

2003 Model Information

MARKETING CODE: **ZX636-B / ZX600-K**

MODEL NAME: **Ninja ZX-6R / Ninja ZX-6RR**



ZX636-B shown

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MODEL CONCEPT

With the development of the stunning new Ninja ZX-6R and ZX-6RR, Kawasaki makes a dramatic departure from the broad-spectrum appeal of the earlier machines, giving both bikes a much stronger track bias. As the aggressive styling of the new Sixes implies, their engines, chassis, riding positions and overall performance are oriented towards serious sports riding and track performance.



ZX636-B shown

The new Ninja ZX-6R and ZX-6RR were developed to be the quickest machines on the track or on twisty roads when compared to other bikes in the middleweight supersport category. Kawasaki expects that yearly world-wide sales of these machines will exceed 20,000 units. The ZX-6RR was developed to meet FIM regulations. With the FIM- or AMA-approved race kit installed, the ZX-6RR was developed to be the fastest bike on the track. Because it is designed for track racing, more than 1,000 units will be produced to meet FIM homologation regulations.

Differences Between the ZX-6R and ZX-6RR

Displacement — ZX-6R: 636 cm³, ZX-6RR: 599 cm³

The displacement was increased to over 600 cm³ because the category has no specific displacement restrictions and the goal was to give the ZX-6R the highest performance in its class. However, because the ZX-6RR must meet FIM regulations, it displaces 599 cm³. Accordingly, the bore/stroke ratios of the two engines also differ, the ZX-6R at 69 x 43.9 mm, and the ZX-6RR at 67 x 42.5 mm. To suit its racing orientation, the ZX-6RR has a shorter stroke.

The ZX-6RR has a higher compression ratio because it was designed for racing, where performance is most important. The ZX-6RR compression ratio is 0.2 higher than that of the ZX-6R. For detailed information on engine part dimensions (and tolerances) please contact your nearest distributor.

The ZX-6RR is fitted with forged pistons, while the 6R uses cast pistons. Forged pistons are used in the RR due to its higher compression ratio and the need for lightweight pistons. Because piston weights differ, the crankshafts of the two engines are also different.



The ZX-6RR is fitted with a back torque limiter. This helps to reduce the possibility of rear wheel hopping during heavy engine braking when riding on a circuit by automatically allowing the clutch to “slip.”

The ZX-6RR features an adjustable swingarm pivot which allows racers to adjust the chassis to their riding style and to the prevailing track conditions. It is also necessary to adjust the suspension, handlebar position, etc. to achieve a comprehensive chassis set-up.



The ZX-6RR is fitted with a steering damper boss. For general riding a steering damper is not needed; the steering damper boss is fitted for racing applications.

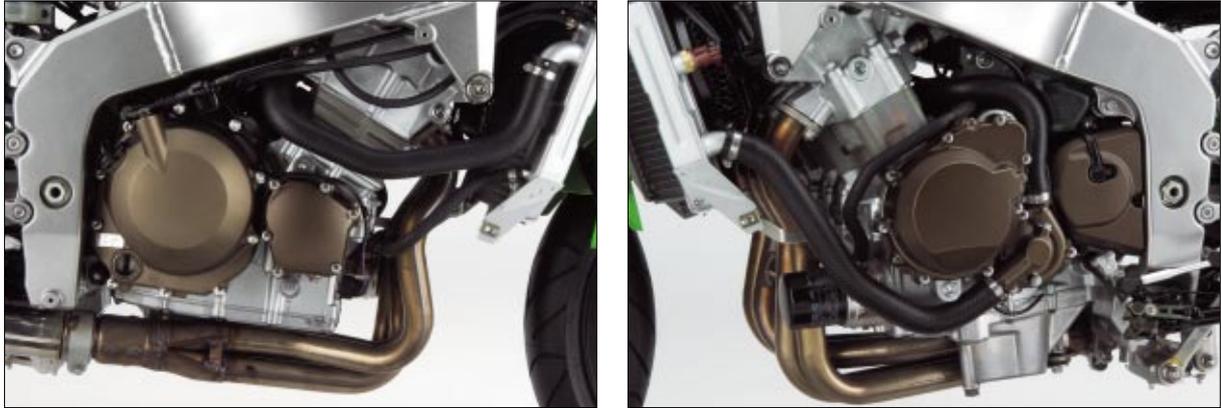
A racing kit for the ZX-6RR is also available. For more details please refer to the racing kit section in the model features.

