

MGB

*A celebration
of 25 years of the MGB, Britain's most popular and
prolific Classic car*



DESIGNER'S VIEW

Wilson McComb talks to Roy Brocklehurst, chief draughtsman at Abingdon when the MGB was designed



Roy Brocklehurst was only 15 when, in 1947, Syd Enever hired him straight from school to work for MG — and he found himself designing major engine components for the famous Gardner-MG record-breaker while still studying engineering at night school! He spent the next 26 years at Abingdon, closely involved with every postwar record and production car, and succeeding Enever as Chief Engineer in 1971. But two years later he moved to Longbridge to head the Vehicle Engineering division of Austin Morris, doing early development work on Metro, Maestro and Montego until 1981, when he became Chief Engineer of BL Technology (formerly Advanced Vehicles division).

McCOMB: Roy, can we establish who did what on the design side?

BROCKLEHURST: Well, it's never the case that one man designs a car: he heads a team. When we were working on the B we had about a dozen in Drawing Office, and the boys in the Development Shop brought the total up to about 30. An engineering department has basically two things to do — maintain the current production vehicle (which is about 50% of the engineering load), and look at what the company should be producing next. Nowadays a Production Planning organisation would present a brief and Engineering would react to it, but in the old days everything was initiated by Engineering — we'd put together a proposition and take it to Management. That's why so many prototypes never saw the light of day. We did an awful lot of abortive engineering on things that *we* thought the company should be considering for the future.

I guess the feeling for where we should go was more inspired by John Thornley than by any other person. Syd might invite comments from us in a very democratic way, but I think he reckoned that John knew what was wanted, and he wasn't about to argue with him. Syd should not be underestimated, though. He never had any formal engineering training, but he was so intuitive in his approach — except that he had this thing about the proportions and fixing of components. Wouldn't tolerate anything less than a 5/16in bolt. A man of massive brackets and powerful bolts, I always called him. I wanted to get a lighter, more efficient motor-car, but...

Primarily, I found myself directing the chassis side; I'm not a body engineer. Nowadays you'd describe it as laying down the basic parameters of the vehicle in packaging terms — the spatial relationship of all the major components

and the payload, the driver and passenger. Both geographically and dimensionally — and therefore determining the overall dimensions and proportions. The MGB provided a lot more space for its payload than the MGA although it was 3in shorter, about the same height and only 2in wider.

McCOMB: And the influence of the body people?

BROCKLEHURST: BMC Bodies Branch did the MGA and some prototype work on the B, but the detailed production design of the MGB was by Pressed Steel Fisher at Swindon, using a bunch of ex-aircraft designers. I think the B was the first bodyshell they'd done, so they weren't inhibited by motor industry practices, but in some ways they were a bit wet behind the ears. Our Abingdon body men, Jim O'Neill and Don Butler, sometimes had a job keeping their feet on the ground. Abingdon did the prototype engineering which enabled the vehicle to be built, but

the detailed information to enable a myriad of toolmakers to produce tools for production pressings — that was the responsibility of PSF. Our role as originators of the design was to liaise with them to make sure they complied with the basic parameters we had laid down.

McCOMB: Was it your experience with the Frua MGA that decided you to go mono-construction with the MGB?

BROCKLEHURST: No, that was a Thornley-inspired proposition with an outside styling house for a facelift MGA or the next new model — one of a series of propositions. The way we built the MGA, with its separate chassis frame, was labour-intensive and limited our production rate. The big appeal of mono-construction for the MGB was that BMC had a brand-new plant at Swindon capable of producing such vehicles in-house, with less material, fewer people, in numbers limited only by the sales potential.

McCOMB: Syd Enever once said the body shape of the MGB was inspired by the MG record car that Moss drove, EX 181.

BROCKLEHURST: Well, I suppose you could pick out a curve here and there... That's a bit of poetic licence, I think!

McCOMB: Farina had a lot to do with the GT design, didn't he?

BROCKLEHURST: Oh, yes. We made several attempts at Abingdon to produce a fixed-head design but they all looked sort



Above, a very early left-hand drive MGB pictured at the time of its introduction in 1962. Little did anyone suspect how long the model would survive

of overbrowed, terrible. For some reason we were obsessed with keeping the windscreen the same height, and it just didn't work. And then — in desperation, I suppose — we sent an open MGB out to Farina, and back came this *gorgeous*-looking coupé. Superb — an absolute revelation to us. Because we were just practical engineers and he was an artistic stylist. And of course he'd raised the windscreen height!

