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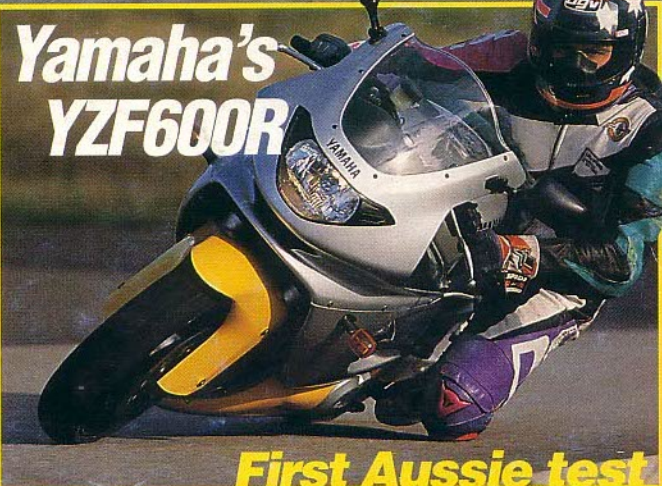
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# THE DAY *the* MUSIC DIED

Long long time ago, I can still remember... Indeed, nobody who was there will ever forget the day the music died. That is the last time one of the legendary multi-cylinder MV Agusta 'fire engines' raced in anger.

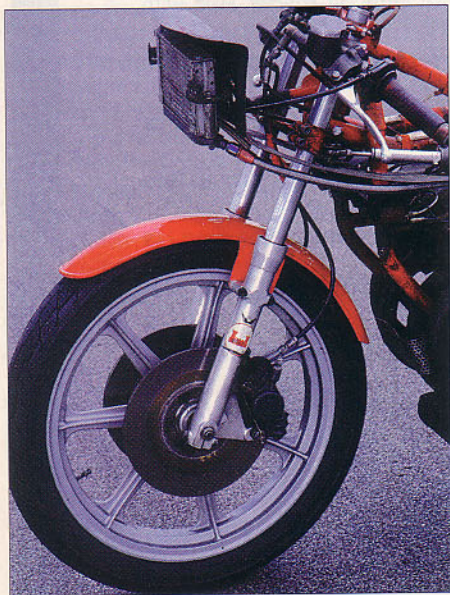
Surprisingly, it was not at a classic Grand Prix circuit, nor in the blazing heat of an Italian summer, nor with championship points at stake and world titles to be won. Instead, MV's last race was at an international meeting at Brands Hatch in the gathering twilight of the first day of the northern hemisphere winter on October 29, 1976.

Even as the dusk gathered, none of the 30,000 spectators left: there was still a special treat in store that many had travelled hundreds of miles to witness.

Then the bikes came out for the 350cc race — and suddenly everyone sat closer to the edge of their seats, or pressed up nearer to the fencing for a better look.

We were present at a milestone moment in motorcycle history. It was the MV's last race and a curtain call for 25 years of racing supremacy by the team that had won 275 world championship GPs and 75 world titles since 1950... And no less than 3,028 races all told.

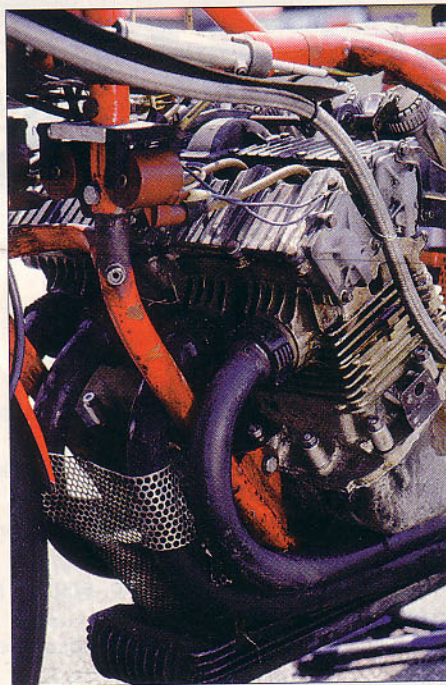
End of an era? End of a dynasty.....



