

Manufacturer Profile:  
*Fabtech Suspensions*

**2004 DURANGO HEMI TEST**

# Off-Road Adventures

JULY 2004

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The off-road arena is not the exclusive domain of 4x4s. Elite two-wheel-drive desert racers and their prerunner scouts have the combination of agility and horsepower to skim over sand and sage from the Mojave to the Sahara. Just give these 4x2s a little clearance, a sturdy suspension and fat tires and you're off to the races. That's just one of Fabtech's special niches — durable, long-travel suspensions that set up 4x2s to fly over the dunes. The company's reach, however, goes way beyond that specialized application, with a broad range of heavy-duty 4x4 products. But it wasn't always so.



# Race-Tested And R&D

story and photos by Steve Temple



Fabtech started 15 years ago as a custom fabrication shop, designing and building off-road suspensions solely for two-wheel drive trucks. Located about an hour's drive east of Los Angeles, the company and its staff of enthusiasts were just a stone's throw from the California desert — an endless playground for product testing.

During those early years, the trends in light truck modifications were shifting from low to lifted, according to Brent Riley, Fabtech's president. "In the mid- to late-1980s, 4x2s were being lowered," he explained. "They looked cool, but didn't handle properly. The functionality of the vehicle just wasn't conducive to driving, so people started looking at other distinctive things to do with their trucks." If lower wasn't hacking it, higher was, putting Fabtech at the forefront of the rush to lift 4x2s and head for the desert.

By 1999, Fabtech realized the economy of scale and started manufacturing multiple suspension systems, transitioning from custom retail shop to a wholesale suspension manufac-

tors are turned loose with the new vehicle application everyone is on the same page.

The fabricators build the prototype from the ground up. "There are a lot of considerations," said Riley. "We have to make sure the geometry functions properly on the front end, and that our system works with the tire/wheel combination, braking and steering."

Next comes the fun part: testing in the real world, the California desert. This kind of hands-on experience gives the Fabtech staff the knowledge of how the product performs in the toughest environment. "We can design systems on the CAD, but there's nothing like taking the product out and actually seeing what it does," Riley notes. "Our parts see a lot of punishment long before they go to the customer. This way we know where the baseline is, what the strength of the part is. We literally beat it up to the point where we know it's acceptable."

With its extensive background in off-road racing, Fabtech tests many of its production parts on the racing vehicles com-

## How Fabtech Ensures That its Suspension Lifts are Solid

turer. A year later, the company started developing 4x4 off-road suspension systems and made the move to an appropriate facility in Brea. It only took two years to outgrow the plant and today Fabtech is housed in a 100,000-square foot facility in Chino.

One of the keys to Fabtech's ability to keep pace with new truck technologies is the company's close relationship with the vehicle manufacturers. "We work tightly with the OEs," said Riley. As just one example, he notes that, "We're flying to Ford's Dearborn facility for a measuring session on the 2005 SuperDuty."

These sessions, open to a select few in the aftermarket, give research and development engineers the chance for an advance on the specifications, weights, measurements, all the data that has to do with aftermarket product development. In an industry where being first with new applications is critical to success, inclusion in these sessions is a huge advantage.

As further evidence of the company's significance in the industry, at last year's SEMA Show in Vegas, Fabtech came away with awards from both Ford and SEMA for its lift kit on the 2004 F-150 suspension system (featured in our April 2004 issue).

The new light trucks Fabtech procures from the auto manufacturers serve double duty, first as models for prototype development and testing, and then as project vehicles, which also become valuable marketing tools. R&D is the incubator for new product development.

"Initially, we sit down and do a market study to see what features and benefits are out there," explained Riley, "and to establish what our criteria for that product is, in terms of the functionality of the vehicle." Riley then goes through these priorities with the R&D department so when its fabrica-

peting in the Best in the Desert Series, SCORE Desert Series and CORR Short Course Series. A suspension company can glean more in 500 miles of off-road racing than could be learned in years of conventional use. "We get a lot of feedback from drivers and race crews in terms of what holds up and what doesn't," Riley points out. "All this gives us a clear understanding of how to weld it and how to support it."

