

The Problem

Valeo Technical Services have been receiving calls from some garages regarding heaters leaking prematurely, usually around the bottom U-bends of the pipes on the heater core. (see image 1.) The pipes include turbulators which are designed to create the coolant swirl in the tubes, these WILL collect foreign matter if the system is not flushed out correctly and cause premature failure of the heater. (see image 2.) If foreign matter collects on the turbulator there is a short period of time during which the corrosion process takes hold. Valeo Technical Services have also found that this blockage creates a build up of pressure in front of the foreign matter, causing a very fine high pressure spray jet of coolant which can blow holes in the U-bends. (see image 3.)

The Cure

Valeo Technical Services strongly advise that the cooling system is flushed through thoroughly, using a cooling system flush and an additive cooling system conditioner with the replacement coolant.

Note: Bypass the heater radiator before flushing the cooling system out. Under no circumstances must the new heater radiator have any fluids flushed through it whatsoever.

Once the new heater radiator has been fitted to the vehicle, there is a "step by step" procedure to follow which consists of:

1. Drive the vehicle outside, jack up the front and place axle stands under the front subframe.
2. Using a length of heater hose, bypass the heater matrix.
3. Using a 18mm socket remove the engine coolant drain plug from the back of the engine block, drain off the remaining coolant in the cylinder block. This is the lowest possible point for the cooling water jackets and most of the corrosive foreign matter will collect in this area. Refit the drain plug after carrying out this process.



*Image 1
Image shows complete heater radiator leaking after nine months of being fitted to the vehicle.*



*Image 2
Image reveals how corrosion typically attacks the aluminium tubes inside the heater core. When cooling systems are not flushed through thoroughly, or when incorrect / insufficient quantities of antifreeze are used.*



*Image 3
Image reveals a cutaway section of the U-bends. There are visible signs of foreign matter collected on the inner walls of the U-bends.*

T.S.B. No.:
EC003 / 08

PRODUCT:
Heaters

MARQUE:
Peugeot, Citroen

MODEL:
106, 205, 306,
309, 405, 406.
BX, XM, ZX, Xsara,
Xantia

PART No.:
883976, 812006,
883965

SUBJECT:
Premature leakage

DATE:
March 2008

Technical Services **Bulletin**

4. Disconnect as many water hoses as possible removing any corrosive foreign matter that builds up inside the hoses and hose connecting flanges situated around the cylinder head and cylinder block, refit hoses on completion.
5. Refill the cooling system with water, adding a cooling system flushing agent, (Valeo Technical used a proprietary brand cooling system flush).
6. Run the vehicle as specified by the instructions on the flushing additive bottle, eradicating any air locks in the cooling system. Make sure the engine reaches normal operating temperature.
7. Unscrew the expansion bottle filler cap to release system pressure, then drain the cooling system once again by removing the drain plug from the back of the engine block.
8. Remove the thermostat and all hose connections around the engine.
9. Using a hose pipe with fresh mains water, flush out the engine and radiator thoroughly. Continually insert the flushing hose into each cooling system connection until clear water runs from the engine and radiator. Note, each time the hose is moved to another connection, more debris is dislodged. It is essential that this stage is completed thoroughly, since any remaining debris will block the new heater matrix.
10. Refit the thermostat and all hose connections.
11. Reconnect the heater pipes to the heater matrix. You may need to use new retaining clips, as they are prone to breaking when removed.
12. When this process is completed screw the drain plug back into engine block, and refill with 50% antifreeze - Monoethylene Glycol (MEG).
13. Add a cooling system conditioner, (Valeo Technical used proprietary brand cooling system conditioner) this product should contain inhibitors protecting the aluminium surfaces against acidic corrosion, electrolytic corrosion, and cavitation erosion, all of which accelerate the corrosion process.
14. Top up the coolant level with water, and bleed as necessary.



Image 4
The image reveals how foreign matter collects on the turbulators, which accelerates the corrosion process of the U-bends.

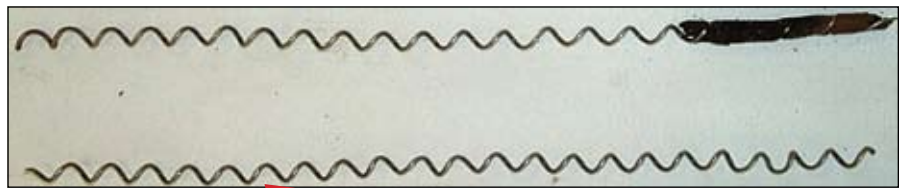
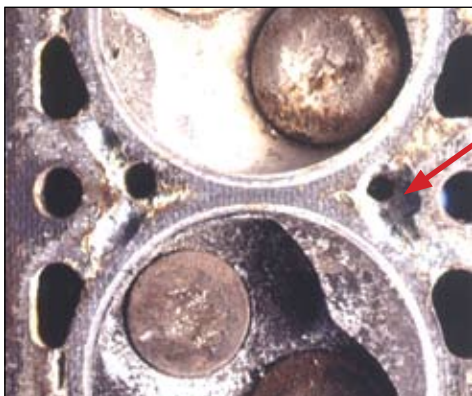
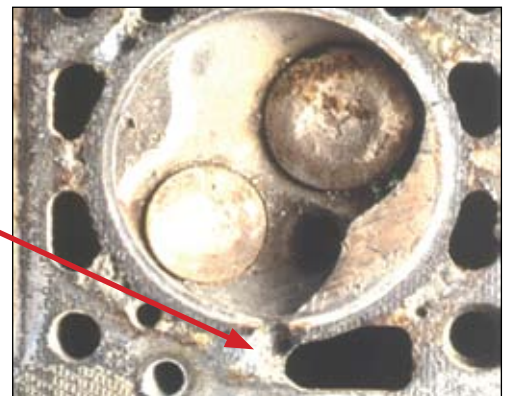


Image 5
The image shows the turbulator spiral formation which creates coolant swirl as it travels through the tubes and maintains maximum heat exchange.



Images 6 and 7
Image reveals how corrosion attacks cylinder head faces when poor or insufficient anti-freeze used. This metallic foreign matter circulates around the cooling system in the coolant, blocking the smaller orifices in its path. (i.e Heater U-Bends.)



Valeo Distribution UK will not accept claims for labour when units are returned for credit under reasons listed above, however a counter settlement will still be granted for non labour returns.