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MGC

Owner and enthusiast, **Nicholas Brimblecombe**, puts the record straight on the ill-fated MGC, almost killed at its launch but now loved by many.

A haphazard parentage, a poor reception by the Press and the mistaken view that it was a direct replacement for the Austin Healey 3000, combined to deny the MGC the chance to be assessed coolly on its own merits; its curtailed two year production life did not permit the kind of progressive development at which BMC were so practised and which certainly could have turned it into a very good car in the best Abingdon tradition. The MGC had a raw deal all round. Nowadays there is a definite revival of interest in the car – led mainly by owners, who stoutly deny that the criticism of the car by the Press was in any way fair. Feelings, for and against, still run very high about the MGC.

Birth

In the first instance, the MGC was never planned as a direct replacement for the Austin Healey 3000, although the order of events suggested that it was. Austin Healey production had been based at Abingdon since 1957, but in 1959/60 the big Healey had some years to run and the main concern was to provide a replacement for the MGA, the sales of which were flagging. As its successor, the MGB, took shape, various power units were considered; apart from a narrow angle V-4 engine, which never passed the early stages, the 6-cylinder "C" series engine as used in the 100 Six and 3000 Mk I Healeys as well as the A 105/110 saloons was one of them. One may reasonably suppose, therefore, that something not unlike the eventual MGC was running in Berkshire before the appearance of the MGB, some 6 years before the "C" actually came to be launched.

In the event, this line of thought was put aside as the factory concentrated on getting the 4-cylinder 1798cc MGB into production in 1962. However, the ghost of the other MGC was not laid to rest forever, because in 1963/4 consideration was once again being given to the largest of BMC sports cars; the result for the time being was the much improved Healey 3000 Mk III. But at the same time, a "C"-series engined variant of the MGB was re-examined under the factory designation ADO 52, together with various interesting V-8 engined versions. Among the engines that have been mentioned in this context are the 2½-litre Daimler V-8 from the SP 250 and, amazingly enough, the 4½-litre V-8 from the Daimler Majestic Major, which was little heavier! There has also been a whisper of a Coventry Climax V-8 powered MGC prototype at one time, although ironically enough, no MGB was tried at that

time with the Buick/Rover 3½-litre engine! Development work was also undertaken with an Australian 6-cylinder version of the 1800 "B" series engine.

The progress of ADO 52 must have been quite rapid from the evidence of two cars which are still in existence, one first registered in early 1965 (see picture) and the other in 1966 and which bore the first two chassis numbers 101 & 102. Both show very close similarities with the production MGC. Project No. ADO 51, by the way, was to be a "badge-engineered" variant of the MGC with an Austin Healey type front grille; meanwhile Healey at Warwick was contemplating the widened 4-litre Rolls-Royce-engined Healey Mk IV prototype.

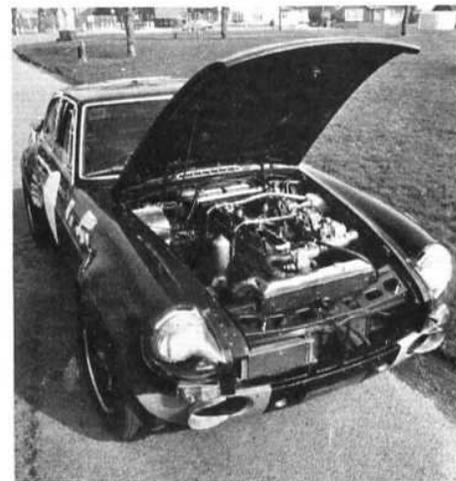
At this juncture, Motor Industry politics took a hand in the future of ADO 52, because the former BMC (including Austin/Morris and MG) merged with Jaguar to form the short-lived British Motor Holdings. The rationalisation plans then formed gave the approval for an Issigonis-directed project to take shape at Longbridge – a new 3-litre saloon which was to have a substantially revised power unit. For obvious reasons this engine was settled upon also for installation in the Abingdon ADO 52, but all the redesigning of the old "C"-series engine, for that is what was being done, took place at Longbridge.

