

Cycle

£1.05 MARCH 1983

**Baja-Winning
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Honda XR500R**

Honda V65 Magna **Meanest 1100 On The Block**

Yamaha 550 Vision
Bright-Think Bike With A New Look



Selected Shorts
Kawasaki KZ1100A3
Yamaha XT250K



HONDA CR480R

Looking for monster power? You got it. But hold on: Thanks to some careful chassis refinement, there's also some beauty to this beast.

PHOTOGRAPHY: KEN LEE, STEVE BRICARDUS

□ We saw them coming, literally and figuratively. "They" were open-class motocross bikes that signaled a new commitment to racing by Honda. At a whole mess of last year's Nationals, when the gate dropped for one or another of the day's 500cc motos, a red-white-and-blue freight train banzaied into view. It was Shultz, Sun and Chandler. Or Chandler, Ellis and Shultz. The order and the makeup of the riders varied at times, but it was always a Honda train. Of course, it rarely crossed the finish that way. Usually King or Bell or Brekker broke the sweep.

But the point was made. Honda was serious about racing; they were pouring money into the effort and it was paying off. It wasn't uncommon to see five of the top 10 in a moto on Hondas—some privateers, some support riders and some full-on factory aces. The works bikes obviously were fast enough and manageable enough for their riders to have an edge. If you were a contender on a Honda, the bets were on you. Word on the circuit—and not just in the Honda camp—was that the CRs would be tough to beat, possibly the first-class machinery for the year.

Eighty-two is history. Darrell Shultz wrapped the National Championship, and much of his bike's technology has been applied to the 1983 production CR. It's still a 480, unlike some of this year's open-classers which have been bumped to 500cc. But don't worry—along with some significant engine modifications, the CR boasts refined suspension and a cut in weight, making it one of the most agreeable and easy to ride open-classers we've ever run around a track. You won't mistake the 480 for a 250 by any means, but its steering and overall handling characteristics stand out in its class—it's light, easy to maneuver in berms and off jumps, and less fatiguing to ride hard than most big-bore bikes.



HONDA CR480R

The 480's new chassis is largely responsible for its improved handling. To produce lighter steering, Honda changed the chassis geometry radically by relocating the steering head—up five millimeters and back 10. This modification and new triple clamps result in 26 degrees of rake and 3.9 inches of trail, contrasting dramatically the '82 CR's 27.5-degree/4.2-inch rake/trail figures. Other chassis modifications shortened the wheelbase by 0.8 inch.

These modifications give Honda's 480 an agility we've never experienced with an open-class production motocrosser. When you ride the big CR for the first time, the engine reminds you that you're aboard a full-on open-class monster. You won't forget it either, until, that is, you get to the first turn, where you'll discover that the 480's revised chassis geometry and light weight give you an open-class bike that steers, tracks and feels much like a 250. Most slow-handling big-bore motocrossers resist quick, reflexive action and demand a precise riding style. Not the CR. Like a 250, it responds well to a last-ditch, almost-too-late stuff into a turn and lets the rider go on his way without losing a milli-second.

Honda modified the frame in areas besides the steering head. New mounting tabs locate the redesigned fuel tank farther forward, with the added open space behind the tank taken up by a new, blue vinyl safety seat. But the big change is the removable rear frame section, a new design shared by all of Honda's full-scale motocrossers. The seat, rear fender, exhaust silencer and airbox all mount to the rear section and detach as one complete unit. Just remove the seat, four bolts, and loosen the airboot clamp at the carburetor to gain access to the rear suspension. Other frame changes include raising the brake pedal pivot 20mm and fitting smaller, lighter footpegs. The sum of these changes produces a bike that is better handling, easier to work on and has a better riding position than in 1982.

Honda revised both front and rear suspension units for 1983. A Showa assembly replaces the Kayaba fork but includes many of the KYB's features, such as 43mm fork tubes, Honda's dual Syntallic bushings, air caps at the top of each fork tube and adjustable compression damping. However, the number of compression damping settings and the method of adjustment differs. To shave weight Honda thinned the walls of the Showa fork tubes; at 2.6mm, they are 0.4mm thinner than the KYB units. The degree of spring preload against a washer acting as an oilway restriction controls compression damping. Rotating a screw in the bot-

tom of each slider makes rebound adjustments; 14 detented positions are available. Last year's fork offered just four settings and controlled compression oil flow by varying the degrees of alignment of a small rotating valve located in the bottom of each slider.

