Jeep 6 Engines

4.2 LITER 6-CYLINDER

IDENTIFICATION CODING

ENGINE IDENTIFICATION

Engine identification code is stamped on a machined surface on right side of cylinder block, between No. 2 and No. 3 cylinders. The letter portion of the code identifies engine displacement, carburetor type, and compression ratio.

ENGINE IDENTIFICATION CODE

Engine	Code
4.2L (258") 2-Bbl.	C

SPECIAL ENGINE MARKS

Some engines are produced at factory with oversize or undersize components. These engines are identified by a letter code. Code is stamped on a boss between ignition coil and distributor, and is decoded as follows:

- "B" indicates all cylinder bores .010" (.25 mm) oversize.
- "C" indicates all camshaft bearing bores .010" (.25 mm) oversize.
- "M" indicates all main bearing journals .010" (.25 mm) undersize.
- "P" indicates all connecting rod journals .010" (.25 mm) undersize.

ENGINE REMOVAL

See Engine Removal at end of ENGINE Section.

CYLINDER HEAD & MANIFOLDS

INTAKE & EXHAUST MANIFOLDS

Removal

1) Remove air cleaner. Disconnect fuel line at carburetor. Label and disconnect all vacuum hoses, ventilation hoses and electrical connectors at carburetor.

2) Disconnect throttle cable from throttle bellcrank. If equipped, disconnect throttle valve rod. Disconnect PCV vacuum hose and heater wire from manifold. Drain radiator and disconnect coolant hoses from intake manifold.

3) Disconnect vacuum hoses from ported vacuum switch (CTO valve) and EGR valve. Disconnect EGR tube fittings from intake and exhaust manifolds. Disconnect vacuum hose at diverter valve. Disconnect air injection hoses at air pump and air injection manifold check valve, and remove with diverter valve attached.

4) Remove air pump. If equipped, remove power steering pump (with hoses attached) and position aside. If A/C equipped, remove drive belt idler pulley. Disconnect exhaust pipe from manifold. Remove oxygen sensor if equipped. Remove intake and exhaust manifolds.

Installation

1) Clean mating surfaces of manifolds and cylinder head. Position exhaust manifold to cylinder head and install alignment sleeves over end studs. Exhaust manifold does not utilize a manifold-to-cylinder head gasket. Tighten bolts 1 and 2, then remove alignment sleeves. *See Fig. 1.*

VALVE SPRINGS

Although normal service is performed with cylinder head removed, it is possible to replace seals, locks, retainers, or broken springs with cylinder head installed.

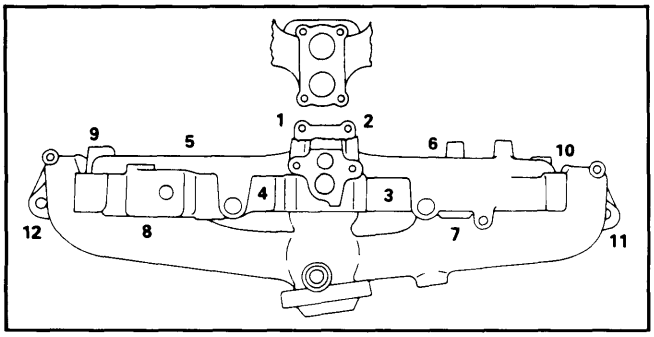
NOTE: On A/C equipped vehicles, a flexible air hose adapter must be used when servicing No. 1 cylinder.

Removal

1) Remove rocker arm cover. Remove bridge and pivot assemblies, rocker arm, and push rod of valve to be serviced. Remove spark plug and install 14 mm (thread size) air adapter into spark plug hole. Connect an air hose to adapter and maintain a constant pressure of at least 90 psi.

2) Loosely connect EGR tube to intake manifold. Install intake manifold gasket and intake manifold. Loosely connect EGR tube to exhaust manifold. Tighten intake manifold bolts 3 and 4. Install remaining bolts and nuts. Tighten manifolds in sequence. *See Fig. 1*

Fig. 1: Intake & Exhaust Manifolds Tightening Sequence



Tighten manifolds to 23 ft. lbs. (31 N.m).

3) Install remaining components in reverse order of removal. Start engine and inspect for coolant and vacuum leaks.

CYLINDER HEAD

CAUTION: Rocker arm cover is made of molded plastic. Use care when removing and installing to prevent damage to cover.

Removal

1) Drain cooling system and disconnect radiator hose at thermostat housing. Remove air cleaner and rocker arm cover. Remove bridge and pivot assembly, rocker arms and push rods in order, for reinstallation in original locations. Alternately loosen rocker arm bolts 1 turn at a time when removing rocker arm assemblies, to avoid damage to bridge.

2) Disconnect power steering pump (if equipped), air pump and brackets, and position aside. Remove intake and exhaust manifold assembly from cylinder head. If A/C equipped, remove drive belt idler bracket from cylinder head. Remove alternator bracket-to-head mounting bolt. Remove A/C compressor from mounting bracket and position aside.

