SAMSUNG

Repair Guide

HW-B400F/ZC

Ver.1.0

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NOTICE TO QUEBEC CONSUMERS – Warranty of Availability of Replacement Parts, Repair Services, and Maintenance and Repair Information

Replacement Parts

Although Samsung Canada will use reasonable efforts to make replacement parts available to customers (subject to availability and applicable lead times), Samsung Canada **does not guarantee** the availability of replacement parts within the meaning of the warranty of availability set out in sections 39 (paragraph 3), 39.1 and 39.2 of the Quebec *Consumer Protection Act*.

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Contents

1. Precautions

- Follow these safety instructions while servicing the ESD to prevent damage and to protect against potential hazards such as electrical shock and X-rays.

Warning

- For continued safety, do not attempt to modify the circuit board.
- Disconnect the AC power and DC power jack before servicing.
- Discharge residual voltage before removing or handling the printed circuit board assembly(PCBA).

1-1. Safety Precautions

1. When reinstalling the chassis and its assemblies, be sure to restore all of the protective devices, including the control knobs and the compartment covers.
2. Make sure that there are no cabinet openings through which people (particularly children) can make contact with dangerous internal components.
3. Design Alteration Warning:
   Never alter or add to the mechanical or electrical design of the unit.
   Example: Do not add auxiliary audio or video connectors. Such alterations might create a safety hazard.
   Also, any design changes or additions will void the manufacturer's warranty.
4. Leakage Current Hot Check. Fig. 1-1 AC Leakage Test

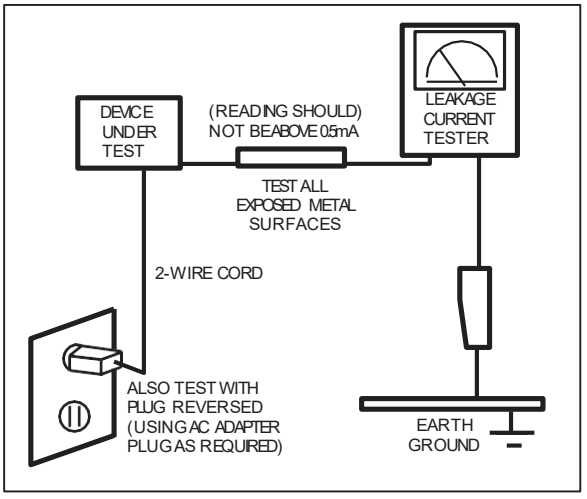
Warning

- Do not use an isolation transformer during this test.
- Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI C101.1, Leakage Current for Appliances), and Underwriters Laboratories (UL Publication UL1410, 59.7).

With the unit completely reassembled, plug the AC cord directly into a 120V AC outlet. With the unit's power switched from the ON to the OFF position, measure the current between a known ground and all exposed metal parts.

Known Grounds - Earth

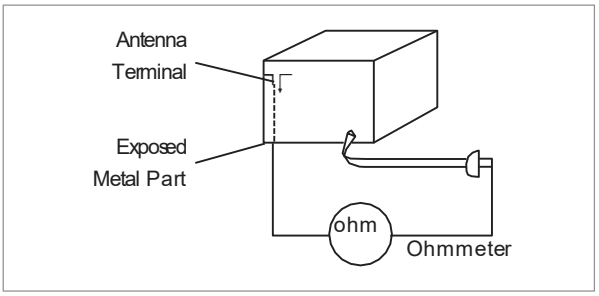
Known Metal parts - screw heads, metal cabinets, etc.



<Fig. 1-1 AC Leakage Test>

5. Insulation Resistance Cold Check:
   (1) With the unit's AC plug disconnected from the AC source, connect an electrical jumper across the two AC prongs.
   (2) Set the power switch to ON.
   (3) Measure the resistance between the shorted AC plug and any exposed metallic parts.

   Example: screw heads, metal cabinets, antenna port. chassis, the measured resistance should be between 1 and 5.2 megohms. If there is no return path, the measured resistance should be "infinite."
   If the resistance is outside these limits, a shock hazard might exist.
   See Fig. 1-2 Insulation Resistance Test



<Fig. 1-2 Insulation Resistance Test>

6. Components, parts and wiring that appear to have overheated or that are otherwise damaged should be replaced with parts that meet the original specifications. Always determine the cause of damage or overheating, and correct any potential hazards

7. Observe the original lead dress, especially near the following areas:
   Antenna wiring, sharp edges, and especially the AC and high voltage power supplies. Always inspect for pinched, out-of-place, or frayed wiring. Do not change the spacing between components and the printed circuit board.
   Check the AC power cord for damage. Make sure that no wires or components touch thermally hot parts.

