

CYLINDER HEAD DISASSEMBLE

Tools Required

- **J 8062** (KM 348) Valve Spring Compressor
- **KM-653-A** Adaptor

Disassembly Procedure

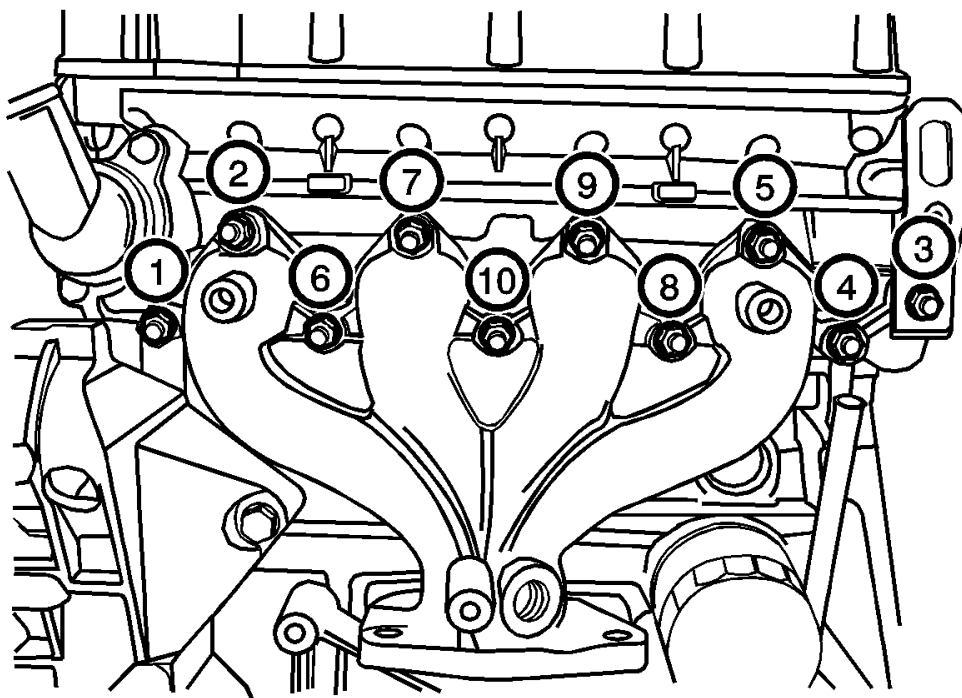


Fig. 271: Exhaust Manifold Retaining Nut Removal Sequence
Courtesy of GENERAL MOTORS CORP.

1. Remove the cylinder head with the intake manifold and the exhaust manifold attached. Refer to **Camshaft Replacement**.
2. Remove the coolant temperature sensor (CTS).
3. Remove the exhaust manifold heat shield bolts.
4. Remove the exhaust manifold heat shield.

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5. Remove the exhaust manifold retaining nuts in the sequence shown.
6. Remove the exhaust manifold.
7. Remove the exhaust manifold gasket.
8. Remove the exhaust manifold studs.

