



Cal. VS15A

11.8 × 15.15 mm
H 2.09 mm

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Date: 30/Mar./'12

S.EPSON Products

CAL. VS15A

Solar Quartz 5 1/2" Movement / Tow hands(H/M)

1. MOVEMENT DIMENSIONS

Outside diameter	11.8mm(3-9H) × 15.55mm(12-6H)
Casing diameter	11.8mm(3-9H) × 15.15mm(12-6H)
Total height	2.09mm (Including solar cell : 2.49mm)

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
Reset switch	
Working time	Approx. 6 months (After fully charged)
Setting mechanism	Crown at normal position : Free Crown pulled out 1st click : Time setting / Reset

4. FEATURES

Jewels	0 Jewel
Anti-magnetism	Over 1600A/m (Direct current magnetic field)
Driving current consumption	Approx. 0.16 μ A (1.35V)
Operation stopping voltage	1.0 V
Solar cell type	Amorphous silicon solar cell
Maximum unbalance of hands	Minute hand : 0.15 μ N·m (15 μ g·m) Hour hand : 0.13 μ N·m (13 μ g·m)

5. SECONDARY BATTERY (Installed)

Type	Titanium-lithium-ion second battery
Size	ϕ 5.8mm × t 1.65mm
Nominal voltage	1.5 V
Capacity	0.9 mAh

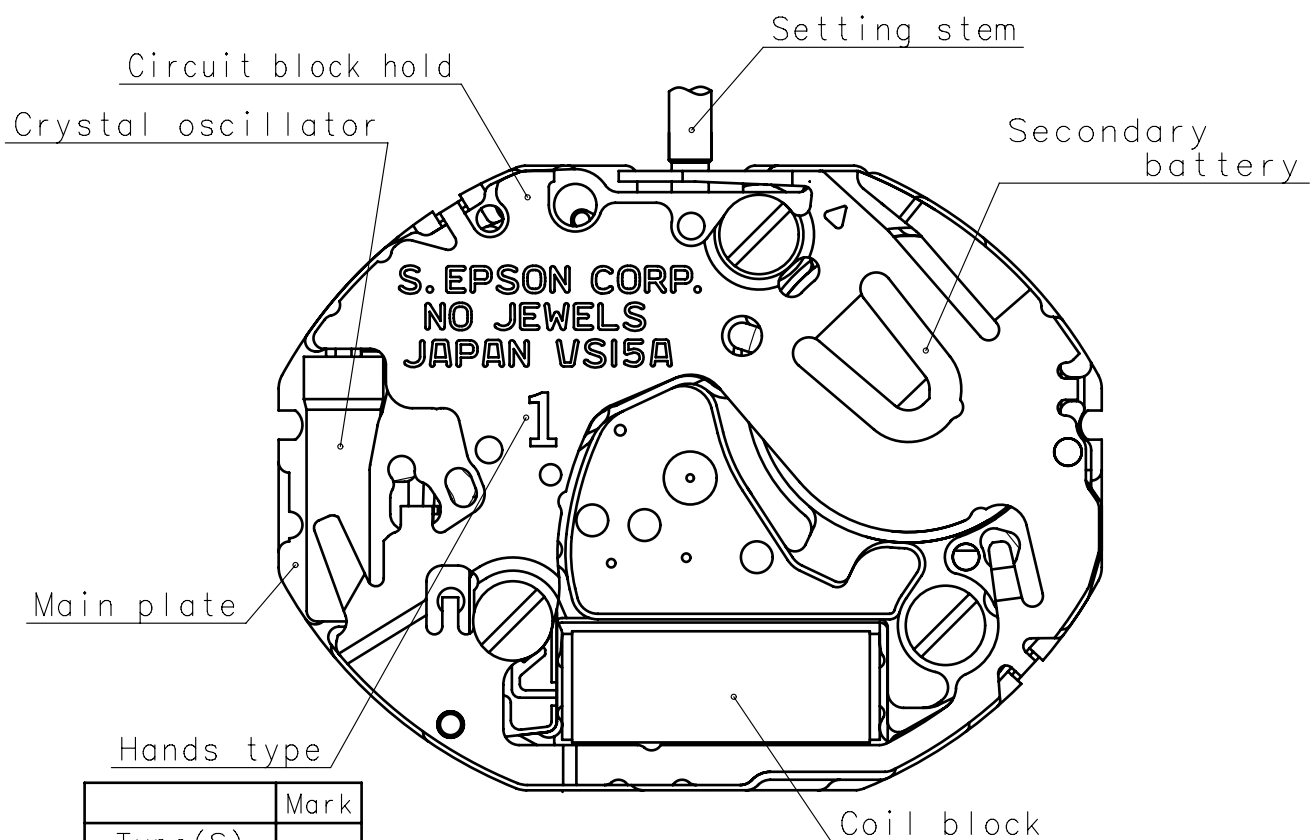
6. SEPARATED PARTS (Parts code)

