

## Reproducing genius

Words and pics: Chris Pearson

**Modern Classics takes an unusual turn this issue as we visit a team building replica MV Agustas – so faithfully, they are indistinguishable from the original machine.**

**I**f I was to tell you that I had recently visited a factory that produces beautiful, accurate re-creations of the classic four-cylinder MV Agustas, then you would immediately think I had been to Italy. If I went on to tell you that the company consisted of a father and son team who work together from home and manufacture virtually everything except the frame, tank and tyres themselves, you would be even more convinced that this seemingly suicidal mission of a business could only be Latin-based.

But no, Brownhills, just to the north-east of Birmingham, is the home of the Meccanica Verghera concern. And it seems somehow fitting that it should be situated so close to the home turf of none other than multiple World Champion, the late Mike Hailwood, who rode MVs to the title in four consecutive years, from 1962–1965.

This cottage-industry motorcycle factory is

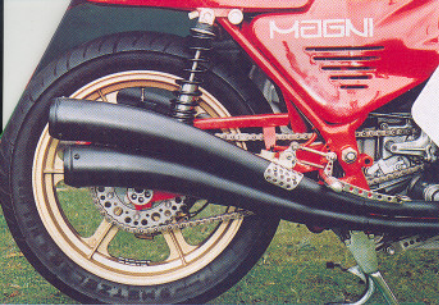
*Right: Father and son, Dave and Mark Kay work together as a team, from their home on the outskirts of Birmingham, building the brand-new MV re-creations and keeping many original ones running as well*

very competently run by MV devotees Dave Kay and his son Mark. This pair of superb engineers hand-craft the multitude of components that make up a four-cylinder MV, and then assemble them into beautiful and faithful replicas of the legendary machinery.

But an Italian bike made in Birmingham? Well yes, for these machines are exact replicas of the machines they copy and, as such, are the real thing. Read on – I'll tell you why.

Since the demise of MV in 1980, it would have been easy, as with so many marques, for the name to disappear without trace. The market for the MV roadsters was always an exclusive one and, while the name and heritage were widely known, the general public cared little for these luxury items. It was only really the race machines that stirred the emotions of the masses – and it was while I





Above: Unmistakably Magni - the exhausts of an MV sound even better than they look

was attending just such an occasion that led me to the Kays in the first place.

I was at a classic club meeting at Donington Park in 2002, there for a different reason altogether, when I spotted an MV. The bike appeared to be a 1960s' 500 Grand Prix bike, but was apparently new and absolutely immaculate. I stood and watched the owner as he lovingly tended and cosseted his MV. He even placed an electric fan heater under the engine to warm the oil in the sump for quite some time before attempting to fire it up. When he did finally start the bike in the paddock, the noise that erupted from those four open megaphone exhausts stopped everyone in their tracks!

That man was Ron Mullin, ex-sidecar passenger from the 1960s and '70s who, when I was in conversation with him later, went on to fill in the gaps concerning the origins of this brand-new 1960s' machine. From there I followed the trail to Brownhills...

## A propitious start

The story begins for real when, in 1989, a Kay-built 500 MV replica won the prestigious Best in Show award at the Classic Bike Show. This should have set the classic world alight with controversy but, so faithful are these recreations, they are considered by many to be a continuation of the breed, albeit (clearly) not built at the Cascina Costa MV factory in Italy.

The Kays are probably best known within the biking community for the unique Ferrari bike they constructed back in 1990. Built initially as a design exercise, with the legendary car's styling as the inspiration for the bodywork, it officially became a Ferrari when permission was granted for the symbol of the Maranello thoroughbreds - a prancing horse - to adorn the tank. The Ferrari bike has since passed into the hands of a private collector and, unfortunately, has not been seen in public since. Sadly, there are no plans to build another.

Dave Kay and son Mark operate from an extremely well-equipped workshop built onto the side of the family home, the actual size of which belies its output capacity. From their premises emerge a succession of road- and race-ready machines, each one built to the customer's own specification.

