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THE ENFIELD CYCLE COMPANY LIMITED

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HEAD OFFICE AND WORKS
REDDITCH
WORCS. ENGLAND

29th March, 1962

Major F.W. Smith
Major V.T. Mountford
Mr. V.L. Young
Mr. J.J. Booker
Mr. G.H. Baker
✓ Mr. R.E. Thomas
File

REPORT OF DEVELOPMENT WORK IN PROGRESS MARCH, 1962

(Sub-section Nos. 1 - 12 refer to Minutes of the Meeting held on 9th March).

1. Bottom Link Forks

Spindle Mounted Front Mudguard

The spindle mounted guard as inspected at the last meeting has now been run 323 miles on the road.

The parts for the modified guard have not yet been made available for test although the drawings of them have been made.

2. 750 cc Engine

This has been rebuilt with the old cylinder heads and run 308 miles on the road with the 5-speed gear box.

We are still waiting for the new heads and the first production engine for test.

3. New Heavyweight Frame

The first set of tubes delivered were incorrect. These have been replaced by correct tubes so the frame can now be built.

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4. Silencing

The 'No. 2' silencer was tried at the M.I.R.A. Proving Ground on a Super-5 machine in comparison with a standard silencer. With a 34N plug, carburettor setting 170 jet and the same rider a mean speed of 75.14 m.p.h. was returned as compared with 76.91 m.p.h. with the standard silencer. This agrees fairly well with the figures from the power tests which were handed round at the last meeting, a copy of which is attached to this report. It will be seen from this that the power with the standard silencer goes on rising after 75 m.p.h. whereas the curve with the 'No. 2' silencer tends to flatten out. The standard silencer is, of course, far more noisy than can be tolerated, while the 'No. 2' silencer is reasonably quiet though it will certainly not conform with any noise regulations which may be passed in future.

5. Heavyweight Five-Speed Gearbox

This has been run a distance of 308 miles on the 750 cc engine. The total mileage on the gearbox since its last overhaul is now 1,238 miles. It is functioning correctly and no oil leaks are apparent.

6. Crusader 350

The crank pin on this broke on the 27th instant after 3,926 miles running. This is a standard 350 Bullet crank pin and the only thing which could reasonably be held to account for its premature failure is the fact that the oil feed hole on the Crusader engine is the drive side of the pin whereas in the Bullet it is at the timing side. One would not expect any appreciable difference in loading conditions at the two ends of the pin. Support to the view that there is more load on the driving end is given by the fact that the fracture certainly appears to have started at the oil feed hole.

The first pin fitted to this engine, however, ran for a distance of 5,788 miles without fracture. It was replaced when the flywheel assembly came loose due to an appreciable amount of wear on the big end journal. The pin which is now fractured shows virtually no wear on the journal.

It is also reported that the bronze steady bush in the driving side crank case had partially seized on the main shaft and was running round in its housing.

Messrs. Automotive Engineering have now reported on the first prototype piston which was returned to them due to heavy oil consumption

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6. Crusader 350 (Cont.)

after 3,211 miles running. They found that the top land of the scraper ring had apparently cracked while the engine was running thus allowing the ring to tilt in its groove forming in effect a taper faced ring fitted the wrong way up forming a strongly 'up-passing' ring. This was shown by the presence of two brown patches on the lower land a short distance either side of the fracture through the upper land. No reason can be given for this fracture which is a most unusual occurrence. In any case, it has been decided for the sake of interchangeability that slightly deeper section rings will be used of the same dimensions as are used on Hepworth & Grandage pistons.

The replacement piston has now covered 1987 miles and is showing a phenomenally good oil consumption of 721 miles per $\frac{1}{2}$ pint. Examination showed that this piston is fitted with taper faced rings in both the top and second grooves whereas the first piston apparently had parallel rings in both grooves. This is obviously an error by the assembler who should have put a taper faced ring in the second groove of each piston and a parallel faced ring in the top groove. After 1,987 miles running the taper has disappeared from the top ring but there is still some signs of it on the second ring. The consumption may be expected to become normal once all signs of this taper have disappeared.

Messrs. Automotive Engineering have agreed to drill the piston bosses with oil holes to prevent the scuffing of the gudgeon pin which occurred on the first piston.

The long range automatic advance mechanism was removed after 702 miles in view of Messrs. Lucas' report that the cost of this would be excessive. Standard automatic advance has now been fitted so that the engine is still prone to back fires and therefore forms a useful means of testing strengthened layshaft high gear and kickstarter pinions, kickstarter cranks, etc.

The ranges of advance of this special unit and a standard one have been checked and were found to be 34° for the special mechanism and 29° for the standard.

7. 175 cc Engine

The design of this is proceeding though it is now slightly behind schedule owing to Mr. Thomas' illness and absence through other causes.

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8. Scooter

This has been run for a distance of 400 miles during the month. The nut securing the cush drive plate came loose and requires a locking plate. The rivets in the clutch drum also came loose. These have now been enforced by spot welding.

