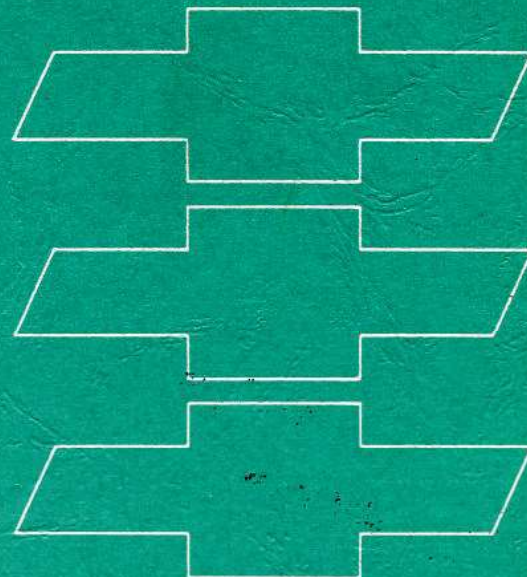
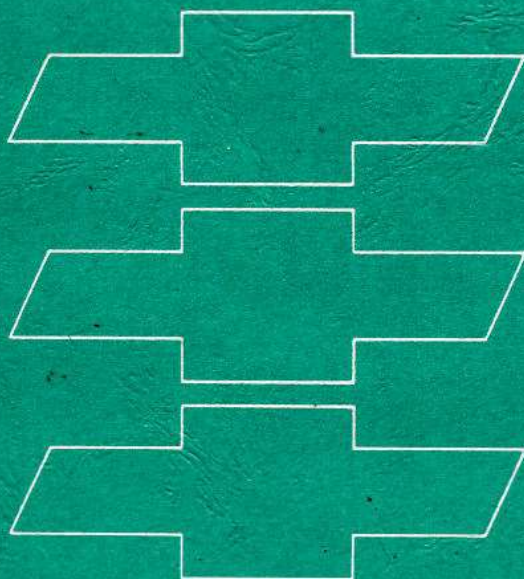


1965



CORVAIR



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6. Remove rear mount bracket and engine skid plate.
7. Remove crankshaft pulley or harmonic balancer as outlined.
8. Remove engine rear housing assembly.

NOTE: Refer to Repair Procedures, Engine Rear Housing for service to engine rear housing.

Installation

1. Install engine rear housing and torque bolts to specifications.
2. Install crankshaft pulley or harmonic balancer as outlined.
3. Install engine skid plate and rear mount bracket and torque nuts to specifications.
4. Raise engine and connect engine rear mount then torque to specifications.
5. Install rear center shield.
6. Remove engine lift, Tool J-7894 and hardwood block.
7. Install oil filter and Delcotron adapter as outlined.
8. Install distributor in the same position as when removed then install distributor cap.
9. Fill with oil, start engine, check and adjust timing and check for oil leaks.

DISTRIBUTOR DRIVE GEAR AND/OR FUEL PUMP ECCENTRIC

Replacement

1. Remove engine rear housing as outlined.
2. Remove distributor drive gear with Tool J-7112-1 and adapter Tool J-7112-2, then remove spacer and fuel pump eccentric.

CAUTION: Be sure Tool J-7112-1 is on distributor drive gear solidly, or gear may be damaged during removal.

3. Be sure woodruff keys (2) are installed in crankshaft, then position fuel pump eccentric and spacer on crankshaft.
4. Lubricate crankshaft and distributor drive gear with engine oil and using Tool J-5590 install distributor drive gear until it bottoms.
5. Install engine rear housing as outlined.

VALVE LIFTERS (Valve Train Components)

Hydraulic valve lifters very seldom require attention. The lifters are extremely simple in design, readjustments are not necessary, and servicing of the lifters require only that care and cleanliness be exercised in the handling of parts.

