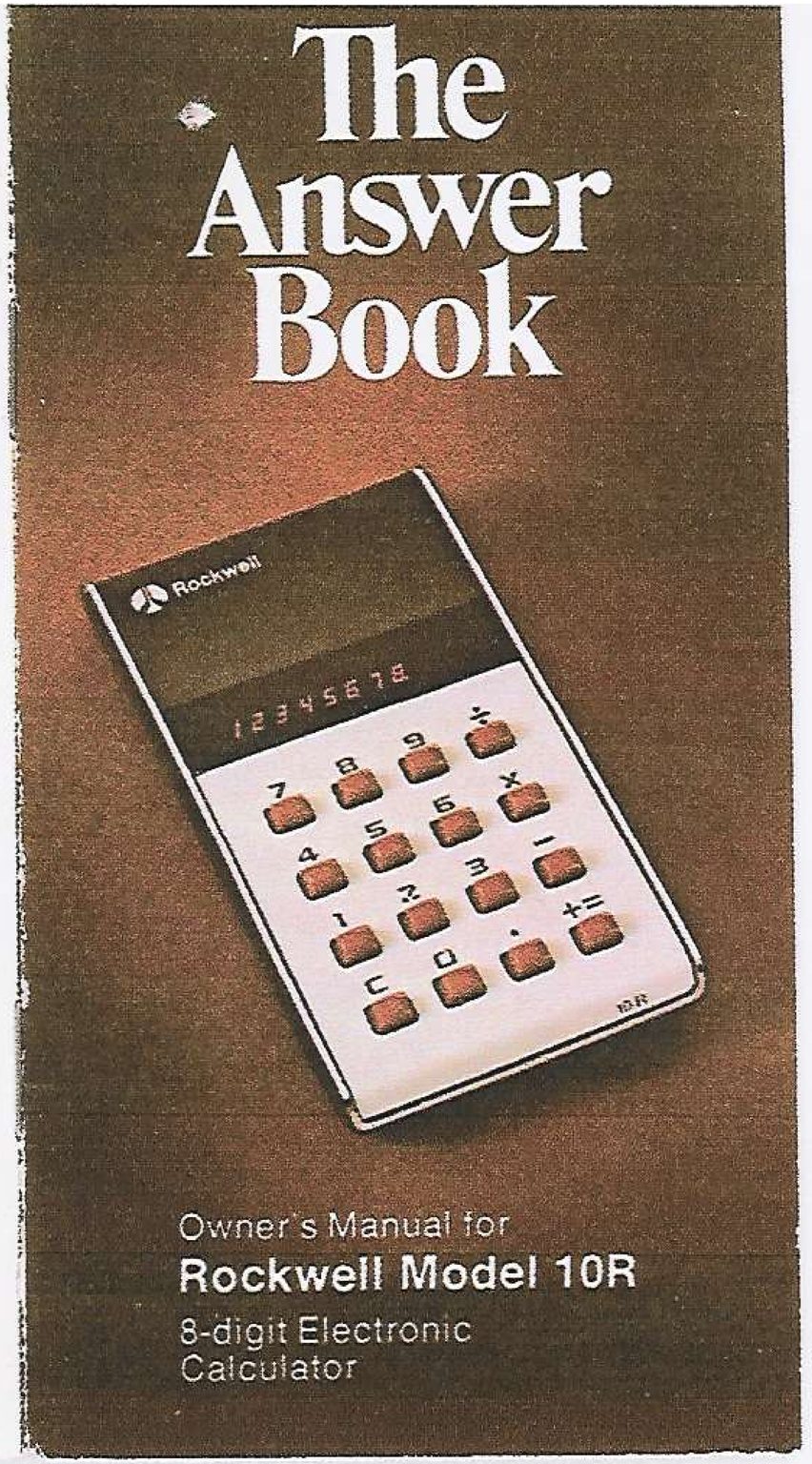
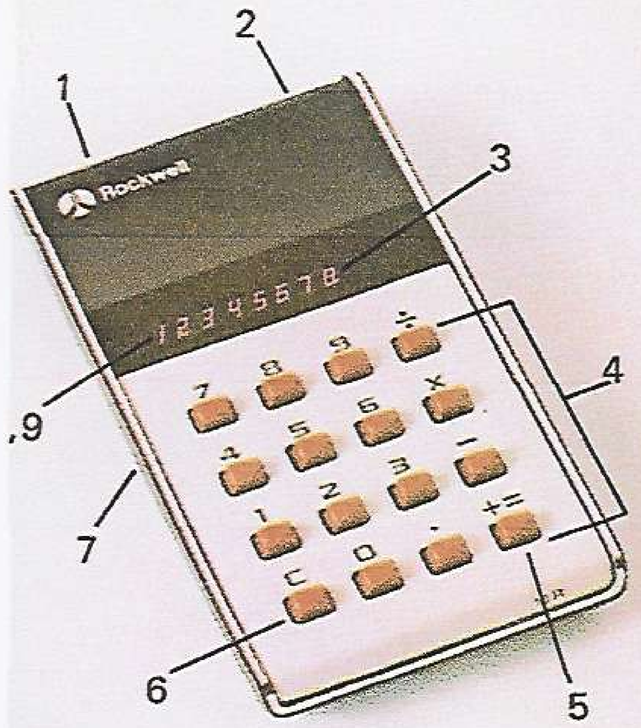


