



# ATA e-Business Program Overview

ATA e-Business Forum – June 13, 2017  
Ken Jones



# ATA e-Business Standards

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**Common Support Data Dictionary (CSDD)**

**iSpec 2200 - Information Standards for Aviation Maint.**

**S1000D, International Specification for Tech. Publications**

**Spec 1000BR - Civil Aviation S1000D Business Rules**

**Spec 2000 - Provisioning (ch. 1)**

**Spec 2000 - Procurement Planning (ch. 2)**

**Spec 2000 - Materiel Management (ch. 3 – 4, 6)**

**Spec 2000 - Repair Order Administration (ch. 7)**

**Spec 2000 - Automated ID & Data Capture (ch. 9)**

**Spec 2000 - Reliability Data Collection and Exch. (ch. 11)**

**Spec 2000 - Airline Inventory Redistribution**

**System (ch.12)**

**Spec 2000 - Industry Metrics (ch. 13)**

**Spec 2000 - Warranty Claims (ch. 14)**

**Spec 2000 - Aircraft Transfer Parts List (ch. 15)**

**Spec 2000 - Authorized Release Certificate (ch. 16)**

**Spec 2000 - Electronic Logbook (ch. 17)**

**Spec 2300 - Data Exchange Standard for Flight Ops**

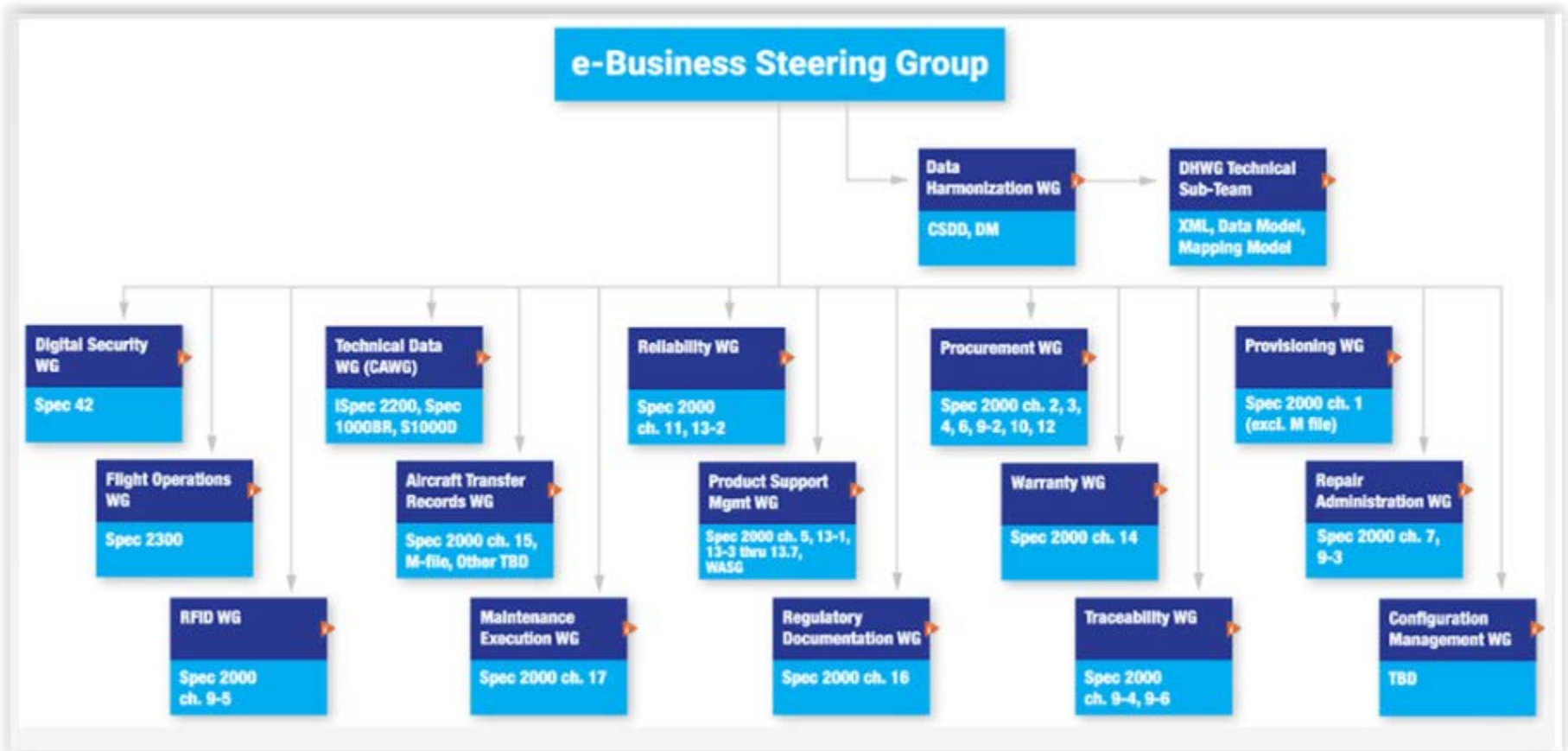
**Spec 2500 - Aircraft Transfer Records**

