



2006 YZF-R1

A masterpiece refined

More than any other motorcycle, the R1 has become synonymous with awe-inspiring engine performance and remarkable handling qualities. Yet, at the same time as being one of the world's premier large-capacity supersport machines, the Yamaha R1 has also established a reputation for being one of the most stylish and beautifully-finished motorcycles that money can buy – in any category.

On the race track the YZF-R1 has been quick to make its presence felt, and in 2004 the R1 won three major titles – the AMA Superstock Championship, the European Superstock Championship, and the FIM World Endurance Championship.

R1 riders have also performed strongly in the prestigious All Japan Championships, and the R1 was victorious in the Isle of Man TT races on the world's toughest road circuit. More recently the YZF-R1 had an impressive victory in the 2005 24-hour race of Le Mans and took its debut race win in the 2005 World Superbike Championship, underlining the machine's ability to win at the very highest level.

2006 R1. THE HUMAN TOUCH

The development goals of the R1 have always been the same since day one: to create the definitive high performance supersport motorcycle with class-leading engine and chassis technology combined with aggressive and distinctive styling, that delivers the ultimate riding experience and unrivalled cornering performance.

Yamaha has always been an innovative and forward-looking company, and for these reasons the R1 development team are constantly striving for an even higher degree of perfection.

When the fourth generation YZF-R1 was launched it immediately set new standards for cornering, performance and styling, and the wide range of engine and chassis changes introduced for 2006 are designed to enhance the R1 experience even further. The higher powered engine and more agile chassis are sure to underline the R1's unrivalled cornering performance and handling qualities on secondary roads – and will undoubtedly reinforce its reputation as the most exciting and rewarding supersport machine.

All these developments are the result of Yamaha's ongoing research and development programme, in which the R1 has been constantly pushed to the limit by our factory test riders. It is their input that has helped to make the latest model feel and perform the way it does, and it underlines how human sensitivity has played a key role in forming the distinctive character of the R1.





ENGINE

3 horsepower increase

The 2006 model runs with the same 998 cc liquid-cooled 4-stroke DOHC 4-cylinder 5-valve layout featuring a 77 x 53.6 mm bore and stroke and 12.4:1 compression ratio. Equipped with a 3-axis transmission, fuel injection and 40 degree forward slanted cylinders, this ultra-compact powerplant is one of the most highly respected supersport engines of all time.

Yamaha's engineers have conducted a thorough examination of the R1's intake and exhaust efficiency, and for 2006 a range of detailed changes in this area have achieved a 3 HP increase in power at 12,500 rpm without direct air induction.

One of the most significant changes is the use of shorter intake valve guides for 2006. Measuring 27.5 mm, these new guides are 5 mm shorter than the 2005 model, and this 15% reduction in length increases engine efficiency by increasing intake air flow, and reducing frictional power losses. To match the new intake valve guides, the 2006 model also features smoother intake ports. Furthermore, the clutch boss has been modified to increase the oil flow to the clutch assembly.

Other detail changes

The design of the compact cam chain tensioner has been revised, and now features a different sealing system for improved durability. The overall length of the main gear axle is increased by 5 mm, and the engine cover is modified accordingly.

ENGINE TECHNICAL HIGHLIGHTS

- 998 cc liquid-cooled 4-stroke DOHC 4-cylinder 5-valve
- 3 hp power increase to 175 HP @ 12,500 rpm*
- 40 degree forward incline cylinder
- Fuel injection
- Ultra compact 3-axis transmission
- 77 x 53.6 mm bore and stroke
- 12.4:1 compression ratio
- New smoother intake port design
- New shorter intake valve guides
- Higher intake and exhaust efficiency
- Modified cam chain tensioner
- Redesigned clutch boss

* Without direct air induction

CHASSIS

The R1's Deltabox V chassis has been developed with the benefit of ongoing structural analysis and repeated testing, all the time using input from our highly successful MotoGP race programme. For 2006 the R1's class-leading aluminium Deltabox V frame remains externally similar to the existing model, but beneath the skin some subtle yet significant changes have taken place.

Revised lateral and torsional rigidity balance

The front section of the main frame consists of a number of layers of cast and sheet aluminium that create a strong and lightweight structure. By altering the thickness of the constituent parts of this structure, the rigidity balance of the '06 Deltabox V frame has been revised at the section of the main frame around the forward engine mounts.

The thickness of the cast aluminium outer layer on the latest frame has been reduced by 1 mm to 3.5 mm at the thinnest point. This gives a small reduction in rigidity in the section of the main frame between the forward engine mounts and the steering head. In this way the new frame offers the same high levels of stability and lateral rigidity as the 2005 model, together with even lighter and more responsive handling in turns.