It does not take a great deal of insight to perceive that the engineers under Syd Enever at Abingdon cannot have been wholly overjoyed with the engine that was presented to them. For all the re-designing effort that had gone into it – a new block and crankcase having seven narrow main bearings instead of four wide ones and a new cylinder head – the new engine emerged with an identical bore/stroke giving 2912cc and was a mere 1¾in shorter and 44lb lighter than the previous unit, but it was still 209lb heavier than the MGB engine and, incidentally, taller than MG were expecting, thereby necessitating the bulges in the bonnet that remain the trademark of a "C" when seen on the road.

Power output of this engine was variously quoted at 145–150bhp at 5250rpm and maximum torque 170lb—ft at about 3500rpm. The cylinder head and manifold hardly differed from that of the Austin 3-litre (which did have a lower c/r of 8.2:1 instead of 9.0:1 and a different camshaft). Installing this long, tall and heavy engine into the MGB bodyshell called for a complete re-design of the floorpan forward of a point midway along the doors, because the front suspension had to be completely changed. The sturdy front suspension

cross-member of the MGB was incompatible with the new engine, so a far lighter and shallower item had to be substituted which meant that the suspension loads had to be fed in somewhere else. Longitudinal torsion bars, running back to a central cross-member, were chosen – and time has proved this to be an effective, straight-forward solution. A wider transmission tunnel was able to accommodate the optional automatic transmission, the radiator was increased in size and moved forward 8in with the standard fitting oil cooler squeezed in front of that again.

There was a new gearbox casing, but the ratios were the ones that have been fitted to subsequent MGBs and the V-8 model with synchromesh on all four gears. A Salisbury rear axle was standardised on the MGC and the MGB from 1967, but the "C" featured a very high ratio – 3.03 (or 3.307 for the overdrive and automatic ver-



sions). The rack and pinion steering ratio was lowered to compensate for front end weight and gave 3.5 turns lock to lock, compared with 2.9 turns for the MGB with a smaller turning circle.

The MGB wheels were enlarged by an inch in diameter and rim-width for the MGC while the tyre pressures specified 4psi more in the front than at the rear. The overall weight of the car was up by some 14% over the MGB of which 78% went on to the front wheels; despite that the "C"'s weight distribution at 55.7/44.3 is not that much more nose heavy than the MGB at 52.5/47.5. I'll return to that point later.

Despite the exciting ideas highlighted by the lightweight MGC GT, in practice, MG didn't try very hard to make the "C" visually smarter than the "B"; while the car gained new door handles, window winders and two-speed wipers, the heater was still listed as an extra, there were no sun visors

on the roadster and, in all other respects of equipment and appearance, the car was identical to an MGB. However, it did sell for a very reasonable price for a 3-litre 120mph car at £1102 (the price of a roadster in 1967, £24 less than the Healey 3000 Mk III).

Launch and Press Comment

The imminent demise of the Big Healey and closure of the competitions department posed a general threat to the sporting

Below, Autocar's used car road test MGC GT from 1969, a nice looking car. Lower middle, lightweight, one of those built up by John Chatham from factory parts. Far left, triple Webers under the immaculate bonnet. Middle left, inside the racer, including Targa Florio sticker.



Far left, prototype MGC No. 101 from 1965 and left, Autocar's road test Roadster exhibiting roll understeer.



"Abingdon tradition" that had been maintained pretty successfully during the early 'sixties; this atmosphere of uncertainty made MG enthusiasts (and even motoring journalists are enthusiasts at heart) very interested in the emergence of this MG, the first with six cylinders since 1939 and with the largest engine ever.