Locating Noisy Lifters

Locate a noisy valve lifter by using a piece of garden hose approximately four feet in length. Place one end of the hose near the end of each intake and exhaust valve with the other end of the hose to the ear. In this manner, the sound is localized making it easy to determine which lifter is at fault.

Another method is to place a finger on the face of the valve spring retainer. If the lifter is not functioning properly, a distinct shock will be felt when the valve returns to its seat.

The general types of valve lifter noise are as follows:

1. Hard Rapping Noise—Usually caused by the plunger becoming tight in the bore of the lifter body to such

an extent that the return spring can no longer push the plunger back up to working position. Probable causes are:

- a. Excessive varnish or carbon deposit causing abnormal stickiness.
 - b. Galling or "pick-up" between plunger and bore of lifter body, usually caused by an abrasive piece of dirt or metal wedging between plunger and lifter body.
2. Moderate Rapping Noise—Probable causes are:
 - a. Excessively high leakdown rate.
 - b. Leaky check valve seat.
 - c. Improper adjustment.
 3. General Noise Throughout the Valve Train—This will, in almost all cases, be a definite indication of insufficient oil supply, or improper adjustment.
 4. Intermittent Clicking—Probable causes are:
 - a. A microscopic piece of dirt momentarily caught between ball seat and check valve ball.
 - b. In rare cases, the ball itself may be out-of-round or have a flat spot.
 - c. Improper adjustment.

In most cases where noise exists in one or more lifters all lifter units should be removed, disassembled, cleaned in a solvent, reassembled, and reinstalled in the engine. If dirt, varnish, carbon, etc. is shown to exist in one unit, it more than likely exists in all the units, thus it would only be a matter of time before all lifters caused trouble.

Removal

1. Drain engine oil, then remove lower shrouds as outlined. For the right bank, remove muffler heat shield.
2. Remove valve rocker arm covers and discard gaskets.
3. Remove rocker arm nuts, rocker arm balls, rocker arms and push rods. Place in a rack so they may be installed in their original location.
4. Remove rocker arm studs and push rod guides, then remove and discard rocker arm stud "O" ring seals (fig. 32).
5. Pull push rod tubes from crankcase bore and remove and discard inner "O" ring seal, (fig. 33), then remove push rod tube from cylinder head and remove and discard outer "O" ring seal.

