2002

VTR1000 SP-2

PRESS INFORMATION

Introduction

Honda's dynamic VTR1000 SP-1 (also known as the RC51) debuted on the world sports bike scene in 2000 accompanied by a dynamic assault on both the World and AMA Superbike titles by its HRC-tuned racing version. That season witnessed the SP-1 running with the leaders its first year in production, and finishing the season with a crowning victory in the hands of 2000 World Superbike champion Colin Edwards.

Out on the roads, the SP-1 also received a warm reception and countless accolades from both riders and the motorcycling press for being a dynamic production motorcycle with real world circuit potential as a Super Sport riding machine that could be fully homologated for BOTT and World Superbike competition.

HRC has, of course, been extremely successful with the race-focused modifications it has made to the SP-1, and after winning the 2000 World Superbike championship its first year out, this machine is also currently performing well in the 2001 WSB series as of the date of this new model introduction. However, the full range of intensive modifications made by HRC to the SP-1 over the course of its first racing season adds up to a package of performance that is almost completely out of the financial range of all but the most heavily sponsored racing teams, never mind week-end racers. And the vast difference in technology and performance that eventually resulted between the two versions can't help but make the production bike look a bit like a 'sheep in wolf's clothing,' even though its street performance rates among the top production motorcycles around.

On the other hand, it turns out that very few SP-1 owners actually modify their bikes with the race kits that HRC has made available. Most owners instead seem to have a more down-to-earth assessment of their own needs and

desires, and prefer a motorcycle that's easier to live with over the long run, with more in the way of long-term creature comforts rather than hard-edged performance. Interestingly, among the most widely voiced desires from actual owners concerned better wind protection, better riding comfort, and better fuel economy, with concerns about its racing prowess rating much farther down on the list than initially expected.

Still, for those with a burning desire to explore the SP-1's outer limits of performance, performing the extensive modifications to its frame, swingarm and other critical components in order to further increase its competitive edge would not only be difficult for most individuals, but also prohibitively expensive, so a way needed to be found to bring the SP-1's full racing potential and most advanced technology within the reach of those riders who want to race, and provide easy access to a race-ready motorcycle at a reasonable price.

Thus, with all these desires in mind, the VTR1000 SP-1's development team set out to create a new generation of its successful V-twin Super Sport. One that can satisfy the desires for greater performance potential by bringing it more in line with the achievements of the Works Superbike racers, while simultaneously improving upon its day-to-day riding comforts. The dynamic result of these efforts is a new standard of V-twin Super Sport performance, and one that will retain its charms for many years to come. Introducing the new VTR1000 SP-2. The new successor to the World Superbike crown… and a pretty nice motorcycle any way you look at it.

Development Concept

In setting out to develop the 2nd Generation successor to the SP-1, its development team first consulted closely with the racing engineers at HRC. They singled-out all the major points where improvements could be (and had been) made, and then searched for ways to apply these changes to the new production machine in a way that would not only improve upon its established sporting potential, but also make such a dramatic leap in performance that the new version could be more viably championed in racing events at near-Superbike levels of performance… and all without draining the bank accounts of those wanting to race it. Also, while calls for greater 'excitement' were carefully considered in the new configuration, the team carefully side-stepped the sort of all-out performance that might leave the majority of riders behind with a feeling of it being even harder to enjoy. So improvements to its long-term riding comfort and ease of use were also top priorities. A tall order, to be sure, but if anybody could do it, Honda could… and has.

While the SP's external looks haven't changed that much, its actual feeling of rigidity and responsive control has been radically upgraded. Its most noticeable changes can be seen in its new swingarm and the frame's stronger new engine hanger forgings, which are all virtually the same as that featured on the Works machines. Not so easily seen, though the results can certainly be felt, is the work that was also concentrated on the SP's fuel injection settings in order to realise smoother, stronger and more responsive power output.

Incorporating detailed refinements based on feedback from the real HRC racers, the new SP-2 should probably not be compared with its predecessor, but instead directly compared with HRC's Superbike racers. As always, the main idea behind the SP-1—and new SP-2—is to extend the greatest riding

enjoyment to the widest possible range of riders. Thus, the new SP-2 doesn't require the highest levels of riding skill to take advantage of its excellent balance of performance. Its ride is exciting and aggressive, but not too narrowly focused, so it provides far greater riding satisfaction over the long run. In fact, the new SP-2 feels so good on a winding road that it makes up for long hours of city traffic just getting to those roads to enjoy it.

Styling

Fundamentally unchanged from the dynamic look of the SP-1, the SP-2's striking bodywork features only two significant changes. First is a new windscreen that copies the shape of Colin Edwards' championship World Superbike Works racer. Approximately 30mm taller than the SP-1's shield, it provides a wider range of coverage at high (or racing) speeds, as well as an impressive high-performance look. The next notable change is a new set of more compact and angular front and rear indicators, which now fall in line with the other high-performance Super Sports in the Honda stable to provide a uniform mark of sharp distinction.

