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Effects Of Changes In Cam Timing And Lobe Separation Angle

The following tables illustrate how variations in lobe separation angle and cam timing will effect the behavior of the engine in which the camshaft is installed.

EFFECTS OF ALTERING CAMSHAFT TIMING

Advancing

- Begins Intake Event Sooner
- Open Intake Valve Sooner
- Builds More Low-End Torque
- Decrease Piston-Intake Valve Clearance
- Increase Piston-Exhaust Valve Clearance

Retarding

- Delays Intake Closing Event
- Keeps Intake Valve Open Later
- Builds More High-RPM Power
- Increase Piston-Intake Valve Clearance
- Decrease Piston-Exhaust Valve Clearance

EFFECTS OF CHANGING LOBE SEPERATION ANGLE (LSA)

Tighten (smaller LSA number)

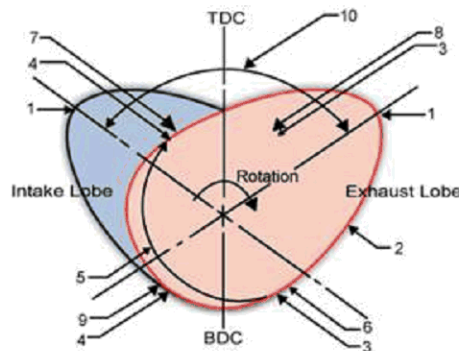
- Moves Torque to Lower RPM
- Increases Maximum Torque
- Narrow Power band
- Builds Higher Cylinder Pressure
- Increase Chance of Engine Knock
- Increase Cranking Compression
- Increase Effective Compression
- Idle Vacuum is Reduced
- Idle Quality Suffers
- Open Valve-Overlap Increases
- Closed Valve-Overlap Increases
- Natural EGR Effect Increases
- Decreases Piston-to-Valve Clearance

Widen (larger LSA number)

- Raise Torque to Higher RPM
- Reduces Maximum Torque
- Broadens Power Band
- Reduce Maximum Cylinder Pressure
- Decrease Chance of Engine Knock
- Decrease Cranking Compression
- Decrease Effective Compression
- Idle Vacuum is Increased
- Idle Quality Improves
- Open Valve-Overlap Decreases
- Closed Valve-Overlap Decreases
- Natural EGR Effect is Reduced
- Increases Piston-to-Valve Clearance

CAMSHAFT GEOGRAPHY AND LOBE FUNCTION

- 1) Max Lift or Nose
- 2) Flank
- 3) Opening Clearance Ramp
- 4) Closing Clearance Ramp
- 5) Base Circle
- 6) Exhaust Opening Timing Figure
- 7) Exhaust Closing Timing Figure
- 8) Intake Opening Timing Figure
- 9) Intake Closing Timing Figure
- 10) Intake to Exhaust Lobe Separation



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