

# Back to Life

AFTER A LONG HIBERNATION, THIS PROJECT COMES ROARING BACK Text and Photos by Sharad Raldiris



▲ After a long period of upgrades, Project Shocker is back together and running strong! Seen here in street mode, it could almost pass as just another 13-second 5.0 if the windows were tinted. It has an innocent-looking profile with the stock-appearing Aeromotive Stealth fuel tank and the parachute removed. However, the Shocker's Tig-Vision-tweaked UPR Products suspension hunkered down on these beautiful Holeshot Performance Wheels and Mickey Thompson tires would probably give away the car's sinister intent even if the windows were blacked out. Speaking of "street mode," we special-ordered the Holeshot Holestar wheels with  $\frac{3}{8}$ -inch centers which are thicker than standard centers so they will withstand the abuse our car might encounter while street driving. The 15x10-inch, three-piece rear wheels wear 275/60-15 Mickey Thompson ET Street Radials, while two-piece 15x4-inch wheels wrapped with 26x6R-15 Mickey Thompson Sportsman S/R skinnies reduce rolling resistance up front and provide proper handling characteristics by matching up radial tires at all four corners.

**P**roject Shocker, our '89 Mustang LX, has been in the *5.0 Mustang & Super Fords* stable for several years. Purchased from its original owner in February 2008 it was almost completely stock, with only 42,000 miles showing on the odometer. Before the first wrench was turned, we formulated a plan to build an 8-second street car, using mostly bolt-on parts, which could make 1,000 hp yet still be driven on the street; and it had to be pretty. It was a bold plan.

The project started out smoothly enough. We put the LX in the 12s using minor bolt-on parts. Later, we ran low 11s on the stock motor with boost provided by an ATI-ProCharger F-IR. Sure, the ProCharger was comically oversized for the little 302, but it fit into the long range 8-second plan. While building a monstrous 428ci Windsor, we installed the requisite suspension, rearend, and braking system upgrades. However, two decisions we agonized over which transmission and roll

► Recent polling has indicated that your author's friends' opinions range from "skinny front tires make any car a race car" to "slap a license plate on a top fuel dragster and it's a street car." One thing we can all agree on is that driver safety is important. With that in mind, we sent our little show car to Rob Lewis at Rogue Race Cars for a transformation from a pony into a thoroughbred. After he fabricated the tubular chrome-moly SFI 25.2 Spec roll cage which is certified down to 6.00 in the quarter mile, we brought it home and began the process of reassembly. First, we painted the roll cage and floor panels satin-black and used seam sealer to seal the sheetmetal floor panels to the tubular chassis.



**HORSE SENSE:** Loyal readers may remember that we haven't published an update on our Project Shocker for several years. We learned the hard way that sometimes projects don't go as planned. In our case, a couple of extended shop stays, along with various minor mechanical glitches, conspired to delay the release of this sixth installment far longer than we had intended. A wise man once said "If building a fast car was easy, everyone would have one."

cage to use. Although a 10-point rollcage would meet the NHRA-mandated safety requirements for our projected high-8-second e.t.'s, we played it safe and chose an SFI 25.2 cage from Rogue Race Cars. Viewed objectively, the decision to install a full Funny-Car cage added a significant amount of build time, cost more, and sacrificed some streetability. Still, the elaborate chrome-moly chassis provides a greater measure of safety on the dragstrip, which is priceless.

Choosing a trans for Shocker also proved difficult. The car originally sported a manual transmission and your author loves banging gears, but an automatic is more conducive to big-power racing on radial tires. With that in mind, we decided to install a Mighty Mite X6 from Dynamic Racing Transmissions. Choosing the three-speed M2-X6, which is based on Ford's C4, meant that we were sacrificing the use of an overdrive gear. However, the M2-X6 is ideal for running 8-second e.t.'s with our particular combo, so the lack of an overdrive gear was a necessary concession in our pursuit of speed.

In the interest of full disclosure, we'll confess that Project Shocker was fully assembled over a year ago. Unfortunately, we encountered several new-car bugs which conspired to delay the Shocker's completion. First, there was a tire clearance issue which resulted in the decision to mini-tub the car. Next, our Windsor-swap exhaust did not match up with our combo, which necessitated the use of a custom-fabricated exhaust system. Worse yet, an electrical problem during our first start up attempts actually damaged the brand-new engine and forced us to rebuild



▲ We are attempting to hook up 1,000 horsepower on 275/60-15 drag radials, so a good torque converter is absolutely critical to the success of our project. Our 9-inch T.C.T. Renegade converter has a stall speed of 4,000 rpm. T.C.T. converters are furnace-brazed and feature a hardened pump hub, anti-ballooning plates, triple-bearing package, billet stator, chrome-moly turbine hub with bushings, and a 360-degree mounting ring. In addition to a one-year warranty, T.C.T. converters carry an added benefit that any necessary stall speed adjustment will be performed at no cost, excluding shipping, after test runs have been performed. Here, we added one quart of Dynamic Racing automatic transmission fluid to the torque converter before sliding it onto the Mighty Mite X6 transmission's input shaft. Dynamic's synthetic transmission fluid reduces power-robbing friction without sacrificing grip between the clutches.





