

JULY 1988
£1.70 USA \$4.95

THOROUGHbred & **Classic cars**

France Fr. 42.50
Germany DM. 11.50
Greece Dra. 700.00
Holland Dfl. 9.90
Italy L. 7000.00
Singapore \$13.00
Spain Ptas. 632.00
South Africa R. 11.50
Switzerland Sfr 8.20
USA \$4.95
Euro £2.48



**MG TWIN CAM BIRTHDAY
ASTON MARTIN REBUILD
AC ACE TEST**



PLUS MILLE MIGLIA, FORD MUSEUM & NEW JAGUAR

CONT

JULY 1988



Wilson McComb tests the first production MGA Twin Cam on the police skidpans at Chelmsford in 1959. He was recently reunited with this very car. Read the full story starting on page 58

FRONT COVER

AC Ace photographed by Mike Valente. See page 26

ENTS

VOL 15 NO 10

TWIN CAM 58
*Thirtieth birthday tribute to
the most desirable MGA
variant*



TWIN CAM

This month marks the thirtieth anniversary of the high-performance dohc version of the MGA. Wilson McComb celebrates. . .

ONE fine day in the Fifties the chief MG test driver, Tom Haig, was heading for MIRA in a development prototype accompanied by Roy Brocklehurst, assistant to chief designer Syd Enever. They were not travelling slowly when suddenly, a little north of Banbury, the engine went onto three cylinders and a great cloud of smoke billowed out behind. Bonnet up, they whipped out the plugs and manoeuvred the car until the sun shone in one plug-hole. "Oh my God!" said Roy. "I can see the bloody gudgeon-pin!" For the first but certainly not the last time, an MGA Twin Cam had holed a piston.

And that, alas, is what most people remember about Abingdon's one-and-only dohc production model — that it was Trouble with a capital T. But this is an over-simplified view of what was also, in its day, an unusually high-performance road car that was widely praised when it was announced in mid-July 1958.

It was scarcely unexpected when it

came. There'd been rumours of a higher-performance model as far back as 1955, when the original three car team of 1½-litre, pushrod-ohv MGAs raced at Le Mans, and one of the three works cars in that same year's Tourist Trophy Race had been fitted with an experimental dohc engine. It had retired after only 23 laps of the Dunrod course but the following summer MG paid one of their regular visits to the Bonneville Salt Flats with the EX179 record car (virtually an MGA chassis clothed in a replica of the Gardner-MG bodywork). Fitted with a dohc 1½-litre engine, EX179 had taken 16 International Class F figures, including 10 miles at over 170mph.

MG fans were even more excited in the summer of 1957 when Abingdon revealed a completely new and ultra-aerodynamic, mid-engined record car, EX181, powered by a supercharged dohc 1½-litre unit that gave 290bhp at 7,300rpm on a 32psi boost. MG's declared aim was to reach a speed of four miles a minute, and this Stirling Moss

rousingly achieved with a two-way average of 245.64mph, making EX-181 the world's fastest 1½-litre car.

So a fair amount of development testing lay behind the new engine. It was in fact one of *two* dohc units that had been developed: one was an all-new engine designed by Austin at Longbridge, very promising but considered far too expensive to build; the other, designed by Derek Frost and Bill Andrews under the direction of Eddie Maher, chief engineer at Morris Engines Branch, was much closer to the familiar BMC B-series unit. The cast iron block bore an obvious family resemblance although it was a different casting — it was machined on the same factory line — but in production form it was opened out to 1,588cc, and the crankshaft, rods and pistons were all beefed-up, with circlips instead of clamped little-ends. There was a large cast-alloy sump, and the big light-alloy head carried its valves at an included angle of 80deg. The normal camshaft position on the nearside of the block was occupied by a half-speed shaft, gear-driven, which drove the new overhead camshafts through Duplex chains and also drove the tachometer, distributor and oil-pump. With a 9.9:1 compression ratio and twin H6 (1¾in) SU carburettors, the claimed power output was 108bhp at 6,700rpm — exactly 50% better than the pushrod-ohc engine — and maximum torque was 105lbft at 4,500rpm.

Those who had hoped for an out-and-out sports/racer were disappointed to find



that the new model looked very similar to the existing two-seater MGA in its pushrod-ohv form. Of necessity the radiator header tank had been moved back and to one side (under the bonnet, the Twin Cam was always impressive rather than accessible), and Dunlop had developed for MG a set of disc brakes which were fitted front and rear. These were hidden behind distinctive centrelock steel wheels, also made by Dunlop, of the admirable peg-drive design pioneered by BMW in pre-war days, followed by AFN for the Le Mans Frazer-Nash, and of course made even more famous at Le Mans by the D-type Jaguar.

