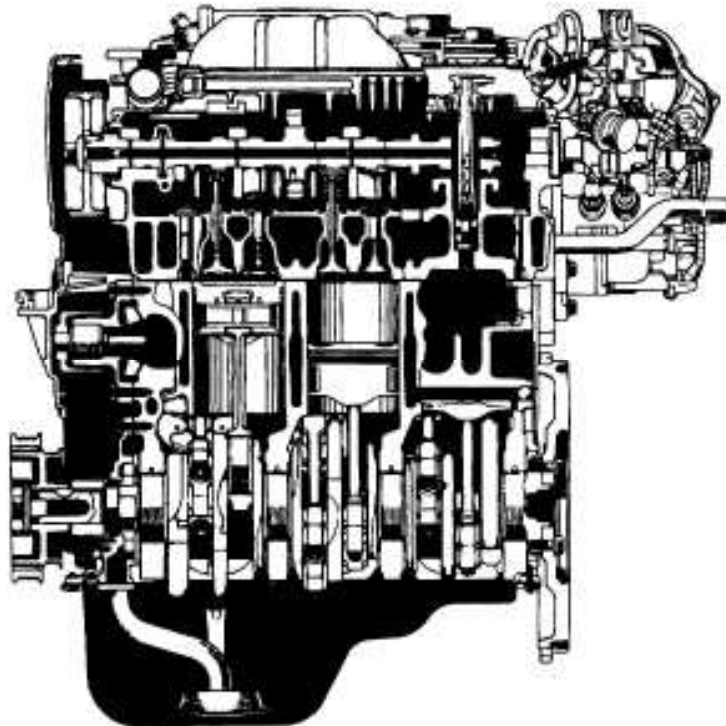
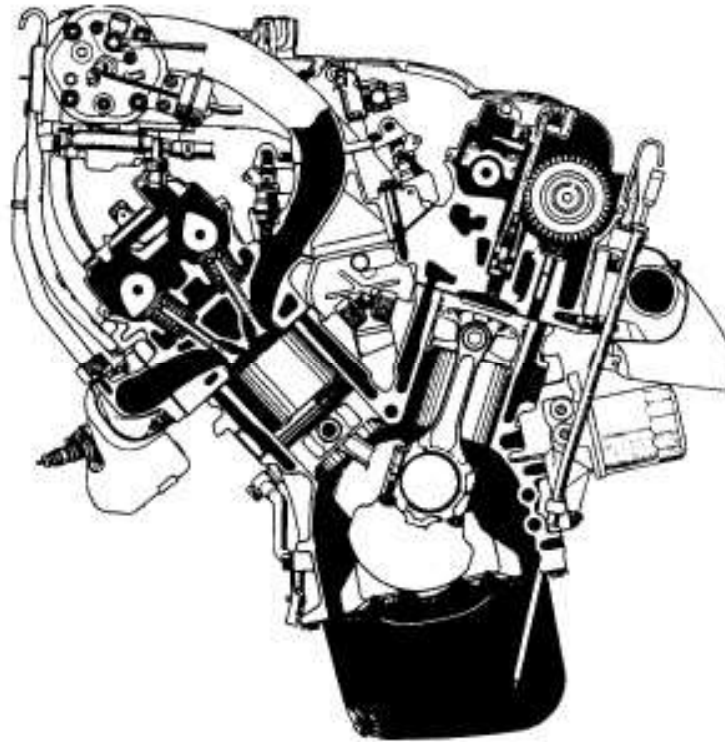


ENGINE MECHANICAL DESCRIPTION

EG0EF-01

The 3VZ-FE engine is a V-6, 3.0 liter, DOHC 24-valve engine.



The 3VZ-FE engine has 6 cylinder in a V arrangement at a bank angle of 60°. From the front of the RH bank cylinders are numbered 1-3-5, and from the front of the LH bank cylinders are numbered 2-4-6. The crankshaft is supported by 4 bearings inside the crankcase. These bearings are made of copper and lead alloy.

The crankshaft is integrated with semi 9 counter weights for balance. Oil holes are placed in the center of the crankshaft for supplying oil to the connecting rods, pistons and other components.

This engine's firing order is 1-2-3-4-5-6. The cylinder head is made of aluminum alloy, with a cross flow type intake and exhaust layout and with pent-roof type combustion chambers. The spark plugs are located in the center of the combustion chambers.

At the front and rear of the intake port of the intake manifold, a water passage has been provided which connects the RH and LH cylinder heads.

Exhaust and intake valves are equipped with irregular pitch springs made of special valve spring carbon steel which are capable of functioning no matter what the engine speed.

The RH and LH intake camshafts are driven by a single timing belt, and a gear on the intake camshaft engages with a gear on the exhaust camshaft to drive it. The camshaft journal is supported at 5 (intake) or 4 (exhaust) places between the valve lifters of each cylinder and on the front end of the cylinder head. Lubrication of the cam journals and gears is accomplished by oil being supplied through the oiler port in the center of the camshaft. Adjustment of the valve clearance is done by means of an outer shim type system, in which valve adjusting shims are located above the valve lifters. This permits replacement of the shims without removal of the camshafts.

The timing belt cover is composed of the resin type No.2 and No.1 above and below the engine RH mounting bracket.

Pistons are made of high temperature-resistant aluminum alloy, and a depression is built into the piston head to prevent interference with the valves.

Piston pins are the full-floating type, with the pins fastened to neither the piston boss nor the connecting rods. Instead, snap rings are fitted on both ends of the pins, preventing the pins from falling out.

The No.1 compression ring is made of steel and the No.2 compression ring is made of cast iron.

The oil ring is made of a combination of steel and stainless steel. The outer diameter of each piston ring is slightly larger than the diameter of the piston and the flexibility of the rings allows them to hub the cylinder walls when they are mounted on the piston. Compression rings No.1 and No.2 work to prevent gas leakage from the cylinder and the oil ring works to clear oil off the cylinder walls to prevent it from entering the combustion chamber.






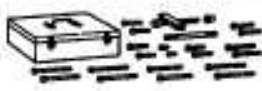







The cylinder block is made of cast iron with a bank angle of 60°. It has 6 cylinders which are approximately 1.6 times the length of the piston stroke. The top of the cylinders is closed off by the cylinder heads and the lower end of the cylinders becomes the crankcase, in which the crankshaft is installed. In addition, the cylinder block contains a water jacket, through which engine coolant is pumped to cool the cylinders.












The oil pan is bolted onto the bottom of the cylinder block. The oil pan is an oil reservoir made of pressed steel sheet.

PREPARATION

SST (SPECIAL SERVICE TOOLS)





EG0EG-01

	09011-38121	12 mm Socket Wrench for 12 Pointed Head	Connecting rod bolts
	09201-41020	Valve Stem Oil Seal Replacer	
	09201-70010	Valve Guide Bushing Remover & Replacer	
	09202-70010	Valve Spring Compressor	
	09213-54015	Crankshaft Pulley Holding Tool	
	09213-60017	Crankshaft Pulley & Gear Puller Set	
	(09213-00020)	Body With Bolt	
	(09213-00030)	Handle	
	(09213-00060)	Bolt Set	
	09213-70010	Crankshaft Pulley Holding Tool	
	09223-46011	Crankshaft Front Oil Seal Replacer	
	09223-56010	Crankshaft Rear Oil Seal Replacer	
	09248-55020	Valve Clearance Adjust Tool Set	

	(09248-05011) Valve Lifter Press	
	(09248-05021) Valve Lifter Stopper	
	09249-63010 Torque Wrench Adaptor	
	09278-54012 Drive Shaft Holding Tool	Camshaft timing pulley
	09309-37010 Transmission Bearing Replacer	Crankshaft front oil seal
	09330-00021 Companion Flange Holding Tool	Crankshaft pulley
	09550-10012 Replacer Set "B"	
	(09552-10010) No. 2 Replacer Handle	Spark plug tube gasket
	(09558-10010) Rear Axle Shaft Oil Seal Replacer	Spark plug tube gasket
	09631-22020 Power Steering Hose Nut 14 x 17 mm Wrench Set	
	09816-30010 Oil Pressure Switch Socket	Knock sensor

RECOMMENDED TOOLS

EG0EH-01

	09090-04010 Engine Sling Device	For suspending engine
	09200-00010 Engine Adjust Kit	
	09258-00030 Hose Plug Set	Plug for the vacuum hose, fuel hose etc.
	09804-00010 Expander Set	

EQUIPMENT

EG0EJ-01

Battery specific gravity gauge	
Caliper gauge	
CO/HC meter	
Connecting rod aligner	
Cylinder gauge	
Dial indicator	
Dye penetrant	
Engine tune-up tester	
Heater	
Soft brush	
Micrometer	
Piston ring compressor	
Piston ring expander	
Plastigage	
Precision straight edge	
Magnetic finger	
Spring tester	Valve spring

Steel square	Valve spring
Thermometer	
Torque wrench	
Valve seat cutter	
Vernier calipers	

SSM (SERVICE SPECIAL MATERIALS)

EG0EK-01

08826-00080 Seal packing or equivalent	Camshaft bearing cap Cylinder head cover rear oil seat retainer
08826-00100 Seal Packing 1282B, Three Bond 1282B or equivalent	Water by-pass pipe
08833-00070 Adhesive 1324, THREE BOND 1324 or equivalent	Flywheel or drive plate bolt
08833-00080 Adhesive 1344, THREE BOND 1344, LOCTITE 242 or equivalent	No.1 idler pulley bolt

TROUBLESHOOTING

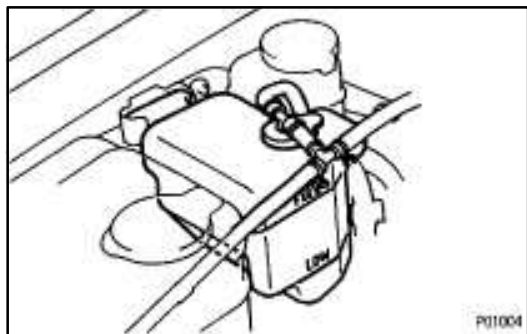
EG0EL-01

When the malfunction code is not confirmed in the diagnostic trouble code check and the problem still cannot be confirmed in the basic inspection, then proceed to this step and perform troubleshooting according to the numbers in the order given in the table below.

See page		IG	IG	EG-228	EG-224	-	EG-230	EG-200	EG-203	-	-	-	EG-170	EG-183	EG-160	EG-186	EG-179	EG-223	
		section	section																
Suspect area		RPM Signal Circuit	Ignition Circuit	Main Oxygen Sensor Circuit	Engine Coolant Temp. Sensor Circuit	Intake Air Temp. Sensor Circuit	Sub-Oxygen Sensor Circuit	Volume Air Flow Meter Circuit	Throttle Position Sensor Circuit	STA Signal Circuit	Knock Sensor Circuit	PNP Signal Circuit	A/C Signal Circuit	Fuel Pump	Fuel Pressure Regulator	Fuel Lines	Injectors	Cold Start System	
		Symptom																	
Dose not start	Engine does not crank																		
	Starter runs - engine does not crank																		
	No initial combustion	12	2					5						6					13
	No complete combustion				4			1							3		9		10
Difficult to start	Engine cranks slowly												2						
	Difficult to start ordinary	12	13	4	14									7	6	8	16	17	
	Difficult to start in cold			1	6				2					8	7	9	10	5	
	Difficult to start in hot			1	5									8	7	9	10	6	
Poor idling	Incorrect first idle			3															
	High engine idle speed			3	5				6			8	7				9	10	
	Low engine idle speed			1				4									5		
	Rough idling		18	2				12						7	6	8	16	17	
	Misfire		4	6				8									9	10	
Poor drivability	Hesitation			12	10	11		9	8					14	13	15	18	19	
	Poor acceleration			6	3	7		5	4					9	8	10	11		
	Backfire			8	3	7		5	6						4		9	10	
	Muffler explosion (after fire)																		
	Serping													1			4		
Engine stall	Knocking									1									
	Engine stall soon after starting				8			7						3	2	4	9	10	
	After acceleration pedal depressed							1	3						5	6	7		
	After acceleration pedal released							3											
	During A/C operation												1						
Others	When N to D shift											1							
	Poor fuel economy			21	16	22	23	18	17			19	20				14	15	
	Engine overheat										10								
	Engine overcool																		
	Excessive oil consumption																		
	Low oil pressure																		
	High oil pressure																		
	Starter keeps running																		
	Battery often discharge																		

!INT: When inspecting a wire harness or circuit, the electrical wiring diagrams at the end of repair manual should be referred to and the circuits of related systems also should be checked.

