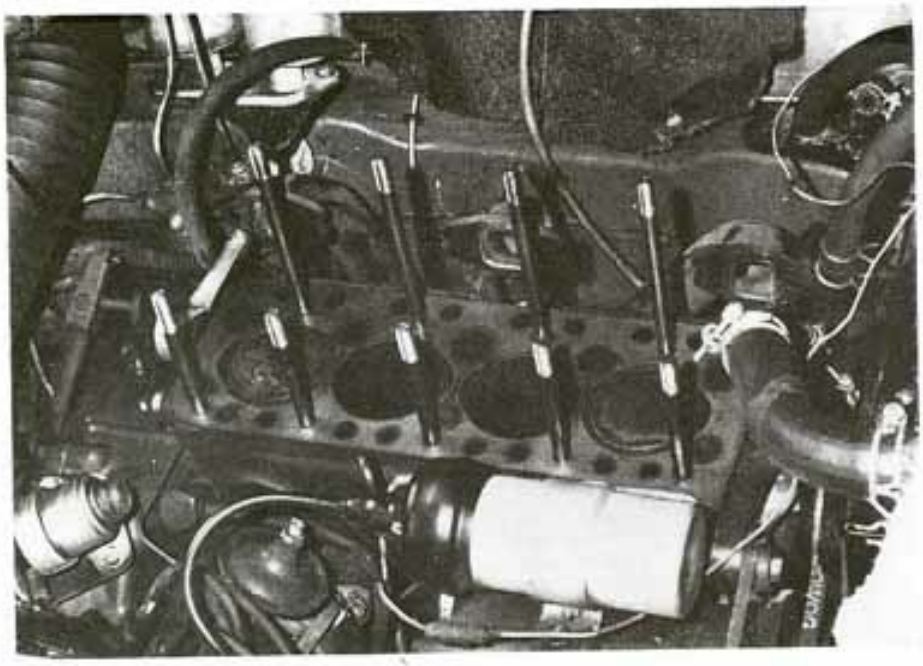
The Armstrong Mini-Cooper poses with one of the replica pioneer aircraft used in the 20th Century Fox film, 'Those Magnificent Men In Their Flying Machines'

It's a flyer . . .
in miniature

Well-known motoring writer Douglas Armstrong tells how he bought a 1964 Mini-Cooper and turned it into his idea of the world's smallest and most useful Grand Touring car

TO effect a policy of standardization—not to mention the fact that 998 Riley Elves and Wolseley Hornets were being made to go fast!—the British Motor Corporation decided to discontinue the old Cooper 997-c.c. engine in February 1964 and adopt the later unit which had been introduced in the 'Mark II' Elf/Hornet range. The 998 was based on the ubiquitous 'A'-series block but used the 64·58 mm. bore of the 1100 models and the 76·2 mm. stroke of the 948-c.c. Marks I and II Austin-Healey Sprites and M.G. Midgets. The shorter



Off with his head! The 998-c.c. Cooper engine waits for its new Nerus cylinder head which (amongst other things) was to give it a compression ratio of 10·17 : 1

stroke reduced piston speed and the engine very quickly demonstrated that it was amenable to tuning and modification.

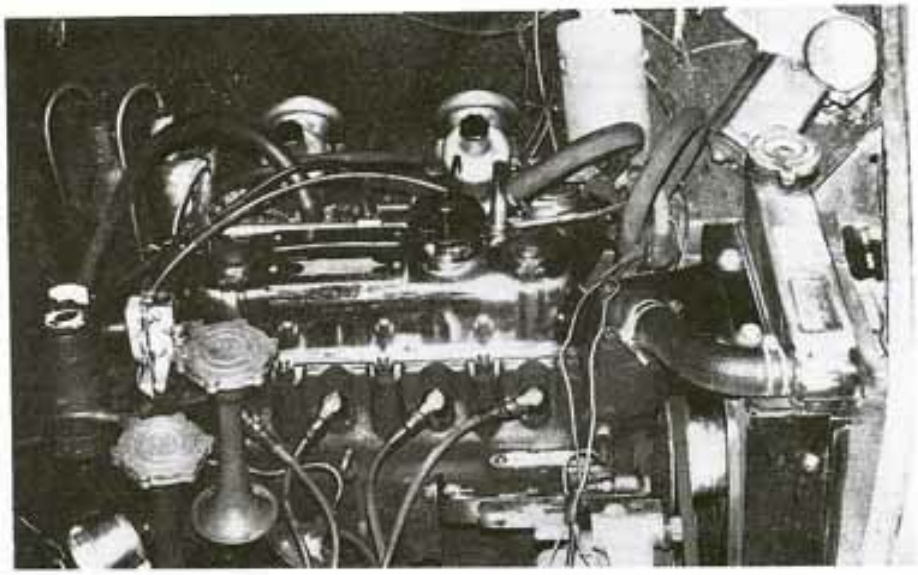
Living only 40 miles from the Morris Works at Cowley, I collected 'AMO 960 B', my new 998 Morris-Cooper, from the fountain-head, as it were, in March 1964. First thing I did was to check that I had in fact got a '998', for this was the time of the production change-over and I wanted to be sure I'd got the latest. The check is to see that the Body No. is later than 487097, and that there is an 'A' prefix on the under-bonnet plate which denotes short-stroke engine—although I cannot quite see how! My new 'Coop' had all these desirable numerals and letters, and for £567 17s. 6d. including purchase tax (that was the price in March 1964) I reckoned I had the basis of the smallest and most useful G.T. car in the world.

