

Mazda's magic

Vitesse of Hinckley have introduced a new five speed gearbox option for the MGB, and other models look set to benefit from their touch shortly. *Roger Parker* assesses how well a brand new Mazda MX5 five-speed gearbox suits the venerable B



The MGB was certainly the flower of the MG marque with over 512,000 sold during its extensive 18 year life. However, it is fair to say in the latter half of that period the flower was left to wilt, with little care and attention until eventually in 1980 it was thrown out onto the compost heap.

Later that decade Mazda took the seed of the MGB's basic principles, gave it the proper nurturing and developed their own flower called the MX5 that was launched in 1989. Getting on for three decades later the MX5 still going strong, albeit having gone through several reincarnations, and this just confirms how right the basic MGB philosophy was.

There is of course a world of difference between the technology found in the MGB and what is in an MX5, but the popularity of the MGB today is such that the car doesn't look anywhere near its 54 years. However, some of the mechanical aspects have not aged as well. For many, this is part of the charm of the MGB, but for others the prospect of being able to update some of the MGB's mechanical aspects and add a bit of modern practicality enables them to enjoy their cars more and is something they welcome.

Modifying a classic MG can divide opinions, but usually the viewpoint is quite positive when modifications are clearly beneficial and done in a way that doesn't involve permanent changes. In

ABOVE LEFT: The complete Vitesse MGB 5 speed conversion kit of parts.

such cases, if the original parts are kept the cars can be converted back to standard should that be desired.

One big very negative of a classic MG in today's driving environment is low gearing, the result of being designed before the motorways and other major highways that are now such a major element of almost any road journey. The exception to the low gearing rule is, of course, the MGB as it had the option of overdrive (OD) from early 1963. However, most fail to realise that this was not standardised until half way through the 1975 model year in the UK market, but never in some others.

Mind you, the overall gearing shortcomings of the MGB don't stop there as no synchromesh on first gear was the norm for the period. This created an additional problem as the gearbox designers were forced to lower the second gear ratio so that the car could be capable of doing hill starts in it from near zero mph, because for most drivers first gear would not be available unless the car was stationary. This resulted in first and second gear ratios being close together, and with second being noticeably low there was a big gap to third gear. This always hurt the acceleration times and detracts from the driving pleasure. When the four synchro gearbox arrived for the MGB in late 1967, unfortunately the opportunity

was not taken to equally space the gear ratios to fully eliminate this gap.

Many MGBs originally built without OD have been converted over the years, but many still do not have it and yes that route is still viable. However, whilst it is technically possible to convert a non-OD gearbox to OD, you would need a lot of additional parts and probably some specialist help too, and this is not the most logical route. Sourcing a complete gearbox/OD unit would make much more sense. Availability of secondhand four synchro OD gearboxes is not as prolific as it once was but still reasonable, so an average of about £150 for a secondhand unit applies.

However, you also need to budget on having the complete replacement OD

and gearbox rebuilt and fitted, which is a major job involving engine and gearbox removal. Reconditioning is normal because you don't want to have to take the whole assembly out again simply to change a 50p part. The cost of reconditioning varies, but currently an average price for a reconditioned four synchro gearbox and OD is around the £800-£1000 mark.

The availability of OD on the MGB has always been the logical route to obtain longer overall gearing, but many other MG models (including T-Type, Z-Type Magnette, MGA and Midget) have never had such an option. On these, even where an OD gearbox could be fitted to the engine, often there isn't enough space within the transmission tunnel »



ABOVE LEFT: Standard MX5 box with single piece main casting incorporating the bell housing.
ABOVE CENTRE: Fully converted and assembled MX5 gearbox ready to be bolted to an MGB engine.
ABOVE RIGHT: The separate new bolt-on bell housing interior view.

for it to squeeze in without invasive modifications. This was the driving force behind the very effective Ford Type 9 five-speed gearbox conversions, which have been widely accepted as a very worthwhile modification offering many clear advantages beyond the obvious one of an additional 5th gear to give the needed higher cruising speed potential. These added benefits include a lighter gearbox, better intermediate ratios giving better acceleration and more driving pleasure, less power absorption leading to better fuel efficiency, quieter running, a lighter and more precise gear change, and most importantly a total bolt-in conversion requiring no alterations to the car.

