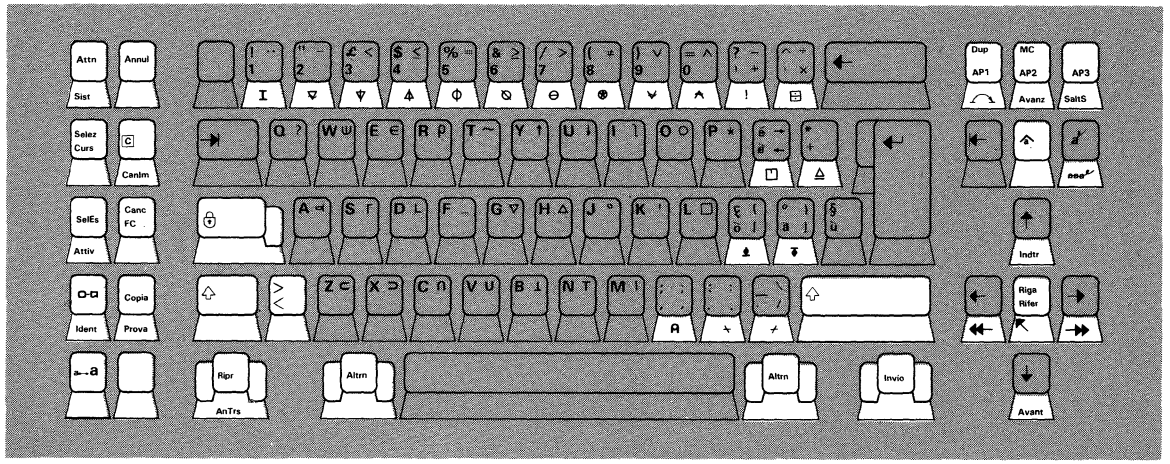
Typematic Keys

Nontypematic Keys

Figure 5-15. International Keyboards



Typewriter Keyboard



APL Keyboard

LEGEND:

Typematic Keys

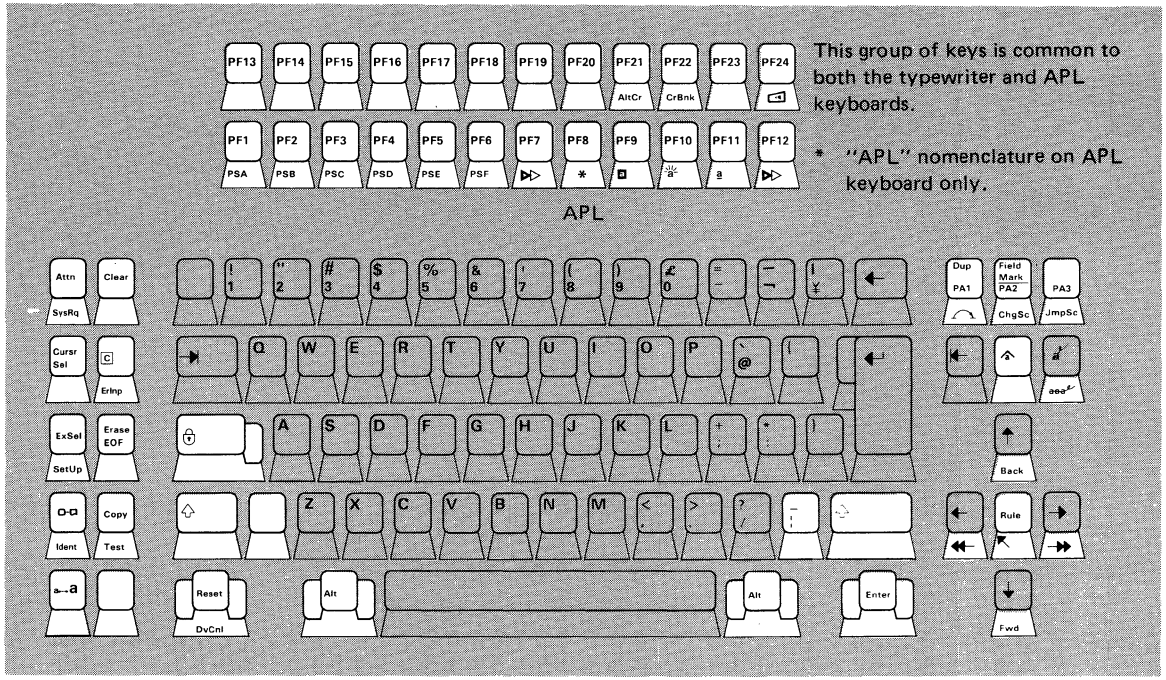
Nontypematic Keys

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 5-16. Italian Keyboards

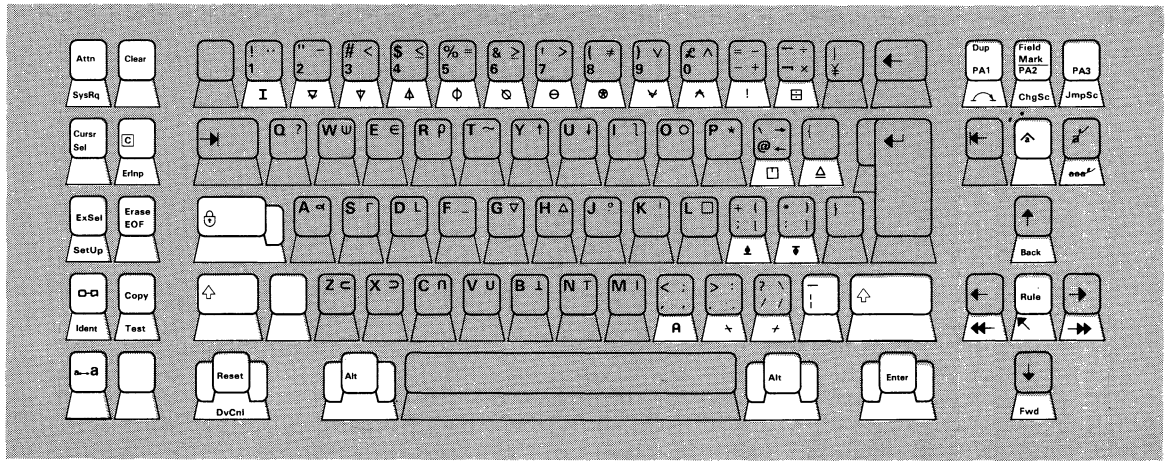


LEGEND:

Typematic Keys

Nontypematic Keys

Typewriter Keyboard



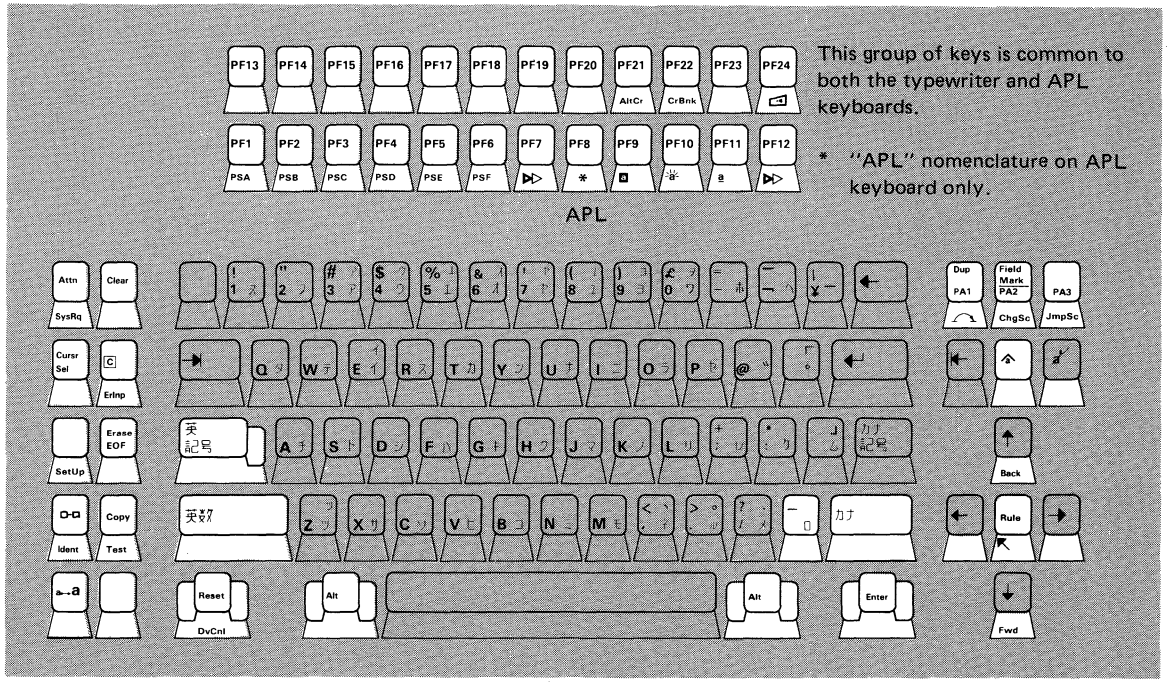
LEGEND:

Typematic Keys

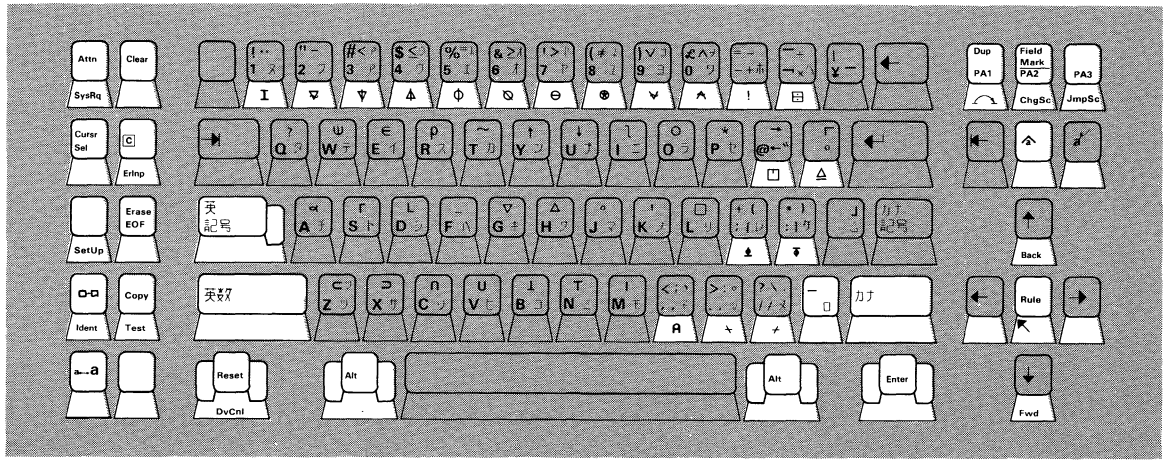
Nontypematic Keys

APL Keyboard

Figure 5-17. Japanese English Keyboards



Typewriter Keyboard



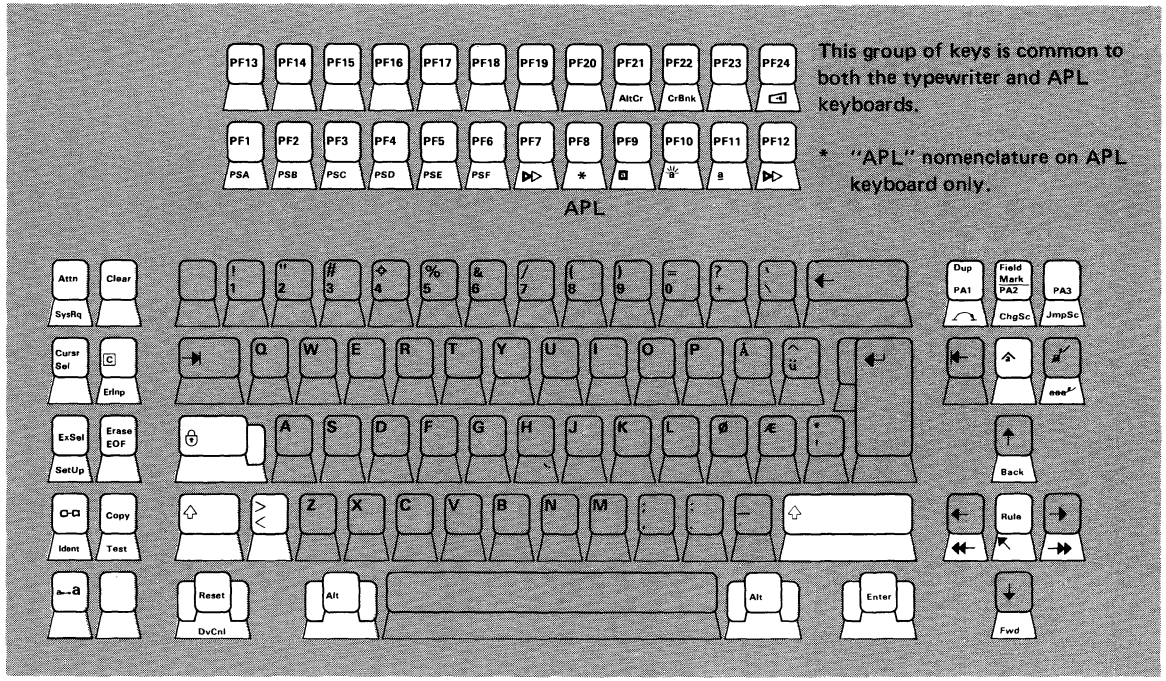
APL Keyboard

LEGEND:

