

Chrysler Corp. V8 Engines

5-33

1965-73 361", 383", 400", 413", 426" 440" V8 ENGINES

| GENERAL SPECIFICATIONS | | | | | | | | | |
|------------------------|-----------------|----------------|-----------|--------------------------|--------------|----------|--------|-------|--------|
| Year | Displ. Cu. Ins. | Carburetor | HP at RPM | Torque (Ft. Lbs. at RPM) | Compr. Ratio | Bore | Stroke | | |
| 1965 | 361" 383" | 2-Bbl. | 265@4400 | 380@2400 | 9.0-1 | 4.12" | 3.38" | | |
| | | 2-Bbl. | 270@4400 | 390@2800 | 9.2-1 | 4.25" | 3.38" | | |
| | | 2-Bbl. | 305@4600 | 410@2400 | 9.2-1 | 4.25" | 3.38" | | |
| | 413" | 4-Bbl. | 315@4400 | 420@2800 | 10.0-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 330@4600 | 425@2800 | 10.0-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 340@4600 | 470@2800 | 10.1-1 | 4.19" | 3.75" | | |
| | | 4-Bbl. | 350@4600 | 470@2800 | 10.1-1 | 4.19" | 3.75" | | |
| | | 4-Bbl. | 360@4800 | 470@3200 | 10.1-1 | 4.19" | 3.75" | | |
| | | 4-Bbl. | 365@4800 | 470@4400 | 10.3-1 | 4.25" | 3.75" | | |
| 1966 | 361" 383" | 2-Bbl. | 265@4400 | 380@2400 | 9.0-1 | 4.12" | 3.38" | | |
| | | 2-Bbl. | 270@4400 | 390@2800 | 9.2-1 | 4.25" | 3.38" | | |
| | 426" 440" | 4-Bbl. | 325@4800 | 425@2800 | 10.0-1 | 4.25" | 3.75" | | |
| | | 4-Bbl. | 365@4800 | 470@4400 | 10.3-1 | 4.25" | 3.75" | | |
| | | 4-Bbl. | 350@4400 | 480@4400 | 10.0-1 | 4.32" | 3.75" | | |
| 1967 | 383" | 2-Bbl. | 270@4400 | 390@2800 | 9.2-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 280@4200 | 400@2400 | 10.0-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 325@4800 | 425@2800 | 10.0-1 | 4.25" | 3.38" | | |
| | 440" | 4-Bbl. | 350@4400 | 480@2800 | 10.0-1 | 4.32" | 3.75" | | |
| 1968-69 | 383" | 2-Bbl. | 290@4400 | 390@2800 | 9.2-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 300@4400 | 400@2400 | 10.0-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 330@5000 | 425@3200 | 10.0-1 | 4.25" | 3.38" | | |
| | 440" | 4-Bbl. | 335@5200 | 425@3400 | 10.0-1 | 4.25" | 3.38" | | |
| | | 4-Bbl. | 350@4400 | 480@2800 | 10.0-1 | 4.32" | 3.75" | | |
| 1970 | 383" | 2-Bbl. | 290@4400 | 390@2800 | 8.7-1 | 4.25" | 3.375" | | |
| | | 4-Bbl. | 330@5000 | 425@3200 | 9.5-1 | 4.25" | 3.375" | | |
| | | 4-Bbl. | 335@5200 | 425@3400 | 9.5-1 | 4.25" | 3.375" | | |
| | 440" | 4-Bbl. | 375@4600 | 480@3200 | 9.7-1 | 4.32" | 3.75" | | |
| | | Triple 2-Bbl. | 390@4700 | 490@3200 | 10.5-1 | 4.32" | 3.75" | | |
| | | 1971 | 383" | 2-Bbl. | 275@4400 | 375@2800 | 8.5-1 | 4.25" | 3.375" |
| | | | | 4-Bbl. | 300@4800 | 410@3400 | 8.5-1 | 4.25" | 3.375" |
| 400" 440" | 2-Bbl. | 275@4400 | 375@2800 | 8.2-1 | 4.342" | 3.375" | | | |
| | 4-Bbl. | 300@4800 | 410@3400 | 8.5-1 | 4.32" | 3.75" | | | |
| | 4-Bbl. | 335@4400 | 460@3200 | 8.8-1 | 4.32" | 3.75" | | | |
| | 4-Bbl. | 370@4600 | 480@3200 | 9.5-1 | 4.32" | 3.75" | | | |
| | Triple 2-Bbl. | 385@4700 | 490@3200 | 10.3-1 | 4.32" | 3.75" | | | |
| 1972 | 400" | 2-Bbl. | 190@4400 | 310@2400 | 8.2-1 | 4.342" | 3.375" | | |
| | | 4-Bbl. | 225@4800 | 340@3200 | 8.2-1 | 4.342" | 3.375" | | |
| | | 4-Bbl. | 255@4400 | 340@3200 | 8.2-1 | 4.342" | 3.375" | | |
| | 440" | 4-Bbl.Ⓛ | 265@4800 | 345@3200 | 8.2-1 | 4.342" | 3.375" | | |
| | | 4-Bbl. | 280@4800 | 375@3200 | 8.2-1 | 4.32" | 3.75" | | |
| | | 4-Bbl.Ⓛ | 290@4800 | 380@3200 | 8.2-1 | 4.32" | 3.75" | | |
| | | Triple 2-Bbl.Ⓛ | 330@4800 | 410@3600 | 10.3-1 | 4.32" | 3.75" | | |
| 1973 | 400" | 2-Bbl. | 175@3600 | 305@2400 | 8.2-1 | 4.34" | 3.38" | | |
| | | 4-Bbl. | 260@4800 | 335@3600 | 8.2-1 | 4.34" | 3.38" | | |
| | | Police (Sedan) | 245@4800 | 325@3200 | 8.2-1 | 4.34" | 3.38" | | |
| | 440" | (Wagon) | 220@4000 | 310@3200 | 8.2-1 | 4.34" | 3.38" | | |
| | | 4-Bbl. | 220@3600 | 350@2400 | 8.2-1 | 4.32" | 3.75" | | |
| | | 4-Bbl. | 280@4800 | 380@3200 | 8.2-1 | 4.32" | 3.75" | | |

Ⓛ — With Fresh air pack (not available in California).