3) Remove spark plugs and disconnect temperature sending unit wire. Disconnect negative battery

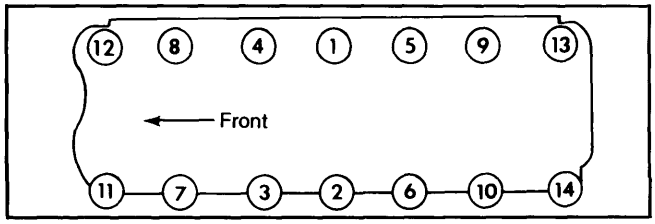
4.2 LITER 6-CYLINDER (Cont.)

cable. Remove ignition coil and bracket. Remove cylinder head and discard gasket.

Installation

Clean all gasket mating surfaces. Apply an even coat of sealing compound to both sides of cylinder head gasket, and position on block with word "TOP" facing up. Install and tighten cylinder head. *See Fig. 2.* Reverse removal procedures to complete installation.

Fig. 2: Cylinder Head Tightening Sequence



Tighten head bolts to 85 ft. lbs. (115 N.m).

VALVES

VALVE ARRANGEMENT

E-I-I-E-I-E-E-I-E-I-I-E (Front to rear)

VALVE GUIDE SERVICING

Valve guides are integral with cylinder head and are not replaceable. Replacement valves are available with .003", .015", and .030" oversize stems.

1) To check stem-to-guide clearance, clean valve guide bore with solvent and a rifle brush. Use a ball gauge and micrometer to measure guide wear. Take measurements of guide crosswise and lengthwise to head, inserting ball gauge ⅜" into guide bore from top of head.

2) If either measurement exceeds .003" (.08 mm), ream valve guide for installation of valve with oversize stem. Always ream valve guides in progressive steps, using reamers in sequence to obtain desired size.

VALVE STEM OIL SEALS

A nylon valve stem oil seal is used on all valves to keep engine oil from entering combustion chambers through valve guides. Replace oil seals if deteriorated, or when valve service is performed. Replacement seals are available for valves with oversize stems.

VALVE SPRINGS

Although normal service is performed with cylinder head removed, it is possible to replace seals, locks, retainers, or broken springs with cylinder head installed.

NOTE: On A/C equipped vehicles, a flexible air hose adapter must be used when servicing No. 1 cylinder.

Removal

1) Remove rocker arm cover. Remove bridge and pivot assemblies, rocker arm, and push rod of valve to be serviced. Remove spark plug and install 14 mm (thread size) air hose adapter into spark plug hole. Connect an air hose to adapter and maintain a constant pressure of at least 90 psi.

2) Using valve spring compressor tool (J-22534-01 or equivalent), compress valve spring and remove locks. Remove valve spring retainer, valve spring, and oil seal.

Inspection

Using valve spring tester, check valve springs for proper tension. Measure free length of valve springs. Replace springs that are not within specification.

Installation

1) Use a 7/16" deep-well socket and light hammer to gently tap valve stem seal into place on valve stem. Ensure sharp edges of valve lock groove do not damage oil seal during installation. Install valve spring and retainer. Compress spring with valve spring compressor tool, and install locks.

2) Tap each valve spring from side to side to ensure spring is seated properly. Turn off air supply and remove air hose and adapter. Install remaining components in reverse order of removal.

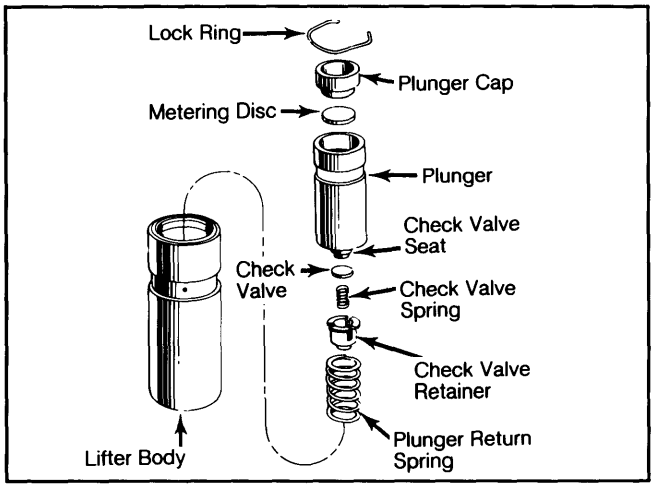
HYDRAULIC VALVE LIFTER ASSEMBLY

1) Service lifters as complete assemblies only. Parts are not interchangeable between lifters. Inspect lifter body for signs of scuffing. Inspect base of lifter for concave wear. If concave wear is present, replacement of camshaft and lifters is necessary.

2) Disassemble and clean lifters, then reassemble. *See Fig. 3.* Using lifter leak-down rate tester and lifter test fluid, test lifter leak down rate. Compress lifter plunger and record time required for tester needle to align with .125" mark on scale. Leak-down rate should be 20-110 seconds.