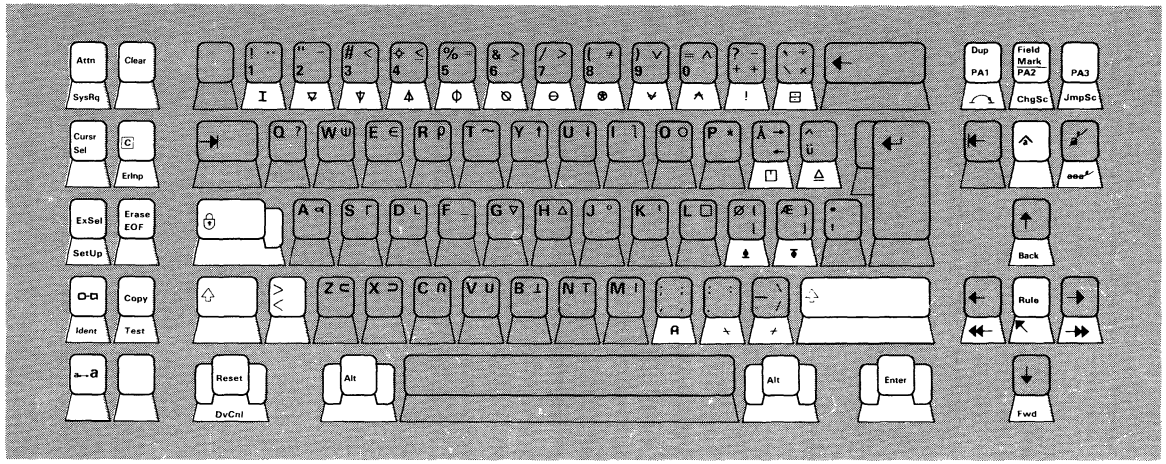
Typematic Keys

Nontypematic Keys

Figure 5-18. Japanese Katakana Keyboards



Typewriter Keyboard



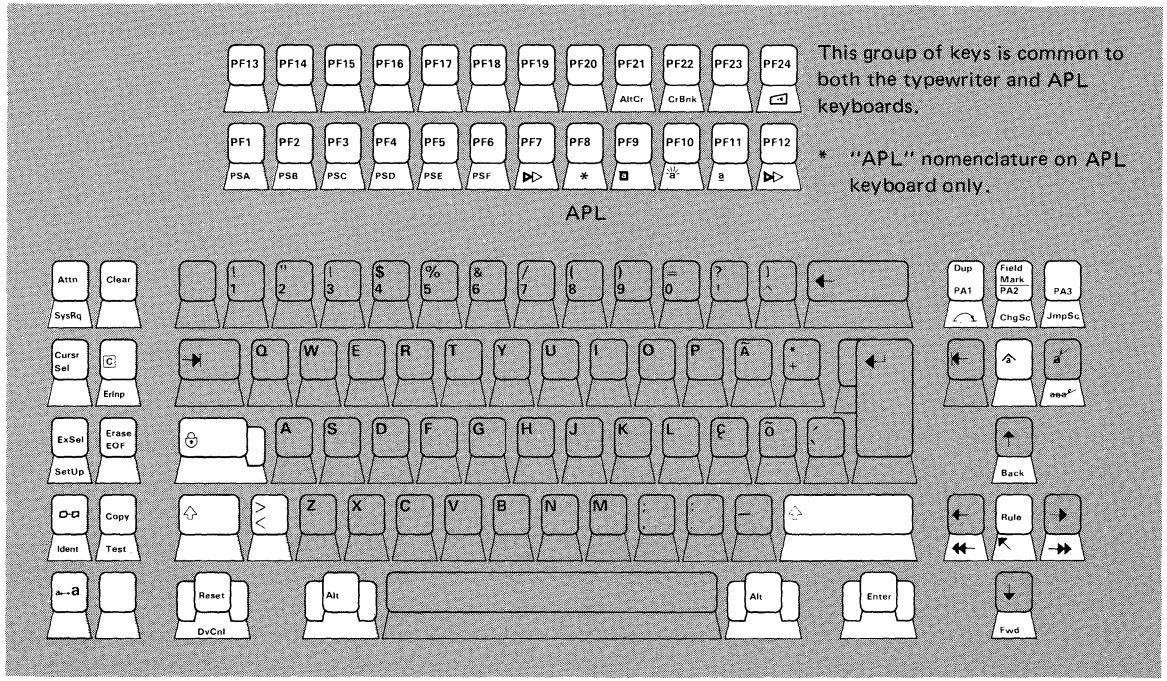
APL Keyboard

LEGEND:

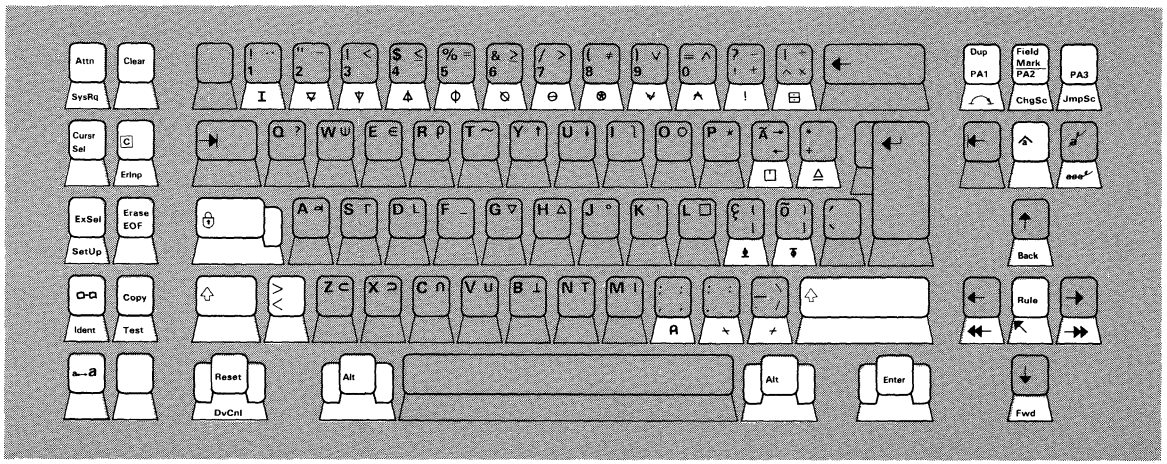
Typematic Keys

Nontypematic Keys

Figure 5-19. Norwegian Keyboards



Typewriter Keyboard



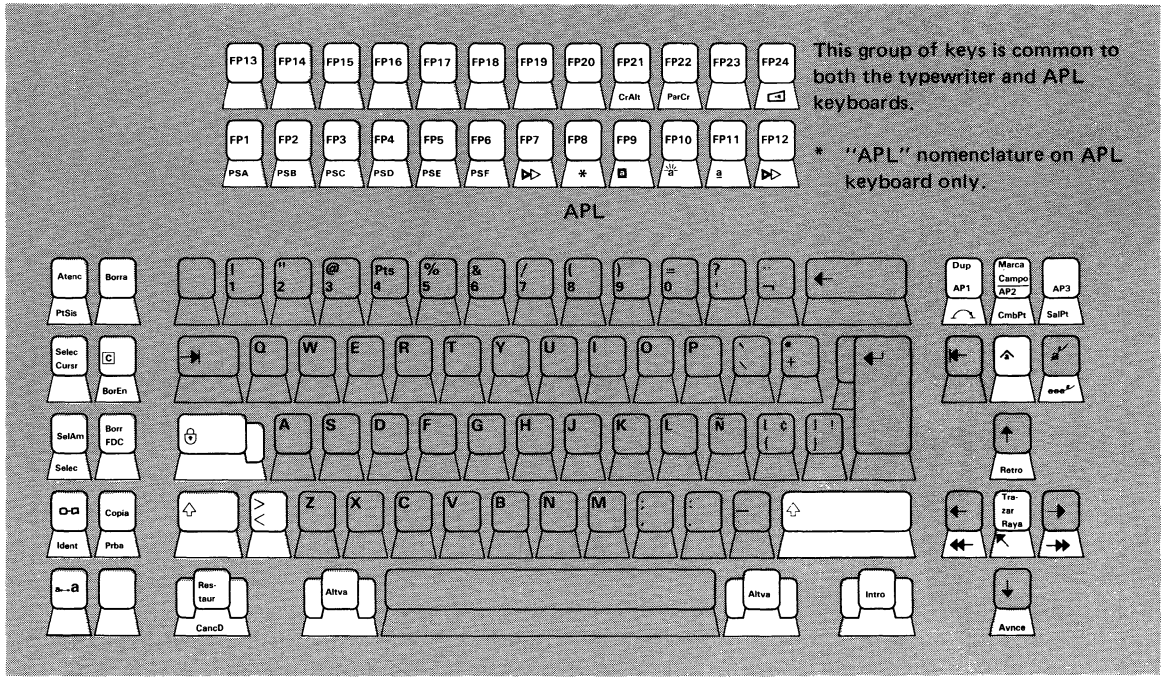
APL Keyboard

LEGEND:

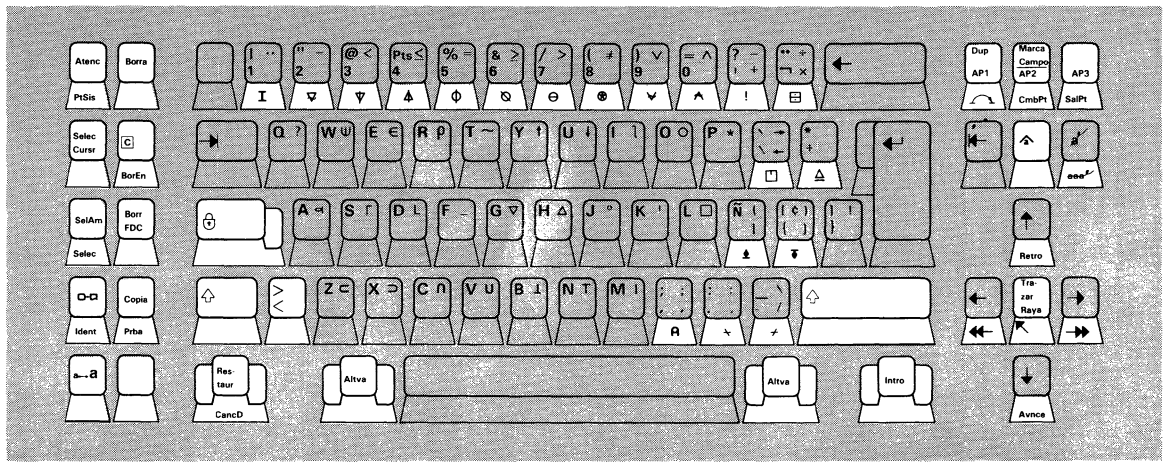
Typematic Keys

Nontypematic Keys

Figure 5-20. Portuguese Keyboards



Typewriter Keyboard



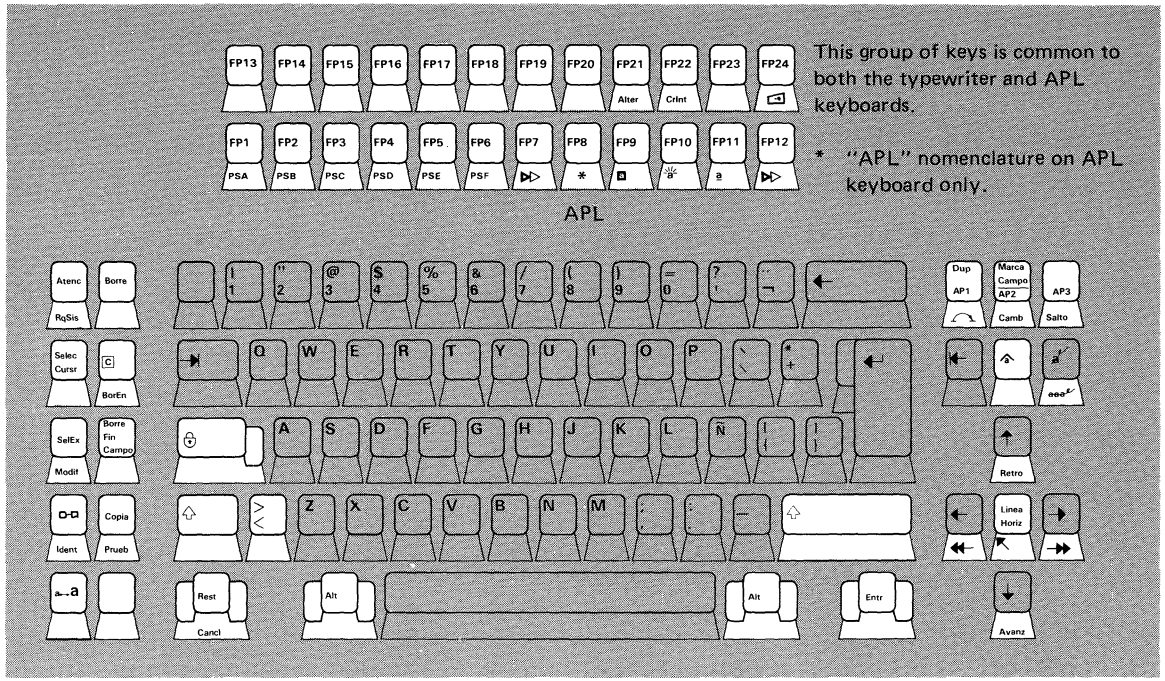
APL Keyboard

LEGEND:

Typematic Keys

Nontypematic Keys

Figure 5-21. Spanish Keyboards

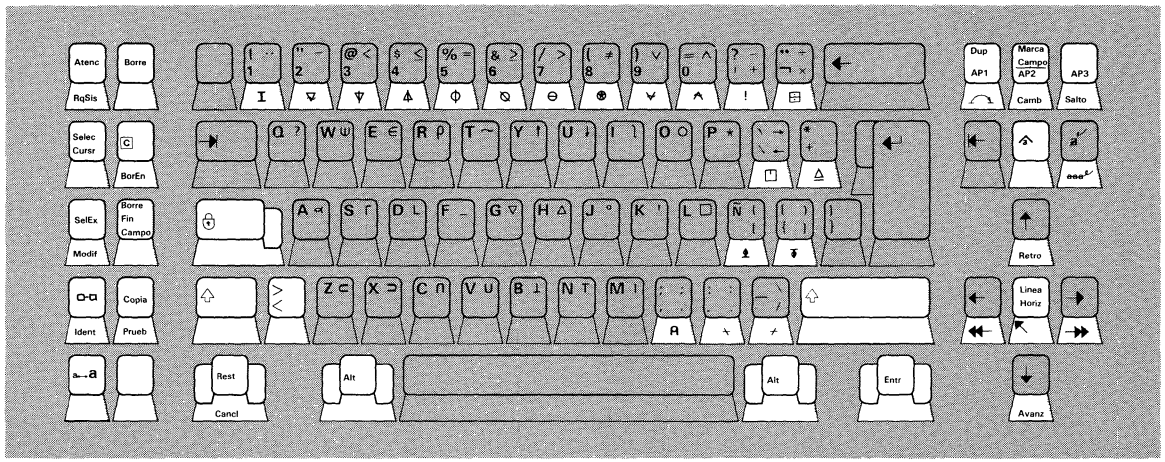


LEGEND:

Typematic Keys

Nontypematic Keys

Typewriter Keyboard



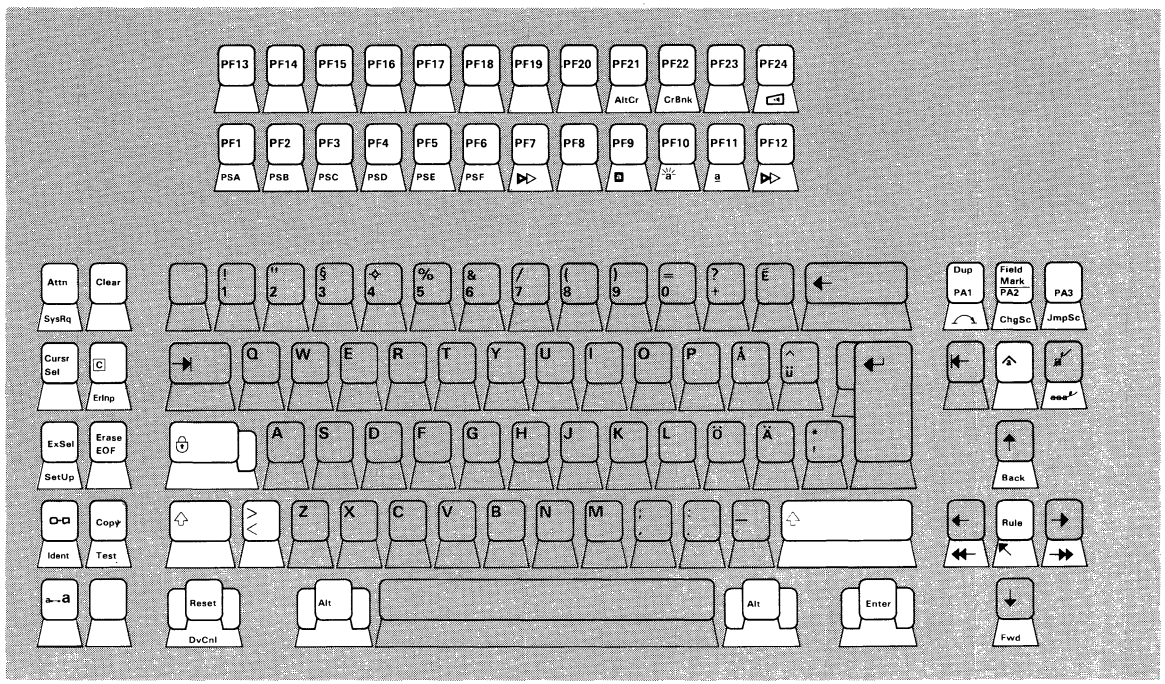
LEGEND:

Typematic Keys

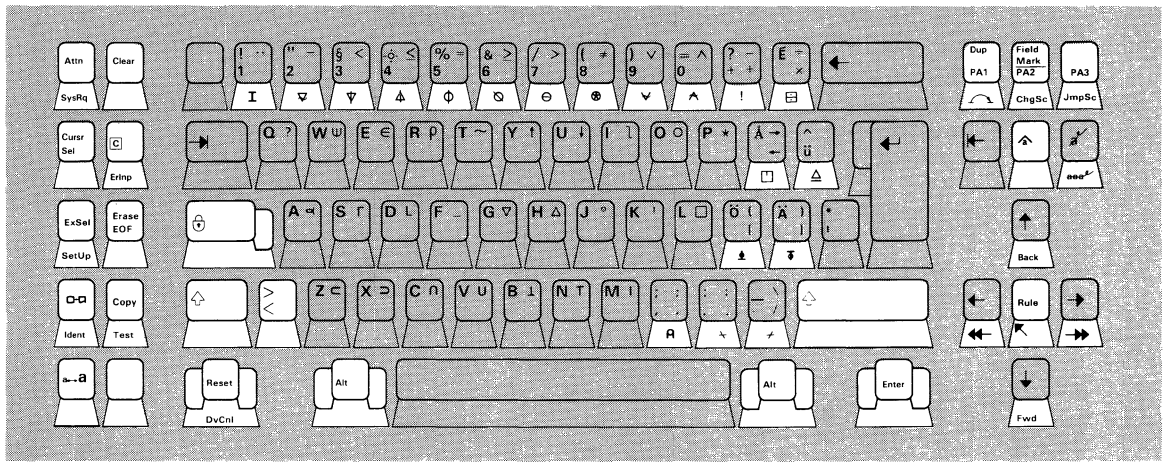
Nontypematic Keys

APL Keyboard

Figure 5-22. Spanish-Speaking Keyboards



Typewriter Keyboard



APL Keyboard

LEGEND:

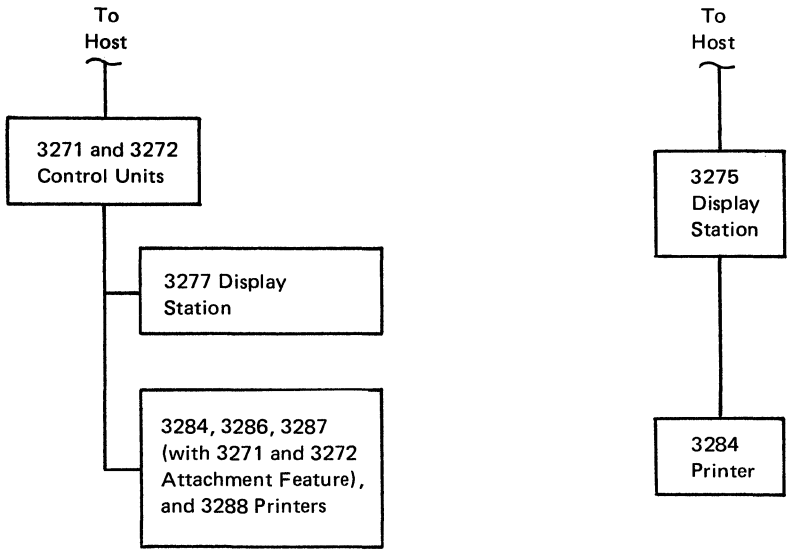
Typematic Keys

Nontypematic Keys

Figure 5-23. Swedish Keyboards

Chapter 6. 3275, 3277, 3284, 3286, 3287, and 3288 I/O Interface Codes

This chapter contains all the I/O interface codes (Figures 6-1 through 6-22) that are required to support the 3270 display stations and printers in the configurations identified below, both in the United States and in World Trade countries. Included are interface codes that support special features (dual case, APL, and Text Print) that are optional for customer use. The control characters that are supported by the interface code shown here in its national-language variations are defined in Figure 6-1.



Bits 4567	Hex 1	00	01	10	11
		00			
		0	1	2	3
0000	0	NUL			
0001	1		SBA		
0010	2		EUA		
0011	3		IC		
0100	4				
0101	5	PT	NL		
0110	6				
0111	7				
1000	8				
1001	9		EM		
1010	A				
1011	B				
1100	C	FF	DUP		RA
1101	D		SF		
1110	E		FM		
1111	F				SUB

Bits 0, 1 ← 00

Bits 2, 3 ← 00 01 10 11

Hex 0 ← 0 1 2 3

Figure 6-1. Control Character Assignments (EBCDIC)

Notes:

1. Control character assignments for ASCII are shown in Figure 6-9.
2. For all languages and features unless otherwise indicated:

   NL (hex 15 EBCDIC, 0A ASCII) displays or prints as a 5.

   EM (hex 19) displays or prints as a 9.

   DUP (hex 1C) displays or prints as an * (asterisk).

   FM (hex 1E) displays or prints as a ; (semicolon).

   FF (hex 0C) displays or prints as a < (*less than* sign).

   Exceptions:

   a. When the printer line-length is not specified, NL or EM is not printed but is executed.

   b. When FF is in a valid buffer position, FF is printed as a space and is executed (3287 and 3288 only).

   c. Japanese Katakana:

      NL displays or prints as two characters: space and 5.

      EM displays or prints as two characters: space and 9.

      NL and EM are stored in the buffer in two buffer locations. The control unit's Katakana hardware expands the NL and EM characters received to the required 2-byte sequence and also contracts the 2-byte buffer sequence to the EBCDIC NL or EM code for a subsequent read operation. If a display operator alters either byte of the 2-byte sequence by using the keyboard, the control unit will no longer contract the 2 bytes into one during read operations.

   d. Data Analysis/APL Feature:

      NL and EM display or print as a 5 and 9, respectively, except on the 3287, which prints a space.

3. The FF control character (hex 0C) is returned to the host during a subsequent read operation as graphic code point hex 8C.

   Exception:

   English (U.S.) ASCII:

   FF is returned to the host during a subsequent read operation as graphic code point hex 46, except for 3274 attached terminals, in which case it is returned as hex 0C.

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ö	ü	¦	:									
1011	B					.	Ü	,	Ä									
1100	C					<	*	%	Ö									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	ä									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-2. Austrian/German I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.
6. The 3287 prints all characters within the outlined areas of this figure, with the following substitutions:

Hex Code	Prints As
4A	ç
5A	è
7B	é
7C	à
7F	ù

Figure 6-3. Belgian I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ã	ç	¦	:									
1011	B					.	Ç	,	Õ									
1100	C					<	*	%	Ã									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	õ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-4. Brazilian/Portuguese I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¬	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-5. Canadian-French I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ø	å	¦	:									
1011	B					.	Å	,	Æ									
1100	C					<	*	%	ø									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	æ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

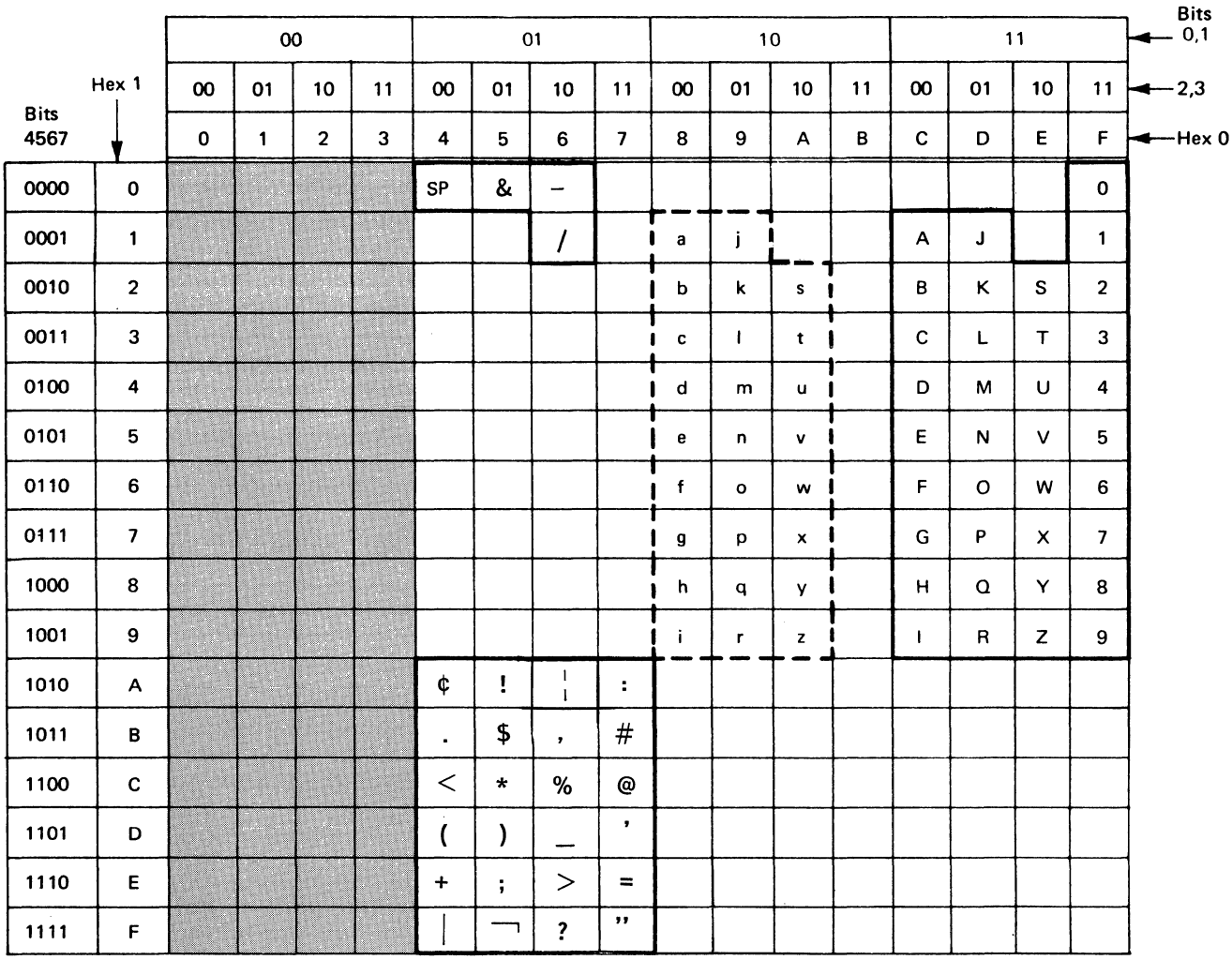
Figure 6-6. Danish/Norwegian I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					$	!	¦	:									
1011	B					.	£	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-7. English (U.K.) I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)



Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-									0
0001	1							/		a	j			A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9									i	r	z		I	R	Z	9
1010	A					¢	!	¦	:								
1011	B					.	$	,	#								
1100	C					<	*	%	@								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					|	¬	?	"								

Bits 0,1 — 2,3 — Hex 0

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

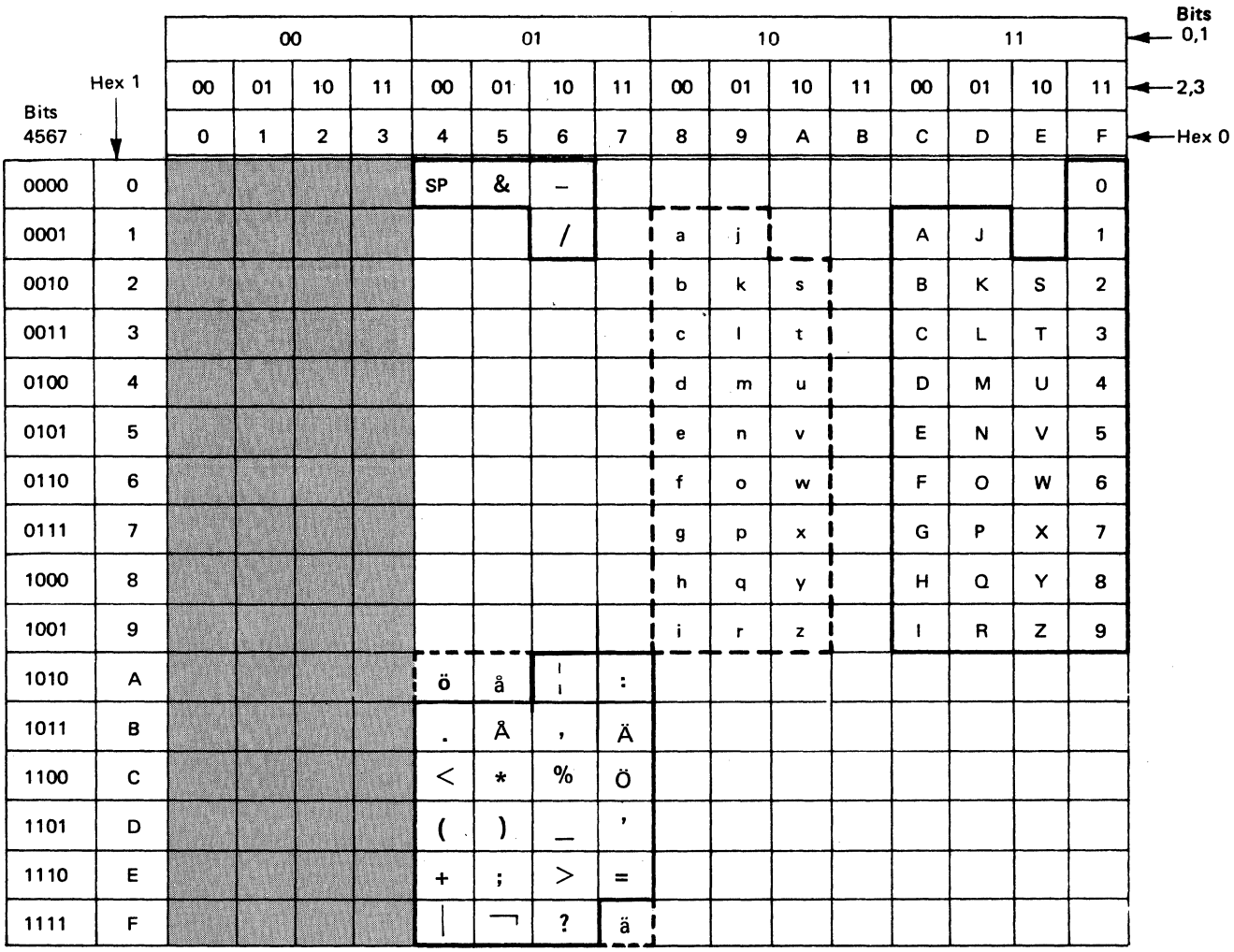
Figure 6-8. English (U.S.) I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

b_4	b_3	b_2	b_1	Hex 1 \ Hex 0	0 0 0 0	0 0 0 1	0 0 1 0	0 0 1 1	1 0 0 0	1 0 0 1	1 1 0 0	1 1 1 1
					0	1	2	3	4	5	6	7
0	0	0	0	0	NUL		SP	0	@	P		p
0	0	0	1	1		SBA	¦ !	1	A	Q	a	q
0	0	1	0	2		EUA	"	2	B	R	b	r
0	0	1	1	3		IC	#	3	C	S	c	s
0	1	0	0	4		RA	$	4	D	T	d	t
0	1	0	1	5			%	5	E	U	e	u
0	1	1	0	6			&	6	F	V	f	v
0	1	1	1	7			'	7	G	W	g	w
1	0	0	0	8			(	8	H	X	h	x
1	0	0	1	9	PT	EM	)	9	I	Y	i	y
1	0	1	0	A	NL	SUB	*	:	J	Z	j	z
1	0	1	1	B			+	;	K	[	k	
1	1	0	0	C	FF	DUP	,	<	L	\	l	
1	1	0	1	D		SF	-	=	M	]	m	
1	1	1	0	E		FM	.	>	N	¬ ^	n	
1	1	1	1	F			/	?	O	_	o	

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed in the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The ASCII-A option displays and prints ¦ and ¬ for interface codes 21 and 5E (hex), respectively. The ASCII-B option displays and prints ! and ^ for codes 21 and 5E (hex), respectively.
5. This figure also applies to 3277 units attached to 3274 control units; the SUB control character (hex 1A), however, is not supported.
6. The 3287 prints uppercase ASCII-B only.