Ⓛ — Not available in California.

► **NET HORSEPOWER & TORQUE NOTE** — Horsepower and Torque figures given for 1972 and later are NET. NET Horsepower and torque represent power at the flywheel when the engine is installed in the vehicle, with wide open throttle and all systems operating (i.e., air cleaner, exhaust system, water pump, generator, oil pump and air conditioning).

Chrysler Corp. V8 Engines

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)

MODEL IDENTIFICATION

SERIAL NUMBER

1965-67 - Stamped on plate attached to left front door hinge post. Number includes identification as follows:

1965 Models

① ② ③ ④ ⑤
8 1 4 2 100001

- ① - Designates Car Make.
- ② - Designates Model Series.
- ③ - Designates Year Model.
- ④ - Designates Assembly Plant.
- ⑤ - Designates beginning vehicle number.

1966-67 Models

① ② ③ ④ ⑤ ⑥ ⑦
L L 41 A 7 2 100001

- ① - Car Make.
- ② - Price Class.
- ③ - Body Style.
- ④ - Engine Displacement. **1966 Models** - E 361", F 383", G 413", H 426", J 440"; **1967 Models** - G 383" Std., H 383" Hi Perf., J 426", K 440" Std., L 440" Hi Perf., M Special Order.
- ⑤ - Model Year. 6 1966, 7 1967.
- ⑥ - Assembly Plant.
- ⑦ - Vehicle Serial Number.

1968-73 - Vehicle serial number is on a plate attached to instrument panel. Located near left windshield post and visible from outside of car. Contains thirteen digits; fifth digit identifies CID of engine as follows: **G** 383", **H** 383" Hi Perf., **J** 426", **K** 440", **L** 440" Hi Perf., **M** Special Order, (1968-69). **L** 383", **N** 383" Hi Perf., **R** 426" Hemi. **T** 440", **U** 440" Hi Perf., **V** 440" Triple 2-Bbl., **Z** Special Order, **M** 400" 2-Bbl., **P** 400" 4-Bbl., (1970-73).

ENGINE IDENTIFICATION

1965-67 - Engine number is stamped on right side of block below distributor, or on left side of block behind thermostat housing. First four figures designate Model Year and Engine Displacement as follows:

① ②
A 383

- ① - Year Model - **A** - 1965, **B** - 1966, **C** - 1967
- ② - Engine Displacement - 383".

1968-73 - Stamped on cylinder block pan rail at left rear corner below starter opening. Third, fourth and fifth digits identify engine CID.

| SPECIAL ENGINE MARKS | | |
|------------------------------|----------------------|--------------------------------------|
| Code | Location | Identification |
| "Maltese Cross" | Engine No. Pad | .001" undersize crankshaft journals. |
| "R" or "M" | Crankshaft ① | |
| "B" or "Maltese Cross and X" | Engine No. Pad | .010" undersize crankshaft journals. |
| "RX" or "MX" | Crankshaft ① | |
| "A" | Engine No. Pad | .020" oversize cylinder bores. |
| "Δ" | Engine No. Pad | .008" oversize tappet bodies. |
| "X" or "O/S" | End of Cylinder Head | .005" oversize valve stems. |
| "LC" | Model Pad | Low Compression |
| "HP" | Model Pad | High Performance |
| "SP" | Model Pad | Special Police |

① - Milled flat on crankshaft counterweight.

ENGINE REMOVAL

See *Engine Removal at end of ENGINE Section.*

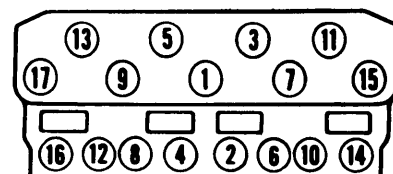
diagrams. CAUTION - Tighten cylinder head bolts slowly to permit hydraulic lifters time to bleed down.

INTAKE MANIFOLD

Install intake manifold, carburetor and ignition coil as an assembly. Tighten bolts to specification.

CYLINDER HEAD INSTALLATION

Coat cylinder head gasket with suitable sealer, then install cylinder head in the usual manner. Tighten head bolts 2 times around to correct torque in sequence shown in



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CYLINDER HEAD TIGHTENING SEQUENCE

