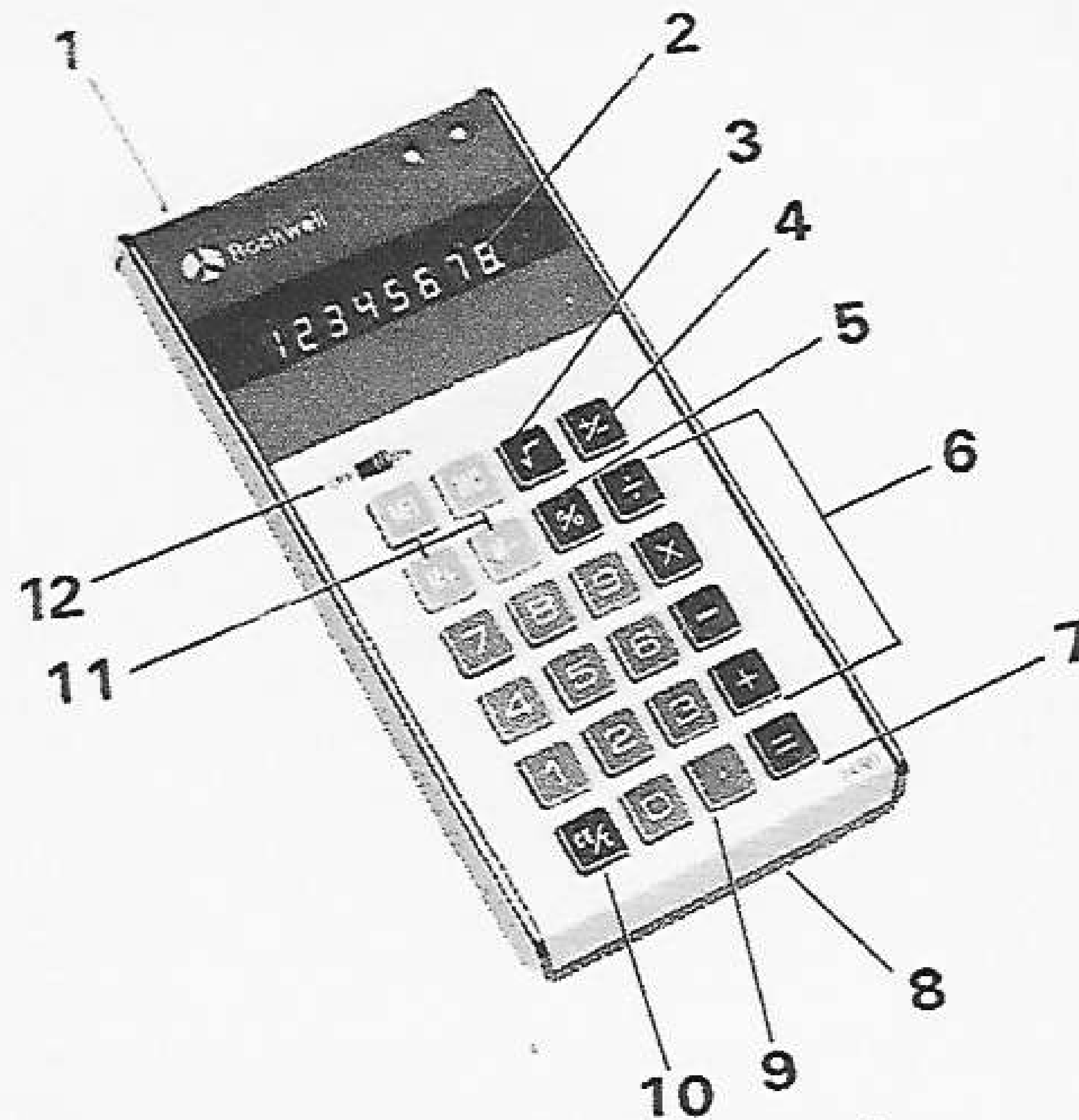


Rockwell Electronic Calculators



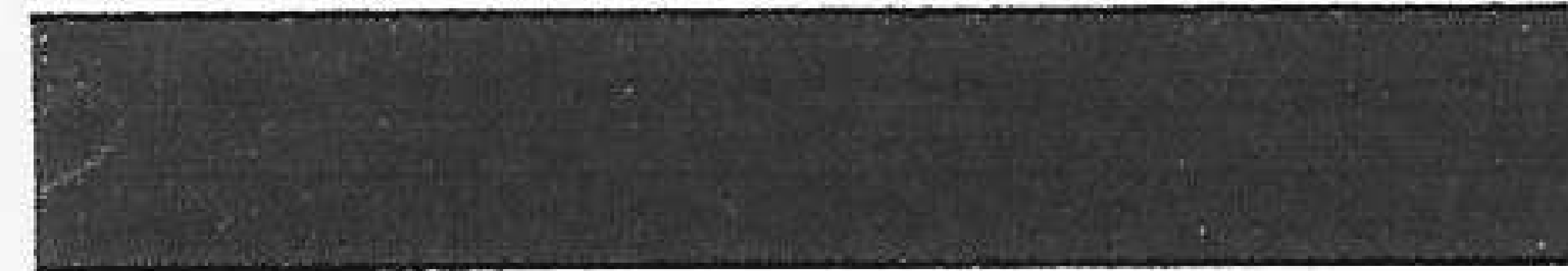
Owner's Manual for
 $\sqrt{\quad}$, % and 4-key Memory Calculator

24RD



1. AC jack (for optional AC adapter)
2. Eight-digit fluorescent display
3. Square Root key
4. Change sign key
5. Percent key
6. Arithmetic function keys
7. Equals key
8. Battery compartment (door on back side)
9. Decimal key
10. Clear entry/clear key
11. Memory keys
12. On-Off switch

© Copyright 1975, Rockwell International



GENERAL INFORMATION

Battery Requirements and Installation

Your calculator requires four "AA" disposable batteries for its power. Discharged batteries should be removed immediately to avoid damage to your calculator by leaking chemicals.

The battery compartment is accessible by removing the door located in the back of the calculator. When inserting the batteries BE SURE the calculator is OFF and observe the polarity signs. The positive (+) pole of the battery must correspond with the + symbol in the compartment.

Operation on Alternating Current (AC)

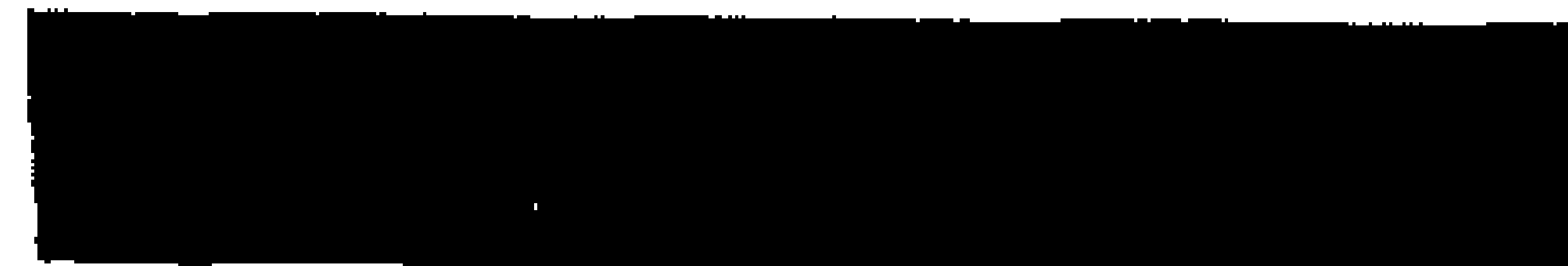
An AC adaptor, either Rockwell MODEL 105R for 110V or MODEL 106R for 110/220V is, available from your Rockwell calculator dealer or distributor. With this adapter you may operate your calculator from regular household or office power. The AC adapter can be used with or without batteries installed in the calculator. If the AC adapter is plugged into the calculator, it must also be plugged into an electrical outlet or the calculator will not work. The calculator on-off switch should be in the OFF position when connecting the calculator to an AC power source.

CAUTION: To avoid possible damage to your calculator, use Rockwell AC adapter only.

Service Tip

Your calculator is designed and manufactured to give you reliability and trouble-free service. Consequently, very few of our calculators are returned for repairs. Most of those returned are found to be due to battery problems. Therefore, to avoid the inconvenience of returning your calculator and being without it needlessly, we suggest you **DO THE FOLLOWING BEFORE YOU SEND IT TO US FOR SERVICE:**

1. Try new, fresh batteries in your calculator.
2. If you have a Rockwell AC adapter, try operating your calculator with it. Be sure the AC adapter is plugged into an AC outlet. If the calculator functions correctly your batteries are probably dead and should be replaced.
3. Check the batteries to be sure they are properly installed. Is the polarity correct? If, after following the above suggestions, your calculator does not function correctly please return it to your nearest Rockwell Customer Service Center. Refer to the Consumer Warranty on the back of this manual.



