



Fast Track Troubleshooting

Model:
WF405ATP**



Bulletins:

IMPORTANT SAFETY NOTICE – “For Technicians Only” This service data sheet is intended for use by persons having electrical, electronic, and mechanical experience and knowledge at a level generally considered acceptable in the appliance repair trade. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or seller cannot be responsible, nor assume any liability for injury or damage of any kind arising from the use of this data sheet.

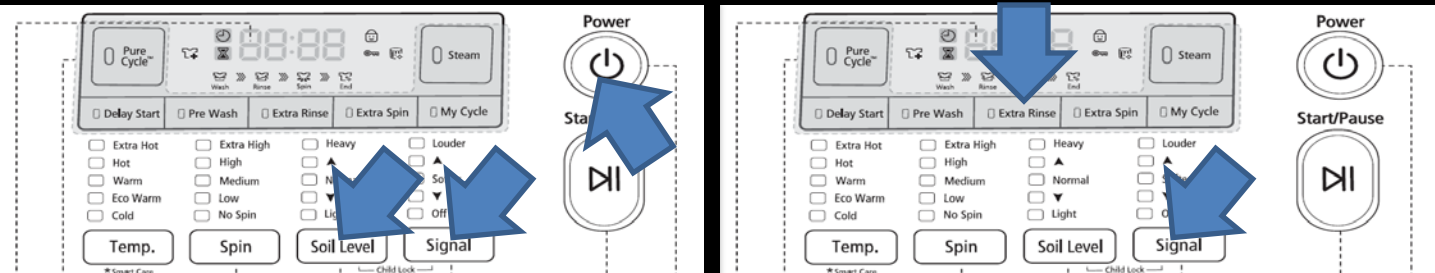
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Support Information:

HELP: 1-888-751-4086 (Tech Sup. – ASC/SSD)
1-866-894-0637 (Tech Sup. - FE/ME)

GSPN: http://service.samsungportal.com/EP/web/portal/jsp/EP_Default1.jsp

PLUS ONE: <http://my.plus1solutions.net/clientPortals/samsung>



****Quick Test Mode****

Water valve, motor, door, drain pump, LEDs, Soft Ver.

How to Enter: -- Press **Soil Level** Key, **Signal** Key and **Power** Key at the same Time.

1. All LED's light up and it sends out Beep Sound when it enters into the **Quick Test Mode**. (Including 7-Segment)
2. Displays software version for a sec and Clear EEprom. (Ex. If S/W Version is 49, 7-Segment will display L949)
3. When the version is displayed, turn the Jog-Dial so that the version disappears. Press the following keys to test the various components.
 - **Temp Key** : [Water Valve Test](#)
 - **Spin Key** : [Door Lock/Unlock Test](#)
 - **Soil Key** : [Water Heater Test](#)
 - **Water Test**
 - **Signal** : [Drain/Bubble Pump Test](#)

****EEPROM Clear Check****

All Memory will be cleared including Fault codes

How to Enter: * With the Power off*

-Press **Delay Start** Key, and **Power** Key at the same time. Good = Good , Fail = Fail

****Service Mode****

Verify operations and troubleshoot, Check Error codes

How to Enter/Exit: -- Press **Extra Rinse** Key, **Signal** Key at the same time for **3 Seconds**

*****Diagnostic code check*****

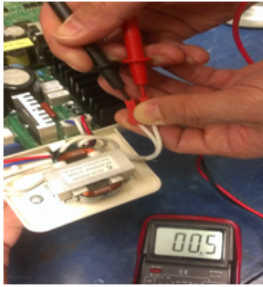
1. Activate the Service Mode first.
2. Press the **“Spin key”** key to start Diagnostic Code Check Mode Code “d” will start flashing.
3. To cycle through the diagnostic codes (d1,d2,d3~d9), turn the Rotary Cycle Selector in one direction (either Clockwise or Counterclockwise).
4. Now, when turning the Rotary Selector Key in the same direction, it shows diagnostic codes from the latest (d1).
5. When turning it in the opposite direction, it shows the diagnostic codes in the reverse order. Ex) When it stops at d5 and turns backward, it shows from d4 down to “d”. Refer to Diagnostic Code.

