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ENGINE REBUILDERS ASSOCIATION

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Camshaft Break-In For Flat Tappet Camshafts

The AERA Technical Committee offers the following information regarding flat tappet camshaft break-in. The information in this bulletin should be considered for any engine that uses a flat tappet design and should be referenced before initial engine start-up.

The current engine oils used by engine manufacturers in new car production are not applicable for initial flat tappet camshaft 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/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. But 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 camshaft 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.

All cam manufacturers offer cam assembly lube. Using liberal amounts of this lube during assembly on all moving or rotating points will offer a front line defense as soon as the engine is rotated.

The AERA Technical Committee

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