5.2 LITER V8

IDENTIFICATION CODING

ENGINE IDENTIFICATION

The 8th digit of Vehicle Identification Number identifies engine cubic inch displacement and carburetor type. The VIN plate is attached to upper left side of instrument panel and visible through windshield. Cubic inch displacement may also be found in Engine Identification Number located on right side of block, to rear of engine mount. Engine Serial Number is located on left front corner of block below cylinder head, and must be referenced when ordering parts.

Engine Code

Engine	Code
5.2L (318") E.F.I.	J
5.2L (318") 2-Bbl.	
STD.	K
H.D.	L
5.2L (318") 4-Bbl.	
STD.	M
H.D.	N

SPECIAL ENGINE MARKS

Information identifying undersize crankshaft journals, oversize cylinder bores, tappets and valve stems is stamped in various locations on engine, depending on engine. Information and location is decoded as follows:

R or M — Numbers 1, 2, 3, or 4 following R or M indicates .001" (.02 mm) undersize rod or main bearing journals and which journal is undersize. Stamped on number 8 crankshaft counterweight.

RX or MX — Indicates all rod or main bearing journals are .010" (.25 mm) undersize. Stamped on number 8 crankshaft counterweight.

A — Indicates .020" (.50 mm) oversize cylinder bore. Stamped after engine identification number.

"◆" — Indicates .008" (.20 mm) oversize tappets. Stamped on top pad at front of engine and on a flat surface at outside of each tappet bore.

X — Indicates .005" (.12 mm) oversize valve stems. Stamped on milled pad adjacent to two .375" (9.52 mm) tapped holes on each end of cylinder head.

ENGINE REMOVAL

See Engine Removal at end of ENGINE Section.

CYLINDER HEAD & MANIFOLDS

INTAKE MANIFOLD

NOTE — *Power steering, air conditioning and air pump assemblies must be removed, if equipped.*

Removal — 1) Drain cooling system and disconnect upper radiator hose, by-pass hose and heater hoses. Disconnect battery ground and remove alternator, air cleaner and fuel line to carburetor.

2) Disconnect accelerator linkage, coil wires and temperature sending unit wire. Remove distributor cap, wires and vacuum hose.

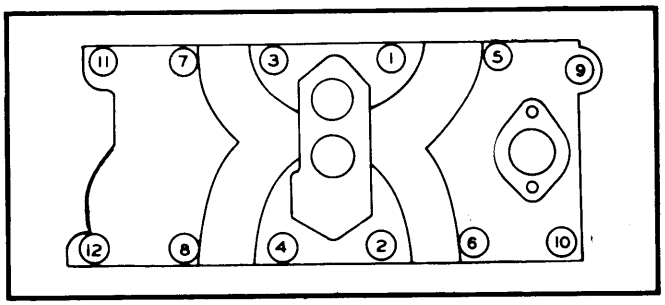

Fig. 1 Engine Intake Manifold Tightening Sequence

3) Remove closed ventilation system, evaporation control system and rocker arm covers. Remove intake manifold bolts and remove intake manifold, coil and carburetor as an assembly.

Installation — 1) Coat intake manifold side gaskets lightly with sealer and install on cylinder heads. Apply a thin even coat of quick drying cement to front and rear manifold gaskets and block surfaces.

CAUTION — *On engines with 4-Bbl. carburetors, do not use any sealer on side intake manifold gaskets.*

2) Install front and rear manifold gaskets on block, making sure that hole in gaskets engage dowels in block and end holes lock into tangs of head gaskets. Apply a .25" (6.4 mm) bead of RTV sealer to each of 4 manifold-to-cylinder head gasket corners.

3) Lower intake manifold carefully into position and install bolts. Tighten bolts in proper sequence shown in *Fig. 1* using 2 steps to obtain specification given in Tightening Specifications Chart.

CYLINDER HEAD

Removal — Remove intake manifold and exhaust manifold. Remove rocker arm and shaft assemblies. Remove push rods and identify them to insure installation in original locations. Remove cylinder head bolts, cylinder heads and gaskets.

NOTE — *Use a suitable sealant on all head bolts to prevent internal coolant leakage.*

Installation — With all gasket surface clean, place head gaskets on block and install heads. After cleaning threads on head bolts, coat threads with sealer. Install bolts in head and tighten in sequence shown in *Fig. 2*, using 2 steps to obtain specification.

5.2 LITER V8 (Cont.)

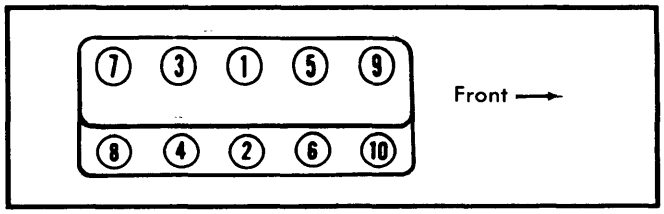

Fig. 2 Cylinder Head Tightening Sequence

VALVES

VALVE ARRANGEMENT

Each Head – E-I-I-E-E-I-I-E

VALVE GUIDE SERVICING

Wear Check – Remove valve springs and install suitable sleeve tool (C-3973) over valve stem and install valve in guide. Attach dial indicator to cylinder head and set it at right angle to valve stem being measured. Total side play should not exceed .017" (.43 mm). If dial reading is excessive or stems are scuffed or scored, ream guides for installation of valves with oversize stems.

Servicing – Ream guides to next oversize valve stem. Oversize valve stems are available in .005" (.12 mm), .015" (.38 mm) and .030" (.76 mm) sizes.

