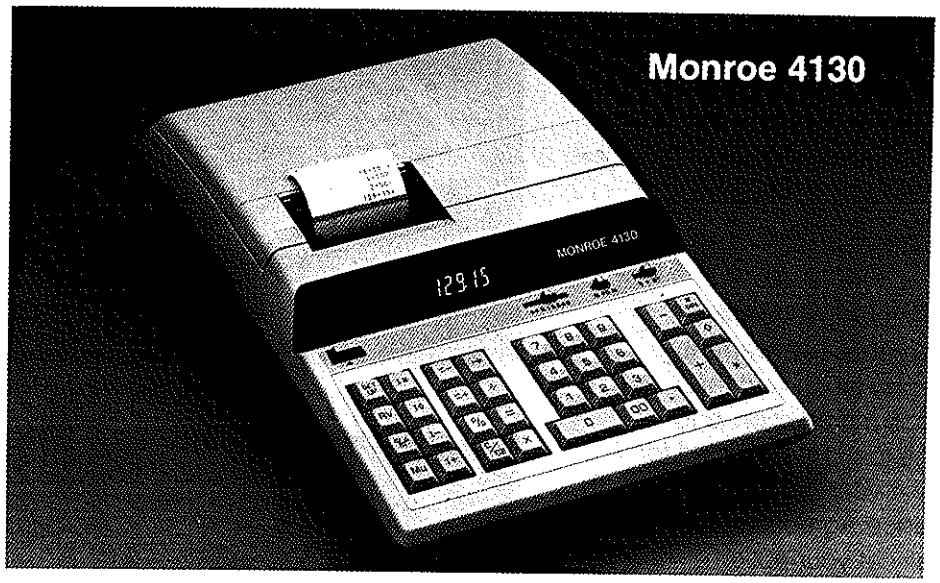
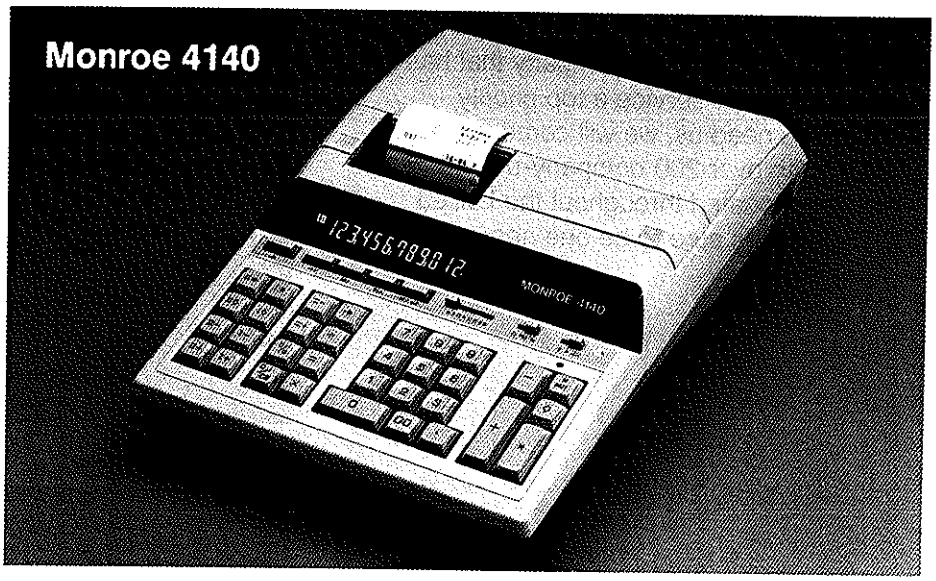
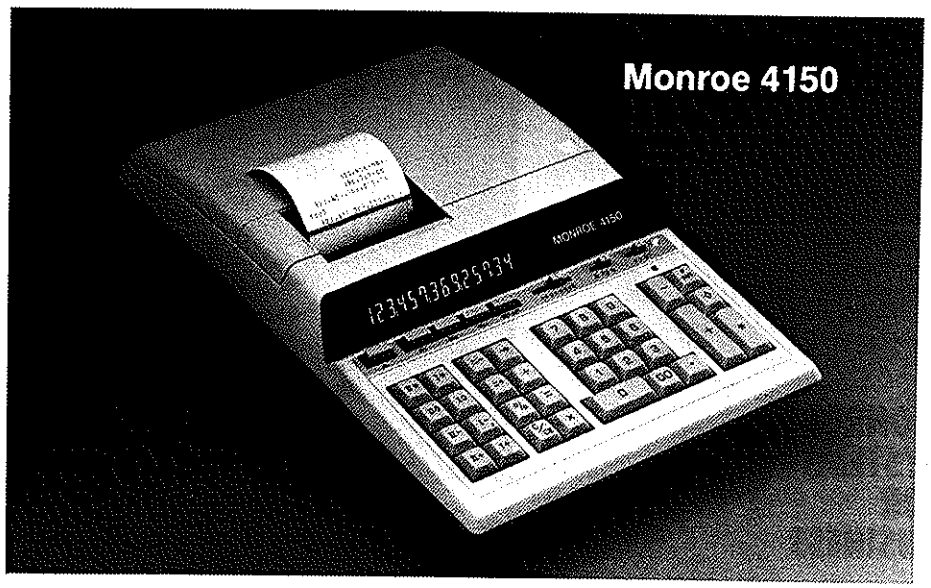
Operating Instructions







MONROE® SYSTEMS FOR BUSINESS®

Our Service is Legendary

Your Monroe 4130/40/50 was built with the highest standards of quality and workmanship. Because we have over seventy eight years of experience in the design and manufacture of fine office equipment, you have a product you can rely upon. Quality . . . Performance . . . Value . . . in calculators for you or your Company.

Monroe 4100 Series Calculators are backed by a comprehensive warranty that covers parts and labor. And that same comprehensive protection, and convenient service, can be extended for as long as you own your calculator. The Monroe Maintenance Agreement is renewable annually at your option.

At Monroe, service is not just a slogan, it's a promise from the company that has made customer service a top priority. When you need us, we will come to your office. With over 200 company-owned branches located throughout the United States, there's sure to be one near you.

4130

4140

4150

MONROE® SYSTEMS FOR BUSINESS®

About your 4130/40/50

Our new 4130/40/50 will give the opportunity to solve a variety of figurework problems more accurately and efficiently than ever before. This instruction book will help you by providing complete, step-by-step information on the operation and application of your 4130/40/50. Whether you're an experienced operator or a beginner, you'll gain a practical, working knowledge of your 4130/40/50 after reading this book.

The 4130/40/50 are operationally equivalent. The difference is capacity and storage capability. The 4130/40 have a 12-digit display and a 24-digit internal calculating capacity while the 4150 has a 14-digit display and a 28-digit internal calculating capacity. The 4130 has one memory register rather than 2 like the 4140/50.

We want to be sure you take advantage of the many benefits Monroe value has to offer. If you have any questions about a particular feature or application, don't hesitate to call your local Monroe representative.

Monroe Model 4130/4140/4150

Serial Number

_____

Please record the Serial Number of your new calculator in the space provided above and retain this instruction booklet for your records and future reference. The Serial Number is located on the bottom pan of the calculator.

