



## Open-Class **T H W**

### Intimidating Duncan Racing/Lobo 340R

**F**lenty of 400cc-range four-strokes compete in the Pro and Pro Production classes at the ATVA/ITP Nationals, but the two-strokes don't go any larger than 265cc. To find those fast, big-bore two-strokes, look to the Open Pro-Am class — the Pro-Am machine you see here is one of the nicest.

Ridden by the 2001 Open Pro-Am champ, Chad Lohr, this Honda TRX250R-based screamer is powered by a Duncan Racing PC 2000 powervalve cylinder that displaces a ground-rumbling 340cc. The stroke is stock and a big 39mm PWK carb feeds the beast.

The most interesting feature, though, is the Nicasil-coated



**On faster tracks, Lohr runs this Eliminator pipe. On tighter tracks, Duncan's Race Pipe is used.**

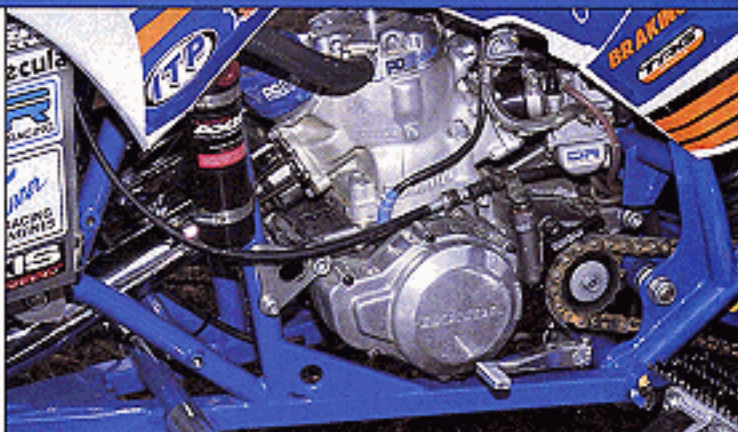
bore, which replaces a conventional sleeve. The benefits are many. Loren Duncan says, "Because there is less friction, the big motor runs as cool as a 265cc and horsepower remains more consistent. There is less distortion in the bore and piston wear is greatly reduced."

Building the Nicasil motor isn't as simple, though, as converting over a standard steel-sleeve cylinder. The distance between the cylinder wall and water jackets is different and the wall thicknesses are more critical. So, the cylinder requires different tooling. "The motor is incredible," Lohr says. "We've had no problems at all with the Nicasil setup."

It does take a strong rider, however, to handle the extra horsepower the 340 produces. Lohr continues, "We started out with a 300 powervalve motor and it's taken me a while to get used to the 340. It can be a handful, and some riders may want to soften the compression. The power is smooth, however, with a good balance from bottom to mid-range. It's strongest, though, from the mid to the top; it hauls."

The team runs either of two pipes, depending on track conditions. For a tighter track like Daniel Boone, they use

**The highlight of Duncan's 340cc power-valve motor is the Nicasil bore, which improves durability, reduces friction and runs cooler.**



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the DR Race Pipe, which moves the midrange down and helps power third and fourth gear, Lohr says. At an open track like Budd's Creek or Macon, the Eliminator pipe is the one.

While a 250cc motor will hold up fairly well with the stock 250R transmission, the team takes no chances when running a big bore. Landing from monster jumps with the throttle on can easily grenade the gearbox. So, Duncan installs Yukon HD gears

By Bill "WBCO" Lanphier

### THE FUTURE OF THE OPEN CLASS

With all the new big-bore machines on the market, what does the future hold for the Open Pro-Am Class? Let's see what Loren Lohr has to say.

**ATV Sport:** Any predictions?

**Duncan:** I think there's a reasonable chance that, in addition to Pro Production with a limit of 450cc, there will be an Open Pro Production [class], which will start at 451 cc. That will include machines like the Yamaha Raptor, Bombardier DS650 and Polaris. Plus, you could put a big-bore ATV motor in a smaller machine and still meet the requirements of

Pro Production, which only allows ATV motors and stock ATV frames.

**ATV Sport:** How do the lap times compare between the Pro and Open Pro-Am classes?

**Duncan:** The Pros are about 3 to 5 seconds faster, primarily because there are no top pros racing Open Pro-Am. But that gap is shrinking because many MX tracks are getting smoother, easier and faster. So, the Open-class riders can use more of that extra power without getting fatigued.

