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Flat Tappet Camshafts

Recent changes in oil and engine technology are likely the cause of premature camshaft failure; here's what you can do to protect your engine!

Premature flat tappet camshaft failure has been an issue of late and not just with one brand or type of camshaft. In almost every case, the hardness or the taper of the cam lobe is suspected, yet most of the time that is not the problem. This growing trend is due to factors that are unrelated to camshaft manufacture or quality. Changes in today's oil products and "advanced" internal engine design have contributed to a harsher environment for the camshaft and a potential for failure during break-in. But there are several things you can do to turn the tide on this discouraging trend.

Proper Camshaft Set-Up & Break-In

Proper flat tappet camshaft set-up and break-in, as any engine builder knows, are keys to how long a camshaft will last, both short and long term. Making certain that the camshaft and lifters are properly lubricated will guarantee that the camshaft and lifters are protected during the critical initial start-up of your newly-built engine. COMP Cams® offers the right product for this job (Part #154), and it is available in several different size containers for engine builder convenience. To further enhance this "relationship," we strongly recommend the use of COMP Cams® Camshaft Break-In Oil Additive (Part #159) during the break-in. While this additive was originally developed specifically for break-in protection, subsequent testing has proven the durability benefits of its long term use. This special blend of additives promotes proper break-in and protects against premature cam and lifter failure by replacing some of the beneficial ingredients that the oil companies have been required to remove from off-the-shelf oil. These specialized COMP Cams® lubricants are the best "insurance policy" you can buy and the first step to avoiding durability problems with your new flat tappet camshaft.

Adequate Lubrication

Another major factor in the increase of flat tappet camshaft failure is your favorite brand of engine oil. Simply put, today's engine oil is just not the same as it used to be, thanks to ever tightening environmental regulations. The EPA has done a great job in reducing emissions and the effects of some of the ingredients found in traditional oils; however these changes to the oil have only made life tougher on your camshaft. The lubricity of the oil and specifically the reduction of important additives such as zinc and manganese, which help break-in and overall camshaft life, have been drastically reduced. In terms of oil selection, we recommend Shell Rotella T oil for the break-in procedure. Most often used in diesel engine applications, this higher lubricity oil works in gasoline engines as well.

Today's engines are great at providing oil to every engine component except one - your camshaft. Windage trays, limiting oil's ability to reach the top of the engine, modification of connecting rod side clearances for less splash oil and special oil pans further complicate both the break-in process and camshaft operation in general. But there are several things you can do to correct these problems.

COMP Cams® offers flat tappet lifters with oiling holes in the cam face surface, which will increase oil flow to the lifter-camshaft lobe contact point. Furthermore, using a lifter bore grooving tool (COMP Cams® #5003) will enhance oiling throughout the camshaft and valve train. As we all know by now, better oil flow means better initial break-in and increased camshaft durability.

Flat Tappet Lifter Selection – Choose Carefully!

In addition to these engine modifications, make certain you purchase high-quality lifters. Most lifters look alike, but you don't really know where they were produced. "Imported" flat tappets often times use inferior lifter castings and **DO NOT** deliver the durability of COMP Cams® high-quality, US-built lifters. COMP Cams® lifters are built to strict diameter and radius tolerances and designed to fit precisely within their lifter bores. This ensures the lifter rotates properly and decreases the potential for failure. Additionally, COMP Cams® Flat Tappet Lifters have the correct oil band depth and location to properly regulate the internal oiling of your engine.

Five steps to increased flat tappet camshaft durability:

- Double check your camshaft and lifter set-up prior to the break-in process, and use an ample amount of the supplied assembly lube on all lobes, distributor gear and the face of bottom of each lifter.
- Use high-lubricity engine oil such as Shell Rotella T oil to help during the break-in process and use COMP Cams® Camshaft Break-In Oil Additive (Part #159).
- Use flat tappet lifters with cam face oiling provisions, such as COMP Cams® Part #800-16 (GM) or #817-16 (Ford).
- Use a COMP Cams® Lifter Bore Grooving Tool (#5003) to increase oiling.
- Use high-quality, U.S.-built COMP Cams® lifters to make certain you are receiving the best quality lifter you can buy. Avoid "brown bag" lifters.

**CAM
HELP®**
800.999.0853



Competition Cams, Inc.
3406 Democrat Road
Memphis, TN 38118
901.795.2400



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