Troubleshooting Instruction

Initial Troubleshooting

Only qualified, trained service technicians with appropriate test equipment should service the heater. Remember that all parts of the system affect heater operation. Before starting this troubleshooting procedure, make sure that the pump is running correctly, that there are no blockages in the system, that the valves are correctly set and that the time clock is correctly set and is running.

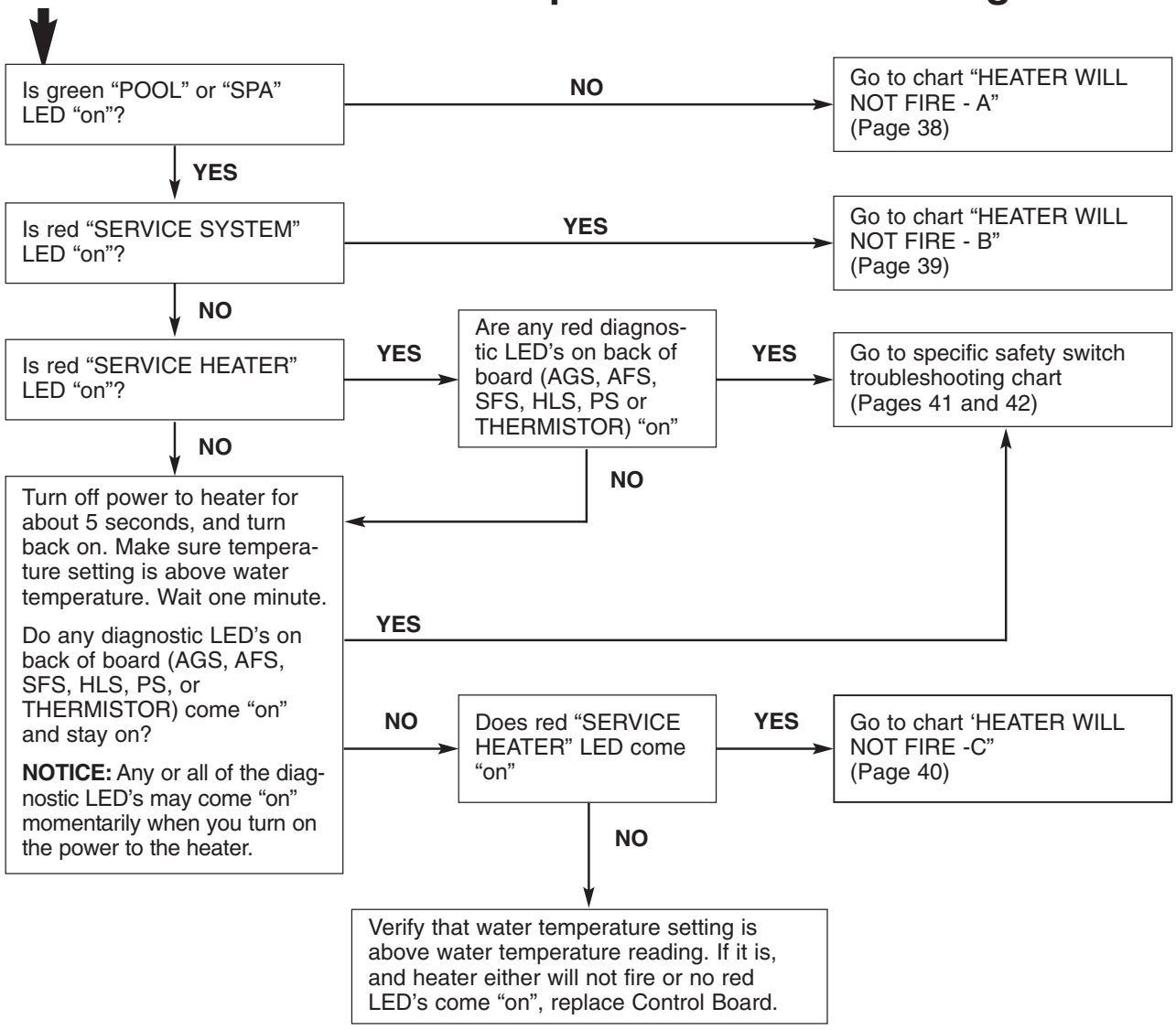
IMPORTANT! READ ME FIRST!

