



ATA e-BUSINESS PROGRAM

Standardisation in Aviation
Parts & Maintenance
Aerospace ID Forum
Cambridge - June 2007

Ken Jones,
Director Electronic Data Standards,
Air Transport Association



Air Transport Association

- Non-Profit Association based in Washington, D.C.
- Represents the large commercial operators carrying 90% of the US cargo & passengers
- 19 U.S. Airlines / 4 International Airlines
- Lobby Organization
- Administers Industry Programs
- Develop and Publish Industry Standards



Why e-Business?



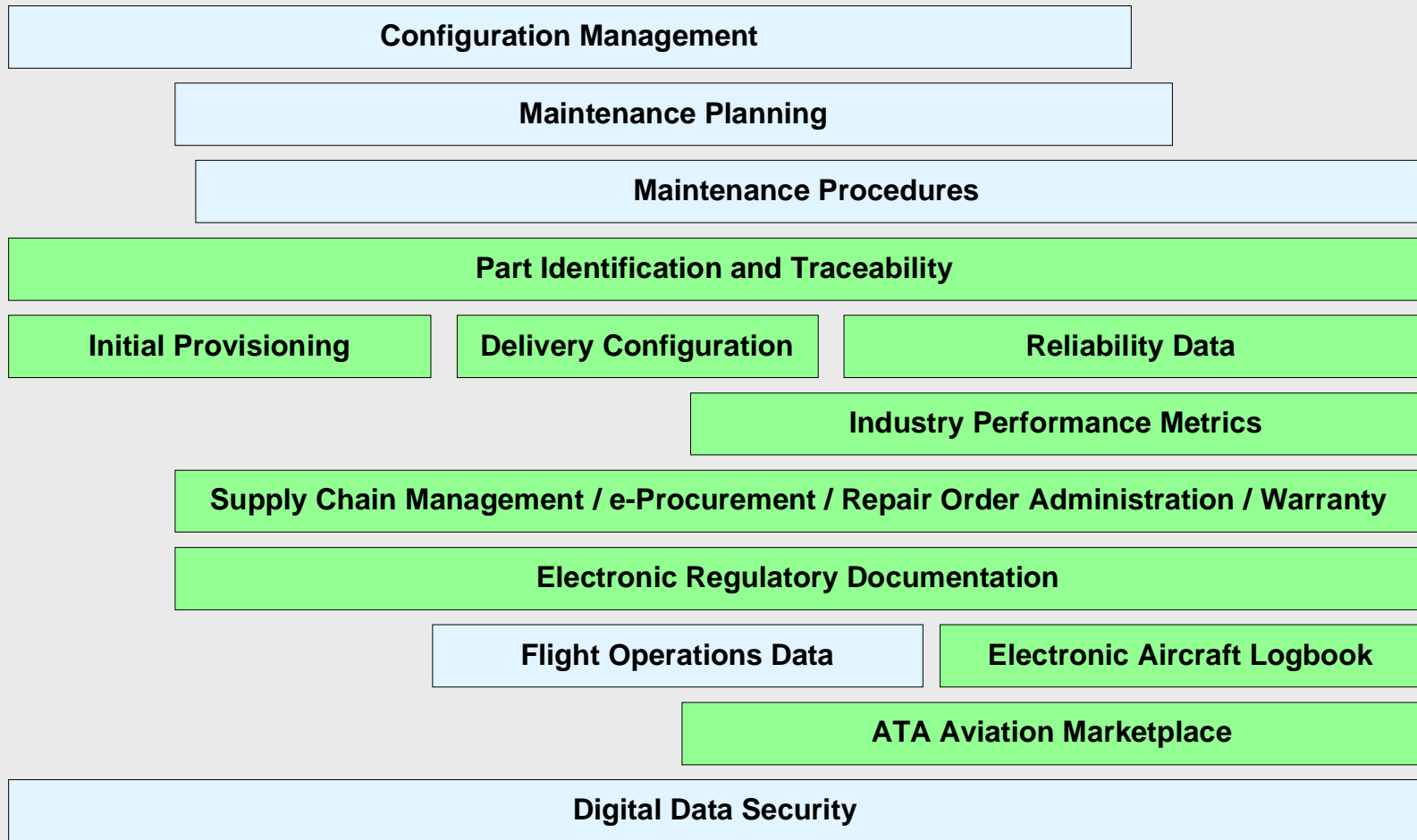
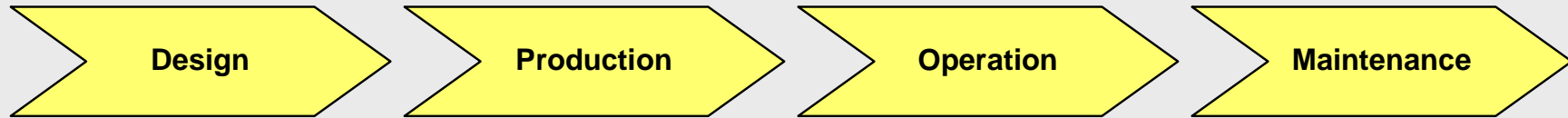


Why Standardise?





