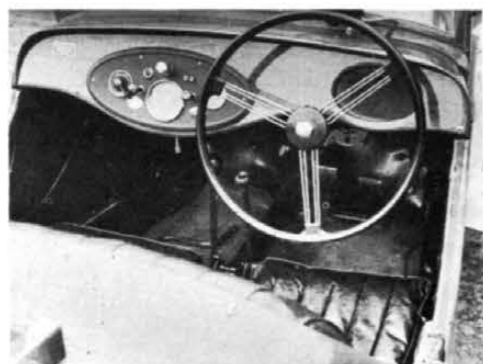


"Love me, love my Mog"

**The Morgan Trike was just about the hottest thing going—in its day.**

**The only trouble was that if you had more gold on one side of your jaw than the other you couldn't steer it.**

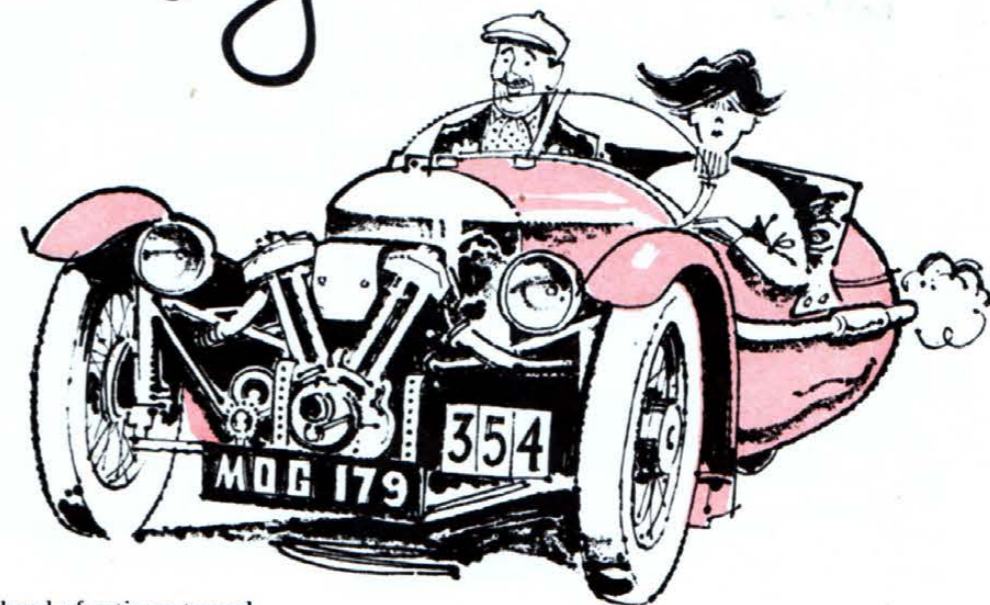
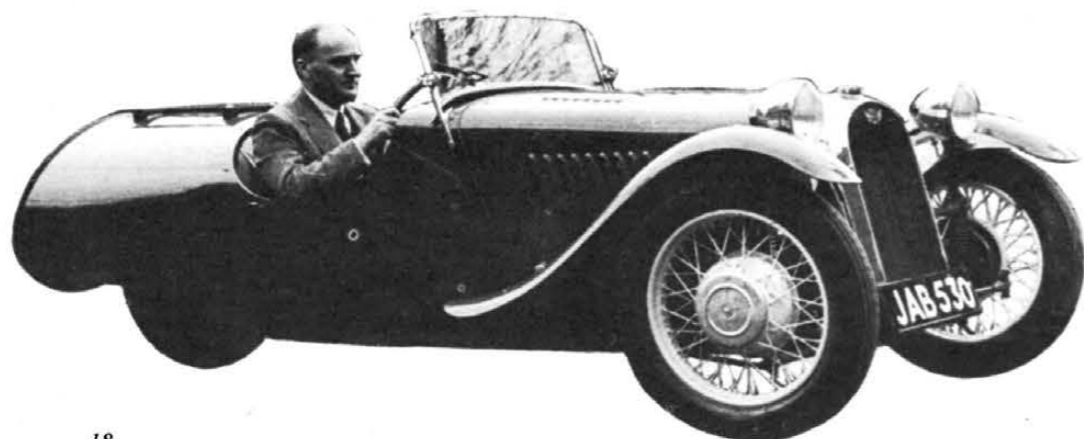
by DENNIS MAY



Cockpit of a later "Trike" equipped with a foot throttle and ignition switch. Earlier models had hand throttle on steering wheel, and no ignition switch.

