SEIKO

セイコーデジタル

C153(DPZ)

取扱説明書

FEATURES OF SEIKO LC DIGITAL QUARTZ CAL.C153

Your SEIKO LC Digital Quartz Cal. C153 (DPZ) is so designed that it functions not only as an ordinary wrist watch but as a calculator as well.

- "Hour", "minute", "second", "date" and "day" digits, all of which are frequently referred to in daily use, are displayed together.
- The calculator is capable of performing not only such calculations as addition, subtraction, multiplication, and division but also square root calculation, percentage calculation and calculations using the memory register. Time digits (hour and minute) are displayed even while the calculator function is in operation.
- With Cal. C153 containing an electronic circuit which automatically adjusts for even and odd months (except February of leap years), a date adjustment at the end of each month is hardly needed.
- With the battery life indicator being incorporated, the entire display starts flashing when the battery life comes to its end.

(in time)

BUTTON OPERATION

Depress button Ⓑ

- The digits to be adjusted will be selected in the following order when the watch is in the time and calendar setting function (when button Ⓐ is pulled out).
  Second·Minute·Hour·Date·Month·Day

Depress button Ⓐ

- The watch is changed to and from the time function and the calculator function.

Pull out button Ⓐ

- The time and calendar digits are ready for setting.

Depress button Ⓒ

- The illuminating light is activated.
- The second, minute, hour, date, month and day digits are displayed when the watch is in the time and calendar setting function. (The illuminating light is activated.)

DISPLAY

① Time display

② Calculator display

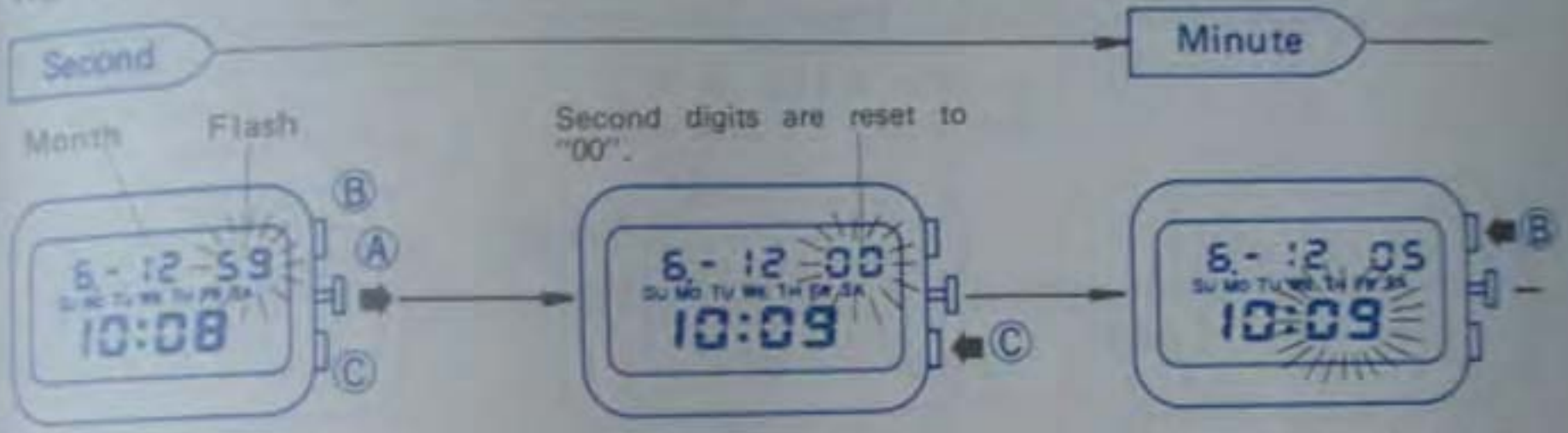
— ····· Negative number indicator
Displayed when the answer is negative.

M ····· Memory register indicator
Displayed when any numbers (except "0") are stored in the memory register.

