

# Duncan Racing TRX450R Off-Road Racer

## Pro Performance With Amateur Maintenance

If you've ever raced an ATV, you're certainly aware of the three main ingredients needed to win: a good-handling suspension to keep you on all fours, a reliable motor with strong power to keep you at the front of the pack, and an intense physical conditioning and endurance to help you grab and hold that lead. Even though true physical fitness can't be bought, there are countless companies that offer parts that can help you obtain these very important ingredients. From engine kits to suspension systems, there are endless possibilities from which to choose. But as a consumer, there are many things to consider before purchasing parts and starting your build. We want to stress the point of making sure that you're buying good-quality parts, while considering the amount of maintenance that will be required once your build is complete.



## Duncan Racing TRX450

Numerous companies can offer huge increases in horsepower output, but at what cost? Sure, your newly built motor puts out 35 horsepower over everyone else, but how rideable and reliable is it? How about your suspension? Just because a company offers a set of 2-1 A-arms and reservoir shocks doesn't mean those components necessarily perform up to par. In order to find out what it takes to build a high-performance racer that requires a minimal amount of maintenance, we called the legendary Loren Duncan of Duncan Racing International for his help and expertise. We asked Loren to fill us in on what it takes to create a high-performance quality racer that requires a minimal amount of time in the shop.

**ATV Rider:** Loren, when you were building this machine, tell us about the specific purpose or rider that you had in mind.

**Loren Duncan:** This bike is built as a highly competitive race machine for an amateur-level racer. We wanted to build a race machine that would feature the best balance of performance, reliability and value for the customer.

**ATVR:** What types of racing can a rider enter on this machine?

**LD:** This bike is designed to race both outdoor motocross and off-road races, with small minor changes, of course. The chassis isn't set up for cross-country woods-type racing, and the motor is too aggressive for a desert race bike.

**ATVR:** So what types of changes need to be made to this quad between the motocross and off-road races?

**LD:** The main changes that need to be done are the tires, wheels and gearing. Heavy-duty skid plates and a larger-capacity fuel tank with a quick-fill system are also recommended for off-road competition.

**ATVR:** In the engine department, what kind of modifications have been done and why?

**LD:** The engine is comprised of a DRI 450cc National Kit which features a Fat Boy 4 exhaust, JE piston, HP4 valve train kit, Vortex CDI unit and Pro Design Pro Flow air cleaner kit. The HP4 kit gives this engine a five-horsepower gain over stock. It's the main thing that sets our motors apart from those of our competition. The DRI HP4 feature Duncan Racing in-house cylinder head porting, Serdi valve seat machining, an MX grind billet camshaft (made in the U.S.A.), heavy-duty valve springs with titanium retainers, shortened bronze valve guides and oversize intake and exhaust valves.

**ATVR:** Does the piston supplied with this kit have higher than stock compression?

**LD:** No, the compression is increased over stock but is still kept at a manageable level. All of the engine modifications combined give almost a 17-horsepower increase over a stock machine. This offers riders a very fast and competitive engine that's still reliable and needs little maintenance. This setup doesn't require being torn down after every race like the [national pros] and is still relatively affordable.

**ATVR:** Well, it seems that power is no longer an issue, but how about the suspension? Stock machines are hardly competitive, so what did you do to improve the ride and increase its performance abilities?

**LD:** The front end features a Roll Design Lobo II suspension kit paired with Elka shocks. The rear features a Roll Design swingarm with an '05 TRX Elka dual link and Elka shock.

**ATVR:** Is there any particular reason you've chosen this setup?

**LD:** The quality of these parts and overall function are solid and have been proven through

years of testing and experience. A top pro with years of experience and hours of testing under his belt would possibly run a different combination of shock, springs and valving to suit his riding style.

**ATVR:** Now about the platform you began with. Is there a specific reason you decided to build a Honda TRX450R?

**LD:** We feel that Honda offers the best overall package to work with. The basic machine plus Honda's record for quality make it a favorite among our customers. When you build the Honda like we did, it's hard to beat. The only knock on the TRX450 is the transmission. It isn't quite as strong as past Honda models. I will say that both the Suzuki LT-R and Yamaha YFZ are fine machines, and when professionally modified, they are also very competitive.

**ATVR:** Now one of the things you mentioned while discussing the engine was that it didn't require being torn down after every race like that of a national pro. How does it differ?

**LD:** It doesn't differ a whole lot. This machine is slightly detuned. This is mainly done to increase the reliability and the rideability. The extra things needed to make a world-class pro bike would be an absolute waste of money. In addition, without proper care and supervision, the machine would be damaged.

