

## Watch Movement Specification and Drawing

### SOLAR SERIES

# Cal. VS42A

Movement Size

11 1/2'''

Casing Diameter

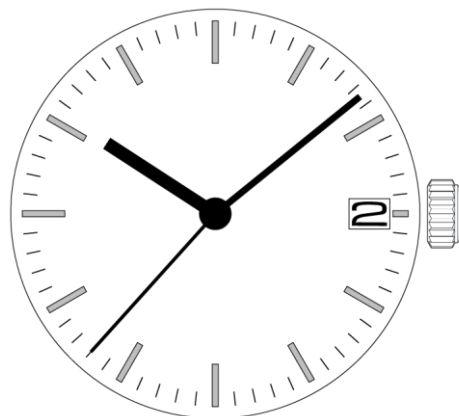
Ø 28.6mm

Height

3.50mm

Running Time

Approx. 12 months



Date: 4/Aug./'23

# Cal. VS42A

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**1. Solar-powered watch**

This watch is a solar-powered watch containing a solar cell underneath the dial to convert any form of light into "electrical energy" and store the power in a 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. You can use the dial which light transmittance is more than 20%**

It is possible to assemble the dial which transmits light on the solar cell.

It enabled to cover the solar cell color, and you can design variety colors of dials.

**4. Running time**

Expected running time from full charge to stoppage will be around 12 months.

**5. Power depletion warning function**

The two-second intervals movement of the second hand is a signal of energy depletion.

The watch continuous running time after two-second intervals movement is 1 day.

**6. Quick start function**

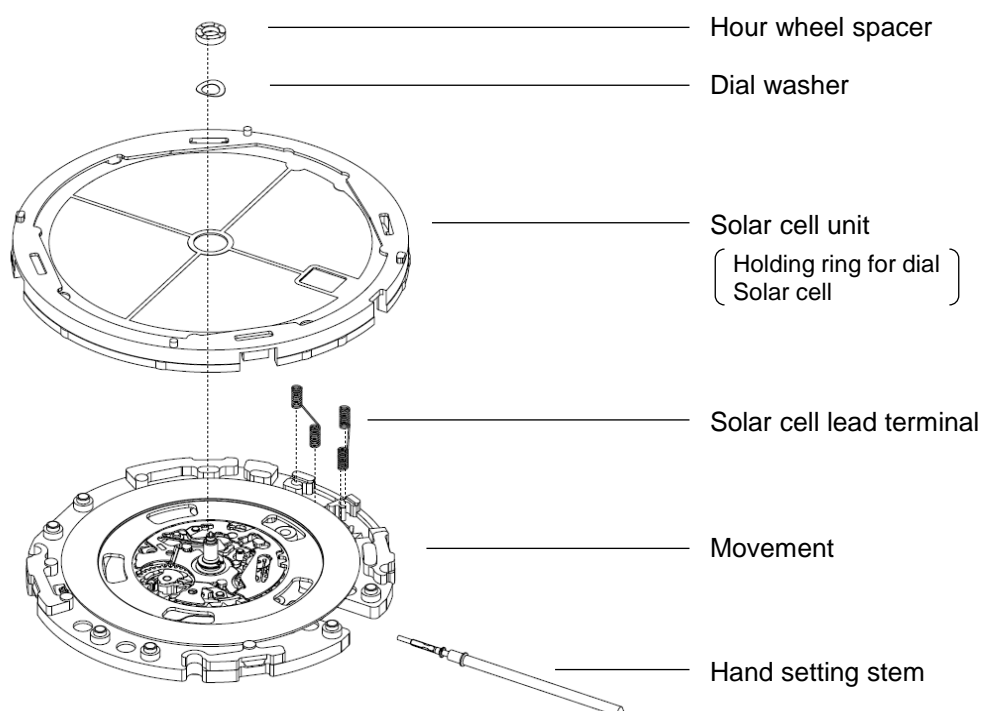
This watch has a "Quick start function".

It start running within a few seconds after exposure to a light more than 1000Lx.

