

SERVICE MANUAL & PARTS LIST

REF. NO. S/M-546
FEBRUARY 1997

MODULE NO.

QW-1745



ABX-70B

INDEX

CASIO®

(WITHOUT PRICE)

CONTENTS

1. SPECIFICATIONS	1
2. OPERATION CHART: MODULE QW-1745	2
3. DRAWINGS: MODULE QW-1745	
3-1. BLOCK DIAGRAM	4
3-2. CHECKING TERMINALS AND COMPONENTS: MODULE QW-1745	5
4. EXPLODED VIEW: MODULE QW-1745	6
5. PARTS LIST: MODULE QW-1745	7
6. PRECAUTIONS FOR REPAIR: MODULE QW-1745	
6-1. AC (ALL CLEAR) AND REMOVING OF MODULE	8
6-2. ACCURACY CHECKING	8
6-3. REPLACEMENT OF MODULE AND DIAL WITH EL	9

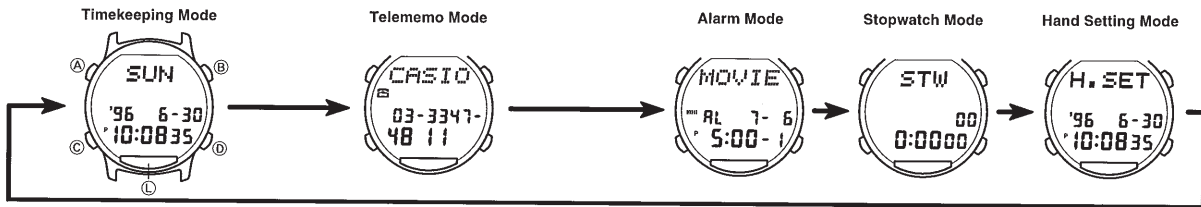
1. SPECIFICATIONS

Item	Detail
Battery	SR927W × 2
Battery life	Approx. 2 years
Current consumption	1.98 μA maximum
Alarm system	Piezo plate on Back cover
Accuracy	±20 sec./month
Accuracy setting system	Pattern cutting method (P1 ~ P5)
Accuracy checking	See page 8
Accuracy setting	Unadjustable
Functions	<ul style="list-style-type: none"> • Electro-luminescent backlight • Telememo <ul style="list-style-type: none"> Memory capacity: up to 50 sets of data, each set including; name, telephone number and icon Other: Auto sort function • 1/100 sec. stopwatch <ul style="list-style-type: none"> Measuring capacity: 23:59'59.99" Measuring mode: Net time, split time, 1st-2nd place times • 3 multi-function alarms with reminder text • Hourly time signals • Regular timekeeping: <ul style="list-style-type: none"> (Analog) Hour and minute hands (Digital) Hr, min, sec, pm, mo, date, day • Auto-calendar (pre-programmed until the year 2039) • 12/24-hour formats • Auto display function

2. OPERATION CHART: MODULE QW-1745

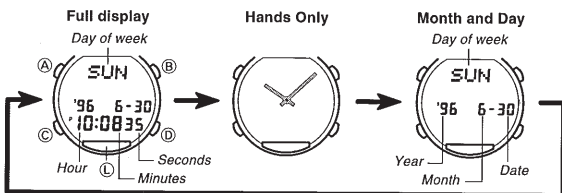
GENERAL GUIDE

- If the contents of the display seem to be continually changing, see "Auto Display Function" for information on how to stop it.
- Press **C** to change from mode to mode.
- In any mode, press **L** to illuminate the display. The display remains illuminated for 1.5 seconds after you release **L**. If you keep **L** depressed, the display remains illuminated for five seconds.



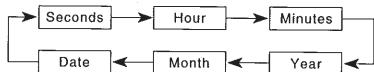
TIMEKEEPING MODE

- Press **D** to change the display format in the Timekeeping Mode as shown below.
- Press **L** in the Timekeeping Mode to activate the EL backlight.
- Pressing **B** in the Timekeeping Mode displays the Telememo data page that was on the display when you were last in the Telememo Mode.



To set the digital time and date

1. Hold down **A** while in the Timekeeping Mode. The seconds digits flash on the display because they are selected.
2. Press **C** to change the selection in the following sequence.

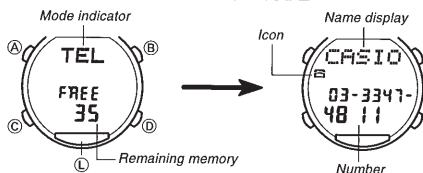


3. While the seconds digits are selected (flashing), press **D** to reset the seconds to 00. If you press **D** while the seconds count is in the range of 30 to 59, the seconds are reset to 00 and 1 is added to the minutes. If the seconds count is in the range of 00 to 29, the minutes count is unchanged.
4. While any other digits (besides seconds) are selected (flashing), press **D** to increase the number or **B** to decrease it. Holding down either button changes the current selection at high speed.
- Press **L** while any digits are selected (flashing) to switch between 12-hour and 24-hour timekeeping.
5. After you set the time and date, press **A** to return to the Timekeeping Mode.
 - The day of week is automatically set in accordance with the date.
 - The date can be set within the range of January 1, 1995 to December 31, 2039.
 - If you do not operate any button for a few minutes while a selection is flashing, the flashing stops and the watch goes back to the Timekeeping Mode automatically.