The single bike that Giacomo Agostini had brought to Brands in '76 was the 350 four on which he'd won the Dutch GP at Assen earlier in the year.

It was a solitary four-stroke awash in a sea of Yamaha twins but you'd have thought the MV was the only bike on the circuit, the way the wonderful exhaust note drowned out all the rest at the start — as silence reigned, the flag

**GP RACING SAID  
GOODBYE TO THE ROAR  
OF THE FOUR-STROKE  
SYMPHONY 20 YEARS  
AGO. ALAN CATHCART  
REVISITS THE BEST OF  
THE BEST...**



Left, right and above: views from a different era — the 350 MV four was state of the art in its day.

fell, the riders pushed, and the motors chimed into life.

Yamahas? What Yamahas. In a crowd-pleasing move, Ago had removed the hated silencers newly compulsory for GP racing, and standing on the entrance to Paddock Bend, I can still recall hearing every engine revolution and every gearchange all round the circuit as the MV pulled through the field after a slow start to finish fifth.

We all winced when we heard him miss a gear on the far side of the track, out of sight of the grandstands, then feasted on the melody of the four megaphones' music as he swept past Takazumi Katayama's Yamaha down the Pit Straight.

At the end, you'd have thought Ago had won the race, rather than Christian Sarron's

ubiquitous TZ350, judging by the reception we gave him.

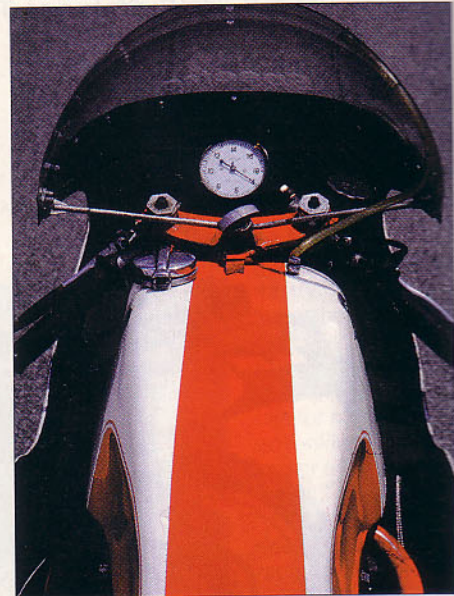
One final blast down to Bottom Bend on the slowdown lap, a quick blip of the throttle to send the revs soaring one last time — then silence. It was all over — MV Agusta had retired from racing. The End.

## **A NEW BEGINNING**

But for every end there's another beginning, and 20 years after that farewell race, the last MV Agusta ever to be raced is now back on the track courtesy of Robert Iannucci, owner of New York-based Team Obsolete.

What's more, the bike is still exactly as Ago last raced it that dark October day having lain under a dustsheet in the corner of the MV race shop in Cascina Costa until Team Obsolete acquired it together with a dozen or so of its older sisters back in 1986.

Since then it's spent nearly a decade in Roberto Gallina's workshop while an acrimonious fallout between Robert and his former partner in Team Obsolete was resolved. More recently, Agostini's former mechanic Briton, Nobby Clark — nowadays a valued member of the Team Obsolete equipteam — has stripped the engine and cleared the way for the 350 'quattro cilindri' to take to the track again.



"It was like new inside," says Iannucci, "so all we had to do was clean it up, fit new valve springs and lap in the valves, then fire it up."

"Ago himself was the first person to ride it again in public most appropriately at the Dutch TT's 70th Birthday celebrations at Assen last year. He came into the tent and stared at it for several minutes, then walked round and round it several times — he couldn't take his eyes off it.





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"Then he looked up and smiled, and said 'lo ricordo!' — I remember — It was a magic moment."

As was the moment when Iannucci's asked me to ride the very same 350 MV in a parade of Team Obsolete historic GP racers organised by the AMA at the swooping Mid-Ohio racetrack circuit near Lexington in the American mid-west.

