



2009 Model Information

MODEL CODE: **EX650C9F**

MODEL NAME: **Ninja 650R**



SPORTIER PERFORMANCE. NEW NINJA LOOKS.

Building on the key concepts of its highly acclaimed predecessor, the new Ninja 650R continues to offer a package that is both fun and easy to ride, and matches its sporty street performance with aggressive new Ninja supersport styling.

When the original ER-6f (Ninja 650R) made its debut three years ago, it offered the market a unique combination of performance, accessibility and sophisticated good looks. More mature, the new Ninja 650R improves on this combination while maintaining the key character of its predecessor.

The most apparent change is the Ninja 650R's decidedly sportier appearance.

Sharper, more aggressive new styling gives the bike the look of a modern supersport machine – any similarities to our Ninja supersport models are purely intentional.

The characteristic trellis frame and offset laydown rear shock remain, but the frame has been completely redesigned with even greater attention to detail giving the new bike an even higher quality finish.

Changes to the slim, compact chassis were not only cosmetic. Revisions to rigidity balance and suspension settings, and the addition of rubber mounts result in reduced vibration and lighter handling, enabling the Ninja 650R to improve on the comfort and rider friendly handling qualities of its predecessor. Both are excellent traits, whether negotiating city traffic, carving corners in the hills or cruising down the highway. Further, the natural riding position and ergonomics benefit from a revised seat that makes the reach to the ground even easier.

The 649cc, liquid-cooled Parallel Twin also receives some tweaks. The torquey engine revs more quickly, adding to riding excitement, and response is smoother, especially at low-mid rpm. The linear quality is non-intimidating and offers a level of control that can easily be exploited for sporty riding.

Sportier, even easier to handle and wrapped in seductive Ninja supersport styling, the new Ninja 650R enables riders to experience the fundamental joy of motorcycling.

COMPACT, QUICK-REVVING ENGINE

The balance of compact size and good power offered by the ER-6f's predecessor was the key to its success. To fit into its trim package, an In-line Four would have been too wide and a V-Twin too long. The only engine design that offered both good power characteristics and the requisite compactness was a Parallel Twin. While maintaining this balance, the new engine gets a number of tweaks that offer smoother low-mid response and a quicker-revving character.

Engine Performance

- ★Liquid-cooled, DOHC, 8-valve 649 cm³ Parallel Twin with fuel injection delivers smooth, responsive performance, especially in the low and medium rpm ranges. The engine was tuned for rider-friendly power characteristics that will inspire confidence in new riders.
- ★Revised fuel injection settings result in smoother response (especially below 4,000 rpm) and contribute to the new 650R's quicker-revving character.
- ★The engine's excellent mid-range power characteristics make the bike especially fun to ride at medium speeds on city streets. Roll-on response is exceptional, offering impressive passing performance.
- ★Large-bore 38 mm throttle bodies feature sub-throttles for high power output with smooth, sensitive throttle response.
- ★Wider radiator (by 40 mm) offers increased cooling efficiency (17.4 kW >> 19.4 kW).

Compact Engine Design

- ★The 650R's 649 cc liquid-cooled power unit is the most compact engine in its category. Don't let the words "Parallel Twin" fool you. This engine is loaded with innovative technology that enabled the realisation of its compact design and surprising performance. Its abundance of Ninja technology and know-how explains why this compact and lightweight machine can outperform so many of its middleweight competitors (many of which have larger displacement).
- ★Triangular layout of the crankshaft and transmission shafts makes the engine very short front-to-back.
- ★Transmission input shaft, output shaft and change drum are contained in a "cassette"- style package that both allows a compact layout and facilitates transmission maintenance chores.
- ★Semi-dry sump design reduces engine height.
- ★Plated, linerless aluminium cylinder is lightweight, and the narrow cylinder pitch reduces engine width.
- ★Under-engine muffler improves mass centralisation and lowers the bike's centre of gravity.
- ★Ultra-fine injectors and 32mm throttle bodies with oval sub throttles offer ultra-smooth response across the rev range.
- ★Transmission set lever with ball bearings and shift change drum result in superb shift feel and smooth shifting.
- ★Lightweight, high-efficiency radiator offers high efficiency cooling.
- ★180° crankshaft drives a balancer shaft for silky smooth engine operation. The water pump is driven off the right end of the balancer shaft.
- ★Oil jets located in the rod big-ends direct oil to the undersides of the pistons for added cooling.
- ★Lightweight plug-mounted ignition coils deliver a hot spark while saving space.
- ★Newly designed lightweight fuel pump mounted inside the fuel tank.



