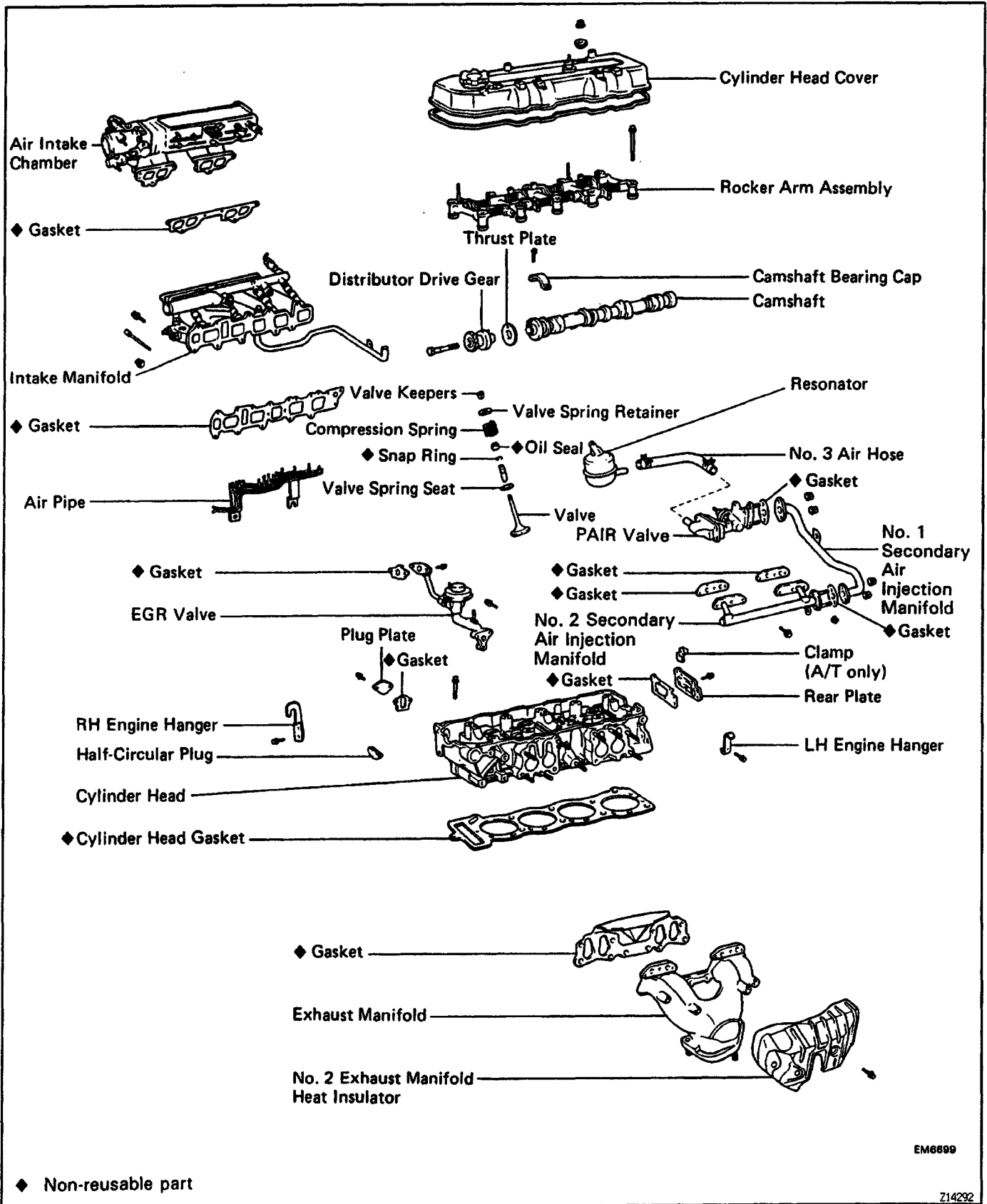


CYLINDER HEAD COMPONENTS FOR REMOVAL AND INSTALLATION



EM6899

Z14292

PREPARATION FOR REMOVAL

1. DRAIN COOLANT FROM RADIATOR AND CYLINDER BLOCK

(See step 3 in coolant check and replacement in Cooling System)

2. REMOVE INTAKE AIR CONNECTOR

3. DISCONNECT EXHAUST PIPE FROM EXHAUST MANIFOLD

(a) Remove the exhaust pipe clamp.

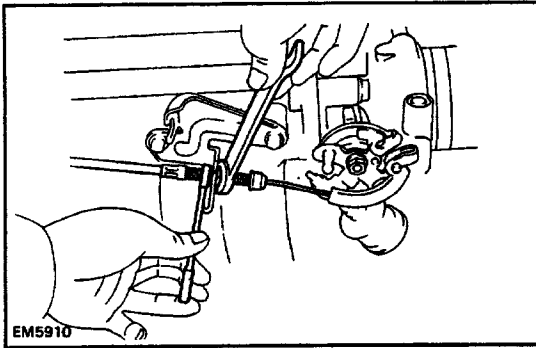
(b) Remove the 3 nuts, and disconnect the exhaust pipe.

4. REMOVE OIL DIPSTICK

5. REMOVE DISTRIBUTOR AND SPARK PLUGS

6. REMOVE RADIATOR INLET HOSE

7. DISCONNECT HEATER WATER INLET HOSE FROM HEATER WATER INLET PIPE



8. DISCONNECT ACCELERATOR CABLE

9. A/T:

DISCONNECT THROTTLE CABLE

Disconnect the throttle cable from the bracket and clamp.

10. DISCONNECT GROUND STRAP FROM ENGINE REAR SIDE

11. DISCONNECT THESE PARTS:

(a) No.1 and No. 2 PCV hoses

(b) Brake booster hose

(c) w/ PS:

Air control valve hoses

(d) w/ A/C:

VSV hoses

(e) EVAP hose

(f) EGR vacuum modulator hose

(g) EGR valve hose

(h) Fuel pressure up hose

(i) PAIR valve hose

(j) Pressure regulator hose

(k) Vacuum hoses from throttle body

(1) No. 2 and No. 3 water bypass hoses from the throttle body

(m) w/ Oil cooler:

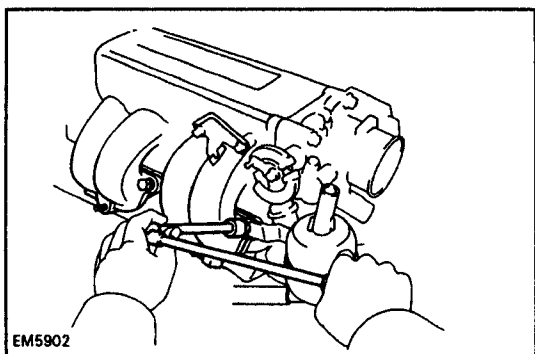
Disconnect the No. 1 oil cooler hose from the intake manifold.

w/o Oil cooler:

Disconnect the No. 1 water bypass hose from the intake manifold.

12. REMOVE EGR VACUUM MODULATOR**13. DISCONNECT THESE WIRES:**

- (a) Cold start injector wire
- (b) Throttle position wire
- (c) California only:
EGR gas temperature sensor wire

**14. REMOVE CHAMBER WITH THROTTLE BODY**

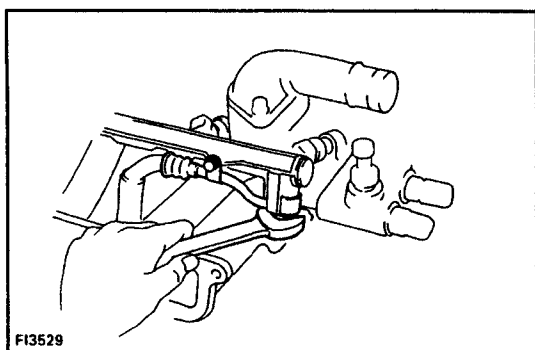
- (a) Remove the union bolt holding the cold start injector pipe to the chamber.
- (b) Remove the bolts, holding the No. 1 EGR pipe to the chamber.
- (c) Remove the bolts, holding the manifold stay to the chamber.
- (d) Remove the 4 bolts, 2 nuts, bond strap and fuel hose clamp.
- (e) Remove the chamber with the throttle body, resonator and gasket.

15. DISCONNECT FUEL RETURN HOSE**16. DISCONNECT THESE WIRES:**

- (a) Knock sensor wire
- (b) Oil pressure sender gauge wire
- (c) Starter wire (terminal 50)
- (d) Transmission wires
- (e) w/ A/C:

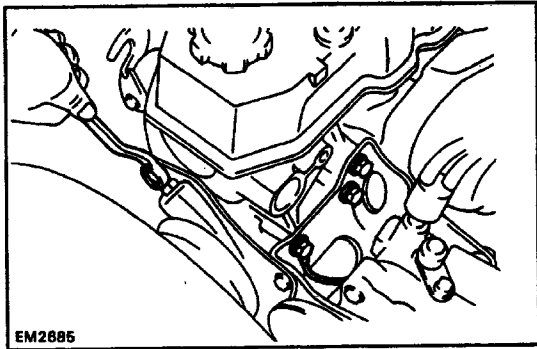
Compressor wires

- (f) Injector wires
- (g) Engine coolant temperature sender gauge wire
- (h) A/T:
OD temperature switch wire
- (i) Igniter wire
- (j) VSV wires
- (k) Start injector time switch wire
- (l) Engine coolant temperature sensor wire

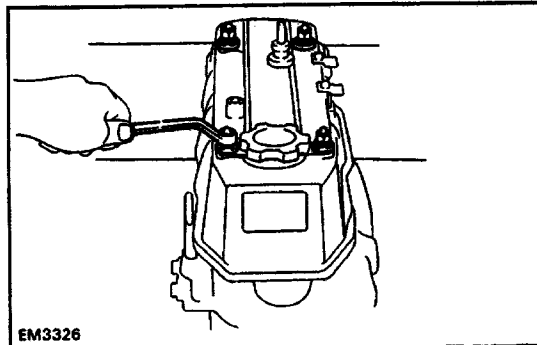
**17. DISCONNECT FUEL HOSE FROM DELIVERY PIPE**

Remove the bolt, union bolt and 2 gaskets.

18. DISCONNECT BYPASS HOSE FROM INTAKE MANIFOLD**19. w/ PS:****REMOVE PS BELT**

**20. w/ PS:****DISCONNECT PS BRACKET FROM CYLINDER HEAD**

Remove the 4 bolts, disconnect the ground strap and bracket.

