EPSON

Watch Movement Specification and Drawing

HYBRID AUTOMATIC

Cal. PX83A

Movement Size

12’’’

Casing Diameter

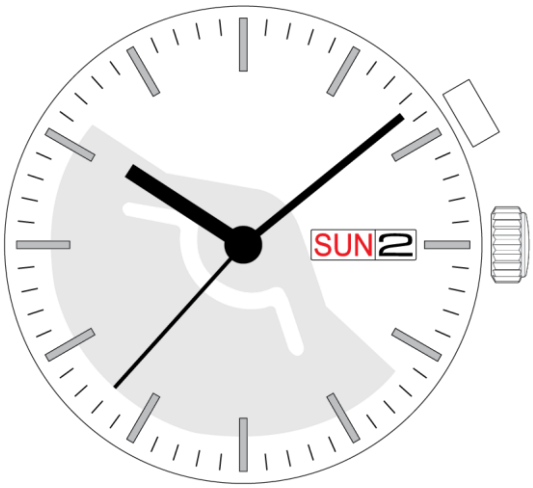
Ø 27.0mm

Height

4.89mm

Running Time

Approx. 6 months



Date: 25/Dec./'23

Cal. PX83A

Cal. PX83A	Features	Date : 31/Jul./'20
		Rev. : 00

1.Automatic power generating system

This watch generates "the electric energy" to power the watch, utilizing the movement of your body, and stores the power in the secondary battery.

2. Eliminating the need for battery replacement

Unlike conventional quartz watches, this watch does not use a silver oxide battery, thus eliminating the need for battery replacement.

3. Running time

Expected running time from full charge to stoppage will be around 6 months.

4. Power depletion warning function

(1) The two-second intervals of the second hand is a signal of energy depletion.
When the two-seconds interval starts, the watch runs down in approximately 24 hours. It is recommended charging earlier.

(2) When unused state without the charge detection continues, the watch stop after two-seconds intervals for 24 hours.
The watch starts by the charge detection, and the second hand will start usual moving at one-second intervals.

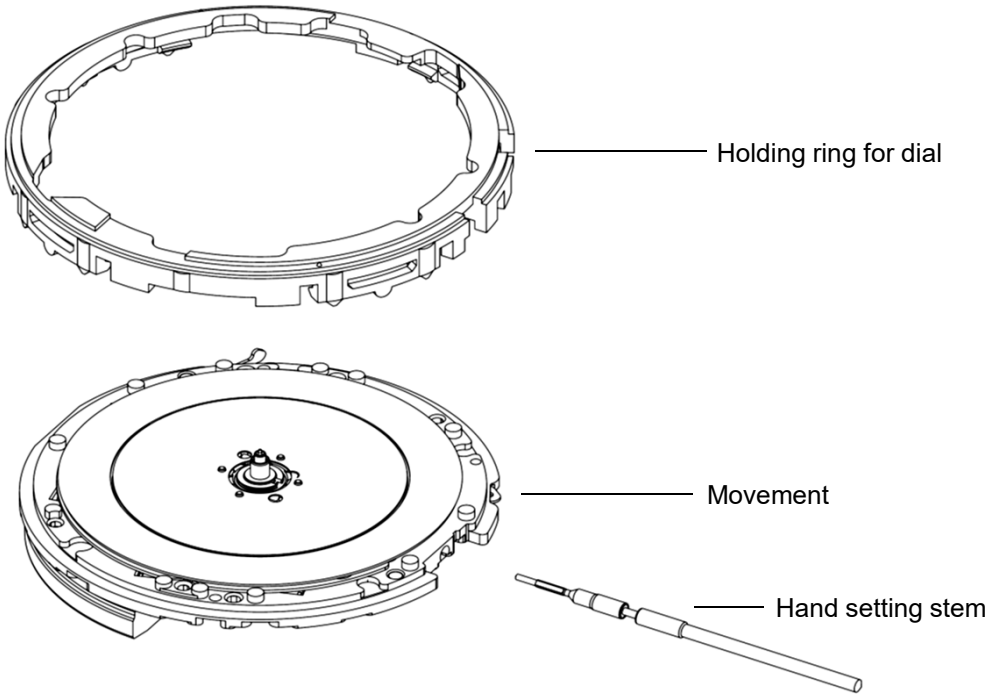
5. Instant-start function

Provided with the instant-start function, the watch starts usual operation after swing it several times.

6. Over charge prevent function

If the secondary battery is charged more than predetermined voltage, over charge prevent function is operated.

7. Structure of the separated parts



Cal. PX83A	Specifications	Date : 21/May/'21
		Rev. : 01

Automatic Power Generating System 12''' Size Movement / Three Hands (H/M/S) with Day / Date

1. MOVEMENT DIMENSIONS

Outside diameter	ϕ27.60mm
Casing diameter	ϕ27.00mm
Total height	4.89mm (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℃ to +50℃
Regulation device	Nil (Pre-adjusted)

3. INDICATOR / FUNCTIONS

3 Hands	Hour / Minute / Second	
Calendar	Instant setting device for day / date calendar	
Reset switch		
Power depletion warning function		
(Second hand moves at 2-second intervals when voltage is 1.15V)		
Setting mechanism	Crown at normal position	: Free
	Crown pulled out 1st click	: Instant day / date change
	Crown pulled out 2nd click	: Time setting / Reset
Power storage indicator	Push 2H button	

