



Telegrams
CYCLES, PHONE, REDDITCH

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REDDITCH 4222 (9 Lines)

Manufacturers
of
Royal
Enfield
BICYCLES and
MOTOR CYCLES

THE ENFIELD CYCLE COMPANY LIMITED

Your Ref.

Our Ref

HEAD OFFICE AND WORKS
REDDITCH
WORCS. ENGLAND

22nd December, 1961

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 NOVEMBER - DECEMBER, 1961

(This Report covers the period from mid-November to Christmas.
Sub-section Nos. refer to Minutes of the Meeting held on 5th December 1961)

1. Bottom Link Forks

The "spindle mounted" mudguard has been made and fitted. As designed its appearance leaves much to be desired. If reversed end for end it looks much better but the standard number-plate will then hit the head lamp before full bump is reached. On full bump the bottom of the guard is $1\frac{1}{4}$ in. from the ground when the guard is fitted the reverse way round. The mudguard hits the Avon sports fairing when still $\frac{1}{4}$ in. from the full bump position.

Mr. Thomas reports that the Glacier 'DU' bushes for the brake anchor link actually cost less than the phosphor bronze bushes which they replace. Taking the saving in machining and the cost of grease nipples into consideration the use of 'DU' bushes saves 2/- per machine. This, however, is without adding anything for overhead charges to the cost of the bushes.

2. 750 cc Engine

Since my report dated 13th November, the drive side big end bearing on this machine tightened up. There seemed no reason for this except that the crank pin diameter was on the top limit so that possibly the bearing was originally fitted a little too tight.

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2. 750 cc Engine (cont)

The engine has now been rebuilt with lightened connecting rods, special pistons with smaller diameter gudgeon pins, low level drain holes in exhaust cam tunnels, two Super Meteor exhaust cam shafts, rubber oil seal behind timing side main bearing.

The engine has been assembled to the 5-speed gear box in the new type frame and run 548 miles on the road.

3. Silencing

An N.S.U. silencer has been obtained but no tests have so far been run on it.

The 3½ in. diameter silencer has been made in accordance with the drawing produced by Mr. Thomas at the last meeting but has not yet been tested.

I visited Messrs. Ash and Lacey on December 12th and arranged for some sample sheets of stabbed metal with larger diameter holes and deeper plunging than standard. These are expected early in the new year. The long standing order for sample stabbed metal sheets from Messrs. Harvey's of London has been cancelled.

A 3 in. silencer has been made up using steel wool in place of fibre glass. This has not yet been run.

4. 5-Speed Gear Box

This has been fitted to the 750 engine and run for 548 miles. There are some signs of oil leakage either from the kickstarter bearing or from the mainshaft bearing in the end cover. Messrs. Albions have been asked to come to investigate this.

5. 350 Crusader

This has now covered a total mileage of 7,038. The original primary chain is still in use. The mileage since the engine was rebuilt with a bronze steady bush as described in the last report is 1,250. This is also the mileage run by the ½ in. pitch final drive chain which has already been adjusted twice. It seems doubtful whether this is any improvement on the ½ in. pitch chain.

Since the last report two more layshaft high gear and kickstarter pinions have failed the second one after a very short period of use. Messrs. Albions have now produced a sample pinion of strengthened design and made of EN.36.A ⅜ Nickel Chrome case hardening steel instead of the direct hardening steel previously used. This has run only 134 miles but has survived several severe backfires.

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5. 350 Crusader (Cont .)

The clutch with bonded J.17 facing and a 'DU' bearing ring has now covered 3,737 miles, (the loose friction plates 3,873) and is still satisfactory.

The mileages on the other two clutches fitted with 'DU' bearings are now as follows :-

WNP 852 drum, sprocket and centre 3,535 miles
other parts 3,429 miles.

586 AAB (transferred from Crusader Sports with gold tank)(Armstrong facings) 972 miles.

The price now quoted for 'DU' bushes (per inch length) is $3\frac{1}{2}$ times the figure quoted last summer. Even so, the use of these bushes in a malleable iron drum shows a saving of nearly 4/- per clutch as compared with our standard design with a ball race in a steel drum.

6. 175 cc Engine

The detailing of this design is progressing.

7. The Scooter

The second scooter is now built except for the body. It is being got ready for the road.

8. Batch Test

A batch test was run on a Crusader Super-5 in pouring rain with a 20 m.p.h. SSW wind.

Probably owing to the weather conditions the maximum speeds obtained were no higher than from an average Crusader Sports Model. They were :-

West - 70.55 m.p.h. East - 82.89 m.p.h. Mean 76.72

A good petrol consumption figure of 104 m.p.g. at 45 m.p.h.

As received for test the gear change was far from positive. This was found to be due to the fact that $\frac{5}{16}$ " diameter stop pegs (as used on the four-speed gear boxes) had been fitted. After fitting the correct $\frac{3}{8}$ " diameter pegs the gear change was satisfactory apart from some uncertainty in changing from top to 4th gear.

9. Sports Airflow Fairing

This has been fitted to a Super-5 machine and the 150 miles high speed test was commenced. After two or three laps of No. 2 circuit

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9. Sports Airflow Fairing (Cont..)

at M.I.R.A. oil was found to be pouring out of the crankcase breather. This has now been stopped up and a breather fitted to the top of the chaincase.

This appears to be satisfactory but, since information regarding the fairing and its attachments was urgently needed, the next visit to M.I.R.A. was devoted to Pavé testing. After 10 laps the single short vertical strap from the clip to the main horizontal bar fractured. This was probably due to torsional vibration of the fairing in the horizontal plane which this single strap was badly placed to resist. Two straps spaced about 2" apart have now been fitted.

10. Siba Self Starter

Since the return of the machine fitted with the Siba starter from Messrs. Siba Electrics Ltd. we have moved the ignition coil from the front of the machine to an inconspicuous position beneath the dual seat.

Under normal hot or cold conditions the system starts the engine with considerable authority provided the air and throttle levers are reasonably positioned and the carburettor is flooded lightly (not too much) when cold.

On one exceptionally cold and misty morning the first operation of the starter switch spun the engine but failed to make it fire. A second operation of the switch produced a momentary stall. The engine started on the third operation of the switch.

On this same occasion the ammeter indicated no output from the generator when the engine was running. A light tap on the side of the control unit produced a high rate of output. Shortly afterwards the generator again failed to cut-in. This was found to be due to the key switch not returning quite to the mid position after operating the starter. A spot of oil on the switch cured this.

11. Molybdenum Sprayed Piston

Two Crusader pistons have been sent to Messrs. Midland Electric Installation Co. Ltd. of Wolverhampton to be lightly sprayed with Molybdenum. Mr. G.H. Baker is having an aluminium cylinder machined to standard limits to be run with one of these.

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



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RAW-J/MB

21st November, 1961

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BURNT EXHAUST VALVES

Reports have now been received from N.I. Technical Developments giving analyses of the steel from a portion of a valve which was analysed and stated to be correct by messrs. Motor Components Ltd., and of an exhaust valve from a trials machine which had burnt in a very short mileage.

The analysis of the portion of the valve confirms that the chromium content is 13% which is within the limits for EN.54. The specimen is not large enough for analysis to be made of the nickel content.

The complete valve was analysed for carbon, chromium, nickel, and tungsten, which were all within the specification for EN.54

.....*R.A. Wilson-Jones*.....
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