

RFID Initiative at Delta Air Lines

5th IATA Paperless Operation and RFID Conference
at Cranfield University

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Delta Air Lines

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
- Inflatables (Life Vest, Raft etc.)
- APU/Cargo/Engine Squibs

2013

RFID Mtc. program accepted by FAA

2011

1st RFID Induction on B757

2017

Entire Delta Fleet are fully RFID enabled!

2015

300+ AC RFID enabled

2020

Paperless Operation!

2018

Phase 3 started

Phase 3

- Slides
- Seats
- Carpet, Cushion, Leather etc.
- Other rotatable/repairable



RFID by the Numbers

- # of RFID Enabled Active A/C: 876 tails (Phase1 & 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?

B717 A/C 001~010, 012~015



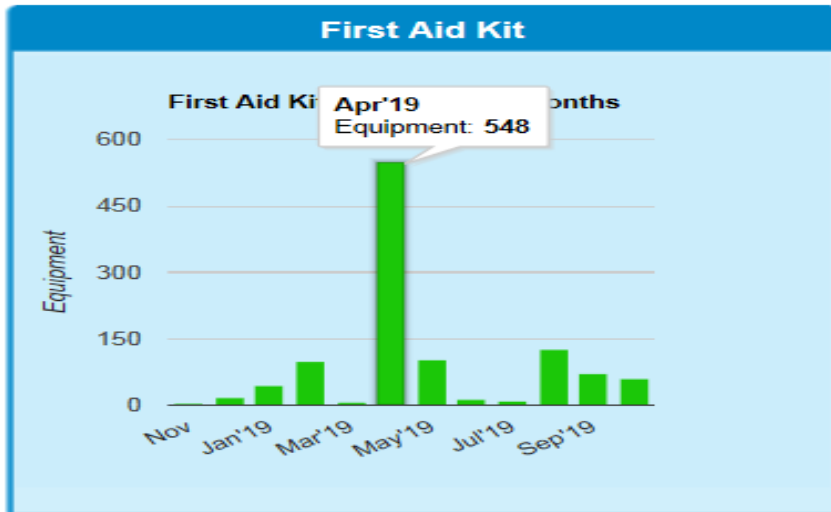
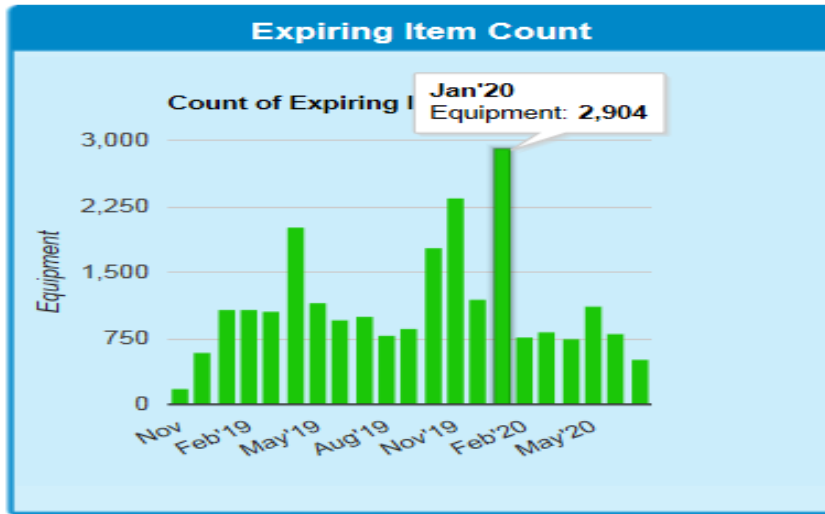
B717 A/C 011



O2 Gen Set Up Comparison (B717)		
A/C	010	011
Left PSU	O2- Gen 3 Mask	O2- Gen 4 Mask
Right PSU	O2- Gen 4 Mask	O2- Gen 4 Mask

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