Subject: Airtronic D2 and D4 Burner Carbon Build Up Cleaning

In the event that the burner / flame tube and combustion chamber of the Airtronic D2 or D4 becomes restricted and the heater fails due to carbon / soot build up it may be possible to clean the burner without disassembling the heater by running the heater in high using Kerosene instead of Diesel.

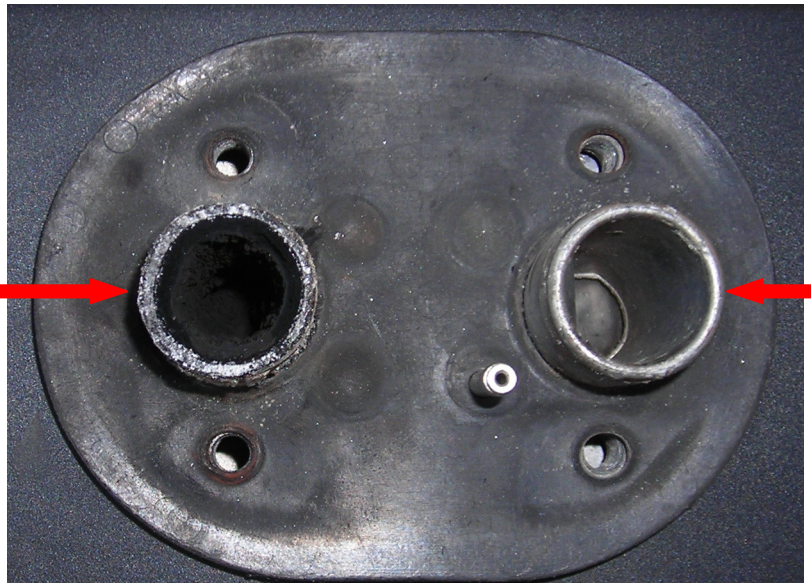
Since the replacement of a burner with carbon build up is not covered by warranty unless the carbon was caused by a defective heater or component this bulletin will assist in reducing the cost and time of cleaning a burner that has caused the heater to fail due to excessive carbon build up.

The excessive build up of carbon in the heater is not a result of normal operation of the heater. The build up of excessive carbon or soot in the burner / combustion chamber and flame tube as well as the inside of the heat exchanger is in most a symptom of an underlying problem which is the root cause. Therefore, it is very important to identify and correct the root cause so that the burner does not become restricted again. Please refer to the troubleshooting guide and fault code list to identify the problem. Also refer to the installation instructions to make sure the heater and accessories are installed according to the installation guidelines using the correct parts.

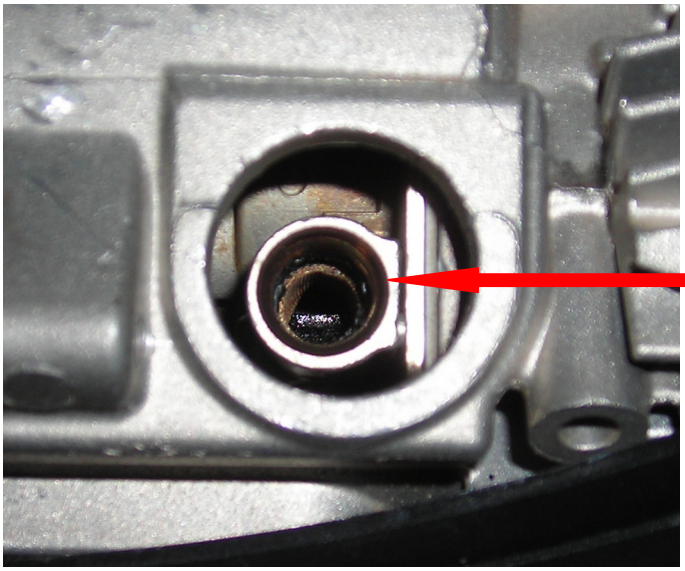
In some cases the carbon build up in the burner may be too severe and the burner would need to be replaced. Unless the root cause of the carbon build up is corrected the replacement or cleaning of the burner will not result in a permanent solution but only a temporary fix.

In order to help identify when a burner has excessive carbon build up please refer to the following recommendations.

One way to identify if the burner may have excessive carbon build up is to look into the exhaust outlet of the heater with the flexible exhaust pipe removed. This may be difficult while the heater is installed due to its location but with the assistance of a mirror and a flashlight it can be accomplished.



