

**POSTER
INSIDE!**

500HP STROKER SMALL-BLOCK MOPAR BUILDUP



**PHANTOM
MUSCLECAR
Z/28
NOVA**

ELECTRONICALLY REPRINTED FROM JULY 2007

HOT ROD

FOOSE COUPE!

CHIP'S MOST RADICAL PROJECT YET

- 500HP MID-ENGINE HEMI
 - RACE-BRED SUSPENSION
 - CARBON-FIBER BODY
- & YOU CAN BUY
1 OF 50**



**ANYONE
CAN DO IT
AT HOME!**

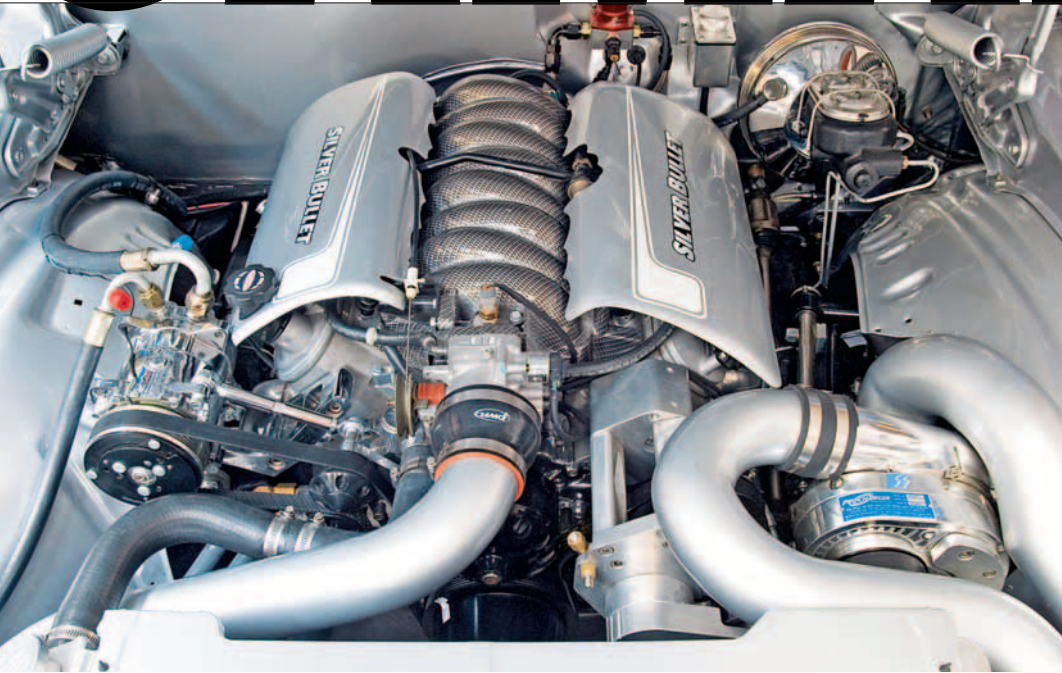
**GET
A GOOD
PAINT JOB
FOR \$98**

**PLUS ▼
HOMEBUILT
'32 ROADSTER
FOR \$11,462**

**✕ TWIN-BLOWN FASTBACK
✕ TROY TREPANIER'S LATEST, TOO!**

HOT ROD WHERE IT ALL BEGAN

LS6 INTO '70 CAMARO



Reanimating a Second-Gen Camaro With a Third-Gen Small-Block and T56 Six-Speed.

By Marlan Davis
Photography: Marlan Davis
and Jeff Mortenson

> Built up from parts by Turn Key Engine Supply, the LS6 is forced by a ProCharger centrifugal blower. On pump gas with 6- to 8-psi boost in Mortenson's '70 Camaro, it makes 424 hp at the rear wheels.