### DUNCAN RACING/ROLL LOBO 340R

**Rider:** Chad Lohr

Open Pro-Am class finishes: 2001 No. 1, 2002 No. 3

#### MACHINE

**Type:** Lobo 250R w/PC 2000 Mikasil power cylinder, 340cc engine kit  
**Claimed weight:** 350 pounds

**Frame:** Lobo MX Chassis

#### ENGINE

**Type:** '89 Honda TRX 250R w/DRI PC 2000 340cc Engine Kit

**Displacement:** 340cc

**Bore & stroke (mm):** 77.5 x 72 (stock)

**Porting:** DRI/PTR PC 2000 Midrange

**Head & mods:** PC 2000 Billet Head

**Piston:** PC 2000 Piston

**Base spacer plate:** DRI

**Rod, crank, flywheel:** Stock

**Ignition:** Stock stator and Hinson adjustable balancer holder

**Spark plug:** NGK BR9EIX

**Reeds:** Pyramid

**Carburetor:** Keihin 39mm PWK w/DRI

Super Flow mod

**Airbox:** Stock (K&N Filter, Outerwear wrap)

**Pipe/silencer:** PTR Eliminator pipe/Fat Boy 2

**Fuel:** VP C12

**Two-stroke oil/ratio:** Maxima 927/32:1

#### DRIVE SYSTEM

**Clutch:** Hinson eight-Plate w/DR-C1 28 kit

**Transmission:** Stock (Yukon HD 2-6th gears)

**Transmission oil:** Maxima MTL Endurance

**Chain:** Tsubaki/Maxima Chain Wax

**Sprockets/gearing (f/r):** Sunstar (15/37)

#### FRONT END

**A-arms/width (in.):** Roll Lobo/50

**Spindles:** 400EX

**Front shocks/travel (in.):** Axis/12

**Steering stem & stabilizer:**

Roll Design

#### REAR END

**Swingarm/length (in.):** Roll/17.5

**Rear shock/wheel travel (in.):**

Axis no link/12

#### TIRES/WHEELS/HUBS

**Tires:** ITP Holeshoot MX

**Tire sizes f/r (psi):** 20 x 7-10 (8)/18 x 10-9 (7)

**Wheels/beadlocks:** Douglas Wheel

Ultimate/Douglas Wheel

**Hubs f/r:** DRI Billet/250R Rear

#### BRAKES

**Calipers f/r:** 400EX/250R

**Pads & rotors:** Braking

**Brake lines/Fluid:** Crown Series steel braided/Maxima

#### HANDLEBARS/CONTROLS

**Handlebars/grips:** TAG CR-Hi/TAG

**Throttle:** 250R thumb

**Clutch lever/cables:** Works

Connection/Motion Pro

**Tether kill switch:** Pro Design

#### DETAILS

**Nerfs:** AC Racing

**Front bumper/grab bar:** DRI

chrome/integral to chassis

**Fuel tank:** IMS

**Seat cover:** DRI/One industries

**Footpegs:** Roll/IMS

**Graphics:** DRI

**Sponsors:** Roll Design, Golden West,

Temeola Motorsports, ITP Tires, IMS,

Douglas, Axis, Hinson, Vortex Ignition

Contributing Sponsors: Tag, Maxima,

Pro Design, Yukon Gear, AC, Motion Pro,

Braking, Sunstar, Tsubaki, Outerwear,

One, Works Connection, Donald Lohr,

Winex Helmets, O'Neal, Smith

**Contact:** Duncan Racing International

(619) 258-6306;

[www.duncanracing.com](http://www.duncanracing.com)



Up front, Lohr's machine features the Lobo gull wing A-arm design. Custom Axis shocks and Holeshoot MX tires are found front and rear.

(second through sixth).

Like the motor, the Roll Design Lobo chassis is trick. Though based on a 250R frame, it takes chassis design to a much higher level and, because of the motion ratios in the suspension, a foot of wheel travel is possible. (The Roll desert quads, with taller tires, can achieve as much as 14 inches of travel.)

The most recent change to the chassis setup on Lohr's machine is a softer spring for the rear Axis shock. "This allows you to track better in the rough," Lohr says, "but the shocks also work well on tracks with huge jumps like Mt. Morris." Lohr has also removed about a half an inch of foam from the seat to allow him to sit lower in the turns.

"Overall, the bike is great," Lohr continues. "Roll and Duncan build great products — the best stuff out there." **ATVS**

# FLYING Z

## From A Yellow Canary



*Editor's Note — This is the final installment of the "The Flying Z" story that ran in the April 2003 issue. The first story was about bolt-on performance enhancements. Part II includes a more in-depth look into the modifications we added to this Suzuki.*

When the Suzuki Z400 was released, high-performance-sport-quad lovers fell head-over-heels for it. Then, the Suzuki's "newness" wore off and die-hard sport-ATV enthusiasts were tempted by the Yamaha YFZ450. And even more perspective buyers have held off buying a new quad because of Honda's forthcoming TRX450R. We're here to say, "Don't give up on the Z400."