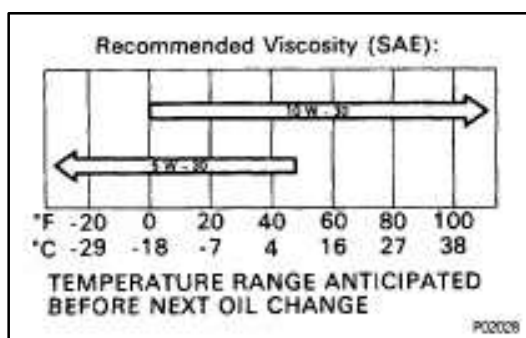
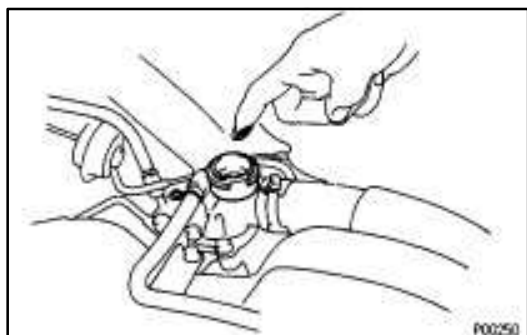
See page		EG-210	EG-220	EG-221	EG-236	EG-225	EG-231	-	-	-	-	ST section	-	ST section	IG section	IG section	EG-151	-
Suspect area		Idle Air Control Valve	SFI Main Relay	Circuit Opening Relay	Fuel Cut System	Fuel Pressure Control System	Engine control module (ECM)	Fuel Quality	Fuel Leakage	Coolant Leakage	Oil Leakage	Starter Relay	Park/Neutral position SW or Clutch Start SW	Starter	Spark Plug	Distributor	EGR System	Accelerator Pedal Link
Symptom																		
Does not start	Engine does not crank											1	3	2				
	Starter runs - engine does not crank													1				
	No initial combustion	8	3	4			14	7								1		
	No complete combustion	2					11											
Difficult to start	Engine cranks slowly													1				
	Difficult to start ordinally	3					18	1							2	15	5	
	Difficult to start in cold	4					11	3										
	Difficult to start in hot	3				4	11	2										
Poor idling	Incorrect first idle	4					5											1
	High engine idle speed	4					11											1
	Low engine idle speed	2					6										3	
	Rough idling	9					19	1							4	5	3	
Poor drivability	Misfire						11	1							3	5	2	
	Hesitation Poor acceleration						20	3							5	6	4	
	Backfire						12										1	
	Muffler explosion (after fire)				1		11											
	Serging						5								2	3		
Engine stall	Knocking						11	2							3		4	
	Engine stall soon after starting	6					11	1									5	
	After acceleration pedal depressed						8								4		2	
	After acceleration pedal released	1					4										2	
	During A/C operation	2					3											
Others	When N to D shift	2					3											
	Poor fuel economy				8		24	2	1						9	10	7	3
	Engine overheat									1					9			
	Engine overcool																	
	Excessive oil consumption										1							
	Low oil pressure										1							
	High oil pressure																	
	Starter keeps running											1		2				
Battery often discharge																		



TUNE-UP ENGINE COOLANT INSPECTION

EG0EM-01

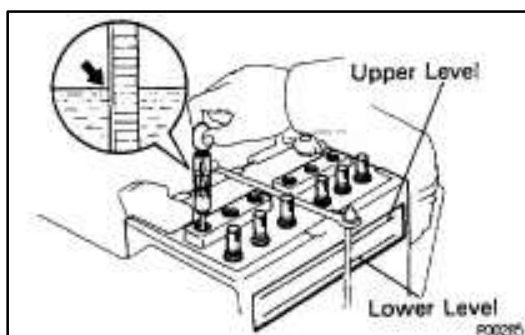
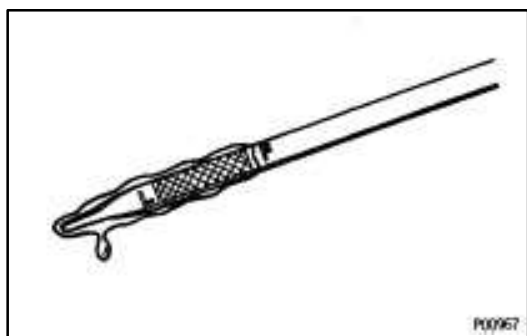
- CHECK ENGINE COOLANT LEVEL AT RESERVOIR TANK**
The engine coolant level should be between the "LOW" and "FULL" lines at low temperature.
If low, check for leaks and add engine coolant up to the "FULL" line.
- CHECK ENGINE COOLANT QUALITY**
There should be no excessive deposits of rust or scales around the radiator cap (water outlet side) or water outlet filter hole, and the engine coolant should be free from oil.
If excessively dirty, replace the engine coolant.



ENGINE OIL INSPECTION

EG0EN-02

- CHECK OIL QUALITY**
Check the oil for deterioration, entry of water discoloring or thinning.
If oil quality is poor, replace it.
Oil grade:
API grade SG Energy-Conserving II multigrade engine oil.
Recommended viscosity is as shown.
- 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.



BATTERY INSPECTION

EG0EP-01

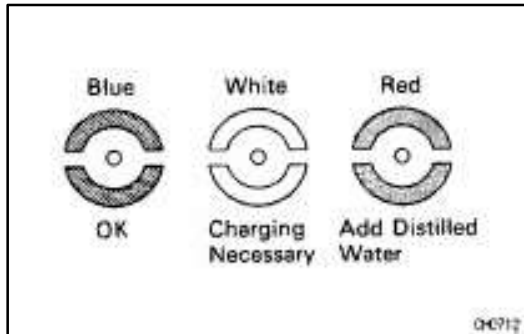
- CHECK BATTERY SPECIFIC GRAVITY AND ELECTROLYTE LEVEL**
 - Check the electrolyte level of each cell.
If insufficient, refill with distilled (or purified) water.
 - Check the specific gravity of each cell.

Standard specific gravity at 20°C (68°F):

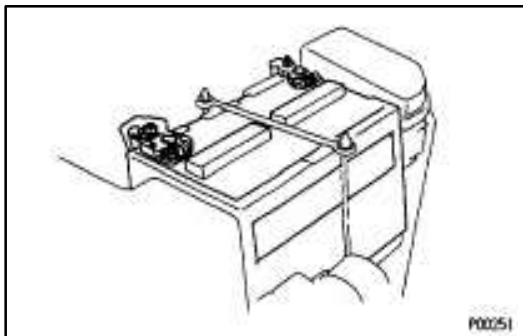
1.25–1.27 (55D23L Battery)

1.27–1.29 (80D26L Battery)

If not within specifications, charge the battery.

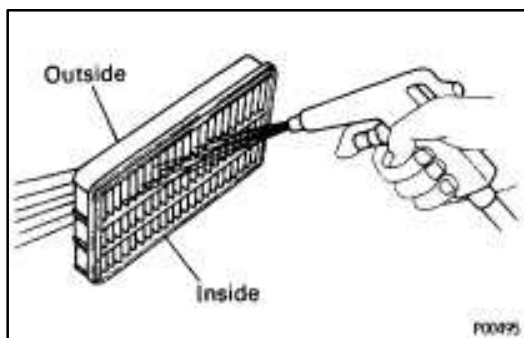


HINT: Check the indicator as shown.



2. CHECK BATTERY TERMINALS, FUSIBLE LINK AND FUSES

- (a) Check that the battery terminals are not loose or corroded.
- (b) Check the fusible link and fuses for continuity.



AIR FILTER INSPECTION

EG0EQ-01

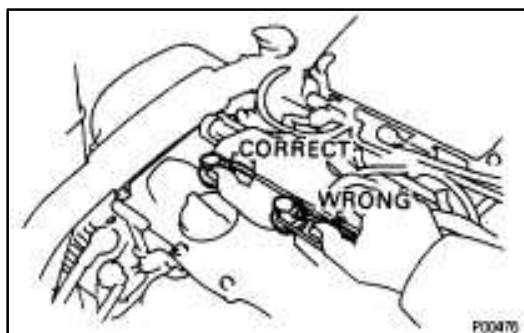
1. INSPECT AIR FILTER

Visually check that the air filter is not excessively dirty, damaged or oily.

2. CLEAN AIR FILTER

Clean the air filter with compressed air.

First blow air from the upper thoroughly. Then blow off the lower of the air filter.



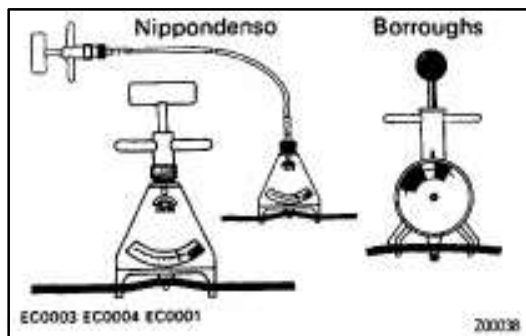
HIGH-TENSION CORDS INSPECTION

EG0ER-01

(See IG section)

Maximum resistance:

25 kΩ per cord



GENERATOR DRIVE BELT INSPECTION

EG0ES-01

(See CH section)

Drive belt tension:

New belt

175 ± 5 lbf

Use belt

115 ± 20 lbf

VALVE CLEARANCE INSPECTION AND ADJUSTMENT

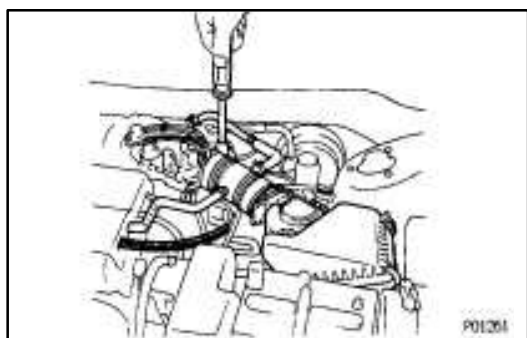
EG0ET-02

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

1. **DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY**

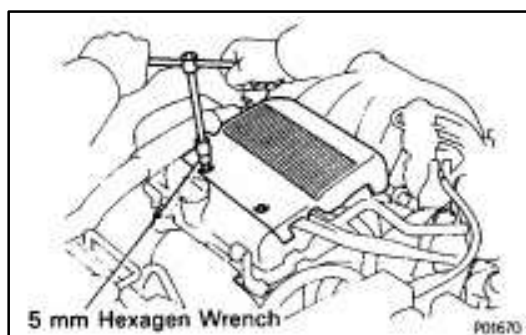
CAUTION (w/ Airbag): Work must be started after approx. 30 seconds or longer from the time the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.

2. **DRAIN ENGINE COOLANT**
3. **DISCONNECT ACCELERATOR CABLE FROM THROTTLE LINKAGE**
4. (A/T)
DISCONNECT THROTTLE CABLE FROM THROTTLE LINKAGE



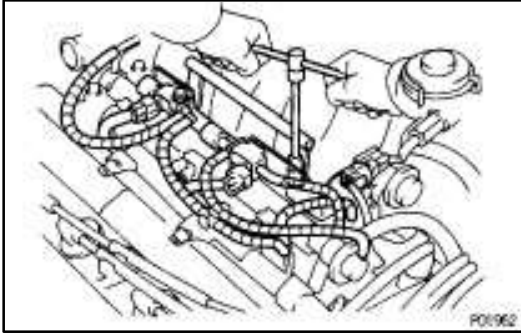
5. **REMOVE AIR CLEANER CAP, VOLUME AIR FLOW METER AND AIR CLEANER HOSE**

- (a) Disconnect the volume air flow meter
- (b) Disconnect the coil cord clamp.
- (c) Disconnect the air hoses.
- (d) Loosen the air cleaner hose clamp bolt.
- (e) Disconnect the air cleaner cap clips.
- (f) Remove the air cleaner cap and volume air flow meter together with the air cleaner hose.



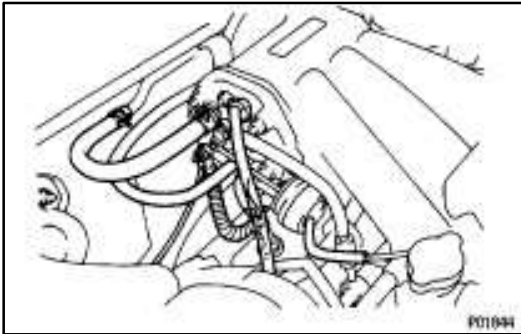
6. **REMOVE V-BANK COVER**

Using a 5 mm hexagon wrench, remove the two nuts and V-bank cover.



7. REMOVE EMISSION CONTROL VALVE SET

- (a) (Calif. only)
Disconnect the EGR gas temp. sensor connector clamp from the emission control valve set.
- (b) Disconnect the two vacuum hoses of the fuel pressure control VSV.
- (c) Disconnect the two vacuum hoses of the IACV VSV.
- (d) Disconnect the two VSV connectors.
- (e) Remove the two bolts and emission control valve set.



