

5th October, 1962

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NOISE  
REPORT OF NOISE TESTS ON MUTES  
FOR SILENCERS

Description of Mutes

These are in the form of conical grooved plugs fitted in the tail pipe of a silencer such as we used on "Clipper" models. The accompanying print shows the intended design which, however, could not be made without press tools. Two alternative types were made and tested (1) made from a solid steel bar and (2) made from copper tubes

The theory of the mute is apparently to break up the stream of gas into a number of small streams. In addition the mute obviously baffles the outgoing gases and so reduces the noise and in all probability the power output.

Method of Test.

Noise tests were carried out using the small Dawes meter on the site marked out in the works. The machine used was a Super-5 which was accelerated from 31 m.p.h. in 2nd gear in accordance with the draft I.S.O. regulations and also from 31 m.p.h. in 3rd gear in accordance with the French regulations which it is thought may be adopted internationally. The machine was fitted with a Clipper silencer used with and without the mutes, also with a standard new 'No. 2' silencer and with its own No. 2 silencer which has been in use for about 3,000 miles.

Results

The following measurements of noise level were recorded, all being in dB(A) units :-

New No. 2 Silencer

2nd gear L (91½) 93 93½  
R 94 93½ 94

3rd gear L 89½ 88 87  
R 89½ 88 88½

5th October, 1962

Std. Clipper Silencer

2nd gear L 93 93  
R 93 93

3rd gear L 90 89  
R 90 89½

Clipper Silencer plus Mute made from Copper Tubes

2nd gear L 90 89  
R 90 89

3rd gear L 86 84  
R 86 86

Clipper Silencer plus Mute made from Solid

2nd gear L 90 90  
R 91 91

3rd gear L 87 87  
R 87½ 88

Used No. 2 Silencer

2nd gear L (89) 90 90  
R (89) 92 92

3rd gear L 87 89  
R 89 89 89

Remarks

The standard Clipper silencer gives about the same readings as the new No. 2 silencer. The figures for the Clipper are fractionally better when tested under the draft I.S.O. regulations and fractionally worse under French regulations. The No. 2 silencer seems to improve with use contrary to the statement sometimes made that a packed silencer deteriorates due to the packing material blowing out or becoming clogged with oil and carbon.

The mutes both cause an appreciable reduction in noise level, the one made from copper tube showing a reduction of about 4 dB(A) and the other one about 2 - 3 dB(A). Their effect on power has still to be tested.

Neither of the mutes tested is really practicable as a production job. An aluminium casting might be considered as an alternative to sheet metal.

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R.A. Wilson-Jones

6 FLUTES EQUALLY SPACED

4 1/4"

3/4" DIA

1/8" R

1/8" R

3/4" DIA

1 1/4" DIA

THIS END TO BE  
SEALED BY BRAZING

MATERIAL 20 SWG. (036")

SILENCER

MUTE

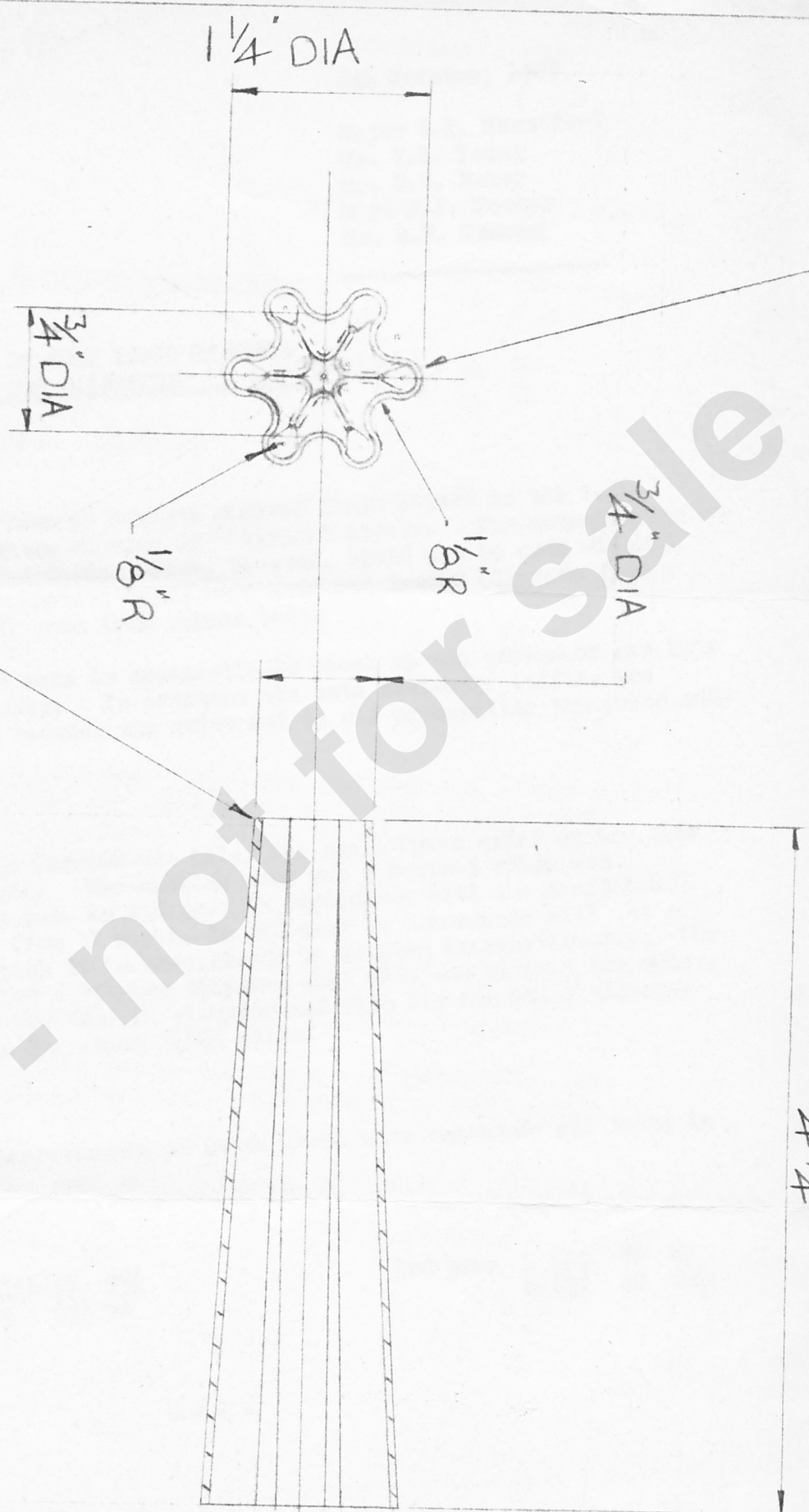
N° OFF

MATERIAL FINISH

R 1 H

LOCALLY SPACED

4 1/4



THIS END TO BE  
SEALED BY BRAZING

MATERIAL 20S W.G. (036")

|               |      |        |          |         |          |
|---------------|------|--------|----------|---------|----------|
| SILENCER      | MUTE | N° OFF | MATERIAL | FINISH  | R 2 1/2  |
| 250cc CLIPPER |      | 1      | EN 2     | NATURAL | 13/16/32 |