E-Business Program - Scope

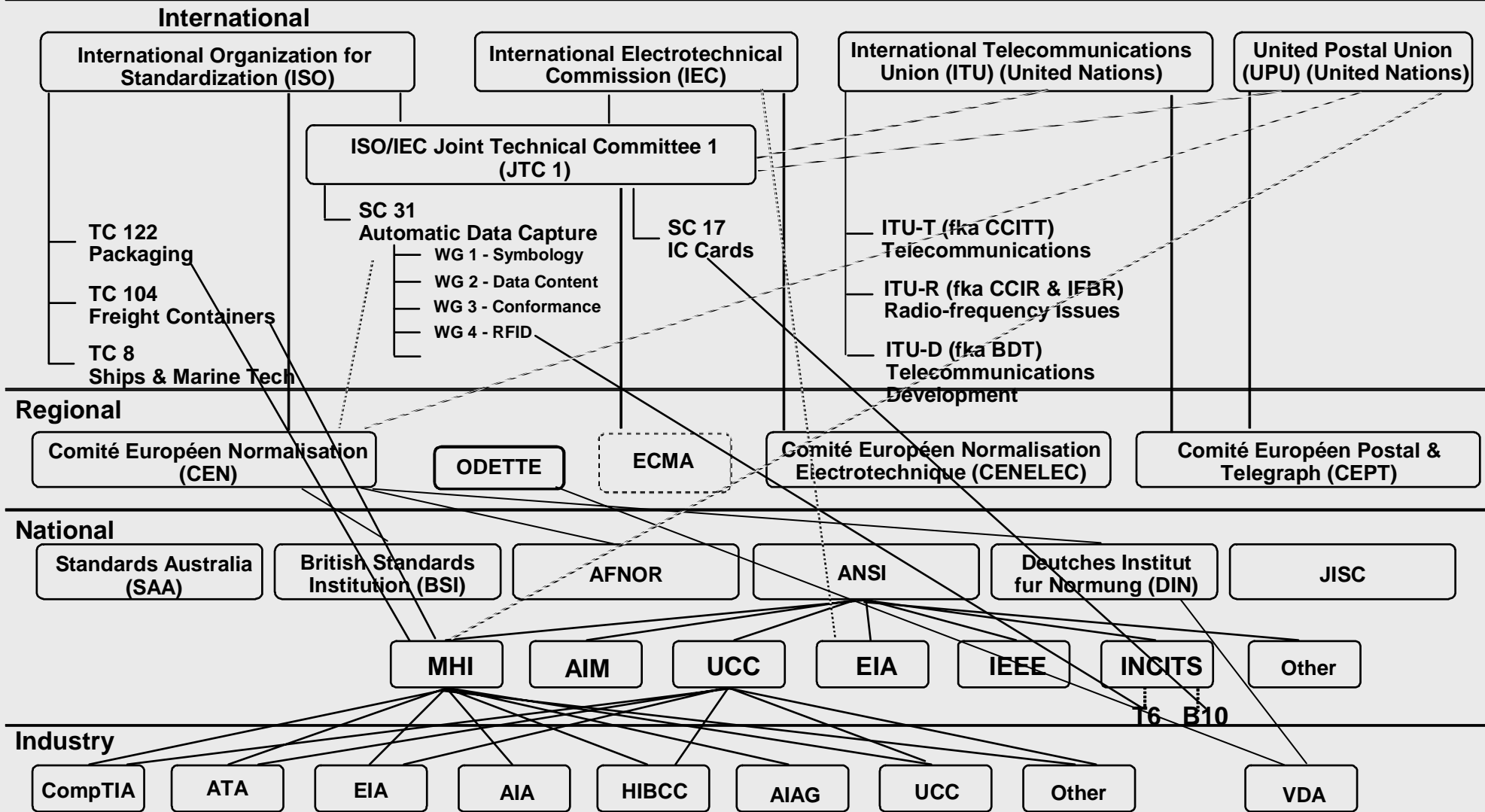


iSpec 2200 – Information Standards for Aviation Maintenance

Spec 2000 – E-Business Specification for Materials Management



Standardisation – the Solution



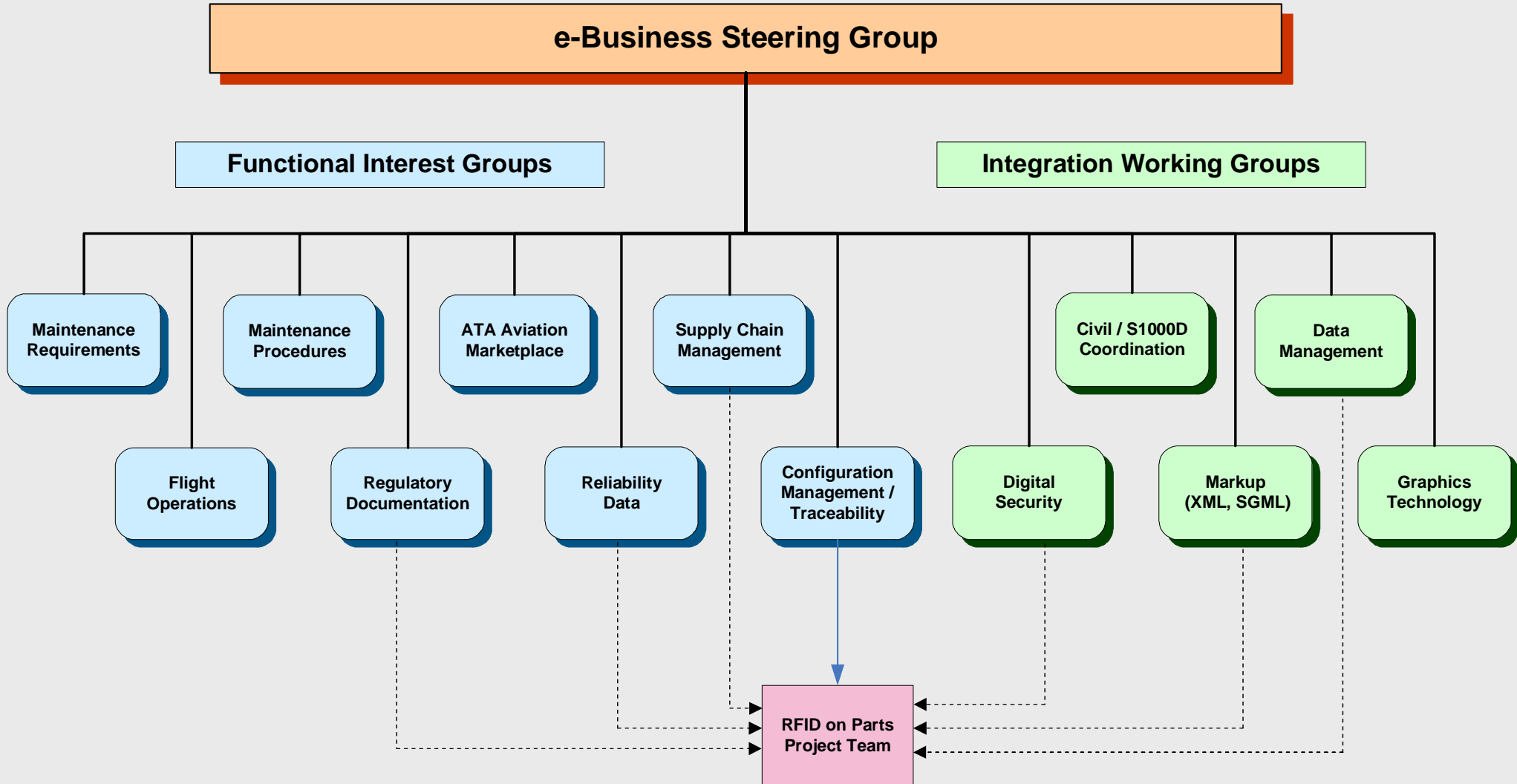


E-Business Specifications

- Spec 2000 – ATA “Materiel” standards
 - Provisioning, procurement, part marking / traceability, reliability, warranty, industry metrics, regulatory documents.
- iSpec 2200 – Technical Information
