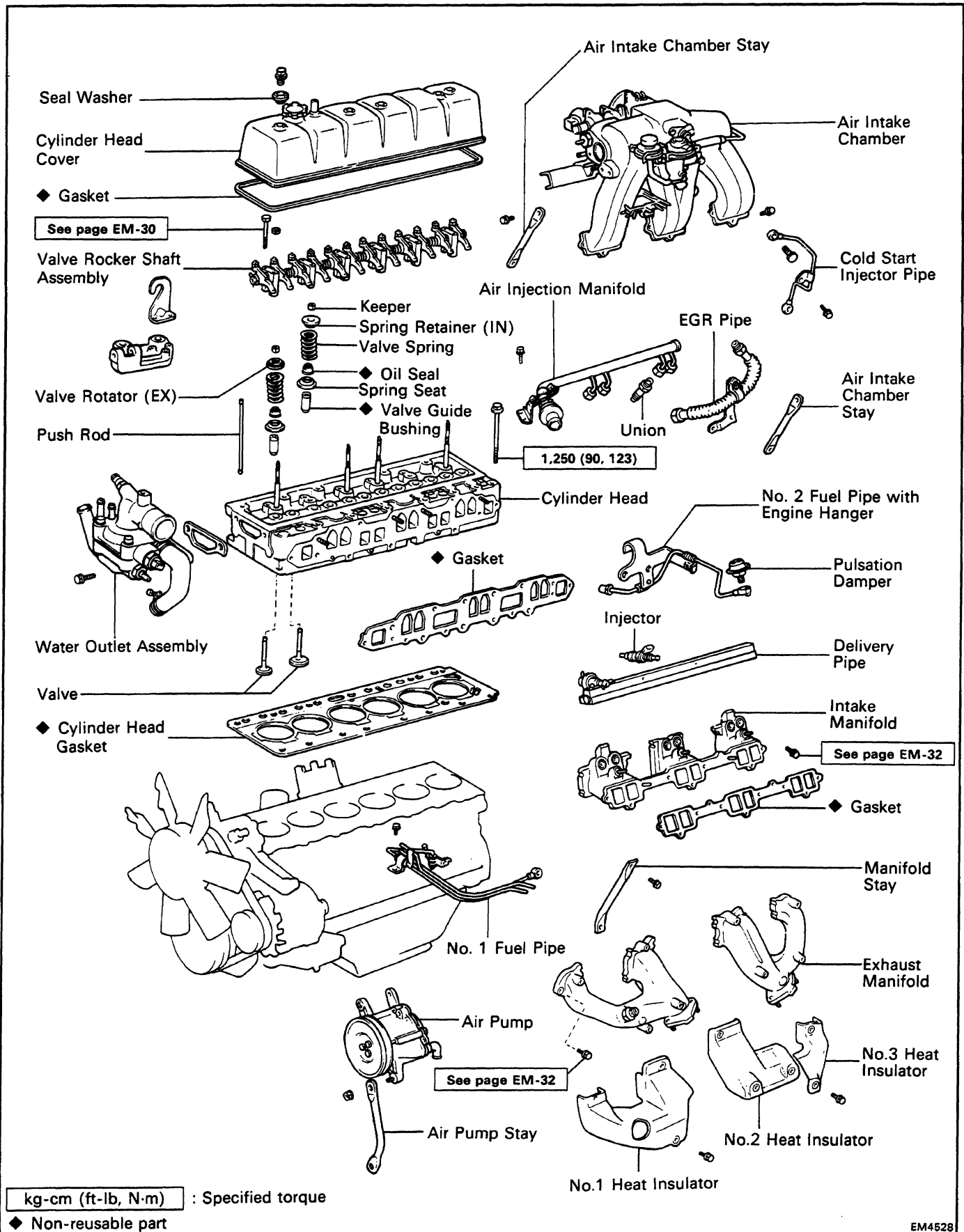
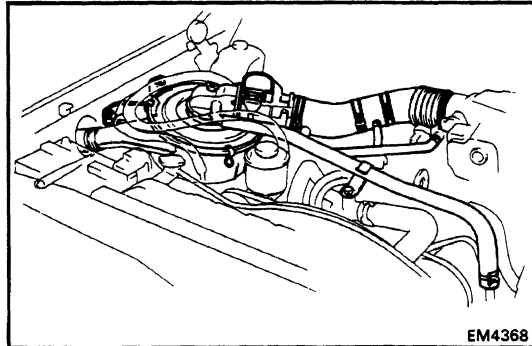
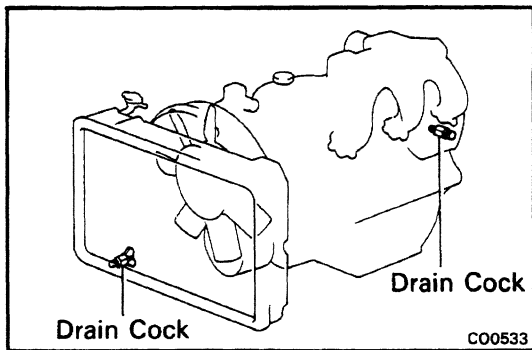


CYLINDER HEAD COMPONENTS





REMOVAL OF CYLINDER HEAD

(See page [EM-13](#))

1. DRAIN ENGINE COOLANT

(See page [CO-5](#))

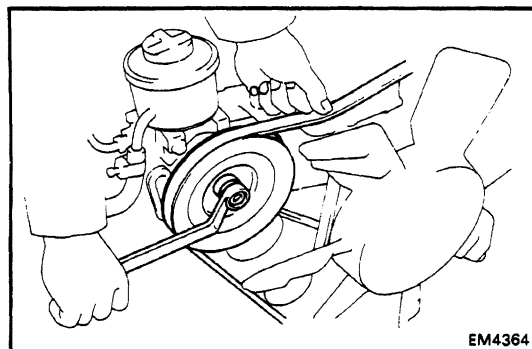
2. DISCONNECT CABLE FROM NEGATIVE TERMINAL

3. REMOVE HOOD

4. DISCONNECT ACCELERATOR AND THROTTLE CABLES

5. REMOVE AIR INTAKE HOSE, AIR FLOW METER AND AIR CLEANER CAP

- (a) Disconnect the air flow meter connector and clamp.
- (b) Disconnect the following hoses:
 - ISC hose
 - Air pump hose
 - Distributor hose
 - PCV hose
 - Three hoses from the intake chamber rear side
 - Two hoses from the VCV of the charcoal canister
- (c) Loosen the air intake hose clamp.
- (d) Remove the wing nut and loosen the three clips, and remove the air intake hose, air flow meter and air cleaner cap.



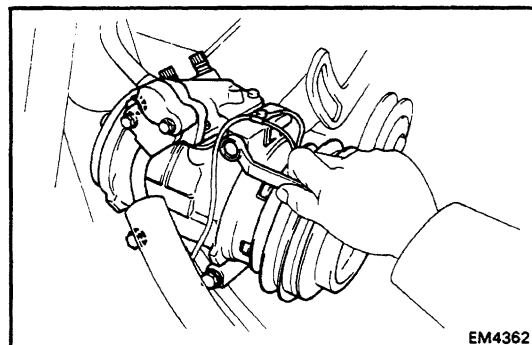
6. REMOVE PS PUMP WITHOUT DISCONNECTING HOSES

- (a) Push on the drive belt to hold the pulley in place and loosen the pulley nut.
- (b) Loosen the idler pulley and adjusting bolts, and remove the drive belt.
- (c) Remove the drive pulley and woodruff key.
- (d) Remove PS mount bolts, and remove the PS pump from the bracket.

7. REMOVE A/C COMPRESSOR WITHOUT DISCONNECTING HOSES

- (a) Disconnect the connector.
- (b) Loosen the idler pulley nut.
- (c) Screw in the adjusting bolt, and remove the drive belt.
- (d) Remove the four compressor mount bolts.
- (e) Put aside the compressor, and suspend it to the fender apron with the string.

8. REMOVE PS PUMP AND A/C COMPRESSOR BRACKETS



9. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS AND IGNITION COIL**10. REMOVE HEATER WATER (OIL COOLER) PIPE**

- (a) Disconnect the hoses from the water outlet, water pump, oil cooler and heater water pipe.
- (b) Remove the bolts and heater water (oil cooler) pipe from the cylinder head.

11. DISCONNECT RADIATOR UPPER HOSE**12. DISCONNECT FUEL HOSES****13. RAISE VEHICLE**

NOTICE: Be sure the vehicle is securely supported.

14. DISCONNECT EXHAUST PIPE FROM EXHAUST MANIFOLD

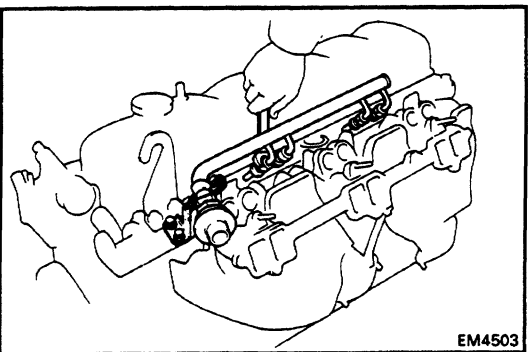
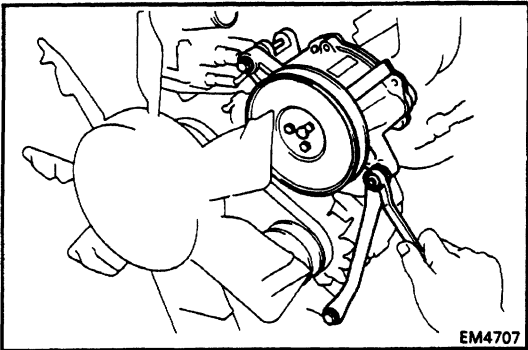
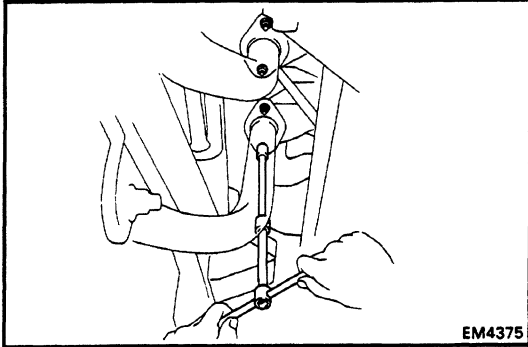
- (a) Loosen the bolt and disconnect the clamp from the bracket.
- (b) Remove the four nuts, and disconnect the exhaust pipe.

