EXCEL-O-GRAPH
DIRECTIONS FOR USE

In addition to all the features of a usual chronograph with a 30 minute- and a 12 hour-recorder, the EXCEL-O-GRAPH is fitted with a circular **slide rule,** which makes it a real **mini-computer.**

With the circular slide rule, you can make any **multiplication** and **division,** thus reckoning speeds, distances, fuel consumption in air navigation or making calculations in engineering or in any technical or commercial job.

Both the white outside circle, which is moved along freely by the revolving bezel, and the white inside circle carry graduations 10-10 with as guiding mark, a **triangle** on **10.** All figures may represent also multiples or sub-multiples of them; 10 for instance may stand for 1, 10, 100, 0,1, etc.

The **outher circle** gives speeds, distances or quantities varying with time.

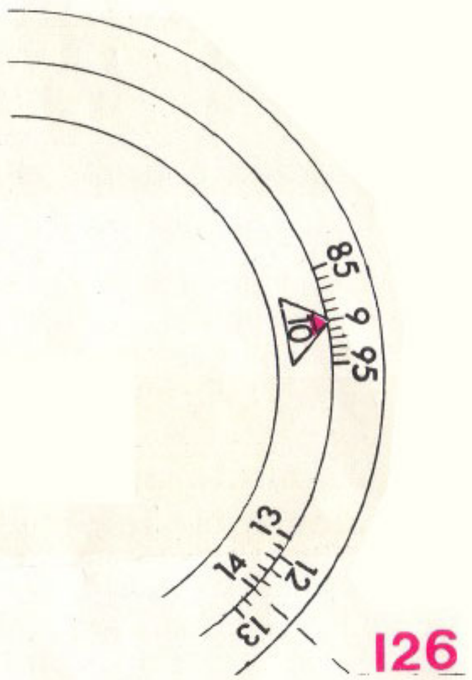
The **inner circle** gives minutes (or seconds) in problems relating to time. The **all-red arrow** at 60 on the inside circle is used in operations involving the time element.

The **red dots at 36,** on both the inner and the outer circle facilitate the transformation of speeds (or other values such as fuel consumption or number of operations performed) per **hour** into speeds (or other values) per **second,** and the other way round.

Multiplication

You set the multiplier on the outer circle opposite the triangular mark on the inner circle. The result of the multiplication is then to be read on the **outer circle,** opposite the multiplicand.

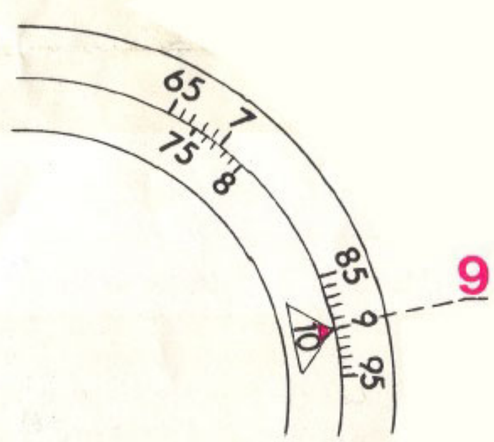
Example: To multiply 9 x 14, you put the figure 9 (multiplier) of the outer circle opposite the triangular mark 10: you then read the result **126** on the outer circle, opposite the figure 14 (multiplicand).



Division

You set the number to be divided on the outer circle opposite the divisor on the inner circle. You can then read the result of the division **on the outer circle,** opposite the triangular mark of the inner circle.

Example: To divide 675 by 75, you put the outside number 675 opposite the inner figure 75. The result - the figure **9** - can then be read on the outer circle opposite the triangular mark 10.



Calculation relating to speeds

A Calculate speed, when distance and time are known

Suppose you have travelled 280 miles (or km.) in 35 min., you put the outside figure 280 opposite the inside figure 35. You read your **speed per hour** on the outer circle opposite

the all-red arrow at 60, i. e. **480** miles (or km.) and the **speed per minute,** i. e. **8** miles (or km.) on the same outer circle opposite the triangular mark at 10.

B Calculate time, when distance and speed per hour are known

You want to know how much time you need to travel 400 miles (or km.) at the speed of 320 per hour. Put the figure 320 opposite the red arrow at 60 and read the time in **minutes,** i. e. **75** on the **inner** circle, opposite the fig. 40 (400).

C Calculate distance, knowing time and speed per hour

You have been travelling 32 minutes at the speed of 296 miles (or km.) per hour.
Put the outside figure 296 opposite the all-red arrow at 60. The distance you have travelled, i. e. **158 miles** (or km.) is read on the outer circle opposite the figure 32.

D Transformation of speeds (or other values) per hour into speeds (or other values) per minute or second

a) **Speed per hour into speed per min.:**
(See under A above)

b) **Speed per hour into speed per sec.:** Travelling at a speed of 180 miles (or km.) per hour, you want to know how many seconds you need to reach a point at a 4 miles distance. You put the figure 180 opposite the **red dot at 36** on the inner circle and then read the time in seconds on the **inner circle** opposite the figure 4, i. e. **8** seconds.

E Transformation of speeds (or other values) per seconds, in speeds (or other values) per hour

(Inverse of operation under D)

If you take 21 sec. to perform 35 times any one operation in industry, you can reckon the number of such operations to be performed per hour. You put the outside figure 21 opposite the figure 35 and then read on the **inner circle,** opposite the **red dot at 36** on the outer circle, the number 60, i. e. **600** units or operations per hour.

GALLET
EXCEL-O-GRAPH

Slide rule

5605: steel case
5705: gold filled case 20 micr.

Manufacture GALLET & COMPANY
La Chaux-de-Fonds (Switzerland)