BRITISHV8
Read It Here!
www.britishV8.org
The Online Journal of the Modified! British Sports Car Community

1979 MGB-GT - V8 conversion with Sebring Flares (owner: Darren Jones)

British V8 Magazine - Current Issue - Table of Contents

Covering News & Events from : January - May 2008 (Volume 16, Issue 1) 332 pages, 746 photos

The body of the MGB GT V8 sits noticeably higher off the road than the normal MGB GT although ground clearance is reduced by 1/2" by the larger diameter exhaust system required by the V8 engine. V8 insignia are used on the radiator grille, the nearside front wing, and on the tailgate. The only other obvious external means of identification are the Dunlop wheels.... [which have] cast aluminium centres rivetted to chromed steel rims.

Look What's Gone Into The MGB GT V8

Superb Rover V8 in a B - at last

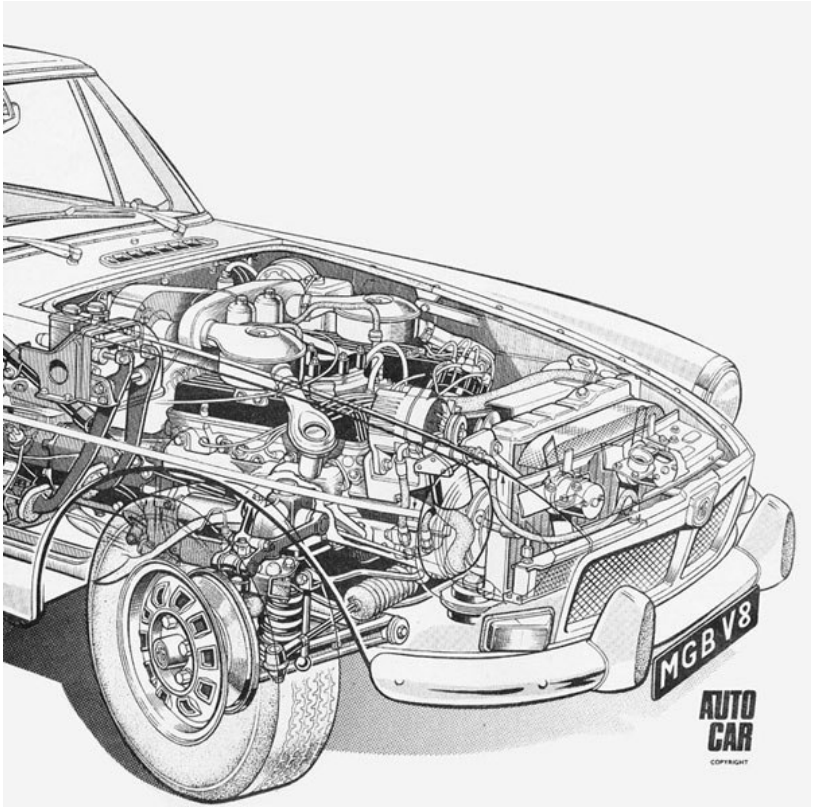
as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Autocar" weekly magazine.
This article originally appeared in the issue for the week ending August 16, 1973.

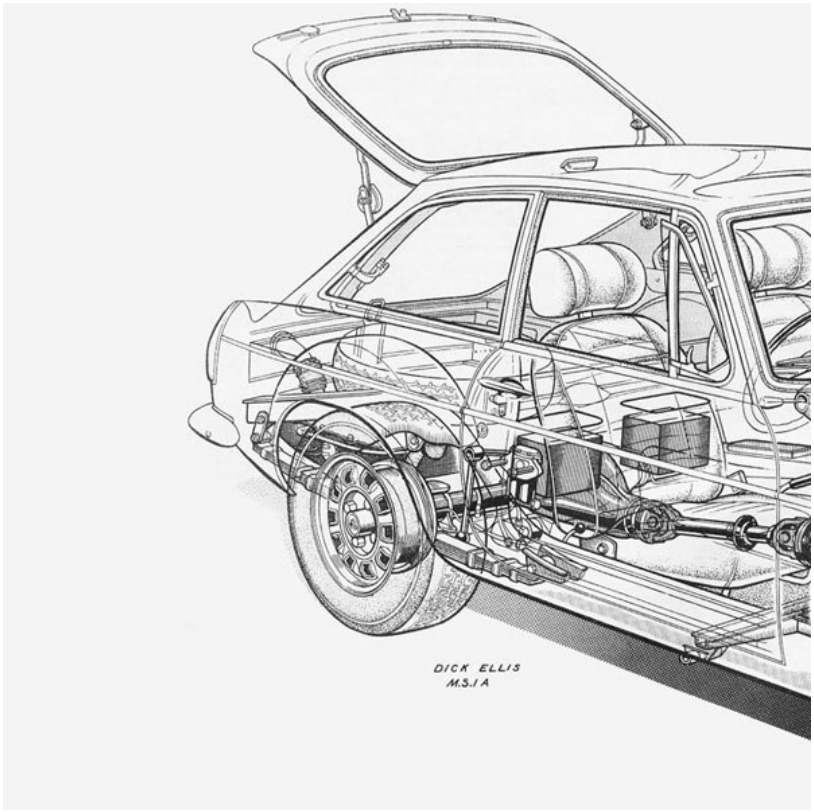
by A.D. Shanks
drawing by Dick Ellis

British Leyland have now introduced the long awaited V8-engined MGB. Unfortunately, the new car will only be available in GT form, and as such, it has stepped into a very competitive sector of the market. The installation is well engineered, and takes account of all immediate European emissions regulations. As the all-aluminum V8 weighes only slightly more than the B-series four cylinder engine, the balance is not seriously affected.

Following the demise of the MGC, British Leyland have re-assessed the available power units and decided that the timeless MGB would combine well with the aluminum Rover V8 engine from the 3500 range. To effect this metamorphosis of the MGB, much work has been involved to shoehorn the wide V8 engine into the narrow engine bay of the B, which up to now, has been plenty wide enough for the in-line fours and sixes that have been used.



The cutaway diagram reveals the tight fit of the Rover V8 engine. The temperature-sensitive hot/cold air blending valves can be seen forward of the air-cleaner cans. The external oil cooler and oil filter are shown, as are the thermostatically controlled electric cooling fans, with their protective wire mesh cover...



Also evident is the very short propeller shaft that contributes much to the smoothness and lack of vibration in the driveline.

Please support the sponsoring companies who make British V8 possible, including:

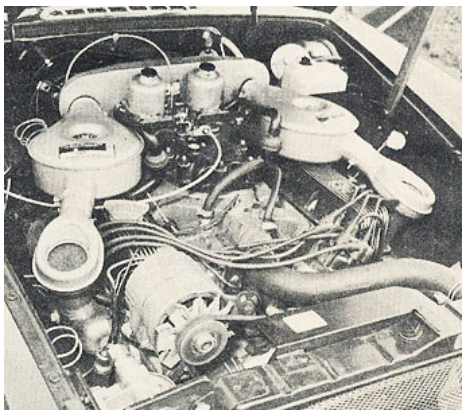
To make sufficient room for the Rover engine, both the inner wheel arches and the engine bulkhead have been changed in shape, and by setting the engine well back in the bay, it has been possible to retain a near 50/50 weight distribution (50.7/49.3). In order to rationalize, some of the changes that have been made to allow the V8 installation will be introduced on all MGBs, principally because the opportunity has been taken with the MGB V8 to change the datum points of the suspension pickups to gain a better bumper height. It is immediatly noticeable that the V8 stands higher off the road than previous MGBs, the height difference being 1 inch.

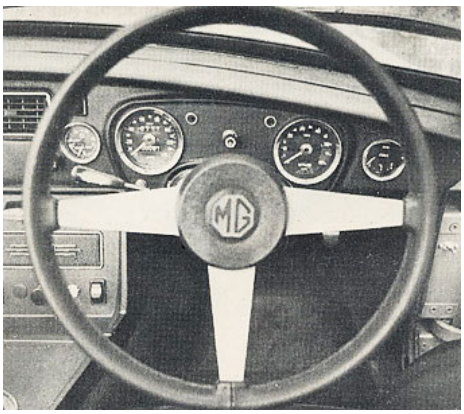
The variation of the Rover 3528cc V8 used has most in common with that used in the Range Rover, sharing the same dished pistons which give a compression ratio of only 8.25 to 1. The Rover engine is well known in its application in the Rover 3.5 litre as well as in the 3500 and Range Rover, but its suitability in a high performance application has already been well proven in the popular 3500S. Oversquare dimensions and a very sturdy bottom-end permit the engine to retain its smoothness beyond its power peak at 5000 rpm up to the onset of "pumping up" of the hydraulic tappets. In order to allow the use of the standard MGB bonnet, it has been necessary to use different inlet manifolding to that employed on either the Rover 3500 or the Range Rover. Instead of mounting the twin carburettors on the top of a penthouse manifold, the MGB application moves the carburttors toward the back of the engine, with forward facing inlet tracts into a plenumb chamber approximately in the center of the vee. In addition to meeting the requirements for bonnet height, this arrangement gives a slight increase in low-speed torque.

The engine has been developeed to meet the ECE 15 European Emission Regulations and to enable it to do this, neat temperature-sensitive bimetallic valves have been built into the air intakes and are arranged to draw in warm air from sleeves on the exhaust manifolds when occasion demands. The extremely low compression ratio enables the car to run on 97 octane (RON), 4-star petrol. The carburettors are the SU HIF6 (horizontal integral float chamber) type as fitted to the Rover 3500S. A change from the specification of the Rover 3500 is the use of an AC Delco alternator as opposed to the Lucas unit.

The maximum power of the engine as installed in the MGB V8 is 137 bhp (DIN) at 5000 rpm, while maximum torque is 193 lb./ft. at 2900 rpm, compared with 150 bhp and 204 lb.ft for the Rover 3500S, and 130 bhp and 185 lp/ft for the Range Rover.

The gearbox is a modified version of that first seen in the MGC, and now fitted as standard on 4 cylinder MGBs. It has synchromesh on all forward gears and internal ratios of 3.138 (1st), 1.974 (2nd), 1.259 (3rd), top gear is direct. Overdrive is fitted as standard, working on top gear only, and has a ratio of 0.820. The gearbox casing has had to be changed from that of the 4 cylinder car, as a larger clutch (9.5" as opposed to 8") is required to cope with an increase in torque of 75 per cent over the 4 cylinder engine. The clutch has a ballrace withdrawal race as opposed to the carbon ring of the MGB.





Left: The all-aluminium Rover 3528cc V8 engine is a snug fit in the engine bay, although routine service items are kept in reach. The new inlet manifold that allows the rearward positioning of the carburettors can be seen. Right: The left-hand fingertip stalk now controls the overdrive, as well as the windscreen wiping and washing. The necessary larger shroud intrudes further into the base of the fascia, requiring the use of a smaller-sized speedometer and rev counter.

The changes to the suspension are minor, and are to control the increase in torque, rather than to have any effect on handling and ride. The spring rates are 102 lb/in at the front and 115 lb/in at the rear as opposed to 100 and 105 lb/in respectively on the MGB 4 cylinder. It eas not found necessary to change either the damper settings or anti-roll bar stiffness, both being as for the MGB.

The most obvious external identification of the V8 car are the Dunlop wheels, which have ventilated cast alloy centres rivetted to chrome steel rims. These wheels are immensely strong, the life acceptance standards being easily exceeded on rig tests.

To cope with the increased cooling requirements of the V8 engine, the MGB V8 is fitted with a larger radiator than the 4 cylinder car, and

twin thermostatically-controlled electric fans are used to reduce noise and power absorption. An oil cooler is fitted as standard, as opposed to being an optional extra as on the MGB.

Inside the car, there are few changes from the normal MGB. The adoption of the American-market column switchgear has meant that a smaller speedometer and rev counter have had to be used, as the shroud of the steering column is larger. The fingertip stalks control the headlights on the right hand side, and overdrive, and windscreen washing and wiping on the left hand.

The price for the MGB V8 includes most of the items that were previously available as optional equipment on the 4 cylinder car, including overdrive, tinted window glass, heated rear window, and a door-mounted outside mirror. The only optional extra on offer is inertia reel seat belts which can be specified for factory fitment at £15.85, otherwise the price of £2293.96 includes all the equipment detailed in this description.

When Autocar originally published this article, they illustrated it with the cutaway drawing shown above, arranged so it spanned two pages as one large illustration. Part of the original cutaway drawing was obscured by the binding. Autocar also included four black-and-white photographs. We included two of the original photographs here, and we have substituted the magazine's cover photo for the article's two comparitively small, plain photos of the car's exterior. (We combined the original captions, above.) The car shown in the original black-and-white photos was light-colored and carried registration plate "YWL 667L".

BRITISHV8 Read It Here! www.britishV8.org
The Online Journal of the Modified! British Sports Car Community

AUTOSPORT
BRITAIN'S MOTOR SPORTING WEEKLY.
Publisher: Simon Taylor
Executive Editor: John Houslander
Editor: Richard Feast
Technical Editor: John Bolster

MGB improves with V8's increased torque

Road Test: MGB GT V8

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Autosport".
This article originally appeared in their issue for the week ending December 27, 1973.

by John Bolster

The MGB has been with us for many years and is typical of traditional British sports cars. In its GT form, it has a practical coupé body with a tailgate for luggage, which greatly widens its appeal. However, the basic design is still of vintage simplicity and refinement is not its strong point.

Now, British Leyland are offering an additional model, with a very refined V8 engine that almost doubles the torque and power output of the usual 1.8-litre 4-cylinder unit. This is the light-alloy engine of the Rover 3500, but modified for the MG installation, particularly in the induction department where the penthouse manifold is replaced by a low-level one, with the carburettors to the rear of the block. This completely avoids an unsightly bulge in the bonnet, which would restrict the driver's view.

The V8 is actually lighter than the four, but USA and other foreign regulations call for anti-pollution and silencing equipment which adds appreciably to the weight and slightly restricts the power output. A larger radiator with two electric fans is used and an oil cooler is also fitted. A bigger clutch handles the torque and the MGC gearbox has been beefed up and furnished with closer ratios. The rear axle has also been strengthened and the ratio has gone from 3.91 to 3.07 to 1. Some stiffening of the springs has also taken place. A Laycock overdrive is fitted as standard.

The road holding is very safe indeed and entirely predictable this being an easy car to drive fast on winding roads.

If one does not notice the V8 motif, the more powerful version of the MGB is indistinguishable from its four-cylinder sister. Even in the driving seat, the only clue is the smaller speedometer and rev-counter dials, necessitated by the collapsible safety steering column. As soon as the quiet engine is started, however, it is obvious that this is a very different machine.

Because the engine is so unobtrusive, the car does not feel as fast as it is. Yet, it has a performance in the upper speed ranges which the 1.8-litre model, rather naturally, cannot approach. About 124 mph is possible in direct top gear, with the rev-counter just going into the red, or the same speed may be achieved on overdrive with the engine well within its range. Overdrive will give an extra 1 mph or so on the level and a bit more under favourable conditions, well below the red part of the dial. The engine is never noisy but it is even quieter when the overdrive is engaged for high-speed cruising.

The overdrive also permits fuel economies, which is certainly its greatest virtue nowadays. At a steady 50 mph, the car gives 30 mpg in direct drive and 32 mpg in overdrive. At 70 mph, the respective figures are 25.6 and 27.5, while at 100 mph they are 16.9 and 20 mpg. On winding roads and in traffic, the eight-cylinder model may be just about as economical as the four since less gear-changing is required.

Because the engine is so smooth and quiet, the rest of the car perhaps shows up less well. The gearbox is audible when on the indirects and there is road noise on some surfaces. The wind noise is rather obtrusive at high cruising speeds, once again because it is not drowned by engine roar. The former tendency of the windows to bulge under high wind pressure has been overcome, but at the expense of making slamming essential when the doors are closed.

The suspension is definitely hard and the ride choppy, especially at moderate speeds. On the other hand, the roadholding is very safe indeed and entirely predictable, this being an easy car to drive fast on winding roads. There is really no difference in handling between this and the ordinary MGB, except that the tail can come round fairly smartly if one over-accelerates out of a sharp bend. The offside rear wheel spins very easily, due to propshaft torque tending to lift one end of the axle and depress the other, so a limited-slip differential might be a worthwhile extra.

The brakes are powerful with a light pedal action, giving plenty of instant bite for emergency stops. The gearchange, though, tends to be heavy and first gear can be difficult to engage at rest. This effect seems to be more noticeable when the box gets really hot during prolonged traffic driving. While I am being critical, I should mention that the heater is not very powerful and the spoke of the steering wheel can obscure the blue light indicating that the headlights are on main beam.

Quite wide doors make entry easy and the seats are comfortable. Behind the seats is a padded compartment, suitable for a dog or a baby. The main luggage space is approached by lifting the tailgate, which gives excellent accessibility but not much privacy for one's suitcases. Regarded purely as a 2-seater, the MG can carry enough impedimenta for the most prolonged continental tour.

The Rover 3.5-litre V8, surely the most versatile engine that has yet been built.

The bonnet could scarcely be fuller of engine and ancillaries. Nevertheless, the main items which are likely to need attention are quite get-atable. The electric radiator fans never come into action on the open road, but when they start while the quiet engine is idling they produce a surprisingly loud hum. Though the body shape stems from 1965, it has a pleasantly functional look which has not really dated and the new Dunlop wheels, with ventilated light-alloy centres, enhance its appearance.

Technically, the MGB GT V8 is perhaps new wine in an old bottle. It gives a harder ride than one would get with the latest suspension systems, but its vintage handling characteristics are beloved of -many enthusiasts. It's small enough to be nippy in traffic and it is not burdened with a long bonnet, that curse of the traditional British sports car.

Surely the Rover 3.5-litre V8 is the most versatile engine that has yet been built. It works marvels in the Range Rover and it turns the staid old MGB into a 125 mph flyer. To substitute a modern piece of light-alloy engineering for an olde tyme cast-iron lump must be progress, and the resulting sports car is no hybrid but an excellent performer with moderate fuel consumption.

SPECIFICATION AND PERF0RMANCE DATA

Car tested: MGB GT V8 2-door coupe, price £2293.96 including car tax and VAT.

Engine: Eight-cylinder 88.9 mm x 71.12 mm (3528 cc). Compression ratio 8.25 to 1. 137 bhp (net) at 5000 rpm. Pushrod-operated overhead valves with hydraulic lifters. Twin SU carburetors.

Transmission: Single dry plate clutch. 4-speed all synchromesh gearbox with Laycock overdrive, ratios: 0.820, 1.0, 1.259. 1.974, and 3.138 to 1. Hypoid rear axle, ratio: 3.071 to 1.

Chassis: Combined steel body and chassis. Independent front suspension with wishbones, coil springs, anti-roll bar, and lever-type dampers combined with top links. Rack and pinion steering. Live rear axle on semi-elliptic springs with lever-type dampers. Servo-assisted disc front and drum rear brakes. Bolt-on cast aluminum wheels with chromed steel rims, fitted 175 HR 14 radial tyres.

Equipment: 12-volt lighting and starting. Speedometer. Rev-counter. Oil pressure, water temperature, and fuel level gauges. Heating, demisting, and ventilation system, with heated rear window. 2-speed windscreen wipers and washers. Flashing direction indicators. Reversing lights. Cigar lighter. Radio (extra).

Dimensions: Wheelbase 7 ft 7.125 ins. Track (front) 4 ft 1in (rear) 4ft 1.25 in. Overall length 12 ft 10.75 in. Width 4 ft 11.94 ins. Weight 1 ton 1 cwt.

Performance: Maximum speed (overdrive) 125 mph, (direct top) 124 mph. Speed in gears: Third 99 mph, second 64 mph, first 41 mph. Standing quarter-mile 16.5 s. Acceleration: 0-30 mph 3.0 s. 0-50 mph 6.5 s. 0-60 mph 8.3 s. 0-80 mph 15.2 s. 0-100 mph 26.6 s.

Fuel consumption: 20 to 28 mpg.

When Autosport originally published this article, they illustrated it with five black-and-white photos of a dark colored MGB GT V8 bearing registration plate "HOH 932L". Our copies of these photos aren't in suitable condition for reproduction. We've substituted two photos from Ken Smith's personal collection, displayed above with two of the five original captions. The following captions were also included in the original lay-out:

(side view of the car, in motion)
"If one does not notice the V8 motif, the more powerful version of the MGB is indistinquishable from its four-cylinder sister."

(steering wheel and instrument panel)
"The only mark distinquishable from its four-cylinder sister is the smaller speedometer and rev-counter dials, necessitated by the collapsible safety steering column."

(exterior rear with woodland background)
"The offside rear wheel spins very easily due to propshaft torque tending to lift one end of the axle, and depress the other."

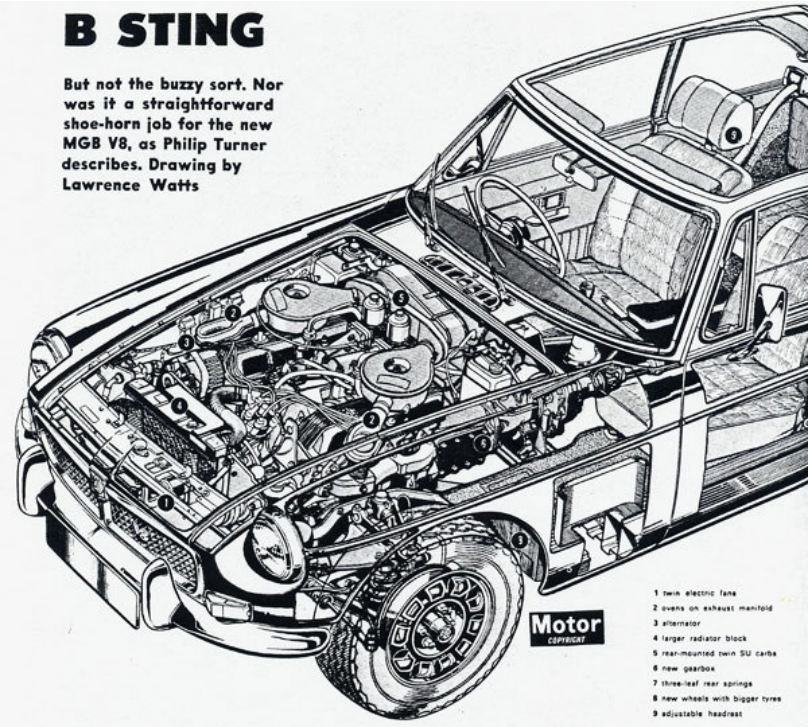
Motor
Surrey House, 1 Throwley Way
Sutton, Surrey SM1 4QQ
Telephone: 01-643 8040
Telex: 946564 BISPRS G

B Sting

But not the buzzy sort. Nor was it a straightforward shoe-horn job for the new MGB V8, as Philip Turner describes. Drawing by Lawrence Watts.

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Motor".
This article originally appeared in their issue for the week ending August 18, 1973.



1. twin electric fans, 2. ovens on exhaust manifold, 3. alternator, 4. larger radiator block
5. rear mounted twin SU carbs, 6. new gearbox, 7. three leaf rear springs,
8. new wheels with bigger tyres 9. adjustable headrest, 10. seat belt mounting.

One-time Mini racer Ken Costello has already shown that the Rover V8 can be installed in the MGB GT with most satisfactory results, for his conversions have been selling successfully for some time. It therefore comes as no surprise that MG themselves are now introducing a Rover V8-engined MGB to their range. In fact, the MG design team began work on this new addition as long ago as the summer of 1971, working to the brief that as few modifications as possible should be made to the main structure of the MGB in order to keep the price down.

The fruit of their labours is a new MGB V8 with 137 bhp under the bonnet instead of 95. Possibly even more significant in everyday motoring is a massive increase in torque from 110 lb ft at 3000 rpm to 193 lb ft at 2900 rpm. Which means that the car can be whistled along effortlessly with little or no recourse to the gearbox, or it can be fairly squirted past other traffic when overtaking.

The Rover engine has been installed in the MGB engine bay very neatly, with no external power bulges to betray its presense. To this end, the two SU HIF6 horizontal integral float carburetters are mounted at the rear of the engine instead of in the centre of the vee. A special manifold has been devised to enable this revised mounting to be carried out and has the additional advantage of reducing temperature scatter between the cylinders compared with the original penthouse manifold.

To comply with the ECE 15 regulations on exhaust emission, especially when the engine is cold, bi-metal valves shut flaps in the air intakes so that the incoming air is warmed by diverting it through "ovens" on the exhaust manifolds which pre-heat the air. As soon as the engine reaches its normal working temperature, the flaps open and air is drawn direct from the atmosphere.

Emission regulations are also responsible for a reduction in the compression ratio from 10.5:1 to 8.25:1. Modifications to the engine engine to enable it to fit in the MG's engine bay include the use of an AC Delco alternator instead of a dynamo, and the installation of the oil filter in series with the oil cooler instead of in the base of the oil pump.

The exhaust manifolds have also been redesigned to suit the new installation and the two branches now merge into one in the region of the bell housing. This housing is also new for a new gearbox casing has been developed to enable the clutch diameter to be increased from 8" to 9.5" to cope with the increased torque. A further refinement is the use of a ball race for the clutch withdrawal race instead of a carbon brush.

The gearbox internals are mostly C-type with the intermediate ratios modified to bring them closer together. With a new final drive ratio of 3.07 instead of 3.91, the overall ratios are now 9.634, 6.059, 3.864, and 3.070 instead of 13.46, 8.48, 5.40, and 3.91. A Laycock overdrive operating only on top gear gives an overall ratio of 2.517 and is operated by a forward pull on the left-hand stalk which also controls the windscreen wipers and washers.

Few changes have been made to the body structure. The front bulkhead has been modified slightly to accomodate the rear ends of the cylinder heads, and slight depressions in the rear arch panels make room for the exhaust manifolds. The new and bigger radiator core with four rows of copper gills holds 16 pints of coolant instead of 9.5 and cooling is aided by two thermostatically controlled four-blade electric fans mounted in front of the radiator. The twin fan layout was adopted when supplementing the normal engine-driven fan to cure a heat soak problem in heavy traffic.

The bolt-on front suspension member has been modified slightly to increase the ride height by one inch and new front spring brackets for the rear suspension also have this effect. Other modifications to the suspension include uprated coil springs at the front to take care of the slight increase in weight on the front wheels. Although the basic V8 engine is 40 lb lighter than the 1.8 litre four-cylinder unit, its total weight with all accessories - such as the emission equipment and the bigger radiator block - is greater than that of the four, so that the total weight of the car is up from 2260 lb to 2427 lb with a front rear weight distribution of 49.4/50.6 instead of 47.8/52.2.

The rear suspension has received more extensive modifications. Instead of the semi-elliptic lead springs having one main leaf and five auxiliary leaves, the springs now have three main leaves. These are sufficiently stiff to prevent axle tramp when accelerating hard in the gears.

The rack and pinion steering gear has been modified slightly and is now mounted further forward relative to the front wheels in order to reduce the Ackerman effect. The primary shaft from the rack to the universal joint has been lengthened and the steering column has, therefore, shortened. It is also now collapsible.

To cope with the increased performance now available, the Lockheed brakes have been uprated; although the diameter of the front discs remains at 10.7" the width of the discs has been increased from 0.35" to 0.5". A servo is now fitted as standard instead of being an optional extra.

The Dunlop wheels are a distinctive feature of the new MG, with ventilated cast alloy centres riveted to chromed steel rims. They are said to be immensely strong, for the survived the standard 600,000 load reversal rig test and then carried on to complete three million reversals without failure.

Tyre size is up from the normal 165-14 of the four cylinder GT to 175-14. The slightly higher ride height and the bigger tyres combine to give the V8 a more massive look than its four cylinder relations from which in fact it differs very little externally. Apart from the new and attractive wheels the only outward indications of its extra performance are the V8 badges on the front grille, on the left front wing, and on

the tail.

