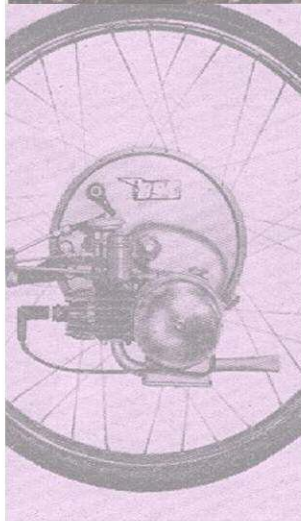
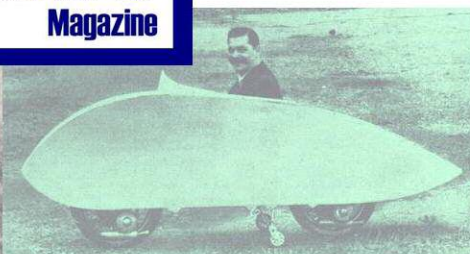


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MECHANICS

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20,000 MILES WITH

A

MINI-MOTOR

*Reprinted from a contributor's experience with this
power unit published in "Mechanics" February 1st, 1952*

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20,000 MILES WITH A MINI-MOTOR

By "KINGFISHER"

Experience with an auxiliary on a tandem

ONE of the questions often asked about the new "clip-ons" is, "How long will they last?" Here is an answer. My Mini-motor, fitted to a tandem, has so far covered 20,400 miles. It has been ridden to work solo all the week for the last two years, and has carried two on week-end trips, averaging 1,100 miles each month. Petrol consumption has worked out at 202 miles per gallon, and the machine is now running on its seventh rear tyre. Of course, it must be remembered that tyres are not expensive, and do not last for a great mileage on a tandem, even without power drive.

An interesting point is that each tyre has given appreciably more miles than the one before it. This is due to the wear on the drive roller. When new, this roller is parallel, with sharp edges on its grooves, but now it has worn appreciably hollow, and the grooves have become rounded and highly polished. No roller slip is encountered, but the tyre must be kept inflated very hard, and the roller clearance must not be less or more than an eighth of an inch.

Tyre mileages are:

First tyre—1,000 miles.

Second tyre—2,200 miles.

Third tyre—3,400 miles.

Fourth tyre—2,900 miles (cut by glass).

Special Tyre

All the above were Dunlop Tandems. A change was made to Firestone Powerdrive, a tyre made specially for this job. The special inner tube, incorporating a Schrader valve, was also fitted. This makes it possible to test the air pressure, and I always ran mine at 65 lbs. per sq. inch. Fifth tyre—5,000 miles.

Sixth tyre—4,900 miles, still serviceable, and put on the front of a bicycle, to permit the fitting of a new tyre during overhaul.

Seventh tyre newly fitted.

Running-in Care Needed

The manufacturers advise very careful driving for the first 400 miles, but my engine, very stiff at first, was still maturing after 2,000 miles. It is my experience that a two-stroke engine matures very slowly, and most manufacturers do not give anything like a high enough figure for their running-in periods. Since this very careful running-in, my engine has been run constantly at full or three-quarters throttle, often for hours on end.

After 500 miles had been covered, persistent rich mixture led to the discovery of

a punctured float in the carburettor, a new float temporarily cured this trouble, but by 9,000 miles I was on my fourth float. Trouble then vanished, and I have had no more to date. The carburettor compensation is not too good right through the speed range, there being one noticeable flat spot at half throttle, but it has at least one outstanding merit:—in the whole time, the jet has never become blocked, or the petrol flow become impeded. This is particularly meritorious in such a small instrument.

The Decoke

At 800 miles, the reduced power, and quiet exhaust led to decarbonising, a very simple half-hour job involving only five nuts, three for the cylinder head, and two for the exhaust manifold.

I have found it an advantage to decoke after every 800 miles, the effort being so small compared with the advantage of having the engine always at top efficiency.

