

MM



User Manual

8130X / 8145X



Green Plea

Thank you for purchasing the Monroe **8130X/8145X**. Monroe calculators are well known for their durability and longevity. We expect you'll be enjoying your new **8130X/8145X** for years to come, as the "throwaway" calculator philosophy has never found traction here at Monroe.

Please dispose of the old calculator this **8130X/8145X** replaces in a responsible manner. Then when it comes time to say goodbye to this one, please do the same. Also, please recycle the gift box and other packing material.

The bag protecting your new Monroe **8130X/8145X** is reusable.

Disposal options to consider:

- Donate your old calculator to a deserving organization.
- Take your old calculator to an appropriate disposal and recycling center.
- Or, upon receipt of your new calculator, pack the old calculator in the new calculator box and return it to Monroe. We'll handle the proper disposal.

Contacting Monroe

Monroe Systems for Business, Inc.

Phone: 888-666-7631

Fax: 877-666-7635

Email: csr@monroe-systems.com

Web Site: www.monroe-systems.com

Record Your Serial Number

Please record the Serial Number of your new calculator and the date received in the space provided below. Retain this instruction booklet for your records and future reference.

8130X/8145X

Model

Serial Number

Installation Date

Registering Your Warranty

The **8130X/8145X** is backed by a comprehensive 6 month Limited Warranty that covers parts and labor. The same comprehensive protection can be extended with a Monroe Maintenance Agreement, renewable annually. To register the warranty and/or learn more about the Monroe Maintenance Agreement.

Call: 888-666-7631

Email: csr@monroe-systems.com

Contact: www.monroe-systems.com

(Please provide model number and serial number.)

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 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 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 an experienced radio/TV technician for help.

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

About the 8130X/8145X

More than a century has passed since Jay R. Monroe introduced the first commercial calculator to the business community. At the time his vision was “to manufacture a machine to turn out routine figures; one that would add and subtract, multiply and divide with equal ease and would produce the answers almost as fast as they can be written down; that would be simple and practically foolproof to operate, with all factors used visible on the machine so the operator would know the answers were correct.” “Such a machine” thought Monroe, “would greatly increase the efficiency of the office worker and would be a tremendous boon to the executive”. While it would be hard to describe the first Monroe as “fast” by today’s standards, it was certainly a huge advance, as all computations were performed manually at the time.

The Monroe **8130X/8145X** is the beneficiary of that century of experience working directly with America’s premier businesses. Working directly means a Monroe sales representative has been in virtually every business. That representative has observed all figure-work routinely performed in that office and provided feedback to Monroe’s planning department for improvements in future products. Those improvements have always set the Monroe calculator apart from all others, as no other

calculator company works directly with end users. This first hand interaction with business has resulted in unique, ground breaking features to simplify the work routinely encountered in business.

About Monroe

The rich heritage of Monroe spans more than a century. Established in 1912 by Jay R. Monroe, the company introduced the first commercially available calculator. While much has changed in the intervening years the founding philosophy of providing superior products combined with outstanding customer service remains the cornerstone of Monroe's success.

We recognize that customers are the only reason we exist. It is not surprising therefore that today's Monroe places major emphasis on continuously improving the value we deliver to our customers. We count our customers by the thousands, yet treat each customer as though they were our only customer. We measure our value in the longevity of our relationships, many of which span decades.

With a string of firsts unparalleled in the industry, Monroe is clearly the definitive calculator product line. From the "first" commercial calculator to today's unprecedented models, Monroe calculators have always set the standard.

If you are looking for a company whose business ethic embraces quality of product, quality of service, quality of people and dedication to customer satisfaction, you need look no further than Monroe.

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Getting Started

REMOVE THE RIBBON CUSHION!

To protect the print mechanism and secure the ribbon in position during shipment a foam pad lies between the ribbon and the printer door.

REMOVE THIS FOAM PAD BEFORE OPERATING!

Failure to remove this pad will result in misoperation and possible damage to the calculator.

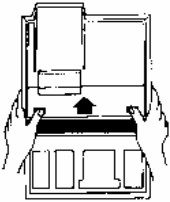
WARNING
HAZARD OF ELECTRICAL SHOCK.
NO USER SERVICEABLE PARTS ARE CONTAINED INSIDE. ALL SERVICING MUST BE DONE BY A QUALIFIED SERVICE PERSON.

The socket-outlet shall be installed near the equipment and easily accessible.

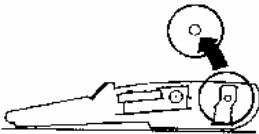
Changing the Paper Tape

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 1", lift the cover off.



3. Lift up and remove old paper roll from the paper roll holders. Tear off paper between the used paper roll and the printer. Pull remaining paper through the printer by continuously lifting the leading edge (nearest display).

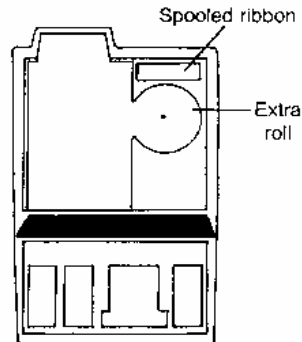
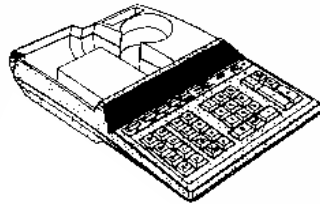


4. With the leading edge of the new paper roll, feeding from the bottom, place the new roll into position between the two flexible paper roll holders.



5. Feed the paper into the rear of the printer mechanism until it meets resistance (approximately 1 to 1.5 inches). Depress the paper advance button until the paper extends several inches beyond the printer mechanism.

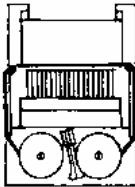
6. Feed the paper through the opening of the tear-off knife and lay top cover flat on the calculator leaving a 1" overhang at the back of the top cover. Apply a firm downward and forward pressure, slide the top cover forward until it snaps into position.
7. Tear off any excess paper.



Changing the Ribbon

Changing the Ribbon

Use the Monroe P65M Ribbon



1. Remove excess paper tape.
2. Remove the printer cover. (Note how ribbon feeds from outside of spools, around guides and between print wheels and platen, black band up.)
3. Lift out spool that is not engaged by lever; then move lever aside and lift out other spool.
4. Holding new spools over spindles with black band up and exposed portion of ribbon on side nearest print wheels, place one spool on spindle not engaged by lever. Rotate spools to be sure its pins engage in spindle gear.
5. Thread ribbon around guides and between print wheels and platen.
6. Install other spool and rotate to engage spindle gear and also to take up slack in ribbon.
7. Replace printer cover.

Proper Care & Maintenance

1. Avoid locating and using the calculator in direct sunlight. Areas of high humidity, rapid temperature fluctuations and dirt should also be avoided.
2. Use a dry cloth to clean the calculator case parts. Do not use water, detergents, or solvents.
3. Do not place objects on the calculator. Avoid performing office functions, such as stapling, above the unit.
4. To preserve the brightness of the display, turn the calculator off when not in use. Use the dust cover to keep your calculator clean.
5. Prior to unplugging the calculator make sure the calculator has been turned off.
6. Repairs should be performed by trained technicians. There are no user serviceable parts in this unit. **DO NOT ATTEMPT TO DISASSEMBLE THIS UNIT IN ANY WAY.**
7. **THIS CALCULATOR SHOULD NOT BE USED IN OR NEAR WATER.**
8. The socket-outlet shall be installed near the equipment and shall be easily accessible.
9. This equipment is not suitable for use in locations where children are likely to be present.

