Opening Remarks from the Chairman

Benoit Dumont
Chief Executive Officer
Unilode Aviation Solutions
ULD TRACK

Opening remarks from the Chairman

Benoît Dumont
CEO, Unilode Aviation Solutions
Singapore, Wednesday 13th March 2019
Thanks to James Jackson for his contribution to the AIR CARGO industry…
…and for creating our jobs

“The development of the ULDs like the LD3/AKE became one of the great enablers for the advancement of the air cargo industry, beyond and past the bulk cargo handling”

GARY BARTEK, Member of TIACA Chairman’s Council

Source: https://tiaca.org/hall-of-fame/james-jackson/
The history of ULD: The ULD is for AIR CARGO…

…what the Car is for the people: The Unsung Hero!

6 Light
Optimization (cost saving, environmentally, safety)

[Images of historical cargo transport, early standardized ULDs, and modern autonomous vehicle]

By 2030, ULDs could find their optimal route and act autonomously

“I am ULD X
I belong to Y”

“What’s this?”

“I am presently in Singapore airport, being handled by Z”

“What are our goods, who is dealing with them?”

“I am loaded with 500 iPads.
I am cleared and ready to leave”

“What do you contain and are you authorized?
Are you cleared. Paid for?”

“I am now at the destination Cargo Warehouse in Paris.
My temperature changed from 15° to 30° for 1 hour”

“What’s happening to our Cargo?”

“I am ready to be used again”

“I am not where I was supposed to be – please take action”

Service access

Status monitoring

Act independently

Autonomous decision
ULLD Track – Areas of discussion

Wednesday 13th March 2019

- Innovative Manufacturers
- Ground Handling Practices
- Repair Compliance
- Customer Usage
- Regulations

Air Cargo Supply Chain

ULD Airworthiness (safety, compliance)
THANK YOU IATA for nominating us *finalist* for the 2015 *Air Cargo Innovation Award*!
History of ULD – Unsung Heroes of the Air Transport Industry

Ulf Hartmann
Technical Director
Safran Cabin Cargo
(Presented by Bob Rogers)
CELEBRATING

60

YEARS OF ULDs

the often underrated cornerstone of today’s air transport industry.
Items we see and use every day, are easily overlooked or taken for granted and for the aviation industry, ULDs might be such an item.

In order to realize their importance for the daily operation and to understand how much airlines are relying on ULDs, a short retrospect might be helpful.
Early days of Air Cargo ➔ 1950s

- Manual loading / 3D-puzzle
- Limitation in size/shape
First baby steps - 1950s

The 1st pallet & net - initiated by the US military (Berlin Airlift)

- Pallet/net used in military DC-4F with integrated rollerised cargo system (1952). This system was later adopted for DC-6A (1954), DC-7CF (1956) and Canadair CL-44 (1958) as well
- Standards: none
First baby steps - 1950s

The 1st “container”

- AA invented the famous “Paul Bunyan” box (1956): a sealed aluminium container with wheels underneath, adopted by several other airlines
- Standards: none
Growing-up – 1960s

A/C specific baggage bins

- Lockheed Electra II
  "AA Baggage Expediter"

1959

the 1st device which could be called “lower deck container”

- Standards: none

courtesy of freighterdata.aero collection
Growing-up – 1960s

A/C specific baggage bins

- Boeing 727 “Belly Pod”

- Standards: none
Growing-up – 1960s

A/C specific baggage bins

- DC-8 “bomb-bay” handling system
- UAL “baggage tubs”

- Standards: none
Growing-up – 1960s

A box on a pallet

- Non-structural, contoured hard-shell (cardboard/fiberglass) on a pallet, fixed with a net for B707 and DC-8 freighters
- AA “Igloo”
- UAL “Hula-Hut”

- Standards: shape
Becoming adult – 1970s

Opening the door to the modern world - the 1st “real” ULD

- The new wide-body A/Cs B747, DC-10 and L-1011 required a new and standardized cargo loading device
Becoming adult – 1970s

Opening the door to the modern world - the 1st “real” ULD

- Initiated by ULD pioneer Jim Jackson (AA), the iconic LD3 was born, a solid structural all-aluminium container, designed to be restrained by the A/C CLS and shaped to be used in all 3 wide-body A/Cs ➔ the 1st real ULD

- The AKE optimized the loading productivity (max. capacity at min. time) and allowed interlining between airlines and different aircrafts

- A complete range of different containers followed
Becoming adult – 1970s

Standardization became the new task

- To meet the carriers operational requirements (interoperability between different A/C types + interlining between different airlines) and the wide-body configurations, new standards for design, shape, performance and safety had to be set.
- ULD enthusiasts like Jim Jackson, who chaired several of the ULD related panels in SAE, IATA and ISO took that challenge and started the ULD standardization activities within the adequate industry organizations.
Becoming adult – 1970s