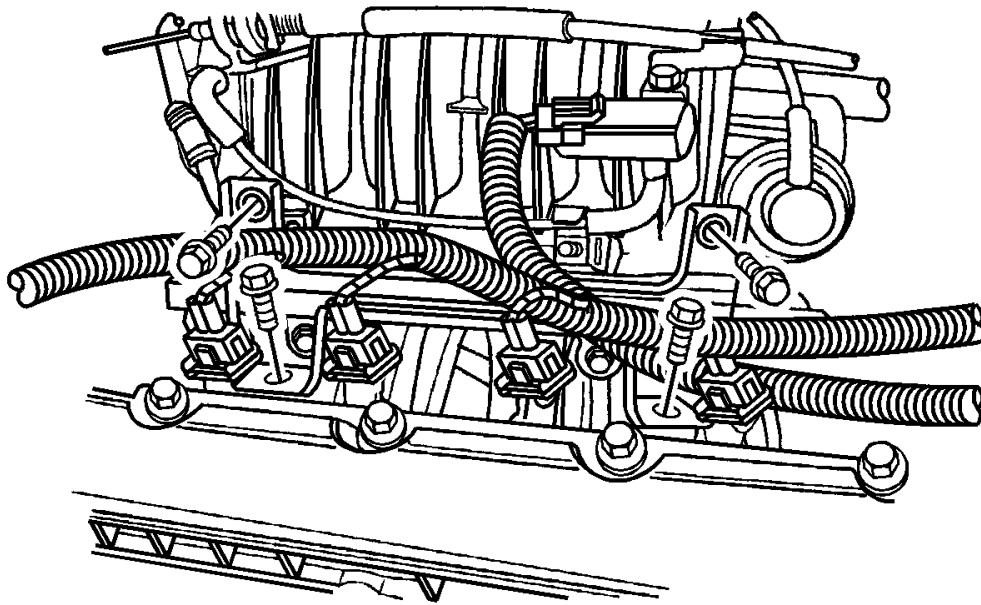


Fig. 272: View Of Thermostat Housing Assembly, Mounting Bolts, Fuel Rail Assembly, And Retaining Bolts
Courtesy of GENERAL MOTORS CORP.

9. Remove the thermostat housing mounting bolts.
10. Remove the thermostat housing assembly.
11. Remove the fuel rail retaining bolts and the fuel rail assembly.

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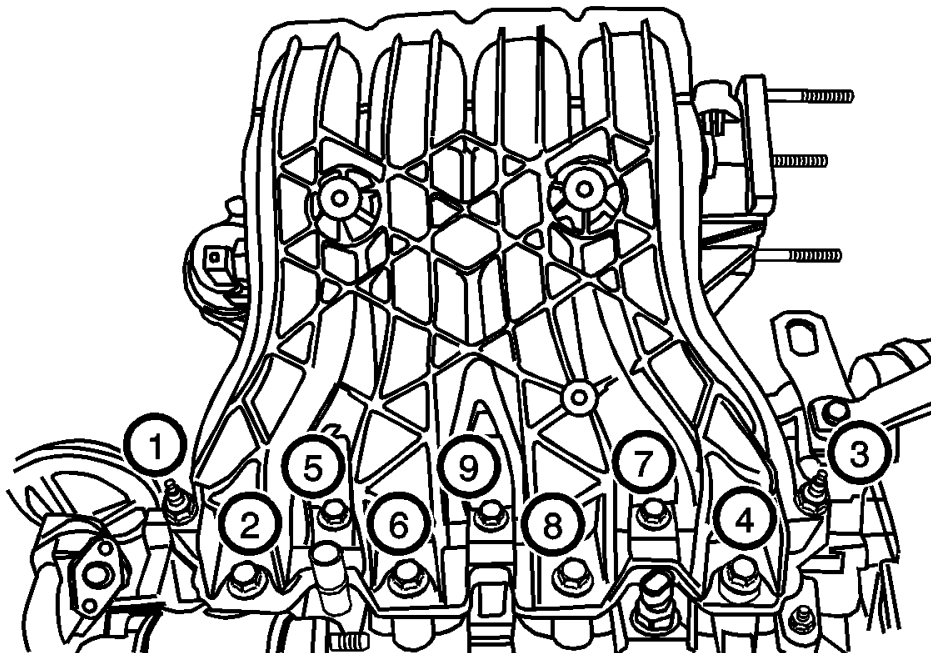


Fig. 273: Installing/Removal Sequence Of Intake Manifold Retaining Nuts And Retaining Bolts
Courtesy of GENERAL MOTORS CORP.

12. Remove the intake manifold retaining nuts and retaining bolts in the sequence shown.
13. Remove the intake manifold.
14. Remove the intake manifold studs.

