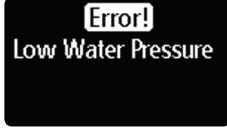


4. TROUBLESHOOTING

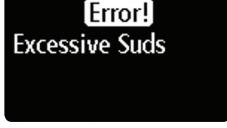
4-1. ERROR MODES

► This is a washer integrated error mode. For detailed information, refer to the general repair scripts.

| Error Type | For USA | | Causes | Remarks |
|---|---------|---|---|---|
| | LED | LCD | | |
| Water Level Sensor | LE |  | <ul style="list-style-type: none"> - The part of the hose where the water level sensor is located is damaged (punctured). - The hose is clogged with foreign material. - The hose is folded. - Too much lubricant has been applied to the insertion part of the air hose. - Hose engagement error (disengaged) - Part fault (Faulty internal soldering) - The water level sensor terminal is disengaged. - Main PBA fault. | |
| Motor Driving Error and Hall Sensor Error | 3E | | <ul style="list-style-type: none"> - The PBA connector terminal is not connected. - The motor spin net is not engaged. - The motor's internal coil is damaged (short-circuited or cut) - The hall sensor terminal is not connected. - Foreign material (a screw) has entered the motor. | This error occurs because of restrained revolutions |
| | E3 |  | <ul style="list-style-type: none"> - Motor overloaded due to too much laundry (Non-sensing) - The motor hall sensor terminal is not connected. - PBA fault - The motor driving error from the PBA is weak. : Unstable relay operation, etc. | This error occurs when an interference is generated due to too much laundry, etc. |
| | bE | | <ul style="list-style-type: none"> - This occurs due to erroneous operating signals from the motor hall sensor. - The IPM terminal of the main PBA is not connected. - The DD motor cover is out of place. - The PCB housing terminal is not connected. - PBA fault - DD motor fault | |
| Water Supply Error | nF |  | <ul style="list-style-type: none"> - Foreign material is entering the water supply valve. - The water supply valve terminal is not connected. (Wire disconnected) - The warm water and rinse connectors are wrongly connected to each other. - This occurs if the PCB terminal from the drain hose to the detergent drawer is not connected. Check whether the transparent hose is folded or torn. | If this error occurs in the Wool course |
| | | | <ul style="list-style-type: none"> - The cold and warm water supply hoses are wrongly engaged into each other. - The temperature of the water supplied through the dry valve during a dry cycle is sensed as higher than 70 °C. | |
| | | | <ul style="list-style-type: none"> - The water temperature is sensed as higher than 50 °C in the Wool or Lingerie courses. | |
| Drain Error | nd |  | <ul style="list-style-type: none"> - The pump motor impeller is damaged internally. - The wrong voltage (220 V → 110 V) is supplied to the parts. - Part fault - This occurs due to freezing in the winter season - The drain hose is clogged. (Injection error, foreign material) - Clogged with foreign material - The water pump terminal is not connected: rubber band, bills, cotton, hair pins, coins have collected inside the drain pump ASSY. | |

| Error Type | For USA | | Causes | Remarks |
|------------------------------------|---------|---|--|---|
| | LED | LCD | | |
| Power Error | 2E |  | <ul style="list-style-type: none"> - Check the consumer's power conditions. : Make sure to check the operating voltage. Connect a tester to the internal power terminals during the Boil or Dry operations and observe the washing machine's operation carefully. : Check the voltages. (An error occurs when under or over voltage is supplied.) : Check whether a plug receptacle is used. When the connecting wire is 1m, a momentary low voltage may drop up to 10 V - Main PBA fault (sometimes) | |
| | PF | - | <ul style="list-style-type: none"> - This error is not a fault but occurs during a momentary power failure : When this error code is displayed, the operation restarts from the cycle that was stopped due to the power failure. : If the washing machine is not operating and this error code is displayed, it is displayed to notify that a power failure has occurred. | |
| Communication Error | - |  | <ul style="list-style-type: none"> - The signals between the sub and main PBAs are not sensed because of communication error. - Check the connector connections between the sub and main PBAs carefully. → Check for incorrect or loose connections, etc. - Remove the sub PBA C/Panel and check for any faulty soldering. | |
| Switch Error (Main Relay Error) | E2 |  | <ul style="list-style-type: none"> - The Power button is pressed continually (for more than 12 seconds). - A switch is jammed or stuck due to be pressed unevenly due to deformation of the control panel or button. - This error may occur when the screws that hold the sub PBA in place are tightened too much. - A button other than the Power button is continually pressed (for more than 30 seconds). - Deformation of an internal plastic injection part - A screw for assembling the sub PBA is tightened too much. | |
| | Sr |  | <ul style="list-style-type: none"> - The main relay of the PBA is short-circuited. - The main relay terminal is connected incorrectly. (The terminal is bent and contact cannot be made.) | When the PBA motor relay does not operate |

