SPACE and INFORMATION SYSTEMS DIVISION

RTH AMERICAN AVIATION, INC.

September 4, 1963

In reply refer to:
63MA12901

Mr. George M. Low, Deputy Director (Programs) and
Mr. Joseph F. Shea, Deputy Director (Systems)
Office of Manned Space Flight
National Aeronautics and Space Administration
Washington 25, D. C.

Dear George and Joe:

With regard to your letter of August 16, it was most unfortunate that both the limitations on your time and several intrusions of other matters upon me resulted in our not being able to spend as much time discussing the schedule situation.

There should be no doubt in the minds of any of us who participated in the August 16 discussions as to our awareness of the need to meet our schedule commitments. Jim Elms summarized our schedule situation very effectively when he said that schedule difficulties had to result from one or a combination of three factors:

(a) Changes negated the validity of the schedule.

(b) Performance to the schedule was inadequate by both NASA and NAA.

(c) Initial schedules were optimistic.

Our recent reprogramming actions, conducted jointly over the past eight months, indicate elements of all of the factors.

The change control procedure described to you (which is in addition to our existing change procedure) provides a fast means of insuring that both NAA and NASA top management recognize the schedule implication of a change. We are now at a point in the program where requirements are established and significant changes should be limited to those affecting flight safety and primary mission objectives. We are confident that we can control the changes originating in our organization and urge that you insure rigid control of NASA technical direction.

By mutual agreement, past schedules have been based on complete success of both ground and flight tests. This basis permitted us to take very little, if any, advantage of the results of our supporting analysis and development testing as they might affect our basic design. Neither

did it allow us to use our development experience to apply a more logical separation of this early knowledge and the design freeze dates.

During the last three months, we have considered a more logical sequence in development which we hope will permit the incorporation of knowledge gained in development testing into the flight articles. This schedule permits us to better integrate the activities of our associate and sub-contractors, as well as incorporate equipment provided by them which is in a more advanced state of qualification. We have added into the time span for the manufacturing operation an additional five weeks which our experience to date has indicated is required for mandatory inspection and additional time consumed by advanced manufacturing operations, such as our tube brazing.

We believe in the validity of the proposed master schedule because we now have a better definition of our technical problems, our manufacturing processes, the impact of change activity and subsystems definition and status, as well as better phasing relationship in the over-all program. We also have the ability to utilize multi-shift and overtime operations for problems that are currently unknown. While this is a delay of ten months in the launch of Spacecraft 009 and 011, it results in a more soundly conceived program which can take some limited advantage of the knowledge gained during normal development. It is much more than a "ten month slip in ten months." I am certain that along with the new master schedule, the NASA is fully aware of their part in meeting requirements for timely management decisions and delivery of government furnished equipment and facilities so essential to our schedule performance.

To refresh your memory, some of the major recent changes already in effect that will improve NAA performance are listed below:

(a) Recognizing the severity of our GSE situation, we have combined all GSE engineering personnel and elevated the entire group by appointing an Assistant Chief Engineer for GSE.

(b) On July 1, 1963, we consolidated the manufacturing operations under the Apollo Manufacturing Manager by adding the functions of manufacturing planning, GSE fabrication, and all electrical and electronic detailed fabrication.

(c) In May 1962, the Apollo Material Manager was given increased responsibility for both non-standard and standard parts procurement, in addition to major subcontracts. By September 15, we will add a cost analysis group and responsibility for critical raw materials to the Apollo organization.

(d) Our rapid personnel expansion has been completed, along with the initial indoctrination, familiarization and motivation.

(e) Our initial operations problems (inspection interpretation, procedures, logistics support and field operations) have all progressed from theory and planning to a "doing" stage.

(f) We have initiated a review of all procedures to reorient them to the rapid response requirements of Apollo. For example, we established a seven-week procurement processing cycle as an objective for non-standard hardware procurement.

During the meeting with you, we took the opportunity to indicate to you our thoughts in the area of certain organizational activities and the potential realignment of those. These thoughts were not represented to be fully developed organizational change conclusions. The presentation to you was intended to be indicative of the kind of self-analysis and willingness on our part to review our way of doing business so as to best perform in accordance with the needs of the program. The responsibilities and authorities of the proposed Vehicle Management organization are, in fact, an expansion of the Project Engineering function and are intended to lend even greater emphasis of that concept.

The possibility of eliminating duplication or similar testing in the manufacturing final installation and checkout area and the test preparation area has been under close study. In July of 1962, while establishing the cost proposal ground rules, we eliminated some apparent duplication. Our current examination indicates that further consolidation of these efforts may improve the effectiveness of these operations and benefit the program progress. If this proves to be the case, I will not hesitate to change the current organizational arrangement.

You comment that there did not appear to be a clear definition of the standard or base against which changes are to be measured. The standard against which changes are to be measured must necessarily be the judgement as to whether or not the existing design meets the requirements of the technical specification. If a design meets the requirements then that design should not be changed unless a clear savings in time or money would result from such a change. Even if a change would result in a clear savings of money, the change should not be made unless any

resulting adverse impact on schedule was evaluated to determine the propriety of such a trade-off. Obviously, if the existing design is not meeting its requirements then determination must be made as to whether or not the requirements can be modified so as to permit continued use of that design or the design must be changed.

At your convenience, I would like to suggest that you and other NASA people you consider appropriate meet with us at Downey (since that would enable us to go in depth into any area you desire) and re-examine any details that concern you regarding our schedule. In addition, we have had recent discussions with the ASPO regarding the schedule indicators we examine to assess both our current position and future potential schedule impact. I believe the discussion and understanding of these indicators would prove beneficial to you.

NORTH AMERICAN AVIATION, INC.

H. A. Storms
President
Space & Information Systems Division

cc: James E. Webb, NASA-Hq.
Robert C. Seamans, Jr., NASA-Hq.
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