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.

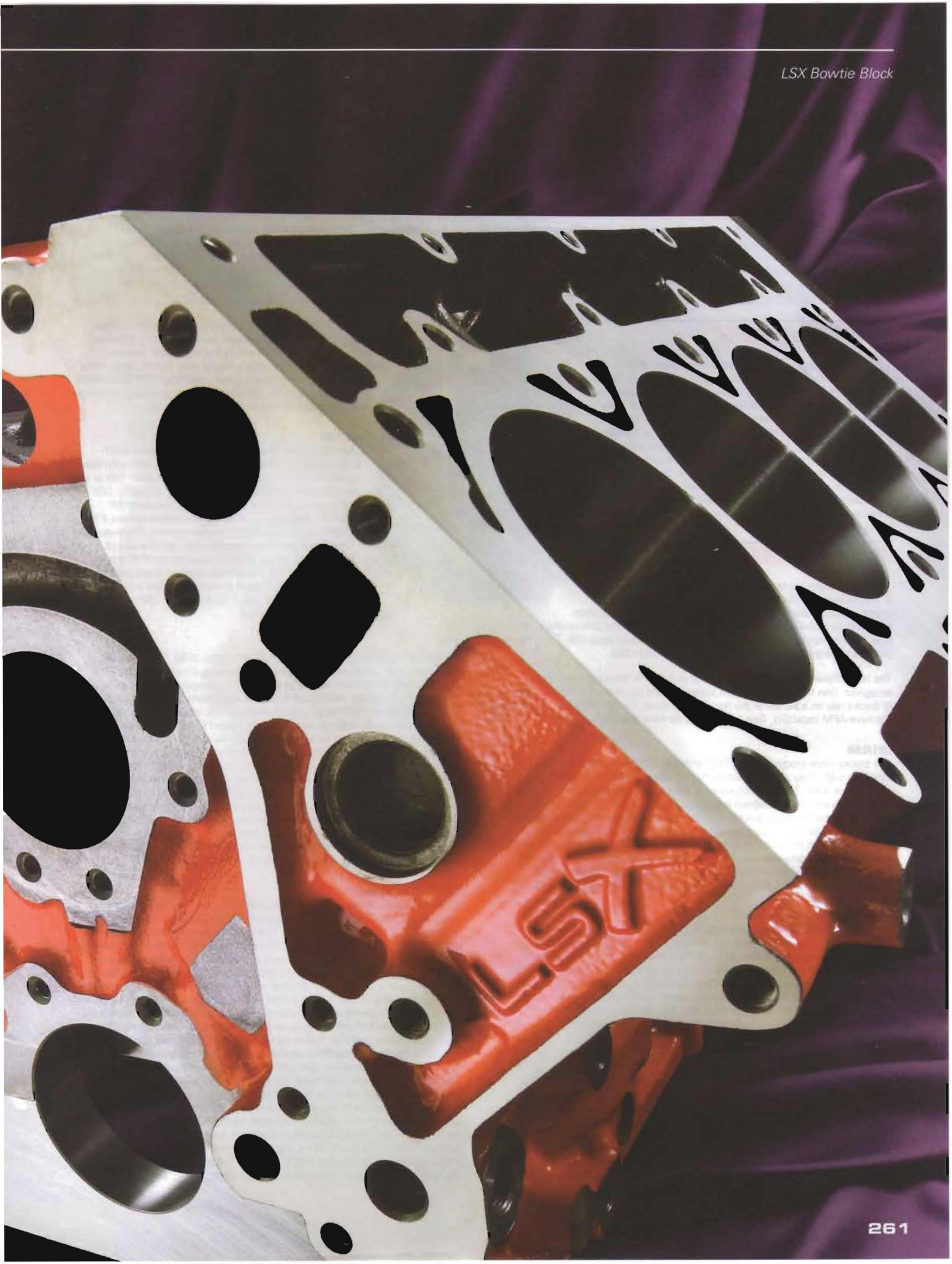
For enthusiasts that is good news, indeed.

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.


LSX

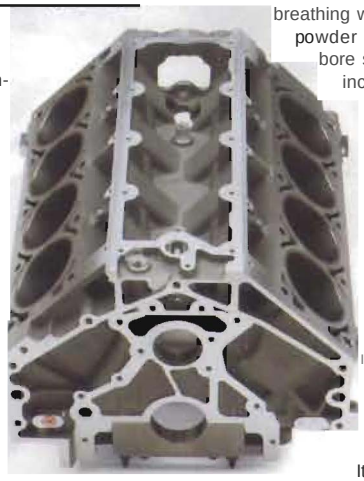
Getting Started with the LS Engine family

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 down grades? 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

e 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 IIIIGen 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, standard GM bellhouslng bolt pattern, 4 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.



BLOCKS

lthough there are several minor differences between the OEM blocks, there are really only 4 major changes/differences: casting material (iron vs. aluminum), cam sehsing location, provision for active fuel management (AFMI, and lastly the differences In bale size. FOI a complete list of block specs, see the chart on page 266 To verify block to head compatibility, look at the chart on page 263.

The real differences between the Gen Ill 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.

IS1/IS6

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, ovel-boring is limited to .030' The liners were designed for a stock stroke of 36'. Straker combinations should be limited to around 4.00 (piston design will determine max stroke). They use Gen III cam sensing provisions, but Gen IV cam sensing can be used with this block through the use of a Gen IV front timing cover and blocking/plugging rear-sensing hole. There are no prOVisions fOI AFM. Main bearing bulkheads are solid, and the main caps are iron. Due to its smaller bore size, only LS1, LS6 and LS2 heads will work with this block.

IS2

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 sensmg 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, not only do LS1, LS6 and LS2 heads fit, but L92 and LS3 heads work with this block as well.

IS7

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 RPlv1, and to increase power output, the main bearing bulkheads were designed with bay-to-bay breathing windows. The main caps are high strength, fully profiled powder metal castings 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. GM Performance Parts offers a solid main bearing bulkhead block (PIN 25534427) for enthusiasts who will be using an aftermarket dry sump oiling system, or a scavenging pump system.

192/IS3

L92/LS3 blocks have been in production since 2007 (LS3 starting in 20081. They are cast aluminum with iron cylinder liners with a stock bore size of 4065', 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. but only used in L92 engines. Main bearing bulkheads are solid, and the main caps are iron. Due to Its slightly bigger bore size, LS1, LS6, LS2, L92 and LS3 heads will work with this block.

C5R

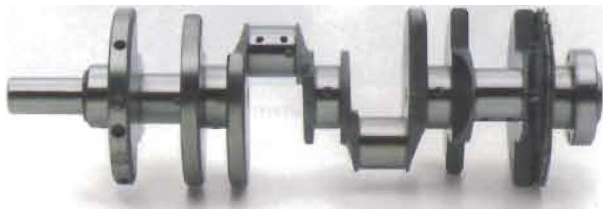
C5R blocks have been produced from 2000 through 2008. They are cast from a stronger, more durable proprietary aluminum alloy than OEM. After casting, these blocks are treated to a "hipping" process to provide even more strength and durability. Each block is also X-rayed to ensure there is no porosity. They are fitted with C5R spec cylinder lrners with a stock bore size of 41 17'. This is a siamese bore block, over-boring is limited to 4.160' max bore size. The liners were designed for a stroke of 4.00 . Straker combinations should be limited to around 4.12' (piston design will determine max stroke). These blocks have Gen III cam sensing provisions, the use of a Gen IV front timing cover will accommodate Gen IV 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, are dowel located and are secured with 4340 premium fasteners. 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.

ISX 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 recommended max bore size of 4.200 . Extra material was designed in, however, to accommodate an absolute max. bore of 4.250'. The bore lengths wele designed for maximum stroke, while still providing hone over travel clearance, whicll is cut at 4.28 diameter. Straker combinations can reach 4.25', however rotating assembly design will be critical in stroke lengths exceeding 4.125' and heavy metal will be required for balancing the crankshaft. LSX blocks require 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 capability, increased max RPM capability, and to increase power output, the main bearrng bulkheads are cast 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 C5R lacing heads. The oiling system was redesigned to a true priority main system-oil is supplied first to the main bearings, and then to the rest of the engine. This feature is unique to the LSX block.

GEN III SMALL-BLOCKS

Part Number	Description	Liters	CID	HP	TQ	Bore	Stroke
19165628	LS327/327	5.3	327	327	347	3.780	3.622
17801267	LSl	5.7	346	350	365	3898	3.622
17801268	LS6	5.7	346	405	395	3.898	3.622
19156262	LU9	6.0	364	345	380	4000	3.622
19165484	LS2	6.0	364	400	400	4.000	3.622
17802134	*LS364/440*	6.0	364	440	404	4000	3.622
19171224	*LS376/485*	6.2	376	485		4065	3.622
19171225	*LS376/520*	6.2	376	520		4055	3.522
19201992	LS3	6.2	376	430		4.065	3.622
19171821	C1525	6.2	376	525	471	4065	3.622
19165058	LS7	70	427	505	470	4.125	4.000



CRANKSHAFTS

ost Gen III and Gen IV crankshafts are nearl. identical In design. all use the same rod and main journals sizes. all use the sa e rear seal. All but the LS7 are iron. One major difference that needs to be noted is tnat the LS7 crankshaft has a snout that is approximately 1 longer than all other cranks. 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 crankshaft Is n 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 01 6275'. 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 to changed to 58· oath

5.3L-6.2L
The cran shafts 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 L57
The LS7 70L cranksha is a steel crankshaft with 2.1' rod lournals 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 carne with 58-tooth reluctor wheels. Due to the 2-stage oil pumps used in the LS7 engines. the nose of the cran - shaft is longer than all other crankshafts by appro ,ately I'. This crankshalt can be used with standard LS oil pumps. Here's what you need to do: repl ce the crankshaft timing gear with the standard LS gear (PIN 12556582), replace the LS7 oil pump with the standard LS all pump (PIN 17801830), replace the LS7 timing cover with the LS2 timing cover (PIN 12600325), From here you have two choices: a l' spacer hub can be sed in front of the LS7 balancer to make up the differ nce in length between the two crank gears using the stock LS7 balancer bolt. or you can have the crankshalt snout shortened ,. and use an LS2 type balancer bolt. Or you can use the new GMPP 4' stroke camshaft (PIN 191 716 19)

CONNECTING RODS

he connec 'ng 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 6.098" long. Starting in 2006. all rods are now made with bushed small ends (wrist pin end) If you have a set of earlier model LS rods (pre-20001 we offer LS6 upgrade bolts IP/N 11600158) for performance use As mentioned before. the LS7 rods are titanium. but there are also a couple a 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 pistonsl. Additionally, the bore in the big end is a little different size than that of he a her rods, necessitating a different rod bearing *(PIN* 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 PIN 11609825.

