Austin-Healey 100 record-breaker

THE RIGHT STUFF

Fifty-five years after the Healeys set fantastic speed records in a 100S prototype, a British enthusiast felt his car could do better

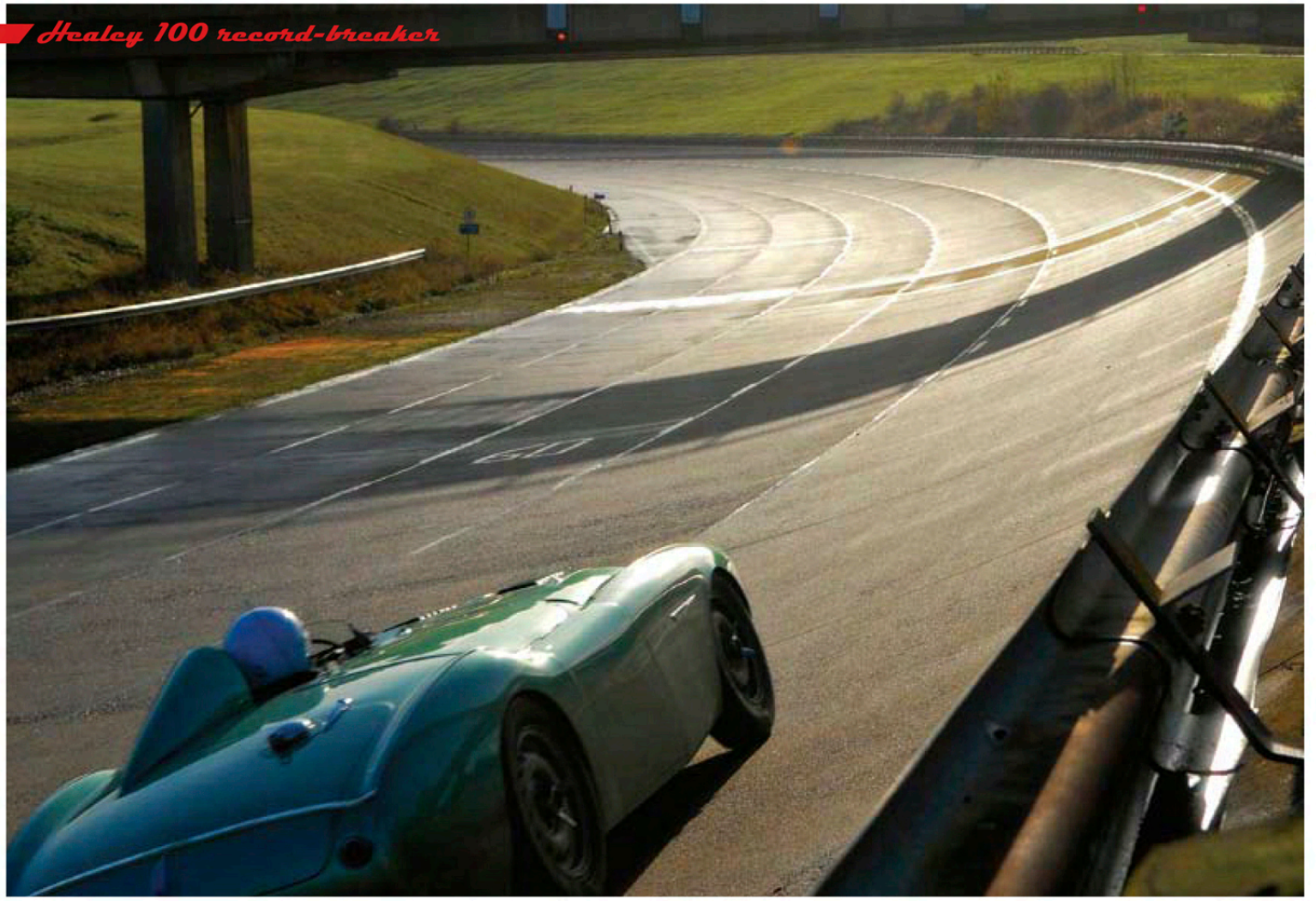
Words: Paul Hardiman Photography: Crucial Image, Paul Hardiman

NO HARNESS. Not the first thing you spot at 6.15 in the morning. Any form of rollbar is a more obvious omission. It transpires later the record-breaking was all done on points-and-condensor ignition. Truly, Martyn Corfield was going about this stick-and-rudder from the start.