Figure 6-9. English (U.S.) ASCII I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)



Bits 4567 / Hex 1		00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	–									0
0001	1							/		a	j			A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9									i	r	z		I	R	Z	9
1010	A					ö	å	¦	:								
1011	B					.	Å	,	Ä								
1100	C					<	*	%	Ö								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					|	¬	?	ä								

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-10. Finnish/Swedish I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. The 3287 prints all characters within the outlined areas of this figure, with the following substitutions:

Hex Code	Prints As
4A	ç
5A	è
7B	é
7C	à
7F	ù

6. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-11. French I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

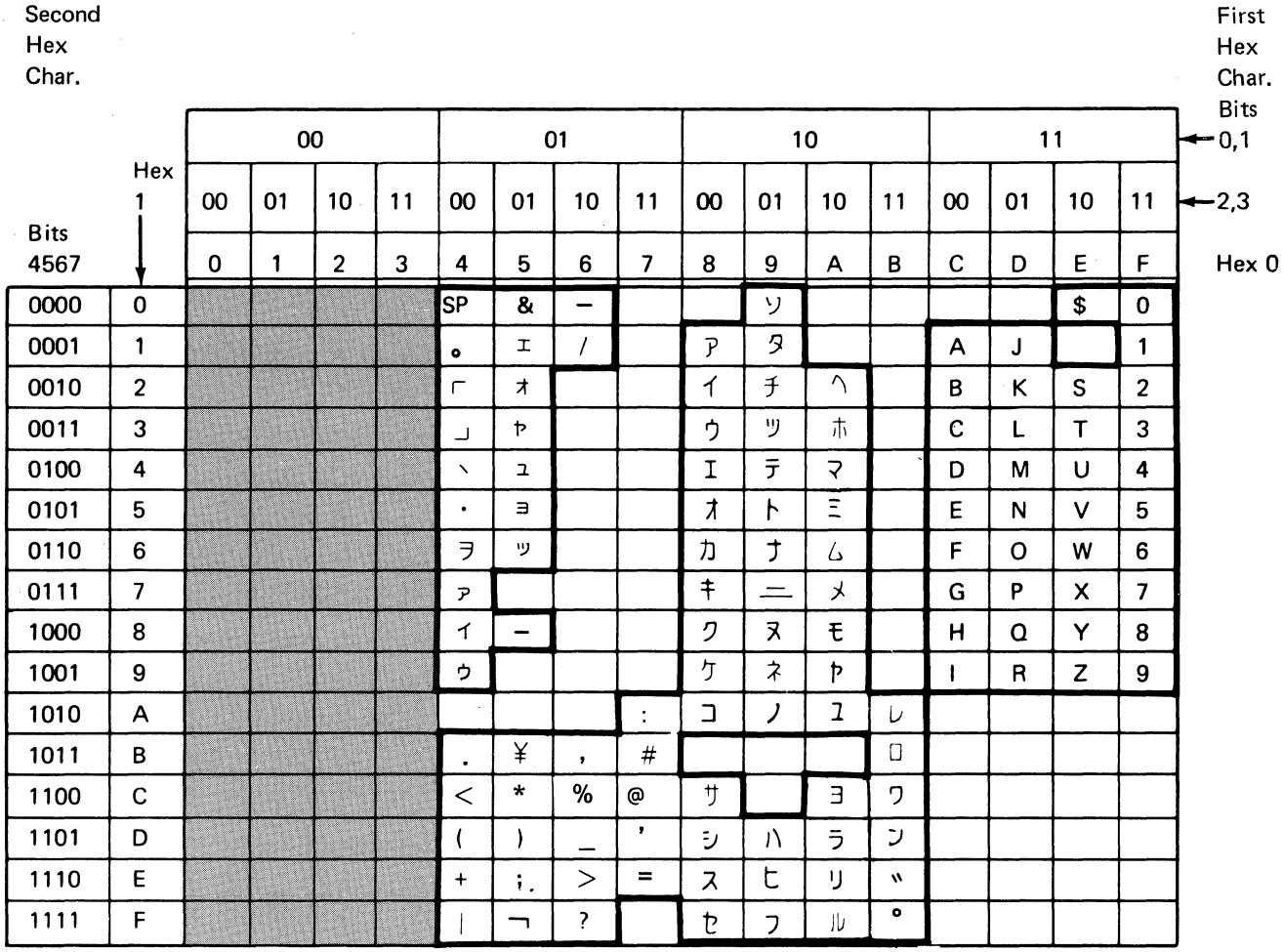
Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. The 3287 prints all characters within the outlined areas of this figure, with the following substitutions:

Hex Code	Prints As
4A	ç
5A	è
7B	ì
7C	ò
7F	ù

6. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-12. Italian I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)



Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
3. Hex codes 4A, 5A, 6A, and 7F are used for CU addressing, device addressing, buffer addressing, and control purposes (for example, WCC and CCC), but have no associated graphic characters.
4. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-13. Japanese Katakana I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ã	ç	¦	:									
1011	B					.	Ç	,	õ									
1100	C					<	*	%	Ã									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	õ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

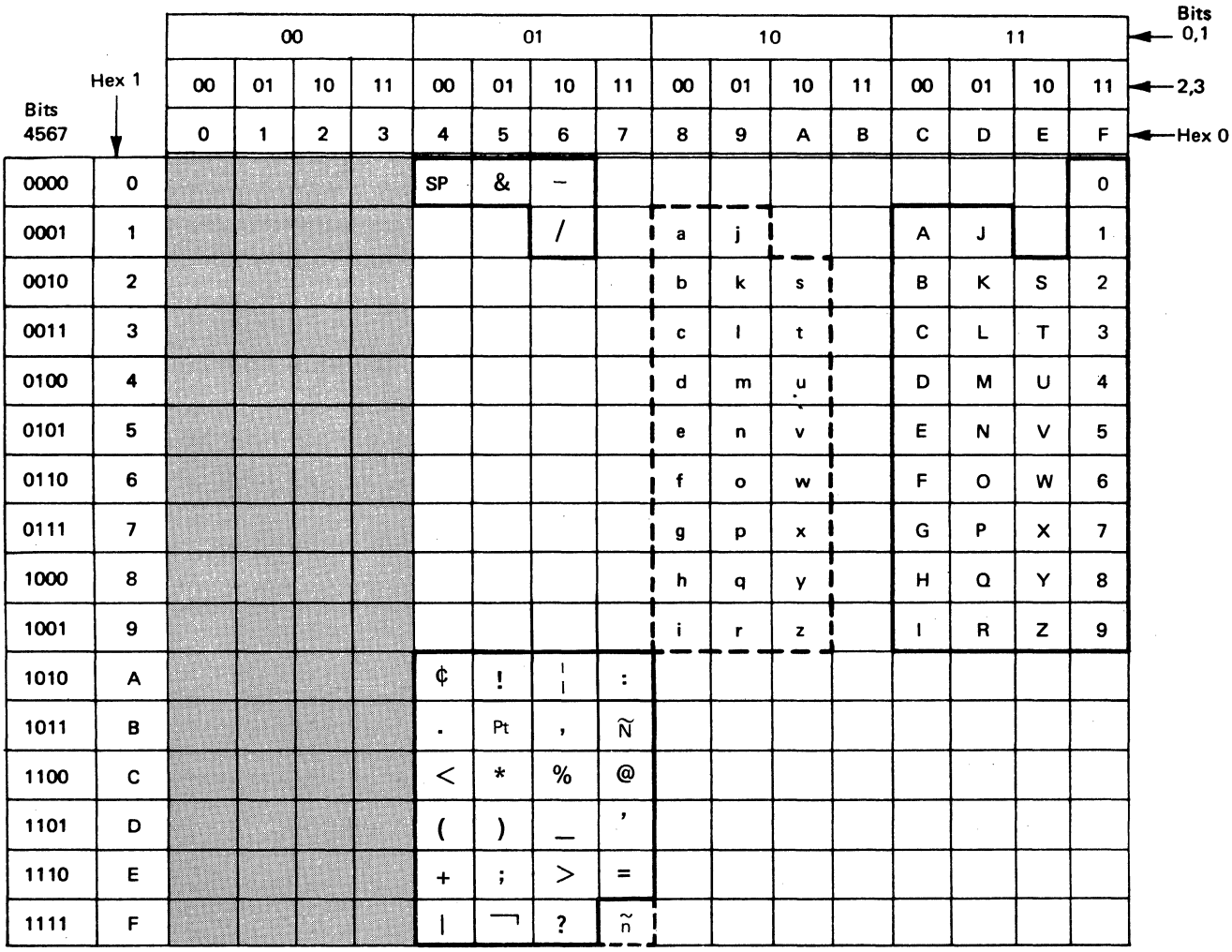
Figure 6-14. Portuguese I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	Pt	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	ñ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-15. Spanish I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)



Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	Pt	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	ñ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters, unless a dual-case feature is installed on the terminal.
3. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The broken vertical line (¦) character (hex 6A) is not displayed, but is printed by the 3287 and 3288 printers.
5. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-16. Spanish-Speaking I/O Interface Code (3275, 3277, 3284, 3286, 3287, and 3288)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0																0	
0001	1																1	
0010	2																2	
0011	3																3	
0100	4																4	
0101	5																5	
0110	6																6	
0111	7																7	
1000	8																8	
1001	9																9	
1010	A								*	Special (Note 1)								
1011	B								SOR									
1100	C								EOI									
1101	D								*	Field Separator								
1110	E								*	Unassigned								
1111	F								EOR									

Notes:

1. Special. This character is reserved for operator identification and must be located in the first data position.
2. SOR (Start of Record). This character is a *graphic* # (not displayed), indicating the beginning of a record on the card.
3. EOI (End of Inquiry). This character is a *graphic* @ (not displayed) that can be used as a termination character on the card.
4. EOR (End of Record). This character is a *graphic* " (not displayed) that can also be used as a termination character.

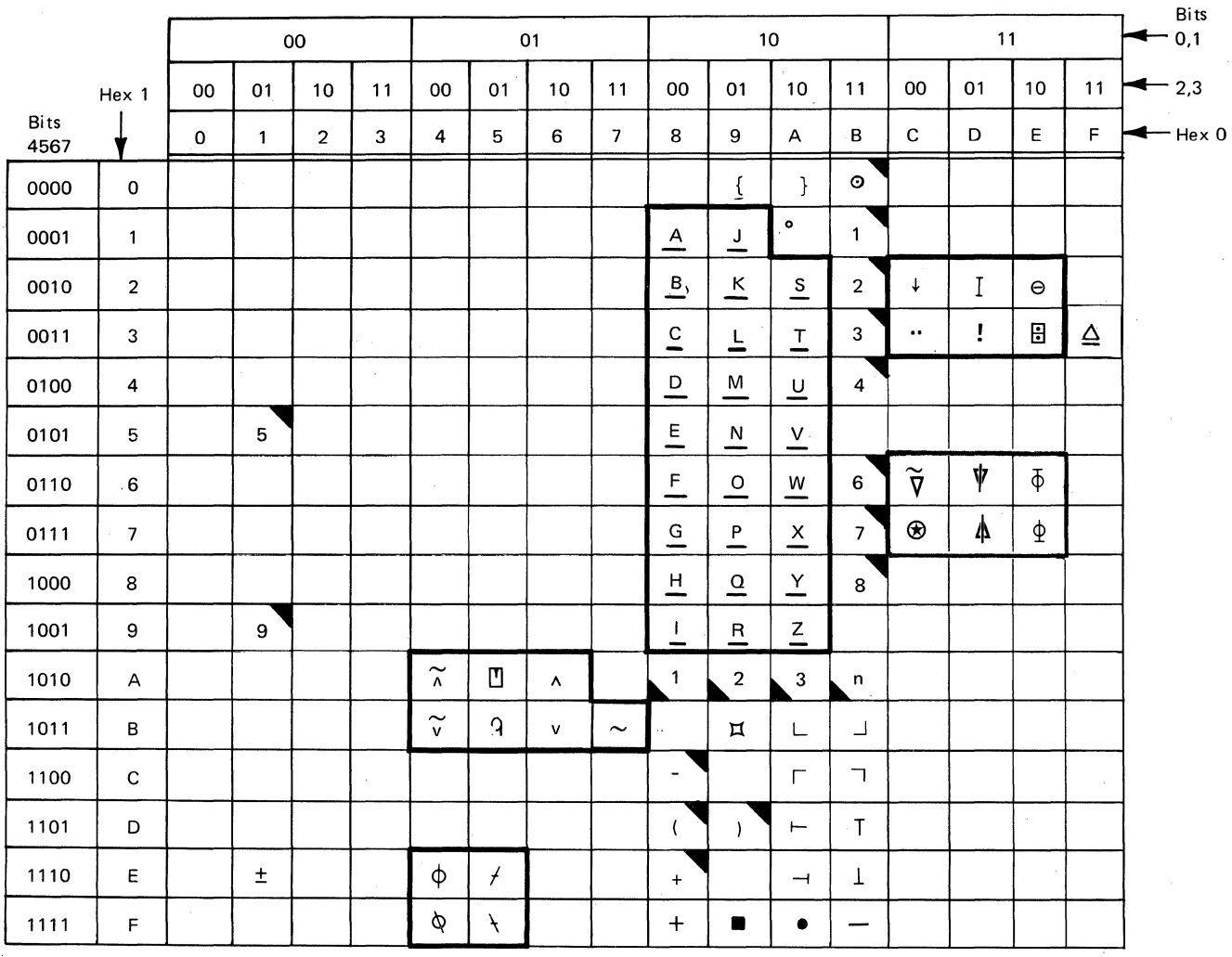
Figure 6-17. 3275 and 3277 10-Numeric Character Set (Operator Identification Card Reader)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–			□	¯	α				0	
0001	1							/		a	j		ϵ	A	J		1	
0010	2									b	k	s	ι	B	K	S	2	
0011	3									c	l	t	ρ	C	L	T	3	
0100	4									d	m	u	ω	D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w	X	F	O	W	6	
0111	7									g	p	x	\	G	P	X	7	
1000	8									h	q	y	÷	H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!		:	↑	⊃	∩	∇					
1011	B					.	$	,	#		⊂	∪	Δ					
1100	C					<	*	%	@	≤		⊥	T					
1101	D					(	)	_	'	⌜	○	[	]					
1110	E					+	;	>	=	⌞		≥	≠					
1111	F					|	¬	?	"	→	←	∘	|					

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. All character codes shown may be entered from the APL keyboard.
3. Control codes are assigned code points in shaded areas. See Figure 6-1.

