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## IMPORTANT INFORMATION ON ENGINE BREAK-IN

Even though new engine parts may appear highly polished or finely cross-hatched, there are in fact vast numbers of microscopic peaks and valleys that scour the surface of your new engine's lifters, cylinder bores, pistons, and cam lobes. These 'asperities' are an important part of the cylinder liner to retain lubricant, but are much larger than they need to be for lubricant retention and ring seating in a new engine. The process of wearing asperities to a shallow plateau to provide the best ring seal is very important for new or re-honed cylinders.

On the camshaft, similar wear must take place to provide a very smooth tribological surface that reduces friction. In this process, detergent additives react with metal surfaces to help smooth out high peaks on surfaces and remove any deposits or stains from the machining process – leaving a desirably smooth surface with very shallow valleys for lubricant retention. Anti-wear additives control this wear process, and are activated by heat and friction to produce a very thin, hard film to protect the engine parts.



Here are some simple guidelines that you can follow to ensure a proper wear in or break-in of your engine:

- Use a tacky engine assembly lube such as Champion® Break-In Lube to thoroughly coat parts before firing the engine.
- Use warm oil and prime your oil pump. It is important that lube gets to the parts of your engine as soon as possible.
- Use quality oil with high levels of anti-wear additives such as Champion® Break-In Oil.
- Use a high quality filter that will catch very fine metal parts leftover from machining and wear particles from the break-in.
- Change the oil and filter after you initially fire your engine and run for thirty minutes to an hour.
- How hard you run your engine during the break-in affects how long it takes for rings to seat. A hard break-in on a track or dyno will seat your rings faster, but presents greater risk of glazed cylinders.