

Watch Movement Specification and Drawing

WORLD TIME & ALARM

Cal. YM24A

Movement Size

12'''

Casing Diameter

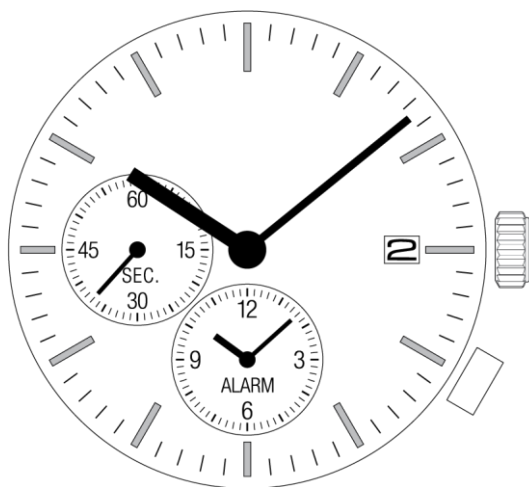
Ø 27.0mm

Height

3.70mm

Battery Life

5 years

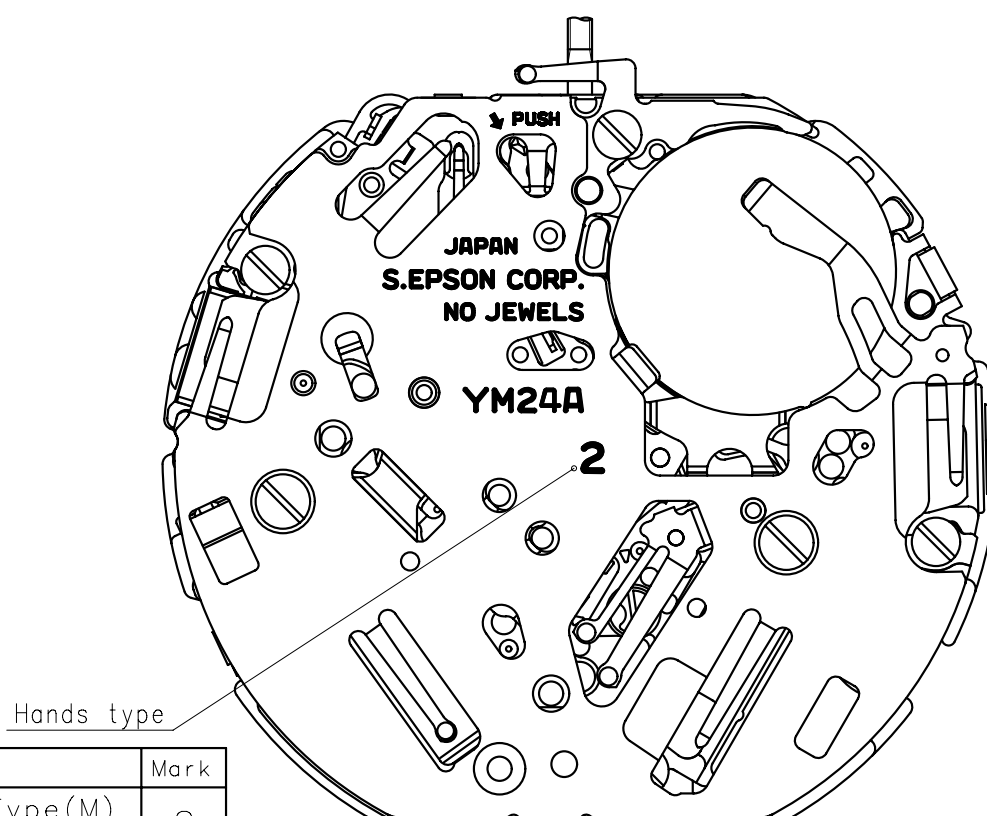


Date: 22/Aug./'23

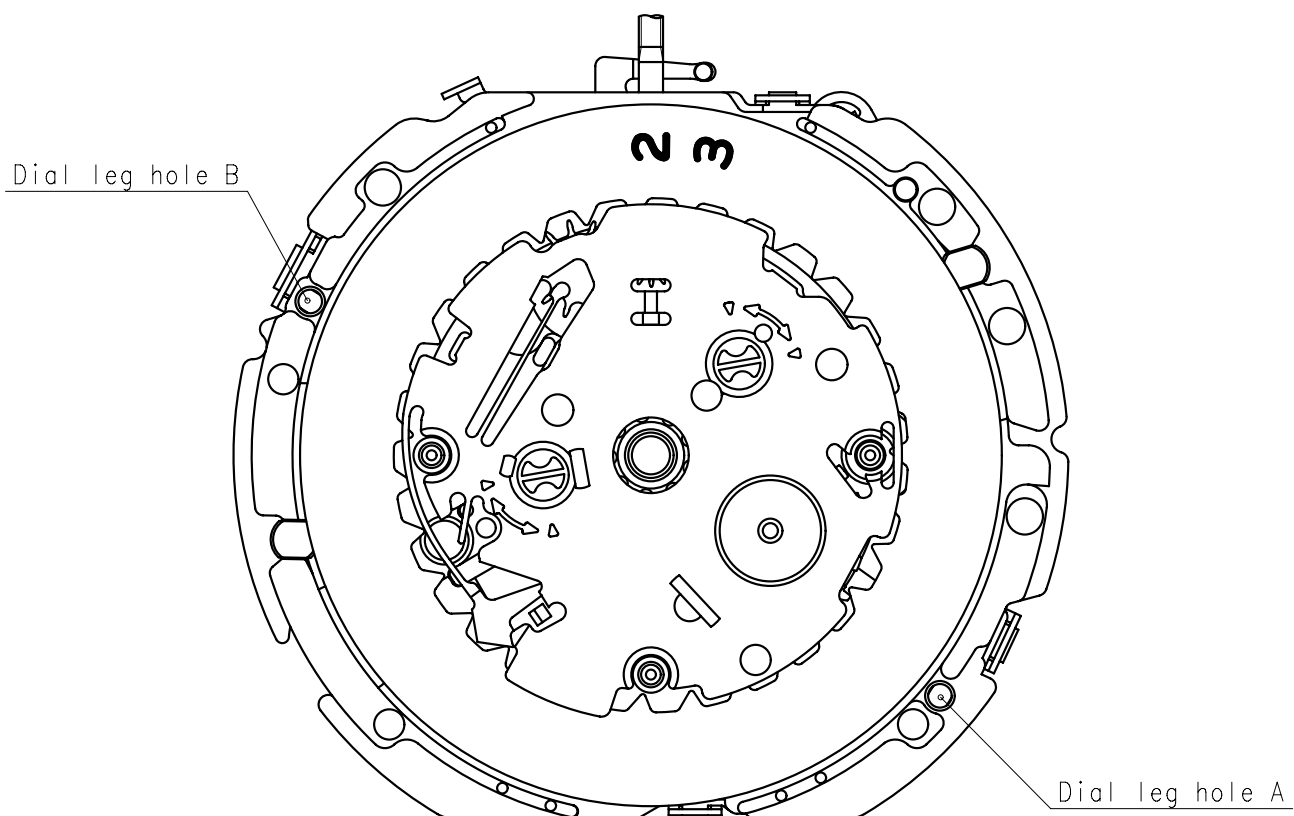
Cal. YM24A

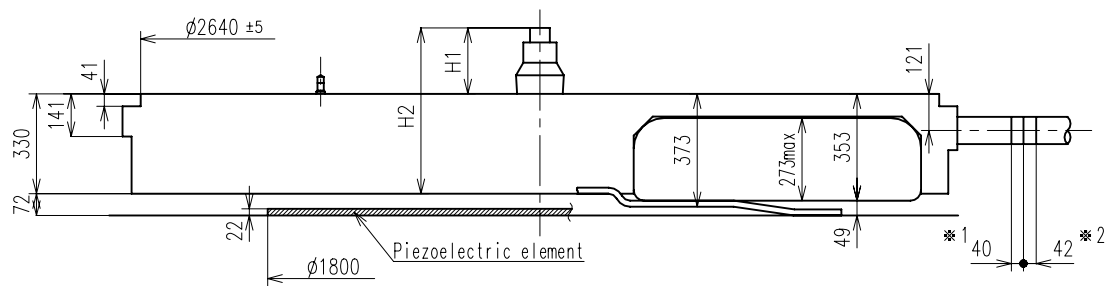
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Cal.	YM24A	Specifications	Date : 22/Aug./'23
			Rev. : 03
Analog Quartz 12''' Alarm Movement (small second)			
1. MOVEMENT DIMENSIONS			
Outside diameter		ϕ 27.60mm(12H-6H) × 24.00mm(3H-9H)	
Casing diameter		ϕ 27.00mm(12H-6H)	
Total height		3.7mm (including battery)	
2. TIME STANDARD			
Type of quartz oscillator		Tuning fork	
Frequency of quartz oscillator		32,768 Hz	
Accuracy		±20 seconds per month (on wrist)	
Operating temperature range		−5°C to +50°C	
Regulation device		Nil (Pre-adjusted)	
3. INDICATOR / FUNCTIONS			
2 Hands		Hour / Minute (Center)	
Small hands		Alarm hour and minute (6H) / small second (9H)	
Calendar		Instant setting device for date calendar	