Monroe 8130X / 8145X Overview

KEYBOARD DIAGRAM

- | | | | |
|----|---------------------------------|----|---------------------|
| 1 | Paper Advance Key | 27 | Adding Machine Lamp |
| 2 | Decimal Selector | 28 | Grand Total Lamp |
| 3 | Display, Print/Display, n Count | 29 | Memory Two Plus |
| 4 | Subtotal/Grand Total Switch | 30 | Memory Two Minus |
| 5 | Define Key | 31 | Memory Two Subtotal |
| 6 | Tax Key | 32 | Memory Two Total |
| 7 | % Change | | |
| 8 | Markup | | |
| 9 | Memory One Total Key | | |
| 10 | Memory One Subtotal Key | | |
| 11 | Memory One Minus Key | | |
| 12 | Memory One Plus Key | | |
| 13 | Equals Minus Key | | |
| 14 | Equals Plus Key | | |
| 15 | Percent Key | | |
| 16 | Clear/Clear Entry Key | | |
| 17 | Backspace Key | | |
| 18 | Divide Key | | |
| 19 | Equals Key | | |
| 20 | Times Key | | |
| 21 | Numeric Keypad | | |
| 22 | Minus Key | | |
| 23 | Plus Key | | |
| 24 | Reference Number Key | | |
| 25 | Subtotal Key | | |
| 26 | Total Key | | |

Monroe 8130X

1 adv

2 + F 0 1 2 3 4 6 21

3 d pd n

4 ◊ • gt 27 ○ 28

5 define	| * 9	13 = -	→ 17	7	8	9	22 -	ref # 24
6 tax	| ◊ 10	14 = +	÷ 18	4	5	6	23 +	◊ 25
7 %Δ	| - 11	15 %	= 19	1	2	3	26 *	
8 mu	| + 12	16 C/CE	× 20	0	00	.		

Monroe 8145X

1 adv

6 tax

8 mu

7 %Δ

5 define

2 + F 0 1 2 3 4 6 21

3 d pd n

4 ◊ • gt 27 ○ 28

32 || *	| * 9	13 = -	→ 17	7	8	9	22 -	ref # 24
31 || ◊	| ◊ 10	14 = +	÷ 18	4	5	6	23 +	◊ 25
30 || -	| - 11	15 %	= 19	1	2	3	26 *	
29 || +	| + 12	16 C/CE	× 20	0	00	.		

Major Key Groupings

ADDING MACHINE - A

The keys in this grouping are referred to as the Adding Machine Controls. This portion of the **8130X/8145X** will be referred to as the Adding Machine, or Accumulator. Accumulation takes place in the adding machine through entry and depression of the plus or minus keys. The \diamond key recalls and prints/displays the contents of the adding machine, but does not clear the adding machine. The * key recalls and prints/displays the contents of the adding machine and clears it's contents.

*** (TOTAL KEY) - B**

THIS IS THE ONLY KEY THAT CAN CLEAR THE CONTENTS OF THE ADDING MACHINE/ACCUMULATOR.

NUMERIC KEYPAD - C

Includes 0 – 9, 00 and decimal point keys.

CALCULATOR CONTROLS - D

The keys in this grouping are referred to as the Calculator Controls. This side of the **8130X/8145X** is the calculator portion.

NOTE: THE CALCULATOR AND ADDING MACHINE ARE COMPLETELY SEPARATE AND INDEPENDENT.

C/CE - E

Clears a live entry or pending calculation.

NOTE: THE C/CE KEY DOES NOT CLEAR THE ADDING MACHINE/ACCUMULATOR.

ACCUMULATOR KEYS - F

The =+ and =- keys are accumulator keys. During normal operation they complete a calculation and store the results of that calculation in the adding machine. The adding machine (A) and accumulation keys (D) combine to create the Accumulator.

INDEPENDENT MEMORY I - G

The keys in this grouping comprise the Independent Memory.

INDEPENDENT MEMORY II - H

The keys in this grouping comprise the second Independent Memory. (8145 Only)

DEFINE KEY - I

Enables optional functionality.

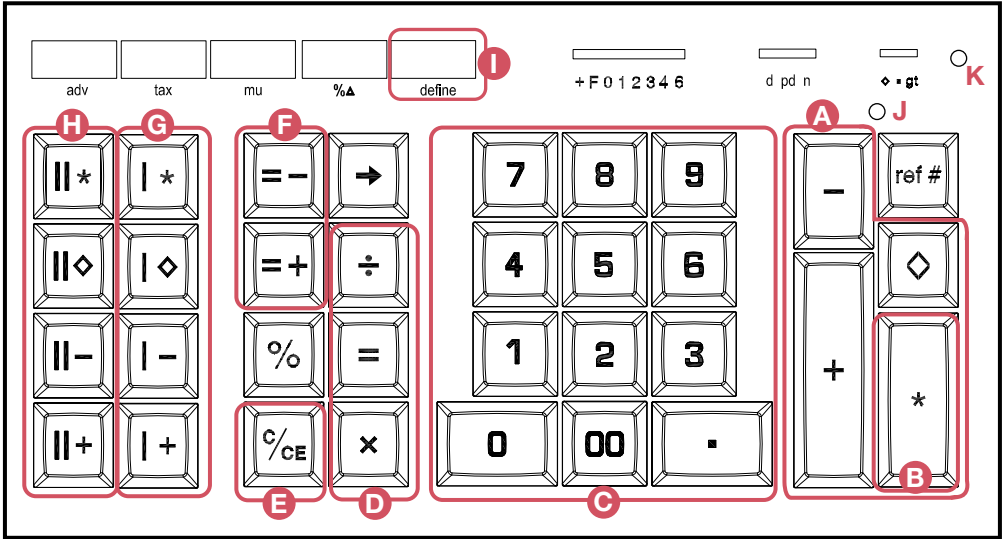
ADDING MACHINE LAMP - J

Illuminates when an amount is in the Adding Machine.

GRAND TOTAL LAMP - K

Illuminates when an amount is in the Grand Total Memory

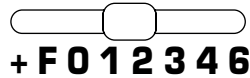
Monroe 8145X Major Key Groupings Diagram



Slide Switches

DECIMAL SELECTOR SWITCH

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 Floating (F) decimal setting, results are expressed at 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.



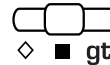
D/PD/N SELECTOR SWITCH

Allows the 8130X/8145X to be operated in Display only mode (d position), Print and Display mode (pd), Print and Display mode with n count (n).



◇/■/GT SELECTOR SWITCH

This switch allows three choices. The ◇ position stands for running subtotal in the display. The ■ position is the neutral/off position, and the gt position stands for “group and grand total”.



Factory Default Settings

The **8130X/8145X** has a number of optional features and functions that may be enabled as illustrated in the next section. Certain Settings are referred to as “default settings”, i.e. when you receive the **8130X/8145X**, it comes with these settings from the factory.

US PUNCTUATION

Numbers are formatted with commas separating thousands and a decimal point separating dollars and cents, e.g. 1,234.15.

UNITS/PRICE MODE

If the decimal is at + (add mode), multiplying 12 x 5 for example will be accepted as whole number times dollars & cents (12 x .05).

