Trends in DG Automation

James Wyatt, David Brennan & Geoff Leach

Guest Speaker: Trevor Howard – Emirates

Labelmaster Symposium 2017

Chicago, IL. Thursday 07th September 2017
Contents

- Introduction
- IATA Competition Law Compliance
- Core Activities in the Supply Chain
- The DGD data – Present & Future
- Industry View – Guest Speaker – Emirates
- Industry Pain Points
- What is IATA doing to solve this pain?
Follow the prepared agenda.

Do not discuss:

- Pricing, including fares, service charges, commissions, etc.
- Bids on contracts or allocation of customers
- Geographic/Product market allocations and marketing plans, including expanding or withdrawing from markets
- Group boycotts
- Your commercial relations with agents, airlines or other third parties
- Any discussion aimed at influencing the independent business decisions of your competitors

You will be asked to leave the meeting, and the meeting may be terminated, if the above-mentioned discussions occur.
Core Activities in the Supply Chain

- **Shipper**
  - Pack
  - Label
  - Document
  - Prepare SD

- **Forwarder (origin)**
  - Receive
  - Check
  - Accept
  - Generate AWB
  - Occasionally generate SD for shipper

- **Airline 1 / GHA 1**
  - Receive
  - Check/Validate
  - Accept
  - Generate NOTOC
  - Load
  - Hold docs

- **Airline 2 / GHA 2**
  - Receive
  - Check/Validate
  - Accept
  - Generate NOTOC
  - Load
  - Hold docs

- **Forwarder (destination)**
  - Receive data
  - Action
  - Handling reqs, quarantine, certain procedures

- **Consignee**

**Common Activities:** Validation, Checklists, Acceptance, NOTOC Generation.
The Dangerous Goods Declaration – Current Status

Flow of Goods

Shippers 1

Origin Freight Forwarders

Export Customs

Origin-Destination Carriers

Import Customs

Destination Freight Forwarders & Customs Brokers

C ons ignees

Estimation of 5% of Shipments are subject to Shippers Declaration for Dangerous Goods
Dangerous Goods Declaration—The Future Business Process

Flow of Information – Shipper’s Declaration for Dangerous Goods

Flow of Goods

Paper Documents
From process to data automation

Process re-engineering
- 1980
- Rationalization of staff and operations

Process Automation
- 1990
- Introduction of comprehensive cargo management systems

Document Messaging
- 2000
- Development of e-freight, i.e. exchange of freight documents via EDI

XML messaging
- 2010
- Fully automated exchange of freight data via XML messaging systems

Data centric management
- 2020
- Develop virtual freight data records with open and global APIs
Where is the pain in Dangerous Goods Acceptance?

- Focus on **automation of goods acceptance** upon arrival at the airport warehouse of origin?
- **Advanced validation document checks** and check lists?
- Application of **state and operator variations** to a commodity/consignment?
- Content integration/population into a **NOTOC**?
- **Sending and/or receiving** XML and **operational messages**?
Dangerous Goods Acceptance:
An Operators Perspective

Trevor Howard
Manager, Standards & Operational Safety
Emirates SkyCargo
In flying I have learned that carelessness and overconfidence are usually far more dangerous than deliberately accepted risks.

— Wilbur Wright in a letter to his father, September 1900
Agenda

• Dangerous Goods – The Emirates Profile
• Pain points in the acceptance process
• Reportable Incidents
• Automate the acceptance process
<table>
<thead>
<tr>
<th>Year</th>
<th>Destinations</th>
<th>Fleet</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2006</td>
<td>72</td>
<td>80</td>
</tr>
<tr>
<td>2017</td>
<td>156</td>
<td>259</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year</th>
<th>Tonnage (Annual)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1986</td>
<td>&lt;1,000</td>
</tr>
<tr>
<td>2006</td>
<td>1,120,000</td>
</tr>
<tr>
<td>2017</td>
<td>2,577,000</td>
</tr>
</tbody>
</table>
Ultra Modern wide-bodied Fleet

Complemented with 15 freighters:

- Boeing 777Fs – the world’s most advanced freighter with a cargo capacity of over 100 tonnes and a wide main deck door for over-sized cargo
- Boeing 747-400ERF*
Emirates Network

83 Countries
156 Destination
Dangerous Goods Acceptance

- DXB & DWC
- Network outstations (800 staff):
  - Minimum 2 x Category 6 Trained Staff (300 total)
  - Remaining Staff Category 8
- Contracted Ground Handling Agents
  - 185 Stations Outside of Dubai
  - 80 Different handling companies, large, medium, small
Pain Points: Acceptance Process

• Understanding and Interpreting the Regulations
  • Yearly updates
  • Aligning training of Staff
  • Language barriers

• State and Operator Variations
  • Not always current......
  • Not always documented.....
  • Not always read by acceptance staff.....