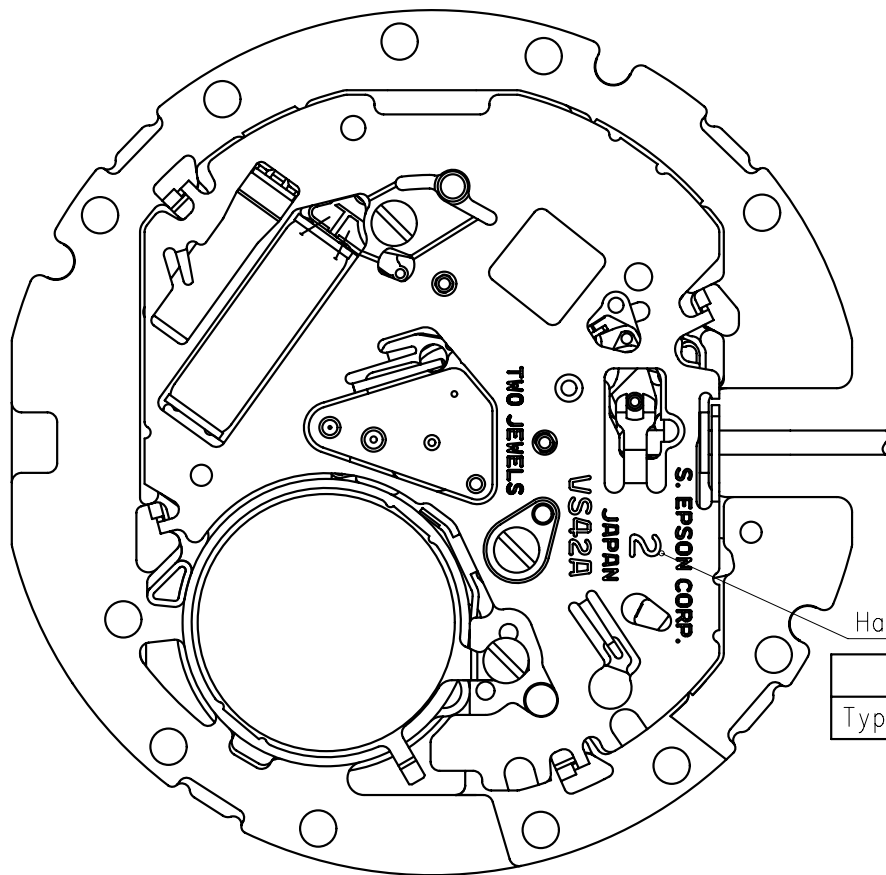
(Fluorescent lamp 30W/ 70cm)

**7. Over charge prevent function is equipped**

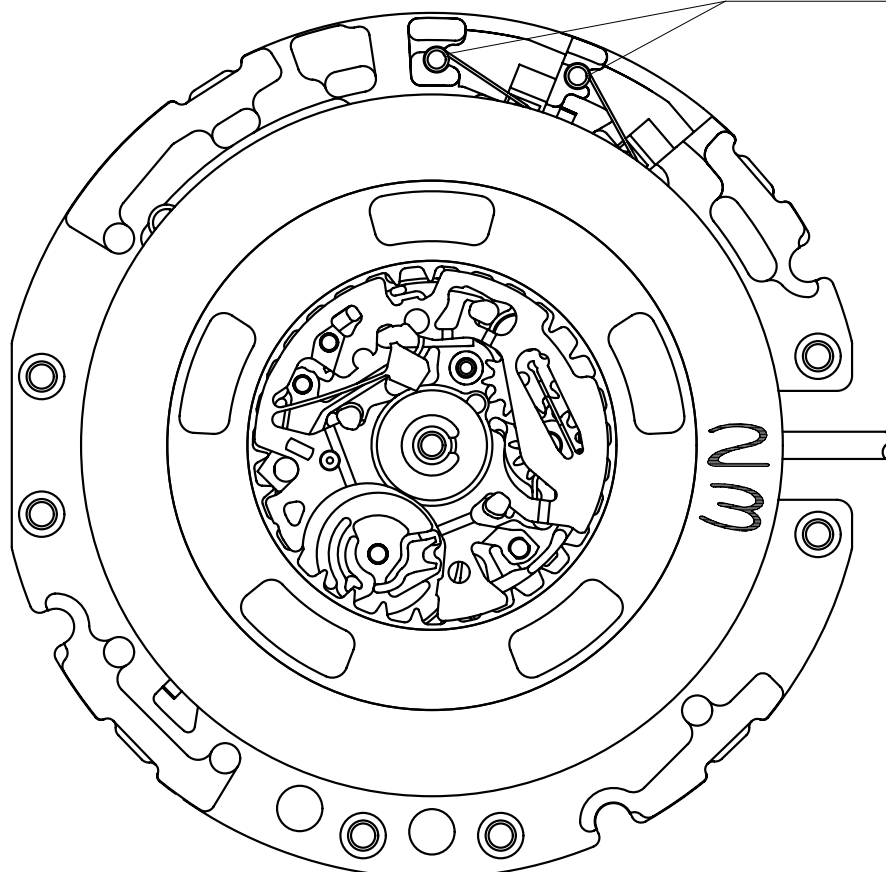
If the secondary battery is charged more than predetermined voltage, over charge prevent function is operated to prevent the secondary battery deterioration and breakage.