ROUNDING

5/4 rounding is assumed.

Definable Functions

The **8130X/8145X** contains a number of user selectable internal options. These settings can simplify routine calculations, save unnecessary steps and permit the user to adapt the 8130X/8145X to their specific tasks. These internal functions are activated by pressing the Define Key twice followed by the numeric or function key shown below.

define define 1	ΣX	Sum of 1st factor (x or \div)
define define 2	ΣT	Sum = and % results
define define 3	Running \diamond Print	Print \diamond after entry
define define 4	TC	Two Column Addition
define define 5	Truncate	Rounding Disabled
define define 6	Round Up	Round up to decimal point.
define define 7	Set Identifier	Auto incrementing identification numbers
define define 8	ΣM	Sum =, %
define define 9	Print Defined Functions	Print current enabled functions
define define 0	Price/Price	1st/2nd entries - dollars/cents
define define 00	Units/Units	1st entry whole number, 2nd entry whole number

define define 0 00

Price/Units 1st entry dollar/cents, 2nd entry whole number

define define +

Variable Add Mode Preset automatic decimal place entries

define define -

Nickel Rounding Round to the nearest Nickel

define define adv

Paper Saver Mode Eliminates extra spacing after totals

define define C/CE

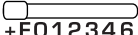


Clear All Defined Functions Reset to default settings

Basic Operations

When the **8130X/8145X** On/Off switch is moved to the On position, the audit trail **C*** will print.





Addition and Subtraction	20	Chain Multiplication and Division	32
Repeat Addition and Subtraction.	21	Using the C/CE Key	33
Addition and Subtraction with N Count	22	Percentages	34
Addition and Subtraction with Intelligent N Count and Automatic Average	23	Percent Increase.	35
Group and Grand Total.	24	Percentage Decrease	36
Group and Grand Total with N Count	25	Accumulative Results, =+ and=-	37
Printing a Reference number or Date.	26	Independent Memory	38
Backspace, Error Correction	27	Square Root	39
Multiplication and Division	28	Storing a Tax Rate	40
Constant Multiplication.	29	Computing Tax	41
Constant Division	30	Discount on Invoice	42
Calculator Mode Correction.	31	Percentage Change % Δ	43
		Markup mu	44

Addition & Subtraction

SWITCH SETTINGS   

EXAMPLE

$$2.77 + 14.98 - 3 = 14.75$$

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
277		2.77C+	When the Decimal Selector is in the + position (add mode) there is no need to depress the decimal point key when adding dollars and cents.
1498		14.98 +	
3.		3.00 -	The Decimal Point Key may be pressed during any entry. Doing so overrides add mode entry, placing the decimal point where needed.
		14.75 *	

The first entry into a clear accumulator prints with a unique audit trail symbol; C+ if positive, C- if negative and C* if completed by =+ or =-.

Repeat Addition & Subtraction






SWITCH SETTINGS 



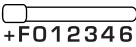




EXAMPLE

$2.77 + 14.98 + 14.98 - 3 = 29.73$





ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
277		2.77C+	To repeat an entry, simply press either + or - again for the entry to be repeated.
1498		14.98 +	
		14.98 +	
3.		3.00 -	
		29.73 *	

Addition & Subtraction With N Count

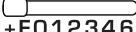


SWITCH SETTINGS   

EXAMPLE

$2.77 + 14.98 - 3 = 14.75$







ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
277		2.77C+	When the d/pd/n switch is in the n position, the entries are counted. The number of entries prints in red on the left side of the tape when ◊ or * is pressed.
1498		14.98 +	
3.		3.00 -	
	 003		
		14.75 *	

Addition & Subtraction with Intelligent N Count & Automatic Average

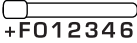


SWITCH SETTINGS   

EXAMPLE

$2.77 - 2.77 + 14.98 - 3.00 = 11.98$ - AVERAGE = 5.99











ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
277		2.77C+	When the d/pd/n switch is in the n position, intelligent n count and automatic averaging are enabled. Intelligent n count simply means, if a number is entered and the plus
		2.77 -	
1498		14.98C+	key pressed, an immediate depression of minus assumes the entry was made in mistake and is being corrected.
3.		3.00 -	
		002	Therefore the n count will not reflect the correction.
		11.98 *	A depression of the = key following a depression of the \diamond or * key when n count is on will automatically calculate and print the average of the entries.
		5.99A	

Group & Grand Total

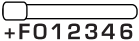


SWITCH SETTINGS   

EXAMPLE

$$(2.77 - 2.77 + 14.98 - 3.00) + (5.25 + 6.35 + 8.00) = 31.58$$












ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
277		2.77C+	When the ◊ ■ gt switch is in the gt (grand total) position, any entry made to the adding machine is repeated in the grand total memory. The first depression of the * key recalls and prints the sum in the adding machine, depressing the * key again immediately thereafter, prints the sum in the grand total memory.
		2.77 -	
1498		14.98C+	
3.		3.00 -	
		11.98 *	
525		5.25C+	
635		6.35 +	
8.		8.00 +	
		19.60 *	
		31.58G*	

Group & Grand Total with N Count & Automatic Average




SWITCH SETTINGS   

EXAMPLE

$$(2.77 - 2.77 + 14.98 - 3.00) + (5.25 + 6.35 + 8.00) = 31.58 - \text{AVERAGE} = 6.32$$



ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
277		2.77C+	The number of items in each column is counted as well as the total number of items in the grand total memory.
		2.77 -	
1498		14.98C+	A depression of the = key following a depression of the \diamond or * key when n count is on will automatically calculate and print the average of the entries.
3.		3.00 -	
	 002		
		11.98 *	
525		5.25C+	
635		6.35 +	
8.		8.00 +	
	 003		
		19.60 *	
	 005		
		31.58G*	
		6.32A	

Printing a Date or Reference Number

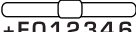


SWITCH SETTINGS   

EXAMPLE

REF # 15568 OR DATE 4/25/2012


ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
15568	 15568		When entering a reference number, pressing the decimal point key will create a space between numbers. All reference numbers print red on the left side of the tape.
4.25.2012	 4 25 2012		
			These reference numbers do not have any affect on summations or calculations, they are merely reference numbers.

Back Space Key, Correcting Entry Errors

SWITCH SETTINGS   

EXAMPLE

125689 ENTERED RATHER THAN 125687

ENTER	DEPRESS	DISPLAY	OPERATIONAL NOTES
125689		125,689	The Back Space Key is used to correct a "live entry". A live entry is one which has just been entered, exists in the display, and where no function (completion key) has been pressed. Pressing the Back Space Key will back out one digit at a time from the displayed amount. Enter the corrected figure and proceed.
		12,568	
7		125,687	

Multiplication & Division





SWITCH SETTINGS  +F012346

 d pd n

 ◊ ■ gt

EXAMPLE

$10 \times 5 = 50$ $25 \div 6 = 4.17$

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
10		10.00 x	
5		5.00 =	
		50.00 *	
25		25.00 ÷	
6		6.00 =	
		4.17 *	

Constant Multiplication




SWITCH SETTINGS  +F012346

 d pd n

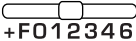


 \diamond ■ gt

EXAMPLE

10 X 5 = 50, THEN 10 X 6 = 60




ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
10		10.00 x	In multiplication, the first entry is automatically considered a constant. When multiplying one number by several others, enter the constant first, then the others followed by =.
5		50.00 *	
6		60.00 *	
			In a chain or sequential calculation, the intermediate result becomes the constant.