**Spec 42 - Aviation Industry Stds for Digital Info. Security**

**World Airlines and Suppliers Guide (WASG)**



# Organizational Structure





## Typical ATA e-Biz Standard?

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- Describes content for business information exchange
  - Part numbers, dates, procedures, conditions, etc.
- Describes the “business rules” for a function
  - Information that must always be provided
  - information that must be provided if certain conditions exist
  - Information that may be provided
  - Uses CSDD to define fields to minimize misuse
- Describes the structure/ formats
  - XML, flat file, CSV, Bar Codes, etc.
  - Messages (PO), Large Files/Modules (Provisioning, IPC, AMM, etc), ID data (bar-code, RFID, etc.)



# Why XML?

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- XML helps us to separate the structure from the content.
- Separate the formatting from the content
- Make the data application neutral
- Allow additional format validation using parsers, based on Schemas
- Allows hierarchy / relationships to be better depicted
- Easier to support from corporate databases



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- **The Specifications**



# Spec 2000 Standards

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- Spec 2000 - Provisioning (ch. 1)
- Spec 2000 - Procurement Planning (ch. 2)
  - Procurement database
  - Quotation process, Inventory Quantity Inquiries
- Spec 2000 – Material Management (ch. 3, 4, 6)
  - Purchase Order Placement & Response
  - Purchase Order Exceptions
  - Shipment Notices
  - Invoicing
- Spec 2000 – Repair Order Administration (ch. 7)



# Spec 2000 Standards

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- Spec 2000 Auto ID & Data Capture (ch. 9)
  - Bar Coded Shipping/Receiving Labels
  - RFID on Parts
  - Traceability
- Spec 2000 – Reliability Data Collection / Exch. (ch. 11)
  - Hours, Landings, Flight Data, Out of Service Data
  - Event/Interruption, Logbook Data
  - LRU Removals, Shop Findings, Piece Parts
  - Scheduled Maintenance, SB/Mods, QPA





# Spec 2000 Standards

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- Spec 2000 Industry Metrics (ch. 13)
  - Reliability, Component Repair, Warranty
  - Produce Support, Technical Resolution, Parts Delivery
- Spec 2000 – Warranty Claims (ch. 14)
- Spec 2000 – Delivered Aircraft Transfer Parts (ch. 15)
- Spec 2000 – Authorized Release Certificate (ch. 16)
- Spec 2000 – Electronic Logbook (ch. 17)




# Spec 2000 - Tagged/Formatted Data

## Spec 2000 Receiving Label (data matrix)

ABC Distributor, 123 Main St.,  
Miami, FL, USA 31005

SPL	81205
BOX	12345
CPO	BS56877
<b>PNR</b>	<b>HLT8100-13-91</b>
SHQ	1
UNT	EA
PSN	PS789254
NSN	1234128679632



## Spec 2000 Legacy EDI order

CAM  
S1BOOKED/OF2/81205/USD/1/BNO 3/  
341/EOIJ1234567/HLT8100-13-1/1/EA/25.20/15077

Same Spec 2000 data  
formats in Purchase Order,  
Electronic Shipping Notice,  
Shipping Label, RFID, etc.

