# PARTS LIST / TECHNICAL GUIDE
## Automatic Cal. 6R20/6R21

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Cal. No.</th>
<th>6R20/6R21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driving system</td>
<td></td>
<td>Automatic winding with manual winding mechanism</td>
</tr>
</tbody>
</table>
| Time indication             |          | • 3 hands (Hour, Minute and Small Second hands)  
|                             |          | • Day indicator (3 o'clock position)  
|                             |          | • Date indicator (6 o'clock position) |
| Additional function         |          | • Power reserve indicator (6R20: center aspect)  
|                             |          | (6R21: 9 o'clock aspect)  
|                             |          | • Day / date correction function  
|                             |          | • Second hand stop function |
| Crown operation             | Normal position | Manual winding (clockwise only) |
|                             | 1st click position | Date setting (counterclockwise) / Day setting (clockwise) |
|                             | 2nd click position | Time setting (Hour and minute)  
|                             |          | Second hand stop |
| Vibration per hour          |          | 28,800 (8 beats per second) |
| Loss/Gain                   |          | Between + 25 and - 15 seconds |
| Standard rate for measurement |          | Mainspring wind up status | Fully wind up | After 24 hours from fully wind up |
|                             | Testing positions | Dial upward: T0 (CH) | 6 o'clock at the top | 9 o'clock at the top | Dial upward : T24 (CH) |
|                             | Measurement (daily rate in seconds/s/d) | ± 10 s/d | ± 10 s/d | ± 15 s/d | (Isochronism fault: T24-T0) ± 10 s/d |
| Regulation system           | ETACHRON system |          |
| Lift angle of the escapment |          | 52 ° |
| Power reserve               | From fully wound to stoppage: Approximately 45 hours |
| Number of jewels            |          | 29 jewels |

SEIKO WATCH CORPORATION

1/28
FEATURES

SEIKO Automatic Mechanical Cal. 6R20/6R21 is developed by a modular design combining the basic movement of the Cal. 6R15 and newly designed power reserve indicator and day-date indicator unit. Also, Cal. 6R20/6R21 is equipped with the 8 beats balance instead of the 6 beats one for Cal. 6R15.

CHARACTERISTICS OF A MECHANICAL WATCH

1. This mechanical watch operates using power obtained from a mainspring.
2. While loss/gain of a quartz watch is indicated by a monthly or annual rate, accuracy of a mechanical watch is normally indicated by a daily rate (loss/gain per day).
3. Normal usage accuracy of a mechanical watch varies according to conditions of use (time period that the watch is worn on the wrist, temperature environment, hand movement, and winding state of the mainspring).
4. When the watch is affected by strong magnetism, it temporarily gains or loses time. If the watch encounters a strong magnetic field, the parts of the watch may be magnetized. In this case, repairs such as removal of magnetism are required.
PARTS LIST

1. OSCILLATING WEIGHT
0509***

2. CALENDAR TRAIN BRIDGE SCREW
0012201

3. CALENDAR TRAIN BRIDGE
0126030

*POWER RESERVE INDICATOR WHEEL
1019002

6R20

6R21

*For parts 1, refer to page 9.
Cal. 6R20/6R21

PARTS LIST

[PARTS LIST]

[POWER RESERVE INDICATOR AND DAY-DATE INDICATOR UNIT]

4 POWER RESERVE INDICATOR WHEEL
1019002
*FOR 6R20
*FOR 6R21

8 UPPER WHEEL FOR SUN AND PLANETARY WHEEL
1009004

9 SUN AND PLANETARY WHEEL UNIT
1021025

10 LOWER WHEEL FOR SUN AND PLANETARY WHEEL
1009003

6 BARREL PINION
1010267

7 INTERMEDIATE WHEEL FOR SUN AND PLANETARY WHEEL
1026002

15 DAY JUMPER
0898001

16 DAY DRIVING WHEEL
0889001

17 CALENDAR SETTING WHEEL UNIT
1001029

18 CALAEBORD TRAIN PLATE SCREW
00112001

19 CALENDAR TRAIN PLATE
0102030

5 INTERMEDIATE POWER RESERVE INDICATOR WHEEL
00817047

11 DATE JUMPER
080017

13 DATE SETTING WHEEL
0737021

14 DATE DRIVING WHEEL
0802036

12 DATE INDICATOR WHEEL
0970002

Types of oil:
AO-3 (Moebius A)
SEIKO Watch Oil S-6
SEIKO Watch Oil S-4

* For parts 21, refer to page 9.

