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two wheels

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'74 BIKES Color Special

BIG-BORES FOR HONDAS

TRAIL SHOOTOUT Yamaha versus Kawa 250

Ducati's Desmo
THE SILVER SHOTGUN!

What is there about this last true production cafe racer that honors it with immortality? We might have believed its qualities were all Italian idiosyncrasies the average owner might not be prepared to tolerate until JOE BLAKE presented this 13,000 kilometre report.
The single-cylinder bike is not dead, he says. Nor does its strength lie only in soppy memories of yesteryear.
It took a Desmo to make this experienced rider realise it!

IT WAS love at first sight.

But for a very difficult-to-explain reason. It wasn't logical for a man who already owned a well-used Norton roadster and recently relinquished his hold on a little Kawasaki 100 to fall quite so heavily.

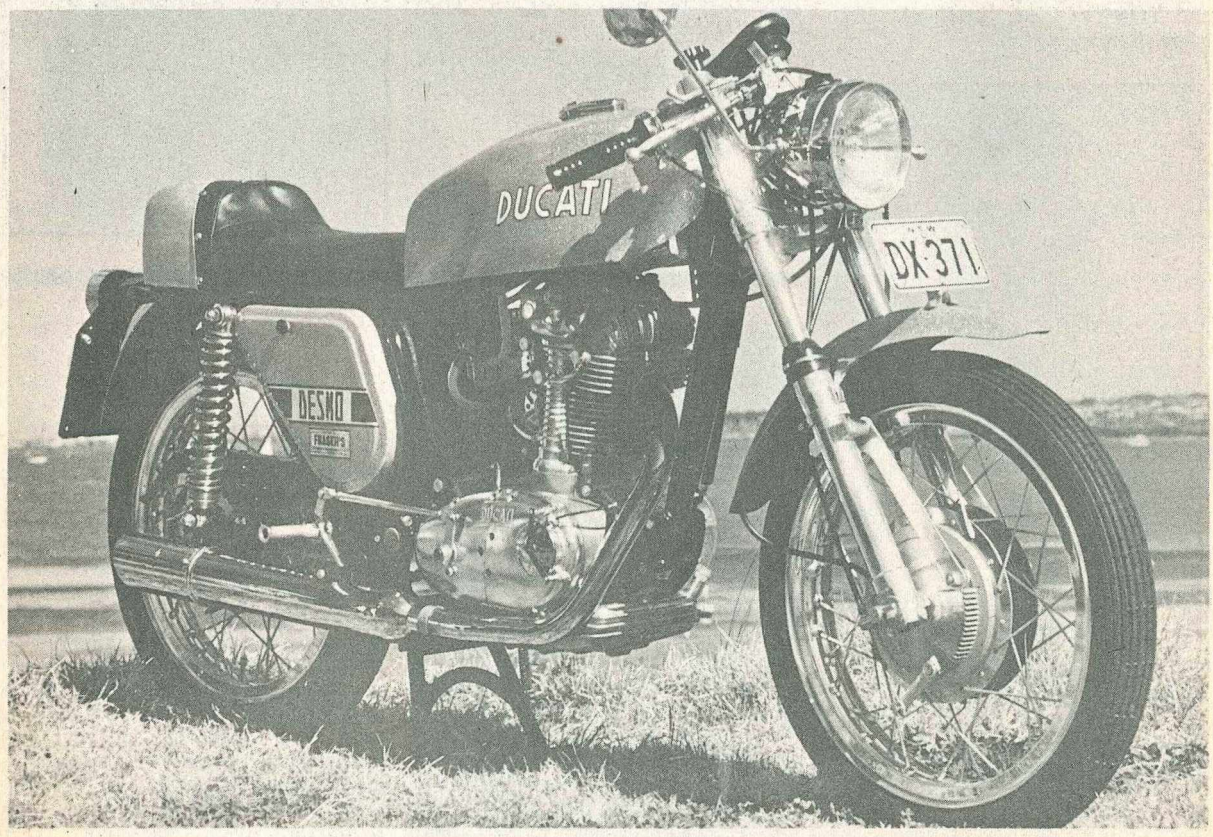
But here was a CAFE RACER — one of the street-legal roadracer breed beloved by British enthusiasts who cling tenaciously to their memories of the late Velocette Thruxton and like to pretend that Norton's production racer is as good.

