

Shed Night Decoking:

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The poor quality of the petrol and oil in the early years of motoring meant regular decoking was necessary.

Karl Benz built the first motor car in 1885, although the stationary internal combustion engine had been around for about 20 years prior to that. The first oil well was drilled in the same year, previously oil had been obtained from where it appeared on the surface, and was mainly used as kerosene for lighting, and petrol was distilled for use as a cleaning fluid. Prior to kerosene, oil lamps were powered by whale oil.

It was less than 40 years between the very first car and the launch of the A7



The early cars up to about 1918 had a solid cylinder block, with no detachable head, and the whole engine had to be dismantled and the pistons removed, for decoking. The Model T of 1908 was unusual in having a detachable head, which made it much easier for home mechanics to clean the cylinders and the valves. Early cars did not have spark plugs, and instead they had hot tube ignition: a tube in the top of the cylinder was initially heated by a blow torch, and then kept hot by the heat of combustion. This was superseded by electric ignition by the early 1900s.

Build-up of carbon in the cylinder caused pinking, which is pre-ignition caused by the hot carbon deposits igniting the petrol/air mix prior to the spark.

Decoking involves removal of the carbon deposits from the cylinders only, and would be done by removing the cylinder head and cleaning with a nylon pad. Subsequently cleaning was with wire brushes attached to a mains electric drill (battery drill speed is too slow). The stud holes were cleaned with a drill bit, otherwise on reassembly a deposit would fall from a hole onto the gasket and cause a leak. In the early days, the head gasket was not always changed on reassembly.

The head nuts should be removed in the reverse sequence to that used for tightening, so as to prevent the head from warping.

An A7 engine would last for about 28k miles before it was worn out, and needed changing (contemporary cost usually £30, when a new car was £100). In the service handbook for garages, it noted that white deposits should not cause alarm, and were due to lead in the petrol, which was introduced from the USA just prior to WW2.

Compression testing requires warming the engine up, then turning it off, taking out all the spark plugs, and opening the throttle to allow maximum air to be drawn into the cylinders. Then, rotate the engine on the starter and test the cylinder pressures. A minimum pressure for an A7 cylinder is 50 psi, and a good engine is 70+, with the maximum on a low-compression head being about 80psi. If the readings are low, squirt oil into the cylinders which will seal any leaking round the piston rings. If the pressure reading is now satisfactory, the piston rings or cylinder are worn, but if the compression remains low, then the valves are leaking.



Chris Clarke noted that the RR Merlin engine in the Spitfire was a V12 carburettor engine, which would splutter in a dive, and the only safe way to dive was to roll onto its side. The enemy Messerschmitt had primitive fuel injection in its Mercedes Benz

engine, and could dive normally.