



REVOLUTION

A QUARTER-CENTURY AGO, SUZUKI TURNED THE SPORTBIKE WORLD UPSIDE-DOWN

WORDS: Aaron Frank PHOTOS: Kevin Wing

25
YEARS
of GSX-Rs

In the beginning there were sportbikes, and they were fast. Reagan-era sportbikes were also huge, ill-handling and, when pushed hard, just as likely to launch you skyward as rocket you forward. These mutant UJMs were crude appliances, producing great power but offering little control. Harnessing that power required major surgery: bracing the frame and replacing the suspension, wheels and braking systems wholesale. Wes Cooley's #34 AMA Superbike had about as much in common with a Suzuki GS1000 as Travis Pastrana's #99 NASCAR racer does with the Toyota you rented the last time you traveled.





Who better than future 500cc World Champion Kevin Schwantz to demonstrate the capabilities of Suzuki's revolutionary new sportbike to the world press during the 1985 intro at the Ryuyo test track in Japan?

Then Suzuki unleashed the 1985 GSX-R750, and everything we knew about sportbikes changed forever. Here was a production motorcycle that was virtually race-ready right off the showroom floor—the proverbial “racebike with lights.” Rather than follow the traditional design model and modify a streetbike for better on-track performance, GSX-R Lead Engineer Hiroshi Fujiwara flipped the program and took a highly specialized factory racing machine—Suzuki's world championship-winning XR41 endurance racer (see sidebar, page 64)—and made the minimum modifications necessary for street use. “We had no competitors in the market,” Fujiwara said. “Our competition was factory racing machines.” Built with bona fide racing technology, the radical GSX-R750 was the first genuine racer replica, and the archetypal modern sportbike.

The original design brief was blunt: Build the fastest motorcycle in the world. But it wasn't outright power Suzuki sought; it already had the sledgehammer-like GS1150E for that. GSX-R Project Leader Etsuo Yokouchi identified three distinct performance targets for the new machine: the highest top speed, the quickest acceleration and the lowest circuit lap time. The GSX-R750 would be comprehensively fast, and it would employ every trick Suzuki knew from racing: aerodynamic bodywork, a compact, high-revving and powerful engine, and a light, stiff frame.

The all-new GSX-R had nothing in common with its pedestrian GS predecessors. Clip-on handlebars, rearset footpegs, foam-backed gauges and an externally vented fuel tank came directly from the race paddock. The trick, cast-and-extruded aluminum cradle frame—the first example of that technology

on a modern production bike—was lifted from the XR41 endurance racer, along with the Full Floater monoshock rear suspension and sophisticated Positive Damping Fork. The full-coverage fairing concealed a massive oil cooler in its maw, hinting at the power within. Even the wheel size was race-inspired. Suzuki led the shift to quick-steering 16-inch front wheels on previous production bikes, but the GSX-R used 18-inch hoops, just like the factory endurance racers, to facilitate quicker brake and tire changes.

Motorcyclist staffer Jeff Karr's report from the world press launch at Suzuki's private Ryuyo test track in Hamamatsu, Japan, might seem hyperbolic in retrospect if it wasn't spot-on. “This new Suzuki is not just an artful rehash of current streetbike technology, but a true milestone,” Karr crowed in our April '85 issue. “Here is new technology that until now has been deemed too costly to apply to a streetbike. Here too are new ideas never before seen on any motorcycle. This Suzuki might turn out to be a new standard in overall performance.”

Many new ideas could be found inside the GSX-R's unique, oil-cooled engine. Suzuki's XN85 Turbo employed a cruder form of oil cooling two years earlier, but Engine Development Leader Yosunobo Fujii took that technology one step further and designed an innovative system using two separate oil pumps—one to lubricate the engine and another to route oil through a large cooler beneath the steering head and draw off

“Born on the Circuit” was Suzuki's tagline for the original GSX-R, and it wasn't empty rhetoric. Everything about that bike—the aerodynamic bodywork, the aluminum frame, the 18-inch wheels—was lifted from the factory racebikes.



25
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of GSX-Rs



1986

The O.G.: Original Gixxer. Known to some as the “Slabbie” (a reference to its flat-sided tailsection), this is the bike that set the pattern for all sportbikes to come, with its lightweight aluminum frame, radical racetrack riding position and full-coverage bodywork. From the low clip-on handlebars to the sophisticated suspension with the PDF anti-dive capsules attached to each fork leg, this was cutting-edge competition technology. The oil-cooled, 106-horse, 749cc inline-four made the 464-lb. wet bike essentially untouchable on the street or track. At \$4399, Suzuki sold as many as it could import.



1988

The second-generation GSX-R was dubbed the “Slingshot,” not for its distinctively shaped frame or impressive acceleration, but for the Y-shaped air channels molded into its Mikuni carburetor slides. A higher-revving, short-stroke 748cc engine promised more power but failed to deliver, producing a disappointing 90 bhp. Even if it was still the lightest 750 you could buy, at 493 lbs. wet it outweighed the '87 model by 27.5 lbs. A new frame and larger, 43mm cartridge fork were partially to blame, though smaller 17-inch wheels improved handling. Suzuki reverted to the long-stroke 749cc engine two years later.