THINKING in straight lines was always as natural as breathing to Henry Frederick Stanley Morgan, so he needed no help from slide rules and logarithms in figuring that a high power-weight ratio is the greatest single source of merriment that motoring has to offer. During the whole production lifetime of the remarkable three-wheel car that bears his name (42 years, with two bites out for world wars), this remained his favorite dogma. It was a recipe which, on its dividends in performance and operating economy — mostly the former — sold more than 40,000 "Mogs" between 1911 and 1952. Nearly a quarter of a century ago, H.F.S. Morgan was harnessing 40 horsepower to less than 800 pounds of dry weight — equal to 114 b.h.p. per ton and enough to out-dig the cost-no-object Bentleys and Lagondas of the day.

In the leisurely little Morgan plant at Malvern Link, Worcestershire, England, output of the classic twin-cylinder tricars ceased back in 1948. The issue of the more sedate four-cylinder types continued fitfully for a further four



Passengers sitting in the rear of this "Mog" may not have had much leg room, but at least it beat walking.

years, then H.F.S. and his devoted band of artisans turned their undivided attention to building four-wheel sports cars. These somewhat resemble the MGs of the Perpendicular period and are now the only vehicles in active production carrying the Morgan trademark.

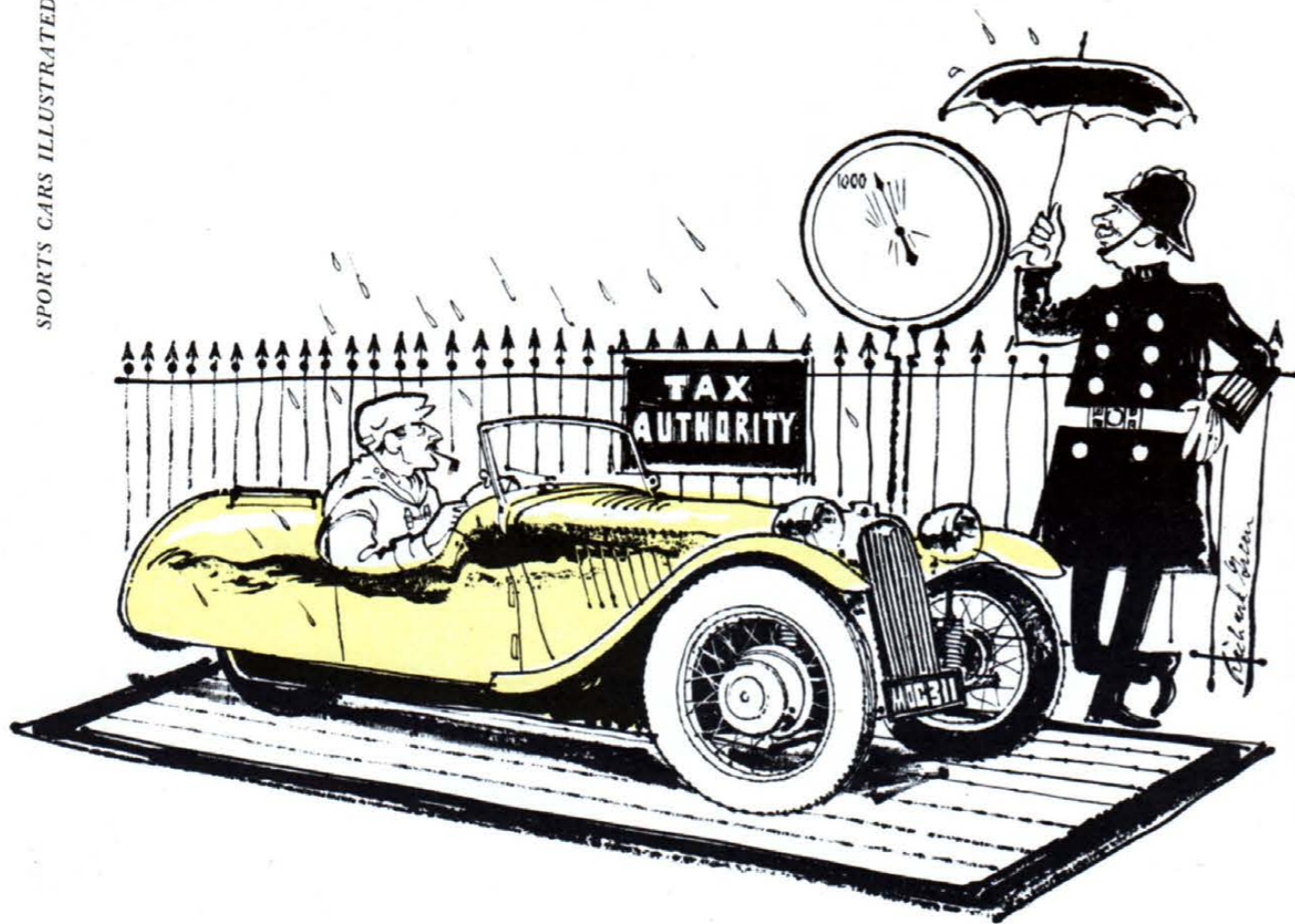
Ownership of a two-cylinder Morgan trike in any of its beefier forms, from the early Grand Prix model to the latterday Super Sports, has always hovered between a hobby and a cult, with a lean towards the latter. You can sum up the philosophy of this starry-eyed elect in five words — "Love me, love my Mog." Even today in Britain there are some thousands of followers of the true faith, and the virile Morgan Three-Wheeler Club preserves its traditions from generation to generation. It has over 600 members, of whom about 70 percent own two-cylinder models.

