

HONDA

Press Information

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2021 HONDA CBR650R



Model updates: Honda's versatile middleweight sports bike gains Showa's 41mm Separate Function Big Piston forks, plus EURO5 compliance for the high-revving four cylinder engine. Other updates include improved LCD dash, revised headlight reflectors, USB Type-C socket under the seat and updated graphic treatment.

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1. Introduction

Honda's fully faired CBR650F, launched in 2014 alongside the naked CB650F, provided a healthy slice of four cylinder middleweight performance, very much at the sporty end of the 'sports touring' spectrum. In 2017 it received sharper styling, highlighting the engine more, plus a peak power boost, Showa Dual Bending Valve front fork and revised Nissin brake calipers.

For its 2019 evolution the CBR650F became the CBR650R. The upgrade from 'F' to 'R' indicating an even more potent shot of sporty ability designed to be explored, used and enjoyed on the street.

In the process of its transformation the CBR650R became, deliberately, a rare breed: a four cylinder sports bike that provides similar pleasure, enjoyment and adrenaline to an RR machine, yet with enough practicality – and sensible running costs – to make it a viable option as day-to-day transport in addition to weekend fun.

It's a direction that's been well received. In its 2019 debut year, the CBR650R was the second best-selling sports bike in Europe and, for 2021, the CBR650R continues its development curve with user-driven detail improvements and a major upgrade for the front suspension.

2. Model Overview

The major news of the CBR650R's update is application of 41mm Showa Separate Function Big Piston USD forks* – high quality suspension that further heightens the bike's handling ability.

EURO5 compliance for the engine has been achieved with no loss of top end power; other improvements include improved visibility for the LCD display, new headlight reflectors and USB Type-C charging socket under the seat. New side panels and number plate mount are minor cosmetic changes.

The CBR650R will be available in two revised colour options: the Matt Gunpowder Black

Metallic now features discreet silver (rather than red) accent lines adding to the 'stealth' appeal, while the Candy Chromosphere Red version employs sharp black/white graphics as a much stronger visual counterpoint on the fairing sides and (additionally, compared to the previous design) fuel tank and rear seat unit.

3. Key Features

3.1 Chassis

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- ***New Showa Separate Function Big Piston (SFF-BP) USD forks***
- ***Four-piston, radial-mount front brake calipers and floating discs***
- ***120/70-ZR17 and 180/55-ZR17 front and rear tyres***

The steel diamond frame uses pressed swingarm pivot plates and twin elliptical spars with a rigidity balance specifically tuned (stiffer around the headstock and more flexible in the spar sections) to deliver balanced handling characteristics, with high levels of rider feedback. Rake is set at 25.5° with trail of 101mm and wheelbase of 1,450mm. Kerb weight is 208kg.

Showa 41mm SFF-BP USD forks are a major upgrade; a pressure separation damper in one fork tube and spring mechanism in the other deliver high damping performance and lighter weight. Together with the use of a larger sized piston the result is increased feel, bump absorption and control. Adjustable for 7-stage spring preload, the single-tube monoshock operates directly on the curvaceous gravity die-cast aluminium swingarm.

Four-piston radial-mount front brake calipers work on 310mm wave-pattern floating discs, and are paired with a single-piston rear caliper and 240mm disc. The ABS is a two-channel system.

Cast aluminium wheels mount 120/70-ZR17 and 180/55-ZR17 front and rear tyres.

3.2 Styling & equipment

- ***New side panels and rear mudguard/number plate mount***
- ***Revised headlight reflectors***
- ***LCD display now easier to read; USB Type-C socket under the seat***

With its four-cylinder power unit clearly on display the CBR650R's wrapping ramps up the pure sporting appeal; dual LED headlights emit a penetrating, uncompromising stare – with sharp new reflector profile for 2021 – and the upper and (extended) lower fairings blend muscularity with slim lines and angles.

The seat unit, too is compact and truncates the rear of the machine, adding to the hard-edged sense of purpose. New side panels accentuate the minimalism, as does the steel rear mudguard/number plate mount.

The aggressive riding position starts with clip-on handlebars that mount beneath the top yoke, matched to rear set footpegs. There's also now a USB Type-C socket located under

the seat, for easy charging of a mobile device. Seat height remains 810mm.