A spin at 150mph didn't stop him and Jeremy Welch from setting up to 18 British and International speed records, in an extreme tribute to Donald Healey's achievements 55 years before on limitless salt flats on the other side of the world in a prototype 100S.

Why? That's a tough one. Corfield isn't a 'because it's there' kind of guy. The more reasoned response might be 'because he could'. But that masks his all-consuming passion for the marque, and these historic record runs in particular.

Basically, these guys pitched up at Millbrook very early one morning and in four hours' running slaughtered a bunch of world and national speed records, principally the »



International Speed record for 1000km (International Group 2 Class 8 non-supercharged), using the two-mile bowl of the test track, in a 55-year-old design. Except, as ever in anything to do with racing, it wasn't quite as simple as that.

First, the original car didn't exist any more, and you can't just go out and buy one. The nearest thing, a base 100S, now costs £300,000-plus and they're all spoken for. So Corfield engaged premier Healey racing outfit Denis Welch Motorsport to make a new one. Aided by cool air and 105-octane racing fuel, it ran 15mph harder than the original managed, even with a tightly banked track scrubbing speed.

Above
Martyn Corfield prepares to begin his first stint, as Jeremy Welch checks car.

Now, you might say that modern technology helps, but nothing was done that couldn't have been in 1954. The Healeys put their car in a wind-tunnel and predicted 147mph – exactly what this car ran in tests in 2008. But it was skittish, so it was into MIRA's tunnel to settle it down, and hopefully find a little more speed. As Jeremy Welch says: 'As with any aspect of motor racing, the last few mph and the last few seconds are the most expensive.' It came out with most of the grille blanked off, every gap taped up, every wart bubbled over. There's a cheeky little Gurney flap on the rear deck and – most controversially – there's a chin spoiler, though the team says it just put back metal originally trimmed off the standard profile by the Healeys on their record car. Any deviations from the original spec have been led by safety considerations, and frankly without them it would be dangerous going this fast, faster than a normally aspirated 100 has ever gone before. Even with the aero tweaks, it's reckoned that a side wind did just as much as the wet road to put Corfield terrifyingly sideways at 150mph on his first stint.

It must have been a bit of a moment, especially as, lying in the prone position with the right knee almost hooked over the gearchange, you're not in the best position to catch a slide. Luckily, 100s are a bit lighter on their feet than the later 3000: 'I was amazed how controllable it was,' says our unflappable hero, though getting an interview just before he set off on the epic run would have been a non-starter, as at 8am on one Sunday in November he was what you might describe as tightly wound: 'We were afflicted by the weather – as with every record attempt – and couldn't set the car up the day before,' he explains. At that point, the trade-off between grip, the wet track and tyre scrub were all unknowns.

In 1954 the Healeys ran on a 10-mile circle, and side forces were minimal. Our guys were running on a banked track that's neutral at 100mph in the top lane – that is to say, at the ton a car sits hands-off: any faster and you're turning left, and scrubbing speed. So the

Healey is staggered like a NASCAR racer – corner weights are different all round, the front wheels run different cambers (the left is actually positive, so it pulls perpendicular at 150) and the rear axle is slewed on the springs: 'It wants to turn left.'

The prep's done, the car's weighed, then refilled and the bonnet sealed for the last time. After two years of building, development and testing, it's time to do it. There's a minor glitch: because of the bowl's curvature, the beam from the timing gear, aimed up from the pit road so it can record the distance the Healey completes including pitstop laps, can only see the shallow roadster when it's right at the top of the banking: our duo will have a white-knuckle ride just inches from the barrier. First Corfield makes a practice start, then pulls back in for a final check, lines up behind the lights again – and then kangaroos off, burping down the track, the high gearing keeping the car off the cam for several hundred feet. It's an inauspicious start on a grey day in Bedfordshire, a far cry from the glamour and glory of Bonneville.

