



SO YOU WANT TO

DEVELOPMENT OF THE MGB Don Hayter

When I came to MG Design in 1956, the MGA 1500 was in production. Chief Engineer Syd Enever and Chief Body engineer Jim O'Neill were planning new shapes to replace it, including a coupe version. Several quarter scale models based on the MGA chassis were made but to achieve a more modern and increased passenger and luggage capacity, the decision was taken to go to monocoque all steel construction. The new integrated structure needed to be stiff enough in tourer form, so design and research work produced combined inner and outer sill sections and a deep centre tunnel. A new seating layout for pedals and steering wheel relative to the proposed engine and front suspension layout located the front bulkhead. Increased seat travel located the heelboard, behind which we were required to retain the batteries which in turn effectively located the rear axle. The target being to achieve 50/50 weight distribution. Having decided to retain and further develop the MGA front suspension the track was settled at 41/2 inches and Wheelbase 91 inches. The final quarter scale model EX 214 was approved and I detailed a body line draft from which a full size wooden model of the tourer body was made in the **Bodies Branch Experimental** at Quinton Rd, Coventry. Chassis Engineering were laying **out the** associated understructure mountings for the engine location, suspension **mountings**, cooling and exhaust systems.

The first metal prototype was made, but still retained alloy bonnet, door and **trunk lid** panels to reduce weight. Approval was given by George Harriman and the **directors and** an ADO 23 number was allocated when finance for tooling was made **available so** production drawings could be issued.



Original EX 214 - MGB Quart taken in development - first vi shape. Photo Don Hayter.



Press Release photo of an MGB Tourer.

Development were programmed to carry out all the necessary brake, handling, performance and tyre test with the, new to MG, 1798cc B Series engine. The rear suspension was also completely new with trailing arms and coil spring axle control with panhard rod location. This had been designed to give a softer more controlled ride with bigger travel. Testing showed that a rear end steer effect from the transverse panhard rod was evident and neither Tom Haig, our specialist tester or Syd Enever would approve it. A last minute reversion to a modified semi-elliptic spring system meant adding an inch or so to the rear chassis and body length. Revised panel lines were designed, drawn and issued for new production details and a new prototype started.



Rear view of original Farina prototype.



Period Press shot of an MGB Tourer.



The Farina prototype based on the tourer bodyshell.

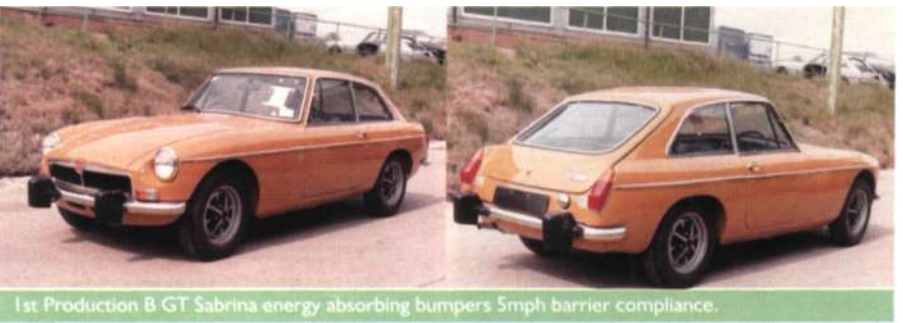
Intense activity followed and the decision had been made to produce the whole body at Swindon Pressed Steel factory providing for the unpainted shell to be transported to Coventry Bodies for painting, body, seats and trim assembly. A new automated paint plant was installed at Quinton Rd specially for this. Painted bodies, fitted with a new design of all alloy windscreen frame and accompanying roof to provide a weather proof package were shipped to Abingdon and processed through modified lines on the top deck in A Building and lowered onto the main production track, still being manually operated - unchanged in system since 1929! Hence the cry "Push 'em up" when one section was faster than another behind. In those early days, production planning for colours, trim and specification was done by the Chief Engineer in conjunction with John Thomley - Plant Director, the Works Manager and Sales at Longbridge. Leonia USA, Sales and Admin provided requirements for the left-hand drive cars, including specials like white wall tyres and varying hood colours. Cars for special finish went to the MG Show Shop - under Tim Binnington for road test approval and by the car magazines and sales display at Motor Shows in the UK and abroad.

