

**TALE OF WHOA: MONSTER C6 BRAKE UPGRADE**

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# Wette



GMPP'S WILD NEW  
**LSX 454**  
CRATE ENGINE

**C5 TIGER  
SHARK**  
FASCIA  
INSTALL

**WARPED  
SPEED** **INSIDE KATECH'S  
1,008 HP  
"AIR ATTACK" Z06**

# POWER PERFECT



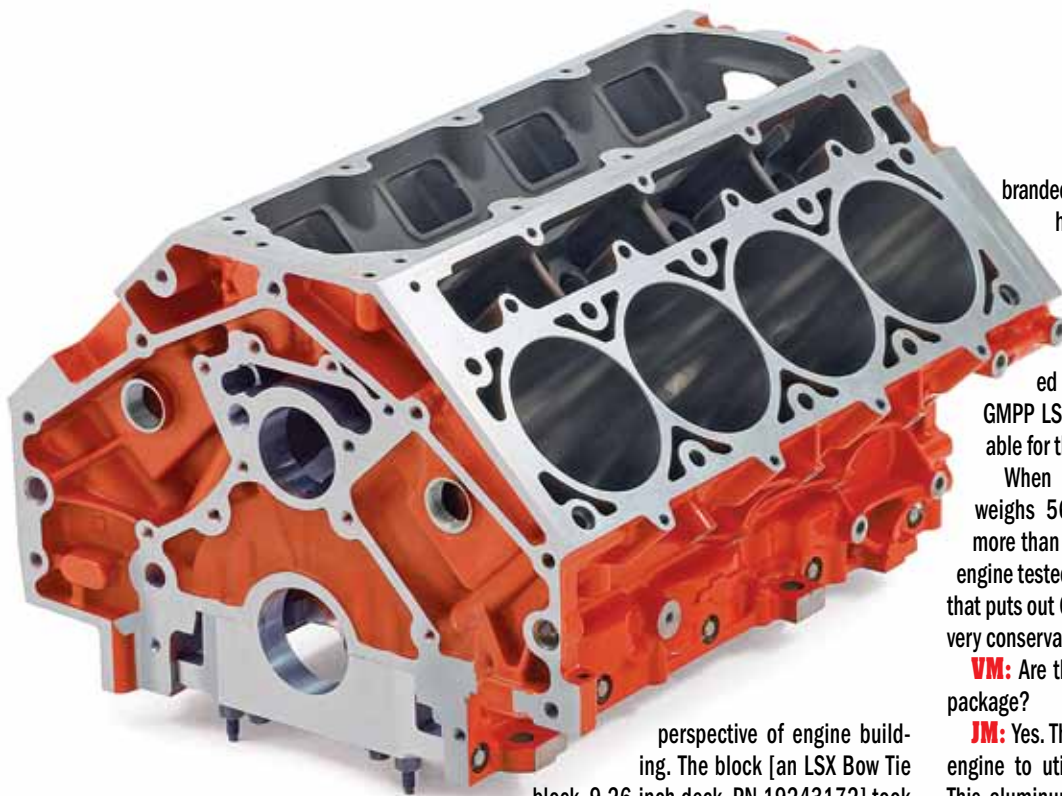
**INSIDE GM  
PERFORMANCE  
PARTS' OUTRAGEOUS  
NEW LSX 454  
CRATE ENGINE**

**BY CHRISTOPHER R. PHILLIP  
PHOTOGRAPHY COURTESY OF GM**

**W**e'll cover the details shortly, but for now, all you really need to know is this: GM Performance Parts' new LSX 454 is the most powerful crate engine in the history of Chevrolet. Rated at 620 hp and 590 lb-ft of torque, it has the muscle to excel in any high-performance role, be it ruling the street, stealing the show, conquering the quarter-mile, or reigning on the road course. Unveiled at

last fall's SEMA show and priced between \$12,000 and \$14,000 (depending upon dealer), the LSX 454 (PN 19166972) is now available at participating GMPP dealers nationwide.

*VETTE* recently spent an afternoon with GMPP Marketing Manager Dr. Jamie Meyer, the prime mover behind this incredible new crate engine. We asked him everything there is to know about the LSX 454 and the parts that comprise it.



branded with the GMPP LSX trademark—have made it through our brutal 50-hour durability process.