The fascia has been brought into line with United States Federal requirements, with 80mm speedometer and rev counter in place of the 4" diameter gauges previously fitted. Otherwise the well equipped interior with its deep bucket seats has not been modified, for it has already been redesigned to meet both US Federal and European Economic Community regulations on switches, padding and other safety points.

A full road test of the MG V8 will appear in next week's *Motor*.

Brief Specifications

ENGINE	
Cylinders	8
Capacity	3528cc (215 cu in)
Bore/Stroke	88.9/71.12mm (3.5/2.8 in)
Cooling	Water
Block	Light alloy
Valves	OHV
Compression	8.25:1
Carburetters	Two SU HIF6
Bearings	5 main
Fuel pump	SU electric
Max power	137 bhp (DIN) at 5000 rpm
Max torque	193 ft lb (DIN) at 2900 rpm
BODY / CHASSIS	
Construction	Unitary
SUSPENSION	
Front	Independent by upper/lower wishbones coil springs, lever arm dampers, anti-roll bar.
Rear	Live axle on semi-elliptic leaf springs, lever arm dampers.
DIMENSIONS	
Wheelbase	7 ft 7 in (231 cm)
Front track	4 ft 1 in (124 cm)
Rear track	4 ft 1.5 in (124 cm)
Overall length	12 ft 10.25 in (393 cm)
PRICE	
Base price	£1925
Car tax	£160.42

TRANSMISSION	
Type	4-speed manual with overdrive on top
Clutch	9.5" sdp diaphragm spring
Internal ratios and mph per 1000 rpm	
Overdrive	0.820 / 28.5
Top	1.00 / 23.4
Third	1.259 / 18.6
Second	1.974 / 11.8
First	3.138 / 7.4
Reverse	2.819
Final Drive	3.070:1 hypoid
STEERING	
Type	Rack and pinion
Assistance	No
BRAKES	
Type	Lockheed 10.7" discs / 10" drums
Servo	Yes
Circuits	One
Rear Valve	No
WHEELS	
Type	5J cast alloy centers / steel rims
Tyres	175HR 14 radials
Width	5 ft 0 in (152 cm)
Height	4 ft 2 in (127 cm)
Ground Clearance	4.25 in (10.8 cm)
Unladen Weight	2427 lb (1099 kg)
VAT tax	£208.54
Total	£2293.96

Motoring News
THE FIRST MOTORING NEWSPAPER
EDITORIAL OFFICE
Standard House
Bonhill Street
London, E.C.2
Telephone: 01-628 4741

At last - V8 power for the MGB

THE idea of dropping a V8 engine into the MGB has been under active consideration ever since the Rover 3500 was introduced in 1968, and the project was given the go-ahead two years ago spurred on, perhaps by the praise bestowed on Ken Costello's limited production version. This week on the 50th anniversary of original MG produced by Cecil Kimber, British Leyland announces the MGB powered by their 3.5-litre alloy block V8.

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Motoring News".
This article originally appeared in their issue for the week ending August 16, 1973.

Externally the new model is almost identical to any other Grand Touring version of the "B", distinguished only by the special Dunlop alloy/steel wheels and the V8 badges around the bodywork. There is still only one exhaust tailpipe, so from the front and rear views there is nothing but a tiny chrome badge to give the game away. Perhaps a lot of people will be disappointed that the eight-year-old GT design couldn't have been given a facelift, but it remains one of the most attractive compact sports cars on the market and the V8 version sells for the not unreasonable price of $2293.96 plus Kangol automatic front seat belts ($15.85), delivery, number plates, etc.

Even ten years ago the MGB (with the 1.8-litre engine which continues in production) did not have enough power for everyone's needs, so we can say that better late than never the B-V8 has been given a tremendous power boost which should suit most customers, and becomes an extremely practical and desirable road car. Mechanical changes include heavier road springs at the back, thicker brake discs, and a repositioned steering rack. The end product is a model which will accelerate from rest to 70 mph in 12 seconds, cruise at 110 mph all day in overdrive with 4000 rpm showing on the rev-counter, and still return better than 20 mpg (on 3-star petrol) in normal conditions.

Vee-eight powered sports cars have always had special appeal for enthusiasts, and models like the Daimler SP250 and the AC Cobra are still fondly remembered... even the Sunbeam Tiger raises some good memories, through chassis development was rather lacking. The MGB GT (fixed-head) has none of the torsional stiffness problems that other British V8 powered sports cars have suffered from, and the marriage of this chassis and the Rover engine seems so natural that it's hard to understand why it wasn't done before. The all-alloy V8, nee Buick, is in fact 40 pounds lighter than the B-Series 1.8 litre four-cylinder, and produces 137 bhp DIN with the compression ratio lowered to 8.25:1. By the time the engine is installed it weighs a few pounds more than the B-Series due to the fitting of an alternator and all the exhaust emission equipment needed to suit the American market. The front/rear weight ratio is 49.4/50.6% compared with 47.8/52.2% for the four-cylinder.

The extra weight at the front however is compensated for by moving the steering rack forward one inch, reducing the Ackerman angle and making the steering more direct. It certainly doesn't feel heavy, and the V8 model has no drastic understeer tendencies - it is, in fact, everything that the ill begotten MGC was not!

Contributing to the extra weight at the front are thicker 10.7in. diameter disc brakes, half an inch in width, also having new Lockheed calipers and larger pads to increase the swept area: a servo is installed as standard equipment.

The V8 engine slipped into the available space without too much shoe-horning, and accessibility is very good all around. Helping here is a pair of electric cooling fans in front of the larger radiator, reducing the overall length of the engine. The principle modification in the

engine bay was to the front cross-member, but what immediately strikes the eye is the clever induction manifolding system. So as to avoid having a big power bulge in the bonnet to cater for the twin SU HIF6 carburetters, the Abingdon engineers devised a new dual manifold which allows the carbs to sit at the back of the engine, close to the bulkhead. It is said that the new manifold reduces temperature scatter from one cylinder to another compared with the penthouse manifold, which should make the engine smoother running. Hydraulic valve lifters feature on this V8, which limits engine speed to 5200 rpm and inhibits all but the most persistent engine tuners, although the emission equipment on the engine and low compression ratio account for something like 25 horsepower.

Detail modifications have been carried out to the all-synchromesh C-type gearbox and rear axle. The gearbox casing has been redesigned to accept the larger Borg-and-Beck diaphragm spring 9.5 inch clutch, which has a ballrace withdrawal instead of the more usual carbon thrust bush. The DIN power figure is increased by almost 50% compared with the MGB and the torque is practically doubled at 193lb.ft., so the intermediate gear ratios have been raised to match the power and to reduce the torque load into the box. The final drive ratio is 3.07:1, compared with 3.91:1 for the 1.8-litre version, giving very long-legged cruising capability indeed.

Suspension changes are fairly mild, entailing the usual upper and lower wishbones with heavier coil springs, though with the same lever-type dampers and an anti-roll bar. At the rear, heavier semi-elliptic springs are fitted, again with unchanged lever-type dampers, to cope with all the extra torque, and it must he said that this has a significantly detrimental effect on the low-speed ride. Also interesting are the Dunlop 5J x 14 wheels, which have alloy centres rivetted to chromed steel rims. These are very handsome, having the MG octagon motif on the hubs, and are said to be the strongest wheels ever fitted on an Abingdon product. The test batch withstood three million reversals, and one wheel was still intact after six million reversals on a test rig.

Apart from the AC Delco alternator, other equipment included in the MG's standard, basic equipment includes Laycock LH overdrive on top gear only, the Dunlop wheels, a brake servo, a door mirror, and tinted glass all round; the windscreen is laminated, and the rear window electrically heated. An oil cooler is another item of standard equipment.

ON THE ROAD

The MGB GT concept does not need much introduction, but it is some time since the writer has driven one and time has done much for the car. The cloth trimmed seats are infinitely more comfortable and offer much better location than the skimpy leather seats did, and the backrests are fully adjustable. The steering wheel is still rather large, but the 15.5 inch diameter wheel is now vinyl bound and pleasant to handle. The Smiths instruments are slightly smaller than before (3.13 in. diameter instead of 4 in. diameter) to make space for the collapsible steering column, which is now mandatory for cars sold in America.

There is ample headroom and legroom is more than adequate for the driver and passenger although, with the seats well back (as the driver's needs to be, to get a decent arm's length approach to the steering wheel), there is no space whatsoever for legs dangling from the vestigial back seat. A small child could sit or lie across the back seat, but that's all. On the other hand with the back seat folded flat, there is a generous area for luggage and the tailgate door makes access very easy.

Primarily this is a car for one or two people, who can make themselves comfortable and settle down to enjoy long distance motoring. The bulkhead mounted pedals are in line with the drivers lap, which gives a direct line of attack, and are well laid out for heel-and-toe downward gearchanging. There is also plenty of foot-room not always found in sports cars.

Full choke is needed to make the engine start readily, even in summertime, and the engine maintains the infuriating BMC trait of needing plenty of choke to keep going while it is warming up; that means that the engine is kept revving artificially at the lights. That's about our only criticism, for the smooth, quiet V8 (it has a well baffled two-into-one exhaust system) relies on its tremendous torque to send the car

surging forward in response to the throttle. Give or take a mile or two per hour, the maxima in the gears are 40, 60 and 100 mph, with 122 mph available in fourth and approximately 126 mph in overdrive. These speeds are achieved with the minimum of fuss and effort, yet with the appropriate amount of satisfaction.

Naturally the car is extremely tractable and it will pull from below 20 mph in fourth gear without snatching. The clutch is not particularly heavy, so the 'B' is ideal as ever in traffic (perhaps better, with the high first gear which reduces gear-changing in rush hour conditions), and a real goer on the open road,

As we mentioned, the ride on poor surfaces is distinctively hard at low speed, and potholes can really jar one's teeth. This isn't so noticeable at higher speeds, though a big bump can put the car slightly off line, and on the credit side there is hardly any body roll to make life more difficult.

Steering is taut, with plenty of feel, at low speed and this no doubt is why the MG development engineers keep going with the now unfashionably large steering wheel. At higher speeds, and particularly when the car is being driven hard, a driver might wish for a smaller diameter rim.

On the road, understeer is the predominant steering characteristic though it's not pronounced, and can be neutralized by lifting the throttle. Generally it feels a nicely mannered, well balanced car. Opinions among our staff divided sharply when we pushed the car harder at our Chobham test track, for the understeer/oversteer characteristics became very marked on the handling course and it would take a fairly experienced driver with his wits about him not to get into trouble.

The understeer is very pronounced with power on, but releasing the throttle (perhaps to get round the corner at all) sends the tail out with a lurch and the inside front wheel paws the air several inches off the surface. An experienced driver will use this characteristic to advantage, but we thought that an 18-year-old millionaire pop idol could easily make headlines if he got caught out on a slippery road.

The B-V8 made an interesting comparison with the Dolomite Sprint and the Ford Escort RS2000, which we were enjoying on the same occasion. The Dolomite understeered dramatically and couldn't touch the B-V8 on our favourite snake course, while the Escort had handling clearly superior to either of them but lacked the power of the MG. By the time we had finished, though, we thought that the British motor industry has plenty to offer keen drivers these days, so why devalue the pound any more by buying foreign?

Straight line acceleration is clearly impressive. Such is the traction provided by the Goodyear 175HR14 tyres that our first start with the fifth wheel attached merely slipped the clutch and a slow time was recorded, but using 4000 rpm the rear wheels break away cleanly and the tail end of the car snakes strongly on dry tarmac. The gearchange is rather chunky and notchy, though the movements are swift and short, and the small gap between first and second ratios is rather noticeable. Third is a long, strong gear though, taking the car up to 98 mph. and we just managed to record a zero to 100 mph time, 26.9 seconds. More impressive is the 19.8s time to 90 mph, performance clearly dropping away when fourth is selected.

The engine is very lightly stressed and is smooth right through its range. At 100 mph the wind noise begins to build up, but the mechanical noise is unobtrusive and 110 mph is an honest, untiring cruising speed. Figures released by BL show that it averages 20 mpg at a steady 100 mph in overdrive, and our creditable overall fuel consumption of 22.8 mpg means that the 12-gallon petrol tank will allow a cruising range of at least 250 miles.

The brakes felt rather heavy, but progressive, and the pedal still felt firm after several rapid laps of the handling course. Lucas sealed beam headlamps are specified, with a 75 watt main beam and 50 watt dipped beam, and with these we were quite happy to cruise at 100 mph at night.

Controls are quite a lot better than they used to be, the main functions performed by two stalks from the steering column: the right-hand lever works the indicators and dips and flashes the lights, the left-hand lever controlling the wipers, washers, and although obscurely marked, also controls the overdrive which needs just a little practice to disengage without a transmission bump. The ignition key has one of these new-fangled button overrides, which means that you can't get the key out without pressing the adjacent pimple. We expect there's a good reason for it, but it escapes us.

Heating and ventilation is much better than it used to be, though not so efficient or controllable as Ford's, and the comprehensive equipment sheet includes things like a dipping mirror, a centre armrest with a tiny cubbyhole underneath, a maps pocket by the passenger's legs, twin reversing lights, and rubber capped overriders.

The underside of the bonnet is felt soundproofed, and the engine is very neatly installed with excellent accessibility to the coil, distributor, alternator, carburetters, and dipstick. A couple of the plugs would be awkward to reach without a universally jointed socket spanner. To finish the job off, the rocker covers are nicely made in ribbed alloy with the MG octagon displayed prominently; the ancestry of the engine may be far removed from Abingdon, but there's no need to remind everyone on MG's 50th birthday!

We were impressed with this MG, no doubt about it. There are cars, even saloons with 3-litre engines, which accelerate faster and ride better, but they're not sports cars with those indefinable "fun" characteristics, and apart form the excellent Ford Capri 3000 they cost two or three times the price. Despite a hard ride, despite the fixed roof, despite its two seat only capabilities, despite its clumsy and tongue-twisting name (why not the Magna?), the MGB GT V8 is going to make a lot of friends. To finish with the good news, production was built up to 50 cars a week a couple of months ago, and the initial run is reserved for the home market. Please form an orderly queue.

-M.L.C.

SPECIFICATION

Engine: All alloy 90-deg V8, front mounted, driving the rear wheels. Water cooled, with twin thermo fans. Central camshaft, pushrods and rockers. Bore and stroke. 88.9 x 72.1 mm. Capacity 3528 cc. Maximum power 137 bhp DIN at 5000 rpm, maximum torque 193 lb/ft DIN at 2900 rpm. Compression ratio 8.25:1 (3-star fuel). Carburation by twin SU HIF6 sidedraught carburetters.

Transmission: BL C-type 4-speed all-synchromesh gearbox, Borg and Beck 9.5in dia diaphragm spring clutch, hypoid bevel differential with 3.07:1 ratio. Laycock LH overdrive on top gear only. Gearbox ratios: 1st. 3.138; 2nd, 1.974; 3rd, 1.259; 4th. 1.0; overdrive 0.82: Reverse, 2.819:1.

Mechanical: Suspension front, independent with upper and lower wishbones, coil springs, lever dampers and anti-roll bar; rear, live axle with semi -elliptic leaf springs, lever dampers. Brakes, Lockheed hydraulic with l0.7in dia discs front, lOin drums rear, with servo. Steering, rack and pinion 16.417 ratio, 2.93 turns on 15.5 in dia steering wheel lock to lock.

Dimensions: Overall length 12 ft 10.75 in; width 4ft 11.9 in; height 4 ft 1.9 in; front track 4 ft 1in; rear track 4ft 1.25 in; turning circle 33 ft 7in (avg); fuel capacity 12 gallons; kerb weight 21.6 cwt.

PERFORMANCE

Acceleration:

mph --- secs
0-30 --- 2.8
0-40 --- 4.0
0-50 --- 6.5
0-60 --- 8.6
0-70 --- 12.1
0-80 --- 15.9
0-90 --- 19.8
0-100 --- 26.9

Speeds in gears:

1st --- 39 mph at 5200 rpm
2nd --- 60 mph
3rd --- 98 mph
4th --- 122 mph
o/d --- 126 mph

Standing start 1/4-mile: 16.4s.

Fuel consumption: 22.8 mpg.

Speedometer accurate at 70 mph.

Price: £2293.96 plus seatbelts, etc.

When Motoring News originally published this article, they illustrated it with three black-and-white photos. Our copies weren't suitable for reproduction, so we've substituted a photo from Ken Smith's personal collection. Here, for the sake of completeness, are the original captions:

Photo 1: "The MGB V8 goes through its paces at Chobham, pursued by the Dolomite Sprint which we report on next week. These two fine British Leyland cars display opposite extremes in handling. The Dolomite understeering strongly and the MGB lifting a wheel on trailing throttle."

Photo 2: "The V8 engine goes neatly into the MGB's bay with small alteration to the front cross-member and the wheel arches. The carburetters are located well back, on a new induction manifold. An oil cooler is located in front of the two "pusher" electric fans."

Photo 3: "NEW-LOOK interior for the 'B' includes a revised fascia with a centre console, a gaitered gear lever and cloth seat upholstery."

BRITISHV8 Read It Here! www.britishV8.org
The Online Journal of the Modified! British Sports Car Community

Motor
Surrey House, 1 Throwley Way
Sutton, Surrey SM1 4QQ
Telephone: 01-643 8040
Telex: 946564 BISPRS G

Economy Classic:

Muscles Galore

Why was production of the MGB V8 dropped after three years of half-hearted production? Was there behind-the-scenes skulduggery? Roger Bell remembers, with affection, a tough car.

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Motor".
This article originally appeared in their issue for the week ending December 18, 1982.

THE TROUBLE with most MG sports cars was that they were too slow. Not even fanatical loyalists could claim crackerjack performance for the MGB, the most numerous of them all, when modest saloons of lesser capacity could comfortably outrun it, especially during the latter half of its long 18 year production life.

The irony of the situation is that MG made three post-war attempts to produce really quick sports cars, and all three ended in commercial failure The oil-guzzling MGA Twin Cam (1958-60) was a recalcitrant, fragile machine, easily broken by abuse and poor petrol. Only 2,111 were made. While it lasted, though, no one could accuse it of being slow, with 0-60 mph acceleration in 9.1 seconds and a top speed of 115 mph. By late-'Fifties standards it was a 1600cc fireball.

The same cannot be said of the miserable MGC (1967-69), BMC's meek replacement for the masculine Austin-Healey 3000. Its gutless and overweight engine denied it the sort of potency buyers expected of a 3-litre sports car and it was dropped. As an acknowledged failure right from the start, the "C" did well to reach the 9,000 mark, half of them fixed head GTs.

Leyland Cars: MGB GT V8 publicity photo - negative number 259990

It was another three years before MG - now under British Leyland's tangled corporate umbrella tried again with the BV8. Surely this would be third time lucky? Even though the body and chassis were by then a decade old and the engine even older (yes, really), the two in harmony seemed a perfect match. Here, at last was an Abingdon sports car with real performance that its makers could be (and were) proud of, that customers would want, that owners would cherish. It couldn't fail - yet t did! Cynics will say, not without justification, that it was allowed to fail, which is strange considering that the BV8 was arguably the most desirable post-war MG sports car and without question the quickest.

Looking back on it, neither British Leyland nor the Press treated the V8 with the respect it deserved. Surprisingly lukewarm road tests (Motor's among them) didn't help, but they weren't the cause of the car's premature demise in 1976, after just over three years of half-hearted production following a gestation period that was almost as long.

Probing the issue in his excellent book "MG" Wilson McComb quotes former Abingdon chief John Thornley. "There was a lot of behind-the-scene skullduggery... something about a limited license to build just so many of that enqine... I don't know why they canned it - whether they really wanted the engine for some other purpose or whether some stinker was jealous of it... it really was so good."

So, why was it dropped? Officially, because the dwindling sales (production declined from 1,069 cars in '73 to a mere 176 in '76). The rising cost of fuel in the wake of the energy crisis, which unfortunately struck just when the V8 was launched, inevitably depressed demand - but then, the BV8 was not a gas guzzler; its thirst for fuel was in fact quite modest. Given the right corporate support, the car might well have survived the fuel scare (as many others with heavier consumptions did) and continued its cut-price supercar role as Abingdon's flagship even though Type Approval problems prevented its sale in the all-important US market.

The V8's compact engine sat well back in the monocoque.

There's no doubt that BL did at the time need a healthy supply of the ex-GM light alloy V8 for the Range Rover and SDI 3500, announced in June 1976 a month before the MG was dropped. But that shortage soon reversed into a glut. As the four cylinder BGT - by now ludicrously slow compared with modern hot hatches like the Golf GTi - continued for another four years, until Abingdon's sad closure, the decision to drop the V8 was at best short sighted.

Jealousy? There's plenty of evidence to indicate that BL's Triumph wing, arch rivals of MG before and after the Abingdon camp was drawn into the Leyland fold under Sir Donald (later Lord) Stokes, was favoured in certain corporate decisions at the expense of MG. For instance, the BGT was withdrawn from the US market to assist TR7 sales there (a decision that was poorly received by American MG buffs). It is also reasonable to assume that the projected Rover-engined TR8 (stillborn as it happened) would have had preference over the much older MGB V8 - and rightly so, as it was a generation younger and generally superior. Whether it would have been as successful as a US-legal MG, which had enormous untapped potential, is open to question. MG kudos was a strong marque weapon, as BL are rediscovering with the runaway success of the Metro quickie, which could well become the best-selling MG ever. What does seem clear, with the benefit of hindsight, is that the BV8, given the right support and development, could have done a lot more for its makers than they allowed.

There is a silver lining to this cloudy tale. By dropping the car prematurely, BL did future owners a good turn by bestowing on the V8 the valued quality of scarcity appeal. Only 2,591 were built. Now, almost a decade on from its launch, the BV8 is one of the very few so-called modern classics that can seriously be considered not only as a hedge against inflation (if not a gilt-edged investment) but also a sensible, reasonably-priced slingshot for everyday motoring.

The "plus 2" part of the car was almost non-existent, as shown above, but it was a civilized two-seater with generous luggage space.

It was the disappointing "C's" failure that paved the way for the MG V8, though the story really starts over a decade earlier with the launch of the MGB in 1962. The MGA's successor, designed at Abingdon under Syd Enever's direction, with a little styling help from Pinin Farina (the name was split in those days), was the first monocoque-bodied MG sports car, providing better accommodation and comfort than the MGA even though it was shorter in wheel base and overall length The capacity of BMC's pushrod "four", long in the tooth even then, was increased to 1,798cc, bumping up power to 95 bhp and torque to 107 lb.ft. Engine and transmission were strengthened but the rest of the running gear was similar to the "A's" - live cart-sprung rear axle included.

The ragtop "B" was an instant success and MG production soured. It peaked again after the launch, in 1965, of the closed GT, one of the cleanest and best-proportioned cars to leave a British factory in the 'Sixties. Although nearly 2 cwt heavier than the open car, better penetration gave it a higher top speed (acceleration was little affected). With more weight over the back wheels, it also handled better. Considered as a civilized two-seater with generous luggage space it was, by the standards of the day, a marvelous eye-catching package, living up to its tag of "the poor man's Aston Martin" with real authority.

In 1966 the BGT helped to push MG production to a record 40,000 cars, and BMC as they then were to the Number Two importer's spot (behind VW) in the States. Heady days! They were never to be repeated, though, as crash-safety and clean-air legislation, not to mention the rising tide of imports from the East, then began to erode MG sales.

It was US legislation that finally killed the ailing Austin-Healey 3000 which had no chance of meeting the new crash-test rules The MGC effectively took its place, which was a sensible marketing ploy as MG's name abroad was stronger than Austin-Healey's The idea was right but the product was not. Powered by a long and hefty seven bearing version of the old pushrod "six" intended for the new big saloon, the "C" was a flop. The Press crucified it (unfairly, say many keen owners now). "Enthusiasts familiar with the fierce, masculine behavior of the Austin-Healey 3000 may find the performance disappointing." Motor's road test went on to criticize the engine's feeble low-speed torque; disagreeable fan whine (a poor substitute for exhaust growl), unwieldy handling marred by excessive understeer, and poor seats, among other things. "It is more of a high-speed touring vehicle than a sports car," the test concluded, damning the "C" with faint praise. It was certainly no he-man substitute for the Big Healey which, despite its many faults, was great fun to drive. Sales dipped and the "C" was dropped in 1969.

The other strand of the story started when Rover acquired the rights from General Motors to manufacture a particularly neat all-alloy V8 pushrod engine, used by Buick between 1960 and 1963 and rendered redundant by new thin-wall iron casting techniques. Rover was then an independent company, which is perhaps just as well as they would probably never have got their V8 otherwise. It first appeared in Rover guise in the stately P5 3.5 litre in 1967 - the same year that Rover was absorbed by Leyland Motors, the same year as the MGC's launch. When Leyland merged with British Motor Holdings, as BMC had become, the following year, the way was theoretically clear for a Rover (nee Buick)-engined MG.

Morgan were the first to demonstrate that the lightweight V8 in a sports car chassis spelt dynamite. There was plenty of Press speculation at the time about other possible uses for the Rover enqine, but it was an enterprising specialist, Ken Costello, who first put a V-engined MGB on the market. The Abingdon people who had experimented with Coventry Climax and Daimler engines from Jaguar's stable, needed little encouragement from British Leyland's top brass to do likewise, though it was a couple of years before the BV8 was released for sale, in the Summer of 1973.

Bob Fisher's MGB GT V8 (bought in Great Britain and brought to U.S.A.)

Specification Comparison

	MGB GT	MGC (roadster)	MGB GT V8
SPECIFICATIONS			
Cylinders	4 in line	6 in line	V8
Bore / stroke, mm	80.2 x 88.9	83.3 x 88.9	88.9 x 71.1
Capacity, cc	1,798	2,912	3,528
Valves	ohv	ohv	ohv
Bhp / rpm	95 / 5,400	145 / 5,520	137 / 5,000
Lb.ft. / rpm	110 / 3,000	170 / 3,500	193 / 2,900
Transmission*	4-speed + o/d	4-speed + o/d	4-speed + o/d
Front Sus.	wishbones, coils	wishbones, tor. bars	wishbones, coils
Rear Sus.	live axle, leafs	live axle, leafs	live axle, leafs
Weight cwt	20.8	22.2	21.2
PERFORMANCE			
Max speed, mph	107.6	118.2	125.3
0-60 mph, sec.	11.6	10.0	7.7
30-50 (4th), sec.	8.8	9.4	6.2
50-70 (4th), sec.	13.1	11.7	6.3
Overall, mpg	27.4	19.3	19.8
Touring, mpg	33.0	25.6	25.7
Test Year	1970	1967	1973

PRODUCTION			
Years	1962-80**	1967-69	1972-76
Numbers	513,626	8,999	2,591

*as tested by Motor. **all MGB's.

The V8 was in every way a better car than the MGC. Its compact engine sat well back in the monocoque, so the "B's" normal wishbone suspension was retained. (the long engine of the nose-heavy "C" dictated a front-end redesign utilizing torsion bar springs). The 320lb engine was 40 lb lighter than the all-steel "B's", a whopping 240 lb less than the jumbo sized "C's" so it didn't upset the car's balance. What's more, its smoothness and output lifted the car into a new league.

Costello had used the "B" gearbox, stretched beyond the limit by the increased torque. MG wisely opted for the stronger "C" box and, playing very safe, a low compression (8 25:1) engine like that used in the Range Rover. With 137 bhp, the GT-only BV8 was actually not as powerful as the 145 bhp "C", but because it weighed less and developed much more torque (193 lb ft at 2,900 rpm against the "C's" 170 at 3,500), it was appreciably faster and handled much better. With the SD1 10.25:1 engine, it would have rivaled the performance of the much more expensive Jaguar E-Type, still in production when the B was launched. Jaguar might have been even more displeased by an MG that outran their XJS, launched in September 1975, a year before the V8 was dropped. (It's encouraging to see that BL's present top brass see things in a different light, otherwise the new Rover Vitesse might never have happened.)

