



# TEAM DRI DESERT RAPTOR

*Taking an up-close look at Duncan's "Big Gun" desert racer*

Story and Photos by Jeff Henson

At the 2003 finish of Nevada's famed Vegas-to-Reno Desert Race, *ATV Illustrated* was on hand to interview the racers fortunate enough to complete all 511 miles of "Best In The Desert's" silty, high-speed, barren desert course. One thing we noted from many of the pro-level competitors, though, was the mention of one particular ATV that was incontestably faster at top speed than the rest of the machines that made it to the finish line. Professional desert racer Steve Beilman summed it up this way: "That Raptor just walked away from us."

Don't let the pictures fool you. If you look really close, you can see this stealthy desert fighter has been to hell and back. Rocks and debris hurled from snared competitors have left scars and a crack or two in the front plastic and radiator shroud. There's also a sizable dent on one of the lower A-arms, probably left over by a high-speed impact with a boulder; team rider Leonard Duncan jokingly claims his partner, Allen White, is responsible for that one. Regardless, Team DRI's Desert Raptor has proven itself a highly reliable force with which to be reckoned.

This lightning-fast Yamaha's list of accomplishments include an '02 third-



place pro finish at the three-day Nevada 1000 off-road race and Doug Eichner and Mark Spaeth just missing (by a mere 26 seconds!) a first-place Pro trophy at the '03 Vegas-to-Reno race. At the time of this writing the Duncan Raptor team was sitting in the fourth-place points championship spot in the "Best In The Desert" series. The team is still within striking distance of the leaders, as the last race in the series, the Las Vegas 200, still remains to be run. Duncan has also ridden the DRI Raptor to a third-place National Championship in the World Off-Road Championship Series.

#### ENGINE

It takes a lot more than just a few bolt-on products to be competitive in the desert. The Duncan Raptor has been modified to reach speeds close to 100 mph! The engine is ported to perform in the desert, a process that includes a three-angle valve job. Valve guides were shortened, followed by the installation of heavy-duty valve springs and titanium retainers. The engine also got a compression boost with the installation of a 12:1 JE piston. All work was performed on the Duncan Racing flow bench to assure that the powerplant achieves maximum horsepower and torque while retaining reliability.

The stock carburetor was replaced with an Edelbrock 38mm unit. A Pro Design Pro Flow K&N air filter kit with Outerwear was also installed for optimal air intake. The Edelbrock carb provides a significant power increase while dramatically improving fuel mileage. Topping off the five-gallon IMS fuel tank gives this high-performer an unheard-of 100-mile range between fuel stops. The Edelbrock also does away with the nightmarish task of jetting the stock Raptor dual-carburetor setup; all jetting is external on the Edelbrock, making for quick adjustments

without having to dismantle anything (look for a full product evaluation on the Edelbrock carburetor in the next issue of *ATV Illustrated*).

On the other end of the motor, the stock exhaust has been replaced with Duncan's Fat Boy four-head pipe and silencer, complete with turndown and spark arrester. This combination allows the high-performance motor to exhale freely with minimal restriction. It also alerts pit stop crews, well ahead of time, that their rider is preparing to come in for a fuel stop.

