

Iota's combination of heavily cambered swing-axle rear and sliding-pillar front produces odd wheel angles on the car – though it's certainly effective



## JAP or Norton?

Though a multitude of engines have been used in 500s, from Ariel to Vincent, today this is as fundamental a question as tea or coffee or, back in the day, The Beatles or The Rolling Stones (okay, Blur or Oasis for you youngsters). Opinions are divided, as are costs, but when the new 500cc formula was announced in 1946, the JA Prestwich single-cylinder 498cc speedway engine was the only serious game in town. Light, simple and able to produce about 45bhp on methanol, it was superior in power-to-weight ratio than anything else available.

The Norton engine became the classic 'double-knocker' dohc Manx motor in 1949, with a short-stroke version available from '54 – both cost more and make more power. But the lines are still blurred. The Manx may be the one to have, yet at the time of our shoot Peter de la Roche's Cooper-JAP MkV was leading the P2 (1951-'53) and P3 ('54-on) classes in the 500 OA Championship.



shares its transverse-leaf set-up, but was built by Joe Potts in Lanarkshire in 1950. Later cars used wishbones and coils. The stubby frame dictates a very upright seat, which translates into what feels like a hunched-over driving position. It's uncomfortable even for little blokes such as me at 5ft 7in and 65kg, so how Shackleton, who is considerably larger, manages is a mystery.

This one has JAP power and is relatively easy to start, but the tiny rev counter is hard to see so you drive it by ear. The gearchange, like all 500s, is on the right, just below your hand but back-to-front on the JP, with a helpful diagram on the chassis tube to remind you. It's easy enough to operate, but not as instinctive as the others where you pull back to change up instead of pushing

forward as here. In such a new environment you don't really notice the vibration; 500 motors don't work with any enthusiasm until 4000rpm and the limit is around 7000, so you concentrate on keeping it in the useful rev range. Top gear is too tall for Curborough Sprint Course, though downchanges are snap-instant. You don't have to use the clutch but it's kinder to the hardware.

Even in the JP it's easy to arrive at corners too fast, and it initially understeers a little – all 500s tend to push the front in slower bends, because they don't have diffs. Fancifully, it feels as if it has enough torque to spin the wheels out of corners though I'm told that's probably just clutch slip. The brakes are slightly mushy but they work okay, and it's not hard to lock the front wheels.



Martin pulls under-chassis transverse springs in tension (originally rubber bands) via chains and sprockets. Left: c50bhp double-knocker Norton

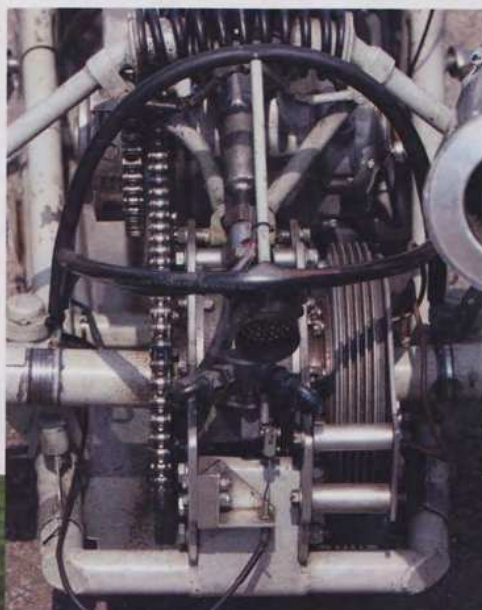


'Tota' derives from the smallest letter in the Greek alphabet, and was the name of the first 500 Club magazine. It's also the car that's credited with getting the movement off the ground. It was the brainchild of Dick Caesar, one of those founding members of the two groups that led to the 500 Club, and 12 were built as kits in 1947, leaving buyers to add engines, rear springs and their own front suspension, usually Morgan, as here. Mike Wood's CB2 is a well-known technical *tour de force*, or oddity, whichever you prefer, and one whose design was clearly dictated by the parts on hand. For example, it has a steering box, its arm working over your knees, rather than rack and pinion, usually Morris Minor-derived. Rear swing-axles and front sliding pillars contrive to produce some unusual wheel angles, even lifting the inside front *in extremis*. Traction is good all round, though, used to effect in hillclimbs, and it won a speed event at Rockingham last year.

By the time you climb into a Cooper MkV, with its distinctive pannier tanks, you can see the result of a few years' refinement. There's plenty of room for the driver and his legs, even though Cooper's famed curved chassis tubes had not yet appeared. This one is also JAP powered but most have Nortons. With a conventional gearchange, it's more instinctive to drive and quite quick. It's more neutral than the JP and turns in better, feeling more balanced, yet the consensus is that they swap ends quite easily due to the shortish wheel-base. It understeers in tight corners, of course, the brakes are good (four, where most 500s have three), though it weaves from side to side when you press hard. It lacks the Norton engine, reckoned to be the hot ticket, but it won its most



From top: Staride pushes driver to the front due to its enormous central tank; interweaved spring, brake, sprocket and fuel pump: a masterpiece of packaging



recent outing at Oulton in June and is at the time of writing leading the 2017 championship.

Roy Hunt's Martin is completely different, with a deeper infusion of sophistication. Swiss-born Ray Martin initially collaborated with Cyril Kieft, and from 1953 made cars under his own name. It's more tailored: you thread yourself in past pedals and extinguisher. This one has a roll bar, plus the option of belts, though I chose to do without in case of having to get out in a hurry.

It's said to be hard to drive because it's powered by a short-stroke Manx, though you don't notice it pulling away. It revs well, but the main impression is the intense vibration at about 4000 that seizes you in the throat and paralyses your lungs, a fine incentive to press on to higher rpm.

