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REDDITCH
WORCS. ENGLAND

5th October, 1962

Mr. P. Taylor,
Major V.T. Mountford
Mr. V.L. Young
Mr. W.J. Booker
Mr. G.H. Baker
Mr. R.E. Thomas

REPORT OF DEVELOPMENT WORK IN PROGRESS
SEPTEMBER, 1962

This report covers the period 29th August - 5th October

(Sub-section Nos. refer to the Minutes of the Meeting held on 18th Sept.)

1. 750 CC ENGINE

Expander rings behind Oil Scraper Rings - These have been run for only 1,141 miles which is not sufficient to allow wear readings to be taken.

Modified Breather Pipe, etc - These parts have been sent to Westwood, have been drawn and scheduled and are now being fitted to production engines.

Tests on Oversize pistons - Contrary to a report given at the last meeting, the oversize barrels were not ready by the afternoon of October 4th. By personal contact with Mr. J.L. Hepworth, Managing Director, of Hepworth & Grandage Ltd., Mr. Wilson-Jones was able to get the delivery promise for two sample oversize pistons reduced from 6 months to 4 weeks and an order for these pistons has been placed.

Push Rod Seals - Mr. Rogers explained the discrepancy between the remarks quoted in the Development Report dated 29th August and Mr. Booker's opinion by stating that all push rod seals so far tried show a slight tendency to weep oil. The original seals, however, charred badly whereas the later ones retained their original condition after period of use.

1. (Cont....)

Low Out-Put Generator - No trace of the alleged sample low output generator could be found.

5-Speed Gearbox - The complete machine was returned to Albions after a further 1,141 miles with a complaint that first gear was jumping out of engagement. Messrs. Albions returned the machine to us to have the gearbox removed since their preliminary investigations showed some damage to the gears and they felt we would not wish to have the machine off the road while they were rectifying this. The damage proves to be a chipping of the dogs on the face of the fourth gear main shaft pinion which meet with the dogs on the first gear main shaft pinion to engage first gear. This chipping is on the drive side of the dogs not on the over-run side as was stated by Albions. Two teeth are also broken on opposite sides of the third gear layshaft pinion. On the other hand, the high gear or constant mesh pinions which were previously a source of trouble are this time in perfect condition as are the first gear pinions. Both these pairs of pinions are now cut with coarse pitch teeth. A suggestion was made by Mr. Mills of Albions that for the 750 cc engine a five-speed box should be based on the larger 'M' type 4-speed gear which was supplied on Indian Trail Blazers and Apaches. This has the shafts at wider centres, thus requiring larger diameter gears which could probably have coarse pitch teeth cut on the sliding gears as well as on those on the ends of the shafts.

Will new adapter casting fit

Electrical Timing - Since the date of the last Development Committee Meeting only one 750 cc mac hine has been through road test. The electrical timing on this was satisfactory. Further machines will be in test early next week.

Clutch - Mr. Wilson-Jones visited the Albions Engineering Company to discuss with them the proposals for an improved clutch for the twin cylinder machines. They prefer to retain the steel clutch drum and sprocket and have submitted an arrangement drawing showing our proposed clutch modified to suit their production facilities. We are still awaiting the cost of this from Albions.

2. SILENCING

Some noise measurement tests have been run on a Super-5 250 fitted with a Clipper silencer with and without one of two different types of 'mute' in the tail pipe. Tests have been run for comparison with both a new and a used No. 2 silencer.

The Clipper Silencer without the mute was found to give very much the same noise level readings as the No. 2 Silencer. The mutes make a reduction in noise level of 2 - 4 dB(A) which is worth while provided they do not cause too big a reduction in performance.

3. NEW 350 BULLET

As reported in the minutes, the B.H.B. piston has cracked right across the top. This was after 5,922 miles running. This was taken up with Messrs. Automotive Engineering Ltd. who after seeing the piston have agreed to modify the dies and supply 100 pistons from the new dies instead of those which they had ready for despatch. The official delivery promise for the new pistons is 6 weeks from the 29th September but this was reduced to 2-3 weeks in a telephone conversation confirmed by us but so far unconfirmed at their end.

The primary chain from this machine was removed after 17,315 miles owing to one roller having broken. This has been sent to Messrs. Renolds for a report.

4. 175 CC MODEL

The first crankcase for this is in the Experimental Department. Some difficulty has been experienced in balancing the crankshaft owing to the piston and connecting rod being slightly heavier than was estimated and the balance weights on the crankshaft being lighter. For the first engines the balance weights are being prepared and plugged with lead.

