LS Series Components

After more than a half century of tweaking, tuning and tinkering, you might think that the world knew everything there was to know about the Chevrolet small-block engine. We knew better. While the basic small-block architecture is as bulletproof as one could hope for, our engineers realized that there were still limitless possibilities for this tried and true powerplant.

When the LS series of engines was introduced, this thinking was proudly put on display. And, the continual parade of new engines within this series proves that there is no shortage of innovative thinking still going on.

For enthusiasts that is good news, indeed.

Not only have GM Performance Parts' engineers come out with new crate engines, but they also have expanded the components available to enthusiasts to build their own special brand of Mouse from scratch.

And, unlike the guesswork associated with other aftermarket parts, with GM Performance Parts, a builder can be assured of the highest quality and craftsmanship—and compatibility. Our parts have been engineered to work together, by the very people who developed the engine assemblies in the first place. And, if that weren’t enough, they are validated to the highest industry standards—and carry a fantastic guarantee, further ensuring that you’ll be happy with your purchase for the long haul.

From blocks, heads and reciprocating parts to chrome dress-up accessories, you can find everything you need right in one convenient place—the GM Performance Parts catalog.

So, go ahead and dream a little. Flip through the following pages and let GM Performance Parts make those dreams a reality.
Getting Started with the LS Engine family

CONFUSED ABOUT LS ENGINES? FIND ANSWERS HERE!

The LS engine family is relatively new to the performance world, and because of this, there's a lot of confusion and all around lack of knowledge of these engines and their respective components. LS1, LS2, LS6, LS7 ... which parts are interchangeable, which parts are upgrades and which are downgrades?

Over the next couple pages we’re going to explore and discuss the many differing aspects and compatibility of the many LS components available today from GM Performance Parts. This will include the main components, such as blocks, heads, intakes, cams, crankshafts, and valve train. There's a ton of good information packed here, so if you know which parts you have interest in, you can skip ahead if you don’t have time right now to take it all in. Otherwise, sit back in a comfortable recliner and read from start to finish to learn 90% of what you’ll ever need to know about the LS small-block engine family.

SHORT BLOCKS

are going to start off with the short block, and the foundation of every engine—the engine block. Since its first offering in 1997 all the way to today, most of the characteristics of the small-block Gen III/Gen IV LS engine block have remained relatively unchanged. Every OEM block shares these distinct features: 6-bolt cross bolted mains, center main thrust bearing, 9.24' deck height, 4-bolt per cylinder head bolt pattern, main GM breathing window, 0.40' bore spacing, and .842' diameter lifter bores. Something to also note, the oiling system on every block will work with the standard wet sump system of non-LS7 engines, the dry sump system used on the LS7, as well as aftermarket dry sump oiling systems.

The real differences between the Gen III and Gen IV blocks are simple to recognize. Gen III blocks have cam sensing in the top rear of the block. Gen IV blocks rely on a sensor in the front timing cover. Gen III blocks generally do not have AFM capability, Gen IV generally do have these provisions.

LS1/LS6

LS1 blocks were produced from 1997 through 2000 and used for LS6 engines, as well. They are cast aluminum with iron cylinder liners with a stock bore size of 3.89'. This is a non-siamese bore block, over-boring is limited to .030. The liners were designed for a stock stroke of 3.6'. Straker combinations should be limited to around 4.00' (piston design will determine max stroke). These blocks have Gen III cam sensing provisions, but Gen IV cam sensing provisions, through the use of a Gen IV front timing cover to accommodate cam sensing. There are no provisions for AFM. Due to its racing design, increased engine size, increased max RPM, and to increase power output, the main bearing bulkheads are machined with bay-to-bay breathing windows. The main caps are high strength billet steel, and are dowel located, Due to its larger bore size, all LS small-block heads will work with this block, including LS7 and C5R racing heads. Premium head studs are also included.

LS2

LS2 blocks have been in use since 2005. They are cast aluminum with iron cylinder liners with a stock bore size of 4.00'. This is a non-siamese bore block, over-boring is limited to .030. The liners were designed for a stock stroke of 3.6'. Straker combinations should be limited to around 4.00' (piston design will determine max stroke). They use Gen IV cam sensing provisions through the use of a Gen IV front timing cover. Provisions for AFM are present. Main bearing bulkheads are solid, and the main caps are iron. Due to its slightly bigger bore size, only LS1, LS6 and LS2 heads will work with this block.

LS7

LS7 blocks have been in use since 2005. They are cast aluminum with iron cylinder liners with a stock bore size of 4.125'. This is a siamese bore block, and over boring is limited to .030. The liners were designed for a stock stroke of 4.00'. Straker combinations should be limited to around 4.12' (piston design will determine max stroke). They use Gen IV cam sensing provisions through the use of a Gen IV front timing cover. Provisions for AFM are not present. Due to increased engine size, increased max RPM, and to increase power output, the main bearing bulkheads were designed with bay-to-bay breathing windows. The main caps are high strength billet steel, are dowel located and are secured with LS7 fasteners. The deck height is .020' taller than stock to accommodate various engine builds. The head bolt pattern has been upgraded from the stock 4-bolt per cylinder design to include an additional 2-bolts per cylinder. Depending on final bore size, any LS small-block head will work with this block, including LS7 and CSR lacing heads. The oiling system was redesigned to a true priority sump for enthusiasts who will be using an aftermarket dry sump oiling system, or a scavenging pump system.

LSX Bowtie Block

LSX Bowtie blocks were introduced in 2007. They are cast from a more durable, stronger cast iron than production iron blocks. Stock bore size is 3.99' with .010' stock for honing to 4.000'. This is a siamese bore block with a recom-
CRANKSHAFTS

Most Gen III and Gen IV crankshafts are near-identical in design, all use the same rod and main journals sizes, all use the same rear seal. But the LS7 are iron. One major difference that needs to be noted is that the LS7 crankshaft has a snout that is approximately 1" longer than all other crankshafts. This is to accommodate the 2-stage oil pump used on the LS7 engine. Otherwise, there are some minor variances, and these can be found below.

4.8L

The 4.8L crankshafts are iron crankshaft with 2.1" rod journals and 2.65" main journals. The stroke is 3.267" and is designed to work with a connecting rod length of 6.275". They started out with a 24-tooth reluctor wheel and this was used through the 2007 model year in the classic 800 series trucks. However, in 2007 starting with the 900 series full-size truck, they were changed to 58-tooth. The cross-shaft is longer than all other crankshafts by approximately 1". This crankshaft can be used with standard LS oil pumps. Here’s what you need to do: replace the crankshaft timing gear with the standard LS gear (PN 12556682), replace the LS7 oil pump with the standard LS all pump (PN 17801830), replace the LS7 timing cover with the LS2 timing cover (PN 12600325). From here you have two choices: a 1" spacer hub can be used in front of the LS7 balancer to make up the difference in length between the two crank gears using the stock LS7 balancer bolt, or you can have the crankshaft snout shortened and use an LS2 type balancer bolt. Or you can use the new GMPP 4-stroke crankshaft (PN 19171619).

5.3L-6.2L

The crankshafts used in 53L-6.2L engines are iron with 2.1" rod journals and 2.65" main journals. The stroke is 3.622" and is designed to work with a connecting rod length of 6.100". They started out with a 24-tooth reluctor wheel, but changed to 58-tooth in 2006. Each engine has a unique part number for its crankshaft assembly due to balancing differences of the piston weights.

7.0L

The LS7 70L crankshafts are steel crankshafts with 2.1" rod journals and 2.65" main journals. The stroke is 4.000" and is designed to work with a connecting rod length of 6.070". All LS7 crankshafts came with 58-tooth reluctor wheels. Due to the 2-stage oil pumps used in the LS7 engines, the nose of the crankshaft is longer than all other crankshafts by approximately 1". This crankshaft can be used with standard LS oil pumps. Here’s what you need to do: replace the crankshaft timing gear with the standard LS gear (PN 12556682), replace the LS7 oil pump with the standard LS all pump (PN 17801830), replace the LS7 timing cover with the LS2 timing cover (PN 12600325). From here you have two choices: a 1" spacer hub can be used in front of the LS7 balancer to make up the difference in length between the two crank gears using the stock LS7 balancer bolt, or you can have the crankshaft snout shortened and use an LS2 type balancer bolt. Or you can use the new GMPP 4-stroke crankshaft (PN 19171619).

CONNECTING RODS

The connecting rods are all very similar. All rods except for LS7 are powder metal steel, whereas LS7 rods are titanium. 4.8L rods are 6.275" long, 7.0L LS7 rods are 6.067" long, and all the rest are 6.066" long. Starting in 2006, all rods are now made with bushed small ends (with a .010" pin end). If you have a set of earlier model LS rods (pre-2006), we offer LS6 upgrade bolts (PN 11160158) for performance use. As mentioned before, the LS7 rods are titanium, but there are also a couple other items of interest we should discuss. First off, the small end of the rod is scalloped on the top half of the rod to clear the inner bracing of the piston due to the bracing of the piston. Non-LS7 rods will not work with LS7 pistons. Additionally, the bore in the big end is a little different size than that of a LS7 rod, necessitating a different rod bearing (PN 890175731). The bolts in the LS7 rod are stretch to yield, and need to be replaced at each rebuild. GM Performance Parts offers a convenient kit of 16 as PN 11699825.

PISTONS

The LS pistons are very similar. All are made of hypereutectic aluminum and should not be used in applications exceeding 550hp. The biggest difference between them all is bore size. 4.8L and 5.3L pistons are identical to each other. As mentioned in the connecting rod section, the inner bracing of the LS7 piston requires a uniquely designed LS7 rod. Opposite to this, the LS7 rods should fit any LS piston, but doing this would require checking piston-to-crankshaft clearance at BDC.
HEADS AND INTAKES

In this section we're going to talk about the induction system—the heads and intake manifolds. First we need to start off with the aspect that offers the most can union: port designs.

The LS family employs 3 different port designs. Each one is unique, and is not compatible with the others.

Port Designs

Cathedral Ports

The first port design is called the cathedral port. This is the original port design for the LS family. Picture A shows what the ports look like. These ports flow considerably more air than the original small block ports.

LS7 Rectangular Ports

The second port design is referred to as the LS7 rectangle port. It was first introduced in the 2006 Z06 Corvette LS7 7.0L engine. It is still dedicated only to the LS7 engine today. Picture B shows what this port looks like. It was originally derived from the CSR racing program, and tweaked for use in OEM applications. This head has the biggest airflow numbers of any of the factory LS heads.

L92 Rectangular Ports

Next is the L92 rectangle port. It was first introduced in 2007 RPO code L92 6.2L engines that were installed in Cadillac Escalades and also in 2007 RPO code L76 6.0L engines in 900 series trucks. Picture C shows this port design. It is similar to the LS7, but the ports are a little taller, and a bit thinner. These heads flow lower than the cathedral port heads, but a little less than the LS7 heads. The new 2008 LS3 uses ports of the same design as the L92.