Three thousand kilometres ago it had been new; the product of an Italian factory that understood the real meaning of a solo seat, clip-ons, rearsets and a megaphone with a detachable muffler.

The glint of the stunning metal-flake silver beckoned me closer. That paint was nearly two years old and it still looked half an inch deep.

"DUCATI". White decals on a silver flake fibreglass tank. Only the Italians could do that. But they switched colors for the sidepanels. "Desmo" screamed the writing . . . what the hell did Desmo really mean?

I didn't buy it on the spot. I went away and thought about it, determined to read all I could on



". . . But here was a true cafe racer."

the machine. But I was frustrated. What you see is what you get. The Italians don't bother to tell the rest of the world much about how to love and understand their thoroughbreds.

But I was thorough. I compared it with other machines and a little simple arithmetic brought me to the conclusion that the Desmo has a very good power to weight ratio.

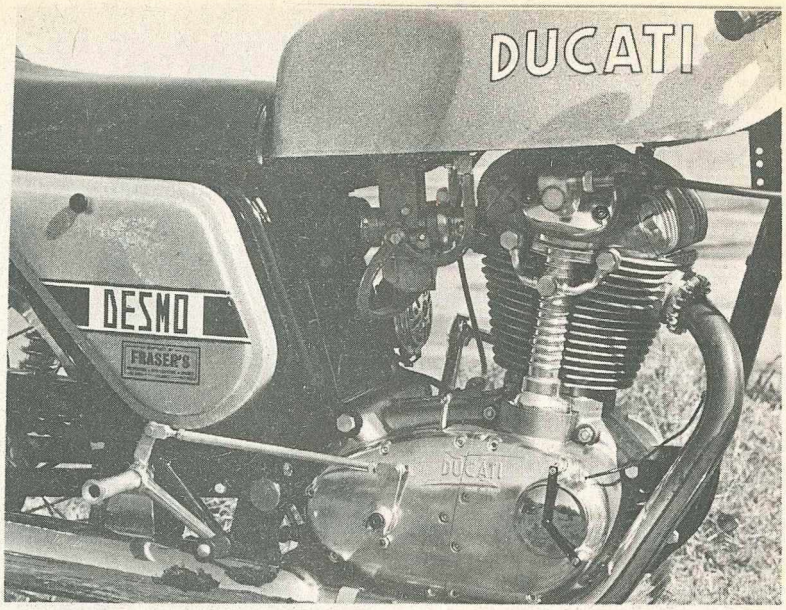
And then I went back to the technical books to learn more. Did you know that desmodromic valve operation goes back as far as 1910, when an English gentleman named A. F. Arnott patented the design? After that it went through several stages of development until 1954, when Mercedes used the Desmo system on their "straight eight" engined GP cars, much to the dismay of all opponents.

A couple of interesting points about their system was the use of two cams per valve, and the fact that there were no valve springs. The Mercedes desmodromic system closed the valves to within .003 in. of their seats then engine compression did the rest. Several motorcycle manufacturers experimented with the system, among them BMW, Velocette, Norton and Ducati. If Norton had got their dohc Manx sorted out properly before they dropped their racing program the motorcycling record books might have been entirely different.

