

3-28 ENGINE AND ENGINE OVERHAUL

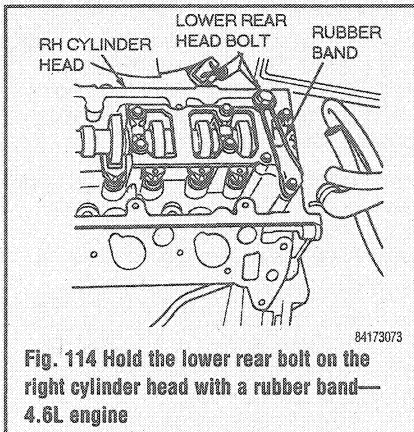


Fig. 114 Hold the lower rear bolt on the right cylinder head with a rubber band—4.6L engine

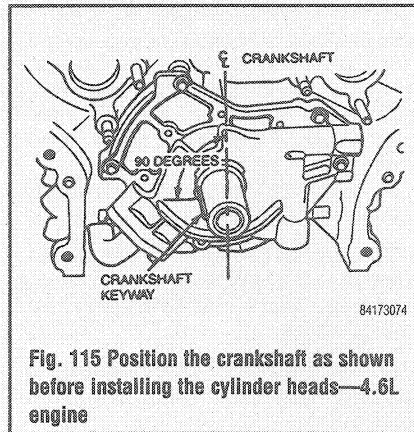


Fig. 115 Position the crankshaft as shown before installing the cylinder heads—4.6L engine

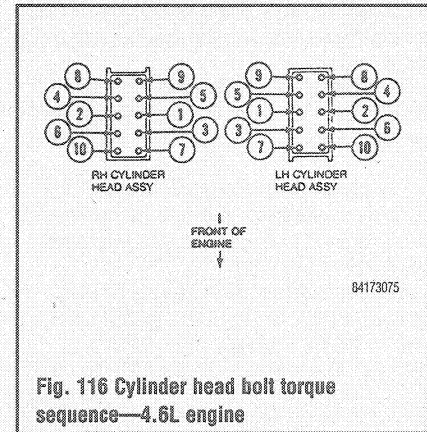


Fig. 116 Cylinder head bolt torque sequence—4.6L engine

37. Install the timing chains according to the procedure in this Section.

38. Install a new front cover seal and gasket. Apply silicone sealer to the lower corners of the cover where it meets the junction of the oil pan and cylinder block and to the points where the cover contacts the junction of the cylinder block and cylinder head.

39. Install the front cover and the stud bolts and bolts. Tighten to 15–22 ft. lbs. (20–30 Nm).

40. Position new intake manifold gaskets on the cylinder heads. Make sure the alignment tabs on the gaskets are aligned with the holes in the cylinder heads.

Before installing the intake manifold, inspect it for nicks and cuts that could provide leak paths.

41. Position the intake manifold on the cylinder heads and install the retaining bolts. Tighten the bolts, in sequence, to 15–22 ft. lbs. (20–30 Nm).

42. Install the thermostat and O-ring, then position the thermostat housing and upper hose, and install the 2 bolts. Tighten to 15–22 ft. lbs. (20–30 Nm).

43. Connect the heater supply hose and both oxygen sensors. Connect the vacuum hose to the throttle body adapter vacuum port.

44. Connect and, if necessary, adjust the throttle valve cable. Install the accelerator cable bracket on the intake manifold and connect the accelerator and cruise control cables to the throttle body.

45. Apply silicone sealer to both places where the front cover meets the cylinder head. Install new gaskets on the valve covers.

46. Install the valve covers on the cylinder heads. Install the bolts and stud bolts and tighten to 6.0–8.8 ft. lbs. (8–12 Nm).

47. Raise and safely support the vehicle. Position the starter wiring harness to the right cylinder head and install the retaining bolt.

48. Cut the wire and position the exhaust pipes to the exhaust manifolds. Tighten the 4 nuts to 20–30 ft. lbs. (27–41 Nm).

Make sure the exhaust system clears the No. 3 crossmember. Adjust as necessary.

49. Connect the EGR tube to the right exhaust manifold and tighten the line nut to 26–33 ft. lbs. (35–45 Nm). Connect the EVO sensor and oil-sending unit.

