





DUNCAN RACING HONDA 440EX

Trail and Grand Prix winning thumper

By the staff of Dirt Wheels

□ Duncan Racing has a reputation for building race ready quads that hold up to the abuse and wear and tear of competition. Long time west coast ATV racer Doug Eichner has won the World Four-Stroke Championships, held at Glen Helen Raceway in Southern California, aboard a modified Duncan Racing Honda 400 EX for the last two years running.

This feat was particularly impressive because Doug did it using an air-cooled, Single Overhead Cam (SOHC) four-stroke engine that is admittedly a good decade behind the latest crop of Double Overhead Cam (DOHC) liquid-cooled four-stroke motors.

How did he do it? Some of it, of course, has to do with Doug's skills as an ATV racer, but even the best racer

has to have a machine that he knows is capable of winning. Doug's Duncan Racing modified Honda EX was built to put out a broad spread of power and engine torque that makes riding the air-cooled Honda engine at warp speed extremely easy.

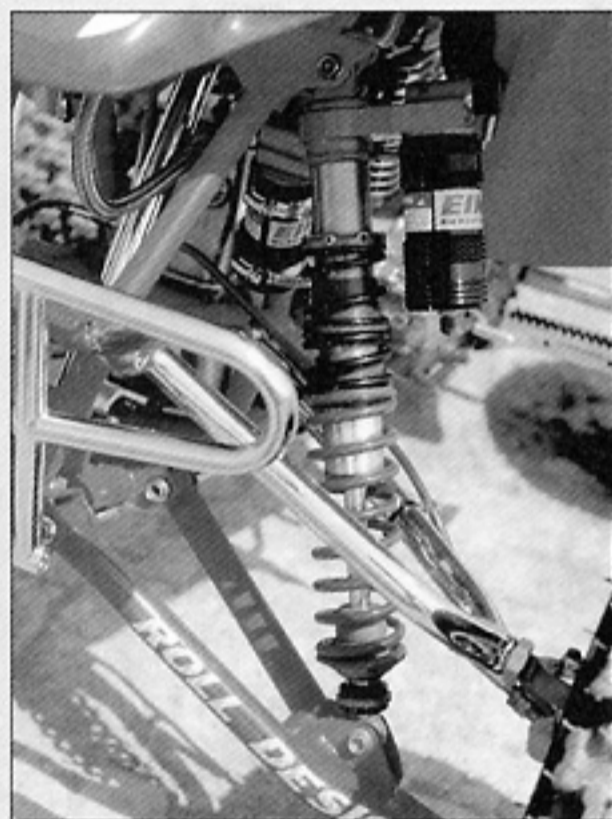
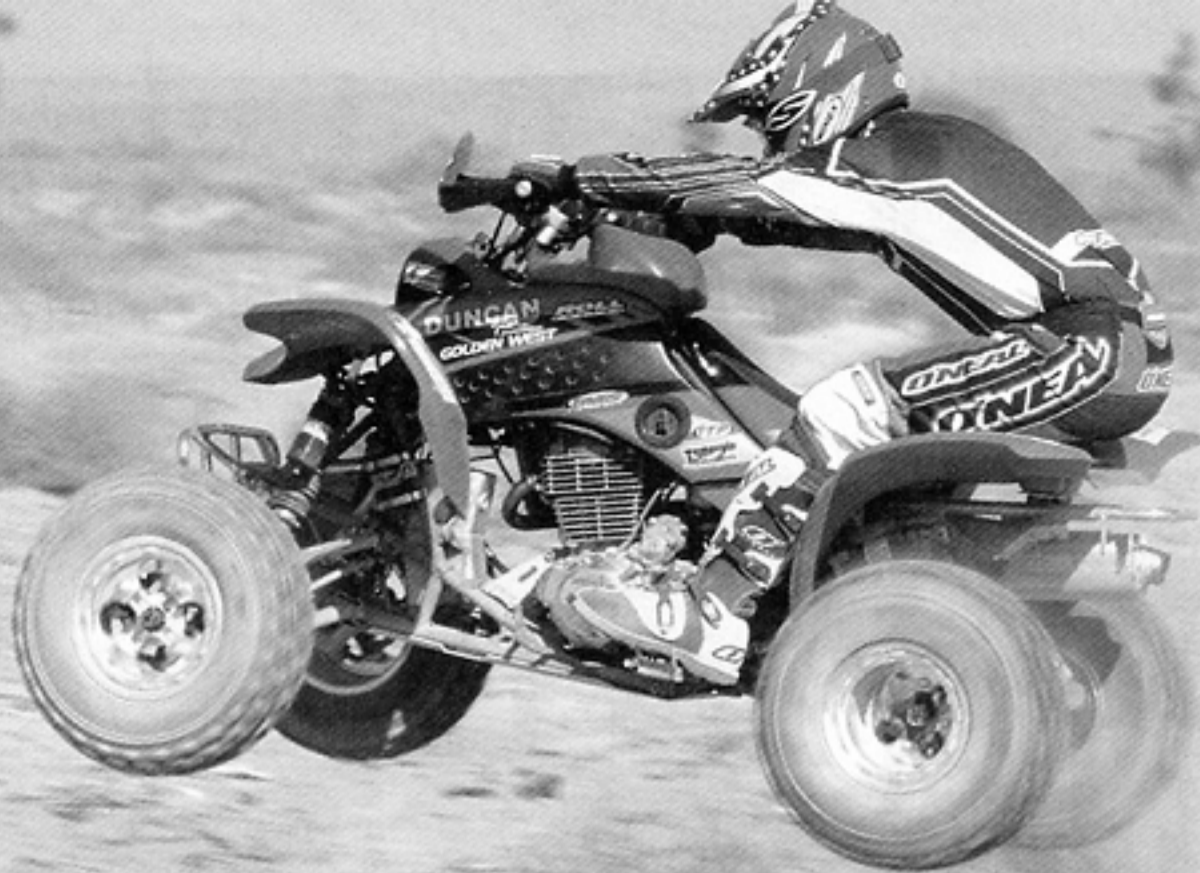
Instead of having Duncan make him a mega-horsepower, wheel spinning, wheelie-prone monster motor, that would, in Doug's opinion, make the machine even more difficult to ride, he had them build him an engine that gets all the available power to the ground instead of focusing on high peak numbers.