NOTE – *Do not attempt to ream guides from standard diameter to .030" (.76 mm) oversize in one step. Use step procedure to obtain the .030" (.76 mm).*

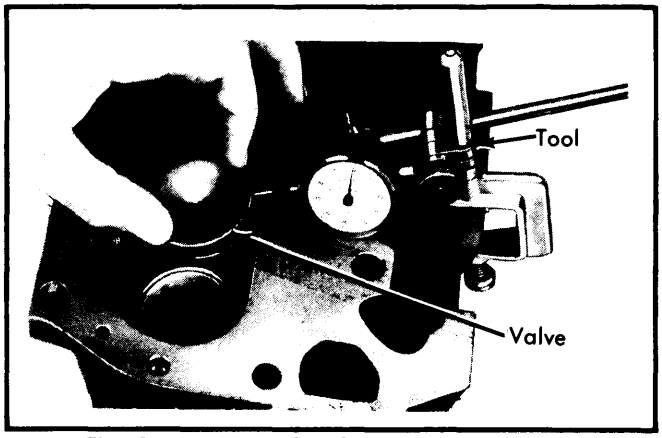

Fig. 3 Using Dial Indicator to Measure Valve Guide Wear

VALVE STEM OIL SEALS

Cup type oil shields are used on all exhaust valves; oil seals on intake valves. Coat valve stems with oil and insert in cylinder heads. Press new shields or seals squarely over valve guide, using valve stem as a positioning aid. Do not force seal against top of guide as the sealing lip pressure of the seal will be greatly reduced. See *Fig. 4*.

VALVE SPRINGS

Removal – With cylinder head removed, compress valve springs using a suitable tool (C-3422A). Remove valve retaining locks, retainers, cup seals and valve springs.

Installation – Reverse removal procedure and only compress spring enough to install the locks. Check valve spring height.

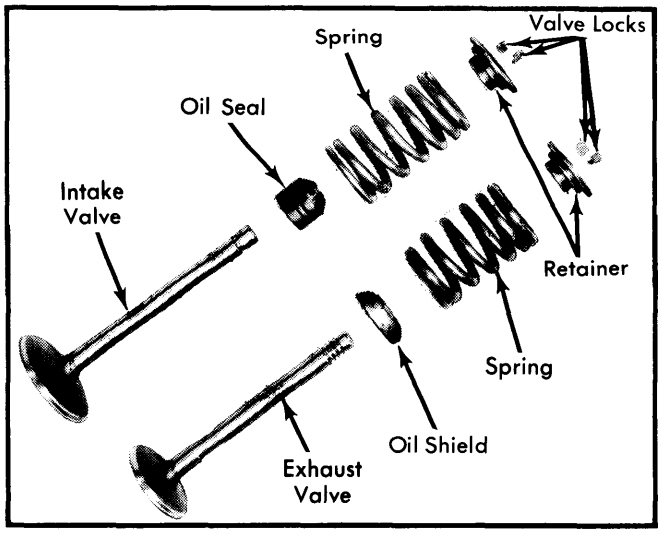

Fig. 4 Disassembled View of Intake and Exhaust Valve Assemblies

VALVE SPRING INSTALLED HEIGHT

Valve springs must be square within .078" (1.98 mm). Installed height of springs (measured from spring contact area on head to undersize of spring retainer) should not exceed specifications. If height is greater than maximum allowable, install a .063" (1.60 mm) spacer(s) in head counterbore to bring spring height back to normal. If spacers are installed, measure from top of spacer.

Valve Springs Installed Height		
Engine	Minimum In. (mm)	Maximum In. (mm)
5.2L (318")	1.625 (41.27)	1.687 (42.84)

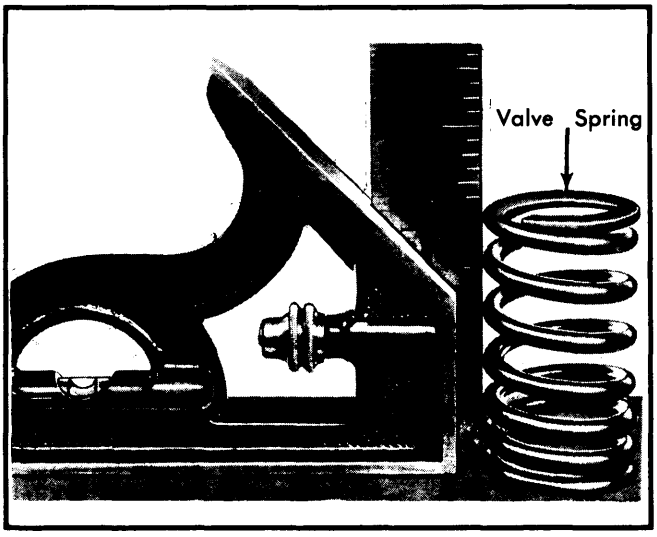

Fig. 5 Checking Valve Spring Squareness

ROCKER ARM ASSEMBLY

NOTE – *Whenever rocker arm shaft assemblies are being installed, tighten support bracket bolts slowly and evenly in order that lifters have time to bleed down to operating length.*

5.2 LITER V8 (Cont.)

Notch on end of rocker shaft must face inward toward center of engine, and must point toward rear of engine on right bank and front of engine on left bank. Long stamped steel retainers go in number two and four positions.

HYDRAULIC VALVE LIFTER ASSEMBLY

NOTE – *Lifters are serviced as complete assemblies only. Parts are not interchangeable between lifters. If any component of lifter is worn or damaged, complete lifter must be replaced.*

To test, remove cap from plunger. See *Fig. 6*. Remove plunger from lifter body. Fill plunger body with clean kerosene and install plunger. Unseat check ball and replace cap. Place lifter upright in suitable lifter testing tool (C-4343), and check leak down. If lifter collapses immediately, disassemble, clean and retest. If rapid leakdown still occurs, replace lifter.

