

LLOYD'S

ACCUMATIC™ 419
MICROELECTRONIC
HANDHELD CALCULATOR
WITH MEMORY



STANDARD 259A

INTRODUCTION

Congratulations on the purchase of your new LLOYD'S Accumatic™ 419 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 LLOYD'S 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 LLOYD'S AC Adaptor YA-7247 (120V/60Hz) or YA-7585 (220V/50Hz).

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 LLOYD'S 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 LLOYD'S 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 the Accumatic TM419.

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

\square , \square , \square , \square : 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

\square : when the \square key is depressed, the answer will appear on the display.

PERCENT KEY

\square : Depression of this key causes the number on the display to be expressed as a percentage.

CHANGE SIGN KEY

\square : Depression of this key changes the sign of the displayed number. To enter a negative number, enter the number first, then depress this key.

CLEAR AND CLEAR ENTRY KEYS

\square , \square : Depression of the clear \square 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 \square key clears the display register in case a number is entered by mistake. It has no effect on other storage registers or any arithmetic operation which may be set.

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

MEMORY OPERATION

Depression of the following keys perform the various memory operations.

1. \square : 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. \square : Subtracts the contents of the (X) register from the contents of memory. The (X) register and all previous operation are unaffected by this operation.
3. \square : Clears the memory (sets memory contents to zero) without disturbing other calculator modes or registers.
4. \square : Recalls the contents of memory to the display without clearing the memory.

MEMORY INDICATOR

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

NEGATIVE NUMBER INDICATOR

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

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 significant 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 \square 1234.5678, the decimal point indicates four overflowed (counting from the left). The actual answer is 123456780000.

Two successive depression of the clear \square 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 $10^8 \cdot 1$).
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™ 419 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 | |
| \square | 5 | Sets Add Mode |
| 3 | 3 | |
| \square | 8 | |

SUBTRACTION

Example: $6 - 2 = 4$

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|--------------------|
| 6 | 6 | |
| \square | 6 | Sets Subtract Mode |
| 2 | 2 | |
| \square | 4 | |

NEGATIVE BALANCE

Example: $4 - 9 = -5$

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|---------------------------|
| 4 | 4 | |
| \square | 4 | Sets Subtract Mode |
| 9 | 9 | |
| \square | -5 | Negative Indicator Lights |

MIXED ADDITION, SUBTRACTION

Example: $3 - 7 + 8 = 4$

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|---|
| 3 | 3 | |
| \square | 3 | Sets Subtract Mode |
| 7 | 7 | |
| \square | -4 | Result 3-7 Negative Indicator Lights |
| 8 | 8 | Negative Indicator Goes Out |
| \square | 4 | |

MULTIPLICATION

Example: $5.2 \times 6.3 = 32.76$

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|--|
| 5.2 | 5.2 | |
| \square | 5.2 | Sets Multiply Mode |
| 6.3 | 6.3 | |
| \square | 32.76 | Multiply Mode is still set for Auto-Constant |

DIVISION

| ENTRY | DISPLAY | COMMENTS |
|-------------------------------------|---------|--------------------------------|
| Example: $12.4 \div 0.4 = 31$ | | |
| 12.4 | 12.4 | |
| <input checked="" type="checkbox"/> | 12.4 | Sets Divide Mode |
| .4 | 0.4 | No Need to Key-In Leading Zero |
| <input checked="" type="checkbox"/> | 31 | |

MIXED MULTIPLICATION, DIVISION

| | | |
|-------------------------------------|----|---------------------|
| Example: $8 \times 6 \div 12 = 4$ | | |
| 8 | 8 | |
| <input checked="" type="checkbox"/> | 8 | Sets Multiply Mode |
| 6 | 6 | |
| <input checked="" type="checkbox"/> | 48 | Result 8×6 |
| 12 | 12 | |
| <input checked="" type="checkbox"/> | 4 | |

PERCENTAGE

| | | |
|-------------------------------------|-----|--------------------|
| Example: 5% of 30 = 1.5 | | |
| 30 | 30 | |
| <input checked="" type="checkbox"/> | 30 | Sets Multiply Mode |
| 5 | 5 | |
| <input checked="" type="checkbox"/> | 1.5 | |