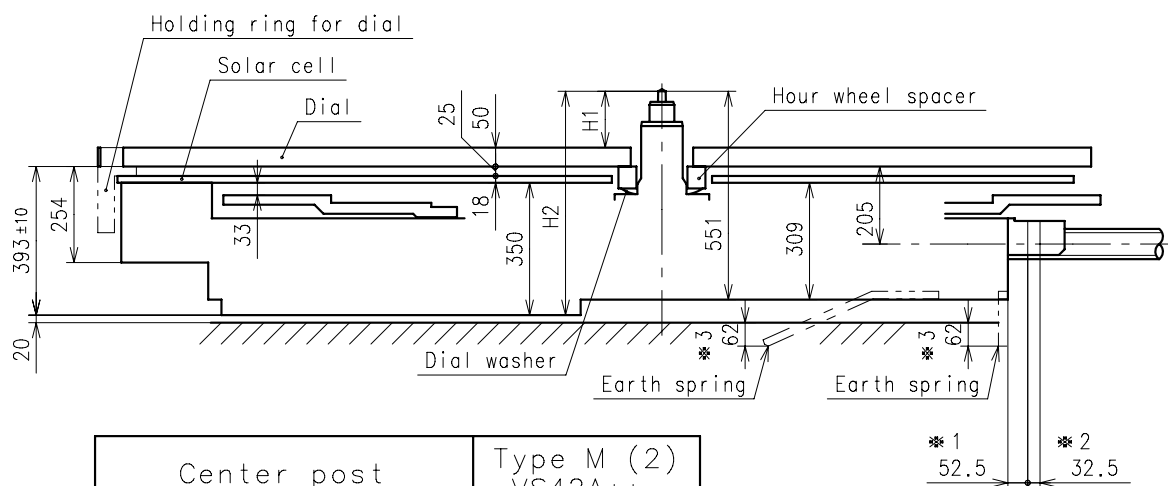
**8. Structure of the separated parts**





	Mark
Type M (2)	2



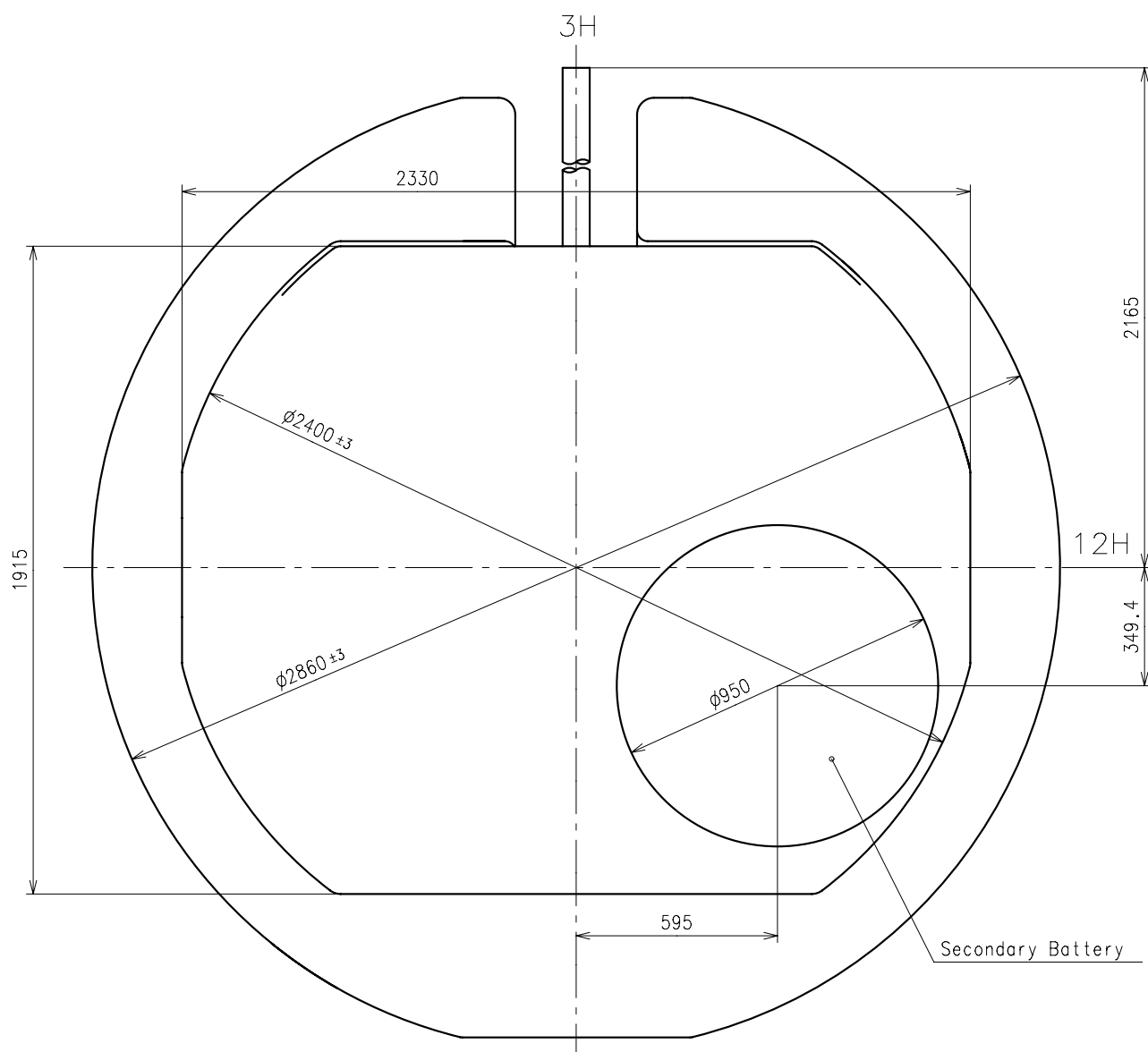


Center post		Type M (2) VS42A**
Maximum height from dial	H1	149
Total height including movement	H2	592

