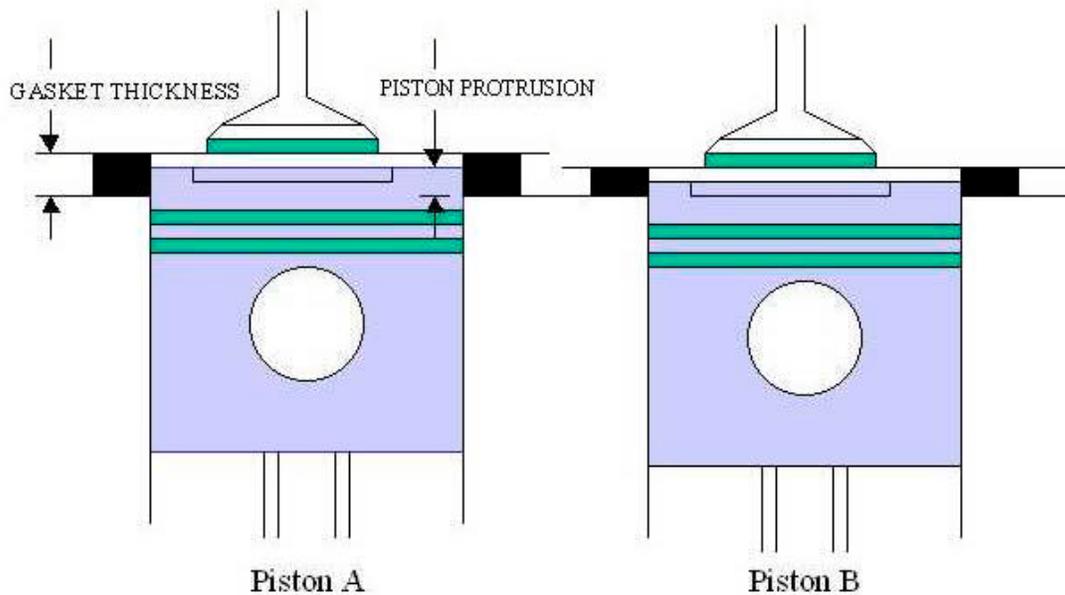


# ACL TECH TALK

## Graded head gaskets

Lets clarify some issues regarding graded head gaskets and their correct selection. Graded head gaskets are gaskets available in more than one thickness for a given engine application. These are predominantly found in Japanese diesel engines where different piston protrusion heights call for thinner or fatter head gaskets to achieve the correct compression ratios. Strategically placed notches, numbers, letters or perforations identify these graded gaskets for effective thickness. The identification of these graded gaskets can be found in the ACL Gaskets & Engine parts catalogue.



It is important that the correct thickness gasket is selected as a small change can have an adverse effect on compression ratio, valve to piston clearance and/or engine performance. The head gasket thickness is therefore in direct relation to the piston protrusion. The piston protrusion (or protrusion height) is the distance that the piston travels above the block face when it is at rest at top dead center. The piston image above shows an exaggerated view of a thick head gasket with maximum piston protrusion (Piston A) and a thin head gasket with minimum protrusion (Piston B). In reality of course this difference is not visible to the naked eye and is only measurable with accurate measuring tools, but it shows that combustion space remains the same, when the correct head gasket is fitted. There are alternative ways to alter the protrusion height of the piston to suit a particular grade head gasket. These include machining of the block face, machining of the piston top or offset grind on the crankshaft journals. These methods are usually less favourable as machining can be costly and time consuming. It is still imperative that manufactures specifications on surface finish, straightness and hardness of the cylinder head are adhered to when fitting these graded head gaskets to ensure trouble free service.