4. FEATURES

Jewels	6 Jewels	
Anti-magnetism	Over 1600A/m (Direct current magnetic field)	
Driving current consumption	Approx. 0.65μA (1.4V)	
Operation stopping voltage	1.0 V	
Maximum unbalance of hands	Second hand	: 0.06μN・m
	Minute hand	: 0.70μN・m
	Hour hand	: 0.50μN・m
Moment of inertia	Second hand	: less than 0.13 μg・m²

5. SECONDARY BATTERY (Installed)

Type / Size	Lithium metal batteries
	ϕ9.5 × t 2.05 mm
Nominal voltage	1.5 V
Capacity	5 mAh

6. SEPARATED PARTS (Parts code)

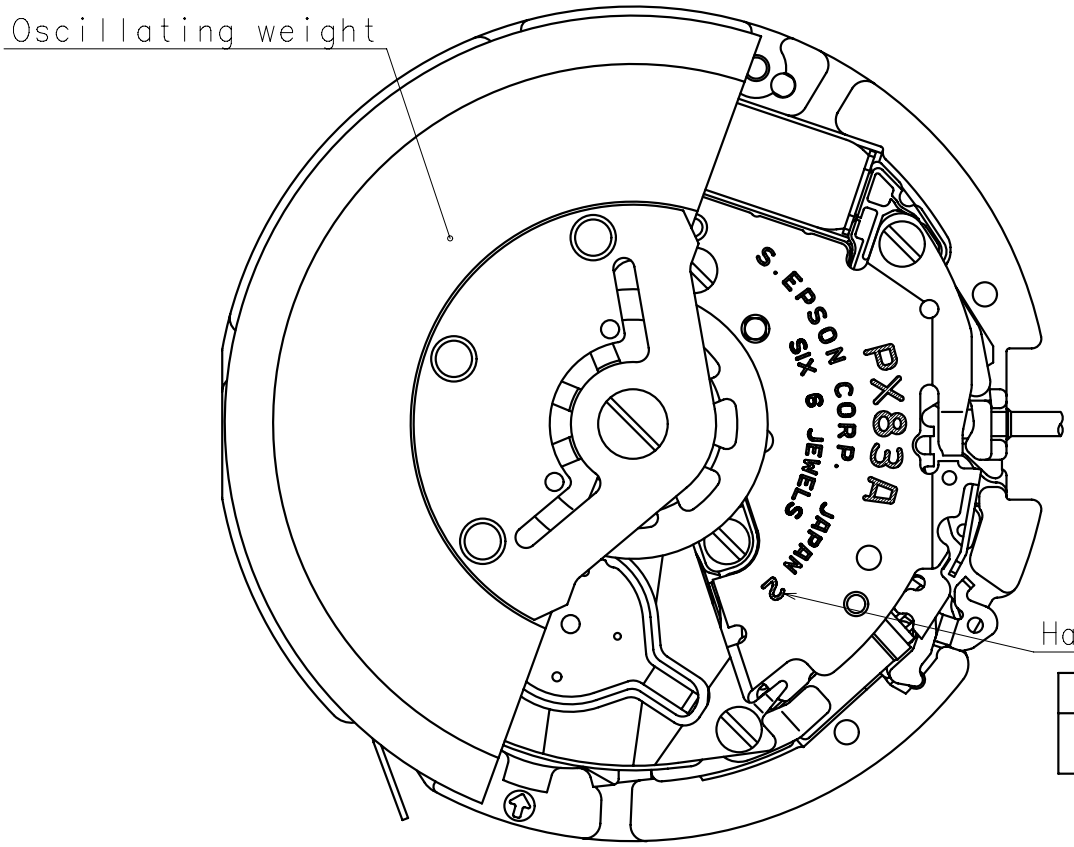
Hand setting stem	0351652
Holding ring for dial	0866780

7. TEST OF ACCURACY

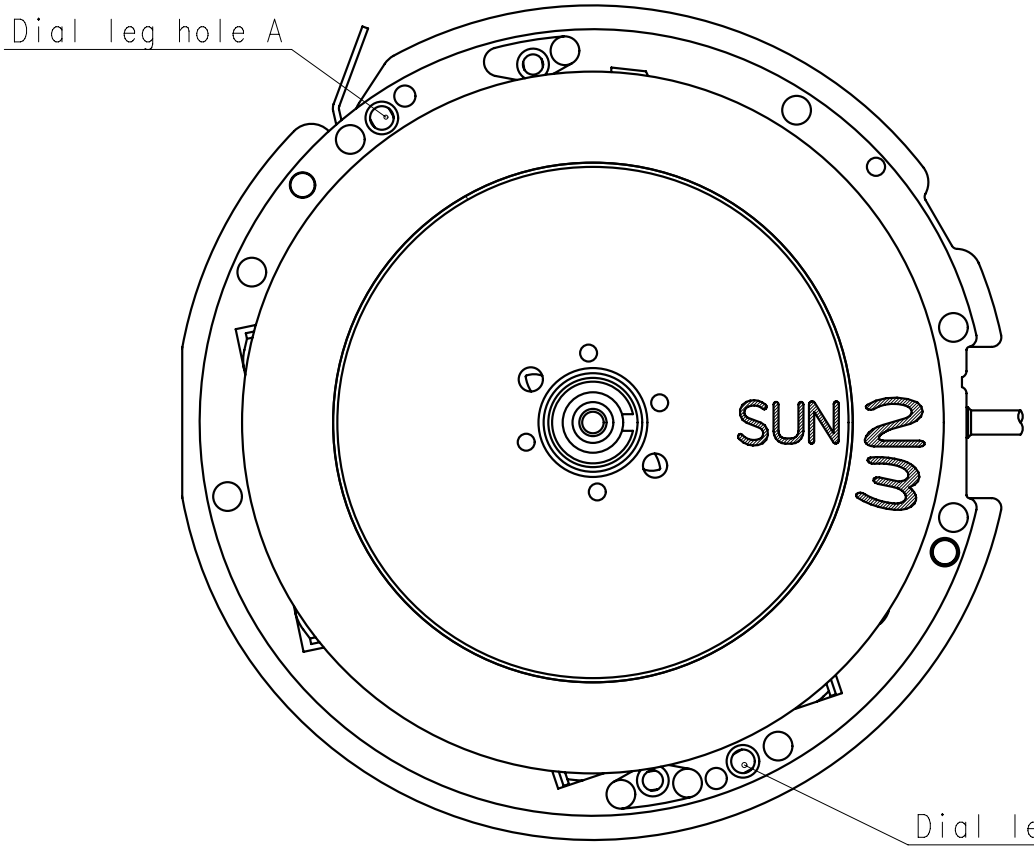
Equipment to be used	SEIKO quartz tester QT-99, QT2100
	Greiner quartz timer-C , Witschi Q-tester 4000
Duration of measurement	10 seconds
Microphone to be used	Electromagnetic detection type

