Audi Engines

4000 4-CYLINDER

ENGINE CODING

ENGINE IDENTIFICATION

Engine number is stamped on a machined pad. It is located on left side of engine, near distributor. Letter prefix indicates engine type.

ENGINE IDENTIFICATION CODE

Engine	Code
1715 cc	WT

ENGINE & CYLINDER HEAD

ENGINE

Removal

1) Disconnect battery ground strap. Remove hose from air duct to auxiliary air regulator. Detach air duct from throttle valve housing and remove from vehicle. Remove cold start valve.

2) Remove fuel distributor, air flow sensor, fuel injectors, and air cleaner as one unit. If possible, leave fuel lines connected to components. Cap or plug nozzles on fuel injectors and cold start valve.

3) If vehicle is not A/C equipped, proceed to Step **6)**. If A/C equipped, remove grille and condenser. Remove front engine stop located between water pump and A/C pulleys.

4) Loosen nuts on outer half of crankshaft pulley and remove drive belt. Discharge refrigerant from A/C system. Remove and plug hoses from compressor. Disconnect wire from compressor clutch.

5) Remove crankcase vent hose from cam cover. Remove bolts attaching upper and lower compressor mounts to engine. Remove compressor and mounts from vehicle.

6) Drain coolant by removing lower radiator hoses. Remove upper radiator hose and heater hoses from engine. Disconnect electrical plugs from radiator fan and radiator thermo switch. Remove radiator, fan and shroud from vehicle as an assembly.

7) Disconnect clutch cable (if equipped). Label and disconnect all vacuum, ventilation and air hoses connected to engine. Label and disconnect all electrical and ignition wiring connected to engine and accesories.

8) Remove control pressure regulator, leaving fuel lines connected. If equipped with cruise control, remove servo and linkage. Remove throttle cable. Remove 3 upper engine-to-transmission bolts. Disconnect exhaust pipe from manifold.

9) Remove cover plate from transmission. If equipped, remove power steering pump after removing drive belt. Lay pump aside with hoses connected. Remove engine stop from lower right front side of engine.

10) Label and disconnect starter cables. Remove starter. Remove right and left engine mount nuts on subframe. On automatic transmission models, remove torque converter bolts through starter hole. Remove bolt from exhaust pipe support.

11) Support transmission with support bar. Position all hoses, linkages and wiring away from engine. Install engine lifting chain. Lift engine until weight is taken off engine mounts. Adjust support bar to bear weight of transmission.

12) Remove remaining engine-to-transmission bolts. Separate engine from transmission. Carefully lift engine from vehicle. Use care not to damage transmission or clutch parts. If equipped with automatic transmission, keep torque converter from falling out.

Installation

1) To install engine, reverse removal procedure while noting the following. Carefully guide engine into vehicle and attach to transmission, while keeping weight off engine mounts.

2) Install and tighten upper transmission-to-engine bolts. Remove transmission support bar and lower engine into position on mounts. Install and tighten remaining transmission-to-engine bolts.

3) Final tightening of engine mounts and subframe bolts is done after engine is installed and running at idle speed. Adjust throttle and clutch cables.

CYLINDER HEAD

Removal

1) Disconnect battery ground strap. Remove hose from air duct to auxiliary air regulator. Detach air duct from throttle valve housing and remove from vehicle. Remove cold start valve.

2) Remove fuel distributor, air flow sensor, fuel injectors, and air cleaner as one unit. If possible, leave fuel lines connected to components. Cap or plug nozzles on fuel injectors and cold start valve.

3) Drain coolant from engine. Disconnect coolant hoses which are attached to cylinder head. Label and disconnect all vacuum, air and ventilation hoses attached to cylinder head and intake manifold.

4) Label and disconnect all electrical and ignition wiring attached to cylinder head and intake manifold. Disconnect wire attached to oxygen sensor in exhaust manifold. Remove all drive belts. Remove alternator bracket from cylinder head. Remove upper timing belt cover. Remove cam cover.