By the next lap the Healey's at A sharp, still accelerating and sounding crisp. From the pit lane, the little green car looks like a clockwork toy whizzing round, but any smoothness is an illusion. Later, when we circulate lower at less speed for car-to-car pictures, it zangs past, fidgeting, moving around on the tyres, squirting out random spray as it shuffles grip between front and rear. It looks like bloody hard work. Later, hanging over the Armco to take pictures, it's a shock to feel how much air this is displacing, booming past on every lap with the force of two high-speed trains passing. Remember, this 2.7 four-banger is constantly pushing dead air, until torque, aerodynamics and drag coincide.

Which luckily happens to be over 150mph. After the first driver changeover on the hour, the news from the timing hut that Welch has circulated a lap in 47.6sec – 153.22mph average – is greeted with much jubilation from the pit: that's the fastest a normally aspirated Healey 100 has gone. Ever. The pit crew, some of whom helped build the car, »

Austin-Healey 100S record breaker

SPECIFICATIONS

Engine
2703cc pushrod in-line four, iron block, alloy head, 10.5:1 CR, twin Weber DCOE carbs

Power
c200bhp (estimated)

Transmission
Four-speed manual, straight-cut gears, rear-wheel drive

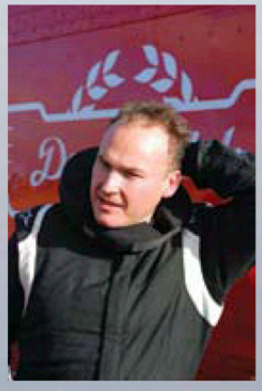
Suspension
Front: double wishbones (lever-arm dampers forming top links), coil springs, anti-roll bar. Rear: live axle, semi-elliptic leaf spings, adjustable lever-arm dampers

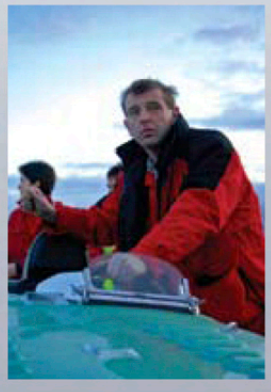
Brakes
Dunlop discs all round

Wheels/tyres
16in Dunlop peg-drive with Michelin Pilots

Weight
858kg dry

Top speed
153mph





Above
Car owner Martyn Corfield, in black jacket, shared driving with Jeremy Welch (in red).

'From the pit lane, the little green car looks like a clockwork toy whizzing round, but any smoothness is an illusion'

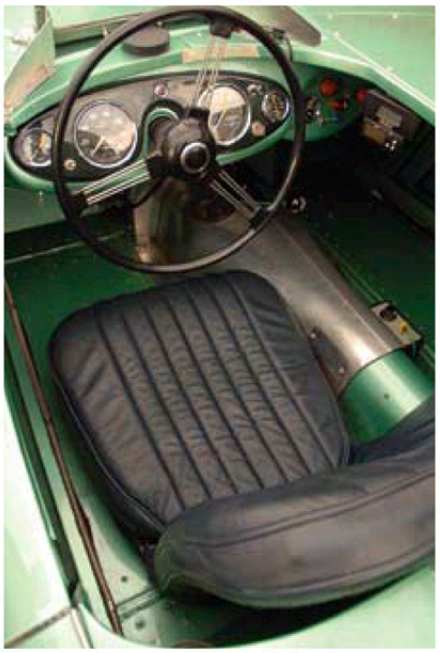
stare at each other in amazement. Corfield looks nervous. The Top Gun Big Healey racer is out there at the controls, but it's Corfield who has mostly paid for it, after all. It's his cash on the line.

Welch pulls it in too quick after his stint, tumbling a few cones, but the pit crew doesn't scatter. They've got to do tyres and fuel, and whatever reservations Corfield may have had after his big-balls spin, he's back in and off to maintain the average. What doesn't look like 150 from the bottom of the banking must be because the Healey booms into view every 47 seconds.