15. REMOVE AIR PUMP

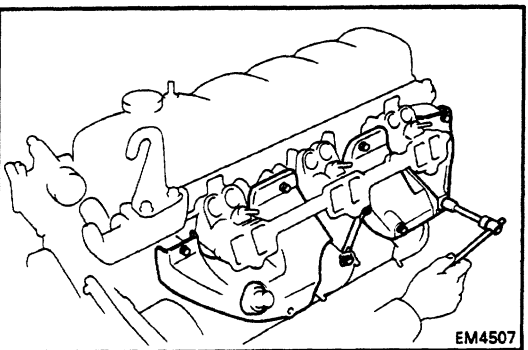
- (a) Disconnect the air hose.
- (b) Remove the bolt, nut and air pump stay.
- (c) Remove the through bolt, nut and air pump.

16. REMOVE DELIVERY PIPE AND INJECTORS

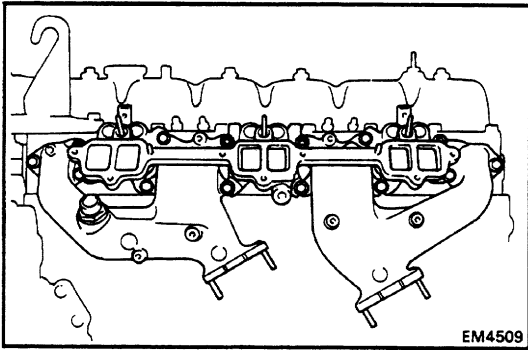
(See steps 4 to 9 on pages [FI-58](#), 59)

**17. REMOVE AIR INJECTION MANIFOLD**

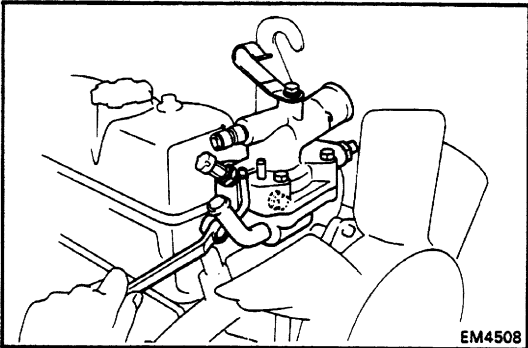
Remove the two bolts, four union nuts and air injection manifold.

**18. REMOVE INTAKE AND EXHAUST MANIFOLDS**

- (a) Remove the two bolts and manifold stay.
- (b) Remove the six bolts and three manifold heat insulators.



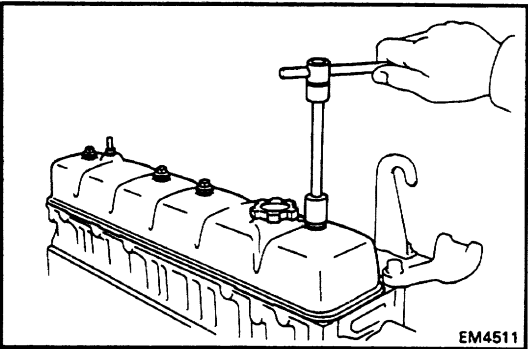
- (c) Remove the ten bolts, four nuts, intake manifold, exhaust manifolds and gasket.



19. REMOVE WATER OUTLET ASSEMBLY

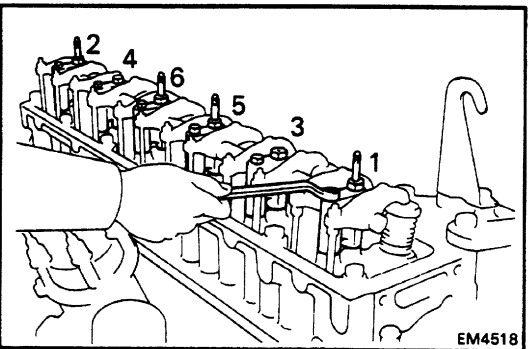
- Disconnect the water by-pass hose from the water outlet.
- Remove the two bolts holding the water outlet housing to the cylinder head, and remove the water outlet assembly and gasket.

20. REMOVE SPARK PLUGS



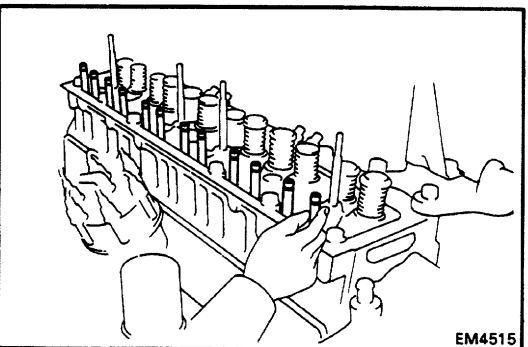
21. REMOVE CYLINDER HEAD COVER

- Remove the four cap nuts, seal washers, cylinder head cover and gasket.



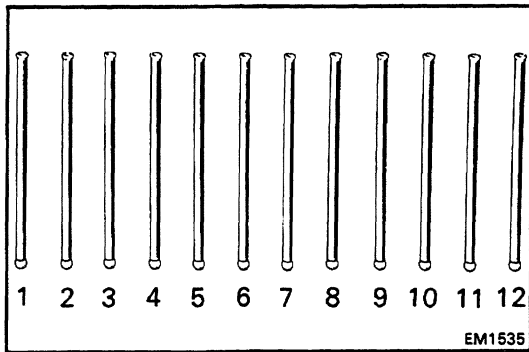
22. REMOVE VALVE ROCKER SHAFT ASSEMBLY

- Uniformly loosen and remove the eight bolts and four nuts in several passes, in the sequence shown.
- Remove the rocker shaft assembly.

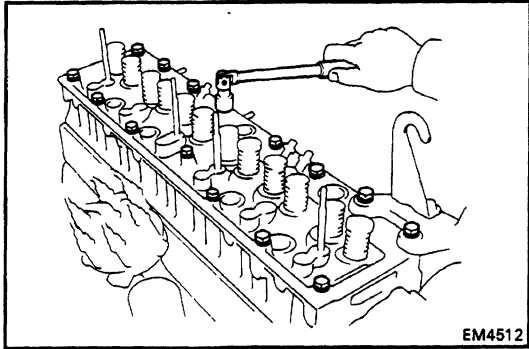


23. REMOVE PUSH RODS

- Remove the twelve push rods in order, beginning from the No. 1 push rod.



HINT: Arrange the push rods in correct order.

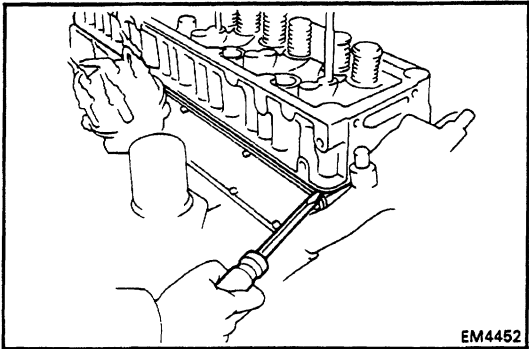


24. REMOVE CYLINDER HEAD

(a) Uniformly loosen and remove the fifteen head bolts in several passes, in the sequence shown.

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

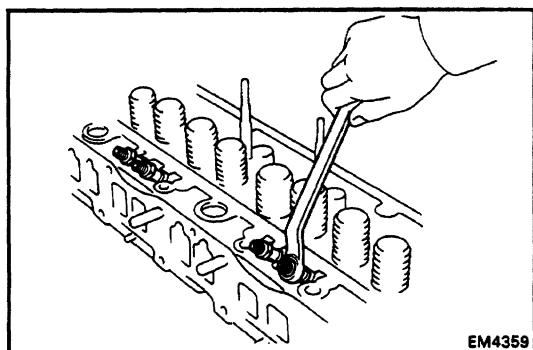
(b) Remove the air pump bracket with engine hanger.



(c) Lift the cylinder head from the dowels on the cylinder block and place it on wooden blocks on a bench.

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

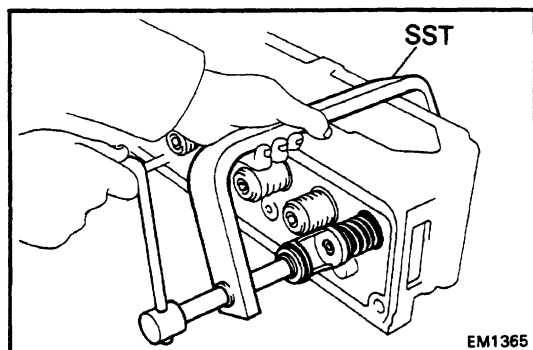
NOTICE: Be careful not to damage the cylinder head and block surface on the cylinder and head gasket sides.



