The Slavens Racing Goat KTM 350SX is a hardcore-modded motocrosser that has morphed into a machine that craves ugly terrain. While there were a plethora of mods done to the scoot, the big updates came to the suspension.

THE SLAVENS GOAT

By Jeff Slavens, edited and tested by the DB staff

I picked up a KTM 350 SX-F for testing to learn about the new rear linkage suspension and to determine if the engine could be made trail worthy—not for high-speed wussy trails, but for Colorado's nastiest rocky, rooty, switchback trails. After initial testing of the stock motocrosser, I thought that I had made a big mistake. I'm not a fan of conversions, especially since KTM makes a model for every discipline imaginable, and the extremely harsh suspension and soft low-end power had me concerned.

THE GOAL

To make it more enjoyable for engine testing, I attacked the suspension first. Since the forks are virtually the same as last year's SX-F models, I had already developed some great settings, but I decided to wipe the slate clean and look at the fork setup with a new set of eyes. I'm always trying to soften/improve harshness and deflection, yet gain overall firmness that improves steering, stability, bottoming resistance and the overall preciseness of the chassis. Also at the top of my wish list is a suspension that helps the rider when he makes a mistake, like hitting a washout at high speed that he didn't see or hitting a root hidden by a shadow at a bad angle. Good suspension should make up for small pilot errors, not exacerbate the mistakes that we all make.

THE FORK

Like most forks used for rocky, rooty conditions, they just don't flow fluid quickly enough to respond to sharp, square-edged hits. This slow response gives that harsh, deflective, hacky feedback that makes us screech out and turn the throttle in the wrong direction. Addressing those issues is always my number-one concern on all off-road forks. The WP closed-chamber bladder forks have an additional issue that needs attention. Because of unwanted fluid migration from the outer chamber to the inner chamber, hydraulic pressure builds in the inner chamber and makes the fork become stiffer as you ride. The inner chamber has a check valve to release the pressure, but as pressure builds in the outer chamber, it overrides the pressure relief valve and the harshness increases. I developed a series of machining

Slavens Racing performs some pretty serious surgery to the fork and shock in an effort to gain compliance while retaining a modicum of good high-speed resistance to bottoming. Their mods are some of the best we've tested.

processes called the Pressure Balance System (PBS) that greatly reduces the pressure. I combined the PBS with my high-flow Next Level compression pistons. We design them in-house and tare machined with a CNC water-jet machine to get the ports shaped for maximum flow. The mid-valve compression and rebound shim stacks and pistons, along with the base valve compression stacks, are all modified to increase performance and stability. The spring rates are adjusted to match the rider's weight. Other details include Italian-made SKF seals to reduce stiction and increase service life. Shock Sox are installed to increase seal life. The cartridge fluid is vacuum bled to remove excess oil gas (air), and the bladder pressure is increased to improve sealing to reduce oil migration. The final detail is installing STR Speed Bleeders and Clean Speed aluminum compression adjusters, because the stock plastic adjusters crack and fail. The end result is a fork that stays up in the travel and has a firm and precise feel yet is plush enough to track straight through gnarly rocks and roots.

THE SHOCK

The shock is much easier to correct than the forks. The new linkage system gives the shock the ability to handle a wider variety of terrain, whereas the PDS system is more sensitive about setup and is more job-specific. When correctly revalved, the linkage system soaks up square-edged hits that would cause a PDS shock to kick. I make major changes to the dual-compression control adjuster to alleviate harshness, add low-speed valving to the compression shim stack to increase bottoming resistance and prevent wallowing, lighten up the high-speed compression to make it more responsive to rocks and roots, reshape the rebound valving stack to increase overall stability, and make the shock slightly more responsive to increase traction. A big mistake that most professional and home tuners make is bleeding the oil gas from the system by hand. A correctly valved and assembled shock will perform poorly if the fluid is aerated. The only way to properly bleed the system is with a WP vacuum-bleeding machine. We have one of the few in this country and have been using it with great results for a long time. The final touch is a spring thrust bearing and a high-quality Slavens spring that is made in Holland. It has correct dimensions that allow full shock travel. Many U.S. tuners are using aftermarket springs that are designed for Japanese shocks, and the springs will coil bind before reaching full travel.

THE POWERPLANT

The engine was my primary concern, and very few performance parts are available. First, I geared it down one tooth on the countershaft (13T). First gear was way too tall for goat trails, and the factory riders use a 13 for their GNCC mounts. Next, I bolted on an FMF MegaBomb and Q4 to quiet the bike and give a

While Jeff has been testing an SSB throttle body, the production unit wasn't quite ready for this test; therefore the main performance mods came via a pipe and muffler, plus some gearing. The FMF MegaBomb plays an important role in coaxing out necessary bottom to mid muscle. The Flatland Racing skid plate was noisy, but did a good job of protecting the belly.

The Slavens suspension is not only supple, it takes the hit quite nicely.

mild boost to the low-end grunt. In Colorado, spark arrestors are required. And as of July 1, 2010, we have a new sound law: all off-road bikes must be 96 dB or less using the SAE J1287 testing method.

