

January 6, 1944

Mr. Arthur Nutt  
Wright Aeronautical Corporation  
Paterson, New Jersey

Dear Arthur:

Very many thanks for yours of January 1st. Thanking you also for your suggestion to call your Cincinnati plant in regard to two doctors from our staff of medical advisers visiting same.

In regard to the Cincinnati visit, I called Bill Kennedy who was not there but I talked to Mr. Kudlich and said that I was calling at your suggestion. I told him that our medical advisers had information that indicated that carburetor flow benches might well be a hazard in respect to both gasoline intoxication and lead poisoning. I further warned Mr. Kudlich that Dr. R. A. Kehoe and Dr. Lester W. Sanders, the doctors who would like to visit the plant, are not the type who will be of assistance in protecting companies against employee suits resulting from industrial hazards where Messrs. Kehoe and Sanders are convinced that the hazard exists. Mr. Kudlich was most cooperative and said that they would be glad to have Drs. Kehoe and Sanders visit the plant if they (the doctors) would tell you what they found. Mr. Kudlich stated that leaded gasoline is not being used for calibrating carburetors but they would like to know about the gasoline intoxication if existing. I told Mr. Kudlich that Drs. Kehoe and Sanders would be in a position to advise on gasoline intoxication as a result of their examination and furthermore, would be able to tell whether a lead hazard existed in the event that leaded gasoline instead of special unleaded naphtha was used on the flow bench.

In regard to your remarks on preignition, I would reiterate my statement that little is known about this subject yet but that as far as our findings are concerned, paraffinic fuels with very good rich mixture characteristics also show definite preignition tendencies which are much more pronounced than in the case of the older type of paraffinic fuels with poor rich mixture characteristics. The technique, in this laboratory at least, of rating for preignition is in a very early stage. However, we have sufficient information to indicate that completely paraffinic fuels under reasonable operating conditions can go straight into preignition without any warning in the form of audible knock. We have no information regarding instrumentation for detecting this preignition on a full-scale engine. We do not know the effect of

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preignition on the various kinds of pickup now being used for full-scale single cylinder and multi-cylinder testing. We use a thermal plug as the means of detecting it and the moment it occurs the thermal plug runs away with great rapidity. Incidentally, we find that stable operation with after-firing is almost always possible at 1" Hg less boost than that producing preignition. We are sending another copy of Report A.R. 88 with Appendices A and B since this subject seems to be of some interest at Paterson.

I may say that we are carrying on in our limited way with more knurled barrels and other cylinder bore treatments. We now have between 300 and 400 hrs. on the first knurled barrel (about 100 hrs. of which was preignition testing) and it still looks good. We are making some more with shallower knurls, some of these being treated with Surfiding and some with Parker Luberite. We will let you know our findings with these latter barrels.

Best wishes.

Yours sincerely,



S. D. Heron

SDH:REL  
Att.

CC: Dr. R. A. Kehoe  
Dr. L. W. Sanders

P.S. Dr. R.A. Kehoe  
Dr. L.W. Sanders

Mr. Kudlich stated that it would be quite satisfactory for Drs. Kehoe and Sanders to visit the Wright Aeronautical plant separately. I suggest that you call up Mr. Kudlich or in his absence, Mr. W.D. Kennedy who is the Plant Manager, and make arrangements for your visits.



S. D. H.