

# 2005 Model Information

MARKETING CODE: **ZX636C**

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



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# OVERALL CONCEPT

The 1985 GPZ600R (Ninja 600R in the U.S.) was the first middleweight to offer engine, chassis and aerodynamic performance levels to rival those of larger-displacement models. Ever since, Kawasaki 600cc supersport models have featured high-performance engine, chassis and aerodynamic technology previously reserved for larger bikes. This tradition continues with the 2005 Ninja ZX-6R. Already the highest performing middleweight supersport, the new model benefits from a host of modifications to engine, chassis and styling that put it even further ahead of its competition, offering improved performance on both the circuit and on twisty roads.



Engine features include a new cylinder head, new cylinder, and oval-shaped sub-throttle valves fed by twin injectors for improved intake efficiency. Larger intake and exhaust valves operated by revised cam profiles also contribute to the overall performance increase, while an exhaust valve integral with the muffler improves low and mid-range response. In short, the new power plant delivers more power (especially on top end), has more linear power characteristics and is more fun to ride.

Form follows function in the stylish new cowl and underseat muffler, both of which improve the bike's aerodynamics. The new cowl moves the point where the boundary layer separates from the cowling forward. This not only reduces turbulence around the rider, it significantly shortens the point of convergence at the rear of the machine, greatly improving aerodynamic efficiency. In fact, the new ZX-6R has the best drag coefficient ( $C_{dA}$ ) of any Ninja to date – a feature worth approximately 10 PS at 250 km/h.

Chassis features include a new aluminium frame, an ultra-trick braced swingarm, a new fork, improved rear suspension settings, and new 10R-type wheels. The new chassis dimensions shorten the wheelbase and move the swingarm pivot point forward for improved cornering performance. Race-bike features like a direct-action brake master cylinder, radial-mount calipers, petal front brake discs and a back-torque limiter tuned with feedback from Kawasaki's MotoGP machine further increase the 6R's potency on the circuit.

Exciting is the word which best describes the styling of the new 6R. The bodywork that complements the new under-seat exhaust features styling cues from the MotoGP machine and the Ninja ZX-10R. New Ram-Air intake, new headlight design, integrated front turn signals and LED tail lamp give the new 6R an unmistakable resemblance to the 10R.

Engine, chassis and design, the 05MY Ninja ZX-6R puts everything else in its category deeply in the shade – again.

The Ninja ZX-6R's key sales features can be summarised as follows:

- **Designed for No. 1 Performance on the Circuit and Winding Roads**

- Power boosting features include bigger intake and exhaust valves, new cams, and larger-area oval-shaped sub-throttles fed by dual injectors.
- Exhaust valve integral with the under-seat muffler improves low- and mid-range engine performance.
- Improved aerodynamics gives the new 6R the best  $C_{dA}$  of any Ninja to date.
- Back torque limiter fit standard.
- New frame and swingarm with revised chassis dimensions improve cornering performance.
- 300 mm petal front disc brakes with radial-mount calipers and direct-action brake master cylinder.

- **The Racy Ninja Look** – New bodywork with MotoGP-derived styling, new massively braced alloy swingarm, 10R-type wheels, integrated front turn signals and LED rear tail light complement the new under-seat muffler and give the 2005 6R a very strong family resemblance to the Ninja ZX-10R.

- **Rider and Machine Are One = Fun to Ride** – Revised riding position based on that of the 10R puts the rider in the ideal position to take advantage of the 6R's awesome performance.

# KEY SALES FEATURES

## DESIGNED FOR NO.1 PERFORMANCE ON THE CIRCUIT AND WINDING ROADS

### Engine



- \* Upgraded, liquid-cooled, DOHC, 16-valve 636 cm<sup>3</sup> In-Line Four engine delivers increased performance, especially in the higher rpm ranges.
- \* New cylinder head design locates each pair of intake/exhaust valves farther apart for improved breathing and higher combustion efficiency.
- \* Complementing the new head are new pistons with reshaped crowns and improved, low-friction skirt profiles. (Photo 1)



- \* Larger diameter intake and exhaust valves, together with new cam profiles, contribute to the new engine's enhanced performance. The new 6R gets the 03MY racing kit intake and exhaust cams. (Photo 2)

\* Large-bore 38 mm throttle bodies feature oval-shaped sub-throttles that allow airflow to be increased without the need to increase the throttle body pitch (hence the engine width does not need to increase and a slim riding position can be maintained). The additional intake area improves intake efficiency by 20%, contributing to the new engine's increased performance. The use of oval-shaped sub-throttles is the first adoption of this technology in the middleweight supersport class. (Photo 3)



\* Dual-injector fuel injection system uses fine atomising injectors for the main injectors and features a set of secondary injectors located in the airbox. The result is improved cylinder filling, crisper throttle response and higher power output. (Photos 4,5)



\* The new fuel tank design improves mass centralisation and allows the use of a larger-capacity airbox, which further improves intake efficiency.

