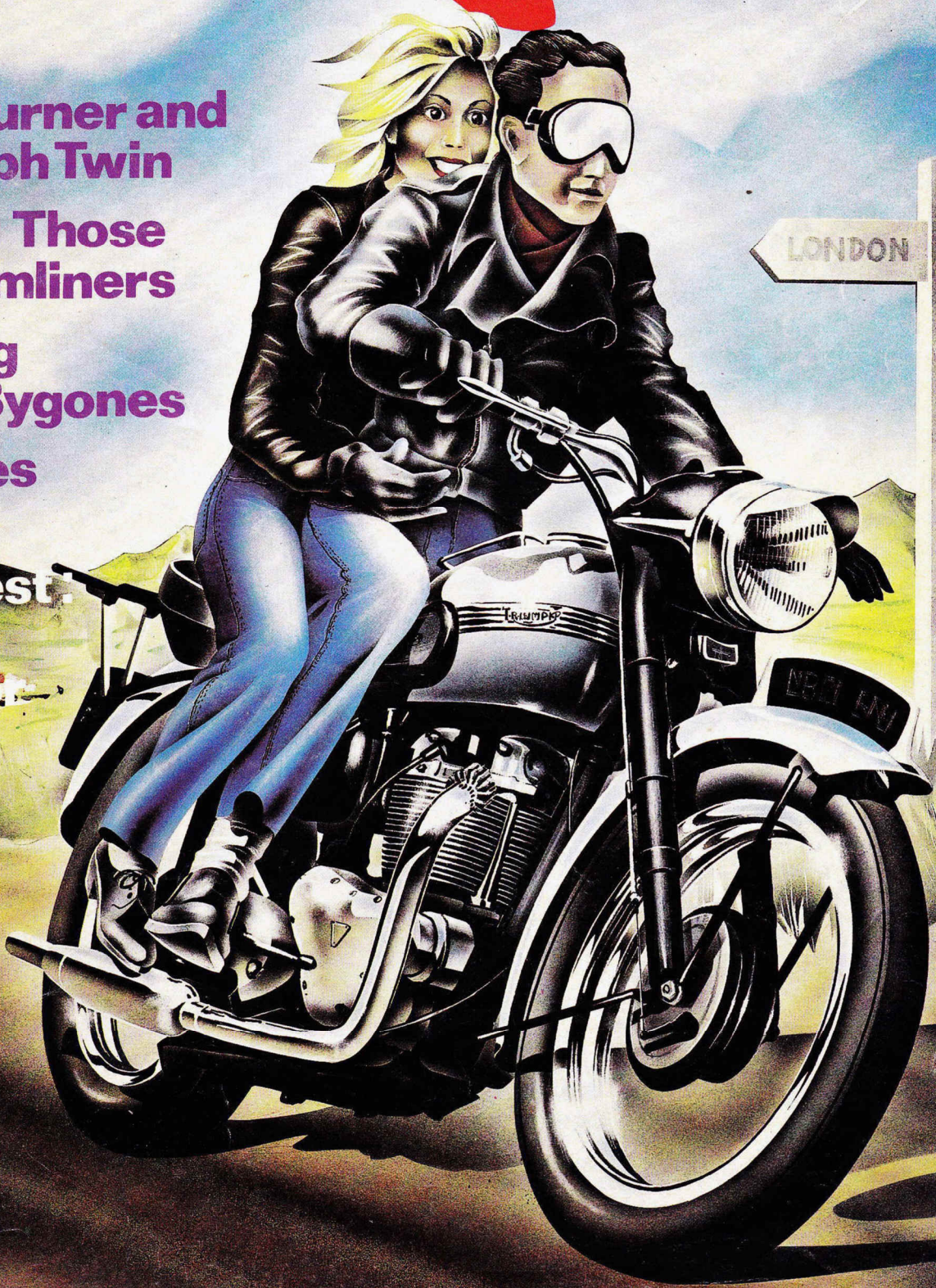


Classic **Bike**

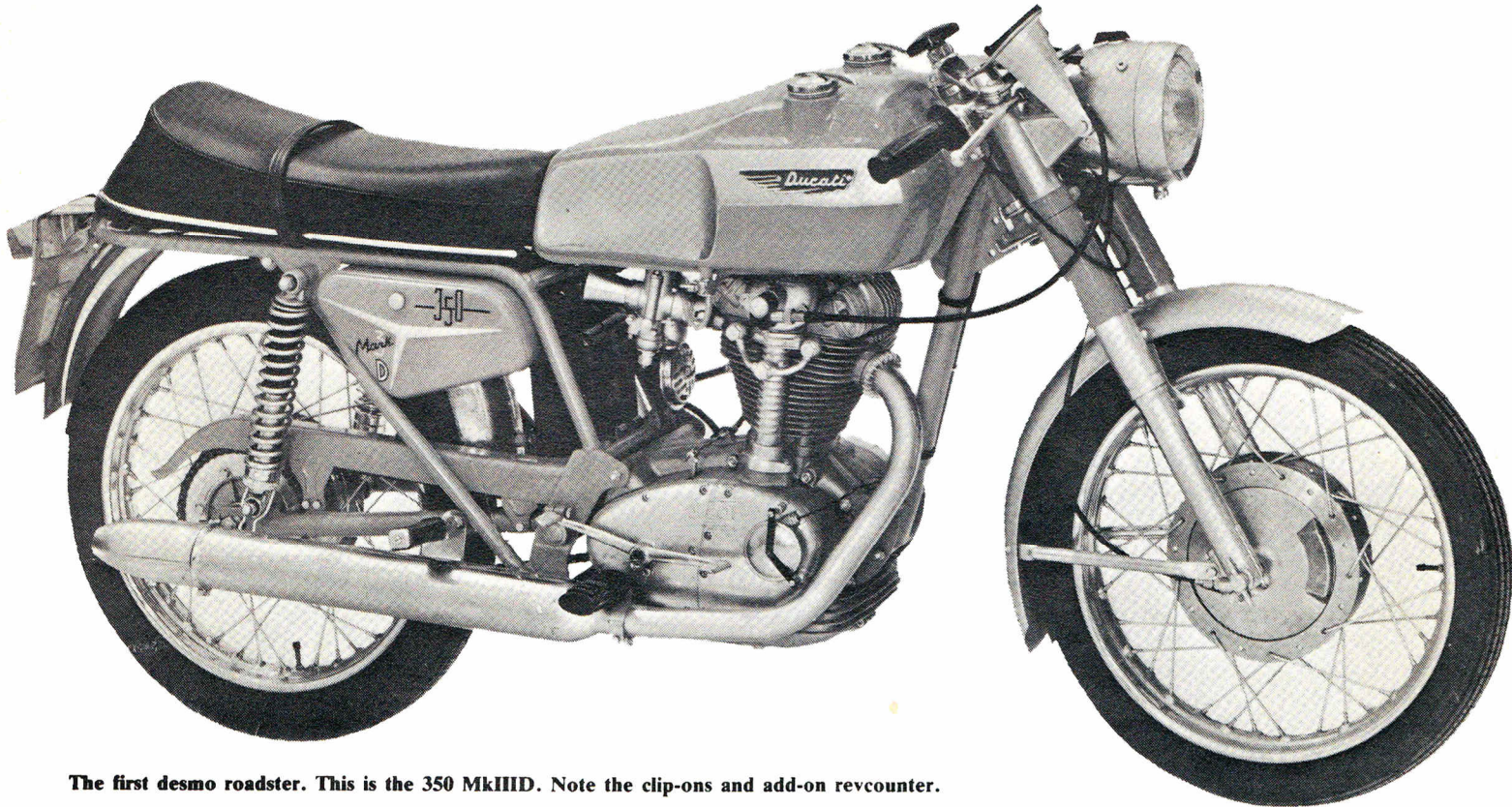
No1 75p

**Edward Turner and
the Triumph Twin**
**Dustbin: Those
GP Streamliners**
**Collecting
Biking's Bygones**
**Warhorses
of WW2**
**Classic Test:
Norton
Dominator**



DUCATI SINGLES

Did Ducati produce the ultimate four-stroke single? Bill Haylock thinks they did.



The first desmo roadster. This is the 350 MkIIID. Note the clip-ons and add-on revcounter.

IN THOSE depressed years that followed WW2, when Mr Honda started turning out his first power-assisted bicycles, the Italian engineering company of Ducati Meccanica was moving into motorcycle production in a similarly humble way. The similarity between these two newcomers to a world still very much dominated by the big British single doesn't quite end there. Both factories were launched on the road to international fame by the dramatic success of their highly innovating racing machinery.

But from there on the approach and later fortunes of the two infant companies were as divergent as the character of the bikes they produced. While Honda followed a radical path of multiple cylinders and four-valve heads, Ducati stayed within the mainstream of European tradition with four-stroke singles — except for the significant difference of the unique use of desmodromic valvegear.

Ducati's 125 desmo racer made a brilliant debut by winning on its first world championship outing at the 1957 Swedish Grand Prix. It not only won; it also lapped every other bike in the process. And this success story *does* have great relevance for everyone who's ever ridden a Ducati single. For, unlike other factory racers that are far removed from the kind of bike you can actually buy, every Ducati single produced over a period of two decades was directly related to that historic racer.

It's that purity of lineage and the beautifully refined engineering built into the original design as well as the subsequent development

that makes the Ducati single the distinguished and desirable classic that it is today. I'd even go so far as to say that it is the ultimate in the development of the four-stroke single. And it owes much of its distinctive character to its creator, for Fabio Taglioni is one of the world's most gifted, individual and single-minded motorcycle designers. The history of Ducati to date is really the history of his career.

