

Automotive Technology 6th Edition

Chapter 37 – Engine Assembly and Dynamometer Testing

Lesson Plan



CHAPTER SUMMARY:

1. Short block preparation, cylinder head preparation, and trial assembly
 2. Final short block assembly, installing a camshaft, and piston/rod installation
 3. Cylinder head installation, torque-to-yield head bolts, and valve train assembly
 4. Final assembly and dynamometer testing
-



OBJECTIVES:

1. Explain short block preparation and cylinder head preparation.
 2. Discuss trial assembly and final short block assembly.
 3. Describe camshaft installation and piston/rod installation.
 4. Explain the cylinder head installation procedure.
 5. Discuss torque-to-yield head bolts.
 6. Explain valve train assembly and final assembly of an engine.
 7. Explain dynamometer testing.
-



RESOURCES: (All resources may be found at <http://www.jameshalderman.com>)

1. **Task Sheet ASE (A1-C-14) P-1:** Engine Assembly
 2. Chapter PowerPoint
 3. Chapter Crossword Puzzle and Word Search
 4. Videos: See list at the end of the lesson plan.
-



ACTIVITIES:

1. **Task Sheet ASE (A1-C-14) P-1:** Have students complete Engine Assembly Task Sheet.
-



ASSIGNMENTS:

1. Chapter crossword and word search puzzles.
 2. Complete end of chapter 10 question quiz.
-



CLASS DISCUSSION:

1. Review and group discussion chapter [Frequently Asked Questions](#) and [Tech Tips](#) sections.
 2. Review and group discussion of the five (5) chapter [Review Questions](#).
-



NOTES AND EVALUATION:

Automotive Technology 6th Edition
Chapter 37 – Engine Assembly and Dynamometer Testing
Lesson Plan

Videos: (at <http://www.jameshalderman.com>)

Timing gears part 1 (time 4:46)
Timing gears part 2 (time 6:39)
Timing gears part 3 (time 9:14)
Using plastigauge (time 3:49)
How to find TDC (time 1:14)
Rear main seal (time 7:38)
Motor mount (time 6:22)
SBC top end (time 23:45)
SBC lower end (time 23:41)
Crankshaft balancing (time 1:37)
Plasti gauge (time 10:18)
Rod bearing install (time 1:52)
Thrust bearing (time 6:04)
Radius and fillet (time 2:32)
End play check (time 4:23)
Motor mount (time 4:38)
Checking valve to piston clearance part 1 (time 2:53)
Checking valve to piston clearance part 2 (time 4:01)
Rear main seal check (time 1:53)
Motor mounts (time 10:54)
Motor mount (time 1:21)
King Engine Bearing & Crankshaft Installation Guide (time 10:20)
Robert Dana teaches you how to install a Harmonic Balancer (time 5:10)
Honda Crank Bolt & Harmonic Balancer Removal DIY (time 4:03)
Install piston rings (time 2:14)
Front seal replacement (time 6:27)
How To Remove / Install Freeze Plugs (time 12:49)
Valve adjustment (time 3:05)
Valve adjustment (time 1:39)
Camshaft installation (time 1:37)
Torque a cylinder head (time 25:08)
Replace freeze plugs (time 3:43)