INTERNATIONAL STANDARD (ISO) 2530

Keyboard for international information processing interchange using the ISO 7-bit coded character set — Alphanumeric area

Clavier pour échanges internationaux en traitement de l'information employant le jeu ISO de caractères codés à 7 éléments — Zone alphanumérique

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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 2530 was drawn up by Technical Committee ISO/TC 95, *Office machines,* and circulated to the Member Bodies in May 1974.

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

Australia	Italy	Switzerland
Bulgaria	Japan	Thailand
Canada	Romania	United Kingdom
Egypt, Arab Rep. of	Spain	U.S.S.R.
Germany	Sweden	Yugoslavia

The Member Body of the following country expressed disapproval of the document on technical grounds :

France

Keyboard for international information processing interchange using the ISO 7-bit coded character set — Alphanumeric area

0 INTRODUCTION

The ISO 7-bit coded character set for information processing interchange (see ISO 646) comprises 128 characters of which 95 are graphics (columns 2 to 7, with the exception of position 7/15).

Many of the items of equipment in which this coded character set is employed incorporate keyboards; therefore it is desirable, for many reasons, to define standard keyboard layouts which satisfy the requirements of the applications in which this equipment will be used.

1 SCOPE AND FIELD OF APPLICATION

This International Standard defines layouts for the alphanumeric area of a keyboard implementing the 95 graphics positions of the ISO 7-bit coded character set complying with ISO 646, *7-bit coded character set for information processing interchange.*

These layouts conform to ISO/R 2126, *Basic arrangements for the alphanumeric section of keyboards operated with both hands.*

This International Standard specifies the pairing of the characters and their allocation to the keys. The pairing rule is such that, when considering the code combinations corresponding to the graphics, it follows the principle of simple bit inversion (bit pairing)[1], i.e. the characters of columns 2, 4 and 5 are paired with those of the corresponding rows of columns 3, 6 and 7 respectively. Full bit pairing applies, however, only to the 48-key layouts.

The layouts included are concerned only with the nominal relative position of the keys; they do not define physical factors, such as key spacing, keyboard slope, shape and size of keytops and of the space bar, nor the way in which the keytops are labelled.

The key position numbers are shown for reference purpose only. For reference, the ISO 7-bit basic code table with its notes and the International Reference version are included as annex B.

2 NATIONAL USE POSITIONS

According to ISO 646, in the 7-bit code table seven positions are reserved for national use, primarily for alphabetic extension. If these positions are not required for alphabetic extension, they may be used for additional graphic symbols (see note ③ in ISO 646).

It is recognized that in international data interchange the prime requirement is for additional graphic symbols, and the keyboard layouts defined in this International Standard implement this requirement.

No characters other than those shown in the table on page 2 and in the layouts on page 3 shall be used, with the exception of the symbol £ which may replace the symbol # and of the symbol $ which may replace the symbol ¤ , in accordance with note ② of ISO 646.

3 NUMBER OF KEYS

This International Standard defines a layout with 48 keys and a layout with 47 keys. The two layouts have equivalent status.

In addition, annex A contains rules for deriving layouts of keyboards having less than 47 keys.

4 CHARACTER "SPACE"

The code combination of the character "SPACE" (position 2/0 in the 7-bit code table) is generated by the space bar.

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1) For keyboards where this pairing rule is not applied, or for keyboards implementing a different set of characters, see ISO 3243, *Keyboards for countries whose language have alphabetic extenders — Guidelines for harmonization.*

5 CHARACTER SET

The table below shows the code combinations generated and the corresponding characters, in the unshifted mode and in the shifted mode.

6 LAYOUTS

See figures 1 and 2.

NOTE — In figure 2, the bit pairing rule does not apply to key E10.

7 UNALLOCATED POSITIONS IN THE 48-KEY LAYOUT

In the 48-key layout (figure 1), no specific character is allocated to the shifted position of key E10 or to the unshifted position of key E00.

The code combinations generated by key E10 in the shifted mode and by key E00 in the unshifted mode are undefined.