Reset switch			
Power depletion warning function (BLD)			
(Small second hand moves at 2-second intervals)			
Alarm			
4. FEATURES			
Jewels		0 Jewels	
Anti-magnetism		Over 1600A/m (Direct current magnetic field)	
Maximum unbalance of hands		Small second hand : 0.03 μ N•m	
		Minute hand : 0.70 μ N•m	
		Alarm minute hand : 0.03 μ N•m	
5. BATTERY			
Type / Size		Silver oxide battery / ϕ 9.5mm × t 2.73mm	
Recommended battery		SR927SW	
Nominal voltage		1.55 V	
Battery life		Approx. 5 years	
		(20 seconds alarm operation per day)	
Driving current consumption		Approx. 0.80 μ A	
Operation stopping voltage		0.9 V	
6. SEPARATED PARTS (Parts code)			
Hand setting stem		0351584 (Standard)	
Holding ring for dial		0866650 (Standard)	
Battery		SR927SW	
Piezoelectric element		4589801	
7. TEST OF ACCURACY			
Equipment to be used		SEIKO quartz tester QT-99, QT2100	
		Greiner quartz timer-C , Witschi Q-tester 4000	
Duration of measurement		10 seconds	
Microphone to be used		Electromagnetic detection type	
All specifications are subject to change without notice.			



