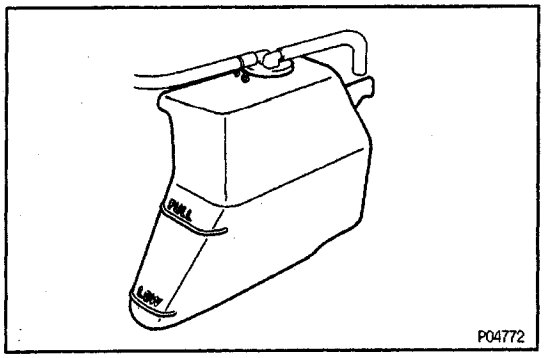


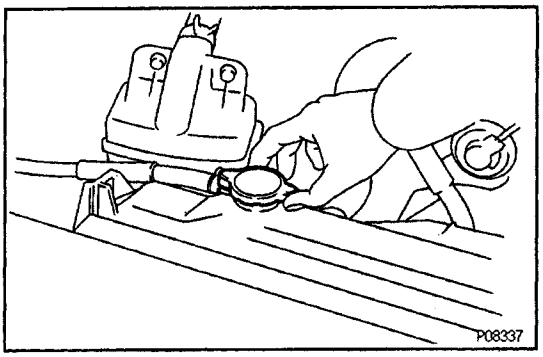
TUNE-UP

ENGINE COOLANT INSPECTION

EG1JN-01

1. CHECK ENGINE COOLANT LEVEL AT RESERVOIR TANK

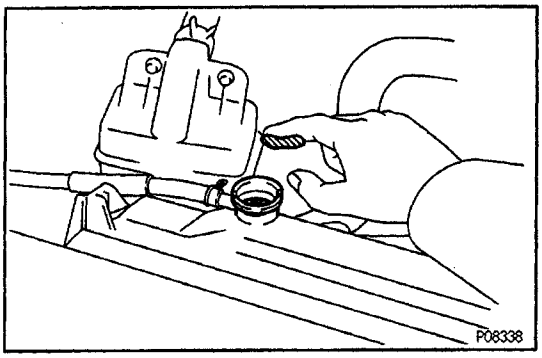
The coolant level should be between the ”LOW” and ”FULL” lines at low temperature.If low, check for leaks and add coolant up to the ”FULL” line.



2. CHECK ENGINE COOLANT QUALITY

(a) Remove the radiator cap.

CAUTION: To avoid the danger of being burned, do not remove the radiator cap while the engine and radiator are still hot, as fluid and steam can be blown out under pressure.



(b) There should not be any excessive deposits of rust or scales around the radiator cap or radiator filler hole, and the coolant should be free from oil.
If excessively dirty, replace the coolant.

(c) Reinstall the radiator cap.

ENGINE OIL INSPECTION

EG084-0F

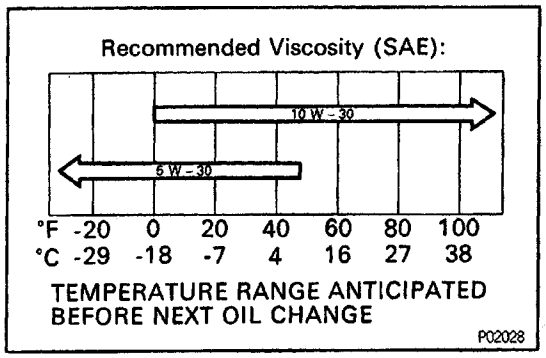
1. CHECK OIL QUALITY

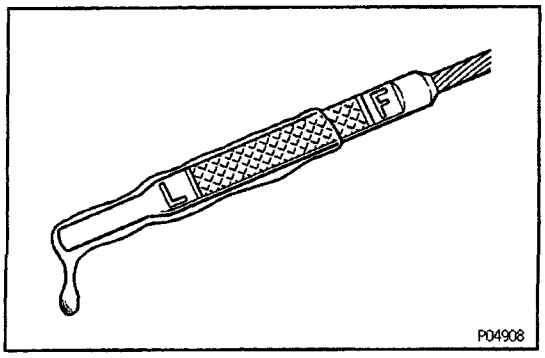
Check the oil for deterioration, entry of water, discoloring or thinning.

If oil quality is visibly poor, replace it.

Oil grade:

API grade SG or SH, Energy -Conserving II or ILSAC multigrade engine oil. Recommended viscosity is as shown in the illustration.

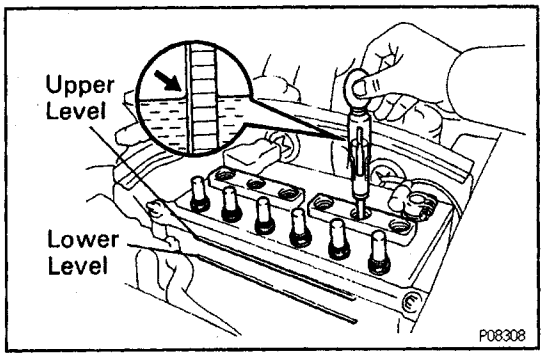


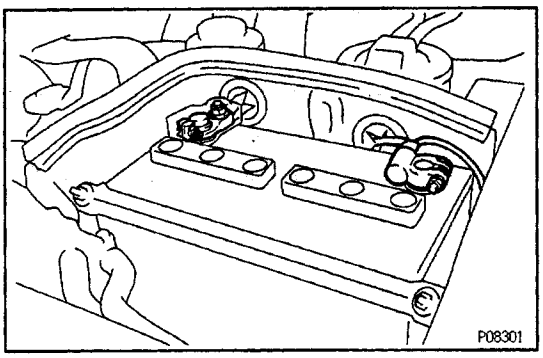


2. CHECK ENGINE OIL LEVEL

The oil level should be between the ”L” and ”F” marks on the dipstick.

If low, check for leakage and add oil up to the ”F” mark.





EG0V1-02

BATTERY INSPECTION

1. CHECK BATTERY SPECIFIC GRAVITY AND ELECTROLYTE LEVEL

(a) Check the electrolyte quantity of each cell.
If insufficient, refill with distilled (or purified) water.

(b) Check the specific gravity of each cell.

Standard specific gravity at 20°C (68°F):
1.27 - 1.29 for 105D31 L Battery
1.25 - 1.27 for 75D31 L Battery

If not within specifications, charge the battery.

