



### AdvantagePlus F13 Fault Code

The AdvantagePlus blower has an internal over temp switch. If it reaches an overheat condition (a preset temp in that switch) it will shut the blower off. The control board reads blower status by RPM...it sees the blower is not running. It throws an F13. Once the blower cools down, the switch resets, the heater can then be reset and will run. Many F13 codes do not need a blower or a control board to fix.

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| <b>F13</b> | Combustion Fan Speed Incorrect – The water heater will lock out if it senses that the fan speed is less than 70% of expected rate for more than 60 seconds. | <ol style="list-style-type: none"><li>1. Check the combustion air fan wiring.</li><li>2. Replace the combustion air fan.</li><li>3. Replace the control board.</li></ol> |
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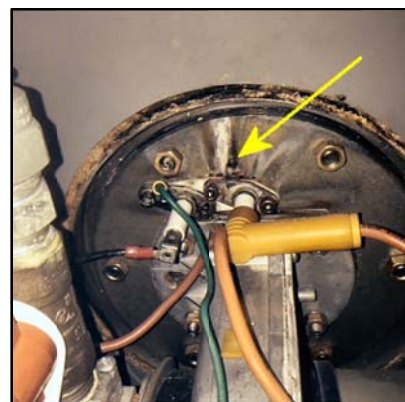
What do we mean by the heat issue? Here are the things that should clue you in on looking for a source of excessive heat for F13 code.

- If the F13 can be reset and the unit will run....it's likely an internal over temp switch issue.
- If the unit will run without fail with the cabinet door off.....it's likely an internal over temp switch issue.
- If they recently replaced igniter, flame rod, or had the burner out, and now it is giving an F13..... it's likely an internal over temp switch issue.
- If the unit will not reset, but the blower is very hot, it might be an internal over temp switch issue.

Keep in mind the unit will not reset immediately from a heat induced F13 if the blower is still hot. If the blower is still hot and you try the control voltage unplug test, it will show as a bad blower...because the blower will not run at all while the over temp switch is tripped. Give it a few minutes to cool off if the blower is hot and try again to reset.

Where is the excess heat coming from? Most of the time it is escaping from the combustion chamber. We have documented rare cases where the room itself was excessively hot. To verify heat escaping from the chamber, look for signs of:

- Melted wires
- Plastic on the control board melted
- Melted jacket
- Discoloration around the igniter or flame rod screws and mounting plates
- Discoloration around the burner flange plate (round with 6 bolts) or on the blower
- Exhaust smell in the room





**TECHNICAL SERVICE DEPARTMENT**  
**Technical Service Bulletin**  
**1-800-432-8373**



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Causes for heat escaping the combustion chamber are missing, loose, or cross threaded screws on the igniter or flame rod, missing, loose or cross threaded nuts on the burner flange plate, missing or damaged gaskets on igniter, flame rod, or burner flange plate. We have had a few cases of missing sight glass in the blower. Remember, not all F13 codes are solved by replacing the blower or control board. If the unit will NOT reset from an F13 at all, then yes it is probably the control board or the blower. If the unit WILL reset and run, it's more likely an excess heat issue that caused the internal blower motor overtemp switch to activate.

To determine a leak on the combustion chamber area, shoot soapy water bubbles around the mounting plates, flanges, gaskets, etc. If you get bubbles when unit is running, then you know you have a leak. If you have a combustion analyzer, zero it out in the room and then place the probe into the AdvantagePlus cabinet while the unit is running. If the CO or CO2 start to climb then you know there is a combustion leak somewhere on the machine.