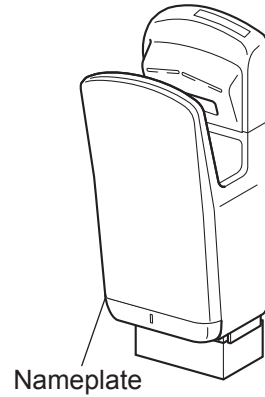


HAND DRYER HANDBOOK

MODEL

JT-SB116EH-W-CA



Warning:

Repair work must be performed by the manufacturer, its service agent or a similarly qualified person in order to avoid hazards.









MITSUBISHI ELECTRIC CORPORATION




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1. Caution for service

- Please read the following items carefully before using this product, and perform the maintenance and repair work of the product correctly and safely.
- The types and levels of the dangers from mishandling this product are categorized and indicated by the signs shown below.

 Warning		Items that may cause death or serious injury if the product is mishandled.
<p>◇ Caution for electric shock If it is absolutely necessary to inspect the circuitry while turning on electricity, exercise caution not to touch live parts.</p> <p>(Touching live parts may cause electric shock.)</p> <div style="text-align: right;">  Caution for electric shock </div>	<p>◇ Turn off the power Be sure to turn off the earth leakage breaker and the power switch of the product's main unit prior to starting repair work. (The charge voltage in the circuitry remains for another minute or so, even after the power is turned off and the LED is unlit; therefore, wait for at least 1 minute before disassembling the product.)</p> <div style="text-align: right;">  Implement by always following instructions </div>	
<p>◇ Modification prohibited Never modify the product.</p> <p>(Modifying may cause electric shock, fire, and/or injury.)</p> <div style="text-align: right;">  Prohibited </div>	<p>◇ Use proper parts and tools Use the parts listed in the service parts list of the subject model with appropriate tools when repairing.</p> <p>(Using improper parts and tools may cause electric shock, fire, and/or injury.)</p> <div style="text-align: right;">  Implement by always following instructions </div>	
<p>◇ Conduct electric work correctly</p> <ul style="list-style-type: none"> • Use the designated electric wires, and conduct electric work according to the Electrical Equipment Technical Standard, Internal Wiring Regulation, and Installation Work Guide. • Be sure to check whether the terminals and fixed wiring are securely connected. <p>(Improper connection or installation may cause electric shock or fire.)</p> <div style="text-align: right;">  Implement by always following instructions </div>	<p>◇ Check insulation Upon completing repair work, always measure the insulation resistance. Verify that it is at least 10 MΩ (DC 500 V insulation resistance tester), and then turn on the power.</p> <p>(Inadequate insulation may cause electric shock.)</p> <div style="text-align: right;">  Implement by always following instructions </div>	
<p>◇ Scratches and deterioration Be sure to replace scratched and/or deteriorated fixed wiring and lead wires.</p> <p>(They may cause electric shock and/or fire.)</p> <div style="text-align: right;">  Implement by always following instructions </div>		

 Caution		Items that may cause injury and/or damage to buildings and/or fixtures if the product is mishandled.
<p>◇ Caution for high temperatures Wait till the regenerative heater of heater unit cools down sufficiently before starting inspection or repair.</p> <p>(It may cause burn.)</p> <div style="text-align: right;">  Implement by always following instructions </div>	<p>◇ Wear gloves Always wear a pair of gloves during inspection or repair work.</p> <p>(Not wearing gloves may cause injury.)</p> <div style="text-align: right;">  Implement by always following instructions </div>	

Items to check during repair work

- Inspect the condition of the earth. Correct it if improperly grounded. Also, check to see if a ground fault circuit interrupter is being installed. If not, install one.
- Check to see whether or not the air filter and the drain tank are installed securely in place.
- Do not leave a towel or other object in the hand-drying area.
- Never place any object on the main body nor cover it.
- Make sure that the product is not being used in any of the following locations:

Locations where the temperature can exceed 0°C to 40°C.

Locations where the humidity can exceed 5%RH to 95%RH.

Locations where the unit may come into direct contact with water.

Locations where the unit is under direct or strong sunlight. (May cause sensor to malfunction.)

Locations where there is a lot of condensation.

Vehicles (incl. vessels, trains.)

Do not use in locations where corrosive, neutral, or reductive gases are present.

Avoid to install the unit any place where foods, tableware, or the likes are handled nearby because water may splash.

Locations where salt damage may occur.

Places lower than -20m or higher than 2000m above sea level.

- Upon completing repair work, verify that the product operates normally. Clean the product's main body and surrounding area, and notify the customer of the completion of the repair work.

2. Features

① Quick drying

Equipped with a turbo fan, the hand dryer blows away drops of water on the hands with a high-speed jet air from a large wind volume, high-speed blower, thus quickly drying hands.

Drying time has been reduced considerably compared with old model (JT-SB216DS).

② Reduction of operating sound by 6dB

Employment of a hyper-nozzle, based on our own blast flow control technology, which eliminates turbulences as well as interfering sounds of air flows, has reduced the operating sound by 6 dB.

③ Wind volume adjust knob

Wind volume can be changed, as you like, with this knob.

④ Ergonomic design

The product is finished up in an ergonomic design that fuses sharp lines well matched with the sanitary space and round lines for convenience of use.

⑤ Hygienic

- The hand dryer is automatically started by a sensor. Thus, there is no need to touch the hand dryer with your wet hands. It is very hygienic.
- It has a flat bottom at the hand inserting area and also the sides are widely open so that the unit can be cleaned easily.
- Hand inserting sections can be disinfected with alcohol to keep them hygienic. Use the disinfecting ethanol (Concentration less than 83%).

⑥ Antibacterial

- The hand dryer uses a silver inorganic substance; thus, maintaining an antibacterial effect for an extended period of time. (Hand inserting area, drain hose and drain tank)
- The hand dryer meets the antibacterial effect standard defined by the Society of Industrial Technology for Antimicrobial Articles (SIAA).

⑦ Easy maintenance

The hand dryer does not require a paper or cloth towel, thus eliminating the dumping paper waste and the exchanging of towels. Also, the hand dryer is easy to clean.

⑧ Highly safe with mischievous use prevention timer

To prevent continuous operations of the hand dryer by mischievous use or malfunction, it has a built-in timer that automatically stops drying upon reaching a specific period of time.

⑨ Economical

The monthly electricity expense is the only expense the hand dryer requires. Thus, it is extremely economical for use over an extended period of time.

⑩ Hot jet air

A regular heat accumulating type heater is provided in the standard specification. It accumulates heat while the hand dryer is not used and releases accumulated heat when the hand dryer is operated. Pleasant hot jet air starts to blow instantaneously anytime when drying hands.

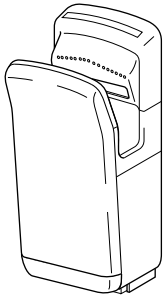
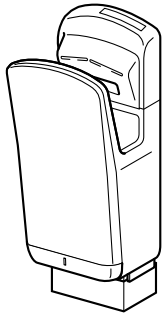
⑪ Hot air temperature control function

Hot air temperature is constantly at 35°C, regardless of the room temperature.
(Room temperature: 10~35°C)

⑫ Optional function

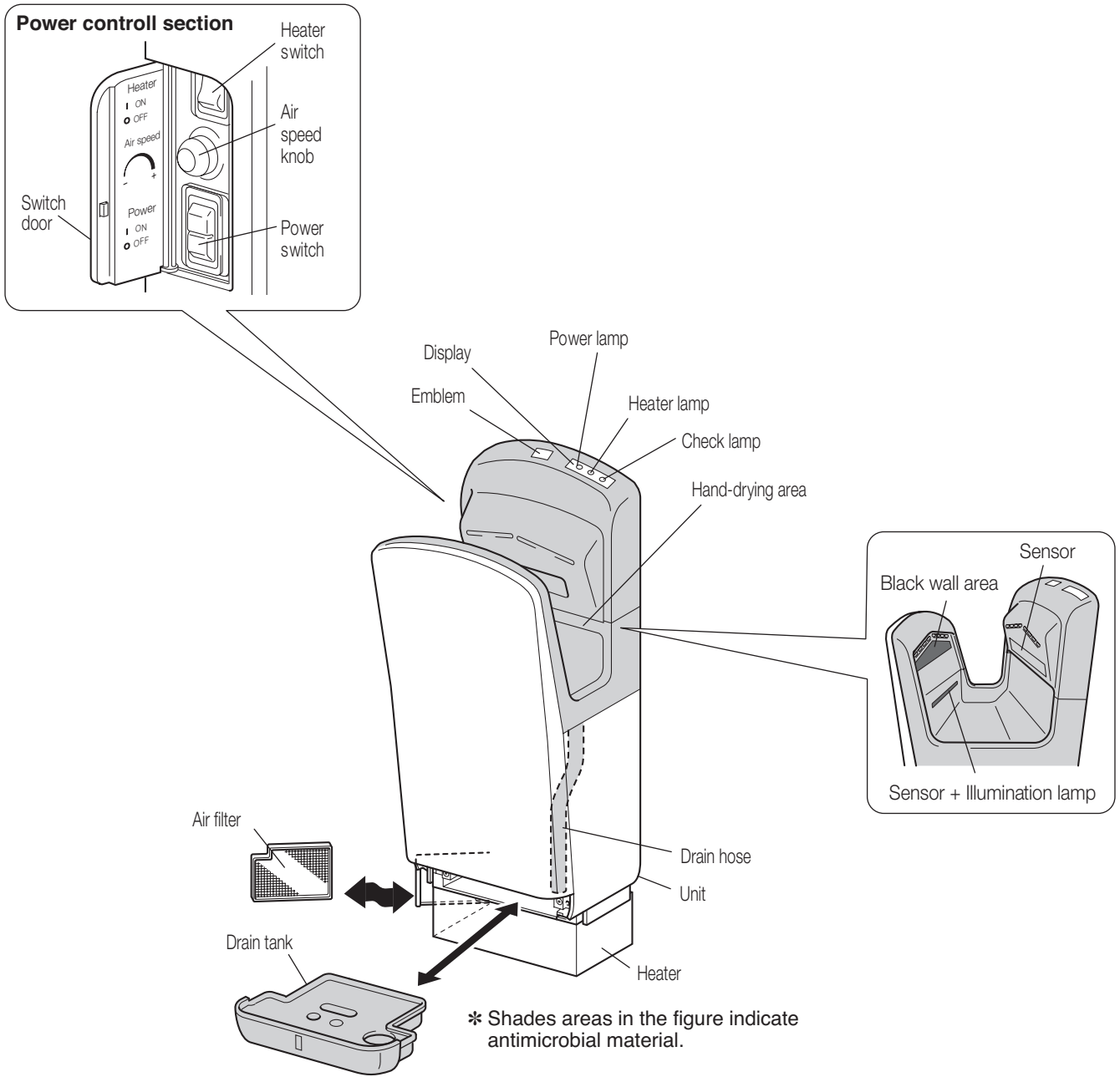
The hand dryer may be installed on the floor using the optional special stand (JP-S10FS-H or JP-S15FS-H).