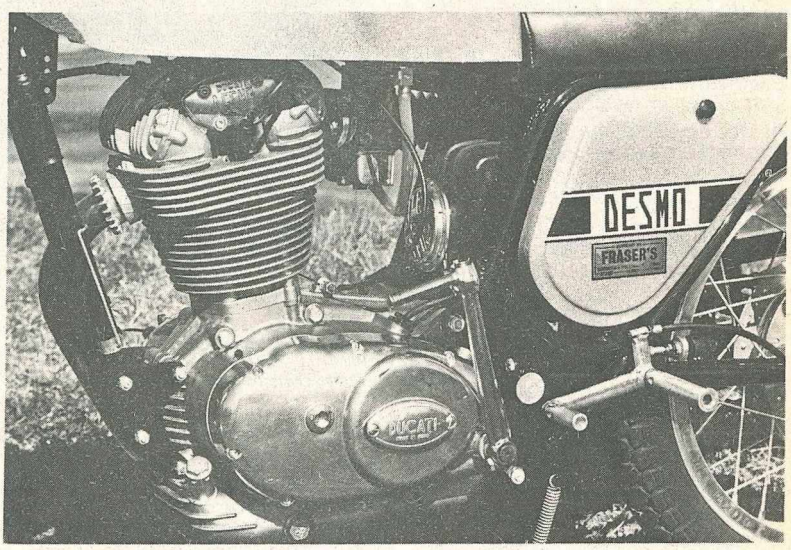
Ducati got the job done and between 1956 and 1958 their 125s were a sensation. In 1958, Alberto Gandossi needed to win only the Ulster GP to clinch the world championship but he got spat off near the end of the race, after having gained the lead.

So a forerunner of my intended bike was nearly famous!

And then I got one of those rare Ducati handbooks. The exploded diagram of the motor opened a whole new world of Italian phraseology for me.



The heart of the machine from the timing side. Points are in front section of crankcase cover and the barrel tube carries the valvegear driveshaft. Rearsets provided a sloppy gear operation initially but this improved with age. Header pipe blued severely at about 3735 km (1700 miles).



A gear-driven clutch is under left hand cover. Note that retaining screws are all Allen caps.

The Ducati 450 Desmo engine is an astonishing device. It has a cast alloy head and barrel, the barrel containing a cast iron liner. The bore is 86 mm and the stroke is 75 mm, giving an "over-square" capacity of 435.7 cm^3 and the compression ratio is 9.3:1.

Carburetion is by Dell'Orto, and the 450 carries a VHB29 model carb, the 29 signifying 29 mm choke size. Talking about chokes reminds me of the hassle I had trying to figure out which way was "start" and which way was "run".

Eventually, by stripping the thing down, I figured it out, at the same time making an amazing discovery. The average bike carb choke works on the principal of blocking the throat, thus cutting down the amount of air coming through, in turn richening the air/fuel mixture. The Dell'Orto works in the reverse direction, and putting the choke "on" raises a slide on the left side of the carb, which uncovers a small jet, adding extra fuel to the mixture, which is why the engine idles so fast (2500-3000 rpm) with the choke on. Spark is supplied by the old battery-and-coil method, the battery being 6 volt, unusual on a modern bike of such large capacity.

Lubrication provides another fascinating insight into the Italian mind. The engine is wet sump, with the lower forward section of the vertically-split crankcase being cast in the shape of a finned oil cooler. An oil pump is gear-driven off the shaft to raise the oil to the top, and gravity returns it to the sump. Most interesting however, is the fact that the sump oil lubricates the gearbox as well, making an oil change simple and quick (provided one can get the drain plug in the side of the sump undone).

The motor's sohc is driven by a bevel shaft and the whole thing is reminiscent of a Norton Manx, even down to the use of hairpin springs on the valves, although in the case of Ducati the springs are really used only to ensure the correct seating of the valve. On the "ordinary" ohc

Ducati, the valve pressure is around 160 psi (1102 kPa) whereas the desmodromic valve springs have only 18 psi (124 kPa) pressure.

