

1-YEAR GUARANTEE

Montgomery Ward guarantees this Electronic Calculator against defects in materials and workmanship as follows:

For 1-year from date of purchase Montgomery Ward will repair or, at its option, replace any defective part free, including labor.

For service covered by this guarantee, return calculator to any Montgomery Ward branch with evidence of date of purchase.

All correspondence regarding your calculator should include the model number and serial number found on the bottom of the calculator case.

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OPERATING INSTRUCTIONS



ELECTRONIC CALCULATOR

P8F



DISTRIBUTED BY MONTGOMERY WARD & CO., INC.
CHICAGO, ILL. 60607
ASSEMBLED IN U.S.A.

The P8F Portable Electronic Calculator is one of the new calculators in a broad family of personal and desk model electronic machines. This model is designed and manufactured to provide years of trouble-free service if used in accordance with the instructions outlined in these pages.

This Montgomery Ward Electronic Calculator employs the most advanced microelectronic technology available to the consumer market. Advanced engineering in electronic components, display devices, and keyboard design have been combined to give you the ultimate in size, style, and performance.

A few minutes spent with this manual will acquaint you with the capabilities of your calculator. Within a short period of time, all problem solving, using this calculator, will become second nature to you. In order to quickly familiarize yourself with the unit, assume the following problem: You have a current balance in your checking account of \$463.25. You make a deposit of \$50.00 and write a check for \$130.76. What is the new balance?

Solution: Install your batteries according to section titled "Power Options and Use" and turn the calculator to the ON position:

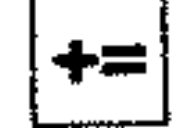
Operation:	Display Will Read:
Press C key	0.
Enter 463.25	463.25
Press +=	463.25
Enter 50	50.
Press +=	513.25
Enter 130.76	130.76
Press -= key	Answer 382.49 New Balance

By continuing reading through the manual, you will soon be able to make use of the machine capability.

INTRODUCTION

The P8F Calculator is a time-saving instrument in your hands. Its design makes it one of the most versatile calculators available in its price range. Its features and specifications include:

1. Fully Portable — Weighs less than 12 ounces with batteries. Unit is readily held in hand and can be carried in pocket or briefcase.
2. Versatile — Performs addition, subtraction, multiplication and division including credit balance, chain and mixed calculations. Full floating decimal point.
3. AC/DC Operation Capability — DC battery operation using four AA Penlight Batteries or optional rechargeable Nickel Cadmium (NiCd) Batteries. Optional AC Adapter/Charger also available to operate unit directly from standard house current (60 hertz 120 V AC) and to recharge NiCd Batteries. See Section titled "Power Options and Use."
4. Light Emitting Diode Display — High efficiency read-out with eight numeral columns and a sign-overflow digit. Solid state display yielding long life and high performance.

5. MOS/LSI Chip — Single chip logic utilizing the latest in metal oxide semiconductor technology on a large scale integrated chip. Over 6000 transistors on a single monolithic silicon chip approximately .2" square.
6. High Impact Case — Housing designed to withstand severe handling.
7. Battery Saver Circuit — To save power, the display turns off automatically approximately 15 seconds after the last keyboard entry, except for the first digit. If the display turns off, it will turn on automatically with the first keyboard entry. To bring back the last calculated answer or entry to the display, depress the  key. The lighting of the first digit on the display is a reminder that you have an entry or calculation waiting in your calculator or that your calculator is in the ON position.
8. Operating Temperature Range 32° to 120° F (0° to 50° C) up to 95% relative humidity.

POWER OPTIONS AND USE

The P8F Calculator is designed to operate on household current with a Montgomery Ward, Article No. 67-8638 AC Adapter/Recharger or on 4 AA Penlight Batteries.

For use on household current, plug the AC Adapter/Recharger into a 120 V AC, 60 hertz outlet. Plug the AC Adapter/Recharger Jack into the back of the calculator.