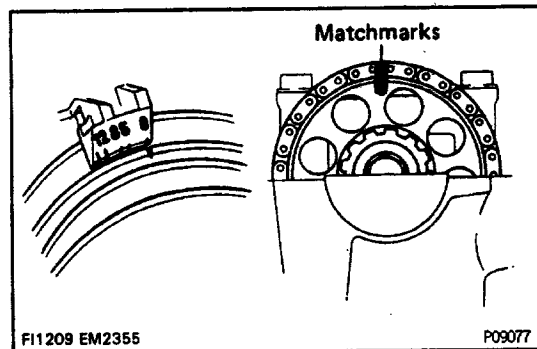
**CYLINDER HEAD REMOVAL**

(See Components for Removal and Installation)

1. REMOVE HEAD COVER

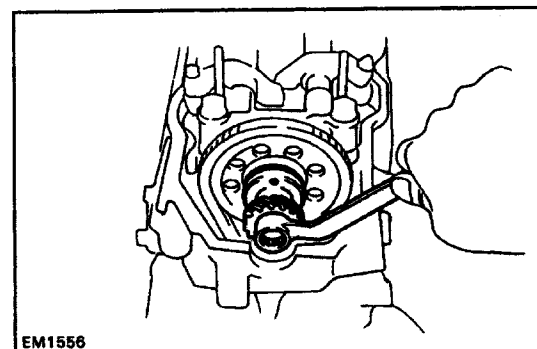
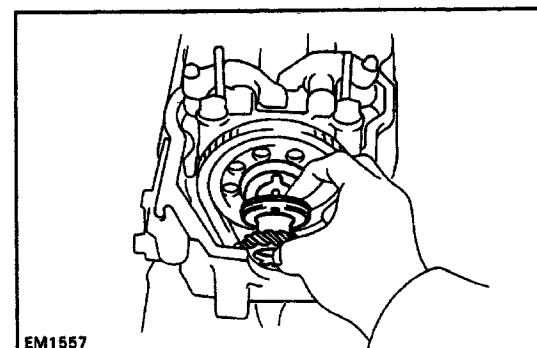
- (a) Remove the ground strap from the body.
- (b) Remove the 4 nuts and seals.
- (c) Remove the head cover.

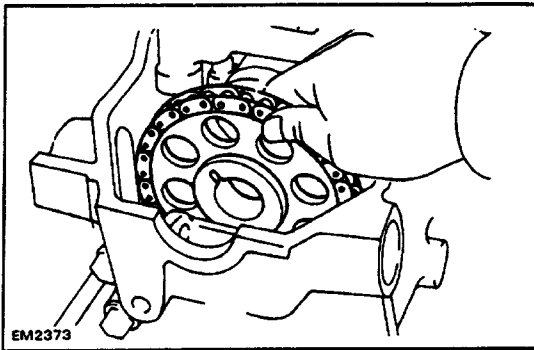
NOTICE: Cover the oil return hole in the head with a rag to prevent objects from falling in.

**2. REMOVE CAMSHAFT SPROCKET BOLT**

- (a) Turn the crankshaft until the No. 1 cylinder position is set at TDC compression.
- (b) Place matchmarks on the sprocket and chain.
- (c) Remove the half-circular plug.

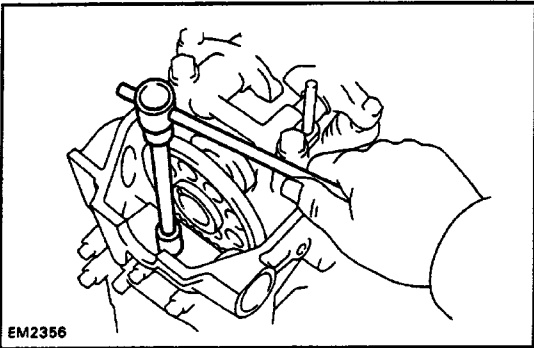
- (d) Remove the camshaft sprocket bolt.

**3. REMOVE DISTRIBUTOR DRIVE GEAR AND CAMSHAFT THRUST PLATE**



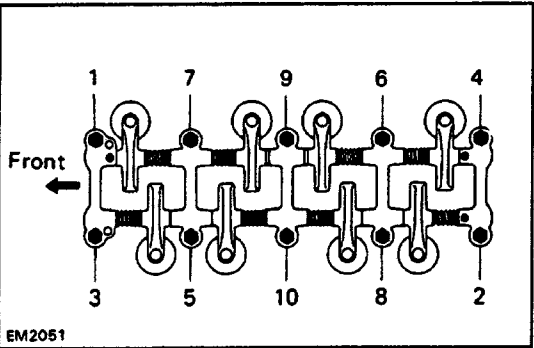
4. REMOVE CAMSHAFT SPROCKET

Remove the camshaft sprocket and chain from the camshaft and leave on the vibration damper.



5. REMOVE CHAIN COVER BOLT

Remove the bolt in front of the head before the other head bolts are removed.



f. REMOVE CYLINDER HEAD BOLTS

Remove the head bolts gradually in 2 or 3 passes and in the numerical order shown.

NOTICE: Head warpage or cracking could result from removing bolts in incorrect order.

7. REMOVE ROCKER ARM ASSEMBLY

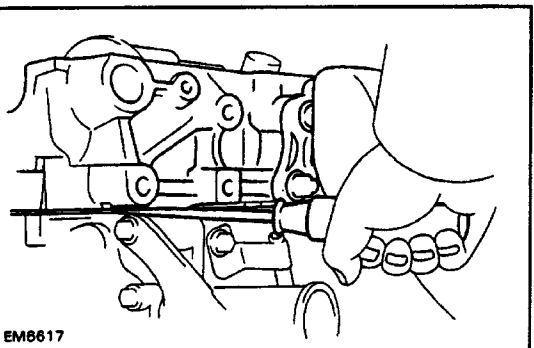
It may be necessary to use a pry bar on the front and rear of the rocker arm assembly to separate it from the head.

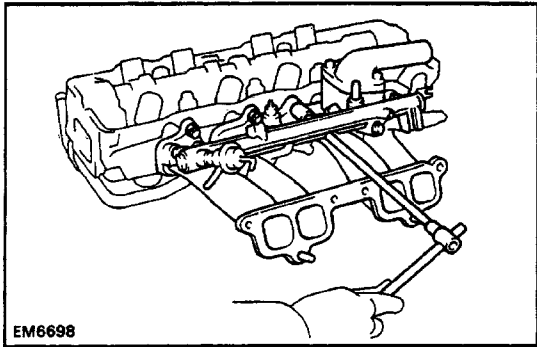
8. REMOVE CYLINDER HEAD

Lift the cylinder head from the dowels on the cylinder block and place the head on wooden blocks on a bench.

HINT: If the cylinder head is difficult to lift off, pry with a screwdriver between the head and block saliences.

NOTICE: Be careful not to damage the cylinder head and block surfaces of the cylinder head gasket.





EM6698

CYLINDER HEAD DISASSEMBLY

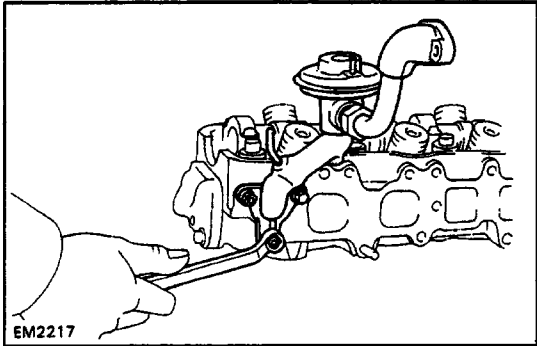
(See Components for Removal and Installation)

1. REMOVE INTAKE MANIFOLD WITH DELIVERY PIPE

- (a) Remove the bolt and the heater inlet pipe from the cylinder head.
- (b) Remove the 8 bolts, 2 nuts and No. 1 air pipe.
- (c) Remove the intake manifold together with the delivery pipe, injectors and heater water inlet pipe.

2. REMOVE EGR VALVE

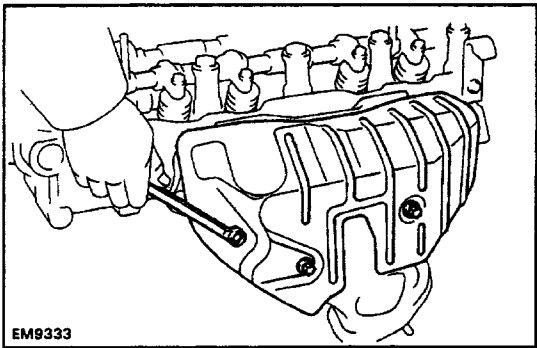
Remove the 2 bolts, nut and EGR valve.



EM2217

3. REMOVE EXHAUST MANIFOLD WITH NO. 2 SECONDARY AIR INJECTION MANIFOLD

(a) Remove the 3 bolts and No. 2 exhaust manifold heat insulator.

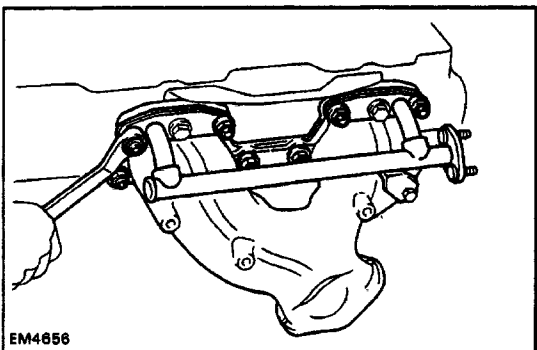


EM9333

(b) Remove the 8 nuts, exhaust manifold and No. 2 secondary air injection manifold.

4. REMOVE ENGINE HANGERS AND GROUND STRAP

5. REMOVE CYLINDER HEAD REAR COVER



EM4656

6. MEASURE CAMSHAFT THRUST CLEARANCE

Using a dial gauge, measure the camshaft thrust clearance.

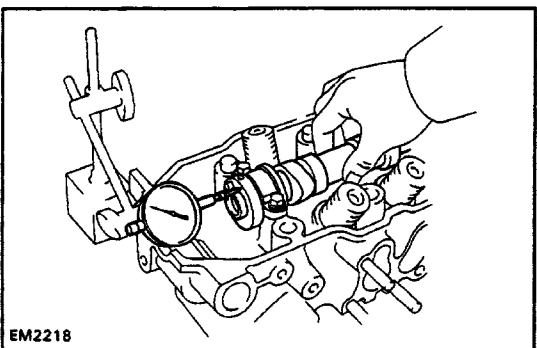
Standard clearance:

0.08 – 0.18 mm (0.0031 – 0.0071 in.)

Maximum clearance:

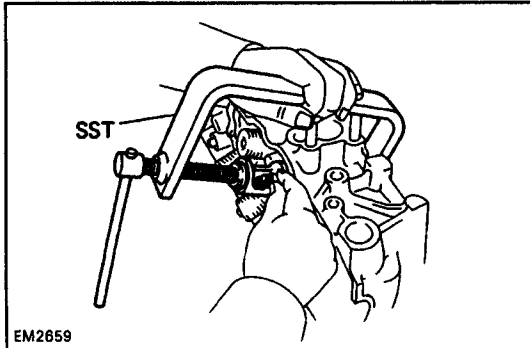
0.25 mm (0.0098 in.)

If clearance is greater than maximum, replace the head.