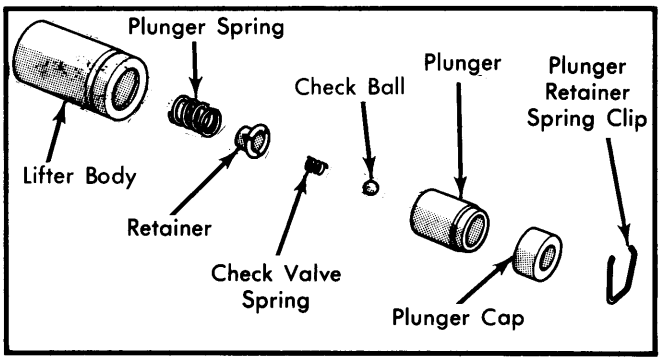

Fig. 6 Exploded View of Hydraulic Lifter Assembly

HYDRAULIC VALVE LIFTER ADJUSTMENT

Lifters are set at zero lash. Clearance between valve stem tip and rocker arm pad with lifter fully collapsed is .060-.210" (1.52-5.33 mm) on all engines.

PISTONS, PINS & RINGS

OIL PAN

See Oil Pan Removal at end of ENGINE Section.

PISTON & ROD ASSEMBLY

NOTE – *When removing or installing piston and connecting rod assemblies, rotate the crankshaft so connecting rod journal is on the center of cylinder bore.*

Removal – 1) Remove ridge at top of cylinder bores using suitable tool (C-3012).

NOTE – *Keep tops of pistons covered during this procedure to collect cuttings.*

2) Rotate crankshaft and mark connecting rods and rod caps for cylinder identification. Remove rod cap and push piston and rod assembly out top of cylinder bore, being careful not to nick crankshaft journals. Install rod caps on mating rods.

Installation – 1) Before installing piston and connecting rod assemblies into cylinder block, make sure the mark "TOP" on each compression ring is facing upward toward top of piston, and ring gaps are staggered so they do not line up with oil ring rail gaps. Make sure oil ring expander ends are butted and in line with notch on top of piston. Oil ring rail gaps must be facing middle of engine upon installation.

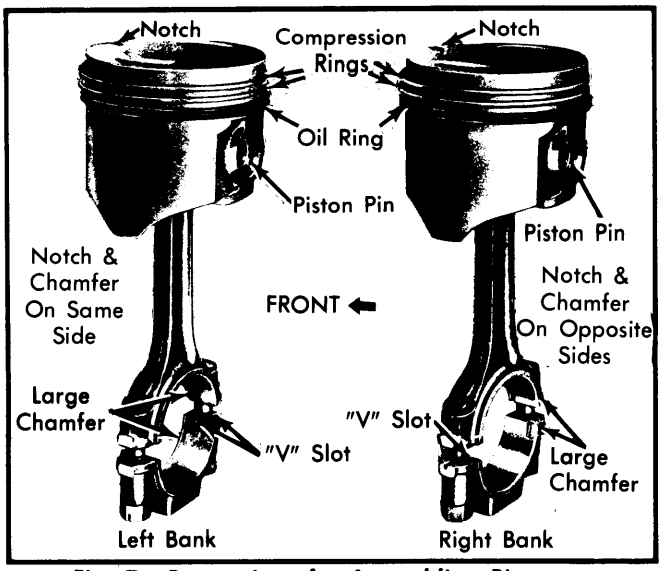

Fig. 7 Precautions for Assembling Piston to Connecting Rod

2) Immerse piston head and rings in clean engine oil and slide suitable ring compressor over piston and tighten.

NOTE – *Do not allow position of rings to change during ring compressor installation and tightening.*

3) Install connecting rod bolt protectors on rod bolts (long one on numbered side of rod). Rotate crankshaft so connecting rod journal is on center of cylinder bore. Insert rod and piston assembly into cylinder bore and guide rod over crankshaft journal, taking care not to nick the journal.

NOTE – *Notch on top of piston must face front of engine and larger chamfer of connecting rod bore must be installed toward crankshaft journal fillet.*

4) Tap piston into cylinder bore using wooden handle of a hammer and guide connecting rod into place on crankshaft journal. Install rod cap and tighten. Repeat procedure for each piston assembly.

FITTING PISTONS

Pistons should be measured 90° to piston pin axis at top of skirt. Measure cylinder bore halfway down the bore 90° to crankshaft center line. Pistons and cylinder bores should be measured at normal room temperature, 70°F.

PISTON PINS

Removal – 1) Use tool C-4158 with pilot C-4200-3 and anvil C-4200-1 for piston pin removal.

2) Install pilot on main screw. See *Fig. 8*. Fit screw through piston pin. Install anvil, with spring removed, over threaded end of main screw. Make sure small end of anvil is against piston boss.

5.2 LITER V8 (Cont.)

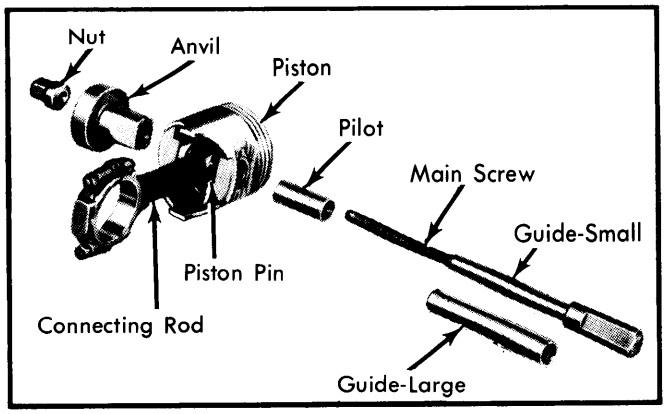

Fig. 8 Piston Pin Removal

3) Install nut loosely on main screw and place assembly on press. Force pin from connecting rod.

