



EDELBROCK Victor Jr. LS3 CYLINDER HEADS

CATALOG #61339 and 61349

INSTALLATION INSTRUCTIONS

PLEASE study these instructions carefully before beginning this installation. Most installations can be accomplished with common tools and procedures. However, you should be familiar with and comfortable working on your vehicle. If you do not feel comfortable performing this installation, it is recommended to have the installation completed by a qualified mechanic. If you have any questions, please call our **Technical Hotline at: 1-800-416-8628**, 7:00 am - 5:00 pm, Pacific Standard Time, Monday through Friday.

IMPORTANT NOTE: Proper installation is the responsibility of the installer. Improper installation will void your warranty and may result in poor performance and engine or vehicle damage.

DESCRIPTION: These Victor Jr. cylinder heads are designed for GM Gen III & IV LS engines. These heads provide great “out-of-the-box” performance and feature fully CNC ported 280cc intake and 85cc exhaust ports. The combustion chambers are CNC profiled to match. 61339 is drilled for standard GM Gen III & IV LS blocks while 61349 is drilled for 6-bolt per cylinder LSX blocks, but can be used on stock Gen III & IV LS blocks.

Heads are assembled with the following components:

- High quality, stainless steel, one-piece, 2.200” intake and 1.60” exhaust valves for increased flow
- 2-ring positive oil control seals
- Valve springs accept camshafts with up to .650” lift
- Titanium valve spring retainers

IMPORTANT NOTES, READ BEFORE BEGINNING INSTALLATION!

For a successful installation, the Edelbrock Cylinder Heads require some additional components. To complete your installation, you will need the following items:

- Head Gaskets:
 - 61339 - Left: 1161 L-041 / Right: 1161 R-041 or appropriate factory LS3 type.
 - 61349 - Left: 26472 L-041 / Right: 26472 R-041 or appropriate factory LSX type.
- Stock type intake manifold O-ring seals; GM #19256623 for LS3 intake manifolds.
- New cylinder head bolts or studs, with hardened steel washers.
- Heads are machined to accept stock rocker arms. Aftermarket rocker arm assemblies for Gen III & IV engines may also be used but may not be an emissions compliant configuration (for race-use or pre-pollution controlled vehicles).*
- Correct length pushrods (the required pushrod length is dependent upon camshaft base-circle diameter and any amount that has been surfaced from the heads or machined from the block. Always check for correct pushrod length.) The use of an aftermarket camshaft or altered deck heights may not be an emissions compliant configuration (for race-use or pre-pollution controlled vehicles).*
- 14mm x 17.5mm (.708”) reach, tapered seat, resistor-type spark plugs.

CHECKING PISTON-TO-VALVE, VALVE-TO-BORE AND PISTON-TO-HEAD CLEARANCES: Prior to installation, it is highly recommended that piston-to-valve clearances are checked and corrected to minimum specs, if necessary. These cylinder heads are designed to be used with factory pistons and camshafts. Use of aftermarket pistons or camshafts or any other alterations may require custom machining and may not be an emissions compliant configuration (for race-use or pre-pollution controlled vehicles).*

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Actual piston-to-valve clearance should be specified by your camshaft manufacturer. Valve-to-bore clearance should also be checked, and the top of the bore notched for clearance, if necessary.

ACCESSORIES: Although Edelbrock Cylinder Heads will accept OEM components (valve covers, intake manifold, etc.), Premium quality hardware is recommended.

HEAD BOLTS OR STUDS: High quality head studs or head bolts with hardened washers must be used to prevent galling of the aluminum bolt bosses. Edelbrock head bolt kit #8596 (Gen III) and #8595 (Gen IV) includes all head bolts needed for use with these cylinder heads. New factory head bolts may also be used. *Because factory bolts are a torque-to-yield type fastener, the old head bolts **CANNOT** be re-used.*

ROCKER ARMS AND VALVE TRAIN: These cylinder heads are designed to use the stock rocker arms or aftermarket replacement rocker arms designed for the Gen III and Gen IV engines. Due to the intake port design on these CNC-ported heads, the factory rocker bolts can optionally be shortened, or use aftermarket rocker bolts such as Edelbrock #8597.

VALVE COVERS: These cylinder heads will accept stock LS3 style valve covers.

INTAKE MANIFOLD: Cylinder Heads will accept stock intake manifolds. For race-use or pre-pollution controlled vehicles*: Edelbrock’s Super Victor Carbureted manifold for 4500 series carbs #2821, Super Victor Carbureted manifold for 4150 series carbs #2826, Pro Flo XT Manifold #7142 with fuel rail kit #3648, Super Victor EFI manifold for 4500 style throttle bodies #28215, or Super Victor EFI manifold for 4150 style throttle bodies #28265, (EFI manifolds requires fuel rail kit #3638, #3629 or equivalent). Use stock type LS3 individual port O-ring seals (GM 19256623).

EXHAUST HEADERS: These cylinder heads will accept stock exhaust manifolds. For race-use or pre-pollution controlled vehicles*: Exhaust headers and a low restriction exhaust system are highly recommended for use with these Edelbrock Cylinder Heads. Exhaust ports are CNC-profiled to match stock or Edelbrock #6962 exhaust gaskets which are recommended for this application.

