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ACTIVITIES (D5)

For a successful space program : Quality and Safety! (1)

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R V College of Engineering, Bengaluru, India, rvccdtrathnakar@gmail.comSTUDY THE EFFECTIVENESS OF AIRBAGS IN CAPSULE RECOVERY SYSTEMS FOR
SPACECRAFT DURING THE DESCENT PHASE ON DIFFERENT PLANETS WITH VARYING
CONDITIONS.**Abstract**

Airbags have been a vital safety feature in automobiles for many years, providing protection to vehicle occupants during crashes. In recent years, airbags have also been used in space missions as a part of capsule recovery systems. The primary objective of this paper is to study the effectiveness of airbags in capsule recovery systems for spacecraft during the descent phase on different planets with varying conditions. In this research paper, we will analyze the use of airbags in the recovery of spacecraft from different planets. The study will focus on the deployment of airbags during the descent phase of the spacecraft, when a parachute is used to slow down the descent rate, and airbags are inflated around the spacecraft to buffer the impact of the landing. We will use simulations to evaluate the effectiveness of airbags in capsule recovery systems. In the simulation, we will conduct tests to measure the performance of the airbags in different conditions, such as different weights of the spacecraft, various types of terrain, and charge-specific conditions. The simulation will be conducted using specially designed models to simulate the descent and landing of the spacecraft on different planets. We will also conduct simulations to evaluate the effectiveness of airbags in capsule recovery systems. The simulations will be performed using computer models to simulate the descent and landing of the spacecraft on different planets. We will use advanced simulation techniques to model different environmental factors that can affect the performance of the airbags during landing. The paper estimates the performance of the airbags in different conditions based on parameters such as durability of the fabric, repel force of impact and absorption of kinetic energy. In conclusion, this research paper will focus on the effectiveness of airbags in capsule recovery systems during the descent phase of the spacecraft on different planets with varying conditions. The study will use both experimental analysis and simulations to evaluate the performance of the airbags in different conditions. The results of this research will help in designing effective capsule recovery systems for spacecraft on different planets. In this paper we are using ANSYS static structural for simulating the impact and damage on the capsule.