

Minutes of the Motorcycle Development Meeting
held on 5th December, 1961.

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Present:- Major V.T. Mountford
Mr. J.J. Booker
Mr. R. Thomas
Mr. R.A. Wilson-Jones
Mr. R.W. Sandilands

Mr. G.H. Baker was absent on holiday.

Matters arising:-

1.- Bottom Link Front Forks:-

Contrary to information given to us originally by Messrs. Tecalemit, it has been found that supplies of the grease nipple used on the brake anchor arm are still available. However, tests of the Glacier 'DU' type bush in this anchor arm are proceeding, and if these prove satisfactory they will be adopted on all future sanctions. Mr. Thomas will ascertain the difference in cost involved in fitting these 'DU' bushes as against grease nipples and bronze bushes.

* Spindle mounted front mudguard for above fork; Mr. Thomas produced a drawing of this mudguard, and a prototype is being produced in the tool room.

* Mr. Sandilands reported that there was some difficulty in reaming and tapping the hole for the pin securing the top of the spring box. Mr. Thomas was asked to investigate the possibility of changing the design so that this hole could be reamed and tapped from inside the hole.

2.- 750 cc Engine:-

Mr. Booker reported that all modifications, which had been suggested as likely to improve the lubrication of this engine, had now been carried out on one engine, and improvement had been noticeable.

With regard to vibration: The fitting of the additional mounting at the rear of the engine/gearbox unit appears to have effected some improvement. This modification has been carried out on both the present standard frame and also the new prototype frame.

There appears to be little difference in vibration between these two frames.

Balance: On investigation it has been found that probably due to alterations which have been made over the years to piston and connecting rod weights, the factor has crept up to something over 90%. Experiments have already been carried out on the engine being run in the Westwood machine, and also in that used at Redditch with a factor in the region of 80%, but in view of Major Mountford's comments on his return from the U.S.A., another 750 cc crankshaft is being prepared having a balance factor of 55% - 60% utilizing the new milled con rod, lightened pistons and lightened $\frac{1}{4}$ " gudgeon pin. The machine being run at Redditch is now fitted with 2 Super Meteor exhaust cams, straight induction ports, $1\frac{1}{16}$ " carburettors and separate exhaust pipes. The gear ratio has also been raised by the rear sprocket having two less teeth than standard.

Some discussion was undertaken regarding the application of the "O" ring mentioned in the separate report. It was stated by Mr. Thomas that "O" rings of the correct size would be available on the 6/12/61, and when they are received these will be fitted immediately for test.

3.- Silencing:-

Tests so far carried out indicate that it is impossible to keep glass fibre intact - this disintegrates after a short period. In response to a request from Mr. Thomas, Mr. Booker undertook to obtain an NSU silencer. Major Mountford reported that through a contact with Messrs. Ash and Lacey stamped material of any grade could be obtained, and Mr. Wilson-Jones was asked to make personal contact.

It was also decided that experiments should now be carried out with steel wool similar to that used in air filter.

Instead of the silencer referred to in Paragraph 2 of Minute 3 of the last Meeting, Mr. Thomas produced a drawing of a silencer $\frac{1}{2}$ " in diameter, and with conical baffles made from perforated material. One of these will be made.

4.- Five Speed Gear Box:-

Mr. Booker reported that the heavy weight five speed gearbox was fitted to the 750 cc machine, and was undergoing mileage tests.

5.- Cruiser 350:-

After 5,788 miles and the fitting of the sports cams and new pistons, the crankshaft went out of truth. The bronze bearing was

now fitted on the driving side in addition to the ^{Single} centre row ball bearing. This arrangement has now completed 1,116 miles with no further trouble.

The $\frac{3}{8}$ " pitch chain which was fitted at the same time as the above modifications does not to date appear to have shown any improvement in wear over the smaller chain originally fitted. However, tests on this heavy chain will be carried out to the absolute limit of the life of the chain so that a true comparison may be made. It is hoped that this arrangement will prove satisfactory; if not a crankpin with longer shanks and the possible addition of expander plugs should be tried. This, of course, would be used without retaining nuts.

Mr. Booker reported that the lay shaft high gear kick starter pin had again failed. It was thought that this failure was caused by a tendency to kick back when starting. A contact breaker having a modification to give a greater degree of retard has been fitted, and Messrs. Lucas are investigating the possibility of the production of a smaller contact breaker, and have promised to contact us within the course of the next few days. In the meantime, Mr. Wilson-Jones is investigating the possibility with Messrs. Albion of altering the design and material of the gear. A modified design will be available within two or three days.

The fitment of a standard Crusader Sports head has been incorporated in the schedule.

Mr. Booker reported that he was entirely satisfied with the clutch on this machine.

Mr. Booker undertook to let Mr. Thomas have carburettor settings during the week ending 15th December.

It was the intention that the Crusader 350 should be in production by the end of March at the latest, and the urgency of all the development work was therefore stressed.

6.- 175 cc Engine:-

It was agreed that as soon as drawings are completed six sets of components to complete three engines and two complete machines should be put in hand.

7.- The Scooter:-

The handlebar assembly has now been received for the Scooter, and assembly is proceeding.

8.- Batch Tests:-

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The previous tests of the Super Meteor solo and Constellation models were satisfactory, and Batch Tests are now to be run on the Super 5. The report should not only refer to performance, but on all aspects especially gear change.

9.- Sports Airflow Pairings:-

Two sample Sports Airflow Pairings have been received from Messrs. Dewey Waters, and are to be tested. The Sports Pairing is to be subjected to test at M.I.R.A. on No. 2 Circuit for 150 miles plus 100 miles on the Pave, but before these tests are undertaken modification is necessary to the front cross member. It is hoped that these tests will be carried out during the week commencing 11th December.

10.- Siba Self Starter:-

The machine has been submitted to Messrs. Siba Electric Ltd., and their report confirms that in order to be satisfactory the self starter equipment requires a 24 v. battery. They had repositioned the batteries in the toolbox, and located the other equipment normally in the toolbox. They have revised it, and it now works satisfactorily.

Mr. Hooker is to ask the Cost Office to let Major Mountford have details of the additional cost of equipping the Crusader with self starter equipment.

J. J. Hooker
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(J. J. Hooker.)