

HONDA

Press Information

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21YM HONDA CBR500R



Model updates: Following a ground-up redesign in 2019 that gave Honda's A2-compatible 'pocket rocket' an aggressive, aerodynamically-driven sports makeover. For 2020 it is homologated for EURO5.

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1. Introduction

Fast, frugal, affordable and fun, Honda's fully-faired CBR500R – launched in 2013 alongside the naked CB500F and adventure-styled CB500X – gives a genuine sporting energy to its twin-cylinder 'light middleweight' trio.

Popular with riders looking to move up from a smaller machine, it instils the excitement of sports bike ownership into every ride yet also delivers sensible running costs, making it a great bike to both commute through the working week and enjoy at the weekend. It has also found favour with experienced riders looking to downsize their machinery while still experiencing the essence of enjoyable motorcycling.

In 2016, the CBR500R assumed sharper styling and LED lighting to go with upgrades to its front suspension; in 2019 it got an even more aggressive makeover, with a new form and riding position that outlined a keener sporting intent. Upgrades were also applied to the engine, to deliver stronger performance off the bottom, a strong surge through the rev range to the redline, and a more distinctive howling note.

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2. Model Overview

Contrasting angles and shaping – between the very slim and more muscular – from the fairing nose to the seat unit outline the CBR500R's look. It's an ergonomic design for the rider to use aggressively which also features excellent aero management. Clip-on handlebars mount below the revised top yoke and the riding position is canted further forward compared to its two CB500 siblings.

The CBR500R's 35kW engine is A2 licence-compatible and benefits from the 2019 upgrades to the inlet, exhaust and valve timing, which added 4% more power and torque between 3-7,000rpm compared to the previous model, and were accompanied by an enhanced exhaust note and a new assist/slipper clutch.

LCD instruments feature a Shift Up and Gear Position function and all the lighting is LED.

3. Key Features

3.1 Styling & Chassis

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- ***Aggressive lines with purposeful, dual LED headlights***
- ***Aerodynamically efficient and ergonomically comfortable***
- ***Clip-on handlebars give a sporty riding position***
- ***LCD instrument display, with Gear Position and Shift Up indicators***
- ***Full LED lighting***

For its 2019 evolution the CBR500R's fully faired form was made more aggressive with straight, wedge-like feature lines and extended lower fairings that emphasise a real sense of speed. The rider's seat pad and seat unit – plus the upper and side fairings – were narrowed to improve ergonomics and movement. Sharply-chiselled dual LED headlights stare menacingly ahead, matching the LED indicators.

The view forward, from the CBR500R's cockpit, is pure sports. The handlebars clip on beneath the sporty top yoke and as a result the riding position is unmistakably 'sportsbike'; the fairing is also set low, to give the rider the control and stability for which Honda sports bikes have long been famed.

LCD instruments feature a Gear Position and Shift Up indicator; this is set to a default 8,750rpm but can be adjusted in 250rpm increments between 5-8,750rpm

The 35mm diameter steel diamond-tube mainframe is both light and strong, with a tuned degree of yield that gives plenty of feedback to the rider as road surfaces change. The shape and position of the engine mounts, plus the frame's rigidity balance also reduces vibration.

Wheelbase is 1410mm and rake and trail are set at 25.5°/102mm giving nimble, yet confidence-inspiring steering. Mass centralisation, with the engine in close proximity to the swingarm pivot point, delivers turning agility and optimum front/rear weight distribution ensures stability. Kerb weight is 192kg.

Seat height is low at 785mm, making the CBR500R very easy to manage and its riding

position comfortably accommodates riders of any height. Overall dimensions are 2080mm x 755mm x 1145mm, with 130mm ground clearance. The fuel tank holds 17.1L, including reserve and combined with the engine's excellent fuel economy gives a range of 480km (over 260 miles).

The 41mm telescopic front fork, with 120mm stroke, delivers a compliant yet controlled ride and gives great feel for front tyre grip. The single-tube rear shock absorber (as found on larger capacity sports bikes) with its large-diameter piston ensures excellent suspension response and temperature management. It has 5-stage spring preload adjustment and works through a rigid box-section steel swingarm, which features pressed steel chain adjustment end-pieces. Final drive is via sealed 520 chain.

Lightweight, 17-inch cast aluminium wheels employ hollow cross-section Y-shaped spokes. Front wheel width is 3.5inch with a 120/70-ZR17 tyre, the rear 4.5inch with a 160/60-ZR17 tyre. A single front 320mm wavy disc and two-piston brake caliper is matched to a 240mm rear disc and single-piston caliper. ABS is fitted as standard.

The CBR500R will be available in the following colour options:

Matt Axis Grey Metallic

Grand Prix Red

Pearl Metalloid White

3.2 Engine

- ***Lively twin-cylinder power plant's internal architecture mirrors that of the 2019 CBR1000RR Fireblade***
- ***–Usable power and torque across the range***
- ***Sporty sound from the dual-exit muffler***
- ***Assist/Slipper clutch eases upshifts and manages downshifts***
- ***Homologated for EURO5***

The CBR500R's A2-licence friendly, 8-valve liquid-cooled parallel twin-cylinder layout offers a well-proportioned balance of physical size and willing, enjoyable power output, with an energetic, high-revving character and zappy top end.

Already strong off the bottom, the 2019 engine upgrades saw faster acceleration through a boost in low-to-mid-range power and torque in the 3-7,000rpm range; with a 4% improvement coming via altered valve timing - with 'close' timing accelerated by 5° - and lift increased by 0.3mm to 7.8mm.