Standardization became the new task

- SAE (AGE-2) ➔ technical and minimum performance standards
- ISO (SC-9) ➔ similar to SAE but international
- IATA (ULDB) ➔ design, shape, interlining, operational standards
- FAA and the local European CAAs recognized the need for a minimum safety standard for ULDs and issued the TSO-C90 based on the developed minimum performance standard
- The vast majority of all ULDs today are certified units and thus have to comply with the **Continuous Airworthiness** rules
Gaining maturity – 1980s + 1990s

Important intermediate steps

- Introduction of the B767 as the last A/C with a fuselage out of the set standards ➔ no interlining
- Introduction of the A320 family as the only containerised narrow-body A/C, fuselage meets the set standard in shape and base size but not height ➔ interlining possible
- First significant weight reduction by introducing the non-welded ULD designs (AKE 80 kg)
Being adepted – mid 2000s

State-of-the-art

- New composite light weight materials
- New design concepts
- Taking over additional functions
  - Structural part of the load path → A/C design changed from “compartment restrained” to “CLS restrained”
  - Temperature control
  - On-board fire risk reduction
- Focus of CAAs is now also on ULDs (AC 120-85)

AKE 50+ kg
Obvious contribution to the Air Cargo industry

The initial purpose of a ULD - providing a solid and standardized shell for an efficient loading – resulted in:

- optimized turn-around times
- interlining
- off-airport loading/off-loading
- minimized cost (labor)
- faster/more controllable loading/unloading
- efficient use of available space/maximum capacity

Without ULDs today’s Air Cargo industry could not handle the still increasing amount of goods transported around the globe.
Less obvious contribution to the Air Cargo industry

The use of light weight materials and new design concepts for ULDs resulted in:

- significantly reduced weight (AKE: 100+ kg ➔ 50+ kg)
- fuel saving
- reduced Co² emission
- increased payload
- reduced TCO
- optimized ergonomics in ULD operation
- improved flight safety (FRC)

State-of-the-art ULDs are part of the airline’s solutions to meet the today’s requirements.
Hidden contribution to the Air Cargo industry

During the past years ULDs have taken over more and more functions within the “aircraft system”:

- ULDs “control” the load and become part of the A/C structure when locked in the CLS
- OEMs optimized the A/C structure ➔ weight reduction
- ULDs provide a secure W&B
- Latest A/Cs were designed to meet existing ULDs

Without ULDs being capable to take up these additional functions, the latest generation of A/C would be different.
Future contribution to the Air Cargo industry

The ULD industry and the A/C manufacturers have already started to design the future:

- smart ULDs
  - track & trace
  - interaction with A/C and/or W&B system
  - integrated sensors (shock, light, temperature, safe lock etc.)
- restraining feature part of the ULD ➔ further A/C weight reduction
- containers designed for automated baggage loading/off-loading
- containers designed for check-in baggage drop-off ……
The role of a ULD has changed from the early days as a simple “box” to optimize the loading procedures to a flight safety relevant part of the aircraft structure into a “smart” part of the Air Cargo logistics.

And this is most probably not yet the end. It was a long journey and it will continue!

But to make it a successful story the ULD’s environment has to be changed accordingly!

Keep on working as in the old days will kill every innovation AND your ULDs!!
Panel Discussion – What Has Changed and Not Changed Over 60 Years? What is Your ULD Vision?

Moderator:
• Bob Rogers, Vice President and Treasurer, ULD CARE

Panelists:
• James Jackson, Retired, American Airlines (Virtual Panelist)
• Zhi Yong Liao, Manager, Cargo Business Process & Standards, IATA
What has changed and not changed over the 60 years

Bob Rogers VP and Treasurer ULD CARE
Everything has changed and nothing has changed !!!!
Aircraft have grown
Cargo Holds have expanded

B777X carries 48 AKE containers!
ULD operations enlarged
Explosion of outsourced ground and cargo operations

A 30 Billion turnover industry
Nature of cargo has changed
What has not changed?
What has not changed?
What might change?

- More ULD
- Larger aircraft
- Lighter ULD
- Safer ULD
- Smarter aircraft
- Smarter ULD
• An aircraft being delivered today uses the same labour intensive loading process as 60 years ago.
• These very same aircraft have a 40 year life ahead of them

How will ULD operations look on the 100th anniversary of ULD?
What it took to develop standardized ULD?

James Jackson (virtual panelist)
Retired at American Airlines
How smart a future ULD could be?

