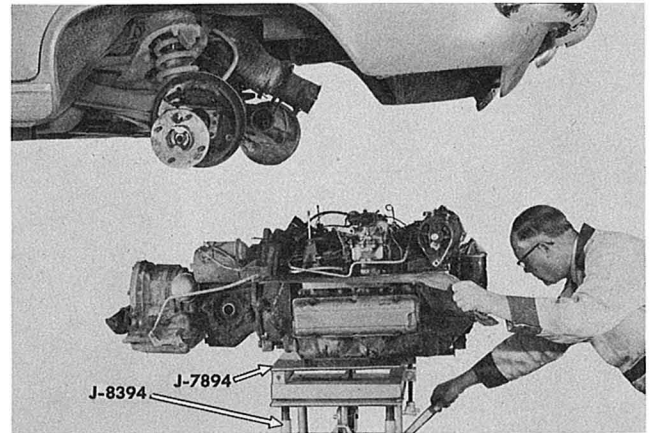


FOREWORD

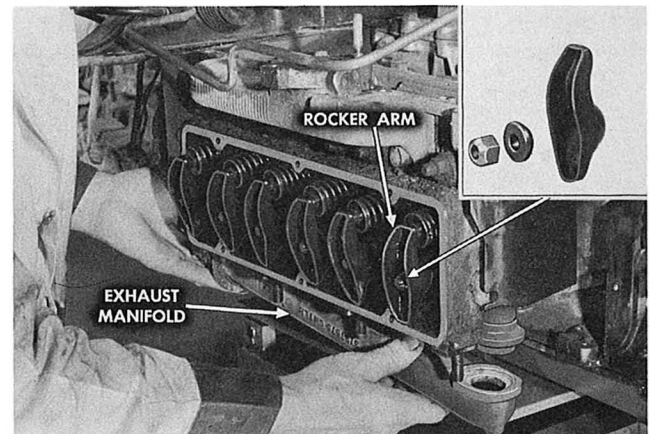
This booklet contains a complete reprint of the sound slidefilm, Corvair Valve Servicing. Each man should have one of these booklets for on-the-job reference, and at least one copy should be placed in the file of Technical Information.

CONTENTS

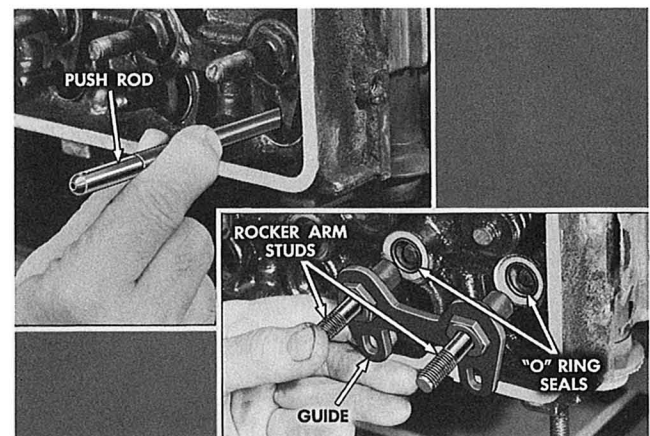
- REMOVING CYLINDER HEADS 1
- CLEANING CARBON AND INSPECTING 2
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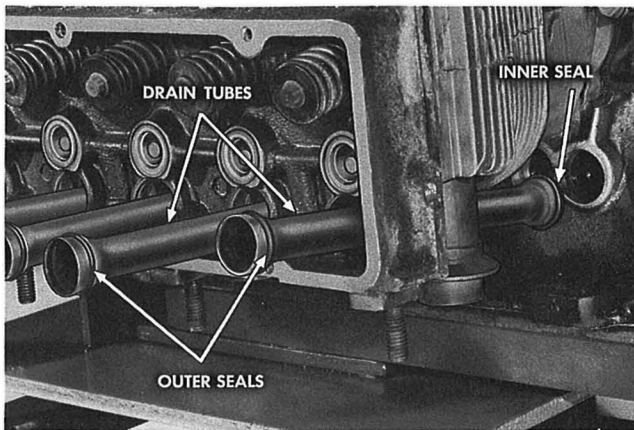
Many Service Technicians prefer to remove the engine and power train rather than lowering the rear of the engine a few inches. In either case, a heavy-duty hydraulic jack, such as J-8394, and adapter J-7894 are necessary.