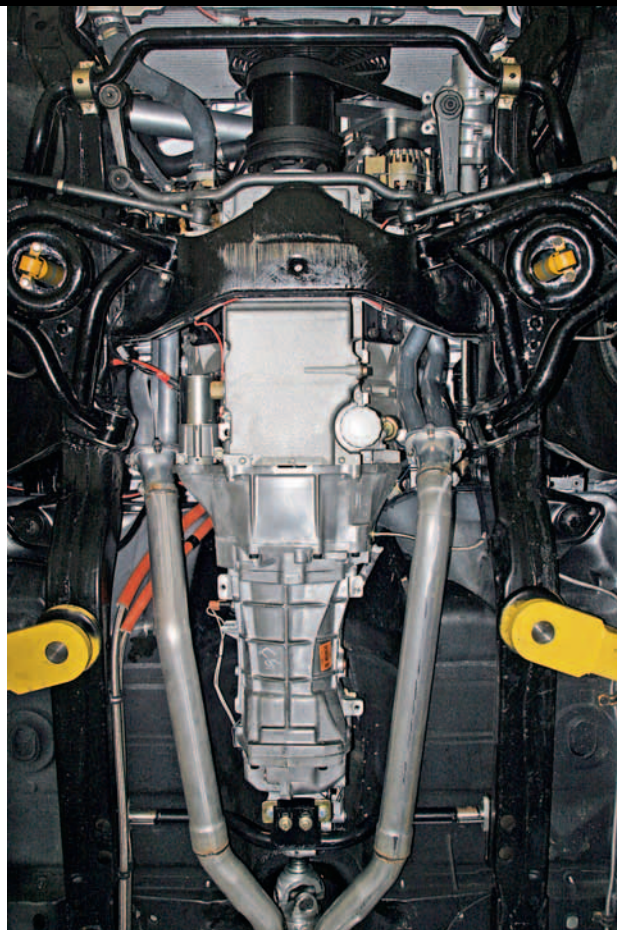
So you want a revolution for your classic GM musclecar? Consider dropping in one of the General's LS-series small-blocks, like this blown LS6 residing in Jeff Mortenson's '70 Camaro. Mortenson owns Classic Chevy 5-Speed, an outfit specializing in modern Tremec TKO and T56 transmission retrofit kits that include all the hardware needed to install a modern manual trans. The Camaro is his own personal ride, but it also showcases Classic's sanitary late-model five- and six-speed conversion kits. This car sports a T56 six-speed, which perfectly complements the late LS-series engine under the hood. Based on a Corvette LS6, it was custom assembled and calibrated by Turn Key Engine Supply to support an intercooled ATI ProCharger centrifugal supercharger. Turn Key used a conventional 90mm throttle body actuated by a traditional throttle cable, avoiding the hassles of the drive-by-wire setups used on many late-model LS engines.

The adapters needed to install the new LS-style engine into a second-generation Camaro or Firebird are available from Classic Chevy or direct from ATS. They work with reversed original '70-'73 Camaro V-8 engine mounts and frame stands. Later '74-'81 F-bodies will need to use the earlier-style mounts, which may require drilling several new subframe holes.

After elongating the floor-shifter hole, the T56 bolts right in place with the kit's supplied adjustable trans crossmember. Classic's kit even includes a new Inland Empire driveshaft with 1350-series U-joints and new trans yoke. The driveshaft is custom made to order and shipped separately after the installer verifies the correct length with an on-car mockup.

Shoehorning the blower and intercooler into the chassis so that everything still fits under the stock hood does present some obstacles. Mortenson used ATI's '04 GTO blower kit but had to make spacers and an extended lower pulley to get everything to clear. The Camaro LS front accessories also had some clearance issues. On a late-model Camaro, the stock air conditioning compressor mounts low on the passenger side and tends to hit the front crossmember on most classic musclecars. This was solved by using a Vintage Air A/C system with a Street & Performance (S&P) high-mount A/C bracket. Turn Key says it is now making its own mounting brackets with extra tensioners and mounting rods that eliminate any clearance problems. Combine the rejuvenated driveline with a full Hotchkis suspension, Detroit Speed A-arms, and Stainless Steel four-wheel disc brakes, and the result is one great ride!

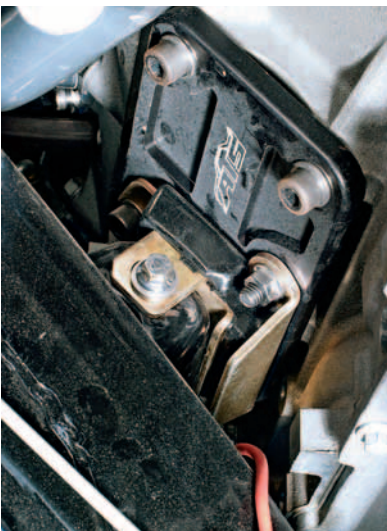
> ATS adapter plates (PN 070001) bolt the LS block to reversed '70-'73 Z28 small-block mounts (ATS polyurethane version, PN 070002) installed on original '70-'73 V-8 frame stands. Flipping the mounts is what allows retention of the original stands; it also keeps the engine's fore-and-aft location within $\frac{3}{4}$ inch of the original V-8.