\* Another important new feature is the addition of an exhaust valve. Integral with the new under-seat muffler, this device controls the pressure waves inside the exhaust system, contributing to improved low- and mid-range power characteristics. (Photos 6,7)



- \* Larger capacity radiator improves cooling efficiency. The new radiator is 40 mm taller and features more tightly packed cores. (Photo 8)



- \* Controlling the new engine is a new ECU, with added memory for the exhaust valve and for the second set of fuel injectors.

## Transmission

- \* Like the 6RR, the new 6R clutch is fitted with a back-torque limiter. This reduces rear-wheel hop that may occur when downshifting at high rpm. (Photos 9-11, Illustration A)



- \* Shifting quality is also better, thanks to a bearing fitted to the shift-drum locator arm.
- \* 3rd gear ratio is taller, for better spacing between the gears.
- \* Strong needle bearings used at the ends of the transmission shafts contribute to transmission durability.

## Suspension

\* Fully adjustable Showa fork delivers improved ride quality and outstanding cornering performance. (Photo 12)



\* Race-developed Bottom-Link type Uni-Trak rear suspension delivers a smooth ride and excellent cornering performance. New linkage ratios give more linear action, and improved settings for the rear shock improve both ride quality and track performance. (Photo 13)

## Frame



- \* New all-aluminium perimeter frame offers exceptional strength and torsional rigidity while delivering responsive and stable handling performance.
- \* The new frame reduces the distance between the swingarm pivot and steering head by 13 mm, contributing to the shorter wheelbase and allowing use of a longer swingarm. Wheelbase: 1,397 > 1,390; Rake: 24.5° > 25°; Fork offset: 26 mm.
- \* Forward-located swingarm pivot and long swingarm reduce the leverage of the rear sprocket on the rear suspension, resulting in superb rear suspension action.
- \* New braced aluminium swingarm is significantly more rigid and resembles that used on the Ninja ZX-10R. The new swingarm uses a cast section at the pivot, with bracing on the right side. The left arm is a reinforced extrusion. The exhaust pipe for the under-seat exhaust passes through the swingarm. (Photos 14-16, Illustration B)



- \* Improved, centrally mounted Ram Air duct is integral with the steering head. By reducing air resistance inside the Ram Air ducts, Ram Air efficiency has been improved, contributing to the increase in power output.
- \* Steering head uses ball bearings for light, responsive steering.

## Brakes

- \* Radial-mounted, 4-piston front brake calipers deliver exceptional feel and performance – widely used in racing, the 03MY 6R and 6RR were the first production bikes in their class to feature this style of brake caliper. Four independent brake pads are used – one for each piston – for more even wear and improved heat resistance. (Photos 17,18)



- \* Large-diameter, semi-floating, drilled, 300 mm stainless steel front disc rotors are 5.5 mm thick for high heat capacity and mount on disc carriers without offset to reduce weight.
- \* Radial piston front brake master cylinder uses direct action for improved control and better feel at the lever. (Photo 19, Illustration C)



- \* Brake lever is 5-way adjustable.
- \* Small diameter rear brake disc measures 220 mm in diameter for low unsprung weight.
- \* Compact, lightweight rear brake caliper mounts directly to the swingarm, negating the need for an independent brake tie-rod.

## Wheels/Tyres

- \* New, ZX-10R-type wheels are light and increase the family resemblance of the Ninja series. The front is the same as the ZX-10R's, but with a smaller 25 mm axle. The rear wheel features the same design as the 10R's, but with a smaller rim size.
- \* Rear wheel features a 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

- \* New cowling design dramatically improves the bike's aerodynamic performance, while enhancing the "Ninja family" look. The new ZX-6R has the lowest  $C_{dA}$  of any Ninja released to date. (Photo 20)