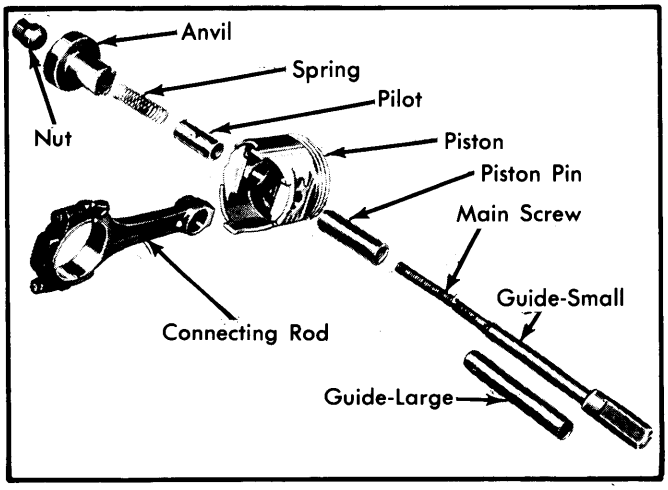

Fig. 9 Piston Pin Installation

Installation – 1) Lubricate piston pin holes and connecting rod and with same tools used for removal, install spring in pilot and pilot into anvil. Install piston over main screw.

2) Place piston (with front up) and connecting rod over pilot so pilot extends through piston pin holes. Assemble rods to pistons of the right cylinder bank (2,4,6 and 8) with indent on piston head opposite to larger chamfer on large bore end of connecting rod. Assemble rods to pistons of the left cylinder bank (1,3,5 & 7) with indent on piston head on the same side as the large chamfer on the large bore end of connecting rod. See *Fig. 7*.

3) Install main screw and piston pin in piston and install nut on main screw to hold assembly together. Place assembly in a vise. Press piston pin in until piston pin bottoms on the pilot.

Checking Pin Fit – Assemble suitable tool in same manner as for piston pin removal and place assembly in a vise. Attach a torque wrench to nut and test torque to 15 ft. lbs. (20 N·m). If connecting rod moves downward on piston pin, reject connecting rod and piston pin combination. Install a new connecting rod and recheck. If connecting rod does not move under 15 ft. lbs. (20 N·m) torque, piston pin fit is satisfactory.

CRANKSHAFT & ROD BEARINGS

NOTE – *Use either shim stock method or Plastigage method to check bearing clearance.*

MAIN & CONNECTING ROD BEARINGS

NOTE – *Following procedures are with oil pan and oil pump removed.*

Connecting Rod Bearings – 1) After ensuring rod caps are marked for identification, remove rod caps. If Shim Stock method is used, smooth edges of a piece of .500" (12.7 mm) x .750" (19.05 mm) x .001" (.02 mm) brass shim stock. Oil shim and place between bearing and connecting rod journal. Install bearing cap and tighten.

2) Rotate crankshaft ¼ turn in each direction. If slight drag is felt, clearance is within limits. If no drag is felt, clearance is excessive. If crankshaft cannot be rotated, clearance is not enough.

3) Using Plastigage method, insert a .001-.003" (.02-.07 mm) green piece of Plastigage between bearing and connecting rod journal. Install bearing cap and tighten to correct specification.

4) Remove bearing cap and compare width of Plastigage with scale on package. If Plastigage width is within specifications, fit with correct undersized bearing.

5) New bearings are available in standard, .001" (.02 mm), .002" (.05 mm), .003" (.07 mm), .010" (.25 mm) and .012" (.30 mm) undersize. Always install bearings in pairs. Do not use a new bearing with an old bearing. Install connecting rod. Install rod caps and tighten nuts.

NOTE – *When assembled to pistons correctly, rods are not interchangeable from bank to bank. Fit all rods on one bank until completed, before continuing to next bank.*

Main Bearings – 1) Using either Shim Stock method or Plastigage method, check main bearing clearances one at a time while all other main bearing caps are tight. New bearings are available in standard, .001" (.02 mm), .002" (.05 mm), .003" (.07 mm), .010" (.25 mm) and .012" (.30 mm) undersize. A new .001" (.02 mm) bearing half may be used in combination with a new standard bearing half or a .002" (.05 mm) with a .001" (.02 mm) bearing.

NOTE – *Always use smaller diameter bearing half as upper bearing. Bearing caps are not interchangeable and should be marked to insure proper installation.*

2) If bearing clearances are not within limits, remove bearing cap, insert suitable tool (C-3509) in oil hole journal and rotate crankshaft clockwise to remove upper bearing half. To install new upper bearing, slightly chamfer sharp edges from plain side and start bearing in place.

3) Install tool and slowly rotate crankshaft counterclockwise, sliding bearing into place. Remove tool, install main bearing cap with new bearing installed and tighten.

NOTE – *Upper main bearings are grooved and lower are plain, and are not interchangeable. Fit only one bearing at a time, while all other bearing caps are properly tightened.*

5.2 LITER V8 (Cont.)

4) Check crankshaft end play and if it is not within the correct specifications, change number three main bearing. This bearing carries thrust load. Recheck crankshaft end play.

REAR MAIN BEARING OIL SEAL

Removal — With oil pan and oil pump removed, remove rear bearing cap. Remove lower seal by carefully prying from the side with small screwdriver. Remove upper seal by turning extractor tool (C-4148) screw end into end of seal. Pull on extractor tool to remove seal. Use care not to mar crankshaft.

Installation – 1) Split type rubber seals may be replaced without removing the crankshaft and must be installed as a pair.

2) Insert cap seals into slots in bearing cap. Seal with yellow paint goes into right side (bearing cap in engine position). Install seals with narrow sealing edge up. Be certain that edge of cap seals line up exactly with shoulder in bearing cap or leakage will occur.