As has already been outlined, the final specification of the production version of the MGC was arrived at in a somewhat hit and miss manner and this, combined with some foolish mistakes – for example the demonstration cars at a Press preview at Silverstone were run with equal tyre pressures front and rear, a well known recipe for prodigious understeer – paved the way for a Press launch debacle hardly equalled in the British motor industry. In a sense the MGC was a dead duck from these first reports, because its failings were accentuated in the clearest possible light – and of course its "gutlessness and pig-like understeer" remain as legends now, to show how influential these contemporary reports were.

Firstly the performance was criticised: *Autocar* commenting on "lack of torque, heavy fuel consumption and a reluctance to rev combined with a lack of top end power . . . plus pronounced fan noise and poor gear ratios". *Motor* noted "poor torque . . . can lead to sluggish overtaking . . . fan and gearbox whines . . . a big gap between second and third gears" (and incidentally declared the gearchange less pleasant than the MGB's). *Autocar* praised the gearchange, whilst *Motor* remarked on the engine's "unstrained ability to rev up to the 5600rpm limit." (They tested two different cars!) A later *Autocar* test of an automatic MGC GT criticised it for "lack of gusto, being dead and reluctant to rev . . . and altogether much less exciting than a 3-litre sports car should be", but still concluded "although there is much room for improvement . . . it more nearly succeeds in what it sets out to achieve than does the open sports car". However these reports all stressed the refinement of the "smooth and flexible" engine and praised the car's outstanding high speed cruising ability. *Motor Sport* remarked that the car was slow in picking up speed and "there was something missing, but wouldn't like to say exactly what". They did gather "the feeling that the car would go on forever". John Bolster in *Autosport* put forward an interesting theory of friction loss due to the extra main bearings and air drag in the crankcase to account for a sensation of lost top end power compared with the Healey 3000. He also remarked on the "phenomenal smoothness" of the engine. *Car and Driver* summed up the performance as "lethargic" in a very barbed "Preview" test of the UK market version of the "C".

However all the reports confirmed that the top speed of the MGC was of the order of 120mph (117 for the GT auto) and that when fully extended in the gears, 0-60 could be achieved in around 10sec and the standing quarter mile in around 18sec. In the handling department, things were almost worse. Both *Motor* and *Autocar* agreed about "heavy, low-g geared steering and the huge steering wheel" being disappointing features, whilst the latter remarked on "the front end being slow to respond" and of "strong understeer" although their experiments on the track with the automatic GT showed that the roll finally caused the rear suspension to bottom, whereupon the back broke away first.

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Motor were less certain about the car's ultimate characteristics "under most circumstances . . . the car remains a mild understeerer and although the tail can be made to break away quite readily, it does so in a rather clumsy, wallowy way". *Motor Sport* found, "inherent, but mild, understeer" and commented on the "heavy steering", whilst the steering wheel fouled their driver's knees. *Autosport* also found "pronounced understeer and low geared steering", Mr Bolster describing the car as one "that can be driven very fast over a road one knows well", but "by really flinging the machine into the sharper corners with full power on 'the resultant rear end breakaway' is sudden, whilst the rear axle indulges in some unexpected capers, which discourages the driver from repeating the manoeuvre". Ever alliterative L. J. K. Setright writing in *Car*, remarked that the MGC was "betrayed by front end waywardness whenever it is not being tricked by rear axle tramp". *Car and Driver* said acidly that "the big trouble was trying to get it to go around anything". Most of the writers did however record excellent, good or adequate grip, even in the wet, and excellent straight running ability.

Other miscellaneous criticisms were of the lateral location given by the seats, the poor heater controls (everyone said this), dashboard safety and some reports noted brake fade. The ride was generally praised as was the leg room and most of the testers commended the robustness and finish of the car, some even terming it luxurious.

Nose-heavy or underdeveloped

On the whole, road tests were unanimous in describing heavy steering and a slow response to steering movements, whilst to a greater or lesser extent they found understeer; the descriptions ranged from "mild" to "have to haul on the helm like the helmsman of the Cutty Sark in a hurricane".