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)

| VALVES | | | | | | | | |
|-----------------|------------|------------|------------|------------|---------------|------------------|-------------------------|-------|
| Engine & Valve | Head Diam. | Face Angle | Seat Angle | Seat Width | Stem Diameter | Stem Clearance | Valve Lift [Ⓢ] | |
| 361" 1965-66 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.002" | ..... |
| | Exh. | 1.60" | 45° | 45° | .040-.060" | .371-.372" | .002-.004" | ..... |
| 383" 1965-67 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.002" | ..... |
| | Exh. | 1.60" | 45° | 45° | .040-.060" | .371-.372" | .002-.004" | ..... |
| 1968-69 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.002" | ..... |
| | Exh. | 1.75" | 45° | 45° | .040-.060" | .371-.372" | .002-.004" | ..... |
| 1970-71 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" ② | .001-.0027" ③ | ..... |
| | Exh. | 1.75" | 45° | 45° | .040-.060" | .371-.372" | .002-.0037" | ..... |
| 400" 1971-73 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.0027" | ..... |
| | Exh. | 1.74" | 45° | 45° | .040-.060" | .371-.372" | .002-.0037" | ..... |
| 413" 1965 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.003" | ..... |
| | Exh. | 1.60" | 45° | 45° | .040-.060" | .371-.372" | .002-.004" | ..... |
| 426" 1964-66 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.003" | ..... |
| | Exh. | 1.60" | 45° | 45° | .040-.060" | .371-.372" | .002-.004" | ..... |
| 440" 1966-69 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .001-.003" | ..... |
| | Exh. | 1.75" | 45° | 45° | .040-.060" | .371-.372" | .002-.004" | ..... |
| 1970 | Int. | 2.08" | 45° | 45° | .060-.085" | .372-.373" | .0015-.0032" | ..... |
| | Exh. | 1.75" | 45° | 45° | .040-.060" | .371-.372" ② | .0025-.0042" ③ | ..... |
| 1971 | Int. | 2.08" | 45° | 45° | .060-.085" | .3723-.3725" | .001-.0027" | ..... |
| | Exh. | 1.75" | 45° | 45° | .040-.060" | .3713-.372" ② | .002-.0037" ③ | ..... |
| 1972-73 | Int. | 2.08" | 45° | 45° | .060-.085" | .3723-.373" | .001-.0027" | ..... |
| | Exh. | 1.75" | 45° | 45° | .040-.060" | .3713-.372" | .002-.0037" | ..... |

Ⓢ — See "Valve Lift Table".

② — Hi Perf. Int. .3718-.3725", Exh. .3708-.3715".

③ — Hi Perf. & Triple 2-Bbl, Int. .0015-.0032", Exh. 0025-.0042".

VALVE ARRANGEMENT

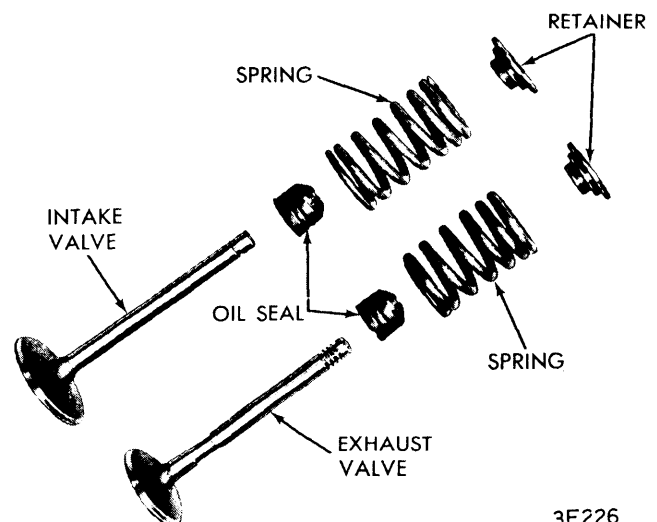
E-I-I-E-E-I-I-E (front to rear, each bank.)

VALVE GUIDE SERVICING

Guides are intergral with cylinder head.

Wear Check — Install sleeve of suitable length over valve stem to hold valve open at operating height. Install valve to guide and attach dial indicator to cylinder head and measure sideplay of valve in guide. Total sideplay should not exceed .008" intake, .014" exhaust (1965), .017" intake and exhaust (1966-73).

Servicing — Ream guides to next oversize valve stem. Oversize valve stems are available in .005", .015", and .030".

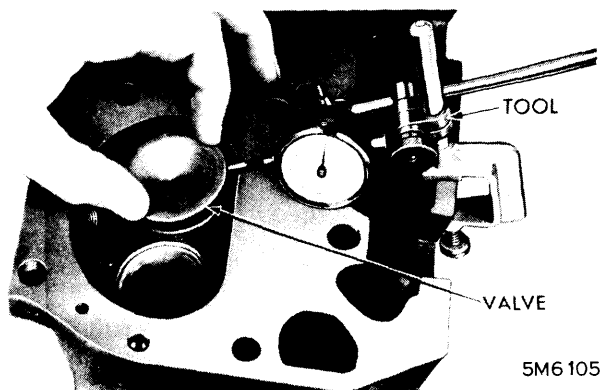


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VALVE ASSEMBLY

Chrysler Corp. V8 Engines

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)



5M6105

MEASURING VALVE GUIDE WEAR

points outward toward valve end of rocker arm. **NOTE** - 15° angle of holes is determined from centerline of the bolt holes through the shaft which attach shaft and bracket assembly to cylinder head. The two wide support brackets must be installed with oil feed grooves facing pushrod side of rocker arm.

PUSHROD INSTALLATION

Small diameter end of pushrod must seat in lifter. Large diameter end must contact rocker arm. Improper installation will cause valves to be held open partially.

| VALVE SPRINGS | | | |
|--|-------------|-----------------|----------------|
| Engine | Free Length | PRESSURE (LBS.) | |
| | | Valve Closed | Valve Open |
| 383" & 400" 1965 270,305 HP | 2.34" | 95-105@1.86" | 187-203@1.47" |
| 315,330 HP | 2.34"① | 95-105@1.86" | 187-203@1.47" |
| 1966 270 HP | 2.34" | 95-105@1.86" | 1.87-203@1.47" |
| 325 HP | 2.58" | 121-129@1.86" | 192-208@1.44" |
| 1967-73② | 2.58" | 121-129@1.86" | 192-208@1.44" |
| 413" 1965 | 2.34"① | 95-105@1.86" | 187-203@1.47" |
| 426" 1965 | 2.34"① | 95-105@1.86" | 187-203@1.47" |
| 1966 | 2.58" | 121-129@1.86" | 192-208@1.44" |
| 440" 1966 | 2.58" | 121-129@1.86" | 192-208@1.44" |
| 1967-73 Standard | 2.58" | 121-129@1.86" | 192-208@1.44" |
| Power Pack | 2.23" | 100-110@1.86" | 236-256@1.36" |

① - Intake Valve Spring 2.21".