Constant Division




SWITCH SETTINGS   

EXAMPLE

10 ÷ 5 = 2, THEN 25 ÷ 5 = 5




ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
10		10.00 ÷	In division, the second entry is automatically considered the constant. When dividing one number into several others, enter the constant second, then the others followed by =.
5		5.00 =	
		2.00 *	
25		25.00 =	
		5.00 *	

Calculator Mode Correction

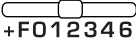


SWITCH SETTINGS   

EXAMPLE

10 X WAS ENTERED BUT 10 ÷ WAS INTENDED FOR 10 ÷ 2 = 5





ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
10		10.00 x	Calculator mode correction allows you to immediately correct inadvertently pressing the wrong calculator key. In the example to the left, simply pressing the ÷ key immediately following the x key changes the mode of calculation from multiplication to division.
		10.00 ÷	
2		2.00 =	
		5.00 *	Calculator mode correction eliminates clearing and reentering.

Chain Multiplication & Division




SWITCH SETTINGS   

EXAMPLE

$$10 \times 5 \times 6 \div 25 = 12$$






ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
10		10.00 x	In chain calculations, sequential calculation audit symbols Cx and C÷ print clearly to show a chain operation.
5		5.00Cx	
6		6.00C÷	
25		25.00 =	Remember the * (Total Key) does not clear a calculation. The sequential calculation indicators eliminate puzzling results when the total key was incorrectly pressed to clear an incorrect x or ÷ entry.
		12.00 *	

Using the C/CE Key

SWITCH SETTINGS  +F012346  d pd n  ◇ ■ gt

EXAMPLE

10x WAS ENTERED BUT SHOULD HAVE BEEN 100x. 25 WAS ENTERED BUT SHOULD HAVE BEEN 7.

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
10		10.00 x	The C/CE Key will clear a calculation in progress, e.g. 10x, it will also clear a live entry, e.g. 25.
		C	
100		100.00 x	
25			
7		7.00 =	
		700.00 *	

Percentages





SWITCH SETTINGS  +F012346

 d pd n

 ◇ ■ gt

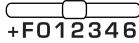
EXAMPLE

100 X 25% = 25.00, 25 IS WHAT % OF 98?

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
100		100.00 x	The % key completes calculations, much like the = key, but formats the answer as a percentage.
25		25.00 %	
		25.00 *	
25		25.00 ÷	
98		98.00 =	
		25.51 %	

Percent Increase

SWITCH SETTINGS



EXAMPLE

WHAT IS 267 INCREASED BY 7.6%?

ENTER

DEPRESS

PRINT

OPERATIONAL NOTES

267



267.00 x

Pressing the + key after calculating a percentage automatically increases the base amount by the percent amount.

7.6



7.60 %

20.29 *



287.29 +%

This operation has no affect on the contents of the adding machine.

Percent Decrease




SWITCH SETTINGS  +F012346

 d pd n

 ◇ ■ gt

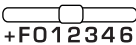


EXAMPLE

WHAT IS 267 DECREASED BY 7.6%?

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
267		267.00 x	Pressing the – key after calculating a percentage automatically decreases the base amount by the percent amount.
7.6		7.60 %	
		20.29 *	
		246.71-%	This operation has no affect on the contents of the adding machine.









Accumulating Results

=+ and =- Keys

SWITCH SETTINGS   

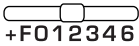


EXAMPLE

25 ITEMS AT 3.25, 40 ITEMS AT 6.75, 5 ITEMS AT -5.00 (CREDIT), ADD \$6 HANDLING.

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
25		25.00 x	The =+ and =- keys complete a calculation and move the result into the adding machine.
3.25		3.25 +=	
		81.25 C*	As the example to the left illustrates, since the results are in the adding machine subsequent amounts may be added to or subtracted from the accumulation.
40		40.00 x	
6.75		6.75 +=	
		270.00 *	
5		5.00 x	Note: If you were calculating multiple invoices, you would move the gt switch on. In that way a grand total of all invoices could be calculated.
5		5.00 -=	
		25.00 *	
6		6.00 +	
		332.25 *	









Independent Memory

(I+, I-, I◇, I*)

SWITCH SETTINGS   

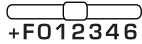
EXAMPLE

25 ITEMS AT 3.25, 40 ITEMS AT 6.75, 5 ITEMS AT -5.00 (CREDIT), ADD \$6 HANDLING.

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
25		25.00 x	The example to the left illustrates using the memory as a completely independent storage area.
3.25		3.25 =	
		81.25 M+	
40		40.00 x	* 8145X has (2) 4 key independent memories. Memory operation is the same for Memory I and Memory II.
6.75		6.75 =	
		270.00 M+	
5		5.00 x	
5		5.00 =	
		25.00 M-	
6		6.00 M+	
		332.25 M*	

Square Root

SWITCH SETTINGS



EXAMPLE

FIND THE SQUARE ROOT OF 63

ENTER

DEPRESS

PRINT

OPERATIONAL NOTES

63

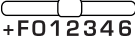




63.00 ÷

63.00 S

7.94 *

Storing a Tax Rate

SWITCH SETTINGS   

EXAMPLE

STORE A TAX RATE OF 7.5%

ENTER

7.5

DEPRESS



PRINT

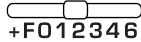
7.50 C%

OPERATIONAL NOTES

To store a tax rate, simply enter the rate and press the tax key. Only a live entry can be stored.

Computing Tax and the Affect of Tax on an Item

SWITCH SETTINGS



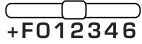
EXAMPLE

ITEM SELLS FOR 133.75, THE TAX RATE IS 7.5%. ASSUME TAX RATE IS STORED (EXAMPLE ON PREVIOUS PAGE). WHAT IS THE AMOUNT OF TAX AND THE PRICE WITH TAX.

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
133.75		133.75 x	To add tax to an item, simply multiply that item's cost and touch tax.
		7.50C%	
		10.03 +	
		143.78+%	



Discount on Invoice

SWITCH SETTINGS



EXAMPLE

THE TOTAL INVOICE WAS 143.75, THE TAX RATE IS 7.5%.

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
143.78		143.78 ÷	
		7.50 C%	
	-	10.78 -	
		133.00 -%	

EXAMPLE - PERCENT CHANGE ($\Delta\%$)

Find the difference between two years of sales; this year \$10,750,673, and last year 9,948,581.

ENTER

DEPRESS

PRINT

OPERATIONAL NOTES

10750673



10,750,673.00 \div

When comparing two numbers, always enter the current period first.

9948581



9,948,581.00 Δ

802,092.00 Δ

8.06 $\Delta\%$

MARKUP

EXAMPLE

FIND SELLING PRICE

If the an item costs \$100 and has a 25% markup, what is the Selling Price?

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
100	<input type="text" value="X"/>	100.00 x	In the example to the left, cost and % markup were known. Immediately following the entry and depression of the mu key, the amount of markup in dollars and the selling price print. The formula for calculating selling price is $\text{Selling Price} = 1/(100 - \% \text{ Markup})$
25	<input type="text" value="mu"/>	25.00 M%	
		33.33 MA	
		133.33 S*	

EXAMPLE

FIND MARGIN AND % MARK UP

If an item's Cost is \$100 and the Selling Price is \$150, what is the Markup in Percentage and Dollars?

