

Shonten

UNITED STATES GOVERNMENT

Memorandum

TO : Memorandum for Record

DATE: 12 January 1970

FROM : CB/Bob Crippen

SUBJECT: Scientific Airlock Review

Bob Parker and I attended a review of the Scientific Airlock (SAL) at MDAC West on 7 and 8 January. The crew significant items from that meeting are as follows:

a. Contractual action is being taken to assign MDAC West overall responsibility for the SAL whereas previously they were only responsible for their changes to a piece of GFE.

b. The limit load capability of the SAL to tank mounting is 10,687 in-lb. This allows a 125 lb force to be applied at 5 ft from the tank bulkhead with a factor of safety a little greater than 1.4. MDAC is studying the load capability of the SAL at the SAL experiment interface under the new contractual direction discussed in item #1. An open question in this area is the strength of the experiments especially the flanges at the cannister/SAL interface.

c. The seal for the experiment cannister/SAL interface will continue to be in the cannister vice the SAL.

d. MDAC West has accepted the action to solve the glass breaking problem in the face of the pressure gauge. Such breakage will not produce a pressure leak, but would put loose glass particles in the cluster environment.

e. The opening in the tank wall is 8.25" X 8.25" which is the same as the SAL door. The opening in the meteoroid shield is 17.76" X 17.76". The SAL door is covered during boost by the meteoroid shield.

f. The SAL is displaced off the +Z axis by 0.3 in and off the -Z by 4.25". The centerline of the SAL opening is located 43" above the upper tank area floor. This appears to be a satisfactory location.

g. Experiment ICD's will call out the requirement for a cannister orientation indicator.

h. If a SAL door position indicator can be easily added to the SAL, MDAC will implement such a device.

i. The SAL failure that occurred during the 0" g" tests was attributed



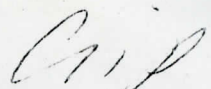
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to the handle locking in the closed position. This is not a failure but a normal function of the handle. Clearer operating instructions will be provided on the front of the airlock.

j. Forces necessary to operate both the airlock outer door and the cannister locking mechanism will be re-examined. One possibility is to lengthen the cannister locking handle. The locking mechanism for this handle itself will also be re-examined.

k. The "vent valve" handle will be redesigned to provide some sort of positive locking device to prevent accidentally moving it to "vent" or "pressurize" which could, depending on the mode, cause slow venting of the cabin to space.



Robert L. Crippen