AUTOMATIC MARK-UP

| | | |
|---|-------|-------------|
| Example: A \$47.25 Purchase Plus 4% Tax | | |
| 47.25 | 47.25 | |
| <input checked="" type="checkbox"/> | 47.25 | |
| 4 | 4 | |
| <input checked="" type="checkbox"/> | 1.89 | 4% of 47.25 |
| <input checked="" type="checkbox"/> | 49.14 | |

AUTOMATIC DISCOUNT

| | | |
|--|-------|--------------|
| Example: A \$15.25 Item Discounted 20% | | |
| 15.25 | 15.25 | |
| <input checked="" type="checkbox"/> | 15.25 | |
| 20 | 20 | |
| <input checked="" type="checkbox"/> | 3.05 | 20% of 15.25 |
| <input checked="" type="checkbox"/> | 12.20 | |

COMBINED MARK-UP, DISCOUNT

| | | |
|--|-------|------------------|
| Example: A \$31.25 Item Discounted 20% Plus 5% Tax | | |
| 31.25 | 31.25 | |
| <input checked="" type="checkbox"/> | 31.25 | |
| 20 | 20 | |
| <input checked="" type="checkbox"/> | 6.25 | 20% of 31.25 |
| <input checked="" type="checkbox"/> | 25 | Discounted Price |
| <input checked="" type="checkbox"/> | 25 | |
| 5 | 5 | |
| <input checked="" type="checkbox"/> | 1.25 | 5% of 25 |
| <input checked="" type="checkbox"/> | 26.25 | |

POWERS

| | | |
|-------------------------------------|----|--------------------|
| Example: $2^4 = 16$ | | |
| 2 | 2 | |
| <input checked="" type="checkbox"/> | 2 | Sets Multiply Mode |
| <input checked="" type="checkbox"/> | 4 | 2^2 |
| <input checked="" type="checkbox"/> | 8 | 2^3 |
| <input checked="" type="checkbox"/> | 16 | 2^4 |

RECIPROCAL

Example: $1/4 = 0.25$

| ENTRY | DISPLAY | COMMENTS |
|---------------|---------|----------|
| 4 | 4 | |
| $\frac{1}{x}$ | 4 | |
| $\frac{1}{x}$ | 1 | |
| $\frac{1}{x}$ | 0.25 | |

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: $4 \times 4 \times 4 \times 4 = 256$

| ENTRY | DISPLAY | COMMENTS |
|----------|---------|--------------------------------|
| 4 | 4 | |
| \times | 4 | Sets Multiply Mode |
| \times | 16 | 4×4 |
| \times | 64 | $4 \times 4 \times 4$ |
| \times | 256 | $4 \times 4 \times 4 \times 4$ |

DIVISION

Example: $2 \div 2 \div 2 \div 2 = 0.25$

| | | |
|--------|------|--------------------------|
| 2 | 2 | |
| \div | 2 | Sets Divide Mode |
| \div | 1 | $2 \div 2$ |
| \div | 0.5 | $2 \div 2 \div 2$ |
| \div | 0.25 | $2 \div 2 \div 2 \div 2$ |

CONSTANT OPERATIONS

MULTIPLICATION

Example: $4 \times 3 = 12$, $4 \times 5 = 20$

| | | |
|----------|----|--------------------|
| 4 | 4 | |
| \times | 4 | Sets Multiply Mode |
| 3 | 3 | |
| \times | 12 | Sets Auto-Constant |
| 5 | 5 | |
| \times | 20 | |

DIVISION

Example: $6 \div 2 = 3$, $8 \div 2 = 4$

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|--------------------|
| 6 | 6 | |
| \square | 6 | Sets Divide Mode |
| 2 | 2 | |
| \square | 3 | Sets Auto-Constant |
| 8 | 8 | |
| \square | 4 | |

CHAIN OPERATIONS

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

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|---------------|
| 6 | 6 | |
| \square | 6 | |
| 4 | 4 | |
| | 10 | 6 + 4 |
| 2 | 2 | |
| \square | 20 | (6 + 4) 2 |
| 8 | 8 | |
| \square | 2 | (6 + 4) 2 - 8 |
| 5 | 5 | |
| \square | 2.4 | Result |

