



Electric & Hybrid Aviation Project

Session: Flight Standards

Topic 6: Continuing airworthiness
(maintenance) (reg EU1321/2014)

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Questions and Answers

30 minutes!

Scope:

- Rules evaluation
- Short term fix.
- Your comments/concerns



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Continuing airworthiness: rules evaluation

- **Gaps:** At present, some continuing airworthiness requirements do not take consideration of electrically driven aircraft (i.e. some rules **implicitly assumed piston or turbine engine**). This could lead to the regulation not being suitable for these aircraft.
- **Non-consideration:** At present, the continuing airworthiness rules might alleviate a requirement for **piston-engine aircraft**, since was assumed simple airplanes had a piston-engine and therefore a requirement could be alleviated.
- **Barrier:** The **type of engine is sometimes explicit** in the rule and this creates un-intended consequences for electrically driven aircraft.



Continuing airworthiness: rules evaluation

➤ Gaps (examples) :

- No specific criteria for Certifying staff training for electrical engines → national requirements apply.
- Part-66 theoretical knowledge (Appendix I) and type training and examination (Appendix III): defined only for other propulsion systems.



Continuing airworthiness: rules evaluation

- Non-consideration (examples):
 - M.A.302(h): Minimum Inspection Programme (simplified Maintenance Programme for piston airplane).
 - M.A.801(c) & app. VII: Independent certifying staff can do some complex maintenance in piston-engine airplanes (ELA1).
 - Part 66 group definitions (for Part-66 license endorsement) does not considers propulsion systems other than turbine and piston → Electrical aircraft would be 'Group 1' and would require Part-66 type rating endorsement.



Continuing airworthiness: rules evaluation

- Barriers (examples):
 - Possibilities for MROs (Part M.F and 145) for engines: turbine, piston, APU
 - Title of A, B1 and B3 Part-66 licenses not adequate for electrical aircraft.
 - Part-147 'basic course duration' not considering electrical aircraft.



Continuing airworthiness: your comments/concerns

- Demand for SMS
- Establish acceptable airworthiness requirements for batteries.
- Maintenance programme considering reliability data and health monitoring.
- Introduce in the syllabi for training of mechanics:
 - High voltage systems
 - Power battery
 - Electrical engines
- Keep licensing system (Part 66 and categories) but enhanced/supplemented with new ratings electric propulsion and batteries (syllabi to be developed)



Continuing airworthiness: in a nutshell

- Existing implementing rules (EU) 1321/2014 (Part-M, 145, 66, 147) assumes 'traditional' powerplants (i.e piston or turbine).
- EASA has assessed the adequacy of the existing continuing airworthiness rules for electric/hybrid powerplants. **Gaps, non-considerations and barriers** have been identified.
- EASA acknowledges the need to adjust the rules to suit for these aircraft.
- For near term projects, States may use of exemptions (article 71 BR).
- Major industry concern: adequate Part-66 licenses for electrical propulsion



EASA
European Aviation Safety Agency



The End

... and the beginning of the discussion

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