Thank you,

Monroe Systems for Business

WARNING

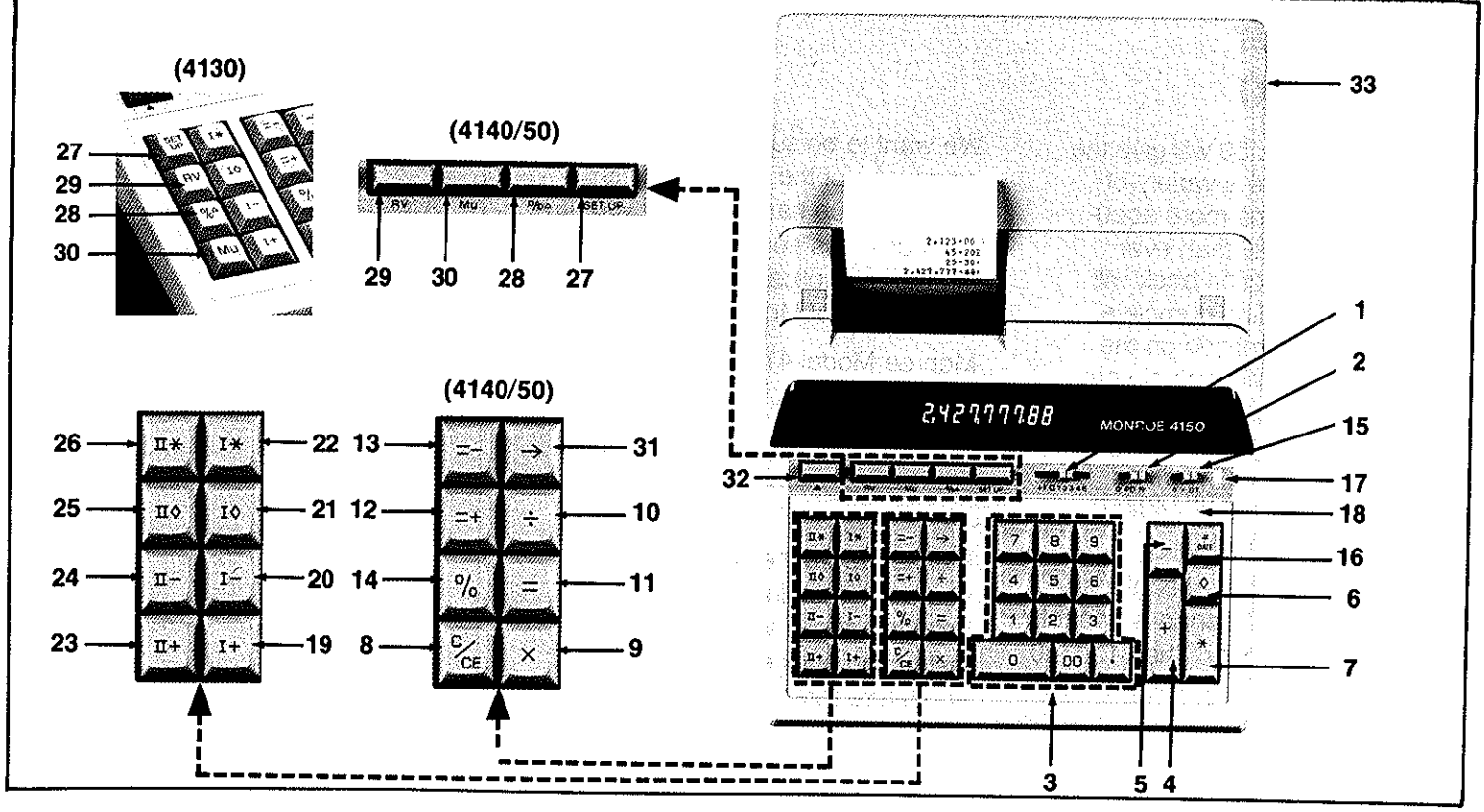
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ☐ Reorient or relocate the receiving antenna.
- ☐ Increase the separation between the equipment and receiver.
- ☐ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ☐ Consult the dealer or an experienced radio/TV technician for help.

If necessary, the user should consult Monroe or an experienced radio/television technician for additional suggestions.

Contents

Operating Controls and Features



1. Decimal Selector. Allows selection of up to eight decimal settings +, F, 0, 1, 2, 3, 4, 6. For example, when set at 2, all totals and results will contain two decimal places; at 0 no decimals will be printed or displayed. In the Floating (F) decimal setting, results are expressed to maximum decimal accuracy. When working with dollars and cents, the Decimal Selector can be set at Add Mode (+), eliminating the need to enter the decimal point.

2. D/PD/N Switch. Allows the choice of operating in Display only (D position), or both Print and Display without N Count (PD position), or both Print and Display with N Count (N position), changing from Display only position to Print and Display position will print a row of red dots, the displayed value with an audit of "P", the Accumulator amount (with N count if applicable), the Grand Total amount (with N count if applicable) and a row of red dots.

While in the D position or PD position, N Count is "OFF". In the N Count (N) position every Plus, Minus, Equals Plus, Equals Minus, Memory Plus, or Memory Minus key depression is counted. The Accumulator and its N Count or the GT N Count can be printed by depression of the Subtotal or Total key. When either Memory Subtotal or Memory Total is depressed, Memory N Count will print. N Count is always printed in red, left justified. If the Equals key is depressed immediately after the Subtotal, Total, Memory Subtotal, or Memory Total the average of the entries is printed.

When the N Count prints on the 4150, an audit symbol will print to the left of the N Count. The audit $^{N}_{A}$ will identify the Accumulator register N Count, $^{N}_{G}$ will identify the GT register N Count and $^{N}_{M}$ will identify the Memory N Count.

Note: Correctable N Count. A depression of Minus immediately following an erroneous Plus or Equals Plus key depression will correct the Accumulator and its N Count. If GT is on, then the GT register and its N Count will be corrected as well. A depression of Plus will correct an erroneous depression of Minus or Equals Minus in the same manner.

A depression of Memory Minus immediately following an erroneous Memory Plus will correct the Memory register and its N Count. A depression of the Memory Plus will correct an erroneous Memory Minus in the same manner.

3. Numeric Key Pad. Enter number 0 thru 9 and a decimal point just as you would write them. The entry will not be printed until a function key is depressed.

4. Plus Key. Adds an amount to the Accumulator. To add the same amount more than one time (repeat addition), enter that amount once and depress the Plus key as many times as necessary.

5. Minus Key. Subtracts an amount from the Accumulator. To subtract the same amount more than one time (repeat subtraction), enter that amount once and depress the Minus key as many times as necessary.

6. Subtotal Key. Prints but does not clear the Accumulator.

7. Total Key. Prints and clears the Accumulator.

8. Clear/Clear Entry Key. a. If the last key depressed was numeric, depression of the Clear/Clear Entry key will automatically clear the entry. b. If the last key depressed was other than numeric, depression of the Clear/Clear Entry key will cause a "C" to print on the tape and will automatically clear that entry, a pending multiplication or division operation and the constant.

9. Times Key. To multiply, enter the first number (multiplicand) and depress the Times key; then enter the second number (multiplier) and depress any Equals or Percent key, i.e., Equals, Equals Plus, Equals Minus, Percent, Memory One Plus, Memory One Minus, Memory Two Plus, Memory Two Minus, to obtain a result.

10. Divide Key. To divide, enter the number to be divided (dividend) depress the Divide key. Then enter the second number (divisor) and depress any Equals or Percent key, i.e., Equals, Equals Plus, Equals Minus, Percent, Memory One Plus, Memory One Minus, Memory Two Plus, Memory Two Minus, to obtain a result.

11. Equals Key. Completes multiplication or division.

12. Equals Plus Key. Similar to the Equals key; depression of this key yields the result of a multiplication or division operation. The result, however, will automatically be added to the Accumulator.

13. Equals Minus Key. Similar to the operation of the Equals Plus key; except amounts are subtracted from the Accumulator.

14. Percent Key. Calculates percentages and has percent increase and net decrease capabilities.

15. ◊ ■ GT Switch. In the Neutral Mode (■) position, any entry made with the Plus or Minus key and any result obtained from depression of the Equals Plus or Equals Minus key is either added to or subtracted from the Accumulator.

