

## INTAKE MANIFOLD

### Removal (Upper)

1. Disconnect negative battery cable. Remove top half of air cleaner assembly. Drain cooling system. Remove brake vacuum pipe at plenum. Disconnect fuel pressure regulator vacuum hose from fuel pressure regulator and PCV valve. Remove electrical ignition coil and module assembly.
2. Note position of spark plug wires, and disconnect from ignition coils. Remove throttle cable bracket with cables. Remove EVAP canister purge solenoid. Disconnect Throttle Position (TP) and Idle Air Control (IAC) sensors. Disconnect injector harness. Disconnect Engine Coolant Temperature (ECT) sensor.
3. Disconnect Camshaft Position (CMP) sensor and vacuum modulator. Remove MAP sensor vacuum line. Remove bolts and MAP sensor. Remove EGR pipe. Remove inlet and outlet hoses from throttle body. Remove upper intake manifold bolts. Remove upper intake manifold and gaskets.

### Installation

Clean gasket surfaces. Install NEW gaskets onto cylinder heads. Ensure all holes are aligned. For correct installation, observe reference marks on gaskets (if present). Install upper intake manifold. See [Fig. 1](#). Using crisscross pattern, tighten bolts to specification. See [TORQUE SPECIFICATIONS](#). To complete installation, reverse removal procedure. Fill and bleed cooling system. See [COOLING SYSTEM BLEEDING](#).

### Removal (Lower)

1. Disconnect negative battery cable. Remove upper intake manifold. See [UPPER INTAKE MANIFOLD](#). Remove rocker arm cover. See step 2) of [CYLINDER HEAD \(LEFT\)](#). Disconnect Engine Coolant Temperature (ECT) wiring harness. Disconnect and remove fuel injector and Manifold Air Pressure (MAP) wiring harness. Remove fuel pipe clip bolt and clip.
2. Release fuel system pressure. [FUEL PRESSURE RELEASE](#). Disconnect fuel lines from fuel rail. Remove fuel injector rail. Remove power steering pump from front engine cover and reposition. Disconnect heater inlet pipe with heater hose from manifold and reposition. Disconnect radiator inlet hose from engine.
3. Disconnect thermostat bypass hose from thermostat bypass pipe and manifold. Remove lower intake manifold bolts and manifold. Remove gaskets and seals.
4. Clean gasket and seal surfaces on cylinder heads and engine block. Clean gasket and seal surfaces on lower intake manifold with degreaser. Remove all loose RTV sealer. If replacing lower intake manifold, remove Engine Coolant Temperature (ECT) sensor, thermostat housing and thermostat.

### Installation

**NOTE:** When replacing intake manifold gasket, a revised intake manifold gasket has been introduced by manufacturer. This new design gasket helps resolve issues related to intake manifold oil/coolant leaks. The gasket requires a revised torque specification and procedure in addition to the use of NEW revised intake manifold bolts. Please review TSB ENGINE OIL OR COOLANT LEAK (INSTALL NEW INTAKE MANIFOLD GASKET) for complete information.