About the backlight

- In any mode, press **L** to illuminate the display for about 1.5 seconds.
- The backlight of the watch employs an electro-luminescent (EL) light, which loses illuminating power after very long use.
- The illumination provided by the backlight may be hard to see when viewed under direct sunlight.
- The watch will emit an audible sound whenever the display is illuminated. This is caused by a transistor that vibrates when the EL panel lights up. It does not indicate malfunction of the watch.
- The backlight automatically turns off whenever an alarm sounds.

TELEMEMO MODE

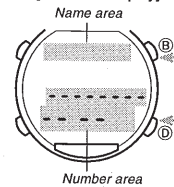


The Telememo Mode lets you store up to 50 pages of name and number data. You can also assign one of four different icons (telephone, fax, pager, cell phone) that tells you at a glance what type of data is on the display. You can recall data by scrolling through it on the display.

- The number of unused pages still available for storage of data appears on the display every time you enter the Telememo Mode.
- You can input up to eight characters in the text area, and 12 digits in each of the number areas.
- The data item on the display when you exit the Telememo Mode appears first the next time you enter the Telememo Mode.

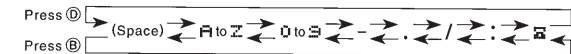
To input new Telememo data

[New Data Display]



1. In the Telememo Mode, press **D** and **B** at the same time to call up the new data display.
 - The new data display is the one that is blank (contains no name and telephone number).
 - If there is no Telememo data stored in memory yet, the new data display appears as soon as you enter the Telememo Mode.
 - If the message "FULL" appears on the display, it means that memory is full. To store more data, you will first have to delete some of the data.
2. Hold down **A** and a cursor appears in the name area.

3. Use **D** or **B** to input a character at the cursor position. The character changes in the following sequence. Holding down either button changes the character at high speed.



4. After you select the character you want, press **C** to advance the cursor to the right.
 - Repeat 3 and 4 until you complete name input.
 - You can input up to 8 characters in the name area.
5. After you input the name, use **C** to move the cursor to the icon and then use **D** or **B** to select the icon you want to use.



6. After you select the icon you want, press **C** to advance the cursor to the number area.

7. While the cursor is in the number area, use **B** or **D** to input a number you want. The character changes in the following sequence. Holding down either button changes the character at high speed.



8. After you select the character you want, press **C** to advance the cursor to the right.
 - Repeat 6 and 7 until you complete number input.
9. After inputting your data, press **A** to store it.
 - When you press **A** to store data, the message "SORT" appears on the display for a few seconds. After the sort operation is complete, the New Data Display appears.
 - At this point you could return to step 3 to input more data. If you do not want to input more data, press **A** again to return to the normal Telememo Mode display (without flashing).
 - The text area of the display can show only five characters at a time, so longer text scrolls continuously from right to left.

To input another number to an existing name

The Telememo Mode lets you input more than one number for a single name. This is actually accomplished by creating another Telememo page with the same name data, which means that each additional number takes up one full page of Telememo memory.

1. Display the name to which you want to add a number.
2. Hold down **A** to change to the data input screen.
3. Press **L** to create a new Telememo page with the same name entry.
4. Use the procedure under "To input new Telememo data" to select an icon and input the number.

To recall Telememo data

In the Telememo Mode, press **D** to scroll forward through stored data items or **B** to scroll in reverse.

- Holding down either button scrolls through the data at high speed.
- Data normally scrolls up and down on the display. When scrolling between numbers that have the same name entry, the number scrolls left and right while the name remains the same.

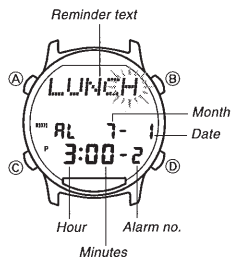
To edit Telememo data items

1. In the Telememo Mode, scroll through the data items and display the one you want to edit.
2. Hold down **A** and a cursor appears in the name area.
3. Use **C** to move the cursor to the character you want to change.
4. Change the character.
 - See "To input new Telememo data" for details.
5. After making the changes that you want, press **A** to store it and return to the Telememo Mode.

To delete Telememo data

1. In the Telememo Mode, scroll through the data items and display the one you want to delete.
2. Hold down **A** and a cursor appears in the name area.
3. Press **B** and **D** at the same time to delete the data item.
4. At this time the cursor appears in the name area, ready for input.
5. Input data or press **A** to return to the Telememo Mode.

