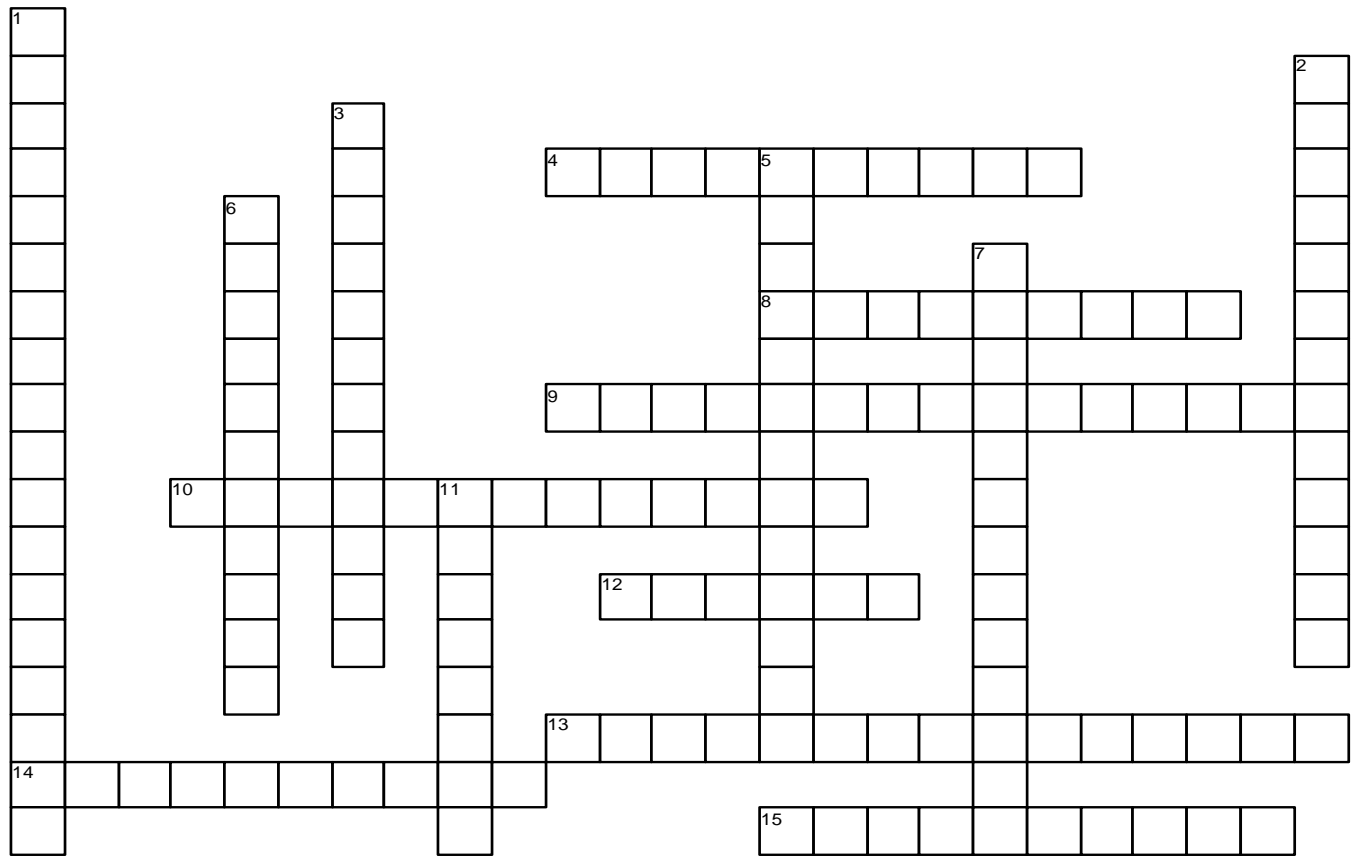


Hybrid Engine Systems

Chapter 4



<http://jameshalderman.com>

ACROSS

- 4 Instead of using a piston along a helical spline, the _____ uses a rotor with four vanes, which is connected to the end of the camshaft.
- 8 The _____ holes are usually not centered in the piston.
- 9 One of the best tests that can be used to determine engine condition is the _____ test. This test involves injecting air under pressure into the cylinders one at a time.
- 10 The _____ engine is an engine that uses a late closing intake valve to reduce compression pressures and an extended power stroke event.
- 12 To reduce side loads, some vehicle manufacturers _____ the crankshaft from center.
- 13 _____, using a hand operated pressure tester, is a quick and easy cooling system test.
- 14 The camshaft position actuator _____ valve (OCV) directs oil from the oil feed in the head to the appropriate camshaft position actuator oil passages
- 15 The _____ is a temperature-controlled valve placed at the engine coolant outlet on most engines.

DOWN

- 1 The _____ engine (ICE) converts the energy contained in the fuel into heat energy in a process called combustion.
- 2 _____ timing (VVT) involves the use of electric and hydraulic actuators that are used to change the timing of the camshaft(s) in relation to the crankshaft. VVT, also called variable cam timing (VCT), allows the valves to be operated at different points in the combustion cycle to improve performance.
- 3 shutters (AGS) are designed to remain closed to decrease the aerodynamic drag by forcing the air to flow underneath the vehicle when closed.
- 5 _____ refer to the energy required to overcome the restriction in the intake system to fill the cylinders with air during the intake stroke.
- 6 An engine that uses VVT on the _____ is used to create an EGR affect, thereby eliminating the need for an EGR valve.
- 7 The purpose of the engine _____ is to bring the ICE up to the optimum temperature as quickly as possible and maintain that temperature under all operating conditions.
- 11 A _____ can be used on many vehicles to read the actual temperature of the coolant as detected by the engine coolant temperature (ECT) sensor.