New triple clamps bolt to a light aluminum steering stem. An internal rubber seal protects the top set of tapered roller steering-head bearings, cutting the weight of the earlier steel cap. The changes have produced a lighter, more tunable fork assembly—all without concession in performance or rigidity.

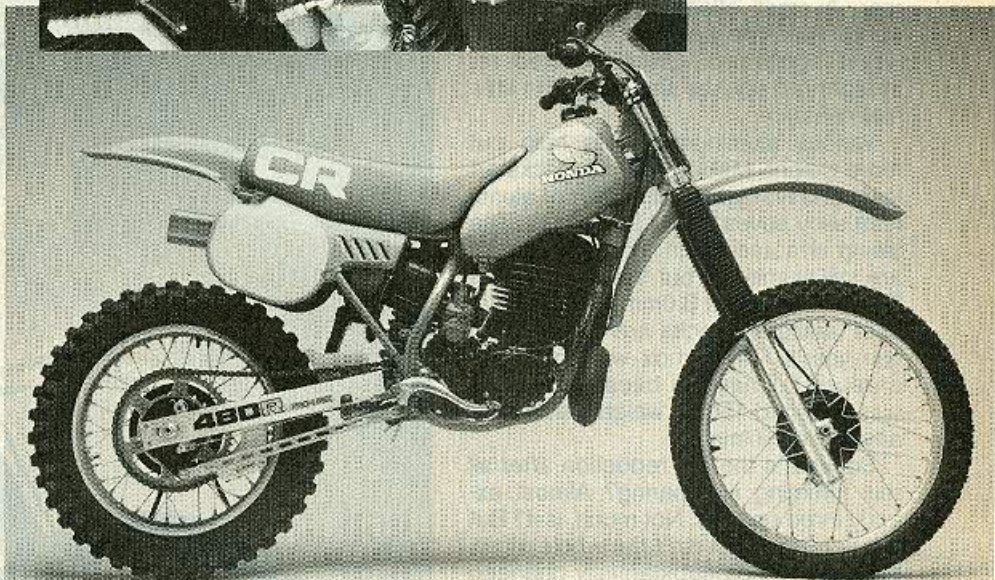
The fork worked perfectly when set to specs preferred by Team Honda support rider Phil Larsen. Larsen uses 10-weight Bel-Ray fork oil, filling the fork tube oil level 170mm from the top with the springs removed and the fork fully compressed; he sets compression damping six clicks out from fully bot-

tem's progression curve. Using a lighter shock body and a thinner coil spring cut weight, as did switching from steel to aluminum Pro-Link levers. Until now only economics kept the manufacturers from using the more expensive aluminum. The combined reduction amounts to 31.3 ounces, nearly two pounds.

Since the introduction of the Pro-Link Hondas, riders have found the rear end's rate of progression too soft initially and too stiff at the end. This year's system has a flatter rise in progression, jumping roughly from a 4:1 ratio to 1:1, rear-wheel travel relative to shock travel. At the same time, Honda's new shock is 34mm longer than last year's, which helps dissipate heat more effectively; this should help prevent fading. The new unit has 13mm more travel than last year's and includes adjustable rebound damping—



1983's most important changes include a new shock body and reservoir, airbox and removable frame section.



tomed. For our light (140-pound) experts and heavier (160-pound) intermediates this provided fluid and progressive action. The fork is excellent.

In an all-out effort to get the open-classer down to the FIM's minimum weight limit, Honda designers passed up few opportunities to trim ounces—especially in rear suspension updates. The engineers had two objectives in refining the '83 Pro-Link system: one, cut weight; two, modify the rising-rate sys-

tem's progression curve. Overall, the new system produces 12.4 inches of wheel travel, up about one-half inch from '82.

Although the new setup is a substantial improvement, it's still not perfect. Even with the rebound damping set light, our intermediate and lighter riders found the suspension packing down a little over sharp, Supercross-style stutter bumps, resulting in some rear-end dancing. Revving the engine too high in

HONDA CR480R

the lower gears certainly compounded the two-step, and our riders soon learned that short-shifting in particularly nasty sections of track made the 480 much more manageable.

