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**WE TEST
THE LATEST
HEADS**

- LOW-BUCK
GM 6.0L POWER
- EDELBROCK VICTORS
FOR BIG-BLOCK MOPARS

CarCraft.com

NEW GUTS FOR MOPAR'S A833 OVERDRIVE

Beat this! With a cam and head swap with pump gas on a Gen III 6.0L we made . . .

550 HP FOR UNDER \$4,900

By Jeff Smith / Photos: Jeff Smith

We uncovered a ton of power in this iron 6.0L Gen III small-block with just a cam change and headers.

→ The ante has just been raised. What we have here is a junkyard 6.0L engine with stock production L92 heads, a not-so-big hydraulic roller cam, and an 850-cfm carburetor that makes an astonishing 1.5 hp/ci. We're talking 550 hp from a very streetable 364 ci of Gen III small-block. Best of all, you could replicate this engine for under \$4,900. We know of lots of super-charged small-blocks that don't make this kind of power on the best of days. If you're a player, this is the new hot hand, and the best part is it doesn't require high-roller stakes to play.

Last month, we baselined this engine with a GMPP Hot cam using the stock, iron 6.0L heads, and it made a stout 483 hp. That was all a setup for this month's story, where we unbolted the stock, iron heads and bolted on a set of stock, factory L92 heads that are basically monster rectangle-port heads that flow over 300 cfm right out of the box. We'll get into more detail on these L92 heads, but the important thing is that for \$1,050, you can buy a pair of these heads and their requisite valvetrain parts, bolt them on to a Gen III 6.0L just like we did, and rock 'n' roll.

There are a couple of important points you must address to accomplish this swap, but it's quick and easy and the power is amazing. Read on and find out how.

→ Somewhere a guy just wrecked his Escalade. Go get his engine!

All we did was bolt on a mild Comp Cams hydraulic roller cam and a pair of the GM L92 aluminum heads to a stock iron 6.0L short-block and came up with 550 hp.

550 HP FOR UNDER \$4,900

THE NEW SHERIFF IN TOWN

If you have your headset tuned in to chat-room buzz, then perhaps you've heard about the L92 heads. They are production, rectangle-port, aluminum heads being used on the new 6.2L GM truck engines for 2007. At first, this may seem like a "Who cares?" We're telling you that you can't afford not to care because these heads flow 320 cfm using monstrous 2.165-inch intake valves. Think of them as baby Rat motor rectangle-port heads without the canted valves and you get the idea. They also retain the Gen III 15-degree valve angles and are in the area of the same flow as the much-touted LS7 CNC-ported intakes, although the Corvette heads use even steeper 12-degree valve angles. The large L92 intake ports do give up some torque at lower engine speeds because of their size, but the peak flow

and subsequent peak horsepower numbers are so good, give the GM engineers and their management team a big thumbs-up for producing such outstanding cylinder heads. The best part is that these heads are available right now through any GM dealer in the country. We obtained our test heads from Scoggin-Dickey Parts Center, where you can buy an identical assembled pair for \$800 complete with the 2.165/1.59-inch valves, stock valvesprings, retainers, and keepers all ready to bolt on.

These heads are intended for the new Gen IV LS2 engine that uses a larger 4.00-inch bore, which means the L92s' large intake valves will not clear smaller bores, hence our choice for the more budget-oriented 6.0L engine. Plus, the L92 heads use specific rectangular-shaped intake ports that are much wider and shorter

than the older Gen III cathedral intake ports. The new intake port demanded an offset intake rocker arm to maintain decent geometry between the rocker arm and the hydraulic roller lifter. We had to purchase new rockers, stands, and all the hardware, but the GM prices are surprisingly low. We obtained all the additional production GM valvetrain parts, including a set of stiffer LS6 valvesprings, from Scoggin-Dickey for roughly \$250, which puts the entire cylinder-head and valvetrain cost at just over \$1,000. Think about that: We're talking about 15-degree aluminum small-block cylinder heads that flow 320 cfm at a cost of roughly a grand including rockers and springs. It's the steal of the century.

Because the L92 heads use the stock Gen III 15-degree valve angle, we didn't have to worry about custom valve

reliefs in the pistons. The combustion-chamber size is right at 70 cc, which, according to GM's information, is within 1 cc of the stock LQ4 aluminum heads, so the static compression ratio remains the same. Other than their rather large cross-sectional port areas that sacrifice some torque, there is very little to criticize about these heads. And they make some amazing horsepower.

The L92 aluminum heads are very easy to spot with their rectangular intake ports. The intake ports flow 320 cfm right out of the box. The larger intake port also necessitated a new intake gasket, available from Fel-Pro.