In the Grand Total (GT) position any entry that is added to or subtracted from the Accumulator is also added to or subtracted

from the GT Accumulator. A second depression of the Subtotal or Total key will give the grand subtotal or grand total respectively of all previously accumulated entries.

In the ◊ position a running subtotal will be kept in the display. The Subtotal and Total keys operate as described with the GT Switch in the GT position.

16. Non-Add/Date Key. This key serves two functions. First, it will print a live entry as an identifier (such as an invoice number) or a date.

Second, it will store a live entry so that it may be recalled for later use as an identifier or constant.

To print and store a date (e.g., 7/1/87), enter the month and depress the Decimal Point key, the day and Decimal Point, and the year and depress the Non-Add/Date key. To recall the contents of the Non-Add Register, depress the Non-Add/Date key.

17. Grand Total Lamp. When illuminated, indicates that an amount is being retained in the Grand Total Accumulator.

18. Accumulator Lamp. When illuminated, indicates that an amount is being retained in the Accumulator.

19. Memory One Plus Key. Adds an amount to Memory. If there is a live calculation pending, the Memory Plus key will complete the calculation and accumulate the result to Memory.

20. Memory One Minus Key. Subtracts an amount from Memory. If there is a live calculation pending, the Memory Minus key will complete the calculation and subtract the amount from Memory.

21. Memory One Subtotal Key. Prints, but does not clear the Memory.

22. Memory One Total Key. Prints and clears the Memory.

23. Memory Two Plus Key. 4140/50 adds entries directly into Memory. This key will also complete pending calculations and accumulate the results to Memory.

24. Memory Two Minus Key. 4140/50 subtracts entries directly from Memory. This key will also complete pending calculations and subtract the results from Memory.

25. Memory Two Subtotal Key. 4140/50 prints but does not clear Memory.

26. Memory Two Total Key. 4140/50 prints and clears Memory.

27. Set Up Key. This unique key enables the operator to select thirteen internal functions. To turn a function on, the operator presses the Set Up key followed by a numeric code entry at which point the code number will print in black. To turn a function off, the operator presses the Set Up key followed again by the numeric code at which point the code number will print in red.

Set Up Key Codes

0: Sets calculator to Price/Price mode when decimal selector at +.

00: Sets calculator to Units/Units mode when decimal selector at +.

1: Σ X, Summation of first factors into Memory One.

2: Σ T, Summation of Equals and Percent results into the accumulator.

3: Running subtotal of the accumulator on printer.

4: Two-column Addition.

5: Set rounding to TRUNCATE.

6: Set rounding to ROUND UP.

7: Set IDENTIFIER to print for each entry.

8: Σ M, Summation of Equals and Percent results into Memory One.

9: Recall Set Up Codes.

C/CE: Clear all Set Up Codes.

If both Set Up Code 0 and Set Up Code 00 are ON, the calculator will be set to Price/Units mode when decimal selector is at +.

28. Percent Change/Gross Margin Key. Automatically compares any two amounts, prints the actual numerical difference between them, then calculates and prints the percent change or the gross margin percentage.

29. Reverse. Interchanges the factors in multiplication, division and percent change, avoiding the need for reentry.

30. Markup. From a known cost of goods and a desired gross margin, this key automatically calculates and prints the amount of Markup and the selling price.

31. Backspace Key. Deletes right most character of a live entry, moving the remaining display value one character to the right.

32. Paper Advance.

33. On-Off Switch.

Decimal System. With the 4130/40 entries may contain any combination of whole and decimal digits, up to a maximum of 12 digits. However, internally there is a 24-digit calculating capability. With the 4150, the maximums are 14 and 28 respectively. The decimal setting may be changed between calculations without affecting the accuracy of a number entered or accumulated.

Add Mode. Set the Decimal Selector at Add Mode (+) and the last two digits in any entry followed by depression of the Plus, Minus, Memory Plus or Memory Minus key will automatically be accepted as decimals. Exception: if an actual decimal entry is made, the calculator will accept and print it, overriding the Add Mode (+) setting for that entry.

Units/Price Mode. Designed for convenience when calculating extensions. With the decimal selector at Add Mode (+), all numbers entered followed by depression of the Times key will be accepted as whole numbers (units) unless an actual decimal entry is made. The last number entered followed by depression of the Equals, Equals Plus or Equals Minus key will automatically be accepted as having two decimal places (dollars and cents). Memory Plus and Memory Minus will function in the same manner when completing calculations.

Automatic Punctuation. On the tape and display a comma automatically punctuates every third whole digit to the left of the decimal point.

Extended Capacity. If a result exceeds the 12-digit output capacity but does not exceed the 24-digit calculating capacity, (14 and 28 respectively on the 4150) then the result will be printed and displayed in scientific notation.

For example: if a calculation result was "222,333,444,555,000." it would be expressed in scientific notation as "2.22333444555 x 10^{14}". The printer would print the amount as "2.22333444555 14", which indicates that to write the extended capacity amount in standard format, the decimal point must be moved 14 digits to the right.

Note:
On the 4130/40, the printer will show 12 significant digits and the exponent. Display will show 9. On the 4150 it will be 14 and 11 respectively.

Overflow. When a live entry contains more than 12 digits (display and print capacity) or a calculation result contains more than 24 digits (calculating capacity), (14 digits and 28 digits on the 4150) a series of red dots will print indicating an overflow condition. The display will show a "0". The entry and/or result is automatically cleared and the calculator is ready for further calculations. Constants and N Counts are not affected by this overflow condition.

Underflow. In a result or total containing a combination of whole and decimal digits, the decimal point will shift right, regardless of decimal setting in order to show the 12 most significant digits (14 on the 4150). In results containing more than 12 whole digits (14 on the 4150) the calculator will go into extended capacity.

Reverse Underflow. When a result should normally be 0, based on the current decimal setting, the calculator will float the result showing as many digits as possible. For example, the problem 2 divided by 625, with the Decimal Selector set at (2), would yield a result of 0.00 without Reverse Underflow. With this feature, however, a significant result of 0.0032 is given.

Automatic Calculation Mode Correction. If you accidentally depress the Times key instead of the Divide key (or vice-versa), it is not necessary to clear the calculator. Merely depress the correct function key (in this case, the Divide key) and proceed with the calculation.

Two Key Rollover. Allows an operator to depress a numeric or function key while the previous key is depressed or being released. Increases speed and productivity.

Clear Accumulator Indicator. If the Accumulator contains the value zero, a unique symbol (*) prints with the first entry into the Accumulator.

√Square Root. The key sequence Divide, Equals will automatically calculate the square root of any positive entry, result or total.

Applications

Unless otherwise specified the following examples are performed with the D PD N @ PD and ◇ ■GT @ ■.

