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A STUDY ON THE IDENTIFICATION OF SYSTEMS IN TYPEWRITERS -- GUIDE TO THE IDENTIFICATION OF TYPEWRITER SYSTEMS ON THE BASIS OF THE "ELITE" TYPE

/Translation/

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A STUDY ON THE IDENTIFICATION OF SYSTEMS IN TYPEWRITERS -- GUIDE TO THE IDENTIFICATION OF TYPEWRITER SYSTEMS ON THE BASIS OF THE "ELITE" TYPE

Ein Beitrag zur Systembestimmung von Schreibmaschinen -- Anleitung zur Bestimmung des Schreibmaschinensystems an Hand der "Elite" - Schriftart
/A Study on the Identification of Systems in Typewriters -- Guide to the Identification of Typewriter Systems on the Basis of the "Elite" Type/
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German

Criminal Police Commissioner
Josef Haas, Baden-Wuerttemberg
Provincial Criminal Police Office,
Stuttgart

(95 illustrations on six plates, one type identification key, and two tables)

Various processes for the identification of the system of a typewriter with the help of the type have been developed and partly published. These systems are mainly based on the "Pica" type. Until World War II, about 95% of all typewriters produced were equipped with this type. In the postwar typewriters, the Pica type is of course still predominant, but the somewhat smaller type called "Elite" (type size: 2.20-2.40 mm) -- also called "pearl type" -- is gaining increasing favor. Today almost one in every five typewriters is equipped with Elite type. Pieces of writing which are involved in a crime and which have been typed on such typewriters therefore increasingly occupy the type-writing expert, so that there is a parallel need for system identification also on the basis of this type. The hitherto often voiced opinion that the typewriter used in a crime is sufficiently characterized by the rare "Elite" type therefore is no longer satisfactory.

The following guide constitutes a description of a way for the system identification of typewriters with the help of Elite Type. The guide lays no claim to completeness in the treatment of all typewriter systems. This applies especially to the typewriters that were made prior to 1930 and abroad. The typewriters produced in the German Federal Republic after the war and the most important foreign models however have all been mentioned here. A complete discussion of all systems is impossible because the typewriter and type makers today are no longer in a position to furnish exhaustive data on the installation and cutting of certain Elite types more than 20 years ago. One must therefore try to get information on this through

research on writing sample interpretation done in the past. But this method is extensively dependent on the number and verification of the available writing samples. Of the 3,000 writing samples we evaluated, hardly 3% came from typewriters built before 1930 and not a single one came from a typewriter built before 1920. There is therefore reason to assume that prior to 1920 there was hardly any typewriter equipped with Elite type; thus, we fixed the lower research limit for the year 1920. Besides, typewriters over 40 years old would hardly seem to be in use any more.

Our system identification method is based on two of the most important system elements of the typewriter: the type and the spacing of the typewriter. Both are expressed in the typewritten product through the type impressions and their intervals. Accordingly, system identification is divided into two phases: the identification of the origin of the type with the help of the letter forms and the identification of the typewriter spacing on the basis of the letter intervals. While the measurement of the letter interval, related to a larger writing area, does not create any difficulties, we need a type identification key for the identification of type. Even though a complete writing sample collection may be available for direct comparison, a key for type identification may be of use because it saves time and effort.

The key for the identification of type origins which we prepared is reproduced on pages 78-81. It features a schematic group division of the kinds of type with the help of three key letters, within which the determination of the differences in characteristic form of the symbols leads to the individual types of a certain specific origin. A similar method was tried before us by Hilton (1) with a guide for the identification of the American typewriter systems. We too use the two letters "g" and "w" as key letters on account of their frequency and characteristic shape. In addition, however, the latter "m" is used as key letter insofar as it serves for the identification of main groups in connection with the letter w--l /sic/. In contrast to Hilton, the subdivision of the main groups formed by the key letters "g," "w," and "m" does not always take place through the same, but, in each case, through the particular, most differentiated characters. To avoid false identification, boundary cases have been given two values. For each kind of type, we have given, in addition, the form of the numbers "2," "3," and "4" as well as the parentheses, but for various reasons we have placed them at the end of the classification. Double data here do not refer to boundary cases but to actual form differences in the numbers (open or closed forms). As a matter of principle, caution is advisable in the evaluation of the numbers because the number types frequently no longer respond to the original types of the typewriters (especially foreign typewriters).

We have tried to combine the various forms of key letters and of the other characteristic writing symbols into a few basic forms. These basic forms are shown in the form of drawings in figures 1-95 on pages 72-77. In reality, the interval of the grid lines is 0.5 mm. It is recommended, for the recognition of the basic forms, to transfer the drawings to overlay paper

on the scale of 1:10 (with reference to the original size) and to project the writing on that paper (likewise enlarged tenfold), whereby the form identity can easily be tested through the coincidence process. But with a good measuring magnifying glass and a grid ocular, the type identification would not seem to offer any difficulties. Nevertheless, we need the following explanations for a sure differentiation of the type forms.

Letter "g"

The three basic forms g--1 are characterized by a more or less steep and straight lefthand boundary line of the two round members and of the connecting member. The top member is round; the base member is oval, though not particularly wide.