I'm in the process of testing an SSB throttle body for the machine, but they are in the middle of making changes that target mainly bottom to mid increases, which is what I demand. They won't be ready for a few weeks and missed this deadline.

OTHER OFF-ROAD GOODIES

I hate flats, and the TUbliss system not only improves traction and reduces weight, it improves handling and eliminates pinch flats. I also prefer an 18-inch rear wheel; the additional sidewall gives better cushion in rock zones and makes the suspension feel better. An 18-inch rear rim from a 2011 XC was laced for up this reason. I run a Dunlop MX71 up front because it's versatile, and with a TUbliss system, I can run the pressure pretty low. In Colorado, I run Mitas radial trials 400-18. I consider the Dunlop 803 the top performer, but the Mitas is a close second and lasts longer. It won't chunk on pavement sections and has a more durable carcass that is more resistant to cuts. With the TUbliss, I run the pressure at 6 pounds. For the California test, we stuck on an MX51. California had been getting hammered with rain, and this is an excellent and versatile tire.

In the cockpit, I fit up a Scotts top-mount damper (not much to say other than they're the best, at least as far as handling the Colorado nasties that make me smile), Flexx's 10-degree enduro handlebars with Cycra hand guards, BRP hand guard mounts, Rigid bar-end mounts, and Renthal Kevlar grips. I also fitted prototype Pivot Pegz, which have stiffer springs. These will soon be available to the public. They give great boot traction, a modicum of flexibility and aren't as floppy as older Pivot Pegz.

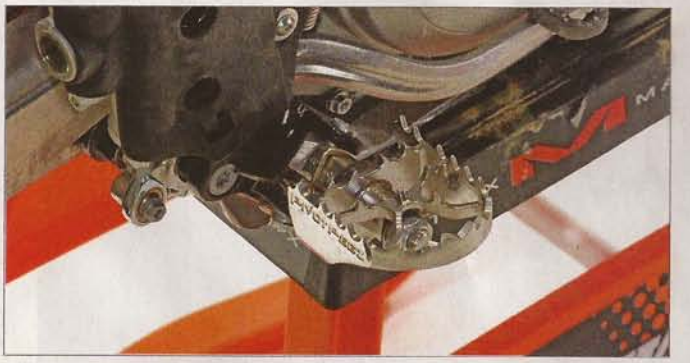
There are a number of goodies that I've tested, and they just flat work. KTM Hard Parts sells a tall gel seat. It adds just enough for the long leggers. I like the Renthal O-ring chain. It's strong, priced right and lasts a long time. The same goes for the BRP chain guide; it's super durable. I've had excellent results with the TurnTech 5 amp battery; it spins the engine quicker and reduces weight by 3 pounds. A big thumbs up to Bullet Proof Designs' rear disc guard and radiator guards, and the Flatland skid plate gives great protection at a fair price. Finally, the new PG GRIPZ graphics are the most durable I've tested and they look great.

THE DIRT BIKE TEST

We've tested Slavens suspension in the past and have always raved about it. Because he's a passionate dirt bike rider, he builds suspension that works in ugly conditions. Jeff is a rock hound, and here the KTM is as good as it gets. It's stunning on big Gs, a little loose at speed and totally comfortable. The shock is nearly as stunning as the fork and improves traction and hookup dramatically over stock. Naturally, the stock SX valving is rudely harsh for true off-road aficionados. Adding to the package are three items that also share in the newfound ability to chew

The Slavens dashboard is a fancy affair. Flexx bars, a Scotts steering damper and Cycra full-wrap handguards are the products of choice.

Hooked to the Scotts mount is a fancy machined-aluminum throttle cable guide. It keeps the throttle cables away from the stabilizer, handlebar clamp and handlebars, preventing wear and potentially dangerous cable snags. It sells for $19.95. Fork button speed bleeders ($36.95) are key for quick bleeds, and the billet star compression adjusters ($24.95) are stronger and more ergo-friendly than the stockers.