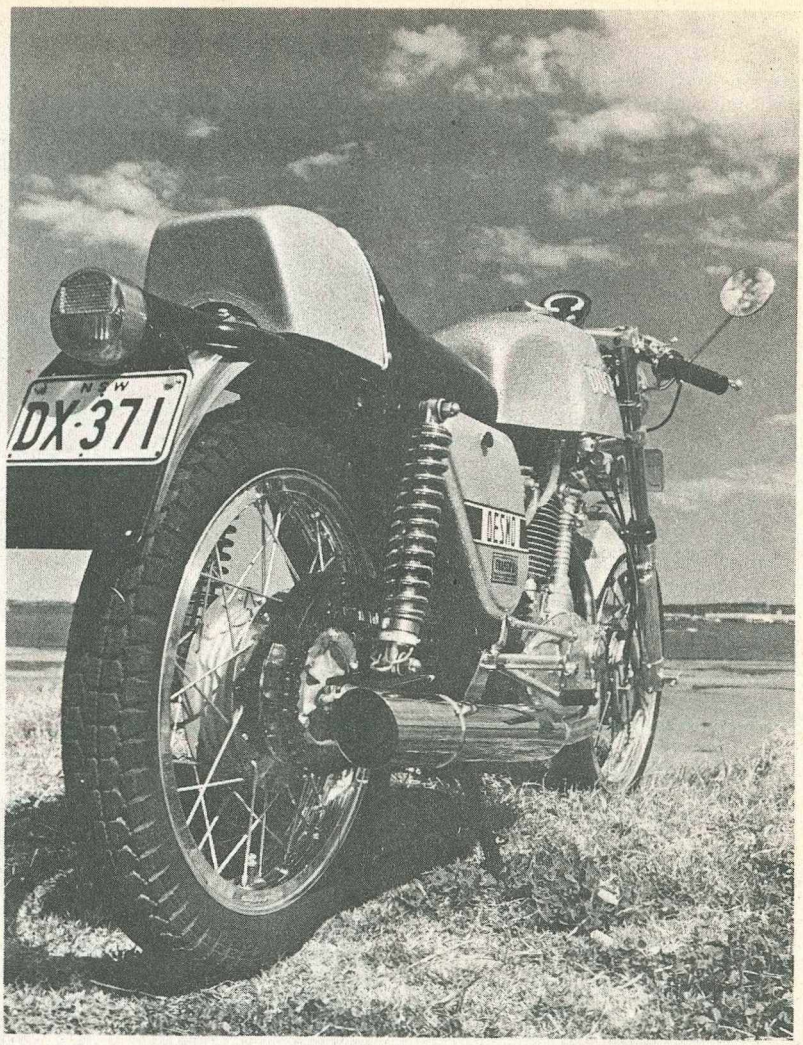
One cold May morning I went and bought the bike, convinced I knew as much about it as the guy who was selling it to me. I did too, but he had to start it . . .

At 2500 rpm it moved away swiftly. With knees tucked in against the tank, most of the mechanical noises were blocked off, but spreading the knees a bit caused a horrible metallic ringing to assail the ears, this being accompanied by the roar of the carb intake, unmuffled by an air cleaner of any sort (the air cleaner is an optional extra which I had fitted later on).

Changing from first to second at about 4500 rpm produced a rather violent jump forward. The same from second to third, until I found that I wasn't letting the revs drop far enough on each change. I was soon cruising down the road at what I hoped was 56 km/h (35 mph) — the speedo showing anything from 80 to 144 km/h (50 to 90 mph) — and looking for a corner.

I soon found one and kicking back to third, I leaned the bike over and around we went, my knee nearly scraping the kerbing. I came to an intersection and touched the brakes — and got a small drop in speed. Gripping harder caused the nose to dive and the Marzocchi forks almost to bottom.

Relieved of most of its load, the back wheel locked up and made funny squealing sounds as it bounced up and down on the road. The twin panel single leading shoe front brakes are better than they look!



Borrani rims and Marzocchi suspension helps keep the image up and the weight down. Rear units are easily adjustable but disappointing in performance.