The secondary forms are distinguished by the steepness of the lefthand boundary line. The long top protrusion and the smaller top member distinguishes the secondary form g--1b from the secondary forms g--1a and g--1c.

The basic form g--2 is characterized by a comparatively small and leftward-echeloned top member. In the secondary form g--2a, the top member is perpendicularly oval; in the secondary form g--2b, the connecting member is indented.

Basic form g--3 is the most frequent form of this letter. It is recognized by the pronounced connecting member and the broken lefthand boundary line of the three main members. The top member is round and set off either to the right (secondary form g--3a) or a little more to the left, over a relatively wide base member (secondary form g--3b).

The basic form g--4 is similar to the form g--3a; but the top member is considerably smaller and the interval to the base member is therefore noticeably large.

In basic form g--5, the top member is higher than the base member; the connecting member is short and the interval between the round members is very small.

The most important characteristic of basic form g--6 is the horizontal-oval form of the top member and the excessive size of the character.

Letter "w"

In this letter, only the differentiation of the two secondary forms 3a and 3b is problematical. The sole decisive thing here is the steepness of the long diagonal strokes; when prolongated, it forms an angle of

less than 22° = w--3a,
more than 25° = w--3b.

Letter "m"

The interval of the two outer main strokes is, in the case of

m--1 = 1.5 mm or less,
m--3 = 1.55 mm or more.

Letter "M"

The interval of the two perpendicular main strokes is, in the case of

M--1 = 1.5 mm or less,
M--2 = 1.55 mm or more.

Letter "K"

The difference between the three first basic forms is the clearest when the lower diagonal stroke is extended upward: the extension line intersects the main stroke at

K--1 clearly below the apex,
K--2 barely below the apex,
K--3 at the apex or not at all.

K--4 has a high-set-in upper diagonal stroke (1.0 mm over the base line).

Letter "R"

R--1 and R--2 are differentiated from each other by the differing interval between the main stroke and the supporting stroke (1.0 and 12. mm, measured to the middle of the supporting stroke).

Letter "S"

The upper curve member has varying width, i.e., at:

S--1 = less than 1.3 mm,
S--2 = 1.3-1.4 mm,
S--3 = 1.5 mm or more.

Letters "F" -- "N" -- "O" -- "Z"

The basic forms 1 and 2 of these characters are distinguished by their differing width.

Letter "W"

The basic form

W--1 is less than 1.5 mm,
W--2 is 1.5-1.7 mm, and
W--3 is more than 1.75 mm wide,
measured from apex to apex of the outer diagonal strokes.

Letter "a"

In the basic form a--1, the distance between the top point and the loop member is greater than in the basic form a--2 (0.5 and 0.3 mm); the height of the letter and the width of the top member also differ.

Letter "f"

The basic form f--1 has a high-standing top arc and a lateral stroke which is shorter than the base stroke. In the basic form f--2, the lateral stroke and the base stroke on the other hand are equally long. The top are in case of f--3 has a strong overhang. (The top point lies almost at the height level of the lateral stroke.)

Letter "j"

In the basic form j--1, the base arc is very flat; the interval from the point of the base arc to the apex is almost 2.0 mm. The basic forms j--2 and j--3 have a higher-drawn base arc of varying width:

j--2 = less than 0.9 mm, and
j--3 = more than 0.9 mm,
measured from the point of the base arc to the main stroke.

Letter "t"

The two basic forms t--1 and t--2 differ from each other by the width of the base arc; the secondary forms 1a and 1b differ by the length of the cross bar.

Letter "z"

The length of the base stroke in the case of z--1 is less than 1.3 mm; in the case of z--2 however it is 1.4 mm to 1.5 mm. The basic form z--3 has a diagonal top protrusion and an equally long top and base stroke.

Letter "k"

The basic form k--1 differs from the basic form k--2 by the lower starting point of the lower diagonal stroke and by the shorter cover stroke along

the upper diagonal stroke. Let us note also the differing interval between main stroke and cover stroke.

Letter "s"

s--1 is less than 1.25 mm, s--2 more than 1.25 mm wide, measured on the upper curve member.

Parenthesis Symbol ()

The basic forms 2, 3, and 4 differ in their height as follows:

(--2 = 3.0-3.3 mm high,
(--3 = 3.5-3.8 mm high,
(--4 = 4.0 mm high.

Number "4"

The secondary forms 4a and 4b show a difference in the height of the apex of the main stroke and of the horizontal stroke. The secondary form 4c can be recognized by the width of the character.

The differentiation of the basic form of the character "B" and of the question mark and exclamation point, as well as of the other numbers presents no problems.

Here is the procedure for the identification of the type.

First you identify the basic forms for the key letters "g," "w," and "m"; then you look in the type identification key for the resulting main group and take from it the further characters whose basic form must be determined for the further breakdown within this group. If this procedure gives a kind of type which was made by a typewriter firm for its own use, you have as a rule also found the desired typewriter system at the same time. The measurement of the letter interval then only serves for control purposes. But if you identify a type produced by a type factory not for a specific customer, you must also measure the letter interval and you must use this figure in the identification of the typewriter system.