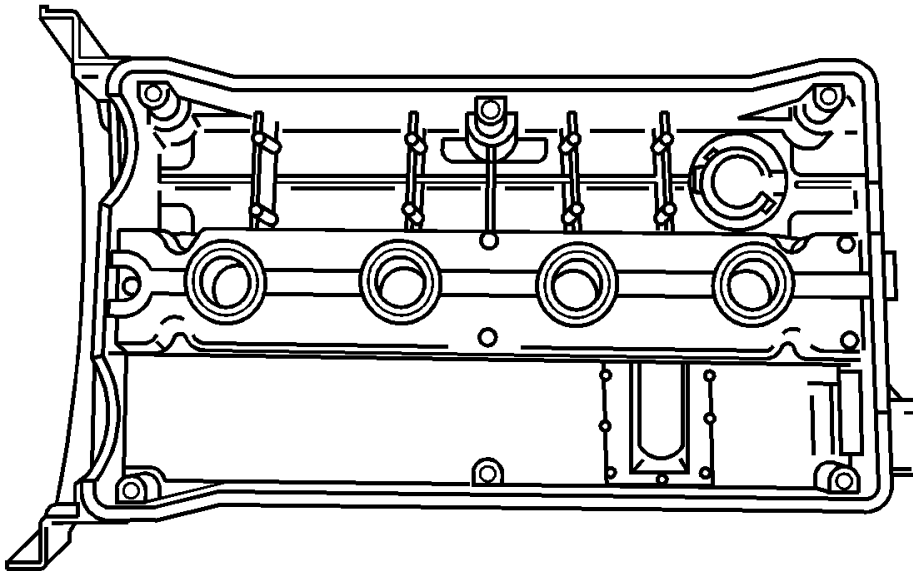


Fig. 274: View OF DIS Coil Mounting Bracket
Courtesy of GENERAL MOTORS CORP.

15. Remove the direct ignition system (DIS) coil mounting bolts.
16. Remove the DIS coil with the ignition wires attached.
17. Remove the DIS coil mounting bracket bolts.
18. Remove the electrical exhaust gas recirculation (EEGR) valve adapter bolts.
19. Remove the EGR valve adapter bolts.
20. Remove the EGR valve adapter.
21. Remove the EGR valve adapter gasket.
22. Remove the spark plugs.

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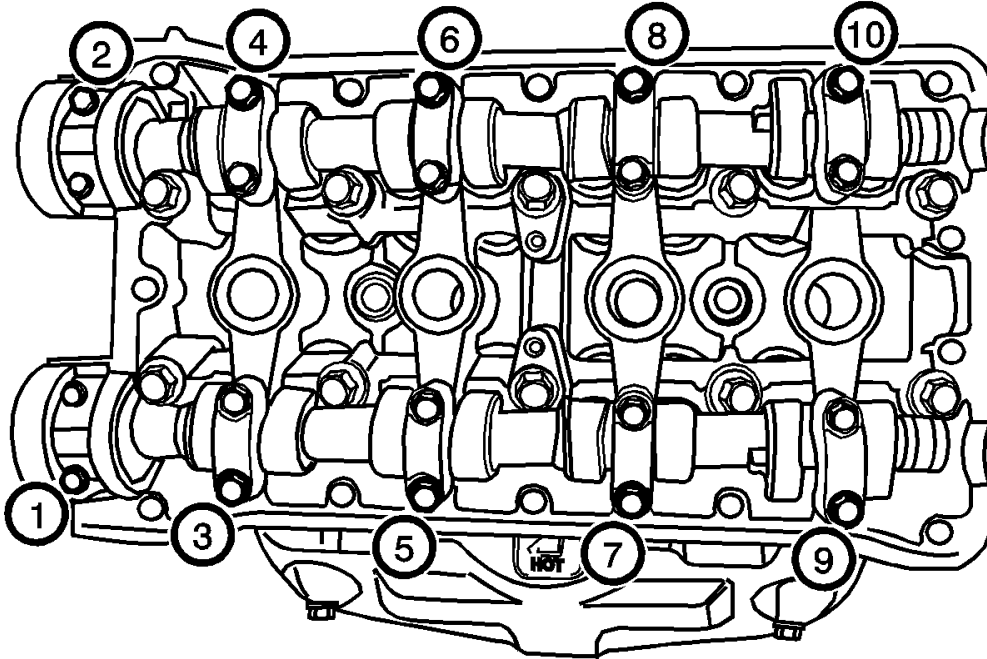


Fig. 275: Installing/Removal Sequence Of Camshaft Cap Bolts
Courtesy of GENERAL MOTORS CORP.