DISASSEMBLY OF CYLINDER HEAD

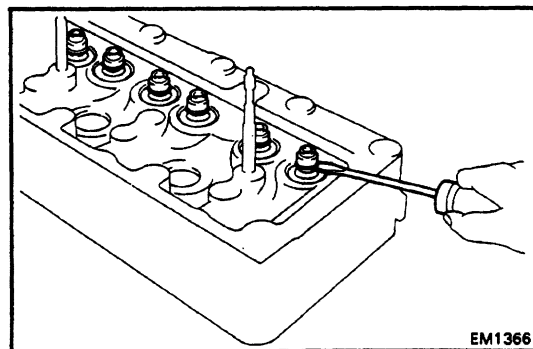
(See page [EM-13](#))

1. REMOVE AIR INJECTION MANIFOLD UNIONS

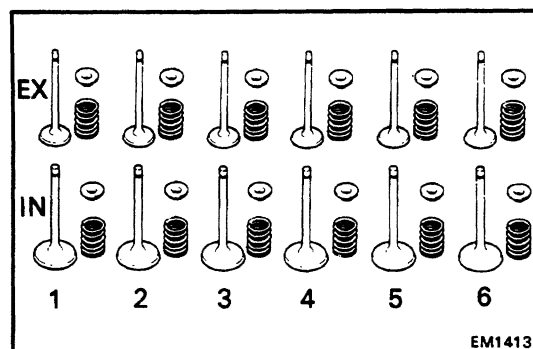


2. REMOVE VALVES

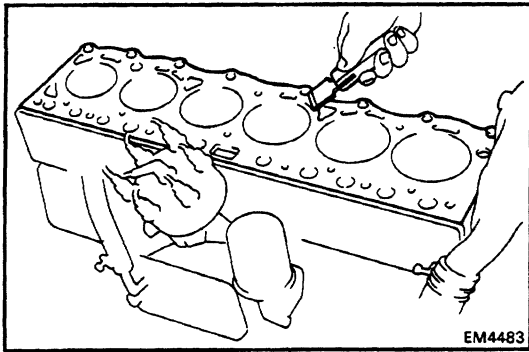
- (a) Using SST, press the valve springs and remove the two keepers.
SST 09202-43013
- (b) Remove the spring retainer (or valve rotator), valve springs and valve.



- (c) Using a screwdriver, pry out the valve stem oil seal.
- (d) Remove the valve spring seat.



HINT: Arrange the valves, valve springs and spring retainers (or valve rotators) in correct order.



INSPECTION, CLEANING AND REPAIR OF CYLINDER HEAD COMPONENTS

1. CLEAN TOP OF PISTONS AND TOP OF BLOCK

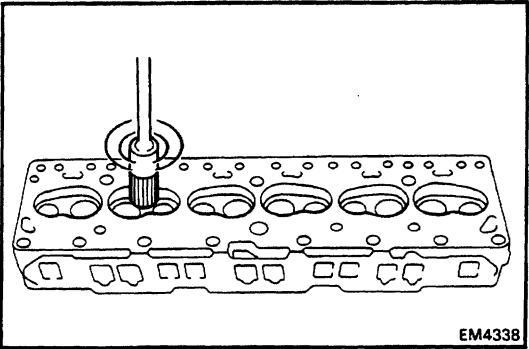
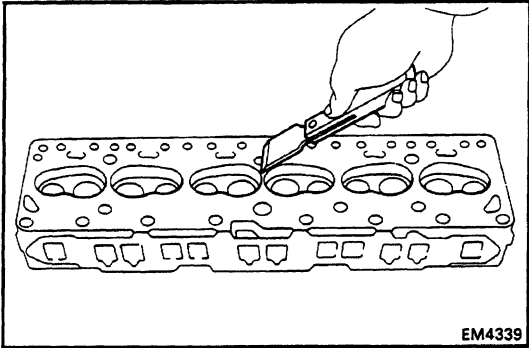
- Turn the crankshaft and bring each piston to top dead center. Using a gasket scraper, remove all the carbon from the piston top.
- Remove all the gasket material from the top of the block.
- Blow carbon and oil from the bolt holes.

CAUTION: Protect your eyes when using high pressure air.

2. REMOVE GASKET MATERIAL

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

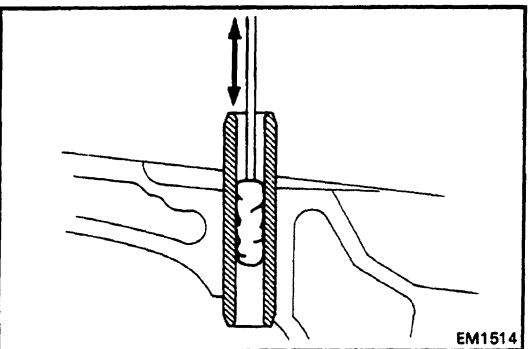
NOTICE: Be careful not to scratch the surfaces.



3. CLEAN COMBUSTION CHAMBERS

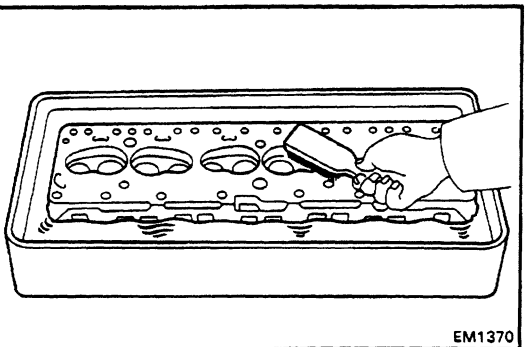
Using a wire brush, remove all the carbon from the combustion chambers.

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



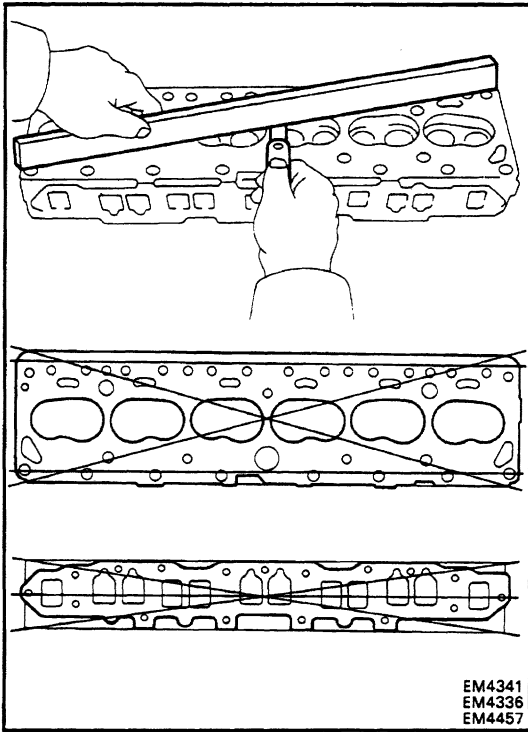
4. CLEAN VALVE GUIDE BUSHINGS

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



5. CLEAN CYLINDER HEAD

Using a soft brush and solvent, thoroughly clean the head.



6. INSPECT CYLINDER HEAD FOR FLATNESS

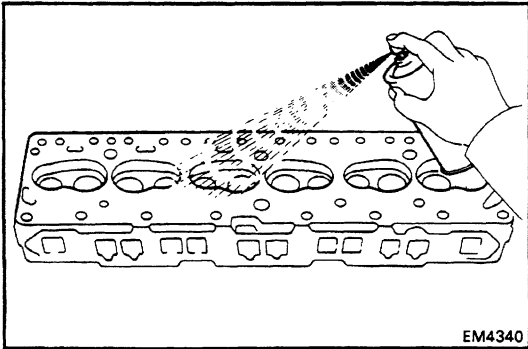
Using a precision straight edge and thickness gauge, measure the surfaces contacting the cylinder block and manifolds for warpage.

Maximum warpage:

Cylinder block side 0.15 mm (0.0059 in.)

Manifold side 0.10 mm (0.0039 in.)

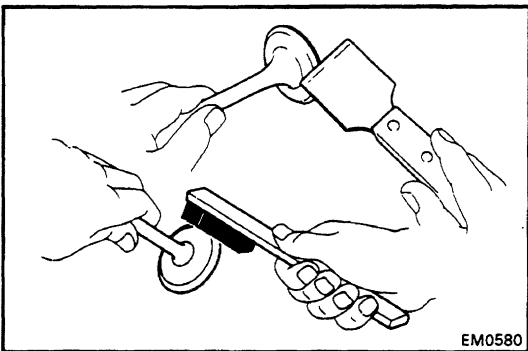
If warpage is greater than maximum, replace the cylinder head.



7. INSPECT CYLINDER HEAD FOR CRACKS

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

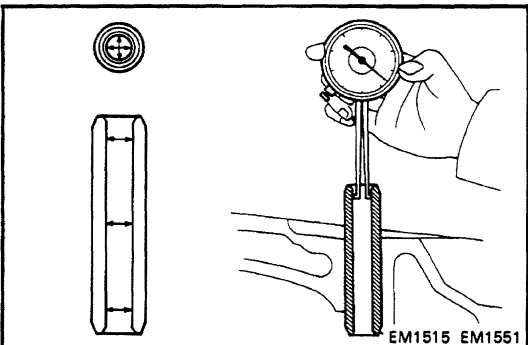
If cracked, replace the head.



8. CLEAN VALVES

(a) Use a gasket scraper, chip any carbon from the valve head.

(b) Using a wire brush, thoroughly clean the valve.

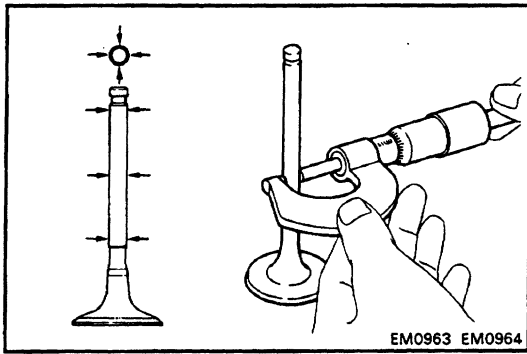


9. INSPECT VALVE STEMS AND GUIDE BUSHINGS

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

Guide bushing inside diameter:

8.010 – 8.030 mm (0.3154 – 0.3161 in.)



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

Valve stem diameter:

Intake 7.970 – 7.985 mm
(0.3138 – 0.3144 in.)

Exhaust 7.960 – 7.975 mm
(0.3134 – 0.3140 in.)

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

Standard oil clearance:

Intake 0.025 – 0.060 mm
(0.0010 – 0.0024 in.)

Exhaust 0.035 – 0.070 mm
(0.0014 – 0.0028 in.)

Maximum oil clearance:

Intake 0.10 mm (0.0039 in.)