The choice of batteries is a customer option. The unit will perform with non-rechargeable zinc carbon or alkaline cells, or with rechargeable Nickel-Cadmium (NiCd) cells. For greatest convenience, it is recommended you use NiCd Battery cells. Montgomery Ward has a 4 AA NiCd Battery and AC Adapter/Recharger Kit, Article Number 67-8633, recommended for use with your P8F Calculator.

Before operating your calculator, insert 4 AA Penlight Batteries by removing the screw from the bottom of the machine. Remove the battery cover from the bottom of the calculator and install batteries as indicated in the machine. If non-rechargeable batteries are used, make sure battery selector switch, found in battery compartment is

placed in "Non-Rechargeable" position. If NiCd rechargeable cells are used, place switch in "Rechargeable" battery position. NOTE: NiCd Batteries are delivered uncharged and must be charged for a period of 10-12 hours for a full charge by plugging the AC Adapter/Recharger into household current, 120 V AC 60 hertz. Charging is accomplished by plugging the AC Adapter/Recharger into household current and plugging the AC Adapter/Recharger Jack into the back of the Calculator.

NiCd rechargeable batteries should give about 4 to 6 hours of continuous use between recharges. It is recommended that NiCd batteries not be overcharged, therefore, do not leave the charge cycle on the calculator for extended periods. The calculator will charge anytime the adapter is plugged into the house current and the jack plugged into the machine, provided the battery selector switch is set for "Rechargeable" Batteries.

Under no circumstances should zinc-carbon or alkaline cells be charged. When these types of batteries are used, make sure the battery selector switch is in the "Non-Rechargeable" position.

Battery Replacement — After extended use, non-rechargeable batteries will have to be replaced if display will not light when machine is turned "ON." For longer life, replace with AA alkaline type batteries.

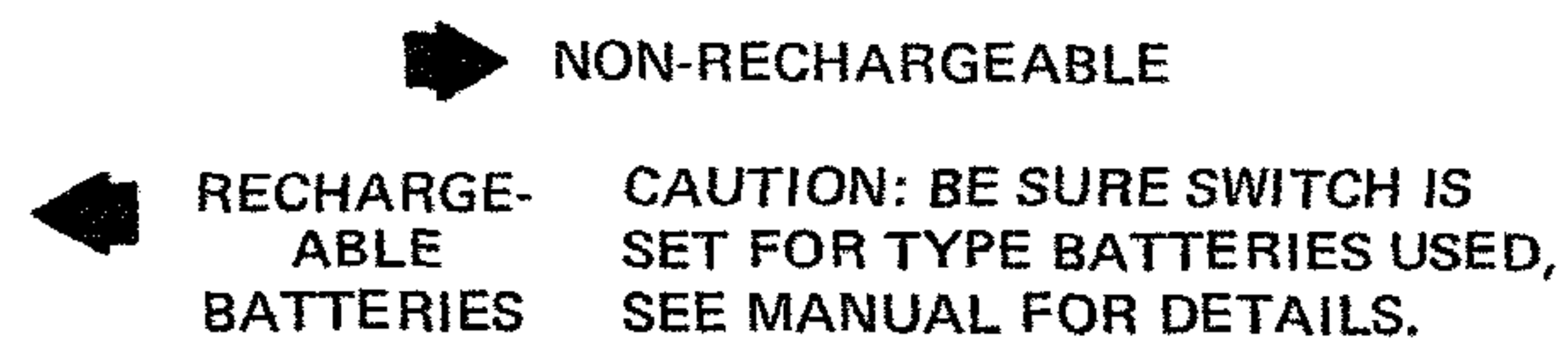
After extended use, it may be necessary to replace rechargeable batteries. This condition will be noticed when after a full charge cycle, the calculator will not operate for the designed period of 4 to 6 hours before a charge is necessary. When this occurs the batteries may be replaced.