1992

Suzuki said *sayonara* to the oil-cooled engine, replacing it with an all-new, liquid-cooled, 118-horse inline-four that was more powerful and more durable (the U.S. market didn't get the liquid-cooled version until '93). More aerodynamic bodywork, with the twin headlights hidden behind a Plexiglas lens, actually appeared a year earlier, in '91. This version remained through '95, eventually incorporating upgrades such as 40mm carbs, a close-ratio gearbox, magnesium engine covers, six-piston brake calipers and a braced swingarm. Neon-pink graphics were a sign of the times.

excess heat. The oil-cooled engine made more power than an air-cooled equivalent, without adding as much weight as liquid cooling. Without water jackets surrounding each cylinder the engine was narrower and more compact, too.

Superlight engine internals and magnesium outer covers meant the short-stroke, 749cc engine weighed a whopping 29 lbs. less than the air-cooled GS750 engine, and produced a claimed 106 horsepower and

The 2011 GSX-R750 is similar but different in many key ways. The aluminum frame is now a twin-spar design, not a cradle. Wheels are now 17s, not 18s. The engine is now liquid-cooled, not oil-cooled. But the R still stands for race-bred.

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53.8 lb.-ft. of torque—roughly a 25 percent increase. That exotic alloy frame weighed just 18 lbs., or less than half as much as the GS's steel affair. Actual curb weight for the complete bike was 464 lbs. on the *Motorcyclist* scales—featherweight compared to the 550-lb. Honda VF750F, 525-lb. Yamaha FZ750 and 530-lb. Kawasaki GPz750. This gave the first GSX-R an unbeatable power-

to-weight ratio, putting Yokouchi's trio of performance targets well within reach.

Karr's riding impression wasn't without criticism, however, as the radical GSX-R was far from perfect. Our tester noted how sensitive the bike was to rider inputs, especially at high speed, where he described the bike as “borderline twitchy.” Karr also critiqued the tendency to pitch excessively fore and aft,





1996

And then came SRAD. Though best remembered for the Suzuki Ram-Air Direct emblems emblazoned on its rear flanks, the all-new twin-spar aluminum frame was a much bigger deal. With geometry and dimensions allegedly lifted straight from the RGV500 Grand Prix racer, the fourth-generation Gixxer handled better than ever before. Underneath the round bodywork was a more compact 750cc motor that, along with the lighter frame, finally addressed the liquid-cooled Gixxer's persistent portage. The 44-lb. weight loss made the '96 GSX-R750 almost as lightweight as the original, but with 20 percent more power.



2000

The fifth-generation GSX-R750 picked up where the SRAD left off, whacking an additional 30 lbs. off the old carcass. Much of that weight came out of the engine, now 11 lbs. lighter and, thanks to ruthless attention paid to maximizing mechanical efficiency, capable of an honest 123 bhp at the rear wheel. The always-innovative GSX-R was one of the first sportbikes to adapt fuel injection back in '98, and the 2000 model was the first to use Suzuki's Dual Throttle Valve (SDTV) that positioned a second, servo-operated butterfly above the lower, throttle-actuated plate for smoother throttle response across the rev range.



2004

"The Perfect Sportbike!" proclaimed the cover of *Motorcyclist's* August '04 issue, which showcased this sixth major revision of the GSX-R750. Sharing the same compact chassis as the GSX-R600 but powered by an engine ripped with technology taken from the all-conquering GSX-R1000 (including low-friction SCEM cylinder liners, titanium valves, forged pistons and pressure-relieving 35mm cylinder vents), this was the most powerful 750 yet, producing 127.3 bhp at the rear wheel. Amazingly, this was just 4 bhp less than the original Yamaha YZF-R1, lending more credence to the GSX-R750's "literbike power/600cc package" legend.

causing headshake under acceleration and weaving under heavy braking. The GSX-R took skill and a subtle touch to ride fast—but a capable rider could exploit the lightweight, hyper-responsive superbike like nothing else on the market.

Compliance with stricter emissions regulations, along with a stiff, 24.4 percent tariff on bikes over 750cc, delayed the GSX-R's American introduction until '86. The addition of a steering damper and a 1-inch-longer swing-arm calmed the handling enough to suitably impress the rest of the *Motorcyclist* staff in a March '86 comparison. Testers effused over the Gixxer's "ride on water" handling, even if they found the less-demanding Yamaha FZ750 ultimately the more agreeable bike.

Testers were less impressed with the GSX-R's engine, especially compared side-by-side with Yamaha's 20-valve torque pump. While in every other market the GSX-R was equipped with a rack of 29mm Mikuni flat-slide carburetors, the U.S.-spec engines used 31mm CV carbs, and suffered from a massive midrange flat spot that torpedoed rideability on the street. The peaky, top end-biased powerband demanded more frequent use of the close-ratio six-speed gearbox. Outright performance for the U.S.-spec machine suffered somewhat, too. Our example achieved only a 144-mph top speed—well short of the promised 150—and an impressive (but not definitive) 11.22-second, 120.5-mph quarter-mile.

