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PRIMEDIA

(Editor's Note: If you've followed this project, you already know that Triple X Traction in Seaside, California, has been preparing our 2004 Nissan Titan for battle at this year's Top Truck Challenge. [See the April, June, November 2005 and January 2006 issues.] This time, however, we forced the project into hyper-drive, demanding that the vehicle be finished in time for the 2005 Specialty Equipment Manufacturers' Association [SEMA] Show—which was only 8 days away.)

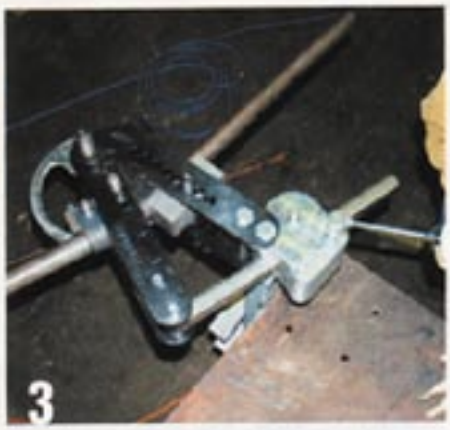
Part 5: Cracking the whip—99% complete in one week's time

By Robin Stover **Photography:** Robin Stover

If you've ever dreamed of competing in *Four Wheeler's* Top Truck Challenge, consider this story required reading. Over the past 12 years, *Four Wheeler* has had the honor of being first to critique some of the most innovative ideas in the world of hard-core trail rigs. Some setups have worked wonderfully, while others simply collapsed under pressure at TTC. Along the way, our staff has compiled volumes about what works and what we wish we could own. We've waited patiently for a chance to put what we've learned into practice. We're happy to say our wait is over.

PROJECT TITAN

MILD 2 WILD



Day 1: The Foundation is Laid

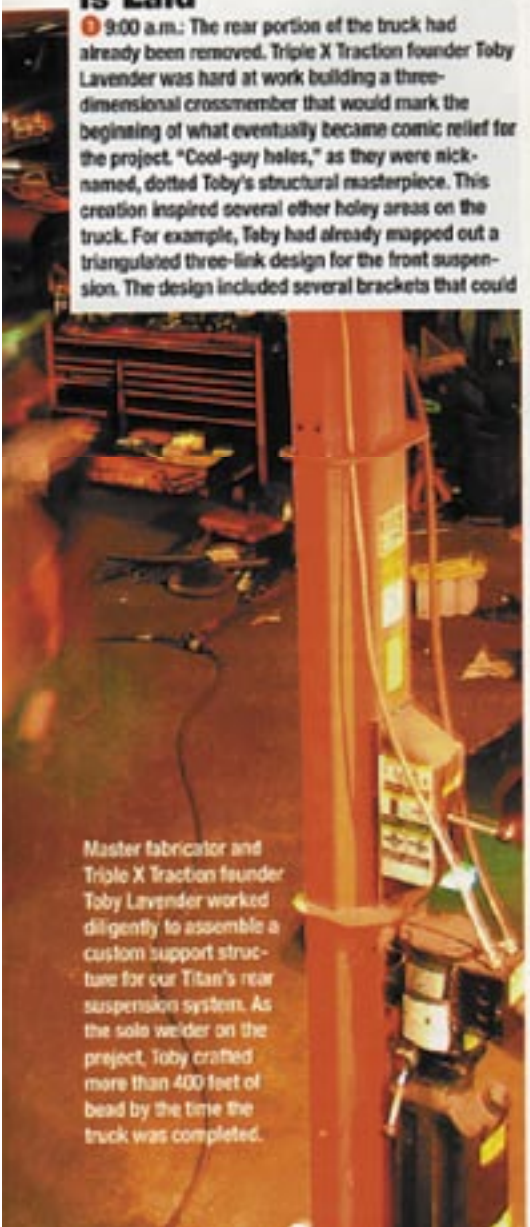
1 9:00 a.m.: The rear portion of the truck had already been removed. Triple X Traction founder Toby Lavender was hard at work building a three-dimensional crossmember that would mark the beginning of what eventually became comic relief for the project. "Cool-guy holes," as they were nicknamed, dotted Toby's structural masterpiece. This creation inspired several other holey areas on the truck. For example, Toby had already mapped out a triangulated three-link design for the front suspension. The design included several brackets that could easily incorporate these simple aesthetic touches. (Though looks weren't necessarily a priority, they're always welcome for a venue such as SEMA.) The front suspension uses a track bar to locate the axle laterally. The setup is stout and effective; it allows for ample suspension flex and is virtually unparalleled in simplicity. Much of Day 1 was spent finalizing this area, along with other finishing touches related to the front axle.

