# MECHANICAL TECHNICAL LETTERING

Today, we take it for granted that we can produce documents like manuals and diagrams with perfectly formed letters and symbols. Before the era of computer typesetting these tasks were tediously done by hand. A number of drafting instruments and aids to drawing were invented to improve the quality and readability of the final work.
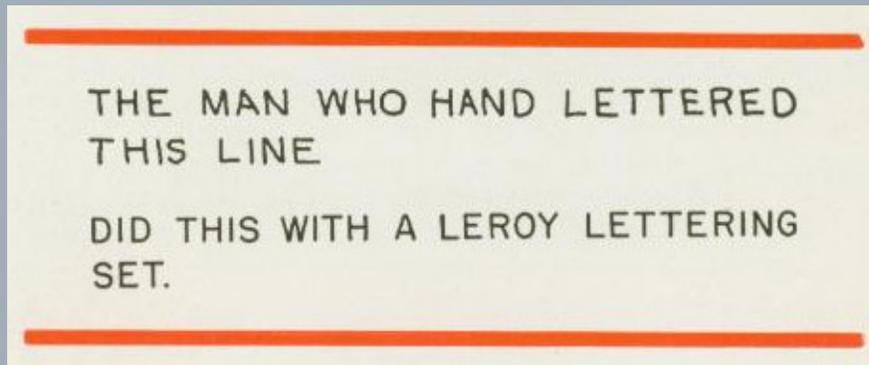
The top line shows freehand lettering; slight imperfections in the shape of the letters can be seen. The bottom line was drawn using a lettering instrument called a pantograph. Credit: *LEROY Lettering Sets*. Keuffel and Esser Company, 1937.

One method was to use *lettering and symbol drawing equipment.* It consisted of a template with the shapes of the letters formed into grooves in the surface. A piece called a scriber was placed on top of it. A pin at lower left would be inserted in the groove of the desired letter. A drop of ink would be placed in the pen at upper left. As the scriber traces the groove of the letter it makes a mark on the paper, forming a perfect letter. Note that the letter grooves on the template have a slight slant to the left; when the scriber is moved, it produced a vertically aligned letter. An adjustment can be made to produce italic letters, slightly slanted to the right.

A technical lettering set made by Keuffel and Esser, circa 1959. Credit: photo by the author.

These lettering sets were commonly used from the early to mid 19th century. They were made by companies such as Keuffel and Esser, also known as K+E. The templates came in a variety of sizes to change the size of the font. The pen tips could be changed for thinner or thicker lines. The thick lines were used to draw bold letters. The templates were sold in sets that might have a half dozen to a dozen templates, and a few different sizes of pens. The set pictured here would have cost about $80 new; nearly $1,000 today.

A template and scriber made by Keuffel and Esser, circa 1959. Credit: photo by the author.

KEUFFEL & ESSER CO., NEW YORK

LEROY LETTERING
REG. U. S. PAT. OFF.

(CONTINUED)

| TEMPLATE NO.	PEN NO.									
	00	0	1	2	3	4	5	6	7N	8N
80	A*	B	C							
100	A*	B	C	D						
120	A	B*	C	D	E					
140	A	B	C*	D	E	F				
175	A	B	C	D*	E	F	G			
200	A	B	C	D	E*	F	G	H		
240	A	B	C	D	E*	F	G	H		
290	A	B	C	D	E	F*	G	H	K	
350	A	B	C	D	E	F*	G	H	K	L
425	A	B	C	D	E	F	G*	H	K	L
500	A	B	C	D	E	F	G*	H	K	L

Sample of Leroy lettering showing the wide range of lettering styles available by combining various Leroy templates and pens. Standard combinations of template and pen are marked with an asterisk *

Combinations of template and pen sizes. Credit: K+E Catalog. Keuffel and Esser, 1959.

Templates were also available for special letters and symbols. There were lettering templates for foreign languages that included accent marks. Others included the symbols used in mathematical equations, that appear on maps, and those used in electrical diagram schematics. The map symbols include a stylized airplane to show the location of an airport. Custom templates were sometimes made to draw a company's logo or an executive's signature.

