PERFORMER RPM, RPM CJ, and VICTOR JR. CJ ALUMINUM CYLINDER HEADS for 1968-1987 429-460 Ford Engines

CATALOG #60669 95cc Complete, #60679 75cc Complete, #60689 95cc Bare, and #60699 75cc Bare, #61649 75cc CJ Complete,#61659 75cc CJ Bare, #61669 75cc CJ Victor Jr. Complete

Not legal for sale or use on pollution-controlled motor vehicles

Please study these instructions carefully before installing your new cylinder head. If you have any questions or problems, do not hesitate to contact our Technical Hotline at: (800) 416-8628 from 7:00 am to 5:00 pm, Monday through Friday, Pacific Standard Time or e-mail us at: edelbrock@edelbrock.com.

DESCRIPTION

- PERFORMER RPM 460 - The Edelbrock Performer RPM Street Cylinder Head is designed for street high performance use, and is interchangeable with any 1968-87 standard (non Cobra-Jet) 429-460 Ford cylinder head. This new cylinder head offers "out of the box" bolt-on performance with no additional porting required. The performance range is 1500-6500 rpm. The intake and exhaust ports are CNC machine "matched" and have been designed for maximum performance when matched with our Performer RPM intake manifold #7166, Performer RPM cam kit #7167, and a Edelbrock Performer Series square-bore carburetor, #1407 (750 cfm), #1412 (800 cfm manual choke), #1413 (800 cfm electric choke) or Performer RPM Q-Jet carburetor #1910 (850 cfm). A properly sized intake port with the standard inlet flange design yields flow numbers traditionally associated with Cobra-Jet cylinder heads, but with a runner size that provides the correct inlet velocity for great throttle response throughout the power band as well as top-end horsepower. The 460 Ford Performer RPM cylinder head is available in two combustion chamber volumes, 95cc and 75cc, to provide a 460 Ford Performer RPM cylinder head that will match with as many engine combinations as possible. The compact combustion chamber design is made to maximize combustion efficiency and port flow with streetable compression ratios. The Performer RPM 460 cylinder head exhaust flange will accept stock exhaust manifolds or exhaust headers made for stock cylinder heads. NOTE: These cylinder heads have no exhaust crossover passage or AIR passages and will not work on any vehicle requiring EGR or other emissions equipment. Complete Performer RPM 460 cylinder heads are assembled with the following components: Stainless steel, one-piece, swirl-polished intake and exhaust valves with under-cut stems for increased flow; 2-ring positive oil control seals; 7/16" rocker studs and 3/8" guide plates; Edelbrock Sure-Seat Valve Springs #5745, valve spring seats #5770, retainers #9715, and valve keepers #9616. Complete cylinder heads are assembled and prepared for installation right out of the box. Bare cylinder heads will have valve guides and seats installed, but will require final valve guide sizing and a valve job to match the valves you will be using.
- PERFORMER RPM 460 CJ - The Edelbrock Performer RPM CJ Cylinder head is the same as the standard RPM 460 Cylinder head with intake port entries machined to accept Edelbrock Victor 460 #2965/2966 and stock Cobra-Jet intake manifolds. The Performer RPM 460 CJ is available with a 75cc combustion chamber volume. The valvetrain components in the complete Performer RPM 460 CJ cylinder heads #61649 are the same as in the complete Performer RPM 460 heads #60679. The exhaust flange in the RPM 460 CJ is the same as in the RPM 460 head.

- VICTOR JR. 460 CJ - The Edelbrock Victor Jr. 460 CJ is a cylinder head with Cobra-Jet intake port openings set up for 460-514+ cu.in. roller camshaft racing engine applications. This cylinder head is equipped with roller cam valve springs capable of .730" lift, titanium retainers, jumbo 7° locks, steel jacketed Viton oil seals, and 2.100" long rocker studs compatible with rocker arm stud girdles. The Victor Jr. 460 CJ cylinder heads are intended for use with mechanical roller tappet camshafts only. The Victor Jr. 460 CJ valve springs are not compatible with flat tappet or hydraulic roller tappet camshafts. Combined with a #2965 intake manifold with a #8718 1" spacer; a 1050cfm 4500 carburetor; and a Comp Cam FF XR286 R10 camshaft, an out of the box pair of #61669 Victor Jr. 460 CJ heads made 630hp at 6000 rpm on a 514 cu.in. 460 engine on 92-octane pump gas. For further information on this engine combination, call the Edelbrock Technical Hotline.