Rockwell International

...where science gets down to business

2520-D-63-R1-408 Litho in U.S.A.



1. AC jack (for optional AC adapter)
2. Battery compartment (door on back side)
3. Eight digit display
4. Arithmetic function keys
5. Equals key
6. Clear and Entry Correction key
7. On/Off switch
8. Overflow indicator (not shown)
9. Negative number indicator (not shown)

Welcome to the world of Rockwell reliability!

You now have The Answer to everyday figuring problems. Balancing your checkbook, for instance. Figuring taxes. Budgets. Bills. In a fraction of a second, you can add, subtract, multiply, and divide—and know that the decimal point will always appear in the right place on the display.

The reason: your Rockwell 10R calculator uses one of today's most sophisticated electronic devices—the microelectronic silicon chip. Although this chip is no larger than a fleck of confetti, its minute surface is programmed with the capabilities needed to give you immediate solutions to everyday problems. Rockwell International has had more experience with these remarkable devices than anyone else in the industry.

This instruction manual will not only tell you how to use your calculator, but also show you some of the everyday problems it can help you solve quickly and accurately.

CONTENTS

GENERAL INFORMATION

What's the first thing you should do before trying your new calculator?
Put the battery in. It's included with your calculator, but not installed. It's a 9-volt transistor battery and can be replaced, when necessary (which is not very often with this low-power-consumption calculator), with any standard 9-volt battery available everywhere.

How is the battery installed?
Remove the battery access cover from the back of the calculator by sliding the latch toward the outside of the calculator. Snap the battery clips onto the battery, place the battery inside the calculator battery compartment, and replace the battery cover. Your calculator is now ready for use.

How long can you expect a battery to last?
When the battery becomes discharged, your calculator display will get very dim. Finally, the calculator will stop working until you install a new battery. With normal usage, a

carbon-zinc battery will give you about ten hours of operation, and an alkaline battery about twenty hours of operation.

Can you operate this calculator on regular household or office current? Yes. Ask your dealer for the Answer Accessory Kit, Model 01R. It's an additional low-cost option that contains an AC adapter (Part No. 331 R03-001) and a vinyl carrying case for your calculator. Simply plug one end of this AC adapter into the calculator and the other end into any convenient 110V-120V wall outlet. The AC adapter can be used with or without a battery installed.

NOTE: If the AC adapter is plugged into the calculator, the AC adapter must also be plugged into a wall outlet or the calculator will not work because the AC adapter plug disconnects the battery.

What about care and maintenance? Your calculator, having been manufactured with precision parts, deserves the same care that you give your other prized possessions.

