

(b) Pour some clean engine oil into filter until level is approximately 2 cms (1.0 in) below top of filter.

3. (a) Apply a thin film of engine oil over new filter seal.

(b) Screw filter into place until seal contacts mating surface of adaptor, then tighten through a further 2/3 of a turn.

4. (a) Clean any excess oil from filter and adaptor.

(b) Check oil level, then start engine and check for oil leaks.

(c) Repair as necessary.

* After running the engine, the oil level must be rechecked and oil added as necessary, to compensate for oil used to refill the oil filter.

COMPRESSION CHECK

1. Make sure of the following:

(a) Engine is at operating temperature;

(b) Battery is at (or near) full charge;

(c) Spark plugs are removed;

(d) Remove the fuse number F14 (Engine Cont. BCM), located drivers side lower dash. This fuse stops fuel and ignition functioning during engine cranking.



2. (a) Install suitable compression tester into spark plug hole, screw in type are more accurate. Depress accelerator pedal to fully open position and crank engine.

(b) Read compression gauge indication.

3. Check remaining cylinders.

Minimum Specified Comp: 689kPa.

Variation between cylinders:

not less than 70% of highest test

* If cylinder compression in 1 or more cylinders is low, pour a small amount of engine oil into the cylinders through the spark plug holes and test compression.

Compression Test Results

NORMAL Compression builds up quickly and evenly on each cylinder.

PISTON RINGS Compression low on 1st stroke, tending to build up on following strokes, but does not reach normal. Improves considerably with addition of oil.

VALVES Low on 1st stroke and does not tend to build up on following strokes. Do not improve much with addition of oil.

HEAD GASKET If cylinder compression in any 2 adjacent

cylinders is low (and if adding oil does not help compression), cylinder head gasket has blown out.

DRIVE BELTS

Inspection

* Some belt squeal when the engine is started or stopped is possible and has no effect on durability of drive belt.

Visual Inspection

* Condition of the belt is best judged by twisting the belt so as to see the both surfaces.

Stages of Belt Wear:

1. NEW BELT: No cracks or chunks.

2. MODERATELY USED BELT: Few cracks; some wear on surfaces. Replacement not required.

3. SEVERELY USED BELT: Several cracks per inch. Should be replaced before chunking occurs.

4. FAILED BELT: Separation of belt material from backing (chunking). Replace belt immediately.

Replacement

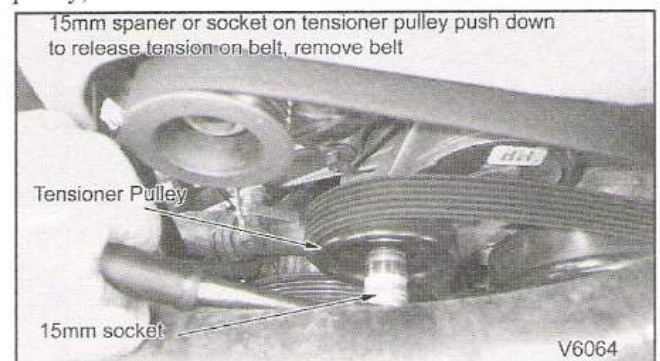
Use a 15mm ring spanner to grip the belt tensioner pulley, turn the spanner anti-clockwise with force to move tensioner pulley. Remove belt or install belt, release pressure on ring spanner to take tension up on belt.

DRIVE BELT TENSIONER

Remove

1. Remove the engine top cover 4 nuts.

2. Use a 15mm ring spanner to grip the belt tensioner pulley, turn the spanner anti-clockwise with force to move tensioner pulley, remove belt.



3. Disconnect the earth lead from the battery.

4. Remove the alternator.

5. Disconnect the heater hoses from the heater inlet and outlet at the belt tensioner.

6. Remove the heater inlet casting, 2 nuts, pull away from front of engine. Discard "O" ring.

7. Remove the belt tensioner 2 studs.

Install

1. Install belt tensioner and gasket, 2 studs.

Drive Belt Tensioner Studs: 40-60Nm

2. Install the heater inlet casting, 2 nuts, fit a new "O" ring, coat with petroleum jelly.

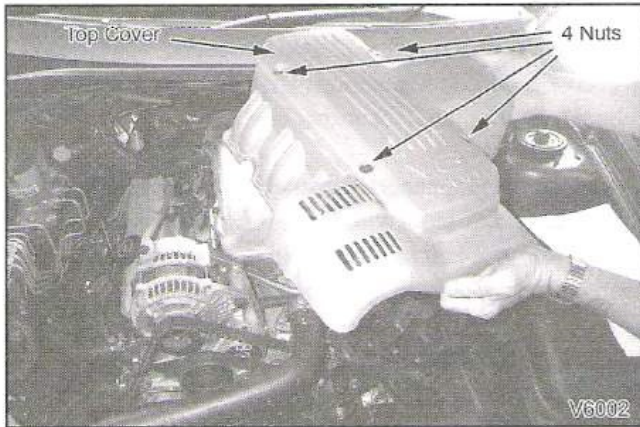
Heater Inlet Casting Nuts: 18-25Nm

3. Connect the heater hoses to the heater inlet and outlet at the belt tensioner, refill the cooling system.
4. Replace the alternator.
5. Connect the earth lead from the battery.
6. Use a 15mm ring spanner to grip the belt tensioner pulley, turn the spanner anti-clockwise with force to move tensioner pulley. Install belt, release pressure on ring spanner to take tension up on belt.
7. Replace the engine top cover 4 nuts.