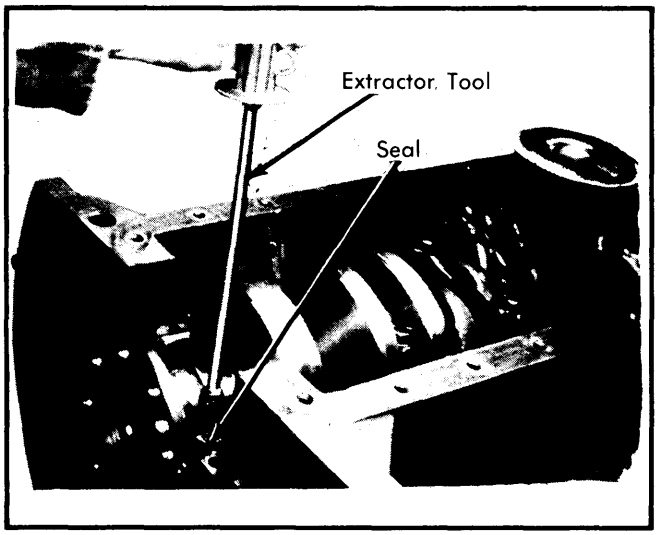

Fig. 10 Removing Upper Rear Main Oil Seal

3) Install seal edge toward inside of shoulder. Pull outward on small end of seal until edge lines up with shoulder. Lightly oil lips of crankshaft seals. Rotate half seal into cylinder block with paint stripe toward rear.

CAUTION – *Sharp edge of groove in block may shave or nick back of seal. Use care not to damage sealing lip.*

4) Place the other half seal in bearing cap with paint stripe toward rear. Assemble bearing cap to cylinder block and tighten.

CAMSHAFT

ENGINE FRONT COVER

Removal – 1) Drain cooling system and remove water pump assembly and power steering pump. Remove vibration damper bolt and using suitable tool (C-3688), pull damper assembly from end of crankshaft.

2) Remove fuel lines and fuel pump, loosen oil pan bolts, and remove front bolt at each side. Remove cover bolts and front cover.

NOTE – *Use extreme caution to avoid damaging oil pan gasket.*

Installation – Check that mating surfaces of engine front cover and cylinder block are clean and free from burrs. Install cover and new gasket. Apply 1/8" bead of suitable sealer on oil pan gasket. Tighten bolts. Tighten oil pan bolts and install fuel pump, lines and power steering pump. Install vibration damper and water pump assembly. Fill cooling system.

FRONT COVER OIL SEAL

NOTE – *Engine uses an externally mounted oil seal.*

Removal – Remove belts, radiator shroud, pulley and vibration damper. Use suitable tool to pry out old seal. Be careful not to damage crankshaft seal surface or cover.

Installation – 1) Insert threaded shaft (part of tool C-4251) into threads of crankshaft. Place seal with spring toward inside of engine. Place installation adaptor with thrust bearing and nut on shaft.

2) Tighten nut until tool is flush with cover. Reinstall vibration damper, pulley, radiator shroud, and belts. Torque as necessary.

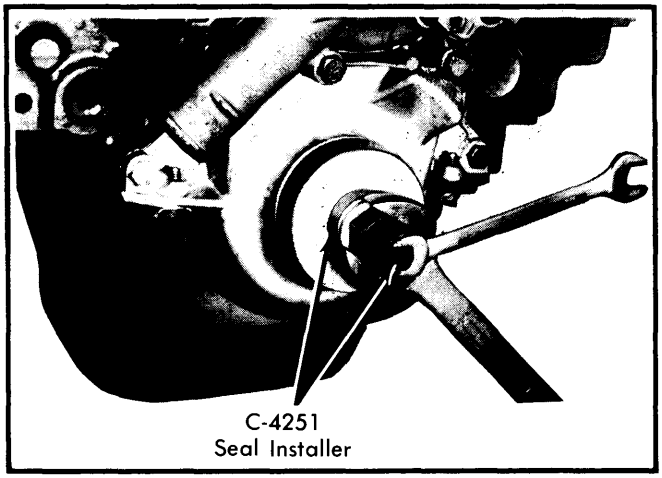

Fig. 11 Using Tool C-4251 to Install Front Cover Oil Seal

TIMING CHAIN

Removal – With front cover removed, remove camshaft sprocket attaching bolt, washer and fuel pump eccentric. Remove timing chain with crankshaft and camshaft sprockets.

Installation – When installing timing chain, use a suitable tool (C-3509) to prevent camshaft from contacting welch plug in rear of engine block. Remove distributor and oil pump-distributor drive gear. Locate tool against rear side of cam gear and attach tool with distributor retainer plate bolt. Then proceed as follows:

1) Place camshaft and crankshaft sprockets on bench with timing marks on imaginary centerline through bore of both

5.2 LITER V8 (Cont.)

sprockets. Place timing chain around both sprockets. Turn crankshaft and camshaft to line up with keyway location in crankshaft sprocket and camshaft sprocket.

2) Slide both sprockets evenly over their respective shafts (with new chain installed on sprockets). Use a straightedge to measure alignment of timing marks. Install fuel pump eccentric, washer and camshaft sprocket bolt and tighten.

Chain Stretch Test – 1) Place measuring scale next to chain. Place a torque wrench and socket over camshaft sprocket bolt and tighten to take up slack. Apply 30 ft. lb. (41 N·m) torque in direction of rotation with cylinder heads installed, or 15 ft. lbs. (20 N·m) with heads removed. Note amount of chain movement. If more than .125" (3.17 mm) movement, replace timing chain.

2) Hold scale next to chain link and apply torque in reverse direction 30 ft. lbs. (41 N·m) with heads installed, 15 ft. lbs. (20 N·m) with heads removed. Note amount of chain movement. If more than .125" (3.17 mm) movement, replace timing chain.