EM2218

7. REMOVE CAMSHAFT BEARING CAPS AND CAMSHAFT



8. REMOVE VALVES

- (a) Using SST, compress the valve retainer until the 2 keepers can be removed.
SST 09202-43013
- (b) Remove the valve keepers, retainer, spring and valve.
- (c) Pry out the oil seal.
- (d) Using a small screwdriver or magnet, remove the valve spring seat.

HINT: Keep the valves arranged so they can be installed in the same order as removed.

INSPECTION, CLEANING AND REPAIR OF CYLINDER HEAD COMPONENTS

1. CLEAN TOP OF PISTONS AND TOP OF CYLINDER BLOCK

(a) Turn the crankshaft and bring each piston to top dead center. Using a gasket scraper, remove all the carbon from the piston tops.

- (b) Using a gasket scraper, remove all gasket material from the top of the block. Blow carbon and oil from the bolt holes.

CAUTION: Protect your eyes when using high pressure air.

2. REMOVE GASKET MATERIAL

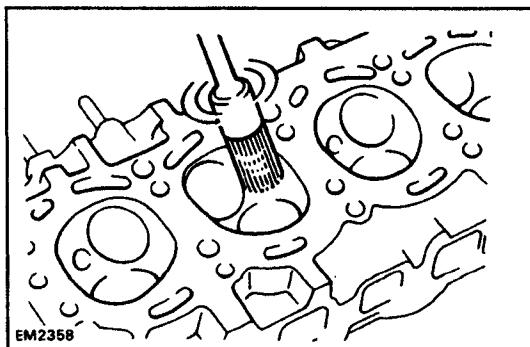
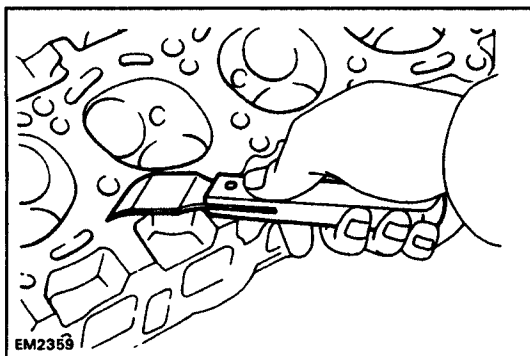
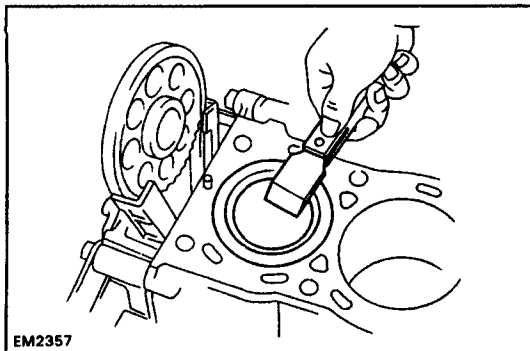
Using a gasket scraper, remove all gasket material from the head and manifold surfaces.

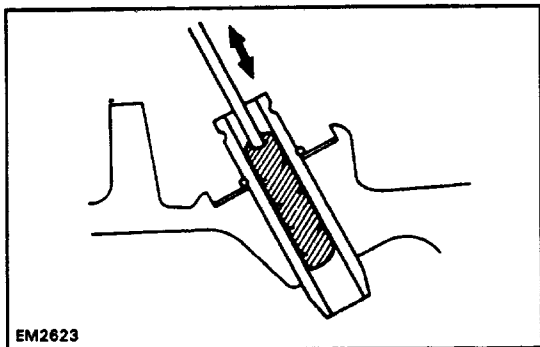
NOTICE: Be careful not to scratch the surfaces.

3. CLEAN COMBUSTION CHAMBERS

Using a wire brush, remove all the carbon from the combustion chambers.

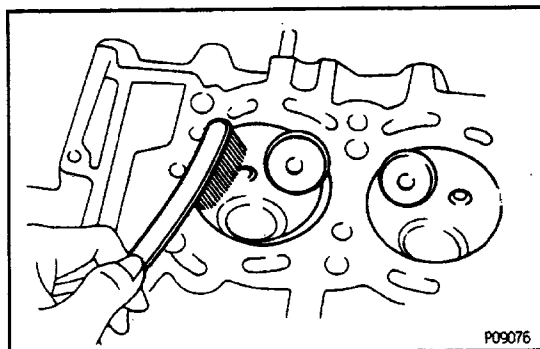
NOTICE: Be careful not to scratch the head gasket contact surface.





4. CLEAN VALVE GUIDE BUSHINGS

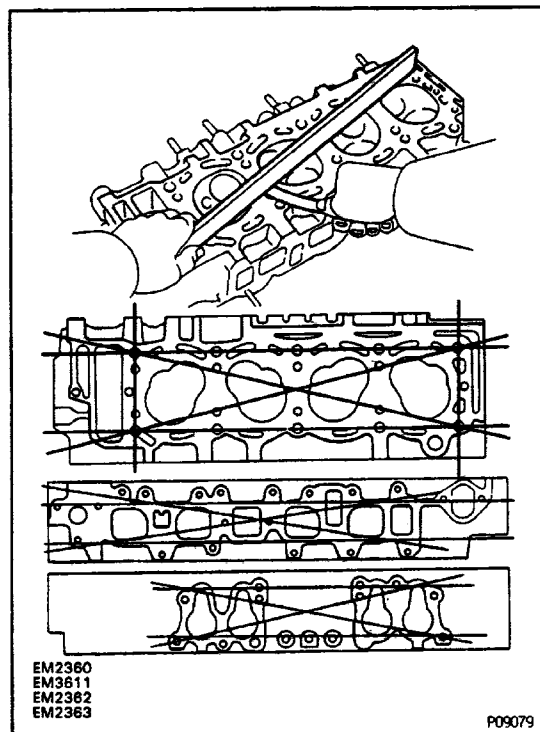
Using a valve guide brush and solvent, clean all the valve guide bushings.



5. CLEAN CYLINDER HEAD

Using a soft brush and solvent, clean the head.

NOTICE: Do not clean the head in a hot tank as this will seriously damage it.



6. INSPECT CYLINDER HEAD FOR FLATNESS

Using a precision straight edge and thickness gauge, measure the surface contacting the cylinder block and manifold for warpage.

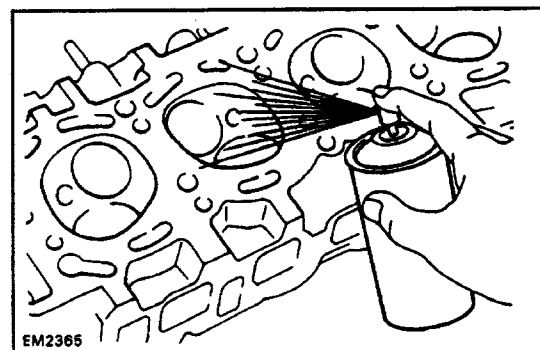
Maximum head surface warpage:

0.15 mm (0.0059 in.)

Maximum manifold surface warpage:

0.20 mm (0.0079 in.)

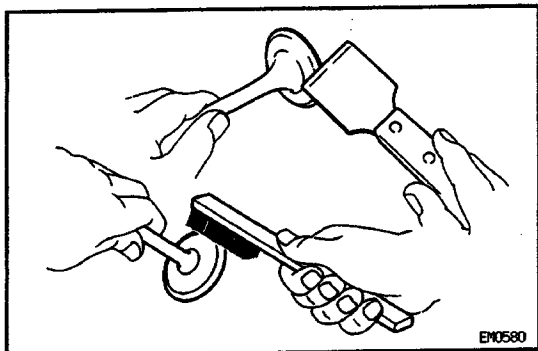
If warpage is greater than maximum, replace the cylinder head.



7. INSPECT CYLINDER HEAD FOR CRACKS

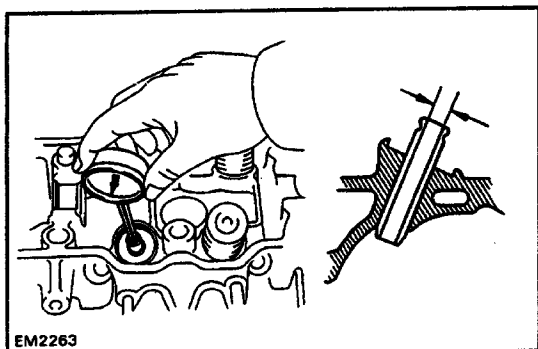
Using a dye penetrant, check the combustion chambers, intake and exhaust ports, head surface and the top of the head for cracks.

If a crack is found, replace the head.



8. CLEAN VALVES

- (a) Using a gasket scraper, chip off any carbon from the valve head.
- (b) Using a wire brush, thoroughly clean the valve.



9. INSPECT VALVE STEMS AND GUIDE BUSHINGS

- (a) Using a caliper gauge, measure the inside diameter of the valve guide bushing.

Standard inside diameter:

8.01 – 8.03 mm (0.3154 – 0.3161 in.)

- (b) Using a micrometer, measure the diameter of the valve stem.

Standard valve stem diameter:

Intake

7.970 – 7.985 mm (0.3138 – 0.3144 in.)

Exhaust

7.965 – 7.980 mm (0.3136 – 0.3142 in.)

- (c) Subtract the valve stem diameter measurement from the valve guide bushing diameter measurement.

Standard oil clearance:

Intake

0.025 – 0.060 mm (0.0010 – 0.0024 in.)

Exhaust

0.030 – 0.650 mm (0.0012 – 0.0026 in.)

Maximum stem oil clearance:

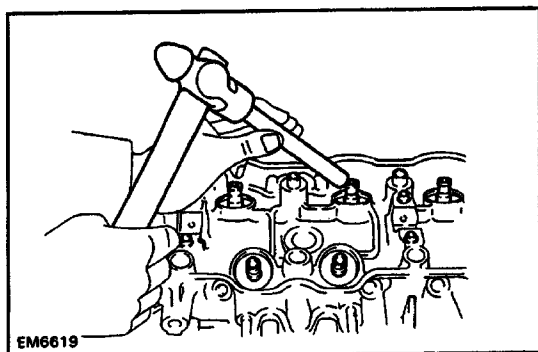
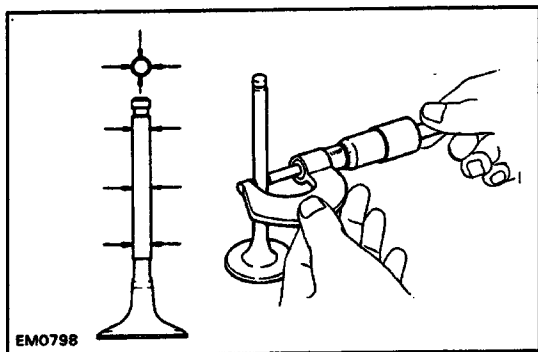
Intake

0.08 mm (0.0031 in.)