In two tables, printed on pages 82-87, we have compiled typewriter systems with type of domestic and foreign make, together with the letter interval. From these tables one can directly pick out the typewriter systems to be considered, after the type origin and typewriter spacing have been identified. The tables also contain data on the year of the particular typewriter model having the type listed. These data can be useful in the determination of the age of typed material. They also facilitate the determination of the numerical series range of a system, in so far as reference materials are available on the numerical sequence of the typewriter systems. In the tables, the abbreviation St means standard model and P means portable model.

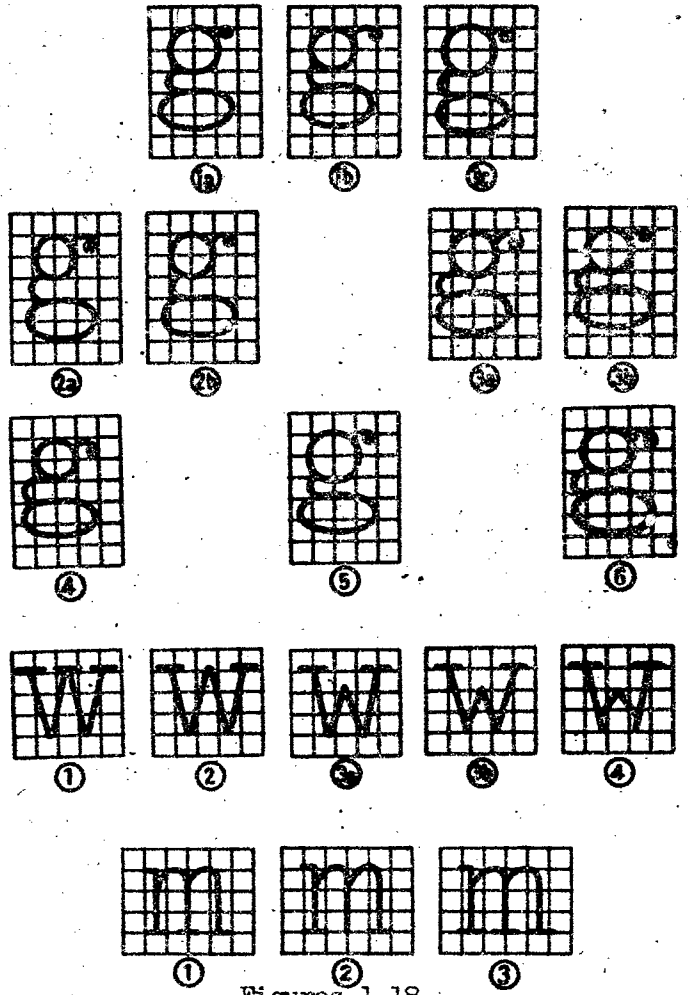
The diligent reader will note that the "Ransmayer-Rodrian 7" type can be found in very many typewriter systems. These types have for several decades been delivered by the largest German type factory called Ransmayer-Rodrian in Berlin and are being bought by many typewriter factories which do not make their own type. This fact has caused us to develop a method for the determination of the age of the cut of this type which permits not only an exact typewriter age determination but also a far reaching narrowing-down of the typewriter systems equipped with these types. We shall soon report on this in a further article.

In the system identification of a typewriter according to this guide, one can also proceed in the opposite direction and first measure the letter interval, then read off the type coming into consideration for this spacing from the two tables, and, last, make the character form comparison for the identification of these types. Sometimes, the letter interval alone (e.g., at a value of 2.0 or 2.17) gives us the system of the typewriter coming into consideration. Regardless of how you proceed, we believe that our guide indicates a practically useful method for the identification of typewriter systems with the help of Elite type.

BIBLIOGRAPHY

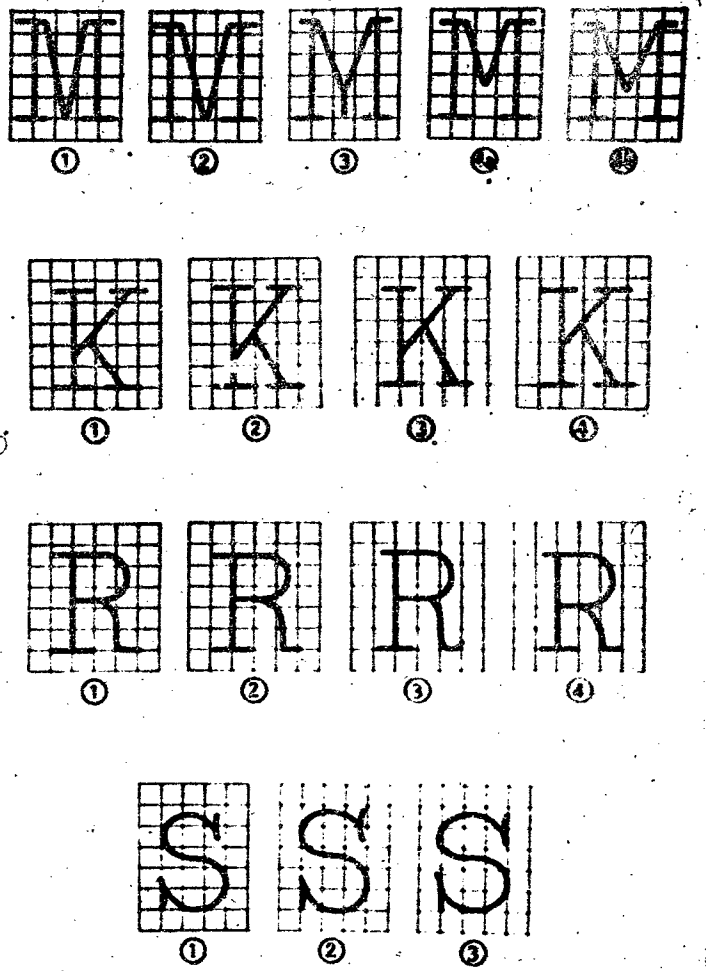
1. Hilton, O., Journal of Law and Criminology, 1, 1951.

