

Decarbonise Before Assembly



We would like to thank Geoff, from All Head Services, for this technical knowledge & photos.
www.allhead.com.au
1300 41 61 81

The combination of Direct Injection, PCV, EGR and driving style seems to make carbon build up the messy problem of our age.

AHS has seen first-hand the vast amounts of carbon build up in the intake manifold and ports when rebuilding diesel engines with EGR systems on them.

The build-up of carbon in crankcase oil has been a problem for some time, but with common rail engines, usually turbocharged and fitted with EGR valves, carbon is building up in the inlet tract at an alarming rate in some engines.

The carbon build up is caused when "Blow-By" gases with suspended oil particles from the PCV (Positive Crankcase Ventilation) Valve and exhaust gases from the Exhaust Gas Recirculation (EGR) valve full of soot meet in the intake system. They then combine into a wet sticky mess which

slowly builds up on the surfaces of the intake manifolds, intake ports and valves. Short trips around town and low-temperature operation seem to make the build-up worse, high temperature and highway operations seem not have this problem as much.

Over time this built up can turn hard and brittle which can break off and pass into the combustion chamber and become wedged in the piston ring lands or get lodged between the piston crown and valves or cylinder head.

This carbon build up must be removed completely from the intake system when either rebuilding the engine or replacing the cylinder head. Failure to do so could lead to engine damage or at least reduced performance.

There are not many shortcuts to carbon removal. Use a hot wash only on metal manifolds without plastic bushes for variable intake valves. A hot wash can damage plastic manifolds and internal parts.

Subaru SA459 Upper Cylinder Engine Cleaner seems to be the best product to loosen the carbon deposits. Then use a bottle brush to get into the tight places. See the March 2017 issue of Tech Talk and article on cleaning intake manifolds.

To avoid engine damage ensure that the manifolds and ports are meticulously cleaned prior to the engines assembly.

Subaru SA459 Upper Cylinder Engine Cleaner is a foaming agent which can get into tight places to loosen carbon.

Before reassembly all components of the intake system must be spotless to avoid future issues.



Image: Subaru