Exhaust

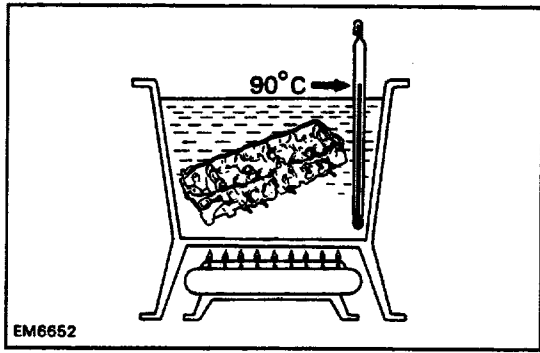
0.10 mm (0.0039 in.)

If the clearance is greater than maximum, replace the valve and guide bushing.

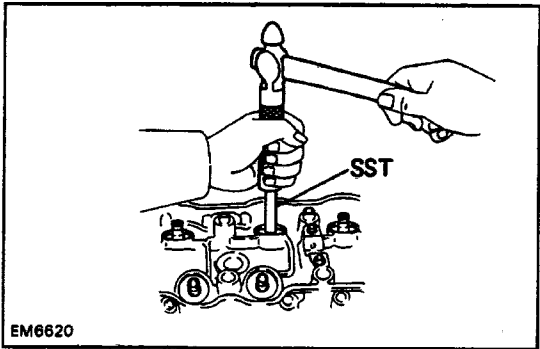


10. IF NECESSARY, REPLACE VALVE GUIDE BUSHINGS

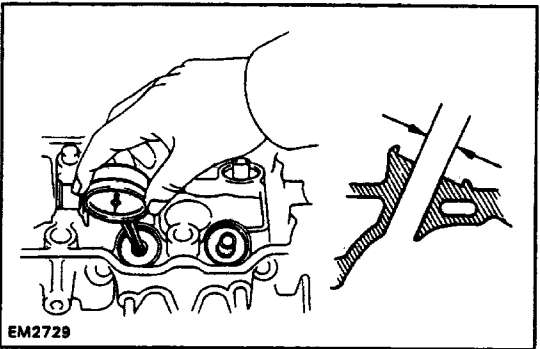
- (a) Using a brass bar and hammer, break the valve guide bushing.



(b) Gradually heat the cylinder head to approx. 90°C (194° F).



(c) Using SST and a hammer, drive out valve guide bushing.
SST 09201- 60011



(d) Using a caliper gauge, measure the valve guide bushing bore of the cylinder head.

Bore intake and exhaust

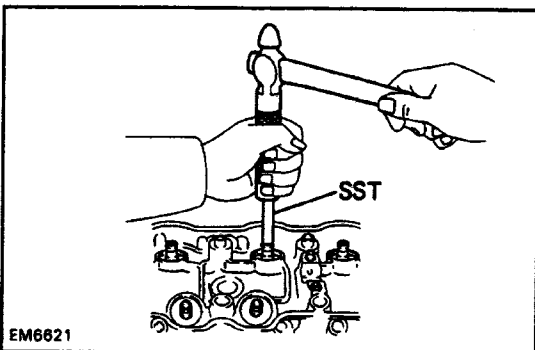
Bushing bore mm (in.)	Bushing size
13.000 - 13.018 (0.5118 - 0.5125)	Use STD
Over 13.018 (0.5125)	Use O/S 0.05

(e) Select a new valve guide bushing.

If the valve guide bushing bore of the cylinder head is more than 13.018 mm (0.512 in.), machine the bore to the following dimension.

Rebored valve guide bushing bore dimension (cold):
13.050 - 13.068 mm (0.5138 - 0.5145 in.)

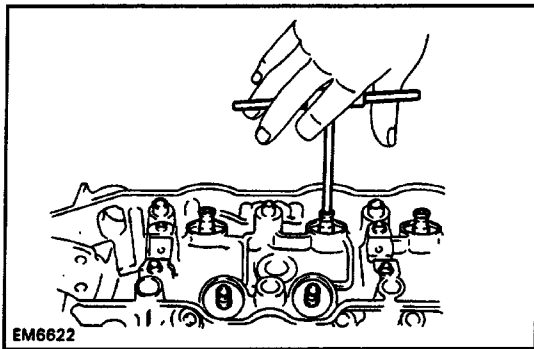
V01770



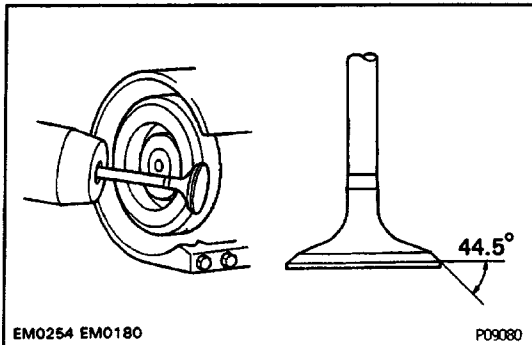
(f) Gradually heat the cylinder head to approx. 90°C (194° F).

(g) Using SST and a hammer, drive in a new valve guide bushing unit the snap ring makes contact with the cylinder head.

SST 09201- 60011



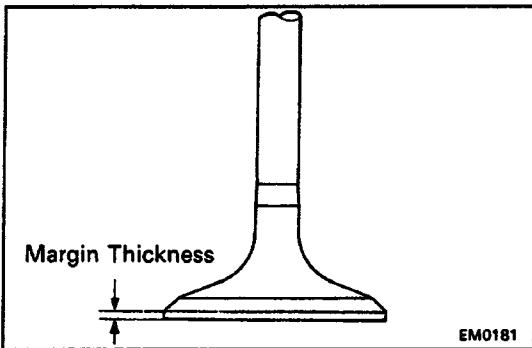
- (h) Using a sharp 8 mm (0.31 mm) reamer, ream the valve guide bushing to obtain standard specified clearance (See step 9) between the valve guide bushing and new valve.



11. INSPECT AND GRIND VALVES

- (a) Grind the valve only enough to remove pits and carbon.
 (b) Check that valve is ground to the correct valve face angle.

Valve face angle:
44..5°



- (c) Check the valve head margin thickness.

Standard margin thickness:

1.0 mm (0.039 in.)

Minimum margin thickness:

0.6 mm (0.024 in.)

If the valve head margin thickness is less than minimum, replace the valve.

- (d) Check the valve overall length.

Standard overall length:

Intake

113.5 mm (4.468 in.)

Exhaust

112.4 mm (4.425 in.)

Minimum overall length:

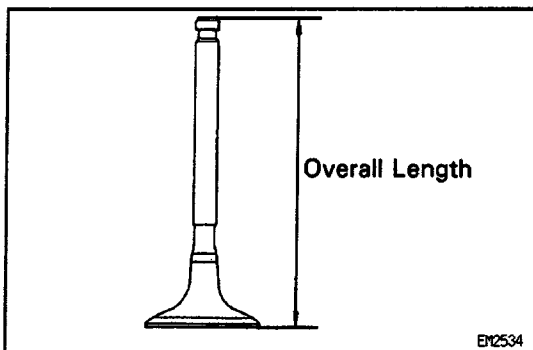
Intake

113.0 mm (4.449 in.)

Exhaust

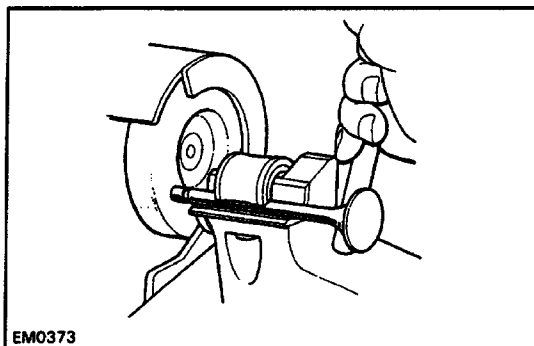
111.9 mm (4.406 in.)

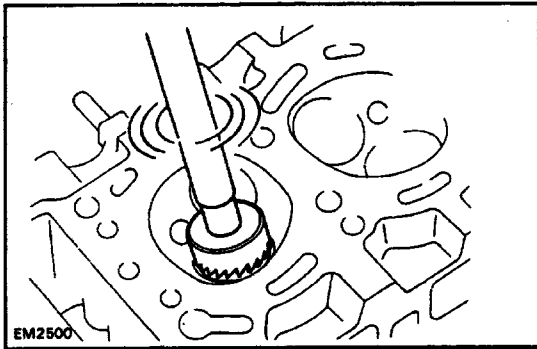
If the valve overall length is less than minimum, replace the valve.



- (e) Check the surface of the valve stem tip for wear. If the valve stem tip is worn, regrind it with grinder or replace the valve if necessary.

NOTICE: Do not grind off more than minimum overall length.





12. INSPECT AND CLEAN VALVE SEATS

(a) Using a 45° carbide cutter, resurface the valve seats. Remove only enough metal to clean the seats.

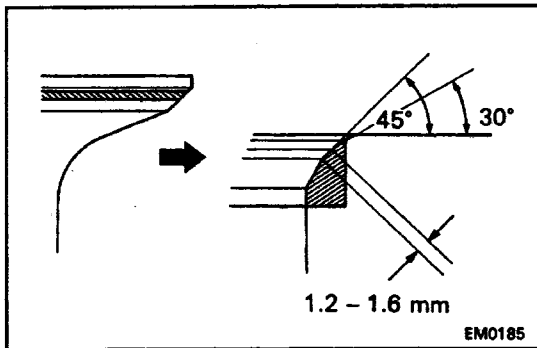
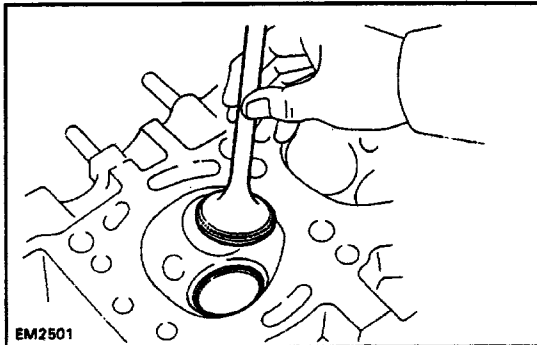
(b) Check the valve seating position.

Apply a light coat of prussian blue (or white lead) to the valve face. Install the valve. Lightly press the valve

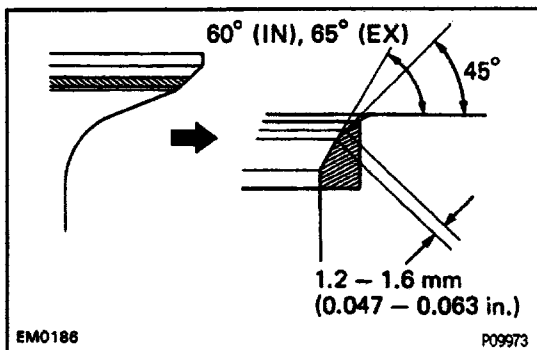
against the seat. Do not rotate the valve.

