

# JVC

# SERVICE MANUAL

HANDHELD PC


## MP-C33DE-BU



External dimensions (WHD): 217 x 24 x 153 mm (maximum dimensions excluding projections)

Weight: Approx. 740 g (including dedicated Lithium battery pack)

For the specifications, refer to "Technische Daten" on page 119 of the Bedienungsanleitung.

1. Parts marked  are critical parts for safety. To ensure safety when replacing them, be sure to use only the designated parts.
2. Design and specifications are subject to changes without notice.

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### NOTE

Before accepting a unit for servicing, notify the following information to the customer.

When servicing, the data stored in the MP-C33-DE-BU will be entirely cleared and the unit will be reset to its factory set condition.

If the customer wants to keep the previously stored data, he or she should back up the data before sending the product for servicing. The data can be backed up by copying it onto a memory card such as a CF Card or onto the HDD of a PC. It is also recommended that especially important data should be written down on paper.

# Service cautions and disassembly

## ■ Before disassembly or assembly

1. Perform the following operations before disassembling the unit.
  - Disconnect the AC power adapter.
  - Remove the lithium ion battery pack.

These operations shut off the power supply to the circuit boards and turn the unit completely off.

If these operations are not done, connectors could be connected or disconnected while power is being supplied to the internal circuitry and a malfunction such as the impossibility of turning the unit on would result.

2. Be careful not to damage the connectors when connecting or disconnecting wires.

## ■ Notes on disassembly and assembly

1. Reverse the disassembly procedures for assembly.
2. Take care of the notes provided in "Note \*").
3. Auxiliary items to be used
  - Double-side adhesive tape (width 5 mm)

## ■ Disconnecting the connecting wires

1. FPC connectors
  - Hold the connector by its two extremities and pull it in the direction of the arrow in order to disconnect it.

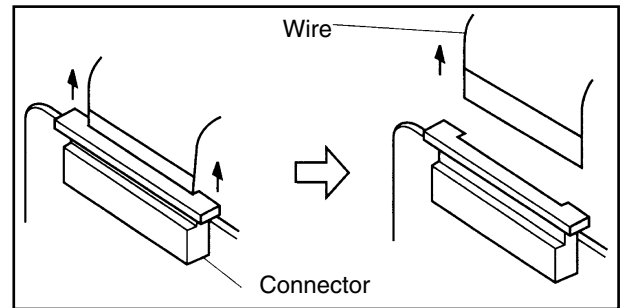


Fig. 1 Connector 1

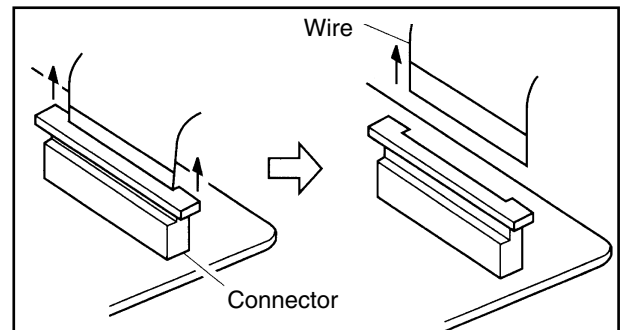


Fig. 2 Connector 2

- Open the catch and pull out the wire. The catch tends to slip out easily. Be sure to secure it in its original position after removing the wire.

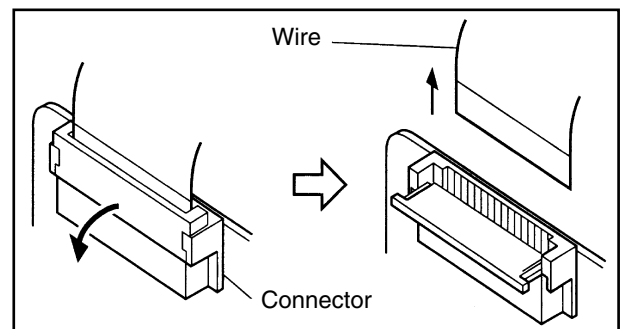


Fig. 3 Connector 3

2. B-B connectors

- Hold the circuit board by its two edges and pull it out in order to remove it.

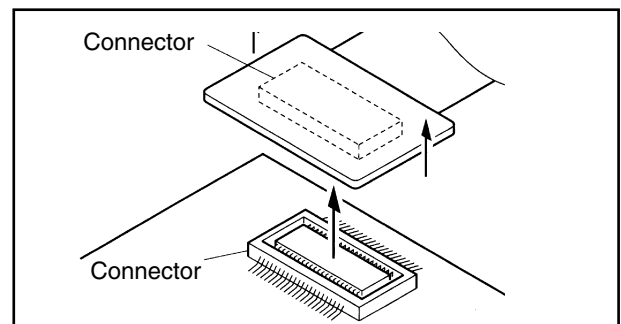


Fig. 4 Connector 4

## Tools and instruments required

### ■ Tools and Instruments for operation check

- (1) Personal computer (Windows® 2000/98/95/NT4.0)
- (2) PCMCIA memory card
- (3) CompactFlash memory card
- (4) Stylus pen
- (5) External display connection cable
- (6) Exclusive lithium ion battery pack
- (7) AC adapter
- (8) Serial cable
- (9) Microsoft CD-ROM (Active Sync 3.1)
- (10) USB camera (MP-UC1E)
- (11) USB mouse
- (12) Provider agreement
- (13) Headphones

### ■ Tools and Instruments for Assembly

- (1) LCD cable forming tool
- (2) Screwdriver
- (3) Grounding bands
- (4) UUID writing jig
- (5) Serial number and UUID correspondence table