These changes have been introduced as a direct result of many thousands of hours of intensive track and road testing, and riders of the 2006 model are sure to feel the improvement in rider feedback and handling qualities generated by the revised chassis design.

Modified engine and swingarm mounts; modified fork components

The R1's rigidity balance has also been altered by modifying the engine mounts and swingarm brackets. The front fork lower triple clamp is now straight – compared with the offset design on the current model – and the rigidity balance of the new gold-coloured front fork outer tubes has also been revised. Individually, these changes would appear to be relatively minor, but the combined effect of them is to deliver an idealised balance of rigidity, or balanced flex, which makes for higher quality handling characteristics during cornering, acceleration and deceleration.

New longer swingarm

The original YZF-R1 pioneered the use of a long swingarm with its pivot axle positioned close to the bike's mid-way point, and the 2006 model takes this concept one step further.

While the overall structure of the latest swingarm is similar to the current model, its overall length is increased by 20 mm, a change which offers two main advantages. Firstly, the disruptive effect on handling caused by chain tension during cornering is reduced, and secondly, the extended swingarm gives a good rigidity balance and contributes to the R1's high levels of traction.

The 2005 model is already recognised as being one of the best balanced supersport machines, but our engineers – who are totally committed to optimising every aspect of the R1 – have modified the swingarm to refine this balance, in order to deliver even better handling performance and driveability. The new swingarm also increases the chain adjustment range, and widens the choice of rear tyres available for the latest model.



Increase in front wheel weight distribution

The longer swingarm also affects weight distribution, and the 2006 R1 runs with a 1% increase in front wheel weight distribution, giving this bike an even more 'planted' feel on the road than ever before. Combined with the frame's revised rigidity balance, these other chassis improvements make for class-leading cornering performance, and reaffirm the R1 as the leading choice for discerning supersport riders.

CHASSIS TECHNICAL HIGHLIGHTS

- Deltabox V aluminium frame
- Modified frame rigidity balance
- No change to vertical rigidity
- Revised thickness of front section of main frame
- Modified engine and swingarm pivot mounts
- New lower triple clamp
- Extended swingarm – 20 mm longer
- 1% increase in front wheel weight distribution
- New gold-coloured fork outer tubes with revised rigidity balance
- Lap timer

AVAILABLE COLOURS

- Lava Red
- Midnight Black
- Yamaha Blue

Special Colour

And to celebrate Yamaha's 50th Anniversary...

- Extreme Yellow

The 50th Anniversary model features the famous Black and Yellow Yamaha 'Speed Block' design made famous by Yamaha's GP race bikes in the 1970s and 1980s. This legendary colour scheme has been inspired by the livery of the World Championship-winning Yamaha factory bikes that dominated the 500 cc Road Racing World Championship in 1978, 1979 and 1980. The Yellow R1 will also feature Yamaha's 50th Anniversary logo on the tank.



YZF-R1. It's all in the detail

It's fair to say that the YZF-R1 is one of, if not the most famous supersport motorcycle ever built. When it was originally launched in 1998, the first-generation R1 was universally regarded as being the most remarkable motorcycle of its time. Now, eight years and four generations later, the latest R1 can still justifiably claim to be one of the most outstanding high performance motorcycles of the decade.

With numerous racing victories to its credit, including the 2004 AMA Superstock Championship, European Superstock Championship and FIM World Endurance title, as well as stunning performances in the Isle of Man TT races and the All Japan Championships, the R1 has proved that it is at the top of its game.

Increased power and an even better handling chassis for 2006 mean that this legendary machine is destined to maintain its position as the most exciting, most desirable and most beautiful 1,000 cc supersport.



Highly exclusive new YZF-R1SP

To satisfy the strong demand from experienced riders looking for the ultimate supersport performance, a high specification 'SP' version of the YZF-R1 is to be offered alongside the standard machine in 2006. The highly exclusive new Yamaha YZF-R1SP is a limited production model fitted with a range of high quality racing components, and is based on the latest generation R1.

The R1SP is a fitting tribute to Yamaha's technological innovation and to the R-series line-up. A limited run of only 500 units will be available in the European market.

This model is unique in that it is not simply a stock R1 with a range of race parts fitted to it. Rather, it is a specially developed motorcycle featuring exclusive one-off components that have been designed and tested specifically for this machine in close association with Öhlins and Marchesini – two of the racing world's most respected and renowned manufacturers.

Special colouring for the SP version

The remarkable new YZF-R1SP is offered in a very special high-quality colour scheme to underline its exclusivity. The bodywork and chassis are finished in Gun Smoke – the same colour as the MT-01 frame – while the duotone fuel tank features a matt black front section with a golden Yamaha tuning fork, and the rear section is finished in gloss black.