| Error Type | For USA | | Causes | Remarks |
|---------------------|--------------------------|---|--|---|
| | LED | LCD | | |
| Door Error | dS (Before operation) | Error! Door is open. | <ul style="list-style-type: none"> - A switch contact error because of a deformation of the door hook - When the door is pulled by force | When the door is not opened after the door open operation |
| | dL (During operation) | Error! The door was unlocked while the washer was running. | <ul style="list-style-type: none"> - This occurs in the Boil wash because the door is pushed due to a pressure difference from internal temperature changes | When the door is not locked after the door close operation |
| | LO (Unlock Fail) | Error! The door will not unlock. | <ul style="list-style-type: none"> - The door lock switch terminal is connected incorrectly. - The door lock switch terminal is broken. - This occurs intermittently because of an electric wire leakage - Main PCB fault | |
| | FL (Lock Fail) | Error! The washer door would not lock. | | |
| Heater Error | Hr (Heater Relay) | Error! Water Temperature Control Problem | <ul style="list-style-type: none"> - The washing heater is short-circuited or has a wire disconnected. - The washing heater in the tub has an error. (Contact error, temperature sensor fault) - If the water level sensor operates without water because water is frozen or for any other reason and the temperature sensor engaged at the bottom to prevent overheating for the washing heater detects a temperature of 100 to 150 °C, the washing machine turns the input power off. <p>- This error occurs when the red temperature sensor at the center of the dry heater operates (at a temperature higher than 145 °C)</p> <ul style="list-style-type: none"> : Corrective action – Press the button at the center lightly. The washing machine will operate normally. Alternatively, replace the temperature sensor if the temperature sensing is unstable because of functional degradation. - This occurs when the steam function does not operate normally. - This error does not occur in existing drum products. Check whether the product is a steam model | If the heater has no error, this occurs because of a PBA relay malfunction. |
| Water Leakage Error | LE | Error! Water Leakage Problem | <ul style="list-style-type: none"> - Heater engagement fault (out of place) - The air hose is out of place and water leakage occurs during the spin cycle. - The tub back at the safety bolts fixing part is broken. - Water leakage occurs at the front with foaming because of too much detergent - Water leakage occurs because the connecting hose to the detergent drawer is connected incorrectly. - The drain pump filter cover is engaged incorrectly. - Water leakage occurs at the drain hose. - The duct condensing holding screws are worn. - The nozzle-diaphragm is engaged in the opposite direction or the rubber packaging is omitted. - Water leakage occurs because the screws that hold the tub back and front in place are fastened incorrectly. - Waterlever sensor is faulty. | |

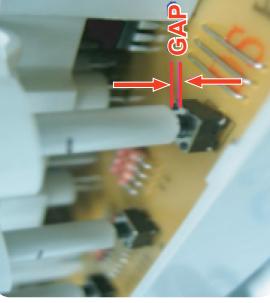
| Error Type | For USA | | Causes | Remarks |
|--------------------------|---------|---|---|--|
| | LED | LCD | | |
| Overflow Error | OE |  | <ul style="list-style-type: none"> - Water is supplied continually because the water level detection does not work. - Because the drain hose is clogged and there is an injection error (at a narrow section), the water level detection does not work and water is supplied continually. - Water is supplied continually because of freezing or because there is foreign material in the water supply valve. - This error may occur when the water level sensor is degraded. | This error occurs because the water level sensor terminal is out of place. |
| Temperature Sensor Error | tE |  | <ul style="list-style-type: none"> - The washing heater in the tub has an error. (Contact error, temperature sensor fault) - The connector is connected incorrectly or is disconnected. - If the water level sensor operates without water because the water is frozen or for any other reason and the temperature sensor engaged at the bottom to prevent overheating for the washing heater detects a temperature of 100 to 150 °C, the washing machine turns the input power off. | Heater sensor fault : When the connector is connected incorrectly or has a wire disconnected or contact error |
| Unbalance Error | dc |  | <ul style="list-style-type: none"> - As laundry causes this error, check the laundry. - Find the reason for the unbalance and solve it as directed in the user manual. | |
| Foaming Detected | SUDs |  | <ul style="list-style-type: none"> - This occurs when too much foaming is detected. It is also displayed while foaming is removed. When the removal is finished, the normal cycle proceeds. "Sud" or "SUDs" is displayed when too much foaming is detected and "End" is displayed when the removal of the foaming is finished. (This is one of the normal operations. It is an error for preventing non-sensing faults.) | |
| Mems PBA Error Detected | E8 | - | <ul style="list-style-type: none"> - Error detected in the Mems PBA or data error detected. Check the wire connections. Replace if necessary. 1. Check the wire connections. 2. Replace the Mems PBA. 3. Main PBA wire connection error or PBA's silver nano part malfunction. Replace if necessary. | |