Trouble has been experienced with petroil leaking from beneath the filler cap and through the vent. The leakage through the vent persists but the leakage from beneath the cap has been stopped by means of a sponge rubber packing. The continued leakage through the vent not only makes a considerable mess of the rear portion of the machine (beneath the cover) but also the petroil drips on to various electrical cables and could cause serious damage.

9. Batch Tests

The two press Super-5 machines have been retested at M.I.R.A. in the presence of Mr. Booker, Mr. Rogers and myself. The best one way speed obtained was 80.74 m.p.h. from one machine and 79.23 m.p.h. from the other. The best mean speeds were 77.78 m.p.h. and 77.05 m.p.h. These speeds were obtained with the standard carburettor setting using a 3HN sparking plug. A run with a 2HN plug and standard carburettor setting on one machine showed little change in maximum speed on the East run but a drop of about 2 m.p.h. on the maximum speed on the West run which under the conditions of test was the slower direction.

N. Buckingham proved to be about 2 m.p.h. faster than M. Bowers. Buckingham appears to be able to tuck himself up quite well but owing to his height it is doubtful whether he could obtain such good speeds as were obtained by A. Donachie or in years gone by by B. Crowe and R. Boss. It is, however, not really an advantage to have a rider who can obtain very high speeds from a machine since press men could never equal his performance whereas it is quite possible that they will improve on Buckingham's speed.

10. Sports Airflow

No comment.

11. Siba Self Starter

The 250 cc machine fitted with the self-starter has now been returned with the switch assembly box completely sealed and mounted the right way up. So far this is functioning satisfactorily.

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12. Molybdenum Pistons

These are still awaiting a suitable aluminium barrel in which to run them.