Production rose rapidly with good acceptance in all markets and engineering received the Steering Wheel award, from the Canadian distributors, for the best new sports car in 1962.

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Competitions obtained cars from production for assessment and rally use and their first testing was done in the dreadful winter of 1963. This generated the first exercise with Pressed Steel to obtain alloy wing panels and doors to reduce weight which meant re-setting presses at the weekends. Winter testing did not give enough experience of racing conditions, particularly on long airfield type corners, so when entered for the spring Sebnnng USA event, the engines suffered oil surge and pressure loss to fail. Not good! Rapid engine design to modify and increase sump baffles solved the problem so that all early cars were changed to this condition.

The next major change was to the redesigned five main bearing "B" series engines with the relocated starter position. Design had already considered the addition of a coupe version and a visit to the Italian Car Show in 1965 by John Thornley and



1st Production B GT Sabrina energy absorbing bumpers 5mph barrier compliance.

Enever and discussion with Farina resulted in the design of a GT based on an MG outline and package. A prototype evolved, based on a tourer body sent from Abingdon and included a full size body plan of the first MG hatchback. This was immediately approved by the directors and details drawn for production by Swindon in Oct 1965.

Proposals for a more powerful version were limited to power units available in the BMC group so when Sir Alec Issigonis was designing a new three litre six cylinder engine for a new Austin saloon - Enever managed to get a look at the scheme. His opinion was to use a possible shorter stroke version in the MGB. In the event, Issigonis refused any changes so the MGC was designed, but needed new chassis and front suspension with torsion bar springing and engine mountings. All this using the MGB basic body shell with only a modified bonnet and larger wheels.

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SSVI ready for Transpo'72 at Dulles Airport Washington DC.



SSVI at British Leyland/Triumph preview show at Handley Studio Centre ready for Transpo'72 demonstrates automatically applied seat belt.



SSVI Underbonnet – showing suspension control and roll/ride levelling units.



SSVI Airbag & Knee protection mounting collapsing column- impact sensor-under knee roll & British Leyland Automatic start "Test" unit.

By 1969 exhaust emission changes were being legislated in America and the first of the safety related changes caused by the Ralph Nader Movement were on the table. Initially road holding tests and tyre problems affected the high and heavier American cars much more than the lower European models. But when crash testing, first a 5mph dead stop with no lighting or engine damage problems and later 30mph barrier tests meant considerable redesign. In addition the pendulum test at bumper heights of 16-20 inches based on American cars, were too high for the MGB and Midget. This involved new bumpers and slightly raising the cars, with more capability of energy absorption - hence the rubber bumper cars of 1975 onwards.

In the middle of these safety change programmes the US Government and the National Highway Safety Association had organised an exhibition to show joint proposals with Europe for improved vehicle systems. MG Design were allocated the task of providing as many safety features as possible in a small car - our GT being available. Triumph were now part of the group and their 2000 saloon was to be also used. The MGB GT Safety Systems Vehicle I contained ride levelling and roll suspension with anti-brake lock control from Lockheed. Dunlop provided the Denote run-flat tyres developed for production at the time. I went to Italy to get the latest airbag deployment system in a tourer and this was set up in the GT with a modified soft facia panel which also had a head up projected speedo reading display on the windscreen. The body was foam filled in the sills and wing parts with additional door stiffening to reduce intrusion in side impacts. Soft low bumpers to absorb energy were made as a proposal to hit pedestrians below the knee and tip them over the bonnet instead of hitting above, breaking the leg and then running over them. Wide angle rear vision was a USA proposal to meet six lane highway conditions - which the normal GT could not meet - so a roof mounted periscope mirror system was fitted. An automatically applied safety belt system was also tried and a two level brake stop light system to differentiate between normal check braking and an emergency stop. The Triumph designed British Leyland Automatic Safety Test, which checked the driver's reaction capability before ignition could be activated was our drink/drive provision.

