

29 March 1957
Mr. R. N. Lindley
J. C. Floyd

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There are one or two things that I have been thinking about since I have nothing better to do down here, and I think it might be as well to put some of these on paper as a memory refresher.

CF-105 MARK 2 PROGRAM

I think that the presentation by Production of their sequencing on the Mark 2 was really good and, as you know, it is the type of child's guide to knowledge presentation that I personally go for -- nothing new or clever in it, but as clear as a bell. In discussions which Fred, the two Joes, and Harvey and myself had on the Monday morning, it was obvious that Harvey would not go for Engineering writing up the progress on Manufacturing. He made this real clear. I think therefore that we have to work along with Joe Morley on any of the accounting, statement of milestones, etc., rather than get this information from Harvey, since I see no resolution of his feelings on this particular subject.

I also feel that to minimize the contests in the future we might use his standard presentation on which to record our own progress, or at least come to some compromise with him where one piece of paper is issued on the overall picture in both Engineering and Manufacturing.

CF-105 MARK 1 PROGRAM

I would like you, Bob, to have Liss or somebody get out a presentation, in conjunction, of course, with Stan Harper and Jack Ames, of the various stages in testing of the first aircraft prior to flight, and also extended to include the flight testing phase, in approximately the same form as Smith's

Mark 2 build schedule, i.e., with pretty pictures, etc. In other words, one large presentation sheet which will show the staging and phasing, which we can examine frequently. I believe that we should also do this for the second and third aircraft, etc., but this could come later.

ORGANIZATIONAL WRITE-UP

You were going to do a write-up and outline the terms of reference for your department heads. How is this coming along ?

ENGINEERING SALARIES

I assume that Ron Adey has brought you up to date with Fred's decision on the weekly salaries. However, my own feelings, for what they are worth, are as follows. I think the increases mentioned are low, however since there is bound to be another increase on re-negotiation of the contract in September, the present increase should at least hold the situation until that time (I hope !). I personally agree with Adey that we should have re-consideration of the professional engineers' salaries prior to taking care of the weekly salaries, since I am sure this is the right way around and, basically, here again, I agree with Adey's suggestions with regard to the amounts suggested. Would you have a word with Ron about this ?

Incidentally, I think I mentioned to you that Ernie Alderton had been informed by Norm Hayman that some of the Supervisors felt that we did not require any more bodies on the presently scheduled 105 program. I know your own thoughts on this, and also that Fred Mitchell feels that while some of the senior design people are running out of work, there is still a great shortage of the Draftsman type of labor. However, I would like you to take a good look at this with Ron Adey and Ernie Alderton, and get to the bottom of some of the statements that have been made.

PSC APPLIED RESEARCH

I think I mentioned to you that I had invited Monty Bridgman to come down to look over the complete inventory on the CF-105, so that he might suggest items which PSC could get into, on the basis of a license agreement with whoever is making the item in the United States, and also to go through our testing requirements with Stan Harper and Jack Ames, to see where he might contribute on that side.

As you know, I made arrangements this last week for a number of people to go down to PSC to familiarize themselves with the operation down there.

Would you please give Monty all the cooperation you possibly can on this, bearing in mind, of course, that we must stick to our policy of choosing the best equipment technically, all other things being reasonably equal.

CF-105 ENGINEERING MANHOURS

Have you managed yet to superimpose our Engineering manhours on the data which I brought back from Convair, Fort Worth ? Also, have you resolved the correct A.M.P.E.R. weight for the 105 ? As soon as you have anything on these, Bob, I would like you to shoot it down.

R. C. A.

With regard to Hertzberg's letter which I showed you, I have talked to Joe on the 'phone about this, and he prefers to leave any discussions on the subject I mentioned until we can get together quietly. However, in the meantime, could you please keep your eye on relations with R.C.A. so far as Guest and the boys are concerned, because there is really no excuse for us chatting to the R.C.A.F. about problems we might have with R.C.A., unless we have acquainted Hertzberg with them first, and I would certainly like to guard

our friendly relations with them as much as possible.

INFORMATION TO DR. COURTLAND PERKINS

Confirming our 'phone conversation on the night of March 27th, I think you should send the philosophy on damping of the 105 to Perkins, mentioning my previous letter to him, and I think it would also be a good idea for you to get together with Don Rogers, if you have not already done so, giving him our feelings on this.

