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HOT ROD WHERE IT ALL BEGAN



NEW CAMARO BOLT-ONS

With a Nitrous-Assisted 11-Second Timeslip in Hand, We Get More Serious With the '10 Camaro by Upgrading the Heads, Cam, and Exhaust.

By Michael Galimi

Photography: Michael Galimi and Will Handzel

Last month, HOT ROD embarked on a mission to run 11s with a brand-new '10 Camaro SS. With a few bolt-ons, Nitto 555R drag radials, and a shot of nitrous, the HOT ROD test car blistered to a best of 11.96 at 115 mph. On the chassis dyno, it kicked out 514 rwhp (on the sauce), up from the stock numbers of 374 rwhp. Off the bottle, the bolt-ons were worth 23 hp and made 397 rwhp. After some practice on the dragstrip, car owner Robin Lawrence power-shifted his way to a best of 12.73 at 108 mph—sans nitrous. This month, we want to see how fast we can make it in naturally aspirated trim.

The LS3 is great in its stock form—it has 376 ci, free-flowing heads, and a healthy hydraulic roller camshaft. Last month's bolt-ons were shorty headers, an axle-back exhaust, and an Abaco cold-air kit and MAF sensor. This month we get more serious with a head, cam, and header swap. The heads are GM Performance Parts L92 CNC-ported (PN 88958698) castings. After porting, they have maximum intake flow of 330 cfm, and the exhaust ports move 201 cfm, both at 0.600-inch lift and using stock 2.165/1.590 valves.

We called the stock cam healthy because it comes from the factory with 0.551/0.522-inch lift and 204/211 degrees of duration at 0.050 lift, but we wanted more. The first one on the test list was the GMPP LS Hot Cam (PN 88958733). It features intake and exhaust lift of 0.525, but the duration is more than stock with 219/228 degrees. The lobe separation is listed as 112 degrees, giving the engine a nice idle: a little lumpy but livable. Why would we test a cam with less lift than stock? First, we have seen a few people online get this camshaft installed by their dealers. Second, our nastier Lunati Voodoo cam hadn't come in yet and we couldn't sit still with nothing to do.

The CNC-ported heads and Hot Cam brought power to 406

rwhp, hardly impressive for the modifications. Our assumption is that the restrictive exhaust—thanks to the four catalytic converters—is holding it back. When Lawrence added straight test pipes in place of the factory units, it was worth 23 rwhp. Our overall output was up to 429 rwhp and 415 rear-wheel torque.

When the new cam showed up, Lawrence yanked out the Hot Cam and stuck in the Lunati Voodoo cam, which has 0.578/0.598 lift, 233/245 degrees of duration, and a lobe separation of 115 degrees—more aggressive but still completely streetworthy with nice idle characteristics, smooth low-rpm driveability, and healthy low-end power. On the chassis dyno, the Camaro spun the rollers to the tune of 448 rwhp and 416 rear-wheel torque.

At that point, the shorty headers were more than likely choking the engine, so we swapped them for some long tubes from Kooks Custom Headers. Kooks also sent a 3-inch cross-pipe, which mates to a new 3-inch Kooks after-cat exhaust. The easier breathing was worth another 19 peak rear-wheel horsepower, and the midrange power went up as high as 25 rwhp in some spots. "The car feels like it has another 75 hp," Lawrence says—obviously a bit exaggerated, but a few quick blasts on the street showed the seat-of-the-pants feel was greatly increased.

On the track, we swapped to Mickey Thompson 305/35R18 ET Street Radial tires on C6 Z06 wheels. The stickier tires proved to be the hot ticket, as Lawrence left at 6,000 rpm, banged the gears at 6,200, and flew the traps with a 12.10 at 115 mph (without nitrous). One stab of the juice and the story changed dramatically. Our new rear rubber was blown away instantly and got loose on every gearshift. It slowed the HOT ROD Camaro down big time to just a 12.20, but it blistered the traps at 125 mph, showing real potential once we can get the car to hook better.



> The CNC-ported L92 heads from GMPP are the same as the LS3 heads. They are the fourth-generation small-block heads and feature rectangular intake ports compared with the third-generation heads' unique cathedral-style ports.



> There were some conflicting reports on the chamber size, so Lawrence measured each head. Our CNC-ported L92 had 70cc chambers, while the stock LS3 heads' chambers were 69 cc.



> The heads were installed using stock head bolts, which are torque-to-yield. Lawrence also used GMPP stock replacement head gaskets.



> The GMPP heads do not come assembled and require the stock valves to be reused. The intake valves check in at 2.16 inches while the exhaust valves boast a 1.59-inch diameter. The valvesprings were upgraded to Comp Cams springs (PN 26918) with titanium retainers and steel locks, due to the aftermarket camshaft.



