TIME MODULE

Cal. AS01A

15.3×17.8 mm
H 3.05 mm

Date: 31/May/'13

S.EPSON Products

Date: 31/Jan./'13

MOVEMENT SPECIFICATIONS Rev.: 00

CAL. AS01A

Solar Quartz 6 3/4 × 8''' Movement / Three Hands (H/M/S)

1. MOVEMENT DIMENSIONS

Outside diameter	15.30mm(3-9H) × 18.20mm(12-6H)
Casing diameter	15.30mm(3-9H) × 17.80mm(12-6H)
Total height	3.05mm (Including solar cell : 3.45mm)

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	
Reset switch		
Power depletion warning function		
(Second hand moves at 2-second intervals when voltage is 1.15V)		
Working time	Approx. 4 months (After fully charged)	
Setting mechanism	Crown at normal position	: Free
	Crown pulled out 1st click	: Time setting / Reset

4. FEATURES

Jewels	0 Jewels	
Anti-magnetism	Over 1600A/m (Direct current magnetic field)	
Driving current consumption	Approx. 0.93μA (1.4V)	
Operation stopping voltage	1.0 V	
Solar cell type	Amorphous silicon solar cell	
Maximum unbalance of hands	Second hand	: 0.06μN･m
	Minute hand	: 0.6μN･m
	Hour hand	: 0.5μN･m
Moment of inertia	Second hand	: less than 0.11 μg･m²

5. SECONDARY BATTERY (Installed)

Type	Titanium-lithium-ion second battery
Size	φ6.8mm × t 2.15mm
Nominal voltage	1.5 V
Capacity	2.5 mAh

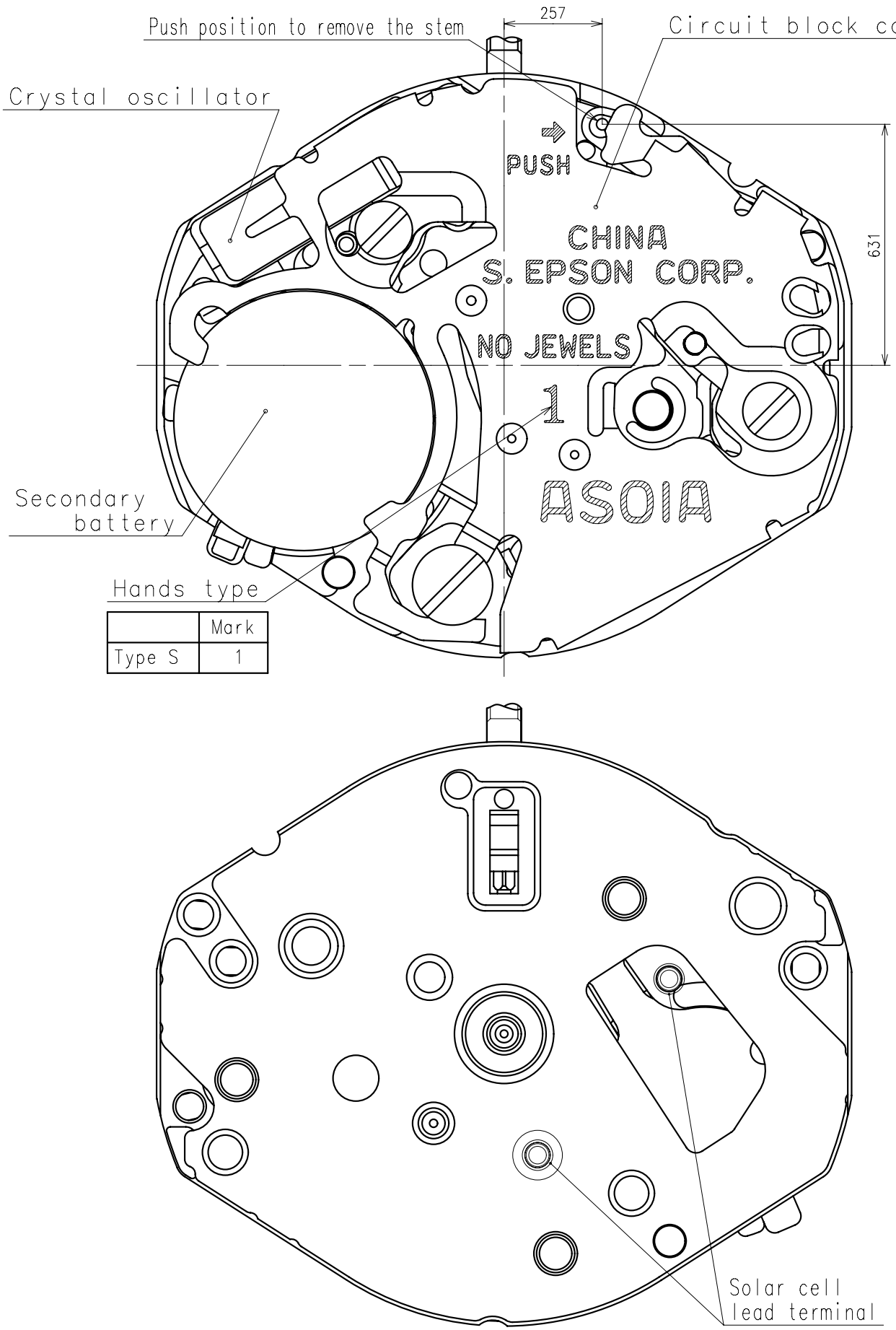
6. SEPARATED PARTS (Parts code)

Hand setting stem	0354788

7. TEST OF ACCURACY

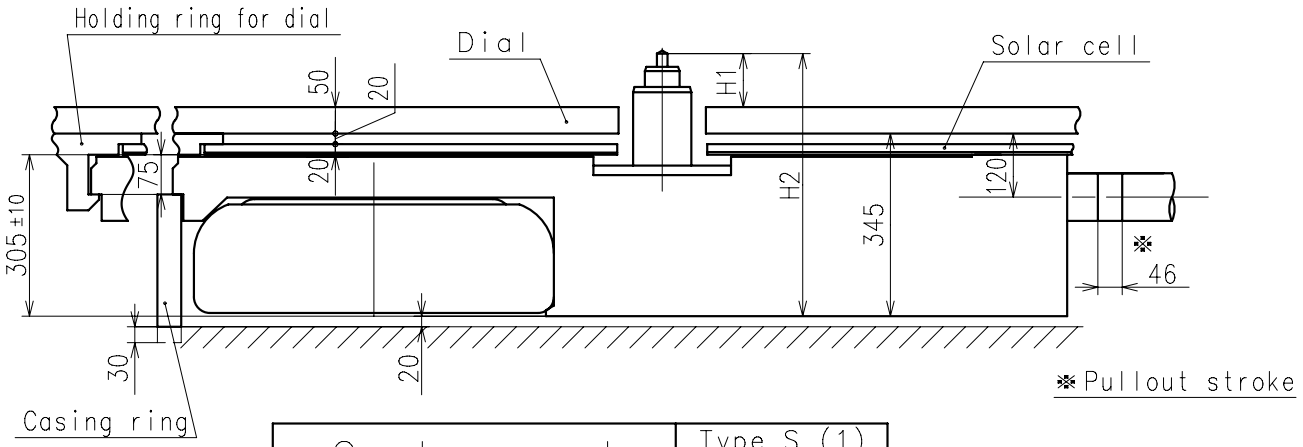
Equipment to be used	SEIKO quartz tester QT-99,
	Greiner quartz timer-C , Witschi Q-tester 4000
Duration of measurement	10 seconds
Microphone to be used	Electromagnetic detection type

