

Will Hot Rods Be Banned?

STREET RODDER



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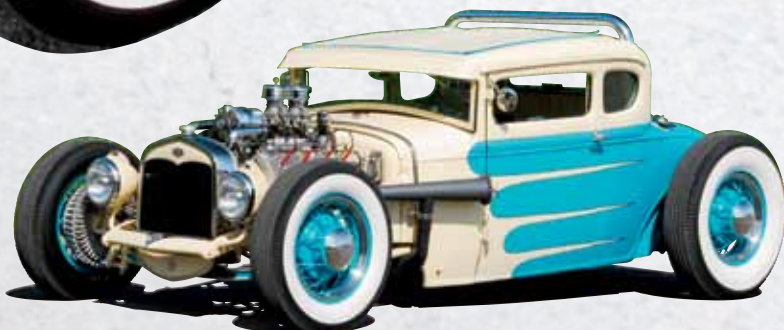
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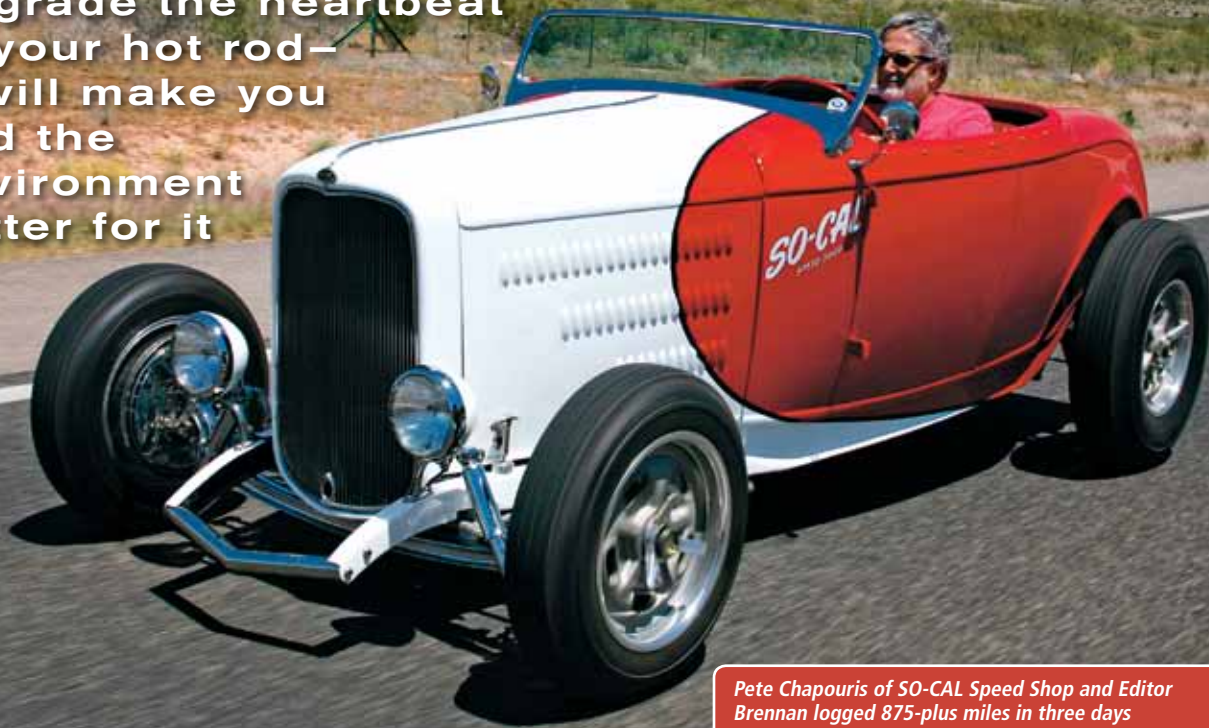
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Open Wide

Upgrade the heartbeat of your hot rod—it will make you and the environment better for it



Pete Chapouris of SO-CAL Speed Shop and Editor Brennan logged 875-plus miles in three days visiting shops and individual rodders across Arizona to get their opinion of the GMPP E-ROD package.

