



Expansion tank

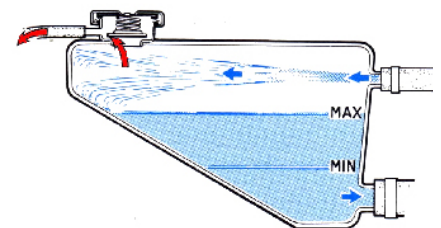
General points

The expansion tank in the cooling system is usually made of plastic and is used to trap the expanding coolant. It is normally installed in such a way that it represents the highest point in the cooling system. It is transparent to allow the coolant level to be checked, and has "min" and "max" markings. In addition, an electronic level sensor can be installed. Pressure compensation in the cooling system is achieved by means of the valve in the lid of the expansion tank.

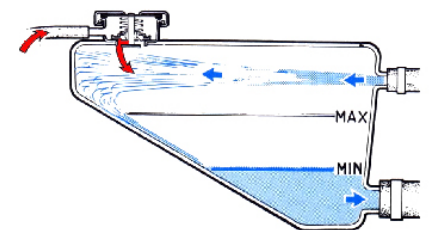


Design/Function

An increase in coolant temperature leads to an increase in pressure in the cooling system since the coolant then expands. This increases the pressure in the expansion tank, opening the pressure control valve in the lid and allowing air to escape.



When the coolant temperature is normalised, a vacuum is created in the cooling system. Coolant is sucked back out of the bottle. This in turn creates a vacuum in the bottle. As a result, the vacuum compensation valve in the lid of the expansion tank is opened. Air flows into the bottle until the pressure has been balanced.



Effects of failure

A faulty expansion tank or a faulty lid can be noticed as follows:



- Loss of coolant (leak) at various system components or the expansion tank itself
- Increased coolant and/or engine temperature
- Expansion tank or other system components are cracked/burst

The following can be considered as possible causes:

- Excess pressure in the cooling system on account of a faulty valve in the lid
- Material fatigue

Troubleshooting

Test steps towards recognising faults:

- Check the level of coolant and the antifreeze content
- Check whether the coolant is dyed/soiled (oil, sealant, lime deposits)
- Check thermostat, radiator, heat exchanger, hose lines and connections for leaks and function
- Burst test the cooling system if necessary (pressure test)
- Make sure no air is trapped in the cooling system, vent the system according to vehicle manufacturer's instructions if necessary

If all the above points are carried out without complaint, the lid on the expansion tank should be replaced. It is very difficult to test the valve on the expansion tank lid.