



Manufacturers

of

Royal

Enfield

BICYCLES and
MOTOR CYCLES

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THE ENFIELD CYCLE COMPANY LIMITED

HEAD OFFICE AND WORKS
REDDITCH
WORCS. ENGLAND

Your Ref.

Our Ref

29th August, 1962

Mr. P. Taylor
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 JULY & AUGUST, 1962

(This report covers the period 3rd July - 28th August which includes the Annual Two Weeks Holiday)

1. Spindle Mounted Front Mudguard

No further work has been done on this guard which has been passed for production.

2(a) 750 cc Engine

Breather: Following complaints from America of excessive crank-case pressure the pipe leading from the side breather to the oil tank has been increased in diameter. The union at the point where the pipe enters the top of the oil tank has been replaced by a 'T' connection forming an external vent for the oil tank through a second pipe leading to the rear chain. The 750 machine with this modified breather arrangement has been run for 818 miles on the road and appears to be satisfactory. For the purpose of this test the expander rings behind the oil scraper rings were removed so that no information as to their effect on cylinder bore wear is available yet.

Oversize pistons: We are still awaiting the Ø20" oversize pistons and the barrels opened out to this figure.

Push Rod Seals: Mr. Rogers reports that none of the alternative seals tried show any improvement on the original ones.

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2(a)

5-speed Gearbox : This was returned on 24th August and is now being fitted to the machine. Mr. Hill reports that the following modifications have been made. Coarse pitch gears have been used for the low gear and high gear pinions and an oil seal has been substituted for the oil thrower.

Clutch : Mr. Thomas is having the 5-speed Albion clutch re-drawn using if possible the cast iron back plate from the Enfield ball ramp clutch and with J.17 facings on all friction plates including the sprocket. The clutch ball race will be replaced by a Glacier DU bearing. Messrs. Glacier have been asked to re-quote prices and deliveries for DU rings $3\frac{1}{8}$ " bore by .230" wide.

2(b) Silencing

No further work on silencing has been done during the period under review.

3. New 350 cc Bullet

The prototype engine has now covered 2670 miles since the last re-build. Samples of the crankshaft castings were sent to the B.C.I.R.A. for a report. It was discovered that the suppliers had incorrectly annealed these instead of normalising. Unfortunately, the throw holes on half the castings had been finished to size and it was found that subsequent normalising of the castings increased the bore to such an extent that the 'No-Go' gauge was an easy fit in the hole. The suppliers, Messrs. John Williams of Cardiff, are experimenting with induction hardening round the throw holes but in any case are sending replacement castings.

A point to watch when building these engines is the balance, since the B.R.B. pistons are considerably lighter than the piston originally used in prototype engine.

4. 175 cc model

The design of the frame has been approved and the Drawing Office is proceeding with the detailing of the components.

5. The Scooter

Nothing to report.

6. Batch Tests

No batch tests have been run but some interesting tests have been run at M.I.R.A. by the 'Motor Cycle' showing the effect of the Sports Flow Fairing and also 5-speed versus 4-speed gearboxes. These have been fully reported in the 'Motor Cycle'.

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7. 250 cc Engine

We are still awaiting special pumps and a modified crank-case with a release valve.

The harder Nitryl rubber oil seals were ordered but have not materialised. A reminder has now been sent.

250 cc pistons : A light 350 Bullet piston with the latest type of valve clearance slots has been run satisfactorily for 1,745 miles without a compression plate beneath the cylinder. The possibility of using the Constellation pistons with valve pockets machined at the wrong angle in a 250 cc engine with compression plate is now being tried.

8. Siba Self Starter

This has given no trouble but owing to the machine being used less frequently the batteries gradually ran down making starting less certain until finally the starter failed to turn the engine over compression. The engine started readily on the kickstarter and the batteries have subsequently been put on charge thus restoring the original certainty of the electric starting.

9. Lucas Self Starter

The Lucas 12v. constant mesh starter has proved to give adequate torque to turn a 250 cc engine over compression. The roller type free wheel which forms part of the drive was, however, found to function only if constantly fed with oil from an oil can. (In practice this free wheel would of course be enclosed in an oil bath chain case which might have the same effect). After operating two or three times the 8 mm simple chain was found to have stretched badly and on a later occasion, when the engine back-fired, the chain broke. It would appear that at least an 8 mm Duplex chain is required for this application.

10. Miller Lighting Set

The Miller components have now run a total of 1,862 miles of which 1,323 was with the original auto-advance mechanism and 539 miles with the new auto-advance mechanism giving 30° crankshaft range.

11. Molybdenum Pistons

No comment

12. Clutch Drums

No comment.

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Turn Disc
& Gear Type

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13. Morse Chains

One set of chains is still fitted to a 250 cc machine which is still in the hands of the Press. The other set of chains has been fitted to a Constellation but only 12 miles have been run on them. These are now being transferred to the 750 cc machine on which mileage work is being done.

14. PTFE Bearings

No comment.

15. Light Alloy Cylinder Barrel.

The steel sprayed cylinder barrel is still giving satisfactory service.

16. Shorter Brake Linings

The front brake fitted with brake linings reduced to give only 60 contact area is quite satisfactory. It does not eliminate the tendency to judder when the brake is applied but does appear to increase the frequency and possibly to reduce the amplitude of the judder. The worn wheel bearings on this hub are now being replaced and tests on the brake will continue. If these shorter linings have no other advantage they will presumably save money at the expense of course of some reduction in lining life.

17. Pollard Bearings

& 350 feet back?

A pair of these has been fitted to the rear wheel of the 750 cc machine and have been run for 135 miles.

18. Dunlop High Hysteresis Rubber Tyres

A pair of these of standard dimensions have been fitted to the 750 cc machine and have been run for 818 miles. The rear tyre is showing considerable signs of wear and the centre studs are beginning to crack.

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

Number Plates

DV Bushes on Main Pivot of Leading Link Forks