

DISASSEMBLY AND ASSEMBLY (Continued)

31. Install crankshaft damper using Damper / Front Cover Seal Installer T82L-6316-A and Front Cover Seal Installer T70P-6B070-A. Tighten retaining bolts to 140-180 N·m (103-132 lb-ft).
Install crankshaft pulley. Tighten retaining bolts to 26-38 N·m (19-28 lb-ft).
32. Install injector and fuel rail assembly and tighten bolts for fuel rail bracket to 8-11 N·m (6-8 lb-ft).
33. Install PCV tubes and valve assembly.
34. Install intake manifold and tighten bolts and studs in two steps:
 - a. 11 N·m (8 lb-ft)
 - b. 15 N·m (11 lb-ft)
35. Install EGR valve assembly. Tighten bolts to 20-30 N·m (15-22 lb-ft).
36. Install distributor cap. Connect secondary wires to spark plugs.
37. Install coolant bypass hose.
38. Install exhaust manifold and exhaust manifold. Note location of oil dipstick tube support bracket. Tighten exhaust manifold and exhaust heat control retaining bolts to 20-30 N·m (15-22 lb-ft).
39. Apply a thin coat of Pipe Sealant with Teflon® D8AZ-19554-A (ESG-M4G 194-A and ESR-M18P7-A) or equivalent to flywheel retaining bolt threads before installation.
40. Install rear cover plate and flywheel.
41. Tighten retaining bolts to 73-87 N·m (54-64 lb-ft) in standard cross-tightening sequence.

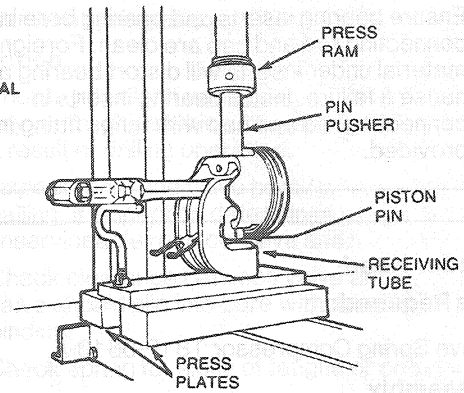
Subassemblies**Pistons and Connecting Rods****Tools Required:**

- Piston Pin Remover T68P-6135-A
- Feeler Gauge D81L-4201-A

Disassembly

1. Remove bearing inserts from connecting rod and cap.
2. Remove piston rings using a suitable piston ring expander.
3. Mark pistons to ensure assembly with same rod and installation in same cylinders from which they were removed.
4. Using an Arbor Press and Piston Pin Remover and Replacer T68P-6135-A press piston pin from piston and connecting rod.

REMOVAL



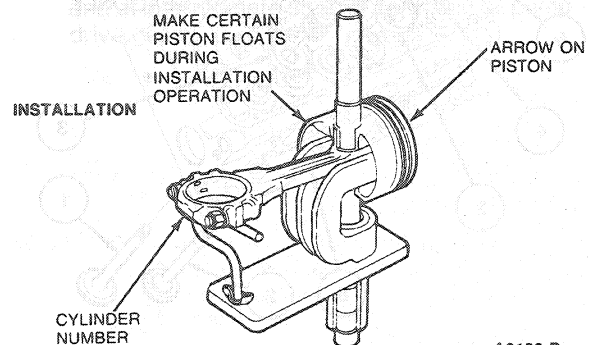
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Assembly

Check the fit of a new piston in the cylinder bore before assembling piston and piston pin to connecting rod.

The piston pin bore of a connecting rod and diameter of piston pin must be within specification.

1. Apply light coat of XO-10W30-QSP (ESE-M2C 153-E) or equivalent engine oil to all parts.
2. Assemble piston to connecting rod using notch in piston dome and connecting rod oil squirt hole for assembly reference.
On V-6 engines with one rod per pin, both sides of rod have larger chamfers.
3. Start piston pin in piston and connecting rod (this may require a very light tap with a mallet). Using an Arbor Press and Piston Pin Remover and Replacer T68P-6135-A, press piston pin through piston until the pin is centered.



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4. Check end gap of all piston rings. It must be within specification. Follow instructions contained on piston ring package and install piston rings.
5. Check ring side clearance of compression rings with Feeler Gauge D81L-4201-A or equivalent, by inserting it between ring and its lower land. The gauge should slide freely around entire ring circumference without binding. Any wear that occurs will form a step at inner portion of lower land. If lower lands have high steps, piston should be replaced.