Just as Karr predicted, however, the GSX-R set a new standard for sportbike performance and design. Soon all the competition—including Yamaha's FZ, as well as Kawasaki's ZX and Honda's CB models—added an R suffix and adopted similarly uncompromising, racing-focused design strategies that persist to this day. For better or worse, the GSX-R brand has led the way for the last 25 years, pushing the performance envelope at every opportunity. A big-bore GSX-R1100 was introduced in '86, followed by a baby brother GSX-R600 in '92. The new millennium brought us the GSX-R1000—another iconic Suzuki that has had almost as great an impact on the sportbike world as the original GSX-R750. But even as the

The more things change, the more they stay the same: Though the vintage Suzuki GSX-R750 looks almost prehistoric beside the modern version, the design commitment to light weight, agile handling and superior acceleration remain intact.



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“The GSX-R750 set a new standard for sportbike performance. Soon all the competition adopted racing-focused design strategies.”

GSX-R lineup expands, contracts and changes over the years, the GSX-R750 remains the one constant. After rule changes favoring bigger bikes phased 750s out of racing, and every other manufacturer abandoned the three-quarter-liter displacement category, Suzuki's GSX-R750 still soldiers on—filling an important niche for enthusiasts who demand a uniquely capable, all-around sportbike.

Unlike Kawasaki, which let its ZX-7R linger essentially unchanged for almost a decade before finally discontinuing it in '03, Suzuki has continually updated and upgraded its signature GSX-R750 to ensure continued success. The model wandered off-line a bit in the '90s, when it gained liquid cooling and a bad case of middle-aged bloat, but an extreme makeover for Y2K brought it back to the original, light-is-right design philosophy. The 2011 version—which marks the 25th anniversary of the GSX-R750 in America—is fully 20 lbs. lighter than last year, showing that Suzuki's engineers remain as committed as ever to the lightweight performance ideal.

A line in our '86 comparison suggested “Suzuki's pursuit of minimum weight coupled with maximum sporting performance has put the motorcycle on the leading edge of the sporting class, perhaps too far out from the way most people actually use their sportbikes.” A quarter-century later, the current GSX-R750 exceeds the original by any objective measure, and most subjective measures, too. It's 11 lbs. lighter, even with the added complexity of liquid cooling. It makes 20 percent more power at the same displacement, and thanks to the wonder of modern,

dual-stage EFI, there's no flat spot or peaky power delivery. Top speed is nearly 175 mph—equivalent to a race-kitted '86 Superbike. And with the latest Showa suspension technology there's no hint of high-speed instability, while low-speed maneuverability is flawless, too. The engine starts effortlessly—that old, carb-mounted choke will never be missed—shifts like whipped butter, demands little beyond regular oil/filter changes and is even reasonably comfortable. Not only does the modern GSX-R750 outperform the original in every way, it's more accessible, too. Contrary to that original sentiment, even as the GSX-R750 becomes more potent at the racetrack, it becomes more docile as well. It has evolved *closer* to the way most people actually use their sportbikes.

Time marches on, and technology advances, but certain fundamental truths remain unchanged. One of those is that a properly engineered 750cc sportbike—one that combines the physical size of a 600 with the abundant power and rideability of a literbike—makes for the ultimate all-around sportbike. Doubt that argument? Hop on a Suzuki GSX-R750 of any vintage and prepare to have your mind changed. That fundamental rightness was evident in that very first example 25 years ago, and it remains unadulterated—enhanced, even—in the current generation. We can only imagine how the next quarter-century will improve what is one of our favorite sportbikes of all time.



ACRONYMS R US ABBREVIATING 25 YEARS OF GSX-R TECHNOLOGIES

WORDS: Tim Carrithers PHOTO: Kevin Wing

Part engineering shorthand and part marketing genius, the acronyms used to mark the march of GSX-R technology over the past quarter-century have become part of our sporting lexicon. Some obvious, some excruciatingly obscure, they all add up to what just might be the most dominant sportbike of all time.

ANDF

Anti Nose-Dive Fork

DAIS

Digital Ignition Advance System

DOP

Dual Opposed Piston brake calipers

MR-ALBOX

Multi-Rib Aluminum Alloy

Box-section frame

NEAS

New Electrically Activated

Suspension anti-dive

PAIR

Pulsed-AIR injection system

PDF

Positive Damping Fork

PVD

Physical Vapor Deposition coating

SACS

Suzuki Advanced Cooling System

SAES

Suzuki Advanced Exhaust-valve System

SCAI

Suzuki Cool Air Induction

SCEM

Suzuki Composite Electrochemical

Material plating

SOL-AIR

Suzuki Oil-Cooler Airflow Control

SRAD

Suzuki Ram-Air Direct intake

TSCC

Twin Swirl Combustion Chamber

SDTV

Suzuki Dual Throttle Valve EFI

S-DMS

Suzuki Drive Mode Selector

SET

Suzuki Exhaust Tuning valve