There will be a time and a place elsewhere in this article to arraign the bugs in the Malvern woodpile, but this isn't it. First, let's run a finger down the credit side of the ledger. An ample page it is, too.

Morgans owed their legendary liveliness to two things — a lot of power and the least possible weight. They are powerful, relative to displacement, because Harry Morgan, who never built an engine of his own, knew how to go shopping for engines. Twenty-seven years before Chrysler opened the eyes of their larger clientele to the benefits of fully inclined valves and hemispherical combustion chambers, these top end features were regular practise on the big V-twin J.A.P. and Blackburne plants installed by H.F.S. in his hairier lines. The Matchless engines fitted later had them too. If they *hadn't* breathed freely, the 1.1-litre J.A.P.

Photos Courtesy the LIGHT CAR





twins of the early 30s could never have attained their genuine 40 b.h.p. output, because compression ratios were of the six-and-a-decimal order and the gas available commercially at the time in Britain had about the same octane value as hair tonic.

There were two reasons why Morgans weighed light: one, H.F.S. wanted it that way, and two, the British tax authorities made it worthwhile. To qualify for certain generous fiscal concessions, all three-wheelers — "tricycles" in bureaucrat terminology — had to keep below a ceiling of 896 pounds unladen. Some Morgan models crowded this limit so closely that their owners always chose a dry time of year for presenting their trikes for official weight checks; in humid weather the woodwork in the body absorbed enough moisture to push the car over the tax line.

Simplicity was the nub of the Malvern design prescription. The chassis of the two-cylinder models had three tubular longitudinals, the middle one acting both as a backbone and a torque tube. The other two, equally spaced on either side, were at a lower level and supported the body. Up front, at hub plane, they met and joined a pair of transverse tubes, placed one above the other. The outer ends of these cross-members formed hitching posts for the unusual Morgan system of independent front suspension, wherein the stub axles were attached to bronze sleeves which slid up and down on vertical guide pillars. There

The classic twin-cylinder tricars were replaced in 1948 by the more sedate, four cylinder types. This Ford Anglia engine was slightly hopped up by minor internal modifications.



LEFT: Mog's stopping ability was no doubt due in part to the tiny brake drums. Third wheel at rear isn't visible here. Fourth wheel is spare hung in Continental fashion at the back.

were two coil springs per wheel assembly, one above and one below the axle. This suspension arrangement, which was originated by Decauville in France in 1899, was first used by H.F.S. on the experimental single-seat trike he built for his personal and solitary transportation in 1909, and from which all subsequent Morgans have directly descended. (It is still a feature of the four-wheel cars.)

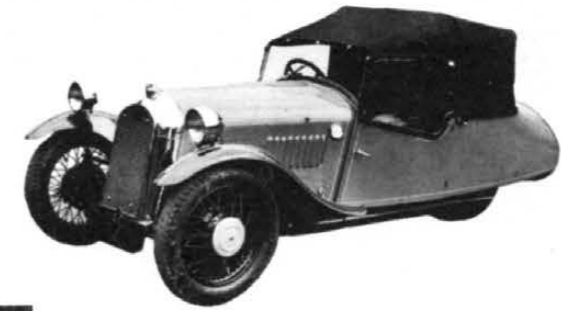
The twin-cylinder engine, whether of Anzani, M.A.G., J.A.P., Blackburne or Matchless *marque*, was hung out ahead of the frontal rectangle of chassis tubes. A minority of Morgans, the tamer types, had a hood like a coal scuttle that enclosed the engine, but the more numerous and potent Grand Prix, Aero and Super Sports jobs disdained such prudery and exposed proudly jutting cylinders to the common gaze. There were both air- and water-cooled variants, the radiator and heater tank, were appropriate, being mounted *behind* the engine.