Solar cell unit	4020583 (ROUND) 4020584 (SQUARE)
Hand setting stem	0351819
Solar cell lead terminal (2 pcs)	4246644
Hour wheel	0271946
Dial washer	0491735

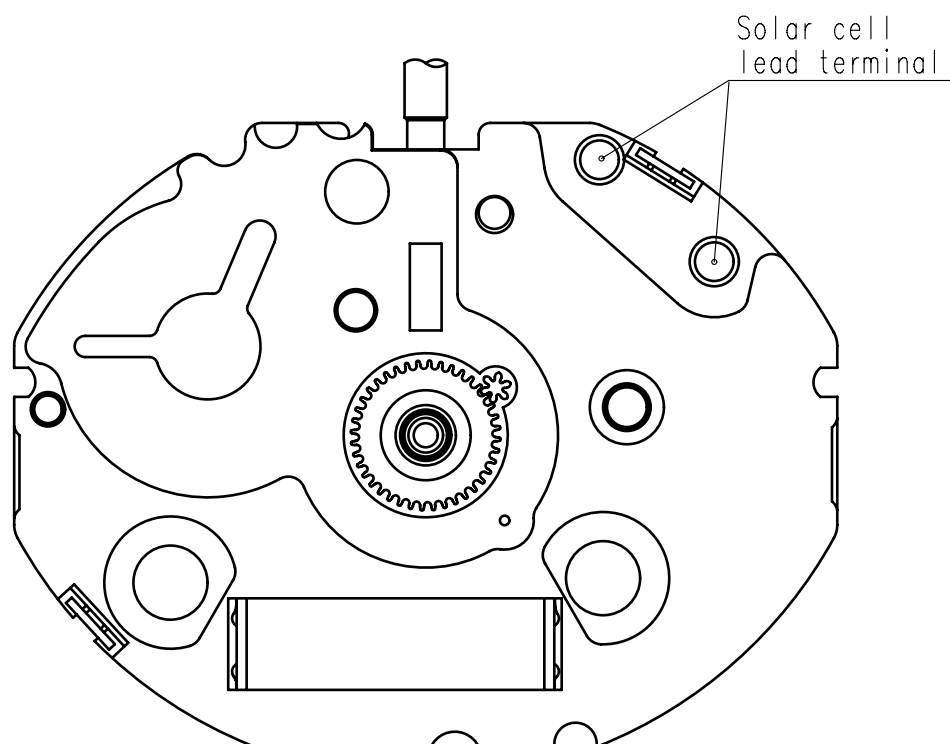
7. TEST OF ACCURACY

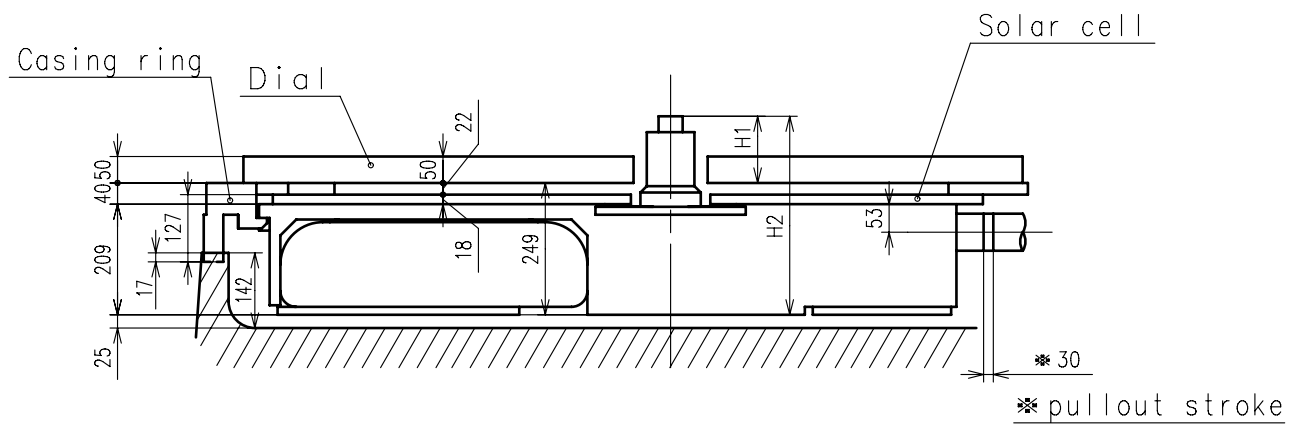
Equipment to be used	SEIKO quartz tester QT-99, Greiner quartz timer-C , Witschi Q-tester 4000
Duration of measurement	10 seconds
Microphone to be used	Electromagnetic detection type