② - 1973 400" 4-Bbl. Same as 440" Power Pack.

VALVE SPRING INSTALLED HEIGHT

Measure spring seat in head to underside of spring retainer. If height exceeds maximum (see specification table), install 1/16" spacer under spring. If a spacer is installed, measure from top of spacer.

ROCKER ARM SHAFT REPLACEMENT

Install rocker shafts so that the 3/16" lubrication holes point downward into rocker arms and 15° angle of holes

VALVE LIFT

| Engine & Year | Valve | Lift |
|--|-------|-------|
| 361" 1965-66 | Int. | .392" |
| | Exh. | .390" |
| 383" 1965 (Exc. 330 HP) (330 HP) 1966-67 1968-71 1971 (Hi Perf.) | Int. | .392" |
| | Exh. | .390" |
| | Int. | .430" |
| | Exh. | .430" |
| | Int. | .392" |
| | Exh. | .390" |
| | Int. | .425" |
| | Exh. | .435" |
| 400" 1971-72 1973 (2-Bbl.) (4-Bbl.) | Int. | .425" |
| | Exh. | .435" |
| | Int. | .434" |
| | Exh. | .430" |
| | Int. | .450" |
| 413" 1965 | Int. | .430" |
| | Exh. | .430" |
| 426" 1965-66 | Int. | .430" |
| | Exh. | .430" |
| 440" 1966-70 (Exc. 375 HP) (375 HP) 1971 1971 (Hi Perf.) 1972-73 (Hi Perf.) | Int. | .425" |
| | Exh. | .435" |
| | Int. | .450" |
| | Exh. | .458" |
| | Int. | .425" |
| | Exh. | .435" |
| | Int. | .450" |
| | Exh. | .458" |
| | Int. | .434" |
| | Exh. | .430" |
| | Int. | .450" |
| | Exh. | .464" |

HYDRAULIC LIFTERS

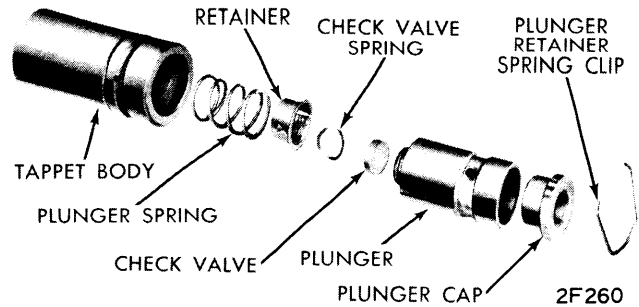
► **HYDRAULIC LIFTER INSTALLATION NOTE:** Exercise extreme care in tightening Rocker Shaft Support Bracket Bolts to specifications so lifters have time to bleed down to operating length.

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)

| VALVE LIFTERS | | |
|-----------------------------------|--------------|--------------|
| Engine & Year | Diameter | Clearance |
| 361", 383", 413", 426" 1965-70 | .9040-.9045" | .0005-.0018" |
| 383", 400", 440" 1971 | .9035-.9045" | .0011-.0024" |
| 400", 440" 1972-73 | .9035-.9040" | .0011-.0024" |

See illustration for arrangement of parts. To test, remove cap from plunger, submerge upright lifter completely in clean kerosene and allow to fill. Replace cap. Place lifter upright in Lifter Testing Pliers C-3160 and check

leakdown. If lifter collapses immediately, disassemble, clean, and test again. If rapid leakdown persists, replace lifter.



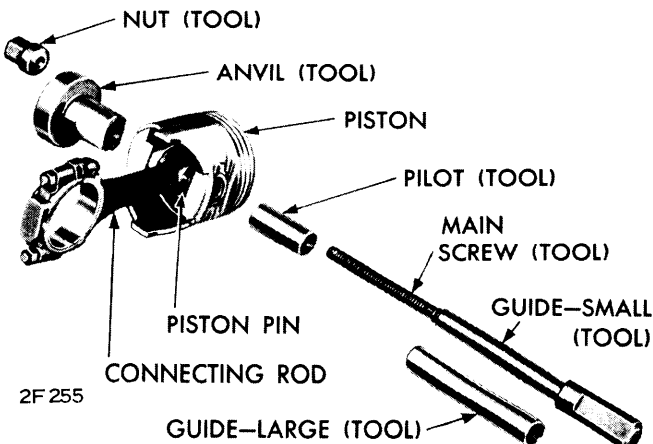
HYDRAULIC VALVE LIFTER

| PISTONS, PINS, RINGS | | | | | | |
|--|--------------|----------------|--------------|------------|--------------------------|----------------------------|
| Engine | PISTONS | | PINS | | RINGS | |
| | Clearance | Piston Fit | ⊙Rod Fit | Rings | End Gap | Side Clearance |
| 426" 1965 | .0005-.0015" | .00045-.00075" | .0007-.0012" | 1 & 2 3 | .013-.025" .013-.025" | .0015-.003" .001-.009" |
| 1966 | .0005-.0015" | .00045-.00075" | .0007-.0012" | 1 & 2 3 | .013-.025" .015-.055" | .0015-.003" .002-.005" |
| 361", 383", 400" 413", 440" 1965 | .0005-.0015" | .00045-.00075" | .0007-.0012" | 1 & 2 3 | .013-.025" .013-.025" | .0015-.003" .001-.009" |
| 1966 | .0005-.0015" | .00045-.00075" | .0007-.0012" | 1 & 2 3 | .013-.025" .015-.055" | .0015-.003" .0002-.005" |
| 1967-73 | .0003-.0013" | .00045-.00075" | .0007-.0012" | 1 & 2 3 | .013-.023" .015-.055" | .0015-.003" .000-.005" |

⊙ - Interference Fit.

