HONDA

Press Information

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2022 HONDA CRF250R

Model updates: *The new CRF250R is stronger than ever, gaining the MXGP championship-winning chassis of the 22YM CRF450R, plus extensive cylinder head development for a considerable low-rpm torque boost. New radiators improve efficiency, the clutch now has 9 plates, while the strengthened gearbox features revised ratios.*

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1. **Introduction**

The MX2 class is relentless, close-quarter battle. And Honda's CRF250R has proved itself a worthy weapon for the fight. Competition has led its evolution over time, through increments and steps, into a platform that the amateur MX enthusiast – as well as pro-racer – can extract the utmost out of, every metre of every lap.

For 18YM the CRF250R underwent a ground-up redesign that inherited the *'Absolute Holeshot'* philosophy of the 17YM CRF450R, sharing its seventh-generation frame, revised geometry and Showa suspension. It was also armed with a brand-new DOHC engine and switchable engine mapping; rider-focused ergonomics ensured it remained an MX machine that the hobby rider could exploit to *their* individual level of ability.

Just one year on from this full model change the 19YM CRF250R received a boost to low-rpm torque, through extensive intake and exhaust development, plus HRC launch control, revised front brake caliper and adjustable-position Renthal Fatbars. In 20YM it moved forward once again, with the frame and swingarm of the 19YM CRF450R and more mid-range for the engine.

Now, for 22YM, the CRF250R receives major upgrades to make it *'The Strongest Ever'* including chassis upgrades inherited from the 21YM CRF450R improving both ability and agility, plus stronger low-rpm torque to make best use of the new chassis, and improved toughness and durability.

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2. **Model Overview**

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.

And what's good for the 450 is even better for the 250. A full 3kg lighter, the CRF250R's new 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 gets brand-new valving, improving bump absorption, traction and control.

Riders have always loved the CRF250R's top-end power hit. To link up with the healthy mid-range, extensive revision to both intake and exhaust efficiency yields much-improved low-rpm drive; a great deal of work has also gone into enhancing high-rpm cam timing accuracy and long-term reliability. A 9-plate clutch and optimised ratios for the strengthened gearbox ensure none of the engine's extra punch is wasted.

3. **Key Features**

3.1 Chassis

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- ***3kg weight saving, with HRC input running through frame, swingarm, rigidity balance and geometry for enhanced cornering ability and ease of use***
- ***49mm Showa front fork with 5mm extra travel and more rigid axle clamps***
- ***Optimised spring rate and compression/rebound damping front and rear***
- ***Compact new seat design and plastics aid rider freedom***

Where the CRF450R leads, the CRF250R follows. So while its chassis was unchanged for 21YM, for 22YM it is equipped with the same platform that debuted on the production 21YM CRF450R, after intense development from HRC. And it's a base point that has now carried Tim Gajser to two consecutive MXGP World Championships.

Alongside the punchier engine, a 3kg weight saving, geometry changes and suspension upgrades cohere to create a package that's easier to ride fast, lap after lap.

Thanks to narrower main spars, the frame weighs 700g less than the previous design, while a redesigned subframe also saves 320g. The chassis dynamic is also new: while torsional rigidity is maintained, *lateral* rigidity has been reduced by 20% to increase corner speed, traction and steering accuracy. The swingarm pivot point has rib placement optimised; the aluminium swingarm has a new rigidity balance tuned to match the frame.

Both top and bottom yokes feature increased flex, to give sharper, more agile cornering and bump reaction. Fully adjustable, the 49mm Showa USD coil spring fork is a version of

the Showa ‘factory’ fork supplied to MX race teams in the Japanese championship. With the target of smoother cornering performance the forks have been re-valved, the stroke lengthened by 5mm to 310mm and the axle clamps’ rigidity increased to improve grip and rut ride-over ability.

The Showa rear shock’s main piston valving is enlarged for faster response and smoother bump absorption and rut ride-over. Its spring uses lightweight steel, saving 120g. The Pro-Link ratio is also new.

The seat is now shorter, lighter and 10mm lower at the rear, to aid the rider’s freedom of movement. It’s also simpler to remove and install. Maintenance is also easier, as the number of 8mm bolts securing the minimal bodywork goes from 6 to 4 each side. The new machine is slimmer by 70mm (50mm on the left, 20mm on the exhaust side) and the plastics thinner, while the tank cover has been removed.

Rake and trail are tighter, 27.2°/115mm (from 27.4°/116mm) and wheelbase shorter 1477mm (1486mm). Ground clearance goes up 6mm to 333mm, and the bottom yoke now sits 5.1mm higher at 927mm. Kerb weight is 104kg, a full 3kg lighter than the previous model.

Designed with Computational Flow Dynamics (CFD) for maximum through-flow of air, the radiator shrouds are now constructed from one piece of plastic, rather than two and include a lower vent while the radiator grills are optimised for airflow. Holding 6.3L, the titanium fuel tank has also been redesigned.

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.

DID aluminium rims, with directly attached spoke pattern layout are finished in black; 80/100-21 PIRELLI MX32 MIDSOFT front and 100/90-19 PIRELLI MX32 MIDSOFT rear soft-terrain tyres are fitted as standard equipment.

