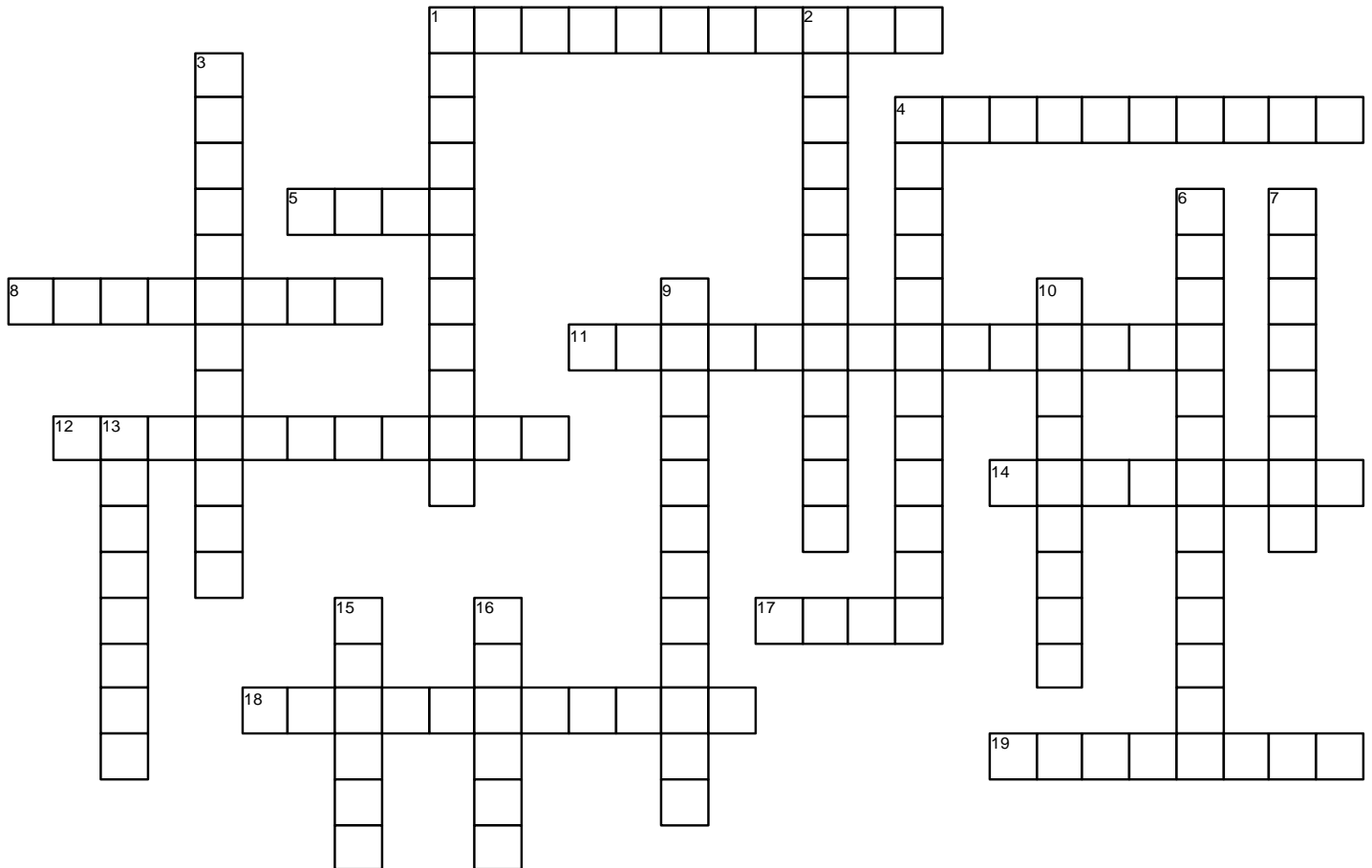


# Camshafts And Valve Trains

## Chapter 28



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### ACROSS

- 1 The \_\_\_\_\_ type operates quietly but tends to stretch with use.
- 4 Occasionally, engines are run at excessive speeds, this tends to throw the valve open, causing \_\_\_\_\_.
- 5 The separation between the centerlines of the intake and exhaust lobes is called: Lobe center, Lobe separation, LDA, or \_\_\_\_ spread.
- 8 \_\_\_\_\_ camshafts are either belt or chain driven from the crankshaft and are located in the cylinder heads.
- 11 Another name for a cam follower is a \_\_\_\_\_.
- 12 The \_\_\_\_\_ type is noisier but operates with less friction and stretches less than the silent type of chain.
- 14 The \_\_\_\_\_ of the cam is usually expressed in decimal inches and represents the distance that the valve lifter or follower is moved.
- 17 A gradual rise in the cam contour is called a \_\_\_\_\_.
- 18 \_\_\_\_\_ is the movement of the camshaft lengthwise in the engine during operation.
- 19 \_\_\_\_\_ duration is the number of degrees of crankshaft (not camshaft) rotation for which a valve is lifted off the seat.

### DOWN

- 1 If the lift is the same, the cam is called \_\_\_\_\_.

- 2 If the specifications vary, the camshaft is called \_\_\_\_\_.
- 3 A \_\_\_\_\_ engine is one that causes no internal damage if the camshaft drive belt breaks when the engine is running.
- 4 \_\_\_\_\_ is the number of degrees of crankshaft rotation during which both intake and exhaust valves are open.
- 6 Some newer engines have the hydraulic adjustment in the rocker arm and are commonly called \_\_\_\_\_ adjusters.
- 7 The camshaft is supported in the block by \_\_\_\_\_ bearings and driven by the crankshaft with a gear or sprocket and chain drive.
- 9 An \_\_\_\_\_ engine will cause some of the valves that are open to hit the pistons, causing major engine damage if the drive belt breaks.
- 10 \_\_\_\_\_ camshafts, which use a lightweight tubular shaft with hardened steel lobes press-fitted over the shaft.
- 13 Engines with the cam located in the block are called pushrod or \_\_\_\_\_ valve engines.
- 15 \_\_\_\_\_ will not occur when the engine is operated in the speed range for which it is designed.
- 16 If two chains are used side by side, this type of chain is called a \_\_\_\_\_ roller chain.