3. Improved points

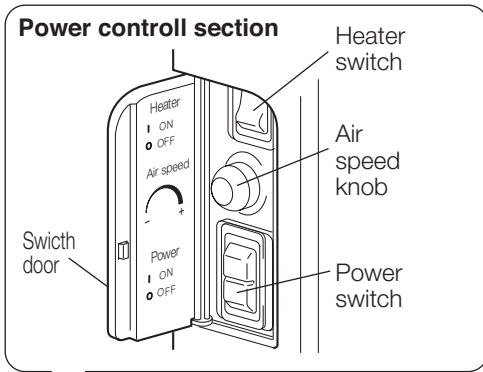
Item	Old Model (JT-SB216DS)	New Model (JT-SB116EH-W-CA)
Appearance		
Drying time	5~6 sec	3~5 sec
Nozzle	Round hole nozzle	Hyper-nozzle
Noise (dB)	65	59
Rated power consumption (W)	650	1100 (During heat accumulation by heater) 730 (Heater OFF)
Rated current (A)	4	9.2 (During heat accumulation by heater) 7.7 (Heater OFF)
Weight (Kg)	11	14
Stand	JP-S26FS	JP-S10FS-H, JP-S15FS-H

4. Names and functions of components

4-1 Structure and appearance



4-2 How to use the hand dryer



◆ Introduction

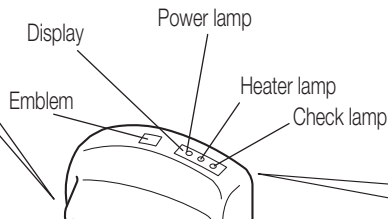
1. Open the switch door of the power controll section.
2. Turn on the power switch.

- Power lamp and heater lamp turn on. (Display)
- Emblem lamp turns on.
- Illumination lamp turns on.
- Adjust the Air speed knob to the best point.

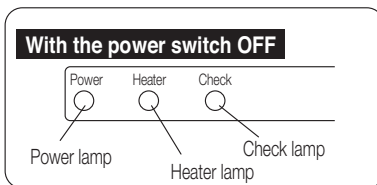
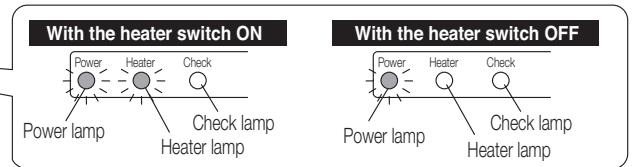
Note:

- When the power switch is turned on, make sure to remove hands from the hand-drying area. Take sufficient care to avoid this because it may deteriorate the sensitivity of sensor.

3. Close the switch door of the power controll section.



Display

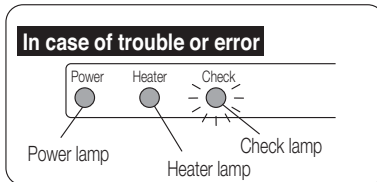


■ When not using the unit for long periods of time

Turn the power switch off.

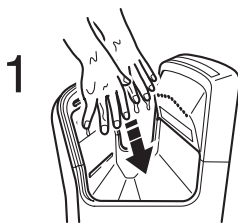
The unit consumes approximately 2W of power even if unused when the power is on. (With the heater switch "OFF")

* When the heater switch is turned "ON", approx. 1100 W of power is consumed to accumulate heat by operating the heater.

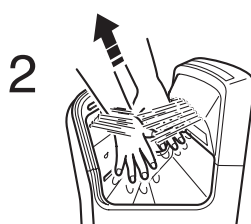


■ Check lamp

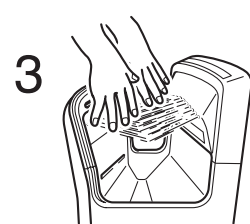
When a malfunction or error occurs, the check lamp on the right side of the display will either light up or flash. Turn the power switch off, wait approximately 30 seconds until the all the lamps in the display go off, and then turn the power back on. If the check lamp is still on or flashing, turn off the power, shut off the ground-fault circuit interrupter, and refer to "10.Troubleshooting".



1
With both hands open, insert them **all the way in**.
The unit will come on automatically.



2
Pull them out slowly, letting the air blow the water off.

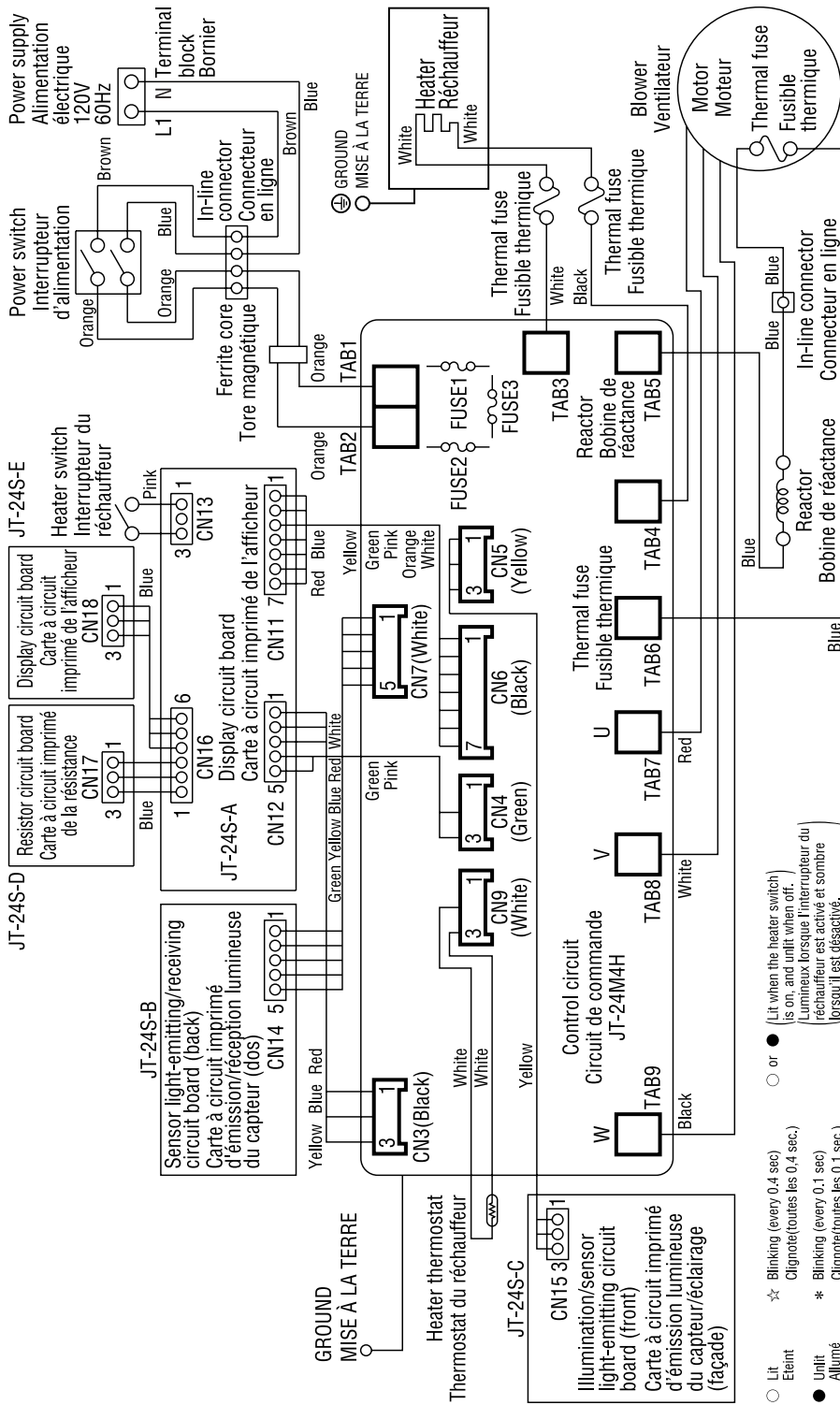


3
Pull hands all the way out.

Repeat until dry

7. Electrical wiring diagram

JT-SB116EH-W-CA



Current fuse in control circuit
 Fusibles à intensité du circuit de commande
 FUSE1, 2 125V-20A
 FUSE3 125V-5A

Thermal fuse fusion temperature
 Température de fusion du fusible thermique
 Thermal fuse in motor
 Fusible thermique dans le moteur121°C
 Thermal fuse in heater (2 pcs.)
 Fusible thermique du réchauffeur (2 pièces)172°C

Black	Noir
White	Blanc
Red	Rouge
Blue	Bleu
Brown	Marron
Green	Vert
Pink	Rose
Yellow	Jaune
Orange	Orange

Malfunction location quick reference chart
 (The display LED light is displayed in the blinking location)

Power supply LED	Heater LED	Check LED	Blue LED illumination	Detected content	Cause
○	●	○	●	Motor overspeed error, step-out error	Air filter, blower, control circuit
★	●	○	●	Motor lock error	Blower, control circuit
○	●	○	●	Overcurrent detected	Blower (short circuit), control circuit (overcurrent)
○	●	★	●	Overvoltage detection, undervoltage detection	Overvoltage impress, undervoltage impress, control circuit
○	●	★	●	Heat sink overheating	Air filter, control circuit (PTC)
○	●	★	●	Current detection circuit error	Control circuit, disconnected motor
○	●	★	●	Upper sensor error	Control circuit, dirty sensor window, disconnected sensor, dirty sink (on black wall)
○	●	★	●	Lower sensor error	Control circuit, dirty sensor window, disconnected sensor
○	●	★	●	Microcomputer signal error	Control circuit
○	●	★	●	Microcomputer error	Control circuit
○	●	★	●	Fuse fusion	Control circuit current fuse, thermal fuse in motor
○	●	★	●	Tamper-proof liner	Continuous operation, dirty sensor window, disconnected sensor
○	●	★	●	Room thermostat error	Disconnected room thermostat
○	●	★	●	Heater error	Disconnected heater, disconnected heater thermostat, blown thermal fuse in heater

