CAUSES OF POOR PERFORMANCE IN THE 20HP (with some application to later 20/25HPS)

CHECK LIST

Compiled by Simon Slaffer

I am grateful to all those who submitted additions to the list since the first one (published on the RREC Messageboard). The references give more detailed leads into both this problem and many other subjects.

FUEL SYSTEM

No petrol

Wrong/old petrol Vapourisation¹, see butane literature, eg winter fuel Blocked filters in petrol tank Blocked air hole in petrol filler cap rim (painted over) Water condensation in tank, pipes, Autovac eg after freezing

Autovac

Blocked filter at entry of fuel pipe to Autovac Tight connections generally Sticking or jammed valves Leaks in air pipe from inlet manifold to Autovac Other Autovac causes²

Petrol filter

Blocked filter on bulkhead (if fitted). Soak discs in lemon juice for 24 hrs Blocked air valve in petrol filter (see Appendix) Lack of continuous down slope on petrol pipe between Autovac and carburetter, eg hump in pipe behind block

Carburetter ³

Correct air valve function Jets as per handbook Fuel filter clear (if fitted) Fuel level in chamber 1¼inch (32mm) from top Clear holes in fuel chamber cap Clean jets and holes Free movement of fast jet valve fully into bore of fast jet tube (remove fast needle and jet tube to check) Clean/free up spring in base of fast jet Check tightness of pinch screws on jet levers Mixture too rich or too weak? Airtight float If an otherwise well-tuned car fails to start try flooding the fuel chamber

ENGINE AND EXHAUST

Leaks in inlet manifold gasket

- Blocked inlet manifold (faulty casting in reproduction batch)
- Burnt out exhaust valves
- Sticking or leaking valves
- Weak or broken valve springs
- Overtight exhaust valves or incorrect gaps generally
- Cold tappet gap, inlet and exhaust valves should be 4 thou, 0.1mm (cast iron or aluminium)
- Worn valve guides and stems
- Blown cylinder head gasket
- Worn pistons and piston rings
- Worn or scored cylinder bores
- Lack of valve stem lubrication (clear holes in end of rocker shafts)
- Throttle controls generally in order
- **Blocked** silencer
- Blocked exhaust pipe (reversing into assorted obstacles)

IGNITION SYSTEM

Battery condition

All connections between battery, distribution board, cut out, switchbox, ballast resistance, coil, distributor Polarity of leads at coil Check coil Check condenser

Distributor

Ignition timing: as per handbook or preferably advance up to 10 degrees from factory setting (taking into account higher octane of modern fuel)

Points gap 18 thou (0.45mm)

Height of rotor arm (to abut accurately against terminals in cap)

Gap between end of rotor arm and pickups inside distributor cap should be less than about 10 thou (0.25mm)

Washer wear at base of governor E50798

Cracks in rotor cap – cause of short circuits

Dirt – cause of short circuits

Inequality of points gaps of the 6 cams of the governor head

Rotor arm incorrectly angled (in the mid 2000s, a faulty batch of rotor arms were sold)

The dog's tail of the rotor arm should be pointing **backwards** (to prevent broken arm during starting handle use!)

Good HT contacts in distributor rotor cap, check presence of rubber washers and brass discs in HT terminals at distributor end.

HT leads working

Plugs adequate with correct gap (eg 20 thou, 0.5mm). The following plugs have all been described as suitable by the gurus: Champion D16; NGK AB6; NGK BP5ES; NGK BP6ES; KLG

REFERENCES

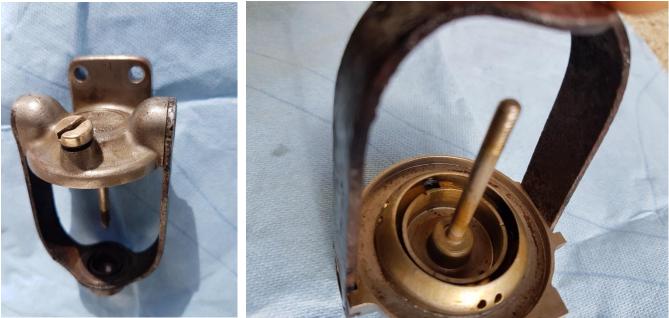
- 1 http://www.rrec.org.uk/messageboard/
- 2 http://www.autovac.co.uk.
- 3 The Handbook: Instructions for the care and running of the 20HP Rolls Royce Car. RREC Bulletin article Kevin Walton. Technical section. Flying Lady article Ed Lake, BA and BSF. 87-3. 3411.

Other useful references:

Service Instruction Leaflets. Rolls Royce Pre-war (1939) Cars TSD 2066. http://www.boddice.co.uk http://www.rrocncr.net/technical/technical.html http://www.rrec-belux.be/ http://rroc.org.au http://www.summitracing.com/parts/DEI-010405/?rtype=10 fuel pipe insulation

APPENDIX

The Zenith petrol filter, fitted to the firewall just below the steering column from GXL October 1927.





Unless it is absolutely necessary I would not advise removing the bracket off the firewall as it is very awkward.

Should the banjos be detached the replacement aluminium washers required are:-

Two of 7/8 inch external diameter and 11/16 inch internal.

Two of 5/8 inch external diameter and 15/32 inch internal.

These approximately equate to Fiennes QAW001 0.870 X 0.687 and QAW004 0.75 X 0.5. Fiennes don't remanufacture the special banjo bolts, and I have not found any anywhere else so it's best to take great care of the originals if removing them. The two special bolts holding the in and out unions are different: one has three petrol holes and one has four.

I don't know if this is part of the original design (and if so which way round do they go?) or whether one has been replaced which something inadvertently different. I strongly suspect they were different originally for obscure but logical reasons!