

THE ENFIELD CYCLE COMPANY LIMITED

FROM.....R. A. Wilson-Jones.....
.....Chief Engineer.....

TO.....Mr. J. J. Booker.....
.....Motorcycle Manager.....

.....25th October, 1960.....19

Replying to your recent memo, the following are suggestions for modifications to the present standard three piece silencer, which we might try with a view to reducing the noise.

1. Make up some centre rods with the present spiral baffles in alternative positions. Present position (according to drawing) has centre of spiral $6\frac{3}{4}$ " from front end of centre rod. Try 4" and 10", also a rod with two spirals one at 4" the other at 10" (It is probably easier to make up sample rods with baffles welded on in different positions than to thread the rod and have adjustable baffles.

2. Make up a rod with a baffle with its centre $2\frac{1}{2}$ " from front end of rod (i.e. as far forward as possible to miss the nylon seal) and use this in conjunction with a perforated sleeve about $2\frac{1}{2}$ " diameter, and $8\frac{3}{4}$ " long located on spiders on the centre rod. The annular space between this sleeve and the outer case to be packed with glass wool when assembling the silencer, after plating, (See sketch)

3. Try making the centre position of the silencer of thinner material wrapped round twice instead of once.

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SHEET II

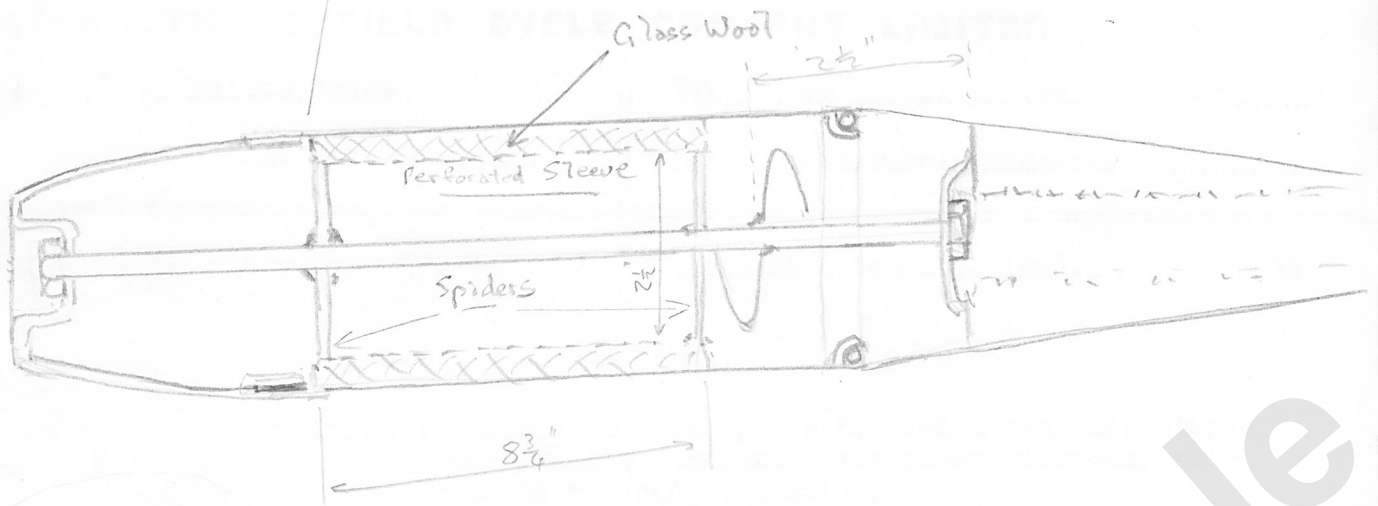
Memo to Mr. J. J. Booker.

25th October, 1960.

4. If we can make a continuous spiral about 10" long, try one made of perforated material. This operates on a different principle known as interference silencing. Some of the sound waves travel round the spiral, some take the short cut through the perforations. Sound waves arriving at the final outlet half a wave length out of phase, cancel one another out. This scheme would have to be checked for its effect on performance.

Without wishing to be unduly pessimistic, I feel that we are 'flogging a dead horse' in trying to get the "Constellation" down to any noise level the Ministry of Transport is likely to insist on - with a silencer of this size, without loss of performance. In my experience one must pay for silence either in performance loss, or in bulk and weight of silencer. If this were not so, I am sure the Germans, who spend many times as much as we do on development work, would not have produced such large silencers as they now use. In any event, by the time the Ministry of Transport regulations come into force, fashion will probably dictate larger silencers than we now use. I feel therefore that for the "Constellation", which is the most difficult case, we ought to be working on the 4" diameter silencer

R. L. Libby



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