PROJECT STUDIES, ETC.

In general order of priority, I think that we should actively institute the following :-

1. Possible increase in performance on the present CF-105. I know that you have somebody in Initial Projects doing this, and assume that by this time, they have completed the study.
2. Design study of a dual control trainer version of the CF-105 for future discussion with Air Force Training Command. I believe that there will be a definite requirement for this before very long.
3. Design study of a reconnaissance version of the CF-105.
4. Design study of the aircraft to take the place of the CF-105, based on the information which we extracted from Watson and Hendrick, the general specification of which I handed you after our recent visit to Ottawa. I would like to see at least Phase One of a study based on this requirement in the near future, and it is worth expending

some manpower on immediately, since we have our Air Force in a receptive mood for considering a further manned fighter, and I would like to keep the sales pressure on this as much as possible.

5. Navy V.T.O. I mentioned to you, after seeing Johnnie Orr a couple of weeks ago, that he was interested in our Navy V.T.O., since he feels that there is a distinct requirement in the Royal Canadian Navy for an aircraft of this kind. While I personally take this with a pinch of salt, I feel that we should examine the aircraft on the basis of the request he made, i.e., what do we have to do to the Navy V.T.O. to increase the radius to 200 to 300 nautical miles, and what are the characteristics with an engine out ?

6. Northrop Trainer On the basis of the possibility that the R.C.A.F. might adopt the Northrop Trainer, I would like you to have a look at the possibility of putting black boxes in this aircraft to simulate the handling characteristics of a more sophisticated aircraft, as previously suggested by Jim Chamberlin on an earlier project. I talked to Ed Schmeud about this while at Northrop, and he thought that this was an excellent idea. The basic performance characteristics of the N-156T are shown in data which we brought back from Northrop, and any further information with regard to control derivations, etc., could be obtained by Mario ringing up the man we talked to at Northrop.

7. Mono-rail. I would like to start a definite project study now on the feasibility of a Mono-Rail system for Eastern Canada. This work will obviously best be done by Mario and Rolf, and I am writing a note to Mario outlining what I would like to see on this. Incidentally, Bob, there are a number of items in the above (1, 2, 3, 4, etc.) which could very well be carried out in the Project Research Group, especially on the N-156T Trainer, and further versions of the CF-105 (trainer version, reconnaissance version, etc.).

PILOTS' WRITE-UP ON FLYING COMVAIR F102A

First, I want to say that I think this is a very excellent write-up, and Potocki's description of the flying characteristics, especially, are an education to me, anyway. There are one or two points which I think are worth noting in the report.

First, on Pages 11 and 12, I was a little surprised at the speed for armament gear extension, i.e., 400 K, or M 1.2, since this might restrict the fighting capabilities considerably. It is also interesting to see that 1.16 is the maximum level of Mach Number at any speed, and that at 53,000 feet the aircraft is subsonic.

On Page 12 I noted that the aircraft had to be slowed down to 470 K to provide safe ejection because of the height of the vertical fin.

The range seems higher than the figures I had previously seen. Could you please have a check on the range of the 105 with full tanks at best cruising altitude and speed, and with no fuel reserves.

Page 29: It is encouraging to see that an afterburner failure at 50,000 feet, although causing a compressor stall, did not have any other detrimental effects on either the engine or the aircraft.

Page 32 and 34: While both pilots, Zurakowski and Potocki, seem to be quite worried about the synthetic stability on the aircraft, on the other hand, Potocki mentions in 5.7.5 that with the dampers out on the 102A, flight in the transonic and low supersonic regime is unacceptable. This would not appear to be consistent with the earlier statements that the inherent stability is good without having to rely on dampers. Maybe my thoughts are an over-simplification of the problem, but this does not seem to be too consistent.

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Potocki's suggestion of a high load capacity drogue appears to have some merit. Maybe this is because I have been sold on sea anchors, but it is probably worth taking a look at if you have not already done so.

J. C. Floyd,
VICE-PRESIDENT, ENGINEERING

JCF-kas

(Signed for Mr. Floyd
in his absence.)