

## Cleaning Up a Corroded Cover

Unfortunately, during removal, I found #4 and #6 full of oil, with significant corrosion in #4, though not quite as bad as the #5 SPB in the one I removed from Bruce. Well, at least I didn't drop this one! But back in-the-hunt, because I need 3 serviceable cam-covers:



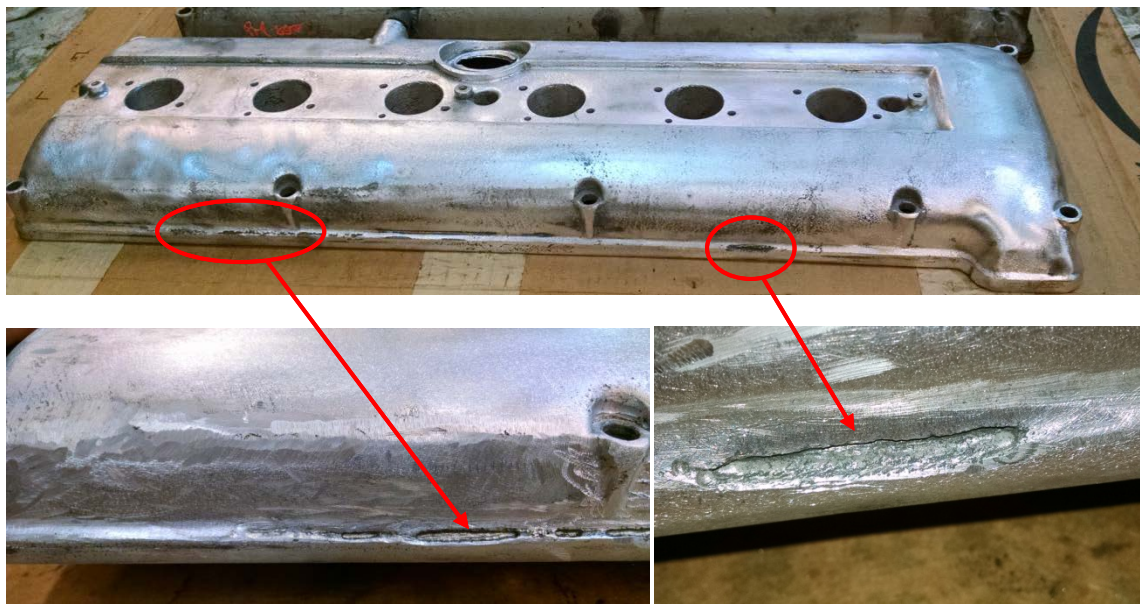
Fortunately, Pick-n-Pull Dallas West had just obtained a 96 VDP so I loaded my toolbox as soon as possible and headed over after work on Friday. It looked serviceable on the outside so I set about removing it. Note to Pick-n-Pullers: Add a vice-grip to your pack-up in case the bonnet struts are too weak to suspend it overhead. However, it being a junkyard and all, I located a loose chrome pipe, probably a pickup truck bed-rail or something, that I could use to prop the bonnet open. This one has the beginnings of corrosion damage on one SPB, but it hasn't yet breached the wall, so is better than what I have. At issue, is whether or not it is worth a \$160 refurbishment with powder coating?

After a thorough cleaning of the cover I pulled from my '95, I've decided it is salvageable, at least sufficient for the \$200 car, though it is best described as "rough" and that is being generous. I'm going to try the POR15 finish system, specifically 40020 AP120 Metal Prep followed by 45308 Silver Rust Preventative Coating.



The spark plug wells are my main concern. I don't believe there is a whole lot of material left there to withstand future corrosion. Furthermore, the attack is hidden-away and seldom-inspected. I hope to find a solution that will prevent the corrosion in that area. As I've spent more time cleaning up the surface of the cam-cover, I'm becoming less and less persuaded that it is an arcing problem. I found little pock-marks surrounded by black dust after a bit of sandblasting, and when I took a small grinder to the edges, the

black area grew...it was like there were several layers of metal clad upon one another with layers of corrosion by-product (the black dust) in between. In the end, I put away the Dremel rotary tool in favor of the 4 ½" angle grinder! And this is on the outside of the cam-cover, all over, really, but worst along the outside of the groove for the gasket. In other words, same or worse corrosion as seen in the spark wells but certainly no electrical arcing going on out here. Still a greater threat in the plug wells, where it can grow, un-noticed and even breach, filling the plug bore with oil and your attention may yet still not be drawn to it. Don't count on misfires to alert you that your cam-cover is kaput; my car would have sputtering misfire events on startup on rare occasions, particularly if it sat unmolested for 4 or 5 days, but randomly-occurring, not after every prolonged rest period. And not very frequently, maybe 4 per year, or so, and lasting a total of maybe 30 seconds before smoothing out. The sole time it registered a code, it was P0303. Upon disassembly, it was #4 and #6 that were full of oil; #3 was dry and clear.