To do that, Duncan built up a stock 2002 Honda Fourtrax 400EX with one of their 440 "National" engine kits. It includes their newest Fat Boy 4

exhaust system, a 440cc piston kit (installed), a ported cylinder head, valve job and shortened bronze valve guides, a high performance cam shaft, heavy duty valve springs with titanium retainers, an Edelbrock carb kit, K&N air filter, and Outerwear filter cover. All for a total price of \$2250.

This particular engine kit is designed to give the EX a much broader and stronger hit without making it unrideable or unreliable. They claim a 40-50 percent increase in horsepower over the stock Honda's numbers (from 27 hp to around 40+ hp). With an increase in horsepower, a beefed-up clutch was also necessary. A DR C-128 set of clutch plates were installed with new clutch springs inside a Hinson Racing clutch basket.

DUNCAN RACING HONDA 440EX



Go fast secret? With the Roll Lobo front end and Elka shocks, the Duncan 440EX has few peers in the rough.

To make clutch changes easier, a DR quick change clutch cover was also installed. A new Tsubaki 520 O-ring chain replaced the stocker with a set of 16/36 teeth front and rear sprockets.

Check out the detailed specs at the end of this story for more complete information on the prices of these performance engine, drivetrain, clutch and suspension modifications.

FAST TRACK RACER

One of the first things we noticed about the Duncan 440 EX was how cleanly detailed and good looking it

We couldn't wait to find a set of whoops on the Duncan 440EX. You can keep the throttle pegged through the worst terrain imaginable. Note how even the quad is over the bumps.



A Duncan FatBoy4 exhaust system for the EX sells for \$549 and comes with a stainless steel header pipe and muffer. It perks up the motor considerably.

was. Duncan Racing prides itself on building quads that are race ready and look the part. They only use the best aftermarket products available and the fit and finish are as important as the overall performance.

The Duncan quad was set up to race long distance events, such as Grand Prix and fast desert races, where smooth, controllable power and plush suspension are prime considerations. It was also built to be extra comfortable for extended trail rides. To facilitate this, it had a Roll



How many guys have their own signature carburetor? The Edelbrock 38mm carb on the Duncan 440EX is....you guessed it, a Doug Eichner signature model.