The penetration of the five speed conversion into the MGB sector has been slower because of the OD option and the fact that this has been very significantly cheaper. However, with all

existing MGB gearboxes getting older and having covered more miles, those reconditioning costs have risen and the costs are now reaching a level where the cost difference between an OD conversion and a five speed conversion has shrunk considerably.

To date the five speed gearbox conversion has used the Ford Type 9 gearbox from the Ford Sierra (circa 1982-1991). The conversions by Hi-Gear

Engineering have become very well established and very highly regarded for the quality of engineering, ease of fitting with no modifications of the car needed, plus their effectiveness and reliability. Over 7000 conversions have been sold, covering a wide range of cars and not just MGs, plus soon in 2016 they will be able to offer their own brand new gearboxes.

But now another five-speed gearbox conversion has entered the market, initially just covering the 1968-1980 MGB with the four synchro gearbox. It has been developed by Hinckley based Vitesse-Global, who is the official supplier of Mazda powertrain and other components for specialist car manufacturers. Their conversion uses a five-speed Mazda MX5 gearbox, a unit which has stood out as excellent in numerous road tests of this model. In fact, from the repeated praise heaped on this gearbox, it can justifiably lay claim to the title 'probably the best



sports car gearbox in the world.' In its standard MX5 format the gearbox is made with a single main case that incorporates the bell housing, which is pretty much the same arrangement as found on the MGB gearbox. To enable Vitesse to fit a different bell housing, they had to recreate the Mazda gear case in two parts to provide a separate bolt-on bell housing. This is not a simple or cheap change, and it was only the needs of Caterham who wanted this gearbox to fit the Ford engines they use that made it possible. So Vitesse re-engineered the gearbox and now it fits models from Caterham, Morgan, Westfield and Ginetta, with to date over 5000 units in service and a zero failure rate.

Creating a gearbox with a separate bolt-on bell housing immediately opened the door to creating different bell housings to fit other engines, which is where the MGB enters the story. Although Vitesse has started by concentrating on adapting the MX5 five-speed to fit the 1968-on MGB, in principle the range of other cars that could be equipped is wide (subject to

ABOVE LEFT: The standard MGB clutch cover is fitted over a standard MX5 clutch plate and then the new gearbox can simply be bolted up.
ABOVE CENTRE: Refitting the engine and five-speed 'box is simpler than refitting the original MG gearbox as the Mazda unit is smaller. Note the additional capillary connection to the sump – that is an aftermarket oil temperature gauge sender on this car, which belongs to MGOC member and Vitesse customer Alan Puckey.
ABOVE RIGHT: The original MG gearbox mounting member is deleted and a new rear gearbox mounting is clamped to the fixed crossmember as seen here.

clearance in the transmission tunnel) and this is something they are working on. Expect to read about future developments in due course...

That potential for other cars is aided by a further change to the Mazda gearbox to include a modified rear housing to take a mechanical speedo drive gear. Whilst there was a facility on the original Mazda casting for a speedometer sensor pick up, because this was not a mechanical gear drive as found on the MGB it was not quite in the correct position. But the modified rear housing has the facility for the speedometer drive gear and cable connection to drive the original MGB speedometer, and a cable with the appropriate end to plug straight into the



ABOVE: A new shorter gear lever emerges into the car exactly where the original MG one used to sit.

original MGB speedo is supplied. Interestingly the original bolt-in gearbox support member is not re-used as the Mazda gearbox support is further back. Instead a simple and robust clamp-on rear mounting support is fitted around the MGB's fixed crossmember, slightly rearwards of where the original MGB gearbox support used to fit. This is one area that does need to be checked for its structural integrity on any project car – whilst it was always an important aspect, now with the additional function of carrying the gearbox, its structural state is even more important.