The usual explanation was that, with a considerably heavier engine in a car other-

wise similar to the MGB, the "C" was simply too nose heavy — "even with suspension modifications you don't have to be Colin Chapman to figure out that something is going to be lost in the handling department". This writer, like the majority of others evidently failed to observe how close the front/rear weight distribution figures of the MGC were to the MGB, or chose to ignore them, because they show that MG had done their work a lot more carefully than this dismissive explanation will allow. In fact the overall weight of the car was up by 14%, but the bias on the front wheels was only increased from 52½ to 55.7% of the total vehicle weight.

I found these figures somewhat disturbing and the nose-heavy theory unsatisfactory. My own roadster is by no means light to drive, but with its Avon Turbosteels properly inflated 4–5psi higher at the front than at the rear, its characteristic is of stable understeer which gets no stronger at higher speeds. It is in fact a very hard car to make break away at all on these tyres and only rough use of the accelerator in first or second gear on wet surfaces will unstick the back.

One writer tried to set things right by observing "due to various heavy components being moved around . . . the overall weight distribution (of the MGC) was virtually the same as the MGB. Whatever the weight sharing between front and rear wheels, the polar moment of inertia in yaw was inevitably greater". He went on to add that the "polar moment in pitch was likely to be the real source of the car's troubles."

Inertia is much the same for cars as people; it denotes a reluctance to stop what you are doing, the greater the inertia the greater the reluctance. The full title is polar moment of inertia and is a function of the distance away of any weights from their axis of rotation; a light bar with a weight on its spinning axis has zero inertia — you can change its direction easily; the same bar with half that weight at each end has measurable inertia and resists sudden changes of speed and direction.

It was at this point that I found welcome help from the School of Automotive Studies at the Cranfield Institute of Technology near Bedford, who took an immediate and genuine interest in this problem. They possess the most effective test-rig in this

country for measuring the inertia of a car in yaw, pitch and roll. I took my car to be checked there together with an MGB — both roadsters with overdrive and with the same ½-full fuel tanks.

The test-rig at Cranfield consists of an air-bearing mounted on top of a garage hydraulic lifting strut. Raising the car on this apparatus allows it to be oscillated about pitch, yaw or roll axes supported on the low friction bearing. The car can then be loosely restrained by springs of a known stiffness, given a gentle push and it will begin to rock in the chosen plane, whilst the rate of these oscillations is measured against a digital stopwatch. The period of oscillation, dimensions, weights and spring rates enable the inertia to be calculated.

The results of this test show clearly that whilst the weight of the MGC is greater than the MGB, the previously mentioned change in weight distribution front to rear was confirmed. They also show that the height of the centre of gravity has been raised by 14% taking into account the increase in wheel size over the MGB. The greatest increase in percentage terms is that for the inertia in yaw (the dumb-bell effect); this is up by 22% while the inertia in pitch has increased by only 7%.

Other higher factors in an objective assessment of the handling of the MGC include the higher rate of the front suspension for the greater weight; it is possible that the original equipment 165 x 15 tyres at the front were of inadequate section for the loads involved in hard cornering.

The rear springs of the MGC roadster were rated at 500lb, the MGC GT at 560lb and the MGC GT Police car at 660lb (compared with 542lb for the MGB GT Police springs). The "C" had lever arm rear dampers in common with the "B".

	MGB	MGC
Kerb weight with ½ tank of fuel	1010Kg	1150Kg
% front/rear weight distribution	52.5/47.5	55.7/44.3
C of G longitudinally backwards from front wheel centres	1.124m	1.029m
C of G height above ground	0.99m	0.467m
Inertia in yaw	1158Kg m ²	1414Kg m ³
Inertia in pitch	1259Kg m ²	1346Kg m ³

Production History

The MGC was launched at the 1967 Motor Show and production ceased less than two years later in August 1969. The final chassis numbers were 9102 (roadster) and 9099 (GT) and the total production was 8999 cars split roughly equally between the two body types. Due to slow sales of the model, especially at the end of the period, stocks remained unsold for considerable time after the end of production and new cars were registered in late 1970, even possibly into 1971. The Press criticisms had made out a classic brief for a "Mark II" MGC which would have answered the problems, but in the event, the only real change that was made to lower the final drive ratios — standard from 3.07:1 to 3.307:1 and overdrive from 3.307:1 to 3.7:1 while the automatic remained at 3.307:1.

