1400 cc & 1600 cc 4-CYLINDER

Champ, Colt

ENGINE CODING

ENGINE IDENTIFICATION

Engine model code and serial number are stamped on engine block just below No. 1 spark plug on right side of block. Model codes are listed in table.

ENGINE IDENTIFICATION

Application In. (cc)	Engine Model	Model Code
86.0 (1400)	J	G12B
97.5 (1600)	K	G32B

ENGINE, MANIFOLDS & CYLINDER HEAD

ENGINE

Removal

1) Drain cooling system and remove battery and tray. Remove air cleaner assembly. Remove purge control valve bracket from battery support and disconnect vacuum hose from valve. Remove windshield washer tank, radiator reservoir and damping canister.

2) Remove radiator assembly and cooling fan. Disconnect the following from the engine/transaxle: clutch, accelerator and speedometer cables, heater hose, fuel hoses, PCV vacuum hose, high altitude compensator vacuum hose (California models), bowl vent purge hose,

3) Remove wires from starter, engine ground, alternator, coolant temperature, ignition coil, high temperature sensor, neutral start switch, back-up light and oil pressure switch.

4) Remove ignition coil. From under vehicle, remove undercover and drain transaxle. Remove right and left drive shafts from transaxle case and suspend with wire to prevent damaging joints. Cover holes in transaxle case to prevent entry of foreign matter.

NOTE: Drive shaft retainer rings should be replaced whenever drive shafts are removed from transaxle.

5) Remove assist rod, control rod and range selector cable from manual transaxle. Remove shift control cable from automatic transaxle. Disconnect and suspend exhaust pipe.

6) Remove front roll rod bolts and loosen transaxle mounting bracket attaching nuts. Remove bolts and nuts from front and rear engine insulators and disconnect rear roll rod.

7) Suspend engine from chains attached to hoisting brackets and remove mounting bracket nuts loosened previously. Lift engine-transaxle assembly from vehicle using care that assembly does not hit battery bracket during removal.

Installation

Reverse removal procedures and tighten mounting bolts and nuts to specifications with weight of engine on insulators. Replace all fluids and adjust all cables and linkages.

CYLINDER HEAD & INTAKE MANIFOLD

Removal

1) Drain cooling system. Disconnect water hoses at cylinder head, manifold and carburetor. Remove breather and purge hose, vacuum hose at distributor and purge control valve.

2) Disconnect accelerator linkage, spark plug wires, water temperature gauge unit and exhaust manifold flange. Remove air cleaner, fuel line, distributor and fuel pump. Remove exhaust manifold, then intake manifold and carburetor assembly.

3) Remove rocker cover and breather. Remove timing belt upper front cover. Turn crankshaft so number 1 piston is at TDC on compression stroke.

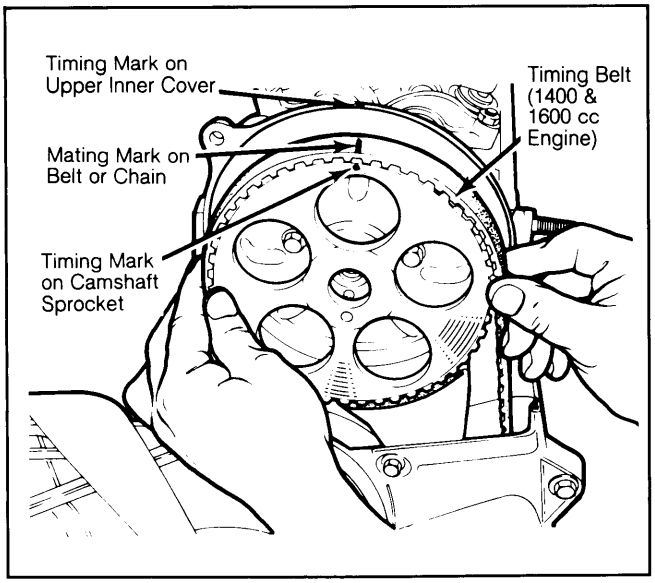
4) Mark timing belt with marker in line with sprocket mark. On 1400 cc engine, move timing belt tensioner fully toward water pump and slide belt off camshaft sprocket.

5) On 1600 cc engine, remove camshaft sprocket from camshaft. Hang sprocket on holder provided on timing belt lower front cover. Remove timing belt upper inner cover.

NOTE: If there is a large gap present between camshaft sprocket and sprocket holder, insert a 2" (50 mm) piece of timing belt or similar material into the gap to prevent belt from disengaging from crankshaft or oil pump sprockets.

6) Remove cylinder head bolts in the reverse of the sequence shown in *Fig. 2.* Lift off cylinder head being careful not to twist sprocket and belt.

Fig. 1: Camshaft Timing Marks



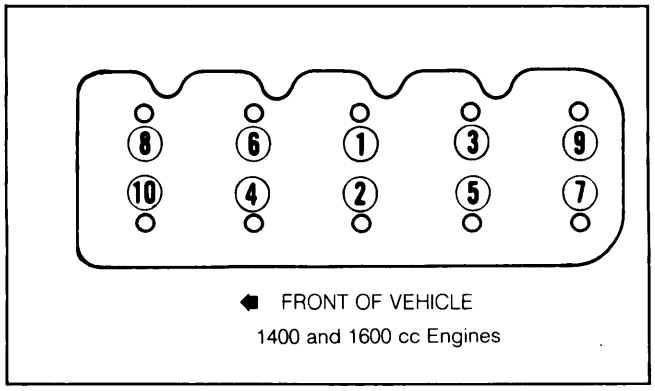
Align timing marks as shown during assembly.

