

More gears, more revs

500cc Matchless G50

by Dick Mann

WINS at the recent French grand prix supporting races and at the Classic Race of the Year in England have made Team Obsolete's Matchless G50 one of the most talked about machines in historic racing. Obviously, Dave Roper is a very talented rider, but it appears that the bike itself is faster than any other single-cylinder machine in classic competition. Where does that speed come from?

I can offer some clues, due to a combination of circumstances. In the first place, I'm familiar with G50s. As well as riding the test machine, I became acquainted with the model in the sixties when it helped me to win my first AMA championship. Secondly, I was a friend of the late Albert Gunter, the brilliant if volatile tuner and rider who originally developed the engine in the Team Obsolete bike. And thirdly, I was asked to prepare the machine's cylinder head for the 1984 Historic TT, when Dave Roper became the first American to win an event on the Mountain circuit.

I first rode a G50 in 1962, when the Indian company was importing Matchlesses into America. I was running my own BSAs at the time, but I immediately fell in love with that alloy and magnesium Matchless overhead-camshaft engine when Indian offered me a works ride.

The relationship started well and I finished second to Don Burnett on a Triumph in the Daytona 200. Later in the season I gave the Matchless its first major win in the USA, at the 100-mile Laconia road race. I also raced the bike on TT courses - dirt tracks with jumps and right- and left-hand turns - against the 650cc British parallel twins and 1,000cc Harley-Davidsons that were then legal in this form of competition, and on flat-tracks against other 500cc British bikes and the 750cc side-valve Harleys.

On the mile tracks the Matchless was a little out-powered, but generally it was remarkably versatile in American racing. I was even in contention for the AMA championship in 1962 until a rider penned me against the inside fence on the Springfield mile: I went round the corner rapping my knuckles on the wooden two-by-four posts, which put me out of several nationals.

The Matchless's performance had certainly caused a sensation. I finished third in the points table, yet Harley had ruled AMA racing since 1954, and it was almost unthinkable for a little single-cylinder bike from across the Atlantic to threaten the all-American motorcycle.

Too unthinkable for some, it turned out, because when I got to Daytona at the

start of the 1963 season I learned that the AMA had banned my G50 frame from road racing - even though I had used it the previous season. They said I could run a roadster Matchless CSR chassis, but there wasn't time to make the switch, and I ended up being unable to ride the G50 on the pavement in 1963. I also reverted to BSAs for the dirt-tracks, because in 1962 the AMA had already ruled illegal a special rigid frame I had built for the G50, and I had ended the season using a less suitable standard swinging-arm frame on the dirt.

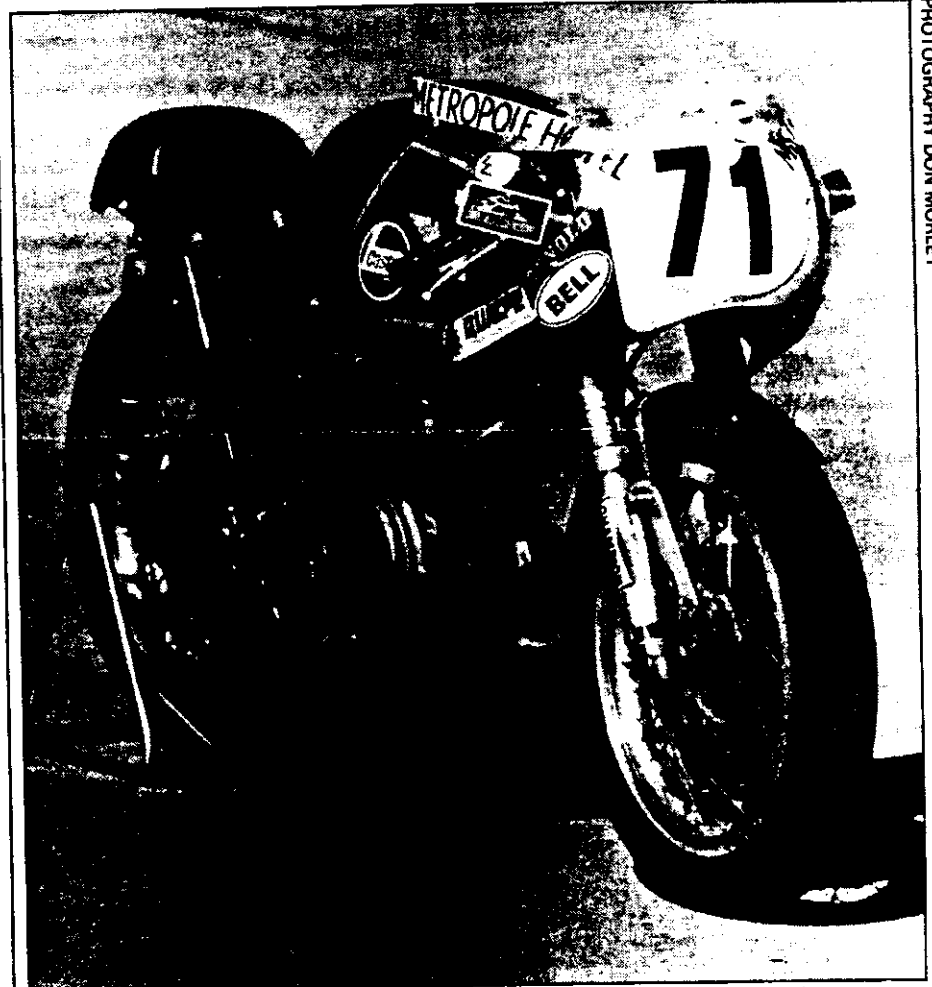
I had the last laugh, though. The G50 was still legal for TT events, and at the end of 1963 I used it to win the 50-lap TT at Ascot Park, California, setting a new track record. I rode with a broken vertebra in my back after I had crashed in a minor dirt-track race in Illinois only a couple of weeks earlier. It was my only AMA victory of the season, but it was