Here are some practical tips:

1. Keep your calculator away from moisture and liquids.
2. Never use a dry or wet cleaner of any kind on the high impact plastic case. Simply wipe the case with a clean dust cloth.
3. Do not drop or subject your calculator to heavy shocks or vibration.
4. Avoid exposing your calculator to extreme heat or cold. Keep it out of direct, intense sunlight and away from heating devices.
5. When not in use, turn the calculator off. If you have a carrying case, keep your calculator inside it.
6. Use only AC adapter Part No. 331 R03-001 supplied with the Model 01R Answer Accessory Kit.
7. Do not attempt to repair the calculator yourself. Its parts are replaceable, but not repairable.

If you mail your calculator for service, remove the battery and pack it with your calculator. To maintain your warranty, *never mail a calculator with battery installed.* When discarding a battery, DO NOT BURN IT, FOR IT MAY EXPLODE.

OPERATION

ON/OFF SWITCH

Turning the calculator on automatically clears the calculator to zero. The calculator is then immediately ready for use in solving problems.

DISPLAY

Your calculator will accept and display numbers in the following ranges:

1. Any positive number between 0.0000001 and 99999999.
2. Any negative number between −.0000001 and −9999999.

Results in excess of 8 digits for positive numbers and 7 digits for negative numbers are indicated by an Overflow Indicator (8 decimal points): 1.2.3.4.5.6.7.8. for example, and the first 8 or 7 (most important) digits of your answer are saved. (In this circumstance, all keys become inoperative except the clear key, [C]. See Clear Operations and Overflow Conditions). A negative number is indicated by a minus sign before the left-most number in the display: −456.23 for example.

NUMBER AND DECIMAL POINT ENTRY

Pressing any number entry key enters that digit into the calculator and causes it to appear on the display. Turn your calculator on and depress the [2] and [4] keys. The display shows the following:

Keyboard Entry	Display
2	2.
4	24.

When you want to enter a decimal number, depress the [·] key following the number after which you want the decimal point located.

To enter 1.6:

Keyboard Entry	Display
1	1.
[·]	1.
6	1.6

ARITHMETIC OPERATIONS

The arithmetic function keys, [+], [−], [×], and [÷], enter the desired arithmetic operation to be performed by the calculator. The answer to such an operation is obtained by depressing the [=] key. Because this calculator has a FLOATING DECIMAL, it automatically places

the decimal point in the correct position in your answers.

NOTES: The plus and equal functions are on the same key. In this manual, the [+] symbol signifies add, the [=] symbol signifies equals.

Before beginning a problem, always clear the calculator by depressing the [C] key twice.

BASIC CALCULATIONS

Addition and Subtraction

Your Rockwell 10R performs addition and subtraction with algebraic logic. This means that your calculator works the same way you think or would write a problem. For example, 5 + 4 − 3 = 6 is entered exactly the way the problem is stated.

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
5	5.	
[+]	5.	
4	4.	
[−]	9.	
3	3.	
[=]	6.	

Notice that the display shows each new numerical entry as you depress the number entry keys, and the result of the previous arithmetic calculation when an arithmetic function key is depressed.

Multiplication and Division

Multiplication and division problems are also entered the same way you think or would write a problem. For example, 7 x 9 ÷ 6 = 10.5 is entered as stated.

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
7	7.	
[x]	7.	
9	9.	
[÷]	63.	
6	6.	
[=]	10.5	

MIXED (CHAIN) CALCULATIONS

Addition, subtraction, multiplication and division can be intermixed in any desired combination. All four arithmetic operations are used in the following example:

$$\frac{(5 + 6)\ 7 - 8}{9} = 7.6666666$$

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
5	5.	
[+] 6	6.	
[x]	11.	
7	7.	
[-]	77.	
8	8.	(Continued on Page 12)

MIXED (CHAIN) CALCULATIONS (CONT)

Keyboard Entry	Display
÷	69.
9	9.
=	7.6666666

REPEAT OPERATIONS

The repeat operation capability of your Rockwell 10R is a convenient, time saving feature that enables you to add, subtract, multiply or divide a series of identical numbers without re-entering the numbers each time.

