

DUNCAN RACING

Going for the thumper world motocross championship



of other motor builders, we didn't try to make it rev higher. It doesn't make any power at higher revs, so that just makes it slower and it will be less reliable. Instead, we use the stock CDI. The EX motor is happiest between 4000 and 7500-7800 rpm, so we wanted a motor that stayed within that range. It has a wide powerband, so you can trail ride it if you want to, or it can be used for cross-country racing. It's reliable and rideable. It's the only built 400 that finished both the Nevada 2000 and Baja 2000. We've seen this motor with 400 gallons of gas through it without being rebuilt. The entire engine kit, including the porting, piston, cam plus all the other top end parts and work that's needed, except the carb, runs \$1850.

ATV Action: Does it pay to short shift the machine, or do you ride it in the top of the powerband.

LD: You can ride it either way. You don't have to wring its neck to make horsepower. It's not like a revvy YZ426 motor. If you try to make it rev too much, you defeat the point of the engine. We make it work within the original para-

Even though the stock Honda Sportrax 400EX is a fairly mild high-performance quad, there's a lot more horsepower lurking inside. Every tuner has his own idea of how to unleash the 400EX's ponies, and at the same time improve the chassis to handle it.

Duncan Racing's Loren Duncan has a few different ideas on how to make the 400EX fly, and we talked to him about a new 440EMX he built for Doug Eichner to race at the White Brothers Four-Stroke World Championships at Glen Helen Raceway in Devore, California.

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ATV Action: What were you shooting for with your 440 motor in the EMX?

Loren Duncan: We wanted it to make power while still retaining reliability. We wanted our mods to work with the engineering in the motor, rather than against it. Unlike a lot

meters of the engine. It makes power at full throttle, but you don't have to overrev it to go fast.

ATV Action: The Edlebrock carb is the most distinctive feature of your 440 motor. Why did you go with such an unusual mixer?

LD: One of the biggest reasons we went with it is because the company was willing to do testing to make their product as good as it needed to be. I used the Quiksilver carb back in the '80s. It was good then, but with a few design deficiencies. Edlebrock has been happy to correct those problems. They want to be the best and they listen to all of our feedback. For the 440EMX, the 36mm x 38mm oblique venturi Edlebrock smooths the powerband out while strengthening it. It helps everywhere. There's no hesitation in the powerband. It adds about three to five percent more power. The accelerator pump gives you instant, on-demand power. The

HONDA 440EMX



stock 35.5mm carb isn't bad, but it's not quite as good on the bottom. We offer the kit for \$480, and it comes complete with full instructions and extra jets. We're also developing one for the Raptor.

ATV Action: *The clutch is a weak point on the stock 400EX. What did you do for the upgraded motor?*

LD: If the motor is stone stock, the stock clutch is fine for most people. If you build the motor, you must upgrade the clutch. The 440 has a Hinson eight-plate clutch kit. It includes a billet clutch basket, billet pressure plate and billet inner clutch. Those components are designed to take eight fiber and seven steel plates. That requires use of our C148 plates, as it's all designed to work together. It will take a lot more horsepower without slipping and improve clutch life. In the desert, it lasts four times as long as a stocker.

ATV Action: *With all this power on tap, the chassis must have needed some upgrades.*

LD: We went with a stock frame on this machine. But we did need to gusset it. When ridden hard, the stock frame can break near the subframe, head stay and shock mounts. Next we worked on the front end. We used the Roll Design Lobo II front end kit. It's a complete system, including A-arms and dual-rate Axis shocks that are custom made for the application for \$2595. The Lobo II kit bolts onto the stock chassis, so you don't have to buy an entire frame. There's an MX, which we used on this machine, plus a cross-country and desert version. The Lobo front end steers better, has longer travel, more stability and better damping than the stocker. There is no downside. You can't use the stock shocks with the Roll A-arms; you must have the kit. The rear end kit runs \$1595 and is also a shock/swingarm unit. Axis does great with both springs and the internal hydraulics, so we worked with them for the components of these kits.