LIAO, Zhi Yong
Manager, Cargo Business Process & Standards, IATA
Smart ULD Radar

- 1-3 years
- 4-9 years
- 10+ years

Low Importance
- Medium Importance
- High Importance

Smart ULD Radar
- Multimodal compatible
- Automated aircraft loading
- Automated serviceability check
- Interchangeable Contour
- Automated measuring
- Automated build up
- Automated screening
- Real time alert on CLS engagement & aircraft position
- Real time tracking of ULD and contents
- Self-monitor/record external forces with real time alert
- Lighter
- Fire containment capability
- Real time alert temperature
- Self-monitor/record external forces with real time alert
- Self inventory mgmt. with real time alert
- Self monitor/record external forces with real time alert

Source: IATA ‘Your ULD Vision’ Survey Results
ULD Design/ Automation/ Interaction
You have until 15 January 2019 to participate!

Do you have an idea to transform the air cargo industry?

CARGO INNOVATION AWARDS

www.iata.org/cargo-innovation-awards
ULD Solutions Dominate Top 3

Three shortlisted ideas announced

The Award's independent jury panel has shortlisted the following three ideas:

- **Air New Zealand & Cargo Composites** – Keep it cool with aeroTHERM ULD
- **SITA, Safran & CHAMP** – Smart ULD
- **Unilode Aviation Solutions** – Digital Transformation

IATA is inviting these three finalists to present their idea at the 2019 WCS in Singapore. Delegates will then vote for their preferred idea and the winner will be announced during the closing plenary on the 14 March 2019. For more information, read the [Finalists Announcement](#) (pdf)
Other ‘Smart’ Developments

- Augmented reality to accelerate ULD build-up
- Automation/ robotics technology in ULD handling, movement, and aircraft loading
- Virtual Reality for ULD handling training
- New design to facilitate automation, enable multi-modal and interchangeable contours
- Wireless communication on board and during flight?
Other ‘Smart’ Developments (Safety Features)

- Fire resistant/ containment ULD
- Real-time alert on CLS engagement & aircraft position
- ULD locking & latching status indication
- Weight & Balance compliance check
- Automated ULD contour check/ serviceability check
ULD Involvement in IATA StB Cargo

- Cargo Piece Level Tracking
- Smart Facility
- One Record
- Interactive Cargo
Smart ULD Contribute to Air Cargo Transformation
Introduction of the New EU Basic Regulation and European Groundhandling Roadmap

- Daniel Coutelier, Senior Better Regulations Officer, European Aviation Safety Agency (EASA)
- Frank Manuhutu, EASA Representative Singapore & Southeast Asia
European Groundhandling Roadmap

IATA World Cargo Symposium, ULD Track
Singapore, 13 March 2019

Daniel Coutelier, Senior Better Regulation Officer
daniel.coutelier@easa.europa.eu

Your safety is our mission.
EASA representation office

- based in Singapore since Oct 2017
- EASA Representative Singapore and Southeast Asia
- EASA Maintenance organisation Expert
- Strengthen relations and seek partnership with aviation authorities in Southeast Asia
- Strengthen relations with EU and non-EU Industry (associations) in the region
- Participation in the ICAO regional activities
EASA Mandate with New Basic Regulation*

Annex VII Essential Requirements for Groundhandling service providers

• Declaration of capability and availability of the means to discharge the responsibilities associated with the services provided

Socio-economic dimension of EASA activities

• Consultation of relevant stakeholders on the interdependencies between civil aviation safety and socio-economic factors

EU Better Regulations Agenda

• lay down, where possible, requirements and procedures in a manner which is performance-based and focuses on objectives to be achieved, while allowing different means of achieving compliance with those performance-based objectives

Why do we act?

Analysis

- **Occurrences related to Groundhandling activities are the more frequent in Aerodromes and Groundhandling area**
- **Top 10 categories related to Groundhandling**
  - Baggage and Cargo Loading in Passenger Aircraft
  - Coordination and control of turnarounds
  - Dangerous goods handling and Lithium Batteries
  - Control of passengers on the apron
  - Parking and positioning of aircraft
  - Fuelling operations
  - Operation of vehicles (and other Motorised GSE)
  - Pushback operations
  - Load Sheets and Other Documentation/Systems
  - Operation of Air Bridges/Passenger Boarding Bridges (PBB)
## How do we act

