

Cycle

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**Cold Weather Riding
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Kawasaki GPz 1100 **First 10-Second Superbike** **104 Horsepower Strong**

The Open-Road Flier
Honda 650 Nighthawk
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Double-Jump Dept
Husqvarna 250 CR
Honda CR125





HONDA CR125R

□ You are going to love a whole bunch of things about Honda's new CR125R, but two of the most gratifying traits are its mid-range power (nice!) and what it *doesn't* weigh. We lead off with those points because they separate the '83 Honda from motocrossers of the last few years. All the manufacturers have made breakthroughs, coming out with rising-rate rear suspension systems, a foot of travel, liquid cooling and road-racer-style engines pumping out 22 to 25 horsepower.

So what comes next? Refinement—refinement in whatever area the engineers choose. This year, for Honda anyway, the choice is clear—less weight, more mid-range.

Both the AMA and FIM set minimum weight limits for each professional racing class. This weight must be met with

Following a year in which they nailed down three major MX championships, Honda has produced a dynamite new 125. Which goes to show, racetrack R&D is alive and well.

the motorcycle carrying all fluids except gasoline. In typically ambiguous fashion, the rules specify that ballast *may not* be added to the motorcycle to enable it to pass the minimum weight limit, but the competitor may add "engine protection" (a skid plate) or substitute (heavier) axles and bolts to

achieve the weight standard. The obvious intent of the weight rule is to keep the factories from having an insurmountable weight advantage over the privateers. For a long time, getting a production bike to weigh anywhere near the limit was prohibitively expensive. Everyone could improve suspension with aftermarket shocks and fork kits—no big deal, not much money. But few people could get the magnesium sliders and one-off hand-machined titanium parts necessary to build a bike as light as the factory gold.

That's all over now, because weight is a moot point. Many of this year's production bikes, according to the spec sheets, weigh in at or under the AMA and FIM limits. We know for sure that the CR does, because we weighed it on *Cycle's* certified scale. The AMA



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and FIM minimum weight for 125s is 88 kilograms, or 194 pounds. Honda's 1983 CR125R weighs 197.5 pounds with one gallon of gas in the tank. When weighed by the procedures specified by the AMA and FIM here in the U.S., the CR125 would come in at 191.5 pounds—2.5 pounds *under* the limit. Not too bad for a bike you can buy down at the

corner store. Production bikes are now as close as they're likely to come to what the factory guys have. And you know what? They aren't even called 'Works Replicas' anymore!

Honda has once again redesigned the CR125R for the new model year. Although this makes it the third year running that Honda has given the CR a major re-engineering, it still retains the basic design introduced in 1981. Parts swappers, though, take note:

As with the '81 and '82 125s, very few pieces interchange between the 1982 and '83 models.

Those familiar with the 1982 CR will notice immediately the many designs unique to the new engine. The Honda's all-new crankcase has its countershaft exiting on the left side, not the right as previously. Honda cites several reasons for the change, the main one being less weight. Mounting



the chain on the left allows the engineers to cut weight from the rear wheel by reducing the size of the rear sprocket and redesigning the hub.

All other sidecase-mounted necessities except the kickstarter have swapped sides. The clutch and water pump moved from left to right, and the ignition from right to left. The new ignition has different maximum advance to allow the engine to cope with its slightly higher compression

ratio. This year's CDI reaches 25 degrees advance at 6000 rpm; last year it was 27 degrees at the same rpm.

The new clutch—and we mean *all* new—is both bigger and stronger. The hub is larger in diameter and has rubber dampers in place of the old steel coil springs. The friction plates have a higher asbestos content to combat heat problems, and the driven plates, now aluminum, are considerably lighter than 1982's steel ones.

Other manufacturers have tried aluminum plates with little success; the aluminum made the clutch extremely sensitive to heat. Our CR125 suffered no ill effects no matter how we abused it; it's got a nice clutch, pure and simple. Another small detail—the clutch throw-out arm no longer mounts beneath the engine; it's now on the top of the clutch cover.