3) Replace lifters that fail test. Do not attempt to prime lifters with engine oil prior to installation. Lifters will fill with oil within 3-8 minutes of engine operation.

Fig. 3: Hydraulic Lifter Assembly



Do not interchange parts between lifters.

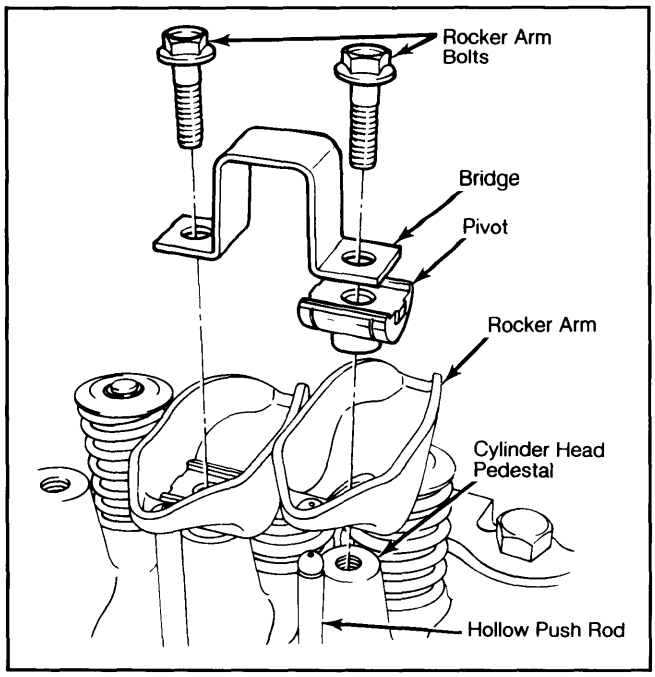
ROCKER ARM ASSEMBLY

Both intake and exhaust rocker arms for each cylinder pivot on a bridge and pivot assembly. *See Fig. 4.* The bridge and pivot assembly maintains correct rocker arm-to-valve tip alignment. When removing rocker arm assemblies, always keep parts in order for reinstallation in original locations.

Jeep 6 Engines

4.2 LITER 6-CYLINDER (Cont.)

Fig. 4: Rocker Arm Assembly



Tighten rocker arm bolts to 19 ft. lbs. (26 N.m).

PISTONS, PINS & RINGS

OIL PAN

See Oil Pan Removal at end of ENGINE Section.

PISTON & ROD ASSEMBLY

Removal

1) Remove cylinder head and oil pan. Position piston at bottom of stroke and cover with a cloth to collect metal cuttings. Using a ridge reamer, remove any ridge or deposits on upper end of cylinder bore.

2) If necessary, mark connecting rods and caps for cylinder identification. Remove connecting rod bearing cap and bearings. Install pieces of rubber hose over connecting rod bolts to protect cylinder walls and crankshaft. Push piston and rod assembly out top of cylinder block and install rod cap on mating rod.

Installation

1) Lightly coat piston, rings, and cylinder wall with engine oil. Properly position rings on piston. *See Fig. 5.* Using ring compressor, compress rings on piston. Ensure position of rings does not change.

2) Install upper bearing into rod, and cover rod studs with protective rubber hose. Position piston in bore with arrow on piston head pointing toward front of engine.

3) Install piston and rod assembly into its respective bore, while guiding connecting rod onto crankshaft journal. Install and tighten rod cap.

FITTING PISTONS

1) Measure each cylinder bore with an inside micrometer, approximately 2 5/16" below top of cylinder bore. Using a micrometer, measure piston 90° to piston pin at centerline of pin. Difference between 2 measurements is piston-to-cylinder bore clearance.

2) Using bore gauge or inside micrometer, measure cylinder bore 90° to crankshaft at top of bore, and also at bottom of bore. Taper is the difference between the 2 measurements. Turn measuring tool 120° and measure at top and bottom of bore. Turn tool another 120° and repeat measurement. Difference between the 2 measurements is out-of-round.

3) If out-of-round or taper exceed .001" (.025 mm), bore and hone cylinder for installation of oversize piston.

