

OFFICE OF THE SECRETARY OF THE AIR FORCE  
OFFICE OF SPECIAL PROJECTS

DATE 23 Dec 92

MEMORANDUM FOR:

*Gen Walker*

*Good Summary - but there  
is no proof that the shock was  
a result of the dynamics of  
non-start.*

*Gainey*

**GENERAL DYNAMICS**  
***Space Systems Division***

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21 December 1992

Brigadier General Donald R. Walker SAFSP  
Director, Special Projects  
P. O. Box 92960  
Los Angeles, California 90009-2960

Dear General Walker:

The AC-71 Oversight Board met for the 5th time on 8-10 December 1992. As a part of keeping all informed of the planned and actual accomplishments, I would like to advise of the outcome. The team had anticipated closing all of the failure cause and effect legs and presenting to the Board, scenarios which will underscore the investigative final report. This objective, though largely complete, was not met. Many of the legs were closed out and essentially ratified by the Oversight Board. However, some concerning anomolous data (in particular the shocks) were incomplete and could not be presented.

The scenario presented did encompass all of the known anomalous data and incidents, but could not be verified. Basically, we continue to believe that an open pre-chill check valve allowed air to be ingested during boost through the sensible atmosphere. The air injestion into an environment of cold, below the freezing point of nitrogen (86% of air), froze in the liquid hydrogen fuel pump and impeded the pump from coming to full torque. The shock was a result of the dynamics of non-start and may have resulted from either gear backlash or a combustion occurrence within the chamber (both of these are being investigated further). The Oversight Board encouraged a confirming analysis or test, and was not satisfied on this point.

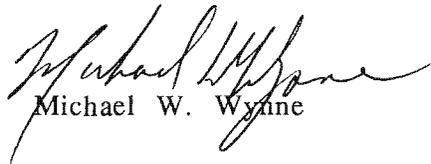
We intend to proceed in parallel with the corrective actions to reduce the pre-chill temperature and add a solenoid valve to positively close the outside air from the engine. Our plan is to continue to close out the cause/effect legs, as well as prepare the failure investigation report, such that the Oversight Board can evaluate the report and the related corrective actions and begin to prepare their report.

In this regard, the next Oversight Board will meet 6-7 January 1993. During this meeting the adequacy of the corrective actions will be discussed and a further determination of schedule made. Currently, the first quarter of 1993 remains our target, but this depends on the timely resolution of open issues.

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I'd like to take this opportunity to wish you a very Happy Holiday Season, and tell you we, at Space Systems Division, greatly appreciate your patience during our stand-down. It remains our intention to return to flight with increased reliability as prudently and quickly as possible.

Best regards,



Michael W. Wynne