The first 1,072 V8s made had chrome grilles and bumpers. The rest were rubber-snouted to comply with US safety regulations. Stiffer rear springs and fatter 175 section tyres carried on attractive light-alloy wheels made even the early V8s ride a little above the normal BGT. To avoid the much-criticized bulging bonnet of the "C", a special inlet manifold was devised to contain the engine under the standard bonnet.

On the road

Motor's testers (and I was one of them) were evidently in two minds about the BV8 when it was assessed in August 1973. "It really is something of an enigma. Does one regard it as an uprated MGB or as an entirely new car?" The test report was couched in terms that left the reader in no doubt that even though the V8 was great to drive it failed to live up to expectations fuelled by two years' eager anticipation.

At £2,294 it was considered expensive for a car with: a poor ride ("the vintage nature of the suspension really shows up at low speeds"), dated unmodernized cabin ("the dashboard layout is rather crude and austere... irritating trivialities outweigh the good points"), inefficient heater ("antediluvian controls"), and disagreeable wind rush ("at 70 it is noisy... above this speed makes fast runs a misery"). Not even the performance got a five-star rating, though against other like-priced rivals it was considered "very respectable".

It was the Ford Capri 3000GT, then costing £1651, that probably tempered Motor's enthusiasm for the MG. The Ford's top speed of 120 mph and 0-60 mph acceleration of 8.6 seconds were not that far short of the V8's 125 mph and 7.7 seconds. What's more, the Capri was a full four-seater, albeit not one then with a hatchback tail. There's no doubt that the MG could have been quicker. Whether it needed to be is another matter. As Motor observed, "What the bald figures cannot convey is the utter smoothness, refinement, and lack of drama... and the delightful surge when accelerating hard. Flexibility is remarkable, and 1,000 rpm in top gear is quite usable in traffic.

Such quotes underscore the BV8's strong suit of effortless speed, it was not a busy flier but a potent smoothie which tended to throw into prominence deficiencies in other departments, most of them stemming from the car's age. Remember, the MGB was already nearly 10 years old.

Today the flaws which rightly disappointed Motor's testers when the V8 was new nearly a decade ago no longer jar. You expect an MG of this vintage to feel rather dated. You prime yourself to accept its shortcomings. It was in this frame of mind that I recently drove a '74 BV8 and was very agreeably surprised. The car belongs to Richard Monk who bought it secondhand in 1976 for £1,900. He values it now at around £3,500 even though it's in largely original condition (in other words, it hasn't been restored), used as everyday transport and has covered over 100,000 miles without major mechanical overhaul. The engine feels good for another 100,000 miles, highlighting one valued quality that Motor's testers couldn't assess on their low-mileage demonstrator: longevity. The BV8's lazy, lowly-stressed engine invariably outlives the rather rust-prone body, though that of Richard's cosetted black car was in exceptional condition. Treated and resprayed sills had arrested corrosion, but small bubbles at the base of the screen indicated the need for further attention.

The interior (which looked virtually brand new) didn't feel so stark and dated as anticipated, and the cloth-covered seats were excellent. I'd forgotten just how comfortable they, and the relaxed driving position vvere.

Even with the original "agricultural" Range Rover engine, acceleration is strong and clean and the gearbox (which displayed no overt signs of wilting after eight year's use) had a much sweeter change than the original test car's. Lever movement was light and precise, no longer "stiff and notchy" as Motor had described it in 1973. In fact the whole of the drive-train felt and sounded in excellent shape, with no sizzle, vibration or clonks to betray wear.

I was also impressed with the car's roadholding and handling, even allowing for the 185-section tyres (one size up on standard) fitted by Richard Monk. It clung on well, felt reasonably agile (unlike the unwieldy "C") and neither scrubbed its front tyres with excessive understeer nor side-slipped its rear ones under provocative power. The car's balance and neutrality made it feel very reassuring.

Not even the firm ride seemed quite so harsh as Motor's test had suggested, maybe because of the different tyres and non-standard telescopic dampers I could tolerate the crude suspension more readily then the awful wind noise which completely drowned the smooth, satisfying burble of the engine except at low speed. If a sports car is going to be noisy - and this one is - it's got to make the right sort of noise. The tearing, buffeting, whooshing cacophony created by the V8's pillars and window frames (and aggravated on this car by a sunshine roof) is an objectionable racket. Pity.

If you can accept this and other shortcomings, a BV8 still makes a lot of sense as a fast and practical two-seater express. Modern counterparts are likely to set you back three or four times as much, and depreciate much faster - even cars like the Porsche 944 (£13,390), TVR Tasmin Fixedhead (£13,824), and Lotus Eclat Excel (£13,787). The highly acclaimed Capri 2.8i (£8,125) could barely keep in, which underlines just how quick the V8 was in its day - and still is now.

Richard Monk asserts that running costs are remarkably low. He reckons to get 30 mpg on a long run, driving with restraint, 24-25 mpg in town. Thrash the car hard, though, and you'd be lucky to get 18-20 mpg. Although the V8 is in Group 7, fully comprehensive insurance for a good-risk driver over 25 years old can be arranged through the MGOC for around £150.

Buying a BV8

Prices range from £1,700 (scruffy) to over £5,000 (concours). The early chrome-fronted cars are more highly prized than the subsequent rubber-bumpered ones though expect to pay more for a late, low-mileage R-registered model than an early L-registered one. In the end, though, condition rather than age is what really matters.

Bodywork is the same as the BGT's, so look for rust in the usual places - sills, rear wheel arches and front wings. Repair sections (as opposed to complete body panels) are available through the clubs, so corrosion need not be a killer.

Engines are long-lived (police pursuit BV8s ran for 130,000 miles between overhauls) but the hydraulic tappets are likely to become clattery after 60,000 miles. They're fairly easy to replace, but remember that there are 16 of them at around £6 each. Overheating can cause serious gasket and head-warping trouble but it's very rare, even though the automatic twin electric fans are prone to seizure, especially after Winter when they rarely come into play.

Early '73 cars did suffer from gearbox trouble before the internals were beefed up. After that, the transmission was not an inherent weakness unless punished. If the overdrive (fitted on third and top on early cars, top only on later ones) plays up, it's probably caused by the usual solenoid trouble.

Life expectancy of the lever-arm dampers, like those of the "B", is about 18 months. Spax telescopic ones (as fitted to Richard Monk's car) are a popular swap as they last longer and improve the ride and handling. Wider 185-section tyres, stainless steel exhausts (the standard mild-steel ones go in a year), electronic ignition and shorter springs for the jacked-up rubber bumpered cars are also accepted modifications.

Spares are generally readily available through the clubs, notable exceptions being the chromed alloy wheels (which corrode) and the special rear axle.

When Motor published this article, they illustrated it with eight photos of an early ("chrome bumper") MGB GT V8 bearing license plate "HOH 933L". Unfortunately, our copies of these photos aren't suitable for reproduction. We've substituted one Leyland Cars publicity photo plus photos from the personal collections of British V8 readers Bob Fisher and Jake Voelckers respectively. We're delighted to show off some handsome later-model ('75 and '76 "rubber bumper") MGB GT V8's.

British Newspapers Announce the "MGB GT V8" (circa October 15, 1973)

as collected and republished in British V8 Magazine, Volume XVI Issue 1, May 2008

Still there, the old M.G. magic

Note: Despite extensive research, British V8 Magazine has been unable to determine which British newspaper originally published this article. We'd like very much to properly credit the original publisher and author, and to obtain their blessing for re-publication. In the interest of maintaining a historical record of the MG car company we have decided to include the article here complete and unedited, and to request help from our readers in discovering this information.

A CHARMING chap he is, with only one very unusual flaw to his character... a habit of swearing at his family when they are a bit slow with the motor map reading.

But this day he was off bright and early, all by himself and doing his own navigation.

Though really one could hardly call it navigation. "Just go up to the Mx," his prospective host said. "Then on to the My and at the end you'll find signs for the Mz. When you get on to it, turn off again about 16 miles along at Thisslethwaite Bridge and we are only four miles along from there."

Money for old boot laces!

When he reached the Mz he found it ran both ways, south-west and north-east, and a lesser man would have hesitated. But not our fellow. His host's home lay north not south. So the direction was obvious.

About 14 miles along he began to frown. There were distance signs for all manner of places, but not one for Thisslethwaite Bridge.

At 17 miles he came to a filling station and while his tank was being topped up he asked the woman attendant casually how much further he had to go.

She told him. He had to turn right round and head south-west.

But first he had to carry on in the wrong direction another 15 miles before he could turn round.

Our man had discovered the startling and fat-headed feature of motorway garages that has upset many another driver in the past. While there is a perfectly good service road linking the petrol pumps on either side of the motorway, it is only for the use of the staff.

SNEAK

But he looked so put out on that deserted, wet and windy Sunday that she showed him how to sneak across. And in the depths of his gratitude, he forgot to pay her for the petrol.

He registered this fact when he was well down the road in the proper direction and saw the £5 note on the seat next to him.

Luckily this time he had only three miles or so to go before he could turn back north.

Now, there was a police car at the filling station and while our man and the attendant were having a warm reunion, up came the crew.

"Didn't take you long to use up that tankful, sir." said one of them, with that bluff humour that marks a patrol-man whiling away a long wet day.

"We've been wondering about you ever since we spotted you pass these." and he pointed to the "No Entry" signs leading to the service road. "We reckoned you thought they meant 'Welcome.'"

Thirty miles later... fifteen up and fifteen back... he passed the filling station for the last time. The police crew gave him a matey wave.

Which is considerably more than he got from his hungry host. "Why didn't you come up the motorway? It's much quicker."

He could have gone even further and suggested that our man bought himself one of those new fangled M.G.B. G.T.s, with the V-8 engine.

That steeple-hatted Puritan we call logic can always think of ten sound reasons why we should not do what we want, whether it be buying a boat or a Great Dane, kissing the girl next door or living in a grass shack.

BOAST

And one can hardly describe this car as sensible. Even its claim to be an occasional four-seater is not realistic, for the bench seat at the back is merely a perch for a couple of hitch-hiking hedge sparrows.

No! The M.G.B. G.T. has always been a bold survivor of those days when motorists unashameably boasted that they drove just for the fun of it and not the most sour-faced thought any the worse of them.

When I first drove this latest model, I was not at all pleased. The quality that marks an MG is its urchin spirit, its cockiness, its cheerful uproar.

But start up the V-8 engine and all you get is a purr at one end and a whispering exhaust at the other. The terrier has turned into a pussy cat.

The V-8 version costs £2,300 and it seems even more when one can get exactly the same car with a smallish, cheekier engine for £600 less.

An ability to dawdle through traffic in third gear and an engine so silent that one can forgetfully stay in third at 70 miles an hour doesn't seem much of a swop somehow for cheerful tradition.

But then whoosh! And one knows precisely where the money has gone.

From handbrake off to 30 miles an hour in three seconds compared with the smaller M.G.'s four. And a whole five seconds lopped off the time one touches 60 miles an hour.

Keep your foot on the throttle and the smaller-engined M.G.'s breathless 100 miles an hour becomes a roaring 120 plus.

Oh, yes. Our pussy cat has claws. And can blow £600 on worse things than the fun of exercising them.

The bonnet may be full of murmuring power (overkill one is inclined to think at first glance) but the rest of the car is sheer vintage M.G.

The wind noise, for instance. At 100 miles an hour in the earlier model one did not so much talk as hail the crows nest in the face of a gale.

At 120 miles an hour in this version, one runs a very real risk of laryngitis.

The M.G.'s suspension is its happy and taut self. This may be too much on the hard side for those used to the modern swan's-down of most modern cars, but it has not a hint of the accompanying sloppiness.

The steering is traditional too. It is a brute to park but it is crisp and neat in the bends. I would say the gear change was robust rather than elegant.

In this M.G. one has all the character of a vintage car, but with considerably more performance and sparkle, yet none of the expensive handicaps of age and worn-out parts.

SCRAMBLE

Admittedly, this vintage quality shows in the road-holding as well. Although no true M.G. owner is going to admit it even at the end of a plank, this new extra power reveals a certain weakness in stability.

It starts with squeeling tyres which startle pedestrians even going round city corners and it ends with a rather disorganised scramble through very fast bends in the country. This is more untidy than alarming. For let the car have its head and it will always try to find the right line.

I am talking about hard driving. If even when you are abroad, you never do more than 80 miles an hour then I think you would swear that the car was docile and well-mannered.

Inside and in the front there is a lot of leg room and comfort. For a sports car, the visibility is exceptional. I don't know what to say about minor controls and instruments. Old-fashioned, I suppose. They're all there but in something of a clutter and there is too much reflection from the glass faces.

IDIOCY

Yet, I have reservations about my criticisms. One of those stereotyped, up-to-date instrument panels would be as out of place as a decent plot in a television play.

Only the handbrake, tucked away impossibly inaccessibly between the two front seats is an obvious idiocy. [Editor's note: it was obviously placed where it was to suit left-hand-drive export markets.]

Outside it is a most elegant and distinctive car; low and smooth and with the unique lines of a classic British sports car (even if it was designed by an Italian.)

At £2,300, this is a most expensive M.G. And even though it runs on three-star [low octane] fuel, one would have to drive a long way to make up the difference between it and some of its rivals in performance.

That is why people who should know better are calling it the paupers' Aston Martin or the poor man's A.C.

This is silly.

If you are one of those people who treasure the character, the temperament and the individuality of the M.G., then you would not swop it for a fleet of Lamborghinis.

THE FIGURES

Now for performance :-

GEARS : Top (overdrive), 120 m.p.h.; Top, 121 m.p.h.; Third, 97 m.p.h.; Second, 62 m.p.h.

ACCELERATION : 0-30 m.p.h., 3 secs.; 0-60 m.p.h., 8.3 secs.

CONSUMPTION : 21-30 m.p.g.

FOR THE TECHNICAL : Engine capacity 3,528c.c.; B.H.P. 137 at 5,000 r.p.m.; front suspension, independent; rear, semi-elliptic.

PRICE : Base, £1,925; Total with taxes, £2,293.96.

WILL IT FIT IN YOUR GARAGE? : Length, 12ft. 11in.; Height, 4ft. 2in.; Width, 5ft.

[Note: This article originally appeared with the single black-and-white photo shown above of a light-colored MGB GT V8 bearing registration plate NOJ 924M. The photo was captioned simply (and ambiguously): "The M.G.B. G.T." An identical photo appeared in other British newspapers, albeit with registration number YWL 921L airbrushed in instead. Regretably, our copies of these smaller photos aren't suitable for reproduction.]

THE TIMES

The new MGB GT V8

Re-printed unedited by exclusive permission of "The Times" (of London).

by: Maxwell Boyd

A car which enthusiasts have been expecting with some impatience over the past couple of years is officially announced today by British Leyland. It is a high performance version of the classic MGB GT coupe powered by the Rover aluminium V8 engine.

Two years ago I drove a prototype of this model, developed as a private venture by the former racing driver Ken Costello, of Bromley, Kent. The report caused considerable interest among readers. British Leyland executives who tried the car were also impressed by its potential. The factory's production version, at £2,294, including taxes, is a promising successor to the ill-starred six-cylinder MG C.

The new car, called MGB GT V8 (at present there is no open two-seat version), has all the sparkle that was so sadly missing in the "C" model with its heavy, sluggish three-litre engine. The 3.5 litre V8 is actually 44lb lighter than the 1.8 litre four-cylinder engine of the standard MG but the addition of ancillary equipment needed to meet the latest noise, emission and safety regulations has pushed up the total weight to just above that of the ordinary "B" model.

===

One of the modifications needed for the new model to be able to run on low-lead fuel is a reduction in the Rover engine's ultra high, 10.5:1 compression ratio. By reducing this to 8.25:1, the designers have ensured that the V8 can operate satisfactorily on 94 octane, three-star petrol instead of needing five-star fuel. Although its output is down to 137 brake horsepower at 5,000 r.p.m., compared with the "S" type Rover's 150 b.h.p., this is still ample to give the latest MG a rousing performance, with outstanding smoothness.

Top speed, in fourth gear, is 124 m.p.h. and 0-60 m.p.h. acceleration is achieved in an impressive 8.25 seconds. As you would expect from a big V8, top gear flexibility is also outstanding - I got a 30 m.p.h. to 70 m.p.h. acceleration time of 13.4 seconds, while 50 m.p.h. to 70 m.p.h. came up in 7.5 seconds.

For the performance given, the fuel consumption is reasonable: MG quotes 27.5 miles a gallon at a steady 70 mph in overdrive top and 20 mpg at a constant 100 mph. Using most of the available performance through the gears on a mixture of motorway and cross-country driving, I finished up with 20.1 mpg.

The engine is also notably quiet but the body-shell reveals its age by the excessive wind noise at high speeds. The MGB has a good reputation for stability and safe handling: uprated suspension, brakes and tyres enable the latest version to handle the V8's extra power with equanamity but have done nothing to lighten the heavy steering, which to me remains the car's most unattractive features. The handbrake is badly placed, so close to the central console that drivers grabbing it in a hurry are likely to bark their knuckles.

===

British Leyland is careful not to describe the car as a "two plus two," though there is a small back seat adequate for small children or extra luggage. The wide opening tail gate gives easy access to the load space.

At first sight, the V8 may look expensive compared with the standard MGB. But in addition to the uprated mechanical specification, including stronger springs and transmission, standard features include overdrive on top gear, cast alloy special wheels, tinted glass, two electric cooling fans for the engine and an oil cooler.

In relation to most of its foreign competitors of comparable performance, it looks a bargain.

There may be some regrets that British Leyland did not go ahead with a more modern design, such as the experimental mid-engine Rover sports coupe or alternatively a rather roomier model on the lines of the Reliant Scimitar GTE. Since the company has never been

able to meet the demand for the existing car, however, the decision not to change the design is probably commercially sound.

At least it gives Britain a sports car able to compete with the Datsun 240 Z which has had a runaway success in North America. Is it too much to hope that we may one day see a team of MG V8s competing against the Datsuns in events like the East African Safari Rally?

[Note: This article originally appeared with a single black-and-white photo of a light-colored MGB GT V8 bearing registration plate UOK 935L, with a grassy rural background. Regretably, our copy of the photo isn't suitable for reproduction.]

Evening News

Leyland's new MGB has extra punch

Re-printed unedited by exclusive permission of "The Evening News".

by: Sue Baker

The long-expected MGB GT with a Rover V8 engine from British Leyland is announced today.

Shoehorning the lightweight Rover 3.5 litre V8 engine under the bonnet gives the popular B GT almost double the power compared with the standard 1800cc engined car.

It gives 120-plus mph motoring to boot the MGB GT V8 - to give the car its full name - up into the high performance sports car market.

The price of the new car, including VAT and car tax, is £2,294. A standard B GT, including taxes, is £1,665.

British Leyland have tailored their Rover V8 engine into the car by using twin SU carburettors mounted at the rear of the engine.

HEAVIER

The bigger engine, with use of light alloy, is in fact 40lb lighter than the standard 1800cc engine, but the addition of anti-pollution equipment makes the total weight slightly heavier.

When I drove the B GT V8 recently from London to Goodwood and back, I found that the extra weight made itself felt on cornering the car. It was not excessive, but certainly made long distance driving seem harder work than in a standard MGB GT.

The other problem was wind noise, which at high speed seemed excessive. British Leyland have kept the engine reasonably quiet, but have failed to find a cure for the headachy level of wind noise.

The car handles well, and the exciting punch of the powerful big engine makes it an exhilerating car to drive.

On the road, it is a fast, agreeable car. On the old motor racing track at Goodwood, it showed tremendous sporting potential.

British Leyland claim a top speed of more than 120mph, and that would not seem over ambitious. Their 0 to 60mph claim of 8.2 seconds agrees with my stopwatch.

The car has overdrive on top gear, and the brakes are effectively servo-assisted.

Other standard equipment includes cast alloy special wheels, door mounted mirror and tinted window glass.

The V8 engine develops 137 (DIN) bhp.

[Note: This article originally appeared with a single black-and-white photo of a light-colored MGB GT V8 bearing registration plate YWL 921L, driving towards the photographer on a banked two-lane road with double center lane markings. The photo was captioned: "British Leyland's new MGB GT V8 shows its paces." Identical photos appeared in other newspapers, albeit with different registration numbers airbrushed in. Regretably, our copies of these photos aren't suitable for reproduction.]

Daily Mirror
EUROPE'S BIGGEST DAILY SALE

Beast under the bonnet

Re-printed unedited by exclusive permission of "The Daily Mirror".

by: Patrick Mennem

It looks like any other MGB GT. But on the road, with a Rover V8 engine shoe-horned under the bonnet, it's a very different beast.

The new MGB GT V8 is one of the most electrifying cars in production.

With a price tag of £2,294, you have one of the best value-for-money sports cars on the market.

Inside it has cloth covered seats and headrests, and a rather jokey set of seats behind the front ones, which are far better used for luggage.

Whisper

With nothing more than a wistful whisper it will top 60mph in second gear in a fraction over eight seconds.

In third, the car will touch almost 90mph and, although the makers claim a top speed of 124mph, I had 130mph registering on the clock on German autobahns with the rev counter still out of the red.

But finding reverse needed the strength of a front row rugby forward.

To overcome engine emission problems, the compression ratio has been reduced to 8.25:1, which means that power output has gone down to a little over 130 brake horse power. But on the plus side, it means that you can use three star petrol.

Although the V8 aluminum engine is slightly less weighty than the 1.8 four-cylinder unit, all the ancillaries make it a little heavier and despite stronger springing, the new V8 does not have that superb feeling of balance enjoyed by its forerunners.

It is a very safe and exciting car which, with little more refinement, could be superb.

[Note: This article originally appeared with a single black-and-white photo of a light-colored MGB GT V8 bearing registration plate YWL 921L, driving towards the photographer on a banked two-lane road with double center lane markings. The photo was captioned: "Cornering at speed in the new V8." Identical photos appeared in other newspapers, albeit with different registration numbers airbrushed in. Regretably, our copies of these photos aren't suitable for reproduction.]

DAILY EXPRESS
THE WORLD'S GREATEST NEWSPAPER

'Borrowed' engine peps up new MG

Re-printed unedited by exclusive permission of "The Daily Express".

by: David Benson

Lord Stokes today unveils a new, more powerful version of the world-famous MG sports car - the first major change in the MG range since the MGB/GT was introduced in 1965.

M.G. engineers have installed the 3.5-litre V8 aluminium engine, that powers the Rover 3500 series, in the M.G. B GT body and chassis.

The current M.G. - with six-month waiting lists for most models - continues in production with the V8 an addition to the range.

The new car, which will top 126 miles an hour, is priced at 2,085 including taxes and is obtainable only in 4-speed manual gear box plus overdrive form.

The power output is almost double the 1.8 litre 4-cylinder "B" series engined version.

To cope with the extra power, servo-assisted disc brakes are fitted as standard and the rear axle and springs are strengthened.

[Note: This article originally appeared with a single black-and-white photo of a light-colored MGB GT V8 bearing registration plate YWL 921L, driving past the photographer on a two-lane road with a guard rail along the opposite lane. The photo was captioned: "The new MG, complete with 3 1/2 litre V8 engine". Identical photos appeared in other newspapers. Regretably, our copies of this photo aren't suitable for reproduction.]

A new sparkle for the MGB

Re-printed unedited by exclusive permission of "The Daily Mail".

by: Michael Kemp

British Leyland today unveil a sparkling 124 mph sportcar which runs on cheap low-grade petrol.

The car bears the world-famous MG name. It is a hybrid, with Rover's 3.5 litre V8 engine married to the long running MGB GT.

It is the most powerful new sports car to bear one of the British Leyland badges since the Austin Healey 3000 was killed off in 1967.

The new engine gives the car a dramatically better performance than its old 1.8 litre power plant.

The MGB V8 will reach 41 m.p.h. in first gear, 64 in second, 99 in third, and 124 in top. A test car has recorded 130 m.p.h.

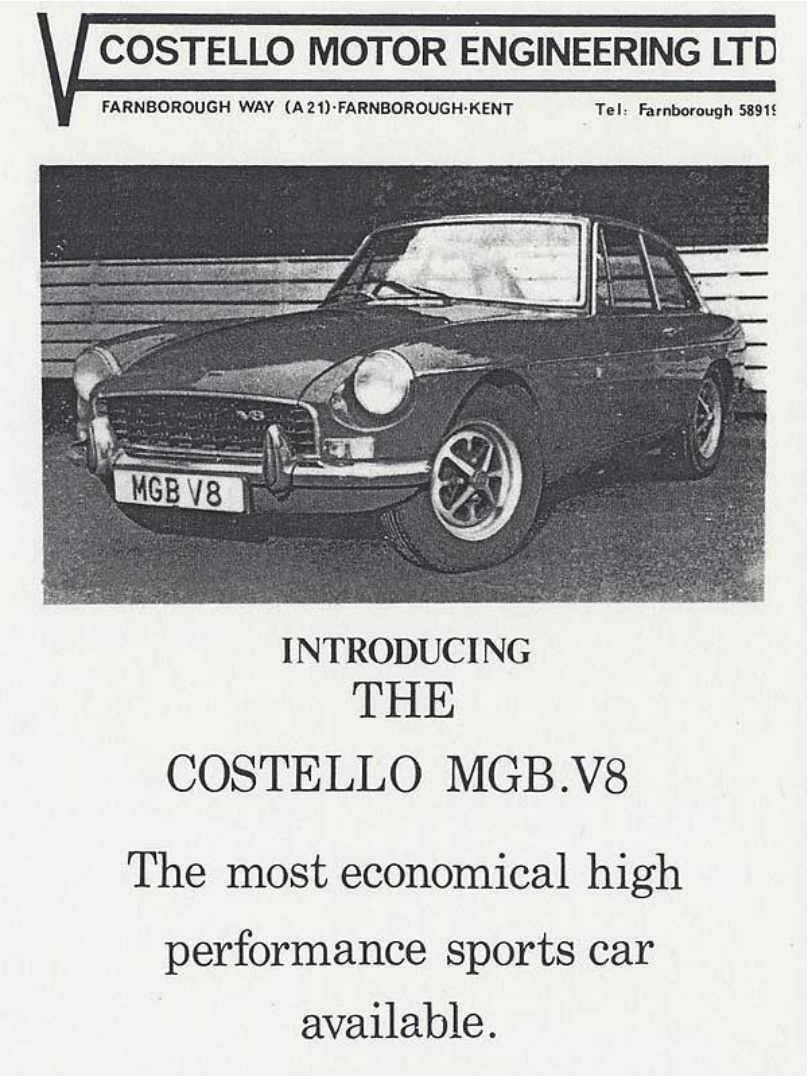
And its steering, brakes, and body structure have been specially modified to cope with the extra power.

British Leyland say: "The car is intended to compete in the increasingly important sports and luxury coupe markets. It offers classic sports car styling with outstanding performance and handling."

PRICE: £2,293.96 including tax.

The MGB is still available with the less powerful engine.

[Note: This article originally appeared with a single closely cropped black-and-white photo of a light-colored MGB GT V8 bearing registration plate YWL 921L. The photo was captioned: "V8-engined model will run on low-grade petrol". Identical photos appeared in other newspapers. Regretably, our copies of this photo aren't suitable for reproduction.]



Introducing the Costello MGB.V8

The most economical high performance sports car available.

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

This is a facsimile of the original Costello Motor Engineering brochure, circa September 1972.

WHAT THE EXPERTS SAY (page 2 of the brochure)

"As a conversion, we rate this car as perfect and as a model in its own right it deserves the highest praise."
"...and the whole car much more refined to ride in than any MG built at Abingdon."
AUTOCAR ROAD TEST (25.2.72).

"a smooth and quiet surge of power that transforms the

car so that it can compete with cars costing thousands more."
GORDON WILKINS (Sunday Observer 3.2.72).

"One of the nicest cars I have driven."
JOHN LANGLEY (Daily Telegraph).