Otherwise the updated Pro-Link system is nice. There's plenty of travel available; the new rising-rate curve makes for a smooth transition from the middle of the stroke to fully compressed; and the damping remained consistent as long as our riders could keep the gas on.

The search for places to trim weight didn't end with the Pro-Link system. The new Bridgestone tires together weigh 18 ounces less than last year's rubber, one of the largest single weight reductions on the motorcycle. Other cuts include lighter front and rear hubs, reworked to accommodate new spokes and narrower brake drums.

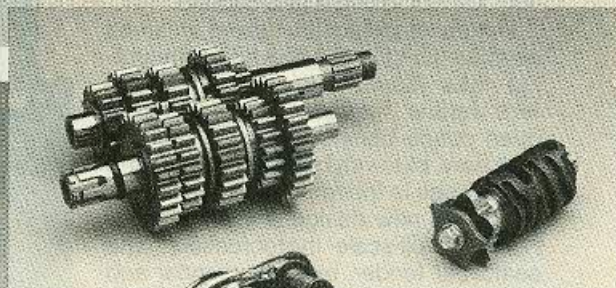
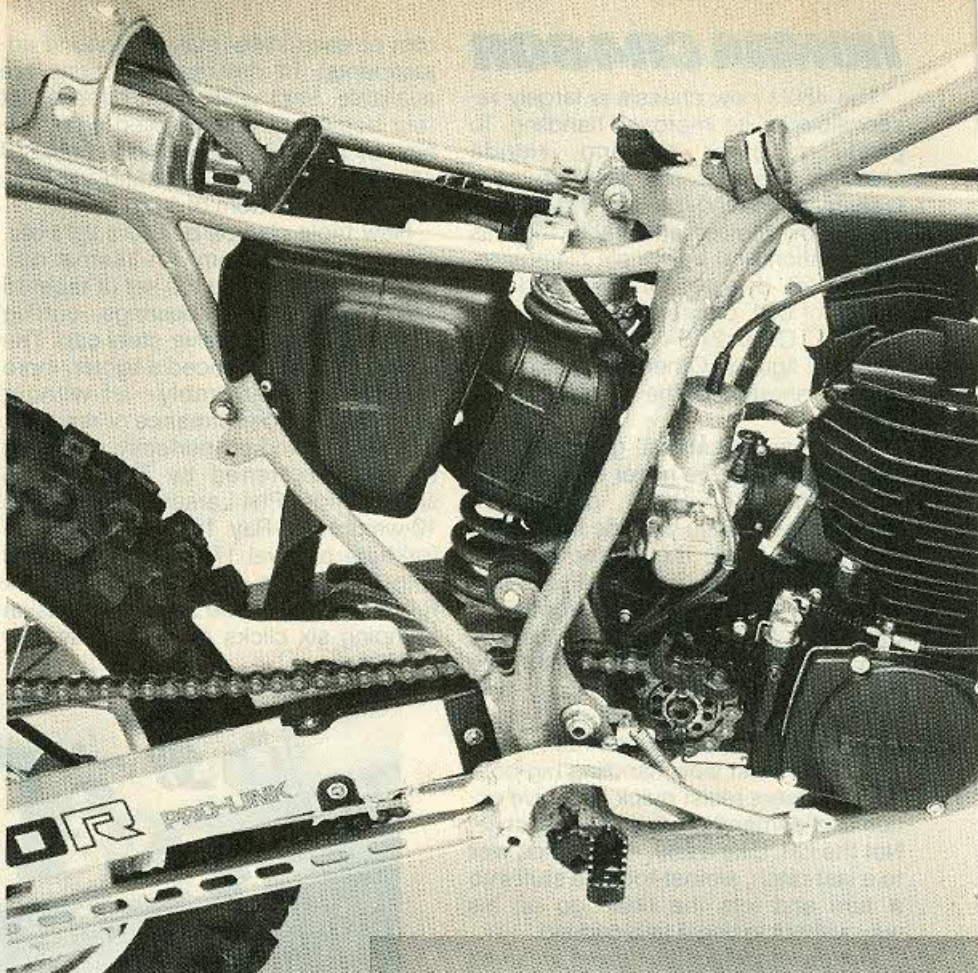
The single-leading-shoe rear and double-leading-shoe front brake linings are three millimeters narrower than last year's, and the 480 has a new front brake lever and actuation arm so that the lever effort remains near the '82 level. All brake cams are correspondingly shorter, and have seven-millimeter holes drilled lengthwise to reduce weight further.