McCOMB: If it hadn't been necessary to keep the bottom half the same as on the Roadster, presumably you could have had a stressed-top coupé that might have been even lighter, instead of a couple of hundredweight heavier?

BROCKLEHURST: Indeed we could. Think about a shoebox, test it between your hands, its stiffness. Then take the lid off and see what happens. Put the lid on to the bottom, if you wish — it's still gone all soggy. You need cant rails connecting all the pillars.

McCOMB: I know there were experiments with irs for the MGA. Did you ever contemplate having it on the MGB?

BROCKLEHURST: I think we'd have preferred to go for de Dion — keeps down the unsprung weight and keeps the wheels square to the road. But we had the BMC Tractors & Transmissions Branch at Ward End turning out live axles in great profusion, which the industry was using generally in those days. There was great encouragement to use standard components.

McCOMB: Isn't this why so many people look contemptuously on the MGB and its like, as sports cars built with sedan components?

BROCKLEHURST: Yes, it is. It's also why most of those people can afford to buy them! But from the manufacturer's point of view, it really isn't just a question of price. It's the aggravation factor of making a small number of special components, making them only in the volume going through Abingdon. A large organisation doesn't want that sort of thing.

McCOMB: This is what left you with the same front suspension as before — the bottom wishbones, coils and lever-arm dampers?

BROCKLEHURST: Well, yes, in a way. We'd have preferred telescopics because there's always a degree of lost motion on lever-arms, some movement before the valves open. But we had a big carry-over content to handle.

McCOMB: When the GT came out two years after the Roadster, it had wider rims, bigger-section tyres and a front anti-roll bar, all as standard fittings.

BROCKLEHURST: Making the anti-roll bar an option for the Roadster was a deliberate pricing decision, to hold the advertised bottom price down. The same technique is used today. And nobody *wanted* to have two different tyre sizes going through the factory, but we were tormented by sprung/unsprung weight ratio on the Roadster. We had to compromise between wheel-hop and the amount of rubber we put down on the road. The wheels themselves were one of our biggest budgetary problems — the

tooling cost for a pressed steel wheel was horrendous. As for wire wheels, they were just bad news, but we always had to have them as an option to keep the customer happy.

No, I think that, given the restraints we had, we did as good a job as could be done. For a semi-elliptic car, the MGB has to be as good as any. Triumph, for instance — they too had to use saloon car components, but they had a different set of bits to work with, going to semi-swing/semi-trail on the later ones. Yet they were not good from the handling point of view. I personally wouldn't have gone for that type of suspension, because I don't think anyone has made it handle really well: not Triumph, Ford, BMW ...

McCOMB: And good handling was high on your list of priorities?

BROCKLEHURST: Oh, absolutely. I'd say handling was placed above anything else, really. An MG had to be a car you could get into and immediately feel at home in. A lot of people could drive TRs quickly, but they were either exceptional people or they'd had a lot of exposure to the cars.

McCOMB: Turning to the engine, Roy: I know there was talk of a V4 and a six, but was there any real doubt that you'd end up with the BMC B-series engine?