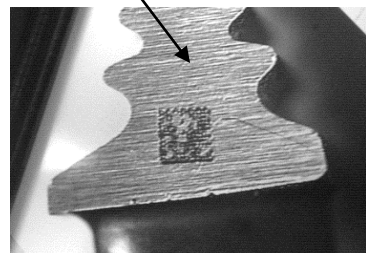
MFR 81205\*SER AB123  
\*PNR HLT8100-13-91

RFID

```
<ShipNoticeHeader>
  <CIC>CNA</CIC>
  <SPL>81205</SPL>
</ShipNoticeHeader>
<ShipNoticeDetails>
  <CPO>BS56877</CPO>
  <PNR>HLT8100-13-91</PNR>
  <SHQ UNT="EA">10</SHQ>
  <SHT>AMD</SHT>
  <SHD>2004-09-30</SHD>
</ShipNoticeDetails>
```

Electronic Shipping Notice (XML)

Direct Part Mark





# iSpec 2200

- Provides SGML Document Type Definitions (DTDs) for 18 manuals including:
  - Aircraft and Engine Illustrated Parts Catalogs (AIPC and EIPC)
  - Aircraft and Component Maintenance Manuals (AMM and CMM)
  - Fault Reporting/Fault Isolation Manual (FRM/FIM)
  - Service Bulletin (SB)
  - Structural Repair Manual (SRM)
  - Wiring Manual (WM)
- Home of the ATA Standard Numbering System



# Spec 2300

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- Industry standard for management, and exchange of digital flight operations technical data
- XML, Data Module Paradigm
- Covers data pertaining to:
  - Flight Crew Operating and Training Data
  - Cabin Crew Operating and Training Data
  - Weight and Balance Data
  - Minimum Equipment List / Dispatch / Deviation Data
  - System Descriptions, Flight Phase Data



## Spec 42

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- Provides industry standard for:
  - Authenticating the senders and receivers of digital data
  - Verification if data has been altered
  - Traceability of data to their source (non-repudiation)
- Based on Public Key Infrastructure (PKI)
- Includes Certificate Policies – describe the comprehensive procedures and controls for management of digital certificates and signatures:
  - Identity proofing and vetting
  - PKI Key management
  - Credential assurance level recommendations



## S1000D

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- Collaborative effort between ATA e-Business, AIA, ASD, bringing together defense and commercial requirements.
- Technical Data
- XML based, data centric rather than document centric
- Data centric rather than document centric
- Civil Aviation's requirements are represented by the ATA e-Business Program through the CAWG
- ATA e-Business Publishes a "Business Rules" specification helping define implementation details



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- **Current or Recent Projects**



## Spec 2500

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- New industry standard exchange of Aircraft Transfer Records. Published January, with revision 2 to be published shortly
- Based on ICAO/IATA/AWG requirements
- Provides electronic “Crate” for metadata about data and legacy documents.
- Additional Status Reports are first data sets defined in specification
  - AD Status, SB/Mod/STC Status, Installed Component Status
  - Aircraft/Engine Status, Repair/Damage Status
  - Last Done/Next Due Maintenance Status





## Spec 2400

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- New specification describing Allowable Configuration for aircraft/engine/major components in such a way as to allow automated comparison with actual configuration
- Planned publication this year
- Configuration Management Working Group also focused on other CM use cases