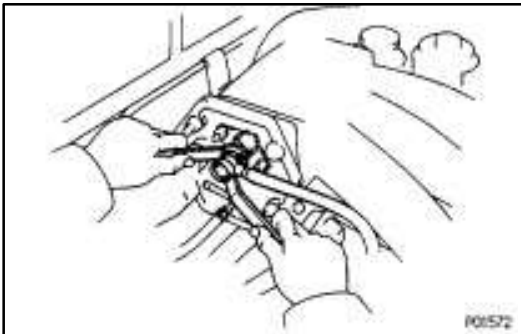
8. DISCONNECT HOSES

- (a) Brake booster vacuum hose
- (b) PS air hose
- (c) PCV hose
- (d) IACV vacuum hose

9. DISCONNECT GROUND STRAPS

Remove the nut and disconnect the two ground straps.

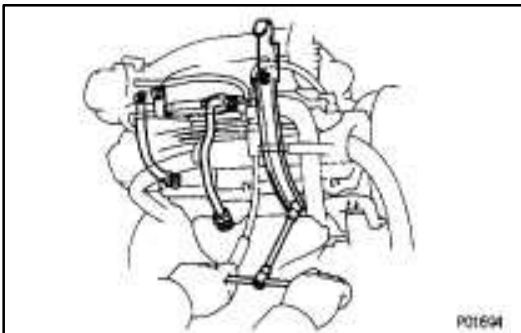
10. DISCONNECT COLD START INJECTOR CONNECTOR



11. DISCONNECT COLD START INJECTOR PIPE (No.2 FUEL PIPE)

- (a) Put a suitable container or shop towel under the injector pipe.
- (b) Remove the union bolt and two gaskets, and disconnect the injector pipe.

HINT: Slowly loosen the union bolt.



12. REMOVE NO.1 ENGINE HANGER AND AIR INTAKE CHAMBER STAY

- (a) Remove the two bolts and No.1 engine hanger.
- (b) Remove the two bolts and air intake chamber stay.

13. REMOVE EGR PIPE

- (a) Loosen the union nut.
- (b) Remove the two bolts and EGR pipe.

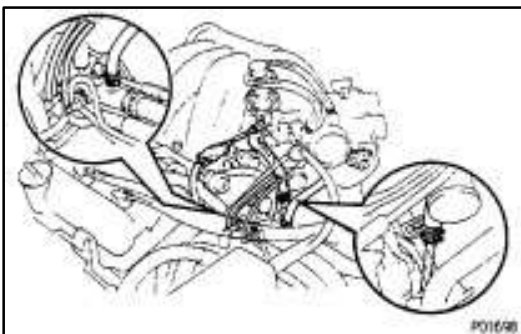
14. DISCONNECT HYDRAULIC MOTOR PRESSURE PIPE

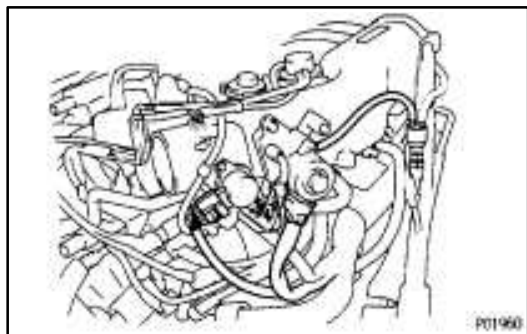
Remove the bolt and disconnect the hydraulic pressure pipe from the air intake chamber.

15. REMOVE AIR INTAKE CHAMBER

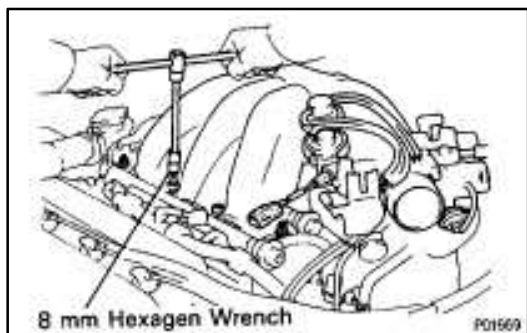
- (a) Disconnect the three emission control vacuum hoses.
- (b) Disconnect the two water by-pass hoses.
- (c) (Calif. only)

Disconnect the EGR gas temp. sensor connector.

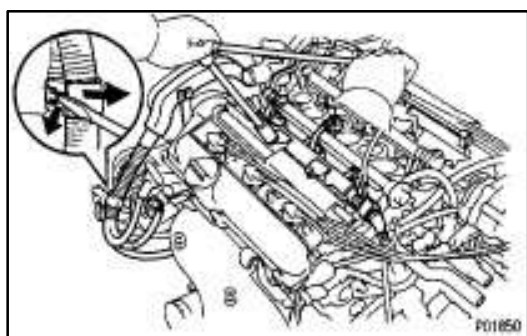




- (d) Disconnect the throttle position sensor connector.
- (e) Disconnect the IAC valve connector.
- (f) Disconnect the IAC valve air hose.
- (g) Disconnect the PS air hose.

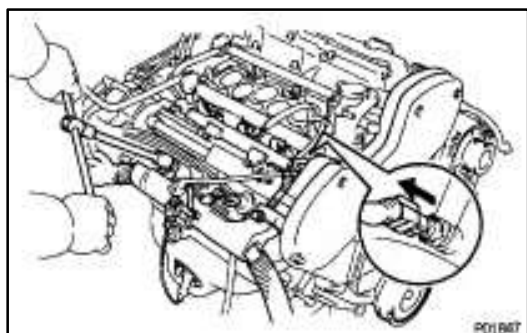


- (h) Using 8 mm hexagon wrench, remove the two bolts, nuts air intake chamber and gasket.



16. DISCONNECT LH ENGINE WIRE HARNESS

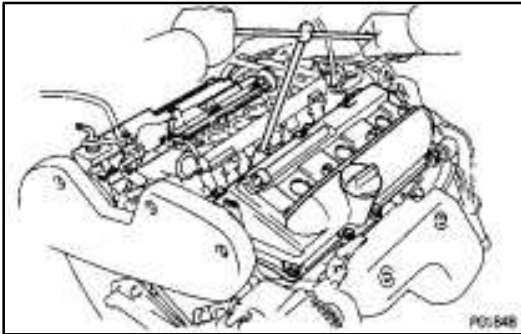
- (a) Disconnect the following connectors:
 - (1) Three injector connectors
 - (2) Engine oil level sensor connector
 - (3) Oil pressure switch connector
 - (4) A/C compressor connector
 - (5) Generator connector and wire
 - (6) Engine Coolant temp.sensor connector (for hydraulic cooling fan)
- (b) Remove the two bolts, and disconnect the five clamps and LH engine wire harness.



17. DISCONNECT RH ENGINE WIRE HARNESS

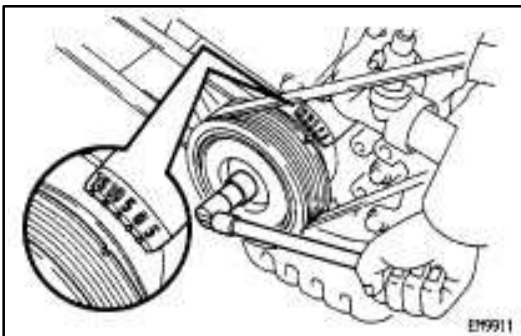
- (a) Disconnect the following connectors:
 - (1) Three injector connectors
 - (2) Engine coolant temperature sender gauge connector
 - (3) Oxygen sensor connector
 - (4) PS pump connector
- (b) Remove the two bolts, and disconnect the two clamps and RH engine wire harness.

18. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS



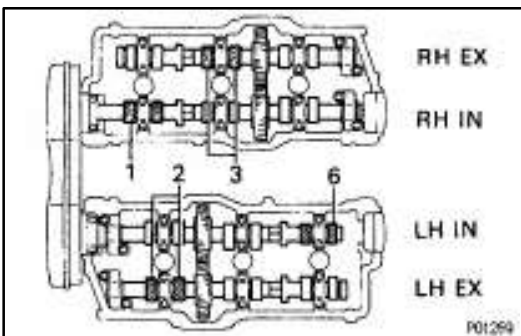
19. REMOVE CYLINDER HEAD COVERS

Remove the six nuts, seal washers, cylinder head cover and gasket. Remove the two cylinder head covers.



20. SET NO.1 CYLINDER TO TDC/COMPRESSION

- Turn the crankshaft pulley, and align its groove with the timing mark "0" of the No.1 timing belt cover.
- Check that the valve lifters on the No.1 (IN) are loose and valve lifters on the on the No.1 (EX) are tight.
If not, turn the crankshaft one revolution (360°) and align the mark as above.



21. ADJUST VALVE CLEARANCE

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

Valve clearance (Cold):

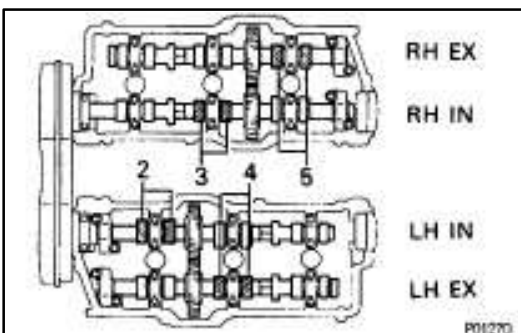
Intake

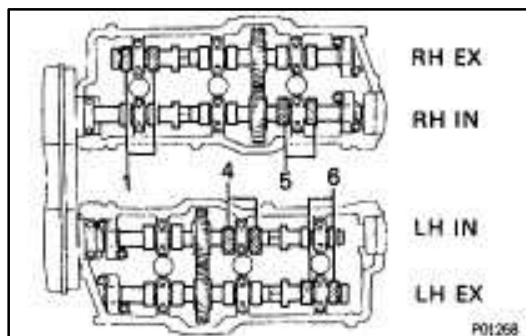
0.13–0.23 mm (0.005–0.009 in.)

Exhaust

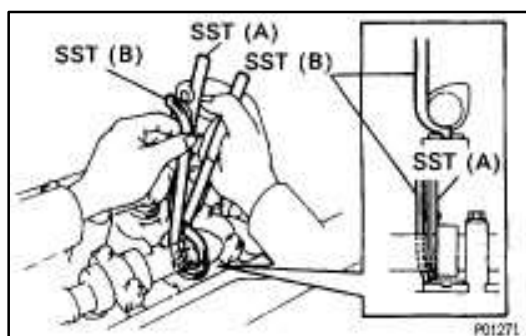
0.27–0.37 mm (0.011–0.015 in.)

- Turn the crankshaft 2/3 of a revolution (240°), and check only the valves indicated in the illustration. Measure the valve clearance. (See procedure step (a))



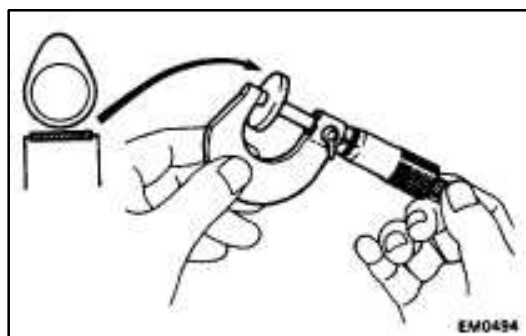
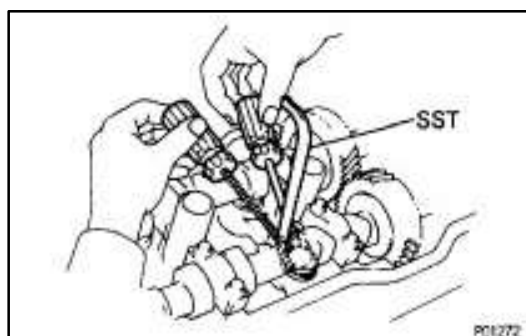


- (c) Turn the crankshaft further 2/3 of a revolution (240°), and check only the valves indicated in the illustration. Measure the valve clearance.
(See procedure step (a))



- (d) Remove the adjusting shim.
- Turn the crankshaft so that the cam lobe for the valve to be adjusted faces up.
 - Press down the valve lifter with SST (A), and place SST (B) between the camshaft and valve lifter. Remove SST (A). SST 09248-55020(09248-05011, 09248-05021)
- HINT: Before pressing down the valve lifter, position the notch toward the spark plug.