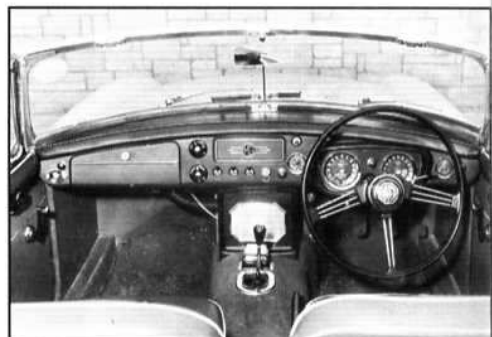
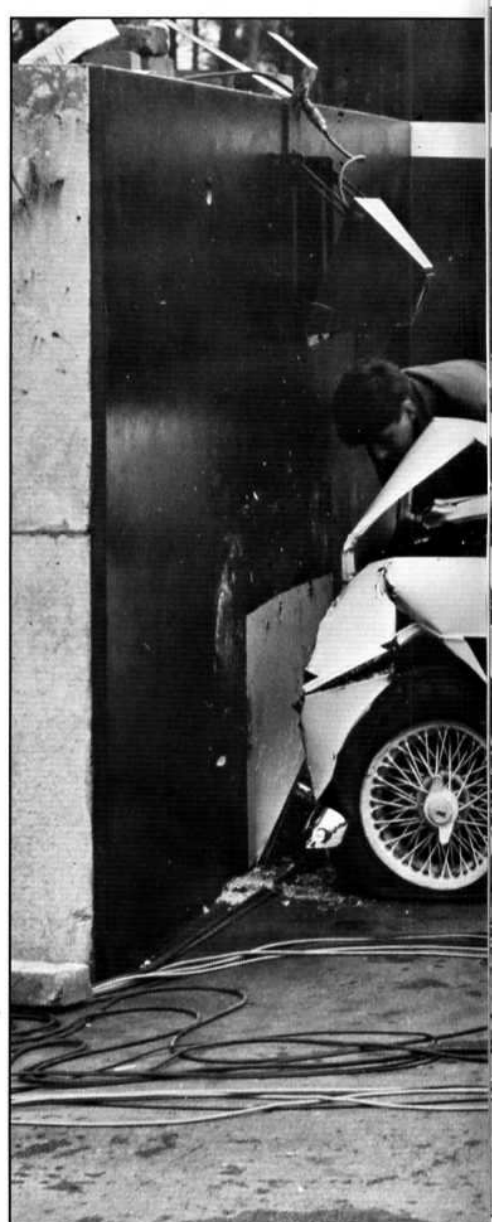
BROCKLEHURST: Not really — though I think it was John Thornley who convinced them that we must have it opened out from 1,622cc to 1,800. We'd always thought that engine a bit strange, with its two siamesed inlets and one siamesed exhaust port. I eventually found out the reason for that — I'll tell you how it happened. [And he did, but insisted it should be off the record.]

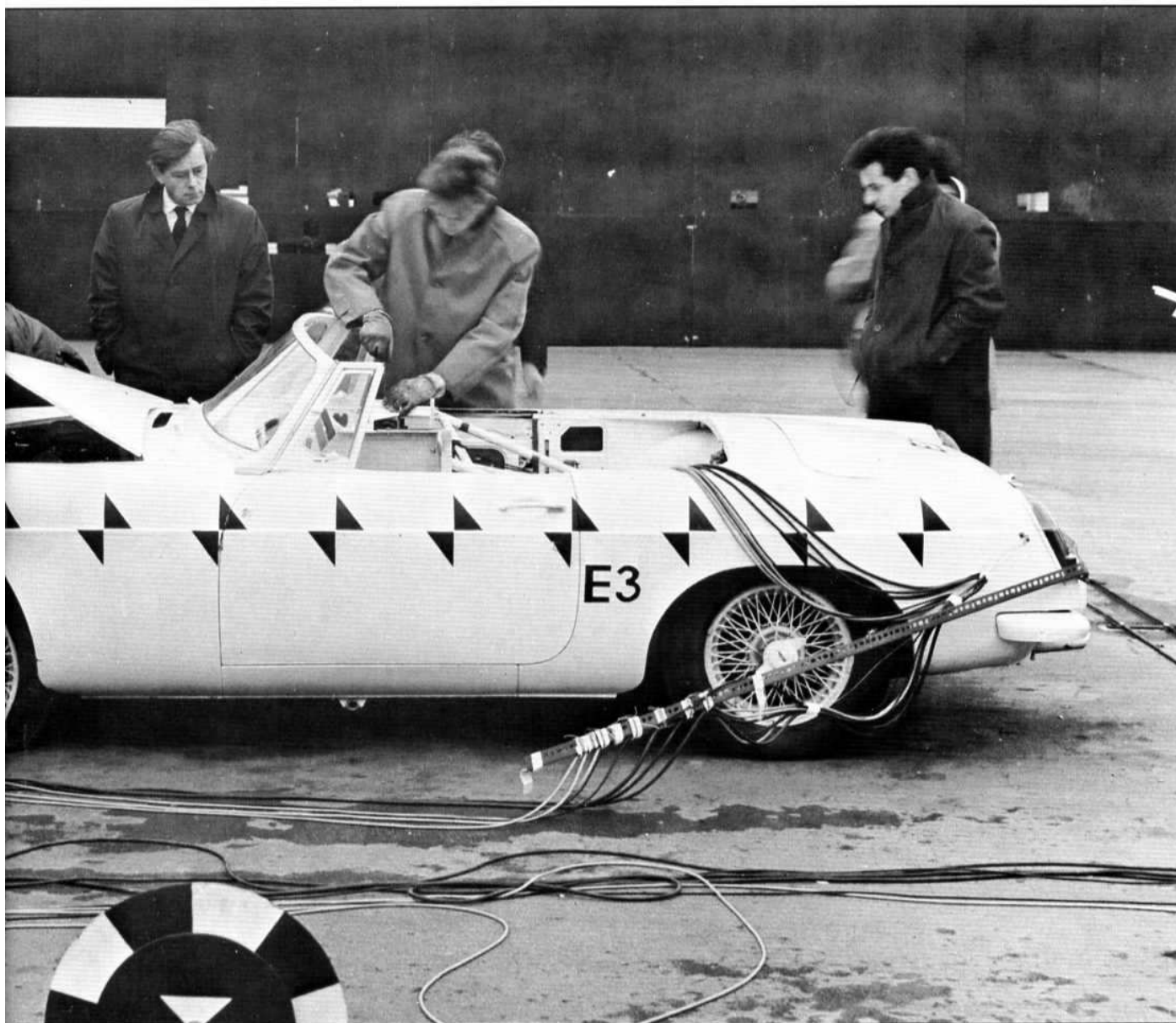
The V4 and the six were experimental engines — that's the so-called Light Six, not the MGC engine. We had one in a brown MGB, and I tried it on the Oxford Bypass the very day the Chief Constable was checking his police car speedometers with a new device called "radar". I went through the trap at 132mph. He insisted on having a word with me; wanted to look under the bonnet. . . . But those engines would have had to be chosen for some volume-production car before we'd have got them.