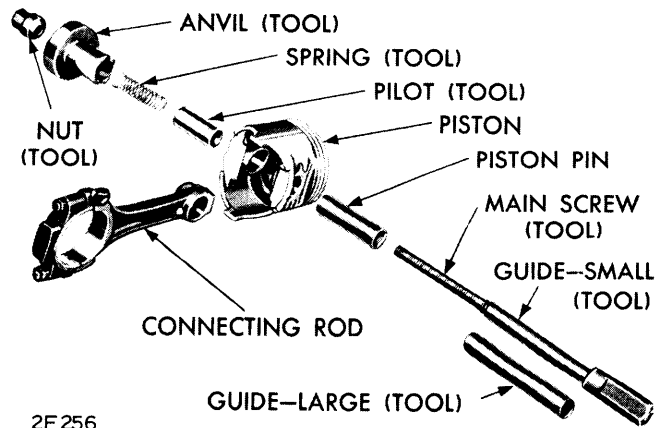
PISTON PIN REPLACEMENT

Removal - Use Tool C-3684 as shown in illustration to remove pin from piston and rod assembly. When pin falls free of rod, stop press to prevent damage to anvil of tool.



REMOVING PISTON PIN

Installation - Do not ream pistons or connecting rods. Lubricate pin bores in piston and rod and use Tool C-3684 as shown in illustration. Notch on "Front" on piston must face upwards when assembled in tool and with connecting rod properly positioned (see illustration), press piston pin in until pin bottoms on pilot.



INSTALLING PISTON PIN

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)

Testing for Proper Fit - Assemble piston and rod with tool in same manner as for pin removal. Clamp screw shaft end of tool in a vise. With torque wrench at nut (anvil end of tool), apply 15 ft. lbs. torque. If pin does not move, fit is correct. If pin moves in rod, fit is incorrect and rod should be replaced.

PISTON & ROD INSTALLATION

Install in cylinder with indent on piston to front of engine.

The large chamfer on connecting rod must be toward crankshaft journal fillet. Oil groove in rod and bearing cap must be together.

FITTING PISTONS

Measure 90° to piston pin axis and at top of skirt. Cylinder bores on used engines should be measured halfway down bore and 90° to crankshaft centerline.

| CRANKSHAFT MAIN & CONNECTING ROD BEARINGS | | | | | | | |
|--|----------------------------------|------------------------------|----------------|--------------------------|------------------------------|------------------------------|--------------------------|
| Engine | MAIN BEARINGS | | | | CONNECTING ROD BEARINGS | | |
| | Journal Diam. | Clearance | Thrust Bearing | Crankshaft Endplay | Journal Diam. | Clearance | ①Sideplay |
| 1965-66 426" | 2.7495-2.7505" | .0005-.0015" | No.3 | .002-.007" | 2.374-2.375" | .0005-.0015" | .009-.017" |
| 1965-69 361", 383" 413", 440" | 2.6245-2.6255" 2.7495-2.7505" | .0005-.0015" .0005-.0015" | No.3 No.3 | .002-.007" .002-.007" | 2.374-2.375" 2.374-2.375" | .0005-.0015" .0005-.0015" | .009-.017" .009-.017" |
| 1970 383" 440" | 2.6245-2.6255" 2.7495-2.7505" | .0005-.0015" .0005-.0015" | No.3 No.3 | .002-.007" .002-.007" | 2.374-2.375" 2.374-2.375" | ②.0005-.0015" .001-.002" | .009-.017" .009-.017" |
| 1971 383", 400" 440" | 2.6245-2.6255" 2.7495-2.7505" | .0005-.002" .0005-.002" | No.3 No.3 | .002-.007" .002-.007" | 2.374-2.375" 2.374-2.375" | ③.0005-.002" .001-.002" | .009-.017" .009-.017" |
| 1972-73 400" 440" | 2.6245-2.6255" 2.7495-2.7505" | .0005-.0015" .0005-.002" | No.3 No.3 | .002-.007" .002-.007" | 2.374-2.375" 2.374-2.375" | ③.0005-.002" .001-.0025" | .009-.017" .009-.017" |

① - Total two rods.

② - 4-Bbl. is .001-.002".

③ - 4-Bbl. is .001-.0025".

OIL PAN REMOVAL

See Oil Pan Removal at end of ENGINE Section.

CRANKSHAFT IDENTIFICATION

A crankshaft that has one or more undersize connecting rod or main bearing journals will be steel stamped on a milled flat on No. 2 or No. 3 counterweight.

400", 440" Engines

Maltese Cross & R (1, 3, etc.)001" U/S rod journal.

Maltese Cross & M (2, 4, etc.)001" U/S main journal.

Maltese Cross, X, R10010" U/S rod journals (all).

Maltese Cross, X, M10010" U/S main journals (all).