### 1. Fact finding

<table>
<thead>
<tr>
<th>Fact finding</th>
<th>2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 Safety analysis report – Incidents and accidents related to GH activities</td>
<td>Request for data from stakeholders</td>
</tr>
<tr>
<td>1.2 Scoping out of stakeholders’ expectations - What works with the current system? What are the shortcomings?</td>
<td>Mtg with Social Partners (Social Dialogue)</td>
</tr>
<tr>
<td>1.3 Scoping out of stakeholders’ expectations - What works with the current system? What are the shortcomings?</td>
<td>Interviews with GH operators and airlines</td>
</tr>
<tr>
<td>1.4 Scoping out of Member States’ expectations – What works with the current system? What are the shortcomings?</td>
<td>Mtg with MS</td>
</tr>
<tr>
<td>1.5 Meeting with Advisory Bodies</td>
<td>Agenda item on MAB &amp; SAB agenda</td>
</tr>
<tr>
<td>1.6 Assemble focus group GH – airline associations, GH associations, ADR operators, GHSP, unions</td>
<td></td>
</tr>
</tbody>
</table>

### 2. Definition of scope

<table>
<thead>
<tr>
<th>Definition of scope</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Description of the issue – critical summary of the outcome of 1.</td>
<td>Supported by focus group GH</td>
</tr>
<tr>
<td>2.2 Definition of objectives and performance indicators - What do we want to achieve? How do we assess if our course of action delivers?</td>
<td>Supported by focus group GH</td>
</tr>
<tr>
<td>2.3 Design of GH roadmap - What are the right tools and actions to achieve our objectives with the highest possible efficiency?</td>
<td>Supported by focus group GH</td>
</tr>
<tr>
<td>2.4 Presentation of GH roadmap</td>
<td>Conference with MS and stakeholders</td>
</tr>
<tr>
<td>2.5 Summary of conclusions from GH roadmap presentation - Improve GH roadmap with MS and stakeholder input</td>
<td>Supported by focus group GH</td>
</tr>
</tbody>
</table>

### 3. Implementation

<table>
<thead>
<tr>
<th>Implementation</th>
<th>2019 - 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Implementation of roadmap actions – step 1 e.g. rulemaking, safety promotion, actions for MS</td>
<td>Supported by focus group GH</td>
</tr>
<tr>
<td>3.2 Implementation of roadmap actions – step 2 communication and implementation support, support to EC for IR adoption</td>
<td></td>
</tr>
</tbody>
</table>
The Roadmap – actions on:

1. Management System
2. Training
3. Operational standards
4. Equipment
5. Oversight
6. Staff turnover
Action areas of GH roadmap

Declaration
(Oversight)

Rulemaking

Training
MSys
Equipment
Operational standards

Industry Standards

Staff Turnover

Safety Promotion

Rulemaking Industry Standards Safety Promotion
## I. Proposed actions – Management System

<table>
<thead>
<tr>
<th>Description of action</th>
<th>Rulemaking hard &amp; soft</th>
<th>Safety promotion</th>
<th>Based on Industry Standards and best practices</th>
<th>Based on ICAO documents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIONS ON THE MANAGEMENT SYSTEM</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Develop a framework for an integrated management system for GHSP</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Framework for outsourcing GH services (with distribution of responsibilities)</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop interface between organisations involved in GH activities</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Establish common taxonomy with the Management System in other EU regulations</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify existing guidance on the management system, interfaces and management of outsourcing of GH services by GHSP and aircraft operators to third parties</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Propose ways to determine and assess the complexity of operation of GHSPs</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop guidance on how the management system for a GHSP should be integrated within the management system of an AOC holder in case of self-service</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Develop guidance on implementation of a management system for unexperienced organisations</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Enable sharing of safety-relevant information and data between the organisations concerned</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
### II. Proposed actions – Operational standards

<table>
<thead>
<tr>
<th>Description of action</th>
<th>Rulemaking hard &amp; soft</th>
<th>Safety promotion</th>
<th>Based on Industry Standards and best practices</th>
<th>Based on ICAO documents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIONS ON OPERATIONAL STANDARDS</strong></td>
<td></td>
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<tr>
<td>Identify minimum, performance-based and technology-neutral operational standards which can be applied by GHSPs across all stations and locations to allow significant improvements in performance as well as operational safety. Design a regulatory framework for the efficient coordination between air operators, aerodrome operators and GHSPs with a view to further develop, implement and apply of these operational standards.</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Identify ways to recognize and promote internationally accepted industry practices.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ensure that operational standards are communicated to the staff concerned by means of training, safety promotion, etc.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Define where the accountabilities of each stakeholder start and end with a view to identify overlaps and describe mechanisms to address conflicting positions and contradictory performance indicators between all parties involved in GH.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Empower GHSP to control certain operational risks as part of their management system. That means, allow GHSPs to apply more stringent safety procedures than the aircraft operator if this is based on the GHSP’s risk management process.</td>
<td>X</td>
<td></td>
<td>X</td>
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<tr>
<td>Propose ways to give access to safety relevant information that is specific to the aircraft model to all stakeholders.</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>
### III. Proposed actions – Staff training