Installation

1) To install, reverse removal procedure. Gasket surfaces must be clean and NEW gaskets must be used. Use sealer on intake manifold gasket around water passages. On 1400 cc engine, ensure that timing belt tensioner is properly adjusted.

1400 cc & 1600 cc 4-CYLINDER (Cont.)

Fig. 2: Cylinder Head Bolt Tightening Sequence



Remove bolts in reverse order.

NOTE: Avoid sliding cylinder head when installing in order to prevent damage to gasket and aligning dowels (when installed). Engine should not be run with rocker cover off due to oil spray from rocker arms.

2) Tighten cylinder head bolts to initial torque of 25 ft. lbs. (34 N.m). Follow sequence in *Fig. 2.* Repeat procedure, tightening bolts to final torque of 51-54 ft. lbs. (69-73 N.m).

3) Temporarily set valve clearance to cold engine settings, then readjust to hot engine settings after engine is at normal operating temperature. Install rocker cover, air cleaner and breather hoses.

CAMSHAFT

ROCKER ARMS & SHAFTS

Removal (1400 cc)

Remove air cleaner, breather hose to rocker cover and rocker cover. Remove rocker shaft mounting bolts and lift off rocker shaft, rocker arms and rocker arm springs as an assembly. Remove bolts from shafts and slide off springs and rocker arms.

Installation

To install, ensure that short springs are used on right hand rocker arm and reverse removal procedure.

CAMSHAFT

Removal (1400 cc)

1) Remove rocker arms and shafts as previously described. Remove timing belt cover and move belt tensioner fully toward water pump, ensuring that camshaft sprocket mark is aligned with head timing mark. Remove timing belt and camshaft sprocket from camshaft.

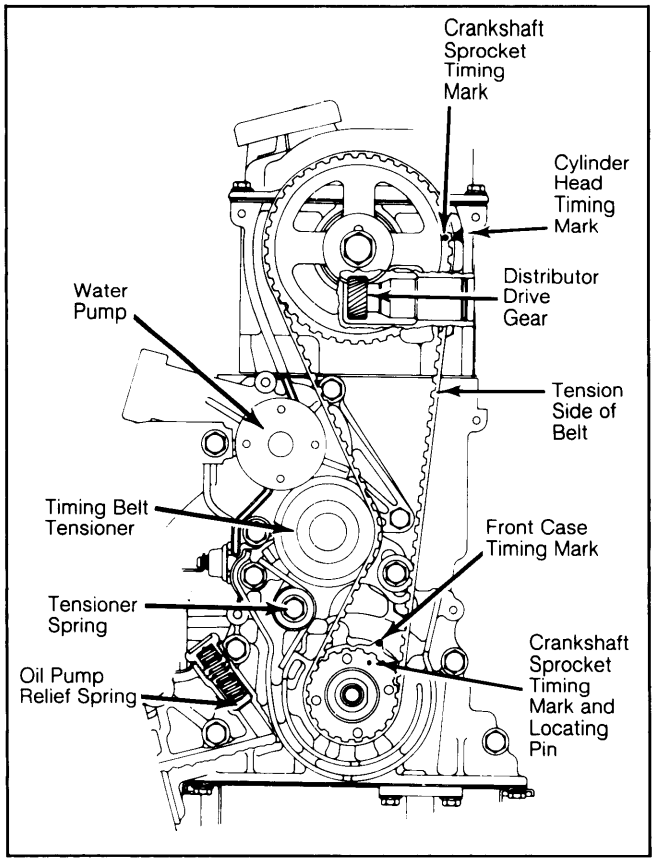
2) Remove distributor and fuel pump. Remove camshaft rear cover from rear of head and thrust case tightening bolt from top of head. Remove camshaft from rear of head.

3) Check thrust case for camshaft end play. If excessive, replace thrust case and recheck. If rear of camshaft journal is badly worn, replace camshaft.

Installation

To install, thoroughly lubricate camshaft and seal lips and reverse removal procedure.

Fig. 3: 1400 cc Timing Belt



Adjust by releasing tensioner against belt.

ROCKER ASSEMBLY & CAMSHAFT

Removal (1600 cc)

1) Remove air cleaner, breather hoses and purge line. Disconnect spark plug wires and remove rocker cover. Remove upper front cover. Slightly loosen camshaft sprocket bolt and turn engine to TDC of compression stroke on No. 1 cylinder.

2) Make mating mark on timing belt and camshaft sprocket. Remove camshaft sprocket and hang sprocket on sprocket holder provided on timing belt or chain lower front cover. Remove camshaft spacer and upper under cover.

NOTE: If there is a large gap present between camshaft sprocket and sprocket holder, insert a 2" (50 mm) piece of timing belt or similar material into the gap to prevent belt from disengaging from crank sprocket or oil pump sprocket.

3) Remove camshaft bearing caps, rocker arms and rocker shafts as an assembly. Remove oil seal and distributor drive gear from camshaft (1600 cc engine). Remove camshaft.

NOTE: If front and rear bearing caps are left inserted, rocker shaft assembly can be removed without separation of pieces.

1400 cc & 1600 cc 4-CYLINDER (Cont.)

Installation

1) Lubricate camshaft lobes and camshaft bearing journals and install camshaft to cylinder head. Install distributor drive gear. Install rocker arm assembly to cylinder head. Camshaft should be positioned with keyway at 41° position. *See Fig. 4.*

2) Insert camshaft bearing cap bolts and tighten 7 ft. lbs. (10 N.m) in sequence of center, 2, 4, front and rear. Repeat sequence, tightening to specified torque.

3) Using seal installer, (MD998248) drive camshaft oil seal in until installer touches distributor drive gear. To complete installation, reverse removal procedures.