 - Illustrated Parts Catalog, Maintenance Manuals, Service Bulletin, Flight Operations, Wiring Manuals, etc.
- Common Support Data Dictionary
 - Over 2000 terms, data elements, formats, tags, etc.
- Need for Integration & Harmonization of Data Exchange for the aircraft lifecycle



ATA e-Business Program





So what are we standardising?

Part Number ?

263265930

Serial Number ?

Employee Number ?

Location ?

SSN without the dashes ?

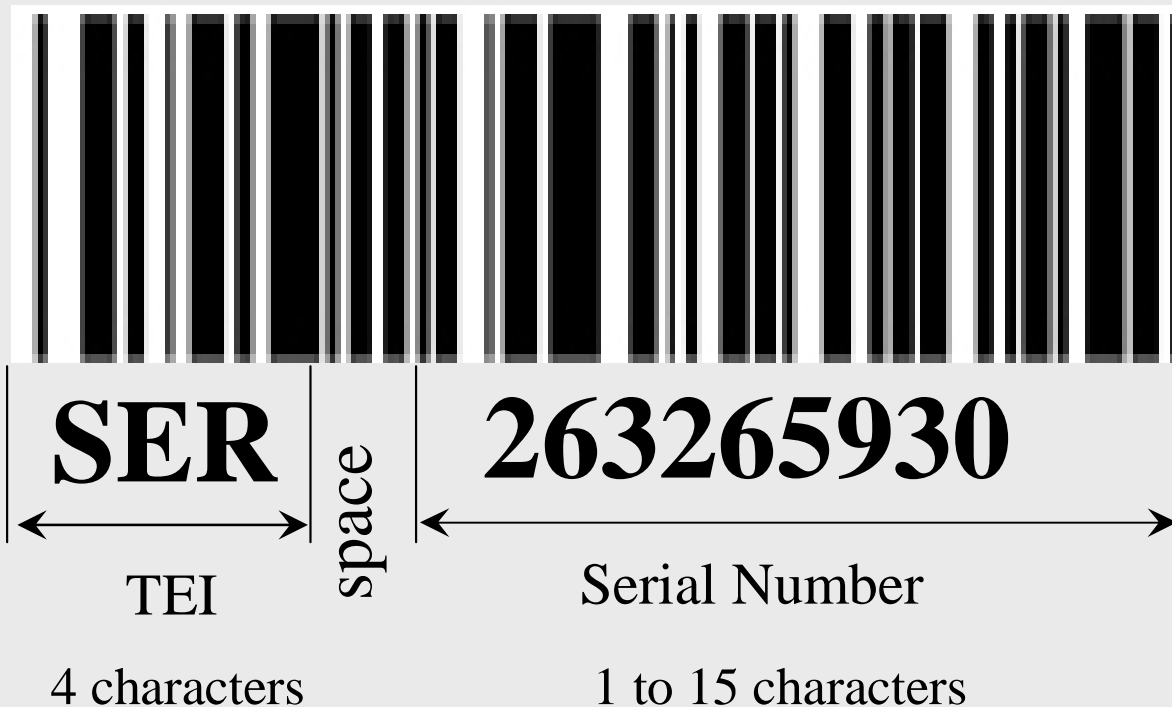
Order Number ?