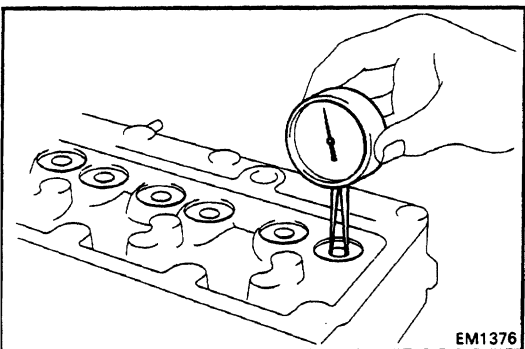
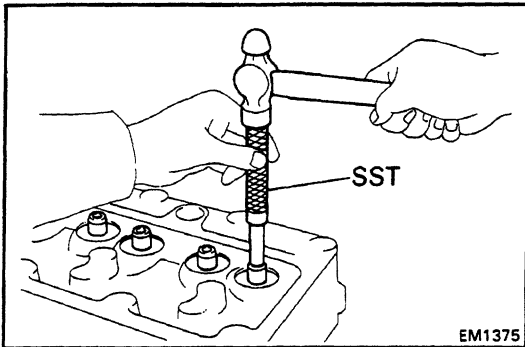
Exhaust 0.12 mm (0.0047 in.)

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

10. IF NECESSARY, REPLACE VALVE GUIDE BUSHINGS

- (a) Using SST and a hammer, drive out the valve guide bushing.

SST 09201-60011



- (b) Using a caliper gauge, measure the bushing bore diameter of the cylinder head.

Standard valve guide bore (cold):

14.000 – 14.018 mm (0.5512 – 0.5519 in.)

If the bushing bore diameter of the cylinder head is more than 14.018 mm (0.5512 in.), machine the bore to the following dimensions and install an oversized bushing (O/SO.05).

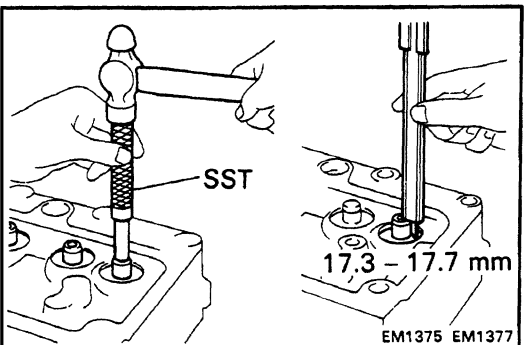
Rebored cylinder head bushing bore dimensions:

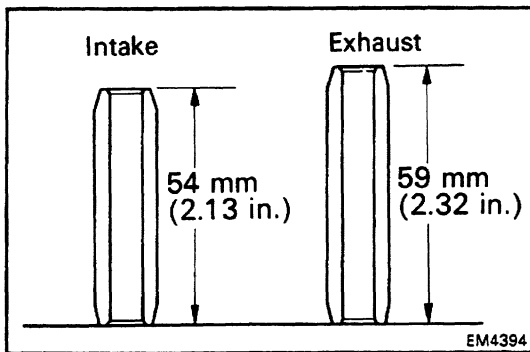
14.050 – 14.068 mm (0.5531 – 0.5539 in.)

If the bushing bore diameter of the cylinder head is greater than 14.068 mm (0.5539 in.), replace the cylinder head.

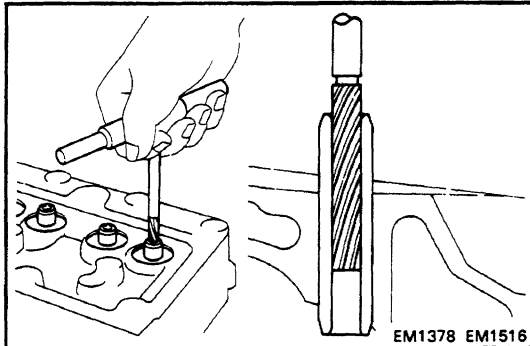
- (c) Using SST and a hammer, drive in a new valve guide bushing to so it is protruding 17.3 – 17.7 mm (0.681 – 0.697 in.) from the cylinder head.

SST 09201-60011





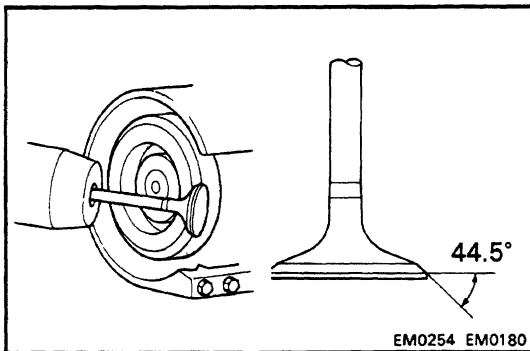
HINT: Different bushings are used for the intake and exhaust.



- (d) Using a sharp 8.0 mm reamer, ream the valve guide bushing to obtain the specified clearance between the valve guide bushing and the new valve.

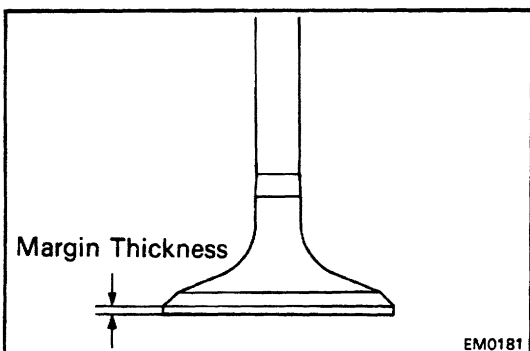
Intake clearance: 0.025 – 0.060 mm
(0.0010 – 0.0024 in.)

Exhaust clearance: 0.035 – 0.070 mm
(0.0014 – 0.0028 in.)



11. INSPECT AND GRIND VALVES

- (a) Grind the valve only enough to remove pits and carbon.
- (b) Check that the valve is ground to the correct valve face angle.
Valve face angle: 44.5°



- (c) Check the valve head margin thickness.

Standard margin thickness:

Intake 1.5 – 2.1 mm (0.059 – 0.083 in.)

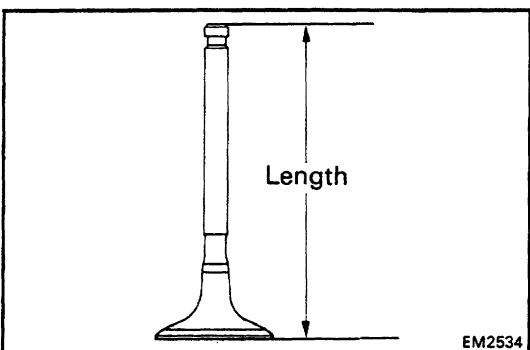
Exhaust 1.7 – 2.3 mm (0.067 – 0.091 in.)

Minimum margin thickness:

Intake 1.0 mm (0.039 in.)

Exhaust 1.2 mm (0.047 in.)

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



- (d) Check the valve overall length.

Standard overall length:

Intake 124.8 mm (4.913 in.)

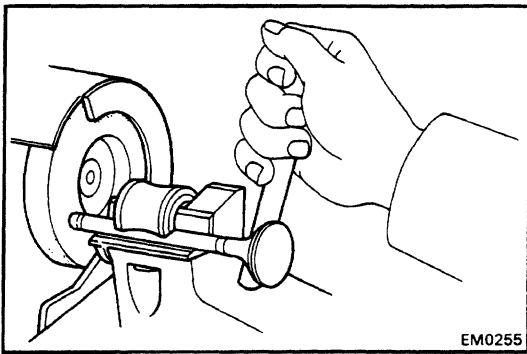
Exhaust 128.0 mm (5.039 in.)

Minimum overall length:

Intake 124.3 mm (4.894 in.)

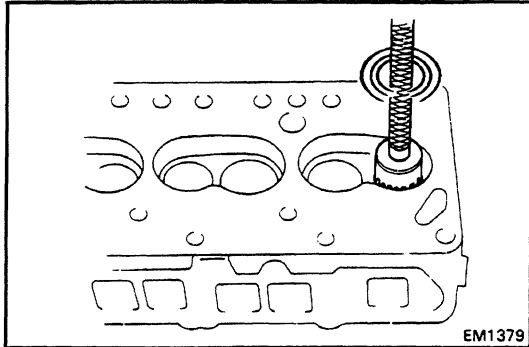
Exhaust 127.5 mm (5.020 in.)

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



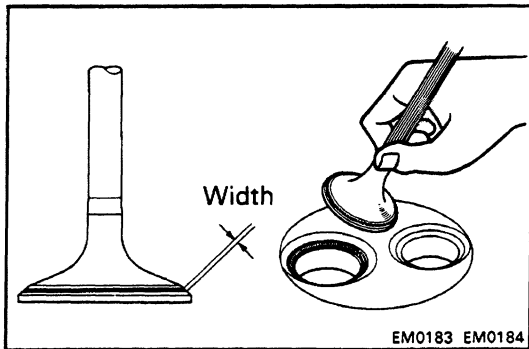
- (e) Check the surface of the valve stem tip for wear. If the valve stem tip is worn, resurface the tip with a grinder or replace the valve.

NOTICE: Do not grind off more than the 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 thin coat of prussian blue (or white lead) to the valve face. Install the valve. While applying light pressure to the valve, do not rotate the valve.

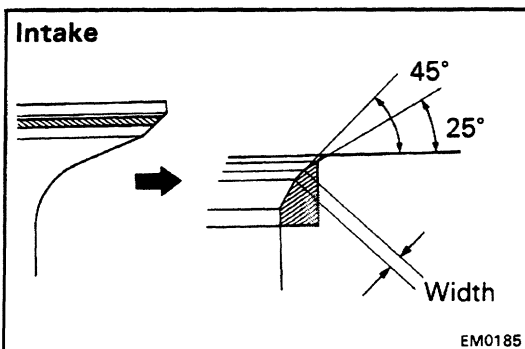
- (c) Check the valve face and seat for the following:

- 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:
Intake 1.1 – 1.7 mm (0.043 – 0.067 in.)
Exhaust 1.4 – 2.0 mm (0.055 – 0.079 in.)

