



There's a lot going on in the back. The Roll Design swingarm is a half-inch longer than stock, adding some high-speed stability to the 450R. To keep it planted in corners, a 49-inch TEAM axle is used. Duncan Racing worked with Elka Suspension to come up with different linkage and a longer Elka Elite shock to work with the less-than-ideal shock mounting location on the 450R's stock frame. The Fat Boy 4 is louder than we'd like for non-racing applications.



We were impressed by the 50-inch-wide Roll Design front end, but Loren Duncan still wants to improve the turning a bit. The Elka Long Travel Elite suspension is outstanding and a noticeable improvement over the superb stock Showas.





# DUNCAN RACING WORCS 450R

We ride Eichner's ride

Ever since managing editor DJ Williams saw Doug Eichner's 450R for the WORCS (World Off-Road Championship Series), he kept bugging editor Joe Pops that he had to ride it. Finally, DJ was able to corral Doug and builder Loren Duncan of Duncan Racing International so he could swing a leg over the hot Honda.

After an all-day wringing out of the Duncan Racing 450R up and down the rugged Laguna Mountains near the Mexican border, DJ, Doug and Loren talked over the machine designed to rule the WORCS.



Duncan Racing and Hinson Racing teamed up to make a beefier clutch to handle the extra power of the modified 450R motor. It doesn't slip and it's not stiff. The extra-wide IMS pegs provide a great platform, especially when landing from jumps or hammering through brutal terrain.



Not much was done on the bottom end of the 450R's motor, but the top end was completely reworked, from the valve springs down to the displacement- and compression-enhancing DRIIJE piston. The Edelbrock carb eliminates the need for a hot start button.



Not designed for really big air, the Duncan Racing WORCS 450R is perfect for those high speed launches you'll find on just about any trail. Although it turns well, this quad is all about stability.



# DUNCAN WORCS 450R

**DJ Williams:** *Loren, why did you choose the 450R to contest WORCS?*

**Loren Duncan:** I think the Honda has a more rideable, dual-sport powerband. It's a hybrid, not a motocrosser like the Yamaha YFZ450. The Honda is a better quad every single place except on the MX course. The YFZ is a closed-course bike. Everywhere else the Honda is better.

**DJ:** *You didn't run a stock motor. What needed to be changed or improved for Doug to compete on a national level?*

**LD:** We change everything inside. The larger bore adds more torque. Porting the head and larger valves really wakes the motor up. The valve guides are changed to increase cam life. If you don't, the cam spring retainer will hit the guides. Valves were changed because the stock valves won't work with higher lift. The cam is changed to control the air flow to our liking.

**DJ:** *The motor was easy for me to handle, even though I'm no Doug Eichner.*

**LD:** The modified motor in this quad is still tame. It's set up for the unrideable terrain you can find at a WORCS race. When we go to faster areas, we use a faster motor. The real-aggressive motor has ten more horsepower than this WORCS machine. The fire-breathing motor will pull Yamahas at Glen Helen.

**Doug Eichner:** The powerband is very predictable and easy to ride. It doesn't have a violent hit. It has good torque, plus midrange and top end. The faster motor is great for motocross. I've run it in the ITP QuadCross series, Elsinore Thunder in the Valley series. I take it out for the dunes. It's an all-around bike. I do everything on it.

**DJ:** *The chassis is longer and wider, giving it a great feel in the nasty terrain we were riding.*

**DE:** It's very predictable and easy to ride. It is very good with the Roll-Arms and goes through corners really well. At high speeds it tracks really straight thanks to the GPR steering stabilizer. Also, the Elka shocks work real well.

**LD:** The handling is really balanced. We went with a Lobo II front suspension which turns it into a Cadillac. The front end works better than the rear—it's so, so good. The Honda's front end is A-plus stock. We still need to make it steer better.

**DJ:** *What are the weaknesses of the 450R?*

**LD:** The rear shock. The top shock mount is in the wrong position and puts stress on the shock design—the shock is not long enough for the shock mounting position. It's hard to make it work in rough terrain. To fix that, we worked with Elka to make different linkages. We tested and tested. Doug tried 20 shock designs before coming up with this one. The final version shock has maxed out travel, there's more fluid and it works better without extreme fatigue. The 450R shock setup is similar to the 400EX. That's why it's not doing well in MX. I think it's why Farr didn't win one national motocross this year. We have been able to get it to work off-road.

**DE:** For me, the weak point is the frame. If you're going to ride it as hard as I ride it, the frame is weak, like a Yamaha or Suzuki. It needs to be gussied. For most riders it's more than good enough.

**DJ:** *I was really impressed by the DRI WORCS 450R. What I found most striking was how easy it was to ride. I've ridden lots of race 250Rs and a quad like the 450R really buries the two-strokes. You can ride it slow when you need to, but it completely hauls when the opportunity presents itself.*

*With its great handling and suspension, the ability to go fast comes up more often than I expected. On dirt roads I could easily pitch it sideways, something that's pretty tough to do on a stock 450R. We rode some pretty rough trails and the 450R was stable and never punished me. I felt like I could ride the DRI machine all day without getting fatigued. It didn't have a stiff clutch pull and the twist throttle worked well for me.*

*Really, it's just flat out fun to ride. I was going as fast as I wanted to go, but never felt overwhelmed by the quad, even though it had plenty in reserve. It doesn't get much better than that.*

**LD:** Make sure you put that in the article!



You might not think of the 450R as a flattracker, but with a wider stance and the right tires it can slide with the best of them. Team Duncan Racing's Doug Eichner pitches it sideways near Bobcat Meadows Campground.