enough to give me the No 1 plate by just a single point from Harley's George Roeder.

No wonder I have a soft spot for G50s!

I had other successes with the Matchless. In August 1964 I won three AMA national road races on consecutive weekends - the 50-miler at Windber, Pennsylvania, the 175-miler at Indianola, Iowa, and the 150-mile event at Carpentersville, Indiana. Two weeks after Carpentersville, I won a TT at Peoria, Illinois; these results took me to third place in the AMA rankings at the season's end.

I was third again in 1965, helped by wins on the Matchless in the road races at Wentzville, Missouri, and



PHOTOGRAPHY DON MORLEY

Once used on American dirt-tracks, the bike is now king of the classic road race scene

RACER TEST

Carpentersville. After that year, the bike was no longer competitive, even on the pavement courses.

By the standards of today's classic racing, my G50 remained very close to standard specification. I made minor changes to the valve sizes and port shapes, but kept the four-speed gearbox because that was all we were allowed under AMA rules. I put a one-piece seat and rear number plate on the bike, and in many road races I used a high set of clip-on handlebars that cleared the top of the fuel tank and enabled me to corner foot down in a dirt-track style slide if it rained. I also fitted a large British made fuel tank for the 175-mile road races that allowed me to run through without pitting. The only time I used a fairing was at Daytona.

Internal gearing was the area that received most of my attention. Because of the four-speed ruling, a good set of ratios was one of a motorcycle's greatest assets in those days. There were two or three different ratios available for BSAs, but I remember that Harley riders could choose from no less than 19 ratios.

With the help of Jimmy Hill of the Indian company, I developed about six different ratios for the G50. The art of selecting them according to the course you were running on was probably more important than outright top speed. My ability to do this was responsible for many of the G50's successes, especially on the TT tracks, where I always seemed to have a gear for every corner. I ran the Matchless in the same state of tune on the dirt and on the pavement, and with its good engine braking, the standard but very effective Matchless brakes, and its light weight, it made a superb TT machine.

It certainly wasn't the quickest bike on the circuits. At Daytona I was 8-10mph down on the straights compared to some machines, and in fact the G50 and I were regarded as underdogs in road racing because of the bike's modest top speed and the fact that I wasn't rated as an expert on the pavement. This reputation was reinforced because I rarely led in the early stages of a road race, so that when I came through to take the chequered flag everyone considered my wins to be lucky, just as they did when I won the Daytona 200 in 1970 on a Honda and in '71 on a BSA. But it's not enough to set the fastest lap: you've also got to be in there at the finish!

Anyway, the G50 sort of fitted into my lifestyle. It was a very steady bike, it rarely gave trouble, and you could ride it very, very hard and very accurately. For all those reasons, it was an excellent machine for long road races.