Transmission on the oldtime Morgans, reading from front to back, comprised a cone clutch with leather friction facing, an enclosed cardan shaft, a bevel box, a short counter-shaft with a sprocket on each end, and two motorcycle type roller chains to the back wheel. The latter was carried on a pivoted fork and sprung on quarter-elliptic springs. The driving sprockets, of course, were of different sizes, so one chain gave one ratio and the other another. Shifts were effected through a long outside lever actuating exposed dogs. There was no reverse.

This layout originated on the guinea pig Person's Car in 1909, and, as Harry Morgan disliked being rushed, it remained in steady service for over twenty years. In 1931 he scrapped one of the chains and introduced a proper gearbox with three forward speeds and a reverse. About a year later the rather brusque cone clutch was replaced by one of single dry plate type.

These then were the bare bones of the isosceles automobile which made the initials H.F.S. a symbol of greatness in the eyes of a trike-loving multitude probably numbering 100,000, counting in the disciples who bought second-

(Continued on page 57)



Winner of countless silver cups, the trikes soon became a legend that was to remain a part of the Morgan heritage.

# Love My Mog

(Continued from page 21)

handlers. Simple as it was, the thing sold in quantities beating the combined totals of the competition. Light as it was, it possessed great inherent strength and rigidity. Morgans were all-time's fastest tricars, won more races and broke more records than any rival make. Power for power, Mogs used less gas than pretty well anything else on wheels, just so you held your lust for speed in check. The balance of the machine was such that a practised operator could drive around in circles with his inner front wheel poised a couple of feet off the ground.

Morgan's speed successes date back to before the first world war. At Brooklands, the English Indianapolis, in 1912, H.F.S. himself averaged just a lick less than 60 miles per hour for one hour. A year later, at Amiens, France, W.G. McMinnies won France's own international Grand Prix for cyclecars, and this at a time when the French were up to their armpits in the cyclecar craze. In the 20s, at Montlhery track, near Paris, a woman drove a Morgan more than 101 miles in an hour; this was the Amazonian Gwenda Hawkes, a sister of Glub Pasha, of Arab League fame. Another time she was the female end of a two-driver partnership that kept up 64.8 m.p.h. for twenty-four consecutive hours with a Morgan, again at Montlhery. In and around Malvern's production heyday — they built 1700 trikes in 1927, their peak year — Morgan owners were gathering in silver cups at the rate of hundreds per season in every kind of speed and regularity contest, from straightaway sprints to mudplugging trials.

No wonder, with a record like this, that Mr. Morgan's wonderful trike became a legend in its lifetime. Indeed, if it weren't for the half-truths that it abounds in, and the fact that it's in the wrong tense, the legend might be acceptable at something like face value. A hot Morgan, in its day and at its price, was practically the perfect tool for a young and healthy male. But it wouldn't be today, and honorary gossippers who try to tell you it would either lie in their teeth or delude themselves totally.

It steered like a truck. Braking was problematical. Its springing, independence notwithstanding, was a masochist's delight for harshness. In the absence of any form of flexible engine

mounting, those .bib V-twins telegraphed their every vibration and wallowing power impulse back to the office. In wet weather, on the tram tracks that enskined most British cities in the 20s and 30s, injudicious placement of the back wheel could send the thing into a lightening spin, usually ending in back-to-front progression. The body of an Aero or Super Sports being roughly triangular in plan, width across the seats was narrower than the narrowest four-wheeler of comparable tread; so unless the fellow travelers were unusually slim their Mog fitted them like a cover girl's sweater. The canvas top featured for years on the Aero and Super Sports had no transparent panels whatever at back or sides, resulting in zero visibility astern and very little to right and left; within, with this canopy erected, there was gloom to vie with the "dark unfathomed caves" of Gray's poem. Finally, you had Harry Morgan's manual accelerator to conjure with.

This deservedly unique substitute for a pedal was fitted on one of the steering wheel spokes, so that its whereabouts was never the same for long. With the helm in the straight-ahead position you shifted it upwards to poke the fire, and it therefore follows, down to shut off. But on either extreme of lock the lever moved bodily from the 3 o'clock to the 9 o'clock spot, and simultaneously its motion went into reverse, i.e., you pulled it down for more gas and up for less. So, while H.F.S. could rightfully claim to be a pioneer of two-pedal control, his alternative was not without its snares.