# Maintenance Execution Data Exchange

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- New specification coming soon
- Describes the preparation and submittal of Work Package / Work Order / Maintenance Task data from operator to MRO Provider
- Describes return of maintenance accomplished records from MRO to operator
- Allows for better system to system interfaces
- Facilitates fully digital maintenance



## New Procurement Specification

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- New specification coming soon
- Enhanced messages for the procurement process
- Addresses business needs that the older specification doesn't handle well
- Aligns with many newer M&E IT Systems



## Data Harmonization

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- Based on over 50 years of electronic data standards, across varying new and legacy exchange formats and technologies, there is a need to better harmonize across the various specifications
- Goal is for more integrated, seamless data exchange regardless of business function
- Continue to clarify and refine definitions
- Develop a data model and methodology to facilitate more automated development of exchange standards



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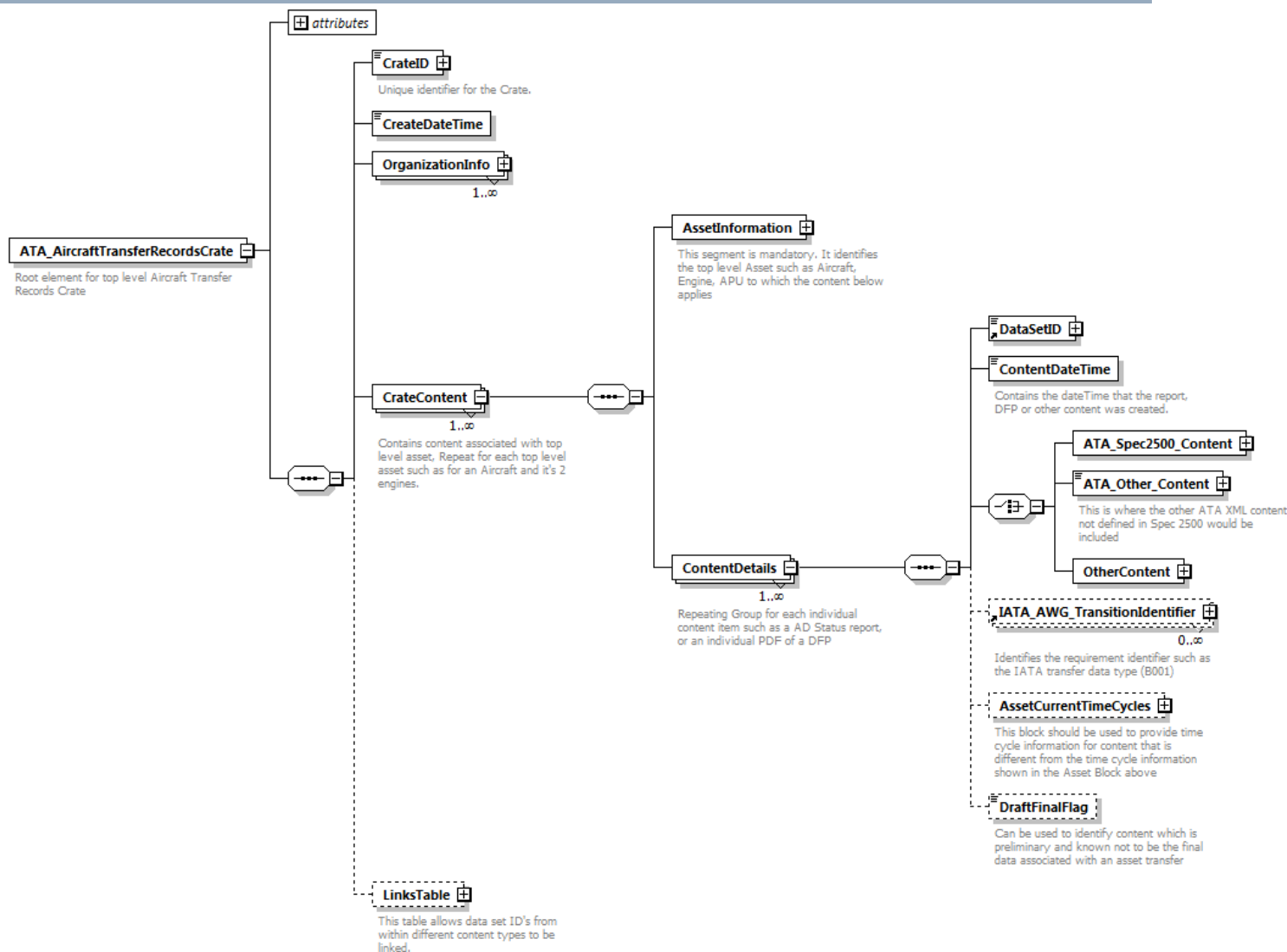
- **Example**