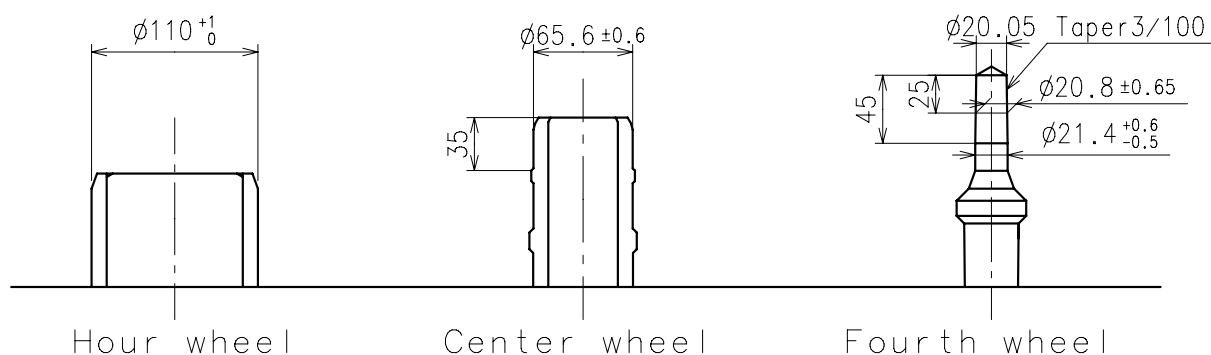
\*1:First pullout stroke

\*2:Second pullout stroke

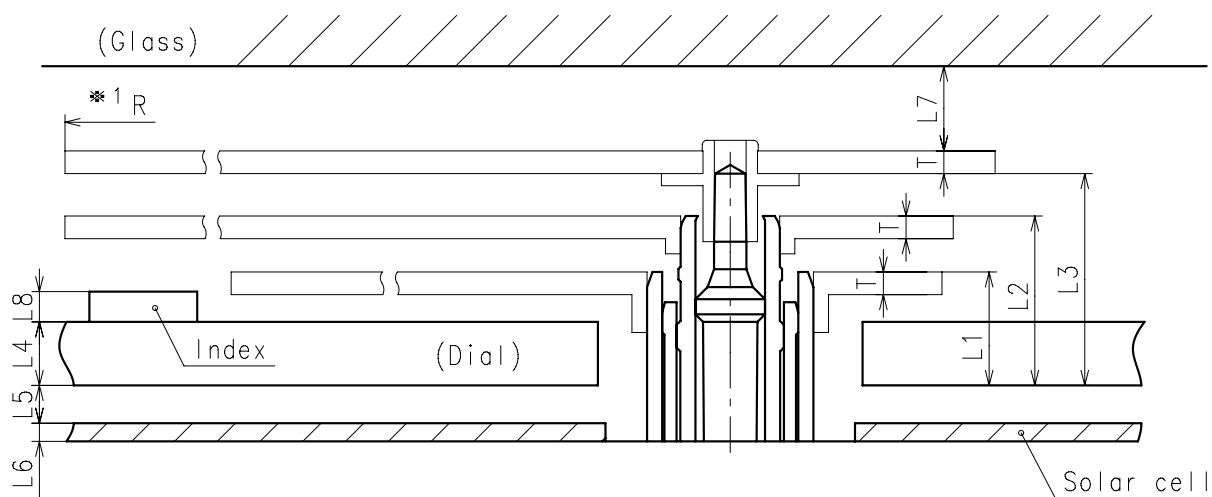
\*3:The earth spring is absolutely placed in contact with the case back



- \* Hour hand unbalance  $\leq 0.5\mu\text{ N}\cdot\text{m}$  ( $50\mu\text{ g}\cdot\text{m}$ )
- \* Minute hand unbalance  $\leq 0.8\mu\text{ N}\cdot\text{m}$  ( $80\mu\text{ g}\cdot\text{m}$ )
- \* Second hand unbalabce  $\leq 0.045\mu\text{ N}\cdot\text{m}$  ( $4.5\mu\text{ g}\cdot\text{m}$ )