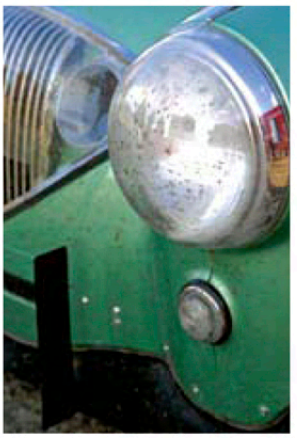
Records fall (unofficially) all morning: first an hour, then 200km, then 2hrs, 500km – then, finally, the clocks say that over 1000km the car, including three scheduled stops and one unscheduled one, has averaged 148.5mph – subject to FIA and MSA ratification. Tyre rubbing on the inner arches has only been a minor concern, and the big 'four' still sounds as crisp as you like. The only real tension visits in the final few laps. It would be criminal if the motor stopped now, or the car ran out of fuel. Dad Denis Welch and Corfield confer, and they keep Jeremy out there circulating past the 308-lap mark, until they're certain it's in the bag. Welch pulls in, missing the cones this time: heroes all round.

All that's to do is load the wagon, go and celebrate – and wait to see if the FIA and MSA will homologate the six International and 12 National records the team reckons it has cracked. Martyn discovers later they've likely set the outright British standing-start 100-mile record too, an added bonus.

The Healey is travel-stained but not weary. Lifting the lid for the MSA scrutineer to check the engine seals reveals that the motor is bone-dry on the outside (yes, it's still got oil in the sump, in fact it hasn't used any). There are bugs all over the front and dirt swirled out of the arches and down the flanks, in exactly the same pattern the salt made on the Healeys' 100 at Bonneville, 55 years before.



Left
Healey Elliott seat provides almost prone driving position; note lack of safety harness.



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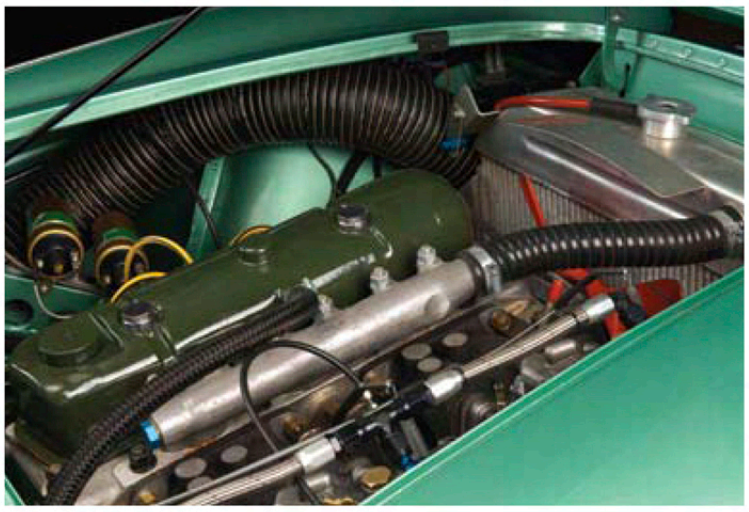
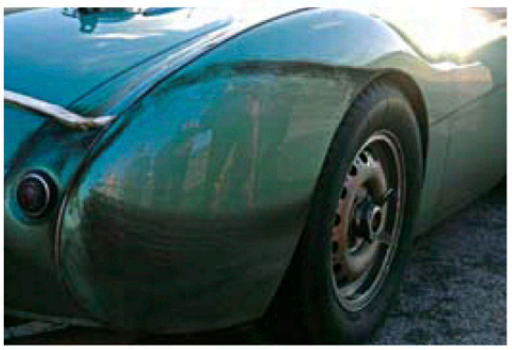




Above and right
Twin-Weber engine is to authentic 1954 spec; trails of dirt attest to 1000km at roughly 150mph.

Later, days later, Corfield is still attempting to explain his rationale for the whole adventure at DWM's Staffordshire headquarters: 'I used to drive past here in my old Sprite and peer through the window – that was 15 years before I became a customer. The original plan was to replicate the record car in appearance; at what point it became a balls-out record attempt, I'm not sure.'

