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FLOAT LIKE AN RGB, STING LIKE A WASP

IT TOOK A WELSHMAN TO BUILD THE FASTEST BRITISH PISTON-ENGINED RACER, STARTING WITH A SECONDHAND ENGINE.
TEST BY ALAN CATHCART, PHOTOGRAPHY KYOICHI NAKAMURA

The world of motorcycle racing offers many examples of courage and determination triumphing in the face of adversity. No one, I think, illustrates this better than Welsh wizard, Gary Bryan, builder of the fastest British racing motorcycle powered by a conventional reciprocating engine.

A former sidecar driver, Bryan has been confined to a wheelchair since a mid-70s multiple pile-up at Oulton Park, in which two other people were killed. Instead of retreating from the sport that dealt him this cruel blow, the 45-year-old slot-machine engineer has used every moment of his spare time to build a series of bikes under the RGB name. Today, Gary's initials are recognised the world over as representing the best of British on two wheels. Winner of countless Battle of the Twins races in the early Eighties, including the first British BoTT title in the hands of the late Bob Smith, the Weslake-powered pushrod machine was also raced by Tetsu Ikuzawa and his team to win the Japanese BoTT crown in 1986.

In recent years, RGBs have performed creditably against even the most sophisticated and costly fuel-injected 8-valve Ducatis. No one else of late, has even attempted racing a British twin on an open basis against the Italian Mob, let alone enjoyed the success that RGB has had. The fact that Gary Bryan has done so, on a largely self-financed basis, is a tribute to his passion for the sport and Britbikes in particular, but it is a disgrace that his efforts to attract support from British industry have gone unrewarded.

In spite of this shameful lack of interest, Gary manages somehow to meet the rising cost of racing by working to a very tight budget. In response to Ducati's dominance of UK twins

The RGB at Mallory Park, where its sharp handling was tested to the full by the tight circuit

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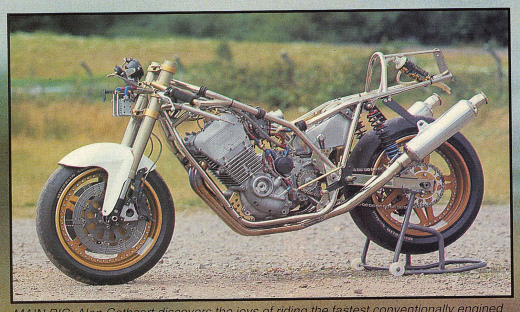


MAIN PIC: Alan Cathcart discovers the joys of riding the fastest conventionally engined British racer, Gary Bryan's RGB Wasp
ABOVE: The elegant, compact and low chassis which combines stability with agility

chining fault on the drum.

By the end of the season the gearbox was performing faultlessly, but while it was misbehaving, it did underline the effortless nature of the torquey engine. Forced to reduce gearchanging as much as possible, I was impressed with how well the RGB pulled out of turns from low down, while wanting to rev even higher than common sense allowed. The obvious conclusion is that this would make an exceptional road bike. When I mentioned the idea, Gary revealed that this is exactly what he's in the process of developing, so if you want the ultimate British street twin, get your order in quick!

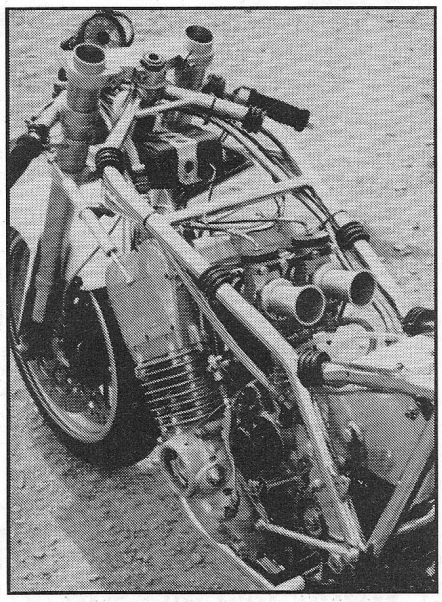
The RGB Wasp epitomises the traditional route to higher performance: an ultra-flat valve angle, totalling less than 40 degrees; high-comp pistons giving 12 to 1 compression, aided by 80mm longer conrods made to RGB specification; Gary's own twin-pipe exhaust system, which makes an excellent job of muffling the distinctive sound of those pistons rising and falling in unison; and an Interspan electronic ignition running at 32 degrees fixed advance.