In Service mode Press:

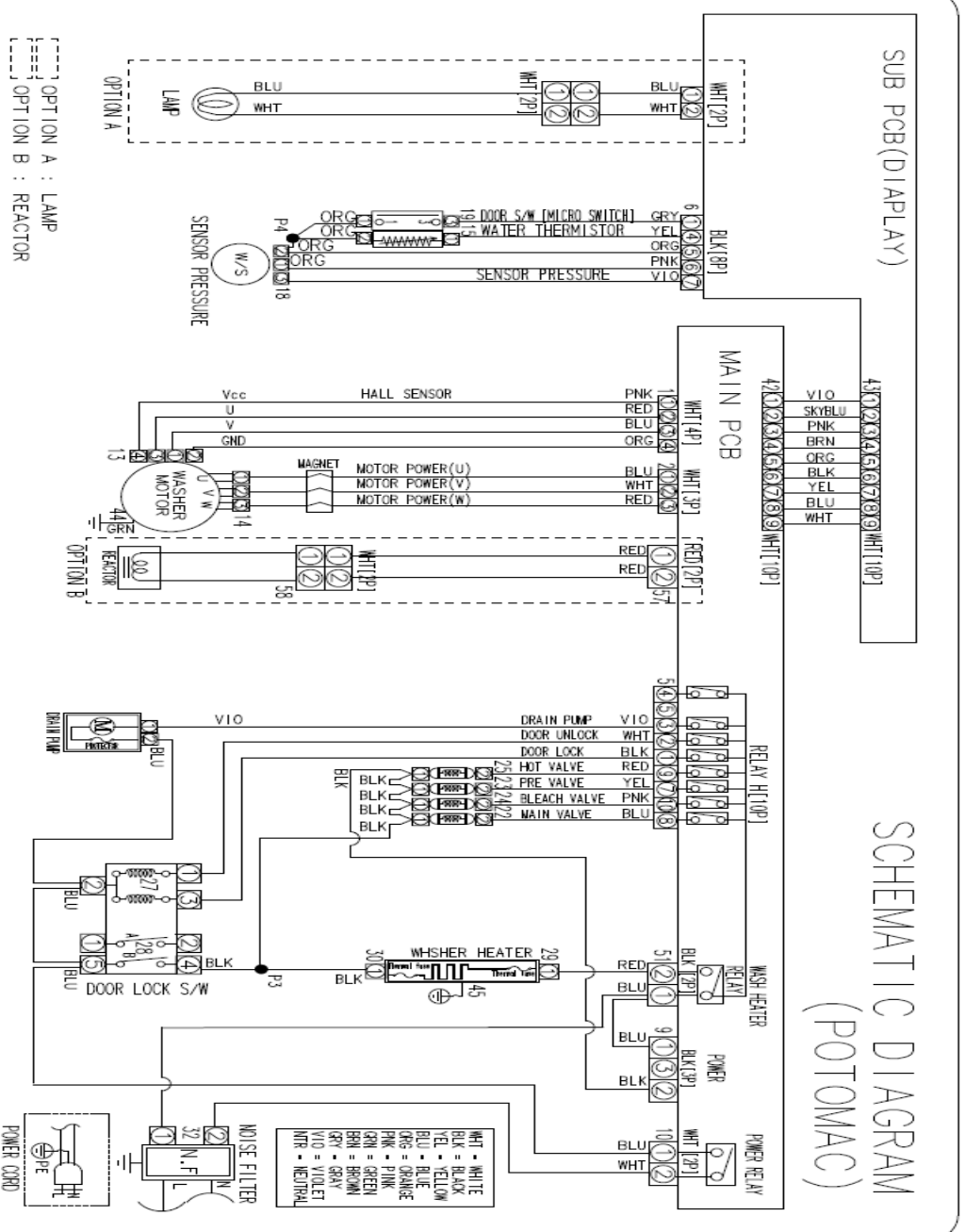
- **Pre wash + Soil level for 3sec:** to start [Quick Spin Test](#)
- **Signal:** To Check [Cycle Count](#)
- **Soil level:** To Check [Software Version](#)
- **Extra Rinse:** To enter [Board Input test](#) -*Move Jog dial to check LED*