Cal. AS01A	Appearance	Date:31/Jan./'13
		Rev.:00

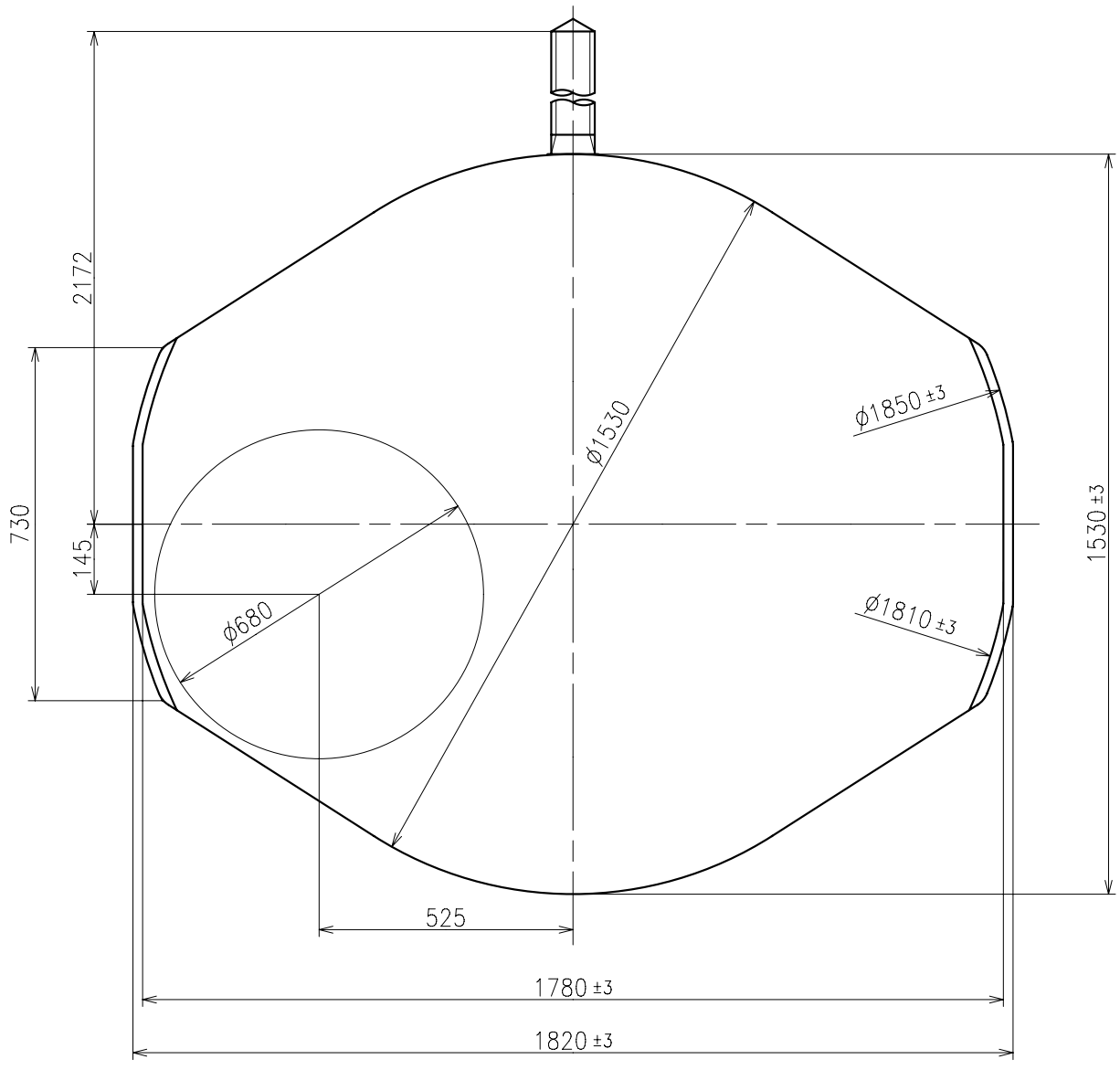


	Mark
Type S	1

Cal. AS01A	Casing	Date:31/Jan./'13
		Rev.:00



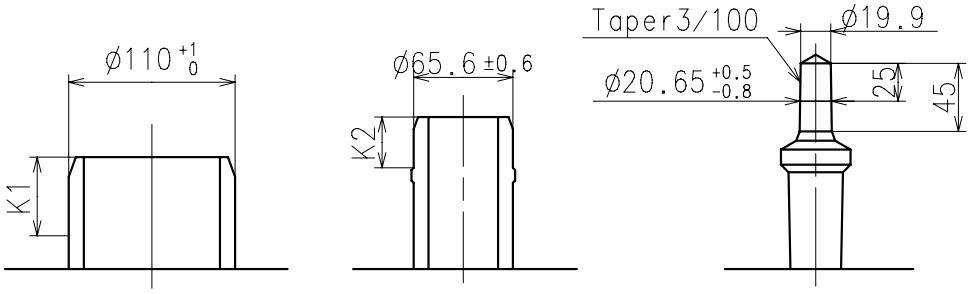
Center post		Type S (1) AS01A**
Maximum height from dial	H1	101
Total height incl. movement	H2	496



Unit : 1=1/100mm

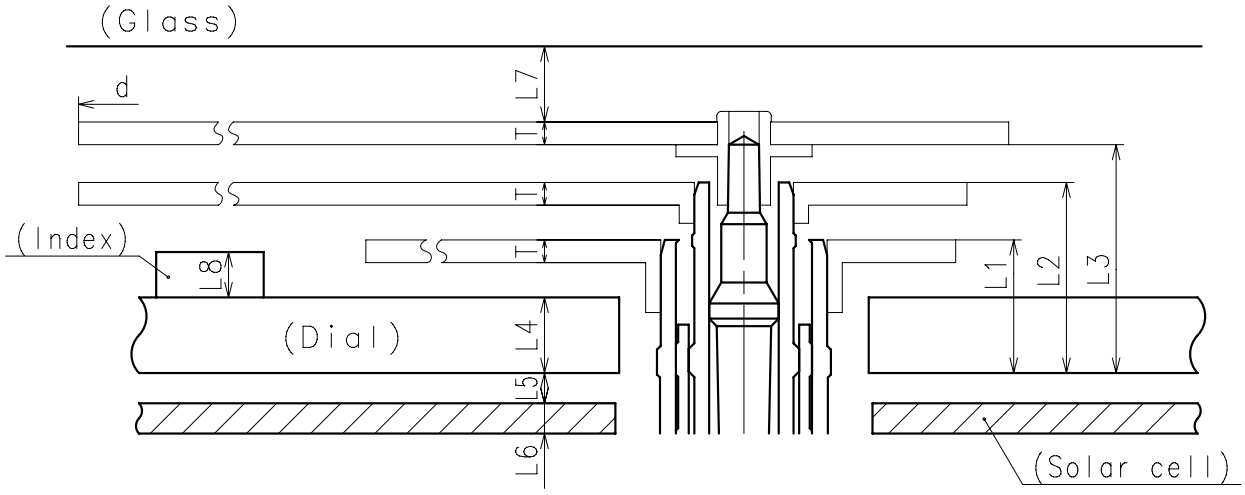
Cal. AS01A	Hand fitting	Date:31/Jan./'13
		Rev.:00

