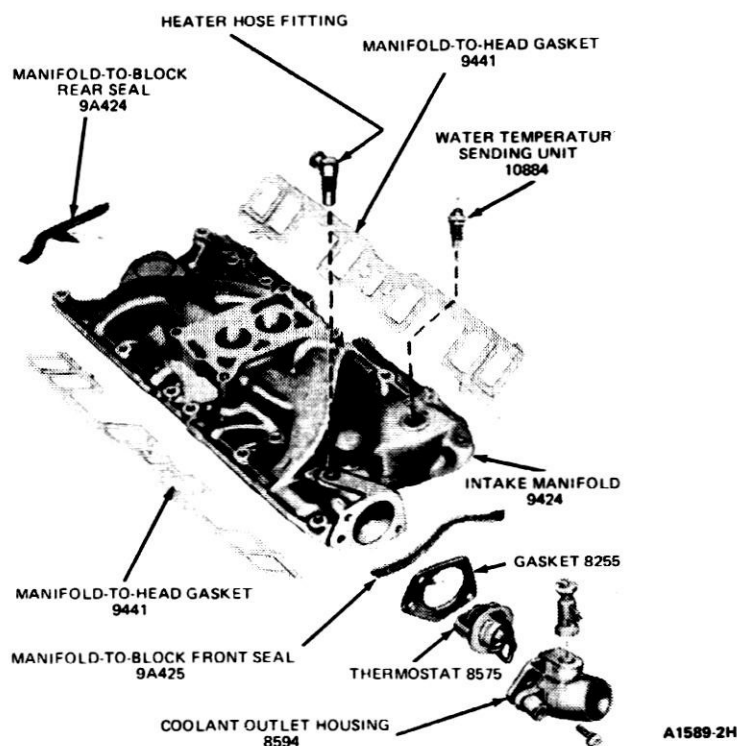




**FIG. 17 Typical Intake Manifold Assembly**

6. Apply Lubriplate, or equivalent, to the push rod socket, underside of the fulcrum seat and the valve pad of the rocker arm; then install the valve rocker arms, fulcrum seats and stud nuts. Torque nuts to specification.
7. Clean and install the rocker arm cover using a new service gasket.  
If the right cover was removed install the automatic choke heat tube. Install the vacuum vent valve (5.0L [302 CID]) and torque cover screws to specification.
8. Install the air cleaner and intake duct assembly. Connect the crankcase vent hose to the air cleaner.
9. Run the engine and check for leaks. Check engine idle speed and adjust as necessary.

### INTAKE MANIFOLD

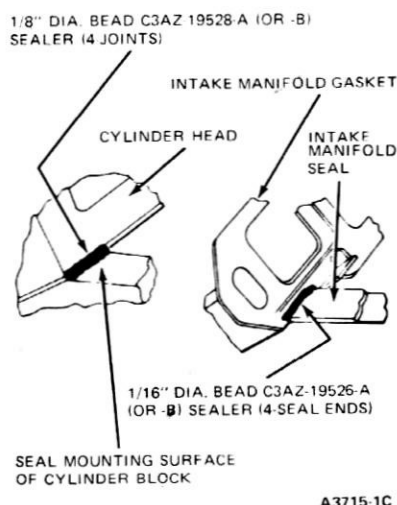
The intake manifold assembly is shown in Fig. 17.

#### Removal

1. Drain the cooling system. Remove the air cleaner, crankcase ventilation hose and intake duct assembly. Disconnect the automatic choke heat tube.
2. Disconnect the accelerator cable and speed control linkage, if equipped, from the carburetor. Remove the accelerator cable bracket.  
Disconnect vacuum lines, at the intake manifold fitting.
3. Disconnect the high tension lead and primary wiring connector from the coil.
4. Remove Thermaxtor by-pass valve and air supply hoses (5.0L [302 CID] only).
5. Disconnect the spark plug wires from the spark plugs using Tool No. T68P-6666-A. Do not pull on the wire. Remove the wires and bracket assembly from the rocker arm cover attaching stud. Remove the distributor cap, adapter and spark plug wire assembly.
6. Remove the carburetor fuel inlet line.
7. Disconnect the distributor vacuum hoses from the distributor. Disconnect the distributor wiring connector. Remove the distributor hold down bolt and remove the distributor.
8. Disconnect the radiator upper hose from the coolant outlet housing, and the water temperature sending unit wire at the sending unit. Disconnect the hose from the intake manifold.
9. Loosen the clamp on the water pump bypass hose at the coolant outlet housing and slide the hose off the outlet housing.
10. Disconnect the crankcase vent hose assembly at the valve rocker arm cover.
11. Remove the intake manifold and carburetor as an assembly. It may be necessary to pry the intake manifold away from the cylinder head(s). Use caution to avoid possible damage to the gasket sealing surfaces. Remove the intake manifold gaskets and seals.
12. If the manifold assembly is to be disassembled, identify all vacuum hoses before disconnecting them. Remove the coolant outlet housing, gasket and thermostat. Remove the ignition coil, temperature sending unit, carburetor, spacer and gaskets, and gasket. On 5.8L (351W CID) remove the choke heat stove cover and tube assembly.