50. Apply a small amount of silicone sealer in the rear of the keyway on the damper. Position the damper on the crankshaft, making sure the crankshaft key and keyway are aligned.

51. Using damper installer T74P-6316-B or equivalent, install the crankshaft damper. Install the damper bolt and washer and tighten to 114–121 ft. lbs. (155–165 Nm).

52. Install the 4 bolts retaining the oil pan to the front cover and tighten to 15–22 ft. lbs. (20–30 Nm).

53. Position the power steering pump on the engine and install the 4 retaining bolts. Tighten to 15–22 ft. lbs. (20–30 Nm). Lower the vehicle.

54. Connect the air conditioning compressor, crankshaft position sensor and canister purge solenoid.

55. Connect the 42-pin engine harness connector and transmission harness connector. Install the 42-pin connector on the retaining bracket on the vacuum brake booster.

56. Install the PCV valve in the right valve cover and connect the canister purge solenoid vent hose.

57. Position the positive battery cable harness on the right cylinder head and install the bolt retaining the cable bracket to the cylinder head. Connect the positive battery cable at the power distribution box and battery.

58. Position the alternator and install the 2 retaining bolts. Tighten to 15–22 ft. lbs. (20–30 Nm). Install the 2 bolts retaining the alternator brace to the intake manifold and tighten to 6–8 ft. lbs. (8–12 Nm).

59. Install the water pump pulley and tighten the bolts to 15–22 ft. lbs. (20–30 Nm).

60. Position the ignition coil brackets and spark plug wire assembly onto the mounting studs. Install the 7 nuts retaining the coil brackets to the front cover and tighten to 15–22 ft. lbs. (20–30 Nm).

61. Install the 2 bolts retaining the spark plug wire tray to the coil bracket and tighten to 6.0–8.8 ft. lbs. (8–12 Nm). Connect both ignition coils and CID sensor.

62. Position the air conditioner high-pressure line on the right coil bracket and install the bolt. Connect the spark plug wires to the spark plugs and install the bracket onto the valve cover studs.

63. Install the accessory drive belt and the wiper module. Connect the fuel lines and install the cooling fan and shroud. Fill the cooling system.

64. Install the air inlet tube and connect the negative battery cable. Start the engine and bring to

normal operating temperature. Check for leaks. Check all fluid levels.

5.0L Engines

See Figures 117 and 118

1. Disconnect the negative battery cable.
2. Relieve the fuel system pressure; refer to Section 5. Drain the cooling system.
3. On 5.0L engine, remove the upper and lower intake manifold and throttle body assembly.
4. If the air conditioning compressor is in the way of a cylinder head that is to be removed, proceed as follows:
 - a. Discharge the air conditioning system; refer to Section 1.
 - b. Disconnect and plug the refrigerant lines at the compressor. Cap the openings on the compressor.
 - c. Disconnect the electrical connector to the compressor.
 - d. Remove the compressor and the necessary mounting brackets.
5. If the left cylinder head is to be removed,

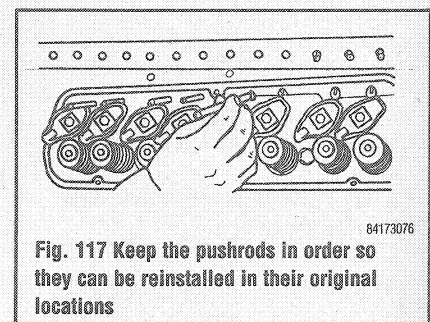


Fig. 117 Keep the pushrods in order so they can be reinstalled in their original locations

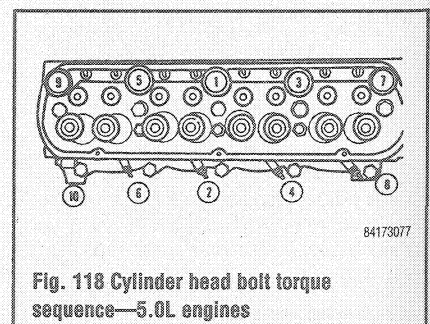


Fig. 118 Cylinder head bolt torque sequence—5.0L engines