

O2 Housing Porting

Not much to say here. I did a home porting job during my engine rebuild, worked on the stock TD05/14B, 95 exhaust manifold, and 95 O2 housing. Later I ported the turbine side of my new 20G, and gasket-matched the 95 exhaust manifold runners and the head's exhaust ports. Porting seemed to help the spoolup a LOT on the stock TD05 turbo. **NOTE:** do NOT try this at home unless you have a heavy-duty air or electric die grinder and carbide bits. It will take HOURS as is. If you try this with a Dremel, you'll be lucky to finish it in days or weeks.

Click on a pic to see the fullsize version.



This is a look at the stock 1G O2 housing. I ground down the divider you see in it, and enlarged the outlet a good bit to match it to the stock gasket.



This is a look at the divider after grinding.



This is a look at the O2 housing outlet. I enlarged it a good bit, and ground it down about an inch.



Here is the start of porting a 2G O2 housing. I heard they flowed better, and after seeing one, I can believe it. They seem to be better designed. Here I am clamping the gasket down to it, to scribe the housing for grinding. An interesting note - the 95

housing has a less "flat-bottomed egg" shape - the bottom curls around the turbine exit chamber. It curved so much that I had to grind the *gasket* down some.



Here I am grinding away after using the carbide burr to shape it. That extra curvature around the turbine chamber should help control boost creep, as the flow out of the wastegate hole will be obstructed less. Do I have proof? Sorta.



PROOF: See that light tan line? The wastegate opens *very little* and that is the line where the hot exhaust gases hit the side of the wastegate chamber. Grinding the wastegate chamber on the turbine housing and the gasket to match the O2 housing meant in my case that the exhaust gasses would hit a **CURVED** wall, instead of head on, and be aimed towards the exit in the process. The red lines are an exaggeration of the grinding involved, to give you a better idea of what is going on. The dotted lines are roughly how far down it was taken - into the "blast line".



More grinding of the lower curves.



Sanding the job smooth with a Dremel.



Drilling and tapping a hole for an EGT sensor. The 2G O2 housing places the O2 sensor down near the bottom flange where it bolts to the downpipe, so I mounted the EGT sensor where the O2 sensor used to be to take advantage of the hole in the heatshield.



Closeup of the lower flange on a 2G (left) and 1G O2 housing. If you look at them side-by-side, you can see that the 2G wastegate runner is larger than the 1G by a little bit. It also connects back to the turbine runner at a slightly different angle.



While I don't have pics here (may have taken some, am looking for them), I opened up the bottom of the 2G O2 housing a LOT more than I did the 1G. This time instead of matching it to the stock gasket, I matched it to a 2.5" gasket. This required a "bellport" to avoid thinning the flange too much in my opinion (I may be wrong. For an idea of what a bellport it, picture the profile of a bell, you will get the idea).



Left - 76-83 Ford 4,6,8cyl catcon gasket, 2.5" ID. Right - stock gasket. Hm, which is smaller?



Another view of the 2 gaskets - I colored the stocker black so you could see it under the Ford gasket.

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