MAIN BEARINGS

All Engines - Main bearings may be selectively fitted. It is permissible to use one .001" undersize bearing with one standard bearing shell, or one .002" undersize bearing with one .001" undersize bearing shell. Always use the smaller diameter bearing half as the upper. Do not use an upper bearing half more than .001" smaller than the lower bear-

ing half. **NOTE** - Only one bearing should be selectively fitted while all other main bearing caps are properly tightened.

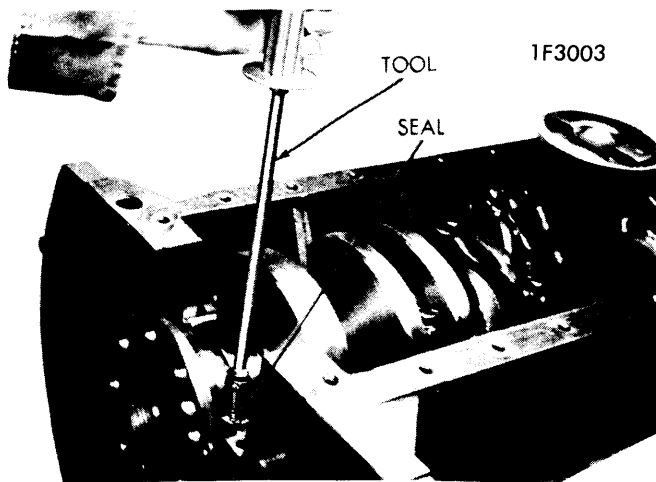
REAR MAIN BEARING OIL SEAL

All Engines - New split rubber type seals may be replaced without removing crankshaft. New type must be installed as paired upper and lower seals and cannot be used or combined with old type rope seals. Install seals as follows;

Upper Seal - Remove upper rope seal by turning suitable tool (Chrysler C-4148) into end of seal and pull seal out with tool, being careful not to mar crankshaft. Oil seal with engine oil. Hold seal (paint stripe to rear) tightly against crankshaft with thumb and rotate crankshaft while sliding seal into groove. Make sure that the sharp edge of the groove in the block does not shave or nick the back of the seal. *Care must be exercised not to damage the sealing lip.*

Lower Seal - Install other half of new type seal into the lower seal retainer with paint stripe to rear. Install rear main bearing cap, then install lower seal retainer, torquing both units to specification. *Do not use sealer or cement on seal ends or lip.*

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)



USING TOOL ON UPPER REAR MAIN OIL SEAL

ENGINE FRONT COVER REPLACEMENT

Front cover may be removed after radiator, water pump, and vibration damper and pulley are removed.

FRONT COVER SEAL REPLACEMENT

Use suitable tool and replace seal as follows:

Removal - With inside of cover up, put puller screw through seal and position puller blocks directly opposite each other under flange of seal retainer. With washer and nut on puller screw, tighten nut so puller blocks distort seal retainer lip. Place sleeve over retainer and place removing and installing plate into sleeve. Place flat washer and nut on puller screw, hold center screw and tighten nut to remove seal.

Installation - Insert puller screw through removing and installing plate so thin shoulder faces up. Insert assembly through seal opening in front cover (inside of cover up), and place seal in opening with neoprene part of seal down. Place seal installing plate into seal with protective recess toward lip of seal retainer. With flat washer and nut on puller screw, hold screw and tighten nut until neoprene is tight against face of front cover. *If a .0015" feeler gauge CANNOT be inserted between neoprene and cover, seal is installed correctly.*

CAMSHAFT

| Engine & Year | JOURNAL DIAMETERS | | | | | Clearance ① |
|---------------|-------------------|--------------|--------------|--------------|--------------|-------------|
| | 1 | 2 | 3 | 4 | 5 | |
| All 1965-73 | 1.998-1.999" | 1.982-1.983" | 1.967-1.968" | 1.951-1.952" | 1.748-1.749" | .001-.003" |

① - Wear Limit .005".

CAMSHAFT BEARING REPLACEMENT

Tool Set C-3132A is available for replacing camshaft bearings. Make sure all oil holes are perfectly aligned and install a new rear welch plug. **No. 1 bearing** must be installed 1/32" inward from front face of cylinder block.

CAMSHAFT END THRUST

Taken by rear face of camshaft sprocket riding directly on front of cylinder block.

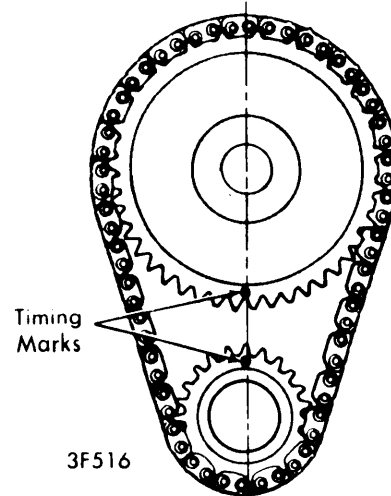
DISTRIBUTOR DRIVE & BUSHING REPLACEMENT

Bushing - Remove bushing with Tool C-3052. To replace slide new bushing over burnishing end of Tool C-3053 and insert into bore. Drive tool and bushing into position with a soft hammer. As burnisher is pulled through bushing by tightening puller nut, bushing is expanded for tight fit in block and burnished to correct size. *Do not ream bushing.*

Drive Gear Installation - Coat shaft and drive gear with engine oil. Install shaft so that, after gear spirals into place and indexes with oil pump shaft, slot in top of drive gear will be parallel with center-line of crankshaft. **NOTE** - *No. 1 cylinder must be on TDC of firing stroke when installing drive gear.*