Actual operation of the throttle was through an enclosed multi-strand cable, motor-cycle fashion. There were cases on record of the throttle sticking open on full noise. It happened to me once with a Super Sports I ran in the middle 30s. More memorably, it happened to two friends of mine, Henry Laird and Michael McEvoy, who had supercharged the former's J.A.P.—engined Super Sports and thereby hoisted the output to over 70 b.h.p. Like all the Mog twins of its era, this one was sparked by magneto, but unlike the general run it had no ignition switch. Having spent a lot of time and money on the blower conversion and incidental soup-  
ing, Laird, who was driving, was unwilling to simply declutch and let her

howl until a con rod came through the side. So by frenzied pantomime he suggested a drastic alternative to McEvoy. Catching on promptly — just as well, because they were hitting ninety — Mac projected his torso over the windshield, wriggled prone along the short hood and snatched off both spark plug leads.

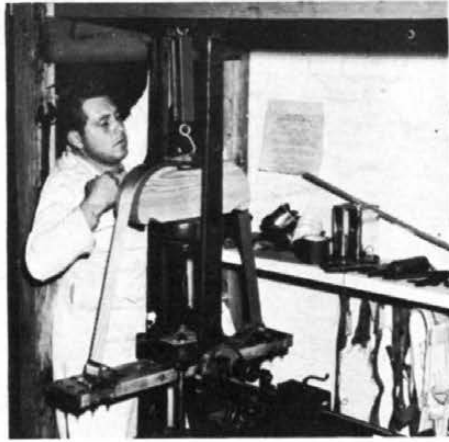
The reason why it was such tough work hauling a Morgan around corners was simply a matter of steering ratio. For many years there was no reduction gearing at all, so the wheel in effect was purely a pair of circular handlebars. Then, sometime in the 20s, H.F.S. standardised a modification that his more effete customers had been smithing on their own initiative for years, adding an epicyclic reduction box at the top of the steering post, Model T Ford style. This still left the steering higher geared than on probably any other automobile in the world. It had to be, otherwise when making a U-turn the driver never could have kept up with the round trips made by his throttle lever, or remembered whether to hither or yon it in emergencies.

Independent accessory firms, incidentally, marketed pedal conversions for Mog accelerators. They worked quite well (I had one), but tended to crowd the other two pedals. Even without the extra foot control, space was meager enough in this department.

Back in the days before front wheel brakes were fitted on the general run of passenger cars, Morgan had both his binders — two were legally compulsory — on the one back wheel. Nobody expected much stopping power from such a system, so nobody was disappointed. But if they looked for a 200 percent improvement when in due course he added drums to the front wheels, then they were indeed disappointed. H.F.S. had a choice of three ways of applying three-wheel brakes, and he tried them all at one time or another. Interconnecting the lot was a failure because they wouldn't stay in balance for much more than two days at a time. Coupling the pedal to the back wheel and the hand lever to the front pair, the layout in fashion when I ran a Super Sports, was no better, probably worse: too easy to lock the back wheel on wet roads or in crises, and too difficult to steer, control the throttle and do the important

(Continued on page 58)

# Safety Bulletin —



## WHEN IS A SEAT BELT A SAFETY BELT?

**I**NDUSTRY figures show that next to law enforcement agencies, sports car owners are the nation's heaviest buyers of seat belts. It's a cinch, then, that SCI's readers have a built-in appreciation for these life-saving devices and will welcome what actually amounts to the first truly authoritative buyers' guide in this field. Its authority rests on a solid background:

In May of 1953 the California Highway Patrol began equipping each of its new vehicles with seat belts. The Patrol realized at the very beginning of this state-wide program that the belts selected would have to meet certain standards of quality and performance if they were to be really safe. Such standards already had been adopted by the Civil Aeronautics Administration and the Patrol accepted them on the grounds that what was considered safe in the air should be safe on the road.

CAA Technical Standard Order C22B specifies a loop holding capacity of not less than 3000 lbs. around a block representing the human body and a buckle release pull of not more than 45 lbs. when the belt has been loaded to 2850 lbs. and relieved to 250 lbs.

Then, in late 1955, a new section was added to the California Vehicle Code. It defines a legal seat belt as one which meets the CAA requirements. It says that no person shall sell, offer or keep for sale, or install and use a safety belt that does not meet these requirements.

