

Radiator Overheating.txt

Ken Mercer

Joined: 05 Jun 2004

Posts: 3

Location: Cape Town

Posted: Sun Nov 07, 2004 2:08 pm Post subject: Boiling hot Scott!

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I am having trouble with the radiator boiling on my 1947 Scott Flyer. When I first put this machine on the road I did not seem to get this problem. I now find that even after a fairly short run of perhaps 10 or 15 miles with the bike ridden fairly briskly the radiator is boiling when I return to base. When I was refurbishing the bike to put it on the road( I bought it as a non-runner) I did not take the cylinder head off the barrel. I remembered reading in "Technicalities" that this was not a good thing to do unless it was absolutely essential. Now I am wondering if the water passages between head and block have become partially blocked thus impeding the water flow. This bike is fitted with the pre-war type of honeycomb radiator which I believe is not correct for 1947 but is I think more attractive. The bike starts well and seems to run quite well also even though there is a bit more vibration than I would like. This is the only 596cc machine I have owned as my earlier bikes(in my youth!)were both 498cc machines with nothing like the compression of this 596cc engine. I have been very careful to get the ignition timing right and have the flywheel rim marked so as to facilitate this. I am running on a straight 40 grade oil with the standard Pilgrim pump but fitted with Gerry Howards reduction box. I also run a little two stroke oil in the petrol. It is pretty hot here in the summer months and it was probably about 28degrees C when this happened yesterday. Other members in hot climates maybe have had this experience also. Can anyone in the Club help me to understand what may be the problem here? Is there any easy way of flushing out any rust/gunge that may be slowing the water flow down? I am running this bike on leaded 97 octane petrol for no particular reason! The mag is in great condition having been fitted with a re-wound armature not long ago. I am using just plain water with no additives in the radiator. Some recent work done to this machine were

1) re-drilling of the flywheel because the two sprockets were found to be loose. Luckily the two flanges were in good condition but the rivet holes were not! They looked as if they had been drilled partly and then been punched through! An engineer friend and I did this re-drilling on a large milling machine and reamed the holes out the the required 1/4 inch size. we had to use silver steel for rivets as this was the only accurately ground finish metal that we could get here in Cape Town. Difficult to peen over but a very sound job in the end. We of course used a rotary table on the mill after making up a suitable mandrel for holding the flywheel.

2) Fitting a proper oil seal to the layshaft behind the kickstarter as it was leaking oil there despite a pretty good fitting bush and shaft. This entailed turning the kickstart boss to accept the seal and the loss of 3/16ths of length of bearing. It now does not leak any oil and only time will tell whether the loss of bearing length will matter! The boss is hard but I suspect is surface hard only because it did not prove to be that difficult to turn. Any advice on the overheating problem would be most welcome.

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efr215

Joined: 06 Nov 2004

Posts: 80

Posted: Sun Nov 07, 2004 11:00 pm Post subject: Boiling Scott

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You could try some domestic kettle cleaner BUT MAKE SURE it is suitable for aluminium kettles!

It sounds very much like restricted passages though given the capacity of the engine, the ambient temperature mentioned and the size of the radiator the heat balance must be a bit marginal. For example; say 15BHP average output, that is 11KW and to get that you are burning something like 45KW of energy. About 50% goes straight down the exhaust pipe, about 20% is turned into useful power, the remaining 30% is probably split between general radiated losses and the radiator. The radiator has therefore to reject about 7KW to atmosphere and THAT is quite a lot of heat!

SILVER STEEL

I'd not be too happy using silver steel for rivets if it is the same stuff that I know by that name. Silver steel is designed to be heat treated for hardened tools, punches and the like, in its annealed state its usefulness in this sort of application is to say the least dubious as the composition of the alloy is not designed for cold working. Do not however go into a panic, just keep an eye on things in case things start to go pear shaped!

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Jan Buchwald

Joined: 31 May 2004

Posts: 64

Location: Danmark

Posted: Mon Nov 08, 2004 7:04 am Post subject:

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Low ignition settings produces higher engine temperature, as well as high friction in the engine

1956 Birmingham Scott, frame no. S 1060

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John Farrar

Joined: 01 Jun 2004

Posts: 8

Posted: Mon Nov 08, 2004 10:01 am Post subject:

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Most Scott radiators that have 3 bolt fixings have a marked restriction to water flow around the single lower bolt fixing. The position of this bolt in the core is important. Many are very low which just exasperates the problem. The potential problem can clearly be seen when you look inside the matrix via the bottom outlet. It is also possible that this area is blocked with debris etc. It may be worth unsoldering this bit of the rad and sorting it out.

I have always had radiators built with only 2 top mounts. I also leave at least a quarter inch space under the bottom row of tubes (a sort of collection area). These radiators have about twice the flow when compared with a std one and I have never had a boiling problem, either on the race track or road. Having said that, std radiators normally only give a boiling problem either under prolonged slow running or continuous high speeds (65mph plus).

Both honeycomb and later rads seem to perform equally badly if the bottom mount is restricting the flow. Ian Pearce fits an expansion tank to his Brum road

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bike, allowing the excess water produced from boiling to be sucked back into the rad upon cooling. His racing bikes have special one off rads.  
Give me a call if you wish to discuss 01628 891507(home evenings)01494 887569  
(work)

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simonoldfield

Joined: 16 Jul 2004

Posts: 6

Posted: Tue Nov 09, 2004 1:19 pm Post subject:

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Ken,

I don't know if '47 flyers are the same (no doubt someone will tell you) - but my '37 flyer has a metal pipe attached to the bottom (ie inside the water jacket) of the head below the attachment for the hose to the bottom of the radiator. This (effectively) means that the bottom of the radiator is attached to the BOTTOM of the barrel water jacket - as it needs to be for correct 'thermosyphoning'.

When I bought my machine, this pipe was very badly corroded (it was steel) - so I've replaced it with a length of Stainless that's a good press fit.

If the pipe's corroded badly (or fallen off altogether) on your machine then this would explain your overheating problem (and if it's only just fallen off, this would explain why the problem has only just started), as there would be no temperature difference between the two radiator pipes to drive the flow. You can probably get a rough check of condition using something hooked down the stub pipe on top of the head.

Simon