LLOYD'S

ACCUMATIC ™309

GREEN DIGITRON

DISPLAY

CALCULATOR

E309 (717A)

HOW TO CHANGE BATTERIES

Your calculator operates from two UM-3 batteries: (Size "AA" or equivalent). To change batteries, make sure the power switch is in the "OFF" position. Remove the battery cover. Remove and discard the old batteries. When inserting new batteries, observe the battery polarity. Damage to the calculator can be caused by incorrect placement of the batteries. Close the battery cover. A dimly lighted display is an indication that the battery voltage is low. This is the time to replace the batteries with fresh ones. If the batteries become too low, the calculator will become inoperative.

KEYBOARD ORGANIZATION

The following is a brief explanation of the function of each key and indicator found on the keyboard of the *Accumatic* TM *309*.

DIGIT ENTRY KEYS

[0] through [9] : Pressing one of these keys will enter that digit into the rightmost display position. Previously entered digits will be shifted one position to the left.

DECIMAL POINT ENTRY KEY

[•] : Depression of this key will correctly position the decimal point in your entries.

ARITHMETIC FUNCTION KEYS

[+] , [−] , [×] , [÷] : Depression of any one of these keys tells the calculator what operation to perform with the next number entered. During calculations, intermediate results are also displayed when these keys are depressed.

EQUAL KEY

[=] : When the [=] key is depressed, the answer will appear on the display.

PERCENT KEY

[%] : Depression of this key causes the number on the display to be expressed as a percentage.

PI KEY

[π] : Depress this key for pi calculation.

SQUARE ROOT KEY

[√x] : Depression of this key performs the square root of the displayed number.

CLEAR AND CLEAR ENTRY KEYS

[C] , [CE] : Depression of the clear [C] key performs the following functions:

1. Resets the overflow condition.
2. Clears all registers of the calculator and places a zero in the rightmost position.

Depression of the clear entry [CE] key clears the display register in case a number is entered by mistake. It has no affect on other storage registers or any arithmetic operation which may be set.

NOTE: The [C] must be depressed before starting a new calculation if the last calculation was not concluded by depressing the [=] or [%] keys.

NEGATIVE NUMBER INDICATOR

This indicator is located in the leftmost display position and lights whenever negative numbers or credit balances are displayed.

MEMORY OPERATION

Depression of the following keys perform the various memory operations.

1. [M^+] : Adds the contents of the display (X) register to the contents of the memory. The display (X) register and all previous operations are unaffected by this operation.
2. [M^-] : Subtracts the contents of the (X) register from the contents of memory. The (X) register and all previous operations are unaffected by this operation.
3. [M^n_C] : Single depression, recalls the contents of the memory to the display without clearing the memory. Double depression, clears the memory without disturbing other calculator modes or register.

MEMORY INDICATOR

This indicator is a " • " which will light in the leftmost display position whenever memory contents are non-zero.

OVERFLOW (ERROR) INDICATOR

This indicator is located in the leftmost display position. Any answer or subtotal exceeding eight digits to the left of the decimal point, overflow indicator "E" lights and eight most significat digits are displayed. The position of the decimal point in the overflowed display tells you how many digits are overflowed.

For example, if the overflowed display reads E 1234.5678, the decimal point indicates four overflowed (counting from the left). The actual answer is 123456780000.
Depression of the clear [C] key will reset the calculator and only a zero, in the rightmost position, will appear on the display.

MACHINE CAPACITY

1. The capacity of the machine is 0.0000001 to 99,999,999 (10^{-7} to $10^{8} - 1$).
2. The calculator displays whole numbers up to eight digits.
3. The calculator displays decimal numbers up to eight digits. For decimal answers exceeding eight digits, the least significant decimal digits are automatically suppressed to prevent overflow.
4. The calculator displays numbers less than 1 up to seven digits. A zero always appears to the left of the decimal point if the number is less than one.

EXAMPLE PROBLEMS

The following example problems show you how easy it is to use the Accumatic ™ 309 Calculator.
The calculator should be turned on using the power switch, when the calculator is "On", a zero will appear in the rightmost display position. You are now ready to begin.

ADDITION

Example: 5 + 3 = 8

ENTRY	DISPLAY	COMMENTS
5	5	
+	5	Sets Add Mode
3	3	
=	8	

SUBTRACTION

Example: 6 – 2 = 4

ENTRY	DISPLAY	COMMENTS
6	6	
–	6	Sets Subtract Mode
2	2	
=	4	

NEGATIVE BALANCE

Example: 4 – 9 = –5

4	4	
–	4	Sets Subtract Mode
9	9	
=	–5	Negative Indicator Lights

MIXED ADDITION, SUBTRACTION

Example: 3 – 7 + 8 = 4

3	3	
–	3	Sets Subtract Mode
7	7	
+	–4	Result 3 – 7 Negative Indicator Lights
8	8	Negative Indicator Goes Out
=	4	

MULTIPLICATION

Example: 5.2 x 6.3 = 32.76

ENTRY	DISPLAY	COMMENTS
5.2	5.2	
[x]	5.2	Sets Multiply Mode
6.3	6.3	
[=]	32.76	Multiply Mode is still set for Auto-Constant