▲ Next we used ARP hardware to bolt the SFI-certified 157-tooth JW flywheel to our 428-inch stroker.



▲ The Dynamic Mighty Mite X6 transmission is based on Ford's popular C4 transmission, but it's packed with features such as a 2.20 gear set; six-clutch, direct-drum Power Pack; a lightened drive shell; a sheetmetal aluminum pan; a Pro-Brake; a six-pinion, fully rollerized front planetary; and a modified C-6 Vasco shaft and its precision machine work. That work includes the re-bored and -bushed pump; bored out and resplined forward drum; and the special input-to-output system, which utilizes Teflon to give previously unavailable lateral support. Additionally, every Dynamic Racing Transmission is dyno tested before it ships to the customer. In plain English, this means that Dynamic's M2-X6 can easily handle all of the horsepower we plan to throw at it. Dynamic shipped our C4 with the JW Ultra-Bell installed because the bellhousing on a C4 is actually a structural part of the transmission. If you remove the bellhousing of an assembled C4, you run the risk of dislodging the internal components which would require a rebuild. The SFI-certified JW Ultra-Bell is a large, sturdy piece. After bolting the engine and transmission together, we attached the engine hoist and lowered them into the engine compartment.



▲ Our next step was Segura Automotive in Fort Myers, Florida, where Owner, Lead Tech, and accomplished True Street racer Chris Segura assembled our braking system. In the process of upgrading to Strange Engineering Pro Race brakes, we replaced every component of the braking system. Here, Chris has already fabricated the rear brake lines and he is connecting the front lines.



▲ This Racecraft Inc. manual brake conversion kit includes a Strange Engineering master cylinder and offers the correct pedal pressure for our manual brake setup. The front brake line is directly connected to a TCI RollStop Kit. TCI's RollStop Kit, which is activated by a button on the TCI Outlaw Shifter, will allow the driver to hold the car in place while doing a burnout to heat up the tires. It is a breeze to operate, and the solenoid valve only uses 1 amp of current.



▲ Speaking of the TCI Outlaw Shifter, it comes with the shifter cable and transmission bracket which Chris installed here. According to JR Miller at Dynamic, "...experienced racers often compromise the longevity of their transmissions when their shifter is installed improperly. Make sure the shifter is mounted solidly so that any movement at the handle is directly transmitted to transmission. It's important that you do your main adjustment with the tranny and shifter in third gear." JR also mentioned that Dynamic offers custom powdercoated transmissions and bellhousings, but gloss black seemed fitting for Project Shocker's subdued theme. From this angle, you can see the Strange Engineering chrome-moly driveshaft. It was custom built and shipped to our door within one week of our order, and it is more than capable of handling the power we have in mind.



▲ Switching from an 8-inch to our new 10-inch wide HoleShot rear wheels placed the sidewalls of our 275/60-15 Mickey Thompson ET Street Radials close to the inner wheel wells. Many people overlook this clearance issue, but we believed it was too close for comfort. As such, we brought Project Shocker to Tig-Vision Welding & Fabrication in West Palm Beach, Florida, for a set of mini-tubs. Installing mini-tubs with our stock-style bolt-in Aeromotive fuel tank was not a simple task as space underneath the car is at a premium, however Tig-Vision was up to the task. Tig-Vision's Owner and Lead Fabricator Dave Dodge relocated our Chassisworks coilovers toward the center of our Strange 9-inch rearend and installed the mini-tubs which gave us the tire clearance we needed and enough room to try much larger radials, should we so choose in the future.



▲ Dave at Tig-Vision is a bit of a perfectionist. After installing the mini-tubs and relocating the coilovers, he painted the wheelwells black, painted the axle housing silver, he even powdercoated the parachute mount. Tig-Vision custom fabricated this parachute mount to bolt right onto the factory bumper mounts, and the upright portion is completely removable if we choose to roll incognito.



