

retainer and the valve spring. **If air pressure fails to hold the valve in the closed position during this operation, it can be presumed that the valve is not seating or is damaged. If this condition occurs, remove the cylinder head for further inspection.**

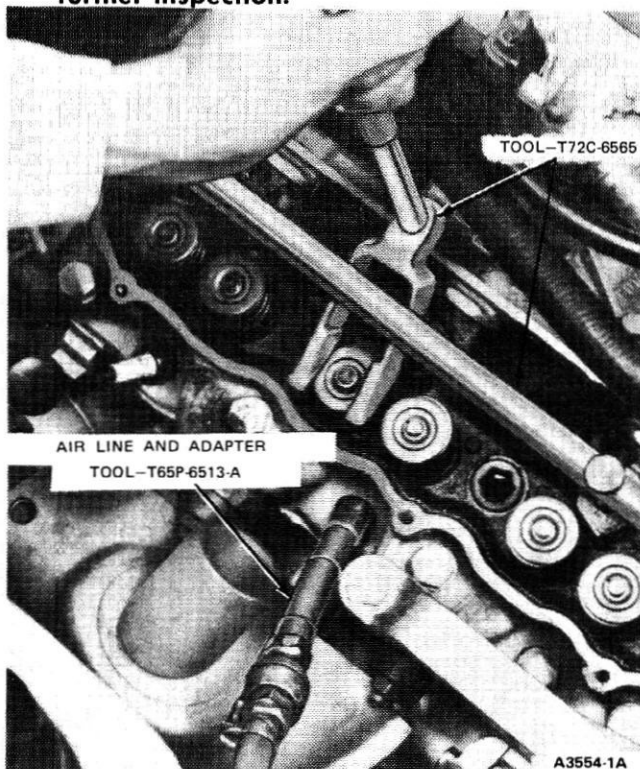


FIG. 8 Compressing Valve Spring-In Chassis—Typical

5. Remove the valve stem seal (Fig. 9). If air pressure has forced the piston to the bottom of the cylinder, any removal of air pressure will allow the valve(s) to fall into the cylinder. A rubber band, tape or string wrapped around the end of the valve stem will prevent this condition and will still allow enough travel to check the valve for binds.

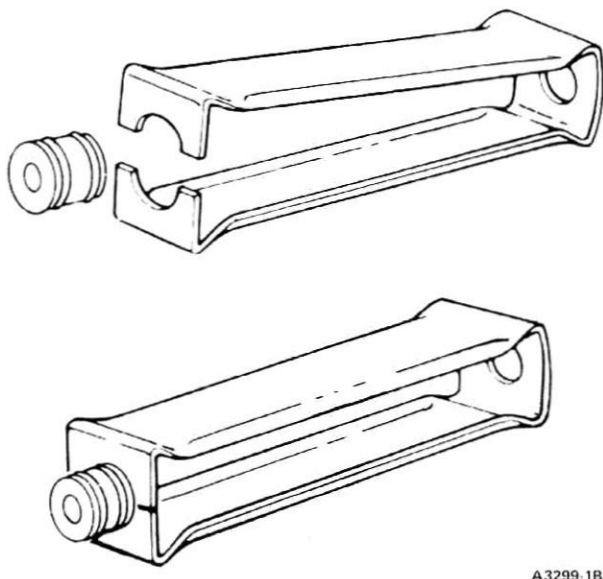


FIG. 9 Removing or Installing Valve Stem Seal

Installation

1. Install a new valve stem seal (Fig. 9). Position the spring over the valve. Install the spring retainer. Compress the valve spring and install the valve spring retainer locks.
2. Apply Lubriplate or equivalent to both ends of the push rod, the valve tips and both ends of the rocker arms. Install the push rod(s), making sure the lower end of the rod is positioned in the tappet push rod cup.
3. Turn off the air and remove the air line and adapter. Install the spark plug and spark plug wire.
4. Install the rocker arm shaft by following the instructions under Rocker Arm Installation.
5. Clean the valve cover and cylinder head gasket surfaces. Coat one side of a new gasket with an oil-resistant sealer and lay the cemented side of the gasket on the cover. Install the cover making sure the gasket seats evenly around the head. Tighten the cover attaching bolts to specification.
6. Install the air cleaner.
7. Run the engine at fast idle and check for oil leaks.