I was in good company too, for there alongside me were a pair of MV triples — a 500 ridden by former world champion Jim Redman and a 350 in the hands of former world land speed record holder Don Vesco. The orchestra was assembled: let the concert begin.

### PICCOLO AGUSTA

Or rather let one of the players first find a way of squeezing into place aboard his chosen instrument — I mean, the 350 MV four is *small!*

Italians are the masters of proportion, as generations of Alfa Romeo or Fiat sports-coupees attest. They look like big Ferraris standing on their own, until you see them parked next to something else and realise with a surprise that they're three-quarter scale models of the real thing.

Same with the MV — you have no idea it's so compact until you try to sit on it. That's when you start to appreciate the feat of packaging which squeezed a DOHC 16-valve inline four-cylinder four-stroke engine into the same wheelbase as a modern 125 two-stroke single.

"Ago's preference was always for small, low, tidy machinery that could be flicked around easily and handled responsively," says Iannucci. "That's why he hated to give up riding the three-cylinder MVs until the fours were clearly superior in terms of performance — and why he ended up turning the four's chassis back into an uprated version of the three.

"This is the last of the five different designs MV used on the 16-valve fours, yet look how similar it is to the three-cylinder bikes."

Thus when you squeeze aboard the MV your first impression is of a close-coupled riding position: steeply drooped, narrow, tape wrapped clip-on handlebars and a seat height of just 685mm.

This allows bike and rider to present a compact, wind-cheating profile that was a key weapon on the fast GP circuits of the day. Yet

the MV is snug rather than cramped — everything's in proportion.

### CONCERT TIME

Watching Clark fire up the MV at a gentle canter down pit lane underlined how little inertia there is in the engine. It bursts into life after just a few steps — one reason that Ago was so often able to make blinding starts in the pushstart era and lead a race from start to finish.

Carburation is very clean on the glorious sounding motor (a tribute to Team Obsolete's setup) but the overriding impression is of the vivid engine pickup. Throttle response is light and immediate, sending the needle scooting round the Veglia tacho's dial.

Here marks on the edge of white-faced gauge remind the man in charge where the powerband lies — orange at 16,000rpm for peak power; red at 13,000 for maximum torque with the curve staying quite flat thereafter. Use the precise action, one-up right-foot gearshift to keep the revs in that ideal rev range (having tailored the internal gear ratios to suit each circuit) and you'd be setting the pace in the 350 GP class well into the two-stroke era.

Ago did...

### A SIMPLER TASK

My task was simpler — make music with Vesco and Redman. And don't exceed 15,000rpm out of respect for the new-old engine — like new inside, but still 20 years old and a priceless piece of two-wheeled history... Even if Iannucci says he has a big stock of spares in Team Obsolete HQ for the later MV fours.

Under these sort of constraints I discover how smooth and flexible the engine response is... It'll carburete from way low allowing you to practically treat it like a roadbike — if, of course, you could ever forget its heritage.

No hope I'm afraid, the *bassoforte* exhaust note of the four megaphones — with their trademark shapely curves up over the rear axle — never lets you forget on what you're seated.

The music keeps on coming, seducing you into countless extra blips of the throttle just to make that glorious sound ring out even more sweetly. But then when you let it rip and accelerate hard through the gears down Mid-

*The 350 MV is diminutive — about the size of a modern 125!*



THE DAY the  
MUSIC  
DIED



## Last Throw of the Dice

The announcement that then-reigning 500cc world champion Giacomo Agostini would be riding a MV Agusta 'fire engine' again in the 1976 season was ecstatically received in Italy by the 'tifosi' who'd been so hurt by his desertion to Yamaha two years before.

### TWO LIRE EACH WAY

Time to forgive the prodigal son — as well as applaud his astuteness. After more than half a decade of walkover GP wins and 'soft' titles against mostly privateer opposition, Ago had shown his true mettle by switching to Yamaha in 1974. He won first time out on a Japanese bike at Daytona, then went on to deprive his former MV masters of the 350cc world title later that year to become the first-ever two-stroke 350cc world champion.