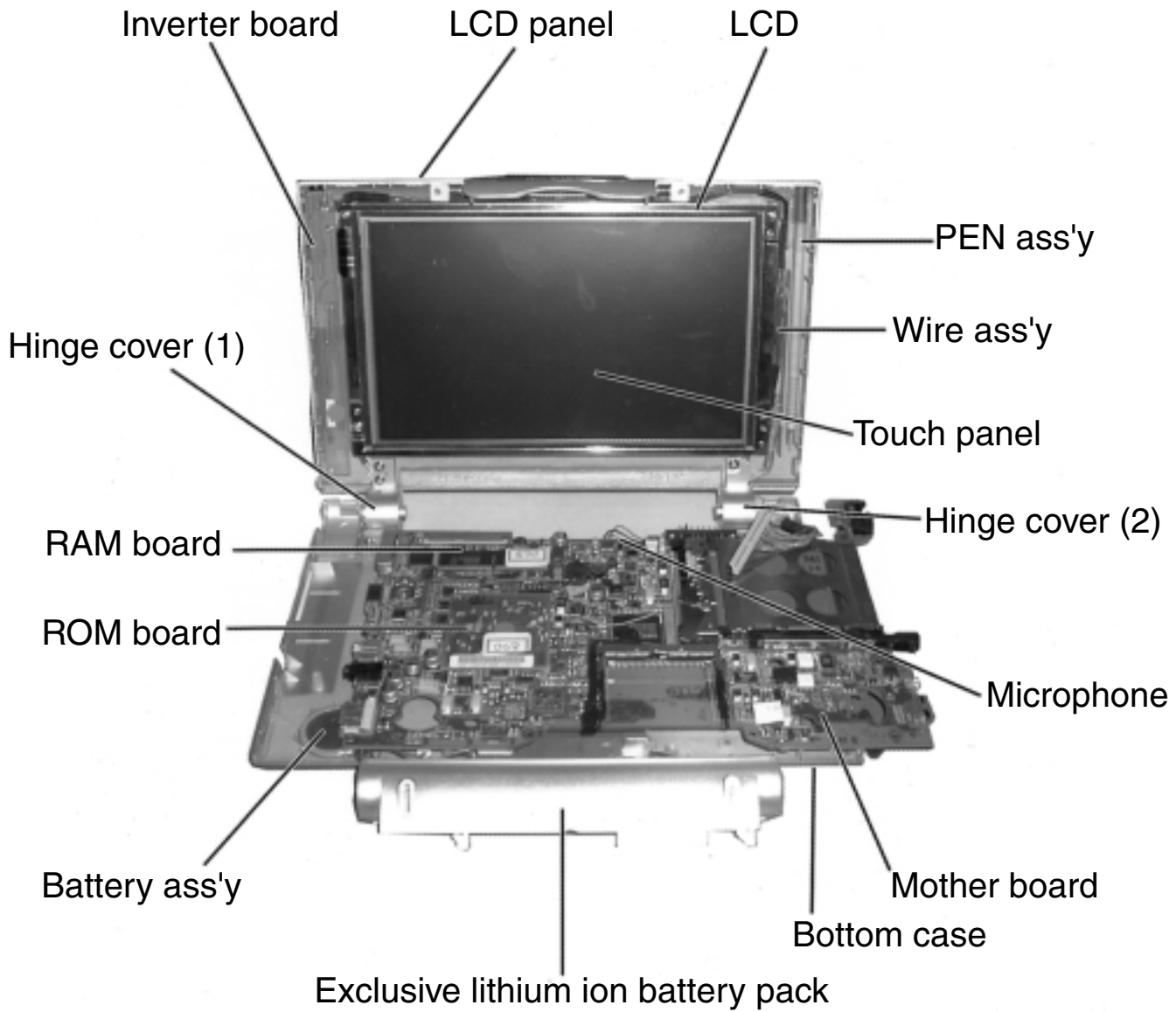
## Cautions and requests related to servicing

- (1) Be sure to use the supplied tools for any servicing operations.
- (2) Do not reuse the following parts after removal.
  - QAL0273-001 Touch panel
  - LE40739-001A Spacer
  - LE40739-003A Spacer
  - LE40776-001A Spacer
  - LE40800-001A Spacer
- (3) The claws or other section of the following parts may whiten during disassembly. In this case, do not reuse the part.
  - LE30863-001A Hinge cover (1)
  - LE30864-001A Hinge cover (2)
  - LE30847-003A Side fitting (L)
  - LE30848-003A Side fitting (R)
  - LE10241-006A Function panel
  - LE30849-001A Shutter (PC)
- (4) The touch panel is thin with a thickness of only 1.15 mm and uses a glass plate (thickness 0.7 mm) which may crack during disassembly. If this occurs, take care against injury when handling the cracked part.
- (5) After attaching the shutter (PC), make sure that it fits comfortably inside the case.
- (6) Attach the microphone so that it does not float above its correct position. (IF this occurs, the microphone may strike the lock lever.)
- (7) Attach the LCD to the front by tightening the two screws (QYSSSPT2035Z) to a torque of between 0.06 and 0.08 N/m.
- (8) Be sure to attach the grounding bands during disassembly and assembly.

(9) The part which can not be re-used after set resolution.

part number	part name	quantity to use	unit price Japan yen	total amount of money
LE40739-001A	spacer	2	168	336
LE40739-003A	spacer	2	168	336
LE40776-001A	spacer	1	168	168
LE40800-001A	spacer	2	168	336
LE30863-001A	hinge cover(1)	1	168	168
LE30864-001A	hinge cover(2)	1	168	168
LE30847-003A	side fitting(L)	1	168	168
LE30848-003A	side fitting(R)	1	168	168
LE10241-006A	function panel	1	672	672
LE30849-001A	shutter(pc)	1	168	168
LE40715-001A	foot	4	168	672
LE40734-001A	foot(battery)	2	168	336
QYSPSP2004N	SCREW	3	8	24
QYSPSF2005N	SCREW	4	8	32
QYSSSGT2040N	SCREW	2	8	16
QYSSSPT2050N	SCREW	5	8	40
QYSDSP2004Z	SCREW	11	8	88
QYSPSP2003M	SCREW	3	8	24
QYSPSPG2005Z	SCREW	5	8	40
QYSSSPT2035Z	SCREW	2	8	16
QYSPSGT2040N	SCREW	1	8	8

## Layout of main parts



- The Mother board is shown upside down due to the configuration of the parts.
- The exclusive lithium battery pack is shown in its removed condition.

