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HONDA CRF300RX ENDURO 2023



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Model updates: *Mechanically unchanged for 23YM the off-road ready CRF300RX is the best seller of the enduro range; in 22YM it got the lightweight chassis of the CRF450RX plus extensive cylinder head development for a considerable low-rpm torque boost. Cooling efficiency was also improved, while a strengthened gearbox got revised ratios and nine-plate clutch. The Showa suspension is set to deal with a variety of terrain and conditions and knuckle guards are also standard fit. A new graphic treatment marks out the 23YM machine.*

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.

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1. Introduction

In 19YM Honda's stable of competition machines grew with an enduro option in the form of the CRF250RX; based on the CRF250R and with off-road specific modifications drawn from the CRF450RX including larger fuel tank, 18-inch rear wheel plus off-road specific engine mapping and suspension changes to ensure it was equally at home speeding up a root-strewn climb or slicing precious seconds off an Enduro special test.

For 20YM it followed development of the CRF250R and gained a major low to mid-range power and torque boost, plus the frame and swingarm of the 19YM CRF450RX. 22YM saw a major step forward for the CRF250RX, including chassis upgrades inherited from the 21YM CRF450RX improving both ability and agility plus a boost in low-rpm torque for the engine.

The CRF300RX is mechanically unchanged for 23YM apart from the new graphic with blue colour.

2. Model Overview

It's worth recapping why 22YM was such a big advance for the CRF300RX; to make going fast easier, the cumulative learnings of recent CRF450R developments have focused around reducing rider fatigue – which helps riders not only of world-class calibre but also MX enthusiasts of *all* ability levels to post constantly optimal lap times.

A full 3kg lighter than the 21YM design, the CRF300RX's frame and swingarm's rigidity balance – combined with tighter chassis geometry and heightened ground clearance – target peak cornering performance and ease of handling. In support, the Showa suspension received brand-new valving, improving bump absorption, traction and control.

Engine performance was not forgotten either. Riders have always loved the top-end power hit and, to link up with the healthy mid-range, extensive revision to both intake and exhaust efficiency yielded much-improved low-rpm drive. Enhanced high-rpm cam timing accuracy was also a focus alongside long-term reliability, while a 9-plate clutch and strengthened gearbox (with optimised ratios) ensures none of the extra punch is wasted.

3. Key Features

3.1 Chassis

- ***HRC input running through frame, swingarm, rigidity balance and geometry for enhanced cornering ability and ease of use***
- ***49mm Showa front fork with spring rate and compression/rebound damping optimised front and rear for off-road use***
Compact seat design and plastics aid rider freedom; new 23YM graphics

The CRF 300RX it is equipped with the same chassis of the CRF 250RX, after intense development from HRC. Alongside the punchier engine, a 3kg weight saving, geometry changes and suspension upgrades cohere to create a package that's easier to ride hard.

The CRF300RX's chassis dynamic was also new; while torsional rigidity was maintained *lateral* rigidity reduced 20% to increase corner speed, traction and steering accuracy. The swingarm pivot point features optimised rib placement while the aluminium swingarm has a rigidity balance tuned to match the frame.





Both top and bottom yokes use increased flex over the previous design to give sharper, more agile cornering and bump reaction. The CRF300RX's suspension uses specific settings.

For smooth cornering performance the 49mm Showa USD coil spring forks use 310mm stroke with axle clamps designed to improve grip and rut ride-over ability. The Showa rear shock's main piston uses valving – with matching Pro-Link ratio – set for faster response and smoother bump absorption and rut ride-over.

Rake and trail are set at 27.15°/114mm with wheelbase of 1477mm and 335mm ground clearance. Kerb weight is 108kg. The compact seat aids the rider's freedom of movement around the slimline machine. It's also simple to remove and install. Maintenance is easy, with just 4, 8mm bolts securing the minimal bodywork.

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.

Designed with Computational Flow Dynamics (CFD) for maximum through-flow of air, the radiator shrouds are constructed from one piece of plastic and include a lower vent. 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 CRF300RX's aggressive lines.

3.2 Engine

- ***Last year's development of intake and cylinder head plus straight exhaust port/downtube and single muffler equates to 10% more power and up to 15% extra torque.***
- ***High-rpm valve-timing accuracy and cylinder head oil delivery also improved***
- ***9-plate clutch improves endurance with lighter lever feel***
- ***Gearbox ratios tailored for roll-on 'snap'***
- ***Efficient radiator cooling with fan***

22YM's update was significant; picking up early in the rev-range, power output is smooth and linear, while torque bulges at significantly lower rpm. Overall, there's up to 10% more power and 15% torque across the rev range compared to the previous design, for fluid, same gear corner-to-





corner over-rev. The result in your throttle hand is a big-hitting engine with an even heavier hit delivering strong, accessible drive from low down to make real use of the chassis' agility.