Insert fresh batteries into the calculator as outlined in Section titled, "Battery Installation Instruction." CAUTION: Use of other than a Wards 67-8638 AC Adapter/Recharger may apply improper voltage to your calculator and cause damage.

BATTERY INSTALLATION INSTRUCTIONS

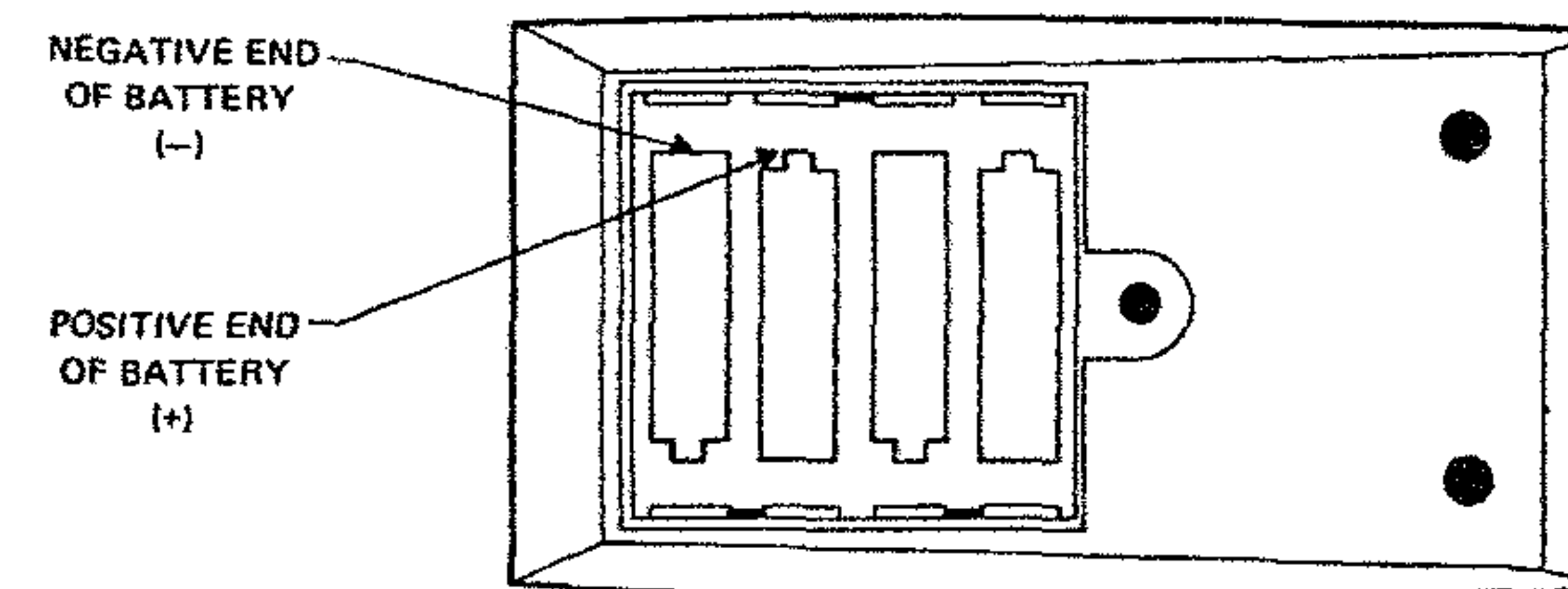
Remove the "coin head" screw in the bottom and remove cover.

Check the position of the battery selection switch inside the battery box, indicated by the following label on the wall



If NiCd batteries (rechargeable) are used, place the switch to the left as indicated. If non-rechargeable batteries are used, place the switch to the right as indicated. CAUTION: This operation must be done before batteries are inserted. Improper switch setting may damage your calculator.

Four "AA" penlight cells are required for battery operation. Snap the four batteries in place per diagram inside the battery box. Be sure to observe the correct + and - polarity of the batteries as indicated in this illustration.



