RFID Initiative at Delta Air Lines

5th IATA Paperless Operation and RFID Conference at Cranfield University

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Who We Are:
- Headquarters: Atlanta, GA, USA
- 876 Mainline Aircraft
- 19 Fleets, 25 Configurations

Compliance RFID Mtc. Program:
- RFID Engineering: Atlanta, GA
- 876 Mainline Aircraft
- 19 Fleets, 75 Configurations
**Program Timeline**

**Phase 1 & 2**
- Cabin Emergency Equipment
- PAX, Crew, Lav. O2 Gens
- Inflatable (Life Vest, Raft etc.)
- APU/Cargo/Engine Squibs

**2011**
1st RFID Induction on B757

**2013**
RFID Mtc. program accepted by FAA

**2015**
300+ AC RFID enabled

**2017**
Entire Delta Fleet are fully RFID enabled!

**2018**
Phase 3 started

**2020**
Paperless Operation!

**Phase 3**
- Slides
- Seats
- Carpet, Cushion, Leather etc.
- Other rotatable/repairable
RFID by the Numbers

- # of RFID Enabled Active A/C: 876 tails (Phase 1 & 2 Completed)
- # of RFID Enabled Stations: 38 Stations (Including MRO)
- # of RFID Users: 3,150 users
- # of RFID tagged Equipment sub types: 47 (PNO: 365)
- # of Active Configuration Drawing: 75 (257/4 yrs.)
- # of RFID Tags flying: 312,000 tags
- # of AC inspected/month: +60% in volume while +50% efficiency of labor hrs. Pre to Post RFID
- # of RFID tagged Expiring Equipment: Average 1,000 / 30days
Can You Find the Configuration Differences?

### O2 Gen Set Up Comparison (B717)

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<th>A/C</th>
<th>010</th>
<th>011</th>
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<tbody>
<tr>
<td>Left PSU</td>
<td>O2- Gen 3 Mask</td>
<td>O2- Gen 4 Mask</td>
</tr>
<tr>
<td>Right PSU</td>
<td>O2- Gen 4 Mask</td>
<td>O2- Gen 4 Mask</td>
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Not all configuration differences are visible
RFID Data = Business Intelligence

- Visual forecasted demand
- Labor / Material Capacity management
- Pre-plan work packages
- Strategically adjust overhaul timing to support OEM
- Just in time vs. Just in case

Realization on importance of taking care of noise
New Initiatives at Delta Compliance RFID

- Carpet kit receiving / Pre-installation Scan
  - Collaboration with Airworthy

- NHA/Multi-date Tracking
  - Parent-Child Relationship
    - AED: Pad vs. Battery Expiration
    - ELT: Manufacture date of unit vs. Battery expiration
    - Bottles: Life limit vs. Hydro Static Due
    - Slides: life limited subcomponents

- Auto Sign-off
  - Synchronizing data within multiple systems to streamline process
Airlines’ Initiative

Issued Airlines RFID business requirement document through IATA per OAM’s request

Regardless of equipment types;

- Single-Record RFID tag is preferred
- Dual-Record RFID tag is acceptable
- Multi-Record RFID tag is NOT acceptable due to short read range, speed, and interoperability challenges and $$$
- RFID tag should read 15ft/4.5 m minimum installed
- Due to unprintable characters in the DoD barcode part marking format, OEM shall only provide airlines the preferred commercial aviation format (with standard data delimiters)
- F2F IATA Airlines RFID interest Group Meeting (2~3/year)
- Airlines only session, RFID 101 discussion etc.

Airlines now can refer to a common RFID Spec
Lesson Learned

- Not all RFID tag created equal
  - Read range, size, environment, material
  - Chip architecture /design (Interoperability Issues - Silent)

- Aircraft delivered with minimum 2/3 life remaining.
  - RFID provides power of just in time demand, rule should be updated

- A350 RFID tags – We can’t find, read, or use them!!

- A321 / 330 Neo – Unless Airbus changed their spec/contract with parts suppliers, we probably can’t find or use them either

- After 5+ years... Still a huge gap between OAM and Airlines
  - Promised A350 will come with RFID tagged (that meets Delta’s need) components. After 11 tails delivered, nothing usable...
  - Read only once vs. frequently for next 20+ yrs. – Why waste?

Unfortunately, Airlines will always be in tagging business
Questions?

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Thank You