Although the desmo engines, with their exotic mode of valve operation, are what Taglioni is famous for — and he is still the only man to make the system work successfully in production bike engines — the Ducati single started life in a rather humbler form. When he joined Ducati in 1954 Taglioni was bursting with fresh ideas which he'd been unable to put into practice in his previous job. It's a characteristic of the man that he demands a free hand to develop his own ideas, and at Ducati he was able to do so. After only a year the company had a little 100cc four-stroke single in production which soon became a success with the buying public and in the long distance open road races which were popular in Italy at the time.

This rapid and reliable little motor was called the Gran Sport and is instantly recognisable as the progenitor of all the later singles with those clean, streamlined casings, wet sump lubrication and shaft and bevel gear driven single overhead cam. Valve operation was conventional with hairpin valve springs; Taglioni had yet to put the desmodromic

principle into practice.

Large numbers were sold in Italy and it started several world famous riders on their way to success notably Bruno Spaggiari and Alberto Pagani. A tuned and streamlined Gran Sport set up new 100cc class one hour, 100km and 1000km world records at Monza in 1956, at over 100mph for the shorter distances and 96mph for the 100km marathon.

This engine was enlarged progressively from 100cc to 125, 175 and ultimately a 250cc version that produced 25bhp at 9,000rpm, with roadster and racing variants of each model. Later the two smaller road bikes grew to 160 and 200cc. The desmo engine didn't appear until after Ducati had entered Grand Prix racing with a dohc version of the 125cc Gran Sport in 1956. Although this produced a healthy 16bhp, it wasn't quite quick enough to catch the MVs and Mondials which dominated the 125 class. So Taglioni turned to the idea of desmodromic valve operation. The advantages of this system, where the valves are closed mechanically by extra cams and rockers instead of springs allowing the use of wilder cam timing without the fear of valve float at high revs, had been recognised for years but no-one had managed to put them into practice in motorcycle engines.