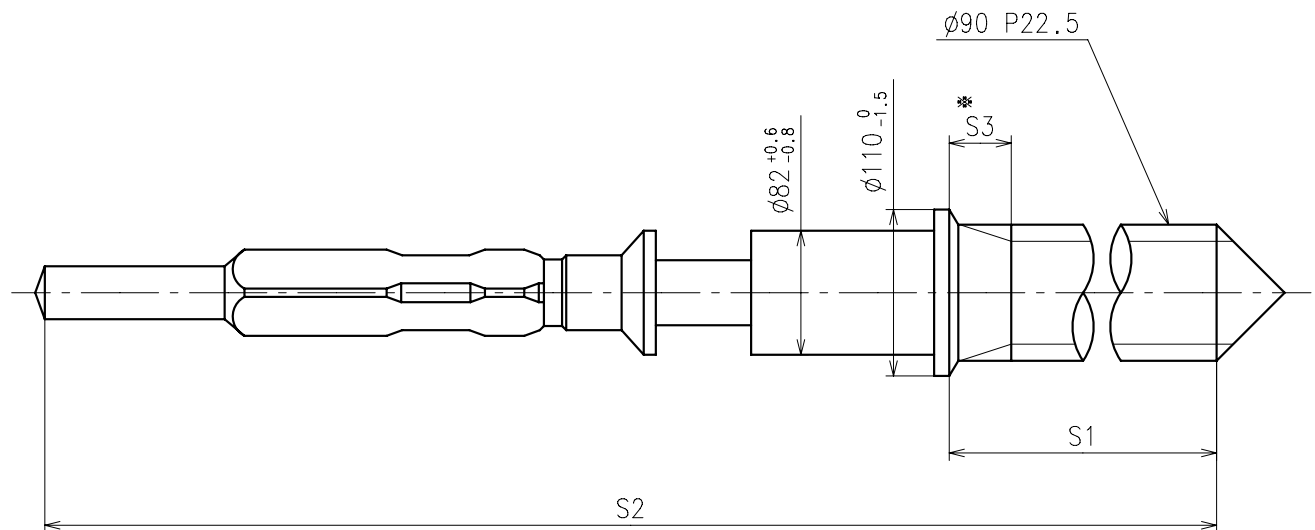


	Parts No.		
	Hour wheel	Center wheel	Fourth wheel
Type M (2) VS42A**	0271639	0221602	0241559



	L1	L2	L3	L4	L5	L6	L7	L8	T	*1 R
Type M (2) VS42A**	118	171	199	50	25	18	MIN: 50	MAX: 60	15	MAX: 1450

\*1: It is the size taken into consideration for hands attachment.  
Please observe some standard value specified in unbalance when using long hands.



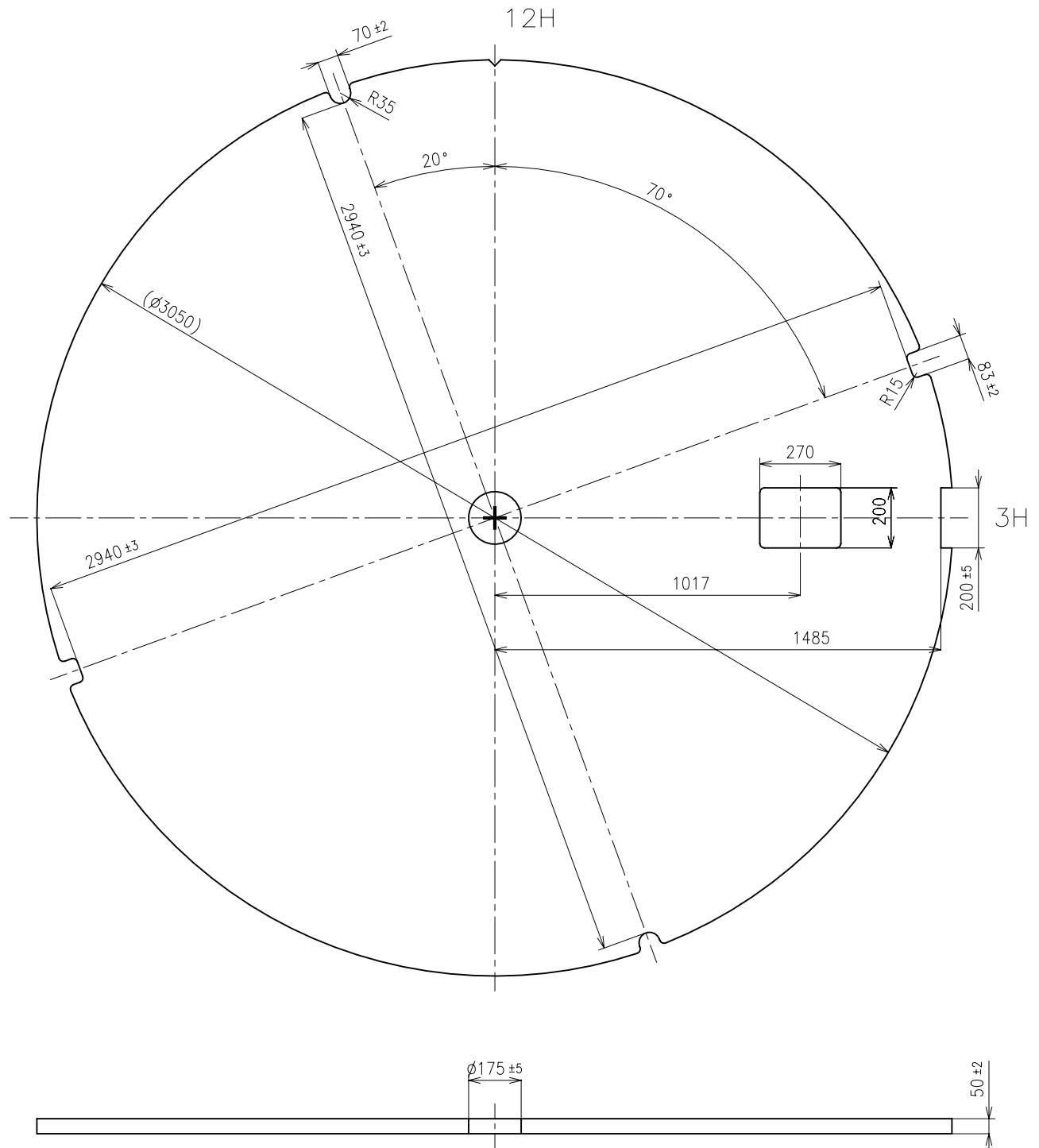
※ Not threaded

	Part No.	S1	S2	※ S3
Standard	0351177	1366	1964	60

Material : Steel

Hardness : Vickers 600±50





[Attention]

Each elements of solar cell must be kept the transparency rate of the dial more than 20%.  
Refer to the Fig.[1] or [Solar cell unit] page instruction as to the shape of solar cell.

