Fast Track Troubleshooting

Model:
WF331ANW/XAA
WF331ANR/XAA

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.

Publication # tsWF331 Creation Date 03/12/2012

Quick Test Mode:

To enter press *Soil, Signal, & Power-* simultaneously with the power off.

1. All LED's light up and the washer beeps as it enters the Quick Test Mode.

2. The unit displays the software version.

3. After the displaying the software version, turn Jog dial CCW until version disappears.

Press **Spin** to test Door Lock/Unlock circuit.

Press **Temp Key (with door locked)** to cycle through the Water Valves circuit test in this order: Pre, Bleach, Cold Main, Hot, Steam then off.

Press **Soil Key** to test the Heater

Press **Signal Key** to test the Pump

Spin Only option:

Power on, Press and hold **Spin** until display changes.
Press **Spin** to select spin time.
Press **Start/Pause** to start cycle, Normal Cycle 10/12 minutes, Heavy Duty Cycle 11/13 minutes, Delicate Cycle 8 minute. Spin speed varies with cycle.

EEPROM Clear Check

Power off, Press Delay Start, Signal and Power Key at the same time. Good = Good Fail = FAIL All memory will be cleared, including Fault Codes This should be done when a new Main PCB is installed

Fabric Softener Dispenser Test:

Start Rinse and Spin Cycle. After fill is completed remove detergent drawer, place towel below opening and within 3 minutes the dispenser will activate

Service Mode:

This mode allows more detailed operation tests and troubleshooting, to enter press Signal & Delay Start simultaneously with the power on.

While in Service Mode (the Service Mode can be entered while the unit is in a wash cycle) the following tests can be performed:

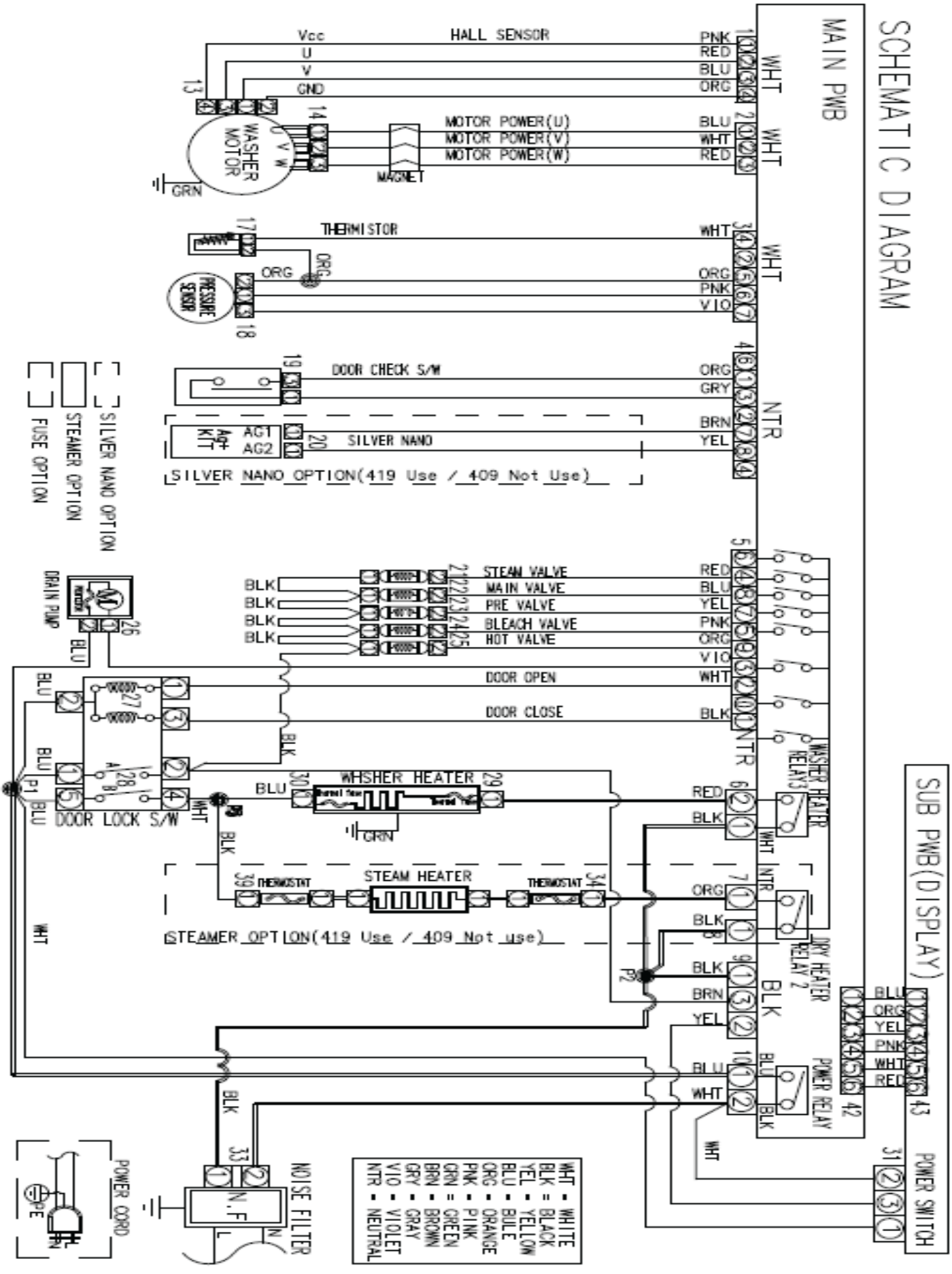
Quick Spin Test = Delay Start & Pre Wash: This accelerates the drum motor from 0 to maximum RPM over a ★few minutes. Press the Start/Pause button during the test to hold its spinning speed up to 10 min. before going back to Quick Spin Test Mode, return to spin with **Delay Start & Pre Wash**.