There are all sorts of theories propounded about running-in. Mine is not to creep about the place and get in everyone's way, but to keep the motor going smoothly without over-revving, or letting it slog in too high a gear. Between 500 and 1,000 miles I set myself a top limit of 60 m.p.h.—up until then I had made the top speed about 50—but after the fourth digit came into use on the odometer I gave no mercy. After about 1,500 miles it was free and easy, and as this coincided with coverage of the April pre-race trials at Le Mans I was very happy to take the car. Two friends made the same trip on the same route with a Rover 2000, and although the Mini-Cooper wasn't as fast as the two-litre o.h.c. saloon, it was never very far away in standard form. Top speed isn't everything.

Back from Le Mans with around 2,000 miles on the clock, I thought the time had come to visit my old friends Nerus Engineering down in Rye in Sussex. Head man is Frank Webb who was with the H.W.M. Formula II team from start to finish, and was gas-flow wizard Harry Weslake's right-hand man for three years. Weslake did much of the cylinder head development on Vanwall and B.R.M. Formula I engines, and was responsible for a great deal of work on BMC engines.

The Nerus boys had a modded head ready for me when I arrived at Rye. The old head was removed, and the new one, with 10·17 : 1 compression ratio, larger inlet valves, and mirror-finished internals, was substituted. In spite of Britain's much-maligned climate we don't have too many sand-storms here, so for maximum power we gently put the enormous carburetter air silencer/filter on a shelf, and fitted open Nerus air 'bells' to the standard twin S.U. instruments. I'm pretty hardened to the effectiveness of Nerus conversions, but even I was shattered when, with the standard exhaust system, silencer, and camshaft, 'AMO' shot from 0–60 m.p.h. in 12 seconds, and 0–80 in 21 seconds. Although running on premium fuel, it was impossible to make the engine pink even when good and hot, and the top gear performance was limousine-like. It later transpired that the car would reach a genuine 96 m.p.h. in still air.

Gilding the lily is an inescapable human trait and I sought even better handling and less rolling resistance with Dunlop SP41s (in place of the standard C41 Nylons), and got it. When the car had 10,000 miles in its (mythical) log-book it would pull 7,000 r.p.m. in top which with the standard final drive



With a chromed rocker box on the modified cylinder head and with light alloy carburetter trumpets the engine compartment looks quite impressive. The camion-shifting Maserati air horns have been a great success. Also seen is an alternator (bottom right), fitted in place of the

at the Roman Villa site at Bignor, near Goodwood, Sussex. The light alloy Gran Turisimo wheels increase the track as well as reduce the unsprung weight. Dunlop SP41 tyres provided 60 per cent. extra mileage

ratio (14·9 m.p.h. per 1,000 r.p.m. in top gear) is 104·3 m.p.h. The engine is very smooth at that speed, but it would undoubtedly be a good idea to fit a higher drive ratio to reduce revs. and to improve the high-speed cruising. My feeling, however, is that in these days of congestion it is far better to have a car with lightning acceleration—and if there is a 100-plus maximum available, so much the better. After all, even on a motorway the motor doesn't stay at 7,000 for very long!

I later fitted wide-base magnesium wheels by 'Gran Turisimo Wheels' of Eaton Bray, and the slightly wider track resulted in better handling. The SP41 tyres were an enormous success, for taking the driven front wheels as a yardstick the braced-tread tyres almost doubled the mileage. Hard driving resulted in 7,000 miles on the C41s, and 12,000 on the SPs. I think the rear tyres will last forever!

One of the things about the Mini-Cooper as originally supplied, which nearly drove me mad, was the gear lever 'fizz' which intruded at speeds above 55 m.p.h. I noticed that the BMC Competitions Department cars used a length of rubber hose down the gear lever, the knob holding the sleeve tight against the fulcrum. I tried this mod. and found a great improvement—up to 70 m.p.h. Then BMC perfected a new and really silent nylon-bushed lever which I fitted without delay and the transformation was almost unbelievable. The new-type gear lever has been standard equipment for about 18 months now, but if you have an early 998 Cooper or a 997 model you may be pleased to know the bits and pieces required to obtain a halcyon interior. In the U.K. the complete kit of parts costs £2 19s. 6d. from a BMC spares stockist, and the bits are: gear lever 22A 606; spring 22G 286; spring flange 22G 292; lever retainer 22G 290; split bush 22G 289; distance piece 22G 320; two bolts 22G 291; gaiter 22A 608. The entire fitting operation takes place at the 'gear lever end' and takes about 15 minutes.

The lily has been gilded in other directions too, for I've fitted a Microcell 'Recline' driver's seat for maximum lateral security and comfort, Smiths rev.-counter, water temperature gauge, electric clock, and a Lockheed brake servo to keep the extra performance in check. The full treatment from 'Interior Silent Travel' keeps the noise to a very acceptable level, and for a modest outlay I have a pocket G.T. car which accelerates like a bomb, cruises at 85–90 m.p.h. (genuine), and costs the absolute minimum to insert in a boat or aeroplane for Continental travel. Really using the performance I get around 33 m.p.g. (premium) but if I do indulge in pottering it is not difficult to obtain 45 m.p.g. Not that I potter much.

Summing it all up, I think the most sensible thing I did when looking for more steam was to retain the standard camshaft. The car is fast yet it will tick-tock along slowly and sweetly, and accelerate smoothly without pinking or behaving like a racing car. Flexibility is amazing, and if the carburetters are kept in tune—an easy job with no air cleaners in the way—'AMO' will come out of quite slow corners in top and pull cleanly away like a shopping 'Min', which it quite often is. Even after 20,000 miles it will still come off a 20-mile motorway run in summer with 50 lb./sq. in. on the oil gauge. Castrol XL is used in summer and Castrolite in winter, and since the Nerus head was popped on 18,000 miles ago it has not been disturbed. Yes, Alec Issigonis certainly started something. ●

First trip for the Cooper was to the Le Mans trials in April 1964. Here the Mini waits on the quayside at Boulogne