Former teammate Phil Read prevented him doubling up in the 500cc class that year by retaining his title on the MV but the following season Ago came good on the bigger Yamaha as well, defeating Read for the 500cc championship while Venezuelan whizzkid Johnny Cecotto made it two in a row for Yamaha in the 350 class.

Having proved his point, Ago could now return to the emotive Italian four-stroke hardware that was his first love and on which he'd won 13 of his 15 world crowns.

Racing the MVs meant good lots of lire for Agostini's bank balance (thanks to API petroleum and Marlboro tobacco sponsorship — the first time Marlboro's distinctive red and white livery ever appeared on a racing motorcycle) but without the pressure of being expected to repeat his championship victory.

Ago had gone from overkill to underdog. Everyone knew the bell was tolling for four-strokes at GP level — especially with the new silencing laws being introduced for 1976 which knocked up to 15% off the MVs' already depleted power output.

And yet on the right track, in the right conditions, just maybe the quixotic four-stroke rearguard action might yield a GP victory or two...

### STILLBORNE SIX

Agostini had won his clutch of world titles in the 1960s aboard the three-cylinder MVs that delivered a potent combination of nimble handling, rideability and speed. They enabling him to beat Mike Hailwood

on the much more unwieldy 500 Honda for the '66/'67 world titles before Honda pulled out and MV's supremacy became unchallenged.

But increasing pressure from the Yamaha twins and other two-strokes, firstly in the 350 class, then in the 500s, forced MV to think about adding cylinders and going for revs as far back as 1968. The MV design team under Ruggero Mazza drew up a multi-valve four-cylinder 350, however it also designed a six-cylinder 350. It was this bike that was actually built and tested at Modena in April 1971, before the FIM confirmed a ban on more than four cylinders in the 350 and 500cc classes and effectively consigned the MV 350 six to the scrapheap.

### FOUR TO THE FORE

Back to the drawing board, and the 16-valve four-cylinder design was revived and fast-forwarded. The finished 350 Quattro Cilindri made a promising race debut in September the same year at the Italian GP at Monza in the hands of Alberto Paganì.

Ago still won the world title in the 350 class on the triple, but for 1972 he had trouble in the shape of Flying Finn, Jarno Saarinen, whose increasingly potent Yamaha two-stroke had now found reliability to match its performance.

Saarinen demolished Agostini's MV three to win the first GP of the '72 season in Germany, forcing a radical rethink in the Italian team. Two things happened: one, the four took over from the triple; and two, reigning 250cc world champion Phil Read was drafted into the team to give Ago some backup.

Well that was the idea to start with, at least...

### MAGNI-FORCE

Under chief mechanic and team manager Arturo Magni, the years of experience of the MV team now paid off, allowing it to develop the four-cylinder 350 into a fast and reliable race-winner which took Ago to six GP victories and another world title. (Teammate Read scored his first GP win for the MV team aboard the bike in East Germany.)

Agostini repeated his title victory on the MV four in 1973, but only scored four GP race wins: the Yamahas were getting the measure of the Italian four-stroke.

Same thing in the 500 class, where MV had decided to take a leaf from the smaller category and replace its obsolete triple with a beefed-up 433cc version of the 350-four.

Read finished second to Saarinen's Yamaha four on the new MV's debut in France, whereupon MV produced a full 500cc version in time for the German GP two races later. It won on its debut and took Phil to his first MV-

mounted world title after Saarinen was so tragically killed at Monza, and New Zealander Kim Newcombe suffered the same fate at Silverstone after leading the 500cc world championship on his flat-four Koenig two-stroke. (The Kiwi still finished second in the final points standings posthumously, relegating Ago to third place).

Complaining that Read was getting more favoured treatment from 'his' team, Ago walked off and joined Yamaha in a huff...

This persuaded MV to retire from the 350cc class and concentrate all its efforts on retaining the 500cc crown, which Read did with the 500 four in 1974. The following season, the tide had turned against the Italian bikes however, and in spite of a legendary victory at Spa and another at Brno, Read could only finish second to his Yamaha-mounted rival in the World Championship. Never again would a four-stroke win a Grand Prix world title.