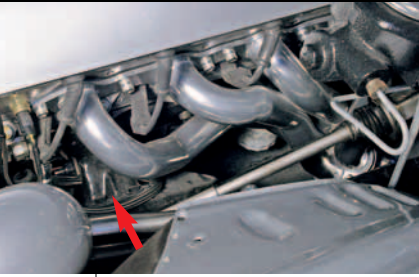


> Thanks to a new trans support, engine adapter brackets, a hydraulic clutch master cylinder bracket, and an A/C relocater bracket, the LS motor/T56 combo fits the old F-body like a glove.



> Generic Street & Performance shorty headers were used. On the passenger side, the collector flange and No. 6 and 8 primary tubes hit the subframe. All the tubes were shortened and rebent near the collector to push the entire header even closer to the block. The Lokar dipstick is used purely for personal preference, not because of any clearance issues.

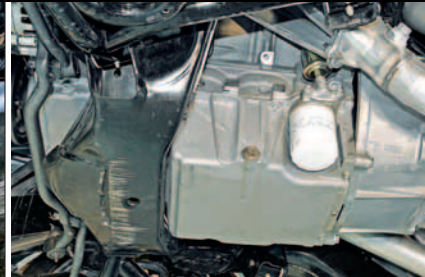




> Ample header clearance exists on the driver side of the front-steer, second-generation Camaro. Note the original classic small-block V-8-style frame stand (arrow).



> The T56, bellhousing, and starter are straight out of a stock LS1-powered Camaro. Unlike aftermarket or LT1-style T56 variants, the LS1 version's input shaft is the correct length to mate with LS motors without the need for an adapter plate. There's ample room under the old-school chassis for 2½-inch dual exhaust pipes.



> A stock GM '98-'03 Camaro/Firebird LS1 oil pan (GM PN 12558762) clears the front crossmember.



> Adjustable laterally and longitudinally, the Classic Chevy kit's ATS trans crossmember accommodates a variety of trannies. The trans mount is an Energy Suspension polyurethane mount with integral preload plate. The big fitting on the driver's side of the trans (arrow) is the reverse lockout solenoid.



> The T56 stick centerline is 2¼ inches farther back, which requires elongating the existing floorpan hole rearward. No other floorpan surgery is required; the big hole in this photo is left over from a previous owner's hack job.



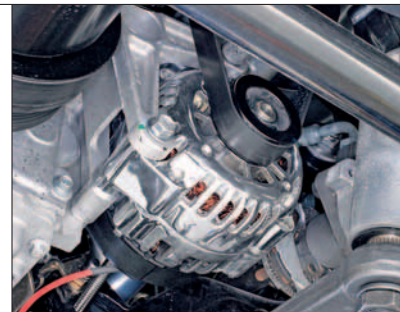
> Here is the finished shifter installation. Mortenson kept the console in the stock location, fabricating his own carbon fiber-covered sheetmetal console plate and custom leather boot to move the hole farther back so it correctly lines up with B&M's T56 shifter assembly.



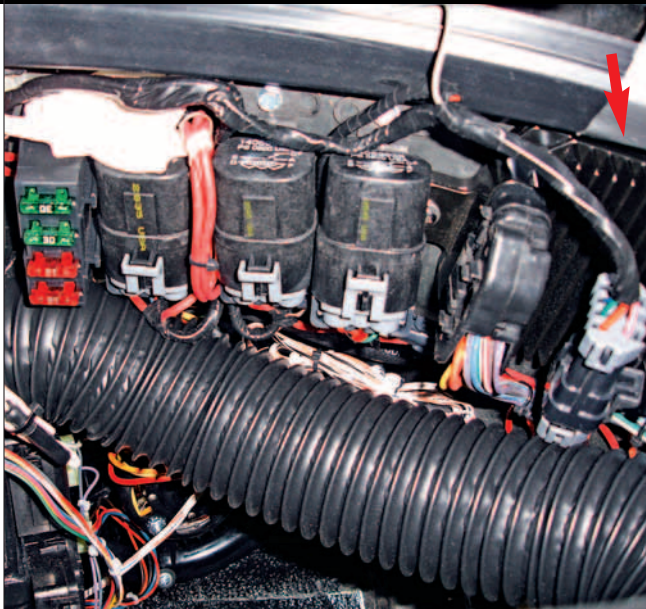
> The mounting bracket for the late Camaro clutch master cylinder bolts in behind the brake power booster using the booster's mounting holes. You must drill a hole in the stock clutch pedal arm to actuate the cylinder's pushrod, then—following the kit's instructions—fab up a pedal stop to prevent excess pedal movement that could cause clutch master cylinder failure.