21 HOUR WHEEL
0273***

22 MINUTE WHEEL AND PINION
0261006

23 CANNON PINION
0225413

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[BALANCE AND ESCAPEMENT]

24. SHOCK ABSORBING SPRING
   0014577

25. SHOCK ABSORBING CAP
   JEWEL  0011220

27. BALANCE COCK SCREW
   0012420

26. HOLE JEWEL
   FRAME FOR SHOCK
   ABSORBER 0014295

28. BALANCE COCK
   WITH REGULATOR
   0171198

29. BALANCE COMPLETE
   (WITH STUD) 0310048

1. BALANCE COCK
   0171116

4. STUD SUPPORT
   0345021

2. REGULATOR 0341020

3. REGULATOR PIN
   0033364

28-1 BALANCE COCK
28-2 REGULATOR
28-3 REGULATOR PIN

30. PALLET BRIDGE SCREW
    0012354

31. PALLET BRIDGE
    0161310

32. PALLET FORK
    0301310
PARTS LIST

[WINDING MECHANISM]

33 AUTOMATIC TRAIN BRIDGE SCREW (2 PCS.)  0012354

44 AUTOMATIC TRAIN BRIDGE 0191025

35 2ND REDUCTION WHEEL 0514010

36 RATCHET WHEEL SCREW 0012919

37 RATCHET WHEEL 0285051

38 BARREL AND TRAIN WHEEL BRIDGE SCREW (3PCS) 0012420

40 LOWER BRIDGE FOR CROWN WHEEL AND REDUCTION WHEEL SCREW 0012354

41 LOWER BRIDGE FOR CROWN WHEEL AND REDUCTION WHEEL 0436164

42 1ST REDUCTION WHEEL HOLDER 0836002

45 SLIDING CROWN WHEEL SPRING 0363156

49 BARREL AND TRAIN WHEEL BRIDGE 0112384

46 HOLD SPRING FOR ESCAPE WHEEL 0015703

47 CAP JEWEL FOR ESCAPE WHEEL 0011221

48 HOLD SPRING FOR THIRD WHEEL 0015703

49 CAP JEWEL FOR THIRD WHEEL 0011221

43 PAWL LEVER 0831077

44 1ST REDUCTION WHEEL 0511010

46 HOLD SPRING FOR ESCAPE WHEEL 0015703

47 CAP JEWEL FOR ESCAPE WHEEL 0011221

48 HOLD SPRING FOR THIRD WHEEL 0015703

49 CAP JEWEL FOR THIRD WHEEL 0011221

43 PAWL LEVER 0831077

44 1ST REDUCTION WHEEL 0511010

46 HOLD SPRING FOR ESCAPE WHEEL 0015703

47 CAP JEWEL FOR ESCAPE WHEEL 0011221

48 HOLD SPRING FOR THIRD WHEEL 0015703

49 CAP JEWEL FOR THIRD WHEEL 0011221

43 PAWL LEVER 0831077

44 1ST REDUCTION WHEEL 0511010

46 HOLD SPRING FOR ESCAPE WHEEL 0015703

47 CAP JEWEL FOR ESCAPE WHEEL 0011221

48 HOLD SPRING FOR THIRD WHEEL 0015703

49 CAP JEWEL FOR THIRD WHEEL 0011221

43 PAWL LEVER 0831077

44 1ST REDUCTION WHEEL 0511010

46 HOLD SPRING FOR ESCAPE WHEEL 0015703

47 CAP JEWEL FOR ESCAPE WHEEL 0011221

48 HOLD SPRING FOR THIRD WHEEL 0015703

49 CAP JEWEL FOR THIRD WHEEL 0011221

43 PAWL LEVER 0831077

44 1ST REDUCTION WHEEL 0511010
**PARTS LIST**

Cal. 6R20/6R21

**[GEAR TRAIN MECHANISM]**

50. FOURTH WHEEL 0241***