Dulles Airport Transpo 1972 brought all these European and American safety cars together culminating, eventually, after negotiation, in the introduction of many systems in the cars of today.

The MG Development of crash testing the B and Midget at MIRA led to the design and build of an Abingdon crash facility so that compliance, support and performance for the American market could be maintained. The great shame was that because the American market volume was so much greater - the British and European market cars had to use the same body specification for cost reasons. Only the emissions versions could be separated. The progressively stiffer emissions standards, particularly in California had reduced the MGB to 74 bhp with the catalysts, so a new power unit with an engine management system was needed. The RV8 version had promise but power I unit supply problems made the production short lived. The new O-Series programme I with fuel injection was complete and all testing ready by 1980 for checking to production standards but not approved. Company politics, including Triumph pressure to push the TR7 abroad finally brought MG closure and final production of the MGB. I The last special edition tourers to, at least, give the American market some changes. I were the final production at Abingdon after 50 years.

“ Company politics, including Triumph pressure to push the TR7 finally brought MG closure ”



SSVI low level "soft" bumper proposal.

BUYING RESTORING AND MAINTAINING AN MGB



Buying an MGB

There are several ways of buying your MGB the easiest and probably the way with the least risk is from one of the many specialists, you will probably get a guarantee but will certainly pay more than buying privately. If you decide to buy privately, via an auction or even on e-bay then there are certain points worth checking.

1. Firstly don't buy without checking that the car has a valid registration document and that the registration number and chassis number tally and that both tie up to the actual specification of the car.
2. Some form of service history is useful but it is rare to find a car with a full service record, MOT certificates are helpful, current is ideal, but there may be valid reasons for not having one.
3. Even if the MOT is valid you should carry out some basic checks. You will have already gathered that one of the key strengths of the MGB is the sills which run from the back of the front wheel arch to the front of the rear wheel arch and are comprised of several components, to see the entire sill you have to remove the front wing and cut off the bottom six inches from the front of the rear wing. The current owner will probably not let you drill holes in the inner sections to check the centre section but you can get a clue to condition by looking in the front and rear wheel arches, any holes / rust on the ends of the sill sections is a bad sign. Another quick check is to get a piece of welding wire with a bend in it and push this up through the drain holes in the sill, if you can spin the wire or rust falls out the centre section is probably rusted away (how to replace this is mentioned in the restoration section). Another area to check is the rear spring hangers; mud collects there and this rusts away the chassis mounts (on my own MG I jacked up the car only to find the rear wheels did not leave the ground as the rear springs were simply resting against what was left of the chassis). Engine and transmission are pretty robust and providing there is not excessive smoke emitting from the exhaust and the car drives ok there should not be any major problems. With cars with wire wheels listen for any clonks when starting or reversing as this may indicate wear on the wheel splines and this can be a bit expensive.

Maintenance

Maintaining an MGB is pretty straight forward and is generally limited to an annual service. There are several grease points on the front suspension and these should be kept well greased, oil changes are due every 6000 miles but as most owners do not do this in a year an annual oil change is recommended. It's up to you what oil you use as views differ from "use any old 20/50 as the oil will only be in the engine for a few thousand miles" to "use a good quality oil as your MGB deserves it". All service items are readily available, when you come to replace front brake pads V8 pads are preferred. The twin six volt batteries on early MGBs can be expensive but a change to a modern 12 volt is easy. The petrol pump on an MGB is located in the off side rear wing and is often neglected it is well worth removing the cover to expose the contact points to check these are ok and to oil with a thin oil.