Figure 6-18. Data Analysis APL Feature, 1-Byte I/O Interface Code (3277 Model 2, 3284 Model 2, 3286 Model 2, and 3287 Model 1 or 2)



Notes:

1. These codes, each preceded by a start field control character (hex 1D), transmit the graphics shown.
2. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
3. Only those graphic characters shown within the bold outline may be entered from the APL keyboard.

Legend:

Superscript

Subscript

Figure 6-19. Data Analysis APL Feature, 2-Byte I/O Interface Code (3277 Model 2, 3284 Model 2, 3286 Model 2, and 3287 Model 1 or 2)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–			□	¯					0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x	\	G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!		:	↑			∇					
1011	B					.	$	,	#				Δ					
1100	C					<	*	%	@	≤								
1101	D					(	)	_	'	⌜		[	]					
1110	E					+	;	>	=	⌞		≥	≠					
1111	F					|	¬	?	"	→	←		|					

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. All character codes shown can be entered directly from the Text keyboard.

Figure 6-20. Text Feature, 1-Byte I/O Interface Code (3277 Model 2, 3284 Model 2, 3286 Model 2, and 3287 Model 1 or 2)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0										{	}	⊙					
0001	1											°	1					
0010	2												2	↓				
0011	3												3			⊡	⏏	
0100	4												4					
0101	5		5															
0110	6												6	⍒	⍒	⌽		
0111	7												7	⍟	⍋	⌽		
1000	8												8					
1001	9		9															
1010	A							∧		1	2	3	n					
1011	B							v			⌑	∟	⌟					
1100	C									-		⌜	⌝					
1101	D									(	)	⊢	⊤					
1110	E		±				≠			+		⊣	⊥					
1111	F						↖			+	■	•	—					

Notes:

1. These codes, each preceded by a hex ID control character, transmit the graphics shown.
2. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
3. All codes shown can be entered directly from the Text keyboard.

Legend:

Superscript

Subscript

Figure 6-21. Text Feature, 2-Byte I/O Interface Code (3277 Model 2, 3284 Model 2, 3286 Model 2, and 3287 Model 1 or 2)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-			5	-	0				0	
0001	1							/		a	j	°	1	A	J		1	
0010	2									b	k	s	2	B	K	S	2	
0011	3									c	l	t	3	C	L	T	3	
0100	4									d	m	u	4	D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w	6	F	O	W	6	
0111	7									g	p	x	7	G	P	X	7	
1000	8									h	q	y	8	H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	¦ 9	:	≤	¤	±	–					
1011	B					.	$	,	#	(	)	└	┘					
1100	C					<	*	%	@			┌	┐					
1101	D					(	)	_	'	(	)	[	]					
1110	E					+	;	>	=	+		≥	≠					
1111	F					|	¬	?	"	+	■	•	SI					

Notes:

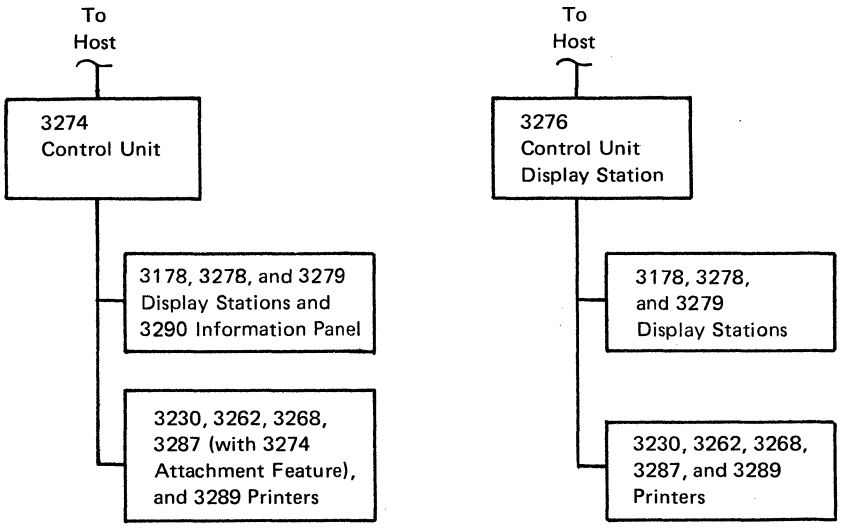
1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, the resultant terminal operation or graphic character depends upon the terminal used. IBM reserves the right to change, at any time, all undefined codes.
2. Attribute, write control character (WCC), copy control character (CCC), control unit (CU) and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
3. Only those data characters shown within the bold outlines can be printed by the 3288 printer with the Text Print feature installed, using the 64-character EBCDIC print belt.
4. Hex 6A causes a broken vertical line (¦) character to be printed when the 64-character EBCDIC print belt is being used, and a superscript 9 when the EBCDIC Text print belt is being used.
5. The Suppress Index control character SI (hex BF) is used to cause overprinting of print lines.
6. Control codes are assigned code points in shaded areas. See Figure 6-1.

Legend: Superscript

Figure 6-22. 3288 Text Print Feature I/O Interface Code

Chapter 7. 3178, 3230, 3262, 3268, 3276, 3278, 3279, 3287, 3289, and 3290 I/O Interface Codes

This chapter contains the I/O interface codes (Figures 7-1 through 7-31) that support the various 3270 keyboards and printers associated with the 3274 Control Unit and with the 3276 Control Unit Display Station, both in the United States and in World Trade countries. Included is a figure (Figure 7-29) that illustrates the differences in I/O interface codes for the various national languages that are supported by the 3270 Information Display System. An I/O interface code for the IBM Magnetic Slot Reader is also provided (Figure 7-30).



Bits 4567	Hex 1	00						11				Bits 0, 1
		00	01	10	11			00	01	10	11	2, 3
		0	1	2	3			C	D	E	F	Hex 0
0000	0	NUL										
0001	1		SBA									
0010	2		EUA									
0011	3		IC									
0100	4											
0101	5	PT	NL									
0110	6											
0111	7											
1000	8	GE		SA								
1001	9		EM	SFE								
1010	A											
1011	B											
1100	C	FF	DUP	MF	RA							
1101	D	CR	SF									
1110	E		FM									
1111	F				SUB						EO	

Notes:

1. FF, CR, NL, and EM control characters are displayed or printed as space characters.
2. The DUP and FM control characters are respectively displayed as $\overline{*}$ and $\overline{;}$ in dual-case mode and as * and ; in mono-case mode; they are printed, in both modes, as * and ; respectively.
3. For 3274 control units with Configuration Support C installed, undefined control codes from hex 00 to hex 3F, and hex FF, cause a negative response [systems network architecture (SNA)] or an Op Chk [binary synchronous communication (BSC)].
4. The "alternate" I/O interface codes defined for certain languages do not support the GE, SFE, MF, SA, EO, or CR control codes.
5. ASCII control character assignments are given in Figure 7-11.
6. The 3289, when operating in SCS mode, prints hyphens for both hex 1C and hex 1E.

Figure 7-1. Control Character Assignments (EBCDIC)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						ä	ü	Ö	0	
0001	1							/		a	j	β		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					Ä	Ü	ö	:									
1011	B					.	$	,	#									
1100	C					<	*	%	§									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	^	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-2. Austrian/German I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ö	ü	ß	:									
1011	B					.	Ü	,	Ä									
1100	C					<	*	%	Ö									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	ä									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-3. Austrian/German (Alternate) I/O Interface Code

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	–						é	è	ç	0
0001	1							/		a	j	¨		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								`	i	r	z		I	R	Z	9
1010	A					⊏	⊐	ù	:								
1011	B					.	$	,	#								
1100	C					<	*	%	a								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					!	^	?	"								

Bits 0,1 — 2,3 — Hex 0

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-4. Belgian I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						õ	é	\	0	
0001	1							/		a	j	~		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								ã	i	r	z		I	R	Z	9	
1010	A					É	$	ç	:									
1011	B					.	Ç	,	Õ									
1100	C					<	*	%	Ã									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	^	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-5. Brazilian I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
	↓	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						{	}	\	0	
0001	1						é	/	É	a	j	~		A	J		1	
0010	2					â	ê	Â	Ê	b	k	s		B	K	S	2	
0011	3						ë		Ë	c	l	t		C	L	T	3	
0100	4					à	è	À	È	d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6						î		Î	f	o	w		F	O	W	6	
0111	7						ï		Ï	g	p	x		G	P	X	7	
1000	8					ç		Ç		h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:				^					
1011	B					.	$	,	#					ô	û	Ô	Û	
1100	C					<	*	%	@						ü		Ü	
1101	D					(	)	_	'		↳		¨		ù		Ù	
1110	E					+	;	>	=				´					
1111	F					|	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-6. Canadian Bilingual I/O Interface Code

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						é	è	ʃ	0
0001	1							/	É	a	j	¨		A	J		1
0010	2					â	ê	Â	Ê	b	k	s		B	K	S	2
0011	3						ë		Ë	c	l	t		C	L	T	3
0100	4							À	È	d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6						î		Î	f	o	w		F	O	W	6
0111	7						ï		Ï	g	p	x		G	P	X	7
1000	8					ç		Ç		h	q	y		H	Q	Y	8
1001	9								`	i	r	z		I	R	Z	9
1010	A					à	'	ù	:								
1011	B					.	$	,	#					ô	û	Ô	Û
1100	C					<	*	%	@						ü		Ü
1101	D					(	)	_	'								Ù
1110	E					+	;	>	=								
1111	F					!	^	?	"								

Bits 0,1 ← 2,3 ← Hex 0

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-7. Canadian-French I/O Interface Code

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	–						æ	å	\	0
0001	1							/		a	j	ü		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								`	i	r	z		I	R	Z	9
1010	A					#	¤	¢	:								
1011	B					.	Å	,	Æ								
1100	C					<	*	%	ø								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					!	¬	?	"								

Bits 0,1 — Bits 2,3 — Hex 0

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

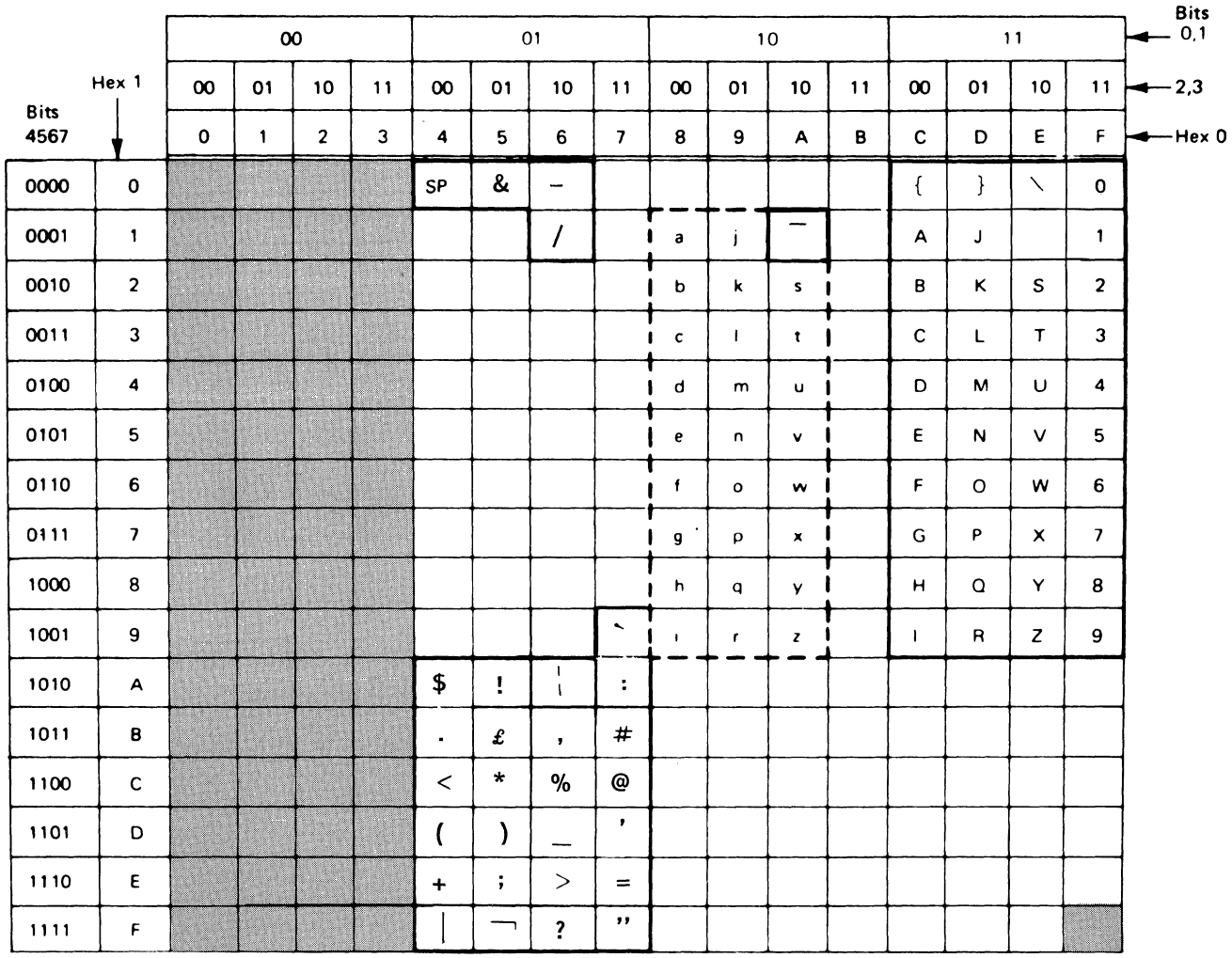
Figure 7-8. Danish/Norwegian I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ø	å	¦	:									
1011	B					.	Å	,	Æ									
1100	C					<	*	%	Ø									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	æ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-9. Danish/Norwegian (Alternate) I/O Interface Code



Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						{	}	\	0
0001	1							/		a	j	~		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								`	i	r	z		I	R	Z	9
1010	A					$	!	¦	:								
1011	B					.	£	,	#								
1100	C					<	*	%	@								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					¦	¬	?	"								

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-10. English (U.K.) I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						{	}	\	0	
0001	1							/		a	j	~		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-11. English (U.S.) I/O Interface Code

b_4	b_3	b_2	b_1	Hex 1 \ Hex 0	0 (0 0 0)	1 (0 0 1)	2 (0 1 0)	3 (0 1 1)	4 (1 0 0)	5 (1 0 1)	6 (1 1 0)	7 (1 1 1)
0	0	0	0	0	NUL		SP	0	@	P	`	p
0	0	0	1	1		SBA	!	1	A	Q	a	q
0	0	1	0	2		EUA	"	2	B	R	b	r
0	0	1	1	3		IC	#	3	C	S	c	s
0	1	0	0	4		RA	$	4	D	T	d	t
0	1	0	1	5			%	5	E	U	e	u
0	1	1	0	6			&	6	F	V	f	v
0	1	1	1	7			'	7	G	W	g	w
1	0	0	0	8			(	8	H	X	h	x
1	0	0	1	9	PT	EM	)	9	I	Y	i	y
1	0	1	0	A	NL		*	:	J	Z	j	z
1	0	1	1	B			+	;	K	[	k	{
1	1	0	0	C	FF	DUP	,	<	L	\	l	¦
1	1	0	1	D	CR	SF	-	=	M	]	m	}
1	1	1	0	E		FM	.	>	N	^	n	~
1	1	1	1	F			/	?	O	_	o	

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 2D). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. The 3289, 3230, 3262, and 3268 do not support the ASCII character set. The 3287 supports the ASCII character set.