Who knows?

This is a NAKED number without any intelligence!



Standardised Part Identity



Simple Information – Human Readable (Serial Number)
Machine Readable.



Examples

Typical
7 3/8" (card stock)
8 1/2" (std paper)

SPL	81205
BOX	12345
CPO	BS50077
PNR	HLT8100-13-91
SHQ	
UNT	EA
PSN	PS789254
NSN	1234128679632

Optional area that may be used for company name, address, or additional bar coded data

Spec 2000 Shipping Label

```
<ShipNoticeHeader>  
  <CIC>CNA</CIC>  
  <SPL>98124</SPL>  
</ShipNoticeHeader>  
<ShipNoticeDetails>  
  <CPO>4261308364</CPO>  
  <PNR>DAC38TEX3948</PNR>  
  <SHQ UNT="EA">10</SHQ>  
  <SHT>AMD</SHT>  
  <SHD>2004-09-30</SHD>  
</ShipNoticeDetails>
```

Same Spec 2000 data formats as
in Purchase Order, Electronic
Shipping Notice, Planned
electronic 8130-3



RFID on Parts Project Overview

■ Objective

- Standardize formats and data structure for information that will be permanently stored on aircraft parts
- Accommodate not only identification, but other part information that facilitates maintenance and troubleshooting when in a “non-connected” state.
- Provide for adequate security
- Work in conjunction with other standards bodies to ensure compatibility
- Designed to be included “in addition” to other part marks, such as “human readable” and bar-code/data matrix.
- Designed to not affect airworthiness, and in such a way that part can still be used if RFID tag is inoperable



RFID on Parts Project Overview

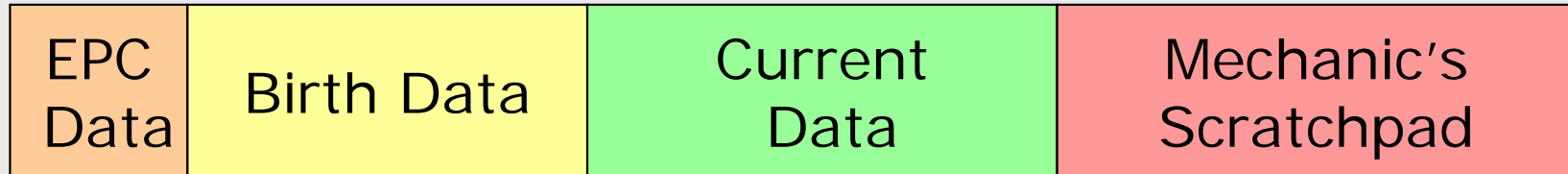
■ Status

- Data requirements related to a newly manufactured parts is finalized (i.e. – the part “birth record)
- Data formats are being finalized. Compact on-tag formats in conjunction with corresponding XML off-tag formats
- Part History records are in development. This is a challenging area in that many companies perform business differently. Need to agree on most important data.
- Security still not finalized, but in work. Tradeoff between security and complexity.
- Submitted request for EPCglobal headers to ensure that the RFID tags are consistent with their objects.

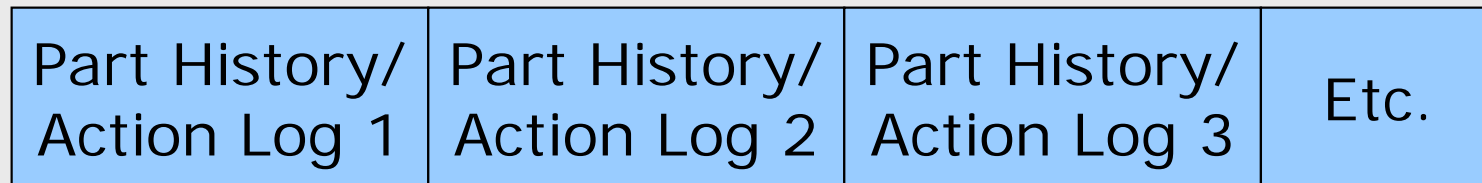


RFID - Data Structure

Permanent



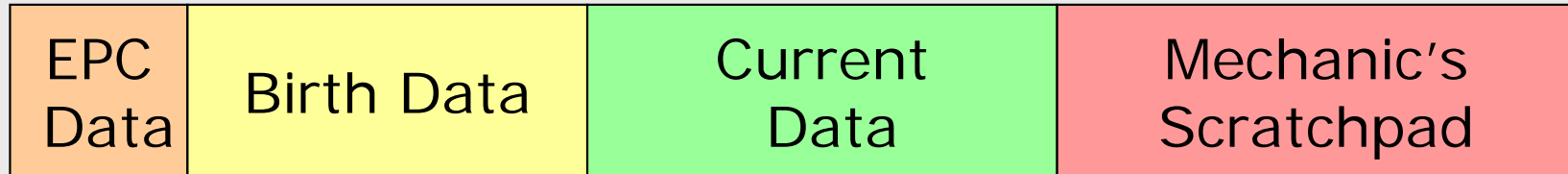
Header Information to ensure compatibility with EPCglobal standards