OPERATION ON/OFF SWITCH

Turning the calculator on automatically clears the calculator (including its memory) to zero. The calculator is then immediately ready for use in solving problems.

DISPLAY

Your calculator will accept and display any positive or negative number between 0.0000001 and 99,999,999. A negative number indicator labeled "Minus" is located at the upper right hand corner of the display. Results in excess of 8 digits cause an overflow condition which is indicated by illuminating all eight decimal points:

$\boxed{1.2.3.4.5.6.7.8.}$, for example, and the first 8 (most significant) digits of your answer are saved. (In this circumstance all keys become inoperative except the clear key, $\boxed{CE/C}$. See Clear Operations, and Overflow Conditions.)

If a number has been entered in the memory, a Memory Indicator labeled "Mem" is also located at the upper right hand corner of the display.

EXPLANATION OF KEYS

Number Entry and Decimal Point Keys

Depressing any number entry key enters that digit into the calculator and causes it to appear on the display. When you want to enter a decimal number, depress the $\boxed{.}$ key following the number after which you want the decimal point located. To enter 1.6:

Keyboard Entry	Display
$\boxed{CE/C}$	0.
1	1.
$\boxed{.}$	1.
6	1.6

Arithmetic Function and Answer Keys

The arithmetic function keys, $\boxed{+}$, $\boxed{-}$, $\boxed{\times}$, and $\boxed{\div}$, enter the desired arithmetic operation to be performed by the calculator. The answer to such an operation is obtained by depressing one of the answer keys, $\boxed{=}$ or $\boxed{\%}$ or by another depression of an arithmetic function key. Because this calculator has a FLOATING DECIMAL, it automatically places the decimal point in the correct position in your answers.

Clear Key

$\boxed{CE/C}$. Depressing the $\boxed{CE/C}$ key clears the display of erroneous entries, cancels overflow conditions, or clears the calculator of stored numbers and functions. (See Clear Operations for detailed instructions on use of the $\boxed{CE/C}$ KEY.)

Memory Keys

Your calculator has a completely independent four-key memory. The functions of the memory operation keys are:

$\boxed{M+}$ and $\boxed{M-}$. Depressing the $\boxed{M+}$, or $\boxed{M-}$, keys adds, or subtracts, the number in the display to, or from, the memory contents.

\boxed{MR} . Depressing the \boxed{MR} key recalls the number in the memory to the display.

This number may be used in subsequent arithmetic operations.

\boxed{MC} . Depressing the \boxed{MC} key clears the memory.

Square Root Key

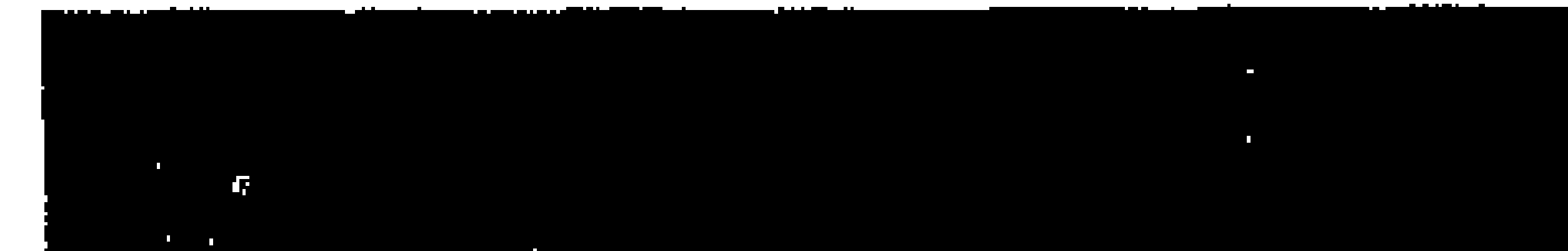
$\boxed{\sqrt{\quad}}$. Depressing the $\boxed{\sqrt{\quad}}$ key causes the calculator to display the square root of the previously displayed number.

Change Sign Key

$\boxed{+/-}$. Depressing the $\boxed{+/-}$ key changes the sign of the displayed number.

Percent Key

$\boxed{\%}$. The $\boxed{\%}$ key operates just like the equal key, $\boxed{=}$, when multiplying and dividing except that it causes the answer to be divided by 100 for multiplication, and multiplied by 100 for division.



BASIC CALCULATIONS

Your Rockwell 24RD performs arithmetic calculations with algebraic logic. This means your calculator works the same way you think or write a problem.