On the highway I found that passing at up to 112 km/h (70 mph) was a snap. Just roll open the throttle and a gorgeous howl emerged from the pipe, the only real evidence of any increase in velocity.

I spent the afternoon running up and down the highway, diving in and out of corners at maniac speeds, waiting for something to scrape, but I was doomed to frustration. Nothing scraped. Not the pipe, not the pegs, not the stand (until the retaining spring broke), not even my toes, though I had them pointed slightly downwards.

I did, however, manage to cop a couple of tank slappers while negotiating a few rough corners, but back on the straight, the bike went back to its normal pussy-footed self.

Until I bought the Ducati I always thought the suspension on any vehicle had a two-fold job. To keep the wheels on the road as much as possible, and to keep the rider as comfortable as possible without compromising the first job.

On the Ducati, rider comfort is given little, if any, consideration. The rear shocks (Marzocchi) are three-way adjustable, and can be adjusted in about three seconds flat thanks to the built-in levers. After some practice, I got to the stage where I could adjust the shocks while doing about 80 km/h (50 mph), simply by reaching down and turning the lever. Going from hard to soft, there was no detectable difference.

But, if the suspension falls down in the second department, it does a superb job in the first. About the only way to get the wheels off the road is to lift the bike up by hand or ride a scrambles circuit.

This, of course, is in the dry. In the wet, one might be better advised to leave the Ducati at home and take a train. Extreme caution is needed when (a) starting (b) stopping, (c) cornering or (d) riding in a straight line, not forgetting changing gears up or down. Though the tyres are Pirelli (3 x 18 front and rear), and excellent in the dry, they just can't grip when it rains.

It's the first bike I've ever ridden which has enabled me to pull wheelspins in the first three gears just by opening the throttle. At no extra charge, the wheelspin includes the gut-twisting sensation of being able to watch the rear end try to overtake (be it oh, so slowly) the front end, in a style reminiscent of Mert Lawill at Santa Rosa.

Throughout this type of activity it's possible to miss seeing what revs (or Giri) you are pulling, and it's almost equally impossible to see how many miles (or kilometres) per hour you are doing, because the speedo is mounted in the top of the headlight shell, and the tachometer covers the speedo face.

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THE SILVER SHOTGUN

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To compensate for this, Ducati have offset the tacho a little to the right and rotated the speedo through about 120 deg to the left, which allows you to see the face of the speedo from 64 km/h (40 mph) around to about 177 km/h (110). The only thing the speedo is good for is counting the distance the bike has covered. Blipping the motor causes the needle to jump about violently, and 6000 rpm in neutral can bring the speed of the bike up to an indicated 241 km/h (150 mph). After 6437 km (4000 miles) were clocked up the needle quit.

Mounting the speedo in the headlight shell makes it a very time consuming job to remove the shell. Most of the wiring winds up inside the shell too, which looks like the inside of a Univac computer!

The riding position is a full racing-crouch, and it is very comfortable once you build up certain muscles. The bend in the rider's body isn't in the back, but in the hips, so a sore back isn't anything to really worry about. However, the seat is covered with a very smooth vinyl material, and acceleration or braking causes the rider's body to slide backwards or forwards. Sliding backwards is okay; the hump on the end of the seat is placed there for that specific reason, but going forward, which occurs even under moderate braking, is another kettle of fish.

All the strain must be taken on the left wrist, as the right is usually working the throttle and brake lever, and must be kept free of load.

While the clutch action is fairly light, it can be regarded as the final straw to break the rider's wrist. After about 320 km (200 miles), even picking up a glass in the left hand becomes a painful ordeal. It took about eight or nine days for my wrist to strengthen sufficiently to enable me to ride the bike as it should be ridden.

One way around this would be to follow the idea Bultaco used on their Metralla, and put a strip of some rough material down the centre of the seat. Ducati might also follow the idea that most manufacturers use and put some padding in the seat. It's all very well to have a low centre of gravity but what price good handling if the machine can't be ridden for long enough to enjoy it?