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



- (e) 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 used shim

A ___ Measured valve clearance

N ___ Thickness of new shim

Intake:

$$N = T + (A - 0.18 \text{ mm (0.007 in.)})$$

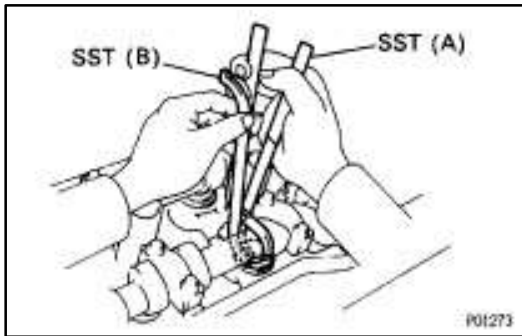
Exhaust:

$$N = T + (A - 0.32 \text{ mm (0.013 in.)})$$

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

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

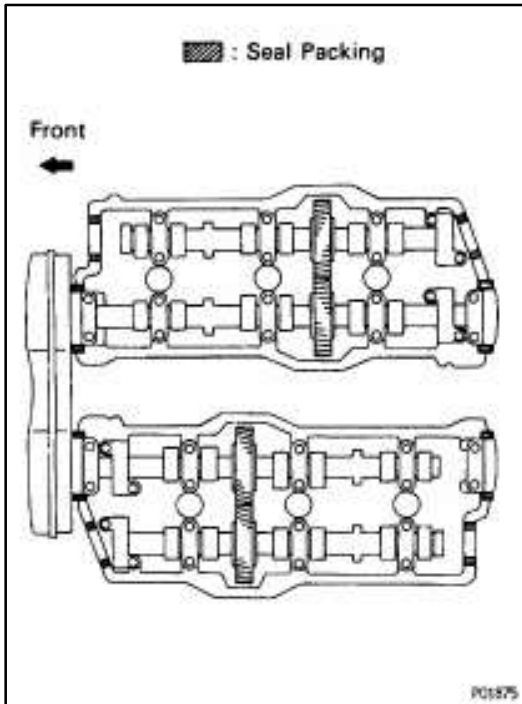
- (f) Install a new adjusting shim.



- Place a new adjusting shim on the valve lifter.
- Press down the valve lifter with SST (A), and remove SST (B).

SST 09248-55020(09248-05011, 09248-05021)

- (g) Recheck the valve clearance.

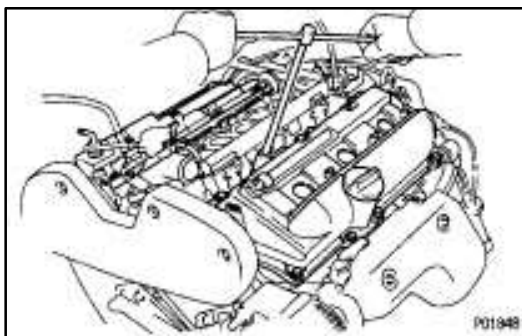


22. REINSTALL CYLINDER HEAD COVERS

- (a) Apply seal packing to the cylinder heads as shown in the illustration.

Seal packing:

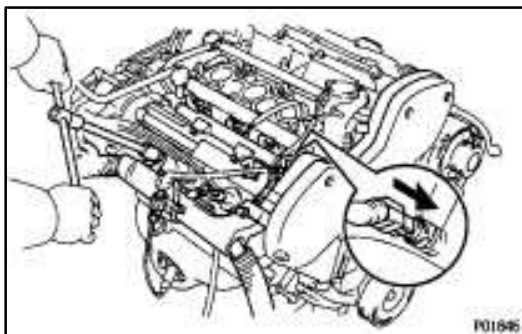
Part No.08826-00080 or equivalent



- (b) Install the gasket to the cylinder head cover.
 (c) Install the cylinder head cover with the six seal washers and nuts. Uniformly tighten the nuts in several passes. Install the two cylinder head covers.

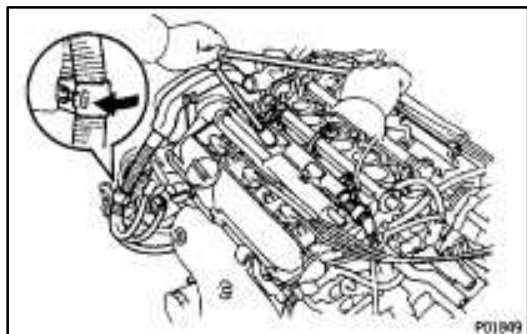
Torque: 5.9 N·m (60 kgf·cm, 52 in.·lbf)

23. RECONNECT HIGH-TENSION CORDS TO SPARK PLUGS



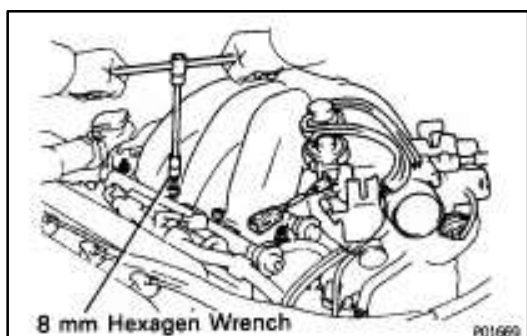
24. RECONNECT RH ENGINE WIRE HARNESS

- (a) Connect the two clamps of the RH engine wire harness and install the wire harness with the two bolts.
 (b) Connect the following connectors:
- (1) Three injector connectors
 - (2) Engine coolant temperature sender gauge connector
 - (3) Oxygen sensor connector
 - (4) PS pump connector



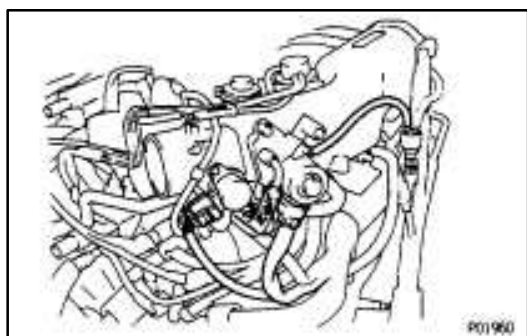
25. RECONNECT LH ENGINE WIRE HARNESS

- (a) Connect the three clamps of the LH engine wire harness and install the wire harness with the two bolts.
- (b) Connect the following connectors:
 - (1) Three injector connectors
 - (2) Engine oil level sensor connector
 - (3) Oil pressure switch connector
 - (4) A/C compressor and wire
 - (5) Generator connector and wire
 - (6) Engine coolant temp. sensor connector (for hydraulic cooling fan)

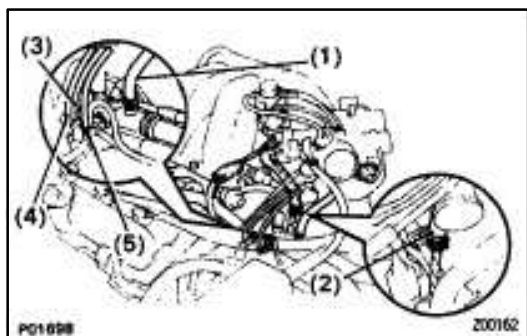


26. REINSTALL AIR INTAKE CHAMBER

- (a) Using 8 mm hexagon wrench, install a new gasket and the air intake chamber with the two bolts and nuts.
Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

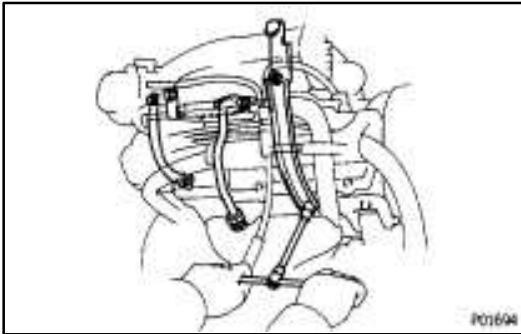


- (b) Connect the throttle position sensor connector.
- (c) Connect the IAC valve connector.
- (d) Connect the IAC valve air hose.
- (e) Connect PS air hose.



- (f) (Calif. only)
Connect the EGR gas temp. sensor connector.
- (g) Connect the following hoses:
 - (1) Water by-pass hose to throttle body
 - (2) Water by-pass hose to EGR cooler
 - (3) Vacuum hose (from EGR valve) to TVV (for EGR)
 - (4) Vacuum hose (from EGR vacuum modulator) to TVV (for EGR)

- (5) Vacuum hose (from throttle body) to TVV (for EVAP)



27. RECONNECT HYDRAULIC MOTOR PRESSURE PIPE

Connect the hydraulic pressure pipe to the air intake chamber with the bolt.

28. REINSTALL EGR PIPE

Install a new gasket, sleeve ball and the EGR pipe with the two bolts and union nut.

Bolt

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

Union nut

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

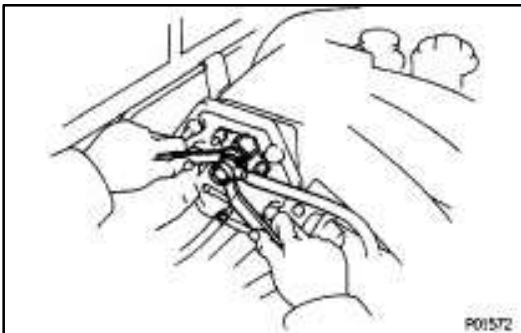
29. REINSTALL NO. 1 ENGINE HANGER AND AIR INTAKE CHAMBER STAY

- (a) Install the air intake chamber stay with the two bolts.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

- (b) Install the No.1 engine hanger with the two bolts.

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

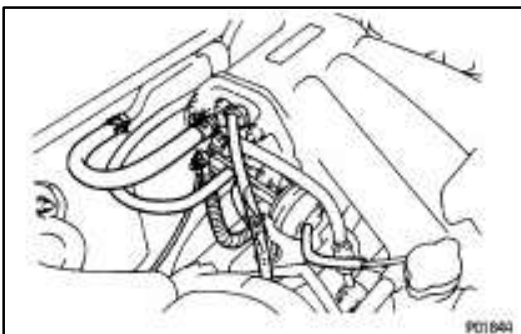


30. RECONNECT COLD START INJECTOR PIPE (NO.2 FUEL PIPE)

Connect the injector pipe with the two new gaskets and union bolt.

Torque: 15 N·m (150 kgf·cm, 11 ft·lbf)

31. RECONNECT COLD START INJECTOR CONNECTOR



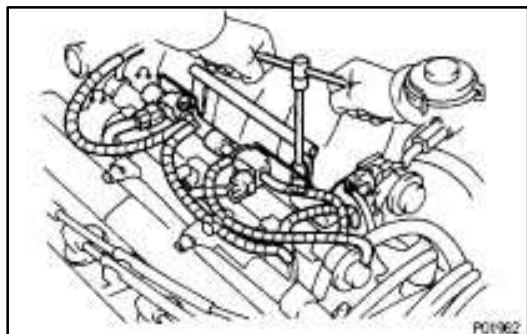
32. RECONNECT GROUND STRAPS

Connect the two ground straps with the nut.

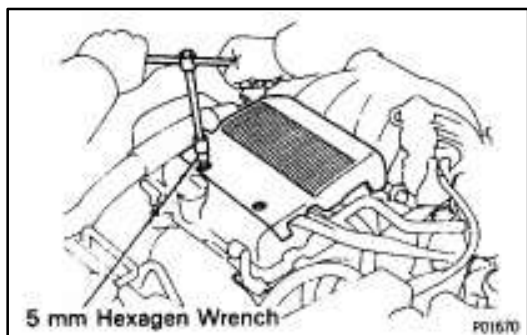
Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

33. RECONNECT HOSES

- (a) Brake booster vacuum hose
- (b) PS air hose
- (c) PCV hose
- (d) IACV vacuum hose

**34. REINSTALL EMISSION CONTROL VALVE SET**

- (a) Install the emission control valve set with the two bolts.
- (b) Connect the two VSV connectors.
- (c) Connect the two vacuum hoses of the IACV VSV.
- (d) Connect the two vacuum hoses of the fuel pressure control VSV.
- (e) (Calif. only)
Connect the EGR gas temp. sensor connector clamp to the emission control valve set.

**35. REINSTALL V-BANK COVER**

Using a 5 mm hexagon wrench, install the V-bank cover with the two nuts.

**36. INSTALL AIR CLEANER CAP, VOLUME AIR FLOW METER AND AIR CLEANER HOSE**

- (a) Connect the air cleaner hose, and install the air cleaner cap and volume air flow meter with the four clips.
- (b) Tighten the air cleaner hose clamp bolt.
- (c) Connect the air hoses.
- (d) Connect the coil cord clamp.
- (e) Connect the volume air flow meter connector.