Design LOBO II front suspension kit with Elka shocks with 10.75 inches of travel up front and an Elka rear shock with 11 inches of travel on a Roll Design swingarm on the back end. A 49-inch wide Dominator rear axle replaced the stock Honda unit for a more stable rear end to match the wider Roll front A-arm (50 inches). This combo makes the EX chassis extremely stable in rough terrain and much more capable of full throttle runs through the whoops.

Douglas aluminum wheels and ITP

2002 DUNCAN RACING HONDA 440EX GRAND PRIX RACER

RIDER.....Doug Eichner
BUILDER.....Duncan Racing
TUNER.....Loren Duncan
ESTIMATED WORTH.....\$15,000.00
WET WEIGHT.....395 lb.
ESTIMATED PEAK HORSEPOWER40-45% more than stock
MOTOR.....Equipped with a Duncan Racing "440" national engine kit-cost \$2250.00
INCLUDES: Fat Boy 4 Complete Exhaust System, 440 Kit Installed, Head Porting, Valve Job, Shortened Bronze Guides, Camshaft, HD Valve Spring w/Titanium Retainers, Edelbrock Carb Kit, K & N Air Filter, Outerwear, Instructions, DR Tech Support.
BORE & STROKE.....88.5mmx 70mm.
COMPRESSION RATIO.....11-1
EXHAUST SYSTEM.....Stainless Fat Boy 4 Complete system (spark arrestor optional) \$549.00
CAM.....X2 Mid/Top Camshaft/HD Valve Springs with Titanium Retainers
CARB.....Edelbrock
PISTON.....JE
CRANK/ROD.....Stock 400EX
VALVE SIZE/MATERIAL.....Stock
PORTING SPECIFICS.....DR Port & Valve Job. Head ported with guides out. Guides replaced with shortened bronze guides. Design Flow Bench tested
IGNITION/BLACK BOX.....Stock
AIRBOX MODS...Lid off/ K&N Air Filter w/Outerwear
AIR FILTER/INTAKE.....K&N w/ Outerwear
FUEL.....TRICK Racing Aqua
LUBRICANTS.....Maxima Maxum 4
DRIVE SYSTEM
CLUTCH PLATES.....DR C-128 8-Plate \$165.00
CLUTCH SPRINGS/DR CLUTCH BASKET.....Hinson 8-Plate Basket, Inner & Pressure Plate \$225.00, \$455.00
CLUTCH COVER.....DR Quick Change Clutch Cover \$495.00
TRANSMISSION.....DR Mods
CHAIN.....Tsubaki 520 Omega O-Ring \$99.50
SPROCKETS/SIZES.....16T c/s 36T rear \$24.95/ \$39.95
CHAIN GUIDES.....Roll Chain Roller
CHAIN GUARD.....DR Billet C/S Guard \$29.95
FRONT END
SHOCKS/TRAVEL.....Axis / 10.75 inches
A-ARMS/WIDTH.....Roll Design LOBO II

front Suspension Kit (MX/ 50" wide)