"The result is an MG which, as I discovered last week contains all the tigerish acceleration power and speed you would ever need, with kitten-like docility and mechanical silence.
MAXWELL BOYD (Sunday Times 25.7.71).

"Everything is so quiet, we even started to criticise the quality of reproduction from the radio and, quite truthfully, in top gear at about 30 MPH, not accelerating, there is not a sound to be heard."
AUTO ENTHUSIAST (August 1971).

THE COSTELLO MGB.V8 MKII (page 3 of the flyer)

The MGB.V8 makes the finest marque yet, offering superb, silent and effortless motoring.

Already much praised by motoring correspondents, in is a sports car without equal in its class, with easy inexpensive maintenance, and the petrol consumption of a family saloon. The combination of this fine chasis and engine is almost unbelievable:-

175 BHP (gross) at 5,200 RPM compared with a conventional MGB which produces 95 BHP at 5,400 RPM, this extra power with an engine 50 lbs lighter!

0-60 mph in less than seven seconds.

Even weight distribution, perfectly balanced, with light yet positive steering, giving improved road holding.

Servo-assisted competition brakes for longer life and increased security.

Economical maintenance never before associated with a car of this performance; all major parts are standard and readily accessible. Servicing can easily be undertaken by any reputable garage. No specialist maintenance required.

British Leyland warranties maintained by us, with an unrivalled 15,000 or 15 month engine warranty.

Petrol consumption - 25 mpg at cruising speeds.

The MGB.V8 has already developed in over 100,000 miles of severe road testing and even before production commenced it was the subject of enthusiastic press and radio reports.

September '72 MKII Model now introduced with single carburetter giving increased performance and improved economy and retaining original MGB bonnet. Automatic electric fan now fitted as standard.

Complete car subject to Manufacturer's Price List. Plus £975 conversion. Offered in Manual and Automatic form, R.H.D. or L.H.D.

(page 4 of the flyer was left blank except the following footnote)

"PRINTED BY FENWAYS 144 LOWFIELD STREET DARTFORD KENT"

Note: between 1972 and 1974, Ken Costello converted approximately 200 MGB's (mostly GT's) to Rover aluminum V8 power. His production rate declined after that, but he continued to develop design improvements and features, and to convert more cars to V8 power over the next twenty or so years. The two photos above, from Jake Voelckers' collection, shows an early Costello MGB.V8 with dual SU carburetors and the accompanying large hood bulge they necessitated.

This article is one of SIX articles we've published about Costello V8's! If you enjoyed this article, check out:

Autocar magazine's road test	"Auto Test: Costello MGB GT V8"
Motor magazine's road test	"Motoring Plus: Bumbling B"
The Sunday Times newspaper's review	"A Tiger in MG's Clothing" by Maxwell Boyd
British V8 Exclusive!	"Ken Costello and the MGB-V8" by Robin Weatherall
British V8 Exclusive!	"Costello V8 MKII" by David Michel

THE SUNDAY TIMES
P.O. Box 7, 200 Gray's Inn Road, London WC1X 8EZ Telephone 01-837 1234 Telex 22269

A Tiger in MG's Clothing

Maxwell Boyd takes a look at the fast, new "Costello MGB V8"

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "The Sunday Times".
This article originally appeared in their issue for July 25, 1971.

Ever since its introduction in 1962, the MGB two-seater roadster and later, the hardtop coupe have been our most popular and best-selling sports cars. They are well-built and finished, and they have a substantial, reassuring feel on the road. But you could never pretend that their 1.8-litre four-cylinder engine gives enough power to move the car's one-ton weight in the manner in which it should be moved.

BMC also realised this, and in late 1967 brought out the MGC witha six-cylinder engine and rather more horsepower. But the motor was far too heavy, the weight distribution went all wrong and though the car was fast in a straight line, it was an appalling handful to put it mildly, on corners. The makers appreciated this, as well and in August 1969 the MGC was quietly buried after a life of less than two years.

The problem of the under-engined MGB remained but British Leyland have been too busy lately revamping their more popular lines to do anything about it. Now the problem has been taken out of their hands and a solution found - albeit at a price - by a free-lance engineer and well-known former saloon car racing driver called Ken Costello. After 2.5 years work in the garage of his bungalow in Bromley, Kent, Costello has developed an MGB which can out-drag a Jaguar E-type up to 100 mph, which has a theoretical top speed of 140 mph, and which is actually lighter than the original car.

Costello and the MG that's faster than an E-type Jag

(photo by Kelvin Brodie)

The new car is caled the Costello MGB V8, and its secret is the 3.5-litre V8 Rover engine, which fits snugly under the bonnet with hardly any modification at all. Made wholly of aluminium, this weighes 60 pounds less than the MG engine, yet it has nearly twice the cubic capacity, 50 percent more power (150 bhp compared to 95 bhp) and double the torque.

The result is an MG which, as I discovered last week, combines all the tigerish acceleration, power, and speed you would ever need, with kitten-like docility and mechanical silence. Moreover, since the weight distribution is now 50-50 front and rear, the handling and roadworthiness of the car are of a very high order.

There is a 60 mph in second gearm and 90 mph in third, while 60 mph from a standstill takes under seven seconds. On the other hand, the car will pull steadily from 20 mph in top and in most road conditions you seldom need to drop below third. Cruising at 70 mph in overdrive top, the engine is hardly more than turning over at a lazy 2300 2300 rpm. With equal ease you can trickle gently through heavy traffic, hurl yourself past a slow-moving queue, or cruise on the Continent at more than the "ton."

Under the MG skin (only a slight bulge on the bonnet betrays the V8 engine), Costello has used a standard MGB gearbox, with a modified flywheel and a stronger yet very light clutch. The rest of the transmission is mixed MGB and MGC, with modified MGB brakes. The standard MGB cart-spring rear suspension has proved more than adequate while, at the other end, the larger engine has caused no overheating problems.

The V8's finish is well up to factory standards. There is nothing of the slightly tatty, one-off, cardboard look one normally associates with this kind of car, and the whole project has been received with enthusiastic approval (though not officially endorsed) by the top brass of British Leyland. They are cooperating over the supply of Rover engines and as Ken Costello points out about servicing: "Every spare you might ever need is made by British Leyland - either MG or Rover."

Production of the MGB V8 is limited to one car a week at present. This will climb to five a week in a month's time when Costello moves into his new factory at Sidcup, then a further five a week for export to Europe a month later. Conversion of a standard MGB (open or hardtop, new or nearly new) to V8 specification costs £900. A complete car, direct from Costello, costs £2152 (open) or £2289 (hardtop). Expensive for an MG, perhaps, but still appreciably cheaper than a Jaguar which its performance so closely equals.

This article is one of SIX articles we've published about Costello V8's! If you enjoyed this article, check out:

The original Costello brochure	"Introducing the Costello MGB.V8"
Autocar magazine's road test	"Auto Test: Costello MGB GT V8"
Motor magazine's road test	"Motoring Plus: Bumbling B"
British V8 Exclusive!	"Ken Costello and the MGB-V8" by Robin Weatherall
British V8 Exclusive!	"Costello V8 MKII" by David Michel

British V8 Home: Read the Magazine Photo Gallery Web Forum Annual Meets Contact Us Site Map

Autocar
Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, Tel: 01-661 3500, Telex: 892084 BISPRS G
To contact the writer please telephone 01-661

Auto Test: Costello MGB GT V8

Tiger Tamed

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Autocar".
This article originally appeared in their issue for the week ending May 25, 1972.

AT-A-GLANCE: Rover 3500 engine in MGB transforms performance and imparts delightfully refined character to Abingdon GT. Handling improved by better weight distribution, excellent traction, no tramp. Fuel consumption can be heavy. Ultra-high gearing gives easy cruising.

If ever one of our Autoproject type of proposed designs were to come true, we hope it turns out as well as the Costello MGB V8, which is something in the same vein. Like the Autoprojects, this car is a kind of hybrid, built up from existing British Leyland components. We can think of no reason why BLMC are not producing it themselves, and their product planners ought to be ashamed of themselves at not having spotted this potential market.

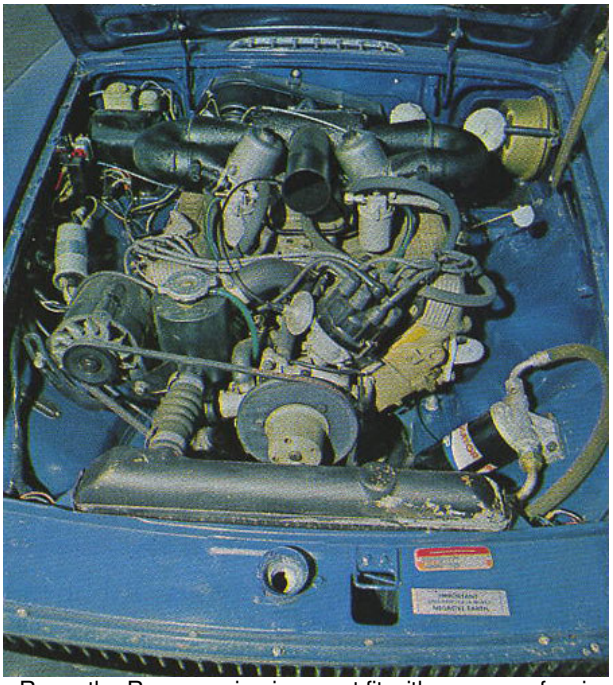
Getting down to facts and specifications, the Costello MGB is very simply an MGB powered by a Rover 3.5-litre vee-8 engine. The conversion has been executed by very competent engineers and the standard of finish is far and away better than the norm of this kind of swap. There is nothing under the bonnet to suggest that this is not an authentic BLMC model, only a bulge in the lid and special "egg box" grille giving the game away to an expert eye or a standard MGB owner. On the tail is the neat "Costello V8" badge.

Only the bonnet bulge with a revised front grille and a neat "Costello V8" badge on the boot identify this MG as anything other than a standard 1.8. The rev counter has a modified red sector, starting at 5000 rpm.

Mated to the Rover engine is a normal MGB gearbox, which is now uprated and rationalized with that which used to be fitted in the MGC, driven through a 9.5 in. dia. clutch (the MGB uses an 8 in. unit). Final-drive ratio is raised from 3.9 to 3.07 to 1, standard MGB 165-14 in. radial tyres being used. This combination gives 22.85mph per 1,000 rpm in direct top, instead of 17.9, and 27.9 mph per 1,000 in overdrive. The test car was fitted with optional alloy road wheels with increased offset which led to slight wheel-arch fouling at speed on the MIRA banking.

Suspension, brakes, and steering remain as on the standard MGB, the new engine actually improving the weight balance of the car. Compared with the MGB GT we tested on 1 July 1971, the Costello V8 is nearly 90lb lighter overall and 109lb lighter on the front end, improving weight distribution from 52.6: 47.4 to exactly 50:50. The optional brake servo forms part of the Costello package and harder anti-fade front pads increase the pedal effort very slightly over a standard MGB set-up. It still took less than 70lb. on the pedal to lock all four wheels from 30 mph in the dry.

Despite the ultra-high gearing which forms such a vital part of the car's character transformation, the MGB V8 is extremely quick off the mark. The test car had covered too few miles for it to be giving the real peak of its performance, but it still scorched off the line to reach 60 mph in only 7.8 sec and 100 mph in 22.0 sec. For comparison, the four-cylinder MGB takes 13.0 sec to reach 60 mph and after 22 sec it is doing only 76 mph. The six-cylinder MGC, when it was in production, took 10 sec to reach 60 mph and 29.3 sec to reach 100 mph. Compared with this latter unhappy and ill-fated car, the Costello machine is a full 11 sec quicker from rest to 110 mph.



Under the bonnet the Rover the Rover engine is a neat fit with a very professional standard of finish.

As installed in the MGB, the Rover engine develops about 150bhp, which is 58 per cent more than that of the BLMC B-series unit. Extra capacity has always been the easy way to increased torque, and the Rover engine develops over 200 lb.ft. (DIN); this is 82 per cent more than the torque of the MGB and the peak comes at 2,750 instead of 3,000 rpm.

It is no surprise therefore to find the Costello V8 a flexible, easy-to-drive car with deceptively brisk performance and delightfully "long" gears which have real punch down low and plenty at the top end as well. First, for example, will run to almost 40 mph before the hydraulic tappets pump up and limit the revs, while overdrive top can be used smoothly from as low as 20 mph. Engine noise is minimal, the exhaust is quiet and free from characteristic vee-8 beat experienced on most American cars and the whole car much more refined to ride in than any MG built at Abingdon.

In contrast to the silky smoothness of the engine, the standard MG ride feels decidedly firm and around town the taut joggly behaviour can be uncomfortable. Out on the open road at speed, or in a tricky corner taken fast, the virtue of these characteristics is regularly appreciated and the car feels extremely safe, stable and surprisingly integrated as a design. The better weight distribution is easily noticed and despite the absense of rear radius rods, we experienced no axle tramp either during standing start wheelspin getaways in the dry or

full-power low-gear cornering in the wet.

Regular readers who can cast their minds back a few years will recall that we ran two Sunbeam Tiger V8s as staff cars successively, first a 4.2 then a 4.7-litre. Comparisons are natural, and although the Costello V8 has much the same tiger-like quality about the way it squirts between corners, it is all much better tamed, much more under control and much less dramatic. With the Tiger you found yourself being spectacular, even if you started out in a docile frame of mind. In the MGB V8 one is much more subtle, more subdued, just as quick and much safer on corners. When it rained, the Tiger driver had to tread very gently (like on a wet pavement in crepe-soled shoes) to avoid excessive wheelspin all over the place and fearsome axle tramp that could, if allowed to persist, break off the rear damper mounts very rapidly indeed. In the MGB V8 we found a surprising amount of traction on wet roads and no suspension problems at all.

To make room for the Rover induction system on top of the engine, Ken Costello replaces the standard bonnet with a glass-fibre moulding incorporating a large but smoothly blended bulge. The paint was a perfect match on the test car and one could not see that it was made from anything other than steel. The rest of the car is perfectly standard MGB, so one learns to live with an insensitive water-valve heater, poor ventilation, a tin-lidded glove locker that can be shut only with a key and seats set very low in the car. MGB owners will have to come to terms with all this, but anyone expecting this car to be as well planned and equipped as, say, a Datsun 240Z will be dissappointed. That is British Leyland's fault, not Ken Costello's.

From the overall fuel consumption returned of 18.8 mpg, it would appear that the MGB's remarkable thrift (23.7 mpg overall on test last year) has been thrown by the board. If you compare the steady-speed consumption figures though, you find that at high speed the two cars are remarkably similar and that our low overall figure reflected more than usual the amount of town driving we were forced to endure. In more normal circumstances the V8 should return better than 20 mpg without any pussy-footing.

As a final note in this test we should add that at no time did the engine temperature gauge even flicker from the normal position and never did we experience even a trace of plug fouling. As a conversion, we rate this car as perfect and as a model in its own right it deserves the highest praise.

MANUFACTURER:
Costello Motor Engineering Ltd.
Farnborough Way, Farnborough, Kent

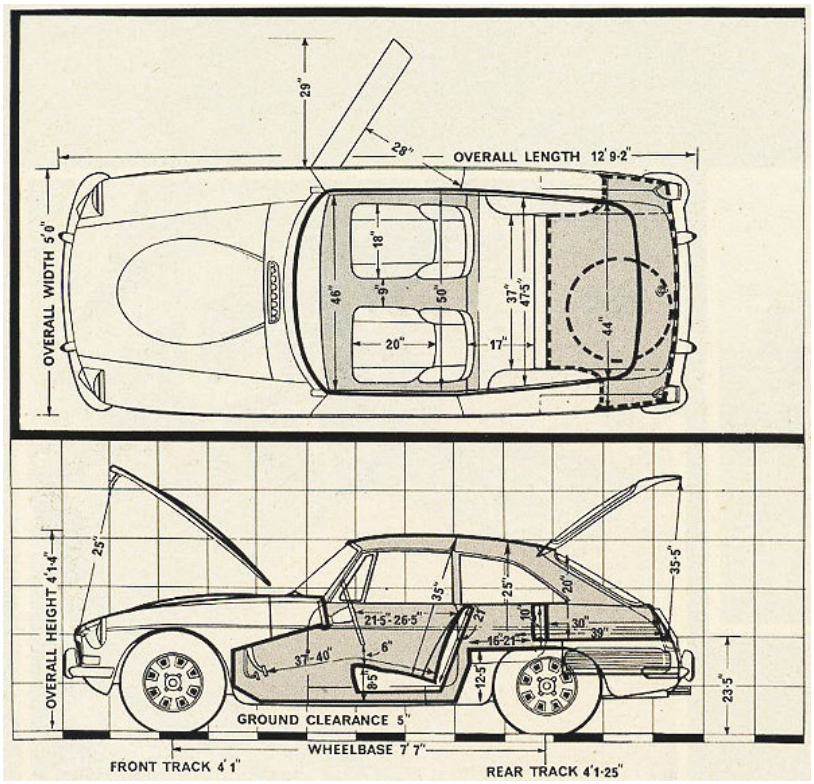
PRICES:

Basic	£2,181.00
Purchase Tax	£252.81
Seat belts (approx.)	£9.43
Total (in G.B.)	£2,443.24

EXTRAS: (inc. P.T.)

Overdrive	£62.83
Radial Tyres	£9.67
Alloy Wheels	£88.00
Heated Backlight	£12.57

PRICE AS TESTED: £2616.31



Acceleration

GEAR RATIOS AND TIME IN SECS

mph	OD Top (2.53)	TOP (3.07)	3rd (4.23)	2nd (6.65)
10-30	-	-	5.2	2.9
20-40	8.9	6.7	4.4	2.7
30-50	8.0	5.8	3.8	2.8
40-60	8.1	5.9	4.0	3.4
50-70	8.5	6.4	4.8	-
60-80	8.9	6.9	5.4	-
70-90	10.5	7.4	6.7	-
80-100	12.6	9.7	-	-
90-110	18.2	14.0	-	-

Performance / Gearing

MAXIMUM SPEEDS

gear	mph	kph	rpm
Top (mean)	128	206	5,600
Top (best)	130	209	5,700
O.D. 3rd	118	190	5,900
3rd	98	158	5,900
2nd	63	102	6,000
1st	39	63	6,000

SPEED IN GEAR

(165-14 tyres)	mph/1000rpm
O.D. Top	27.9
Top	22.85
O.D. 3rd	20.1
3rd	16.6
2nd	10.5
1st	6.6

Brakes

FADE

RESPONSE

(from 70 mph in neutral) Pedal load for 0.5g stops in lb.				(from 30 mph in neutral) Load	g	Distance
1	40-25	6	45-50	20lb	0.18	167ft
2	40-30	7	50-60	40lb	0.55	55ft
3	40-30	8	50-60	60lb	0.94	32ft
4	50-40	9	50-60	65lb	0.96	31.3ft
5	50-55-45	10	50-60	Handbrake	0.32	94ft
				Max.Gradient 1 in 3		

Comparisons

Model	Price	MAX MPH	0-60 MPH, S	1/4 MILE, S	OVERALL MPG
Costello V8	(£2,392)	128	7.8	15.8	18.8
Datsun 240 Z	(£2,311)	125	8.0	15.8	21.4
Morgan +8	(£1,730)	124	6.7	15.1	18.3
Ford Capri 3000GT	(£1,538)	122	8.4	16.2	21.5
Triumph TR6	(£1,476)	119	8.2	16.3	19.8

Consumption / Test Conditions

FUEL MILEAGE constant speed	mpg
30 mph	29.3
40 mph	30.3
50 mph	29.3
60 mph	28.0
70 mph	26.3
80 mph	24.9
90 mph	22.4
100 mph	19.8

Typical	21 (13.4 litres/100km)
Calculated (DIN)	23.9 (11.8 litres/100km)
Overall	18.8 (15.0 litres/100km)
Grade of fuel	Super 5-star (min 100RM)

WEATHER:	
Overall: Fine	Wind: 8-14mph
Temperature	6 deg C (43F)
Baro.: 29.4 in/hg	Humidity: 56 per cent
Surfaces	Dry concrete and asphalt.

WEIGHT:	
Kerb weight	2,292 lb (1,041 kg) (1/2 full tank)
Distribution	percent F, 50: R, 50.
Laden as tested	2,672 lb (1,215 kg)

TURNING CIRCLES:	
Between kerbs	L 32 ft 1 in; R 33 ft 4 in.
Between walls	L 33 ft 2 in; R 34 ft 5 in.
Steering wheel	3 turns, lock to lock

Figures taken at 800 miles by our own staff at the Motor Industry Research Association proving ground at Nuneaton.

This article is one of SIX articles we've published about Costello V8's! If you enjoyed this article, check out:

- The original Costello brochure — "Introducing the Costello MGB.V8"
- Motor magazine's road test — "Motoring Plus: Bumbling B"
- The Sunday Times newspaper's review — "A Tiger in MG's Clothing" by Maxwell Boyd
- British V8 Exclusive! — "Ken Costello and the MGB-V8" by Robin Weatherall
- British V8 Exclusive! — "Costello V8 MKII" by David Michel

British V8 Home: Read the Magazine | Photo Gallery | Web Forum | Annual Meets | Contact Us | Site Map

Motor
Surrey House, 1 Throwley Way
Sutton, Surrey SM1 4QQ
Telephone: 01-643 8040
Telex: 946564 BISPRS G

Motoring Plus: Bumbling B

At last your patience rewarded - we test Costello's Rover-engined MG B

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Motor".
This article originally appeared in their issue for the week ending June 2, 1973.

Regular Brands Hatch spectators will certainly remember Ken Costello as a Mini driver of no small repute; now he is better known as the man who puts Rover 3500 engines into MG Bs. He got a lot of publicity for this interesting conversion by letting the motoring correspondents from the national Sundays have a gentle 10-mile jaunt in one of his cars, whereupon they all published suitably ecstatic road test reports. Somehow he felt shy of the specialist press, it seems, for he gave us a 10-mile ride too, but would not let us borrow the car to take to MIRA for performance testing. So we fell out. For our part, we could only conclude that he was not confident that his car would be able to withstand our normal test procedures.

Next thing we knew a full test on a Costello V8 was staring at us from the pages of a deadly rival, so we rang Ken and, apart from the swearing, said very little. He replied that he had lent the car for photography only and claimed that he had had to rebuild the engine completely because it had not even been run in. Yes, he had meant to give us the first test car.

We offer all this by way of an explanation to the large number of readers who kept ringing and writing to our offices to ask us when we would be testing a Costello MG. Eventually it was a reader who offered us his own car, the results of which are published here. We rang Ken again to get the technical details, and now he tells us that he has yet to lend us a car as he's been saving up his latest machine specially for Motor; development is almost finished on a V8 MG B with Ken's own five-speed gearbox. Should be interesting, if we can have it, Ken! Rumour has it that Ken C. won't be the only man in the MG B conversion [business] for much longer, so there may be an interesting comparison for us to report on soon.

The car we tested is already a little out of date. Ken began by fitting a completely standard Rover V8 engine to the MG B, complete with SU carbs that called for a power bulge in the bonnet. Current cars have a Weber carb which permits the use of the standard bonnet. Other mods were a higher back axle ratio of 3.07:1 instead of the standard 3.91:1, a C-type propshaft, and a modified steering column with two Hooke joints instead of one which made it possible to fit some kind of a special exhaust manifold to the offside cylinder bank without fouling the steering.

Costello MGB V8 - DKH 418K (Photo by Ken Smith)

This exhaust manifolding certainly looks somewhat stangulatory (have I invented that word?) and may well have an adverse effect on power output. The standard engine as fitted to the Rover 3500 turns out 144 bhp (DIN) at 5000 rpm and 197 lb ft (DIN) at 2700 rpm: simply because the manual gearbox in the 3500S leaves room for better exhaust manifolding, the S engine offers 150 bhp (DIN) at 5000 rpm and 204 ft lb (DIN) at 2700 rpm. Ken claims 175bhp (gross) for the standard engine; this may well be true but gross figures are misleading because they don't take the all-important ancillaries - including exhaust manifolds - into account. The old MG C straight six produced 145 bhp (net) at 5250 rpm and 170 ft lb (net) at 3500 rpm but that car was killed stone dead at birth by the Press, as is well known. Looking back at our Road Test we were not guilty of irresponsible criticism, but we did point out that even then, back in 1967, the MG B/C's controls and finish were somewhat dated. Despite its nose heaviness and poor low-speed torque we still rate the MG C as a very good second-hand buy for today's two-seater customer. We tested a very pleasant example a few months back for which £600 was being asked, and felt that it measured up very well against similarly priced worn-out Elans and slightly newer MG Bs. One trouble with the B is that it only produced 95 bhp (net) at 5400 rpm and 110 lb ft at 3000 rpm, which is why you see irresponsible middle-aged men in Mazda RX3s tearing away from them in the current adverts.

The other problem with the B is that it is really rather long in the tooth now, in all respects, offering inferior roadholding, handling, and steering when compared with many modern saloons. The ride is nothing special and even the GT suffers badly from wind noise, which was quite appalling in the test car we have just been driving. So while we're not sure whether we would want any kind of MG B these days, if we had to have one we would certainly want it to go better than the standard one.

Costello's machine certainly does this, making the ordinary B look very silly and even making mincemeat of the poor old C as well. Trouble was that we didn't want to break anything on our friendly reader's car and the completely standard transmission (apart from rear axle ratio, of course) was showing signs of complaint on the standing start runs. Letting in the clutch hard at 3000 rpm was obviously ideal for quick times but we soon settled for feeding it in a little more gently because of the nasty banging noises inside the transmission tunnel. For the same reason we did not rush the gearchanges too much either, but even so we still noticed a degree of rear wheel steer in the form of a wiggle (so to speak) on changing up under hard acceleration, so obviously the back axle was getting rather wound up. Despite these tactics we still managed 0-60 mph in 8.0s and 0-100 mph in 23.9s and you can see from the figures that the standard B is hardly worth comparing with this kind of performance. The MG C reached the same speeds in 10.0s and 30.1s, by the way.

Top speed is over 120 mph for the V8. With a touch of adrenalin and an extra tug on the seat belt, I went round the banking at MIRA and through the timing lights at 124.1 mph, and it gained about 150 rpm before the next banking when tyre scrub slowed it down a little. We estimate that the mean top speed would come out at about 125 mph.

We would not like to drive the Costello machine hard all the time as, subjectively, it feels cruel to the standard transmission and suspension. Ken has had to blank off overdrive on third gear on the current cars since a couple of converted machines were brought back under warranty with broken third gears after the customers had repeatedly changed down from overdrive under full throttle in third gear. Clearly the ordinary B box is operating near its limit. This is one reason why Ken has invested in a completely new box, the other reason being that the standard B ratios are not very good because of the large gap between second and third, a fault that was accentuated on the C by its poor low-speed torque, but which is to a large extent masked by the excellent low-speed torque of the Rover mill. We were able to take it below tickover speeds in direct top gear by holding it against the brakes momentarily: it is then possible to push the accelerator pedal to the floor and pull away without hesitation or jerking. As you can see we took a 10-30 mph figure in top and all the low-speed top gear acceleration figures are very impressive indeed.

Fuel consumption came out overall at a very acceptable 22.6 mpg giving a range of just over 270 miles from the 12 gallon tank. A bigger tank wouldn't be a bad idea, Ken, as it would make the car into an excellent reasonably priced high performance touring car. With handling that is only marginally better than that of a standard B, however, it is not really a car that can begin to compete with the best

modern sports cars like the Lotus Elan Esprint and Europa for sheer driving pleasure. It's more of a competitor with say the Datsun 240Z, and well worth considering as an alternative to that car.