Cycle Count = Press the **Signal** button to see how many times the unit was used

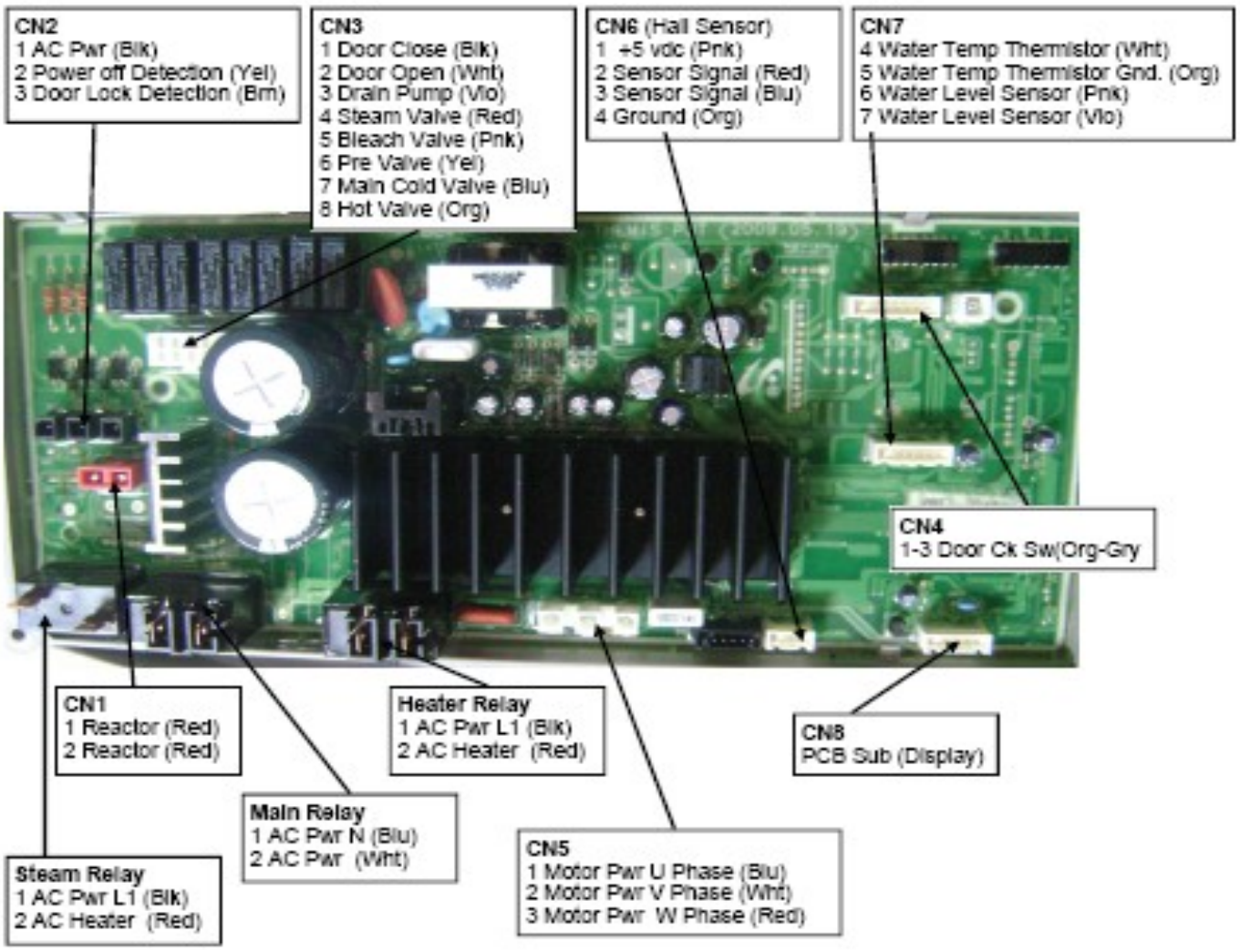
Soft Ware # = Press the **Soil Level** button to see the software version information