My test session with the Team Obsolete G50 took place at the Roebling Road circuit in Georgia, just prior to the Daytona races earlier this year. The first thing I noticed was that the leg cut-outs in the fuel tank had been moved further forward to suit Dave Roper. I would prefer a standard tank: I don't ride in the

modern fashion, and I like to feel that I can steer a bike with my knees.

But it was certainly nice to be back on a G50, almost like being reunited with an old friend. However, the power band on this bike is very different to that on the G50 I used to win on. Al Gunter was a California-based Texan whose car I shared when I first travelled the AMA national circuit in 1954. He was often very secretive about the tuning work he did, but he was certainly years ahead of his time in some of his methods.

He installed his own cams in this engine, converted it to twin-plug ignition, re-angled the ports and worked on the combustion chamber. The exhaust cam lobe is adjustable so that the timing relationship between the exhaust and inlet cams can be altered, and the carburettor appears to have been machined from a blank casting for an Amal GP body. The intake tract and inlet valve are larger than standard, but clearly what Gunter did with this engine was not simply a matter of thinking that bigger is better. The effect of his tuning is to give the unit an 8,500rpm ceiling, yet the base of the power band remains where it is on the standard engine. The result is that any rider on this machine can play with a power spread 800 to 1,000rpm wider than that enjoyed by owners of other G50s. To encourage reliability, an 8,000rpm red line is used.

Unfortunately we have no idea if the bike is running as well as Gunter had it going on the dirt tracks in the sixties, because the engine was in a disassembled condition when Robert Iannucci of Team Obsolete acquired it. Although I put the engine together for the 1984 Historic TT, the cam timing remains a guess, as do some of the other internal settings.

However, as a comparison, I remember that on the dynamometer he used, Gunter would obtain readings of 50-51bhp at the rear wheel of the BSA Gold Stars he prepared, and when he put

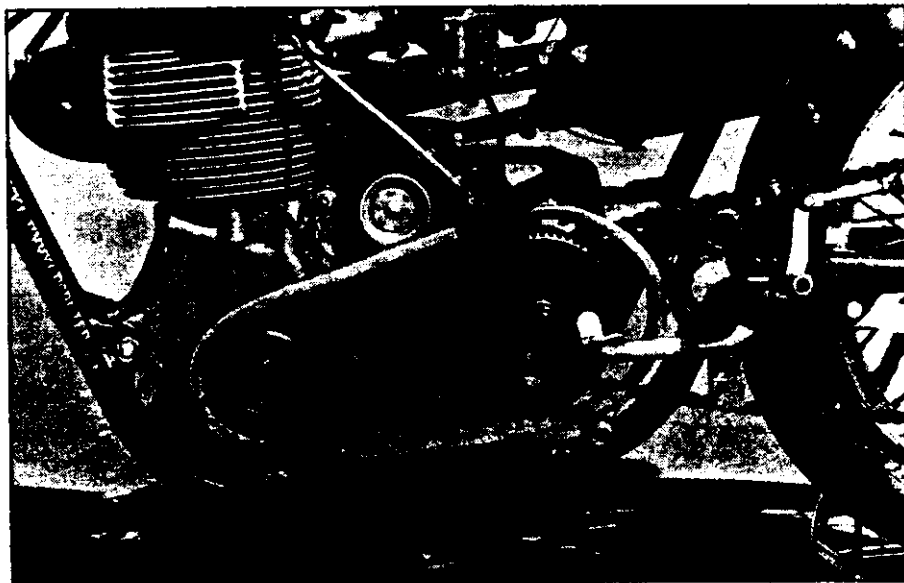
a standard 1961 G50 on the same brake it gave 43bhp. Yet the test G50 was faster on the dirt tracks than Gunter's BSAs.

At Roebling Road the bike felt as strong at 6,000rpm as a standard machine, but it never gives you the impression that it's time to shift up a gear. With the stock motor you do one lap of a circuit and you don't need to look at the tachometer again: you can sense from the engine when you should change. But with this one you start to lose track of the engine note at 7,000, and then you have to glance at the tachometer because you get no warning from the motor that it's going to run out of revs.

The other very noticeable feature of the bike is its six-speed gearbox, a component manufactured by the English transmission specialist Rod Quaife, and sold by Team Obsolete. It lacks the feel of the old British transmissions, which are almost like hand shifts: you can sense them going out of one gear and into another. The six-speeder has a much shorter throw, just like a modern bike.

It also allows you to be a little less careful in backshifting, because its ratios are closer than the four-speeder's. You have to be very accurate in matching your engine revs to rear wheel speed when changing down while banked over with the original AMC internals, to avoid locking the rear wheel.