ACCESSORIES

Although Edelbrock Performer RPM Cylinder Heads will accept OEM components (rocker arms, valve covers, intake manifold, head bolts, etc.), we highly recommend that premium quality hardware be used with your new heads.

HEAD BOLTS or STUDS: High quality head bolts or head studs with hardened washers must be used to prevent galling of the aluminum bolt bosses. Edelbrock Head Bolt Kit #8566 is recommended. The stock Ford head bolts may be used if they are in good condition and have never been tightened into yield. Hardened head bolt washers must be used with any head bolt used. Head bolt washers for 9/16" diameter head bolts are available from ARP, p/n 200-8535 10 pcs/pkg, and B&B, p/n 30390 20 pcs/pkg.

ROCKER ARMS:

PERFORMER RPM 460 & RPM 460 CJ - Adjustable "Stud & Guideplate" style rocker arms must be used. Non-adjustable rockers designed for pedestal or positive stop shouldered stud mounting will not work. Rocker arms with a roller tip that contacts the valve tip is recommended. Roller tip rocker arms provide more consistent rocker arm geometry and improve valve guide life. The design geometry of an aftermarket rocker arm can vary depending on the manufacturer. The pushrod length needed for the best centering of the rocker arm tip to valve tip contact patch can vary depending on the rocker arm used. The best pushrod length should be determined for your parts combination. 3/8" diameter pushrods hardened to be compatible with guideplates are available in varying lengths from Comp Cams, Manley, Trend Products, and others.

VICTOR JR. 460 CJ - Adjustable "Stud & Guideplate" style high-performance roller tip rocker arms must be used with this cylinder head combination. Stud girdles are highly recommended to properly stabilize the valve train and to distribute the high loads on the rocker stud bosses caused by the high-pressure roller cam valve springs. Not using a stud girdle with this cylinder head could result in poor performance due to valve train instability or damage to the rocker stud bosses from the high valve spring loads required for roller camshafts. Any stud girdle made for a stock Ford 460 cylinder head should fit any of the Edelbrock 460 Ford cylinder heads. Crane #35602-1 stud girdle kit was used in our testing. The Victor Jr. cylinder head is equipped with 2.100" long rocker studs to provide more stud engagement with the stud girdle poly locks and increase the effectiveness of the stud girdle.

PUSHRODS and GUIDEPLATES:
Complete 460 Ford Performer RPM cylinder heads come with guideplates to be used with 3/8" diameter pushrods. 3/8" diameter pushrods hardened to be compatible with guideplates must be used. For bare heads, Edelbrock guideplate #93669 (stepped 3/8" dia., set of 8) is available. If a pushrod diameter other than 3/8" is desired, any guideplate designed to fit a stock Cobra-Jet style cylinder head should work on the Edelbrock 460 Ford Performer RPM cylinder heads. As discussed above in the section on rocker arms, pushrod length should determined by checking what pushrod length yields the best centering of the rocker arm tip to valve tip contact patch. 3/8" diameter pushrods hardened to be compatible with guideplates are available in varying lengths from Comp Cams, Manley, Trend Products, and others.

VALVE COVERS:
PERFORMER RPM 460 & RPM 460 CJ - Chrome Signature Series Edelbrock valve covers #4463 are available. In general, 460 Ford valve covers clear most aftermarket rocker arms. Valve cover internal baffles need to be checked for clearance, as the baffles are usually the most common valve cover interference issue.
VICTOR JR. 460 CJ - Tall aftermarket valve covers designed to clear stud girdle systems will be required, when using a stud girdle.

INTAKE MANIFOLDS:
PERFORMER RPM 460 - Although any stock or aftermarket non Cobra-Jet intake manifold will fit, the Edelbrock Performer RPM Cylinder Heads are matched in size and operating range with Edelbrock Performer RPM intake manifold #7166. The Edelbrock Performer intake manifold #2166 will also fit for Performer level non-emission applications. Edelbrock intake manifold bolt kit #8569 is recommended for use with the #7166 or #2166 intake manifolds. Edelbrock #7223, Fel-Pro #1230, or an equivalent intake manifold gasket set is recommended. An Edelbrock Victor 460 intake manifold, #2965/#2966, can be installed on the 460 Ford Performer RPM cylinder heads, but extensive intake port entry matching needs to be done to make the Victor 460 intake fit properly. If the 460 Ford Performer RPM cylinder heads are modified to accept the Victor 460 intake manifold, Fel-Pro intake manifold gasket set #1231 is recommended. If compatibility with the Victor 460 intake manifold is desired, it may be preferable to use a RPM 460 CJ or Victor Jr. 460 CJ cylinder head.
PERFORMER RPM 460 CJ & VICTOR JR. 460 CJ - These CJ cylinder heads have intake port entries machined to accept Edelbrock Victor 460 intake manifolds #2965/2966 or any stock or aftermarket intake manifold designed for the "Cobra-Jet" style intake port entries. Fel-Pro intake manifold #1231 is recommended for these Edelbrock CJ cylinder heads. Edelbrock #7166 will fit on CJ cylinder heads if desired. Edelbrock Performer #2166 or stock intake manifolds built for a standard 429/460 cylinder head will not work with the Edelbrock CJ cylinder heads. The #2166 intake manifold mounting flanges will not cover and seal the ports openings of the RPM 460 CJ or Victor Jr. 460 CJ cylinder heads.