Notice that the display shows each new numerical entry as you depress the number entry keys and the result of the previous arithmetic calculation when you depress an arithmetic function key.

Addition and Subtraction

Keyboard Entry	Display
$\boxed{\text{CE/C}}$	0.
5	5.
$\boxed{+}$	5.
4	4.
$\boxed{-}$	9.
3	3.
$\boxed{=}$	6.

Multiplication and Division

Keyboard Entry	Display
7	7.
$\boxed{\times}$	7.
9	9.
$\boxed{\div}$	63.
6	6.
$\boxed{=}$	10.5

MIXED (CHAIN) CALCULATIONS

Addition, subtraction, multiplication, and division operations may be intermixed, or chained, as shown below:

$$\frac{(5 + 6) \times 7 - 8}{9} = 7.6666666$$

Keyboard Entry	Display
5	5.
$\boxed{+}$ 6	6.
$\boxed{\times}$	11.
7	7.
$\boxed{-}$	77.
8	8.
$\boxed{\div}$	69.
9	9.
$\boxed{=}$	7.6666666

REPEAT OPERATIONS

The repeat operation capability of your Rockwell 24RD is a convenient feature that enables you to add, subtract, multiply or divide a series of identical numbers without re-entering the numbers each time. For example, grocery items with values of $1.69 + 2.98 + 2.98 + 2.98 + 0.49 = 11.12$ would be added as follows:

Keyboard Entry	Display
1.69	1.69
$\boxed{+}$ 2.98	2.98
$\boxed{+}$	4.67
$\boxed{+}$	7.65
$\boxed{+}$	10.63
.49	0.49
$\boxed{=}$	11.12

AUTOMATIC CONSTANT

The automatic constant is another timesaving feature. This feature enables you to add, subtract, multiply or divide by the same number repeatedly without re-entering the number for each new calculation. The number entered after the last arithmetic function key depressed is always saved as the constant (addend, subtrahend, multiplier, or divisor). The constant function is the last arithmetic function key depressed before depressing the $\boxed{=}$ key. To perform multiple operations with the saved constant, enter a new augend, minuend, multiplicand or dividend, and depress the $\boxed{=}$ key for an answer.

For example, to increase a recipe which normally serves four people to serve seven, multiply each item in the recipe by 7/4 or 1.75, as follows:

6 cups flour x 1.75 = 10.5 cups flour
 1.5 tps salt x 1.75 = 2.625 tsp salt
 2 cups milk x 1.75 = 3.5 cups milk

Keyboard Entry	Display
6	6.
\times 1.75	1.75
$=$	10.5
1.5	1.5
$=$	2.625
2	2.
$=$	3.5

In all instances, the constant is retained until a different number is entered after an arithmetic function key is depressed.

PERCENTAGE OPERATIONS

Percentage calculations are simplified by the 24RD calculator. For example, to calculate 1.5% monthly charge on a department store account balance of \$340.00, make the following entries:

Keyboard Entry	Display
340	340.
\times 1.5	1.5
$\%$	5.1

As another example, suppose you have answered 57 of 65 examination questions correctly. What is your percentage of correct answers?

Keyboard Entry	Display
57	57.
\div 65	65.
$\%$	87.6923

When used with the $+$ or $-$ keys, the $\%$ key performs ADD-ON and DISCOUNT calculations automatically. This capability is another time-saving feature when you want to add or subtract a percentage of a number to that number.

To perform an add-on or discount operation, enter the number which you want to add on or discount, depress the $+$ key for add on or the $-$ key for discount, enter the desired percentage, depress the $\%$ key to display the amount of add-on or discount, and press the $=$ key to display the result.

Add-on and discount operations can be chained if desired. For example, if a \$20.00 item is discounted by 15% and a 6% sales tax is added, what is the total cost?

Keyboard Entry	Display	Comments
20.00	20.00	
$-$ 15	15.	
$\%$	3.	Discount
$+$	17.00	Discounted Amount
6	6.	
$\%$	1.02	Sales tax
$=$	18.02	Total cost

MEMORY OPERATIONS

Your Rockwell 24RD memory lets you store or accumulate numbers in the memory without affecting, or being affected by, arithmetic operations. This feature permits you to solve complex problems without writing down intermediate answers. Problem:

$$(5 \times 7.5) + (27 \div 4.5) = 43.5$$

Keyboard Entry	Display	Memory	Comments
5	5.	0.	
\times	5.	0.	
7.5	7.5	0.	
$=$	37.5	0.	
$M+$	37.5	37.5	Memory Indicator "On"
27	27.	37.5	
\div	27.	37.5	
4.5	4.5	37.5	
$=$	6.	37.5	
$M+$	6.0	43.5	
MR	43.5	43.5	

