

ATV BUILD

# DUNCAN RACING-BRED TRX450R

Building a  
Best in the Desert-  
winning machine

By the staff of Dirt Wheels

□ Building a quad to go the distance in a full Best in the Desert series season is a tough job. Not only are you putting a lot of time into building the machine, there is also a lot of time testing the quad beforehand and preparing your own body for the abuse. Races like the Parker 250 and Vegas to Reno are some of the most grueling for both machine and rider. Vegas to Reno alone is 500 miles or more, which makes it the longest desert race in the good ol' United States of America.



For most racers, keeping the quad together is a lot of work if you don't have proper help. Erin and Andrew Simmons raced the BITD series in 2016. The brothers were racing against each other in the Ironman Expert class and did very well. Erin actually won the Ironman Expert class at the Vegas to Reno round, which is a great accomplishment. For 2017, they decided to team up and take on the rest of the seasoned veterans in the Pro ATV class. That also meant that they would need a quad that was not only built well, but it also had to be fast and reliable. That's when they turned to Loren and Leonard of Duncan Racing International to transform an ordinary 2005 Honda TRX450R into something extraordinary.

#### ENGINE MODS

Duncan Racing went to work on building this 2005 into a quad that could win virtually any race it entered. Starting with the engine, Duncan went

(Left) BITD is notorious for having dusty conditions. The small amber light under the bumper works amazingly well in dust. A CRF poly skid plate protects the bottom of the frame.



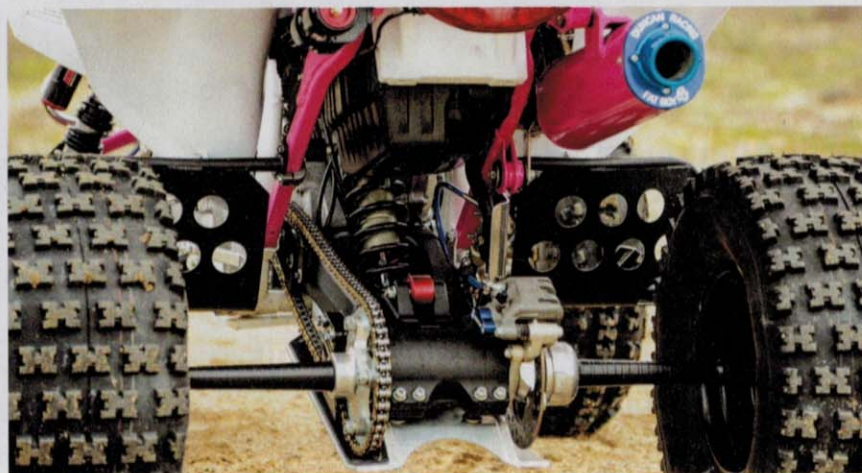
## TRX450R

The Simmons brothers' TRX made quick work of the whoop sections thanks to the Elka/Roll Design suspension setup. It's set aggressive enough to handle almost anything in its path, but it still feels very plush.



## TRX450R

*We felt right at home with the ergonomics of this quad. The Fasst Co. Flexx handlebars and Roll Design anti-vibe stem created a lot of comfort for us.*



*Out back sits an Elka Stage 5 shock, Elka long-travel linkage, Roll Design swingarm, Duncan Fat Boy 4 silencer and an RPM Dominator 2 axle.*

with a tried-and-true engine setup they knew could win. A full DRI head port and a valve job were performed, along with adding a new billet X22 Baja camshaft. To get more torque and retain great horsepower, Duncan added their National 470cc cylinder and a custom JE 13:1 piston. They went with an OEM 315-series crankshaft and a complete Hinson clutch component kit with a Duncan Racing clutch pack. To get a better power curve, a Vortex X10 pro-

grammable CDI box was installed.

With all this newfound power, they added a 2012 TRX450R airbox with a Pro Design Pro Flow kit with a K&N filter for more airflow. It was mated with a Duncan FCR 41mm carburetor, which is a big improvement over the OEM 2005 carburetor. All the lubrication for the engine is Maxima's Premium 10W40 oil. To complete this engine package is Duncan Racing's Fat Boy 4 complete stainless exhaust system.

