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PDII Tech Issues and Solutions

WRR 8 Space Missions and Misc, Apollo 1

1)

Select one of the space missions (e.g., Apollo 1, Columbia, Soyuz or Sputnik)

a)

What was the most significant technical contributor?

b)

I believe the most significant technical contributor to the Apollo 1 disaster was the flammability of the environment. With many flammable materials and pure oxygen, the fire grew extraordinarily fast from a small electrical spark. Even if there had been easier escape routes, there's still a good chance the fire would have simply burned too fast. As mentioned in the articles, they barely had a chance to unstrap from their seats.

What was the most significant non-technical contributor?

I believe the most significant non-technical contributor to the Apollo 1 disaster was the poor build quality, quality control, and testing of the command module. The project was rushed because of the space race and general politics, which led to a very fast turnaround time for North American Aviation. Due to this, the design and construction of the Apollo 1 command module was extremely rushed, leading to poor build quality and poor quality control, which let a command module with thousands of issues be shipped out. And even once NASA had it, they were too low on time to thoroughly test it before use, meaning there were uninsulated wires under a box of flammable antifreeze when the crew was locked inside with pure oxygen.

2)

What was the impact of the mission on the space agency's (e.g., NASA or Russian Space Agency) reputation?

3)

Apollo 1 had a huge impact on NASA. Their funding immediately began to plummet and their public perception dropped sharply. But it did also "teach them a lesson", leading them to be far more concerned with safety as they moved ahead and eventually landed on the moon. This extra caution lasted many years, but sadly, it seems almost like it didn't make its way to the next generation, as we eventually had the Challenger disaster because of a similar "nothing's ever gone wrong so it's probably fine" mentality.

In your opinion, is space exploration worth the costs, i.e., do the benefits outweigh the costs/risks?

I do believe space exploration *can be* worth the costs and risks. This is assuming both are effectively minimized. It's certainly not worth it in the instances of Apollo 1 or Challenger, when lives were lost taking a risk that could easily be avoided. As long as we're smart and take proper precautions, space exploration will still have its inherent dangers, but we should be prepared for many of them and the risks of accidents should be near zero.