PISTONS

ll 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 iSbore 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 10 this, the LS7 rods should fit any LS piston, but doing this would require chec ing piston to cran shaft clearance at BDC.

HEADS AND INTAKES

n this section we're going to talk about the induction system-the heads and intake manifolds. First we need to start oH w ith the aspect that offers he most can usion: port designs.

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

Port Designs

Cathedral Ports

The first post design is called the cathedral port. This IS the original port design for the LS family. **Picture A** shows what the ports 100 like from the front. It's called cathedral due to its look. These ports flow considerably more air than the original small-block ports.

IS7 Rectangular Ports

The second port design is referred 10 as the LS7 rectangle port. It was first introduced in the 2006 Z06 Corvette LS7 70L engine. It is stili dedicated only to the LS7 engine today. **Picture B** shows what this port looks like. It was originally derived from the C5R racing program, and tweaked for use in OEM applications. This head has the biggest airflow numbers of any of the factory LS heads.

192 Rectangular Ports

Next is the L92 rectangle port. I 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 a the LS7, but the ports are a little taller. and a bi thinner These heads low better than the cathedral po heads. but a little less than the LS7 heads. The new 2008 LS3 uses ports of the same deSign as the L92.

C5R

Lastly, we have the C5R ports. These heads were designed strictly for the C5R racing program. Again, this was the original rectangle port design before being adopted into he LS7 and L92 head programs. These ports are rectangle In shape, and have very hig fl 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 importa ems to know about the heads is that each port deSign has not only a unique shape, but each design has a unique intake manifold bol pattern. This is good for you. because you don't need to concern yourself w ith mismatched port designs. In **pictures** A, B and C, it's easy to see the differences in these patterns The ex aust bol patterns, however, are all t e same, and most headers will fit them all. The location of the bolt pat- ern varies slightly, so header to frame or body clearance may vary depending on which head is used. OtherWise. all other bolt patterns in the heads are the same. All accessory bolt holes and head mounting holes ale identical.

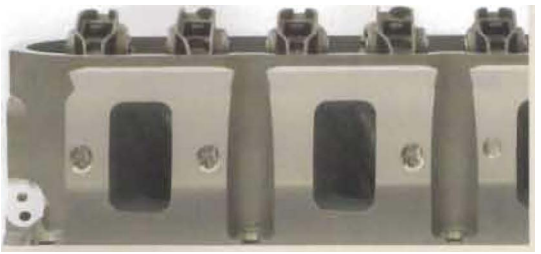
Valve Sizes. Valve Locations & Minimum Bore Sizes

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 eads. These heads all came with 2.00" in ake, and 1.50' 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

A Cathedral Intake Port and Bolt Pattern



B LS7 Intake Port and Bolt Pattern

C L92 Intake Port and Bolt Pattern

LS6 engines, the standard solid stem valves were replaced wi h hollow stem make valves, and sodium filled exhaust valves. When the LS2 was designed, the engine was larger, thus reducing the max RPM. This oHered a savings because the expensive LS6 valves could be replaced with standard LS1 valves. alve angle on these heads is 15 degrees,

192 Style Heads

These heads were designed to work on slightl bigger engines with slightly bigger 4.00' and 4.06' bore sizes. Because of this, they have bigger valve sizes and Increased flow n mbers over non-CNC ported ca hedral par heads. They come with 2.165" intake, an 1.59 exhaust valves, and were designed to be opti ized for the 4.065' bore, therefore ey perform bener on engines with a minim m of 4.065' bore. To achieve an increased maximum RPM on LS3 engines. the standard solid stem valves were replaced with hollow stem

IS COMPATIBILITY — HEADS VS. INTAKES

	INTAKES			HEADS									
Engine	PIN	Manifold Type	Port Type	12559855 sId IS1	12564824 std LS6/IS2	12562319 std lO9	88958665 CNC IS6	88958622 CNC LS6	12562713 std l161l92	12598594 sId LS3	88958698 CNC L92	12578450 sId CNC LS7	12480090 C5R head
LS1/IS6	88894339	EFI	Cathedral	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
LS2/l04	88958615	4-bbl	Cathedral	Yes	Yes	Yes	Yes	Yes	No	No	No		No
LQ4!L09	nla	EFI	Cathedral	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
L76/l92/LS3	12590123	EFI	L92	No	No	No	No	No	Yes	Yes	Yes	No	No
L76!L92/LS3	25534401	4-bbl	L92	No	No	No	No	No	Yes	Yes	Yes	No	No
L76/L92/LS3	25534416	4-bbl w/inj	192	No	No	No	No	No	Yes	Yes	Yes	No	No
LS7	25534394	4-bbl	IS7	No	No	No	No	No	No	No	No	Yes	No
LS7	25534413	4-bbl w/inj	I S7	No	No	No	No	No	No	No	No	Yes	No
I S7	12568976	EFI	I S7	No	No	No	No	No	No	No	No	Yes	No

No = not compatible Yes = direct compatibility

LS6 Rockers D

LS7 Rockers E

L92 Rockers F

intake valves, sodium filled exhaust valves. Valve angle on these heads is 15 degrees like the cathedral portheads. However, when using these heads on an engine originally fined with cathedral port heads, valve to piston clearance must be checked.

IS7 HEADS

These heads were designed to work on engines with 4.125' bore sizes. They have the biggest valve sizes and highest flow numbers of the LS series OEM heads. They are fully CNC-polted right from the factory, come with 2.200' titanium intake, and 1.61' exhaust valves, and were designed to be optimized for the 4.125" bore. 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 12 degrees and because valve spacing is unique, when using these heads on an engine originally fined with pistons not designed for LS7 heads, valve to piston clearance must be checked.

C5R HEADS

These heads were designed for the C5R racing 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 fined with pistons not designed for C5R heads, valve to piston clearance must be checked.

VALVETRAIN

The valvetrain system on the LS series engine is very simple. All production heads use bolt down style, investment cast, roller trunnion rockers. All rockers 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 0, E, and F.**

LS1, LS6 and LS2 heads use non-offset rockers *PIN* 10214664 for both the intake and exhaust. **(Picture 0J**

L92 and LS3 heads use the same PIN 10214664 rocker for the exhaust, but use an offset rocker PIN 12569167 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)**

C5R heads use aftermarket shah mount style roc' ers only.

HEAD-T()"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 whicll 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 linle room to overbore, they can only use LS1, LS6 and LS2 type heads. Anempting 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 L92/LS3 heads. L92 and LS3 blocks with their 4.065 bore can only use L92/LS3 and LS1/*LS6* heads. C5R and LS7 blocks have 4.125' bores and can use any of the LS heads.

All production blocks have the same head bolt panern and use the same diameter bolts: (41 11mm bolts per cylinder (10 bolts total per sidel and 5 upper, 8mm bolts. Early model blocks like the LS1 and LS6 have 2 different length 11mm 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. L92/LS3 heads require a minimum of 4.00", but work bener 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 C5R heads require a minimum of 4.10' bore, but work bener on 4.125' and larger bores. Bores smaller than a 4.10' could cause valve to block interference, and be a potential for head gasket sealing issues.

