## **The Preventive Maintenance Series**

## **Oil Smoke from the Exhaust**

Black smoke indicates fuel flooding, white smoke indicates a ruptured Powerglide vacuum modulator and blue smoke would be excessive oil finding its way into the combustion chamber or turbocharger if so equipped. First be sure the smoke is coming out of the tailpipe and not from leaking push rod tube seals cooking on the exhaust manifold, then consider the following:

Our air cooled cars require a heavier grade of oil due to high engine temperatures and the normal tolerances/clearances in the bearings which are quite different than newer cars. In the summer I use either 20W50 Castrol or straight SAE 30. Be sure the oil is not contaminated with fuel for some reason. I have checked some Corvairs with smoking issues that the owners thought meant an overhaul when they actually just needed an oil change and an old fuel pump replaced. One recent case involved a leaking carburetor needle and seat combined with a sloping parking area. A failed choke pull off that is ignored will dilute the oil after only a dozen cold starts. Smell the oil for gas and rub it between two fingers - then do the same with fresh oil for comparison.

Be sure your dipstick tube is seated correctly in the crankcase. When you change oil and filter it should take exactly 4 1/2 quarts to refill and if the tube is not seated you will add more to make it to the full mark. Overfilling a Corvair will cause smoking and pinging. Look through the right thermostat door with a flashlight to see if the raised ring on the tube is flush with the boss of the crankcase. I have found several cars with this issue, probably from the factory. Because of the slanted tube oil check on FC vehicles, checking on a perfectly flat area is important.

Be sure the vent system is clean. Both the upper and lower (below the top shroud) tubes should be cleaned carefully with the frayed end of an old speedometer cable (including road draft tubes). Also clean the PCV valve or fixed orifice. A partially restricted vent tube forces the blow-by to increase its exit speed which pulls oil out of the engine and into both the air cleaner and PCV orifice which feeds into the intake. Crankcase pressure can cause more oil to enter the intake through the intake valve guides which normally seal very well.

A Turbo has oil seals on both the exhaust side and the compressor side. If they are broken or worn badly then oil can be either burned in the intake or cooked in the exhaust side. It may be burning oil under acceleration but due to the higher RPM the burning is more efficient and you don't see as much smoke as you do at idle.

You could encounter heavy smoking after a quick stop. I have found engines with all of the ring gaps lined up on the bottom of cylinders including 5 & 6. When the car came to an abrupt stop the oil rushed forward and partially flooded the forward cylinders. Carefully check your plugs for tip deposits. If 5 & 6 have more deposits (flakes inside the tip area) than the others then you may have that issue. I would think the same thing could occur on quick acceleration.

If a rebuild was done without new pistons and the cylinders were only honed, then the new perfectly round rings are still trying to seat in what were probably oval cylinders.

Using chrome rings for a rebuild can take a very long time to seat properly if the cross hatching was not done to the ring manufacturer's specs - and even then a really long break in period is required. You would see increased blow-by and oil consumption.

There have been several cases in our area where use of the Total Seal rings resulted in continuing oil consumption - one owner changed back to Grant cast iron rings and cured the problem immediately. I don't follow the Corvair forums but you might check to see if others have similar incidents of oil burning after an overhaul.

My experience is that intake valve guides are rarely the problem since they sit horizontal and have seals plus they are slightly lubricated due to their function which extends their life. Exhaust guides do not have seals and are almost always the first to wear badly. They do not cause oil smoking except by increasing crankcase pressure as exhaust enters the rocker arm area.

Hope you find one of the easy solutions if you have a smoking problem.