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ON THE COVER:—What better way to shoot the only water-cooled four-stroke sport machine than to capture an exploding water aerial? Steve Casper is in the saddle on the Kawasaki 250 Mojave and Jeff Maas snapped the photo. The Table of Contents photo is of Derek Nye on our DeserTrax 50R. Chris Hultner was behind the lens. Cover design by DeWest and color

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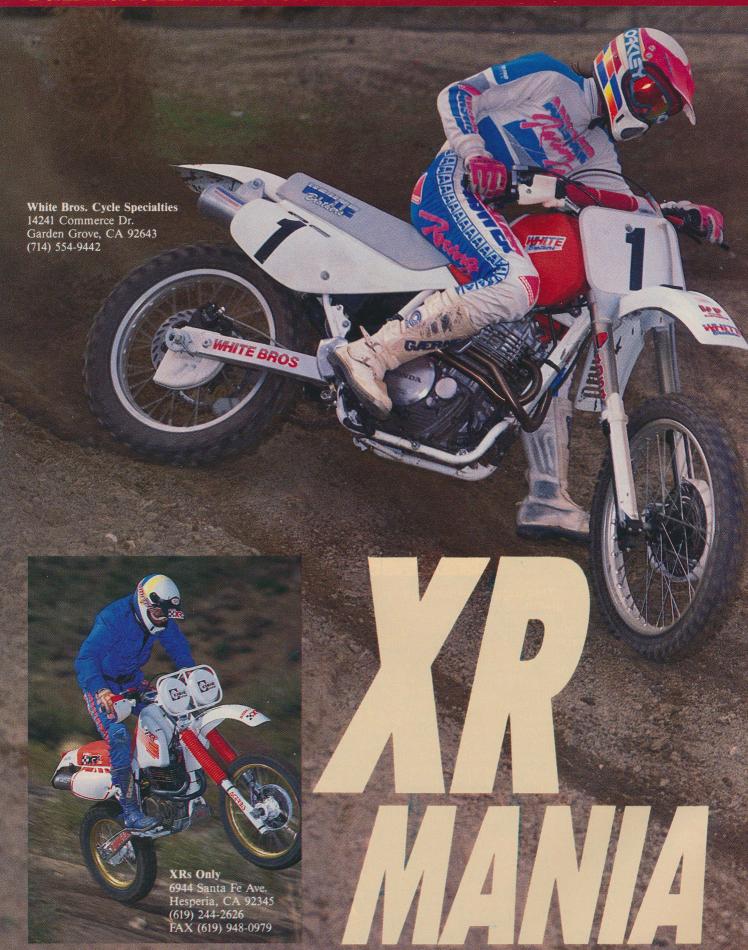
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Riding school was never like this

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# **BUILDING TO BEAT THE TWO-STROKERS**



# 500R Muzzy's R&D 17216 B-3 Lilac St. Hesperia, CA 92345 (619) 949-5131 Scott's Scooter Service 2625 Honolulu Ave. Montrose, CA 91020 (818) 248-BIKE

### A close look at four ultra-competitive XPGOORS

By the DIRT BIKE Staff

any people buy XRs for their awesome power and torque, reliability, ease of riding in tight terrain and rock-solid stability in whoops and cross-grain, but they find that the relatively heavy machines get whomped by the two-strokes in racing conditions. Stock, the big XRs simply can't compete over jumps and G-outs with the light, explosive two-strokes, and the XR suspension isn't as sophisticated as its two-stroke competition.

Why, then, do XRs have such an impressive win list, including the overall wins at the '88 Barstow-to-Vegas Desert Classic and the '84, '85 and '86 Baja 1000s? Exactly what does it take to give the big red thumpers an advantage over two-strokes? For the answers, let's take a close look at four highly modified XR600Rs—Bruce Ogilvie's B2V and Baja-winning '85 twin-carb, Goat Breker's '88 Four-Stroke National Championship winner, Al Baker's class-winning Baja Commander and Scott Forward's '88 Baja 1000 class winner.

Before we dive into the details and before you start pouring cubic dollars into your XR, take time to get to know your bike and decide what really needs improving to run with the ring-dings. Bruce Oglivie suggests, "Before you do anything to the bike, put 1000-1500 miles on it and learn how to ride a four-stroke. I'm still learning and love to ride the stock bike. Had I been on a stock '88 XR600R at Barstow-to-Vegas, I'm confident I would have finished third overall. The '88s and '89s are that good bone-stock. If your stock forks seem too soft, check the ments until you get it dialed. It takes a lot of time to do this, but you get out of it what you put into it.

"I put four 12-hour days into preparing for B2V, checking the bushings and bearings, safety wiring, double- and triple-checking everything. I went out to Lucerne the day before to test final jetting, gearing and suspension settings. When I got to Barstow, I only had to make one change to the forks for the race. If you take the time to make sure everything is set up to the owner's manual specs, it'll work well, stock.