	2	3	4	5	6	7
0	SP	0	@	P	`	p
1	!	1	A	Q	a	q
2	"	2	B	R	b	r
3	#	3	C	S	c	s
4	¤	4	D	T	d	t
5	%	5	E	U	e	u
6	&	6	F	V	f	v
7	'	7	G	W	g	w
8	(	8	H	X	h	x
9	)	9	I	Y	i	y
10	*	:	J	Z	j	z
11	+	;	K	[	k	}
12	,	<	L	\	l	|
13	-	=	M	]	m	}
14	.	>	N	^	n	—
15	/	?	O	_	o	

unshifted mode

shifted mode
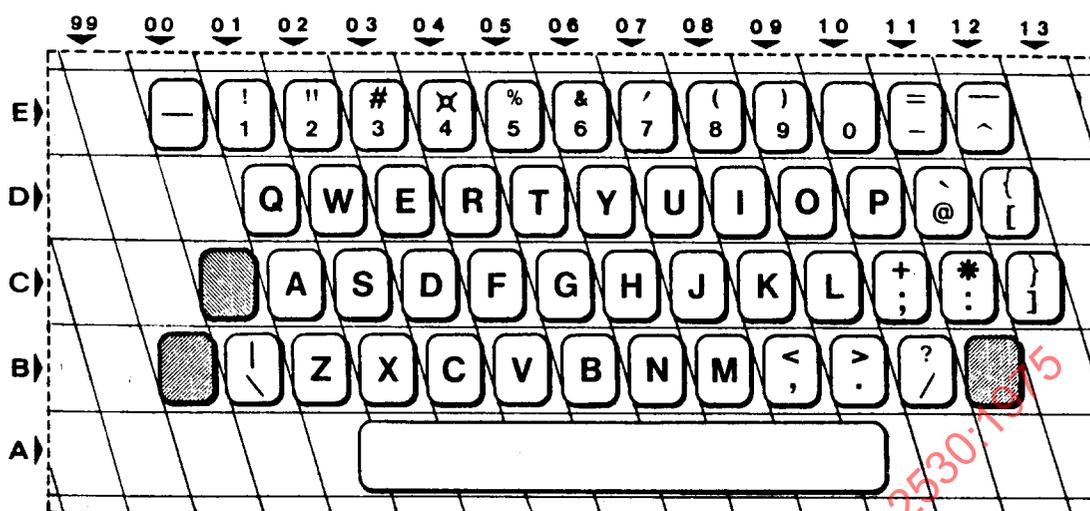
FIGURE 1 — 48-key layout

FIGURE 2 — 47-key layout

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ANNEX A

RULES FOR DERIVING LAYOUTS OF KEYBOARDS HAVING LESS THAN 47 KEYS

The number of alphanumeric keys included in the keyboard of a specific machine may vary depending on the available character set and on other characteristics of the machine itself.

However, in order to limit the possible variants, only the layouts with the following numbers of keys are considered :

— 46 keys : obtained by omitting keys E00 and B00;

— 45 keys : obtained by omitting keys E00, B00 and C12;

— 44 keys : obtained by omitting keys E00, B00, C12 and D12.

The reduced layout may then be derived according to the following rules :

1) Any of the graphic characters allocated to the omitted keys may be either omitted or reallocated to one of the remaining key positions in place of the graphic character normally allocated to that key position.

2) Any character replaced by a character from one of the omitted keys is lost. It cannot be reallocated to another key.

3) The characters of the basic arrangement specified in ISO/R 2126 may not be replaced by characters from the omitted keys.

ANNEX B (Reproduced from ISO 646)

BASIC CODE TABLE AND INTERNATIONAL REFERENCE VERSION

B.1 Basic code table

b7	0	0	0	0	1	1	1	1
b6	0	0	1	1	0	0	1	1
b5	0	1	0	1	0	1	0	1

b4	b3	b2	b1		0	1	2	3	4	5	6	7
0	0	0	0	0	NUL	TC7 (DLE)	SP	0	③	P	`	p ④
0	0	0	1	1	TC1 (SOH)	DC1	!	1	A	Q	a	q
0	0	1	0	2	TC2 (STX)	DC2	" ⑥	2	B	R	b	r
0	0	1	1	3	TC3 (ETX)	DC3	£(#) ②	3	C	S	c	s
0	1	0	0	4	TC4 (EOT)	DC4	$(¤) ②	4	D	T	d	t
0	1	0	1	5	TC5 (ENQ)	TC8 (NAK)	%	5	E	U	e	u
0	1	1	0	6	TC6 (ACK)	TC9 (SYN)	&	6	F	V	f	v
0	1	1	1	7	BEL	TC10 (ETB)	' ⑥	7	G	W	g	w
1	0	0	0	8	FE0 (BS)	CAN	(	8	H	X	h	x
1	0	0	1	9	FE1 (HT)	EM	)	9	I	Y	i	y
1	0	1	0	10	FE2 (LF)①	SUB	*	:	J	Z	j	z
1	0	1	1	11	FE3 (VT)①	ESC	+	;	K	⑨	k	⑨
1	1	0	0	12	FE4 (FF)①	IS4 (FS)	, ⑥	<	L	③	l	③
1	1	0	1	13	FE5 (CR)①	IS3 (GS)	-	=	M	③	m	③
1	1	1	0	14	SO	IS2 (RS)	.	>	N	^ ④⑤	n	‾ ④⑤
1	1	1	1	15	SI	IS1 (US)	/	?	O	_	o	DEL