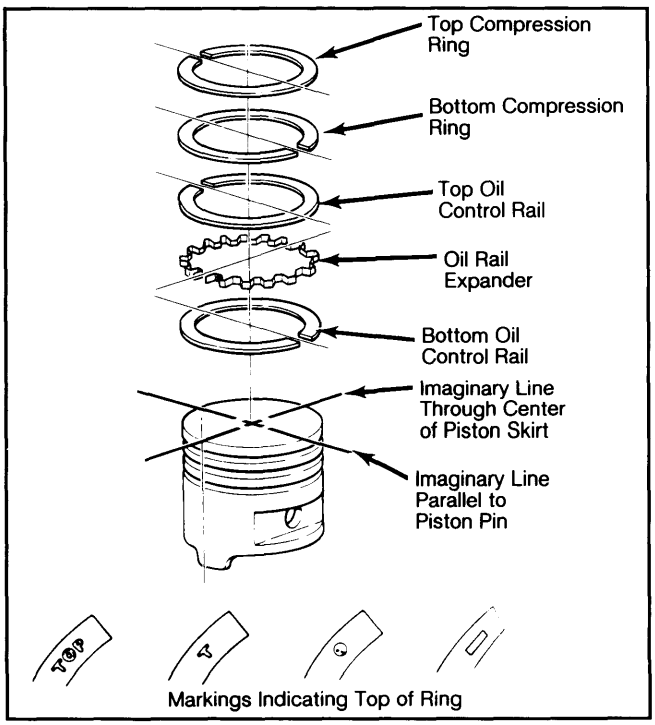
FITTING RINGS

1) Measure ring side clearance with feeler gauge fitted between ring land and ring. Rotate ring in groove around entire circumference of piston. Ring must not bind in groove.

2) Push ring down into bore, near bottom of ring travel. Ring must be square in bore. Measure ring end gap with feeler gauge

3) Install rings on piston. *See Fig. 5.* Install upper and lower rings with gaps positioned 180° apart. Ensure ring markings (indicating top of ring), point up.

Fig. 5: Ring Gap Positions and Markings



Ring gaps can vary as much as 20° from positions illustrated.

PISTON PINS

Removal

Using piston pin remover/installer tool and an arbor press, press piston pin out of piston and rod assembly. Discard piston pin.

Inspection

To check replacement piston pin for fit, position piston so pin bore is in a vertical position. At room temperature, replacement pin should slide completely through pin bore without using force. If pin jams in bore, replace piston.

4.2 LITER 6-CYLINDER (Cont.)

Installation

1) Assemble connecting rod to piston. When properly assembled, arrow on piston head will point toward front of engine, and oil hole in connecting rod will face camshaft side of engine. Use piston pin remover/installer tool and arbor press to press pin through connecting rod and piston.

2) Pin should be centered in connecting rod. The piston pin requires a 2,000 lb. press fit. If little effort is required to install pin in connecting rod, or if rod moves on pin, replace connecting rod.

CRANKSHAFT & ROD BEARINGS

MAIN & CONNECTING ROD BEARINGS

NOTE: Plastigage method is used for checking bearing clearances. The following procedures are with oil pan removed and oil film removed from surfaces to be checked.

Connecting Rod Bearings

1) Undersize bearings of different sizes may be used in combination to achieve desired clearance. Never use a pair of bearings on same journal, that differ more than .001" in size. Rod journal size is identified by a color-coded paint mark on adjacent counterweight, toward rear end of crankshaft.

2) Rotate crankshaft to position connecting rod at bottom of stroke. Ensure rod cap is marked for cylinder identification. Remove connecting rod cap. Place strip of Plastigage across full width of lower bearing half, at center of bearing.

3) Install and tighten bearing cap to specification. Do not rotate crankshaft. Remove rod cap and measure width of compressed Plastigage with scale furnished. Install new bearings if clearance is excessive. Lubricate crankshaft and bearing with engine oil. Install and tighten bearing cap.

Main Bearings

1) Check main bearing clearances one at a time. Use Plastigage method (as explained in Connecting Rod Bearings) to check main bearing clearances, tightening caps to specification.

2) When required, undersize bearings of different sizes may be used in combination to obtain correct bearing clearance. Using this method, ensure that all odd-sized bearings are installed on same side of crankshaft. Never use a pair of bearings which differ more than .001" in size. Bearings are available in standard, .001", .002", .010", and .012" undersize.

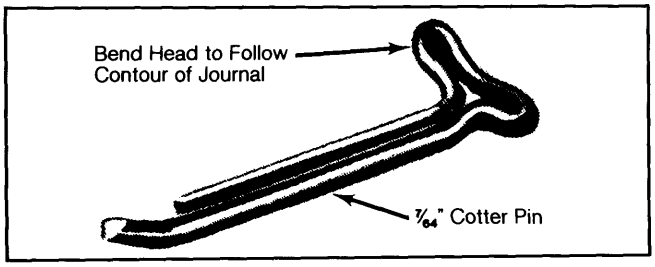
3) Main bearing caps are numbered 1 to 7 (front to rear). Main bearing journal size (except rear main) is identified in production by a color-coded paint mark on adjacent counterweight toward rear end of crankshaft. Rear main journal has a paint mark on the crankshaft rear flange.

4) To replace main bearings, remove main cap and bearing. Remove bearing from cap. Loosen all other bearing caps. Fabricate a bearing remover/installer tool, using a 7/64" cotter pin. *See Fig. 6.*

5) Install cotter pin into crankshaft oil hole. Rotate crankshaft clockwise to force bearing out of block. Because there is no oil hole in No. 4 main journal, use a wooden tongue depressor or similar soft-faced tool to remove and install bearing.

6) Apply a light film of oil to replacement upper bearing. Start plain end of bearing into bearing tang side of block. Use cotter pin tool to push upper main bearing into place, by rotating crankshaft in opposite direction of removal. Fit lower bearing into cap. Install and tighten main cap with arrow pointing towards front of engine.