DIVISION

Example: 12.4 ÷ 0.4 = 31

	12.4	
	12.4	Sets Divide Mode
	0.4	No Need to Key-In Leading Zero
	31	

TIPLICATION, DIVISION

6 ÷ 12 = 4

2.	8	
to	8	Sets Multiply Mode
by	6	
	48	Result 8 x 6
	12	
	4	

PERCENTAGE

Example: 5% of 30 = 1.5

ENTRY	DISPLAY	COMMENTS
30	30	
[x]	30	Sets Multiply Mode
5	5	
[%]	1.5	

AUTOMATIC MARK-UP

Example: A $47.25 Purchase Plus 4% Tax

47.25	47.25	
[+]	47.25	
4	4	
[%]	1.89	4% of 47.25
[=]	49.14	

AUTOMATIC DISCOUNT

Example: A $15.25 Item Discounted 20%

15.25	15.25	
[−]	15.25	
20	20	
[%]	3.05	20% of 15.25
[=]	12.2	

COMBINED MARK-UP, DISCOUNT

Example: A $31.25 Item Discounted 20% Plus 5% Tax

ENTRY	DISPLAY	COMMENTS
31.25	31.25	
[−]	31.25	
20	20	
[%]	6.25	20% of 31.25
[=]	25	Discounted Price
[+]	25	Sets Addition Mode
5	5	
[%]	1.25	5% of 25
[=]	26.25	

POWERS

Example: $2^4 = 16$

2	2	
[×]	2	Sets Multiply Mode
[=]	4	2^2
[=]	8	2^3
[=]	16	2^4

RECIPROCAL

Example: ¼ = 0.25

4	4
[÷]	4
[=]	1
[=]	0.25

SQUARE ROOT

Example: $(2 + \sqrt{6.25}) 3 = 13.5$

ENTRY	DISPLAY	COMMENTS
2	2	
[+]	2	
6.25	6.25	
[√]	2.5	$\sqrt{6.25}$
[×]	4.5	$2 + \sqrt{6.25}$
3	3	
[=]	13.5	

CONSTANT OPERATIONS

MULTIPLICATION

Example: 4 x 3 = 12, 4 x 5 = 20

4	4	
[×]	4	Sets Multiply Mode
3	3	
[=]	12	Sets Auto-Constant
5	5	
[=]	20	

DIVISION

Example: 6 ÷ 2 = 3, 8 ÷ 2 = 4

6	6	
[÷]	6	Sets Divide Mode
2	2	
[=]	3	Sets Auto-Constant
8	8	
[=]	4	

CHAIN OPERATIONS

Example: $\frac{(6+4)\,2-8}{5} = 2.4$

ENTRY	DISPLAY	COMMENTS
6	6	
[+]	6	
4	4	
[×]	10	6 + 4
2	2	
[−]	20	(6 + 4) 2
8	8	
[÷]	12	(6 + 4) 2 − 8
5	5	
[=]	2.4	Result

ENTRY CORRECTION

Example: 5 + 3 = 8

5	5	
[+]	5	
4	4	
[CE]	0	Should Have Been 3
3	3	
[=]	8	

MEMORY OPERATION

This example is used to illustrate the various memory features. You buy 5 of Item A for $.25 each and 6 of Item B for $.75 each. You return for credit 2 of Item C at $.15 each.

ENTRY	DISPLAY	COMMENTS
5	5	
[×]	5	
.25	.25	
[=]	1.25	Cost of Item A
[M^+]		Memory Indicator Lights
6	6	
[×]	6	
.75	0.75	
[M^+]	4.5	Cost of Item B, Adds Cost of Item B to Item A in Memory
2	2	
[×]	2	
.15	0.15	
[M^-]	0.3	Credit for Item C, Subtracts Item C from A & B in Memory
[M_C^R]	5.45	Total Sale
[M_C^R]	5.45	Clears Memory
[C]	0	

RECOVERY TECHNIQUES

Occationally during calculations, an undesired function key may be depressed. Should this happen, simply push the proper function key and continue.

OVERFLOW AND ERROR INDICATIONS

Whenever the capacity of the machine is exceeded or an *impossible* calculation is attempted, a "E" will appear in the leftmost display position.

The error conditions relevant are:

1. Depressing [+] . [−] . [×] . [÷] when the magnitude of the result is greater the 99,999,999.
2. Division be zero.

LIMITED WARRANTY

Lloyd's Handheld Calculators are warranted against defects in material and workmanship for a period of one (1) year, beginning from the date of purchase by original purchaser.

Should the unit fail under normal usage during the one (1) year period of warranty, it must be returned, freight prepaid to:

Lloyd's Service
18601 South Susana Road
Compton, California 900221

Lloyd's Service
180 Raritan Center Pkwy.
Edison, New Jersey 08817

Lloyd's Electronics Ltd.
4445 Garrand Street
Ville St. Laurent, Quebec

Lloyd's Electronics Ltd.
857 York Mills Road
Don Mills, Ontario M3B 1Y2
Canada

Lloyd's Electronics Ltd.
11 Plymouth Street
Winnipeg, Manitoba R2X 2V5
Canada

The original sales invoice is the only acceptable proof of warranty entitlement and must therefore accompany the returned unit.

is warranty does not apply to any products which have been repaired by unauthorized persons in any way, so as, in our judgement, to uce their performance or reliability or which have been subject to misuse, abuse, neglect or accident.

This warranty gives the purchaser specific legal rights in addition to any other rights which vary from state to state.

APPLICABLE TO U.S.A. ONLY

In accordance with the "Moss-Magnuson Warranty Act" of July 10, 1975, this is termed a "Limited" Warranty which in no way compro- ises ... oyd's high standards of quality and workmanship.

Printed in Taiwan