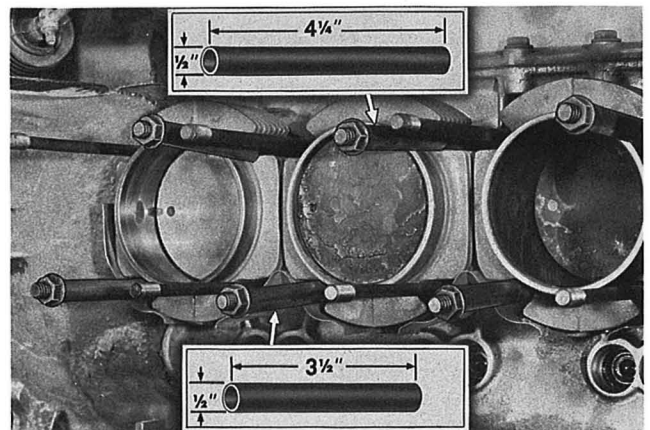
Remove all components which would interfere with service work and necessary sheet metal shrouding around the engine. Remove rocker covers, exhaust manifolds and rocker arms.



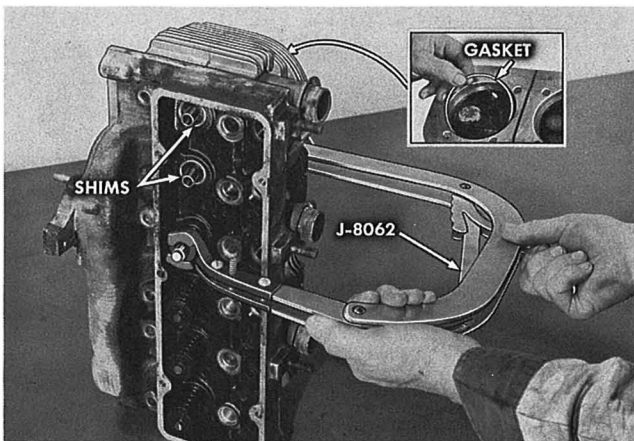
Remove push rods, rocker arm studs, push rod guides and discard the "O" ring seals.



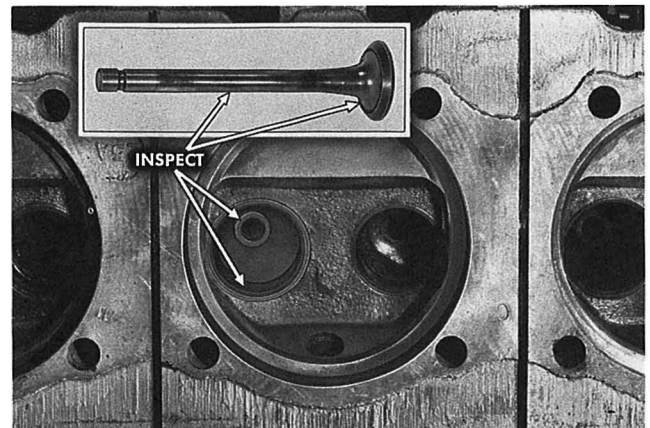
Loosen aluminum push rod drain tubes. Then, with heads pulled part way off the studs, discard inner "O" ring seals and remove drain tubes. Discard outer seals and remove heads.



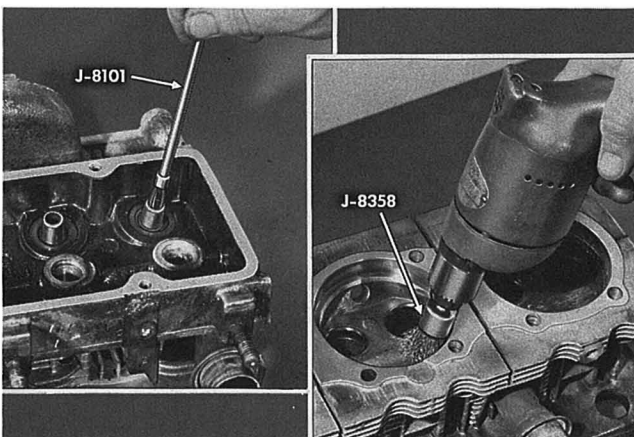
Now make a set of 12 cylinder holding tubes from 1/2" O.D. stock. Cut six tubes to 4 1/4", and the other six to 3 1/2". Install and clean piston heads.