37. (A/T)

CONNECT THROTTLE CABLE, AND ADJUST IT

38. CONNECT ACCELERATOR CABLE, AND ADJUST IT**39. FILL WITH ENGINE COOLANT****40. CONNECT CABLE TO NEGATIVE TERMINAL OF BATTERY**

Adjusting Shim Selection Chart (Intake)

Installed shim thickness mm (in.)	Measured clearance mm (in.)	Shim No.	Thickness
2.50 (0.0984)	0.000 - 0.020 (0.0000 - 0.0008)	1	2.50 (0.0984)
2.52 (0.0992)	0.021 - 0.040 (0.0008 - 0.0015)	1	2.52 (0.0992)
2.54 (0.1000)	0.041 - 0.060 (0.0016 - 0.0024)	1	2.54 (0.1000)
2.56 (0.1008)	0.061 - 0.080 (0.0024 - 0.0031)	1	2.56 (0.1008)
2.58 (0.1016)	0.081 - 0.100 (0.0032 - 0.0039)	1	2.58 (0.1016)
2.60 (0.1024)	0.101 - 0.120 (0.0040 - 0.0047)	1	2.60 (0.1024)
2.62 (0.1031)	0.121 - 0.140 (0.0048 - 0.0054)	1	2.62 (0.1031)
2.64 (0.1039)	0.141 - 0.160 (0.0055 - 0.0061)	1	2.64 (0.1039)
2.66 (0.1047)	0.161 - 0.180 (0.0062 - 0.0068)	1	2.66 (0.1047)
2.68 (0.1055)	0.181 - 0.200 (0.0069 - 0.0075)	1	2.68 (0.1055)
2.70 (0.1063)	0.201 - 0.220 (0.0076 - 0.0082)	1	2.70 (0.1063)
2.72 (0.1071)	0.221 - 0.240 (0.0083 - 0.0089)	1	2.72 (0.1071)
2.74 (0.1079)	0.241 - 0.260 (0.0090 - 0.0096)	1	2.74 (0.1079)
2.76 (0.1087)	0.261 - 0.280 (0.0097 - 0.0103)	1	2.76 (0.1087)
2.78 (0.1095)	0.281 - 0.300 (0.0104 - 0.0110)	1	2.78 (0.1095)
2.80 (0.1103)	0.301 - 0.320 (0.0111 - 0.0117)	1	2.80 (0.1103)
2.82 (0.1111)	0.321 - 0.340 (0.0118 - 0.0124)	1	2.82 (0.1111)
2.84 (0.1119)	0.341 - 0.360 (0.0125 - 0.0131)	1	2.84 (0.1119)
2.86 (0.1127)	0.361 - 0.380 (0.0126 - 0.0132)	1	2.86 (0.1127)
2.88 (0.1135)	0.381 - 0.400 (0.0127 - 0.0133)	1	2.88 (0.1135)
2.90 (0.1143)	0.401 - 0.420 (0.0128 - 0.0134)	1	2.90 (0.1143)
2.92 (0.1151)	0.421 - 0.440 (0.0129 - 0.0135)	1	2.92 (0.1151)
2.94 (0.1159)	0.441 - 0.460 (0.0130 - 0.0136)	1	2.94 (0.1159)
2.96 (0.1167)	0.461 - 0.480 (0.0131 - 0.0137)	1	2.96 (0.1167)
2.98 (0.1175)	0.481 - 0.500 (0.0132 - 0.0138)	1	2.98 (0.1175)
3.00 (0.1183)	0.501 - 0.520 (0.0133 - 0.0139)	1	3.00 (0.1183)
3.02 (0.1191)	0.521 - 0.540 (0.0134 - 0.0140)	1	3.02 (0.1191)
3.04 (0.1199)	0.541 - 0.560 (0.0135 - 0.0141)	1	3.04 (0.1199)
3.06 (0.1207)	0.561 - 0.580 (0.0136 - 0.0142)	1	3.06 (0.1207)
3.08 (0.1215)	0.581 - 0.600 (0.0137 - 0.0143)	1	3.08 (0.1215)
3.10 (0.1223)	0.601 - 0.620 (0.0138 - 0.0144)	1	3.10 (0.1223)
3.12 (0.1231)	0.621 - 0.640 (0.0139 - 0.0145)	1	3.12 (0.1231)
3.14 (0.1239)	0.641 - 0.660 (0.0140 - 0.0146)	1	3.14 (0.1239)
3.16 (0.1247)	0.661 - 0.680 (0.0141 - 0.0147)	1	3.16 (0.1247)
3.18 (0.1255)	0.681 - 0.700 (0.0142 - 0.0148)	1	3.18 (0.1255)
3.20 (0.1263)	0.701 - 0.720 (0.0143 - 0.0149)	1	3.20 (0.1263)
3.22 (0.1271)	0.721 - 0.740 (0.0144 - 0.0150)	1	3.22 (0.1271)
3.24 (0.1279)	0.741 - 0.760 (0.0145 - 0.0151)	1	3.24 (0.1279)
3.26 (0.1287)	0.761 - 0.780 (0.0146 - 0.0152)	1	3.26 (0.1287)
3.28 (0.1295)	0.781 - 0.800 (0.0147 - 0.0153)	1	3.28 (0.1295)
3.30 (0.1303)	0.801 - 0.820 (0.0148 - 0.0154)	1	3.30 (0.1303)
3.32 (0.1311)	0.821 - 0.840 (0.0149 - 0.0155)	1	3.32 (0.1311)
3.34 (0.1319)	0.841 - 0.860 (0.0150 - 0.0156)	1	3.34 (0.1319)
3.36 (0.1327)	0.861 - 0.880 (0.0151 - 0.0157)	1	3.36 (0.1327)
3.38 (0.1335)	0.881 - 0.900 (0.0152 - 0.0158)	1	3.38 (0.1335)
3.40 (0.1343)	0.901 - 0.920 (0.0153 - 0.0159)	1	3.40 (0.1343)
3.42 (0.1351)	0.921 - 0.940 (0.0154 - 0.0160)	1	3.42 (0.1351)
3.44 (0.1359)	0.941 - 0.960 (0.0155 - 0.0161)	1	3.44 (0.1359)
3.46 (0.1367)	0.961 - 0.980 (0.0156 - 0.0162)	1	3.46 (0.1367)
3.48 (0.1375)	0.981 - 1.000 (0.0157 - 0.0163)	1	3.48 (0.1375)
3.50 (0.1383)	1.001 - 1.020 (0.0158 - 0.0164)	1	3.50 (0.1383)
3.52 (0.1391)	1.021 - 1.040 (0.0159 - 0.0165)	1	3.52 (0.1391)
3.54 (0.1399)	1.041 - 1.060 (0.0160 - 0.0166)	1	3.54 (0.1399)
3.56 (0.1407)	1.061 - 1.080 (0.0161 - 0.0167)	1	3.56 (0.1407)
3.58 (0.1415)	1.081 - 1.100 (0.0162 - 0.0168)	1	3.58 (0.1415)
3.60 (0.1423)	1.101 - 1.120 (0.0163 - 0.0169)	1	3.60 (0.1423)
3.62 (0.1431)	1.121 - 1.140 (0.0164 - 0.0170)	1	3.62 (0.1431)
3.64 (0.1439)	1.141 - 1.160 (0.0165 - 0.0171)	1	3.64 (0.1439)
3.66 (0.1447)	1.161 - 1.180 (0.0166 - 0.0172)	1	3.66 (0.1447)
3.68 (0.1455)	1.181 - 1.200 (0.0167 - 0.0173)	1	3.68 (0.1455)
3.70 (0.1463)	1.201 - 1.220 (0.0168 - 0.0174)	1	3.70 (0.1463)
3.72 (0.1471)	1.221 - 1.240 (0.0169 - 0.0175)	1	3.72 (0.1471)
3.74 (0.1479)	1.241 - 1.260 (0.0170 - 0.0176)	1	3.74 (0.1479)
3.76 (0.1487)	1.261 - 1.280 (0.0171 - 0.0177)	1	3.76 (0.1487)
3.78 (0.1495)	1.281 - 1.300 (0.0172 - 0.0178)	1	3.78 (0.1495)
3.80 (0.1503)	1.301 - 1.320 (0.0173 - 0.0179)	1	3.80 (0.1503)
3.82 (0.1511)	1.321 - 1.340 (0.0174 - 0.0180)	1	3.82 (0.1511)
3.84 (0.1519)	1.341 - 1.360 (0.0175 - 0.0181)	1	3.84 (0.1519)
3.86 (0.1527)	1.361 - 1.380 (0.0176 - 0.0182)	1	3.86 (0.1527)
3.88 (0.1535)	1.381 - 1.400 (0.0177 - 0.0183)	1	3.88 (0.1535)
3.90 (0.1543)	1.401 - 1.420 (0.0178 - 0.0184)	1	3.90 (0.1543)
3.92 (0.1551)	1.421 - 1.440 (0.0179 - 0.0185)	1	3.92 (0.1551)
3.94 (0.1559)	1.441 - 1.460 (0.0180 - 0.0186)	1	3.94 (0.1559)
3.96 (0.1567)	1.461 - 1.480 (0.0181 - 0.0187)	1	3.96 (0.1567)
3.98 (0.1575)	1.481 - 1.500 (0.0182 - 0.0188)	1	3.98 (0.1575)
4.00 (0.1583)	1.501 - 1.520 (0.0183 - 0.0189)	1	4.00 (0.1583)
4.02 (0.1591)	1.521 - 1.540 (0.0184 - 0.0190)	1	4.02 (0.1591)
4.04 (0.1599)	1.541 - 1.560 (0.0185 - 0.0191)	1	4.04 (0.1599)
4.06 (0.1607)	1.561 - 1.580 (0.0186 - 0.0192)	1	4.06 (0.1607)
4.08 (0.1615)	1.581 - 1.600 (0.0187 - 0.0193)	1	4.08 (0.1615)
4.10 (0.1623)	1.601 - 1.620 (0.0188 - 0.0194)	1	4.10 (0.1623)
4.12 (0.1631)	1.621 - 1.640 (0.0189 - 0.0195)	1	4.12 (0.1631)
4.14 (0.1639)	1.641 - 1.660 (0.0190 - 0.0196)	1	4.14 (0.1639)
4.16 (0.1647)	1.661 - 1.680 (0.0191 - 0.0197)	1	4.16 (0.1647)
4.18 (0.1655)	1.681 - 1.700 (0.0192 - 0.0198)	1	4.18 (0.1655)
4.20 (0.1663)	1.701 - 1.720 (0.0193 - 0.0199)	1	4.20 (0.1663)
4.22 (0.1671)	1.721 - 1.740 (0.0194 - 0.0200)	1	4.22 (0.1671)
4.24 (0.1679)	1.741 - 1.760 (0.0195 - 0.0201)	1	4.24 (0.1679)
4.26 (0.1687)	1.761 - 1.780 (0.0196 - 0.0202)	1	4.26 (0.1687)
4.28 (0.1695)	1.781 - 1.800 (0.0197 - 0.0203)	1	4.28 (0.1695)
4.30 (0.1703)	1.801 - 1.820 (0.0198 - 0.0204)	1	4.30 (0.1703)
4.32 (0.1711)	1.821 - 1.840 (0.0199 - 0.0205)	1	4.32 (0.1711)
4.34 (0.1719)	1.841 - 1.860 (0.0200 - 0.0206)	1	4.34 (0.1719)
4.36 (0.1727)	1.861 - 1.880 (0.0201 - 0.0207)	1	4.36 (0.1727)
4.38 (0.1735)	1.881 - 1.900 (0.0202 - 0.0208)	1	4.38 (0.1735)
4.40 (0.1743)	1.901 - 1.920 (0.0203 - 0.0209)	1	4.40 (0.1743)
4.42 (0.1751)	1.921 - 1.940 (0.0204 - 0.0210)	1	4.42 (0.1751)
4.44 (0.1759)	1.941 - 1.960 (0.0205 - 0.0211)	1	4.44 (0.1759)
4.46 (0.1767)	1.961 - 1.980 (0.0206 - 0.0212)	1	4.46 (0.1767)
4.48 (0.1775)	1.981 - 2.000 (0.0207 - 0.0213)	1	4.48 (0.1775)
4.50 (0.1783)	2.001 - 2.020 (0.0208 - 0.0214)	1	4.50 (0.1783)
4.52 (0.1791)	2.021 - 2.040 (0.0209 - 0.0215)	1	4.52 (0.1791)
4.54 (0.1799)	2.041 - 2.060 (0.0210 - 0.0216)	1	4.54 (0.1799)
4.56 (0.1807)	2.061 - 2.080 (0.0211 - 0.0217)	1	4.56 (0.1807)
4.58 (0.1815)	2.081 - 2.100 (0.0212 - 0.0218)	1	4.58 (0.1815)
4.60 (0.1823)	2.101 - 2.120 (0.0213 - 0.0219)	1	4.60 (0.1823)
4.62 (0.1831)	2.121 - 2.140 (0.0214 - 0.0220)	1	4.62 (0.1831)
4.64 (0.1839)	2.141 - 2.160 (0.0215 - 0.0221)	1	4.64 (0.1839)
4.66 (0.1847)	2.161 - 2.180 (0.0216 - 0.0222)	1	4.66 (0.1847)
4.68 (0.1855)	2.181 - 2.200 (0.0217 - 0.0223)	1	4.68 (0.1855)
4.70 (0.1863)	2.201 - 2.220 (0.0218 - 0.0224)	1	4.70 (0.1863)
4.72 (0.1871)	2.221 - 2.240 (0.0219 - 0.0225)	1	4.72 (0.1871)
4.74 (0.1879)	2.241 - 2.260 (0.0220 - 0.0226)	1	4.74 (0.1879)
4.76 (0.1887)	2.261 - 2.280 (0.0221 - 0.0227)	1	4.76 (0.1887)
4.78 (0.1895)	2.281 - 2.300 (0.0222 - 0.0228)	1	4.78 (0.1895)
4.80 (0.1903)	2.301 - 2.320 (0.0223 - 0.0229)	1	4.80 (0.1903)
4.82 (0.1911)	2.321 - 2.340 (0.0224 - 0.0230)	1	4.82 (0.1911)
4.84 (0.1919)	2.341 - 2.360 (0.0225 - 0.0231)	1	4.84 (0.1919)
4.86 (0.1927)	2.361 - 2.380 (0.0226 - 0.0232)	1	4.86 (0.1927)
4.88 (0.1935)	2.381 - 2.400 (0.0227 - 0.0233)	1	4.88 (0.1935)
4.90 (0.1943)	2.401 - 2.420 (0.0228 - 0.0234)	1	4.90 (0.1943)
4.92 (0.1951)	2.421 - 2.440 (0.0229 - 0.0235)	1	4.92 (0.1951)
4.94 (0.1959)	2.441 - 2.460 (0.0230 - 0.0236)	1	4.94 (0.1959)
4.96 (0.1967)	2.461 - 2.480 (0.0231 - 0.0237)	1	4.96 (0.1967)
4.98 (0.1975)	2.481 - 2.500 (0.0232 - 0.0238)	1	4.98 (0.1975)
5.00 (0.1983)	2.501 - 2.520 (0.0233 - 0.0239)	1	5.00 (0.1983)
5.02 (0.1991)	2.521 - 2.540 (0.0234 - 0.0240)	1	5.02 (0.1991)
5.04 (0.1999)	2.541 - 2.560 (0.0235 - 0.0241)	1	5.04 (0.1999)
5.06 (0.2007)	2.561 - 2.580 (0.0236 - 0.0242)	1	5.06 (0.2007)
5.08 (0.2015)	2.581 - 2.600 (0.0237 - 0.0243)	1	5.08 (0.2015)
5.10 (0.2023)	2.601 - 2.620 (0.0238 - 0.0244)	1	5.10 (0.2023)
5.12 (0.2031)	2.621 - 2.640 (0.0239 - 0.0245)	1	5.12 (0.2031)
5.14 (0.2039)	2.641 - 2.660 (0.0240 - 0.0246)	1	5.14 (0.2039)
5.16 (0.2047)	2.661 - 2.680 (0.0241 - 0.0247)	1	5.16 (0.2047)
5.18 (0.2055)	2.681 - 2.700 (0.0242 - 0.0248)	1	5.18 (0.2055)
5.20 (0.2063)	2.701 - 2.720 (0.0243 - 0.0249)	1	5.20 (0.2063)
5.22 (0.2071)	2.721 - 2.740 (0.0244 - 0.0250)	1	5.22 (0.2071)
5.24 (0.2079)	2.741 - 2.760 (0.0245 - 0.0251)	1	5.24 (0.2079)
5.26 (0.2087)	2.761 - 2.780 (0.0246 - 0.0252)	1	5.26 (0.2087)
5.28 (0.2095)	2.781 - 2.800 (0.0247 - 0.0253)	1	5.28 (0.2095)
5.30 (0.2103)	2.801 - 2.820 (0.0248 - 0.0254)	1	5.30 (0.2103)
5.32 (0.2111)	2.821 - 2.840 (0.0249 - 0.0255)	1	5.32 (0.2111)
5.34 (0.2119)	2.841 - 2.860 (0.0250 - 0.0256)	1	5.34 (0.2119)
5.36 (0.2127)	2.861 - 2.880 (0.0251 - 0.0257)	1	5.36 (0.2127)
5.38 (0.2135)	2.881 - 2.900 (0.0252 - 0.0258)	1	5.38 (0.2135)
5.40 (0.2143)	2.901 - 2.920 (0.0253 - 0.0259)	1	5.40 (0.2143)
5.42 (0.2151)	2.921 - 2.940 (0.0254 - 0.0260)	1	5.42 (0.2151)
5.44 (0.2159)	2.941 - 2.960 (0.0255 - 0.0261)	1	5.44 (0.2159)
5.46 (0.2167)	2.961 - 2.980 (0.0256 - 0.0262)	1	5.46 (0.2167)
5.48 (0.2175)	2.981 - 3.000 (0.0257 - 0.0263)	1	5.48 (0.2175)
5.50 (0.2183)	3.001 - 3.020 (0.0258 - 0.0264)	1	5.50 (0.2183)
5.52 (0.2191)	3.021 - 3.040 (0.0259 - 0.0265)	1	5.52 (0.2191)
5.54 (0.2199)	3.041 - 3.060 (0.0260 - 0.0266)	1	5.54 (0.2199)
5.56 (0.2207)	3.061 - 3.080 (0.0261 - 0.0267)	1	5.56 (0.2207)
5.58 (0.2215)	3.081 - 3.100 (0.0262 - 0.0268)	1	5.58 (0.2215)
5.60 (0.2223)	3.101 - 3.120 (0.0263 - 0.0269)	1	5.60 (0.2223)
5.62 (0.2231)	3.121 - 3.140 (0.0264 - 0.0270)	1	5.62 (0.2231)
5.64 (0.2239)	3.141 - 3.160 (0.0265 - 0.0271)	1	5.64 (0.2239)
5.66 (0.2247)	3.161 - 3.180 (0.0266 - 0.0272)	1	5.66 (0.2247)
5.68 (0.2255)	3.181 - 3.200 (0.0267 - 0.0273)	1	5.68 (0.2255)
5.70 (0.2263)	3.201 - 3.220 (0.0268 - 0.0274)	1	5.70 (0.2263)
5.72 (0.2271)	3.221 - 3.240 (0.0269 - 0.0275)	1	5.72 (0.2271)