• Transit and Trucking Permits.. Explosives and Radioactive materials
Pain Points: Acceptance Process

- Do we have a copy of the Regulations here?
- Some of the “lesser known” sections in the regulations... Section 3,5,6..
- And there is an Appendix!
- The good old acceptance checklist... a mystery document!
  - How many versions are we using? EK, GHA, IATA, Others...
- Lithium Batteries.............
- Shipments being offered for transport...
Some Errors...

**TRANSPORTS DETAILS**

<table>
<thead>
<tr>
<th>This shipment is within the limitations prescribed for: (delete non-applicable)</th>
<th>Airport of Departure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>type: (delete non-applicable)</td>
</tr>
<tr>
<td></td>
<td>NON-RADIOACTIVE</td>
</tr>
</tbody>
</table>

**SHIPPER'S DECLARATION FOR DANGEROUS GOODS**

UN Number or Identification Number, Proper shipping name, Class or Division (subdivsion risk) Packing Group (if required) and all other required information.

UN2795, Batteries, wet, filled with alkali, 8 // 1 PLYWOOD BOX(ES) x 59.8kg G // 800 //
<table>
<thead>
<tr>
<th>UN or ID No</th>
<th>Proper Shipping Name</th>
<th>Class or Division (Subsidiary Risk)</th>
<th>Packing Group</th>
<th>Quantity and type of packaging</th>
<th>Packing Inst.</th>
<th>Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 1219</td>
<td>ISOPROPANOL (isopropyl alcohol)</td>
<td>3</td>
<td>II</td>
<td>5 FIBERBOARD BOX x 3.785L</td>
<td>A.Y.</td>
<td>305</td>
</tr>
<tr>
<td>UN or ID No.</td>
<td>Proper Shipping Name</td>
<td>Class of Division (Subsidiary Risk)</td>
<td>Packing Group</td>
<td>Quantity and type of packing</td>
<td>Packing Incl.</td>
<td>Authorization</td>
</tr>
<tr>
<td>-------------</td>
<td>----------------------</td>
<td>-----------------------------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>UN1263</td>
<td>PAINT</td>
<td>3</td>
<td>1 FIBREBOARD BOX X 2KG</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. I declare that all of the applicable air transport requirements have been met.

Name/Title of Signatory:  
Shipper: Mirabel  
Place and Date:  
Signature:  
12 February 2013
NATURE AND QUANTITY OF DANGEROUS GOODS

UN Number or ID Number, Proper Shipping Name, Class or Division, (Subsidiary Risk(s)), Packing Group, Quantity and Type of Packing, Packing Instructions, Authorization

UN1044, FIRE EXTINGUISHERS, 2.2 // 1 4G X 8.90 KG //, IATA 5200
UN1044, FIRE EXTINGUISHERS, 2.2 // 1 4G X 8.90 KG //, IATA 5200

PI 213
<table>
<thead>
<tr>
<th>UN of ID No.</th>
<th>Radioactive Material Type Package</th>
<th>Quantity and Type of Packaging</th>
<th>Packing Instruction</th>
<th>Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2910</td>
<td>Radioactive Material Package</td>
<td>1 type B(U) package</td>
<td>11 yellow labels</td>
<td>SPECIAL FORM CERTIFICATE USA/0335/S TYPE B(U) PACKAGE CERTIFICATE USA/0209/B(U)-96 CODEM/175V-96 ATTACHED</td>
</tr>
</tbody>
</table>