Table 1.



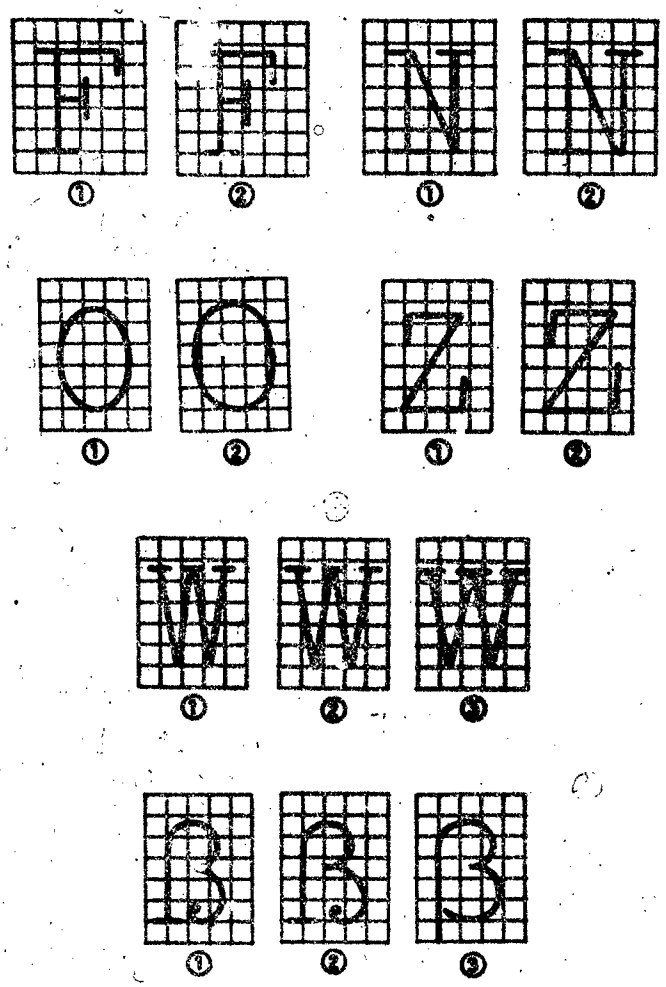
Figures 1-18.
Basic forms of key letters g,w, and m.

Table 2



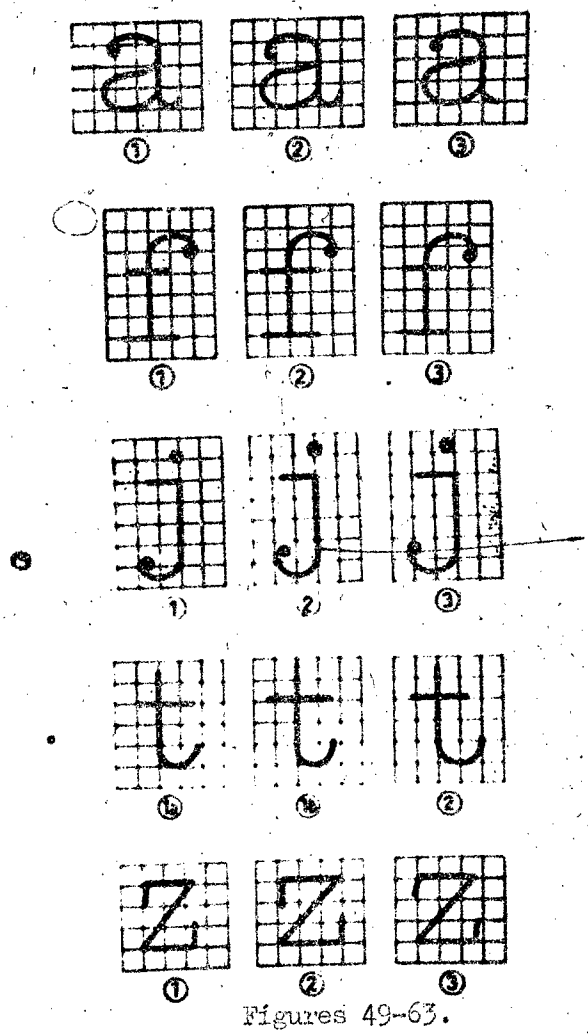
Figures 9-34.
Basic forms of characters M,K,R, and S.

