

THE SONG OF THE **BeeGee**

No, not those Bee Gees! Hot dude Sir Alan Cathcart takes time off from playing bass with the Ducati Factory Band to sample Bimota's latest Gilera-powered, fuel-injected single cylinder instrument, the GB1. And one thing's for sure, Ducati have a battle on their hands if they're going to stay on top of the charts...



Boxing is a sport that teaches you the facts of life, and you don't have to be Mike Tyson to learn them the hard way. One of the axioms of the fight game is that a good big 'un will always beat a good little 'un, all other things being equal. Might is right.

And in motorcycle racing, there's no substitute for cubes, either — especially in a freestyle formula like singles, where beyond the basic insistence on no more than a single-cylinder, four-stroke engine as the power unit, anything goes.

Thus it was only a matter of time before Ducati works rider Mauro Lucchiari's unbeaten run of success on the factory four-valve desmo Supermono was halted by an equally gifted rider on an equally sophisticated machine with equally good handling, but a motorcycle endowed with a bigger, lustier engine and a superior power to weight ratio.

At Misano in July, in the fourth round of the Italian Singles championship, it happened: the good little 'un met a good big 'un, and might proved to be right. The 750cc Gilera-powered Bimota GB1 Maxi-single, ridden by factory tester Gianluca Galasso, shoved Lucchiari's 550cc works Ducati into second place taking the wind right out of Ducati's sails. Bimota, once more, became the giant-slayer.

Since being fitted with Bimota-brewed TDD/Weber electronic fuel injection, the GB1 is a winner. The Gilera factory had taken a gamble in giving two motors built for the Paris-Dakar style events to Bimota to adapt for tarmac track racing.

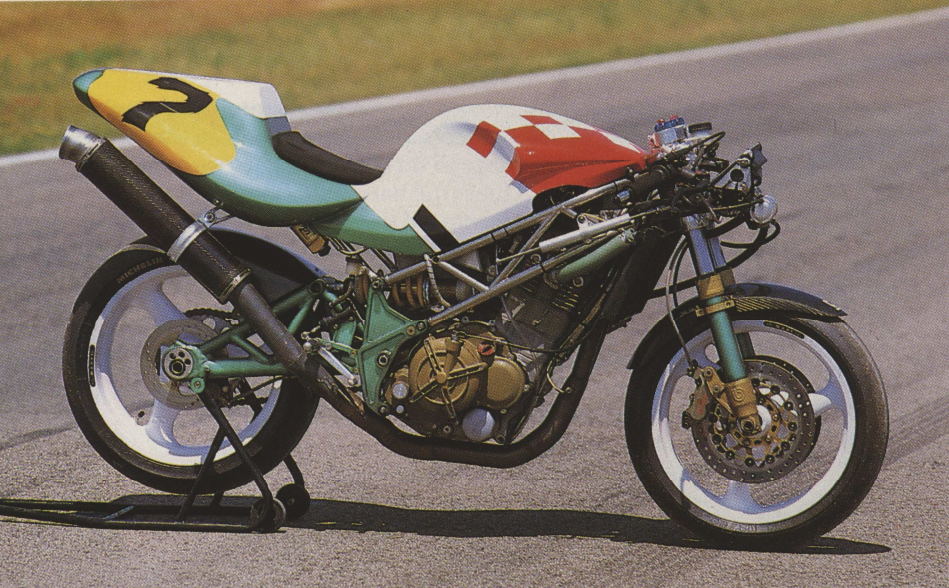
Bimota have long been interested in building a four-stroke single, but as chief designer Pierluigi Marconi admits, it never made commercial sense — until now. "The Supermono class has really come alive this season," he says, "and whereas several of us at Bimota often dreamed of building a single as a fun project, there really wasn't a viable market for such a bike at the price we would have to sell it at, until Ducati launched their Supermono.

"That opened the door to a new era of single-cylinder four-stroke racers, and an eventual street version, with a greater degree of sophistication than before. The availability of the Gilera engine gave us the ideal basis for such a bike. We intend the GB1 should be the prototype for a customer race version capable of beating the equivalent Ducati, as well as a Bimota single-cylinder road bike closely based on the racer, though obviously with a different engine."

Gilera are known to be working on a water-cooled 650cc DOHC four-valve motor to replace the 558cc street engine, which powers the Northwest and the RC600 enduro bike. However, as it began life in 350cc form in the Dakota, it's capacity is now at the limit of safety. The potential for a GB1 roadster based on this forthcoming new motor and fitted with Bimota's fuel injection system, is exciting — quite apart from the projected customer race version using the works 750cc rally motor. Gilera manufactured enough parts to build 40 such engines — but only nine were ever produced, so work it out for yourself! Out of Africa...

