LLOYD'S

ACCUMATIC ™311

MICROELECTRONIC HANDHELD CALCULATOR WITH MEMORY

E311(255B)

INTRODUCTION

Congratulations on the purchase of your new LLOYD'S Accumatic™ **311** Electronic Calculator. You can be assured of years of enjoyable, trouble-free service if you use it as outlined in these pages. This calculator is one of a wide ranging line of **personal** electronic products that LLOYD'S has to offer; **personal,** because all LLOYD'S products are designed to meet **your** needs for high quality performance and dependability - at a reasonable price. If you already own a LLOYD's Stereo, Cassette Recorder, Portable Radio or Digital Clock Radio, you know what we mean. LLOYD'S enjoys an excellent reputation as the manufacturer of a variety of Home Entertainment Systems.

Now that you have purchased one of the LLOYD'S line of calculators, you may be interested in knowing that all LLOYD'S calculators employ the most advanced microelectronic technology available to date. Modern technology has made it possible to miniaturize most of the electronic circuitry in your calculator so that it fits on a chip of silicon which can pass through the eye of a needle! No wonder we can make a calculator which fits in a pocket!
Why not take a few minutes to read this manual for the full story on the far-reaching capabilities of your new microelectronic calculator.

BEFORE OPERATING YOUR CALCULATOR

Your Calculator operates from four AA penlight batteries, carbon zinc, alkaline or nickel cadmium. Although they have a higher initial cost, alkaline batteries and rechargeable batteries will give you the best overall value. It can also be operated using AC Adaptor Model YA–7247 (120V/60Hz) or Model YA–7585 (220V/50Hz).

CAUTION: The batteries supplied with this unit are not rechargeable. To avoid possible damage to unit, these batteries should be removed when using AC Adaptor YA–7247 (120V/60Hz) or YA–7585 (220V/50 Hz).

HOW TO CHANGE BATTERIES

To change batteries, make sure the power switch is in the "OFF" position. Remove the battery access cover from the back of the calculator by sliding it toward the bottom of the calculator. Remove and discard the old batteries.

When inserting new batteries, observe the battery polarity. The (+) pole of each battery must correspond with the (+) indication in the battery compartment. **Damage to the calculator can be caused by incorrect placement of the batteries.**

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 rechargeables are being used, recharging is required). If the batteries become too low, the calculator will become inoperative.

HOW TO USE THE AC ADAPTOR

Your calculator may also be operated from AC with the use of AC Adaptor Model YA–7247 (120V/60Hz) or Model YA–7585 (220V/50Hz). If the calculator is being used on AC only over long periods of time, the batteries should be removed to prevent possible damage from battery leakage. The AC Adaptor will also charge rechargeable alkaline and nickel cadmium (Nicad) batteries.

CAUTION: To avoid damage, use only Model YA–7247 (120V/60Hz) or Model YA–7585 (220V/50Hz) AC Adaptors with your calculators.

To connect the adaptor, follow these four steps in the order outlined:

1. Make sure that the power switch is in the "OFF" position.
2. Connect the adaptor plug into the calculator socket.
3. Plug the adaptor into the power outlet.
4. Move the calculator power switch to the "ON" position.

NOTE: When the AC Adaptor is used only to recharge Nicad or rechargeable alkaline batteries, it is not necessary to turn the calculator switch to "ON".

CAUTION: When the calculator is not in use, disconnect the AC Adaptor from the AC outlet and from the calculator. Leaving the AC Adaptor plugged into the calculator without AC power connected will drain the batteries.

KEYBOARD ORGANIZATION

The following is a brief explanation of the function of each key and indicator found on the keyboard of Accumatic™ 311 Calculator.

DIGITENTRY 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.

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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.

CHANGE SIGN KEY

+/−:Depression of this key changes the sign of the displayed number. To enter a negative number, enter the number first, then depress this key.

SQUARE ROOT KEY

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

REGISTER EXCHANGE KEY

EX: Depression of this key exchanges the contents of the display (x) register and the constant (y) register.

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 calcultor and places a zero in the rightmost position.

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

NOTE: The C must be depressed before starting a new calculatic if the last calculation was not concluded by depressing the ⊟ or ⊟ keys.

MEMORY OPERATION

Depression of the following keys perform the various memor operations.

1. M+ : Adds the contents of the display (X) register to th contents of the memory. The display (X) register and all previou operations are unaffected by this operation.
2. M− : Subtracts the contents of the (X) register from the con tents of memory. The (X) register and all previous operation an unaffected by this operation.
3. MC : Clears the memory (sets memory contents to zero) without disturbing other calculator modes or register.
4. MR : Recalls the contents of memory to the display without clearing the memory.

MEMORY INDICATOR

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

NEGATIVE NUMBER INDICATOR

This indicator (−) lights whenver negative numbers or credit balance are displayed.