The change took place from car No. 4236 Tourer, 4266 GT sometime in 1968. This modification would also account for the remarkable performance figures of a second-hand GT tested by *Autocar* in September 1971, which bettered the top gear acceleration figures given in road tests of both Downton and Nicholson modified MGCs of an earlier vintage.



Setting up the MGC at Cranfield for pitch and yaw inertia measurements.

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In fact several firms attempted to "get the 'C' right" and Downton Engineering probably did the most work in developing the engine for road use. A report on one of their "Touring" conversions shows a very marked improvement in the top gear acceleration figures through the use of a modified cylinder head with a compression ratio raised to 9.5:1, matched inlet and gas flowed exhaust manifolds with a dual exhaust system. The touring fuel consumption of this GT was also improved and it recorded 25.5mpg.

Various firms, owners and those who have raced "C"s have made improvements to the handling, although it is not until you reach the realm of the lightweight works cars that perfect balance has been achieved. The normal methods are adjustable dampers, stiffer "police" rear springs and wider wheels and tyres. Of course an MGB steering ratio will answer the criticism of low gearing, although a smaller steering wheel would be a cheaper route to a similar effect. Personally, I like the steering the way it left the factory . . . At one time Kenlowe produced a special temperature sensitive feathering fan specially for the MGC, although it was phased out with the discontinuation of production.

At the end of production, University Motors bought the last 200 MGC GTs from the factory and modified some of them with a Downton Stage 2 conversion plus various cosmetic changes including a different grille, vinyl roof, chromed engine parts etc. Some police forces operated MGC GTs, although history does not recall if they had Downton conversions or not.

The lightweight works MGC

After the 1967 Sebring race, where both open and GT versions of the MGB had fared well, MG ordered from Pressed Steel about half a dozen lightweight MGC GT bodies built up in aluminium over steel floorpans, at considerable expense. It should be noted that at the time, the MGC had not been launched and certainly part of the intention behind the building of these exciting looking bodies, with their pronounced flares over the wheel arches, faired headlamps and low aggressive stance on the road, was as a styling exercise. There were keen ideas within the

company for making the MGC really different from the MGB, to look as fast and exciting as these lightweight cars certainly turned out to be.

In the event one must assume that the budget for Abingdon to develop the "C" restricted their scope to undertaking only the bare necessities of accommodating the new 6-cylinder engine – some would argue that even these were not fully carried out in the production version.

However, the existence of these lightweight shells was to produce a truly interesting competition car, the last MG works racing car as well as in the true line of descent of the Abingdon competition cars, including the works Healeys. In every way it was improved as a long-distance racing weapon but few people realise what special cars these were.

The aluminium panelled bodies were built up over broadly standard production pressed steel floorpans and bulkheads, and externally were given large flares over the wheel arches to accommodate 7in Minilite wheels and racing tyres as well as air scoops for the front brakes. Out of sight, underneath a new axle housed a ZF limited slip differential (various ratios being used) with Girling disc brakes at each end. The axle was further located by specially produced radius arms and a Mini-Cooper anti-roll bar. Armstrong adjustable telescopic shock absorbers came up into the rear of the car.

The front suspension was similar to that of the production cars but with adjustable shock absorbers, while the ride height was apparently adjustable by a control under the front seats operating on the torsion bars. Perspex windows were fitted, but all the bodysells were trimmed inside, including carpets. A roll cage was fitted and the big tank held 24 gallons.

A second brake servo lived in the front passenger footwell and the lines were run inside the car. The cars had standard MGB steering racks with a shortened steering column and a 14in wheel.