On March 9 the Patrol announced the results of its first tests of seat belts that are available to the motoring public. The results were shocking in that out of more than 70 belts now being marketed only 13 passed the basic CAA test. They are:

Maker	Belt name or number
Samson Auto-Seat Belt Co. ....	Samson
Brown Line Corp. ....	WB 2009-3, W 2020, WB 2021
McJohn Corp. ....	Crown SC-10
Davis Aircraft Products, Inc. ....	FDC-2500-F-1
Ford Motor Company ....	FoMoCo
Hicock Mfg. Co. Inc. ....	SB-11
Aero Safety Eqpt. Co. ....	Lifeline Standard
Frank Maximoff Research Co. ....	Mereco 15-1-DA
Chrysler Corp. ....	MoPar 1685020
Sparton Automotive Division ....	Sparton Karbelt SKB-1, SKB-2

Seat belt manufacturers whose products did not qualify and who wish to continue doing business in California will have to upgrade their belts. As they do and meet the CAA requirements, their acceptability will be announced. Meanwhile, many experts are urging that the 300-lb. minimum strength is too low and should be increased to 4000 lbs. #

(Continued from page 57)

part of the braking with just two hands. Thirdly and lastly, Morgan reversed this prescription, making the pedal work the front brakes and the lever the rear one. At that, I never drove any standard Mog that would stop before it was good and ready, by which time I was usually good and frightened.

Considering its power and small size, an off-the-shelf Super Sports was not as fast as its noise and neck cricking acceleration would lead you to expect. Maximum was usually nearer 75 than 80. Partly, no doubt, this can be attributed to the atmosphere tumult created by the outdoor engine and its drag-inducing etceteras: pushing a Mog through the climate at anything over seventy was rather like knocking in a nail head-first. True, the stern of the Super Sports, specially in the era before they broke up the contour with a spare wheel, was by no means a bad bit of empirical streamlining; but there wasn't much use in making life easy for tail eddies if the tail itself spent half its life in a virtual vacuum. Of course, H.F.S. had other things to think about besides fancy stuff like aerodynamic penetration. One of the charms of the trike was the superior accessibility of its working parts, and the engine in particular. The clientele wouldn't have thanked him if he had broken the habit of a lifetime and hidden his beautiful J.A.P.s and Matchless away behind a lot of tin lingerie, apart from any question of unwelcome extra weight.

From the strictly practical angle, the disadvantages of the engine's exposure and up-near-the-accident location were few and unimportant. In very cold weather there were occasional instances of the slides freezing solid in the carburetor. Prior to 1934, when water-proofing measures were adopted, the distributor was prone to drowning under very wet conditions. On the other hand, to compensate for the undersized radiator fitted to some of the earlier water-cooled Malvernware, this engine position provided a useful degree of supplementary air cooling, gratis and for free. Even so, prolonged speed bursts were known to provoke boiling in summer heat, and when this happened the blow-off of rusty water would spray back and paint the windshield red.

Sometimes it seemed there was a special corps of poltergeists appointed to needle Morgans and their owners. The man to whom I sold my well-beloved Super Sports once experienced just such an apparent haunt. He was motoring serenely along one day when his 8-40 J.A.P. cut out dead. As he slowed towards a standstill, with the

clutch still home and gear engaged, he was aghast to observe that his valves weren't going up and down any more. Neither pair. He stopped, put her into neutral, gingerly inserted the hand crank, and turned, muttering prayers. This time the valves did go up and down, but, quite evidently from the lack of major resistance, the flywheels didn't rotate and, need we add, the pistons didn't reciprocate.

After a couple of Scotches in an adjacent tavern to restore his nerve, he gave it another twirl. The engine fired instantly and with undiminished beat. It continued to do so all the way home, fifty-odd miles.

On these J.A.P.s the hand crank engaged with a dog on one of the cam-wheels, instead of with the crankshaft. What had happened, as revealed by a panic-stricken teardown, was this: the nut holding the appropriate timing wheel onto the main shaft had slackened and fallen off, allowing the wheel to travel the length of its keyway. With the wheel in the off-key position the act of winding the crank had of course turned the cam but not the crankshaft. Then at the critical moment the resident poltergeist had nudged the straying pinion back onto its shaft just far enough for it to make "linear" engagement with its mating wheel. By some thousand-to-one chance the valve timing, after a completely haywire interregnum, had been accurately restored.

An imposing feature of the Super Sports was its high level exhaust system, with a separate big-bore pipe draped down each side of the doorless body. You could either run this model or a girl friend of the clothes-proud, sybarite type, but not both. If she didn't burn her leg on the hot plumbing on the way in, she did it getting out. Or, in the course of motoring, she absent mindedly used her near-side pipe as a bannister and scorched the palm of her glove.