Fig. 6: Rear Main Bearing Remover/Installer Tool



Tool is inserted into crankshaft oil hole to aid in removal and installation.

THRUST BEARING ALIGNMENT

Before final tightening of No. 3 thrust bearing cap, pry crankshaft forward then rearward to align thrust faces of bearings.

REAR MAIN BEARING OIL SEAL

Removal

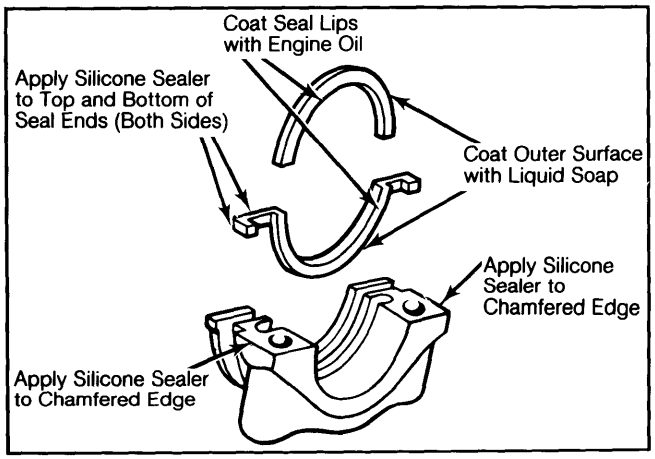
Remove oil pan and rear main bearing cap. Loosen remaining main bearing cap bolts. Using a brass drift, tap upper seal around crankshaft until seal protrudes enough to permit removal with pliers. Remove lower seal from bearing cap.

Installation

1) Clean crankshaft seal surface. Lightly coat lips of new seal halves with engine oil and their outer surfaces with liquid soap. *See Fig. 7.* Install upper seal into block with lip facing toward front of engine.

2) Install lower seal into bearing cap with lip facing front. Make sure seal is firmly seated in bearing cap recess. Apply silicone sealer to chamfered edges of bearing cap and to both sides of seal ends. *See Fig. 7.* Install rear main bearing cap. Tighten all main bearing cap bolts.

Fig. 7: Rear Main Bearing Oil Seal Installation



Do not apply sealer to cylinder block mating surface.

Jeep 6 Engines

4.2 LITER 6-CYLINDER (Cont.)

CAMSHAFT

ENGINE FRONT COVER

Removal

1) Remove drive belt(s) and fan and spacer from water pump. Remove crankshaft pulley and vibration damper. Remove oil pan-to-cover bolts and front cover-to-cylinder block bolts. Remove front cover and gasket.

2) Cut oil pan gasket end tabs flush with front face of cylinder block and remove tabs. Clean all gasket mating surfaces.

Installation

1) Apply gasket sealer to both sides of new front cover gasket and fit gasket to block. Cut end tabs from new oil pan gasket and fit onto oil pan. Cement these pieces to oil pan. Install oil pan seal on lower end of front cover. Heavily coat end tabs of oil pan seal with non-hardening sealing compound.

2) Position front cover to engine. Place front cover alignment and seal installing tool (J-22248 or equivalent) into front cover. Install cover attaching bolts. Tighten all bolts and remove alignment tool. Reverse removal procedure to complete installation.

FRONT COVER OIL SEAL

Removal

Remove drive belt(s). Remove crankshaft pulley and vibration damper. Use seal remover tool (J-9256) to remove oil seal.

Installation

1) Position new oil seal onto front cover alignment and seal installing tool (J-22248 or equivalent), with seal lip facing outward. Apply light coat of sealer to outside diameter of seal case.

2) Insert draw screw from tool (J-9163) into seal installing tool. Tighten nut on tool assembly to press seal into cover until it bottoms. Apply light film of engine oil to seal lip and install remaining components in reverse order of removal.

TIMING CHAIN & SPROCKETS

Removal

Remove engine front cover. Rotate crankshaft to align timing marks on camshaft and crankshaft sprockets. Remove camshaft and crankshaft sprockets and timing chain as an assembly.

Installation

Assemble timing chain, crankshaft sprocket and camshaft sprocket with timing marks aligned. *See Fig. 8.* Install chain and sprockets onto crankshaft and camshaft as an assembly. Install and tighten camshaft sprocket retaining bolt and washer. Install front cover.

CAMSHAFT

Removal

1) Drain cooling system and remove radiator. If A/C equipped, remove condenser and receiver assembly as a charged unit. Remove fuel pump, ignition wires and distributor.

2) Remove cylinder head and hydraulic lifters. Remove engine front cover and timing chain and sprockets. Remove front bumper or grille as required. Carefully remove camshaft.

Installation

Lubricate camshaft with an engine oil supplement. Carefully install camshaft into place to prevent damage to camshaft bearings. Reverse removal procedure to complete installation.