Euro-III Compliant

- ★The cast aluminium engine sub-frame allows the front engine mounts to be located behind the cylinder, closer to the engine's centre of gravity. The result is less engine vibration transmitted to the rider (particularly at the handlebars) for a much improved ride quality.
- ★Through the use of a combination of rigid and rubber mounts, chassis tuning delivers a very planted feel and high levels of feedback. The result is a superb level of control: the rider is better able to understand what the bike is doing.

LIGHT-HANDLING CHASSIS

The key to the 650R's compact size is its amazingly compact Parallel Twin engine, which permits the use of a narrow, lightweight frame. The result is a bike with the dimensions of a 400 and the power of a 650 that welcomes beginners with a "Come on, let's go for a ride!" attitude, while also offering plenty of performance for more experienced riders.

Changes to the frame, swingarm and suspension result in reduced vibration and lighter handling, making the new N



Compact Design

- ★All-new frame maintains the key design elements of its predecessor. Together with the compact engine, the new frame's elegant design realises a package that is slim, low, lightweight and compact.
- ★The compact engine allows use of a slim, minimalist frame, resulting in a design that is narrow at the knees and feet.
- ★The compact engine also allows an extremely short wheelbase, giving light and nimble handling.
- ★Because a long swingarm can be used, rear suspension action and handling are both improved.
- ★3D analysis was used to achieve the ideal stiffness balance for the frame, contributing to the superb handling characteristics.
- ★The frame is constructed of high-tensile steel, giving it a lightness rivalling that of aluminium frames.
- ★The layout of the offset single-shock rear suspension allows the battery to be located beside the shock instead of beneath it. This elegant arrangement allows a lower seat height as well as a slim design.
- ★The same characteristics that make it fun to ride (responsive handling and rider-friendly ergonomics), also make the 650R ideal for new riders.
- ★A short wheelbase and tight turning radius contribute to the 650R's high manoeuvrability.



Reduced Vibration

- ★Rubber mounts instead of rigid mounts used for the upper-rear engine mounts reduce vibration transmitted to the rider through the seat.
- ★Handlebar is rubber-mounted to reduce vibration transmitted through the handle grips.
- ★Rider and pillion footpegs are rubber coated to further reduce vibration.

Lighter Handling

★Changes to the frame to reduce rigidity and improve appearance also contribute to the 650R's lighter handling.

★New swingarm has higher rigidity to balance the reduced rigidity of the frame (due primarily to the rubber engine mounts). Overall, chassis rigidity is the same as that of the previous models.

★Front and rear suspension settings were revised to match the changes to the frame and swingarm. Together with the new frame they offer lighter, rider-friendly handling.

Rider-friendly Ergonomics

★The riding position was specially designed to inspire rider confidence. An ideal relationship between the handlebars, seat and footpegs results in a comfortable and natural position suitable for a wide range of riders.

★The narrow frame and engine make for an overall narrow package, allowing the rider to keep his or her knees and feet close together.

★Thanks to the low seat height and slim overall design, it's easy to keep both feet firmly on the ground when stopped, an important consideration for many riders.

★Narrowing of the frame just aft of the fuel tank enabled the seat construction to be revised, making the reach to the ground even easier.

★Aluminium (previously plastic) passenger grips are positioned lower and have a revised shape, making them easier for tandem riders to grab. Increased passenger confidence thanks to the improved grip also makes it easier for riders when carrying a pillion.

Brakes

★Dual 300 mm front petal disc brakes and 220 mm rear petal disc look great and deliver plenty of braking power.

★Front brake lever uses a new ball-joint (instead of a unitised piece) and revised pivot location to deliver smoother actuation of the master cylinder piston.

SLEEK, SUPERSPORT STYLING

Styling inspired by our Ninja supersport models gives the full-fairing Ninja 650R the look of a modern supersport. Sharper, edged lines move forward, giving the bike a more aggressive, crouching appearance. Simple in design, the Ninja 650R avoids all superfluous design flourishes; lines were made to flow as long as possible. The new, taller fuel tank, minimalist-design fairings and sharp tail cowl give the bike a compact appearance.

Attention to the smallest details contributes to the new bike's high-quality finish.

Bodywork

★New dual headlamp design features twin position lamps – just like on our Ninja supersport models.

The designed shape of the multi-reflector headlamp's bulb hoods is an example of to the attention given to detail on this model.