IS COMPATIBILITY — HEADS VS, BLOCKS

	BLOCKS		HEADS								
Engine	PIN	Bore Size	12559855 std LS1	12564824 std LS6/LS2	12562319 sid lQ9	88958665 CNC IS6	88958622 CNC LS6	12562713 sid I76/I92	12598594 sid IS3	88958698 CNC 192	12578450 sid CNC IS7	12480090 C5R head
LSI/IS6	**12561166**	389	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
LQ4/lQ9	**12572808**	4.00'	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LS2/l76	**12568950**	4.00'	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
L92/IS3	**12584727**	4065	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
LS7	**17802854**	4.125'	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LS7*	**25534427**	4.125'	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
C5R	**12480030**	4.12' - 4.10	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LSX	**19166454**	399 - 4.25"										

*No = nor compatible Yes = direct compatibility * = 4.00 miminum bore ** = 4.125 minimum bore*

Chevy LS Series Quick Reference Chart

LS SERIES BLOCKS

Origin	Part Number	Material	Deck Height	Bore	Mein Bolt	Cap Material	Crankshaft JnlDia.	Oiling	Rear Main Seal	Max Stroke	MexHp	Usage	Page Number
LS1/LS6	**12561166**	Alum	9240	3.89"		Iron	Std. LS 12.561	Wet	1pc	4.00	450	Street	267
LS2	**12568950**	Alum	9240	4 00'	6	Iron	Std. LS 12561	Wet	1 pc	400'	450	Street	268
L92/LS3	**12584727**	Alum	9.240	4.065'	6	Iron	Std. LS 12561	Wet	1 pc	4.00'	525	Street	269
LS7	**17802854**	Alum	9.240	4125		PM	Std. LS (2561	Dry	1pc	4.1 0	550	Street	270
LS7	**25534427**	Alum	9.240	4.125'		PM	Std. LS 12561	Dry	1pc	4.10	550	Street	270
C5R	**12480030**	Alum	9.240	4.11 7- 4.160'		8620 Steel	Std. LS 12561	Wet	1 pc	4.10	900	Pro	271
L09	**12572808**	Iron	9.240	3.98"		Iron	Std. LS 12561	Wet	1 pc	4.00	500	Street	268
LSX	**19166454**	Iron	9.260	3.99-4.250'		1045 Steel	Std. LS 12561	Wet	1 pc	4.25	1500+	Street/Pro	272
LSX	**19166097**	Iron	9700	3.99--4.250"		1045 Steel	Std. LS 12561	Wet	1 pc	4.50	1500+	Street/Pro	273

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.

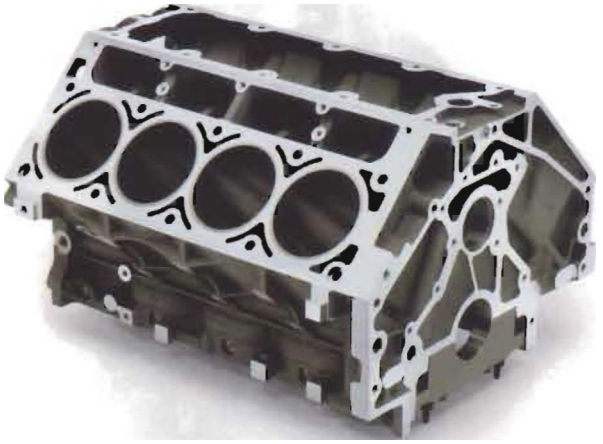
Such high-profile stars as Dale Earnhardt and Warren Johnson made great contributions to GM Performance Parts' popularity and track credibility. Earnhardt won seven NASCAR titles in Chevrolets, and Warren Johnson has netted six NHRA championships in his GM Pro Stock cars and hasn't shown any signs of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

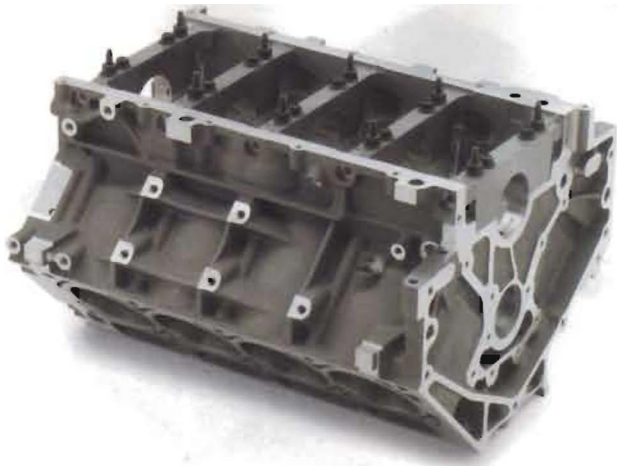
Top: Dale Earnhardt and his crew in 1992.

Bottom: NHRA Pontiac Driver Warren Johnson in his Pontiac Grand AM in 2003.



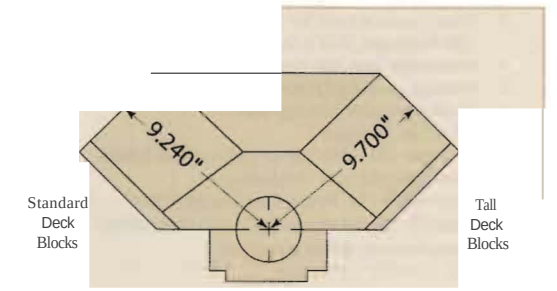
LS1/LS6 5.7L Bare Block (rear) A

LS1/LS6 5.7L Bare Block (top) A



LS1/LS6 5.7L Bare Block (bottom) A

DECK HEIGHT DIAGRAM



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

LS Cast Iron 6.0L Bare Block (not shown)

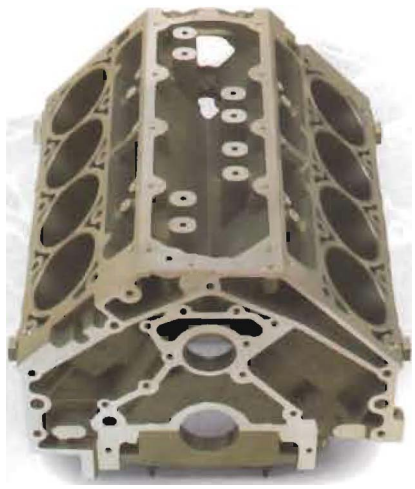
Direct replacement for 1998-2004 LQ4 and L09 Truck and SUV 6.0L
Production cast iron block
Production oiling system
6-bolt iron main bearing caps
9.240" deck height
Use only LS1, LS6, LS2 or L92 cylinder heads
4.00" finished bore 1101.6mm
No provision for "Active Fuel Management"
Great for straker cranks for even more cubes
Tested to over 500 horsepower!

12568950

LS2 Aluminum 6.0L Bare Block (not shown)

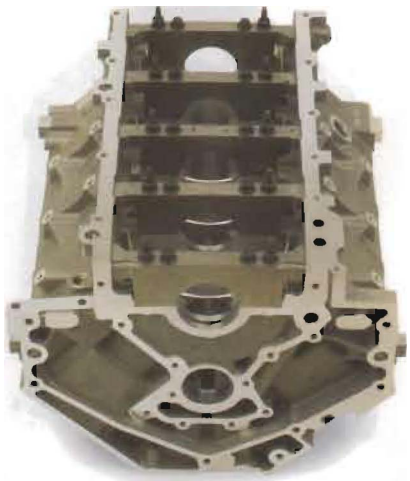
Direct replacement for 2005-2007 LS2 Corvette, SSR, GTO 6.0L and TrailBlazer SS
Production 319-T5 aluminum block with iron sleeves
Production oiling system
6-bolt iron main bearing caps
9.240" deck height
Use only LS1, LS6, LS2, L92 or LS3 cylinder heads
4.00" finished bore (101.6mm)
Provisions for "Active Fuel Management"
Great for straker cranks for even more cubes
Tested to over 450 horsepower!

NEW



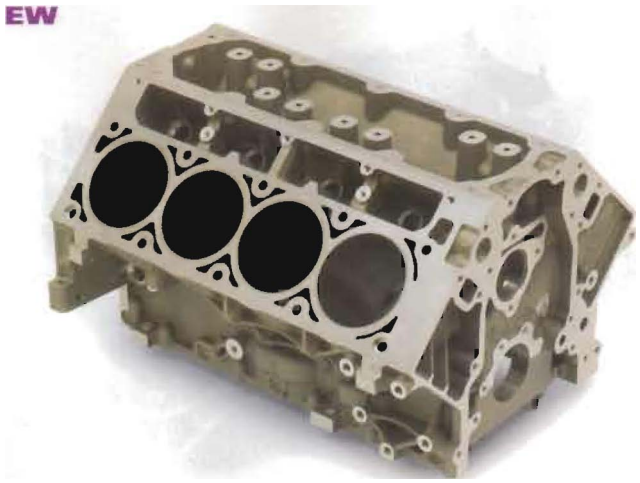
A L92 Aluminum 6.2L Bare Block (top)

NEW



A L92 Aluminum 6.2L Bare Block (bottom)

EW



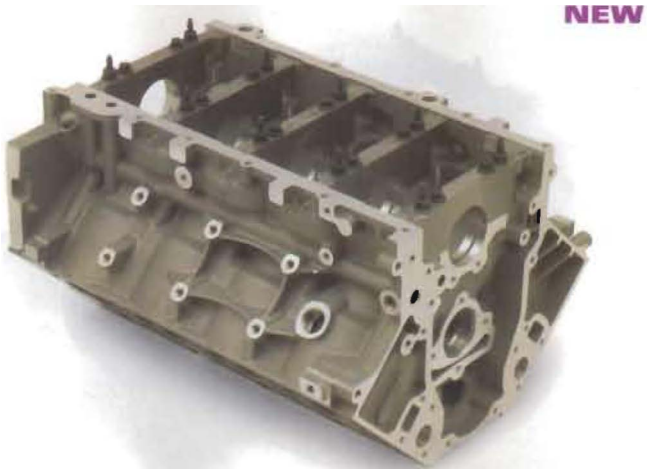
A L92 Aluminum 6.2L Bare Block (front)

L92 Aluminum 6.2L Bare Block (rear) A

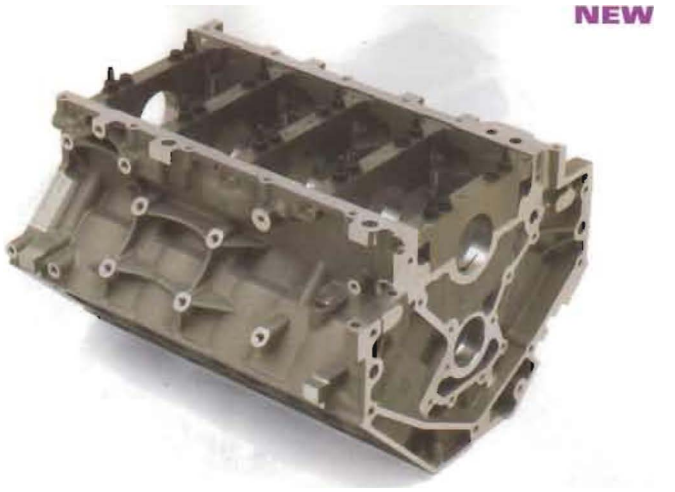
A. 12584727 EW

L92/LS3 Aluminum 6.2l Bare Block

Direct replacement for 2007- 2008 L92. and 2008 LS3 62L
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 ml
Provisions for 'Active Fuel Management'
Great for straker cranks for even more cubes
Tested to over 500 horsepower!