23. Remove the camshaft cap bolts gradually and in the sequence shown for each camshaft cap.

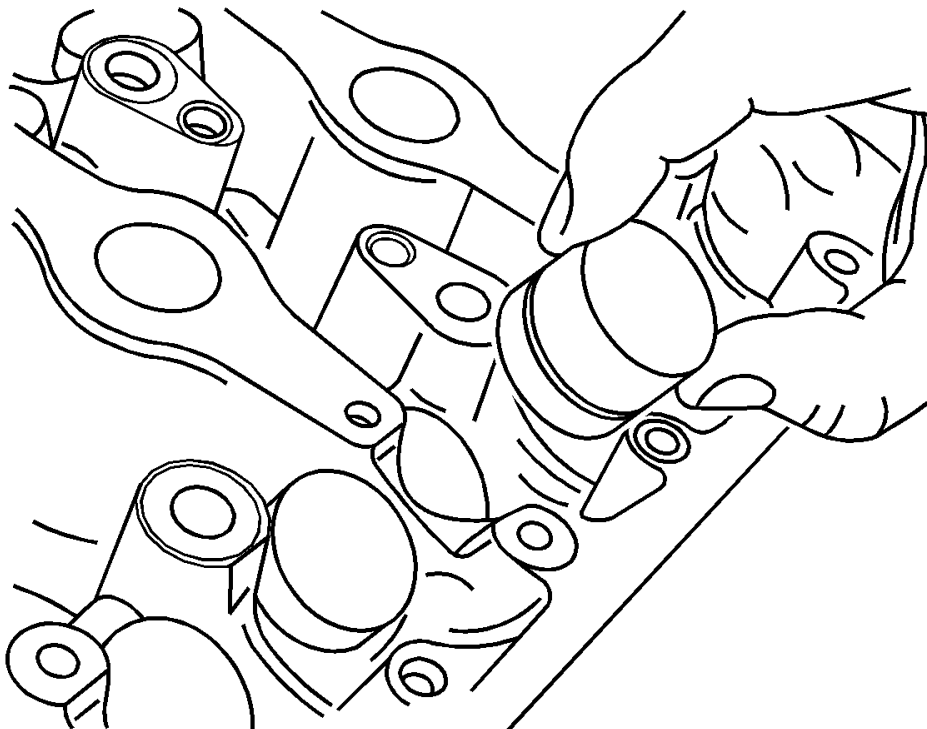


Fig. 276: View Of Intake Valve Tappet Adjusters
Courtesy of GENERAL MOTORS CORP.

24. Remove the intake camshaft caps. Maintain the correct positions for installation.
25. Remove the intake camshaft.
26. Remove the intake valve tappet adjusters.
27. Remove the exhaust camshaft caps. Maintain the correct positions for installation.
28. Remove the exhaust camshaft.
29. Remove the exhaust valve tappet adjusters.

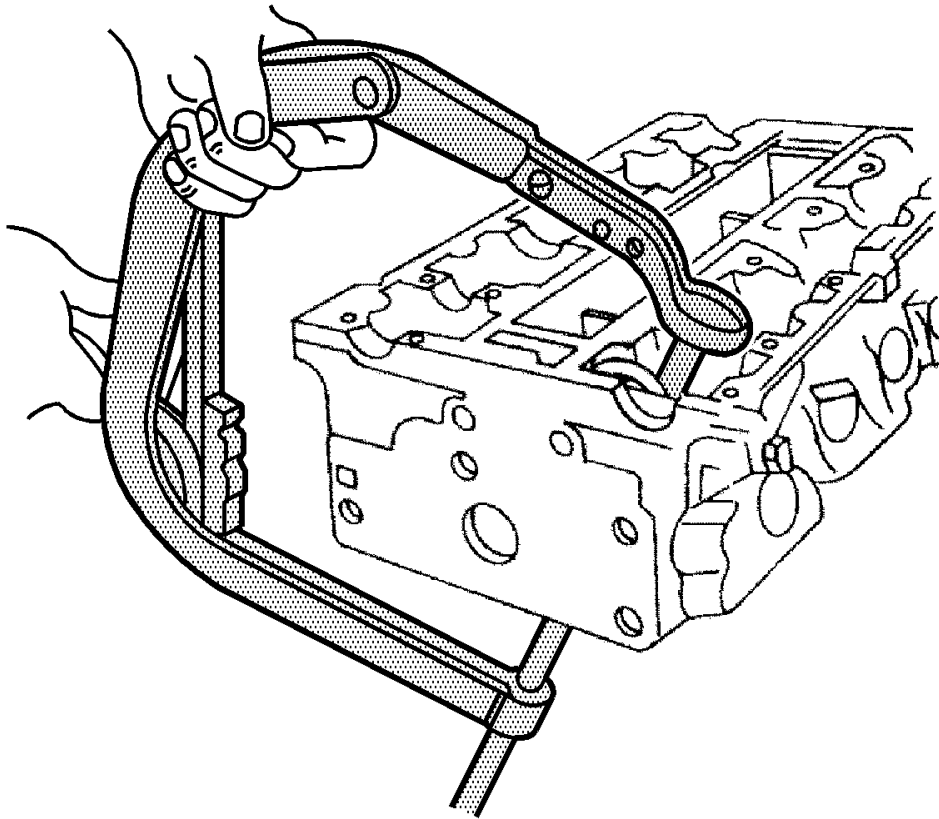


Fig. 277: Compressing Valve Springs
Courtesy of GENERAL MOTORS CORP.