- **A Use Case – XML for dual purpose**
  - **Look at an XML Schema in Model View**
  - **Look at the actual XML data**
  - **Look at the same XML in html format transformed by a stylesheet**

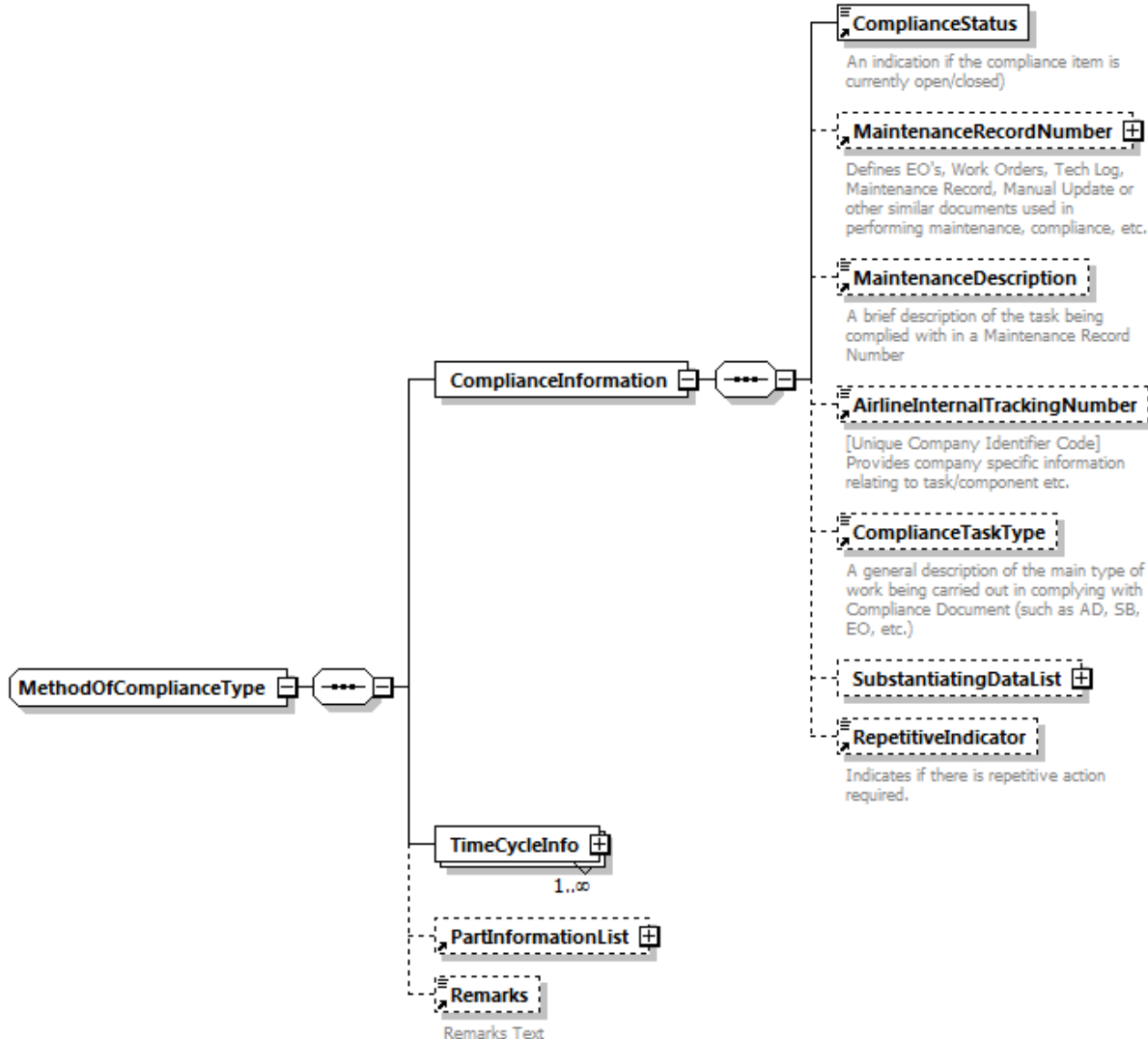


# Spec 2500 Excerpt - Crate





# Spec 2500 Excerpt - MOC







# Sample XML

```
ATA_AircraftTransferRecordsCrate .....\Schemas\ATA_AircraftTransferRecordsCrate.xsd">
  <CrateID source="Asset Management System">EX3</CrateID>
  <CreateDateTime>2016-09-15T00:00:00Z</CreateDateTime>
    <OrganizationInfo>
      <OrganizationName>ABC Airlines</OrganizationName>
    <OrganizationCode OrganizationCodeType="CAGE">12345</OrganizationCode>
      <OrganizationalRole>Lessee</OrganizationalRole>
        <ContactName Role="Deliveries">
          <Name>John Smith</Name>
          <PostalAddress>
            <AddressLine>ABC House</AddressLine>
            <AddressLine>Gatwick Park</AddressLine>
            <AddressLine>London Road</AddressLine>
            <City>Crawley</City>
            <Municipality>West Sussex</Municipality>
            <State></State>
            <PostalCode>RH10 9UY</PostalCode>
            <Country>United Kingdom</Country>
          </PostalAddress>
          <Email>john.smith@aviation.com</Email>
          <Phone>+441234123123</Phone>
        </ContactName>...
```



# Sample XML

```
<MethodOfCompliance>
  <ComplianceInformation>
    <ComplianceStatus>Open</ComplianceStatus>
    <MaintenanceRecordNumber>
      <DocumentNumber>EO 32-12345R1</DocumentNumber>
      <DataSetID source="Maintenance System">AD5</DataSetID>