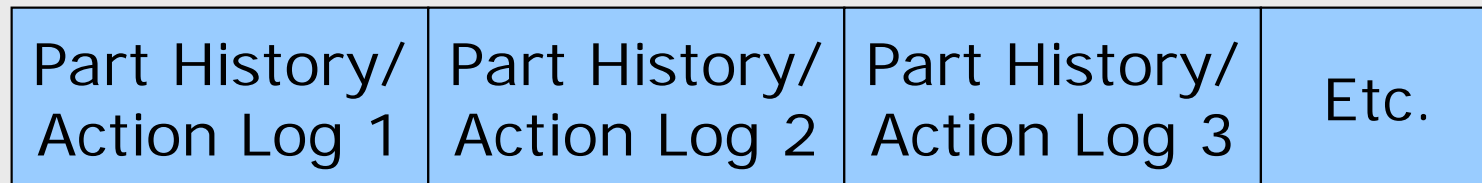
RFID - Data Structure

Permanent



“Identity Plus”

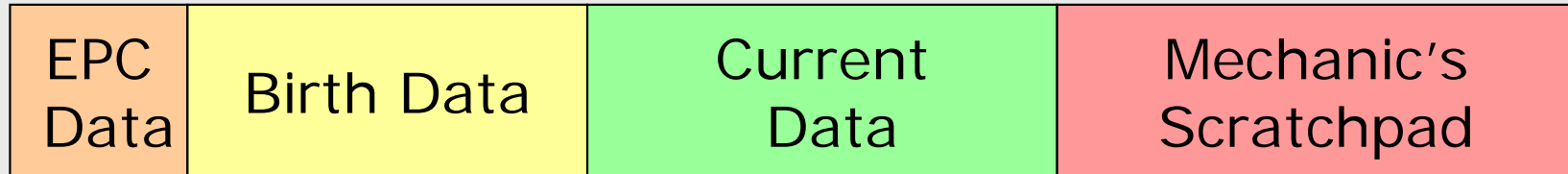
Manufacturer CAGE Code, Serial Number, Original Part Number, Manufacture Date, Description, Expiration Dates, Hazardous Material info, ESD, Customs / Export Info, Software Part Indicator, etc.



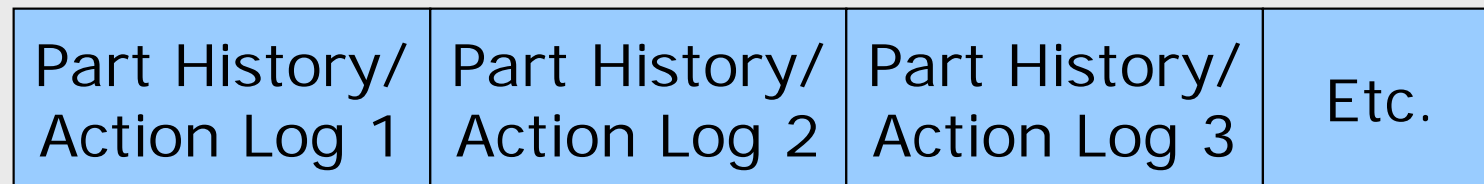


RFID - Data Structure

Rewriteable

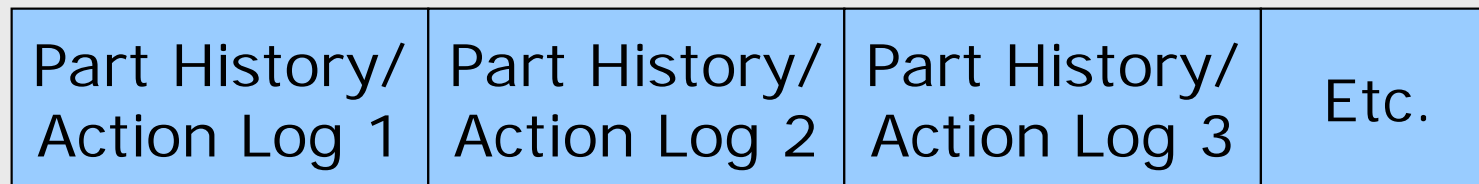
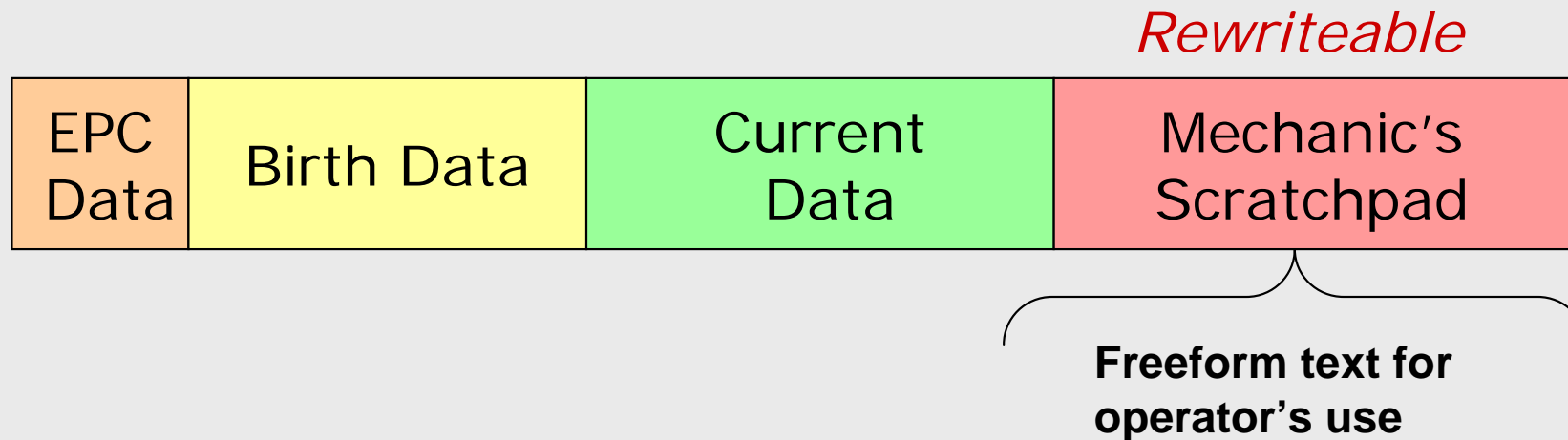