He adds: 'Healey got into a spat with Jaguar about their ads saying they had the world's fastest production car, when Jaguar was claiming 148.4 for the C-type. Now we've corrected that.'

Both drivers said it was the toughest driving they'd ever done, the washboard surface in some places blurring the vision, and with back and shoulder pain from the centrifugal force pushing them against the cockpit side on the right. Helmets had to be pulled so tight they choked, to stop them lifting in the slipstream. 'I've been racing for 20 years,' says Welch, 'but I doubled my life assurance the week before.' 'For me to go out again and see the tyre marks…' Corfield tails off.

He has other record attempts in mind, although he's had next to no sponsorship: 'I even had to pay for the fuel, though Anglo-American Oil kindly supplied the pumping equipment'. Michelin put up one set of tyres and tested them under simulated conditions, Longstone another, and the car used 13 in all.'

Perhaps Martyn's most proud of the outright UK 100-mile standing start record that came as a surprise: 'No-one's ever done it faster.' And he's worked out what he's going to do with this unique car next: 'I reckon there's a bit more to come from the car, so we're going to go for the 24-hour record.'

This was truly The Right Stuff. The way Brits do it.

More at www.endurancehealey.com and www.bighealey.co.uk.

Austin-Healey 100S recreation

THE TIME MACHINE

Built as a replica of the 100S prototype, this record-breaking Healey benefits from some modern materials – but the technology is authentic 1950s

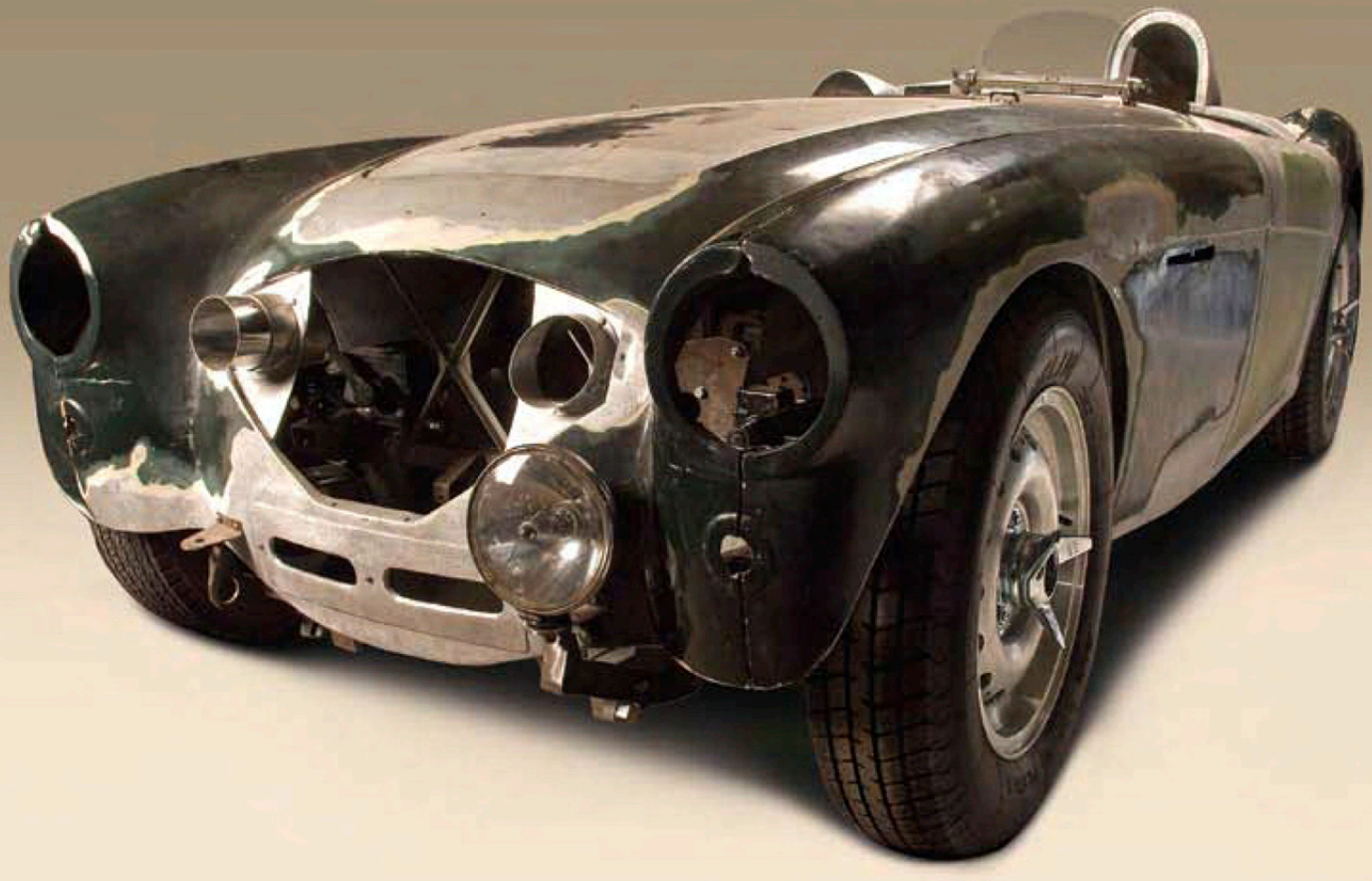
THE NEW ENDURANCE CAR was built by Denis Welch Motorsport, using an original factory chassis with modifications and all-aluminium body, plus all of the tweaks – and a few more – that the Healeys used on their original 100S prototype. DWM has remained faithful to the original, so there are no safety features apart from the plastic fuel tank and plumbed extinguisher, and the cockpit is standard and shallow. To assume the prone position for maximum mph you have to slide right down into the Healey Elliott seat – originally sourced from an MoD troop carrier plane ('which took some tracking down') – so your right knee is hooked almost over the gearlever. That means you look past the black-faced 140mph speedo through the steering wheel.