2. CHECK BATTERY TERMINALS, FUSIBLE LINKS AND FUSES

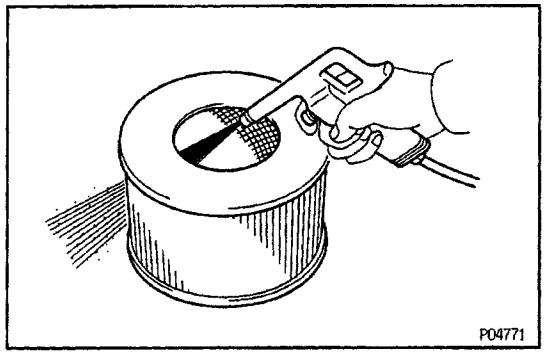
(a) Check that the battery terminals are not loose or corroded.

(b) Check the fusible links and fuses for continuity.

AIR FILTER INSPECTION AND CLEANING

1. REMOVE AIR FILTER

Remove the air cleaner cap and air filter.

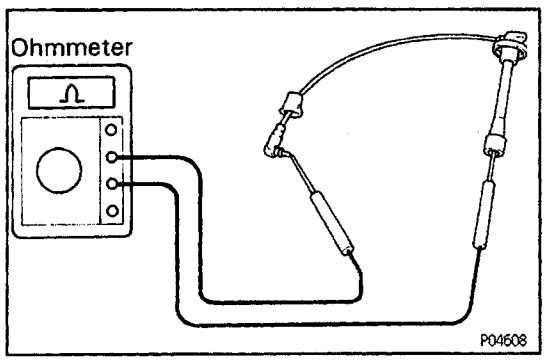


2. INSPECT AND CLEAN AIR FILTER

(a) Visually check that the air filter is not excessively damaged or oily.
If necessary, replace the air filter.

(b) Clean the air filter with compressed air.
First blow from the inside thoroughly, then blow the outside of the air filter.

3. REINSTALL AIR FILTER



EG087-02

HIGH-TENSION CORDS INSPECTION

(See IG section)

Maximum resistance:
25 kΩ per cord

EGONE-04

SPARK PLUGS INSPECTION

(See IG section)

Recommended spark plug:

K16R-U for ND

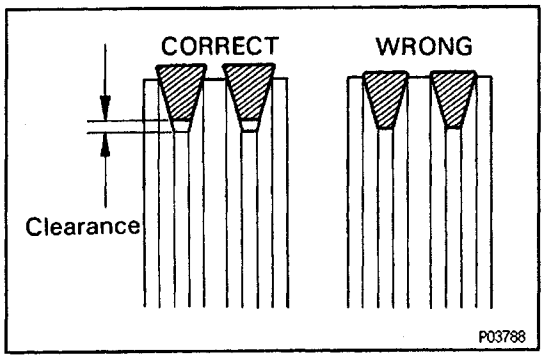
BKR5EYA for NGK

Correct electrode gap:

0.8 mm (0.031 in.)

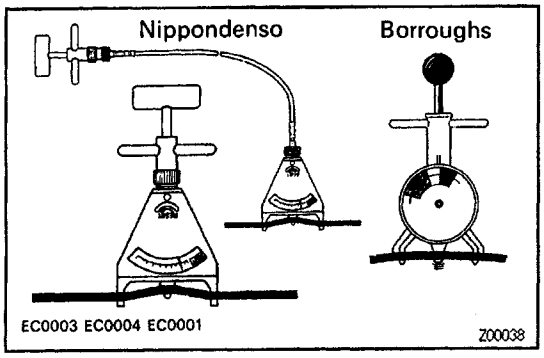
GENERATOR DRIVE BELT INSPECTION

EG1JW-01



INSPECT DRIVE BELTS

(a) Visually check the drive belt for cracks, oiliness or wear. Check that the belt does not touch the bottom of the pulley groove.
If necessary, replace the drive belts as a set.



(b) Using a belt tension gauge, measure the belt tension.
Belt tension gauge:
Nippondenso BTG-20 (95506-00020)
Borroughts No. BT-33-73F

Drive belt tension:

New belt

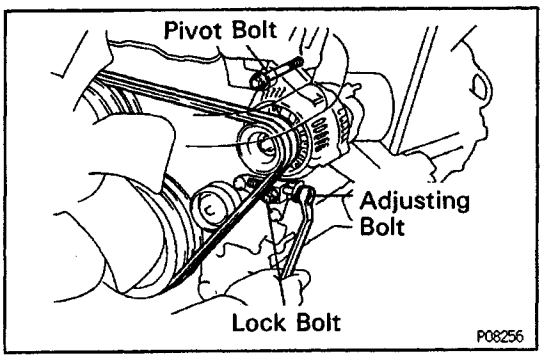
125 ± 25 lbf

Used belt

80 ± 20 lbf

If the belt tension is not as specified, adjust it.
If necessary, adjust the belt tension.
HINT:

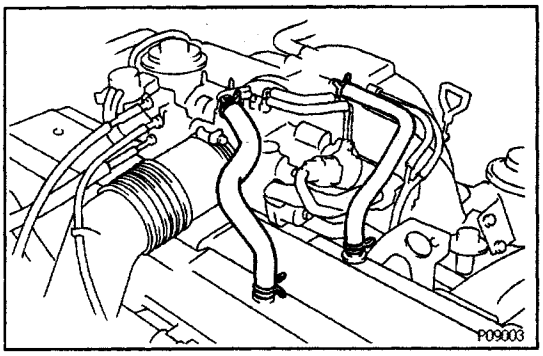
- "New belt" refers to a belt which has been used less than 5 minutes on a running engine.
- "Used belt" refers to a belt which has been used on a running engine for 5 minutes or more.
- After installing a new belt, run the engine for about 5 rniutes and recheck the belt tension.



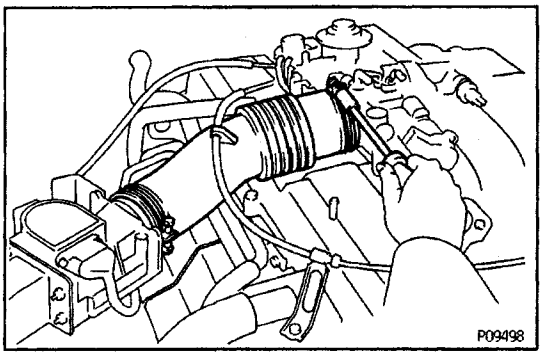
VALVE CLEARANCE INSPECTION AND ADJUSTMENT

HINT: Inspect and adjust the valve clearance when the engine is cold.

