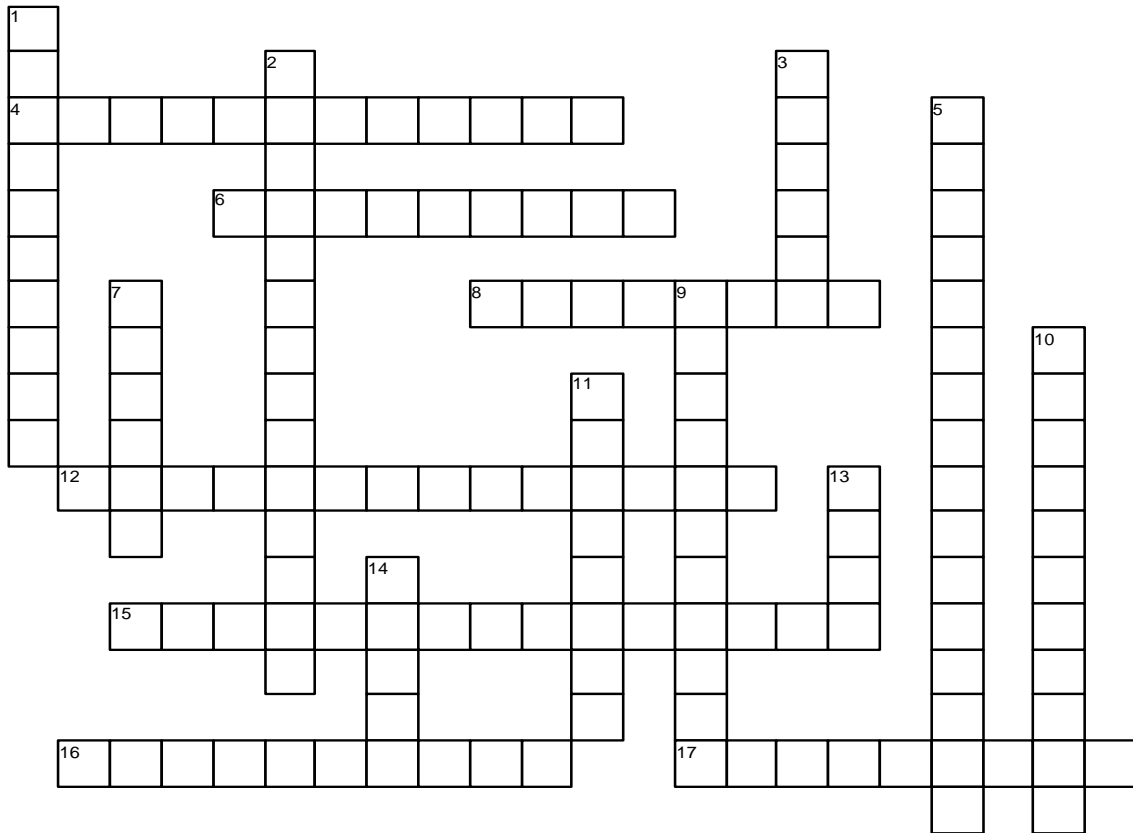


In-Vehicle Engine Service

Chapter 22



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ACROSS

- 4 Dropping _____ is one sign of a leaking intake manifold gasket.
- 6 A _____ replacement is needed if the bearing is noisy or loose.
- 8 Expansion/contraction rate difference between the cast-iron head and the aluminum intake manifold can cause the intake manifold gasket to be damaged by the relative motion of the head and intake manifold, this type of failure is called _____.
- 12 One sign that the water pump needs to be replaced is _____ from the weep hole.
- 15 Stuck partially open is one of the _____ for a thermostat.
- 16 All _____ valves move during operation to maintain the desired coolant temperature.
- 17 A _____ thermostat can cause the operating temperature of the engine to be less than normal.

DOWN

- 1 Use propane to check if the engine changes when dispensed around the intake manifold gasket, if the engine changes in speed or sound there is a _____.
- 2 Because _____ gaskets are used to seal oil, air, and coolant in most cases, determining that the intake manifold gasket is the root cause can be a challenge.
- 3 _____ is often an issue in engines equipped with gasoline direct-injection systems.
- 5 Use a _____ to check for evidence of oil or coolant between the intake manifold and the cylinder heads to indicate a leaking intake manifold.
- 7 A _____ thermostat works, but not within the correct temperature range.
- 9 _____ have a limited service and a specified replacement interval ranging from 60,000 miles to about 100,000 miles.
- 10 A _____ thermostat will likely cause the engine to overheat.
- 11 Hybrid vehicles are designed to stop the gasoline engine unless needed, this feature is called _____.
- 13 Gasoline engines used in _____s can be a hazard to be around under some condition.
- 14 Abbreviation for extended range electric vehicles.