Lagondaforum: V12 Boiling

V12 Boiling

Written by Peter S30 at Dec 12, 2007 8:57 am

When I started with my V12 it was boiling after I did some uphill driving and stopped or slowed down at the top. But the indicated water temperature was below 80 Celsius and this was confirmed with a separate temperature measurement.

My theory is that there are two problems: the motor block and especially the head is full of corrosion and limestone. And the water pump is corroded and delivering much less water than inteded to, especially at low revs.

I had cleaned the block by removing the sideplates (found about 1l of debris, I had expected even more). But after that it was the same problem. Then I tried a rather short and soft acid cleaning of the cooling system (citric acid, about 10%, pumped with an external pum through the block, running motor, heating up) but only for about 30minutes. (Ask Eckhard, F2 on a more thorough cleaning of detached heads with higher acid concentration and longer, with very good result)

Next I was looking to improve the water flow. I found an electric water pump From Davies Craig Pty Ltd. (Australia), I mailed to Richard Davies, received all detailed information and ordered a pump type 8005 for a mere 100AUD. It is small enough to fit it between the bottom of the radiator and the inlet of the original water pump. I have a switch on my dashboard to start it when needed (e.g. strong uphill, at least before the top). When it is switched off the water simply flows through it, when it is running it presses more water through the normal pump. This helps and when the rest of the motor is correct (especially ignition) then it cures the boiling.

It is only a fix - the real solution would be to clean the cylinder heads and check the original pump - but it is cheap can be removed and helps.

Attachments:

wasserpumpe.jpg (filesize: 103.76 KB)

Re: V12 Boiling

Written by Julian at Dec 17, 2007 9:19 am

Hi Peter,

V12 overheating is a problem we deal with very often here at LMB and it is curable on a few different levels.

Assuming the radiator is clean and in good condition!

This is the first thing to check and or replace.

Step 1. Flush the whole engine by running without the radiator and all the water hoses connected to a big 200 litre drum of water, run the engine at about 2800-3000rpm for 30 minutes, this will dislodge any rust etc in the block and also will give a good idea of pump performance, (you should see a big powerful jet of water at this speed)

Step 2. Remove original alluminium fan and fit a multi blade fan from a Jaguar Mk2. (about 4 times as efficient)

Step 3. Remove the exhaust shields (to let the cooling air from the radiator out) and wrap the exhaust manifolds and down pipes with "heat wrap" bandage.

your car should not get overly hot with these mods done, even in the mountains or

In a traffic jam the most you will need to do is raise rpm to 1500 to allow the fan to pull a little more air.

IF YOU STILL OVERHEAT, YOU NEED A NEW RADIATOR CORE.

There are a few other mods but these need head removal so will discuss if needed.

Hope this helps,

Julian.

Re: V12 Boiling

Written by oakley at Dec 17, 2007 2:15 pm

And another thing - use "aluprotect" coolant instead of water; not only will it protect the cooling system (you'll never again have to replace the radiator or aluminium waterpump parts) but it also has a much higher boiling point (up to 125 degrees therefore less chance of overheating), lower freezing point (minus 20 at least) and it hardly evaporates. It is expensive (compared to water anyway) but I only need to top up my radiator with about a pint per year, and then it is much cheaper than a radiator re-core!

Re: V12 Boiling

Written by Peter S30 at Dec 19, 2007 1:02 pm

Thank you both for the feedback:

The radiator is in good condition, I have flushed the system with an external centrifugal pump, but not much came out. Another indication that it is clean is that the overal water temperature is low (even if there is LOCAL boiling)

Flushing the engine with an external pump did not remove much sludge either, which I also saw when I opened the sideplates after that (still all the sludge sitting there). The reason is that the flow velocity in many parts of the block is to low to remove compacted sludge.

The fan is not the problem either here (overall water temperature is low, even when local boiling occurs)

The exhaust shields, this is probably a good point for general reduction of temperatures under the bonnet, (even if I had to do much work to construct them , I can see that the heat wrap should be better. When I do it, I will measure before and after...