The IMS Dry Break tank holds a full four gallons for good range between pits stops. The combination of TAG aluminum bars and GPR stabilizer kept our hands and arms fresh, despite the extreme terrain.



Body armor is a must for WORCS racing and the 450R's AC Racing skids did the job. We took it out on some truly treacherous rocky trails and the 450R came back unscathed, even though the swingarm skids were AWOL.



One of the best things about working at ATV Action is getting to ride championship caliber quads. DJ blitzes up a rocky trail with Mexico lurking in the background. Photo by Doug Eichner. □



#### RIDER/SPONSORS

Rider	Doug Eichner
Rider weight	170 lb.
Head Sponsor	Duncan Racing International
Title Sponsors	Roll Design, IMS, Golden West
Main Sponsors	Douglas Wheel, Team ECC, ITP Tires, Elka Suspension, ATV World
Associate Sponsors	Team Industries, Vortex Ignitions, Hinson Clutches, TAG Metals, GPR Stabilizer, YukonGear, Fat Boy 4 Exhausts, Paul Turner Racing Engines, Edelbrock
Contributing Sponsors	Pro Design, Maxima, JE Pistons, Motion Pro, Sunstar, Works Connection, AC Performance, One Industries, Breking, Crown Industries
Gear Sponsors	O'Neal Racing, Smith Goggles

#### MACHINE

Quad	2004 Honda TRX 450R
Quad weight	350 lb.
Frame	Stock

#### MOTOR

Motor Mods	DRI National 470cc Kit (Includes Fat Boy 4 Complete Stainless Exhaust System, DRI Head Port, SERDI Valve Seat Machining, JE Piston, Cam, Valves w/Titanium Retainers, Valve Springs, Guides, Vortex CDI, Edelbrock carburetor, K&N Filter)
Porting	DRI Head Port (w/ SERDI valve seat machining)
Piston	DRI 470cc 12:1 by JE Pistons
Ignition/timing	Vortex X10 Programmable CDI
Spark plug/gap	NGK IFRSH11
Valves/cam	DRI HP4 Kit (Includes Billet Camshaft, HD Valve Springs, Guides & Big Valve Kit)
Carburetor & mods	Edelbrock
Airbox/filter/oil	Stock Air Box/Pro Design Pro Flow Kit w/K&N
Pipe/silencer (muffler)	Fat Boy 4 Complete Stainless Exhaust
Fuel	Trick
4-stroke oil	Maxima Premium 4 10w30

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#### DRIVE SYSTEM

Clutch basket/plates & springs	Hinson Basket/DRI Clutch
Clutch cover	DRI/Hinson Quick Change Clutch Cover
Transmission/oil	Stock/Maxima

Chain/lube	Premium 4 10w30 Maxima Chain Wax
Sprockets	Sunstar
Gearing f/r	14/36

#### FRONT END

A-arms/width	Roll Design / 50" (with 4-1 offset rims)
Spindles	OEM
Front shocks	Elka Long Travel Elites
Steering stem	Roll Design
Steering stabilizer	GPR

#### REAR END

Swingarm/length	Roll Design/+1/2"
Rear axle/width/carrier	TEAM Axle/49"/TEAM Tapered Bearing Carrier
Rear shock	Elka Elite (w/Elka Linkage)

#### TIRES/WHEELS/HUBS

Tires f/r	ITP Holeshot XCR/ITP Holeshot XCR
Tire sizes f/r	21x7x10/20x11x9
Tire pressure f/r	8 psi/6 psi
Wheels f/r	Douglas Ultimate "Shamrock"
Hubs f/r	OEM/TEAM

#### BRAKES

Calipers f/r	OEM
Pads	Braking
Rotors	OEM
Brake lines	Crown Series Steel Braided
Brake fluid	Maxima 550

#### HANDLEBARS/CONTROLS

Handlebars/hand	TAG T2/CR HI
Handguards	Acerbis
Throttle	Motion Pro Vortex
Clutch lever	Works Connection
Gearshift lever	DR Billet Shifter
Brake pedal	IMS/Roll Rear Brake Pedal
Cables	Motion Pro
Grips	TAG
Tether kill switch	Pro Design

#### MISCELLANEOUS

Nerf bars	AC Racing
Front bumper/grab bar	DR Chrome Front Bumper/AC Racing
Skidplates	AC Racing
Seat	OEM
Tank	IMS 4.0 Gallon w/ IMS Dry Break
Body plastic	OEM
Footpegs/location	IMS/Roll Design/Stock
Powdercoating	Powder 1
Chain guard	DRI
Parking brake block-off	DRI
Graphics Kit	DRI