SPARK PLUGS: Use 14mm x 17.5mm (.708”) reach tapered seat resistor type spark plugs. Heat range requirements will vary by application. For many applications, GM factory spark plugs or equivalent spark plugs such as Champion RS14YC6, NGK TR55, or Denso IT16 spark plugs may be used. **Use anti-seize on the plug threads to prevent galling in the cylinder head, and torque to 10 ft./lbs. Do not over tighten sparkplugs! If a short reach plug is used, poor performance and possible engine damage may occur.**

INSTALLATION: Installation is the same as for original equipment cylinder heads. Consult a factory service manual for specific procedures, if necessary. Factory manuals can be purchased direct from Helm® at: www.helminc.com. Be sure that the surface of the block and the surface of the head are thoroughly cleaned to remove any oily film before installation. Use alcohol or lacquer thinner on a lint-free rag to clean.

NOTE: Be VERY careful to remove any coolant or other fluids that may be in the cylinder head bolt holes in the block. These bolt holes are sealed at the bottom, and any fluid trapped in the holes will cause the block to crack when torquing down the bolts.

This must be done on the top rows of the block (A1-A5 - See Fig 1) as oil will be present once the factory cylinder heads have been removed. Make sure to remove all oil from these bolt holes before installing the new heads.

When using the GM factory head bolts, be sure to replace all of the bolts with new bolts, and to follow the factory recommended installation procedures. The factory bolts and installation procedures do not call for the use of oil or any lubricant on the threads. When using aftermarket bolts or studs, follow the manufacturer's recommended torque specifications **(See Figure 1 for factory tightening sequence)**.

NOTE: A Torque Angle Gauge is required for proper installation. Torque to yield fasteners are not designed to be re-torqued after installation.

SPECIFICATIONS: Victor Jr Heads

Head Bolt Torque:	See Figure 1, or use head bolt manufacturer's specifications
Deck Thickness:	5/8"
Combustion Chamber Volume:	69 cc
Valve Size:	Intake - 2.200" Exhaust - 1.600"
Valve Seats:	Hardened ductile iron, non-interlocking, compatible with unleaded fuel
Valve Spring Diameter:	Beehive type spring, 1.300" at base of spring
Valve Spring Installed Height:	1.800"
Valve Spring Seat Pressure:	130 lbs. @ 1.800"
Valve Spring Open Pressure:	327 lbs. @ 1.300"
Max. Valve Lift:	.650"
Coil Bind:	1.120"

EMISSIONS GUIDE:

***Engine Swaps:** Intended to be used with engines that have been transplanted or swapped into an uncontrolled or pre-pollution controlled vehicle, as defined above. They are not legal for use on pollution controlled vehicles.

***Pre-Pollution Controlled Vehicles:** Legal for use on pre-pollution controlled vehicles. They can be used on all vehicles that were manufactured before emissions control regulations were imposed. These vehicles are considered "uncontrolled vehicles."

Pre-Pollution controlled vehicles are defined as:

- 1965 and older U.S. manufactured California Certified vehicles
- 1967 and older U.S. manufactured Federally Certified vehicles
- 1967 and older Foreign manufactured vehicles

Figure 1 - Cylinder Head Bolt Torque Sequence
(Edelbrock and ARP head bolts only. Refer to manufacturer's recommendation if using different head bolts.)

Standard LS Blocks

(Four Bolts/Studs Per Cylinder)

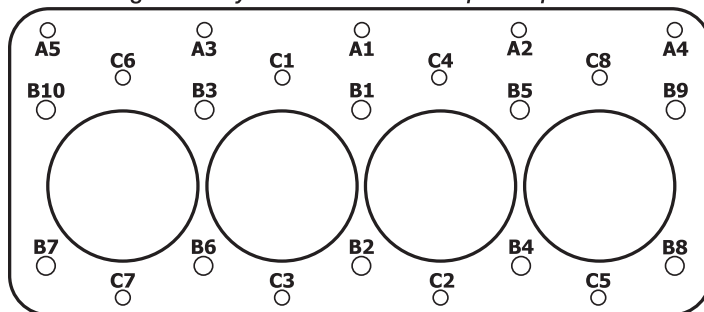
- First Pass:** Torque all M11 bolts (B1-B10) in sequence, to 25 ft./lbs.
- Second Pass:** Torque all M11 bolts (B1-B10) in sequence, to 45 ft./lbs.
- Final Pass:** Torque all M11 bolts (B1-B10) in sequence, to 75 ft./lbs.
Torque M8 bolts (A1-A5) in sequence shown to 25 ft./lbs.

LSX Blocks

(Six Bolts/Studs Per Cylinder)

- First Pass:** Torque all M11 bolts (B1-B10) in sequence, to 25 ft./lbs.
- Second Pass:** Torque all M11 bolts (B1-B10) in sequence, to 45 ft./lbs.
- Final Pass:** Torque all M11 bolts (B1-B10) in sequence, to 75 ft./lbs.
Torque M8 bolts (C1-C8) in sequence shown to 25 ft./lbs.
Torque M8 bolts (A1-A5) in sequence shown to 25 ft./lbs.

Figure 1 - Cylinder Head Bolt Torque Sequence



	(EXHAUST PORT SIDE)	
A Standard LS	8mm	Bolt/Stud
B Standard LS	11mm	Bolt/Stud
C LSX Only	8mm	Bolt/Stud

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