The Ducati's lighting would be sub-standard on a knee-guard 90. A 6 volt system isn't sufficient to illuminate the road adequately for the speeds which this machine is capable of. The front lens disperses the light from the headlamp in a ring fashion, which illuminates the sides of the road and tops of the trees moderately well, and leaves a dark area in front of the rider. On the other end, the taillight/stoplight is bright enough, but suffers from lack of size, globe failure due to vibration and poor wiring. It's a good idea to glance over your shoulder every two seconds or so to see if it is still functioning.

There was no horn on the bike when it was bought, and in its place there is a "cheap Japanese one". In general, the wiring is the worst I've ever seen on any bike, even one I've re-wired myself.

Sitting in the saddle and adopting the riding position shows immediately that some manufacturers do use test riders of normal size, Ducati included. All the controls "fall readily to hand" — a human hand and not a gorilla's hand. No ignition kill switch is fitted, though I think it should be, as the right handlebar carries nothing but the mirror. The levers are integral with the handlebars and cannot be adjusted up and down. This isn't really a criticism, just an observation, as they are placed perfectly for me. The horn and dipswitch can both be operated with a minimum of waste motion.

To start the machine, one turns on the petrol cocks, the ignition switch mounted on the left side of the headlight shell, and if the motor is cold, full choke (at this stage, the bike should be on the centre stand and the rider standing to the left of the bike). The kick starter is on the left, so you fold up the left foot peg and brake lever to avoid a broken ankle. Then, grasping firmly the clip-on handlebars use your right foot and give the lever a short, sharp prod. Very little throttle is required. Repeat as required until the motor starts.

An unusual feature of this machine is the fact that the colder the bike is, the easier it is to start.

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SPECIFICATIONS

MAKE . . . . . **DUCATI**
MODEL . . . . . **450 Desmo**

ENGINE:
435 cc single-cylinder four-stroke, alloy head and barrel with cast iron liner. 86 x 75 bore and stroke. Hemispherical combustion chamber. Compression ratio 9.3:1. 1 x 29 mm Dell'Orto carb. Alloy piston with truncated conical top, 3 rings. Steel rod with big end assembled on a caged roller bearing, little end bushed. Wet sump with cast oil cooler on front of crankcase. Est. 38 hp at 7000 rpm.

TRANSMISSION:
Helical cut primary drive, multi-plate wet clutch, constant mesh five-speed gearbox. Right foot shift, 1 up, 4 down.

FRAME:
All-steel tube. Single backbone, single downtube with crankcase as stressed member.

SUSPENSION:
Front: Marzocchi internally sprung two-way damped forks. Rear: Marzocchi three-way adjustable shock absorbers with integrated adjusting levers.

BRAKES:
Front: 2 x 8 in. (203 mm) single leading shoes.
Rear: 1 x 7 in. (177 mm) single leading shoe.

WHEELS AND TYRES:
Borrani Alloy rims: 3.00 x 18 Pirelli Ribbed front, 3.00 x 18 in. Pirelli Supersport rear.

CAPACITIES:
Fuel . . . . . 3 gals (13.6 litres)
Oil . . . . . 5 pints (5.1 litres)

DIMENSIONS:
Weight . . . . . 265 lb (approx) (120.1 kgs)
Wheelbase . . . . . 53.5 in. (1359 mm)
Seat height . . . . . 29 in. (735 mm)
Ground clearance . . . . . 5.1 in. (130 mm)

PERFORMANCE:
Standing ¼-mile . . . . . 14.9 sec (approx)
Max speed . . . . . 107 mph (approx)
Cruising . . . . . 40-70 mph (64-112 km/h)

HOW LONG DOES IT TAKE?
Remove rear wheels . . . . . 10 min
Check oil . . . . . 1 min
Adjust contact . . . . . 3 min
Check tappets . . . . . 60 min
Adjust brakes . . . . . 5 min
Adjust chain . . . . . 6 min
Top up battery . . . . . 3 min
Check plug . . . . . 1 min