L92 Aluminum 6.2L Bare Block (bottom) A



L92 Aluminum 6.2L Bare Block (frontl A

The LS Series Blocks Continued

A. 17802854

lS7 7.0l Corvette Bare Block

- Direct replacement for 2006-2008 IOIIS7 engine
  Production 319-T5 aluminum block with pressed-in iron sleeves
- Production oiling system
  6-bolt 'dowellocated' steel main bearing caps
- 9.240' deck height
- For use with any IS series head
- 4.125" finished bore (104.78mml, deck plate honed
- Siamese cylinder bores for large bore size
- No provision for 'Active Fuel Management'
- Based on C5R block development
- Tested to over 500 horsepowerl

Parts required to complete your lS7 Block

PART NUMBER	QTY	DESCRIPTION
12570471		Valley Cover
12598292		Front Cover Assembly
21007339		Plug
12556437	1	Camshaft Retainer
11609289	1	Plug
11610259	1	Plug, Cylinder Head
12551177	5	MB x 1.25 Flanged Hex Head Bolt
12570326	4	Dowel, Cylinder Head locating
12572013	1	Rear Cover Assembly
12573460	1	Oil Plug
12596334	1	Windage Tray
11588426	2	Plug
09427693	4	Plug
01453658	2	Dowel, Bell Housing locating
12561663	1	Plug
12573107	1	Oil Pressure Sensor
12585546	1	Crankshaft Position Sensor

25534427

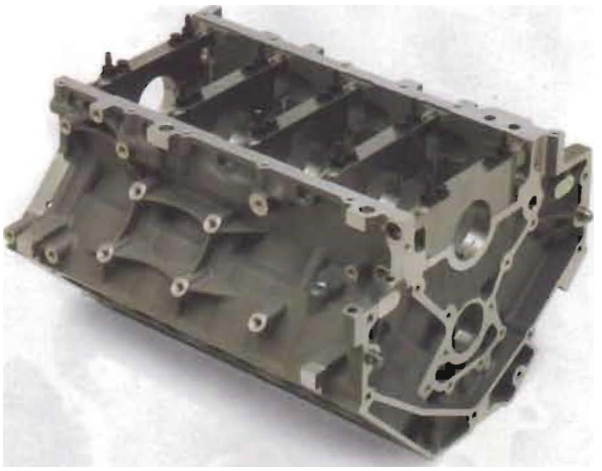
lS7 Bare Block with Solid Main Bulkheads lnot shown)

- 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 I S series head
- 4.125" finished bore 110478mml, 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 horsepowerl

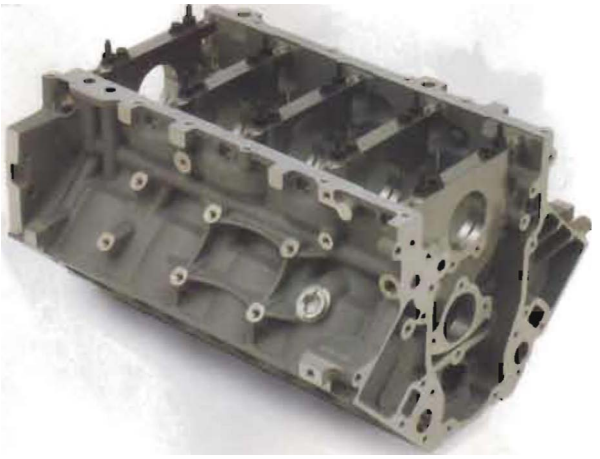
25534412

Oil Hose Adapters (not shown)

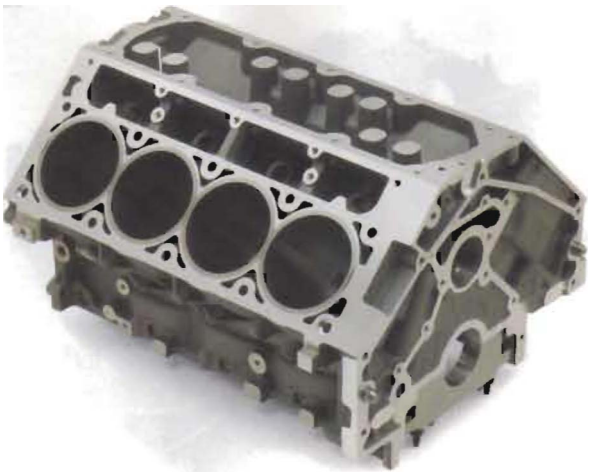
- Kit adapts the production IS7 Oil Pan to ahermarket AN style hoses for ahermarket dry sump oil tanks
- Bolts directly to IS7 Oil Pan, and has AN male outlet for -12 AN fittings
- Includes (1) adapter, (2) fittings, (21 bolts. and (21 sealing gaskets



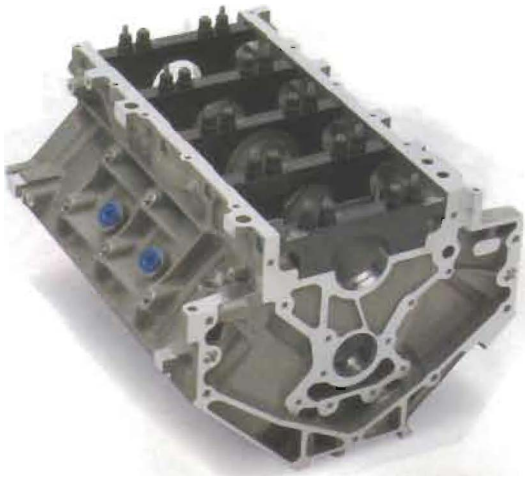
A IS7 7.0l Corvette Bare Block (rear)



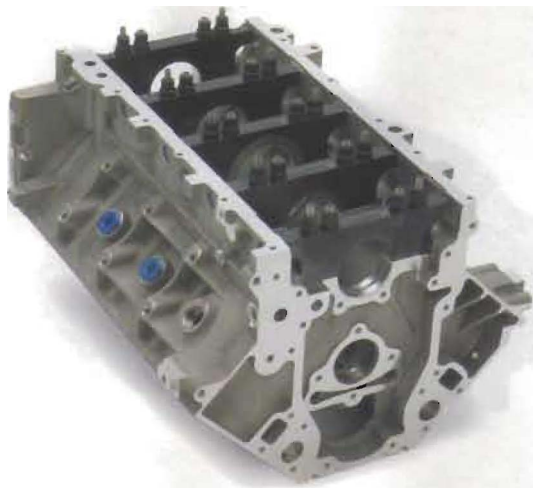
A IS7 7.0l Corvette Bare Block (front)



A IS7 7.0l Corvette Bare Block (rear)



Aluminum C5R Racing Block (rear) B



Aluminum C5R Racing **Block** (front) B

Aluminum C5R Racing Block (front) B

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, GT-S, 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, 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!

LSX BOWTIE BLOCK

T e 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 spec's
- 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 exteriorlinterior 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

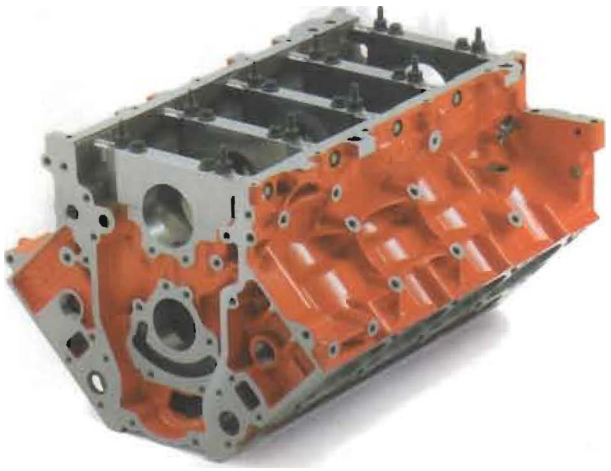
A. 19166454

LSX Bowtie Block (Standard Deck)

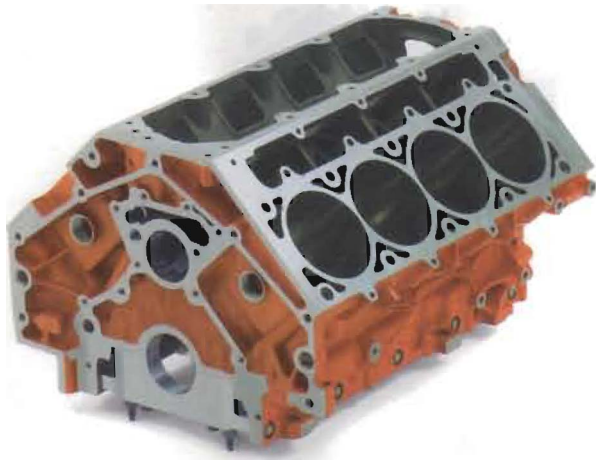
3.990" finished siamese cylinder bores
(ready to be honed to your specifications)
9.26' semi-finished standard deck height
(ready to be decked to your specifications)
Max 4.250' recommended stroke
Capable of 364 to 482+ cid
Orange powder coat finish
Accepts all Gen III & IV LS heads, cranks, cams, etc.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