A striking new all-red graphic treatment complements the 22YM CRF250R's sharper lines.

3.2 Engine

- ***Intake and cylinder head development plus straight exhaust port/downtube and single muffler yield up 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 revised for roll-on 'snap'; new shift drum for smoother changes***
- ***More efficient radiator cooling***

The CRF250R's 249.4cc DOHC engine has long established a top-end that's one of the best trackside, and the 20YM received a heathy peak power and mid-range torque boost. Improved torque and power from low rpm – while maintaining all the gains of 20YM – drove development for the 22YM tune. And the dyno curves clearly demonstrate a significant increase.

Picking up earlier 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 for fluid, same gear corner-to-corner over-rev.

The overall result? A big-hitting engine just got an even heavier hit, delivering strong, accessible drive from low down to make real use of the new chassis' agility. And it's the culmination of many improvements – some large, some small – that have upped performance.

Low-rpm combustion stability and gas flow in, and out, of the chamber served as main focus. Headlines are a revised air intake funnel and cone tube, fed by a 78% larger-capacity airbox, now 4.1L, an injector angle now set at 60° (rather than 30°) and a straight exhaust port. Air intake efficiency is improved, alongside air intake cooling. The air filter's also easier to access.

A myriad of detailed improvements have gone into the top-end of the engine; the intake cam sprocket is now press-fit, saving weight with more accurate timing accuracy. Double springs for the intake valves (rather than single) give extra high-rpm control. The oil's pathway to the camshaft journals has been modified, alongside a more rigid camshaft

holder and head to reduce journal friction.

Valve timing has been optimised; precise re-alignment of the rocker arm shaft position aids high-rpm performance while the piston and connecting rod design maximise efficiency. Bore and stroke remains 79 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 single muffler replaces the dual mufflers of the 21YM machine. The downpipe allows a straight shot for the spent gases; optimised internal dimensions enhance combustion stability and exhaust efficiency. Its compact nature also allows a slimmer body and saves 1.7kg over the previous design.

To cope with the extra heat generated by a harder-working engine, the radiator's mounting angle and number of fins have been adjusted, through fluid analysis, increasing the surface area by 2% and heat radiation by 6%. Redesigned shrouds generate extra airflow.

Other 22YM developments build-in extra levels of reliability. The water pump gear is thicker to better deal with high-temperature oil. And to increase the flow of oil, the pressure to the cylinder head has been modified. A 5-hole piston oil jet maintains optimum piston cooling and ignition timing. The combined oil pump/drive gear is on the left 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.

The drivetrain has also received attention. To improve endurance, engagement feel and a lighter lever action the clutch gets an extra disc, to 9, 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 a 21% increase in endurance. The operational load on the clutch lever is reduced by 4%.

To deal with the load applied by the new clutch, as well as maximise drive from any rpm point, the gearbox – without adding weight – features a layout revised for extra strength. The ratios, too are adjusted with 1st taller, 2nd a little shorter, 3rd taller and 4th/5th shorter.

A new shift pattern uses one shift fork going up from 2nd to 3rd (rather than two) with two lead grooves rather than 3 and improved countershaft rigidity reduce friction. The result is a much better shifting feel between two critical gears; the shift drum is also 17% lighter. A gear position sensor allows the use of three specific ignition maps for 1st and 2nd, 3rd and

4th, and 5th.

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.

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4. **Technical Specifications**

ENGINE	
Type	Liquid-cooled 4-stroke single DOHC

Displacement	249.4cc
Bore & Stroke	79mm x 50.9mm
Compression Ratio	13.9:1
Oil Capacity	1.35L
FUEL SYSTEM	
Carburation	Fuel injection
Fuel Tank Capacity	6.3 litres
ELECTRICAL SYSTEM	
Starter	Electric
DRIVETRAIN	
Clutch Type	Wet multiplate
Transmission Type	Constant mesh
Final Drive	Chain
FRAME	
Type	Aluminium twin tube
CHASSIS	
Dimensions (L´W´H)	2,177 x 827 x 1,265mm
Wheelbase	1,477mm
Caster Angle	27.32 degrees
Trail	115mm
Seat Height	961mm
Ground Clearance	333mm
Kerb Weight	104kg
SUSPENSION	
Type Front	49mm Showa (Hitachi Astemo, Ltd) coil-spring USD fork

Type Rear	Showa (Hitachi Astemo, Ltd.) Mono shock with Honda Pro-Link
WHEELS	
Type Front	Aluminium spoke
Type Rear	Aluminium spoke
Tyres Front	80/100-21 PIRELLI MX32 MIDSOFT
Tyres Rear	100/90-19 PIRELLI MX32 MIDSOFT
BRAKES	
Front	260mm hydraulic wave disc
Rear	240mm hydraulic wave disc

All specifications are provisional and subject to change without notice

Please note that the figures provided are results obtained by Honda under standardised testing conditions prescribed by WMTC. Tests are conducted on a rolling road using a standard version of the vehicle with only one rider and no additional optional equipment. Actual fuel consumption may vary depending on how you ride, how you maintain your vehicle, weather, road conditions, tire pressure, installation of accessories, cargo, rider and passenger weight, and other factors.