**ATVR:** What kind of service is required for this quad and at what intervals?

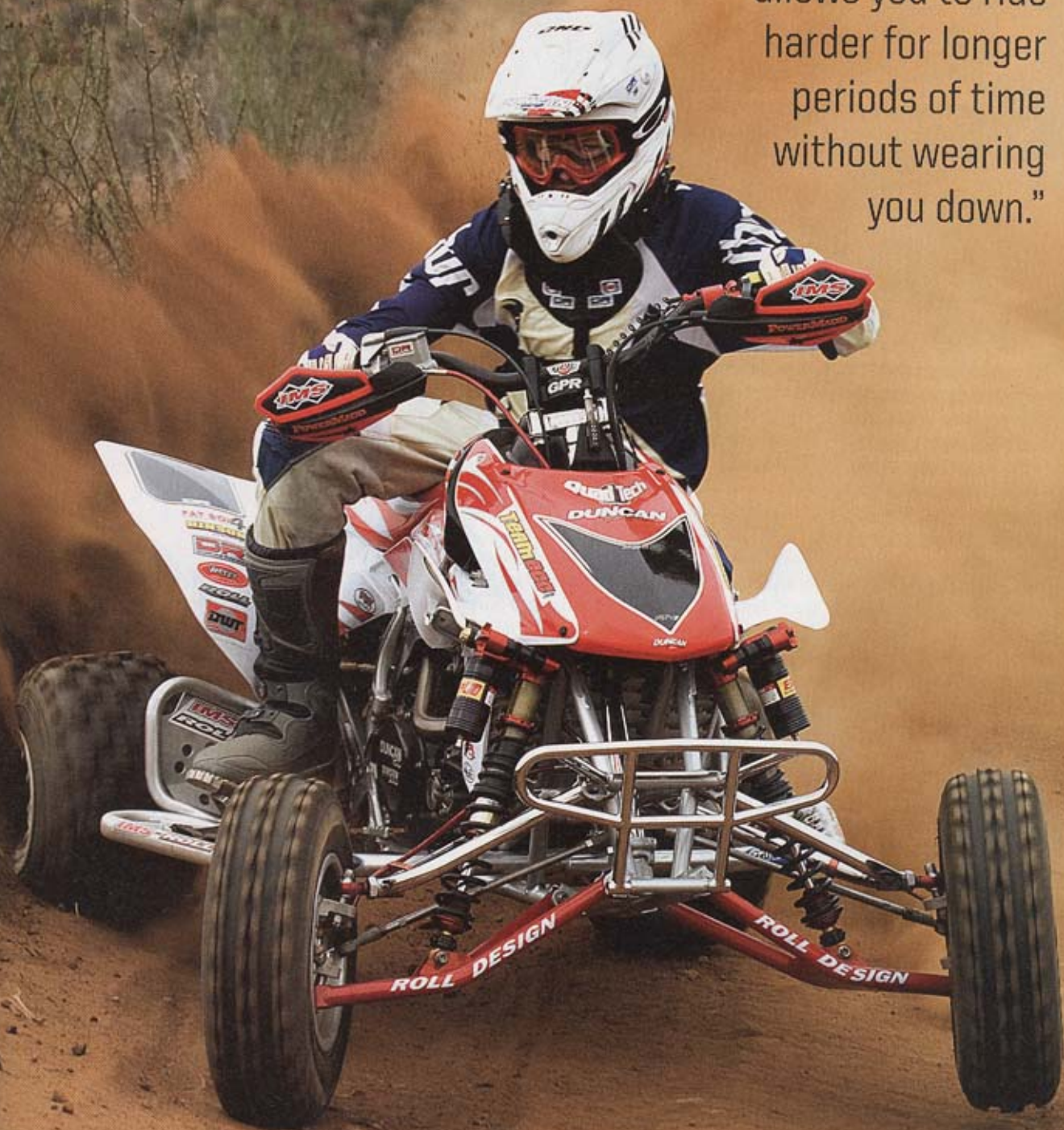
**LD:** First, the oil and oil filter should be changed after every race; the valve clearances should be checked every 5 to 10 hours; the clutch should be checked for wear every 10 hours; and the top end should be disassembled and checked every 25 hours. On top of that basic service, we feel that the lower end of the engine and transmission should be disassembled and inspected every 30 to 50 hours. Because of these time intervals for inspection and maintenance, we highly recommend installing an hourmeter on the machine. It's also a good idea to keep a log of all races and maintenance done.

### TESTING THE THEORY

Now that we gathered all of the background information on this beast, it was time to throw a leg over the machine and see if it really accomplished everything it was designed to do. This particular machine belongs to WORCS and ITP Quadcross racer Garrin Fuller, who generously allowed us to throw in some long, hard laps. As the motor turned over and this engine roared to life, it was apparent that this was no ordinary stock motor. A click of the shifter and a twist of the wrist, and this quad burst off the starting line with a powerful sense of authority and delivered the very aggressive nature that Loren had warned us about.



"This strong yet smooth power allows you to ride harder for longer periods of time without wearing you down."



## Duncan Racing TRX450



The suspension and engine package this machine offers is smooth and reliable. All of the quality workmanship and parts are sure to keep you DNF free.