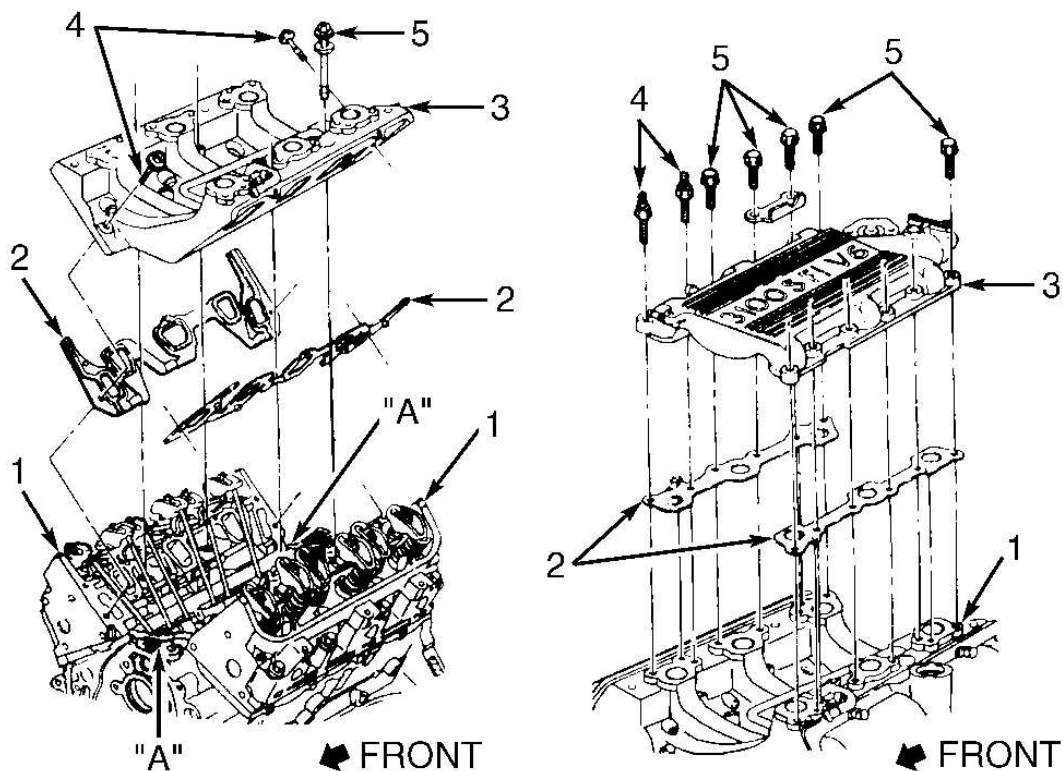
## 2000 Chevrolet Malibu

2000-01 ENGINES 3.1L V6 - "N" Body

1. Clean gasket surfaces. Apply a .08-.11" (2-2.5 mm) bead of RTV sealant to front and rear ridges of cylinder block sealing surfaces. See **Fig. 1**. Install NEW gaskets onto cylinder heads. Ensure all holes are aligned. For correct installation, observe reference marks on gaskets (if present).

**NOTE:**        **Failure to tighten lower intake manifold vertical bolts before the diagonal bolts may cause an oil leak.**

2. Intake push rods (marked Orange) are shorter than exhaust push rods (marked Blue). Install push rods and rocker arms in original locations. If applicable, adjust valve lash. See **VALVE CLEARANCE (LASH) ADJUSTMENT** under ADJUSTMENTS. Install lower intake manifold. Tighten lower intake manifold vertical bolts in sequence to specification, then tighten lower intake manifold diagonal bolts in sequence to specification. See **TORQUE SPECIFICATIONS**. See **Fig. 2**. To complete installation, reverse removal procedure. Fill and bleed cooling system. See **COOLING SYSTEM BLEEDING**.



"A" Apply Sealant

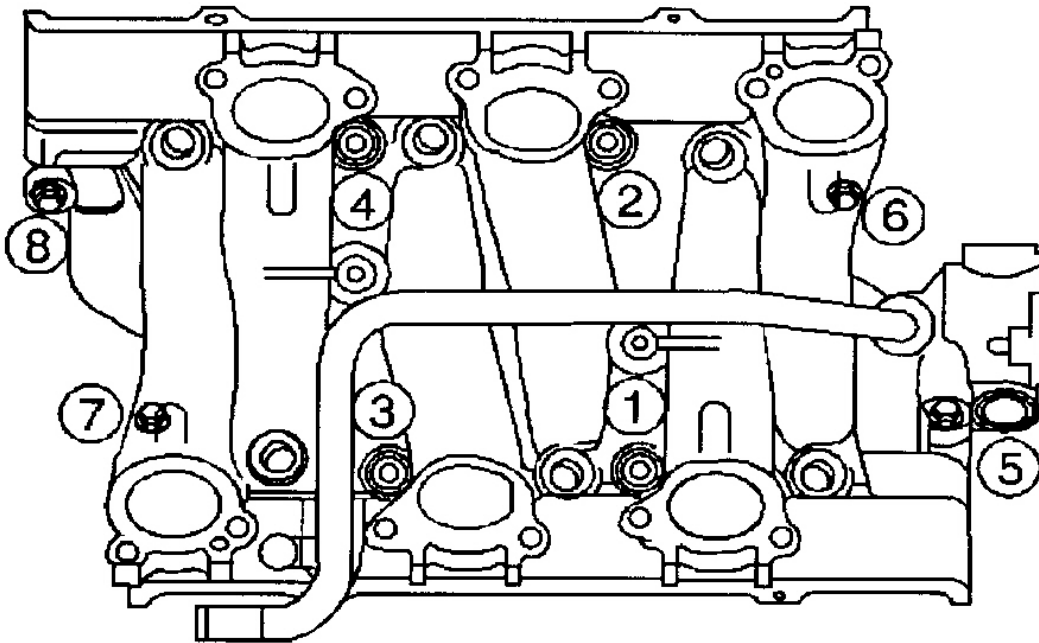
- 1. Head Assembly
- 2. Lower Intake Gasket
- 3. Lower Intake Manifold
- 4. Bolt
- 5. Bolt

- 1. Lower Intake Manifold
- 2. Upper Intake Gasket
- 3. Upper Intake Manifold
- 4. Stud
- 5. Bolt

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**Fig. 1: Exploded View Of Intake Manifold Components**

Courtesy of GENERAL MOTORS CORP.



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**Fig. 2: Lower Intake Manifold Tightening Sequence**  
Courtesy of GENERAL MOTORS CORP.