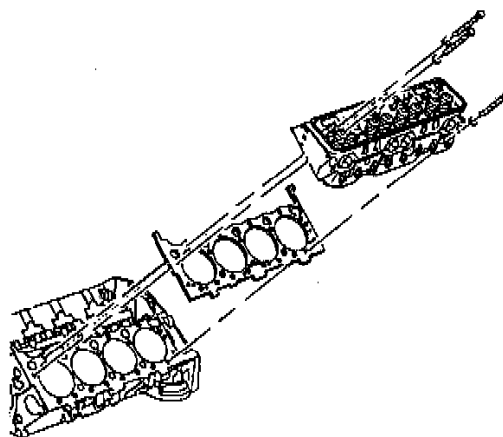


Cylinder Head Assembly: Service and Repair

CYLINDER HEAD REPLACEMENT

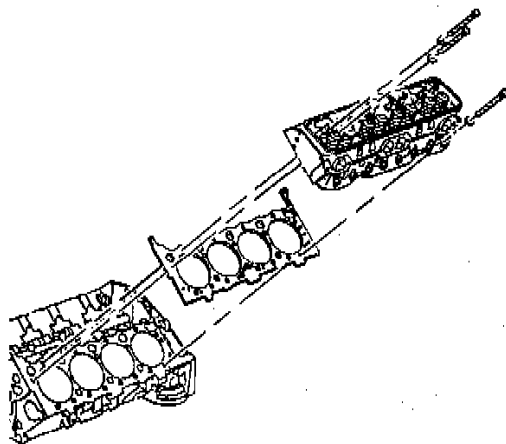


REMOVAL

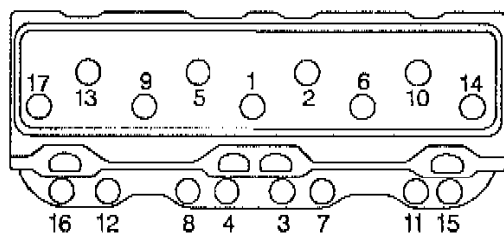
1. Disconnect the battery negative cable assembly from the battery negative terminal.
2. Drain the cooling system. Refer to Cooling System.
3. Remove the intake manifold.
4. Remove the exhaust manifold.
5. Remove the components as follows for the left side cylinder head:
 - ^ The air conditioning compressor and bracket. Refer Heating and Air Conditioning.
 - ^ The EGR inlet tube.
 - ^ The coolant sensor wire .
 - ^ The wiring harness brackets at the rear of the cylinder head.
6. Remove the components as follows for the right side cylinder head:
 - ^ The generator and bracket.
 - ^ The ground strap at the rear of the cylinder head.
 - ^ The oil level indicator tube.
 - ^ The spark plug wire brackets at the rear of the cylinder head.
7. Remove both valve rocker arm covers.
8. Remove the spark plugs.
9. Remove the pushrods.
10. Remove the cylinder head bolts.
11. Remove the cylinder head.
12. Remove the head gasket.
13. Clean the carbon deposits from the combustion chambers.
14. Clean all traces of old head gasket from the cylinder head and block.
15. Clean the cylinder head bolt threads and threads in the block.
16. Inspect the sealing surfaces of the block and the cylinder head for nicks, heavy scratches, or other damage.
17. For cylinder head repair, refer to Cylinder Head Assembly.

INSTALLATION

- ^ Tools Required
 - J 36660 Torque Angle Meter, or equivalent



1. Install the head gasket. Do not use sealer on composite steel-asbestos gaskets. Place the gasket over the block dowel pins with the bead up.
2. Install the cylinder head. Carefully guide the cylinder head into place over the dowel pins and gasket.
3. Coat the threads of the cylinder head bolts with sealing compound GM P/N 12346004 or the equivalent.



Cylinder Head Bolt Tightening Sequence

4. Install the cylinder head bolt finger tight.
 - ^ Tighten the cylinder head bolts in sequence on the first pass to **30 Nm (22 ft. lbs.)**.
5. Use the J 36660 in order to tighten the cylinder head bolts on the second pass.
 - ^ Tighten the short bolts (3, 4, 7, 8, 11, 12, 15, 16) an additional **55°**.
 - ^ Tighten the medium bolts (14, 17) an additional **65°**.
 - ^ Tighten the long bolts (1, 2, 5, 6, 9, 10, 13) an additional **75°**.
6. Install the pushrods.
7. Adjust the valves.
8. Install the valve rocker arm covers.
9. Install the spark plugs.
10. Install the components as follows for the left side cylinder head:
 - ^ The air conditioning compressor and bracket.
 - ^ The EGR inlet tube.
 - ^ The coolant sensor wire.
 - ^ The wiring harness brackets at the rear of the cylinder head.
11. Install the components as follows for the right side cylinder head:
 - ^ The generator and bracket.
 - ^ The ground strap at rear of cylinder head.
 - ^ The oil level indicator tube.
 - ^ The spark plug wire brackets at the rear of the cylinder head.
12. Install the exhaust manifold.
13. Install the intake manifold.
14. Connect the battery negative cable assembly to the battery negative terminal.
 - ^ Tighten the bolt to **15 Nm (11 ft. lbs.)**.
15. Fill the cooling system with the proper quantity and grade of coolant. Refer to Cooling System.