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# Two Wheels

## ZZ-R600 TEST

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**851 vs 900SS**  
Raw or Refined?

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King of all Roads

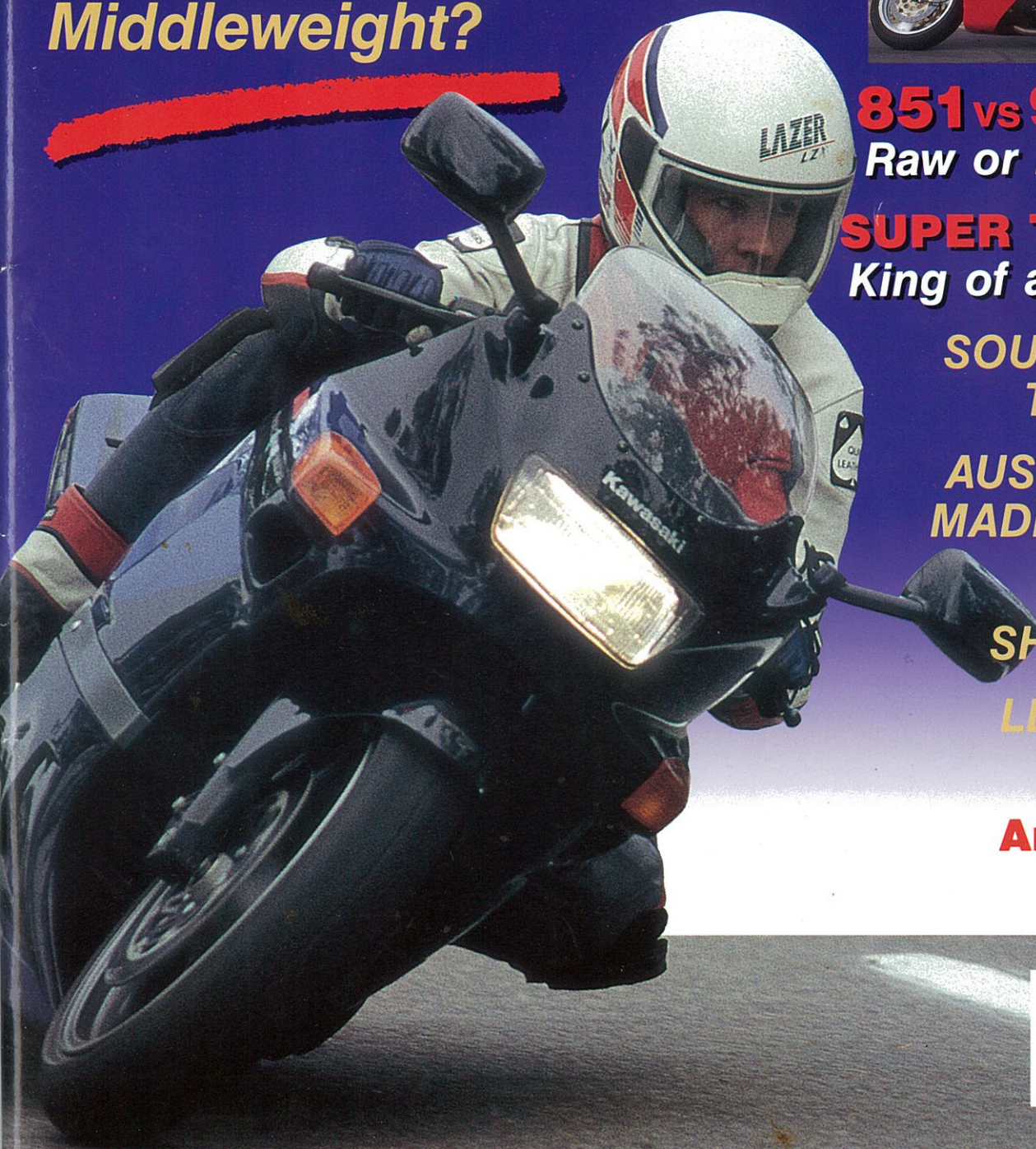
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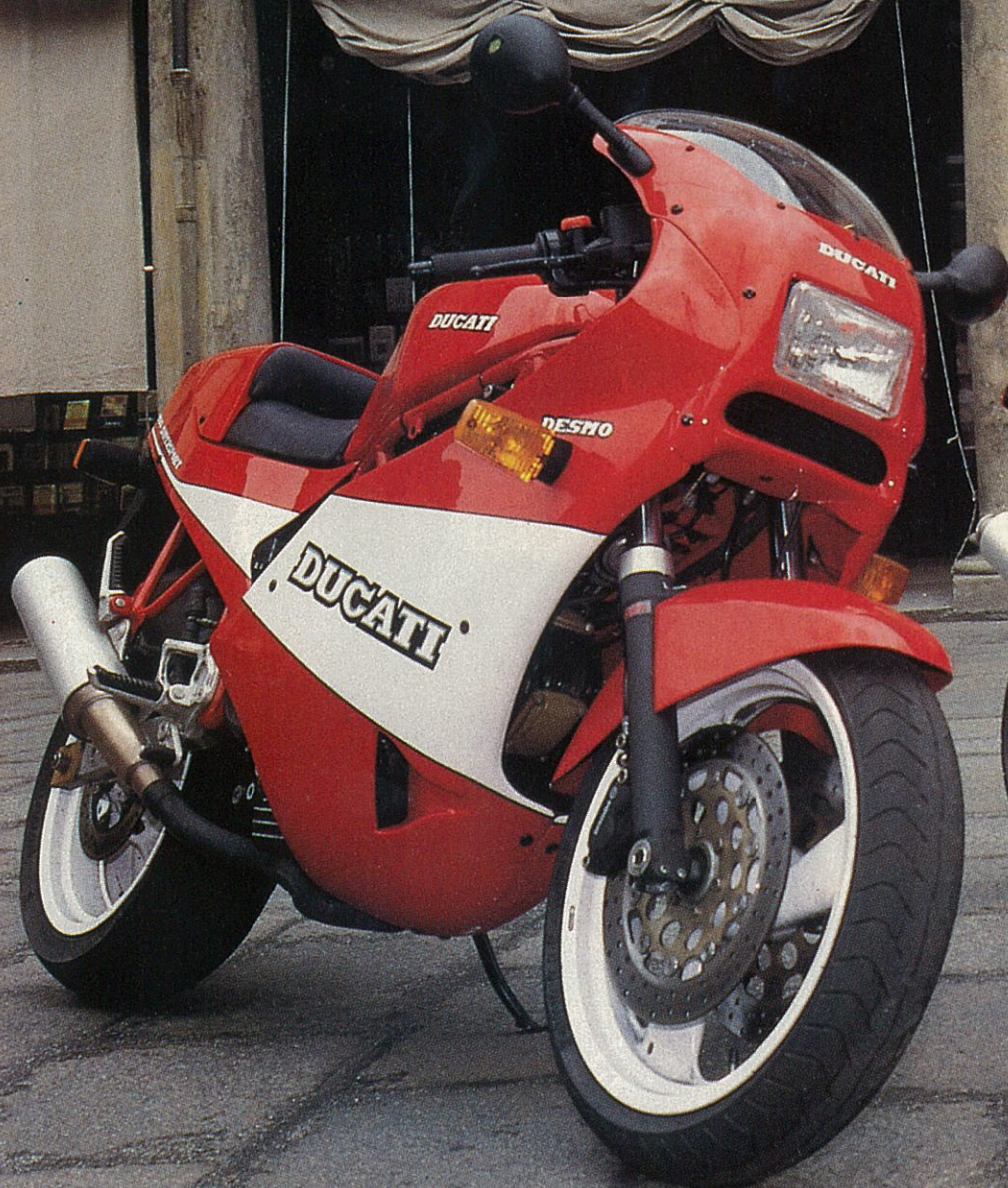
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# Seeing **RED**