NOTICE: Installing the **black120 volt** plug in the control box and then connecting the heater to a **240 volt line will destroy the trans - former, control broad, and ignition control module, and will void the warranty.** If you install the red 240 volt plug and then connect the heater to a 120 volt line, the heater will not operate.

READ THE FOLLOWING CAREFULLY:

1. Check the line voltage to your heater. This heater will operate on either 120 Volts AC or 240 Volts AC.
2. Remove the covers and check the 12-pin plug in the back of the control box. The plug must match the voltage in the heater circuit.
3. If the 12-pin plug is not plugged into the back of the control box, select the correct plug from the bag in the control box and plug it in. The **BLACK** plug is for **120 volts,** the **RED** plug is for **240 volts.**

Start here for directions to specific Troubleshooting Chart

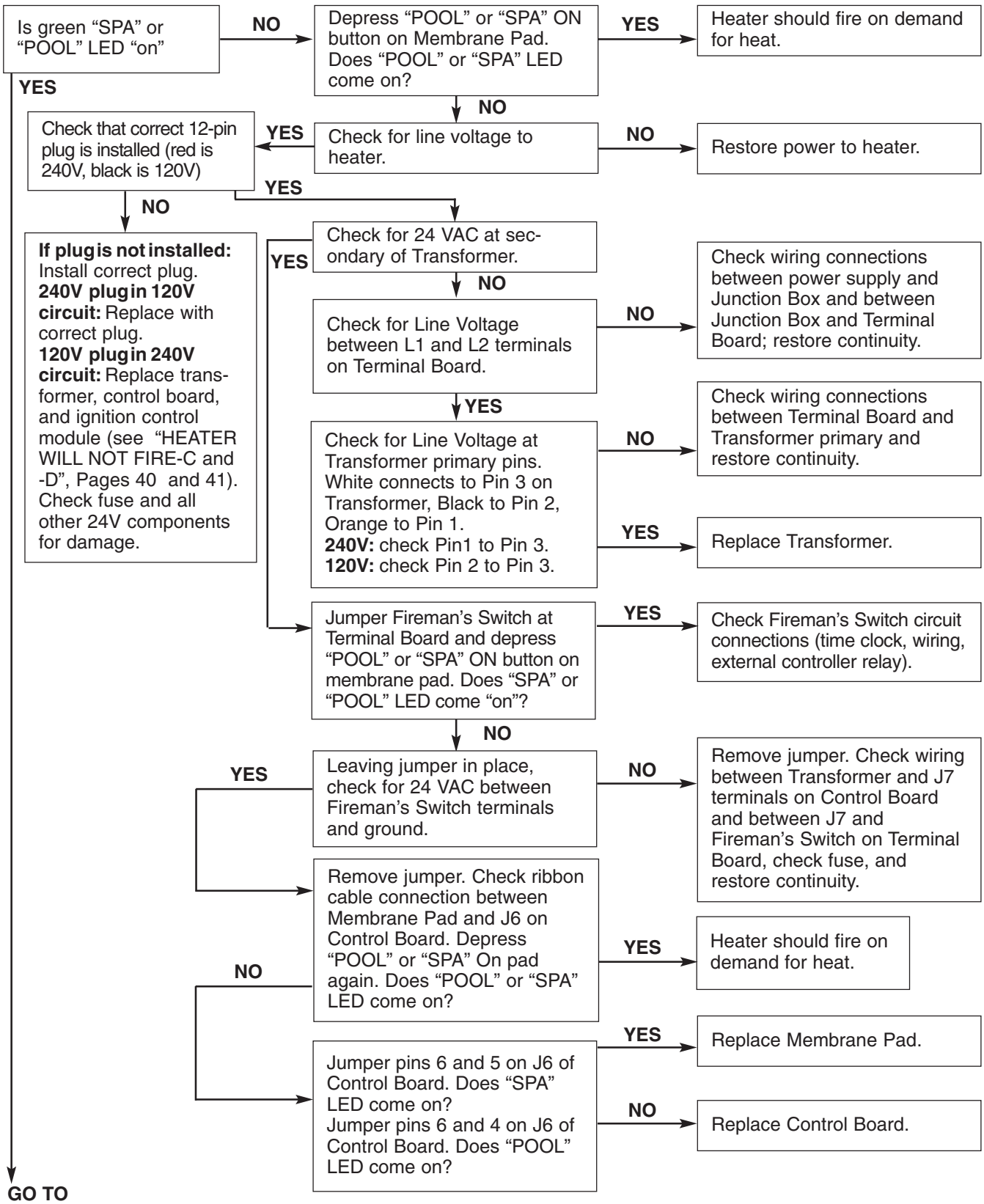


⚠ WARNING **Hazardous voltage. Can shock, burn or kill.** Disconnect power before servicing any components.