## Installation

1. If the intake manifold assembly was disassembled, install the temperature sending unit (threads coated with electrical conductive sealer), ignition coil, gasket, spacer and carburetor. Install the EGR back-pressure transducer and valve using a new gasket. Position the thermostat in the coolant outlet housing. Coat the thermostat gasket with water-resistant sealer and position it on the coolant outlet housing. Install the coolant outlet housing. Connect all vacuum hoses.
2. Clean the mating surfaces of the intake manifold, cylinder heads and cylinder block. Use a solvent such as lacquer thinner, chlorothane or tri-chloroethylene. Apply a 1/8 inch bead of silicone rubber sealer at the points shown in Fig. 18.



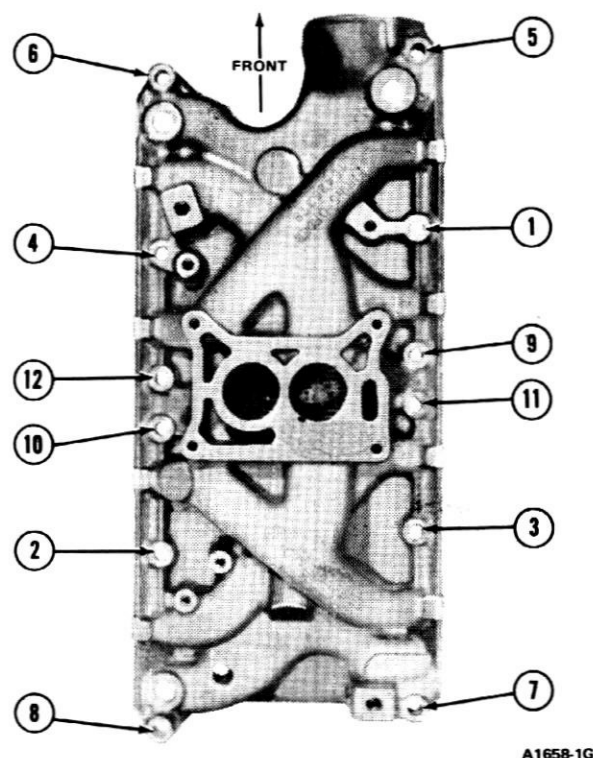
**FIG. 18 Typical RTV Sealer Installation-Intake Manifold**

3. Position new seals on the cylinder block and new gaskets on the cylinder heads with the gaskets interlocked with the seal tabs. Be sure the holes in the gaskets are aligned with the holes in the cylinder heads.

Apply a 1/16 inch bead of the above sealer to the outer end of each intake manifold seal for the full width of the seal (4 places). See Fig. 18.

**NOTE: This sealer sets up in 15 minutes, so it is important that assembly be completed promptly. Do not drip any sealer into the engine valley.**

4. Using guide pins to ease installation, carefully lower the intake manifold into position on the cylinder block and cylinder heads. **After the intake manifold is in place, run a finger around the seal area to make sure the seals are in place. If the seals are not in place, remove the intake manifold and position the seals.**
5. Be sure the holes in the manifold gaskets and manifold are in alignment. Remove guide pins. Install the intake manifold attaching bolts and nuts. Torque the intake manifold bolts in sequence (Fig. 19) to specifications.



**FIG. 19 Intake Manifold Bolts Torque Sequence**

6. Install the water pump bypass hose on the coolant outlet housing. Slide the clamp into position and tighten the clamp.
7. Connect the radiator upper hose. Connect the heater hose at the intake manifold.
8. Install the carburetor fuel inlet line and the automatic choke heat tubes.
9. Rotate the crankshaft until the No. 1 piston is on TDC at the end of the compression stroke. Align the correct initial timing mark on the damper with the pointer. Position the distributor in the block with the rotor at the No. 1 firing position and the armature tooth centered on the stator (pick-up) coil. (See Part 23-01.) Install the hold down clamp.
10. Install the distributor cap. Position the spark plug wires in the harness brackets on the valve rocker arm cover attaching stud and connect the wires to the spark plugs. Install Thermactor by-pass valve and air supply hoses (5.0L [302 CID] only).
11. Connect the crankcase vent tube. Connect the high tension lead and coil primary wiring connector.
12. Connect the accelerator cable and accelerator cable bracket. Connect speed control, if equipped, to the carburetor.

On a vehicle with an automatic transmission, connect the transmission vacuum line.

On a vehicle equipped with vacuum-operated accessories, connect any vacuum lines that were disconnected from the intake manifold during removal.