There was talk of a 120mph top speed for MG's new Twin Cam — some 20mph better than the pushrod MGA and representing an engine speed of 7,000rpm. As it turned out, 115mph was a more realistic figure for a production Twin Cam — but this, 30 years ago, was still a nice turn of speed for a roadgoing 1600. And the engine proved joyously responsive, readily running up to a red-lined 7,000 in the indirect gears to give excellent acceleration. The 9.1sec that *Motor* recorded from a standstill to 60mph was a mere 0.2sec slower than their figure for the contemporary Jaguar XK150, and more than two seconds faster than the Austin-Healey 100-Six. Road-testers heaped praise upon the brakes although they were not servo-assisted; people accepted higher pedal pressures in those days.

Without a doubt, many assumed that

the Twin Cam was primarily intended to be a competition car. The capacity increase from 1,489 to 1,588cc was just right for the then-popular 1600cc class, and BMC's own publicity department (an outfit admittedly some way removed from reality) hailed the new model as "A great British challenge to the world of motor sport . . . with a twin overhead camshaft engine that puts the MGA right up into the world competition championship class." This was poppycock, since it was a fully-equipped road vehicle with a kerb weight of around 2,200lbs, and in late 1959 John Thornley wrote: "We never expected the Twin Cam to live with expensive lightweight machinery . . . The Twin Cam is what it originally set out to be, a darned good Grand Touring car which offers more performance per £ sterling or dollar than any other machine you can buy." At a

basic price of £843 (about £180 more than the pushrod MGA) it was indeed good value, especially overseas where it was not subject to a stiff Purchase Tax that raised the price to almost £1,300. But in retrospect it seems clear that the Twin Cam appealed to far too many well-heeled young men who didn't care enough to look after them properly, and maybe hadn't learned to drive them properly either.

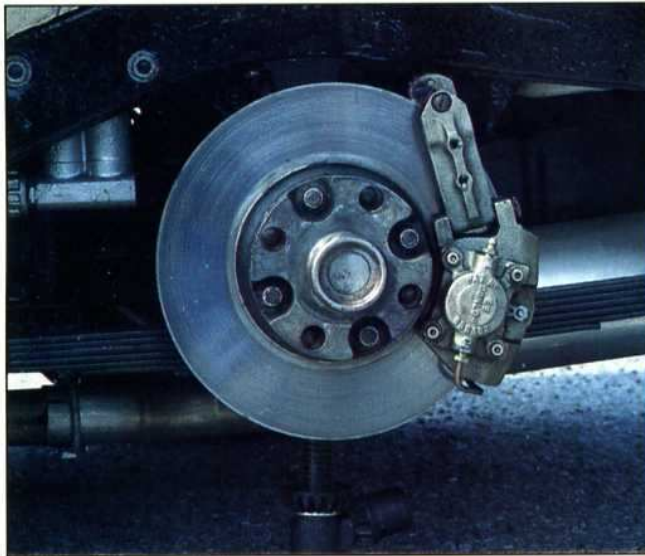
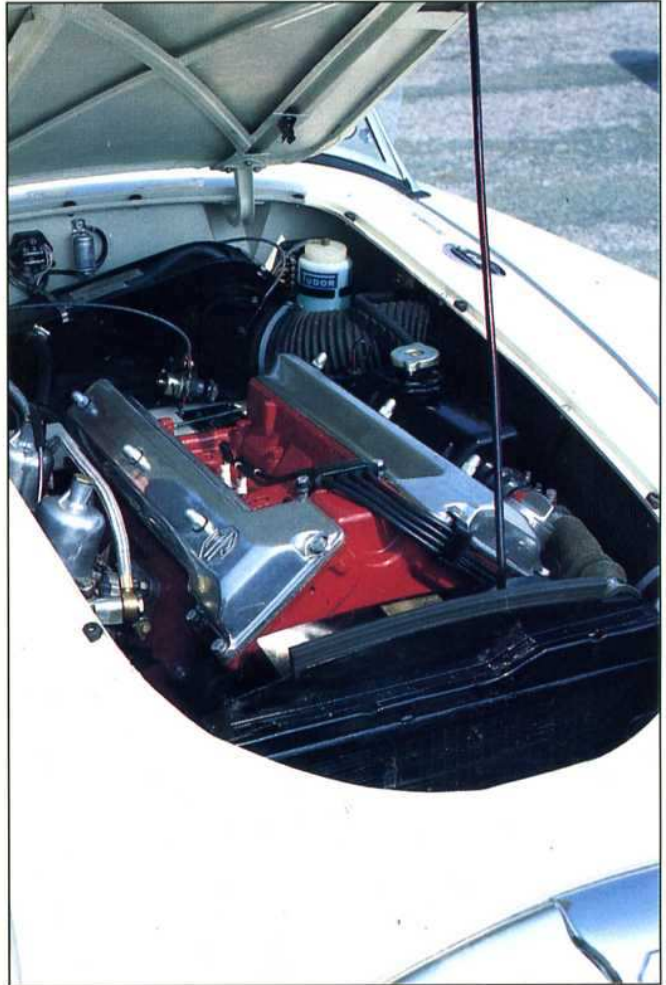
This was to bring unfortunate results. MG advised fuel of at least 95 to 98-octane rating, and preferably higher still; in many countries where Twin Cams were bought and driven, lower-grade petrols were the norm. The mixture strength, too, was highly critical, and any weakness under load led to disaster. Spark plugs had to be of the correct grade, checked regularly for any deterioration that might cause pre-