# Disassembly and assembly methods

## ■ The function panel and keyboard

1. Remove the three screws S1 from the bottom of the unit. (Fig. 1)
2. Peel off the four feet and remove the four screws S2.  
Note 1) Do not reuse the feet if they have lost their adhesive properties. If the tip of a flat-blade screwdriver is used for peeling them off, take care not to scratch the bottom case. (Fig. 1)
3. Slide the slide knob to the left and remove the screw S3.
4. With the slide knob positioned on the left, remove the exclusive lithium ion battery pack. (Fig. 1)
5. Remove the two screws S4 and then remove the ROM cover.  
Note 2) The ROM cover need not be removed except when replacing the bottom case.
6. Open the caps (Serial, USB, TEL). (Fig. 2)
7. Unlock the function panel.  
On the function panel lock P, release the locks from 1 to 8 as shown in the diagram on the right in order to free the function panel.  
Note 3) DO NOT lift the function panel abruptly after unlocking it. If it is lifted abruptly, the microphone and speaker wires connected to it could be disconnected.
8. Remove the microphone that is pushed into the center deep position on the backside of the function panel.  
Note 4) DO NOT lift the function panel abruptly. If it is lifted abruptly, the speaker wires connected to it could be disconnected.
9. Unplug the speaker wires from the connectors CN801 and CN802.  
Now the function panel is completely free and disengaged.  
Note 5) If any of the claws locking the function panel are damaged or whitened, do not reuse them.
10. Disconnect CN301 and remove the keyboard by lifting it. (Fig. 3)

\* Main parts that can be replaced under the current condition:

- Keyboard
- Function panel
- ROM cover
- Microphone

Screws used

- S1: QYSPSP2004N
- S2: QYSPSF2005N
- S3: QYSSGT2040N
- S4: QYSSPT2050N

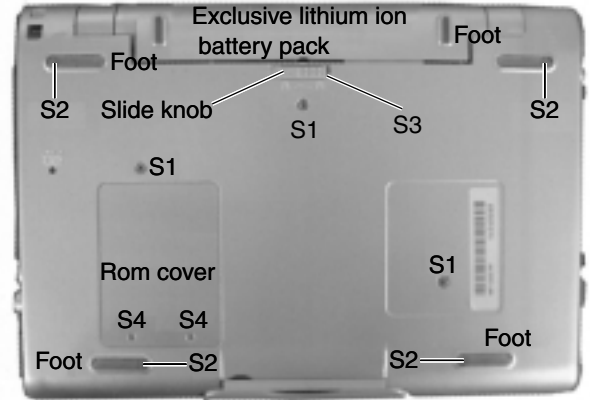


Fig. 1

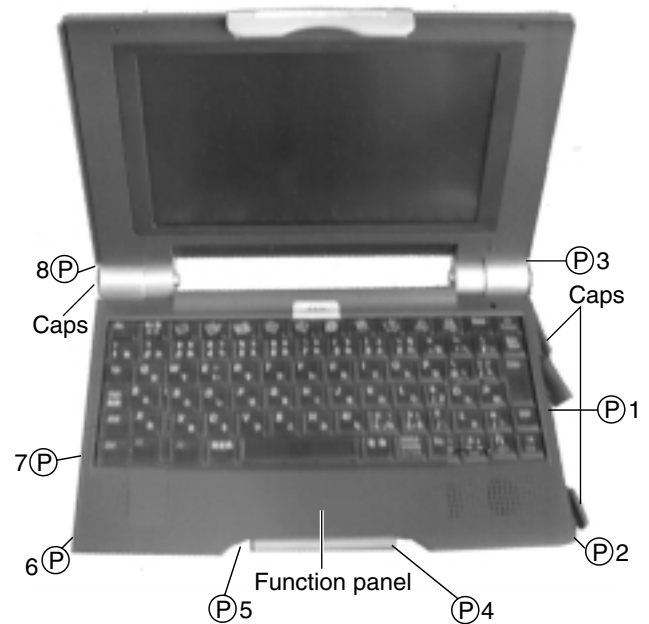


Fig. 2

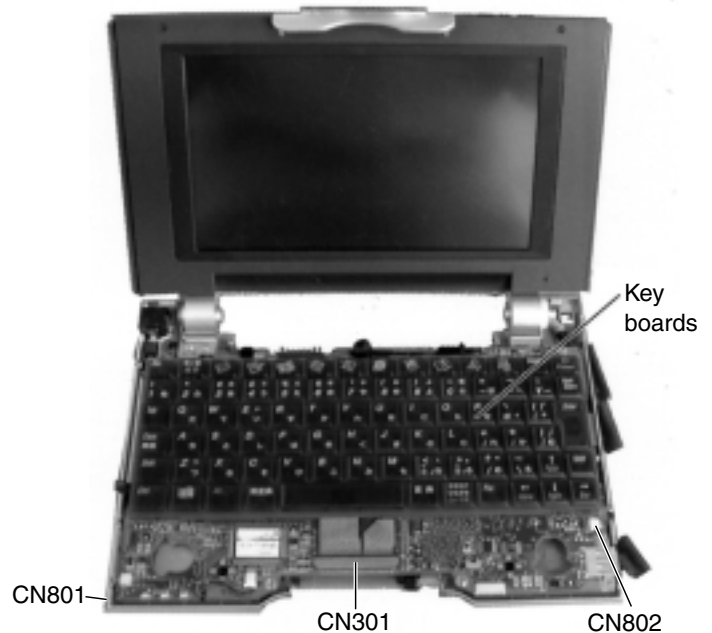


Fig. 3

**Function panel (back side) and mother/ROM/RAM board**

1. Remove the hinge covers (L, R).  
 Note 6) The hinge cover provided with the boss is (R).  
 (Fig. 4)
2. Remove the microphone cap.  
 Note 7) Take care not to damage the claws. When assembling, ensure that the claws are engaged correctly.  
 (Fig. 4)
3. Remove the shutter (PC) by twisting it.  
 (Fig. 4)
4. Remove the left and right speakers.  
 Note 8) Do not reuse the spacers inserted below the speakers.  
 (Fig. 4)
5. Remove the indicator.  
 (Fig. 4)
6. Remove the shutter (CF) by twisting it.  
 (Fig. 4)
7. Remove PCN1 from the mother board.  
 (Fig. 5)
8. Remove seven screws S7 and lift the mother board.  
 (Fig. 5)
- 9 Turn the mother board upside down, remove three screws S6 and remove the ROM and RAM boards.  
 (Fig. 5)
- Note 9) When attaching the mother board, push it toward the left (toward the PC card slot).
10. Disconnect CN803 (microphone) and CN701 (wire assembly).  
 (Fig. 6)

\* Main parts that can be replaced under the current condition:

- Mother board
- Speakers
- ROM board
- RAM board
- Hinge cover (L)
- Hinge cover (R)
- Microphone cap
- Indicator
- Shutter (PC)
- Shutter (CF)

**Screws Used**

- S5: QYSDSP2004Z
- S6: QYSPSP2003M
- S7: QYSPSP2005Z

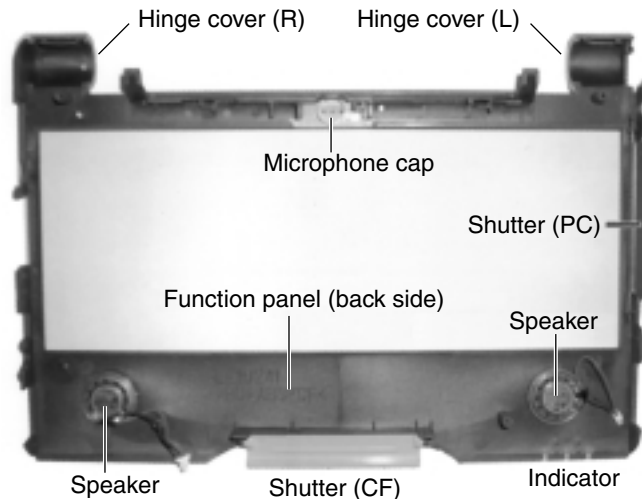


Fig. 4

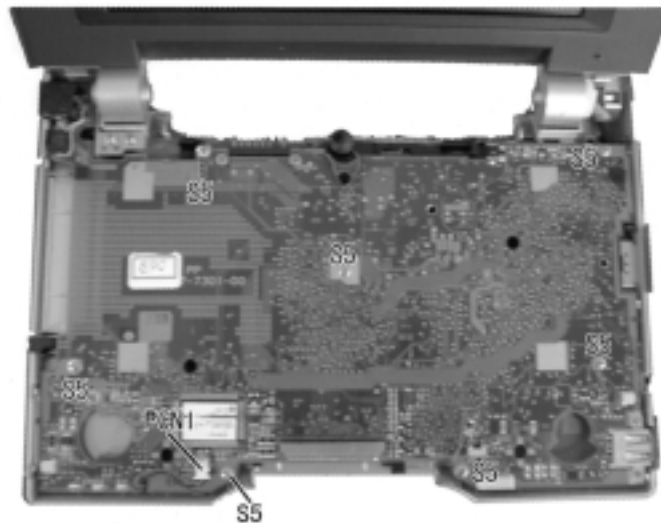


Fig. 5

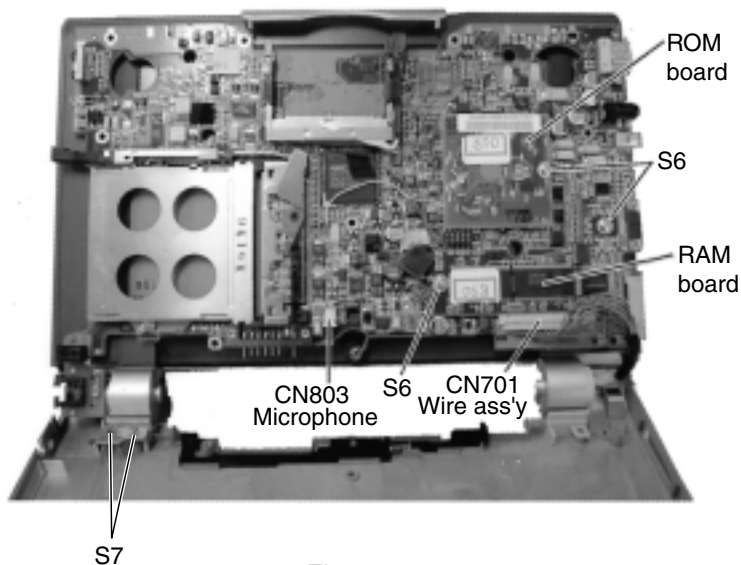


Fig. 6



## ■ LCD front and bottom case assembly

1. Remove the caps (Serial, USB, TEL).  
(Fig. 7)
2. Remove the battery assembly and the IrDA screen.  
(Fig. 7)
3. Remove the screws S13 and S14 and then remove the lock lever and the cover (R).  
(Fig. 7)
4. Remove the two screws S7 and separate the LCD assembly from the bottom case.  
(Fig. 7)
5. Ease up the side fitting (L) by sliding the side close to the screws S8 (which are actually invisible because they are located behind the side fitting) above the LCD. Then, while keeping the side fitting lifted, slide it toward the bottom of the LCD and gradually remove the side fitting.  
Note 10) Do not use the claws of the side fitting if they are whitened.  
Note 11) When attaching the side fitting for assembly, ensure that there is no space left between it and the LCD front.  
(Fig. 8)
6. Remove the side fitting (R) in the same way as above. (The above notes also apply to this procedure.)
7. LCD front.  
Note 12) Take care not to apply stress to the LCD.  
(Fig. 8)