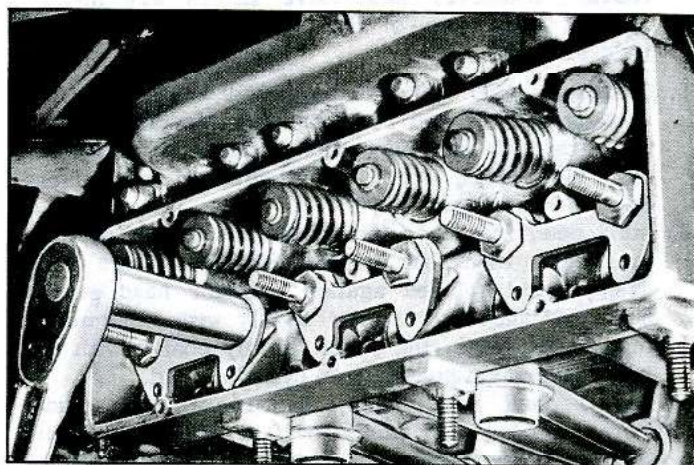


Fig. 32—Rocker Arm Studs and Push Rod Guides

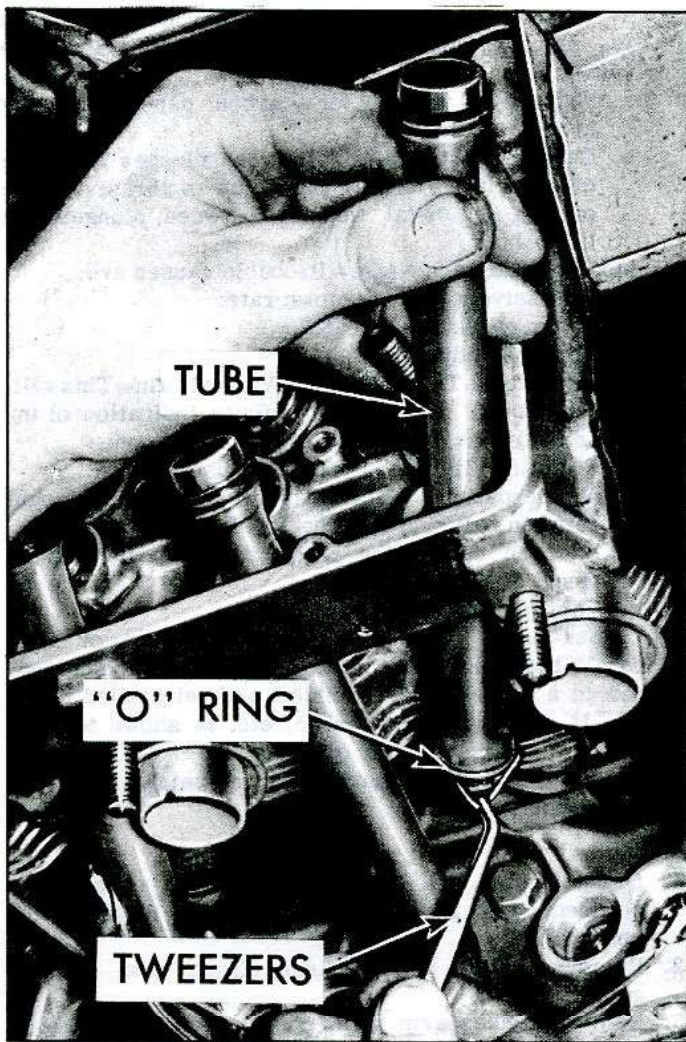


Fig. 33—Removing Push Rod Tubes

6. Remove valve lifters with a strong magnet or a wire hook. Place valve lifters in a rack so they may be reinstalled in their original location.

Installation and Adjustment

1. Lubricate valve lifters and install in crankcase bore.

NOTE: Whenever new valve lifters are installed, coat foot of lifter with Molykote or its equivalent.

2. Install new "O" ring seals, lightly coated with oil, on long end of push rod tubes, then install push rod tubes through bore in cylinder head and install new "O" ring seals, lightly coated with oil, on inner end of push rod tubes.
3. Start push rod tubes into bores in cylinder head and crankcase, then seat the push rod tubes with a 9/16" deep socket (placed against cylinder head end of push rod tube and tapped lightly with a hammer).
4. Install new "O" ring seals, lightly coated with oil, into rocker arm stud bore in cylinder head.
5. Install push rod guides, then rocker arm studs.
6. Torque rocker arm studs to 10 ft. lb. below specifications, then torque cylinder head nuts and rocker arm studs a little at a time in the sequence shown (fig. 34) until the specified torque is reached.

7. Install push rods with the side oil hole out (fig. 35).
8. Install valve rocker arms, rocker arm balls and rocker arm nuts.

NOTE: Whenever new valve rocker arms and rocker arm balls are installed, coat surfaces lightly with Molykote or its equivalent. (Install new rocker arms and balls in sets).

9. Adjust the valves as follows:

Remove distributor cap and rotate crankshaft counter-clockwise until number 1 cylinder is at T.D.C. of compression stroke rotor pointing to number 1 cylinder position and timing mark at 0 on the tab, then adjust No. 1 intake, No. 1 exhaust, No. 3 intake and No. 5 exhaust on the right bank and No. 4 exhaust and No. 6 intake on the left bank.