Just to prove a point, we have taken a bone stock Suzuki Z400 off the showroom floor of Temecula Motorsports, and modified it to the limit. We have turned it into an ultimate, Open-class MX race machine, and one of the hottest four-stroke racers ever.

The new machine's debut was in July, at the Glen Helen race track during an ITP QuadCross race. Most people relate certain race colors with certain manufacturers (ie: Red with Honda, Blue with Yamaha). But did you know Suzuki actually started blue? A look at its street bikes will prove it.

We went retro in color, but new in design by adding cool-blue Fullbore Innovations plastic. Several racers stopped by our pits to check out our quad and, at first glance, assumed the blue meant Yamaha YFZ450. When they finally realized it was a highly modified Suzuki, they knew the Z400 was not yet out of the picture.

Suzuki's Z400 makes an excellent canvas on which to paint your ultimate ATV. Here's what we did with ours.

# 470

BY JESSE WOZNIAK

## To A Blue Demon

### PREP TIME

First of all, we took the machine to Gary Berger of Gary Berger Race Prep. He has more than 10 years of experience building pro-level race bikes and pays attention to detail. Gary stripped the machine down to its bare essentials and rebuilt the quad from the frame up. The frame was reinforced in all the common areas of failure. Then, we moved it to San Diego Powder Coating for a candy-blue-metallic powder coat.

### POWER

While the frame was out getting its make-over, we shipped the motor to Duncan Racing. Duncan Racing is a

trusted engine builder for many of today's top ATV racers. DR had just completed its research and development on its new Z470; the engine we knew we had to have, which is why this article was delayed. DR also handled the whole power package, from air intake through the exhaust.

First, Duncan Racing installed a Pro Design billet air intake manifold with a K&N air filter. This kit installs easily into the stock airbox and improves the air filter mounting system. Next, that clean air flows into an Edelbrock carburetor. DR tuned the carb specifically to the engine kit it built and installed. The big motor expels the spent air-and-fuel mixture into a Duncan Fatboy 4 header pipe and Fatboy

4 muffler. This pipe mates well with this new big-bore four-stroke.

Duncan recommended we add a new electronic ignition system to complete this quad's larger powerband. We opted for a Vortex Ignitions because it is programmable and allows the Suzuki's monster engine to spin at higher RPM.

## CHASSIS/SUSPENSION

The next step was to re-assemble the machine from the frame up. In order to make the machine a rolling chassis, we added a suspension and frame components from key aftermarket players.

From Roll Design, we installed the whole Roll Lobo II front and rear chassis accessory package. In the front, the package consists of A-arms and tie rods that are 2.5-inches wider than stock.

The Lobo II swingarm is the same length as stock, but is designed to lower the Z's ride height — which is a major concern for most racers — and allows for increased travel without damaging the airbox. The swingarm includes a rear chain guide and forward chain roller. The axle carrier is a definite improvement, too. The swingarm accepts a round-style axle carrier that is based on the design of the Honda 250R. Roll also supplied us with a chromoly steering stem and a set of RD/MS foot pegs.

In both the front and rear of the machine, the Roll chassis components are mounted up to Motowoz shock absorbers. The Motowoz shocks used are triple-rate in the front, and dual-rate in back. This suspension adds a noticeably longer suspension travel over stock.

The stock axle on the Suzuki Z400 could be considered its Achilles heel; for racing, replacing it is mandatory. We chose the RPM Dominator Axle as our replacement unit and to keep the rear end straight.

RPM has developed a process for building its axles that it refuses to share. We've found these axles both reliable and long-lasting. Our Dominator axle has proven super tough and has held up to our most grueling torture test.

On our machine, the axle is mounted in

an RPM round-style bearing housing. This housing allows for easy 250R-style chain adjustment, and uses tapered axle bearings. Taper bearings are stronger than roller bearings and add durability to the rear end. On a high-performance ATV, the rear end is subject to severe abuse. The RPM Dominator axle in the RPM tapered carrier has held up to whatever we dish out.

To round out the package and get the bike rolling, we mounted ITP Holeshot MXR tires on ITP aluminum T-9-series wheels.

## CONTROLS

For handlebars, TAG Metals supplied Tag T2s and grips. These bars are mounted into a new steering damper system by GPR stabilizers. The GPR stabilizer is built right into the bar clamp, and offers adjustable steering stabilizer action on the fly. Motion Pro, supplied the CR-style clutch lever and perch, as well as donated the twist throttle. The Motion Pro clutch lever eliminates the bulky parking brake assembly that comes stock on the Suzuki.

## BRAKES

Braking USA supplied the rotors and pads for the Z470. Both the front and back stock discs were replaced with Braking's Wave rotors. The Wave rotors add durability — used in conjunction with the Braking pads — and substantially increase the Suzuki's stopping power. Compared to stock, the Braking system has shown less fading and heat generation.