Another way to find out if the burner has excessive carbon build up is to inspect the glow pin screen chamber and look into the burner as much as possible. If the bottom of the glow pin screen chamber is blocked or partially restricted it may be an indication that the burner could have carbon build up.



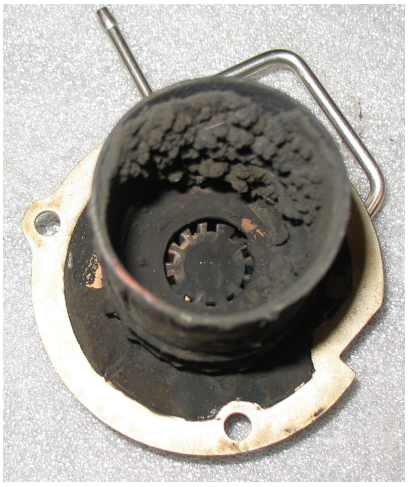
In most cases where the heater has failed due to excessive carbon build up in the burner the heater may produce a Fault Code 52 which is Safety Time Exceeded. This indicates that the heater was not able to start within its allowed start up time. This may also be accompanied by excessive white smoke.

CAUTION:

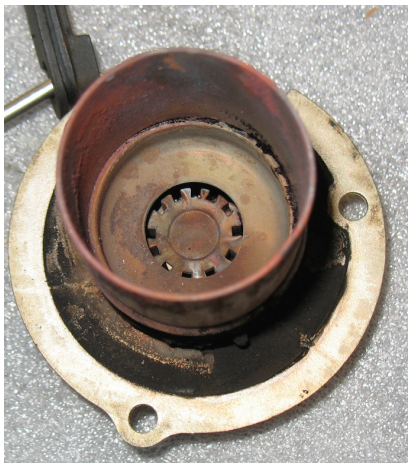
During the cleaning process of the heater it is likely that hot pieces of carbon will come out of the exhaust pipe of the heater. Make sure that there is nothing on or around the exhaust that could be ignited by these particles. For example, oily rags, fuel spills, the kerosene container or any other flammable material or substance. Do not look into exhaust pipe or expose unprotected part of your body to the exhaust outlet.

It is the responsibility of the technician who is performing this method of carbon removal to ensure all safety requirements, including safety regulations for working with fuel are met during the procedure.

Below is a picture of a burner that was cleaned using Kerosene.



Before



After

To perform this method of cleaning refer to the following steps listed below

- Remove the glow pin using the glow pin removal tool with Espar part number 25 2069 01 03 03) and replace the glow pin screen, Espar part number 25 2069 01 03 00. Make sure the ventilation hole on the side of glow pin chamber is completely clear and not restricted or plugged. Clean the glow pin screen chamber with a brush before inserting the new glow pin screen.
- Reassemble the heater back to operating condition.
- Make sure all sources of ignition are kept a safe distance away from the fuel lines and the container of kerosene.
- Remove fuel line from inlet side of fuel pump.
- Replace this fuel line with another section of fuel line which is an appropriate length and secure one end to inlet side of fuel pump and other end into a flammable safe container of Kerosene. Espar plastic fuel tank or another approved container may be used.

- Make sure that the fuel lines and fuel container are not near any sources of heat. Make sure the fuel lines do not touch the exhaust systems of the vehicle, or the Heater.
- Ensure end of fuel line is securely fastened to fuel pump as to not allow any air to enter fuel system during operation.
- Ensure Kerosene container is not placed near the air intake or exhaust of heater; this will prevent any fumes to enter combustion chamber and also prevent any sparks or hot particles from igniting the Kerosene.
- Turn on the heater. This may take several attempts to prime fuel lines.
- Adjust Thermostat or Mini Controller to the highest temperature set point. If necessary, open vehicle doors allowing cool air in. This will ensure that the heater runs in boost.
- Some heaters with excessive carbon build up may not start using kerosene and will give a Fault Code 52: Safety Time Exceeded. These heaters may require that they be disassembled and cleaned manually.
- Allow heater to run in boost for approximately 25-30 minutes.
- Turn heater off
- After the heater has completed its cool down cycle, the fuel line can be removed from fuel pump and container. Container can be removed from the area and safely stored away.
- Reinstall original fuel line back to inlet side of fuel pump.
- The heater can now be operated as usual.