INTAKE MANIFOLD

Removal

1. Remove air cleaner. Disconnect battery negative cable.
2. Disconnect throttle cable.
3. Drain coolant. Disconnect and remove hose from water outlet to radiator and bypass hose from intake manifold to thermostat housing rear cover.
4. Remove distributor cap and spark plug wires as an assembly. Disconnect distributor wiring harness and distributor vacuum line.
5. Observe and mark the location of the distributor rotor and housing so ignition timing can be maintained at reassembly. Remove distributor hold-down screw and clamp and lift out distributor.
6. Remove fuel line and filter and rocker arm covers.
7. Remove intake manifold attaching bolts and nuts. Tap manifold lightly with a plastic mallet to break gasket seal. Lift off manifold.
8. Remove all old gasket material and sealing compound.

Installation

1. Apply sealing compound to the joining surfaces. Place the intake manifold gasket in position. Make sure that the tab on the right bank cylinder head gasket fits into the cutout of the manifold gasket.
2. Apply sealing compound to the attaching bolt bosses on the intake manifold and position the intake manifold. Tool T72C-6519 is required to torque one of the intake manifold bolts. Follow the torque sequence in Fig. 10 and torque the bolts to specifications.
3. Install distributor so that rotor and housing are in same radial position marked at removal.
4. Install distributor clamp and attaching bolt. Connect distributor wire and vacuum line.

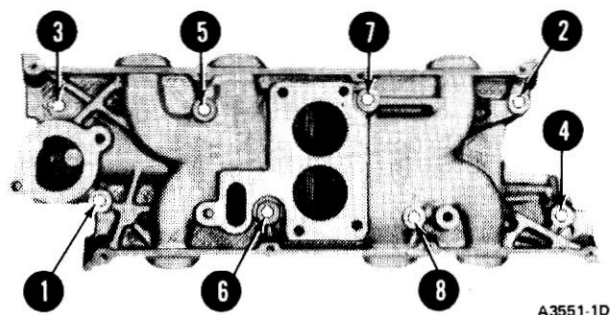


FIG. 10 Intake Manifold Torque Sequence

5. Install fuel line. Replace rocker arm cover gaskets, and reinstall rocker arm valve covers using the procedure given under Rocker Arm Cover Installation.
6. Install distributor cap, coat the inside of each spark plug wire connector with silicone grease with a small screwdriver, and install the wires. Connect distributor wiring harness.
7. Install and adjust linkage.
8. Install air cleaner and air cleaner tube at carburetor. Connect battery negative cable.
9. Connect hoses from water outlet to radiator and bypass hose from thermostat housing rear cover to intake manifold.
10. Refill the cooling system. **See Part 27-01 for detailed instructions.**
11. Recheck ignition timing and reset engine idle speed to specification.
12. Run engine at fast idle and check for coolant and oil leaks.

EXHAUST MANIFOLD

Removal

1. Remove the carburetor air cleaner.
2. Remove the attaching nuts from the exhaust manifold shroud (right side only).
3. Disconnect the attaching nuts from the muffler inlet pipe. Remove thermactor components as necessary to allow removal of exhaust manifold(s).
4. Disconnect choke heat tubes at carburetor.
5. Remove the manifold attaching nuts.
6. Lift the manifold from the cylinder head.

Installation

1. Position the manifold on the studs and install and torque the attaching bolts in sequence to specification (Fig. 11).
2. Install a new inlet pipe gasket. Install and torque the inlet pipe attaching nuts to specification.
3. Position the exhaust manifold shroud on the manifold and install and torque the attaching nuts to specification (right side). Install thermactor components that had been removed.
4. Install the carburetor air cleaner. Reinstall choke heat tube.