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We didn't just drool over the Duncan 440EMX, we also took it out for some hot laps around Competition Park in Hemet, California. Here's what two of our editors had to say:

Associate editor Adam Campbell, Pro-level MXer: "I was impressed by how it rode. It has a real plush ride that smoothed out all the rough braking bumps. It always felt like I had control of the quad. It was always predictable, so I never felt like I was gonna wad it. The motor is real strong. It has good power all the way around through all the gears. There was nothing I didn't like about it. It took off nice and

RIDER/SPONSORS

Rider Doug Eichner
 Rider weight 175 lb.
 Main sponsor Duncan Racing,
 Roll Design, Golden West, IMS
 Co-Sponsors Douglas Wheel,
 ITP, Hinson, Axis, PTR, Tsubaki,
 Maxima, Tag, Braking, Outerwears,
 Motion Pro, One Industries, Edelbrock
 MACHINE
 Quad 2001 Honda Sportrax 400EX
 Quad weight 365 lb.
 Frame/mods Stock/reinforced,
 engine guards

MOTOR

Motor Duncan Racing 440
 National Kit
 Bore x stroke 89mm x 70mm
 Porting Duncan Racing (DR)
 Head/mods Stock/
 hard faced rocker arms
 Valves/mods/springs Stock
 with 3-angle valve job/
 bronze guides/HD
 with titanium retainer
 Cam DR mid/top
 cam X2 grind
 Piston JE/IMS 440
 Compression ratio 11:1
 Rod Stock
 Crank Stock
 Ignition & timing Stock
 Spark plug NGK DPR9Z
 Carburetor Quiksilver by Edelbrock
 Airbox/filter/oil Stock/K&N
 /DR Outerwear
 Pipe/silencer DR
 Fuel/octane Trick/108
 Engine oil Maxima Maxum
 4 Premium

DRIVE SYSTEM

Clutch basket/plates/
 springs Hinson
 8-plate Billet Basket Kit/
 DR C148 /Steel
 Clutch cover DR Quick Change
 Transmission Stock
 Chain/lube Tsubaki Omega
 O-ring/Maxima Chain Wax
 Sprockets Sunstar
 Gearing f/r 16/36

FRONT END

A-arms Roll Design Lobo II
 Spindles Stock
 Front shocks/wheel travel Axis/10.5"
 Steering stem Roll Design
 Steering stabilizer None
 REAR END
 Swingarm/length Roll Design/18.5"
 Rear axle/width/carrier Dominator
 Axle/48"/Millinium
 Rear shock/wheel travel Axis/11"

TIRES/WHEELS/HUBS

Tires ITP Holeshot
 Tire sizes f/r 19x6-10/18x11-8
 Wheels f&r Douglas Ultimate
 Beadlocks f/r None/yes
 Hubs DR Billet Proof

BRAKES

Calipers Stock
 Pads Braking
 Rotors Braking
 Brake lines Duncan Racing
 Brake fluid Maxima 550 DOT-3

HANDLEBARS/CONTROLS

Handlebars/bend Tag Metals/CR-Hi
 Throttle Motion Pro
 Clutch lever RTC
 Cables Motion Pro
 Grips Scott
 Tether kill switch Pro Design

MISCELLANEOUS

Nerfs & pegs DR Aluminum Pro Peg
 Front bumper DR Chrome
 Skidplates None
 Fuel tank Stock
 Seat Stock w/ DR/One Industries
 seat cover
 Body plastic Stock, DR mods

OTHER PRODUCTS

DR block-off
 plate, DR billet shifter, Hinson billet
 brake pedal, DR billet handlebar
 clamps, Shockwears, DR chain guard,
 OMF seat bracket, DR numberplate
 backgrounds, One Industries
 graphics kit