E ····· Error indicator
Displayed when the calculation is impossible.

HOW TO SET THE TIME AND CALENDAR

The telephone time service (TEL.117) might be helpful in setting the correct time.

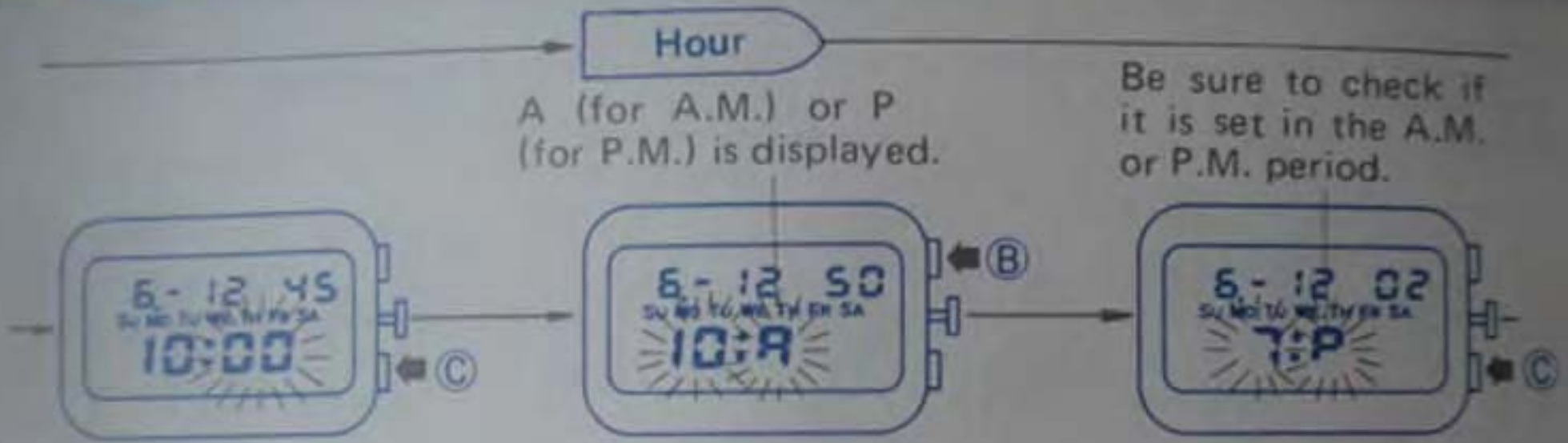


1 Pull out button Ⓐ to change into the time and calendar setting function. The month digit is displayed and the second digits start flashing.

2 Depress button Ⓒ in accordance with "00" second of a time signal and the seconds are then reset to "00" and start immediately.
(When the seconds count any numbers from "00" to "29", the seconds are reset to "00" automatically whenever button Ⓒ is depressed. When the seconds count any numbers from "30" to "59" and button Ⓒ is depressed, one minute is added and the seconds immediately return to "00".)