You can have your LSX 454 with our new LSX carbureted intake or with the LS7 fuel-injected intake. By midyear, you will see a GMPP LS Controller and Harness kit available for this combination.

When it's all assembled, the LSX 454 weighs 568 pounds—that's 128 pounds more than the LS7. That weight gets you an engine tested to GM production-car standards that puts out 620 hp and 590 lb-ft. Redline is a very conservative 6,500 rpm.

**VM:** Are the LSX 454 heads unique to this package?

**JM:** Yes. The LSX 454 is the first GMPP crate engine to utilize the all-new LSX-LS7 head. This aluminum high-performance head offers a design that is based on the amazing production LS7 head, but it gives the end consumer “more” of everything. The LSX-LS7 head has a more robust design to hold up to repeated use with power adders; there's more material for head porters to design their own ports and combustion chambers, if desired; the six-bolt-per-cylinder design allows for increased clamping force on the deck of the block; and these heads flow at least 370 cfm at very high velocities. The LSX-LS7 head comes with a 70cc combustion chamber, 270cc intake ports,

**VETTE Magazine:** Dr. Meyer, thank you for your time. Please tell us about the LSX 454 crate engine.

**Dr. Jamie Meyer:** First, Chris, thank you for the opportunity to sit down with *VETTE* magazine and spend some time with your readers. GM Performance Parts has a long history of helping Corvette owners personalize and modify their vehicles with top-shelf, premium parts. The LSX 454 crate engine is a very exciting new product for us. It offers the unmatched torque of a big-block with the high-rpm potential of a cammed-up small block. It's a very important addition to our already impressive lineup of crate engines.

**VM:** What makes the LSX 454 the first true all-aftermarket engine offered from GMPP?

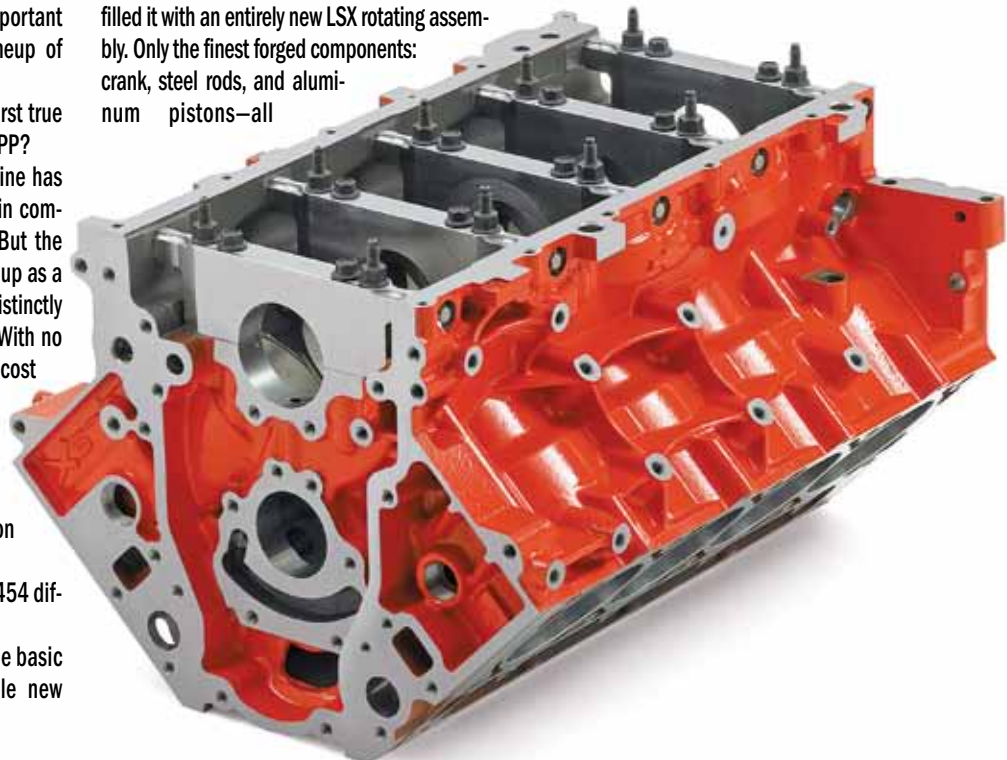
**JM:** Traditionally, a GMPP crate engine has at least some production GM Powertrain components incorporated into its design. But the LSX 454 was designed from the ground up as a completely one-off crate engine that is distinctly different than a production LS engine. With no limit to vehicle design, engine weight, cost limitations, or other production confinements, our engineers were tasked with developing an entirely new level of performance, and were able to take the LS architecture to a place that production engines were never intended [to go].