5) Disconnect exhaust pipe from manifold. Disconnect throttle cable. If equipped, remove cruise control servo and linkage. Position No. 1 cylinder on TDC after compression stroke. Loosen timing belt tensioner to relieve tension on timing belt.

6) Remove timing belt sprocket from camshaft with timing belt attached. Do not allow timing belt to separate from camshaft sprocket. Loosen head bolts in reverse order of tightening sequence and remove cylinder head with manifolds attached. *See Fig. 1.*

CAUTION: If head bolt(s) require replacement, install new polygon head bolts in complete sets only. Retightening of polygon head bolts at 1000 mile service following repair is NOT recommended by manufacturer.

Installation

1) Clean all gasket mating surfaces. Install cylinder head gasket DRY, using no sealant. Install cylinder head and manifolds. Install head bolts 8 and 10 to align cylinder head, then install remaining head bolts. *See Fig. 1.*

2) Tighten head bolts in 3 steps, turning bolts an additional 1/4 turn after final tightening. *See Fig. 1.* Install remaining components in reverse order of removal. Ensure valve timing is correct. Adjust timing belt tension and adjust valves.

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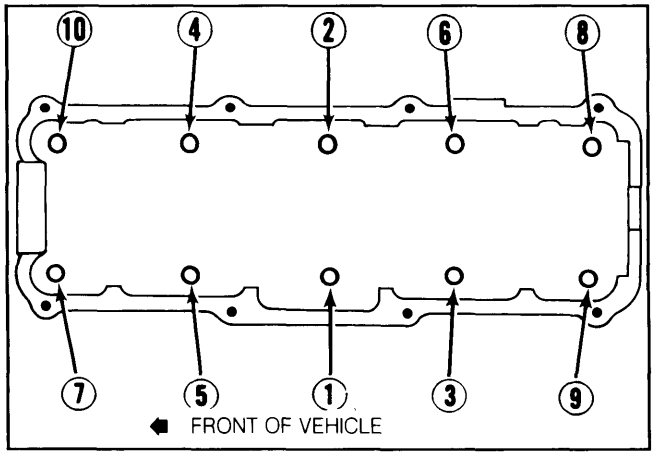
Fig. 1: Cylinder Head Tightening Sequence



Install bolts 8 and 10 to align cylinder head, then install remaining bolts.

CAMSHAFT

TIMING BELT COVER

Removal & Installation

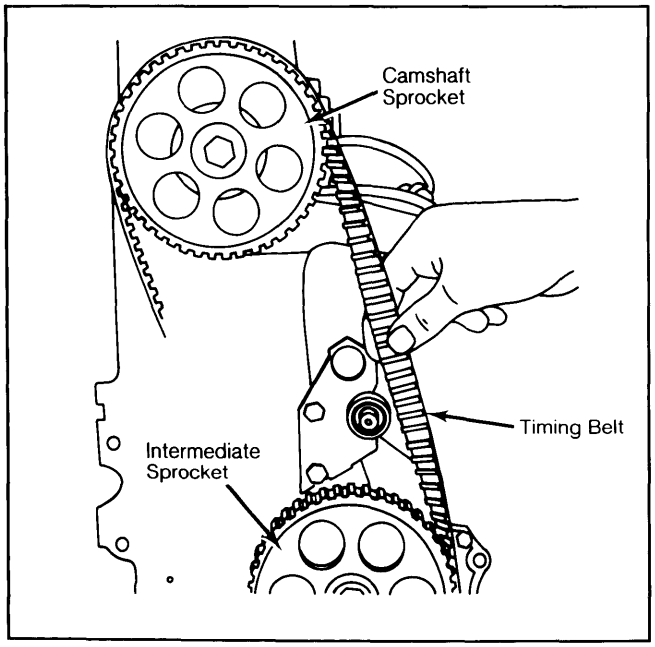
Upper and lower timing belt covers, along with a rear timing belt cover are used. Remove all drive belts. Remove crankshaft and water pump pulleys. Remove timing belt covers. Install in reverse order of removal.