The LSX Block includes the following;

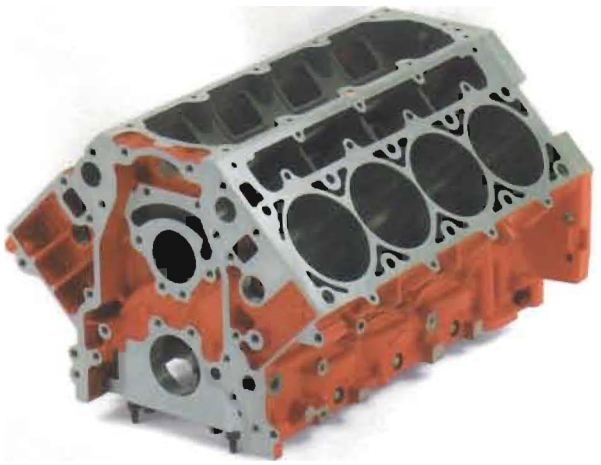
19166177 Cam Thrust Plate
19166178 LSX Rear Cover
19166182 Tappet Guides



A LSX Bowtie Block (front)



A LSX Bowtie Block (rear)



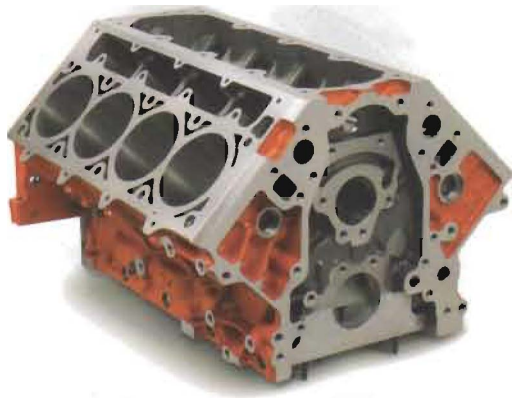
A LSX Bowtie Block (front!

LSX Bowtie Block (front) **A**

Lifter Boss Detail **A**

Bay-to-Bay Breathing Pocket Detail **A**

NEW



LSX Tall Deck Block **B**

Other service parts for your ISX Block:

19166179	Cam Thrust Plate, O-Ring
19166180	Rear Cover, O-Ring
19166181	Rear Cover, O-Ring Seal
19167382	0.5mm Oversize Bearing
19167383	1mm Oversize Bearing
12567634	Main Cap Dowel

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 9.20" 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 Camara 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 Camara" 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:

PART NUMBER	QTY	DESCRIPTION
12575742	01	Valley Cover
12561211	01	Cam Sensor
11570082	08	Bolt
12570471	01	Valley Cover
12561243	01	Front Cover
11515758	08	Bolt
12614813	01	Rear Crankshaft Seal Housing
12556127	12	Bolt
12602972	01	Rear Crankshaft Oil Seal
12614812	01	Rear Crankshaft Seal Housing Gasket
12618054	01	Oil Galley Plug
11588949	02	Oil Plug
09427693	04	Water Drain Plug
01453658	02	Transmission Alignment Dowel
12561663	01	Water Drain Plug
12556437	01	Camshaft Retainer Plate

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, (2) bolts, and (2) sealing gaskets

89017877

Main Bearing (not shown)

- Positions 1,2,4,5
- Requires 4 per engine
- For LS7 engines

C. 89017808

Main Bearing

- Thrust bearing, position 3
- For LS7 engines

88894271

Main Bearing (not shown)

- Positions 1,2,4,5
- Requires 4 per engine
- For non-LS7 engines

89017572

Main Bearing (not shown)

- Thrust bearing, position 3
- For non-LS7 engines

FRONT COVERS & TIMING POINTERS

12561243

FrontTiming Cover (not shown)

- For LS1 and LS6 engines
- No cam sensor

O. 12600325

FrontTiming Cover

- For LS2 and LS3 engines
- Gen IV cam sensor included

NEW

A Bare Block Completion Kit, Gen III

B Oil Hose Adapters

C Main Bearing

Don't Forget those corresponding parts!
See the chart on page 275 for specifics.

FrontTiming Cover D

12616491
FrontTiming Cover (not shown)
- Includes seals and bolts
- For L92 engines
- Gen IV cam sensor included

12598292
FrontTiming Cover (not shown)
- Includes seals and bolts
- For LS7 engines
- For 2-stage oil pump
- Gen IV cam sensor included

12574294
Front Cover Gasket (not shown)
- For all LS series engines

12585673
Front Crank Seal Inot shown)
- For all LS series engines

11515758
Front Cover Bolt (not shown)
- Requires 8 per engine
- For all LS series engines

Rear Block Cover E

E. **12614813**
Rear Block Cover
- Includes seals and bolts
- For all stock LS engine blocks (will not work on LSX block PIN 19166454)

LS Front Distributor Drive Cover F

F. **88958679**
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 25534398 and PIN 25534399 for a complete traditional looking engine package
- For all LS series engines except LS7
- *Distributor and mechanical fuel pump* not included. Uses small-block Ford style distributor and mechanical fuel pump.

Don't Forget *those corresponding parts! See the chart below for specifics.*

Timing Covers: Corresponding Parts

Part Number	Bolts (Quantity)	Seal (Quantity)	Gasket (Quantity)	Engine Application
12616491	11515758181	12585673	12574294 (11	MY07 L92
12561243	11515758 (8i	1258567311)	12574294 (11	MY04 & MY06 L09, MY04/05 LS1, MY04/05 LS6
12598292	11515758 (81	12585673111	12574294 (11	*MY06/07* LS7

LS SERIES CYLINDER HEADS

Part Number	Description	Material	Port Size	Valve Angle	Chamber CC's	Int Vlv	Exh Vlv	Port Type	Heat Riser	Rocker Stud	Notes	Page Number
12564825	Bare LS2 & LS6	Aluminum	210	15 deg	64.5	2.00	1.55	Cathedral	No	Bolt	Bare LS2/LS6	N/S
12564824	Stock LS6	Aluminum	210	15 deg	64.5	2.00	1.55	Cathedral	No	Bolt	Hollow/sodium filled valves	276
12576063	Stock LS2	Aluminum	210	15 deg	645	2.00	1.55	Cathedral	No	Bolt	Solid stem valves	277
88958622	CNC LS6	Aluminum	250	15 deg	61.9	2.00	1.55	Cathedral	No	Bolt	11.2 compression	277
88958665	CNC LS6	Aluminum	250	15 deg	65	2.00	1.55	Cathedral	No	Bolt	10.5 compression	276
88958765	CNC LS2	Aluminum	250	15deg	64.5	2.00	1.55	Cathedral	No	Bolt	Solid stem valves	277
12582714	sare L76/l92	Aluminum	260	15 deg	70	2.16	1.59	L92	No	Bolt	Solid stem valves	N/S
12582713	Stock L76/L92	Aluminum	260	15deg	70	2.16	1.59	L92	No	Bolt	Solid stem valves	278
88958698	CNC L76/L92	Aluminum	279	15 deg	68	2.16	1.59	L92	No	Bolt	Solid stem valves	278
12598594	Stock LS3	Alummum	260	15deg	70	2.16	1.59	L92	No	Bolt	Hollow/sodium filled valves	N/S
12578450	Bare LS7	Aluminum	270	12 deg	70	220	1.61	LS7	No	Bolt	Bare LS7	N/S
12578449	Stock LS7	Aluminum	270	12 deg	70	220	1.61	LS7	No	Bolt	Titanium/sodium filled valves	278
25534428	As-cast LS7	Aluminum		12 deg	66	2.20	1.61	LS7	No	Bolt	Titanium/sodium filled valves	279
12481005	C5A 1st design	Aluminum	210	11 deg	38	2.18	1.63	C5A	No	Shalt	As-cast, no seats/guides (DISCONTINUED)	N/S
12480090	C5A 2nd design	Aluminum	210	11 deg	30	2.18	1.63	C5A	No	Shaft	As-cast, no seats/guides	279

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 V-8. The LS6 cylinder head came as standard equipment on the amazing 405-horse 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 light weight 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 mm, 5/8" hex, 3/4 reach, taper-seat plugs)
- 15° valve angles (except C5R and LS7)
- 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
- .570" max valve lift
- 210cc "cathedral port" intake ports
- 70cc D-shaped exhaust ports
- 65cc combustion chambers
- Bare head PIN 12564825 available separately

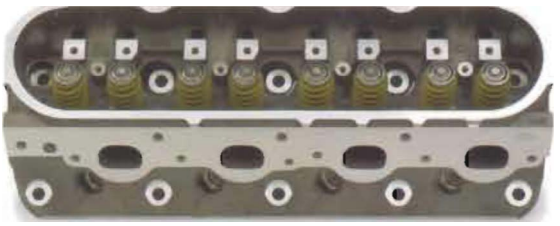
88958665

CNC-Ported LS6 Cylinder Head Assembly (not shown)