Prototypes of Taglioni's first desmo engine, with its triple-cam head (both closing lobes were on the central camshaft) produced 17bhp at 12,500rpm. And, more important, it proved to be amazingly reliable. Hundred-hour bench tests at full throttle resulted in no drop in

performance and during track testing it was over-revved to 15,000rpm without damage.

By the 1958 season the 125 desmo single was pounding out 19bhp at 13,000rpm, which was enough for 110mph. That year was the most brilliant, but also the most unlucky, for Ducati's racing team. The desmos dominated the Italian championship, took the first five places in the Italian GP and also won at the Belgian and Swedish rounds. But two of Ducati's star riders were injured and MV went on to win the world title.

For 1959 the team was strengthened by an up-and-coming youngster called Mike Hailwood, and Taglioni had by now come up with a beautiful little 125 parallel twin desmo developing 22.5bhp at 14,000rpm. But the results

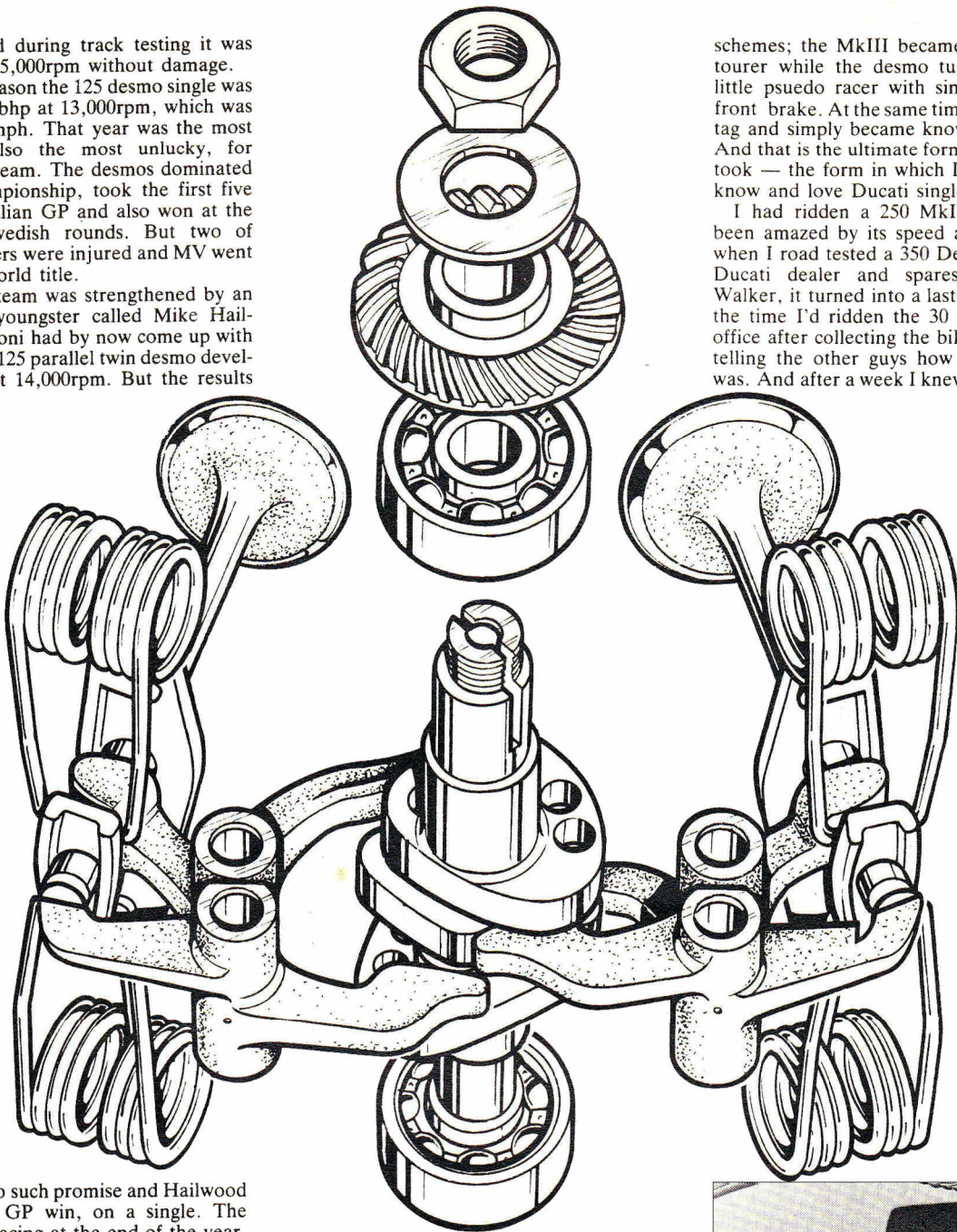


Illustration: Roy Crowson

failed to live up to such promise and Hailwood scored the only GP win, on a single. The factory gave up racing at the end of the year, with Hailwood continuing to have considerable success on a single in 1959, however.

In the meantime, the factory had not yet applied the desmodromic principle to their road bikes. In fact they wouldn't do so for almost ten years. But the engines in the road machines that Ducati were turning out in thousands still bore a close resemblance to the racers, apart from their single cam, valve spring heads. The motor kept on growing, with an increase of the bore and stroke from the 200's 74 x 57.8mm to 76 x 75mm, producing a capacity of 340cc. Later still, another version overbored to 86mm became the 450 MkIII with an actual capacity of 436cc. Not only engine performance benefited from the single's racing heritage; the amazing handling qualities of the ultra-lightweight roadsters have always been treated to superlatives by owners and road testers alike.