Components Check

Door Lock S/W	Water Level Sensor	Water Valve
		
1. Check the door switch resistance. 2. Check the resistance after the power is off. 3. The resistance across No.1 and No.3 of the Door Lock Switch must be approximately 40 to 57Ω.	1. Check the water level sensor frequency. 2. Check it after the water level sensor and the connector are connected. 3. Frequency: Approx. 26.4 kHz with no load.	1. Check the resistance for the water supply valve. Resistance : 1.0k to 1.2kΩ 2. Check whether there is foreign material in the water supply valve diaphragm. 3. If above test is ok, activate the "water valve test" and check the voltage of each valve for 110V. If voltage is NG change main PCB.

Drain Motor	Drum Motor	Reactor
		
Resistance : Approximately 174Ω between the terminals for the Water Supply Valve.	Plug out the connector and read resistances at any two of the three terminals on Motor : Should be 15 Ω	Check resistance approximately 0.5Ω If no resistance is found the reactor is bad and the unit will not turn on

BLK	BLACK
BLU	BLUE
GRN	GREEN
GRY	GRAY
NTR	NATURAL
ORG	ORANGE
PNK	PINK
RED	RED
SKYBLU	SKYBLUE
VIO	VIOLET
WHT	WHITE
YEL	YELLOW



MAIN PCB

- CN6
1. AC Power Port
 2. Door Detection Sensor(LOCK, UNLOCK)
 3. NC

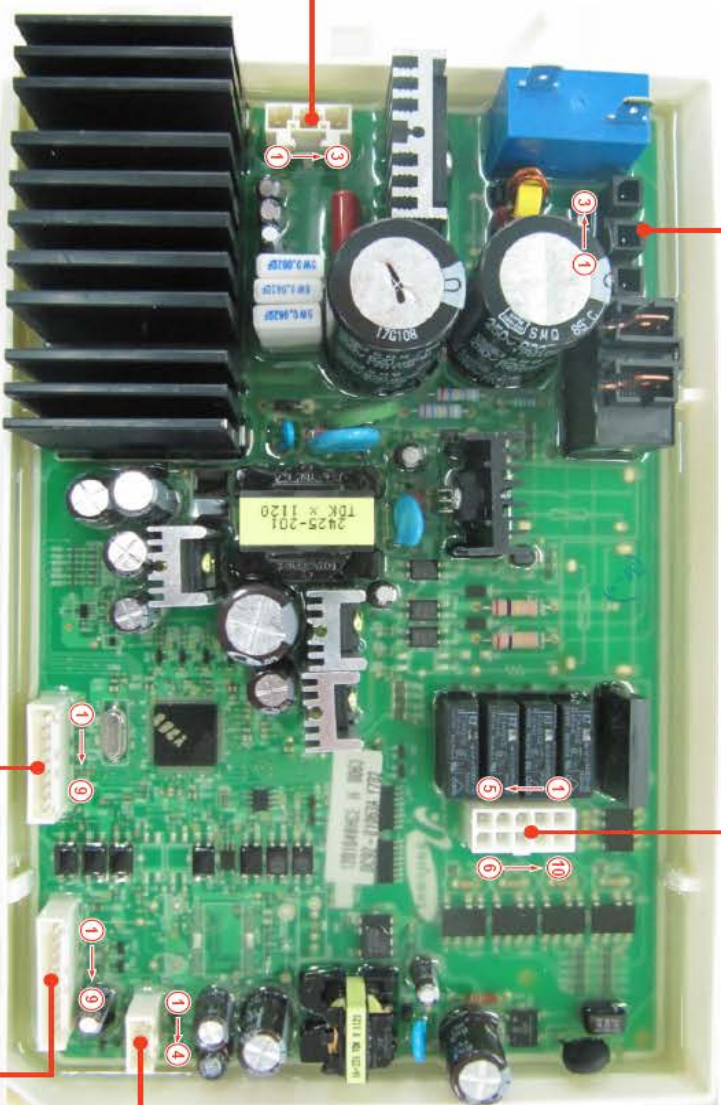
- CN10
1. NC
 2. BUBBLE PUMP
 3. DRAIN_PUMP
 4. DOOR_UNLOCK
 5. DOOR_LOCK
 6. DRY VALVE
 7. PRE VALVE
 8. COOL VALVE
 9. HOT VALVE
 10. BLEACH VALVE