For example, if your grocery bill or inventory list contains several identical items, just depress the + key once for each time the same item appears on the list. Thus, items with values of 1.69 + 2.98 + 2.98 + 2.98 + 0.49 = 11.12 would be added as follows:

Keyboard Entry	Display	Comments
C C	0.	Calculator cleared
1.69	1.69	
+ 2.98	2.98	
+	4.67	
+	7.65	
+	10.63	
.49	0.49	
=	11.12	

As another example, to compound 7.5% interest on your 4-year $1000 bank certificate of deposit, you would multiply 1.075 by itself four times (1.075^4) and multiply the result by 1000 to determine the value after four years.

REPEAT OPERATIONS (CONT)

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
1.075	1.075	(100 + 7.5)% entered as decimal
[x]	1.075	
[x]	1.155625	$1.075^2 = 1.075 \times 1.075$
[x]	1.2422968	1.075^3
[x]	1.335469	1.075^4
1000	1000.	
[=]	1335.469	Value at maturity

CLEAR OPERATIONS

The clear key, [C], performs three functions:

1. Clears the calculator. The calculator must be cleared before beginning each problem. If you wish to clear the calculator immediately after entering a number, depress the [C] key twice; otherwise, you clear only the latest entry.

You need depress the [C] key only once after the [+], [−], [x], or [÷] key. However, for simplicity of operation, just depress the [C] key twice to make certain the calculator is cleared before beginning a new problem. For example:

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
9	9.	
[x] 8	8.	Error; intended to add
[C] [C]	0.	Number and function cleared
9	9.	

(Continued on Page 18)

Model 10R
8-digit Electronic Calculator*
Basic Answer features: 8 digits • 4 function (+ – x ÷) • Algebraic logic • Floating decimal • Repeat function

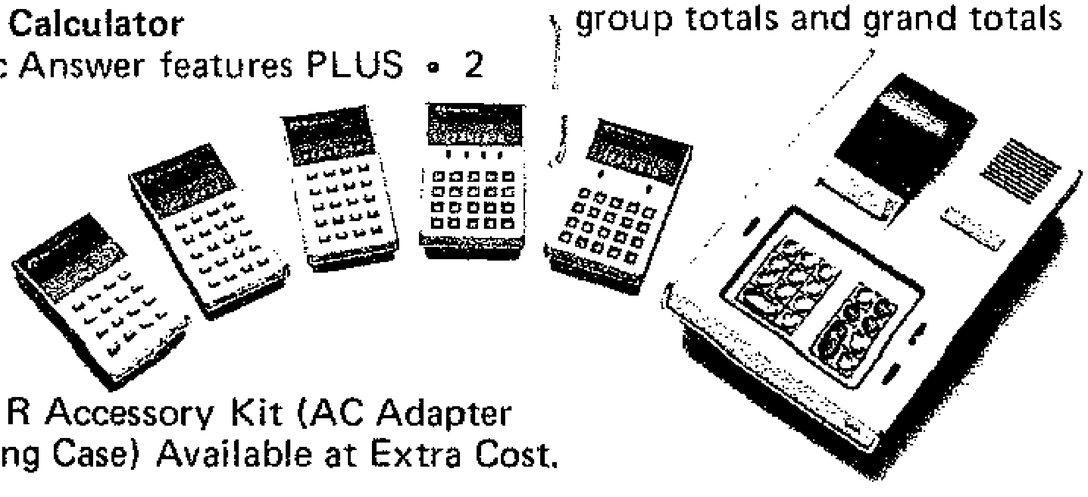
Model 20R
Electronic Calculator with Memory and Percent*
• All Basic Answer features PLUS • Fully addressable memory • Automatic constants • % key • Automatic mark-on and discount

Model 30R
Slide Rule Memory Electronic Calculator*
• All Basic Answer features PLUS • Fully addressable memory • Automatic constants • % key • Automatic mark-on and discount • Register exchange • Sign change • Reciprocals • Squares • Square roots

Model 51R
Universal Converter Electronic Calculator
• All Basic Answer features PLUS • 2 fully addressable memories • 2-place or floating decimal • Automatic constants • Fraction calculations • 224 fixed conversions plus programmable conversion • AC charger and case