When the desmo roadsters finally appeared in 1968, they brought still more mechanical refinement. The actual design of the valvegear differed from that of the '50s racers, having only a single camshaft with four lobes, operating the valves through two pairs of parallel

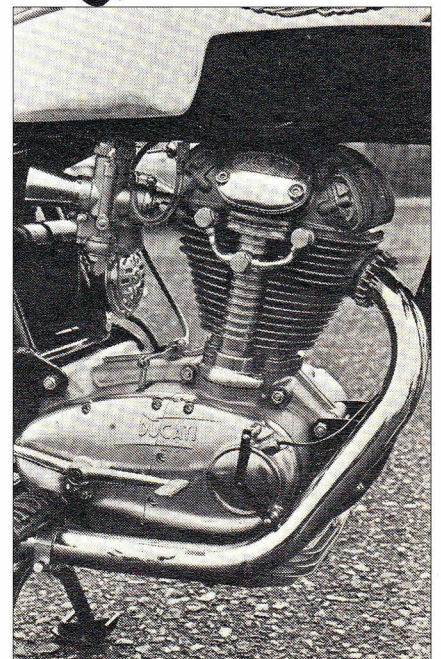
schemes; the MkIII became a blue and gold tourer while the desmo turned into a sleek little pseudo racer with single seat and disc front brake. At the same time it lost its MkIIID tag and simply became known as the Desmo. And that is the ultimate form the Ducati single took — the form in which I first got to really know and love Ducati singles.

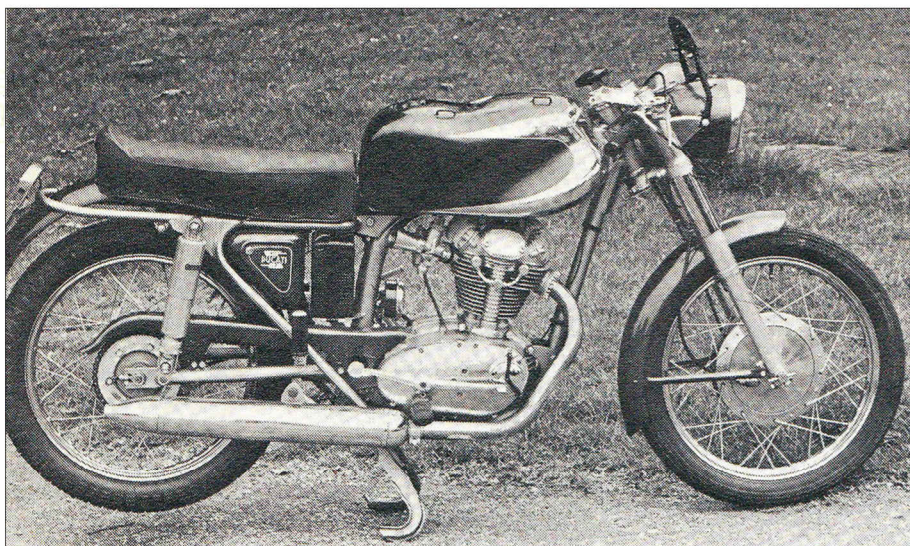
I had ridden a 250 MkIII previously and been amazed by its speed and handling, but when I road tested a 350 Desmo belonging to Ducati dealer and spares specialist Mick Walker, it turned into a lasting love affair. By the time I'd ridden the 30 miles back to the office after collecting the bike, I couldn't stop telling the other guys how amazing it really was. And after a week I knew that I had to buy

Above: details of the desmodromic valvegear used on production singles. Note the parallel rocker arms. The lower, forked-end rockers close the valves while the upper pair operate them.

rockers. A new frame with a twin-loop rear section, much stiffer than the spindly older models, made the handling even more precise and secure than before. The engine cases were redesigned with wider mounting lugs to fit the new chassis layout, and the sump enlarged to take five and a half pints of oil instead of four. At the same time the bottom end bearings and crankpin were beefed up.

The factory also continued to produce singles with conventional, valve spring heads. These machines were designated MkIII and the desmos MkIIID. Both versions came in 250, 350 and 450 sizes. Later they were differentiated with contrasting styling and paint





Left: lovely jelly-mould tank on the 200 Super Sports is straight from those superb little racers of the 1950s.

Bologna factory, the last Ducati singles were wheeled off the production line to make way for the new 350 and 500cc parallel twins which replaced them.

