



YZF600R Thunder Cat

First rides aboard  
Yamaha's all-new  
YZF1000R Thunder  
Ace and YZF600R  
Thunder Cat



# THUNDE



*Editor's note: Rumor has it that these two bikes are not coming to U.S. showrooms until later this season as '97 models. But as Roland Brown reports, Yamaha's new-generation 600cc and open-class sportbikes might be well worth waiting for.*

**By Roland Brown**

**T**hirty seconds at speed reveals the vital features of Yamaha's new, not-quite-yet-for-the-USA challenger in the open-class supersport war. Flat out on the Killybegs circuit's short pit straight, I've reached about 150 mph (no time to check) before sitting up for the second-gear horseshoe. The YZF1000R Thunder Ace [main photo] slows as fiercely as any production streetbike on earth before banking into the left-hander. Note one: fantastic front brake.

There are bumps near the edge of the track on the way out, and the Yamaha twitches momentarily as I climb across the bike for the next right-hander, the front end light under full-bore acceleration. Then it's another brief, violent squeeze of brakes before flicking effortlessly into the tight bend and powering out again. The revs drop, but the pick-up is instant, sending the overworked rear Dunlop squirming. Note two: heaps of midrange torque.

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Photography by Gold & Goose



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And it's through the next flat-out left-hand kink that the new YZF really shines. Over a nasty series of tarmac ripples that would have many rival sportbikes spitting their pilots into the South African bush (a GSX-R750 or CBR900RR would be especially lively here), the Yamaha flaps its bars in brief protest—then quickly recovers control in time for the next bend. Note three: maneuverability *and* stability combined.

The stopping power, grunt and unshakable handling of Yamaha's YZF1000R Thunder Ace are what stick in the mind following the launch of this bike and the YZF600R Thunder Cat, which replace the FZR1000 and 600, respectively, in most markets this year. Two days' riding on the road and track near Cape Town, South Africa, were enough to show that the Ace has some distinct advantages over its FZR predecessor—and that the new bike, for all its fancy name and styling, is very much a development of the old.

Yamaha's aim with the Thunder Ace was simple: build the best-performing bike on the road. The Japanese firm's view is that developing ever-more specialized race-replicas is likely to alienate some riders and reduce the size of the supersport market, which in Europe has remained constant at around 20 percent of total sales in recent years. So the Ace has not been built to be more peaky and radically lighter than the CBR900RR and GSX-R750, but rather as an ultra-rapid roadburner that can compete on the track, too.

The YZF's bodywork is new and distinctive, based around a fairing whose sharp nose and twin headlamps give a suitably menacing, shark-like look. Beneath it, the traditional liquid-cooled, 1002cc, DOHC mill is internally unchanged apart from forged pistons—lighter and stronger than the previous

cast variety—and a lighter crankshaft. New 38mm downdraft Mikunis, fitted with a throttle position sensor, help boost midrange output on the way to the unchanged claimed peak of 145 bhp at 10,000 rpm. The 4-into-1 exhaust is also revised to reduce both noise and weight, and there's a more efficient curved radiator up front.

Frame design is essentially that of the YZF750R, and gives a wheelbase that, at 1430mm, is 40mm shorter than the FZR's. Steering geometry, with 24 degrees rake and 97mm trail, is identical to that of the 750, considerably steeper than the FZR1000's (26.4 degrees/108mm), and on a par with most recent sportbikes. Suspension is new and multi-adjustable, naturally, and is headed by a conventional fork whose 48mm-diameter tubes make them the thickest yet seen on a streetbike.

The riding position is sporty but reasonably roomy, with not too much of a reach forward to the clip-ons. Although the fuel tank is new, it's not dramatically different,



■ Yamaha fit all-new brakes to the YZF-1000R. The four-piston, one-piece calipers grab 298mm discs and offer outstanding braking power and feel.

■ Yamaha spokesmen won't say specifically when the new YZFs will appear in the States, though they will say that they're "very interested in bringing the bikes to the U.S. market" and are "working hard to meet the necessary requirements" to do so. We expect them to appear late this year as early-release 1997 models.

and the view and feel from the cockpit is very much FZR1000R. So is the engine's response to a handful of throttle. The revs rise quickly toward the 11,000-rpm redline as the Yamaha powers smoothly toward what should be a slightly improved top speed of around 170 mph, thanks to its slippery aerodynamics.