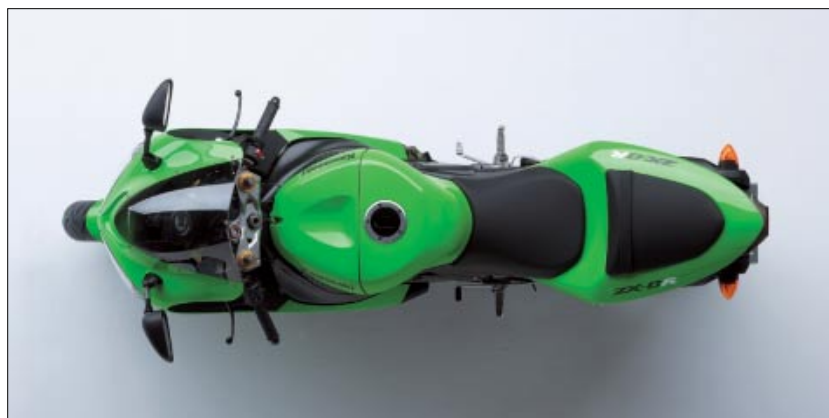
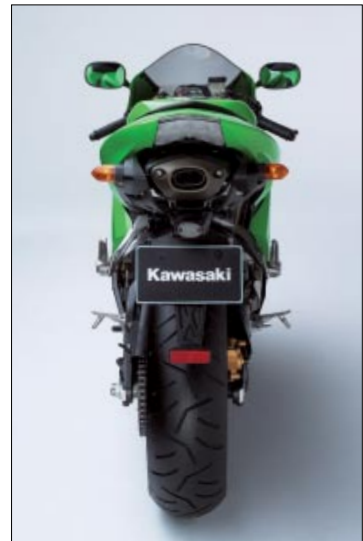
- \* The new cowl moves the point where the boundary layer separates from the cowling forward, which significantly shortens the point of convergence at the rear of the machine, greatly improving the bike's aerodynamic efficiency. This also reduces turbulence around the rider, but more importantly, this design allows a greater possible top speed and quicker acceleration.

## THE RACY NINJA LOOK

### Engine

- \* Under-seat muffler contributes to improved aerodynamics and gives the new 6R a slim, racy look.

## Bodywork



- \* All-new bodywork with MotoGP styling elements gives the machine a distinctively racy look.
- \* 10R-style cowling with “hungry” central Ram Air duct and very bright dual multi-reflector headlight gives the front of the bike a very aggressive look.

- \* European models feature front turn signals stylishly integrated in the bodywork for improved aerodynamics. Rear turn signals are extremely compact and feature a conical design. (North American models feature compact new front and rear turn signals like those on the Z750S.) (Photo 21)



- \* Flush-surface LED tail light like that of the 10R curves up slightly over the top of the seat cowl, making the 6R very visible to the drivers of high vehicles. (Photos 22,23)



- \* Aerodynamic front fender is the same as on the Ninja ZX-10R.
- \* Optional single seat cover can replace the tandem seat for an even more aggressive image. (Photos 24,25)



## Instruments

- \* Racing-style instrument panel features a bar-type LCD tachometer, digital LCD speedometer, an adjustable shift indicator lamp, and a stopwatch-style lap timer – this in addition to digital temp gauge, clock, tripmeter and a comprehensive range of indicator lamps. The shift indicator lamp has three settings: Off, Low and Bright. (Photos 26,27)



## Other Touches

- \* Matt-black frame and swingarm enhance the 6R's racy look.
- \* Upper triple clamp has holes for a stylish appearance and lighter weight.
- \* Newly designed passenger peg brackets are very stylish.
- \* All-stainless exhaust system.

## RIDER AND MACHINE ARE ONE = FUN TO RIDE

### Ergonomics

- \* Revised riding position is based on that of the Ninja ZX-10R. The pulled back steering head reduces the distance between the handlebars and the footpegs. The new frame, seat and fuel tank locate the rider "in" the bike, giving the rider a very confident feel. Handlebar, seat and footpeg locations give an ideal position for high performance riding with a good level of comfort. (Photos 28,29)



- \* The redesigned fuel tank features a depression in the top surface of the tank cover so the rider is able to tuck in better, for improved aerodynamics.
- \* The new cases mount the cylinder at a more vertical angle (25° to 20°), allowing the engine to be mounted further forward in the frame.

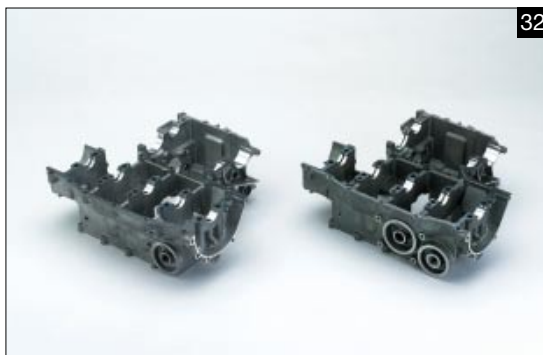
# ADDITIONAL FEATURES

## Engine

- \* Extremely narrow included valve angle of 25° allows the fitting of large valves in a compact, highly efficient combustion chamber.
- \* The new cylinder has three breathing passageways, one located between each pair of cylinders. This contributes to effective crankcase breathing, which reduces pumping loss. (Photo 30)

