



## Cooling system testing and diagnosis

### General points

If there are problems in the cooling system, e.g. heating does not get warm, engine does not get up to operating temperature or overheats, troubleshooting can be carried out using simple means. Firstly, the cooling system should be checked for a sufficient coolant level, soiling, antifreeze and any leaks. The tension of the V belt or the V-ribbed belt should also be checked. Then troubleshooting can proceed by observing components or tapping temperatures, depending on the symptoms.

### Complaint: Engine overheats

#### Troubleshooting procedure:

- Is the temperature indicated realistic? (check coolant temperature sensor and display instrument if necessary)
- Are the radiator or the upstream components (condenser) unsoiled, guaranteeing unlimited air flow? (Clean components if necessary)
- Is the radiator fan or the auxiliary fan working? (Check switch-on point, fuse, thermal switch, fan control unit, check for mechanical damage)
- Does the thermostat open? (Tap temperature upstream and downstream from the thermostat, remove thermostat and check in water bath if necessary)
- Is the radiator blocked? (Check temperature at the inlet and outlet of the radiator, check flow quantity)
- Is the coolant pump working? (Check whether the pump wheel is loose on the drive shaft or has been damaged)
- Is the pressure relief valve or the vacuum valve of the cooling system cap working? (Use test pump if



necessary. Check whether the cover cap seal is damaged or even missing. Check venting and bleeding holes for any blockages)

## **Complaint: Engine does not get warm**

### **Troubleshooting procedure:**

- Is the temperature indicated realistic? (check coolant temperature sensor and display instrument if necessary)
- Is the thermostat opened permanently? (Tap temperature upstream and downstream from the thermostat, remove thermostat and check in water bath if necessary)
- Is the radiator fan or the auxiliary fan working permanently? (Check switch-on point, thermal switch, fan control unit)

## **Complaint: Heating does not get warm**

### **Troubleshooting procedure:**

- Is the engine getting up to operating temperature and/or is the coolant getting warm? (If appropriate, carry out the testing steps under "Engine does not get warm" first)
- Does the heating valve open? (Check electrical control or Bowden cable and valve)
- Is the heating radiator (heat exchanger) blocked? (Check temperature at the inlet and outlet of the heat exchanger, check flow quantity)
- Is the vent flap control working? (Check vent flap positions and stops, fresh air, recirculated air function, air outlet nozzles)
- Is the interior blower working? (Noises, blower levels)
- Is the interior filter soiled or air throughput hindered?



(Check interior filter, ventilation channels for secondary air, freedom of movement and foreign particles)