At 1,000 miles, a new tyre was fitted, and a misfire traced to a stiff fibre bush in the magneto contact breaker, which was soon put right by easing out the bush. Round about 2,000 miles, the engine was beginning to feel really good, and the higher speeds indulged in brought on a bout of plug "whiskering." This trouble recurs unless the plug is cleaned frequently, and is a failing common to all small two strokes, being probably caused by the heavily leaded fuel we are forced to buy these days. The better quality fuel, free from lead, which we hope to be able to buy soon, will cure this problem.

Gummed Rings at 4,800 Miles

At 4,800 miles, the engine lost power, spitting back in the carburettor became frequent, and a minor seizure forced me to remove the cylinder. Both rings were gummed in.

Cylinder bore wear, measured with an inside micrometer, was 0.0015 in. maximum, and two small scores extended up from the exhaust port to the top of the cylinder. The piston was very good, with a nice silvery polish, no scoring and no high spots. The big end and the main bearings were in perfect condition, and the total replacements needed were two piston rings. The contact breaker points needed only a light touch-up and adjustment. After assembly, the motor started upon the bench, when the flywheel was flicked round by hand.

At 5,000 miles, the clutch cable gave up the ghost, and was replaced by a heavy-

weight motorcycle type, which has lasted in perfect condition ever since. This is very worth while, as a heavy cable is never severely stressed.

Heavy Haulage

The summer holiday was taken at this time, and the total load on the machine, including crew, food, luggage, and a tent, was 24 stone! The longest mileage in any one day was 179 miles, the daily average being 80 miles. We toured in the Southern counties, and only had to walk up seven hills. Pedalling was, of course, frequently necessary on hills, but was seldom of the back-breaking variety. The important thing is to start pedalling early, to keep the engine revs. up. The only real trouble was a drowned magneto, caused by the wash of a very fast car on a very wet road, and the water penetrated behind the rubber sleeve, at a point where the H.T. cable enters the back of the magneto.

A further incident of this kind prompted a cure. This consisted of a small hose clip surrounding the larger end of the rubber sleeve, and the whole assembly was liberally coated with a layer of Bostic 692. A hose can now be used for cleaning. From then onwards, no further troubles were encountered, till, at 9,400 miles, the engine was stripped for overhaul. Its state was as follows:

Max. cylinder bore wear—0.004 in.

A further score was noted near previous ones.

Max. wear on piston skirt—0.002 in.

Top ring gummed in. Bottom ring free. No measurable wear in big end, or main bearings.

Magneto points pitted, but still serviceable.

The motor was reassembled with new rings, and a further period of trouble-free service enjoyed.

I still decarbonised every 800 miles, finding it better than indulging in too much leg exercise!

At 14,000 miles, a further overhaul was undertaken, and the engine condition was as follows:

Max. cylinder bore wear—0.006 in.

Several more scores had appeared near exhaust port.

Both rings partly gummed in.

Wear in big end bearings—0.0005 in.

Wearing in main bearings—Nil.

Magneto points unserviceable.

A new cylinder and piston was fitted, together with a carburettor float, magneto points, and sparking plug. The engine was again carefully run in, but freed up quickly.

Our holiday jaunt, taken at 15,400 miles, was a little friendly affair of 950 miles in two weeks, loaded as before.

Rear Wheel Trouble

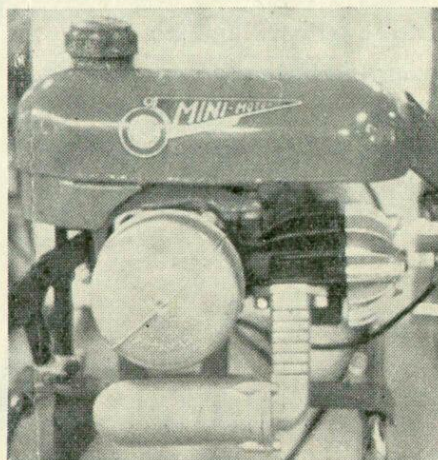
At 17,000 miles, the rear wheel of the tandem collapsed, and was rebuilt with heavier gauge butted spokes. By this time, we were no longer a local curiosity (though doubtless labelled a little mad!) and had the pleasure of seeing the steady increase of cycle motors on the local roads. The average owner is not mechanically minded, and therefore there is all the more reason for the agent to be enthusiastic, precise and accurate in his work.