Adjusting Shim Selection Chart (Exhaust)

Measured clearance mm (in.)	Installed shim thickness mm (in.)	Shim No.	Thickness	Shim No.	Thickness
0.000 - 0.020 (0.0000 - 0.0008)	0.000 (0.0000)	1	0.000 (0.0000)	1	0.000 (0.0000)
0.021 - 0.040 (0.0008 - 0.0016)	0.021 (0.0008)	2	0.021 (0.0008)	2	0.021 (0.0008)
0.041 - 0.060 (0.0016 - 0.0024)	0.041 (0.0016)	3	0.041 (0.0016)	3	0.041 (0.0016)
0.061 - 0.080 (0.0024 - 0.0032)	0.061 (0.0024)	4	0.061 (0.0024)	4	0.061 (0.0024)
0.081 - 0.100 (0.0032 - 0.0040)	0.081 (0.0032)	5	0.081 (0.0032)	5	0.081 (0.0032)
0.101 - 0.120 (0.0040 - 0.0048)	0.101 (0.0040)	6	0.101 (0.0040)	6	0.101 (0.0040)
0.121 - 0.140 (0.0048 - 0.0056)	0.121 (0.0048)	7	0.121 (0.0048)	7	0.121 (0.0048)
0.141 - 0.160 (0.0056 - 0.0064)	0.141 (0.0056)	8	0.141 (0.0056)	8	0.141 (0.0056)
0.161 - 0.180 (0.0064 - 0.0072)	0.161 (0.0064)	9	0.161 (0.0064)	9	0.161 (0.0064)
0.181 - 0.200 (0.0072 - 0.0080)	0.181 (0.0072)	10	0.181 (0.0072)	10	0.181 (0.0072)
0.201 - 0.220 (0.0080 - 0.0088)	0.201 (0.0080)	11	0.201 (0.0080)	11	0.201 (0.0080)
0.221 - 0.240 (0.0088 - 0.0096)	0.221 (0.0088)	12	0.221 (0.0088)	12	0.221 (0.0088)
0.241 - 0.260 (0.0096 - 0.0104)	0.241 (0.0096)	13	0.241 (0.0096)	13	0.241 (0.0096)
0.261 - 0.280 (0.0104 - 0.0112)	0.261 (0.0104)	14	0.261 (0.0104)	14	0.261 (0.0104)
0.281 - 0.300 (0.0112 - 0.0120)	0.281 (0.0112)	15	0.281 (0.0112)	15	0.281 (0.0112)
0.301 - 0.320 (0.0120 - 0.0128)	0.301 (0.0120)	16	0.301 (0.0120)	16	0.301 (0.0120)
0.321 - 0.340 (0.0128 - 0.0136)	0.321 (0.0128)	17	0.321 (0.0128)	17	0.321 (0.0128)
0.341 - 0.360 (0.0136 - 0.0144)	0.341 (0.0136)	18	0.341 (0.0136)	18	0.341 (0.0136)
0.361 - 0.380 (0.0144 - 0.0152)	0.361 (0.0144)	19	0.361 (0.0144)	19	0.361 (0.0144)
0.381 - 0.400 (0.0152 - 0.0160)	0.381 (0.0152)	20	0.381 (0.0152)	20	0.381 (0.0152)
0.401 - 0.420 (0.0160 - 0.0168)	0.401 (0.0160)	21	0.401 (0.0160)	21	0.401 (0.0160)
0.421 - 0.440 (0.0168 - 0.0176)	0.421 (0.0168)	22	0.421 (0.0168)	22	0.421 (0.0168)
0.441 - 0.460 (0.0176 - 0.0184)	0.441 (0.0176)	23	0.441 (0.0176)	23	0.441 (0.0176)
0.461 - 0.480 (0.0184 - 0.0192)	0.461 (0.0184)	24	0.461 (0.0184)	24	0.461 (0.0184)
0.481 - 0.500 (0.0192 - 0.0200)	0.481 (0.0192)	25	0.481 (0.0192)	25	0.481 (0.0192)
0.501 - 0.520 (0.0200 - 0.0208)	0.501 (0.0200)	26	0.501 (0.0200)	26	0.501 (0.0200)
0.521 - 0.540 (0.0208 - 0.0216)	0.521 (0.0208)	27	0.521 (0.0208)	27	0.521 (0.0208)
0.541 - 0.560 (0.0216 - 0.0224)	0.541 (0.0216)	28	0.541 (0.0216)	28	0.541 (0.0216)
0.561 - 0.580 (0.0224 - 0.0232)	0.561 (0.0224)	29	0.561 (0.0224)	29	0.561 (0.0224)
0.581 - 0.600 (0.0232 - 0.0240)	0.581 (0.0232)	30	0.581 (0.0232)	30	0.581 (0.0232)
0.601 - 0.620 (0.0240 - 0.0248)	0.601 (0.0240)	31	0.601 (0.0240)	31	0.601 (0.0240)
0.621 - 0.640 (0.0248 - 0.0256)	0.621 (0.0248)	32	0.621 (0.0248)	32	0.621 (0.0248)
0.641 - 0.660 (0.0256 - 0.0264)	0.641 (0.0256)	33	0.641 (0.0256)	33	0.641 (0.0256)
0.661 - 0.680 (0.0264 - 0.0272)	0.661 (0.0264)	34	0.661 (0.0264)	34	0.661 (0.0264)
0.681 - 0.700 (0.0272 - 0.0280)	0.681 (0.0272)	35	0.681 (0.0272)	35	0.681 (0.0272)
0.701 - 0.720 (0.0280 - 0.0288)	0.701 (0.0280)	36	0.701 (0.0280)	36	0.701 (0.0280)
0.721 - 0.740 (0.0288 - 0.0296)	0.721 (0.0288)	37	0.721 (0.0288)	37	0.721 (0.0288)
0.741 - 0.760 (0.0296 - 0.0304)	0.741 (0.0296)	38	0.741 (0.0296)	38	0.741 (0.0296)
0.761 - 0.780 (0.0304 - 0.0312)	0.761 (0.0304)	39	0.761 (0.0304)	39	0.761 (0.0304)
0.781 - 0.800 (0.0312 - 0.0320)	0.781 (0.0312)	40	0.781 (0.0312)	40	0.781 (0.0312)
0.801 - 0.820 (0.0320 - 0.0328)	0.801 (0.0320)	41	0.801 (0.0320)	41	0.801 (0.0320)
0.821 - 0.840 (0.0328 - 0.0336)	0.821 (0.0328)	42	0.821 (0.0328)	42	0.821 (0.0328)
0.841 - 0.860 (0.0336 - 0.0344)	0.841 (0.0336)	43	0.841 (0.0336)	43	0.841 (0.0336)
0.861 - 0.880 (0.0344 - 0.0352)	0.861 (0.0344)	44	0.861 (0.0344)	44	0.861 (0.0344)
0.881 - 0.900 (0.0352 - 0.0360)	0.881 (0.0352)	45	0.881 (0.0352)	45	0.881 (0.0352)
0.901 - 0.920 (0.0360 - 0.0368)	0.901 (0.0360)	46	0.901 (0.0360)	46	0.901 (0.0360)
0.921 - 0.940 (0.0368 - 0.0376)	0.921 (0.0368)	47	0.921 (0.0368)	47	0.921 (0.0368)
0.941 - 0.960 (0.0376 - 0.0384)	0.941 (0.0376)	48	0.941 (0.0376)	48	0.941 (0.0376)
0.961 - 0.980 (0.0384 - 0.0392)	0.961 (0.0384)	49	0.961 (0.0384)	49	0.961 (0.0384)
0.981 - 1.000 (0.0392 - 0.0400)	0.981 (0.0392)	50	0.981 (0.0392)	50	0.981 (0.0392)
1.001 - 1.020 (0.0400 - 0.0408)	1.001 (0.0400)	51	1.001 (0.0400)	51	1.001 (0.0400)
1.021 - 1.040 (0.0408 - 0.0416)	1.021 (0.0408)	52	1.021 (0.0408)	52	1.021 (0.0408)
1.041 - 1.060 (0.0416 - 0.0424)	1.041 (0.0416)	53	1.041 (0.0416)	53	1.041 (0.0416)
1.061 - 1.080 (0.0424 - 0.0432)	1.061 (0.0424)	54	1.061 (0.0424)	54	1.061 (0.0424)
1.081 - 1.100 (0.0432 - 0.0440)	1.081 (0.0432)	55	1.081 (0.0432)	55	1.081 (0.0432)
1.101 - 1.120 (0.0440 - 0.0448)	1.101 (0.0440)	56	1.101 (0.0440)	56	1.101 (0.0440)
1.121 - 1.140 (0.0448 - 0.0456)	1.121 (0.0448)	57	1.121 (0.0448)	57	1.121 (0.0448)
1.141 - 1.160 (0.0456 - 0.0464)	1.141 (0.0456)	58	1.141 (0.0456)	58	1.141 (0.0456)
1.161 - 1.170 (0.0464 - 0.0468)	1.161 (0.0468)	59	1.161 (0.0468)	59	1.161 (0.0468)
1.171 - 1.180 (0.0468 - 0.0472)	1.171 (0.0472)	60	1.171 (0.0472)	60	1.171 (0.0472)
1.181 - 1.190 (0.0472 - 0.0476)	1.181 (0.0476)	61	1.181 (0.0476)	61	1.181 (0.0476)
1.191 - 1.200 (0.0476 - 0.0480)	1.191 (0.0480)	62	1.191 (0.0480)	62	1.191 (0.0480)
1.201 - 1.210 (0.0480 - 0.0484)	1.201 (0.0484)	63	1.201 (0.0484)	63	1.201 (0.0484)
1.211 - 1.220 (0.0484 - 0.0488)	1.211 (0.0488)	64	1.211 (0.0488)	64	1.211 (0.0488)
1.221 - 1.230 (0.0488 - 0.0492)	1.221 (0.0492)	65	1.221 (0.0492)	65	1.221 (0.0492)
1.231 - 1.240 (0.0492 - 0.0496)	1.231 (0.0496)	66	1.231 (0.0496)	66	1.231 (0.0496)
1.241 - 1.250 (0.0496 - 0.0500)	1.241 (0.0500)	67	1.241 (0.0500)	67	1.241 (0.0500)
1.251 - 1.260 (0.0500 - 0.0504)	1.251 (0.0504)	68	1.251 (0.0504)	68	1.251 (0.0504)
1.261 - 1.270 (0.0504 - 0.0508)	1.261 (0.0508)	69	1.261 (0.0508)	69	1.261 (0.0508)
1.271 - 1.280 (0.0508 - 0.0512)	1.271 (0.0512)	70	1.271 (0.0512)	70	1.271 (0.0512)
1.281 - 1.290 (0.0512 - 0.0516)	1.281 (0.0516)	71	1.281 (0.0516)	71	1.281 (0.0516)
1.291 - 1.300 (0.0516 - 0.0520)	1.291 (0.0520)	72	1.291 (0.0520)	72	1.291 (0.0520)
1.301 - 1.310 (0.0520 - 0.0524)	1.301 (0.0524)	73	1.301 (0.0524)	73	1.301 (0.0524)