ALARM MODE



You can set three independent alarms with the hour, minutes, month and date. You can also input up to eight characters of text to remind you of the purpose of each alarm. Use the Alarm Mode to turn the alarm and the Hourly Time Signal on and off.

- When an alarm is turned on, an alarm tone sounds for 20 seconds when the preset time is reached.
- When the Hourly Time Signal is turned on, the watch beeps every hour on the hour.

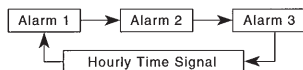
Alarm Types

The types of alarm you get depends on the information you set.

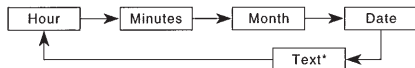
- To set a Daily Alarm
Set the hour and minutes for the alarm time. Set - for the month and - for the date. This type of setting causes the alarm to sound every day at the time you set.
- To set a Date Alarm
Set the month, date, hour and minutes for the alarm time. This type of setting causes the alarm to sound at the specific time, on the specific date you set.
- To set a 1-Month Alarm
Set the month, hour and minutes for the alarm time. Set - for the date. This type of setting causes the alarm to sound every day at the time you set, only during the month you set.
- To set a Monthly Alarm
Set the date, hour and minutes for the alarm time. Set - for the month. This type of setting causes the alarm to sound every month at the time you set, on the date you set.

To set alarms

1. Press **D** while in the Alarm Mode to select Alarm 1 through Alarm 3.

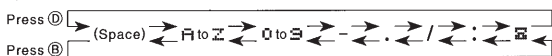


2. After you select an alarm, hold down **A**. The hour digits flash on the display because they are selected.
- At this time, the alarm is automatically switched on.
3. Press **C** to change the selection in the following sequence.



*There are eight spaces in the text, so you have to press **C** eight times to move to the Hour setting.

4. Press **D** to increase the selected digits and **B** to decrease them. Holding down either button changes the selection at high speed.
- To set an alarm that does not include a month, set - for the month. Press **D** or **B** until the - mark appears (between 12 and 1) while the month digits are flashing.
- To set an alarm that does not include a date, set - for the date. Press **D** or **B** until the - mark appears (between 31 and 1) while the date digits are flashing.
- The format (12-hour and 24-hour) of the alarm time matches the format you select for normal timekeeping.
- When setting the alarm time using the 12-hour format, take care to set the time correctly as morning (no indicator) or afternoon P.
5. After you select the month, date, hour, and minutes, press **C** to advance the cursor to the reminder text area.
6. Use **D** or **B** to input a character at the cursor position. The character changes in the following sequence. Holding down either button changes the character at high speed.



7. After you select the character you want, press **C** to advance the cursor to the right.
 - Repeat 6 and 7 until you complete reminder text input.
 - You can input up to eight characters in the reminder text area.
 - Anytime while the cursor is in the reminder text area, you can press **D** and **B** at the same time to clear it.
8. After you finish inputting data, press **A** to return to the Alarm Mode.
 - If you finish inputting data, the reminder text appears on the display when the alarm time is reached.
 - Note that reminder text appears only if the watch is in the Timekeeping Mode when the alarm time is reached. Otherwise, only the alarm tone sounds (without the reminder text).

To stop an alarm once it starts to sound

Press any button to stop an alarm when it starts to sounds. The reminder text for the alarm (if any) will remain in the text area of the display for about 20 seconds.

To switch an Alarm and Hourly Time Signal on and off

1. In the Alarm Mode, press **D** to select an alarm or the Hourly Time Signal.
2. When the alarm or Hourly Time Signal you want to is selected, press **D** to switch it on and off.

||||| indicates alarm is ON

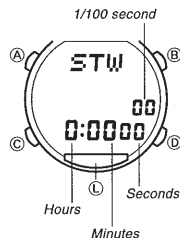
⏰ indicates Hourly Time Signal is ON

- If any alarm is on, the Alarm On indicator is shown on the display when you change to another mode.
- The alarm on indicator and Hourly Time Signal on indicator are not on the display produced when you select the hands only display in the Timekeeping Mode. Though the indicators are not shown, these functions operate normally when they are turned on.

To test the alarm

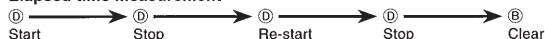
Hold down **D** while in the Alarm Mode to sound the alarm.

STOPWATCH MODE

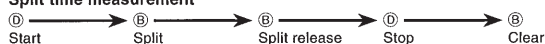


The stopwatch Mode lets you measure elapsed time, split times, and two finishes. The range of the stopwatch is 23 hours, 59 minutes, 59.99 seconds. You can use the EL backlight at any time while the stopwatch is operating.