At 20,400 miles, the tandem was in need of major overhaul, being a pre-war model of doubtful age, having covered a big mileage before the motor was fitted, so it was put into cold storage, and I fell for a Bond three-wheeler. To sell the faithful old warrior was, however, unthinkable, so I fitted it to my wife's cycle for local pottering and shopping, which is really, of course, its true vocation.

Now, what is the final summing up of my experiences with this wonderful little engine? First, it must be realised that my mileage is likely to take the majority of users six or seven years to cover. The performance is, of course, to an extent, limited. Long journeys are easy to do, providing you are patient, and content to put a mere 18 or 20 miles behind you each hour. Petrol consumption is ridiculously low, reliability very high.

I have always reached my destination, and the motor has cost me four pounds ten shillings only in spares. It has saved its first cost, all repair costs, and all running costs, and left me £20 in pocket, and I still have it, in good condition.

The engine has taught me a great deal I forgot years ago — the art of coaxing a tiny engine across country, in all winds and weather, on the throttle alone. This is a science, and any boy would profit by a year of it, before driving any other vehicle, and be the better driver for it.



Take it easy...

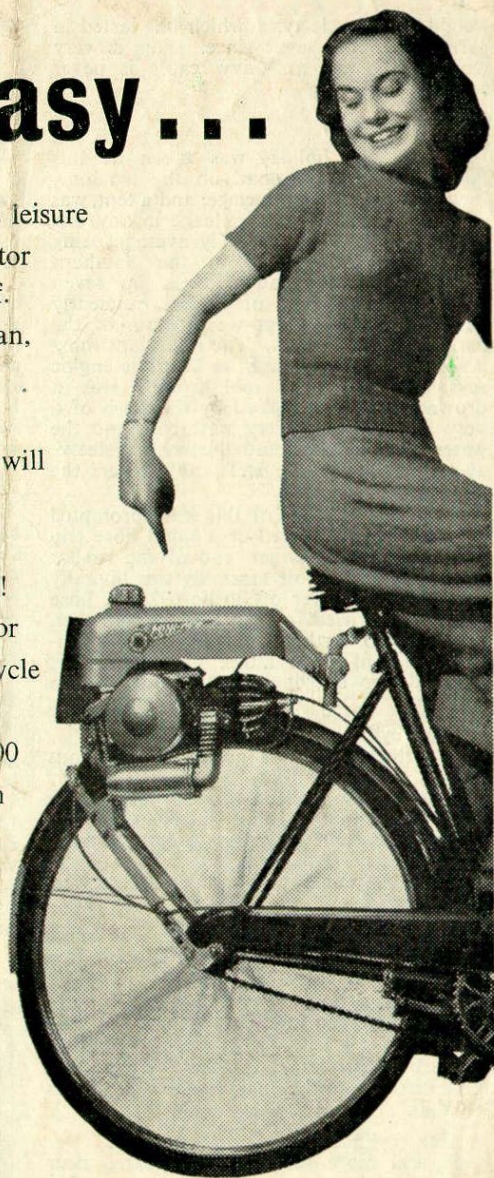
Not every one wants to spend his leisure hours tinkering with a Mini-Motor like the enthusiastic rider overleaf.

We encourage the use of an oil can, of course, and a spanner to check the tightness of nuts every week is excellent, but Mini-Motor dealers will maintain your machine at inexpensive factory fixed prices.

You—the rider—can take it easy!

You will find a Trojan Mini-Motor is the cheapest, safest, simplest cycle unit on the market. It costs only £21. You can get more than 200 miles to the gallon. You can learn to Mini-Motor in 5 minutes.

If you'd like to know about our "Take it Easy" terms, from £2 down and 12/- a week, please go back and see your local Mini-Motor dealer. You will find him very helpful in this and many other ways.



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