\* Main parts that can be replaced under the current condition:

- LCD front
- Lock lever
- Caps (Serial, USB, TEL)
- Side fitting (L)
- Side fitting (R)
- Cover (R)
- Battery assembly
- Bottom case
- IrDA screen

### Screws Used

- S7 : QYSPSP2005Z  
 S8 : QYSSSPT2035Z  
 S13: QYSSSGT2040N  
 S14: QYSSSPT2050N

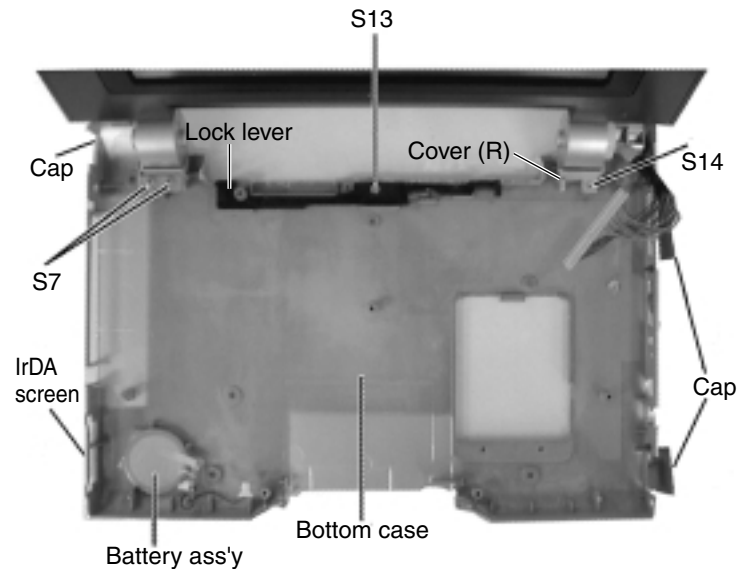


Fig. 7

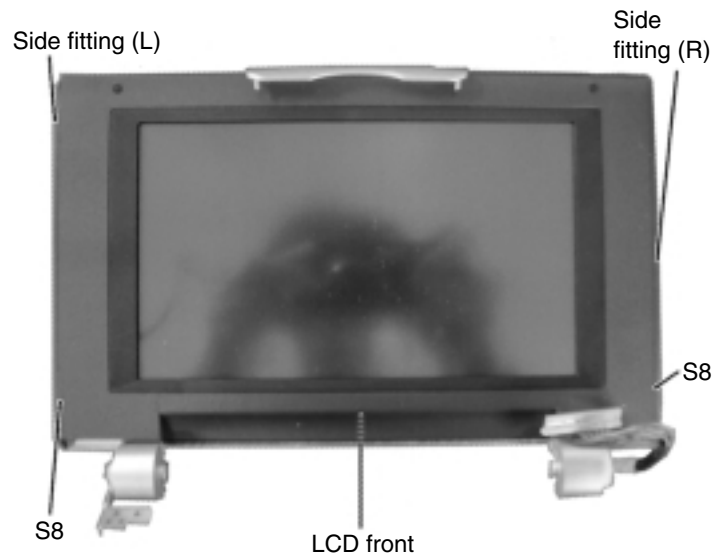


Fig. 8

## ■ Assembly of the LCD and the LCD panel

1. To remove the hinge covers (1 & 2) and the hinge assembly, remove the three screws S10.

Note 13) If the claws of the hinge covers (1 & 2) are damaged or deteriorated, do not use them.

(Fig. 9)

2. Remove the PEN assembly.

3. Remove the screw S11 and lift the inverter board up. Remove CN1, CN2 and CN3 to separate the inverter board.

Note 14) Take care when handling the flexible wire of the touch panel.

(Fig. 9)

4. Remove the four screws S9 and lift the LCD up.

5. Remove CN4 and separate the LCD from the wiring assembly.

Note 15) When a new wiring assembly is used, prepare it in advance by using the provided jig.

(Fig. 9)

6. Remove the four spacers (2 types) attached to the four edges on the touch panel in order to peel off the touch pane.

Note 16) Do not use the spacers or the touch panel again once they have been removed. The touch panel is made from a very thin glass sheet and is very fragile. Be careful not to injure yourself with it.

(Fig. 9)

7. Remove the two screws S12 and then remove the buckle assembly.

8. Remove the cap.

(Fig. 10)

\* Major parts that may be replaced under this condition.

- LCD
- Inverter board
- Hinge assembly
- Cap
- LCD panel
- Touch panel
- Buckle assembly
- Wiring assembly
- PEN assembly
- Hinge cover (1)
- Hinge cover (2)

