

INST 154
Apollo at 50
Discussion Questions
Session 8: The Lunar Module

Changes are almost always problematic, often for several reasons. Here's we'll dig into the reasons for that and what we can do about it. And yet changes are common in a program with the complexity of Apollo.

1. Identify a specific change to the Command Module, the Lunar Module, or the Extravehicular Mobility Unit that was made after the initial design was complete and that caused each of the following types of problem (identify one change per problem type – these must each be different changes) and explain why that problem arose in each case:
 - a. Increased cost
 - b. Increased schedule risk
 - c. Increased safety risk
 - d. Decreased capability
2. For each of the specific changes that you identified in answer to question 1, identify one realistic way in which the change could have been avoided. Then explain, in that case, why your alternative was not selected and the change was made.
3. Criticality 1 components are items that, if they fail as a single component, would result in loss of vehicle or crew. In other words, these are essential components whose failure can not be tolerated because they have no backup.
 - a. Identify **all** of the criticality 1 components in a modern car that commutes daily between College Park and Baltimore on Interstate 95.
 - b. Clearly nobody would ever drive to Baltimore if the risk of these components failing were not controlled. These risks can be controlled by design, test, inspection, history, or use. Explain how the risk of each component you have identified is controlled, using those terms in your explanation.