Fault Code Test = Press the **Pure Cycle** button to view the stored fault codes – then turn Dial to view error codes (Push Start/Pause while the code is displayed to view the number of cycles since the error occurred, push Start/Pause again to get back to faults)

Peripheral (Main PCB) input Tests, enter Service Mode & press Spin key. **1.** Turn the Dial so that the **Steam LED** is turned on. Next, press the Start/Pause Key. Temperature will be displayed in Fahrenheit .
2. Turn the Dial so that the **Cold/Cold LED** is turned on. Next, press the Start/Pause Key. The door switch status will be displayed (CL if Closed, OP if Open).
3. Turn the Dial so that the **No Spin LED** is turned on. Next, press the Start/Pause Key. The door lock Switch status will be displayed (UL if unlocked, LO if locked).
4. Turn the Dial so that the **Light LED** is turned on. Next, press the Start/Pause Key. The Water Frequency will be displayed.
Empty is approx 1613.


SCHEMATIC DIAGRAM
MAIN PWB
SUB PWB(DISPLAY)
HALL SENSOR
Vcc
U
V
GND
MOTOR POWER(U)
MOTOR POWER(V)
MOTOR POWER(W)
WASHER MOTOR
MAGNET
GRN
THERMISTOR
PRESSURE SENSOR
DOOR CHECK S/W
SILVER NANO
AG1
AG2
Ag+ KIT
SILVER NANO OPTION(419 Use / 409 Not Use)
SILVER NANO OPTION
STEAMER OPTION
FUSE OPTION
DRAIN PUMP
STEAM VALVE
MAIN VALVE
PRE VALVE
BLEACH VALVE
HOT VALVE
DOOR OPEN
DOOR CLOSE
DOOR LOCK S/W
WASHER HEATER
THERMOSTAT
STEAM HEATER
STEAMER OPTION(419 Use / 409 Not use)
WASHER HEATER RELAY3
DRY HEATER RELAY 2
POWER RELAY
POWER SWITCH
NOISE FILTER
N.F
POWER CORD
WHT = WHITE
BLK = BLACK
YEL = YELLOW
BLU = BULE
ORG = ORANGE
PNK = PINK
GRN = GREEN
BRN = BROWN
GRY = GRAY
VIO = VIOLET
NTR = NEUTRAL

