

The Preventive Maintenance Series

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Idle Problems in Corvairs with PCV valves.

The early Corvair two carburetor PCV systems were designed to use engine vacuum to pull crankcase vapor out of the engine and return it to the intake manifold under the carburetors. This burned the vapors instead of the decades old road draft tube which used airflow across the end of the tube to help remove vapor but was obvious pollution. In a Corvair system, if the blow by exceeds the capacity of the PCV valve the excess is routed into either the right carburetor top or the center air cleaner depending on your version of plumbing. Other cars of that era used a system where air was drawn from the air cleaner, through the crankcase and then pulled into the intake manifold through a PCV valve or other type of restriction in the vacuum line.

A Corvair PCV valve has a spring and a piston which regulates the vacuum leak used for the system, and since a Corvair engine has an inherently low vacuum at idle, the valve must be specifically calibrated for our cars. Since our systems are mostly 50 years old, most of the PCV valves have been replaced, and if they are original, they can have weakened springs or they could be plugged with sludge. The wrong calibration or a weak original spring can prove to be enough of a vacuum leak to disturb your idle, or a restricted valve could cause crankcase pressure build up. You can usually hear the valve pulsating (sometimes rattling) at idle, accompanied by a rough or inconsistent idle.

With carburetors and tune items in proper condition, set the engine to a normal hot idle and pull the hose off of the PCV valve inlet side and put your finger over the valve inlet. If the idle smoothes out significantly, you probably can improve your idle by obtaining the correct new valve or replacing the valve with a fixed orifice of the type introduced on the '64 models (except A/C). My method of dealing with this is to cut the existing PCV valve apart, discard the spring and piston, and gas weld the case back together. Then gas weld a small steel plug over either end (I use a washer over the small end), filling the hole and finally drilling a "fixed orifice" through that end. Reinstall the valve and adjust the idle mixtures on your carburetors to compensate for the reduced vacuum leak. This method leaves your system looking stock. Other adaptations of a fixed orifice system could work just fine.

What size of fixed orifice should you use? The '64 manual says .062, the '65 manual says .089 (misprint) and the '66+ manuals say .062. I checked a number of what appeared to be original vent tubes and found 140 tubes with either a .062 or a .065. I found 2 standard engine tubes at .060, 1 at .052 and 8 at .056. I experimented with a '65 95 with A/C and Powerglide and found that using a .062 gave a good smooth idle but oil appeared in the air cleaner after high speed use. After a couple of changes I settled on .070 which still gave a good idle with very little oil in the air cleaner. If you have had similar experiences and good results please share.