1. DRAIN ENGINE COOLANT

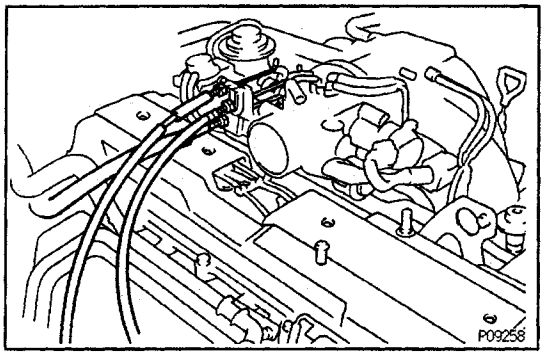


2. REMOVE NO-1 AND NO.2 PCV HOSES



3. REMOVE AIR CLEANER HOSE

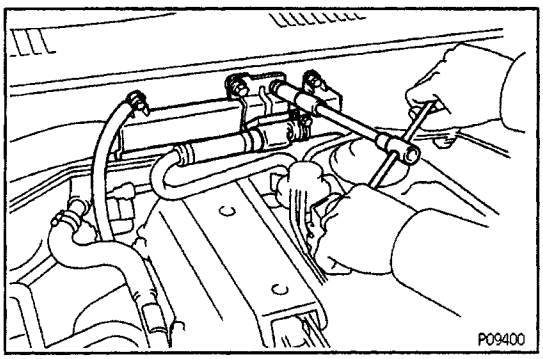
Loosen the 2 clamps and remove the air cleaner hose.



4. DISCONNECT CRUISE CONTROL ACTUATOR CABLE FROM THROTTLE BODY

5. DISCONNECT ACCELERATOR CABLE FROM THROTTLE BODY

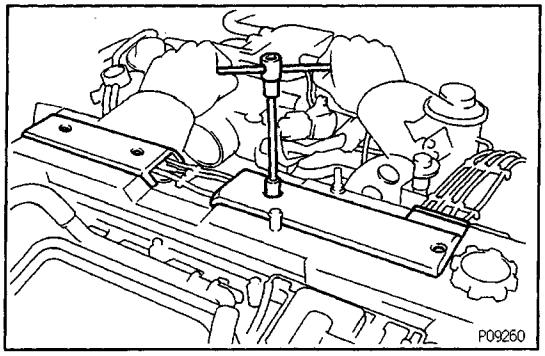
6. DISCONNECT THROTTLE CABLE FROM THROTTLE BODY



7. DISCONNECT HEATER VALVE AND ENGINE WIRE FROM COWL PANEL

(a) Remove the 2 bolts and disconnect the heater valve.

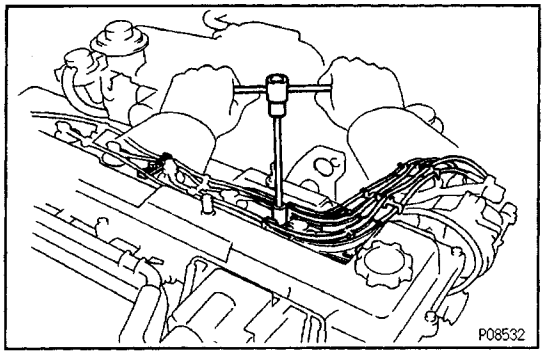
(b) Remove the 2 bolts and disconnect the ground strap and engine wire.



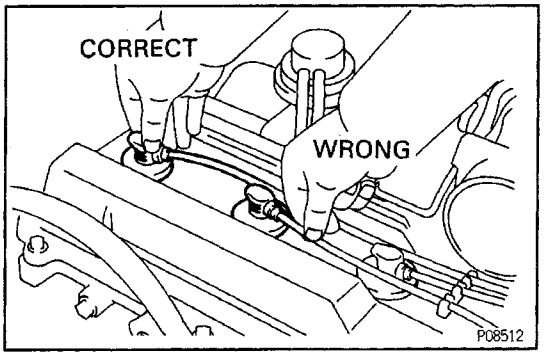
8. REMOVE NO.2 AND NO.3 CYLINDER HEAD COVERS

Remove the 4 bolts and head covers.

9. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS



(a) Remove the 2 mounting bolts of the No.1 and No.2 cord clamps.

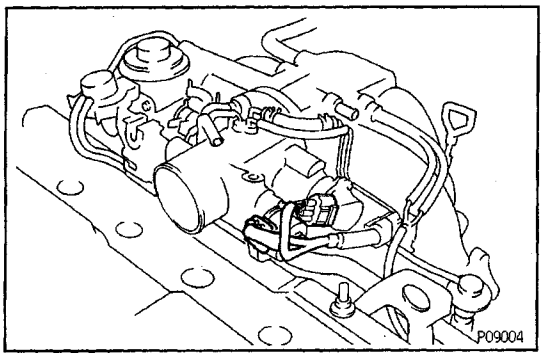


(b) Disconnect the high - tension cords at the rubber boot.

Do not pull on the cords.

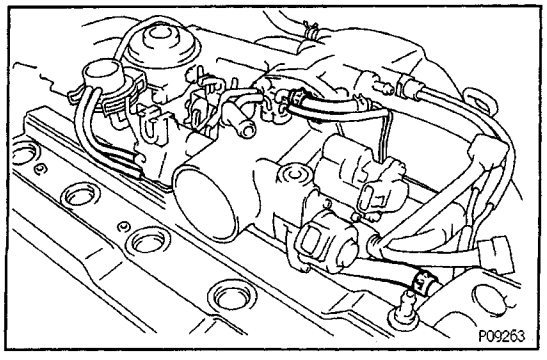
NOTICE: Pulling on or bending the cords may damage the conductor inside.

10. REMOVE THROTTLE BODY



(a) Disconnect the throttle position sensor connector.

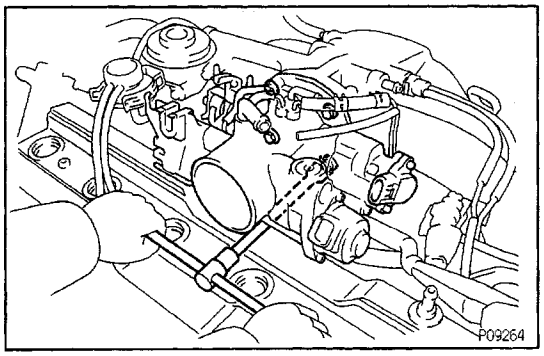
(b) Disconnect the IAC valve connector.



