

CORNELL AERONAUTICAL LABORATORY, INC.

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BUFFALO 21, N. Y.

PL. 5100

18 September 1956

Commander  
Randolph Air Force Base  
Texas

Attention: Dr. H. Strughold  
Chief, Space Medicine  
School of Aviation Medicine

Dear Dr. Strughold,

Belated thanks to you and your people for the cordialities extended to me during my visit last June, and for the excellent background material on work in the 0 g field.

In reference to my intention of keeping you informed of any progress that we may have made toward entering this field of interest, there has been little to report. The only event of interest outside the confines of CAL was a meeting at WPAFB in July. Norm Ball, the Assistant Head of Flight Research, and I went to the Field supposedly to contact the X-15 people and to inform them of our interest in work on 0 g flight conditions. There was apparently confusion at WPAFB concerning the purpose of our visit and when we arrived, an audience of 25 to 30 people were awaiting a talk (by me) on flight problems at 0 g. Among those present were Major Simons (Holloman), Scot Crossfield, Capt. McCollough, and quite a number of people, both military and civilian, who were not specifically identified. Due to the large number of people involved, not much was accomplished. We did not determine the existence of any possible sponsors in the group present.

After this trip, we at CAL decided to lay out rather thoroughly an overall program for proposal rather than to build a program from customer requirements once a customer was found. The internally sponsored preliminary investigation of guidance system requirements to automatically provide trajectories within .01 g limits was completed. (Such automatically provided trajectories are entirely feasible, as is the guidance system required to provide them.) Consequently, we are at a point where actual guidance system design must await a decision as to the aircraft type to be utilized.

Progress on planning a program for the investigation of the human operator under 0 g conditions was not as fast as the guidance system investigations. We realized that a trained psychologist should be included in the group planning the program; however, obtaining the services of a good psychologist took a considerable



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amount of time. We have recently obtained the services, on a consulting basis, of the best locally available experimental psychologist, Dr. Richard Bugelski. As you may remember, Dr. Walter F. Stafford, a neurologist, is a member of the CAL staff. With the consultations of these two gentlemen, we feel that we can lay out a program that will answer some of the questions we feel to be pertinent in light of the background provided by your group during my visit. When we come to the point of agreeing with a sponsor on a specifically detailed program, we will certainly want your council and concurrence. When a draft of the proposed program is completed, I will contact you for your information and advice.

Here at the Lab we occasionally discuss the 0 g condition with armed services personnel who might be possible sponsors. It is surprising to me that many people don't recognize the need for investigations of this condition and aren't familiar with the possible problems associated with the free fall condition. I would certainly appreciate any displayable statement by you or your branch regarding the necessity of such investigations. I would also appreciate any suggestions that you might make at this time regarding the direction such investigations should take, particularly suggestions resulting from developments since the time of my visit.

Sincerely,



Grady Eakin  
Vehicle Dynamics Department

GE:vh

Cc: ☒ Dr. Gaume  
Dr. Gerathewold  
Major Stallings, Jr.