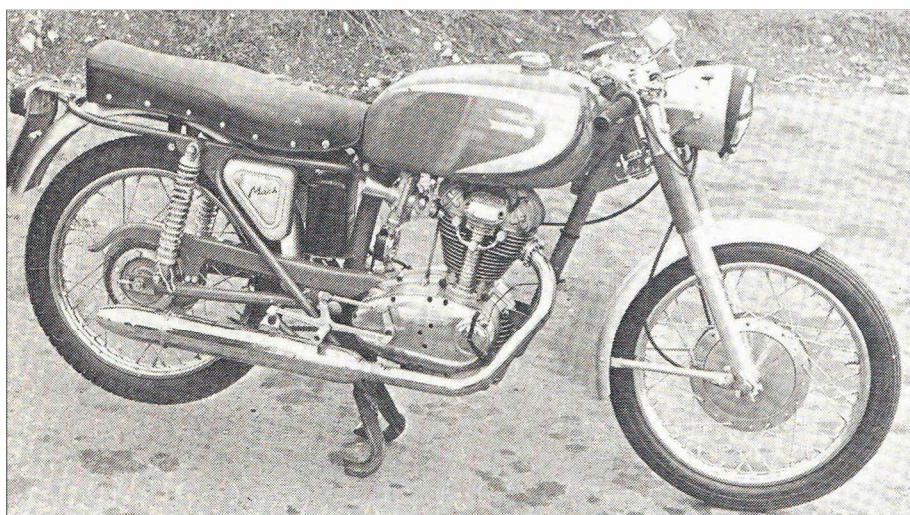
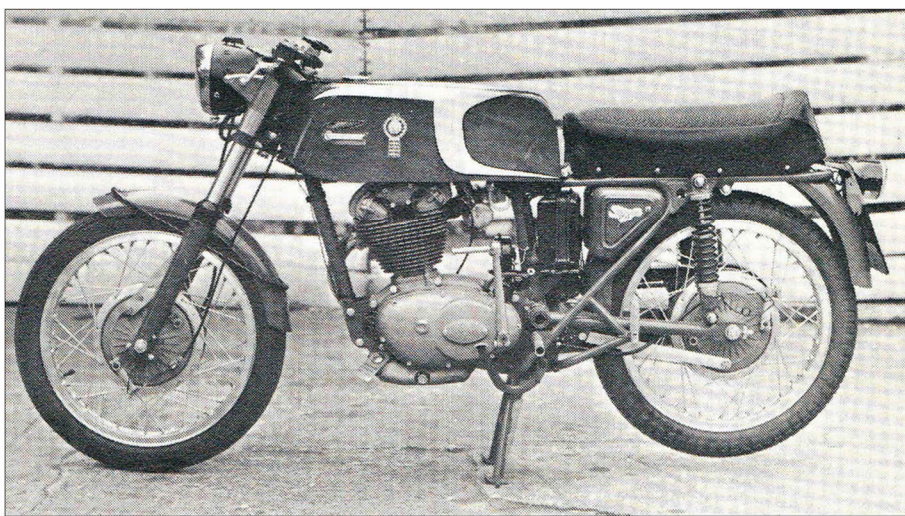
The history of Ducati sales in this country is a somewhat tangled tale. The first British concessionaires were Britax, who imported the bolt-on bicycle motor in 1954, but that rapidly folded up as a dismal failure. Ducati motorcycles were first seen in England in 1958, when the big Oxford and Manchester based dealers Kings took on the concession. It was no coincidence that the boss of Kings was a man called Stan Hailwood, whose fresh-faced young son Michael was soon to make a name for himself on the 125 desmo racers.

Kings imported the 125 Monza, the 125 Monza Super, the 175 Silverstone, Silverstone Super (which with its special cylinder head, high compression piston and big carb was claimed to do 95mph), the 200cc Elite and 200

Right: one to avoid. The Spanish-built 24 Horas had soft cams and nasty electrics. A pity; it was a rather attractive 250 for all that.

one myself . . . I became the proud owner of a 450 Desmo.

No other bike I've ever tested has affected me so much that I just had to rush out and buy one. After all, it's cheaper riding around on someone else's. But what captivated me was the fact that it was so totally and refreshingly different from anything else on the contemporary scene. I've always had a fondness for big single four-strokes and the Ducati had all that thumping, pounding torque, but with a smoothness and civilised disposition that I didn't expect from such a quick bike. And the handling; I hurled it into all my favourite bends faster than I'd previously dared and yet it kept egging me on to go even faster, at even crazier angles. The strange thing about the handling was the complete lack of effort



Above: the Mach I. 'That is the Ducati — it says everything that the singles were all about.'

required to make the bike do what I wanted it to. It seemed that I only had to *think* about where I wanted to go and the bike took precisely the line I intended to use. Those are the sort of feelings that signal irrevocable Ducatimania, feelings that make you suffer the undeniable failings of poor electrics and indifferent cosmetic finish for the sake of that superb engine and magical handling.

But sadly, despite these qualities, the singles

were becoming too expensive to produce. The amount of skilled labour that the motor's precision engineering demanded would have meant raising the price to unrealistic levels for a single. And other aspects of the bikes, like their appalling six-volt electrical systems, were clearly showing their age. It was a choice between completely revamping the whole design with modern standards of finish and equipment — and raising the price — or dropping them altogether and starting afresh on new designs. And so, virtually 20 years after the first little Gran Sport came out of the

Super Sports. They also sold small numbers of the 175cc Formula 3, an out-and-out racer with a titanium conrod in an exotically tuned motor that would rev to 11,000rpm. It also cost a small fortune — £521 3s 11d, in 1959!