Colouring Concept

The new VTR1000 SP-2 will grab attention on the roads and circuits of Europe in a striking new white and black variation that unmistakably takes its cue from the distinctive look of the 2001 world champion Castrol-Honda World Superbike Works machines. The design includes the eye-catching grey lines of a giant Honda Wing mark dominating its sides, which feature a gradated pattern that grows darker toward the bold ends of their stripes. The black seat and tail cowl, featuring large, contrasting white 'number display' patches, is balanced by a black lower body pan with a dark red 'VTR' line slashing provocatively between the two.

Colours

- **Ross White (with Black)**

Engine

The new SP-2's powerful 998cm^3 DOHC 8-valve V-twin engine has received only minor upgrades from its high-performance SP-1 base model, as the main thrust of its 2nd Generation development concentrated on improvements to handling and frame rigidity in order to boost the credibility of the SP's racing pedigree. Still, even though the engine underwent only minor modification, the resulting improvements in its performance and operating ease can be easily felt by anyone familiar with the SP-1, not only racers or professional riders. And its enhanced response and riding ease translate directly from road to track and back again.

The SP-1's 54mm fuel injection throttle bodies have been upgraded with larger new 62mm stacks, the same units used on HRC's championship Works racers. New 12-jet twin injectors also replace the 4-jet units used in the SP-1 to produce finer fuel atomisation that results in smoother, more responsive throttle performance and faster, more efficient combustion for stronger power output.

On the exhaust side, newly designed exhaust ports now feature a Works-derived shape for faster exhaust velocity and combustion chamber evacuation, which plays a major part in the new engine's increased power output. The exhaust system was also modified with a new taper in the tubes feeding into the silencers to realise smoother, more enhanced drivability. The SP's large, canister-style silencers have also been lightened with thinner-wall stainless steel plate, and even their mounting bands were replaced with lighter weight pieces.

Other detailed engine improvements include a new shot-peening process applied to the piston wrist pins, which results in a longer-wearing surface that's more resistant to scoring.

All these modifications to the SP's engine performance add up to a sizeable 4PS increase in maximum power output and a stronger, more breathtaking surge of acceleration.

Chassis

The SP-1's basic chassis design and construction were intended from the start to provide competition-level performance, and therefore a high level of handling and cornering control on par with the best road-going sports bikes. However, subsequent improvements carried out by HRC in its pursuit of the Superbike crown soon left the production model quite a ways behind in terms of cutting-edge technology and peak handling performance, and the cost of bringing the machine up to comparable levels of competitive performance would prove to be prohibitive to the average weekend racer on a typically tight budget. Honda's solution? To incorporate as many of HRC's latest developments as possible in the 2nd Generation SP-2 while still managing to keep its costs well within the reach of the average sport bike rider.

Improving upon the SP-1's already excellent balance of rigidity required several major modifications which, taken all together—and in some cases individually—would be far too expensive to be performed by anybody but the factory or a fully equipped professional race shop. Starting at the front, the frame's forged aluminium steering head stem and upper bearings were increased in diameter for a wider bearing surface area that assures more precise control.

As for the construction of the SP's diamond-configuration twin-spar aluminium frame, its front engine hangers were changed from cast to press-forged pieces and extended downward in length for a more solid grip on the engine and a greatly enhanced overall balance of rigidity. The frame's forged rear engine hangers are also newly designed, and these combined changes alone added up to a 740g reduction in frame weight coupled with more assured, race-ready handling.

The frame's upper rear cross-member, which joins together the upper pivot plates, features specially modified wall thicknesses for both lighter weight and enhanced rigidity. Attached at this point, the box-section tubing of the seat rail was also redesigned and reduced in wall thickness for another 500g reduction in weight.

New Press-Forged Aluminium Swingarm

If there's anything that really sets the new SP-2 apart from its predecessor, it is without a doubt its all-new press-forged aluminium swingarm. Designed entirely by HRC for its Works Superbike racing effort, this new swingarm delivers aggressively responsive racing-class performance that translates equally well to top performance on the open road, and especially backroad twisties. Featuring a simply monstrous-looking, multi-angled press-forged pivot section and right-side arm, and a hefty Yagura-braced extruded box-section spar on the left, this new design is not only stronger and more resistant to the torsional stresses of intensive road and track riding—especially acute if the machine is mounted with racing slicks—it is also, amazingly, 700g lighter than the 'smaller' unit it replaces. This new swingarm is also now mounted to the frame with a new, smaller-diameter swingarm pivot bolt (reduced from 25mm to 20mm), which slips into a close-fitting steel sleeve to provide greater combined rigidity while achieving a 190g reduction in weight.

Suspension and Brakes

The new SP-2's front suspension system is essentially the same as that featured on the SP-1; a rigid and lightweight inverted cartridge-type fork. However, the fork's large-diameter outer stanchion tubes were reworked and lightened by fully 340g. Their settings were also refined to ensure that the fork

provides a more widely useful balance of performance, and the most responsive handling and control for both street and track applications.