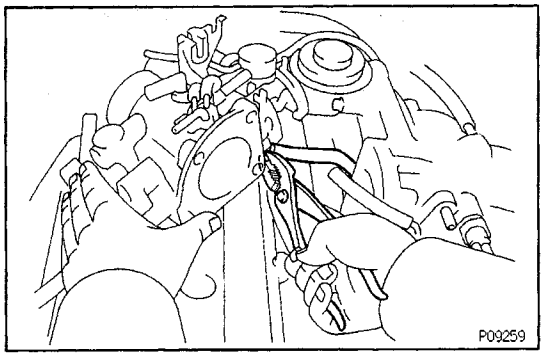
(c) Disconnect the 3 vacuum hoses.

(d) Disconnect the EVAP hose.

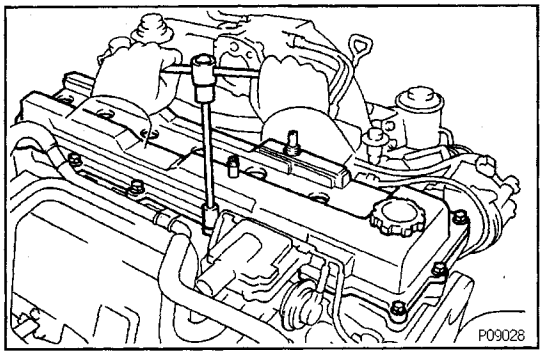
(e) Disconnect the water hose from the No. 2 water bypass pipe.



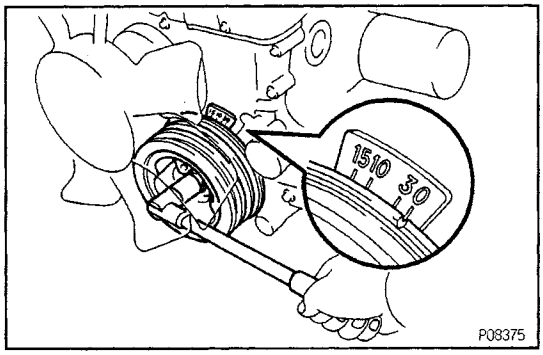
(f) Remove the 4 bolts, and disconnect the throttle body from the air intake chamber.
(g) Remove the throttle body gasket.



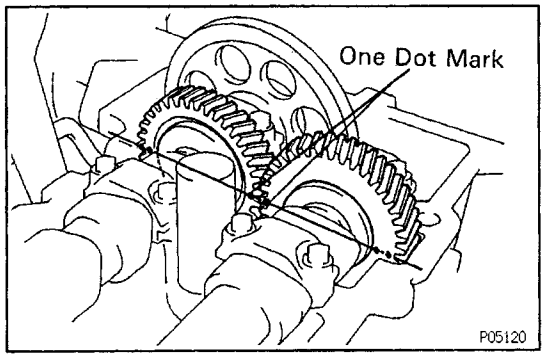
(h) Disconnect the No.1 water bypass hose from the throttle body, and remove the throttle body.



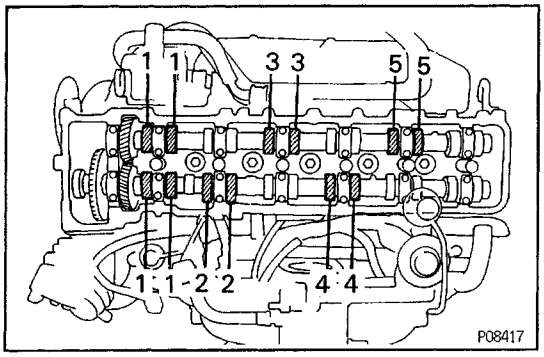
11. REMOVE CYLINDER HEAD COVER
Remove the 13 bolts, cylinder head cover and gasket.



12. SET No.1 CYLINDER TO TDC/COMPRESSION
(a) Turn the crankshaft pulley, and align its groove with the timing mark "0" of the timing chain cover.



(b) Check that the timing marks (one and two dots) of the camshaft drive and driven gears are in straight line on the cylinder head surface as shown in the illustration. If not, turn the crankshaft 1 revolution (360°) and align the marks as above.



13. INSPECT VALVE CLEARANCE

(a) Check only the valves indicated.

- Using a thickness gauge, measure the clearance between the valve lifter and camshaft.
- Record the out- of -specification valve clearance measurements. They will be used later to determine the required replacement adjusting shim.

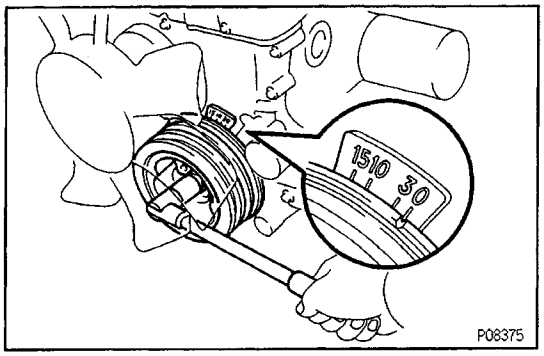
Valve clearance (Cold):

Intake

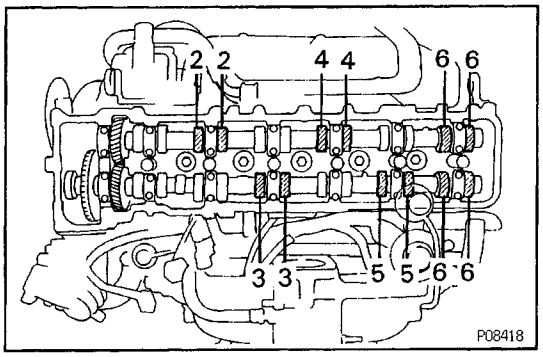
0.15 - 0.25 mm (0.006 - 0.010 in.)

Exhaust

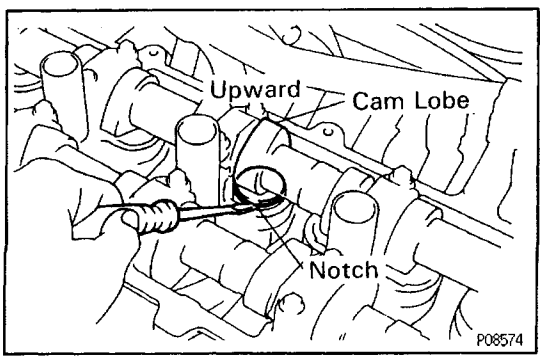
0.25 - 0.35 mm (0.010 - 0.014 in.)



