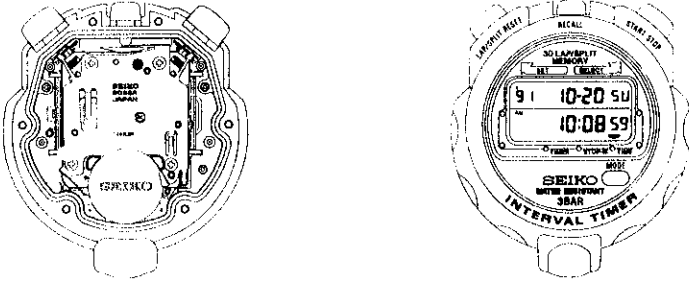


# PARTS CATALOGUE / TECHNICAL GUIDE

## Cal. S032A

### [SPECIFICATIONS]

Item		Cal. No.	S032A
Complete		 <p style="text-align: center;">(x 0.5)</p>	
Module size	Outside diameter	47.4mm between 6 o'clock and 12 o'clock sides 40.8mm between 3 o'clock and 9 o'clock sides	
	Casing diameter	-	
	Height	5.9mm (9.1mm including the battery portion)	
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)	
Liquid crystal driving system		Multiplex driving system	
Display system		<ul style="list-style-type: none"> <li>• Stopwatch display (Up to 10 hours in 1/100 seconds)               <ul style="list-style-type: none"> <li>• Lap time measurement Lap time, accumulated elapsed time, lap No.</li> <li>• Split time measurement Split time, accumulated elapsed time, split No.</li> <li>• Memory recall: Lap time/split time and lap/split No. (Up to "30")</li> </ul> </li> <li>• Timer display (Dual countdown timer)               <ul style="list-style-type: none"> <li>• Timer 1: Hour, minutes and seconds (Up to 9 hours, 59 minutes and 59 seconds can be set.)</li> <li>• Timer 2: Hour, minutes and seconds (Up to 9 hours, 59 minutes and 59 seconds can be set.)</li> <li>• No. of times the timers repeatedly count down the set time: Up to "99"</li> </ul> </li> <li>• Time/calendar display               <ul style="list-style-type: none"> <li>• Year, month, date, day, hour, minutes and seconds (The AM/PM mark is also displayed in the 12-hour indication.)</li> </ul> </li> </ul>	
Additional mechanism		<ul style="list-style-type: none"> <li>• Stopwatch/timer               <ul style="list-style-type: none"> <li>• Confirmation sound for watch operation</li> <li>• Warning sound for the timers</li> </ul> </li> <li>• Time/calendar               <ul style="list-style-type: none"> <li>• 12- or 24-hour indication</li> <li>• Automatic calendar (from 1991 to 2040)</li> </ul> </li> <li>• Battery life indicator</li> </ul>	
Accuracy		±0.0012% at normal temperature range (corresponds to a loss/gain (monthly rate) of less than 30 seconds)	
Regulation system		Nil	
Measuring gate by quartz tester		Any gate can be used.	
Battery		SEIKO CR2032, Maxell CR2032, Matsushita CR2032 Battery life is approximately 3 years. Voltage: 3.0V	

