



Telegrams
CYCLES, PHONE, REDDITCH

Telephone
REDDITCH 4222 (9 Lines)

Manufacturers
of
Royal
Enfield
BICYCLES and
MOTOR CYCLES

THE ENFIELD CYCLE COMPANY LIMITED

HEAD OFFICE AND WORKS
REDDITCH
WORCS. ENGLAND

Your Ref. Our Ref

2nd 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 FEBRUARY, 1962

(Sub-section Nos. refer to Minutes of the Meeting held on 6th February.)

1. Bottom Link Forks

Spindle Mounted Front Mudguard

The alternative design for a spindle mounted front mudguard attached to the brake cover plate and using a modified distance cover on the opposite side of the hub has been prepared and the parts are being made by Mr. G. Neale.

Top Pivot Pin

HEX HOLE
IN PLATING SHOP

The fork with the modified top pivot pins with the nuts inside has been assembled and run for 800 miles on the road. Some difficulty is experienced in holding the screw-driver slotted head bolt still when tightening the lock-nut.

2. 750 cc Engine

FORGET

The engine with 75% balance is in the frame but is awaiting the latest cylinder heads for carburettor tests.

/Cont.....

/Cont....

3. New Heavyweight Frame

The design of this has been completed. The frame is in the process of being built but is still awaiting some of the tubes.

4. Silencing

The NSU silencer fitted to a Crusader 250 Sports Machine shows about 4% less power at 6,500 r.p.m. as compared with the present standard silencer. At 5,000 r.p.m. the power recorded is about 15% less. There is a recorded loss at all speeds except at 4,000 r.p.m. where there is a gain of about 4%. This may, however, be spurious since the recorded reading with the standard silencer is lower than those either side of it and the reading with the NSU silencer is higher than those either side of it.

Two other silencers have been tested. One is the steel wool packed one with the short rod made by Mr. Baker and the other using two unpacked absorption tubes with specially deep plunging.

Both these show a slight power loss as compared with the standard silencer but not so much as the NSU silencer.

The first of these two silencers has been run for 1,000 miles on the road. The inside nut had come loose due to the buckling of the baffle plate against which it is secured.

In view of the cold snowy weather it has not been possible to run the sound level tests with the Dawes Meter.

5. Heavyweight five speed Gearbox

This has not been run since it is fitted to the 350 cc machine which is awaiting cylinder heads.

6. Crusader 350

This started to use oil 3,261 miles after fitting the new cylinder barrel and the BHB piston. Examination showed that the top ring was partially stuck in its groove (though probably free when hot). The trouble was probably due to the slotted scraper ring which appeared to have collapsed at least at two points showing brown patches on the lands. The gudgeon pin scored where it fits in the piston bosses. Mr. Wilday of B.H.E. was shown this piston and took it with him for a report.

/Cont.....

/Cont....

6. Crusader 350 (Cont...)

Other mileages covered to date on this machine are as follows :-

Total	8,972
Primary Chain	8,972
Mileage since engine rebuild	3,184
Rear Chain	3,184
Present cylinder head	3,326
Exhaust Valve (K.E. 965)	1,669
Latest piston	361
Standard Kickstarter Pinion (Retempered) of which the last 302 miles is with advance and retard mechanism having a longer range preventing back-fires.	1,274
Clutch	5,641
Clutch loose plates	5,777

The cylinder bore wear figures when the first BHP piston was removed after 3,211 miles are as follows :-

Thrust faces top0015"
Remainder of barrel0007" - .0008"
Normal to Thrust faces top0009"
Remainder of Barrel0004

7. 175 cc Engine

Work on this is proceeding. Crankcase castings have now been received. Mr. Thomas has completed the drawings of the cylinder head and barrel. These are being traced. Mr. Thomas has now started on the drawing for the crankshaft.

8. The Scooter

The second scooter body has now been fitted and the machine is ready for any tests which may be required.

9. Batch Tests

No batch test has been run but two Crusader super-5 machines have been tested at M.I.R.A.

The first of these gave a maximum speed of 83.3 m.p.h. with a mean of 75.86 m.p.h. which is about what one would expect from an average Crusader Sports. The second machine gave very poor

/Cont.....

/Cont...

9. Batch Tests (Cont...)

~~72.07~~ ^{72.03} figures - ~~72.07~~ m.p.h. maximum and ~~76.46~~ ^{68.46} m.p.h. mean. Both machines gave the consumption figure of 104 m.p.g. at 45 m.p.h.

10. Sports Airflow

The modified Sports Airflow has been run for 500 miles on the road without a screen followed by 207 miles with a screen fitted.

11. Siba Self Starter

This has been run 179 miles since the fitting of the new control unit referred to in the last report. The new control unit was flexibly mounted on rubber to prevent vibration from the tool box reaching it. On two or three occasions the cut-out failed to cut-in but was made to do so by giving the control unit a sharp tap. Finally the cut-out was operating correctly but the regulator unit was apparently not operating since the battery was on maximum charge all the time.

The report from Messrs. Siba on the previous control unit suggested that the trouble with it was due to foreign matter having entered the unit through holes in the base, the unit being in an inverted position. The new unit was also run inverted but after receiving the report from Siba on the earlier unit it was mounted the correct way up. This, however, did not cause it to function correctly.

The dyna-starter has continued to function satisfactorily as a starter. During the period under review tests have been made with four Exide Batteries 3EC7 in place of the four Lucas ML39E. These smaller batteries were not satisfactory. They enabled the starter to turn the engine over compression but did not enable it to start with certainty as with the Lucas batteries.

Before the machine was returned to Messrs. Siba Electric it was fitted with four Exide 3EV9 batteries. These are of the same dimensions as the Lucas batteries but cost 2/- less each. Their nominal capacity is 11 amp.hrs. compared with the Lucas 13 amp.hrs. but tests discharging through the parking lights of a Constellation machine have shown that they have, if anything, a larger capacity than the Lucas.

They enable the dyna-starter to start the engine with the same ease and certainty as the Lucas batteries and there is no technical reason why they should not be used with the Siba equipment or indeed as the battery equipment for all our standard machines.

/Cont.....

/Cont....

12. Molybdenum Pistons.

These have been received from Messrs. Hepworth & Grandage whose report on the shape of the pistons shows that the ovality is very close to the design figure. There is, however, considerable variation in size as revealed by a trace up one of the thrust faces. It is thought, however, that these pistons are reasonably near to the correct shape and one only will be fitted to an engine and run.

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

~~Handwritten~~ Air Lever on Toolbox 250's & 350 Crusader