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SB 85

Spark Knock On Late Model Engines

The automotive service industry reports that many car owners are complaining about spark knock or "pinging" from the use of today's low octane unleaded fuels. Spark knock can be caused by:

- Over advanced ignition timing.
- Excessive compression due to carbon build-up.
- Excessive combustion temperatures due to inoperative EGR valve, stuck warm air intake flap or hot spots in the combustion chamber due to carbon build-up or too hot spark plugs.

If the engine is timed to factory specifications and there are no problems with the EGR valve or warm air intake, the following cures may help eliminate the problem:

1. Clean the accumulated carbon from the combustion chambers and piston tops with a chemical cleaner.
2. Recommend the motorist use a higher octane fuel. To save money, suggest trying half a tank of premium fuel mixed with half a tank of unleaded regular.
3. Recommend the use of one of the various types of available octane improvers.
4. Retard the base ignition timing 2 to 4 degrees.

WARNING: Retarding the timing will usually eliminate the pinging but will also cause the exhaust valves to run dangerously hot. There will also be a decrease in performance and economy.

5. Install one heat range colder spark plugs.
6. Install a 180° thermostat, also clean and flush the cooling system.
7. For stubborn cases, the installation of an aftermarket water/alcohol injection system may be recommended/

The AERA Technical Committee