### RETURNING TO HIS ROOTS

Thus when Agostini announced that he would return to his MV roots for the 1976 season, it was three years since the 350 four-cylinder MV Agusta had been used in anger.

For the first GP of the season at Paul Ricard, MV produced a bike heavily based on the old one but with new engine internals allowing more revs and delivering more power.

Ago showed the work hadn't been in vain by grabbing the lead, before the MV retired with ignition trouble. (The gear-driven magneto was unable to handle the extra revs, leading in due course to adoption of first Femsa, then Krober electronic ignition.)

Therein a series of problems plagued the 350 four-stroke that season: clutch slip when second in Austria; a wrong choice of gearing on home ground in Italy forcing retirement when in the lead with a bike revving to 18,000rpm instead of its normal 16,000 (impressive that it didn't break, but amateur-hour the problem ever arose at all!); a holed piston thanks to further ignition problems when comfortably in the lead in Yugoslavia...

Then came Assen... In the most dominant display Agostini led from start to finish to win by 25 seconds from the field of two-stroke rivals.

It was a memorable farewell to the winner's rostrum for the screaming four-stroke. Three more ignition-related breakdowns rounded out the GP season, leaving just that one last nonchampionship race at Brands Hatch before the Italian team retired from racing and the 350 Quattro Cilindri disappeared...

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Ohio's back straight, that's when you appreciate that the MV is function as well as form and sound.

The exhaust note hardens; the engine revs high; and suddenly you're flying...

#### FOUR STROKES GOOD, TWO STROKES BAD

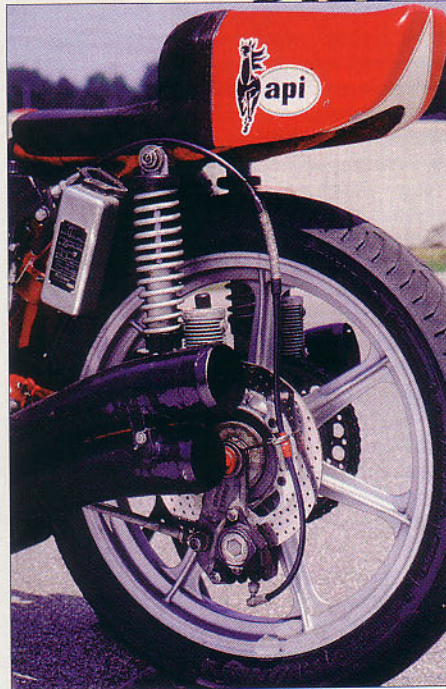
This is one seriously *fast* motorcycle! And it's not only the top-end power which is impressive, but there's plenty of acceleration as well.

The two-strokes against which the MV was raced may have been a little lighter but they were peakier and less flexible too. This 350 will pull out of Mid-Ohio's top hairpin as low as 8000rpm (AC: *everything's relative: that's 'low' on a bike like this!*) carbureting cleanly up towards the orange mark on the tachometer.

There isn't exactly a kick in the power delivery, but at 11,000rpm you can feel the engine speed start to accelerate even quicker as the camshafts go to work. From there on the power delivery is fast and linear.

Reach the fifteen grand mark, caress the gear lever and the exhaust note drops a couple of octaves as the MV surges forward in a higher gear. This is nostalgic magic at its finest.

## THE DAY *the* MUSIC DIED



#### A NEW SLANT

You soon become aware that there's not much difference between the MV and a two-stroke in terms of engine behaviour — only that the Italian bike has a much wider spread of usable power compared to the ring-dingers of the day.

No wonder MV's final GP victory in any class came in a soaking wet 500cc German GP at the Nurburgring six weeks after the 350's Assen win. It must have been a much easier bike to ride in the rain than a two-stroke, and of course there's a lot more engine braking for use in the wet, too.

Paradoxically, in the dry, it's best not to use this. Instead, because of all the revs and attendant risk of getting the back wheel hopping on the overrun, it's better to ride it like a two-stroke. Brake hard, then come down the required number of gears all at once in swift succession...