The ironic thing is that the 2-litre O-series engine never got in the MGB. It was specifically designed for the MGB, specifically because of problems with the B-series on US emission standards. It was developed at Abingdon, *in* the MGB — but it never got into the production vehicle. And that's *really* what killed the Aston Martin attempt to buy MG.

McCOMB: I have heard it claimed recently that the 1,800cc engine had to have an oil cooler, then five main bearings instead of three, because it wasn't tough enough. Yet the Competitions Department preferred the three-bearing engine.

BROCKLEHURST: Longbridge decided to go for five bearings to get more refinement, more smoothness — for saloon cars, not the MGB. The oil-cooler was because we wanted a worldwide specification, and oil temperatures were on the high side. It's far easier to cool





Left, John Thornley and Syd Enever, on right, discuss the underbonnet layout of the new MGB. Both men had a profound influence on the design of the car

Above, for an open car the MGB crash tested very well. Roy Brocklehurst is seen here behind the car inspecting the damage after impact



Left, cockpit of the 1962 MGB with the large steering wheel and the original black crackle dash panel

Above, the original MGB GT of late 1965. The original open design translated particularly well to closed GT

moving oil than bulk oil sitting in a sump, however many fins you put on it.

McCOMB: Why did we have to wait until late 1967 for a four-synchro gearbox?

BROCKLEHURST: Issigonis didn't think bottom gear needed synchromesh on any car — he said: "Why do you want synchromesh when nothing's going round?" So we had a dog-engaged bottom gear.

McCOMB: Why did we have such a huge steering wheel? A throttle pedal you couldn't heel-and-toe? Confusing switches, difficult heater controls?

BROCKLEHURST: Syd Enever liked big steering wheels (and he always referred to the handbrake as the "sidebrake", too!). You know yourself, Wilson, that Syd's driving style was a bit . . . well, strange. He really wasn't interested in the ergonomics of control layout — he'd have considered that a very way-out technique.

McCOMB: Why were the batteries so inaccessible?

BROCKLEHURST: It cost us a lot of money to have two 6V batteries sited back there, each side of the prop-shaft. We did it to improve the weight distribution (that was one of the reasons for the alloy bonnet, too). A 12V in the boot would have taken up too much space; there was little

enough there already.

McCOMB: All right, I'll forgive you the battery position — but the fuel pump as well?

BROCKLEHURST: Pumps used to be on the bulkhead, as you know. Then somebody at SU decided they worked better if they pushed the petrol instead of pulling it, so they went to the back of the car. And if I was driving across the Sahara, I'd rather do it in an MGB with that SU pump than in a current motor-car with an electronic system!

McCOMB: With hindsight, should you have realised that all those hollow sections would be so prone to rusting?