Mechanically, the works engines used cast-iron seven main-bearing blocks, bored out 0.040in to 2968cc, with a balanced and nitrided crankshaft and a 704/734 camshaft; a gas-flowed six port aluminium cylinder head used standard size valves, fed by triple 45 Webers and with a compression ratio of 10.25:1. In this form the engine gave 111bhp at 3000rpm; 177bhp at 5000rpm and a maximum 202bhp at 6000rpm. Inside the gearbox was a straight cut close ratio "Tulip" gearset, and one of the cars also had a competition overdrive.

Two works cars were built; the first came in 1967, initially fitted with an MGB engine bored out to 2004cc to give 150bhp, and in this form the car finished ninth overall in the 1967 Targa Florio. After the public launch of the MGC, the car assumed its proper identity as described above and in the 1968 Sebring race it finished a very creditable tenth overall, first time out. For the Nurburgring 84-hour Marathon, a second works car was built. This one car overheated in the event and retired, but the original car was placed sixth, although it was not running at the finish, having stopped with brakes seized on.

In May 1968, British Motor Holdings merged with Leyland and before long, the "new broom" had made itself apparent and competition activities were to be continued, "only where we have a good chance of winning" and with the emphasis on saloon cars. So, after only two major races and with virtually no development in competition, the two works lightweight MGCs were sold to the US importer of MG who raced them at the Sebring 12-hours in 1969 where Hopkirk/Hedges finished 15th.

Meanwhile, two whole bodysells and the parts for a third were sold to John Chatham Cars of Bishopstone, Bristol, and the remaining one to Alan Zafer, then competition Press officer of BMC. As far as I have been able to trace them this completes the tally of the bodysells originally built for the works and the table shows their history.

Two of the Chatham shells were built up as roadgoing cars and are reported as being very nice 130mph plus machines, whilst another is a rather highly developed and non-original specification modsports racer with an all aluminium works engine.

Only one was built by John Chatham to anything close to the original works specification and he used this car in the 1970 Targa Florio. I was fortunate enough to have been driven in this car, which in early 1977 had covered some 4000 recorded miles and was owned and being raced by Hertfordshire dealer, Rodney Leach.

That was enough to show that the "inherent" drawbacks of the MGC – sluggish torque and understeer – were absolutely non-existent in this car. Furthermore, it was a potent and well balanced competition car. At the limit under power on a smooth road, one could feel the rear end beginning to drift wide progressively, while the overall balance and braking of the car seemed exemplary.

The original works car can be seen at Cheddar museum and I hope that the accompanying table will be of interest to any intending purchasers of "works lightweight" MGCs and if any further cars should "turn up", their background should be carefully checked. I will be glad to hear of course from the owner of any car that I have missed.

MGC Register

Within the MG Car Club is a special MGC Register which produces its own newsletter and arranges gatherings as well as monitoring and assisting with difficult spares. The Register also produces its own check list for second-hand buyers. If you want to join write to the MG Car Club Secretary, 273 Green Lane, Ilford, Essex. The MGC Register Secretary is to be found at 1 The Meadows, Bidford-upon-Avon, Alcester, Warwicks.



Reg No	History
MBL 546 E	Original works car. Ninth overall 1967 Targa. Tenth overall Sebring 1968. Sixth overall 1968 Marathon 84 Hrs Nurburgring. Exported to USA May 1969. Re-imported UK May 1973. Now in Cheddar Museum. Owned by R. Wileyman.
RMO 699 F	Second works car. Retired in 1968 Nurburgring, 84 Hrs. Exported to USA May 1969. Untraceable. Rumoured written off.
VHY 5 H	Built by John Chatham. Raced in 1970 Targa. A few club competitions since then. Owned by G. R. Perkins.
EHW 441 K	Built by J. Chatham in 1971 to roadgoing specification. One owner since then. Owned by W. H. Gardner
Not registered	Modsports racer built by J. Chatham in 1971 from parts. Owner J. Chatham.
VHW 330 H	Built 1970 for Alan Zafer to roadgoing specification. Owner Syd Beer, Huntingdon.