Honda's motocross racers have always had strong gearboxes, and the



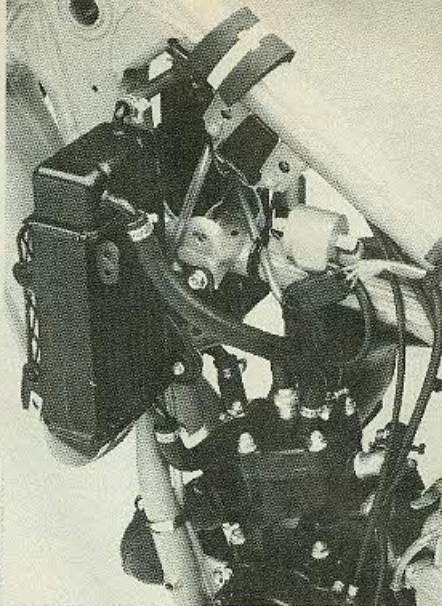
HONDA CR125R

1983 bikes uphold the tradition. Honda increased the width of all transmission gears, improving their resistance to wear and tear. Also, the shift fork shafts mount closer to the gear shafts, allowing Honda to shorten the forks so they'll withstand greater side loads without distorting.

Some internal gear ratios changed for '83. The primary ratio is fractionally shorter—3.294:1 compared to 3.313:1. First, second, fifth and sixth gears are

rider from getting a full stroke when kicking the engine over; fortunately, the 125 starts easily.

Once again, Honda has revamped the 125's cooling system. The radiators mount 50mm lower than last year's units—or 110mm lower than on the original liquid-cooled 125R. The crossover hose between the tops of the two radiators is gone, and the radiator cap now hooks to the top of right-hand radiator. Both stone guards are plastic, another weight-reducing move, and the radiator shrouds bolt directly to special mounting



Honda keeps on refining the CR's cooling system—cutting weight and lowering radiators.



unchanged, but third's ratio is now closer to second, and fourth's is now closer to fifth, producing a slightly larger gap between third and fourth. Though the changes to the ratios seem slight on paper, they do help the rider better utilize the engine's power characteristics. Final gearing is the same as last year (3.923:1), arrived at with a 13-tooth countershaft sprocket and a 51-tooth final sprocket. Alternate sprockets are available from Honda dealers should regearing be necessary.

The right-side kick-start lever, which bolts to a shorter, lighter shaft, is seven millimeters shorter than the '82 version. The new lever's position prevents the

This year's motocrossers lack the spectacular advances of recent years. Don't despair. The CR's refinement pays off where it counts—on the track.

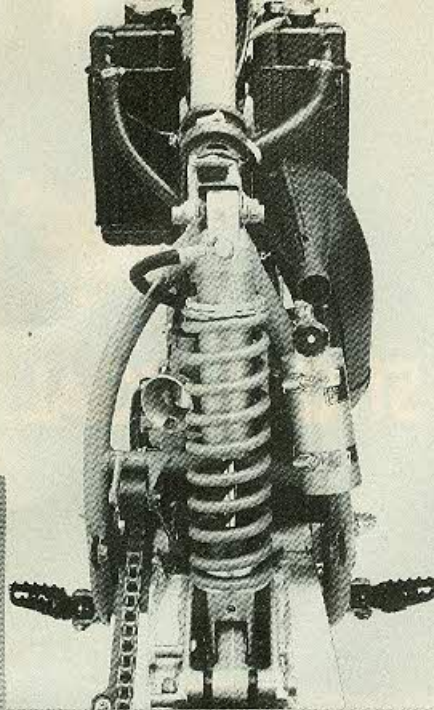
brackets; those with 1982 CRs who spent a good part of the year replacing the shroud's rubber bands will welcome the new system.

A different-style head gasket helps direct the coolant through the cylinder and

head. Coolant enters the base of the barrel at the rear (carburetor side). From there it passes toward the front of the cylinder to just above the exhaust port, where it enters the cylinder head. From this point, the coolant makes its way to the rear of the head where it moves to the top of each radiator by way of two separate hoses, each with its own outlet on the head. This careful routing takes as much heat as possible from the exhaust port, maximizing the coolant's effectiveness. The pump flows 42 liters of coolant per minute at the engine's 11,000-rpm maximum.

On the intake side, the engine breathes through a new reed valve incor-

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A mechanic's-eye view shows threaded preload collars and rebound damping adjuster screw.

porating what Honda calls a rectifier. This small block, which fits between the carburetor manifold and the reed cage, is designed to smooth incoming airflow. The carburetor manifold has a rather small inside diameter its whole length, and so produces a quick airstream.