But it's the Ace's huge midrange grunt that's so much more useful, at least on the road. According to Yamaha, there are an extra five horses everywhere between 5000 and 8000 rpm compared with the FZR, with a maximum increase of about 10 bhp at 6500 rpm. I'd be exaggerating if I said you can always notice the difference, but the Thunder Ace certainly had heaps of grunt for everything from clutchless wheelies to breathtaking roll-on acceleration in top gear.

On the picturesque road that winds southwest along the southern coast of Africa toward the Cape of Good Hope, that midrange made the Yamaha a hugely enjoyable and easy bike to ride quickly. The combination of instant any-rev urge and a slick five-speed gearbox helped ensure I was never caught in the wrong ratio, despite the many blind bends. On such roads, I wouldn't back another bike to beat it.

Another reason for that was the Yamaha's handling, which managed to combine supersport lightness and precision with a generous amount of stability. The Thunder Ace's frame is 5 percent stiffer than the FZR1000R unit, and 11 pounds lighter. Despite its cutting-edge steering



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geometry and short wheelbase, though, the Ace didn't quite have the razor-sharp steering feel of the new GSX-R750 or even the CBR900RR. At 435 pounds dry (claimed), the Yamaha is 30 pounds or so heavier than those bikes, which obviously has something to do with it.

But if the YZF loses out fractionally in

### Yamaha YZF1000R Thunder Ace

**Engine type:** Liquid-cooled, transverse, 4-stroke four  
**Valve arrangement:** DOHC, 5 valves/cyl.  
**Displacement:** 1002cc  
**Bore x stroke:** 75.5 x 56mm  
**Compression ratio:** 11.5:1  
**Carburetion:** 4, 38mm downdraft Mikuni  
**Clutch:** Wet, multiplate  
**Transmission:** 5-speed  
**Front suspension:** 48mm cartridge fork; adjustments for preload, compression damping, rebound damping  
**Rear suspension:** One damper; adjustments for preload, compression damping, rebound damping  
**Front brake:** 2, four-piston calipers, 298mm discs  
**Rear brake:** Double-action caliper, 245mm disc  
**Front wheel:** 3.50 x 17 in.; cast aluminum  
**Rear wheel:** 5.50 x 17 in.; cast aluminum  
**Front tire:** 120/70-17 Dunlop Sportmax radial  
**Rear tire:** 180/55-17 Dunlop Sportmax radial  
**Rake/trail:** 24 deg./97mm (3.8 in.)  
**Wheelbase:** 1430mm (56.3 in.)  
**Seat height:** 790mm (31.1 in.)  
**Fuel capacity:** 20L (5.2 gal)  
**Dry weight (claimed):** 198kg (435 lb)  
**Instruments:** Speedometer, tachometer, temp gauge; lights for turn signals, neutral, high beam, low oil pressure, low fuel level

its speed of steering, it's still a wonderfully agile, neutral-handling machine that would run rings around its FZR predecessor and most other bikes on the road. Suspension both front and rear was excellent; well-controlled without being too firm. On South Africa's sometimes very bumpy roads, and also on the Killarney track's many ripples and seams, the Yamaha kept its poise at speeds that would almost certainly have given its more highly strung rivals problems.

Lightened 17-inch wheels wore Dunlops (the rear, surprisingly, a 180- rather than 190-section) that gripped flawlessly on the road, on the track, and enough so to get the YZF's footpegs touching down regularly. Less impressively, the silencer also scraped under extreme provocation. Although not a problem on the street, it's an old FZR failing that should have been corrected.

No amount of abuse could mar the performance of the brakes, which probably shade the new GSX-R750's stoppers as the best I've used on a street-bike. The new four-piston calipers have a one-piece construction, instead of the normal bolted-together halves, which increases rigidity. They gave stunning power and lots of feel under all speeds and conditions.

Other aspects of the Thunder Ace look set to reinforce its FZR-influenced personality as a supersport that's tolerably comfortable over long distances. The screen is too low for sustained high-speed use, but gives reasonable protection. Switchgear and instrumentation (including a low fuel warning light—there's no reserve) are sensibly laid out, the fuel tank holds a useful 20 liters (5.2 gallons) and the seat is broad—although, unlike the Thunder Cat, the Ace has no pillion grab handles.

Whether the YZF1000R hits its

design target of the fastest bike on the road depends on the criteria used. It has neither the brute power of Kawasaki's ZX-11 nor quite the lightning reflexes of Honda's CBR900RR, but on many roads would prove more rapid than both. For many riders, the way the Ace blends power delivery, handling, brakes and its new look with the FZR1000's traditional all-around ability will make it a most attractive package.