For the first time, Honda gave the CR genuine straight-pull spokes front and rear. A small offset at each foot ensures that the spokes won't rotate when tightened. Once bedded in, straight-pull spokes should require little maintenance.

Various aluminum pieces help cut more weight. Making both the kickstart lever and NS-type oval muffler of aluminum alloy saves about 22 ounces. The swing arm and chain tensioner blocks are still aluminum, but the arm's wall is 0.5mm thinner, at 3.0mm, and the die-cast tensioner blocks are smaller than last year's. The airbox wall thickness dropped 0.5mm, but because the box was widened 15mm, weight savings, if any, were minimal.

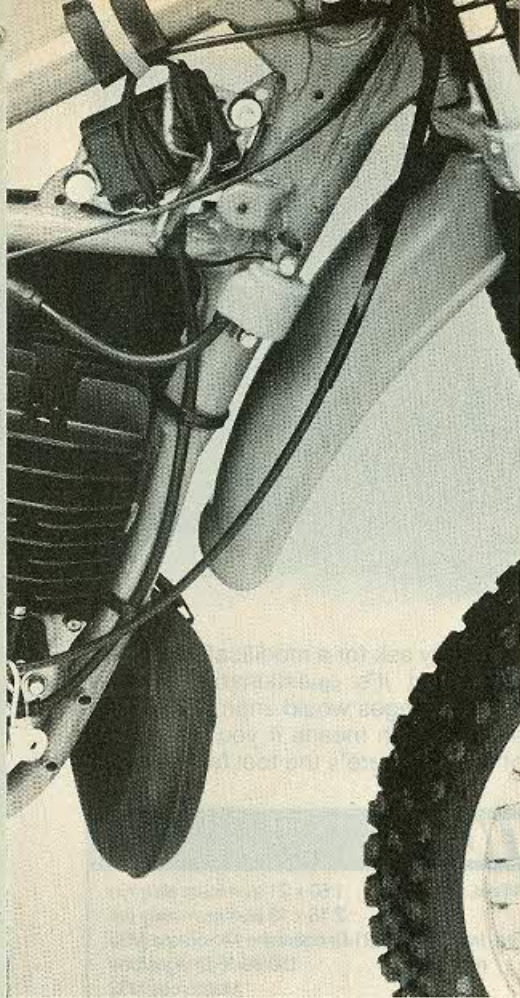
So what's the net reduction after all this trimming and paring? Almost exactly three pounds. Not much, is it? But the net reduction isn't the whole story, because Honda substantially changed the powerplant, adding a fifth gear and bumping weight there a fair amount. Think of all the trimming and the switch to aluminum here and there as necessary steps to get a refined and light-weight total package.

Though the front half of the engine (the crankshaft and all top end parts) is the same, the crankcase and left sidecase are new. Moreover, all the gear ratios are updated, though not dramatically. The new ratios bring the first three gears closer together; fourth and fifth gears are almost identical to