Replace the case door and insert screw.

OPERATIONAL FUNCTIONS

On/Off Switch — Located on the left side of the calculator case.

C Key — Clears (erases) information in calculator and display and sets calculator to zero for start of a new problem. It is also recommended to depress this key after initial turn-on and before each new calculation.

CE Key — Clears the previous keyboard entry if made in error. This does not clear the machine, just the immediately preceding numeric entry.

+ = Key — Press to add a numeral just entered. This adds the entered numeral or completes a previous command. Example: answering a multiplication or division problem. Also use this key for display recall when battery saver circuit has gone into operation.

- = Key — Press to enter a negative sign to a numeral just entered. This subtracts the entered numeral or completes a previous command entering a minus sign with the command.

x Key — Instructs the calculator to multiply the previous number or result by the following entered number.

÷ Key — Instructs the calculator to divide the previous number or result by the following entered number.

. Key — Press to enter a decimal point at the desired position in the display. After a number is entered completely, further pressing of this key will return the decimal point to the extreme right.

0-9 Keys — Press to enter desired numbers (limit 8 digits).

Power On Indication — A zero appears at the right end of display when power switch is in the ON position.

Minus Sign — Appears at the left side of the display when entry or calculation is negative.

Entry Overflow — An "E" appears at the left side of display when more than 8 digits have been entered.

Calculation Overflow — A small “□” appears at the left side of display when the calculation is more than 8 digits. The 8 most significant digits to the correct answer will appear but the decimal point must be mentally moved 8 positions to the right for correct number of digits in the correct answer.

For example: 99999999 X 99 will display “□” 98.999999. The 8 most significant digits to the correct answer is 989999900.

OPERATIONAL EXAMPLES

Calculation Operation

Place switch in the ON position. A zero will appear in the display. If there is no signal on the display, press **C** key. If there is still no signal in the display, the batteries are discharged or AC Adapter/Charger is not plugged in.

Addition

Example: $2 + 3 = 5$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 2	2.
Touch +	2.
Enter 3	3.
Touch + Answer	5.

Example: $.11 + 2.11 + 3.18 = 5.40^*$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter .11	0.11
Touch +=	0.11
Enter 2.11	2.11
Touch +=	2.22
Enter 3.18	3.18
Touch += Answer	5.4*

Subtraction

Example: $11 - 7 = 4$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 11	11.
Touch +=	11.
Enter 7	7.
Touch -= Answer	4

*Answers are equal. This calculator is equipped with full floating decimal and displays answers without unnecessary zeros for ease in reading.

Example: $61 + 11.2 - 86.3 = -14.1$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 61	61.
Touch +=	61.
Enter 11.2	11.2
Touch +=	72.2
Enter 86.3	86.3
Touch -= Answer	-14.1

Multiplication

Example: $5 \times 4 = 20$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 5	5.
Touch *	5.
Enter 4	4.
Touch += Answer	20.

Example: $15 \times 3.1 \times 11.61 = 539.865$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 15	15.
Touch *	15.
Enter 3.1	3.1
Touch *	46.5
Enter 11.61	11.61
Touch = Answer	539.865

Division

Example: $9 \div 3 = 3$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 9	9.
Touch ÷	9.
Enter 3	3.
Touch = Answer	3.

Example: $125 \div 5 \div 50 = .5$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 125	125.
Touch ÷	125.
Enter 5	5.
Touch ÷	25.
Enter 50	50.
Touch = Answer	0.5

Mixed Arithmetic Chain Mode

Mathematical operations can be performed in sequence with combinations of addition, subtraction, multiplication, and division. If a function key is pressed immediately after either **=** or **=** key calculation continues using the displayed answer as the last entry.

Example: $\frac{(8.3 + 2)}{4} - 6.8 = -4.225$

Press **C** to clear machine.