You get a new slant on Agostini's apparent feat in adapting so swiftly to riding a Yamaha two-stroke after a lifetime racing the MVs when you ride one of these bikes.

#### LEAPS AND BOUNDS

The advances in suspension and chassis technology made in the past 20 years are also set in perspective when you ride the MV — especially on a bumpy circuit like Mid-Ohio.

## Italianate Architecture

In its various evolutions the 16-valve air-cooled four-cylinder MV Agusta followed the same basic format as that first 350 which made its debut in Pagani's hands in 1971.

Heavily oversquare, the engine delivered lots of revs and resulted in squat, square-finned cylinders inclined forward by 10 degrees.

From delivering 69ps at the gearbox at 14,000rpm in original 52 x 40.4mm guise, the stroke was progressively shortened in search of more revs — first to 53 x 39.5mm, in which form it won the second of its world titles with Agostini aboard in 1973, delivering by then 70ps at 16,000rpm.

For its 1976 return to the battlefield, Mazza designed an ultra short-stroke version of the 16-valve engine measuring 53 x 38.2mm, then in its final evolutionary guise an amazing 54 x 38mm.

In this form the MV delivered 77ps at 16,400rpm, and as that Mugello carelessness with the gearing showed, would survive being revved sky-high without exploding!

The engine's six-bearing crankshaft, with small flywheels for minimal inertia incorporating integral crankpins, was bolted into the compact, heavily machined rough-cast crankcases with a ball bearing on one side and roller on the other.

MV's trademark long, finned sump contained three litres of oil was slung underneath. In reality it was a separate oil tank for what was essentially a dry-sump motor. However, though nominally air-cooled, the last MV four foreshadowed the later Suzuki GSX-R in being essentially oil-cooled, with minimal finning, a high-capacity oil pump, large-diameter oil hoses and a big oil radiator in the fairing nose.

As a further mark of the Italian bike's forward thinking, the side-loading six-speed gearbox was extractable in a way that is commonplace today but was then unheard of on Japanese two-strokes. As the MV's revs reached for

the sky and its cam profiles became more aggressive, the Italian bike really needed this facility to concoct an ideal gearbox for each circuit from the choice of five different ratios available for each gear.

The Swiss-cheese rear sprocket had a rubber cush-drive incorporated in the hub of the US-made Morris cast magalloy wheels, which replaced the Borrani wire rims used previously in 1974. That same year, 10-inch (254mm) Hunt plasma-sprayed alloy brake discs (also made in the USA) were fitted instead of the Italian-made Scarab cast-iron units in the interests of reducing unsprung weight and lightening the steering.

Gear drive to the twin overhead camshafts was up the centre of the MV's engine, with the four very long valves (about 120mm length, to avoid the springs masking the ports with such a narrow valve angle) per cylinder sitting at a flat total included angle of just 35 degrees.

Compression ratio was 12.2:1 from the two-ring, ultra-slipper pistons and the flat combustion chamber, while the four Dell'Orto carburetors had a steep angle of downdraught.

Carb sizes were varied a lot from one circuit to another in an effort to change power characteristics. Choke sizes ranging from 28mm up to 34mm were used with each pair of carbs sharing a remote float chamber to save weight and width.

Ignition was the bike's achilles heel in short-stroke form, where the bevel gear-driven Mercury outboard engine magneto used successfully until 1974 proved unable to cope with the higher revs in sparking the single central 10mm plug per cylinder.

After various experiments, two Krober electronic ignition boxes were fitted to the bike in its final Brands Hatch guise. At least it didn't hole a piston in that race...

MV used five different chassis designs for its four-cylinder racers in the 1970s: the final version used on the 350 was an open-cradle duplex design with large-diameter chrome-moly steel tubes using the engine as a semi-stressed component.

The frame's most notable feature was the

eccentric mount for the swingarm pivot, which allowed the team to experiment with 'droop' in an effort to improve the handling and traction of the twin-shock rear-end.

Though the bike was only raced on slicks a couple of times on fast circuits, even mid-70s treaded tyre technology supplied enough grip to cause handling problems with the 500 MV four, though not so much with the smaller, less powerful 350.

