



NEW
FEATURE
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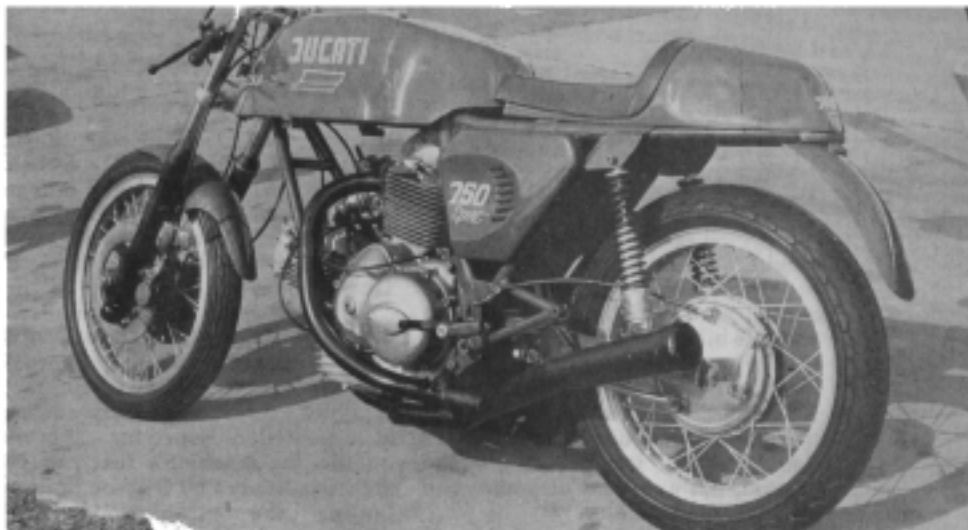
ROADSTERS
INTO RACERS



DUCATI -the basis

We get a lot of enquiries about mods to street bikes — so over the next few issues of TWO WHEELS we'll look closely at some of the best approaches to getting more out of roadsters. First up, we've got one of the most exciting; a lithe, well-balanced Ducati 750 Sport Ducati which has been given a painstaking work over by top racing car engine builder Peter Molloy. You'll find his approach interesting!





of a balanced racer

DIFFERENT APPROACHES to building extra-high-performance motorcycles by two of Sydney's best qualified professionals promises to make the coming racing season for improved touring bikes a very special one.

The simple appearance of these two bikes — one of which has already raced successfully — will force many competitors to re-think their attitudes to the class and the result should be a boon for the spectators. Going even further, the appearance of these bikes is a shot-in-the-arm for many road-bike riders who want more sting from their superbikes.

The bike we've seen on the tracks — the Motor Cycle Improvements Yoshimura 1000 Kawasaki, ridden by Graeme Crosby — has already forced a re-think on the part of the endless list of big-bore Kawasaki riders. No longer is it good enough to simply fit a big-bore kit and a set of

four-into-ones: The big-grunt big-K needs development to be competitive. Next month, in part two of our racer special, we'll look closely at the bike.

This month, there's another approach to the more power problem, one which hadn't been considered seriously before. It comes from a man who believes the big Kawasakis can be beaten. While motorcycle experts Ross Hannan and Graeme Crosby have built the fastest Kawasakis around from off-the-shelf modification parts, race-car tuner and engine-builder Peter Molloy, who has had virtually no experience with motorcycles, has built a possible Kawasaki-beater by hand.

Molloy is recognised as one of the best engine builders in the world but many Sydney racers have scoffed at the idea of "a car bloke getting a motorcycle to do anything"

Molloy, however, believes the principles of preparing a race car and a race bike are the same — and he's out to prove it with a 750 Ducati Sport. He started out with very little but theory and has ended up with what should be a big shock to the sceptics.

The Ducati is a total contrast in concept to Ross Hannan's Kawasaki. Molloy has built the Ducati by hand — you can't walk into a shop and buy the bits to make a replica of this one. It's not designed to advertise — in fact, it's more a mental exercise than anything else.

Peter Molloy believes in the "balanced package". He knows he won't match the power of the Hannan/Crosby Yoshimura Kawa-

Top left:

Phil O'Brien (left) and Peter Molloy, the men behind the superb Ducati racer. Molloy is one of the best racing engine builders in the world and the Ducati is his project. Phil O'Brien, well known for his racing skill and frame and tuning mods, lent a big hand and will be racing the machine.

Above:

The 750 Sport is red and looks beautifully purposeful. Mods have been carefully balanced so the bike has even, usable power; Molloy's aim was to build a bike that could get the power on sooner, smoother and faster than the big, heavy rocketships.

saki but he believes he can build a faster machine.

"Sure, I could get 140 horses out of a Kawasaki motor but what's the point? That sort of power just can't be used in that frame," he said.