TIMING BELT & SPROCKET

Removal

1) Remove all drive belts. Remove upper and lower timing belt covers. Remove cam cover from cylinder head. Turn crankshaft to position No. 1 piston on TDC at end of compression stroke.

Fig. 2: Adjusting Timing Belt Tension



Tension is correct when belt can be twisted 90° with thumb and finger pressure.

2) Loosen timing belt tensioner to relieve tension on timing belt. Slide timing belt off sprockets. Do not allow camshaft, crankshaft or intermediate sprockets to turn when removing timing belt.

Installation

1) Install new belt onto sprockets. Adjust timing belt tension by turning tensioner clockwise against belt, then tighten.

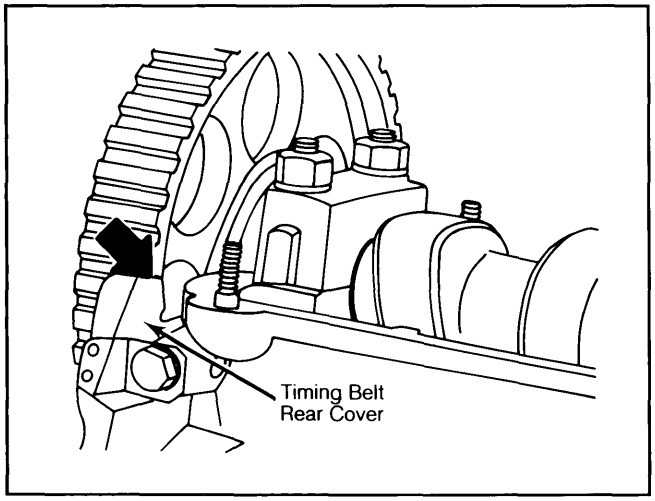
2) Belt has correct tension when it can be twisted 90° with thumb and finger pressure, at a point midway between camshaft sprocket and intermediate sprocket. *See Fig. 2.* Ensure valve timing is correct prior to installing remaining components.

VALVE TIMING

1) Turn crankshaft to position No. 1 piston on TDC at end of compression stroke. Zero mark (TDC) on flywheel should align with timing pointer. Turn distributor rotor to point to notch on distributor housing (No. 1 cylinder).

2) Turn camshaft sprocket until mark on camshaft sprocket is aligned with upper edge of timing belt rear cover. *See Fig. 3.* Install timing belt and adjust tension. Recheck valve timing.

Fig. 3: Aligning Camshaft Sprocket



Align mark on camshaft sprocket (arrow) with upper edge of timing belt rear cover.

CAMSHAFT

Removal

1) If necessary, remove drive belts. Remove upper timing belt cover. Remove cam cover from cylinder head. Turn crankshaft to position No. 1 piston on TDC at end of compression stroke.

2) Loosen timing belt tensioner to relieve tension on timing belt. Remove camshaft sprocket with timing belt attached. Do not allow timing belt to separate from sprocket.

3) If necessary, mark positions of camshaft bearing caps. Remove bearing caps 1, 3 and 5. In a diagonal pattern, loosen bearing caps 2 and 4 in progressive steps. Remove bearing caps and lift out camshaft.

Installation

1) Prior to installing camshaft, lubricate camshaft journals and bearing surfaces in cylinder head and

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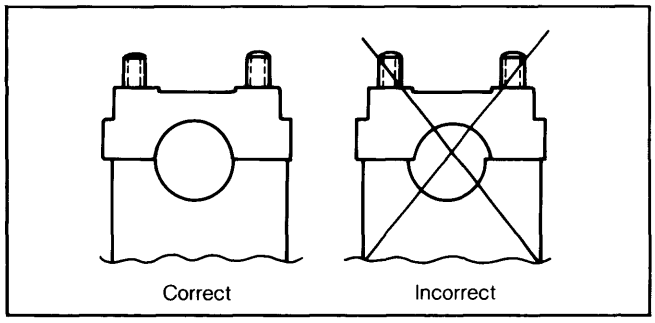
caps. Install camshaft. Install caps 2 and 4. Lightly tighten bearing caps in a diagonal pattern. Ensure caps are not misaligned. *See Fig. 4.*

2) Install bearing caps 1, 3 and 5. Ensure caps are not misaligned. Tighten all bearing caps. Install remaining components in reverse order of removal.