8. Product Safety Notice:
   Some electrical and mechanical parts have special safety-related characteristics which might not be obvious from visual inspection. These safety features and the protection they give might be lost if the replacement component differs from the original-even if the replacement is rated for higher voltage, wattage, etc.

9. Components that are critical for safety are indicated in the circuit diagram by shading, ⚠ or ⚠.
   Use replacement components that have the same ratings, especially for flame resistance and dielectric strength specifications. A replacement part that does not have the same safety characteristics as the original might create shock, fire or other hazards.

1-2. Servicing Precautions

Warning

- An electrolytic capacitor installed with the wrong polarity might explode.

Caution

- Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note

- If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1. Servicing precautions are printed on the cabinet. Follow them.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) Remove or reinstall any component or assembly, (b) Disconnect an electrical plug or connector, (c) Connect a test component in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring may be clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the portion around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source. Connect an insulation resistance meter (500V) to the blades of the AC plug.
7. The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
8. Never defeat any of the B+ voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
9. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

Warning

- First read the "Safety Precautions" section of this manual. If some unforeseen circumstance creates a conflict between the servicing and safety precautions, always follow the safety precautions.

1-3. Precautions for Electrostatically Sensitive Devices (ESDs)

- Some semiconductor ("solid state") devices are easily damaged by static electricity.
  Such components are called Electrostatically Sensitive Devices (ESDs). Examples include integrated circuits and some field-effect transistors. The following techniques will reduce the occurrence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. (Be sure to remove it prior to applying power-this is an electric shock precaution.)
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges that damage ESDs.
4. Use only a grounded-tip soldering iron when soldering or unsoldering ESDs.
5. Use only an anti-static solder removal device. Many solder removal devices are not rated as "anti-static" (these can accumulate sufficient electrical charge to damage ESDs).
6. Do not remove a replacement ESD from its protective package until you are ready to install it.
   Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

Caution

- Be sure no power is applied to the chassis or circuit and observe all other safety precautions.

8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4. Installation Precautions

1. Keep the product away from a heat source such as candle light, mosquito repellent incense, heating equipment, or direct sunlight. Otherwise, this may cause fire.
2. Do not install the product on a place that is shaking, tilted, unstable, or seriously vibrating. The product may drop to get damaged or injure a person. If using the product in a highly vibrating place, it may be broken or cause fire.
3. When moving the product, turn off the power switch and unplug all the connected cables with the product such as the power plug and antenna cable. If the power cord is damaged, this may cause electric shock or fire.
4. Secure room for ventilation. Keep at least 10 cm of distance from the rear wall, and at least 5 cm from either side wall.
5. Installing the product in a special place like below rather than normal environment may cause serious quality concerns due to its special conditions. If this is the case, make sure to contact a local Samsung service center before installing the product. (Special places: a place where a large amount of dust is accumulated; where chemical substances are used or the ambient temperature is too high or low; a place that is full of moisture or water; in transportation vehicles such as a car; or in public places such as the airport or subway station where the product is supposed to operate uninterruptedly for a long time)
6. Keep the packaging plastic wrapper out of children's reach. If children play with it improperly, they may get suffocated.
7. If installing the product on a display cabinet, shelf, desk, etc., keep the product from protruding on its lower side. If the product falls, it may break or cause physical injury. Use only the display cabinet or shelf that fully covers the product.
8. If using lithium batteries, carefully read the following precautions:

Caution

- Ensure the batteries are inserted in the right direction. Otherwise, they may cause an explosion. Dispose of used batteries according to the manufacturer's instructions.
- Do not expose the battery to fire.
- Do not disassemble, short - cut, or heat the battery.
- Use only the same type and size of batteries for replacement.
- Do not expose the battery to fire or excessive heat.

2. Disassembly and Assembly

Warning

- As this product has parts that are sensitive to static electricity, be careful when handling them.