All specifications are subject to change without notice.

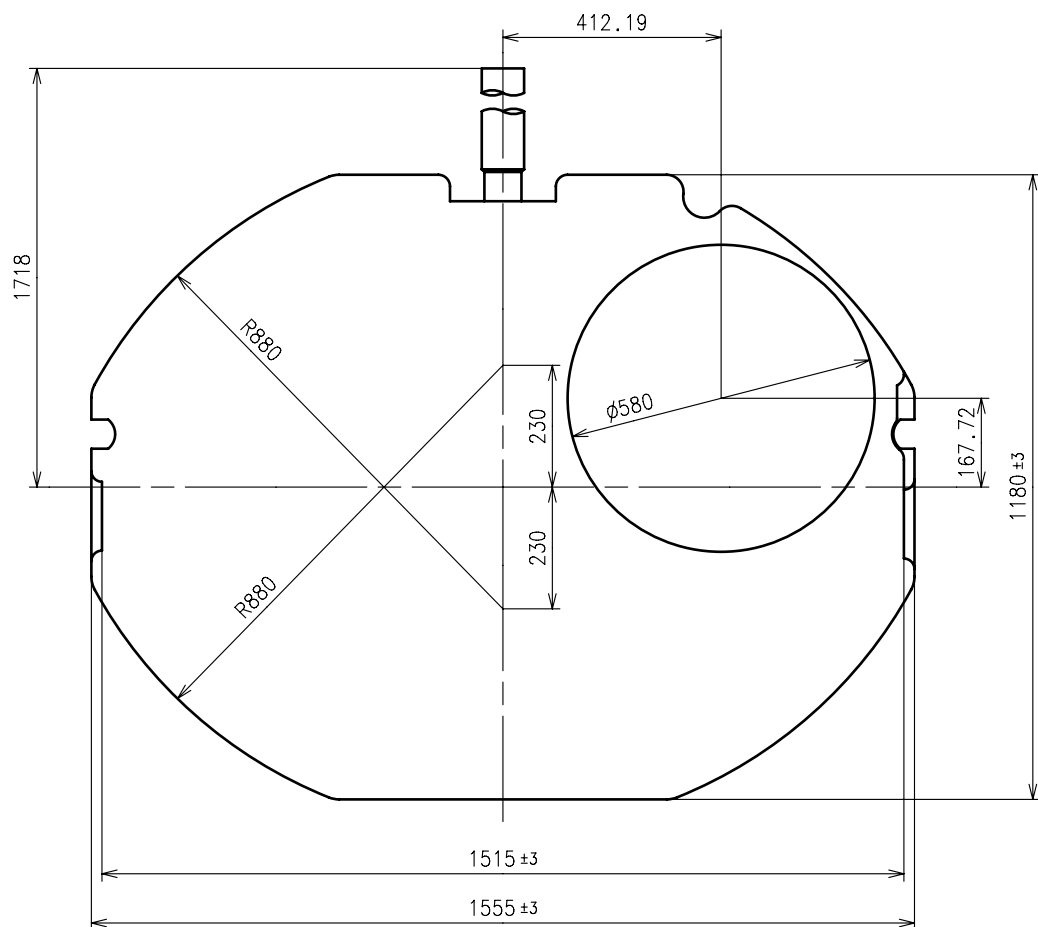


Type(S)	Mark
VS15A1	1

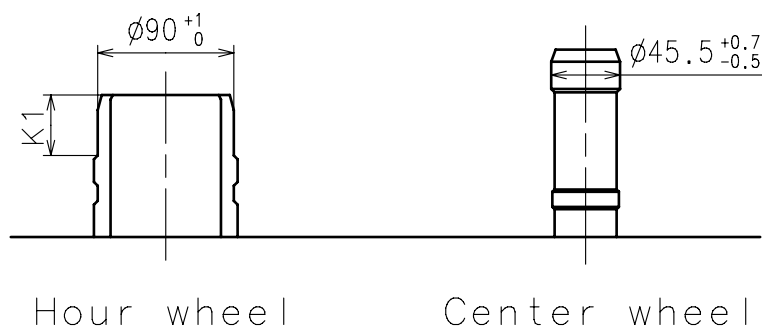




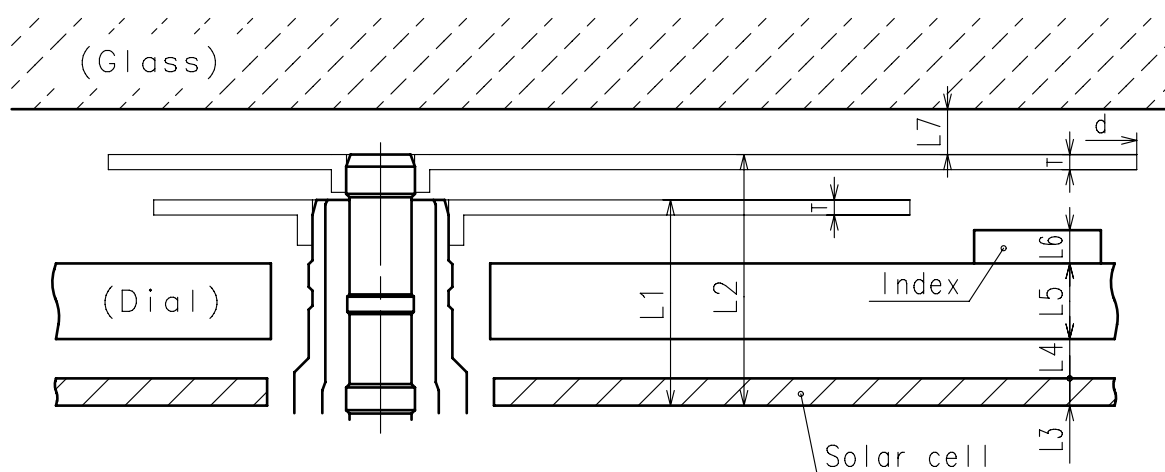
Center post		Type S (1) VS15A1
Maximum height from dial support	H1	126