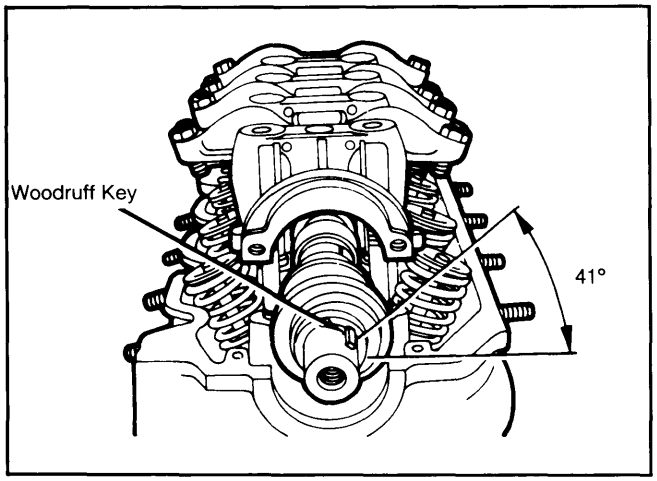
TIMING BELT

Removal

1) Remove crankshaft pulley (1600 cc). Remove fan, spacer, water pump pulley and belt (1400 cc). Remove timing belt cover (1400 cc) or upper and lower front covers (1600 cc). Remove crankshaft sprocket bolt (1600 cc).

2) On 1400 cc engines, move the timing belt tensioner upward toward the water pump and secure. On 1600 cc engines, move the tensioner fully to the far right side of the upper mounting slot and secure.

Fig. 4: 1600 cc Camshaft Woodruff Key Installation

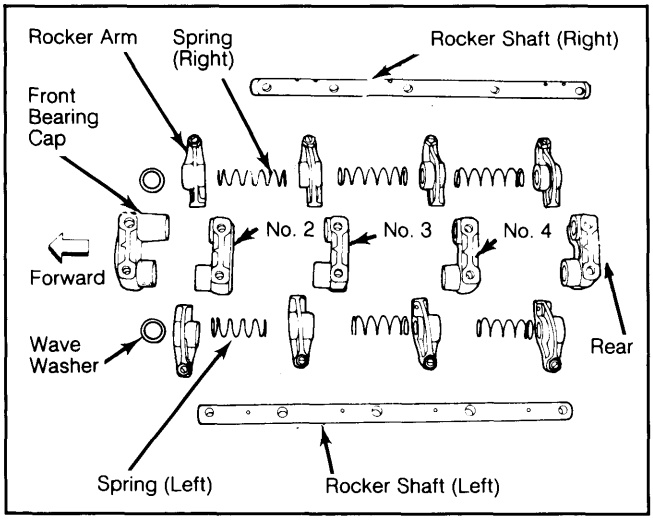


Align key as shown for installation.

3) On 1400 cc engines, remove the timing belt from the camshaft sprocket. Remove the camshaft sprocket, crankshaft pulley and timing belt (1400 cc).

4) On 1600 cc engines, remove timing belt completely and remove camshaft sprocket. Remove timing belt tensioner. On 1600 cc engines, remove upper and lower under timing belt covers.

Fig. 5: Exploded View of Rocker Assembly



Check for wear or damage on all contact surfaces.

Installation

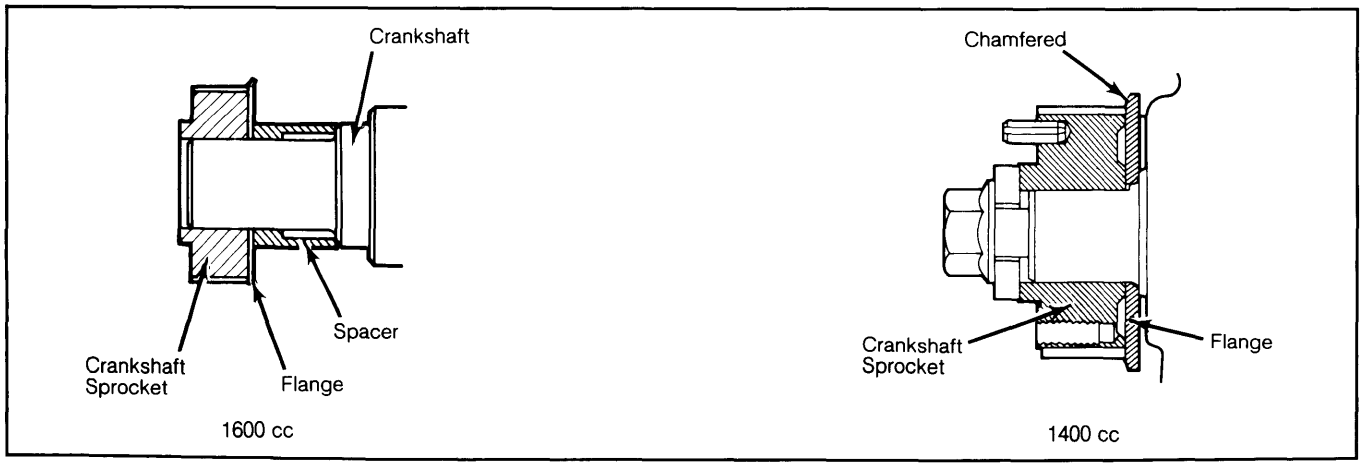
1) Install crankshaft sprocket, flange and spacer (if equipped). *See Fig. 6.* Apply a light coat of engine oil to camshaft spacer and insert to camshaft (1600 cc).

2) Install camshaft sprocket and tighten. Align the timing marks of the camshaft and crankshaft sprockets with No. 1 piston at TDC on compression stroke.