TIMING CHAIN REPLACEMENT

When installing timing chain and sprockets, install Holding Tool C-3509 in place of distributor drive gear and shaft to prevent camshaft from contacting rear welch plug. Leave tool in place until after timing chain and sprockets installed, then install distributor drive gear. **NOTE** - *Modify Tool C-3509 by grinding off index lug holding upper arm on tool and rotate arm 180°, then install tool.*



VALVE TIMING MARKS

Chrysler Corp. V8 Engines

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)

VALVE TIMING CHECK

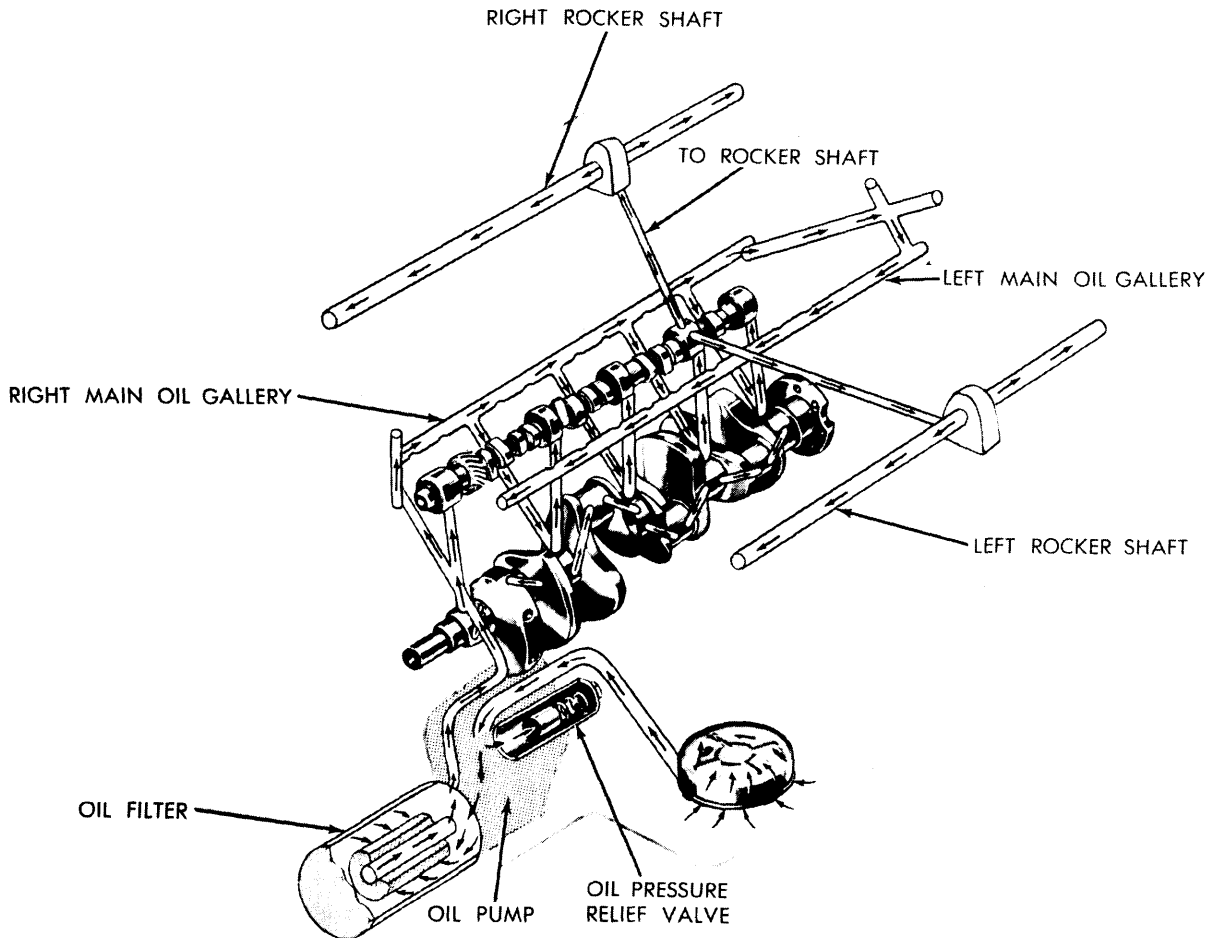
1) Turn crankshaft until No. 6 Exhaust valve is closing and No. 6 Intake valve is opening. Insert ¼" spacer between rocker arm pad and stem top of No. 1 Intake valve. Allow spring load to bleed lifter down so valve train is solid.

2) Install dial indicator so plunger contacts valve spring retainer face at a 90° angle, then zero indicator.

3) Turn crankshaft clockwise in normal running direction until No. 1 valve has lifted specified height (See table below). Timing indicator on front cover should read 10° BTDC to 2° ATDC. **CAUTION** - Do not turn crankshaft any further clockwise as valve spring might bottom, causing serious damage.

| Engine & Year | Valve Lift |
|--------------------------|------------|
| 361" | |
| 1965-66 | .013" |
| 383" | |
| 1965 (Exc. 330 HP) | .013" |
| (330 HP) | .034" |
| 1966 (270 HP) | .013" |
| (325 HP) | .034" |
| 1967-71 (Standard) | .025" |
| (Power Pack) | .033" |
| 400" | |
| 1971-73 | .025" |
| 413" | |
| 1964 (340 HP) | .013" |
| (360 HP) | .034" |
| (390 HP) | .033" |
| 1965 | .034" |
| 426" | |
| 1965-66 | .034" |
| 440" | |
| 1966 | .034" |
| 1967-73 (Standard) | .025" |
| (Power Pack) | .033" |

ENGINE OILING



ENGINE OILING SYSTEM

2F263

1965-73 361", 383", 400", 413", 426", 440" V8 ENGINES (Cont.)