Figure 7-12. English (U.S.) ASCII-B I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						ä	å	É	0	
0001	1							/		a	j	ü		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								é	i	r	z		I	R	Z	9	
1010	A					§	¤	ö	:									
1011	B					.	Å	,	Ä									
1100	C					<	*	%	Ö									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	^	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-13. Finnish/Swedish I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ö	å	¦	:									
1011	B					.	Å	,	Ä									
1100	C					<	*	%	Ö									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	ä									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-14. Finnish/Swedish (Alternate) I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						é	è	ç	0	
0001	1							/		a	j	¨		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					°	§	ù	:									
1011	B					.	$	,	£									
1100	C					<	*	%	à									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	^	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-15. French I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						é	è	ç	0	
0001	1							/		a	j	¨		A	J		1	
0010	2					â	ê			b	k	s		B	K	S	2	
0011	3					ä	ë			c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6						î			f	o	w		F	O	W	6	
0111	7						ï			g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					°	§	ù	:									
1011	B					.	$	,	£					ô	û			
1100	C					<	*	%	à					ö	ü			
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	^	?	"						ÿ			

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C, D, and T installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.

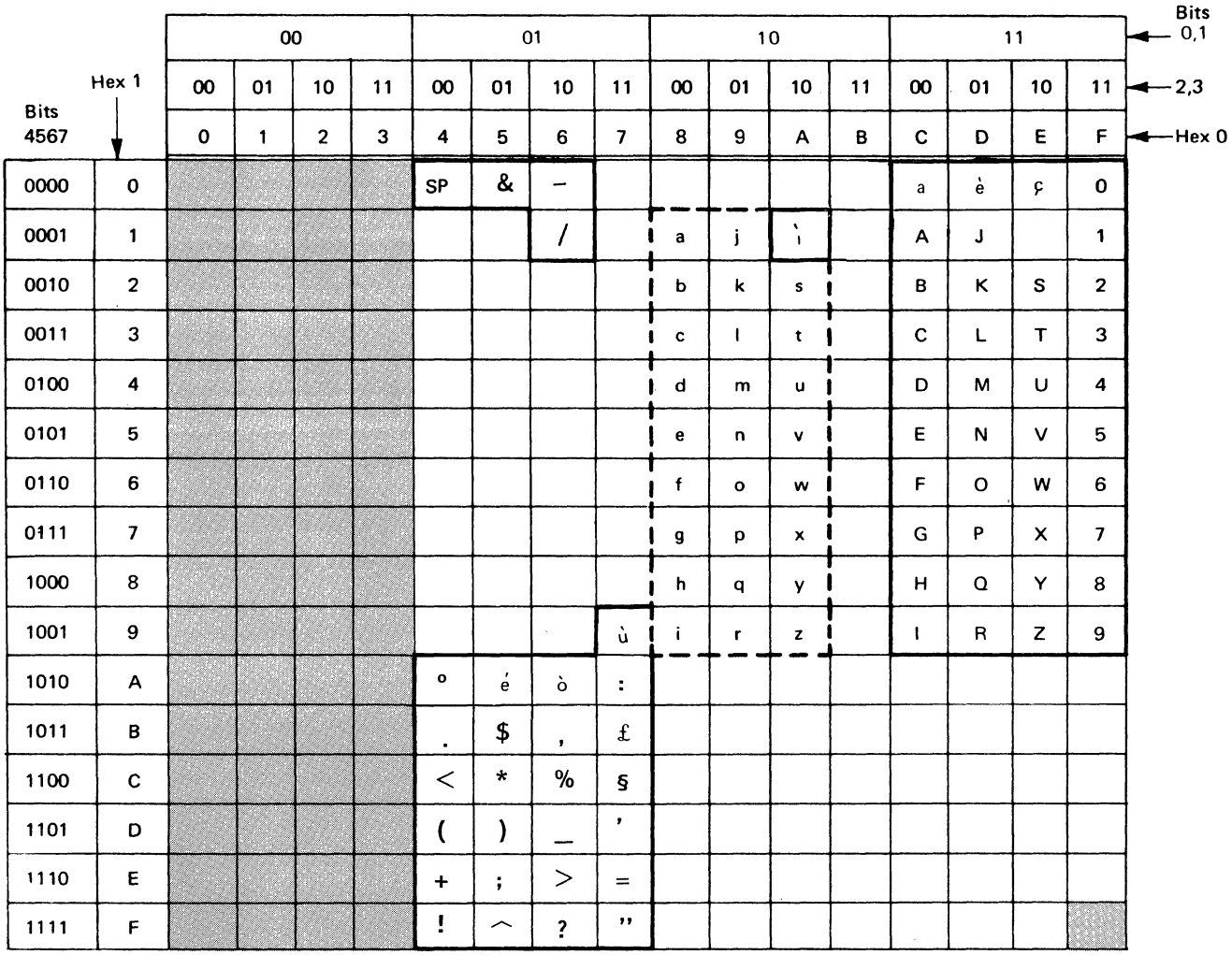
Figure 7-16. French (AZERTY) 105-Character I/O Interface Code

Bits 4567 / Hex 1		Bits 0,1: 00				01				10				11			
		Bits 2,3: 00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		Hex 0: 0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	`0					SP	&	-						{	}	\	0
0001	1							/		a	j	~		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								`	i	r	z		I	R	Z	9
1010	A					⊏	⊐	¦	:								
1011	B					.	$	,	#								
1100	C					<	*	%	@								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					!	⌒	?	"								

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-17. International I/O Interface Code



Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						a	è	ç	0
0001	1							/		a	j	ì		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								ù	i	r	z		I	R	Z	9
1010	A					¤	é	ò	:								
1011	B					.	$	,	£								
1100	C					<	*	%	§								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					!	¬	?	"								

Bits 0,1 → 00 01 10 11
Bits 2,3 → 00 01 10 11
Hex 0 → 0 1 2 3 4 5 6 7 8 9 A B C D E F

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-18. Italian I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						{	}	$	0	
0001	1							/		a	j	‾		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					£	!	¦	:									
1011	B					.	¥	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					¦	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-19. Japanese English I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				First Hex Char. Bits
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	←0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	←2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	−			ソ					$	0	
0001	1					。	エ	/		ア	タ	—		A	J		1	
0010	2					「	オ			イ	チ	ヘ		B	K	S	2	
0011	3					」	ヤ			ウ	ツ	ホ		C	L	T	3	
0100	4					、	ユ			エ	テ	マ		D	M	U	4	
0101	5					・	ヨ			オ	ト	ミ		E	N	V	5	
0110	6					ヲ	ッ			カ	ナ	ム		F	O	W	6	
0111	7					ァ				キ	ニ	メ		G	P	X	7	
1000	8					ィ	−			ク	ヌ	モ		H	Q	Y	8	
1001	9					ゥ				ケ	ネ	ヤ		I	R	Z	9	
1010	A					£	!		:	コ	ノ	ユ	レ					
1011	B					.	¥	,	#				□					
1100	C					<	*	%	@	サ		ヨ	ワ					
1101	D					(	)	_	'	シ	ハ	ラ	ン					
1110	E					+	;	>	=	ス	ヒ	リ	゛					
1111	F					|	¬	?	"	セ	フ	ル	°					

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
3. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-20. Japanese Katakana I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						ã	'	Ç	0	
0001	1							/		a	j	ç		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					⊏	⊐	õ	:									
1011	B					.	$	,	Ã									
1100	C					<	*	%	õ									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	~	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-21. Portuguese I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						ã	'	Ç	0	
0001	1							/		a	j	ç		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					⊏	⊐	õ	:									
1011	B					.	$	,	Ã									
1100	C					ç	*	%	õ									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	^	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-22. Portuguese (Alternate) I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						{	}	\	0	
0001	1							/		a	j	··		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	i	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					⊏	⊐	ñ̃	:									
1011	B					.	Pts	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-23. Spanish I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	¦	:									
1011	B					.	Pts	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	~ ñ									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-24. Spanish (Alternate) I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						{	}	\	0	
0001	1							/		a	j	··		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					⊏	⊐	ñ	:									
1011	B					.	$	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.
4. Control codes are assigned code points in shaded areas. See Figure 7-1.

Figure 7-25. Spanish-Speaking I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						{	}	\	0	
0001	1						é	/		a	j	~	£	A	J		1	
0010	2					â	ê			b	k	s		B	K	S	2	
0011	3					ä	ë	Ä		c	l	t		C	L	T	3	
0100	4					à	è			d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6						î			f	o	w		F	O	W	6	
0111	7						ï			g	p	x		G	P	X	7	
1000	8					Ç	ì			h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					[	]	¦	:									
1011	B					.	$	,	#					ô	û			
1100	C					<	*	%	@					ö	ü	Ö	Ü	
1101	D					(	)	_	'				¨	ò	ù			
1110	E					+	;	>	=									
1111	F					!	^	?	"									

Notes:

1. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: ***for 3274 control units with Configuration Support C, D, and T installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.*** IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
2. Although the lowercase alphabetic characters (within dotted outlined areas) are stored in the display or printer buffer, the lowercase characters are displayed or printed as uppercase characters when operating in mono-case mode.
3. Attribute, WCC, CCC, CU and device address, buffer address, sense, and status byte values are assigned so that each can be represented by a graphic character within the solid outlined portion of this figure.

Figure 7-26. Swiss-French and Swiss-German I/O Interface Code

Bits 0,1		00				01				10				11			
Bits 2,3		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
Bits 4567	Hex 0 →	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0									~	⎕	—	α	{	}		0
0001	1					A̲	J̲		∧	▏▕	▌	°	ε	(	)	1	1
0010	2					B̲	K̲	S̲	¨	═	▐	—	ι	+	−	2	2
0011	3					C̲	L̲	T̲		▏	▀	•	ρ	■	+	3	3
0100	4					D̲	M̲	U̲		▕	▄	n	ω	└	┘		4
0101	5					E̲	N̲	V̲		│	█			┌	┐		5
0110	6					F̲	O̲	W̲					×	├	┤		6
0111	7					G̲	P̲	X̲					\	⊥	⊤		7
1000	8					H̲	Q̲	Y̲	∨				÷	§	¶		8
1001	9					I̲	R̲	Z̲									9
1010	A									↑	⊃	∩	∇	⍲	⌶	⌿	·
1011	B									↓	⊂	∪	∆	⍱	!	⍀	⍒
1100	C									≤	⌑	⊥	⊤		⍕		⍋̲
1101	D									⌈	○	[	]	⌽	⍋	⊖	⊕
1110	E									⌊	±	≥	≠		⍞	⌹	⍎
1111	F									→	←	°	|	⍉	⍝	⍕	

Notes:

1. These codes, each preceded by a Graphic Escape (hex 08) control character, transmit the graphics shown.
2. I/O interface code assignments other than those shown are undefined. If an undefined code is programmed, it is displayed or printed as a hyphen (hex 60). The control unit will return the hyphen, not the original code, during a subsequent read operation. There is one exception: *for 3274 control units with Configuration Support C installed, undefined character codes from hex 40 to hex FE cause display or printing of an unspecified character; however, the undefined character code is returned, as received, during a subsequent read operation.* IBM reserves the right to change, at any time, the character displayed or printed and the I/O interface code returned for all undefined codes.
3. For 3274 control units with Configuration Support C installed, codes 0800 through 083F or 08FF cause a negative response (SNA) or an Op Chk (BSC).
4. The 10 graphic plot characters within the bold-outlined area cannot be entered from either the APL or the Text keyboard.

Superscript

Subscript

Figure 7-27. APL/Text Feature, 2-byte I/O Interface Code (3274, 3278, 3279, and 3287 Model 1 or 2)

Bits 4567	Hex 1	00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		00				01				10				11			
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-				—	0	{	}	\	0
0001	1							/		a	j	¬	1	A	J		1
0010	2									b	k	s	2	B	K	S	2
0011	3									c	l	t	3	C	L	T	3
0100	4									d	m	u	4	D	M	U	4
0101	5									e	n	v	5	E	N	V	5
0110	6									f	o	w	6	F	O	W	6
0111	7									g	p	x	7	G	P	X	7
1000	8									h	q	y	8	H	Q	Y	8
1001	9								`	i	r	z	9	I	R	Z	9
1010	A					¢	!	¦	:								
1011	B					.	$	,	#	{	}	⌊	⌋				
1100	C					<	•	%	@	≤	¤	⌜	⌝				
1101	D					(	)	_	·	(	)	[	]				
1110	E					+	;	>	=	+	±	≥	≠				
1111	F					|	¬	?	"	+	■	•	—				

Bits 0.1 2.3 Hex 0

Legend:

Superscript

Note: Character code hex A1 causes a ° (degree) character to print when the 3289 Text Print belt is installed, and a ¬ character when a U.S. English 3289 print belt is installed.

Figure 7-28. 3289 Text Print Feature I/O Interface Code

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						NU 10	NU 11	NU 12	0	
0001	1							/		a	j	NU9		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								NU4	i	r	z		I	R	Z	9	
1010	A					NU1	NU2	NU3	:									
1011	B					.	NU5	,	NU6									
1100	C					<	*	%	NU7									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					NU 13	NU8	?	NU 14									

Note: National-use (NU) differences are shown in Part 2 of this figure.