POLISHED

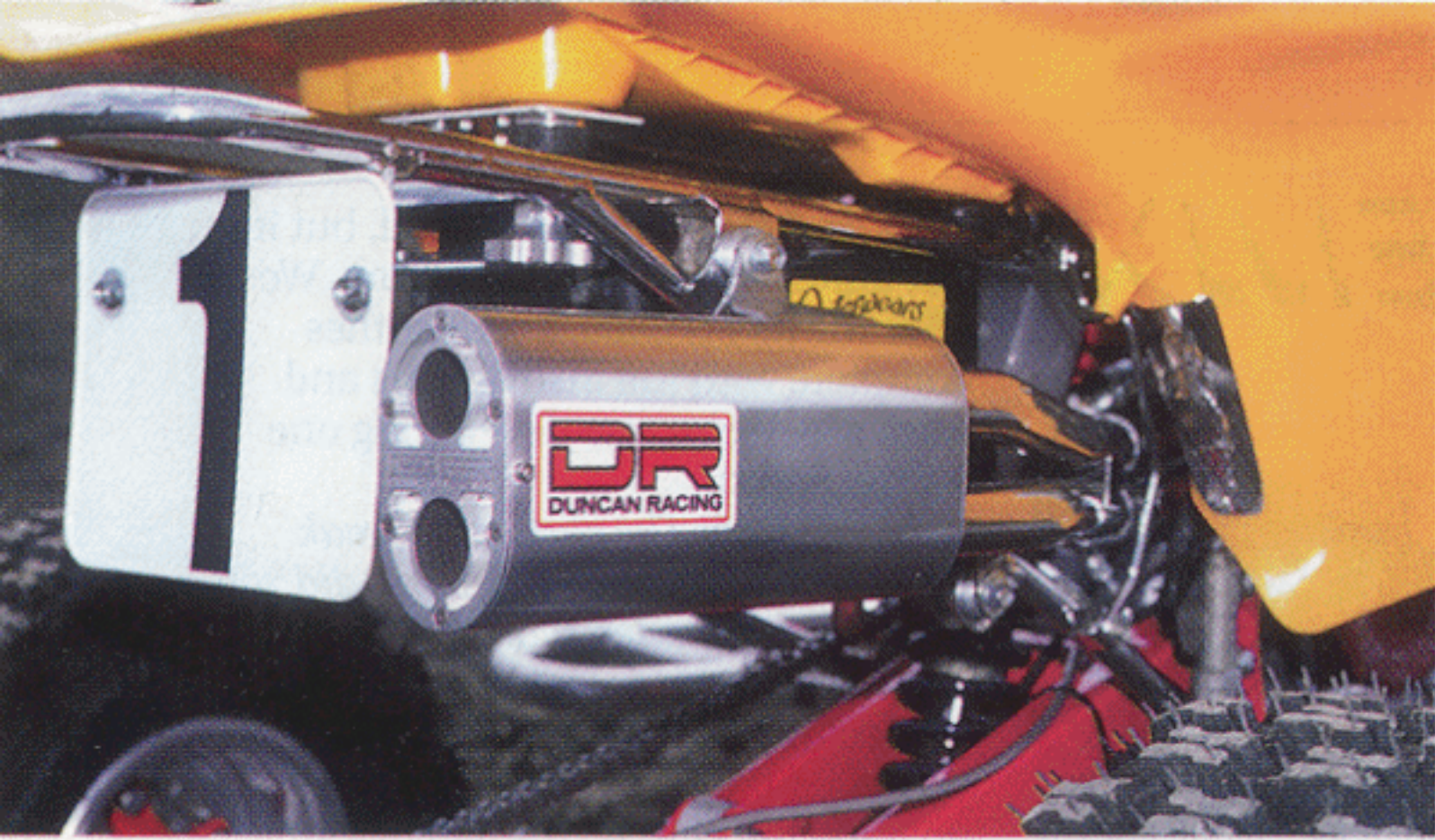
Oil tank, front
 motor mounts

CHROMED

Sub frame,

POWDERCOATED

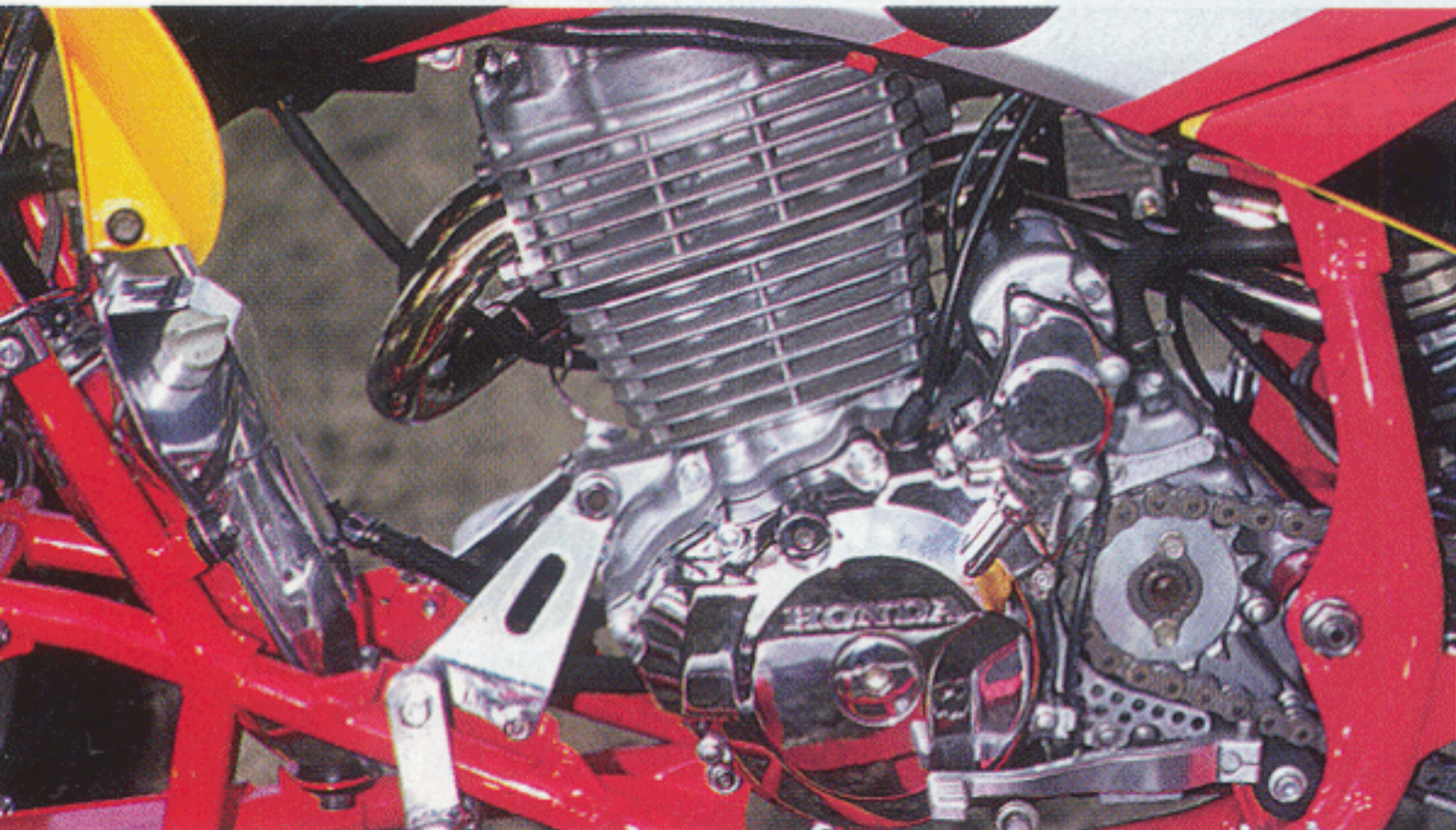
Frame,
 lower A-arms, swingarm by R.W. Little



Duncan Racing's stainless steel Power Exhaust is for the racetrack only. It's fairly loud and there's no spark arrester.



