EDELBROCK E-CNC LS3 CYLINDER HEADS
CATALOG #61319 and 61329
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 E-CNC LS3 cylinder heads are designed for LS3 engines and are ideal upgrades for cathedral port or 3.89" bore LS applications. These heads provide great "out-of-the-box" performance and feature CNC-ported 230cc intake and 80cc exhaust ports. The 69cc combustion chambers are CNC profiled to match. 61319 is drilled for standard LS blocks while 61329 is drilled for 6 bolt LSX blocks.

Heads are assembled with the following components:

- ❑ High quality, stainless steel, one-piece, 2.135" intake and 1.55" exhaust valves for increased flow
- ❑ 2-ring positive oil control seals
- ❑ Valve springs accept camshafts with up to .650" lift
- ❑ Steel valve spring retainers

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:

- ❑ Head Gaskets:
  61319 - Left: 1161 L-041 / Right: 1161 R-041 or appropriate factory LS3 type.
  61329 - 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.
- ❑ Correct length pushrods (The required pushrod length is dependent upon camshaft base-circle diameter and the amount that has been surfaced from the heads or machined from your block. You will need to check for correct pushrod length.)
- ❑ 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 valve-to-piston 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 in most cases, it's possible the use of aftermarket pistons and/or custom machining of your pistons may be required. Actual valve-to-piston 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 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. Edelbrock head bolt kit #8596 (Gen III) and #8595 (Gen IV) includes all head bolts needed for use with these cylinder heads. 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 III and Gen IV engines. **Aftermarket stud & guideplate rocker arm conversions require machine work to the rocker stud pad for proper guideplate placement.** Due to the larger intake port design on these CNC-ported heads, the factory rocker bolts will need to be shortened, or you may use aftermarket rocker bolts.

VALVE COVERS: These cylinder heads will accept stock center-bolt design valve covers. Engines originally equipped with perimeter bolt valve covers will need to convert to center bolt valve covers. Perimeter bolt cylinder heads are found on 1997, 1998, and some 1999 vehicles.

INTAKE MANIFOLD: Cylinder Heads will accept stock intake manifolds, as well as Edelbrock's Super Victor Carbureted manifold for 4500 series carbs #2821, Super Victor Carbureted manifold for 4150 series carbs #2826, 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: 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 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 plus 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: E-CNC 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 - 2.135" Exhaust - 1.55"
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"

Figure 1 - Cylinder Head Bolt Torque Sequence

(Edelbrock and ARP head bolts only. Refer to manufacture's recommendation if using different head bolts.)

Standard LS Blocks

(Four Bolts/Studs Per Cylinder)

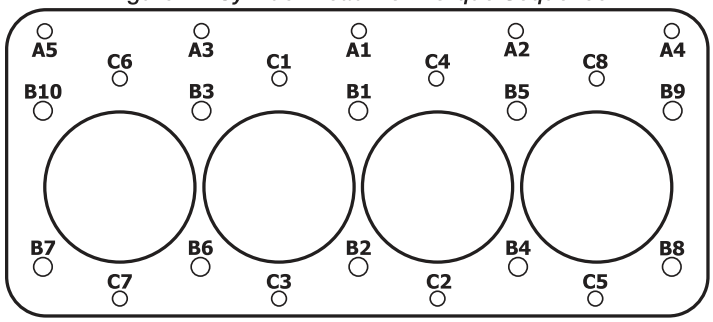
First Pass:	*Torque all M11 bolts (B1-B10) in sequence, to 25 ft./lbs.*
Second Pass:	*Torque all M11 bolts (B1-B10) in sequence, to 45 ft./lbs.*
Final Pass:	*Torque all M11 bolts (B1-B10) in sequence, to 75 ft./lbs.* *Torque M8 bolts (A1-A5) in sequence shown to 25 ft./lbs.*

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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