CSR

Lastly, we have the CSR ports. These heads were designed strictly for the CSR racing program. Again, this was the original rectangle port design before being adopted into the LS7 and L92 head programs. These ports are rectangle in shape, and have very high flow and power potential numbers, but are sold only as a head porters head ... they need to be fully ported by a professional head porter.

Bolt Patterns & Fitment

One of the most important things to know about the heads is that each port design has not only a unique shape, but each design has a unique intake manifold bolt pattern. This is good for you, because you don't need to concern yourself with mismatched port designs. In pictures A, B, and C, it's easy to see these differences in these patterns. The exhaust bolt patterns, however, are all the same, and most headers will fit them all. The location of the bolt pattern varies slightly, so header to frame or body clearance may vary depending on which head is used. Otherwise, all other bolt patterns for the heads are the same. All accessory bolt holes and head mounting holes are identical.

Valve Sizes, Valve Locations & Minimum Bore Sizes

Each head design uses a specific valve size, & location, along with specific valve angles. These specifics are discussed below.

Cathedral Port Heads

These heads were designed to work on smaller engines with smaller 3.89" bore sizes, and because of this, they have the smallest valve sizes, which in part is a factor in why they flow the least of the LS series of heads. These heads all came with 2.000" in-ake, and 1.500" exhaust valves. Because these heads were designed for the smaller bore engines, they also have closest valve spacing and maximum valve sizes are limited. To achieve an increased maximum RPM on LS6 engines, the standard solid stem valves were replaced with hollow stem make valves, and sodium filled exhaust valves. When the LS2 was designed, the engine was larger, thus reducing the max RPM. This offered a savings because the expensive LS6 valves could be replaced with standard LS1 valves.

I92 Style Heads

These heads were designed to work on slightly bigger engines with slightly bigger 4.00" and 4.06" bore sizes. Because of this, they have bigger valve sizes and increased flow numbers over non-CNC ported cathedral port heads. They come with 2.060" intake, an 1.590" exhaust valves, and were designed to be optimized for the 4.060" bore, therefore perform better on engines with a minimum of 4.065" bore. To achieve an increased maximum RPM on LS3 engines, the standard solid stem valves were replaced with hollow stem.
These heads were designed to work on engines with 4.125" bore sizes. They have accommodation for 2.20" intake, and 1.65" exhaust valves. Due to the valve sizes and valve spacing, these heads cannot be used on engines with less than 4.10" bore size. Valve angle is 11 degrees and valve spacing is unique, therefore, when using these heads on an engine originally fitted with pistons not designed for CSR heads, valve to piston clearance must be checked.

VALVETRAIN

The valve train system on the LS series engine is very simple. All production heads use bolt down style, investment cast, roller trunnion rockers. All rocker ratios are 1.7:1 except for LS7, which are 1.8:1. The rocker designs for each head are specific, and the part numbers shown below are the only part numbers that will work with each head. To help identify these rocker systems see pictures O, E, and F.

LS1, LS6 and LS2 heads use non-offset rockers, PIN 10214664 for both the intake and exhaust. (Picture O)

LS2 and LS3 heads use the same PIN 10214664 rocker for the exhaust, but use an offset rocker PIN 12559187 on the intake side. These are offset due to the wide opening of the port. (Picture F)

LS7 heads use unique, non-offset, rockers, PIN 12579617, for the exhaust, and unique, offset, PIN 12579615, for the intakes. (Picture E)

CSR heads use aftermarket shank mount style rockers only.

HEAD-TI-BLOCK FITMENT

Now that we’ve discussed the individual aspects of the parts you are going to use to build your engine, now we need to focus on which heads will actually work with which blocks. We’ve broken this down to stock production blocks, and aftermarket type blocks. See the chart at the bottom of this page for complete part number compatibility.

Production Blocks

Because LS1 and LS6 blocks have such a small bore size (3.89”) with very little room to overbore, they can only use LS1, LS6 and LS2 type heads. Attempting to use any other type of head will cause the valves to hit the block. LS2 blocks have a 4.00" bore which allows for more valve clearance. Not only can you use LS1/LS6 heads, but also LS92/LS3 heads. LS2 and LS3 blocks with their 4.065" bore can only use L92/LS3 and LS/LS6 heads. CSR and LS7 blocks have 4.125 bores and can use any of the LS heads. All production blocks have the same head bolt pattern and use the same diameter bolts: 4.11 mm bolts per cylinder (10 bolts total per sled and 5 upper, 8mm bolts). Early model blocks like the LS1 and LS6 have 2 different length 11 mm bolts, but the 2004 and newer blocks have bolts that are all the same length.

Aftermarket Blocks

Aftermarket blocks, such as our LSX Bowtie block, have generous bore ranges, so it’s critical to understand the minimum bore sizes to use each head type. LS1/LS6/LS2 heads require a minimum of 389” bore, anything smaller than this runs the risk of having a valve-to-block clearance problem, and head gasket sealing failure. LS92/LS3 heads require a minimum of 4.00”, but work better on 4.065” and larger bores. Bores smaller than a 4.00” could cause valve-to-block interference, and be a potential for head gasket sealing issues. LS7 and CSR heads require a minimum of 4.10” bore, but work better on 4.125” and larger bores. Bores smaller than a 4.10” could cause valve block interference, and be a potential for head gasket sealing issues.

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**LS Compatibility Chart**

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**Heads vs. Blocks**

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*No nor compatible = direct compatibility
- 4.00 minimum bore
- 4.125 minimum bore

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**Engine PIN Numbers**

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## GM Performance Parts and Racing

Performance Parts has been a part of the racing scene since the division's inception. Originally founded to support the GM Trans Am teams, GM Performance Parts also became critical components on cars campaigned on the NASCAR and NHRA circuits.

Through strategic alliances, GM Performance Parts was able to get design input and product evaluations from some of the greatest teams and drivers.

Such high-profile stars as Dale Earnhardt and Warren Johnson made great contributions to GM Performance Parts’ popularity and track credibility. Earnhardt won seven NASCAR titles in Chevrolets, and Warren Johnson has netted six NHRA championships in his GM Pro Stock cars and hasn’t shown any signs of letting up anytime soon.

There is no laboratory like a racetrack to show what an engine or component can do-and there’s no validation like a checkered flag to let you know you’ve passed the test.

At GM Performance Parts, we’re proud to align ourselves with the best minds in motorsports—and to take the lessons learned and apply them to the parts we make available to all performance enthusiasts.

LS SERIES BLOCKS

GM took a chance with the LS engine. They stayed true to the pushrod small-block and continued to develop this technology to the point that building a daily-driven, 500-plus horsepower car is no big deal. The GM Performance Parts LS series cylinder blocks are designed specifically for late model small-block engines that run the LS Family cylinder heads. These include the LS1, LS2, LS3, LS6, LS7, L04, L09, L76 and L92. Our LS block selection ranges from a stock replacement all the way up to our LSX Bowtie block designed to support over 2000 horsepower!

A. 12561166 REDUCED PRICE!

LS1/LS6 5.7L Bare Block
Direct replacement for 2001-2004 LS1 and LS6 Corvette 5.7L
Production 319-T5 aluminum block with iron sleeves
Production oiling system
6-bolt iron main bearing caps
9.240" deck height
Use LS1/LS6 cylinder heads only
3.89" finished bore (99.0mm)
No provision for Active Fuel Management
Tested to over 400 horsepower
12572808

LA5 Cast Iron 6.0L Bare Block (not shown)
Direct replacement for 1998-2004 LQ4 and L09 Truck and SUV 6.0L
Production cast iron block
Production oiling system
6-bolt iron main bearing caps
9.240” deck height
Use only LS1, L56, L52 or L92 cylinder heads
No provision for 'Active Fuel Management'
Great for stroker cranks for even more cubes
Tested to over 500 horsepower!

12568950

LA8 Aluminum 6.0L Bare Block (not shown)
Production 319-T5 aluminum block with iron sleeves
Production oiling system
6-bolt iron main bearing caps
9.240” deck height
Use only LS1, L56, L52, L92 or LS3 cylinder heads
Provisions for 'Active Fuel Management'
Great for stroker cranks for even more cubes
Tested to over 450 horsepower!
A. 12584727 EW

L92/LS3 Aluminum 6.2L Bare Block
Direct replacement for 2007-2008 L92 and 2008 LS3 6.2L
Production aluminum block with iron sleeves
Production oiling system
6-bolt iron main bearing caps
9.240" deck height
Use only LS1, LS6, LS2, L92 or LS3 cylinder heads
4.065" finished bore (103.25 mm)
Provisions for ‘Active Fuel Management’
Great for stroker cranks for even more cubes
Tested to over 500 horsepower!
The LS Series Blocks Continued

A. 17802854
IS7 7.0l Corvette Bare Block
• Direct replacement for 2006-2008 HO/IS7 engine
• Production 319-T5 aluminum block with pressed-in iron sleeves
• Production oiling system
  6-bolt "dowel located" steel main bearing caps
• 9.240" deck height
• For use with any LS series head
• 4.125" finished bore (104.78mm), deck plate honed
• Siamese cylinder bores for larger bore sizes
• No provision for Active Fuel Management
• Based on C5R block development
• Tested to over 500 horsepower!

Parts required to complete your IS7 Block

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<td>1</td>
<td>Plug</td>
</tr>
<tr>
<td>09427693</td>
<td>1</td>
<td>Crankshaft Position Sensor</td>
</tr>
</tbody>
</table>

25534427
IS7 Bare Block with Solid Main Bulkheads (not shown)
• 319-T5 aluminum block with pressed-in iron sleeves
• Production oiling system
• 6-bolt "dowel located" steel main bearing caps
• 9.240" deck height
• For use with any LS series head
• 4.125" finished bore 110478mm, deck plate honed
• Siamese cylinder bores for larger bore sizes
• No provision for Active Fuel Management
• Fully machined with caps and pressed-in liners
• Limited availability
• For competition use only
• Made to IS7 production standards for machining and cleanliness
• Based on C5R block development
• Tested to over 500 horsepower!

25534412
Oil Hose Adapters (not shown)
• Kit adapts the production IS7 Oil Pan to aftermarket AN style hoses for aftermarket dry sump oil tanks
• Bolts directly to IS7 Oil Pan, and has AN male outlet for -12 AN fittings
• Includes (1) adapter, (2) fittings, (21 bolts, and (21 sealing gaskets
B. 12480030
Aluminum C5R Racing Block
This is the ultimate race version of the aluminum LS block, which enjoys the state-of-the-art technology necessary to build an LS engine to over 440 cubic inches, and 900 horsepower! Our C5R race block has seen serious race time (including wins at LeMans, GT5, and the 24 hours of Daytona). If you are building a "big" small-block for your late model Camaro, Firebird, or Corvette, this is the aluminum block for you.

- Premium "hipped" and x-rayed 356-T6M aluminum block
- Production oiling system
- 6-bolt SAE 8620 dowel located steel main bearing caps
- SAE 4340 premium main cap fasteners
- 9.240" deck height
- For use with LS1, LS6, LS2, LS3, LS2, L92, LS3 and LS7 cylinder heads
- C5R spec, special material cylinder liners
- Siamesed water jackets for larger bore size
- 4.117" finished bore
- 4.160" max bore
- Standard camshaft location and bore sizes
- 100% CMM measured for accuracy
- Completely "blueprinted" and "squared"
- Includes 4340 premium head studs
- AN O-ring plugs throughout
- No provision for Active Fuel Management!
- Capable of over 900 horsepower!
The next generation of high performance GM blocks has been released! It’s the amazing LSX Bowtie block, designed from the ground up to deliver maximum value while providing you with the foundation to build the LS engine of your dreams.