Marconi and his men had to work flat-out to create the GB1 in only a few weeks after receiving the pair of second-hand Gilera engines, only completing the bike three days before it made its race debut at Misano in March. It finished fourth in the first round of the Italian championship after turning a wheel for the first time in qualifying.

The engine hadn't even been serviced since defeating the works Yamaha twins to win the gruelling 1992 Tunisian Rally: "We even had to clean



injection not only gave us an immediate power increase, but will also allow us to use wilder cam timing as well as higher revs to exploit it. This engine has great potential, which we're only now unlocking."

As a Ducati 'factory' rider, being invited to test ride the GB1 was a classic case of divided loyalties, but parking my works Tesi in a corner for a moment and switching to Supermono mode allowed a vivid comparison to be struck with the Ducati which I race in the single-cylinder class.

It's hard to think of two bikes contesting the same racing class which are more different to ride, but considering it was the first time the GB1 had been track tested with fuel injection fitted, there's no doubt it is hugely promising and has the potential to top the singles class.

A comparison of respective spec sheets says it all: the GB1 weighs 119 kg half-dry, 4kg less than the Ducati. This is despite having an engine that is 200cc (or 35%) bigger in capacity, and at present delivers exactly the same output as Lucchiari's works Duke — but is only at the start of its development cycle! Once Gilera (or Bimota themselves) get serious and jack up the compression, fit wilder camshafts, put the engine on a diet and make it breathe properly, those of us on Ducatis are going to have problems.

I rode the bike a month before its debut victory, it was still reluctant to rev properly flat-out in top gear down Misano's back straight. It'd pull OK in the gears, hitting 8000rpm all the way through the close(r)-ratio five-speed gearbox (sourced from Gilera's Piuma limited-production SoS racer), but struggled to rev much over 7000rpm in top. At first I thought this was an aerodynamic problem, caused by my, er, increased bulk compared to the shorter Gianluca. But in fact the screen is quite steep and tall, and I could tuck my helmet away behind it as well as most of my body parts. It has a surprisingly spacious riding position for such a short bike with just 1330mm wheelbase — shorter than an NSR250 Honda GP racer. The problem isn't aerodynamics, it's breathing. The GB1 needs a Ducati-style airbox, pressurised via a carefully-designed system of air-ducts, which it didn't have when I rode it. For sure this would make it rev better, and give more power too.

The 743cc motor weighs 47kg, only 3.5kg more than the 558cc production engine of the Northwest/Piuma/RC600, with which it shares the same general architecture, but not a lot else. All the major engine castings are special, low-volume, sand-cast components and the water-cooled motor's four-valve cylinder head has twin overhead camshafts driven by a toothed belt. There's a gear-driven balance shaft, like on the road bike, but the 2-ring Mahle piston is an ultra-slipper, semi-Heron

TOP: It's hard to believe, but the basis of the immaculate GB1 was a Gilera factory desert racer power unit. Bimota had to clean sand out of the carbs and ignition!

ABOVE: Sir Alan cranks the GB1 hard right, all the while fighting against the constantly moving handle-bars, which he puts down to a duff set of forks

sand out of the carbs and ignition," says Marconi. The motor was in a very soft state of tune, with a mild cam and low 8.5:1 compression, to cope with African petrol.

By the time Galasso came to give the GB1 its maiden victory, the engine had hardly been developed any further — beyond the all-important replacement of the 38mm Mikuni carburettors with Bimota's TDD/Weber fuel injection. The result certainly seemed more impressive than the rather sluggish top end performance that the carburetted GB1 showed, when I raced against it at Monza in April on my Ducati Supermono.

There, the first handful of laps spent battling with Galasso and a couple of other Italian hotshots demonstrated that the Bimota's Gilera engine would leap out of slower turns like the chicanes, only to go to sleep in a straight line. "Galasso complained that the engine wouldn't rev over 6500rpm, but that power came in strongly at only 3000 rpm — nice for sand but much too low for tarmac!" says Marconi. "The fully-mapped fuel

pictures by Kyoichi Nakamura

"Battling with Galasso demonstrated that the Bimota's Gilera engine would leap out of slower turns like the chicanes, only to go to sleep in a straight line."

"Persuading this maxi-single mega-lump to fire up is a feat of skill requiring patience, stamina and plain good fortune, in spite of the lowly compression ratio."

design which, due to its light weight and big Nikasil bore, has the potential for high revs.