Operation:	Display Will Be:
Enter 8.3	8.3
Touch $\boxed{+}$	8.3
Enter 2	2.
Touch $\boxed{+}$	10.3
Touch $\boxed{+}$	10.3
Enter 4	4.
Touch $\boxed{+}$	2.575
Enter 6.8	6.8
Touch $\boxed{-}$ Answer	-4.225

Example: $\frac{(1.95 + 2.05 + 8) \times 3}{3 \times 6} - 21 = -19$

Press \boxed{C} to clear machine.

Operation:	Display Will Be:
Enter 1.95	1.95
Touch $\boxed{+}$	1.95
Enter 2.05	2.05
Touch $\boxed{+}$	4.
Enter 8	8.
Touch $\boxed{+}$	12.
Touch $\boxed{\times}$	12.
Enter 3	3.
Touch $\boxed{+}$	36.

Enter 3	3.
Touch $\boxed{+}$	12.
Enter 6	6.
Touch $\boxed{+}$	2.
Enter 21	21.
Touch $\boxed{-}$ Answer	-19.

Squaring Numbers

Squaring of numbers can readily be accomplished in your P8F Calculator.

Examples: $6 \times 6 = 36$
 $9 \times 9 = 81$
 $15 \times 15 = 225$

Press \boxed{C} to clear machine.

Operation:	Display Will Be:
Enter 6	6.
Touch $\boxed{\times}$	6.
Touch $\boxed{+}$ 1st Answer	36.

Touch	<input type="button" value="C"/>		0.
Enter	9		9.
Touch	<input type="button" value="x"/>		9.
Touch	<input "="" type="button" value="+="/>	2nd Answer	81.
Touch	<input type="button" value="C"/>		0.
Enter	15		15.
Touch	<input type="button" value="x"/>		15.
Touch	<input "="" type="button" value="+="/>	3rd Answer	225.

HINTS FOR BEST SERVICE

1. Never attempt to take your calculator apart. See Wards nearest branch for service.
2. As with all fine equipment, protect your calculator from shock. Also, protect your machine from dirt, dampness and abrasion.
3. For best battery service, the calculator should be used and recharged at least monthly.
4. Do not store your calculator in an area where temperatures will exceed 120° F. Such temperature could be experienced in closed automobile during summer.
5. If the calculator has been chilled at below freezing temperatures, allow the machine to warm for several hours at room temperature before operating. In cold weather, carry machine inside coat pocket for protection when not in use.
6. Never clean the calculator case with solvents, such as paint thinner. Clean with a water dampened soft cloth and then buff.

**P800, P8F, P8P, & P8M
AC Adapter/Recharger
Art. No. 67-8638**

or

**P8F Rechargeable Kit
AC Adapter/Recharger
with 4 AA NiCd Batteries
Art. No. 67-8633**

The P8F Calculator is designed to operate on household current with a Montgomery Ward, Art. No. 67-8638 AC Adapter/Recharger. The Art. No. 67-8638 can be used as a replacement or extra AC Adapter/Recharger for Wards P800, P8P, or P8M.

For use on household current, plug the AC Adapter/Recharger into a 120V AC, 60 hertz outlet. Plug the AC Adapter/Recharger jack into the back of the calculator. Note: When zinc-carbon or alkaline batteries are used, be sure battery selector switch located in battery compartment is in "non-rechargeable" position.

For greatest convenience, it is recommended the use of nickel-cadmium (NiCd) rechargeable batteries. P8F Rechargeable Kit, Art. No. 67-8633 includes: 4 AA NiCd batteries with AC Adapter/Recharger.

