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HONDA CRF450RX ENDURO 2023



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Model updates: *Honda's ultimate enduro machine evolves once more, thanks to Honda RedMoto fight at the very front of a world-class pack, winning the ISDE 2022 with Nathan Watson; considerably more low-down torque and a smoother power delivery for the engine promote corner-exit drive, while revised frame rigidity and suspension allow greater stability on braking, quicker turning, elevated front tyre grip and improved ability on rutted ground. It's a bike designed to make going faster, easier. New graphics feature a brand-new colour.*

Road Homologation and fitting are by Redmoto S.r.l., official partner of Honda Motor Europe LTD for the distribution of the Honda CRF off-road range in Italy.

Contents:

- 1 Introduction
- 2 Model overview
- 3 Key features
- 4 Technical specifications





1. Introduction

For 17YM Honda introduced an all-new, competition-ready Enduro machine into its off-road line up – the CRF450RX. And it took as its rock-solid base the engine and chassis of the 17YM CRF450R – Honda’s first totally new 450cc motocrosser in eight years – with modifications including larger fuel tank, 18-inch rear wheel, revised PGM-FI mapping and suspension changes.

The CRF450R was the perfect platform to expand on and gave the CRF 450RX both the pure DNA to deal with any enduro stage *and* the confidence-inspiring competence to handle flat-out trails, challenging climbs and tight, tricky sections. And, just as importantly to an owner, it’s a high quality machine built with the long-term Honda reliability that makes it easy to live with over years of use.

Development has mirrored the CRF 450R, too. An HRC-developed cylinder head upped peak power and torque considerably in 19YM; HRC launch control was also added along with revised rigidity balance for the frame and swingarm, a new front brake caliper and adjustable-position Renthal Fatbar. For 20YM, just like its MX sibling, it received Honda Selectable Torque Control (HSTC).

21YM saw a major evolution for the CRF 450RX. Starting from the exact same point as CRF450R, almost totally redesigned by HRC. For 22YM, the CRF 450RX Enduro gains an ECU remap and suspension updates further polishing a complete off-road package.

Now, for 23YM – underpinned by the factory rider feedback of the CRF450R – it follows the same direction of development; more low-down torque for the engine, matched to chassis changes that make going faster, easier for longer.

2. Model Overview

Whether you’re a world-class racer, enthusiastic weekend campaigner or trail explorer, the easier it is to go fast, the faster you go. Since 2019, the focus for the CRF450RX has been around making everything – handling ability, power output and ergonomics – as rider-friendly as possible.

Newly revised rigidity for the frame allows an increase in rear damping force, for improved control, without unwanted stiffness. Likewise, front tyre grip is heightened and the 23YM machine (compared to the 22YM) is more stable and turns faster with better suspension reaction and bump absorption.

Driving the new chassis harder through and out of corners, the engine now produces much greater low-rpm torque with increased, smoother low-down power delivery; new intake ports, a longer air funnel, smaller diameter throttle body and revised, factory rider-spec. cam timing are responsible. The rear muffler has also been made more durable.

3. Key Features

3.1 Chassis

- ***New frame rigidity balance improves stability and suspension action***
- ***The rear shock has an increased damping force to match for extra drive over ruts and increased traction***
- ***49mm Showa forks also features revised damping***
- ***Compact seat design and plastics aid rider freedom; new 23YM graphics***





The 23YM CRF450RX pushes its handling ability further; it's more stable on braking, turns faster and exits harder.

Detail adjustments to frame rigidity allow the suspension – with revised settings – to work more efficiently. The front downtube/cradle joint now uses 6mm wall thickness (rather than 4mm) at its joint; likewise, the upper shock mount is now also constructed from 6mm wall thickness (also up from 4mm). Steel cylinder head hangers replace the aluminium parts used by the 22YM machine; balanced to work with the frame's new rigidity setting, front tyre traction is greatly improved.

All suspension settings are specific to the CRF450RX, given the wider variety of terrain and conditions the bike will cover compared to the pure MX machine. To match the frame 'tune', the rear shock features increased compression and rebound damping to gain drive, especially in rutted conditions *without* a stiffer feeling. There are 11 adjustment positions for rebound and 6 for high and low-speed compression. Oil volume is 421cc. The aluminium swingarm is 585.2mm long and works the shock through Pro-Link.

The Showa 49mm USD coil spring fork is based on the 'factory' unit supplied to MX race teams in the Japanese championship. It employs a 310mm stroke with 396cc oil volume and 13 adjustment positions for rebound, 15 for compression; damping settings have been revised – increased rebound and slightly less compression – for optimum front/rear balance.