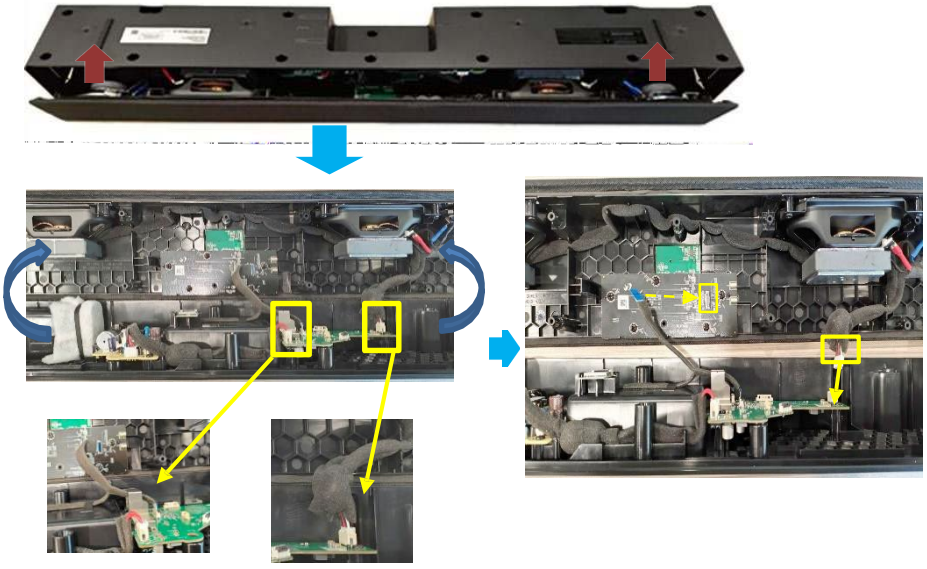
2-1. Disassembly

Caution

- Disconnect the product from the power source before disassembly.
- Follow these directions carefully; never use metal instruments to pry apart the cabinet.
- When disassembling the product, do not use any metal tools except for the provided jig.

2-1-1. Separate Bottom Cover

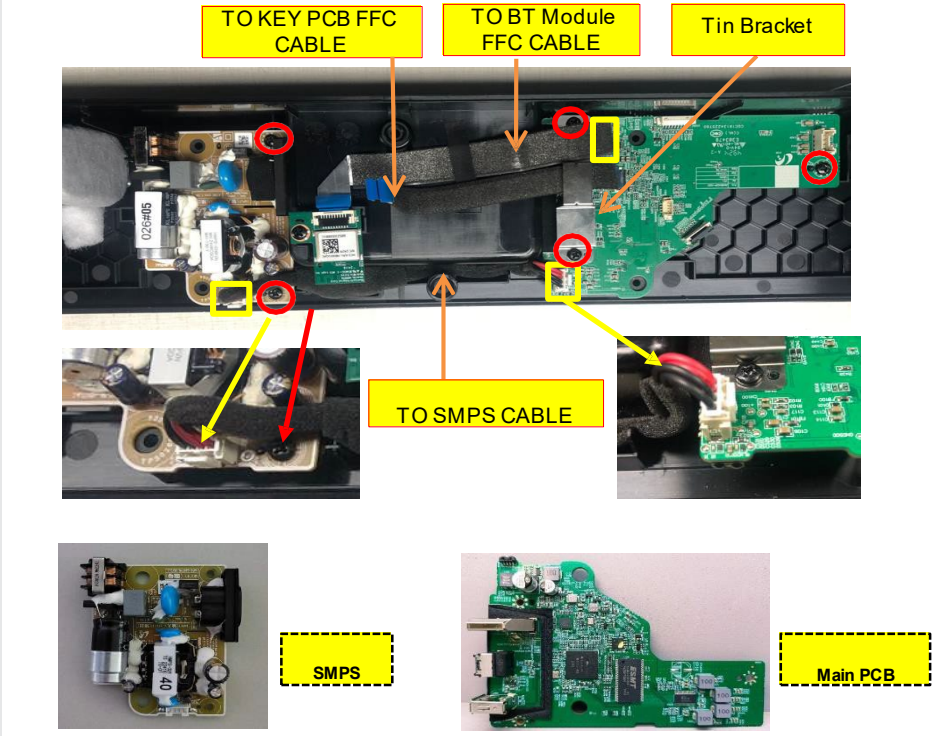
1	• Remove 14 screws. - P/N:AH81-14034A 	Remark 