Fig. 4: Checking Bearing Cap Alignment



Tighten camshaft bearing caps to 14 ft. lbs. (20 N.m).

CAMSHAFT OIL SEAL

Removal

1) Remove upper timing belt cover. Position No. 1 piston on TDC at end of compression stroke. Loosen tensioner pulley to relieve tension on timing belt.

2) Remove camshaft sprocket with timing belt attached. Do not allow timing belt to separate from sprocket. Remove Woodruff key. Using seal remover tool (10-221), remove oil seal.

Installation

1) Install protective sleeve of seal installing tool (10-203) over camshaft. Coat seal lips with oil. Push seal over sleeve and into position.

2) Using seal installing tool (10-203), press seal into recess until flush. Install remaining components in reverse order of removal. Check that valve timing is correct.

CAMSHAFT END THRUST

1) Check camshaft end thrust with cam followers removed. Attach dial indicator to cylinder head. Position indicator point on end of camshaft (or sprocket). Push camshaft rearward and zero dial indicator.

2) Push camshaft forward to record maximum movement. If end thrust exceeds .006" (.15 mm), check camshaft thrust flange and bearing cap for wear. Replace worn components.

INTERMEDIATE SHAFT

1) Use a dial indicator to measure intermediate shaft end play. Maximum end play is .010" (.25 mm). Make sure to remove distributor prior to removing intermediate shaft.

2) If oil seal replacement is necessary, remove oil seal flange and press out seal. Lubricate new seal lips with oil. Install oil seal flange onto engine, and use seal installation tool (10-203) to press seal into place.

VALVES

CAUTION: Never rework exhaust valves on a valve grinding machine. Lap exhaust valves by hand only.

NOTE: New design intake and exhaust valves with 3 keeper grooves and chamfered spring retainers have been introduced by manufacturer. Old and new design valves may be installed in same engine, but keepers and spring retainers are not interchangeable.

NOTE: Valves are available with stems shortened by .02" (.5 mm). Use these valves if seats are cut too much during cylinder head servicing.

VALVE ARRANGEMENT

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

VALVE GUIDE SERVICING

Inspection

1) Clean valve guides. Attach dial indicator and adapting fixture (VW 387 or US 4420A) to mounting surface of cylinder head. Insert a new valve into valve guide. Valve tip must be flush with bottom of valve guide.

2) Rock valve back and forth against dial indicator point to measure amount of stem-to-guide clearance. Maximum clearance is .039" (1.0 mm) for intake valves and .051" (1.3 mm) for exhaust valves.

Removal

Use arbor press and valve guide remover/installer tool (10-206) to remove and install valve guides. Press guides out from combustion chamber side of head.

Installation

Coat new guide with oil. Press into cold cylinder head from camshaft side of head. Do not use more than 1 ton of pressure or guide shoulder may break. Ream guide by hand to proper size.

VALVE STEM OIL SEALS

NOTE: Valve stem oil seals may be replaced with cylinder head installed on vehicle.

CAUTION: Installing valve stem oil seal without using plastic protective sleeve of seal installing tool (10-204), may result in seal damage.

Removal

1) Remove camshaft, valve adjusting disc and cam follower. Remove spark plug of cylinder to be serviced. Place piston of cylinder to be serviced at bottom of its stroke.

2) Install air hose and adapter (VW 653/3) in spark plug hole and apply air pressure. Do not remove air pressure until valve spring components are reassembled.

3) Using valve spring compressor (VW 541), compress valve spring and remove keepers, retainer and springs. Lift seal off valve stem.

Installation

Slide plastic protective sleeve onto valve stem. Lubricate new seal and push into place with seal installing tool (10-204). Install remaining components in reverse order of removal.

VALVE SPRINGS

Valve springs may be replaced with cylinder head installed on vehicle. To replace valve springs, use removal and installation procedure explained in "Valve Stem Oil Seals" above.