Although Costello's car has a slight rearward weight bias (whereas the standard B GT is just heavier on the front wheels) we were surprised to find that the V8 was very slightly heavier overall than the standard car. The Rover engine is meant to be lighter than that of the B, so perhaps the car itself has put on a bit of weight since then. The steering feels slightly lighter than standard, but that's not saying much as the B needs tough, muscular armwork anyway. Ken's extra Hooke joint in the column seems to have no adverse effect, though British Leyland criticised it on safety grounds when a Costello V8 was submitted to Abingdon for assessment. They did not like the welded steering joint, apparently, but Ken claims that his steering mod is carried out by the same firm that supplies similar steering gear for Triumph cars. "It it's all right for Triumphs, it's all right for my B," he says. We could get no further comment from BL on the subject, though they did say they have no ill-feeling towards the enterprising Mr. Costello: on the contrary, they admire his initiative.

One point that should be cleared up here is that BL did not cut off Ken's supply of engines out of spite. They are short of them for Rovers and Range Rovers anyway. They have a longstanding arrangement with Morgan over the Plus 8, but it seems that Ken's production of MG B V8s is so small that BL would be making a loss if they supplied him anyway. So he found a source of blocks which he builds into complete engines on his own premises. The only other difference between our test car and current cars is that the latter have a thermostatically controlled electric cooling fan. When the five-speed box, the gears for which are being made by Hewland, no less, comes on to the market it will cost well over £200, though customers will save a little as the standard axle ratio can be retained.

There you are, faithful readers. I hope it was worth waiting about 18 months for this test. Now, how about that five-speeder, Ken?

- Tony Dron

Car: MG B GT

Conversion by: Costello Motor Engineering Ltd. Farnborough Way, Farnborough, Kent.
Tel: Farnborough (Kent) 58919
Conversion: Installation of a Rover 3500 engine, high rear axle ratio, heavy duty prop shaft.
Price: List plus £975 making car as tested £2522 less extras.

	MG B GT	**V8 MG B GT**
MAXIMUM SPEED		
	mph	mph
Lap	107.6	see text
Best 1/4 mile	-	124.1 mph
ACCELERATION		
mph	sec	sec
0-30	3.6	2.7
0-40	5.6	4.1
0-50	8.2	5.9
0-60	11.6	8.0
0-70	15.9	10.6
0-80	21.4	13.3
0-90	30.2	18.1
0-100	46.3	23.9
standing 1/2mi	18.2	15.9
standing km	33.9	29.3
IN TOP (direct)		
mph	sec	sec
10-30	-	6.6
20-40	9.2	6.0
30-50	8.8	5.6
40-60	8.9	5.2
50-70	10.5	5.4
60-80	12.7	6.4
70-90	16.1	7.4
90-100	-	10.0
IN THIRD (direct)		
mph	sec	sec
10-30	6.7	4.4

20-40	6.2	3.9	
30-50	6.1	3.8	
40-60	6.7	3.9	
50-70	7.9	4.2	
60-80	-	5.4	

FUEL CONSUMPTION

Steady mph	top mpg	o/d top mph	top mpg	o/d top mpg
30 mph	42.1	47.4	30.3	34.4
40 mph	40.2	44.0	30.4	33.8
50 mph	36.1	40.9	29.7	32.0
60 mph	32.9	37.8	28.3	30.0
70 mph	29.5	33.8	26.4	28.3
80 mph	24.8	28.9	24.5	26.5
90 mph	20.5	24.4	22.2	23.5
100 mph	16.6	19.5	-	-

	mpg	mpg
Overall	27.4	22.6
Touring	33.0	25.6

When Motor originally published this article, they illustrated it with one large and three small black-and-white photos of a light-colored Costello MGB V8 with registration plate "NLC 366K". Our copy of the article didn't include reproducible photos, so we've substituted one large color photo of a Costello V8 ("DKH 418K") by contributor Ken Smith.

This article is one of SIX articles we've published about Costello V8's! If you enjoyed this article, check out:

The original Costello brochure	"Introducing the Costello MGB.V8"
Autocar magazine's road test	"Auto Test: Costello MGB GT V8"
The Sunday Times newspaper's review	"A Tiger in MG's Clothing" by Maxwell Boyd
British V8 Exclusive!	"Ken Costello and the MGB-V8" by Robin Weatherall
British V8 Exclusive!	"Costello V8 MKII" by David Michel

Barry Yardley's 1977 MGB with Rover 3500 V8

Roger Parker describes building Barry's fuel-injected MGB-V8 swop

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Note: This article was originally written in 1985 by Roger Parker for his friend Ken Smith, who intended to include it in a book for MGB V8 enthusiasts. Better late than never, British V8 is proud to be publishing Ken's collection of notes. Twenty-three years have passed, yet we feel this article is still quite relevant and interesting!

Owner: Barry Yardley
City: Minworth, Sutton Coldfield, UK
Model: 1977 MGB
Engine: Rover 3500 V8
Conversion by: Roger Parker and Barry Yardley

This is the story of the construction of an MGB GT V8 from a bare shell to running vehicle being used on the road. It is a project undertaken by a fellow MG nut, Barry Yardley and myself. The car is Barry's daily transport and as such it has to cope with the Birmingham rush hour traffic, this means that the car has to be totally practical and reliable in normal use as well as being reasonably easy on petrol. The final mechanical specification has some major differences from that of the original factory MGB GT V8 which enhance both performance and reliability. It also has some compromises which are not the perfect match but are dictated by costs and availability.

I think most MG enthusiasts would agree that the original MGB GT V8 provided a level of performance and refinement that as excellent for its day, especially so when all the financial and other restrictions imposed on it are considered. This in my view left two particularly obvious areas which could be improved on. These were the gearbox and engine power, both of which have related reasons for their standard specification. Since 1975 there have been many developments in car design, to the point that we now have the situation where many mass produced sports saloons provide power outputs very close to the 157 bhp of the original V8. In addition, other developments have enhanced their performance further so that with less power than the V8 these cars can provide similar performance. Just look at the new Astra GTE, 115bhp - 126 mph - 8 sec 0-60mph. However at the moment there is one area where the V8 still wins hands down, that is torque, and it is an area which can be further enhanced.

Our project car was started over three years ago. Initially the plan was to rebuild an accident damaged MGB GT and to retain the 4-cylinder engine but to convert the body to accept a V8 transplant as a bolt in operation later. The 4-cylinder engine would have been uprated to a similar specification to my own 2-litre overbored 'B' series engine. This plan was amended at an early stage to go straight to V8 for a variety of reasons. At this time, a great deal of planning was required before commencing the actual build, also we had a large number of components that could be used. These included (a) a written-off 1977 rubber bumper GT which had received a very substantial side impact when it tried to move a wall. (The wall won!) This was bought in this condition and was mechanically complete. (b) An early 10.5:1 compression ratio Rover 3.5-litre V8 engine which required little rebuilding due to its previous use and lack of road mileage and (c) a complete Federal specification fuel injection set up that was intended for the ill fated SD1's sent to the United States. All of these components, when married together, had the potential to make an interesting car.

The 1977 car was fortunately little damaged in the mechanical areas, however as can be seen in the photo, the body was substantially bent. In addition the large amount of hidden rust present in the shell made it impractical to reuse this body. The next idea was to obtain a brand new body and convert it to the chrome bumper specification as far as the exterior fittings were concerned. This would have been quite easy with the bare shell and the great advantage would be that the new shell would have the latest specification underbonnet area which would allow easy bolt in of the mechanical components from the damaged car as well as allowing for the later conversion to V8. Unfortunately at the time we were after a new shell the availability and cost was not very attractive and accordingly the following route was taken. A 1970 standard chrome bumper shell was obtained and fully rebuilt in respect of all the rust damage normally found in the MGB. In addition to these repairs a considerable number of modifications were completed again with the later V8 installation in mind. These modifications are detailed in the following paragraphs. It was at this time that the decision was made to go straight to V8 specification mainly because of the reduced complication involved in just building the car with one type of engine.

With the project simplified and the goal set, it now left a number of important decisions to be made as to what components to use, both major and minor. Most knowledgeable MG buffs will know that the major problem areas when fitting a V8 into the MGB centre round (1) which gearbox to use, (2) which induction setup to use, (3) what exhaust manifolds and steering shafts to use, (4) what radiator to use, and (5) how to fit an oil filter. These are the main areas for modification and do not include the very many smaller problem areas usually only found when you actually try and do the conversion. As I have already indicated we were in possession of a number of items including an engine and a fuel injection system which we wanted to use together. It was also our desire to have a completely standard exterior body line with no ungainly bonnet bulges. Measurements taken gave the impression that with this fuel injection, the standard bonnet could be retained. For the remainder of the underbonnet components it was decided to follow the standard MG V8 and use as many of the standard parts or pattern parts as possible.

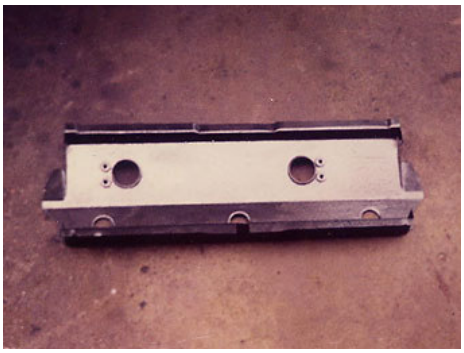
Moving on to the gearbox, this now presented additional problems. We were very much aware that the torque capacity of the standard MG V8 gearbox was being stretched with the standard MG V8 torque of some 198 ft lbs, so with the addition of the fuel injection (and some more special modifications planned for the future) the torque would rise by at least ten percent. We are now fortunate in that there is a standard gearbox from the Rover SD I which has ample torque capacity and the benefit of five gears so this was the gearbox that would be used. Also from the same source would come the bell housing, flywheel and clutch. (No doubt if the five speed box was available when the original MG V8 was being developed, it could well have been used in the production car.) The use of the Rover gearbox would then require changes to the propshaft, and for the best effect the rear axle ratio would have to be changed. All of the preceding items would allow the car to go very well and it would be appropriate to point out that the other necessary areas for modification, namely the brakes and suspension had not been overlooked and these areas would in fact be completed prior to the engine installation. This gives a brief outline of the plans that we made and now I will detail the build of the car in a number of separate sections each under a broad title.

The Body

As has already been indicated, the original base car was a 1977 rubber bumper GT and the replacement shell was a 1970 chrome bumper GT. Anyone who knows these two model years will know that apart from the obvious external differences there are a huge

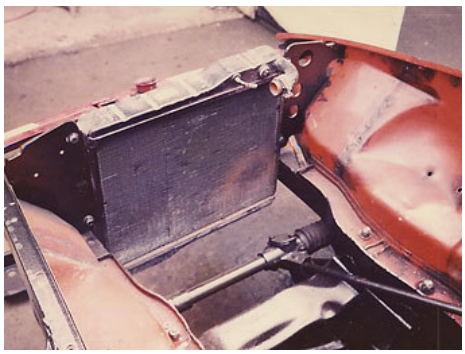
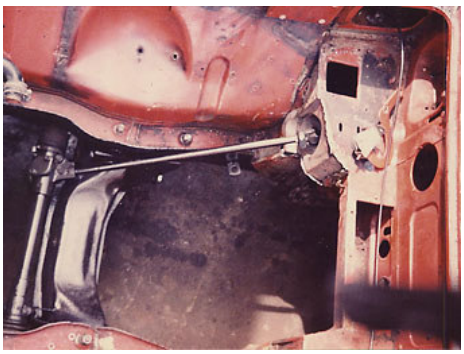
number of other differences under the skin. Some of these would not be suitable in our project but a large number would be and they would be incorporated. The replacement shell was first repaired in the usual areas which was a very straightforward operation and is one which has received much previous coverage. Once this work was complete, work was started on the underbonnet area which was to be converted to the same specification as the 1977 donor shell. To this end we took a large number of measurements from the donor shell before cutting out various panels ready for reuse in the 1970 shell. The panels used were, (1) the bonnet platform, (2) the radiator mountings, (3) the bulkhead corners. Also the following new panels were bought, (1) two later style chassis mounted engine mounting brackets and (2) the later style oil cooler mounting platform (for the underslung cooler). Prior to refitting the salvaged panels they were all carefully separated from the unwanted metal that was cut off with them, and then they were shot blasted.

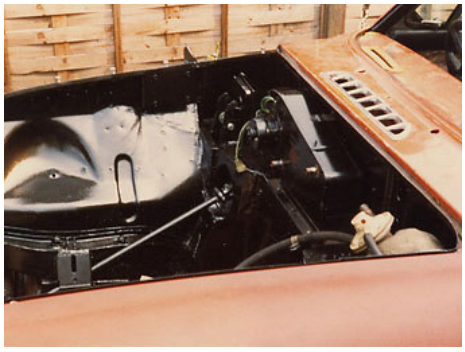
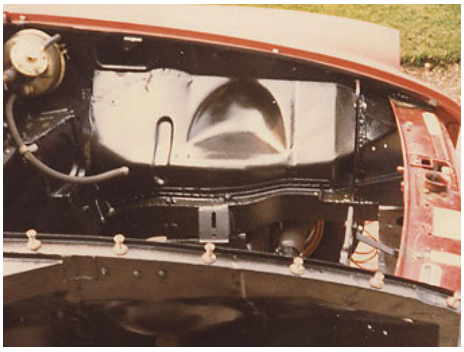


On the 'new' shell, the first job was to cut off the original engine mounting brackets followed by the radiator mountings, followed by the bonnet locking platform and its support and lastly the oil cooler tray support panel was cut off from underneath. The measurements that we had previously taken from the donor shell were then superimposed onto the new shell and marked. These were carefully rechecked to ensure accuracy before the original oil cooler tray was cut out from the back to match the later style of oil cooler tray. The remaining portion of this tray then had the holes cut out to allow access to the oil cooler pipes before the underslung reinforcement/cooler mounting was welded on.

The next area for attack was the rear of the engine compartment and both bullhead corners to be precise. These have to be modified on the earlier shell in order to allow clearance to the V8 cylinder heads. The modification of the nearside corner was very simple. The complete corner panel removed from the donor shell was superimposed onto the new shell which allowed the corner to be marked and cut out. The donor panel was then fitted to the shell and welded. In complete contrast to the simple nature of the nearside panel, the offside panel was very much more complicated as this corner also carries the lower steering column mounting and this has to be accurately aligned. The way in which we tackled this was to fit the complete steering assembly to the car by the mountings that were to remain and then obtain alignment for the bulkhead corner in this way. Otherwise the corner was fitted as per the nearside except that, prior to seam welding, the alignment was further checked to ensure accuracy.

In the previous paragraph, I referred to the whole steering assembly being fitted so that the bulkhead corner could be aligned. The steering rack fitted without any problems but inside the cabin the upper column mountings are totally different from the earlier cars and require considerable further modification to fit. Our solution was to cut out the crossbrace and speaker panel as a complete unit from the donor shell and transfer it to the new shell. This crossbrace carries several mounting points for the later type of steering column and once fitted to the shell it allows the positions of the remaining upper mountings to be marked on the bulkhead area prior to cutting the new holes. The area where these mountings attach is mostly of a double skinned nature and this requires several access holes to be cut in the area as well as the holes for the mounting bolts. This is a somewhat fiddly job as it is best to cut away as little metal as possible for the access holes. The mounting bolts also used large flat washers to spread the loadings as much as possible.

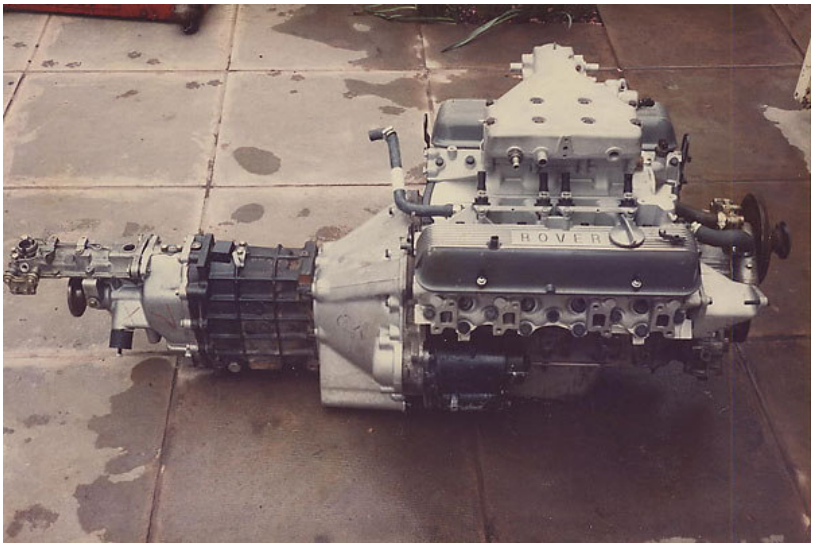
With the completion of the steering and bulkhead modifications the remaining underbonnet modifications were of a much simpler and easier nature. The positions for the new engine mountings and the salvaged radiator mountings were marked and checked before these items were welded in. Then the bonnet locking platform which had previously been removed was refitted and welded. The panel used was the one from the donor shell as it retains the mounting holes for the factory type of electric cooling fans which we would be using. Of course prior to the welding of this panel, all measurements were checked. We now had an underbonnet area which is very similar to that of later cars and V8's. The only other area we found required modification to fit the engine and gearbox was the front of the transmission tunnel in the area under the nearside bulkhead corner. This required being dressed lack an inch or so to give clearance to the bulkier bell housing of the 5-speed box.

Moving away from the engine compartment and into the transmission tunnel found that very few changes were required to fit the gearbox. The top of the tunnel in the area of the speaker mounting, when looking from underneath, has to be dressed upwards to give clearance to the bulkier nature of the gearbox. The amount of clearance required is only a small amount and it does not alter the shape of the transmission tunnel when looking from inside. The only other mod is to the gearstick hole which his to be enlarged at the rear by a small amount to allow selection of 2nd and 4th gears. No other mods were found to be required to the body. The last area of body modifications were in the rear axle area and were not actually necessary but were deemed to be desirable. These mods were to fit the brackets to allow the later rear anti-roll bar to be fitted. Fitting these brackets is very straightforward and alignment is also easy. The brackets used were reclaimed from the donor shell and after aligning they were welded to the body in the same position as the donor car. A point of note here is that the later cars which are fitted with the rear anti-roll bar are also fitted with a single 12-volt battery and only one battery carrier. With the earlier cars, which use the twin 6-volt batteries, problems can arise with clearance for the fuel pump. This was not to affect us as the fuel pump used with the fuel injection has differing pipework and dimensions. This now completed the body modifications.


The Engine

The engine used is an early specification (about 1968/69) 10.5:1 compression unit intended for a Rover 3.5. This engine had considerable advantages over other engines available as it was regarded as scrap and had a resale price which was more than attractive. The history of this engine is a little different to the norm as it was used for test purposes and as such the internal condition was very good and required little expense to bring into A1 condition. In addition to the normal standard pattern replacement parts used such as piston

rings and bearing shells, various other parts and some slight mods were carried out. The camshaft and followers have been replaced by SD1 components which allow a very much higher rev capability than the earlier parts. The distributor has been changed for the latest type of electronic constant energy type as found on the SD1. This unit is slightly different to the original and requires the later SD1 oil pump drive shaft and attached rotor. Unfortunately, this rotor is not a direct replacement for the original as the rotor has a greater depth by about 1". This excess was turned down by using a modeling lathe following which it was a simple operation to fit.



The next change was also in the oil system and was the fitting of a remote filter and take-off plate. This is a well known problem area with V8 conversions and on the B the root of the problem is that the oil filter on the Rover engine cannot be fitted as it fouls the steering rack. This applies to whatever Rover engine is used as the angles of filter mounting vary. The solution is to fit an adapter plate in place of the filter and run pipes from there to a remote filter. The MG V8 uses a replacement for the base of the oil pump which incorporates the pipe take-offs. This is a very compact and neat solution but has the disadvantage of being expensive to obtain as a spare. On the market are several adapters which, if the adverts are to be taken at face value, are much cheaper and effective alternatives. We tried two, one with bottom hose connections and the other with side hose connections and found neither gave the required clearance. Both these adapters retain the original oil pump base and simply screw on to where the filter would have been screwed. They are about half the depth of the filter but as said neither gave enough clearance. This problem was overcome by the use of a specially made adapter from Murray Scott Nelson, which follows the MG V8 style in being a complete replacement base for the oil pump. I would add that this adapter was very well made which does tend to justify its very much higher price over the other adapters. This adapter was fitted without problems.

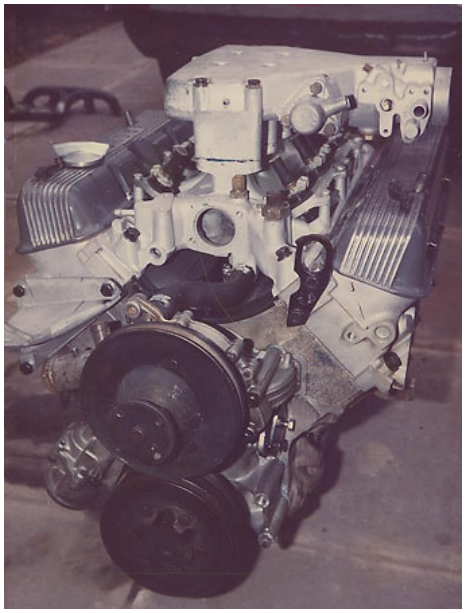
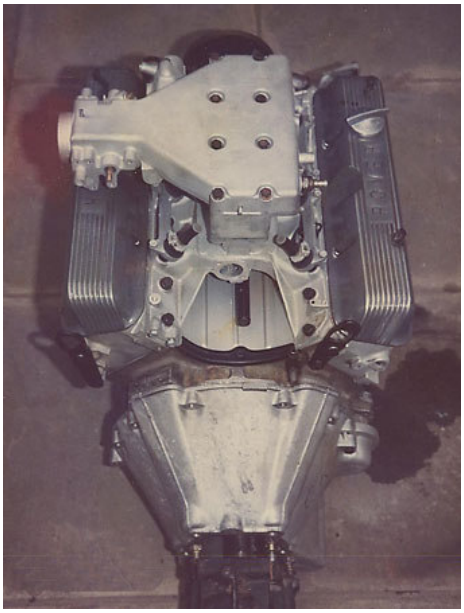
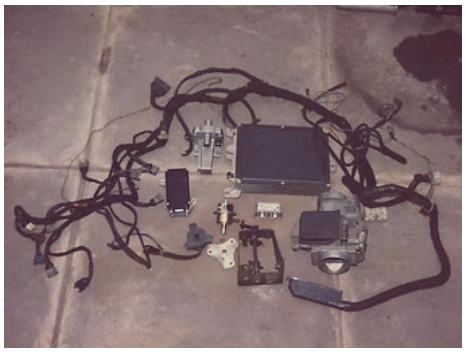
To allow the engine to be bolted into the body requires different brackets to be mounted to the engine block. The original idea was to use the standard MG V8 type of brackets but at the time of conversion these were no longer available. This left us with the thought of making up our own brackets which although not a difficult job meant that we would have no reference to check the brackets against. This would be a problem as one of our major reference points was going to be the actual position the engine was going to sit in the car, and even very slight variations in this position would have a very considerable knock on effect with a multitude of connected components. With this in mind, we obtained a pair of mounting brackets from the V8 Conversion Co. who have been in the business of' V8 conversions for a long time. Their brackets were simple but very strong and allow the use of the standard V8 mounting rubbers as well as probably being as accurate as any that are available. These engine mountings still allowed a considerable amount of torque twist when everything was finally put together. To cure this, we fitted a steady bar similar to that found on Mini's which is fitted between the front of the left hand cylinder head and the nearside chassis rail. The bar used is a fully adjustable rose jointed affair which has been most effective.

The cooling system follows the line of the standard V8 and uses the V8 radiator which fits straight onto the later type radiator mountings. The hoses are all standard V8 hoses and fit without modifications. Two electric cooling fans are used and mount direct to the transplanted bonnet locking platform as all of the mounting holes are already present. The fans are operated by a thermostatic switch mounted in the inlet manifold which switches via a relay mounted in the original donor cars wiring. The heater control valve was the original unit from the four cylinder car and this was mounted at the back of the V on an adapter which in turn was mounted at the rear of the inlet manifold. This adapter was long enough to allow sufficient clearance for the throttle mechanism and fuel piping which fills most of the available space at the rear of the manifold. Finally the fan belt was a standard MG V8 one which runs in a slimmed down Rover front pulley (originally a double for the power steering drive) and water pump pulley. The alternator used is a modern Lucas Type-A 133/55 amp unit which fits the restricted space found in this application. The Lucas ACR types are too deep and the rear of the alternator fouls the rocker cover. This explains the use of the Delco alternator of the standard car.

The Fuel Injection and Exhaust Systems

The fuel injection is to my mind the real icing on the cake as far as this conversion is concerned. The system used is the **"federal"** specification Lucas 'L' type system. This system is very similar to the current Rover Vitesse system although there are many detail differences to suit the different requirements. To give a little history to this system takes us back to the time when BL was planning to introduce the SD1 to the U.S. market. As most of us are aware this market over the recent past has enforced a number of significant changes onto our manufacturers. One of the changes to the SD1 for its U.S. introduction was the requirement to pass certain emission regulations and to maintain the low level of emissions for very many thousands of miles. For various reasons, not least of which was the

very accurate fuel metering, the fuel injection route was taken. Midland readers will probably remember seeing in the 70's, Rover SD1's running around on set routes with big signs over the vehicle indicating 50,000 mile emission testing. At that time I was using Rover 3500 SD1's to the UK specification and I had the opportunity to compare a federal car with the UK car. I found the federal car to be very much better in throttle response and acceleration. I was unable to compare higher speeds but I believe that the differences were not very great. The initial responsiveness of the federal car produced a noticeable advantage on the road and I can see why the motoring press at the time kept nudging for a UK specification injected SD1. After all the certification was completed the car was introduced to the U.S. market and was not a success. This had the advantage of releasing production capacity of injection systems and probably led to the introduction of the Vitesse.


The Lucas 'L' type system is similar to the Bosch system and uses a number of Bosch components. The system works by gathering information from a number of sensors fitted to a number of engine components. These include the cooling system; the throttle; the incoming airflow to the throttle; and the distributor. This information is passed to an electronic control unit (ECU) which acts on it to provide a predetermined injection of fuel for the correct cylinder at the correct time. The fuel is fed from a high pressure fuel pump to each of the injectors. The pressure is maintained at a constant level by a pressure regulating valve which bleeds off excess pressure back to the fuel tank. The injectors are solenoid valves and the amount of fuel injected depends on the time the valve is allowed to be open. It can now be seen that the information passed to the E.C.U. and the programming of the unit can have a profound effect on the running of the engine. The advantage is that if correctly set up the engine will provide maximum power for the minimum of fuel. The attached diagram gives an overall picture of the running of the system. One item which applies to our system and is not shown on the diagram is the cold start injector. This works in unison with the auxiliary air valve supplementary on diagram and operates when the engine temperature is low. The ECU automatically enriching the inlet charge with extra fuel and air via this cold-start device. This enables the engine to provide superbly smooth power delivery from the very coldest of starts, which is a well known feature of fuel injected cars.

With the basics of the system explained, I move to the choice of the federal system as opposed to the more powerful Vitesse system. The federal system was chosen for its compactness. The overall height of the system when fitted to the engine is less than the Vitesse type. Now this is critical in an MG engine compartment if a standard bonnet line is to be maintained, which was a particular consideration for our car. In addition with the flop in the American market there must be quite a few Federal systems, which are now redundant, lying somewhere. Even if only the Federal manifold and plenum chamber are available the remaining parts to complete the system can be raided from a Vitesse. We were fortunate in obtaining a complete system including a wiring harness which makes for much easier connection. The photo's show some of the components to be used.