	Mark
Type(M) YM24A**	2

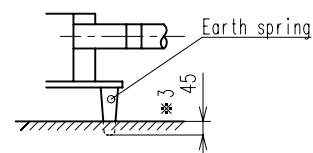
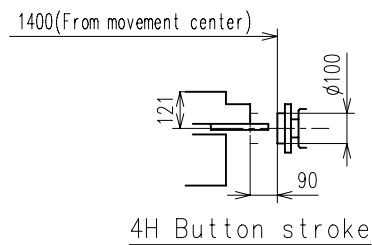




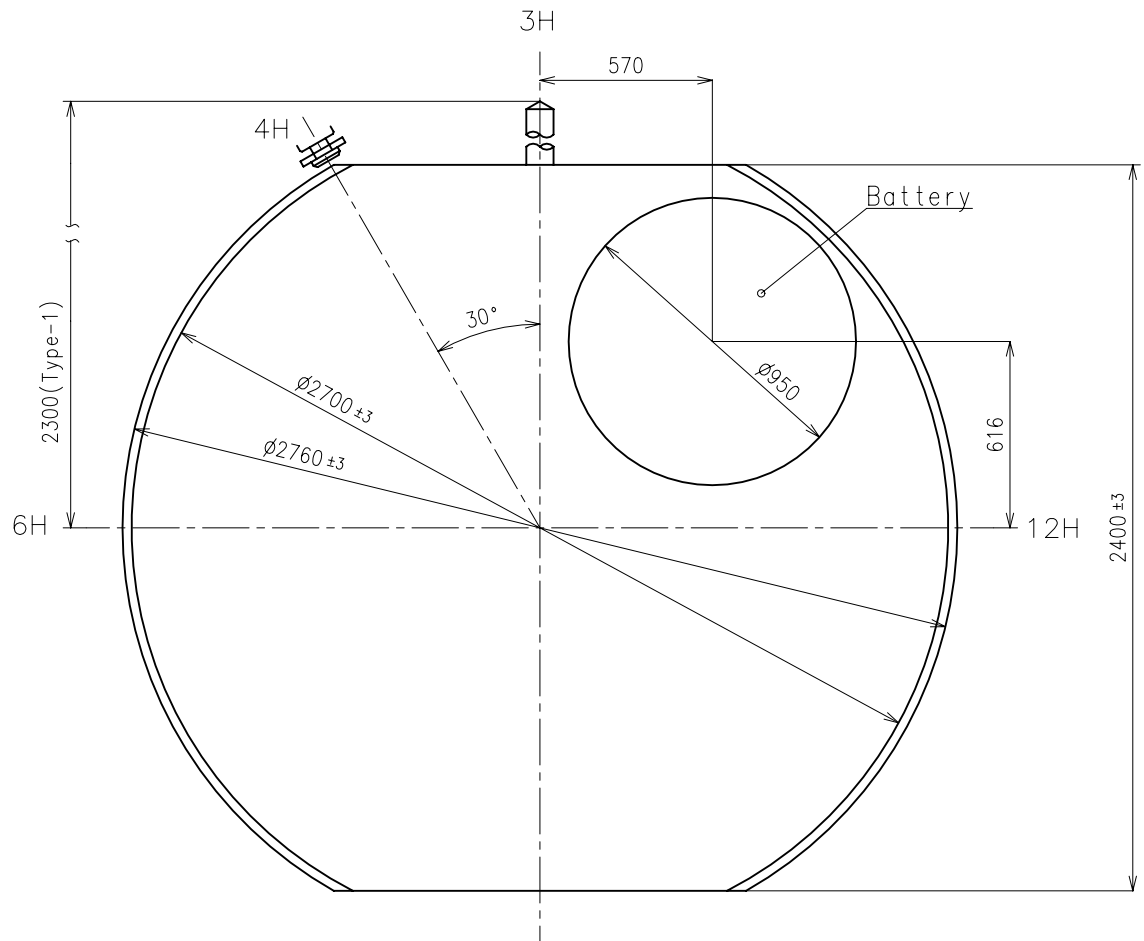
Center post		Type M (2) YM24A**
Maximum height from dial support	H1	218
Total height including movement	H2	548

