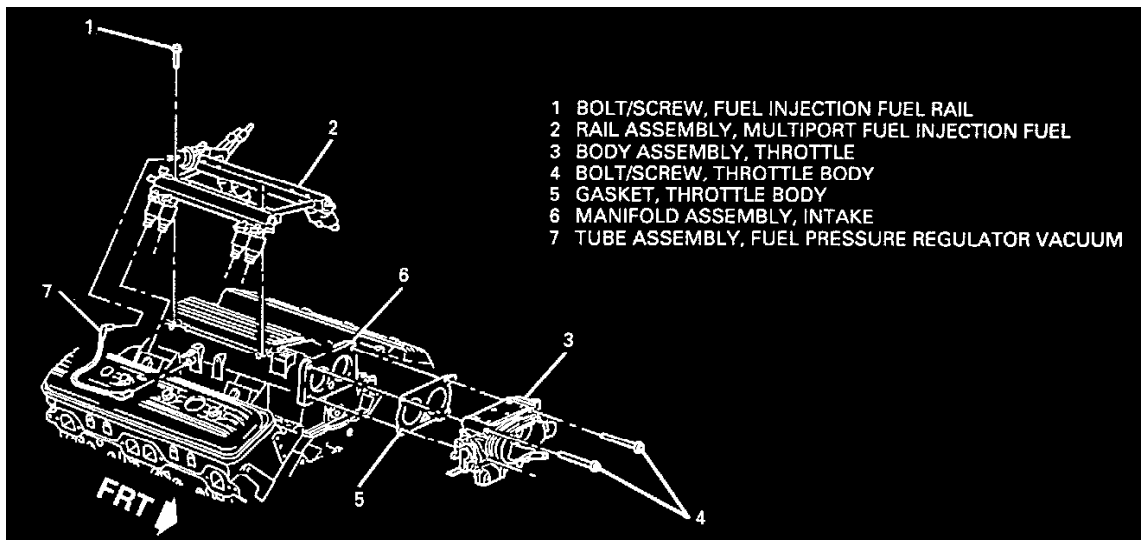
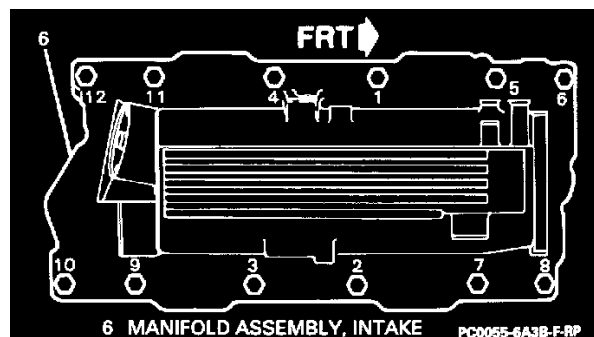
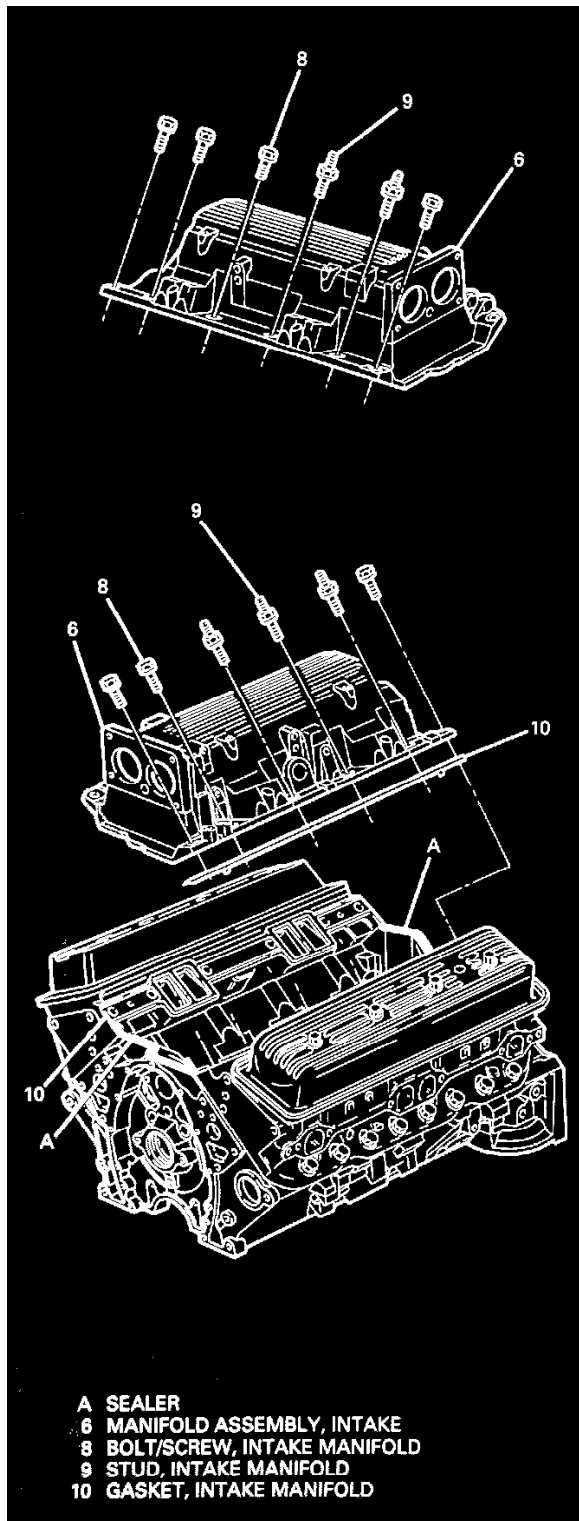