PARTS LIST

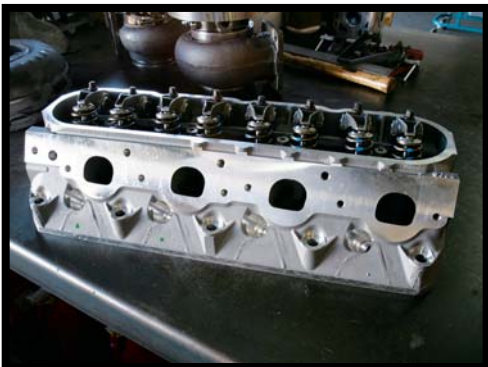
| DESCRIPTION | PN | SOURCE | PRICE |
|--------------------------------|----------|----------------|------------|
| LQ4, iron 6.0L, used | N/A | LKQ Auto | \$1,100.00 |
| L92 aluminum head, complete, 2 | 12582713 | Scoggin-Dickey | 798.50 |
| Rocker arms, intake, 8 | 12569167 | Scoggin-Dickey | 70.00 |
| Rocker arms, exhaust, 8 | 10214664 | Scoggin-Dickey | 70.00 |
| Rocker support stand, 8 | 12600936 | Scoggin-Dickey | 11.98 |
| Rocker-arm bolts, 8 | 12560961 | Scoggin-Dickey | 61.92 |
| Valvesprings, kit, LS6 (16) | 12499224 | Scoggin-Dickey | 52.25 |
| GMPP L92 carb intake | 25534401 | Scoggin-Dickey | 299.50 |
| Fel-Pro LQ4 head gasket | 1027 | Summit Racing | 41.95 |
| Fel-Pro intake gasket, L92 | 1222-2 | Summit Racing | N/A |



The intake valve is a massive 2.165 inches in diameter, while the exhaust is relatively tame at 1.59 inches. The combustion chamber measures 70 cc.



The wider, rectangular intake port moves the pushrod laterally, which requires an offset intake rocker arm. This is the first situation we can recall where a GM production engine uses an offset rocker arm to clear a wide intake port.



Comparing the exhaust side of these stock heads with the fully CNC-ported LS7 heads indicates that the stock L92 heads are slightly better at lower valve lifts, which is what you want with street-oriented cylinder heads.

FLOW-CHART COMPARISON

Factory L92 head
2.160/1.59 valve sizes, stainless steel
15-degree valve angle

Factory CNC-ported LS7 head
2.20/1.61 valve sizes, titanium intake, sodium-filled exhaust
12-degree valve angle

| VALVE LIFT | INTAKE L92 | EXHAUST L92 | INTAKE CNC LS7 | EXHAUST CNC LS7 |
|------------|------------|-------------|----------------|-----------------|
| 0.100 | 72 | 63 | 71 | 60 |
| 0.200 | 148 | 126 | 145 | 120 |
| 0.300 | 212 | 162 | 222 | 159 |
| 0.400 | 264 | 189 | 271 | 192 |
| 0.500 | 302 | 205 | 315 | 207 |
| 0.600 | 322 | 214 | 348 | 219 |
| 0.700 | 316 | 221 | 352 | 221 |

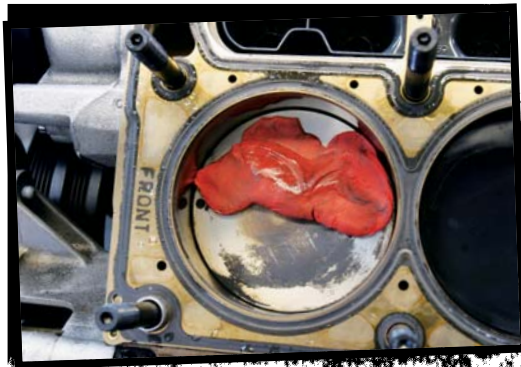
For this comparison, we tested the L92 heads on the SuperFlow 600 bench at Jim Grubbs Motorsports using a 4.030-inch cylinder adapter, while the LS7 head-flow numbers came from the GM Performance Parts '07 catalog, as we did not have access to LS7 heads to test. We also measured the L92 heads for their intake-port cross-sectional areas and came up with a cavernous 3.19 square inches. That is roughly the cross-sectional size of an oval-port big-block Chevy intake port, which means that intake velocity on a small-displacement 364ci engine like ours will certainly suffer. This explains why the torque dropped at lower engine speeds, especially when paired with the longer-duration camshaft. The most impressive point is that the L92 flow numbers are close to the LS7 through 0.500-inch lift, yet a pair of CNC-ported LS7 heads will drill almost \$2,500 out of your savings account versus \$800 for the L92s. Which would you buy?

CYLINDER-HEAD SPEC CHART

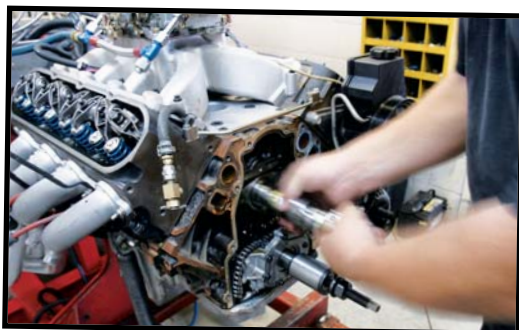
| | |
|-----------------------------------|-----------------------------|
| Part number, complete | 12582713 |
| Casting number | 5364 |
| Valve angle | 15 degrees |
| Valve size | 2.165/1.59 |
| Combustion chamber | 70 cc |
| Intake-port volume | 260 cc |
| Exhaust-port volume | 90 cc |
| Valve-stem diameter | 8 mm (0.315 inch) |
| Intake port | Rectangle |
| Exhaust port | D-shape |
| Intake-port cross-sectional area | 3.19 square inches |
| Conical (beehive) valvespring | 1.290-inch diameter at base |
| Requires offset L92 intake rocker | |