Each section of the work area is set up for the various manufacturing processes required to complete one of the remarkable recreations. The workshop is impressive, not only for the level of machinery housed within

it, but also for its tidiness - something bike builders are not generally renowned for. At the time of my visit, the 'assembly line', such as it is, had two virtually identical machines (save the clients' own specifications) on it undergoing readiness for delivery.

Mark let on that the building of each machine is so meticulous that they completely dry build every bike, to ensure each detail is correct, before pulling it all apart for painting and final finishing. Obviously, great care is taken at each and every stage of this process, resulting in top honours for several of the Kays' customers at shows around the globe.

The Kays work with the same kind of painstaking attention to detail that was normally found in the back-street workshops of Italian bike builders 50 years ago. Throughout this build process in the workshop, the Kays employ a level of engineering perfection similar only to the very top race and tuning outfits.

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Meanwhile, across the yard from the main engineering shop (taking care to give the birds of prey a wide berth, just one of the Kays' many hobbies), we found another set of buildings. The first is the engine assembly room, complete with trays of components and drawers full of gaskets and items used in the assembly of these complex engines. Next to this is a garage which contains many examples of the MV breed, parked neatly next to several half-built Gilera racers and a bright-yellow Ferrari.

## Standard-setting engineering

While the MV power plant is not considered a high-tech piece of equipment - by today's standards, anyway - it is only upon closer internal inspection that one gets to appreciate the technical and innovative advances which were applied to the original MV engine almost 50 years ago.

This, and the similar Gilera engine of the

Right: Detail of front end reveals top componentry used to build MV: forks, brakes and wheels are faithful to the original design

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Above: For approximately £27,000 (depending on individual bike specification), you too could have a view like this

period, really did set the engineering benchmarks from which the Japanese would go on to conquer the world. Honda and its oriental rivals simply miniaturised the engineering advances made by the Italians to enable higher engine speeds and increased power and, crucially, sold more of them. The twin roller-bearing-mounted camshafts sit in the large cylinder head casting, while the massive pressed-together crankshaft runs in large-diameter flat roller races.

Like virtually every part of these latter-day relics, the cam bearings are machined in-house, using a lengthy but extremely accurate boring process. Once again, this portrays the typical Kay high standard of finish and engineering excellence.

The huge crank is the limiting factor of the MV design for, while it facilitates large torque figures, its sheer mass means that the engine will not spin up quickly; instead, it lethargically climbs up its rev range. Great care must be taken when downshifting through the gearbox to match engine speed to road speed as, due to this mass, if you get it wrong, at best you will lock-up the rear wheel...

When assembled into one large unit, the whole crankshaft is housed in a carrier, which







simply lifts out of the bottom casing completely. Any mechanical failure in this department will not result in a total loss of the casings, as would a similar incident in any Japanese design. Again, the crankshaft assembly is completely fabricated in-house before being sent to Alpha bearings for the all-important pressing and truing.

Surprisingly, the roller bearings are put on after the crankshaft itself is completed. This still uses the old-fashioned, but nonetheless ingenious, method of splitting the bearing outer. First of all, four holes are drilled into the casing before the bearing is placed in a vice and hit with a hammer. This causes the outer casing to split in a random manner and, when it is placed back together, the crack all but disappears. The rollers can then be allowed to run over this crack without harm ever coming to them. This simply would not work with a

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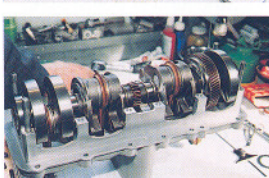
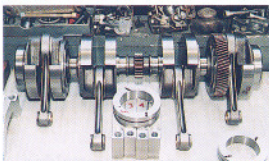
normally machined bearing half, and the rollers would very quickly fail as they passed over the slot. In the Kay MV though, it is completely reliable.

