

2003 NISSAN MICRA 1.5 DCI

We were asked to investigate a fault on a Nissan Micra 1.5 DCI with the engine management light coming on, reading the fault memory revealed a P0301 code, which interpreted as miss fire on number one cylinder. The fault only occurred on or above 2,800 rpm at this point the engine would drop a cylinder and could visibly be seen to miss fire with some visible smoke best described as grey in colour. Our first course of action was to remove and have the Delphi injectors tested, two were found to be poor including the offending number one cylinder. The injectors were reconditioned installed and recoded but the same fault was present. Our next course of action was to swap injector position re code and re asses but again the fault was still the same on the same cylinder. Having eliminated injectors we next considered a mechanical issue causing this fault. Compression testing and cylinder leakage revealed nothing both were even across all cylinders. At this stage we decided posting on the Frank Massey Network to see if anybody could shed any light on the fault, several suggestions were made one being a previous case of a blocked inlet port, having no other option the customer was advised that the next course of action was to remove the cylinder head and investigate. Customer approval given we removed the head and it was stripped and the number one inlet port was almost completely blocked with carbon. At low RPM there was enough air entering the cylinder for the injected fuel to burn but as engine RPM increased there was not enough available air for the injected diesel to burn hence the miss fire and neat diesel exiting the exhaust giving rise to excess smoke.



Looking at the inlet layout number one cylinder is furthest from the incoming air and EGR and therefore the coolest point which might account for the build up of carbon at this point.

Carbon removed, head refaced valves re cut the head was refitted and smooth running was restored the fault was cured. Analysing our diagnostic procedure after the repair we considered if we could have located this fault in a better way but with out the prior knowledge of this condition we would still use the same approach.



Inlet manifold layout, air mixed with EGR entering at number four cylinder and feeding all cylinders with a blanking core plug at number one cylinder where the carbon build up occurred

As above air entry at number four cylinder, number one is at the far end of the head the inlet manifold is blanked off with a core plug this is were the carbon build up occurred.