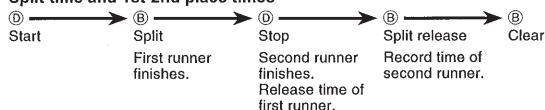
Elapsed time measurement



Split time measurement

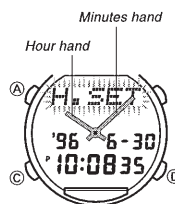


Split time and 1st-2nd place times



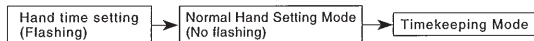
HAND SETTING MODE

When the time shown on the display does not match the analog setting, use this mode to correct this situation by changing the analog setting.



To set the analog time

1. Hold down **A** while in the Hand Setting Mode until the mode indicator starts to flash on the display.
 2. Press **D** to advance the hands of the analog timepiece.
 3. After you set the analog time, press **A** to return to the normal Hand Setting Mode (the flashing stops).
- The following shows how the display automatically changes if you do not operate any button for a few minutes while in the Hand Setting Mode.



AUTO DISPLAY FUNCTION

The Auto Display function of this watch continually changes the contents of the digital display. Note that you cannot use any of the watch's other functions while the Auto Display function is operating.

To turn the Auto Display on

Hold down **C** for about two or three seconds in any mode until the watch beeps.

To turn the Auto Display off

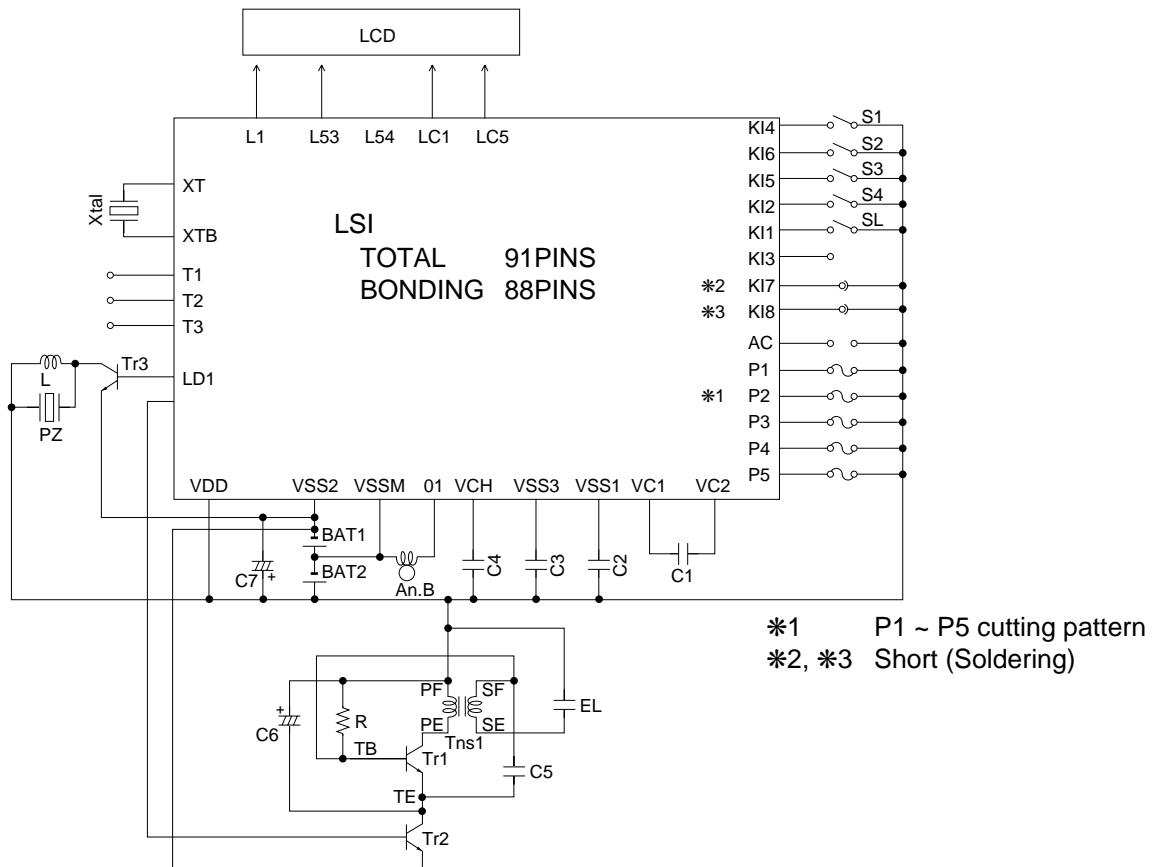
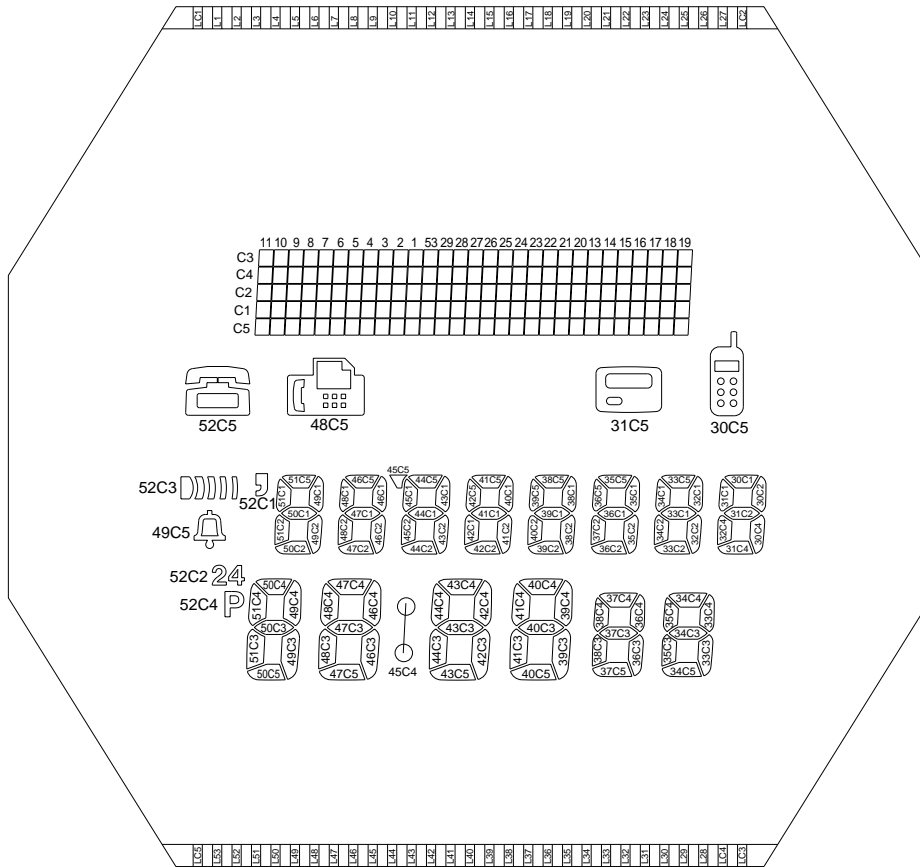
Hold down **C** for about two or three seconds until the watch beeps. At this time, the watch is in the Timekeeping Mode.