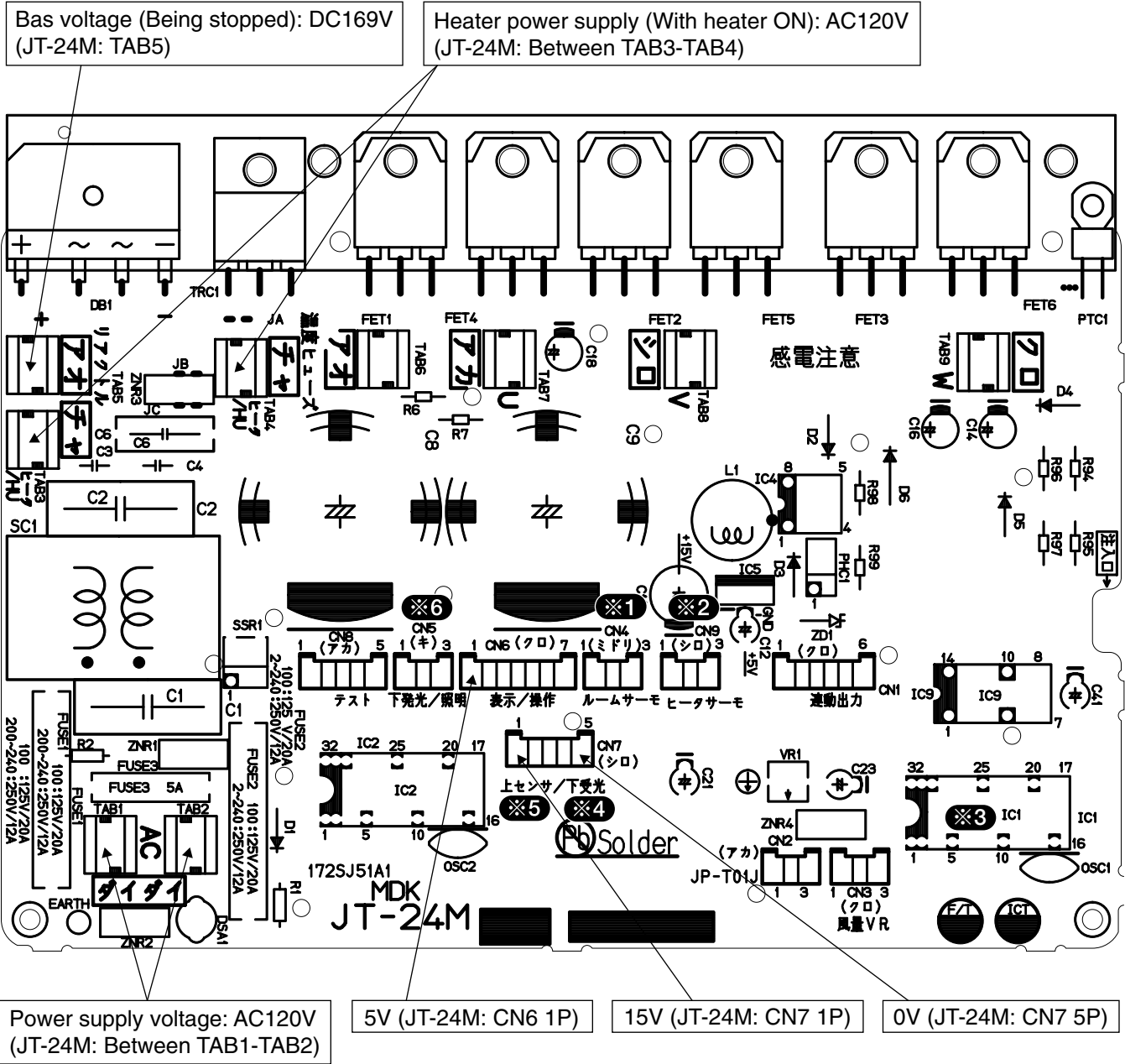
Tableau de référence rapide de l'emplacement des dysfonctionnements
 (Indication par l'allumage et le clignotement du LED de l'afficheur)

LED d'alimentation	LED du réchauffeur	LED de contrôle	DEL bleue, éclairage	Défaut détecté	Cause
○	●	○	●	Surveillance du moteur, hors synchronisme	Filter à air, ventilateur, circuit de commande
★	●	○	●	Erreur de verrouillage moteur	Ventilateur, circuit de commande
○	●	○	●	Surintensité détectée	Ventilateur (court-circuit), circuit de commande (surintensité)
○	●	★	●	Surveillance détectée, sous-tension détectée	Surveillance, sous-tension, circuit de commande
○	●	★	●	Surcharge dissipateur de chaleur	Filter à air, circuit de commande (PTC)
○	●	★	●	Erreur du circuit de détection de courant	Circuit de commande, moteur déconnecté
○	●	★	●	Erreur du capteur supérieur	Circuit de commande, fenêtre de capteur sale, capteur déconnecté
○	●	★	●	Erreur du capteur inférieur	Circuit de commande, fenêtre de capteur sale, capteur déconnecté
○	●	★	●	Erreur du signal du microordinateur	Circuit de commande
○	●	★	●	Erreur du microprocesseur	Circuit de commande
○	●	★	●	Fusible grillé	Fusible à intensité dans le circuit de commande, fusible thermique dans le moteur
○	●	★	●	Minuterie contre trippage	Fonctionnement continu, fenêtre de capteur sale, capteur déconnecté
○	●	★	●	Erreur du thermostat ambiant	Thermostat ambiant déconnecté
○	●	★	●	Erreur du réchauffeur	Réchauffeur déconnecté, thermostat du réchauffeur déconnecté, fusible thermique du réchauffeur grillé

8. Circuit board diagrams

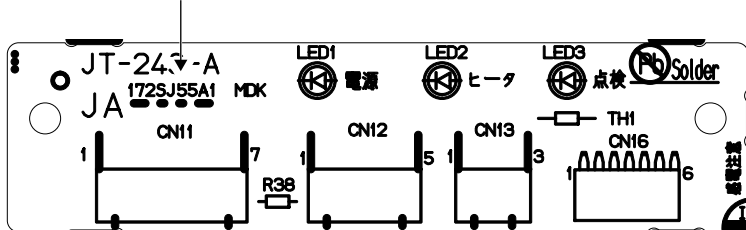
- Circuit board diagram and check points

- (1) Main circuit board

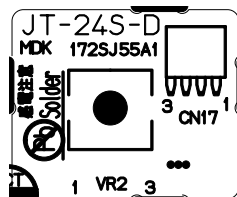


(2) Indicator circuit board

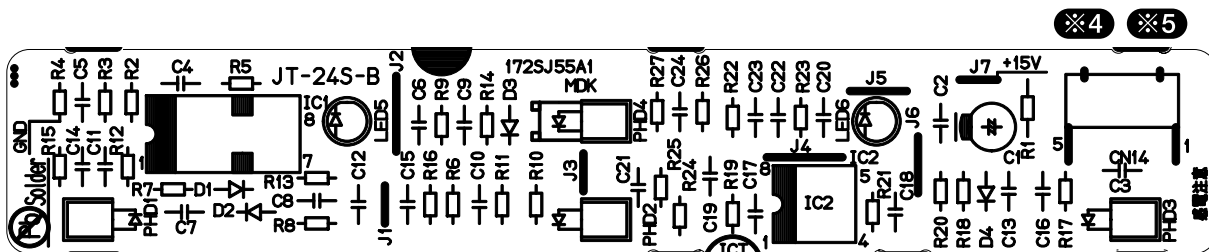
If the jumper wire (JA) is cut off, the illumination lamp turns off.



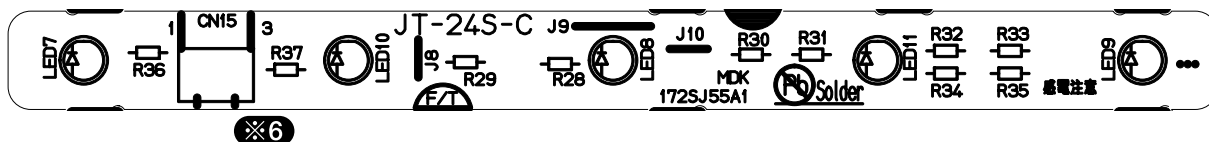
(3) Wind volume circuit board



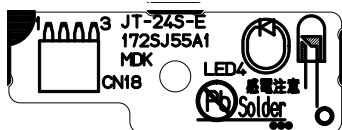
(4) Lower sensor light receiving / upper sensor circuit board



(5) Lower sensor light emitting / illumination circuit board



(6) Indicator circuit board 2 (Blue LED)



※1

Room thermostat characteristics (JT-24M: CN4 2P)

Temperature	Resistance	CN4 2P Voltage
10°C	9.01kΩ	2.37V
20°C	6.13kΩ	1.90V
30°C	4.27kΩ	1.50V

※2

Heater thermostat characteristics (JT-24M: CN9 2P)

Temperature	Resistance	CN9 2P Voltage
150°C	29.84kΩ	3.74V
200°C	8.00kΩ	2.22V
250°C	2.72kΩ	1.07V

※3

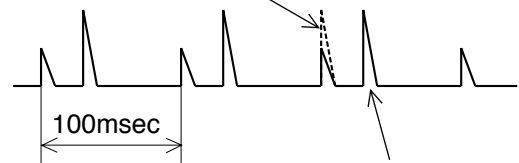
FIN overheat detector characteristics (JT-24M: IC1 8P)

Temperature	PTC Resistance	Input Voltage
25°C	Less than 330	Less than 0.16V
70°C	Less than 1.5k	Less than 0.65V
80°C	More than 2.2k	More than 0.90V

※4

Upper sensor's light receiving signal waveform (JT-24M: CN7 3P)
(JT-24S-B: CN14 3P)

(Rises when hands are inserted)

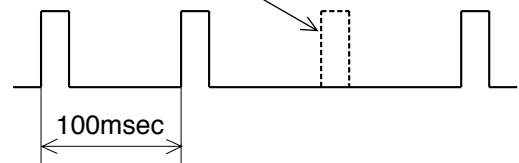


(Influence of light emission by the lower sensor)

※5

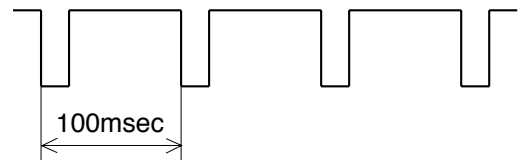
Lower sensor's light receiving signal waveform (JT-24M: CN7 2P)
(JT-24S-B: CN14 2P)

(Does not appear when hands are inserted)



※6

Lower sensor's light emitting signal waveform (JT-24M: CN5 2P)
(JT-24S-C: CN15 2P)



9. Principles of operation

● Description of circuit operation

(1) Cautions for turning “ON / OFF” the power switch

- ① When the power switch is turned “ON”, the power lamp (LED1), blue emblem lamp (LED4) and illumination lamps (LED10, 11) turn on after 1.5 seconds, and the hand dryer becomes ready for operation.
 - If the power lamp is turned off, the hand dryer does not operate even if hands are inserted in the hand drying area. In the meantime, the microcomputer of the main unit (IC2) performs the initial setting for the power supply frequency judgment, setting of the hand detection sensor sensitivity, and others.
 - In order to set correctly the sensitivity of hand detection sensor, don't insert hands in the hand drying area till the power lamp is turned on. (If the sensitivity is set abnormally, by neglecting this caution, for example, an error is displayed and the operation stops. In such occasion, cancel the setting by turning off the power switch.)
 - Even if the hand dryer has started immediately after turning the power switch “ON” (less than 15 seconds), it is normal though the motor input may become slightly lower owing to the initial setting.
- ② When the power switch is turned “OFF”, the power lamp, blue emblem lamp and illumination lamps turn off and the operation is inhibited.
 - Circuitry takes about 30 seconds to discharge the voltage retained in them. Wait till the discharging time elapses before plugging in or out connectors, replacing circuits, or others.
 - When any error has occurred, the error display persists till the voltage retained in the circuitry is discharged (till the microcomputer is reset).

(2) Hand detection and operation

- ① Hand detection sensor is an infrared sensor assembled with the light emitting sensor (red LED), light receiving sensor (photo-diode), etc. and consists of the upper (this side) sensor and the lower (inner) sensor.
- ② Reflection type upper sensor ... The sensor detects the change in the reflected amount of infrared when hands are inserted. Transmission type lower sensor ... The sensor detects that the infrared is shielded when hands are inserted.
- ③ As the lower sensor detects hands, the blower motor turns on and the hand dryer starts to operate.
- ④ Once the operation has started, it continues as long as either of upper and lower sensors detects hands.
- ⑤ If then it elapses for 1.5 to 3 seconds without detecting hands by both upper and lower sensors, the blower motor turns off and the operation stops.
- ⑥ The hand dryer continuously operates up to 30 seconds.
 - Once 30 seconds have elapsed, the hand dryer stops operating even if hands are detected.
 - Since this is a function to override the presence of foreign object, the operation starts if hands are pulled out and inserted again.