All specifications are subject to change without notice.

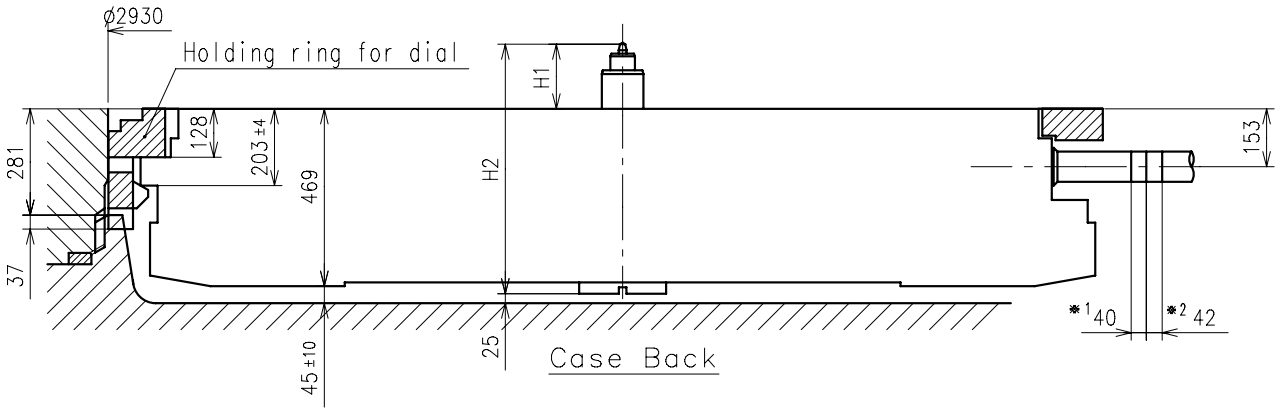
Cal. PX83A	Appearance	Date:31/Jul./'20
		Rev.:00

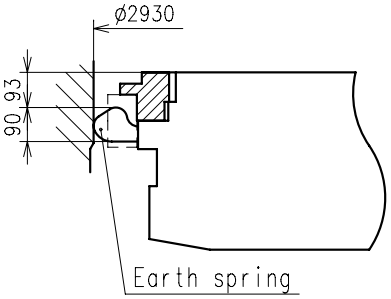


	Mark
Type(M)	2



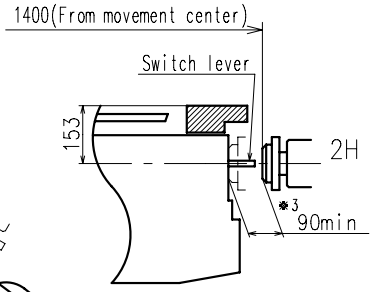
Cal. PX83A	Casing	Date:31/Jul./'20
		Rev.:00