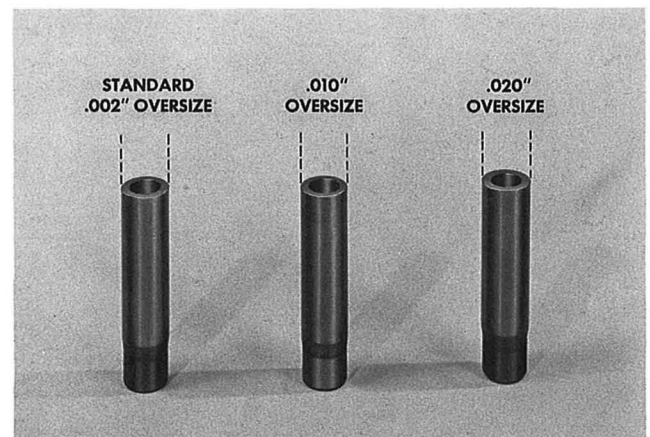
Discard copper head gaskets; then remove valves using a spring compressor such as J-8062. Remove valve spring shims.



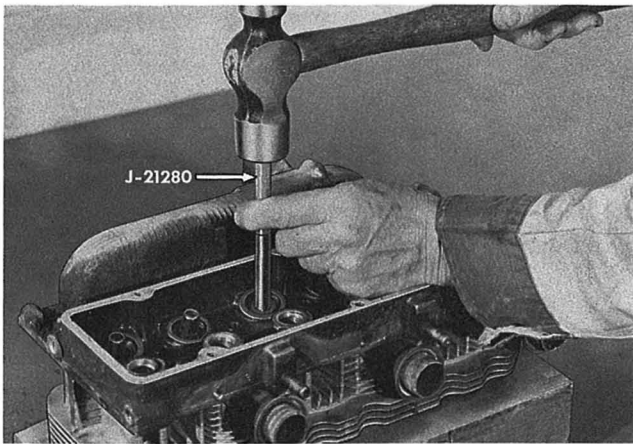
Wire-brush clean all valves. Carefully examine valves, valve guides and bores. Inspect for fractures, especially near valve seats.



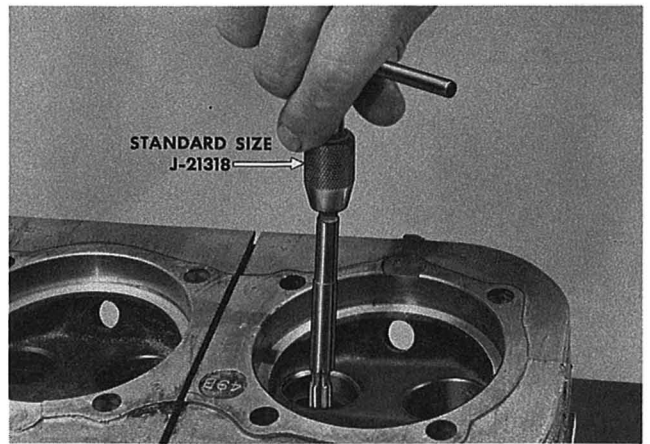
Clean guide bores with Tool J-8101. Clean combustion chambers and valve ports using wire brush J-8358.



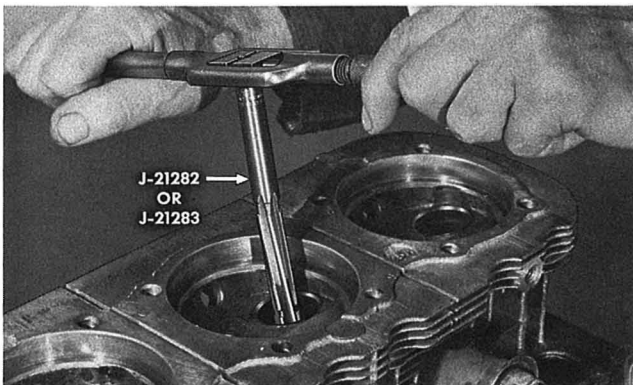
Valve guides are available for all Corvair engines except Turbocharged models. Standard replacement guides are .002" oversize, with .010" and .020" oversizes available. These guides use standard diameter valve stems. To remove a damaged guide —



