PRECISE CONTROL FOR MAXIMUM EXCITEMENT

An evolution of the 2007 Ninja ZX-6R, the 2009 model 6R takes the performance of its track-oriented predecessor to a higher level. Development of the rider active package focused on offering riders more precise control. Changes to engine and chassis for enhanced controllability result in a confidence-inspiring character that enables a calm assuredness as high-level riding is pursued. And it is this ability to push harder – to be able to extract this bike's full potential – while firmly retaining control that makes the new Ninja ZX-6R so exciting to ride.

Chassis fine-tuning and increased mass centralisation result in lighter handling, making it even easier to tip this Six into corners. Also contributing to the lighter handling is the new Ninja ZX-6R's leaner physique: both engine and chassis received a thorough going over to find places where weight could be reduced.
The bike's unflappable composure under braking better enables riders to focus on precise turn-in. The new Ninja ZX-6R features the first production-use of Showa's BPF (Big Piston Front fork). The greater control over the initial part of the fork stroke, combined with Kawasaki's already potent triple petal disc brake package and highly effective slipper clutch, result in superb chassis stability when reducing speed on corner entry.

Engine development focused as much on controllability as performance gain. Throttle response is silky smooth, delivering precise control at all rpm. While the high-rpm performance of the previous model is maintained, powerful mid-range torque means stronger, grin-inducing drive out of corners. The very direct feel of the throttle facilitates minute mid-corner adjustments and combined with the increased mid-range performance, makes it easier for riders to maintain their rhythm when stringing corners together.
The precise control offered by engine and chassis is complemented by an intuitively natural rider interface and a high level of feedback that communicates to the rider what the bike is doing. The result is a package where riders feel instantly at ease.
Highly confidence inspiring, the precise engine and chassis control offered by the new Ninja ZX-6R enables riders to maximise the excitement that comes from actively controlling a high-performance

Engine

PRECISE ENGINE CONTROL AT ALL RPM AND POWERFUL MID-RANGE TORQUE

One of the greatest sources of excitement when riding a supersport comes from the reaction the rider gets when twisting the throttle. Engine development focused on delivering precise throttle control and increasing performance, particularly in the mid-range. Changes for improved driveability yielded very linear throttle response that gives the rider the feeling of being connected directly to the rear wheel. Stronger mid-range torque means the rider can enjoy greater drive out of corners as well as silky smooth high-rpm performance.

Precise throttle control

- Cylindrical guides added to the top of the air cleaner box ensure more accurately sprayed fuel mist from the secondary injectors. With fuel more precisely directed into the intake funnels, combustion efficiency is improved.
- Longer throttle bodies increase the distance between main and sub-throttles by 10 mm. The smoother transition between the oval sub-throttles and round main throttles yields smoother airflow to the engine, resulting in better driveability.
- Revised cylinder porting delivers improved filling efficiency, for improved performance across the rev range.
- New ignition stick coils have 12% greater secondary coil current. The improved combustion efficiency results in improved performance and driveability.

Increased mid-range performance

- New double bore intake funnels ("velocity stacks") feature inlets at two different heights, allowing performance increases in both the mid- and high-rpm ranges.
- Optimised cam nitriding (NV) and tappets with increased durability enabled the use of high-load cam profiles which improve overall performance.
- Pistons with new profiles and improved crown finishing contribute to the gain in performance.
- Molybdenum coating on piston skirts reduces friction and facilitates engine break-in.
- Piston rings with less tension reduce mechanical loss.
- Revised cam chain guides stabilise chain motion, further contributing to reduced mechanical loss.
- Revised exhaust collector layout contributes to improved low and mid-range performance while maintaining high-rpm performance.

Lightweight engine

- Camshafts are now made of SCM for a weight savings of approximately 400 g.
- Lightweight magnesium engine covers are fit standard so that riders looking to maximise circuit performance do not need to change them. The magnesium covers save approximately 610 g.
- For racing applications, noise-reducing pads inside the engine covers can be removed for an additional reduction of approximately 340 g (for a total savings of 950 g compared to the aluminium covers).
- Revised top injector mounting plate saves approximately 80 g.
- Reducing O2 sensors from two to one contributes to weight savings. (Non-U.S. models only; U.S. are not fit with an O2 sensor.)
- While maintaining rigidity, narrower transmission gears and revised gear dog shape contribute a 170 g weight savings.
- Oil pump and starter gears have less meat, contributing a weight reduction of approximately 70 g.
- Monitoring inlet pressure pulses enables the cam angle sensor to be eliminated, further contributing to engine weight reduction.
- Coolant reservoir relocated and redesigned. The new shape and shorter tube save approximately 150 g.
- Revised and relocated heat pads contribute approximately 170 g to weight savings.

Slipper clutch

- Adjustable back-torque limiting clutch helps reduce rear-wheel hop that may occur when downshifting at high rpm.

