

Electrical load analysis (ELA)

Our service enables airlines to fulfill the request of the authorities and aircraft manufacturer (OEM) to maintain and update the ELA after each electrical modification.

General Description

- The Electrical Load Analysis (ELA) documentation, provided by the OEMs, reflects the electrical load data status at the time of aircraft delivery. It gives details of the electrical loads on each individual electrical bus-bars and generators. This data forms the basis for operators to calculate and maintain a record of all changes to the aircraft electrical loads subsequent to any modification of the aircraft systems, throughout the operational life of the aircraft.
- When modifying an aircraft with influence on the electrical distribution system, the nominal power, the maximum value and the operational value for each flight phase must be determined (if the actual operational values cannot be determined, the maximum load values should be used). These changes to the electrical loads must be analyzed to ensure and maintain the electrical load integrity of the aircraft electrical distribution system.
- The same applies when a Service Bulletin (SB) or Supplemental Type Certificate (STC) affects the aircraft electrical loads, the changes, including any changes to the affected Circuit Breakers (C/B), are indicated in a dedicated paragraph of the SB or STC. The values given will indicate any increase or decrease in the electrical loads following the accomplishment of the SB or STC. Operators have to use this information to update their ELA for the post modification status of the aircraft. Operators responsibility to ensure safe conditions for implementing electrical modifications.
- The customer can choose if he decides for a one time ELA calculation or a continuous service to have his ELA status always up to date and available live and in real time. As add-on the customer can decide for a 21J approved ELA document.

Benefits for Customer (incl. USP)

- Efficient calculation of the entire electrical system and the all-important proof of aircraft safety under all operational cases
- Be in line with /OEM requirements
- Standardized ELA documentation and archiving also for mixed fleets
- No internal ELA expert knowledge required
- Precise load calculation (incl. remaining power capacity)
- Calculation process is based on a database that is practically capable for the electrical analysis of nearly any aircraft type
- Continuous data management and archiving --> live and real time ELA status
- 21J certified ELA can be used for STCs without any further approval.

Scope of Service

- **Initial Set-up or single ELA calculation:**
 - Lufthansa Technik sets-ups the ELA for your A/C
 - Migration of the existing ELA documentation
 - Quality check of all migrated ELA data (sums for all bus-bars and operational cases).
 - Analysis of relevant SBs / Engineering Orders (EO) (since last update) with respect to electrical load changes and documentation.

- **Continous Service:**
 - Lufthansa Technik calculates ELA updates by experienced system engineers. MODs with ELA effect require adaptation of the ELA per aircraft.
 - ELA verification of a planned modification prior to implementation within short TAT

- **21J certified ELA Add-on:**
 - Lufthansa Technik provides certified ELA as 21J approved document

Prerequisites

- The delivery ELA in original Airbus csv/xls-format and PDF or original BOEING PDF-format.
- A list of ELA relevant modifications (causes positive/negative electrical load changes) that have been accomplished on the affected aircraft (back to birth).
- Preferably for all modifications, accomplished with an effect on the electric load of an aircraft, you should provide an ELA-Datasheet to Lufthansa Technik.

Exclusions

- Modifications with an effect on the electric load of an aircraft will only be considered by Lufthansa Technik in case the related ELA documentation (ELA-Datasheet, SB, STC load analysis) will be provided.

Specifications

- AC types: A350, 787, A320, A330, A340, A380, 737, 747, 757, 767, 777, A300, A310

Certification/Approvals

- EASA CS-25, Acceptable Means of Compliance (AMC) Appendix H, H25.5 (5)
- Instructions from AIRBUS, „Methodology to update the ELA“
- Instructions from BOEING, „Maintenance of Electrical Load Analysis (Service Letter)“

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Contact

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