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FORD FE
SHAFT ROCKER SYSTEM
INSTALLATION
PART NUMBERS: 3240622,3339032

COMPONENTS	QTY
ROCKER ARMS – 17-4 STAINLESS STEEL WITH SILICONE BRONZE BUSHINGS	16
BILLET ALUMINUM ROCKER ARM STANDS/NUMBERED PEDESTALS	8
BILLET ALUMINUM ROCKER ARM SPACERS	6
CHROMOLY HARDENED SHAFTS	2
3/8”-16/24 X 3.50” ROCKER STAND STUDS- FULL SHANK	6
3/8”-16/24 X 3.50” ROCKER STAND STUDS- UNDERCUT SHANK	2
3/8”-16/24 X 3.75” ROCKER STAND STUDS- UNDERCUT SHANK	2
3/8” - 24 - 12 POINT STANDARD DUTY NUTS	8
3/8” - 24 VALVE LASH ADJUSTERS 3/8” CUP TYPE (3240622 ONLY)	16
7/16” - 20 VALVE LASH ADJUSTERS BALL TYPE (3339032 ONLY)	
3/8” - 24 12 POINT ADJUSTER FLANGE NUTS	16
ROCKER ARM SHIMS (.60” X .870”, .028” X .870”, .016” X .870”)	16
STAINLESS STEEL WASHERS - 3/8” FOR ADJUSTERS AND ROCKER STANDS	24
PUSHROD LENGTH CHECKERS	2
PRW – CMD EXTREME PRESSURE LUBE #3	1

PRW SHAFT ROCKER ARM SYSTEM PREPARATION:

1) Confirm that all parts are included by comparing to the parts list.
2) Make certain that you have all the tools necessary to complete the project.
3) Assembly lube and/or lubricating oil should be readily available for installation.

PRW SHAFT ROCKER ARM SYSTEM PREPARATION:

SPECIAL NOTES: PRW Ford FE Rocker Arm System is designed for high-performance and racing. As such, the installer must be prepared to deal with an increased volume of oil supplied to the valvetrain. Aftermarket and OEM heads alike may require the installation of oil restrictors in the oil passage ports numbers 3 and 6 near the base of the studs. As a general rule, cylinder head oil passage holes should be reduced (to .060"-.090" ID) by adding restrictors*; particularly when used in conjunction with a high pressure or high-volume oil pump.

**The restrictor information should be used only as a guide. Actual restrictor diameters should be calculated and implemented (based upon other specifications/clearances deemed necessary) by the engine builder/installer.*

Edelbrock Cylinder Heads: Edelbrock engineering has moved intake and exhaust valve centerlines to unshroud valves on the FE 390-428 bore size. This fact may require shims to elevate the pedestals. Published Edelbrock information varies, so check 5.45" Length valves on the intake and likely 5.230" Length on the exhaust. These facts are based upon replacement parts specifications and may not hold true on all assemblies and should be verified. Published installed spring height is 1.885" vs factory 1.820".

INSTALLATION:

Step 1: The rocker arm roller tips must be immersed in oil for at least 3 hours prior to installation. This will allow full lubricant penetration of the roller tip and axle. A disposable aluminum baking pan works well for this purpose. NOTE: It is critical to thoroughly pre-oil all shaft rocker components prior to use.

Step 2: Thoroughly inspect both cylinder heads to ensure that there are no obstructions that may impair the rocker stands from bolting into place on an even plane.

Step 3: Utilize a thread chaser to assure the threads of the cylinder heads are clean and to insure the rocker stands will mount securely to the cylinder head.

Step 4: Verify that all rocker stand studs can be threaded to operational depths through the rocker shafts and stands and into the rocker arm stand stud holes, prior to applying torque to any of the rocker stand studs. Confirm adequate depth for rocker stand studs with calipers or depth gauge.

Step 5: The kit includes eight (8) numbered billet rocker stands. The billet stands are numbered to match with the corresponding cylinders 1, 2, 3 & 4 on the passenger side and 5, 6, 7, & 8 on the driver side. They contain four (4) single stands and four (4) double stands. The rocker arm system is pre-assembled with the aluminum spacers in their respective positions. Take some time to become familiar with the layout of the assembled parts and components before beginning the installation.