*1:First pullout stroke

*2:Second pullout stroke

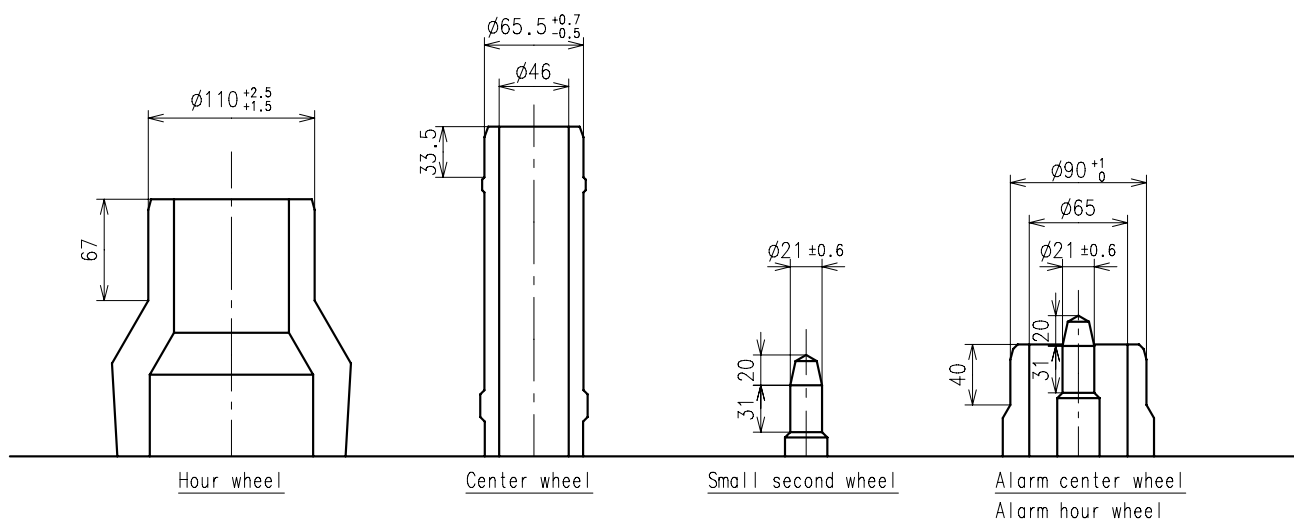


*3:The earth spring is absolutely placed in contact with the case back.

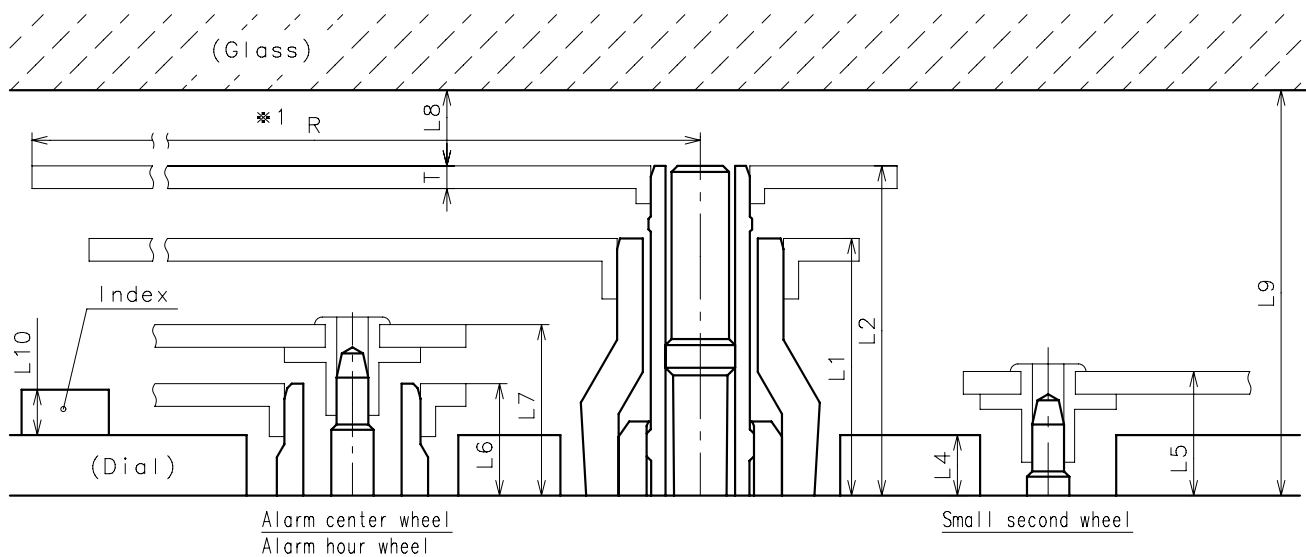


* Unbalance

- Small second hand $\leq 0.03\mu \text{ N} \cdot \text{m}$ ($3\mu \text{ g} \cdot \text{m}$)
- Alarm minute hand $\leq 0.03\mu \text{ N} \cdot \text{m}$ ($3\mu \text{ g} \cdot \text{m}$)
- Minute hand $\leq 0.70\mu \text{ N} \cdot \text{m}$ ($70\mu \text{ g} \cdot \text{m}$)



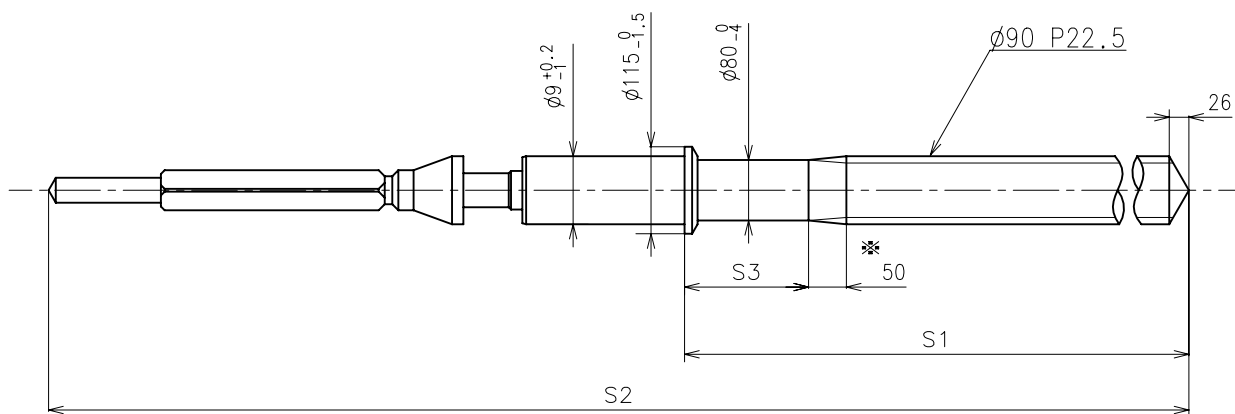
	Parts No.				
	Hour wheel	Center wheel	Small second wheel	Alarm center wheel	Alarm hour wheel
Type M (2) YM24A**	0271588	0221583	0240580	0270582	0271583



	L1	L2	—	L4	L5	L6	L7	L8	L9	L10	T	*1 R
Type M (2) YM24A**	170	218	—	40	77	74	113	MIN: 50	MIN: 268	MAX: 50	15	MAX: 1250

*1: It is the size taken into consideration for hands attachment.