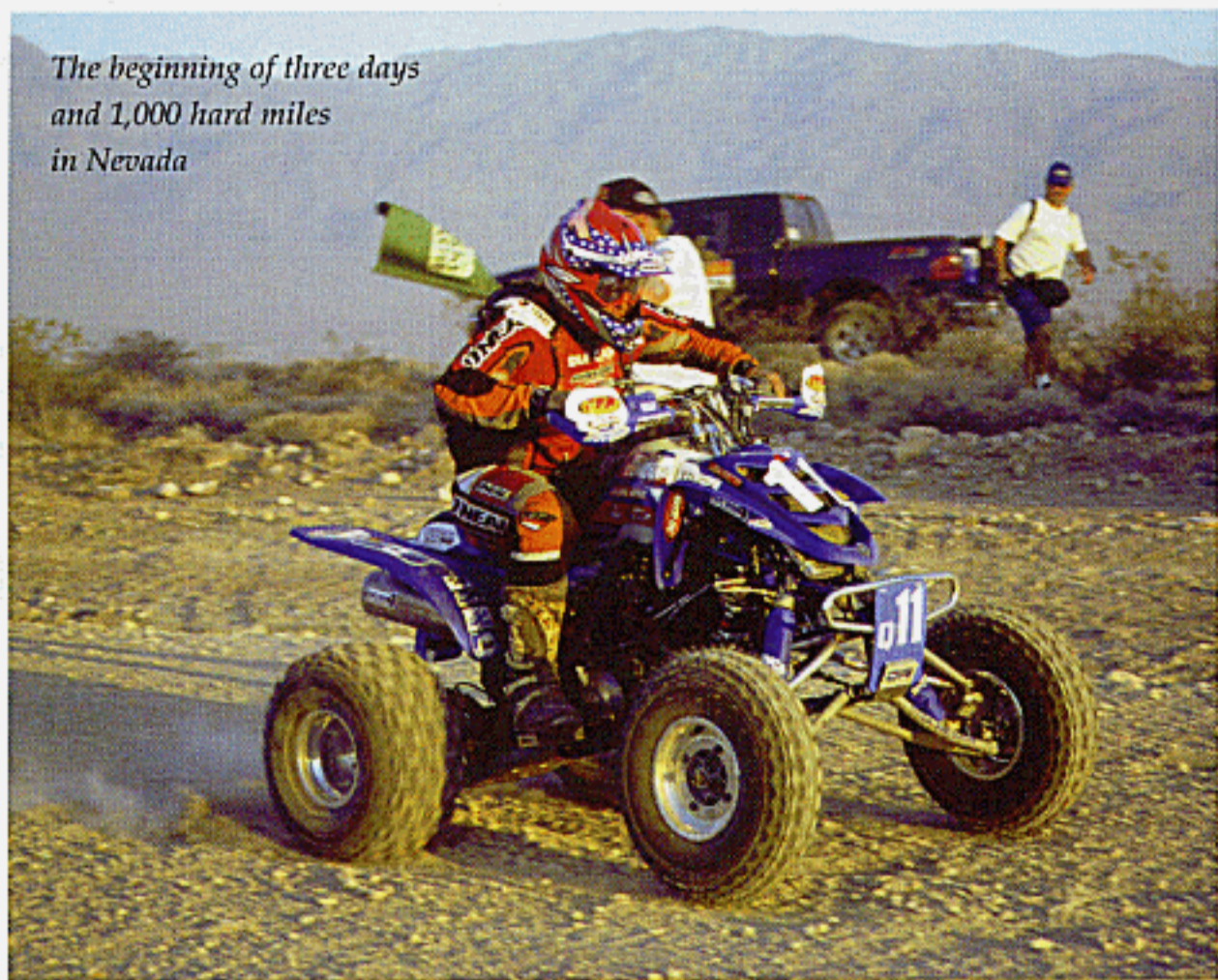
The transmission uses DRI-manufactured Yukon gears that have been hardened. Leonard and Allen have been running them for a year now and say they still look like new. The new after-market gears are still in the prototype stages of development, but look for them to be available to Raptor owners early next year. The stock clutch components have also been replaced with a Hinson clutch basket and Six Spring inner hub, teamed up with Duncan Racing's clutch plates.

#### CHASSIS

The stock frame still remains on the racer but has been reinforced with welded gussets. The frame then received a scratch- and chip-resistant powder coat. The stock footpegs have been replaced with IMS/Roll Design stainless steel pegs, which are



The beginning of three days  
and 1,000 hard miles  
in Nevada



much longer and wider than the stock pegs and incorporate kick-ups on the outside ends to keep the rider's boot from sliding off.

The entire stock front end was removed to make room for a new Roll Design front suspension kit. The kit includes "gullwing"-style A-arms that are approximately three inches wider and one inch forward from the measurements of the stock A-arms. Long-travel Custom Axis shocks provide 13 inches of suspension travel while retaining the stock ride height. This makes for a super-plush ride over rocks and ruts without giving up stability in the corners.

The rear suspension also received the Roll Design/Custom Axis package, providing ten inches of travel. The tapered chromoly Roll swingarm is one inch longer, and much stronger, than the stock-length swingarm. The swingarm also makes use of a round-housing axle carrier design, much like that of the Honda TRX250R or 400EX. The round cam-style carrier provides quick and simple chain adjustment. Completing the rear suspension package is a Team Industries rear axle that is longer than the stock unit to provide added stability and match the tire paw print of the widened front end.