(b) Turn the crankshaft pulley 1 revolution (360') and align the its groove with timing mark "0" of the timing chain cover.



(c) Check only the valves indicated as shown. Measure the valve clearance. (See procedure in step (a))

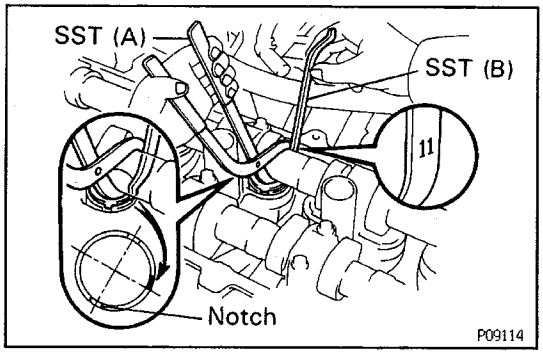


14. ADJUST VALVE CLEARANCE

A. Except for rear valves of No.6 cylinder

(a) Remove the adjusting shim.

- Turn the crankshaft to position the cam lobe of the camshaft on the the adjusting valve upward.
- Position the notch of the valve lifter toward the spark plug side.

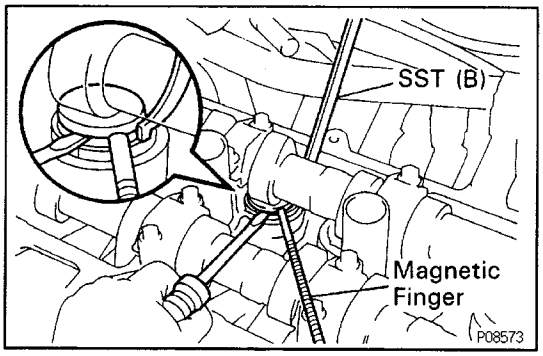


- Using SST (A), press down the valve lifter- and place SST (B) between the camshaft and valve lifter flange. Remove SST (A).

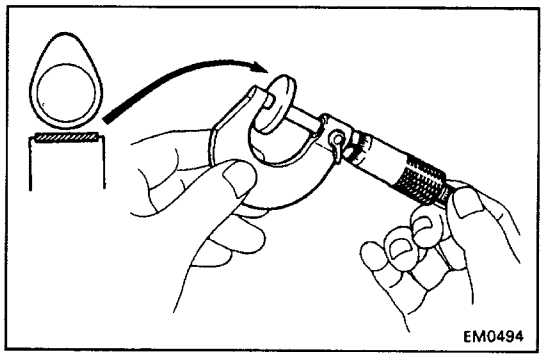
SST 09248-66011 (09248-05310, 09248-06020)

HINT:

- Apply SST (B) at slight angle on the side marked with "11", at the position shown in the illustration.
- When SST (B) is inserted too deeply, it will get pinched by the shim. To prevent it from being stuck, insert it shallowly from the outside of the cylinder head, at a slight angle.



- Remove the adjusting shim with a small screwdriver and magnetic finger.



(b) Determine the replacement adjusting shim size by following the Formula or Charts:

- Using a micrometer, measure the thickness of the removed shim.
- Calculate the thickness of a new shim so that the valve clearance comes within specified value.
  T ..... Thickness of removed shim
  A ..... Measured valve clearance
  N ..... Thickness of new shim

Intake:

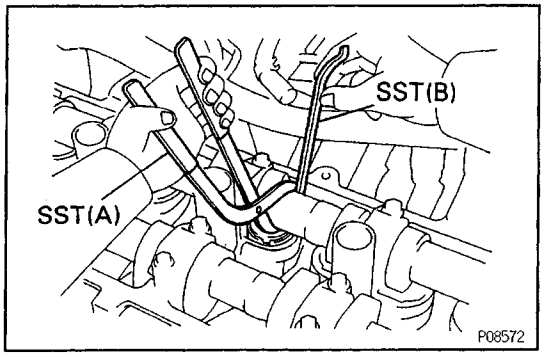
N=T + (A - 0.20 mm (0.008 in.))

Exhaust:

N=T + (A - 0.30 mm (0.012 in.))

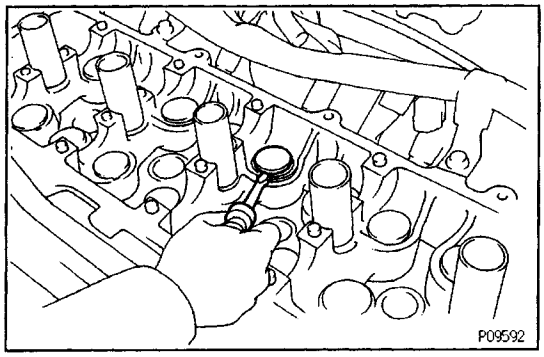
- Select a new shim with a thickness as close as possible to the calculated value.

HINT: Shims are available in 17 sized in increments of 0.05 mm (0.0020 in.), from 2.50 mm (0.0984 in.) to 3.30 mm (0.1299 in.).



(c) Install a new adjusting shim.
- Place a new adjusting shim on the valve lifter.
- Using SST (A), press down the valve lifter and remove SST (B).
  SST 09248-66011 (09248-05310, 09248-06020)

(d) Recheck the valve clearance.

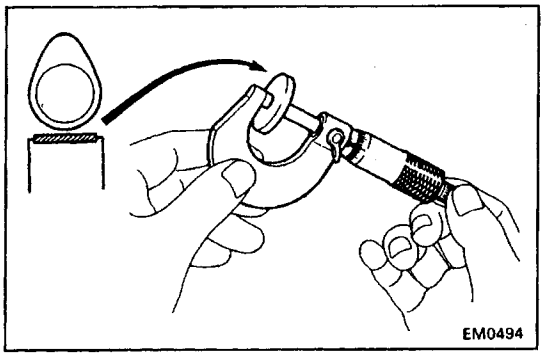


B. Rear valves of No.6 cylinder

(a) Remove the distributor.
  (See IG section:)

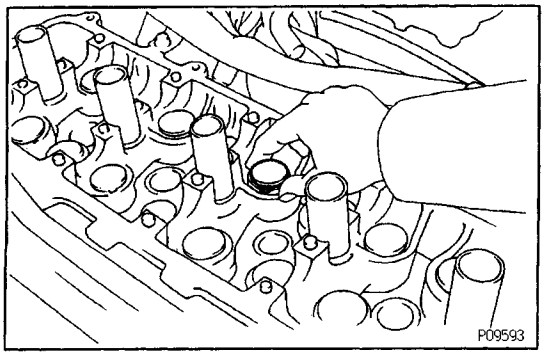
(b) Remove the camshafts.
  (See step 46 on pages EG-44 to 46)

(c) Remove the adjusting shim with a small screwdriver.