A template that has Greek letters, another that shows the symbols used on electronic schematic diagrams, also templates for different sizes of either lower or upper case letters. Credit: photo by the author.
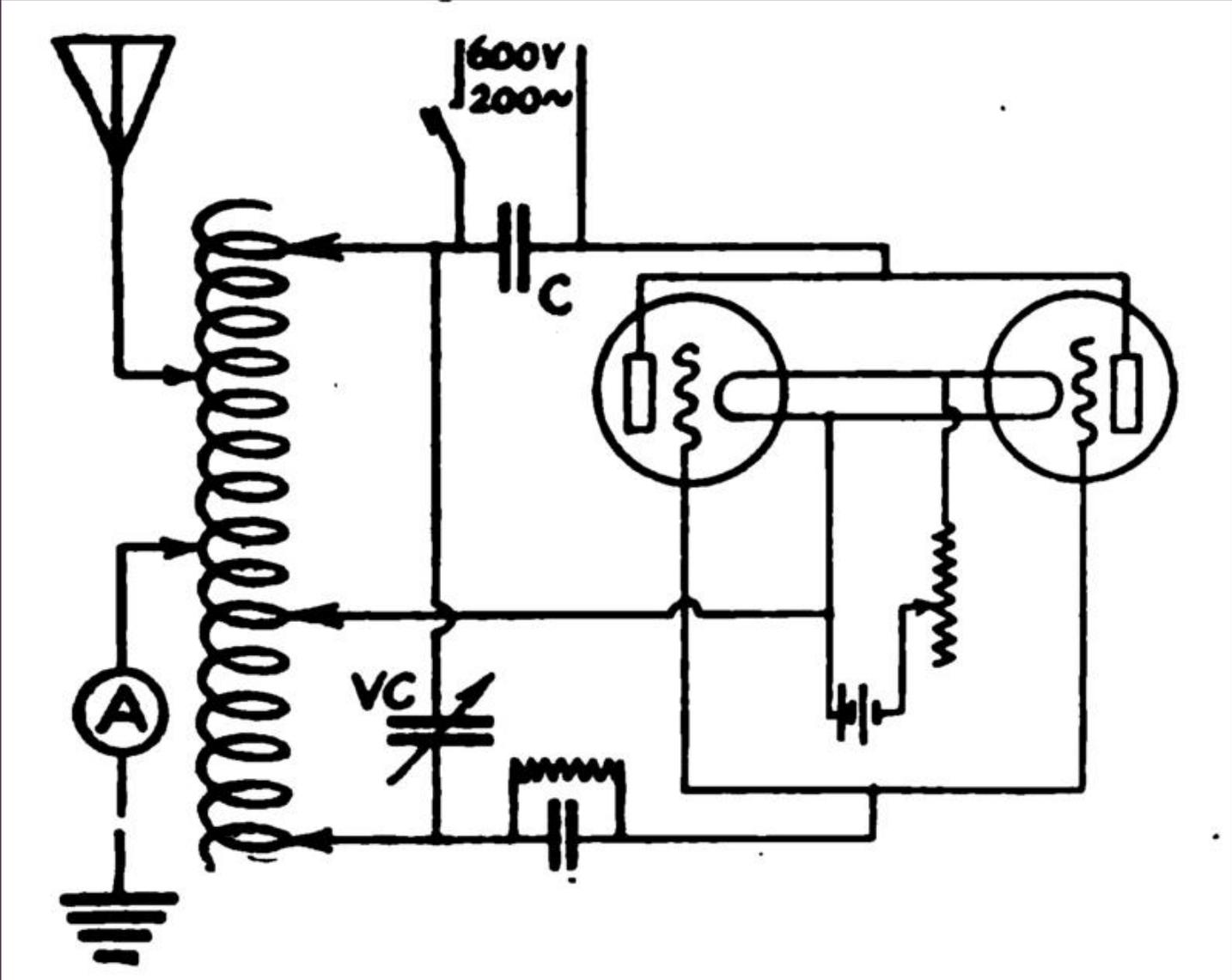
A handdrawn electrical schematic diagram of a radio transmitter. Note the imperfections in the drawing of the symbols. A professionally produced diagram from a template would have symbols with identical shapes and sizes. Credit: "Some Simple C.W. Sets." Brown University Radio Club. *QST*, April 1921.
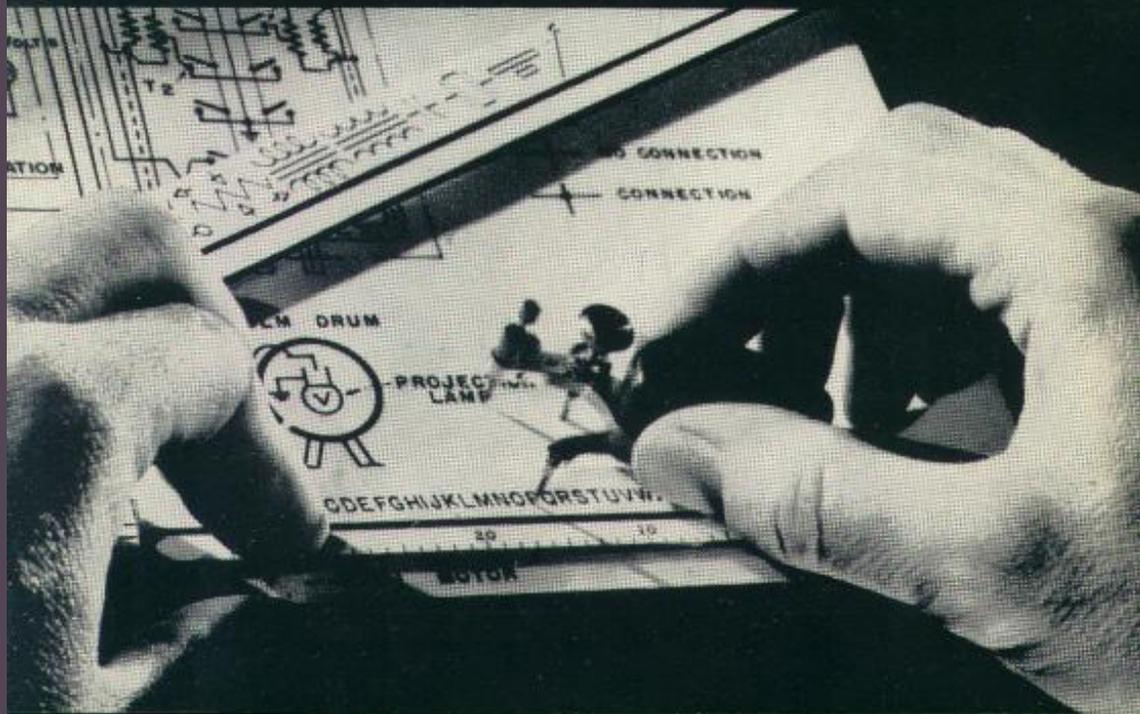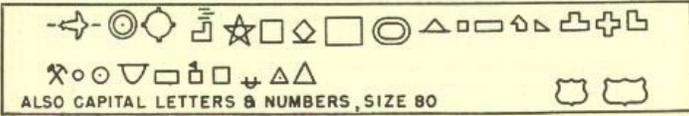
A lettering set drawing of a schematic diagram for a movie projector. Templates
for the electrical symbols and letters are shown. Credit: *LEROY Lettering and
Symbols*. Keuffel and Esser Company, 1960.