One activity well worth the effort is to top up the rust inhibiting oil in all the hollow chassis members and doors, an MGB will rust from the inside out and a yearly squirt of Waxoyl (or similar) will help prevent this. One word of caution Waxoyl will catch fire even after it has been in the car for several years so if you plan any welding take precautions.

Restoration

I cannot go into details as space is limited, but I strongly suggest you buy one of the many books written on restoration. Most of the work is pretty straightforward but if you intend to replace the sills before you remove the old sills beware; if you remove the sills without placing a strong piece of timber across the top of the door aperture the car will distort and you will not be able to refit the door, the actual process for replacing the sills was well covered in a previous article. If you want to entrust the sill replacement to a specialist then be prepared to spend up to £400 per side as there is a lot of work involved. One point to note is that the rear wings on a GT are a major panel which include the C post so don't even try to replace the entire wing yourself. Most other body repairs are relatively straightforward and the big plus with an MGB is that virtually all the repair/replacement sections are available, an exception to this are the door panels for pull handle MGB's but owners get over this by either just replacing the lower half of the door or modifying a later panel .

Overhauling an MGB engine is very straightforward and replacement engines and gear boxes are readily available.

Suspension on an MGB should not present any major problems, the damper units do wear and need topping up but replacement units are available. If you are overhauling the front suspension it is well worth replacing the rubber bushes with V8 bushes.

Finally a word of caution on obtaining replacement parts, the quality varies dramatically and some cheaper parts are so poor that in some cases the bits you take off will be of better quality than the replacement item.

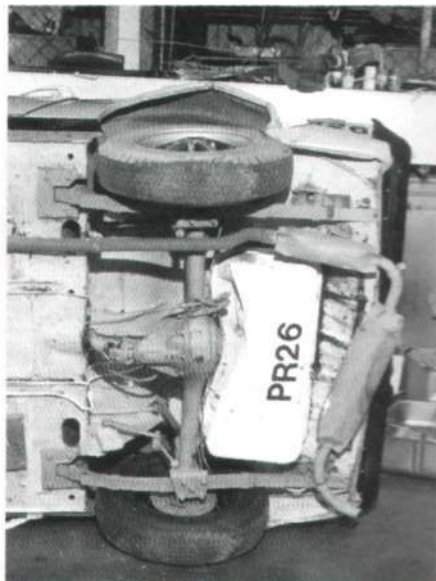
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B GT at point of 30mph + impact taken at MIRA.



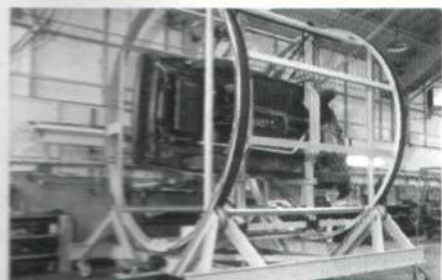
BGT Rear impact trolley (same weight as car).



Underside of MGB after rear impact showing damage to fuel tank – possible puncture of tank on original type handbrake "swingle tree".



Similar picture – now with modified handbrake reactor bracket – much less damage.



Abingdon MG designed & built roll-over pig testing for fuel spillage after 30mph frontal impact – tested every 90 degree rotation.

THE MGB PRODUCTION DEVELOPMENT CHANGES

Launched to the public in September 1962 at the London Motor Show, priced at £690 plus £259 purchase tax (pre VAT).

The MGB Roadster was fitted with a 1798cc, three bearing, over head eight valve engine with twin I SU carburettors and a strong four speed, three synchromesh, gearbox, with optional overdrive.

Other factory fitted optional extras were a heater, road speed tyres, whitewall tyres, wire wheels, tonneau cover, anti-roll bar, headlamp flasher and hard top. Another option was the hood, the car came as standard with a pack-away type, this came in three parts; the frame was in two bits and the hood was loose, or, you could order a fold-away hood that was fitted and folded down behind the front seats, unlike the pack-away that was stored in the boot and can take some time to fit, so you had to have a good weather forecaster to ensure you did not get wet.

