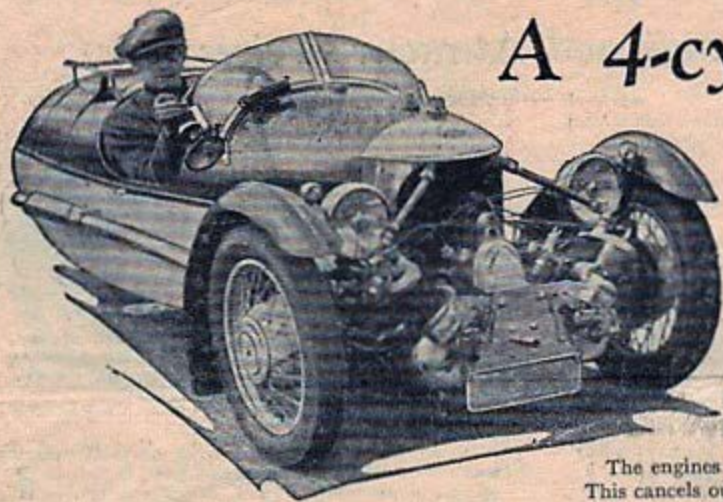


"Mark III" Drives and Describes

A 4-cyl. Two-stroke

A Sports Morgan Powered by a Pair of Scott Engines



The two Scott motorcycle engines have been cleverly fitted and do not give the Morgan a very unusual appearance.

ALTHOUGH somebody may have, tucked away somewhere, another vehicle which can answer to the description, I think I am safe in saying that a machine in which I have recently been for a trip is Britain's only four-cylinder two-stroke three-wheeler.

That makes you look up, doesn't it, you three-wheeler fans and two-stroke enthusiasts? And I can honestly say that the experience made me wonder why the valveless engine, in its "multi" form, has not gained a bigger footing among three-wheelers.

The model which I drove and which I will now describe is, in the main, a 1934 Super-sports Morgan, and I was given facilities for inspecting it by Mr. J. Granville Grenfell, M.I.B.E., the well-known racing tuner and engineer, of Brooklands Aerodrome, who had fitted its engines. These latter are two ordinary, reconditioned Super-Squirrel Scott units, each having a capacity of 506 c.c. They are, of course, water-cooled, and, as you will see from the illustrations, are mounted in the usual place for a Morgan engine.

The two crankcases are fitted back-to-back and are supported by the standard Morgan lower engine-bolts, aided by a pair of special bolts higher up. The normal upper engine bearers, naturally, were removed before the Scott units were fitted. By referring to the photographs, you will see that this arrangement lent itself admirably to the "plot," for the cylinders, lying well to each side of the radiator, gave the air excellent access to this important component without making the Morgan look at all unorthodox or unsightly and without interfering with the steering.

So far, so good. But what about the drive?

There they had a brace of tip-top motors, each giving off, on the bench, something like 30 willing horses apiece. The big question was how to link them up and persuade them to drive the three-wheeler. That problem occupied the days and nights of *chez Grenfell, père, mère and fils* (their tuning business, I might mention, is a distinctly family affair), for a long time. But eventually they cried "Eureka," or something like that, and produced the scheme illustrated in the sketch. It is a very good scheme, and although it may look complicated, it works extremely well and has given no trouble in practice.

The engines were made to run in opposite directions. This cancels out practically all vibration and, of course, torque reaction, and involves the use of two Mark X Renold chains, two countershafts besides the main driving shaft, and half a dozen sprockets. The near-side engine's job is to drive the central shaft; this shaft is supported, at each end, in the main engine plates by two large diameter ball bearings from an Austin Seven crankshaft and carries two of the sprockets; the off-side engine drives a chain which runs *under* the second sprocket on the central shaft and *over* the sprocket on the upper countershaft. Then the chain dives down to an idler sprocket on the lower countershaft, runs round it, meets a Weller tensioner, and so finds its way back to the engine. Another chain drives the magneto—a converted twin-spark instrument off a 1922 racing Fiat—from the upper countershaft.

In an Oil-bath

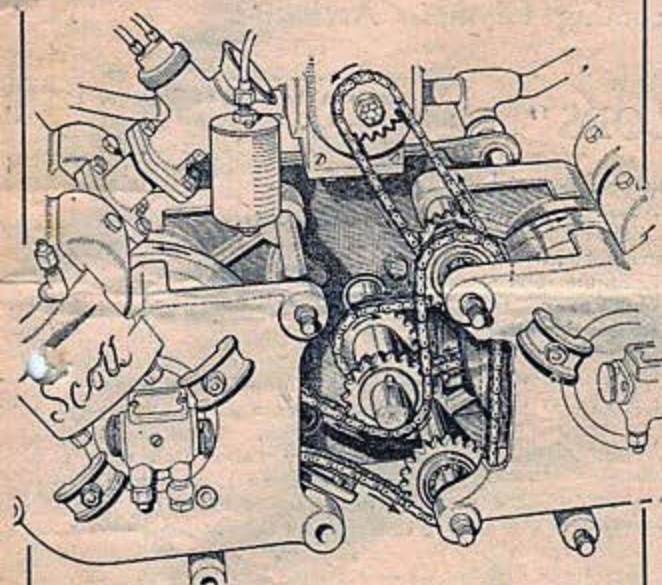
All the shafts run in heavy ball bearings and when the spaces between the sides and bottoms of the crankcases are closed by the front engine plate and the upper and lower shields, the whole job runs in an oil-bath. Carburation is by a pair of Amal instruments, the controls of which are cunningly synchronized by home-made junction boxes. The drive from the central shaft is conveyed to the rear wheel via the standard Morgan clutch and transmission.