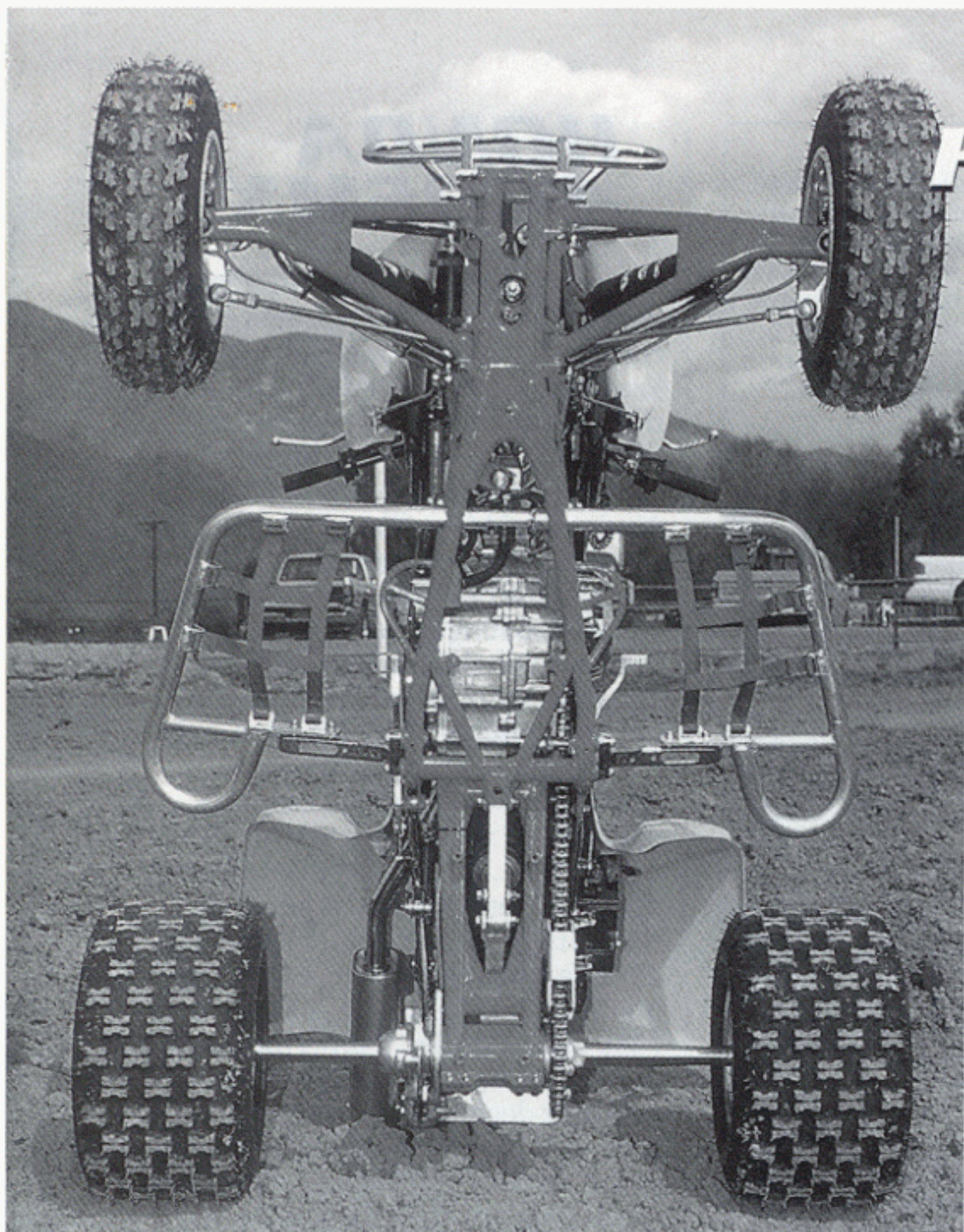
The Roll Design Lobo II front end kit adds needed stability to the 400EX and offers vastly superior suspension action. The kit bolts onto a stock frame and includes A-arms, specially made Axis shocks and tie rods.