#### CONTROLS

Wider TAG Metals (CR500 high-bend) handlebars increase the amount of leverage the rider has, making turning much easier. A Motion Pro twist throttle and throttle cable replaced the stock thumb throttle to eliminate thumb cramping during the longer races. Braking is handled by Braking rotors and pads both front and rear, fed through Crown-series steel-raided brake lines with a blue protective coating.

A Roll Design anti-vibe steering stem utilizes the new GPR Version 2.0 stabilizer that rests just below the handlebars. The new stabilizer design keeps it well protected while allowing the rider to adjust stiffness without stopping. The stem and stabilizer combo also provides a slightly taller handlebar position for added rider comfort.

The longer front A-arms made the stock tie rods obsolete, so Ricky Stator stainless steel tie rods and tie rod ends were custom built to accommodate the added length. The tie rods are constructed of heat-treated solid stainless steel, making them much less prone to bending and breaking than the stock rods. Ricky Stator's tie rod ends are also nearly identical to the stronger Honda-style tie rod ends, the difference being that they are tapered to fit into the Yamaha Raptor spindles.

#### SPECIFICATIONS

**Machine...** 2003 Yamaha Raptor from Temecula Motorsports

**Engine Mods...** Duncan Porting with three-angle valve job, 12:1 JE piston

**Valve Train...** DRI camshaft, HD valve springs w/titanium retainers and shortened guides

**Ignition...** Vortex programmable

**Carburetor...** Edelbrock 38mm

**Intake...** Pro Design Pro Flow w/K&N air filter and Outerwear

**Exhaust...** Duncan Racing Fat Boy 4

**Clutch...** Hinson basket w/six-spring inner hub, DR clutch

**Gearbox...** DRI-manufactured prototype hardened Yukon gears

**Transmission Fluid...** Maxima Maxum 4 Premium

**Chain...** Tsubaki

**Gearing...** 15/40

**Fuel Tank...** IMS five-gallon w/dry brake

**Fuel...** Trick race gas

**Chassis...** Reinforced stock frame

**Footpegs...** IMS/Roll Design w/kick-ups

**Shocks...** Custom Axis

**A-arms...** Roll Design

**Tie Rods...** Ricky Stator

**Steering Stem...** Roll Design

**Steering Stabilizer...** GPR V2.0

**Swingarm...** Roll Design

**Axle...** Team Industries

**Axle nut...** DR stainless

**Handlebars...** Tag Metals

**Grips...** Tag Metals

**Controls...** Works Connection

**Wheels...** Front, Douglas Shamrock w/beadlocks; rear, Douglas Shamrock w/beadlocks

**Tires...** Front, 23x7x10; rear, 22x11x9

**Skid Plates...** AC Racing

**Grab Bar...** AC Racing

**Brakes...** Braking rotors and pads

**Fluid...** Maxima DOT 3

**Throttle & Cables...** Motion Pro

**Lights...** Ricky Stator (not pictured)

## RIDER PROFILES

Rider: Allen "Stretch" White

Age: 22

Home: San Diego, CA

Occupation: Shipping Manager, Duncan Racing International

Number of Years Racing: Six

Types of Racing: Desert & Motocross

Greatest Accomplishments: 2000, 2001 District 38 Champion. 2000, 2001, 2002 Superstition FRT Series Champion. Two-Time 24-Hour World Endurance Champion. 2001 BITD Amateur Champion and High Points Winner. 2002 Best In The Desert Third-Place Pro Points Winner

Favorite Race: 24 World Endurance Championship

Most Memorable Moment: Beating ATV legend Doug Eichner and King of the Desert Dean Sundahl in 2002

Hobbies: Going to the river, mountain biking, riding ATVs, bowling

Greatest Inspiration: Doug Eichner ("the reason I started racing")