> The T56 kit's CNC Products clutch fluid reservoir mounts on the firewall anywhere it's convenient, so long as it's above the clutch cylinder. An Aeromotive pressure regulator is plumbed into a conventional return-style EFI fuel system. Rick's Hot Rod Shop made the custom fuel tank, which incorporates an in-tank Walbro pump.



> The late LS1 Camaro alternator mounts in its original position. Clearance is tight, but it clears the stock steering box OK.



> Turn Key Engine Supply uses the compact Delphi MEFI-4 engine computer for most of its packages. It requires only a five-wire hookup and doesn't need a mass airflow sensor, although it does support closed-loop operation through the O₂ sensor. The computer (arrow), critical relays, and auxiliary fuse box were bolted to the inside of the firewall ahead of the glovebox.

> Designed for an '04 GTO, the ProCharger blower installation kit (PN 1GN202-SCI-04) wouldn't clear the '70 Camaro's upper control arm. Mortenson made custom spacers and a new longer, lower crank pulley to move it forward. This left clearance for only one of the Be Cool electric fans supplied in its PN 95003 module assembly, but Mortenson reports no cooling issues.



> Be Cool built the aluminum radiator, modifying its standard PN 60010 '70-'81 Camaro unit to put both the inlet and outlet on the passenger side for the best fit with GM LS-style engines.



> Here you can see just how close the P-1SC-1 centrifugal supercharger comes to the radiator and inner fender. In fact, the stock inner fender had to be cut and a plate riveted in to provide clearance for the induction pipe. An S&P remote power steering reservoir (arrow) was also needed to clear all the blower plumbing.



> One part that still gets the job done is the bulletproof GM 12-bolt, enhanced with Moser axles and a 3.55:1 Eaton Detroit TrueTrac helical-gear, limited-slip differential case. **HRM**

SOURCES

ACCESSIBLE TECHNOLOGIES INC. (ATI PROCHARGER); Lenexa, KS; 913/338-2886; www.procharger.com

AEROMOTIVE INC.; Lenexa, KS; 913/647-7300; www.aeromotive.com

AMERICAN TOURING SPECIALTIES (ATS); Las Vegas, NV; 702/245-6305; www.t56kit.com

AUTO METER; Sycamore, IL; 815/899-0800 (sales) or 815/899-0801 (tech); www.autometer.com

BE COOL INC.; Essexville, MI; 888/515-6077 (U.S.) or 888/515-6077 (Canada); www.becool.com

CLASSIC CHEVY 5-SPEED; Carlsbad, CA; 760/438-2244; www.classicchevy5speed.com

CNC INC.; San Diego, CA; 619/275-1663; www.cncbrakes.com

DETROIT SPEED & ENGINEERING; Mooresville, NC; 704/662-3272; www.detroitsspeed.com

EATON TORQUE DIV.—DIFFERENTIALS; Southfield, MI; 800/328-3850 or 248/226-6200; www.eaton.com

GM PERFORMANCE PARTS; Grand Blanc, MI; 800/577-6888 (nearest dealer); www.gmperformanceparts.com

HOTCHKIS PERFORMANCE; Santa Fe Spgs., CA; 877/4-NOROLL; www.hotchkis.net

INLAND EMPIRE DRIVELINE; Ontario, CA; 800/800-0109 or 909/390-3030; www.iedls.com

LOKAR PERFORMANCE PRODUCTS; Knoxville, TN; 877/469-7440 or 865/966-2269; www.lokar.com

MOSER ENGINEERING; Portland, IN; 260/726-6689; www.moserengineering.com

RICK'S HOT ROD SHOP; El Paso, TX; 915/760-4388; www.rickshotrodshop.com

STAINLESS STEEL BRAKES CORP.; Clarence, NY; 800/448-7722 or 716/759-8666; www.ssbrakes.com

STREET & PERFORMANCE (S&P); Mena, AR; 479/394-5711; www.hotroddlane.com

TRANSMISSION TECHNOLOGIES CORP. (TREMEC); Toledo, OH; 800/401-9866 or 419/470-8200; www.ttcautomotive.com

TURN KEY ENGINE SUPPLY; Oceanside, CA; 760/941-2741; www.turnkeyenginesupply.com

VINTAGE AIR INC.; San Antonio, TX; 800/862-6658 or 210/654-7171; www.vintageair.com

WALBRO ENGINE MANAGEMENT; Tucson, AZ; 520/877-3000; www.walbro.com