⚠ WARNING **Fire and Explosion hazard.** Do not jumper switch terminals to remedy a failed safety switch.

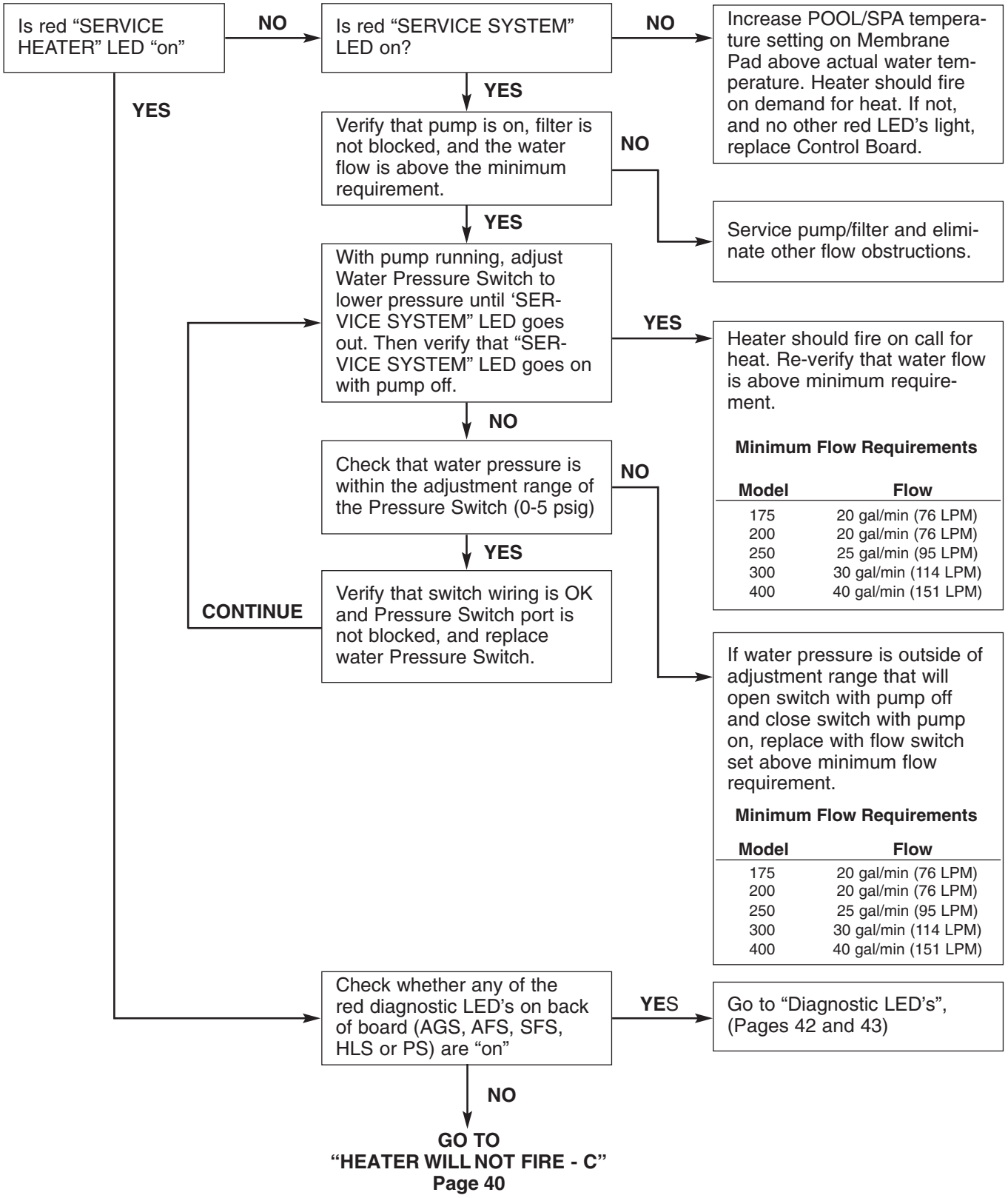
Heater Will Not Fire - A

Start