Addition Result Multiplied by a Number

Decimal Selector @ +

Example:

(2.77 + 14.98 + 3) × 12.12 = 251.49

Enter	Depress	Print
	✱	0.00 ✱
277	+	2.77 ✱+
1498	+	14.98 +
3.	+	3.00 +
	✱	20.75 ✱
	×	20.75 ×
1212	=	12.12 =
		251.49 ✱

Addition and Subtraction with N Count to Figure Average

D PD N @ N

Decimal Selector @ +

Example:

2.00
+0.95
+0.00
−0.50
−0.75
1.70

N Count = 5
Average = 0.34

Enter	Depress		Print
	✱	000	
			0.00 ✱
200	+		2.00 ✱+
95	+		0.95 +
0	+		0.00 +
50	−		0.50 −
75	−		0.75 −
	✱	005	
			1.70 ✱
	=		0.34 = M

Group and Grand Total with N Count

D PD N @ N , ◇ ■GT @ GT

Decimal Selector @ +

Example:

	1.23	
	+1.23	1.59
	−4.56	−3.57
	+7.89	+12.50
	5.79	10.52
	N Count = 4	N Count = 3

5.79 + 10.52 = 16.31 Grand Total
4 + 3 = 7 Grand Total N Count

Enter	Depress		Print
	✱	000	
			0.00 ✱
	✱	000	
			.0.00 G ✱
123	+		1.23 ✱+
	+		1.23 +
456	−		4.56 −
789	+		7.89 +
	✱	004	
			5.79 ✱
159	+		1.59 ✱+
357	−		3.57 −
1250	+		12.50 +
	✱	003	
			10.52 ✱
	✱	007	
			16.31 G ✱

Simple Multiplication

Decimal selector @ 2

Example: 12.3 × 15 = 184.50

Enter	Depress	Print
12.3	×	12.30 ×
15	=	15.00 =
		184.50 ✱

Chain Multiplication

Decimal selector @ 2

Example: 12.3 × 4.2 × 2.5 = 129.15

Enter	Depress	Print
12.3	×	12.30 ×
4.2	×	4.20 X
2.5	=	2.50 =
		129.15 ✱

Constant Multiplication

Decimal selector @ 2

Example:

1.65 × 211 = 348.15
1.65 × 59 = 97.35
1.65 × 67 = 110.55

Enter	Depress	Print
1.65	×	1.65 ×
211	=	211.00 =
		348.15 ✱
59	=	59.00 =
		97.35 ✱
67	=	67.00 =
		110.55 ✱

Units/Price Mode

Decimal Selector @ +

Example:

6 × 6.47 = 38.82
8 × 1.19 = 9.52

Enter	Depress	Print
6	×	6.00 ×
647	=	6.47 =
		38.82 ✱
8	×	8.00 ×
119	=	1.19 =
		9.52 ✱

Accumulative Multiplication

Decimal Selector @ +

Example:

(23.5 × 10.18) = 239.23
−(4.6 × 9.75) = −44.85
194.38

Enter	Depress	Print
	✱	0.00 ✱
23.5	×	23.50 ×
1018	=+	10.18 = +
		239.23 ✱✱
4.6	×	4.60 ×
975	=−	9.75 = −
		44.85 ✱
	✱	194.38 ✱

Applications

Accumulative Multiplication with Group and Grand Total with N Count*

D PD N @ N, ◇ ■GT @ GT

Decimal Selector @ +

Example:

(10 × 1.50) = 15.00
+(12 × 1.75) = +21.00
+(12 × 1.25) = +15.00
−(12 × 1.15) = −13.80
37.20
N Count = 4

(100 × 1.25) = 125.00
−(5 × 7.50) = −37.50
87.50
N Count = 2

37.20 + 87.50 = 124.70 Grand Total
4 + 2 = 6 Grand Total N Count

Enter	Depress		Print
	*	000	
			0.00 *
	*	000	
			0.00 G *
10	×		10.00 ×
150	=+		1.50 = +
			15.00 * *
12	×		12.00 ×
175	=+		1.75 = +
			21.00 *
125	=+		1.25 = +
			15.00 *
115	=−		1.15 = −
			13.80 *
	*	004	
			37.20 *
100	×		100.00 ×
125	=+		1.25 = +
			125.00 * *
5	×		5.00 ×
750	=−		7.50 = −
			37.50 *
	*	002	
			87.50 *
	*	006	
			124.70 G *

Simple Division

Decimal selector @ 2

Example: 375 ÷ 500 = 0.75

Enter	Depress	Print
375	÷	375.00 ÷
500	=	500.00 =
		0.75 *

Constant Division

Decimal selector @ 2

Example:

48 ÷ 3 = 16.00
12 ÷ 3 = 4.00
10.5 ÷ 3 = 3.50

Enter	Depress	Print
48	÷	48.00 ÷
3	=	3.00 =
		16.00 *
12	=	12.00 =
		4.00 *
10.5	=	10.50 =
		3.50 *

Accumulative Division

Decimal selector @ 2

Example:

(1493 ÷ 11.73) = 127.28
−(392 ÷ 5.55) = −70.63
56.65

Enter	Depress	Print
	*	0.00 *
1493	÷	1,493.00 ÷
11.73	=+	11.73 = +
		127.28 * *
392	÷	392.00 ÷
5.55	=−	5.55 = −
		70.63 *
	*	56.65 *

Percent of Number

Decimal selector @ 2

Example: What is 16% of 150?

Enter	Depress	Print
150	×	150.00 ×
16	%	16.00 %
		24.00 *

Different Percents of a Number

Decimal selector @ 2

Example: What is 16%, 25%, 18%, 42% of 150?

Enter	Depress	Print
150	×	150.00 ×
16	%	16.00 %
		24.00 *
25	%	25.00 %
		37.50 *
18	%	18.00 %
		27.00 *
42	%	42.00 %
		63.00 *

Percent of One Number to Another

Decimal selector @ 2

Example: What percent of 150 is 60?

Enter	Depress	Print
60	÷	60.00 ÷
150	%	150.00 =
		40.00 %

*The same operation can be performed for division by simply depressing the Divide key instead of the Times key.

Applications

Percent of One Number to Different Numbers

Decimal Selector @ 2

Example: What percent of 150 is 60, 30, 50, 75?

Enter	Depress	Print
60	÷	60.00 ÷
150	%	150.00 =
		40.00 %
30	%	30.00 =
		20.00 %
50	%	50.00 =
		33.33 %
75	%	75.00 =
		50.00 %

Discount

Decimal Selector @ 2

Example: What is the amount of discount and the cost of an article marked $28.40 less 12.5%?

Enter	Depress	Print
28.4	×	28.40 ×
12.5	%	12.50 %
		3.55 ✱ (Discount)
	−	24.85 % − (Cost)

Add-on

Decimal Selector @ 2

Example: What is the tax and the total cost of an article marked $24.25? Tax is 4%.

Enter	Depress	Print
24.25	×	24.25 ×
4	%	4.00 %
		0.97 ✱ (Tax)
	+	25.22 % + (Total Cost)

Chain Discount

Decimal Selector @ +

Example: What is the net amount and the amount of discount, given $125.50 less a chain discount of 10%, 5%, 2%?

Enter	Depress	Print
	✱	0.00 ✱
12550	+	125.50 ✱ +
	×	125.50 × (Gross)
10	%	10.00 %
		12.55 ✱ (Discount)
	−	112.95 % −
	×	112.95 ×
5	%	5.00 %
		5.65 ✱ (Discount)
	−	107.30 % −
	×	107.30 ×
2	%	2.00 %
		2.15 ✱ (Discount)
	−	105.15 % − (Net)
	−	105.15 −
	✱	20.35 ✱ (Total Disc.)

N Count Correction Operations, Incorrect amount entered on + key

Decimal Selector @ +

D PD N @ N

Example:

20.00
+30.00 Number of correct entries = 4
+40.00 Average = 35.00
~~+60.00~~
+50.00
140.00

	Enter	Depress	Print
		✱ 000	
			0.00 ✱
	2000	+	20.00 ✱ +
	3000	+	30.00 +
	4000	+	40.00 +
(Wrong Entry)	6000	+	60.00 +
(Correction)		−	60.00 −
(Valid Entry)	5000	+	50.00 +
		✱ 004	
			140.00 ✱
		=	35.00 = M

Incorrect Amount Entered on =+ or =−, for accumulation to the Adding Register.