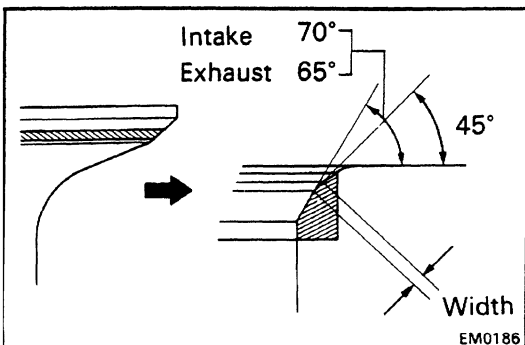
If not, correct the valve seat as follows:

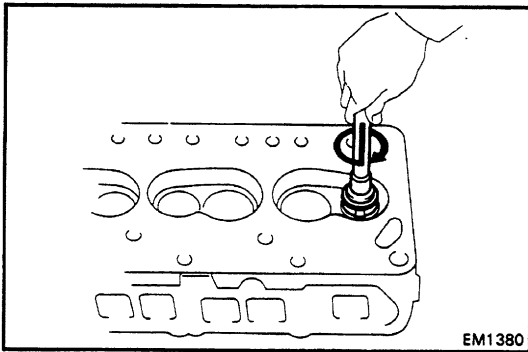
- (1) (Intake)

If the seating is too high on the valve face, use 25° (IN) and 45° cutters to correct the seat.



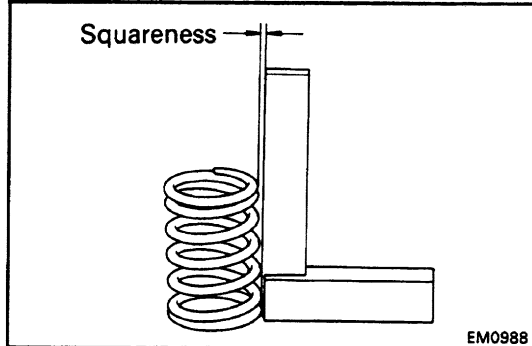
- (2) If the seating is too low on the valve face, use 70° (IN) or 65° (EX) and 45° cutters to correct the seat.





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

(e) After hand-lapping, lean the valve and valve seat.

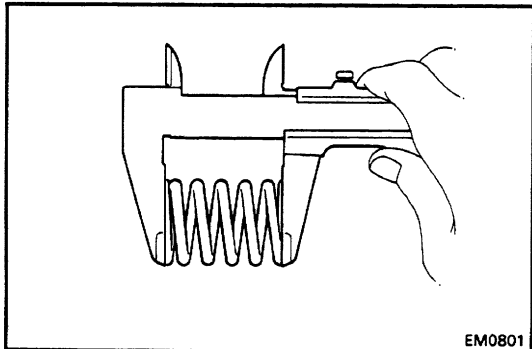


13. INSPECT VALVE SPRINGS

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

Maximum squareness: 1.8 mm (0.071 in.)

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

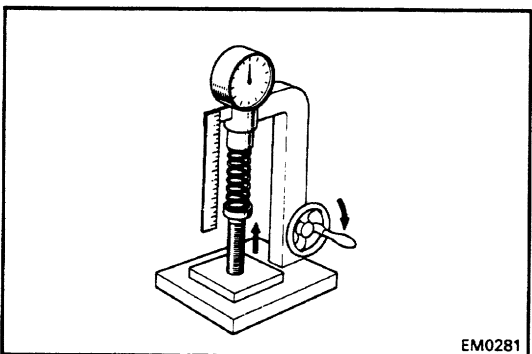


(b) Using calipers, measure the free length of the valve spring.

Standard free length: 51.5 mm (2.028 in.)

Minimum free Length: 50.0 mm (1.967 in.)

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



(c) Using a spring tester, measure the tension of the valve spring at the specified installed length.

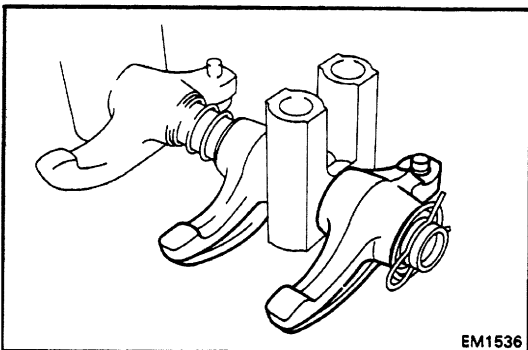
Standard installed tension:

32.5 kg (71.6 lb, 319 N) at 43.0 mm (1.693 in.)

Minimum installed tension:

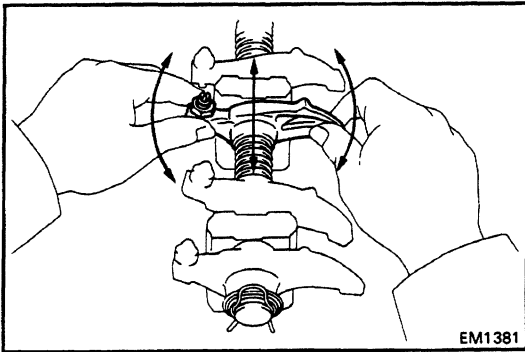
27 kg (59.5 lb, 265 N) at 43.0 mm (1.693 in.)

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

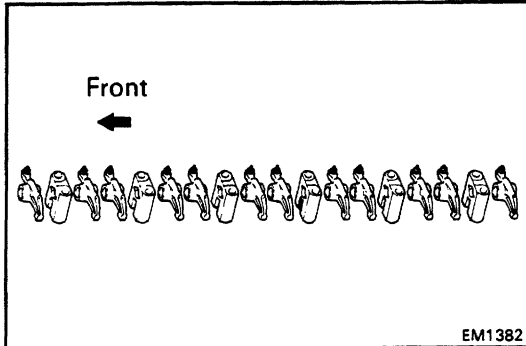


14. INSPECT ROCKER ARM AND SHAFT

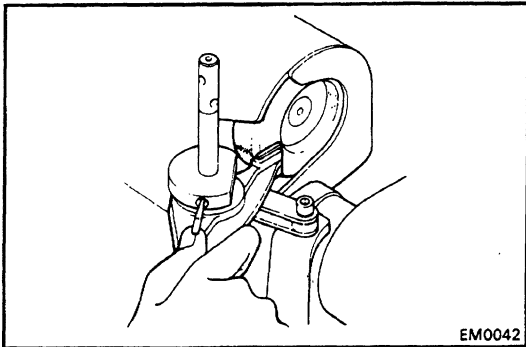
(a) Inspect the valve contacting surface of the rocker arm for wear.



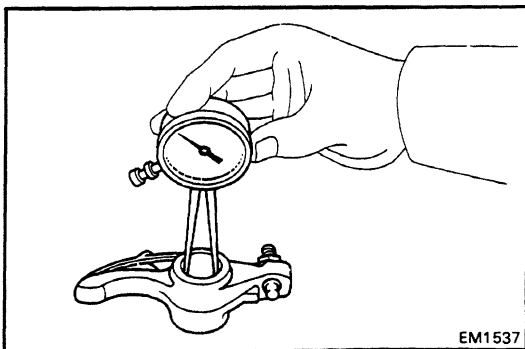
- (b) Inspect the rocker arm-to-shaft clearance by moving each rocker arm as shown in the illustration. If movement is felt, disassemble and inspect.



- (c) Disassemble the valve rocker shaft assembly.
HINT: Arrange the rocker arms and rocker supports in correct order.



If the contacting surface of the rocker arm is worn, resurface it with a valve refacer and oil stone or replace the rocker arm.

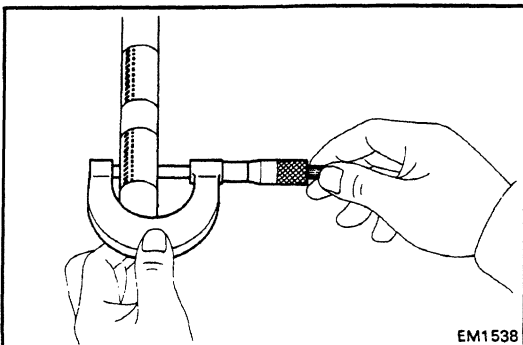


- (d) Inspect the oil clearance between the rocker arm and shaft.

- Using a caliper gauge, measure the inside diameter of the rocker arm.

Rocker arm inside diameter:

18.494 – 18.515 mm (0.7281 – 0.7289 in.)



- Using a micrometer, measure the diameter of the rocker shaft.

Rocker shaft diameter:

18.464 – 18.485 mm (0.7269 – 0.7278 in.)

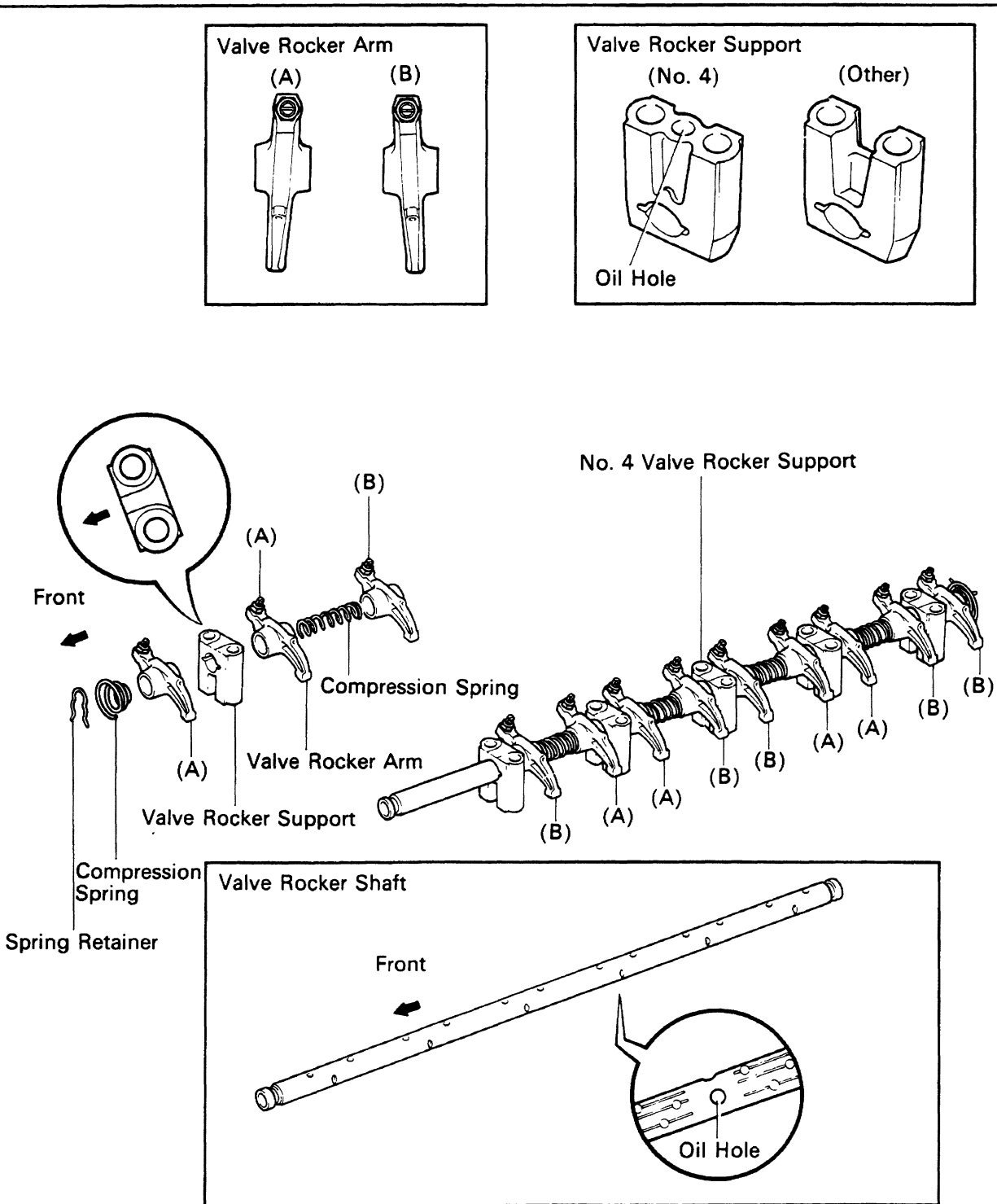
- Subtract the rocker shaft diameter measurement from the inside diameter measurement of the rocker arm.