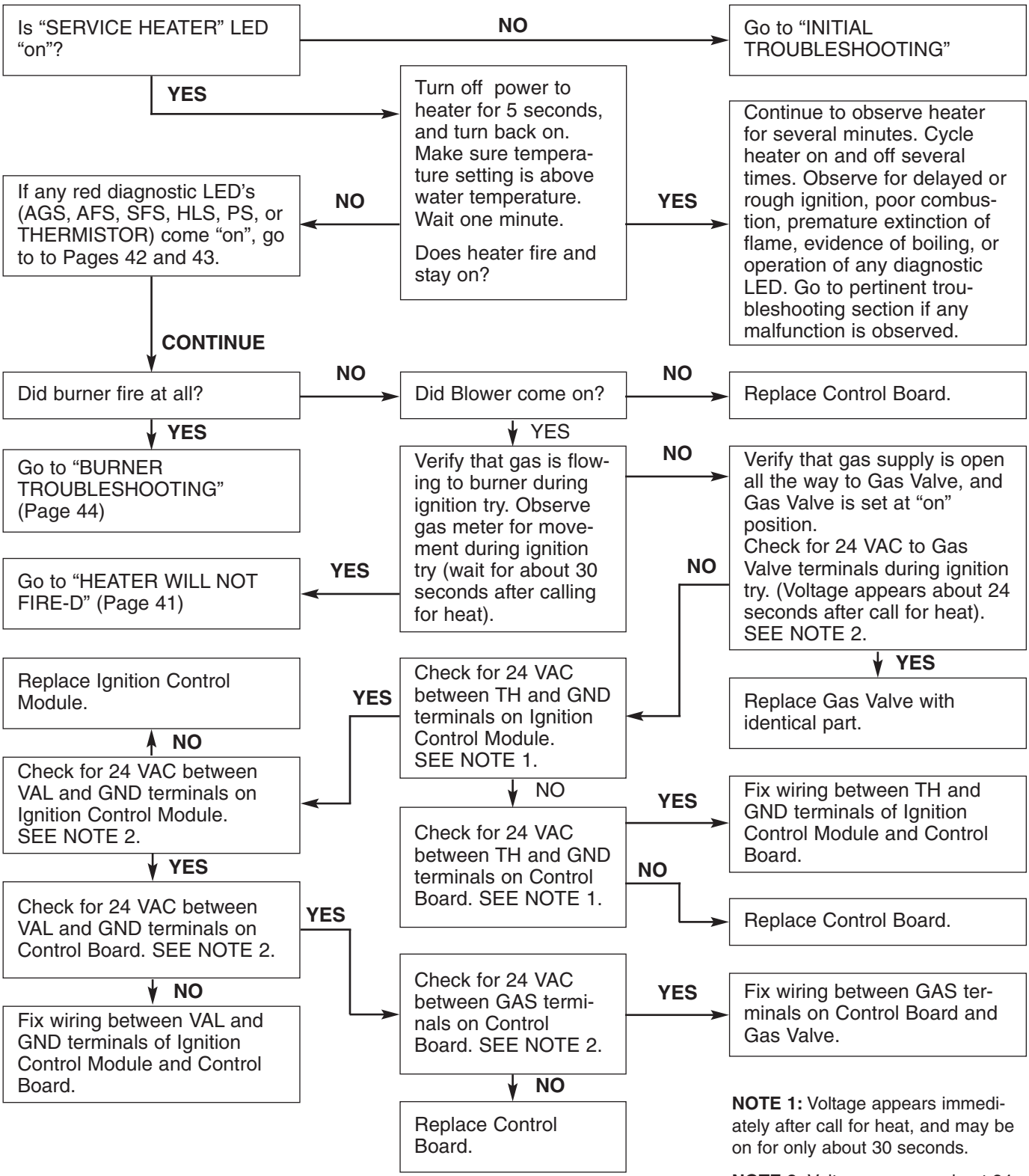
Heater Will Not Fire - B

Start



Heater Will Not Fire - C

Start



NOTE 1: Voltage appears immediately after call for heat, and may be on for only about 30 seconds.