**So how does the  
new model 851  
Ducati Superbike  
rate  
against  
its  
cheaper  
cousin,  
the 900SS?**



**ROLAND "I'll go  
anywhere" BROWN  
took a  
trip to  
Italy  
to find  
out. ▶**





**E**VEN the spectators could tell the difference. I'd been roaring up to the same second-gear bend for the last hour or more on first one red Ducati and then the other, grabbing the brakes and then pitching the bike into the corner before barrelling out, turning round and doing it all over again.

If the noise of one hard-revving bike hadn't been enough to attract the locals to this anonymous piece of road, then the sight of a second scarlet Duke parked in the midday sun certainly had. Before long a tiny car had screeched to a halt, its occupants scrambling out to watch the show.

And when I paused for a breather and to swap bikes for the final time, one swarthy young guy stepped forward to give his verdict: "I prefer the 851, what about you? On the other bike I can see the front forks moving up and down —



**Above left: The full-bodied Italian red and (below left) its cheaper, rougher alternative. They may be different but they're both intoxicating. The raw or the smooth way?**



you need more damping, I reckon . . ."

He was right. I'd felt the new 900 Supersport's forks rocking a little over some tarmac ripples as I came out of the bend in one direction.

Compared to the thicker, air-assisted forks of the 851 with their knob for fine-tuning the compression damping, the non-adjustable 40 mm Marzocchi of the 900 Supersport were a bit soggy and unsophisticated.

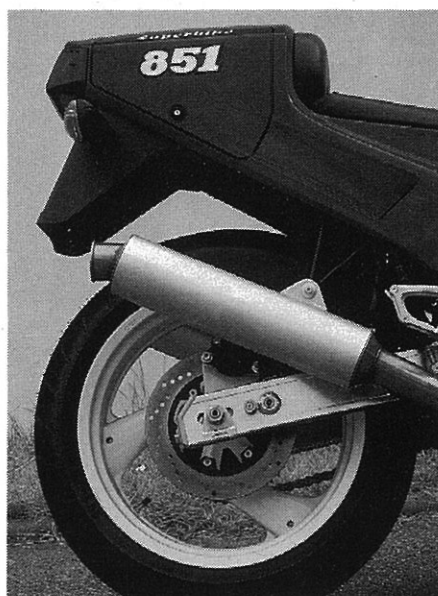
This is only to be expected, for the Ducati 900SS is not a direct rival to the eight-valve 851 but a cheaper alternative for those who prefer their Bolognese dish red and raw. Put simply, the SS is a marriage of a 906 Paso-based engine with the chassis from the budget-priced 750 Sport, but there's rather more to it than that, as another read of Stuart Kennedy's indepth test (TW, March 1990) shows.

For a start, the 904 cc two-valve-per-cylinder motor is cooled by a combination of air to its cylinder heads and oil to its barrels, rather than by water, like the Paso and the 851. It's a system Ducati has used in engines to blast across Africa in the infamous Paris-Dakar Rally for the last couple of years and it has the advantage of reducing noise without adding much to either weight or expense.

## Looking ahead

This move saw the completion of the three-strong 'family' of engines with which Ducati's chief engineer, Massimo Bordi, sees as leading the company well into the 1990s. "With the same crankcases we have the 851 with its eight-valve cylinder head, everything the





**You can have a loud 61kW from the SS or a beautifully-delivered 77 from the 851.**

best; then we have the Paso with two valves and water cooling; and we also have the SS, with the same crankcases again but using air and oil cooling," Bordi said.

"I have done this because our production numbers are not big, but we need different engines for different purposes, so we need to have many components unified. Using the same engine base we can have the very high technology of the 851, then the medium of the Paso and the lower of the SS — but lower only concerning the cooling and the weight. The 900 Supersport is more similar to an old Ducati bike — very light, simple and easy to maintain."

Unfortunately the beautiful, gnarled lines of the old air cooled motor have gone. Tucked away behind acres of gloss-finish fibreglass the modern engines

are barely visible, the two bikes visually similar at a glance with their red bodywork (the 851's a slightly deeper, richer colour; the 900's broken by a white slash across its flanks), trellis frames, twin exhaust, wide wheels and tyres and their rears hugged by plastic mudguards.

But on closer examination few components are the same. Instead of an oil cooler slit below its headlamp like the 900, the 851 has two vertical channels each side of the lens, from which plastic ducts lead down towards the airbox. The steel frames, each using the engine as a stressed member, differ in pattern as well as colour, and while the 900's tubes extend back to support a dual seat the 851 pilot won't be stopping for passengers.

The 851's forks and brake discs are bigger and more purposeful and whereas the bike's shock is vertically mounted and works via rods and rising-rate linkage, the 900's unit sits at 45 degrees and bolts directly to a braced swingarm. Crude spring-loaded sidestands are common to both but the 900's scores extra points for inconvenience by also being far too short.

### Ergonomics

From the rider's seat you could tell the two apart with your eyes shut. Handlebars and footpegs are in roughly the same relationship but the 900's seat is slightly higher, which gives a feeling of sitting slightly more on the bike than in it, compared to the 851 but both put weight on your hands at slow speeds, leaving wrists sore after short distances in town.