5. BATCH TESTS

A Super-5 and a Continental machine have been run in and will be tested next week.

6. OVER-OILING ON 250 CC ENGINES

Special pumps and Covers - The cover with a release valve has been received and is being built into an engine. The special cover for the two disc pumps and the discs for this have been received but we are still awaiting the parts for the gear pump.

Modified Oil Seals - Mr. Hay reports that all the variations of the Burtonwood oil seals tried seem liable to give trouble. Since they never did this until recently he is of the opinion that either the dimensions of the seal or the quality of the mix has been altered. Since tests on a plain cylindrical rubber block fitted in the housing in the cover and over the crankshaft have proved unsatisfactory due to oil pressure forcing the seal against the revolving end on the end of the crankshaft, consideration should be given to the possibility of modifying this oil feed arrangement making it similar to that used on the twin cylinder machines in which a cylindrical rubber seal is used which, however, is forced by oil pressure against a stationary face instead of a revolving one.

Disagree oil pressure too high for any seal.
Care is to release excess pressure through
a valve instead of sometimes lifting one.

7. 250 CC PISTONS

The test on one of the 461 Constellation pistons which have been re-machined with valve clearance slots at the wrong angle is continuing. This piston has been fitted into a Super-5 engine fitted with a compression plate and Crusader cams. To date it has run 1,279 miles including 8¾ miles at full power on the M.5. and Ross Spur and 100 miles at high speed on the No. 2 circuit at M.I.R.A. When making the run on the M.5. and the Ross Spur the rider covered 103 miles in 100 minutes. The test is temporarily discontinued because the outer race of the generator side roll er bearing came loose in its housing. When the engine was stripped to rectify this the piston was still in good condition. Loctite sealant is being used experimentally to secure the loose ring in its housing.

8. SIBA SELF STARTER

The machine with the Siba starter again developed the rough feeling which preceded the discovery that the crankshaft extension was cracked.

No sigh of a crack could be discovered but the end of the extension was running .003" out of true after removal of the steady bearing and the rotor had been touching the inside of the cover over it. It appears that both ends of the crankshaft extension showed signs of fretting.

The machine has now been re-assembled and at the moment of writing is on loan to Mr. R. Curry of the 'Motor Cycle'.

This project has taken on fresh interest due to enquiries from Bond Mini Cars for Crusader Sports engines fitted with electric starters. It is suggested that an inverted type of Siba starter should be fitted with no outrigger bearing carried on a larger taper on the end of the crankshaft.

Messrs. Siba have also submitted results of tests on a modified 12v. Dynastarter with an improved torque. At the moment, however, this is obtained at the cost of some reduction in the output of the generator, which is thought to be undesirable.

9. Lucas Self-Starter

No further progress has been made with this.

10. MILLER LIGHTING SET

The Miller parts were fitted to the machine used for the piston tests described in sub-section 7. At the end of this test the lead came unsoldered from the condenser.

10. MILLER LIGHTING SET(Cont)

One set of weaker springs has been tried in the automatic advance mechanism with no noticeable improvement. Miller components have now been run for a total of 2,949 miles.

11. MORSE CHAINS

Primary and secondary chains have been fitted to a Crusader Super-5 which was on loan to the Press. After 2,975 miles all the adjustment on the rear chain was taken up. An objection to these chains is that they do not have shouldered rivets so that fitting or removing of links or half links is made much more difficult.

Does not affect production

The other sets of Morse chains (primary, secondary and timing) have been fitted to a 750 cc machine and have covered 1,141 miles.

12. PTFE BEARINGS

Nothing to report. — ? Test on Leading Link Main Pivot

13. LIGHT ALLOY CYLINDER BARRELS

Mr. Wilson-Jones is still looking at the cost of a steel sprayed cylinder barrel compared with a cast iron barrel.

14. SHORTER BRAKE LININGS

The first linings tried had the bearing surface shortened by reducing the thickness of the linings at each end. A second pair of shoes has now been fitted with linings cut off short as they would be in production. Additional rivets have been fitted to prevent any risk of the ends of the linings lifting off the shoes.

15. POLLARD BEARINGS

Test is continuing with a 750 cc machine fitted with Pollard bearings in the rear wheel. These have now covered 1,274 miles. Pollard bearings have also been fitted to the front and rear wheels of the new 350 Bullet and these have covered 5,026 miles.

R.A. Wilson-Jones

New Shape Rear No Plate

Longer Front No Plate?