RFID JOURNAL LIVE!

WORLD’S LARGEST RFID EVENT

11TH ANNUAL CONFERENCE AND EXHIBITION

APR. 30-MAY 2, 2013 • ORANGE COUNTY CONVENTION CENTER • ORLANDO, FLA.
Managing Aircraft Life-Limited Equipment with RFID-Oxygen Generators and More…
2005 – 2012 O$_2$ Generator Expenses

Budgetary surprise!
O₂ GENERATOR LIFECYCLE

• 12 or 15 year Generator Lifetime

We just wanted to know when generators were going to expire...
Why So Much on the Shelf?

• Buffer – for the *unknown* demand

• Just In Case – **NOT** Just In Time!

• The Problem flows upstream - 
  Customer ➔ Supplier ➔ Manufacturer

• It costs MONEY to fill a shelf – In Case…
Cost of Early Replacement

• Barrel exercise –
  – 130 oxygen generators
  – 1400 months barrel total
  – AVG of 11.5 months remaining
  – AVG unit cost of $400
  – Barrel cost approx $52,000

• PLUS
  – Time to activate generators
  – Barrel-to-barrel disposal transfer
  – hazardous waste disposal fees
Small Savings Add up Quickly

- Delay “early” replacement of one generator per aircraft
- 757 - per aircraft savings of ~$400
- Fleet savings of ~$51,000

FOR ONE GENERATOR PER AIRCRAFT…

- 757 Shipset ~ 70 generators
- 777 Shipset ~ 165 generators
Labor Hour Reductions

• Standard date check for 757 ~ 4 hours
  – RFID scan – 30 seconds
• Standard date check for 777 ~ 8 hours
  – RFID scan – 60 seconds

• 500 times faster!
Two RFID Strategies

• Legacy Tagging
  – Tag flying inventory
  – Already paid for it!
  – Don’t replace parts to get the technology!

• OEM Tagging
  – Utilize RFID-enabled parts from suppliers
  – Let existing inventory “age-out” of system
Oxygen Generator Inspection – The Real World
One Tag/One Part
Get the Data

O2 Generators
Aircraft No.: 647
Position: 6CD

Tag On: DAN2890
Part No.: 803000-03
Manufacture Date (Last day of):
09 2010

MFR 53655/PNR 803000-03/SER A10092194/DMF 092010
Presence, Status, Security

- Two Approaches
  - Presence, Exp status – Oxygen Generator
  - Security - Life Vest Enclosure
Scanning An Aircraft

O₂ Generators
What do you get for your trouble?

• Unprecedented Dataset
  – Predictability and Forecasting
  – Supplier Engagement
  – Part-Life Utilization Options
  – Audit Trail of Activity

• What does it cost…

to NOT have this information?
The Road to –

PREDICTIVE Maintenance…
B757 Configuration
B757 Software Configuration
O2 Gen date check - 20 months remaining
O2 Gen date check with Escalation - 24 months remaining
### The Data Behind the Picture

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<th>Equipment Type</th>
<th>Location</th>
<th>TAG ID</th>
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Paradigm Shift?

• An opportunity to:
  – Stop inspecting good parts over and over…
  – Change parts for time - not visit schedule
  – Scan aircraft (frequently) to refresh database

  – If it only takes a few minutes to confirm presence and status for hundreds of parts, how often would you check?

  – Trust your DATA!
Delta RFID Program Status

• O2 Gens Tagged
  87 B757s – 6000 tags
  13 B777s – 2100 tags

• Continued testing for Life Vest Enclosure program

• Expanding to other fleets and additional types of equipment
What else?

- Life Vests
- First Aid Kits
- E-EMKs
- AEDs
- Slide Batteries
- EPLS Batteries
- O2 Masks
- Portable O2 Bottles
- Portable Fire Ext
- Eng Fire/Slide Bottle Squibs
- Door Assist Bottle Squibs
- Cockpit Security Kits
- Door Slides
- Rafts
- Crash Axe
- PBEs
- Cockpit Manuals
Next Steps

• Integrate information with Scheduled Maintenance Programs = $$$$ – Planning vs. Helpful Information

• Encourage suppliers to provide RFID-enabled parts…can be a tough sell!
HOW TO SELL RFID

WE WANT TO IMPLANT THIS RFID TAG IN YOU.

THAT VIOLATES MY RIGHTS!

WE WANT TO IMPLANT THIS RFID TAG IN YOU AND IT'S ALSO A CELLPHONE, DIGITAL CAMERA, AND MP3 PLAYER.

WRONG

RIGHT →

COOL!
Successful Technology Lifecycle

- Cell phone
- Cable Television

Objections

Price

Appliance
Successful Technology Lifecycle

Cell phone      Cable Television      RFID

Objections

Price

Appliance
It’s Lonely Out There

• Few Solution Providers
  – Software
  – Hardware
  – RFID Tags

• Zen, and the Art of RFID
  – It’s not impossible…
Delta RFID Vendors

- Technology Solutions – California
  – Spec2000 Specialist for RFID

- Aerospace Software Developments – DUB
  – Software specific to Aerospace market
  – EPC Certified software

- William Fricke and Co - Illinois
  – Custom label manufacturing / Aviation RFID
Thank you
Thank You