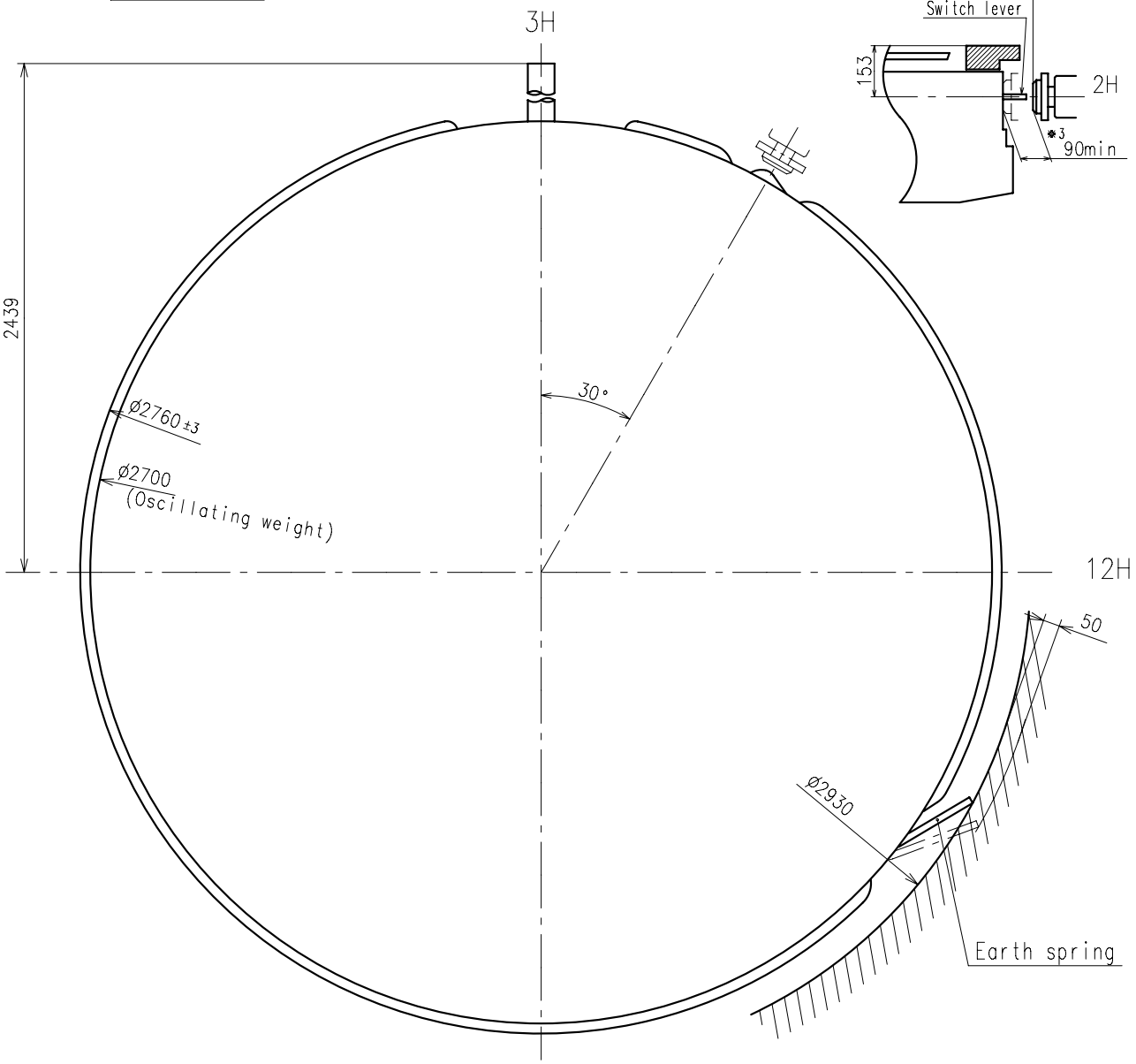




Center post		Type M (2) PX83A1**
Maximum height from dial suppot	H1	171
Total height including movement	H2	660

※1:First pullout stroke
※2:Second pullout stroke
※3:Switching stroke



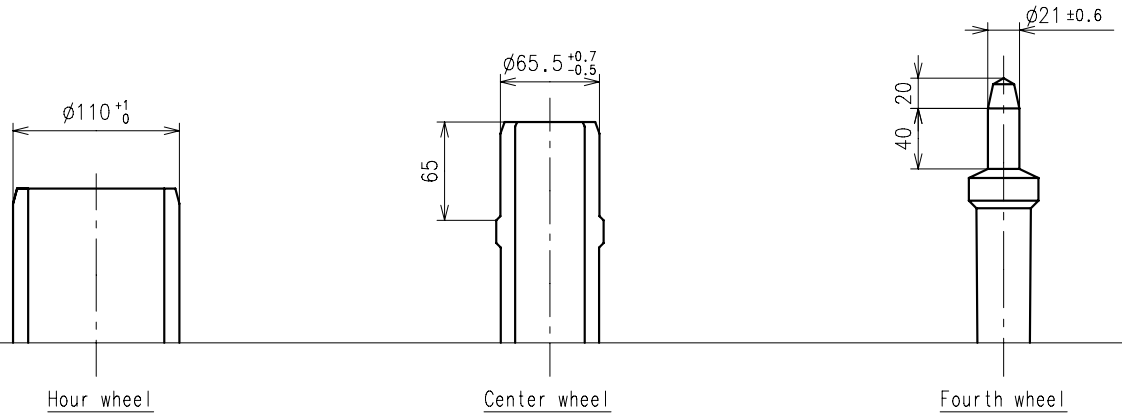


Unit : 1=1/100mm

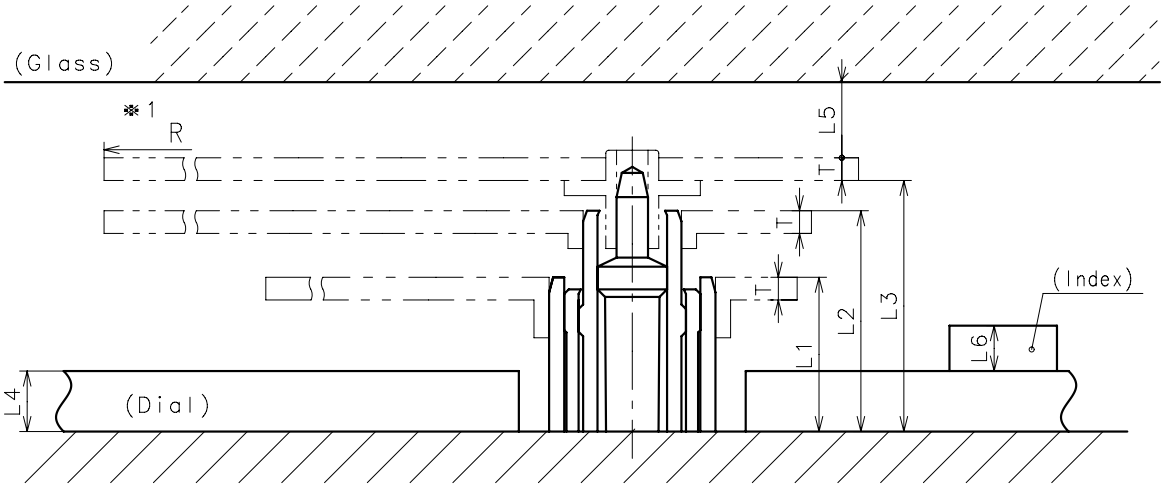
Hand fitting

※Unbalance
- Hour hand ≦ 0.50μ N・m (50μ g・m)
- Minute hand ≦ 0.70μ N・m (70μ g・m)
- Second hand ≦ 0.06μ N・m (6μ g・m)