### Screws Used

S9 : QYSDSP2004Z

S10 : QYSPSPG2005Z

S11: QYSSSGT2035M

S12: QYSSSPT2050N

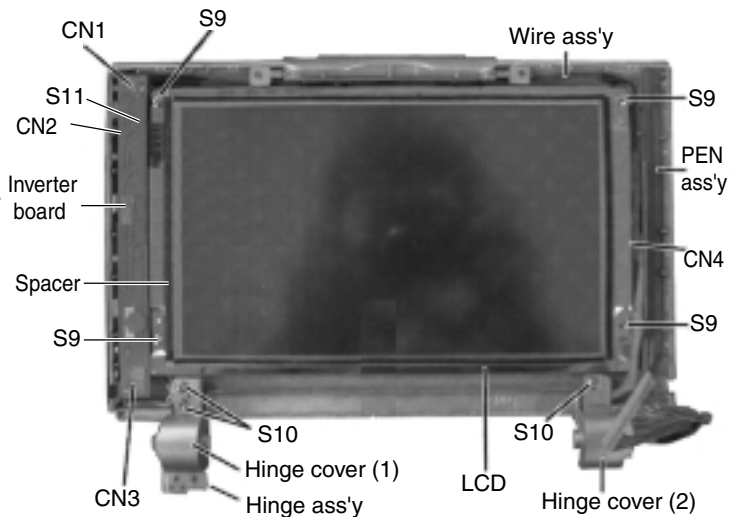


Fig.9

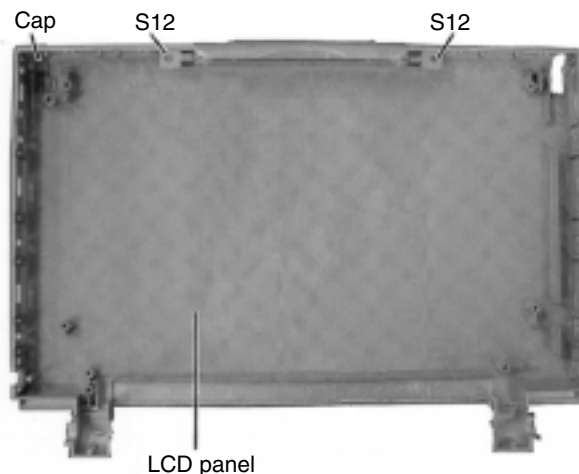


Fig. 10

**■ Arranging the wire assembly and the correct distribution of wiresmother/ROM/RAM board assembliesassembly**

Before using a brand-new wire assembly, arrange it by using the supplied jig. (Fig. 13)

Distribute the wires so that the formed point comes to the position of the hinge on the LCD panel. (Fig. 14)

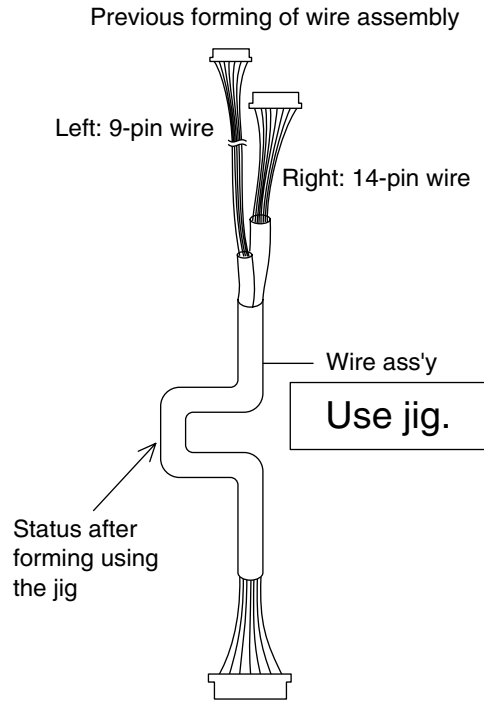


Fig. 13

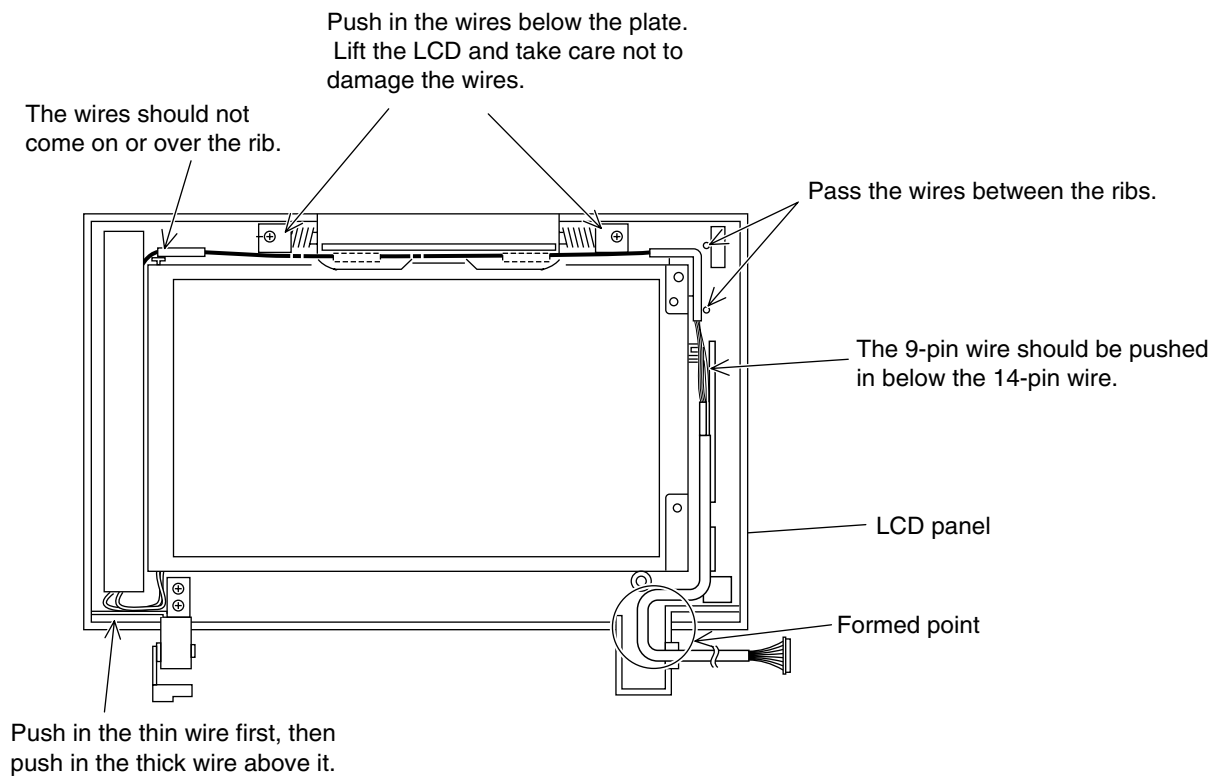


Fig. 14

## ■ Mother board assembly

Always remember to take proper countermeasure against static electricity when handling the circuit boards. Attach the two kinds of spacers (LE40777-001A and LE40777-003A) as shown in Fig. 15. Do not reuse the spacers if their adhesive properties have been lost.