<table>
<thead>
<tr>
<th>Description of action</th>
<th>Rulemaking hard &amp; soft</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIONS ON STAFF TRAINING</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Establish a high-level regulatory framework for a common European training standard in the GH domain</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Map the training elements from existing Member States requirements</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Identify the key functions involved in the GH activities</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Establish requirements for training delivery (types, content and methodology)</td>
<td>X</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Establish requirements for training management</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Identify best means to avoid redundant training delivered by aircraft operators to GHSP employees</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Include flight operations officer function among the groundhandling functions</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ensure recognition and crediting of completed training modules</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Propose competency-based and outcome-focused training programmes including competencies for the trainer</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Propose methods to maintain competencies</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
## IV. Proposed actions – Ground Support Equipment

<table>
<thead>
<tr>
<th>Description of action</th>
<th>Rulemaking hard &amp; soft</th>
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<th>Based on Industry Standards and best practices</th>
<th>Based on ICAO documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACTIONs ON GROUND SUPPORT EQUIPMENT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Require a GSE maintenance programme</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Recommend to use manufacturers’ instructions and industry standards to ensure that GSE is fit-for-purpose and used within the scope of tasks it is designed for</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ensure that staff responsible for GSE maintenance are trained and competent to execute their tasks</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Support development of industry standards that promote innovation and are environmentally friendly, by promoting technology neutral rules.</td>
<td></td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Enable implementation of cost and space efficiency programmes such as equipment pooling at aerodromes.</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
## Description of action

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td><strong>ACTIONS ON OVERSIGHT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extend the scope of authority requirements to include GH with GHSP specific oversight requirements based on a declaration system for GHSP.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Define elements of management of change for the competent authority</td>
<td></td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Establish clear framework for <em>cooperative oversight</em> that enables an efficient and systematic mutual exchange of information on findings raised and inspections/audits made &amp; addresses oversight and sharing of oversight tasks in case of multi-national GHSPs.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explore possibility to establish a common and harmonised declaration system</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Take industry standards into consideration when determining the oversight programme</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop a common framework of high-level and basic GH inspector competencies and qualifications</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Within the competent authority ensure coordination between different oversight activities to exchange information on audits performed by air operators and aerodromes on GHSPs.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Include oversight of training</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## VI. Proposed actions – Staff turnover

<table>
<thead>
<tr>
<th>Description of action</th>
<th>Rulemaking hard &amp; soft</th>
<th>Safety promotion</th>
<th>Based on Industry Standards and best practices</th>
<th>Based on ICAO documents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACTIONS ON STAFF TURNOVER</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Develop rostering systems that allow more precise planning. GHSPs should be encouraged to assess their operational risks emanating from the need for new employees, potential excesses in the workload, an uneven work distribution and work pressure.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>GHSPs should be encouraged to assess impact of outdated GSE that make the work on the ramp at times more physically demanding than necessary.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Coordinated high level communication strategy to enhance the perception of the GH sector as a crucial element of the aviation safety chain.</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Create a system of training recognition throughout the sector via common training methodologies and standards that build on existing industry standards and best practices.</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>3.</td>
<td><strong>Implementation</strong></td>
<td>2019 - 2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td><strong>Implementation of roadmap actions – step 1</strong></td>
<td>Supported by <em>focus group GH</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e.g. rulemaking, safety promotion, actions for MS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td><strong>Implementation of roadmap actions – step 2</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>communication and implementation support, support to EC for IR adoption</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
EASA Groundhandling Conference 7 March 2019

Management System
- Proposed ways forward
  - Improve the perception of the Ground Handling Industry
  - Enhance the implementation of the EU Directive on Safety
  - Enhance the cooperation between airlines and airports
  - Enhance the implementation of the ICAO SMS

Operational Standards
- A common training standard based on existing industry standards, for each operational task should help to reduce incidents and accidents.
- The idea is to lead ground handling to the level it deserves.
- A training system for ground handling staff should allow for continuous training and further education of staff mobility between operators.
- Mutual recognition and acceptance of the SMS management system from companies monitoring personnel training is expected to reduce additional audit-related tasks.

Training
- Groundhandling Roadmap - TRAINING
  - A way forward
  - The need:
    - All employees trained for a defined level of competence
    - Training done or maintained along with quality improvement process
    - Training support social mobility and basic skills
    - Existing educational body for delivery
  - Auditable by ICAO inspections
  - Not adding cost into GSE, which would also contribute to value for the section.

