

## *Automotive Engines 10th*

### **Chapter 27 Camshafts and Valve Trains**

**SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.**

1. How is a composite camshaft constructed?
2. Why should the pushrods and rocker arms be kept together if they are to be reused?
3. What drives the high-pressure pump on a GDI engine?
4. Describe the operation of a hydraulic lifter.
5. What is meant by an "interference" engine?
6. How is the camshaft driven by the crankshaft?

## Answer Key

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1. Composite camshafts, which use a lightweight tubular shaft with hardened steel lobes are press-fitted over the shaft.  
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2. If they are to be reused, place them in a location so that the rockers and the pushrods can be installed back to their original location. For best results, consider purchasing new hollow pushrods instead of trying to clean and reuse the originals.  
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3. On engines equipped with gasoline direct injection (GDI), the cam has an eccentric cam lobe to drive the high-pressure fuel pump.  
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4. A hydraulic lifter uses a hollow cylinder body enclosing a closely fit hollow plunger; check valve and a pushrod cup. Engine oil is trapped between the body and the plunger to maintain zero lash (valve train clearance).  
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5. On an interference engine, a broken timing belt causes some of the valves that are open to hit the pistons, causing major engine damage.  
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6. The camshaft is driven by:
  - Timing gears
  - Timing chains
  - Timing beltsPage Ref: 377