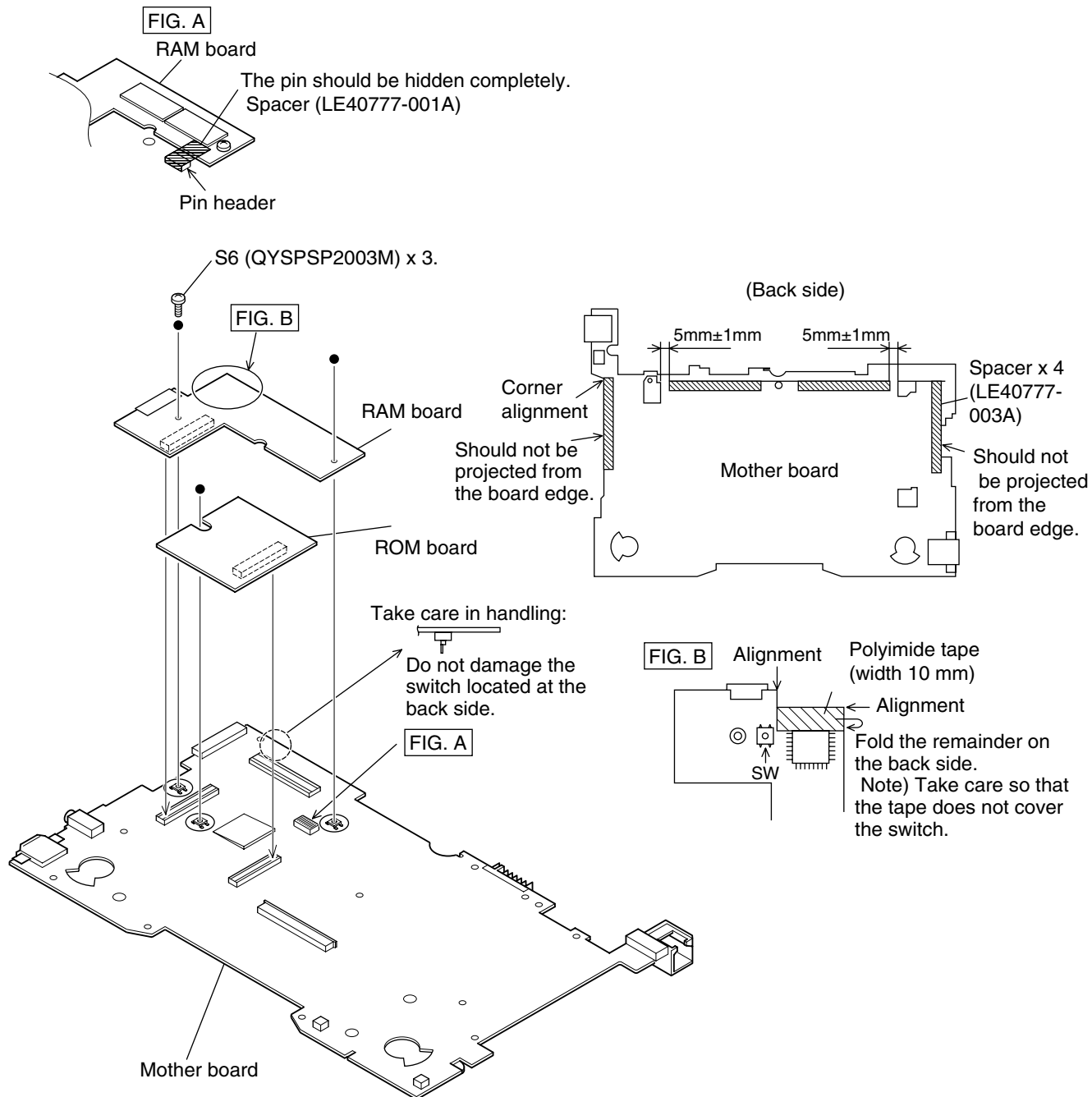


Fig. 15

## Procedure for replacing a mother board...

First of all, it is required to rewrite the UUID. Use the "UUID writing jig" for this purpose. The UUID refers to the specific number assigned to each Handheld PC set. The UUID number is recorded in the memory on the Mother board. The UUID number and the serial number are related to each other, so it is necessary to rewrite the UUID number when replacing the Mother board. The number to be written can be identified from the UUID Code File attached together with the "UUID writing jig".

## ■ Attaching spacers on the touch panel

Begin with attaching the right vertical spacer (LE40739-001A) on the elevated part as shown in the figure. (The outer edge of the spacer should not exceed the outer edge of the elevation.) Next, attach the left vertical spacer (the same part No. as above). Attach this spacer on the silver pattern of the touch panel as shown in the magnified view. (The outer edge of the spacer should not extend beyond the outer edge of the silver pattern. The inner edge of the silver pattern is permitted to be visible only if the visible pattern width does not exceed 0.5 mm.) Next, attach the top and bottom horizontal spacers (LE40739-003A) in any order. Their outer edge should not extend beyond the outer edge of the elevation. The distance between each horizontal spacer and right vertical spacer should be less than 1 mm.