The silencers, slight gouty swellings on the noble sweep of the system, contrived to be inefficient in two senses. They didn't subdue that forty-horse commotion noticeably, yet they set up dour back-pressure. This last I know from experience, for until we added some non-standard fastenings to the mufflers on my 1933 S.S. they used to blow clean off at around 65. First one, then the other. Driver and passenger would make little bets on which one went first.

By the same token, a Mog man I knew ran an Aero with an amusing quirk. Almost precisely at 45 an hour, air blast ricocheting off the highway would lift a loose floorboard on the

(Continued on page 60)

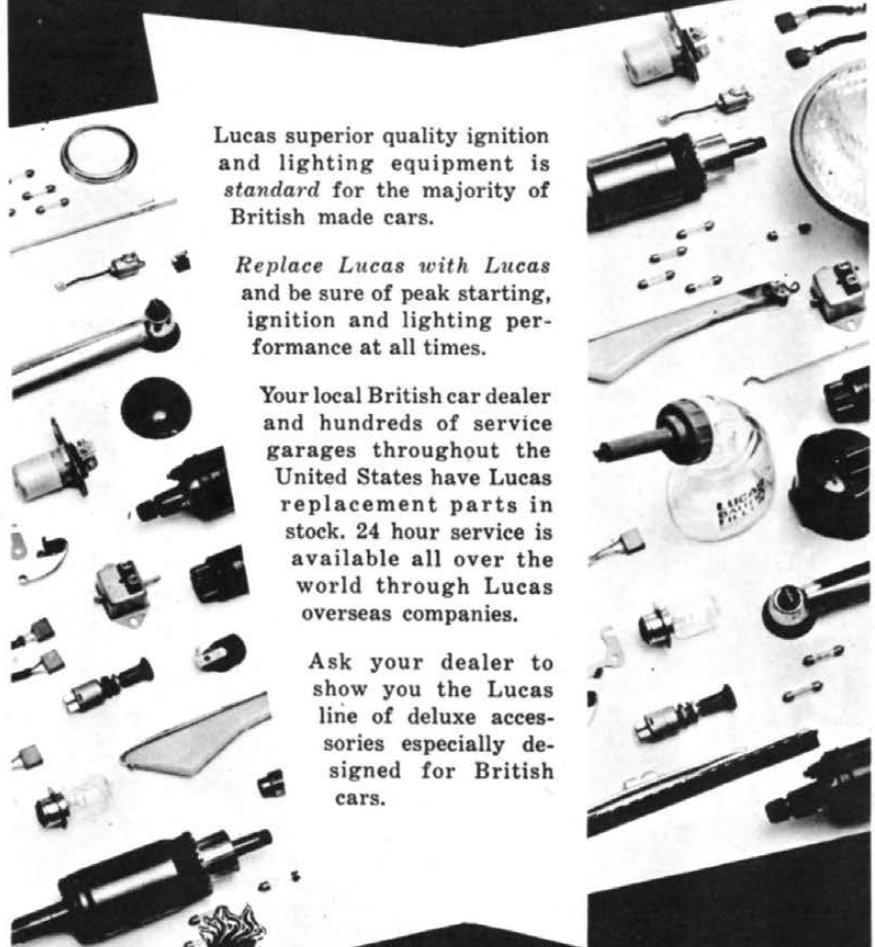
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(Continued from page 59)

passenger side, directing powerful gusts up inside the skirts of the chickadee of the moment. The driver had trouble keeping eyes-front on these occasions, but nothing to compare with the trouble he got when he didn't.

The same fellow, now in his fifties, still bears a scar on his temple as a memento of a contretemps with his Aero. His home garage was at the end of any alleyway, just one Morgan wide, leading at right-angles out of a steepish section of main road. Aeros, of course, had no reverse, so he evolved a homely technique for putting the thing away tail-foremost without personal exertion. Heading uphill, he would deliberately overshoot the entry by a few Mog lengths, then snick into neutral and make a descending turn by gravity, coasting backwards. In the small hours one morning he minutely misjudged the manoeuvre, clipped the apex of the kerb with his front wheel and cap-sized. The Aero, although a feather-weight ensemble, trapped him in such a way that he couldn't move a muscle. It was half an hour before his muffled cries brought a rescuing cop to the spot.