Washer Connector Checks WF331



Water Level Sensor Check	**Test 1**	**Test 2**
Voltage: Connector CN 7 Pin 6 (Pink) and Pin 5 (Orange) and Connector CN 7 Pin 7 (Violet) and Pin 5 (Orange) Resistance: Connector CN 7 Pin 6 (Pink) and Pin 7 (Violet)	Operating voltage at no water in the drum- 2.5 VDC	Operating Resistance (Power off) Pin 6 (Pink) and Pin 7 (Violet) 22-24Ω
Heater Relay Check		**Test 2**
Connector CN2 Pin 3 (Brown) and Heater Relay Pin 2 (Red)	120VAC with the Heater On and 0VAC with the Heater off	Power Off, heater resistance is ~16.6Ω
Hall Sensor Check	**Test 1**	Test 2
Connector CN6 Pin 4 (Orange) and Pin 2 (Red) additionally Pin 4 (orange) and pin 3 (blue)	Manually spin the drum to see the voltage change, Power On 0Vdc or 3.75Vdc	Voltage at Pin #4 (BLK) and #1 (RED) of CN1 = 5VDC
D-D Motor Check	**Test 1**	Test 2
Connector CN8 Pin 1 (Red), Pin 2 (White) and Pin 3 (Blue)	Power Off ~18Ω across Pins 1-2, Pins 1-3, & Pins 2-3	N/A
	Test 1	Test 2
	Test 1	Test 2

Door Lock Check	**Test 1**	**Test 2**
Resistance check CN3 Pin #5 (Red) and Pin #7 (Wht)	Power Off, resistance is Approx 0.2 Ω	Motor resistance at CN3 Pins 1-2 (Blk-Brn) 40KΩ
Door Unlock Check		**Test 2**
Resistance check CN3 Pin #4 (Blu) and Pin #7 (Wht)	Power Off, resistance is Approx 0.2 Ω	Motor resistance at CN3 Pins 1-2 (Blk-Brn) 40KΩ
Drain Motor Check	**Test 1**	**Test 2**
Voltage at Pin #1 of RY12 (WHT) and Pin #9 (PNK) of CN4	120VAC with the pump On and 0VAC with the pump off	Voltage at Pin #1 of RY12 (WHT) and Pin #9 (PNK) of CN4 should be ~14Ω
Water Valve Check	**Test 1**	**Test 2**
Voltage at Pin #3 (BLK) of CN6 to Pin #2 (GRY) of CN4 Bleach Valve, Pin #3 (BLU) of CN4 Cold Valve, Pin #4 (RED) of CN4 Hot Valve, Pin #5 (WHT) of CN4 Rinse Valve	120VAC with the Valve On and 0VAC with the Valve off	Power Off, valve resistance is from 1202Ω - 1245Ω

Error Type	Error Mode		Details
	LED	LCD	
Water Level Sensor	LE 8		Check for water to the valves, clogged valve screens, defective valve solenoid coils. Check the water level / pressure sensor Check for 120VAC to the valve.
Motor Drive Error or Hall Sensor error	3E E3 bE 25		Check the motor drive connector, it may be loose. The hall sensor may be disconnected, loose or damaged . Check for a foreign object inside the motor or motor damage. The stator might be loose or damaged. The drum might be overloaded from too many clothes or the relay or PCB might be defective.
Water Supply Error	nF 3		Check the water valve wiring harness. Check whether the water supply valve is clogged with foreign material and whether water is supplied properly. Check for reversed fill hoses Check water temperature, if sensed as higher than 50 ˚C in the Wool or Lingerie cycle it will create error. Check the relays, if they operate correctly replace the Main PCB.
Fill Hoses Reversed	nF1		Correct Hot/Cold hose connections

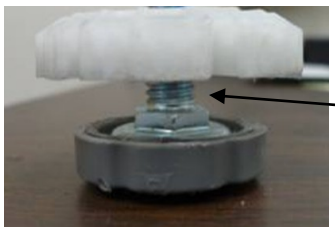
Samsung washers are designed to dispense bleach during the rinse cycle, The reason is - Bleach kills enzymes in detergent since bleach is a disinfectant not a cleaning agent it is dispensed during the rinse to protect the effectiveness of the detergent. Enzymes are added to detergent to break down stains to allow better cleaning. Dispensing in the rinse does not affect the bleach process used to keeps whites white and It also helps to minimize odor complaints.