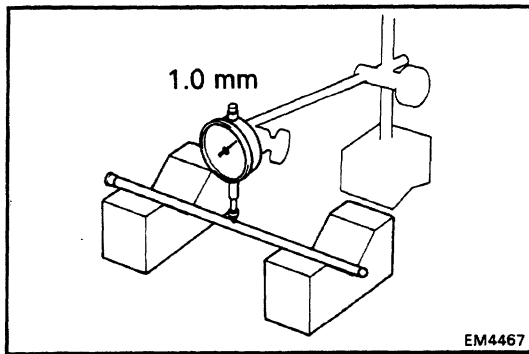
Standard oil clearance: 0.009 – 0.051 mm
(0.0004 – 0.0020 in.)

Maximum oil clearance: 0.08 mm (0.0031 in.)

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

- (e) Assemble the valve rocker shaft assembly as shown.



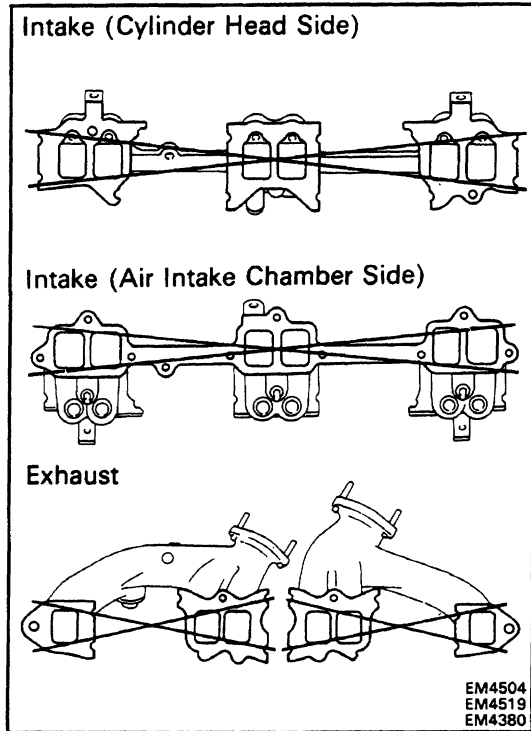


15. INSPECT PUSH RODS

- Place the push rod on V-blocks.
- Using a dial indicator, measure the circle runout at the center of the push rod.

Maximum circle runout: 1.0 mm (0.039 in.)

If the circle runout is greater than maximum, replace the push rod.

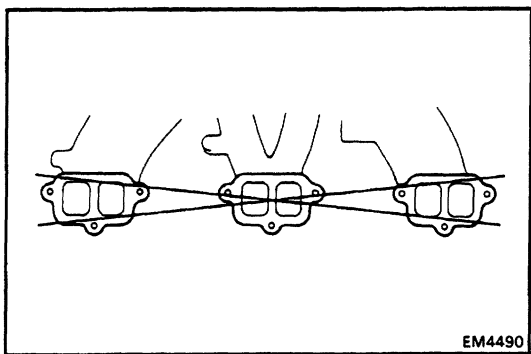


16. INSPECT INTAKE AND EXHAUST MANIFOLDS

Using a precision straight edge and thickness gauge, measure the surfaces contacting the cylinder head and air intake chamber for warpage.

Maximum warpage: 0.50 mm (0.0197 in.)

If the warpage is greater than maximum, replace the manifold.



17. INSPECT AIR INTAKE CHAMBER

Using a precision straight edge and thickness gauge, measure the surfaces contacting the intake manifold for warpage.

Maximum warpage: 0.2 mm (0.008 in.)

If the warpage is greater than maximum, replace the air intake chamber.

ASSEMBLY OF CYLINDER HEAD

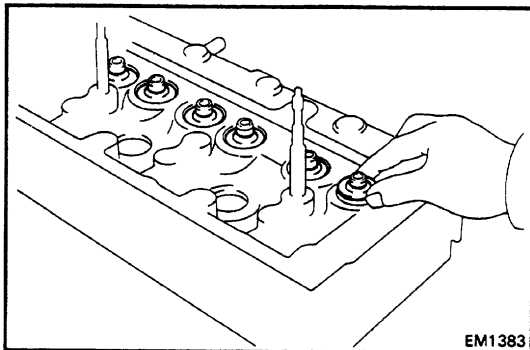
(See page [EM-13](#))

H I N T:

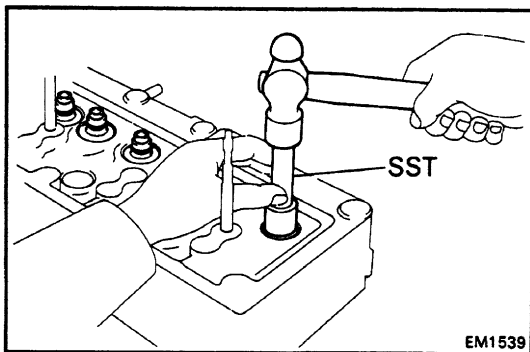
- Thoroughly clean all parts to be assembled.
- Before installing the parts, apply new engine oil to all sliding and rotating surfaces.
- Replace all gaskets and oil seals with new ones.

1. INSTALL VALVES

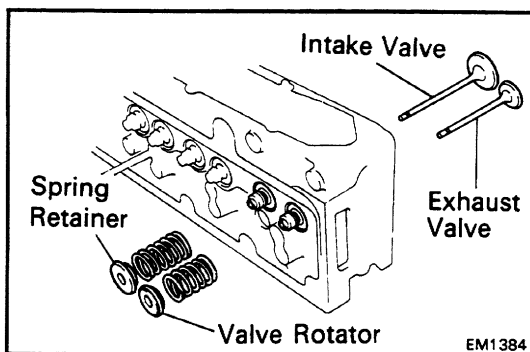
(a) Place the valve spring seat on spring seat.



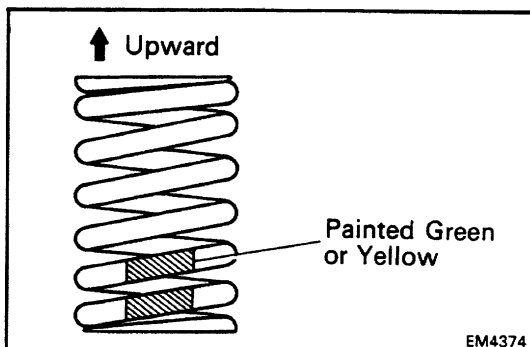
(b) Using SST and a hammer, tap in a new oil seal.
SST 09201-31010

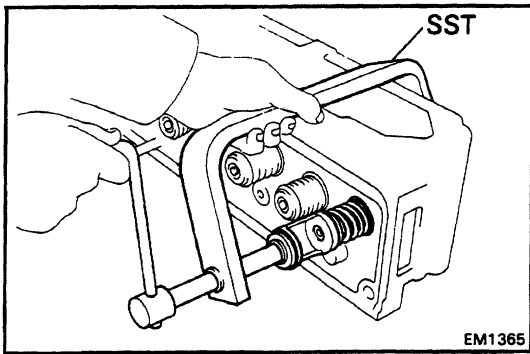


(c) Install the valve, spring and spring retainer (or valve rotator).

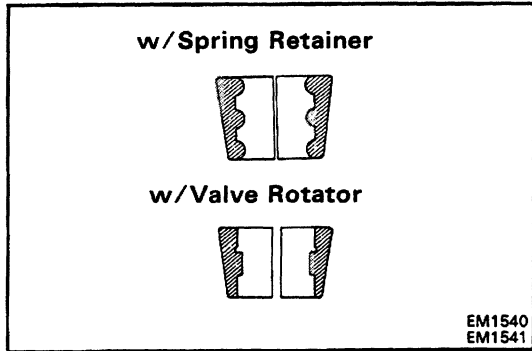


HINT: Install the spring in the correct direction as illustration.