CAMSHAFT

NOTE – *Whenever a new camshaft is installed, inspect and check, with a straightedge, all lifter faces for "dishing" wear. Replace any lifters with a negative crown.*

Removal – With engine removed from vehicle, remove rocker arm assemblies, push rods and lifters, timing chain and sprockets, distributor with drive shaft, and thrust plate. Note location of oil tab. Install long bolt in front of camshaft to facilitate removal. Carefully remove camshaft to avoid damage to cam bearings.

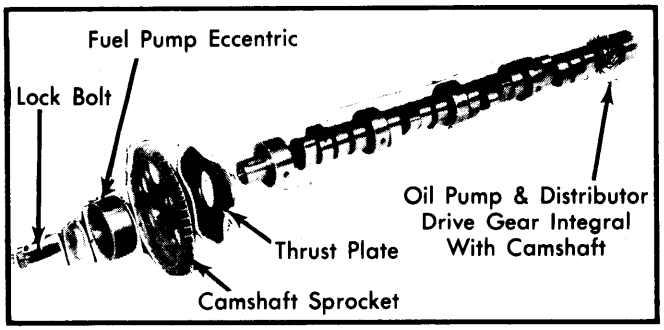

Fig. 12 Camshaft and Related Components

Installation — Lubricate camshaft lobes and bearing journals. Insert camshaft within 2" (50.8 mm) of final position in cylinder block. Install camshaft holding tool (C-3509) in distributor drive hole and hold in position using distributor retainer plate bolt. Install camshaft to proper position.

NOTE – *Tool will prevent camshaft from being pushed in too far and knocking out camshaft rear plug. Leave tool installed until sprockets and chain are secured.*

CAMSHAFT BEARINGS

Removal – Drive out welch plug at rear of block. With suitable driver-installer tool (C-3132A), use proper adapter on tool and drive out old bearings.

Installation – Using correct size adapter on tool, slide new rear bearing over adapter and carefully drive bearing into place. Install remaining bearings in same manner. Oil holes in new bearings must be aligned with oil passages from main bearings. Bearing oil hole index may be checked by inserting a pencil flashlight in the bearing. If oil holes are not in exact alignment, remove bearing and reinstall correctly. Install new welch plug at rear of cylinder block.

CAMSHAFT END THRUST

End thrust is taken up by thrust plate behind camshaft sprocket. End play is .002-.006" (.05.-.15 mm) with new thrust plate and up to .010" (.25 mm) with used thrust plate. If not within specifications, replace thrust plate.

VALVE TIMING

1) Turn crankshaft clockwise until No. 6 exhaust valve is closed and No. 6 intake valve is opening. Insert a .250" (6.35 mm) spacer between rocker arm pad and valve stem of No. 1 intake valve. Spring load will bleed lifter down to effect a solid lifter lash.

2) Install dial indicator so plunger contacts valve spring retainer in a perpendicular position. Zero indicator. Turn crankshaft clockwise until valve has lifted .010" (.25 mm).

CAUTION – *Do not turn crankshaft any further. Valve spring may bottom and result in damage to rocker arm or push rod.*

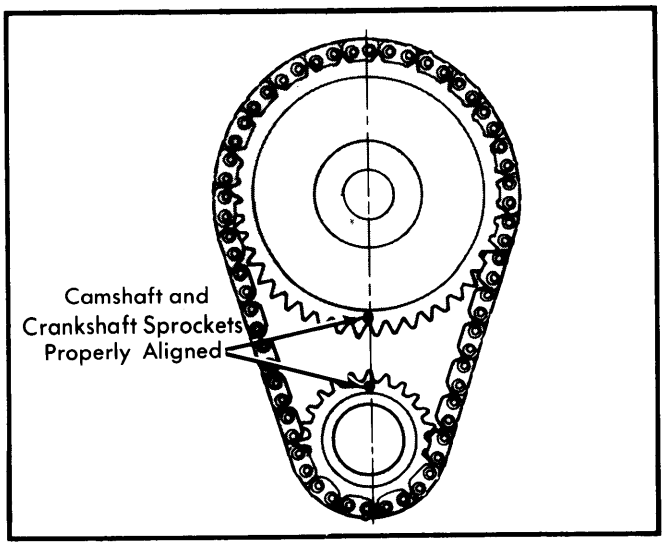

Fig 13 Camshaft and Crankshaft Timing Chain Sprocket Alignment

3) Timing mark on crankshaft pulley should read from 10° BTDC to 2° ATDC. If reading is not correct, check sprocket index marks, inspect timing chain for wear and check accuracy of TDC mark on timing indicator.

ENGINE OILING

Crankcase Capacity – 4 qts. Add 1 qt. with filter change.

Normal Oil Pressure – 30-80 psi (2.1-5.6 kg/cm²) @2000 RPM.

Oil Filter – Change at first oil change and every second oil change after that.

Pressure Regulator Valve – In oil pump. Not adjustable.

5.2 LITER V8 (Cont.)

OIL PUMP

Removal — With oil pan removed, loosen retaining bolts and remove bolts and pump from main bearing cap.

Disassembly — 1) Remove cotter pin from pump housing. Drill a .125" (3.17 mm) hole into the relief valve retainer cap. Insert a sheet metal crew into the cap.

2) While holding pump, clamp the screw into a vise. Using a soft hammer, tap on pump body until retainer cap is pulled from pump body. Remove relief valve and spring from pump body.