So, after you've got the stock bike working as well as it can and you still want more, then it's time to start modifying the bike. Here are four ways to make the XR600 fly and what it's like to ride each bike.









Rick Johnson replica model

White/Blue/Light Blue

White/Blue/Pink

White/Blue/Lime

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## OGILVIE'S '85 HRC/MUZZY **XR628R**

Ogilvie won the '88 B2V on his personal bike, an '85 two-carb with an '87 frame. After three years of thrashing, the '85 frame was fatigued, so he went with the '87 because he likes the white paint. The rear shock is also an '87 unit; it utilizes the stock spring and was revalved by Pro-Circuit. For desert use, Ogilvie sets his rider sag at 3-3/8 inches. Up front, stone-stock 1986 CR250R cartridge forks were clamped into the stock XR triple clamps, and oil level is run at 130mm.

An '87 master cylinder and brake hose are used up front, and all other brake parts are stock '85 units. Ogilvie runs a 3.25 × 21 Metzeler with a Bib Mousse tube and a 5.00×17 Dunlop K190 with a heavy-duty Dunlop tube. Gearing for B2V was 15/49 with the stock RK O-ring chain; this gearing is good for 104 mph on dirt and 112 mph on paved sections of the course. Other chassis changes include: a road race-type dry brake quick-fill replaces the stock gas cap, welding the rear chainguide mount for more strength, removing the kickstand bracket and the throttle return cable, and K&N XR-bend bars. The headlight is removed from the shell to provide more airflow to cool the oil-filled frame.

Cliff White welded larger fins on a stock head, then Rob Muzzy ported and flowed it (contact Muzzy for prices). Stock valves, springs and seats are retained for use with the Honda Racing Corp. dirttrack cam. An HRC 100mm piston is used with an old XL cylinder to boost displacement to 628cc; compression is a relatively mild 9.5:1. The stock carbs are used, with #135 mains, #48 pilots, the left needle in the #1 position and the right in the #4, and a K&N filter is used. A Muzzy pipe handles exhaust duties, while a colder-than-stock Champion 159G provides spark.

Barnett heavy-duty clutch springs and booster spacers prevent clutch slippage with the added power; the stock transmission and oil pump are used. For Baja, Ogilvie uses one Cibie Super Oscar headlight and the stock ignition. He removed the auto-decompression system and uses the manual lever (the grip is notched to provide more lever clearance) to get the big piston past topdead-center. The motor lights first time every time, as long as the throttle is not cracked. In winter, Ogilvie uses HRC 30-weight oil and he switches to Swepco 40-weight in hot weather.

Riding this bike is four-stroke pleasure at its best. The motor pulls extremely hard from the basement and revs to insane levels with no glitches in the band. In fact, we were shifting the bike way too soon until Ogilvie coaxed us to try earplugs while riding. This lets you feel when the power flattens out instead of shifting too soon when the revs build to nervous levels. The HRC/Muzzy

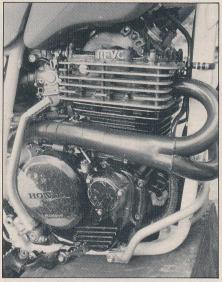




Bruce Ogilvie's HRC/Muzzy '85 XR is still running strong after years of desert racing. Low compression makes for very manageable low-end and insane top-end revability.

motor offers the widest spread of usable power we've ever seen!

Handling is very predictable; compression braking arcs the rear end out gracefully, then rolling on the throttle continues the slide, and stability over whoops and chop is excellent. The bike doesn't twitch over rocks and roots, and it soaks up jumps well. With the totally predictable handling and unbelievably wide powerband, it's easy to see why Ogilvie won B2V and the Baja 1000.



Rob Muzzy (dirttrack/road race tuner extraordinaire) did Ogilvie's head work and exhaust pipe, while Cliff White (George Holland's mechanic) welded on the extra fins. HRC parts abound.



Lightning pits: A road race dry-brake quick-fill system replaces the stock cap on Ogilvie's B2V-winning XR630R. Bruce removes his headlight to allow more cooling air to the frame.