ENGINE OILING (Cont.)

Crankcase Capacity – 4 Qts. Add 1 Qt. with filter change.

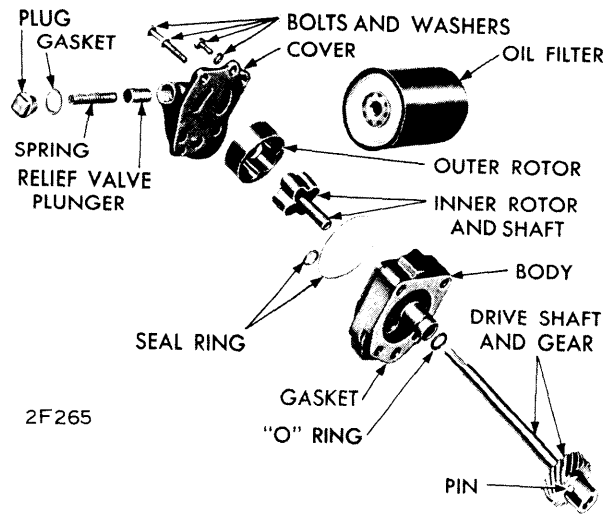
Normal Oil Pressure – 30-80 @ 2000 RPM.

Pressure Regulator Valve – In oil pump.

Oil Filter Replacement – Replace every second oil change. To install, screw filter onto base until gasket contacts base, then tighten ½ turn more **by hand**. Start engine and check for leaks. **Do not overtighten.**

ENGINE OILING SYSTEM

Refer to illustration. Force feed type using rotor type pump and full-flow oil filter. Oil supplied to hollow rocker arm shaft through indexed holes in No. 4 Camshaft Bearing. Drilled holes in rocker shaft supply oil to rocker arms which supply lubrication to pushrods and valve assemblies. Holes in main oil galleries supply oil to valve lifters.



OIL PUMP AND FILTER

OIL PUMP

Rotor type mounted on left front corner of block. See illustration for arrangement of parts and observe the following:

Oil Pump Specifications

| Application | 361", 383", 400", 413", 426", 440" |
|------------------------------------|---------------------------------------|
| Cover Surface Wear ①..... | .0015" Max. |
| Outer Rotor Length..... | .943" Min. |
| Outer Rotor Diameter..... | 2.469" Min. |
| Inner Rotor Length..... | .942" Min. |
| Rotor End Clearance ② | |
| Inner Rotor..... | .005" Max. |
| Outer Rotor..... | .004" Max. |
| Outer Rotor-to-Body Clearance..... | .012" Max. |
| Tip Clearance between Rotors..... | .010" Max. |

① - At Rotor Area.

② - Between end of rotor and top of pump body.

TIGHTENING SPECIFICATIONS

| Application | Torque (Ft. Lbs.) | | |
|--------------------------|-------------------|------|---------|
| | 1965-68 | 1969 | 1970-73 |
| Cylinder Head..... | 70 | 70 | 70 |
| Intake Manifold..... | 50 | 40 | 40 |
| Oil Pan..... | 15 | 15 | 17 |
| Main Bearing Cap..... | 85 | 85 | 85 |
| Crankshaft Pulley..... | 17 | 17 | 17 |
| Vibration Damper..... | 135 | 135 | 135 |
| Connecting Rod Caps..... | 45 | 45 | 45 |
| Camshaft Sprocket..... | 35 | 35 | 35 |
| Engine Front Cover..... | 15 | 15 | 17 |
| Water Pump..... | 30 | 30 | 30 |
| Oil Pump..... | 35 | 35 | 30 |
| Oil Pump Cover..... | 10 | 10 | 10 |
| Flywheel Housing | | | |
| to Block..... | 50 | 50 | 50 |
| Flywheel to | | | |
| Crankshaft..... | 55 | 55 | 55 |

ENGINE NOTES

► **AIR CONDITIONER OPERATING CAUTION:** Engine cooling system must be protected to a temperature of 15°F (above zero) for summer operation.

► **OVERSIZE VALVE STEM IDENTIFICATION:** Oversize valve stems are indicated by letter "I" (intake) or "E" (exhaust) stamped on rocker arm cover gasket boss.

► **PISTON PIN CAUTION:** 440" Magnum engines use a heavier piston and pin than the 440" standard engine. The piston & pin assemblies in the Magnum engines are not interchangeable with standard engines.

► **CRANKSHAFT CAUTION:** A limited number of 383" engines with 2-Bbl. carburetor and Torqueflite transmission have been built with cast iron crankshaft. These engines are identified by the letter "E" following the build date in the engine identification number (example, F383-0324E). A special vibration damper and torque converter are required for these engines. Do not attempt to use a forged crankshaft on these engines.

► **OIL PUMP DRIVE SHAFT FAILURE:** On 1970-72 engines, if oil pump and distributor drive shaft failure occurs at low mileage, check the oil pump mounting surface on the rear main bearing cap for squareness. This may be done by placing a 6" straightedge across the mounting surface and measuring the distance from the straightedge to the cylinder block oil pan gasket surface. The difference in measurements from each end of the straightedge to the block must not exceed .060" in the 6" span. If excessive difference is found, do not attempt to correct condition by hand filing. Bearing cap must be set up in a mill.

► **440" V8 PISTON CHANGE NOTE:** In late 1971 a new piston was incorporated into production on the 440" standard engine. This new piston is lighter than the earlier piston and requires a new crankshaft. Severe engine vibration will result if the early crankshaft or piston is used in these engines. The engines are identified with the letter "C" on the information pad on the top, adjacent to the left bank and tappet rail.