# PARTS CATALOGUE

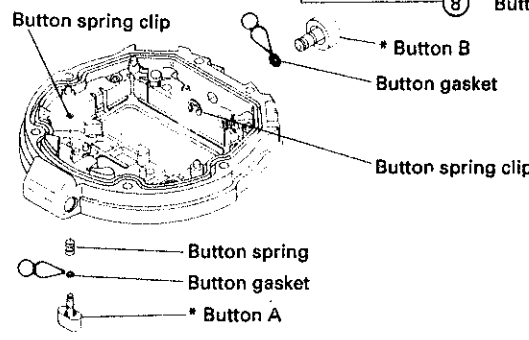
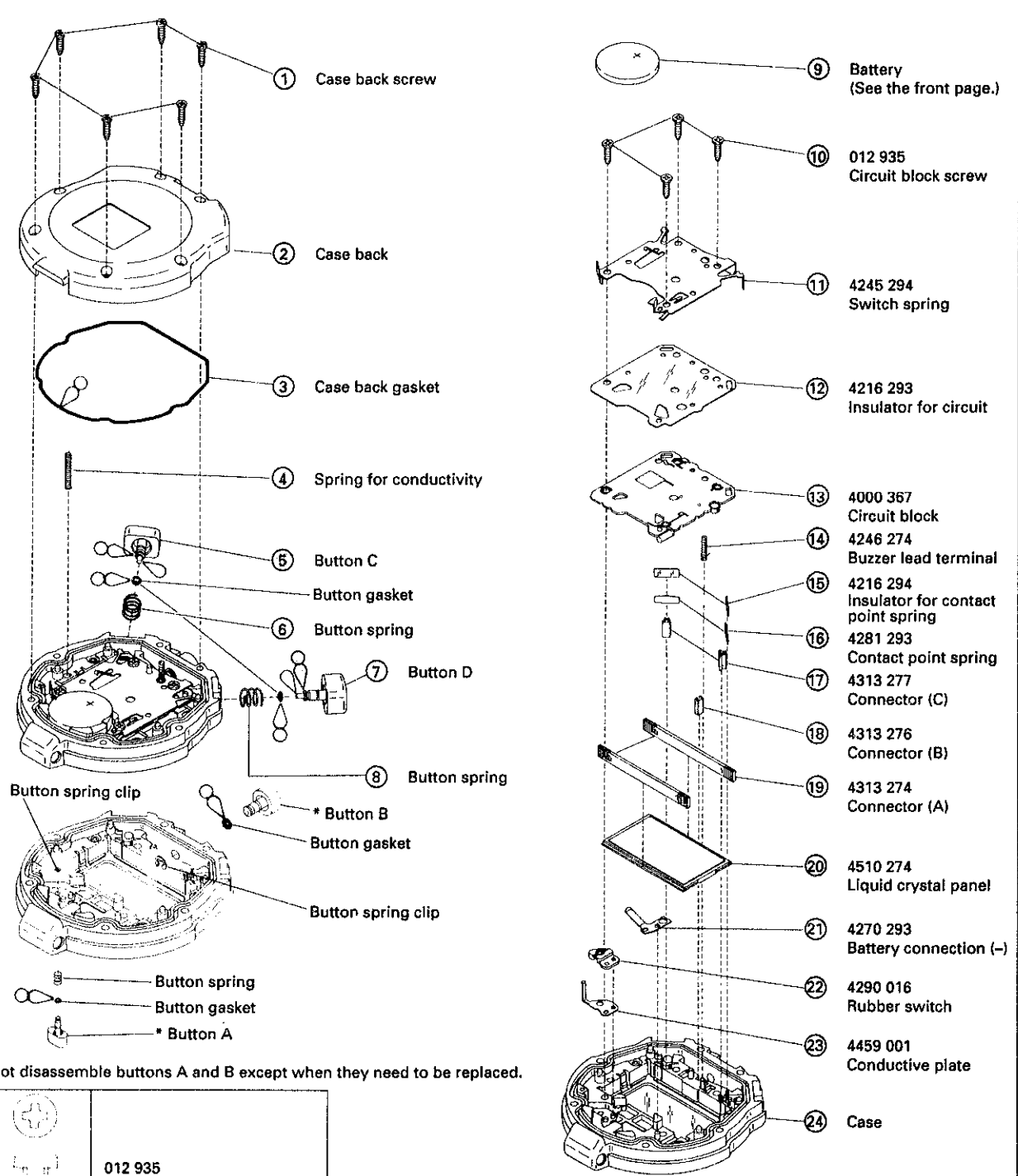
Cal. S032A

Disassembling procedures Figs. : ① → ②④

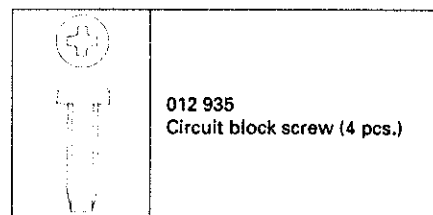
Reassembling procedures Figs. : ②④ → ①

**Lubricating: Types of oil**

○	Silicone oil 500,000 c.s.	○	Normal quantity
○	SEIKO Watch Oil S-6	○	Extremely small



\*Do not disassemble buttons A and B except when they need to be replaced.



○ → Please see the remarks on the following pages.