※Moment of inertia
- Second hand ≦ 0.13μ g・m²



	Parts No.		
	Hour wheel	Center wheel	Fourth wheel
Type M (2) PX83A**	0271670	0221676	0241670

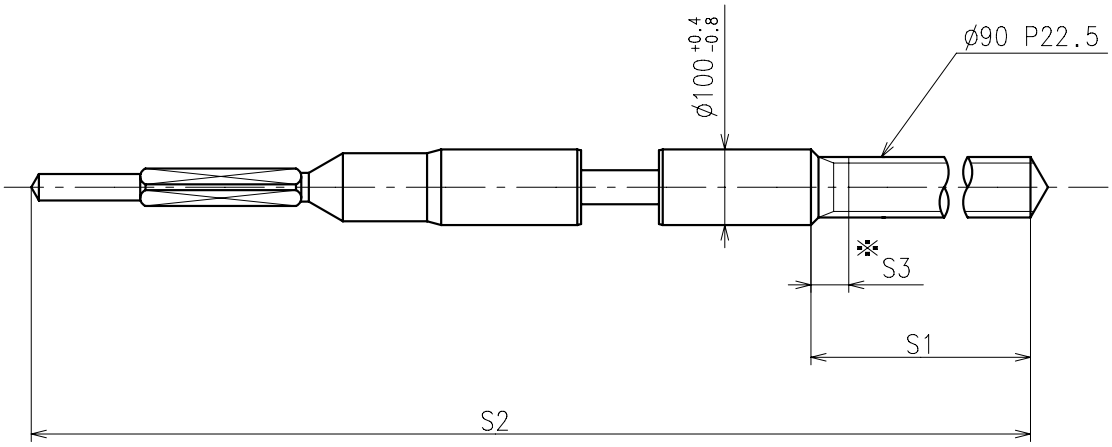


	L1	L2	L3	L4	L5	L6	T	※1 R
Type M (2) PX83A**	102	146	166	40	MIN: 50	30	15	MAX: 1250

※1:It is the size taken into consideration for hands attachment.
Please observe some standard value specified in unbalance and moment of inertia when using long hands.

Unit : 1=1/100mm

Cal. PX83A	Hand setting stem	Date:31/Jul./'20 Rev.:00



※ Not threaded

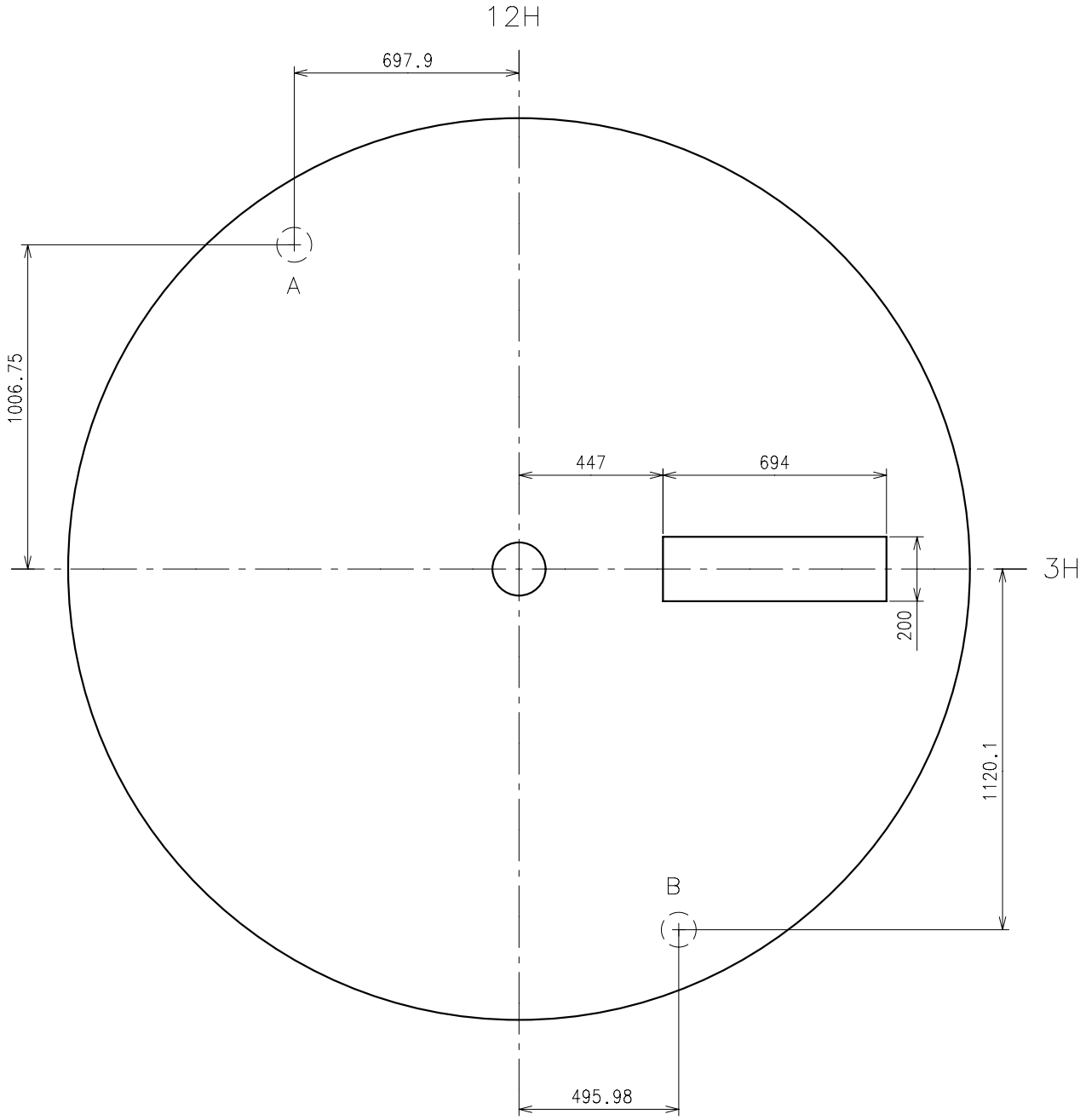
	Part No.	S1	S2	※S3
Type-1 (Standard)	0351652	1109	2220	50