Table 3



Figures 35-48.
Basic forms of characters F, N, O, Z, W, and B.

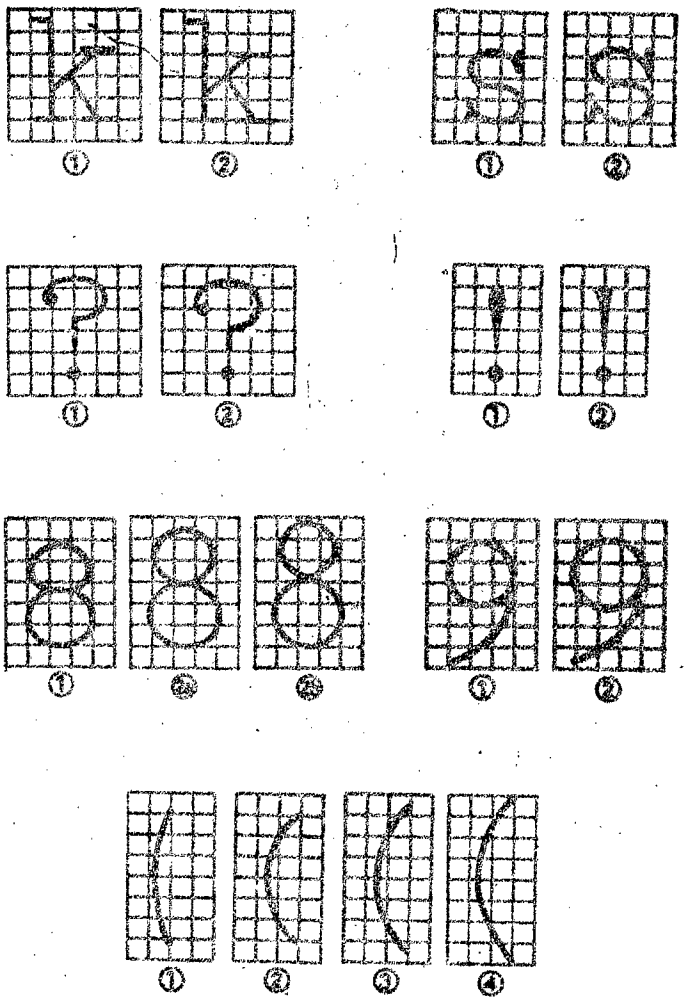
Table 4



Figures 49-63.

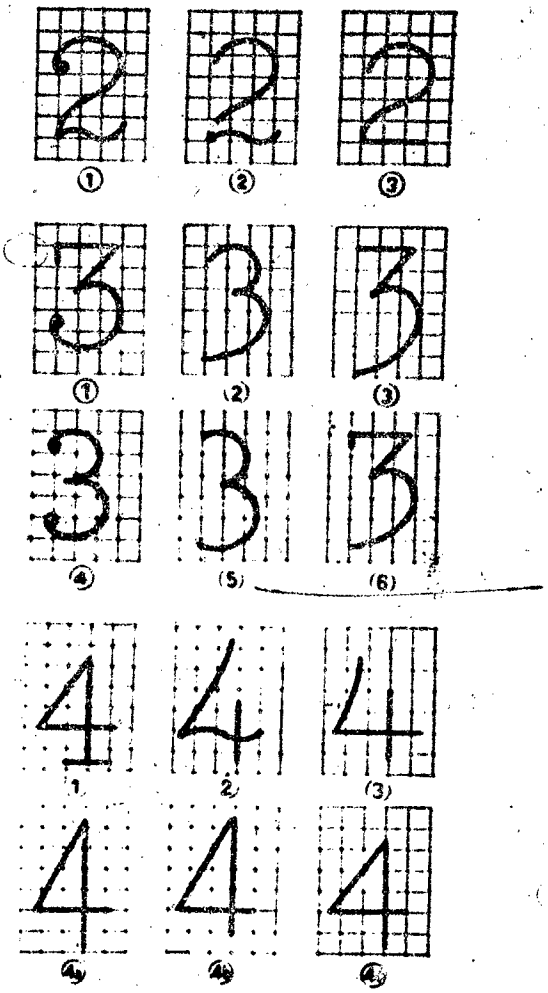
Basic forms of characters a, f, j, t, and z.

Table 5



Figures 64-80.
Basic forms of characters k, s, ?, !, 8, 9, and (.

Table 6



Figures 81-95.
Basic forms of characters
2, 3, and 4.