Error Type	Error Mode		Details
	LED	LCD	
Drain Error	nd		Check for Foreign material entering the pump or hoses. Check to make sure the wiring harness is connected properly. Check the water pump terminal . Check for freezing. The water level fails to drop below the Reset Water Level within 30 minutes.
Power Error	2E		Make sure to check the operating voltage. (An error occurs when under or over voltage is supplied.) Check whether a plug receptacle is used. When the connecting wires are too small (extension cord use), a momentary low voltage may drop up to 10 V Main PBA fault (sometimes)
	PF		Momentary Power Failure
Communication Error	AE		Check the wire connections and terminal contacts between the sub and main PBAs. Check for disconnected wires. Check whether the sub PCB is short circuited because of moisture. If the main PCB's communication circuit is faulty, replace it.
Switch Error (Main Relay Error)	E2		Check whether either the Power switch or a tact switch (any button) is stuck down. Check whether the service PBA holding screws are fastened too tight pinching the contacts 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
	SR		
Door Error	ds (Before operation)		Check the door switch and latch alignment . Check the latch for damage Check the wiring harness to the latch. Check the door switch. Replace if faulty. Check the main PBA door sensing circuit. Replace if faulty. Finally verify he operation of the Main PCB
Failed Lock	FL (Lock Fail)		
Unlock Failure	LO (Unlock Fail)		

Error Type	Error Mode		Details
	LED	LCD	
Heater Error	Hr (Heater Relay)		This can be a short or a wire disconnected to the heater circuit. This can also be problem with the tub contacting the heater or if the water in the tub is frozen or there is no water. The error is triggered by temperatures above 145C. If the heater has no error, this occurs because of a PBA relay malfunction. Check the wiring harness to the heater. An Hr error occurs if the steam heater, is faulty, replace it.
Overflow error	OE 1E		Water is supplied continually because the water level detection does not work. - Verify the drain is working properly, the water level detection does not work and water is supplied continually. Verify the water valves shut off fully. Finally check the water level sensor.
Temperature Sensor Error	tE1		The washing heater temperature sensor in the tub has an error. Check the connections for the washing heater temperature sensor connector.
Unbalance Error	dC		Check the type of laundry. Check whether it may cause an unbalanced situation.- Educate the consumer in this case, to press pause, reposition the load or remove a few items. Press start to continue and complete the wash cycle.
Mems or Harness Failure	8E		Check MEMS PCB ,Main PCB & Wire-harness MEMS sensor error. If the output from the MEMS sensor is over 4.5VDC (open) or below 0.5VDC (shorted) for 5 seconds this error will occur.
Foaming Detected	SUdS Sd		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. (This is one of the normal operations. It is an error for preventing non-sensing faults.)
Clutch Motor Error	PE	Check the clutch motor windings and connector.	Clutch motor error. Occurs when the clutch motor position is not detected. The MICOM will attempt 3 times to determine the motor position. After the 3rd attempt the error will appear. Clutch motor error. Occurs when the clutch motor position is not detected.
Clutch assembly hall sensor error	PE1	Check the clutch hall sensor and wiring.	Clutch assembly hall sensor error. The drum will shake to try to determine if the clutch is in the right position. After 15 attempts if the hall sensor is not communicating with the MICOM the error will occur.

Check whether the washing machine is level to the floor with respect to the original position of the washing machine prior to service. Doing this now will reduce the need for a redo call and customer dissatisfaction.

✓ Vibrations can shorten the lifetime of the product.



When installing a washer and dryer on the first, or second floor, do not exceed this leg adjustment height for stability.