Name: Leonard "Kooter" Duncan

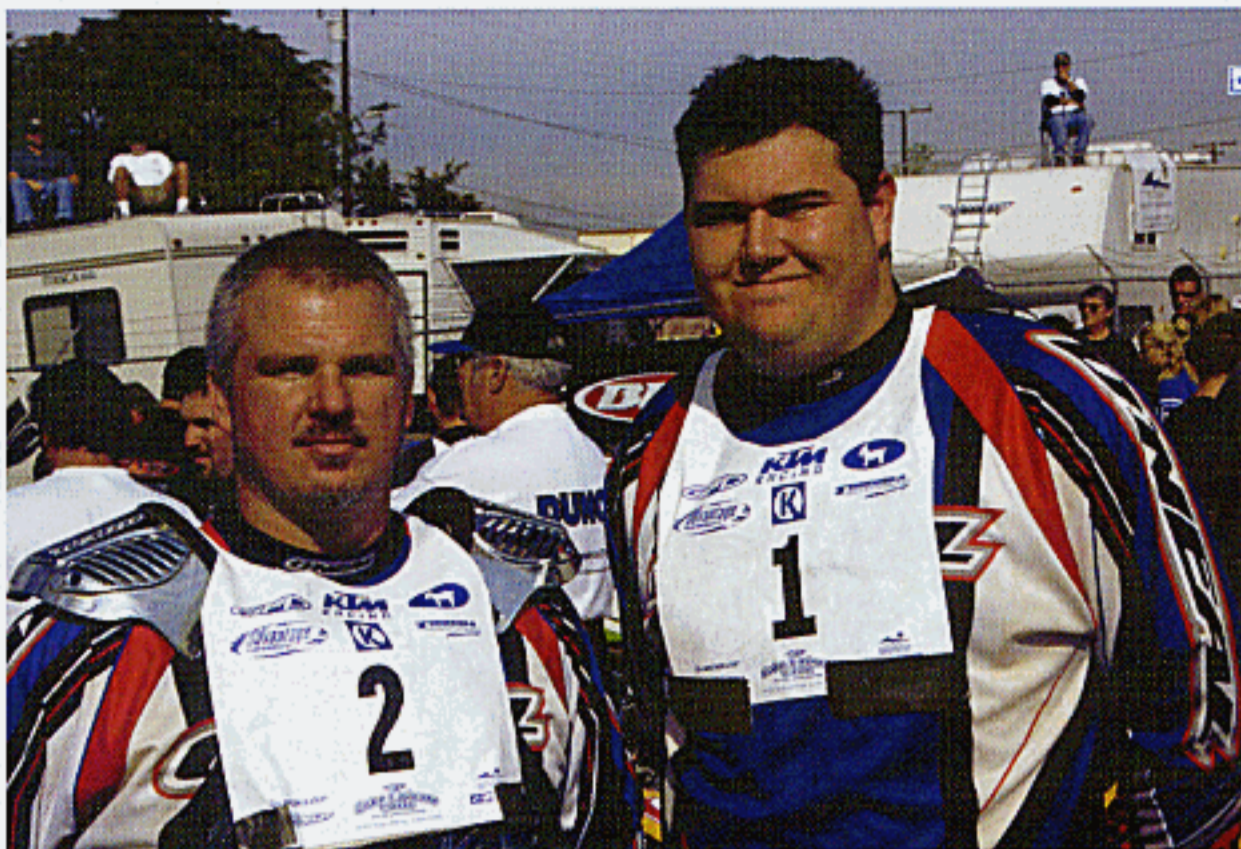
Age: 37

Home: Lakeside, CA

Occupation: Sales Manager, Duncan Racing International

Number years racing: 32

Types of racing: Desert & Motocross ATV



Best in the Desert team riders #2 Leonard "Kooter" Duncan and #1 Allen "Stretch" White

Racing, Flat Track & Desert Motorcycle Racing

Greatest accomplishment: 2002 World Off-Road Championship Series Second-Place Points Champion. 2003 24-Hour World Endurance Champion, being Doug Eichner's mechanic throughout all his championships

Favorite Race: Vegas-to-Reno

Most memorable moment: Coming in second place to Doug Eichner by just 26 seconds at the 2003 Vegas-to-Reno Desert Race

Hobbies: Riding ATVs, playing with daughter (14) and son (11)

Inspiration: "My father, Danny Duncan"



A little air time during Best In The Desert's three-day Nevada 1000 event.

## TEAM SPONSORS

### MAIN SPONSORS:

Duncan Racing International Inc., Roll Design, Golden West Cycle, IMS, Temecula Motorsports

### ASSOCIATE SPONSORS:

Elka Suspension, Hinson Clutch Components, Vortex Ignitions, Yukon Gear and Axle

### CONTRIBUTING SPONSORS:

TAG Metals, One Industries, Braking, Motion Pro, Maxima, Custom Axis, Outerwears, Sunstar, Pro Design, Tsubaki, Trick, Team Industries, GPR Stabilizers, Works Connection, AC Performance

### APPAREL SPONSORS:

O'Neal, Smith Goggles, Winex helmets