NOTES ABOUT BASIC CODE TABLE B1

(1) The format effectors are intended for equipment in which horizontal and vertical movements are effected separately. If equipment requires the action of CARRIAGE RETURN to be combined with a vertical movement, the format effector for that vertical movement may be used to effect the combined movement. For example, if NEW LINE (symbol NL, equivalent to CR + LF) is required, FE_2 shall be used to represent it. This substitution requires agreement between the sender and the recipient of the data.

The use of these combined functions may be restricted for international transmission on general switched telecommunication networks (telegraph and telephone networks).

(2) The symbol £ is assigned to position 2/3 and the symbol $ is assigned to position 2/4. In a situation where there is no requirement for the symbol £ the symbol # (number sign) may be used in position 2/3. Where there is no requirement for the symbol $ the symbol ¤ (currency sign) may be used in position 2/4. The chosen allocations of symbols to these positions for international information interchange shall be agreed between the interested parties. It should be noted that, unless otherwise agreed between sender and recipient, the symbols £, $ or ¤ do not designate the currency of a specific country.

(3) National use positions. The allocations of characters to these positions lies within the responsibility of national standardization bodies. These positions are primarily intended for alphabet extensions. If they are not required for that purpose, they may be used for symbols.

(4) Positions 5/14, 6/0 and 7/14 are provided for the symbols UPWARD ARROW HEAD, GRAVE ACCENT and OVERLINE. However, these positions may be used for other graphical characters when it is necessary to have 8, 9 or 10 positions for national use.

(5) Position 7/14 is used for the graphic character ‾ (OVERLINE), the graphical representation of which may vary according to national use to represent ~ (TILDE) or another diacritical sign provided that there is no risk of confusion with another graphic character included in the table.

(6) The graphic characters in positions 2/2, 2/7, 2/12 and 5/14 have respectively the significance of QUOTATION MARK, APOSTROPHE, COMMA and UPWARD ARROW HEAD; however, these characters take on the significance of the diacritical signs DIAERESIS, ACUTE ACCENT, CEDILLA and CIRCUMFLEX ACCENT when they are preceded or followed by the BACKSPACE character (0/8).

B.2 International reference version

b₇ b₆ b₅				0 0 0	0 0 1	0 1 0	0 1 1	1 0 0	1 0 1	1 1 0	1 1 1
b₄	b₃	b₂	b₁	0	1	2	3	4	5	6	7
0	0	0	0 / 0	NUL	TC₇ (DLE)	SP	0	@	P	`	p
0	0	0	1 / 1	TC₁ (SOH)	DC₁	!	1	A	Q	a	q
0	0	1	0 / 2	TC₂ (STX)	DC₂	"	2	B	R	b	r
0	0	1	1 / 3	TC₃ (ETX)	DC₃	#	3	C	S	c	s
0	1	0	0 / 4	TC₄ (EOT)	DC₄	¤	4	D	T	d	t
0	1	0	1 / 5	TC₅ (ENQ)	TC₈ (NAK)	%	5	E	U	e	u
0	1	1	0 / 6	TC₆ (ACK)	TC₉ (SYN)	&	6	F	V	f	v
0	1	1	1 / 7	BEL	TC₁₀ (ETB)	'	7	G	W	g	w
1	0	0	0 / 8	FE₀ (BS)	CAN	(	8	H	X	h	x
1	0	0	1 / 9	FE₁ (HT)	EM	)	9	I	Y	i	y
1	0	1	0 / 10	FE₂ (LF)	SUB	*	:	J	Z	j	z
1	0	1	1 / 11	FE₃ (VT)	ESC	+	;	K	[	k	{
1	1	0	0 / 12	FE₄ (FF)	IS₄ (FS)	,	<	L	\	l		
1	1	0	1 / 13	FE₅ (CR)	IS₃ (GS)	-	=	M	]	m	}
1	1	1	0 / 14	SO	IS₂ (RS)	.	>	N	^	n	‾
1	1	1	1 / 15	SI	IS₁ (US)	/	?	O	_	o	DEL