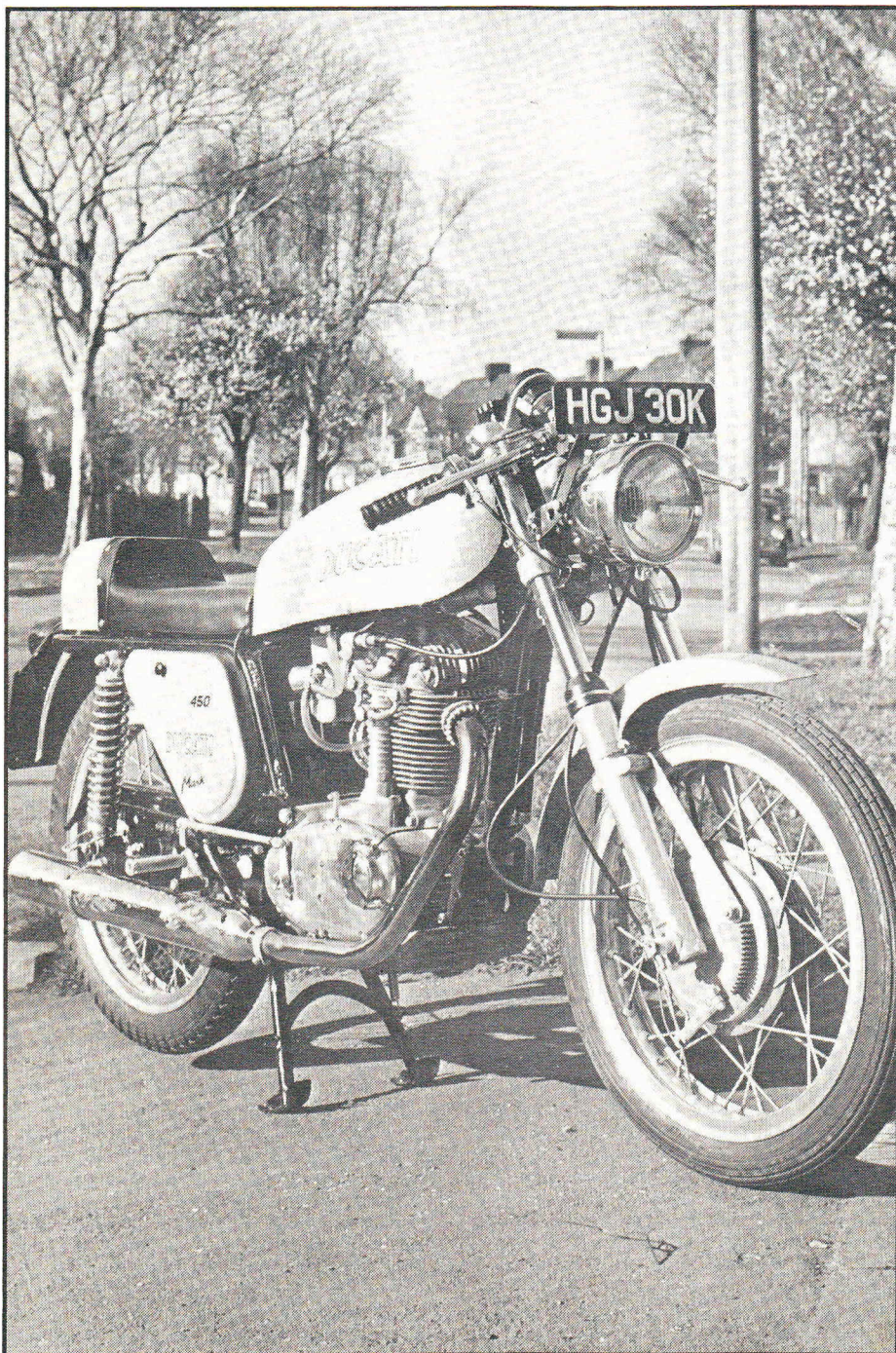
In 1961 the first full 250 single reached the British market in the shape of the four-speed Daytona. A race tuning kit was available for it at all of £18 10s. *Motor Cycle Mechanics* track tested a race-kitted Daytona at over 100mph, which was pretty sensational for a 250 single more than 15 years ago. The 125s and 175s were not imported after 1962, but the Daytona carried on until September '64 when it was replaced by what was in many respects the ultimate of Ducati's roadster singles — the 250 Mach I. This machine had a compression ratio of 10:1, big valves, a five-speed gearbox and a claimed top speed of 106mph. That seems to have been just a little optimistic, but from his own experiences of sponsoring a Mach I in production racing, Mick Walker says that a well set up bike could attain that speed even if those straight off the showroom floor wouldn't. The American magazine *Cycle World* put one through their speed trap at over 104mph and produced a standing quarter mile time of 16.5sec. Any modern 250 would be hard pressed to emulate that . . .

Another change of concessionaire in 1965 coupled the name of Walthamstow dealer Vic Camp with Ducati. Camp's approach to the sale of Ducatis was perhaps more enthusiastic than commercial. He had a great personal affection for the marque and, perhaps because of that, he was content with a small scale and

rather select market. The number of machines imported during his time as concessionaire is only a fraction of the total imported since 1958. But he was responsible for bringing in more exotic members of the Ducati range that hadn't been seen over here before, such as the few early and rare 350 MkIIIs and a high-performance version of the rather stodgy and ungainly Sebring that was soon to flood on to the British market.

Three years after Camp's takeover Liverpool businessman Bill Hannah pulled off a curious deal that left the select and prestigious image of Ducati decidedly tarnished for quite some time. He bought a whole shipload of Ducatis — 3,500 of them — that had been languishing in holds ever since the Berliner Corporation had some time previously refused to take delivery of as an order for the Stateside market.

Below: pseudo-racer lines of the '72 450 are rather attractive. Note the double-sided front drum which was eventually replaced by a Brembo disc before the Desmo singles went out of production.



This huge consignment consisted mainly of 160cc Monza Juniors, which Vic Camp was already importing, the 350 Sebring with its strange styling — an unsuccessful Italian interpretation of American taste — and the 250 Monza (not to be confused with the earlier Monza, this was a Daytona GT engine with cycle parts similar to the Sebring). There were also assorted oddities, like the Brio scooter with a 100cc fan-cooled motor, and two versions of the 250 MkIII. One was a US racing variant with flywheel magneto ignition, the other a roadster with lights.

Of course, this suddenly swamped the market with relatively cheap Ducatis, which, without an adequate spares back-up, badly sullied their reputation in this country. On the other hand, the 350 Sebring's cheapness made it popular with club racers. In standard tune,

with flat-top piston and small valves, it would only reach the mid-eighties, but it offered plenty of scope for tuning. One race-timed Sebring motor lapped in the Isle of Man at 92mph.