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
150	<input type="text" value="X"/>	150.00 X	In the example to the left, the cost and selling price were known. Immediately following the entry and depression of the %Δ key, the amount of markup in dollars and the % of markup is printed.
100	<input type="text" value="%Δ"/>	100.00 Δ	
		50.00 MA	
		33.33 M%	

Advanced Operations

Using the Definable Settings	46
Σ X	47
Σ T	48
Running \diamond Printed	49
Two Column Add	50
Truncate	51
Round Up	52
Automatic Incrementing Identification Numbers	53
Σ M	54
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Units/Units Mode	58
Price/Units Mode	59, 60
Variable Add Mode	61
Nickel Rounding	62
Paper Saver Mode	63
Clearing All Definable Settings	64

Using the Definable Settings

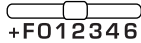
The 8130X /8145X contains a number of user selectable internal options. These settings can simplify routine calculations, save unnecessary steps and permit the user to adapt the 8130X/8145X to their specific tasks. These internal functions are activated by pressing the Define Key twice followed by the numeric or function key shown in the following examples.

NOTE: Definable Settings are not battery supported and are cleared when the 8130X/8145X is powered off.

Σx

Define 1

SWITCH SETTINGS



EXAMPLE

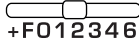
INVOICE – 125 ITEMS @ \$12.50 EACH, 135 ITEMS @ \$13.50 EACH, 150 ITEMS @ \$15.00 EACH

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
		.....1.....	
125		125.00 x	Σx sums the first factor in multiplication and division in Memory One (I). In the invoicing example to the left, this is useful when accumulating quantities and extensions simultaneously.
12.5		12.50 +=	
		1,562.50 C*	
135		135.00 x	
13.5		13.50 +=	
		1,822.50 *	
150		150.00 x	
15		15.00 +=	
		2,250.00 *	
		410.00 M*	Total Quantity
		5,635.00 *	Total Amount Invoiced
		.....1.....	

ΣT

Define 2

SWITCH SETTINGS



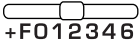


EXAMPLE

INVOICE – 125 ITEMS @ \$12.50 EACH, 135 ITEMS @ \$13.50 EACH, 150 ITEMS @ \$15.00 EACH

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
	2.....	
125		125.00 x	<p>ΣT sums results obtained from the = and the % key in the adding machine. In the example to the left, pressing = rather than += was possible to accomplish the same end. ΣT is very useful when accumulating percent results, as they are formatted as percentages rather than decimal representations of the percentage.</p>
12.5		12.50 =	
		1,562.50 C*	
135		135.00 x	
13.5		13.50 =	
		1,822.50 *	
150		150.00 x	
15		15.00 =	
		2,250.00 *	
		5,635.00 *	
	2.....	











Running ◊ (printed)

Define 3

SWITCH SETTINGS   

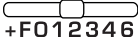


EXAMPLE

\$125.00 + \$135.00 + \$150.00, WITH A RUNNING SUBTOTAL (BALANCE)

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			<p>A printed record of the running subtotal is most frequently used to reconcile bank statements or ledger cards. This function is often used in conjunction with Define 7 (Automatic Incrementing Identification Numbers). With the two enabled, check numbers and the declining balance associated with a processed check are easily identified on the tape.</p>
			
	3.....		
125		125.00C+	
		125.00 ◊	
135		135.00 +	
		260.00 ◊	
150		150.00 +	
		410.00 ◊	
		410.00*	
			
			
	3.....		

Two Column Addition

Define 4

SWITCH SETTINGS   















EXAMPLE

COMPUTE THE FOLLOWING USING TWO COLUMN ADDITION

INVOICE 125, TAX 12.5

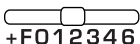


INVOICE 135, TAX 13.5

INVOICE 150, TAX 15

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			
			
	 ●●●●● 4 ●●●●●		
125		125.00C+	In basic two column addition, the + and – keys print and accumulate amounts on the right side of the tape (summing in the adding machine).
12.5	 12.50	G+	
135		135.00 +	
13.5	 13.50	G+	The =+ and =– keys print and accumulate amounts on the left side of the tape (summing in the grand total memory).
150		150.00 +	
15	 15.00	G+	
		410.00 *	
	 41.00	G*	
			
			
	 ●●●●● 4 ●●●●●		










Truncate (round down)

Define 5

SWITCH SETTINGS   

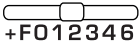


EXAMPLE

1.444 + 2.687, FIND TOTAL

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			Truncate or Round Down instructs the calculator to ignore all values past the decimal setting when calculating a result or finding a total. Were this example performed with the decimal selector at F, the total would be 4.136. With truncate, the decimal digit 6 is ignored or truncated. Note: Truncate does not ignore decimal digits entered (1.444 for example). It only acts on totals/results.
			
	5.....		
1.444		1.444C+	
2.687		2.687 +	
		4.13 *	
			
			
	5.....		










Special Note: The default position for the 8130X/8145X is automatic rounding commonly referred to as 5/4. In the default position, any decimal digit past the decimal setting is reviewed. If it is 5 or greater the decimal digit to its left is rounded up. If it is 4 or less, the decimal digit to the left is unaffected.

Round Up Define 6

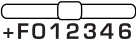


SWITCH SETTINGS   

EXAMPLE

1.444 + 2.687, FIND TOTAL












ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			Round Up instructs the calculator to round up any value past the decimal setting when calculating a result or finding a total. Were this example performed with the decimal selector at F, the total would be 4.131. With Round up enabled, the decimal digit 3 is rounded up to 4 since a non-zero decimal digit exists to its right. Note: Roundup does not act upon decimal digits entered (1.444 for example). It only acts on the totals/results.
			
	 •••••6•••••		
1.444		1.444C+	
2.687		2.687 +	
		4.14 *	
			
			
	 ••••6•••••		

Automatic Incrementing Identification Numbers - Define 7

SWITCH SETTINGS   

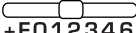


EXAMPLE

CHECK #123 IS \$50, CHECK #124 IS \$75, CHECK #125 IS \$87

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			<p>If your task calls for identifying the invoice or check number associated with an amount and those numbers are incremental, setting the incremental identification number is a time saving and productive feature to enable. Used in conjunction with the Define 3 function earlier illustrated, these features combined are great for balancing a check book and auditing a bank statement.</p>
			
		• • • • • 7 • • • • •	
123		#123	
50		#123	
		50.00C+	
75		#124	
		75.00 +	
87		#125	
		87.00 +	
		212.00 *	
			
			
		• • • • • 7 • • • • •	














ΣM

Define 8

SWITCH SETTINGS  +F012346  




EXAMPLE

INVOICE – 125 ITEMS @ \$12.50 EACH, 135 ITEMS @ \$13.50 EACH, 150 ITEMS @ \$15.00 EACH

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			Σ M sums results obtained from the = and % key.
			
		.....8.....	
125		125.00x	
12.5		12.50=	
		1,562.50C*	
135		135.00x	
13.5		13.50=	
		1,822.50*	
150		150.00x	
15		15.00=	
		2,250.00*	
		5,635.00M*	
			
			
		.....8.....	