2	• Pull out the Bottom Cover and detach P-Body. Detach 2 cables. 	Remark

2-1-2. Separate MAIN PCB and SMPS

- Remove 5 screws and 3 cables.
  -P/N:AH81-14034A

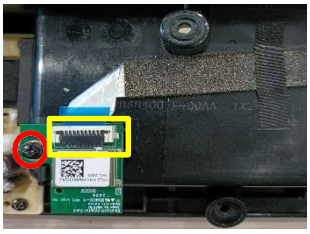
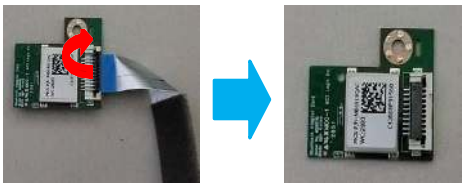
Remark



SMPS

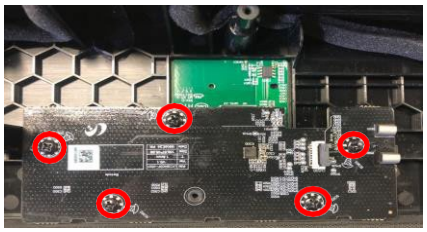
Main PCB

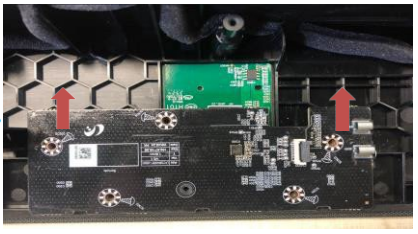
2-1-3. Separate BT Module

I	• Detach 1 FFC cable and Remove 1 screws. -P/N:AH81-14034A	Remark
	 	

2-1-4. Separate KEY_LED PCB and NFC PCB

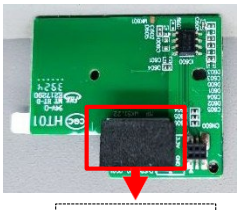
1	• Remove 5 screws. Separate the KEY_LED in a direction perpendicular to the plane. -P/N:AH81-14034A	Remark





※ Caution : The 6-pin connector connecting the KEY_LED PCB and NFC PCB can easily fail, so it should be disassembled carefully

2	• Detach NFC PCB from P-Body.	Remark



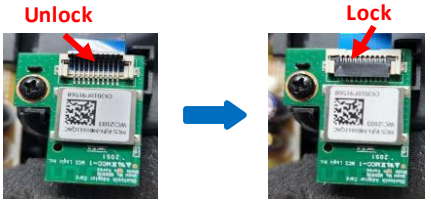
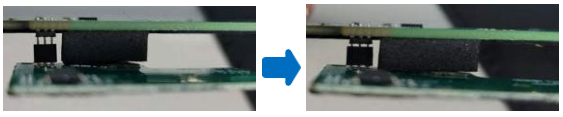
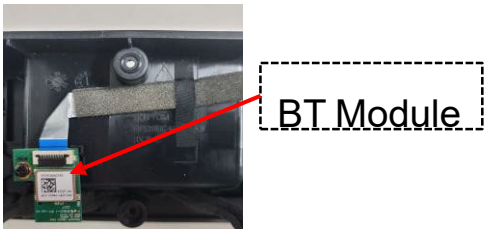
It is for fixing the NFC PCB, made it is pressed by KEY _LED PCB

※ Caution : Because the NFC PCB is bonded to the P-Body with double-sided tape, it must be carefully disassembled using tools such as a flat-head screwdriver

2-2. Assembly

Note

- Assembly procedures are in the reverse order of disassembly procedures.
- The exterior may differ depending on the product.

Description	Picture Description
※ Cautions 1. Check the locking status of the connectors, If it is unlocked, it may not work.	
2. Assemble NFC PCB and KEY_LED PCB, it must be inserted accurately into the 6-pin connector. If it is not correct, it may not work or be damaged.	
3. Replace with new BT Module service part. The tape that holds the FFC Cable can be recycled after assembling a new BT Module.	
4. Replace with new NFC PCB service part . ① Pry off damaged NFC PCB from top cover. ② Clean the residual double tap on top cover. ③ Peel off protection sheet on new NFC PCB and paste it on top cover. ④ Assemble KEY_LED PCB and connect to NFC PCB