The kit of all brand new components can be seen in the images, along with various aspects of the conversion. Everything needed to allow an owner (or their garage) to fully complete the conversion in one go is included, except for the need to have the speedo recalibrated. The kit currently costs a »



LEFT: A new spigot bush with standard MX5 internal bearing is fitted into the end of the MGB crank. Note the two threaded holes which allow bolts to be fitted to push this out if the crank should need replacing or machining in the future.





ABOVE: Other applications are planned. Here an MGB engine and 5-speed box is being fitted into an MGA chassis.

VAT-inclusive £2394. Fitting should take someone familiar with the MGB less than a couple of days before taking the car for a drive and enjoying the fruits of their labours, but Hinckley based Vitesse currently have a special offer of free fitting, and have offered to extend this for *MGE* readers to all cars whose booking is made by the end of May.

Those who have had the pleasure of

driving Frontline's LE50 will already be familiar with this gearbox in an MGB body and they will be well aware of how sweet it is, but that is with over 200bhp of modern 2-litre Mazda engine driving it. The big question is: how well does that experience translate to this box being fitted to the MGB's 1798cc B-series engine? The short answer is that all the positive comments previously made about this gearbox still apply. The ratios are spot on for the car, no doubt partly due to Mazda choosing to provide the same final drive ratio for the MX5 as the MGB has, but more so from the very much closer intermediate ratios that are so much more evenly spaced – there is no sign of the gap between second and third gear that was so obvious in the MG gearbox.

Clutch operation is also light, but very positive and feels completely natural. This is clearly helped by the use of a concentric release bearing/slave cylinder rather than the more traditional external slave operating a lever to act upon the internal release bearing. The position that the gear lever emerges from the tunnel is identical to where the MG lever emerged. It is a slightly shorter lever and if the MG lever were shortened to the same degree it would add to the weight of operation, but the Mazda system is beautifully

light and very precise.

The internal spring bias puts the lever into the third/fourth gear plane, and the overall experience is so smooth and pleasurable that it encourages you to change gear far more often than is strictly necessary. This is a novelty that I know will wear off eventually and familiarity will prevail, but getting back into a standard MGB after driving this one does provide a bit of a culture shock when dealing with the gearbox.

Many will be aware of (and some will already own) cars with Ford Type 9 five-speed gearbox conversions, and the inevitable question that will arise is which one is best? My answer to that is simply that it is a personal decision as they are both superbly engineered conversions that provide significant but similar benefits. Perhaps the biggest difference I can note is that the Mazda is a package of brand new parts that are still in production today and the previous reputation of this gearbox as quite probably the best sports car gearbox in the world has not lost anything in this conversion. ®



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While visiting Vitesse to take pictures of Roger and his son Matt behind the wheel of the MGB, I was also lucky enough to have an extended drive myself. Having had many years of driving pleasure behind the wheels of standard MGB GTs with overdrive gearboxes, I am well aware of how satisfying they can be to drive and was not expecting to be blown away by the Mazda conversion. At the risk of sounding like a paid commercial (which this most definitely is not), I must say that within just a few miles I was a convert myself! The ratios suit the B-series engine perfectly as Roger has said, but I was also delighted by the action of the box – smooth, light and positive, I really could not fault it in any way. Even the throw of the stubby lever is spot on, feeling like an MGF or TF with a

quick-shift fitted. The clutch too was perfectly weighted (I have never seen the appeal of a heavy clutch pedal), with a smooth and progressive bite to the take-up.

Speaking personally, I would not throw out a fully-functioning overdrive gearbox just to fit a five speed conversion because I do enjoy the extra flexibility of the half ratios the OD provides at the flick of a switch, but if I had a non-overdrive car, I would swap it for a five speed as soon as I could raise the cash. And you know what – if I had an overdrive gearbox that needed overhauling, I'd be seriously tempted to go Mazda instead, it really is that good. Why not book yourself a test drive and try it out for yourself?

Simon Goldsworthy, Editor