In several places, I was fearful that I may be about to punch through a wall with the grinder! But I reasoned, "Hey, if the only thing between the cam-workings and the outside environment is a bit of black dust, it isn't really a salvageable cover, is it?" (Despite the labor hours invested thus far)

I've managed to skip some important steps in the process in my excitement to describe the corrosion. Upon removal, I suggest spraying it down thoroughly with a formidable degreaser and then, after that has soaked a bit, turning the hose on it, inside and out. I also tried brake cleaner with limited success. A pressure washer would be most helpful but mine is seized currently, not sure if it is the engine or the pump. If you do have an operable one, make sure you figure out a way to clamp or anchor it to the working service prior to turning the pressure-washer on it because it is a very light piece and brittle, so it doesn't bump into stuff very well at all. Whatever method you use for initial cleanup, you will still want to find a long, shallow container suitable for soaking it in. I found about a week in an industrial degreasing solution, maybe one part degreaser (straight degreaser better, but I'm too cheap to buy that many gallons) to two parts water, with daily turning and sloshing and a solution-change after day one to be seemingly effective. What I was after was to get the filter mesh, securely tucked away under the



permanently-affixed splash shield, somewhat cleaned out, at least to dissolve the oil-cakes that I found when I deconstructed the previously-mentioned broken one.

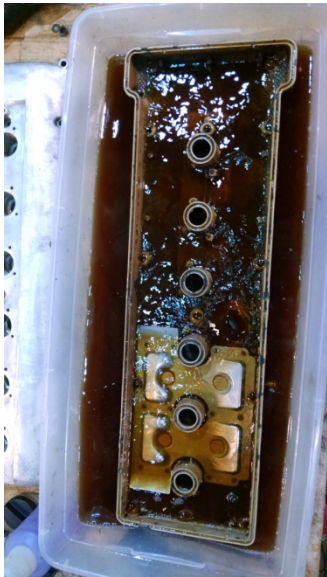


Don't imagine, "Hey I'll just grind out the rivets, take 'em out for cleaning and then put it all back." Before you do that, give some thought to how you are going to reattach the splash shield. Yeah, I suppose you could drill and tap small holes into the rivet-bosses, but do you want small screws suspended above your cam-workings that may back out and fall into the midst of it? As you see, the only one I took apart was already broken with no further plans for use. However, if you insist on thoroughness, I will tell you these are mesh pads and they are pliable/flexible. Here is a shot of them in-situ with the shield removed:





It *may* be possible to grasp each one on the outboard end and scrunch it together enough to pull it out between the two bosses, but you will be severely restricted on workspace on the one on the right, as the end-wall of the cam-cover is just off the right side of the picture. You could then clean them and the cover separately, perhaps much more effectively, then stuff them back in place. On the left is a shot of the one that went through the powder-coater's stripper. Sorry about the washout but I needed the flash to illuminate it and camera had to be right up against the piece, or in other words, I tried several times and this is as good as it gets, at least with my photographic talents. I didn't try to remove the pads on either of the two covers I've cleaned up so far, and probably won't on any future attempts.



I found a plastic storage bin languishing in the cargo trailer that was ideally suited for the purpose. I believe it originated at Walmart, the only marking on it was "Stearlite." I jostled and turned the piece every evening, and occasionally sprayed it down with the hose and then plopped it back in the solution. You need to get the oil residue cleaned off inside so you can properly inspect its condition. There is a yellowish primer coat of some sort in there, which I found was also prone to bubbling, flaking and concealing more of the black dust. So no point making it all pretty on the outside and fitting it back to your engine only to puke all that mess out into your lubrication system.

What I've noticed once the cover is cleaned-up, is that the spark-plug-well corrosion deforms the end-face of the wells. The corroded ones are no longer exactly round. I believe I detect a bit of movement in the z-axis as well, which is probably largely responsible for the plug bores filling up with oil. I don't think it is bad enough on this one that the gaskets and seals, particularly with a smear of RTV on both sides, won't accommodate it. But I believe when it is mounted and the corrosion is occurring and it deforms, that probably breaks the seal and initiates a leak. You don't see this until you mess with the coils or attempt to change the plugs.