"The ideal racing car, or racing bike, is one that has a balanced combination of power, weight, handling and rideability — power you can't use isn't worth having."

Molloy chose the Ducati 750 Sport for that reason. He believes it is one of the most balanced and rideable bikes around and every modification he has made has been designed to maintain that balance. A basic example of this concept is the two-into-one exhaust — complicated to make properly, it adds no more power than a pair of straight-through exhausts.

"If I ran the bike with Imola-style pipes, which would be easier, it would be less comfortable for the rider. If I ran it with lower pipes, we





ROADSTERS INTO RACERS

would have ground-clearance problems. This way, although more complicated initially, I have a more rideable bike," he said.

Molloy believes he can give away more than 21 kW (30 hp) to the Kawasakis and still beat them because of the Ducati's balance. It's light, has its weight low to the ground, has excellent clearance and is a renowned handler.

"They might have more power but we can turn it on half an hour

earlier," he said with a smile that in no way indicated he was joking.

"I looked at the Ducati motor before I started and decided it was little different to half of one of the two-litre twin-cam motors I prepare for Formula Two racing cars. I get 210 bhp from one of those, so I guessed between 90-100 for the Ducati" he said.

Molloy seems to make educated guesses, because his Ducati, now completed, is producing approximately 70 kW (95 hp). In fact, virtually everything Molloy guessed at, expected, or hoped for was borne out on the machine's first run. He and racer/tuner Phil O'Brien finished bolting the machine together, pushed it down the driveway and watched their friends fall about

laughing as it started immediately and ran sweetly.

They took it out to Amaroo Park on a drizzly day, ran it in, changed the jets, fiddled with the clutch, replaced the rear sprocket and everything was perfect. They couldn't give it a full-blooded tryout on the greasy track but O'Brien came back in to tell Molloy just how right he was.

"It's fantastic — it does everything you said it would," O'Brien said.

"It has power all the way in one great smooth surge. It has to be the easiest-to-ride machine I've ever tried — and it has plenty of poke!"

Molloy raised a few eyebrows when he chose the basic Sport version of the Ducati rather than the Desmodromic-headed Super Sport, and the 750 version over the 900, but he has good reasons.

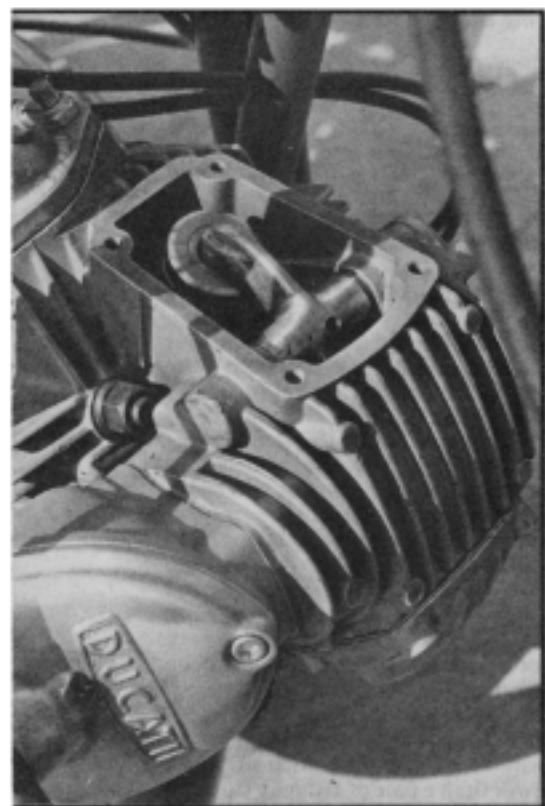
With the Desmo heads he simply wouldn't have been able to get the cam timing he wanted and would, in fact, have ended with a machine less powerful, even though it would be capable of revving higher. Why not do it all with a non-desmo 900, then? Because of his concept of the balanced motorcycle.

"Like I've said, the riders just can't use too much grunt because it becomes harder to get it to the ground," he told us.

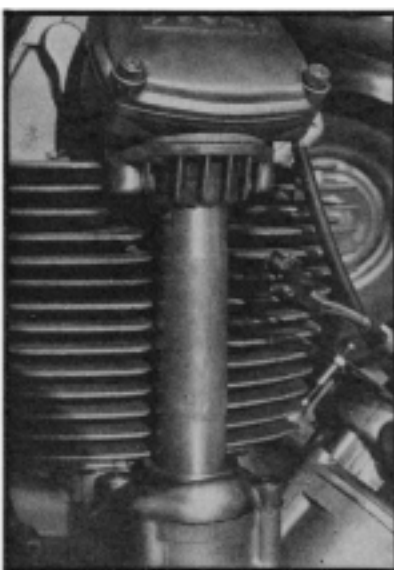
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Heads were completely filled and re-shaped and spark plugs re-positioned higher in the combustion chamber after extensive flow-testing.



