

### WARANTY

Craig Corporation warrants to the purchaser of this new Craig Calculator that if the machine or any part thereof in the judgment of Craig is proven to be defective in material or workmanship within one year from date of original purchase such defects will be repaired or replaced (at the company's option) free of charge for parts and labor.

This warranty does not apply to any product which has been damaged by accident or which has been misused, altered, or repaired by anyone other than Craig.

This warranty is in lieu of all other warranties expressed or implied, including any implied warranty of merchantability, and no person is authorized to assume for Craig any other liability in connection with the sale of this product.

To obtain repairs, the Calculator should be delivered, prepaid, to Craig Corporation at either address shown below. In-warranty units will be returned postage prepaid.

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— Keep Your Sales Slip —

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## INTRODUCTION

Your Craig 4505 Electronic Calculator represents a significant engineering achievement resulting in full-size capability in a compact package. Major advances in miniaturized computer circuits using single-chip LSI (Large Scale Integration) have provided a rugged and reliable unit, and the self-contained replaceable batteries permit convenient use without need for AC power. An optional adapter is available for AC operation. This adapter will also charge nickel-cadmium batteries which can be used in place of regular flashlight batteries.

The Craig 4505 will perform the usual addition, subtraction, multiplication, and division functions including chain or mixed calculations, with automatic constant capability for repeat add and subtract as well as multiply and divide. A separate accumulating memory greatly increases the versatility of this unit, eliminating the necessity for manual notation of intermediate answers or permitting the repeated utilization of a reference number during an extended calculation. An automatic decimal function facilitates entry of dollar/cent figures without use of the decimal key, and direct percentage results may be obtained by use of the special [%] key. Display indicators denote negative result (minus sign), overflow, and "memory-in-use," and the double-acting clear key allows correction of mistaken entries without loss of prior results.

It is suggested that the following instructions for operation be read with the calculator at hand, and that all calculation examples be performed to increase your familiarity with the unit. A short outline of operating procedures is also printed on the back of the calculator for quick reference.

## PREPARATION FOR USE

### Battery Power

Four "AA" penlite batteries are required. Open the cover of the battery compartment on the bottom of the unit and insert the cells to match the polarity of the + and - signs indicated inside the compartment. (The unit will not operate properly, and rechargeable cells may be damaged, if the cells are incorrectly inserted.) Replace the battery compartment cover. Slide the power switch to "ON". Standard zinc-carbon cells will provide at least 4 hours operating time, but more economical battery costs will result from the use of rechargeable nickel-cadmium cells. Replace or recharge the batteries when all decimal points come on during operation.

### AC Power

The calculator may be operated from any 120 volt AC 50/60 Hz outlet by using the Craig 9227 Adapter. Plug the adapter into a convenient wall receptacle, and insert the small connector into the "DC 6V" socket on the side of the calculator.

### **Battery Recharge**

The batteries in the calculator are automatically connected to a recharging circuit whenever the AC Adapter is in use, regardless of the position of the calculator power switch.

Nickel-cadmium cells may be left in the unit at all times. When all decimal points come on, the batteries should be recharged by leaving the unit plugged into the AC line overnight. A fully discharged battery may take 24 hours to recharge. Nickel-cadmium cells will not be damaged by moderate over-charging. However, if the unit is to be left unused for more than a few days, it is desirable to either remove the cells or unplug the power cord.

Note: It is normal for rechargeable cells to lose about 1% of their charge per day. An overnight charge should be given when the calculator has not been in use for more than 30 days.

Zinc-carbon and alkaline cells cannot be effectively recharged, but should not be damaged by normal intermittent AC operation of the calculator. It is good practice to remove the cells from the unit when it is not to be used in the battery mode for an extended time, to prevent damage from possible leaking battery fluid.

### **Warning**

Do not store the calculator in high-temperature areas such as the top of a room heater or the rear package shelf of an automobile exposed to the sun. Satisfactory operation should be obtained over an ambient temperature range of 0 to 50C (32 to 122F), and relative humidity to 95%. Do not immerse or allow liquids to fall on the unit.

## **OPERATION**

**Power Switch** — Turns calculator "ON" or "OFF" with automatic clearing of all registers. AC adapter will charge nickel-cadmium batteries in either position, but charging time is less when switch is "OFF".

**Memory Switch** — Activates a separate memory register to accumulate answers or store constants. The indicator lamp above the switch will illuminate whenever a number is contained in the memory. Numbers are entered in the memory only when the switch is "ON" and the  $\boxed{=}$  or  $\boxed{\%}$  key is depressed. When a number has been stored in the memory, the switch can be moved to "OFF" to preserve that number without accumulating additional answers.