4-2. CORRECTIVE ACTIONS FOR EACH ERROR CODE

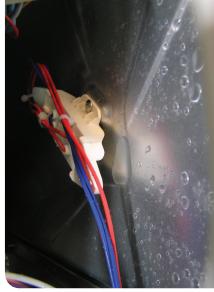
| Error Type | Error Mode | LED | LCD | Causes | Corrective Actions | Description of Photo |
|---|----------------|---|-----|--|---|---|
| Water Level Sensor | LE | Error! Water Level Sensor Problem | | <ul style="list-style-type: none"> Water level sensor fault Incorrect connections of the water level sensor terminal The hose part for the water level sensor is folded. Main PCB fault | <ul style="list-style-type: none"> Check the water level sensor terminal connections and contacts. An error occurs if an incorrect water level sensor is used. Make sure to check the material code. (Abnormal operation) If the water level sensor is faulty, replace it. If the error persists despite taking the action above, replace the PBA. | <p>Check the water level sensor frequency.</p> <ul style="list-style-type: none"> - Check it after the water level sensor and the connector are connected. - Frequency: Approx. 26.4 KHz with no load |
| Washing Motor Error and Hall Sensor Error | 3E E3 bE | | | <ul style="list-style-type: none"> Washing motor fault Washing motor hall sensor fault Incorrect connections of the washing motor/hall sensor connector Washing motor rotor and stator fault Main PCB fault | <ul style="list-style-type: none"> Check the motor connector terminal connections and contacts. 3E is displayed because overloading occurs due to too much laundry. If the hall sensor terminal is faulty, replace the hall sensor. Check whether the stator of the motor cover is damaged. Check for coil disconnections due to foreign material. If the PBA control circuit is faulty, replace the PBA. | <p>► UNIVERSAL MOTOR</p> <p>Check the Resistance of Nos. 1 and 4 of the wire pin on the side of the HALL SENSOR.</p> <ul style="list-style-type: none"> - Resistance: Approximately 40 to 45 Ω (Normal) |

► These are common

| Error Type | Error Mode LED | Error Mode LCD | Causes | Corrective Actions | Description of Photo |
|--------------------|-------------------|--|--|--|---|
| Water Supply Error | nF |  | <ul style="list-style-type: none"> Water supply valve fault Main PCB fault Freezing in the winter season | <ul style="list-style-type: none"> If the water supply valve has a wire disconnected, replace it. Check whether the water supply valve is clogged with foreign material and whether water is supplied continually. Check whether no water is supplied because of freezing in the winter season. If the PBA relay operates abnormally, replace the PBA. | <p>1. Check the resistance for the water supply valve. Resistance: 4.0 to 5.0 Ω between the terminals of the water supply valve.</p> <p>2. Check whether there is foreign material in the water supply valve diaphragm.</p>   |
| Drain Error | nd |  | <ul style="list-style-type: none"> Drain pump fault Freezing in the winter season Foreign materials in the drain pump Main PCB fault | <ul style="list-style-type: none"> Check whether the revolutions of the drain pump motor are restrained by foreign material. Check the same thing for the natural drain process. Check the wire connectors on Main PCB and Drain Pump ASSY. The connector or wire may have poor physical connection. If the drain pump operates abnormally intermittently when the temperature of the water in the tub is high. If the motor revolutions are restrained due to freezing in the winter season, check the method to remove the freezing and remove as directed. | <p>► DRAIN MOTOR Resistance: Approximately 6.3 Ω between the Terminals for the Water Supply Valve</p> <p>► DRAIN PUMP Resistance: Approximately 174 Ω between the Terminals for the Water Supply Valve</p>   |

| Error Type | LED | Error Mode LCD | Causes | Corrective Actions | Description of Photo |
|---------------------------------|-------|---|--|---|---|
| Communication Error | - | Error! Electronic Control Problem | <ul style="list-style-type: none"> The signals between the sub and main PBAs are not sensed. Incorrect wire connections between the sub and main PBAs. | <ul style="list-style-type: none"> Check the wire connections and terminal contacts between the sub and main PBAs. Check for disconnected wires. Check whether the sub PBA is short-circuited because of moisture. If the main PBA's communication circuit is faulty, replace it. |  <p>Check the contact between the control panel buttons and their corresponding tact switch.</p> <ul style="list-style-type: none"> - There must be a gap between a control panel button and its corresponding micro switch. <p> Otherwise, an error occurs after approx. 30 seconds has passed.</p> |
| Switch Error (Main Relay Error) | E2 Sr | Error! A button is either stuck or is being pressed continuously. | <ul style="list-style-type: none"> The Power button is continually pressed. A button other than the Power button is continually pressed. Main PCB relay fault | <ul style="list-style-type: none"> Check whether either the Power switch or a tact switch is continually pressed. Check whether the service PBA holding screws are fastened too tight. If they are fastened too tight, loosen them a little. If the main PBA switching IC on/off error has occurred, replace the main PBA. The "E2" error occurs if the main relay connections are incorrect. Check the connections. If there is no error in the connections, replace the main PBA. |  <p> GAP</p> |