CAMSHAFT BEARINGS

Remove engine from vehicle to install camshaft bearings. To provide steady pressure when installing bearings, use a screw-type camshaft bearing installer tool. Do not use a driver-type bearing installer tool. Ensure oil holes in bearings are aligned with oil holes in block.

CAM LOBE LIFT

1) Remove rocker arm cover, rocker arms and bridge and pivot assembly. Remove spark plugs.

2) Using mounting fixture, attach dial indicator to cylinder head so indicator point rests on top of push rod. Dial indicator point must be in same plane as push rod vertical movement.

3) Rotate crankshaft slowly until valve lifter is on base circle of cam lobe. In this position, push rod will be at its lowest travel. Zero dial indicator.

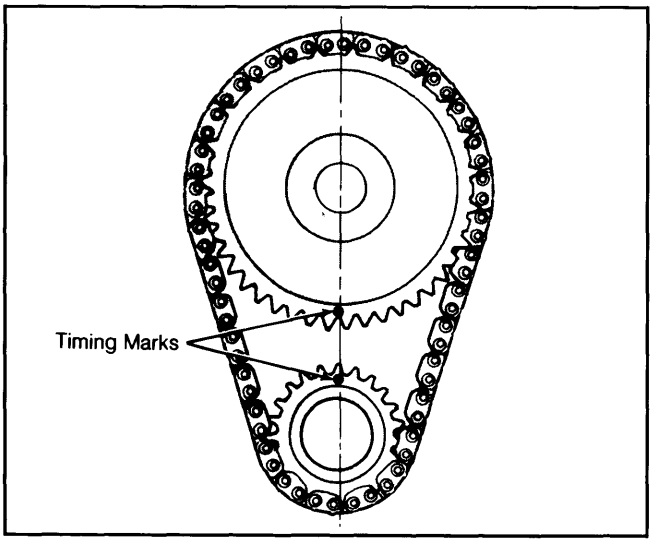
4) Rotate engine until push rod is in fully raised position and record reading. Compare recorded lobe lift with specifications. If less than specifications, replace camshaft. Check remaining cam lobes in same manner.

VALVE TIMING

1) Remove spark plugs and rocker arm cover. Remove rocker arms and bridge and pivot from No. 1 cylinder. Rotate crankshaft until No. 6 piston is on TDC at end of compression stroke. Rotate crankshaft counterclockwise 90° (as viewed from front of engine).

2) Install dial indicator on end of No. 1 intake valve push rod. Zero dial indicator. Rotate crankshaft clockwise until dial indicator shows .016" (.41 mm) lift. Timing mark on vibration damper should align with TDC mark on timing scale. If timing mark is more than ½" off TDC in either direction, valve timing is incorrect.

Fig. 8: Timing Chain Sprocket Alignment



Remove and install timing chain and sprockets as an assembly.

4.2 LITER 6-CYLINDER (Cont.)

ENGINE OILING

CAUTION: Always use short (4.25") oil filter on 6-cylinder CJ vehicles. Longer (5.44") oil filter may contact engine mount or frame rail and puncture, causing possible engine damage.

Crankcase Capacity

Capacity is 5 quarts (4.8L). Add 1 quart (.95L) when replacing oil filter.

Oil Filter

Replace filter every 7500 miles or 7½ months, whichever comes first. Filter is full-flow type mounted on right side of crankcase.

Normal Oil Pressure

37-75 psi (2.6-5.3 kg/cm²) maximum at +1600 RPM. Minimum oil pressure should be 13 psi (.9 kg/cm²) at 600 RPM.

Pressure Regulator Valve

Located in pump body, not adjustable.

ENGINE OILING SYSTEM

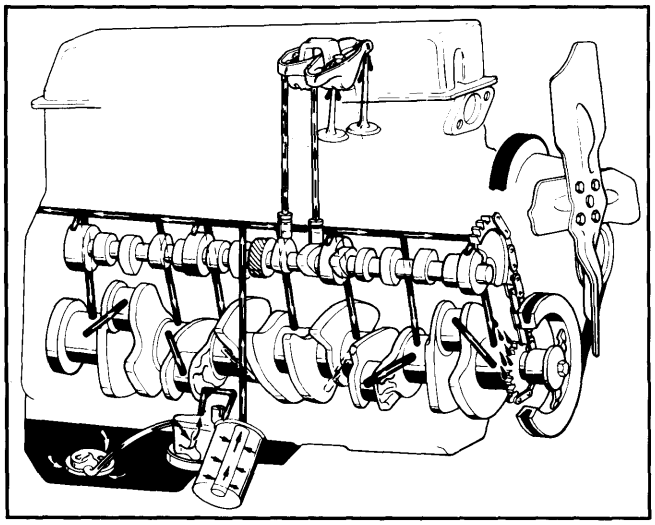
Oil under pressure is forced from gear-type oil pump to a full-flow oil filter. A by-pass valve is located in oil filter mounting base.