HOW DO THE FINER POINTS SCORE?
(out of 10)
Finish 9
Handling 10
Noise 6
Starting 4
Spare parts 4
Instrumentation 1
Controls 9
Lighting 2
Seat comfort 4
Vibration 5

THE SILVER SHOTGUN

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On a cold morning, it never takes more than three kicks and the bike idles merrily away at about 3000 rpm. Yet pulling into a service station after doing about 112km (70 miles) non-stop, getting petrol and then having a smoke gives the bike time to get nasty and at least seven or eight kicks are required before it even kicks back (kicking back, incidentally, is sometimes very severe because of the compression ratio and capacity of the engine. One way to make it kick back is to give a half hearted kick and a bit of throttle).

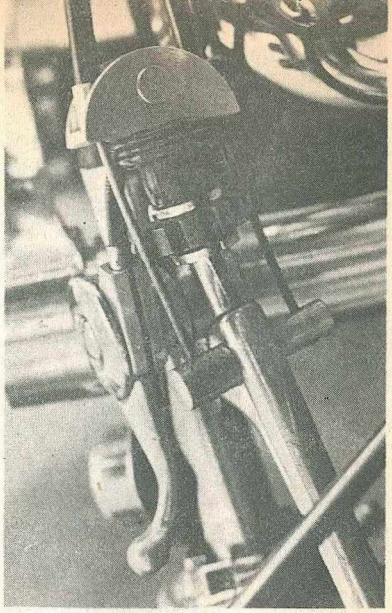
Once the motor is warmed up, the choke can be set to run, but a hand must be kept on the throttle as the motor sometimes has a tendency to backfire and die if the idle gets below 1500 rpm.

Fuel consumption is really something to write about. When I first picked the bike up, I managed to get almost 28 km/l (80 mpg) out of it, but it has dropped down to about 23 km/l (70 mpg), and the 13.6 litre (3 gal) tank gives a range of about 312 kilometres (200 miles). Oil consumption is negligible, and most of it stays inside the motor, with only a slight seepage from the filler plug, which ceased when I opened it and retightened it.

The gearchange is a bit vague and sloppy, though I tend to believe that this is the fault of this bike rather than the model in general (this was later found to be due to lack of lubrication and it is now rated as smooth and easy). The exhaust pipe header had already turned blue when I bought the bike, and is now heading towards brown. On the side of the pipe next to the frame, the pipe has started to rust (admitting that the bike is nearly two years old), and some of the rubber straps securing the wiring have started to perish.

Another bad point is vibration. It almost cancelled out the pleasure of the handling, but after 1609 km (1000 miles) it dropped almost below my sensory threshold, and became about as bad as a British twin. The next fault is really an extension of the previous one. Tail light globes died with frustrating frequency. One globe lasted about 25 minutes, but this short life was brought about by the fact that the upper rear engine mounting bolt had snapped, causing the bike to perform weird and wonderful antics. The crankcase is a stressed member of the frame, and if the engine mounting bolts fail, the frame loses some of its rigidity, and as an aside, lets the motor shake in unfettered freedom.

My overall conviction is that the Ducati 450 Desmo could hold its own with almost any machine available on the market today, provided the course is one over which sheer speed is not a governing factor. Even though I own a Norton roadster, I'd rather be sitting astride the 450 for a piece of clubman thrashing. In handling, it leaves the Norton floundering, and



The front brake set-up — still as much a mystery to the owner as it was the first day he bought the bike!

