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Keyboards for countries whose languages have alphabetic extenders — Guidelines for harmonization

Claviers pour les pays dont la langue utilise des caractères alphabétiques supplémentaires — Guide pour l'harmonisation

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3243 was drawn up by Technical Committee ISO/TC 95, *Office machines*, and circulated to the Member Bodies in July 1973.

It has been approved by the Member Bodies of the following countries :

Bulgaria	Mexico	Switzerland
Canada	New Zealand	Thailand
Finland	Norway	Turkey
France	Romania	United Kingdom
Germany	Spain	U.S.A.
Hungary	Sweden	U.S.S.R.

The Member Bodies of the following countries expressed disapproval of the document on technical grounds :

Italy
Japan

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0 INTRODUCTION

Ever since the development of the first typing devices, many different kinds of machines incorporating an alphanumeric keyboard have appeared on the market and such machines are now in common use throughout the world.

The layout of the keyboards used in these machines varies considerably, being mainly dependent on the country of origin and the application for which the machine is designed. More specifically, the main reasons for the differences in keyboard layout are :

- the need for different character sets to be used (including different basic languages such as Latin, Arabic, Greek and Chinese);
- the allocation of common characters to different positions on the keyboard for historical reasons, even on keyboards using the same basic alphabet;
- the need to include in a character set, in addition to the basic alphabet, some characters typical of the language of the country. These characters may be either new ones or may be obtained by the combination of a character of the basic alphabet and a diacritical mark;
- the traditional inclusion within the character set of some symbols peculiar to a country, region, or application.

However, recently it has been recognized that there is a need to reduce to a practical minimum the various configurations so that operators can easily transfer from one machine to another with a minimum loss of efficiency.

Within some of the countries using a language based on the Latin (or Roman) alphabet, there is a commonality of character positioning on keyboards that goes beyond that specified in ISO/R 2126, *Basic arrangement for the alphanumeric section of keyboards operated with both hands*. The present International Standard recognizes that there are many types of keyboard devices utilizing different technologies which have an inherent advantage for the user. It aims at providing future harmonization of the different keyboard layouts by means of an internationally recognized

set of guidelines which can be used by national bodies in preparing their own standard layouts. The principal advantages of adhering to this International Standard will be :

- to make operation of keyboards easier, particularly where machines performing different functions or of different makes are concerned;
- to minimize operator training or re-training;
- to facilitate exchange of operators within and outside national boundaries;
- to facilitate simplicity of design.

1 SCOPE

1.1 This International Standard contains guidelines for the layout of general purpose alphanumeric keyboards when they are intended to implement sets of characters based on the Latin alphabet.

Keyboard layouts complying with these guidelines will also automatically conform to the requirements of ISO/R 2126, with the exceptions allowed by note ⑥ on page 3.

1.2 In addition to the characters covered by ISO/R 2126, this International Standard specifies :

- the pairing and the allocation of a certain number of symbols and punctuation marks which have almost universal usage, and therefore qualify for international standardization;
- the pairing and the allocation of a certain number of symbols which, even if they cannot be considered to have universal usage, are widely used and therefore should have a preferred allocation on the keyboard, when required;
- the allocation to specific keys of the additional alphabetic letters (national alphabetic extenders), when they are required, and/or of the separate diacritical marks (accents).

2 FIELD OF APPLICATION

2.1 This International Standard is intended for use by Member Bodies and other International Organizations for the development of standard keyboard layouts, in those languages where additional alphabetic letters are required.

2.2 An annex to this International Standard will show in the future the national versions derived from this International Standard.

2.3 The layouts described in this International Standard are concerned only with the nominal relative position of keys; they are not intended to define physical factors, such as key spacing, keyboard slope, size and shape of keytops and of the space bar, nor the way in which the graphics are displayed on the keytops.

The definition of such physical factors may be the subject of other International Standards.¹⁾ The key position notations are only shown for reference purposes.