To get any more power out of the Wasp, the next stage for Gary is to fit fuel injection — a mechanical (like the Hillborn used on the successful NZ-built BMS Ducati) rather than the electronic engine management system of the stock "otto valvole" Desmos. "I believe in keeping things as simple as possible and reducing weight and complication," Gary says, "so I definitely want to avoid the expense and bulk of watercooling. Guzzi have shown what's possible with a properly-developed, air-cooled 8-valve twin, and I honestly think we can get 120bhp out of this engine with injection and further development.

"Unless you have the resources of a factory behind you, I don't think electronic injection is viable — look at all the problems John Britten's had with his. It's prevented him getting the results he deserves. A mechanical system (basically, just a means of pouring as much fuel as you can down the inside of the engine) would have been a better bet."

Gary has always been keen on keeping weight to a minimum. A decade ago, it was partly thanks to the skimpiness of his RGB (134kg/295lb) that Bob Smith was able to defeat Tony Rutter's works Ducati 750TT1 for the British BoTT title. That's some going for a bike that, in its final form, measured 927cc and was good for 150mph! I rode the bike, in 1983, at Oulton Park and the vibration was truly awe-inspiring; it was an experience I was to repeat when I tested the Team Ikuzama near-replica in Japan.

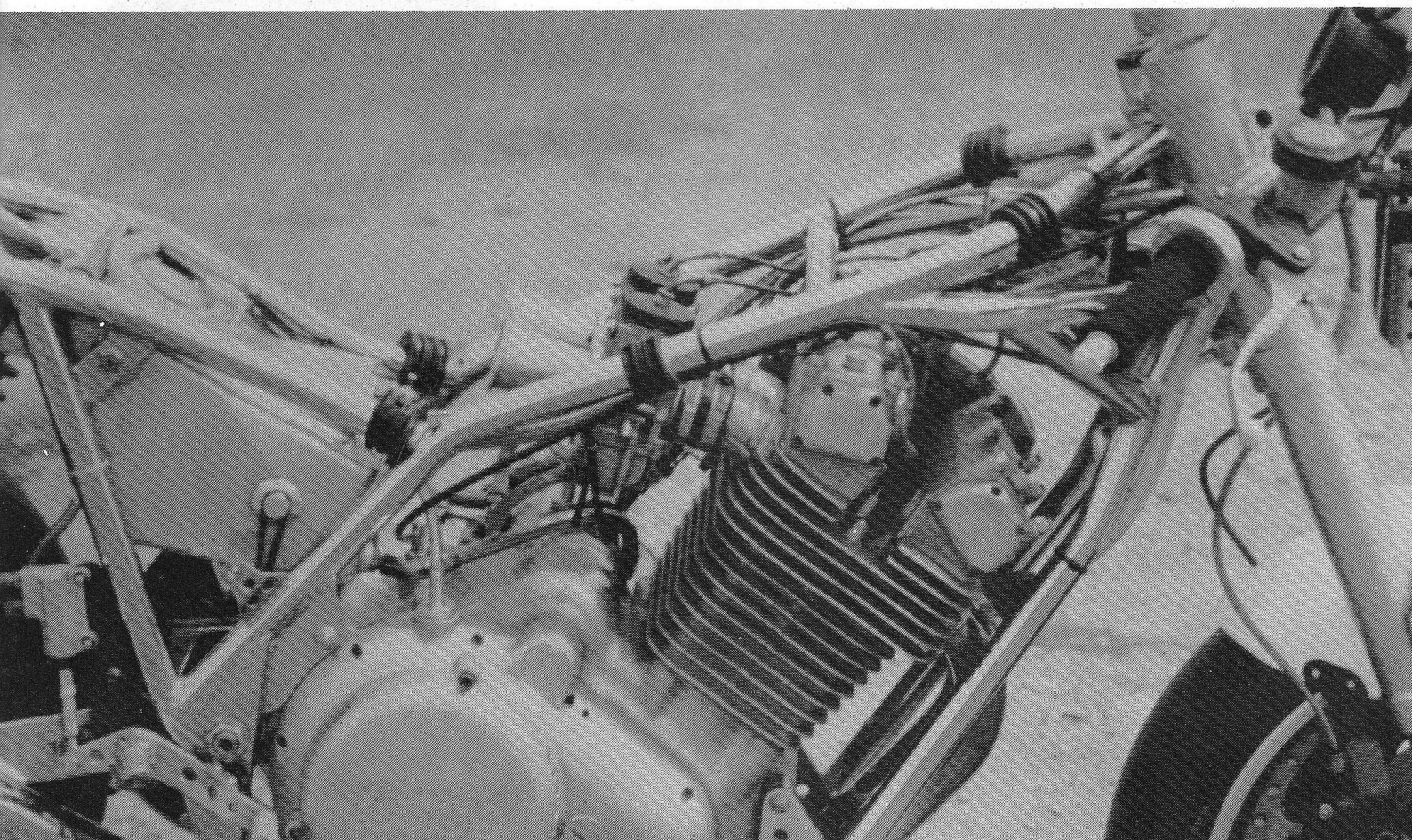
Another problem I had was with the tight, close-coupled riding position which concentrated the mass in the centre of the wheelbase by seating the rider quite far forward, yet comparatively low down. It's a distinctive, some might say strange, posture which is repeated on the RGB Wasp. Slotted into the chrome-moly, twin-loop frame (Bryan's own design), the extra bulk of the dohc motor makes the Wasp a good