51. THIRD WHEEL 0231070
52. CENTER WHEEL BRIDGE SCREW 0012354
53. CENTER WHEEL BRIDGE 0122302
54. ESCAPE WHEEL 0251310
55. CLICK 0381004
56. BARREL COMPLETE 0201074
57. CENTER WHEEL 0221***

*For parts 50 and 57, refer to page 10.*
PARTS LIST

[SETTING MECHANISM]

58 SETTING LEVER JUMPER SCREW (2PCS.) 0012168
59 SETTING LEVER JUMPER 0388177
60 YOKE 0384061
61 SETTING LEVER 0383060
62 STOP LEVER 0601310
63 WINDING STEM 0351200
64 CALENDAR CORRECTOR 1ST INTERMEDIATE WHEEL 0962164
65 WINDING PINION 0283020
66 CLUTCH WHEEL 028204064
67 MAIN PLATE 0100495

* For parts 63, refer to page 10.
How to find the correct parts, if not determined by 4 digit caliber number

Following parts are determined based on the design of watches, such as hands height, dial color, and design of cases. Please refer to the SEIKO WATCH PARTS CATALOGUE in order to choose corresponding parts.

1. OSCILLATING WEIGHT
   - 6R20: 0509266
   - 6R21: 0509281
   - 0509293 (for ANANTA)

2. WINDING STEM: 0351200
   * For screw down crown models, the stem is assembled to the crown and is not available separately.

21. HOUR WHEEL: 0273***
50. FOURTH WHEEL: 024***
57. CENTER WHEEL: 022***

Please refer to the following table in order to find the correct part number of each wheel according to the hand installation height. The numeral 2 or 3 is printed on the DIAL.

<table>
<thead>
<tr>
<th></th>
<th>21 HOUR WHEEL</th>
<th>50 FOURTH WHEEL</th>
<th>57 CENTER WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>0273029</td>
<td>0247216</td>
<td>0221085</td>
</tr>
</tbody>
</table>

Example:

6R21-00C0  T2
Hand installation height
### CROSS-SECTION VIEW OF THE SCREW PARTS

<table>
<thead>
<tr>
<th>Parts code</th>
<th>Parts name</th>
</tr>
</thead>
<tbody>
<tr>
<td>0012 919</td>
<td>36 RATCHET WHEEL SCREW</td>
</tr>
</tbody>
</table>
| 0012 354   | 40 LOWER BRIDGE FOR CROWN WHEEL AND REDUCTION WHEEL SCREW  
32 CENTER WHEEL BRIDGE SCREW  
31 PALLET COCK SCREW (2 pcs)  
33 AUTOMATIC TRAIN WHEEL SCREW (2 pcs) |
| 0012 201   | 2 CALENDAR TRAIN BRIDGE SCREW (4 pcs)  
19 CALENDAR TRAIN PLATE SCREW |
| 0012 168   | 58 SETTING LEVER JUMPER SCREW (2 pcs) |
| 0012 420   | 38 BARREL AND TRAIN WHEEL BRIDGE SCREW (3 pcs)  
27 BALANCE COCK SCREW |
| 0012 067   | CASING CLAMP SCREW (2 pcs) |
## Location of the jewels