Note

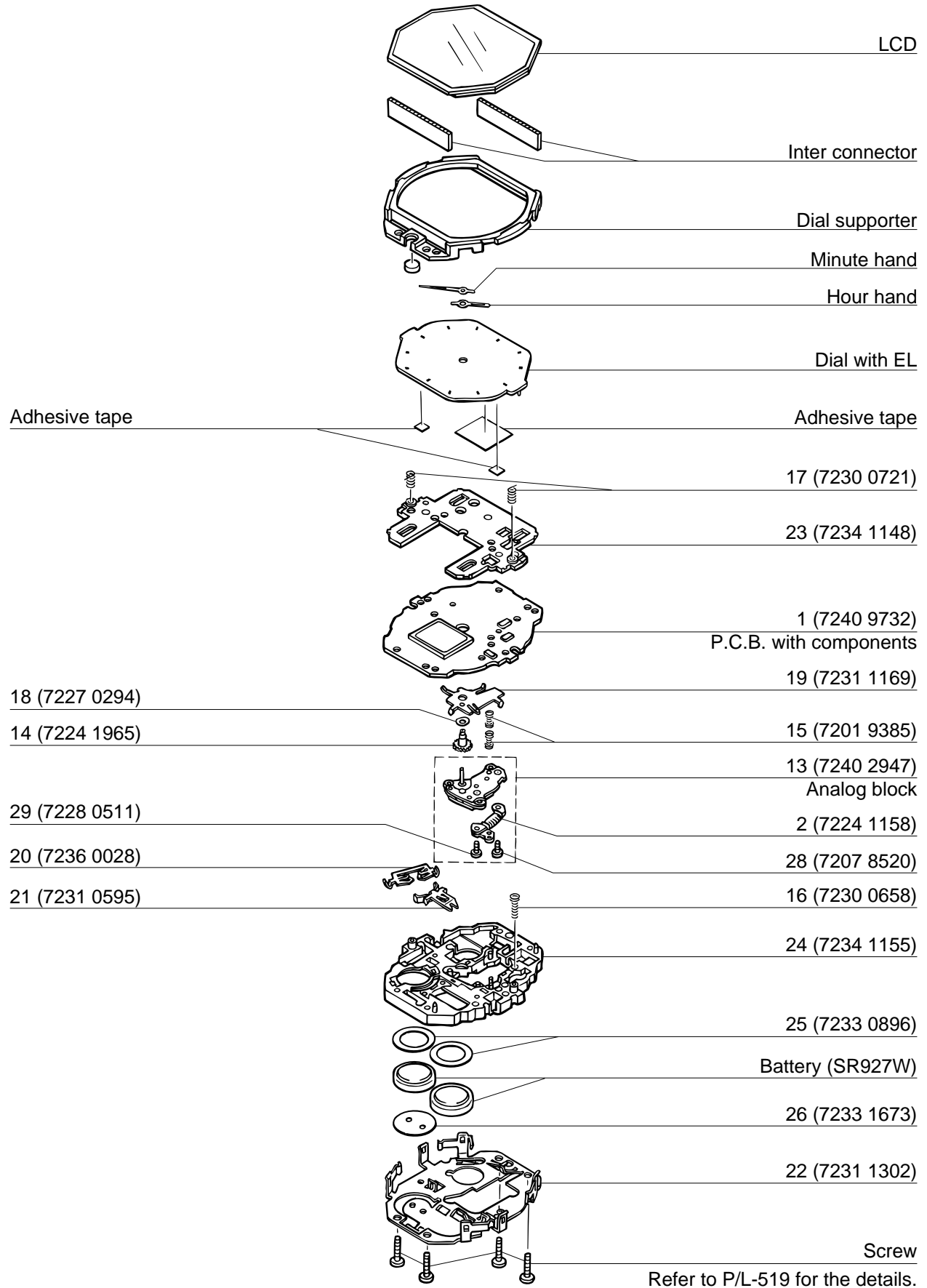
The Auto Display function cannot be performed while you are making settings (i.e. while digits or other settings are flashing on the display).