3 Depress button Ⓑ and the minute digits start flashing.

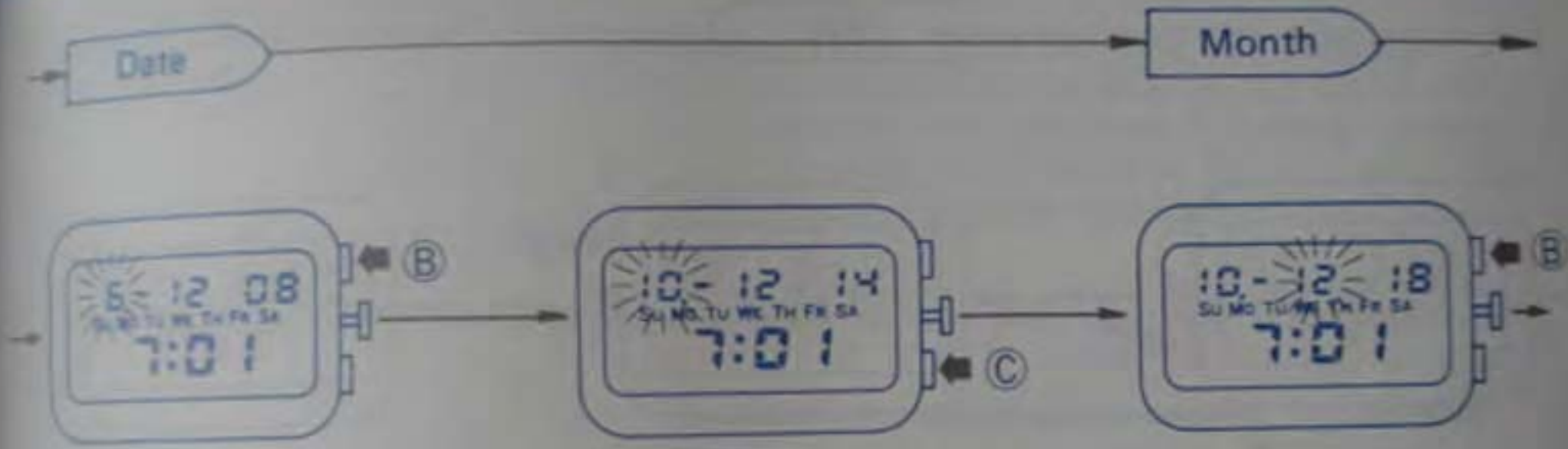
• Depress button Ⓐ once again to display the time and calendar function when it is required to set only the second digits.



4 One digit (minute) is advanced by each depression of button Ⓒ.

5 Depress button Ⓑ and the hour digits and A (for A.M.) or P (for P.M.) start flashing. While setting the hours, be sure that the time setting is made with the A.M. or P.M. period appropriately displayed.

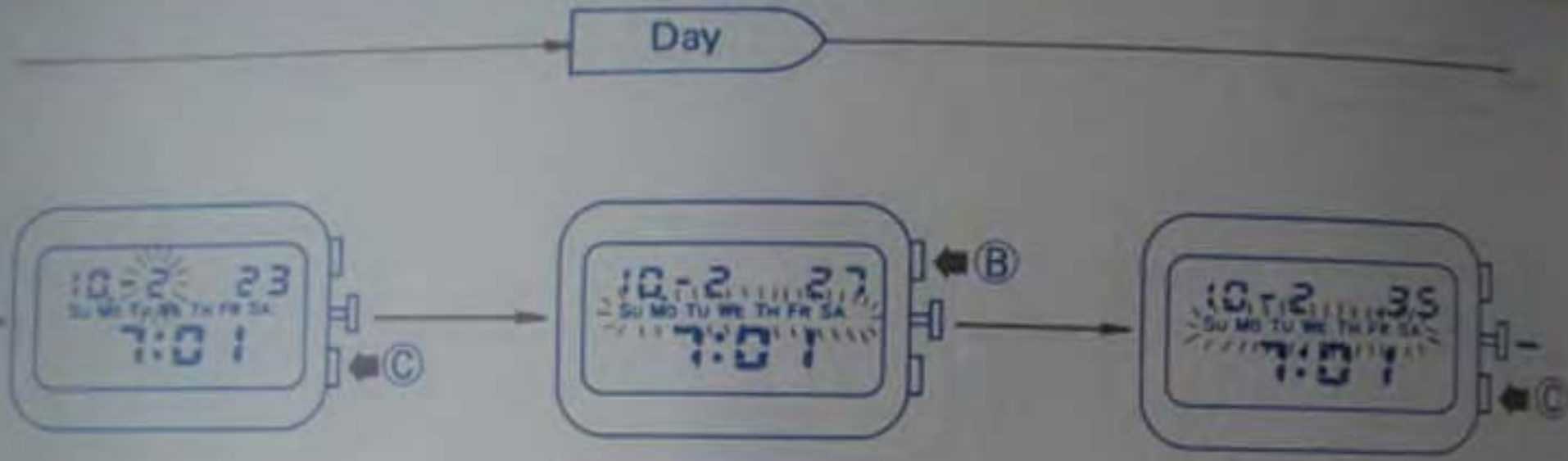
6 One digit (hour) is advanced by each depression of button Ⓒ.