Persuading this lump to fire up is a feat of skill requiring patience, stamina and plain good fortune. In spite of the lowly compression, it's horribly easy to lock the rear wheel with the inertia of that big piston. Then, having persuaded the engine to run (the kickstart boss on the cases was obviously put there by someone with a sense of humour as to kick the RC750 engine into life surrounded by Saharan sand dunes must have needed a lot of will from Allah), you are then introduced to its single over-riding characteristic — the absolutely fingertip-rattling vibration. Balance shaft? What balance shaft? The GB1 make a vivid contrast with the Ducati Supermono, which runs as smoothly as an 888 at 11,000 rpm. (*Er, how smooth is that then, Alan? Ed*)

Not having ever built (or in Galasso's case, ridden) a sporty single before, Bimota staff had convinced themselves this level of vibration was all part of life's rich pageant with a modern singles racer, till I came along and disillusioned them. Bimota admit to having cracked seat sub-frames and main chassis tubes aplenty in the course of testing, and in my case one of my sessions on the bike was cut short when a battery terminal broke and the fuel pump stopped working. Cracked radiator mounts and various broken brackets have also plagued development, all caused by vibration. But why? A clue is supplied by the revelation that the flywheel has been lightened on this road racing version, to improve pick-up. This would require the counterbalancer to be re-weighted, to compensate, but it seems likely this hasn't been done. It needs to be — badly.

Even with the lightened flywheel, engine speed rises in deliberate, measured fashion rather than with the snap of a Ducati or KTM motor, but the compensation is the absolutely



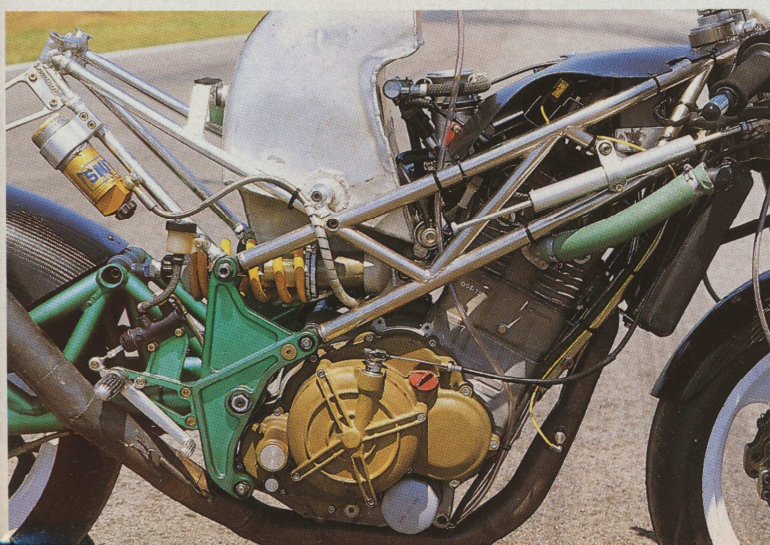
ABOVE: Sir Alan 'Tigger' Cathcart tells crestfallen chief designer Pierluigi Marconi that singles don't have to vibrate after all
BELOW: Chrome Moly space frame with bolted-on alloy engine plates house one big vibrator of a motor. Ducati's Supermono is considerably smoother says AC

massive midrange torque that makes the GB1 pull like a tractor from 4000 rpm upwards. It's not really happy running any lower than this because of the ignition curve, but once you twist the paradoxically light and delicate-feeling throttle hard enough to get it running above the mark, it delivers.

There's a smooth, linear power delivery that is relentless rather than explosive — a bit like pouring cream out of a bottle, as compared to milk — but coupled with the absolutely ferocious torque and light all-up weight, it gives exceptional acceleration by any standards, as I discovered in my battle with Galasso at Monza.

He'd get the jump on me out of the chicanes every time, till the diminutive Ducati motor had gathered up its skirts and got going. Once Bimota refine their application of fuel injection, so as to achieve top end performance from an engine that is presently all low down and midrange power, they'll have a great engine package. Then they can go for the 80-plus bhp that is the potential of the motor.

When that comes, the GB1 chassis should be more than able to cope with the extra power. Marconi's wizardry can't disguise that the RC750R motor is a very tall unit with a heavy twin-cam cylinder head up top to further raise the centre of gravity — a bigger contrast with the low-slung Ducati with its horizontal cylinder can't be imagined. Moreover, the Gilera engine is not dry-sumped, therefore can't be tilted more than a few degrees forward to try to lower the weight. This means that the GB1 is rather a physical bike to ride hard,



requiring a some muscle to lift from side to side in turns, despite the use of radical chassis geometry to try to compensate.

Besides the very short wheelbase, trail is a mere 82mm and the head angle to 23.5°, making for a fast-steering bike by singles racer standards. It's noticeably twitchy round a fast turn. Just using the clutch to change up round a series of fast left-handers at Misano was enough to send the GB1 into a wobble, and the bars move continuously in your hands round all but slow turns.