3) Install the timing belt tensioner, first installing the spring, and tighten the nut (1600 cc) or slotted hole side bolt (1400 cc). On 1400 cc engines, install the bottom end of the spring in the position of the case shown in *Fig. 7.*

4) On 1600 cc engines, push the flange located under the tensioner in the direction of the arrow, align the holes "A" and "B", and thread the bolts into the holes.

Fig. 6: Timing Belt Flange and Sprocket Mounting

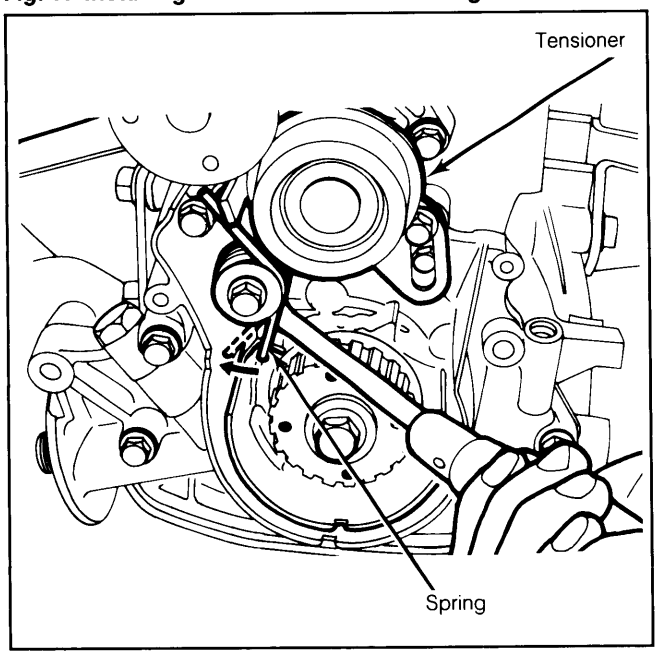


Assemble parts as shown for installation.

1400 cc & 1600 cc 4-CYLINDER (Cont.)

5) Install the front end of the spring on the projections of the tensioner and the other (straight) end of the spring on the water pump body (1600 cc). *See Fig. 8.*

Fig. 7: Installing Tensioner on 1400 cc Engine

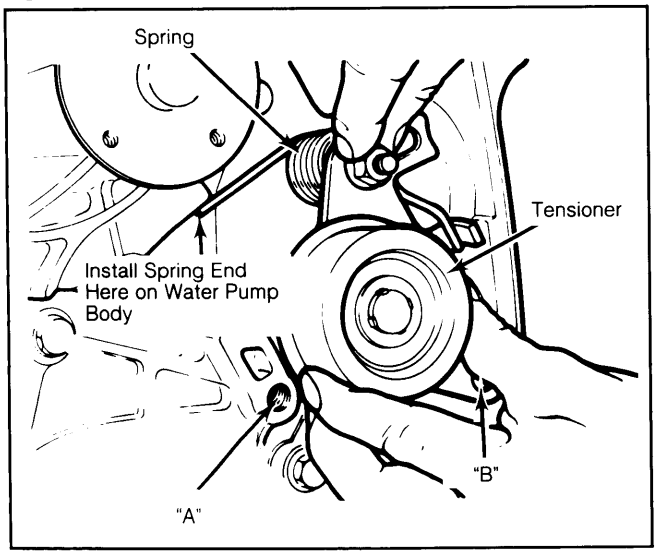


Use care when winding spring to prevent damage to the front cover.

6) Secure the tensioner to the position nearest the water pump. Install the timing belt to crankshaft sprocket and then to camshaft sprocket (1400 cc).

7) On 1600 cc engines, install belt first to crankshaft sprocket, then to oil pump sprocket and then to camshaft sprocket. Check to ensure all individual timing marks are aligned and that tension side of belt is tight.

Fig. 8: Installing Tensioner on 1600 cc Engine



Load spring against water pump after installing.

NOTE: On 1400 cc engine, check to ensure that when the tension side of belt is tightened by turning the camshaft sprocket in a reverse direction, all timing marks are aligned.

8) Temporarily install crankshaft pulley. Ensure that sprocket pin fits small hole in pulley (1400 cc). Loosen left and right tensioner bolts in that order (1400 cc) to give timing belt only spring tension.

9) On 1600 cc engines, loosen tensioner bolt and nut and push tensioner up by hand to ensure proper mesh of belt and sprocket.

10) On 1400 cc engines, check for proper belt to sprocket mesh. Tighten right and left tensioner bolts in that order (1400 cc). On 1600 cc engines, tighten tensioner nut and then bolt.

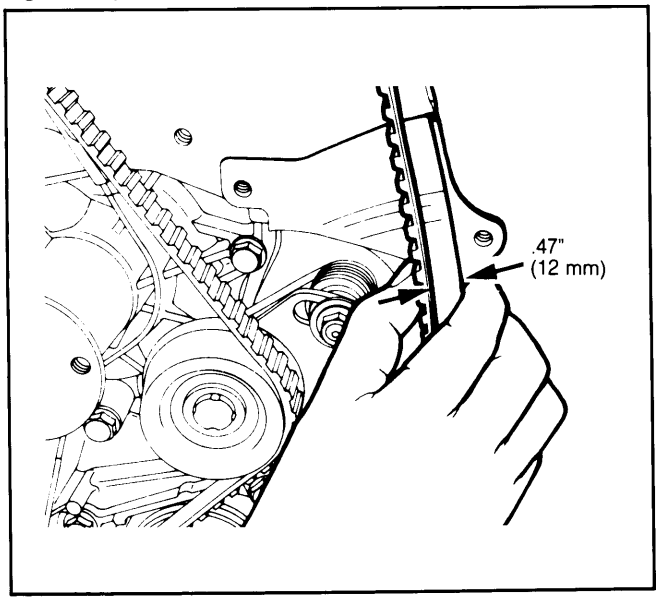
11) Check to ensure all timing marks are in alignment. Turn the crankshaft one revolution in the normal direction and realign crankshaft timing mark with TDC position.