※ Hour hand unbalance ≦ 0.5μ N・m (50μ g・m)
※ Minute hand unbalance ≦ 0.6μ N・m (60μ g・m)
※ Second hand unbalance ≦ 0.06μ N・m (6μ g・m)
※ Second hand moment of inertia ≦ 0.11μ g・m²



Hour wheel Center wheel Fourth wheel

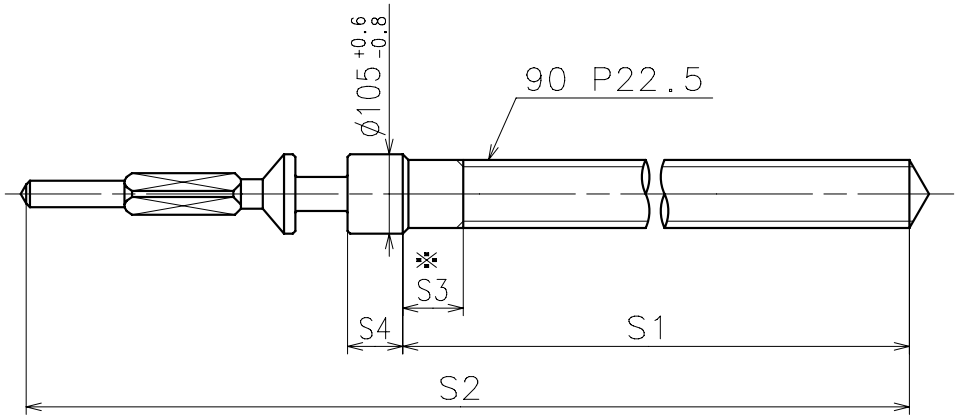
	Parts No.			Dimension	
	Hour wheel	Center wheel	Fourth wheel	K1	K2
Type S(1) AS01A**	0271764	0221764	0241764	60	33.5