Please observe some standard value specified in unbalance when using long hands.

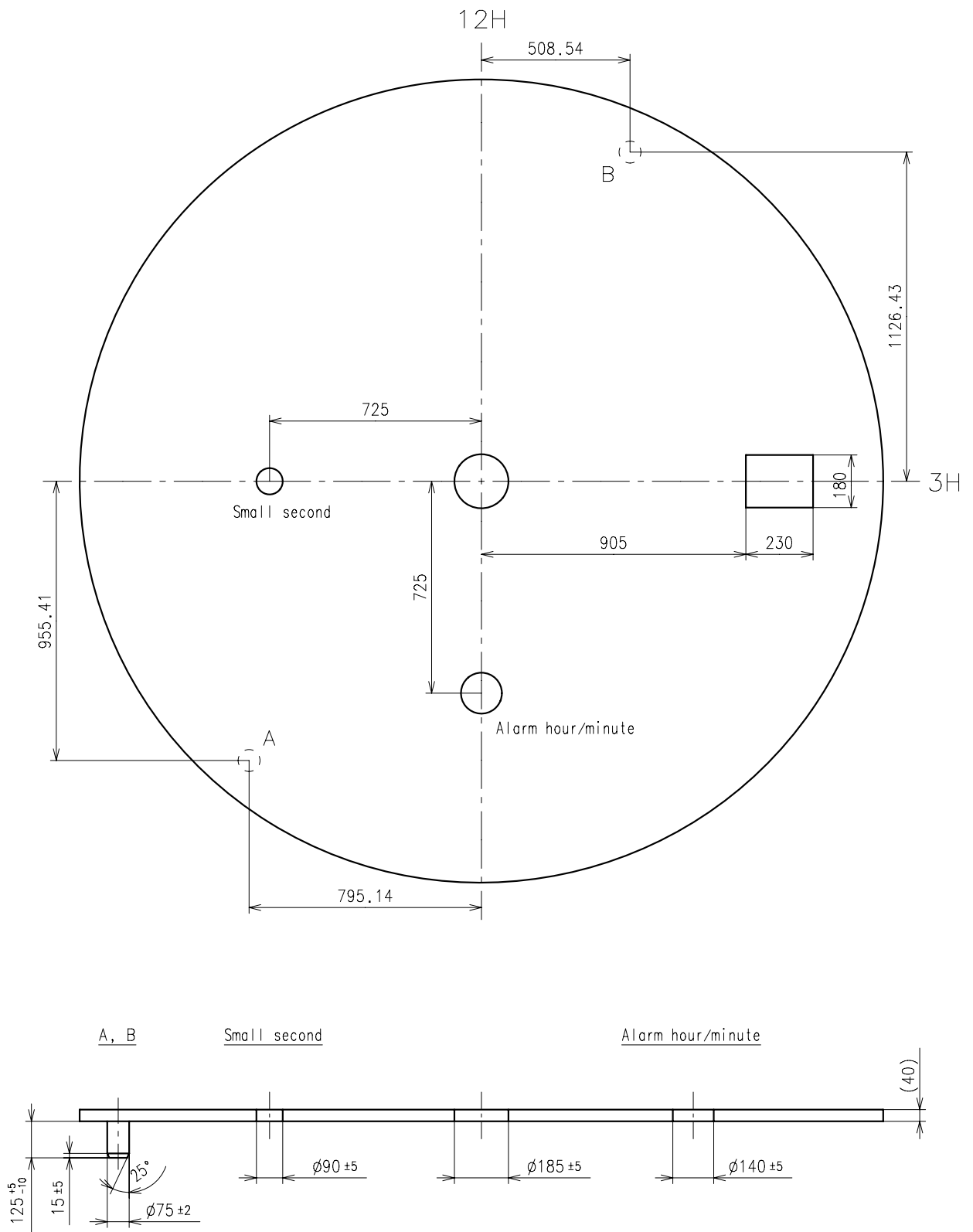


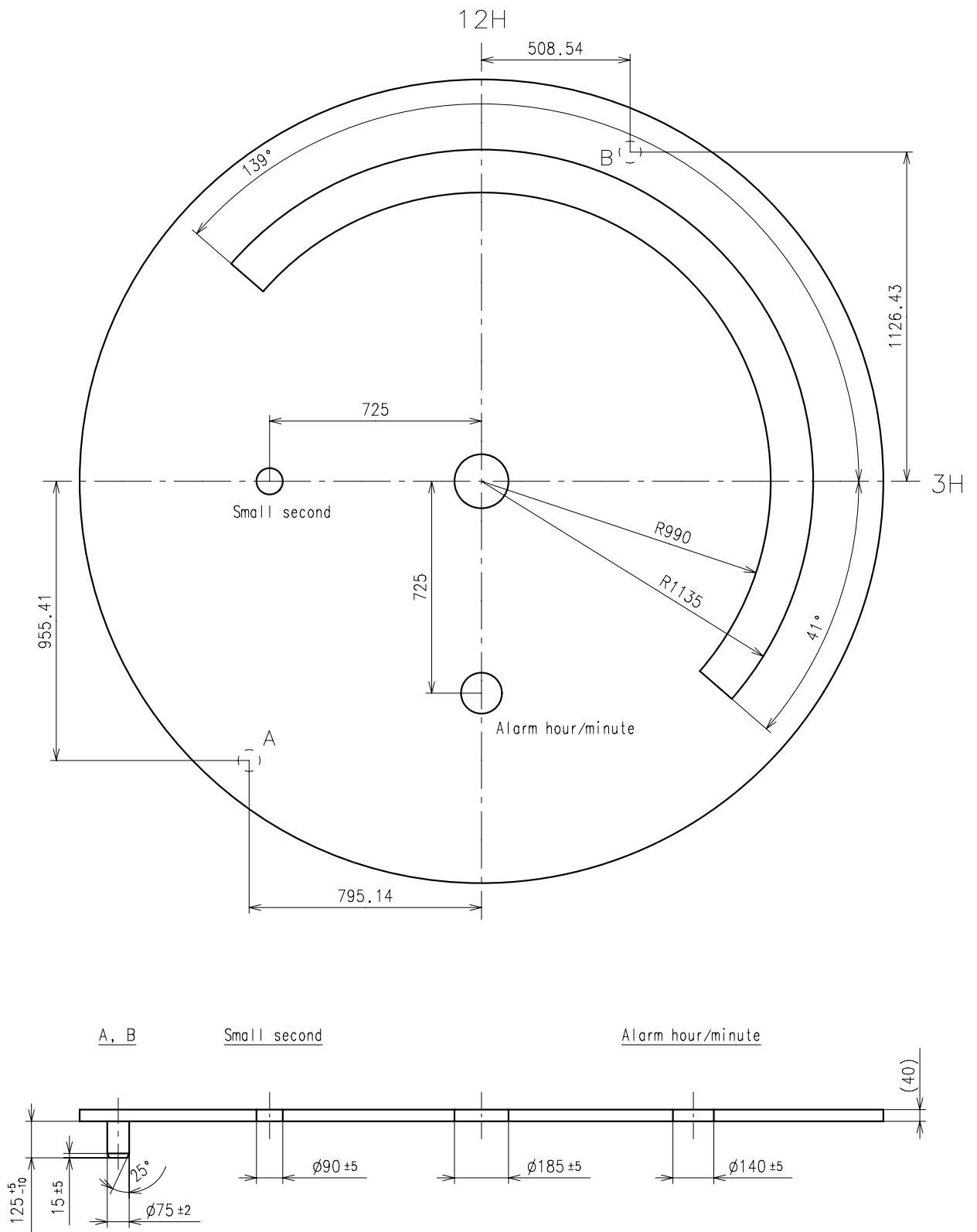