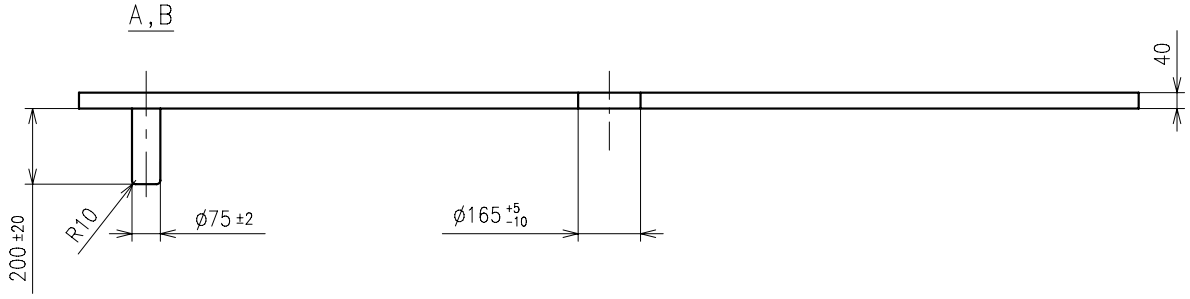
Material : Steel

Hardness : Vickers 550±50

Unit : 1=1/100mm

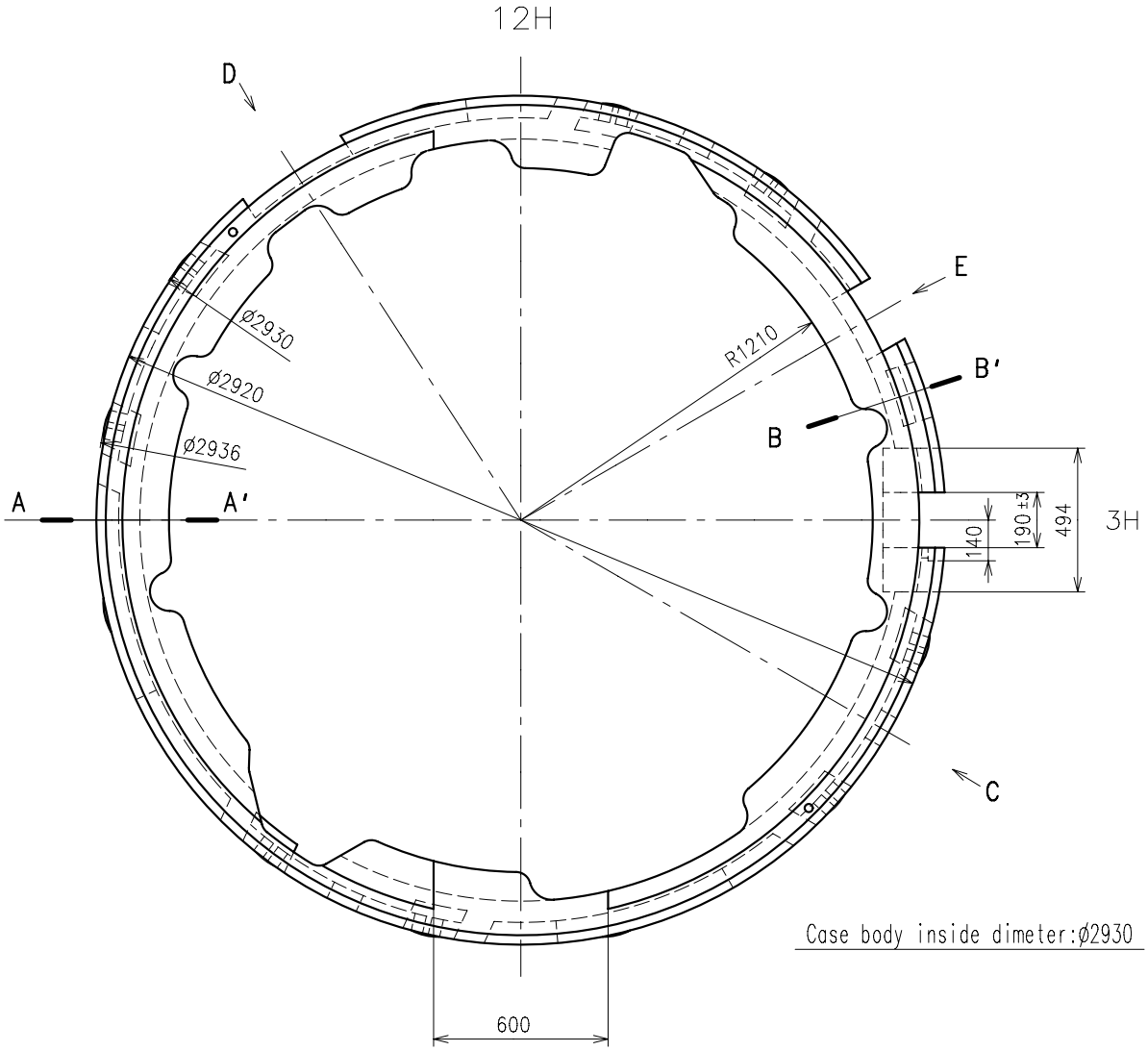
Cal. PX83A	Dial	Date:31/Jul./'20
		Rev.:00