NOTE: Ensure that crankshaft is turned smoothly clockwise. Do not push or shake belt while turning.

12) Loosen left and right bolts in that order and retighten tensioner bolts to specified torque (1400 cc). On 1600 cc engines, loosen tensioner bolt and then nut, then tighten nut followed by bolt to specified torque.

13) To verify that tension is correct, hold center of tension side of belt and side of timing under cover between thumb and forefinger (1600 cc). Clearance should be .47" (12 mm). Readjust if necessary. *See Fig. 9.*

Fig. 9: Adjustment of Timing Belt Tension



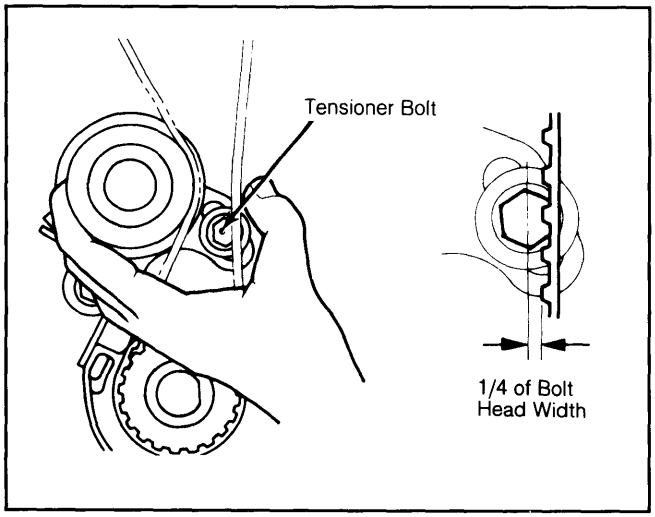
This procedure applies to 1600 cc engine only.

14) On 1400 cc engines, push in horizontally on tensioner and tension side of timing belt with moderate force. Timing belt cog end should be approximately 1/4 of the tensioner mounting bolt head width (across flats) away from bolt head center. *See Fig. 10.*

15) On 1600 cc engines, remove crankshaft pulley. Install timing belt upper and lower front covers. Install crankshaft pulley and tighten (1600 cc). On 1400 cc engines, install timing belt cover and fan belt.

1400 cc & 1600 cc 4-CYLINDER (Cont.)

Fig. 10: Checking Timing Belt Tension



This procedure applies to 1400 cc engine only.

VALVES

VALVE ARRANGEMENT

Left Side — Intake and Jet
Right Side — Exhaust

JET VALVES

Using special Jet Valve Socket Wrench (MD998310), remove jet valves. Disassemble valve using spring pliers (MD998309) to compress spring and remove retainer lock. Check valve head and seat for damage and make sure jet valve slides smooth in body without play.

CAUTION: Make certain that jet valve socket wrench is not tilted with respect to center of valve when used. If tool is tilted, stem may be bent resulting in defective valve operation and a broken wrench. Do not disturb jet valve and body combination. If defective, jet valve and body should be replaced as an assembly.

VALVE SPRINGS

1) With camshaft and rocker arm assembly removed, use valve spring compressor to remove retainer locks (keepers). Remove all retainers, springs, spring seats and valves, keeping in proper order for reassembly.

2) Check valve spring free length and pressure. Standard spring squareness should be 1.5° or less. If beyond 3° replace spring.

VALVE GUIDE SERVICING

1) Check valve stem-to-guide clearance, and if clearance exceeds service limits as listed in table, replace valve guide with next oversize component. Guides are available in the following oversizes:

2) Heat cylinder head to approximately 480°F (249°C), and then use a valve guide tool to drive out each guide toward the combustion chamber. Ream guide bore in cylinder head to specified size (after head has cooled to room temperature).

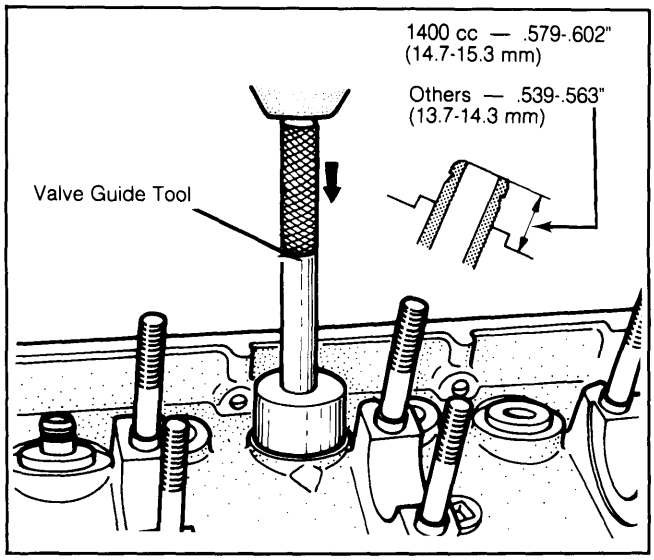
VALVE GUIDE OVERSIZES

Size Mark	Guide Size In. (mm)	Cyl. Head Bore In. (mm)
1400 cc		
5	.002 (.05)	.4766-.4770 (12.105-12.115)
25	.010 (.25)	.4844-.4848 (12.304-12.314)
50	.020 (.50)	.4943-.4947 (12.555-12.565)
1600 cc		
5	.002 (.05)	.5138-.5145 (13.05-13.07)
25	.010 (.25)	.5216-.5224 (13.25-13.27)
50	.020 (.50)	.5315-.5323 (13.50-13.52)

3) To install new guides, reheat head to same temperature, quickly insert and drive guides into head.

