

Important Camshaft Break-In Information for Flat Tappet Cams

The following information should be considered for any engine that uses a flat tappet design and should be referenced before initial start-up.

The current engine oils used by engine manufacturers in new car production are not applicable for initial flat tappet break-in. Those oils are less desirable than older formulations which have better wear additives than the current SM category oils. With the advent of roller lifters, and cams, as well as roller rockers, the need for those expensive elements has diminished.

There have been numerous reports of premature flat tappet camshaft failure. This 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. However, there are several things you can do to turn the tide on this discouraging trend.

Below is a list of oils with higher levels of wear preventive additives that may be more desirable during flat tappet break-in. All of the oils listed below also have flashpoints above 400° F.

Delo 400
Magnesium 23
Calcium 3343
Zinc 1376
Viscosity @ 100° C 15.95
TBN * 10.63

Delvac
Moly 35
Boron 61
Calcium 2195
Magnesium 419
Phosphorus 1120
Zinc 1231
Viscosity @ 100° C 15.5
No TBN *

Rotella T
Magnesium 20
Calcium 3322
Phosphorus 1326
Zinc 1499
Viscosity @ 100° C 15.12
TBN * 10.36

* TBN stands for Total Base Number, which is the measurement of a lubricant's reserve alkalinity. The higher a motor oil's TBN, the more effective it is in handling contaminants and reducing the corrosive effects of acids for an extended period of time.

- **Melling and Melling Select Performance offer Mell-Lube, camshaft lube, (Melling part # M-10012)**. Use liberal amounts when installing new camshaft and lifters.

NOTE:

Some of this information has been provided by AREA. Ref., AERA Technical Bulletin, TB233

Recommended Camshaft Break-In Procedures

In order to give your camshaft and lifters the best possible chance to make it through the first crucial moments of operation upon initial startup and provide a long, trouble-free service life, the following is recommended:

PRELUBE BY ONE OF THE FOLLOWING METHODS

BEST

Pressure Tank System: The pressure tank system is by far the best method of making all air is purged from the oil galleys. Prelube until oil is seen at the rocker arms. Use an oil recommended by the manufacturer, do **NOT** use a non-detergent oil.

NEXT BEST

Spinning The Oil Pump: Using a priming tool, turn the pump with a drill until oil is seen at the rocker arms. Priming tools are available from Melling.

LEAST DESIRABLE

Free Spinning The Engine: Remove the spark plugs and turn the engine with the starter until oil pressure is noted on the gauge.

BEFORE STARTING: Set the timing and be sure fuel is in the carburetor or injection before cranking. This will assure the engine starts with the least amount of cranking.

START THE ENGINE: After it starts, check for oil pressure and bring the RPM to 1500-2000. If the pressure is good, run the engine at this RPM range for 20 minutes. After this run in period, final adjustments can be made and the engine put in service.