Decimal Selector @ +

Example: D PD N @ N

12.00 × ~~1.19~~ =+ 1.15 =+ 13.80
4.00 × ~~4.56~~ =− 1.23 =− 4.92
Subtotal 8.88
56.00 ÷ ~~13.00~~ =+ 12.00 =+ 4.67
13.55

Correct N-Count = 3 Average = 4.52

	Enter	Depress	Print
		✱ 000	
			0.00 ✱
	12	×	12.00 ×
(Wrong Entry)	119	=+	1.19 = +
			14.28 ✱ ✱
(Correction)		−	14.28 −
(Valid Entry)	115	=+	1.15 = +
			13.80 ✱ ✱
	4	×	4.00 ×
(Wrong Entry)	456	=−	4.56 = −
			18.24 ✱
(Correction)		+	18.24 +
(Valid Entry)	123	=−	1.23 = −
			4.92 ✱
		◇ 002	
			8.88 ◇
	56	÷	56.00 ÷
(Wrong Entry)	13.	=+	13.00 = +
			4.31 ✱
(Correction)		−	4.31 −
	56	÷	56.00 ÷
(Valid Entry)	12.	=+	12.00 = +
			4.67 ✱
		✱003	
			13.55 ✱
		=	4.52 = M

Memory Addition and Subtraction

Decimal Selector @ +

Example:

```
  25.76
+ 9.48
+ 9.48
- 2.71
- 2.71
+ 8.85
-------
  48.15
```

Enter	Depress	Print
	I ✱	0.00 I ✱
2576	I +	25.76 I +
948	I +	9.48 I +
	I +	9.48 I +
271	I −	2.71 I −
	I −	2.71 I −
885	I +	8 85 I +
	I ✱	48 15 I ✱

Accumulative Multiplication to Memory

Decimal Selector @ 2

Example:

```
(23.5 × 10.18) =  239.23
-( 4.6 × 9.75) =  - 44.85
-------------------------
                  194.38
```

Enter	Depress	Print
	I ✱	0.00 I ✱
23.5	×	23.50 ×
10.18	I +	10.18 =
		239 23 I +
4.6	×	4.60 ×
9.75	I −	9.75 =
		44.85 I −
	I ✱	194.38 I ✱

Accumulative Division to Memory

Decimal Selector @ 2

Example:

```
(1493 ÷ 11.73) = 127.28
-( 392 ÷ 5.55) = -70.63
-----------------------
                 56.65
```

Enter	Depress	Print
	I ✱	0.00 I ✱
1493	÷	1,493.00 ÷
11.73	I +	11.73 =
		127.28 I +
392	÷	392.00 ÷
5.55	I −	5.55 =
		70.63 I −
	I ✱	56.65 I ✱

Proration

Decimal selector @ 2

Example: Find the floor rental expense for each department.

Dept.	Floor Space Square Feet	Rental Expense
A	875	$2,053.96
B	1,480	3,474.13
C	1,375	3,227.65
	3,730	$8,755.74

Enter	Depress	Print
	✱	0 00 ✱
8755.74	÷	8,755.74 ÷
875	+	875 00 ✱ +
1480	+	1,480.00 +
1375	+	1,375.00 +
	✱	3,730.00 ✱
	×	3,730.00 X
875	=+	875.00 = +
		2,053 96 ✱ ✱
1480	=+	1,480.00 = +
		3,474.13 ✱
1375	=+	1,375.00 = +
		3,227.65 ✱
	✱	8,755 74 ✱

Percentage Distribution

Decimal selector @ 2

Example:

City	Sales in Thousands	Percent of Sales
A	$ 123	8.99%
B	456	33.33
C	789	57.68
	$1,368	100.00%

Enter	Depress	Print
	✱	0.00 ✱
123	+	123.00 ✱ +
	÷	123.00 ÷
456	+	456.00 +
789	+	789.00 +
	✱	1,368.00 ✱
	%	1,368.00 =
		8.99 %
	+	8.99 ✱ +
456	%	456.00 =
		33.33 %
	+	33.33 +
789	%	789.00 =
		57.68 %
	+	57.68 +
	✱	100.00 ✱

Applications

Invoicing

Decimal Selector @ +

Example: Date 9/6/87
Invoice #00125

48 Cases @ $1.23 per case = $ 59.04
54 Cases @ $4.32 per case = 233.28
33 Cases @ $5.22 per case = 172.26
$464.58

Less 12% Discount −55.75
Tax 6% +24.53
Shipping Charge +15.88
Return Credit − 7.39
$441.85

Enter	Depress	Print
	✳	0.00 ✳
9.6.87	# DATE	9 6 87
.00125	# DATE	#00125
48	×	48.00 ×
123	=+	1.23 = +
		59.04 ✳ ✳
54	×	54.00 ×
432	=+	4.32 = +
		233.28 ✳
33	×	33.00 ×
522	=+	5.22 = +
		172.26 ✳
	✳	464.58 ✳
	×	464.58 ×
12	%	12.00 %
		55.75 ✳
	−	408.83 % −
	×	408.83 ×
6	%	6.00 %
		24.53 ✳
	+	433.36 % +
	+	433.36 ✳ +
1588	+	15.88 +
739	−	7.39 −
	✳	441.85 ✳

Invoicing with Total Quantity

Decimal selector @ 2

Example: Date 9/6/87
Invoice #00126

38 cases @ $1.25 per case = $ 47.50
62 cases @ $4.38 per case = 271.56
41 cases @ $7.32 per case = 300.12
141 cases $619.18

Less 12% Discount − 74.30
Tax 6% + 32.69
Shipping Charge + 16.00
Return Credit − 3.29
$590.28

Enter	Depress	Print
	✳	0.00 ✳
	I ✳	0.00 I ✳
9.6.87	# DATE	9 6 87
.00126	# DATE	#00126
38	I +	38.00 I +
	×	38.00 ×
1.25	=+	1.25 = +
		47.50 ✳ ✳
62	I +	62.00 I +
	×	62.00 ×
4.38	=+	4.38 = +
		271.56 ✳
41	I +	41.00 I +
	×	41.00 ×
7.32	=+	7.32 = +
		300.12 ✳
	I ✳	141.00 I ✳
	✳	619.18 ✳
	×	619.18 ×
12	%	12.00 %
		74.30 ✳
	−	544.88 % −
	×	544.88 ×
6	%	6.00 %
		32.69 ✳
	+	577.57 % +
	+	577.57 ✳ +
16	+	16.00 +
3.29	−	3.29 −
	✳	590.28 ✳

Percent Change

Decimal selector @ 2

What is the amount of change and percent of change from 590,806 to 675,433?

Enter	Depress	Print
675433	÷	675,433.00 ÷
590806	%Δ	590,806.00 % C
	Amount of Change	84,627.00 Δ
	Percent of Change	14.32 % Δ

Percent Change with Constant First Factor

Decimal selector @ 0

Compare the production figures below to the 1987 production output of 15,371 units.

Year	Units
1984	12,480
1985	16,267
1986	13,785

Enter	Depress		Print
1987	#/DATE	# 1987	
15371	÷		15,371. ÷
1984	#/DATE	# 1984	
12480	%Δ		12,480. % C
			2,891. Δ
			23. % Δ
1985	#/DATE	# 1985	
16267	%Δ		16,267. % C
		−	896. Δ
		−	6. % Δ
1986	#/DATE	# 1986	
13785	%Δ		13,785. % C
			1,586. Δ
			12. % Δ

Applications

Gross Margin

What is the profit (Margin) and the Gross Margin of a product that sells for $133.33 and costs $100.00?

Decimal Selector @ 2

Enter	Depress	Print
133.33	×	133.33 ×
100	%Δ	100.00 % C
	Profit (Margin)	33.33 G M
	(Gross Margin)	25.00 % M

Gross Margin with Constant Selling Price

Based on a selling price of $2,000.00, what are the profit advantages of decreasing the current cost of $1,500.00 to $1,450.00? To 1,365.00? To 1,295.00?