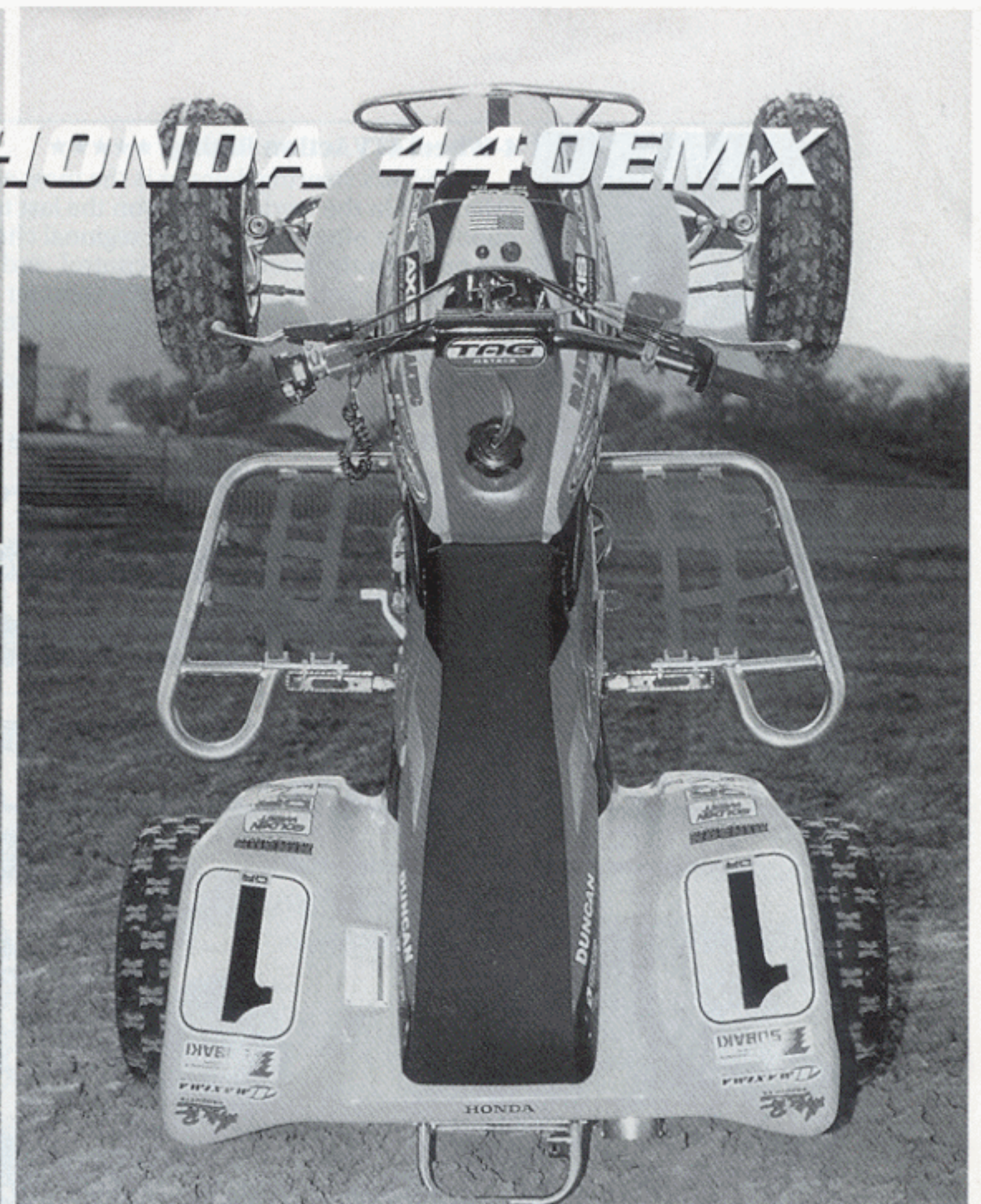
It doesn't look especially trick from the outside, but there's a lot going on inside that 400EX top end. The 440EX has a larger displacement, plus extensive head mods and mid/top grind cam.



Just as it does for the front end, Roll Design offers a rear end suspension kit. A linkage-free swingarm is matched to a custom Axis shock. That's a 48-inch Dominator Axle with a Millennium carrier.



Notice how the Roll Design suspension kits blend in flawlessly with the stock chassis. They don't look like bolt-ons, they look like factory items.



The Tag handlebars provide nice shock absorption and offer a comfortable bend. Duncan Racing nerfs and Pro Pegs took good care of our feet and legs.