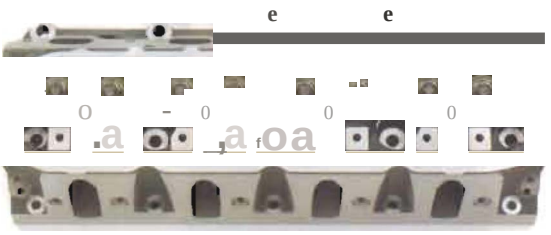
- CNC-ported aluminum performance head
- Fits any 1997-2008 LS family engine*
- 2.00" Hollow stem intake, and 1.55" sodium filled exhaust valves
- .570" max valve lift
- 250cc CNC'd "cathedral port" intake ports
- 85cc CNC'd D-shaped exhaust ports
- 65cc CNC'd combustion chambers

* 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 LS6 Cylinder Head Assembly (exhaust)



A LS6 Cylinder Head Assembly (intake)

A LS6 Cylinder Head Assembly (exhaust)

CNC-Ported LS2 Cylinder Head Assembly (exhaust) B

CNC-Ported LS2 Cylinder Head Assembly (intake) B

CNC-Ported LS2 Cylinder Head Assembly (combustion chamber) B

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
12586484	Valve Springs	**12482062**	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
12586484	Valve Springs	**12482062**	Exhaust Valve Stem Seals
10166345	Valve Locks		

LS2 & LS6 Head Flow Data:

lift	0.200	0.300	0400	0500"	0600"
Stock intake	136	195	237	260	260
Stock exhaust	104	135	157	169	180
CNC intake	147	215	262	290	307
CNC exhaust	111	155	198	210	218

* 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
  .510' max valve lift
- As-cast "rectangle port" in ake 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:

12590771	Intake Valves	10166344	Valve Spring Retainers
12582719	Exhaust Valves	12482063	Intake Valve Stem Seals
12589774	Valve Springs	12482062	Exhaust Valve Stem Seals
10166345	Valve Locks		

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

Lift	0.200	0.300'	0AOO	0.500'	0.600
Intake	151	208	256	294	316
Exhaust	111	152	174	183	189

A L76/L92 Cylinder Head Assembly (exhaustl

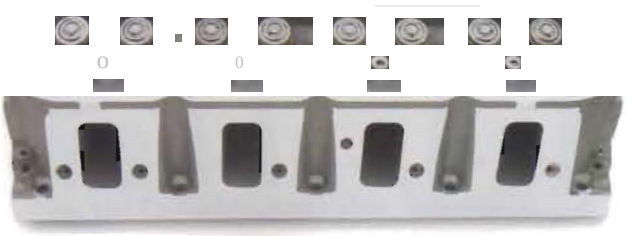
88958698 NEW

CNC-Ported L92 Cylinder Head Assembly (not shown)

CNC-ported performance head
Fits any LS family engine wi h a bore of 4.00' or larger
Uses stock 2.165' and 1.590' valves. springs and hardware
Stock intake and exhaust port locations
.510' 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):

Lift	0.200'	0.300'	0400·	0.500	0600'
Intake	150	222	260	298	332
Exhaust	105	140	168	190	201



A L76/L92 Cylinder Head Assembly (intake)

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 12578450 available separately

A L76/L92 Cylinder Head Assembly (combustion chamberl

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

Bare C5R Racing Cylinder Head (exhaust) B

Bare C5R Racing Cylinder Head (intake) B

Bare C5R Racing Cylinder Head (combustion chamber) B

Head 12578449 is assembled with the following components:

12591644	Intake Valves	12596508	Valve Spring Retainers
12578455	Exhaust Valves	12482063	Intake Valve Stem SealS
12578457	Valve Springs	12482062	Exhaust Valve Stem Seals
10166345	Valve locks	12596509	Intake Valve lash Cap

IS7 Head Flow Data:

Lilt	0.100'	0200	0.300'	0.400'	0500-	0550'	0600'	0.700'
Intake	71.0	145.0	222.0	271.0	3150	332.0	3480	3520
Exhaust	600	120.0	1590	192.0	207.0	214.0	219.0	221.0

25534428

IS7 Bare Unportod 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 gu,des
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

Pan Number	Gaskets IOuantlfyl	Bolts (OUlnllly)	Plug	Engine Applicalion
12576063	12589227 (2) OR 19170418	11562524 (201. 12558840 (101	12571164	MY05/06/07IS2 and Carb IS2
12564825	12589226121 OR 19170418	11562524(201.12558840(101	12571164	MY07IS4
12564824. 12564825	12589226 121 OR 19170418	1158829 1(161. 12560745(41. 12558840(101	12571164	MY04/05IS6
12578449	12582179 (2) OR 19170419	11562524(201. 12558840liOI	12571165	MY06/07 LS7
25534428	12582179 (2) OR 19170419	11562524 (201. 12558840 (101	12571165	Bare unported IS7
12582713	12610046 (2) OR 19170419	11562524 (201. 12558840 (101	12571164	MY07I92
12582714	1261004612) OR 19170419	11562524 (201. 12558840 (10)	12571164	MY07I92
88958622	1258922612) OR 19170418	115625241201. 12558840 (101	12571164	CNC LS6
88958665	12589226 (2) OR 19170418	11562524 (201. 12558840 (101	12571164	CNC IS6
88958765	12589227 (2) OR 19170418	11562524 (201. 12558840 (101	12571164	CNC IS2
88958698	126 10046 (2) OR 19170418	11562524 (201. 125588401 10)	12571164	CNC 192
12480090	125821 79 \2i OR 19170419	11562524 (201. 12558840110)	12571164	C5R

CYLINDER HEAD GASKETS & BOLT KITS

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

12498544
Cylinder Head Gasket Kit (not shown)
- Two head gaskets for 2002- 2004 LS1Camaro/Firebird and Corvette engines

A. 19170418
lSX 4.100 Bore MIS 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 MIS 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 MIS Head Gasket Kit (not shownl
- 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'

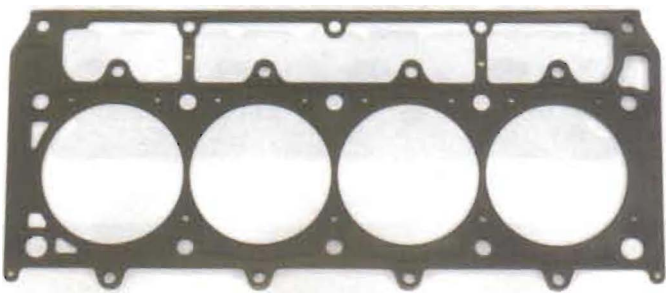
12498545
Cylinder Head Bolt Kit (1997-2003) (not shown)
- Kit of 15 head bolts for 1998- 2003 LSI Camaro/Firebird and 1997- 2003 Corvette; and 2001-2003 LS6 Corvette
- One kit per cylinder head; order two per engine
- Head bolts cannot be reused on these engines

> *IMPORTANT!! LS series engines produced from Januarv 2004 forward have a new, "short-stvle" head bolt design. Earlier head bolts will not fit. Order PIN 17800568 for engines produced from Januarv 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

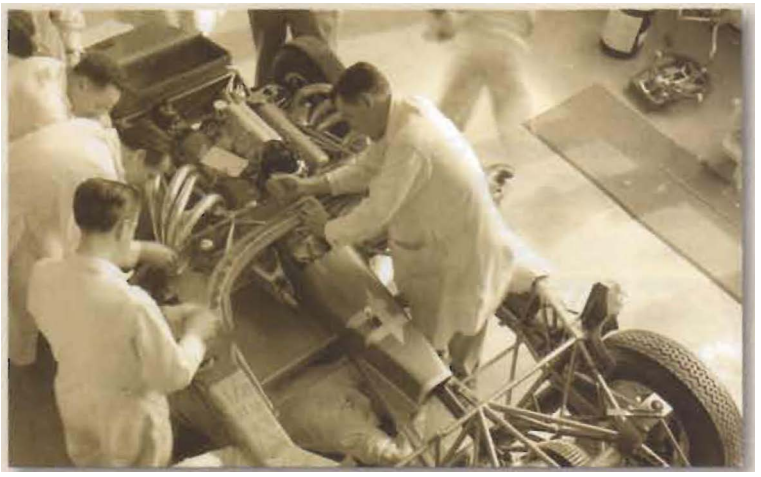
B. 12499217
lS1 Cylinder Head Installation Kit (F-Car)
- Comprehensive cylinder head installation kit for 2002 Camara and Firebird models equipped with the LSI engine
- Kit includes 2 head gaskets. 2 valve cover gaskets. 8 intake manifold gaskets. 2 exhaust manifold gaskets. 2 intake manifold-ta-block seals. 16 cylinder head bolts and 14 cylinder head bolt/screws

12499218
Corvette LSI/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 cylmder head bolt/screws



A LSX 4.100 Bore MLS Head Gasket Kit

B LS1 Cylinder Head Installation Kit (F-Car)



BV 1957 the Corvette had matched its performance to its promise, giving enthusiasts a world-class sports car. GM would never look back. and todav's LS models. which have a historv of powering the latest and greatest Corvettes. carrv on the tradition started bVEd Cole back in 1955.