# GOAT BREKER'S '88 WHITE BROS. XR640R

This machine was built for the Four-Stroke National motocross championships, but it'll run with the open-class two-strokes. The White Brothers boosted displacement to 640cc with an Arias piston kit (\$112.95) and big-bore sleeve (\$76.95, installation and final bore \$150). Compression is 10.5:1. A WB1561 off-road/dirttrack cam (\$125 with core exchange), R&D titanium-collared valve spring kit with shortened guides (\$169.95) and head porting and flowing (\$200, including three-angle valve job) further boost horsepower and breathing is handled by a 38mm flatslide Mikuni that's bored to 41mm (about \$200), WB Megalloy exhaust (\$149.94, with SuperTrapp spark arrester \$179.95), and Twin-Air filter (\$24.95). The backfire screen is removed from the stock filter cage. Heavyduty clutch springs (\$13.95) and Answer Roost Boost (\$59.95) round out the motor

Chassis mods are also extensive to meet the weight and suspension requirements of pro-level motocross. White Power cartridge forks (\$1099, with triple clamps) and Super Adjuster Shock (\$554.40) were installed to meet the rigorous pounding of the Goat. The stock XR rear wheel was replaced by an '88 CR250R rear wheel, and an '88 YZ250 rear brake caliper is used with minimal modification to the stock XR swingarm. A Tsubaki Pro Series chain (\$31.68), Baja Off-Road Products chainguide brace (\$25.95), PBI 55-tooth rear sprocket and Bridgestone M39/40 soft-terrain tires (\$48.95/\$66.95) put the ponies to the ground. Other chassis mods include: TMV front and rear fenders (prices unavailable), TMV disc guard (\$29.95), TMV UD number plate (\$34.95), Answer Alumilite bars (\$49.95), TMV grips (\$7.95), RPS reservoir guard (\$8.98) and Ceet seat cover (\$22.95). The WBXR640R weighs in at 262 pounds with no gas.

Fork rigidity and the valving of the WP components really make handling taut and sharp. The bike carves very well for a thumper and a motocross cut-and-thrust style of riding is much easier with the CR/YZ rear brake. Stock XR drum brakes would be toast in one moto with the Goat at the controls, but the disc setup is a tad heavier. Suspension action is set up stiff for handling mongo jumps and G-outs, so the ride over small stuff is on the stiff side. However, the White Brothers will revalve, for your weight and ability, any component they sell.

Once you learn not to touch the throttle, the bike will light up on the first or second kick, hot or cold. Throttle response is excellent, and the reworked Mikuni carb works very well and doesn't hiccup at low speeds. The motor hits much harder down low and accelerates violently in the midrange. Because

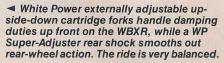




▼For motocross, the White Bros. punched their XR out to 640cc, did extensive head work and installed a dirttrack/offroad cam, heavy-duty valve springs, a Megalloy pipe and a Roost Boost. Hit is awesome!



of the higher compression, the motor does not rev out as far as Ogilvie's XR628R. For off-road racing you'll want less compression, but for motocross the power is phenomenal. All in all, Breker's White Bros. XR is very competitive and thrilling to ride.





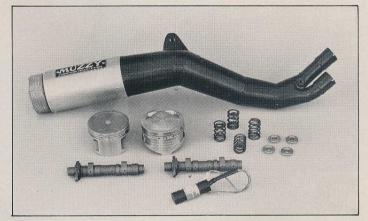
While the XR's drum and the four-stroke mill's natural compression braking may be fine for off-road racing, motocross demands more. The White Bros. added a CR250R rear wheel and YZ250 caliper to Goat's 640.



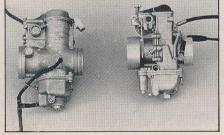
## AL BAKER'S '88 XR630R BAJA COMMANDER

Showa works cartridge forks with adjustable compression and rebound damping (\$840) provide smoother, more tunable damping and the CR triple clamps kick out the forks a tad for more stability. A 17-inch rear wheel further adds to stability and a remote reservoir Ohlins shock (\$499.95) handles rear damping duties. Because the '89 Baja 1000 is going to be the traditional Ensenada-to-LaPaz, Baker's bikes will run the 4.5-gallon IMS gas tank (\$149.95). Lighting is handled by twin ignition coils (100-watt) and dual Cibie Super Oscars with adjustable quick-release frame (\$625).





High compression makes the XRs Only XR630's low-end explosive for sliding and lofting, while an Ohlins shock and cartridge forks smooth out Baja's monstrous whoops.



Carburetion for the XRs Only 630 is provided by a road race 39mm Mikuni that has been bored out to 41mm (right). Flow is much improved and there are no hitches in the powerband.



XRs Only fabricates this trick dualheadlight system. It attaches with two bolts (bottom) and a quick-release (top). Power is provided by dual ignitions and the knob provides quick adjustment.

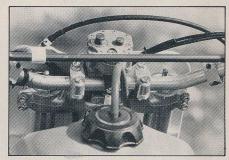
A 100mm piston and sleeve kit (\$355.95 complete) boosts the displacement to 628cc and compression is 11:1. Headwork includes: extended fins, porting and three-angle valve job (\$320), Mugen Paris-to-Dakar cam (\$119.95) and heavy-duty valve springs with titanium tops (\$121.63). The motor breathes through a 39mm Mikuni roadrace carb bored to 41mm (\$229.95), a K&N air filter (\$29.95) and Muzzy exhaust and spark arrester (\$169.95). Gearing is 14/43 (\$12.28/ \$34.54); this is good for 112 mph on dry lakes, and an Answer Roost Boost (\$52.95) rounds out the motor mods.