**VM:** In what key areas does the LSX 454 differ from a production LS-series engine?

**JM:** The LSX portfolio picks up on the basic LS7 design and incorporates a whole new

perspective of engine building. The block [an LSX Bow Tie block, 9.26-inch deck, PN 19243172] took more than a year in development before we could confidently put the LSX trademark on it. [Unlike production LS-series engines,] it's cast iron, and that material was chosen because it would keep the end cost low to the consumer, while offering a level of strength that no aluminum block can match. Remember, this block as an individual component sells for under \$2,000, yet we have made more than 50 pulls on our twin-turbo test engine past 2,050 hp.

*VETTE* readers also need to know that the LSX 454 is so much more than just a killer block. We filled it with an entirely new LSX rotating assembly. Only the finest forged components: crank, steel rods, and aluminum pistons—all



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85cc exhaust ports, 2.20-inch titanium intake valves, 1.61-inch sodium-filled exhaust valves, a 12-degree valve angle, and 1.8:1 rocker arms.

**VM:** How was the LSX 454 camshaft developed?

**JM:** Development on this camshaft started during the validation for the LSX block in a '69 Camaro we built for Reggie Jackson and the '06 SEMA show. Reggie is a huge Chevy fan, and he loves his big-block Camaros and Corvettes. We were looking for a camshaft that would not only offer the type of torque you'd expect from any engine displacing 454 cubic inches, but also show off the rev-happy nature of all LS-family engines. Having personally driven Reggie's Camaro, I can attest that the LSX 454 can be a real handful on the bottom end. Torque starts off at an obscene 500 lb-ft at only 3,000 rpm, and then the cam comes on, sending you over 600 hp from 5,200 rpm on,

until you have sense enough to shift the trans.

**VM:** What cam profile comes standard in the LSX 454?

**JM:** The LSX 454 comes standard with a hydraulic roller that specs out at 0.635-inch lift on the intake, 0.635-inch lift on the exhaust, and duration [at 0.050] of 236 degrees on the intake and 240 degrees on the exhaust. This is one of a series of LSX camshafts you'll see coming from GM Performance Parts.

**VM:** How is oiling engineered in the LSX 454 to allow the engine to enjoy a trouble-free life? Does it feature a wet sump or an LS7-style dry-sump system?

**JM:** The LSX 454 features a wet-sump oiling system and comes with a "dust cover." Our newly released Muscleder Oil Pan kit (PN 19212593) is ideal for fitting this engine into a traditional Chevy engine compartment. Or, install an LS Vette oil pan (PN 12561828) to fit it into a newer car.

The LSX block features a true priority-main oiling system, something no other LS block offers. This feeds the main bearings first, keeping the critical crank mains well supplied with oil. This, again, is a first for the LS/LSX engine market.

**VM:** Is every LSX 454 hand assembled?

**JM:** They are going to be "hand built," but it is much more computerized and monitored than what most people would imagine. Every LSX 454 will go down an assembly line, and every step is highly monitored to ensure complete accuracy. Every component and bolt installation is "checked off" by a computer system to ensure a perfect assembly.

**VM:** In the '60s, a Chevy engine with this much horsepower could never have been covered by a warranty. How did GMPP address potential warranty issues before releasing this motor to the public?

**JM:** Great question, and yes, we have come a long way, haven't we? Before any crate engine is added to the GMPP portfolio, it must pass a brutal 50-hour, full-throttle validation test that we feel no one in the industry can match. Our engineers will go through 1,500 gallons of fuel during one of these tests, and the time that our engines spend at full throttle is equivalent to 16,000 11-second quarter-mile passes. It truly is abusive.

That testing and validation, which only GM does, allows us to offer the industry standard for warranties on our high-performance crate engines. A 24-month/50,000-mile warranty is placed on the LSX 454 because we know that it's so well engineered, tested, and validated.

**VM:** Is the LSX 454 a better choice for a classic Vette—a '67, for example—or a late-model LS-equipped Vette?

**JM:** This is a difficult question because a custom Vette is such a personal choice. We feel that there will be a number of LSX 454 crate





engines that find their way into both markets—classic retro-mod Vettes as well as replacement engines for a tired LS1. Either way, the LSX 454 will offer an amazing level of performance for the price.

