Automotive Technology 6th Edition
Chapter 23

Name_____

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

1) What is hydrodynamic lubrication?

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2) What is the purpose of a windage tray?

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3) What causes a wedge-shaped film to form in the oil?

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4) Explain why internal engine leakage affects oil pressure.

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5) Describe how the oil flows from the oil pump, through the filter and main engine bearings, to the valve train.

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1) Hydrodynamic lubrication is the high pressure of oil created by the hydrodynamic wedge that supports the crankshaft on a layer (thin film) of oil.
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2) A windage tray is a shield between the crankshaft and the oil in the oil pan. The purpose of the windage tray is to prevent the oil from being thrown by the counterweight of the crankshaft., thereby reducing oil foaming, improving lubrication, and reducing horsepower loss.
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3) The shape of the bearings allows small amount of oil to be trapped and it is this oil that is rotated by the crankshaft around the bearing, creating a hydrodynamic wedge.
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4) Oil clearance between main and rod bearings represents a limited amount of leakage that the oil pump is normally able to handle and still maintain oil pressure. If the clearance is increased due to worn bearings, the capacity of the oil pump cannot keep up and the oil pressure drops.
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5) Oil flows from the pump to the spring regulator, and then on to the main and rod bearings and finally to the valve train.
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