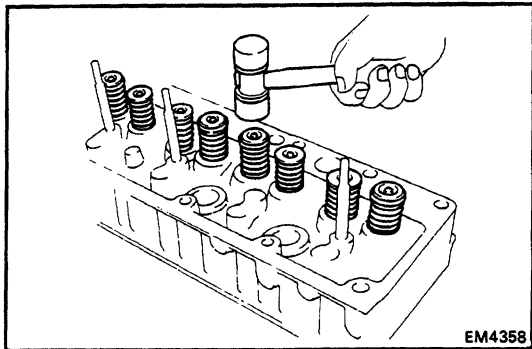




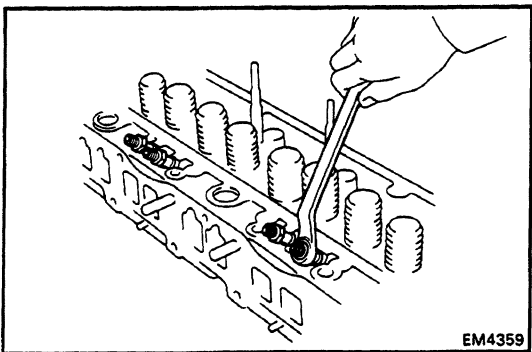
- (d) Using SST, compress the valve spring and place the two keepers around the valve stem.
SST 09202-43013



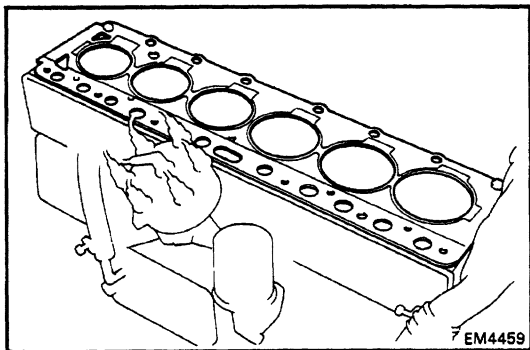
HINT: Different keepers are used for the spring retainer and valve rotator.



- (e) Using a plastic-faced hammer, lightly tap the valve stem tip to assure proper fit.



2. INSTALL AIR INJECTION MANIFOLD UNIONS



INSTALLATION OF CYLINDER HEAD

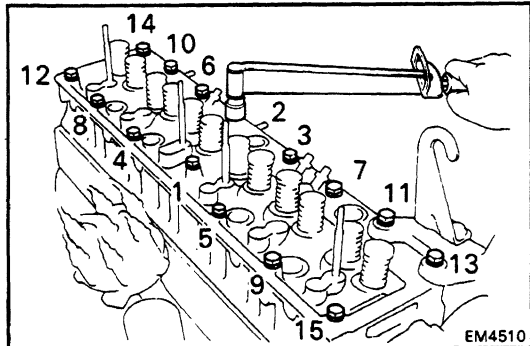
(See page [EM-13](#))

1. INSTALL CYLINDER HEAD

- (a) Place a new cylinder head gasket on the cylinder block.

NOTICE: Be careful of the installation direction.

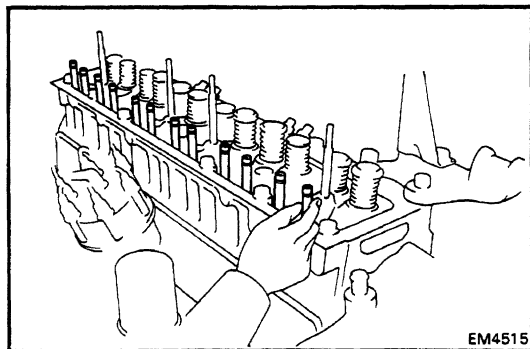
- (b) Place the cylinder head on the cylinder head gasket.



- (c) Apply a light coat of engine oil on the threads and under the cylinder head bolts.

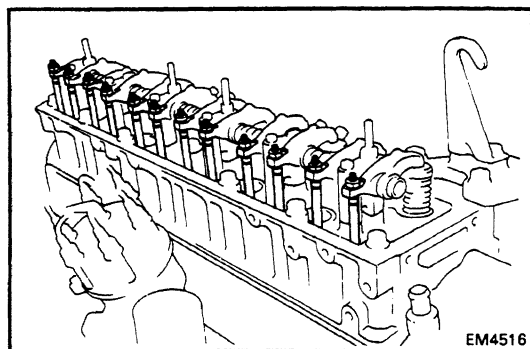
- (d) Install and uniformly tighten the ten cylinder head bolts with the plate washers in several passes, in the sequence shown.

Torque: 1,250 kg-cm (90 ft-lb, 123 N-m)



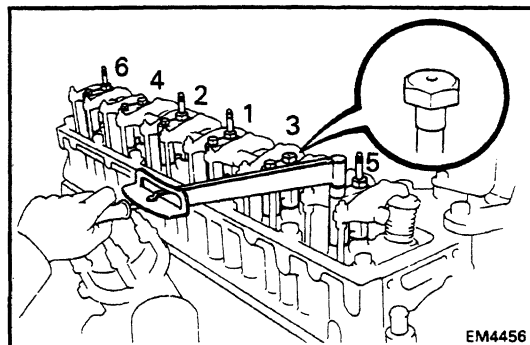
2. INSTALL PUSH RODS

Install the twelve push rods.



3. INSTALL VALVE ROCKER SHAFT ASSEMBLY

- (a) Place the rocker shaft assembly on the cylinder head.
 (b) Align the rocker arm adjusting screws with the heads of the push rods.



- (c) Install and uniformly tighten the eight bolts and four nuts in several passes, in the sequence shown.

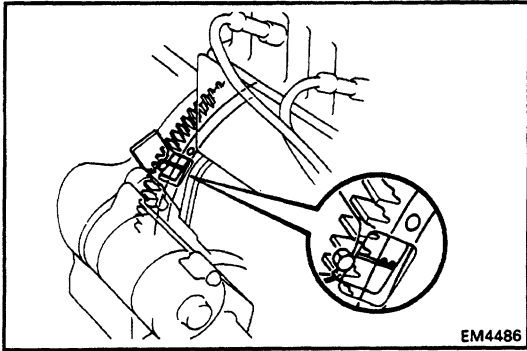
Torque:

12 mm bolt head

240 kg-cm (17 ft-lb, 24 N-m)

14 mm bolt head and nut

340 kg-cm (25 ft-lb, 33 N-m)



4. ADJUST VALVE CLEARANCE

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

- Align the TDC mark of the drive plate with the timing pointer by turning the crankshaft clockwise with a wrench.
- Check that the rocker arms on the No. 1 cylinder are loose and rocker arms on the No. 6 are tight.

If not, turn the crankshaft one revolution (360°) and align the mark as above.

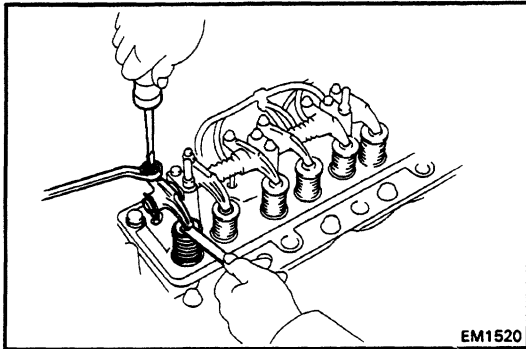
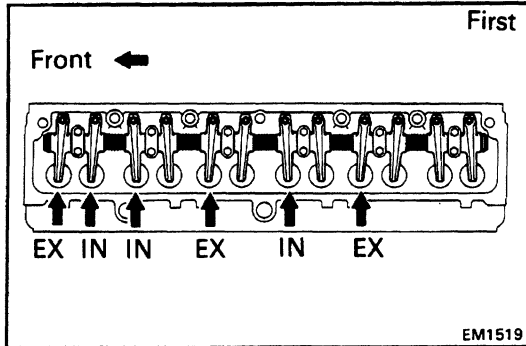
(b) Adjust only those valves indicated by arrows.

Valve clearance:

Intake 0.20 mm (0.008 in.)

Exhaust 0.35 mm (0.014 in.)

HINT: After warm up, readjust the valve clearance.

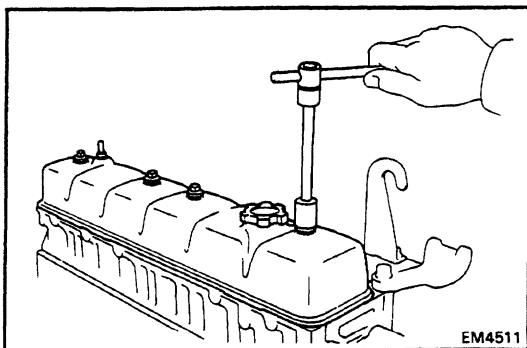
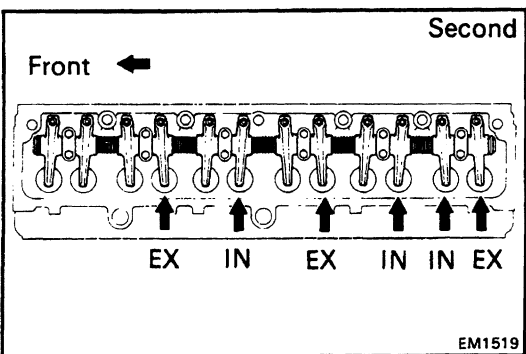


- Using a thickness gauge, measure the valve clearance between the valve stem and rocker arm. Loosen the lock nut and turn the adjusting screw to set the proper clearance. Hold the adjusting screw in position and tighten the lock nut.
- Recheck the valve clearance. The thickness gauge should slide with a very slight drag.

(c) Turn the crankshaft pulley one revolution (360°) and align the mark as above.

Adjust only the valves indicated by arrows.

5. INSTALL SPARK PLUGS

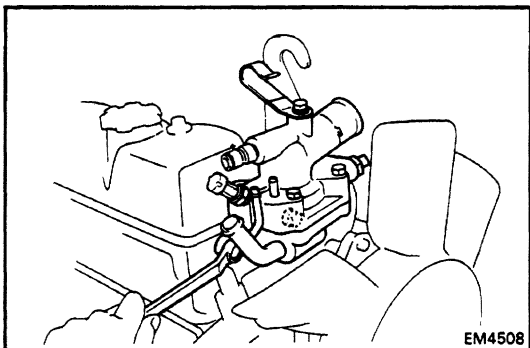


6. INSTALL CYLINDER HEAD COVER

(a) Install a new gasket to the cylinder head cover.

(b) Install the cylinder head cover with four seal washer and cap nuts.