The TO box is basically a five-speed unit with the addition of a low starting gear. The closest ratios are between fifth and sixth, where the difference is some 6 per cent instead of the standard 10 per cent. At the end of a long straight you sometimes need to make two downward changes where one would suffice with a four- or even a five-speed box, and I'm not convinced that the six-speeder automatically gives better lap times on every circuit. But you don't need to get into the box to make frequent changes to the internal ratios, and that close match between fifth and sixth would have been



Like many other road racing singles, the G50 has been converted to belt primary drive

a real blessing in the days when the G50s ran into a headwind on the full speed bowl at Daytona. TO riders prefer the six-speeder for every type of circuit, so perhaps my reservations about it would disappear if I were using the bike regularly.

I always used to like the handling of the standard G50 frame. Popular reputation relegated it to second place behind the Manx Norton chassis, but I felt that you could go equally as fast on the Matchless. When you get on the limit, it simply tells you that you *are* on the limit, but my bike never did anything wrong even when I had to push it past the comfortable stage.

Critics of the G50 used to say that the frame needed to be stiffer, but I never felt it necessary to alter my bike, and Team Obsolete are happy to run their machine with its 1959 frame. Gunter rebushed the upper fork yoke and rebored it to achieve a steeper fork angle, and that gives the bike a slightly quicker feel: it's not necessarily better, just lighter.

The machine is raced with a 230mm Fontana four-leading shoe front brake - discs are not legal in classic events in America - but when I rode it a 250mm version was being tried. This is one of the most exotic mechanical type brakes ever made, and certainly the largest that I've ever used on an old motorcycle. It reminded me of one of my aversions to drum brakes - that millisecond after it's been applied when mechanical servo

action makes you feel that the brake is in control rather than the rider. The big Fontana is obviously very powerful, but towards the end of my racing career I grew to prefer discs. I learn from Team Obsolete that the 250mm brake is now regarded as too fierce, and will not be used in racing.

In the sixties the G50 was the epitome

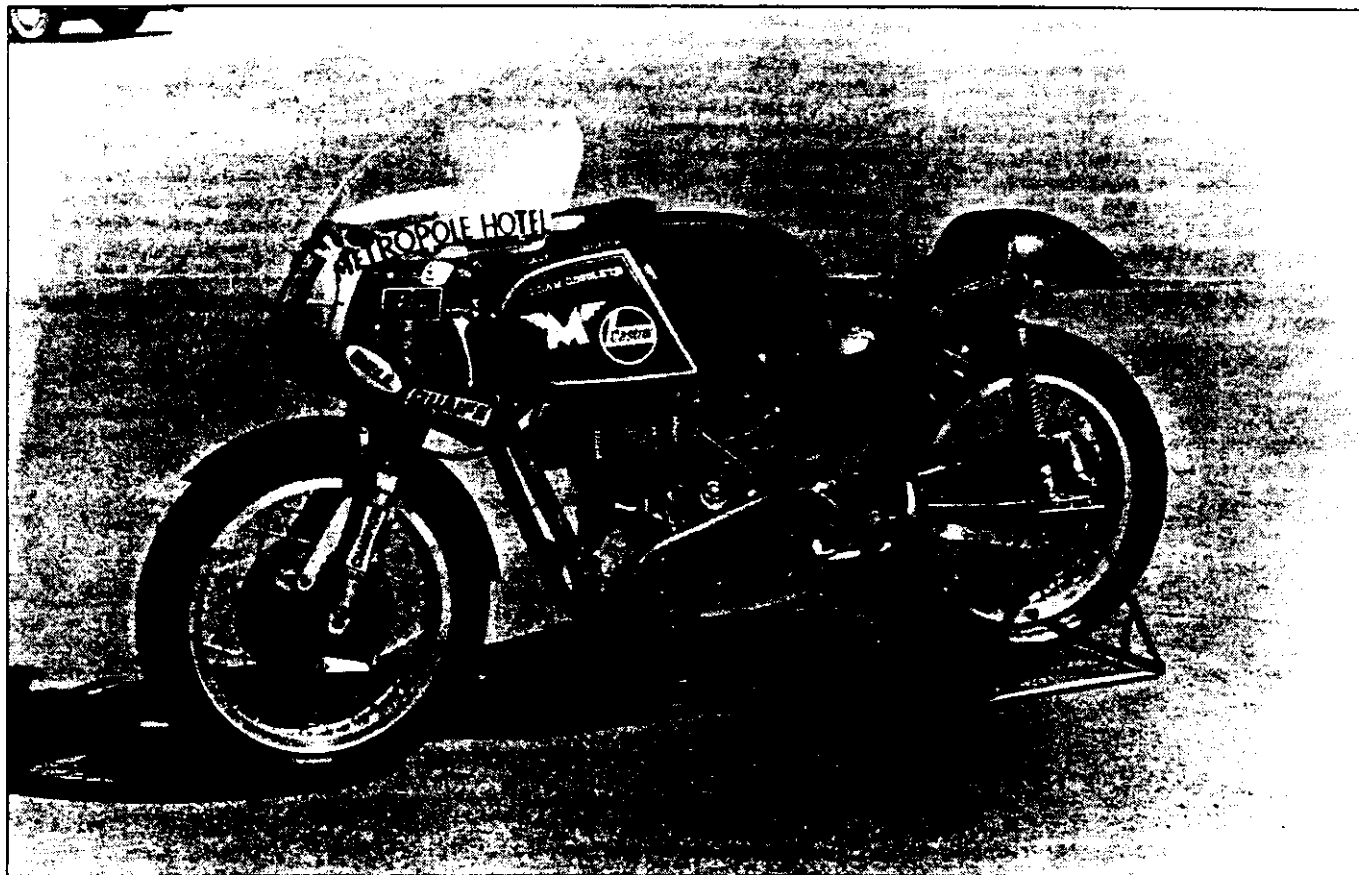
of the privateer's machine. It allowed you to be the very best rider you could be, and in those days that seemed more important than having the latest piece of technology on your bike. Very few riders are capable of taking modern machines to the limit, but almost anybody could ride a G50 at 100 per cent. Perhaps that's why the racing was so intense in those days.



