

Division

Subtraction Method

Put the dividend in lower dials in proper relation to the decimal point. Clear the resulting 1 from upper dials. Put divisor on keyboard in proper relation to decimal point.

Subtract the divisor from the left of the dividend until the figures directly over the divisor are less than the divisor. Shift carriage to left. Continue with the division. Quotient appears in red in upper dials.

The Bell. When divisor has been subtracted too many times, a bell rings and it is necessary to turn the crank forward until the bell rings again, clearing out the 9's.

$$639 \div 25 = 25.56$$

Lower Dials		Upper Dials
	Subtract	
Keyboard 639.0000		00.0000
Keyboard 25	2 times	
Keyboard 139.0000		20.0000
Keyboard 25	5 times	25.0000
Keyboard 014.0000		
Keyboard 25	5 times	25.5000
Keyboard 001.5000		
Keyboard 25	6 times	25.5600
Keyboard 000.0000		

The "Build-Up" or Addition Method

With the divisor directly under the dials in which the left hand figures of the dividend are to appear, add until the figures in the dials are as near as possible to the figures of the dividend without exceeding them. Shift the carriage to the left and continue the building-up process until the division is completed.

Lower Dials		Upper Dials
	Add	
Keyboard 000.0000		00.0000
Keyboard 25	2 times	
Keyboard 500.0000		20.0000
Keyboard 25	5 times	
Keyboard 625.0000		25.0000
Keyboard 25	5 times	
Keyboard 637.5000		25.5000
Keyboard 25	6 times	
Keyboard 639.0000		25.5600

Simultaneous Multiplication and "Build-up" Division

Payroll Problem—Find the earnings of a man who works 17 days of a 26-day month at \$80.00 a month.

$$80 \div 26 = 3.077 \text{ rate per day}$$

$$17 \times 3.077 = 52.31 \text{ earnings}$$

Rule: To multiply a quotient while making a division set multiplier on left of keyboard, divisor on right and use "Build-up" division.

	Lower Dials		Upper Dials
			Add
	00.0000000000		0.0000
Keyboard 17.000026		3 times	
Keyboard 51.000078.0000			3.0000
Keyboard 17.000026		0 times	
Keyboard 51.000078.0000			3.0000
Keyboard 17.000026		7 times	
Keyboard 52.190079.8200			3.0700
Keyboard 17.000026		7 times	
Keyboard 52.309080.0020			3.0770
	Earnings	Rate Per Month	Rate Per Day
Keyboard 17.00—Days Worked	26—Days in Month		

Personal Instruction

Monroe representatives will welcome the opportunity to call at your office to assist anyone interested in learning the operation of the Monroe Adding-Calculator.

The Monroe is capable of handling figure work in so many different ways that, in almost every line of business, the Monroe expert is able to teach special operations and applications of the Monroe that shorten the work to an amazing degree.

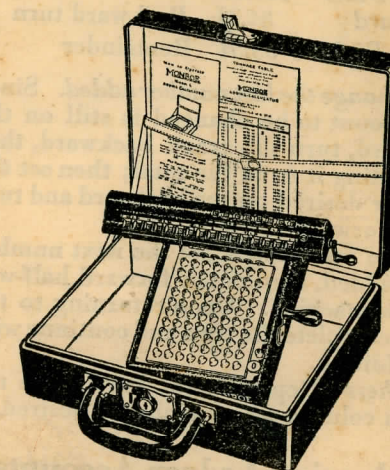
This Monroe instructional service is free. The Monroe Calculating Machine Company, Inc. wants everyone to get the most out of the Monroe at all times.

Monroe Calculating Machine Company, Inc.

General Offices and Plant
ORANGE, NEW JERSEY, U. S. A.

How to Operate MONROE ADDING-CALCULATOR

MODEL L



To Clear the Monroe

Operating crank must be in the upright or "neutral" position.

Keyboard—Depress the clear key.

Upper Dials—A forward turn of the clear-out crank.

Lower Dials—A backward turn of the clear-out crank.

The Operating Crank

A Forward Turn—One complete revolution clockwise, stopping at the upright position.

A Backward Turn—One complete revolution counterclockwise, stopping at the upright position.

Note: Once a turn is started, it is impossible to reverse until the complete revolution has been made.

The Shift Lever

The shift lever is on the left of the machine at the base of the keyboard. A turn of this lever in either direction shifts the carriage from one column to another. The knob on the right of the carriage is used for shifting the carriage to the extreme right or left. It is impossible to shift the carriage unless the operating crank is in the "neutral" position.