Corrosion protection: I am using soft (low hardness) water with antifreeze. How does the "aluprotect" behave on the painting of the car if it gets there ? (by the way hot water plus antifreeze on the paint of my car also gives very hard to polish away spots). I am still not very convinced about the "aluprotect" or similar products, boiling water indicates me that there is a problem, to shift that temperature up would help in case of an unsufficient cooling in the radiator but to move up temperature in some corners of the cylinder head ? Another point is that boiling water cools well (highest "enthalpy of vaporization" of all liquids, if that is the right word in English)

I still believe that the deposits in the cylinder heads (may be combined with a corroded rotor of the original water pump) are the main reason for this sort of boiling. Still waiting for Eckard Fabricius to describe how he did the cleaning (he told me, but would be nice to have it here), I will ask him to post it.

Peter

Re: V12 Boiling

Written by oakley at Dec 20, 2007 2:32 pm

Water with antifreeze often causes the forming of sludge which can block the radiator and especially hollow spaces of the water pump. Coolant, aluprotect or normal does not damage the paintwork of the car and it does not leave the water stains you mention (caused by calcium in the water - which apparently wasn't so "soft" after all) when it dries up on the bonnet. If you have these, vinegar will remove them. To end all problems I would use coolant though! If you suspect that your engine overheats, your water temperature gauge will tell you so. The temperature will not only raise in the Cylinder head - it is pumped round and will raise in the entire cooling system. In that case a thorough decalification and de-rusting of the cooling system (all caused by the use of water) or a re-core are the solutions. A 2L engine (which does not have a fan) with a clean cooling system and coolant does not overheat - not even on a hot day in a traffic queue! I am pretty sure that the V12 engine shouldn't either.

Re: V12 Boiling

Written by Peter S30 at Dec 20, 2007 3:28 pm

Dear oakley, this is really a hot topic:

our water is really soft (comes form the black forrest mountains, we never have stains of lime in the kitchen or bathroom), The stains must be something else but I will try next time vinegar. I suspect the hot antifreeze (ethylene glycol plus additives) for the stains. (it may depend on the type of paint, mine could be from the seventies, how do you find the type of paint used ?)

Overheating: I want to emphasize that the temperature of the cooling system always stays low in my car but somewhere in the cylinder head, I assume, there are areas which have become very restricted over the decades by deposits and there is almost no flow. So I get boiling at 70 to 80°C water temperature, if I do not switch the additional electric water pump on.

I do not have an electric fan either, and I agree, it is not needed. I really believe the problem is the restricted flow in the cylinder head. The cure for the moment is my electric water pump, the solution would be cleaning the cylinder heads (acid clean with strong enough citric, formic or acetic acid in hot water. This removed huge amounts of scale from Eckards cylinder heads, I am still pushing on him to publish this)

And may be the impeller of the original pump is coroded so it pumps less, especially at low revs.

Peter

Re: V12 Boiling

Written by oakley at Dec 20, 2007 3:59 pm

A hot topic indeed! By the "entire cooling system" I also meant the cylinder head of course. It should all be free of calcium and rust deposits. If there is a blockage in the cylinder head which the cooling fluid can't reach you will indeed get overheating at that point which the temperature gauge will not show. However, that blockage can only be caused by the use of water with antifreeze. Even "soft" water contains calcium which will eventually form a deposit. Also the aluminium parts of your water pump will corrode when you use water. I therefor still recommend that after you have unblocked and cleaned it all, you use aluprotect coolant.The problems will not come back. By the way, the 2L not only has no electric fan - it has no fan at all!

Re: V12 Boiling

Written by Owen Eather at Jan 19, 2011 4:58 am

Try an Australian product "Liquid Intelligence"liquidintelligence115.com.au. BP 190C

Re: V12 Boiling

Written by Peter S30 at Jan 19, 2011 9:41 am

Sounds interesting the products you mentioned (liquid intelligence, 190C boiling point and the descaling product) let us know your experience

As for the water pump, here is the link of the manufacturers homepage again, give them a call, I did that when I bought mine and they were very helpfull

http://www.daviescraig.com.au/Electric_Water_Pumps-EWP80__12V__ELECTRIC_WATER_PUMP___PART_No__8005-details.aspx

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Re: V12 Boiling

Written by Owen Eather at Oct 28, 2011 4:52 am

My experience with "liquid Intelligence" is very satisfactory. In Sydney Summers, I am now the only compnent of the Lagonda that overheats, the temp staying on 80 degrees. The product is widely used in the Motor Racing fraternity in Australia due to its reliability and benefit

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