Total height incl. movement	H2	375



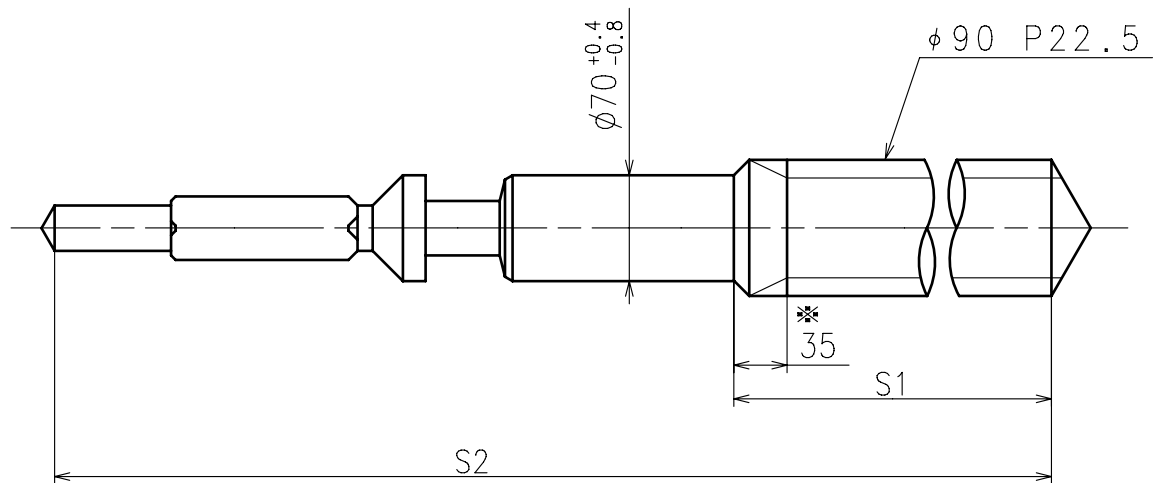
- ※ Minute hand unbalance $\leq 15\mu\text{ g} \cdot \text{m} (0.15\mu\text{ N} \cdot \text{m})$
 ※ Hour hand unbalance $\leq 13\mu\text{ g} \cdot \text{m} (0.13\mu\text{ N} \cdot \text{m})$