**VM:** For Corvette owners who want to add power adders to the LSX 454, what are your suggestions?

**JM:** Right up front, I have to state that GM Performance Parts has not tested or validated the LSX 454 with any power adder. Because of this, if you modify the engine—including running a power adder on it—you will void your warranty. You're on your own. I don't think that's too hard for folks to understand.

Okay, now that we all understand that, I will say that this engine certainly has the potential to be a real monster if you add a power adder. A small nitrous system—like 300 horses—would bolt right on. With forced induction, you could go quite a ways before you [had to] go into the engine, given the right fuel octane and careful tuning. If you use a lower-compression piston—something like

9.0:1—you'll have a 454-inch LS engine that will take a lot of boost. What is "a lot"? I'm not sure how far you can push an LSX 454, but I'm sure someone will show me.

In theory, it would be quite simple to have a 1,000-horse-engine that starts, idles, and runs with good manners. It's an amazing time to be into hot rods.

**VM:** I'm sure you've done comparisons between the LSX 454 in carbureted and fuel-injected form. When does a carburetor make more sense, and when is EFI better? How large a carburetor can the LSX 454 handle? How about dual or triple carbs?

**JM:** The advantages of the carb are that it's easier to install and makes better power, all things being equal. We are testing 850-cfm carbs on the LSX 454, so I'd start there.

The LS7 fuel-injected intake is a great choice if you like the manners and big torque of an injected engine. It also offers unsurpassed fuel efficiency once tuned properly. This [intake uses] a 90mm throttle body set up with 40-lb/hr injectors.



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As for dual- or tri-carb setups, I'm sure someone will do it. It sounds like fun. Or, how about using the GMPP LSX carbureted intake, putting an elbow and throttle body on it, and putting fuel injectors in the provided bungs? Personally, that would be my preferred setup.


**VM:** Does the LSX 454 allow a variety of transmissions? Which ones are recommended by GMPP?

**JM:** For transmission selection, a Tremec 6060 would be able to hold the power and torque given the correct clutch setup. For an automatic application, any of our RPO transmissions will fit; however, our new Supermatic 4L85-E, which has been tested and validated behind the ZZ572/620, is the way to go.

**VM:** Say you've got two Corvettes—one with an LSX 454, and the other with an LS9—at the starting line of the quarter-mile. Everything else being equal, which one wins?

**JM:** Oh, man, how do I answer this one? It's an interesting comparison, and both engines have their advantages. Did I mention that the LS9 has just been released as a crate engine from GM Performance Parts? Back to your question, I think they'll both cross the finish line in under 10 seconds—assuming slicks and all the supporting equipment—and both drivers will have really big grins on their faces.

**VM:** Are there any more details you'd like VETTE readers to know about the LSX 454?

**JM:** Again, I appreciate the time to hang out with the readers of VETTE magazine. We're very excited about the launch of the new LSX 454 crate engine. This product will offer the high-performance-Vette fan something truly representative of the best Chevy has to offer. Not only does the LSX 454 offer 620 hp on pump gas and severe-duty LSX components, but it does so with a factory warranty and the peace of mind that only GM testing can offer. This engine not only cranks out big power, but we've seen more than 25 mpg in our engineering test mules that have been running around for the last 12 months. We think we've got something here *everyone* will want to take a look at. 

## LSX 454 SPECIFICATIONS

Engine Type .....	LSX Series Gen-IV small-block V-8
Displacement (cu in/L) .....	454/7.4
Bore x Stroke (in/mm) .....	4.185 x 4.125/164 x 162
Block .....	LSX cast iron with six-bolt, cross-bolted main caps
Crankshaft .....	4340 forged steel
Connecting Rods .....	4340 forged steel
Pistons .....	Forged aluminum
Camshaft Type .....	Hydraulic roller
Valve Lift (in) .....	0.635/0.635
Duration (deg @ 0.050 in) .....	236/240
Cylinder Heads .....	LSX 454 rectangular port
Chamber Size .....	70 cc
Valve Size (in) .....	2.20/1.61
Compression Ratio .....	11:1
Rocker Arms .....	Investment cast, roller trunnion
Rocker Arm Ratio .....	1.8:1
Recommended Fuel .....	92 octane
Reluctor Wheel .....	58X
Balanced .....	Internal