	L1	L2	L3	L4	L5	L6	L7	L8	T	d
Type S(1) AS01A**	88	126	151	50	20	20	MIN: 50	MAX: 30	15	MAX: φ2500

Unit : 1=1/100mm

Cal. AS01A	Hand setting stem	Date:31/Jan./'13 Rev.:00



※ Not threaded

	Part No.	S1	S2	※S3	S4
Standard	0354788	1427	1925	80	73

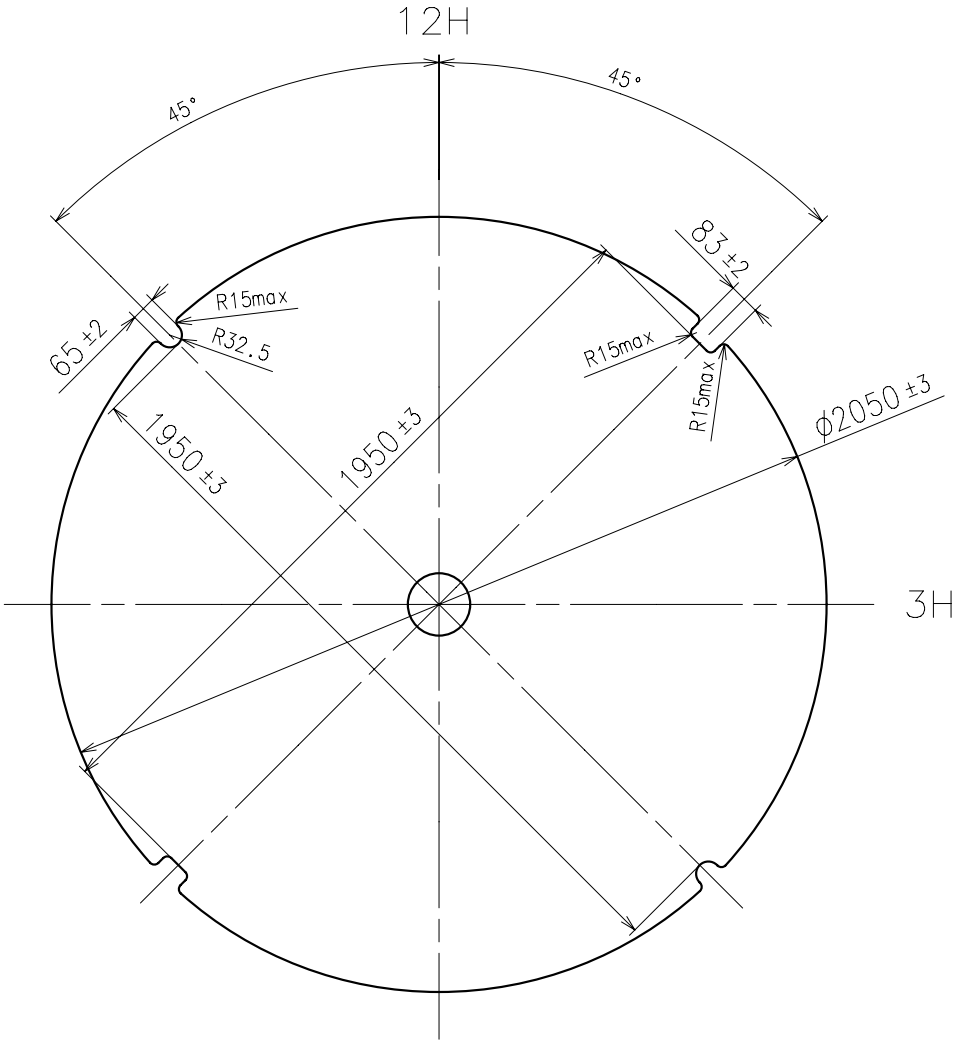
Material : Steel

Hardness : Vickers 530±50

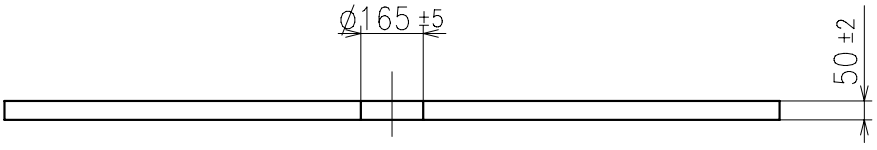
Unit : 1=1/100mm

Cal. AS01A	Dial-1	Date:31/Jan./'13
		Rev.:00

transmit light more than 30%



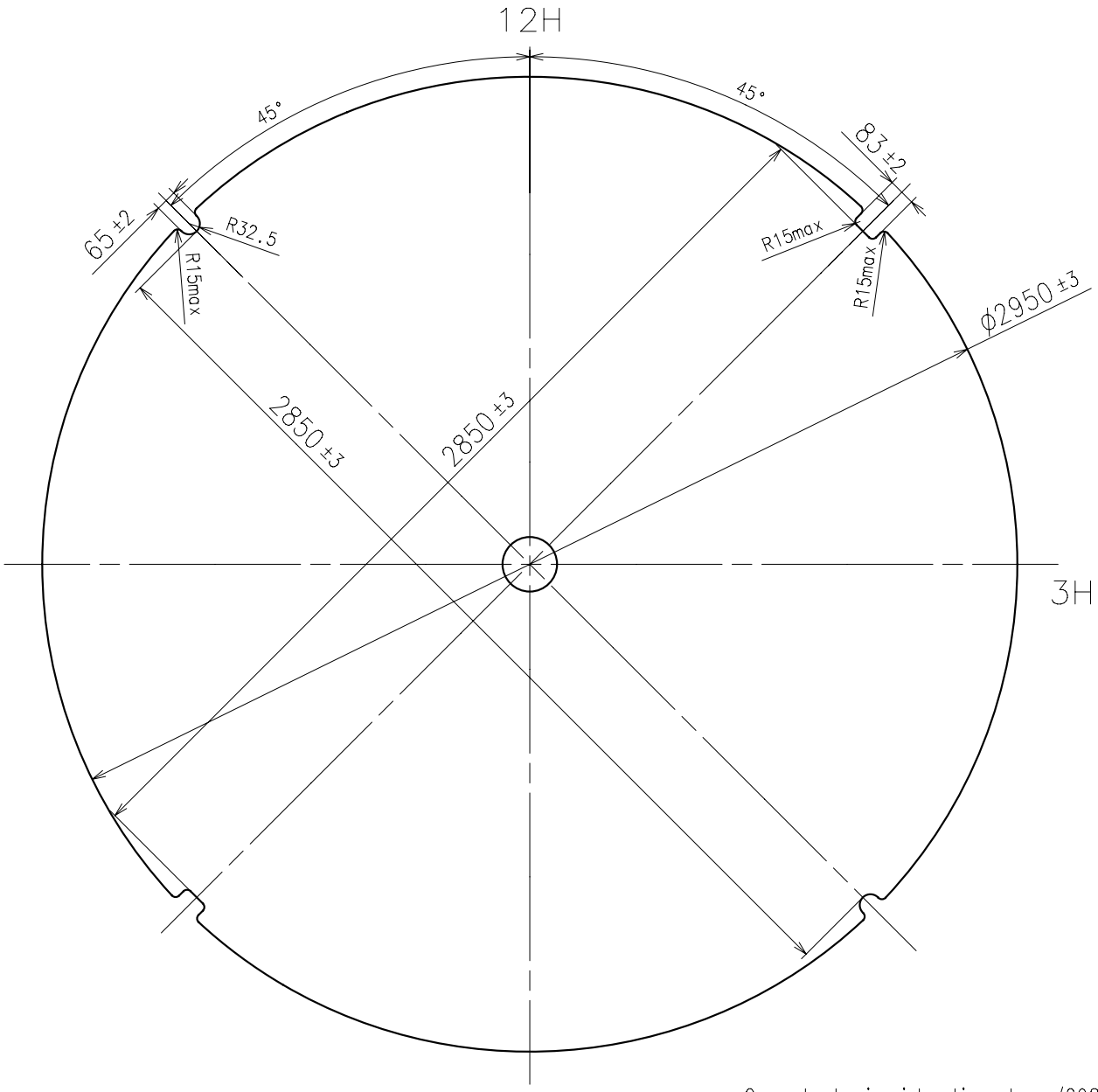
Case body inside diameter:ϕ2080