13. Fill and bleed the cooling system.

14. Start the engine and check and adjust the ignition timing. Connect the distributor vacuum hoses to the distributor.
15. Operate the engine at fast idle and check all hose connections and gaskets for leaks. When engine temperatures have stabilized adjust the engine idle speed and idle fuel mixture. Retorque intake manifold bolts to specifications.
16. Install the air cleaner and intake duct assembly and crankcase vent hose.

## HYDRAULIC TAPPET

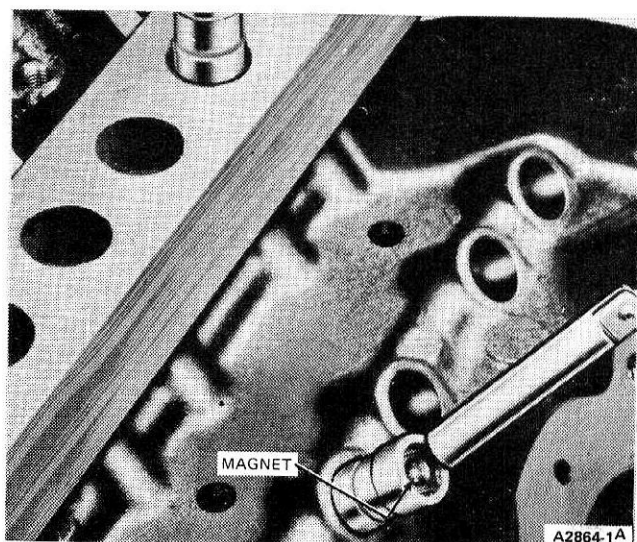
Before replacing a hydraulic tappet for noisy operation, be sure the noise is not caused by improper valve to rocker arm clearance or by worn rocker arms or push rods.

### Removal

1. Remove the intake manifold and related parts by following procedures under Intake Manifold Removal.
2. Remove the crankcase ventilation hoses, PCV valve and elbows from the valve rocker arm covers. Remove EGR cooler if equipped.
3. Remove the valve rocker arm covers. Loosen the valve rocker arm stud nuts and rotate the rocker arms to the side.
4. Remove the valve push rods and identify them so that they can be installed in their original positions.
5. Using a magnet, remove the tappets and place them in a rack so that they can be installed in their original bores (Fig. 20).

If the tappets cannot be removed from their bores due to excessive varnish, etc., it may be necessary to use a plier-type tool (T52T-6500-DJD or 6500-D or equivalent) or a claw type tool to remove them. Rotate the tappet back and forth to loosen it from the gum or varnish that may have formed on the tappet.

If necessary to disassemble a tappet, refer to Tappet Disassembly and Assembly.



**FIG. 20 Removing Tappet**

## Installation

Tappets and bores are to be lubricated with heavy engine oil SE before installation.

1. Clean outside of tappets and install in the bores from which they were removed. If a new tappet is being installed, check the new tappet for a free fit in the bore in which it is to be installed. Lubricate the tappet and bore with heavy engine oil SE before inserting it in the bore.
2. Install the push rods in their original position. Apply Lubriplate or equivalent to the valve stem tips and the push rod ends.
3. Lubricate the rocker arms and fulcrum seats with heavy engine oil SE. Position the rocker arms over the push rods and install stud nuts. Perform a valve clearance adjustment as outlined under Valve Clearance Adjustment—Hydraulic Tappets (Part 21-01).
4. Install the valve rocker arm covers with a new service gasket. Install EGR cooler, if equipped. Install the PCV valve or elbow in the valve rocker arm cover.
5. Install the intake manifold and related parts by following procedures under Intake Manifold Installation.
6. Run the engine and check for leaks. Check engine idle speed and adjust as necessary.

## CYLINDER HEADS

If a cylinder head is to be replaced, follow the procedures under Cylinder Head Disassembly and Assembly, and transfer all valves, springs, spark plugs, etc., to the new cylinder head. Clean and inspect all parts, reface the valves (refer to Part 21-01) and check all assembly clearances before assembling the new or used parts to the new cylinder head.

### Removal

1. Remove the intake manifold and carburetor as an assembly following the procedure under Intake Manifold Removal. Remove EGR cooler, if equipped.
2. Remove the rocker arm cover(s).

If the left cylinder head is to be removed on a vehicle with an air conditioner, isolate and remove the compressor as outlined in Group 36.

If the left cylinder head is to be removed on a vehicle with power steering, disconnect the power steering pump bracket from the left cylinder head and remove the drive belt from the pump pulley. Position the power steering pump out of the way and in a position that will prevent the oil from draining out.

3. If the right cylinder head is to be removed, remove the alternator mounting bracket bolt and spacer from the right cylinder head assembly.
4. Disconnect the exhaust manifold(s) from the muffler inlet pipe(s).
5. Loosen the rocker arm stud nuts so that the rocker arms can be rotated to the side. Remove the push rods in sequence (Fig. 21) so that they may be installed in their original positions.

Remove the exhaust valve stem caps.