CAM SPECS

| CAMSHAFT | DURATION @ 0.050 | LIFT (INCHES) | LOBE SEPARATION ANGLE (LSA) |
|---------------------------|------------------|---------------|-----------------------------|
| GMPP Hot cam, intake | 219 | 0.525 | 112 |
| PN 12480033, exhaust | 228 | 0.525 | |
| Comp Cams XR281HR, intake | 228 | 0.571 | 112 |
| PN 54-428-11, exhaust | 230 | 0.573 | |



After removing the stock 6.0L heads, we took the time to check for valve-to-piston clearance to make sure we wouldn't bend a bunch of valves with more lift from the Comp cam. We needn't have worried, since we found a ton of room. This is partly due to the Gen III engine's taller 15-degree valve angle. We're used to working with 23-degree heads.



The cam change to the Comp Cams hydraulic roller was again, very easy, and we reused the production GM hydraulic roller lifters.



This is the plenum area of the new GMPP intake manifold. Most modern single-plane intakes tend to extend the port-runner dividing walls into the plenum area. This manifold does not. We might experiment with this to see if there is some power hiding in this manifold.

→SOURCES

Comp Cams; Memphis, TN; 800/999-0853; compcams.com

Federal-Mogul; Southfield, MI; 248/354-7700; federal-mogul.com

GM Performance Parts; Warren, MI; 800/577-6888; gmperformanceparts.com

Holley Performance Products; Bowling Green, KY; 270/781-9741; holley.com

Kooks Custom Headers; Bayshore, NY; 866/586-5665; kookscustomheaders.com

LKQ; Chicago, IL; 312/621-1950; lkqcorp.com

Scoggin-Dickey Parts Center; Lubbock, TX; 800/456-0211; sdpc2000.com



The new cylinder heads also require a different carbureted intake manifold because of the wider but shorter intake-port design. GM Performance Parts has already filled that void with a brand-new casting.

DYNO DAY

Test 1 is the best power curve from last month's story using the stock LQ4 6.0L iron heads, GMPP Hot cam, GMPP carbureted intake manifold, Holley 750-cfm carb, and Kooks 1 $\frac{3}{4}$ -inch headers.

Test 2 is where we jump directly to the big L92 heads combined with the larger Comp hydraulic roller camshaft. We also increased carburetor size to an 850-cfm Holley to make a little more power at the top while retaining the Kooks 1 $\frac{3}{4}$ -inch headers.

| RPM | TEST 1 | | TEST 2 | | DIFF | |
|----------|------------|------------|------------|------------|------|-----|
| | TQ | HP | TQ | HP | TQ | HP |
| 2,200 | 399 | 168 | 378 | 157 | -21 | -11 |
| 2,400 | 392 | 179 | 378 | 172 | -14 | -7 |
| 2,600 | 393 | 194 | 386 | 191 | -7 | -3 |
| 2,800 | 401 | 214 | 396 | 211 | -5 | -3 |
| 3,000 | 414 | 237 | 406 | 232 | -8 | -5 |
| 3,200 | 427 | 260 | 414 | 253 | -13 | -7 |
| 4,300 | 435 | 281 | 419 | 271 | -16 | -10 |
| 3,600 | 438 | 299 | 422 | 289 | -16 | -10 |
| 3,800 | 437 | 315 | 423 | 305 | -14 | -10 |
| 4,000 | 434 | 331 | 424 | 323 | -10 | -8 |
| 4,200 | 434 | 347 | 427 | 341 | -7 | -6 |
| 4,400 | 436 | 366 | 432 | 362 | -4 | -4 |
| 4,600 | 441 | 387 | 438 | 385 | -3 | -2 |
| 4,800 | 447 | 408 | 447 | 408 | 0 | 0 |
| 5,000 | 450 | 428 | 455 | 434 | +5 | +6 |
| 5,200 | 450 | 444 | 462 | 457 | +12 | +13 |
| 5,400 | 444 | 456 | 464 | 478 | +20 | +22 |
| 5,600 | 436 | 466 | 464 | 494 | +28 | +28 |
| 5,800 | 430 | 475 | 459 | 506 | +29 | +31 |
| 6,000 | 423 | 483 | 451 | 515 | +28 | +32 |
| 6,200 | -- | -- | 443 | 524 | -- | -- |
| 6,400 | -- | -- | 438 | 535 | -- | -- |
| 6,600 | -- | -- | 435 | 546 | -- | -- |
| 6,800 | -- | -- | 425 | 551 | -- | -- |
| Avg. | 428 | 336 | 427 | 364 | | |
| Power/ci | 1.23 | 1.32 | 1.27 | 1.51 | | |

(peak)

Comparing peak numbers, the torque gained only 14 lb-ft, but the horsepower jumped a staggering 68 hp with the combination of the larger cam and the L92 heads. **END**