\$2995.00

Kit Includes:.....Lobo II A-Arms, Tie Rods, Elka Shocks, Crown Series brake lines
TIE RODS/ENDS.....stock
SPINDLES.....stock
HUBS.....DR Billet F. Hubs \$339.00
STEERING STEM.....Roll Design Anti-Vibe \$349.00
STEERING DAMPER.....GPR
REAR END
SHOCK/TRAVEL.....ELKA/ 11.0 inches \$749.00
SWINGARM/LENGTH.....Roll Design \$1095.00
HUBS.....stock
AXLE/WIDTH.....Dominator/ 49" \$495.00
AXLE CARRIER.....Millennium \$269.00
AXLE LOCK-NUT.....Anti-Fade \$249.00
BRAKES
FRONT CALIPERS/ROTORs.....stock calipers/ braking Rotors \$119.00 ea.
FRONT MASTER CYLINDER.....stock
FRONT LINES/PADS....."CROWN" Series Steel Braided/braking Pads \$109.95/29.95
REAR CALIPER/ROTOR.....stock caliper/ braking Rotor
REAR LINES/PADS....."CROWN" Series Steel Braided/braking \$39.95/ 29.99
BLOCK-OFF PLATE.....DR \$ 14.95
BRAKE FLUID.....Maxima 550
FRONT GP WHEELS.....Douglas Ultimate
BRAND/MATERIAL.....Douglas/ Aluminum
SIZE/OFFSET.....10" 4 plus 1
BEADLOCK.....N/A
REAR GP WHEELS.....Douglas
BRAND/MATERIAL.....Douglas/ Aluminum
SIZE/OFFSET.....8" 3 plus 5
BEADLOCK.....N/A
FRONT GP TIRES.....ITP/Hole Shot
BRAND/MODEL.....ITP/Hole Shot
SIZE/OFFSET.....21x7-10
REAR GP TIRES.....ITP/Hole Shot
BRAND/MODEL.....ITP Hole Shot
SIZE/OFFSET.....20x11-8
CONTROLS
HANDLEBARS.....TAG Metals T2 CR Hi Bend \$ 94.50
HANDLEBAR/CLAMP.....DR Anti Vibe Kit \$89.95
HAND GUARDS.....N/A
GRIPS.....Scott
THROTTLE.....Motion Pro CR
CABLES.....Motion Pro



CLUTCH LEVER/PERCH.....OEM CR
CLUTCH LEVER MECHANISM.....N/A
FRONT BRAKE LEVER.....stock
REAR BRAKE PEDAL.....Hinson Billet \$135.00
SHIFT LEVER.....DR Billet Alum \$ 89.95
KILL SWITCH.....Pro Design \$ 34.95
FUEL TANK.....IMS Tank \$ 225.00
PROTECTION
ENGINE SKID PLATE.....OMF \$ 59.95
CHASSIS SKID PLATE.....OMF \$39.95
SWINGARM SKID PLATE.....OMF \$104.95
BUMPER.....Duncan Racing Chrome F. Bumper \$ 169.00
GRAB BAR.....N/A
NERF BARS.....Aluminum \$ 189.95
OTHER GUARDS.....Custom Engine guards were built into to the frame by DR
MISCELLANEOUS
FOOTPEGS.....Roll Design Cast Stainless with built in Kick Ups \$239.00
BODYWORK/PLASTIC.....stock OEM DR Cut
GRAPHICS.....DR/One Industries DR Race Kit
SEAT FOAM/COVER.....stock foam/ DR-One ind. seat Cover Graphics Kit and seat cover sold in a set for \$ 119.00
NUMBER PLATES.....N/A
OIL TANK.....ACE High Capacity \$399.00
POWDER COATING/ANODIZING/PAINTING.....Frame, swingarm, lower a-arms
POLISHING/CHROME.....Sub frame, upper a-arms, steering stem. Motor mounts, mag cover, oil tank
ADDRESS:
 Duncan Racing International
 10734 Kenney St. Ste. A
 Santee, CA 92071; (619) 258-6306
 FAX (619) 258-6300
 www.duncan-racing.com

Holeshot knobbies were shod on the front and back ends of the machine (21x7-10 fronts, 20x11-8 rears) to get the power to the ground. A set of TAG T2 CR high bend handlebars and a Duncan Racing anti-vibration handlebar clamp were also installed for comfort and control on the machine. A set of aluminum OMF skid plates were mounted front and back to provide extra protection for the engine, chassis and swingarm and a Duncan Racing chrome front bumper gave the front end a leaner, racier look.

