

# 2002 Model Information

MARKETING CODE: **ZX1200-B**

MODEL NAME: **Ninja ZX-12R**



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# MODEL CONCEPT

Those who have experienced the mind-blowing performance of the ZX-12R might find the use of the term "rider friendly" a bit strange, but that was one of the goals of Kawasaki engineers for the 2002 12R. Don't worry, nothing was done to either de-tune or neuter this bike's now infamous performance. Pumping out more than 178 horsepower at the crankshaft without Ram Air, the ZX-12R power unit is the most powerful production motorcycle engine Kawasaki, or anyone else, has ever produced. This impressive liquid-cooled, 4-cylinder, DOHC engine is equipped with Kawasaki's most advanced Ram Air system and electronic fuel injection. Lighting off the mixture in its high-compression 4-valve combustion chambers are lightweight, plug-mounted ignition coils. The ignition system delivers independent timing control for each cylinder based on a variety of information supplied to the ignition computer such as crank angle, throttle opening, cam position, rpm, etc. Feeding the engine is an electronically controlled fuel injection system that delivers hard-hitting, instantaneous throttle response with environmentally friendly exhaust emissions. For efficient heat dispersion and long wear, the ZX-12R runs with all-aluminium electroplated cylinders. These thinner cylinders allow a reduction in the distance between bore centres, for a narrower, more compact engine and shorter, stiffer crank, not to mention high cooling efficiency and long wear.



For 2002, efforts were made to smooth out this awesome performance and make the bike a bit more receptive to a wider spectrum of riders. This was achieved by, among other things, going to a slightly heavier crankshaft, modifying the throttle linkage and improving the clutch. These changes, which also include a reduction in drive-line lash and remapped ignition timing give the bike more linear power characteristics and make it easier to ride in city traffic and at low speeds.

Chassis modifications centred on enhancing the 12R's already formidable supersport handling characteristics. With the new ZZ-R1200 now neatly filling the role of supersport tourer, the 12R's chassis could be biased more towards satisfying the needs of the pure supersport rider. Among the many chassis modifications are an improved monocoque aluminium frame with, to use a GP term, "tuned flex," a new swingarm with a lower swingarm pivot, a steeper steering rake, reduced fork offset and improved rear suspension linkage. These are only some of the modifications which give the new 12R lighter, more responsive handling characteristics and an overall sportier feel.

Sportier handling demands a sportier image, and the new 12R gets it with a new front cowl and windscreen, a new Ram Air intake and improved aerodynamic performance. Looks are further enhanced with new monotone colours, which, in understatement, only serve to enhance the powerful aura of this impressive machine.

## KEY POINTS

- Approximately 140 parts revised
- Thoroughly updated chassis for sportier handling
- The highest power-to-weight ratio in its category
- New, stiffness-balanced all-aluminium monocoque frame
- Electronic fuel injection & Ram Air
- Supersport handling performance
- Improved aerodynamics

## MAIN FEATURES

### Engine

\* Liquid-cooled, 1,199 cm<sup>3</sup>, DOHC, 16-valve 4-cylinder engine produces more horsepower than any other machine in its category.

**NEW** \* New crankshaft has larger flywheels and approximately 20% more inertia for smoother off-idle acceleration and an improved power feel during highway cruising.



- \* Crankshaft treated with a special deep-nitriding process for added strength.
- \* Direct valve actuation with crowned lifters to equalise pressure across the cam lobes and reduce wear.
- \* Valve sizes 33.4 mm intake/28.3 mm exhaust.
- \* Narrow valve angles (IN=12°, EX=13°) are the same as those on the 6R and 9R and ensure a highly efficient combustion chamber shape.
- \* VX-type, thin-wire valve springs deliver accurate valve control at high rpm.
- \* All-aluminium cylinder with electroplated bores is light, long wearing and offers superior heat dispersion. Forward cant of 20° improves weight distribution.