(c) Check the valve face and seat for the following:

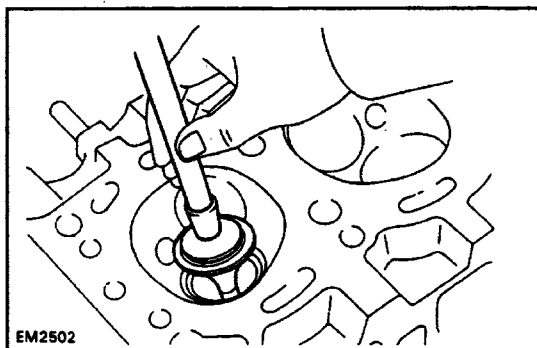
- If blue appears 360° around the face, the valve is concentric. If not, replace the valve.
- If blue appears 360° around the valve seat, the guide and seat are concentric. If not, resurface the seat.
- Check that the seat contact is on the middle of the valve face with the following width:
1.2 – 1.6 mm (0.047 – 0.063 in.)
 If not, correct the valve seat as follows:



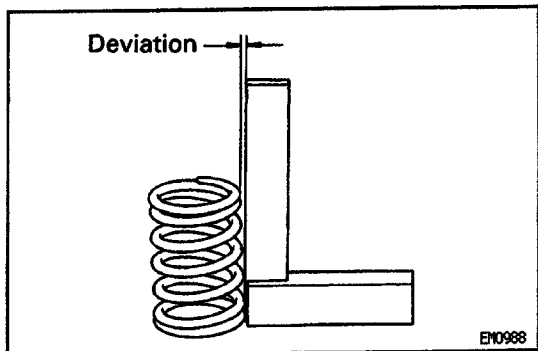
- If seating is too high on the valve face, use 30° and 45° cutters to correct the seat.



- If seating is too low on the valve face, use 60° (IN) or 65° (EX) and 45° cutters to correct the seat.



(d) Hand-lap the valve and valve seat with abrasive compound.



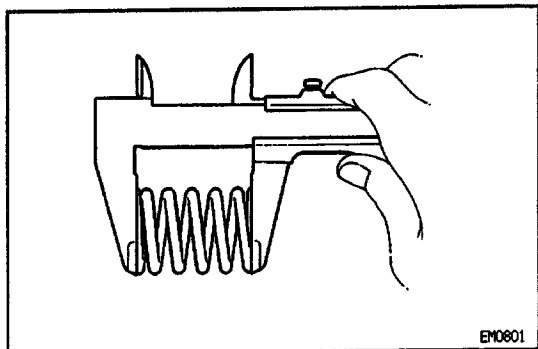
13. INSPECT VALVE SPRINGS

- (a) Using a steel square, measure the deviation of the valve spring.

Maximum deviation:

1.6 mm (0.063 in.)

If deviation is greater than maximum, replace the valve spring.

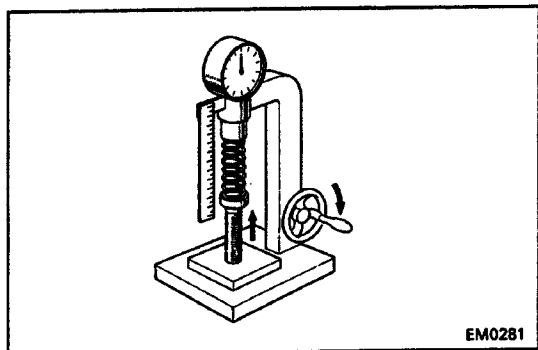


- (b) Using vernier calipers, measure the free length of the valve spring.

Free length:

48.5 mm (1.909 in.)

If the free length is not within specification, replace the valve spring.



- (c) Using a spring tester, check the tension of each spring at the specified installed height.

Installed height:

40.5 mm (1.594 in.)

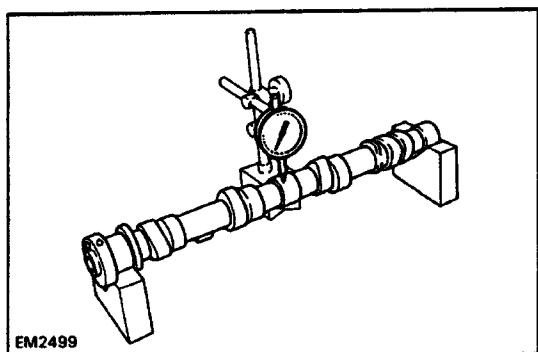
Standard installed tension:

294 N (30.0 kgf, 66.1 lbf)

Minimum installed tension:

279 N (28.5 kgf, 62.8 lbf)

If the installed tension is less than minimum, replace the spring.



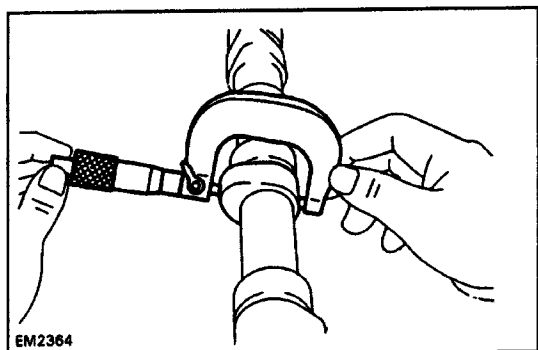
14. INSPECT CAMSHAFT AND BEARING CAPS

- (a) Place the cam shaft on V-blocks and, using a dial indicator, measure the circle runout at the center journal.

Maximum circle runout:

0.2 mm (0.008 in.)

If the circle runout is greater than maximum, replace the camshaft.



- (b) Using a micrometer, measure the cam lobe height.

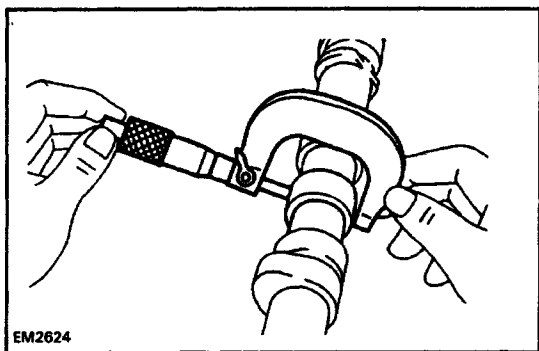
Standard cam lobe height:

Intake

42.63 – 42.72 mm (1.6783 – 1.6819 in.)

Exhaust

42.69 – 42.78 mm (1.6807 – 1.6842 in.)

**Maximum cam lobe height:****Intake**

42.25 mm (1.6634 in.)

Exhaust

42.30 mm (1.6654 in.)

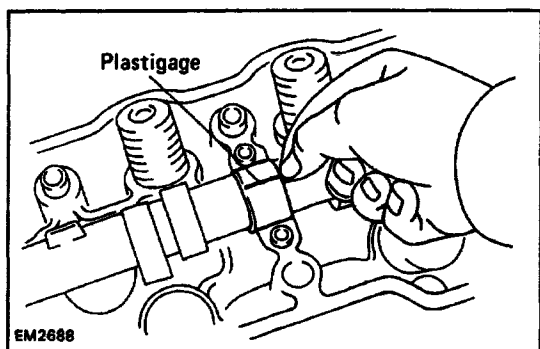
If the lobe height is less than, minimum, replace the camshaft.

- (c) Using a micrometer, measure the journal diameter.

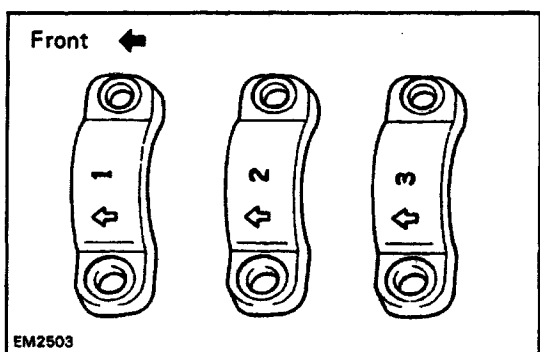
Standard diameter:

32.98 – 33.00 mm (1.2984 – 1.2992 in.)

If the journal diameter is less than specified, replace the camshaft.

**15. INSPECT CAMSHAFT OIL CLEARANCE**

- (a) Clean the bearing caps and camshaft journal.
 (b) Place the camshaft in the cylinder head.
 (c) Lay a strip of Plastigage across each journal.

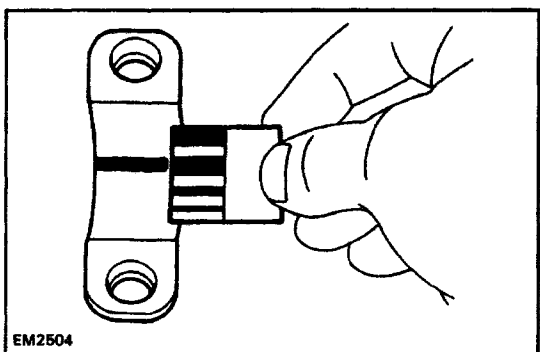


- (d) Install the correct numbered bearing cap on each journal with the arrows pointing toward the front.

Torque each bolt.

Torque: 20 N-m (200 kgf-cm. 14 ft-lbf)

HINT: Do not turn the camshaft while the Plastigage is in place.



- (e) Remove the caps and measure the Plastigage at its widest point.

Standard clearance:

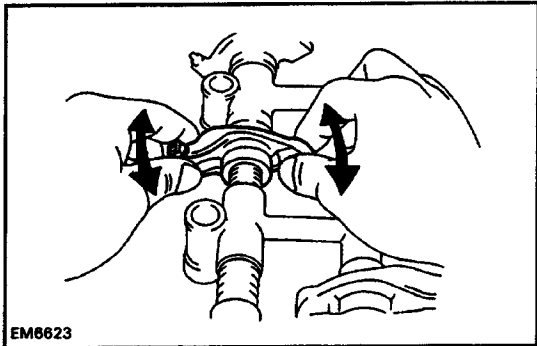
0.01 – 0.05 mm (0.0004 – 0.0020 in.)

Maximum clearance:

0.1 mm (0.004 in.)

If clearance is greater than maximum, replace the cylinder head and/or camshaft.

- (f) Clean out the pieces of Plastigage from the bearing and journal.



16. INSPECT ROCKER ARMS

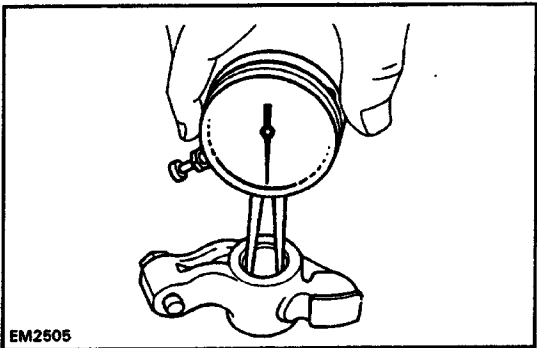
Check the clearance between the rocker arms and shaft by moving the rocker arms as shown. Little or no movement should be felt.

