

## Curing Corson Spin-On Filter Adapter Flaws

By Mark Corbin

I find that the Corson spin-on filter adapter (as sold by the Corvair Underground) to have several flaws in it. Fortunately they are easily corrected by proper remachining. However, it is work that should have been done in the first place, I feel.

The first falls under the heading of “why reinvent the wheel?” The factory has already established a workable design for an adapter to mate to the Corvair’s oil filter adapter assembly. We know it as the 90 degree adapter. Thus there is no reason not to have any spin-on adapter machined any differently.

The Corson design, however, has an intermediate seal surface that is smaller in diameter and shallower in depth than the factory design, and thus requires a seal that is smaller and shorter than the factory seal. A factory seal therefore cannot be squeezed tight enough to allow the outer cardboard gasket to seal. Thus it requires a special “bastard” seal to be used (see picture 1).

The outside diameter of the adapter is also almost as large as the mating channel in the Corvair engine’s filter mount, and may sometimes actually hit metal to metal. However, a quick trip to the lathe will cure these issues. Just use the factory 90 degree adapter as the master pattern. Now readily available factory gaskets can be used.



The next issue is that the center hole passage requires the oil to make as much as three 90 degree turns just to pass through the adapter. Anyone who knows about hydraulics knows that this merely slows down the fluid and reduces pressure. Whether this is critical in the Corvair engine is up for speculation, but regardless, I find it unnecessary. What I do while on the lathe, is remove all the excess meat in the center passage by angling the surface from the rubber gasket seat inner corner to the steel center plug where it mates to the aluminum (see picture 2) and angle off the back side of the intermediate seal seat wall (see picture 3).

I then run a burr on a hand grinder through the center plug at an angle and clear out as much of the sharpness of these four passages as possible. By doing so, the oil now has a straight shot through this entire passageway, as seen in pictures 3 and 4.



I finish by radiusing all sharp corners around the outer ring of holes. You can see how much more open the design is in the last picture. Compare it to the first picture. You can also see how tightly the stock seal is squeezed when the assembly is fully tightened. Just imagine how much tighter the aftermarket seal in the original design has to be crushed. Further, I recommend that the two pieces of this adapter be put together with a thin layer of JBWeld as sealer. Be sure to also either heavily prick punch the angled surface of the steel center plug, or drill and dowel the two pieces. This will assure that the center plug won't spin with the bolt.

I now have an adapter that uses the stock gasket set instead of any bastard seal set, and is as transparent to the oil system as possible. It should now be of minimal issue to the car. I also recommend that these gaskets ALWAYS be changed along with the filter on every oil change. The reasons for this are simple. Just as the O-rings on pushrod tubes will harden with age and eventually start leaking, the intermediate seal, also being rubber, will harden and lose its sealing ability. And THIS seal is under oil pump pressure, whereas the pushrod tube seals aren't. Further, the paper outer gasket will not only eventually lose its sealing ability, and no amount of wrenching on the bolt will make it reseal, but it tends to weld itself over time into the mating engine's filter mounting channel. If it does, it becomes almost impossible to dig and scrape out of the channel, a job that is complicated even further by its location.

One last thing about this adapter is that it is threaded for a filter used on a Saturn engine. I had Corson specially machine two center plugs for me with a slightly different thread, one that fits the PF-51 and PF-52 filters, which were used on the GM V-6 that was used on the Citation generation X-cars and many others. I asked for this change, due to the fact that the filter is larger and looks more like the stock Corvair PF-4 filter, in addition to being used in a more common engine line.

Note that what I am presenting here is my OPINION alone, based on my own personal

experience. Your mileage may vary, as the saying goes, and you may have a different opinion. That does not, however, invalidate MY opinion. So please do not claim that I am all wet just because you have your differences of opinion. I say this in advance, because such has been the case when I have expressed myself.