



# M-6564-ALL Roller Rocker Arms INSTRUCTION SHEET

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 (STUD MOUNTED AND BOLT-ON):

### Stud Mounted:

- Step 1:** Rotate engine to number 1 cylinder TDC. Check distributor rotor to make sure it is at the number 1 cylinder terminal. Remove valve covers.
- Step 2:** Remove old rocker arms for number 1 cylinder. If you are converting a pedestal type cylinder head, see the modifications instructions below.
- Step 3:** Oil the pushrod, rocker stud threads, rocker arm and nut.
- Step 4:** Install the new roller rocker arms for number 1 cylinder with the flat area on the trunnion shaft up.
- Step 5:** Make sure the rocker does not bottom on the rocker stud radius. Check clearance through the entire lift range. Check rocker arm geometry. You may need to change pushrod length to achieve proper geometry.
- Step 6:** Also check pushrod guideplate alignment. Some guideplates must be split to allow good pushrod alignment.
- Step 7:** Install the rocker arm nuts and set cold lash/lifter preload. Tighten the rocker arm lock screw.
- Step 8:** Rotate engine to the next cylinder in the firing order and repeat the process.

|               |                  |                 |
|---------------|------------------|-----------------|
| Firing order: | 302/460          | 1-5-4-2-6-3-7-8 |
|               | 351C/351W/302 HO | 1-3-7-2-6-5-4-8 |

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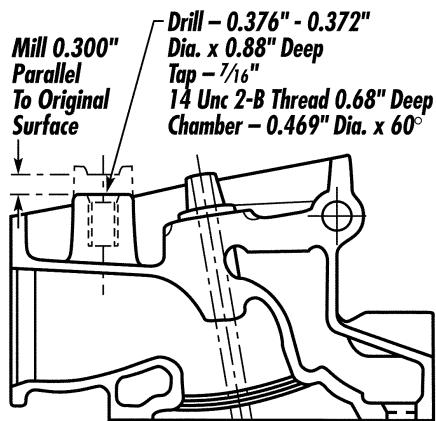
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### Cylinder Head Modifications for Rocker Arm Studs:

Pedestal type cylinder heads can be modified for rocker arm studs (351C illustrated). Machine at right angles to the existing stud hole/bolt hole, not the bottom of the head. The valves in canted valve heads operate at compound angles. For 302/351W cylinder heads, measure from the top of the pedestal.

Recommended milling dimensions:

|                   |       |
|-------------------|-------|
| 302/351W          | .230" |
| 351C-351M-400     | .300" |
| 1968-1972 429/460 | .230" |
| 1973-1994 429/460 | .300" |



### Bolt-on Rocker Arms:

The bolt-on rocker arm assemblies are designed to be used as a direct replacement for stock rocker arms on standard engines with hydraulic camshafts and lifters. Do not use anti-pump-up lifters

Engines with non-standard components may need pedestal shims or longer pushrods.

- Step 1:** Remove valve covers. Rotate engine to number 1 cylinder TDC. The distributor rotor should be at the number 1 terminal.
- Step 2:** Remove stock rocker arms, fulcrums and bolts from number 1 cylinder. Clean pedestal mounting surface. Remove pushrods; clean, oil and reinstall. Make sure the pushrod is in the lifter seat.
- Step 3:** Fill the pushrod with oil. Oil the roller rocker arms, pedestal inserts and bolts.

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- Step 4:** Install one rocker arm at a time by inserting the 5/16" bolt through the top of the rocker arm, making sure that the flat side of the trunnion is facing the bolt head. Slide the pedestal insert onto the bolt, seating the rounded side of the trunnion in the curved "saddle" of the insert. If guide channels are used on your cylinder heads, slide the guide channel on the bolt. The base of the pedestal insert should fit snugly in the guide channel. Thread the bolt into the cylinder head. Repeat the process with the other rocker arm.
- Step 5:** Turn the bolts by hand until there is no clearance between the roller and the valve stem (make sure the pushrod is seated in the rocker arm cup). Slowly torque the bolt to 18-20 FT-LBS. Since you are pushing down the plunger in the hydraulic lifter as you torque the bolt, it will probably take a minute or two to complete the procedure. The bolt should have turned between one-quarter to one full turn to reach the torque setting. This will give the correct lifter preload of .020" to .060". If the bolt turned more than one turn, you will have to shim the pedestal (use Ford Racing Performance Parts shim kit M-6529-A302). NOTE: M-6500-A301 anti-pump-up lifters only need .020" to .030" preload. If the bolt turned less than ¼", you will have little or no lifter preload. The solution for this is longer pushrods. These are available from a number of companies, such as Crane Cams Tech Line (904) 258-6174. There are many modifications that may have been made to the engine which will change the lifter preload, such as valve jobs, different cams, different thickness head gaskets, head milling, etc. It is a good idea to check the rocker arm pattern on the valve stem tip. Use a felt tip marker to "paint" the tip. Then, with the rocker arm in place, turn the engine through two revolutions. Remove the rocker arm and inspect the pattern. It should be nearly centered on the tip. If it appears to be too close to the edge of the tip, call the Ford Racing Tech "Hot Line" for assistance. **Note: The lifter preload may be different between the intake and the exhaust or between one side of the engine and the other. Therefore, you must check lifter preload on each rocker arm.**
- Step 6:** Repeat this process on the remaining cylinders.
- Step 7:** After all the rocker arms are installed, check for rocker arm clearance by placing a valve cover on the cylinder head without gasket or bolts. Hold the valve cover in place by hand and rotate the engine without starting it. Minor interference can often be eliminated by thicker valve cover gaskets or modifying the cover or baffles. Ford Racing also offers tall valve covers that will clear all rocker arm systems. Clearance to intake manifolds (especially factory fuel injection manifolds), brake boosters and accessory brackets may be a problem for tall valve covers. Before installing the valve covers for the final time, we recommend that you fill each rocker arm with engine oil to insure lubrication during initial startup.
- Step 8:** Start the engine. Check for normal idle quality and normal tappet noise. If there is excessive tappet noise or if the engine does not idle normally (same as before the rocker arm installation), the most likely cause is improper lifter preload or rocker-to-valve cover interference. Pull the valve covers and recheck all rocker arms, pedestals and pushrods for proper installation. Are any of the rocker arms loose? Repeat the installation torque procedure. Does each bolt pull to torque in one-quarter to one turn? If excessive tappet noise or poor engine idle quality persists, call the Ford Racing Tech "Hot Line" for assistance.

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