<table>
<thead>
<tr>
<th></th>
<th>Upper</th>
<th></th>
<th>Lower</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cap jewel</td>
<td>Hole jewel</td>
<td>Cap jewel</td>
<td>Hole jewel</td>
</tr>
<tr>
<td><strong>GEAR TRAIN MECHANISM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 FOURTH WHEEL</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>51 THIRD WHEEL</td>
<td>○</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>54 ESCAPE WHEEL</td>
<td>○</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>56 BARREL COMPLETE (WITH MAINSPRING)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>57 CENTER WHEEL</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td><strong>WINDING MECHANISM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>38 2ND REDUCTION WHEEL</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>CROWN WHEEL (Assembled to the 39 BARREL AND TRAIN WHEEL BRIDGE)</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>44 1ST REDUCTION WHEEL</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td><strong>POWER RESERVE INDICATOR / CALENDAR UNIT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 LOWER WHEEL FOR SUN AND PLANETARY WHEEL UNIT</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>7 REDUCTION WHEEL FOR SUN AND PLANETARY WHEEL UNIT</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>12 DATE INDICATOR WHEEL</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td><strong>BALANCE AND ESCAPEMENT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29 BALANCE COMPLETE (WITH STUD)</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>32 PALLET FORK</td>
<td>–</td>
<td>○</td>
<td>–</td>
<td>○</td>
</tr>
<tr>
<td>ENTRY PALLET JEWEL</td>
<td></td>
<td></td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>EXIT PALLET JEWEL</td>
<td></td>
<td></td>
<td>○</td>
<td></td>
</tr>
<tr>
<td>ROLLER JEWEL</td>
<td></td>
<td></td>
<td>○</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL NUMBER OF JEWELS** 29 jewels
Tools and consumables required for disassembling/reassembling

- Movement holder
  UNIVERSAL MOVEMENT HOLDER
  (S-682)

- Watch oils
  SEIKO watch grease S-6 and S-4, watch oil AO-3 (or Moebius A)
  S-6
  AO-3
  S-4
REMINDERS ON DISASSEMBLING AND REASSEMBLING THE MOVEMENT

- HOW TO REMOVE THE SETTING STEM BEFORE DISMANTLING THE MOVEMENT

Crown position: 0 position

Push the SETTING LEVER gently (refer to the picture on the right) in order to disengage it from the SETTING STEM. Then pull out the crown with stem completely.

- SETTING MECHANISM

60 YOKE

61 SETTING LEVER

59 SETTING LEVER JUMPER

64 CALENDAR CORRECTOR 1ST INTERMEDIATE WHEEL

65 WINDING PINION

66 CLUTCH WHEEL
**BALANCE AND ESCAPEMENT**

How to disassemble/reassemble the BALANCE and BALANCE COCK

- **Disassembling**

1) Rotate the STUD SUPPORT until it touches to the BALANCE COCK. When doing so, make sure that the second bend of the balance-spring does not touch the REGULATOR PIN.

2) Push out the stud parallel to the slit of the STUD SUPPORT (the direction also shown by the red arrow in the illustration) in order to remove it from the STUD SUPPORT.

3) Unscrew the BALANCE COCK SCREW and remove the BALANCE COCK WITH REGULATOR.

4) Remove the BALANCE COMPLETE WITH STUD.
• Reassembling

1) Install the BALANCE COMPLETE WITH STUD to the MAIN PLATE.

2) Set the BALANCE COCK WITH REGURATOR and tighten the BALANCE COCK SCREW.

3) Temporarily set the stud to the STUD SUPPORT.
Do not engage the balance-spring to the REGULATOR PIN. The balance-spring passes outside of the REGULATOR-PIN at this stage.

4) Push back the stud parallel to the slit of the STUD SUPPORT.

5) Engage the balance-spring with the slit of the REGULATOR PIN.

* When assembling the BALANCE COMPLETE, pay great attention not to deform the balance-spring, especially at the second bend.
1. Set the CALENDAR TRAIN PLATE.
2. Tighten the CALENDAR TRAIN PLATE SCREW.

