

# **TECHNICAL GUIDE** **AND** **PARTS LIST**

CAL. Y785A

## **DIGITAL QUARTZ**

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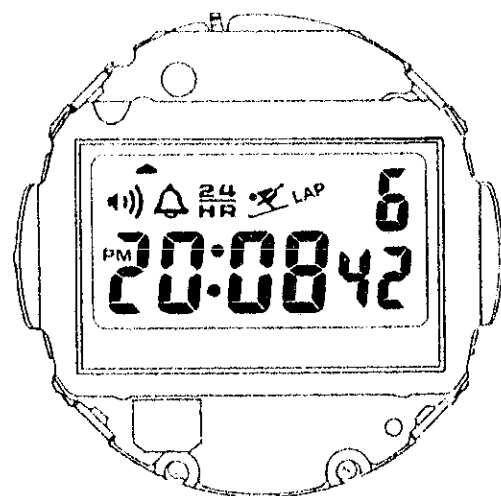
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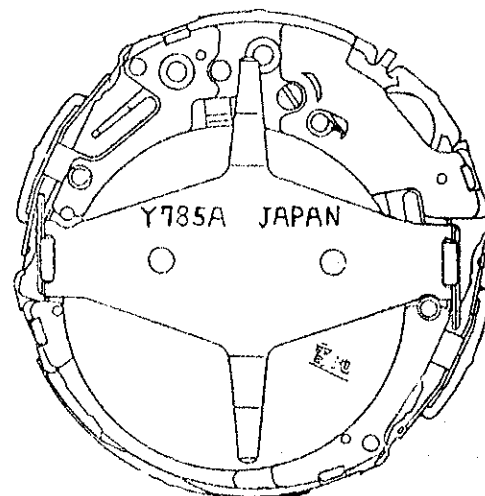
## FOREWORD

Cal. Y785A employs low temperature liquid crystal which functions correctly even at a low temperature (when skiing, etc.). The movement function and construction of Cal. Y785A are the same as those of Cal. Y789A.

For inspection and adjustment, refer to the Technical Guide of Cal. Y789A. As Cal. Y785A has a new construction of the case, this Technical Guide mainly describes the newly developed case construction.



< Movement front >



< Movement rear >

## I. SPECIFICATIONS

Item	Cal No.	Y785A
Display medium		Nematic Liquid Crystal, FEM (Low temperature liquid crystal)
Display system		<ul style="list-style-type: none"> <li>● Time display (12 or 24 hour indication)</li> <li>● Stopwatch display</li> <li>● Alarm display</li> <li>● Time setting display</li> </ul>
Additional mechanism		<ul style="list-style-type: none"> <li>● Illuminating light</li> <li>● Automatic return system</li> <li>● Pattern segment checking system</li> <li>● Alarm-test system</li> <li>● System reset function</li> </ul>
Loss/gain		Monthly rate: Less than 20 seconds at normal temperature range
Movement size	Casing diameter	φ28.1 mm
	Height	4.9 mm
Liquid crystal panel drive system		Half multiplex
Regulation system		Trimmer condenser
Measuring gate		Any gate is available
Battery		MAXELL CR2016, MATSUSHITA BR2016 or SANYO CR2016 Voltage: 3.0V Battery life: approx. 5 years