GM Performance Parts, working with NHRA Pro Stock legend Warren “The Professor” Johnson, designed the LSX block to be the ultimate high performance LS block. Our goal was to bring the LS community race block technology at street car prices. Just like every engine part in the GM Performance Parts portfolio, the LSX Bowtie block is held to the highest industry standards for tolerances, materials, and construction.

We think that you’ll find the LSX to be the ultimate in high performance LS engine block—check out these features:

- 100% CNC-machined cast iron
- True priority main oiling
- 6 head bolts per cylinder
- Standard 4.400” bore spacing
- Extra thick siamese cylinder bores
- Fully machined bores, ready to hone to fit
- Semi-finished, machined decks, ready to be decked to your specs
- Increased deck thickness
- LS7-style 6-Bolt “dowel located” billet main bearing caps
- Wet sump and dry sump capability
- Deep skirted head bolt holes (same as OEM aluminum blocks)
- All stock bolt holes are stock thread size
- Maintains all OEM LS family exterior mounting features
- Front motor plate mounting holes added
- Added material around cam bearings for additional strength
- 8mm exterior/interior 5th and 6th head bolt holes
- All 5 cam bores machined for bearing PIN 12453169 (supplied)
- Standard .842” lifter bores
- Screw-in soft plugs
- Accommodates any LS small-block oil pan and oil pump
- External oil pump feed at rear of block
- Main web bay to bay breathing holes for increased horsepower
- Access windows for cylinder head stud access (intake side)
- Extra breathing pocket added near starter for better windage
- Includes unique new cam retainer, rear cover, lifter retainers and OEM replacement cam bearings

1. 19166454
   LSX Bowtie Block (Standard Deck)
   3.990” finished siamese cylinder bores (ready to be honed to your specifications)
   9.26” semi-finished standard deck height (ready to be decked to your specifications)
   Max 4.250” recommended stroke
   Capable of 364 to 482+ cid
   Orange powder coat finish
   Accepts all Gen III & IV LS heads, cranks, cams, etc.
   Approximate finished weight: 225 lbs.

The LSX Block includes the following:

- 19166177 Cam Thrust Plate
- 19166178 LSX Rear Cover
- 19166182 Tappet Guides

A. LSX Bowtie Block (front)
B. LSX Bowtie Block (rear)
C. LSX Bowtie Block (Standard Deck)
For the advanced ISX competition engine builder, you will fully enjoy reading the following features of the new ISX Bowtie Block:

- Front oil feed holes can be plugged/restricted for mechanical flat tappet or mechanical roller lifter applications
- Can be machined safely to 920" deck height
- Main bearing cap bolt threads can be machined for aftermarket premium 12mm fasteners
- Maximum 4.250" bore at .200" minimum wall thickness (naturally aspirated applications)
- 6-bolt head bolt pattern (for boosted applications)
- Machined for 8mm inner and outer 5th and 6th head bolts
- Standard bolt holes can be machined for 1/2" studs
- Cam bores can be machined to accept 60mm roller bearings
- Can be machined for larger diameter lifters and/or 1.060" bronze bushings
- Front oil feed lines can be plugged and external oil pump and/or aftermarket dry sump systems can be used via oil pump feed at rear of block—may be required with certain large stroke/aluminum rod combinations
- Belt cam drive systems can be accommodated—some machining will be required
- External oil pump feed at rear of block
- 7th transmission bolt hole has been added (per early SBC), stud can be installed for sanctioning body requirements
- Front motor plate can be used for racing chassis applications (sprint car, drag racing, truck pulling, etc.)
- Threaded water plugs can be used for external heaters or coolers

The LSX block made its public debut at the 2006 SEMA show in the Reggie Jackson '69 Camaro project car—a joint effort between GM Performance Parts and GM Performance Division. This car also starred in a Hot Rod TV episode—the first to air on ESPN. The engine that powers this amazing "evolved Camaro" features a 454-cubic-inch LSX short block, prototype LSX cylinder heads, an LS7 carbureted intake manifold, a pump gas-friendly compression ratio, and over 640 horsepower. This is just a sample of what you can do with your own LSX block!

Look for the LSX block to spawn LSX-specific cylinder heads, intakes, cams, and crate engines. And, watch for GM Performance Parts to continue to lead the industry in value-based high performance engine blocks, components, and crate engines.

B. 19166097 NEW

ISXTall Deck Block

3.990" finished siamese cylinder bores (ready to be honed to your specifications)
9.70" semi-finished standard deck height (ready to be decked to your specifications)
Max 4.50" recommended stroke (some additional machining required)
Capable of 364 to 500+ cid (some machining may be required)
Orange powder coat finish
Accepts all Gen III & IV LS heads, cranks, cams, etc.
Approximate finished weight: 250 lbs.
### CYLINDER BLOCK COMPONENTS

**A. 19153789 NEW**

Bare Block Completion Kit, Gen III  
- Includes all parts to complete a Gen III bare block

The kit includes:

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>12575742</td>
<td>01</td>
<td>Valley Cover</td>
</tr>
<tr>
<td>12556121</td>
<td>01</td>
<td>Cam Sensor</td>
</tr>
<tr>
<td>11570082</td>
<td>08</td>
<td>Bolt</td>
</tr>
<tr>
<td>12561243</td>
<td>01</td>
<td>Front Cover</td>
</tr>
<tr>
<td>11515758</td>
<td>08</td>
<td>Bolt</td>
</tr>
<tr>
<td>12614813</td>
<td>01</td>
<td>Rear Crankshaft Seal Housing</td>
</tr>
<tr>
<td>12556127</td>
<td>12</td>
<td>Bolt</td>
</tr>
<tr>
<td>12602972</td>
<td>01</td>
<td>Rear Crankshaft Oil Seal</td>
</tr>
<tr>
<td>12614812</td>
<td>01</td>
<td>Rear Crankshaft Seal Housing Gasket</td>
</tr>
<tr>
<td>12618054</td>
<td>01</td>
<td>Oil Galley Plug</td>
</tr>
<tr>
<td>12614814</td>
<td>01</td>
<td>Rear Crankshaft Seal Housing Gasket</td>
</tr>
<tr>
<td>11588949</td>
<td>02</td>
<td>Oil Plug</td>
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<tr>
<td>09427603</td>
<td>04</td>
<td>Water Drain Plug</td>
</tr>
<tr>
<td>01453658</td>
<td>02</td>
<td>Transmission Alignment Dowel</td>
</tr>
<tr>
<td>12556437</td>
<td>01</td>
<td>Camshaft Retainer Plate</td>
</tr>
</tbody>
</table>

**B. 25534412**

Oil Hose Adapters  
- Kit adapts the production LS7 Oil Pan to aftermarket AN style hoses for aftermarket dry sump oil tanks  
- Bolts directly to LS7 Oil Pan, and has AN male outlet for -12 AN fittings  
- Includes (1) adapter, (2) fittings, (12) bolts, and (12) sealing gaskets

**C. 89017808**

Main Bearing (not shown)  
- Positions 1, 2, 4, 5  
- Requires 4 per engine  
- For LS7 engines

**D. 88894271**

Main Bearing (not shown)  
- Positions 1, 2, 4, 5  
- Requires 4 per engine  
- For non-LS7 engines

**FRONT COVERS & TIMING POINTERS**

12561243  
Front Timing Cover (not shown)  
- For LS1 and LS6 engines  
- No cam sensor

12600325  
Front Timing Cover  
- For LS2 and LS3 engines  
- Gen IV cam sensor included

Don’t Forget those corresponding parts!  
See the chart on page 275 for specifics.
**Timing Covers: Corresponding Parts**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Bolts Quantity</th>
<th>Seal Quantity</th>
<th>Gasket (Quantity)</th>
<th>Quantity</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>12616491</td>
<td>11515758181</td>
<td>1258673</td>
<td>12574294 (11)</td>
<td>MY07 L92</td>
<td></td>
</tr>
<tr>
<td>12561243</td>
<td>11515758181</td>
<td>1258673</td>
<td>12574294 (11)</td>
<td>MY04 &amp; MY06 L99, MY04/05 LS1, MY04/05 LS6</td>
<td></td>
</tr>
<tr>
<td>12598294</td>
<td>11515758181</td>
<td>1258673</td>
<td>12574294 (11)</td>
<td>MY06/07 LS7</td>
<td></td>
</tr>
</tbody>
</table>