1. Set the DAY DRIVING WHEEL.
2. Set the CALENDAR SETTING WHEEL UNIT.
3. Set the DAY INDICATOR WHEEL.
   * Lubricate the shaft of the DAY INDICATOR WHEEL.
4. Set the DAY JUMPER.
   * Make sure that the DAY JUMPER and the DAY INDICATOR WHEEL are correctly engaged as shown in the illustration.

Align the tip of gear teeth of the DAY INDICATOR WHEEL with the notch on the DAY DRIVING WHEEL to ensure proper orientation.
5. Lubricate the shaft of the DATE INDICATOR WHEEL as illustrated.

Type of oil: S-6

1. Set the DATE DRIVING WHEEL.
2. Set the INTERMEDIATE DATE SETTING WHEEL.
3. Set the DATE INDICATOR WHEEL.
   * Make sure that the DATE DRIVING WHEEL and DATE INDICATOR WHEEL are correctly engaged as shown in the illustration.

4. Set the DATE JUMPER.
   * Make sure that the DATE JUMPER and DATE INDICATOR WHEEL are correctly engaged as shown in the illustration.

5. Lubricate the shaft of the DATE INDICATOR WHEEL as illustrated.

Type of oil: S-6
## HOW TO REASSEMBLE THE CALENDAR AND POWER RESERVE INDICATOR UNIT

### Cal. 6R20/6R21

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Set the LOWER WHEEL FOR SUN AND PLANETARY WHEEL UNIT.</td>
</tr>
<tr>
<td>2.</td>
<td>Lubricate the LOWER WHEEL FOR SUN AND PLANETARY WHEEL UNIT as WHEEL illustrated. (4 points)</td>
</tr>
<tr>
<td>3.</td>
<td>Set the SUN AND PLANETARY WHEEL UNIT.</td>
</tr>
<tr>
<td>4.</td>
<td>Lubricate the SUN AND PLANETARY WHEEL Unit as illustrated. (4 points)</td>
</tr>
<tr>
<td>5.</td>
<td>Set the UPPER WHEEL FOR SUN AND PLANETARY WHEEL UNIT.</td>
</tr>
</tbody>
</table>

### Cal. 6R20

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Set and lubricate the INTERMEDIATE WHEEL FOR SUN AND PLANETARY WHEEL as illustrated.</td>
</tr>
<tr>
<td>2.</td>
<td>Set the BARREL PINION.</td>
</tr>
<tr>
<td>3.</td>
<td>Lubricate the pinion of the BARREL PINION.</td>
</tr>
<tr>
<td>4.</td>
<td>Set the INTERMEDIATE POWER RESERVE INDICATOR WHEEL.</td>
</tr>
<tr>
<td>5.</td>
<td>Set the POWER RESERVE INDICATOR WHEEL.</td>
</tr>
<tr>
<td>6.</td>
<td>Lubricate the shaft of the POWER RESERVE INDICATOR WHEEL as illustrated.</td>
</tr>
</tbody>
</table>

* Please note that the setting position are different for Cal. 6R20 and 6R21.
HOW TO REASSEMBLE THE CALENDAR AND POWER RESERVE INDICATOR UNIT

1. Lubricate the DATE JUMPER as illustrated.
   Type of oil: AO-3 (Moebius A)

2. Lubricate the DAY JUMPER as illustrated.
   Type of oil: AO-3 (Moebius A)

3. Set the CALENDAR TRAIN BRIDGE.

4. Tighten the CALENDAR TRAIN BRIDGE SCREW. (4 pcs)
1. Pull out the crown to the second click. While turning the crown clockwise to turn the hands, look through the circular holes of CALENDAR TRAIN BRIDGE (refer to the illustration at left) to check that the notch on the date driving wheel and the tip of gear teeth of the date star are aligned and that the notch on the day driving wheel and the tip of gear teeth of the day star are aligned, as shown in the left illustration.

* If they are correctly aligned, the day hand moves after the date hand is correctly aligned. If not, the day hand and the date hand do not move in the proper order.