Oil flows from filter to main oil gallery. Branched passages from main oil gallery direct oil to upper main bearings. Internally drilled passages in crankshaft route oil to connecting rod journals.

Oil flows through each connecting rod, which disperses oil flow through a squirt hole in the rod. This dispersed oil lubricates camshaft lobes, distributor drive gear, cylinder walls and piston pins.

Lifters receive oil directly from main gallery, which is directed through hollow push rods to lubricate upper valve train area. Passages from main gallery lubricate camshaft bearings. Front camshaft bearing directs oil through camshaft sprocket, which slings oil to lubricate timing chain. *See Fig. 9.*

Fig. 9: Engine Oiling System



OIL PUMP

Removal & Disassembly

Drain crankcase and remove oil pan. Remove oil pump. Do not disturb position of oil inlet tube in pump body. If tube position is moved within pump body, a new tube and screen assembly must be installed to ensure an air-tight seal. Remove pump cover.

Inspection

1) Place straightedge across gears in pump body. Using feeler gauge, measure gear end clearance between pump body and straightedge. If gear end clearance in excessive, replace oil pump assembly

2) Using feeler gauge, measure gear-to-body clearance by inserting feeler gauge between a gear tooth and pump body wall. Take measurement directly opposite the point of gear mesh. Rotate gears and measure each tooth in this manner. Replace both gears and idler shaft if not within limits.

3) If oil pressure relief valve inspection is necessary, oil inlet tube and screen assembly must be removed, and replaced with a new unit. Remove cotter pin, spring retainer, spring and relief valve from pump body. Check valve and bore for sticking condition and wear, and replace as necessary.

Reassembly & Installation

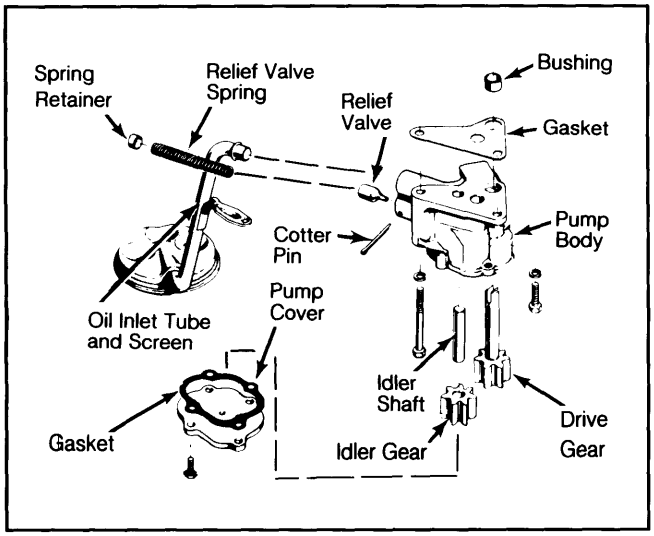
1) If removed, install oil pressure relief valve, spring, retainer and cotter pin. *See Fig. 10.* Apply light film of non-hardening sealing compound around end of tube and drive tube into pump body. Ensure tube support bracket is aligned with bolt hole im pump body.

2) Install idler shaft, idler gear and drive gear into pump body. Prime pump by filling pump cavity with petroleum jelly. Do not use grease. Apply sealer around perimeter of pump cover. Install and tighten pump cover. Using new gasket, install and tighten oil pump. Install oil pan and refill crankcase.

OIL PUMP SPECIFICATIONS

Application	Specification In. (mm)
Gear End Clearance	.004-.008 (.10-.20)
Gear-to-Body Clearance	.0005-.0025 (.013-.063)

Fig. 10: Oil Pump Assembly



Tighten pump cover bolts to 6 ft. lbs. (8 N.m).

Jeep 6 Engines

4.2 LITER 6-CYLINDER (Cont.)

ENGINE COOLING

WATER PUMP

Removal

Drain cooling system. Disconnect radiator and heater hoses from pump. Remove drive belts from pump pulley. If equipped, remove fan shroud from radiator. If necessary, rotate fan shroud to facilitate water pump removal. Remove water pump and discard gasket.

Installation

Clean all gasket mating surfaces. Using new gasket, install and tighten water pump. Reverse removal procedure to complete installation.

NOTE: For further information on cooling system capacities and other cooling system components, see appropriate article in "Engine Cooling Systems" in ENGINE Section.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Camshaft Sprocket Bolt	50 (68)
Connecting Rod Cap Nuts	33 (45)
Cylinder Head Bolts	85 (115)
Engine Front Cover Bolts	16 (22)
Exhaust Manifold Bolts & Nuts	23 (31)
Flywheel-to-Crankshaft Bolts	105 (142)
Intake Manifold Bolts	23 (31)
Main Bearing Cap Bolts	80 (108)
Oil Pump Cover Bolts	6 (8)
Oil Pump Attaching Bolts	
Short	10 (14)
Long	17 (23)
Rocker Arm Bolts	19 (26)
Vibration Damper Bolt	80 (108)
Water Pump Bolts	13 (18)