To Add or Subtract

"Locked-Figure" Method. Depress the repeat key.

Addition		
Keyboard	35.54	Forward turn
Keyboard	84.31	Forward turn
Lower Dials	119.85	Total

Subtraction		
Lower Dials	119.85	
Keyboard	84.31	Backward turn
Lower Dials	35.54	Remainder

To change the last number added. Since the amount to be changed is still on the keyboard, turn the crank backward, thus subtracting it from the total; then set the number desired on the keyboard and turn crank forward.

When interrupted, set the next number to be added, turn crank forward half-way to lock machine. Upon returning to the work, complete the turn and continue with the addition.

Ciphers—Depress clear key or the red key in column where cipher is desired.

Balancing Ledger Accounts

Shift carriage to extreme right. Add the debits. Shift carriage to extreme left. Add the credits. Copy the total credits to the keyboard. Subtract to prove. Shift the carriage to the right and subtract again. The balance now appears in the lower dials.

To restore the total debits and credits, add, shift carriage to the left and add again.

Subtracting to Prove

If any figures remain in the dials when the first subtraction of the credits is made, it indicates that the total credit has been copied incorrectly. To determine the correct credit, add and then change the keyboard to correspond.

Multiplication

789 × 234. Set 789 on keyboard. Turn crank forward until 4 appears in upper dials. Shift carriage one column to right and turn crank forward until 3 appears to left of the 4. Shift carriage again and turn crank forward until 2 appears to left of the 3.

Keyboard		Upper Dials		Lower Dials
789	×	234	=	184626
789	×	432	=	340848
789	×	256	=	201984

The second and third multiplications are made by changing figures in upper dials by forward or backward turns of the crank.

Short Cuts

756 × 9. Shift carriage one column to the right and turn crank forward once (thus multiplying by 10). Shift carriage one column to the left and turn crank backward once (thus subtracting 1).

Upper dials now read 10 minus 1, the minus 1 being indicated by the red figure.

Keyboard		Upper Dials		Lower Dials
756	×	9	11	6804
387	×	98	102	37926

Accurate Decimal Points

The Monroe Rule

The number of decimal places in the lower dials is always the total of the decimal places in the upper dials PLUS the decimal places on the keyboard.

The decimal markers are fixed according to the largest number of decimal places in the factors of the work in hand.

Whole numbers are put in the machine to left of markers and decimals to right of markers. When this is done, the answer appears—CORRECTLY POINTED OFF.

For the following work set decimal markers: 3 places in upper dials, 3 on the keyboard and 6 in lower dials.

53⅞ yds. @	32½c yd.=	\$ 17.51
23½ doz. @	2.60 doz. =	61.10
4355 lbs. @	3.35 C =	145.89
65365 ft. @	43.45 M =	2840.11

Keyboard		Upper Dials		Lower Dials
53.875	×	.325	=	17.509375
23.500	×	2.600	=	61.100000
43.550	×	3.350	=	145.892500
65.365	×	43.450	=	2840.109250

Discount

When a list value is already in lower dials, copy to keyboard, clear upper dials only, and with backward turns multiply by the rate of discount.

432 Pcs. @ 35c Ea. less 25%, 15%=\$96.39

Keyboard		Upper Dials		Lower Dials
432.000	×	.350	=	151.200000 List Value
151.200	×	.250	=	113.400000 25% Off
113.400	×	.150	=	96.390000 15% Off

Checking an Invoice

By Accumulation

After each multiplication is made, clear the upper dials and keyboard only.

45 yds. @	23c yd. =	\$10.35
34¾ yds. @	42½c yd. =	14.77
43⅞ yds. @	1.30 yd. =	57.04
		<u>\$82.16</u>

Keyboard		Upper Dials		Lower Dials
45.000	×	.2300	=	10.3500000
34.750	×	.4250	=	25.1187500
43.875	×	1.3000	=	82.1562500

Adding a Percentage

To add 5% to the above: the 82.15625 is already in the lower dials; therefore copy 82.15625 to the keyboard and multiply by .05.

Keyboard		Upper Dials		Lower Dials
82.15625	×	.0500	=	86.2640625

To determine the 5%, shift the carriage until the decimal marker in the lower dials is directly over the decimal marker on the keyboard. Subtract, and the remainder, 4.1078, or 4.11, is the 5%.

Note: To add a percentage to an amount not already in the lower dials, simply multiply by 1. and the percentage desired, thus for the above, 1.05.