Left, MGCC Twin Cam Group Secretary Nick Cox leads the procession of pristine MGAs in his 1959 Roadster

Below, the attractive twin cam unit fits neatly into the MGA's engine compartment but access is very limited



Left, the MGA featured Dunlop disc brakes all round with a special handbrake mechanism fitted to the rear discs

Below, Wilson McComb reacquaints himself with Roy McCarthy's ex-works press demonstrator which he last drove 29 years ago!



ignition, and frequently renewed. Most important of all, the ignition timing had to be exactly right; the 9.9:1 compression ratio allowed no real latitude, and slight wear on the distributor drive could lead to serious trouble if it resulted in over-advanced ignition timing.

Even if all these things were spot on (as they seldom were in normal conditions), the unfortunate Twin Cam was so responsive that any idiot could break it with his right foot, since it lacked what Colin Chapman wisely incorporated in *his* Twin Cam five years later — a centrifugally-actuated ignition cut-out switch to make over-revving impossible. Nor was it only the irresponsible youngster who got carried away by the MG's performance. I remember a famous monthly magazine which borrowed one of the demonstrators, and returned it soon after with bent valves and dented piston crowns: they said they'd stuck to the required rev limits, but quite obviously they hadn't. . .

It was Dick Jacobs, of course, who showed everyone what Twin Cams could do when properly maintained. He bought his first in time to enter it, still carpeted and in catalogue condition, in the 1958 TT at Goodwood, where Foster and Bridger took a class third behind two Porsches. This car and another were then meticulously prepared and lightened by some 250lbs apiece, and in 1959/60 they finished in the first three places 36 times out of 56 entries; in both seasons they won their class in the *Autosport* Championship, they headed a class 1-2-3-4 by Twin Cams in the 1959 Production GT Race at Silverstone, and the older car repeated its 1958 TT performance in 1960. Between races, Dick would drop the sump of one car and go over the top end of the other, so that both were checked at intervals of about a fortnight.

BMC having banned works entries in races after 1955, it was the MGCC North-Western Centre that entered a Twin Cam for Le Mans in 1959 — but this, needless to say, was an ex-works car prepared illicitly at Abingdon. Lund and Escott were going well when they encountered a large dog on the Mulsanne straight, but in 1960 the same car, converted to a coupé and given a 1,762cc engine, won the 2-litre class at a 91.2mph average ahead of AC-Bristols, Porsches and Triumphs. It ran again at Le Mans in 1961 without finishing, but was (for the third time) driven home to Lancashire after the race.

Marcus Chambers, the BMC competitions manager, had welcomed the advent of the Twin Cam for use in international rallies, and at first it seemed promising. The car entered for the 1958 Liège-Rome-Liège was standard apart from long-range tanks, extra lamps, etc, but Gott/Brooks took ninth place overall in that immensely difficult event. However, the same crew crashed their Twin Cam in the 1959 Monte, and the two Abingdon cars driven by Gott/Tooley and Sprinzel/Turner got nowhere in the Tulip Rally, while Sprinzel crashed in the 1959 Acropolis. After that, Marcus seemed to lose interest in the Twin Cam. For one thing, the Austin-Healey 3000 had been

“. . . the Twin Cam was so responsive that any idiot could break it with his right foot”

announced in July, and was much better suited to the rough-and-tumble world of rallying. For another, the Twin Cams had not shown up at all well at Sebring — the only place where the BMC board permitted works participation in racing — either in 1959 or in 1960.

