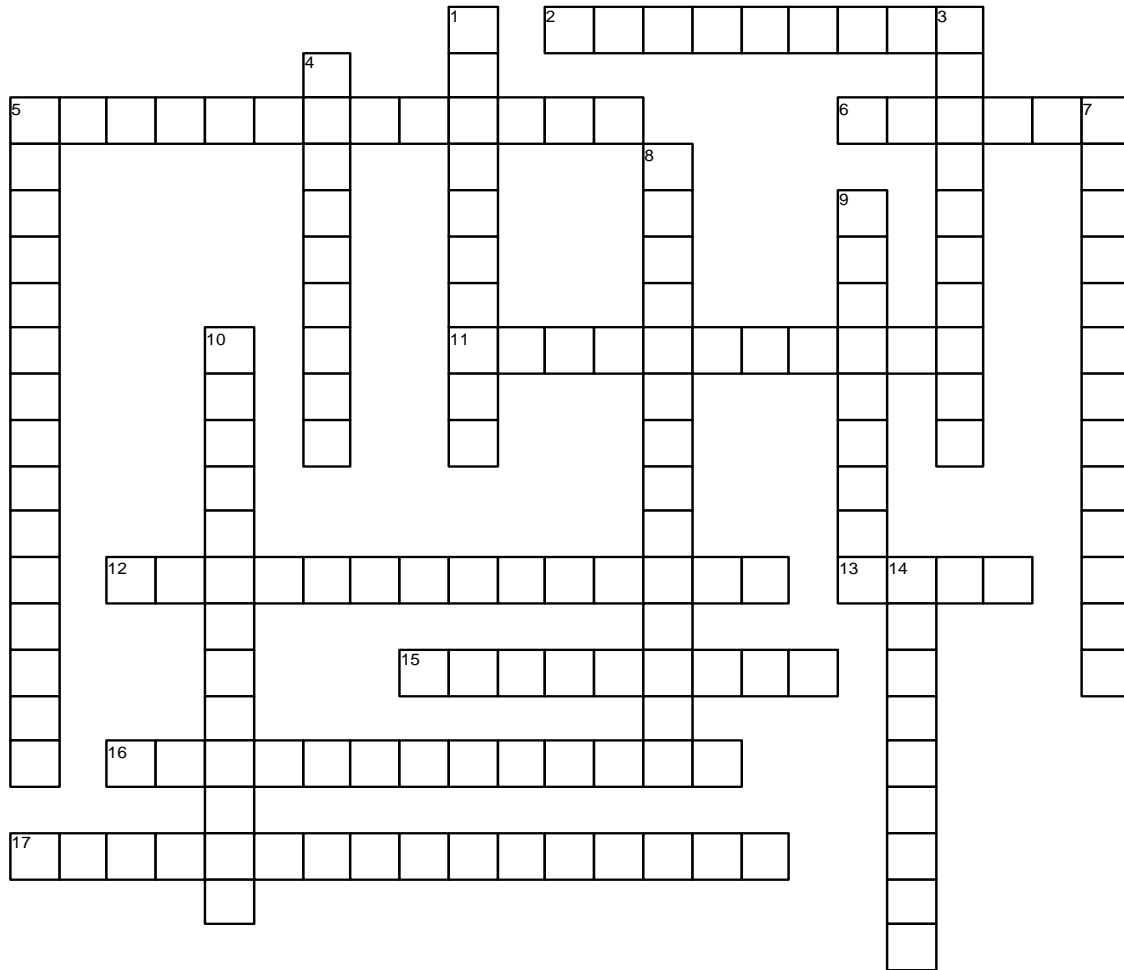


Crankshafts, Balance Shafts, And Bearings

Chapter 31



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ACROSS

- 2 Another name for the rod bearing journals are the _____.
- 5 _____ is where only the outer portion of the crankshaft journal surface is hardened.
- 6 A _____ crankshaft is machined from a solid piece of forged steel.
- 11 A balancer usually consists of a cast-iron _____ mounted to a cast-iron hub with an elastomer sleeve.
- 12 The ability of bearing materials to creep or flow slightly to match shaft variations is called _____.
- 13 On a V-8 engine, each group of four inline cylinders is called a _____.
- 15 Modern automotive engines use precision insert-type bearing shells, sometimes called _____-_____ bearings.
- 16 _____ is measured in microinches; and the smaller the number, the smoother the surface.
- 17 When pistons move up and down in the cylinders they create a _____, which is a strong low-frequency vibration.

DOWN

- 1 The crank throw is offset from the crankshaft _____.
- 3 The angle between the crankpins on the crankshaft throws is called a _____.
- 4 When back-and-forth deflections occur at the same vibration _____ as that of another engine part, the parts will vibrate together.
- 5 A crankshaft that has counterweights on both sides of each connecting rod journal is called fully _____.
- 7 A _____ supports the thrust loads and maintains the front-to-rear position of the crankshaft in the block.
- 8 Crankshafts are balanced by _____, which are cast, forged, or machined as part of the crankshaft.
- 9 The flange between the splayed crankpin journals is sometimes called a _____.
- 10 The bearing shell has a slightly larger arc than the bearing housing. This difference is called _____.
- 14 The inertia ring size is selected to control the _____ of the crankshaft vibrations for each specific engine model.