



# EDELBROCK GEN V LT1 CYLINDER HEADS CATALOG # 77119, 77139, 77149, 77059 & 77069

## 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.

**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:** Whether you are building a street/strip or radical drag racing engine, Edelbrock has you covered with a variety of Gen V LT1 Cylinder Heads. **NOTE: NOT intended for LT4 engine applications.**

**PN 77119** is a Performer RPM level head intended for high performance street builds. This head features the same architecture as the factory Gen V LT1 head but with a thicker deck, thicker intake/exhaust port walls, CNC'd chambers, CNC blended valve seats, larger intake and exhaust valves (2.165" & 1.600" respectively) and intake/exhaust gasket match for improved flow characteristics. Intake and exhaust ports remain in the factory locations on this head.

**PN 77139** is a Victor Jr. level head that features significant changes in the exhaust port location from a factory LT1 head that permit improvements to both intake and exhaust port flow. Despite these changes, factory intake manifolds, rocker arms, and accessory mounts have all been retained, but **custom exhaust headers are required**. The head is fully CNC ported to ensure consistent flow and performance. As delivered, the intake port utilizes a 2.200" diameter hollow stem valve with a 45° seat and the exhaust has a diameter of 1.600" and uses a 50° valve seat angle. With this valve architecture, peak flow rates are 380cfm and 260cfm respectively. This head features both LT1 and LT4 bolt patterns that will accommodate Gen V LT1 manifolds as well as LT4 supercharger manifolds.

**PN 77149** is a bare version of 77139 (no valvetrain components).

**PN 77069** is the same as 77149 but equipped with upgraded valve seat material. The intake seat is CHE B1 and exhaust is CHE Bx.

**PN 77059** is the same as 77139 but equipped with upgraded valve springs that can accommodate camshafts with lift up to .750" and engine RPM up to 7500. **WARNING: Although the valve springs installed in PN 77059 can accommodate lift up to .750", you MUST use compatible rocker trunions and other valvetrain components that do not limit lift or engine damage will occur.**

### IMPORTANT NOTES, READ BEFORE BEGINNING INSTALLATION!

For a successful installation, the Edelbrock Cylinder Heads require some components other than original equipment parts. To complete your installation, you will need the following items:

- New OEM cylinder head gaskets or equivalent.
- OEM type intake manifold O-ring seals for Gen V LT1 intake manifolds. **Factory seals can be reused.**
- New cylinder head bolts or studs, with hardened steel washers.
- Correct length pushrods (Required pushrod length depends upon camshaft base-circle diameter and any material machined from the heads and/or block. You MUST check for correct pushrod length.)
- New OEM style spark plugs. Heat range depends on application.

**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 have larger-than-stock valve sizes and although they are designed to accept factory pistons, it is possible the use of aftermarket pistons may require additional clearance cuts. Actual piston-to-valve clearance should be specified by your camshaft manufacturer. Valve-to-bore clearance should also be checked.

**ACCESSORIES:** Although Edelbrock Cylinder Heads will accept most OEM components (valve covers, intake manifold, etc.), we highly recommend that premium quality hardware be used with your new heads.

**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. New production head bolts may also be used. **Because factory bolts are a torque-to-yield type fastener, the stock 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 V LT1 engine. **WARNING: Although the valve springs installed in PN 77059 can accommodate lift up to .750", you MUST use compatible rocker trunions and other valvetrain components that do not limit lift or engine damage will occur.**

**VALVE COVERS:** These cylinder heads will accept OEM or equivalent valve covers.

**INTAKE MANIFOLD:** These cylinder heads will accept stock intake manifolds as well as popular aftermarket intake manifolds designed for Gen V LT1 Engines.

**EXHAUST HEADERS:** For optimum performance, 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 exhaust gaskets which are recommended for this application. **IMPORTANT: The Exhaust Ports are moved 1.5" Forward on the Driver side and 1.5" back on Passenger side on PN 77139, 77149, 77059 and 77069.**

**SPARK PLUGS:** Edelbrock Gen V LT1 Cylinder Heads are designed to use OEM or equivalent spark plugs. Optimal spark plug heat range will depend on the application. **Use a small amount of 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. 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.

When using the GM factory torque-to-yield 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 FOR: 77119 Performer RPM Complete Cylinder Head**

Head Bolt Torque:	See Figure 1, or use head bolt manufacturer's specifications
Deck Thickness:	.750"
Combustion Chamber Volume:	58cc
Intake Port Volume:	305cc
Exhaust Port Volume:	120cc
Valve Size:	Intake - 2.165" 8mm Stem Exhaust - 1.60" 8mm Stem
Valve Guide Material:	Bronze
Valve Spring Retainers:	Steel
Valve Seats:	Hardened ductile iron, interlocking, compatible with unleaded fuel

**SPECIFICATIONS FOR: 77139/77059 Victor Jr. Complete Cylinder Heads**

Head Bolt Torque:	See Figure 1, or use head bolt manufacturer's specifications
Deck Thickness:	.750"
Combustion Chamber Volume:	57cc
Intake Port Volume:	338cc
Exhaust Port Volume:	127cc
Valve Size:	Intake - 2.200" 8mm Stem Exhaust - 1.60" 8mm Stem
Valve Guide Material:	Bronze
Valve Spring Retainers:	Titanium
Valve Seats:	Hardened ductile iron, interlocking, compatible with unleaded fuel

**VALVE SPRING INFORMATION FOR 77119 & 77139:**

Valve Spring Diameter:	1.300" at base of spring
Valve Spring Installed Height:	1.800"
Valve Spring Seat Load:	138 lbs. @ 1.800"
Valve Spring Open Load:	326 lbs. @ 1.200"
Max. Recommended Valve Lift:	.680" (.050" clearance)
Spring Solid Height (Coil Bind):	1.070"

**VALVE SPRING INFORMATION FOR 77059:**

Valve Spring Diameter:	1.325" at base of spring
Valve Spring Installed Height:	1.800"
Valve Spring Seat Load:	160 lbs. @ 1.800"
Valve Spring Open Load:	460 lbs. @ 1.200"
Max. Recommended Valve Lift:	.750" (.050" clearance)
Spring Solid Height (Coil Bind):	.991"

**Figure 1 - Cylinder Head Bolt Torque Sequence**  
(For NEW factory TTY head bolts only. Refer to manufacturer's recommendation if using different head bolts.)

**Internal Head Bolt Torque Sequence (Bolt # 1, 3, 5 & 9):**

- First Pass:** 59 lb/ft In Sequence
- Second Pass:** 90 Degree Turn In Sequence
- Final Pass:** 40 Degree Turn In Sequence

**External Head Bolt Torque Sequence (Bolt # 2, 4, 6, 8 & 10):**

- First Pass:** 59 lb/ft In Sequence
- Second Pass:** 90 Degree Turn In Sequence
- Final Pass:** 60 Degree Turn In Sequence