CLEAR OPERATIONS

1. A single depression of the $\overline{CE/C}$ key following a number entry clears the displayed number but does not affect the stored constants or the operation in progress.
2. If there is no overflow condition a single depression of the $\overline{CE/C}$ key after an arithmetic function key or answer key, clears the calculator (except the memory).
3. A double depression of the $\overline{CE/C}$ key clears any operation in progress and clears the calculator (except the memory).
4. Depressing the $\overline{CE/C}$ key during an overflow (see Overflow Conditions) cancels the overflow condition. Chain and constant operations are not affected by overflowing.

OVERFLOW CONDITIONS

The following operations result in an overflow condition which causes the Overflow Indicator, all decimal points, to light and all keys except $\overline{CE/C}$ to become inoperative:

1. Any answer or subtotal exceeding 8 whole digits to the left of the decimal point, regardless of the arithmetic sign (absolute value greater than 99,999,999). The 8 most significant digits are displayed as follows:

$\overline{X.X.X.X.X.X.X.X.}$

You may proceed with the problem solution after depressing the $\overline{CE/C}$ key once to clear the overflow condition, but you must multiply the final problem answer by 10^8 (100,000,000) or move the decimal point 8 places to the right. Any numbers subsequently added or subtracted must be divided by 10^8 before entering. If two overflows occur in the same problem, the final answer must be multiplied by $10^8 \times 10^8 = 10^{16}$ and so on.

2. A memory accumulation exceeding 8 whole digits to the left of the decimal point, regardless of the arithmetic sign. The number to be added to the memory remains in the display with leading zeroes sufficient to fill the display: $\overline{.0.0.0.0.0.X.X.X.}$. The number in the memory is unaffected. Depressing the $\overline{CE/C}$ key clears the overflow condition and the number remains in the display: $\overline{XXX.}$
3. Division by zero. All zeroes and decimal points are displayed: $\overline{0.0.0.0.0.0.0.0.}$

FULL ONE-YEAR WARRANTY (U.S.A. and Canada)

Rockwell International Corporation warrants this electronic calculator and accessories (excluding any non-rechargeable battery) against defects in materials and workmanship and operating malfunctions for a period of one year from the date of retail purchase. This warranty is for the benefit of the original retail purchaser and any subsequent transferee during the warranty period.

In case of a defect, malfunction, or other failure to conform to the above warranty, Rockwell will, at its option, repair or replace the calculator without charge within a reasonable time after its receipt by our service center. The time required for repairs will be added to the warranty period.

For service under this warranty, simply return the calculator prepaid within the warranty period to the nearest Rockwell Customer Service Center listed below. You must also include a copy of the sales receipt or other proof of purchase date. Calculators returned without proof of purchase date will be serviced out-of-warranty at our prevailing service rates.

Exclusions and Limitations

This warranty does not extend to any damage or malfunction resulting from misuse, neglect or accident. The remedies described above are the exclusive remedies under this warranty or any implied warranty, and **IN NO EVENT SHALL ROCKWELL BE LIABLE FOR CONSEQUENTIAL DAMAGES.**

Out-of-Warranty Service

If the calculator fails to operate satisfactorily beyond the one-year warranty period, Rockwell Customer Service Centers will repair and return the calculator to you at our prevailing service rates.

ROCKWELL CUSTOMER SERVICE CENTERS

United States

847 Jerusalem Road
Scotch Plains,
NJ 07076

2016 Big Bend Blvd.
Richmond Heights,
MO 63117

P.O. Box 47147
3550 McCall Place
Atlanta, GA 30340

Post Office Drawer 5077
950 Deguigne Dr.
Sunnyvale, CA 94088

Canada

90 Thorncliffe Park Dr.
Toronto, Ontario,
Canada M4B-1M5

WARRANTY OUTSIDE USA AND CANADA

For warranty outside of USA and Canada see the enclosed warranty card, or ask your distributor/ dealer for warranty information.

Service Available Outside USA and Canada British Isles

Sumlock Anita, Ltd. Service Centers are located throughout the British Isles. Consult your local telephone directory for your nearest center.

France and Germany

Rockwell - HWT, S.A.
Paris, France

Rockwell International,
G.m.b.H.
Frankfurt, Germany

Other Countries

Contact your dealer or distributor.

2520D-109 New 8-75 15