CAUTION: Valve springs can be tightly compressed. Use care when removing the retainers and plugs. Personal injury could result.

30. Compress the valve springs with **J 8062** and **KM-653-A** .
31. Remove the valve keys.
32. Remove the **J 8062** and **KM-653-A** .
33. Remove the valve spring caps.
34. Remove the valve springs. Maintain the original position of the valve springs for installation.

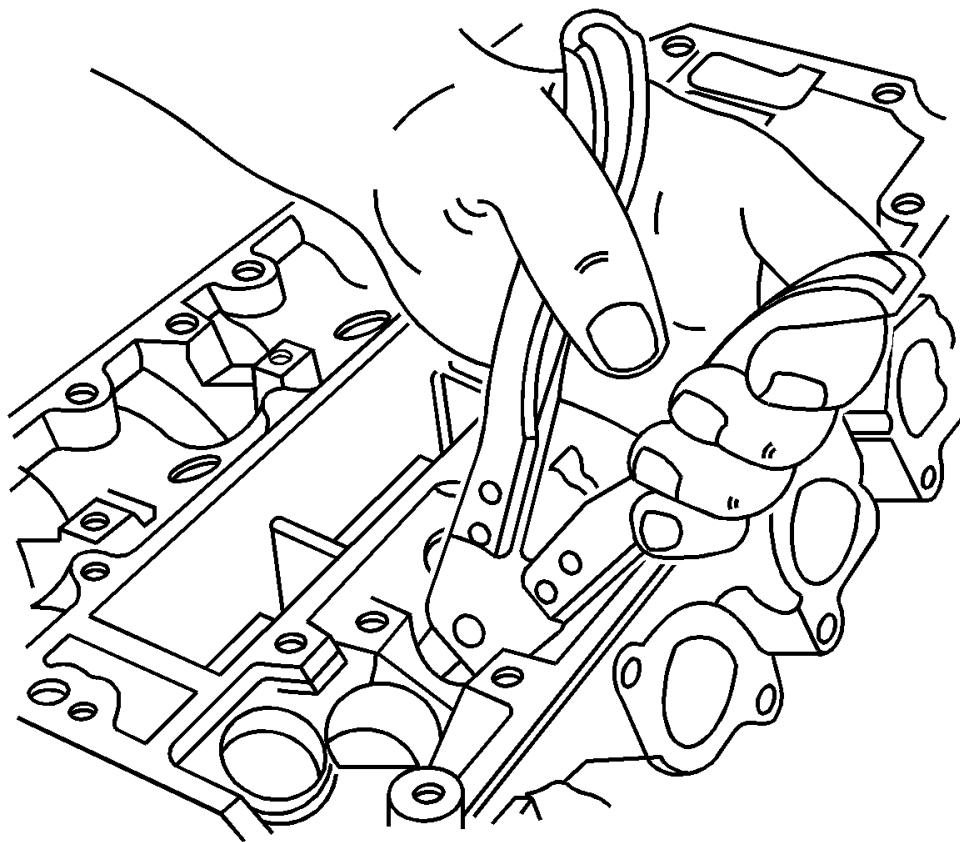


Fig. 278: Removal Of Valve Stem Seals
Courtesy of GENERAL MOTORS CORP.

35. Remove the valves. Maintain the original position of the valves for installation.
36. Remove the valve stem seals.

CYLINDER HEAD CLEANING AND INSPECTION (OFF VEHICLE)

