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Minutes of the Motorcycle Development Meeting  
held on January 13th, 1961.

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

Matters arising:-

1.- Silencing: It was reported that action had been taken to locate the spiral baffle 9½" from the forward end of the present production silencer. This has been found to give slightly improved power. There is no reduction or increase in noise level although the impressions of the testers at M.I.R.A. had suggested a reduction.

The key washer now fitted to the production silencer centre retaining nut has prevented loss of the nut, but in service the cast alloy silencer end tends to rotate, probably due to the expansion of the rod when heated by the exhaust. Steps are now being taken to key the alloy end to the steel barrel to prevent it turning.

As a long term policy, Mr. Thomas will investigate the design of a larger silencer - the body of which would comprise two pressings welded together longitudinally.

2.- A set of front forks of 250 type using heavy gauge main tubes is assembled into the prototype Super Sports 250. This machine is nearly ready to run, and the fork spring which is the only component in doubt will be checked in the next few days.

3.- Arrangements have been made to fit the Constellation forks having heavy gauge main tubes, experimental sidecar type fork springs and solo type fork ends to the works Super Meteor combination. The object of this being:-

- (a) To test the small diameter fork springs
- (b) To obtain the drivers reaction to solo trail on a heavy sidecar outfit.

4.- The Prototype Super Sports 250 has been assembled with the new light alloy fork crown with separate headlamp. In view of the possibility of modification to this, and also to the fact that no electrical harness is available for this type of lamp, the machine will be fitted with a standard casquette in order to test the front fork, rear mudguard assembly etc.

5.- Tests run on the bench, with a 700 cc engine having plates running from the well up to the cylinders with an oil collecting orifice at the top, have been encouraging and the engine is being fitted to a frame to carry out tests at M.I.R.A. in order to find out if there is any reduction in oil leaks or consumption.

Experimental work with reduced oil supply to the timing gear and O.H. rocker gear are to proceed.

6.- In respect of the long term design of 700 cc engines, Westwood are to be asked if any action re. Major Mountford's memo of the 13th October has been taken. This memo suggests modifications to the cylinder head which would enable a higher compression ratio to be used. This and valve timing alterations might produce an engine which would give its maximum power at a lower speed than the present engine. Most of the mechanical troubles and all of our present lubrication difficulties being brought about by the relatively high revs. at which the engine peaks.

7.- Two aluminium alloy cylinders in L.M.4 are finished machined, as are two Hyper Eutectic pistons. One set of these is to be fitted to the 250 cc machine, which is at present running with a cross linerless barrel and special piston. Another L.M.4 barrel will be used with a chromium plated piston.

Mr. Wilson-Jones is at present awaiting a report from Messrs. Hepworth and Grandage on the latest sample from the Ionic Plating Co. The question of Chromium plated cylinder barrels was discussed, and Mr. Wilson-Jones was asked to investigate.

8.- Clutches on 700 cc machines: The fitting of 1½" centre handlebar levers was raised to permit the maximum freeing of clutch plates. It transpires that Bobertys' do not produce a lever having 1½" centres, but that the .020" or .030" over 1 1/16" was a manufacturing error. It was suggested that slots in the steel clutch plates might minimise the tendency of this clutch to drag. This will be tried.

9.- Two prototype oil filters for 250 cc machines are in use and preliminary examination shows that even after a small mileage a noticeable amount of foreign matter, including in the one case a piece of aluminium-swarf, which could have damaged the oil pump seat, had been collected. An estimate of the cost of this filter is to be given to Major Mountford as soon as possible. Quotations for the body casting are at the moment awaited.

10.- It was agreed that as soon as stocks of parts associated with the use of the cast iron head on the 250 cc machine were reduced, the position will be reviewed with a view to using aluminium heads on all 250 cc machines.

11.- With regard to the trouble of burnt exhaust valves and cracked cylinder heads on 250 cc machines using cast iron cylinder heads. It was thought that this trouble may have been accentuated by the standard 250 cam form. A camshaft having most of the slow entry ramps removed has been tried. No noticeable increase in timing gear noise is evident, and testers report a slight improvement in performance. This new cam is to be adopted as soon as possible. Mr. Baker has a sample camshaft.

12.- In view of the poor maximum speed obtained on both the Crusader Sports and Constellation machines on the last two batch tests, it was agreed to run tests with two more of these models as soon as possible. If the results are again sub-standard an investigation must be made.

13.- It was agreed that under no circumstances should a 250 cc frame manufactured by Reynolds be considered fit for use unless it had completed a minimum distance of 500 miles on the pave at M.I.R.A. The second Reynolds frame has been delivered to us, and will be on pave test during the week ending 23th January. After some discussion it was agreed that Mr. Wilson-Jones should submit recommendations for the frame to be manufactured by Messrs. Reynolds.

14.- The nylon roller cage which has been on test in the 350 cc Bullet machine is giving satisfaction. Mr. Wilson-Jones is to obtain further samples with a view, subject to their being satisfactory, to adopting them as soon as possible.

15.- The 5 speed gearbox on test in the 250 cc machine whilst not being absolutely foolproof, does not appear to be any more critical than our standard 4 speed of similar design. A number of



minor modifications are being tried both on this and the 4 speed to try to improve matters; although it does appear that this critical operation is a fault which is lessened when the rider becomes accustomed to operating the gear in a certain way. The second set of 5 speed gears are assembled in the Super Sports prototype, and with two sets running it is hoped that a definite decision can be reached.

16.- The modification to the Prince clutch operating drum utilizing the use of holds to encourage the ingress of oil to the clutch operation is to be adopted as standard.

17.- The first scooter unit is in the Experimental Department, and the installation of this on the test bench is at the moment being carried out by the Millwrights Department. The other unit is also nearing completion, and work on the frame and panels is proceeding.

18.- The leading link forks incorporating hydraulic damping have been fitted to a 250 cc machine, and a front mudguard design with improved lines has been plated and fitted to the machine. The lightweight leading link forks utilizing bonded rubber bush suspension are at the moment being assembled, and will be fitted to a 250 cc machine as soon as possible.

19.- Mr. Thomas submitted a design for a 350 cc engine based on the Crusader design, and it has been decided to proceed with the production of one prototype unit.

20.- Discussions have also taken place regarding the design of a machine of under 200 cc - a unit also to be based on the Crusader. Mr. Thomas is to proceed with the design of a 198 cc complete machine.

21.- Mr. Thomas is to proceed with the design of a 250 cc unit incorporating a siba type self starter.

22.- The question of cylinder head joints arose, and Mr. Wilson-Jones is to submit an interim report on various jointing systems.

23.- In view of some complaints, the waterproofing of brakes was briefly discussed, and it was stated that the front brake has already been dealt with, and that an experimental rear brake incorporating a form of water deflector will be tried in the near future.