(3) Control of the blower motor

- ① DC brushless motor is used for the blower. This motor has no hole sensor to detect the rotor position, but utilizes instead the counter electromotive voltage by the motor coil to judge the rotor position and the revolving direction so as to drive the motor.
- ② Outputs from the motor control microcomputer (IC1) are transmitted via the drive IC (IC3) to control the power step MOSFET (driving transistor) that drives the motor.

(4) Control of the heater temperature

- ① Room thermostat detects the room temperature while the heater thermostat monitors the heater temperature.
- ② The room thermostat temperature determines the heater control temperature. (The colder the room temperature, the heater control temperature becomes higher, and the hot air temperature is maintained at about 35°C.)
- ③ Heater turns ON/OFF depending on the heater control temperature, but it does not turn ON in the following occasions.
 - When the heater switch is turned “OFF” (Heater lamp is extinguished.)
 - When the jet towel is operating
 - When the room thermostat detection temperature is 35°C or higher

(5) Extinguishing of the illumination lamp

- ① If the jumper wire (JA) on the indicator circuit board (JT-24S-A) is cut off, the illumination lamp extinguishes.
- ② Before cutting off the jumper wire, make sure to turn the power switch “OFF” and wait for 40 seconds minimum.

(6) Test mode (Error display mode)

- ① ContentDisplay the latest error occurred.
 - When no error is retained in the memory, the power lamp flickers quickly.
 - There is no other indication than the above. (Operation is inhibited.)
- ② Setting methodIn the condition that a resistor of 4.7kΩ is connected between pins 1 and 2 of CN8 on the main circuit board, turn “ON” the power switch.
- ③ Resetting method ...Turn “OFF” the power switch. After waiting for more than 40 seconds, remove the above resistor.

10. Troubleshooting

■ Cautions for service work

- Before starting the service, try to reproduce the error phenomenon 2 to 3 times.
- Secure a stable foothold during the service.
- Before starting the service, always unplug the power cord from the outlet, or turn off the earth leakage breaker where no power cord plug is provided. Sufficient care must be taken to avoid electric shock or injury.
- Make sure to connect power supply wires correctly.
- When removing a circuit board, hold a side of board to avoid exerting any undue stress to parts on the board.
- When removing a circuit board, take care not to hurt fingers with sharp edges of metal sheet.
- When disconnecting connectors, don't hold the lead wire to pull but hold instead the whole housing section.
- When a circuit board is suspected defective, closely check for any broken section on the copper foil patterns, or burn or discoloration of parts.
- After replacing a circuit board, make sure to restore the same setting as before the replacement.

* Part names used in the following text correspond to those listed in the parts catalog.

Description of the error mode display

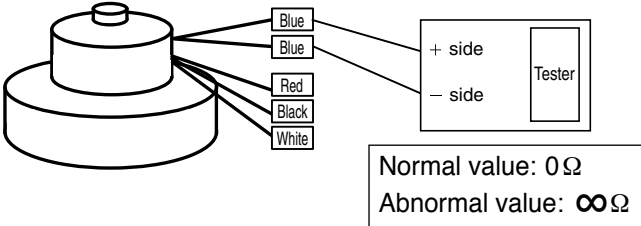


Power Heater check Blue LED

- : ON ☆: Slow flicker (ON for 0.4 second / OFF for 0.4 second)
- : OFF *: Quick flicker (ON for 0.1 second / OFF for 0.1 second)

Error display

Error Mode Display				Cause	Check Method and Remedy
Power	Heater	Check	Blue LED	Confirmation of power supply voltage	Confirm that the power switch is turned ON and that 120V is supplied at both ends of power cord connection on the terminal block. ■ When 120V is not supplied, check the following points. ① Check if the earth leakage breaker is turned ON. ② Check if the power cord is connected securely to the terminal block.
●	●	●	●		
(No display. No Operation.)					
Confirmation of power supply voltage on the control circuit					
● When 120V is not supplied, check the following points.				Confirmation of power supply voltage on the control circuit	Confirm that 120V is supplied between TAB1 and TAB2 of control circuit.
Disconnected relay connector				Confirm that the relay connector of power switch lead wire is not disconnected. (In the power switch box)	
Defective power switch				Measure the resistance between Blue-Orange wires and Brown-Orange wires on the relay connector of power switch lead wire.	
				Switch (Power) "ON" : 0Ω Switch (Power) "OFF" : $\infty\Omega$	

Error Mode Display				Cause	Check Method and Remedy
Power	Heater	Check	Blue LED	<p>● When 120V is supplied, check the following points.</p> <p>Blown current fuse</p> <p>Blown motor temperature fuse</p> <p>Disconnected indicator circuit board lead wire</p> <p>Defective control circuit</p>	<p>Check if the current fuses (FUSE1, 2, 3) on the control circuit board are blown or not. If any current fuse is blown, replace the control circuit board. If any voltage higher than 120V is applied by an error during the power supply work, FUSE3 (5A) may be blown and ZNR1 may be destroyed.</p> <p>① Check if the relay connector of motor temperature fuse is disconnected. (In the terminal block box) ② Check if TAB5 and TAB6 connectors are disconnected. ③ To see if the motor temperature fuse is blown, measure the resistance between motor lead wires "Blue-Blue".</p>  <p>Normal value: 0Ω Abnormal value: ∞Ω</p>
●	●	●	●		
(No display. No Operation.)					
<p>Leftover object</p> <p>Dirty sensor window</p>					
Power	Heater	Check	Blue LED	<p>Defective motor</p> <p>Defective control circuit</p>	<p>Check if CN6 or CN11 is disconnected. (CN11 is on the indicator circuit board.)</p> <p>If no error is found after checking the above, replace the control circuit board.</p>
☆	○ or ●	●	○		
(Tamper prevention timer)					
Power	Heater	Check	Blue LED	<p>Defective motor</p> <p>Defective control circuit</p>	<p>Replace the motor.</p> <p>If no error is found after checking the above, replace the control circuit.</p>
○	●	○	●		
(Motor over-revolution, out-of-order errors)					
Power	Heater	Check	Blue LED	<p>Defective motor</p> <p>Defective control circuit</p>	<p>Check if the motor is locked or does it turn smoothly by hand.</p> <p>If no error is found after checking the above, replace the control circuit.</p>
☆	●	○	●		
(Motor start error, motor lock)					
Power	Heater	Check	Blue LED	<p>Connection error</p> <p>Motor overload</p> <p>Defective control circuit</p>	<p>Check if TAB5, 6, 7, 8 or 9 is connected incorrectly to the control circuit.</p> <p>Check for causes of motor overload. (Too much higher power supply voltage, any object disturbing the motor revolution, etc.)</p> <p>If no error is found after checking the above, replace the control circuit.</p>
●	●	○	●		
(Over-current error)					
Power	Heater	Check	Blue LED	<p>Application of over-voltage</p> <p>Application of under-voltage</p> <p>Defective control circuit</p>	<p>Check if correct power supply voltage is applied. • Error will occur if the power supply voltage is at about AC162V or over.</p> <p>Check if correct power supply voltage is applied. • Error will occur if the power supply voltage is at about AC60V or under.</p> <p>If no error is found after checking the above, replace the control circuit.</p>
○	●	☆	●		
(Detection of over-voltage, under-voltage)					

Error Mode Display				Cause	Check Method and Remedy
Power	Heater	Check	Blue LED	Missing or loose heat sink screws	Check screws clamping the heat sink for missing or looseness.
☆	●	☆	●		
(Heat sink overheat error)				Defective control circuit	If no error is found after checking the above, replace the control circuit.
Power	Heater	Check	Blue LED	Disconnected motor lead wire	Check if TAB7, 8 or 9 is disconnected.
●	●	☆	●		
(Current detection circuit error)				Defective control circuit	If no error is found after checking the above, replace the control circuit.
Power	Heater	Check	Blue LED	Sensor is shielded when turning the power switch ON.	If the power switch is turned ON while the sensor is shielded, an error occurs. Turn OFF the power switch and, in the state that the sensor is not shielded, turn ON again the power switch.
*	●	☆	●		
(Upper sensor error) * Occurring at the power ON				Leftover object	Check the inside of drying area for any object left over and shielding the sensor.
				Dirty sensor window	Dirty window may shield incoming light. Make clean the sensor window.
				Disconnect lead wires of upper/lower light receiving sensors	Check if CN7 or CN14 is disconnected. (CN14 is on the sensor circuit board.)
				Disconnected upper sensor circuit board	Check the sensor circuit board for disconnection or displaced fixing position.
				Defective upper sensor circuit board (Side B of blow panel)	Visually check for cracks on the circuit board, corroded electronic parts, defective soldering, etc.
				Defective control circuit	If no error is found after checking the above, replace the control circuit.
Power	Heater	Check	Blue LED	Sensor is shielded at the power ON.	If the power switch is turned ON while the sensor is shielded, an error occurs. Turn OFF the power switch and, in the state that the sensor is not shielded, turn ON again the power switch.
☆	●	*	●		
(Lower sensor error) * Occurring at the power ON				Leftover object	Check the inside of drying area for any object left over and shielding the sensor.
				Dirty sensor window	Dirty window may shield incoming light. Make clean the sensor window.
				Disconnected lower light emitting/illumination lead wires	Check if CN5 or CN15 is disconnected. (CN15 is on the sensor circuit board.)
				Disconnected lower sensor circuit board	Check the sensor circuit board for disconnection or displaced fixing position.
				Defective sensor circuit board (Side F of blow panel)	Visually check for cracks on the circuit board, corroded electronic parts, defective soldering, etc.
				Defective control circuit	If no error is found after checking the above, replace the control circuit.

Error Mode Display				Cause	Check Method and Remedy
Power	Heater	Check	Blue LED	Defective control circuit	Replace the control circuit.
○	●	*	●		
(Microcomputer signal error)					
Power	Heater	Check	Blue LED	Defective control circuit	Replace the control circuit.
●	●	*	●		
(Microcomputer error)					

Troubles related to the heater

Error Mode Display				Cause	Check Method and Remedy			
Power	Heater	Check	Blue LED	Disconnected room thermostat lead wires	Check if CN4 or CN12 is disconnected. (CN12 is on the indicator circuit board.)			
○	○	○	○					
(Room thermostat error)								
				Defective room thermostat	Disconnecting CN4 from the control circuit, measure the resistance between pins 2 and 3 at the lead wire side. <table border="1" style="margin-left: 20px;"> <tr> <td>Normal Value</td> <td rowspan="2">* The value shown at left applies when the room temperature is 0~40°C.</td> </tr> <tr> <td>Approx. 2~14kΩ</td> </tr> </table> If the normal value is not detected, replace the heater thermostat.	Normal Value	* The value shown at left applies when the room temperature is 0~40°C.	Approx. 2~14kΩ
Normal Value	* The value shown at left applies when the room temperature is 0~40°C.							
Approx. 2~14kΩ								
				Defective control circuit	If no error is found after checking the above, replace the control circuit.			
Power	Heater	Check	Blue LED	Disconnected heater thermostat lead wire	Check if CN9 is disconnected.			
○	☆	○	○					
(Heater error)								
				Defective heater thermostat	Disconnecting CN9 from the control circuit board, measure the resistance between pins 2 and 3 at the lead wire side. <table border="1" style="margin-left: 20px;"> <tr> <td>Normal Value</td> <td rowspan="2">* Check the value shown at left while the heater is cold (not higher than 100°C).</td> </tr> <tr> <td>Approx. 150kΩ or over</td> </tr> </table> If the normal value is not detected, replace the heater thermostat. Note) If the circuit is open due to broken wires, etc., the resistance becomes ∞Ω.	Normal Value	* Check the value shown at left while the heater is cold (not higher than 100°C).	Approx. 150kΩ or over
Normal Value	* Check the value shown at left while the heater is cold (not higher than 100°C).							
Approx. 150kΩ or over								
				Defective control circuit	If no error is found after checking the above, replace the control circuit.			
Hot air does not blow.				Heater switch	Check if the heater switch is turned ON.			
				Disconnected heater power supply wire	Check if TAB3 or 4 is disconnected.			
				Defective control circuit	Check if specified power is output at both ends of TAB3 and 4. If not, replace the control circuit.			
				Defective heater	If no error is found after checking the above, replace the heater.			