'IT REMINDS YOU OF AN EARLY SPACESHIP FAIRGROUND RIDE AS YOU GET INTO THE CAR'



Swing-axle rear end is sprung by a pushrod-operated transverse coil on a rocking pivot, which reduces roll stiffness and maximises grip



JAP-engined Cooper MkV has distinctive pannier tanks, fuel moves to above driver's legs on curved-tube MkVIII (below), which packs a Norton Manx unit

not encouraged to really go for it because you're perched right out front with just a thin sheet of aluminium between you and the accident, unlike the Cooper's stout tubes. At standstill, you pump fuel with a little trigger mounted on the hand-brake lever. It's super-stable like the Martin, but understeers more in tighter corners and might do better with a heavier driver, yet it's fabulous in open bends. As ever, the Norton works best from 6000-7000rpm, and it's pleasant to drive with a long-throw shift compared to the others, feeling like a guillotine handle after the snick-snick of the Cooper. Its brakes are nice, with noticeable 'pull' from the rear, the bias following the weight.

George Shackleton's '57 Cooper MkXI is the ultimate 500. It looks like a '60s racing car with fully enclosed smooth belly, and feels like one too. Little details such as the steering arms in line with the lower wishbones to reduce frontal area and drag are conventions still with us today.

Like all Coopers, there's a decent amount of room, helped by the controversial curved chassis tubes that appeared on the MkVIII, though it's clear someone has thought about the ergonomics. The screen is low, and there's a big rev counter right in front of you, with the gearchange reachable with your little finger. The fuel pump is on a cord like a Mini door pull. There's absolutely no poke from the short-stroke Manx below 4000, but when it wakes up it's really quite rapid, with a particular joy in the rush through one, two and three. So you're arriving at corners faster than you thought, but in a chassis this accomplished

The big surprise is how stable the chassis is. It understeers in slow corners, yet it's really good through fast sweepers – the front wheels bounce around, though that may be down to wear and tiredness of the dampers rather than design. It has almost no brakes, not that you really need them on these – lots of compression, but not as much as the 14.5:1 of the long-stroke units.

Getting into Darrell Woods' Staride, the twin of Jan Nycz's green car, reminds you of an early spaceship fairground attraction. Former speedway man Mike Erskine built 10 in '53. There's a fair amount of room and a comfy seat, but you're




FINE DETAILS SUCH AS STEERING ARMS IN LINE WITH WISHBONES ARE STILL WITH US TODAY'



you can guide it with some precision. The brakes are good, too, with a single disc on the rear.

After more than a decade of providing accessible racing with 500-based cars, and against declining international fields, F3 evolved. There was competition from the new up-to-1100cc Formula Junior and in 1964 the F3 capacity limit was raised to 1000cc, both using cheap production-based powerplants. Motors had always been the bugbear of 500s. Both JAP and Norton singles were expensive to buy. Norton famously wouldn't sell you a Manx engine so you had to buy the whole 'bike, which conveniently yielded the clutch and gearbox, too. And the JAP is a messy thing, its total-loss oil system necessitating the use of a nappy under the crankcase.

But they never really went away, and cars continually come out of the woodwork. Today the 500 Owners' Association enjoys packed grids, with regular appearances at the Goodwood Revival (they're due in 2019, plus Lord March is an honorary member) and the group's friendliness is legendary, once inviting *C&SC* to form its own class at Wiscombe in '99. They also make the point that once you own the car (£15-30,000), you can look after it yourself for as little as £500 per year and, in club chair Nigel Challis' experience, when you sell one, you usually do so at a profit. Tyres last three or four seasons and methanol is just 40p a litre. Stop by in the paddock for a cuppa some time. 

Thanks to the 500 OA ([www.500race.org](http://www.500race.org))

## Origins of the breed

The roots of the 500 movement pre-date WW2, when two overlapping groups of Bristol-based enthusiasts built and competed in simple, small and light cars, though the first ones tended to be Austin Seven-based. Dick Caesar is credited with the idea of using 'bike engines. The 500 Club was formed in 1946, the ethos being that members would construct their own cars built to its general spec: a maximum capacity of 500cc, unsupercharged, a minimum weight of 500lb, and a maximum fuel tank size of one gallon to discourage expensive brews.

Competition began on the hills, and here the Cooper name first appears, to be joined by others such as Kieft, JBS and Emeryson, and the first race was held at RAF Gransden Lodge in '47. The following year, the Cooper Car Co produced 12 MkIIs, and an industry had begun; more than 250 firms and individuals would construct cars. 500 racing also became popular on the continent. In 1950 the FIA adopted the 500 Club's National Rules to create a new International Formula 3, but

dropping the minimum weight to 200kg (440lb) and requiring a minimum ground clearance of 100mm (4in). At this time the universal use of methanol appears to have been adopted, as much to help the engines to run cooler as to make more power.

At the end of 1950 the club changed its name to The Half-Litre Club and in '54 became the BRSCC, still a major organiser. 500 racing suffered a decline from '58 thanks to the rise of F2 and FJ. The final championship ran in '62. In January '68, a group led by Peter Kendal, John Turner, Edie Silk and Tony Griffin joined forces to preserve the cars and established the 500 Owners' Association.



From top: Stirling Moss set FTD with Cooper-JAP MkII at Shelsley Walsh in 1948. Don Parker's highly developed Kieft emerges from Battersea workshop



More aerodynamic MkXI is most sophisticated 500 racer, with more attention to aerodynamics – and ergonomics. Rev counter was on the blink, though!