Josef Haas

Type Identification Key

Sheet 1

	g-1 / e-1	Kind of Type e	Basic Forms 2-3-4
g-1a	none		
g-1b	M-3 j-3 P-2 S-2 S-2b	Olympia S (A)	3-3-3-2
	M-4 j-3 P-2 S-2 S-2b	Olympia S (B)	3-3-3-2
	P-1 S-1 S-2a	Optima S (A)	3-$\frac{2}{3}$-3-2
g-1c	M-1 R-3 f-1 j-2 e-2	Remington (B)	$\frac{1-1-1}{2-2-2}$-3
	j-3 e-1	Royal (B)	3-2-3-3
g-2	M-1 B-1 e-3 s-2 f-3 t-2 g-2b	Corona (A)	3-3-3-3
	W-2 e-2 s-1 f-3 t-2 g-2a	Royal (A)	$\frac{3-2-4c}{4-4-4}$-3
	f-$\frac{1}{2}$ t-1 g-2b	Remington (A)	$\frac{1-4-1-3}{3-3-4}$-3
g-3	M-1 W-2 K-2 s-1 Z-2 S-2 j-3	Consul	3-6-4-1
	s-2 Z-1 S-1 j-2	CSL 2 (A)	3-6-4-4
	Z-2 S-2 j-3 B-2 4-4a ?-1	Union S, 34	3-3-4-4
	B-1 4-4a ?-1	Rheinmetall (B)	3-3-4-4
	4-4b ?-2	Tangens 12 (B)	3-3-4-2
g-4	M-1 e-2 j-3 s-1 s-1	L.C.Smith (A)	$\frac{3-3-3}{4-4-4}$-3
g-5	none		
g-6	none		

Sheet 2

g-1 / a-3	Kind of Type		Basic Forms 2-3-4-1
g-1a	M-½ R-1 P-1 a-2 s-1 t-1	Seidel Naumann 104	(B) 1-1-1 / 3-3-4c-4
	M-1 R-3 P-2 a-1 s-1 t-2	Underwood	(F) 1-1-1 / 2-2-2-3
g-1b	M-3 j-3 P-2 a-2 s-2b	Olympia 8	(A) 3-3-3-2
	M-4 j-3 P-2 a-2 s-2b	Olympia 8	(B) 3-3-3-2
	M-4 j-3 P-1 a-1 s-2b	Optima 8	(A) 3-⅔-3-2
g-1c	M-1 R-3 P-2 a-1 s-2	Royal	(B) 3-2-3-3
g-2	M-1 W-1 a-3 a-2 f-3 j-2 g-2b	Corona	(A) 3-3-3-3
	M-1 W-2 a-2 a-1 f-3 t-2 g-2a	Royal	(A) 3-2-4c-3
	M-1 W-2 a-2 a-1 f-½ t-1 g-2b	Remington	(A) 1-4-1 / 3-3-4-3
g-3	M-1 a-2 W-2 K-1 a-2 a-2 B-1 s-1 g-1	Olivetti 7	3-3-4-4
		Everest 7	3-3-4-4
	M-1 a-2 W-2 K-2 a-1 a-1 s-2 g-2a	Underwood	(B) 1-1-1 / 3-3-3-1
	M-1 a-2 W-2 K-2 a-1 a-2 s-1 g-2b	Remington	(E) 2-2-2-3
	M-1 a-2 W-2 K-3 a-2 a-2 s-2 g-2b	Oct 3	(B) 3-2-4-2
	M-1 a-2 W-3 K-3 a-1 a-1 B-2 f-2	Underwood	(A) 1-1-1 / 3-3-3-1
	M-1 a-2 W-3 K-3 a-1 a-1 B-1 f-3	Ramsmayer Ra	1-1-1 / 3-3-4c-1
	M-1 a-2 W-3 K-4 a-1 a-2	Burlock	3-2-4a-1
	M-2 a-3 W-2 K-3 j-1 a-3	Woodstock	3-2-3-2
	M-2 a-3 W-2 K-3 j-1 a-2 1-1	Underwood	(D) 1-1-1 / 3-3-4-1
	M-2 a-3 W-2 K-3 j-1 a-2 1-2	Iris 133	1-1-1 / 3-3-4-1
	M-4 a-3 W-2 K-3 j-2 a-2 a-2	Oct 3	(A) 3-3-3-2
g-4	none		
g-5	M-1 W-2 j-3 f-3 k-1	Imperial	3-3-3 / 3-1-1-4
	M-2 W-3 j-1 f-2 k-2	Seidel Naumann 104	(A) 1-1-1-4
g-6	W-3 j-3 M-1 f-1 0-1	Ramsmayer Rodrian 7	(A) 1-1-1-4
	W-3 j-3 M-2 f-2 0-2	Iris 3	1-1-1-4

Sheet 3

	e-2	Kind of Type	Basic Forms 2-3-4-)
g-1a	m-3 M-1 E-3 a-1 f-1	Underwood (G)	1-1-1 / 3-2-2-3
g-1b	none		
g-1c	m-3 M-1 E-3 a-1 f-1	Underwood (G)	2-2-2-3
g-2	none		
g-3	m-3 { M-1 E-2 a-2 f-2 { e-2 e-2 ; e-1 e-1 } ; M-2 E-3 a-3 f-3 }	Setag 4	3-3-4-4
		Underwood (C)	1-1-1-1
		Underwood (E)	1-1-1-3 / 3-3-4-1
g-4	none		
g-5	m-1 M-1/2 E-2 a-1 f-3	Adler	1-1-1 / 3-2-3-2
g-6	none		