Once the testing is complete, the new system goes back to the engineers for drawing on the CAD in preparation for the manufacturing process. The manufacturing facility works 24 hours a day, six days a week cutting, welding and machining various Fabtech products.

The facility is state-of-the-art, with CNC mills, lathes, Miller welding equipment, and is still growing. A second robotic CNC laser cutter will soon join the existing cutter, turning out precision parts around the clock. Riley points to the work orders, generated by the planning department, that follow each product through all the steps, from raw materials to cutting, welding and the series of inspections. All the manufacturing steps are done in house, to maintain total quality control. "We do all our own axle hubs, the critical element for our spindles," Riley said. "That's the only way we can hold the tolerances we need."

The welders work from weld fixtures, generated by the fabricators in R&D once the prototype has been fully tested. "The welds have to be done in a specific pattern," Riley explains. "With each weld, the metal draws, or warps. By welding in the prescribed pattern, the finished product is uniform." The completed component then goes out for powdercoating, the only function not done in house.

Once the product is out in the field, Fabtech keeps track of its customer base by hitting all the prominent truck



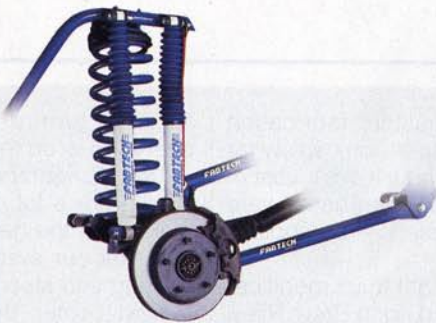
## Manufacturer > Profile

shows and off-roading events. Staff and project vehicles tour the countryside in a distinctively graphic Fabtech big rig. "This kind of show and event involvement gives us good input, as well as a chance to explain the features and benefits of our product line," Riley said.

Another Fabtech innovation is to house the sales and tech staffs in close proximity at the Chino facility. This way when retailers or jobbers have a tech question, the response is immediate.

So, what does all this high-tech manufacturing and extensive product testing turn out? The answer is simple: quality suspension systems and components for a broad range of both 4x4s and 4x2 light trucks.

We'll begin with the benchmark two-wheel drive systems. Fabtech's control-arm systems start with a simple spindle/performance shock system that increases ride height without impacting the ride. The Long Travel system has 3 to 4.5-inches of lift and a maximum 12-inches of



**"We can design systems on the CAD, but there's nothing like taking the product out and actually seeing what it does."**





travel. At the top end is the Ultimate Long Travel system with 6 to 7.5-inches of lift.

The front lift on the Ultimate Long Travel system, depending on the application, includes a one-piece cast lift spindle, heavy-duty tubular upper and lower control arms and adjustable front shocks. A block kit and performance rear shocks raise the back end, with an optional dual-shock cage installed in the bed. The Fabtech long travel systems handle radical desert terrain, with air-catching whoops and the articulation required by twisty, rutted, rocky hot spots. "With good clearance and traction devices on two-wheel drive," Riley understated, "you'd be surprised how far you can go."

For those who want to go even farther, Fabtech's 4x4 suspensions range from Hummer to Jeep applications and everything in between. The IFS systems include high arched crossmembers for maximum ground clearance and thick steel skidplate wrapping for the differential housing. They also feature solid billet sway bar links with over-sized urethane bushings and extended cast-iron steering knuckles that retain the factory center link for proper steering geometry and allowing for the use of a stock wheel/tire combination.

Fabtech's leaf spring suspension systems incorporate the latest technology to provide the vehicle lift height and also retain a smooth ride. In addition, the company's coilover system, popular for rock crawling, adjusts from stock, up to 3.5-inches depending on the application. The coilover shocks hold more oil and provide more surface area cooling, reducing shock fade.

Whether your idea of off-road fun is flying over sand dunes or twisting your way up and over house-sized boulders, or if your ride doubles as a daily commuter and weekend toy, Fabtech's engineers have thoroughly developed and drop-tested a system that helps you on your way. ▲