Stylish LCD instruments include Shift Up, Gear Position and Peak Hold indicators. For 2021 readability has been improved with a change of LED angle and font size.

3.3 Engine

- ***70kW peak power, 63Nm peak torque with 35kW A2 licence option***
- ***Honda Selectable Torque Control (HSTC)***

- ***Full EURO5 compliance***

The 649cc, DOHC 16-valve engine is tuned to create the purest, most enjoyable mid-sized four cylinder performance possible, with the classically fast 'pick-up' through the rev range and hard-hitting, high-revving top end for which Honda's in-line's fours are renowned. Peak power of 70kW arrives @ 12,000rpm with peak torque @ 63Nm delivered at 8,500 rpm. An easy 35kW conversion is available for A2 licence holders.

Through the 2021 update the only changes to engine specification are for EURO5 compliance; this has required revisions to the ECU, cam lobes, intake timing, exhaust pipe, catalyser and silencer, as well as the addition of a crank pulsar.

Direct cam actuation makes for a compact cylinder head; bore and stroke is set at 67mm x 46mm with compression ratio raised of 11.6:1. Iridium spark plugs are employed and twin air ducts – either side of the fuel tank – feed the airbox and produce a throaty intake roar.

Asymmetric piston skirts minimise bore contact and reduce friction. Ferrous spines on the outer surface of the cylinder sleeves reduce oil consumption (and friction) with improved heat transfer and a silent SV cam chain reduces frictional losses by using a Vanadium coating on its pins. Internal water channelling from cylinder head to cylinders does away with most of the exterior hoses.

The engine uses a compact internal architecture, stacked six-speed gearbox and starter layout with the cylinders canted forward 30°. An assist/slipper clutch eases upshifts while managing rear-wheel lock up under hard braking and rapid downshifts. Honda Selectable Torque Control (HSTC) is fitted to manage rear wheel traction; it can be turned off should the rider choose.

Fuel consumption of 20.4km/l (WMTC mode) gives a range of over 300km from the 15.4L fuel tank.

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4. Accessories

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A range of Genuine Honda Accessories are available for the CBR650R:

Front mudguard panels, side covers, seat cowl (aluminium parts or aluminium inserts)

Wheel stripes

Tank bag and seat bag

Quick shifter

Tall screen – clear or smoked

Heated grips

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5. Technical Specifications

ENGINE	
Type	Liquid-cooled 4-stroke 16-valve DOHC inline-4 cylinder
Engine Displacement (cm ³)	649cc
Bore ´ Stroke (mm)	67.0 x 46.0
Compression Ratio	11.6:1
Max. Power Output	70kW/12,000rpm
Max. Torque	63Nm/8,500rpm
Oil Capacity	2.7L
FUEL SYSTEM	
Carburation	PGM-FI electronic fuel injection
Fuel Tank Capacity	15.4L
Fuel Consumption	20.4km/litre
ELECTRICAL SYSTEM	
Starter	Electric
Battery Capacity	12V/8.6AH
ACG Output	370W

DRIVETRAIN	
Clutch Type	Wet, multiplate disc
Transmission Type	6-speed
Final Drive	Chain
FRAME	
Type	Steel diamond
CHASSIS	
Dimensions (LxWxH)	2120 x 750 x 1,150mm
Wheelbase	1450mm
Caster Angle	25.5°
Trail	101mm
Seat Height	810mm
Ground Clearance	130mm
Kerb Weight	208kg
Turning radius	
SUSPENSION	
Type Front	41mm Showa Separate Function front Fork Big Piston (SFF-BP) USD forks
Type Rear	Monoshock damper with 7 stage adjustable preload, 43.5mm stroke
WHEELS	
Rim Size Front	Hollow section 6-spoke cast aluminium
Rim Size Rear	Hollow section 6-spoke cast aluminium
Tyres Front	120/70ZR17 M/C (58W)
Tyres Rear	180/55ZR17 M/C (73W)
BRAKES	
	2 channel; hydraulic dual disc 310mm

ABS System Type	front, hydraulic disc 240mm rear
INSTRUMENTS & ELECTRICS	
Instruments	Digital speedometer, digital bar graph tachometer, dual trip meter, digital bar graph fuel gauge, gear position and upshift indicator, digital clock
Headlight	LED
Taillight	LED

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.