*Don’t Forget those corresponding parts! See the chart below for specifics.*
### LS SERIES CYLINDER HEADS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Material</th>
<th>Port Size</th>
<th>Valve Angle</th>
<th>Chamber CC’s</th>
<th>Int &amp; Exh</th>
<th>Port Type</th>
<th>Heat Rise</th>
<th>Rocker Stud</th>
<th>Notes</th>
<th>Page Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12564825</td>
<td>Bare LS2 &amp; LS6 Aluminum</td>
<td>210</td>
<td>15 deg</td>
<td>64.5</td>
<td>2.00</td>
<td>1.55</td>
<td>Cathedral</td>
<td>No</td>
<td>Bolt</td>
<td>Bare LS2/LS6</td>
<td>N5</td>
</tr>
<tr>
<td>12564824</td>
<td>Stock LS6 Aluminum</td>
<td>270</td>
<td>15 deg</td>
<td>64.5</td>
<td>2.00</td>
<td>1.55</td>
<td>Cathedral</td>
<td>No</td>
<td>Bolt</td>
<td>Hollow/sodium filled valves</td>
<td>276</td>
</tr>
<tr>
<td>12570663</td>
<td>Stock LS2 Aluminum</td>
<td>210</td>
<td>15 deg</td>
<td>64.5</td>
<td>2.00</td>
<td>1.55</td>
<td>Cathedral</td>
<td>No</td>
<td>Bolt</td>
<td>Solid stem valves</td>
<td>277</td>
</tr>
<tr>
<td>88958622</td>
<td>CNC LS6 Aluminum</td>
<td>250</td>
<td>15 deg</td>
<td>61.9</td>
<td>2.00</td>
<td>1.55</td>
<td>Cathedral</td>
<td>No</td>
<td>Bolt</td>
<td>11.2 compression</td>
<td>278</td>
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<tr>
<td>88958665</td>
<td>CNC LS6 Aluminum</td>
<td>250</td>
<td>15 deg</td>
<td>65</td>
<td>2.00</td>
<td>1.55</td>
<td>Cathedral</td>
<td>No</td>
<td>Bolt</td>
<td>10.5 compression</td>
<td>276</td>
</tr>
<tr>
<td>88958765</td>
<td>CNC LS2 Aluminum</td>
<td>250</td>
<td>15 deg</td>
<td>64.5</td>
<td>2.00</td>
<td>1.55</td>
<td>Cathedral</td>
<td>No</td>
<td>Bolt</td>
<td>Solid stem valves</td>
<td>277</td>
</tr>
<tr>
<td>12582714</td>
<td>bare LS6/LS2 Aluminum</td>
<td>260</td>
<td>15 deg</td>
<td>70</td>
<td>2.16</td>
<td>1.59</td>
<td>L92</td>
<td>No</td>
<td>Bolt</td>
<td>Solid stem valves</td>
<td>N5</td>
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<tr>
<td>12582713</td>
<td>Stock LS6/LS2 Aluminum</td>
<td>260</td>
<td>15 deg</td>
<td>70</td>
<td>2.16</td>
<td>1.59</td>
<td>L92</td>
<td>No</td>
<td>Bolt</td>
<td>Solid stem valves</td>
<td>278</td>
</tr>
<tr>
<td>88958698</td>
<td>CNC LS6/LS2 Aluminum</td>
<td>270</td>
<td>15 deg</td>
<td>68</td>
<td>2.16</td>
<td>1.59</td>
<td>L92</td>
<td>No</td>
<td>Bolt</td>
<td>Solid stem valves</td>
<td>277</td>
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<tr>
<td>12596594</td>
<td>Stock LS3 Aluminum</td>
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<td>1.59</td>
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<td>Bolt</td>
<td>Hollow/sodium filled valves</td>
<td>N5</td>
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<tr>
<td>12579450</td>
<td>Bare LS7 Aluminum</td>
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<td>LS7</td>
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<td>Bolt</td>
<td>Bare LS7</td>
<td>N5</td>
</tr>
<tr>
<td>25534428</td>
<td>As cast LS7 Aluminum</td>
<td>270</td>
<td>12 deg</td>
<td>66</td>
<td>2.20</td>
<td>1.61</td>
<td>LS7</td>
<td>No</td>
<td>Bolt</td>
<td>Titanium/sodium filled valves</td>
<td>278</td>
</tr>
<tr>
<td>12481005</td>
<td>CSA 1st design Aluminum</td>
<td>210</td>
<td>11 deg</td>
<td>38</td>
<td>2.18</td>
<td>1.63</td>
<td>CSA</td>
<td>No</td>
<td>Shaft</td>
<td>As-cast, no seats/guides (DISCONTINUED)</td>
<td>N5</td>
</tr>
<tr>
<td>12480990</td>
<td>CSA 2nd design Aluminum</td>
<td>210</td>
<td>11 deg</td>
<td>30</td>
<td>2.18</td>
<td>1.63</td>
<td>CSA</td>
<td>No</td>
<td>Shaft</td>
<td>As-cast, no seats/guides</td>
<td>279</td>
</tr>
</tbody>
</table>

### THE LS FAMILY ALUMINUM HEADS

The LS Family of GM engines has continued our tradition of raising the power potential of the legendary small-block V8. The LS6 cylinder head came as standard equipment on the amazing 405-horsepower Z06 Corvette and the 2005 Corvette with the LS2 engine. These heads can be installed on any LS Series engine (except 4.8L & 5.3L versions), and the GM Performance parts engineers have even designed fully-CNC-ported versions to get your late-model GM engine screaming right along. Our complete assemblies come with beehive valve springs and lightweight hollow stem valves—innovations that our competitors have had to copy to catch up to our designs. We’ve already done the validation of these heads in competition in our show room stock C5R Corvette racecar, so you can be assured our LS6 race heads will live up to your demands.

**Aluminum LS Family Head Technical Notes:**

- Aluminum 356-T6
- High efficiency combustion chambers
- Symmetrical intake and exhaust ports (not mirrored like Gen I small-blocks)
- Angled spark plugs, (14 m, 5/8" hex, 3/4" reach, taper-seat plug slant)
- 15° valve angles (except C5R and LS71)
- Bolt-down type rocker arms
- Center-bolt pattern valve covers required
- Will not work on Gen I or Gen II small-blocks

#### A. 12564824

**LS6 Cylinder Head Assembly**

- Fits any 1997-2008 LS Family engine
- 2.00" Hollow stem intake, and 1.55" sodium filled exhaust valves
- 70cc combustion chambers
- Bare head PIN 12564825 available separately

#### 88958665

**CNC-Ported LS6 Cylinder Head Assembly (not shown)**

- CNC-ported aluminum, performance head
- Fits any 1997-2008 LS family engine
- 2.00" Hollow stem intake, and 1.55" sodium filled exhaust valves
- 70cc combustion chambers
- Bare head PIN 12564825 available separately

*GM Performance Parts heads will not fit 4.8L & 5.3L engines, due to their smaller bore sizes.*

---

Don't Forget those corresponding parts! See the chart on page 279 for specifics.
88958622
CNC-Ported LS6 Racing Cylinder Head Assembly (not shown)
- CNC-ported aluminum racing head
- 2.00” Hollow stem intake, and 1.55” sodium filled exhaust valves
  - .570" max valve lift
- 250cc CNC’d “cathedral port” intake ports
- 85cc CNC’d D-shaped exhaust ports
- 62cc CNC’d combustion chambers

Heads PIN 12564824, PIN 88958665 and PIN 88958622 are assembled with the following components:

| 12565311 | Intake Valves | 10166344 | Valve Spring Retainers |
| 12565312 | Exhaust Valves | 12482063 | Intake Valve Stem Seals |
| 12564844 | Valve Springs | 12482067 | Exhaust Valve Stem Seals |
| 10166345 | Valve Locks |

12576063
LS2 Cylinder Head Assembly (not shown)
- Lower cost alternative to the LS6 head
- Fits any 1997-2008 LS family engine
- 2.00” Solid stem intake, and 1.55” solid stem exhaust valves
  - .570” max valve lift
- 210cc “cathedral port” intake ports
- 70cc D-shaped exhaust ports
- 65cc combustion chambers
- Bare head PIN 12564825 available separately
- Upgrade the valves to LS6 hollow stem valves with PIN 17801930

B. 88958765
CNC-Ported LS2 Cylinder Head Assembly
- CNC-ported aluminum performance head
- Lower cost alternative to the CNC LS6 head
- Fits any 1997-2008 LS family engine
- 2.00” solid stem intake, and 1.55” solid stem exhaust valves
  - .570” max valve lift
- 250cc CNC’d “cathedral port” intake ports
- 85cc CNC’d D-shaped exhaust ports
- 65cc CNC’d combustion chambers
- Upgrade the valves to LS6 hollow stem valves with PIN 17801930

Heads PIN 12576063 and PIN 88958765 are assembled with the following components:

| 12563063 | Intake Valves | 10166344 | Valve Spring Retainers |
| 12563064 | Exhaust Valves | 12482063 | Intake Valve Stem Seals |
| 12564844 | Valve Springs | 12482067 | Exhaust Valve Stem Seals |
| 10166345 | Valve Locks |

LS2 & LS6 Head Flow Data:

<table>
<thead>
<tr>
<th>lift</th>
<th>0.200</th>
<th>0.300</th>
<th>0.400</th>
<th>0.500</th>
<th>0.600</th>
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</thead>
<tbody>
<tr>
<td>Stock intake</td>
<td>136</td>
<td>195</td>
<td>237</td>
<td>260</td>
<td>280</td>
</tr>
<tr>
<td>Stock exhaust</td>
<td>104</td>
<td>135</td>
<td>157</td>
<td>169</td>
<td>180</td>
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<tr>
<td>CNC intake</td>
<td>147</td>
<td>215</td>
<td>262</td>
<td>290</td>
<td>307</td>
</tr>
<tr>
<td>CNC exhaust</td>
<td>111</td>
<td>155</td>
<td>198</td>
<td>210</td>
<td>218</td>
</tr>
</tbody>
</table>

* GM Performance Parts heads will not fit 4.8L & 5.3L engines, due to their smaller bore sizes.

Don’t Forget those corresponding parts!
See the chart on page 279 for specifics.
A. 12582713

L76/L92 Cylinder Head Assembly
- Aluminum performance head
- Higher flow than cathedral port LS heads
- Fits any LS family engine with 4.00" bore or larger
- 2.16" solid stem intake, and 1.59" solid stem exhaust valves
- 500° max valve lift
- As-cast "rectangle port" inake ports (not compatible with LS7 intake manifolds)
- D-shaped exhaust ports
- As-cast combustion chambers
- Uses bare head PIN 12582714

Head 12582713 is assembled with the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake Valves</td>
<td>10166344</td>
</tr>
<tr>
<td>Exhaust Valves</td>
<td>12348263</td>
</tr>
<tr>
<td>Valve Springs</td>
<td>12482062</td>
</tr>
<tr>
<td>Valve Locks</td>
<td>10166345</td>
</tr>
</tbody>
</table>

L76/L92 Head Flow Data (4.00" Bore):

<table>
<thead>
<tr>
<th>Lift</th>
<th>Intake</th>
<th>Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00&quot;</td>
<td>151</td>
<td>111</td>
</tr>
<tr>
<td>0.30&quot;</td>
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<td>0.40&quot;</td>
<td>256</td>
<td>174</td>
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<tr>
<td>0.50&quot;</td>
<td>294</td>
<td>183</td>
</tr>
<tr>
<td>0.60&quot;</td>
<td>316</td>
<td>189</td>
</tr>
</tbody>
</table>

88958698 NEW

CNC-Ported L92 Cylinder Head Assembly (not shown)
- CNC-ported performance head
- Fits any LS family engine with a bore of 4.00" or larger
- Uses stock 2.165" and 1.590" valves, springs, and hardware
- Stock intake and exhaust port locations
- 500° max lift with stock springs
- 280cc intake port, 100cc D-shaped exhaust port, 68cc combustion chamber
- Not compatible with LS7 intake manifolds

CNC L92 Head Flow Data (4.065" bore):

<table>
<thead>
<tr>
<th>Lift</th>
<th>Intake</th>
<th>Exhaust</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.200°</td>
<td>150</td>
<td>105</td>
</tr>
<tr>
<td>0.300°</td>
<td>222</td>
<td>140</td>
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<tr>
<td>0.400°</td>
<td>260</td>
<td>168</td>
</tr>
<tr>
<td>0.500°</td>
<td>298</td>
<td>190</td>
</tr>
<tr>
<td>0.600°</td>
<td>332</td>
<td>201</td>
</tr>
</tbody>
</table>

12578449

LS7 Cylinder Head Assembly (not shown)
- 356-T6 aluminum head
- Fully CNC'd ports and chambers
- LS7 rectangle port design requires rectangle port intake manifold PIN 25534394, PIN 25534413 or PIN 12568976
- Assembled with 2.20° titanium intake and 1.61° sodium filled exhaust valves
- 12° valve angle
- Designed for big bore LS7/C5R/LSX blocks (min 4.100" bore)
- 270cc CNC'd intake ports
- 85cc CNC'd exhaust ports
- 70cc CNC'd combustion chambers
- All fasteners are metric
- Capable of over 600 horsepower
- Bare head PIN 12576450 available separately

Don't Forget those corresponding parts! See the chart on page 279 for specifics.
Head 12578449 is assembled with the following components:

- Intake Valves 1259164
- Exhaust Valves 12578435
- Valve Springs 12578457
- Valve locks 10165345
- Valve Spring Retainers 12596508
- Valve Stem SealS 12482063
- Exhaust Valve Stem Seals 12483062
- Intake Valve lash Cap 12596509

**IS7 Head Flow Data:**

<table>
<thead>
<tr>
<th>Lit</th>
<th>0.100'</th>
<th>0.200'</th>
<th>0.300'</th>
<th>0.400'</th>
<th>0.500'</th>
<th>0.550'</th>
<th>0.600'</th>
<th>0.700'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intake</td>
<td>71.0</td>
<td>145.0</td>
<td>222.0</td>
<td>271.0</td>
<td>315.0</td>
<td>332.0</td>
<td>348.0</td>
<td>352.0</td>
</tr>
<tr>
<td>Exhaust</td>
<td>600</td>
<td>125.0</td>
<td>159.0</td>
<td>192.0</td>
<td>207.0</td>
<td>214.0</td>
<td>219.0</td>
<td>221.0</td>
</tr>
</tbody>
</table>

**25534428**

- IS7 Bare Unported Cylinder Head (not shown)
  - 356-T6 aluminum head
  - LS7 rectangle port design—requires rectangle port intake manifold PIN 25534394, PIN 25534413 or PIN 12568976
  - Machined for 220°/1.61° valves
  - Designed for big bore LS7/C5R/LSX blocks
    - (min 4.065' bore)
  - Limited availability

**B. 12480090**

- Bare C5R Racing Cylinder Head
  - 355-T7 "as-cast" Aluminum racing head
  - Professional porting and machining of combustion chambers required
  - No seats or guides
  - C5R rectangle port design—requires aftermarket rectangle port intake manifolds
  - Designed for 2.180'/1.625' valves
  - 11° valve angle
  - Machined for 1625 diameter valve springs 
    - .500' guides
  - Designed for big bore (4.100' mini LS7/C5R/LSX blocks
  - 210cc “as-cast" intake ports
  - 70cc "as-cast" exhaust ports. same as production LS6
  - 30cc "as-cast" combustion chambers
  - All fasteners are metric
  - Valve cover rails have O-ring groove for .125' O-ring
  - Capable of over 800 horsepower

**Don’t Forget those corresponding parts! See the chart on page 279 for specifics.**

---

**Cylinder Heads: Corresponding Parts**

<table>
<thead>
<tr>
<th>Pan Number</th>
<th>Pin Code</th>
<th>Quantity</th>
<th>Lash (Ovality)</th>
<th>Head Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>12576063</td>
<td>12592227</td>
<td>(2) OR 19170418</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>12564825</td>
<td>12592261</td>
<td>OR 19170418</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>12564824</td>
<td>12582226</td>
<td>OR 19170418</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>12578449</td>
<td>12582217</td>
<td>(2) OR 19170419</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>25534428</td>
<td>12582217</td>
<td>(2) OR 19170419</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>12582713</td>
<td>12610046</td>
<td>(2) OR 19170419</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>88956822</td>
<td>12582225</td>
<td>(2) OR 19170416</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>88956685</td>
<td>12599228</td>
<td>(2) OR 19170418</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>88958765</td>
<td>12589327</td>
<td>(2) OR 19170418</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>88958698</td>
<td>12610046</td>
<td>(2) OR 19170418</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
<tr>
<td>12480090</td>
<td>12592271</td>
<td>(2) OR 19170419</td>
<td>11562524 (01), 12558840 (10)</td>
<td>12571164</td>
</tr>
</tbody>
</table>

**Engine Application**

- MY05/06/07/92 and Cub IS2
- MY07C5R
- MY04/05/66
- MY06/07 LS7
- Bare unported IS7
- MY07C5R
- MY07C5R
- C5R LS6
- C5R IS6
- C5R IS2
- C5R CR

---

gmperformanceparts.com
CYLINDER HEAD GASKETS & BOLT KITS

12498543  
Cylinder Head Gasket Kit (not shown)  
- Two head gaskets for 1997-2001 LSl Camaro/Firebird and Corvette engines  
- Also fits 2001 LS6 Corvette engine

12498544  
Cylinder Head Gasket Kit (not shown)  
- Two head gaskets for 2002-2004 LS1 Camaro/Firebird and Corvette engines

A. 19170418  
LSX 4.100 Bore MLS Head Gasket Kit  
- Multi-layer steel gaskets for naturally aspirated and forced induction applications  
- 0.051' thick  
- Includes (1) LH and (1) RH gasket  
- For standard LS and LSX 6-bolt pattern blocks and heads  
- For bores up to 4.100'

19170419  
LSX 4.200 Bore MLS Head Gasket Kit (not shown)  
- Multi-layer steel gaskets for naturally aspirated and forced induction applications  
- 0.051' thick  
- Includes (1) LH and (1) RH gasket  
- For standard LS and LSX 6-bolt pattern blocks and heads  
- For bores up to 4.200'

19170420  
LSX 4.250 Bore MLS Head Gasket Kit (not shown)  
- Multi-layer steel gaskets for naturally aspirated and forced induction applications  
- 0.051' thick  
- Includes (1) LH and (1) RH gasket  
- For standard LS and LSX 6-bolt pattern blocks and heads  
- For bores up to 4.250'

12498545  
Cylinder Head Bolt Kit (1997-2003) (not shown)  
- One kit per cylinder head; order two per engine  
- Head bolts cannot be reused on these engines

IMPORTANT: LS series engines produced from January 2004 forward have a new, "short-stake" head bolt design. Earlier head bolts will not fit. Order PN 17800568 for engines produced from January 2004 and after.

17800568  
Cylinder Head Bolt Kit, Gen III and Gen IV (not shown)  
- Kit of 15 bolts for LS series engines produced from January 2004 and later  
- Bolts are 5mm shorter than previous design

B. 12499217  
LS1 Cylinder Head Installation Kit (F-Car)  
- Comprehensive cylinder head installation kit for 2002 Camaro and Firebird models equipped with the LSI engine  
- Kit includes 2 head gaskets, 2 valve cover gaskets, 8 intake manifold gaskets, 2 exhaust manifold gaskets, 2 intake manifold-to-block seals, 16 cylinder head bolts and 14 cylinder head bolt/screws

12499218  
Corvette LS1/LS6 Cylinder Head Installation Kit (not shown)  
- Comprehensive cylinder head installation kit for 2002-2005 Corvette models equipped with the LSI engine, or 2002-2004 Corvette models equipped with the LS6 engine  
- Kit includes 2 head gaskets, 2 valve cover gaskets, 8 intake manifold gaskets, 2 exhaust manifold gaskets, 2 intake manifold-to-block seals, 16 cylinder head bolts and 14 cylinder head bolt/screws

\[ 
B V/1957 the Corvette had matched its performance to its promise, giving enthusiasts a world-class sports car. GM would never look back, and today's LS models, which have a history of powering the latest and greatest Corvettes, carry on the tradition started by Ed Cole back in 1955. \]
**Cylinder Head Gaskets & Bolt Kits Continued**

**12589226**

**LS1/LS6 Head Gasket** (not shown)
- Single gasket (2) required
- For LS1, and LS6 engines
- .051" thick
- 3.92" max bore
- Standard LS bolt pattern

**12589227**

**LS2, L76 Head Gasket** (not shown)
- Single gasket (2) required
- For LS2 engines
- .051" thick
- 4.02" max bore
- Standard LS bolt pattern

**12589229**

**LS3, L92 Head Gasket** (not shown)
- Single gasket (2) required
- For LS3 and L92 engines
- .051" thick
- 4.080" max bore
- Standard LS bolt pattern

**12582179**

**LS7 Head Gasket** (not shown)
- Single gasket (2) required
- For LS7 engines
- .051" thick
- 4.140" max bore
- Standard LS bolt pattern

**Head Bolts and Studs**

**11562524**

**Head Bolt** (not shown)
- 8mm bolts
- 10 required per cylinder head
- For LS1, LS2, LS6, LS7, and L92 engines

**12558840**

**Head Bolt** (not shown)
- 8mm bolts
- 5 required per cylinder head
- For LS1, LS2, LS6, LS7, and L92 engines

**LS Series Valves**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Valve Size</th>
<th>Stem Size</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intake Valves</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12563311</td>
<td>2.00&quot;</td>
<td>8mm</td>
<td>Stock replacement hollow stem valve used in LS6 engines</td>
</tr>
<tr>
<td>12563063</td>
<td>2.00&quot;</td>
<td>8mm</td>
<td>Stock replacement solid stem valve used in LS2 engines</td>
</tr>
<tr>
<td>12590427</td>
<td>2.165&quot;</td>
<td>8mm</td>
<td>Stock replacement hollow stem valve used in LS3 engines</td>
</tr>
<tr>
<td>12591644</td>
<td>2.00&quot;</td>
<td>8mm</td>
<td>Stock replacement titanium valve used in LS7 engines</td>
</tr>
<tr>
<td><strong>Exhaust Valves</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12565312</td>
<td>1.50&quot;</td>
<td>8mm</td>
<td>Stock replacement sodium filled stem valve used in LS6 engines</td>
</tr>
<tr>
<td>12563064</td>
<td>1.50&quot;</td>
<td>8mm</td>
<td>Stock replacement solid stem valve used in LS2 engines</td>
</tr>
<tr>
<td>12582719</td>
<td>1.59&quot;</td>
<td>8mm</td>
<td>Stock replacement solid stem valve used in LS7, L92, and L93 engines</td>
</tr>
<tr>
<td>12578455</td>
<td>1.871&quot;</td>
<td>8mm</td>
<td>Stock replacement sodium filled stem valve used in LS7 engines</td>
</tr>
</tbody>
</table>

**Valve Spring Components**

**12499224**

**LS Valve Spring Kit** (not shown)
- Beehive style springs
- 1800" installed height @ 90# pressure
- 1.250" @ 285# pressure
- Used on LS2/LS6 cylinder heads
- Max lift .570"
- Includes 16 of P/N 12586484

**12586484**

**Valve Springs** (not shown)
- Standard LS6/L33 springs
- 1.800" installed height @ 90# pressure
- 1.250" @ 285# pressure
- Max lift .570"

**12589774**

**Valve Springs** (not shown)
- Beehive style springs
- Standard LS2/L93 springs
- 1.800" installed height @ 90# pressure
- 1.250" @ 264# pressure
- Max lift .530"

**12610046**

**LS, L92 Head Gasket** (not shown)
- Single gasket (2) required
- For LS3 and L92 engines
- .051" thick
- 4.080" max bore
- Standard LS bolt pattern

**12582179**

**LS7 Head Gasket** (not shown)
- Single gasket (2) required
- For LS7 engines
- .051" thick
- 4.140" max bore
- Standard LS bolt pattern

**12578457**

**Valve Springs** (not shown)
- Beehive style springs
- Used on LS7 cylinder heads
- 1.900" installed height @ 101# pressure
- 1.368" @ 310# pressure
- Max lift .600"

**17801930**

**LS6 Hollow Stem Valve Kit** (not shown)
- Kit of (4) intake and (4) exhaust valves originally for LS6 engines to drop right into your LS2 head
- One kit services one head