- \* Cast pistons are specially heat-treated prior to machining to prevent distortion.
- \* Thin 0.9 mm compression, 1.0 mm scraper rings and 1.5 mm oil ring minimise friction.
- \* Connecting rods are constructed of chromium-molybdenum steel with carburised hardened surface treatment for exceptional strength and reliability.
- \* Internally tapered piston pins for low reciprocating weight.
- \* Single balancer shaft located forward of the crankshaft spins at twice engine speed and eliminates secondary vibrations.
- \* Right-side cam drive allows for an extremely tight valve angle for efficient engine breathing. With the drive on the right end of the crank, the short, highly rigid crank offers tremendous torsional rigidity and facilitates small bearing journal sizes for low frictional loss. The forged crank rides in five plain bearings. An additional benefit of the right-side cam drive is an even cylinder pitch from the centre line for more direct alignment of straight draught paths for the intake charge.
- \* Silent cam chain reduces mechanical noise.
- \* Electronic DENSO fuel injection with 46 mm throttle bodies assures brilliant throttle response, high output across the rev range and low exhaust emissions. Sensors include intake temp, ambient air temp, intake vacuum, crank angle, gear position, cam position, and water temp.
- NEW** \* Improved fuel pump design eliminates the return line for lighter weight, fewer parts, cleaner routing of fuel lines and improved reliability.
- NEW** \* Throttle cable pulley changed from round to oval shape for smoother throttle response at low throttle openings. Oval shape results in progressively faster opening.
- NEW** \* Revised ignition mapping contributes to the improved power characteristics and better engine feel, particularly in the low and medium rpm ranges.
- \* Digital ignition with timing sensor mounted on the right end of the crankshaft. Rev limiter, K-TRIC (TPS) and gear position sensor equipped.
- NEW** \* Smaller ACG flywheel is lighter and more compact, and uses rare-earth magnets for high efficiency.
- \* Ignition uses compact, plug-mounted stick coils for lightweight, dropout free high-rpm operation.
- \* Platinum, dual-electrode plugs for a hot spark and long plug life.
- \* Ignition timing and fuel loads are independently controlled for each cylinder.
- NEW** \* Single radiator fan replaced with new twin fans for improved cooling performance in slow-moving city traffic. Improved "ring fan" design is quieter and more efficient.



- \* Liquid-cooled oil cooler/filter keeps oil temperatures under control.
- NEW** \* Single-rotor oil pump has wider rotors (from 24 mm to 26 mm) for increased oil flow.
- \* Ram Air system adds approximately 13 horsepower in the higher speed ranges.
- \* Monocoque frame allows use of perfectly straight, highly efficient straight intake ports.

- \* Using the frame backbone as an airbox saves space and creates a very efficient airbox.
- NEW** \* Improved clutch design directs more cooling oil to the clutch plates for improved reliability and performance during repeated hard launches.
- NEW** \* Improved clutch dampers and reduced play between transmission engagement dogs reduce drive-line lash for smoother on/off throttle transitions.
- NEW** \* Shift shaft diameter increased from 13 mm to 14 mm for improved shift quality.
- \* Special ZX-12R-specific 535 drive chain designed by DID features special hardening of the side plates.
- \* Magnesium valve, clutch, generator and pulsar covers contribute to low engine weight.
- \* Free-breathing, 4-2-1 exhaust system features a lightweight all-titanium muffler with honeycomb catalyser and stainless steel exhaust pipes.



## Frame

- \* Revolutionary all-aluminium monocoque frame was inspired by the monocoque frame used on Kawasaki's KR500 works racer.
- \* Huge box section and cast steering head/swingarm pivot areas realise an extremely stiff structure and contribute to the ZX-12R's superb high-speed stability and supersport handling performance.
- \* By eliminating the dual large-section beams of conventional aluminium frames, this frame design makes possible a much narrower and more compact overall package and greatly improves aerodynamics.
- NEW** \* New frame has less gusseting around the steering head for improved stiffness balance.
- NEW** \* Ball-bearing steering head now uses 35 mm bearings at top and bottom (earlier set-up used 25 mm top, 35 mm bottom) for light steering qualities.
- NEW** \* Front engine mount changed to suit new dual-fan radiator.
- \* Ram Air ducts pass through the frame.
- \* Under-seat fuel tank contributes to low CG and high mass-centralisation.
- \* Lightweight detachable aluminium sub-frame eases maintenance chores.
- NEW** \* New, lighter swingarm uses extruded brace in place of the earlier cast brace for less weight and revised stiffness to match the new frame. Ride quality over bumps also improved.
- \* Extruded aluminium swingarm is lightweight and exceptionally rigid for stable handling performance at speed. Hexagonal structure with internal ribbing for low weight and good looks.

- NEW** \* Mounting position for rear suspension linkage moved forward and downward for improved suspension action.
- NEW** \* Swingarm pivot moved 2 mm downward for sportier handling and improved off-corner acceleration.
- \* Footpegs and peg bracketry are made of aluminium.
  - \* Battery mounts inside the frame and the battery cover is a structural element.
  - \* Grease nipples at swingarm and linkage points ease maintenance.
  - \* Hollow, 12 mm engine mounting bolts are lightweight and tough.