As I began rolling through the gears, the monstrous power increase continued to be extremely vibrant and noticeable. I took my first couple of laps around the track at a slower pace so that I could get a good feel for the machine. But that didn't last for long as I began gaining confidence and became more comfortable with Garrin's machine; I then began picking up the pace. The motor mods done to this particular quad were definitely apparent and welcomed to this rider. My particular riding style has me entering corners a gear higher and letting the torque of the engine pull and blast me out. This engine did just that and did it with ease.

Over the years, I've had the luxury of throwing a leg over various ATVs with similar modifications, only to find that they pull hard in the upper portions of the powerband but leave me desiring more in the low and mid. If you're into that two-stroke feel and type of power, those machines might be perfect for you though definitely not for me. The power of this Duncan engine allowed me to ride exactly how I prefer without feeling as if it were yanking my arms from their sockets. This strong yet smooth power allows you to ride harder for longer periods of time without wearing you down from a motor that exerts an overly aggressive hit. But don't be fooled—this motor is aggressive but in a controllable manner.

With 17 extra ponies being whipped out from this new motor, a much-improved suspension system was inevitable. The stock Honda suspension system would fall short of offering the stability and handling characteristics that this new beast demanded. I knew from the get-go that the Roll Design A-arms and swingarm paired with Elka shocks were doing their job as I was able to maintain stability while taking advantage of the added oomph. While attacking fast, sweeping corners, all four tires remained planted as I backed in the rear tires with the throttle and exited, all while maintaining the momentum needed. The usual tipsy feeling of the TRX had literally been diminished, thanks to the design and extra width of the Roll Design arms.

From the deep whoops to the straights that were littered with harsh braking and acceleration bumps, I felt confident on every portion of the track. The frightening kicking and bucking that are often experienced from the rear suspension of quads had been tamed, which allowed me to power down and accomplish stellar lap times. The overall handling and confidence I gained from this suspension setup was absolutely brilliant, and I'm confident that I'd be a strong contender in my next race. If only I could take Garrin's quad with me.

As a racer who follows the WORCS series and does an occasional MX race, I desire my own quad to perform as well as this one did. Although tested on an MX track, I have no doubt that its handling prowess would be any less on some of the roughest off-road courses the series follows. If you participate in similar racing events or even just play ride and want the best handling and most controllable power out of your quad while still keeping it reliable, I would highly consider building a machine very similar to this Duncan Racing beast. *ATVR*

## Duncan Racing 2008 TRX450 Amateur MX Racer

Builder and main sponsor: Duncan Racing International, Inc.  
Sponsor list: GPR Stabilizer, Fat Boy 4 Exhaust, ITP, DWT, Roll Design, Vortex Ignitions, Elka Suspension, ECC, Maxima

## PARTS LIST

## Engine

DRI 450cc National Engine Kit, includes Fat Boy 4 exhaust, JE Duncan Racing-spec piston, DRI HP4 kit (billet camshaft, head porting, Serdi valve seat cut, oversize intake and exhaust valves, HD valve spring kit, shortened bronze valve guides) and jet kit: \$2475

## Upgrades

Vortex X10 CDI: \$449  
Pro Design Pro Flow air cleaner kit: \$149.95  
Hinson billet clutch basket: \$230  
Hinson Works inner hub and pressure plate: \$474

## Front End

Roll Design +1 steering stem: \$349.95  
GPR steering stabilizer: \$450  
Roll Design Lobo II front suspension kit, includes Lobo II A-arms, Elka standard shocks, Crown braided-steel brake lines: \$2895  
Elka Elite shocks: \$400  
Chrome upper A-arms: \$150

## Rear End

Roll Design swingarm with chain slider: \$1395  
Team Industries rear axle: \$449  
Elka Elite shock and dual linkage: \$1395  
Crown braided-steel brake line: \$39.95

## Nerf Bars and Bumper

Duncan Racing chrome front bumper: \$179  
IMS/Roll footpegs: \$199  
IMS/Roll heel guards: \$159.95  
IMS/Roll Pro Series nerf bars: \$199.95

## Tires and Wheels

MX: ITP MXR6 20x6-10 front: \$74.61; 18x10-8 rear: \$87.65  
Off-Road: ITP Holeshoot XCR 21x7-10 front: \$90.63;  
20x11-10 rear: \$117  
Douglas Shamrock beadlocks, 10-in. fronts: \$265; 9-in. rears: \$217.50; 8-in. rears: \$212

## Accessories

Quick-change clutch cover: \$199  
Duncan Racing chain guard: \$29.95  
Duncan Racing block-off plate: \$19.95  
Duncan Racing Race Team graphic and seat kit: \$129.95  
Motion Pro Vortex twist throttle kit: \$59.90  
Pro Design cut-off switch: \$39.95  
Works Connection perch assembly: \$129.95