

PHP – Technical Bulletin

Bulletin Number: 210202
Subject: Combustion Issues
Issue Date: Feb. 23, 2021

Scope: All Fuel Fired Heaters

Complaint:

Heater will not start and provides a “No Start” fault code.

Resolution:

This is a guide to help technicians troubleshoot heater Combustion Issues.

If the heater proceeds through a start up cycle but fails to establish a flame, runs intermittently or exhibits excessive smoking, there is most likely a combustion related problem. In these situations, the operating switch should display a “No Start” or “Flame Out” error code.

Combustion issues are caused by a deficiency of one or more of these required components; Fuel, Combustion Air, Source of Ignition or Mixing.

Complete an inspection of each of these and rectify as required.

Fuel

- Do a visual inspection, confirm fuel is passing through fuel line.
- Try removing the fuel line at the heater during start up to ensure that fuel is being delivered.
- Ensure you are supplying a good quality diesel fuel.
- Fuel is not frozen or gelled
- Make sure there is enough fuel in the tank to reach your pickup tube.
- Fuel system falls within parameters outlined in installation section.
- All connections are secure and there are no air leaks
- Check for fuel filter or fuel metering pump blockage.
- Complete a fuel quantity test (Consult manuals) if you suspect a lack of fuel.

Combustion Air

- Ensure that combustion air intake tube and exhaust tubes are clear from obstructions.
- Ensure Air intake and exhaust tubes meet parameters outlined in installation section.
- Try placing your hand in front of the exhaust while the heater is attempting to start to determine if there is air flow (Should be able to blow out a candle held within 12” of end of exhaust).

Source of Ignition

- The heater uses a glow pin as a source of ignition. Normally when this fails, it will create an open or short circuit and yield error code. However, in some cases the glow pin may have a partial failure and will not get hot enough.
- Glow pins can be bench tested by applying 12 volts and observing how they heat up. They should exhibit a consistent red throughout the length of the pin.
- We recommend replacing the glow pin and glow pin screen on a seasonal basis as part of maintenance program.

Mixing

If we have confirmed that we have an appropriate amount of fuel and combustion air and an ignition source, then there is a problem with the heater's ability to mix these components.

It is not uncommon for a heater to build up carbon deposits after it has been operating for several months or years. When this soot builds up inside the heater, it inhibits the ability for the fuel to atomize (break into small droplets). Once this happens, the igniter device may not be able to provide ignition.

- **TECH TIP** - As an emergency step, blow some air into the heater's air intake while the heater is trying to start. The added air flow is frequently enough to get the heater started. This may be enough to get the heater going in a pinch but only provides a temporary fix.
- Start by replacing the glow pin screen. This is the primary mixing point.
- If the glow pin chamber appears to be heavily sooted, disassemble the heater and clean the combustion chamber using carburetor cleaner suitable alternative.

Corrective Action:

Technicians should follow the above guidelines to resolve combustion issues.

Combustion issues can be avoided with regular annual maintenance which includes replacement of fuel filters, glow pin screens and glow pins and cleaning as necessary.