Print Defined Functions

Define 9

SWITCH SETTINGS  +F0 1 2 3 4 6  d pd n  ◊ ■ gt

EXAMPLE




FIND WHICH FUNCTIONS HAVE BEEN ACTIVATED - AS SHOWN, ALL FUNCTIONS ARE OFF

FUNCTION	DEPRESS	PRINT	OPERATIONAL NOTES
	  		This function recaps the enabled/disabled status of all internal definable functions.
ΣX	1.....	Functions printed in black are enabled while those printed in red are disabled.
ΣT		.....2.....
Running ◊ Print		.....3.....
Two Column Add		.....4.....
Truncate		.....5.....
Round up		.....6.....
Set Identifier		.....7.....
ΣM		.....8.....
Price/Price Mode		.....0.....
Units/Price Mode		.....00.....
Price/Units Mode		.....000.....

FUNCTION	DEPRESS	PRINT	OPERATIONAL NOTES
Variable Add Mode	••••••••	+	
Nickel Rounding	••••••••	-	
Paper Saver Mode	••••••••	SA	
	••••••••••••••		














Price/Price Mode

Define 0

SWITCH SETTINGS  +F012346  

EXAMPLE

QUANTITY	UNIT PRICE
1.75	\$3.50
1.76	\$6.25
1.77	\$4.12

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
	 		Price/Price mode assumes that fractional units are being multiplied by dollars and cents. In add mode (+ on the decimal selector) and this function enabled, there is no need to enter the decimal point when entering fractional amounts and extending them by a price in dollars and cents.
	0.....		
175		1.75 x	
350		3.50 +=	
		6.13C*	
176		1.76 x	
625		6.25 +=	
		11.00 *	
177		1.77 x	
412		4.12 +=	
		7.29 *	
		24.42 *	
	 		
	0.....		

Units/Units Mode

Define 00

SWITCH SETTINGS

+F012346

d pd n

◇ ■ gt

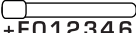


EXAMPLE

QUANTITY	UNIT PRICE
175	\$3.50
176	\$6.25
177	\$4.12

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
	<input type="button" value="define"/>		Units/Units mode assumes that whole units are being multiplied by whole numbers.
	<input type="button" value="define"/>		
	<input type="button" value="00"/>00.....	
175	<input type="button" value="x"/>	175.00 x	
3.50	<input type="button" value="=+"/>	3.50 +=	
		612.50 C*	
176	<input type="button" value="x"/>	176.00 x	
6.25	<input type="button" value="=+"/>	6.25 +=	
		1,100.00 *	
177	<input type="button" value="x"/>	177.00 x	
4.12	<input type="button" value="=+"/>	4.12 +=	
		729.24 *	
	<input type="button" value="*"/>	2,441.74 *	
	<input type="button" value="define"/>		
	<input type="button" value="define"/>		
	<input type="button" value="00"/>00.....	











Price/Units Mode

Define 0, Define 00

SWITCH SETTINGS  + F012346  d pd n  ◇ ■ gt

EXAMPLE

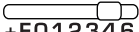


PRICE	UNITS
1.78	350
1.79	625
1.80	412

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			Price/Units mode assumes that the price in dollars and cents is multiplied by whole units. In add mode (+ on the decimal selector) and this function enabled, there is no need to enter the decimal point when price in dollars and cents is multiplied by whole units.
			
		.....0.....
			
			
		.....00.....
178		1.78 x	
350		350.00 +=	
		623.00 C*	
179		1.79 x	
625		625.00 +=	
		1,118.75 *	

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
180	✕	1.80x	
412	=+	412.00 +=	
		741.60 *	
	*	2,483.35 *	
	define		
	define		
	0		•••0•••
	define		
	define		
	00		••00•••












Definable Add Mode

Define +

SWITCH SETTINGS   
 +F012346 d pd n ◇ ■ gt

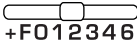


EXAMPLE

$$0.1234 + 0.4322 + 1.5575 - 0.3322 = 1.7809$$

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			Definable Add Mode permits addition/subtraction of decimal points greater or less than two decimal places to be entered without pressing the decimal point key. In the case to the left, the decimal selector is at 4 and variable add mode enabled. Therefore 4 place decimal amounts may be added and subtracted without the need to press the decimal point key.
			
	 +		
1234		0.1234C+	
4322		0.4322 +	
15575		1.5575 +	
3322		0.3322 -	
		1.7809 *	
			
			
	 +		










Nickel Rounding

Define –

SWITCH SETTINGS   

EXAMPLE

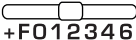
1.11 + 1.11 = 2.25 ROUNDED TO THE NEAREST NICKEL

ENTER	DEPRESS	PRINT	OPERATIONAL NOTES
			Nickel Rounding assumes that there are no longer pennies in the monetary system. As such, all cents will be rounded to the nearest nickel.
			
	 -		
1.11		1.11C+	
		1.11 +	
		2.25 *	
			
			
	 -		

Paper Saver Mode

Define adv

SWITCH SETTINGS



ENTER

DEPRESS

PRINT

OPERATIONAL NOTES

define

define

adv



SA

define

define

adv



SA

Paper Saver Mode eliminates the spacing of totals above the tear off knife and blank spaces between other results.

Clearing All Definable Functions

Define C/CE

CALC SETTINGS – ANY AND ALL SETTINGS

EXAMPLE

RETURN TO DEFAULT SETTINGS

ENTER

DEPRESS

PRINT

OPERATIONAL NOTES



Pressing the Define key followed by the C/CE key will clear all internal definable functions.

Glossary Of Features

PHYSICAL ATTRIBUTES

Enclosed Paper Roll

Most calculators (with the exception of Monroe heavy duty models) have the paper roll mounted externally. The most expensive component of a print/display calculator is the printer. It is also the component most likely to fail, as it is an electro-mechanical mechanism. The most common cause of printer failure is dust and dirt collecting on the paper roll and falling into the print mechanism as the paper is fed through the printer. By enclosing the paper roll, Monroe protects the paper roll and by extension the life of the printer from this common cause of printer failure. If the paper roll is external, it also means paper roll holders (typically plastic) are mounted externally to hold the paper roll. It is almost certain these paper roll holders will be lost or broken during the course of use. At the very least, this design means the operator will be forced to replace paper roll holders during the life of the calculator, replace the calculator or come up with some inventive method for supporting the paper roll when the holders are lost or broken.

Another drawback to mounting the paper roll externally is the typically cluttered desk of most users. If the paper roll is lodged against a book, stack of papers or some other object on the desk, it is likely the paper cannot advance or move through the print mechanism. As most touch operators do not look at the calculator

during addition columns, such an operator would be both surprised and disappointed to look at the tape after listing a long column of figures and see a black smudge on the tape rather than the answer. Again the enclosed paper roll design eliminates this possibility. The expected life of the print mechanism is 3 million lines of print. The enclosed paper roll enhances the ability of the printer to reach its expected life.

Print Quality

There are at least three factors affecting the quality of print on the paper tape. The obvious one of course is the ribbon. The other two common factors are the paper (thickness) and the manufacturing variance of the printer (distance between the platen and print wheel). Monroe carefully selects both ribbon and paper supplies to optimize print quality. While both supply items are readily available, the quality of the ribbon and the quality of the paper vary greatly when obtained from sources other than Monroe.