EXHAUST HEADERS: Any header or manifold designed for original equipment standard or Cobra-Jet cylinder heads will fit the Edelbrock Performer RPM 460, RPM CJ, and Victor Jr. 460 CJ Cylinder Heads. Exhaust ports are CNC profiled to match Edelbrock #7228 or Fel-Pro #1419 exhaust gaskets. When using headers or exhaust manifolds designed for use on standard Ford 429/460 cylinder heads use Edelbrock gasket #7228, Fel-Pro gasket #1419 or equivalent. For headers or exhaust manifolds designed for use on Ford Cobra-Jet 429/460 cylinder heads, use Fel-Pro #1420 or equivalent.

SPARK PLUGS: Use 14mm x 3/4" reach gasketed spark plugs with a 5/8 wrench hex. Heat range will vary by application. For most Performer RPM level applications a Champion RC-12YC or equivalent spark plug is a good starting point. Use anti-seize on the plug threads to prevent galling in the cylinder head, and torque to 10 ft./lbs. Do not over tighten the sparkplugs!

INSTALLATION

Installation is the same as for original equipment cylinder heads. Consult a service manual for specific procedures, if necessary. Before any final installation of the cylinder heads is performed, the cylinder heads should be pre-assembled or mocked-up on the engine. A pre-assembly check list should include:

1. Piston to cylinder head clearance - The engine should turn over by hand freely (without the piston contacting the cylinder head) with the cylinder head bolted to the engine block without the head gasket and with the sparkplugs installed.
2. Valve to piston clearance - The intake and exhaust valves should have at least a minimum amount of clearance to the piston during the entire engine cycle. The intake valve should have a minimum of .100" clearance to the piston and the exhaust should have a minimum of .120" of clearance. This is commonly checked by placing modeling clay on one piston. Rotate the engine and measure the thickness of the impression. Where an intake or exhaust valve fits into an eyebrow or relief in the top of the piston, the position of the relief and the radial clearance of the O.D. of the valve head to the relief should be verified. A minimum radial clearance of the relief to the valve head O.D. should be .030". During the engine cycle, the intake valve most closely approaches the piston at 5 to 20 degrees After Top Dead Center (ATDC) on the overlap part of the cycle.

The piston most closely approaches the exhaust valve 20 to 5 degrees Before Top Dead Center (BTDC) on the overlap part of the cycle. The valve to piston clearance must be determined after the camshaft timing is finalized. If the camshaft timing is advanced the intake valve to piston clearance is reduced. If the camshaft timing is retarded the exhaust valve to piston clearance is reduced.

3. Intake valve to exhaust valve minimum overlap clearance - In canted valve cylinder heads, the intake and exhaust valves pass by each other during the overlap portion of the engine cycle when the exhaust valve is closing and the intake valve is opening. Intake to exhaust valve clearance is affected by the camshaft timing and intake to exhaust lobe separation angle. Minimum intake to exhaust valve clearance of .040" should be maintained.

4. Rocker Geometry and Pushrod Length - For the rocker arms that will be installed, the proper pushrod length should be determined. A pushrod length of 8.550" is a good length to start with. The purchase of an adjustable length checking pushrod is a good investment to simplify finding the proper pushrod length. The pushrod length should be adjusted until the contact area of the rocker roller on the tip of the valve is best centered in the middle of the valve tip during the full cycle of the valve lift. There are three main areas to check for contact of the rocker arm body with other objects: 1. Contact between the rocker arm body and the valve spring and retainer. 2. Contact between the rocker arm body and the radius at the base of the rocker stud. 3. Contact between the stud or polylock and the clearance slot in the rocker arm body.