(d) Determine the replacement adjusting shim size by following the Formula or Charts:
- Using a micrometer, measure the thickness of the removed shim.
- Calculate the thickness of a new shim so that the valve clearance comes within specified value.
  T ..... Thickness of removed shim
  A ..... Measured valve clearance
  N ..... Thickness of new shim
  Intake:
  N=T + (A - 0.20 mm (0.008 in.))
  Exhaust:
  N=T + (A - 0.30 mm (0.012 in.))
- Select a new shim with a thickness as close as possible to the calculated value.

HINT: Shims are available in 17 sized in increments of 0.05 mm (0.0020 in.), from 2.50 mm (0.0984 in.) to 3.30 mm (0.1299 in.).



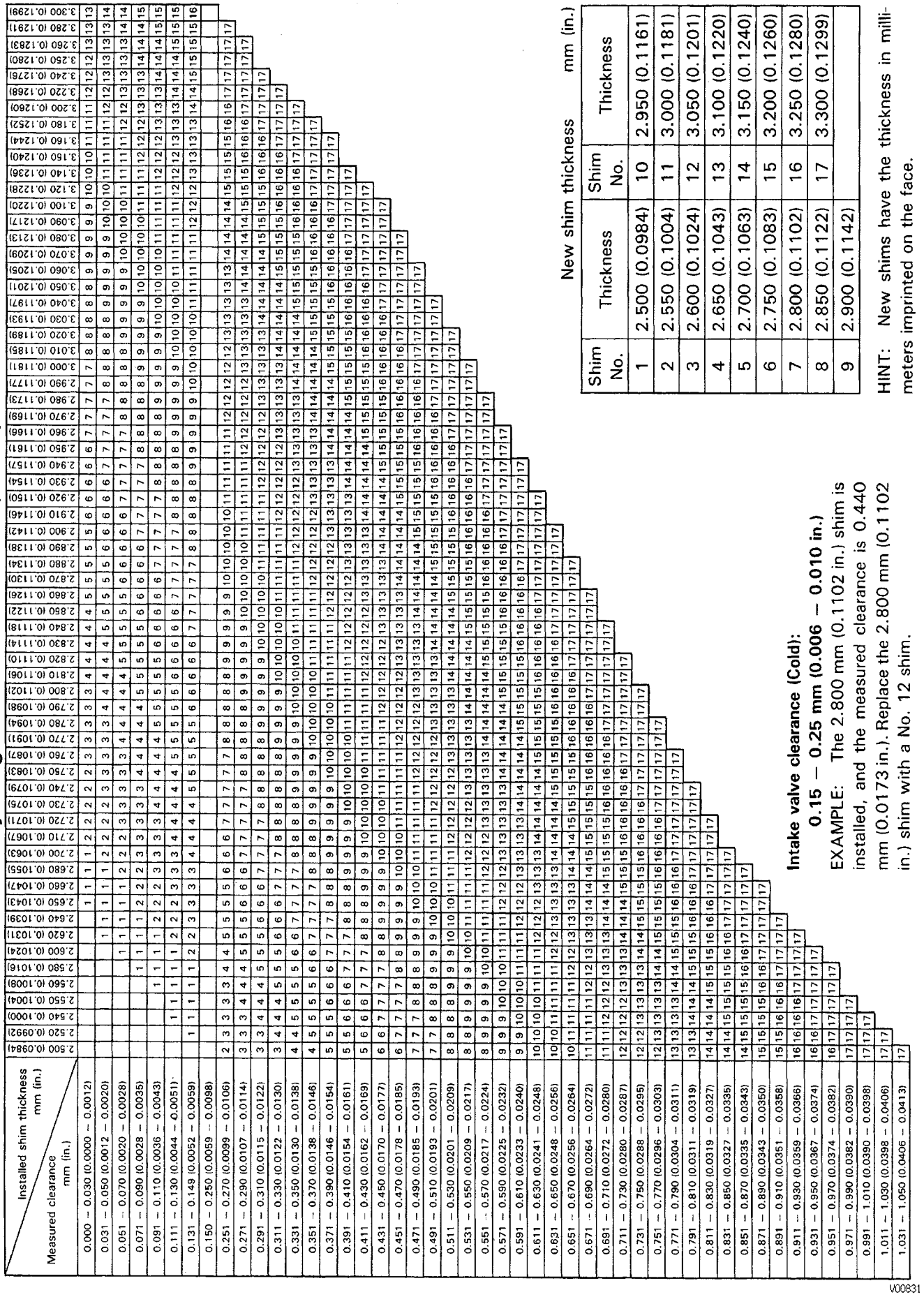
(e) Place a new adjusting shim on the valve lifters.

(f) Install the camshafts.
  (See step 7 on pages EG-67 to 71)

(g) Recheck the valve clearance.

(h) Install the distributor.
  (See IG section)

Adjusting Shim Selection Chart (Intake)



Intake valve clearance (Cold):
0.15 — 0.25 mm (0.006 — 0.010 in.)

EXAMPLE: The 2.800 mm (0.1102 in.) shim is installed, and the measured clearance is 0.440 mm (0.0173 in.). Replace the 2.800 mm (0.1102 in.) shim with a No. 12 shim.

New shim thickness mm (in.)