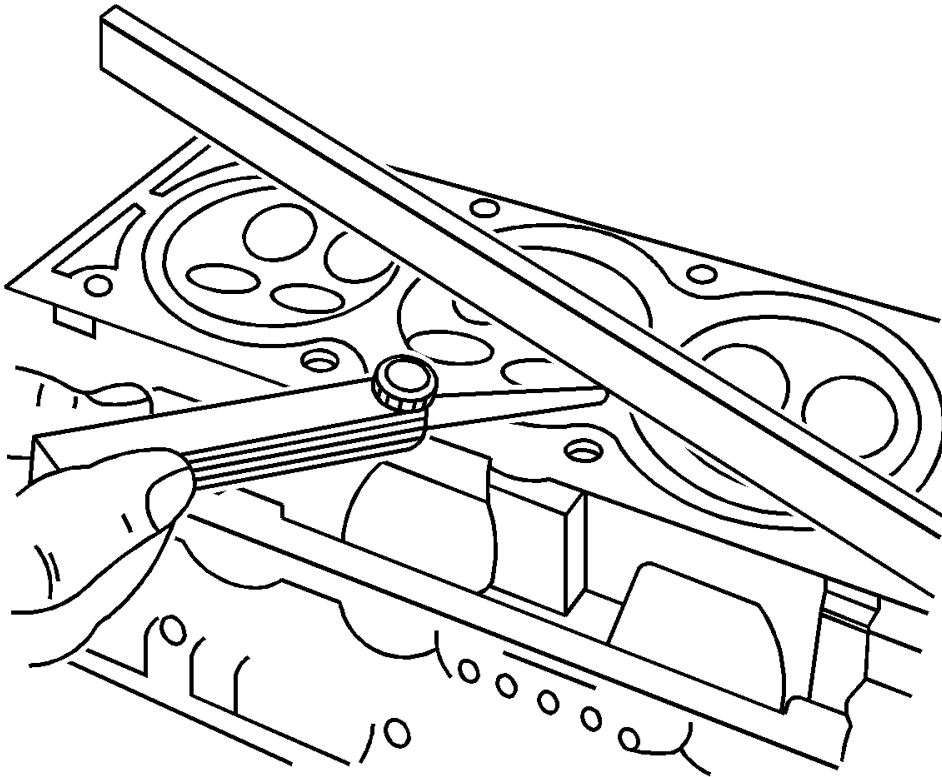


Fig. 279: Inspecting Cylinder Head
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to Safety Glasses Caution .

IMPORTANT: Machining of the cylinder head for flatness is not recommended as this would increase the compression ratio of the engine. If the flatness or height measurements are not within the specifications, replace the cylinder head.

1. Clean the sealing surfaces.
2. Inspect the cylinder head gasket and mating surfaces for leaks, corrosion, and blowby.
3. Inspect the cylinder head for cracks.
4. Inspect the length and the width of the cylinder head using a feeler gage and a straight edge.
5. Check the sealing surfaces for damage. The cylinder head sealing surfaces must be flat within 0.050 mm

(0.002 in) maximum.

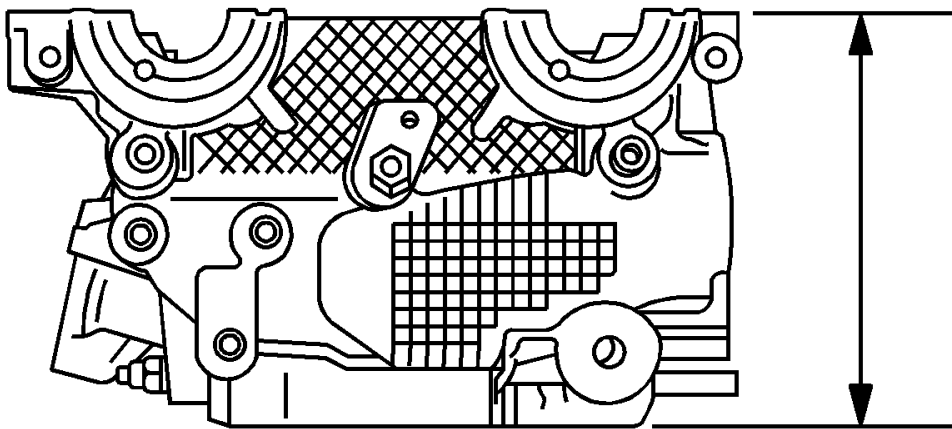


Fig. 280: Measuring Cylinder Head Height
Courtesy of GENERAL MOTORS CORP.

6. Measure the height of the cylinder head from sealing surface to sealing surface. The cylinder head height should be 138.13-138.18 mm (5.438-5.440 in). If the cylinder head height is less than this value, replace the cylinder head.
7. Inspect all threaded holes for damage.
8. Inspect valve seats for excessive wear and burned spots.