To improve footgrip, a set of Roll

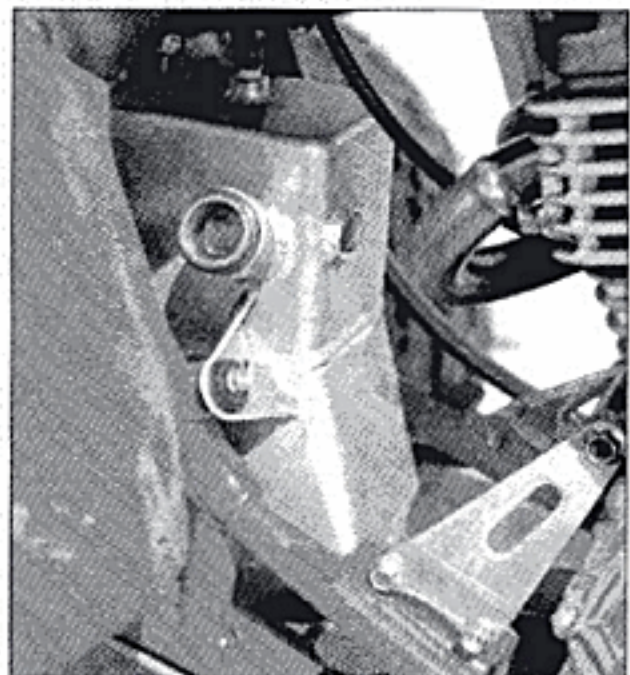


A GPR steering stabilizer helps eliminate having the bars wrenched out of your hands at high speeds. It's easily adjusted on the fly with the handy bar mount damping adjuster.

Design cast stainless steel footpegs with kick up ends were installed. Custom engine guards were also built into the frame for added protection against rock damage. A large capacity IMS fuel tank (4.5 gallon) replaced the stocker for increased range for long distance riding.

In the braking department, a set of Crown series steel braided brake lines with BRAKING pads and rotors were installed on the front and back ends of the 440 EX for improved braking power and feel.

DUNCAN 440EX



Ace manufacturing makes these accessory oil tanks for the EX that hold an extra 20 ounces of oil and sell for \$399. They come complete with everything you need to bolt them on, including steel braided brake lines. Contact Duncan Racing at (619) 258-6308 for more info.

OTHER BITS AND PIECES

Some of the other items added to the quad included a Motion Pro CR twist throttle and cables, Scott grips, Honda CR clutch perch and lever, a Hinson Racing billet rear brake pedal, DR billet shift lever, a GBR steering damper, Pro Design kill switch, DR nerfs, One Industries graphics kit and seat cover, and an Ace high capacity oil tank.

TRACK AND TRAIL TESTS

We borrowed the Duncan Racing Honda 440 EX and raced and trail rode it for several weekends to see for ourselves how well this hand-built racer performed. Was it as good a race and trail machine as Doug Eichner claims it is? Or was his superior riding skill the reason he made winning on it look so easy?

Well, the answers are yes and yes. With the Duncan National engine kit, the air-cooled Honda 440cc kitted motor does put out a sizeable increase in overall power. It is not "rip-your-hands off the bars" kind of power, though. It comes on early and strong but the overall impression is a smooth and steady rush that revs out on the top end. The Fat Boy 4 exhaust system cranks out a healthy mid-range hit that makes riding the EX even easier. You can shift early and let it pull a gear high coming out of a corner.

We liked the smooth feel of the Hinson clutch and how well it held up to the abuse we heaped upon it. Our brakes had a much more solid feel and sure action with the new steel braided lines and heavy duty BRAKING pads and rotors.

DUNCAN 440EX



Douglas Ultimate series billet aluminum wheels with beadlocks provide an extra measure of protection and a full race look for your EX.

But the area we were really amazed with was how well the revamped suspension performed. Thanks to the LOBO II front suspension kit with its Elka front shocks combined with the Elka rear shock and Roll Design rear swingarm, the EX chassis was literally transformed.

You could now charge through the roughest whoops flat out, with no hint of swap or bottoming out whatsoever. With the increased power available from the Duncan Racing engine kit, you could take full advantage of it, anywhere, at any time, on the track or trail.

There wasn't a single situation where we felt we couldn't fly through the worst terrain we encountered without ever having to back off the throttle! Now we know why Eichner can keep the throttle fully pegged when he's on the toughest parts of the course. It certainly is confidence-inspiring when you know you can barrel through a whoop section or off a steep jump without having to back off the gas.

That is one of Doug's secrets to going fast. The other is that he has the skill, endurance and talent it takes to keep it operating at this frenzied pace from start to finish.

Overall, we have to give Duncan Racing and Doug Eichner credit for making the Honda 400EX a competitive mount against the newest onslaught of high performance quads threatening Big Red. It all goes to show; if you spend enough money, and have the heart and skill of a champion, anything is possible. □