To fit this system into an MGB is far from simple and involves very many secondary modifications to other areas which will be covered in due course. The first problem to overcome was the bonnet clearance. With the engine bolted in it was found that the plenum chamber, the squarish shaped top part of the inlet manifold, fouled on its front edge with the bonnet. The amount of extra clearance required was

very small and was gained by machining down the plenum chamber, on its face which mates to the inlet manifold, by 1.5". This is about the maximum that can be taken off before the underside of the throttle body contacts the top of the left hand rocker cover. It is however, enough to give clearance to the bonnet so that it doesn't touch at any point. Taking this metal off does reduce the internal volume of the plenum which could affect the engine response, but in practice the effect on the engine's running is not noticed. With this now fitted the remaining engine mounted components were fitted. An area which required modification was the roof of all the inlet ports which had to be lightly ground to give room for the nose of the injectors. All other injection components are bolted or secured to the engine with no other modifications being required. With the reduced height of the plenum chamber comes the reduction of space between the throttle body area and the top of the left hand rocker cover. This also reduces the working area for the insertion of the fuel pipe and wiring. This also means that no's 1, 3, 5 and 7 injectors become virtually buried and immovable with the plenum chamber in place. This is especially so for the two middle injectors. What this means is that the injectors wiring and fuel lines have to be fitted prior to fitting of the plenum chamber. It also means that in service any work in that area requires the removal of the plenum which is fortunately an easy operation as long as care is taken to ensure a fully airtight seal between the inlet manifold and plenum chamber afterwards.

Moving away from items mounted on the manifolding leads us to the air flow meter. This device does exactly what its title indicates by way of an internal flap valve. This valve is quite bulky being about the size of an alternator (new types of meter as found on the '0' series E.F.I. engines of hot wire types and are much more compact). The size of this valve together with the requirement that it be mounted 9" from the throttle has meant the assembly is bolted to the nearside inner wing in the indentation found above the front damper. With this mounted and the interconnecting hose fitted, it has filled the space between the cylinder head and inner wing. It has also meant that for the moment there is insufficient clearance between the cooling system overflow tank and intake side of the valve to accommodate a filter which would have a sufficiently high airflow rate for this engine. Resighting of the overflow tank would be desirable, but the mounting of all the extra control units and relays has left no space large enough for this tank. In time this will have to be solved to ensure a clean air supply and a remote air filter will probably be used but the problem of space still remains. Noise levels from this open intake when the engine is under load are quite muted but it is still loud enough to leave no doubt of the potency of the engine - certainly much quieter than an open-carbed MGB.

The next item to be tackled was the fuel pipes. As I said earlier this injection system is a full flow system which in other words returns petrol not used to the fuel tank. This obviously requires a feed and return pipe for the fuel. Piping used is standard steel fuel piping. One pipe run follows the line of the standard pipe from the area of the fuel pump mounting to the heater area of the engine compartment. This pipe is used to return fuel to the tank. In the engine compartment braided rubber fuel hose is used to connect the pressure regulating valve to the return pipe, each joint being securely clamped. At the rear the return pipe passes over the rear axle before entering the tank through a fixed pipe in the front face of the tank. Next to this return pipe is the feed pipe, this is again mounted in the front face of the tank for reasons which will be covered later when the tank modifications are covered. This feed pipe is of a very much larger diameter than the return, about twice the size. This large diameter pipe feeds the inlet side of the high pressure fuel pump and has to be of such a size in order to be able to flow the very high volume of fuel required by the system. At this point in the system it has to he remembered that fuel is at atmospheric pressure and therefore has no extra pressure assisting the flow. Connection of the tank feed to the fuel pump, which is still mounted in the same location as the standard pre rubber bumper electric fuel pump, is by reinforced rubber piping which follows the body line over the rear axle to the inlet of the pump. The outlet of the pump is of the standard diameter pipe as the fuel has now been pressurized and sufficient flow is available due to the pressure. The feed is connected to next section of steel pipe by the same type of reinforced rubber hosing. The steel fuel feed now follows a totally separate route from that of the return pipe. It passes through the rear bulkhead just above the floor level on the offside and near the corner by the transmission tunnel. It then follows the line of the tunnel and floor joint to a point near the front of the tunnel. The pipe then rises over the tunnel to the nearside before rising under the dashboard and forward through the front bulkhead and into the engine compartment roughly under the nearside bonnet hinge. From there another reinforced hose connects this pipe with the fuel piping of the injection. I would add that the internally routed pipe is of one complete run with no connections inside the cockpit also all other hoses and clips are new and of a type which is designed to cope with the fuel pressures found in this type of system. This is of course to ensure safety as well as reliability in operation.

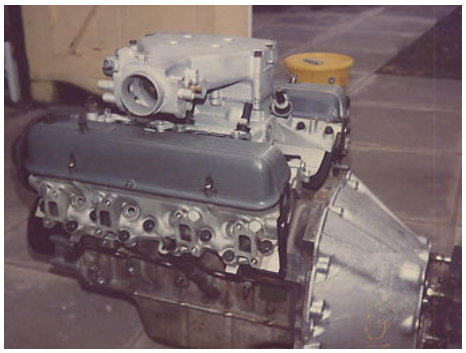
The fuel tank has, as has already been indicated, come in for its own series of modifications. These are geared to ensure smooth operation of the injection system. The tank used is a larger than standard 13.5 gallon unit which is identical to the standard item other than the larger capacity. The standard sender unit is used but the fuel outlet found on the side of the tank is sealed as this is redundant. Externally the two extra pipes previously mentioned are fitted to the front of the tank as described. Where they pass inside the tank they are brazed to prevent leaks. At this point I think it worthwhile to say that a brand new tank was being used and one that had not seen any petrol. (Specialists may weld used fuel tanks, but I wouldn't even heat one with a hair dryer!) Moving inside the tank finds both pipes running to a 'bowl' in the centre of the tank floor. This 'bowl' has an access hole for fuel to enter it which can then be drawn by the pick up pipe. The purpose of this bowl is to provide a constant fuel supply whilst the vehicle is being cornered when fuel surge occurs. The hole in the bowl being too small to allow its rapid emptying under these conditions but being large enough to not restrict fuel supply. With the fuel return emptying into the same bowl a sufficient fuel reserve is maintained until the cornering has ceased. These conditions only

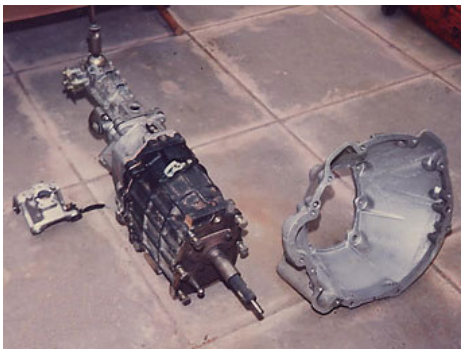
apply when the fuel level in the tank was below half, above that level and surge doesn't present this problem. If the bowl wasn't there and the tank level was to drop then when the car was cornered the fuel pick up could be uncovered and suck air which would cause a severe hiccup in the engine. (Sudden loss of engine power whilst cornering could be most unwelcome). One final point is that the new pipe exit positions where to our choice and not fixed by any technical restrictions. We chose to have the runs where they are to suit our mounting of other components. A quite reasonable alternative would be to have the pipes pass through into the boot area which would improve fuel pump access and possibly risk of damage or failure to the pipes or pump. The last item of the fuel system worthy of mentioning is the high pressure fuel pump. This item has much smaller external dimensions to that of the SU pump. This and the differing pipe runs allowed us to use the standard pump bracket to be used in a shrunken form. It also allows more than enough room for the fitting and operation of the rear anti-roll bar common to all post 1976 MGB's.

Wiring all of these extras together was made easier with our possession of a wiring harness and the correct connector blocks, even so this area was not simple until the arrival of the correct wiring diagram which then made the operation straightforward. All of the extra electrical components connected with the control of the injection are mounted in the engine compartment with the exception of the master E.C.U. which is mounted in the passenger footwell. The final mounting position of these components was decided upon to take into account the following requirements, ease of fitment, sensitivity to heat or other contaminants, any other special mounting conditions for that component. In the end we have managed to mount most items in relatively similar positions to those of the SD1 for which our system was originally fitted. The extra loom for the injection only required a few alterations to wiring length. The only area which could have been extensively modified was in the wiring run to the E.C.U. In the MG body it could have been shortened but this would have meant shortening no less than 28 wires (the total number of connections in the whole system exceeds 100 which does show how simplified the diagram is. The extra length of the loom is lost in the bulkhead area. Related to the inlet side is the exhaust which was tackled in the following way. Tubular manifolds were obtained and were fitted to the cylinder heads with the use of new bolts, tab washers, and export type gaskets. The left hand manifold can be easily fitted but the righthand manifold required a little extra cutting and rewelding to run it closer to the block for clearance of the steering pinion shaft. Even with the reshaping done, the manifold could not be fitted until the engine was raised slightly on the offside. This required the offside engine mounting rubber to be temporarily loosened. If the manifold was bolted to the head with the mounting loose we found insufficient room to get in to tighten the mounting nut. The result is that the mounting has to be loosened and the engine raised, followed by the slotting into place of the manifold. The engine is then lowered and mounting tightened followed by the bolting of the manifold to the head. The rearmost top manifold bolt presents difficulty as it cannot be easily fitted due to the pinion shaft being so close. Persistence does eventually win but what is explained in a few lines took several hours of knuckle skinning. The exhaust system is a standard chrome bumper V8 type including the mountings. The two front down pipes had to be cut to match the non-standard manifold: but this is a very simple operation. The only other exhaust modification was to the pipe between the two silencers to obtain clearance for the non-standard Spax telescopic rear dampers.

Transmission

The engine and its ancillaries now having been covered leads to the next major area for conversion and that is the flywheel, clutch, and gearbox. The gearbox we've used is a Jaguar version of the current Rover five speed box. The differences between the Rover and Jaguar applications as far as the external view is concerned is confined to the bell housing, which is a separate bolt-on item, and the remote gear change. Inside the box there are other differences, none of which have a detrimental effect on the new application. One other small item which is different is the operating rod of the clutch slave cylinder release mechanism. In the Jaguar application it is shorter and will not operate the Rover clutch.





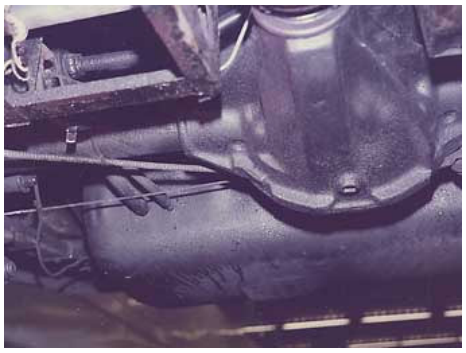
The changes required to allow this box to be fitted to the V8 engine and subsequently into the MG are simple. First the remote assembly has to be changed for the Rover SD1 type which is longer (see the photo). This is a simple unbolt-one-and-bolt-on-the-other. The next job is to obtain and bolt on a Rover SD1 V8 bell housing along with the clutch operating pushrod from the same car. At this stage the gearbox could be offered up to the engine and bolted to it. The logical flywheel and clutch to use is pure SD1 V8 which will present no problems. In our case however we were in possession of a genuine MG V8 flywheel which of course bolts straight onto the crankshaft. We were also in possession of a genuine used MG V8 clutch assembly and a new SD1 assembly. On comparing the two we found that we could use either as items such as clutch splines and flywheel mountings were identical. Being as the SD1 item was new, that was used and it was bolted onto the MG V8 flywheel. (It would appear that in the event of non availability of the genuine MG V8 component, then the later and much more common SD1 parts can be substituted.) With the clutch assembled the last part fitted was an SD1 release bearing before the engine and gearbox were bolted together (see photo). The slave cylinder used is the SD1 type which is connected to an SD1 flexi hydraulic pipe. This pipe is a little too long for the MG application and could usefully be shortened by 2". The other end of this pipe is fixed to the original pipe mounting which is attached to the body. The union at this end does not match that of the standard MG clutch metal hydraulic pipe and a special one was made up which uses the MG top union with the Rover SD1 bottom union. The master cylinder is a standard MG item with no changes. There are no problems with this clutch arrangement and in use it provides a light,

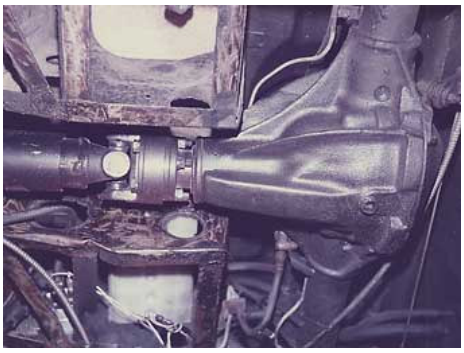
progressive and powerful clutch.

The actual fitting of the gearbox into the body was thought to be the most potentially difficult area of the conversion mainly because of the near total lack of any knowledge on this subject. However, in practice it was quite simple. The body modifications have already been covered and the only item not covered are the changes to the removable gearbox crossmember. The two angled supports on the crossmember have to be carefully removed in order that after modification they can be refitted. From the cut end they are first shortened by approximately 5/8" so that when refitted to the crossmember they sit 5/8" lower. At this point the cut down mountings are offered up to the crossmember and then carefully moved outwards, each by an equal amount, until the holes which take the gearbox mounting rubbers studs on each of the mounts, are separated by 6-1/8" centre-to-centre. This is an increase of about 3/4" compared to the spacing found on the standard crossmember. When positioned, the mounting can be re-secured by a tack weld. Prior to offering the crossmember up to the new gearbox the one mounting hole for the gearbox rubbers is elongated upwards to ease fitment of the gearbox. The rubber mounting used is the SD1 cotton reel type which fits straight into the gearbox casing. With the crossmember now modified and the mounting rubbers also fitted the whole assembly was offered up to the chassis and to our surprise we found that the existing chassis to crossmember positions still aligned perfectly and so presented no problem in just bolting up in the normal manner. The last problem to be sorted with the gearbox was the gear lever as this now sits about 1" towards the rear of the car. This means that when the interior trim and tunnel console is refitted there is not enough clearance for the lever to freely move into 2nd and 4th gear positions. Two slight modifications resolve this problem. Firstly, the hole in the tunnel itself is relieved at the rear slightly and secondly the gear lever, which has an inbuilt damper which is fairly thick, is slimmed down at the top of the damper crimping.

Moving now to the propshaft, which is a one off, as is its method of attachment to the rear axle. As can be seen from the photo's, the overall length of the gearbox is a lot shorter than any of the original types of gearboxes. This meant that none of the original MG propshafts would fit without considerable lengthening. The actual measurements involved are: (1) standard gearbox to axle distance = 31", our gearbox to axle distance = 38.5". In other words, ours is 7.5" longer. To solve this we obtained an ex dynometer driveshaft which had an inbuilt damper and length of 40". This shaft was built to the same specification as normal propshafts and to look at is identical to them. This shaft also had the larger size of flanges which matched the gearbox flange but not the axle flange. To solve the mismatch at the axle end we have made up a very neat and effective adapter which has been carefully machined to preserve balance. It neatly has Allen headed bolts which fit into shouldered holes in the adapter. These bolts then match the smaller flange found on the axle. This allows the adapter to be bolted securely onto the axle flange. The adapter is also drilled and tapped on the forward face to match the larger propshaft flange which allows the propshaft to be bolted straight onto the adapter. In use we have found this arrangement to work very well with no hint of imbalance. Now that the propshaft can be bolted to the axle we come to the problem of the required length of the propshaft. Since the length of the adapter is 1.5" and the overall distance at rest between gearbox and axle is 38.5" we had the propshaft shortened to 37" with the sliding joint in its halfway position. This work was done by Hardy Spicer (GKN) at their service department at the rear of the Castle Bromwich factory. They of coarse did a fine job of work and included was rebalancing and painting at a very low price. One other minor problem encountered was the clearance in the tunnel because of the larger diameter tubing of the propshaft. This required the handbrake pivot to be cut down, rethreaded and use of a thinner nut to clear.

The rear axle first used was the standard B axle which has the 3.9:1 ratio. This was also a disc wheel axle, which is slightly wider than the wire wheeled axles. This axle was retained for ease of fitting and on cost grounds. We were fully aware that the standard ratio was unsuitable for the characteristics of the V8 engine but we reasoned that 5th gear would equate to direct 4th of the standard V8 which would be acceptable as an interim measure. This turned out to be true but another restrictive element was more apparent than predicted. This was the rev range of the V8 engine. It can be seen that our initial specification of engine uses mainly standard components and particularly the earlier type of cylinder heads. In practice we have found that the engine does not breathe too well above 5000 rpm which doesn't encourage use of that rev band. This also has the effect of shortening all the gears so that gearchanging becomes more frequent and time consuming. Even so the acceleration from standstill to orbit was only a little slower than the NASA Space Shuttle. Another problem found was in the area of rear wheel/tyre clearance with the outer part of the wheelarch which has become more apparent with suspension settlement and heavier loads (ie: me and Barry). Looking at the problem from the underside showed that if a line was drawn vertically through the wheel in it's centre (when looking from the rear) the whole assembly could be seen to be too far outset and to centralize the whole assembly would require the track to be reduced by about 2". This alignment problem is due to the type of alloy wheel used and as we wanted to retain this type of wheel as we have a spare set, we started to look at the possibility of using a wire wheel axle which is about 2" narrower as standard.





Our first idea was to obtain an MGC wire wheel axle with a 3.3:1 or 3.08:1 ratio not in abundant supply and even when found the S/H prices weren't that attractive either. The other possibility was to have a wire wheel axle case fitted with the V8 crown wheel and pinion which would again be a costly affair. Our savior came in the form of an advert from Roadstyles, the axle people who had obtained a limited supply of new original V8 crown wheels and pinions with a price of £145. The end result is them fitting one of these V8 CW&P's into a wire wheel casing and charging a figure very considerably less than the cost of either of our earlier considerations. We have had to

add a couple of items to the new axle in the form of brackets for the rear anti-roll bar and flexible brake pipe mounting. We have made up these brackets and had them arced onto the casing before it was filled. Also this axle retains the original size of propshaft flange which means the modified prop and adapter fit straight on. (If we had obtained the MGC or standard axle all the flanges would have been the same size and therefore the prop would have had to be lengthened by the 1.5" length of the adapter.) The axle uses standard wire wheel type half shafts with the original disc wheel hubs and brakes. Fitted, the new axle solves the wheel problems but renders the speedo inaccurate. This will be solved with the fitting of a V8 speedo. At the time of writing the axle is in the process of being fitted so road impressions aren't yet available. However, we anticipate that with the lengthening of all the gears, which will suite the engine characteristics, and the immense torque will insignificantly reduce the acceleration and if they do then plans for another 40 to 50 bhp are already afoot.

Brakes and Suspension

This is a most important section and has received as much priority as any of the more glamorous sections. The modifications carried out are basically simple but effective. The suspension has uprated bushes in the joints. The springs are standard rate V8 type. Dampers are uprated levers at the front whilst at the rear a Spax telescopic conversion kit was used. As previously indicated, a post '76 standard rear anti-roll bar was fitted along with a standard type front bar. Wheels are alloy and are of a design very similar to the standard V8. I believe that early Costello cars possibly had this type of wheel. Tyres are 185/70 Dunlops at the moment but now the rear arch clearance problems are sorted the possibility of some lower profile tyres is being considered. Overall we have aimed for a suspension set up which retains a standard ride height so that the car can clear raised man hole covers and the tops of ramps in the common multi-story car parks. We hare also aimed for a compliant suspension which is why we haven't up-rated the springs. To control the suspension movement well is desirable which is why the dampers are up-rated. With this set-up the car handles well with the rear axle being apparently very well controlled, bearing in mind the power transmitted. The specification is by no means the last word. Advice from knowledgeable circles has been well received and will in time be put into practice.

The brakes are to the same specification as the standard V8. This means the front discs are the fatter items with the pads operated by hybrid calipers which have been assembled from instructions given by Peter Laidler. Briefly, the standard B caliper is too narrow in the bridge area to cope with the thicker V8 disc so it has to be replaced with a caliper that is wide enough in that area. The V8 caliper is the obvious solution but the cost is sky high. However looking at other calipers made by Lockheed (Automotive Products) provides a cheaper solution by using part of the caliper fitted to the Triumph 2000/2500 range and part of the MG caliper. To do the job safely requires a number of other new seals, bolts, etc and it is a modification which shouldn't be considered unless all the extra little items are being used. A small point of interest is that we are running without dust shields to aid the flow of cooling air around the disc. If the dust shields were retained then either MB ones would have to be fitted or the originals would have to be modified. Brake lining material is standard at the moment alithough different materials might be used to try and reduce the excessive amount of brake dust produced, which covers the front wheels very quickly. As far as the efficiency of the brakes are concerned they are well up to the performance apart from a very slight tendency for the rear wheels to lock up earlier than the front on less than ideal surfaces. A solution to this is already in hand as it's undesirable when road surfaces are less than perfect.

Miscellaneous Modifications

In this section are listed the few remaining small items which required modification. The starter motor is a mixture of Rover end plate and MGB motor and solenoid. This is effectively the same as the standard V8 MG starter.

The alternator is a Lucas item of the new generation flat-back type. This particular one is a 133/55 which is the same as can be found under the bonnets of the MG Maestro and it produces a maximum of 55 amps. This type of alternator has to be used to give clearance to the rear, otherwise the alternator fouls out on the offside rocker cover. The alternator is also mounted on a bracket salvaged from an early Rover 3500 P6B (2000 shape) This type of bracket has the alternator sitting on top of it. The drive belt used is a standard V8 item. The ignition system used as mentioned is the SD1 constant energy type. Apart from the distributor, there is an ignition pack which has the special coil on its back The distributor is connected to the ignition pack by way of a 'shielded' lead. To avoid the need to alter this lead, the ignition pack is mounted in approximately the same position as the coil on the earlier MGB, which is on the offside inner wing. The heater control valve is the same as found on the 4-cylinder cars, but to match it to the totally different inlet manifolding has required the making of another adapter. This is a simple affair involving making of two simple brackets out of 1/4" plate. One matches the inlet manifold outlet whilst the other matches the valve. The two plates are then brazed to a length of pipe which in our case is routed past the throttle linkage. The final position of the valve was determined by the pipe and control cable rune to it. Next the original MG wiring loom is not compatible with the twin electric cooling fan control as fitted to V8's. The circuit required the fitting of a relay to overcome the problem. The tachometer (rev counter) was adapted to accept the V8 impulses and since modification it has proved accurate. Finally the speedo cable was specially made with one end to suit the gearbox and the other to suit the speedo head. The overall length is similar to the cable found on overdrive MGB's and whilst we were at it we had a spare cable made. A suitable cable is probable made for another car but we had the opportunity to have these made immediately so the offer was accepted.

General

At this point we now have over 3 months of daily use with the car and during this time there have been very few problems to sort out. In fact we have suffered from less problems than a lot of people find with new production-line oars. To summarize them will take only a few lines. The first problem was one which we caused ourselves and this was the rear main oil seal of the engine. On this early engine the seal is a rope one and has to be soaked in oil prior to fitting. Obviously we didn't soak it long enough as it didn't seal. This meant that we had to lift out the engine to replace the seal. The replacement was certainly soaked long enough before fitting as we don't want to make

a habit of changing them. At the moment the new seal is working as it should.

The only other minor problem has been with fine tuning. Originally a Federal control box was used for the injection This was replaced by a Vitesse control box which did seem to cure the slightly lumpy tickover that was the problem. Unfortunately, the fuel consumption dived to 15 mpg so the Federal box was replaced and the fuel consumption rose to 20.4 which it has been maintained. Further fine tuning on a rolling road with the aid of an accurate gas analyzer is planned which should eliminate this very minor problem. I should add that when on the move there are absolutely no problems at all.



As far as road impressions are concerned, all I can give is opinion. To try and be as objective as possible I will compare our car with cars that I have recent and extended experience with. One point to note is that all the road impressions so far are with the lower rear axle ratio. The acceleration is markedly better than a Rover Vitesse and the ease at which cars such as Golf GTi's are left for dead reinforces the impression of high performance. Mid-range response is better than any car I have experienced with the possible exception of Jaguar V12. Top speed is totally academic, at the moment, as max revs in 5th could easily be attained. I'm looking forward to the car with the Y8 axle ratio, which should only enhance the vehicle's character. Lastly, a number of other people who have experience of the MGB GT V8 have sampled the car and all have been mightily impressed, which is most rewarding.

The total cost of this project so far is in excess of £3000, but the resulting package does make it a cheap high performance car. Whether another car could be built on such a budget would depend largely on parts availability, especially with regard to the Federal type of manifolding. I would think that somewhere there is a stock of these Federal systems after all they were fitted to the Federal SD1's and TR8's. It's time for someone to unearth a stock of these in some dark corner of a forgotten warehouse.

To conclude, I will restate that this is an amateur project and what I have written should not be taken as a bible of how it should be done. It is simply a record of how WE have done it to result in a vehicle which fulfilled all of the goals set by its builders. It is not the final specification as refinements and other changes will be carried out as an on going project and whatever the results of our labors are then I will attempt to pass them on for the benefit of others. Whilst thinking of others I would like to mention several people for their part in this project so far: Firstly my good friend and colleague Gordon Upton whose skill with the welding torch greatly assisted in the more visible areas of bodywork. John Hill and Jon Miller of John Hills Ltd. who have been more than helpful with the supply of a large number of parts at more that favourable prices and conditions, and Sue, whose patience has been stretched beyond all reasonable limits yet the coffee still flowed.

Updates

1. Barry Yardley's MGB V8 Swop

Original engine suffered from piston breakages in the land area (between rings). The cure was the re-bore and fitting of normal oversize pistons still at 1O.5:1 compression ratio.

Original MGB V8, Range Rover pre SD1 small valve cylinder heads have been replaced with standard SD1 items. The worth of this change is very substantial and is worth about the same in increased power throughout the whole rev range as the next mod for which the makers claim 22hp on a standard SD1. The other mod is the substitution of the SD1 camshaft with a Piper Magnum 270. As a matter of interest, this cam has a reduced duration down from 285 degrees to 272 degrees. However, in contrast the lift is substantially increased from 0.39" to 0.44". Ignition and injection settings have not had to be altered.

Current peak power is now in the region of 200 plus horsepower. Torque has been substantially increased to a peak which must be between 220-230 ft lbs. As an indication of the tractability of the engine, it will pull on full throttle in 5th gear from tickover speeds. With this sort of torque/power, traction becomes a problem even from tickover speeds. Wheel spin can be produced even in 3rd gear.

Fuel consumption is fairly steady at 21 mpg with the vast majority of the mileage being covered in bouts of 10 miles or less.

2. Roger Parker's MGB V8 Swop

At time of writting I am well advanced in the conversion of my old roadster to fuel injected V8. The engine spec is identical to Barry's, so should also be a 200 bhp machine. Differences so far encountered when compared with Barry's conversion are now listed.

a) Engine bay conversion is to pre rubber bumper V8 spec (ie: top mounted oil cooler).

b) The steering rack is a genuine V8 which had a broken casing. A 4-cylinder casing was used to replace and is a straight swop (both items being pre rubber bumper).

c) The steering column is the original pre-70 solid pre collapsible type. It has been shortened by some 3+" with the excess being cut off from the lower end before being re-splined. The splines are the same whether the old bulky U-loint is used or whether the later rubber bumper U-joint is used. The later type is more compact.

d) The original outer column is used after being shortened by 3+" (less shortening than the actual column) The early lower column mounting is also used but is now mounted closer to the bulkhead to allow for the shorter length. These steering mods allow the original dashboard and larger type intrements to be used which keeps the period look.

e) The engine mounting as fitted to the chassis are from the V8 conversions so as the V8, later rubber bumper type are shown N.L.A. These are used in conjunction with standard MG V8 rubbers and engine block brackets. Engine height is the same as for a standard set up.

f) The gear box cross member has been modified as for Barry's hit as the whole engine/gearbox is some 1" further back than Barry's. The mountings have been moved rearward that amount in addition to the listed mods.

g) The gear stick hole has had to be cut back further to allow engagement of 2nd and 4th gears. For cars with post-'71 centre consoles,

a shortened gearbox remote assembly or a modified and cranked gear lever would be required to allow retention of the console,

h) Propshaft used is a one off 37" shaft with Rover sized joints and flanges.

i) My original 1968 front cross member has been retained with no sump clearance problems. However the rack mountings required very slight modifications to lower the angle of the pinion shaft to suit its longer length and to give clearance for the exhaust manifold.

j) A couple of engine differences are worthy of mention. First, I have used an SD1 front cover which has the longer capacity (deeper rotors give 20% more flow) oil pump. This also has the advantage of being compactable with the later electronic distributors. Another advantage is that the front oil seal is a lip type compared with the earlier rope seals. Incidentally, the MG V8 water pump is a direct fit. Front pulley fits and this is the cast MGB V8 c. early Rover V8 saloon type. SD1 and Range Rover types are different. Finally, as my block is an early one it has a rope type rear crank seal. The rear main bearing housing has been machined to take the later or MG type of much more efficient lip seal.