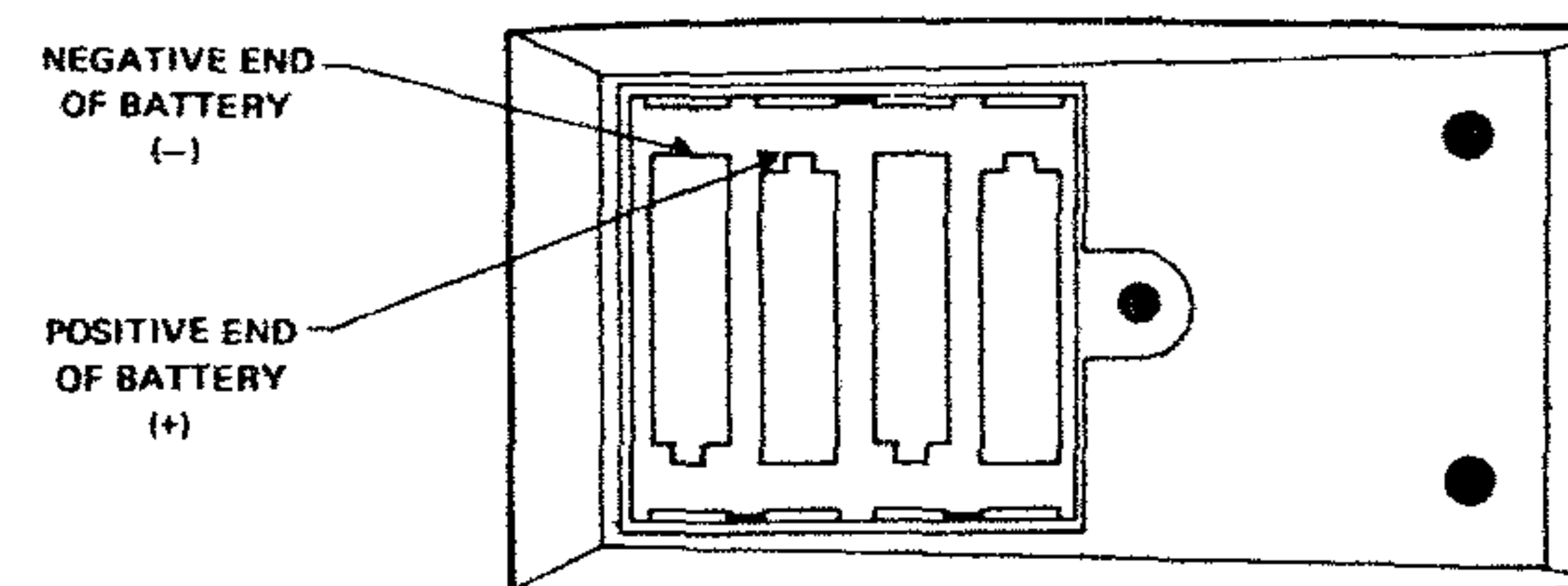
Instructions For Use Of NiCd Batteries Only (Kit 67-8633)

Instructions For Use Of NiCd Batteries Only (Kit 67-8633)

To install your NiCd batteries, remove the battery compartment cover on the bottom of the calculator with a coin.

Set battery selector switch to "rechargeable" position found in battery compartment.

Install NiCd batteries as indicated in the diagram.



Replace battery compartment cover and tighten screw.

Note: NiCd batteries are delivered uncharged. They must be charged for a period of 10-12 hours for a full charge. Charging is accomplished by plugging the AC Adapter/Recharger into household current, 120V AC 60 hertz, and then plugging the AC Adapter/Recharger jack into the back of the calculator.

NiCd rechargeable batteries should give about 4 to 6 hours of continuous use between recharges.

It is recommended that NiCd batteries not be overcharged, therefore, do not leave the charge cycle on the calculator for extended periods.

The calculator will charge anytime the AC Adapter/Recharger is plugged into household current and the jack is plugged into the machine, provided the battery selector is set for "Rechargeable" batteries.

Under no circumstances should zinc-carbon or alkaline batteries be charged. When these type of batteries are used, make sure the battery selector switch is in the "non-rechargeable" position.

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