1.311 - 1.320 (0.0524 - 0.0528)	1.311 (0.0528)	74	1.311 (0.0528)	74	1.311 (0.0528)
1.321 - 1.330 (0.0528 - 0.0532)	1.321 (0.0532)	75	1.321 (0.0532)	75	1.321 (0.0532)
1.331 - 1.340 (0.0532 - 0.0536)	1.331 (0.0536)	76	1.331 (0.0536)	76	1.331 (0.0536)
1.341 - 1.350 (0.0536 - 0.0540)	1.341 (0.0540)	77	1.341 (0.0540)	77	1.341 (0.0540)
1.351 - 1.360 (0.0540 - 0.0544)	1.351 (0.0544)	78	1.351 (0.0544)	78	1.351 (0.0544)
1.361 - 1.370 (0.0544 - 0.0548)	1.361 (0.0548)	79	1.361 (0.0548)	79	1.361 (0.0548)
1.371 - 1.380 (0.0548 - 0.0552)	1.371 (0.0552)	80	1.371 (0.0552)	80	1.371 (0.0552)
1.381 - 1.390 (0.0552 - 0.0556)	1.381 (0.0556)	81	1.381 (0.0556)	81	1.381 (0.0556)
1.391 - 1.400 (0.0556 - 0.0560)	1.391 (0.0560)	82	1.391 (0.0560)	82	1.391 (0.0560)
1.401 - 1.410 (0.0560 - 0.0564)	1.401 (0.0564)	83	1.401 (0.0564)	83	1.401 (0.0564)
1.411 - 1.420 (0.0564 - 0.0568)	1.411 (0.0568)	84	1.411 (0.0568)	84	1.411 (0.0568)
1.421 - 1.430 (0.0568 - 0.0572)	1.421 (0.0572)	85	1.421 (0.0572)	85	1.421 (0.0572)
1.431 - 1.440 (0.0572 - 0.0576)	1.431 (0.0576)	86	1.431 (0.0576)	86	1.431 (0.0576)
1.441 - 1.450 (0.0576 - 0.0580)	1.441 (0.0580)	87	1.441 (0.0580)	87	1.441 (0.0580)
1.451 - 1.460 (0.0580 - 0.0584)	1.451 (0.0584)	88	1.451 (0.0584)	88	1.451 (0.0584)
1.461 - 1.470 (0.0584 - 0.0588)	1.461 (0.0588)	89	1.461 (0.0588)	89	1.461 (0.0588)
1.471 - 1.480 (0.0588 - 0.0592)	1.471 (0.0592)	90	1.471 (0.0592)	90	1.471 (0.0592)
1.481 - 1.490 (0.0592 - 0.0596)	1.481 (0.0596)	91	1.481 (0.0596)	91	1.481 (0.0596)
1.491 - 1.500 (0.0596 - 0.0600)	1.491 (0.0600)	92	1.491 (0.0600)	92	1.491 (0.0600)
1.501 - 1.510 (0.0600 - 0.0604)	1.501 (0.0604)	93	1.501 (0.0604)	93	1.501 (0.0604)
1.511 - 1.520 (0.0604 - 0.0608)	1.511 (0.0608)	94	1.511 (0.0608)	94	1.511 (0.0608)
1.521 - 1.530 (0.0608 - 0.0612)	1.521 (0.0612)	95	1.521 (0.0612)	95	1.521 (0.0612)
1.531 - 1.540 (0.0612 - 0.0616)	1.531 (0.0616)	96	1.531 (0.0616)	96	1.531 (0.0616)
1.541 - 1.550 (0.0616 - 0.0620)	1.541 (0.0620)	97	1.541 (0.0620)	97	1.541 (0.0620)
1.551 - 1.560 (0.0620 - 0.0624)	1.551 (0.0624)	98	1.551 (0.0624)	98	1.551 (0.0624)
1.561 - 1.570 (0.0624 - 0.0628)	1.561 (0.0628)	99	1.561 (0.0628)	99	1.561 (0.0628)
1.571 - 1.580 (0.0628 - 0.0632)	1.571 (0.0632)	100	1.571 (0.0632)	100	1.571 (0.0632)

Shim No.	Thickness	Shim No.	Thickness
1	2.50 (0.0984)	10	2.95 (0.1161)
2	2.55 (0.1004)	11	3.00 (0.1181)
3	2.60 (0.1024)	12	3.05 (0.1201)
4	2.65 (0.1043)	13	3.10 (0.1220)
5	2.70 (0.1063)	14	3.15 (0.1240)
6	2.75 (0.1083)	15	3.20 (0.1260)
7	2.80 (0.1102)	16	3.25 (0.1280)
8	2.85 (0.1122)	17	3.30 (0.1299)
9	2.90 (0.1142)		

Exhaust valve clearance (Cold):
0.27 - 0.37 mm (0.011 - 0.015 in.)
EXAMPLE: The 2.800 mm (0.1102 in.) shim is installed, and measured clearance is 0.450 mm (0.0177 in.). Replace the 2.800 mm (0.1102 in.) shim with a No. 10 shim.

IGNITION TIMING INSPECTION AND ADJUSTMENT

EG0EU-01

(See IG section)

Ignition timing:

10° BTDC @ idle

(w/ Terminals TE1 and E1 connected)

IDLE SPEED INSPECTION

EG0EV-01

Idle speed:

700±50 rpm

IDLE AND/OR 2,500 RPM CO/HC CHECK

EG0EW-02

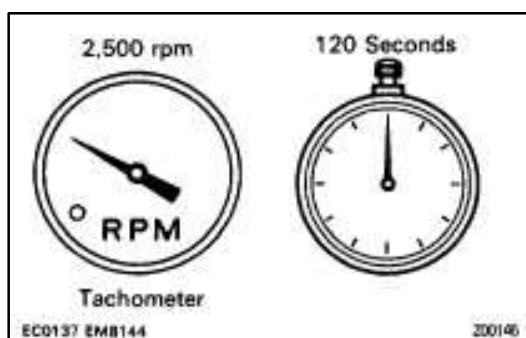
HINT: This check is used only to determine whether or not the idle CO/HC complies with regulations.

1. INITIAL CONDITIONS

- (a) Engine at normal operating temperature
- (b) Air cleaner installed
- (c) All pipes and hoses of air induction system connected
- (d) All operating accessories switched OFF
- (e) All vacuum lines properly connected

HINT: All vacuum hoses for EGR systems, etc. should be properly connected.

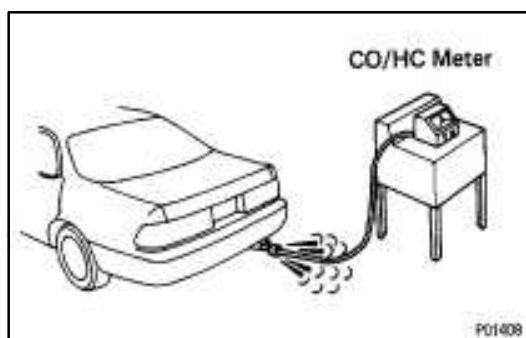
- (f) SFI system wiring connectors fully plugged in
- (g) Transmission in neutral position
- (h) Tachometer and CO/HC meter calibrated by hand



2. START ENGINE
3. RACE ENGINE AT 2,500 RPM FOR APPROX. 120 SECONDS
4. INSERT CO/HC METER TESTING PROBE INTO TAILPIPE LEAST 40 cm (1.3 ft)
5. CHECK CO/HC CONCENTRATION AT IDLE

Complete the measuring within three minutes.

HINT: When performing the 2 mode (2,500 rpm and idle) test, follow the measurement order prescribed by the regulations.



If the CO/HC concentration at 2,500 rpm does not comply with regulations, try the following procedure.

Race the engine again at 2,500 rpm for approx. 1 minute and quickly repeat steps 4 and 5 above.

This may correct the problem.

Troubleshooting

EG0EX-01

If the CO/HC concentration does not comply with regulations, perform troubleshooting in the order given below.

- (a) Check oxygen sensor operation.
(See page [EG-228](#))
- (b) See the table below for possible causes, and then inspect and correct the applicable causes if necessary.

HC	CO	Problem	Cause
High	Normal	Rough idle	1. Faulty ignition: <ul style="list-style-type: none"> <input type="checkbox"/> Incorrect timing <input type="checkbox"/> Fouled, shorted or improperly gapped plugs <input type="checkbox"/> Open or crossed high-tension cords <input type="checkbox"/> Cracked distributor cap 2. Incorrect valve clearance 3. Leaky EGR valve 4. Leaky intake and exhaust valves 5. Leaky cylinder
High	Low	Rough idle (Fluctuating HC reading)	1. Vacuum leaks: <ul style="list-style-type: none"> <input type="checkbox"/> PCV hose <input type="checkbox"/> EGR valve <input type="checkbox"/> Intake manifold <input type="checkbox"/> Air intake chamber <input type="checkbox"/> Throttle body <input type="checkbox"/> IAC valve <input type="checkbox"/> Brake booster line 2. Lean mixture causing misfire
High	High	Rough idle (Black smoke from exhaust)	1. Clogged air filter 2. Faulty SFI system <ul style="list-style-type: none"> <input type="checkbox"/> Faulty pressure regulator <input type="checkbox"/> Clogged fuel return line <input type="checkbox"/> Defective engine coolant temp. sensor <input type="checkbox"/> Defective air temp. sensor <input type="checkbox"/> Faulty ECM <input type="checkbox"/> Faulty injector <input type="checkbox"/> Faulty cold start injector <input type="checkbox"/> Faulty throttle position sensor <input type="checkbox"/> Volume air flow meter

COMPRESSION CHECK

EG0EY-01

HINT: If there is lack of power, excessive oil consumption or poor fuel economy, measure the compression pressure.