NOTE: Turn adjusting nut out until there is end play in the push rod, then turn adjusting nut in until there is no end play at push rod. Turn adjusting nut one additional turn in (to center plunger in hydraulic valve lifter)

Turn crankshaft one turn counter-clockwise (number 2 cylinder at T.D.C. of compression stroke and timing mark at 0 on tab), then adjust the valves on No. 3 exhaust and No. 5 intake on the right bank and No. 2 intake, No. 2 exhaust, No. 4 intake and No. 6 exhaust on the left bank.

10. Using new gaskets, install the valve rocker covers and torque to specifications (fig. 36).
11. Install lower shrouds and muffler heat shield as outlined.
12. Fill with oil, start engine and check for leaks.

CYLINDER HEAD ASSEMBLIES

Removal

1. Drain engine oil, then disconnect battery positive cable.
2. Remove spare tire, then remove air cleaner assembly.
3. Remove the following items from the cylinder head to be removed.

Carburetor, carburetor mounting studs and upper choke control rods.

Ignition coil and bracket (right cylinder head).
Side shield, lower shroud and exhaust duct.

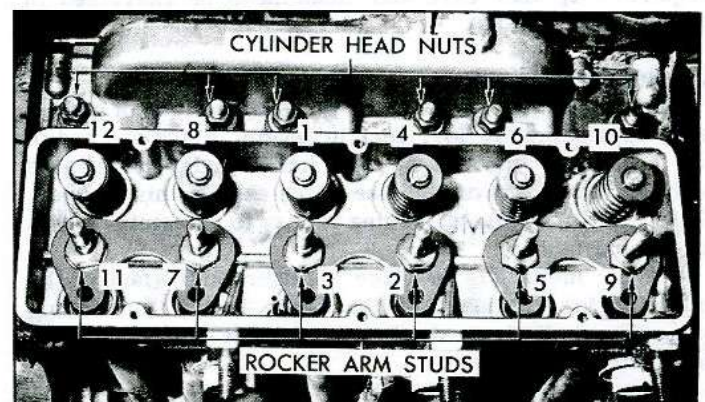


Fig. 34—Cylinder Head Torque Sequence

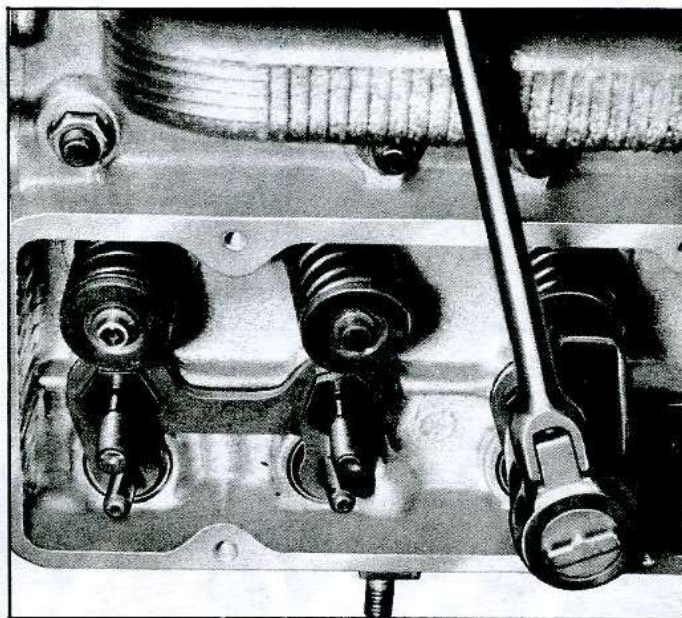


Fig. 35—Push Rods Installed

Oil cooler (left cylinder head).

Muffler, muffler shield and muffler hanger (right cylinder head).

Spark plugs and vacuum balance tube hose at cylinder head.

Bolts attaching upper shroud to front and rear shrouds and bolts attaching front and rear shrouds to cylinder head.

Exhaust manifolds.

NOTE: On left rear shroud, it will be necessary to disconnect heater hose at elbow to gain access to one bolt.