5. Intake Manifold Fit and Port Match - The intake manifold should sit seated on its flanges and there should be a 3/32" to 1/4" gap between the intake manifold end seals and the engine block that can be sealed with RTV silicone. All of the intake manifold bolts should pass through the intake manifold flanges without rubbing on the intake manifold bolt holes and without bottoming in the cylinder head before tightening properly. The intake runner exits should fall even with or inside the cylinder head intake port entries.

6. Head Installation - Use Edelbrock # 7314 or Fel-Pro #1018 head gasket or equivalent. NOTE: For Performer RPM 460 (Non-CJ) heads, Edelbrock Cylinder Head Gasket Set #7365 may also be used. This set includes all gaskets necessary for installation of Edelbrock cylinder heads; including intake, exhaust, cylinder head, water neck and valve cover gaskets. Follow the installation instructions for the head gasket. Be sure that the surface of the block and the surface of the cylinder head is thoroughly cleaned to remove any oily film before installation. Use alcohol or lacquer thinner on a lint-free rag to clean. Apply engine oil to the head bolt threads, washer, and bolt where it contacts the washer. The head bolt washers should be checked that they seat properly on the bolt underhead, and not on the head bolt underhead radius. Torque the head bolt 135 ft./lbs. in four steps following the factory tightening sequence (see Figure 1). A re-torque is recommended after initial start-up and cool-down (allow 2-3 hours for adequate cooling). Install the intake manifold bolts lubricated with engine oil not exceeding 25 ft-lbs of torque when tightening. It is also good practice to lubricate the exhaust manifold/headers bolt threads with a small amount of anti-seize paste. Spark plugs should also be tightened to a maximum of 10 ft-lbs of torque with the sparkplug thread lubricated with a small amount of anti-seize paste.

SPECIFICATIONS

All EDELBROCK 460 Ford Cylinder Heads:

Head bolt torque: . . . . . .135 ft-lbs
Rocker stud torque: . . . . . .45 ft./lbs.
Valve Size: . . . . . Intake- 2.19", Exhaust- 1.76"
Valve Stem Diameter: . . . . . .11/32"
Combustion chamber volume:
95cc . . . . . .60669 & 60689
75cc . . . . . .60679, 60699, 61649, 61659, & 61669
Deck thickness: . . . . . .5/8"

PEFORMER RPM 460 and RPM 460 CJ - Mechanical/Hydraulic Flat Tappet & Hydraulic Roller Camshaft Applications

Valve Spring Diameter: . . . . . 1.54"
Valve Spring Installed Height: . . . . .1.975"
Valve Spring Pressure: . . . . . 120 lbs. @ 1.975"
Max. Valve Lift: . . . . . .700"

VICTOR JR. 460 CJ - Roller Camshaft Applications Only

Valve Spring Diameter: . . . . . .1.58"
Valve Spring Installed Height: . . . . .1.950"
Valve Spring Pressure: . . . . . .235 lbs. @ 1.950"/ 610 lbs. @ 1.250"
Max. Valve Lift: . . . .730"

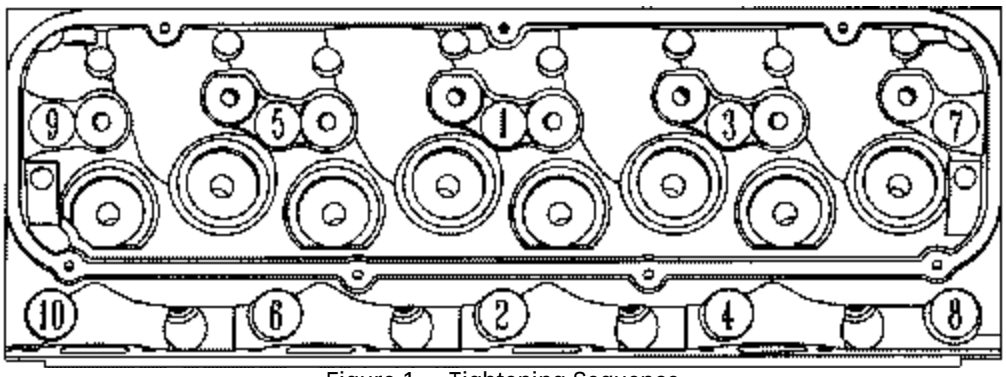

Figure 1— Tightening Sequence

PLEASE complete and mail your warranty card. Be sure to write the model number of this product in the “Part #_” space. THANK YOU.