2 11:00 p.m.: Both inner fenders were clearanced, and all unnecessary items were relocated or removed to make room for a pair of trick tubular front shock hoops. We didn't want the standard run-of-the-mill hoops, so we convinced Toby to let some of our late-night helpers play with his new high-dollar roller bender. A roller bender is a radical machine capable of producing large radius bends in all kinds of tubing. These bends are perfect for matching body contours and, more importantly, aesthetic sightlines. With Toby's guidance, our buddies built two front shock hoops to match the natural arc of the trucks inner body structure. The reason? To make the hoops look as though they were there all along. Structurally speaking, any bent tube is a potential weak link, but for slow-speed events of TTC, these hoops would do just fine, providing secure mounting points for two 16-inch-travel Fox Racing Shox at each front corner: one consisting of a coilover, the other a double bypass for dampening.

3 We strongly believe that high-quality results require high-quality tools to start with. So we scored Toby a killer manual tubing bender from JMR Manufacturing to use on the project. The unit features a sweet billet-aluminum gearbox that makes bending tube as easy as turning a wrench. All of the tubing for the project was bent with this top-quality bender, ensuring 100-percent symmetry from one side of the vehicle to the other. By the time the sun set on Day 1, Toby and his guys were hard at work bending various sticks of 1¾-inch DOM tubing to be used throughout the project.

4 We also hooked Toby up with a great tubing notcher from JMR to help piece together our elaborate puzzle of tube. This notcher uses a standard hole saw bit and a regular electric or pneumatic drill to make precise cuts in all types of tubing. This unit is a cut above all the rest (pun intended) because it features an enormous inch-thick hardened driveshaft that is solidly located by a set of liquid-cooled Timken bearings. This allows for extremely steady cutting, free of vibrations that would normally cause bit deflection. This tool is almost surgical in accuracy, a key factor to a tight-fitting tubular support structure. JMR Manufacturing is well known in the world of Baja racing as a highly qualified race vehicle prep shop. They also build some of the fastest Trophy Trucks in the business.

2:33 a.m.: As the morning fog crept in, Toby and our group of helpers seemed more than happy with the day's progress. So we closed the shop down and headed home to catch a short nap before starting Day 2.



Master fabricator and Triple X Traction founder Toby Lavender worked diligently to assemble a custom support structure for our Titan's rear suspension system. As the sole welder on the project, Toby crafted more than 400 feet of bead by the time the truck was completed.

Day 2

5 No, this Atlas II didn't magically appear under the truck today. It was the result of three months of hard work by our friends at Advance Adapters. When we approached them originally to see if they had anything that would work under our Titan, they had no adapters in the works, and none planned for the near future. But after several weeks of R&D, Advance had produced one for us—it's one of only nine Titan Atlas II adapters in existence. So, yes, you can blame us for the newest Atlas II application.

6 8:00 a.m.: With our new transfer case mounted in place, Toby's righthand man, Nick, started the tedious process of removing all unnecessary crossmembers and body mounts from the frame. The task for the day was frame beef, cool-guy style. The idea pretty much came to Toby when he realized the frame width wasn't fat enough to work with the enormous Evolution Machine Shop rod ends we picked for the project. We needed another ½ inch of frame width in order to make things fit right. So out came the cold-rolled steel plate, and by the time Domino's arrived with dinner, our Titan's frame was fitted with enough steel to make an armored-car driver jealous.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7 12:05 p.m.: This is how the stock Titan frame looked once all the body mounts and paint were removed. Next, the cab was solid-mounted to the frame with custom-fabricated body mounts. By replacing the OE body mounts with stronger fabricated units, the interior rollcage we planned to build later would be easy to tie directly into the frame in a sanitary manner.

8 3:10 pm: This picture shows just how much detail went into plating the frame. Each of those holes had to be drilled with a 3-inch hole saw on a drill press. Despite the cool-looking texture the holes added to the inner framerails, they had to be covered up by two additional layers of steel plating. Why go through all the trouble? The holes provided additional weld surface, ensuring that the plates were solidly attached to the frame. This is a trick that Trophy Truck builders use to guarantee structural rigidity where it counts most.

9 10:25 p.m.: Much of Night 2 was spent building the rear suspension upper-link arm mounts and attaching them to the frame. Here, you can see Nick cleaning up an area in preparation for finish welding. Check out the trick tubular rear body mount substructure visible in the background. The rear four-link setup uses links and rod ends identical to the front, except that the rear is composed of four equal-length links instead of three. Triangulated, with appropriately spaced mounts, this setup was designed to flex exceptionally well without binding.

Day 3

10 8:55 a.m.: Check out these link arms. Prior to welding each arm, an Evolution bung was pressed into each end. The line across the bung in this shot indicates that it is a lefthand–threaded bung. Having opposite threads at the end of each link arm allows for fine-tuning the arms once everything is bolted together. Because we ordered our Evolution rod ends with 4-inch threaded shanks, the bungs have more than 2 full inches of thread engagement at each end, which equals greater strength.