The camshaft drive was also way ahead of its time, being gear-driven rather than utilising a chain – a technique much lauded by Honda as if they themselves had thought of it! During the early seventies, the MV factory actually boasted that no chains at all were used in or out of the MV roadsters, which were, of course, shaft driven.

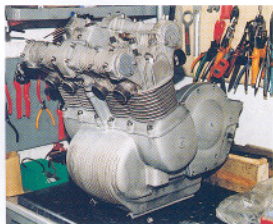
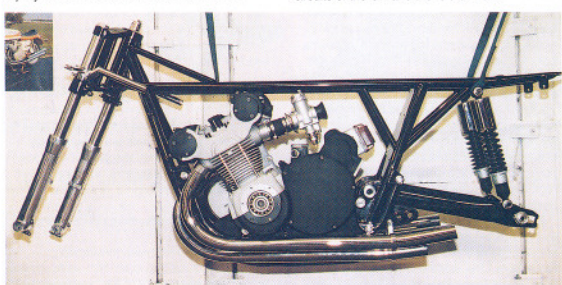
All of the Kay-built machines are now driven by a chain final drive, thanks to a remake of the Arturo Magni-designed conversion kit MVs had used many years ago. (See our full story on Arturo Magni on p.47 of this issue – ed.)

Particularly impressive are the many small components the Kays manufacture in-house that go into building a complete machine. The manufacturing techniques used are so

accurate that components from original machines are fully interchangeable with those of the modern replicas, and vice versa. This enables the Birmingham pair to supply parts for MVs all over the world, ensuring their



Top: Part-built crankshaft and novel split bearings, ready for assembly into engine  
Above: Built-up crankshaft sits in cast housing  
Below: This will be a replica 1957 Gilera 500 Grand Prix bike. The Kays have embarked on a project to build a limited series of them



Above: All engines are 'dry-built' first to ensure production tolerances have been met

Left: Ready to accept engine, a Kay-built machine takes the term 'hand-built' to extreme

providing owners can continue to keep their beloved machines running and in use.

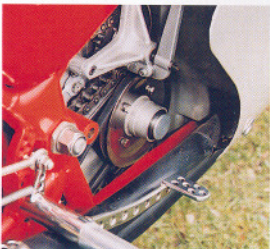
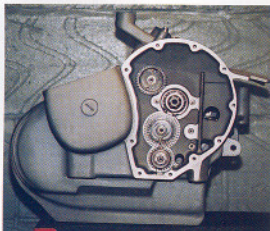
## Kay men, Island

The Kays' standard of engineering was developed through the many years that initially saw Dave, and then son Mark, campaign the only MV 750 sidecar outfit in the UK. The use of an MV power plant in an outfit such as this was not a new idea – but making it work was.

In 1960, Swiss sidecar racer Edgar Strub had slotted a shaft-driven 600cc engine into an outfit in an attempt to beat his then-dominant BMW rivals. The engine was strong and powerful but, sadly, the need to sleeve down the roadster engine to meet the FIM 500cc requirement, along with the shaft final drive, robbed much of the horsepower and it was not successful.

But the Kay machine was very successful, and eventually became a victim of its own domination when the Classic racing eligibility people questioned its heritage. This unusual machine used a 1972 Sport engine, housed in a conventional sidecar chassis, which required a switch from the normal right-hand output of the MV gearbox to the left side to enable it to transmit drive to the rear wheel.

The ever-ingenuous Kays quickly solved this problem with a Magni chain-drive conversion, which then drove a separate shaft running across the frame to the left side and, consequently, the rear wheel. Their howling four-cylinder outfit won many races around the short circuits of the UK and the Isle of Man.