Engine swaps are as much a part of hot rodding as the car itself. The iconic "A/V-8" is both a hot rod and by its existence the ultimate engine swap—leave the engine and swap the body. Any car or truck regardless of year, make, or model is welcome upon the holy ground that's hot rodding with the venerable engine swap.

Something else hot rodders are familiar with is: "Necessity is the mother of invention." So it is as rodders strive to keep what's dear to their automotive souls yet help the world around us. All rodders have obstacles to overcome but California rodders have just gained one more. Worrying about impending emissions standards has never been on our radar—but it is now.

The control system is a stand-alone, fully integrated system set up for "low-emission" engines. The E-ROD LS3 is rated at 430 hp and 424 lb-ft of torque, which will bring a smile to any hot rodder.



E-ROD

The General Motors Performance Parts E-ROD motor (PN 19244805; 24-month/50,000-mile warranty intended for an automatic) program is intended to offer rodders the latest in performance through technology, while at the same time provide what the outside world is demanding—a better place. It really is a win-win for rodders; performance and driveability coupled with a *green* outcome.

The E-ROD program heartbeat comes through an LS3 6.2L V-8 engine (430 hp/424 lb-ft of torque) meeting any hot rodder's requirement for max performance, while the emission package satisfies the growing need to be more "in tune" with Mother Nature. The basic kit consists of a GMPP LS3 engine wiring harness, engine control module, exhaust manifolds, catalytic converters (mount 16-20 inches from the closest cylinder head exhaust port and don't mix up right and left converters), oxygen sensors and sensor bosses, fuel tank evaporative emissions canister, mass airflow sensor and sensor boss, accelerator pedal (fly-by-wire LS3's electronic throttle), air filter, and instruction manual. The E-ROD engine packages are also emission-compliant for OBD-I (1995) and earlier model vehicles. GMPP was the first of the major auto manufacturers to offer a performance engine package that's also emissions compliant.



GMPP LS3 engine wiring harness, engine control module, exhaust manifolds, catalytic converters, oxygen sensors and sensor bosses, fuel tank evaporative emissions canister, mass airflow sensor and sensor boss, accelerator pedal (fly-by-wire LS3's electronic throttle), air filter, and instruction manual (not shown).



The drawing shows the relative position of all E-ROD components as it might be found in a new Camaro SS.



The LS3 fit surprisingly well between a pair of SO-CAL's '32 rails and with aftermarket motor mounts you can use your original small-block Chevy mounts if you are retrofitting your hot rod.

ACCESSORIES

In order to pull off this engine swap you will need other items like a belt drive system (PN 10155066 or 19155067) and a transmission. GMPP recommends the 4L60-E overdrive transmission (PN 19156260) and transmission controller (PN 12497316). Since the swap will require a Vehicle Speed Input sensor that measures 40 pulses per revolution the supplied harness works with the 4L60 or 4L80 transmissions. (It can also be made to work with the 6L80 and 90 transmissions.)

If you really want to enjoy the LS3 performance, three pedals always trumps a non-descript gear selector. Our '32 Ford highboy roadster is fitted with an LS3 Camaro six-speed (PN 92236241). To run a six-speed you will also need a six-bolt flywheel (PN 12471611), six flywheel bolts (PN 11569956), pilot bearing (PN 12557583), clutch and pressure plate kit (PN24248945), six pressure plate bolts (PN12561465), and a release bearing (PN19210297) in transmission assembly.

The LS3 calibrated for the manual trans (PN 19256487) is ready. Eventually you will be able to select horsepower ratings from 327 hp (5.3 L) to 505 hp (LS7) to 550 hp (supercharged LSA)—all emission legal.