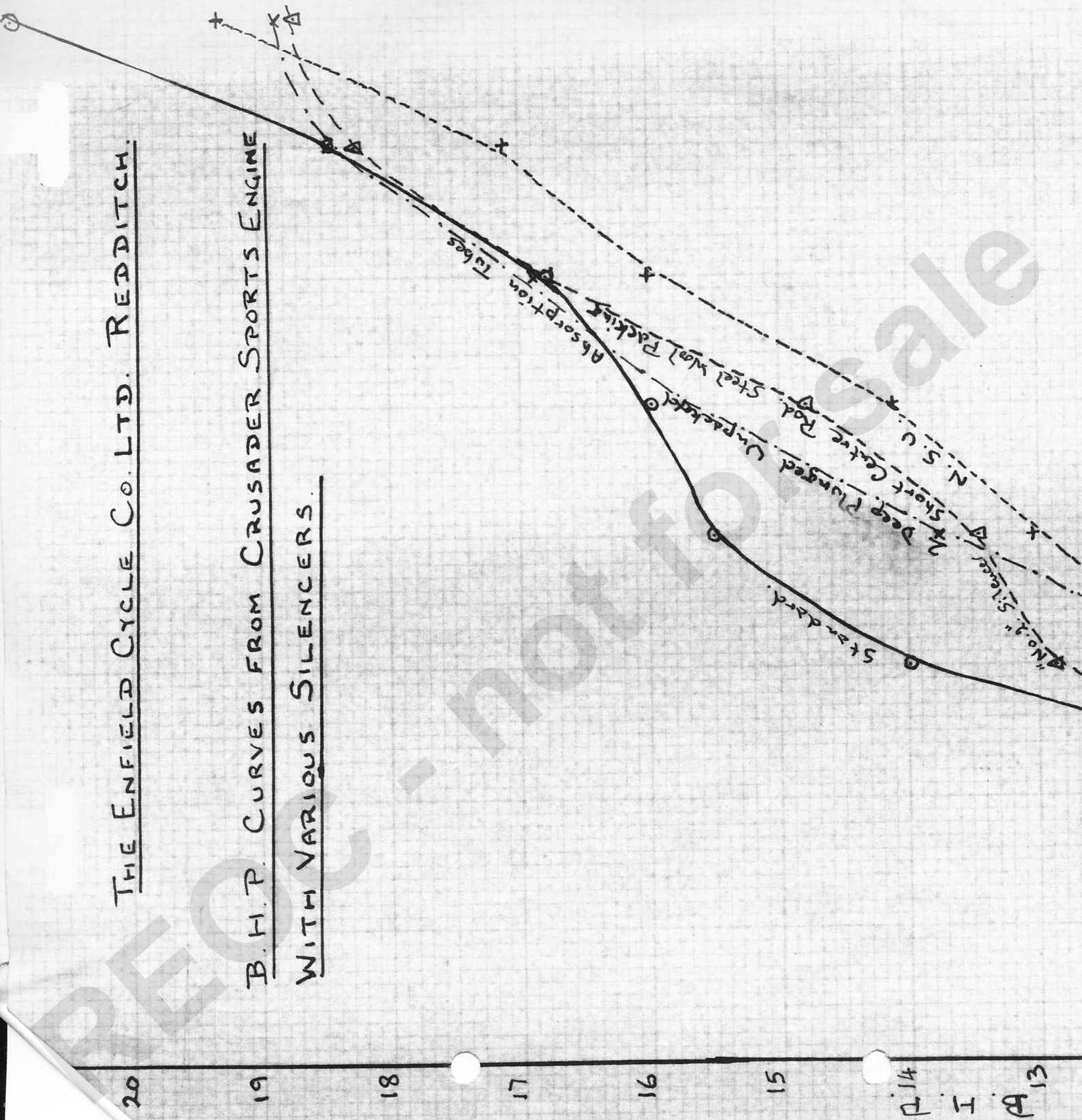
13. Miller Lighting Set

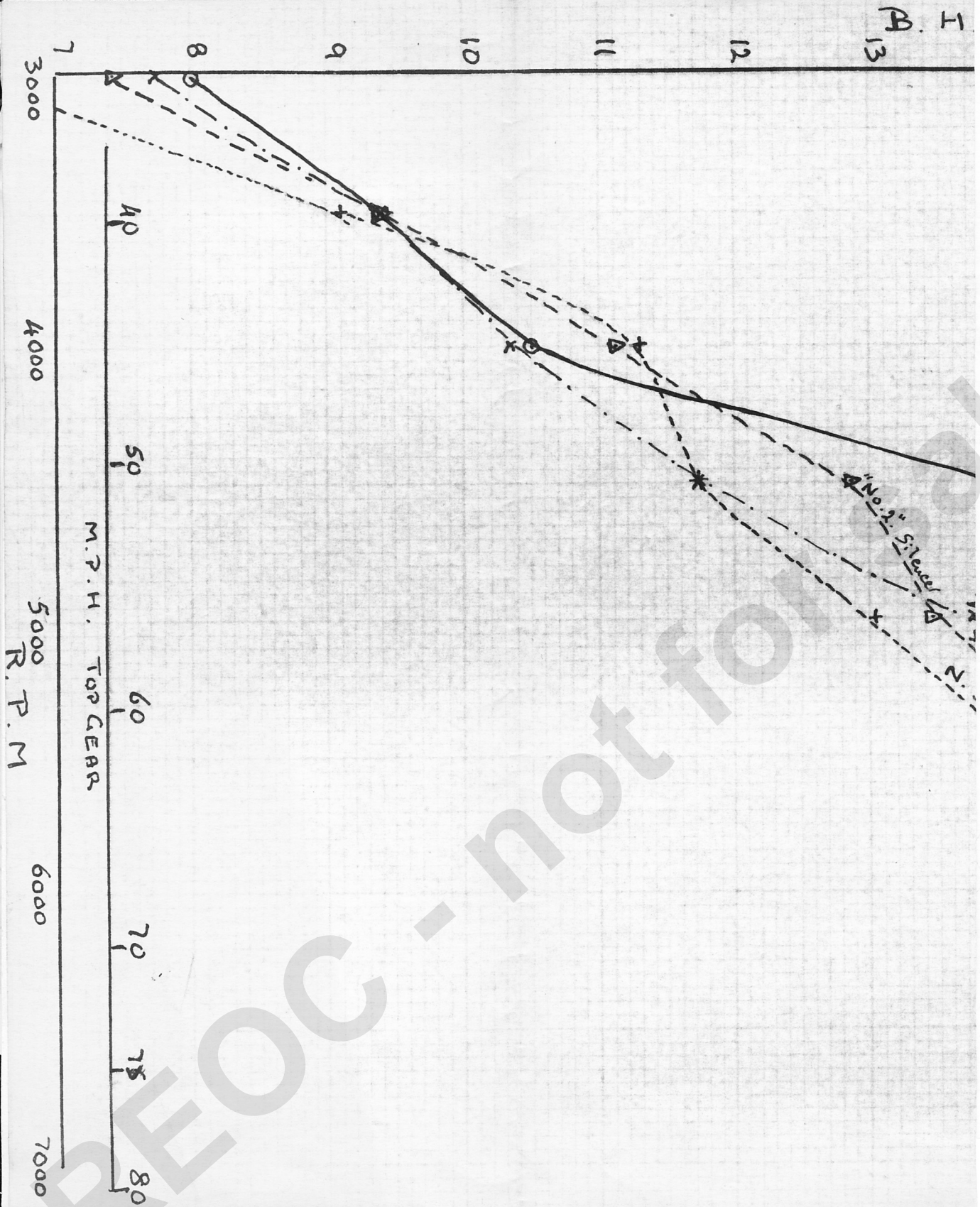
A 250 cc machine has been run 1,023 miles with a generator, contact breaker, automatic advance mechanism, rectifier and ignition coil supplied by Messrs. H. Miller & Co., but still using Lucas lamps, switches and cable harness. The generator appears to give slightly better charge than the Lucas RM.13 or RM.18. This machine, however, does not seem so easy to start as usual. This may be due to the coil giving a weaker spark or is possibly due to the rather restricted range given by the automatic advance which is only 22° as compared with Lucas 29°.

..... R.A. Wilson-Jones
(R.A. Wilson-Jones)

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