

TROUBLESHOOTING FOR AIRTRONIC 2/4/5 HEATERS

(“No start” and “Heater Stops” conditions)

Use these recommendations in conjunction with Fault Code List and heater’s manual

Rev. 01-2010

#	Description of the problem	Possible reason and method of repair*
1	<p>Absolutely nothing happens when the heater is turned on</p> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">ONLY</p> <p style="text-align: center;">a)</p> </div> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">2nd 1st</p> <p style="text-align: center;">a)</p> </div>	<ol style="list-style-type: none"> 1. Check voltage on heater’s harness on the heater’s side (pin # 1 and 10 on Airtronic connector). Turn the heater ON and make sure that the voltage is still OK. Repair harness and connections if necessary. 2. If the voltage is OK, than try to start the heater by connecting together red and yellow wires on control branch of the heater’s harness. Make sure that you have +12 or +24 volts on the red wire on the control branch. 3. If the voltage is OK but the heater still does not start even if red and yellow wires are connected to each other, then the most likely ECU is locked, bad, or one of the startup self tests failed. <p>Use one of diagnostic tools to retrieve fault codes from heater’s memory and unlock ECU if it is locked. Follow heater’s manual for the fault codes description and repair methods. Computerized diagnostic is advised for all kinds of troubleshooting of Airtronic heaters.</p> <ol style="list-style-type: none"> 4. If you troubleshoot your own heater and diagnostic tools are unavailable, the following information may help (please note that the features below are determined by software in heater’s ECU and may be different in some revisions of heaters): <p>In the event that a heater is not locked out, but simply fails one of the startup tests. The heater will not run in ‘Heat’ mode, but may however run in ‘Vent’ mode. If the Mini-controller or Digi – controller is not available, vent mode can be accessed by ‘jumping’ the grey/red wire to the brown/white wire, then ‘jumping’ the red wire to yellow wire (order is important). If blower starts up and runs, then ECU is not locked. Otherwise it may or may not be locked.</p> <p>If heater is able to start in ventilation mode, but can not run in heating mode:</p> <ul style="list-style-type: none"> -check FMP for open or short circuit; -check roll-over or impact switch for open circuit (if installed); -check Glow pin for open or short circuit; -check overheat sensor for open circuit; <p>If heater does not work in either heat and vent modes:</p> <ul style="list-style-type: none"> -check flame sensor for open or short circuit; -check overheat sensor for short circuit; <p>*Resistance values for the glow pin, sensors and fuel pump are listed at bottom of the table. Resistance of the fuel pump must be measured at the 16 pin connector with disconnected heater.</p>

2	Being turned on, heater turns blower a few times, FMP and ECU's relay may click one time but heater would not make an attempt to start.	<ol style="list-style-type: none"> 1. Bad electrical connections. Check voltage like described in case #1 2. Start-up self test failed. Retrieve fault codes from heater's memory using Diagnostic tool or EDiTH, refer to the heater's manual for the description and repair methods.
3	Heater switches into shut-down phase 20-25 seconds after being turned on (the most likely, fault code 11 found in memory)	Check voltage on heater's harness on the heater's side (pins 1 and 10 on Airtronic connector). Turn the heater ON and make sure that the voltage is still OK. Repair harness and connections if necessary.
4	Being turned on, heater just blows cold air, never stops and never performs a start attempt. No fault code recorded.	<ol style="list-style-type: none"> 1. Was "Ventilation" button pressed instead of "Heat"? 2. Replace combo Sensor 3. Replace ECU if necessary
5	Heater makes two attempts to start with no success and then stops completely. No smoke comes from the exhaust pipe, some smoke can be seen between the exhaust pipe and heat exchanger.	<ol style="list-style-type: none"> 1. Check if exhaust pipe is not plugged with ice. Reroute it if this is the case for not having it to be U-shaped 2. Check combustion air intake pipe. If the exhaust and combustion air intake pipes are OK, see case #6 below
6	Heater makes two attempts to start, may smoke for a while and then it stops	<ol style="list-style-type: none"> 1. Do the fuel quantity check as described in manual, if the amount of fuel is insufficient, than check the fuel pick-up pipe, fuel lines and connections, fuel filter on the pump, replace the filter or pump if necessary. 2. Check the glow pin, clean ventilation hole above the screen in the glow pin chamber and replace atomizing screen. 3. If necessary, take the heater apart, clean combustion tube (including it's all air ways) and the heat exchanger. If internal combustion chamber area is badly carboned or has a ceramic-like build up behind the ring wall, replace the flame tube. Refer to instructions for cleaning heater with kerosene, which sometimes helps to avoid taking the heater apart for cleaning.
7	Heater makes two attempts to start, then stops. Both times it sounds like the ignition takes place and then combustion process stops together with the fuel metering pump. Usually no smoke comes from the exhaust pipe just like when the heater starts normally	<ol style="list-style-type: none"> 1. The heater ignited but the flame was not detected. Check and replace combo sensor. 2. Replace ECU if combo sensor was good.
8	Heater ignites normally, goes into boost mode, then switches to stand-by mode, blower is slowly spinning but the heater never restarts. No fault code	<ol style="list-style-type: none"> 1. Using EDiTH, check setpoint for temperature and current air temperature. Replace part which works improperly. Swap minicontroller if do not have EDiTH; 2. If minicontroller OK, install external temperature sensor or replace ECU

	recorded.	
9	Heater ignites normally, but often stops (codes 52-56 found in memory)	<ol style="list-style-type: none"> 1. Check fuel lines for gaps in connections inside connection pieces 2. If the heater stops only when the vehicle is in motion, reroute combustion air intake and exhaust pipes, or bend their ends toward to the rear of the vehicle.

*To avoid inefficient expenses, it is strongly recommended to have the heater diagnosed by specialist before replacing expensive parts

Resistance readings

!These are approximate values, please refer to the heater's manual for tolerances

Overheat sensor (Blue)	~60KOhm at room temperature
Flame Sensor (green)	~1.08KOhm at room temperature
Glow Pin	0.42-0.7Ohm at room temperature
FMP	~10 Ohm at room temperature