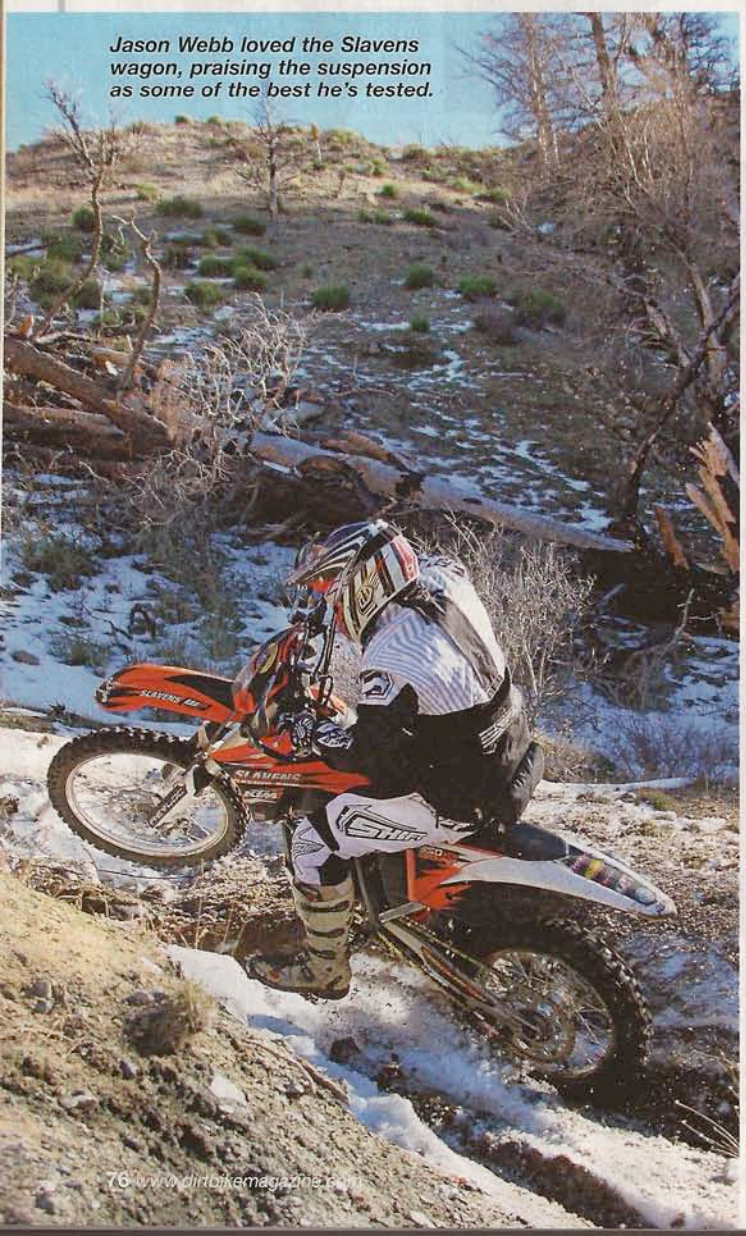


The new Pivot Pegz offer great foot traction and have just enough movement that we never really thought about them (where older models moved too much).

We had great results with the new TUbliss tubes. They allow you to run low air pressure without the fear of flatting or spinning the tire on the rim. Slavens swears by them!

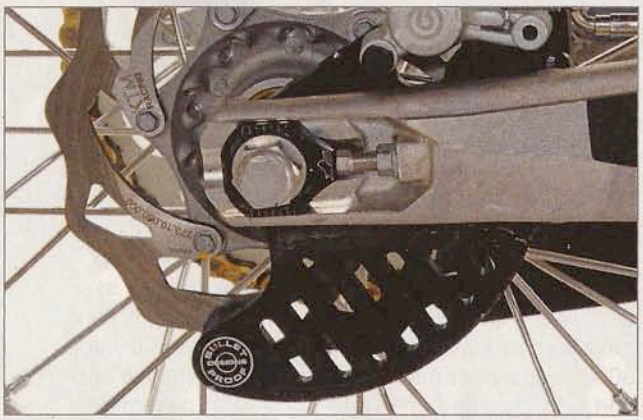
on hack. The Scotts damper is absolutely magic; we run ours 15-20 clicks out and let the high speed control deflections and any nervousness. The Flexx bars are superb; they cleave off a major amount of chatter impact to your hands. And finally, we can't hoot enough about the TUbliss systems. They have new and more durable inner pieces, and controlling the air pressure let us improve traction and not fear the flat. In spite of the fact that the FMF MegaBomb and Q are crucial for legal sound and do improve bottom power (the stocker is straight through and full moto), we'd still like more roll-on-grunt bottom power. Stay in the mid and top and the machine hauls, but short-shift and try to trials it over obstacles and the weak bottom hurts. Still, this is one great handling scoot, and it's easy to see that Slavens has put his heart into his work.

Go to Slavens Racing at *www.slavensracing.com*, and you'll find all of the products that we tested on the Slavens Goat KTM 350SX. ❑

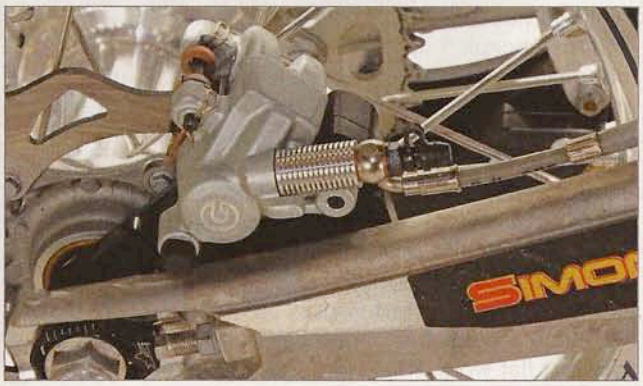


Jason Webb loved the Slavens wagon, praising the suspension as some of the best he's tested.

Slavens is working on a guard for the low-hanging linkage.



Bullet Proof provided the rear disc guard, radiator guards and the swingarm/chain guide guard. All the pieces are quality pieces and crave abuse.



The brake caliper cooler actually helped reduce brake fade by cooling the fluid.

The FMF Q is the key ingredient in proper quiet power.