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CAM FOLLOWERS

When removing cam followers, keep them in order for later installation in their original locations. Remove camshaft and adjusting discs to gain access to cam followers. Remove cam followers and inspect for wear and damage. Replace as necessary. Lightly oil cam followers prior to installing.

VALVE CLEARANCE ADJUSTMENT

NOTE: Cold valve clearances are given for initial settings, after engine work has been performed. Recheck valve clearance and make final adjustment with engine warm (coolant temperature about 95°F, 35°C).

Measuring Valve Clearance

1) Remove accelerator linkage, upper timing belt cover and cam cover. Turn crankshaft clockwise until cam lobes of cylinder to be adjusted point upward.

CAUTION: Never use camshaft sprocket attaching bolt to turn camshaft, as this may stretch timing belt.

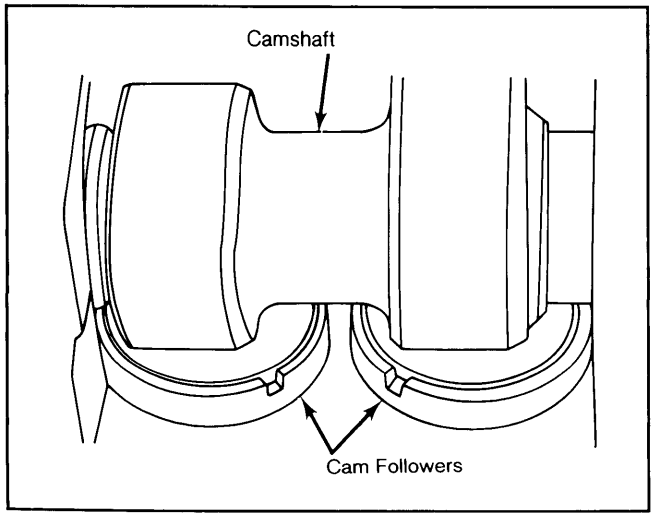
2) Using a feeler gauge, measure valve clearances of each cylinder in firing order sequence of 1-3-4-2. If clearance is not as specified in "Valve Clearance Specifications", adjustment is necessary.

VALVE CLEARANCE SPECIFICATIONS

Application	In. (mm)
Intake	
Hot	.008-.012 (.20-.30)
Cold	.006-.010 (.15-.25)
Exhaust	
Hot	.016-.020 (.40-.51)
Cold	.014-.018 (.36-.46)

NOTE: When cylinder head service has been performed, valve clearance must be checked and adjusted after 1000 miles.

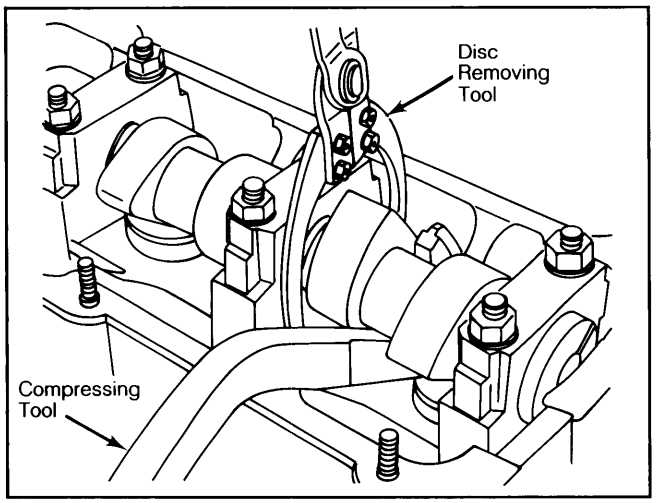
Fig. 5: Positioning Cam Followers For Adjusting Disc Replacement



Adjusting Valve Clearance

1) To remove adjusting disc, cam follower must be depressed using compressing tool (VW 546). Turn cam followers so that grooves are accessible for compressing tool. *See Fig. 5.* Using compressing tool, depress cam follower. Use disc remover tool (10-208 or US 4476) to remove adjusting disc. *See Fig. 6.*

Fig. 6: Compressing Cam Follower For Adjusting Disc Replacement



When installing adjusting discs, ensure thickness marking is positioned downward.

