New File
"Production Programme"

9th October, 42.

ENGINE SUPERINTENDENT

THE MANAGER

Reference: Engine Division Production Programme.

1. In view of the uncertainty in regard to the Engine Division Production programme, I would like to record my comments on certain matters which I feel are of vital importance and would appreciate the opportunity of discussing them more fully with you.

2. The Wasp H programme is rapidly approaching completion and this will be greatly accelerated if the four hundred (400) A.F.V. engines are taken by the R.A.A.F. for conversion to spares. However, I understand that you are exploring the possibility of using this type of engine in a new design of aircraft, but under present circumstances we can contemplate shortage of work in the near future in most departments.

3. Production Departments.

The following is a summary of work other than Wasp H production which we now have in our production departments, or which we have agreed to undertake.

(a) Twin Wasp Decoupled Nose parts.
(b) Twin Wasp Pump Gears for Lidcombe. ✓
(c) Twin Wasp Parts - General for Lidcombe.
(d) Twin Wasp 3:2 Spares for R.A.A.F.
(e) Cheetah Cylinder Reconditioning work. ✓
(f) Wright Overhaul Tools (Portion must be done in Toolroom).
(g) Parts for 20 mm. Cannon.
(h) Production work for Aircraft Division.
(i) 3-Bladed Propellers.
(j Wasp reconditioning work. ✓

4. Toolroom:

In addition to the very extensive tooling which is necessary for the work listed above, the toolroom is engaged on the following jobs:-

(a) Conversion of abrasive grinders. (2)
(b) Tooling for and production of an experimental propeller governor. (3)
(c) Ball Race grinding machine.
(d) Cam Grinder conversion.
(e) Ball Grinding machine. (1)
(f) Miscellaneous parts for Aircraft Division. (4)

Marking made by K. Hackett

5. It will be seen from the above lists that the miscellaneous work in the toolroom has seriously affected our ability to make satisfactory progress with our main tooling programme, viz. the production of tools for the R-1830 engine. This is clearly indicated in the attached chart.

6. Data is now available giving the total man hours required to tool up for the R-1830 engine (32 engines per month). The Lidcombe tooling has been obtained from the following sources:-

(a) Lidcombe Factory Toolroom.
(b) Melbourne Factory Toolroom (1941)
(c) Taft Pierce
(d) Other contractors in Australia.
(e) Special equipment provided with machine tools.

It is estimated that complete engines could be manufactured in Melbourne for the expenditure of 400,000 man hours, assuming that no overseas tooling will be available for Melbourne.

Making due allowance for time lost, etc., the average hours worked by a toolmaker = 200 per month.
The programme therefore represents 2,000 man/months or the equivalent of 100 toolmakers for 20 months.

If it was decided to tool up for one of the larger engines, it would be advisable to allowa period of 24 months to take care of contingencies.

7. From the foregoing, it is apparent that a considerable expansion of our toolroom (both personnel and equipment) will be necessary, in order that satisfactory results can be achieved in a reasonable time. The present total complement of the tool and gauge rooms is sixty (60) tradesmen. I consider that we should create a toolroom annexe, in which would be located suitable machine tools selected from our portion of the Twin Row expansion equipment. The space required for such an annexe could be best obtained by filling in the factory building at the south-east corner. The question of additional toolmakers is, of course, a more difficult matter under present circumstances, but I feel that this should be made a major issue with the Manpower Authorities and that every endeavour should be made to increase our toolroom staff to one hundred and fifty (150) tradesmen.

8. At the present time, the programme is not clearly defined and there appear to be three alternatives:-

(a) Tool up for the complete R-1830 engine and undertake, also, the manufacture of certain spares for the R-2600.

(b) Tool up for the complete Wright R-2600 but assist Lidcombe as far as possible with the production of R-1830 parts in the meantime

(c) Tool up for the complete P. & W. R-2800 and assist Lidcombe in the meantime.

In any case, it will be impossible to maintain the production shop on a three shift basis due to lack of tooling and materials. The productio machine shop will, of course, be used as far as possible to assist in the tooling

programme but the limitation in this respect will be the standard of labor available.

9. If either of the alternatives (b) or (c) above is decided upon I consider that a licence should be obtained as soon as possible as I feel that the success of the undertaking would undoubtedly be jeopardised if the work was undertaken on any other basis. It is particularly important as one of the objects of local manufacture would be to provide spares for imported engines. This would not be feasible without manufacturing drawings and data from the American Manufacturer. While we have had considerable success in the copying of certain items of equipment, this has definitely not applied in all cases. Notable examples are the accessory pumps which are being manufactured by Huppert & Co. The drawings were produced at C.A.C. from sample pumps and accepted engineering practice was adhered to throughout. However, we have had a succession of technical troubles d due to materials and fits and clearances and we have had the greatest difficulty in producing spare parts which would not only fit the imported pumps but would give the specified performances. These difficulties have been overcome at the expense of a large amount of engineering time and development and testing. This has had a serious effect on pump production. Our experience with Wasp production indicates that even with licence information available our organisation has been fully occupied in overcoming difficulties which have arisen during production.

H.H. Knight