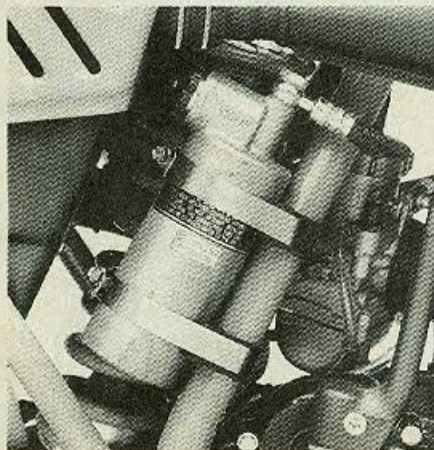
Probably the chief contributor to the improved mid-range is the shorter, fat-

detach along with the frame section. Only the intake boot clamp must be loosened to release the frame section after the four retaining bolts have been taken out. The pipe/silencer junction consists of a slip-fit rubber sleeve, held in place by radial spring tension.

With the rear frame off the bike, access to the rear suspension compo-



The rear frame section—including the airbox and stinger/silencer—unbolts easily to allow access to the rear suspension system.



ter expansion chamber. The new pipe basically follows the same route as last year's, starting on the right and ending at the left rear, but the first half of its mid-section is recontoured to clear the lower-mounted radiator. The first few times the pipe roasts the inside of your left knee, you'll quickly learn, as we did, not to press your legs in too tight.

The '83 CR125R has a bolt-on rear frame section, closely following the '82 works bike design. Four bolts, two near the swing arm and two near the rear of the fuel tank, secure the detachable unit. The airbox, air-intake boot, exhaust silencer and rear fender all bolt to the rear assembly and consequently

components and the carburetor is superb. The rider and/or mechanic no longer needs the crude hammer-and-drift method to adjust the shock spring preload. The improved access allows convenient use of the proper tools.

Honda modified the frame in many additional ways. A new steering head location—moved back 4.5 millimeters and up the same amount—combines with new triple clamps to produce a geometry that's about midway between the 1981 and '82 CR125Rs. The rake has increased from 26 degrees to 27.5 degrees, and the trail has stretched 0.2 inch—out to 4.1 inches.

To save weight, Honda gave the CR

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a new machined aluminum steering stem. Modified triple clamps ease adjusting and servicing the fork tube assemblies. The heads of the top four pinch bolts now face the rear; the bottom four still face the front, but angle outward. Consequently, work involving these bolts no longer requires removing the front number plate.

Unlike the Showa-forked CR250 and 480, the 125 uses a Kayaba unit. Fork tube diameter is unchanged from 1982, holding at 38mm. The CR retains adjustable compression damping, and for '83 gives a greater range of adjustment. In place of the three-way detent-determined selection, a non-detent screw in the bottom of each fork leg now tunes suspension. In its eight-turn range, this screw varies the spring preload on an oil-restricting washer.

Other changes improve the front end. Both sides of the front hub have straight-pull spokes; last year they were only on the left side. The front brake drum and shoes are three millimeters narrower; a new front brake cable pickup point and lengthened die-cast aluminum brake-actuation arm alter the leverage ratios to maintain consistent brake feel at the lever. A coil-type brake return spring replaces the banjo-type spring which could clog with mud. The front axle is five millimeters shorter than in 1982, cutting a little more weight.

Honda narrowed the extruded aluminum swing arm nine millimeters to increase the arm's torsional rigidity. New forged aluminum Pro-Link levers give the system a slightly less progressive rising-rate curve (and, you got it, cut weight). These new suspension-leverage ratios allow a thinner wire shock spring—also lighter.

A redesigned rear shock absorber offers both compression and rebound damping adjustments. A knob on the side of the shock reservoir allows 10 different compression damping settings, while a slot-head screw at the base of the shock offers 20 rebound adjustments. This adjustability has an obvious benefit—it should be possible to get your bike exactly right for your weight, riding ability and local track. But it also poses a challenge—it's tough to tune the suspension precisely. All the information to help you set up your bike is available from your local dealer in Race Support Newsletters. Use them: the Honda R&D people have more experience with their bikes than any rider does.