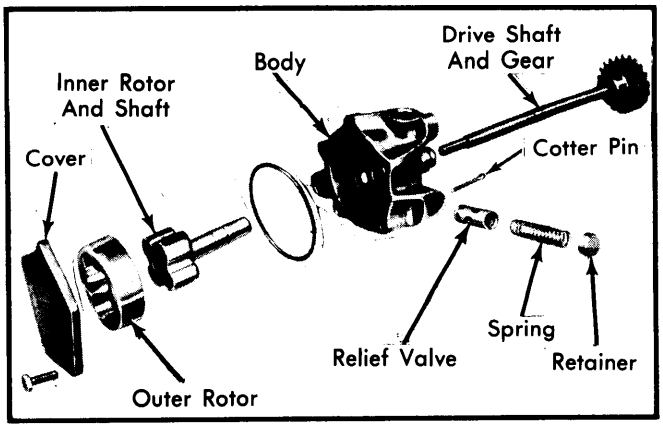

Fig. 14 Exploded View of Oil Pump

3) Remove pump cover retaining bolts and cover. Remover the inner rotor, shaft and outer rotor. Wash all parts in solvent and inspect for wear or damage.

Inspection — If mating surface of pump cover is scratched or grooved, replace pump. Measure pump-to-cover wear, inner and outer rotor thickness, outer rotor clearance in housing, clearance between rotors and clearance over rotors.

Reassembly — Reverse disassembly procedure to complete reassembly.

Installation — Prime the pump by filling rotor cavity with oil while rotating pump shaft. Place pump on engine and install retaining bolts and tighten.

Oil Pump Specifications

Application	Measurement In. (mm)
Oil Pump Cover Wear	.0015 (.003)
Outer Rotor Thickness	.825 (20.95)
Outer Rotor Diameter	2.469 (62.71)
Inner Rotor Thickness	.825 (20.95)
Clearance Over Outer Rotor	.004 (.10)
Clearance Over Inner Rotor	.004 (.10)
Outer Rotor Clearance	.014 (.35)
Tip Clearance Between Rotors	.010 (.25)

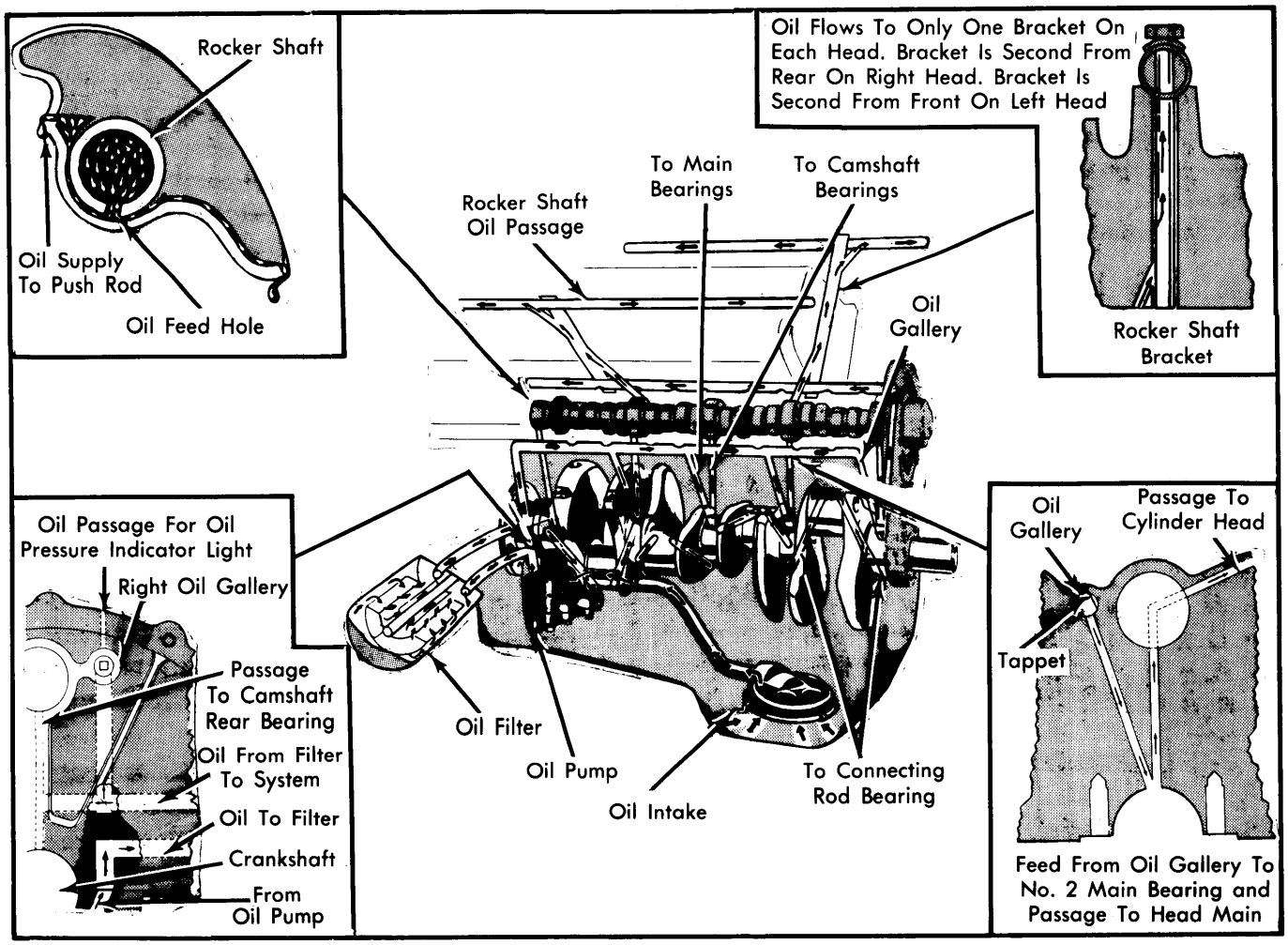

Fig. 15 Engine Oiling System

5.2 LITER V8 (Cont.)

PRESSURE RELIEF VALVE SPRING

Spring has free length of 2.031-2.047" (51.58-51.99 mm). Spring should test 16.2-17.2 lbs. (7.3-7.8 kg) when compressed to 1.344" (34.13 mm).