Torque: 90 kg-cm (78 in.-lb, 8.8 N-m)

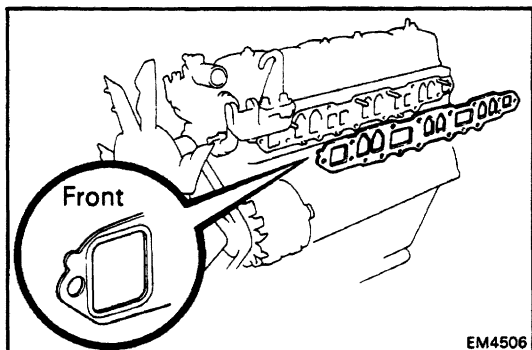


7. INSTALL WATER OUTLET ASSEMBLY

- (a) Install a new gasket and the water outlet assembly with the two bolts.

Torque: 250 kg-cm (18 ft-lb, 25 N-m)

- (b) Connect the water by-pass hose.



8. INSTALL INTAKE AND EXHAUST MANIFOLDS

- (a) Place a new gasket so that the front mark is toward the front side.

- (b) Install the intake manifold and exhaust manifolds with the ten bolts, four plate washers and nuts.

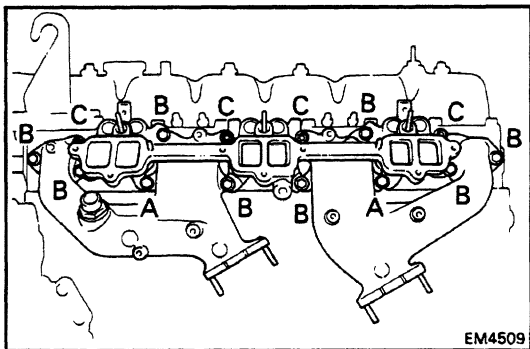
Torque the bolts and nuts.

Torque:

17 mm bolt (A) 700 kg-cm (51 ft-lb, 69 N-m)

14 mm bolt (B) 510 kg-cm (37 ft-lb, 50 N-m)

Nut (C) 570 kg-cm (41 ft-lb, 56 N-m)

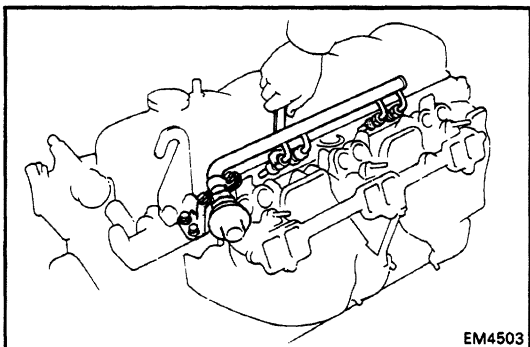
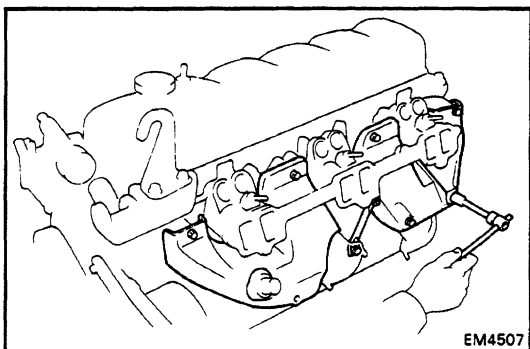


- (c) Install the three manifold heat insulators with the six bolts.

Torque: 120 kg-cm (9 ft-lb, 12 N-m)

- (d) Install the manifold stay with the two bolts.

Torque: 300 kg-cm (22 ft-lb, 29 N-m)



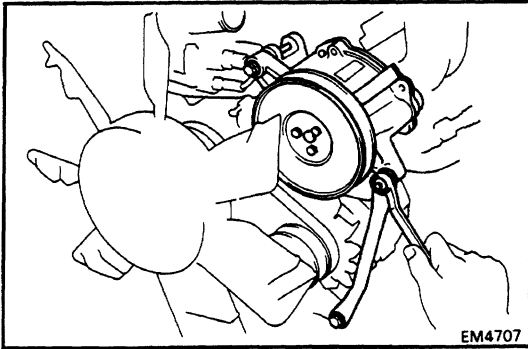
9. INSTALL AIR INJECTION MANIFOLD

Install the air injection manifold with the four union nuts and two clamp bolts.

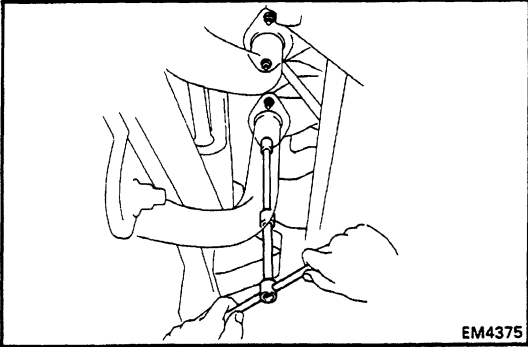
Torque: 210 kg-cm (15 ft-lb, 21 N-m)

10. INSTALL INJECTORS AND DELIVERY PIPE

(See steps 1 to 6 on pages [FI-61](#) to [63](#))

**11. INSTALL AIR PUMP**

- (a) Install the air pump with the through bolt and nut.
- (b) Install the air pump stay with the bolt and nut.
- (c) Connect the air hose.

**12. RAISE VEHICLE**

NOTICE: Be sure the vehicle is securely supported.

13. CONNECT EXHAUST PIPE TO EXHAUST MANIFOLD

- (a) Place two new gasket on the exhaust pipe.
 - (b) Connect the exhaust pipe with four new nuts.
- Torque the nuts.

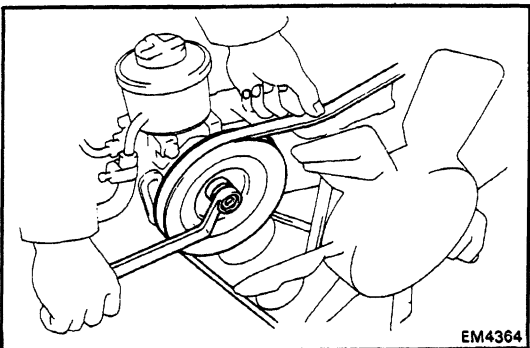
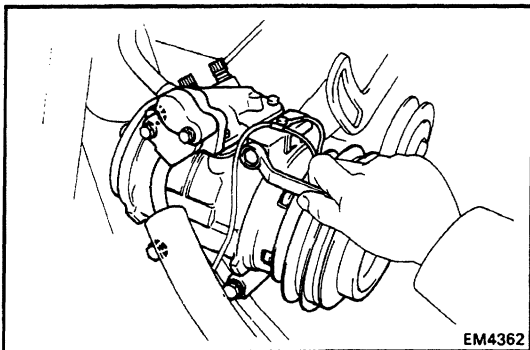
Torque: 630 kg-cm (46 ft-lb, 62 N-m)

14. CONNECT FUEL HOSES**15. CONNECT RADIATOR UPPER HOSE****16. INSTALL HEATER WATER (OIL COOLER) PIPE**

- (a) Install the heater water (oil cooler) pipe with the bolts.
- (b) Connect the hoses to the water outlet, water pump, oil cooler and heater water pipe.

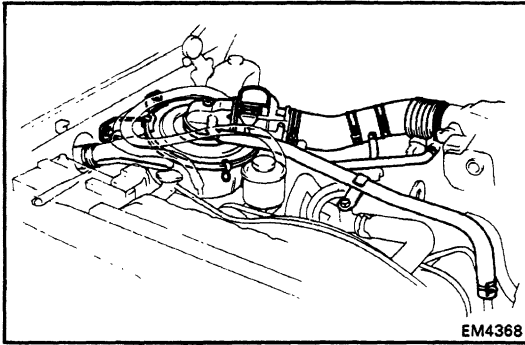
17. CONNECT HIGH-TENSION CORDS TO SPARK PLUGS AND IGNITION COIL**18. INSTALL PS PUMP AND A/C COMPRESSOR BRACKETS****19. INSTALL A/C COMPRESSOR**

- (a) Install the A/C compressor with the four bolts.
 - (b) Install and adjust the drive belt.
- (See page [MA-4](#))

**20. INSTALL PS PUMP**

- (a) Install the PS pump with the two bolts. Do not tighten the bolts.
 - (b) Install the woodruff key, drive pulley with the plate washer spring washer and mount nut.
 - (c) Install and adjust drive belt
- (See page [MA-4](#))
- (d) Push on the drive belt to hold the pulley in place and torque the pulley nut.

Torque: 480 kg-cm (35 ft-lb, 47 N-m)



21. INSTALL AIR INTAKE HOSE, AIR FLOW METER AND AIR CLEANER CAP

- (a) Install the air intake hose, air flow meter and air cleaner cap with the wing nut and three clips.
- (b) Connect the following hoses:
 - ISC hose
 - Air pump hose
 - Distributor hose
 - PCV hose
 - Three hoses from the intake chamber rear side
 - Two hoses from the VCV of the charcoal canister

22. CONNECT ACCELERATOR AND THROTTLE CABLES, AND ADJUST THEM

23. FILL WITH ENGINE COOLANT (See page [CO-5](#))

Capacity:

w/ Front heater

17.5 liters (18.5 US qts, 15.4 Imp. qts)

w/ Front and rear heaters

19–5–liters (20.6 US qts, 17.2 Imp. qts)

24. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY

25. START ENGINE AND CHECK FOR LEAKS

26. PERFORM ENGINE ADJUSTMENT

- (a) Adjust the ignition timing.
(See steps 10 to 14 on page [IG-11](#))

Ignition timing: 7° BTDC @ idle
(w/ Terminals TE1 and E1 connected)

- (b) Adjust the valve clearance. (See page [EM-9](#))

Valve clearance (Hot):

Intake 0.20 mm (0.008 in.)

Exhaust 0.35 mm (0.014 in.)

27. INSTALL HOOD

28. PERFORM ROAD TEST

Check for abnormal noise, shock, slippage and smooth operation.

29. RECHECK ENGINE COOLANT LEVEL AND OIL LEVEL