Model 61R
Advanced Slide Rule Electronic Calculator
• All Basic Answer features PLUS • Fully addressable memory • Automatic constants • Register exchange • Sign change • Reciprocals • Sum of squares • Square roots • Log functions • Trig functions in degrees or radians • Powers • AC charger and case

Model 80R
10-digit Printer Electronic Calculator
• 4 functions • Commercial logic • 10 digits plus 2 columns of symbols • Thermal printer • Floating decimal or dollar decimal with override • Automatic constant and repeat • Subtotals, group totals and grand totals



*Model 01R Accessory Kit (AC Adapter and Carrying Case) Available at Extra Cost.

CLEAR OPERATIONS (CONT)

Keyboard Entry	Display	Comments
÷	9.	Error; intended to add
C	0.	Number and function cleared
9	9.	
+ 8	8.	
=	17.	

2. **Corrects wrong number entry.** If you enter the wrong number, depress the C key once and you will clear just the latest entry. Then make a correct entry and go on with your calculation. For example:

Keyboard Entry	Display	Comments
C C	0.	Calculator cleared
2	2.	
+ 4	4.	Error; intended to enter 3
C	0.	
3	3.	
=	5.	2 + 3

3. **Cancels the Overflow Condition.** To cancel an overflow condition, indicated by lighting of all decimal points in the display, depress the C key twice, scale the numbers (see Computations with Large or Small Numbers), and re-enter the problem.

OVERFLOW CONDITIONS

The following operations result in an overflow condition which causes the Overflow Indicators to light and all keys except [C] to become inoperative.

1. Any positive answer or subtotal exceeding 8 digits (greater than 99,999,999.) to the left of the decimal point. The 8 most significant digits are displayed. For example:

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
50000	50000.	
[x] [=]	2.5.0.0.0.0.0.0.	Overflow occurred
[C]	25.000000	Overflow cleared
[C]	0.	Calculator cleared

2. Any negative answer or subtotal exceeding 7 digits (less than −9,999,999.) to the left of the decimal point. The 7 most significant digits are displayed. For example:

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
[−] 50000	50000.	
[x]	− 50000.	
[=]	−.2.5.0.0.0.0.0.	Overflow occurred
[C]	−25.00000	Overflow cleared
[C]	0.	Calculator cleared

3. Division by zero. Zeros and decimal points are displayed. For example:

OVERFLOW CONDITIONS (CONT)

Keyboard Entry	Display	Comments
C C	0.	Calculator cleared
1	1.	
÷ 0	0.	
=	0.0.0.0.0.0.0.0.	Overflow occurred
C	0.	Overflow cleared

COMPUTATIONS WITH LARGE OR SMALL NUMBERS

Computations can be made with numbers which are too large or too small for the capacity of the calculator by scaling (shifting the decimal point to the left, or to the right) before entering the number. The decimal point in the answer must then be shifted in the opposite direction. For example, to multiply 0.0000019 x 0.00017 you must first scale at least one of the numbers or your calculator will display an answer of zero because the first non-zero number in the answer (.000000000323) is beyond the 8-digit capacity of the calculator. However, if you shift the decimal point to the right of the number in each number (for maximum accuracy), you will obtain the correct number in the answer and you will only need to position the decimal point. In this instance, a shift of 7 decimal places to the right in one number and 5 decimal places to the right in the other would require a 12 (7 + 5) decimal place shift to the left in the answer. For example:

Keyboard Entry	Display	Comments
C C	0.	Calculator cleared
19	19.	
x 17	17.	
=	323.	The correct answer is .000000000323

RECOVERY TECHNIQUES

Occasionally you may unintentionally depress one of the arithmetic function keys. The following techniques allow easy correction without loss of the displayed number.

Unintentional [×] or [÷]: Depress 1, then the correct arithmetic function key. For example: 9 + 7 = 16

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
9	9.	
[×]	9.	Error; intended to add
1	1.	
[+]	9.	Proceed with problem
7	7.	
[=]	16.	