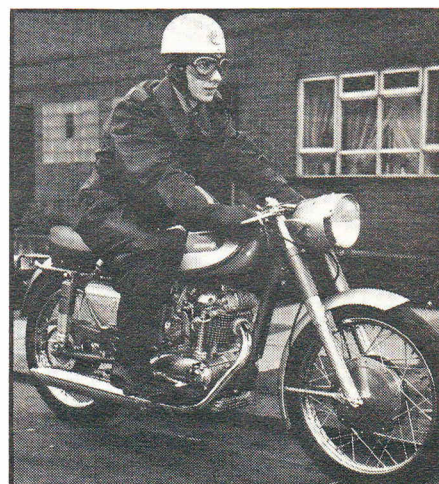
But the British market just couldn't absorb such an influx of Ducatis in that period of depressed sales. By 1972 400 of them were still unsold, until Mick Walker bought them to strip for spares, helping to lay the foundation of his now renowned Ducati spares service.

At the end of 1968, to counteract the effects of the Hannah operation, Vic Camp began importing the new desmodromic roadsters. In '72 he brought in some new model 450 MkIIIs with the Desmo-type frame, but with high bars rather than the Desmo's clip-ons. Also that year came a mere handful of Desmos finished in metallic silver and with Marzocchi forks and a Grimeca double-sided front drum brake instead of the earlier Ducati parts, together with the odd one or two SCR 'street scramblers'.

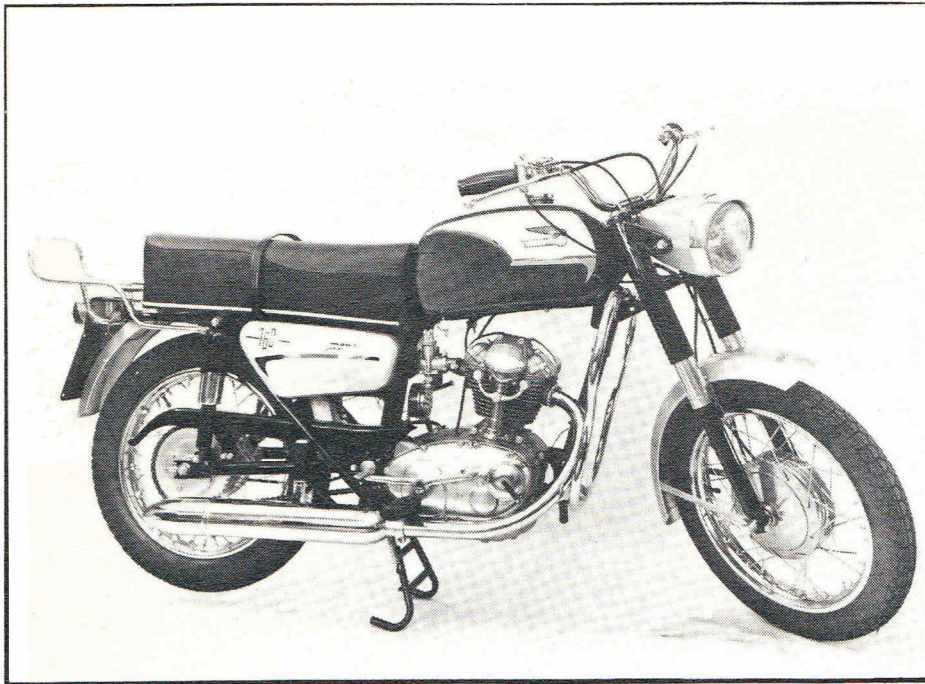
In addition, between 1971 and 1973, Vic Camp imported around 150 Ducati 250s built under licence in Spain. Although it looked very similar, this Spanish built version was a very different animal compared to the genuine Italian Ducati. It was called the 24 Horas — cashing in on Ducati's victory in the 250 class of the 24-hour race at Barcelona. However, after the experiences of some less than satisfied customers it became better known as the 24 Horrors. It was perhaps the least successful of the Ducati singles seen over here, with unreliable ignition and soft cams that wore away rapidly.

The history of Ducati in the UK took another dramatic turn in 1973 when the concession was taken on by the Coburn and Hughes group, based in Luton. They began by importing Ducatis in relatively large numbers, but with a more rational range that included the first V-twins — the 750GT and Sports. At the same time Mick Walker became UK concessionaire for Ducati spares, creating a more comprehensive parts service than had ever existed before.