2) Thickness of adjusting disc is stamped on bottom of disc. If measured valve clearance is larger than specifications, use a thicker disc. If clearance is less than specification, use a thinner disc. Adjust clearance to middle of tolerance range.

3) Adjusting discs are available in .002" (.05 mm) increments from .118" (3.0 mm) to .167" (4.25 mm).

4) To install discs, depress cam followers and slip discs into place. Ensure side of disc with thickness marking is installed down, facing cam follower. Repeat procedure until all valves are properly adjusted.

PISTONS, PINS & RINGS

OIL PAN

Removal

Drain engine oil. Attach a lifting device or support bar to engine. Raise engine slightly to support engine weight. Remove cover plate under engine. Remove 4 subframe bolts and lower sub frame out of way. Remove oil pan.

Installation

Using a new gasket, install oil pan. Do not use adhesive on gasket. Install oil pan bolts and tighten in a crisscross pattern. Install sub frame and cover plate. Remove support device from engine.

PISTON & ROD ASSEMBLY

NOTE: All connecting rods must be in same weight class. Connecting rods with same weight class are available only in sets of 4.

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Removal

1) Remove cylinder head, oil pan and oil pump. Place piston to be removed at bottom of cylinder and cover with a cloth to collect metal cuttings. Using a ridge reamer, remove any ridge or deposit from upper end of cylinder bore.

2) Before removing piston and rod from engine, ensure rod and rod cap are marked for cylinder identification. Remove rod cap and carefully push piston and rod out top of cylinder. Install rod cap on rod from which removed.

Installation

1) Coat cylinder bore, piston and rings with engine oil. Ensure ring gaps are properly spaced. Install ring compressor on piston, making sure position of rings does not change.

2) Install piston and rod in its respective bore, with arrow on piston head facing toward front of engine. Forged casting beads on rod and cap must also face toward front of engine.

FITTING PISTONS

1) Take cylinder measurements 90° to crankshaft centerline and in line with crankshaft centerline as follows: 3/8" from top of bore, at middle of bore and 3/8" from bottom of bore. Difference between the corresponding measurements is out-of-round, and must not exceed .0016" (.040 mm).

2) Measure piston diameter 90° to piston pin bore, approximately 9/16" from bottom of piston skirt. Compare this measurement with measurement of corresponding cylinder bore. Maximum allowable piston-to-cylinder clearance is .0012" (.030 mm) for a new piston, and .0028" (.070 mm) for a used piston.

3) Install oversize pistons if piston-to-cylinder clearance is excessive. Three sizes of oversize replacement pistons are available. A 4-digit number is marked on piston, denoting piston diameter.

FITTING RINGS

1) Place piston rings squarely into cylinder bore about 5/8" from bottom of bore. Use a feeler gauge to measure ring end gap.

2) With rings installed on piston, use a feeler gauge to measure ring side clearance. Take measurement around entire circumference of piston, between top of ring and ring land.

3) Install rings on piston with "TOP" mark facing upward. Recessed edge on outside of center ring must face piston pin. Space ring end gaps 120° apart.

PISTON PIN REPLACEMENT

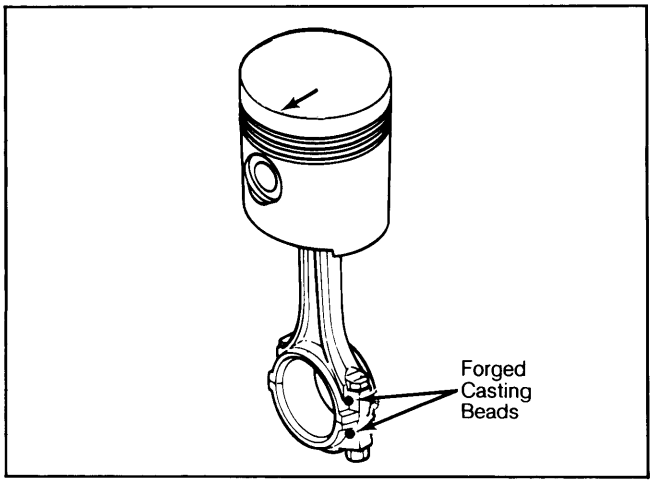
Removal

Remove circlip from pin bore groove. Use piston pin tool (VW 207c) to remove and install piston pins. If pins are too tight it may be necessary to warm pistons to about 140° F (60° C).