Chassis

CONFIDENT, FLICKABLE HANDLING

One of the goals for the 2009 Ninja ZX-6R was to give the new bike lighter handling. The superb combination of mid-corner stability and ability to change lines on command was maintained from the ZX600P, but frame rigidity was revised and mass further centralised to make the new Ninja ZX-6R even easier to tip into corners. Further, the naturally aggressive ergonomics package was fine-tuned to offer riders an even better "fit" and to enhance the high level feedback that communicates to the rider what the bike is doing.

Revised chassis balance and mass centralisation

- While structure of the main frame is basically the same as that of the ZX600P, revised rigidity around the swingarm pivot and the rear engine mounts optimises front-rear rigidity balance.
- The engine is mounted with a steeper cylinder bank angle. Rotated around the output shaft, the engine's CofG is 16 mm higher and the head pipe is situated 10 mm higher. The result is improved turning performance and easier turn-in.
- New exhaust layout with a short side muffler lowers weight previously located under the seat, contributing to a much lighter feel when turning. Use of an exhaust pre-chamber further contributes to mass centralisation.

Lightweight chassis

- The 2-piece sub-frame is an aluminium die-casting consisting of a front and rear section. This layout enables a very precise and very lightweight construction. The new sub-frame is also very narrow, allowing the rear of the bike to be very compact and slim.
- Resonator box and stays for the instrument panel and mirrors are unitised with the Ram Air duct, contributing to weight savings and increased rigidity.
- Frame brackets revised to reduce overall number of parts, which also contributes weight savings.
- New throttle case material contribute a weight savings of approximately 30g.
- While the rear flap stay has the same shape as the ZX1000E, using a new resin material saves approximately 150g.

Ergonomics and chassis feedback

- Kawasaki's Ninja supersport seat-pegs-bar relationship was adjusted slightly, with the handlebars moved closer to the rider and turned in slightly. The new position contributes to the bike's naturally intuitive riding position.
- Fuel tank cover from the ZX1000E is more flared around its top, making it easier for the rider to rest the inside of his arm on the tank when leaning into a turn. The larger contact patch contributes to the increased feedback to the rider.
- Slim, waisted fuel tank makes it easy for the rider to grip the tank with his knees or to hang off in turns.
- Front to back, the new seat is shorter, allowing the rider to rest his tailbone on the rear seat step. This improved "fit" also contributes to the excellent feedback the rider gets from the chassis.
- Steeper caster angle (25˚ >> 24˚) enhances communication from the front tyre.
- Changes to the frame, while not easily visible, also contribute to enhanced feedback. Revisions to the front engine mounts and head pipe offer a more direct feel from the front. Adjustments to the rigidity of the swingarm and around the swingarm pivot give a clear feeling of rear wheel traction.
- Relocating the rear brake master cylinder reservoir tank forward of the swingarm mount frees up space around the footpeg. The change also enables a reduction of parts and the shorter hose contributes to weight savings.

Lower seat height

- The narrow width of the new rear sub-frame helps make it easier to reach the ground.
- The front of seat is narrower, contributing to the narrow riding position and offering a shorter reach to the pavement.
- Seat height is approximately 5 mm lower than that of the ZX600P.

Race-quality steering damper

- An adjustable Öhlins steering damper with relief valve and twin-tube design is fitted as standard equipment. The second tube, which acts like a reservoir tank, and the damper internals, ensure stable damping performance even under racing conditions. (Even if the damping fluid in the cylinder gets hot it will not froth.) The damper unit has an integral clamp so that piston motion is not hindered.

LIGHTER WEIGHT

In addition to the more flickable handling, our engineers wanted to make the new bike as light as possible. All engine and chassis parts were re-evaluated to reduce weight. The new Ninja ZX-6R has a curb mass approximately 10 kg lighter than its predecessor.

Suspension / Brakes

CORNER-ENTRY CONTROLLABILITY

The new Ninja ZX-6R takes corner entry performance to the next level. Featuring the first production-use of Showa's BPF (Big Piston Front fork), Kawasaki's acclaimed triple petal disc brake package with radial calipers and radial-pump master cylinder, and a highly effective slipper clutch, the Ninja ZX-6R offers supersport riders the calm composure and precise control and feel to enter corners harder.

Suspension

- The new BPF is one of the great contributing factors to the new Ninja ZX-6R's great composure under braking. Compared to a cartridge-type fork of the same size, the BPF features a main piston almost twice the size (φ37 mm vs φ20 mm on ZX600P); oil inside the BPF acts on a surface area almost four times the size. The larger surface area allows the damping pressure to be reduced while ensuring the damping force remains the same. Reducing the damping pressure allows the slide pipe to move more smoothly, which is especially noticeable at the initial part of the stroke. The result is greater control as the fork begins to compress and very calm attitude change as vehicle weight shifts forward when reducing speed, and thus greater chassis stability on corner entry.
- Because the BPF eliminates many of the internal components used in a cartridge-type fork, construction is simplified resulting in lighter overall fork weight.
- Compression and rebound damping adjustment are located at the top of each fork tube. Preload adjustment is at the bottom.