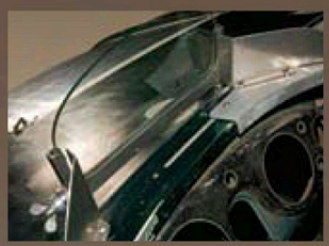
The original car used scoops in the aluminium tonneau cover to cool the battery but, though the team originally replicated this feature, a modern battery means it wasn't needed, which helped the aerodynamics. But running tests showed up high-speed skittishness, so the car went into the wind tunnel, where it was found to have an enormous amount of lift at the front – something that mattered less to the Healeys, running practically straight at Bonneville. 'We found 1200kg of lift – and it only weighs 800,' Welch quips. (Actually 858kg on the day at Millbrook, empty of fuel). But this car was going to be faster, running on a two-mile bowl with a big steel barrier on the outside, so in a concession to safety the only contentious point of the car was added to reduce lift – that air dam, which is clearly a sensitive issue.

A few more mph were found with simple little tweaks. Every panel gap is taped over to make the car slicker, and bubbling over the Monza cap in the same material was found to add 1mph. That little Gurney flap at the rear helps the air flow cleanly off the back of the car. The tiny video camera probably takes 0.5mph back off that – and it didn't work anyway – so that makes them about even. The car carried some electrickery – an exhaust lambda sensor to keep tabs on the fuel mixture, plus gearbox and diff temperature readouts – but in practice the drivers found them too hard to read while driving the car on Millbrook's bumpy bowl.

This car would be turning left, so it's set up like an oval racer, with differing amounts of camber – it's positive on the left (inside) wheel and negative on the right, and the rear axle is slewed slightly on the springs. The wheels are 16in Dunlops, one inch up on standard, wearing Michelin Pilots – our old mates Longstone Tyres come in for a special mention here – and wear was negligible, except where the outer pair rubbed on the inner arches, and they were swapped at every stop for inspection.