Keyboard Layout

Today's calculators are descended from yester years mechanical adding machines. All mechanical adding machines had all adding machine controls (+, -, subtotal and total) to the right of the numeric keypad. Recalling that the most often used function of a calculator is addition and subtraction, adding machine controls must be located on the right of the numeric keypad.

Key top Size

The largest keys on the keyboard should be those used most frequently. For the calculator this certainly means the Plus Key, Minus Key, Total Key, Zero Key and Decimal Key. The actual size of these keys varies greatly from model to model and it is often what one becomes comfortable with that determines what size is large enough. Small Keys, especially those used often, hinder touch operation and therefore productivity.

Key top Shape

The shape of keys often enhances touch operation. For example, the numeric keypad (1 -9) on the 8130X/8145X has cupped keys. The function keys have flat surfaces enabling the operator to differentiate between the numeric keypad and the function keys by feel. The 5 key has a tiny dome in its center, much like a computer keyboard, it assists the operator in quickly locating the home key (5) and home row (4, 5 and 6).

Key top Stability

Keys with little side to side play enhance touch operation by providing a surety of touch. Excessive play on the key top or pressing key tops in locations that prohibit entry slow down or eliminate the ability to operate the calculator quickly.

Two Key Rollover

Two key rollover enhances speed in touch operation. For example, if entering the amount 12 the user may press the 1 key followed by depression of the 2 key. Both keys are pressed.

Removing the index finger from the 1 key, and then removing the middle finger from the 2 key causes both 1 and 2 to be entered. The fastest touch operators roll from the entry of keys to a function key. Two key rollover eliminates the need for pressing each key distinctly one key at a time.

Electronic Keyboard Interlocks

In the event two keys are pressed simultaneously, the key first sensed by the calculator will be entered. Normally it will be the key pressed with the greatest force. By not creating an Error (which on many calculators would require clearing) Electronic Keyboard Interlocks tries to interpret the entry and choose the most likely correct key depression.

Decimal Settings

Every calculator has one or more decimal settings. The decimal setting controls the number of decimal places desired in the total or result. The decimal selector should never limit or fix the number of decimal places contained in an entry as its function is to determine the number of entries in the total or result. If a calculator edits the number of decimal places in an entry to the decimal setting, it is violating the precept that between the operator and the calculator, the only intelligent entity is the operator. If the calculator edits entries, an operator would need to move the decimal selector to reflect the entry with the greatest number of decimal places to permit entry of all figures, and then move the decimal selector back to the desired number of decimal places in the answer before pressing the total key. That is both additional manual and mental effort.

FUNCTIONAL ATTRIBUTES

Separate Adding Machine/Calculator

Earlier in our discussion, we touched upon the basis and importance of having the adding machine controls on the right. Similarly it is important to have the calculator controls on the left (times, divide, equals etc). The separation physically between the adding machine and calculator again pertains to the intended use of the calculator, i.e. most of the work performed on the calculator will be addition and subtraction. It is also extremely important that separation exist functionally. Certain calculators use the +, -, and/or total keys as an equals key. This means that users may not add a column of figures and interrupt the addition to perform any other operation (multiplication and division for example). Inadvertent depression of the times or divide keys could clear the contents of the adding machine, thereby necessitating reentry of the column of figures.

Repeat Addition and Subtraction

This feature is standard on most calculators. It permits a user to press the plus key again (for example) to add the same number more than once. It also permits a user to touch the minus key following a depression of the plus key to correct an entry error. This feature eliminates the need to reenter like amounts when they follow each other in addition and subtraction.

Add Mode

Add mode is typically denoted on the decimal selectors of calculators as a + symbol or with an A. In Add mode, the user need not press the

decimal point key when entering dollars and cents. The calculator will place the decimal point automatically, i.e., if one were to enter 1, 2, 3, then press the plus key, the calculator would accept the entry as \$1.23. The feature add mode was first developed by Monroe and was based upon the fact that mechanical adding machines did not have decimal point keys, therefore entries were accepted as dollars and cents. Add Mode on the 8130X/8145X goes far beyond simplifying the entry of figures for addition and subtraction. Since these products are no longer simply adding machines, what happens when one performs multiplication or division when the decimal selector is in Add Mode (+) position.

- **Units/Price Mode**

One of the most common applications performed on a calculator is checking an invoice. Invoices typically are formatted in much the same way. That is, one is multiplying the number of units by a price in dollars and cents. If the decimal selector is in Add Mode, and one enters 12 touches the times key then enters 123, then equals, the calculator will automatically treat the entry of 12 as whole units and treat the second entry 123 as \$1.23. This treatment is referred to as units price mode.

- **Units/Units Mode**

Units/Units Mode, treats both entries in multiplication or division as whole numbers, if no decimal point is entered.

- **Price/Units Mode**

As much as one wants to generalize, there are invoices where price appears first then the number of units. To facilitate this type of invoice, again Monroe provides another selectable format. This format accepts the first entry as dollars and cents and the second entry as a whole number.

- **Price/Price Mode**

Typical within the trucking industry, certain invoices have fractional quantities (weight) times price. Selecting yet another format to simplify entry, the Monroe 8130X/8145X supports price/price mode. In this format both first and second entries are accepted as 2 decimal places automatically.

Clear Add Symbol

The 8130/8145 prints a unique symbol on the tape called the clear add symbol if that entry was the first entry made into a clear adding machine. This symbol C+ clearly indicates to the operator or anyone auditing the tape that the adding machine was clear prior to commencing the listing of figures.

Sequential Calculation Indicators

Special audit trail symbols are provided to indicate to the operator when a chain or sequential calculation is or has been performed. CX and C÷ illustrate a chain calculation is being performed. These indicators are especially useful to insure correctness of results and simplify audits of results.

Calculator Mode Correction

How many times has one entered a figure, pressed the times key instead of the divide key, or vice versa. It happens often. Calculator Mode correction is a feature that permits the operator (in the sequence described above) to immediately follow the times key depression with a depression of the divide key. Doing so changes the mode from multiplication to division.

Entry Only Display

The Monroe 8130X/8145X allows the operator a choice of seeing the entry just made in the display or the running subtotal. Showing the entry only in the display is clearly a superior audit tool, as it enables the user to quickly check the display when they feel an entry error has been made. It is also an exclusive feature to Monroe 8130X/8145X and our other heavy duty models.

Running Subtotal Display

The operator has the choice of seeing the entry only or running subtotal in the display.

Automatic Constants

All Monroe calculators accept the first entry in multiplication and the second entry in division as an automatic constant. There are no K (constant) switches to worry about or move. For calculators with a K switch, one needs to worry about engaging it first to perform calculations with constants then disengage before adding a column of figures. This is certainly contrary to the goal of a calculator.

Group and Grand Total

GT as it is often referred to and abbreviated, enables one to add several columns of figures and get a grand total of all column totals. Certain calculators only provide the ability to achieve the total and are not capable of providing a grand subtotal.

ref # Key

The ref # key is used to place an identifying number or date on the tape to help identify a listing or calculation. Typical uses would be to enter the invoice number and date prior to checking the listing or invoice. In times past, the operator would typically write identifying numbers such as date or invoice number on the tape to link the tape to the source document.

Backspace key

The backspace key is designed to remove digits erroneously entered one digit at a time. For all Monroe calculators the back space key will perform this function on live entries (entries not completed with a depression of a function key). Since many results are used for further calculations, preventing the back space key from removing a digit saves an operator from reentry of such figures if the backspace key were inadvertently pressed.