The 900 has a choke lever on the left-hand 'bar while the injected 851 needs no enriching and makes an agonised screeching sound to prove the point when you turn it on. Fire them up and there's far more difference. They're both unmistakably V-twins but the water cooled bike is smoother, quieter and quicker-revving, lacking the Supersport's rough-and-ready engine sound and feel as well as its throatier exhaust note.

This latest 851 Superbike looks very similar to the original eight-valve machine but includes so many significant detail changes that, in effect, it is virtually a new bike. Engine dimensions have stayed the same but compression is up from 10.4:1 to 11:1, the four camshafts are new, the diameter of the inlet manifold is reduced (for more torque), the fuel injection system now has two instead of four injectors governed by a different chip, the mufflers are new and the clutch has gained rubber shock dampers.

The result of all this is that maximum

# Seeing RED

power has risen a fraction to a claimed 77 kW but, more importantly the peaks of both power and torque have been shunted down the rev range — to around 9000 and 7000 rpm respectively, whereas the old bike's peak power was delivered close to the 10,000 rpm redline. There's lovely, free-flowing grunt available from three grand all the way to 10 almost irrespective of what the white-faced tacho is reading.

On the other hand crack open the 900's single Weber carb at 3000 rpm and the bike coughs and splutters like a kid on his first cigar. It's fair to say Weber's twin-choke units have not been noted for their finesse either in the Paso or the 750 Sport and the SS version is little better. According to Bordi the answer is easily found though: "There are caps welded into the rear part of the silencers; if you remove those the carburation will be much better. The torque is improved, too — but only for race use, of course . . ." The same mod, plus removal of the air filter cover and a change of chip, gives the 851 a five percent power boost throughout the range.

The SS engine, like the Paso powerplant from which it's derived, shares the 851's 92 mm bore but has gained four millimetres in stroke to end up at 904 cc. Two big desmodromically-operated valves per pot and a lower 9.2:1 compression ratio combine to keep power to 61 kW, a shade short of the Paso's maximum. Low rev performance is snatchy and poor but once it has cleared its throat the 900 wakes up at about 4000 rpm, smoothing out and pulling harder before really getting going at five thou. At 6000 rpm it's charging on past 160 km/h, at seven it's starting to vibrate a bit through 'bars and pegs, and if you get to 8000 rpm in top you're well through the 200 km/h barrier, approaching top speed with a thousand revs to go to the redline.

### Off and away

At which point the 851, with similar weight to carry, but 16 kW extra to call ▶



on, would be but a shimmering red dot on the horizon. But the nice thing about the 900SS is that although it's not particularly fast, all that noise, vibration, blood and thunder makes it *seem* much quicker than it is.

I'm not quite sure whether the same logic holds true of its chassis but things certainly get interesting at far lower cornering speeds aboard the 900. Matching it against the 851 is hardly fair, however, because in its updated form the eight-valve Ducati is transformed from the original roly-poly fat rubber feel to the precise, fine-handling athlete it should have been.

Very little has been done to the latest frame bar a small mod at the steering head, where the coolant now both enters and exists the radiator on the left rather than crossing to the opposite side. Faster water flow means this arrangement is more efficient, and the water pipes' removal from the right side of the frame has allowed the bike's battery to sit there instead of in the seat hump. The big difference comes with the wheels, which are now the 17 inchers the bike was originally designed for instead of the 16s with which the first 851 was reluctantly equipped.

The reason for that, Bordi said, was that Ducati simply couldn't build sufficient 17 inch wheels in time. This latest bike, with fat sticky Michelin Hi-Sport tyres on wide three-spoke 17 inch rims, was a revelation. You could come racing up to a blind, pock-marked hairpin, tip the bike in far too fast yet sail around with neutral steering, lots of feedback . . . and even plenty of ground clearance from the slimmed-down fairing.

The Marzocchi units at both ends really are good, the 42 mm forks soaking

## ENGINE AND TRANSMISSION

Liquid cooled double overhead camshaft 90 degree V-twin with four valves per cylinder and desmodromic operation. Camshaft drive by toothed belt. One piece crankshaft on roller bearings with plain big-end bearings. Wet sump lubrication. Gear primary drive to six-speed constant mesh gearbox. Chain final drive.

Claimed maximum power ..... 77 kW at 9000 rpm  
Claimed maximum torque ..... 91 Nm at 7000 rpm  
Bore and stroke ..... 92 x 64 mm  
Displacement ..... 851 cc  
Compression ratio ..... 11:1  
Carburation ..... Electronic injection

## FRAME AND BRAKES

Tubular section Chromium-Molybdenum steel frame. Telescopic front forks with four-way adjustable compression damping and air caps. Monoshock rear suspension with adjustable linkage ratios, stepless pre-load and compression/rebound damping adjustment. Twin floating discs up front and single floating rear disc, all with four-pot calipers.