Supporting the SP-2's dynamic new racing swingarm is a new Works-type integrated remote reservoir damper that features a repositioned gas reservoir extension designed not to interfere with the aftermarket mounting of any of the wide assortment of high-performance accessories and racing exhaust systems available. This new damper also provides a wider range of damping settings for more precise tuning to the requirements of both street and track.

The wheels on the new SP-2 were also changed from those of the SP-1, and feature a sharp, new 5-spoke pattern with forward-facing V-shaped spokes like some of the most advanced new aftermarket items available now.

In the interests of more assured braking control for the widest cross-section of riders, the new SP-2 also features specialised modifications to its responsive, race-ready brakes. Its new front brake master cylinder features shorter-stroke operation for more linear and responsive braking control. The two compact 4-piston front callipers were also found to run cooler than expected in most applications, so the insulator backing material was removed from their pads for a slight reduction in unsprung weight.

Equipment

The new SP-2 also features a host of other smaller improvements that add up to a significant upgrade in its overall performance compared to its predecessor.

- The SP-2's high-efficiency side-mounted radiators now feature a smaller auxiliary cooling fan mounted to each unit instead of the single larger fan mounted to the right-side radiator on the SP-1. This dual radiator set-up helps improve cooling efficiency in stop-and-go conditions such as experienced in dense traffic. The oil cooler has also been moved to a new location down near the left side of the front exhaust pipe for better positioning in the airstream and a significant improvement in its cooling efficiency.
- The black resin seat pan / rear fender located under the seat cowl was completely redesigned in order to reposition the SP-2's battery and electrical components farther forward for a significant contribution to improved mass centralisation. Also, a larger new, higher-temperature regulator / rectifier was added to provide ample electrical power to operate the additional radiator fan.
- The locking pillion seat pad's tilt-up assembly now features new aluminium latch hardware, replacing the SP-1's steel pieces for a small reduction in weight. New aluminium upper cowl stays also replace the SP-1's steel pieces for a further 200g reduction in weight.

Optional Equipment

The VTR1000 SP-2 will also be released with an assortment of optional parts that have been specially designed and produced by Honda Access to improve upon aspects of its overall performance. These include:

- A taller windscreen for bigger riders and more comfortable high-speed touring.
- A motion- and vibration-sensitive alarm system that emits a piercing wail if tampering is detected.
- HRC Racing Kits: As it did for the VTR1000 SP-1, and continues to do for many of Honda's other production motorcycles that vie in amateur and world-class racing competition, Honda Racing Corporation (HRC) is producing an extensive array of specialised racing parts for the SP-2. This complete racing kit includes engine, chassis, suspension and body parts designed for lighter weight, better aerodynamics, stronger power and quicker shifting to hone the SP-2's capabilities to a finely tuned competitive edge, and focus every aspect of its performance potential on the twin goals of world-class racing competitiveness and ultimate victory.

  Proof of their effectiveness can be seen in the results of this year's Suzuka 8-Hour Endurance Race, where HRC-tuned VTR1000 SP-1s filled three of the top five finishing positions and set the top four fastest lap times.

Specifications VTR1000 SP-2 (ED-type)

Engine		Liquid-cooled 4-stroke 8-valve DOHC 90• V-twin
Bore × Stroke		100 × 63.6mm
Displacement		999cm^3
Compression Ratio		10.8 : 1
Carburation		Electronic fuel injection
Max. Power Output		99kW / 10,000min^{-1} (95 / 1 / EC)
Max. Torque		102Nm / 8,000min^{-1} (95 / 1 / EC)
Ignition		Computer-controlled digital transistorised with electronic advance
Starter		Electric
Transmission		6-speed
Final Drive		'O'-ring sealed chain
Dimensions	(L×W×H)	2,025 × 725 × 1,120mm
Wheelbase		1,420mm
Seat Height		820mm
Ground Clearance		140mm
Fuel Capacity		18 litres (including 2.5-litre warning light reserve)
Wheels	Front	17 × MT3.50 'U'-section 5-spoke cast aluminium
	Rear	17 × MT6.00 'U'-section 5-spoke cast aluminium
Tyres	Front	120 / 70 ZR17 (58W)
	Rear	190 / 50 ZR17 (73W)
Suspension	Front	43mm inverted cartridge-type fork with adjustable spring preload, and compression and rebound damping, 130mm axle travel
	Rear	Pro-Link with gas-charged integrated remote reservoir damper offering adjustable preload, and compression and rebound damping, 120mm axle travel
Brakes	Front	320 × 5mm dual hydraulic disc with 4-piston callipers, floating rotors and sintered metal pads
	Rear	220 × 5mm hydraulic disc with single-piston calliper and sintered metal pads
Dry Weight		194kg

All specifications are provisional and subject to change without notice.