7 Depress button Ⓑ and the date digits start flashing.

8 One digit (date) is advanced by each depression of button Ⓒ .

9 Depress button Ⓑ and the month digits start flashing.



10 One digit (month) is advanced by each depression of button Ⓒ.

11 Depress button Ⓑ and the day digits start flashing.

12 One digit (day) is advanced by each depression of button Ⓒ.

(Depress button Ⓑ once again and the second digits start flashing to be adjusted.)

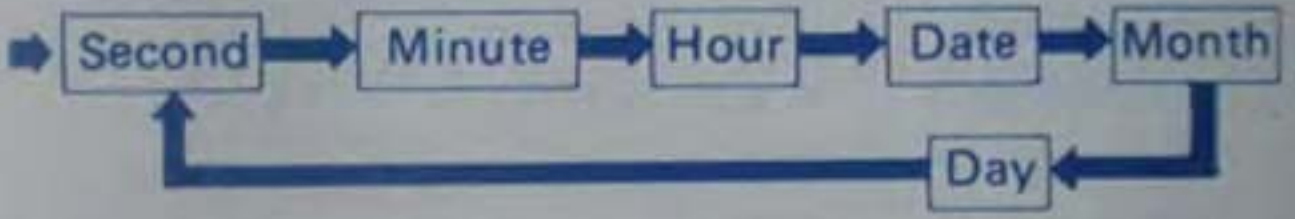
Time and calendar setting are completed.

11 After the time and calendar setting are completed, depress button Ⓐ to display the time and calendar function.

Summary of how to set the time and calendar

① Pull out button Ⓐ to change the watch function into the time and calendar setting function.

② Each depression of button Ⓑ will select the digits (flashing) to be adjusted in the following order.



Each digit can be set independently. Select the desired digit by depressing button Ⓑ.
(Ex. To select the date digits, depress button Ⓑ three times.)

③ Depress button Ⓒ to set the desired time and calendar digits.

④ After the time and calendar setting are completed, depress button Ⓐ.

