

6. RACING MODIFICATIONS

a) *Water jackets*

i) PP housings

JHB Performance offers custom made Peripheral Port rotor housings with intake and exhaust ports with custom shape and timing configurations. Because we use our cermet process, we are able to make further alterations to the ports than other peripheral port manufacturers. We can actually change the location of the exhaust or intake port by inserting a solid sleeve and milling the port orifice. This also enables us to seamlessly remove the trailing plug for certain applications or even add a far-trailing plug for others. For additional questions regarding these services, please contact us.



ii) Porting

Contrary to popular belief, in most cases exhaust porting is NOT necessary. Nearly all performance gains can be had with intake porting and alterations to the intake and fuel injection system. The stock exhaust ports are quite big and the opening and closing timing will be suitable for most applications. Under no circumstances should the exhaust be ported to advance the opening timing of the exhaust port more than about 10 degrees. The only real benefit of doing so would be to give the opening portion of the port a more preferable shape as the stock port opens the exhaust very abruptly. The disadvantage of opening the exhaust port earlier is that you are shortening the power stroke. This reduces the amount of time that pressure can be applied to the rotor face to generate torque!

The width of the exhaust port is another part that should never be touched. The stock exhaust ports are plenty wide for any application, making them wider only reduces the bearing area for the apex seals.

The closing time of the port can be modified to suit the application of the engine. For naturally aspirated engines this is determined by the type of intake porting

that was done and by how much overlap will be desired. In effect, for a bridge port or peripheral port a very late closing exhaust port with a rounded top is desirable whereas for a street port you would only want to round the closing of the exhaust port and alter the closing timing very little.

In turbocharged engines however, overlap is not desirable and should be kept to a minimum. Shaping the opening and closing of the ports is all that is required and in extreme cases small changes in port timing can be made.

Making changes to the exhaust port sleeve can also be of benefit. Replacing the insert with one that does not open as rapidly has been shown to increase performance. In theory, an orifice should not expand at a rate greater than 10 degrees (included angle) for optimum performance. Rapid expansion causes turbulence and decreases velocity abruptly resulting in poor flow.