### YZF600R Thunder Cat

If the Thunder Ace is a development of the previous FZR model, then its little brother the Thunder Cat is a distinctly different machine relative to its predecessor. Europe's FZR600R (known as the YZF600R in America) has traditionally been the rawest of the Japanese middleweights. But the Thunder Cat, although heavily based on the Euro FZR, is intended to offer greater versatility as well as increased performance.

The Cat's 599cc, 16-valve, liquid-cooled engine contains more changes than the 1000cc unit, and the majority were made with the aim of boosting power output. The most important feature is the adoption of ram-air induction, provided by twin ducts running back from a slot below the single headlamp in the nose of the otherwise Thunder Ace look-alike fairing. The pressurized airbox feeds new 36mm downdraft carburetors, which, like the YZF1000R's, are fitted with a throttle position sensor.

Internal mods include a lightened cylinder block containing forged pistons, plus stronger valve springs, a smaller ignition rotor, bigger water-cooled oil cooler, lightened external fuel pump, and strengthened clutch and six-speed gearbox. The all-new 4-into-2-into-1 exhaust system is designed to boost midrange power output, while the ram-air and other changes combine to lift the peak figure by five horses to a claimed 105 bhp at 11,500 rpm.

The Euro FZR600R's steel Deltabox frame is retained, apart from a revised rear section (to suit the new bodywork), but most other chassis components are new. Fork tubes are still 41mm in diam-

■ **Yamaha's new YZF1000R Thunder Ace boasts massive updates compared with the old FZR1000, including a hot-rodded, 145-horsepower engine (which offers 20 valves, all-new forged pistons and a close-ratio five-speed tranny); a YZF750R-derived aluminum frame; a 48mm, fully adjustable conventional fork; a fully adjustable rear shock; new brakes; and all-new bodywork that, according to Yamaha, is as slippery as that fitted to its factory Superbikes. Yamaha says the new YZF offers the best power-to-weight ratio in the over-1000cc class.**





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eter, but are lighter, have all-new internals and, like the rear shock, are fully adjustable. The retained three-spoke, 17-inch front wheel holds the same braking setup of the Ace: 298mm discs and one-piece, four-pot calipers.

Changes aimed at increasing the Thunder Cat's all-around appeal include the restyled bodywork, broader dual seat with pillion grab handles, reshaped 19-liter (4.9-gallon) fuel tank, revised instruments (like the Ace, the Cat has a low fuel light and no reserve tap) and adoption of a choke lever on the handlebar. Also like the Ace, the Cat has room for U-lock storage under its seat.

There's no doubt that the engine modifications make the Thunder Cat a faster motorcycle. Naturally, for a middleweight, most of the action is at the top end of the rev range. Provided the revs were kept above 8000 rpm by frequent use of the six-speed gearbox (which proved slightly sticky at around-town speeds), the Cat took off like a mailman with an angry rottweiler on his tail. Best power lived between 10,000 rpm and the 13,000-rpm redline, and the YZF didn't complain at being revved into the red through the gears on the way to a top speed that in most conditions should top 150 mph.

That figure proved hard to find on the launch, as the blustery wind and lack of a long enough straight combined to keep my indicated best to about 140 mph. But the Thunder Cat felt pretty quick, if maybe not quite as spine-tinglingly potent as Kawi's ZX-6R. It was also impressively smooth throughout the range and, for a 600, had a useful amount of torque at lower revs. Throttle response was clean from as low as 3000 rpm. Although the Cat had to be whipped to produce its best, it could happily be ridden much more gently and provided crisp, usable acceleration from 6000 rpm.

That wind and a fair few miles of rapid cruising emphasized that for all the talk of increased versatility, this bike's screen gives slightly less protection than before (though the Yam is better in this respect than Honda's CBR600). The unsupported fairing upper section tended to vibrate at speed, too, blurring the mirrors. But the unchanged, fairly roomy riding position and wide, one-piece dual seat (complete with grab handles) promised a reasonably comfortable long-distance ride for both pilot and passenger.

