

Minutes of the Motorcycle Development Meeting
held on Wednesday, 22nd November, 1962.

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

Matters arising:-

1.- 750 cc Engine:-

It was reported that after 1275 miles on the road, one cylinder started smoking. When it was dismantled the expander ring was found to have stuck - also the cylinder bore was worn considerably. It appears that the scraper ring is too drastic, and this experiment is to be discontinued.

Overhead rocker oil pipes:- Serious complaints have been received from the U.S.A. regarding the plastic pipes. These have now been superseded by copper pipes.

Oversize Pistons for 750 cc:- Oversize pistons have been received, and an engine is being run on a 12 hour test.

Push Rod Seals:- It was agreed that the present push rod seals were satisfactory.

Five Speed Gearbox:- This has been received back from Messrs. Albions modified. It was agreed that the oversize pistons, provided they were satisfactory on the bench, should be fitted in a machine with a five speed gearbox. Referring to the remarks in Mr. Wilson-Jones' report of the 5th October regarding the 'W' type box, it was decided that this was not practical.

Electrical Timing:- All 750 cc engines have been checked for electrical timing on both cylinders, and no fault was found. Mr. Wilson-Jones would provide the information as to what would be necessary to fit automatic advance retard to the K2F magneto as fitted to the 750 cc engine.

Clutch:- Messrs. Albions design has been approved, and it was now a question of negotiating a price of tooling charges on the comparatively small quantity required. Mr. Booker suggested that the clutch should also be fitted to the Constellation, but this would depend upon stocks at Westwood - details of which were being obtained. In the meantime, Mr. Wilson-Jones would ascertain from Messrs. Albions the possibility of the cost of converting the existing type of clutch to the modified design.

2.- Silencing:-

Noise tests indicated that the copper tube mute gave the greatest reduction in noise, but the power test indicated that it seriously effected the power output in the middle of the power range. Mr. Wilson-Jones has suggested in his report of the 18th October that a silencer can be produced reducing noise without any power reduction, and he would let Mr. Baker have a sketch of his suggestion on this day. In the meantime, we are still in contact with Burgess.

3.- New 350 cc Bullet:-

It was reported that the first production engines with the modified pistons had seized, and on being dismantled the pistons showed score marks, and the out-rigger bearing was so tight that the engine could not be rotated. It appears that when assembled the engine was free so that any gross inaccuracy can be discounted, but as soon as the engine had run in the machine for a short time the bearing locked solid.

After some discussion it was generally agreed that more oil should be routed to the bearing, and Mr. Baker was, immediately on leaving the Meeting, going to have an oil way drilled through the aluminium bearing housing and through the bronze bush at the most favourable position. It appears that sufficient oil is running round the boss to lubricate the bearing if the hole is drilled. Mr. Thomas voiced some concern about the fact that if the bush turned in the case, the oil hole would be cut off, and therefore it was agreed that a circular groove round the outside of the bush should be added to the drawing.

4.- 175 cc Model:-

It was reported that of the 175 cc engines, one engine was built, and was on bench test, one was being assembled, and the other four were in process.

Bench Test:- When the engine was first started up pressures were taken - 70/75 at the big end, 10 at the rockers. After a short period of running it was found that the chaincase and the fly wheel chamber were filling up with oil. This was traced to porosity in the crankcase. This has now been rectified, and of course the test will be recommenced as the original readings could be misleading. It was emphasised that the tests on the 175 cc engine are to be pressed forward with the utmost urgency.

Frame:- Mr. Baker reported that the frame was complete, and he had hopes that a rough assembly of the machine should be possible within 10 - 14 days.

5.- Batch Tests:-

Reports were awaited on the Super 5 and Continental models.

6.- Over-oiling on 250 cc Engines:-

Bench tests of the twin disc type pump have been carried out, and it would appear that to a large extent the purpose of clearing the sump at all speeds, thus avoiding loss from the breather, had been achieved. It was intended to fit the twin disc set up on one of the many machines, which are returned to the Service Department for excessive loss through the breather. Unfortunately, at the time it appeared that the Service Department had no machines in for this complaint, so that in order to test the arrangement as quickly as possible it was fitted to a works machine, which was notoriously dirty from the point of view of oil. About 250 miles have been completed on the road, and it is intended that it will be taken to M.I.R.A. for tests at the earliest opportunity. The gear pump arrangement has now been fitted to the engine on the bench, and preliminary tests have begun.

During the course of the experiments with the twin disc pump, a condition where air appeared in the filter housing coupled with a drop in pressure, was noticed. This occurred during the higher speed testing. It was at first thought that the feed pump disc was lifting at high speeds, but a test was carried out which showed that the flow from the feed pump was consistent from 3000 to approximately 7000. It was then suggested that the centrifugal fling of the oil from the feed lines to the big end was clearing the oil faster than the feed pump could supply it. However, earlier tests on the gear pump have shown a similar condition to a worse degree so that it may be that the collection of air in the filter housing is due purely to the condensation of froth in the oil collecting at the top of the housing. It is probable that the froth condition is more likely with the gear pump than with the oscillating plunger type. Arrangements are being made to reverse the flow of oil through the filter - i.e. feed from the bottom with the outlet at the top. If no air collects under these conditions, it is likely that the drop in pressure at high speeds is due to centrifugal fling, but the air in the filter housing is due solely to condensation of the froth in the oil.

However, this is in a manner of speaking a side issue from the main purpose of the experiment, which is to eliminate the tendency of some Crusader Sports engines to build up oil in the crankcase with excessive loss from the breather due probably to uncertain functioning of the return pump.

It is emphasized that the results of the tests must be confirmed on several engines before it can be stated categorically that a real improvement can be effected.

Oil Seals:- (250 cc Big End Feed) As the result of complaints received from the Engine Assembly Department about the ease, which the pump disc lifted when engines were fitted with the light disc retaining spring, it was decided a few weeks ago to revert to the heavy spring. This reversion coincided with delivery of the modified Burtonwood seals,

which it was hoped would be an improvement from the point of view of distortion under pressure. Mr. Booker reported that he had contacted Mr. Hay in the Engine Assembly Department, who stated that since he had fitted the new oil seal together with the stronger spring, he had had no recurrence of the distortion, so it is hoped that this matter may now be settled.

7.- 250 cc Pistons:-

A decision regarding supplies has become most critical, and a decision is to be made at the latest by 28th November as to whether it is safe to use stocks, which have the wrong machining for the valve pockets, in 250 cc Clipper machines.

8.- Siba Self-Starter:-

No comment.

9.- Lucas Self-Starter:-

No progress.

10.- Miller Lighting Set:-

No comment.

11.- Light alloy cylinder Barrels:-

It was decided that experiments with aluminium barrels should be terminated.

12.- Shorter Brake Linings:-

Mr. Baker reported that there had been further instances of noisy and rough brakes. Mr. Booker reported that some time ago a Super Meteor machine when going through test was reported to have a noisy and rough back brake. On examination it was found that the rear brake drum had an extremely rough finish. This was cleaned up in the Tool Room, and on reassembly it was found that the rear brake was completely satisfactory. It was suggested that Mr. Baker examine the finish of the brake drums fitted to the machines concerned.

13.- 75 cc Machine:-

Mr. Thomas to report.

Morse Chains

J. J. Booker
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(J. J. Booker.)