Figure 7-29 (Part 1 of 2). National-Use Differences EBCDIC I/O Interface Code

Controller Language Device / National Use Number / I/O Hex Code	1 4A	2 5A	3 6A	4 79	5 5B	6 7B	7 7C	8 5F	9 A1	10 C0	11 D0	12 E0	13 4F	14 7F
Austrian/German	Ä	Ü	ö	`	$	#	§	^	ß	ä	ü	Ö	!	"
Austrian/German (Alternate)	ö	ü	ß		Ü	Ä	Ö	¬					|	ä
Belgian	[	]	ù	`	$	#	`a	^	¨	e´	`e	ç	!	"
Brazilian	É	$	ç	~a	Ç	~O	~A	^	~	~o	e´	\	!	"
Canadian French	`a	´	`u	`	$	#	@	^	¨	e´	`e	§	!	"
Danish/Norwegian	#	¤	ø	`	Å	Æ	Ø	^	ü	æ	å	\	!	"
Danish/Norwegian (Alternate)	ø	å	¦		Å	Æ	Ø	¬					|	æ
English (U.K.)	$	!	¦	`	£	#	@	¬	¯	{	}	\	|	"
English (U.S.) (EBCDIC)	¢	!	¦	`	$	#	@	¬	~	{	}	\	|	"
Finnish/Swedish	§	¤	ö	e´	Á	Ä	Ö	^	ü	ä	å	É	!	"
Finnish/Swedish (Alternate)	ö	å	¦		Å	Ä	Ö	¬					|	ä
French	°	§	ù	`	$	£	`a	^	¨	e´	`e	ç	!	"
International	[	]	¦	`	$	#	@	^	~	{	}	\	!	"
Italian	°	e´	ò	ù	$	£	§	^	`i	`a	`e	ç	!	"
Japanese/English	£	!	¦	`	¥	#	@	¬	¯	{	}	$	|	"
Portuguese	[	]	~o	`	$	~A	~O	^	ç	~a	´	Ç	|	"
Spanish	[	]	~n	`	Pts	~N	@	¬	¨	{	}	\	|	"
Spanish (Alternate)	¢	!	¦		Pts	~N	@	¬					|	~n
Spanish-Speaking	[	]	~n	`	$	~N	@	¬	¨	{	}	\	|	"

Figure 7-29 (Part 2 of 2). National-Use Differences EBCDIC I/O Interface Code

Character	Codes to 3274 Hex		I/O Codes to Host EBCDIC	ASCII
0	0		F0	30
1	1		F1	31
2	2		F2	32
3	3		F3	33
4	4		F4	34
5	5		F5	35
6	6		F6	36
7	7		F7	37
8	8		F8	38
9	9		F9	39
Space	D		40	20

Note: The hex codes shown are those that can be used in the magnetic-stripe data section.

Figure 7-30. Numeric Character Set I/O Interface Code

Character	Codes to 3274 Hex		I/O Codes to Host EBCDIC	ASCII
0	0A	See Note 5	F0	30
1	1A		F1	31
2	2A		F2	32
3	3A		F3	33
4	4A		F4	34
5	5A		F5	35
6	6A		F6	36
7	7A		F7	37
8	8A		F8	38
9	9A		F9	39
00	00		F0, F0	30, 30
01	01		F0, F1	30, 31
02	02		F0, F2	30, 32
97	97		F9, F7	39, 37
98	98		F9, F8	39, 38
99	99	See Note 5	F9, F9	39, 39
A	C1		C1	41
B	C2		C2	42
C	C3		C3	43
D	C4		C4	44
E	C5		C5	45
F	C6		C6	46
G	C7		C7	47
H	C8		C8	48
I	C9		C9	49
J	D1		D1	4A
K	D2		D2	4B
L	D3		D3	4C
M	D4		D4	4D
N	D5		D5	4E
O	D6		D6	4F
P	D7		D7	50
Q	D8		D8	51
R	D9		D9	52
S	F2		E2	53
T	E3		E3	54
U	E4		E4	55
V	E5		E5	56
W	E6		E6	57
X	E7		E7	58
Y	E8		E8	59
Z	E9		E9	5A
¢	0C		4A	5B ([)
!	1C		5A	5D (])
:	3C		7A	3A
<	4C		4C	3C
*	5C		5C	2A
%	6C		6C	25
@	7C		7C	40
.	0D		4B	2E
$	1D		5B	24
,	2D		6B	2C
#	3D		7B	23
(	4D		4D	28
)	5D		5D	29
_	6D		6D	5F
'	7D		7D	27
|	0E		4F	21 (!)

Figure 7-31 (Part 1 of 2). Alphanumeric Character Set I/O Interface Code

Character	Codes to 3274 Hex		I/O Codes to Host EBCDIC	ASCII
¬	1E		5F	5E (^)
?	2E		6F	3F
"	3E		7F	22
+	4E		4E	2B
;	5E		5E	3B
>	6E		6E	3E
=	7E		7E	3D
\	E0		E0	5C
/	E1		61	2F
&	DA		50	26
–	EA		60	2D
Space	CA		40	20

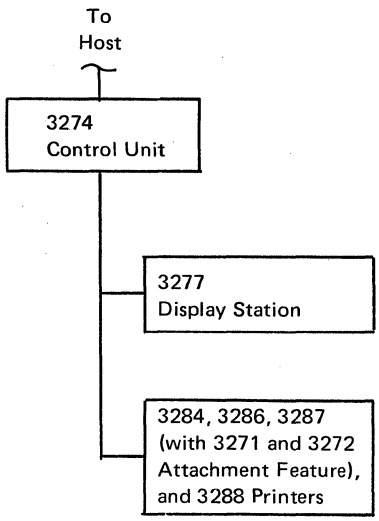
Notes:

1. The hex codes shown are those that can be used in the magnetic-stripe data section.
2. The MSR/MHS character codes listed are U.S. EBCDIC/ASCII codes only. For the graphic-character equivalents of the EBCDIC/ASCII codes for other countries, refer to the appropriate national code chart of the Americas/Far East or Europe/Middle East/Africa country or to the National-Use Differences EBCDIC I/O Interface Code chart (Figure 7-29).
3. For 1970 Austria/Germany, Denmark, Finland, Norway, Spain, and Sweden MSR language tables, a card encoded with hex E0 is rejected.
4. For 1970 Portugal MSR language table, a card encoded with hex 4C is rejected.
5. Numeric characters are coded in 4-bit pairs. As a result, there must be either an even number of numeric characters in any continuous string of numerics or an odd number of numerics with a filler character. Hex A (1010) is used as the filler character. For example: the code sequence for 12XYZ is hex 12E7E8E9; the code sequence for 123XYZ is hex 123AE7E8E9. This limits the number of characters to 62 alphabetic and special characters and 124 numeric characters.

Figure 7-31 (Part 2 of 2). Alphanumeric Character Set I/O Interface Code

Chapter 8. 3277, 3284, 3286, 3287, and 3288 I/O Interface Codes (3274 Attachment)

This chapter contains all the I/O interface codes (Figures 8-1 through 8-21) that support the 3277 Display Station keyboards and 3284, 3286, 3287, and 3288 printers when used in conjunction with the 3274 Control Unit of the 3270 Information Display System. Included is a figure (Figure 8-21) that illustrates the differences in I/O interface codes for the various national languages that are supported by the 3270 Information Display System. The interface codes, both for the United States and for World Trade countries, are presented in alphabetic order.

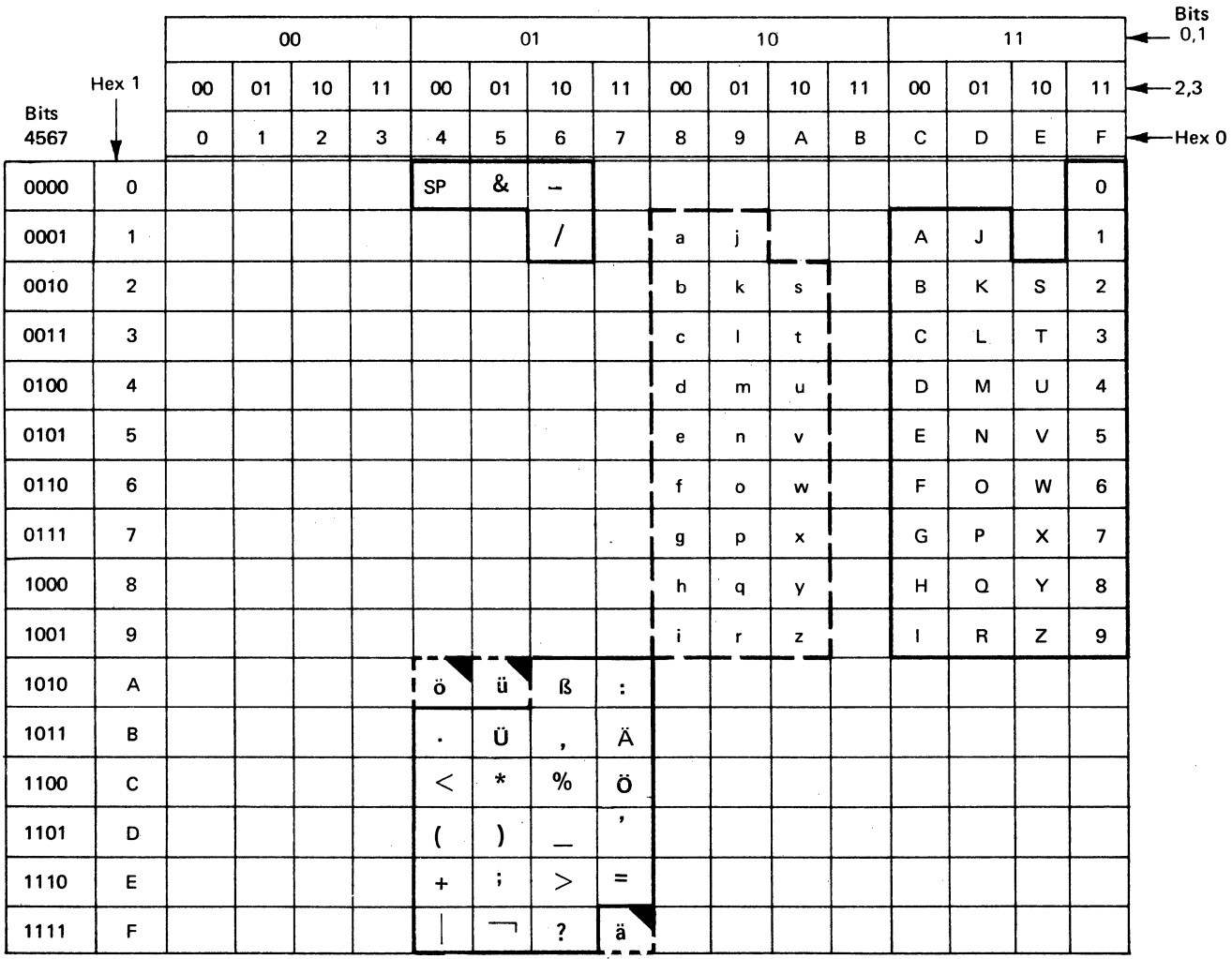


Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	–						ä	ü	Ö	0	
0001	1							/		a	j	ß		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					Ä	Ü	ö	:									
1011	B					.	%	,	+									
1100	C					<	*	%	?									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	=									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-1. Austrian/German I/O Interface Code (3274 and 3277)



Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-2. Austrian/German (Alternate) I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-	ı					AA	6A	¢	0	
0001	1							/		a	j	"		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					¢	!	¬	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-3. Belgian I/O Interface Code (3274 and 3277)

Bits 4567 / Hex 1	Hex 0	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						õ	AA	|	0
0001	1							/		a	j	—		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								ã	i	r	z		I	R	Z	9
1010	A					6A	%	ç	:								
1011	B					.	ç	,	õ								
1100	C					<	*	%	Ã								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					|	¬	?									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-4. Brazilian/Portuguese I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						AA	6A		0
0001	1							/		a	j	"		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								'	i	r	z		I	R	Z	9
1010	A					¢	¬	!	:								
1011	B					.	$	,	#								
1100	C					<	*	%	@								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					|	¬	?	"								

Bits 0,1 ← | ← 2,3 | ← Hex 0

Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-5. Canadian-French I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						æ	å	|		0
0001	1							/		a	j	—		A	J			1
0010	2									b	k	s		B	K	S		2
0011	3									c	l	t		C	L	T		3
0100	4									d	m	u		D	M	U		4
0101	5									e	n	v		E	N	V		5
0110	6									f	o	w		F	O	W		6
0111	7									g	p	x		G	P	X		7
1000	8									h	q	y		H	Q	Y		8
1001	9								'	i	r	z		I	R	Z		9
1010	A					+	AA	ø	:									
1011	B					.	Å	,	Æ									
1100	C					<	*	%	Ø									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	6A									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-6. Danish/Norwegian I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ø	å	6A	:									
1011	B					.	Å	,	Æ									
1100	C					<	*	%	ø									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	æ									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-7. Danish/Norwegian (Alternate) I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						(	)	|	0	
0001	1							/		a	j	AA		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								`	i	r	z		I	R	Z	9	
1010	A					$	!	6A	:									
1011	B					.	£	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-8. English (U.K.) I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						(	)	AA	0	
0001	1							/		a	j	–		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					¢	!	6A	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-9. English (U.S.) I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						ä	å	6A	0
0001	1							/		a	j	—		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								AA	i	r	z		I	R	Z	9
1010	A					%	+	ö	:								
1011	B					.	Å	,	Ä								
1100	C					<	*	%	Ö								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					|	¬	?	'								

Bits 0,1 — 2,3 — Hex 0

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-10. Finnish/Swedish I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					ö	å	6A	:									
1011	B					.	Å	,	Ä									
1100	C					<	*	%	Ö									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	ä									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-11. Finnish/Swedish (Alternate) I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						#	!	¢	0
0001	1							/		a	j	AA		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								'	i	r	z		I	R	Z	9
1010	A					6A	?	"	:								
1011	B					.	$	,	#								
1100	C					<	*	%	@								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					¦	¬	?	"								

Bits 0,1 → 2,3 → Hex 0

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-12. French I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						(	)	\	0	
0001	1							/		a	j	–		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					[	]	6A	:									
1011	B					.	$	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					!	¬	?	"									

Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-13. International I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						¢	!	¢	0	
0001	1							/		a	j	#		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								"	i	r	z		I	R	Z	9	
1010	A					6A	AA	@	:									
1011	B					.	$	,	#									
1100	C					<	*	%	?									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-14. Italian I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						(	)	$	0	
0001	1							/		a	j	–		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					#	!	6A	:									
1011	B					.	¢	,	#									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	"									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-15. Japanese English I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	−			ソ					$	0
0001	1					。	エ	/		ア	タ	ー		A	J		1
0010	2					「	オ			イ	チ	ヘ		B	K	S	2
0011	3					」	ヤ			ウ	ツ	ホ		C	L	T	3
0100	4					、	ユ			エ	テ	マ		D	M	U	4
0101	5					・	ヨ			オ	ト	ミ		E	N	V	5
0110	6					ヲ	ッ			カ	ナ	ム		F	O	W	6
0111	7					ァ				キ	ニ	メ		G	P	X	7
1000	8					ィ	−			ク	ヌ	モ		H	Q	Y	8
1001	9					ゥ				ケ	ネ	ヤ		I	R	Z	9
1010	A					£	!		:	コ	ノ	ユ	レ				
1011	B					.	¥	,	#				ロ				
1100	C					<	*	%	@	サ		ヨ	ワ				
1101	D					(	)	_	'	シ	ハ	ラ	ン				
1110	E					+	;	>	=	ス	ヒ	リ	゛				
1111	F					|	¬	?		セ	フ	ル	°				

First Hex Char. Bits ←0,1 ←2,3 Hex 0

Legend:

Cannot be entered from the keyboard or displayed.