Should you opt for the manual box, a word on rearend gearing. The SO-CAL highboy originally had 3:56 gears and when you couple this to a six-speed you will be running 105 mph at 2,200 rpm. Probably what you want but not what you need. The six-speed gives you the option of installing some "gear" in back. Pete Chapouris (SO-CAL Speed Shop) opted to run 4:11 gears, which will yield 60 mph in Fifth gear at 2,000 rpm, while Sixth gear at 2,000 rpm will yield 89 mph. Ideal gearing for around-town acceleration and some high-speed, off-road runs.

GMPP sets the initial calibration for a 3.55 rear gear but the computer will easily handle 3.08 to 4.11 gearing. Recommended tire diameters should fall between 26 to 30 inches.

SWAP

Nowadays in hot rodding, engine swaps typically surface in one of two methods, placing the new engine where it never existed or a retrofit. The LS engine has grown tremendously in popularity in the rodding world thanks to its easy initial fit or as a retrofit. There are many companies that offer motor mount plates that attach to the LS block and then to the already-present small-block Chevy mount, making the retro fit as close to a direct fit as possible. There are plenty of LS headers and stock exhaust manifolds available. Just make sure these headers will clear your motor mounts, steering components, frame, and any crossmembers.

A note on exhaust systems: the factory exhaust manifolds were modified by SO-CAL by cutting at a 7-degree angle along the face that bolts to the head. This "fly cut" allows the lower portion of the manifolds to "pull in" thereby clearing the Vega steering box and shafts, motor mounts, and '32 framerails (particularly on the driver side). The stock manifolds effectively were turned into "block huggers".

There are a handful of other items, some may already be on your car or you will have to fabricate from existing pieces; fuel tank, fuel lines, fuel pump, fuel tank vent line to the evaporative emissions canister, purge line from the canister to the engine purge solenoid, air induction system that incorporates the mass airflow sensor, and if you want an exhaust system behind the catalytic converters. Experience taught us the supplied four Camaro catalytic converters provided ample sound muffling and as such no conventional mufflers were required. Another aftermarket piece that might come in handy is one of the thermostat housings offered by Street & Performance (Mena, AR). There is a 90- and 45-degree that rotate 360 degrees, which comes in handy when positioning your radiator hose between the block and the radiator.

A QUICK SPIN AROUND ARIZONA

On paper all of this sounds great but nothing beats the seat-of-the-pants test. To prove a point that the E-ROD

OPEN WIDE



The original SBC motor mounts (SO-CAL) were retained and then used in tandem with LS motor mounts that come off the block, making the positioning of the engine a simple swap.



The E-ROD kit comes with cast-iron manifolds but they were "fly cut" at a 7-degree angle from the top down to draw the manifolds in tighter to the block, thereby clearing the framerrails, steering components, and motor mounts. SO-CAL carries the modified manifolds in stock on an exchange program.



The benefit of cutting the manifolds is apparent as the added clearance was needed to clear frame.



*Here is the catalytic converter package as it comes from GMPP; note provisions for four O2 sensors, provided. The wise rodder will position and fit so no modifications are needed to pipes. Converters offer ample sound muffling no conventional mufflers required
—a positive.*

Once installed you can see one of the O2 sensors properly positioned.



package is everything a hot rod powerplant should be and then some, Chapouris and myself took a lap around Arizona. By logging 875-plus miles in three days we were able to get opinions from shop owners, builders, and individual rodders.

We began our trip at the SO-CAL shop in Pomona, California, bright and early at the crack of noon, or something like that. From here our first stop was Phoenix, other than the California Highway Patrol officer who informed us we should check our speedometer calibration. We visited with Frank and Mary Streff of SO-CAL Speed Shop of Phoenix before moving onto Camp Verde and the shop of Bob Everts. Here we met with other rodders who included Clyde "Ross" Morgan an artist of incredible talent making bronze dioramas of early hot rods and a very talented sheetmetal pro in Paul Dunaway.