3. DRAWINGS: MODULE QW-1745

3-1. BLOCK DIAGRAM



4. EXPLODED VIEW: MODULE QW-1745



5. PARTS LIST : MODULE QW-1745

- Note: 1. Prices and specifications are subject to change without prior notice.
 2. Spare parts are classified as follows according to their importance in after-sales service.
 A Rank ----- Very Important
 B Rank ----- Important
 C Rank ----- Less important
 3. Batteries in Bulk pack on the tray will be supplied from our Overseas Spare Parts Section under charge basis.
 Batteries in Blister pack will be supplied from our Sales Department.
 4. As for order/supply of spare parts, refer to the separate publication "GUIDEBOOK for spare parts supply".

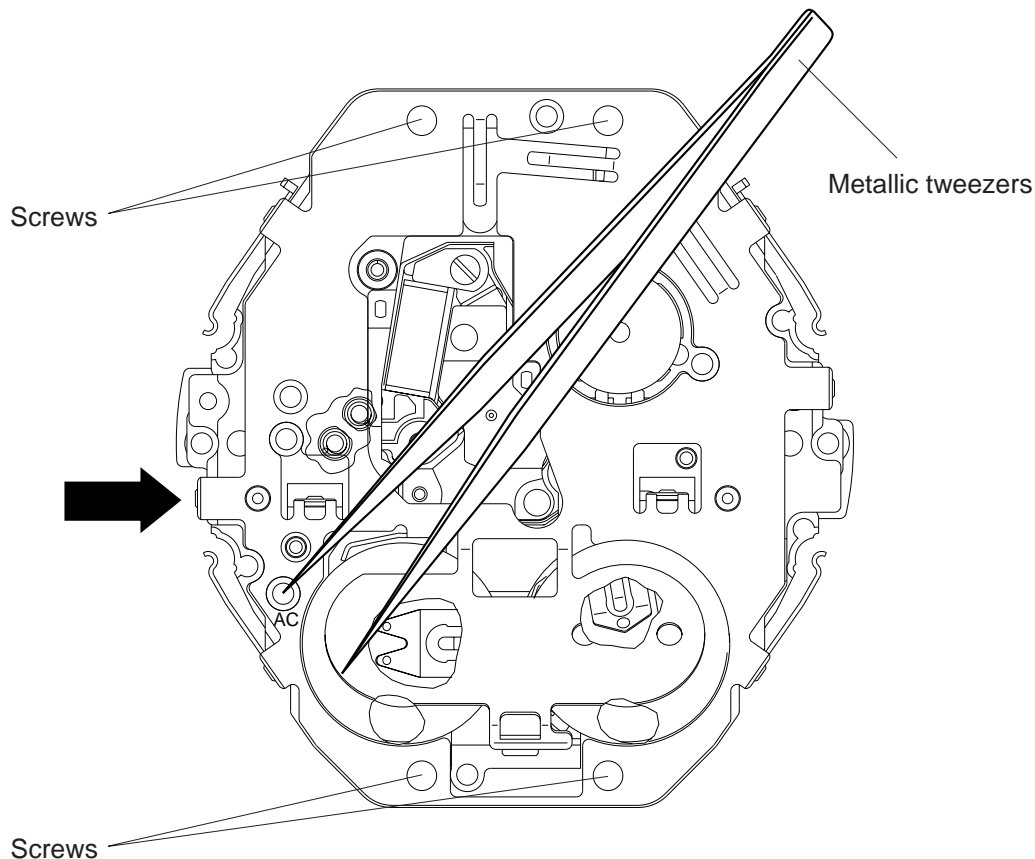
Item	Code No.	Parts Name	Specification	Applicable	Q	R
	7072 5131	Module	QW-1745DF01	ABX-70B		A
1	7240 9732	P.C.B. with components	Q251742*1	QW-1745DF01	1	A
2	7224 1158	Coil ass'y 384	Q322564B*1S	QW-1745DF01	1	A
3	7101 1151	Transistor	2SD1824(TX)	QW-1745DF01	1	B
4	7101 5413	Transistor	2SD1823-(TX)	QW-1745DF01	1	B
5	7101 5630	Transistor	2SC4181-T1	QW-1745DF01	1	B
6	7020 0490	Coil	ELT-3K004B	QW-1745DF01	1	B
7	7101 1417	Transformer	TRS5833	QW-1745DF01	1	B
8	7911 1253	Tantalum capacitor	F930J156MAA	QW-1745DF01	1	B
9	7911 1260	Tantalum capacitor	F930J106MAA	QW-1745DF01	1	B
10	7103 3866	Chip capacitor	GRM40-002F104P25PT	QW-1745DF01	4	B
11	7103 7163	Chip capacitor	CT21Y5V684P16AT	QW-1745DF01	1	B
12	7102 7646	Chip resistor	ERJ6GEYJ163V	QW-1745DF01	1	B
13	7240 2947	Analog block (C-7.1)	Q220396*3	QW-1745DF01	1	A
14	7224 1965	Hour wheel 384	Q422164A-1K	QW-1745DF01	1	B
15	7201 9385	Coil spring 384-1	Q422656A-1	QW-1745DF01	2	B
16	7230 0658	Coil spring 1327-1	Q450867-1	QW-1745DF01	1	B
17	7230 0721	Coil spring 1341-2	Q453360-1	QW-1745DF01	2	B
18	7227 0294	Washer 745	Q436294A-1	QW-1745DF01	1	C
19	7231 1169	Hour wheel holder 1341	Q351344-1	QW-1745DF01	1	C
20	7236 0028	Battery contact (-) 747	Q334236B-1	QW-1745DF01	1	C
21	7231 0595	Terminal plate 1087	Q340734-1	QW-1745DF01	1	C
22	7231 1302	Main plate 1341	Q150131C-1	QW-1745DF01	1	C