3 ARRANGEMENT

3.1 The general layout of a single-shift alphanumeric keyboard complying with the guidelines contained in this International Standard is shown in the figure. The following considerations apply :

- the ten digits and the symbols shown in the lower part of the keys are associated with the unshifted mode of the relevant keys;
- the symbols shown in the upper part of the keys are associated with the shifted mode of the relevant keys;
- for alphabetic keys, small letters are normally associated with the unshifted mode and capital letters with the shifted mode;
- there are two shift keys having the same action, aligned on the lowest row of letters, and one optional shift key aligned on the middle row of letters. The exact functions and horizontal locations of the shift keys are not defined in this International Standard¹⁾;
- a space bar is located (in row A) below the lowest row of letter keys.

3.2 The figure includes notes relating to some key positions within the general arrangement. For explanatory rules concerning the figure, see clause 5.

4 GRAPHIC SYMBOLS KEY

Graphical representation	Name	Key position in the layout	
		Unshifted mode	Shifted mode
!	Exclamation mark (note ②)		E01
"	Quotation mark		E02
£	Pound sign (note ②)		E03
\$	Dollar sign (note ②)		E04
%	Percent sign		E05
&	Ampersand (note ②)		E06
(	Left parenthesis		E08
)	Right parenthesis		E09
=	Equals sign		E10
?	Question mark		E11
,	Comma	B08	
;	Semi-colon (note ⑤)		B08
.	Full stop (period)	B09	
:	Colon (note ⑤)		B09
—	Hyphen, minus sign	B10	
—	Underline (note ②)		B10

5 EXPLANATORY RULES

5.1 Number of keys

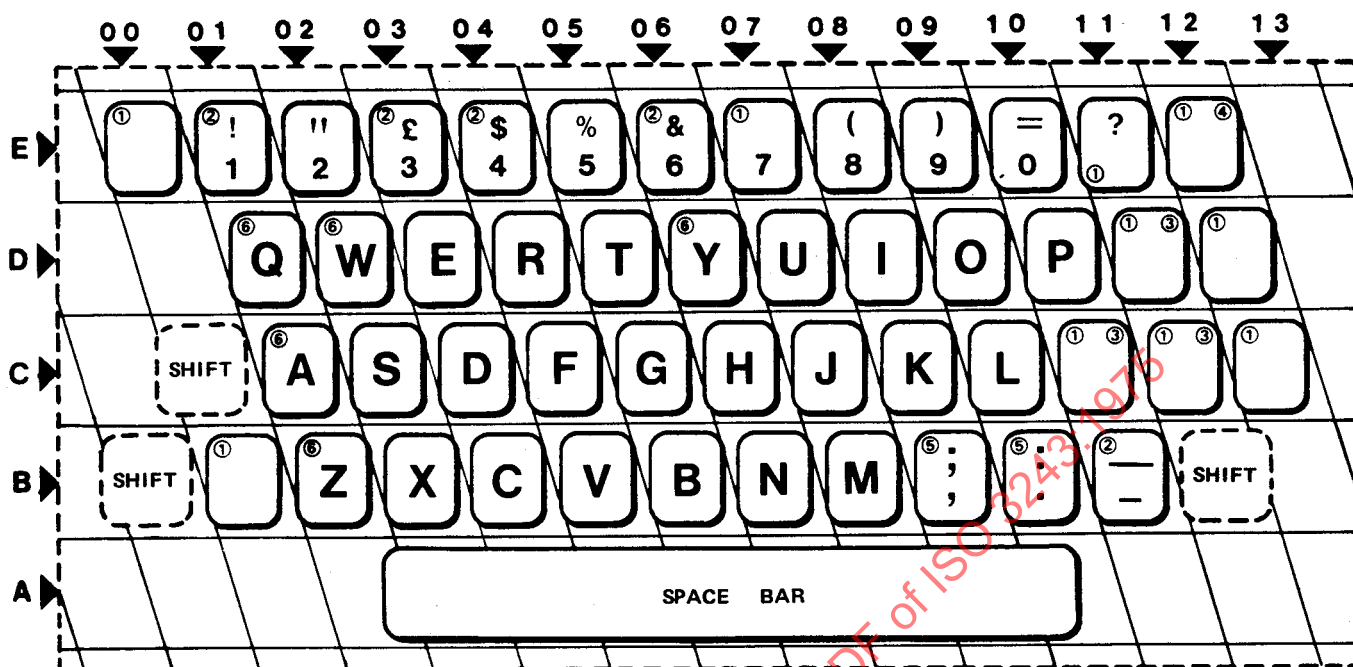
The general layout of the figure comprises 48 keys.