Brakes

- Large-diameter semi-floating 300 mm stainless-steel front petal deliver formidable stopping power. 6 mm thick, the discs are able to withstand the rigors of circuit riding.
- Powerful radial-mount calipers give a very direct feel at the lever.
- Radial-pump master cylinder ensures excellent touch and offers superb control.
- A 220 mm petal disc slows the rear.
- Revised rear brake pedal is now mounted coaxially with the footpeg for increased braking efficiency mid-stroke and a greater brake pedal stroke feeling.

Additional Features

Engine

- Exhaust pre-chamber under the engine makes efficient use of space, reducing exhaust noise and helping to minimise silencer volume.
- Catalysers in the collector ensure emissions regulations are met.
- Revised secondary air passages through the cylinder head contribute to more efficient cleaning of exhaust emissions.
- Cassette transmission makes it easy to change gear ratios to quickly, reducing necessary set-up time.

Chassis

- New cowling offers the rider better wind protection and was designed to better withstand side winds.
- Position lamps are now integral with the projector beam headlamps. Like the ZX1000E, the new Ninja ZX-6R features dual position lamps.
- New one-piece fender (previously a three-piece construction) offers improved aerodynamics and contributes to parts reduction.
- An inner fender added above the swingarm helps keep the undertail clean.
- Intake ducts at the front of the lower fairings direct cool air into the engine compartment, contributing to more effective heat dissipation from the engine and radiator.
- A cover integral with the exhaust pre-chamber gives it the appearance of being unitised with the lower fairing.
- Left side of the swingarm now features a design like that of the ZX1000E. In addition to the left inner and outer plates, other parts common with the ZX1000E include the right inner plate, rear stand bosses, brake caliper stopper and chain guard and pivot shaft.
- Revised front brake hose routing with a three-way joint at the lower triple-clamp facilitates bleeding air from the brake lines.
- Even professions racers occasionally lose track of what gear they're in. The large numerical gear position sensor gives instant information to the rider — especially useful should a mis-shift occur.
- Similar in design to that of the ZX1000E, the new instrument panel gives at-a-glance information to the rider.

Other

- Padding added inside the Ram Air duct contributes to reduced intake noise.

Specifications

ENGINE	
Engine type	Liquid-cooled, 4-stroke In-Line Four
Displacement	599 cm³
Bore x stroke	67.0 x 42.5 mm
Compression ratio	13.3:1
Valve/Induction system	DOHC, 16 valves
Fuel system	Fuel injection: ø38 mm x 4 (Keihin) with oval sub-throttles, dual injection
Ignition	Digital
Starting	Electric
Lubrication	Forced lubrication, wet sump
DRIVETRAIN	
Transmission	6-speed, return, cassette
Final Drive	Sealed chain
Primary reduction ratio	1.900 (76/40)
Gear ratios: 1st	2.714 (38/14)

Gear ratios: 2nd	2.200 (33/15)
Gear ratios: 3rd	1.850 (37/20)
Gear ratios: 4th	1.600 (32/20)
Gear ratios: 5th	1.421 (27/19)
Gear ratios: 6th	1.300 (26/20)
Final reduction ratio	2.688 (43/16)
Clutch	Wet multi-disc, manual

FRAME

Frame type	Perimeter, pressed-aluminium
Wheel travel, front	120 mm
Wheel travel, rear	134 mm
Tyre, front	120/70ZR17M/C (58W)
Tyre, rear	180/55ZR17M/C (73W)
Rake/Trail	24˚ / 103 mm
Steering angle, left / right	27˚ / 27˚

SUSPENSION

Suspension, front	41 mm inverted fork with top-out springs Compression damping: Stepless Rebound damping: Stepless Spring preload: Fully adjustable (0-15 mm) Bottom-Link Uni-Trak with gas-charged shock, top-out spring and pillow ball upper mount
Suspension, rear	Compression damping: Stepless, dual-range (high/low-speed) Rebound damping: 25-way Spring preload:Fully adjustable (5.5-15.5 mm)

BRAKES

Brakes, front	Dual semi-floating 300 mm (x t6 mm) petal discs Dual radial-mount, opposed 4-piston (aluminium), 4-pad, Nissin
Brakes, rear	Single 220 mm (x t5 mm) petal disc Single-bore pin-slide, aluminium piston, Tokico

DIMENSIONS

Dimensions (L x W x H)	2,090 mm x 705 mm x 1,115 mm
Wheelbase	1,400 mm
Ground Clearance	120 mm
Seat height	815 mm
Curb Mass	191 kg
Fuel capacity	17 litres

PERFORMANCE

Maximum power	94.1 kW {128 PS} / 14,000 rpm
Maximum power with RAM Air	98.5 kW {134 PS} / 14,000 rpm
Maximum torque	66.7 N.m {6.8 kgf.m} / 11,800 rpm