GSE
- The benefits for the GSPs and the EU aviation industry
  - Declaration of Certification:
    - Declaration (Expressed in the new basic Regulation)
    - Declaration (Established by the Competent Authority)
    - Declaration (Established by the Competent Authority)
    - Declaration (Established by the Competent Authority)

Oversight
- Staff Turnover
  - Improve the perception of the Ground Handling Industry
  - Enhance the implementation of the EU Directive on Safety
  - Enhance the cooperation between airlines and airports
  - Enhance the implementation of the ICAO SMS

Next steps

RMT.0728  Development of requirements for ground handling
Develop IR/AMC & GM to ensure compliance with the essential requirements contained in Annex VII to the NBR. This will consider operational requirements, organisational requirements and authority requirements, as deemed necessary. Detailed objectives and actions will be defined by a GH Roadmap that will be subject to a focused consultation in Q1/2019.

<table>
<thead>
<tr>
<th>Owner</th>
<th>Affected stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASA FS.2</td>
<td>CAs, ground handling service providers, aerodrome operators, air operators and ground handling staff</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PIA</th>
<th>Proc</th>
<th>3rdC</th>
<th>ToR</th>
<th>NPA</th>
<th>Opinion</th>
<th>Commission IR</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Art 16</td>
<td>-</td>
<td>2019 Q2</td>
<td>2021</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPT.102  Safety Promotion
Develop new safety promotion material on high-profile aerodrome and ground handling safety issues
Develop new safety promotion material on high-profile safety issues for aerodromes and ground handling. These high-profile safety issues are to be determined from important risks identified from the SRM process, accidents/serious incidents, inputs from EASA stakeholders and ground handling safety topics that have been defined by the ground handling roadmap, including ground handling safety topics stemming from the NBR.

<table>
<thead>
<tr>
<th>Owner</th>
<th>Activity sector</th>
<th>Deliverable</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASA SM.1</td>
<td>CAT</td>
<td>Leaflets, videos, web-pages and/or applications</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

Your safety is our mission.
Introduction of the New EU Basic Regulation and European Groundhandling Roadmap

- Daniel Coutelier, Senior Better Regulations Officer, European Aviation Safety Agency (EASA)
- Frank Manuhutu, EASA Representative Singapore & Southeast Asia
Q&A Session

(focus on essential requirements for groundhandling services)
1. What is the correct name of this ‘new EU Basic Regulation’? (Regulation (EU) 2018/1139)

2. Scope/ Applicability: Aerodromes of EU Member States? Relevant requirements are applicable to the providers, equipment, services, etc.?

3. ‘aeronautical products, parts, non-installed equipment’ – which one applies to aircraft ULD? (aeronautical part?)
4. ‘groundhandling service’ means any service provided at aerodromes comprising safety-related activities in the areas of ground supervision, flight dispatch and load control, passenger handling, baggage handling, freight and mail handling, apron handling of aircraft, aircraft services, fuel and oil handling, and loading of catering; including the case where aircraft operators provide those groundhandling services to themselves (self-handling)

- It applies to the safety provision of groundhandling services regardless of organizational types, airlines or ground handling agents?
- Does ‘freight and mail handling’ include activities in the cargo warehouse at the airport, e.g. ULD build-up?
5. **Declaration**

- *Organisations responsible for the provision of groundhandling services* and AMS at aerodromes subject to this Regulation *shall declare* their capability, and the availability to them of the means, to discharge the responsibilities associated with the services provided in compliance with the essential requirements referred to in Article 33.’

- *declaration* means any written statement made in accordance with this Regulation under the sole responsibility of a legal or natural person subject to this Regulation and which confirms that the applicable requirements of this Regulation and of the delegated and implementing acts adopted on the basis thereof relating to a legal or natural person, product, part, non-installed equipment, equipment to control unmanned aircraft remotely, safety-related aerodrome equipment, ATM/ANS system, ATM/ANS constituent or flight simulation training device *are complied with*.

By when, to whom and in what format the declaration shall be done? How to ensure and verify requirements are met as declared?
6. The Basic Regulation is the higher level mandatory ‘hard law’. Is EASA planning to develop the ‘soft law’ such as guidance material to facilitate industry implementation?

7. EASA participates at the ICAO Ground Handling Task Force, and the ICAO Ground Handling Manual will be published soon. Does EASA intend to align with ICAO in the development of guidance material?

