**In-Vehicle Engine Service**

Chapter 23

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**ACROSS**

3. A _______ thermostat works, but not within the correct temperature range.

6. Because _______ _______ 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.

7. One sign that the water pump needs to be replaced is _______ _______ from the weep hole.

9. Dropping _______ _______ is one sign of a leaking intake manifold gasket.

11. Use a _______ _______ to check for evidence of oil or coolant between the intake manifold and the cylinder heads to indicate a leaking intake manifold.

12. A _______ replacement is needed if the bearing is noisy or loose.

13. All _______ _______ valves move during operation to maintain the desired coolant temperature.

14. A _______ _______ thermostat can cause the operating temperature of the engine to be less than normal.

15. A _______ _______ thermostat will likely cause the engine to overheat.

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**DOWN**

1. Hybrid vehicles are designed to stop the gasoline engine unless needed, this feature is called _______ _______.

2. 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 _______ _______.

4. Gasoline engines used in ___s can be a hazard to be around under some condition.

5. Stuck partially open is one of the _______ _______ for a thermostat.

8. _______ _______ have a limited service and a specified replacement interval ranging from 60,000 miles to about 100,000 miles.

10. 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 _______ _______.