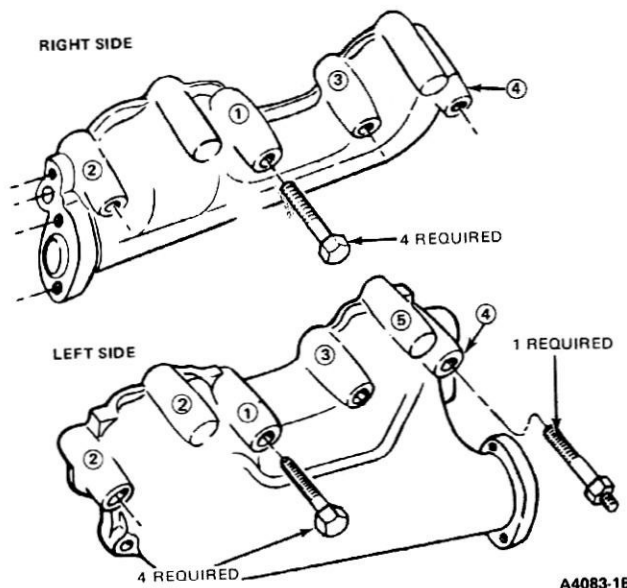


FIG. 11 Exhaust Manifold Torque Pattern—Pinto/Bobcat 2.8L Shown—Mustang II Same Pattern

CYLINDER HEAD

Removal

1. Remove air cleaner from carburetor. Disconnect negative battery cable. Disconnect linkage. Drain coolant.
2. Remove distributor cap and wires as an assembly. Disconnect distributor wiring harness. Remove distributor vacuum line, distributor, coolant outlet hose, coolant hose from thermostat housing rear cover to intake manifold, rocker arm covers, fuel line, carburetor and intake manifold.
3. Remove rocker arm shaft (by loosening two bolts at a time—in sequence) and oil baffles. Remove push rods and keep in sequence for proper assembly.
4. Remove exhaust manifold, following procedure under Exhaust Manifold—Removal.
5. Remove cylinder head attaching bolts and lift off heads. Remove head gaskets.

Installation

1. Clean cylinder head, intake manifold, valve rocker arm cover and cylinder block gasket surfaces. Place cylinder head gaskets in position on cylinder block. (Gaskets are marked with the words **front** and **top** for correct positioning.) Left and right cylinder head gaskets are different.
2. Install cylinder head assemblies on cylinder block one at a time. Guide carefully over positioning studs (Fig. 12). Tighten attaching bolts in sequence shown in Fig. 13 to specifications.
3. Install intake manifold. Be sure to use sealing compound on gasket surfaces and to position gasket correctly. Torque attaching bolts in sequence (Fig. 10).
4. Install exhaust manifold, following procedures under Exhaust Manifold—Installation