RACING CALENDAR

NEW SOUTH WALES

Date		Club	Type of Meeting	Venue
January	6	Salty Creek	Short Circuit	Salty Creek
	13	Macleay Dist.	Short Circuit	Kempsey
	20	Villawood MCC	Short Circuit	Nepean
	20	Wollongong MCC	Sporting Trial	Mt. Kembla
	27	Taree MSC	Short Circuit	Taree
	27	Curroo MSC	Motocross	

SOUTH AUSTRALIA

January	6	Riverland	Scrambles	Barmera
	19	Riverland	Small Track	Renmark
	27	Port Lincoln	Tunarama Scrambles	Pt. Lincoln
	27	Mt. Gambier	Road Racing	Macnamara Park
	27	Corboss	Big Track	Tailem Bend
	27	Darwin	Mud Scrambles	Darwin
	28	Corboss	Scrambles	Tailem Bend
	28	Alice Springs	Scrambles	Tenant Ck.

QUEENSLAND

January	6	MC Sportsmen	Road Racing	Surfers
	13	Gold Coast	Observed Trials	Gold Coast
	20	Toowoomba	Scrambles	Toowoomba
	27	Rockhampton	Scrambles	Rockhampton
	27	Ipswich	Short Circuit	Tivoli
	27	Bundaberg	Observed Trials	Bundaberg

in braking it is also superior (the Norton is drum braked).

Acceleration and speed fall the Norton's way, the former by a fair margin and the latter by a big margin although the difference wouldn't be as great as most people would imagine. The Duke has the ability to brake hard under almost any circumstances . . . in the dry; in the wet, it'd be better to try dragging my heels. Perhaps changing the tyres would help.

It's hard to be impartial and objective about this machine, because it has such a definite character that one is sure to wind up either loving it or hating it. Personally, I love it, for the simple reason that it has given me more pleasure and thrills than *any* bike I've ever ridden.

In a way though I'm rather unhappy to have it because it's a bike which is designed to be ridden on the ragged edge all the time, and unluckily the road laws and police don't allow such goings on.

Perhaps, when I get my ACU licence, I'll be able to give the Duke the riding it so richly deserves and become one of the forerunners in the "revive the big single" campaign!

And when I'm in the winners' circle I might be able to explain more easily just why it is that a big single is such an appealing bike! *

HAVE YOU CONSIDERED A BIG BORE?

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Terry and Rex have changed the standard 14 tooth countershaft and 44 rear on the 100 to 14/49. You can even go to a tree-climbing 14/55. The 125 comes with 15/49 standard and most change to the 14 tooth countershaft giving 14/49. Cost, $6 for the 14 tooth countershaft and $8.50 for the 49 tooth rear.

10. Honda's indicators are comparatively easy to take on and off as required, but the standard tail-light is very vulnerable. For longevity replace rear with an automotive small round tail-light from Repco. About $3.50.

11. If you're serious, remove instruments — it's surprising how, after a while, they're not missed! Leave the speedometer if you really want to see how far you have gone.

12. Tyres can be left standard but this would defeat the other items you have bothered with. Real results come by changing to English Dunlop trials on the front; 2.75 x 21 in.; and block tread 3.50 x 17 in. on the rear of the 100 and 3.50 x 18 in. for the 125. Expect a bill of about $32.

13. Brakes, seat and tank are fine just the way they come but two unbreakable levers for the clutch and brake will make up for carrying spares; plus the time spent in changing it after you fall and break one of the standard levers. $4.

The total cost of the conversion is listed on the table on page 72.

After completing the process you will have a few items which could net you a return of up to $50. The tyres, tail light assembly (someone will break his the first time out in the bush), handlebars, a front rim if you bought the 100 and rear units and throttle (don't bank on selling these).

What you get

What does this outlay and work give the owner?

A very well set-up trail bike which is ultra-responsive — and still reliable. The weight has dropped from 98.8 kg (218 lb) standard for the 100 to around 81.6 kg (180 lb), and that's light for a trail bike!

The standard wheelbase was a short 1282 mm (50.5 in.). The extra swinging arm length has made this a more comfortable 1320 mm (52 in.). This is still on the short side but the bike, with the extra power and quick-action throttle, is a fast, precise tracker, ultra-responsive to body movement, and capable of tight, easily-controlled cornering.

The gearing on the two bikes I