Rear shock spring preload is extremely important to the CR's handling equation. Honda strongly recommends a loaded/unloaded difference of 100 millimeters in ride height (when mea-

sured from the rear axle to the left rear seat mounting bolt). If you cannot meet this measurement by fiddling with the preload, then install a lighter or heavier shock spring. A properly set rear suspension ride height can, according to Honda spokesmen, make the difference between a bike that goes straight when decelerating over rough ground at the end of a fast straight and one that wags the handlebar.

Cycle followed the specifications recommended by Honda Support Rider Phil Larsen. Larsen specifies ATF in the fork with an oil level of 160mm, measured from the top of each fork tube with the springs out and the fork fully bottomed. We set the compression damper screws in the bottom of each slider three turns out from fully bottomed. We also set the rear suspension preload to Honda's prescribed level, the compression damping at full soft, and the rebound damper one click up from full soft. Set up this way, the Honda is terrific. It's cushy over small bumps and provides quick but well-damped action over nasty stuff.

Probably one of the major reasons the CR gets around the track so easily

is its lightness. Starting, steering, jumping and stopping are all effortless with the CR. All controls operate precisely and lightly, adding to the bike's complete and refined feel. High-speed passes over hard-packed or deep sand whoops go by with nary a side-hop. Because the CR is so small and light, the rider can easily move anywhere on the bike—vital when the riding calls for fast and smooth weight transfer. Above all, the CR's combination of light weight and excellent handling makes the job less tiring for the rider. After 45 minutes in the saddle of the '83 CR, you'll find yourself having more energy than with a bike only slightly heavier.

While both the new front and rear Bridgestone tires improve the CR, the front in particular stands out. It has a new tread pattern with more and smaller knobs. The front tire tracks incredibly well in mud, sand and loam, rarely washing out. We'd guess you'll find this tire on other Japanese motocrossers yet to be released.

This year's 125 has a wide power spread helping it build power smoothly. Its dyno chart tells the story: not much

(Continued on page 124)

TEST SPECIFICATIONS

Make and model Honda CR125R
Price, suggested retail (as of 11/30/82) \$1738

Engine

Type Two-stroke, reed-valve-inducted single-cylinder, liquid-cooled
Bore and stroke 55.5 x 50.7mm (2.19 x 2.00 in.)
Piston displacement 122cc (7.4 cu. in.)
Compression ratio 8.6:1
Carburetion (1) Keihin 34mm round-slide
Exhaust system Upswept expansion chamber with silencer
Ignition Capacitor-discharge, external-rotor magneto
Air filtration Oiled foam element
Oil capacity 0.6 qts. (0.6 l)
Bhp @ rpm 22.30 @ 11,000
Torque @ rpm 10.65 @ 10,000

Transmission

Type Six-speed, constant-mesh, wet-clutch
Primary drive Straight-cut gear, 17/56; 3.29
Final drive #520 chain; 13/51 sprockets, 3.92
Gear ratios (transmission) (1) 29/12, 2.41
..... (2) 30/15, 2.00 (3) 28/18, 1.56
..... (4) 26/20, 1.30 (5) 25/22, 1.14
..... (6) 23/23, 1.00

Chassis

Type Single-downtube, full cradle, chrome-moly frame; box-section aluminum swing arm
Suspension, front Leading-axle fork with 38mm tubes, air caps, adjustable compression damping and 11.4 in. (290mm) of travel
rear (1) gas-charged, remote-reservoir shock absorber, adjustable for spring preload and rebound and compression damping, producing 12.2 in. (310mm) of rear-wheel travel
Wheelbase 56.5 in. (1435mm)
Rake/trail 27.5°/4.1 in. (105mm)
Brake, front Cable-actuated, single-leading-shoe drum
rear Cable-actuated, single-leading-shoe drum
Wheel, front 1.60 x 21 aluminum alloy rim
rear 1.85 x 18 aluminum alloy rim

Tire, front 90/80 x 21 Bridgestone Motocross M33
rear 130/80 x 18 Bridgestone Motocross M32
Seat height 36.6 in. (930mm)
Ground clearance 13.6 in. (345mm)
Footpeg ground clearance 16.7 in. (424mm)
Fuel capacity 1.7 gals. (6.5 l)
Curb weight
(w/one gallon of gas) 197.5 lbs. (89.6 kg)
Test weight 347.5 lbs. (157.6 kg)

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