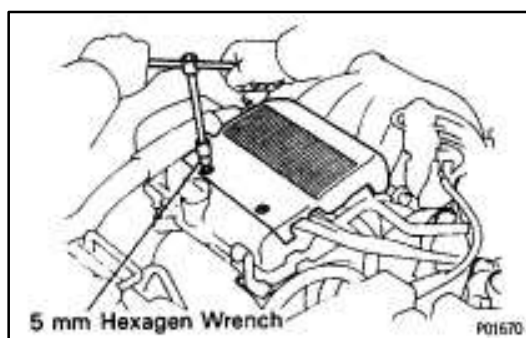
1. WARM UP AND STOP ENGINE

Allow the engine to warm up to normal operating temperature.

2. DISCONNECT DISTRIBUTOR CONNECTOR

3. REMOVE V-BANK COVER

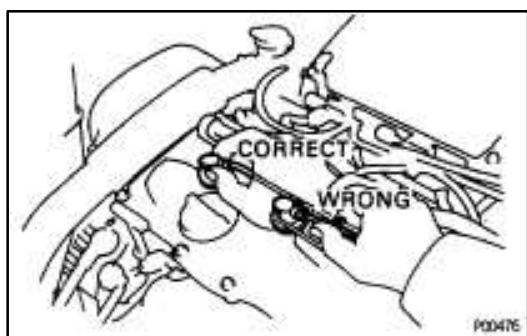
Using a 5 mm hexagon wrench, remove the two nuts and V-bank cover.



4. DISCONNECT HIGH-TENSION CORDS FROM SPARK PLUGS

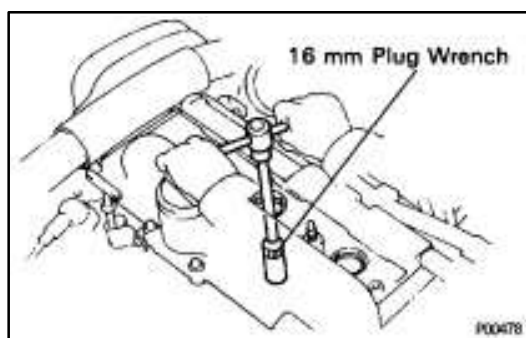
Disconnect the high-tension cords at the rubber boot. DO NOT pull on the cords.

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



5. REMOVE SPARK PLUGS

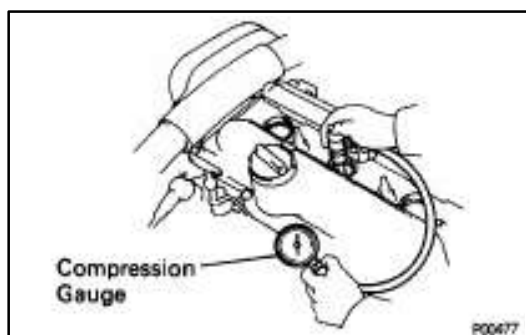
Using a 16 mm plug wrench, remove the spark plug.



6. CHECK CYLINDER COMPRESSION PRESSURE

- Insert a compression gauge into the spark plug hole.
- Fully open the throttle.
- While cranking the engine, measure the compression pressure.

HINT: Always use a fully charged battery to obtain engine speed of 250 rpm or more.



- (d) Repeat steps (a) through (c) for each cylinder.
NOTICE: This measurement must be done in as short a time as possible.

Compression pressure:

1,226 kPa (12.5 kgf/cm², 178 psi) or more

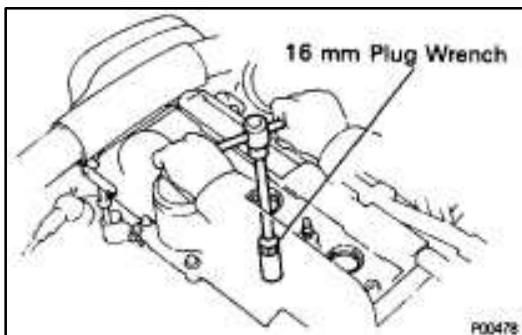
Minimum pressure:

981 kPa (10.0 kgf/cm², 142 psi)

Difference between each cylinder:

98 kPa (1.0 kgf/cm², 14 psi) or less

- (e) If the cylinder compression in one or more cylinders is low, pour a small amount of engine oil into the cylinder through the spark plug hole and repeat steps (a) through (c) for cylinders with low compression.
- If adding oil helps the compression chances are that the piston rings and/or cylinder bore are worn or damaged.
 - If pressure stays low, a valve may be sticking or seating is improper, or there may be leakage past the gasket.

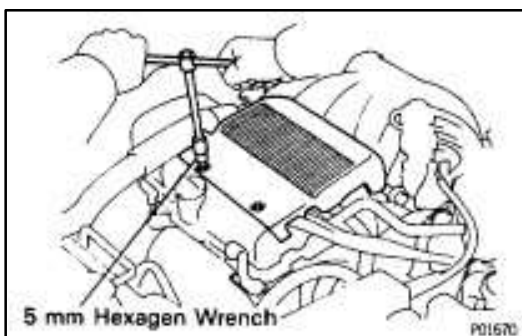


7. REINSTALL SPARK PLUGS

Using a 16 mm plug wrench, install the spark plug.

Torque: 18 N·m (180 kgf·cm, 13 ft·lbf)

8. RECONNECT HIGH-TENSION CORDS TO SPARK PLUGS



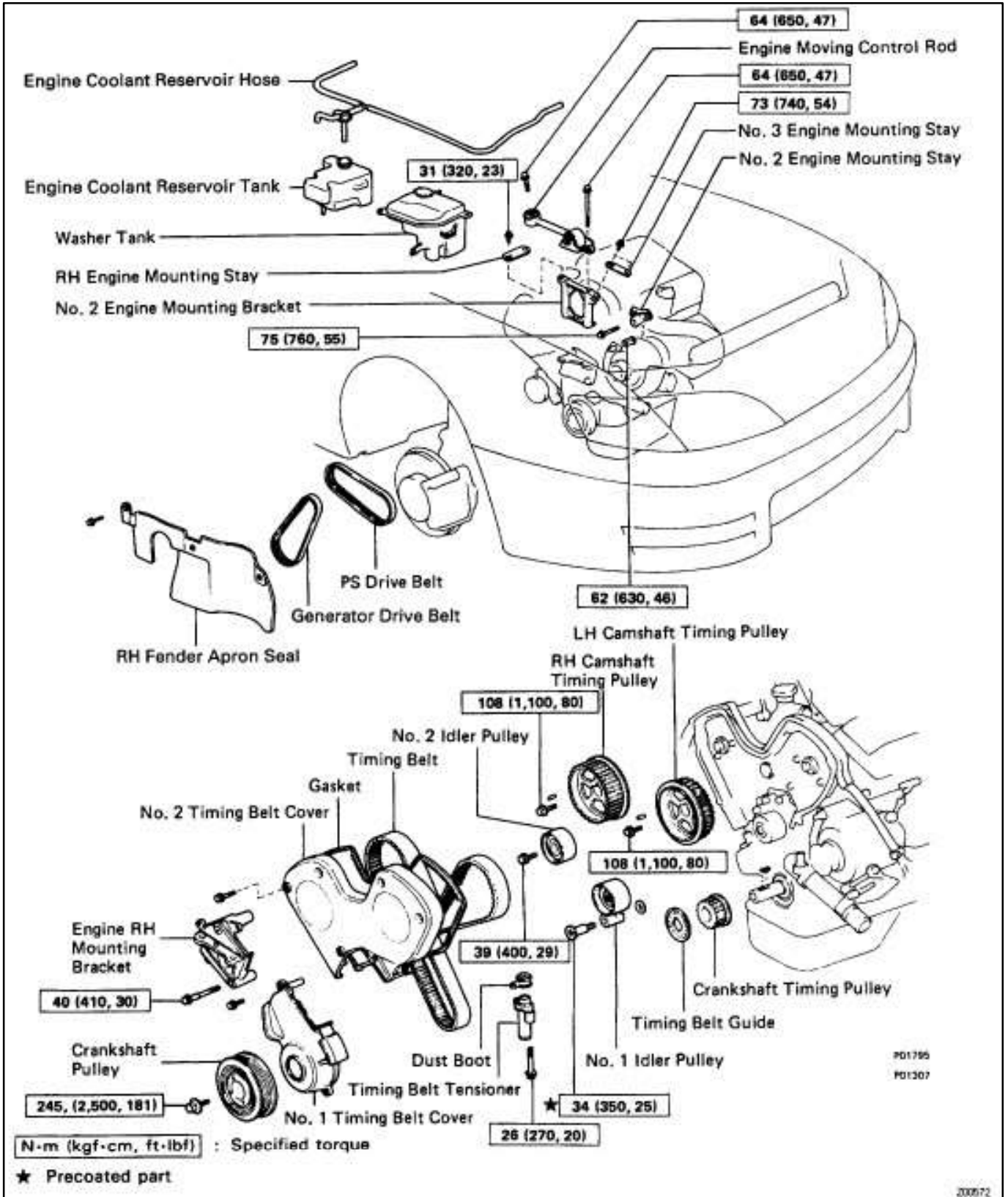
9. REINSTALL V-BANK COVER

Using a 5 mm hexagon wrench, install the V-bank cover with the two nuts.

10. RECONNECT DISTRIBUTOR CONNECTOR

TIMING BELT COMPONENTS

EG0EZ-02



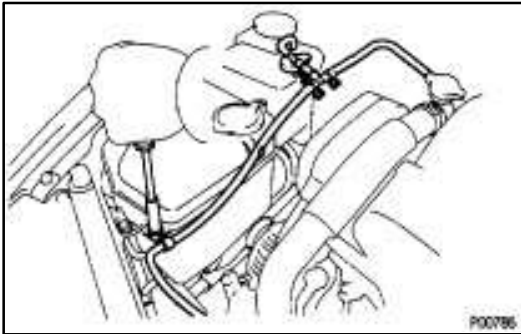
PD1795
PD1307

TIMING BELT REMOVAL

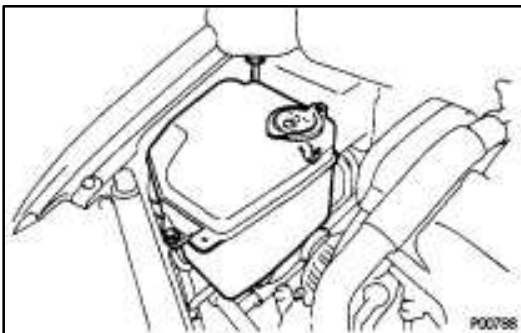
EG0F0-02

1. **DISCONNECT CABLE FROM NEGATIVE TERMINAL OF BATTERY**

CAUTION (w/ Airbag): Work must be started after approx. 30 seconds or longer from the time the ignition switch is turned to the "LOCK" position and the negative (-) terminal cable is disconnected from the battery.

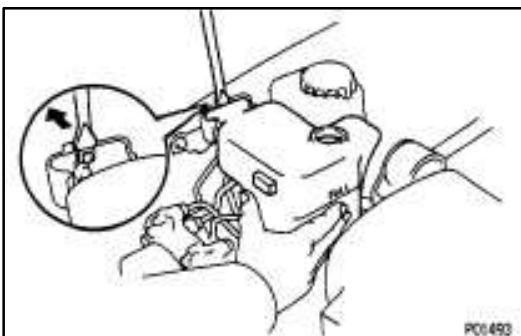


2. **DISCONNECT ENGINE COOLANT RESERVOIR HOSE**
Remove the bolt and disconnect the reservoir hose.



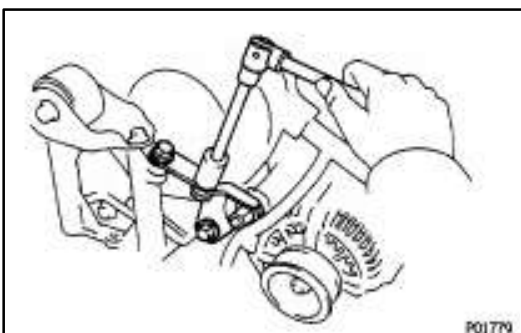
3. **REMOVE WASHER TANK**

- (a) Remove the three washer tank mounting bolts.
- (b) Disconnect the connector and hose, and remove the washer tank.



4. **REMOVE ENGINE COOLANT RESERVOIR TANK**

Using a screwdriver, remove the reservoir tank.



5. **REMOVE NO.2 AND NO.3 RH MOUNTING STAYS**

- (a) Remove the two bolts and No.3 RH engine mounting stay.
- (b) Remove the bolt, nut and No.2 RH engine mounting stay.