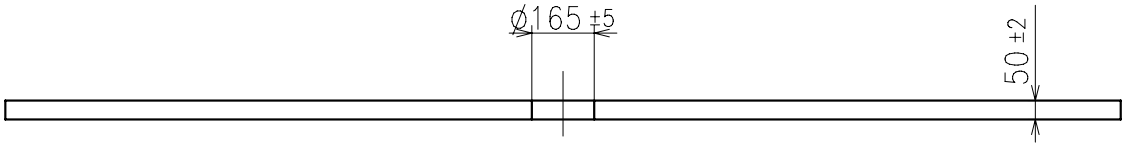
Unit : 1=1/100mm

Cal. AS01A	Dial-2	Date:31/Jan./'13
		Rev.:00

transmit light more than 30%



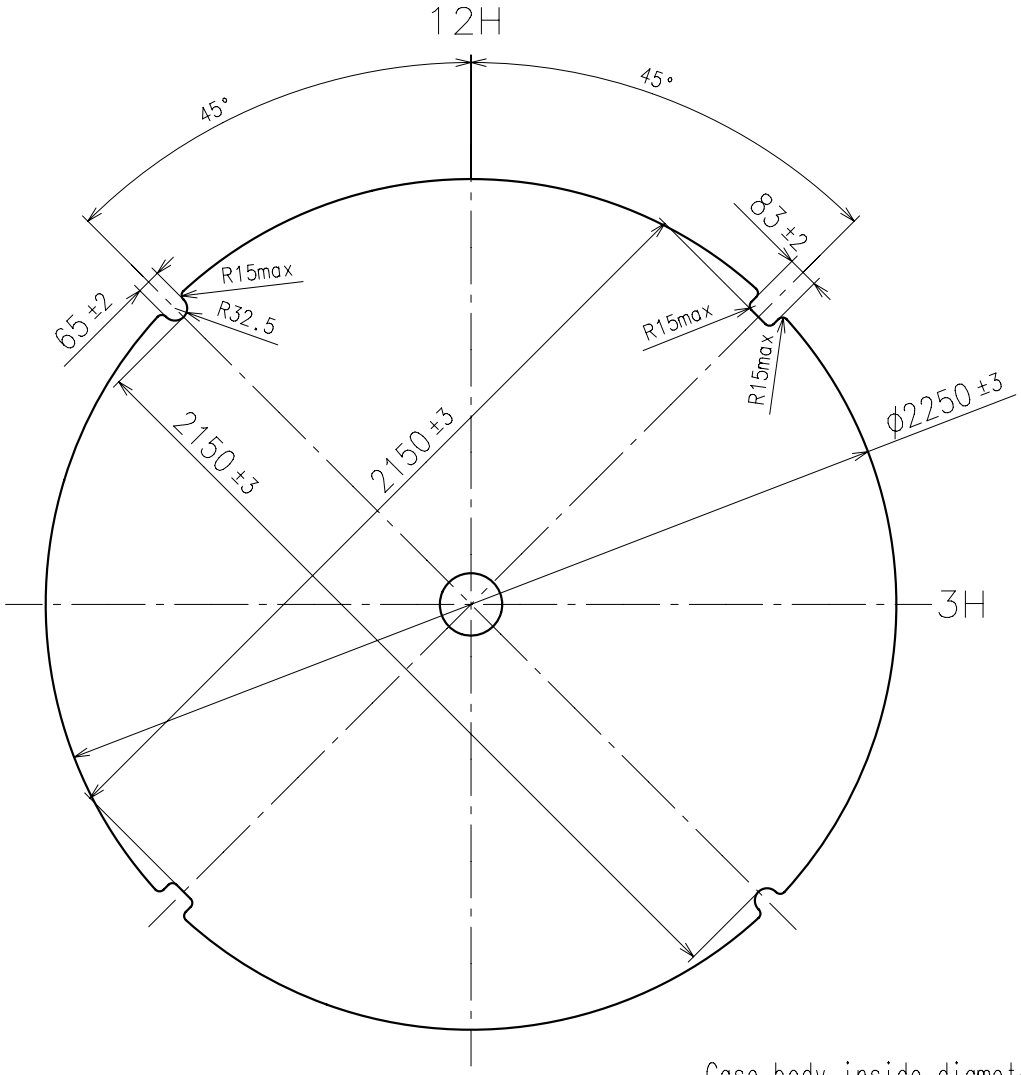
Case body inside diameter:φ2980



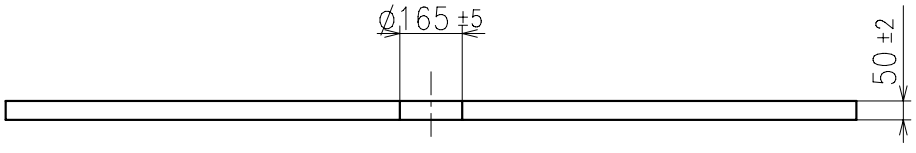
Unit : 1=1/100mm

Cal. AS01A	Dial-3	Date:31/May/'13
		Rev.:00

transmit light more than 30%

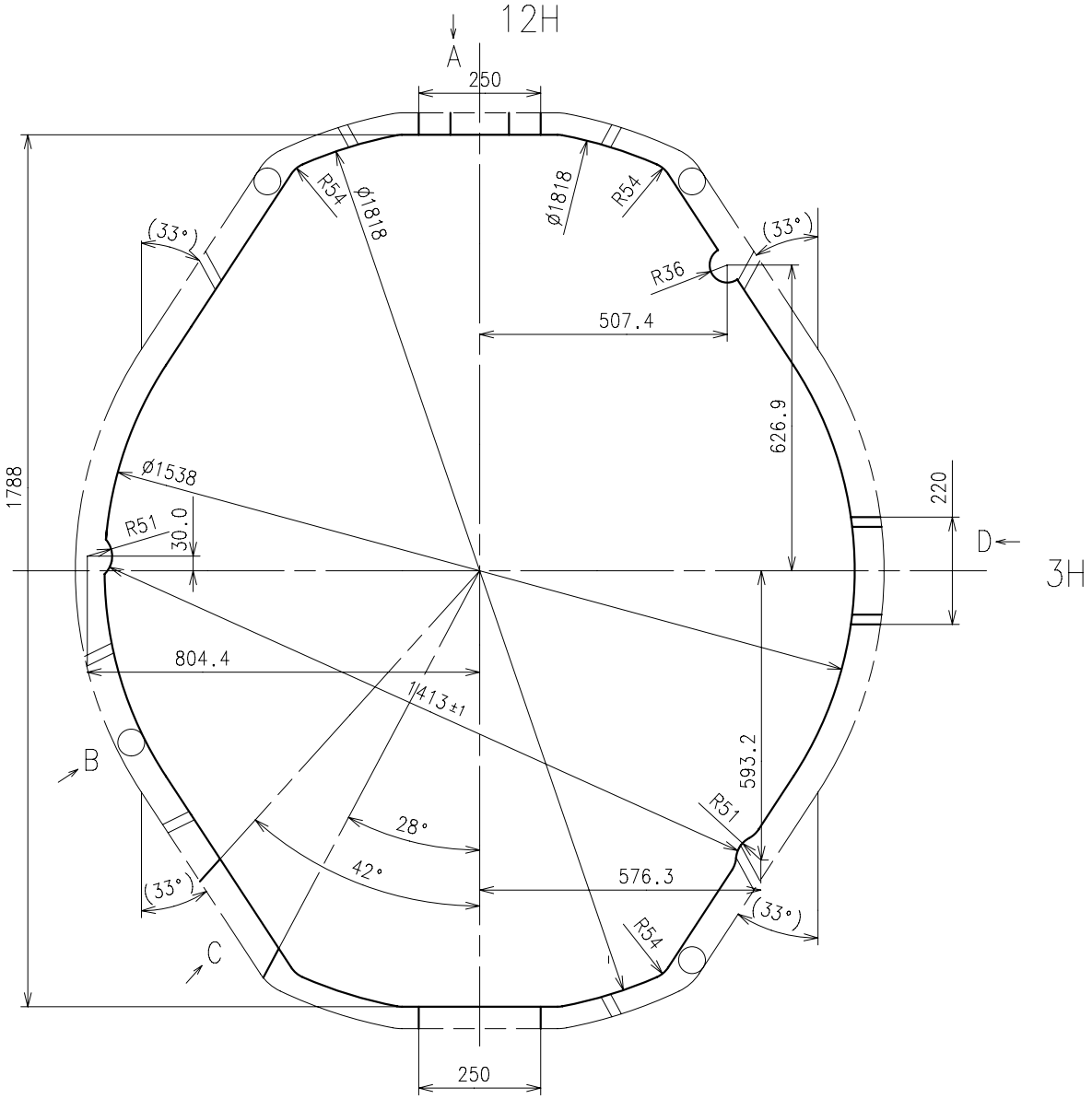


Case body inside diameter:ø2280

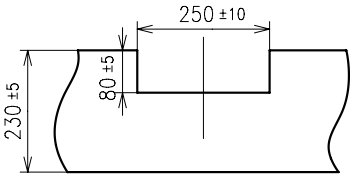


Unit : 1=1/100mm

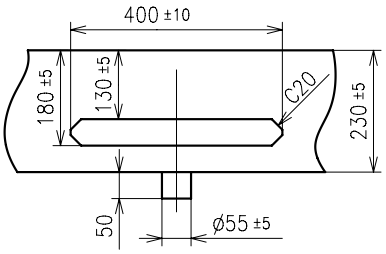
Cal. AS01A	Casing Ring	Date:31/Jan./'13
		Rev.:00