Low-rpm combustion stability and gas flow in, and out, of the chamber are the main drivers of improvement. The air intake funnel and cone tube feeds to an injector set at a 60° angle and out to a straight exhaust port. A 4.1L airbox ensures high intake efficiency and air intake cooling; the air filter's also easy to access.

The intake cam sprocket is press-fit, saving weight and increasing rigidity. Double springs for the intake valves give extra high-rpm control. The oil's pathway to the camshaft journals – and a rigid camshaft holder and head – reduce journal friction.

Precise alignment of the rocker arm shaft position aids high-rpm performance while the piston and connecting rod design maximise efficiency. Bore and stroke is set at 86 x 50.9mm, with a 4.5mm cylinder offset to reduce friction and compression ratio of 13.9:1. The valves are titanium; 33mm inlet and 26mm exhaust.

A lightweight single muffler expels spent gases. The downpipe allows a straight shot; optimised internal dimensions enhance combustion stability and exhaust efficiency. Its compact nature also allows a slim body. To cope with the extra heat generated by a harder-working engine cooling is improved, while the radiator shrouds generate extra airflow. The CRF 300RX is also equipped with cooling fan.

Extra levels of reliability are built in. The water pump gear design deals efficiently with high-temperature oil while pressure to the cylinder head ensures greater oil flow. A 5-hole piston oil jet maintains optimum piston cooling and ignition timing. The combined oil pump/drive gear is on the right-hand side of the engine, with the oil filter and oil way on the right side – the oil's path around the engine is short and straightforward and the oil also lubricates the clutch and transmission, with a total oil capacity of 1.35L.

To improve endurance, engagement feel and a lighter lever action the clutch employs 9 plates, spreading the load applied to the friction material. Also, an additional friction spring in the damper chamber, optimised lubrication, friction materials and primary ratio – plus more rigid clutch centre – contribute to higher performance and (compared to the previous design) a 21% increase in endurance. The operational load on the clutch lever is reduced by 4%.

To deal with the load applied by the clutch, as well as maximise drive from any rpm point, the gearbox – without adding weight – features a layout built for extra strength. The ratios too are carefully tailored: a tall 1st, short 2nd, tall 3rd and short 4th/5th.

The shift pattern uses one shift fork going up from 2nd to 3rd with two lead grooves and countershaft rigidity designed to reduce friction. The result is much better shifting feel between two critical gears. A gear position sensor allows the use of specific engine maps for different gears.





3.3 Electronics

- **HRC Launch Control offers 3 start options**
- **Engine Mode Select Button (EMSB) features 3 maps to adjust output character**

HRC's Launch Control system gives any rider the best option for a strong start and 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 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 characteristics, and three maps are available to suit riding conditions or rider preference: Mode 1 (Standard), Mode 2 (Smooth) and Mode 3 (Aggressive). The LED also displays Mode selected.

The rider controls and displays – engine stop button, EFI warning, EMSB mode button and LED indicator – are all sited on the left handlebar.

4. Technical Specifications CRF 300RX Enduro 2023

ENGINE	
Type	Liquid-cooled 4-stroke single DOHC
Displacement	295.5cc
Bore x Stroke	86mm x 50.9mm
Compression Ratio	13.9:1
Oil Capacity	1.35L
FUEL SYSTEM	
Carburation	Fuel injection
Fuel Tank Capacity	7,7 litres
ELECTRICAL SYSTEM	
Starter	Electric





DRIVETRAIN	
Clutch Type	Wet multiplate
Transmission Type	5 gear, Constant mesh
Final Drive	Chain
FRAME	
Type	Aluminium twin tube
CHASSIS	
Dimensions (L`W`H)	2.176 x 839 x 1.281mm
Wheelbase	1.477mm
Caster Angle	27.15°
Trail	114mm
Seat Height	964mm
Ground Clearance	335mm
Kerb Weight	108kg
SUSPENSION	
Type Front	49mm Showa coil-spring USD fork
Type Rear	Showa Mono shock with 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	260mm hydraulic wave disc
Rear	240mm hydraulic wave disc

All specifications are provisional and subject to change without notice





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HONDA CRF300RX 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
- Magura hydraulic clutch master cylinder
- 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
- Hydraulic clutch system by Honda World Enduro Team with machined cover