	Parts No.		Dimension
	Hour wheel	Center wheel	K1
Type S (1) VS15A1	0271946	0221967	40



	L1	L2	L3	L4	L5	L6	L7	T	d
Type S (1) VS15A1	136	166	18	22	50	22	MIN: 30	10	MAX: Ø1500



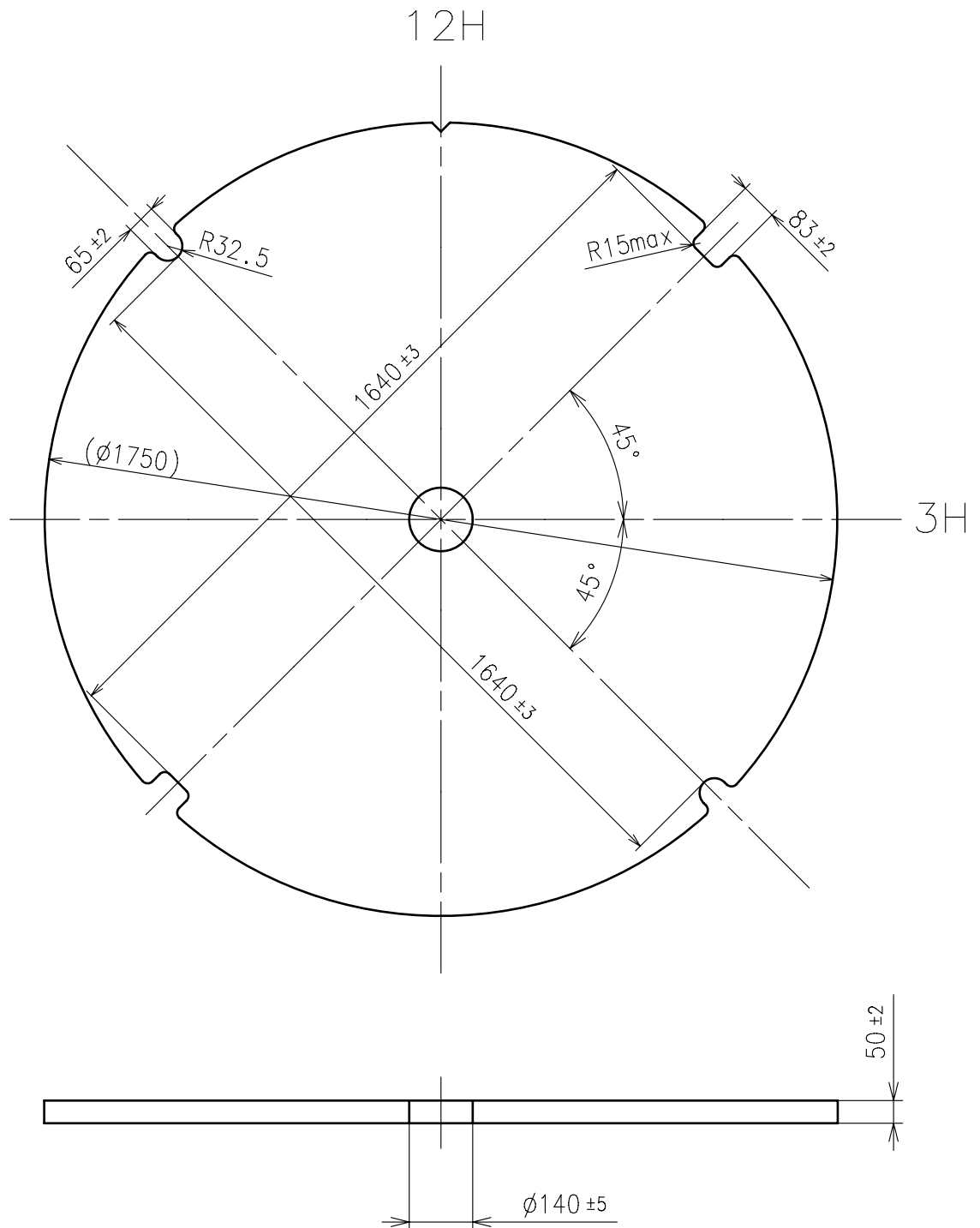
※ Not threaded

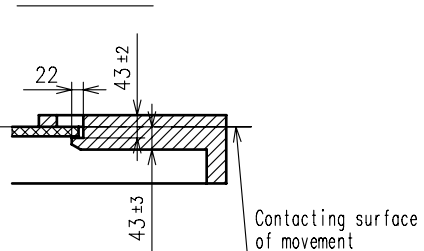
	Part No.	S1	S2
Standard	0351819	1133	1577.3