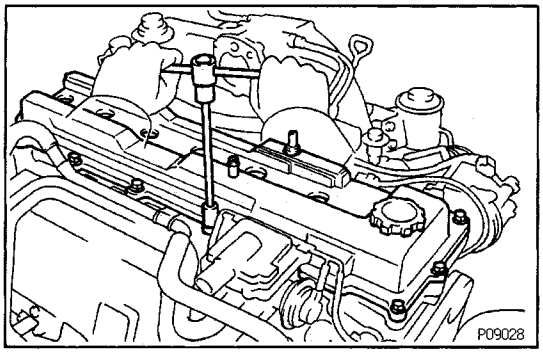
Shim No.	Thickness	Shim No.	Thickness
1	2.500 (0.0984)	10	2.950 (0.1161)
2	2.550 (0.1004)	11	3.000 (0.1181)
3	2.600 (0.1024)	12	3.050 (0.1201)
4	2.650 (0.1043)	13	3.100 (0.1220)
5	2.700 (0.1063)	14	3.150 (0.1240)
6	2.750 (0.1083)	15	3.200 (0.1260)
7	2.800 (0.1102)	16	3.250 (0.1280)
8	2.850 (0.1122)	17	3.300 (0.1299)
9	2.900 (0.1142)		

HINT: New shims have the thickness in millimeters imprinted on the face.

V00831

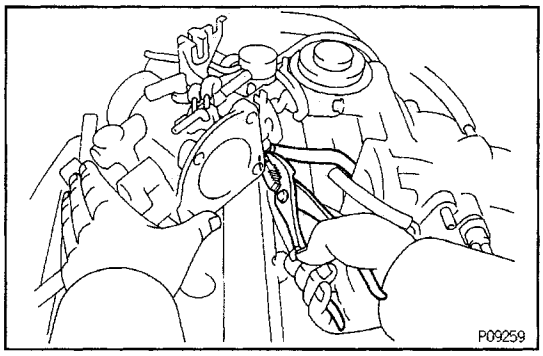
Adjusting Shim Selection Chart (Exhaust)

| Measured clearance mm (in.) \ Installed shim thickness mm (in.) | 2.500 (0.0984) | 2.520 (0.0992) | 2.540 (0.1000) | 2.550 (0.1004) | 2.560 (0.1008) | 2.580 (0.1016) | 2.600 (0.1024) | 2.620 (0.1031) | 2.640 (0.1039) | 2.650 (0.1043) | 2.660 (0.1047) | 2.680 (0.1055) | 2.700 (0.1063) | 2.710 (0.1067) | 2.720 (0.1071) | 2.730 (0.1075) | 2.740 (0.1079) | 2.750 (0.1083) | 2.760 (0.1087) | 2.770 (0.1091) | 2.780 (0.1094) | 2.790 (0.1098) | 2.800 (0.1102) | 2.810 (0.1106) | 2.820 (0.1110) | 2.830 (0.1114) | 2.840 (0.1118) | 2.850 (0.1122) | 2.860 (0.1126) | 2.870 (0.1130) | 2.880 (0.1134) | 2.890 (0.1138) | 2.900 (0.1142) | 2.910 (0.1146) | 2.920 (0.1150) | 2.930 (0.1154) | 2.940 (0.1157) | 2.950 (0.1161) | 2.960 (0.1166) | 2.970 (0.1169) | 2.980 (0.1173) | 2.990 (0.1177) | 3.000 (0.1181) | 3.010 (0.1185) | 3.020 (0.1189) | 3.030 (0.1193) | 3.040 (0.1197) | 3.050 (0.1201) | 3.060 (0.1205) | 3.070 (0.1209) | 3.080 (0.1213) | 3.090 (0.1217) | 3.100 (0.1220) | 3.120 (0.1228) | 3.140 (0.1236) | 3.150 (0.1240) | 3.160 (0.1244) | 3.180 (0.1252) | 3.200 (0.1260) | 3.220 (0.1268) | 3.240 (0.1276) | 3.260 (0.1280) | 3.280 (0.1291) | 3.300 (0.1299) |
|---|---|---



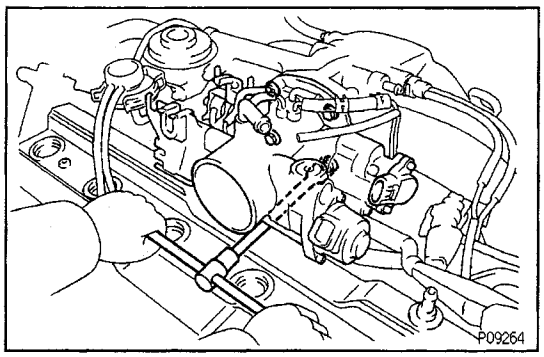
15. REINSTALL CYLINDER HEAD COVER

(a) Install the gasket to the cylinder head cover.
(b) Install the cylinder head cover with the 13 bolts.

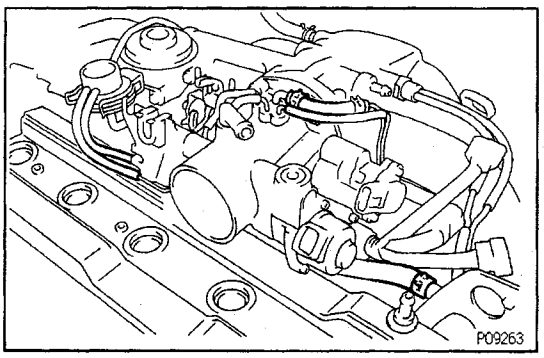


16. INSTALL THROTTLE BODY

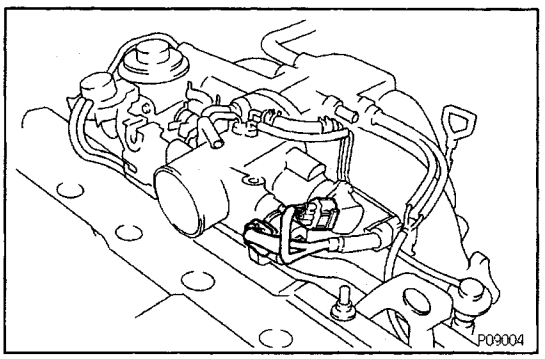
(a) Connect the No.1 water bypass hose to the throttle body.



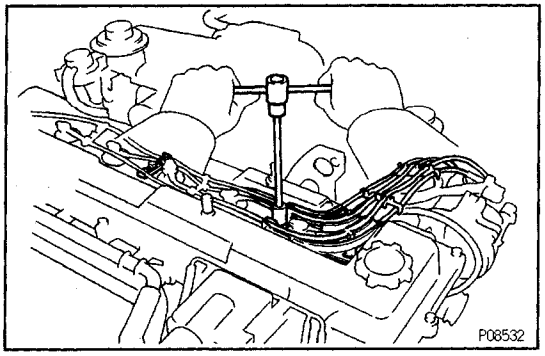
(b) Install a new gasket and throttle body with the 4 bolts.
Torque: 21 N-m (210 kgf-cm, 15 ft-lbf)



(c) Connect the water hose to the No.2 water bypass pipe.
(d) Connect the EVAP hose.
(e) Connect the 3 vacuum hoses.