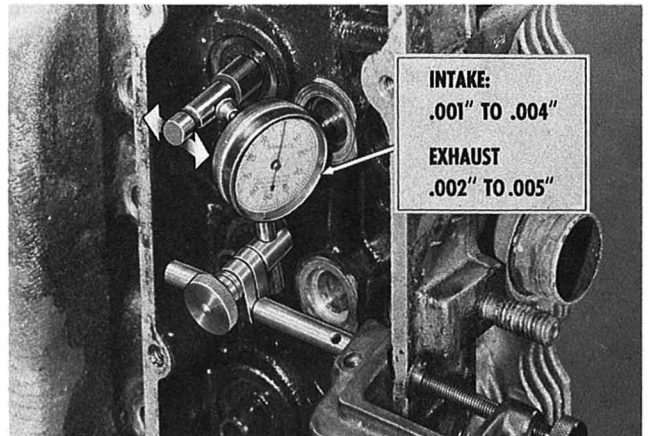
— use Remover J-21280 and a heavy hammer to drive it out from the spring side. If the guide bore is free of internal damage, install the standard guide without reaming. If there is deep gouging —



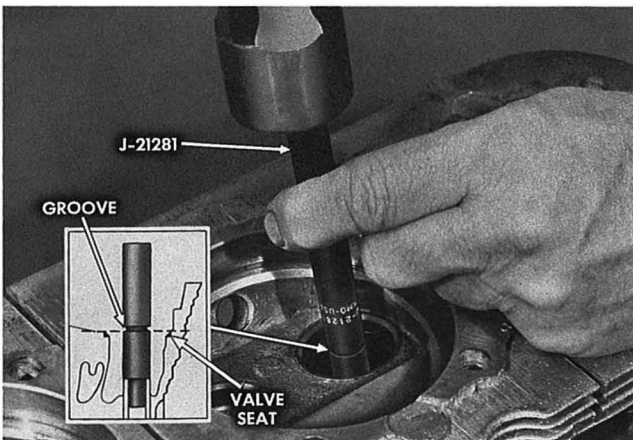
Use the standard size reamer from the combustion chamber side to remove slight guide bore distortion or peening.



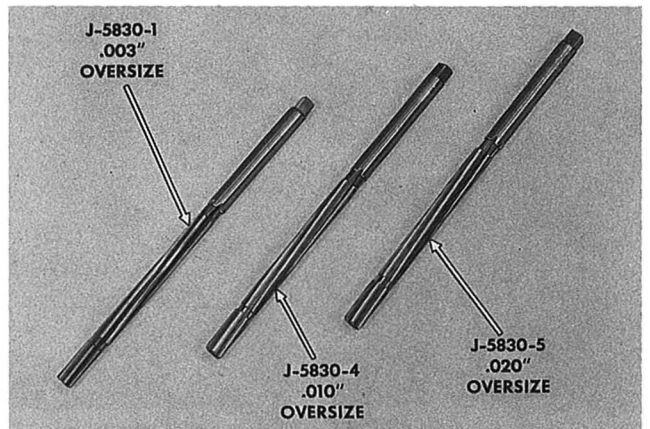
— select the .010" oversize reamer J-21282. Use cutting oil and ream from the combustion chamber side. If this operation does not clean up guide bore, re-ream with the .020" oversize reamer . . . J-21283.



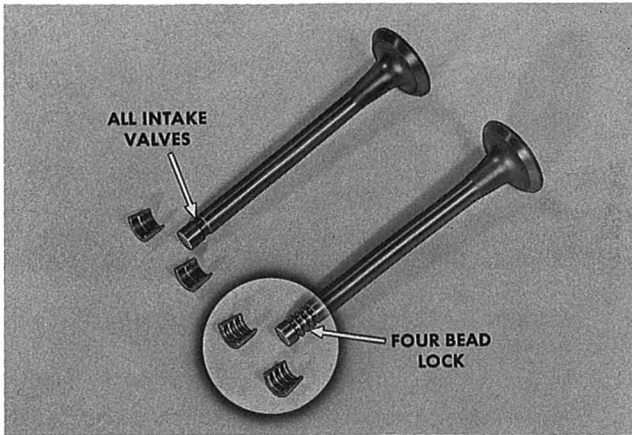
If valve guides do not need replacement, you should check valve stem to guide clearance. Hold the valve off the seat about $\frac{1}{4}$ " and locate the dial indicator button against the stem just above the guide. Move stem crosswise to the head. If clearances are excessive —