23	7234 1148	Housing 1341-1	Q150129B-1	QW-1745DF01	1	C
24	7234 1155	Housing 1341-2	Q150130B-1	QW-1745DF01	1	C
25	7233 0896	Insulation sheet 747-2	Q432462-1	QW-1745DF01	2	C
26	7233 1673	Insulation sheet 1341-2	Q451788-1	QW-1745DF01	1	C
27	7233 1666	Insulation sheet 1341-1	Q351345-1	QW-1745DF01	1	C
28	7207 8520	Screw 354-2	Q411616-1	QW-1745DF01	1	C
29	7228 0511	Screw 388	Q422638-1	QW-1745DF01	1	C
		Battery	SR927W		2	
For the prices and minimum order/supply quantities of the above parts, refer to the Parts Price List P.P.L.-519.						

Notes: Q – Used quantity
 R – Rank

6. PRECAUTIONS FOR REPAIR: MODULE QW-1745

6-1. AC (ALL CLEAR) AND REMOVING OF MODULE

1. Perform AC (ALL CLEAR) when inserting a new battery, or else the memories and/ or counters may give erratic displays.
Touch the AC contact and the positive (+) side of the battery or main plate with the metallic tweezers.
The contact should be made for about two seconds.
2. On removing of the module from the case, please insert the precision screw driver between the module and the case pointed by an arrow after removing of four screws.



6-2. ACCURACY CHECKING

Check the accuracy of the module with the quartz timer after switching the module to "ACCURACY CHECKING MODE".

The operations are shown below:

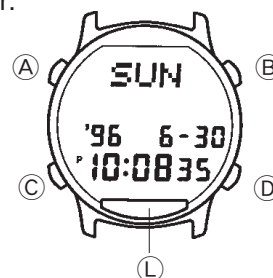
A) SWITCHING TO "ACCURACY CHECKING MODE"

Continuously push the (A), (C) and (D) buttons at the same time at the normal time keeping mode.
Then all the segments are displayed and the LCD drive signals are changed to the static drive signal of "32 Hz" so that you can check the accuracy with the quartz timer.

B) CANCELLATION OF THE "ACCURACY CHECKING MODE"

Push any button.
Then the display is returned to its original state.

NOTE: The "ACCURACY CHECKING MODE" will automatically return to the regular mode in 1 ~ 2 hour(s) without any operation.



6-3. REPLACEMENT OF MODULE AND DIAL WITH EL

On the model ABX-70 use the module QW-1745, Dial with EL is fixed to Module by 3 pcs of adhesive tapes. And please replace Module or Dial with EL according to the following procedure.

