



M-6049-C460 Cylinder Head INSTALLATION INSTRUCTIONS

NO PART OF THIS DOCUMENT MAY BE REPRODUCED WITHOUT PRIOR AGREEMENT AND WRITTEN PERMISSION OF
FORD RACING PERFORMANCE PARTS

Please contact the Tech "Hot Line" for the most current instruction information (586) 468-1356

!!! PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION !!!

INSTALLATION INSTRUCTIONS:

1. The C460 cylinder heads require all new valves and rocker arms. There is no interchangeability with earlier Ford Racing valves and rocker arm systems. A list of component parts released for these cylinder heads is attached.
2. Steel valves are available from Manley. Titanium valves can be ordered from Manley, CV Products or Del West. Recommended valve sizes are as follows:
 - Intake - 6.475" overall length with hardened tip
 - 2.400" head diameter (steel)
 - 2.450" head diameter (titanium)
 - 11/32" stem
 - Single keeper groove for 10° keeper
 - Seat width .125"
 - Margin .090"
 - Exhaust - 6.375" overall length with hardened tip
 - 1.900" head diameter maximum (see #3 below)
 - 11/32" stem
 - Single keeper groove for 10° keeper
 - Seat width .125"
 - Margin .090"
3. Recommended cylinder bore size is 4.600". The cylinder head has been designed to produce maximum power. To achieve that goal, the valves have been crowded toward the exhaust side of the cylinder. As a result, the exhaust valve to cylinder wall clearance is minimal and should be checked prior to engine assembly. A minimum clearance of .040" is recommended. Bore sizes under 4.550" may require reducing the exhaust valve diameter.
4. Valve guides are machined for .530" seals (part number M-6571-A221). If triple springs are used, the guides should be remachined for .500" seals.
5. Rocker stud locations suit individual shaft mounted rocker arms. Rocker arms are available from Jesel, T&D Machine, (702) 884-2292, and W.W. Engineering, (706) 216-8388. The rocker arm geometry must be checked to insure proper operation. The rocker arms should be installed after covering valve tips with machinist blue or magic marker to check the roller tip pattern on the valve stem tip. Check the pattern as follows: Using mock-up valve springs and pushrods, turn the engine by hand and watch the roller move across the valve stem tip from the inside to the outside of the tip and back to the inside. The pattern on the valve stem tip should be centered or slightly offset toward the rocker arm (but no more than .020"). If the roller movement or the pattern on the tip is not as described, the pedestal may need to be shimmed or milled to raise or lower the rocker arm to achieve the correct pattern. After the rocker arm movement is judged acceptable, you may want to tack weld the intake and exhaust rocker arm pedestals together so they can be removed and reinstalled in the same position.

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6. Offset roller lifters are recommended. The intake lifter should feature a .125" offset.
7. Valve spring seats have been machined to accept 1.750" O.D. spring cups to suit 1.625" O.D. valve springs.
8. Cylinder head stud kits are available from Ford Racing for the C460 cylinder heads (M-6014-G500).
9. The M-6582-C460 and R460 valve covers fit these cylinder heads.
10. Spark plugs are 14mm., $\frac{3}{4}$ " reach tapered or gasket seat. A Motorcraft AG series plug should be used. Typical heat range for a high-compression, naturally aspirated engine would be AG 901. Pistons may require a spark plug clearance notch.
11. Pistons with valve notch locations to suit the C460 cylinder heads are available from Wiseco, JE and other piston companies. For higher compression ratios, the heads can be milled. A .005" cut will reduce chamber volume approximately 1cc.
12. Headers are available from Hedman Heddors and others.
13. A single, four-barrel, cast aluminum intake manifold is available from Ford Racing (see attached parts list). Fabricated sheet metal intakes may be made using the intake flange view of the cylinder head shown on the attached.
14. Cylinder head gaskets for the C460 are available from Ford Racing and Fel Pro. An intake gasket (see attached list) is available from Ford Racing. RTV can be used for header gaskets.
15. Custom length pushrods will be required. Pushrods of any required length can be ordered from Trend Products, (586) 759-1916, and others.

NEW PARTS FOR THE M-6049-C460 CYLINDER HEADS

<u>Part Number</u>	<u>Description</u>	<u>Estimated Availability</u>
M-6014-G500	Cylinder head stud kit for C460	Available
M-6051-B460	Head gasket for C460	Available
M-9424-C460	Single plane, single 4V intake	Available
M-9439-E460	Intake manifold gasket .0625" thick	Available
M-9439-F460	Intake manifold gasket .125" thick	Available

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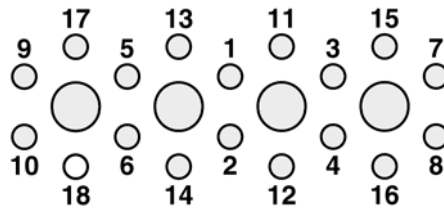
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16. Recommended cylinder head stud torque is shown below. A cold re-torque after the first running at temperature is **mandatory** to maintain head gasket integrity and combustion seal.

Torque the cylinder head studs in three steps, in sequence:

- Step 1. 75 ft./lbs. 9/16"; 50 ft./lbs. 7/16"
- Step 2. 105 ft./lbs. 9/16"; 65 ft./lbs. 7/16"
- Step 3. 135 ft./lbs. on #1 through #6
125 ft./lbs. on #7 through #10



NOTE: The head bolt bosses deform to some extent when the studs are torqued, especially the 9/16" studs used with the C460 head. As they deform, the bosses will pinch the head studs, making cylinder head removal difficult. Hardened steel step washers (B & B Washers) eliminate the problem. They are available from B & B Performance, (302) 239-5013 or (714) 589-5956. Also available from B & B is the tool for machining the bosses to accept the washers.

NOTE: Service replacement valve guides are available from Roush Racing, (734) 779-7257.

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