ENGINE COOLING

WATER PUMP

Removal — 1) Drain cooling system. Disconnect negative battery terminal. Disconnect upper radiator hose at radiator and secure out of the way. Remove alternator and power steering belts.

2) Remove fan, fan assembly, water pump pulley and fan shroud. Disconnect alternator and mounting bracket and move aside to clear water pump. Disconnect power steering pump and bracket and move aside to clear water pump. Disconnect air conditioning compressor and bracket (if equipped) and move aside.

3) Disconnect lower radiator and by-pass hoses at the water pump. Remove retaining bolts and remove water pump.

Installation — Clean all mating surfaces. 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 Section.

ENGINE SPECIFICATIONS

GENERAL SPECIFICATIONS

Engine	HP at RPM	Torque (Ft. Lbs. at RPM)	Compr. Ratio	Bore		Stroke		Displ.	
				in.	mm	in.	mm	cu. ins.	cc
5.2L(318")2-Bbl.	130@4000	230@4000	8.5:1	3.91	99.3	3.31	8.4	318	5211
5.2L(318")4-Bbl.	165@4000	240@4000	8.5:1	3.91	99.3	3.31	8.4	318	5211
5.2L(318")E.F.I.	140@4000	240@4000	8.5:1	3.91	99.3	3.31	8.4	318	5211

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)
5.2L (318")							
Intake	2.78 (45.2)	45°	45°	.065-.085 (1.65-2.15)	.372-.373 (9.44-9.47)	.001-.003 (.02-.07)	.373 (9.47)
Exhaust	1.50 (38.1)	45°	45°	.080-.100 (2.03-2.54)	.371-.372 (9.42-9.44)	.002-.004 (.05-.10)	.400 (10.16)
5.2L (318") E.F.I.							
Intake	1.88 (47.7)	45°	45°	.065-.085 (1.65-2.15)	.372-.373 (9.44-9.47)	.001-.003 (.02-.07)	.373 (9.47)
Exhaust	1.60 (40.6)	45°	45°	.080-.100 (2.03-2.54)	.371-.372 (9.42-9.44)	.002-.004 (.05-.10)	.400 (10.16)

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

Engine	MAIN BEARINGS				CONNECTING ROD BEARINGS		
	Journal Diam. In. (mm)	Clearance ① In. (mm)	Thrust Bearing	Crankshaft End Play In. (mm)	Journal Diam. In. (mm)	Clearance In. (mm)	Side Play ② In. (mm)
5.2L (318")	2.4995-2.5050 (63.487-63.627)	.0005-.0015 (.012-.038)	No. 3	.002-.009 (.05-.22)	2.124-2.125 (53.94-53.97)	.0005-.0025 (.012-.063)	.006-.014 (.15-.35)

① — No. 2, 3, 4 & 5 clearance .005-.0020" (.12-.050 mm). Limit .0025" (.063 mm).

② — Total 2 Rods.

5.2 LITER V8 (Cont.)

ENGINE SPECIFICATIONS (Cont.)

VALVE SPRINGS

Engine	Free Length In. (mm)	PRESSURE Lbs. @ In. (kg @ mm)	
		Valve Closed	Valve Open
5.2L (318")	2.00 (50.8)	77-88@1.687 (35-39@42.8)	170-184@1.313 (77-83@33.3)
5.2L (318") E.F.I.	2.10 (53.3)	108-118@1.656 (48-53@42.0)	186-200@1.250 (84-90@31.7)

VALVE TIMING

Engine	INTAKE		EXHAUST	
	Open (BTDC)	Close (ABDC)	Open (BBDC)	Close (ATDC)
5.2L (318")	10°	50°	52°	16°

PISTONS, PINS, RINGS

Engine	PISTONS	PINS		RINGS		
	Clearance ① In. (mm)	Piston Fit In. (mm)	Rod Fit ② In. (mm)	Rings	End Gap In. (mm)	Side Clearance In. (mm)
5.2L (318")	.0005-.0015 (.001-.003)	.00025-.00075 (.0063-.0190)	.0007-.0024 (.017-.060)	1 & 2	.010-.020 (.25-.50)	.0015-.0040 (.003-.100)
				3	.010-.062 (.25-1.57)	.0002-.0050 (.005-.127)

① — Measured from top of piston skirt.
② — Interference fit.

CAMSHAFT

Engine	Journal Diam. In. (mm)	Clearance In. (mm)	Lobe Lift In. (mm)
5.2L (318")			
No. 1	1.997-1.999 (50.72-50.77)	.001-.003 (.02-.07)	.....
No. 2	1.981-1.983 (50.31-50.36)		.....
No. 3	1.966-1.968 (49.93-49.98)		.....
No. 4	1.950-1.952 (49.53-49.58)		.....
No. 5	1.5595-1.5615 (39.611-39.662)		.....

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N·m)
Camshaft Sprocket	50 (68)
Camshaft Thrust Plate	17 (23)
Cylinder Head Bolts	
Step 1	50 (68)
Step 2	95 (129)
Connecting Rod Cap Nut	45 (61)
Crankshaft Bolt	100 (136)
Exhaust Manifold	①
Flex Plate-to-Converter	23 (31)
Flywheel-to-Crankshaft	55 (75)
Front Cover	35 (48)
Intake Manifold Bolts	
Step 1	40 (54)
Step 2	45 (61)
Main Bearing Cap	85 (116)
Oil Pan Screw	17 (23)
Oil Pump-to-Mount	30 (41)
Rocker Arm Bracket Bolt	17 (23)
Vibration Damper	100 (136)
Water Pump	30 (41)

Application	INCH Lbs. (N·m)
Oil Pump Cover	96 (10.5)
Rocker Arm Cover	36 (3.9)

① — Screw, 20 ft. lbs. (27 N·m); Nut, 15 ft. lbs. (20 N·m).