▲ Project Shocker has been full of surprises. Initially, we tried to use bolt-on Windsor-swap exhaust, but it was not meant to be. Once we determined that we could not convince the Windsor-swap headers to fit, we asked Dave at Tig-Vision to bail us out, so he custom fabricated these stainless steel 1 1/2- to 2-inch stepped headers with thick one-piece flanges. Race Part Solutions came through with O<sub>2</sub> sensor bungs and stainless steel V-band clamps, and Dave brought it all together with these beauties. As nicely as they came out, the headers looked even prettier once they picked up some color after their first few heat cycles.

it. To be sure, Project Shocker has been full of surprises, some of them quite costly, but surprises like these are common with a project of this magnitude. So as painful as it was, we spent the time and money required to properly resolve these issues and the LX is running again, meaner than ever.

Follow the captions to see how Project Shocker was taken from a stripped shell to a mean machine over the last couple of years. But don't touch that dial, because we'll be spinning the dyno rollers in the next installment of Project Shocker when we highlight its impressive new EFI system!

▶ Running a Street Outlaw-style drive-train gives us a solid chance at hitting our goals of 1,000 horsepower and 8-second e.t.'s, but one of our biggest concerns about driving Project Shocker on the street is the fear of overheating. We



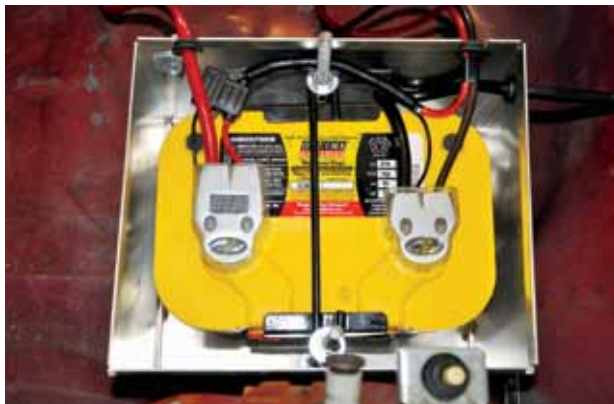
talked to Gary Johnson at Fluidyne about his new Tri-Flow Direct-Fit radiators which are available for all Mustangs. These Triple-Pass radiators utilize the latest NASCAR cooling technology to keep even the most radical street cars running cool. Gary assured us that if his radiators can keep racecars cool for hours of wide-open throttle, they can definitely cool Project Shocker's boosted Windsor. So he shipped us this great-looking Direct-Fit Fluidyne radiator with rounded and polished end tanks, along with a large-by-huge double-pass, three-row heat exchanger for use as an oversized transmission cooler. Fluidyne custom-built this transmission cooler to bolt directly to the radiator, along with Fluidyne's high-flow, 16-inch electric fan.



▲ The Fluidyne radiator was a direct bolt-in, as advertised. We used a small radiator support panel from UPR Products for a more stylish installation. Ford Racing Performance Parts sent us a High Temperature Blue Silicone Radiator Hose Kit to deliver the coolant to and from the radiator, while Lyons Performance supplied the high-quality, -6AN, Teflon-lined, stainless steel hose kit to connect the Fluidyne transmission cooler. FRPP also supplied a high-torque mini-starter. Barely visible in this photo is the remote oil filter mount from Summit Racing Equipment. The FRPP engine block (PN M-6010-W351) we used is an older-style NASCAR wet-sump block which predated the current FRPP Boss 351 block. Unlike the Boss block, the W351 block requires a remote-mount oil filter. Thankfully, this inexpensive mount was readily available at Summit Racing, and it makes oil changes a breeze.



► Knowing Project Shocker would spend a considerable amount of time at car shows and the racetrack with its doors and hatchback open and the interior lights draining the battery, we chose this deep-cycle Optima Yellow battery to provide ample power with or without the engine running. As before, a 200-amp 3G alternator from PA Performance is relied upon to charge the electrical system while the engine is running.



▲ Given your author's OCD tendencies, it was absolutely necessary to rework all of Project Shocker's wiring. So we spent at least 50 hours removing every unnecessary circuit from each harness in order to make the wiring much easier to work on in the future. Weight loss from the wires we removed was negligible, but the end result was much cleaner. Most importantly, everything works! It is unusual to see a Fox Mustang with an SFI 25.2 chassis and functional power windows, power locks, power mirrors, and other accessories.



▲ While we were performing routine fuel system maintenance, we called Aeromotive to inquire about filters and gaskets for our Aeromotive Stealth Eliminator fuel tank. We were pleasantly surprised to learn that Aeromotive updated the Stealth tank's design to utilize a billet aluminum fuel pump hat which drops in from the top of the tank, rather than the previous tank's rear sump mount which was visible from behind the car. This new Stealth tank features elaborate internal baffling similar to the '03-'04 Cobra fuel tanks, so it supports 1,400 horsepower without fear of cavitation or vapor lock, while appearing totally stock externally. The new design fits right in with Project Shocker's build philosophy of looking tame while packing a big punch, so we happily upgraded to the new Aeromotive tank.