- CN5
1. Motor Power (W Phase)
 2. Motor Power (V Phase)
 3. Motor Power (U Phase)

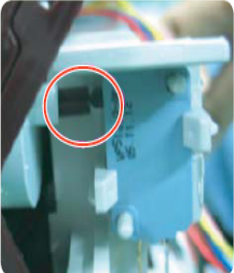
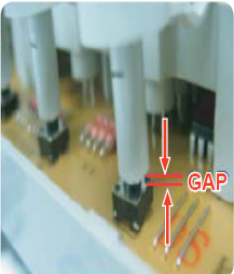
- CN3
1. 5V
 2. Hole Sensor Signal
 3. Hole Sensor Signal
 4. GND

- CN4
1. 5V
 2. NC
 3. DDI
 4. DCK
 5. DMS
 6. DRST
 7. FLMD0
 8. DDO
 9. GND

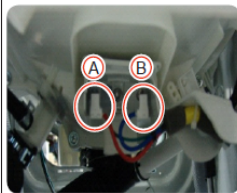
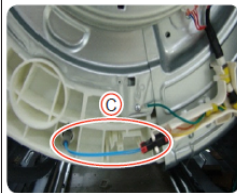
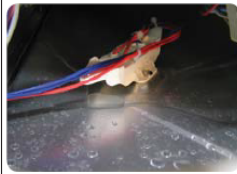
- CN10
1. TXD
 2. RXD
 3. RESET
 4. 5V
 5. GND
 6. 15V
 7. NC
 8. WATER LEVEL
 9. RELAY WATCHDOG



Error Type	Error Mode		Causes	Corrective Actions	Description of Photo
	LED	LCD			
Water Level Sensor	LE	Error! Water Level Sensor Problem Error! Sensor del nivel de agua.	- 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	- 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.	 Check the water level sensor frequency. - 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	Error! The motor is not working properly. Error! El motor no funciona correctamente.	- 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	- 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.	 ► UNIVERSAL MOTOR Check the Resistance of Nos. 1 and 4 of the wire pin on the side of the TACHO SENSOR. - Resistance: Approximately 40 to 45 Ω (Normal)  ► THREE PHASE MOTOR Measure the Resistance of Nos. 2 and 3 of the wire pin on the side of the HALL SENSOR. - The revolution of the drum needs to be reproduced. (Turn the drum by hand.) - Resistance: Approximately 3 to 12V (Voltages may differ depending on the speed of the revolutions.)

Error Type	Error Mode		Causes	Corrective Actions	Description of Photo
	LED	LCD			
Water Supply Error	nF nF1	Error! Low Water Pressure Error! Baja presión de agua.	- Water supply value fault - Main PCB fault - Freezing in the winter season	- 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.	  - Check the resistance for the water supply valve. - Resistance: 0.8k to 1.8kΩ between the terminals of the water supply valve. - Check whether there is foreign material in the water supply valve diaphragm. - If the water supply valve filter is clogged, clean filter.
Drain Error	nd	Error! No Draining Error! No funciona el drenaje.	- Drain pump fault - Freezing in the winter season - Foreign materials in the drain pump - Main PCB fault	- 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.	 ► DRAIN MOTOR Resistance: Approximately 6.3Ω between the Terminals for the Water Supply Valve  [Drain]  ► Check the drain pump resistance. - Drain : Resistance : 13.5Ω ~ 16.5Ω - Bubble : Resistance : 18.75Ω ~ 22.75Ω
Communication Error	-	Error! Electronic Control Problem Error! Problemas con el control electrónico.	- The signals between the sub and main PBAs are not sensed. - Incorrect wire connections between the sub and main PBAs.	- 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.	-
Switch Error (Main Relay Error)	E2 Sr	Error! A button is either stuck or is being pressed continuously. Error! 1/2 Algún botón se encuentra trabado o está sometido Error! 2/2 a presión en forma ininterrumpida.	- The Power button is continually pressed. - A button other than the Power button is continually pressed. - Main PCB relay fault	- 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.	  Check the contact between the control panel buttons and their corresponding tact switch. - There must be a gap between a control panel button and its corresponding micro switch. ☑ Otherwise, an error occurs after approx. 30 seconds has passed.