8. Is there any plan to collaborate with industry associations such as IATA and refer to relevant industry standards in the guidance material?
Networking Break
10:30 to 11:15 in Roselle Simpor Ballroom
Kindly Sponsored by:

Rapiscan systems
An OSI Systems Company
Cargo Safety Compliance Across Air Cargo Supply Chain

Randolph Chappell
Global ULD Control Manager
UPS
Randolph Chappell
UPS Airline

Managing Safety Risk Across Air Cargo Supply Chain
Safety in the Supply Chain

- **Who?** Any entity that will buildup air freight for air carriage, and/or handle ULDs
- **What?** Training for proper acceptance, buildup, loading
- **Why?** Ensure safety of ground personnel, ramp, aircraft & flight
- **How?** Robust training, inspections, & oversight
**ULD: CG and Load Control During Flight**

**CG Control:** Maintains CG within +/- 10% of base dimensions and no higher than 48”

Why? Spread flight load forces equally across the CLS aircraft floor locks
How? Following air container loading methods ensures proper CG

**Load Control:** Control the load under ULTIMATE LOAD Conditions

Forward, Aft & Side loads rated to 2G
Up lift loads rated to 3G

15,000 Lbs x 3 G = 45,000 Lbs!!

ULD Serviceability? CHECK   Accurate Load & Weight? CHECK   AC Locks Engaged? CHECK
**Human Factors:** Human error, defined as ‘a human action with unintended consequences’, is the greatest obstacle to safety in our operations.

*The Dirty Dozen*

- Complacency
- Knowledge
- Communication
- Stress
- Assertiveness
- Norms
- Pressure
- Teamwork
- Resources
- Distractions
- Awareness
- Fatigue

*Human error is not avoidable but it is manageable*

Observation without *Leadership Intervention* will not change behavior.
Strong Safety Program Management

Safety Program Oversight & Development

- Training Records
  - Job Eligibility & Currency

- Reinforcement
  - Coaching & Inspections

Certified Trainers

- Targeted Staff
  - Job Description = Training Needs
Safety Strategy

• Make safety part of the corporate culture

• Safety Management System
  • Enhances Training
  • Creates visibility to frequency & cost of events

• Effective risk management strategy
  • Identify and implement process improvements
  • Evaluate & implement new technologies
  • Training and awareness

• Continual improvement & refinement
Thank You
Maintaining ULD Continued Airworthiness is Everyone’s Responsibility

- John Stewart, Executive Vice President The Americas & Global Repair Network, ACL Airshop
- Jenny (Shuhua) Yang, Vice General Manager, DAS Nordisk Phoenix Aviation equipment Ltd.
ULD REPAIR STATIONS
John Stewart, EVP, Global Repair Network

CUSTOM ULD SOLUTIONS™
INTRODUCTION TO ULD REPAIR STATIONS

• Our global repair station network: challenges and accomplishments

• 5-step process to certify under FAA Part 145

• Dealing with the FAA, region to region, can be challenging

• Our growth story is exciting
• The regulatory requirements for ULD repair stations

• ULD Repair Station shall be certified by the governing CAA (Part 145 approval)

• The 5 phase process for FAA certification

• CFR Part 14 for certification ensures programs, systems, and methods of compliance are thoroughly evaluated and tested.
FAA CERTIFICATION PROCESS

Phase 1  Pre-application
Phase 2  Formal Application
Phase 3  Document Compliance
Phase 4  Demonstration & Inspection
Phase 5  Certification
• ULD repair stations are authorized by the Operator (ULD owner) for the ULD type concerned

• ULD Repair Stations operate for the benefit of the ULD owner – damaged ULD’s amount to lost Revenue for the owner of the unit.

• Invest in your own (in an Airline), or get the benefits of outsourcing?
REPAIR STATIONS

• ULD repair stations should receive all the necessary ULD manufacturer data and Manuals, and the repairs are performed only in accordance with the repair procedures stated in the ULD manufacturer documentation.

• ULD Repair Stations can not repair a damaged ULD without having the technological data such as the manufacturers Component Maintenance Manual or CMM (discuss contents of CMM).
• Spare parts requirements (e.g. Certificate of Conformity to original approval, or approval from the ULD manufacturer)

• All spare parts used during a repair must have traceability. This is most often provided by the manufacturer as either an FAA 8130-3 or an EASA Form
ULD REPAIR

- Return to service/airworthiness approval renewal after repair.

- Once the repairs to a unit are completed, certifying staff will inspect the unit. If all repairs are compliant with the manufacturer’s technical data either an FAA 8130-3 or EASA Form 1 return to service form will be issued.
REPAIR STATIONS

• Part 145 approval issued by the Home Country does not necessarily mean the ULD Repair Station is approved in another jurisdiction. Always check the laws and regulations. EASA and FAA sometimes create two varying challenges.

• A repair station certified licensee is authorized to repair any ULD for which it is properly licensed. Many stations are dually certified FAA/EASA so they can release both FAA 8130-3 or EASA Form 1 for return to service.