Rake and trail are specific to the RX and set at 27°2'115mm with 1477mm wheelbase. Ground clearance is 334mm. Dry weight is 107.6kg with a 49/51% front/rear balance.

Standard-fit, lightweight Renthal Fatbar flex for optimal comfort; the top yoke features two handlebar-holder locations for moving the handlebar rearward and forward by 26mm. When the holder is turned 180°, the handlebar can be moved an additional 10mm from the base position, resulting in four unique riding positions.

Up front, the twin-piston brake caliper employs 30 and 27mm diameter pistons and 260mm wave-pattern disc; along with low-expansion rate brake hose it gives both a strong feel and consistent staying power. The single-piston rear caliper is matched to a 240mm wave-pattern disc. Knuckle guards protect hands and levers while the forged aluminium sidestand tucks away neatly to minimise interference while riding. The side stand elastic band support, perfectly integrates with the bike's ergonomics.

DID aluminium rims, with directly attached spoke pattern layout are finished in black; the front is a 21 x 1.6in, the rear an 18 x 2.15in. The rear wheel was made both stronger and lighter for 21YM and tyres are Metzeler Six Days Extreme 90/90-21 front and 140/80-18 rear.

Minimal bodywork aids rider movement around the machine; maintenance is easy with only four 8mm bolts securing the plastics each side. Designed with Computational Flow Dynamics (CFD) for maximum through-flow of air, the one-piece radiator shrouds include a lower vent, with the radiator grills optimised for airflow. Radiators are protected by sturdy steel guards.

The RedMoto redesigned plastic fuel tank holds 7,7L.

The full led headlight perfectly integrates with the streamlined CRF design. Sturdy back mudguard with integrated support for the registration plate, that also increases the resistance to the hits, typical of heavy off-road use.

A striking red-blue graphic complements the 23YM CRF450RX's aggressive lines.





3.2 Engine

- **10.7% more torque @ 5,000rpm and extra, smoother power available at low rpm**
- **Narrower intake port shape, longer air funnel, 44mm throttle body, new valve timing and revised ECU settings create the change in output**
- **Rear muffler now made of tougher aluminium, with no weight penalty**

A much heavier low-range punch is the development direction of the 23YM 449.7cc four-valve Unicam engine – to make getting *off* a corner much quicker and easier. Maximum torque remains exactly as before, but at 5,000rpm there's an extra 10.7% to make use of higher gears, reducing fatigue. The engine also starts making more power in the lower rpm range, with a 5% reduction at absolute peak.

To generate the stronger bottom-end torque the air funnel (a part drawn directly from the CRF450RW HRC race machine) is longer, and intake port shape narrower, increasing gas flow. Likewise, another HRC-developed part now found on the customer machine is a 44mm diameter throttle body, 2mm smaller and smoothing power delivery low-down. New valve springs and valve timing are direct result of feedback from HRC's factory riders and the spec. they themselves use.

The cooling fan on the radiator ensures a constant engine temperature even in the slowest tracks.

The exhaust muffler is now constructed from heat-treated aluminium to better withstand contact from the rider's boot. Testing to prove its ability to resist distortion took place with impact from a 2.2kg weight travelling from 600mm away. After 5 strikes there was very little deformation compared to the 22YM design. Importantly, the material itself (and heat treatment) ensure zero weight gain.

Bore and stroke is set at 96 x 62.1mm with compression ratio of 13.5:1. A gear position sensor allows the use of three specific ignition maps for 1st and 2nd, 3rd and 4th, and 5th. An 8-plate hydraulic clutch gives outstanding control and feel at the lever as well as delivering consistent lever clearance under arduous riding conditions. It also reduces slippage at peak output.

Rock-solid reliability has always been a big factor in the CRF450RX's success and a 5-hole piston oil jet and dual 12mm drum scavenge pump manage all-important lubrication.

3.3 Electronics

- **Honda Selectable Torque Control (HSTC) with 3 riding modes (plus OFF)**
- **HRC Launch Control offers 3 start options**
- **Engine Mode Select Button (EMS) features 3 maps to adjust output character**
- **HRC Setting tool tailors Aggressive and Smooth modes**

The CRF 450RX's HSTC works to minimise rear wheel spin (thus wasted forward drive) and maximise traction. It doesn't use a wheel speed sensor, and critically maintains feel at the throttle while managing power; ignition timing is retarded and the PGM-FI controlled when the *rate* of change of rpm is detected to have gone over a set amount.

The three Modes differ in drive management level for different riding conditions:





Mode 1 intervenes most lightly, and after the longest time – useful for reducing wheelspin and maintaining control in tight corners.