## Remarks

- Other parts

Piezoelectric element 4589 020

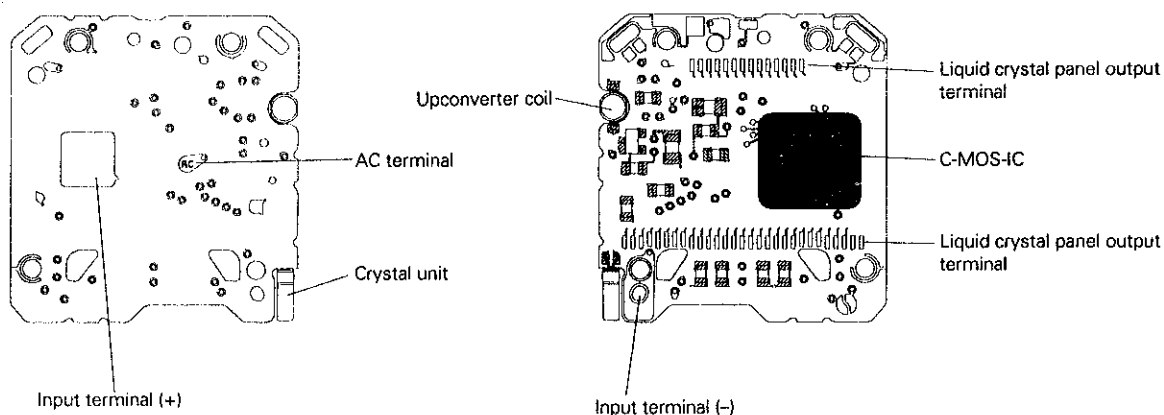
Adhesive tape 4447 013

The tape is used to fix the piezoelectric element to the case back. For details, refer to "② Case back [How to replace the piezoelectric element]" on page 4.

# TECHNICAL GUIDE

- The explanation here is only for the particular points of Cal. S032A.
- For the repairing, checking and measuring procedures, refer to the "TECHNICAL GUIDE, GENERAL INSTRUCTIONS".

## I. STRUCTURE OF THE CIRCUIT BLOCK

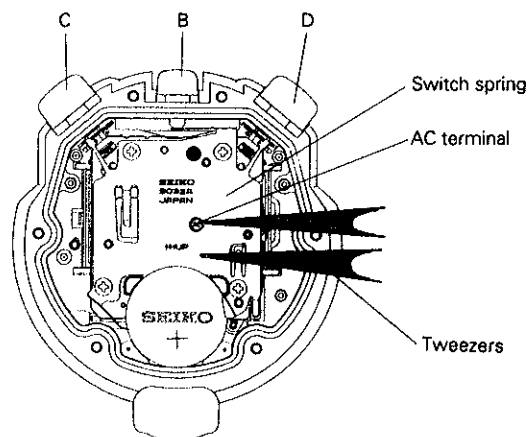


## II. REMARKS ON INSTALLING THE BATTERY

- After the battery is replaced with a new one, or after the battery is re-installed following the repairing procedures, be sure to short-circuit the AC terminal of the circuit block and the switch spring (or battery (+) surface) with conductive tweezers to reset the circuit.

**Note:** When measuring the current consumption, make sure that the power is supplied externally before resetting the circuit.

- \* To reset the circuit with the case back installed, keep buttons "B", "C" and "D" pressed at the same time for approximately 3 seconds. The display will become blank, and "12:00 TU 1-1 '91" will be shown as the buttons are released, indicating that the resetting of the circuit has been completed.



### III. REMARKS ON DISASSEMBLING AND REASSEMBLING

- ① Case back screw
- ⑩ Circuit block screw

As the case back screw and the circuit block screw differ from each other in shape, refer to the illustration below for distinction.

Be careful not to tighten the screws excessively.

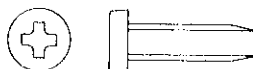
#### Case back screw

- Head diameter: small
- Length : long



#### Circuit block screw

- Head diameter: large
- Length : short

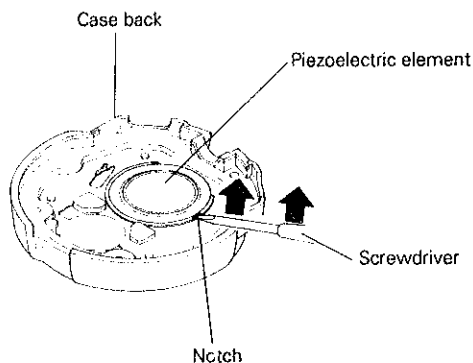


- ② Case back

[How to replace the piezoelectric element]

#### • How to remove the piezoelectric element

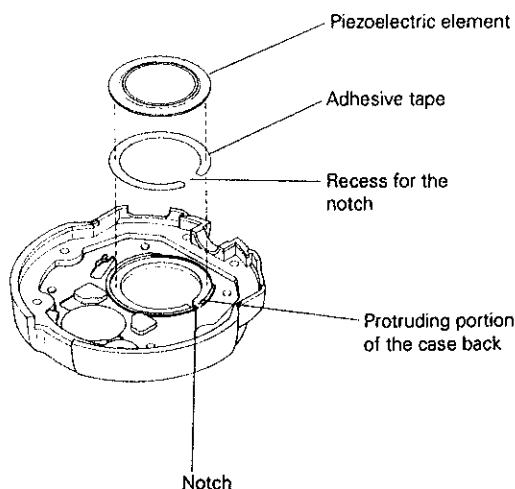
- (1) While holding the case back, insert the tip of the screwdriver into the notch of the protruding portion of the case back.
- (2) Pry up the piezoelectric element by raising the screwdriver as shown in the illustration.