But this nervous behaviour pays off when you flip from side to side through a chicane. You still have to work at lifting the bike up from the considerable lean angles Marconi has dialled in. The steering is so light and precise you can send it through the turn on autopilot. Fitting a 3.25in. front wheel instead of the 3.50 used might speed things up a bit, but with that top heavy motor, I think the GB1 steers pretty much as well as it's going to already.

To create the GB1 chassis to house the Gilera engine, Marconi borrowed much of the technology and some of the components from his design for the Ducati 900SS-powered DB2. The frame is actually built in three parts, using three different materials: a fully-triangulated chrome-moly tubular steel spaceframe comprises the main section; the swingarm is fabricated from oval-section alloy tubing made by Bimota themselves. This pivots in two chassis side-plates milled from solid billets of 7300 aluminium, and the total weight of chassis and swingarm combined is just 6.5 kg.

Suspension is lifted straight off the DB2, which means 41mm Paioli forks which are merely adequate on the race track, feeling a bit vague under braking. It may be that because they're not the upside-down type, they deflect and twist under the stopping

power of the 280mm Brembo discs, or else they have insufficient compression damping. Use the back brake at all and you'll lock the wheel, with the inertia of that big piston.

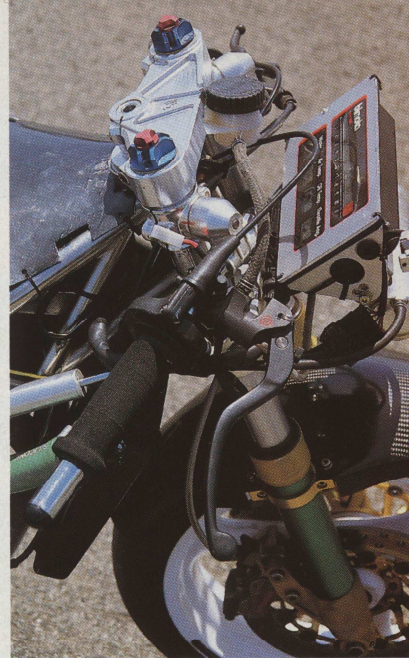
The rear shock is also sourced from the DB2. As with the street bike it's an Öhlins with twin-rate spring and responsive damping. It's fitted in a cantilever position without any linkage (so no rising rate damping) yet has a really progressive feel, thanks to some trick valving. In spite of the tremendous torque of the Gilera engine, traction is excellent; the sure-footed handling gives lots of feeling and confidence. Fit a pair of Öhlins forks to match the rear shock, and you'd be in business...

Bimota have achieved a great deal in a short time with their Gilera-powered racer. Especially as it's really a sideline to their main projects — the fuel-injected 500 V-twin two-stroke, the Tesi chassis and the new range of SB6/SB7 Suzuki GSX-R-powered roadburners. It's a genuine achievement that one can only hope will have its due reward.

The GB1 is a bike that has huge potential for Supermono/SoS racing, once refinement of fuel injection system has taken place. Might is right, no? And a lesson, perhaps, for Ducati. If the Supermono class takes off internationally in 1994, as seems increasingly likely, a customer Bimota GB1 would have to be a strong contender for top honours, even if its price makes a Ducati Supermono seem cheap.

But on a less rarified level, the market surely exists for a sophisticated street single with the Bimota badge on the tank, an Italian engine behind the fairing and fitted with fuel injection to add refinement. Hopefully, the summit meeting with Gilera that is due this autumn to thrash out the future of the project will result in such a motorcycle. Italy expects — and the world waits.

Alan Cathcart



ABOVE: this nifty little gadget enables Sir Alan to play with his Nintendo Gameboy even at racing speeds. Is it any wonder the bars move around in his hands?

BELOW: raging hard in the bendies on nifty steering GB1

BIMOTA GB1

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|---------------------|---|
| Engine type | Liquid-cooled, DOHC, four-valve, four-stroke single |
| Bore x Stroke | 105.5 x 85mm |
| Capacity | 743cc |
| Compression Ratio | 8.5:1 |
| Carburation | Weber fuel injection |
| Ignition | Digital engine system |
| Clutch | Dry multi-plate |
| Gearbox | Five-speed |
| Final Drive | Chain |
| Frame | Chromo space frame |
| Front Suspension | 41mm Paioli |
| Rear Suspension | Öhlins |
| Brakes | Twin 280mm discs, Four-pot Brembos (f) 210mm disc, twin-pot Brembo (r) |
| Tyres/Wheels | 120/60-17 Michelin 3.50inch Marvic (f) 150/60-17 Michelin 5.50in Marvic (r) |
| Wheelbase | 1330mm |
| Rake | 23° |
| Trail | 82mm |
| Weight Distribution | 52/48% |
| Semi-Dry Weight | 119kg |

"The GB1 is frankly rather a physical bike to ride hard, requiring a good deal of muscle to lift from side to side."