	a-5	Kind of Type		Basic Forms 2-3-4-3
g-1a	R-5 t-2 f-1 j-5 a-1	Underwood	(B)	2-2-2-3
	R-1 t-1b f-2 j-5 a-2	Seidel Hammann 104	(C)	3-2-4-4
g-1b	R-4 t-1a f-½ j-5 a-3	Optima 6	(B)	3-2-3-3
g-1c	R-3 t-2 f-1 m-2 j-5 a-1	Royal	(C)	3-2-3-3
	R-3 t-2 f-1 m-3 j-3 a-1	Underwood	(B)	2-2-2-3
	R-3 t-2 f-1 m-1 j-2 a-2	Remington	(C)	2-2-2-3
g-2	R-2 t-2 f-5 j-2 a-3	Coronn	(B)	3-3-3-3
g-3	B-4a a-1 S-2 a-3a K-2 P-2 f-1	Rheinmetall 7	(C)	3-3-3-4
	K-2 P-1 f-2	Detag 7		3-½-4-4
	K-3 P-1 f-2	Seidel Hammann 104	(C)	3-2-4-4
	B-4b m-3 S-3 a-3a R-1 S-2 a-3b	Tangens 12	(A)	3-4-4-2
	m-1 S-1 a-3b K-2 S-1 a-3a	CSA 2	(B)	3-4-4-4
g-4	R-1 m-1 S-1 j-5 a-1 a-2	L.C.Smith	(B)	1-1-1 2-1-2-3 3-2-3-3
g-5	R-2 m-3 S-2 j-3 K-¾ T-3	CSA 8		3-3-3-3
g-6	Reis			

Sheet 5

	a-4	Kind of Type	Basic Forms 2-1-4-2
g-1a	none		
g-1b	none		
g-1c	B-3 t-2 f-1 { j-2 a-2 ; j-3 a-1 }	Remington (D)	2-2-2-1
		Underwood (I)	2-2-2-3
g-2	none		
g-3	none		
g-4	none		
g-5	none		
g-6	none		

Table 1

Typewrit r ystems with Type Made By Typew r Factory Itself

Kind of Type		Typewriter System	Model	Year	Typewriter Spacing
Olympia S	(A)	OLYMPIA	St/P	1950—52	2,30
		DM	"	1951—55	"
		DIPLOMAT	"	"	"
		KAPPEL	P	"	"
Olympia S	(B)	ORBIS	P	1960	2,30
		OLYMPIA (West)	St/P	1959—	"
Optima S	(A)	OPTIMA	St/P	1951—58	2,25
Optima S	(B)	OPTIMA	St/P	1958—	2,25
Seidel & Naumann 104	(A)	IDEAL	St	1925—32	2,25
		ERIKA	P	1930—32	"
Seidel & Naumann 104	(B)	IDEAL	St	1936—46	2,25
		ERIKA	P	1937—49	"
Seidel & Naumann 104	(C)	IDEAL	St	1954—	2,25
		ERIKA	P	1955—	"
Olivetti 7		OLIVETTI See also Table 2 Olivetti type	St/P	1935—	2,30
Everest 7		EVEREST	St/P	1948—	2,30
		BRILLANT	P	1950—	"
Barlock		BARLOCK	St	?	2,12
Consul		CONSUL (ZETA)	St/P	1948—	2,12
Corona	(A)	SMITH-CORONA	P	1928—38	2,12
Corona	(B)	SMITH-CORONA	P	1938—	2,12
Imperial		IMPERIAL	St	?	2,12 u. 2,54
L. C. Smith	(A)	L. C. SMITH	St	1922—38	2,12
L. C. Smith	(B)	L. C. SMITH	St	1938—	2,12
Remington	(A)	REMINGTON (SMITH-PREMIER)	St/P	1930—46	2,12 u. 2,54
Remington	(B)	REMINGTON	St	1936—46	2,12 u. 2,54
		REMINGTON-UNDERWOOD- NOISELESS	St/P	1925—46	" " "

Table 1 (Cont'd)

Kind of Type		Typewriter System	Model	Year	Typewriter Spacing
Remington	(C)	REMINGTON	St/P	1955—	2,12 u. 2,54
Remington	(D)	REMINGTON-NOISELESS	St/P	1955—	2,12 u. 2,54
Remington	(E)	REMINGTON	P	1955—59	2,12 u. 2,54
Royal	(A)	ROYAL	St/P	1939—45	2,12 u. 2,54
Royal	(B)	ROYAL	St/P	1945—50	2,12 u. 2,54
Royal	(C)	ROYAL	St/P	1950—	2,12 u. 2,54
Underwood	(A)	UNDERWOOD	St/P	1920—30	2,12
Underwood	(B)	UNDERWOOD	St/P	1920—30	2,12
Underwood	(C)	UNDERWOOD	P	1928—36	2,12
Underwood	(D)	UNDERWOOD	St/P	1928—35	2,12
Underwood	(E)	UNDERWOOD	St/P	1935—45	2,12
Underwood	(F)	UNDERWOOD	St	1937—39	2,12
Underwood	(G)	UNDERWOOD	St/P	1939—47	2,12
Underwood	(H)	UNDERWOOD	St/P	1946—	2,12
Underwood	(I)	UNDERWOOD-NOISELESS	St/P	1946 -	2,12
Woodstock		WOODSTOCK	St	1938—50	2,12
		R. C. ALLEN	St	1950—	"
Adler		ADLER	St/P	1920—45	2,10