NOTE 2: Voltage appears about 24 seconds after call for heat, and may be on for only about 7 seconds.

Heater Will Not Fire - D

IMPORTANT! READ ME FIRST!

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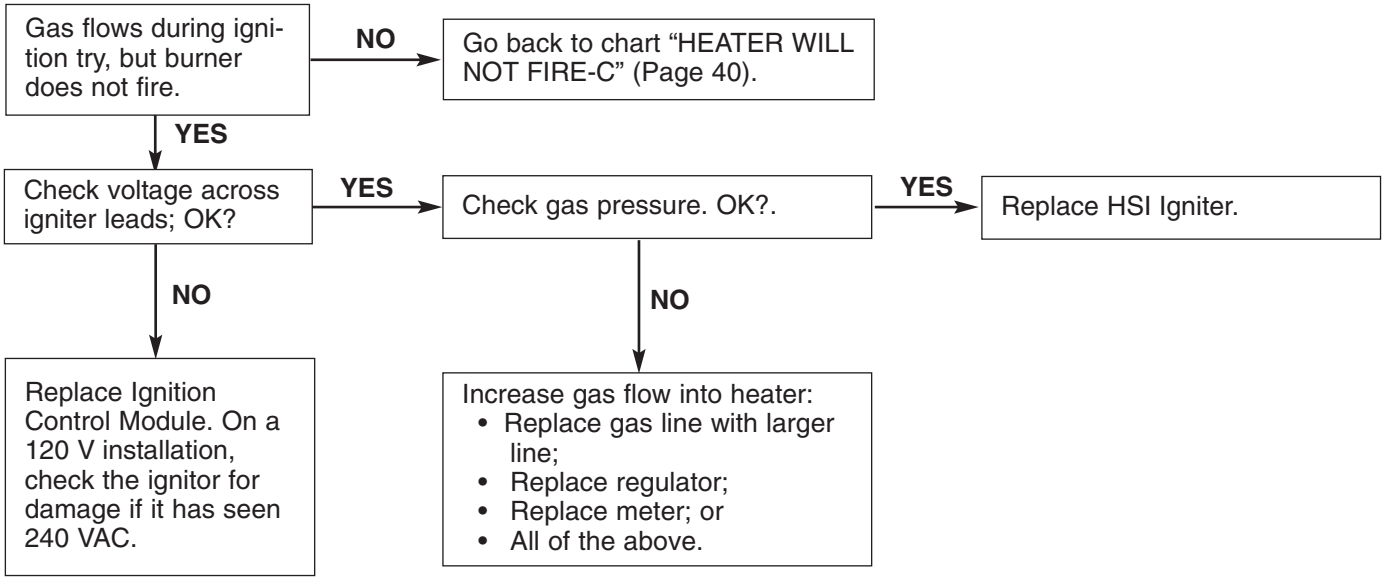
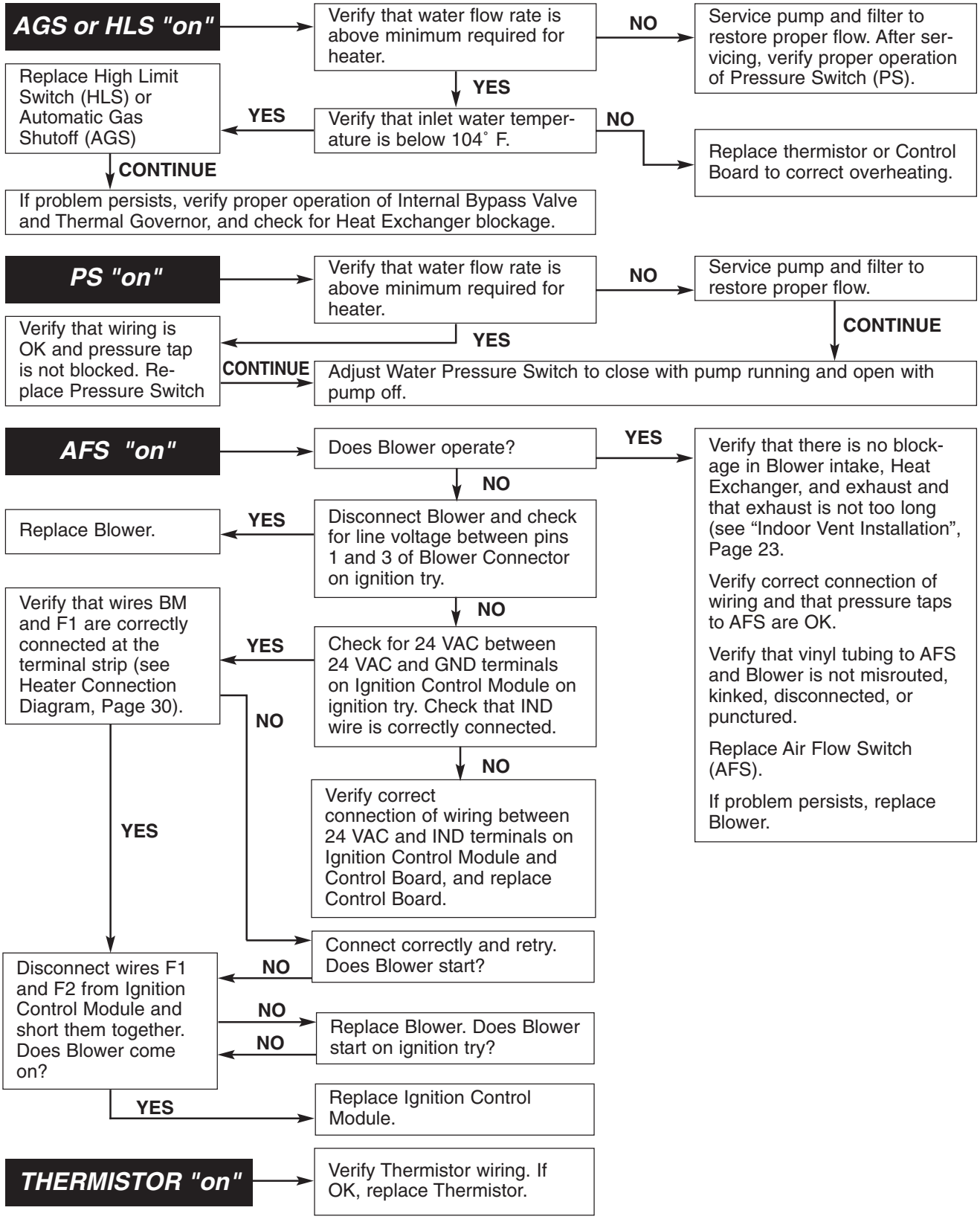
If your heater is correctly connected to **240 Volts AC,** the Ignition Control Module (ICM) will convert the 240VAC to an intermittent pulse to the ignitor. Digital meters don't read this type of signal well. (An analog meter will give a better reading than a digital meter). If the ICM is bad, your voltmeter will read either 0 VAC or 240 VAC. If your ICM is good, your meter will read some voltage between 0 and 240 VAC. Exactly what reading you get will depend on the meter, but with a good ICM, the reading won't be 0 VAC or 240 VAC, but somewhere in between.