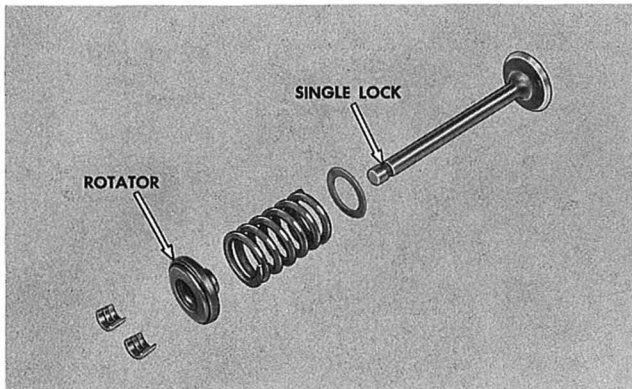
Drive the selected guide into the bore from the combustion chamber side — small diameter end first. Use Installer J-21281. The installed height is correct when the tool groove aligns with the top surface of the valve seat.



—select one of the reamers, J-5830-1, J-5830-4 or J-5830-5, which are .003", .010" or .020" oversize. Ream from combustion chamber side. Select corresponding oversize valve.

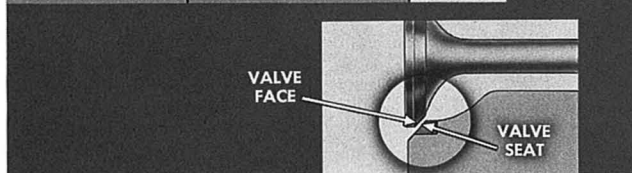


All intake valves have the single groove lock. However, when the original exhaust valves need replacement, you should use the four bead lock design on all except the Corvair 95 engines.

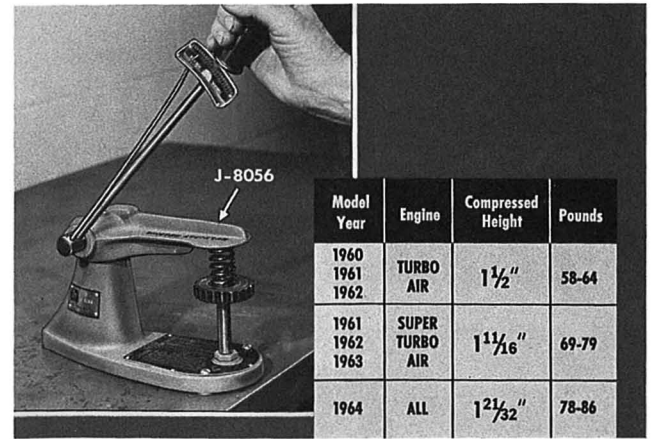


Corvair 95 engines for 1963 and '64 are equipped with single lock design stellite exhaust valves and rotators which are now available for installation in earlier Corvair 95 vehicles. Now let's look at recommended grinding angles.

RECOMMENDED GRINDING ANGLES		
INTAKE & EXHAUST VALVE SEATS		45°
EXHAUST VALVES		44°
INTAKE VALVES		
ALL ENGINES	1960, 1961, 1964	45°
ALL ENGINES	1962	44°
TURBO AIR	1963	44°
SUPER TURBO AIR	1963	45°

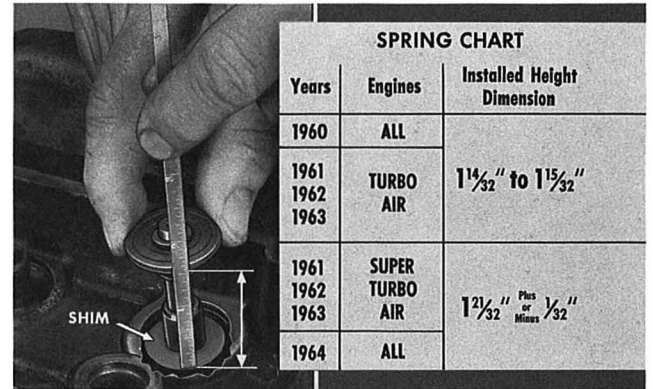


The reseating angle for intake and exhaust valve seats in all engines is 45 degrees, while all exhaust valves are refaced 44 degrees. Intake valves are refaced either 45 or 44 degrees, depending on the engine and model year.