KEY POINTS

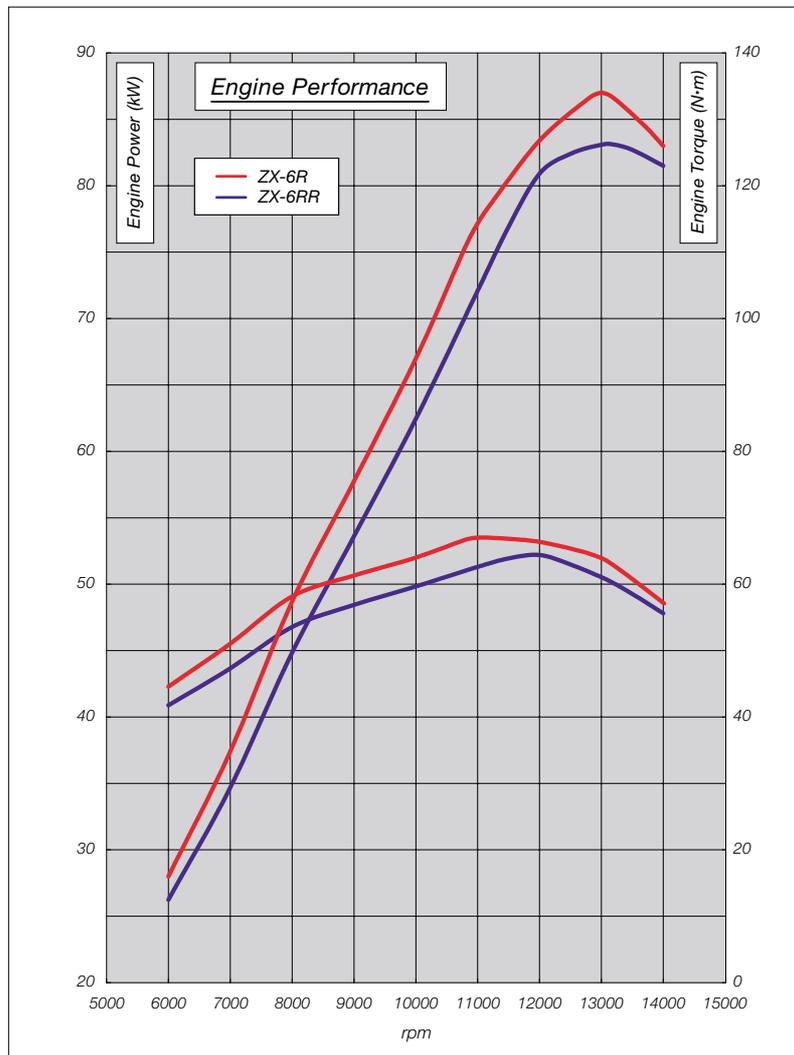
- Newly developed engines are powerful, lightweight and very compact
- Electronically controlled fuel injection increases power across the rpm range
- The all-new engines are designed for high-rpm operation
- Newly designed close-ratio transmission
- New, lightweight aluminium frame with central Ram Air duct
- Fully adjustable inverted front fork with top-out springs
- World’s first production bike fitted with radial mounted 4-piston front brake calipers
- Racing-type instruments include shift-point indicator and lap timer
- Very aggressive styling package features an LED tail light

MAIN FEATURES

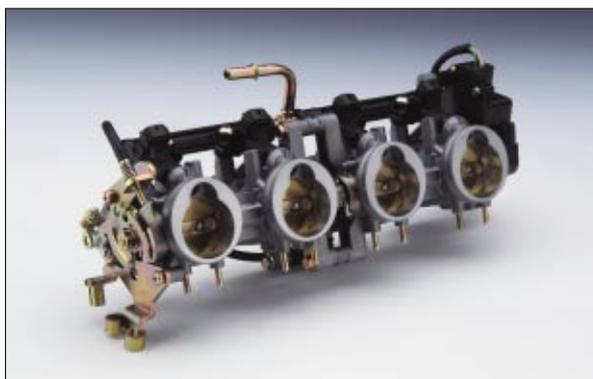
Engine



* Liquid-cooled, DOHC, 16-valve 636 cm³ (599 cm³) In-Line Four engines deliver increased performance, especially in the high rpm ranges.