Jeremy Welch made the rear hubs from drawings he discovered and collected from America, and brakes and dampers are as Healey 100S. Welch says: 'We built it like a racer and then had to learn to set it up for the »





banked track.' A former Judd F1 technician, he is well-known for reverse-engineering no longer obtainable components, and building the car provided stimulus to remanufacture parts such as the steering arms, shims and spacers. 'For racing we have often remanufactured new items with modern metallurgy and safety in mind,' he says. The offset aluminium diff casing is another part made for the Endurance car that will enable DWM to build perfect 100S recreations in future.

Above and below Replica of the 100S prototype was built up from a much-modified standard Healey 100.

The motor is a new-build four, using a new LM25 aluminium eight-port 100S head cast from the patterns of the Harry Weslake-designed original, on top of a reworked 100 block, which needs to have its oil and water galleries moved because on the 100S the inlet and exhaust are on the right, not the left. The block is overbored 30 thou to give a bore of 88mm which, coupled with the 111.1mm stroke of the steel crank, gives 2703cc instead of the original's 2660. Instead of the original SUs there are a pair of Weber DCOEs, which were homologated on the 100S in 1955.

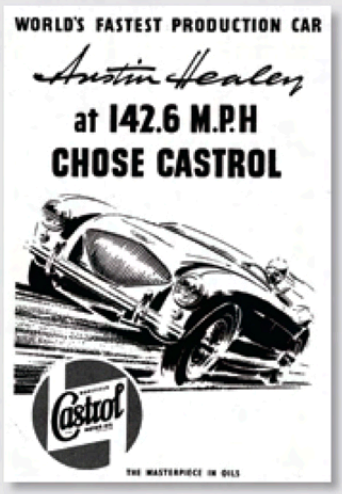
There's no high technology here, only modern materials, and Welch will only admit to 'enough' power, '...but for what we achieved it's not as much as you might think – comparable with a modern 100S'. A guess would put that somewhere nudging 200bhp, but most pleasingly it uses points and condensor ignition, as per the original, when it would have been easy to hide an electronic ignitor in the distributor to avoid wear over the four-hour, flat-out run potentially retarding the ignition and reducing power. 'And, I'm proud to say,' adds Welch, 'a Lucas coil.' In finest Healey four-banger tradition, it's gutsy too. The motor will rev to 6000: 'If Martyn wants to race this later,' says Welch, 'we won't have to change it.'

Behind the BN2 gearbox with straight-cut gears, same as the original car used as verified by original team member Roy Jackson-Moore, there's a tall 2.33:1 diff to find 34mph per 1000rpm in top. The car wears an original-type 100S oil cooler, now being replicated by DWR, as part of a plan to build new Healey 100Ss, of which this car was the prototype.

So it's come full circle after 55 years. As Jeremy Welch says: 'The 50 100Ss were replicas of the record car. History repeats with our new ones.'

'There are no safety features apart from the plastic fuel tank and plumbed-in extinguisher'

THE 1954 RECORD RUNS



In 1953 Donald and Geoffrey Healey took one of their new 100 sports cars to the Bonneville salt flats, scene of annual speed recordbreaking in America, to capture production car records, and the team covered 3100 miles in 30 hours to record an average of 104.3mph. In 1954 they returned, their car modified with a Weslake eight-port head, Dunlop 16in peg-drive alloy wheels and racing tyres, and Dunlop disc brakes. There was a small aeroscreen, driver's head fairing, underbody streamlining and an aircooled battery compartment in the right-hand seat space. Further aero mods, such as small aluminium deflector plates, were made ad hoc on the salt when the team arrived and started running. This was basically the prototype of the factory 100S 'customer racer'.

On August 24, 1954, supervised by the American Automobile Association and driving on a huge circular course marked out by oil stripes on the salt, the car set 83 National and International Class D records, piloted by Donald Healey, Captain George Eyston, Carroll Shelby, 'Mort' Morris-Goodall and Roy Jackson-Moore (who's credited with introducing Shelby to AC). They set a 24-hour average speed of 132.29mph, and covered 1000km at 132.81mph. The car was scrapped in 1957 because salt corrosion had made it unusable.