* If they are not correctly aligned, remove the CALENDAR TRAIN BRIDGE and reset so that the date star and date driving wheel are correctly engaged and that the day star and day driving wheel are correctly engaged.

The correct setting position of the DAY DRIVING WHEEL and DAY INDICATOR WHEEL.

1. After checking the alignment, set the dial to the movement and turn the movement over.

2. Turn the dial locking pin to hold the feet of the dial (at two points).
<table>
<thead>
<tr>
<th>HOW TO REASSEMBLE THE HANDS AND THE DIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image of watch hands and dial]</td>
</tr>
<tr>
<td>1. Set the power reserve indicator hand.</td>
</tr>
<tr>
<td>* Wind the mainspring of the barrel complete fully, and then set the power reserve indicator with pointing its tip to the “full” position of the power reserve indication on the dial.</td>
</tr>
<tr>
<td>![Image of day-date hands]</td>
</tr>
<tr>
<td>1. Set the day / date hands.</td>
</tr>
<tr>
<td>![Image of day-date mechanism]</td>
</tr>
</tbody>
</table>
1. Take off the WINDING STEM (refer to Page 13/28).
2. Set the movement with dial to the case.
3. Set the case ring.
4. Set the WINDING STEM to the crown.
5. Set the CASING CLAMP and screw it with the CASING.
   CLAMP SCREWS (2 pcs.) as the right illustration.
   * Do not assemble up side down as it has the top side and back side.
HOW TO REASSEMBLE OSCILLATING WEIGHT

OSCILLATING WEIGHT

When fixing the OSCILLATING WEIGHT, an alignment with the FIRST REDUCTION WHEEL is necessary in order to wind the MAINSPRING most efficiently.

Rotate the FIRST REDUCTION WHEEL manually until its hole aligns with the gilt dot on the BALANCE COCK and set the OSCILLATING WEIGHT vertically at the stem side, and then tighten the screw. Refer to the figure below.
**REGULATION**

- **Names of the parts for regulation and their functions**

  1. **[STUD SUPPORT]**
     - Correction of the beat error by positioning the roller jewel correctly

  2. **[REGULATOR]**
     - Regulation of the accuracy rate (+) or (-) by adjusting the operative length of the balance-spring

  3. **[STUD (glued at the balance-spring)]**
     - Alignment of the balance-spring to the center of the regulator pin's slit

  4. **[REGULATOR PIN]**
     - Adjustment of the play of the balance-spring embraced in its slit

- **How to regulate the isochronism fault by adjusting the position of the balance-spring**

  This caliber has the Etachron system for fine regulation of the isochronism fault, which is the same design used for both Cal. 7S-B series.

  When an amplitude of the balance becomes weak, the watch shows time loss, in general.

  By making a clearance of the balance-spring smaller, the decline curve of the instantaneous rate gets shallower.

  1. Make sure that the REGULATOR PIN is aligned in a vertical position to the REGULATOR and the balance-spring passes parallel through the slot of the REGULATOR PIN before fine-tuning the STUD and the REGULATOR PIN.

**REGULATOR PIN**

- top side view
- back side view
- angled view
2) Rotate the STUD in order to align the position of the balance-spring passes through the center of the slot of the REGULATOR PIN.

3) Rotate the REGULATOR PIN counterclockwise in order to fine-tune the clearance of the balance-spring passing through the slot of it.
## Function check