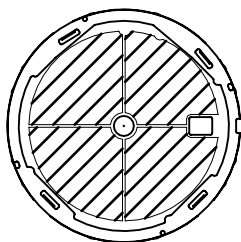
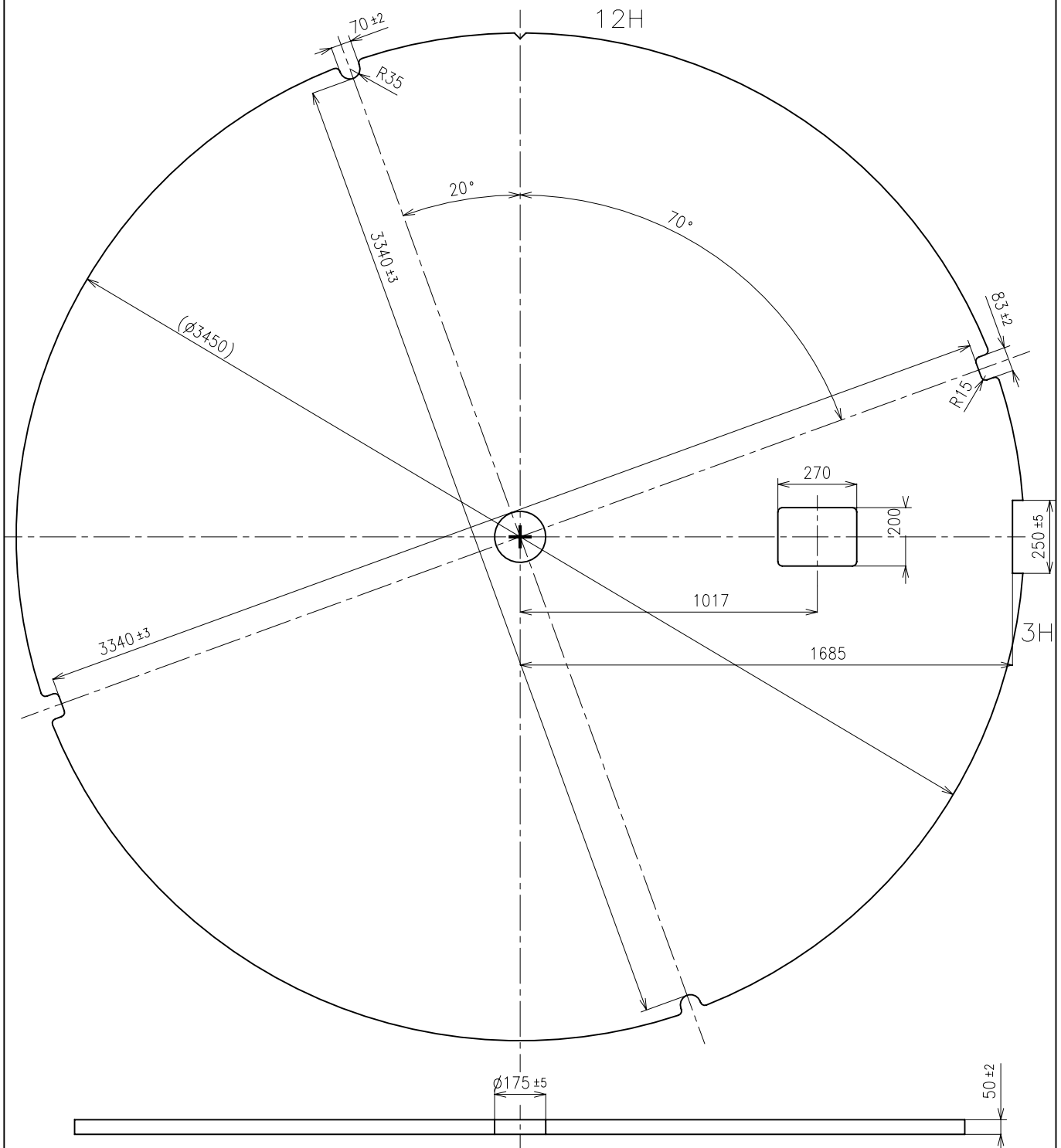
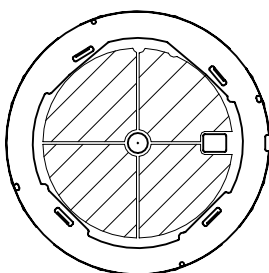