KEUFFEL & ESSER CO.

LEROY®
SYMBOL TEMPLATES
MAP SYMBOLS

ALSO CAPITAL LETTERS & NUMBERS, SIZE 80

Actual size

3240A MAP SYMBOL TEMPLATE (with Capital Letters and Numbers, size 80C), 12 in. long. Forms map symbols as illustrated, in addition to all capital letters and numbers that can be formed with template No. 3240-80C. While each map symbol is complete in itself, by combining them, additional symbols can be formed. Map symbols are selected from the Manual of Standard Procedures (April 1950) for preparing State and County Maps, by the U. S. Department of Commerce, Bureau of Public Roads. (Use Pen 000, 00 or 0.)

#### MILITARY MAP SYMBOLS

••• ••• XXXX
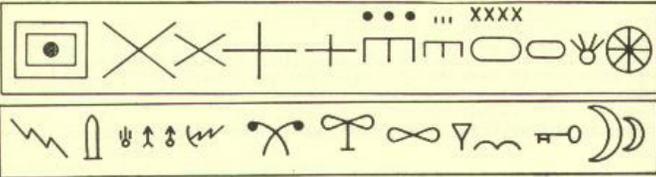
Actual size of 3240E-140 Symbols

MILITARY MAP SYMBOL TEMPLATES. Form military map symbols as illustrated. While each map symbol is complete in itself, by combining them, additional symbols can be formed. Developed in co-operation with the U. S. Marine Corps.

3240E-140 9½ in. long. For use with lettering templates 3240-140C or CL (Use Pen 1).
3240E-200 12 in. long. For use with lettering templates 3240-200C or CL (Use Pen 3).
3240E-290 15 in. long. For use with lettering templates 3240-290C or CL (Use Pen 4).

GEOLOGICAL SYMBOLS
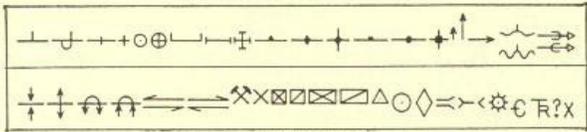
Actual size of 3240G-120 symbols

GEOLOGICAL SYMBOL TEMPLATES. Form symbols for geological map drawing, as illustrated. Developed in co-operation with the U. S. Geological Survey, Washington, D. C.

3240G-120 (12 in. length) (Use Pen 000, 00 or 0).
3240G-175 (15 in. length) (Use Pen 000, 00 or 0).

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Templates for symbols used on different kinds of maps. Credit: *K+E Catalog*. Keuffel and Esser Company, 1954.

Templates for mathematical symbols and fractions. Special symbols used in drawings with instructions on welding metal. Credit: *K+E Catalog*. Keuffel and Esser Company, 1954.

These drawing instruments have long been considered obsolete. Letters, numbers, and symbols are now printed by a computer with digital precisions, and exact reproducibility.

— Michael L. Umbricht