Decimal Selector @ 2

Enter	Depress	Print
2000	×	2,000.00 ×
1500	%Δ	1,500.00 % C
	Profit (Margin)	500.00 G M
	(Gross Margin)	25.00 % M
1450	%Δ	1,450.00 % C
	Profit (Margin)	550.00 G M
	(Gross Margin)	27.50 % M
1365	%Δ	1,365.00 % C
	Profit (Margin)	635.00 G M
	(Gross Margin)	31.75 % M
1295	%Δ	1,295.00 % C
	Profit (Margin)	705.00 G M
	(Gross Margin)	35.25 % M

Markup

An item costs $100. A store selling the item uses a 25% gross margin. What is their profit on the item and what will the selling price be?

Decimal Selector @ 2

Enter	Depress	Print
100	×	100.00 ×
25	**Mu**	25.00 % M u
	(Profit)	33.33 M u
	(Selling Price)	133.33 ✱

Memory Operation with N Count

Decimal Selector @ +

D PD N @ N

Example:

$(2 \times 1.50) = 3.00$
$-(2 \times 2.50) = -5.00$
$+6.00$
-7.50
N Count = 4 -3.50

Enter	Depress		Print
	I ✱	000	
			0.00 I ✱
2	×		2.00 ×
150	**I +**		1.50 =
			3.00 I +
2	×		2.00 ×
250	**I −**		2.50 =
			5.00 I −
600	**I +**		6.00 I +
750	**I −**		7.50 I −
	I ✱	004	
		−	3.50 I ✱

Square Root

Find the square root of 144.

Decimal Selector @ 2

Enter	Depress	Print
144	÷	144.00 ÷
	=	144.00 √
		12.00 ✱

#/DATE Constant Storage

Store the factor 28 (ounces to grams conversion factor) in the #/DATE Register. Use this factor to convert 15 ounces to grams and 300 grams to ounces.

Decimal Selector @ 2

Enter	Depress		Print
28	**#/DATE**	#28	
15	×		15.00 ×
	#/DATE	#28	
	=		28.00 =
		Grams	420.00 ✱
300	÷		300.00 ÷
	#/DATE	#28	
	=		28.00 =
		Ounces	10.71 ✱

RV Reverse

Interchanges the factors in multiplication and division avoiding the need for reentry.

Decimal selector @ 0

Example: $\frac{55}{2+9} = 5$

Enter	Depress	Print
	✱	0. ✱
2	+	2. ✱ +
9	+	9. +
	✱	11. ✱
	÷	11. ÷
55	**RV**	55. R V
	=	11. =
		5. ✱

Applications

Rolling Comparison

Compare production figures from 1981 to 1987, calculating the change and percent of change from one year to the next.

Year	Units
1981	12,480
1982	16,267
1983	13,785
1984	15,371
1985	16,500
1986	17,250
1987	18,000

Decimal selector @ 0

Enter	Depress		Print
1982	**#/DATE**	#1982	
16267	÷		16,267. ÷
1981	**#/DATE**	#1981	
12480	**%Δ**		12,480. %C
			3,787. Δ
			30. %Δ
1983	**#/DATE**	#1983	
13785	**RV**		13,785. RV
	%Δ		16,267. %C
		−	2,482. Δ
		−	15. %Δ
1984	**#/DATE**	#1984	
15371	**RV**		15,371. RV
	%Δ		13,785. %C
			1,586. Δ
			12. %Δ
1985	**#/DATE**	#1985	
16500	**RV**		16,500. RV
	%Δ		15,371. %C
			1,129. Δ
			7. %Δ
1986	**#/DATE**	#1986	
17250	**RV**		17,250. RV
	%Δ		16,500. %C
			750. Δ
			5. %Δ
1987	**#/DATE**	#1987	
18000	**RV**		18,000. RV
	%Δ		17,250. %C
			750. Δ
			4. %Δ

Markup with Constant Gross Margin

(Constant gross margin is stored in Memory.)
What is the selling price of items that cost $23.50, $45.23, $10.79 and $4.50 based on a gross margin of 42%?

Decimal selector @ 2

Enter	Depress	Print
	I∗	0.00 I ∗
42	**I+**	42.00 I +
23.50	×	23.50 ×
	Mu	42.00 %$^{M}_{u}$
	(Profit)	17.02 $^{M}_{u}$
	(Selling Price)	40.52 ∗
45.23	×	45.23 ×
	Mu	42.00 %$^{M}_{u}$
	(Profit)	32.75 $^{M}_{u}$
	(Selling Price)	77.98 ∗
10.79	×	10.79 ×
	Mu	42.00 %$^{M}_{u}$
	(Profit)	7.81 $^{M}_{u}$
	(Selling Price)	18.60 ∗
4.50	×	4.50 ×
	Mu	42.00 %$^{M}_{u}$
	(Profit)	3.26 $^{M}_{u}$
	(Selling Price)	7.76 ∗
	I∗	42.00 I ∗

Select Code One Σ×

Decimal selector @ 2

Example: Summation of first factors to Memory

$(2 \times 3.00) = 6.00$
$(4 \div 2.00) = -2.00$
4.00
$(\overline{3} \div 2.00) = 1.50$
$\Sigma \times = \overline{9}$

Enter	Depress	Print
	SET UP	
(Σ× Switch ON)	**1**	.....1.....
	∗	0.00 ∗
	I∗	0.00 I ∗
2	×	2.00 ×
3	=+	3.00 = +
		6.00 ∗ ∗
4	÷	4.00 ÷
2	=−	2.00 = −
		2.00 ∗
3	=	3.00 =
		1.50 ∗
	∗	4.00 ∗
	I∗	9.00 I ∗
	SET UP	
(Σ× Switch Off)	**1**	. 1..

Select Code Two ΣT

Decimal selector @ 2, D PD N @ N, ◇■GT @ GT

Example: Summation of ⊟ and ⊠ Results to Accumulator and GT with N Count

12 × 5 =	60.00	
45 × 9 =	405.00	
78 ÷ 2 =	39.00	
N Count = 3	504.00	504.00
78 × 5% =	3.90	
78 × 4% =	3.12	
13 ÷ 90% =	14.44	
N Count = 3	21.46	+21.46
GT N Count = 6		525.46

Enter	Depress	Print
	✱	000
		0.00 ✱
	✱	000
		0.00 G ✱
	SET UP	
(ΣT Switch ON)	**2**	.....2.....
12	×	12.00 ×
5	=	5.00 =
		60.00 ✱✱
45	×	45.00 ×
9	=	9.00 =
		405.00 ✱
78	÷	78.00 ÷
2	=	2.00 =
		39.00 ✱
	✱	003
		504.00 ✱
78	×	78.00 ×
5	%	5.00 %
		3.90 ✱✱
4	%	4.00 %
		3.12 ✱
13	÷	13.00 ÷
90	%	90.00 =
		14.44 %
	✱	003
		21.46 ✱
	✱	006
		525.46 G ✱
	SET UP	
(ΣT Switch OFF)	**2**	..2..

Σ T Count Correction

Incorrect amount summed to the accumulator ⊟

Decimal Selector @ +

D PD N @ N

Example: 15 × ~~0.04~~ = ~~0.60~~ 0.40 = 6.00
78 ÷ ~~9.00~~ = ~~8.67~~ 6.00 = 13.00
19.00

Enter	Depress	Print
	✱	000
		0.00 ✱
	SET UP	
(ΣT Switch ON)	**2**	.....2.....
15	×	15.00 ×
4	=	0.04 = (Wrong Entry)
		0.60 ✱✱
	−	0.60 − (Correction)
.4	=	0.40 =
		6.00 ✱✱ (Valid Entry)
78	÷	78.00 ÷
9.	=	9.00 = (Wrong Entry)
		8.67 ✱
	−	8.67 −
78	÷	78.00 ÷
6.	=	6.00 = (Valid Entry)
		13.00 ✱
	✱	002
		19.00 ✱
	SET UP	
(ΣT Switch OFF)	**2**	..2..