### NOTE:

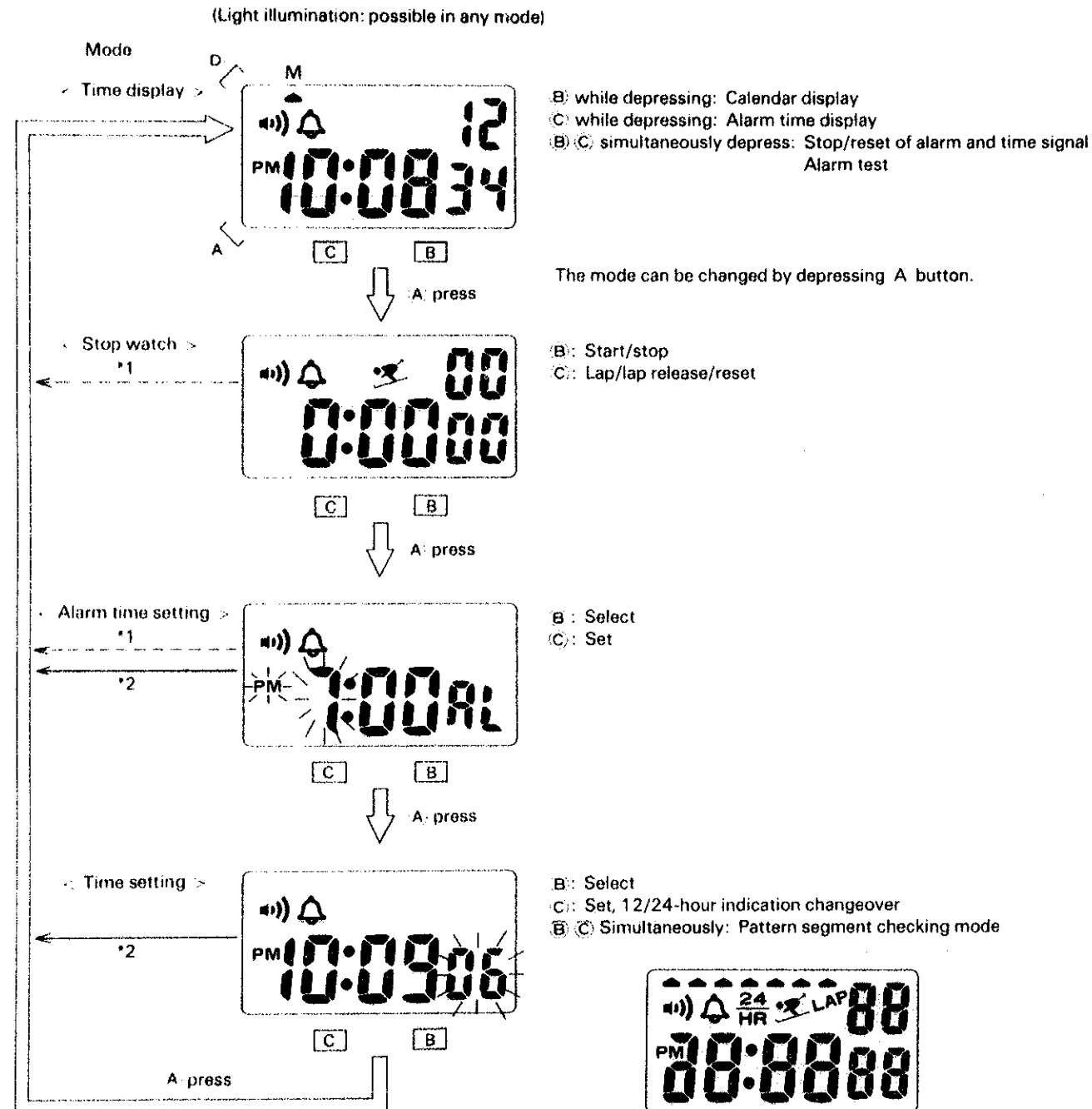
With the newly developed IC and liquid crystal panel, Cal. Y785A provides good contrast and response of display even at a low temperature. For details, refer to the following "Operational temperature range".

## II. REFERENCE DATA < OPERATIONAL TEMPERATURE RANGE >

Item	Specifications	Contents
Time function	-30°C ~ +50°C	Correctly functions at a range of -30°C to +50°C. (Time losses when the watch is left at a low temperature for a long time) Ex. At -20°C for 3 hours: losses 1.5 seconds At -30°C for 3 hours: losses 2 seconds
Display function (Except alarm and illuminating light ON mode)	-30°C ~ +50°C	The liquid crystal panel contrast is useful up to a temperature of -30°C. (The contrast reduces at a temperature of less than -10°C) The 1 second digit and 1/10 second digit can be read up to -20°C and -10°C, respectively. At a temperature less than the specified above, the double indication may result.
Alarm function	-10°C ~ +50°C	The alarm functions up to a temperature of -10°C (conforms to the specified sound level of 72 dB). However, when the alarm sounds at a temperature below 0°C, the battery voltage decreases and the display fluctuates. When the alarm stops, the display returns to the normal condition.
Illuminating light function	0°C ~ +50°C	The illuminating light functions up to 0°C. When the illuminating light is operated at a temperature below 0°C, the battery voltage decreases and the display may happen to be dim or disappears. When the illuminating light is turned off, the display returns to the normal condition.

### III. DISPLAY FUNCTION

Check the display function as follow:

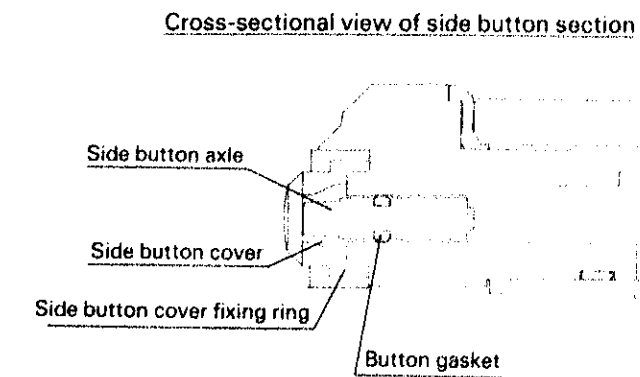
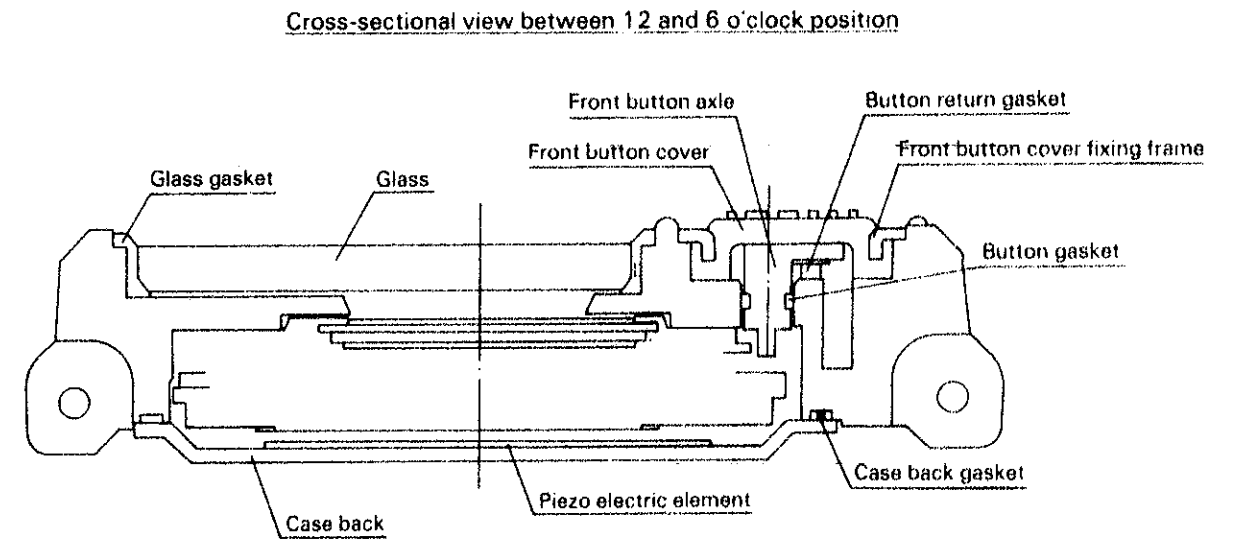


- \*1: When button (A) is depressed after button (B) or (C) is depressed, the watch returns to the time display (jump function).  
\*2: When button (B) or (C) is not depressed for 1 - 2 minutes, the watch returns to the time display (auto return function).

### IV. DISASSEMBLING AND REASSEMBLING AND LUBRICATING

#### < Construction diagram >

- A newly developed construction is employed in front and side button sections. For the normal servicing, it is not necessary to disassemble the button section. Only disassemble the button section when it is defective.



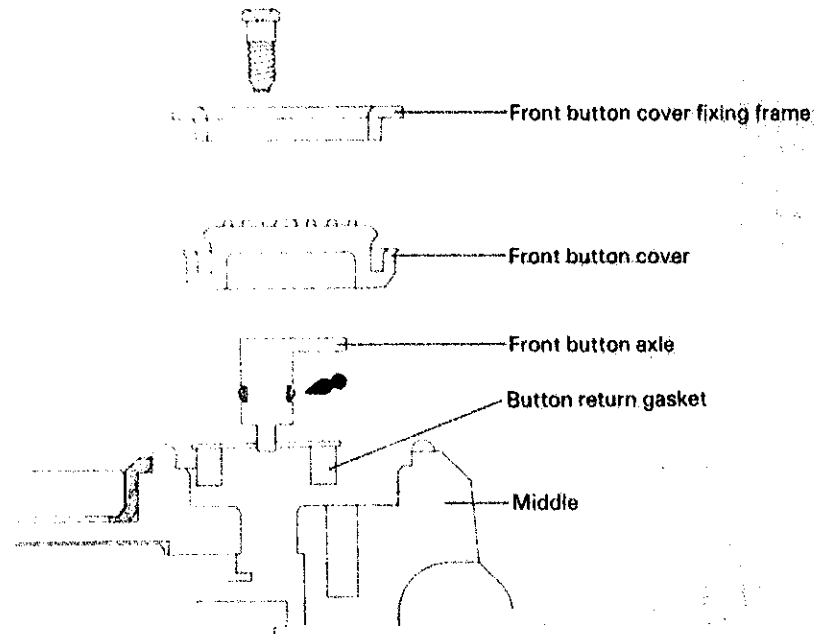
When disassembling the button section, refer to the "Disassembly diagram of button section" on next page.

< Disassembly diagram of button section >

To disassemble the button section, refer to the illustration below.