**Decimal Switch** — Selects number of decimal positions in answer. When positioned as required by calculation, "2" and "A2" provide fixed answer with automatic round-off of additional decimal digits. When next digit is 0-4, last displayed digit is not changed, but when the next digit is 5-9 the last displayed digit is increased by 1. For example, 4,554  $\rightarrow$  4,55; 4,555  $\rightarrow$  4,56. Round-off occurs only when  $\boxed{=}$  key is depressed, and entries can be made with more than 2 decimal places.

"A2" position also permits entries such as dollars/cents with automatic positioning of entry decimal two places to left without use of the  $\boxed{\cdot}$  key (common "adding-machine" mode). When desired, the  $\boxed{\cdot}$  key can be used to override the automatic placement for multiplication and division or addition of a third decimal digit.

**Constant** — This calculator has fully-automatic constant capability in all calculating modes, with no need for a separate control switch. The first entry (multiplicand) for multiplication, or the second entry (divisor) for division, is available without re-entry for use with other multipliers or dividends. The last entry in additions or subtractions is also available for repeated addition or subtraction without re-entry.

**Overflow** — if entry of more than eight digits is attempted, the eight most-significant digits will be displayed and calculation of sums, or a product or quotient, exceeds the display capacity the overflow symbol "E" will appear at the left side of the display with the eight most-significant digits shown. A single depression of the  $\boxed{C}$  key will remove the "E" symbol and permit calculations to continue with the displayed number. Since the proper decimal position has been lost at overflow, manual relocation will be necessary.

**Number Entry** — Touch number and decimal  $\boxed{\cdot}$  keys one at a time, starting with the left digit and progressing to the right. For example, enter 635.24 by depressing in sequence  $\boxed{6}$ ,  $\boxed{3}$ ,  $\boxed{5}$ ,  $\boxed{\cdot}$ ,  $\boxed{2}$ ,  $\boxed{4}$ . When the decimal switch is at "A2" the  $\boxed{\cdot}$  key may be omitted when all entries have two places to the right of the decimal. For example, 3.00 would be entered by  $\boxed{3}$ ,  $\boxed{0}$ ,  $\boxed{0}$ , and 0.25 would be  $\boxed{2}$ ,  $\boxed{5}$ .

$\boxed{C}$  Key — First stroke ("clear entry") clears display, and working registers if calculation has been completed. Second stroke ("clear all") clears all registers (except memory) when a calculation is still in progress. A single stroke will erase an incorrect entry without loss of previously-entered numbers if a function key has not been depressed.

$\boxed{CM}$  Key — Clears the separate memory register, but does not affect main registers.

$\boxed{MR}$  Key — Recalls contents of memory register to display, without loss of storage. Recalled number is equivalent to a new entry, and may be used for further calculations.

$\boxed{\%}$  Key — When used instead of  $\boxed{=}$  to complete a multiplication or division, will automatically move answer decimal two places left, and also conditions registers for a discount ( $\boxed{-}$ ) or mark-up ( $\boxed{+}$ ) operation. For example, 50  $\boxed{\times}$  6  $\boxed{\%}$ ; read 3,  $\boxed{+}$ ; read 53. Percent answer is added to memory register when memory switch is "ON".

$\boxed{=}$  Key — Completes a multiply or divide operation, and adds result to memory register (when memory switch is "ON"). Can also be used to transfer sums to memory, but does not complete an addition or subtraction operation (3  $\boxed{+}$  2  $\boxed{+}$ , not 3  $\boxed{+}$  2  $\boxed{=}$ ).

$\boxed{\div}$  Key — Enters a "divide" command.

$\boxed{\times}$  Key — Enters a "multiply" command.

$\boxed{-}$  Key — Subtracts the entered number, and will perform repeat subtraction with additional depressions. Also changes sign for multiplying and dividing with negative numbers. Depress after answer ( $\boxed{=}$ ) or after first entry (a  $\boxed{-}$   $\boxed{\times}$  b  $\boxed{=}$ ). When depressed after second entry,  $\boxed{-}$  will cancel  $\boxed{\times}$  or  $\boxed{\div}$  command.

$\boxed{+}$  Key — Adds the entered number, and will perform repeat addition with additional depressions.