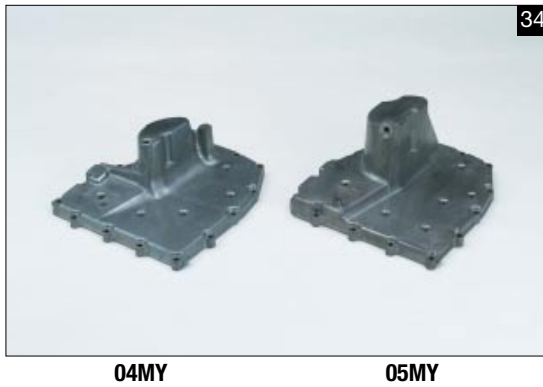


- \* Thicker castings used for the engine cases improve engine rigidity and reduce vibration and feature improved lubrication. (Photo 31)
- \* The new lower case has separate mounting bosses for the oil filter and oil cooler. Additionally, a new aluminium oil cooler (previously stainless steel) improves cooling efficiency. (Photos 32,33)



- \* Further performance gains were achieved by increasing the width of the oil pump while changing its drive ratio to reduce its rpm.

- \* Deeper oil sump lowers the oil level for reduced windage losses. (Photo 34)



- \* The crankshaft has been strengthened to reduce flexing and now features larger diameter main journals (30 mm to 31 mm). The crank has also been re-balanced for smoother running. (Photo 35)
- \* Catalytic converter located at the collector helps keep emissions friendly. (Photo 36)



- \* Operability is improved with a new auto-fast-idle system.
- \* New air filter element mounts vertically rather than horizontally, which simplifies air filter maintenance.

## Chassis

- \* Immobiliser function incorporated into the ignition switch on most European and Australian models helps prevent theft.
- \* MF-type battery simplifies periodic maintenance.

# COLOUR(S)

\* Lime Green / Flat Stoic Black



\* Metallic Raw Titanium / Flat Stoic Black



\* Candy Plasma Blue / Flat Stoic Black



\* Pearl Magma Red / Flat Stoic Black (USA/CAN/AUS)



# SPECIFICATIONS

<b>ENGINE</b>	<b>ZX636-C1</b>
Type	Liquid-cooled, 4-stroke In-Line Four
Displacement	636 cm <sup>3</sup>
Bore and Stroke	68 x 43.8 mm
Compression ratio	12.9:1
Valve system	DOHC, 16 valves
Fuel system	Fuel injection: ø 38 mm x 4 (Keihin), twin injection
Ignition	Digital
Starting	Electric
Lubrication	Forced lubrication, wet sump
<b>DRIVETRAIN</b>	
Transmission	6-speed, return
Final drive	Sealed Chain
Primary reduction ratio	1.891 (87/46)
Gear ratios: 1st	2.923 (38/13)
2nd	2.055 (37/18)
3rd	1.666 (35/21)
4th	1.450 (29/20)
5th	1.272 (28/22)
6th	1.153 (30/26)
Final reduction ratio	2.866 (43/15)
Clutch	Wet multi-disc, manual
<b>FRAME</b>	
Type	Perimeter, pressed-aluminium
Wheel travel: front	120 mm
rear	130 mm
Tyre: front	120/65ZR17M/C (56W)
rear	180/55ZR17M/C (73W)
Caster (rake)	25°
Trail	106 mm
Steering angle (left/right)	27° / 27°

<b>SUSPENSION</b>	<b>ZX636-C1</b>
Front: Type	41 mm inverted cartridge fork with rebound and compression damping, spring preload adjustability and top-out springs
Rear: Type	Bottom-Link Uni-Trak with gas-charged shock, spring preload adjustability and top-out spring
Compression damping	Stepless
Rebound damping	Stepless
<b>BRAKES</b>	
Front: Type	Dual semi-floating 300 mm discs
Caliper	Dual radial-mount, opposed 4-piston, 4-pad
Rear: Type	Single 220 mm disc
Caliper	Single-bore pin-slide
<b>DIMENSIONS</b>	
Overall length	TBA
Overall width	TBA
Overall height	TBA
Wheelbase	TBA
Ground clearance	TBA
Seat height	TBA
Dry weight	TBA
Fuel capacity	17 litres
<b>PERFORMANCE</b>	
Maximum power	TBA
Maximum power with Ram Air	TBA
Maximum torque	TBA

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.