

Report on caib recommendations

[Engineering](#), [Aviation](#)



CAIB Recommendations

Introduction

Columbia accident investigation board is an organ that was chosen by the NASA to find out the accident involved by the space shuttle Columbia. According to the investigation, it was found out that the accident occurred as a result of technical problems. It was found that foam insulating the tank broke away and damaged one of the wings. The board further investigates about the root cause of the technical hitch. It was realized that there had been several cases of accident occurring under the same circumstances. However, the management has been reluctant in addressing the issue because most of the cases are normally minor. This means that negligence constituted the main factor that promoted the occurrence of the accident. After going through the factors that lead to the occurrence of the accident, the Columbia accident investigation board came up with several recommendations that NASA should adopt and implement in order to improve the safety of the future flights. This paper would analyze some of the recommendation suggested.

Facts and Discussion

A technical factor is one of the potent issues that came up strongly. As mentioned above, the accident occurred due to technical hitch. The material insulating the external tank broke and struck the left wing. This hindered the normal rotation of the wing. The shuttle became unstable and the pilot could not resolve the situation. It was however found out that the company has been experiencing the same cases in the past. However, none of those cases

had resulted in an accident. Because of this, little attention was devoted to the case. The board urges the NASA to undertake thorough investigation of the shuttle to ascertain that it is in good condition. They warned that the slightest technical problems should not be overlooked.

The board also recommends the NASA to come up with the technical engineering authority. The authority would be obliged ensuring that the technical requirements are met. The authority would also establish an organized approach through which the hazards throughout the life cycle of the shuttle is identified, analyzed, and controlled. The board further gave other obligations that the independent technical authority should do. These include developing and maintaining standards for the aircrafts, and conducting the trend and risk analysis. The NASA is also expected to conduct integrated hazard analysis and decide the unusual event (Gugliotta, 2005). The board also recommends the NASA to develop an interim program that would be concern with the closeout photographs for all critical sub-systems. The board claims that the closeout photograph should be digitized so that the on-orbit troubleshooting is possible. The photographs would be used to support systems performance and also investigate the failure.

The board recommended that the integrated risk management application should be formed. According to the board, the integrated risk management application would be expected to review all the risk involved in the safety and review the actions to be taken to mitigate.

The board recommended for the development of a program expected to increase the orbiter's potential to sustain the damage caused by minor debris. The board asserted that the impact-resistant Reinforced Carbon-

Carbon should be improved. This would aid in the reduction of the damage and hence shield the shuttle from the unexpected damages caused by the debris.

The Columbia accident investigation board also recommended the NASA to improve the inspections done before the flight ascent. The board claims that one of the likely causes of the accident is the lack of or inadequate pre-flight inspection done. In this vein, the board urges the NASA team to undertake thorough routine inspections before any flight take off. The board emphasized that any technical problems found should be addressed before the flight set out. They further recommend the recruitment of the new personnel who would assist in undertaking the pre-flight inspections. It is apparent that this recommendation is very important. This is because the slightest undetected problem is bound to result in catastrophic effects (Anonymous, 2004).

The board also recommends that the NASA should increase the standards of images available of shuttle during ascent. In this vein, it was claimed that the images would help the people operating on the station to detect a problem and hence notify the pilot promptly so that hasty interventions can be done.

There was also some aspect of the engineering deficiencies. It was realized that the accident was as result of the poor engineering. Consequently, the CAIB recommended that the level of engineering should be scaled up. The board states that the any shuttle should meet the standard stipulated. In this respect, the board urges the NASA to ensure that the shuttle have properly installed thermal protection systems. They stated that the NASA should

come up with a program that eliminates all the threats from the loose hardware generated during the launch of the shuttle (Anonymous, 2004). They also recommend the NASA to come up with computer-aided system that can be used to evaluate the thermal protection system. The board further stated that the computer should be programmed in a way that it can establish impact damage thresholds that trigger responsive corrective actions. The CAIB was very concern about the impact of the debris on the shuttle. They also recommend that there should be two workers to attend the closeouts and the intertank area.

The board also recommended that the space shuttle should be running with concern to avoid the effects of orbital fragments and micrometeoroid. The debris can hit the parts of the shuttle such as the wings and hence causing catastrophic effects. In this respect, the board urges the NASA to implement strong shielding protection and operational procedures. The board states that this implementation would reduce the risk of the threats induced by the micrometeoroid and orbital debris.

Another significant recommendation that came out strongly concerns the schedule program. In this vein, the board urges the NASA to develop and adopt a schedule program that is flexible and consistent with the resources. The board asserted that adoption of appropriate schedule programs would ensure that any risk incurred is recognized and hence appropriate action is taken.

Another recommendation that was made concerns the inspection plan. The board stated that the NASA should design and adopt a comprehensive inspection plan. The purpose of this plan is to find out the organizational

integrity of the Carbon-Carbon system components. This would aid in reducing the magnitude of the unexpected damage.

References

Anonymous, (2004). President offers new vision for Nassau. Retrieved October 22, 2010 from

Gugliotta, G. (2005). NASA chief speeds plan for spacecraft; Griffin wants to launch shuttle replacement by 2010. Washington Post, A01. Retrieved October 22, 2010 from