If movement is felt, disassemble the rocker arm assembly and measure the oil clearance as follows:

- (a) Disassemble rocker arm assembly.
Remove the 3 screws.
 - Slide the rocker stands, spring and rocker arms off the shafts.
- (b) Using a dial indicator or telescoping gauge, measure the inside diameter of the rocker arm.

Standard inside diameter:

16.000 – 16.018 mm (0.6299 – 0.6306 in.)



- (c) Using a micrometer, measure the outside diameter of the shaft.

Standard diameter:

15.97 – 15.99 mm (0.6287 – 0.6295 in.)

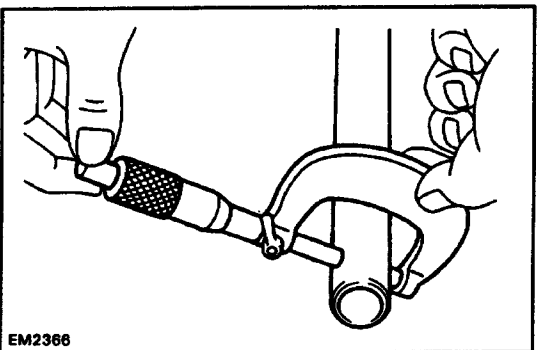
- (d) Subtract the shaft diameter measurement from the rocker arm diameter measurement.

Standard oil clearance:

0.01 – 0.05 mm (0.0004 – 0.0020 in.)

Maximum oil clearance:

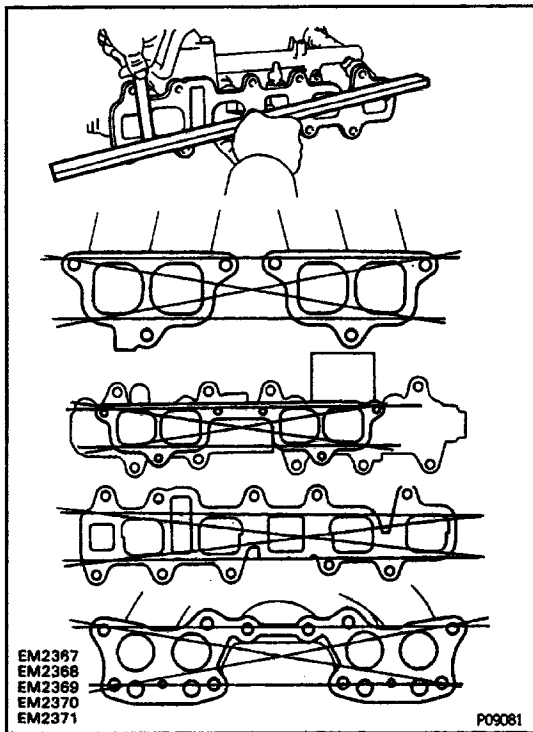
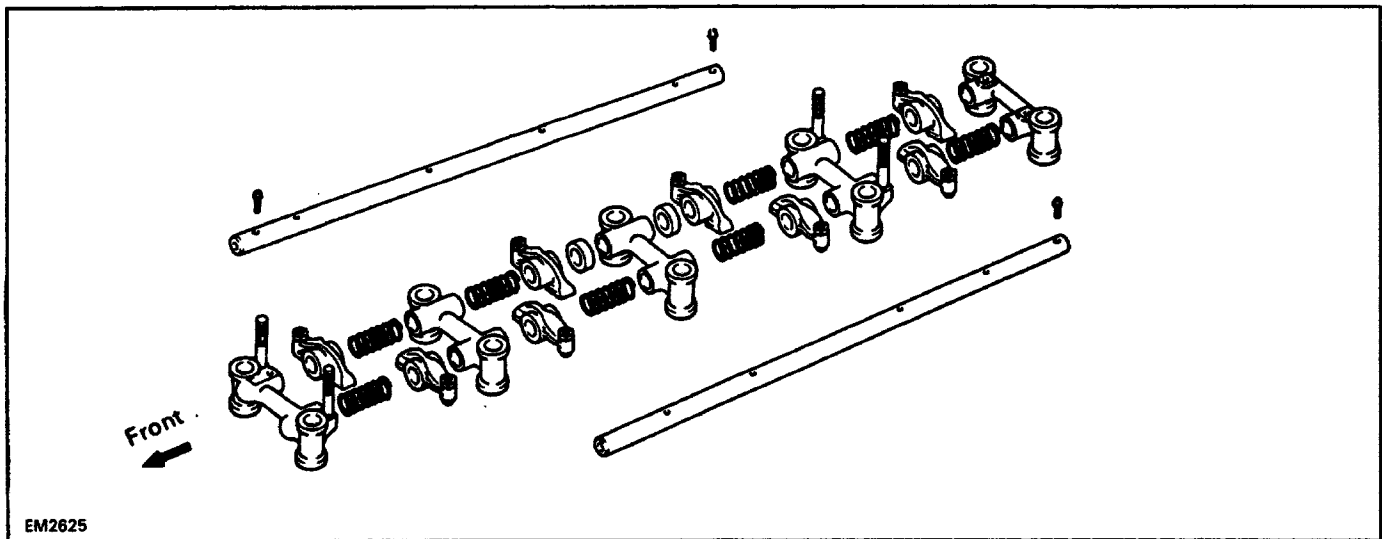
0.08 mm (0.0031 in.)



If the oil clearance is greater than maximum, replace the rocker arm and/or shaft.

- (e) Assemble the rocker arm assembly as shown, and install the 3 screws.

HINT: All rocker arms are the same but all rocker stands are different and must be assembled in the correct order.



17. INSPECT INTAKE, EXHAUST MANIFOLDS AND AIR INTAKE CHAMBER

Using a precision straight edge and thickness gauge, check the surface contacting the cylinder head or intake manifold for warpage.

Maximum intake warpage:

0.2 mm (0.008 in.)

Maximum exhaust warpage:

0.7 mm (0.28 in.)

Maximum air intake chamber warpage:

0.2 mm (0.008 in.)

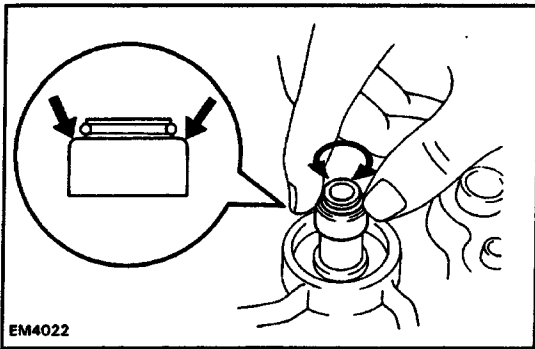
If warpage is greater than maximum, replace the manifold and/or air intake chamber.

CYLINDER HEAD ASSEMBLY

(See Components for Removal and Installation)

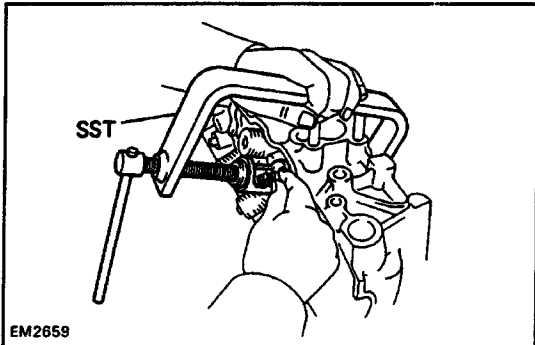
HINT:

- Thoroughly clean all parts to be assembled.
- Before installing the parts, apply new engine oil to all sliding and rotating surfaces.
- Replace all gaskets and oil seals with new parts.

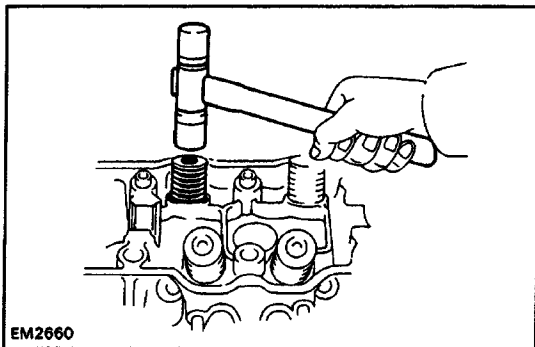


1. INSTALL VALVES

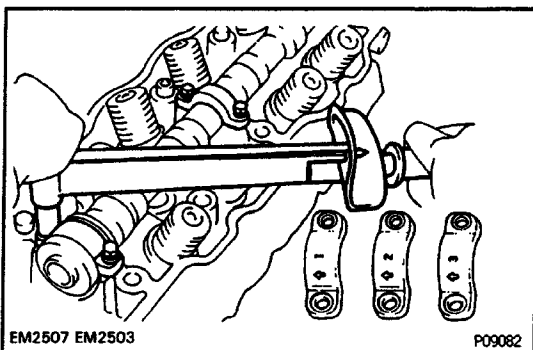
- (a) Install a new oil seal on the valve guide bushing.
HINT: Pushing down at the place shown in the illustration.
- (b) Rotate the oil seal to check that it is firmly installed.
- (c) Lubricate and insert valve in the valve guide bushing.
 Check that valves are installed in the correct order.
- (d) Install spring seat, spring and spring retainer on the cylinder head.



- (e) Using SST, compress valve retainer and place 2 keepers around the valve stem.
 SST 09202-43 013

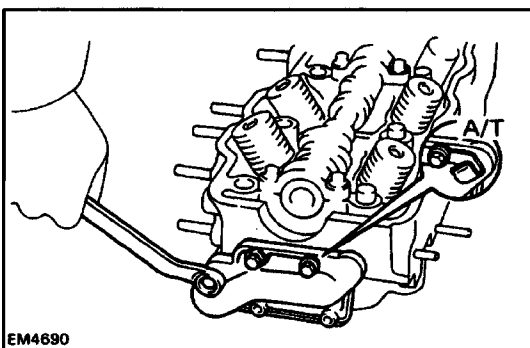


- (f) Tap the stem lightly to assure proper fit.



2. INSTALL CAMSHAFT

- (a) Place the camshaft in the cylinder head and install the bearing caps in numbered order from the front with arrows pointed toward the front.
- (b) Install and torque the cap bolts.
Torque: 20 N-m (200 kgf-cm, 14 ft-lbf)
- (c) Turn the camshaft to position the dowel at the top.

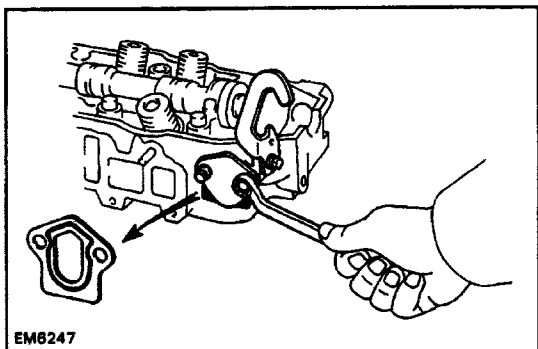


3. INSTALL CYLINDER HEAD REAR COVER

Install a new gasket, cylinder head rear cover and throttle cable clamp (for A/T) with the 4 bolts.