Cam timing has been drastically altered and titanium valves and retainers used. Rockers are also lightweight.



Above: Proof of how far Molloy was prepared to go in his search for weight reduction are the cam drive cover tubes. The stock thick steel ones were replaced with lightweight Dural tubing covers.

Left: The bike had its first run at Sydney's Amaroo park on a dismal, drizzly day. Naturally, the bike's limits weren't explored, but rider O'Brien said it behaved exactly as Molloy said it would.

Continued from page 20

"If a guy can come into a corner quickly and open it up at the apex, he's going to be quicker through there than the person getting all tied up in wheelspin and power-sliding.

"And speed in the straight is governed more by entry speed than by power — the Ducati should be flying away while the more powerful machines are still having troubles sorting themselves out."

A fairly simple example of Molloy's philosophy — and proof that his racing car concepts apply to bikes — is the open racing class. The top racing bikes in the country are no bigger than 750 cm³ — and we've seen them have trouble shaking off the beautifully-balanced RG500 Suzukis, even on power circuits like Oran Park.

A 350 Yamaha can run nearly as quickly as the big guns — and although giving away up to 37 kW (50 hp) to things like the Yoshimura 1000, it is still faster overall.

Molloy believes his Ducati's 70 kW is a usable amount of power in the Ducati frame. He could get slightly more but would lose some of the machine's tractability in doing so and feels it isn't worth the trouble.

What has he done to achieve that power rating from the V-Twin? He has used his car workshop facilities

Below:

Standard carbs were replaced with 40 mm Dellortos from the 860 Super Sports. Velocity stacks were made by Molloy, like all the other trick bits, after extensive testing.

Exhaust system was built as two-into-one, not for performance reasons, but for rider comfort and good ground clearance. High Imola-style pipes would have been simpler, but Molloy believes rider comfort makes complicated exhaust system worthwhile.

to re-design, re-build and plain modify many of the engine components, leaving a standard bottom end; "because it can take the 9000 rpm redline I'm giving it easily". Step by step, here's what it's all about:

HEADS

The heads were filled in and totally re-shaped, including repositioning of the spark plugs higher in the combustion chamber. The heads have been extensively gas-flowed and tested for breathing ability.

CAMS

Cam timing has been drastically changed to improve the breathing, based on the timing for the Formula Two motors Molloy builds. At 70-105 inlet and 100-65 exhaust, it is very close to the F2 design.

VALVES

Titanium valves and retainers have been made, although the valves aren't as big as he could go — an effort to keep the power band as smooth as possible.

BARRELS

The barrels have been lowered two mm to the crankcases. Compression is up to 10.8:1. Molloy has purposely kept compression low as the unit breathes so well.

PISTONS

Pistons have been re-shaped to suit the new head design and provide better combustion.

CARBS

The 40 mm Dell'Orto carbs used on the 860 have been used, with Molloy-designed air-flowed velocity stacks.

EXHAUST

The two-into-one exhaust system was made by race tuner Phil O'Brien purely for rider comfort and to eliminate ground-clearance problems.

IGNITION

The standard ignition has been retained and Ducati electronic ignition has been fitted, so Molloy can try each under different conditions.

WEIGHT

One of the most important factors for Molloy was to keep the

weight down and to this end he has made extensive use of titanium. As well as the valves and retainers, he has used it for both axles, while he used lightweight Dural tubing for the cam drive cover tubes, originally made of thick steel. He has also drilled components to reduce weight.

SUSPENSION

Koni rear shocks have been fitted and stronger fork springs have been added at the front. In both cases, the components have been checked to ensure identical rebound characteristics on both sides — balance again.

BRAKES

Super Sport twin front discs have been fitted but with Girlock racing calipers. The standard rear drum brake will be retained unless mag-alloy wheels are fitted, in which case a disc will be used.

The frame and accessories are standard Ducati but detailed blueprinting work has gone into things like the gearbox and clutch to set them up "just right".

That's about all there is to it — 12 months' work in Molloy's precious little spare time and as this edition went to press it was, as yet, unproven. It was, however, meeting expectations and it will have raced by the time you read this.

Was Peter Molloy right or wrong?



NEXT MONTH

Roadsters into Racers, part two: A look at another approach to getting basic road bikes to go hard on tracks; the Ross Hannan Yoshimura Kawasaki, ridden so successfully by Graeme Crosby. It was made to show just how fast Yoshi bits can make a big Kawa — next month we'll show you!