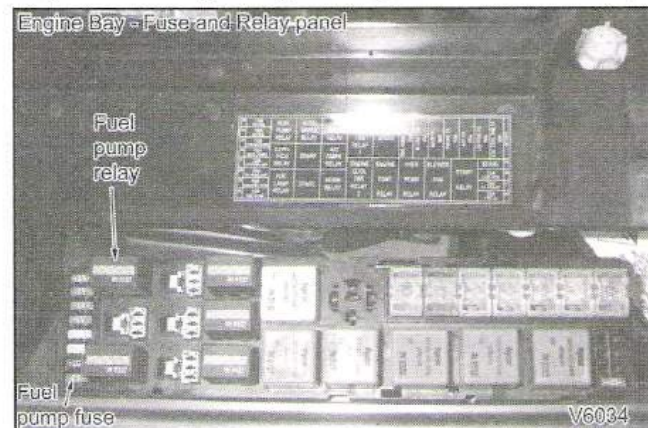
INTAKE MANIFOLD and FUEL RAIL ASSEMBLIES

Remove

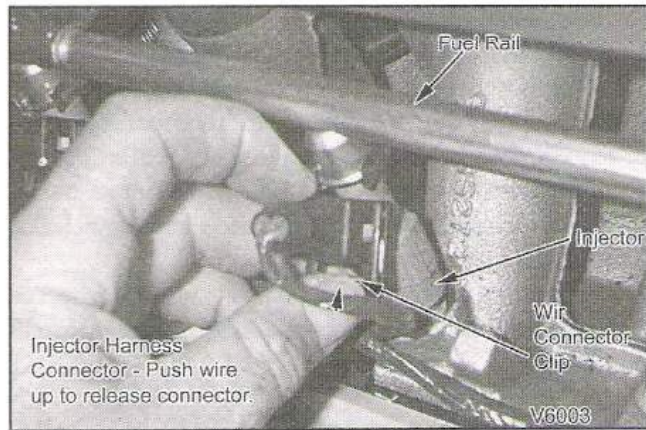
1. Remove the engine top cover 4 nuts.



2. Depressurize the fuel injection system, (remove fuel pump relay located in engine bay, start engine allow to idle to stall).

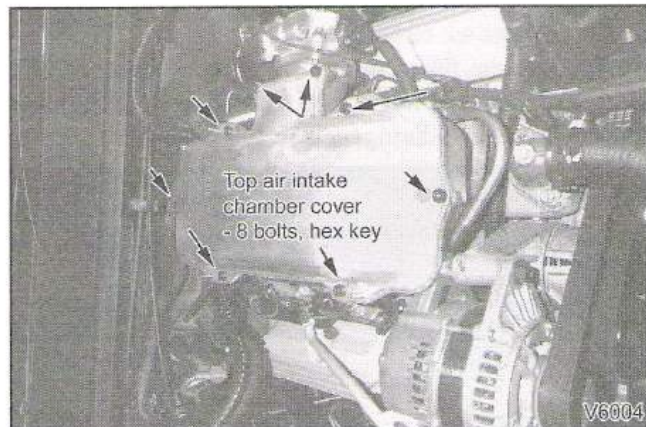


3. Disconnect the earth lead from the battery.
4. Drain coolant from engine at radiator lower hose.
5. Remove air cleaner to intake chamber tube with MAF sensor, disconnect MAF wiring connector.
6. Remove alternator and wiring connectors, label connectors to help assembly.
7. Remove front drive belt tensioner as previously described.
8. Disconnect the fuel and return pipes at the quick release connector at the rear of engine on firewall.
9. Detach throttle cable at the throttle body, 3 nuts
10. Disconnect wiring connectors, at TPS wiring plug, IAC wiring connector, Injectors, 3 vacuum hoses for brake



booster, fuel pressure regulator and heater control hose.

11. Remove the top air intake chamber cover and gasket, 8 bolts.



Hint: Place a cloth inside manifold to stop any objects dropping into cylinder inlets.

12. Remove the top air intake camber and gasket seal (leave gasket seal inserted in the seal groove), 5 bolts (do not completely remove 5 bolts), and fuel rail and injectors.
13. If necessary dismantle throttle body from top intake manifold and remove fuel pressure regulator hose.
14. Separate the fuel rails and injectors.
15. Remove the lower intake manifold, gaskets and seals, 12 bolts.

Install

1. Clean mating surfaces of the cylinder heads and the manifold.
2. Use a straight edge to check the surface of the intake manifold and intake chambers matching surfaces, if over maximum warpage specification, machine the surface or replace the manifolds.

Intake Manifold and Intake Chambers Maximum Warpage: 0.10mm (0.0039in)

3. The P.C.V. valve is located in the intake manifold, remove and check it is not clogged, wash and reinstall.
4. Install new intake manifold gaskets and seals, apply RTV 732 sealant to the 4 ends of the 2 seals where they contact the intake manifold gaskets.
5. Install the intake manifold. Using Loctite 242 to coat the threads of all 12 bolts, install bolts tighten to specification, in