Table 2

Typewriter Systems with Type Made by Other /Type/ Factories

Kind of Type	Typewriter Spacing 2,00	2,10	2,12	2,17	2,20	2,22	2,25	2,30	2,50	2,54	2,60
Rasmussen-Rodrian 7 (A)			STOEWER St 1928—39	TORPEDO St 1938—52	MERCEDES St 1928—35 RHEINMETALL St 1928—39 URANIA St 1928—32 FORTUNA St 1933—39 ORGA St 1932—36	CONTINENTAL St 1928—32 KAPPEL St 1931—34 OLIVOMA St 1934—36		TRIUMPH St 1920—31 MERZ P 1928—34			
Rasmussen-Rodrian 7 (B)	HERMES St/P 1931—50	TORPEDO P 1930— REMINGTON P 1957—	STOEWER St 1928—39 HALDA St 1930— ROYAL St 1957—	TORPEDO St 1938—	FORTUNA St 1928—48 URANIA St/P 1931—59 ORGA St 1933—59 TORPEDO P 1938— GOSSEN-TIPPA P 1949— OLIVOMA St/P 1939—48 ADLER-TIPPA P TRIUMPH-TIPPA P 1952—	CONTINENTAL St/P 1928— KAPPEL St 1928—48 OLIVOMA St/P 1928—46 OLIVETTI St/P 1931—39, 1939— ROYAL St 1952— OLIVETTI P 1959—	HALDA St/P 1950— A B C P 1956— FACIT St 1952—	TRIUMPH St/P 1929— MERZ P 1931—39 ADLER St/P 1931— ALPINA P 1951— DIANA P 1952— OLYMPIA St 1953— PRINCESS P 1954—	HERMES St 1931—50 MONTANA P 1951—		VOSS P 1950—59 OLIVETTI St/P 1931—37
Rasmussen-Rodrian 7 (C)								OLYMPIA P 1958—			
Rasmussen Sa			STOEWER St 1928—35	TORPEDO St 1938—52	MERCEDES St 1928—35 RHEINMETALL St 1928—39 URANIA St 1928—31 ORGA St 1923—34	KAPPEL St 1928—30 CONTINENTAL St 1928—32		TRIUMPH St 1920—31			
Iris 3					MERCEDES St 1924—30 RHEINMETALL St 1928—33 URANIA St/P 1928—33			MERCEDES St 1930—34			
Iris 133					MERCEDES St 1928—30 RHEINMETALL St/P 1932—45 URANIA St/P 1937—51			MERCEDES St/P 1930—50 TRIUMPH St/P 1935—48 ADLER St/P 1938—45			

Table 2 (Contd)

Kind of Type	2,00	2,10	2,12	2,17	2,20	2,23	2,25	2,30	2,50	2,54	2,60
	Typewriter Spacing					Typewriter Spacing					
Tangens 12 (A)								VOSS P 1951—52			VOSS P [illegible]
Tangens 12 (B)		TORPEDO P 1954— REMINGTON P [illegible]—					A B C P [illegible]—	VOSS P 1951—			VOSS P 1951—[illegible]
Union 8,34								PRINCESS P 1952—			
Ost 3 (A)					FORTUNA St [illegible]—[illegible] URANIA St/P [illegible]—[illegible] RHEINMETALL P [illegible]—[illegible]	CONTINENTAL St [illegible]—[illegible] GROMA St/P [illegible]—[illegible]	RHEINMETALL St 1948—56 GROMA-GROMINA P 1951—55	MERCEDES St/P 1948—55			
Ost 3 (B)					RHEINMETALL P 1954—	GROMA-COMBINA P [illegible]	RHEINMETALL St 1954— GROMA-GROMINA P 1954— GROMA-KOLIBRI P 1955— IDEAL St [illegible]— ERIKA P 1955— BRILLANT P [illegible]—	MERCEDES St/P 1956—			
CSA 2 (A)	HERMES St/P [illegible]—[illegible]	PATRIA P 1945—[illegible] SWISSA P [illegible]—[illegible]	HALDA St [illegible]—[illegible]						HERMES St 1942—51	HALDA St 1942—51	PATRIA P 1945—49 SWISSA P 1950—53
CSA 2 (B)	HERMES St/P [illegible]—54	PATRIA P [illegible] SWISSA P [illegible]—	HALDA St [illegible]—[illegible]				HALDA St/P 1951—		HERMES St [illegible]—51	HALDA St [illegible]	PATRIA P [illegible] SWISSA P [illegible]
CSA E			IBM St [illegible]—								
Setag 4								JUWEL P 1955—			
Setag 7	HERMES St/P [illegible]—	PATRIA P [illegible] SWISSA P [illegible]—	OLIVER St/P [illegible]—		ROYALITE P [illegible]—			PRINCESS P 1952—55	HERMES St [illegible]— PRINCESS P 1951—52		PATRIA P [illegible] SWISSA P [illegible]—
Olivetti 7	HERMES St/P 1940—50	PATRIA P 1945—[illegible] SWISSA P [illegible]—				[illegible] St/P [illegible]—52 [illegible] Tab. 1 Olivetti					PATRIA P 1945—[illegible] SWISSA P [illegible]—

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