Troubles without error display

Phenomenon	Cause	Check Method and Remedy		
Operation continues after pulling hands out.	—	① Turn OFF the power switch once and then back ON again. ② Error occurs at the power ON. ③ Take action for the error occurred according to the instruction of troubleshooting.		
Wind volume knob does not change the wind volume.	Disconnected wind volume lead wire	Check if CN3, CN16 or CN17 is disconnected. (CN16 is on the indicator circuit board and CN17 on the volume circuit board.)		
	Defective wind volume knob	Disconnecting CN3 from the control circuit, check if the resistance between pins 1 and 2 at the lead wire side changes within the following range when the wind volume knob is turned. <table border="1" style="margin: 10px auto;"> <tr> <td style="text-align: center;">Normal Value</td> </tr> <tr> <td style="text-align: center;">0~10kΩ</td> </tr> </table> Unless the normal value is detected, replace the wind volume knob.	Normal Value	0~10kΩ
	Normal Value			
0~10kΩ				
Defective control circuit	If no error is found after checking the above, replace the control circuit.			
Abnormal noise	Sucking of foreign matters	Check for any foreign matters sticking to the motor vanes.		
	Clogged filter	Check the filter for clogging with dust, etc.		
	Incorrect wiring	Check CN7, 8 and 9 for incorrect connection to the control circuit. (If they are connected incorrectly, the motor turns in the reverse direction.)		

11. How to call

Phenomenon	Cause, Inspection and Remedy
Wind is too weak to dry quickly.	① Check if the filter is clogged. ② Isn't the wind volume knob set at the weak position?
Water leaks from the product.	① Check if the drain tank is filled up. (Drain water.) * Since the main unit may absorb moisture if the product is operate while the drain tank is full, drain water will flow over when it is filled up beyond its capacity. ② Is the drain tank installed properly?
Wind does not blow immediately after turning on the power switch and inserting hands.	It takes 1 second after turning on the power switch to charge the control circuit. Operation is inhibited in the meantime.
No hot wind is blown.	Is the heater switch turned ON?
Odor from the product	① Check if the drain tank is filled up. (Drain water.) ② Check the inside of drain tank for any foreign matters. (Remove them.) ③ When operating the product initially, burning smell may arise as oil or dust adhered to the heater burns. This is normal.

12. Service inspection list

Location	Inspection Item	Check Result
Electric wiring	Are lead wire connectors connected securely?	
	Are all wires connected correctly?	
Operation	Does it operate normally?	
	Isn't there any abnormal noise, vibration, etc?	
Heater	Is hot air blown?	
Indicator LED	Does every LED and illumination lamp turn on?	
Wall installation	Isn't the product separated too far away from the wall? (Normal clearance: About 2 mm)	

13. Disassembly and assembly

■ Cautions for disassembly and assembly

- Before replacing parts, repair troubled sections according to the instructions described in the troubleshooting.
- Secure a stable foothold during the service.
- Before starting the service, always unplug the power cord from the outlet, or turn off the earth leakage breaker where no power cord plug is provided. Sufficient care must be taken to avoid electric shock or injury.
- Make sure to connect power supply wires correctly.
- After completing repairs, confirm that the main unit operates normally.

* Part names used in the following text correspond to those listed in the parts catalog.

(1) Turn off the power supply.

- ① Stop the operation.
- ② Disconnect the power cord plug from the outlet, or turn off the earth leakage breaker if the power cord plug is not provided.

(2) Switch (Heater), switch and volume circuit boards

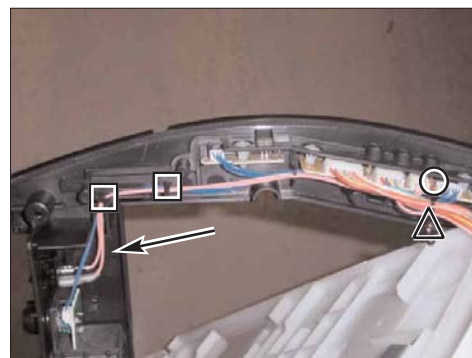
- ① Remove maintenance cover clamping screws.
(Marked with ▽)
(four special screws 4 x 16, indicated by ○)



- ② Removing the maintenance cover, disconnect switch (heater) lead wires. (Indicated by ○)
- ③ Remove cord bands. (Indicated by △)
- ④ Remove the switch (heater) by pushing in the arrow direction.

Cautions for assembly

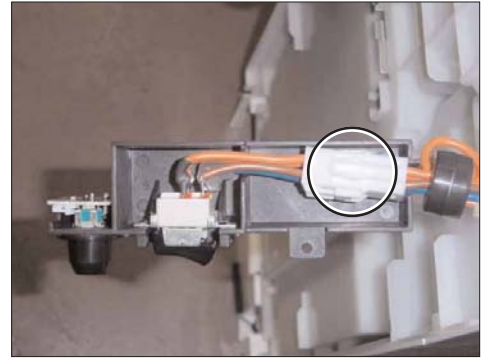
- Run the lead wires in the groove of maintenance cover and fix them by bending the ribs. (Indicated by □)
- Take care not to pinch the lead wires.



- ⑤ Disconnect lead wires from the volume circuit board. (Indicated by ○)
- ⑥ Remove switch cover clamping screw. (one PTT screw 4 x 16, indicated by △)

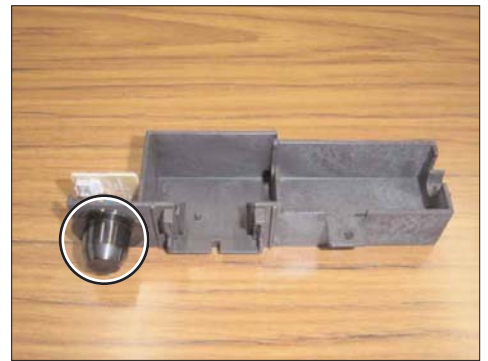


- ⑦ Removing the switch cover, disconnect the relay connector.
(indicated by ○)



- ⑧ Remove the knob. (indicated by ○)

Caution for assembly
Install the knob aligning with the form of volume shaft.



- ⑨ Remove volume circuit board clamping nut. (indicated by ○)



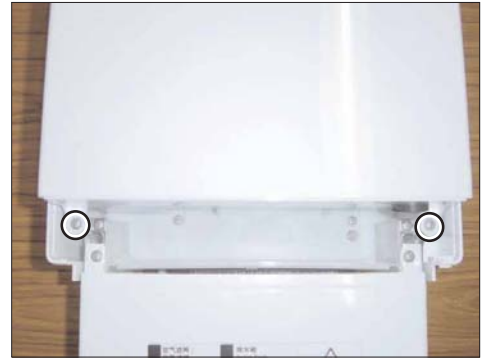
(3) Indicator circuit board and illumination circuit board.

- ① Remove the maintenance cover. See (2) ①.
② Disconnecting lead wires, remove the indicator circuit board and the illumination circuit board from the spacers.
(indicated by ○)



(4) Control circuit board

- ① Pull out the drain tank and remove front panel clamping screws. (two special screws 4 x 16, indicated by ○)



- ② Remove terminal block cover clamping screw. (one PTT screw 4 x 8, indicated by ○)
- ③ Remove grounding wire clamping screws. (two PTT screws with toothed washer 4 x 8 (BS), indicated by △)
- ④ Remove clamping screws for the control circuit board, cord holder and ferrite core. (five PTT screws 4 x 16, indicated by □)
- ⑤ Remove the cord band. (indicated by ◎)

Cautions for assembly

- Remove the terminal block cover before the control circuit board.
- Do not omit to use toothed washers when installing the grounding wires.

Heater grounding wire (Green)



Circuit grounding wire (Black)

- ⑥ Taking out the control circuit board, remove the circuit board cover. (indicated by ○)



- ⑦ Disconnect lead wires from the control circuit board, and remove the cord bushings. (indicated by ○)

Cautions for assembly

- Connect lead wires referring to the printing on the control circuit board.
- Use the cord bushing of smaller hole diameter at the upper part in the photograph.



(5) Blower

- ① Remove the control circuit board. See (4) ① ~ ⑦.
- ② Remove drain pipe clamping screw.
(one PTT screw, 4 x 16, indicated by ○)



- ③ Remove blower cover clamping screws.
(four PTT screws 4 x 16, indicated by ○)
- ④ Remove the cord bushing. (indicated by △)
- ⑤ Remove the relay connector. (indicated by □)

Cautions for assembly
Insert the cord bushing securely to the neck.



- ⑥ Remove the blower.

Cautions for assembly

- Set the blower lead wires at the left side of this side.
(See photograph.)
- Replace the packing used at the disassembled section with new one.
- Take care not to twist the packing when installing it.

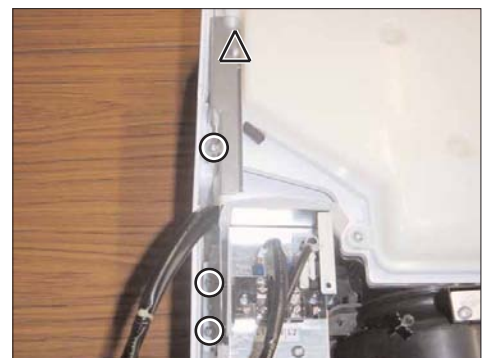


(6) Light emitting circuit board

- ① Remove the front panel. See (4) ①.
- ② Remove panel support plate (left) clamping screws.
(four PTT screws 4 x 16, indicated by ○, △)

Cautions for assembly

- Start to fix the panel support plate from the screw indicated by △.
- Pass the switch lead wires between the panel support plate and the side plate.



- ③ Remove clamping screws for the panel support panel (right) and the exhaust duct.
(seven PTT screws 4 x 16, indicated by ○, △)

Cautions for assembly

Start to fix the panel support plate from the screw indicated by △.



- ④ Lifting sections indicated by ○, remove the panel (front).

Cautions for assembly

- Replace the packing used at the disassembled section with new one.
- Take care not to twist the packing when replacing it.



Cautions for assembly

Hook lead wires at the claw on the panel (front).
(indicated by ○)



- ⑤ Remove the circuit board mounting plate (front).
(indicated by ○)

Cautions for assembly

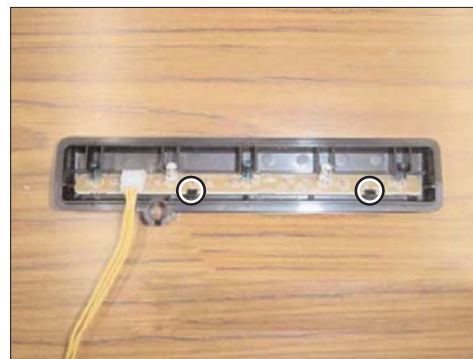
Take care not to pinch the lead wires with the circuit board mounting plate.