11 1:15 p.m.: The way Toby tied together the lower link mounts to the axlehousing is easily confused with origami. With four interlocking pieces of steel at each lower link mount, there is no way that these mounts are ever coming off the axlehousing. Notice how the main brackets fully encompass the axletubes for added strength.

12 5:40 p.m.: Here you can see how meticulous details like these link-arm brackets can make or break a truck. Thankfully, Toby is a skilled welder and his attention to detail is a top priority. The results are consistently beautiful and strong welds every time.

13 8:50 p.m.: With the rear axle located in place, it was time to start tubing out the rear portion of the truck. Toby surprised the whole crew when he attached the tubing bender to the forklift forks. His plan was to run one continuous length of tubing from the middle crossmember to the end of the truck and back, forming a rear stinger along the way. This was a fairly complicated process because it required two compound bends to form the stinger. Here, you can see Nick up on the forks, cranking away at the bender. (We're pretty sure OSHA wouldn't approve of this.)

Day 4

14 10:10 a.m.: The previous night marked some decent progress on the rear portion of the vehicle. Check out the cool-guy cheese grater, aka fuel-cell mounting surface. Toby labored on it for hours. Even editor Robin Stover's bald-headed uncle showed up to lend a helping hand on Day 4. Note the special care he's taking to avoid a flare-up around what little hair he has left.

15 10: 33 a.m.: UPS arrived with a whole assortment of goodies for the project. Fox Racing Shox came through in a big way with a whole arsenal of high-quality racing shocks. Our crew had to stop and pause for a moment of silence as the brand-new racing shocks were unboxed.


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Another product we were really impressed with was the mounting hardware from Totally Stainless. Totally Stainless is one of the only bolt manufacturers in the world that can build stainless-steel bolts with Grade 8 certification ratings. We chose these fasteners because they look good and will never rust. Plain and simple stainless fasteners are the way to go, as long as money is no object.

17 2:34 p.m.: When the afternoon UPS shipment arrived, the rear portion of the truck was coming along nicely. A new set of 40-inch Mickey Thompson Baja ATZ tires were in place on 18-inch Weld wheels, and the rear suspension setup was finally taking shape. Toby was finishing up the lower link mounts on the rear axle, and Robin's uncle was removing excess sheetmetal from inside the cab where the rear tubing would eventually tie into the interior cage. Other volunteers were hard at work running brake lines to the front axle.

18 9:44 p.m.: While Toby put the finishing touches on his rear suspension idler arms, the remaining members of the crew worked on the cable shifters from Advance Adapters. Most of Evening 4 was pretty quiet in the shop. We didn't know if it was just the pressure getting to everyone, or a simple lack of sleep. Either way, the project was beginning to take a toll on us.

Day 5

19 6:45 a.m.: Several major tasks remained unfinished. With less than 42 hours left to complete the rig, the mood around the shop turned serious. There wasn't time for mistakes, nor was there time to stop for a break. Robin declared he wouldn't leave the shop until the truck was finished: "Come hell or high water, this truck will be finished in time for SEMA." Bewildered volunteers sauntered in from the thick morning fog. A thick layer of clutter coated every horizontal surface of Toby's shop: Empty drink cups, half-opened boxes of pizza, scatterings of notched tubing lay everywhere. There wasn't one place where you couldn't find some sort of handtool waiting to be put away. Toby looked around and muttered, "Guys, we gotta clean up this mess first."

20 9:15 a.m.: The morning brought with it many time-consuming stumbling blocks. For instance, the brake lines made from steel braided hose offered a much better path for electrical current than the ill-placed grounding lead of Toby's MIG welder. You guessed it—time to redo the rear brake lines. Luckily, our friends at Russell Performance kicked down plenty of extra brake hose with their generous donation of fittings and steel braded lines.

21 10:10 a.m.: Former TTC tow-truck driver and all-around good buddy Scott Shreve was in the process of bending up new solid brake lines that seemed to fit better than the factory units. Meanwhile, Toby was busy zapping away at the rear tubing of the truck. Just when things were looking up, a bad call came in. Our rear driveshaft from Pat's Driveline in Canada had been held up in customs for several days due to an improper tax ID number. Now it was no longer en route to California. The shipper had turned over the whole debacle to a clearing house, which meant nobody at UPS had any answers. But our problems just seemed to get worse. Fuel Safe, the company that hooked us up with a sweet 30-gallon fuel cell, called to inform us about our in-tank fuel pump, which was lost in a cargo container somewhere near the California-Oregon border. Evidently, the wrong shipping label was used. After an abrupt conversation with a representative from Fuel Safe, a new fuel cell was on a plane bound for San Jose, California. Toby assured us he could conjure up a rear driveshaft from excess parts, if time permitted.