Step 6: When installing the rocker shafts, be aware that the oil-feed holes must be facing down – towards the cylinder head. This will ensure proper lubrication to the rocker arms. Otherwise, premature and excessive wear of the various components will undermine the integrity of the rocker arm system. Remove the socket head machine screws from the shafts, inspect for any debris, clean the central shaft and other oil passages if necessary, re-install and secure the socket head screws in the ends of each rocker arm shaft and torque to 20-25 Lbs/Ft.

Step 7: Start assembly from one end; working toward the opposite end of each cylinder head. Coat the inside bushing surface of each rocker arm with assembly lube (do not use Moly lube) before installing the rockers on the shaft, being careful not to mar the bushing surface in the process.

Step 8: Install the first rocker arm between the outer stand with the pedestal numbers facing towards the intake manifold. Continue the installation in cylinder order; working towards the opposite end of the head. NOTE: Both OE production and aftermarket heads require shims, using similar or different thicknesses between the pedestals or spacers on either side of the rocker arms to insure the roller tip of the rocker arm is properly aligned with the valve stem. Alignment each rocker arm, making certain that there is 0.015- 0.020" clearance between the shims, each rocker arm and pedestal or spacer. Too much friction between the rocker arm shims, spacers, and pedestal stands will cause problems; so clearance is important.

Step 9: Install the studs finger-tight temporarily and check the rocker arm alignment on each cylinder head completing one head at a time. Each kit comes with 5 mounting studs per head with only 4 being necessary. There are six (6) full shank studs (for intake ports 1, 2, 4, 5, 7, and 8) and two (2) undercut shanks (oiling studs) that are tapered for oil flow (ports 3 and 6). OE production heads require a longer mounting stud for the oiling passage ports 3 and 6 (3.750" long). Edelbrock and other aftermarket heads require the same length studs at every location, with the oiling studs (3.50" long) used in the same location as the OE production heads.

Step 10: Once proper alignment has been confirmed, remove the rocker arm assembly keeping all shims intact. Remove the rocker stand studs.

Step 11: Reinstall the studs hand tight. Assure that the studs are threaded completely into the mounting holes. NOTE: The mounting hole with the oiling passage requires the undercut stud. The OE Ford cast iron head requires the 3.750" undercut stud. Most aftermarket heads require the 3.500" undercut stud above intake ports 3 and 6 and the installation of oil restrictors.

Step 12: Reconfirm rocker shaft oil holes are pointed down (towards the cylinder head). Double check the roller tip and valve stem alignment. Recheck to confirm proper clearance between rocker bodies, rocker stands, and spacers. Install or remove shims as required.

Step 13: Install the stud washers and nuts into place using PRW Moly lube (alternatively motor oil can be used if moly lube is unavailable). Tighten the nuts evenly across the assembly while applying pressure against the valve springs. Once the assembly is in place, torque the rocker stand nuts to 35 Lbs/Ft if using moly lube or 40-45 Lbs/Ft if using engine oil.

Step 14: If proper push rod length has already been determined install the pushrods into lifter-bores, making certain that each pushrod is properly seated in the corresponding lifter body. Apply assembly lube sparingly on both the push rod seat and the ball adjuster. Now hand-turn the push rod adjuster ensuring that the ball of the adjuster sits at the bottom of the pushrod cup. If pushrod length has not been verified, please refer to the Section: Pushrod Length; Checking to Determine Proper Length to ascertain the appropriate pushrod lengths. Once completed, install the pushrods, and continue Step 15 as detailed below.

Step 15: Set valve lash per camshaft manufacturer's specification. Initial setting for the ball adjusters should be ½ thread to one full thread showing above the Valve Lash Lock Nut; making certain that the pushrod cup does not come in contact with the rocker body during articulation.

SPECIAL NOTES: Before running the engine, check for any interference between the rocker body and the pushrod. Check for interference and resolve any contact between the rocker body and the valve spring or retainer at any point during a cycle. Prime the oil pump with an engine-priming tool and drill motor. Assure that oil is flowing through all valve train rocker arms, stands, spacers, and shims.
If you are using a 5/16" diameter pushrod length checker, keep in mind that all Ford FE pushrods are 3/8" diameter shaft and 3/8" cup adjuster that will effectively reduce the clearance between the pushrod and rocker body. *Custom pushrods DO NOT require oversized outside diameter cup ends utilized by some pushrod manufacturers for Top Fuel and similar applications. As with OEM rocker arms, there is limited space to accommodate pushrod cup ends larger than the OEM design.*

Pushrod Length; Checking to Determine Proper Size and Length
1. With the number 1 cylinder at TDC (Top Dead Center) seat the provided pushrod length checkers in both exhaust and intake valve lifters.
a. The base circle may be different between the intake and exhaust camshaft profiles.
b. It is necessary to check both for proper individual pushrod length.