- ⑥ Remove the light emitting circuit board.
(Unhook from a pair of claws: indicated by ○)

Cautions for assembly

Fix the light emitter circuit board securely with the claws.



(7) Light receiving circuit board

- ① Remove the blower. See (5) ① ~ ⑦.
- ② Remove the panel (front). See (6) ② ~ ⑤.
- ③ Remove clamping screws for the duct and the side plate.
(four PTT screws 4 x 16, indicated by ○)

Cautions for assembly

- Replace the packing used at the disassembled section with new one.
- Take care not to twist the packing when replacing it.
- Be careful not to omit to install any O ring or packing.



- ④ Remove clamping screws from the back.
(eight special screws 4 x 16, indicated by ○)



Cautions for assembly

Closely contact the panel (lower) and the panel (rear) before clamping with screws. (indicated by ○)



- ⑤ Remove the panel (lower).

Cautions for assembly

Confirm that there are no cracks on the panel (center).
(indicated by ○)



- ⑥ Remove the panel (rear).

Cautions for assembly

- Replace the packing used at the disassembled section with new one.
- Take care not to twist the packing when replacing it.



- ⑦ Remove circuit board mounting plate (rear) clamping screws.
(two PTT screws 4 x 16, indicated by ○)

Cautions for assembly

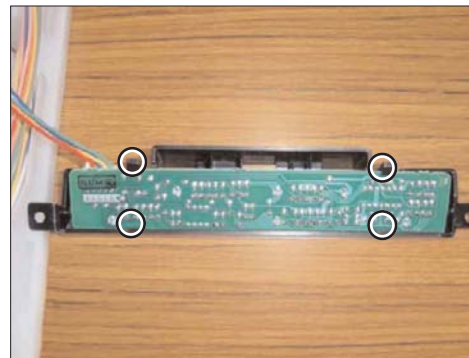
- Replace the packing used at the disassembled section with new one.
- Take care not to twist the packing when replacing it.



- ⑧ Remove the light receiving circuit board from the circuit board mounting plate (rear).
(Release from claws at four places: indicated by ○)

Cautions for assembly

Fix the light receiving circuit board securely with the claws.



Cautions for assembly

- When setting the light receiving circuit board on its mounting plate (rear), confirm the mounting direction of the board. (See photograph.)
- After installing the circuit board, confirm that the LED is not tilting.



Cautions for assembly

Accommodate lead wires in the groove on the side of base.
(indicated by ○)



(8) Heater unit

- ① Remove the control circuit board. See (4) ① ~ ⑦.
- ② Remove main unit frame clamping screws.
(two special screws 4 x 16, indicated by ○)

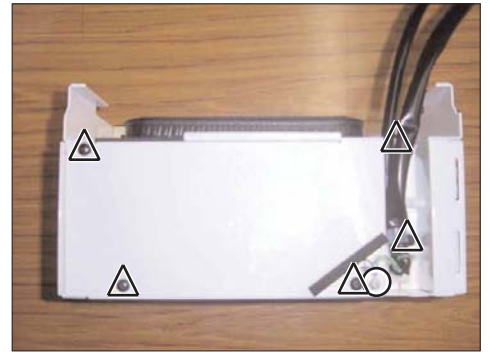


③ Slide and remove the main unit frame.



④ Remove grounding wire clamping screw.
(one special PP screw with spring washer 4 x 8, indicated by ○)

⑤ Remove rear cover clamping screws.
(five special screws 4 x 12, indicated by △)



Cautions for assembly

- When fixing lead wires with cord clips, avoid the wires becoming loose in the main unit frame.
- Take care not to omit the spring washers when clamping the grounding wire.

⑥ Remove the heater box. (indicated by ○)



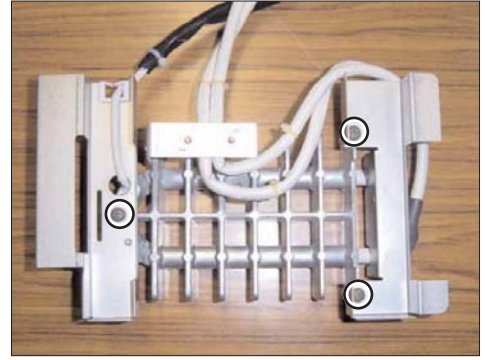
⑦ Remove heater box clamping screw.
(one special screw 4 x 8, indicated by ○)



Cautions for assembly
Hook the claw on the heater box in the square hole of heater base (right). (indicated by ○)



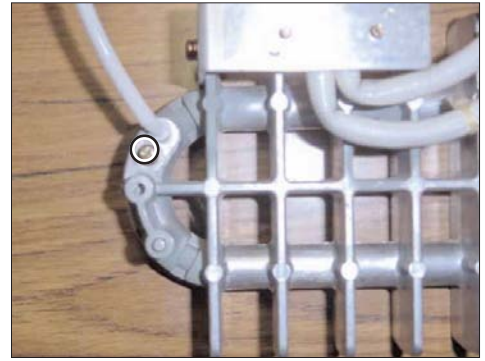
- ⑧ Remove heater base clamping screws.
(three special screws 4 x 8, indicated by ○)



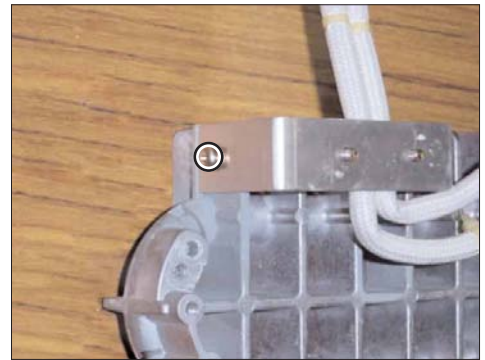
- ⑨ Remove thermistor clamping screw.
(one special PPT screw 4 x 8, indicated by ○)

Cautions for assembly

- Wipe off old oil compound adhered to the end of thermistor lead wires and the heater.
- Apply oil compound at the mounting hole for thermistor lead wires.
- Pack oil compound in the clearance between the heart and the thermistor.



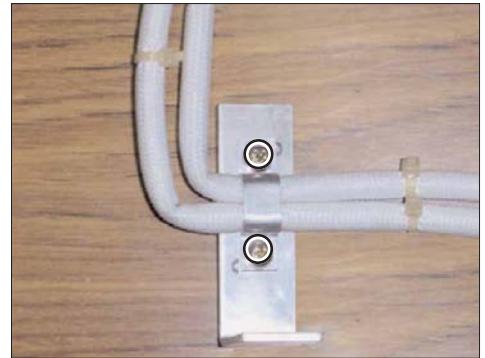
- ⑩ Remove fuse mounting plate clamping screw.
(one SW-PW · PP screw 4 x 8, indicated by ○)



- ⑪ Remove thermal fuse fixing screws.
(two SW-PW · PP screws 4 x 8, indicated by ○)

Cautions for assembly

Set and clamp with screws the holding plate at the marked position on the thermal fuse lead wire





* Caution for assembly

Cautions

- When reassembling removed parts, assemble them in the reverse order of disassembly.
- Always implement the operation test after assembling.

14. Parts catalog

Please note the following when using the parts catalog.

1. When ordering parts, the part number, part name, and the number of parts are required.
2. It may take time for you to receive the parts. Make an inquiry about a rush order.
3. Specifications may be subject to change without notice.
4. Parts marked with  and  are critical for safety.
5. To maintain safety and performance, use the parts specified in the parts catalog.
6. The numbers that are circled in the exploded view are the same as the reference number for the part being indicated.
7. When replacing the parts to which the nameplate is attached, remove the nameplate and attach it to the new parts.

Description of screw abbreviations



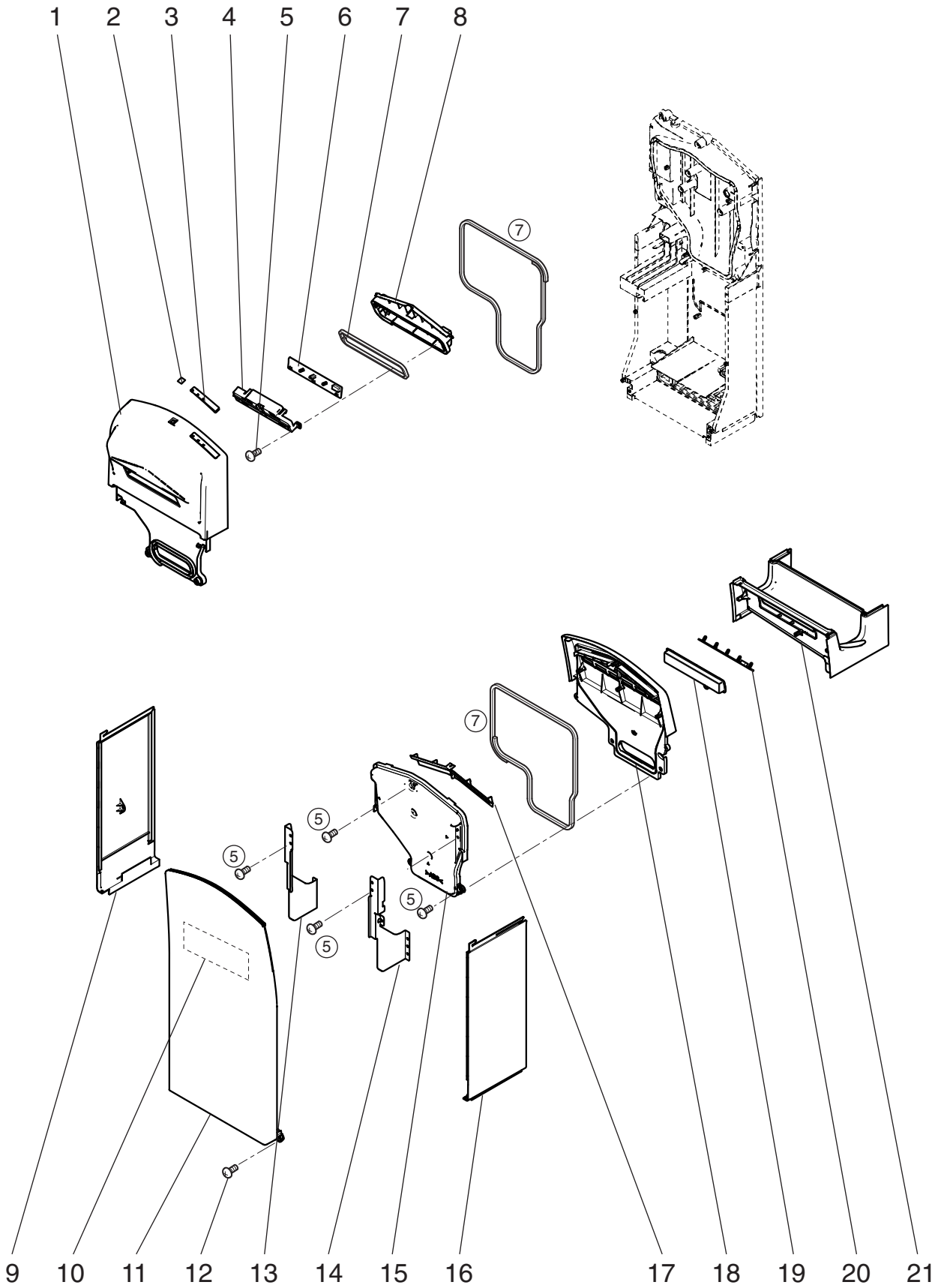
Abbreviation	Description
PC screw	Cross recess flat head machine screw
PRC screw	Cross recess oval head machine screw
PP screw	Cross recess pan head machine screw
SW · PP screw	Cross recess pan head screw with spring washer
PPT screw	Cross recess tapping screw
PCT screw	Cross recess flat head tapping screw
PTT screw	Cross recess truss head tapping screw
PT screw	Cross recess truss head machine screw
SET screw	Slotted head stop screw
SQ · SET screw	Square head stop screw
P · SET screw	Pan head stop screw
PMT screw	Primer truss head screw
HS · SET screw	Hexagon head stop screw
P · R · W screw	Cross recess round wood screw
P · C · W screw	Cross recess flat head wood screw
P · R · C · W screw	Cross recess round and flat wood screw
R · W screw	Slotted round wood screw
PW · PP screw	Cross recess pan head screw with small washer
SW-PW · PP screw	Cross recess pan head machine screw with spring washer and flat washer