▲ Ever the stubborn mule, our pony car was plagued with numerous new car bugs. Despite our best efforts, we never did achieve the ceremonial first startup, so we admitted defeat and left it with The Horse Whisperer, Tim "Ike" Eichhorn at Mustang Performance Racing in Boynton Beach, Florida. As it turned out, a minor electrical problem prevented the big Windsor from firing up while cranking the starter. Unfortunately, your overzealous author kept right on cranking which ultimately caused it to fuel-wash the cylinders and destroy the piston ring seal. It was one simple, but expensive lesson learned. Ike tore apart the brand-new engine, performed the necessary repairs, and dropped it back into the Shocker. Next, he went over the car from front to back, in order to ensure that no other rookie mistakes on our part would prevent the car from running perfectly. When Ike called us to swing by MPR for the ceremonial first start up we were skeptical, but sure enough the car fired right up, and boy did it sound *angry*! In this photo, Ike was checking for leaks while his son Tyler cycled the fuel pump. Tyler performs quite a bit of work at MPR and he earned an NMRA Signature Award for Outstanding Sportsmanship or Racing Skill in 2012. It seems that the apple doesn't fall far from the tree.



▲ Once the first startup monkey was off of our backs, we went to work putting the rest of the car together. Although the Shocker is sporting only 48,000 original miles, many small parts disappeared during the build process. One such item was the original cowl vent grille. Thankfully, Latemodel Restoration hooked us up with a new cowl panel, along with several other items. With funds running low and deadlines looming near, an executive decision was made to cut Project Shocker's stock hood to make room for the big-inch Windsor. Of course, we would prefer to run a cowl-induction hood, but Dremel cut off wheels are much cheaper. While this was considered a temporary solution, many people who have seen it in person have voiced their approval of our pseudo-shaker hood.



▲ Moving onto the interior, we reinstalled most of the factory interior components. Another part which disappeared during the build process was the Shocker's original steering column cover. Thankfully, Bart Tobener at MPS Auto Salvage came through with a replacement. Surprisingly cozy Kirkey seats and Simpson harnesses from Summit Racing Equipment replaced the factory pieces, while Chassis Engineering supplied the window net and parachute release cable kit. Notice the two buttons on our TCI Outlaw shifter. The top button activates both the TCI RollStop and the burnout rev limiter, while the bottom button activates our Dynamic C4's transbrake and the two-step rev limiter. Once we install new black carpet and reinstall the sound system, this will be a great looking cockpit for such a serious machine.



▲ Project Shocker looks fairly serious with the hatchback opened to reveal its Rogue Race Cars roll-cage and Tig-Vision mini-tubs, but new carpet and a custom rear-seat delete will return the Shocker to its show-car standards.



▲ We installed this Simpson Skyjacker parachute from Summit Racing Equipment and the battery cutoff switch in order to satisfy NHRA safety inspectors. However, both the parachute mount and the cutoff switch handle are easily removable for low-key street driving.



► The 428ci Windsor sits taller and closer to the firewall than the 302 it replaced, so we had to fabricate new piping for the ProCharger system. Race Part Solutions supplied the silicone couplers, aluminum tubing, and dual-seal flex connector for the throttle body, as well as the bungs, fittings, and hoses for the PCV system. Admittedly, the throttle body inlet tube will look much better powdercoated black to match the Trick Flow intake and valve covers, but we're waiting to powdercoat it until after we install the dual-nozzle methanol injection kit from Snow Performance. One important component which is not visible in this photo is the boost brace, also from RPS. It positively attaches the ProCharger to the discharge tube to ensure that the tube doesn't separate from the blower at higher boost levels.



▲ Although Project Shocker is in fact a street car and we still have an inlet air filter for our ProCharger F-1R, we are determined to squeeze every last bit of horsepower out of this 428 stroker, so we ordered an inlet bell from ProCharger. It is said to increase max boost by as much as 2 psi with no other changes, and we'll take any advantage we can get! Any guesses on how much power Project Shocker will make on the dyno?



▲ Speaking of the dyno, stay tuned to upcoming issues of *5.0 Mustang & Super Fords* magazine to check out our installation of Holley's high-tech Dominator EFI system along with a new MSD ignition system. **5.0**

## SOURCES

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(913) 338-2886  
www.procharger.com

### AEROMOTIVE

(913) 647-7300  
www.aeromotiveinc.com

### CHASSIS ENGINEERING

(800) 327-9402  
www.chassisengineering.com

### DYNAMIC RACING TRANSMISSIONS

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### FORD RACING PERFORMANCE PARTS

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