---

*gmperformanceparts.com*
ROCKER ARMS AND ROCKER ARM BOLTS

Rocker Arms

10214664
Rocker Arm (not shown)
For LS1, LS2 and LS6 intake and exhaust valves
For L76, L92 and LS3 exhaust valves
Straight design, no offset
1:7:1 ratio

12569167
Rocker Arm (not shown)
Intake valves only
For L76, L92 and LS3 style heads only
Offset design
1:7:1 ratio

12579615
Rocker Arm (not shown)
Intake valves only
For LS7 style heads only
Offset design
1:8:1 ratio

12579617
Rocker Arm (not shown)
Exhaust valves only
For LS7 style heads only
Straight design, no offset
1:8:1 ratio

Rocker Arm Bolts

12560961
Rocker Arm Bolts (not shown)
For cathedral port and LS2 style heads
16 required per engine

11588791
Rocker Arm Bolts (not shown)
For LS1, LS2 and LS6 style heads only
16 required per engine

12552203
Rocker Arm Stand (not shown)
Intake valves only
For LS1, LS2 and LS6 style heads only
Sold individually
Requires 1 per cylinder head

12600936
Rocker Arm Stand (not shown)
Exhaust valves only
For LS7 style heads only
Straight design, no offset
18:1 ratio

VALVE COVERS

A. 25534398
LS Center-Bolt Competition Valve Cover
(with breather hole)
• Aluminum valve cover designed for production center-bolt
LS series cylinder heads
• Includes bolts and seal
• Sold individually

B. 25534399
LS Center-Bolt Competition Valve Cover
• Aluminum valve cover designed for production center-bolt
LS series cylinder heads
• Includes bolts and seal
• Sold individually

12341993
Push-In Oil Filler Cap (not shown)
• Round all filler cap with Bowtie logo for valve covers with
1.22" diameter hole

12573338
Oil Fill Cap (not shown)
• Production
• For LS1 engines

12573337
Oil Fill Cap (not shown)
• Production
• For L92 engines

C. 12577268
Oil Fill Cap
• Production
• For LS2 and LS6 engines

Don’t Forget those corresponding parts!
See the chart on page 283 for specifics.

gmperformanceparts.com
Valve Covers: Corresponding Parts

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Gaskets (Qty)</th>
<th>Bolts (Qty)</th>
<th>Breathers (Qty)</th>
<th>Engine Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>25534398</td>
<td>12560686 (1)</td>
<td>12577115 (4)</td>
<td>25534355</td>
<td>All LS series engines</td>
</tr>
<tr>
<td>25534399</td>
<td>12560686 (1)</td>
<td>12577115 (4)</td>
<td>None</td>
<td>All LS series engines</td>
</tr>
</tbody>
</table>

**LS SERIES PUSHRODS**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Material</th>
<th>Diameter</th>
<th>Length</th>
<th>Useage</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12593344</td>
<td>1010 steel</td>
<td>3/8&quot;</td>
<td>L97</td>
<td>Production pushrod, individually packed</td>
<td></td>
</tr>
<tr>
<td>10238852</td>
<td>1010 steel</td>
<td>5/16&quot;</td>
<td>L51, L52, L61, L66, L67</td>
<td>Product pushrod, individually packed</td>
<td></td>
</tr>
</tbody>
</table>

**ADAPTERS, HARDWARE AND BREATHERS**

12517215  
Valve Cover Bolt (not shown)  
- Requires 4 per valve cover  
- For LS2 engines

12560961  
Valve Cover Bolt (not shown)  
- Requires 4 per valve cover  
- For LS1, LS2 and LS6 engines

11588791  
Valve Cover Bolt (not shown)  
- Requires 4 per valve cover  
- For LS7 engines

12560696  
Valve Cover Gasket (not shown)  
- Requires 1 per valve cover  
- For LS1, LS2, LS6, LS7 and L92 engines

**VALVE LIFTERS & COMPONENTS**

12499225  
LS Series Camshaft lifter Kit (not shown)  
- Set of 16 lifters for LS series engines  
- Same lifter used in LS2 and LS7

17803305  
lifter Guide Kit (not shown)  
- Includes lifter guides and 4-bolts  
- Makes for quick and easy cam swaps without having to remove the intake manifold, valley plate or heads  
- Works in Gen III and IV applications (except with AFM)

D. 88958689  
Racing Hydraulic Roller lifter Kit  
As developed by GM Racing and GM Powertrain  
For use in Gen III and Gen IV engines where sustained high rpm's are typical  
Special reduced-mass internal components allow for higher revving speeds with aggressive camshaft designs  
Improved valve train dynamics and stability will improve horsepower, and high rpm's  
Tested to 8000 rpm in GM Racing applications  
Set of 16
## LS SERIES CAMSHAFTS

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Duration (°, 1.600 / 1.700 in)</th>
<th>Maximum Lift (in)</th>
<th>Lobe Separation (°)</th>
<th>Technical Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>12565308</td>
<td>2002-2004 LS6 Cam</td>
<td>204 / 218 E / L 0.550 / 0.550</td>
<td>175</td>
<td>Cam requires valve spring PN 12586484</td>
<td></td>
</tr>
<tr>
<td>12600959</td>
<td>2001 LS6 Cam</td>
<td>207 / 217 E / L 0.525 / 0.525</td>
<td>116</td>
<td>Cam requires valve spring PN 12586484</td>
<td></td>
</tr>
<tr>
<td>12400110</td>
<td>ASACam</td>
<td>226 / 236 E / L 0.525 / 0.525</td>
<td>110</td>
<td>Cam requires &amp;ake spring PN 12565454, &quot;ASA&quot; cam for OH-highway use.</td>
<td></td>
</tr>
<tr>
<td>12400033</td>
<td>Hlt Cam K1</td>
<td>219 / 228 E / L 0.525 / 0.525</td>
<td>112</td>
<td>Kit includes 16 LS6 valve springs PN 12565117 and retainer.</td>
<td></td>
</tr>
<tr>
<td>88958733</td>
<td>LS Hlt Cam</td>
<td>1219 / 1228 E / L 0.525 / 0.525</td>
<td>112</td>
<td>Same cam as kit PN 12480033</td>
<td></td>
</tr>
<tr>
<td>525</td>
<td></td>
<td></td>
<td></td>
<td>Stock LS7 camshaft.</td>
<td></td>
</tr>
<tr>
<td>88958606</td>
<td>Showroom Stock Cam</td>
<td>238 / 251 E / L 0.570 / 0.570</td>
<td>106.5</td>
<td>Showroom Stock racing design requires hollow stem intake valves PN 12585311, hollow stem exhaust valves PN 1259544, and aftermarket notched pistons OR machine stock pistons</td>
<td></td>
</tr>
<tr>
<td>12571251</td>
<td>LS7</td>
<td>211 / 230 (1.600 / 1.700) E / L 0.517 / 0.517</td>
<td>121</td>
<td>Stock LS7 camshaft.</td>
<td></td>
</tr>
<tr>
<td>12561721</td>
<td>L09: 2002-2006</td>
<td>1196 / 201 E / L 0.467 / 0.479</td>
<td>116</td>
<td>Block cam for 2002-2006 L09 and 2001-2004 LS 1 engines</td>
<td></td>
</tr>
<tr>
<td>88958722</td>
<td>LS Stage 2 Cam</td>
<td>227 / 236 E / L 1.7 rocker</td>
<td>108</td>
<td>Max lift with 1.8 rockers .583/.583</td>
<td></td>
</tr>
<tr>
<td>88958723</td>
<td>LS Stage 3 Cam</td>
<td>233 / 276 E / L 1.7 rocker</td>
<td>107</td>
<td>Max lift with 1.8 rockers .630/.630</td>
<td></td>
</tr>
</tbody>
</table>

---

### Livin' up to the Promise

The original Chevrolet small-block inspired enthusiasts at all levels, and rapidly became the preferred engine of serious builders. The basic architecture was so well-thought-out, that other than a few tweaks, very little needed to be improved.

Displacement and power numbers continued to rise as bigger bore sizes were offered, and head, piston and intake technology improved, leading to gains in durability and performance. But, the basic engine remained: an iron block, iron-head, pushrod driven, naturally aspirated model of efficiency.

The bore potential of the small-block was aided by two innovations: green sand casting (a Pontiac process) and Siamese cylinder walls, which eliminated coolant channels between the block’s cylinders; both advances allowed for more “cutting.”

These two agents helped push the small-block dimensions from the original 265 cubic inches to 283, 302, 327 and eventually 400.

But, if size is one measure of performance, weight is another, and ultimately GM engineers knew that to keep the Chevy small-block on the leading edge, a serious re-design was in order.

While the Gen II engines were little more than a face lift (reverse cooling flow), the Gen III and IV engines of the LS series were a radical departure. Iron blocks were replaced by weight-saving aluminum blocks with cast-in iron sleeves. Recognizing the monumental torque and horsepower ratings these engines would see, the block was designed with six-bolt main bearing caps. Improved intake technology and hotter camshafts also greeted the buying public.

The Gen IV series also brought in variable valve timing and displacement on demand technology that allowed the user to shut down half the cylinders for fuel savings when the power was not needed.

The LS series now has culminated in the introduction of the LSX block, a marvel of engine technology co-designed by GM Performance Parts and NHRA legend Warren Johnson. The iron block can be bored and stroked to big-block dimensions at 454 cubes.

Today, as has been the case since 1955, the sky is the limit for enthusiasts at all levels, with crate engines and components available to take a builder anywhere they might want to go.
CAMSHAFT COMPONENTS

12499228
Cam Installation Kit, LS Engine (not shown)
- Complete gasket kit to make cam swaps easier
- Includes all necessary gaskets and balancer bolt
- For LS1, LS2 and LS6 engines

The kit includes:

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>QTY</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>12574094</td>
<td>01</td>
<td>Gasket - Engine Front Cover</td>
</tr>
<tr>
<td>12588372</td>
<td>02</td>
<td>Gasket - with Pump</td>
</tr>
<tr>
<td>89017369</td>
<td>01</td>
<td>Gasket Kit - Intake Manifold</td>
</tr>
<tr>
<td>12612405</td>
<td>02</td>
<td>Gasket - Valve Rocker Arm Cover</td>
</tr>
<tr>
<td>12557640</td>
<td>01</td>
<td>Bolt/ Screw - CR/ SHF Balance</td>
</tr>
<tr>
<td>12585673</td>
<td>01</td>
<td>Seal ASM - CR/ SHF Front Oil</td>
</tr>
</tbody>
</table>

CONNECTING RODS & COMPONENTS

A. 12568734
1997-2004 Connecting Rod
- Press fit design
- 6.098" C-C length
- Sold individually

B. 12568734
1997-2004 Connecting Rod Inshown)
- Connecting rod used in 2005-2007 LS2 and 2008 LS3 engines has bronze bushing
- 6.098" C-C length
- Sold individually

12617570
Connecting Rod (not shown)
- Connecting rod used in 2005-2007 LS2 and 2008 LS3 engines has bronze bushing
- 6.098" C-C length
- Sold individually