BROCKLEHURST: Fair comment, I suppose — we certainly think about it these days. But perhaps we weren't unduly concerned about the long-term effects of corrosion then. We built vehicles the best way we could, and the hollow sections were there to impart torsional and beam stiffness to the body.

McCOMB: Would you agree that in some ways the car was cheapened towards the end of its life? The hingeless rear quarter-lights on the GT, the unleaded body seams, the steel bonnet — a lot of small details like that?

BROCKLEHURST: There was a time when BL recruited a lot of managers from Ford who had made their name by budgetary control — cost-cutting — and I'm afraid Abingdon felt the backlash. There was some concern about the health aspect of leaded seams, but you're always stuck with them: look at the Rolls-Royce Camargue — it's got about 200lb of lead on it, so it still goes on. The alloy bonnet was always a problem because Pressed Steel hated it from Day One — always wanted to be rid of it.

McCOMB: Didn't you regret what black bumpers did to the MGB: the appearance of them, the tremendous weight increase, the raised ride height?

BROCKLEHURST: We all hated it. But you have to realise it was a question of either doing it or abandoning the US market — and without the US market we were out of business. I suppose we tended to go for overkill at MG, when it came to meeting requirements like that. The padded dash for America caused us a lot of aggro earlier on, and in the end it wasn't needed. But we couldn't *anticipate* any relaxation in standards. For a long time we in Engineering tried to take the initiative, as I've described, and get something going to replace the MGB — ADO-21, EX-234, things like that. But it was no good. Tooling costs were going through the roof.

McCOMB: Looking back now, 25 years later, are you pleased with the MGB?

BROCKLEHURST: Yes, I do feel pleased. For me, whatever I'm trying to do — building a wall, whatever — the rewards are in achievement. There's a motor-car, I played some small part in its design and development together with a lot of other people, and it was successful. I still think it looks pleasing — particularly the GT, which I think is aesthetically a super-looking car — and I've done lots of miles in them.



Above, the final incarnations of the rubber-bumpered MGB GT included the Limited Edition (LE) version which had special paint and a high level of standard equipment



MGB Roadster in 1974 with rubber bumpers and increased ride height, changes that no-one at Abingdon wanted but which were forced upon MG by external influences

Compared with our two main competitors in the USA, the TR4 and the Mustang, the MGB was down on sheer muscle power, I suppose. But its big attraction was that it really did go where you pointed it. I tried out the opposition whenever I could in America — used to go there a lot, as you know. And in all fairness, while the MGB was underpowered by comparison, it really was a *much* more pleasant car to drive.

I'd have loved to see the B lighter, more energetic. I've always been obsessed by weight, and fortunately in my later career I've been able to exploit weight-reduction techniques. Look at our experimental car, ECV-3. A five-seater with a kerb weight of just over 600kg; an economy vehicle with a maximum speed of 118mph, aimed to reduce *total* cost of ownership because at the end of the day you recycle it, like a beer-can. One of these days someone will bite on the bullet and we shall have aluminium motor-cars. And they will really be *so* much better than steel ones.

McCOMB: Finally, Roy, can we look at the two attempts to raise the performance of the MGB — the MGC and the VS? You were deeply involved in both of them, I know.

BROCKLEHURST: The MGC was something imposed on us from outside Abingdon, to open up another capacity class using the engine of the Austin 3-litre — and another move for smoothness, with seven main bearings this time. Very nice for refinement, maybe, but it just

didn't want to go. And with about 700lb of cast iron in the front of the car, it wasn't very interested in going round corners, either. It was a disastrous exercise, and a very expensive one for Abingdon.

McCOMB: People have suggested that the Roadster body was not thought tough enough for the VS.

BROCKLEHURST: Oh, there may have been some thoughts about lack of torsional stiffness, but the real reason for restricting the VS engine to the GT body was that we reckoned to sell as many GTs as we could get engines. It was the availability problem that restricted us to the low-compression Range Rover unit. And it was the availability problem that killed the VS in the end.

I agree, it could have done with more development — the gearbox, for instance, was the only one available to us at the time. Today we'd put the 77mm 'box behind that engine — the five-speed that was designed for the SD1 engine, and Sherpas too. My Vitesse engine — 200bhp — would be just fine in an MGB.

But by Abingdon standards, even with only 137bhp the VS was considered *very* near the bone in its day. If Syd Enever had still been there, I think it probably would never have happened!

Wilson McComb is the author of *MG by McComb*, published by Osprey at £11.95.