HOW TO USE THE CALCULATOR FUNCTION

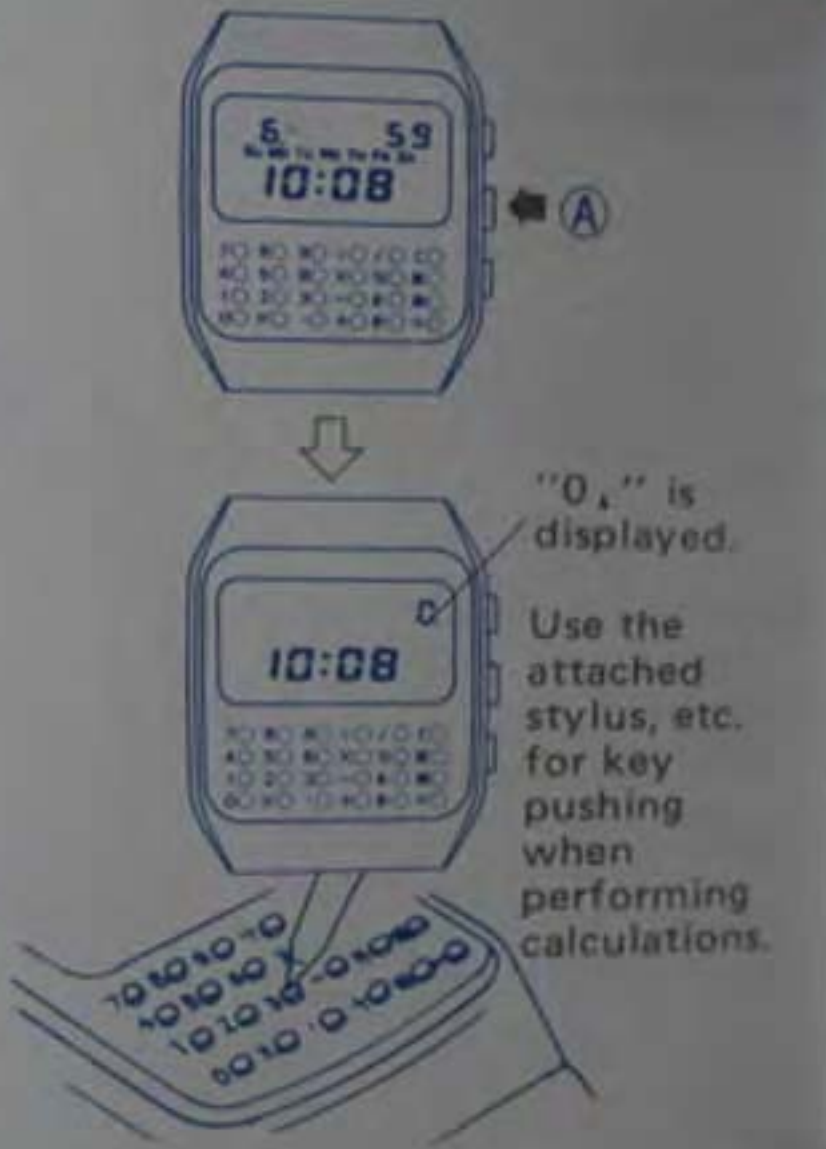
1. Depress button Ⓐ to change the time and calendar display into the calculator display (will be displayed in the upper right hand corner of the display panel.)
2. Use the attached stylus or a propelling pencil (with lead retracted) for key pushing.

Ex.

Calculation	Key operation	Display
123 + 456 =	123 ⊕ 456 ⊖	579.
358 ÷ 29 =	358 ⊘ 29 ⊖	12.344827
√768 =	768 √	27.712812

(See page 38 for detailed calculation procedures.)

3. After calculations are completed, depress button Ⓐ to display the time and calendar function.
   * The calculator function is changed into the time and calendar function automatically about 10 minutes to 20 minutes after the last push of a key even if you failed to change the calculator function into the time and the calendar function.



● IDENTIFCATION AND FUNCTION OF KEYS

Key	Name	Function
0 - 9 ▲	Number keys | Data keys Decimal point keys	• Push the desired keys and the number or the decimal point is entered. Up to eight digits can be entered.
⊕ ⊖ ⊗ ⊘	Addition, subtraction, multiplication and division keys	• The calculation is performed by pushing the desired operations key. Note) When an operations key is pushed by mistake, push the correct key next and the correct operation will be performed. For example, when ⊖ key is pushed instead of ⊕ key by mistake, push ⊕ key next and the calculation will be performed for ⊕.
=	Equal key	• Push and the answer is displayed.
C	Clear and clear entry key	• When a number key is pushed by mistake while in calculation, push C key and the correct number key next. The wrong number is cleared and the calculation will be performed without starting it over again. (C key functions as the clear entry key.) • When C key is pushed after ⊕⊖⊗⊘ or = key is pushed or when C key is pushed twice after number keys are pushed, all but the contents of the memory register are cleared. • When C key is pushed when "E" (Error Indicator) is displayed, "E" extinguishes and the calculator is ready for next calculation.

Key	Name	Function
%	Percent key	Used to perform percentage calculations.
√	Square root key	Used to perform square root calculations.
+/-	Changeover sign key	Used to change the sign of the displayed number.
M+ M-	Memory plus key Memory minus key	• Push M+ key after number keys are pushed and the displayed numbers will be added to the memory register. • Push M+ key instead of = key when you wish to add the answer to the memory register. • Push M- key instead of = key when you wish to subtract the answer from the memory register. Note) When the answer exceeds eight digits (an overflow condition * occurs.), it is impossible to add or subtract the answer to or from the memory register. Even if an overflow condition occurs, the contents of the memory register do not change. *See page 39.
MR	Memory recall key	• Push MR key to display the contents stored in memory register.
MC	Memory clear key	• Push MC key to clear the contents stored in the memory register. Note) The MC key enables you to clear only the contents stored in the memory register without affecting the calculation being performed.