OVERFLOW (ERROR) INDICATOR

If the capacity of the machine is exceeded a "□" will appear in the leftmost digit position. 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 Accumatic™ 311 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

5.2	5.2	
⊠	5.2	Sets Multiply Mode
6.3	6.3	
⊟	32.76	Multiply Mode is still set for Auto-Constant

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DIVISION

Example: 12.4 ÷ 0.4 = 31

ENTRY	DISPLAY	COMMENTS
12.4	12.4	
÷	12.4	Sets Divide Mode
.4	0.4	No Need to Key-In Leading Zero
=	31	

MIXED MULTIPLICATION, DIVISION

Example: 8 x 6 ÷ 12 = 4

8	8	
×	8	Sets Multiply Mode
6	6	
÷	48	Result 8 x 6
12	12	
=	4	

PERCENTAGE

Example: 5% of 30= 1.5

30	30	Sets Multiply Mode
×	30	
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	

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AUTOMATIC DISCOUNT

Example: A $15.25 Item Discounted 20%

ENTRY	DISPLAY	COMMENTS
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

31.25	31.25	
−	31.25	
20	20	
%	−6.25	20% of 31.25
=	25	Discounted Price
+	25	
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: 1/4 = 0.25

ENTRY	DISPLAY	COMMENTS
4	4	
[1/x]	0.25	

SQUARE ROOT

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

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

REPEATED OPERATIONS

ADDITION

Example: 20 + 4 + 4 + 4 = 32

20	20	
[+]	20	Sets Add Mode
4	4	
[=]	24	20 + 4
[=]	28	20 + 4 + 4
[=]	32	20 + 4 + 4 + 4

SUBTRACTION

Example: 18 − 3 − 3 − 3 = 9

18	18	
[−]	18	Sets Subtract Mode
3	3	
[=]	15	18 − 3
[=]	12	18 − 3 − 3
[=]	9	18 − 3 − 3 − 3

MULTIPLICATION

Example: 4 x 4 x 4 x 4 = 256

ENTRY	DISPLAY	COMMENTS
4	4	
[×]	4	Sets Multiply Mode
[=]	16	4 x 4
[=]	64	4 x 4 x 4
[=]	256	4 x 4 x 4 x 4

DIVISION

Example: 2 ÷ 2 ÷ 2 ÷ 2 = 0.25

2	2	
[÷]	2	Sets Divide Mode
[=]	1	2 ÷ 2
[=]	0.5	2 ÷ 2 ÷ 2
[=]	0.25	2 ÷ 2 ÷ 2 ÷ 2

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	

REGISTER EXCHANGE

Example: $\frac{15}{2+3} = 3$

2	2	
[+]	2	
3	3	
[÷]	5	2 + 3
15	15	
[Ex]	5	Exchanges X and Y Registers
[=]	3	

CHANGE SIGN

Example: $\frac{5^2\,(-3)}{15} = -5$

ENTRY	DISPLAY	COMMENTS
5	5	
[×]	5	
[=]	25	5^2
[×]	25	
3	3	
[+/−]	−3	
[=]	−75	$5^2 \times (-3)$
15	15	Negative Indicator Goes Out
[=]	−5	Negative Indicator Lights

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.

5	5	
[×]	5	
.25	.25	
[=]	1.25	Cost of Item A
[M+]	1.25	Memory Indicator Lights
6	6	
[×]	6	
.75	0.75	
[=]	4.5	Cost of Item B
[M+]	4.5	Adds Cost of Item B to Item A in Memory
2	2	
[×]	2	

ENTRY	DISPLAY	COMMENTS
.15	0.15	
[=]	0.3	Credit for Item C
[M−]	0.3	Subtracts Item C from A & B in Memory
[MR]	5.45	Total Sale
[MC]	5.45	Clears Memory
[C]	0	

ENTRY CORRECTION

Example: 5 + 3 = 8

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

RECOVERY TECHNIQUES

Occasionally 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 the error indicator will light.

The error conditions relevant are:

1. Depressing [+], [−], [×], [÷] where the magnitude of the result is greater than 99,999,999.
2. Depressing [M+] or [M−] where the magnitude of the result in memory is greater than 99,999,999.
3. Division by 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 year period of warranty it must be returned, freight prepaid to:

LLOYD'S Electronics of Calif. Inc.
P.O. Box 4248
18601 South Susana Road
Compton, California 90221

LLOYD'S Electronics Ltd.
11 Plymouth Street
Winnipeg, Manitoba R2X 2V5

LLOYD'S Electronics Ltd.
4445 Garrand St.
Ville St. Laurent, Quebec, Canada

LLOYD'S Electronics Inc.
180 Raritan Center Parkway
Edison, New Jersey 08817

LLOYD'S Electronics Ltd.
857 Yorkmills Road
Don Mills, Ontario, Canada

The original sales invoice is the only acceptable proof of warranty entitlement and must therefore accompany the returned unit.
This warranty does not apply to any products which have been repaired by unauthorized persons in any way so as, in our judgement to reduce their performance or reliability or which have been subject to misuse, abuse, neglect or accident.
This warranty gives the purchaser specific rights in addition to any other rights which vary from state to state.
In accordance with the MOSS-MAGNUSON warranty act of July 10, 1975 this is termed a **limited** warranty which in no way compromises LLOYD'S high standards of quality and workmanship.

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