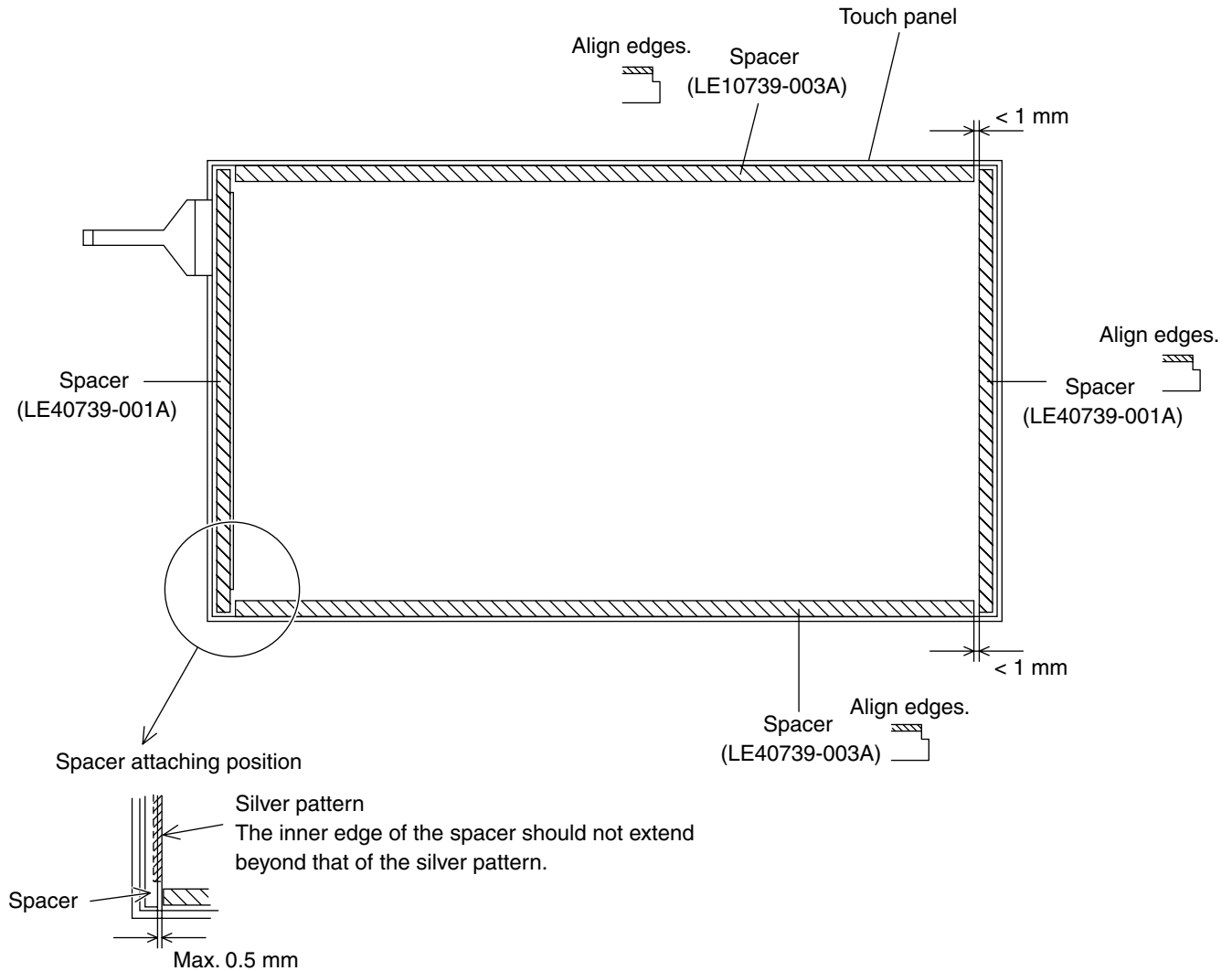




Fig. 16

## ■ Basic Operation Checklist

After disassembly and reassembly, check operations by referring to the following checklist.

No.	Check Item	Check Procedure
1	Appearance	There should be no lacking, disengaged or scratched part or any other abnormalities.
2	Power On	Connect the AC adapter and press the power  button. → The Power LED should light up and a screen display should appear.
3	Setup	Enter settings as instructed by the Setup menu. → The setup should be made as entered and the desktop (Windows Powered) should be displayed after completion of the setup.
4	Alarm	Set alarm by selecting "Weltuhr" > "Signal". → When the set time comes, the LED should blink and the alarm tone should be generated.
5	Power Off	(1) Press the power  button. (2) Close the LCD panel. (3) Open the Start menu and select "Beenden". → The suspend function should be activated by any of the above operations.
6	Brightness control	Adjust brightness using "Alt + ;" and "Alt + :". → The brightness should change according to the adjustment.
7	Touch panel	Perform tapping, double tapping, dragging and image drawing (memo function). → All of the above operations should occur as a result of performing above operations.
8	Shortcut key	Turn the power off and press the shortcut key. → The application assigned to the pressed key should start.
9	Keyboard	Start Pocket Word and enter the desired characters. → The characters should be displayed according to the pressed keys.
10	Microphone/speakers	Using the Voice Recorder, record audio using the built-in microphone and play it back. → The intended audio should be recorded and played back (on both L + R channels).
11	Headphones	Connect headphones and play the MP3 sample file "Link To The World". → The play back should occur (on both L + R channels).
12	IrDA	Transfer (send and receive) a file between two Windows CE machines. → Data should be transferred correctly.
13	USB	<ul style="list-style-type: none"> <li>▪ Connect a USB mouse and perform double-clicking and right-button clicking. → The pointer should be displayed and the intended operations should occur.</li> <li>▪ Connect the USB camera and record an image using the still capture mode. → The intended image should be displayed.</li> </ul>
14	PC card slot	Insert a PC card in the PC card slot. → The card should be recognized.
15	CF card slot	Insert a CF card (Memory) in the CF card slot. → The card should be recognized
16	Modular jack	Connect to the telephone circuit and access an Internet website by means of a dial-up connection. → The specified website page should be displayed.
17	Serial	<ul style="list-style-type: none"> <li>▪ Connect the PC. → "Verbunden" should be displayed.</li> <li>▪ Connect to an external display. → The display should show the screen.</li> </ul>
18	Main battery	The power management display (Stromvers...) should be as follows. <ul style="list-style-type: none"> <li>▪ Battery drive : "Hauptbatterien" should be displayed.</li> <li>▪ During recharge : "Lädt" should be displayed and the recharge LED should light up.</li> <li>▪ No battery : "Extern" should be displayed.</li> </ul>
19	Backup battery	After suspend, disconnect the AC adapter and main battery temporarily. → The memory should be backed up. (Reset start should not occur.)
20	Reset	Turn power on and press RESET. → The system should reboot.
21	Cold reset	Press COLD RESET. → The system should be in the initial condition when the power  button is pressed.

(Note) After completing the above checks, press the COLD RESET key to prevent consumption by the backup battery.



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