Front disc diameters ..... 320 mm  
Rear disc diameter ..... 245 mm  
Front tyre ..... 120/70 ZR17 Michelin radial  
Rear tyre ..... 180/55 ZR17 Michelin radial  
Weight ..... 180 kg  
Wheelbase ..... 1430 mm

## ENGINE AND TRANSMISSION

Oil/air cooled 90 degree V-twin four stroke. Toothed belt driven double overhead camshafts. Two valves per cylinder with desmodromic operation. One piece crankshaft with roller main and plain big-end bearings. Wet sump lubrication with oil cooler. Gear primary drive through multi plate clutch to constant mesh six speed gearbox. Final drive by chain.

Claimed maximum power ..... 61 kW at 8400 rpm  
Claimed maximum torque ..... Not available  
Bore and stroke ..... 92 x 68 mm  
Displacement ..... 904 cc  
Compression ratio ..... 9.2:1  
Carburation ..... Twin throat 44 mm Weber

## FRAME AND BRAKES

Tubular section Chromium-Molybdenum steel trestle frame. Rectangular section swingarm with single Marzocchi rear suspension unit featuring pre-load and rebound damping adjustment. 40 mm telescopic front forks with no adjustments. Twin discs with four-pot calipers up front, single disc with two-pot caliper at rear.

Front disc diameters ..... 300 mm  
Rear disc diameter ..... 245 mm  
Front tyre ..... 130/60 17 Pirelli radial  
Rear tyre ..... 170/60 17 Pirelli radial  
Weight ..... 180 kg  
Wheelbase ..... 1450 mm

851



900SS



## Second Opinion

**W**ITH the new generation Ducatis, there's no doubt in my mind that the men from Bologna have hit paydirt in the performance stakes. The new 851 Superbike is on a par with anything from Japan and with the 'correct' 17 inch wheels it feels Japanese to ride too. Owners of the first tri-colour models probably wouldn't see this as an advantage though.

My preference between these two? I'd have to say the 900SS, for the very reasons Brown uses in his summation. When it comes to gut feelings the SS has got it sown up. It looks the part and feels it too. Sure, it's definitely built to a price — a Paso has better suspension, more comfort and better finish — but it's got that intangible Ducati feel. Just add some noise . . .

However, while the new Ducatis perform, it's performance at a price.

Owners of the older bevel gear Dukes still bless their inherent un-bustability. Minor drops used to mean — usually — little more than a couple of new levers and a bit of panelbeating. Not so with the new. They're delicate — weight saving does this — and minor prangs can result in huge repair bills, even more so than the Japanese bikes they're now competitive with. We've had first hand experience of this ourselves when Matho dropped the 900SS during a photo shoot. A pretty straightforward slide down the road resulted in massive damage to the bike and, as I never fail to remind the Mug, it was a damned expensive little accident.

I've heard of several such incidents, but one more should suffice to make the point. An 851 was dropped on a roundabout. Nothing reckless, just one of the most experienced and competent riders I know of lucking out on an oil

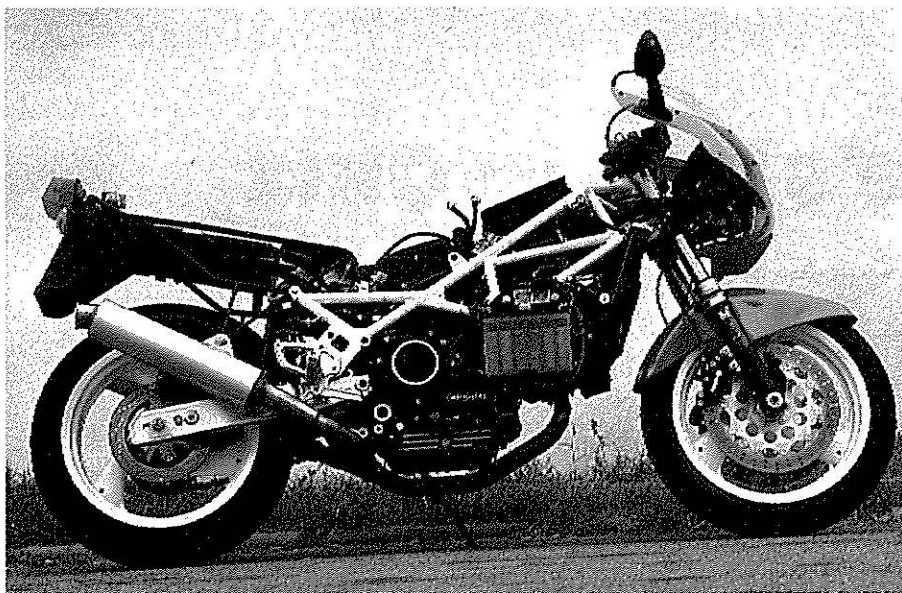
patch. He was fine but the bike wasn't. The rear wheel collected a concrete gutter and the impact pushed the swingarm back into its pivot — which just happens to be the rear of the gearbox/motor unit. The result of a minor prang? The bike had to be completely stripped, the frame needed straightening and the crankcase replaced. Ouch.