4) Guide should protrude .579-.602" (14.7-15.3 mm) for 1400 cc or .539-.563" (13.7-14.3 mm) for 1600 cc above head surface when properly installed. Check guide I.D. and ream as necessary.

Fig. 11: Valve Guide Installation and Height



Cylinder head must be heated prior to installation.

VALVE STEM OIL SEALS

After installing valve spring seat, place stem seal on guide. Use installer to lightly hammer seal into correct position as tool bottoms on head. Do NOT use old seals and do NOT twist seals when installing.

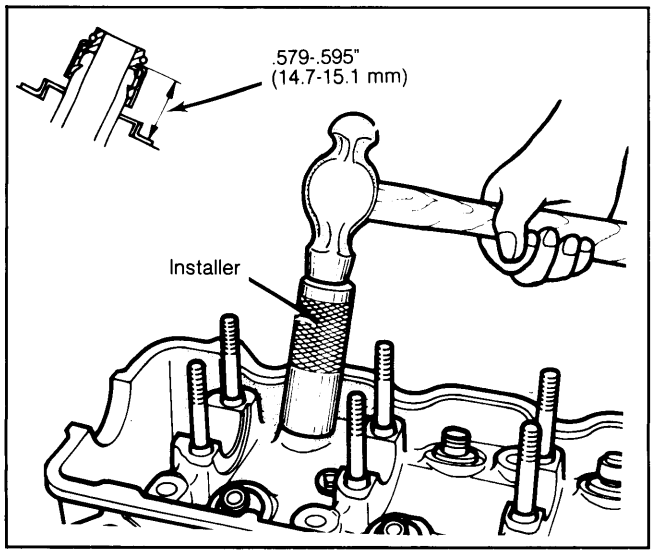
VALVE SEAT SERVICING

1) Check valve seat for damage or wear. Replace or rework seat, as necessary. If reworking seat, check valve guide first. Make proper replacement, if required, then check seat for necessary corrections.

2) Recondition valve seat with grinder or cutter to specified contact width. After rework, valve and seat should be lapped with compound.

1400 cc & 1600 cc 4-CYLINDER (Cont.)

Fig. 12: Valve Stem Oil Seal Installation



Do not twist seals when installing.

3) Valve seat sink (wear of seat inward allowing valve to seat too deep in head) must be checked by measuring installed height of spring between the spring seat and retainer with oil spring components installed.

4) Standard dimension is 1.417" (36 mm) for 1400 cc engine and 1.469" (37.3 mm) for 1600 cc engine with an additional wear limit of .039" (1.0 mm). Replace valve seat if beyond limit.

5) Remove valve seat by thinning down with a cutter, then machine seat bore to proper size for replacement seat. Heat head to approximately 480°F (250°C) and press in oversize seat.

6) Replacement seats are available in .012" (.305 mm) and .024" (.610 mm) oversizes, marked "30" and "60" respectively. After installing valve seat, machine to specifications.

VALVE CLEARANCE ADJUSTMENT

1) Ensure timing marks on camshaft sprocket and chain are aligned. With head assembly installed, temporarily adjust valves (sequence for adjustment is 1-3-4-2), according to following procedure.

2) At compression stroke TDC, for cylinder being adjusted, loosen rocker arm nuts; then, turning adjusting screw, adjust valve clearance to specifications.

3) Complete engine assembly and temporarily install rocker cover. Warm engine until coolant temperature is 170 to 180°F (77-82°C). With piston at TDC on compression stroke, back intake valve adjusting screw off 2 or more turns.

4) Adjust jet valve clearance, then adjust intake valve clearance. Adjust exhaust valve clearance and assure that all adjusting screw lock nuts are tightened securely.

VALVE CLEARANCE

Application	Cold In. (mm)	Hot In. (mm)
Intake	.003 (.07)	.006 (.15)
Exhaust	.007 (.17)	.010 (.25)
Jet Valve	.003 (.07)	.006 (.15)

NOTE: Jet valve spring is comparatively weak and must not be forced in when making adjustment. Final valve clearance should be adjusted after cylinder head bolts have been tightened to final torque.

PISTONS, PINS & RINGS

PISTON & CONNECTING ROD ASSEMBLY

Removal

1) Remove cylinder head, oil pan and screen. Check to ensure connecting rods and rod caps are marked to aid in assembling components to their original position.

2) Remove carbon ridge from cylinder bores. Remove connecting rod caps. Remove connecting rod and piston assembly through top of cylinder block.

Installation

1) To install, lubricate all internal surfaces with engine oil before installation. Make sure front mark on piston head faces front of engine.

2) Use a ring compressor to compress rings (without changing their position) and install piston and connecting rod assembly into cylinder block in their original position.

3) Tap lightly on piston dome with wooden handle tool while guiding connecting rod onto crankshaft. Install rod cap onto proper piston and connecting rod assembly. Tighten attaching bolts. Install cylinder head and oil pan.

FITTING PISTONS

1) After checking block for distortion, cracks, scratches or other abnormalities, measure bores at 3 levels. If any distortion exceeds .001" (.02 mm) from standard bore size, block must be rebored and oversize pistons installed.