- * Electronic fuel injection with large-bore 38 mm throttle bodies for high engine output and low emissions. Sub-throttles ensure smooth, linear power characteristics.



- * A higher speed, 32 bit CPU is used which gives more precise engine management. Also, shorter, lighter plug-mounted ignition coils are fitted, and the number of triggers on the pulser rotor have been increased from 11 to 23 for more precise ignition timing.



- * The redesigned cylinder head is 10 mm shorter, weighs less and is more compact. Intake port length is reduced by about 10 mm and is reshaped for increased power output. Smaller diameter, shorter valve guides are fitted. Additionally, smaller diameter head bolts of stronger material further reduce weight (10 mm -> 9 mm).

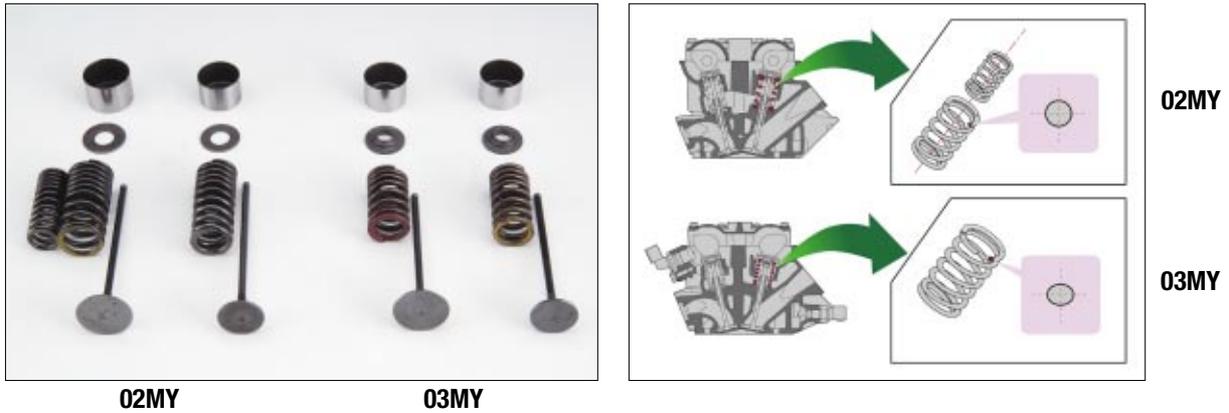


02MY

03MY

- * The engine mounts have been moved from the rear of the cylinder to the front of the cylinder head for greater chassis rigidity.
- * Extremely narrow included valve angle of 25° allows the fitting of large valves in a compact, highly efficient combustion chamber.

- * Intake and exhaust valves are approximately 10 mm shorter, for less weight and increased high-rpm performance. Large, 27 mm intake valves and 22.6 mm exhaust valves for efficient engine breathing. Valve sizes remain unchanged.
- * Intake valves use new, single springs of oval-shaped wire which are lighter and give enhanced valve control at high rpm. Intake tappets have been reduced in diameter to 24 mm (same as exhaust tappet diameter) for lighter weight. Stepped spring seats replace the earlier plain type to better stabilise the springs.



- * New camshafts use reshaped profiles for enhanced high-rpm performance. Cam sprocket size reduced from 34 to 32 teeth for reduced cam weight.



- * Oil feed to the cams is now internal, eliminating the exterior oil line and its weight.
- * A lighter, narrower pitch cam chain is used, while the reduction in length (due to the smaller cam sprockets) contributes to the reduction in friction loss. Additionally, an exhaust cam angle sensor added to the cylinder head provides information for the fuel injection, and a lightweight new front cam-chain guide is fitted.