※ Not threaded

	Part No.	S1	S2	S3
Type-1 (Standard)	0351584	1164	2005.5	164

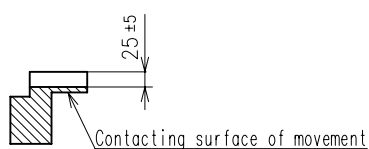
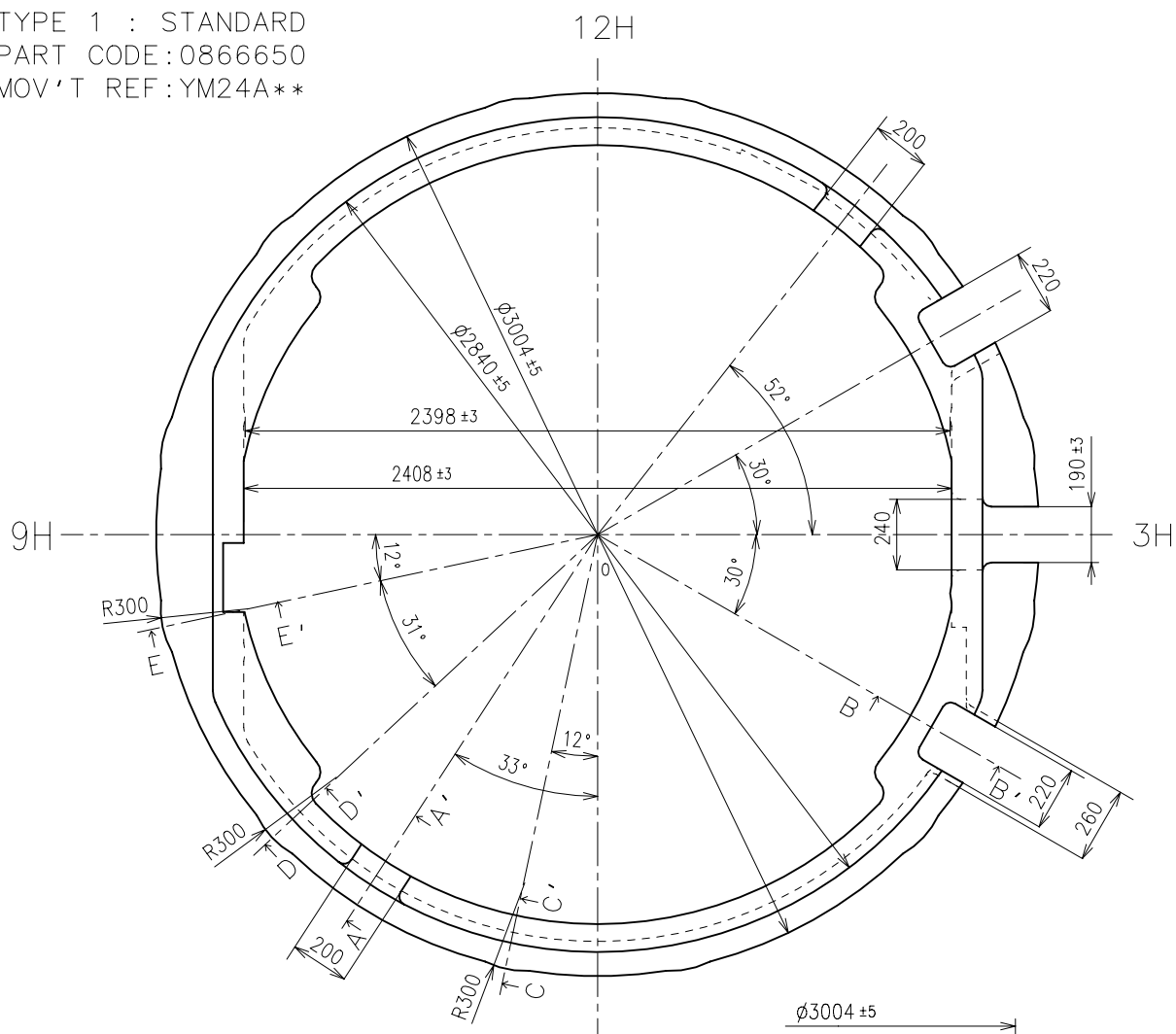
Material : Steel