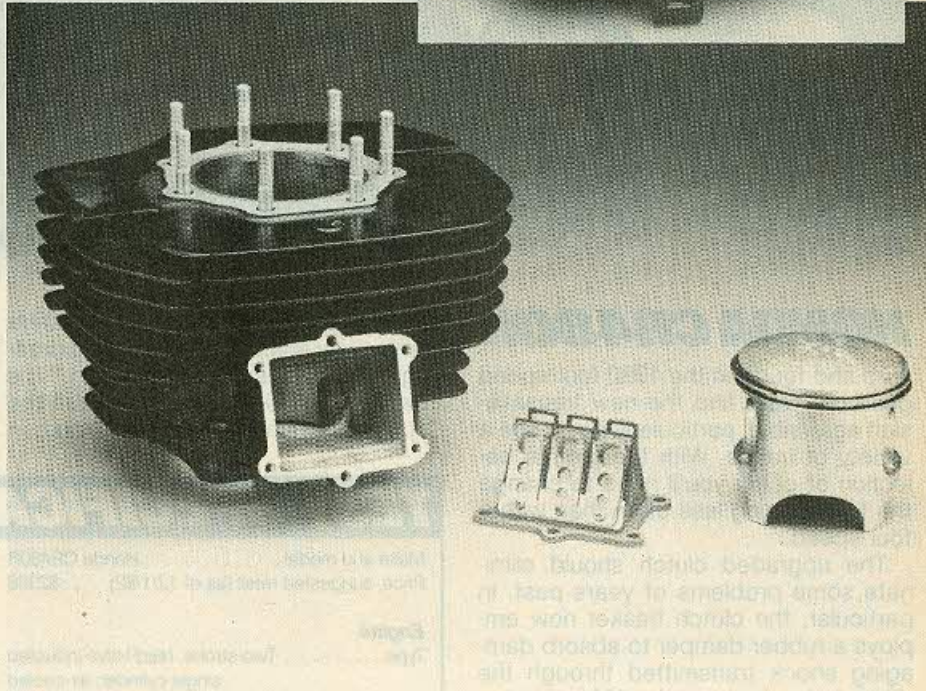
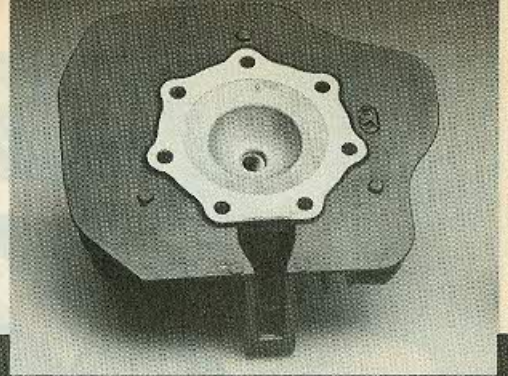


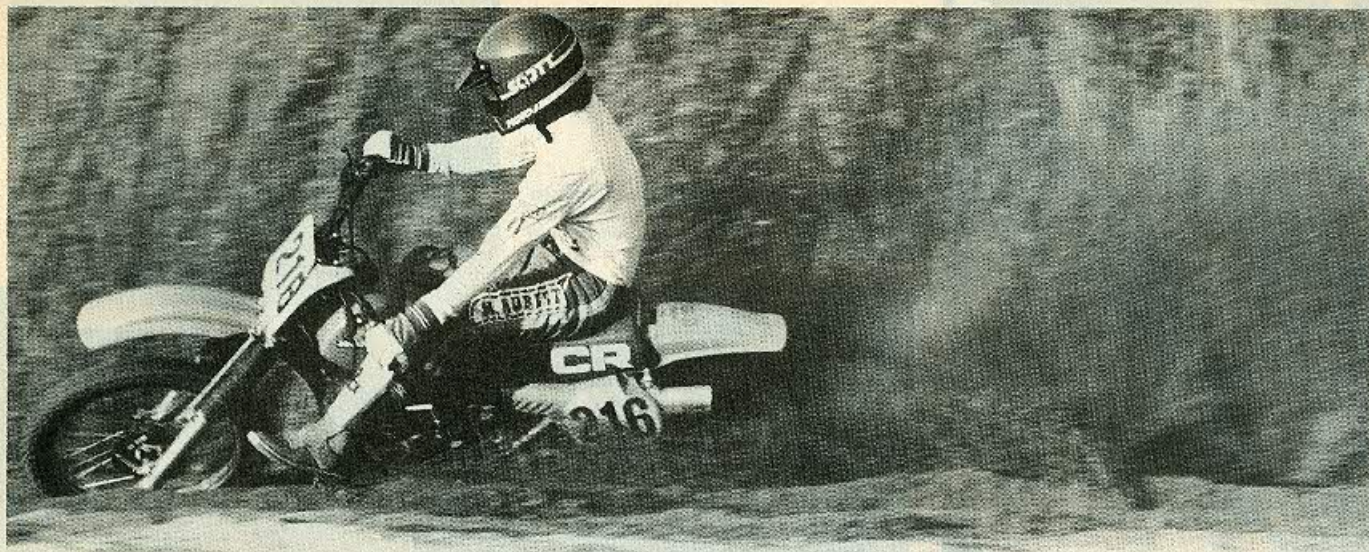
New five-speed gearbox increases engine weight 1.5 lbs. The extra ratio makes the bike more versatile.