### THE REST OF THE GOODIES

Suspension takes on a major role in winning races, which is why a set of Roll Design Lobo II A-arms and a set of Elka Stage 5 shocks are on the front end. The rear has a Roll Design +0.5-inch swingarm, Elka Stage 5 shock, Elka linkage and an RPM Dominator 2 axle. For rider comfort, a Flexx handlebar, GPR stabilizer, FourWerx Carbon seat, Works Connection clutch-perch assembly, Motion Pro Vortex twist throttle and a Roll Design anti-vibe steering stem were added. Duncan performed their Baja frame prep by adding several gussets to the weak points of the frame. All the brake components are OEM, except the extended Crown-series steel-braided brake lines. An oversized IMS tank with an IMS dry brake is a must for long races and quick pit stops. Sunstar sprockets and an RK O-ring chain handles the drive.

For the protection side, a poly CRF full-frame skid plate, Duncan skid plate, DRI stainless steel bumper, PRM grab bar, Roll Design footpegs and DRI chromoly heel guards keep this Honda safe. To get more ground clearance, Maxxis Razr 2 (23x7-10) and Maxxis Razr (22x11-9) tires were used. Along with that, DWT beadlocks and the Tire Balls Flat Prevention system were also

# TRX450R



*Even though it's heavier than an MX-built quad, the Simmons brothers' TRX feels very nimble in the air.*

installed. This quad just plain looks awesome. The limited-edition D'Cor pink graphics look killer, along with all the powdercoating that brought the colors together.

## THE TEST

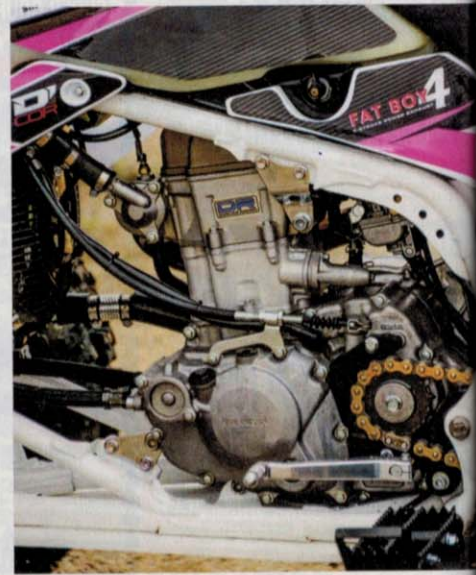
We took the Simmons brothers' TRX out to a closed-course where we knew we could stretch its legs in some rough and fast sections. The engine power was very potent. The DRI 470cc kit created big low-end torque, which made it nice to get back to full power out of corners. It was no slouch on the top end, either. It has great mid-hit, and the rpm and mph won't stop until it runs out of gearing in fifth. The quad just sounds mean, with deep engine tones rushing out of the stainless steel Fat Boy 4 exhaust. Speed test runs were done at a blazing pace. We did this on a long fire road like you might find yourself on during Vegas to Reno. If this TRX had a sixth gear, it feels like it would pull it just fine.

For a big desert quad with tall tires, it handles extremely well. The Roll Design A-arms help this bad boy turn on a dime. We felt zero push from the



*The Simmons brothers rely on Elka Stage 5 shocks and Roll Design long-travel A-arms. This setup puts the width of the quad at 50 inches and creates ample ground clearance.*

front end. That is crucial in racing at high speeds. Another player in the handling is the big Razr 2 tires that have a lot of side bite. The Elka Stage 5 shocks was also a treat. It soaked up all the nasty whoops like a Cadillac



*Duncan Racing built this engine up to 470cc and did extensive work to the cylinder head. BITD doesn't have a production rule, so going with a big-bore setup is legal.*

and performed extremely well on the smaller chop.

The rider ergonomics felt great with the Flex handlebars. The quarter-turn Motion Pro Vortex twist throttle took a little bit to get used to as it has a real

on-or-off feeling. After some ride time, we started to enjoy it more since it was easier to get into the power through rougher sections like whoops. One huge benefit we felt on the machine are the Tire Balls. With those installed, we could run 3 pounds of air in the front tires and 2 pounds of air in the rear. This created huge traction and gave us peace of mind in rock sections.