CYLINDER HEAD GASKETS & BOLT KITS CONTINUED

12589226
LS1/LS6 Head Gasket (not shown)
Single gasket. (21 required
For LS1, and LS6 engines
.051' thick
3.92" max bore
Standard LS bolt paltern

12589227
LS2, L76 Head Gasket (not shown)
Single gasket. (21 required
For LS2 engines
.051' thick
4.02' max bore
Standard LS bolt paltern

12610046
LS3, L92 Head Gasket (not shown)
Single gasket. (2) required
For LS3 and L92 engines
.051' thick
4.080' max bore
Standard LS bolt paltern

12582179
LS7 Head Gasket Inot shown)
Single gasket. (21 required
For LS7 engines
.051' thick
4.140' max bore
Standard LS bolt pattern

HEAD BOLTS AND STUDS

11562524
Head Bolt (not shown)
llmm 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

Part Number	Valve Size	Stem Size	Description
Intake Valves			
12565311	2.00'	8mm	Stock replacement hollow stem valve used in LS6 engines
12563063	200'	8mm	Stock replacement solid stem valve used in LS2 engines
12S90m	2.165'	8mm	Stock replacement valve used in L76 and L92 engines
12569427	2.165	8mm	Stock replacement hollow stem valve used in LS3 engines
12591644	2.20"	8mm	Stock replacement titanium valve used in LS7 engines
Exhaust Valves			
12565312	150'	8mm	Stock replacement sodium filled stem valve used in LS6 engines
12563064	150"	8mm	Stock replacement solid stem valve used in LS2 engines
12582719	159'	Bmm	Stock replacement solid stem valve used in L76, L92 and LS3 engines
12578455	1.61"	8mm	Stock replacement sodium tilled stem valve used In LS7 engines

VALVE SPRING COMPONENTS

12499224
LSVaive Spring Kit (not shown)
Beehive style springs
1800' installed height @ 90# pressure
1.250' @ 295# pressure
Used on LS2/LS6 cylinder heads
Max lift .570'
Includes 16 of PIN 12586484

12586484
Valve Springs (not shown)
Beehive style springs
Standard LS6/LS3 springs
1.800' installed height @ 90# pressure
1.250' @ 295# pressure
Max lift .570

12589774
Valve Springs (not shown)
- Beehive style springs
Standard L76/L92 springs
1.800' installed height @ 90# pressure
1.300" @ 264# pressure
Max lift .530'

12578457
Valve Springs (not shown)
Beehive style springs
Used on LS7 cylinder heads
1.960' 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

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
18:1 ratio

Rocker Arm Bolts

12560961
Rocker Arm Bolts (not shown)
For cathedral port and L92 style heads
16 required per engine

11588791
Rocker Arm Bolts (not shown)
For LS7 Heads
16 required per engine

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

12600936
Rocker Arm Stand (not shown)
For L76. L92 and LS3 style heads only
Sold Individually
Requires 1 per cylinder head

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

A LS Center-Bolt Competition Valve Cover (with Breather Hole)

B LS Center-Bolt Competition Valve Cover

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

Valve Covers: Corresponding Parts

Part Number	Gaskets (Qty)	Bolts (Qty)	Breathers (Qty)	Engine Application
25534398	12560696 (1)	12577115 (4)	25534355	All LS series engines
25534399	12560696 (1)	12577115 (4)	None	All LS series engines

LS SERIES PUSHRODS

Part Number	Material	Diameter	length	Useage	Description
12593344	1010 steel	3/8'	7.750	LS7	Production pushrod. individually packed
10238852	1010 steel	5/16'	7.325	LS1. LS2. LS3, LS6. L92	Production pushrod. individually packed

Oil Fill Cap **C**

Racing Hydraulic Roller Lifter Kit **D**

ADAPTERS. HARDWARE AND BREATHERS

12517215
Valve Cover Bolt Inot shown)
- Requires 4 per valve cover
- For L92 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 mternal components allow for higher hmiting speeds with aggressive camshaft designs
Improved valvetrain dynamics and stability will improve horsepower, and high rpm's
Tested to 8000 rpm in GM Racing applications
Set ot 16

LS SERIES CAMSHAFTS

Part Number	Description	Duration @ .050" lih(deg)	Maximum lih (in) (1.7 rocker)	I obe Separation (deg)	Technical Noles
12565308	2002-2004 LS6 Cam	I: 204 E 218	I: .550 E. .550	1175	Cam requires valve spring PIN 12586484
12560950	2001 LS6 Cam	I: 207 E 217	I: .525 E: 25	116	Cam requires valve spring *PIN 12586484*
12480110	ASACam	I: 226 E 236	I: .525 E .525	110	Cam requires '1alve spring PIN 12586484; "ASA" cam for oH-highway use.
12480033	Hot Cam Kit	I: 219 E: 228	I: .525 E: .525	112	Kit includes 16 LS6 val'le spnngs PIN 12565117 and retainers
88958733	LS Hot Cam E 525	1219 E: 228	(1 7 rocker I I: 525	112	Same cam s n kit PIN 12480033
88958606	Showroom Stock Cam	I: 239 E 251	I: .570 E: .570	106.5	Showroom Stock racing design; requires hollow stem intake valves *HN* 125653 11, hollow stem exhaust valves *PIN* 12565312, valve springs PIN 12586484, and ahermarket notched pistons OR machine stock pistons
12571251	LS7	I: 211 E 230	(18 rocker I I: .591 E: .591	121	Stock LS7 camshan
12561721	L09: 2002- 2006 LSI: 2001–2004	1196 E: 201	I: 467 E. 479	116	Stock cam for 2002-2006 L09 and 2001-2004 LS 1 engines
88958722	LS Stage 2 Cam	I: 227 E: 239	11.7 rocker) I: 551 E 551	108	Max lift with 1.8 rockers *.583/.583*
88958723	LS Stage 3 Cam	I: 233 E 276	11.7 rocker) I: 595 E 595	107	Max lin with 1.8 rockers .630/.630

livin gup to the promise

he 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 sm ll-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 ll engines were little more than a face lift Ireverse cooling flow). The Gen lll 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

Cutaway illustration of the 2006 70L V-B LS7 crate engine for the Chevrolet Corvette: done by Rick Krnble.

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!

1997-2004 Connecting Rod **A**

LS7 Connecting Rod **B**

There a 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.

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:

PART NUMBER	QTY	DESCRIPTION
12574294	01	Gasket- Engine Front Cover
12588372	02	Gasket-with Pump
89017589	01	Gasket Kit, Intake Manifold
12612045	02	Gasket-Valve Rocker Arm Cover
12557840	01	Bolt/Screw- CR/SHF Balance
12585673	01	Seal ASM- CR/SHF Front Oil

CONNECTING RODS & COMPONENTS

A. 12568734

1997-2004 Connecting Rod

- Connecting rod for use on all 1997- 2004 production Corvettes and 1998-2002 Camaro/Firebird with LS1/LS6
- Press fit design
- 6098' C-C length
- Sold individually

12617570

Connecting Rod Inot 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 bol s

89017573

Rod Bearing Inot 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

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
LS2Timing 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 dampener
1.1mm 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* 12588151 bolt
4X camshaft gear

12556582
Crankshaft Sprocket tnot 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 ChainTensioner (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
(VVTI engines
For L92 engines
Use with VVT camshaft sprocket *PIN 12585994*

BALANCERS

A smooth running engine depends on an effective balancer or torsional dampener. 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

A LS1 and LS2 Balancer

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

B LS7 Balancer

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

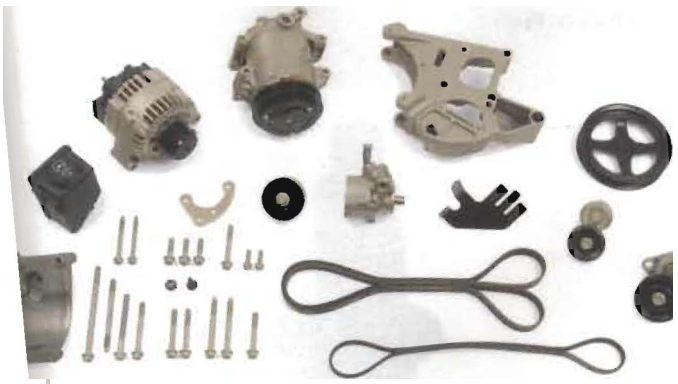
LS SERIES FLYWHEELS

Part Number	Description
12571611	Flywheel for LS2, LS3 and LS7 Carvelie engines
24238412	Clutch disc and pressure plate for LS2, LS3 and LS7 Corvette engines
12581650	Flywheel with pressure plate and disc for LSI Camara engines
12570806	Flywheel, clutch and press-plate kit for LS2 GTO engines

Water Pump for L92 Engines C

Water Pump for LS2 and LS7 Engines D

NEW



Serpentine Accessory Drive System, with Air Conditioning E

WATER PUMPS AND ACCESSORIES

C. 12600767
Water Pump
- For L92 engines

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

89018053
Water Pump Inot 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

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 braoket. (belt included)

The system includes:

12572188	Belt (wilter pump, alternator, and power steering)
12569528	Belt IAIC compressorl
12568181	Tensioner Assembly
12560345	*AIC* Belt Tensioner Assembly
12557334	*AIC* Compressor Idler Pulley
1137031	*AIC* Compressor
12556444	*AIC* 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
10353440	Alternator
26046502	Power Steering Reservoir

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

The system includes:

12579229	Belt (water pump, alternator, and power steering)
12585476	Belt *IAIC* compressor, LS71
12569301	Tensioner Assembly
12595289	*AIC* Belt Tensioner Assembly
12568996	Idler Pulley
88958093	*AIC* Compressor
12569286	*AIC* Compressor Bracket
15261472	Power Steering Pump Iremanl
26046502	Power Steering Reservoir
12578067	Alternator and Power Steering Pump Bracket
12555693	Power Steering Pump Brace
12568997	Power Steerrng Pump Pulley
15841234	Alternator
12579228	Belt IAIC compressor, IS2!