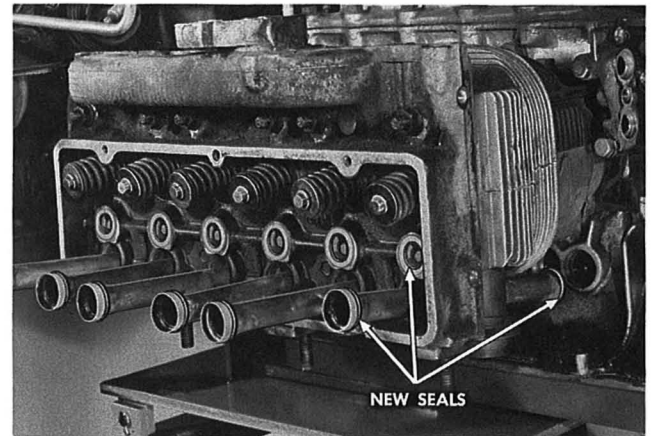
Model Year	Engine	Compressed Height	Pounds
1960 1961 1962	TURBO AIR	1 1/2"	58-64
1961 1962 1963	SUPER TURBO AIR	1 1/16"	69-79
1964	ALL	1 21/32"	78-86

Check valve springs with a spring tester such as J-8056 and an accurate torque wrench. Correct specifications are shown. Replace weak springs.

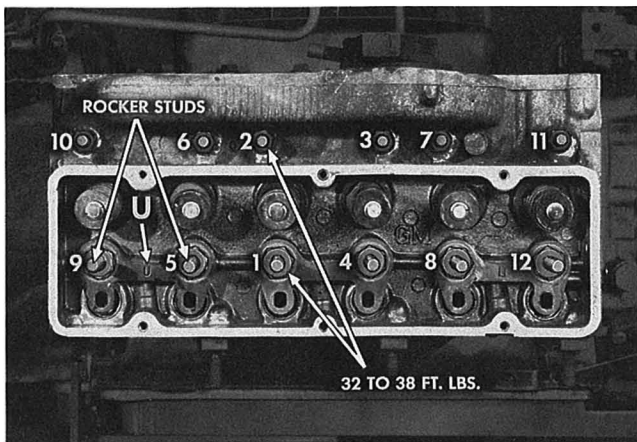


SPRING CHART		
Years	Engines	Installed Height Dimension
1960	ALL	1 1/32" to 1 15/32"
1961 1962 1963	TURBO AIR	
1961 1962 1963	SUPER TURBO AIR	
1964	ALL	1 21/32" Plus or Minus 1/32"

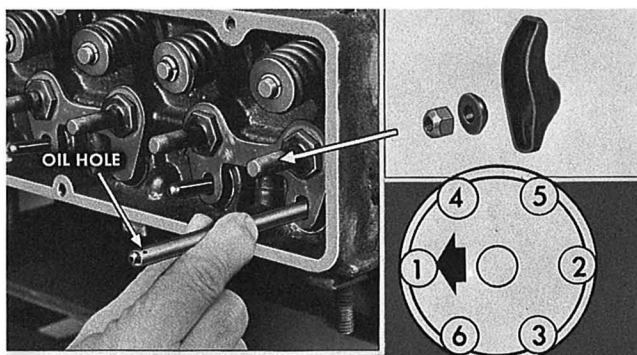
Install only the valve, spring shim, spring cap and valve keys. Pull valve tight against the seat. Measure between spring shim and spring cap. Never add shims that will bring the installed height of the spring below specifications.



Assemble all valves. Position new head gaskets in the combustion chambers and install cylinder heads. Insert drain tubes with new "O" ring seals and at each rocker stud recess. Oil seals, then tap drain tubes into position.

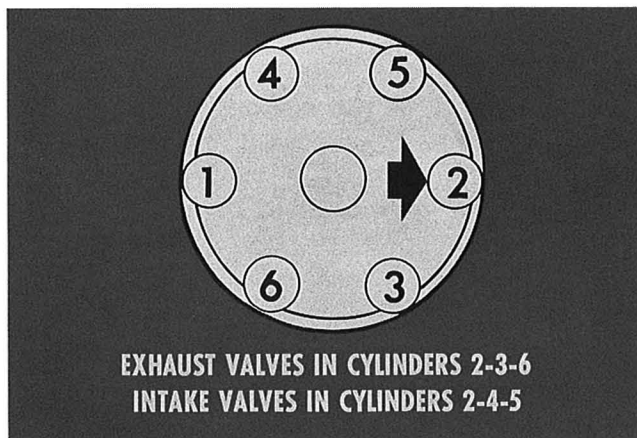


Insert rocker studs through push rod guides from the stamped "U" side and onto head studs. Install cylinder head nuts and torque 32 to 38 foot-pounds as shown.