      <TypeOfDocument>EO</TypeOfDocument>
      <CAGE_Code>9V238</CAGE_Code>
      <Company>American Airlines</Company>
      <Model>767-300</Model>
    </MaintenanceRecordNumber>
    <MaintenanceDescription>Replace the aft pressure bulkhead at Station 1582 of Section 48 with the aft pressure bulkhead, and perform all applicable related investigative and corrective actions, in accordance with the Instructions of Boeing Alert Service Bulletin 767-1B1234, Revision 1, dated August 4, 2016</MaintenanceDescription>
    <AirlineInternalTrackingNumber>27-987876-33</AirlineInternalTrackingNumber>
    <ComplianceTaskType>Part Replacement</ComplianceTaskType>
    <SubstantiatingDataList>
      <SubstantiatingData>
        <DocumentNumber>XB1017</DocumentNumber>
        <DataSetID source="20-05-2015">AD6</DataSetID>
        <TypeOfDocument>SB</TypeOfDocument>
        <CAGE_Code>81205</CAGE_Code>
        <Company>Boeing</Company>
        <Model>767-300</Model>
        <RevisionNum>13</RevisionNum>
        <RevisionDate>2016-08-14</RevisionDate>
      </SubstantiatingData>
    </SubstantiatingDataList>
    <RepetitiveIndicator>true</RepetitiveIndicator>
  </ComplianceInformation>
  <TimeCycleInfo>
    <Threshold EarlierLaterOf="LaterOf">
      <TimeCycleList>
        <TimeCycleDetails>
          <Date>2020-07-20T00:00:00Z</Date>
        </TimeCycleDetails>
      </TimeCycleList>
      <TimeCycleList>
        <TimeCycleDetails>
          <Cycles>60000</Cycles>
        </TimeCycleDetails>
      </TimeCycleList>
    </Threshold>
  </TimeCycleInfo>
</MethodOfCompliance>
```