## Suspension

- NEW** \* Inverted 43 mm cartridge front fork is fully adjustable for preload and compression/rebound damping. New stepless adjustable.
- NEW** \* Front fork rake increased from 23.5° to 25° and fork offset reduced from 32 mm to 28 mm for sportier handling characteristics and improved steering feedback.
- NEW** \* Longer topping springs and stiffer initial damping reduce nose dive during abrupt throttle closing and helps stabilise chassis during on/off throttle work.
- \* Upper fork crown is made of lightweight cast aluminium to reduce weight, while the lower clamp is forged aluminium for high strength.
  - \* Bottom-Link Uni-Trak rear suspension uses aluminium linkage for light weight.
- NEW** \* Nitrogen gas-charged shock with piggy-back reservoir is 5 mm shorter and uses a softer spring. Stepless spring preload and new stepless compression/rebound damping adjustment make it easy to adjust.
- NEW** \* New rear shock damping mechanism uses a check-valve damper in place of the earlier needle-valve damper for improved damping characteristics.



- \* Rear shock features a special “bladder” instead of a floating piston that separates the nitrogen gas from the hydraulic fluid for superior fade resistance.

# Brakes

- \* Front semi-floating 320 mm x 5 mm discs deliver superlative braking performance.
- \* Opposed six-piston Tokico front brake calipers offer powerful braking performance and precise feel at the lever. Differential bore sizes contribute to superior performance: 27 mm x 2 & 24 mm x 1.



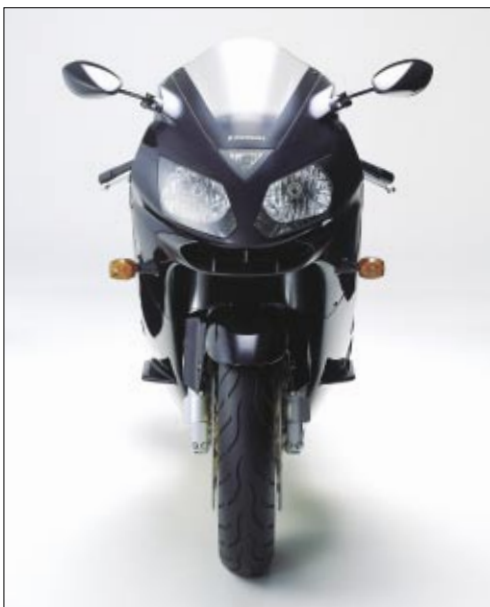
- NEW** \* Special coating on caliper seals improves caliper action for smoother operation and improved feel at the lever.
- \* 5-step adjustable front brake lever.
  - \* Rear disc brake uses lightweight 230 mm rotor with opposed-piston caliper.
  - \* Rear brake caliper holder mounts directly to swingarm, negating the need for an independent brake torque-rod.



## Wheels & Tyres

- \* Lightweight cast alloy wheels reduce unsprung weight.
- \* All new cast alloy wheels use hexagonal spokes.
  - F: 3.5 MT x 17
  - R: 6.0 MT x 17
- \* 17-inch radial tyres for excellent traction. Rear tyre specially designed for the ZX-12R.
  - F: 120/70ZR17M/C (58W)
  - R: 200/50ZR17M/C (75W)
- \* Both front and rear axles and swingarm pivot are 25 mm in diameter and are hollow for high rigidity and low weight.

## Aerodynamics & Bodywork



- \* Wind-tunnel designed fairing was developed with help from Kawasaki's aircraft division.



**NEW** \* Redesigned upper cowl has a shorter nose for improved aerodynamics and a sportier look.



**NEW** \* New 20 mm higher windscreen is higher and wider for improved wind protection.

**NEW** \* New mirrors are lighter, more compact and feature an anti-vibration design for improved visibility.

**NEW** \* Inner cowls added around the levers reduce turbulence in lever area.

**NEW** \* New lower fairing uses 3-piece design with separate inner triangle.

\* Winglets at each side of the fairing prevent turbulent air coming off the front brake area from degrading the laminar flow along the upper part of the fairing.

**NEW** \* New front fender is shorter and gives the front end of the bike a more aggressive, supersport look. Its aerodynamic design reduces wind resistance of the wheel and fork.

\* Cast-in wedges at the bottom of the fork sliders direct air around the fairing instead of allowing air to flow inward towards the engine where resistance is higher.

\* Diffusion cooling is used to increase cooling efficiency and reduce wind resistance from the air passing through the radiator.

\* Openings at the bottom interior edge of the fairing reduce air resistance and enhance cooling of the exhaust pipe area.

\* Aerodynamic single-seat cowl contributes to high-speed aerodynamics and is supplied as standard equipment.