## CONCLUSION

The Simmons brothers' Duncan Racing-tuned TRX450R is a monster of a machine. It has huge power, but has the rideability of a 450 engine, which helped with rider fatigue. It handles the rough stuff like a Class 1 car and is comfortable as can be. After all, this quad was built to win

pro races! The Duncan brothers built a winner here, and we were stoked to be able to ride it before the first round of the Best in the Desert series, Parker 250. We got to ride this before the Simmons brothers even saw the quad. A few days later, without any testing, they went out and won the 2017 Parker 250! That's right, that's how it's done, boys and girls. □

## TRX450R



## PARTS AND SERVICES

### Campbell Racing:

[campbellracingfabrication.com](http://campbellracingfabrication.com),  
435-632-4902

Poly frame skid plate .....\$110

### Duncan Racing International:

[www.duncanracing.com](http://www.duncanracing.com),  
619-258-6306

DRI 470cc custom

JE 13:1 piston.....\$235

DRI HP 4 kit

(port, valve seat machining,

Baja X22 camshaft,

HD valve springs,

HP guides, big valve kit) ...\$1,595

DRI Fat Boy 4 full stainless steel

exhaust system.....\$649

+ \$99 for powdercoat/anodize

DRI FCR 41MM

carburetor kit.....\$699

DRI Baja frame

gusset frame prep.....\$450

DRI Vortex X10

programmable CDI .....\$539

DRI/D'Cor pink special-edition

graphics kit.....\$150

DRI rear brake

block-off plate.....\$14.95

DRI billet shifter.....\$90

DRI front bumper.....\$199

DRI chromoly heel guards ..\$240

DRI/Hinson quick-change

clutch cover.....\$199

DRI clutch fibers, steels,

and springs.....\$199

DRI Crown steel-braided front

brake lines.....\$120

DRI Crown steel-braided rear

brake lines.....\$40

DRI aluminum

swingarm skid plate .....\$105

### DWT Racing:

[www.dwttracing.com](http://www.dwttracing.com),

800-RACE-RIM

Rok N Lock 10-inch front

beadlock wheel: \$189 Each

G2 9-inch rear beadlock wheel:

\$175 per wheel

**Elka:** [www.elkasuspension.com](http://www.elkasuspension.com),

800-557-0552

Stage 5 front shocks.....\$1,700

Stage 5 rear shock

w/ linkage.....\$1,700

**Fasst Co.:** [www.fasstco.com](http://www.fasstco.com),

877-306-1801

15-degree Moto bend .....\$360

**FourWerx:** [www.fwcarbon.com](http://www.fwcarbon.com),

262-501-9696

A57 plastic hood .....\$130

Wave seat cover.....\$150

**GPR:** [www.gprstabilizer.com](http://www.gprstabilizer.com),

619-661-0101

V1 Stabilizer kit.....\$525

### Hinson Racing:

[www.hinsonracing.com](http://www.hinsonracing.com),

909-946-2942

Billet-proof

clutch basket.....\$260

Billet-proof inner hub/

pressure plate kit.....\$520

### IMS Products:

[www.imsproducts.com](http://www.imsproducts.com),

800-237-9906

Dry-break receiver .....\$226

Dust cap .....\$10

3.7 gallon oversized

fuel tank.....\$275

**Maxima:** [www.maximausa.com](http://www.maximausa.com)

Premium 10w40 engine oil:

\$8.50 per quart

Brake fluid.....\$7.50 per bottle

**Maxxis:** [www.maxxistires.com](http://www.maxxistires.com)

Razr 2 23x7x10

6-ply front tire.....\$152 each

Razr 22x11x9

6-ply rear tire .....\$161 each

### Motion Pro:

[www.motionpro.com](http://www.motionpro.com),

650-594-9600

Vortex twist throttle: .....\$61

### Powder1:

[www.powder1.com](http://www.powder1.com),

619-588-9200

Powdercoating.....\$375

### Pro Design:

[www.prodesignracing.com](http://www.prodesignracing.com),

714-534-0620

Pro Flow air filter kit

with K&N .....\$169

Tether kill switch.....\$35

### PowerMadd:

[www.powermadd.com](http://www.powermadd.com),

651-462-8465

Star-series handguard kit .....\$70

### RK Excel:

[www.rkexcelamerica.com](http://www.rkexcelamerica.com),

760-732-3161

520EKW X-ring chain.....\$113

**Roll Design:** [rolldesign.com](http://rolldesign.com),

760-731-5920

Lobo II A-arms.....\$1,496

Anti-vibe steering stem .....\$300

Anti-vibe handlebar clamp.....\$100

Footpegs .....\$240

**Sunstar:** [www.sunstar-mc.com](http://www.sunstar-mc.com),

937-743-9049

Front sprocket.....\$24

Rear sprocket .....\$37

**Tire Balls:** [www.tireballs.com](http://www.tireballs.com)

Front Tire Ball kit.....\$211 each

Rear Tire Ball kit.....\$220 each

### Works Connection:

[www.worksconnection.com](http://www.worksconnection.com),

530-642-9488

Elite perch assembly.....\$196