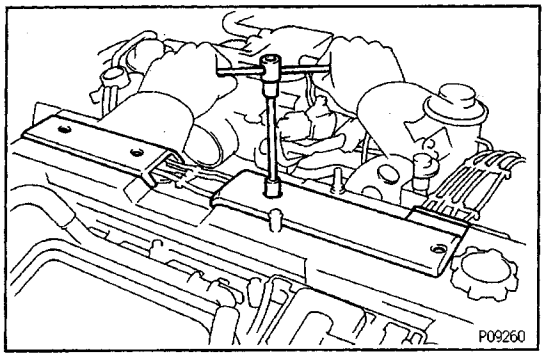


(f) Connect the IAC valve connector.
(g) Connect the throttle position sensor connector.



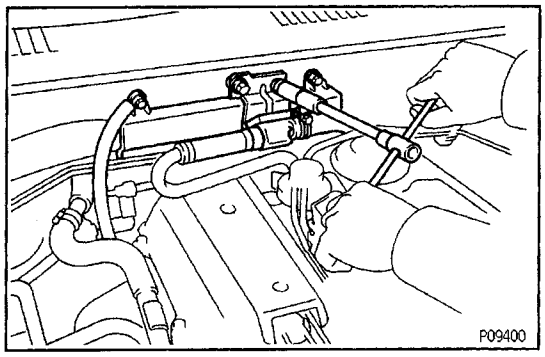
17. RECONNECT HIGH-TENSION CORDS TO SPARK PLUGS

(a) Connect the high-tension cords.
(b) Install the No.1 and No.2 cord clamps with the 2 bolts.



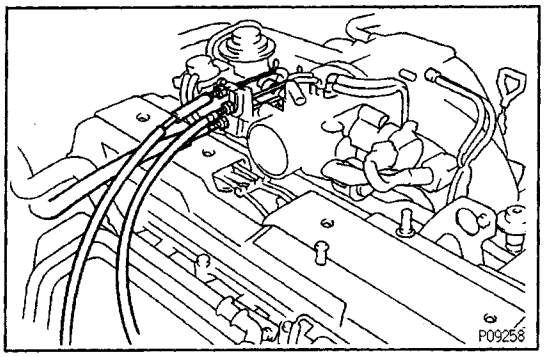
18. REINSTALL N0.2 AND N0.3 CYLINDER HEAD COVERS

Install the head covers with the 4 bolts.



19. RECONNECT ENGINE WIRE AND HEATER VALVE TO CAWL PANEL

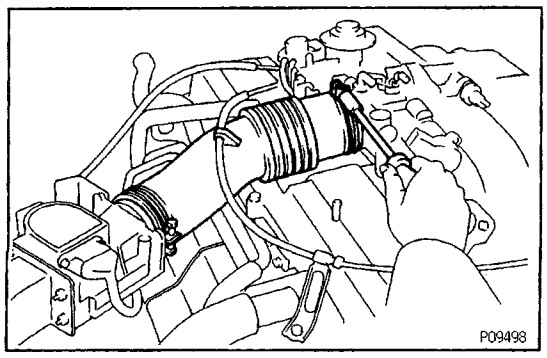
(a) Connect the ground strap and engine wire with the 2 bolts.
(b) Connect the heater valve with the 2 bolts.



20. RECONNECT THROTTLE CABLE TO THROTTLE BODY

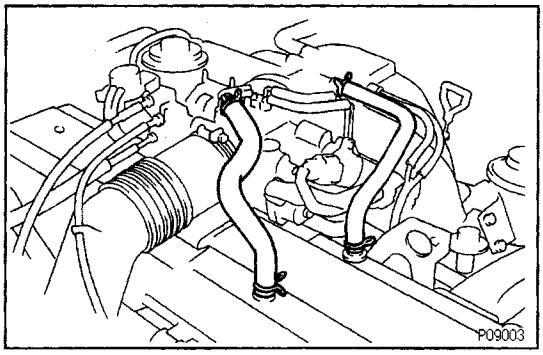
21. RECONNECT ACCELERATOR CABLE

22. RECONNECT CRUISE CONTROL ACTUATOR CABLE TO THROTTLE BODY



23. REINSTALL AIR CLEANER HOSE

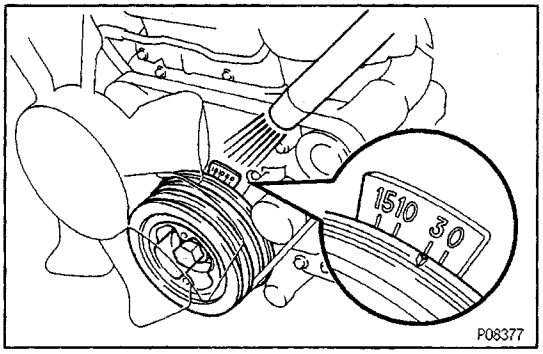
Install the air cleaner hose with the 2 clamp bolts.



24. REINSTALL NO.1 AND NO.2 PCV HOSES

25. REFILL WITH ENGINE COOLANT

26. CHECK AND ADJUST IGNITION TIMING
(See IG section)



IGNITION TIMING INSPECTION AND ADJUSTMENT

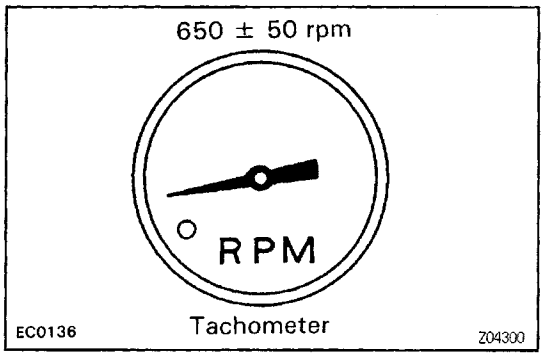
EG1JS-01

(See IG section)

Ignition timing:

3° BTDC @ idle

(w/ Terminals TE1 and E1 connected)



IDLE SPEED INSPECTION

EG1JT-05

HINT: Initial conditions (See step 1 on page EG-25)

Idle speed:

650 ± 50 rpm