The next day it was onto Jerome, Arizona, (Chapouris has family roots in this 7,000-plus foot mountainside mining town) and a chance to take in some sights and refresh our parched pallet. Wouldn't you know it, we're in the middle of nowhere and a hot order walks up to us and recognizes the car, Chapouris, and myself, and begins to fill us in on the rodding at random in the locale. From here it was onto Prescott, Arizona, to visit with Garth Bowie who is currently restoring very rare vintage race cars. Back in 1983 he appeared in *STREET RODDER* and has always been known for his metalworking.

Our goal was to visit with a number of rodders and let them see, hear, ask questions, and in some cases drive the E-ROD-powered highboy, and to get their impressions and opinions.

All were impressed with the smoothness of the idle and quietness, yet all commented on the throaty hot rod sound the car has when under throttle. The roadster responded to the touch of the fly-by-wire throttle easily and with plenty of power regardless of altitude; this trip had it all from near sea level to 7,023 feet above sea level.

Hot rodding will always be about building something that represents your ideas and goals. However, going forward we are no longer "flying under the radar", and as such the outside world looks to us and it now becomes our responsibility to show that we care about our hobby and the air we breathe. **SR**

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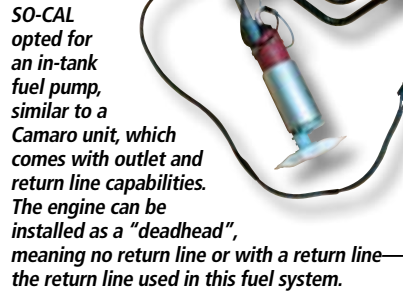
OPEN WIDE



Underneath looking up you can see the four converters in position "wrapping" the six-speed box; plenty of clearance.



View from underneath the roadster shows the exhaust system minus mufflers, making for an uncluttered and spacious under-carriage.



SO-CAL opted for an in-tank fuel pump, similar to a Camaro unit, which comes with outlet and return line capabilities. The engine can be installed as a "deadhead", meaning no return line or with a return line—the return line used in this fuel system.

The fly-by-wire throttle is supplied but rodders will most likely modify (as shown) to fit the style of car.



The original '32 gas tank was retained; note the fuel tank evaporative emissions canister line (silver in color, center of photo) needs to be adapted to the tank as it is a vital component to the emission system.

Pictured is the supplied fuel tank evaporative emissions canister; SO-CAL chose to mount it in the trunk. It's sealed so fumes shouldn't be an issue. Also, it must be mounted higher than the tank itself.



Supplied GMPP LS3 engine wiring harness and engine control module were mounted under the dash against the firewall. It can be mounted in the engine compartment but keep away from excessive heat (exhaust) or in an area that may be exposed to splash from driving in wet conditions.



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First stop on the Arizona run was SO-CAL Speed Shop in Phoenix owned and operated by Frank (right) and Mary (not shown) Streff. The Streffs have a twin to Chapouris' roadster and also have a '53 Ford pickup in matching SO-CAL colors. (Recreation of the Alex Xydias pickup from the early dry lakes days.)



Pictured is Clyde "Ross" Morgan (left), a well-known artist whose medium is bronze and has made some incredible dioramas featuring early Fords. Chapouris (center) gives more technical data on the E-ROD to both Ross and Paul (right).



Tony Piner (left), a well-known SoCal-now-Arizona hot rodder and Bonneville 200 MPH Club Life Member with multiple records to his credit, was another stop on our quick lap. He took in the sights and enjoyed seeing the LS3 swap.



Chapouris (left), Bob Everts (middle), and Paul Dunaway (right) talk over the neat fit the LS3 is within the Deuce highboy engine compartment. Everts has a Deuce highboy three-window coupe that is painted in SO-CAL colors.



On our homeward bound leg of the Arizona trip we visited Garth Bowie (left) who once appeared on the July '83 cover of STREET RODDER. He's an incredible metalman currently working on the restoration of an extremely rare Jaguar XPE 2.