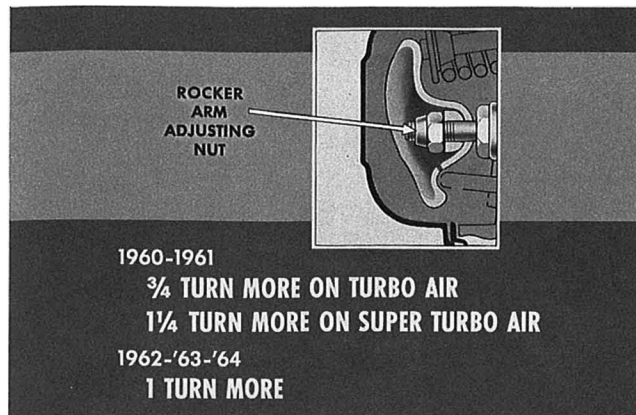
EXHAUST VALVES IN CYLINDERS 1-4-5
INTAKE VALVES IN CYLINDERS 1-3-6

Insert push rods with side oil hole to rocker arm. Loosely install all rocker arms. Set pulley timing mark at ZERO on timing pad with distributor rotor at number ONE cylinder in the distributor cap. Lash only the valves shown.



EXHAUST VALVES IN CYLINDERS 2-3-6
INTAKE VALVES IN CYLINDERS 2-4-5

Now, turn engine to set distributor rotor at the number TWO cylinder with the pulley notch aligned to ZERO mark on timing pad. Lash remaining valves as shown.



1960-1961

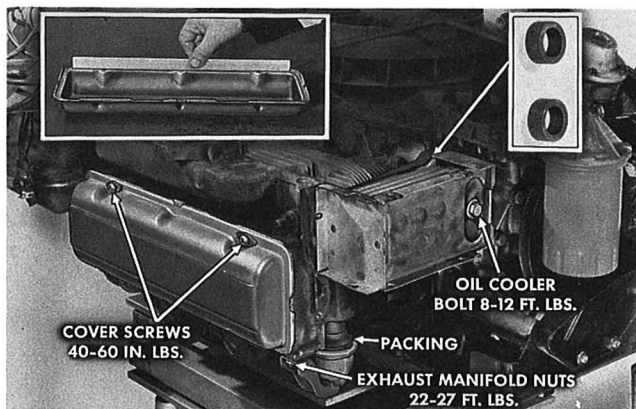
3/4 TURN MORE ON TURBO AIR

1/4 TURN MORE ON SUPER TURBO AIR

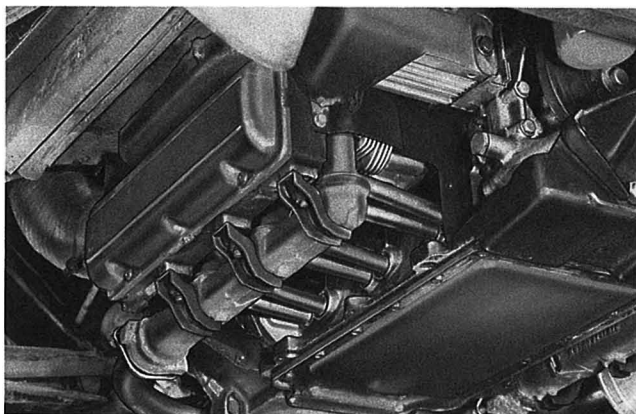
1962-'63-'64

1 TURN MORE

Valve lash is adjusted by first turning rocker arm adjusting nut slowly until there is no "rocking chair" motion of the rocker arm. Then, turn nut clockwise exactly 3/4 of a turn more on 1960 and 1961 Turbo Air engines and 1/4 turn more on Super Turbo Air engines. Lash all 1962, '63 and '64's one complete turn more.



Check for distortion of rocker cover. Straighten if necessary, then install with a new gasket. Install oil cooler with new seals and exhaust manifolds with new packings. Torque to limits shown.



When the engine is reinstalled, it may be necessary to readjust valve lash with the engine running. Follow procedures in the 1964 Shop Manual, page 6A-5 and 6A-6. This completes Corvair valve servicing.

