

Service Bulletin

Subject: Delayed Ignition / Popping

**Models: 30lb and 50lb Gas Fryers - LOV (BIGLA),
Manual LOV (BIGL), OCF (FPGL) and FilterQuick
(FQG30) and H50/H52/H55**

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Delayed ignition is characterized by a loud "popping" sound. It is caused when the burner does not immediately ignite. When the burner eventually ignites, the excess gas "bursts" into a flame, rather than smoothly igniting.

The primary causes of popping are:

- Defective or incorrectly adjusted combustion air blower
- Worn heat relay (non-touch screen units)
- Defective ignition module
- Cracked ignitor or defective ignition wire
- Cracked burner tile (typically causes a very loud pop)
- Clogged Enrichment gas lines (hard light offs, once a day)

When diagnosing the cause for delayed ignition, the following must be checked:

1. Check blower shutter opening. Reducing the blower shutter can improve ignition and reduce flame current lock outs, especially during cold starts. Too much restriction can cause increased popping during heavy use or following a filtration. Alternately, if the blower shutter is open past the factory setting and the fryer is installed in a high-flow hood or negative pressure kitchen, the blower shutter should be reduced slightly to reduce flame current lock outs (heating alarms) during cold operation or following filters. Don't block the blower to reduce opening more than is possible with the shutter alone. Fryer performance may be adversely affected.
2. Attach a manometer and verify the gas valve is supplying gas smoothly upon receiving voltage without large spikes or delays. Check the vent tube for obstruction. A clogged vent tube will cause the gas valve to not regulate properly.

3. Gas pressure must not exceed rating plate. If high, reduce pressure to stock settings. In some cases, reducing the gas pressure by 10% of the stock rating plate will help poor ignition or delayed ignition. Blower shutter adjustments may be needed if pressure is reduced. Typically, a reduction in the blower opening is required for good combustion and ignition at reduced pressure.
4. Check incoming supply pressure with all gas appliances calling for heat. A pressure fluctuation or drop across the main gas supply low-pressure regulator of more than 2.5 inches is a sign of possible supply pressure or flow issues. Contact the gas company to verify the regulator is sized properly for the entire location and that it is regulating properly during times of heavy demand.
5. Turn off gas valve and let the fryer cycle six times. Listen for high-voltage arcing. If heard, find the source. Most likely it is a shorted or loose HV cable connection. Inspect the cable for damage. The spark inside the chamber should **NOT** be audible.

6. Check flame sense current (see chart). Do not adjust blower to maximum flame current. Flame current is measured by placing a **microamp (NOT milliamp)** meter in series with the sensing wire on the ignitor. This is accomplished as follows:

Module	Optimal μA Output
Fenwal	2.0 μA - 2.5 μA
Honeywell	2.5 μA -3.5 μA
Capable Controls	0.4 μA -0.8 μA

- A. Place the controller power switch in the OFF position.
 - B. Disconnect the sensing wire from one of the burner ignitors and connect it to the positive lead of the meter. Connect the negative lead of the meter to the terminal from which the sensing wire was removed.
 - C. Place the controller power switch in the ON position to light the burners. After the frypot temperature reaches 200 °F (93 °C), wait at least one minute before checking the reading. NOTE: The closer the unit is to normal operating temperature, the more accurate the reading will be.
7. The burner should go infrared within 45 seconds to a minute of a full burn. Burner glow should be dull orange to bright orange but not bright yellow orange. Inspect the burner surface visible through the sight glasses for cracked tiles or large chips. Replace cracked burners

8. Check for combustion leaks around the burner-sealing surfaces and front insulation retainers. Ensure all insulation retainer mounting studs are secure and not broken. Replace missing insulation and reinstall any insulation retainers. Recheck for leaks.
9. **(FOR NON-TOUCH SCREEN UNITS)** Verify the heat/latch relay is functioning correctly. If not, replace the relay. For units without a pressure switch, voltage should be supplied to the blower motor and ignition modules simultaneously via the heat relay. If either side of the relay is not pulling in at the same time or one side isn't supplying voltage, replace the relay.
10. Inspect plenum/motor mounting. It should be flat. If the blower plenum has weld burrs under the flange, it will not seal properly. All mounting nuts should be present and tight. Clean all blower inlets of dirt and debris.
11. Check flue for obstructions or excessive oil migration. Verify there is sufficient makeup air to the fryer.
12. Ensure all gas lines are properly sized for the fryer and connected properly. Check the installation manual for gas line specifications.