Among the more dreaded ills to which the Aero, and the two-speed Super Sports after it, were heir, was the simultaneous engagement of both gears at once. A locked back wheel at speed, specially on a wet surface, wasn't funny, even if that direct steering did lend itself to lightning correction of the resultant slides. A track racing forefronter of the early 20s, one F.B. Ware, brought his speed career to a premature close when his back tire threw a tread at 80 during the 200-Miles Race at Brooklands, the tread tangled with one or both chains, the wheel jammed solid and instantly the Mog went into tantrums, strewing Ware and his mechanic out with highly injurious results.

*Light Car* magazine, London, the favorite forum for Morgan owners, once ran a road test report on a Mog and remarked that "unless everything is fixed securely it is liable to fall off or rattle abominably."

To the faithful, a little thing like an abominable rattle or an occasional missing part was nothing to pick a fight with Malvern over. Still isn't, either. Take away what Shakespeare called the "pleasant vices" and there might even be something missing from the character of the brute. But don't let me hear the faithful claiming that a well-found Super Sports is *still* a match for what they scornfully call "modern tin-ware" because it isn't, and hasn't been for years. #

## Triumph-Ford

(Continued from page 23)

were not. Here's why. The Triumph rear-axle gears were designed for the high rpm four-barrel. The V8 was a low speed machine attaining peak at about 3600 rpm. The 4.57 gearing in the Triumph rear-end would quickly let the Ford engine wind out at low speeds. 4.57:1 gearing means that an engine makes a little better than four and a half revolutions to the rear wheels' one complete turn. At the Triumph engine's top rpm of 4400, the car attained a maximum speed of approximately 75 mph. Comparatively, the Ford engine, which had a top rpm of 3600, would give the Triumph a top speed of only 65. At this rate, the Ford engine would burn itself out at moderate cruising speeds of fifty. With such gearing, the Triumph might just as well be a tractor.

There were two possibilities which would solve the problem: Get a higher speed rear end or do something that would increase the speed of the engine to 4400. The installation of a higher speed rear-end would be a conversion on top of a conversion and would add considerably to the cost. The only reasonable alternative lay in modifying the engine. This was to be done by replacing the stock camshaft with a three-quarter race shaft, and by milling the heads .030 of an inch for increased compression. A three quarter cam was preferred to a full race stick so that the engine could be idled smoothly for normal driving. With the combination of these two slight but important modifications, the engine would now peak somewhere near 4400 rpm and develop about 110 horsepower into the bargain. This would raise the cruising speed to about 70 mph with a top speed of about 80 mph. The 110 horsepower would accelerate the Triumph like a startled cobra. The increased ignition requirement took care of itself as will be seen later.

### MOUNTING THE ENGINE

The mounting of the engine presented rather a frightening problem. Because the radiator grill is permanently mounted on the two front fenders as one unit, it was a fixed position which cannot be altered. This means that the radiator, which fits exactly within the shell of the grill, also had a fixed position which cannot be altered. The engine, then, had to be placed back sufficiently so that the fan

would not interfere with or touch the cooling fins. Yet, if it were mounted too far back, under the tool compartment of the fire-wall, the angle to the drive-shaft would be too sharp. The position decided upon left a one-inch space between the fan and the radiator, and a half-inch between the fuel pump pushrod and the fire-wall.

At this exact position, it was found that the right front engine support sat directly on top of the steering post (the Triumph has a right-hand drive). The mount for the Triumph tubular chassis was removed and welded to the top of the frame just under the steering column. On this was bolted a one inch piece of flat steel stock shaped in the form of an inverted U. This U piece now straddled the steering column. And on this, the engine was mounted. This design was repeated on the left side to balance the engine properly.

A standard Ford clutch was used with a minor change. The clutch operating shaft which activates the throw-out bearing fork was changed from the left to the right side. Luckily Ford made provision for this change in the bell-housing so that these parts could be used abroad in the English Fords. The clutch pedal was then easily connected to the clutch operating shaft, and no excessive linkage was necessary.

### CONVERTING TRANSMISSION MAINSHAFT

The Triumph transmission was now useless. There was no way of adapting it to the engine. In fact, there was little choice. The only transmission that would fit without special adapter plates was a Ford floor shift unit. As it was the transmission had to be adapted to the Triumph drive-shaft, and somehow the speedometer cable had to be adapted to the transmission. It must be remembered that the speedometer is geared in proportion to the rear axle ratio, and the circumference of the tire. Therefore if the Triumph speedometer was to be used, cable gearing had to be maintained.

From the back of the original Triumph transmission, Hodgson removed the speedometer gear housing. Then he designed an adapter approximately six inches long and four inches wide which was machined from a flat piece of aluminum stock one inch thick. This adapter plate had a dual function. One, when bolted to the rear of