Top: All the right gear, MV transmission detail  
Above: Belt-driven pulley is modification for electric start conversion, not standard on MV

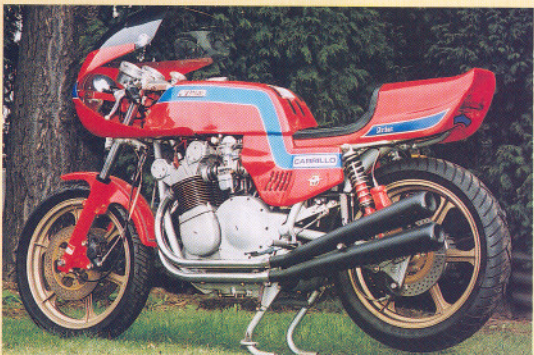
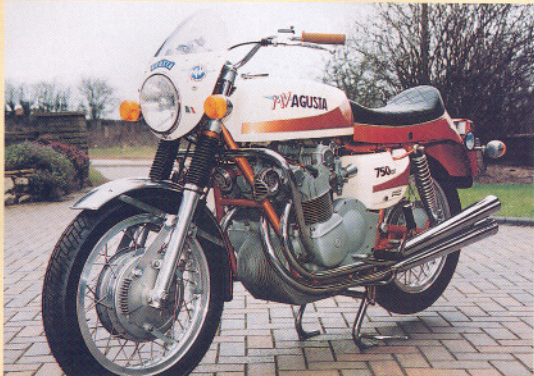
Some years later, Mona's Isle also featured in an attempt to race the outdated MV motor against more modern tackle when, in 1992, the Kay equipe ventured back there to challenge all in the 750 Senior Manx Grand Prix. The Kay team, with Pat Sefton as jockey, competed in the Manx race, finishing a lowly, but nonetheless encouraging 40th out of 105 runners.

The talented Sefton is a well-known hill-climb specialist and the tortuous and unforgiving island circuit held no fear for him. In practice he cracked the 100mph average that so many riders find insurmountable, even on modern equipment, but the end result was not important. Just to hear that unmistakable MV sound around the island once again was enough to justify the whole project.

Racing still features high in the scheme of things, as the Kays would love to see one of their Gilera succeed in classic racing at some point. Maybe Daytona, with its high-speed bankings, would be a good place to take on the all-conquering British singles that currently dominate classic racing worldwide.

Chassis for the MV replicas are made in the UK by Barber Frames, a company based in Norfolk. Likewise are the frames for the Kays' remarkable limited edition Gilera project that has been faithfully reproduced using the ultimate 1957 race bike as their template.

Just like the Ferrari bike, the Gilera has attracted the full backing and support of the Italian Gilera concern, effectively making these machines a continuation of the first production run in the 1950s. Although a few of these bikes have already been produced with the half fairing,



The Kay replicas are not the only machines to be found on the premises, for there are some marvellous original examples of MVs alongside the more recent re-creations. A stunning unrestored, yet mint 1972 GT750 (top) and a Magni-built special stand alongside customers' original MVs which are in for maintenance and repair.

The 850cc Kay-built MV, (above) known only as 'Arthur' (after Arturo Magni) would give many modern machines a run for their money and is reputed to be the fastest two-valve MV Agusta in the UK, capable of a recorded top speed in excess of 150mph.

the Gilera seen in these pictures will sport a period, fully-enclosed aluminium 'dustbin' fairing when complete.


## Keeping the dream alive

It has always seemed a great shame that such a great name from motorcycling history as MV Agusta should merely languish in our hearts and minds. Today, this name is represented by an admittedly well-engineered motorcycle and a fantastic styling exercise which enjoys exclusivity second to none.

However, it is a motorcycle that cannot realistically lay claim to the heritage of the MV name – a name renowned during those heady days of world dominance of the late 1960s and early '70s and which stood for technical

innovation and excellence.

Enter the Kay MV Agusta – a bespoke machine many have chosen to order to realise their own red-and-silver MV dreams. They get all of the usual biking kicks, but with the added bonus of riding a machine that turns heads wherever they go.

Without the Kays, would there still be so many pre-1980s' MVs around today? Even the die-hard MV cognoscenti turn to them for help in the absence of any other source – and it is hard to find a machine running at present that does not utilise a Kay component. 

For more information, visit  
[www.mv-agusta.co.uk](http://www.mv-agusta.co.uk)