Re: 2L engine problem

Written by oakley at Jan 28, 2008 9:07 am

Colin, thank you for your reaction. You say that you might "change the camshafts back" - my question is which are you using now? I presume it's flat lobed ones; did your engine ever (or still) suffer from the petrol spit-back problem?

As I wrote earlier, with the flat lobed shafts I got this problem of petrol spit-back, which of course resulted in much fuel consumption, and indeed a very inefficient engine.

If 100% of the petrol is properly burnt it will enhance the performance and efficiency. I think that changing to round-lobed camshafts will make a world of difference.

Re: 2L engine problem

Written by Tim Wadsworth at Jan 28, 2008 11:19 am

I think we are all in agreement over this. The downdraft head is the starting point for any development of the 2 litre engine. We should remember that when Arthur Davidson designed the engine for the 14/60 it was only a "semi-sports" at best. Just 3 years later Lagonda were using the same basic engine to race at Le Mans and elsewhere, a tough call for a semi-sports ! We know they toyed with a new head casting but to produce it would have been costly, an admission that the existing head was inefficient and probably a surplus stock situation. Marketing dictated (as always) that a "blower" would be seen as more attractive and could, most importantly, justify a premium on the price. In any case continued development of a 4 cylinder, when 6 cylinders were "the thing" was hardly justified.

We have to be very thankful to Phil and Peter for rectifying the situation with a product which, in all ways, is much superior to the original. Thanks also to Arnold for setting all this out so clearly in his new book (highly recommended)

Incidentally, due to that one illustration of a downdraft head in the 1930 2 litre Special catalogue, the VSCC allows our cars to compete as "modified" rather than as specials.

Re: 2L engine problem

Written by Julian at Jan 28, 2008 1:03 pm

hi all,

Something that has been missed with regards to cam profile design is this.

The cams that Tim designed and we made were designed with concave flanks, this allows the engine to perform much better than an engine fitted with flat sided flanks (ala the club profile) due to the fact that it "tricks" the engine at low revs into thinking that it has mild cams with less overlap fitted when in fact they have quite heavy overlap and high lift.

please remember that timing figures and lift are not everything, Flank shape is VERY important if not more important and Tim worked very hard to develop this profile for just this reason.

And because of this unusual profile they are rather expensive to manufacture, but so much better than having a slow 2 litre Lagonda!

Julian.

Re: 2L engine problem

Written by oakley at Jan 28, 2008 5:22 pm

All very well, but none of you have offered a real explanation for the petrol spit-back problem. And if I myself, after much thought, come up with the very plausible answer that it might be the combination of downdraft carburetter/valve overlap/camshaft profile, all I get from one of you is: "I would be surprised if, on its own, changing the cam profile would solve this problem". I already knew that and it is not what I said.

The fact that we all agree on the merits of the downdraft head is not the issue. What we are discussing and concerns us now is applying this cylinder head the correct way, with the right camshafts, valve overlap etc. and getting the most out of it without creating a modern mongrel. I have tried to help those who have the same problems (H45 John). And to be honest, with all respect for Arnold, he doesn't "set it out clearly" at all; actually he hardly mentions it in his new book. He only claims that none were produced at the time and that the picture is a mock-up. However, I myself know the location of an original 1930 Lagonda downdraft cylinder head.

Anyway, Colin - I'd love to have your answers to my qustions above.

Re: 2L engine problem

Written by Colin M34 at Jan 29, 2008 9:16 am

Hi folks,

Some more thoughts...take a look at this graph I did in 2003. The green line is Tim's profile as supplied some time ago - is this still correct Tim?

The black line is a proile given to me by 'John' , another 2L Lagonda owner curently not registered on this site - (I will call him up and ask him to join)

The green line is my profile. Ignore the higher lift - I should have normalised it. I believe my camshafts are original 1927 speed model ones. Anybody like to comment on this graph?

I think I will save up for a pair of the 'Julian' cam shafts.

By the way, can others tell us hat MPG they get?

Colin

ps I cant remember any more about this - think I was resetting my camshaft for 15 degrees BTDC so don't read too much into any of the figures.

Attachments:

Lagonda Camshafts.jpg (filesize: 62.31 KB)

Re: 2L engine problem

Written by Tim Wadsworth at Jan 29, 2008 10:28 am

I will try to attach the displacement curve on which I based the cam design. I havn't changed it so I expect it is the same as the one you have recorded Colin. Sorry file is too big for this forum. If any one would like a copy please let me have your e-mail or postal address.

I get about 24 mpg and can be over 30 on a good long run. BUT I am running on 9.5 : 1 CR and find I need the best fuel - Shell V power to avoid pinking.

Re: 2L engine problem

Written by oakley at Jul 20, 2008 11:39 pm

I have now rebuild my engine and installed new camshafts from the Club (with more rounded cams as opposed to my previous camshafts which had very flat lobes - see the picture I uploaded earlier in this discussion). Everything is now perfectly set with the recommended 24 degrees valve overlap and the problem of petrol spit-back through the carbs has completely disappeared. It was indeed simply a matter of the wrong combination of cam profile/downdraft cylinder head/valve overlap.
