



DEPARTMENT OF AUTOMOTIVE AND AERONAUTICAL ENGINEERING

Analysis of Ground Handling Characteristics of Innovative Aircraft Configurations

Project work towards a thesis at ETSIA UPM

Background

Ground handling costs are an important part of the overall direct operating costs of an aircraft. Moreover, in the airline business, where all competitors operate similar aircraft for comparable route length, a cost-efficient ground handling is one of the main competitive advantages. Hence, low cost ground handling is a key factor of the low cost airlines (LCA) business strategy. However, the potential competitive advantage of cost-efficient ground handling procedures is limited by the current aircraft configurations. Requirements for low cost ground handling could not have been taken into account for the existing aircrafts, because LCA simply did not exist back then. For a new design, ground handling aspects must be taken into account, not only to successfully operate within the existing airport facilities but also for airline economics. This project is part of the aircraft design research project "ALOHA".

Task

The tasks of the project are as follows:

- Investigation of single-aisle aircraft ground handling characteristics.
- Investigation of ground handling characteristics with the help of expert interviews.
- Analysis of the ARC (Airport Research Center) ground handling videos.
- Creation of analytical or statistical models for each ground handling service.
- Ground handling simulation of aircraft configurations with SIMBA (Simulation Tool for Aircraft Servicing).
- Ground handling simulation of aircraft configurations with CAST (Comprehensive Airport Simulation Tool)
- Creation, analysis and selection of the possible new innovative aircraft configurations.

The report has to be written in English based on German or international standards on report writing.