Select Code 3 Running Subtotal

Decimal Selector @ +

D PD N @ N

Example:	Entry	Balance	
	25.76	25.76	
	+9.48	35.24	
	+9.48	44.72	N Count = 6
	−2.71	42.01	
	−2.71	39.30	
	+8.85	48.15	
	48.15		

Enter	Depress	Print
	SET UP	
(Running Subtotal ON)	**3**	.....3.....
	✱	000
		0.00 ✱
2576	+	25.76 ✱+
		25.76 ◇
948	+	9.48 +
		35.24 ◇
	+	9.48 +
		44.72 ◇
271	−	2.71 −
		42.01 ◇
	−	2.71 −
		39.30 ◇
885	+	8.85 +
		48.15 ◇
	✱	006
		48.15 ✱
	SET UP	
(Running Subtotal OFF)	**3**	..3..

Applications

Select Code 4 Two-Column Addition

Two-Column Addition and Subtraction with N Count

Decimal Selector @ +

D PD N @ N

Example:	**Column 1**	**Column 2**
	1.23	1.23
	−4.56	−4.56
	+7.89	+7.89
	+1.25	+1.59
	+9.87	+5.89
	15.68	+7.45
	N Count = 5	19.49
		N Count = 6

Enter	**Depress**	**Print**
	SET UP	
(TC Switch ON)	**4**	.....4.....
	✱	000
		0.00 ✱
	✱	000
		0.00 G ✱
123	+	1.23 ✱ +
	=+	1.23 G +
456	−	4.56 −
	=−	4.56 G −
789	+	7.89 +
	=+	7.89 G +
159	+	1.59 +
125	=+	1.25 G +
589	+	5.89 +
987	=+	9.87 G +
745	+	7.45 +
	✱	006
		19.49 ✱
	✱	005
		15.68 G ✱
	SET UP	
(TC Switch OFF)	**4**	.4..

Set Up Code 0: Price/Price

Sets calculator to Price/Price mode

Decimal Selector @ +

Example:

2.50 × 6.55 = 16.38

17.65 ÷ 19.00 = 0.93

Enter	**Depress**	**Print**
	SET UP	
	0	.....0.....
	✱	0.00 ✱
250	×	2.50 ×
655	=	6.55 =
		16.38 ✱
1765	÷	17.65 ÷
1900	=	19.00 =
		0.93 ✱
	SET UP	
	0	..0..

Set Up Code 00: Units/Units

Sets calculator to Units/Units mode

Decimal Selector @ +

Example:

250 × 655 = 163,750.00

1765 ÷ 1900 = 0.93

Enter	**Depress**	**Print**
	SET UP	
	00	....00.....
	✱	0.00 ✱
250	×	250.00 ×
655	=	655.00 =
		163,750.00 ✱
1765	÷	1,765.00 ÷
1900	=	1,900.00 =
		0.93 ✱
	SET UP	
	00	.00..

Set Up Code 0 and 00: Price/Units

Sets calculator to Price/Units mode

Decimal Selector @ +

Example:

2.50 × 655 = 1637.50

17.65 ÷ 19.00 = 0.01

Enter	**Depress**	**Print**
	SET UP	
	0	.....0.....
	SET UP	
	00	....00.....
	✱	0.00 ✱
250	×	2.50 ×
655	=	655.00 =
		1,637.50 ✱
1765	÷	17.65 ÷
1900	=	1,900.00 =
		0.01 ✱
	SET UP	
	0	..0.
	SET UP	
	00	.00.

Set Up Code 5: Truncate

Sets Rounding option to Truncation.

Decimal selector @ F

Enter	**Depress**	**Print**
	SET UP	
	5	.....5.....
6	÷	6. ÷
	=	6.√
		2.44948974278 ✱
	SET UP	
	5	..5..

Set Up Code 6: Round Up

Sets Rounding option to Round Up.

Decimal selector @ F

Enter	Depress	Print
	SET UP	
	6	.....6.....
6	÷	6. ÷
	=	6.√
		2.44948974279 *
	SET UP	
	6	.6..

Set Up Code 7: Set Identifier

Sets numeric Identifier for each entry.

Decimal Selector @ +

Example: What is the total for invoices 0123 through 0127. Show invoice number, invoice amount, and produce totals.

Invoice #	Amount
0123	1.26
0124	16.73
0125	11.62
0126	- 1.57
0127	5.95
	33.99

Enter	Depress		Print
	SET UP		
	7		.....7.....
.0123	#/DATE	#0123	
126	+	#0123	
			1.26 *+
1673	+	#0124	
			16.73 +
1126	+	#0125	
			11.26 +
	−	#0125	
			11.26 −
1162	+	#0125	
			11.62 +
157	−	#0126	
			1.57 −
595	+	#0127	
			5.95 +
	*		33.99 *
	SET UP		
	7		..7..

Set Up Code 8: ΣM, Summation to Memory One

Similar to Set Up Code 2, but the results are summed to Memory One instead of the Accumulator or the GT.

Decimal Selector @ 2

Example: Summation of = and % results into Memory One, with N-Count.

12 × 5 = 60.00
45 × 9 = 405.00
78 ÷ 2 = 39.00
N-Count = 3 504.00

78 × 5% = 3.90
78 × 4% = 3.12
13 ÷ 90% = 14.44
N-Count = 3 21.46

Enter	Depress		Print
	SET UP		
	8		.....8.....
	*	000	
			0.00 *
	I*	000	
			0.00 I *
12	×		12.00 ×
5	=		5.00 =
			60.00 * *
45	×		45.00 ×
9	=		9.00 =
			405.00 *
78	÷		78.00 ÷
2	=		2.00 =
			39.00 *
	I*	003	
			504.00 I *
78	×		78.00 ×
5	%		5.00 %
			3.90 * *
4	%		4.00 %
			3.12 *
13	÷		13.00 ÷
90	%		90.00 =
			14.44 %
	I*	003	
			21.46 I *
	SET UP		
	8		..8..

Set Up Code CLEAR, Set Up Code 9

Set Up followed by depression of C/CE key will clear all code settings. Set Up followed by Code 9 will recall all Code settings to printer.

Example: Perform the following operations:
Clear all Set-Up Codes.
Turn Set-Up 1 ON
Turn Set-Up Code 2 ON
Recall all Set-Up Codes

Comment	Depress	Print
	SET UP	
Set all codes to OFF	C/CE	 C
	SET UP	
Code 1 ON	1	.....1.....
	SET UP	
Code 2 ON	2	.....2.....
	SET UP	
Recall all code settings	9	.....
Code 1 is ON		.....1.....
Code 2 is ON		.....2.....
Code 3 is OFF		.3.
Code 4 is OFF		..4..
Code 5 is OFF		5..
Code 6 is OFF		..6
Code 7 is OFF		..7..
Code 8 is OFF		.8..
Code 9 is OFF		9..
Code 0 is OFF		.0.
Code 00 is OFF		.00..
End of code settings		.....