Error Type	Error Mode		Causes	Corrective Actions	Description of Photo
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Communication Error	-	Error! Electronic Control Problem Error! Problemas con el control electrónico.	- The signals between the sub and main PBAs are not sensed. - Incorrect wire connections between the sub and main PBAs.	- 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.	-
Switch Error (Main Relay Error)	E2 Sr	Error! A button is either stuck or is being pressed continuously. Error! 1/2 Algún botón se encuentra trabado o está sometido Error! 2/2 a presión en forma ininterrumpida.	- The Power button is continually pressed. - A button other than the Power button is continually pressed. - Main PCB relay fault	- 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.	 Check the contact between the control panel buttons and their corresponding tact switch. - There must be a gap between a control panel button and its corresponding micro switch. - Otherwise, an error occurs after approx. 30 seconds has passed.
Door Error	dS	Error! Door is open. Error! La puerta está abierta.	- Door switch fault - Drain pump fault - Dry duct fan motor fault. - Main PCB fault	- 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 120V 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.	 ► TYPE 1 - Check the door switch Resistance. - The resistance of 1 and 3 Pin Must be approximately 125Ω.
	dL	Error! The door was unlocked while the washer was running. Error! 1/2 La puerta fue destrabada mientras la lavadora estaba Error! 2/2 en funcionamiento.			
	LO	Error! The door will not unlock. Error! La puerta no se puede abrir.			 ► TYPE 2 The resistance of Nos. 3 and 5 of the DOOR LOCK SWITCH must be approximately 949 Ω.
	FL	Error! The washer door would not lock. Error! No se podía trabar la puerta de la lavadora.			

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Heater Error	Hr	Error! Water Temperature Control Problem	- Heater fault - A fault of the red temperature sensor at the center of the dry heater - Steam function fault - Freezing in the winter season	- Check for wires are disconnected in the washing heater. Replace if faulty. - An Hr error occurs. - If the dry heater or air refresh heater overheating sensor is faulty, replace it. - An Hr error occurs. - Check the steam heater. Replace if it is faulty. - An Hr error occurs.	 [FRONT] ► TYPE 1 Check the resistance between A and B. It should be 16.05±0.65Ω.
		Error! Problema con el control de la temperatura del agua.			 [BACK] ► TYPE 2 If TYPE 1 is OK, Change a wash-thermistor at back of Tub.
Water Leakage Error	LE	Error! Water Leakage Problem	- Check for any leakage. - Foreign material in the DV case - Fault of a hose or incorrect part engagement in the product	- 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.	 ► DRAIN PUMP TYPE Check whether there is any foreign material in the bellows. ☑ Check for any foreign material, such as underwear wires or coins.
		Error! Problemas de pérdida de agua.			 ► PUMP TYPE Check for any leakage on the base, Hose, Valve and Tub connections.
Overflow Error	OE	Error! Water Supply Problem Error! Suministro de agua.	- Water level sensor fault - Freezing in the winter season	- If the water level sensor has a functional error, replace it. - Check the hose. This error occurs if it is torn or has a hole. - This error occurs if water is frozen in the winter season. Use hair dryer to defrost hose. Consider relocating the unit to warmer location.	 Check the hose connected to the water level sensor. ☑ Check whether the hose is folded, cut, or damaged.
Temperature Sensor Error	tE	Error! Temperature Sensor Problem Error! Sensor de temperatura.	- 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	- 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 Error! La carga desequilibrada.	- Motor hall sensor fault - Caused by the laundry contents	- 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.	-