

18 December 1956

Air Vice-Marshal M.M. Hendrick,
AMTS., R.C.A.F.,
Department of National Defence,
OTTAWA, Ontario.

Dear Air Vice-Marshal Hendrick :-

Further to Mr. Saye's letter of the 23rd of October, 1956, in answer to yours of the 16th of October, 1956 on the subject of the performance of the CF-105, we are attaching herewith two performance reports.

Report No. 9 outlines the performance of the CF-105 Mark 2 aircraft as it stood prior to the recent presentation to the Chief of the Air Staff, but with some corrections which have been made to take account of an indication, since the presentation, that the fuel consumption for the Iroquois engines with full afterburner is increased slightly over that assumed at the time that the performance summary was being prepared. This change results in an increase in weight of some 875 lb. and a reduction in 'g' at $M = 1.5$, at 50,000 feet, from 1.65 'g' to 1.63 'g'.

Report No. 9 is the last we expect to issue for the configuration with the original Iroquois engine.

Report No. 10 is the first report covering the performance of the CF-105 Mark 2 with the presently conceived production Iroquois engine, which has a re-matched compressor optimised towards the higher speed conditions, and which considerably improves the high supersonic speed case.

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At this time we have not proceeded far enough with the design of the intake and nozzle matching to finalize the exact weight and performance of the nozzles, but we believe that the preliminary data contained in this report is conservative and there is reason to believe that we will achieve a little better performance than shown, which is 1.9% 'g' at Mach 2, at 50,000 feet, at combat weight.

As we indicated in our recent presentation, we have now fired nine free flight models and we estimate that we have now achieved approximately 2,200 hours of useful wind tunnel time, involving approximately 2,500 test runs. We have tested up to Mach 2 in the Langley tunnels, and we believe that our present performance estimates are based on a solid background of test results, making them much less susceptible to change than any previous estimates.

In view of the fact that if our proposed Program 4 is adopted, there are only five aircraft with J.75 engines, we have not carried out a detailed re-estimate of the performance with this engine.

We hope that the attached reports provide the data which you requested. Please let us know if there is any additional information that you require.

Yours very truly,

J. C. Floyd,
VICE-PRESIDENT, ENGINEERING.

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