Installation

Assemble connecting rod to piston. Arrow on piston head and forged casting beads on connecting rod must face toward front of engine when assembly is installed. *See Fig. 7.* Use piston pin tool (VW 207c) to install piston pin. Install circlip into pin bore groove.

Fig. 7: Piston-To-Connecting Rod Relationship



Casting beads on rod and cap and arrow on piston head must face toward front of engine when installed.

CRANKSHAFT MAIN & CONNECTING ROD BEARINGS

CRANKSHAFT MAIN BEARINGS

1) Main bearing caps are numbered 1 through 5 (front to rear). Never interchange bearing caps. Always measure main bearing clearances 1 at a time.

2) Use Plastigage method for measuring bearing clearances. Ensure oil film is removed from bearing halves and crankshaft journal prior to measuring clearance.

3) With Plastigage in place, install bearing cap and tighten to specification. Do not allow crankshaft to turn. Remove bearing cap. Measure flattened width of Plastigage with scale furnished to determine clearance.

4) When replacing bearings, install grooved bearing halves into cylinder block. Plain bearing halves are installed in main caps. Lubricate crankshaft journal and bearings prior to installing bearings.

CONNECTING ROD BEARINGS

1) Always measure connecting rod bearing clearances 1 at a time. Use Plastigage method for measuring bearing clearances. Ensure oil film is removed from bearing halves and crankshaft journal prior to measuring clearance.

2) With Plastigage in place, install bearing cap and tighten to specification. Do not allow crankshaft to turn. Remove bearing cap. Measure flattened width of Plastigage with scale furnished to determine clearance.

3) Use a feeler gauge to check connecting rod side clearance. Insert feeler gauge between connecting rod and crankshaft thrust face.

CRANKSHAFT END THRUST

Use a feeler gauge to check crankshaft end play. Insert feeler gauge between No. 3 main bearing (thrust bearing) and crankshaft thrust face.

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REAR MAIN BEARING OIL SEAL

Removal

Remove transmission and flywheel. Carefully pry oil seal from seal flange.

Installation

Coat new seal lips with oil. Position seal in place. Place centering tool (2003/2A) on crankshaft and start seal into place. Using seal installing tool (2003/1), press in seal until seated. Install remaining components. Use Loctite on flywheel bolts.

FRONT MAIN BEARING OIL SEAL

Removal

1) Remove all drive belts. Remove upper timing belt cover. Set No. 1 piston on TDC after compression stroke. Remove crankshaft pulley. Loosen crankshaft sprocket bolt. Remove water pump pulley.

2) Remove lower timing belt cover. Relieve tension on timing belt. Remove crankshaft sprocket with timing belt attached. Do not allow sprocket and timing belt to separate. Using seal removing tool (10-221), carefully pry oil seal from flanged cover.

Installation

Coat new seal lips with oil. Using installation tool (10-203), press new seal into place. Press in seal to a depth of 5/64" below outer edge of cover. Install remaining components. Coat crankshaft timing belt sprocket attaching bolt with Loctite before installing. Ensure valve timing is correct.

ENGINE OILING

CRANKCASE CAPACITY

Capacity is 2.6 quarts (2.5L) without filter replacement; 3.2 quarts (3.0L) with filter replacement.

NORMAL OIL PRESSURE

Minimum oil pressure is 29 psi (2.0 kg/cm²) at 2000 RPM, with oil temperature of 176° F (80° C).