When launched you had a choice of six colours; Tartan Red, Old English White, Chelsea Grey, Iris Blue, British Racing Green and Black, the standard road wheels came from Dunlop and were 4x14" and painted Silver.

At the end of 1964 the engine was changed to the five bearing model and in early 1965 the petrol tank was changed from a 10 gallon strapped on model to a 12 gallon bolt on version, also the original pull out door handles were changed to the push button type.

In October 1965 the MGB GT fixed roof model was introduced, with this model came the more robust Salisbury rear axle, this was then fitted to the roadster in 1967.

For 1968 the Mk I I was introduced with a negative earthed alternator replacing the positive earth dynamo, also transmission tunnel in the car was made bigger to take the new fully synchromeshed gearbox as well as an optional automatic gearbox.

There were various changes to trim and specification details, most obvious were the changes to the front grill. The original was a traditional MG design similar to the TD and MGA with vertical slatted bars, and fitted flush with the front of the bonnet. In 1970 the design was taken further back into the body of the car with vertical bars painted black and an MG logo fixed in the middle of the grill. 1973 saw another change with a surround similar to the early MGB's but finished in alloy, with a matt black plastic-hatch centre piece, this was also fitted to the V8.

For the 1975 model a major design and visual change was made to all models and variants of the MGB, this was the introduction of the energy-absorbing bumpers, made by Marley foam from Bayflex 90 polyurethane, these were fitted to both front and back replacing the chrome metal bumpers.

As Don Hayter mentioned the MGB shell was produced with different engine

variants as well as limited edition models. First in 1966 was the MGC, fitted with a heavy 2912 cc six cylinder engine and 15" x5J wheels, the C was also introduced as a GT with a total production of just under 9000 finishing in 1969.

Sold only in the US. 1000 Anniversary MGB GT "Special" models appeared in 1967, a year after the GT version was introduced in America.

In August 1973 the MGB GT was produced with a V8 engine, the engine was quoted as being 40lb lighter than the four cylinder engine with 137bhp. As with the

B, the V8 was fitted with 14" wheels but were cast alloy 5J supplied by Dunlop.

Production finished in 1976 with just over 2500 being produced of which 735 were produced with the black rubber bumper.

1975 saw the 50th anniversary of MG, so a "Jubilee" model MGB GT was produced, finished in racing green with gold tape along each side with a laurel wreath showing 1925 - 1975, special V8 wheels painted gold and black were fitted as

The total production was to be 750, but one was destroyed in a TV advert so they made one more, making 751.

In 1979 to boost the MG interest in the US market a Black Limited Edition was produced with silver striped tape on both sides with a Union Jack motif showing the MGB letters. Fitted with five-spoke alloys, similar to those fitted to the Triumph Stag.

Between August and October 1980, production took place of the "LE" in Roadster and GT form these 1000 models in Bronze metallic or Pewter metallic were the last MGB's to be produced.

Two other special models we should refer to are the "Coune Berlinette" and the "Aston Martin MGB".

The Belgian coachbuilder, Jacques Coune, in 1964 produced a beautiful styled coupe, influenced by Italian design and looking very similar to the Ferrari 275 Berlinette, only 56 were produced.

Late in 1980 a consortium lead by Alan Curtis of Aston Martin looked at the MG situation, if it had succeeded the 1981 MGB roadster might have had the higher front screen, restyled front grill and new rear lights.

During the 18 years of production at Abingdon on Thames, over 500,000 were produced, with Abingdon production of MG's finishing in October 1980.

Production continues in Oxfordshire, in 1988 British Motor Heritage opened a facility to reproduce the MGB & MGB GT body shells, now situated in Witney, with these parts we are able to keep our MGB's on the road, www.bmh-ltd.com

For more detailed information on MGB production, two essential books are "The Original MGB" by Anders Ditlev Clausager ISBN 187979486. also "MGB The Illustrated History" by Jonathan Wood & Lionel Burrell ISBN 0854295992.