Body parts

JT-SB116EH-W-CA

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
1	Panel (back)	Y45 650 867	1		White
2	Indicator plate	Y45 650 868	1		
3	Indicator plate	Y45 613 809	1		
4	Board fix plate	Y45 650 819	1		
5	PTT screw 4x16	Y45 650 012	35		
6	Circuit board	Y45 650 178	1	⚠	JT-24S-B
7	Packing	Y45 650 825	1		3000mm
8	Sensor holder	Y45 650 800	1		
9	Side panel L	Y45 618 806	1		White
10	Wiring diagram	Y45 613 361	1		
11	Front panel	Y45 618 800	1		White
12	Spl screw 4x16	Y45 650 045	4		
13	Panel holder L	Y45 650 814	1		
14	Panel holder R	Y45 650 815	1		
15	Exhaust duct	Y45 650 812	1		
16	Side panel R	Y45 618 808	1		White
17	Duct piece	Y45 650 869	1		
18	Panel (front)	Y45 650 870	1		
19	PCB fix plate	Y45 650 818	1		
20	Circuit board	Y45 650 179	1	⚠	JT-24S-C
21	Panel (under)	Y45 618 807	1		White

Body parts

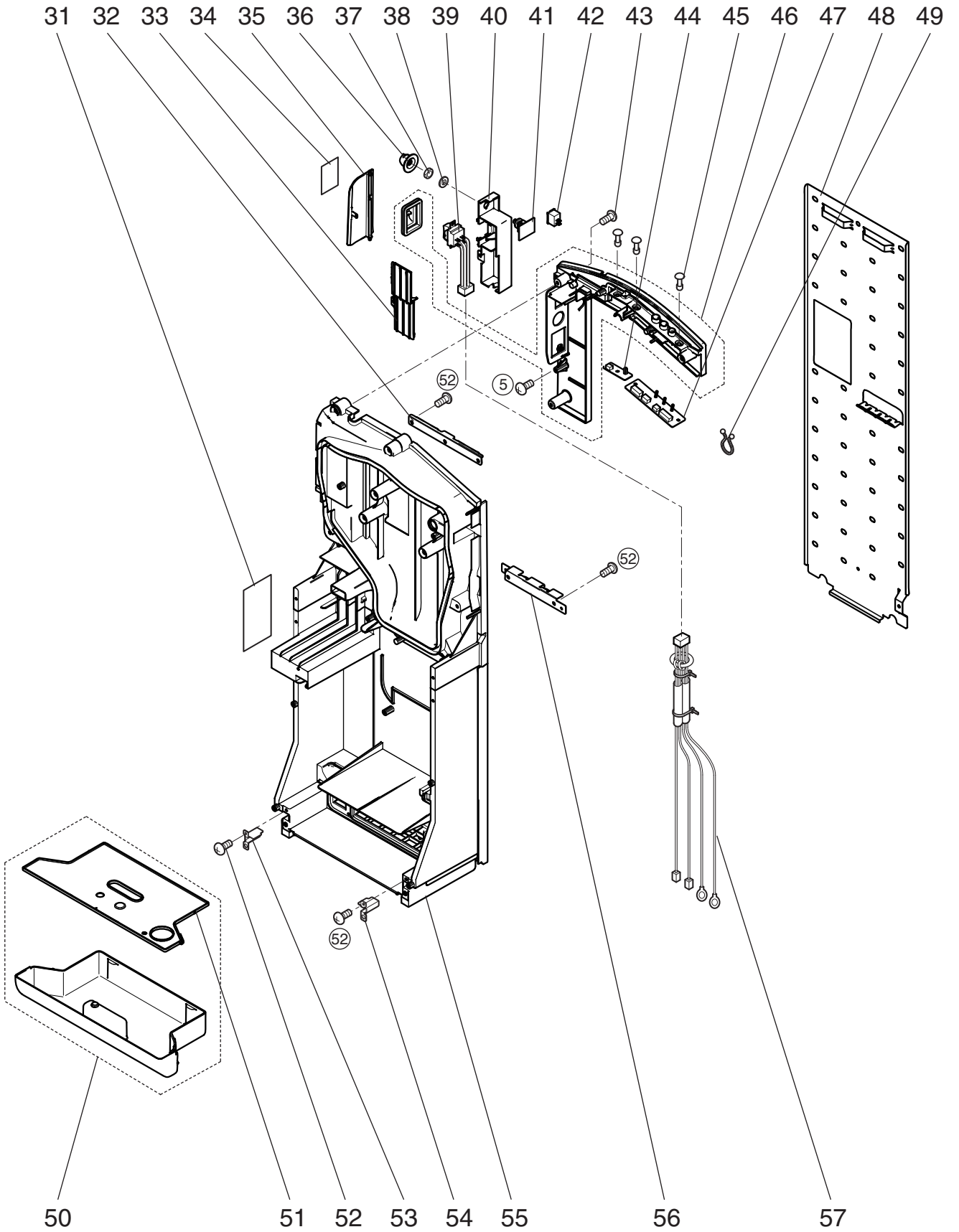


Switch parts

JT-SB116EH-W-CA

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
31	Indicator plate	Y45 613 369	1		Attention
32	Hook (upper)	Y45 650 802	1		
33	Switch cover	Y45 650 808	1		
34	Indicator plate	Y45 612 356	1		Switch
35	Switch door	Y45 618 813	1		White
36	Volume knob	Y45 650 260	1		
37	Nut	Y45 650 171	1		
38	Washer	Y45 650 172	1		
39	Switch	Y45 611 258	1	⚠	
40	Switch case	Y45 650 807	1		
41	Circuit board	Y45 650 173	1	⚠	JT-24S-D
42	Switch	Y45 650 258	1	⚠	
43	Spl screw 4x16	Y45 650 018	9		
44	Circuit board	Y45 650 180	1	⚠	JT-24S-E
45	Spacer	Y45 650 095	3		
46	Maint. cover	Y45 650 805	1		
47	Circuit board	Y45 650 181	1	⚠	JT-24S-A
48	Mounting plate	Y45 650 871	1		
49	Cord band	Y82 190 228	1		Black
50	Drain tank	Y45 650 872	1		White
51	Tank cover	Y45 650 873	1		
52	Spl screw 4x16	Y45 650 047	8		
53	Support piece L	Y45 650 865	1		
54	Support piece R	Y45 650 866	1		
55	Base	Y45 650 806	1		
56	Hook (under)	Y45 650 803	1		
57	Lead wire	Y45 613 223	1	⚠	Switch

Switch parts

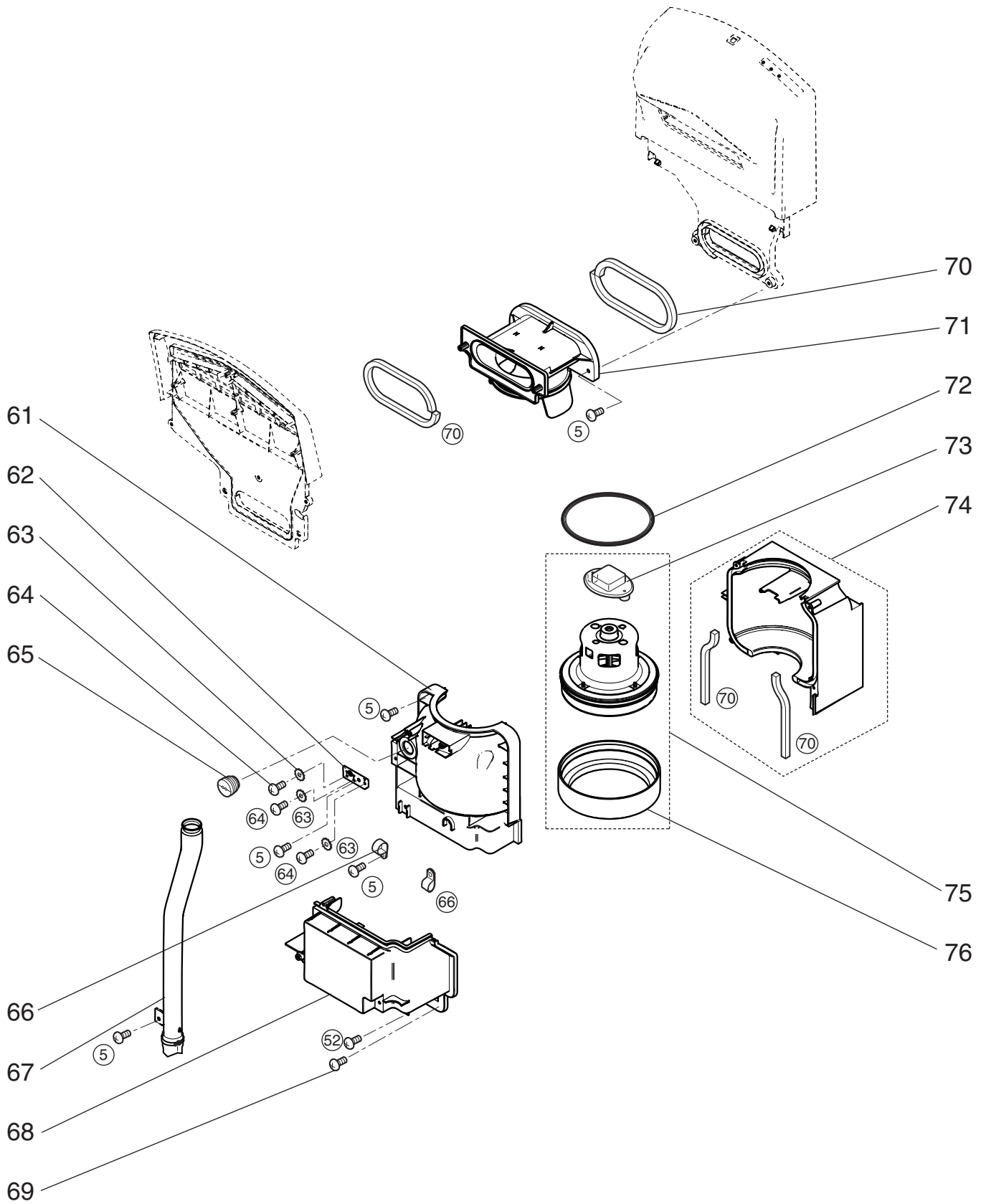


Blower parts

JT-SB116EH-W-CA

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
61	Blower cover	Y45 650 810	1		
62	Earth fix plate	Y45 650 804	1		
63	Lock washer (4)	Y45 650 076	3		
64	PT screw 4x8 BS	Y50 190 010	3		
65	Cord bush	Y45 650 250	1		
66	Cord clip	Y45 650 223	3		
67	Drain pipe	Y45 650 874	1		
68	Air supply duct	Y45 650 801	1		
69	Spl screw 4x50	Y45 650 046	1		
70	Packing	Y45 650 826	1		1200mm
71	Exhaust duct	Y45 650 875	1		
72	O ring	Y45 650 234	1		
73	Blower stopper	Y45 650 232	1		
74	Blower case	Y45 650 809	1		
75	Blower assembly	Y45 613 400	1	⚠	
76	Floating rubber	Y45 650 237	1		