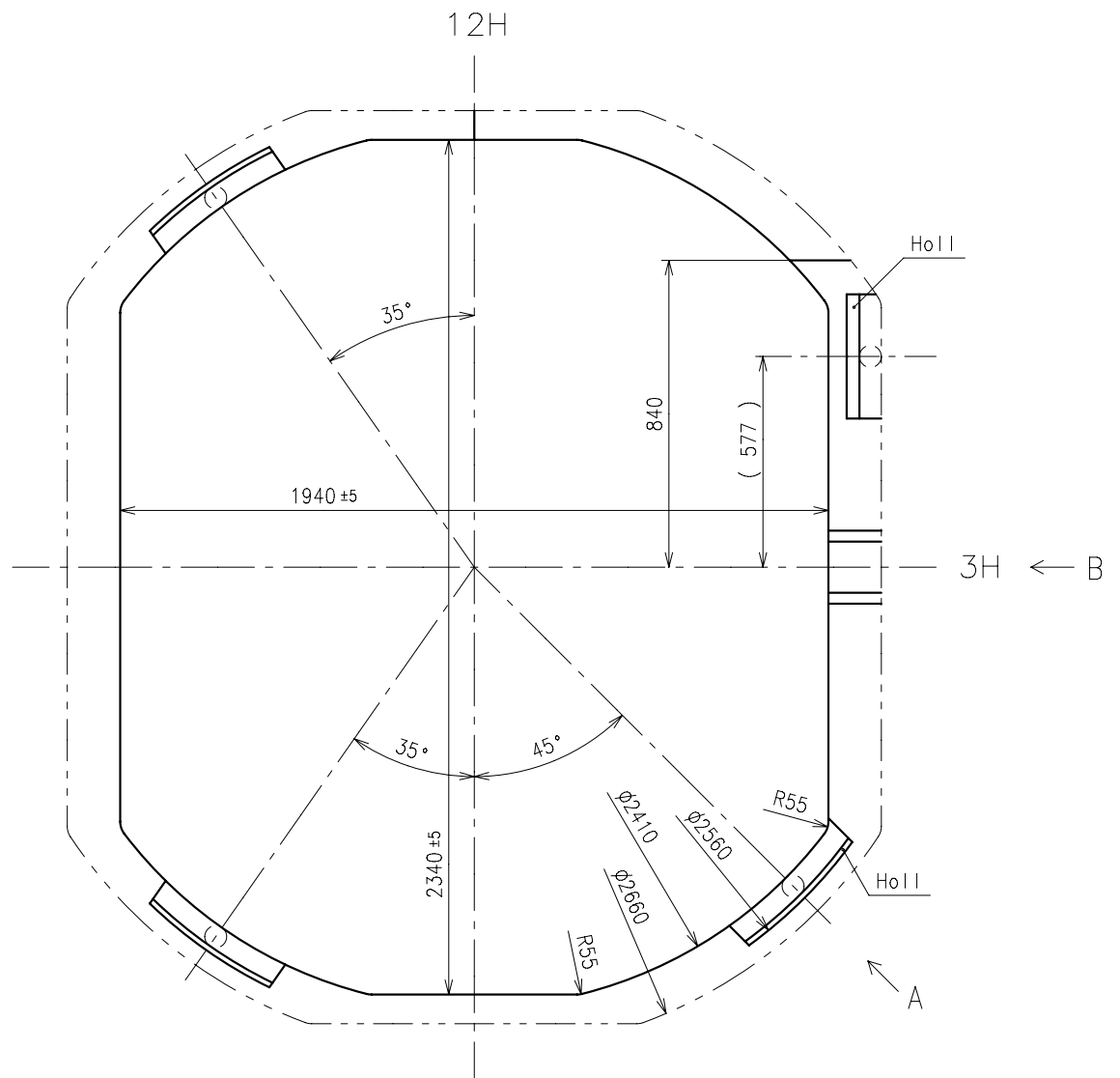
Fig.[1]  elements of solar cell



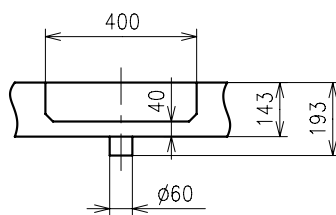
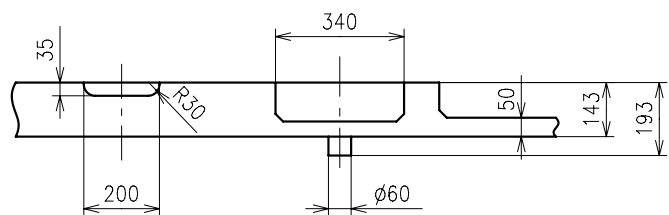
## [Attention]

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Refer to the Fig.[1] or [Solar cell unit] page instruction as to the shape of solar cell.