ABOVE: Frame rails bell out from the headstock, then nip in like a Slimline BELOW: Headstock has plenty of triangulated bracing to support it

deal heavier than the Weslake-powered pushrod RGBs. I mean, 170kg/375lb is about 20kg heavier than the trick Ducati Corsa customer racers — and they're loaded up with watercooling, injection hardware, engine management computer, fuel pump and, of course, a battery to power it all.

So what's gone wrong, given that the Interspan ignition has a precharged powerpack good for one hour's running at 8,000rpm, and the air-cooled motor is gravity-fed by carbs?



Well, the main culprit is the Wasp motor which scales a massive 82kg/180lb. Assuming Gary can afford the expense, magnesium crankcases would save some 7.5kg/16.5lb, but no amount of minimalism is going to overcome the basic problem.

The Wasp is also a wide engine (with that camshaft drive up the side), hence the bulky fairing which Gary claims is a replica of that fitted to Freddie Spencer's '86 NSR500 Honda. Gary has tried to get the weight as low as possible as this, he believes, is important for quick handling. Low weight distribution means keeping the rider down too and seat height is much lower on the RGB than on any other racer I've sampled for some time.

The main reason for this is that Gary has fitted the RGB Wasp with a twin-shock rear end in preference to a taller, heavier, monoshock system. "We wanted to do the Hyde series, which stipulates a twin-shock chassis," he says, "but I'd probably have opted for it anyway, because it's simpler and lighter. Plus, the way the RGB-Weslakes handled, I didn't think a monoshock was necesary." Maybe so, but several fraught trips over the bumps on the exit from Gerards made me less of a believer and the promise of sophisticated oil/air damped Progressive Suspension shocks from America, with their dual-rate springs, did nothing to convince me otherwise.

The rear suspension did appear to be the reason for the bike hopping so badly over the bumps, making it impossible to wind the throttle hard open for the exit until the back wheel was in proper contact with the ground again. There seemed very little suspension compliance, a fact confirmed by bouncing the bike on its springs in the paddock. Sure this is right, Gary? Well, there is an explanation. For some strange reason, the bike was originally designed around 18 inch tyres. So, with the 17 inch Michelin radials now fitted, there's a ground clearance problem which can only be resolved by stiffening up the rear end.

To get over this difficulty, Gary has a new chassis planned for next season and the first of the Wasp-powered racers he's building for an overseas client will be so equipped. On anything other than a smooth track this is, at present, a problem. It's a pity because, in all other respects, the bike handles well. The light and positive steering means the RGB goes — without excessive rider input — just where you point it.

This is just as well as moving about on the seat is difficult, thanks to the squashed riding position which pushes your knees upwards and forces you to bend your elbows down straight. It's hard for a tall rider to get tucked away behind the screen — and Mike Hose is only a little shorter than I am. There is, however, one advantage to compacting the mass in this way and that is to reduce the polar moment, which is probably why the bike is so stable on fast corners yet moves from side to side quickly at the Esses, in spite of the wide 26.5 degree head angle and considerable amount of trail.