Item Count (N-Count)

This feature counts the number of items in a column of figures or the number of lines calculated on an invoice. The 8130X/8145X has intelligent item count, meaning the calculator knows the difference between correcting an error or an intentional addition of a negative figure. If one

were to add, 1, 2, 3 and determine after entry of 3 and depression of the + key that 3 should have been 4, the operator would simply touch minus which takes out the 3. The operator could then enter 4, press plus and then total. The total is 7. The item count is 3. Certain calculators have attempted to provide intelligent item count. They may have a selection n+/- for example. This is not an intelligent item count. It increments the count for positive entries and decrements the count for negative entries. It is easy to see that this count does not reflect the actual numbers of entries legitimately made.

Automatic Averaging

From the discussion of Item count above, automatic averaging provides the ability to divide the total by the number of items to determine the average for the items. This feature is of little use, if as described above the item count is apt to be incorrect. Intelligent Item count for the 8130X/8145X makes automatic averaging worry free.

Underflow

Underflow is a feature designed to assist the operator in obtaining the most significant result. If the decimal selector was set at 6 for example and the number of whole digits (on a 12 digit display) was 8, the decimal point would be shifted to show 8 whole digits and only 4 decimal places in the answer. If a unit were not equipped with this feature, an error would be created and the operator would have to move the decimal selector to accommodate the result.

Reverse Underflow

Very few calculators have reverse underflow. The 8130X/8145X are the exceptions. Reverse underflow means that if the result of a calculation would yield zero, when displayed at the current decimal setting, the decimal point will shift to the left to show the most significant decimal amount. For example, if the decimal selector were set at 2 and one attempted to divide 2 by 625, the answer would (for most calculators) be zero. For the 8130X/8145X the decimal shifts to the left automatically so the actual result 0.0032 can be displayed.

Extended Capacity

The 8130X/8145X also features Extended Capacity. Rather than deliver an error when the answer exceeds the capacity of the calculator, the 8130X/8145X presents the answer in scientific notation. The calculation capacity of the 8130X/8145X is 24 digits even though the capacity of the calculator is 12 digits.

Automatic Clearance, Overflow/Error

There are times when Error and Overflow conditions are created. Dividing by zero for example creates an error as it is mathematically undefined. The 8130X/8145X automatically clears these conditions when encountered. Most calculators force the operator to clear such conditions before proceeding. Again, more manual and mental effort in such calculators.

Percent

The percent key changes an amount to a format we are more comfortable seeing. Were we to

multiply 100 by 3%, we are more comfortable entering 100, pressing the x key, then entering 3 and pressing the % key. Alternatively we would have to enter the decimal equivalent (.03) to obtain the same result. The percent key also has additional capabilities not often included. Depression of the + or - keys immediately following the % key often yields the percent increase or percent decrease respectively automatically.

Tax Key

Similar to the Percent Key the Tax key enables us to store a tax rate and determine the effect of applying that tax to an amount automatically.

Mark up

Mark up is not percent increase. The formula for mark up is cost, divided by 100 minus the percent of mark up. If an article costs \$100 and we were to apply a 25% mark up, the selling price would be 133.33. From the formula we are dividing 100 by .75.

Gross Margin

In the example above, the gross margin in dollars would be \$33.33 and the gross margin percentage is 25%.

Percent Change

Percent Change is provided to assist in the determination of the percent and amount of change between two numbers. Comparing sales last month to this month for example.

Rounding

Calculators usually provide a choice between 3 types of rounding. They are normally referred to as truncate, round off and round up. To illustrate the difference, let us assume that the actual result of adding 1.444 twice is 2.888. If the decimal selector were set at 2, it would instruct the calculator to round the answer to 2 decimal places. If the rounding control were set to truncate, the answer would be 2.88 as it would ignore any digit past two decimal places and drop it. If the selector were instead set for round off (5/4) it would look at the 3rd decimal digit above and would round the answer up to 2.89 if that third digit were 5 or greater and would drop it off if it were 4 or less. If the selector were set to round up, any non-zero digit in the third decimal position would cause the answer to be rounded up, again the answer would be 2.89.

Summation X

Calculators that provide for the summation of x enable the operator to accumulate amounts preceding depression of the times key. In an invoice for example, one might want to accumulate the quantity as well as the extended amounts to check for quantity or pricing errors.

Summation of = and %

The 8130X/8145X also provides for the ability to automatically sum the results of depressions of the = key and or the % key. This facility saves time and generally prevents the inadvertent omission of moving such amounts to the memory.

Variable Add Mode

When we discussed add mode earlier, it was and is ordinarily in the context of adding dollars and cents. The 8130X/8145X also has the ability to add decimal amounts other than dollars and cents. If for example we were adding fractional weights at 4 decimal places, we could add such amounts without pressing the decimal key.

Nickel Rounding

Originally designed for the European market, nickel rounding is provided for on the 8130X/8145X. In the event the US eliminates the penny from the monetary system, nickel rounding can be selected. Doing so would round all amounts up to the nearest nickel automatically. An answer of 2.22 for example would now become 2.25.

Two Column Addition

Automatic two column addition provides the ability to add two columns of figures simultaneously. For example, if one had a stack of invoices and wanted to add the invoice amount and the amount of tax at the same time, two column addition would enable that facility. Two column addition further formats the tape for right column and left column. This provides for easy audit of the tape and associates the tax amount with the invoice amount for example.

Automatic Incremental Identifier

The automatic incremental identifier is useful in numerous applications. This feature allows the user to enter a beginning number using the ref # key. Each subsequent amount added for example will be identified with an incremental number. Again a stack of invoices starting with Invoice number 101. Each addition will increment the invoice number.

Running Subtotal on the Printer

The feature enables a running subtotal to print on the tape after each entry is added. This feature is ideal for bank statement reconciliation and when combined with the feature automatic incremental identifier causes the check number, amount of the check and declining balance to print given the entry of the check amount only for example.

Paper Saver Mode

The 8130X/8145X as a default position prints the total and advances the paper above the tear off knife where it is easily read and facilitates tearing off the paper tape. In the event one wishes to reduce the amount of spacing between totals, the paper saver mode can be set.

Independent Memories

Most calculators have an independent memory. For a memory to be functional, it should have four keys associated with it, i.e., M+, M-, M subtotal and M total.

Limited Warranty

Monroe warrants to the original end user Customer that the equipment will, at the time of delivery to such Customer, be free from defects in manufacture. During the warranty claim period, which shall be 180 days from the date of original delivery to original end user Customer, Monroe will provide, based upon a verified claim under this Limited Warranty, adjustments, repairs, labor and parts to place the equipment in proper operating condition (or will provide a replacement at its sole option). This warranty does not cover supplies, consumable items, external accessories or damage resulting from accident, misuse, abuse, neglect, faulty installation, use contrary to specifications, combination with other equipment, acts of God, modification, or unauthorized repair or alteration. This Limited Warranty is valid only for equipment sold and installed in the continental United States, Alaska, and Hawaii.

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Phone: 888-666-7631

Email: csr@monroe-systems.com

30804930LF

MONROE Systems for Business

Phone: 888-666-7631

Fax: 877-666-7635

Email: csr@monroe-systems.com

www.monroe-systems.com

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