• REMARKS FOR USING THE CALCULATOR FUNCTION

1. Be sure to use the attached stylus or a propelling pencil (with the lead retracted) for key pushing.
2. Push keys slowly but surely while checking the display.
   (There may be a miscalculation if keys are pushed one after another too fast.)
3. All calculations and the contents stored in the memory register are cleared and "0." will be displayed when the calculator function is changed into the time and calendar function.

4. OVERFLOW CONDITION

In the following cases, an overflow condition occurs and the error indicator "E" is displayed. In these cases, it is impossible to start the next calculation unless Ⓒ key is pushed.

Case	Display
①When the answer exceeds eight digits	1) When the answer is between nine digits and sixteen digits. The floating decimal will indicate the answer in hundred millions and only the first eight digits of the answer will be displayed. (See page 42 "Overflow calculation".) Ex. Answer Displayed answer 1234567890 → 12.345678E 2) When the answer exceeds sixteen digits. "0.E" will be displayed.
②When a divisor is "0" in division (Ex. 6÷0) ③When a square root is extracted from a negative number. (Ex. $\sqrt{-4}$) ④When the contents of the memory register exceed eight digits.	"0.E" will be displayed. *Any contents stored by the memory register before the overflow condition occurred will remain in the memory register.

Operation	Example	Key operation	Display
Raising numbers to a power	• $46^2 = 2116$	46 ⊗ ⊜	2116.
	• $3^{13} = ((3^2)^2)^3 = 531441$	3 ⊗ ⊜ → 3^2	9.
		⊜ → 3^3	27.
		⊗ ⊜ → $(3^3)^3$	729.
		⊗ ⊜	531441.
Extraction of square root	• $\sqrt{25} = 5$	25 √	5.
	• $\sqrt{2 \times 722} = 38$	2 ⊗ 722 ⊜	1444.
		√	38.
	• $\sqrt{25} + \sqrt{81} = 14$	25 √ ⊕ 81 √ ⊜	14.
Percentage	• 5000 − 20%	5000 ⊗ 20 %	1000.
Add on and Discount percentage	• 6500 − 12% Add on	6500 ⊕ 12 %	7280.
	• 6500 − 12% Discount	6500 ⊖ 12 %	5720.

Operation	Example	Key operation	Display
Calculations using the memory register	Before calculation, push (MC) key to clear the contents of the memory register		
	• 42÷5= 47 21−7= 14 32×3= 96 84÷5= 16.8 (Total)=173.8	(MC) 42 (÷) 5 (M+) 21 (−) 7 (M+) 32 (×) 3 (M+) 84 (÷) 5 (M+) (MR)	47.M 14.M 96.M 16.8M 173.8M
	• 8×5÷4−9÷3×4=−2	(MC) 8 (×) 5 (÷) 4 (M+) 9 (÷) 3 (×) 4 (M−) (MR)	10.M 12.M 2.M
	• $\sqrt{3^2+4^2}=5$	(MC) 3 (×) (M+) 4 (×) (M+) (MR) (√)	9.M 16.M 25.M 5.M
	• $\sqrt{5^2-3^2}=4$	(MC) 5 (×) (M+) 3 (×) (M−) (MR) (√)	25.M 9.M 16.M 4.M
Overflow calculation	1,234,567×25,896 =31,970,347,032	1234567 (×) 25896 (=) Multiply the displayed answer by 10^8 (i.e. Move the decimal point eight places to the right.) and the round number answer is obtained.	319.70347E

THE CARE OF YOUR WATCH

This watch case is not water-resistant.
Please refrain from taking your watch in the water with you.