- * New crankcases are lighter and more rigid, and the piston cooling oil jets have been moved closer to the pistons. The oil pan is also more compact, and engine oil capacity has been reduced. Additionally, smaller diameter crankcase bolts of stronger material further reduce weight (8 mm -> 7 mm).
- * Lighter top piston ring gives enhanced ring sealing at high rpm.



- * The plated, all-aluminium cylinder has 5 mm shorter skirts for reduced weight, and the water passageways have been reshaped for enhanced cooling performance. Additionally, the shape of the cam-chain tunnel is now round. The curve reduces vibration and, hence, reduces engine noise, obviating the need for the sound absorbing piece and reducing cylinder weight even further.



- * The new transmission uses closer ratios for 3rd, 4th, 5th and 6th gears, for enhanced track performance. The cam shape for the shift drum has also been modified for better shifting performance, and the shift lever ratio has been changed.

2003MY ZX-6R/ZX-6RR Gear Ratios

Gear	Primary Ratio	Secondary Ratio	Final Drive Ratio	Overall Ratio
1st	2.022 (89/44)	2.923 (38/13)	2.666 (40/15)	15.766
2nd		2.055 (37/18)		11.087
3rd		1.722 (31/18)		9.289
4th		1.450 (29/20)		7.821
5th		1.272 (28/22)		6.865
6th		1.153 (30/26)		6.223

2002MY ZX-6R Gear Ratios

Gear	Primary Ratio	Secondary Ratio	Final Drive Ratio	Overall Ratio
1st	2.022 (89/44)	2.923 (38/13)	2.666 (40/15)	15.766
2nd		2.062 (33/16)		11.125
3rd		1.631 (31/19)		8.800
4th		1.380 (29/21)		7.448
5th		1.217 (28/23)		6.566
6th		1.083 (26/24)		5.843

- * Centrally mounted Ram Air duct improves Ram Air effect and contributes to lighter chassis weight.
- * A new, lighter exhaust system with a reconfigured collector contributes to the increased engine performance.
- * Muffler housing changed from aluminium to stainless for improved catalyser performance and reduced emissions (meets EURO II regulations).
- * The radiator is lighter, smaller and more aerodynamic and is fitted with a more efficient ring-fan.
- * The air filter element is changed from a wet urethane type to paper type.
- * Use of KLEEN (Kawasaki Low Exhaust Emission) catalyser system reduces environmentally harmful exhaust gasses.
- * KCA (Kawasaki Clean Air) system routes fresh air to the exhaust ports to reduce harmful exhaust emissions.

Frame



ZX600-K shown

- * All-new all-aluminium perimeter frame offers exceptional strength and torsional rigidity while delivering crisp and stable handling performance.
- * This new frame locates the swingarm pivot further forward for improved rear suspension action. The new swingarm is longer.
- * Centrally mounted Ram-Air duct is integrated with the steering head. This simplified design reduces weight and improves Ram Air filling efficiency. It also allows frontal area to be reduced via a narrower, more aerodynamically efficient front fairing.
- * Extruded aluminium swingarm with internal ribbing offers high stiffness and low weight. Hexagonal shape looks cool.
- * Steering head bearings use ball bearings for light, responsive steering.

Suspension

- * New, fully adjustable inverted front fork runs stiff 41 mm tubes for high fork rigidity and superior steering feedback. Top-out springs are fitted for stable performance throughout the stroke range.
- * New damping rates enhance road surface feedback and fork action.
- * Race-developed Bottom-Link type Uni-Trak rear suspension delivers a smooth ride and excellent cornering performance.
- * Nitrogen gas-charged rear shock with piggyback reservoir is fully adjustable for rebound/compression damping and preload.
- * A top-out spring has also added to the rear shock for improved action.

Brakes

- * New, radial-mounted, 4-piston front brake calipers deliver exceptional feel and performance – widely used in racing, this is a first for a production bike. Four independent brake pads are used – one for each piston – for more even wear and improved heat resistance.