All remaining modifications and components will be as for Barry's car. My conversion has reached a stage when the main engine/box is being fitted along with manifolding, cooling system, and oil system.

Suspension will be as follows: roadster front springs, V8 bushes, uprated dampers, 3/4" roll bar, rear MGC springs, Spax shock absorbers.

Brakes will be to V8 spec.

A full list of parts used can be compiled reasonably easily if you desire.

BRITISHV8
Read It Here!
www.britishV8.org
The Online Journal of the Modified! British Sports Car Community

speed mechanics

LEE SPARACIO, Publisher
WALTER H. HOLZE, Editorial Director
SAMUEL D. CRENSHAW, Editor
FRIEDE STROBL, Art Director
FRANK PARRISCH, Managing Editor
ALEXANDER WALORDY, Technical Consultant
ROBERT EIDSCHUN, Styling Consultant

There's Soupability in GM's Aluminum V8's

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

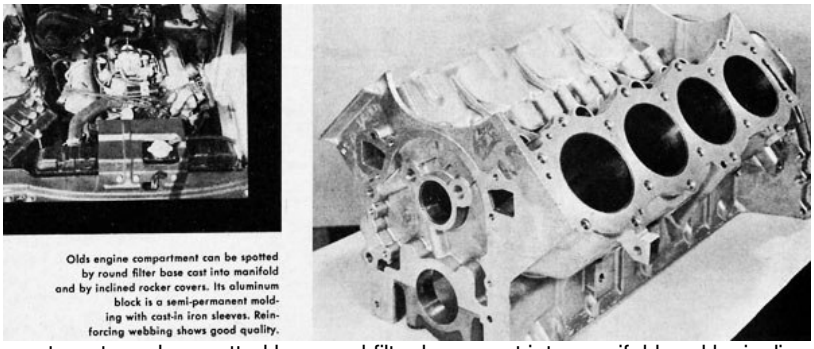
Re-printed unedited from "Speed Mechanics" magazine. This article originally appeared in August, 1961.

by Alex Walordy

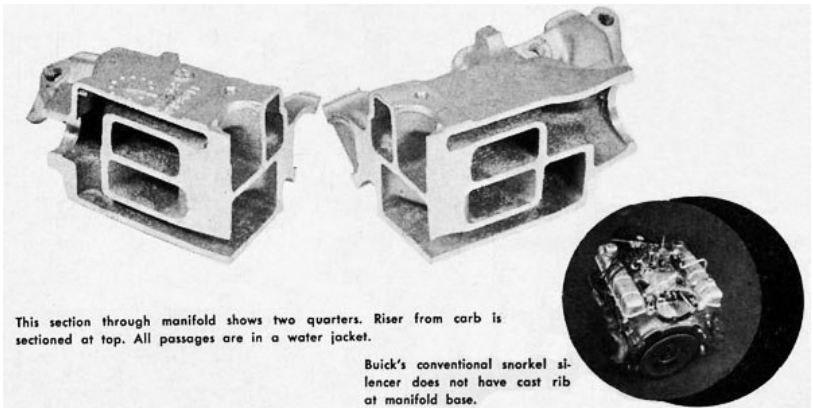
Buick and Olds were the first, this year, to come through with all new aluminum engines of advanced design. While the 215 cubic inch displacement and 3.50 by 2.80 bore and stroke are common to both versions, there are some sharp differences in appearance, cylinder head and manifold design that makes each engine stand out.

The most striking advantages from a user's point of view, are the remarkable low weight of these powerplants, just 318 pounds, for an output of 150 horsepower at 4,400 rpm on the Olds and 155 horsepower on the Buick. This is power obtained from a stock engine, fitted with a single two-barrel carburetor, so that the possibilities are largely untapped. The present two-pounds-per-horsepower ratio will no doubt move down to a pound-and-a-half per-horsepower, or even less, as normal development takes place.

Design with aluminum is different than with cast iron, and offers several manufacturing possibilities. Sand casting, with sand cores and patterns is one and follows the same methods as are now used in pouring cast iron blocks. A number of castings can be made from a single permanent mold, with the added advantage of superior finish and closer tolerances. Die casting makes use of pressure-injected molten aluminum poured into special dies. While its initial steps are comparitively costly, the long die life helps balance out costs.



Olds engine compartment can be spotted by round filter base cast into manifold and by inclined rocker covers. Its aluminum block is a semi-permanent molding with cast-in iron sleeves. Reinforcing webbing shows good quality.



This section through manifold shows two quarters. Riser from carb is sectioned at top. All passages are in a water jacket.

Buick's conventional snorkel silencer does not have cast rib at manifold base.

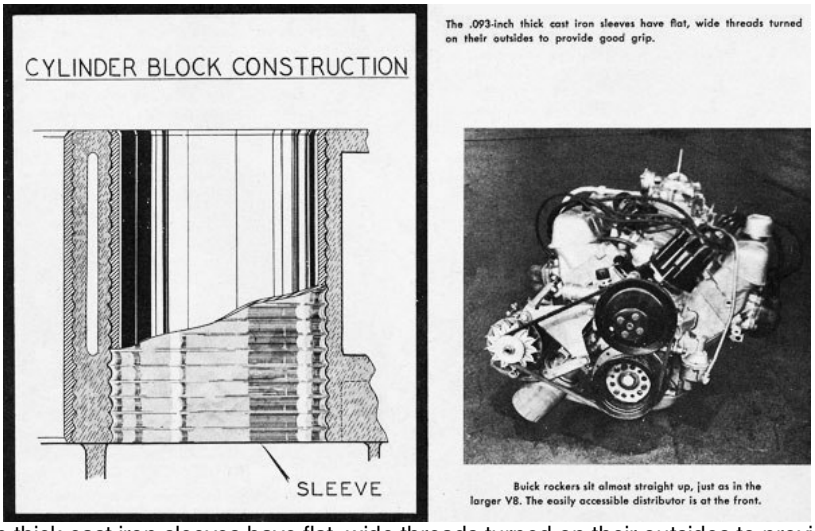
This section through manifold shows two quarters. Riser from carb is sectioned at top. All passages are in a water jacket. Buick's conventional snorkle silencer does not have cast rib at manifold base.

Die casting, being an automatic process, requires a direct withdrawal of the dies as the casting is completed. This has, so far, made it impractical to cast a block with a full cylinder deck. Instead, the cylinders are left standing free, tied in only at the bottom of the block. This poses sealing problems that will no doubt be solved shortly, but as yet this is not the most desireable solution. A wet sleeve design, where the cylinder liners are removeable, makes die casting very practical, but this method is too expensive for passenger car use, by Detroit passenger car standards.

Buick and Oldsmobile hoped for a semi-permanent mold casting, with cast-in iron sleeves. Semi-permanent means the use of a combination of permanent molds for the outside of the block and the outside of the tappet valley, while sand cores are used for the water jackets and the inner bulkheads. There are high-silicone aluminum alloys that would allow direct use of pistons and rings against the aluminum. On the other hand, these alloys are expensive, and more difficult to machine than the alloy selected for the 215 inch block.

To insure good cylinder life, centrifugally cast iron sleeves are used. It should be added that this type of sleeve allows closer selection and control of desireable wear characteristics than even a normal cast iron block, as the sleeves are relieved of the need for carrying great structural loads.

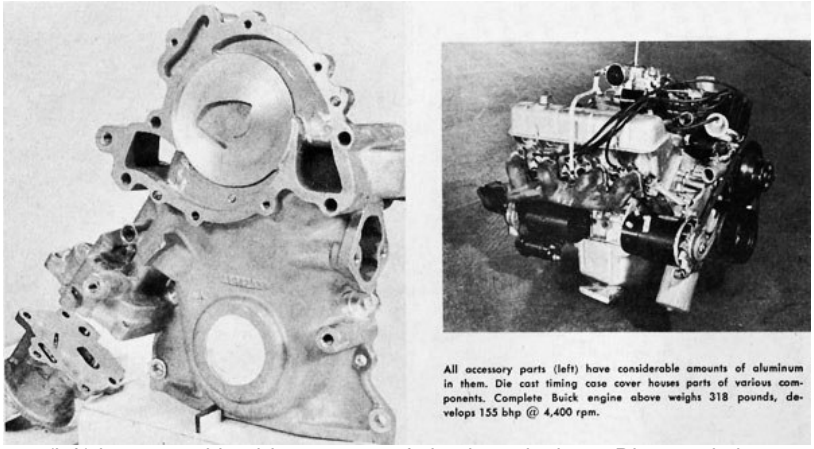
An eight pitch thread cut .005 to .015 inches into the outsides of the cylinder liners retains them in the block after the aluminum is poured. Even though aluminum expands more than cast iron, the sleeves never become loose because they are closer to the heat source and because there is an unavoidable heat barrier at the junction of the sleeves with the block.



The .093-inch thick cast iron sleeves have flat, wide threads turned on their outsides to provide good grip.
Buick rockers sit almost straight up, just as in the larger V8. The easily accessible distributor is at the front.

The crank is a conventional cast alloy iron unit, fully counter-balanced, with large journals and a 3/4-inch overlap between mains and rod journals. The main bearing diameter is set at 2.2986 inches and width is .802 inches except at the number three main which takes up end thrust and is .821 inches wide. A hefty rubber-mounted vibration damper testifies to the care used in making the first aluminum engine a smooth running one. Deep skirts on the sides of the block extend beyond the of the main bearing caps, contributing to rigidity and good crankshaft support. The main bearing caps are made of cast iron.

The short stroke presently used (2.80), can probably be extended to three or 3.25 inches to offer a displacement of 230 or 250 cubic inches. Incidentally, this is the only possibility of increasing displacement on this engine, as the dry liners in the block are only 0.93 inches thick and will not allow boring beyond .030 oversize, a meager gain at best.



All accessory parts (left) have considerable amounts of aluminum in them. Die cast timing case cover houses parts of various components. Complete Buick engine weighes 318 pounds, develops 155 bhp at 4,400 rpm.

The diecast timing case cover accurately locates the rope-type oil seal at the front of the crankshaft. A protrusion around the seal and an effective slinger keep most of the oil away from the seal, reducing the amount of fluid they must control. In addition, a ridge cast into the inside of the of the timing case cover acts as a roof over the seal, and further contributes to keeping most of the oil away from it. The timing case cover also serves as the fuel pump mounting and as the housing for the oil pump. While Oldsmobile uses an optional oil filter, Buick carries the oil filter as standard equipment. When the filter is used, it replaces a large size plug at the bottom of the housing.

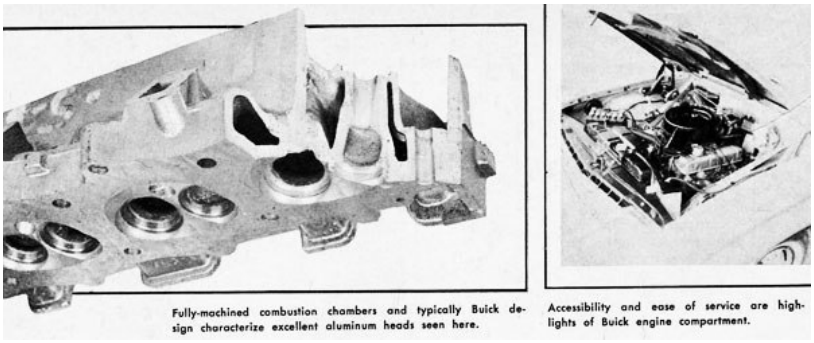
The forged rods are quite short (5.660 inches center-to-center) and light (17.5 ounces). Wristpins are pressed into the rod and float in the piston. This eliminates the need for wristpin retainers in the piston or rod bushings. As in good aircraft practice, the wristpin is very thick to avoid rod deflection under load.

The pistons are all aluminum, without expansion control inserts. The conventional slots are placed between the skirt and the head of the piston at the bottom ring groove, forming a heat dam and leaving the head tied to the skirt only in the areas above the wristpin bosses. When the top of the piston warms up, it expands equally in all radial directions. At the points where it is tied to the skirt, a hoop effect takes place with the skirt being pushed outward at the wristpin bosses and, therefore, pulling in at the thrust faces.

The cam-ground piston is narrower across the wristpin bores than at the thrust faces. When the piston expands in the bore, the thrust faces are pulled inward. Slap at the thrust faces is controlled whether the piston is hot or cold. In customary strut designs, a steel strut is put to work accelerating, or amplifying, the hoop motion. In Buick and Oldsmobile's all-aluminum piston, the stiffness of the webs which tie the piston crown to the wristpin bosses is balanced against the stiffness of the skirt, itself, to achieve the needed hoop action.

Buick's cast iron exhaust headers (left) are remarkably well-thought-out as regards gas flow.
Dished (Buick) pistons combine with small combustion chamber.

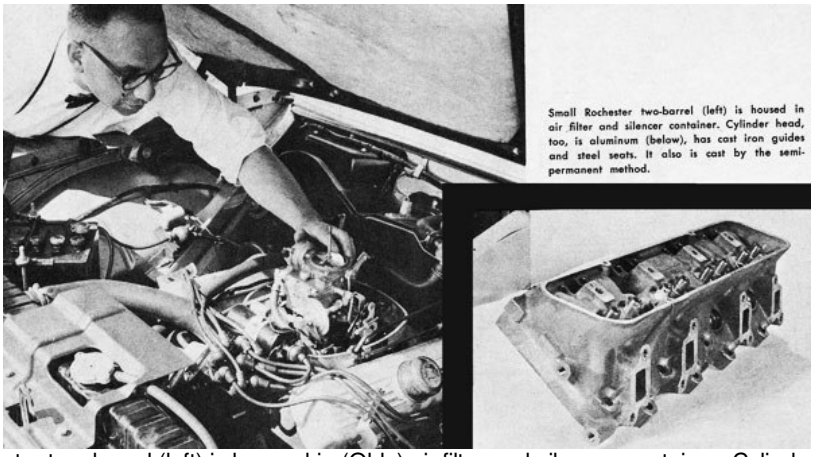
The bottom of the piston skirt forms a full hoop. Buick feels that this is stronger than slipper piston designs of equivalent weight and helps control the action of the piston in the cylinder. Two large size slots separate the bottom of the piston skirt from wristpin bosses. This avoids skirt distortion and any restraining action which the skirt may have on the pin bosses. If you consider a wristpin as a beam which is supported in the middle and loaded at the ends, some deflection becomes inevitable. The best solution for retaining maximum bearing area at the pins is to let the bosses flex with the pin.



Fully machined combustion chambers and typical Buick design characterize excellent aluminum heads seen here. Accessibility and ease of service are highlights of Buick engine compartment.

Buick and Olds differ drastically in combustion chamber design. Olds has a wedge type chamber, flat top pistons, and a port configuration which largely resembles that of the larger Olds engine. Buick has a machined chamber of comparatively small volume and dished pistons. The valves on the Olds are angled to line up with the slant roof of the combustion chamber. On the Buick, they are placed almost straight up, and the port design is of course closely akin to that of the larger Buick engine. Even valve cover placements are distinctively those of their larger engine counterparts.

Buick claims a more favorable surface to volume ratio at combustion time, together with a central plug location and very short flame travel through the major portion of the compressed air fuel mass. The squish area is distributed all around the piston and combustion chamber, creating a favorable turbulence. These dished pistons are quite reminiscent of those which enabled GM Research to run some very interesting tests at compression ratios ranging from 10:1 all the way to 25:1, or six points higher than with most diesels.

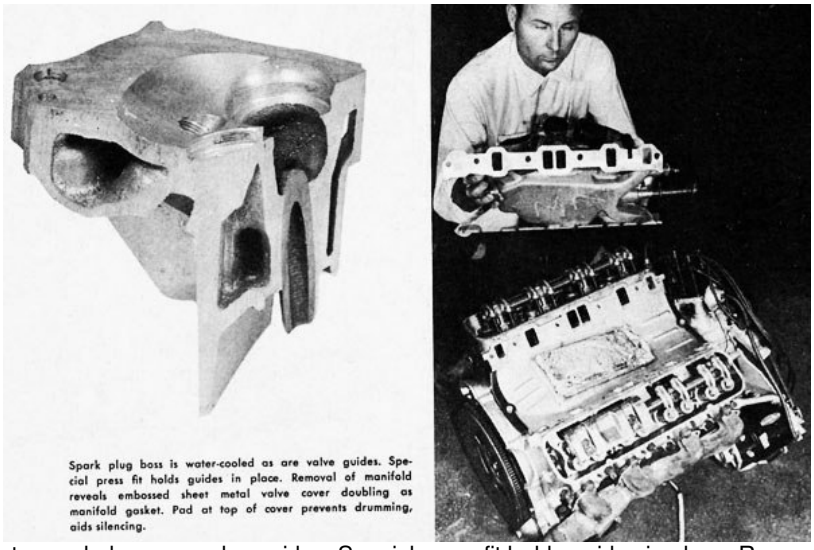


Small Rochester two-barrel (left) is housed in (Olds) air filter and silencer container. Cylinder head, too is aluminum (below), has cast iron guides and steel seats. It also is cast by the semi-permanent method.

The use of a dished section makes compression changes quite simple, and we might add that the use of a flat Olds piston in a Buick 215 would result in a compression ratio of 11:1. Where a dish is very deep and falls below the ring belt, some distortion can occur at operating temperatures and added heat is transferred to the piston. However, here the dish is so shallow as to have no practical effect.

Engine cooling is quite elaborate. The aluminum water pump is bolted to the die cast timing case cover which also serves as the back of the impeller housing. Each of the two headers cast within the timing case cover leads directly to the corresponding cylinder bank. The coolant flows through the banks and up to the rear of the heads. After reaching the front of the heads, the coolant is then directed through the manifold to the radiator.

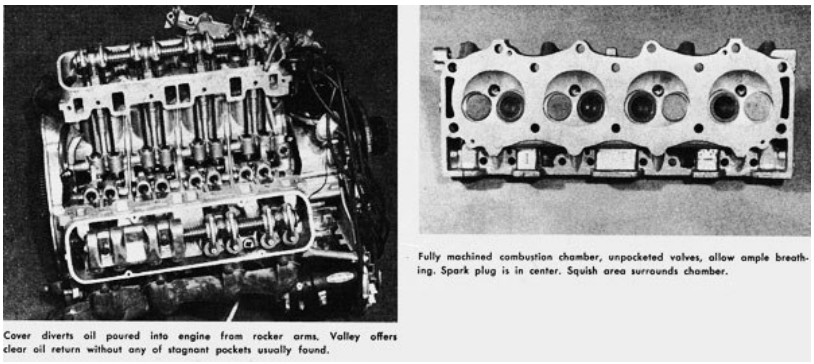
To insure quick and even warmup, the coolant must first course from front to rear along the underside of the manifold risers, then reverse its flow and pass over the top of the risers before returning to the radiator. The use of water as the source of manifold heat eliminates an exhaust crossover, exhaust gas corrosion and a heat riser valve that traditionally rattles and sticks.



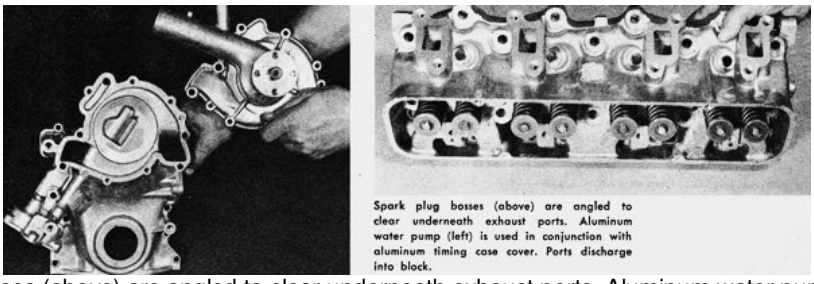
Spark plug boss is water cooled, as are valve guides. Special press fit holds guides in place. Removal of manifold reveals embossed sheet metal valve cover doubling as manifold gasket. Pad at top of cover prevents drumming, aids silencing.

Block water jackets extend the full length of ring travel, plus a good 1/4 inch. The spark plug bosses are completely surrounded by coolant. Decks at the head and block are almost entirely closed, except for an opening at the rear of the block. As the heads are interchangeable from side to side, symmetrical openings are used front and rear. Thus, all of the coolant is directed through the block and head.

The slanted portion of each cylinder bank being partially above the openings at the rear, some venting is needed to avoid trapping air pockets during filling. Here again, we come to a difference between Buick and Olds. Olds uses four quarter-inch "steam holes" to vent the upper part of the block. "Steam hole" is actually a misnomer, for they are only vents. Buick on the other hand, found the four holes unnecessary and uses only one small one at the front of each bank.



Cover diverts oil poured into engine from rocker arms. Valley offers clear oil return without any stagnent pockets usually found. Fully machined (Buick) combustion chamber, unpocketed valves, allow ample breathing. Spark plug is in center. Squish area surrounds chamber.



Spark plug bosses (above) are angled to clear underneath exhaust ports. Aluminum water pump (left) is used in conjunction with aluminum timing case cover. Ports discharge into block.

As you notice, the cooling systems use aluminum almost exclusively, except for the embossed steel gaskets. Hence the possibility of galvanic corrosion is considerably reduced. We asked specifically about special anti-freeze and were told by Buick that there were no plans or call for any at the present. The use of aluminum, with its high thermal conductivity, in the large cylinder block and head areas has enabled radiator size to be scaled down an appreciable amount in comparison to the area needed for equivalent cast iron engines of the same power.

The blocks are fully leak tested when partially machined, and again when completed. If the leakage exceeds specified rates, they are

impregnated. Over that, they are scrapped. Impregnation of both pressure and non-pressure types is used. Dry sealant pellets are added as a purely precautionary measure.

The cylinder heads use copper-infiltrated, sintered iron inserts on both intake and exhaust valve seats. Valve guides are cast iron, pressed into the heads. Although no drastic improvement has resulted from use of aluminum as cylinder head material, there is a slight gain in mechanical octanes and a reduction of, or elimination of, potential hot spots. A rocker arm shaft rather than GM's favored ball socket arrangement is used. Part of the reason is that the pushrods are offset. Also, it would be difficult to retain rocker studs in the head by press-fitting them, and threads would be too expensive both in production and in assembly. Full gallery oil pressure is supplied to the rocker shaft through passages in the block head and a rocker shaft bolt. The openings for oil supply to the individual rockers are moved out of the load area to increase flow.

The camshaft is cast iron, and has fairly mild timing. A sintered iron cam keyed on the camshaft operates the fuel pump. Hydraulic lifters are used as standard equipment, and the differences in expansion between steel and aluminum may well make them essential for noise reasons. The tappet valley is covered by an embossed steel section that also serves as the intake manifold gasket. By relieving the manifold of duty as a valley cover, much webbing between the risers can be eliminated with resultant weight savings. A foil-covered insulation bag laced between the manifold and the embossed cover eliminates noise and drumming.

Oldsmobile manifolds have cast-in bases for air filters, which increase the silencer volumes and are claimed to reduce noise. Buick uses a snorkel-type air cleaner and eliminates some of the manifold complexity. Our trained ear couldn't detect any appreciable difference between the two.

The advent of the aluminum engine will not only herald a new era in engine weight reduction, but also the building of many specials which, until now, had to be on the ponderous side. A saving in weight cannot be estimated on the basis of weight difference with an equivalent cast iron unit. There are also attendant weight savings in frame structure, drive train size, etc. These new Buick and Olds engines will undoubtedly influence the future of the automotive industry.

If you enjoyed this article, check out: Autocar Magazine's : History of the Buick / Rover Aluminum V8.

British V8 Home: Read the Magazine Photo Gallery Web Forum Annual Meets Contact Us Site Map

BRITISHV8 Read It Here! www.britishV8.org
The Online Journal of the Modified! British Sports Car Community

Founded 1924
MOTOR SPORT
MOTOR SPORT (Magazine) LIMITED Registered LONDON 292070
Editorial and Advertisement Offices
P.O. Box 35
STANDARD HOUSE
BONHILL STREET
LONDON EC2A 4DA
Tel: 01-628 4741 Telex 888602 MONEWS G

The 3.5-Litre Morgan Plus-8

A True but Primitive Sports Car

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Motor Sport".
This article originally appeared in their December 1968 issue.
New photos by Curtis Jacobson and Greg Myer have been added.

125 m.p.h. A standing-start 1/4-mile in 15 sec.

Sports cars come and sports cars go but the Morgan has outlived most of them. Just when it seems to have out-dated itself from even the American fanatical and British enthusiast sales-charts, something happens to give the Morgan four-wheeler, basically unchanged down the years, a new lease on life, sustaining the interest of prospective purchasers.

The original Morgan four-wheeler was an attractive little car, but it lacked the flair and sporting appearance of the similar-size MG's, which in those days had wire wheels and a trials reputation, against which the Morgan 4/4 had to compete. Pressed-steel wheels and a chassis rather self-consciously aware that it was closely related to a long generation of three-wheelers. But it had independent front suspension and a gear lever most commendably located, due to the employment of a separate gearbox. The 4/4 ran through a succession of engines, and then came the exciting news that a Morgan Plus-4, with a 2-litre engine, was on the assembly-shop floor at Malvern.

The Plus-4 chassis was a somewhat inflated version of that used for the 4/4, strengthened only where the ingenious Mr. Peter Morgan thought this absolutely essential. It had the appearance and performance of a good vintage or p.v.t. sporting car, and when, later, it was powered with warmed-up 2.2-litre Triumph TR4A engines instead of a single-carburetter Standard Vanguard engine, it really motored most effectively, and was impressive on the Club circuits. That, however, was quite a long time ago and the Plus-4 clearly needed a new lease of life. This has been most effectively accomplished by installing under a somewhat lengthened bonnet (still heavily louvered) a perfectly normal Rover V8 engine, of Buick persuasion, as used by the Rover Company in their 3.5-litre cars. The potential of these light-alloy General Motors - Oldsmobile and Buick power units was emphasized by racing development, from mild souping for stock-car work to virtual rebuilding for installation in the Formula One Repco Brabhams, so it can be said to have links with racing if not to be actually race developed. It gives 161 (net) b.h.p. at a crankshaft speed of 5,2000 r.p.m. This is on a c.r. of 10.5 to 1, so that 101-octane petrol is preferable but not essential if only Premium is available. The engine is absolutely standard, as used in the Rover 3500, even to very ordinary exhaust manifolds, and there should be plenty of development to come.

Using the splendid Rover V8 engine so ably adapted to Solihull specification by Peter Wilks has lifted the performance of this Morgan sports two-seater from effective to highly impressive. That is to say, this primitive, certainly old-fashioned, car will now reach a top speed of 125 m.p.h., will devour a s.s. 1/4 mile in 15.0 sec. or less, and will out-accelerate a Jaguar E-type up to the legal limit of public road speed in this go-slow country. It continues to accelerate excitingly beyond 70 m.p.h. (on private roads, of course!) For having got to that pace in well under 9 sec., it requires only another ten seconds to be motoring at 100 m.p.h. This, with a bog-standard 89 x 71 mm. (3,530 c.c.) Rover engine. It is fascinating to think how the Morgan Plus-8 will go when fuel-injection or other performance-enhancers are

tried - and I expect one or other of the Peters will experiment with them.