After the 1960 Sebring 12 Hours, Chambers returned to Abingdon with the news that Twin Cam service troubles were damaging the good name of MG in America, the marque's most important market. A few weeks later, production was discontinued and a new model — the “MGA 1600 De Luxe” — invented to use up remaining parts by installing the contemporary MGA pushrod engine in the leftover Twin Cam chassis. The total output of genuine Twin Cams was just 2,111 cars, of which all but 300 or so were exported.

“Sad, really, that it was dropped so soon,” says Roy Brocklehurst. “But with the warranty costs and everything else, I know people were up to *here* with it at the

time.” Ironically, it was discovered not long afterwards that most of the Twin Cam's troubles could be overcome by merely reducing the compression ratio to 8.3:1 — with a loss of only 4bhp in power output! But as Peter Wood points out — and he has been sorting Twin Cam engines longer than almost anybody else — nowadays you can't take compression ratios for granted. So many heads and blocks have been skimmed so often, over the years, that you need to check them very carefully.

Peter has pistons made for him in the USA, and also has a source for new cranks, new rods, almost everything except camshafts and blocks and heads. Wheels, he agrees, are a problem because the design is unique, and the racing crowd accounted for all too many of them in past years, but the design is amply strong enough for road use. The Dunlop brakes are expensive to repair, but at least these parts too are available.

Astonishingly, the MGCC Twin Cam Group has traced about 800 cars; it is a small organisation, with only some 200 members, but has been in existence since 1965. Its secretary, Nick Cox, admits to being younger than his car and agrees that he spends a lot of time working on it, but says the dohc MGA is so different that it's worth all the extra work. “Many of our members had pushrod MGAs first and they recognise the Twin Cam as a good car made better. It's great to have an engine-bay full of engine — and especially one that is such a beautiful piece of engineering.”

Roy Brocklehurst's views on the Twin Cam MG engine

As Roy Brocklehurst says, the oddest thing about the Twin Cam engine is that it was a Morris conversion of an Austin design, carried out at a time when the two companies were still uneasy bed-fellows.

When the Nuffield side of BMC was confronted by the B-series 1500 after the Corporation was formed in 1952, they thought it a strange device compared to their own beloved XPAG and XPEG units as used in T-series MGs and other models. “We couldn't understand why it had the ports *and* the pushrods all on one side, and nothing but the plugs on the other side. Eventually we discovered that the trucks Longbridge supplied to MoD during World War II didn't compare too well with Bedfords, because the Austin engines were all sidevalve, so Bill Applebee was directed to design an ohv engine. Well, he got hold of a Bedford engine to copy, but reckoned it ought to look a bit different — and he did that by moving the camshaft to the other side!

“The result was that he ended up with his pushrods all tangled up with his ports — had to siamese two pairs of inlets and one pair of exhausts. When we started trying to tune the engine by opening up the ports, we kept meeting bloody pushrods, and the only way we could enlarge them was to square 'em off — which is what we advised in the MG tuning manuals.

“For the 1955 Ulster TT we had one car

with the normal pushrod engine and head, one Twin Cam engine, and a pushrod car with a special head to try and avoid the intermittent flow you get with two carbs on a four-cylinder engine; we arranged a bypass port across the engine to draw some mixture from the other carb and keep the mixture flowing. We saw some improvements, but I don't think it was really the bypass port that did it.

“And when we actually finished up with a dohc head at Abingdon . . . Well, it was like having all your birthdays at once. Marvellous! Besides, the Twin Cam wasn't the only car that gave trouble if it didn't get 100-octane, you know; when the Rover 2000 came, that was in the same situation.

“We did have oil consumption problems as well, yes, but I don't think it was entirely due to using chrome rings at first. It's true that chrome rings don't bed in — it's the bores that have to bed in! But Longbridge, notoriously, have gone in and out of oil consumption problems over the years; they've never been consistent about tolerances on bore finish. It was true with the Maxi — you'd find one with chronic oil consumption problems, and another that never used a drop — and it's all down to bore finish.

“It's ironic, really, that it's taken until now to produce a really successful dohc head on that B-series engine — that's the M16. And it's still the same bottom end, with the 3½in stroke — 88.9mm.”