There are few bikes, weighing as much as this, which you can take round Gerards on the power without any twitching or understeer and which will then flip-flop on auto-pilot from side to side in the slow chicane. It's a shame the gearbox problem intervened at this point to spoil the drive out round the Elbow and past the pits; I was impressed at how early you could get the power on, thanks to the meaty 6-inch rear Astralite. And, I have to say, the twin-shock rear end.

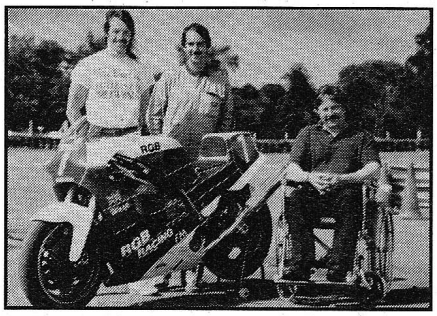
The White Power upside-down forks were well set up but the biggest revelation for me was the effectiveness of the Spondon brakes, using their own four-pot calipers on stainless steel discs. I used this combination on my own Spondon-Ducati 888 but couldn't get them to bite properly until I swapped the discs for a pair of Brembo cast-iron rotors. In spite of the RGB's extra weight, the Spondon set-up worked remarkably well — and Mallory's hairpin will test any brake system to the utmost. Clearly, pad choice is crucial. It's also important not to use the rear brake on the overrun, otherwise the high compression and heavy crank inertia will easily lock the back wheel. Plus, Gary doesn't like his rider buzzing the engine under reverse loads — it causes unnecessary strain!

I saw the Merlin-Wasp engine for the first time in 1984 at the British Sidecar Cross GP. A dozen of the rigs there sported this modern British power unit and I wondered why nobody had used it to power a street bike, let alone a road racer. Gary Bryan's kicking himself, too. "I just wish I'd seen this engine back in '84 myself — I heard about it, but never followed it up, and that was a big mistake," he says. "Considering how new the bike is, it's amazing how reliable the engine's been. It responds well to tuning, which not all off-road engines do when you try to road race them.

"I've always wanted to race British bikes — out of a mixture of patriotism and cost — but now we've got something I honestly believe can rival any air-cooled bike in the world, once we get the fuel injection developed."

Stirring words, and not misplaced. For although the RGB Wasp is out of its depth on long, fast tracks, like Assen, it's in its element on light tracks where torque is more important than peak revs. And that's in its present carburetted form. With sufficient backing to fit the injection system he wants, Britain will surely have a contender for BoTT honours next season.

And another page in Gary Bryan's tale of triumph over adversity will have been written.



The winning team - Mike Hose, Chris Edwards and Gary Bryan

RGB WASP SPECIFICATION

Engine: Dohc, air-cooled, 360-degree, 8-valve parallel twin-cylinder four-stroke
Dimensions: 86 x 86mm
Capacity: 998cc
Output: 108bhp at 7500rpm (at wheel)
Compression ratio: 12 to 1
Carburation: 2 x 40mm Amal Mark 2
Ignition: Interspan pre-charged CDI
Gearbox: 5-speed Merlin/Wasp with gear primary
Clutch: Multiplate dry (6 friction/6 driven)
Chassis: Chrome-moly steel, tubular, full cradle duplex
Suspension: Front: 54mm upper, 42mm lower, White Power inverted telescopic forks
Rear: Box-section steel swingarm with twin Progressive Suspension shocks with dual-rate springs
Head angle: 26.5 degrees
Trail: Not known (change offsets for each circuit)
Wheelbase: 1410mm (55.5in)
Weight: 170kg (375lb) with oil, no fuel
Weight distribution: 50.5/49.5 %
Brakes: Front: 2 x 320mm Spondon stainless steel discs with four-piston Spondon calipers
Rear: 1 x 180mm RGB alloy disc with two-piston Brembo caliper
Tyres/Wheels: Front 12/60 — 17 Michelin radial on 3.50in Astralite wheel
Rear: 18/67 — 17 Michelin radial on 6.00in Astralite wheel
Top speed: 160mph
Year of construction: 1990
Owner: Gary Bryan, Crossing Cottage, Lodge, Wrexham LL11 5NF Wales