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22 8:49 p.m.: The Glassworks Unlimited fiberglass front fenders and bed sides had arrived fresh from the body shop. The paint matched, but the rear taillights were missing. Otherwise, the rear portion of the truck was looking pretty good. A 20-inch-long Poly Performance limiting strap was being installed over the center of the rear differential. Robin was under the truck, running the world's most expensive -2 gauge power cable from the alternator back to the spot where the two Optima yellow-top batteries were going to be. A few helpers remained late into the night to aid with wiring up the engine.

Day 6

23 3:45 a.m.: With two helpers still present, Robin was forced into a time out. It was cold, the long hours had obscured all rational thought, and the 90-weight Royal Purple gear oil he was attempting to pour into the front ProRock 60 axlehousing wouldn't flow, no matter how hard he squeezed. Just then, Scott approached the now-delirious editor: "Dude, you have to remove the inner seal or it won't pour." We closed down the shop and headed to a nearby Denny's. The graveyard-shift host was caught a little off-guard when three grease-covered zombies came through the front door at 4:00 a.m. The look on his face was priceless.

24 6:23 a.m.: A new fresh wave of workers flooded the front door of Toby's shop. By 8:15, there were five people working through the remaining details of the front suspension. Robin was in the middle of running a fuel line back towards the cheese grater when the UPS man arrived with a big box containing the new fuel cell. The crew breathed a little easier knowing that the vehicle would be able to run for the show.


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4:15 p.m.: Toby was finishing up a bar designed to span the back side of the engine, effectively tying together the front shock hoops. Robin was busy making up hydraulic hoses for the orbital valve. Most of the rest of the team's focus was concentrated on rigging up supports for the fiberglass bed sides. This went on late into the night.

Day 7

12:30 a.m.: The truck was finally supporting its own weight. Toby was busy building the mounts for the track bar. Notice the way this bracket grabs two complete sides of the frame. This is a point where every inch of weld counts.

1:07 a.m.: The lower track-bar mount was also burly. Toby was even able to add a cool-guy hole to tie everything together.

3:00 a.m.: 13 people were still present, with a swarm of activity at every corner of the truck. Four volunteers were under the truck scouring every metal surface with Scotch Brite pads, two others were peeling off remnants of the old original vinyl wrap. Toby was busy at the lathe, building a makeshift rear driveshaft, and editor Robin was clearing a spot in the stock front bumper for the Acro HID lights.

3:10 a.m.: We owe a big debt of gratitude to the guys at Right Axle and Gear of Salinas, California.


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These guys gave up a Friday night to lend a helping hand to the project.

7:48 a.m.: Only two people remained at the shop through the early morning hours, focusing on minor details like wrapping insulation, greasing Zerk fittings and hooking up miscellaneous wiring. When Toby arrived at 9:15, the countdown to fire-up began. Several failed attempts to start the engine led us to believe we had some kind of electrical problem. The minutes turned into hours. Before we knew it, our friend Jack was waiting patiently outside with his trailer, ready to make the eight-hour drive to Las Vegas. It was 8:15 p.m. The truck didn't run, the hydraulic steering was plumbed backwards, and the shocks still didn't have nitrogen in them. At this point, we decided to wait until we got to Vegas to make our last-minute fixes, so we loaded the Titan onto the trailer using a forklift. We called ahead to Toby's lead man Nick, who had just arrived in Vegas via airliner, with instructions to troubleshoot the Titan the first thing in the morning.

As good a mechanic as they come, Nick was able to get the truck running within an hour of its arrival in Las Vegas. He also swapped the hydraulic hoses so that the truck would steer correctly. We never did pressurize the Shox before the show. The truck received an outrageous vinyl wrap in the early-morning hours shortly before check-in time. The design was pure magic, courtesy of Ape Wraps. With the truck positioned on a ramp in front of the main entrance to the Las Vegas Convention Center, all the hard work was finally justified—the public's response to the Titan was overwhelmingly positive. **PW**

SOURCES

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866/361-1436, www.desertracingconcepts.net

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951/256-8300, www.eibach.com

Evolution Machine Shop
403/236-3545, www.evolutionmachine.com

Fox Racing Shox
619/756-1890, www.foxracingshox.com

Fuel Safe
541/923-6065, www.fuelsafe.com

Glassworks Unlimited
714/379-9134, www.glassworksunlimited.com

JMR Manufacturing
805/584-0191, www.jmrmanufacturing.com

Mickey Thompson
800/790-0394 ext. 6509, www.mickeythompsontires.com

Optima
888/867-8462, www.optimabatteries.com

Pat's Driveline
800/661-8807, www.gearcentregroup.com

Poly Performance
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313/781-2222, www.russellperformance.com

Totally Stainless
800/767-4781, www.totallystainless.net

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800/669-9353, www.weldracing.com

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831/899-2144, www.xxxtraction.com