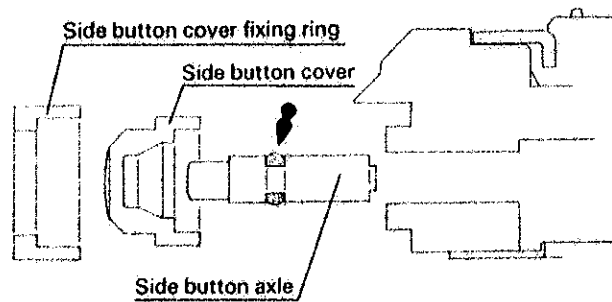
Lubrication:  
Silicone grease  
(500,000 C.S.)

< Disassembly diagram of front button section >



**NOTE:**  
When the button section is disassembled, apply silicone grease to the button gasket.

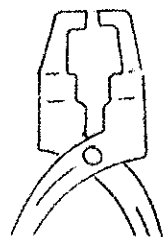
< Disassembly diagram of side button section >



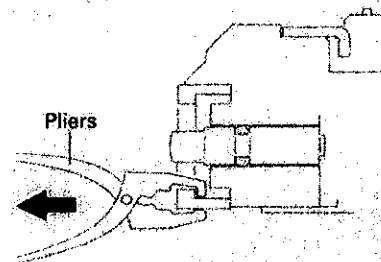
**NOTE:**  
To replace the side button cover, use a pliers\* to remove the side button cover fixing ring. Replace the button cover, then set the side button cover fixing ring.

< Pliers >

\* The pliers shown below should be recommended.



< How to remove the side button cover fixing ring >



V. PARTS LIST

PART NO.	PART NAME
4001 788	Circuit block
4225 770	Battery clamp
4246 624	Switch lead terminal
4246 795	Speaker lead terminal
4313 795	Connector
4398 786	Liquid crystal panel frame
4410 785	Circuit cover
4510 845	Liquid crystal panel
4521 840	Reflecting mirror
4530 230	Bulb
MAXELL CR2016 MATSUSHITA BR2016 SANYO CR2016	Lithium battery

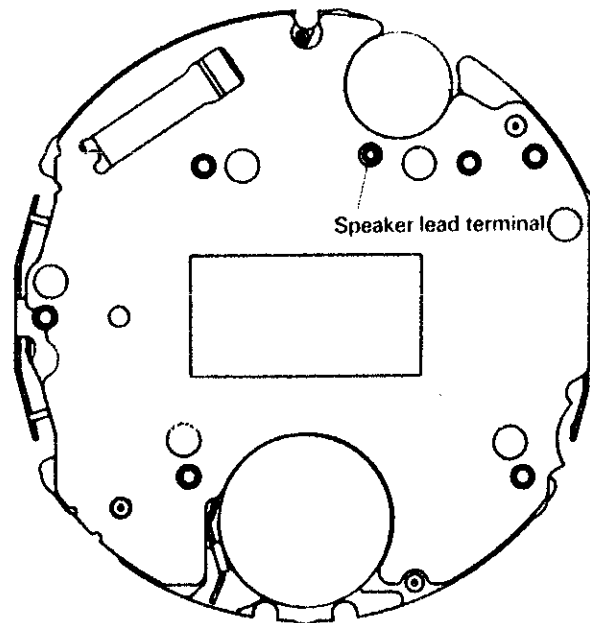
# SERVICE GUIDE CAL Y799A

## 1. SPECIFICATIONS

Item	Cal. No.	Y799A
Display medium		Nematic Liquid Crystal, FEM (Field Effect Mode)
Display system		Time display (12 or 24 hour indication) Time setting display Alarm time display Stopwatch display
Additional mechanism		Pattern segment checking system Alarm test system Hourly time signal
Loss/gain		Monthly rate: Less than 30 seconds at normal temperature range
Movement size	Outside diameter	24.0 mm
	Height (Including bosses to secure circuit block)	3.0 mm (3.5 mm)
	Size of panel cover	6.7 x 16.7 mm
Regulation system		_____
Measuring gate		Any gate is available
Battery		MAXELL SR626W Voltage: 1.55V Battery life: Approx. 1.5 years

## 2. NOTES ON MODULE REPLACEMENT

(Rear view of the module)



When the case back is removed from the completely assembled state, the speaker lead terminal (coil springs) may fly out.

— Cont. overleaf —

## 3. CHECKING AND ADJUSTMENT

Item	Contents
Check current consumption	Specified value: Less than 2.3 $\mu$ A ... Normal 2.3 $\mu$ A or more ... Defective  <b>Note:</b> When measuring the current consumption, do not place the watch under an incandescent lamp. The measured value sometimes becomes larger than the actual value.