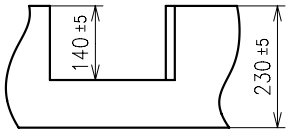
A view



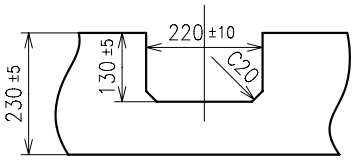
B view



C view

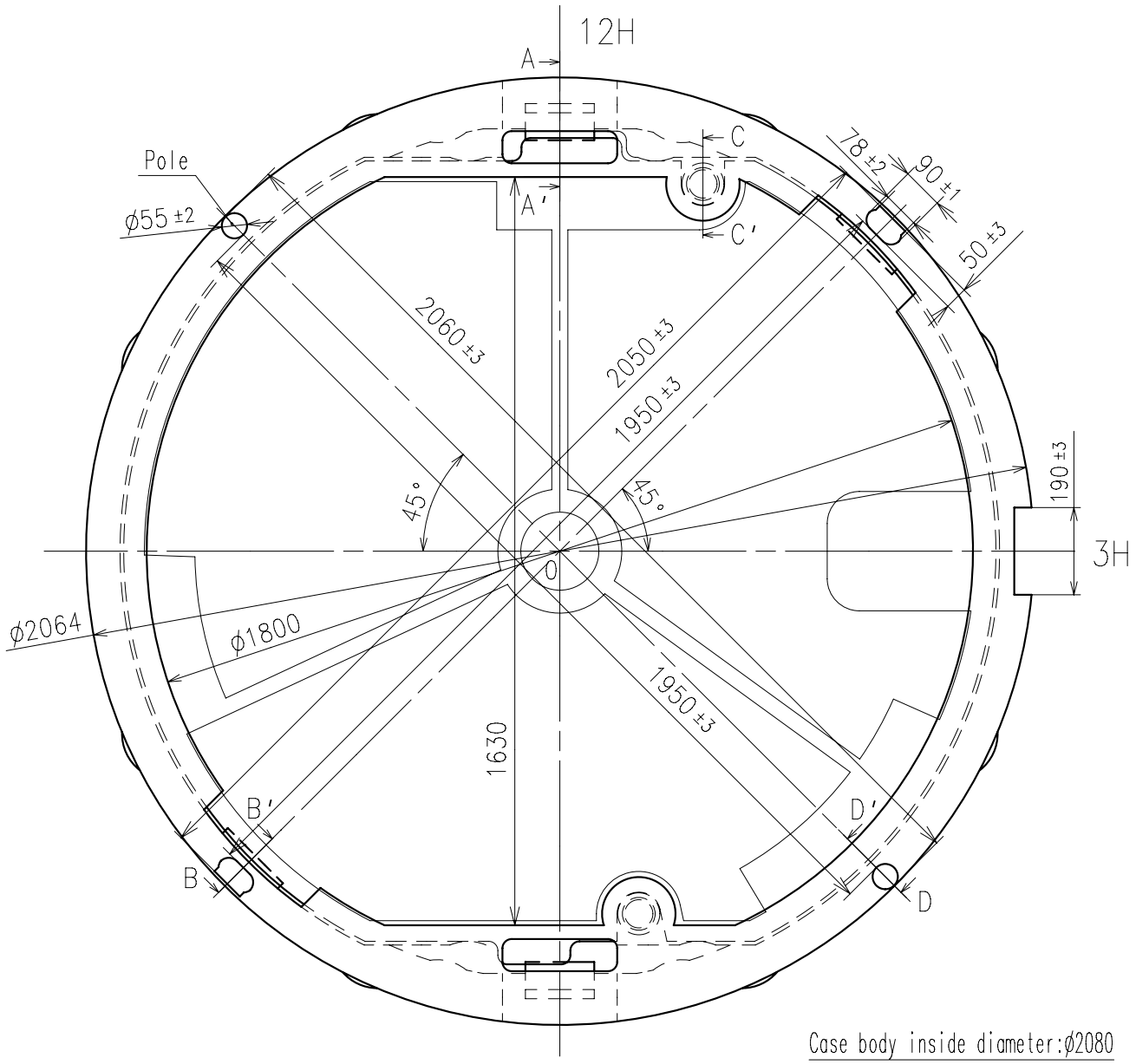


D view

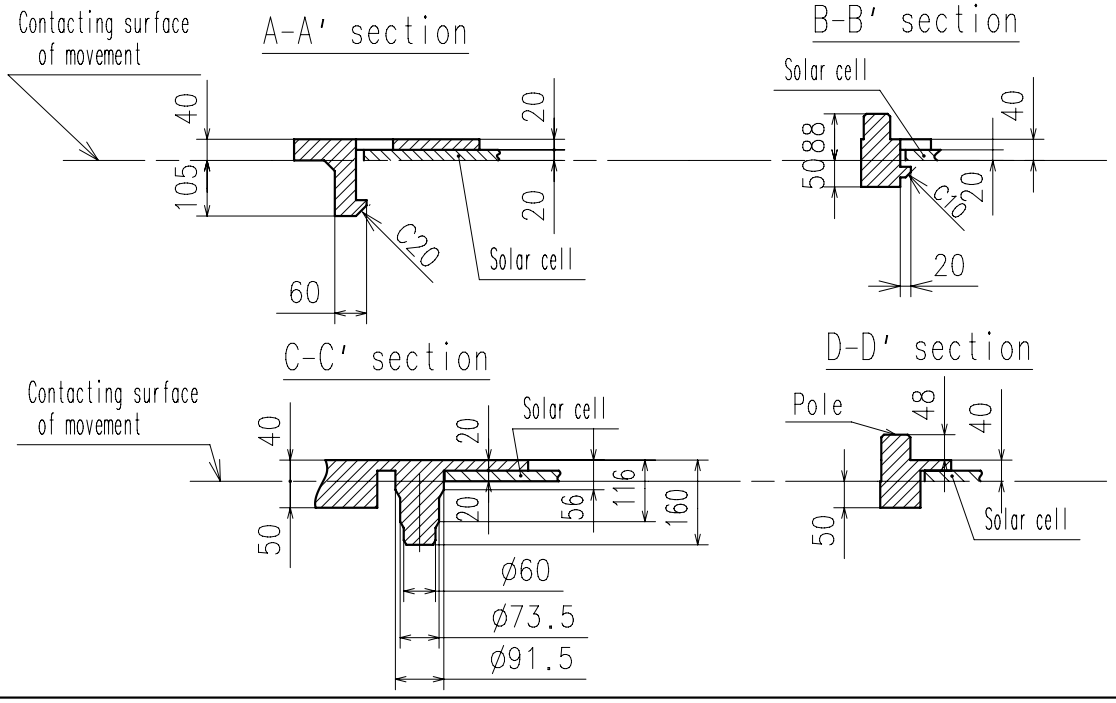


Unit : 1=1/100mm

Cal. AS01A	Solar cell unit-1	Date:31/Jan./'13
		Rev.:00

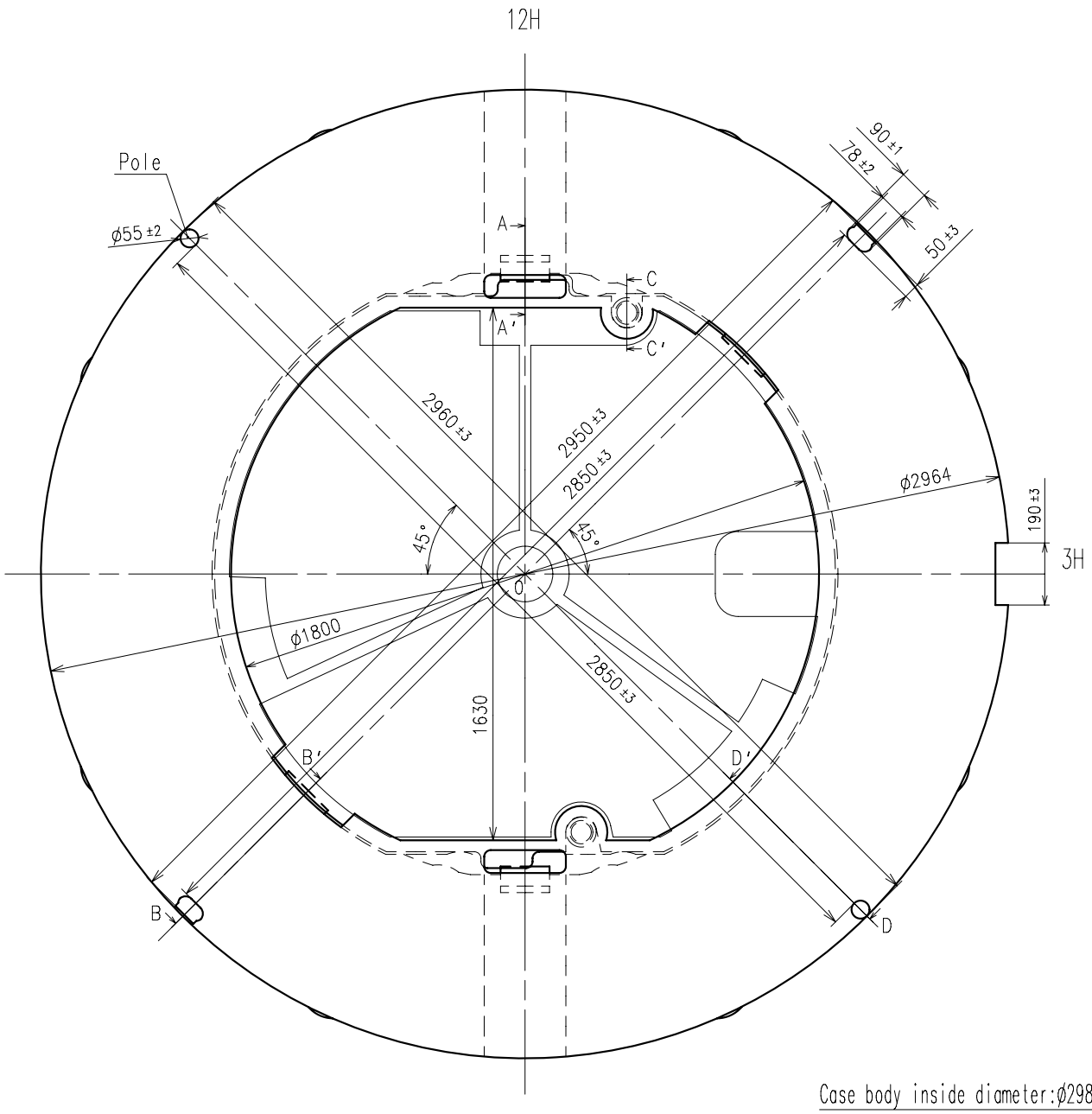


Case body inside diameter:ϕ2080

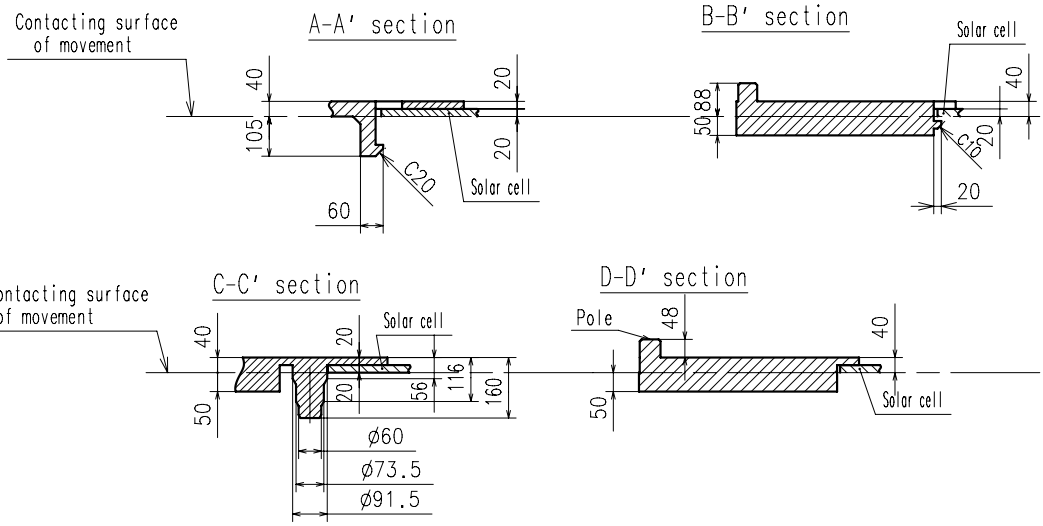


Unit : 1=1/100mm

Cal. AS01A	Solar cell unit-2	Date:31/Jan./'13
		Rev.:00

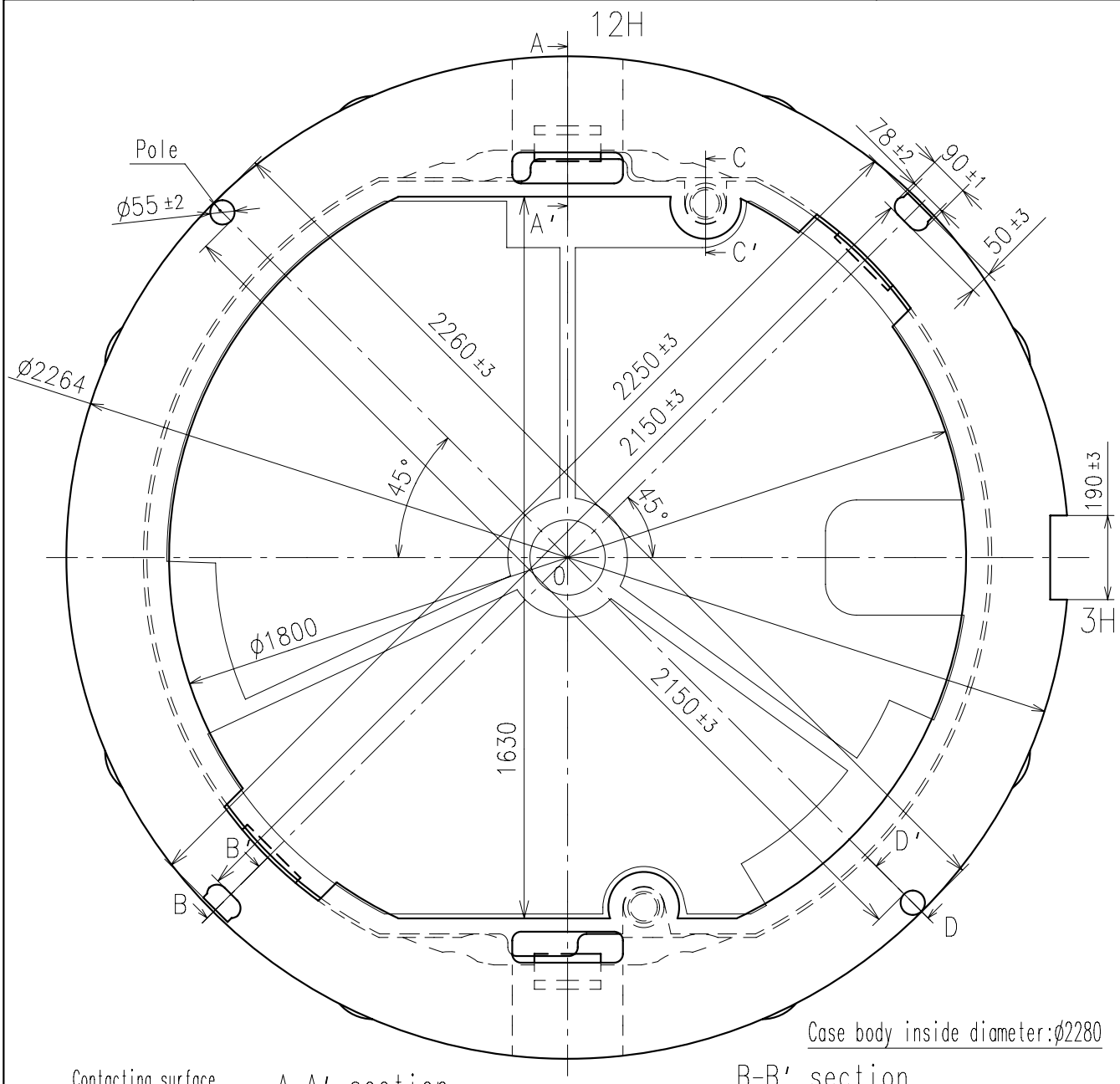


Case body inside diameter:ø2980

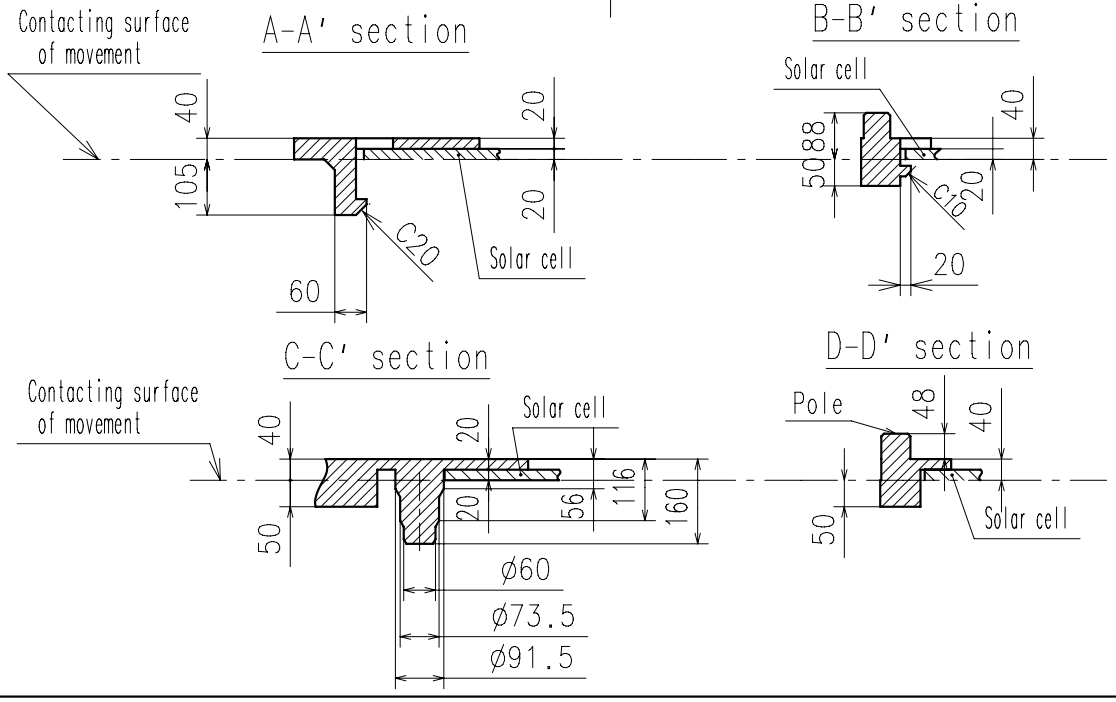


Unit : 1=1/100mm

Cal. AS01A	Solar cell unit-3	Date:31/May/'13
		Rev.:00



Case body inside diameter:ø2280



Unit : 1=1/100mm

Date : 31/Jan./'13
Rev. : 00

AS01A Characteristics

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 sliver oxide battery, thus eliminating the need for battery replacement.

3. Working time

Expected life per charge from full charge to stoppage will be around 4 months.

4. Power depletion warning function