Öhlins front and rear suspension

Yamaha and Öhlins have enjoyed an extremely close working relationship for many years, and so when Yamaha made the decision to produce the YZF-R1SP, the Swedish suspension specialists were invited to join the project right from the beginning.

Yamaha have worked intensively with the Öhlins team in order to develop a suspension package that would offer the YZF-R1SP rider the ultimate front and rear suspension set-up. Our engineers and test riders spent months developing and testing the new forks and rear shock, and the end result is a high quality suspension system that offers unrivalled performance, remarkable balance, and optimum adjustability.

Initially the R1SP was tested with production Öhlins front and rear suspension, but Yamaha engineers requested a number of important specification changes to suit the exclusive new SP model.

The suspension package is one of the most advanced ever to be offered on a production Yamaha, and is designed to deliver exceptional handling performance on the road as well as on the track.



Height-adjustable rear suspension with Öhlins rear shock

The specially-developed new fully-adjustable Öhlins rear shock absorber features a hydraulic pre-load adjuster which allows for quick and highly accurate adjustments when riding on the road or race track.

In addition to its wide range of shock adjustability, the new rear suspension system is also equipped with a compact height adjuster situated in a relay arm in the suspension linkage. This easily adjustable system allows the YZF-R1SP rider to raise or lower the ride height by a total of 10 mm to suit varying track or road conditions, and underlines the SP model's enhanced range of potential chassis set-ups compared with the standard model.

Öhlins front forks

Featuring a gold-coloured finish, the high-specification Öhlins front forks are the most sophisticated system available on a production motorcycle. Offering full adjustability for pre-load, compression and rebound damping, these high quality front forks have been developed to work in unison with the new rear shock absorber, and deliver remarkable feedback and superior ride quality.

Engineers from Öhlins have played a significant role in the design and set-up of the suspension for Yamaha's MotoGP-winning YZR-M1, and this invaluable experience has been used in the development of the new rear shock and front forks for the R1SP.

These extremely advanced new forks offer an even wider range of settings than the front suspension on the standard bike, and this allows the SP rider to dial in the idealised settings for optimum chassis performance on a variety of different circuits and public roads.

Slipper clutch

Another significant difference between the stock R1 and the R1SP is the use of a slipper clutch on the limited edition SP model. This race-bred design limits the back torque transmitted from the rear wheel through to the crank, and in doing so it improves traction during rapid deceleration and hard braking in racing conditions, and enhances engine and transmission reliability.

Forged aluminium Marchesini wheels

Special new lightweight wheels have been developed jointly by Yamaha engineers and Marchesini, and they feature the same 'Y' shaped spokes as the YZR-M1 MotoGP machine.

This is the first time that this type of wheel has been used by Yamaha on a production road machine. Manufactured from forged aluminium to Yamaha's exacting requirements, they offer a total of 400 g in weight savings compared with the standard 5-spoke wheels.

The significant reduction in unsprung weight, combined with the revised rigidity balance of the new 2006 Deltabox V chassis and the beneficial effects of the longer swingarm, make an important contribution to the remarkable handling performance of the R1SP model.



Gold-coloured mufflers

In addition to the high specification Öhlins suspension and lightweight Marchesini wheels, the new YZF-R1SP is also equipped with exclusive gold-coloured underseat mufflers which perfectly contrast with the new Gun Smoke colour scheme, and complement the golden Yamaha tuning fork badge on the fuel tank.

Limited Edition Plaque

Each one of the 500 YZF-R1SP models will come with a small engraved plaque bearing the machine's production number to underline its exclusivity.

YZF-R1SP HIGHLIGHTS

- Special high-quality colour scheme to underline its exclusivity
- Based on 2006 YZF-R1
- Modified Deltabox V frame with revised rigidity balance*
- Extended swingarm*
- 1% increase in front wheel weight distribution*
- New lower triple clamp*
- Limited run of only 500 units in Europe
- Exclusive Öhlins front forks
- Exclusive Öhlins rear shock
- Slipper clutch
- Forged aluminium Marchesini wheels
- New gold-coloured mufflers
- Lap timer

* Please see YZF-R1 section for further details.

YZF-R1 SP. READY FOR THE ROAD AND TRACK

The new YZF-R1SP is a fitting tribute to Yamaha's 50 years of production of some of the world's most innovative and exciting motorcycles. Yamaha's first ever motorcycle, the YA-1, won its very first race, and since then Yamaha has been committed to producing winners for the road and for the track.

Today, half a century after our first victory, Yamaha is the dominant force in the road racing world, and the new YZF-R1SP illustrates our total commitment to creating the world's most exciting and advanced high-performance motorcycles.

YZF-R1SP: Some things are just above all.