**NEW** \* Radical new C & G give the new Ninja ZX-12R a stunning look that is unmistakably Kawasaki.

**NEW** \* Understated monotone colour schemes enhance the powerful aura of the ZX-12R.



## Other Practical Features

**NEW** \* Newly designed instruments are easier to read and include a lightweight step-motor speedometer. Other instrumentation includes a tachometer, digital odometer, tripmeter, clock, bar-type fuel gauge and water temp gauge.



\* Lightweight plastic countershaft sprocket cover is used. Pickup for the electric speedometer is mounted on the crankcase.

**NEW** \* Improved headlamp lens design intensifies the 12R's ferocious expression.

\* MF-type battery reduces periodic maintenance.

\* Large, under-seat storage area has space for a U-lock or other security device.

\* Seat uses special low-slip surface material for high comfort.

# COLOUR(S)

\* Pearl Mystic Black / Metallic Crescent Gold



\* Candy Thunder Blue / Pearl Cosmic Gray (EUR/CAN/AUS)



\* Passion Red / Pearl Cosmic Gray (EUR/USA/CAN)



# SPECIFICATIONS

<b>ENGINE</b>	<b>ZX1200-B1</b>
Type	4-stroke In-Line Four
Displacement	1,199 cm <sup>3</sup>
Bore and Stroke	83 x 55.4 mm
Compression ratio	12.2:1
Valve system	DOHC, 16 valves
Fuel injection	∅ 46mm 46EIS x 4 (Denso)
Ignition	Digital
Starting	Electric
Cooling	Liquid
Lubrication	Forced lubrication, wet sump
Engine oil: Rating	API SE, SF or SG (or SH, SJ with JASO MA)
Viscosity	SAE 10W-40
Capacity	3.6 litres
Spark plug	CR9EKPA
Valve timing: Inlet	Open: 46° BTDC; Close: 74° ABDC; Duration: 300°
Exhaust	Open: 69° BBDC; Close: 45° ATDC; Duration: 294°
Piston clearance	0.010 ~ 0.037 mm
Cylinder pressure	1,470 kPa {15 kgf/cm <sup>2</sup> } @ 300 rpm
Exhaust	4-2-1
<b>DRIVETRAIN</b>	
Transmission	6-speed, return
Primary drive	Gear
Final drive	Sealed Chain
Primary reduction ratio	1.596 (83/52)
Gear ratios: 1st	2.429 (34/14)
2nd	1.824 (31/17)
3rd	1.440 (36/25)
4th	1.250 (30/24)
5th	1.130 (26/23)
6th	1.033 (31/30)
Final reduction ratio	2.556 (46/18)
Overall drive ratio	4.215 @ top gear
Clutch	Wet, multi-disc

<b>FRAME</b>	<b>ZX1200-B1</b>
Type	Press backbone (monocoque), aluminium
Suspension: front	43 mm inverted cartridge fork with adjustable preload, stepless rebound and compression damping
rear	Bottom-Link Uni-Trak with gas-charged shock, piggy-back reservoir, stepless rebound and compression damping
Wheel travel: front	120 mm
rear	140 mm
Tyre: front	120/70ZR17M/C (58W)
rear	200/50ZR17M/C (75W)
Inflation: front	290 kPa {2.9 kgf/cm <sup>2</sup> }
rear	290 kPa {2.9 kgf/cm <sup>2</sup> }
Caster (rake)	25°
Trail	98 mm
Steering angle (left/right)	30° / 30°
<b>BRAKES</b>	
Front	Dual semi-floating 320 mm discs
Front caliper	Opposed 6-piston calipers
Rear	Single 230 mm disc
Rear caliper	Opposed two-piston caliper
<b>ELECTRICAL EQUIPMENT</b>	
Battery	12 V, 12 Ah
Headlight (high/low)	12 V, 60/55 W x 2
Tail/brake light	12 V, 5/21 W x 2
<b>DIMENSIONS</b>	
Overall length	2,085 mm
Overall width	740 mm
Overall height	1,200 mm
Wheelbase	1,450 mm
Ground clearance	120 mm
Seat height	820 mm,
Dry weight	213 kg
Fuel capacity	19 litres

PERFORMANCE	ZX1200-B1
Maximum power	131 kW {178 PS}/ 10,500 rpm
Maximum power with Ram Air	140 kW {190 PS}/ 10,500 rpm
Maximum torque	134 N·m {13.7 kgf·m}/ 7,500 rpm

The specifications mentioned here apply to and have been achieved by production models under standard operating conditions. We intend only to give a fair description of the vehicle and its performance capabilities but these specifications may not apply to every machine supplied for sale. Kawasaki Heavy Industries, Ltd. reserves the right to alter specifications without prior notice. Equipment illustrated and specifications may vary to meet individual markets. Available colours may vary by market.