

Office Memorandum • UNITED STATES GOVERNMENT

TO : Mr. Hyatt

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DATE: 14 January 1960

FROM : Col. Heaton

SATURN HISTORY DOCUMENT
University of Alabama Research Institute
History of Science & Technology Group

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SUBJECT: RL-10 Engine Management Arrangements

You are very understandably concerned over the possibility that separate contracts between Pratt and Whitney and the NASA Huntsville activity on the one hand, and the Air Force in behalf of the NASA Centaur Office on the other, will work to the detriment of the government. Certainly disagreements on technical direction can be expected to arise with two different customers, accustomed to imposing different measures of technical control over contractors and concerned with the needs of different vehicles, issuing instructions to the same contractor on the development of the same engine. I can appreciate your inclination to channel technical direction and contract management through one of these agencies.

I have given sober thought to this matter and am satisfied that it will be best to continue the present management arrangement for the development and procurement of the engine for the Centaur vehicle. The product improvement program to update the engine for the S IV stage should be directed and contracted for by the Huntsville activity. In the unlikely event of serious conflicts over the use of P&W development resources, Centaur should take precedence until its capability to accomplish the 24-hour satellite mission has been proven. Modifications to adapt the basic Centaur version of the RL 10 to stage S V should be stringently minimized, but such modifications as are required should be directed and contracted for under the Huntsville contract and be subject to the same priority. All engines should be procured in quantity by a single government contracting agency. Further study is necessary to determine the best agency to handle this job. However, before a production contract is let, pilot runs of each configuration should be procured under respective development contracts. I believe the advantages of this arrangement outweigh the acknowledged disadvantages of split direction.

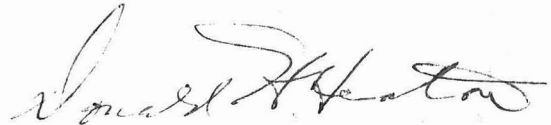
My principal reason for advocating not molesting management arrangements for the Centaur engine development grows out of the understanding between the Department of Defense and the NASA on which the present program management was established. This understanding recognizes the DOD requirement for the Centaur to accomplish the 24-hour communications Satellite mission. This mission has been accepted by NASA as the technical objective of the Centaur development and flight test program. Abe Silverstein set up the Centaur Technical Team out of concern over the ability of the stage reliably to measure up to the demands of this objective. Turning over the responsibility for completing the development of the basic Centaur version of the RL 10 to an agency whose primary concern is Saturn rather than Centaur will subordinate the interests of Centaur to those of

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Saturn in engine development decisions, will undermine the authority of the Centaur Project Officer and will complicate his job. Also, a satisfactory and relatively painless transition from ARPA to NASA direction of the Centaur program was achieved because the personnel and mode of operation of the Centaur project office was undisturbed. Imposing a new engine technical and administrative management pattern on the project at this stage in its history would be most unwise in my estimation.

I do not believe that assigning the development of an uprated RL 10 to Huntsville will necessarily increase NASA costs or complicate unduly our relationship with P&W. After all, the basic configuration of the Centaur engine is relatively stabilized. By and large the engineering personnel in principal demand for the uprating task are no longer preoccupied with the 15K development. P&W has been urging NASA to undertake a product improvement program for some time. As you know, P&W traditionally has been circumspect in refraining from soliciting more work than they can efficiently handle. Consequently, the completion of the 15K Centaur program and the 20K uprating program are quite readily separable tasks. Coordination must certainly be continuous and objective, particularly since S V will use a 15K engine. Moreover, in Hq. NASA Tischler's group will be technically on top of both developments and can adjudicate any controversies which may arise. On the other hand, it is most important that the Huntsville people technically direct the P&W effort to uprate the RL 10 engine. Since the engines will be GFE to the S IV stage contractor, responsibility for evolving a compatible engine stage configuration devolves on the Huntsville activity. Since the tasks are separable, separate contracts should not prove too difficult to administer.

As far as production procurement is concerned, I think we are in agreement that a single agency should be selected to write procurement contracts. Ordinarily this would be the BAR, but since the BAR office at West Palm is undermanned, some other arrangement may be better. I do believe that prior to serial production a pilot run of up to twenty or thirty engines in each configuration slated for vehicle use should be produced on an extension to the contract under which development was accomplished. Responsible NASA and P&W development project engineers will closely monitor the production and acceptance testing of these engines promptly to eliminate engineering and production flaws which appear.



Col. Donald H. Heaton