ENGINE SPECIFICATIONS

GENERAL SPECIFICATIONS

Year	Displ. cu. ins.	Displ. liters	Carburetor	HP at RPM	Torque Ft. Lbs.@RPM	Compr. Ratio	Bore in.	Bore mm	Stoke in.	Stoke mm
1982	258	4.2	2-Bbl.	.....	.....	8.6:1	3.75	95.3	3.90	99.1

VALVES

Engine & 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)
4.2L							
Int.	1.782-1.792 (45.26-45.52)	29°	30°	.040-.060 (1.02-1.52)	.3715-.3725 (9.436-9.462)	.001-.003 (.03-.08)	.405 (10.29)
Exh.	1.401-1.411 (35.59-35.84)	44°	44.5°	.040-.060 (1.02-1.52)	.3715-.3725 (9.436-9.462)	.001-.003 (.03-.08)	.405 (10.29)

PISTONS, PINS, RINGS

Engine	PISTONS Clearance In. (mm)	PINS Piston Fit In. (mm)	PINS Rod Fit In. (mm)	RINGS Rings	RINGS End Gap In. (mm)	RINGS Side Clearance In. (mm)
4.2L	.0009-.0017 (.023-.043)	.0003-.0005 (.008-.013)	Press Fit	1 & 2	.010-.020 (.25-.51)	.0017-.0032 (.043-.081)
				3	.010-.025 (.25-.64)	.001-.008 (.03-.20)

Jeep 6 Engines

4.2 LITER 6-CYLINDER (Cont.)

ENGINE SPECIFICATIONS (Cont.)

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)
4.2L	2.4996-2.5001 (63.490-63.503)	.0010-.0025 (.025-.064)	No. 3	.0015-.0065 (.038-.165)	2.0934-2.0955 (53.172-53.226)	.0010-.0025 (.025-.064)	.010-.019 (.25-.48)

MAIN BEARING JOURNALS 1-6 COLOR CODE CHART

Journal Code & Size In. (mm)	Upper Bearing Code & Size	Lower Bearing Code & Size
Yellow [1] 2.4996-2.5001 (63.490-63.503)	Yellow Std.	Yellow Std.
Orange [2] 2.4991-2.4996 (63.477-63.490)	Yellow Std.	Black [3] .001"
Black [2] 2.4986-2.4991 (63.464-63.477)	Black [3] .001"	Black [3] .001"
Green 2.4981-2.4986 (63.452-63.464)	Black [3] .001"	Green [3] .002"
Red 2.4896-2.4901 (63.236-63.249)	Red [3] .010"	Red [3] .010"

[1] — May be fitted with Yellow (standard) and Black (.001" undersize) bearings.
[2] — May be fitted with Black (.001" undersize) and Green (.002" undersize) bearings.
[3] — Undersize.

MAIN BEARING JOURNAL 7 COLOR CODE CHART

Journal Code & Size In. (mm)	Upper Bearing Code & Size	Lower Bearing Code & Size
Yellow 2.4990-2.4995 (63.475-63.487)	Yellow Std.	Yellow Std.
Orange 2.4985-2.4990 (63.462-63.475)	Yellow Std.	Black [1] .001"
Black 2.4980-2.4985 (63.449-63.462)	Black [1] .001"	Black [1] .001"
Green 2.4975-2.4980 (63.437-63.449)	Black [1] .001"	Green [1] .002"
Red 2.4890-2.4895 (63.220-63.233)	Red [1] .010"	Red [1] .010"

[1] — Undersize.

ROD BEARING JOURNALS COLOR CODE CHART

Journal Code & Size In. (mm)	Upper Bearing Code & Size	Lower Bearing Code & Size
Yellow 2.0948-2.0955 (53.208-53.226)	Yellow Std.	Yellow Std.
Orange 2.0941-2.0948 (53.190-53.208)	Yellow Std.	Black [1] .001"
Black 2.0934-2.0941 (53.172-53.190)	Black [1] .001"	Black [1] .001"
Red 2.0848-2.0855 (52.954-52.972)	Red [1] .010"	Red [1] .010"

[1] — Undersize.

CAMSHAFT

Engine	Journal In. (mm)	Clearance In. (mm)	Lobe Lift In. (mm)
4.2L			
No. 1	2.029-2.030 (51.54-51.56)	.001-.003 (.03-.08)	.253 (6.43)
No. 2	2.019-2.020 (51.28-51.31)	.001-.003 (.03-.08)	.253 (6.43)
No. 3	2.009-2.010 (51.03-51.05)	.001-.003 (.03-.08)	.253 (6.43)
No. 4	1.999-2.000 (50.77-50.80)	.001-.003 (.03-.08)	.253 (6.43)

VALVE SPRINGS

Engine	Free. Length In. (mm)	PRESSURE Lbs. @ In. (kg @ mm)	
		Valve Closed	Valve Open
4.2L	1.99 (50.5)	64-72@1.79 (29-33@45.5)	188-202@1.41 (85-92@35.8)