MG Development staff saying farewell to Alec Hounslow - Chief Development Engineer by prototype V8 GT.



Syd Enever, Terry Mitchell, Jim O'Neill and Don Hayter production line end.

TOURING WITH BONESHAKER Roger Boys



Let me start by introducing you to the Boneshaker, it is a 1964 MGB Roadster, the name was given to it by my wife when she first set eyes on it 16 years ago, it stuck, but SHE HAS grown to love the car, I think.

Touring and organised Road Runs are the main activity that we enjoy. Our year starts with the planning stage in the winter, as this is when the dates for the various Road Runs become available. We stick mainly to the ones in the UK as Paddy our

Highland Terrier insists on coming with us. There is an event of some kind somewhere each weekend of the year, so we first have to decide on the major events. Will we go to Scotland, or across to Ireland,

Northumberland was great last year shall we do it again? How about going to North Yorkshire and staying for a few extra days? Where is the MGB Register weekend this year? Having made up our minds which event will be 'major' in our calendar, these are defined as staying away for a few days compared to 'local' there and back in a day, we begin to fill in the various dates. Then the applications are sent off, most of the required forms can be downloaded from the various web sites. Get in early to guarantee a place is good advice.

The format is generally the same. Assemble early morning and sign on at the control point, pick up the route instructions,

purchase raffle tickets, tea and coffee is normally available. Chat with other participants and admire the collection of cars assembled. Sometimes this can be 50 cars, other events attract 400 plus. Some are pristine examples, others are less so, but all are the pride and joy of the owner, everyone is happy to talk to you. Cars are flagged away at 1 minute intervals and the fun starts as you set the speedo to zero and take to the open road. The tulip route instruction method is the one we prefer, but we are happy to use any of the alternative methods. Navigating is good fun, and provides a great deal of satisfaction when you get it right and considerable

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amusement when things go wrong. Generally we are never quite sure where we are but we are never lost! We prefer not to follow the car in front; this is because any mistake is then our mistake made by the 'naggiator' or very occasionally the driver! Getting it wrong can be as much fun as getting it right, particularly afterwards when discussing the day with friends. Sometimes there is an organised assembly point for a picnic lunch, people will choose to use this, or select a spot on route, there are always pub lunches available and MGs will often be seen parked outside an interesting looking pub. Back at the finish discussion is centred on the places of interest seen and the less popular roads enjoyed.

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We have made a considerable number of really good friends by taking part in these events”

Our organised year generally starts in March, when with a number of local friends we organise the Shakedown Run taking us 25 miles or so to a pub for lunch, this blows the cobwebs away and sets us up for the season. In April we take part in the B Register's Cotswold Run, this makes an excellent early run, we actually experienced snow on the higher ground one year. It is generally in two sections and based at a Country House. The morning run is about 35 miles getting us back into the skills of using the tulip diagrams to find the route. Back for the picnic lunch and if the weather is good we set off and complete the second part, again 30 miles or so, returning for tea and cake if we are lucky. It is no sooner that this first event is over that the rest follow in quick succession, just enough time to get the car cleaned and we are off again. It's to Wales this time and we have three events back to back, one starting from Bridgend, then on to West Wales for the Pendine Run, back home for a couple of days then off to Llandudno for the Snowdon Run. Numerous other events follow right up to the last of the year the Boxing Day run at Abingdon.

We have made a considerable number of really good friends by taking part in these events; we have shared some great experiences and laughed until we almost cried. We have to thank so many people who give up their time to organise these events for us; if this is you, your efforts are very much appreciated. If you own a B or any other MG or are contemplating purchasing one do take part in some of these runs, you will enjoy a great day out, using your car and making friends. Remember it's up to you to make the effort, talk to a stranger they may become a really good friend; you have the love of MGs in common so this is a pretty good start. Visit the MGB Registers' website at www.mgb-register.org

Article written by Don Hayter and members of the MGB Register Committee