The cylinder head's wide squish-band centralizes combustion and helps to minimize detonation. The pressed-in iron cylinder liner breathes through a six-petal reed.





HONDA CR480R

third and fourth in the 1982 four-speed gearbox. You'll find the new transmission agreeable, particularly if you ride a variety of tracks. With the greater selection of gears you'll need to change the final gearing less often than with a four-speed.

The upgraded clutch should eliminate some problems of years past. In particular, the clutch basket now employs a rubber damper to absorb damaging shock transmitted through the drive train—last year's 480s used a solid-type basket. Both the drive and driven clutch plates are thicker this year, and the friction plates have a higher asbestos content. Our test bike's clutch worked well, without any slip, although it was rather heat-sensitive, requiring us to adjust free-play at the handlebar more often than usual.

While the designers at Honda were enhancing performance and removing weight, they simplified maintenance and increased reliability. In addition to the new spokes and hubs, new DID rims have more serrations on the bead surface area, helping prevent tire rotation on the rim. If the tire does slip, an enlarged valve stem hole should allow the stem to pass through without tearing. Also new is a small rubber boot which slides over the tube's stem to prevent debris from entering the tire.

All the 480's bodywork is new, most obviously the tank/seat combination. The fuel tank still holds 2.5 gallons of premix, but it is better centered and carried lower, improving the weight distribution. The front number plate, now solid, no longer has a grille at the bottom. The side number plates are square, making it much easier to attach numbers, particularly three-digits. New fenders finish off the cosmetics.

There you have it—a much refined open-classer which allows riders of all calibers to perform to virtually the best

of their ability. Most of our testers came away shaking their heads, admitting, "This bike is better than I am." It's true. Only the best riders can fault the CR's performance in any way. You can

justifiably ask for a modification here or there, but it's questionable whether those changes would improve your lap times. Which means if you're capable of winning, here's the tool for the job. ■

TEST SPECIFICATIONS

Make and model Honda CR480R
Price, suggested retail (as of 12/1/82) . . . \$2398

Engine

Type Two-stroke, reed-valve-induced single-cylinder; air-cooled
Bore and stroke 89.0 x 76.0mm (3.50 x 2.99 in.)
Piston displacement 472cc (28.8 cu. in.)
Compression ratio 6.7:1
Carburetion (1) Keihin 38mm round-slide
Exhaust system Upswept expansion chamber with silencer
Ignition Capacitor-discharge; external-rotor magneto
Air filtration Oiled foam element
Oil capacity 1.0 qt. (0.9 l)
Bhp @ rpm 42.22 @ 8000
Torque @ rpm 32.29 @ 6500

Transmission

Type Five-speed, constant-mesh, wet-clutch
Primary drive Straight-cut gear; 60/25; 2.40
Final drive #530 chain; 14/54 sprockets, 3.86
Gear ratios (transmission) (1) 27/15, 1.80
(2) 24/17, 1.41 (3) 22/19, 1.16
(4) 20/21, 0.95 (5) 18/23, 0.78

Chassis

Type Single-downtube, full-cradle frame; box-section aluminum swing arm
Suspension, front Leading-axle, air-adjustable fork with 43mm tubes, 14-way adjustable compression damping and 12.0 in. (305mm) of travel
rear (1) gas-charged, remote-reservoir shock absorber, adjustable for spring preload and compression and rebound damping, producing 12.4 in. (315mm) of rear-wheel travel
Wheelbase 58.5 in. (1485mm)
Rake/trail 26.0°/3.9 in. (98mm)
Brake, front Cable-actuated, double-leading-shoe drum
rear Cable-actuated, single-leading-shoe drum

Wheel, front 1.60 x 21 aluminum alloy rim
rear 2.15 x 18 aluminum alloy rim
Tire, front 90/80-21 Bridgestone Motocross M33
rear 150/80-18 Bridgestone Motocross M32
Seat height 38.0 in. (965mm)
Ground clearance 13.4 in. (340mm)
Footpeg ground clearance 16.9 in. (429mm)
Fuel capacity 2.5 gals. (9.3 l)
Curb weight, with one gallon of gas 231.0 lbs. (104.8 kg)
Test weight 381.0 lbs. (172.8 kg)

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