ANTI-MAGNETIC AND ANTI-SHOCK

There will be no trouble when you play sports while wearing your watch. But, do not drop or hit the watch against hard objects.

Your watch will not be affected by the magnetism.

VARIATION OF TEMPERATURE

(a) Keep the watch from direct sunlight and heat.
   1) Battery life may be shortened.
   2) Although "888 . . ." may be displayed or the display may become dim, the display returns to the normal when the temperature drops to the normal.

(b) Do not leave the watch in a cold place for a long time.
   1) Changeover of digital display may become dull. (Time accuracy is not affected.)
   2) There will be a little gain or loss but will soon recover when wearing.

It is advised that you do not calculate under the above conditions.

BATTERY CHANGE

The miniature battery (SEIKO SB-BU) will power your watch for approximately one year if the calculator is used 1,000 hours a year.

*Although the battery life is about 1 year, but the first battery will run out within 1 year as it is inserted at the factory.

When the entire display starts flashing, the watch may stop operating within two or three days. Please contact SEIKO dealer for battery replacement.

(Even though the display is flashing, the time accuracy is not affected.)

Please contact an SEIKO DEALER for replacement.

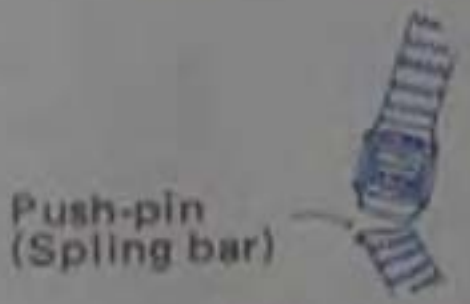
- We reserve the right to relinquish all responsibility for replaced other than SEIKO DEALER.

REPLACEMENT OF THE LIQUID CRYSTAL PANEL

There will be dim contrast of digital display or blur of the digital display after the liquid crystal panel is used for about 5 years. In such case contact SEIKO dealer for replacement. The replacement service is available at the owner's expense.

THE CARE OF YOUR WATCH

It is recommended that at the time of battery replacement you have SEIKO dealer check your watch and replace the gasket.



Be sure to replace the push-pin once every one or two years.

Specify "SEIKO GENUINE PARTS" when replacing the parts.

HOW TO CLEAN THE KEY BOARD

Remove dust between the keys and the key board with a brush. When it is impossible to remove dust with a brush, please contact your nearby SEIKO DEALERS.

A metal bracelet will become dirty with sweat and dust. When it becomes dirty with sweat, wipe off sweat with a cloth.

Wash it with soapy water by using a soft tooth brush from time to time, but be careful not to let soapy water seep into the watch.

SPECIFICATIONS

1. Frequency of crystal oscillator . . . . 32,768 Hz (Hz - Hertz – Cycle per second)
2. Loss/gain . . . . . Loss/gain at normal temperature range
   Mean monthly rate: less than 10 seconds
3. Display system . . . Time display
   Hour, minute, second, date, day
   Month digits is displayed only in the time and calendar setting function.
   Calculator display
   Answers (available up to 8 digits with Floating Decimal Point), hour and minute.
4. Calculator function Addition, subtraction, multiplication, division, constant calculations, chain calculation, rasing numbers to a power, reciprocals, square root, percentage, add on and discount percentage, mixed calculations using the memory register, overflow calculation, etc.
5. Display medium . . Nematic Liquid Crystal, FEM (Field Effect Mode)
6. Battery power . . . SEIKO SB-BU silver oxide battery
   Battery life is approximately one year.
   (If use of calculator totals 1,000 hours a year and if use of the light is 5 times a day for one second at a time.)

7. Battery life indicator
   . . . . The entire display starts flashing in the time and calendar function when the battery life comes to its end.
8. IC (Integrated Circuit)
   . . . . C-MOS-LSI . . . 2 pieces
9. Illuminating light

* The above specifications are subject to change for improvement without notice.

SEIKO

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