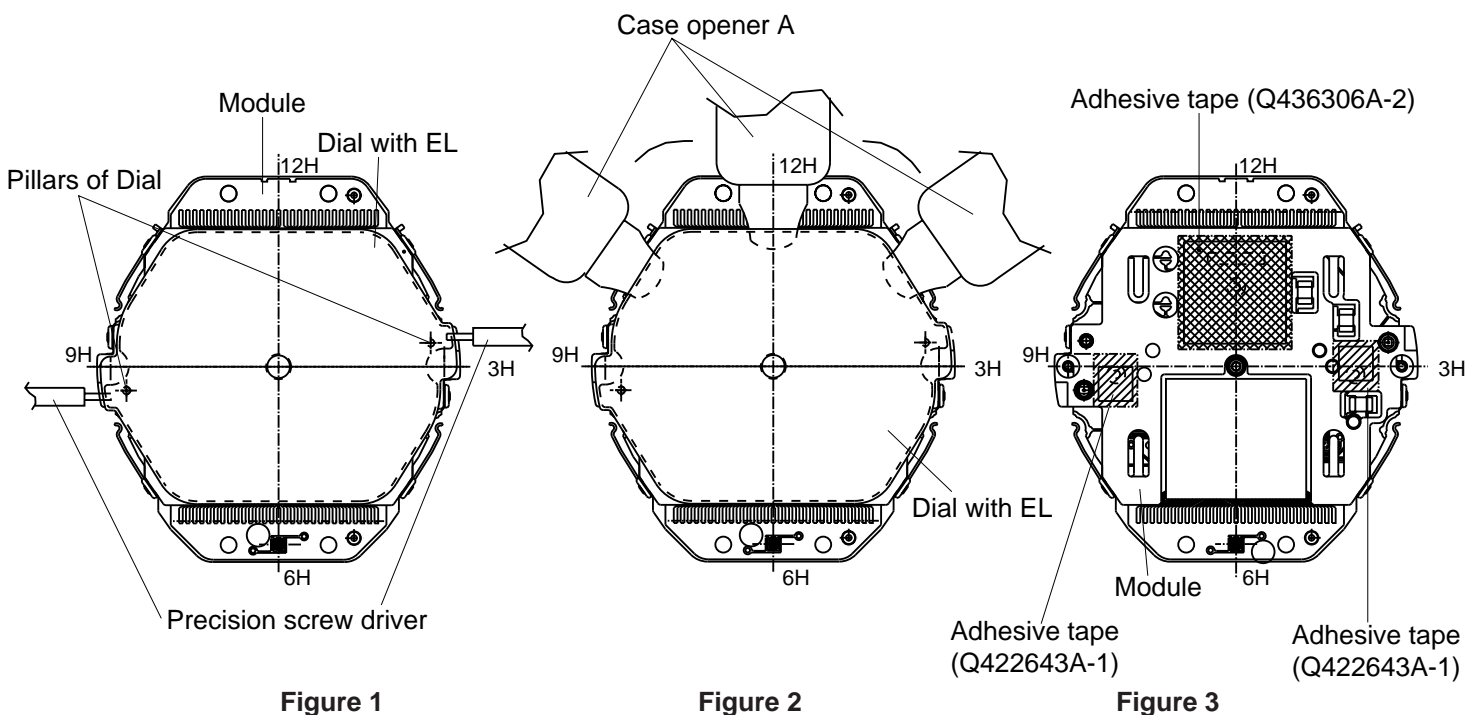
- 1) Remove the hands by using Hand removing spacer. (Refer to Service bulletin WAT-189)
- 2) Insert the precision screw driver between Module and Dial with EL on 3 and 9 o'clock side as shown in figure 1. And float up 2 pillars of the dial from holes of Module.
- 3) Insert Case opener A between Module and Dial with EL on 11,12 and 1 o'clock side as shown in figure 2. And separate Dial with EL from Module.
- 4) Replace Module or Dial with EL.
- 5) Put 3 pcs of new adhesive tapes on Module as shown in figure 3. Adhesive tapes should always be replaced with new ones. Especially when the adhesive tapes become plumped.

Note: If the adhesive tapes aren't used for fixing of Module and Dial with EL, 2 pillars of the Dial with EL are possible to be broken when a great shock is given to the watch.

- 6) Fix Dial with EL to Module. Be sure 2 terminals of EL are connected with the coil springs of the Module.

Necessary spare parts are as follows.

Code No.	Parts Name	Specification	Q
7072 5131	Module	QW-1745DF01	1
7170 1781	Dial for ABX-70B Common ABX-70L-7A1VZ	Q356775*2	1
7170 1782	Dial for ABX-70L-7A2VZ	Q356775*1	1
7209 3733	Adhesive tape	Q436306A-2	1
7227 0098	Adhesive tape	Q422643A-1	2



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