4. INSTALL LH ENGINE HANGER AND GROUND STRAP

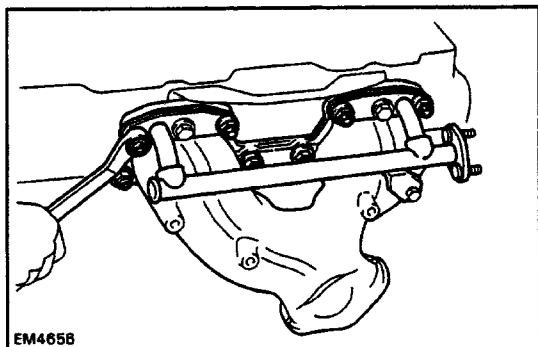
5. INSTALL RH ENGINE HANGER



6. INSTALL PLUG PATE

Install a new gasket and plug plate with the 2 bolts.

HINT: Attach the flat side of the gasket to the cylinder head.

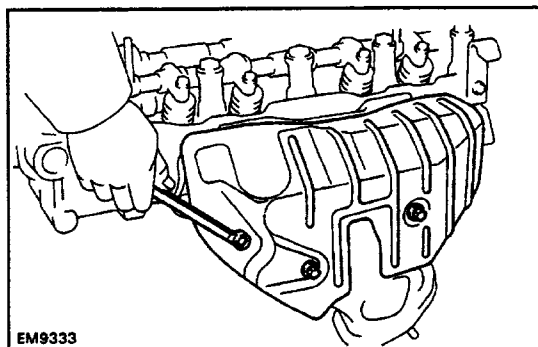


7. INSTALL EXHAUST MANIFOLD

(a) Position a new gasket on the cylinder head.

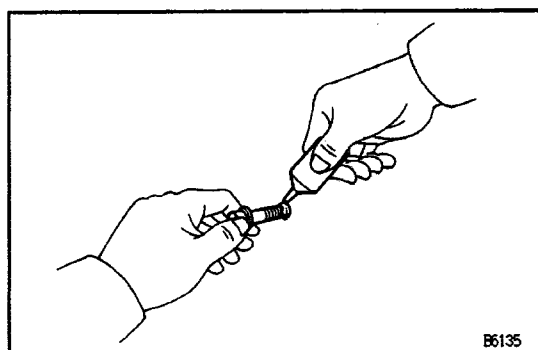
(b) Install the exhaust manifold with the 8 nuts. Torque the nuts.

Torque: 44 N-m (450 kgf-cm, 33 ft-lbf)



(c) Install the No. 2 exhaust manifold heat insulator with the 3 bolts.

Torque: 19 N-m (195 kgf-cm, 14 ft-lbf)



8. INSTALL EGR VALVE

(a) Clean the set bolt (closest to the front) threads and cylinder head bolt holes of any sealer, oil or foreign particles.

Remove any oil with kerosene or gasoline.

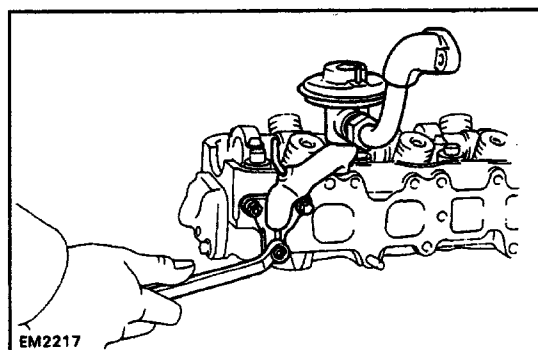
(b) Apply sealant to 2 or 3 threads of the bolt end.

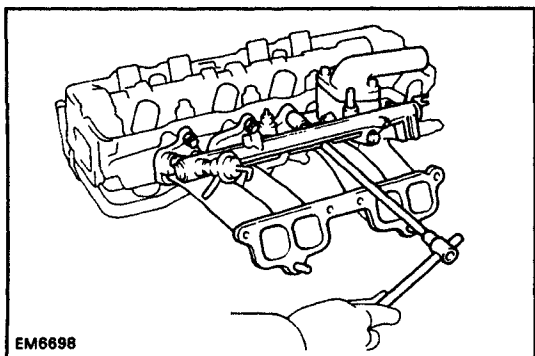
Sealant:

Part No. 08833-00070. THREE BOND 1324 or equivalent

- This adhesive will not harden while exposed to air. It will act as a sealer or binding agent only when applied to threads, etc. and air is cut off.

(c) Install the EGR valve with the 2 bolts and nut.



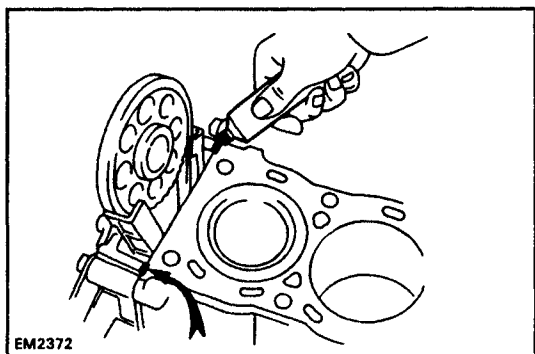


9. INSTALL INTAKE MANIFOLD

- Position a new gasket on the cylinder head.
- Install the intake manifold pipe with the delivery pipe and injectors and No. 1 air pipe.
- Install the 8 bolts, and 2 nuts. Torque the bolts and nuts.

Torque: 19 N-m (195 kgf-cm, 14 ft-lbf)

- Install the heater inlet pipe to the cylinder head with the bolt.



CYLINDER HEAD INSTALLATION

(See Components for Removal and Installation)

1. APPLY SEAL PACKING TO CYLINDER BLOCK

- Apply seal packing to 2 locations as shown.

Seal packing:

Part No. 08826-00080 or equivalent

- Place a new head gasket over dowels on the cylinder block.

2. INSTALL CYLINDER HEAD

- If the sprocket was removed, align the alignment marks placed on the sprocket and chain during removal.
- Position the cylinder head over dowels on the block.

3. INSTALL ROCKER ARM ASSEMBLY

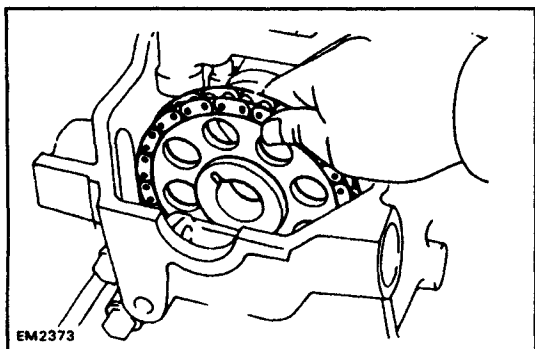
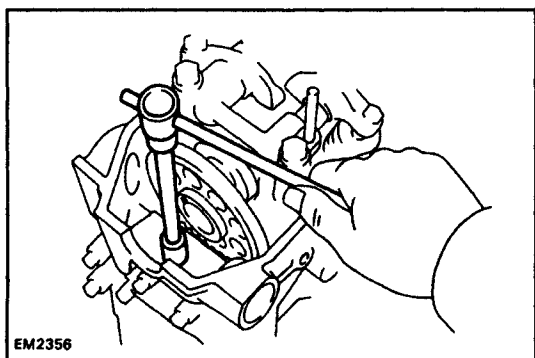
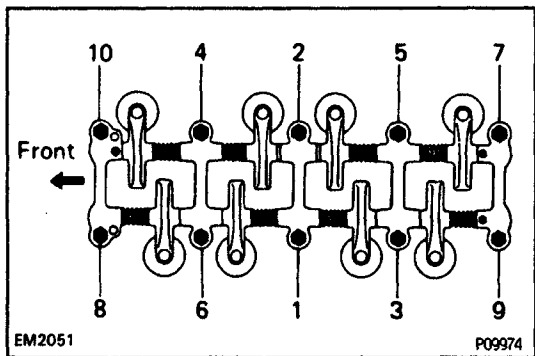
- Place the rocker arm assembly over the dowels on the cylinder head.
- Install and tighten the head bolts gradually in 3 passes in the sequence shown. Torque the bolts on the final pass.

Torque: 78 N-m (800 kgf-cm, 58 ft-lbf)

4. INSTALL CHAIN COVER BOLT

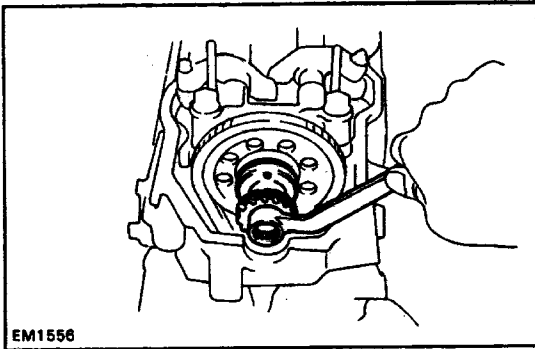
Torque the bolt.

Torque: 13 N-m (130 kgf-cm, 9 ft-lbf)



- While holding up on the sprocket and chain, turn the crankshaft until the No. 1 and No. 4 cylinders are at top dead center.

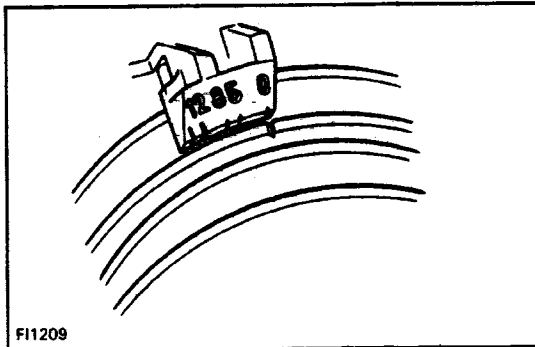
- Place the chain sprocket over the camshaft dowel.
HINT: If the chain does not seem long enough, turn the crankshaft back and forth while pulling up on the chain and sprocket.



5. INSTALL DISTRIBUTOR DRIVE GEAR AND CAMSHAFT THRUST PLATE

Place the distributor drive gear and camshaft thrust plate over the chain sprocket. Torque the bolt.

Torque: 78 N-m (800 kgf-cm, 58 ft-lbf)



6. ADJUST VALVE CLEARANCE

(a) Set the No. 1 cylinder to TDC/compression.

- Turn the crankshaft with a wrench to align the timing marks at TDC. Set the groove on the pulley at the "0" mark position of the chain cover.
- Check that the rocker arms on the No. 1 cylinder are loose and the rocker arms on No. 4 cylinder are tight. If not, turn the crankshaft 1 complete revolution and align the marks as above.

(b) Adjust the clearance of half of the valves.

Adjust only the valves indicated by arrows as shown.