NOTE: Replacement pistons are available in standard, .010" (.25 mm), .020" (.50 mm), .030" (.75 mm) and .039" (1.0 mm) oversizes. Oversize pistons are stamped on crown to indicate oversize amount.

2) Check outside diameter of piston by measuring at a point .079" (2 mm) from bottom of skirt and at 90° to pin bore. Determine amount of cylinder reboring required to meet specified clearance.

NOTE: Pin-to-rod fit at normal temperature requires 1,100-3,300 lbs. to press pin through rod.

PISTON PINS

1) Check piston pin-to-bore fit; pin should press in smoothly by hand (at room temperature). When assembling, apply engine oil to outside of pin and to piston pin bore.

2) Position rod to piston ("FRONT" mark upward), align pin with pressing tool, and press pin into piston and rod.

PISTON RINGS

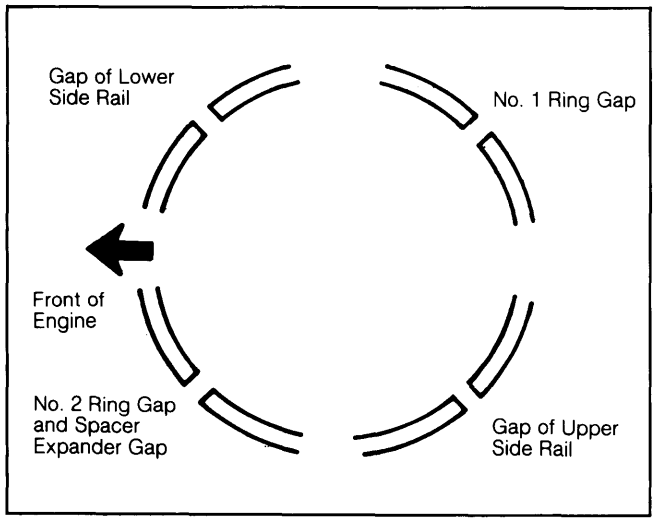
1) Measure piston ring side and end clearance for all pistons and replace rings as necessary. When

1400 cc & 1600 cc 4-CYLINDER (Cont.)

replacing a ring without correcting the cylinder bore, check ring end gap at lower part of cylinder that is less worn. When replacing a ring, be sure to use one of the same size.

2) Install rings on piston with end gaps staggered at 120° intervals, but make sure no ring gap is in line with thrust face of pin bore. Also be sure the manufacturer's marks are facing upward when rings are installed.

Fig. 13: Piston Ring Gap Positions



Stagger ring gaps to minimize compression loss.

CAUTION: Install oil ring first WITHOUT using a ring expander. Spacer expander gap should be installed more than 45° from side rail gaps, and rails should turn smoothly when installed.

PISTON RING SIZES

Ring Size	Size Mark
1400 & 1600 cc	
Standard	No Mark
.010" (.25 mm) OS	25
.020" (.50 mm) OS	50
.030" (.75 mm) OS	75
.039" (1.00 mm) OS	100

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

MAIN & CONNECTING ROD BEARINGS

1) Inspect each bearing for peeling, melting, seizure or improper contact. Replace defective bearings. Measure outside diameter of crankshaft and connecting rod journals to determine if out-of-round or tapered.

2) Cut Plastigage to same length as width of bearing. Place it parallel with journal (not over oil holes). Install crankshaft bearings and caps, tightening to specifications. Always install caps with arrow facing forward.

NOTE: Do not turn crankshaft with Plastigage installed.

3) Remove main bearing cap from crankshaft and measure Plastigage at widest part (using scale on Plastigage package). Repeat procedure for connecting rod bearings.

4) If clearance exceeds limits, bearing should be replaced or undersize bearing installed. Undersize bearings are available in .010" (.25 mm), .020" (.50 mm), and .030" (.75 mm) undersizes.

THRUST BEARING

With crankshaft bearing caps installed, check thrust clearance (end play) by inserting feeler gauge between center main bearing and crankshaft thrust face. If clearance exceeds specified limits, replace center main bearing.

ENGINE OILING

ENGINE OILING SYSTEM

All engines use force-feed type lubrication system. 1400 cc engines uses gear-crescent type pump, 1600 cc engine uses a trochoid type pump.

CRANKCASE CAPACITY

1400 cc — 3.7 quarts (3.5L)
1600 cc — 4.2 quarts (4.0L)

OIL PRESSURE

50-64 psi (3.5-4.5 kg/cm²) @2000 RPM.

OIL PUMP

Removal (1400 cc)

Gear-crescent type pump is mounted on front of engine assembly and driven directly by the crankshaft. Oil pan, oil screen and timing belt must be removed prior to removing front cover-oil pump assembly. Remove 7 mounting bolts and remove pump assembly.

Installation

Inspect gears, case and seal for wear or damage. Ensure that gears are assembled in same direction as originally installed. Use new gaskets and install pump and pan. Use sealer at joint faces and seams.

Removal & Installation (1600 cc)

Mounted at lower left of engine, driven by camshaft drive belt. Cover and rotor assembly may be removed after removing drive sprocket by taking out cover bolts and lifting assembly out. May also be removed with engine front cover as an assembly. To install, reverse removal procedure.

OIL PUMP SPECIFICATIONS

Application	Clearance In. (mm)
1400 cc Gear-Crescent Type	
Outer Gear-to-Case	.0039-.0079 (.10-.20)
Outer Gear-to-Crescent	.0087-.0134 (.22-.34)
Gear End Play	.0016-.0039 (.04-.10)
Inner Gear-to-Crescent	.0083-.0126 (.21-.32)
1600 cc Trochoid Type	
Side Clearance	.0024-.0047 (.06-.12)
Tip Clearance	.0016-.0047 (.04-.12)
Body Clearance	.0039-.0063 (.10-.16)
Drive Shaft-to-Cover Clear.	.0008-.0020 (.02-.05)

Chrysler Corp. Import Engines

1400 cc & 1600 cc 4-CYLINDER (Cont.)