The bike was tested with a giant 250mm Fontana front brake, but is always raced with this 230mm version



Koni rear shock absorbers are one of the few changes to the cycle parts



Standard G50 frame is retained, which qualifies the bike for Period One racing in Britain

RACER TEST

THE 'ALBERT' FACTOR

A MEASURE of the unique achievement of Team Obsolete's Matchless G50 is that in Britain it qualifies as a Period One pre-1964 machine under CRMC rules. It retains period components such as the standard Matchless frame and forks, a drum front brake and an Amal GP carburettor. Yet the bike has the beating of G50s modified to Period Two pre-'73 rules with Seeley or John Caffrey Seeley-replica frames, front disc brakes and Amal Concentric Mk II carburettors.

Not only is the bike more original in specification than many of its rivals, but it leads a tougher life than most of them. In fact Matchless G50 number 1709 is probably the hardest worked and most consistently successful British classic single now being campaigned anywhere in the world. That's a strong statement, but the bike's history and record back it up.

Seventeen-oh-nine, as Team Obsolete personnel usually refer to the bike, was made in 1959, and at one stage was owned by the British sponsor Syd Lawton. He sold it to a rider in San Francisco, who passed it on to Albert Gunter. Gunter later disposed of his G50 stock to another Californian enthusiast, who sold the machine to Team Obsolete's Robert Iannucci in 1976. Engine, gearbox and frame numbers all matched up, indicating that the bike had survived the passing years as a complete entity.

Iannucci used the machine with a standard engine to make his road racing debut in the late seventies, but handed riding duties over to Dave Roper in about 1980. In 1981 Roper won the inaugural vintage Daytona race, still with the standard engine, but with the bike now equipped with a five-speed Quaife PGT gearbox and a 230mm Fontana front brake.



Dave Roper peels into Redgate Corner during his winning ride in the 1986 Classic Race of the Year at Donington

Later that year Roper gave the machine its British debut, finishing second to Bob Newby, on the Mularney Manx Norton, at Donington Park, and winning a round of the *Classic Bike* championship at Oulton Park. In 1982 Roper was fifth at Daytona after remounting from a fall, and scored top six placings in historic supporting events to the Anglo-American match races in England.

For 1983, what Team Obsolete call 'the Albert motor' was used in the Matchless for the first time at Daytona: Roper won easily. That autumn the bike was entered for the inaugural Manx Grand Prix Classic Race, and was fitted with a Quaife six-speed gearbox and a primary belt-drive system for the first time. Roper set the fastest lap in practice, but in the race the intake valve became chipped and the engine lost 1,500 revs, dropping him to ninth place. The team believes that a stone ingested through the carburettor caused the engine damage.

