ASES

Company Presentation

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Overview

- Established: 2016
- Location: South of Germany, D-88175 Scheidegg
- Head Count: variable number of Senior Engineers with more than 100 years experience in total
- Business:
  - Engineering Support for Aircraft Systems (refer also to Experience):
    1. System Engineering
    2. Design of Units and Components
    3. Technical Management
  - New Business: Development of Drones
- Way of working:
  - Focused on Engineering - Being part of the customers engineering team

Experience: Program Participations

- **The following list shows some of the most important participations of the ASES members (before joining ASES)**

Program	ATA Chapter	System Engineering	Design	Technical Management
Airbus A300 / A310 (WB)	27 (HLS)	yes	yes	-
Airbus A320 (SA)	27 (HLS, PFC)	yes	yes	yes
Airbus A330 / 340 (LR)	27 (HLS)	yes	yes	-
Airbus A380 (WB)	27 (HLS)	yes	yes	yes
Airbus A400M	27 (HLS)	yes	yes	-
Airbus A350	27 (HLS, PFC)	yes	yes	yes
Boeing NAPD Research	27 (PFC)	yes	yes	-
Bombardier BD100	27 (HLS)	yes	yes	yes
Bombardier LJ200	27 (HLS)	yes	yes	yes
Dornier 328	27 (PFC)	yes	yes	-
IPTN N250	27 (HLS)	yes	yes	-
Sukhoi Superjet	27 (HLS)	yes	yes	-

HLS: Highlift-System

PFC: Primary Flight Control

Experience: Program Participations

- The following list shows some of the most important participations of ASES:
  - Definition of Highlift System Architecture for Chinese MA700 A/C
  - Performance Calculation, Simulation and Controller Layout for MA700 Highlift System
  - Certification Work with EASA for MA700 Highlift System
  - Definition of Highlift System Architecture for CRAIC CR929 A/C
  - Initial Performance Layout of CR929 Highlift Systems
  - R&D Project focused on Electro-mechanical Flight Control Actuators (EMAs) for commercial A/Cs
  - Development of Hydraulic Systems (EHAs) for Commercial Vehicles (Trucks)

Service Details

- The following list gives the details regarding the three business area's:

1. System Engineering:

- Establishment of System Specifications (V&V Engineering)
- System Trade Studies (Costs, Weight, Reliability)
- System Load Calculations
- Reports (i.e. Definition of Loading Requirements)
- Dynamic System Simulation based on proven model parts
- Closed Loop Controller Design (Single loop, state space)
- Monitoring Design for Flight Control Systems
- Establishment of PSSA, SSAs, FMEAs, FTAs
- In-Service Trouble Shooting
- Flight Test Definition and Support

Service Details

2. Design:

- Detailed Design Proposal for Units
- Establishment of Unit Specifications
- Detailed Layout of Power Control Units and Actuators (Hydraulic / Electric)
- Proof read of customer design

3. Technical Management

- Development Process Consulting
- Cost (RC, NRC) and Team Resource Evaluation
- Contractual and Commercial Consulting
  - SOWs
  - Development Plans, etc.
  - Development Costs Evaluation
- Proposal Evaluation
- Certification Support (Work with Authorities)

Specials

- **Regarding System Specifications and Dynamic Simulations**
  - **ASES possesses a large amount of performance data:**
    - **Proven (by comparison with tests) simulation blocks and sub-models for all kind of flight control applications**
    - **Performance data (efficiency numbers, drag torques, etc..) for all kind of units for flight control systems**
- **Regarding Safety and Reliability Documentation**
  - **ASES possesses a large amount of reliability data:**
    - **Proven in-service data**
- **Regarding Technical Management**
  - **ASES possesses a large amount of commercial data:**
    - **NRC data for ATA 27 system development**
    - **RC data for ATA 27 systems and units**

Drone Development

- Development of (Small) Drones started 2017
- Two Developments currently:

1. Tailless Design (“Flying Wing”), Span: 2m
   - Status:
     - Design passed extended flight-tests successfully
     - Documentation finished / Design under configuration control
     - Next step of Development: Ready for special application Specification

2. Improved Tailless Design according to ASES Patent 10 2017 128 164
   - Status: R&D Project running (span: 3 m)
   - CDR I passed
   - Mould manufacturing started