XRs Only XR630R motor mods include a 100mm piston (right), Mugen Paris/Dakar cam (right), heavy-duty valve springs, Answer Roost Boost and a Muzzy pipe, as well as sleeve boring and extensive head work.

Other chassis changes include: Cal-Fab skidplate (\$49.95), XRs Only folding shifter (\$18.95), Bridgestone ED-11 80/100-21 front tire (\$49.95), IRC VE33 Vulcanduro 5.10× 17 rear knobby (\$44.95), XRs Only seat cover (\$19.95), Kryptonite rear brake shoes (\$18.95), Acerbis front fender brace (\$18.95) and Answer Alumilite SR-IV bars (\$46.95). Purely for cosmetic purposes, Baker powdercoated the hubs and frame white.

Suspension is excellent on all types of offroad terrain and the bike is extremely stable. However, with the dual light setup installed, the steering is very heavy. It will turn, but heavy input is required, especially in sand. Starting is criminally easy, just like the other XRs featured here, and the bike carburets very well at all throttle openings. The headwork and Mugen cam give the bike a very wide powerband with a very strong hit when it comes on the cam, but the higher compression doesn't allow the motor to rev out like Ogilvie's '85. The total package is awesome, and the bikes will be a definite threat for the overall at the '89 Baja 1000.

## SCOTT SCOOTER SERVICE XR625R



Besides CR triple clamps and a 17" rear wheel, Scott depends on a UNIK steering damper to slow things down a bit at race speeds. It's adjustable while riding.

Like Ogilvie's personal sled, Scott Forward's bike features some HRC parts that are hard to get for the average Joe, but SSS does sell big-bore kits to the general public. Forward's XR has a 12:1 100mm ART-HRC piston (N/A—Arias 10.25:1 100mm kit sells for \$89.95), XL600 100mm cylinder (\$175), complete HRC crankshaft (\$248), works head with extended fins and titanium valves (N/A—valve job, porting and flowing stock head costs \$148), HRC dirttrack camshaft (\$125, cam for Arias piston is \$99), rockers for HRC cam (\$22 each), HRC oil pump (\$75), high-volume oil line (\$25), heavy-duty valve springs (\$99), 40mm Mikuni pumper carb (\$159.95) and hand-made exhaust and muffler (\$150-\$200). With the 12:1 piston, Forward has to run 108-octane racing fuel.

Chassis mods are also extensive. The shock received a hard-anodized body (\$119.95), revalving (\$130) and a heavier spring (\$69.95), while the stock forks (which SSS revalves for \$99) were replaced with Showa cartridge forks (\$599) with stiffer springs (\$69.95). Michelin Bib Mousse tires and tubes are run at both ends and Forward uses the old 17-inch XR rear wheel. For further stability, he uses an adjustable steering damper (\$199).

Other mods include: 15/46 gearing (\$15.95/\$39.95), MS heavy-duty shifter (\$18.95), heavy-duty chainguide (\$39.95), Unifilter and drilled airbox (\$19.95/\$10), DeVol disc and forkleg protectors (\$21.95/\$14.95), Barkbusters and Acerbis brushguards (\$42.95/\$16.95), Renthal #666 bars (\$44.95), Cordura tool bag (\$29.95), kickstarter detent mod (\$15), Scott's skidplate (\$49.95) and axle plate welding for quick-change capability (\$15). For Baja, Scott uses a 200-watt ignition to drive a 100-watt headlight and 100-watt helmet light (\$199).

When we rode the bike, it didn't have the headlight installed. Steering is slowed by the 17-inch rear wheel, and dialing the steering damper up stopped all headshake in sand washes. The bike is very predictable on fire roads, although the Mousse rear tire takes some initiation time. The bike works well at low speeds but doesn't really shine until



Fire roading the Scott's Scooter Service XR625 is a definite thrill; the hard-hitting motor lights up the Bib Mousse tire easily, so you must roll the throttle on.

you hit the upper gears. Here the suspension and geometry make the bike ultra-smooth and stable.

Power is strong in the lower revs and brutal when it comes on the cam, but the high compression doesn't let it rev like a road racer. This motor must have race fuel, as pump gas with octane booster allows detonation. With the strong hit and taller (15/42) gearing, Scott was clocked at 119 mph on Diablo dry lake, and the power is great for playing Bubba Shobert on fire roads. After winning Class 30 (vets) at the '88 Baja 1000, Forward tore down the motor and could not find any worn parts.

Bulletproof: A Bib Mousse tire and tube is mounted on an '87 rear wheel, and the SSS chainguide guard keeps the O-ring chain on track. Gearing is 15/42, and top speed is 119 mph. ▶