Feeding the PGM-FI fuel injection is a more-or-less straight shot of airflow through the airbox and throttle bodies - the 2019 upgrade saw the battery re-positioned further away from the rear of the airbox intake duct to allow greater airflow. The exhaust muffler features dual exit pipes, giving a sporty sounding edge to each pulse. Peak power of 35kW arrives at 8,600rpm, with 43Nm torque delivered at 6,500rpm.

Bore and stroke is set at 67mm x 66.8mm and compression ratio is 10.7:1; the crankshaft pins are phased at 180° and a primary couple-balancer sits behind the cylinders, close to the bike's centre of gravity. The primary and balancer gears use scissor gears, reducing noise. The crank counterweight is specifically shaped for couple-balance and its light weight allows the engine to spin freely, with reduced inertia.

Acting as a stressed member, the engine complements the frame's rigidity with four frame hangers on the cylinder head. Internally the cylinder head uses roller rocker arms; shim-type valve adjustment allows them to be light, for lower valve-spring load and reduced friction.

A silent (SV Chain) cam chain has the surface of its pins treated with Vanadium, reducing friction with increased protection against wear. Inlet valve diameter is 26.0mm with exhaust valve diameter of 21.5mm.

The piston shape is based upon those used in the 2019 CBR1000RR Fireblade to reduce piston 'noise' at high rpm. Friction is reduced by striations on the piston skirt (a finish that increases surface area, introducing gaps in which oil can flow for better lubrication). As with the CBR1000RR, an AB 1 salt bath process, used after isonite nitriding, forms a protective oxidisation membrane.

The 'triangle' proportion of crankshaft, main shaft and countershaft is very similar to that of Honda's four-cylinder RR engines and much of the internal structure and engineering is taken directly from the 2019 CBR1000RR.

The crankcase uses centrifugally cast thin-walled sleeves; their internal design reduces the 'pumping' losses that can occur with a 180° phased firing order. The oil pump features

improved aeration performance, with reduced friction; a deep sump reduces oil movement under hard cornering and braking. Oil capacity is 3.2L.

The CBR500R's six-speed gearbox is very close to that of its RR cousin and uses the same gear change arm structure and link mechanism. Introduced in 2019, an Assist/Slipper clutch enables lighter upshifts and smooths out any hard downshifts.

The CBR500R, like its 500cc stablemates, is homologated for EURO5, which from January 1st 2020 introduced significantly stricter engine emissions standards compared to EURO4. These requirements include substantial reductions in permitted carbon monoxide emissions, an over 40% decrease in total hydrocarbon emissions, tougher misfire detection and the introduction of a particulate matter limit.

4. Accessories

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A range of Genuine Honda Accessories are available for the CBR500R. They include:

35L top box

Rear carrier

Tank bag

Seat bag

Tall screen

Heated grips

12V Socket

Seat Cowl

Wheel Stripes

Tank Pad

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5. Technical Specifications

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| ENGINE | |
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|---------------------------|------------------------------|
| Type | Liquid-cooled, parallel twin |
| Displacement | 471cc |
| No of Valves per Cylinder | 4 |
| Bore & Stroke | 67mm x 66.8mm |
| Compression Ratio | 10.7:1 |
| Max. Power Output | 35kW @ 8600rpm |
| Max. Torque | 43Nm @ 6500rpm |
| Oil Capacity | 3.2L |
| FUEL SYSTEM | |
| Carburation | PGM FI |
| Fuel Tank Capacity | 17.1 litres (inc reserve) |
| Fuel Consumption (WMTC) | 28.6m/litre |
| ELECTRICAL SYSTEM | |
| Battery Capacity | 12V 7.4AH |
| ACG Output | 25A/2000rpm |
| DRIVETRAIN | |
| Clutch Type | Wet multiplate |
| Transmission Type | 6 speed |
| Final Drive | Chain |
| FRAME | |
| Type | Steel diamond |
| CHASSIS | |
| Dimensions (L'W'H) | 2080mm x 755mm x 1145mm |
| Wheelbase | 1410mm |
| Caster Angle | 25.5 degrees |
| Trail | 102mm |

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|-------------------------|--|
| Seat Height | 785mm |
| Ground Clearance | 130mm |
| Kerb Weight | 192kg |
| SUSPENSION | |
| Type Front | Conventional telescopic front forks, 41mm, pre-load adjustable |
| Type Rear | Prolink mono with 5-stage preload adjuster, steel square pipe swingarm |
| WHEELS | |
| Type Front | Multi-spoke cast aluminium |
| Type Rear | Multi-spoke cast aluminium |
| Rim Size Front | 17 x MT3.5 |
| Rim Size Rear | 17 x MT4.5 |
| Tyres Front | 120/70ZR-17M/C |
| Tyres Rear | 160/60ZR-17M/C |
| BRAKES | |
| ABS System Type | 2-channel |
| Type Front | Single wavy disk, 320mm, 2 piston caliper |
| Type Rear | Single wavy disk, 240mm, 1 piston caliper |
| INSTRUMENTS & ELECTRICS | |
| Instruments | Digital speedometer, digital bar graph tachometer, dual trip meters, digital fuel level gauge & fuel consumption gauge, digital clock, gear position indicator |
| Security System | HISS (Honda Intelligent Security System) |
| Headlight | Low 7.6W. Hi 12.8W. (LED) |

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 WMTA. 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.