Applications

Invoicing with Accumulation of Quantity

Decimal Selector @ +

Example: Date 9/6/87
Invoice #00126

48 Cases @ 1.23 per case = $ 59.04
54 Cases @ 4.32 per case = 233.28
33 Cases @ 5.22 per case = 172.26
Total 135 Cases Shipped $464.58

Less 12% Discount − 55.75
Tax 6% + 24.53
Shipping Charge + 15.88
Return Credit − 7.39
$441.85

Enter	Depress	Print
	SET UP	
(Σ X Switch "ON") **1**		.....1.....
	✱	0.00 ✱
	I ✱	0.00 I ✱
9.6.87	**#/DATE**	9 6 87
.00126	**#/DATE**	#00126
48	×	48.00 ×
123	=+	1.23 = +
		59.04 ✱ ✱
54	×	54.00 ×
432	=+	4.32 = +
		233.28 ✱
33	×	33.00 ×
522	=+	5.22 = +
		172.26 ✱
	I ✱	135.00 I ✱
	✱	464.58 ✱
	SET UP	
(Σ X Switch "OFF")**1**		. 1 .
	×	464.58 ×
12	%	12.00 %
		55.75 ✱
	−	408.83 % −
	×	408.83 ×
6	%	6.00 %
		24.53 ✱
	+	433.36 % +
	+	433.36 ✱ +
1588	+	15.88 +
739	−	7.39 −
	✱	441.85 ✱

Standard Deviation

Decimal selector @ F

D PD N @ N

Note: The following formulas are used:

Standard Deviation

$$\sigma = \sqrt{\frac{\Sigma x^2 - \frac{(\Sigma x)^2}{N}}{N-1}}$$

Mean or $\bar{x} = \frac{\Sigma x}{N}$

Sample Problem;
Find the Mean ($\bar{x}$) and Standard Deviation (σ) of the following values:
106 122 118 109

Enter	Depress	Print
	I ✱	000 0. I ✱
	✱	000 0. ✱
106	**I** +	106. I +
	×	106. ×
	=+	106. = +
		11,236. ✱ ✱
122	**I** +	122. I +
	×	122. ×
	=+	122. = +
		14,884. ✱
118	**I** +	118. I +
	×	118. ×
	=+	118. = +
		13,924. ✱
109	**I** +	109. I +
	×	109. ×
	=+	109. = +
		11,881. ✱
	I ◇	004 (N)
		455. I ◇
	=	113.75 =M ($\bar{x}$ Mean)
D PD N @ PD		
	I ✱	
		455. I ✱
	×	455. ×
	×	455. $\boxed{\bar{x}}$
	÷	207,025. ÷
4	=−	4. = − (N)
		51,756.25 ✱
	✱	168.75 ✱
	÷	168.75 ÷
3	÷	3. $\boxed{\mp}$ (N-1)
	=	56.25 √
		7.5 ✱ (σ Standard Deviation)

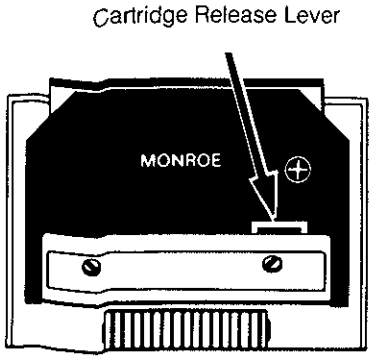
General Information

Installation of MARC 2 Cartridge

Removal

1. Tear off excess paper and remove cover as indicated for installation of paper tape.
2. Pull cartridge release lever forward until cartridge pops up. (Fig. A)
3. Grasp cartridge and pull up.

Fig. A

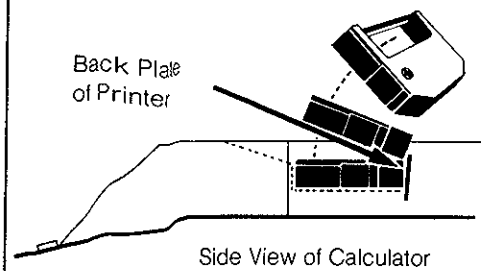


Front of Calculator

Insertion

1. Place back side of cartridge against back plate of printer, making sure that the ribbon is in front of the paper. (Fig. B)
2. Apply a steady downward force to the front of the cartridge until you feel and hear it snap into position.
3. Replace the top cover as indicated for installing paper tape.

Fig. B

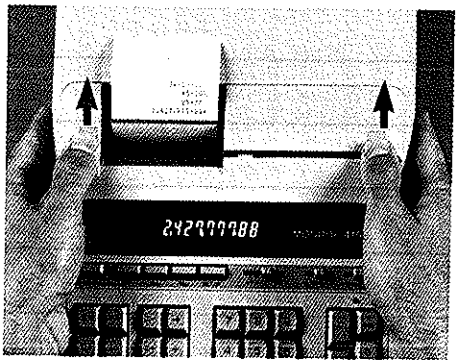


Side View of Calculator

Installing Paper Tape

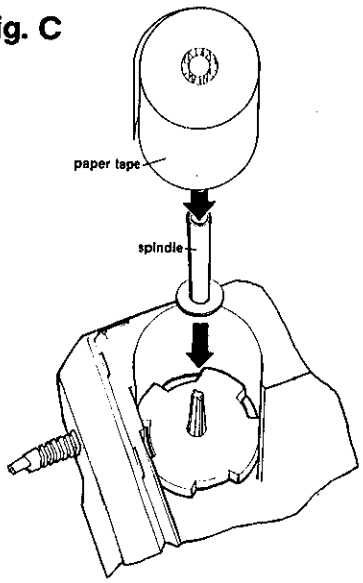
To ensure ease of installation, read the instructions completely before installing a new paper roll. Then follow the instructions step-by-step.

1. Tear off excess paper at the tear-off knife.
2. To remove cover, place thumbs on serrated surfaces located on each side of the cover. Pressing down with your thumbs, slide the top cover toward the back of the calculator. Once the cover has been pushed back approximately ½", lift the cover off.

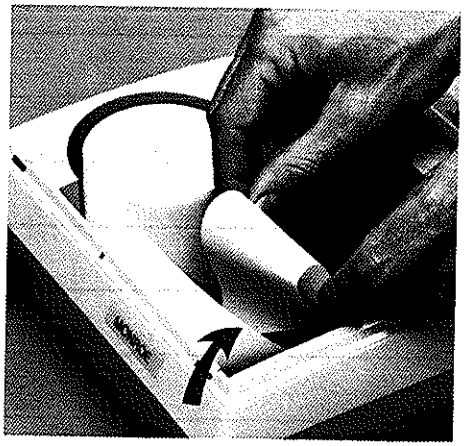


3. Lift out old paper roll pulling any remaining paper in the calculator from the printing mechanism. Be sure that the black plastic spindle remains in the calculator. (Note: For 4130/40 users, this spindle will rest on top of a black plastic disk. If this disk should be removed, for whatever reason, simply replace it with the smooth side up. Turn the disk until it firmly seated.) (Fig. C)
4. Place a new roll of paper on black spindle and lift up the angled paper guide.

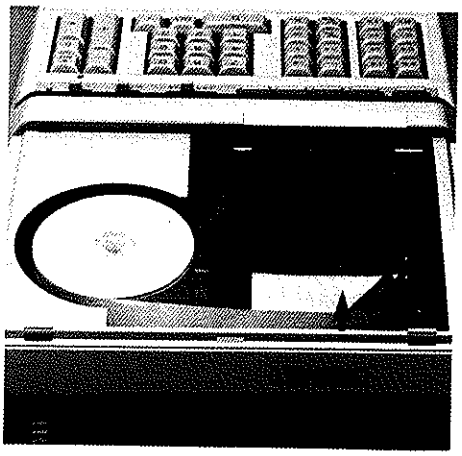
Fig. C



5. Bring leading edge of new paper roll vertically along the back of the calculator and under the angled paper guide. Place the angled paper guide into position. Insert the leading edge of the new paper roll into the printer just under the curved guide until it meets resistance. (approximately 1 to 1.5 inches)



6. With the paper in position as shown below, depress the Paper Advance button ▲ until the paper extends several inches beyond the printer mechanism.



7. Feed the paper through the opening of the tear-off knife and lay the top cover flat on the calculator leaving a ½" overhang at the back of the calculator. Placing your hand at the back of the top cover, apply a firm downward and forward pressure, slide the top cover forward until it snaps into position.

ATTENTION

DO NOT DISCARD the plastic spindle when removing old paper roll core.

Notes

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