Current Part Number, Modification Status, Airline Part Numbers, etc.



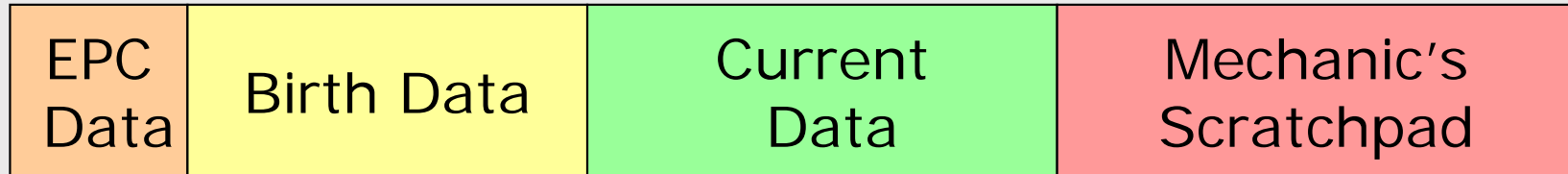


RFID - Data Structure





RFID - Data Structure



Record "important" part status changes or traceability information

e.g. – service bulletins worked, repairs performed, "no fault found", ownership changes, etc.

Part History/
Action Log 1

Part History/
Action Log 2

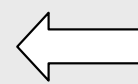
Part History/
Action Log 3

Etc.

Permanent

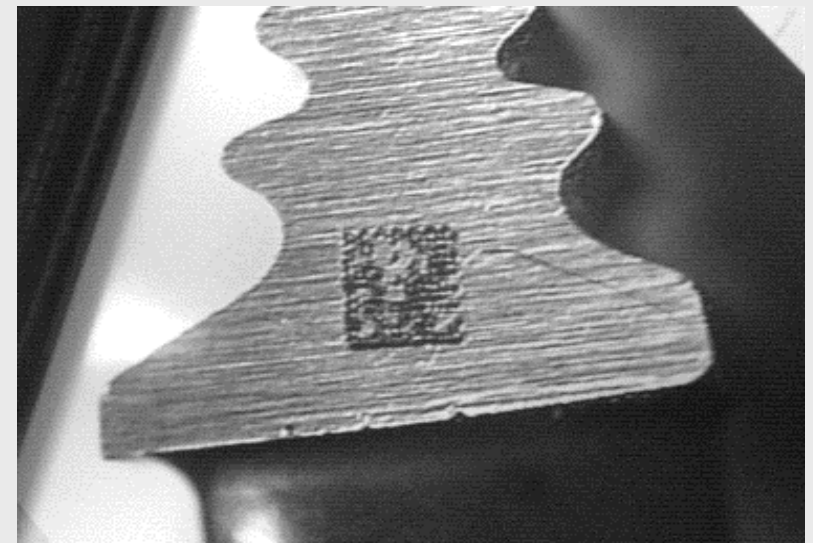
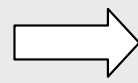


Samples



FedEx Pilot Project – integrated RFID

Very Small Direct Part Mark w/o RFID
(Spec 2000 compatible MFR/SER only)





Related ATA Projects

■ Electronic Airworthiness Documents

- The airworthiness release certificate is a regulatory “document” that must travel with all parts when they are approved as airworthy (either when new, or when repaired).
- An ATA e-Business committee has produced an electronic version (digitally signed XML) of these documents
- Currently expecting FAA approval in late 2007, EASA in 2008. Draft specification available today (will change with regulatory approval)



Current Activity

■ Electronic Teardown Report

- This report identifies what has been done to a component when it is repaired. To be used in conjunction with the regulatory electronic Airworthiness Release Certificates.
- This team has identified all data, proposed an XML format and will be meeting at the end of July to finalize.
- Potentially could form a basis of information that an operator may wish to add to a repaired unit's RFID tag.