11610158
LS6 Rod Bolts (not shown)
- Recommended for use in performance Gen III engines
- Bolts have greater strength than pre-2000 rod bolts
- One bolt per package; order two per connecting rod

B. 12586258
LS7 Connecting Rod
- Titanium connecting rod used in 2006-2008 LS7 crate engines
- 6.067" C-C length
- Sold individually

11609825
LS7 Connecting Rod Bolt Kit (not shown)
- Required for LS7 engine builds
- Includes 16 bolts

89017573
Rod Bearing (not shown)
- 1 required per connecting rod
- For all LS series engines, except LS7

89017811
LS7 Rod Bearing (not shown)
- 1 required per connecting rod
- For LS7 engines only

There are few muscle cars as revered as the Pontiac GTO. This 1968 model featured the first year of the A-cars' fastback styling and also sported a bigger-bore engine, pumping out 350 horsepower with 400 cubic inches.
### CRANKSHAFTS CONTINUED

- **89060436**
  - **Rear Crank Seal (not shown)**
  - Requires 1 per engine
  - For all LS series engines

- **12557583**
  - **Roller Pilot Bearing (not shown)**
  - Used in high-performance manual transmission applications

### TIMING CHAINS AND SPROCKETS

- **12588670**
  - **LS2 Timing Chain Dampener (not shown)**
  - Production LS2 Dampener
  - Will not fit LS1 and LS6 blocks fitted with PIN 88958607
  - (PIN 88958607 is no longer serviced)
  - For use with standard oil pumps

- **12581276**
  - **Timing Chain Dampener (not shown)**
  - Production LS7 damper
  - 1.14mm thinner than PIN 12588670
  - For use with LS7 2-stage oil pump

- **12576407**
  - **Camshaft Sprocket (not shown)**
  - Fits LS1, LS2 and LS6
  - 1X camshaft gear
  - 3-bolt design; uses (3) bolts PIN 12556127

- **12586481**
  - **Camshaft Sprocket (not shown)**
  - Fits LS1, LS2 and LS6
  - 4X camshaft gear
  - 3-bolt design; uses (3) bolts PIN 12556127

- **12585994**
  - **VVT Camshaft Sprocket (not shown)**
  - Combination camshaft sprocket and VVT activator
  - Production on 2007-2008 Cadillac Escalade L92 engines
  - Single-bolt design; use PIN 12586151 bolt
  - 4X camshaft gear

- **12556582**
  - **Crankshaft Sprocket (not shown)**
  - Fits non LS7 applications
  - For standard single-stage oil pumps
  - Works with both PIN 12576407 and 12586481 cam sprockets

- **12581278**
  - **Crankshaft Sprocket (not shown)**
  - For use with 2-stage LS7 oil pump only
  - Works with PIN 12576407 and PIN 12586481 cam sprockets

- **12586482**
  - **Timing Chain (not shown)**
  - Fits 1997-2007 LS based engines

- **12585997**
  - **Timing Chain Tensioner (not shown)**
  - Requires 1 per engine
  - Includes retainer and bolts
  - For L92 and LS3 engines

- **12556127**
  - **Camshaft Sprocket Bolt (not shown)**
  - For use with 3-bolt (non VVT) cams
  - For LS1, LS2, LS6 and LS7 engines

- **12588151**
  - **Camshaft Sprocket Bolt (not shown)**
  - Combination bolt and valve for variable valve timing (VVT) engines
  - For L92 engines
  - Use with VVT camshaft sprocket PIN 12585994

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BALANCERS

A smooth running engine depends on an effective balancer or torsional damper. A GM Performance Parts damper not only helps your engine run smoothly, it can extend the life of the engine.

Balancers

12576652
Harmonic Balancer (not shown)
- For L92 engines

A. 12553118
Harmonic Balancer
- For LS1 and LS2 engines

B. 12599862
Harmonic Balancer
- For LS7 engines

12601402
Harmonic Balancer
- For LS3 engines

Balancer Bolts & Washers

12557840
Balancer Bolt (not shown)
- For LS1, LS2, LS6 and L92 engines

11570163
Balancer Bolt Inot shown)
- For LS7 engines

12600525
BalancerWasher Inot shown)
- For LS3, LS7 and L92 engines

FLYWHEELS & FLEXPLATES

Select flywheels for manual transmission vehicles and flexplates for automatic transmission vehicles.

Bolts & Dowels

11569956
Flywheel Bolt (not shown)
- Requires 6 per engine
- For LS1, LS2, LS3, LS6, LS7 and L92 engines
- For manual transmission flywheels only

11505820
Flywheel Dowel (not shown)
- For all LS series engines

12553332
Flexplate Bolt Inot shown)
- Requires 6 per engine
- For LS1, LS2 and LS6 engines
- For automatic transmission flexplates only

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12570611</td>
<td>Flywheel for L52, LS1 and L57 Corvette engines</td>
</tr>
<tr>
<td>24238412</td>
<td>Clutch disc and pressure plate for LS1, LS3 and LS7 Corvette engines</td>
</tr>
<tr>
<td>12581650</td>
<td>Flywheel with pressure plate and disc for LS1 Camaro engines</td>
</tr>
<tr>
<td>12570886</td>
<td>Flywheel, clutch and press-plate kit for L52 GTA engines</td>
</tr>
</tbody>
</table>

A LS1 and LS2 Balancer

B LS7 Balancer
WATER PUMPS AND ACCESSORIES

C. 12600767
Water Pump
• For LS9 engines

D. 89018052
Water Pump
• For LS2, LS3 and LS7 Corvette engines only

89018053
Water Pump (not shown)
• For LS1, LS2 and LS6 engines

12610311
Water Pump Gasket (not shown)
• Requires 2 per engine
• For LS1, LS2, LS3, LS6, LS7 and L92 engines

12551926
Water Pump Bolt (not shown)
• Requires quantity of 6
• For LS1, LS2, LS3, LS6, LS7 and L92 engines

ACCESSORY DRIVE KITS

19155066 NEW
Serpentine Accessory Drive System, with Air Conditioning (not shown)
• Fits LS1 and LS6 engines
• Deluxe kit includes all the components and hardware necessary to install on an engine with air conditioning, including alternator, power steering pump and idler bracket. (belt included)

The system includes:
12572188 Belt (water pump, alternator, and power steering)
12569928 Belt IAC compressor
12568181 Tensioner Assembly
12560134 IAC Belt Tensioner Assembly
12557334 IAC Compressor Idler Pulley
1137032 IAC Compressor
12556444 IAC Compressor Bracket
15261472 Power Steering Pump (reman)
12555222 Power Steering Bracket
12578068 Alternator and Power Steering Pump Bracket
12555693 Power Steering Pump Brace
12559890 Power Steering Pump Pulley
16053440 Alternator
26046502 Power Steering Reservoir

E. 19155067 NEW
Serpentine Accessory Drive System, with Air Conditioning
• Fits LS2 and LS7 engines
• Deluxe kit includes all the components and hardware necessary to install on an engine with air conditioning, including alternator, power steering pump and idler bracket. (belt included)

The system includes:
12579229 Belt (water pump, alternator, and power steering)
12585476 Belt IAC compressor, LS1
12569301 Tensioner Assembly
12595289 IAC Belt Tensioner Assembly
12568996 Idler Pulley
88954993 IAC Compressor
12569286 IAC Compressor Bracket
15261472 Power Steering Pump (reman)
26046502 Power Steering Reservoir
12578067 Alternator and Power Steering Pump Bracket
12555693 Power Steering Pump Brace
12568997 Power Steering Pump Pulley
15841234 Alternator
12579228 Belt IAC compressor, LS2
OIL PANS & ACCESSORIES

A. 12561828
Corvette Oil Pan (2002-2004 LS6)
• Used on 2002-2004 Corvettes with LS6 V-8

B. 12558762
F-Car Oil Pan
• Used on 1998-2003 Camaro and Firebird LS1 V-8

C. 19172376
Circle Track Oil Pan
• Used on CT525, PIN 19171821
• 8-quart capacity
• Includes oil filter adaptor
• Uses oil pan gasket PN 12558760 (not included)

D. 24241872
Magnetic Drain Plug
• Catches and holds small pieces of metal before they can cause damage

12558760
Oil Pan Gasket (not shown)
• Requires 1 per engine
• Fits all LS series engines, except LS7

12596691
Oil Pan Gasket (not shown)
• Requires 1 per engine
• For LS7 engines

11515758
Oil Pan Bolt (not shown)
• M8 x 30mm lg
• Requires 12 per engine (use 13 with LS7 and L92 engines)
• For LS1, LS2, LS6, LS7 and L92 engines

12554990
Oil Pan Bolt (not shown)
• M6 x 136mm lg
• Requires 2 per engine
• For all LS series engines

12612289
Oil Pump (not shown)
• For L92 engines

17801830
High Volume LS Oil Pump Kit (not shown)
• High Volume pump assembly for LS series engines (except LS7 applications)
• Pump pick up seal included

12598212
Oil Pump (not shown)
• 2-stage pump for LS7 engines
• Will not work on standard LS crankshafts
• Must use crank sprocket PIN 12581278, timing damper
• Pump PIN 12581276, LS7 pickup tube PIN 12580855, LS7 oil
• pan PIN 12596689, and LS7 timing cover PIN 12598292

11519133
Oil Pump Bolt (not shown)
• Requires 4 per engine
• For all LS series engines
E. 25534412
LS7 Oil Hose Adapters
- Kit adapts the production LS7 Oil Pan to aftermarket AN style hoses for aftermarket dry sump oil tanks
- Bolts directly to LS7 Oil Pan, and has AN male outlet for -12 AN fittings
- Includes 11) adapter, 12) fittings, (2) bolts, and (2) sealing gaskets

12603281
Oil Tank (not shown)
- Fits 106 Corvette

15210122
Oil Inlet Hose (not shown)
- Fits 106 Corvette

15210117
Oil Outlet Hose (not shown)
- Fits 106 Corvette

F. 19171130 NEW
LSX Ignition Controller
- Distributorless plug-in ignition system for carbureted LS engines with 56X reluctor wheel
- Several pre-programmed timing curves provided
- Supplied software allows you to create custom vacuum advance curves, timing curves, program 10 and hi rpm rev limiter and step retard
- Plugs into stock sensors (not provided)
- MAP sensor provided
- Compatible only with LS1/LS6 and LS2/LS7 ignition coils

G. 10465385
LS Series Starter
- Works with all LS series and Gen IV V-8 engines, including the LS1, LS2, LS6, L09, LQ4 and LS7

