



IX.04

MSFC

In 1964, Dr. Donald F. Hornig was President's Sci'c Advisor to LST

March 8, 1961

Dr. Hugh Odishaw
National Academy of Sciences
1145 - 19th Street, Northwest
Washington 25, D. C.

Letter F-1 concerning Engine

Dear Hugh,

I understand that at the last meeting of the Space Science Board Professor Hornig reported that the 1 1/2 million pound F-1 engine is having real troubles of a fundamental nature and that additional money would not be able to increase the pace. He said that the 1 1/2 million pound thrust engine may simply be too big a step. This report seems to be based on the difficulties that were being encountered with combustion instability several months ago. At our last review of this program a week or two ago it was reported that successful runs had been obtained with at least two new designs of injector plates and that several others were under investigation. Our people who are following the project think that more than one satisfactory design is now available. Such developmental problems are the common experience of every engine development with which I am familiar and are nothing to be concerned about, so long as one makes sure that the developing agency is taking a multipronged approach to obtaining a solution. We would be glad to brief the propulsion committee on the state of this development at any time.

I also notice the report that the opinion was expressed that the Saturn vehicle is a dead end road. I do not know exactly what is meant by this remark. The Saturn C-1 vehicle will be followed by the Saturn C-2 of greatly improved performance. I assume that reference is made to the first stage of 1 1/2 million pounds thrust which could be uprated only by further improvement in the basic engines. Since the Saturn already uses the advanced engines developed in the ballistic missile program, it is clear that it represents almost the ultimate that can be

P136

see 3/23/61 ltr from Odishaw

copies of which were sent to Reeves/Dutton/Schanda

BAC
file

National Aeronautics and Space Administration

Dr. Hugh Odishaw
March 6, 1961
Page 2

obtained with the normal improvements of the Atlas engines. The Saturn engine is not yet in being. I have had the experience before that even our own research people, interested in and working on the ideas for later generations, regard current projects as dead ends before they are completed. This is a natural approach of a research man.

I am always concerned about people making statements based on a very hasty contact with a very complex program. In my opinion such hasty statements can do great harm to the rate of progress of the United States in the exploration of space.

Sincerely yours,

*Original signed by
Hugh L. Dryden*

Hugh L. Dryden
Deputy Administrator

cc Dr. Donald Hornig
Dr. Lloyd V. Berkner

Dr. Homer E. Newell (ref.: Memo for Files, 10-11 Feb 1961 by Newell)