> The first cam we tried was the GMPP LS Hot Cam. The LS3 made 429 rwhp and 415 rear-wheel torque once the catalytic converters were removed, and that's with shorty headers and axle-back exhaust. An Abaco cold-air kit and MAF were also used.



> We replaced the GM Hot Cam for this Lunati grind that has 14/17 degrees more duration and 0.053/0.033 more lift. It proved to be worth 19 hp and 1 lb-ft over the Hot Cam. Those numbers were without catalytic converters in place.



> GM moved to a single-cam bolt (*right*) in 2007, but most of the aftermarket camshaft companies still use the three-bolt setup (*left*). The GM Hot Cam and the Lunati grind both use the three-bolt combination.



> The Nitto 20-inch 555R drag radials were great for the street, but we needed more traction so we swapped to Mickey Thompson ET Street Radial II 305/35R18 tires. The Mickeys were also shorter, at 26.4 inches tall versus the Nitto's 28.80-inch height, which made the stock 3.45:1 rear gear ratio effectively shorter. We mounted the tires on stock C6 Z06 front wheels, which are 18 inches in diameter (the rears are 19s). It works but it's not pretty, so we'll switch back to the wheel/Nitto tire combo for the street.

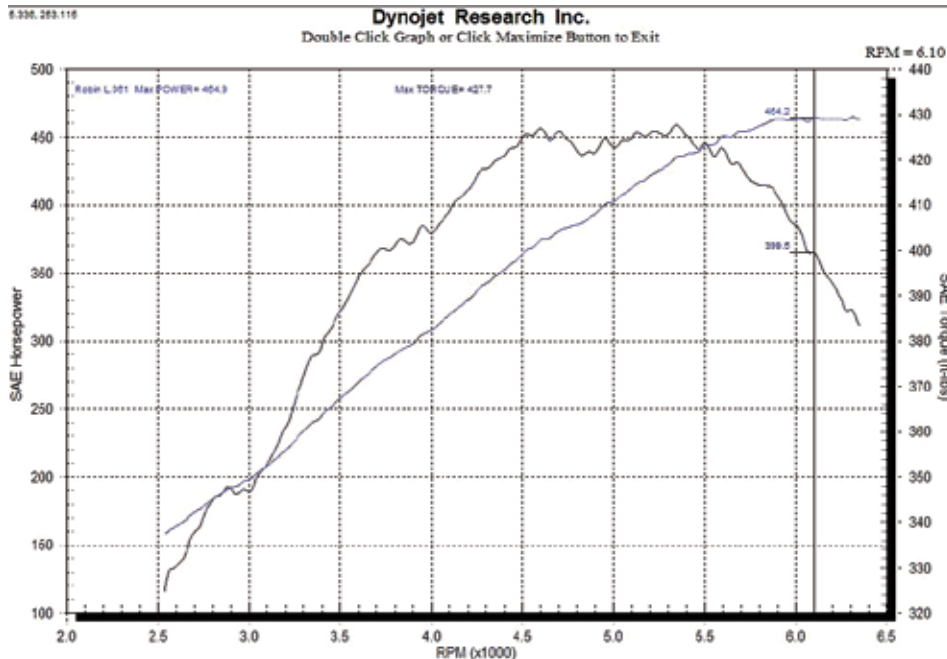


> The tuning was performed with HP Tuners software. We eliminated the rear oxygen sensors when we installed the test pipes at the track and used the HP Tuners to turn off the diagnostics for the rear O₂s to prevent setting trouble codes.



> Above: Kooks also supplied a 2-inch cross-pipe and axle-back exhaust. It's throaty.

> Left: The full-length Kooks stainless headers feature 1 7/8-inch primary tubes that go into 3-inch merge collectors.



> The Camaro made the most power with the Lunati cam, Kooks exhaust, and GMPP CNC-ported heads. Output rose to 464 rwhp and 427 rear-wheel torque, using the SAE correction factor—which generally reads 4 to 6 percent lower than the more popular STD correction factor on chassis dynos. The SAE correction factor converts the car's output based on weather conditions, theoretically allowing a fair comparison of vehicles in different locations with different atmospheric conditions.

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PARTS AND POWER LIST

GMPP CNC-ported L92 heads, LS Hot Cam, shorty headers, axle-back exhaust, Abaco cold-air, and MAF	406 rwhp
GMPP, removed cats	429 rwhp
GMPP, changed to Lunati cam	448 rwhp
GMPP, changed to Kooks long-tube headers and exhaust	464 rwhp

*All testing was performed on Abaco Performance's DynoJet chassis dyno, and results are reported using SAE correction factor.

SOURCES

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