★Windscreen set at a sharp angle contributes to the supersport image. A lip at the top of the screen helps to deflect air away from the rider. A duct in the centre of the cowling creates an "air curtain" which reduces wind buffeting at higher speeds and improves rider comfort.

★Fuel tank is taller – especially noticeable when viewed from the side – which adds to the bike's crouching appearance. Sharp-edged line motif gives it a look very distinct from that of its predecessor. Flush-surface fuel cap contributes to the sleek lines.



★The side view of the front cowling and the fairings (especially the top corners at the front) have distinctive Ninja design elements. Fairing design judiciously combines coloured and black panels to create a compact appearance – an approach similar to that used on the Ninja ZX-10R.

★Revised front turn signals are integral with the fairings, contributing to the bike's supersport styling.

★Clear turn signal lenses with orange bulbs further enhance the machine's high-quality.

★Viewed from the rear or from the side, the tail cowl and seat's sharper design is evident.

★Thin new LED tail lamp and rear turn signals reinforce this image.

★Longer front fender reduces mud splash. Two-tone design contributes to the light, compact appearance.

The addition of an inner fender helps keep the underside of the tail cowl clean and contributes to the 650R's sporty look.

★New license plate bulb housing and slimmer rear mud flap add to the sharp image of the tail.



Frame / Rear Suspension

★While the frame is completely new, its design continues to be a key component of the ER-6f's identity. Like on its predecessor, the ER-6f's bodywork accentuates the frame, rather than hiding it.

★The design of the frame, rear suspension and swingarm create an integrated line running from the steering head to the rear hub.

★A trellis frame of high-tensile steel gives the bike a lightweight appearance. 3D analysis was used to achieve the target rigidity and stress values.

★Offset laydown rear single-shock suspension flows smoothly from the frame to the swingarm.

★The braced steel swingarm follows the lines of the frame and rear shock, its triangulated design contributing to the machine's innovative styling.

★Swingarm now has a D-shaped cross section (instead of a square tube). The pipe-like design of the new swingarm and revised stabiliser further contribute to the 650R's higher-quality appearance.

★Elegant design of the one-piece rider/passenger footpeg stays complements the new swingarm and stabiliser.

★Finish at frame joints is much cleaner, improving overall quality of the bike.

Instrumentation

★Flowing lines are also evident in the design of the new MotoGP-inspired multi-function instrumentation. Features include a new fuel gauge, digital speedometer, clock, odometer, dual trip meters and a bar-style digital tachometer like our MotoGP racer. The new layout allows the clock and trip meter to be viewed simultaneously. Red backlighting for the LCD screen adds to the sporty image.

★Panelling around the instrument panel gives the inside of the front cowl a clean, finished appearance.



Mirrors

★New supersport-style mirror design is similar to that on the new Ninja ZX-6R.

Positioned 14 mm further out from the centreline, they also offer an improved rear view.

Other

★Four tie-down hooks allow baggage or a spare helmet to be secured to the seat.

★Under-seat storage space has room for a U-lock or similar device.

★The turn signals also function as hazard lights.

SPECIFICATIONS

EX650C9F

ENGINE

Type	Liquid-cooled, 4-stroke Parallel Twin
Displacement	649 cc
Bore and Stroke	83 x 60 mm
Valve system	DOHC, 8-valves
Compression Ratio	11.3:1
Fuel system	Fuel injection: ø38 mm x 2 (Keihin)
Ignition	Digital
Starting	Electric
Lubrication	Forced lubrication, semi-dry sump

DRIVETRAIN

Transmission	6-speed, return
Clutch	Wet multi-disc, manual
Final drive	Sealed chain

FRAME

Type	High tensile steel diamond type
Caster (rake)	TBA
Trail	TBA
Tyre:	
front	120/70ZR17M/C
Rear	160/60ZR17M/C

SUSPENSION

Front: Type	41 mm telescopic fork
Rear: Type	Offset laydown single-shock with adjustable preload

BRAKES

Front Type	Dual semi-floating 300 mm petal discs
Caliper	Dual piston
Rear: Type	Single 220 mm petal disc
Caliper	Single-piston

DIMENSIONS

Overall length	TBA
Overall width	TBA
Overall height	TBA
Wheelbase	TBA
Seat height	TBA
Curb Mass	TBA
Fuel capacity	TBA

PERFORMANCE

Maximum power	53 kW {72.1 PS}/ 8,500 rpm
Maximum torque	66 N·m {6.7 kgf·m}/ 7,000 rpm

*Curb mass is the weight with all fluids including fuel, plus tool kit etc. This is an accurate ready to ride weight.

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