## LOOKS

Some racers don't care how their machines look; they should. Unless you can beat everyone on the track all the time, it can really pay to stand out. And it's important for racers to display the companies that assist them with products, contingency or cash. For this story, we found the ideal company to simplify that process.

Triton Imaging in El Cajon, Calif., can add almost any logo to one of its graphic schemes. In this case, we had Triton match the colors on the custom kit to the already-installed One Industries seat cover. Then it added the



1



2



3

1. In the front end, our project Z wears Roll Lobo II A-arms and custom-tuned Motowoz triple-rate adjustable shocks. The Roll A-arms are 2.5 inches wider than the stock Z400. To accommodate the extra distance and improve braking response, we added extended steel-braided brake lines from Duncan Racing.

2. The Pro Design air intake system is all billet, mounts easily and includes a K&N air filter. This system offers a much more secure filter mount, and the addition of a K&N filter feeds more air to the motor, which, in turn, makes more power.

3. The rear end of our project Z has seen some huge changes. The Roll Lobo II swingarm allows for the use of an RPM round (taper bearing) axle carrier. We mounted an RPM Dominator axle in the carrier. The Roll Design swingarm also includes a great chain management system. With a roller in front and a guide in the rear, the chain gets plenty of movement, without any slop.



names and logos of the companies that helped build this amazing machine.

The custom graphics kit was applied to a set of glossy blue plastics from Fullbore Innovations. The Fullbore plastic offered a better fit than the stock plastic. It has fewer seams that can come apart while riding and it lacks the recesses for the manufacturer's mandatory warning labels. This plastic was tricky to mount perfectly, but the finished look outweighs all the necessary bolt-on work.

Then, to add some bling-bling, we threw in a little chrome and polish. Although the Roll Design steering stem is chromed stock, the A-arms were originally powder coated. Volcano Polishing chromed the A-arms and swingarm, and polished the AC Racing nerf bars, too.

## THE RIDE

After months of work, and countless changes and improvements, what really matters is how it works. We knew the Z470's first major test would be its inaugural ride. We took it to a prime SoCal destination — a spot where power is critical; Glen Helen during an ITP QuadCross MX race.

What did we think? Well, it was amazing; the power is so much more complete than that found in a stock Z400. The bottom-end power is similar to a highly modified Z450, but from there, the mid-range pop is untouchable; it just keeps on revving. The 470cc motor has the displacement to keep pulling, the exhaust lets the motor breathe and the electronic ignition revs beyond what we expected. This bike is supersonic compared to stock, obviously, but best of all, the power is useable and oh-so-easy to handle.

Extra thought is required for choosing a traction choice with a motor like this. The ITP Holeshot MXRs performed flawlessly and match the additional power, but without them, a lot of this newly gained horsepower would be lost to tire spin.

Aside from the power, the bike handled like a dream. With the Roll Design chassis components and Motowoz shocks, the Z sits much lower than stock, but has more travel. Now, this quad is stable around corners and excels in the rough stuff. The ride is plush, but doesn't bottom as easily as with the stock shocks installed.



## CONTACTS:

AC Racing (714) 808-8330; [www.acracing.com](http://www.acracing.com)  
 Braking (800) 272-5342; [www.brakingusa.com](http://www.brakingusa.com)  
 Duncan Racing (619) 258-6306;  
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 Motion Pro (650) 594-9600; [www.motionpro.com](http://www.motionpro.com)  
 Motowoz (619) 729-3886; [www.motowoz.com](http://www.motowoz.com)  
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 Roll Design (760) 731-5920; [www.rolldesign.com](http://www.rolldesign.com)  
 RPM (928) 771-9363; [www.team-rpm.com](http://www.team-rpm.com)  
 Tag Metals (619) 299-6255; [www.tagmetals.com](http://www.tagmetals.com)  
 Temecula Motorsports (909) 698-4123;  
[www.temeculamotorsports.com](http://www.temeculamotorsports.com)  
 Triton Imaging (619) 631-6636  
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[www.duncanracing.com](http://www.duncanracing.com)  
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## BOTTOM LINE

This machine is truly an Open Pro-Am class level racer, and one of the most powerful ATVs we've ever ridden. When championship ATV racer Doug Eichner took a spin on it, his response was simple. "I wish I would have been on this for the race. I could have used that power to get around Schell," he said. Eichner had just finished second to Jeremy Schell in the Pro class of an ITP QuadCross event. Maybe there will be a little more power in his future. After all, Eichner is one of Duncan Racing's top-sponsored racers. **ATVS**

Grab the throttle and aim for the face of a jump, the Z470 now has the power and suspension to tackle larger leaps. This Z is set up for motocross, and has very forgiving handling characteristics. It loves to fly, and it makes the toughest landings manageable.