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**
CircleTrack Oil Pan
- Used on CT525, *PIN 19171821*
- 8-quart capacity
- Includes oil filter adaptor
- Uses oil pan gasket *PIN* 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 x30mm 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 dampener 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

A Corvette Oil Pan (2002-2004 LS6)

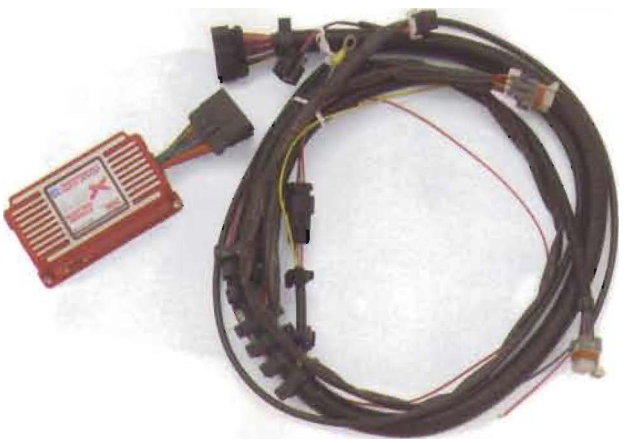
B F-Car Oil Pan

C CircleTrack Oil Pan

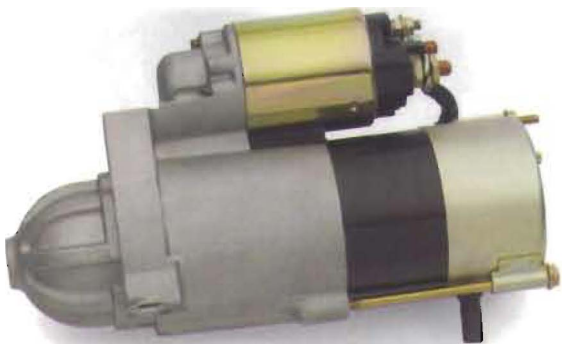
D Magnetic Drain Plug

LS7 Oil Hose Adapters **E**

NEW



LSX Ignition Controller **F**



LS Series Starter **G**

OIL FILTERS AND ADAPTERS

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

OilTank (not shown)

- Fits *l06* Corvette

15210122

Oil Inlet Hose (not shown)

- Fits *l06* Corvette

15210117

Oil Outlet Hose (not shown)

- Fits *l06* Corvette

DISTRIBUTORS AND IGNITION SYSTEMS

F. **19171130** NEW

LSX Ignition Controller

Distributorless plug-in ignition system for carbureted LS engines with 58X 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 Inot provided)
MAP sensor provided
Compa ible only with LS1/LS6 and LS2/LS7 ignition coils

STARTERS

G. **10465385**

LS Series Starter

- Works with all LS series and Gen IVV-8 engines, "ncluding the LS1, LS2. LS6, L09, LQ4 and LS7

89017844

Starter (reman) Inot shown)

- Requires 1 per engine
- For L92 engines

10465547

Starter Ireman) (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 boit P/N 11588456, and one bolt P/N 72567848

PISTONS & RINGS

GM Pertormance Parts pistons are lop quality and are ready for the rigors of high-performance street and competition applications. They're factory tested, so you know you're getting the right parts lor your LS series engine. Pistons are sold individually unless otherwise specified.

LS SERIES PISTONS

Part Number	Engine Size	Bore Size	Oversize	Rod Length	Pin Type	Comp Ratio	With Chamber	Description
88984245	5.7L	3.898"		Standard	Pressed		65	Hypereutectic LSl & LS6 replacement
88984246	5.7L	3.898'	+.010'	Standard	Pressed		65	Hypereutectic LSl & LS6 replacement
89017418	60L	4.000'		Standard	Floated	109	65	Hypereutectic LS2 & L09 replacement
89017479	60L	4.000'	+.020'	6.098	Floated	10.9	65	Hypereutectic LS2 & L09 replacement
12602624	7.0L	4.125'		6.067"	Floated	110	70	Hypereutectic LS7 replacement. includes titanium rod
89018111	7.0L	4.125	+.020'	6067	Floated	11.0	70	Hyp reutectic LS7re lacement

LS SERIES RINGS

Part Number	Bore Size	Oversize	Ring Thicknesses	Description
12499234	3898'		1.5. 1.5. 2.5mm	Set of 8 ring packs. standard size for LSl & LS6
12499236	4.000'		1.5. 1.5. 2.5mm	Set of 8 ring packs. standard size for 1999-2005 L04 & L09
12499235	3780"		1.5. 1.5. 2.5mm	Set of 8 ring packs. standard size for 1999-2005 5.3L engines
89017484	4.000'		1.2, 1.5,2.5mm	Production ring pack for '05-'06 LS2, '06 L76
88894243	4.000'		15,1.5,25mm	Production ring pack for '05-'06 L09
89017776	4.125		12. 1.2, 2.0mm	Production ring par.k for '06 LS7
89017777	4.125"	+.020'	1.2. 12, 20mm	Oversize LS7 ring pack

CRANKSHAFTS

A. 89017522

Crankshaft Assembly 1997-2004

odular 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
- For standard wet sump 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 ltming wheel for 1997-2005 engines

12586768

ReluctorWheel, *58X* (not shown)

- 58-tooth crankshaft position sensor timing wheel for 2006 and newer engines

A Crankshaft Assembly 1997-2004

B Reluctor Wheel, 24X

INTAKE MANIFOLDS

12568976

LS7 Production Intake Manifold Assembly Inot 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 LS3 cylinder heads *PIN 12598594*

B. 88894339

LS6 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* 16212460. and MAP sensor seal PIN 16194007

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.

A L76 Production Car Intake Manifold Assembly

B LS6 Intake Manifold

C LS1/LS2/LS6 Series 4-BarrelIntake Manifold

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

LS7 4-Barrel Intake Manifold D

L76/L92/LS3 4-Barrel Intake Manifold E

Carburetor Spacer, Single Plane, One-Inch F

Carburetor Spacer, Single Plane. Two-Inch G

LS Front Distributor Drive Cover H

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 ntake 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 19171130 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 Per ormance Parts logo machined into front and back

H. 88958679

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 25534398 and PIN 25534399 for a complete traditional looking engine paCkage

Oistnbutor and mechanical fuel pump not Included. Uses small-block Ford sry/e distributor and mechanical fuel pump. Requires use of aftermarket dampener.

***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/ 25534394 or 25534413

B. 19172114 NEW

L92/LS3 Carb Intake Gasket

- For use with intake manifold PIN 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 clearancingl 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)

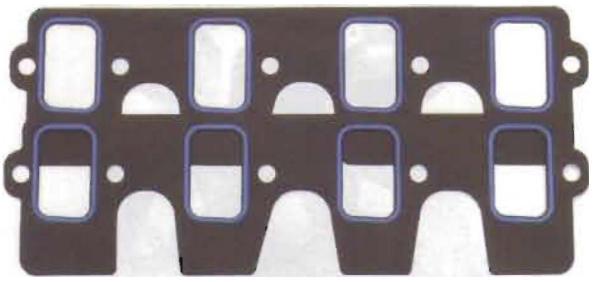
- Requires 8 per engine
- AC 41-985
- For LS1, LS2, LS6 and LS92 engines

15336959

Spark Plug Wire (not shown)

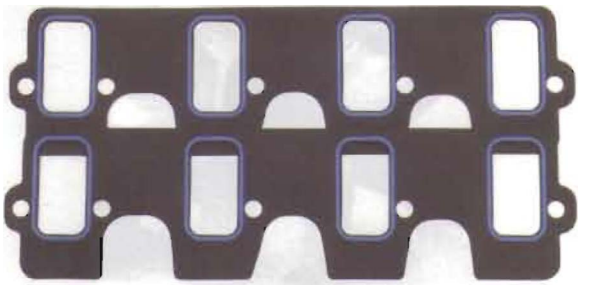
- Requires 8 per engine
- For all LS series engines

NEW



A LS7 Carb Intake Gasket

NEW



B L92/LS3 Carb Intake Gasket

C Header Flange

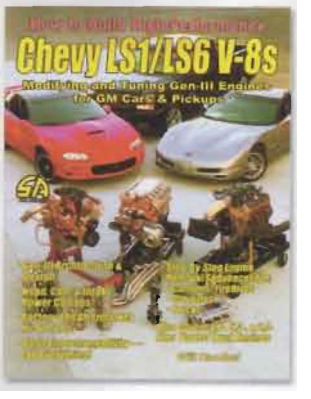
Intake Manifolds: Corresponding Parts

Pon Numbl'	Gasket (Quantity)	Bolts IOullllllyl -.	Engine Application
88894339	12533587 (21	12552344 1101	MY04/05 LS1 and LS6
12568976	89017840, Kit 11), 890178521 1)	12579938 (10)	MY06/07 LS7
25534394	19172113	Included ,·,ith manifold	LS7 Carb Applications
25534401	19172114	Included with manifold	L76/L92 and LS3 Carb Applications

Air Cleaner, Chevrolet-Logo High-Performance Design **D**

Air Cleaner, Chevrolet-Logo Classic Design **E**

LS1 Engine Kit Installation Guide **F**



High Performance Chevy LS1/LS6 V-8's **G**

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 berween hood and rap of air cleaner. Minimum clearance is 3,75' *from rop of carburetor gasket area* ro *underside of hood.*

E. 12342071

Air Cleaner, Chevrolet-Logo Classic Design

- Fourteen-inch round classic-style air cleaner
- Chromed 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 '98-'02 F-Car engines
- For LS1 engines

10284134

Engine Mount (not shown)

- Requires 2 per engine
- For '97- '04 Corvette engines
- For LS I, 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/LS6V-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