Engine lubrication presents no difficulty. The leads to the cylinder walls have been disconnected and sealed off and the usual main oil feeds have been neatly passed through the idle engine lugs on each outer side of the crankcases. Each engine has its own double Pilgrim pump and the whole job has been most neatly carried out. The cylinders fire "diagonally."

My impression of this unusual Morgan was, from the first, a good one. The workmanship and assembly of each part denoted much loving care and I was not surprised to learn that such a vehicle would cost about £200 to produce complete. That, of course, is rather a lot of money, but my subsequent experiences with the machine led me to think that an out-and-out enthusiast who had "the ready" would find that he had obtained his money's worth if he bought such a three-wheeler.

The engines were stone-cold when I took the wheel and, although the electric starter was fitted and working,

Three-wheeler



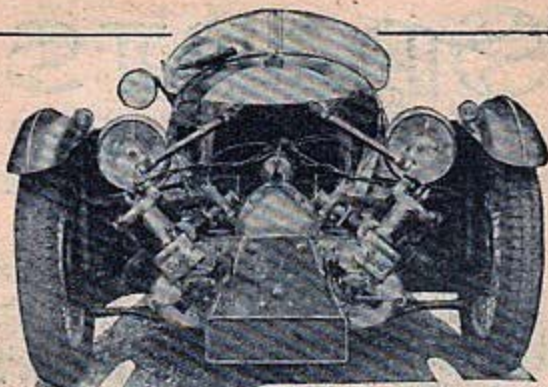
How the units are geared together. The adjustment of the chains is effected by turning the upper engine bolts which alters the angle between the crankcases. The central shaft is connected to a normal clutch.

Mr. Grenfell decided against asking it to turn a couple of gummy crankshafts; as the starting handle had not yet been devised a rally of racing mechanics from the various Brooklands workshops in the vicinity was organized and so we were pushed off.

It took a certain amount of time for me to find the spot with the throttle and air controls, and the pushers were almost at their last gasp before I hit on the right combination. Then the engines gave a concerted cough . . . The pushing squad redoubled their efforts and for their pains were left lying flat on their tummies in a cloud of blue smoke as we shot off. Most people know what the acceleration of a Scott engine is like, but think what two can do!

How It Felt

The Scotts had new "innards" and care was the keynote. "No high revving, please," were my directions, so I snapped into second gear and toiled quietly along on the road out of the aerodrome. Quietly is an apt description, for, although I travelled fairly quickly in second gear, those engines merely purred. Many folk think that a four-cylinder two-stroke *must* feel and sound like an eight-cylinder four-stroke, but in this case the four-cylinders were unmistakably such. Yet the charm of the Morgan was that the power flowed so smoothly and was so abundant. In top gear, the machine just swam along—no mechanical noise, very, very little exhaust noise and flexibility to the nth degree. It was three-wheeling *par excellence*—a ride in a dream machine.



A front view of the Grenfell-Morgan-Scott, claimed to be the only four-cylinder two-stroke three-wheeler in Britain. The working parts are all enclosed and run in oil.

Soon I stopped and felt the radiator and cylinder blocks. To my surprise, these were barely warm. Evidently the cooling left no room for doubt. And during the next few minutes the Morgan showed me a little of what she could do. Lots of riders dream of being able to pass a rival at 70 m.p.h.—and then change up. Well, that is what you can do with this Morgan, and in perfect safety, for the model holds the road like a leech.

A Lively Model

I did not try the Morgan-Scott for maximum speed, because although you can give a new water-cooled engine "the gun" in short bursts without risk, naturally a three-wheeler requires a fair distance in which to reach its fastest gait and it would not have been fair to have jeopardized this lovely piece of work. At about half-throttle I had all the speed I would be likely to want except in exceptional circumstances and when I allowed the lever to creep past that position the "urge" in those engines was simply terrific. How can I describe what it felt like? Perhaps the nearest approach is the sensation experienced when a pal—a pilot at a South Coast airport—took me up for the first time and dived his aeroplane with the power on. The Morgan gave me something of that feeling of untapped speed lying in wait. . . .

The Morgan would, nevertheless, potter along comfortably behind the slowest old family saloon that ever took the road. Naturally, below a certain r.p.m. the two-stroke engines were inclined to four-stroke, but even then the power produced was remarkably smooth.

In due time I drove back to the Grenfell establishment reluctantly to hand back a three-wheeler that I would dearly like to have owned. It is my lot, during the course of earning my daily bread, to try out many three-wheelers; some are standard productions which I know almost for a certainty will be pleasant vehicles. Others are home-bred devices laboriously built by enthusiastic amateurs. But the Grenfell-Morgan-Scott falls into neither category. It is a highly non-standard machine as you may have gathered, but it is put together with the skill and care that only an expert engineer can devote to the job.

And now I learn that Mr. Grenfell is thinking about "blowing" this Morgan.

Phew!