| Error Type | LED | Error Mode LCD | Causes | Corrective Actions | Description of Photo |
|--------------|-----|--|--|--|--|
| Door Error | dS | Error! Door is open. | | <ul style="list-style-type: none"> If a dS error occurs, check whether it occurs during the Boil cycle. If it is detected that the door is open, close the door. The 220V is directly connected to the door. Check and repair the power wire connections and insulation state. Check the door switch. Replace if faulty. Check the main PBA door sensing circuit. Replace if faulty. | <p>► TYPE 1 Check the door switch voltage. Check the voltage after the power is on. (That is, check the door switch when the power button is turned on and no operating key is pressed.)</p>  |
| | dL | Error! The door was unlocked while the washer was running. | | <ul style="list-style-type: none"> Door switch fault Drain pump fault Dry duct fan motor fault Main PCB fault | <p>► TYPE 2 The resistance of Nos. 3 and 5 of the DOOR LOCK SWITCH must be approximately 949 Ω.</p>  |
| | LO | Error! The door will not unlock. | | | |
| | FL | Error! The washer door would not lock. | | | |
| Heater Error | Hr | | <ul style="list-style-type: none"> Heater fault A fault of the red temperature sensor at the center of the dry heater Steam function fault Freezing in the winter season | <ul style="list-style-type: none"> Check for wires are disconnected in the washing heater. Replace if faulty. <ul style="list-style-type: none"> An Hr error occurs. If the dry heater or air refresh heater overheating sensor is faulty, replace it. <ul style="list-style-type: none"> An Hr error occurs. Check the steam heater. Replace if it is faulty. <ul style="list-style-type: none"> An Hr error occurs. | |

| Error Type | Error Mode LED | Error Mode LCD | Causes | Corrective Actions | Description of Photo |
|---------------------|-------------------|-------------------|--|---|---|
| Water Leakage Error | LE | | <ul style="list-style-type: none"> Check for any leakage. Foreign material in the DV case Fault of a hose or incorrect part engagement in the product | <ul style="list-style-type: none"> Check for any leakage on the base, Hose, Valve and Tub connections and take any required action. During natural draining, this error occurs because the drain bellows are clogged with foreign material. Remove the foreign material. Check the drain motor operation. Replace if it does not operate normally. | <p>► DRAIN PUMP TYPE (Automatic Drainage)</p> <p>Check whether there is any foreign material in the bellows.</p> <p>☒ Check for any foreign material, such as underwear wires or coins.</p>    |
| Overflow Error | OE | | <ul style="list-style-type: none"> Water level sensor fault Freezing in the winter season | <ul style="list-style-type: none"> If the water level sensor has a functional error, replace it. Check the hose connected to the water level sensor. ☒ Check whether the hose is folded, cut, or damaged. | <p>► PUMP TYPE</p> <p>Check for any leakage on the base, Hose, Valve and Tub connections.</p>  |

| Error Type | LED | LCD | Causes | Corrective Actions | Description of Photo |
|--------------------------|-----|---|--|--|----------------------|
| Temperature Sensor Error | tE | Error! Temperature Sensor Problem | <ul style="list-style-type: none"> Washing temperature sensor fault Dry temperature sensor fault Faulty and incorrect connections of the dry condensing sensor Main PCB fault Freezing in the winter season | <ul style="list-style-type: none"> Check the connections for the washing heater temperature sensor connector. If the washing heater temperature sensor has a functional error, replace it. - A tE error occurs. Check the connections for the dry heater temperature sensor connector. If the dry heater temperature sensor has a functional error, replace it. Check the connections for the duct condensing temperature sensor connector. If the duct condensing temperature sensor has a functional error, replace it. | |
| Unbalance Error | dc | Error! Unbalanced Load | <ul style="list-style-type: none"> Motor hall sensor fault Caused by the laundry contents | <ul style="list-style-type: none"> Check the type of laundry. Check whether they may cause an unbalanced situation. Educate the consumer in this case is to press pause reposition the load or remove a few items. Press start to continue and complete the wash cycle. | |

MEMO
