



STUDIENDEPARTMENT FAHRZEUGTECHNIK UND FLUGZEUBAU

Investigations of blowout panel release mechanisms

Aufgabenstellung zur *Diplomarbeit* gemäß Prüfungsordnung

Background

Most emergency evacuation devices of commercial passenger aircrafts are mounted to the respective door inside the pressurized cabin. However, in certain cases they are stored in unpressurized compartments underneath the relevant door or in the fuselage to wing fairing. In these cases the emergency devices are tightly packed on packboards which get inserted and bolted down into the compartments. These compartments are sealed to the fuselage skin with a blowout panel. In normal flight conditions these panels have to withstand various loads such as aerodynamic loads. In emergency cases they have to be released to give way for the evacuation device. If the release mechanism does not work properly, the inflatable has to be able to overpower the fastening of the blowout panel without being damaged so that an evacuation can still be conducted. The current method at Airbus to release the blowout panels is by a pneumatic operated ball-lock system. Past events showed some problems related to these ball-lock release mechanism.

Task

Problems observed with ball-locks of blowout panel release mechanisms spurs an investigations of the topic. The investigation should include these steps:

- Literature review of blowout panel release mechanisms.
- Collection of requirements of blowout panel release mechanism.
- Accident review related to blowout panels.
- Description of ball lock systems.
- Proposal of modifications or alternatives to existing blowout panel release mechanism.

The report has to be written according to German DIN-standards on report writing.

The project will be conducted in collaboration with Airbus Deutschland GmbH, Hamburg. Industrial supervisor is Dipl.-Ing. Björn Ewald, CoE CCC - Engineering Emergency Evacuation Systems.