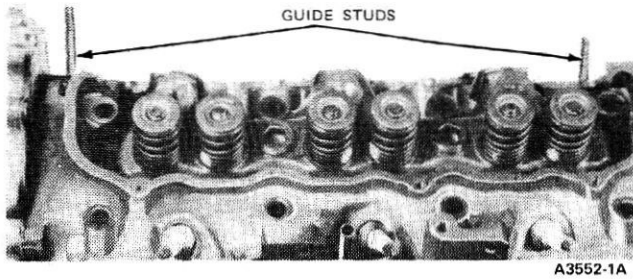


FIG. 12 Cylinder Head Guide Studs

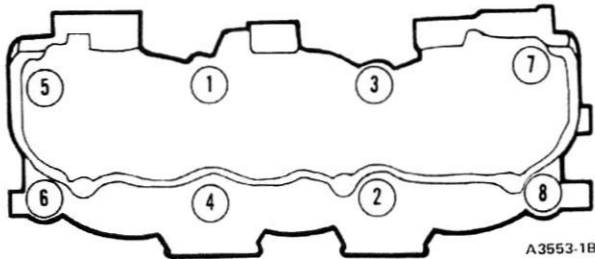


FIG. 13 Cylinder Head Bolts Torque Sequence

5. Apply Lubriplate or equivalent lubricant to both ends of the push rods. Install valve push rods, oil baffles and rocker arm and shaft assemblies.
6. Install distributor and connect wiring harness. Install distributor hold-down bolt and clamp.
7. Perform valve adjustment as described under Adjustments.
8. Install rocker arm covers with new gaskets.
9. Install carburetor and distributor cap with spark plug wires. With a small screwdriver, coat the inside of each spark plug boat with silicone lube and install them on the spark plugs. If necessary, adjust accelerator linkage.
10. Install fuel line and vacuum line.
11. Install air cleaner and air cleaner tube at carburetor. Connect battery negative cable.
12. Refill and bleed cooling system. See Part 27-01 for detailed instructions.
13. Re-check ignition timing and check idle speed.
14. Operate the engine at fast idle speed and check for coolant and oil leaks.

TAPPETS

Removal

1. Remove the cylinder head and related parts following the procedure under Cylinder Head Removal.
2. Remove the tappets with a magnet. Place them in a rack in sequence. If the tappets are stuck in bores, use plier-type Tool (T70P-14151) to remove them (Fig. 14). Rotate tappets back and forth to loosen them from gum or varnish deposits.

Installation

1. Clean the tappets. Tappets and bores are to be lubricated with heavy oil SE before installation. Install the tappets in their original bores with a magnet (Fig. 14). Check any new tappet for proper fit in bore to which it is to be installed. See specifications.

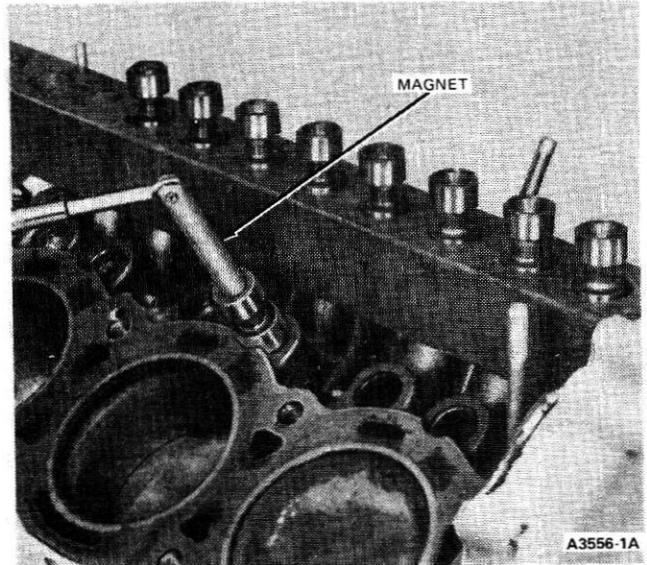


FIG. 14 Removing or Installing Tappets—Typical

2. Install the cylinder head and related parts, following the procedures given under Cylinder Head Installation.

WATER PUMP

Removal

1. Drain the coolant. Detach the radiator lower hose and the heater return hose from the water inlet housing.
2. Loosen the alternator mounting bolts and remove the belt. (With A/C, remove alternator and bracket.)
3. Remove the fan and pulley.
4. Remove the water pump assembly attaching bolts and remove water pump assembly, water inlet housing and thermostat from the front cover.

Installation

1. Remove all gasket material from the sealing surfaces on front cover and water pump assembly. Apply sealer to both sides of the new gasket and place the gasket on the water pump.
2. Position the water pump assembly to the front cover with two bolts finger tight. Remove all gasket material from the water inlet housing sealing surfaces. Apply sealer to both sides of the new gasket and place the gasket on the water inlet housing.
3. Install the thermostat and rubber gasket. Position the water inlet housing and by-pass flange to the water pump and install the attaching bolts. Torque all water pump assembly attaching bolts to specification. Note the different length bolts.
4. Install fan and pulley. (With A/C, install bracket and alternator.) Install belt and adjust tension to specification. Reconnect both hoses to water inlet housing and tighten hose clamps. Fill and vent cooling system. See Part 27-01 for detailed instructions.
5. Start the engine and check for leaks.