Valve clearance (Cold):

Intake

0.20 mm (0.00s in.)

Exhaust

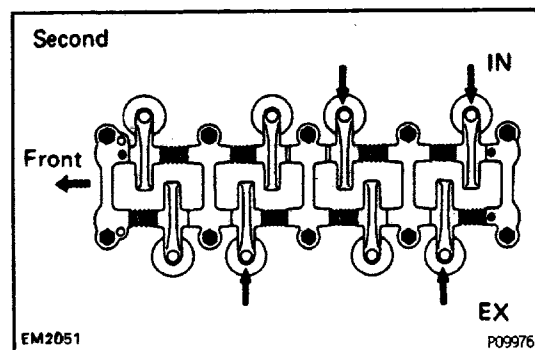
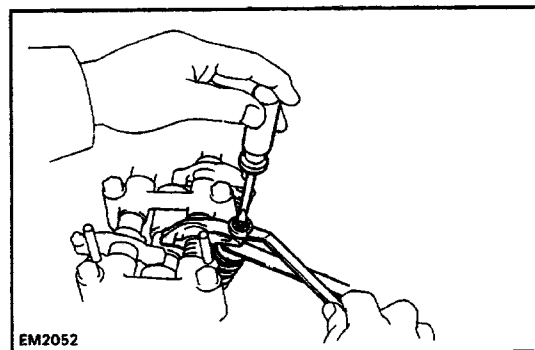
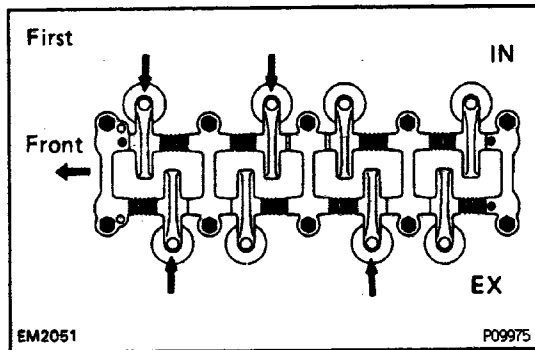
0.30 mm (0.012 in.)

HINT: After installing the cylinder head, warm up the engine and adjust the valve clearance.

Use a thickness gauge to measure between the valve stem and rocker arm. Loosen the lock nut and turn the adjusting screw to set the proper clearance. Hold the adjusting screw in position and tighten the lock nut.

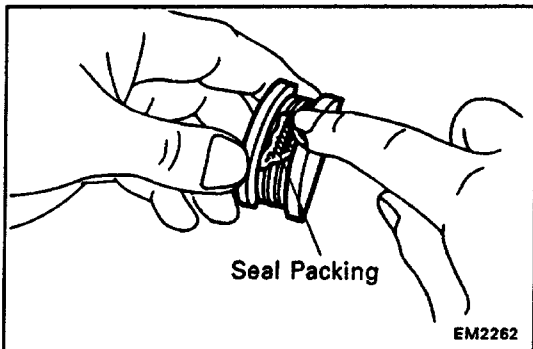
Torque: 25 N-m (250 kgf-cm, 18 ft-lbf)

- Recheck the clearance. The thickness gauge should move with a very slight drag.



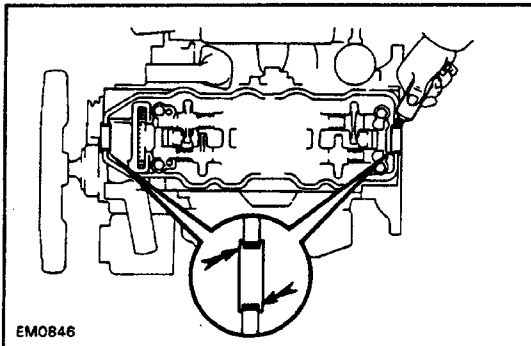
(c) Turn the crankshaft one revolution and adjust the other valves. -

(d) Set the No. 1 cylinder to TDC/compression.



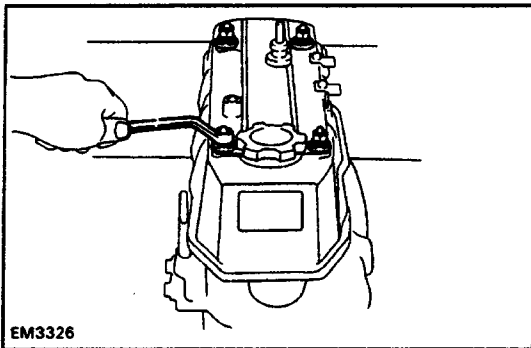
7. INSTALL HALF-CIRCULAR PLUGS

- (a) Apply seal packing to the cylinder head installation surface of the plug.
- Seal packing:**
Part No. 08826-00080 or equivalent
- (b) Install the half-circular plugs to the cylinder head.



8. INSTALL HEAD COVER

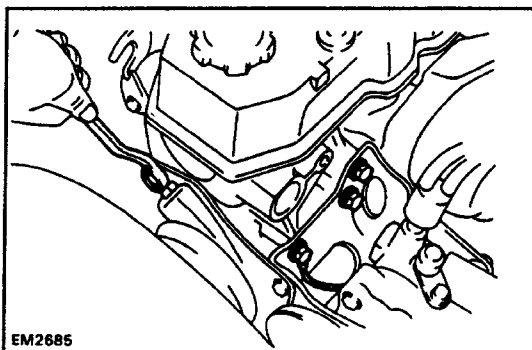
- (a) Apply seal packing to the 4 locations shown.
- Seal packing:**
Part No. 08826-00080 or equivalent



- (b) Install the gasket to the cylinder head.

- (c) Place the head cover on the cylinder head and install the 4 seals and nuts.

Torque: 4.9 N-m (50 kgf-cm, 43 in.-lbf)



AFTER INSTALLATION

1. w/ PS:

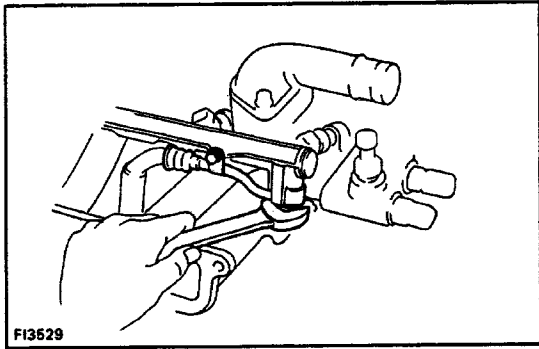
CONNECT PS BRACKET TO CYLINDER HEAD
Install the 4 bolts and bond strap. Torque the bolts.
Torque: 44 N-m (450 kgf-cm, 33 ft-lbf)

2. w/ PS:

INSTALL DRIVE BELT AND ADJUST BELT TENSION

(See step 2 in maintenance operation in Maintenance)

3. CONNECT BYPASS HOSE TO INTAKE MANIFOLD



FI3529

4. CONNECT FUEL HOSE TO DELIVERY PIPE

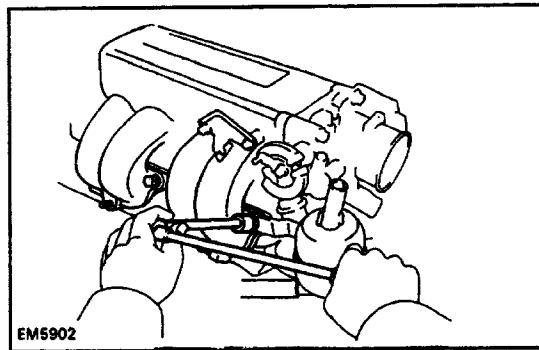
Install new gaskets and the fuel hose with union bolt.

Torque: 44 N-m (450 kgf-cm. 33 ft-lbf)

5. CONNECT THESE WIRES:

- (a) Engine coolant temperature sensor wire
- (b) Cold start injector time switch wire
- (c) VSV wires
- (d) Igniter wire
- (e) A/T:
 - OD temperature switch wire
- (f) Engine coolant temperature sender gauge wire
- (g) Injector wires
- (h) w/ A/C:
 - Compressor wires
- (i) Transmission wires
- (j) Starter wire (terminal 50)
- (k) Oil pressure sender gauge wire
- (l) Knock sensor wire

6. CONNECT FUEL RETURN HOSE



EM5902

7. INSTALL CHAMBER WITH THROTTLE BODY

- (a) Position new gaskets on the intake manifold and No. 1 EGR pipe.
- (b) Install the chamber, throttle body, fuel hose clamp, resonator and bond strap with the 4 bolts and 2 nuts.
- (c) Connect the chamber and stay with a bolt.
- (d) Install the bolts holding the EGR valve to the chamber.
- (e) Install the new gaskets and cold start injector pipe.

8. CONNECT THESE WIRES:

- (a) California only:
 - EGR gas temperature sensor wire
- (b) Throttle position wire
- (c) Cold start injector wire

9. INSTALL EGR VACUUM MODULATOR

10. CONNECT THESE PARTS:

- (a) w/ Oil cooler:
 - Connect the No. 1 oil cooler hose to the intake manifold.
- w/o Oil cooler:
 - Connect the No. 1 water bypass hose to the intake manifold.
- (b) No. 2 and No. 3 water bypass hoses to the throttle body
- (c) Vacuum hoses to throttle body
- (d) Pressure regulator hose
- (e) Fuel pressure up hose
- (f) PAIR valve hose
- (g) EGR valve hose
- (h) EGR vacuum modulator hose

- (i) EVAP hose
 - G) w/ A/C:
 - VSV hoses

- (k) w/ PS:
 - Air control valve hoses

- (l) Brake booster hose

- (m) No. 1 and No. 2 PCV hoses

11. CONNECT GROUND STRAP TO ENGINE REAR SIDE

12. A/T:

CONNECT THROTTLE CABLE

Connect the throttle cable to the clamp and bracket.

13. CONNECT ACCELERATOR CABLE

**14. CONNECT HEATER WATER INLET HOSE TO
HEATER WATER INLET PIPE**

15. INSTALL RADIATOR INLET HOSE

16. INSTALL SPARK PLUGS

17. INSTALL DISTRIBUTOR

(See distributor installation in ignition System)

18. INSTALL OIL DIPSTICK

**19. CONNECT EXHAUST PIPE TO EXHAUST
MANIFOLD**

- (a) Install the new gaskets, and connect the exhaust pipe to the exhaust manifold with the 3 nuts.

- (b) Install the exhaust pipe clamp.

20. INSTALL INTAKE AIR CONNECTOR

21. FILL WITH ENGINE OIL

(See step 3 in oil and filter replacement in Lubrication System)

22. FILL WITH COOLANT

(See step 3 in coolant check and replacement in Cooling System)

23. START ENGINE AND INSPECT FOR LEAKS

24. PERFORM ENGINE ADJUSTMENT

(See Tuna –Up)

25. RECHECK COOLANT AND ENGINE OIL LEVEL

26. ROAD TEST VEHICLE