- * New, semi-floating, drilled, 280 mm stainless steel front disc rotors are 6 mm thick for high heat capacity and mount on disc carriers without offset to reduce weight.
- * Brake lever is 5-way adjustable.
- * Small diameter rear brake disc measures 220 mm in diameter for low unsprung weight.



- * Rear brake pedal ratio changed for improved feel. Caliper assembly is compact and lightweight.
- * Rear brake caliper mounts directly to the swingarm, negating the need for an independent brake tie-rod.

Wheels / Tyres

- * New front and rear wheels are lighter for reduced unsprung weight.
- * Rear wheel features wide 5.5-inch rim. Front rim measures 3.5 inches.
- * High-spec front and rear tyres deliver exceptional cornering performance.

Tyre sizes:

Front: 120/65ZR17M/C (56W)

Rear: 180/55ZR17M/C (73W)

Bodywork



- * GP-style fairing gives the machines a distinctively racy look.
- * Fairing offers a low drag coefficient for superior aerodynamics.
- * Reshaped central Ram Air duct gives the front of the bikes a very aggressive look.



- * Lightweight and very bright dual multi-reflector headlight.
- * Riding position is track oriented. Handlebar, seat and footpeg locations give an ideal position for high performance riding. Ergonomically shaped seat and tank allow rider to mould himself to the bike.



- * Swingarm-mounted inner fender looks cool and keeps the underside of the seat cowl cleaner.



Other Features

- * All-new instrument panel features a bar-type LCD tach, digital LCD speedo, an adjustable shift indicator lamp, and a stopwatch-style lap timer – this in addition to digital temp gauge, clock, tripmeter, etc. and a comprehensive range of indicator lamps. The shift indicator lamp has three settings: Off, Low and Bright.



- * LED tail light is very light, highly compact and very durable. It also looks exceptionally cool.



- * Tamper resistant ignition switch.
- * MF-type battery simplifies periodic maintenance.
- * Quick-detach rear seat allows easy mounting of the optional single-seat cover. (For US and Canadian models, the single-seat cover is a standard part.)



- * New, one-piece forged aluminium handlebars are lighter and are mounted in a more rearward position.

ZX-6RR Race Kit



Components:

1. Cylinder Head Group
 - Head gaskets come in choice of thickness
2. Cylinder Group
 - Gaskets come in choice of thickness
3. Air Filter Group
 - Funnels with choice of length
4. Valve Group
 - Intake/Exhaust valve springs
5. Camshaft Group
 - Intake/Exhaust camshafts – stock cam sprockets can be used
 - Cam chain adjuster
6. Crankshaft Group
 - Choice of big-end metals
7. Transmission Group
 - 3 Series of gear choices
 - Shims and washers for adjustment
8. Cover Group
 - Metafoam gaskets for easier servicing
 - Generator cover (aluminium) to accommodate racing generator
9. Electronic Fuel Injection Group
 - Control unit with changeable map, comes with wiring programme disc (Win98 compatible)
 - Harness to connect computer and kit ECU
10. Oil Pump Group
 - Inner rotor width narrower to minimise friction
11. Generator Group
 - Smaller racing generator
12. Chain Group
 - 520 chain and clip
 - Chain guard to protect rider's leg

13. Cable Group
 - Open/Close throttle cable
14. Cowling Group
 - Bracket for kit meter
15. Fitting Group
 - Steering damper holder
16. Brake Pad Group
 - Front/Rear brake pads
17. Handlebar Group
 - Racing throttle pulleys and casing, cases will be aluminium
18. Fork Group
 - Spacers and choice of springs
19. Instrument Group
 - Analogue tach with temp gauge
 - Meter pad
20. Harness Group
 - Harness for kit tach
 - Supplemental harness to connect stock main harness and kit ECU

< Misc.>

- Radiator and exhaust system will be “local procurement” – factory bred European vendors have been involved in development from the beginning.