Hardness : Vickers 600±50

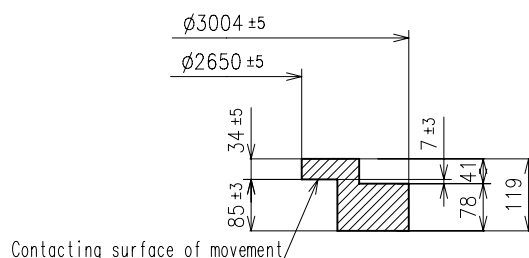




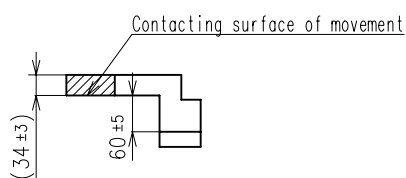
TYPE 1 : STANDARD
PART CODE:0866650
MOV'T REF:YM24A**



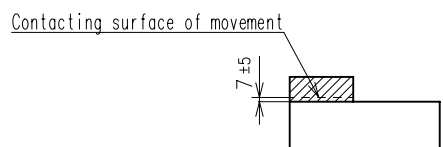
A-A' section



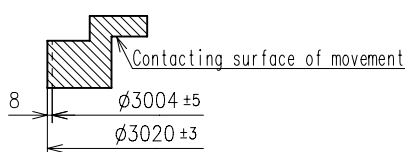
0-12H section



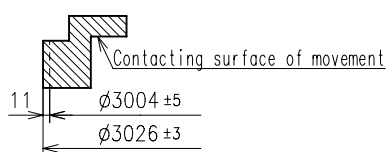
B-B' section



0-3H section

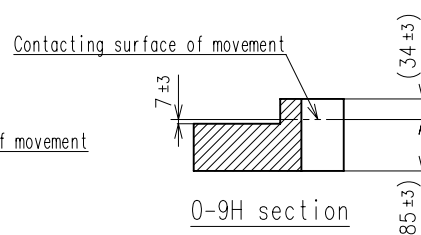


C-C' section



D-D' section

E-E' section



0-9H section

1.How to replace the battery

- Please use the specified battery to keep the stable performance for a long time.
- Please install the minus part of the battery towards inside of the watch.
- When installing or changing the battery, it is recommended to remove two battery clamp screws first, then remove the battery clamp not to damage the movement parts.
If you install the battery without removing the battery clamp, please install the battery from [→] direction as illustrated below Fig.[1].
- Install the battery under the circuit cover as illustrated below Fig.[1] and Fig.[2].
- System-reset is not required.
- After installing the battery, set the current time and then set the alarm time same as current time to let the alarm work correctly.

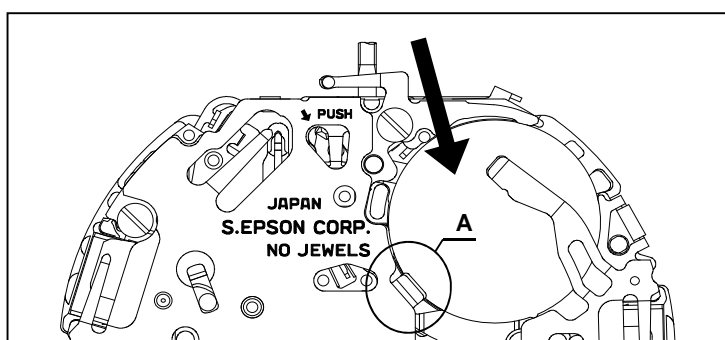


Fig.[1]

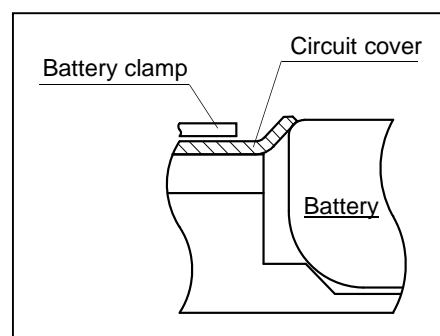


Fig.[2] A section

2.How to remove the stem

- When removing the stem, pull out the crown at 1st click position and then remove the stem while pressing the hollow portion of setting lever by tweezers. (Refer to the Fig.[3].)