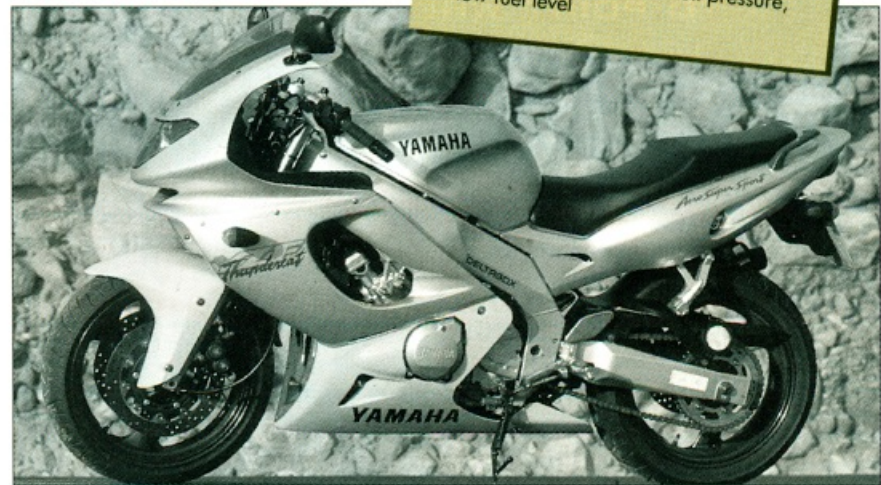
At the track, the 600R was inevitably gobbled up by the bigger bike on the straights but held its own impressively elsewhere. Its rigid steel frame and relatively conservative steering geometry



■ **Yamaha fit its newest YZF600R with a computer-controlled ram-air intake system, which incorporates a throttle position sensor for, Yamaha says, superb low-end response and enhanced top-end power.**

(unchanged from the FZR600R at 25 degrees rake, 97mm trail) combined with the typical 600cc class dry weight figure of 411 pounds to give sharp, neutral steering and a stable, well-balanced feel.

Much of that was due to the suspension, which, while unable to prevent plenty of headshakes over Killarney's bumps, generally kept control admirably. And although the Cat didn't seem to stop quite as hard as the identically equipped Ace, its front brakes set new standards in the 600cc class. Grip from the test bike's Metzeler ME Z1s was im-



■ **Built to compete head-to-head with Honda's CBR600F3 and Kawasaki ZX-6R, Yamaha's new YZF600R Thunder Cat offers a host of new hardware, including all-new—and very slippery, according to Yamaha—bodywork, a reworked 41mm fork and new rear shock, a 100-horsepower engine (using ram-air, updated 36mm carbs, new 4-into-1 exhaust and lightweight forged pistons), and the same nasty brakes fitted to the YZF1000R.**

mense, too, allowing exploitation of the Thunder Cat's ample ground clearance.

During two days in South Africa I used the Thunder Cat for everything from crawling through Cape Town traffic to open-road cruising and racetrack scratching, and it handled the lot without complaint or serious fault. It's a fast,

sweet-handling all-rounder that in Europe is very competitively priced. Only a back-to-back test will determine whether the Thunder Cat is the new cream of the middleweight division. What can be said with certainty is that, in most countries, the battle for 600cc supremacy is now truly a three-way affair.

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**Yamaha YZF600R Thunder Cat**  
Engine type: Liquid-cooled, transverse, 4-stroke four  
Valve arrangement: DOHC, 4 valves/cyl.  
Displacement: 599cc  
Bore x stroke: 62 x 49.6mm  
Compression ratio: 12.0:1  
Carburetion: 4, 36mm downdraft Keihin  
Clutch: Wet, multiplate  
Transmission: 6-speed  
Front suspension: 41mm cartridge fork; adjustments for preload, compression damping, rebound damping  
Rear suspension: One damper; adjustments for preload, compression damping, rebound damping  
Front brake: 2, four-piston calipers, 298mm discs  
Rear brake: Double-action caliper, 245mm disc  
Front wheel: 3.50 x 17 in.; cast aluminum  
Rear wheel: 5.00 x 17 in.; cast aluminum  
Front tire: 120/70-17 Metzeler ME Z1 radial  
Rear tire: 160/60-17 Metzeler ME Z1 radial  
Rake/trail: 25 deg./97mm (3.8 in.)  
Wheelbase: 1415mm (55.7 in.)  
Seat height: 805mm (31.7 in.)  
Fuel capacity: 19L (4.9 gal)  
Dry weight (claimed): 187kg (411 lb)  
Instruments: Speedometer, tachometer, temp gauge; lights for turn signals, neutral, high beam, low oil pressure, low fuel level