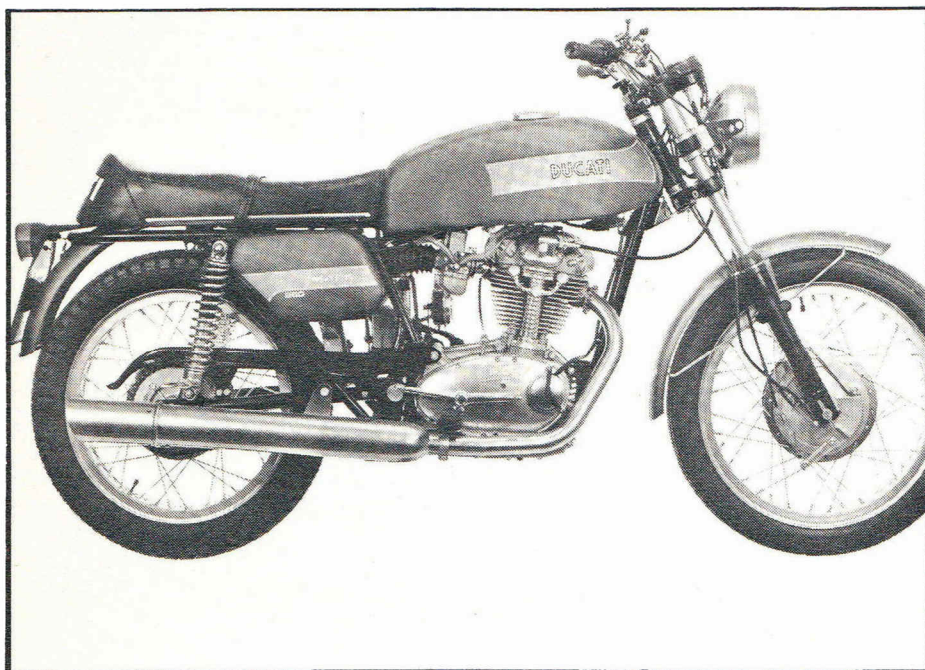
The singles imported by Coburn and Hughes were originally just the MkIIIs; 250, 350 and 450 models that looked virtually identical, with the same blue and gold paint. But after Mick Walker brought a 350 Desmo back from Italy for his personal use in 1974, Coburn and Hughes started bringing in the sleek yellow sportsters. They were mostly 250s



Vroom, vroom. Aiming for a quick getaway on a 250 Daytona GT. Well worth owning.



The little 160cc Monza Junior. Note the rocking pedal gearshift of the period and the American market high bars.



Touring styling of the blue-and-gold valve spring 250 MkIII. It bowed out looking just like this.

and 450s; only six of the late-type 350 Desmos were imported by the concessionaires.

Just as the singles' individual character, performance and phenomenal fuel economy were beginning to create a great demand for them in post fuel-crisis Britain, the Bologna factory decided that it was uneconomic to continue producing them and began to concentrate on the new parallel twins and the vees. But that wasn't quite the end of the story. In order to satisfy some of the British demand, 100 or so singles were brought over from France. These have a capacity of 239cc, intended to evade French tax laws which penalised bikes with a capacity in excess of 240cc. Roughly three-quarters were MkIIIs, and the rest Desmos. And very good and rapid bikes they are too. Finally about 35 of the 450 Street Scramblers, designated MkIV, appeared on the British market. In the short

time that Coburn and Hughes had been importing Ducati singles approximately 2,000 had been sold in this country.

So, of the many diverse models that have found their way to Britain, what are the best buys if you want a good example of these unique Italian classics? The bikes that most truly reflect the proud heritage of Ducati are undoubtedly the uncompromising total performance sports models. Like the Mach I; or if you want something really rare and exotic, a Formula 3 175cc racer; or, of course, one of the Desmo roadsters.

Mick Walker, a veritable walking encyclopedia of information about Ducatis, names the Mach I as his favourite. 'That is *the* Ducati — it says everything that the singles are all about.' Its incredibly potent motor is the definitive form of the Ducati single, he reck-

ons, although it isn't the most practical of road bikes. You'll be lucky to lay your hands on one, though. Mick reckons that there can only be a handful left in pristine condition.

Myself, I go for the Desmos, since that is probably the ultimate expression of Taglioni's engineering genius. But it could be said that I'm biased, since I own one. Later-type Desmos are certainly easier to find than Mach Is or Formula 3s, but even so they are still at a premium and command surprisingly high prices. For example, a three-year-old 450 Desmo which cost £670 new could quite easily cost more than that now. Some dealers undoubtedly cash in on the demand that exists for any good Ducati single and ask very high prices. And make sure that you get a bike that's in good condition; I've seen some appallingly neglected examples for sale. The best advice is to shop around and look very carefully before you part with large sums of money.

If you can't afford the Desmos, you might still find one of the fairly common older singles like the Sebring, or less glamorous 250s such as the Daytona GT, within your reach. The spares position, apart from some cycle parts for older bikes, is still fairly good because continuity of model means that the same parts can fit machines of differing ages, and Mick Walker holds an extensive stock. Having said that, there are just a couple of models to be wary of, because of spares difficulties and unreliability. They are the Spanish built 24 Horas and the 250 and 350 Street Scramblers, which used some Spanish-made parts.

When buying, things to look out for are fairly obvious — like strange mechanical noises. In good condition Ducati motors are mechanically quiet thanks to the shaft driven cam and helical primary gears. Beware of any lack of compression; you should be able to stand on a Ducati's kick start almost all day if you aren't Billy Bunter. Avoid engines that smoke, or have dirty oil in the sump; frequent oil changes are essential for the good health of a Ducati. Engine repairs can be very expensive, particularly on a Desmo.

One weak point is swinging arm pivot lubrication, so watch for sloppy bushes here. A cure is to drill and tap the swinging arm from underneath to take a second grease nipple on the offside pivot point for a better distribution of lubricant. And the most famous Ducati failing of all is the dismal performance of the electrical system. Here the simplest cure is to completely require the bike with heavier gauge cable, and to replace the switchgear with something a little more efficient. With a Cibie six-volt headlamp, illumination might be just about acceptable. Otherwise I recommend that you don't ride in the dark!

Of course, you could wait until Ducati launch their new generation of four-stroke singles. Prototypes of a completely new Taglioni-designed engine are already undergoing extensive testing and could be in production before long. Inevitably though, this new engine has had to compromise high quality engineering with the need for reasonably low production costs. Because of this, the shaft and bevel gear drive for the overhead cam has made way for a rather less neat, but cheaper, rubber toothed belt. It seems likely that the motor will be produced in conventional and desmo forms, with capacities of 250 and 350cc. They may not have the distinguished looks and proud heritage of the old singles, but anything that Taglioni has a hand in designing has got to be a little bit out of the ordinary.