Agostini was noted as being the only rider who could take the famous double kink in the straight behind the pits at Assen flat out without backing off aboard the MV, on his ride to victory in the 1976 Dutch GP. Yet with a tiny 1280mm wheelbase (the same as Sakata's works 125 Aprilia GP racer today!), the MV was quick-steering and nimble.

In spite of its increased complexity, and contrary to popular belief, it didn't lose out on weight against its two-stroke rivals, either, scaling 121kg dry in final Brands Hatch guise, against a 1976-vintage TZ250 Yamaha's 118kg (before adding water!). Once the ignition problems were cured, it was an even match.

Really, the only reason the MV stopped racing was noise. In 1976, the FIM introduced an arbitrary 112 dBA noise limit which the MV was unable to match without substantial power loss.

Though race officials went out of their way at the behest of GP organisers (who desperately wanted the crowd-pleasing four-strokes to keep on racing) to tip the scales in favour of the Italian bikes, it wasn't enough. Though Formula 1 car racing made no similar moves to quieten its race machinery (and still hasn't, 20 years on), the FIM decided it must act alone.

Combined with the takeover of the Agusta family's helicopter empire (which provided an umbrella for the motorcycle race team) by business managers little interested in bike racing, this was sufficient to spell an end to the most famous and successful race team in the history of motorcycle sport.

Agostini's Brands Hatch finale — with silencers defiantly removed — was the end of an era.



The MV's piggy-back Marzocchi rear shocks were quite sophisticated for their time, but there just isn't enough wheel travel to get adequate suspension response in modern terms. Similarly, in spite of their adjustable rebound damping, the 35mm Ceriani forks aren't a lot better.

Within the context of its era and at the respectful speeds I was riding, the MV handled well, however. It steers brilliantly, in spite of the kicked-out fork angle... Or maybe because of it — the short wheelbase delivers nimble handling; the wide head angle and lots of trail (103mm, says Nobby Clark) add stability.

Accelerating hard round fast, bumpy turns never persuaded the MV to shake its head or flap the front wheel in spite of the excellent grip from the modern Avon treaded tyres developed for classic racing.

You're in charge, not the bike. Not every rider of a mid-70s works 350 or 500 GP racer could say the same!

In fact, the only thing I didn't really care for was the lack of bite from the Hunt alloy brakes. The 750SS Ducati I race today in Historic F750 events has the same Lockheed calipers as those fitted to the MV, but with Brembo iron rotors, and the difference in power is substantial.

Ago must really have liked the reduced gyroscopic effect and improved suspension response via reduced unsprung weight that the Hunts delivered, to put up with this. Can't say I would have.

#### FOUR-STROKE SOAPBOX

But as I left Brands Hatch that day back in 1976, I would have given anything to have ridden the last MV to be raced. Now, thanks to Rob Iannucci, I have.



Having done so, one reaction is of surprise... I'm surprised it is so potent and modern-feeling to ride... Surprised it steers as nimbly and sharply as a two-stroke twin.

But the strongest emotion is one of regret: we need bikes like the MV Agusta on GP tracks today.

Restrictive rules which discourage technical innovation and variety have resulted in an identikit array of V-four two-strokes and half-size V-twin spinoffs in the modern 500 and 250cc grand prix classes. How ironic it is that the world championship category which offers the most varied array of different design features and engine formats today is the Superbike class — nominally based on production streetbikes.

The day the music died was a sad day for

*The MV's lines are unmistakable — check out the curved megas...*

lovers of technical innovation as well as of four-stroke concert music thanks to well-meaning but myopic rules that even Honda wasn't able to circumvent with its NR500.

My day at Mid-Ohio underlined how much we need a modern version of the MV Agusta back in racing today — and an ovalpiston Honda, and a desmo V-twin Ducati GP bike, and a Norton rotary, four-cylinder Kawasaki four-stroke, and all the other permutations of two-stroke/four-stroke/rotary... Whatever that technical innovation will allow.

Let's do it now — and let the music will play again.

*Alan Cathcart*

*Photots: Kyoichi Nakamura*

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