■ Reliability Data Exchange

- Spec 2000 Chapter 11 has been released and is in the implementation stage. The team is reviewing configuration data records, which could possibly inter-relate with RFID.



RFID on Parts

■ Issues / Challenges

- Consensus on security (even consensus on definition of business risk)
- How much on the tag vs. in databases, and what level of “optional use” will provide the most value for a non-homogeneous industry.
- Widely varying infrastructures within industry (even different “line stations” for airlines)
- Synchronization to network/databases
- Read ranges and speeds in challenging environments
- Identification of specific parts and/or specific location



Questions or want to get involved?

Contact Info:

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www.ataebiz.org





ATA e-BUSINESS PROGRAM

Background Information



ATA e-Business Program - Vision

- To be an agile, cost effective, global commercial aviation industry enabled through effective & efficient information sharing
 - Agility
 - Business models can be effectively adjusted in a timely manner as conditions require
 - Information is as dynamic as the business environment
 - Cost effective
 - Minimal data processing for distribution or consumption
 - Information is complete and ready for consumption when provided
 - All data dependencies are known



ATA e-Business Program - Mission

- Establish a global commercial aviation industry information framework that facilitates improved business agility, reduces costs, increases speed of business, and maintains the highest level of safety.
- Guiding Principles and goals for the framework:
 - Information-centric, not document-centric
 - Platform neutral – open architecture
 - Consistent data structures, definitions and properties across all applications of the data
 - Leverage other standards where applicable (e.g., ISO, PKI)
 - Enable an appropriate level of data security for the application
 - Meet all applicable regulatory requirements



Value to Industry

- Creates common business & IT language - Allows standardization of business processes among airlines and their suppliers
- Drives down costs
- Increases accuracy, quality (e.g.. Part marking, delivery configuration data, etc.)
- Facilitates safety (part marking, traceability, electronic 8130-3)
- Facilitates data analyses (e.g.. Initial provisioning data, reliability data, etc.)
- Enables inventory reduction (inventory collaboration, surplus, initial provisioning)
- Participative process
- Widely used among major industry players



Project team working areas

www.ataebiz.org

ATA e-Business Program :: Flight Operations Interest Group - Microsoft Internet Explorer provided by ATA

File Edit View Favorites Tools Help

Address <http://www.ataebiz.org/apps/org/workgroup/foig/> Go

QuickLinks

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- Specifications
- Committee List
- Organizational Structure and Operating Guidelines
- Participant List
- Forum
- Calendar
- Contact Us
- Participant Area
 - Conditions of Use
 - All Groups
 - Change Request Summary
 - My Account
 - My Groups
 - My Calendar
 - ATA Antitrust Policy Statement
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Home > Members Area > All Groups > My Groups > e-Business Advisory Committee > e-Business Steering Group > Flight Operations Interest Group

Group Home Roster Calendar Documents Ballots Action Items Email

Flight Operations Interest Group

HELP

Join Group | Charter Expand All | Collapse All | More Items

Group Description

The purpose of the Flight Operations Interest Group (FOIG) is to provide a forum for exchanging ideas, discussing challenges, recommending enhancements and developing consensus for electronic data exchange standards. The scope of the FOIG includes standards for Flight Crew Operating Procedures, Limitations, Descriptions, Performance, and Dispatch Condition. The Group is responsible for maintaining iSpec 2200 Section 3-6.

Mr. Luc Bourgon, Chair
Mr. Paul Conn, Administrator
Ms. Terrie Parsons, Vice-Chair

Recent Email Messages View All

Wed, 12 Oct 05

- Groups - ATA Flight Operations Interest Group meeting added Flight Operations Interest Group

Fri, 07 Oct 05

- [foig-test] FOIG meeting Hotel Arrangements Flight Operations Interest Group
- FOIG meeting announcement Flight Operations Interest Group

Wed, 28 Sep 05

Upcoming Shared Events This Week | View All

Tue, 13 Dec 05

- ATA Flight Operations Interest Group meeting Flight Operations Interest Group

Wed, 14 Dec 05

- ATA Flight Operations Interest Group meeting Flight Operations Interest Group

Thu, 15 Dec 05

- ATA Flight Operations Interest Group meeting Flight Operations Interest Group

Recent Shared Documents View All

Wed, 28 Sep 05

- info | Meeting Summary - Sept. 12-14, 2005 (148K) Flight Operations Interest Group

Fri, 16 Sep 05



Project team working areas - document repositories

ATA e-Business Program :: Flight Operations Interest Group Documents - Microsoft Internet Explorer provided by ATA

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Address <http://www.ataebiz.org/apps/org/workgroup/foig/documents.php> Go

Home > Members Area > All Groups > My Groups > e-Business Advisory Committee > e-Business Steering Group > Flight Operations Interest Group > Documents

Group Home Roster Calendar Documents Ballots Action Items Email

Documents

[Show Archives](#) | [Show Icons](#) | [Show Descriptions](#) | Max Items: 15 30 60

All Submitters ▾ All States ▾ All Dates ▾ Display Reset

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Meeting Agendas

3 of 3 Items (221K)

Document Name	C	Rev	Size	State	Submitter	Date	Actions
FOIG MeetingAgenda_2005-09.ht			53K	Final	Paul Conn	2005-08-18	Details
FOWG MeetingAgenda_2005-06.t		1	54K	Final	Paul Conn	2005-06-03	Details
FOWG Meeting Agenda - April 25-2	1		60K	Final	Paul Conn	2005-05-12	Details