Back with a standard engine, Roper finished second at Vintage Daytona in 1984 to Kurt Liebmann's BMW. But with the Albert motor reinstalled, the machine achieved its finest moment in the Historic TT that summer, when Roper won in damp conditions. The race was a good test for the new big-end equipment, consisting of a German INA needle-roller bearing, that Team Obsolete had fitted at a time when there had been a rash of bottom-end failures on Matchless G50 engines in classic racing. Both the big-end conversion and the six-speed gearbox have been made available to other competitors.

Soon after the Isle of Man the bike won a round of the Can-Am vintage challenge at Bridgehampton, New York, and the first classic race to be staged at the Steamboat Springs 'round the houses' circuit in Colorado. The cylinder head had not been lifted since the Isle of Man, checks being made simply by inspections through the plug holes and the ports.

At Daytona in 1985 Roper again finished second to Liebmann after a desperate moment when he clipped a slower rider and went off the course. Roper then won the AMA historic round at Sears Point, California, but 1709 produced a rare moment of unreliability at the Loudon, New Hampshire, historic race when the intake rocker arm spindle broke at one end and swivelled sideways, which prevented the valve from opening fully. Marco Polo finished second on the bike at this event.

At Daytona this year Roger Reiman was unbeatable in the Premier race on his 750cc Harley-Davidson KR side-valve machine, but Roper was second. Before the machine was brought to Europe for its recent successful tour, it won the vintage 500cc class in the 140-mile La Carrera public roads race in Mexico, where Roper's average speed of 104.92mph was surpassed only by two new 750cc Ducati V-twins, and the AMA historic race at Laguna Seca, California.

Since 1980 Roper has also ridden the machine in many club events in the USA, frequently beating modern bikes in formula racing which puts old and new motorcycles into head-on competition.

The bike is run on Dunlop KR124 tyres on 18in rims, and has Koni rear shock absorbers. A Carrillo conrod is used; a side benefit of the INA big-end bearing is that it releases slightly more horsepower by

preventing flex. Ever since the Manx GP incident the bike has worn a K&N filter, which Team Obsolete say does not absorb power. The filter fits into a cutaway in the oil tank which had already been made by Al Gunter in the days when he used a filter on the dirt tracks in America.

The valve gear is standard apart from S&W springs, and a Cosworth piston is fitted. Ignition advance is 27° compared to the standard 32°, a modification required by the higher rpm and twin-plug firing. In re-angling the ports Gunter moved the exhaust port to the right and raised the intake. 'I think he was trying to duplicate the BSA Gold Star head, which is a better design,' Iannucci says.

The bike's success cannot simply be attributed to any magical properties in 'the Albert motor'. The entire machine represents an integrated set of components which has been intensively developed in classic racing over a ten-year period, and the team are particularly proud that they retain the original Matchless G50 frame.

'There's nobody else out there who's going really fast with a standard G50 chassis with the exception of Hugh Anderson,' Iannucci says. 'Everybody has pretty much decided that the Seeley and Caffrey-Vendetta chassis have made the G50 cycle parts obsolete: we've never subscribed to that belief. The forks are not as good as a set of Cerianis or Norton Roadholders, and a lot of the other things may not be superb, but as an entire package the bike works very well.'

Suggestions have been made that the engine runs on potent 120-octane fuel, but the team dismisses this as complete misinformation. Now that the octane rating of filling station pump fuel in the USA is so low - probably less than 90 - racing fuels are available at racetracks, its octane rating is about 108, says Iannucci, similar to the quality of the Avgas used by many serious British classic competitors. At both the French GP and at the Race of the Year at Donington he invited other competitors to use the Team Obsolete fuel and to check the size of the G50's main jet: both offers were accepted, and no protest was made.

Mike Nicks

Specification

Engine	sohc single
Bore x stroke	88 x 78mm
Capacity	498cc
Compression ratio	11.5:1
Output	n/a
Carburation	1 1/4in Amal GP
Ignition	magneto
Gearbox	6 speed
Clutch	multi-plate, dry
Forks	tubular
Suspension	
Front	telescopic
Rear	swinging arm
Wheels	
Front	2 x 200mm tie drums
Rear	8.25in dia drum
Tyres	3.25 x 18/3.75-5.00 x 18
Weight	304lb (without fairing and fuel)
Top speed	120-135mph
Year	1959
Owner	Team Obsolete, New York, USA