** The above components were designed to meet FIM or AMA regulations, however please confirm with the latest FIM/AMA, or local race regulations.*

COLOUR(S)

ZX636B:

* Lime Green (EUR/CAN/AUS only)



* Black Pearl



* Candy Lightning Blue (EUR/USA only)



* Passion Red (USA/CAN only)



* Galaxy Silver Type 2 (USA only)



ZX600K:

* Lime Green



SPECIFICATIONS

ENGINE	ZX636-B1 / ZX600-K1
Type	4-stroke In-Line Four
Displacement	636 cm ³ (ZX636B) 599 cm ³ (ZX600K)
Bore and Stroke	68.0 x 43.8 mm (ZX636B) 67.0 x 42.5 mm (ZX600K)
Compression ratio	12.8:1 (ZX636B) 13.0:1 (ZX600K)
Valve system	DOHC, 16 valves
Fuel injection	Ø 38 mm x 4
Ignition	Digital
Starting	Electric
Cooling	Liquid
Lubrication	Forced lubrication, wet sump
Engine oil: Rating	API SE, SF, SG, SH (with JASO MA) or SJ (with JASO MA)
Viscosity	SAE 10W-40
Capacity	4.0 litres
Spark plug	CR9E
Valve timing: Inlet	Open: 58° BTDC; Close: 82° ABDC; Duration: 320° (ZX636B) Open: 55° BTDC; Close: 85° ABDC; Duration: 320° (ZX600K)
Exhaust	Open: 62° BBDC; Close: 34° ATDC; Duration: 276°
Piston clearance	0.010 ~ 0.037 mm
Cylinder pressure	1,350 kPa {13.8 kgf/cm ² } @ 350 rpm
Charging current & voltage (night-time @ 4,000 rpm)	11 A, 14 V
Exhaust	4-2-1
DRIVETRAIN	
Transmission	6-speed, return
Primary drive	Gear
Final drive	Sealed Chain
Primary reduction ratio	2.022 (89/44)
Gear ratios: 1st	2.923 (38/13)
2nd	2.055 (37/18)
3rd	1.722 (31/18)
4th	1.450 (29/20)
5th	1.272 (28/22)
6th	1.153 (30/26)
Final reduction ratio	2.666 (40/15)
Overall drive ratio	6.223 @ top gear
Clutch	Wet, multi-disc

FRAME	ZX636-B1 / ZX600-K1
Type	Perimeter, pressed-aluminium
Suspension: front	41 mm inverted cartridge fork with rebound and compression damping, spring preload adjustability and top-out springs
rear	Bottom-Link Uni-Trak with gas-charged shock, stepless rebound and compression damping, spring preload adjustability and top-out springs
Wheel travel: front	120 mm
rear	135 mm
Tyre: front	120/65ZR17M/C (56W)
rear	180/55ZR17M/C (73W)
Inflation: front	250 kPa {2.5 kgf/cm ² }
rear	290 kPa {2.9 kgf/cm ² }
Caster (rake)	24.5°
Trail	95 mm
Steering angle (left/right)	27° / 27°
BRAKES	
Front	Dual semi-floating 280 mm discs
Front calipers	Radial mount, opposed 4-piston
Rear	Single 220 mm disc
Rear caliper	Single-bore pin-slide
ELECTRICAL EQUIPMENT	
Battery	12 V, 8 Ah
Headlight (high/low)	12 V, 55/55 W x 2
Tail/brake light	12 V, 0.5/3.8 W (LED) for EUR/AUS 12 V, 0.5/5 W (LED) for USA/CAN
DIMENSIONS	
Overall length	2,025 mm
Overall width	720 mm
Overall height	1,110 mm
Wheelbase	1,400 mm
Ground clearance	130 mm
Seat height	825 mm
Dry weight	161 kg
Fuel capacity	18 litres

PERFORMANCE	ZX636-B1 / ZX600-K1
Maximum power	87 kW {118 PS}/ 13,000 rpm (ZX636B) 83.1 kW {113 PS}/ 13,200 rpm (ZX600K)
Maximum power with Ram Air	91.5 kW {125 PS}/ 13,000 rpm (ZX636B) 87.8 kW {120 PS}/ 13,200 rpm (ZX600K)
Maximum torque	67 N·m {6.8 kgf·m}/ 11,000 rpm (ZX636B) 64.4 N·m {6.6 kgf·m}/ 12,000 rpm (ZX600K)

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.