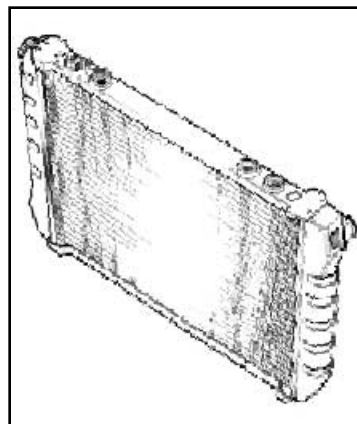


Rover SD1 V8 Coolant Fill without Airlocks

When new V8 Rover SD1's left their showroom the engine cooling system worked fine. No leaks, viscous fan ok, temperature gauge rock steady in all traffic, heater capable of pumping out plenty of hot air, etc. Yet 20 or 30 yrs later why is it so difficult to make the system behave as new?

Easily cured problems are ageing hoses/components, crud in the system and blocked water galleries but tiresome airlocks are a common cause of unstable temperature and low efficiency. Eliminating them is a mystery verging on black art and this is my solution to that problem.



Faulty components such as thermostat, pressure cap, leaking hoses/joints, etc, can be readily tested and replaced. Fitting a thermostat with a jiggle pin makes for easier filling when the time comes. Radiator can be re-cored and engine block, heater matrix and radiator can be easily back-flushed using a domestic hose. Caustic soda solution can be left in a matrix for a few hours to loosen limescale deposits before flushing again. Loads of crud can be purged from a neglected system in a short time. Refill the system with plain water and bring the engine up to temperature with a short run to further loosen stubborn residues then check for obvious leaks before emptying.

With heater controls set to "hot", the radiator filler plug and pressure cap removed, refill with appropriate coolant via the radiator filler hole using a funnel until the system is full. Rock the car a little to encourage coolant to flow through the system and when the radiator stays full, replace the filler plug finger tight ensuring it has a good seal. Fill the expansion tank and with the pressure cap off, run the engine until hot and watch the fluid rise and fall in the tank as bubbles escape with an occasional burp purging air from the system. When the engine is hot and bubbles/burping slow down, stop the engine, remove radiator plug and top up the radiator again.

Raise the idle speed to 2000 rpm and watch the level in the expansion tank rise and fall as burps come and go. Keep the idle speed raised, fill the expansion tank and screw on the cap. Lower the idle speed for a minute as the system sucks in fluid to replace the burps. Remove the pressure cap and raise the idle speed again. It's normal for the level to go down and stay down. Repeat the above few steps a couple of times, including topping up the radiator until eventually no burps and very little level change occurs as the idle speed is varied. Close the system and take the car for a run to check the temperature remains stable under all road conditions. If it does not stabilise, carefully release the pressure and repeat the topping up process as described.

If a very small head gasket leak over-pressurises the system forcing fluid from the overflow there is a way to cheat the problem. Route the overflow pipe into a flat plastic bottle (0.5 - 1.0 litre) secured on the chassis rail below the tank to catch expelled fluid. As the engine cools, the resultant vacuum sucks fluid back into the system preventing continual topping up. It doesn't work for larger head gasket leaks. Amazingly, filling the bottle automatically tops up the system as the engine cools and is completely safe as the cap need not be removed.

Ramon

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