**Note:** Do not use the rim of the case back as the fulcrum to pry up the piezoelectric element. Otherwise, the case back will be deformed.

#### • How to install the piezoelectric element

- (1) Apply the adhesive tape to the protruding portion of the case back, checking that the tape does not cover the notch. Then, peel the white protective seal off the tape.
- (2) Set the piezoelectric element on the tape.
- (3) Press the metal plate (outer circumference) of the piezoelectric element with the pointed tip of a wooden stick or the like to make sure that it is fixed to the case back.



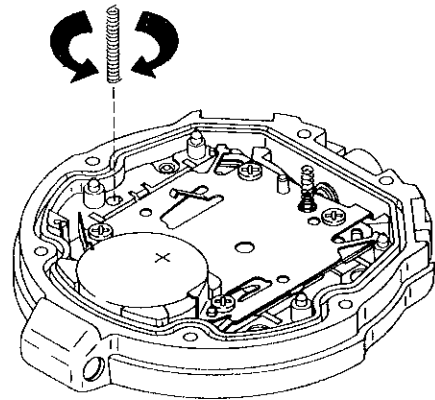
④ Spring for conductivity

• How to remove

Turn the spring for conductivity counterclockwise to release its end portion from the groove of the case, then remove it.

• How to install

Set the end portion of the spring for conductivity into the groove of the case, then turn it clockwise to fix it.

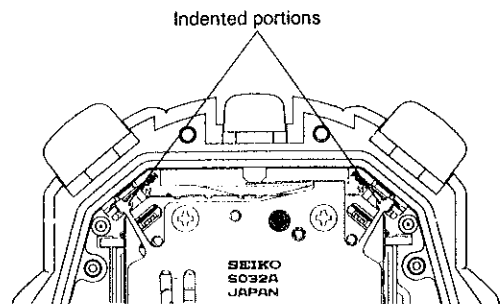
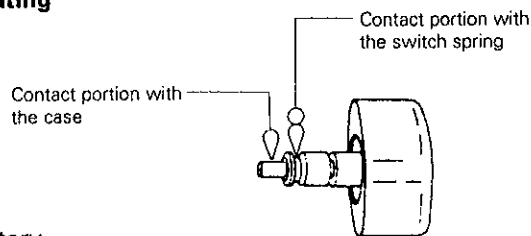


⑤ Button C

⑦ Button D

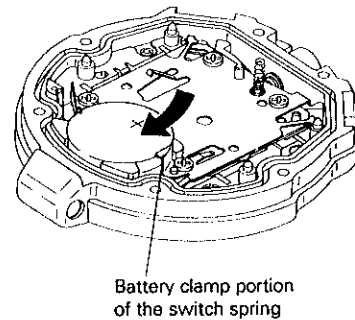
While pressing the indented portions of the switch springs, remove or install the buttons.

• Lubricating



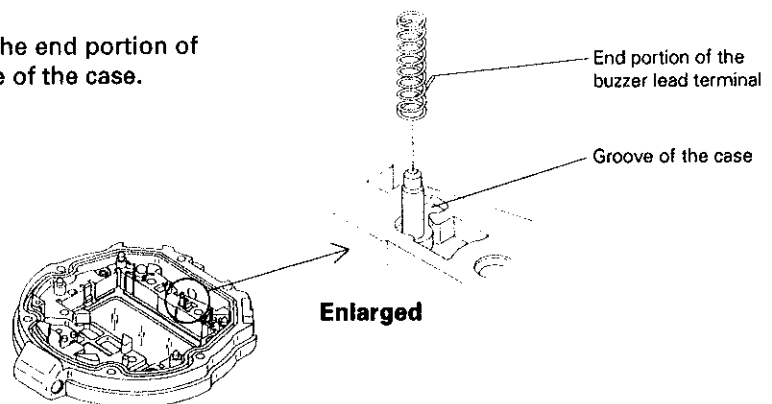
⑨ Battery

To install the battery, slip the battery sideways into a gap under the battery clamp portion of the switch spring.