89017844
Starter (reman) (not shown)
- Requires 1 per engine
- For L92 engines

10465547
Starter (reman) (not shown)
- Requires 1 per engine
- For F-Car applications

89017664
Starter (reman) (not shown)
- Requires 1 per engine
- For 2005 Corvette applications
- For LS2 engines

89017847
Starter (reman) (not shown)
- Requires 1 per engine
- For 2006-2007 Corvette applications
- For LS2, LS3 and LS7 engines
- All LS starters require one bolt P/N 11588456, and one bolt P/N 72567848
PISTONS & RINGS
GM Performance Parts pistons are top quality and are ready for the rigors of high-performance street and competition applications. They are factory tested, so you know you’re getting the right parts for your LS series engine. Pistons are sold individually unless otherwise specified.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Engine Bore</th>
<th>Oversize Rod Pin Type</th>
<th>Chamber</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>88094245</td>
<td>5.0L</td>
<td>3.898&quot; +.010&quot;</td>
<td>Pressed</td>
<td>Hyperreutecl LS1 &amp; LS6 replacement</td>
</tr>
<tr>
<td>88094246</td>
<td>5.0L</td>
<td>3.898&quot; +.010&quot;</td>
<td>Pressed</td>
<td>Hyperreutecl LS1 &amp; LS6 replacement</td>
</tr>
<tr>
<td>89017418</td>
<td>60L</td>
<td>4.000&quot; +.020&quot;</td>
<td>Floated</td>
<td>Hyperreutecl LS2 &amp; L09 replacement</td>
</tr>
<tr>
<td>89017479</td>
<td>60L</td>
<td>4.000&quot; +.020&quot;</td>
<td>Floated</td>
<td>Hyperreutecl LS2 &amp; L09 replacement</td>
</tr>
<tr>
<td>12602924</td>
<td>7.0L</td>
<td>4.125&quot; +.020&quot;</td>
<td>6.067</td>
<td>Hyperreutecl LS7 replacement, includes titanium rod</td>
</tr>
<tr>
<td>89018111</td>
<td>7.0L</td>
<td>4.125&quot; +.020&quot;</td>
<td>6.067</td>
<td>Hyperreutecl LS7 replacement, includes titanium rod</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Bore Size</th>
<th>Oversize Ring Thicknesses</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>12499235</td>
<td>3.898&quot;</td>
<td>1.5, 1.5, 2.5mm</td>
<td>Set of 8 ring packs, standard size for LS1 &amp; LS6</td>
</tr>
<tr>
<td>12499236</td>
<td>4.000&quot;</td>
<td>1.5, 1.5, 2.5mm</td>
<td>Set of 8 ring packs, standard size for 1999-2005 L04 &amp; L09</td>
</tr>
<tr>
<td>12499237</td>
<td>3.750&quot;</td>
<td>1.5, 1.5, 2.5mm</td>
<td>Set of 8 ring packs, standard size for 1999-2005 5.3L engines</td>
</tr>
<tr>
<td>89017784</td>
<td>4.000&quot;</td>
<td>1.5, 1.5, 2.5mm</td>
<td>Production ring pack for '05-'06 LS2, '06 L76</td>
</tr>
<tr>
<td>89017777</td>
<td>4.125&quot;</td>
<td>1.5, 1.5, 2.5mm</td>
<td>Production ring pack for '06 L09</td>
</tr>
<tr>
<td>89017778</td>
<td>4.125&quot;</td>
<td>1.5, 1.5, 2.5mm</td>
<td>Production ring pack for '06 L09</td>
</tr>
</tbody>
</table>

CRANKSHAFTS
A. 89017522
Crankshaft Assembly 1997-2004
- Nodular cast 3.622" stroke crankshaft assembly has 24X reluctor wheel installed
- Used on 1998-2002 Fears and 1997-2005 Corvettes
- Balanced for 3.898" bore engines

12588612
LS2 Crankshaft Assembly (not shown)
- Nodular cast 3.622" stroke crankshaft assembly has 58X reluctor wheel installed
- Used on 2006-2007 Corvettes
- Balanced for 4.00" bore engines

12568820
LS7 Forged Steel Crankshaft (not shown)
- Forged 4" stroke crankshaft for LS7 engine
- Includes 58X reluctor wheel
- Rebalancing required if LS7 rods and pistons are not used

19171619 NEW
4" Stroke Crankshaft (not shown)
- Forged 4" stroke crankshaft
- New standard wet oiling system engines
- Includes 58X reluctor wheel
- Rebalancing required if LS7 rods and pistons are not used

B. 12559353
Reluctor Wheel, 24X
- 24-tooth crankshaft position sensor timing wheel for 1997-2005 engines

12586768
Reluctor Wheel, 58X (not shown)
- 58-tooth crankshaft position sensor timing wheel for 2006 and newer engines

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gmperformanceparts.com
INTAKE MANIFOLDS

12568976
LS7 Production Intake Manifold Assembly (not shown)
• Gen IV fuel injection nylon manifold used on the 2006-2007 Corvette Z06 LS7 engine
• Fully assembled with injectors. fuel rail. 900101 ETC throttle body and gaskets
• For use only with LS7 cylinder heads PIN 12578449 and PIN 25534428

A. 12590123
L76 Production Car Intake Manifold Assembly
• Gen IV fuel injection nylon manifold used on the 2007 Australian Holden L76 car engine
• Fully assembled with injectors. fuel rail. 900101 ETC throttle body and gaskets
• For use only with L76/L92 cylinder heads PIN 12582713 and PIN 12598594

B. 88894339
LS6 Production Car Intake Manifold
• Gen III fuel injected nylon manifold used on the 2001-2004 LS6 Corvette engine
• Supplied with the Intake manifold seal PIN 12560251. gasket PIN 12533587. throttle body seal PIN 12552542. MAP sensor PIN 16512460. and MAP sensor seal PIN 1619407

C. 88958675
LS2 4-Barrel Intake Manifold
Allows you to install a four-barrel carburetor on a LS series engine with cathedral ports (LS1. LS6. LS2)
Cast aluminum open-plenum intake manifold accepts a 4150-style square-bore carburetor
Bosses for EFI injectors for custom applications
Bolts and instructions supplied
LSX Ignition Controller PIN 19171130 is required for carbureted applications.

Don’t Forget those corresponding parts!
See the chart on page 294 for specifics.

A  L76 Production Car Intake Manifold Assembly
B  LS6 Intake Manifold
C  LS1/LS2/LS6 Series 4-Barrel Intake Manifold
D. 25534394
LS7 4-Barrel Intake Manifold
• GM Racing design for use on LS7 heads
• As-cast design requires no porting for maximum performance
• Includes mounting bolts and instructions
• Uses new LS7 carb intake gasket set PIN 19172113
• Machined for 4150-style carburetors and has 3/8” NPT vacuum boss
• Also available with injector bosses PIN 25534413

LSX Ignition Controller PIN 19171130 is required for carbureted applications.

E. 25534401
L76/L92 4-Barrel Intake Manifold
• GM Racing design for use on “as-cast” rectangle port Gen IV cylinder heads
• As-cast design requires no porting for maximum performance
• Includes mounting bolts and instructions
• Uses new L92/LS3 carb intake gasket set PIN 19172114
• Machined for 4150-style carburetors and has 3/8” NPT vacuum boss
• Also available with injector bosses PIN 25534416

LSX Ignition Controller PIN 79171130 is required for carbureted applications.

F. 88965830
Carburetor Spacer, Single Plane, One-Inch
• Fully CNC’d from billet aluminum
• GM Performance Parts logo machined into front and back

G. 88965831
Carburetor Spacer, Single Plane, Two-Inch
• Fully CNC’d from billet aluminum
• GM Performance Parts logo machined into front and back

H. 88956079
LS Front Distributor Drive Cover
• Assembly is manufactured for applications where a 4-barrel carburetor and distributor are required
• Can be combined with GM’s Bowtie valve covers PIN 2553498 and PIN 2553499 for a complete traditional looking engine package

Distributor and mechanical fuel pump not included. Uses small-block Ford style distributor and mechanical fuel pump. Requires use of aftermarket damper.

Don’t Forget those corresponding parts! See the chart on page 294 for specifics.
Intake Manifolds Continued

A. 19172113 NEW
LS7 Carb Intake Gasket
   • For use with intake manifold P/N 25534394 or 25534413

B. 19172114 NEW
L92/LS3 Carb Intake Gasket
   • For use with intake manifold P/N 25534401 or 25534416

EXHAUST MANIFOLD/HEADER

C. 12480130
Header Flange
   • These 3/8" thick steel header flanges are a great way to start a fabricated set of LS series headers for a racecar or street rod
   • For stock LS1, LS2, LS3, LS6, LS7 and L92 (may require clearing/cleaning exhaust ports
   • Sold individually

SPARK PLUGS

12571165
Spark Plug (not shown)
   • Requires 8 per engine
   • AC 41-101
   • For LS7 engines

12571164
Spark Plug (not shown)
   • Requires 8 per engine
   • AC 41-985
   • For LS1, LS2, LS6 and L92 engines

15336959
Spark Plug Wire (not shown)
   • Requires 8 per engine
   • For all LS series engines

Intake Manifolds: Corresponding Parts

<table>
<thead>
<tr>
<th>Part Number</th>
<th>(Quantity)</th>
<th>Bolts (Quantity)</th>
<th>Engine Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>88894339</td>
<td>12535877(1)</td>
<td>12552344(10)</td>
<td>MY04/05 LS1 and LS6</td>
</tr>
<tr>
<td>12568976</td>
<td>89017840, 90111, 890178521(1)</td>
<td>12579938(10)</td>
<td>MY06/07 LS7</td>
</tr>
<tr>
<td>25534394</td>
<td>19172113</td>
<td>Included with manifold</td>
<td>LS7 Carb Applications</td>
</tr>
<tr>
<td>25534401</td>
<td>19172114</td>
<td>Included with manifold</td>
<td>L76/L92 and LS3 Carb Applications</td>
</tr>
</tbody>
</table>
AIR CLEANERS

D. 12342080
Air Cleaner, Chevrolet-Logo High-Performance Design
• Fourteen-inch round high-performance style air cleaner
• Chrome lid with embossed Chevrolet name
• Fits most four-barrel and two-barrel carburetors

Check clearance between hood and top of air cleaner. Minimum clearance is 3.75 inches from top of carburetor gasket area to underside of hood.

E. 12342071
Air Cleaner, Chevrolet-Logo Classic Design
• Fourteen-inch round classic-style air cleaner
• Chrome lid with embossed Chevrolet name and Bowtie attaching nut
• Fits most four-barrel and two-barrel carburetors

ENGINE MOUNTS

15254700
Engine Mount (not shown)
• Requires 2 per engine
• For '05-'08 Corvette engines
• For LS2 and LS7 engines

22179268
Engine Mount (not shown)
• Requires 2 per engine
• For '96-'02 F-Body engines
• For LS1 engines

10284134
Engine Mount (not shown)
• Requires 2 per engine
• For '97-'04 Corvette engines
• For LS1, LS2 and LS6 engines

15854941
Engine Mount (not shown)
• Requires 2 per engine
• For L92 engines

BOOKS & MANUALS

F. 88959384
LS1 Engine Kit Installation Guide
• Includes notes and technical explanations for necessary parts
• Includes part numbers you can order from your GM dealer to get the job done easily

G. 88958786
High Performance Chevy LS1/LS6 V-8's
• Discusses the LS series engine architecture and design, and parts interchangeability
• Step-by-step engine removal sequences for many GM vehicles with LS series engines
• Shows how to build, modify and tune high-performance LS engines
160 pages