Blower parts

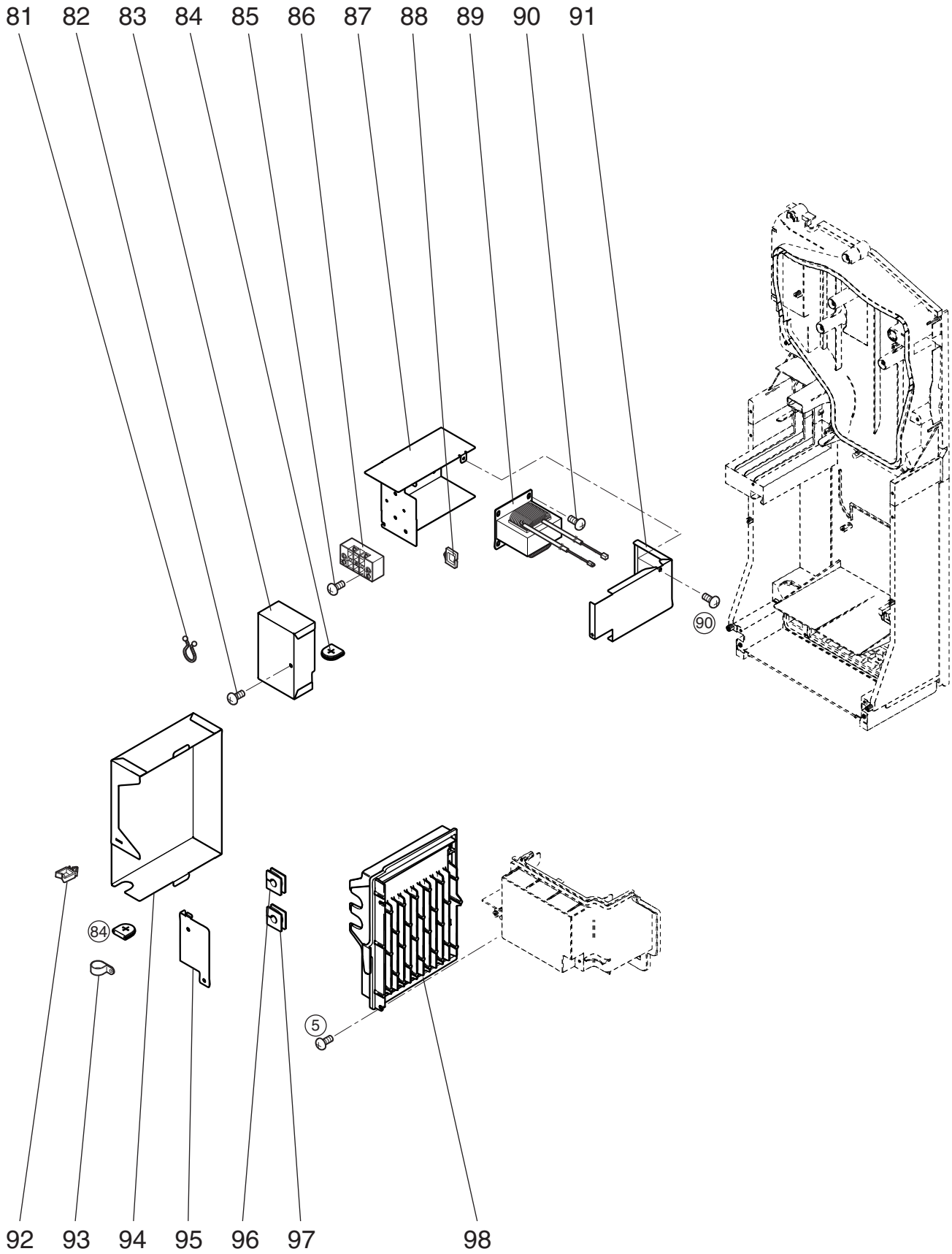


Circuit board parts

JT-SB116EH-W-CA

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
81	Cord band	Y50 190 229	1		White
82	PTT screw 4x8	Y45 650 009	1		
83	Terminal cover	Y45 613 801	1		
84	Cord bush	Y45 613 225	3		
85	PPT screw 4x12	Y45 650 011	2		
86	Terminal block	Y45 608 236	1	⚠	ML-20-A37-3P
87	Box (reactor)	Y45 650 876	1		
88	Cord bush	Y45 650 231	1		
89	Reactor	Y45 613 179	1	⚠	
90	PTT screw 4x6	Y45 650 013	3		
91	ACL cover	Y45 650 811	1		
92	Cord clip	Y45 650 251	1		
93	Cord clip	Y45 650 227	1		
94	Board cover	Y45 613 803	1		
95	Cover	Y45 650 817	1		
96	Cord bush	Y45 650 239	1		
97	Cord bush	Y45 650 233	1		
98	Circuit board	Y45 613 171	1	⚠	JT-24M4H

Circuit board parts

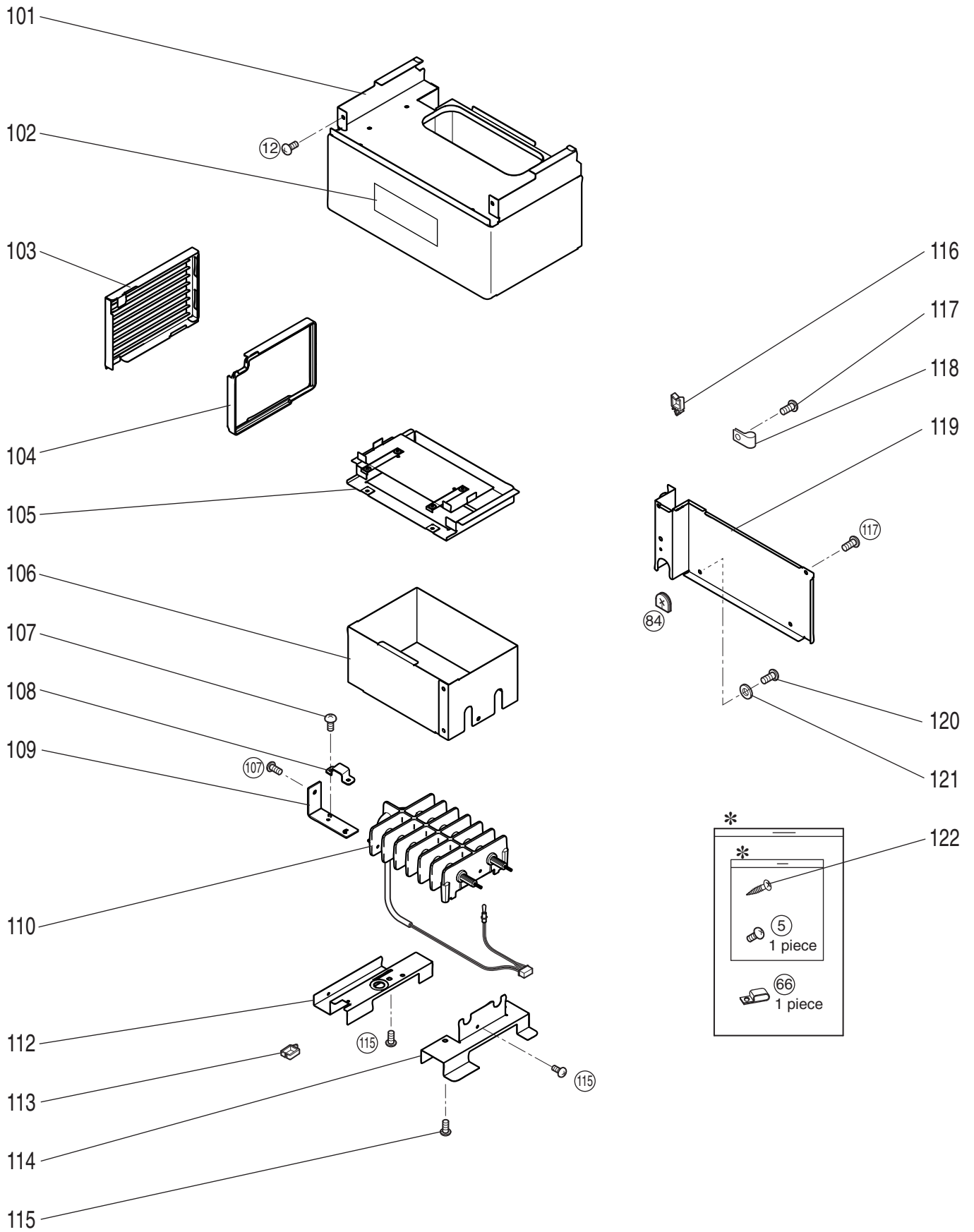


Heater unit parts

JT-SB116EH-W-CA

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
101	Casing	Y45 650 877	1		
102	Indicator plate	Y45 613 370	1		Tank
103	Side casing	Y45 650 878	1		
104	Filter	Y45 650 879	1	⚠	Black
105	Partition	Y45 650 821	1		
106	Heater box	Y45 650 820	1		
107	SW-PW PP screw M4	Y45 650 038	3		
108	Cord clip	Y45 650 238	1		
109	Fuse fix plate	Y45 650 824	1		
110	Heater	Y45 613 804	1	⚠	With a thermistor
112	Heater base R	Y45 650 823	1		
113	Cord bush	Y45 650 235	1		
114	Heater base L	Y45 650 822	1		
115	Spl screw 4x8	Y45 650 020	4		
116	Cord clip	Y45 650 252	1		
117	Spl screw 4x12	Y45 650 021	5		
118	Cord clip	Y45 650 224	1		
119	Back cover	Y45 613 802	1		
120	PP screw 4x8	Y45 650 004	1		
121	Spg. washer (4)	Y45 611 075	1		
122	Spl screw 5x30	Y45 650 022	6		

Heater unit parts



* shows accessory parts.

Wiring parts

JT-SB116EH-W-CA

No.	Name of part	Parts No.	Q'ty pcs/unit	Critical for safety	Remarks
131	Lead wire	Y45 650 253	1	⚠	Volume-Display
132	Lead wire	Y45 650 219	1	⚠	Main-Display
133	Lead wire	Y45 650 221	1	⚠	Main-Light Receiving
134	Lead wire	Y45 650 220	1	⚠	Main-Light Emitting

Wiring parts