AD Compliance is Open

Ref to Substantiating SB

Due before 60,000 Hours

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aft pressure bulkhead, and perform all applicable related investigative and corrective actions, in accordance with the Instructions of Boeing Alert Service Bulletin 767-1B1234, Revision 1, dated August 4, 2016</MaintenanceDescription>



# Same XML rendered in html

ATA Spec2500 Content		ATA_AD_Status	
<b>AD Status for Aircraft Serial Number: 30999</b>			
ATA_AD_Status Schema Version: 0			
<b>AD Item 1 of 3 - AD Number: 2016-25-07</b>			
Regulatory Authority	FAA		
AD Number	2016-25-07		
DatasetID / Source	AD1 / Asset Management System		
AD Title	This AD was prompted by an evaluation by the design approval holder (DAH) indicating that the aft pressure bulkhead at Station 1582 is subject to widespread fatigue damage (WF		
Effective Date	2017-02-07		
Product Type	Airframe		
FAA Amendment Number	39-18733		
Related ADs	<b>Authority</b>	<b>AD Number</b>	<b>Data Set ID / Source</b>
	FAA	2004-05-16	AD2 / Asset Management System
	FAA	2004-14-19	AD3 / Asset Management System
	FAA	2009-06-19	AD4 / Asset Management System
Supersedes ADs	<b>Authority</b>	<b>AD Number</b>	<b>Data Set ID / Source</b>
	FAA	2004-05-16	AD2A / Asset Management System
AD Remarks	Example of a paragraph-based AD		
AD Status	Open		
AMOC Flag	false		
	<b>Paragraph Reference</b>	2016-25-07 PAR (G)	
	<b>Paragraph Status</b>	Open	
	<b>Compliance Task Type</b>	Inspection	
	<b>Paragraph Description</b>	To detect and correct discrepancies in the aft attach lugs of the elevator tab control mechanism group 1 a/c	
	<b>Paragraph Remarks</b>	Note also requirement for paragraph H	



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- **Summary**



# History – from here





# Today – to here

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# Some of the challenges

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- Legacy data is often available only on paper (or scanned documents such as PDF).
- Slow, careful change due to regulatory environment
- “That’s how we’ve always done it”
- Even when legacy systems are replaced by new M&E systems, access to data isn’t always easy
- Data quality, “cleanliness”
- Getting data from this system in our company to that system in their company.



## Some Benefits of Standardization

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- Harmonization between different manufacturers, operators, software providers allowing movement of important business data in common formats
- Cost reduction – fewer manual processes
- Improved information quality
- Enhance digital security
- Facilitate the use of digital maintenance tools
- Enhanced record keeping
- Help improve consistent understanding of data and terms across enterprises





# So what does it mean?

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- Rapid changing environments at the manufacturer, operator, MRO and others – **the need to manage change**
- New systems / old systems – **the need to integrate**
- More partners – **the need to share**
- More information – **the need to distill**
- Same old cost pressure - **the need for reduced cost**



# Join the ATA e-Business Program

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- Program membership - \$4000/company/year
- Unlimited number of employees may join and participate
  - Help guide industry decisions which may affect your business
  - See what changes are coming to the specifications
- Unlimited access to all ATA e-Business specifications across the organization



# Contact us

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