Automotive Engines: Theory & Servicing, 9th Edition
Chapter 29

Name_____

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

1) List the methods used to control piston heat expansion.

_____
_____
_____
_____

2) How does piston pin offset control piston slap?

_____
_____

3) List the steps needed to recondition connecting rods.

_____
_____

4) What causes the piston ring groove clearance to widen in service?

_____
_____

5) Why are forged pistons recommended for use in high-performance engines?

_____
_____

6) Why are some piston skirts tin plated?

_____
_____

7) How is the piston pin installed in the piston and rod assembly?

_____
_____
_____
_____

1) Piston heat expansion is controlled by designing in expansion slots or heat dams. Most pistons are cam ground that results in the piston becoming nearly round at operating temperatures. Steel strut inserts are also used that are designed to control the amount of heat expansion from cold to normal operating temperatures.
Page Ref: 422-423
2) Piston offset is toward the major thrust surface and is designed to reduce piston slap, especially during cold engine operation.
Page Ref: 423-424
3) Connecting rods are reconditioned by removing metal from both the rod large end and rod cap and then re-machining the large end bore. Twisted connecting rods can often be straightened.
Page Ref: 433
4) Piston ring groove clearance widens during service as a direct result of piston ring twisting and forces exerted on the rings during normal engine operation.
Page Ref: 433-434
5) Forged pistons are recommended for high-performance applications because not only are they stronger and able to handle increased cylinder pressures, but also conduct heat more quickly than cast pistons.
Page Ref: 421
6) Some pistons are tin plated to help reduce scuffing and scoring during periods of minimum lubrication.
Page Ref: 422
7) Non-floating piston pins are installed into a piston and rod by first heating the small end of the connecting rod. Before the rod has a chance to cool, the piston pin is pushed into the piston and rod. As the rod cools, an interference fit is created between the piston pin and the connecting rod.
Page Ref: 424-425