The two-second interval movement of the second hand is a signal of energy depletion.
The watch continuous working time after two-second interval movement is approximately 1 days.
When the second hand starts moving at two-second intervals,
please charge the watch by exposing it to light.

5. Eco-friendly

The secondary battery is Titanium-lithium-ion battery without any environmentally harmful substances.

Date : 31/Jan./'13
Rev. : 00

AS01A Attention-1

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.

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%.
(Effective aperture is ϕ1.9mm)

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	—	35	100
3,000		30W 20cm	60	4	25
10,000	Sun light	Cloudy	20	1.5	8
100,000		Fine weather	5	15 minutes	2

* 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. Caution

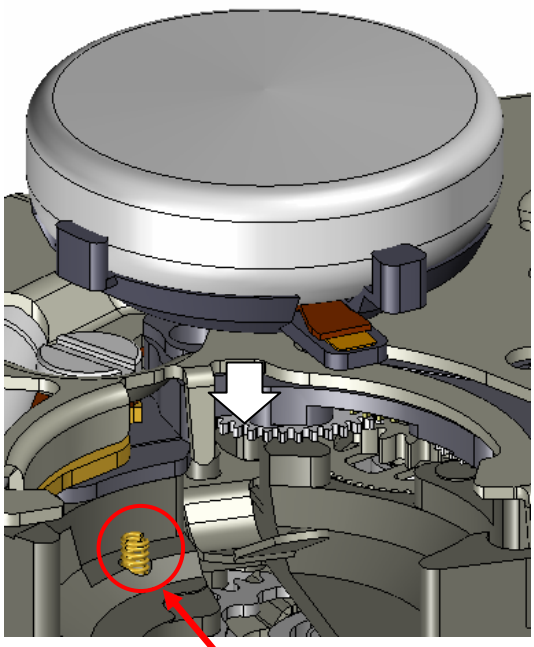
When charging the watch, do not place it too close to fluorescent lamp or other light sources as the watch temperature will become extremely high, causing damage to the parts inside the watch.

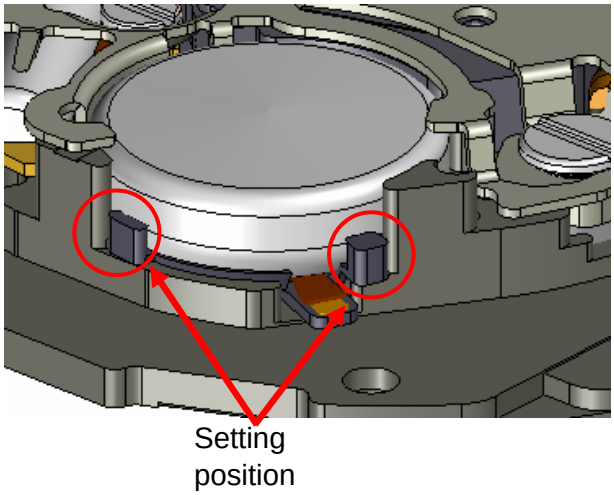