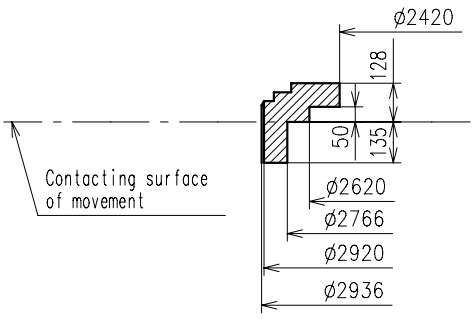
Unit : 1=1/100mm

Cal. PX83A	Holding ring for dial	Date:31/Jul./'20 Rev.:00

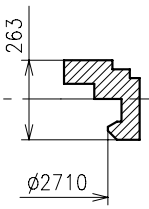


Case body inside dimeter:ø2930

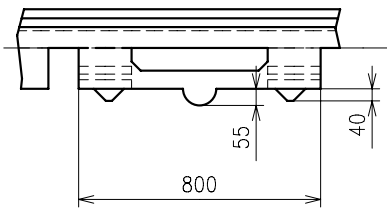
A-A' SECTION



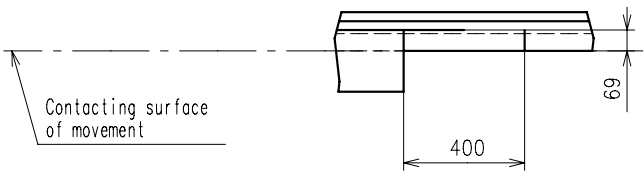
B-B' SECTION



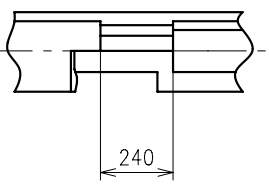
C View



D View



E View



Unit : 1=1/100mm

1.How to charge the watch

While the watch is swung, the automatic power generating system works, and the watch is powered by the electrical energy.

Swing the watch from side to side at a rate of 2 to 3 swings in a second.

2.How to start using the stopped watch

(1) Normal stop state

The watch starts to move by several times of swinging.

After one-two seconds, the second hand will start usually moving at one-second intervals.

Power storage indicator shows five seconds and usually moves for one day.

(2) After the long term leaving (more than three years)

The capacitor continues to discharge and the voltage decreases ever after the watch has stopped.

In the case of the watch having been left for a long time, and the voltage of the rechargeable battery extremely decreases, the second hand moves at two-second intervals until it becomes the operable voltage.

Please swing the watch until the second hand moves at one-second intervals.

3. How to remove the setting stem

When removing the setting stem, pull out the crown at 1st click position and push the "setting lever" by tweezers. (Refer to the Fig.[1].)

The "setting lever" can not be pushed if the setting stem is not at 1st click position.

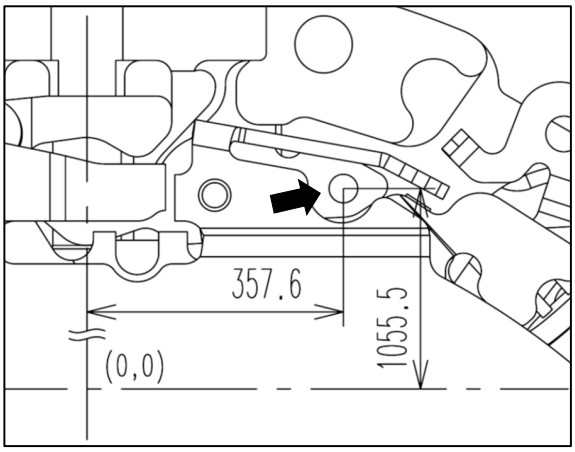


Fig.[1]

4. Attention of casing part structure

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.

Use the metal case to prevent the movement from malfunction by static electricity.

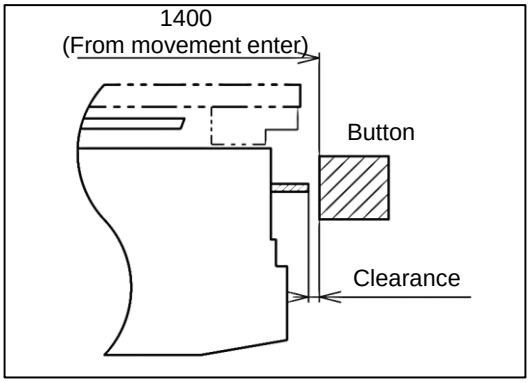
It is recommended for taking the conduction with the case and the earth spring as showing it on the "Casing" page.

