



SynMax Performance Lubricants

13750 Metric Drive, Roscoe, IL. 61073 (815) 389-9999 www.synmaxperformancelubricants.com

Q & A TECHNICAL BULLETIN – CAM AND LIFTER PERFORMANCE

Q: Why are there so many cam/lifter failures during the break-in processes recently?

A: One issue is the proper oil selection for the Break-In session application, the other issue is some major cam shaft companies include a “free” set of lifters. Now you would assume that free is good right? – well you get what you pay for. After you have your failure, you will call the cam shaft provider and discover with your racing cam shaft, you assumed the lifter with the same quality as well right? Wrong – they were economy lifters to save money. That same cam shaft provider will tell you to order the upgraded performance lifters with better metal and improved design to prevent failures. Therefore, listen to your engine builder when they tell you to spend a few more dollars to protect your investment.

Q: I have a 4 cylinder racing application using an original style factory motor including an overhead type cam.

A: Most of those older original design applications are used in sports car and short track racing applications originally the motors used a SAE 30 or 10W30. Older racing specifications would call for straight SAE 40 since that was the best they had for the day for the oil viscosity to become stable. Current uses are 5W30 competition racing oil for best performance, but for increased oil pressure and improved stability used under high temperature conditions, use a 5W40 or 5W50 competition racing oil. Remember always consult your engine builder for exact specifications.

Q: I have been having increased lifter / cam wear problems on my overhead or regular placed cam.

A: For racing applications (without modern emission systems) always make sure you have advanced metal surface technology with increased Zinc / phosphorus levels – 1700-2000 ppm which provides a barrier and protects these extreme use parts.

Q: What other advantages does higher zinc / phosphorus ppm levels within the oil perform?

A: Higher levels of zinc / phosphorus help dissipate heat better within the oil internally. This assists the oil to run slightly cooler which increases the oil viscosity stability. Oil viscosity stability holds better between the parts, increases hydrodynamic film strength between the parts which decreases frictions and increases component durability

Q: I notice my cam bearings at rebuild have greater wear with the 20W50 than with the 5W50.

A: Yes, that will happen – even through the additive packages would be equal – the improved oil stability of a Higher Group IV PAO – especially in the smallest places like a cam bearing, roller bearing, valve train etc. will make a difference.



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Q: I want to Break-In and power up my engine, but need to protect my parts and components especially the cam / lifter assembly.

A: Yes, that is a problem: Previously passenger car and diesel motor oils were used, but with the API 2007 “newer advanced formulations” protection with higher anti-wear additives previously relied upon are not there any more. Further, standard motor oils designed for long term use do not have the special additives for power up procedures; especially to create improved compression in seating the piston ring /cylinder wall areas. Historically, use of moly within Break-In oil during these procedures, has not been suggested.

Q: Could I use an oil supplement with a high level of Zinc to convert my cheap oil into a break in oil?

A: That is not suggested, final oil products are a delicate balance – do you want to risk an oil product combination not originally blended together, which could be fighting itself or not compatible with each other during the important Break-In and Power-Up Compression Completion Session of your engine worth tens of thousands of dollars?

Q: Is there a Break-In motor oil product available that will work?

A: Yes, SynMax Performance Lubricants created a specialty motor oil product for this purpose called SynMax Break-In Motor Oil 10W45. High levels of anti-wear, low detergency and special power up additives to promote increased compression performance upon the piston ring / cylinder wall while protecting cam, lifter, bearing and component surfaces.

For further information please reference the following SynMax Technical Bulletins:

API Questions: Race Oil vs. Street Oil
Q & A Race Oil General Applications
Racing Products Application Guide