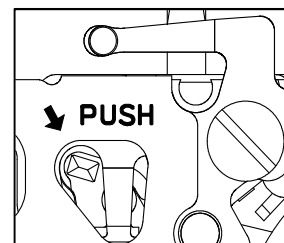


Fig.[3] Crown pulled out at 1st click

3.How to set the hands

- Each hand moves at step interval. Set the each hand at correct position according to the scale on the dial in order not to make a mistake in reading time.
- Do not turn the hand forcibly.

4.How to remove the hands

- When removing the hands, use exclusive fork-shaped tools.
- Do not remove the dial under the condition that any hands are set.

5.How to test the accuracy

When measuring the time accuracy, use specified Quartz Tester and change the gate time in 10 seconds.

1.Holding ring for dial

Use the specified holding ring for dial to prevent rotation of the movement inside of the case in order to stabilize the button operation.
Refer to the [Holding ring for dial] page instruction as to the shape and tolerance.

2.Case

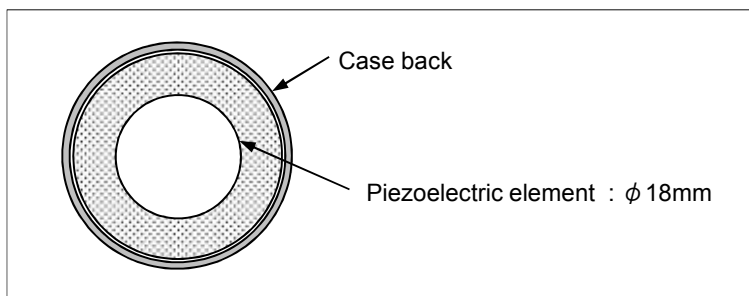
Use the metal case to prevent from the movement mal-function by static electricity.

3.Hour wheel

When set and remove the hour hand repeatedly, it may reduce the hand fixing torque because the hour wheel is made by plastic.
To ensure the enough fixing torque, it isn't recommended to re-assemble the hour hand more than five times.

4.Piezoelectric element

Stick piezoelectric element to the center of case back.



Piezoelectric element must be stuck to case back by thermoplastic adhesive.
Thermoplastic adhesive is already printed to the surface of piezoelectric element.
Heating temperature and time to stick piezoelectric element is shown in the following table.

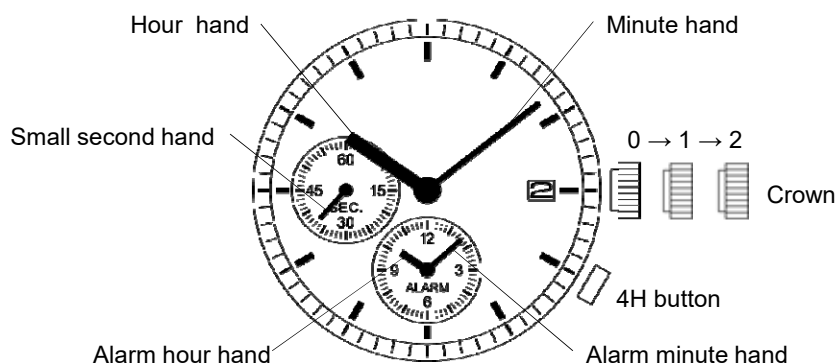
Material of case back	Heating temperature	Heating time
Stainless	250°C	5 seconds
Titanium	250°C	6 seconds

Check piezoelectric element is definitely stuck to case back after heating.

• Sticking position

The amount of the misalignment between the center of case back and piezoelectric element : 0.35mm and less

If the sticking position of piezoelectric element is drastically misaligned or if the electrical continuity is bad, no sound may occur.

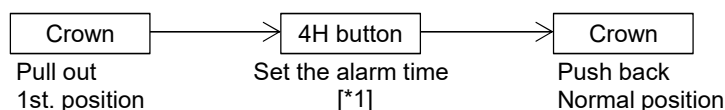


	Crown position		
	0 click	1st click	2nd click
Crown	Free	Turn clockwise for date change	Time setting
4H button	Free (No effect)	Alarm time setting (at 6H small circle)	Time setting for alarm

Alarm function

- The alarm can be set to ring only once at a designated time within the coming 12 hours.
- The alarm time can be set in one minute increments.

■ Set the alarm time



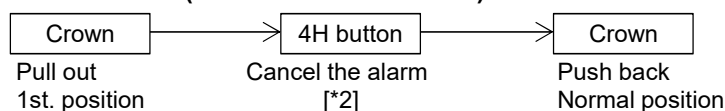
[*1]

Press 4H button repeatedly to set the alarm hands to the desired alarm time.
The alarm hands move quickly when the 4H button is kept pressed. They stop when the hands reach to the current time.
Release and press the 4H button, the alarm hands will start moving again.

■ Stop the alarm

- At the designated time the alarm rings for 20 seconds, and it is automatically disengaged as it stops.
It is possible to stop ringing manually when pressing any button.

■ Cancel the alarm (when alarm time is set)



[*2]

Press and hold 4H button until alarm hands stop and indicate the current time.