Intake Manifold: Service and Repair

INTAKE MANIFOLD





CAUTION: To reduce the risk of fire and personal injury, it is necessary to relieve the fuel system pressure before servicing fuel system components. After relieving system pressure, a small amount of fuel may be released when servicing fuel lines or connections. In order to

reduce the chance of personal injury, cover fuel pipe fittings with a shop towel before disconnecting, to catch any fuel that may leak out. Place the towel in an approved container when disconnect is completed.

REMOVE OR DISCONNECT

1. Battery negative cable assembly.
2. Drain coolant.
3. Throttle body air duct.
4. Wiring harness connectors from fuel injectors.
5. Left and right wiring harnesses and lay aside.
6. Accelerator cable bracket bolts/screws, bracket and cables from throttle body assembly (3).
7. Accelerator control/cruise control servo cable adjuster assembly, if equipped.
8. Relieve fuel system pressure. Refer to "Fuel Pressure Release."
9. Secondary air injection diverter valve hoses.
10. Fuel pipe connectors from fuel rail assembly (2).
11. Fuel rail bolts/screws (1).
12. Fuel pressure regulator vacuum tube assembly (7).
13. Fuel rail assembly (2) from intake manifold assembly (6) and lay aside.
14. Vacuum and crankcase vent hoses.
15. Exhaust gas recirculation (EGR) control valve relay nut and control valve relay.
16. Emission canister purge solenoid bracket nut and solenoid.
17. EGR valve nuts and valve assembly.
18. Secondary air injection pipe fitting, nuts and pipe assembly from intake and right exhaust manifold assemblies.
19. Generator rear brace.
20. Coolant hoses from throttle body assembly (3).
21. Throttle body bolts/screws (4), throttle body assembly (3) and gasket (5).
22. Intake manifold bolts/screws (8) and studs (9).
23. Intake manifold assembly (6) and gaskets (10). Discard gaskets (10).
24. Clean intake manifold bolts/screws (8) and studs (9). And cylinder head assembly, engine block and intake manifold sealing surfaces.

NOTICE: When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used. Fasteners that are not reused, and those requiring thread locking compound will be called out. The correct torque value must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

INSTALL OR CONNECT

1. Apply a 5 mm (3/16 inch) bead of RTV sealer, GM P/N 1052366 or equivalent, to the front and rear of the engine block. Extend the bead 13 mm (1/2 inch) up each cylinder head assembly to seal and retain the gaskets.
2. Intake manifold assembly (6) with new gaskets (10).
3. Intake manifold bolts/screws (8) and studs (9). Tighten intake manifold bolts/screws (8) and studs (9) in a first pass to **8 Nm (71 lb. in.)** in sequence. Tighten in sequence in a second pass to final specifications of **48 Nm (35 lb. ft.)**.
4. Throttle body assembly (3), gasket (5) and throttle body bolts/screws (4). Tighten throttle body bolts/screws (4) to **26 Nm (19 lb. ft.)**.
5. Coolant hoses to throttle body assembly (3).
6. Generator rear brace.
7. Accelerator control/cruise control servo cable adjuster assembly, if equipped.
8. Accelerator cable bracket, bolts/screws and cables. Tighten accelerator cable bracket bolts/screws to **10 Nm (90 lb. in.)**.
9. Secondary air injection pipe assembly and nuts. Tighten secondary air injection pipe exhaust manifold fitting to **34 Nm (25 lb. ft.)**. And secondary air injection pipe flange nuts to intake manifold assembly to **25 Nm (19 lb. ft.)**.
10. EGR valve assembly and nuts.
11. EGR control valve relay and nut. Tighten EGR valve nuts to **22 Nm (16 lb. ft.)**. EGR control valve relay nut to **22 Nm (16 lb. ft.)**.
12. Emission canister purge solenoid and bracket bolt/screw. Tighten emission canister purge solenoid bracket bolt/screw to **6 Nm (53 lb. in.)**.
13. Vacuum and crankcase vent hoses.
14. Fuel rail assembly (2) to intake manifold assembly (6).
15. Fuel pressure regulator vacuum tube assembly (7).
16. Fuel rail bolts/screws (1). Tighten fuel rail bolts/screws (1) to **20 Nm (15 lb. ft.)**.
17. Fuel pipe connectors to fuel rail assembly (2).
18. Secondary air injection diverter valve hoses.
19. Left and right wiring harnesses.
20. Wiring harness connectors to fuel injectors.
21. Throttle body air duct.
22. Battery negative cable assembly.
23. Refill with coolant.