Meeting Summaries

3 of 3 Items (944K)

Document Name	C	Rev	Size	State	Submitter	Date	Actions
Meeting Summary - Sept. 12-14, 21			148K	Final	Paul Conn	2005-09-28	Details
Meeting Summary - June 28-30, 21		1	92K	Final	Paul Conn	2005-09-16	Details
FOWG Meeting Summary - April 25	1	1	293K	Final	Paul Conn	2005-05-11	Details

Project Management Documents

0 of 0 Items (-)

Document Name	C	Rev	Size	State	Submitter	Date	Actions
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Reference Documents

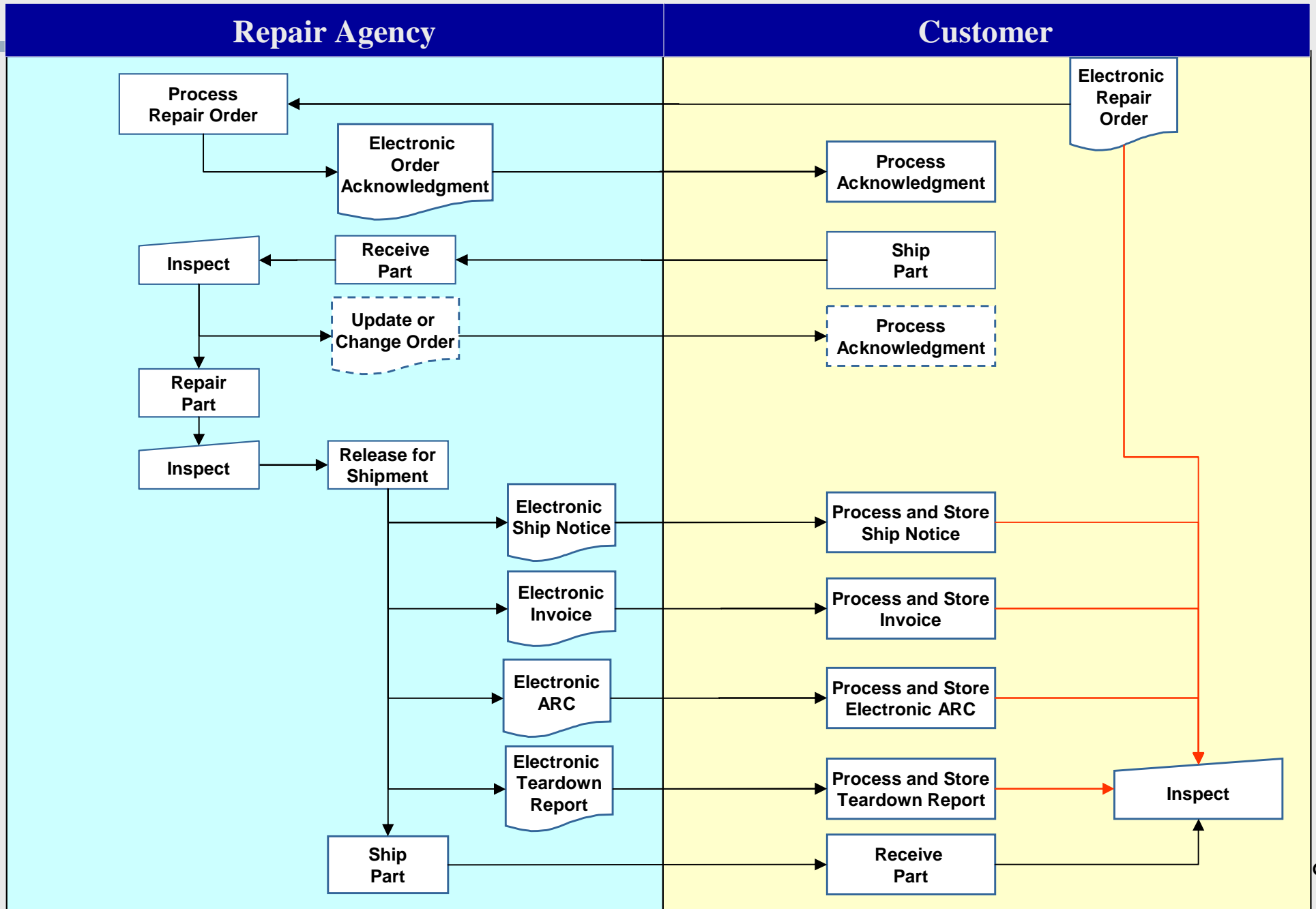
6 of 6 Items (3MB)

Document Name	C	Rev	Size	State	Submitter	Date	Actions
ATA Standard Numbering System			855K	Final	Paul Conn	2005-09-14	Details
Phase of Flight specification			205K	Final	Paul Conn	2005-06-02	Details

- Committee List
- Organizational Structure and Operating Guidelines
- Participant List
- Forum
- Calendar
- Contact Us
- Participant Area
 - Conditions of Use
 - All Groups
 - Change Request Summary
 - My Account
 - My Groups
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 - ATA Antitrust Policy Statement
 - Site Map



Process Flow – Return to Service





Process Flow – Return to Service