Right away, therefore, it seems obvious that if sheer performance, in terms especially of acceleration and a reasonable top speed, appeals - straight-line go, if you like - the Morgan Plus-8 is a formidable motor-car, because it offers this in terms which only very few cars, costing more, can equal. Take for instance 0 to 100 m.p.h. in 19 to 20 sec., for a price, including p.t., of £1,487. Those interested in Marque Sports Car Racing should be interested...

Returning to the differences between the Triumph-powered Plus-4 and the new Plus-8, they are quite few in number. For instance, the separate gearbox is retained, coupled to the engine flywheel by a short shaft within a large-diameter tube, and it is the same Moss gearbox used on the Morgan Plus-4 and earlier Jaguars, this apparently being sufficiently rugged to transmit the 226 lb./ft. maximum torque of the Rover engine. The real separate chassis is also retained, although it has been somewhat strengthened. The old wood plank floor - I was intrigued that it was not so much as creosoted - has given place to a welded-steel floor. The coil-spring and pillar i.f.s., which is basically nearly 60 years old, remains, and still necessitates a bronze damper-ring and lubrication bled off the engine supply, for the pillars also form the king-pins of the steering layout. Similarly, at the back the suspension is by 1/2 elliptic leaf springs, although these are now mounted at a different angle, which has killed tramp, and the movement has been increased, to 4.5 in. The steering column now incorporates two universal joints to clear the wide vee engine, is collapsible, and the box is a Cam Gears' cam-and-peg unit.

Paul Foster's stunning Morgan Plus-8, photographed at British V8 2006 in Townsend TN

The wheelbase has been increased by 2 in., the bonnet is longer, and the body 2 in. wider to accommodate wider wheel rims. The wheels have been changed to imposing Robinson five-stud cast-alloy ones, the same make as those on the Gilbern Genie featured last month, having 5.5 in. rims shod with imposing looking 185 x 15VR Dunlop SP Sport radial-ply Aquajet-tread tyres. A further concession to the increased and spectacular performance is the use of 16P Girling brake calipers instead of 14P, although the disc/drum sizes are unchanged. There is now a 13.5 gallon fuel tank and instrumentation and details have been changed. For instance, for years there was no adjustment, either of cushion or squab, for the bench front seat of the Plus-4. The Plus-8 has sliding Restall bucket seats upholstered in Ambla leathercloth - a revolutionary mod, for the Malvern market!

The Rover V8 engine installation has necessitated a Woods-Jeffreys thermostatically-controlled electric fan, and the Salisbury back axle has a limited-slip differential and a ratio of 3.58:1. The 90 degree engine goes snugly under the traditional Morgan bonnet with just a slight flattening of the air-cleaner for the two HS6 SU carburetters. Naturally, the clutch (a 9.5 in. diameter Borg & Beck), flywheel and starter are special to the Plus-8 - it seems that Rover may use these components if and when they bring out a manual gearbox version of their 3500.

Because the engine is not supplied to the Morgan Motor Company - actually they go to Solihull and collect 15 a month - without exhaust anti-pollution the Plus-8 is not yet an export proposition to America, although it has press-button switches for safety, to comply with that aspect of the U.S.A. safety requirements which are costing such a lot of money to incorporate, and which are restrictive to small-output concerns.

Driving the Morgan Plus-8

Apart from its very satisfying measurable performance, 100 m.p.h. possible on quite short straights, so quickly and unobtrusively that only radar would notice it, as emphasised by the previously-quoted figures, the truly striking aspect of the Morgan Plus-8's running is the enormous torque delivered by the engine. Maximum torque is delivered at 3,000 r.p.m. and reaches 210 lb./ft. at 2,700 r.p.m., but the car pulls very smoothly away from a mere 1,000 r.p.m. in top gear, and before 2,000 r.p.m. is reached things are very definitely starting to happen! This makes the Morgan as docile and one-gear as any big American sedan! Yet, using the gears, the acceleration is sizzling. The engine runs safely to 5,000 r.p.m. and can be pushed for short periods toward 6,000 r.p.m. Without taking the needle quite to the end of the tachometer scale, this means, apart from bullet-like take-off, maxima in the gears of 40, 70, and just over 100 m.p.h. Running at 30 m.p.h. in towns the Morgan's engine idles over at 1,400 r.p.m. in top gear. It is possible to accelerate away without making use of the harsh and notchy gear change, and at 70 m.p.h. the engine will be turning over at less than 3,200 r.p.m. Even so, a higher axle ratio could be used with advantage, although it is, cruising at 100 m.p.h. on the Continent, the Rover V8 is running within 400 r.p.m. of the beginning of the red-sector on the tachometer.

The gear change is by a splendid little central lever just forward of the facia. It is all too easy to brutally over-ride the synchromesh, which doesn't exist on bottom gear anyway, but enthusiastic drivers are unlikely to complain unduly! Reverse is selected by lifting the rigid little lever beyond the first-gear location. The clutch is very heavy, but not unduly fierce. The gear lever protrudes directly from the Moss gearbox, out of the transmission tunnel. Ahead of it, rather far forward on the left of the tunnel, though an average height driver sitting close to the steering wheel had no complaints, is the handbrake - and full marks, for it is the good old true fly-off type. It failed to hold the car only on the steepest gradients.

Morgan Plus-8 All-Alloy Vee-Eight Engine (note: this carb and air cleaner aren't original equipment.)

The Morgan Plus-8 is steered by a 14.5 in. dia. wheel mounted very close to the facia, so that one tends to adopt a cranked-arms driving stance. It is an Astrali wheel with three drilled spokes and a thick rim covered with a laced-up leather glove. The steering is heavy for parking, the huge tyres dragging, dead in feel, a bit jerky in action, and not a lot lighter for sudden changes in direction, although in sober town driving it feels light. There is only very mild castor return, and kick-back is less evident than "fight" over bad surfaces, accentuated by scuttle shake. This is not particularly nice steering, but, at 2.4 turns, lock-to-lock, it is quick and accurate. The big tyres have resulted in a restricted turning circle. The steering pivots require lubrication every day, or every 200 miles, a matter of conscience - which is achieved by prodding a high-set floor button, like a dip switch. This is hard to press but seems to momentarily drop engine oil pressure by no more than about 10 lb./sq.in. when the lubricant is hot. But it is a crude, messy arrangement and one hopes the strip-steel connections between bronze damper ring and the frame last longer than they used to do, especially as the well-valanced front wings now hide them completely, making inspection impossible and replacement unthinkable.

The ride? Those concerned with modern suspension systems would no doubt cry from anguish or mirth, if driven fast over rough roads

in the Plus-8. On really bad going the car seems to have no springs. In less bad roads it just jumps around and rattles. On main roads it floats along nicely. Trying hard on Welsh mountain passes the Morgan felt less safe than the Gilbern and I would think that a competition driver would lose time when the back-end bounced upwards and sideways and by the front-end suddenly going softish. On the other hand, I regard the Morgan as supremely good fun and very safe, to drive round a race circuit and certainly in ordinary fast road motoring the Dunlop SP Sports refused to breakaway or to protest. The Morgan rides and corners - like a Morgan. Which infers hard springing, negative roll, some understeer. The limited-slip differential and those excellent Dunlops permit lots of throttle to be used out of corners, even on wet roads. Yet although rear-end breakaway is not normal, a dab of throttle helps to balance the cornering by combating the understeer. Over the Abergwesyn-Tregaron mountain road the sheer power of the Plus-8 makes this difficult terrain seem tame, except that the very long bonnet, which itself is 4 ft. 2 in. long) masks the road on up gradients; there is the sensation, also associated with long-snouted pre-war cars, of sitting well back and having to steer the bonnet round the bends.

The screen now has triple wiper blades but it no longer folds flat. Visibility is good, in as much as the n/s side lamp and part of the o/s headlamp cowl and vintage-type wing can be seen from the rather low driving seat by the average driver. Naturally, with its hood up things are less pleasant - but who wants to motor in a closed Plus-8 anyway? Especially as the hood's "lift-the-dot" fasteners required very strong fingers, or assistance from a coin or even a screwdriver, to budge them.

The brakes, which have a Girling vacuum servo, are powerful and seem free from fade. Oil pressure is normally approximately 50 lb./sq.in.

Reverting to the Plus-8 on the road, the engine gives a subdued vee-eight exhaust beat (although I was disappointed to find only a single tail-pipe) and is otherwise practically inaudible, although the lower gears howl. The heater wafts plenty of really warm air about, so that hood-down driving is no hardship. The Morgan looks low-hung but didn't bottom over rock-strewn surfaces. The centre-hinged bonnet opened easily on the o/s, but one of the two press-down catches on the n/s panel was very stiff. The present output of this intriguing Plus-8 is two a week, but the intention is to increase this to about five a week by 1969.

The fuel tank has twin quick-action fillers and holds 13.5 gallons, giving a range of at least 250 miles in ordinary conditions. Indeed, on mostly main road driving. I recorded 23.6 m.p.g. The intention had been to do a further check, motoring fast over a familiar Welsh mountain road, but in this I was hampered, and had to abandon the idea, because ponies were being taken over it to the November pony sales at Tregaron. Driven hard, consumption would no doubt fail to around 20 m.p.g. The only fault which developed during a three-day test, apart from the difficulty at times of opening the doors (chassis flexion?) was failure of the o/s sidelamp, which responded to the time-honoured thumping on the first occasion but not thereafter. Driving this truly exhilarating car with the hood down, in distinctly cold and wet November weather, to gain the enjoyment and benefit of fresh air, I was disappointed to notice a trace of exhaust fumes in the cockpit. These are probably sucked forward by the the aerodynamics of the tail, and no doubt will be experimented with to cure this annoying shortcoming. With the rigid sidescreens erect draughts are successfully excluded and open-air driving is otherwise a joy.

The Morgan Plus-8 is a true sports car, and a very quick one at that. It weights around 21 cwt. laden, with some 160 b.h.p. to propel it. As I drove it, sighting along the louvered bonnet, air playing around by head, the smell of hot mud coming from the exhaust and that vee-eight wuffle from behind, nostalgia for the days of pre-war trials, of exploring good country in exciting cars, and memories of V8 and V12 Allards come crowding back. For that alone, I was grateful to this all-yellow Morgan. Regarded purely as a 1968 automobile, the Morgan may be something of a joke. But as a fun and fresh-air car perhaps the only thing comparable (even preferable) to a Plus-8 would be a 30/98. [British V8 editor's note: the Vauxhall 30/98 model was a legendary and exceptionally versatile car from the early days of motorsport. Only 600 were built between 1913 though 1927.] And a brand-new Morgan costs only £1,487 including p.t. and seat belts.

-W.B.

BRITISHV8 Read It Here! www.britishV8.org
The Online Journal of the Modified! British Sports Car Community

Founded 1924
MOTOR SPORT
MOTOR SPORT (Magazine) LIMITED Registered LONDON 292070
Editorial and Advertisement Offices
P.O. Box 35
STANDARD HOUSE
BONHILL STREET
LONDON EC2A 4DA
Tel: 01-628 4741 Telex 888602 MONEWS G

"The New Rover 3500" (Motor Sport's first impressions of the Rover SD1)

Auntie's Sporting Great-Nephew Makes "Buy British" a Must

as published in British V8 Magazine, Volume XVI Issue 1, May 2008

Re-printed unedited by exclusive written permission of "Motor Sport".
This article originally appeared in their July 1976 issue.
New photos by Simon Austin have been added.

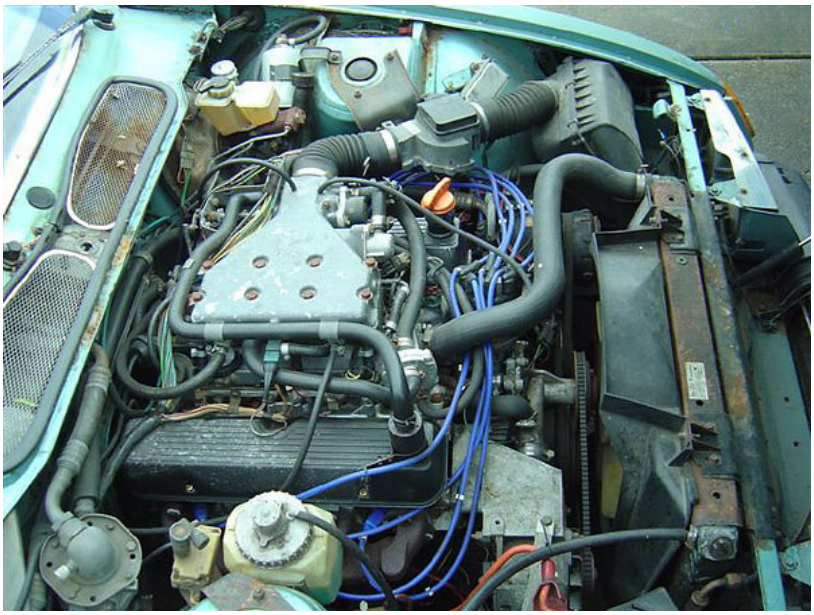
Unless I am very much mistaken, June 30th, 1976 will go down in contemporary motoring history as the day that Britain put the plug in the tidal flow of medium-to-large-size luxury cars poured in upon us, in ever-increasing volume, from Continental motor manufacturers. On that date (yesterday, to readers who receive MOTOR SPORT on its official publication day - who says monthly magazines are always late with the news?) Leyland Cars announced the totally new, in all but name and basic engine, Rover 3500. This 125 m.p.h. five-door, five-gear, five-seat, 3.5-litre V8 saloon of thoroughly sporting demeanor and astonishing fuel frugality offers a specification which no Continental manufacturer can match. A specification which Continental manufacturers would surely persuade us was remarkably advantageously priced, if it was their product, at anything over £6,000. This new product, from a purpose-built, 64-acre factory in Solihull, part of a £95 million investment, can be bought for just £4,750. Amazing.

Whereas complexity was the key-note of the old P6 2000/3500 series, SD1, as this first new Rover saloon since 1963 has been known during its five year gestation period, has simplicity as one of its virtues, reflecting the changed approach of modern motor engineers. The

steel body is of monocoque construction, the de Dion rear axle has been usurped by a live axle and that over-complex front suspension has given way to MacPherson struts. This has benefited production costs, ease of servicing, and weight, the last in relative terms, for this 26.9cwt car is 5.25 in. longer - at 15 ft. 5 in. - than the old model, while its 5 ft. 9 in. width is 3 in. greater, so consequently weighs 136 lb. more, in manual form. The engineering buck stopped at Rover-bred genius Spen King, now Leyland Cars' Director of Engineering, while responsibility for the modernistically stylish, aerodynamically magnificently efficient (it has a drag coefficient of 0.39), body lay with David Backe, Leyland Cars' Director of Styling. Talking of bucks, Bache says that early clay bucks of the design were put alongside cars like Ferrari and Maseratis "and despite the fact that it is a fully practical hatchback saloon car and not a cramped Grand Tourer it looked perfectly in keeping". The reason I mention this is that the front corners of that rounded nose shown unmistakable Ferrari Daytona influence - and who would complain about that? There is some Citroen and Lancia Beta resemblance too.

For safety, this striking shape has a crushable-end, rigid passenger cell structure for impact and roll-over safety, horizontal compression struts in each door, the fuel tank mounted ahead of the axle beneath the floor and a front-hinged bonnet. If these features should be tested, repair has been facilitated in collaboration with the Motor Insurance Research Repair Association. For anti-corrosion, there is full undersealing, electrophoretic priming, zinc-coated steel sills, stainless steel bumpers, a plastic front apron, an aluminised exhaust system and a system which feeds air from the heater intake chamber through the sill box members to prevent build-up of corrosive damp. That injection-moulded plastic front apron acts as an anti-lift air dam, directs air into the radiator and contains the standard fitment auxiliary lamps. The inset, sloping headlamps are halogen Lucas H4, the rear lights incorporate high intensity fog guard lamps and reversing lamps and are crenellated, Mercedes-style, to avoid dirt build-up. A warning light indicates failure of any side, tail, or stop lamp, a most useful feature fitted for the first time on a British production car. There are automatic warning lights in the trailing edge of each front door and mud flaps are standard, front and rear.

Open the expansive, front hinged bonnet and the view of the twin SU HIF6 carburetter-becapped, all-aluminium V8, illuminated at night by two automatic lights, will be familiar to even a Range-Rover owner. But the new car's engine, though still of 3,528 c.c. and oversquare dimensions of 88.9 mm x 71.1 mm, is much improved. Maximum power is increased from 155 b.h.p. DIN at 5,250 r.p.m., though accompanied by a fractional drop in torque from 202 lb./ft. at 2,700 r.p.m. to 198 lb./ft. at 2,500 r.p.m. Part of the power increase is released by allowing the engine to rev more freely, to 6,000 r.p.m., as against 5,200 r.p.m. in its old Rover form and 4,750 r.p.m. in its original GM-Buick guise. To achieve this, the valving in the hydraulic tappets has been altered, inlet and exhaust valves increased in size, valve springs changed and porting and manifolding improved. With space restrictions of the old body shell gone, Rover have been able to fit the much more efficient extractor-phased exhaust manifolding design for the still-born mid-engined BS sports car. There is Lucas electronic contact-less ignition, too, energising Champion N12Y plugs. Another detail emphasising the many leaves which have been taken out of German books in this new Rover's design is the fitment of plug-in diagnostic equipment, using a magnetic transducer on the crankshaft damper. Further improvements in the engine itself involve the oil and water pumps, a narrowing of piston ring width to lower their inertia and the adoption of Leyland's award-winning air temperature control valve on the manually-choked unit. Accessibility of plugs, carburetters, distributor, alternator and dip-stick is first class.



Where Spen King is concerned nothing is quite so straightforward as first glance might suggest. So you find that the live rear axle has a torque tube arrangement, anti-dive, anti-squat geometry, and self-leveling, the last using the ingenious leveling damper units first developed for the Range-Rover. Further axle location is provided by trailing links and a rear-mounted Watts linkage; cushioning is provided by constant rate coil springs. The torque-tube means that only a fairly short, single propshaft is needed, which knocks vibration problems on the head.

For the front suspension, the nowadays "I wear all marque hats" King has utilised Triumph 2000 Macpherson strut experience for his beloved Rover. The tops of the struts swivel in ball-bearing mountings and coil springs are offset to give less "stiction". As per normal MacPherson practice, the anti-roll bar and track controll arms locate the wheels.

Burman power steering is standard - and uses rack and pinion for the first time on a Solihull Rover. Mounted ahead of the suspension crossmember, it uses torsion bar sensing for progressive steering feel. Its 2.7 turns lock-to-lock for a modest 34.3 ft. turning circle add another star to the score you will find in my driving impressions which follow.

In some ways this new Rover appears a contradiction in terms of what the public in the past have been told is engineering advancement. Firstly, I've just written the de Dion axle out of the story (how many times have we been told that the de Dion is the best means of rear axle control?) Now, I shall dismiss rear disc brakes, about which Jaguar and Rover have at times done so much shouting - and owners and mechanics have done so much swearing. Thank you, Rover, for the outboard 9 in. rear drums (with efficient handbrake), ably backed by 10.15 in., non-ventilated front discs, serviced by dual-line hydraulics and a direct acting servo. Those drums have a pressure limiting valve, automatically isolated in case of front brake failure.

So often, the pre-announcement "blurb" and speeches thrust upon we motoring journalists by motor industry PR men are so much hot air fragranced by unfactual superlatives. Leyland are as good at doing that as anybody else. Rarely are we given a chance to sort out fact from fiction over lengthy mileages before writing announcement stories.

Thanks to improved co-operation towards MOTOR SPORT from Leyland Cars, with whom we have not always seen eye to eye of late, I have been able to confirm both my own ecstatically enthusiastic reaction to my 200-mile Press launch drive and Leyland's own Press release superlatives with a subsequent several days and 1,200 miles of living with Pre-Production Vehicle No. 3, a Midas Gold, five-speed manual version of this new Rover.


RPM×100
km/h


HAZARD
RPM×100


FUEL
BATTERY
volts
OIL lb/in²
TEMP °C




"Well, what do you think of it so far?" asked my passenger, Motoring News' Alan Henry, jocularly, within only a couple of hundred yards of the Chateau Impney, near Droitwich, as we left for the 200-mile Press Launch Drive in this new Solihull Sports Saloon. Some cars take a thousand miles' accustomisation before I decide I like them or not. This time, as I settled down to the tautness and torque of this big hatchback saloon and snicked that so-positive gear-lever through to its fifth speed for the first time, I had an instant conclusion: "This, Alan, is a proper motor car. I want one!" The subsequent 1,400 miles in that initial car, the road test car and a few miles in another fitted with the optional Borg-Warner 65 3-speed automatic, a most effective development of the old Type 35, which put the price of the basic, non-electric window car up to £4,900 have only served to make me even more enthusiastic.

The driving position feels so good, for starters, helped by that adjustable, if ugly steering wheel. At rest the throttle looks to be too alienated from the brake, but on the move, heeling and toeing comes naturally. The seats are set quite high and there is almost a Range-Rover quality, see-all vista through the Triplex Ten Twenty laminated windscreen, tinted, like the rest of the glass area, as standard. This is the first production car to be fitted with the advanced Triplex screen which, say Triplex, "virtually eliminates severe cuts to the face and severe injuries to the eyes" in the event of an accident contact.

Cold starting requires full choke, an instrument which needs playing with for a couple of miles for stop-start motoring, air temperature control valve or not. Hot starting is straightforward. The V8 warbles merrily, yet very subdued, at low speeds, emits some harshness when hard acceleration is employed, but settles down to a soothing, unflustered murmur when driven with a light right foot or at extremely high cruising speeds in fifth.

It is that tall fifth gear which, with the excellent aerodynamics, gives this car such an extraordinary long-legged gait; this overdrive ratio offers 28.03 m.p.h. / 1,000 r.p.m., which means the eight pistons are moving at a mere 3,534 at 100 m.p.h.! On the other hand, the flexible V8 will pull fifth almost down to tickover. The owner of the automatic version will need a deeper pocket: on the same 3.08:1 final drive, his car will pull a mere (comparatively) 23.5 m.p.h. / 1,000.

But gearing and aerodynamics mustn't be allowed to overshadow the engine's own contribution to uncanny economy. Leyland claim 24-26 m.p.g., touring and tell me the average over the duration of the Press test days was 27-28 m.p.g., with a worst of under 22 m.p.g. and a best of no less than 32 m.p.g. On one non-stop motorway/dual carriageway journey (abroad, of course, Your Honour) my road-test car averaged over 80 m.p.h., in spite of roadworks delays, to the tune of an incredible 25.6 m.p.g. On the other hand, this commodious 26.9 cwt 3.5-litre saloon also proved much cheaper for commuting into the City of London than my TR6, with which regular transport I must inevitably compare it. While the 2.5-litre two-seater, and slower sports-car averages less than 18 m.p.g. for this journey, this Rover recorded 21.3 m.p.g. when gearing and aerodynamics would be of little benefit. And to think I praised the petrol-miserly Porsche 911 2.7 for recording 21.58 m.p.g. over that journey, albeit on 2-star. The 9.35 to 1 compression ratio Rover needs 4-star in its 14.8 gallon tank.

It is the aforementioned gearbox which helps make this car such a driver's delight. "Design a five-speed gearbox with a change as good as the Ford four-speed", was the engineers' requested criterion. The result I believe to be possibly the best mass-production five-speed gearbox in the world. It is a new type of design in that Timken tapered roller bearings are used on both mainshaft and layshaft, the first time they have been fitted to both shafts in a volume production box. The arrangement makes the gearbox stronger, more rigid and helps create the exceptionally positive gearchange. Peculiarly, reverse is on a dog's leg up to the left against a strong detent spring, instead of opposite the right-and-up fifth speed. There is a modest spring bias towards the third/fourth plane. The selection of every gear is satisfying, but the fourth/fifth and vice versa movement is particularly so: Rover have transformed into an easy, natural action a movement which has to be deliberate in most other five-speed boxes. Clutch pedal pressure is of middleweight requirements.

Though the engine is particularly flexible, the improved rev. range makes it pay to put the crisp gearbox to work for best performance. Some idea of the usefulness of the ratios can be judged from the speeds at 6,000 r.p.m. in the lower three of 43 m.p.h., 69 m.p.h., and 103 m.p.h., second and third being superb overtaking gears. If anything it is a shade over-geared, for the sake of quietness and economy. Nevertheless, this car is quick: I'm informed that Rover's quoted 0-60 m.p.h. in 8.7 sec. and 125 m.p.h maximum are very conservative for Trade Description reasons and 127 and 8.5 sec. or less will usually be nearer the mark.

In its handling and roadholding this machine feels every inch as though it has been designed by enthusiastic driver-engineers for enthusiastic drivers. It corners flat and neutrally, unless pushed forcefully into roll on tighter curves. Even in such extremes it shows no vices if emergency correction of line is needed or if the throttle is lifted off abruptly or if squashed hard to the floor in mid-corner; no sudden oversteer nor run-wide understeer, just wonderful adhesion, smooth stability and impeccable traction from the non-limited slip live rear axle. There is a degree of response and ability out of keeping with this car's size, engineered by tautness of suspension and communicative, sensibly geared, power steering. I never ceased to be astonished at the precision and speed with which the considerable girth could be slotted in and out of traffic or hurtled down winding lanes. All this is done at the expense of slight suspension harshness and radial thump at low speed: as speed increases the ride and absorption of bumps grows excellent, passenger comfort assisted by modest roll angles. There is none of the sick-making ride of the old model. On the one hand this Rover is a taut sports saloon, on the other a comfortable, luxurious express.

The test car's optional - extra wide alloy wheels and 195 section Pirelli CN36s seemed to offer cosmetic benefit rather than road manner improvements compared with the standard steel wheels and 185 section steel-construction Goodyears on my Press launch car. Those disc/drum brakes provided creditably powerful retardation. High winds experienced when crossing the moorlands into Scotland provoked infinitesimal twitch and in general this 4 ft. 11 in. track 9 ft. 2.25 in. wheelbase car's straight-line stability is highly impressive. That quality, the high gearing, reasonably low wind noise, and economy make this car a magnificent motorway mile-eater, no doubt an admirable continental touring car. What wind noise there is seems to come from the door mirrors (only the driver's of which, is standard), which are manually adjustable from inside the car. When two are fitted, the car becomes excessively wide.

The gearbox whines overmuch in second gear, the spare-wheel needs a cover to avoid it dirtying the carpet, the bonnet prop can be released only from the nearside, four instead of two screen washer jets are needed for the big screen (these being operated, along with the two-speed plus fixed-speed intermittent wipers, dip, flashers and horn from steering column stalks) and what has happened to the splendid Rover toolkit of old? This is the sum total of criticisms, a credit to Rover engineers. The whole car feels splendidly rugged in Range-Rover fashion, has the markings of providing the best rowing saloon on the market and can have its new thermoplastic paint treatment carried out in metallic finish at no extra cost.

The new Rover 3500 (should we call it Mk.II?) is as far removed from the Rover image as was the advanced 2000 in 1963. Traditional Rover owners may take some initial persuasion to buy, although they can continue to purchase the 2200 models, which continue in production along with the Triumph 2000s and 2500s. But Leyland should attract a vast new following from customers who would never have dreamt of buying Rover in the past. BMW, Citroen, Peugeot, Volvo, Renault, even Mercedes will feel the effect of this brilliant new car which initially is exclusive to the UK. Jaguar will doubtless lose a few customers too, though maybe gain a few traditional Rover type owners who prefer walnut luxury and a softer compromise of suspension and engine. And no longer do Chief Constables have an excuse for buying "foreign". Here at last is a British high performance luxury sports saloon to take the place of the much loved Jaguar 3.8

of the early '60s. I hope that Rover can supply what ought to be a fantastic demand and maintain the quality which the concept deserves.

-C.R.

If you enjoyed this article, you might also enjoy:

- Rover P6 (3500S) Design Details
- Leyland "Eight GE" Concept Car
- Rover V8 History (courtesy of Autocar magazine)