Start



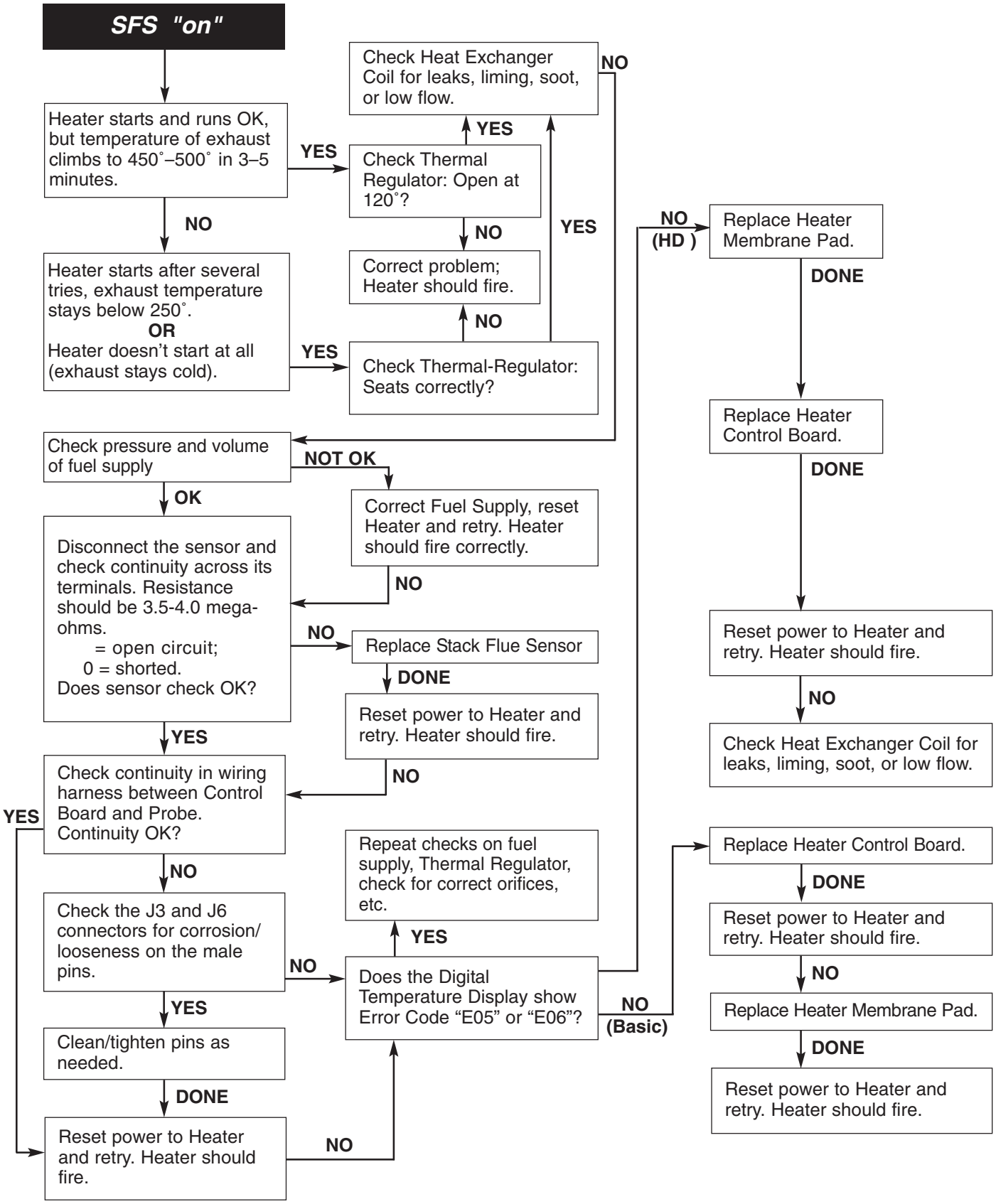
Diagnostic LED's: AGS, AFS, HLS, PS, THERMISTOR



⚠ CAUTION Do not jumper a safety switch to remedy a failed switch.

NOTE: ES1 is a spare and should be jumpered.

Diagnostic LED's: SFS



Burner Troubleshooting

SYMPTOM	CAUSE	REMEDY
Loud, high-pitched whine	Flame is too rich.	Verify pressure tap between gas valve and blower inlet. See page 15 and verify that the gas regulator setting is –0.2" (–0.5cm) wc. Contact a qualified technician or service agency to replace the gas orifice.
Flame is "fluttery." Exhaust may have acrid smell or burner may fail to stay lit.	Flame is too lean.	See page 15 and verify that the gas regulator setting is –0.2" (–0.5cm) wc. Contact a qualified technician or service agency to replace the gas orifice.
Burner pulsates or surges, especially on ignition.	Exhaust vent is too long.	Reduce length of exhaust vent and/or number of elbows.
Combustion appears normal, but flame does not stay lit.	Flame current is not being sensed.	Check for wet or damaged igniter with low resistance to ground. Replace with new igniter. Verify burner flameholder is properly grounded. Replace Ignition Control Module.

Heat Exchanger Troubleshooting

SYMPTOM	CAUSE	REMEDY
Boiling in heat exchanger. May be accompanied by "bumping" sounds.	Low water flow to heater.	Service pump and or filter.
	Heat exchanger plugged.	Service heat exchanger. Correct water chemistry.
	Bypass valve stuck open.	Service bypass valve.
	Thermal governor stuck closed.	Replace thermal governor.
Sweating.	Thermal governor failed.	Replace thermal governor.