2. Begin with the valve lifter on camshaft base circle and valve lash adjuster rotated clockwise with 1 to 1 ½ threads exposed from the base of the rocker body over the number one cylinder and with the pushrod length checkers in place. Standard OEM pushrod length is 9.225". Using that length as a guide, tighten and extend the valve lash adjuster accordingly until you achieve the desired rocker arm geometry and pushrod alignment. You may wish to mark the checkers "I" and "E" (for intake and exhaust) to easily identify after removal.

3. Install Rocker Arm System on the cylinder head, securing with the washers and 12 point pedestal flare nuts. Tighten the stand until snug.

4. Adjust the pushrod length checkers to required fitment and proper length.
a. Loosen the valve lash adjuster in the rocker body and then remove the pushrod length checkers.
b. Record the lengths required for reference and order the appropriate quality Intake and Exhaust pushrods from your Racing and Performance parts dealer.

NOTE: Maximum recommended spring pressures for the Shaft Mount Rocker Arm System is 275+ lbs for single stands and 375+ lbs for double-end stands. The rocker arms will clear up to 1.500" diameter valve spring. Pushrods selection is important; these are critical parts.
High quality aftermarket 4130 chromoly steel pushrods are required. Custom size and length pushrods are readily available from PRW or other high-performance manufacturers through your local dealer. Please note that the cup adjusters for Ford FE are 3/8" cup that require 3/8" ball-style pushrods to properly match to the ball adjusters.

Post Installation Maintenance:
1. The synchronized oil system must be inspected periodically for obstructions that may prevent proper rocker arm oiling. After the valves have been adjusted to camshaft specifications, verify that each 12-pt adjuster nut has retained 25 Lbs/Ft torque. 2. After 500 miles of operation, re-check mounting stud nut torque and recheck the valve lash and lifter preload.

NOTE: Severe engine damage may occur if the adjuster nut should come loose while the engine is operating.

TORQUE SPECIFICATIONS	
3/8" ROCKER STAND STUDS (COARSE THREADS INTO CYLINDER HEAD)	20 FT-LBS WITH OIL
3/8" ROCKER STAND FLANGE NUTS	40-45 FT-LBS WITH OIL
3/8"-24 12PT ADJUSTER FLANGE NUTS	22-25 FT-LBS WITH OIL

WARNING:

1. Do not re-tap rocker body adjuster hole. Doing so will damage the rocker arm beyond repair!
2. Do not over-tighten adjuster nuts or modify adjuster counterbore!
3. Do not degrease rockers and/or run without proper lubrication.
4. Do not run valve lash adjusting screw out past two threads from seated position!
5. Do not allow pushrods to come in contact with cylinder head!
6. Do not run with rough or damaged pushrod tips!
7. Do not loosen shaft bolts under spring loads!

LIMITED WARRANTY

PRW Power, warrants that all of its products are free from defects in material and workmanship, and against excessive wear for a period of (1) one year from the date of purchase. This limited warranty shall cover the original purchaser.
PRW obligation under this warranty is limited to the repair or replacement of its product. To make a warranty claim, the part must be returned within (1) one year of purchase to the address listed below, freight prepaid. Items covered under warranty will be returned to you freight collect.
It is the responsibility of the installer to ensure that all of the components are correct before installation. PRW assumes no liability for any errors relative to tolerances, component selection, or installation.

There is absolutely no warranty on the following:

i. Any parts used in racing applications, or;
ii. any product that has been physically altered, improperly installed or maintained, or;
iii. any product used in improper applications, abused, or not used in conjunction with the proper parts.

There are no implied warranties of merchantability or fitness for a particular purpose and no warranties which extend beyond the description of the face hereof.
PRW shall not be responsible for incidental and consequential damages, property damage or personal injury damages to the extent permitted by law. Where required by law, implied warranties or merchantability and fitness are limited for a term of (1) one year from the date of original purchase. This warranty may give you specific legal rights. You may also have other legal rights, which vary from state to state.