Fig.[1]  elements of solar cell



## A view

B view





Cal.	VS42A	Attention-01	Date : 4/Aug./'23																																																						
			Rev. : 05																																																						
<div>1. How to remove the setting stem</div> <div>When removing the setting stem, put the setting stem at normal position and push the "setting lever" by tweezers.</div> <div>The "setting lever" can not be push if the setting stem is not at normal position.</div> <div>2. Attention for solar cell unit</div> <div>Pay attention not to touch and scratch the surface of the solar cell.</div> <div>3. Dial transparency rate</div> <div>Keep the transparency rate of the dial more than 20%.</div> <div>(Effective aperture is <math>\phi</math> 25mm)</div> <div>Each elements of solar cell must be kept the transparency rate.</div> <div>4. The guideline of charging time is as in below</div> <table><tr><th rowspan="2">Illumination (Lx)</th><th rowspan="2">Source of light</th><th rowspan="2">Environment</th><th colspan="3">Dial transparency rate = 20%</th><th colspan="3">Dial transparency rate = 30%</th></tr><tr><th>A (Approx. Hours)</th><th>B (Approx. Hours)</th><th>C (Approx. Minutes)</th><th>A (Approx. Hours)</th><th>B (Approx. Hours)</th><th>C (Approx. Minutes)</th></tr><tr><td>700</td><td rowspan="2">A fluorescent lamp</td><td>Inside the office</td><td>—</td><td>50</td><td>89</td><td>—</td><td>37</td><td>54</td></tr><tr><td>3,000</td><td>30W 20cm</td><td>120</td><td>12</td><td>25</td><td>80</td><td>8</td><td>12</td></tr><tr><td>10,000</td><td rowspan="2">Sun light</td><td>Cloudy</td><td>35</td><td>3.0</td><td>8</td><td>25</td><td>3</td><td>4</td></tr><tr><td>100,000</td><td>Fine weather</td><td>9</td><td>1.1</td><td>2</td><td>6</td><td>0.6</td><td>1</td></tr></table> <div>Condition A : Time required for full charge</div> <div>Condition B : Time required for steady operation</div> <div>Condition C : Time to charge 1 day of power</div> <div>5. Attention for the secondary battery unit</div> <div>Please set the exclusive secondary battery unit.</div> <div>(The secondary battery is Lithium metal batteries without any environmentally harmful substances.)</div> <div>If the silver oxide battery is accidentally set and charged, there is a possibility of battery explosion.</div> <div>To prevent from the battery explosion, it is adopted safety structure not to charge the silver oxide battery even if it is accidentally set.</div> <div>6. Caution</div> <div>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.</div>									Illumination (Lx)	Source of light	Environment	Dial transparency rate = 20%			Dial transparency rate = 30%			A (Approx. Hours)	B (Approx. Hours)	C (Approx. Minutes)	A (Approx. Hours)	B (Approx. Hours)	C (Approx. Minutes)	700	A fluorescent lamp	Inside the office	—	50	89	—	37	54	3,000	30W 20cm	120	12	25	80	8	12	10,000	Sun light	Cloudy	35	3.0	8	25	3	4	100,000	Fine weather	9	1.1	2	6	0.6	1
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### 7. How to set the solar cell lead terminal

- (1) Please set one side of the solar cell lead terminal into the 318# or 319# hole first.
- (2) Then, please set the other side of the solar cell lead terminal under the main plate according to the following procedure.
- (3) Tilt the spring slightly and slide the bottom part of the spring under the main plate.  
Push the top part of the spring and place it under the main plate.  
(Refer to the Fig.[1] in below.)

Pay attention not to damage the date disk.

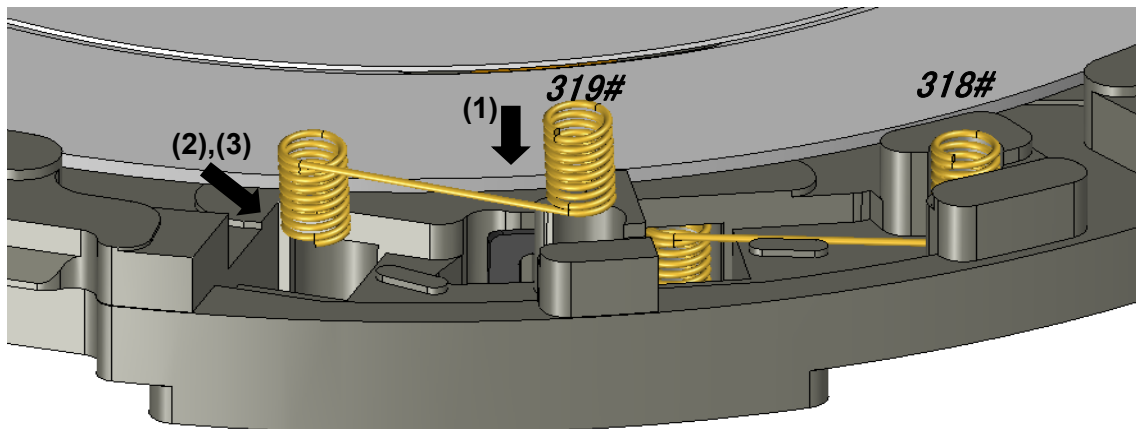
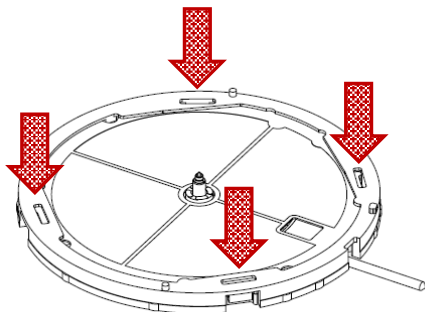


Fig.[1]

### 8. How to set the solar cell unit

Push above part of each hook on the solar cell unit into main plate certainly.



### 9. How to set the dial

The dial is held by the four guide poles on the solar cell unit.