Notes:

1. Character code (hex 40 through hex FF) assignments other than those shown are undefined. If an undefined character code is programmed, the character that will be displayed or printed is a hyphen; hex code 60 will be returned on a subsequent read operation. The character displayed by the 3277 for a given undefined character code may be different for other devices. IBM reserves the right to change, at any time, the character displayed for an undefined character code.
2. NL (hex 15), EM (hex 19), FF (hex 0C), and NUL (hex 00) are not displayed or printed. The DUP (hex 1C) and FM (hex 1E) control characters on dual case featured terminals are respectively displayed as * and ; and printed as * and ; .
3. DUP (hex 1C) and FM (hex 1E) control characters on mono-case terminals are respectively displayed as * and ; and printed as * and ; .
4. When 3277, 3284, 3286, 3287ANR, and 3288 are attached to the 3274, Notes 2 and 3 do not apply. NC (hex 15) is displayed as a . and EM (hex 19) is displayed as a 9.

Figure 8-16. Japanese Katakana I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						ã	—	Ç	0	
0001	1							/		a	j	ç		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					(	)	õ	:									
1011	B					.	6A	,	Ã									
1100	C					<	*	%	Õ									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	AA									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-17. Portuguese I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						(	)	|	0	
0001	1							/		a	j	6A		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								'	i	r	z		I	R	Z	9	
1010	A					¢	!	ñ	:									
1011	B					.	Pt	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+	;	>	=									
1111	F					|	¬	?	AA									

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-18. Spanish I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-									0	
0001	1							/		a	j			A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9									i	r	z		I	R	Z	9	
1010	A					¢	!	6A	:									
1011	B					.	Pt	,	Ñ									
1100	C					<	*	%	@									
1101	D					(	)	_	'									
1110	E					+		>	=									
1111	F					|	¬	?	~ ñ									

Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

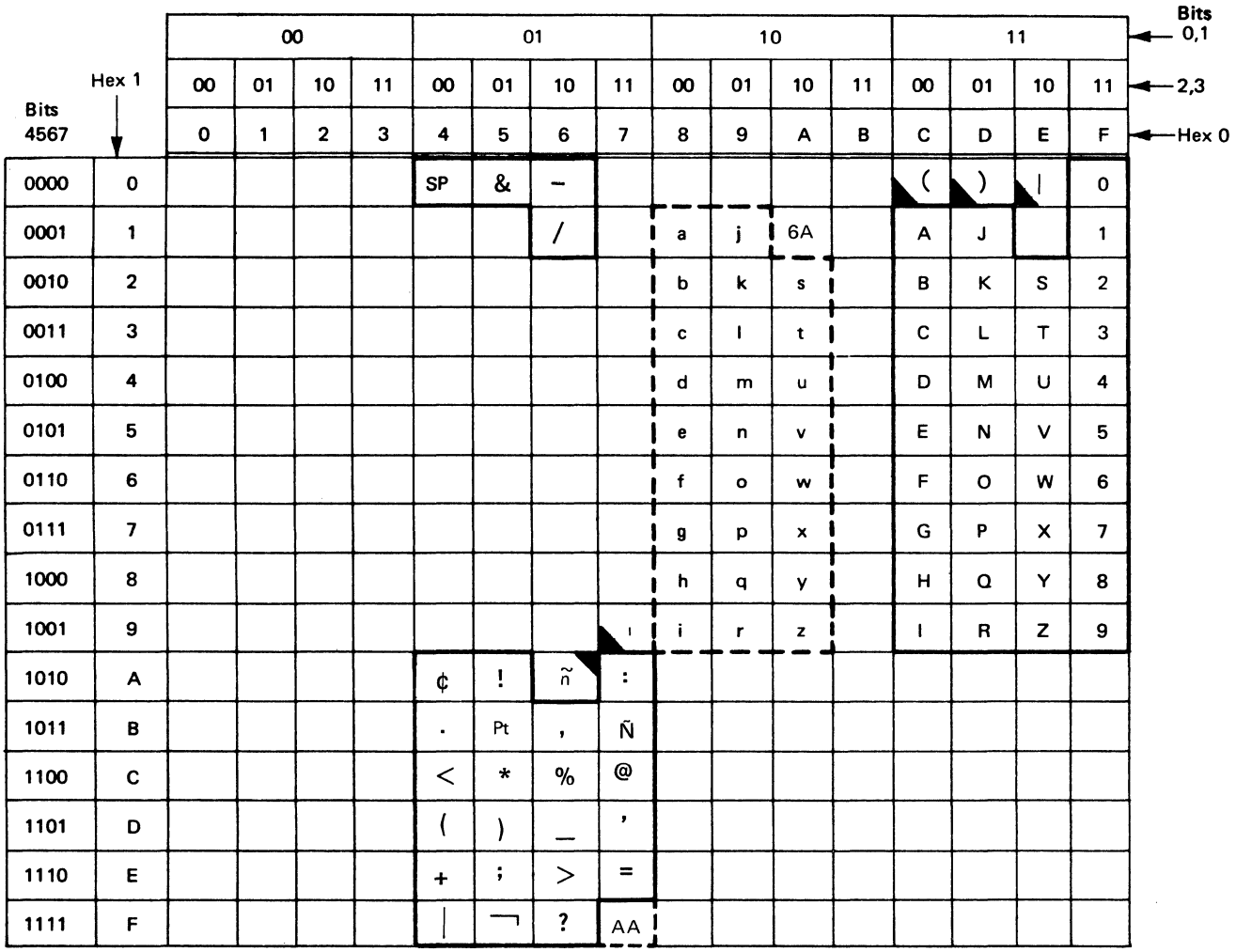
Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-19. Spanish (Alternate) I/O Interface Code (3274 and 3277)



Bits 4567	Hex 1	00				01				10				11			
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0000	0					SP	&	-						(	)	|	0
0001	1							/		a	j	6A		A	J		1
0010	2									b	k	s		B	K	S	2
0011	3									c	l	t		C	L	T	3
0100	4									d	m	u		D	M	U	4
0101	5									e	n	v		E	N	V	5
0110	6									f	o	w		F	O	W	6
0111	7									g	p	x		G	P	X	7
1000	8									h	q	y		H	Q	Y	8
1001	9								ı	i	r	z		I	R	Z	9
1010	A					¢	!	ñ	:								
1011	B					.	Pt	,	Ñ								
1100	C					<	*	%	@								
1101	D					(	)	_	'								
1110	E					+	;	>	=								
1111	F					|	¬	?	AA								

Bits 0,1 — 2,3 — Hex 0

Legend:

- Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.
- Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.
- Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character on dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.
- Displayed on dual-case display station only.
- 6A or AA — Cannot be entered from the keyboard or displayed.
- Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O.

Figure 8-20. Spanish-Speaking I/O Interface Code (3274 and 3277)

Bits 4567	Hex 1	00				01				10				11				Bits 0,1
		00	01	10	11	00	01	10	11	00	01	10	11	00	01	10	11	2,3
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	Hex 0
0000	0					SP	&	-						NU 10	NU 11	NU 12	0	
0001	1							/		a	j	NU9		A	J		1	
0010	2									b	k	s		B	K	S	2	
0011	3									c	l	t		C	L	T	3	
0100	4									d	m	u		D	M	U	4	
0101	5									e	n	v		E	N	V	5	
0110	6									f	o	w		F	O	W	6	
0111	7									g	p	x		G	P	X	7	
1000	8									h	q	y		H	Q	Y	8	
1001	9								NU4	i	r	z		I	R	Z	9	
1010	A					NU1	NU2	NU3	:									
1011	B					.	NU5	,	NU6									
1100	C					<	*	%	NU7									
1101	D					(	)	—	'									
1110	E					+	;	>	=									
1111	F					NU 13	NU8	?	NU 14									

Notes:

1. National-use differences are shown in Part 2 of this figure.
2. 4F becomes a ! for Austrian/German, Belgian,Brazilian, French, International, Italian, and Portuguese codes.

Figure 8-21 (Part 1 of 2). National-Use Differences I/O Interface Code (3274 and 3277)

Controller Language Device / National Use Number / I/O Hex Code	1 4A	2 5A	3 6A	4 79	5 5B	6 7B	7 7C	8 5F	9 A1	10 C0	11 D0	12 E0	13 4F	14 7F
U.S. EBCDIC	¢	!	6A	'	$	#	@	¬	—	(	)	AA	|	"
Austrian/German	Ä	Ü	ö	'	%	+	?	¬	ß	ä	ü	Ö	|	=
Austrian/German (Alternate)	ö	ü	ß		Ü	Ä	Ö	¬					|	ä
Belgian	¢	!	—	'	$	#	@	¬	"	AA	6A	¢	|	"
Brazilian	6A	%	ç	ã	ç	õ	Ã	¬	—	õ	AA	|	|	'
Canadian French	¢	—	!	'	$	#	@		"	AA	6A	\	|	"
Danish/Norwegian	+	AA	ø	'	Å	Æ	ø	¬	—	æ	å	|	|	6A
Danish/Norwegian (Alternate)	ø	å	6A		Å	Æ	ø	¬					|	æ
Finnish/Swedish	%	+	ö	AA	Å	Ä	Ö	¬	—	ä	å	6A	|	'
Finnish/Swedish (Alternate)	ö	å	6A		Å	Ä	Ö	¬					|	ä
French	6A	?	"	'	$	#	@	¬	AA	#	!	¢	|	"
International	[	]	6A	'	$	#	@	^	—	(	)	\	!	"
Italian	6A	AA	@	"	$	#	?	¬	#	¢	!	¢	|	"
Japanese/English	#	!	6A	'	¢	#	@	¬	—	(	)	$	|	"
Portuguese	(	)	õ	'	6A	Ã	Õ	¬	ç	ã	—	¢	|	AA
Spanish	¢	!	ñ	'	Pt	Ñ	@	¬	6A	(	)	|	|	AA
Spanish (Alternate)	¢	!	6A		Pt	Ñ	@	¬					|	õ
Spanish-Speaking	¢	!	ñ	'	Pt	Ñ	@	¬	6A	(	)	|	|	AA
U.K.	$	!	6A	'	£	#	@	¬	AA	(	)	\	|	"

Legend:

Stored as lowercase. Displayed as lowercase on dual-case display station; displayed as uppercase on mono-case display station.

Stored as a lowercase symbol. Displayed on mono-case display station. Cannot be entered from the keyboard.

Stored as shown. Displayed as shown on mono-case display station. Displayed as lowercase accented character to dual-case display station and as shown in Figure 7-29. May be entered from the keyboard.

Displayed on dual-case display station only.

6A or AA Cannot be entered from the keyboard or displayed.

Invalid I/O code point. Stored and displayed as - (hyphen). Hex 60 returned over I/O

Figure 8-21 (Part 2 of 2). National-Use Differences I/O Interface Code (3274 and 3277)

IBM 3270 Information Display System Character Set Reference (File No. S360/S370/S3/4300/8100-09) Printed in U.S.A. GA27-2837-5

GA27-2837-5

IBM 3270 Information Display System
Character Set Reference

Order No. GA27-2837-5

READER'S COMMENT FORM

This manual is part of a library that serves as a reference source for systems analysts, programmers, and operators of IBM systems. This form may be used to communicate your views about this publication. They will be sent to the author's department for whatever review and action, if any, are deemed appropriate. Comments may be written in your own language; use of English is not required.

IBM may use or 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.

Note: *Copies of IBM publications are not stocked at the location to which this form is addressed. Please direct any requests for copies of publications, or for assistance in using your IBM system, to your IBM representative or to the IBM branch office serving your locality.*

How did you use this publication?

[ ] As an introduction
[ ] As a reference manual
[ ] For another purpose (explain) _____

[ ] As a text (student)
[ ] As a text (instructor)

_____

Is there anything you especially like or dislike about the organization, presentation, or writing in this manual? Helpful comments include general usefulness of the book; possible additions, deletions, and clarifications; specific errors and omissions.

Page Number: Comment:

What is your occupation? _____

Newsletter number of latest Technical Newsletter (if any) concerning this publication: _____

If you wish a reply, give your name and address:

IBM branch office serving you _____

Thank you for your cooperation. No postage stamp necessary if mailed in the U.S.A. (Elsewhere, an IBM office or representative will be happy to forward your comments or you may mail directly to the address in the Edition Notice on the back of the title page.)

Note: Staples can cause problems with automated mail sorting equipment. Please use pressure sensitive or other gummed tape to seal this form.

GA27-2837-5

Reader's Comment Form

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:

International Business Machines Corporation
Department 52Q
Neighborhood Road
Kingston, New York 12401

Fold and tape **Please Do Not Staple** Fold and tape

IBM

Cut or Fold Along Line

IBM 3270 Information Display System Character Set Reference (File No. S360/S370/S3/4300/8100-09) Printed in U.S.A. GA27-2837-5

IBM 3270 Information Display System
Character Set Reference

Order No. GA27-2837-5

READER'S COMMENT FORM

This manual is part of a library that serves as a reference source for systems analysts, programmers, and operators of IBM systems. This form may be used to communicate your views about this publication. They will be sent to the author's department for whatever review and action, if any, are deemed appropriate. Comments may be written in your own language; use of English is not required.

IBM may use or 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.

Note: *Copies of IBM publications are not stocked at the location to which this form is addressed. Please direct any requests for copies of publications, or for assistance in using your IBM system, to your IBM representative or to the IBM branch office serving your locality.*

How did you use this publication?

[ ] As an introduction
[ ] As a reference manual
[ ] For another purpose (explain) _____

[ ] As a text (student)
[ ] As a text (instructor)

_____

Is there anything you especially like or dislike about the organization, presentation, or writing in this manual? Helpful comments include general usefulness of the book; possible additions, deletions, and clarifications; specific errors and omissions.

Page Number: Comment:

What is your occupation? _____

Newsletter number of latest Technical Newsletter (if any) concerning this publication: _____

If you wish a reply, give your name and address:

IBM branch office serving you _____

Thank you for your cooperation. No postage stamp necessary if mailed in the U.S.A. (Elsewhere, an IBM office or representative will be happy to forward your comments or you may mail directly to the address in the Edition Notice on the back of the title page.)

Note: Staples can cause problems with automated mail sorting equipment. Please use pressure sensitive or other gummed tape to seal this form.

GA27-2837-5

Reader's Comment Form

Cut or Fold Along Line

IBM 3270 Information Display System Character Set Reference (File No. S360/S370/S3/4300/8100-09) Printed in U.S.A. GA27-2837-5

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:

International Business Machines Corporation
Department 52Q
Neighborhood Road
Kingston, New York 12401

Fold and tape | **Please Do Not Staple** | Fold and tape

IBM