<table>
<thead>
<tr>
<th>Operation</th>
<th>Function</th>
<th>Checkpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pull out the crown to the 2nd click and push it back in to the normal position. Repeat the same several times.</td>
<td>Setting mechanism switching the function of the time setting.</td>
<td>Make sure that it has a click at each position and the stem is not pulled off.</td>
</tr>
<tr>
<td>Turn the crown clockwise at the 0 click.</td>
<td>Hand winding function.</td>
<td>Make sure that the mainspring can be wound by turning the crown clockwise, and power reserve indicator shows properly.</td>
</tr>
<tr>
<td>Calendar mechanism correcting the day.</td>
<td>Make sure that the day changes smoothly.</td>
<td></td>
</tr>
<tr>
<td>Calendar mechanism correcting the date.</td>
<td>Make sure that the date changes smoothly.</td>
<td></td>
</tr>
<tr>
<td>Second hand stop function.</td>
<td>Make sure that the second hand stops when the crown is pulled out to the 2nd click.</td>
<td></td>
</tr>
<tr>
<td>Setting mechanism - hour and minute hand setting.</td>
<td>Make sure that the hour and minute hands move smoothly (without touching each other or touching the surface of the dial or inside of the glass).</td>
<td></td>
</tr>
<tr>
<td>Hands installation.</td>
<td>Make sure that the date changes when the hour and minute hands pass around midnight.</td>
<td></td>
</tr>
</tbody>
</table>
**Water resistance test**

Check the water resistance according to the designated specification of the watch.

<table>
<thead>
<tr>
<th>Marking on the case back</th>
<th>Test method</th>
<th>Applied pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>WATER RESISTANT (WATER RESIST)</td>
<td>Air leak test</td>
<td>3 BAR</td>
</tr>
<tr>
<td>WATER RESIST 5BAR</td>
<td>Water pressure test</td>
<td>5 BAR</td>
</tr>
<tr>
<td>WATER RESIST 10BAR</td>
<td></td>
<td>10 BAR</td>
</tr>
<tr>
<td>WATER RESIST 15BAR</td>
<td>Condensation test</td>
<td>15 BAR</td>
</tr>
<tr>
<td>WATER RESIST 20BAR</td>
<td></td>
<td>20 BAR</td>
</tr>
<tr>
<td>SCUBA DIVER’S (AIR DIVER’S) 150 m</td>
<td>Condensation test</td>
<td>18.75 BAR = 150 (m) times 0.125</td>
</tr>
<tr>
<td>SCUBA DIVER’S (AIR DIVER’S) 200 m</td>
<td></td>
<td>25 BAR = 200 (m) times 0.125</td>
</tr>
<tr>
<td>He-GAS DIVER’S 300 m</td>
<td>Water pressure test</td>
<td>37.5 BAR = 300 (m) times 0.125</td>
</tr>
<tr>
<td>He-GAS DIVER’S 600 m</td>
<td></td>
<td>75 BAR = 600 (m) times 0.125</td>
</tr>
<tr>
<td>He-GAS DIVER’S 1000 m</td>
<td>Condensation test</td>
<td>125 BAR = 1000 (m) times 0.125</td>
</tr>
</tbody>
</table>
ACCURACY OF MECHANICAL WATCHES

- The accuracy of mechanical watches is indicated by the daily rates of one week or so.
- The accuracy of mechanical watches may not fall within the specified range of time accuracy because of loss/gain changes due to the conditions of use, such as the length of time during which the watch is worn on the wrist, arm movement, whether the mainspring is wound up fully or not, etc.
- The key components in mechanical watches are made of metals which expand or contract depending on temperatures due to metal properties. This exerts an effect on the accuracy of the watches. Mechanical watches tend to lose time at high temperatures while they tend to gain time at low temperatures.
- In order to improve accuracy, it is important to regularly supply energy to the balance that controls the speed of the gears. The driving force of the mainspring that powers mechanical watches varies between when it is fully wound and immediately before it is unwound. As the mainspring unwinds, the force weakens.
- Relatively steady accuracy can be obtained by wearing the watch on the wrist frequently for the self-winding type and winding up the mainspring fully everyday at a fixed time to move it regularly for the wind-up mechanical type.
- When affected by external strong magnetism, a mechanical watch may loss/gain time temporarily. The parts of the watch may become magnetized depending on the extent of the effect. In such a case, consult the retailer from whom the watch was purchased since the watch requires repair, including demagnetizing.

- Duration time test

Check the Power reserve of the watch after the mainspring is fully wound up and leave it on natural condition with the dial-up position. Make sure that the watch runs more than 45 hours until it stops.