AS01A Attention-2

6. Secondary battery unit replacement

Please set the exclusive secondary battery unit.
If the silver oxide battery is accidentally be set and charged, there is a possibility of batery 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.

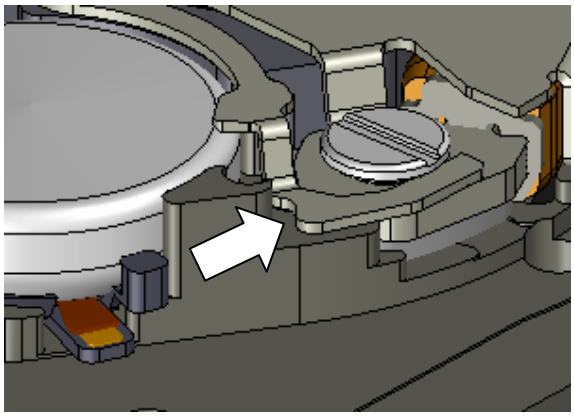
When the secondary battery is assembled, please match the phase in accordance with this illustration and push the battery vertical direction.
Please pay attention not to bend the solar cell lead terminal.

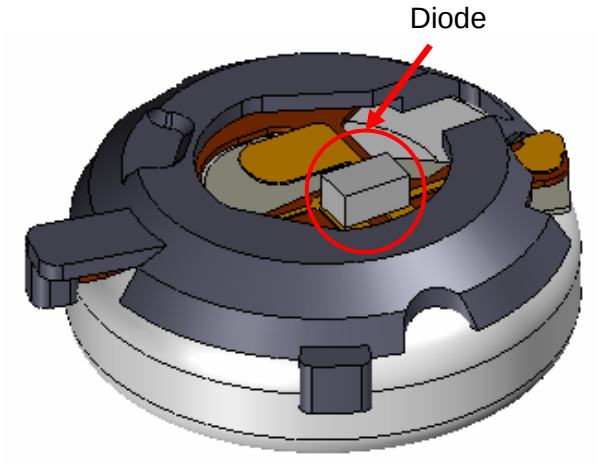




When the secondary battery is disassembled,
please broaden the spring of circuit block cover toward the (⇒) direction and remove the battery in accordance with this illustration.

Please refrain from touching the diode element on the back side of the secondary battery.





AS01A Attention-3

7.Attention for hands disassemble

When the hand is disassembled, please be sure to hold the dial.
If the hand is disassembled without holding the dial, it may have a possibility to break the movement.