5.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. Do not turn the hand forcibly.

6. Button position

Please keep the clearance between the movement and the tip of button to prevent the interference and enable to be cased smoothly.

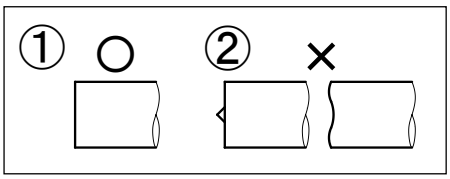


To keep the clearance, it is recommended to use button spring.

・Button Requirement

①Flat and smooth button is preferable.

②Irregular or sharp shape is not recommended.



If power storage indicator function is unnecessary, remove a button.

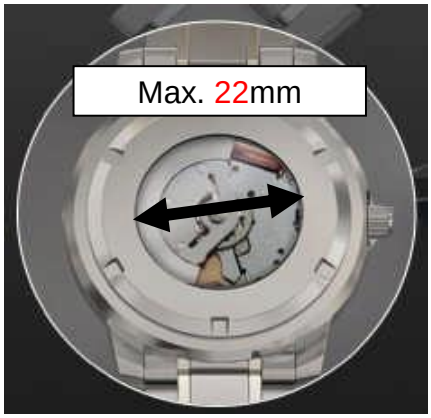
7.The see-through back glass

Direct sunlight increases battery consumption, it causes decrease of running time and difficulty in charging the battery.

In order to prevent the above situations , it is recommended following two things for see-through back glass.

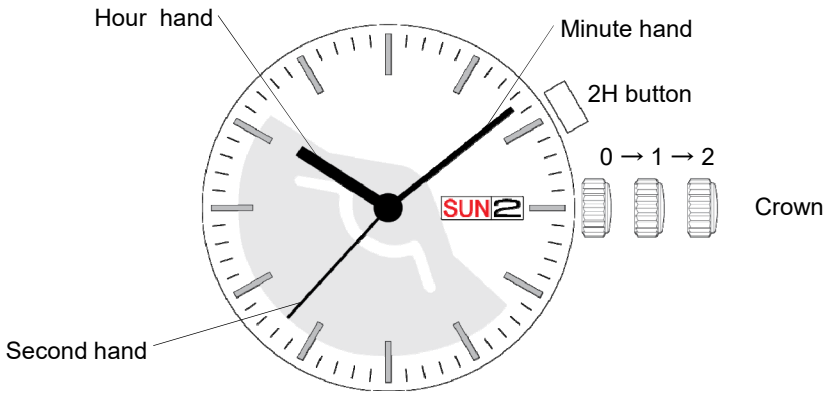
(1) Diameter of the glass must be less than φ22mm.

(2) It is recommended to use blue or brown color glass.



8.Regarding storage of movement

To prevent discoloration of the oscillating weight, avoid high temperature and humidity, and store under appropriate temperature and humidity control.



	Crown position		
	0 click	1st click	2nd click
Crown	Free	Turn clockwise for date change Turn counterclockwise for day of the week change	Time setting
2H button	Power Storage Indicator	Power Storage Indicator	Free

* Do not set the day and date between 9:00 PM and 4:00 AM.
Otherwise, the day and date may not change properly.

Power storage indicator

1.How to use

Push the button at 2H position.

2.Indication

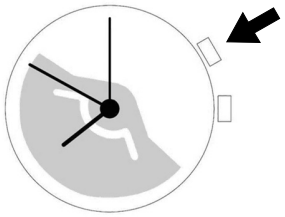
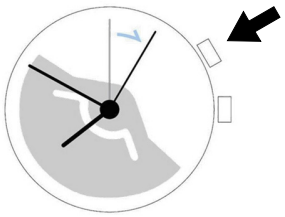
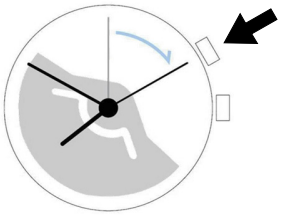
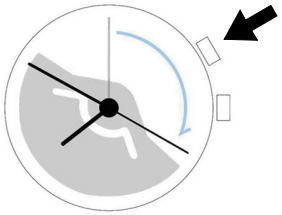
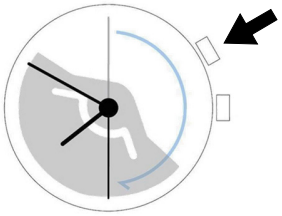
By pressing the button, the second hand moves quickly a certain amount of seconds depending on the power storage in a watch.

Fast-forwarding of the second hand starts from the position where the button was pressed.

After the second hand moves quickly a certain amount of seconds, it keeps stopping until the current time is caught up with the second hand.

3.Relationship between the quick movement of the second hand and power storage

※ The image shows the button pressed when the second hand is in the 0 second position.

Quick movement of second hand		Power storage
No move		The watch may run down soon. Please be sure to recharge the watch. The second hand moves two-second interval.
5 seconds		Approximately more than 1 day of power storage is available.
10 seconds		Approximately more than 7 days of power storage is available.
20 seconds		Approximately 1 month of power storage is available.
30 seconds		Approximately 4 to 6 months of power storage is available.

4.Recheck the power storage

You can check the power storage one more time immediately by pushing the button.