CHANGE SIGN

Example: $\frac{5 \times (-3)}{15} = -1$

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|-----------------------------|
| 5 | 5 | |
| \square | 5 | |
| \square | 25 | 5^2 |
| \square | 25 | |
| 3 | 3 | |
| \square | -3 | |
| \square | -75 | $5^2 \times (-3)$ |
| 15 | 15 | Negative Indicator Goes Out |
| \square | -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.

| ENTRY | DISPLAY | COMMENTS |
|-----------|---------|--|
| 5 | 5 | |
| \square | 5 | |
| .25 | 0.25 | |
| \square | 1.25 | Cost of Item A (Memory Indicator lights) |
| 6 | 6 | |
| \square | 6 | |
| .75 | 0.75 | |
| \square | 4.5 | Cost of Item B (Adds Cost of Item B to Item A in Memory) |

| ENTRY | DISPLAY | COMMENTS |
|-------------|---------|---|
| 2 | 2 | |
| \boxtimes | 2 | |
| .15 | 0.15 | |
| \boxminus | 0.3 | Credit for Item C (Subtracts Item C from A & B in Memory) |
| \boxplus | 5.45 | Total Sale. |
| \boxtimes | 5.45 | Clears Memory (Memory Indicator Goes Out.) |
| \boxtimes | 0 | |

ENTRY CORRECTION

Example: $5 + 3 = 8$

| | | |
|-------------|---|---------------------|
| 5 | 5 | |
| \boxplus | 5 | |
| 4 | 4 | Should Have Been 3. |
| \boxtimes | 0 | |
| 3 | 3 | |
| \boxtimes | 8 | |

RECOVERY TECHNIQUES

Occasionally during calculations, an undesired arithmetic function key may be depressed. Utilizing these simple recovery techniques makes it unnecessary to begin the calculations again.

For example, if the \boxplus or \boxtimes keys are inadvertently depressed, simply enter a 0, depress the intended arithmetic function and continue with the calculation. If the \boxtimes or \boxtimes keys are inadvertently depressed, simply enter a 1, depress the intended function key and continue with the calculation.

OVERFLOW AND ERROR INDICATIONS

Whenever the capacity of the machine is exceeded or an impossible calculation is attempted the error indicator in the leftmost display position will light.

The error conditions relevant are:

1. Depressing \boxtimes , \boxtimes , \boxtimes , \boxtimes where the magnitude of the result is greater than 99,999,999.
2. Depressing \boxplus or \boxtimes where the magnitude of the result in memory is greater than 99,999,999.
3. Division by zero.

PRODUCT WARRANTY

LLOYD'S Electronics warrants its products to be free from defects in materials and workmanship under normal use and service for the following period:

PARTS 1 YEAR LABOR 90 DAYS

This warranty begins with the date of purchase and applies to the original owner only. Within the specified period LLOYD'S will repair or replace any part(s) which we deem defective through normal use,

at no charge except for a factory processing fee of \$1.75.

All products must be returned to the appropriate LLOYD'S Factory Service Department for Warranty Service.

IMPORTANT: To obtain Warranty Service on any product, you must present a copy of the Bill of Sale as proof of valid guarantee. If the merchandise is to be mailed to us, be certain to include the Bill of Sale along with your check or money order for the processing fee.

Any alterations, abuse, misuse, battery corrosion or accidental damage voids this guarantee.

Any repairs made by other than a LLOYD'S Factory Service Center are not covered by our warranty.

This guarantee is in lieu of all other guarantees, either expressed or implied and is valid only in the Continental U.S., Alaska, Hawaii and Canada.

Beyond the warranty period service may be obtained at the Factory Service Centers at reasonable rates.

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DIRECT ACCESS MEMORY

To improve the usefulness of your calculator a "Direct Access Memory" is provided.

The $\boxed{M+}$ and $\boxed{M-}$ keys may be used to complete addition, subtraction, multiplication and division operations while simultaneously adding or subtracting the result to the memory.

The example given under "MEMORY OPERATION" of your manual illustrate this step saving feature.