Note: The applicable law, subject to legal penalties.
<table>
<thead>
<tr>
<th>UN or ID No.</th>
<th>Proper Shipping Name</th>
<th>Class or Division (Subsidiary Risk)</th>
<th>Packing Group</th>
<th>Quantity and type of packing</th>
<th>Packing material</th>
<th>Authorization</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN3264</td>
<td>Corrosive liquid, acidic, inorganic, n.o.s., (SULPHAMIC ACID SOLUTION)</td>
<td>8</td>
<td>III</td>
<td>1 FIBREBOARD BOX x 3.79 L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Ooops... We missed that one!
Oh.... Mr. Bolton....
And again Mr. Bolton....
Safety Reporting

• Operator reporting requirements:
  • Dangerous Goods Accidents and Incidents
  • Undeclared or Mis-Declared Dangerous Goods
  • Dangerous Goods Occurrences
    • carried when not loaded, segregated, separated and secured
    • without information having been provided to the Pilot-in-Command
Reporting Incidents & Occurrences

**DISCREPANCY SUMMARY**

- DAMAGED: 42%
- DOCUMENTS: 21%
- UNDECLARED: 18%
- MISLABELLING: 6%
- UNMANIFESTED: 6%
- RES DG ERROR: 3%
- MISC: 6%
Automation.... What is that?

• Air operators typically use legacy systems
• Manual, manual, manual
• Paper, Paper, Paper
• Data Capture can be completed up to 3 times before a shipment even leaves the first airport.
  • Acceptance Checklist
  • Cargo System Data Capture
  • Manual NOTOC Completion
  • Weight & Balance NOTOC
    • Repeat for every flight
Automation.... At Emirates

- Paper Acceptance Checklist
- Data Captured in Cargo system
- Data transmitted electronically to Weight & Balance System
- NOTOC Printed, signed and presented to flight crew
Automation... What it means to us

• Electronic transfer of data
  • Advance transmission of data
  • Errors and omissions

• Removing the human factor
  • “pre-check” of information vs regulations
  • Reduction of reportable incidents/occurrences

• Pre-populated acceptance checklist

• Transfer of data within operator systems
And always remember... DGR 1.2.4...

- Nothing contained in these Regulations should be interpreted as:
  - (a) requiring an operator to transport a particular article or substance;
  - (b) preventing an operator from imposing special requirements on the transport of a particular article or substance over and above the requirements contained herein; or
  - (c) preventing an operator from requiring a shipper to seek confirmation or endorsement of the “Shipper's Declaration for Dangerous Goods” from an authority named by the operator.
Thank you!

Trevor Howard
Manager, Standards & Operational Safety
Emirates SkyCargo
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Industry Pain Points

- **Communication** – systems and document integration:
  - Planning – shipment info supplied with shipment, not in advance (resource & facility allocation challenges)
  - Performance – risk of incident increase with not having experts on site if not planned correctly: shift planning
  - Efficiency – systems not able to deliver efficiency savings

- **Performance** – slower handling & acceptance procedures without data automation / validation

- **Safety** – greater risk of missing compliance with manual processes

- **Automation** – Inputs are not electronic today meaning less demand for automation

**IMPACT:**
- Fines
- Delays
- Efficiency issues
- Client relationship issues
- Injury
- Damages
- Loss of license
- Jail terms
- Competition
- **= COST.**
Pain Point Validation

- Unreliable nor current state and operator variations (90%)
- Misinterpretation of rules and regulations (80%)
- Lack of training throughout the supply chain (70%)
- Standard roles and responsibilities in supply chain (65%)
- Standard checklists are not used globally (60%)
- Issue of customer non-compliance (hidden DG’s) (40%)

- Shippers
- Forwarders
- Ground Handlers
- Airlines
- North America, Europe, Asia.
Pain Point Validation

- Manual validation and checks vs time taken – **MAIN** pain.
- The lack of knowledge with shippers
- Airline acceptance vs Regulations
- Keeping up to date with the latest regulations
- Special Cargo involves significant trust
- Lithium Batteries

- Shippers
- Forwarders
- Ground Handlers
- Airlines
- North America, Europe, Asia.
How do we solve this pain?

- Removing the margin for error at acceptance with automation
- Consistent application of the latest regulations
- Focus on core categories during the acceptance check
- Shipment image creation to support the physical check
- Use of the shipment data to facilitate other operational processes
What is IATA doing to solve this pain?

- Automation of the Documentation check
- Development of Dangerous Goods AutoCheck
- Promoting Electronic Messaging
How to learn more?

- Join us at the evening reception where further information and demo’s of the product will be provided.....