Unintentional [+] or [−]: Depress 0, then the correct arithmetic function key. For example: 8 − 5 = 3

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
8	8.	
[+]	8.	Error; intended to subtract
0	0.	
[−]	8.	Proceed with problem
5	5.	
[=]	3.	

SAMPLE PROBLEMS

The preceding explanation of the operation of your calculator has provided some examples of everyday problems which can be solved by your Rockwell Model 10R calculator. The following pages contain some additional examples of this calculator's many applications in your home or office.

BALANCING YOUR CHECKBOOK

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
349.72	349.72	Balance forward
[−] 67.46	67.46	Check No. 1
[−]	282.26	Subtotal
8.67	8.67	Check No. 2
[+]	273.59	Subtotal
61.72	61.72	Deposit
[=]	335.31	Balance

SALES TAX

What is the total price of a $19.95 item plus 6% sales tax?

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
19.95	19.95	
[×] .06	0.06	6% entered as decimal
[+]	1.197	Sales tax = $1.20
19.95	19.95	
[=]	21.147	Total price = $21.15

SALES TAX (CONT)

or if you don't need to know the amount of the sales tax

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
19.95	19.95	
[x] 1.06	1.06	(100 + 6)% entered as decimal
[=]	21.147	Total price = $21.15

DISCOUNT

What is the total price of $19.95 item discounted 15% and with 6% sales tax added?

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
1	1.	100% entered as decimal
[−] .15	0.15	15% entered as decimal
[x]	0.85	(100 − 15)% as decimal
19.95	19.95	
[x]	16.9575	
1.06	1.06	(100 + 6)% entered as decimal
[=]	17.97495	Total price = $17.98

CALCULATING THE BETTER BUY

Buy No. 1: A 64 oz. box 98¢
Buy No. 2: A 38 oz. box 57¢

Keyboard Entry	Display	Comments
[C] [C]	0.	
98	98.	Price of buy No. 1
[÷] 64	64.	Weight of buy No. 1
[x]	1.53125	Price per oz. of buy No. 1
38	38.	Weight of buy No. 2
[=]	58.1875	Price of buy No. 1 for the same weight as buy No. 2; since price of buy No. 2 is less it is a better buy.

CALCULATING GASOLINE MILEAGE

If you last filled your gasoline tank when the odometer reading was 39343, and 13.8 gallons of gasoline are required to refill the tank when the odometer reads 39582, how many miles have you driven per gallon of gas?

Keyboard Entry	Display	Comments
[C] [C]	0.	Calculator cleared
39582	39582.	Present odometer reading
[−] 39343	39343.	Previous odometer reading
[÷]	239.	Miles driven
13.8	13.8	Gallons added
[=]	17.31884	Miles per gallon

Consumer Warranty

Rockwell International Corporation Electronic Calculator

This electronic calculator from ROCKWELL is warranted to be free from defects in materials and workmanship under normal use and service for one year from the date of retail purchase. ROCKWELL will, free of charge, repair or replace (at its option) any part(s) which are found to have become defective through normal use, provided that the calculator is returned prepaid within one year to one of the ROCKWELL Customer Service Centers. (The original packaging is ideal for this purpose.)

To assure proper handling and servicing of your calculator under the one-year warranty, you must send with your calculator a copy of the sales receipt (or other proof of purchase date). Calculators returned without proof of purchase date will be serviced out-of-warranty at our prevailing service rates.

This Warranty does not extend to any article which has been subject to misuse, neglect or accident, or if the Serial Number has been altered or defaced, or if the calculator has been serviced by anyone other than a ROCKWELL Customer Service Center. (Batteries are excluded from this Warranty.)

This Warranty contains the entire obligation of ROCKWELL and no other warranties express or implied or statutory are given. In no event shall ROCKWELL be liable for consequential damages.

For service under this Warranty, please remove the battery and send your ROCKWELL electronic calculator prepaid, with copy of sales receipt or other proof of purchase date, to your nearest Rockwell Customer Service Center.

Out-of-Warranty Service

If the calculator fails to operate satisfactorily beyond the one-year warranty period, Rockwell International Customer Service Centers will repair and return the calculator to you for a nominal sum.