Mode 3 has the system intervene more quickly and strongly, and is therefore useful in more slippery, muddy conditions.

Mode 2 naturally offers a mid-point between 1 and 3 in terms of speed and strength of intervention.

The Launch Control indicator, EFI warning, HSTC and EMSB mode button, and LED indicator are sited on the left handlebar. Pressing and holding the HSTC button for 0.5s will cycle the system to the next mode, with a green LED indication – 1 blink for Mode 1, 2 for Mode 2 and 3 for Mode 3 – to confirm selection.

The HSTC system can also be switched off completely. When the engine is turned on, the system uses the last-selected setting.

HRC Launch Control gives any rider the best option for a strong start and also has 3 modes to choose from:

Level 3 – 8,250rpm, muddy conditions/novice.

Level 2 – 8,500rpm, dry conditions/standard.

Level 1 – 9,500rpm, dry conditions/expert.

Activating HRC Launch Control is easy: to turn on, pull in the clutch and push the Start button on the right. The purple LED will blink once for Level 1 selection. Push the Start button again, for 0.5s or longer, and the LED will blink twice for Level 2. Repeat the process and the LED will blink 3 times, indicating that Level 3 has been chosen.

The Engine Mode Select Button (EMSB) alters the engine's character and three maps are available to suit riding conditions or rider preference:

Mode 1 – Standard.

Mode 2 – Smooth.

Mode 3 – Aggressive.

The LED also displays mode selected, but with a blue light.

The HRC Setting Tool can deliver an ECU map with a much more easy-going Smooth mode, with gentler throttle response for less experienced riders. It can also inject Aggressive mode with a hyper-sensitive throttle reaction and engine response for race conditions.





4. Technical Specifications

ENGINE	
Type	Liquid-cooled 4-stroke single cylinder Uni-cam
Displacement	449.7cc
Bore ´ Stroke	96.0mm x 62.1mm
Compression Ratio	13.5: 1
FUEL SYSTEM	
Carburation	Fuel injection
Fuel Tank Capacity	7,7 litres
ELECTRICAL SYSTEM	
Ignition	Digital CDI
Starter	Self-starter
DRIVETRAIN	
Clutch Type	Wet type multi-plate
Transmission Type	Constant mesh, 5-speed, manual
Final Drive	Chain
FRAME	
Type	Aluminium twin tube
CHASSIS	
Dimensions (L´W´H)	2.182 x 839 x 1.282mm
Wheelbase	1.477mm
Caster Angle	27.2°
Trail	115mm
Seat Height	961mm





Ground Clearance	334mm
Weight	Dry 107.6kg – Wet 113.6kg
SUSPENSION	
Type Front	Showa 49mm USD fork
Type Rear	Showa monoshock using Honda Pro-Link
WHEELS	
Type Front	Aluminium, spoke
Type Rear	Aluminium, spoke
Tyres Front	90/90-21" Metzeler Six Days Extreme
Tyres Rear	140/80-18" Metzeler Six Days Extreme
BRAKES	
Front	Single 260mm disk
Rear	Single 240mm disk
Electronics	HRC launch control HSTC

All specifications are provisional and subject to change without notice





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HONDA CRF450RX ENDURO SPECIAL 2023



Once again in 2023, Honda RedMoto offers a Special Version embellished with captivating racing details such as:

- Kite front wheel with blue anodized machined hub and black anodized Excel rim
- Kite back wheel with blue anodized machined hub and black anodized Excel rim
- High density polyethylene skid plate AXP with link protection
- Twin metal rear sprocket, aluminium core, steel teeth
- Blue anodized, machined aluminium X-Trig Rock triple clamp
- X-Trig aluminium handlebar riser
- Blackbird anti-skid seat cover
- Blue silicon radiator hoses
- Blue anodized, machined aluminium rear brake caliper mounting bracket
- Blue anodized wheel hub puller
- Blue anodized, machined aluminium front brake master cylinder cover
- Blue anodized, machined aluminium rear brake master cylinder cover
- Increased capacity, machined aluminium rear brake oil reservoir
- Machined rear brake linkage bush
- Security cable for rear brake
- Simplified racing wiring
- Blue anodized aluminium engine caps kit
- Rekluse clutch cover
- Vibram frame protections with super grip effect





Upon request the bike can also be equipped with:

- Reinforced Rekluse Core Manual clutch with machined clutch bell
- Rekluse Radius CX automatic clutch with machined clutch bell
- Racing exhaust system
- Carbon fibre fuel tank

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