

**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

Carburetter³

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

ML50; KLG M30; Bosch W7DP.

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 with something inadvertently different. I strongly suspect they were different originally for obscure but logical reasons!