4. On the right cylinder head, disconnect wire to cylinder head temperature sending unit.

5. Remove cylinder head assembly as follows:

Remove valve rocker arm cover and discard gasket.

Remove rocker arm nuts, rocker arm balls, rocker arms and push rods. Place in a rack so they may be installed in their original location.

Remove rocker arm studs and push rod guides, then remove and discard rocker arm stud "O" ring seals.

Pull push rod tubes from crankcase bore and remove and discard inner "O" ring seal, then remove push rod tube from cylinder head and remove and discard "O" ring seal. Remove cylinder head nuts, then remove cylinder head assembly from crankcase studs and discard cylinder head gaskets.

Installation

1. Install cylinder head assembly as follows:

Place cylinder head gasket in cylinder head combustion chamber.

Install cylinder head assembly over studs and carefully guide into place.

Install 6 cylinder head nuts (finger tight).

Install new "O" ring seals, lightly coated with oil, on long end of push rod tubes, then install push rod tubes through bore in cylinder head and install

new "O" ring seals, lightly coated with oil, on inner end of push rod tubes.

Start push rod tubes into bores in cylinder head and crankcase, then seat the push rod tubes with a 9/16" deep socket (placed against cylinder head end of push rod tube and tapped lightly with a hammer).

Install new "O" ring seals, lightly coated with oil into rocker arm stud bore in cylinder head.

Install push rod guides, then rocker arm studs (finger tight).

Torque cylinder head nuts and rocker arm studs, a little at a time, in the sequence shown (fig. 34) until the specified torque is reached.

Install push rods with the side oil hole out.

Install rocker arms, rocker arm balls and rocker arm nuts.

NOTE: Whenever new rocker arms or rocker arm balls are installed, coat surfaces lightly with Molykote or its equivalent.

2. Connect wire to cylinder head temperature sending unit on right cylinder head.
3. Adjust valves as outlined under Valve Lifters.
4. Using a new gasket, install valve rocker cover and torque to specifications.
5. Install the following items as outlined.

Exhaust manifold.

Bolts attaching front and rear shroud to cylinder head and bolts attaching upper shroud to front and rear shroud.

Spark plugs and vacuum balance tube hose.

Muffler hanger, muffler heat shield, and muffler (right cylinder head).

Oil cooler (left cylinder head).

Exhaust duct, lower shroud and side shield.

Ignition coil and bracket (right cylinder head).

Carburetor mounting studs, carburetor and choke control rods.

6. Fill with oil, then connect battery positive cable.
7. Synchronize carburetors as outlined in Engine Tune-up.
8. Check for oil leaks.
9. Install air cleaner assembly and spare tire.

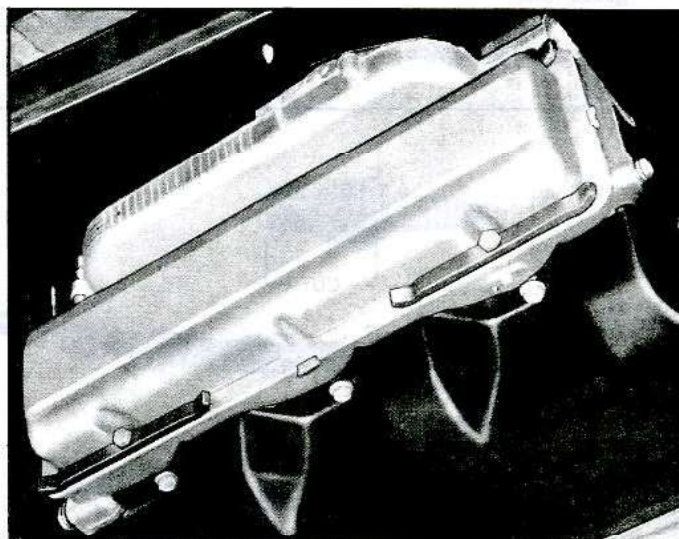


Fig. 36—Rocker Arm Cover Installed

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