But these are the last things you think about when that V-twin is howling and you've got a Yamazuki firmly in your sights. Like beautiful women, fine cuisine and expensive wine, the package may be delicate but if it's what you want, practicality won't even enter the picture.

And if there's something better than peeling a fast Ducati through a set of corners, then it's probably illegal anyway.

— John Rooth





Even when they're undressed it's easy to tell the bikes apart. The solid mass of engine, the radiator and the lack of a carby make the 851 stand out.

up everything at the front while the rear unit — 20 mm longer than before, and with a compression damping adjuster knob conveniently placed in the seat hump — kept cool even when the power was put on hard over ripples on the way out of corners.

On the same bend the 900SS gave a regular wiggle through its handlebars that, while not dangerous, gave fair warning that to go much quicker would bring spectacular results. Its front end was much less secure than the 851's but there's not much wrong with the rest of the chassis and the bike as a whole handles well.

### Hustling hard

Rake, trail and wheelbase figures are all considerably bigger than the 851's equivalents but the SS can be hustled

into and around bends pretty rapidly, even if it lacks that little bit of tautness near the edge. Its Marzocchi shock kept the back end in order and the 17 inch Pirelli radials (the front tyre even wider than the 851's, the rear a shade narrower) held the road hard enough to make me think you'd need a day at a racetrack to split 'em from the Michelins.

Brakes were less well-matched, the 851's hefty 320 mm rotors giving heaps of feel as well as ferocious bite while the 900's lever was a bit spongy and needed a good squeeze. Its discs are smaller, at 300 mm, but the two bikes' four-pot calipers and hydraulics are all identical so perhaps careful bleeding might have helped.

Clutch hydraulics and excellent switchgear are the same, as are the mirrors — thankfully nothing like the

# Seeing RED

previous 851's strange low-level devices useful only for checking the wear rate of your knee-scrappers. Clocks are foam-mounted and white-faced, the 851 squeezing in a temperature gauge as well as room for an extra 30 km/h on its 270 km/h speedo. It's all neat stuff apart from the shared idiot light console whose messages are invisible in bright sunlight.

I didn't miss not being able to see the neutral lights, which both had a habit of lying embarrassingly anyway (gearboxes were a bit notchy and neutral on both bikes was hard to find), but failing to see the low fuel light could be especially disastrous for the 851 pilot because there's no reserve tap for back up. In fact the red light comes on so early it's better to keep an eye on the tripmeter instead.

Such things are mildly annoying when riding the 851 Superbike, but it's some tribute to any motorcycle if trifles like its warning lights are among the bike's only weaknesses. The original 851 tri-colour got my vote for most disappointing machine of the year (*Something we're still disagreeing on.* — Ed.) but the newer 851 is totally different. Its engine is stronger still, its detailing slicker, its braking sharper; and most of all its handling has been transformed from weird to very wonderful indeed.

The 851's price lowering makes the new 'budget-priced' 900 Supersport look less of a bargain than it might otherwise have done. Alongside the sleek sophistication of the superfast, no-expense-spared 851 the 900 is undoubtedly rough around the edges and built down to price.

But the SS is still very much one extremely fast red Ducati sportster, and in many ways is *more* of a traditional Ducati than the firm's smoothy-chops flagship. The 851 is faster, classier — simply better in most definable ways. But when it comes to the gut feeling generated by cracking open the throttle to hear that V-twin bark, cranking into a long curve or just taking in the bike's sculptured lines at a standstill, the Supersport more than holds its own. **D**