ENGINE OILING SYSTEM

Oiling system is a pressure feed system. A gear-type oil pump lifts oil from oil pan and pressure feeds it to crankshaft journals, camshaft bearings and intermediate shaft. Other parts of system receive oil lubrication by drainage or splash method.

OIL PUMP

Removal & Disassembly

Remove oil pan. Remove oil pump attaching bolts and lower pump away from engine. Remove pump cover bolts and separate cover from pump body.

Inspection

1) With oil pump gears installed in pump housing, insert feeler gauge between drive gear and driven gear teeth (where teeth mesh). Allowable clearance is .002-.008" (.05-.20 mm).

2) Lay a straightedge over pump housing. Insert feeler gauge between pump gears and straightedge. End clearance must not exceed .006" (.15 mm).

Reassembly & Installation

Assemble pump in reverse order of disassembly. Prime oil pump prior to installing. Install pump in reverse order of removal procedures.

ENGINE COOLING

THERMOSTAT

Thermostat begins opening at 194°F (90°C), and is fully open at 216°F (102°C). When installing thermostat, make sure arrow on thermostat housing points towards fender.

COOLANT CAPACITY

Capacity is 7.4 quarts (7.0L).

EXPANSION TANK CAP

Pressure relief valve opens at 17-23 psi (1.2-1.6 kg/cm²).

WATER PUMP

Removal & Disassembly

Drain coolant and remove alternator. Remove coolant hoses to pump housing. Remove pump housing attaching bolts from engine. Remove pump assembly. Remove attaching bolts and separate water pump from pump housing.

Reassembly & Installation

To reassemble, reverse disassembly procedure. Use new gasket between pump and housing. When installing pump assembly, use new seal between pump housing and engine.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Camshaft Bearing Caps	14 (20)
Camshaft Sprocket	58 (80)
Connecting Rod Caps	33 (45)
Crankshaft Pulley	14 (20)
Crankshaft Sprocket	58 (80)
Cylinder Head Bolts (Engine Cold)	
Step 1	29 (40)
Step 2	43 (60)
Step 3	[1] 54 (75)
Engine-to-Transmission Bolts	40 (55)
Flywheel	54 (75)
Intake Manifold	18 (25)
Intermediate Shaft Sprocket	58 (80)
Main Bearing Caps	47 (65)
Timing Belt Tensioner Nut	33 (45)

[1] — After tightening to 54 ft. lbs. (75 N.m), turn bolt an additional 1/4 turn.

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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	105	1715	Fuel Inj.	74@5000	94@3000	8.2:1	3.13	79.5	3.4	86.4

VALVES

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)
1715 cc							
Intake [1]	1.338 (33.99)	45°	45°	.079 (2.01)	.314 (7.98)	.039 Max. (1.00)	.....
Exhaust [1]	1.220 (31.00)	45°	45°	.094 (2.40)	.313 (7.95)	.051 Max. (1.30)	.....

[1] — Valves are available with stems .02" (.5 mm) shorter than standard size.

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)
1715 cc	.0011 [1] (.028)	[2]	.....	All	.012-.018 [3] (.30-.46)	.0008-.0020 [4] (.020-.050)

[1] — Wear limit is .003" (.07 mm).
[2] — Push fit at 140°F (60°C).
[3] — Wear limit is .040" (1.02 mm).
[4] — Wear limit is .006" (.15 mm).

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)
1715 cc							
Std. Size	2.125 [1] (53.97)	.0010-.0030 [2] (.025-.076)	No. 3	.0030-.0070 [3] (.076-.178)	1.810 [1] (45.97)	.0011-.0034 [4] (.028-.086)	.015 (.38)
1st U/Size	2.115 (53.72)				1.800 (45.72)		
2nd U/Size	2.105 (53.47)				1.790 (45.47)		
3rd U/Size	2.095 (53.22)				1.780 (45.22)		

[1] — Maximum out-of-round for standard or undersize crankshaft journals is .001" (.03 mm).
[2] — Wear limit is .007" (.18 mm).
[3] — Wear limit is .010" (.25 mm).
[4] — Wear limit is .004" (.12 mm).