CAUTION: Prior to installing oil pump, fill with sufficient amount of engine oil to prime pump.

ENGINE COOLING

THERMOSTAT

190°F (88°C).

RADIATOR CAP

12.8 psi (0.9 kg/cm²).

COOLANT CAPACITY

5.0 quarts (4.7L)

WATER PUMP

Removal

1) Drain cooling system and disconnect battery. Remove drive belt, fan, pulley, and lower radiator hose to pump. Ensure that number 1 piston is at TDC on compression stroke.

2) Remove camshaft pulley, timing belt covers, timing belt, camshaft sprocket, upper inner cover and timing belt tensioner. Remove mounting bolts and remove pump from engine.

Installation

To install, use new gasket and reverse removal procedure.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Camshaft Bearing Caps	
1600 cc	14-15 (19-20)
Camshaft Sprocket	
1400 cc	47-54 (64-73)
1600 cc	44-57 (60-78)
Main Bearing Caps	37-39 (50-53)
Connecting Rod Caps	24-25 (33-34)
Crankshaft Sprocket Bolt	
1400 cc	37-43 (50-58)
1600 cc	44-50 (60-68)
Flywheel-to-Crankshaft	94-101 (128-137)
Drive Plate-to-Crankshaft	
(Auto. Trans.)	94-101 (128-137)
Jet Valve	13-15 (18-20)
Application	**INCH Lbs. (N.m)**
Oil Pump Cover	
1400 cc	72-108 (8-10)
Crankshaft Pulley Bolt	90-102 (10-11)

ENGINE SPECIFICATIONS

GENERAL SPECIFICATIONS

Year	Displacement		Fuel System	HP@RPM	Torque Ft. Lbs.@RPM	Compr. Ratio	Bore		Stroke	
	Cu. In.	cc					In.	mm	In.	mm
1982	86.0	1400	2-Bbl.	.....	.....	8.8:1	2.91	74.0	3.23	82.0
	97.5	1600	2-Bbl.	.....	.....	8.5:1	3.03	76.9	3.39	86.0

VALVES [1]

Engine Size & Valve	Head Diam. In. (mm)	Face Angle	Seat Angle	Seat Width In. (mm)	Stem Diameter In. (mm)	Stem Clearance In. (mm)	Valve Lift In. (mm)
1400 cc							
Intake	1.34 (34)	45°	45°	.035-.051 (.9-1.3)	.315 (8.0)	.0012-.0024 (.03-.06)	.346 (8.8)
Exhaust	1.18 (30)	45°	45°	.035-.051 (.9-.13)	.315 (8.0)	.0020-.0035 (.05-.09)	.346 (8.8)
1600 cc							
Intake	1.50 (38)	45°	45°	.035-.051 (.9-1.3)	.315 (8.0)	.0012-.0024 (.03-.06)	.362 (9.2)
Exhaust	1.22 (33)	45°	45°	.035-.051 (.9-.13)	.315 (8.0)	.0020-.0035 (.05-.09)	.362 (9.2)

[1] — Jet valve and body not individually serviceable. Replace as an assembly when defective.

Chrysler Corp. Import Engines

1400 cc & 1600 cc 4-CYLINDER (Cont.)

ENGINE SPECIFICATIONS (Cont.)

PISTONS, PINS, RINGS

Engine	PISTONS	PINS		RINGS		
	Clearance In. (mm)	Piston Fit In. (mm)	Rod Fit In. (mm)	Ring No.	End Gap In. (mm)	Side Clearance In. (mm)
1400 & 1600 cc	.0008-.0016 (.02-.04)	[1]	Locked in Rod [2]	No. 1	.008-.016 (.2-.4)	.0012-.0028 (.03-.07)
				No. 2	.008-.016 (.2-.4)	.0008-.0024 (.02-.06)
				Oil	.008-.020 (.2-.5)	.....

[1] — Thumb press fit without rod installed.
[2] — Press in at 1100-3300 lbs. at room temp.

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam. In. (mm)	Clearance In. (mm)	Thrust Bearing	Crankshaft End Play In. (mm)	Journal Diam. In. (mm)	Clearance In. (mm)	Side Play In. (mm)
1400 cc	1.890 (48)	.0008-.0028 (.02-.07)	No. 3	.002-.007 (.05-.18)	1.653 (42)	.0004-.0024 (.01-.06)	.004-.010 (.10-.25)
1600 cc	2.244 (57)	.0008-.0028 (.02-.07)	No. 3	.002-.007 (.05-.18)	1.772 (45)	.0004-.0024 (.01-.06)	.004-.010 (.10-.25)

CAMSHAFT

Engine	Journal Diam. In. (mm)	Clearance In. (mm)	Lobe Lift In. (mm)
1400 cc			
Intake	1.500 (38.1)	.002-.008 (.05-.20)	.....
Exhaust	1.504 (38.2)	.002-.008 (.05-.20)	.....
1600 cc			
Int. & Exh.	1.433 (36.4)	.002-.006 (.05-.15)	.359 (.92)

VALVE SPRINGS

Engine	Free Length In. (mm)	PRESSURE Lbs. @ In. (Kg @ mm)	
		Valve Closed	Valve Open
1400 cc	1.697 (43.1)	69@1.417 (31.1@36)	.....
1600 cc	1.823 (46.3)	62.0@1.469 (27.2@37.3)	....