The number of alphanumeric keys in the keyboard of a particular machine will depend upon the character set required and/or on other characteristics of the machine.

However, in order to limit the number of possible variants, the following layouts are recommended :

- 48 keys : as in the figure;
- 47 keys : as in the figure, omitting key E00;
- 46 keys : as in the figure, omitting keys E00, B00;
- 45 keys : as in the figure, omitting keys E00, B00, and C12;
- 44 keys : as in the figure, omitting keys E00, B00, C12 and D12.

1) For application to typewriters, see ISO/R 1091, *Layout of printing and function keys on typewriters*.



- ① These positions are "reserved for national use". In some cases further notes are added giving more precise recommendations.
- ② "Characters with a preferred allocation". If required on the 44 key keyboard in a given country these characters should be allocated as shown; if they are not required for a specific application or on the 44 key keyboard in a given country they may be replaced by other characters not allocated elsewhere.
- ③ Keys C10, C11 and D11 are primarily reserved for national alphabetic extenders; if both small and capital letters are required, these positions are the first preferred allocations.
- ④ This key is primarily intended for allocation of diacritical or accent signs. If some applications require "dead" key(s) for such signs, this is the recommended allocation for the first "dead" key.
- ⑤ These characters may be displaced to key positions reserved for national use, when it is desirable to duplicate the "comma" and the "full stop" characters in shifted mode.
- ⑥ If required in a given country, and at least for a transitory period, letter A may be exchanged with letter Q; similarly letter Z may be exchanged either with letter W or with letter Y.

5.2 Additional alphabetic characters

Additional alphabetic characters (letters) may be required for writing the native language of the country as well as for foreign languages which are frequently used.

They should be allocated to the key positions reserved for national use. The following considerations apply:

- where additional letters are required in both small and capital form, small letters should be associated with the unshifted mode and capital letters with the shifted mode: see note ③ to the figure for the preferred allocation;
- where additional letters are required in small form only, they should preferably be associated with keys in the unshifted mode;

(Considerations relating to the frequency of use or to the availability of key positions may lead to this rule being overridden.)

- additional letters are in most cases composed of a letter of the basic alphabet and a diacritical sign or accent. In this event the possibility of providing a

separate diacritical sign or accent, for use as specified in 5.3, should be considered.

5.3 Diacritical and accent signs

Diacriticals and accents are special signs used to indicate different meanings or sounds of the letter with which they are associated.

When these signs are used frequently in the native language for which the keyboard is conceived, they will normally be included in the layout, together with the letters with which they are most commonly combined, as additional letters (see 5.2).

Separate signs are useful for combination with their associated letter(s):

- when they are used only rarely;
- when they are used in conjunction with a large group of letters;
- to allow typing of a foreign language;
- in "polyglot" keyboards conceived for multilingual applications.

Since these signs are rarely used on the first letter of a word, often in normal textual typing they will be used more in conjunction with small letters. Therefore it is convenient to allocate the more frequently used signs to the unshifted mode.

The procedure for adding a diacritical or accent to a letter usually requires that the machine with which the keyboard is connected be able to perform the back-spacing procedure in order to associate the sign with the preceeding letter (or vice versa).

In some machines, however, especially typewriters, the separate signs may be placed on "dead keys" which do not cause the advancement of the printing point, so that the required sign is typed first with the associated letter appearing immediately underneath it. This feature eliminates the need for back-spacing; however, it does entail the pairing of two such signs on the same key : see also note ④ to the figure.

5.4 Additional graphic symbols

Additional graphic symbols may be required either for

general usage or for limited applications. Such symbols may be allocated to keys reserved for national use or they may replace "characters with a preferred allocation" when there is no requirement for these : see note ② to the figure.

5.5 Interpretation of graphics

The meaning of the graphics allocated to keys is not defined in this International Standard. It will be necessary for those using the machine and its output to reach agreement on their meaning and this will depend upon the particular application except in cases where other International Standards already exist covering this point.

However, no interpretation may be chosen which is contradictory to the customary meaning. In this connection, it should be noted that some graphic symbols may have more than one meaning; for example, the symbol – (hyphen) may also mean "minus" or "separation mark".

The font style of the graphics is not dealt with in this International Standard.