Material : Steel

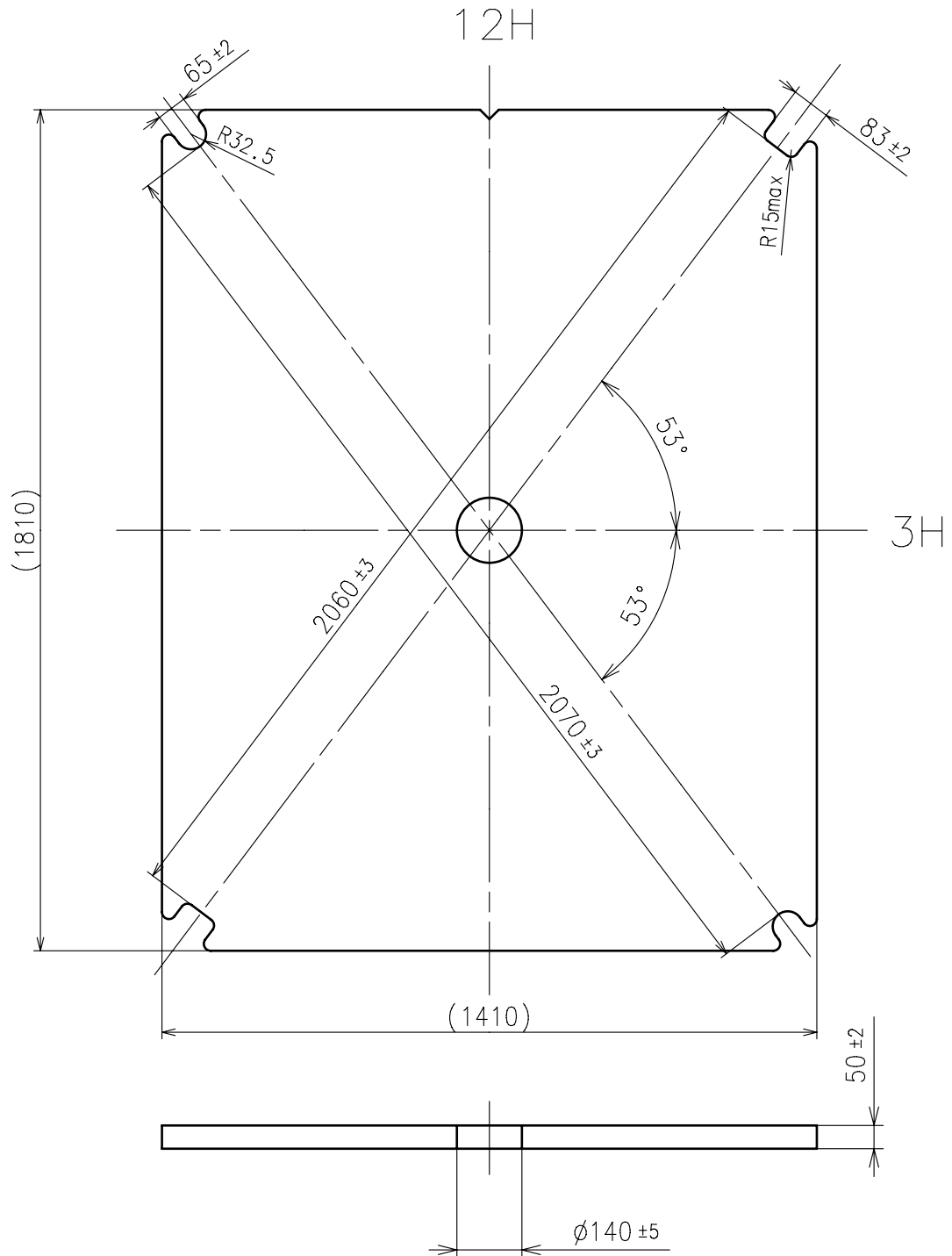
Hardness : Vickers 600 ± 50

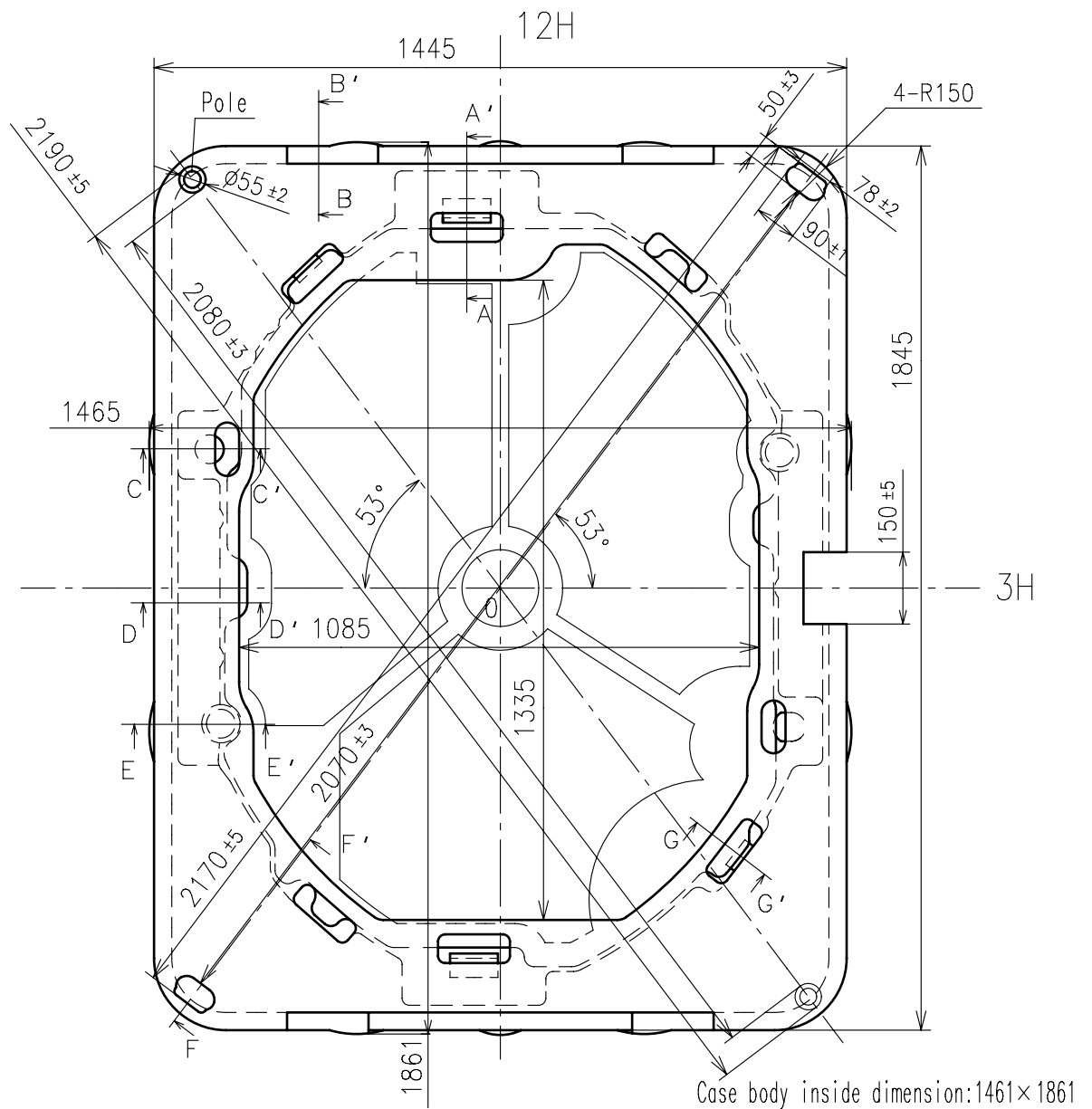
transmit light more than 30%





transmit light more than 30%



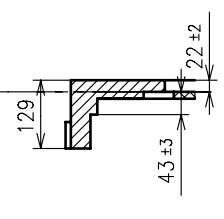
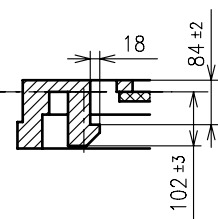
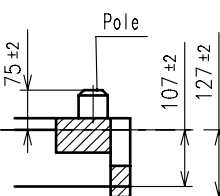
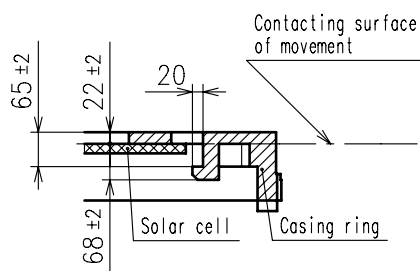


A-A' section

B-B' section

C-C' section

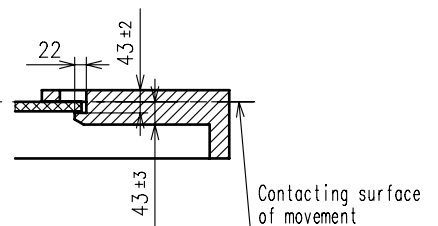
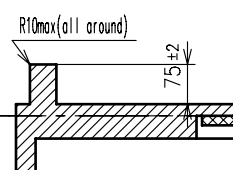
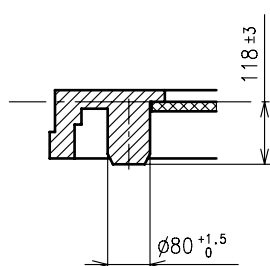
D-D' section



E-E' section

F-F' section

G-G' section



VS15A Characteristics

1. 5/1/2" small size solar

- The sufficient energy security is possible on practical use even the small solar cell by low consumption electric power of motor and IC.
- Due to the side cut of Main plate (11.80mm), it is possible to minimize the diameter of 3H-9H direction.

2. It is possible to diversify the dial shape

- This movement structure which does not influence to dial shape enabled you to develop variety of dial shape like round , square and oval.