⑭ Buzzer lead terminal

To install the buzzer lead terminal, set the end portion of the buzzer lead terminal into the groove of the case.

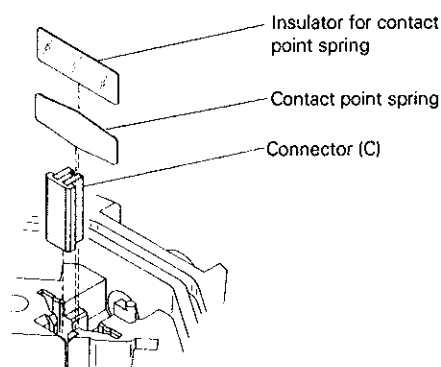


⑮ Insulator for contact point spring

⑯ Contact point spring

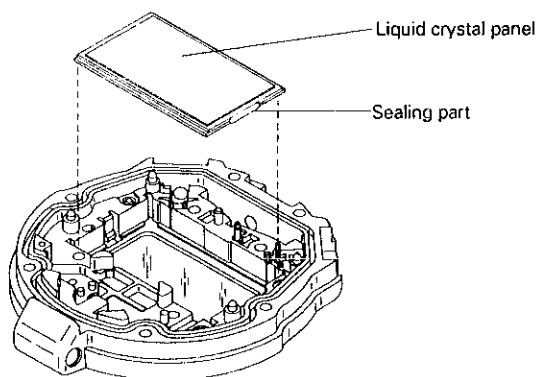
⑰ Connector (C)

Set the insulator for contact point spring, contact point spring and connector (C) into the groove of the case, checking that the contact point spring is placed between the insulator for contact point spring and connector (C). Note that the insulator for contact point spring may be slightly tight for the groove of the case.



⑳ Liquid crystal panel

Set the liquid crystal panel with its sealing part on the right-hand side as shown in the illustration at right.



## IV. VALUE CHECKING

- Check accuracy

Press buttons "C" and "D" at the same time in the TIME/CALENDAR SETTING display. All the segments of the display light up to measure accuracy.

After the measurement, press button "A", "B", "C" or "D" to return to the TIME/CALENDAR.

\* The "▲" and "■" marks, although not used in any mode of this watch, are also shown when the other segments of the display light up. However, this is not a malfunction.

- Upconverter coil resistance

120Ω ~ 180Ω

- Current consumption

For the whole of the module: Less than 6.5μA

**Note:** Before measuring current consumption, be sure to reset the circuit. Otherwise, the display will become disordered, and as a result, current consumption cannot be measured properly.

SUPPLEMENT  
TO  
PARTS CATALOGUE / TECHNICAL GUIDE or PARTS CATALOGUE  
CAL. S03 SERIES  
(S031A, S032A, S033A, S038A & S039A)

For the S03 series models, originally some conducting parts were used in order to protect the watches from static electricity. This has been done since the first S031A models were introduced in 1990.

However, our examination proved all S03 series models without these conducting parts to be safe and function properly. Consequently, we have eliminated them from all models supplied from May 1995 as follows:

○ - used    X - eliminated

Upper-Supplied until April	Lower-Supplied after May ↓	Casing parts			Movement part
		Conducting plate (A)*	Conducting plate (B)*	Conducting spring Part No. 8135 779	Conducting plate Part No. 4459 001
Cal.					
S031A, S032A S038A, S039A	~95/4 95/5~	○ X	○ X	○ X	○ X
S034A**	~95/4 95/5~	X X	○ X	X X	○ X

Conducting plate (A)\*, (B)\* ... These parts were attached to the case and were originally not available for supply as spare parts.

\*\* The technical guide for Cal. S034A was issued excluding the part numbers in question which were used only for the initial lot (~95/4).

As for the S033A model, it will soon be discontinued and we decided to continue using the above 4 parts in question as an exception.

Due to the modification, our service center keeps 2 kinds of cases for all S03 series models which include or exclude the conducting plates (A) & (B). Consequently, they supply you 2 kinds of cases for the time being. Please disregard whether the parts in question are attached to the case or not. When repairing these models, it is not necessary for you to remove the parts in question specially as it is safe in leaving them as they are.

Please attach this sheet to PARTS CATALOGUE / TECHNICAL GUIDES or PARTS CATALOGUES for Cal. S031A, S032A, S033A, S038A, and S039A to keep it for ready reference.