#### CALCULATION EXAMPLES

**Addition** (Decimal switch at "2" for automatic 2-decimal round-off)

$$2.501 + 3 + 3 + 46.304 = 54.805 \text{ (54.81)}$$

$\boxed{C}$ ,  $\boxed{C}$ , 2.501,  $\boxed{+}$ , 3,  $\boxed{+}$ ,  $\boxed{+}$ , 46.304,  $\boxed{+}$ ; read 54.805,  $\boxed{=}$ ; read 54.81.

Note: If memory switch is "ON", 54.81 will be added to memory register.

#### Subtraction

$$34.9 - 27.25 - 4.5 = 3.15$$

$\boxed{C}$ ,  $\boxed{C}$ , 34.9,  $\boxed{-}$ , 27.25,  $\boxed{-}$ , 4.5,  $\boxed{=}$ ; read 3.15. If this answer is to be accumulated in the memory with the answer to the previous problem, depress  $\boxed{=}$ . To verify the accumulation, depress  $\boxed{MR}$ , read 57.96 (54.81 + 3.15).

#### Multiplication

$$3 \times 9 = 27; 3 \times 6.53 = 19.59; 3 \times 1.005 = 3.015$$

$\boxed{C}$ ,  $\boxed{C}$ , 3,  $\boxed{\times}$ , 9,  $\boxed{=}$ ; read 27; 6.53,  $\boxed{=}$ ; read 19.59; 1.005,  $\boxed{=}$ , read 3.015. If decimal switch is at "2", last answer will be 3.02 because of automatic round-off.

#### Division

$$14 \div 5 = 2.8; 27 \div 5 = 5.4; 5.001 \div 5 = 1.0002$$

$\boxed{C}$ ,  $\boxed{C}$ , 14,  $\boxed{\div}$ , 5,  $\boxed{=}$ ; read 2.8; 27,  $\boxed{\div}$ ; read 5.4; 5.001,  $\boxed{\div}$ ; read 1.0002 (decimal at "AF").

#### Mixed Calculations

$$6.5 \times (-4) \div 13 = -2$$

$\boxed{C}$ ,  $\boxed{C}$ , 6.5,  $\boxed{\times}$ , 4,  $\boxed{=}$ ,  $\boxed{-}$ ,  $\boxed{\div}$ , 13,  $\boxed{=}$ ; read -2. Alternatively, rearrange terms: 4,  $\boxed{-}$ ;  $\boxed{\times}$ , 6.5,  $\boxed{\div}$ , 13,  $\boxed{=}$ ; read -2.

$(3 + 5 - 2) \div 4 (9 - 7) = 0.75$  (Use memory to store divisor for recall.)

$\boxed{CM}$ ,  $\boxed{C}$ ,  $\boxed{C}$ , 9,  $\boxed{+}$ , 7,  $\boxed{-}$ ,  $\boxed{\times}$ , 4,  $\boxed{=}$ .  $\boxed{C}$ , 3,  $\boxed{+}$ , 5,  $\boxed{+}$ , 2,  $\boxed{-}$ ,  $\boxed{\div}$ ,  $\boxed{MR}$ ,  $\boxed{=}$ ; read 0.75.

**Exponents and Reciprocals**

$2^4 = 16; 1/2.5 = 0.4$

[C], [C], 2, [x], [=], [=], [=], read 16.

[C], [C], 2.5, [=], [=], [=], read 0.4

**Percentage**

12% of 65 = 7.8;  $27 \div 30\% = 90$

[C], [C], 65, [x], 12, [%]; read 7.8; 27, [=], 30, [%]; read 90.

**Invoice Extension with Discount and Tax**

(Memory "ON", Decimal at "2")

12 at 2.25 = 27.00 [C], [C], 12, [x], 2.25, [=]; read 27

6 at 4.50 = 27.00 6, [x], 4.50, [=]; read 27

2 at 3.19 = 6.38 2, [x], 3.19, [=]; read 6.38

60.38

Less 15% -9.06 [MR], [x], 15, [%]; read 9.06, [=]; read 51.32

Plus 5% tax 2.57 [x], 5, [%]; read 2.57, 53.89 [+]; read 53.89

**Use of Stored Constant** (Memory "ON", decimal at "2")

6 items at ¥320 each = \$7.38 (\$1.00 = ¥260 yen)

2 items at ¥840 each = \$6.46

First, store 260 in memory: [CM], [C], 260, [=], slide memory switch "OFF".

[C], 6, [x], 320, [=], [MR], [=], read 7.38.

[C], 2, [x], 840, [=], [MR], [=]; read 6.46.