3. You can use the dial which light transmittance is more than 30%

- It is possible to assemble the dial which transmits light on the solar battery.
It enabled to cover the solar battery color, and you can design variety colors of dials for dress watches.

4. Handiness was improved by long continuation

- Once you charge the battery fully to a watch, it keep working about 6 months even if it is in the environment without light.
- You can keep it using on wrist under the environment with little light such as in the long sleeve etc. in winter season.

VS15A Attention

Date : 7/Apr./'11

Rev. : 00

1. How to pull out the setting stem

- When you pull out the setting stem, please put the stem at normal position and push the "setting lever" by tweezers.
- The "setting lever" can not be push if the setting stem is not at normal position.
- When you pull out the setting stem, please pay attention not to break or not to cut off the printed circuit board.

2. Attention for solar cell unit

- Please pay attention not to scratch the surface of solar cell unit.

3. Attention for dial transparency rate

- Please use the dial with transparency rate more than 30%.

4. The guideline of charging time is as in below

(Dial transparency rate = 30%)

Illumination (Lx)	Source of light	Environment	A (Approx. Hours)	B (Approx. Hours)	C (Approx. Minutes)
700	A fluorescent lamp	Inside the office	---	40	50
3,000		30W 20cm	40	10	11
10,000	Sun light	Cloudy	12	4	3
100,000		Fine weather	2	0.5	1

* For reference : 1,000Lx is 70cm under from 30W fluorescent lamp

Condition A : Time required for full charge

Condition B : Time required for steady operation

Condition C : Time to charge 1 day of power

5. Secondary battery replacement

- Please set the exclusive secondary battery.
- If the silver oxide battery is accidentally be set and charged, there is a possibility of battery explosion.
- To prevent the battery explosion, it is adopted safety structure not to charge the silver oxide battery even if it is accidentally be set.

6. Caution

- When charging the watch, do not place it too close to fluorescent lamp or other light sources as the watch temperature will become extremely high, causing damage to the parts inside the watch.