• Regulatory compliance is imperative. That includes facility, tooling, equipment, inventory of spares, training of personnel, work methods, inspection / Quality Assurance, manuals and forms, and airworthiness/return-to-service procedures.
REPAIR STATIONS: Challenges, Pain Points, Suggestions

• **IATA ULDR**: please further clarify the requirements for ULD repair stations
• **Carriers**: make full use of all the qualified ULD repair stations around the world without having to ship damaged ULDs back to home base
• **Digitization of ULDs** adds another layer of complexity to repairs
• **Repair shops** must have skills and capabilities in composites as well as metal
• **Speed of repair turnaround** is key. The quicker the ULD gets back into service, it’s in the air and making money again for the carrier.
• **All repair stations** should make part of their training program these basics:
  • FAA Part 145 and its EASA equivalent
  • Manufacturers’ Component Maintenance Manuals
  • Airworthiness Directives and Service Bulletins
  • Section 2 of IATA ULD Regulations
• **A licensed FAA repairman** is exceptionally valuable to any organization in our sector.
Thank You! Let’s stay in touch.

John Stewart, Executive Vice President The Americas & Global Repair Network
ACL Airshop LLC
JFK - Regional Head Office New York
ACL Airshop - New York
FAA Certified Repair Station
1800 Access Road
Oceanside, NY 11572 USA
Office: +1.516.678.4334 Mobile: +1.516.369.4430
Email: jstewart@ACLairshop.com
Web: ACLairshop.com
Connect on LinkedIn: https://www.linkedin.com/in/john-stewart-b14b20b/
Continued Airworthiness ≠ Maintenance and Repair – Challenging the Traditional Perception of ULD Continued Airworthiness

Jenny Yang, Deputy General Manager
北京凤凰大昌航空设备维修有限公司
DAS Nordisk Phoenix Aviation Equipment Limited
2019.03
Certified ULD repair station

ULD Repair Station shall obtain the repair certificate issued by CAA (Part 145 Approval)
CCAR-145 CERTIFICATE

FAR-145 CERTIFICATE
联合维修管理

JOINT MAINTENANCE MANAGEMENT

联合维修管理认可编号 JMM/Acceptance Number: JMM0025

根据中国民用航空局、中国香港特别行政区民航局和中国澳门特别行政区民航局签署的相互认可航空器维修单位批准认可的协议，在中国民用航空局的监管下，联合维修管理认可编号 JMM0025 的维修单位按照中国民用航空局的维修管理规定，被批准为按照 EASA-145 要求的维修单位。在此基础上，联合维修管理认可编号 JMM0025 维修单位被中国民用航空局批准为按照 EASA-145 要求的维修单位。维修单位在遵守相关国际公约和中国民用航空局的规定下，有权按照 EASA-145 要求提供航空器维修服务。

北京欧鹏大昌航空设备维修有限公司
DAS Nordisk Phoenix Aviation Equipment Limited
北京市顺义区通顺路北水城开发园 1 号院
I, Nan Yishui Chang, Shih Fu Village, Gao Liying, Shangyi, Beijing, 103303, P. R. China
CAAC Approval Number: D. 310427

在中国民用航空局的监管下，作为 EASA-145 和 MAR-145 认可的维修单位和/或航空器零部件维修单位，并使用上述联合维修管理认可编号 JMM0025 维修单位的维修能力，按照 EASA-145 和 MAR-145 的规定，本单位为维修单位提供维修服务，包括但不限于维修、改装和检验，以及在遵守相关规定的情况下，提供必要的维修服务。

条件 CONDITIONS:
1. 认可的维修单位必须遵守 EASA-145 及 MAR-145 的规定，包括但不限于维修、改装和检验。此维修服务必须在 EASA-145 和 MAR-145 的规定下进行。
2. 认可的维修单位必须遵守 EASA-145 及 MAR-145 的规定，包括但不限于维修、改装和检验。此维修服务必须在 EASA-145 和 MAR-145 的规定下进行。
3. 维修单位提供的维修服务必须符合 EASA-145 及 MAR-145 的规定，包括但不限于维修、改装和检验。此维修服务必须在 EASA-145 和 MAR-145 的规定下进行。
4. 在符合上述规定的条件下，维修单位提供的维修、改装和检验服务必须符合 EASA-145 及 MAR-145 的规定，包括但不限于维修、改装和检验。此维修服务必须在 EASA-145 和 MAR-145 的规定下进行。

签署 Signature: [签名]
联合维修管理主任 JMM Chairperson: [签名]
日期 Date of Issue: 2015. 7. 3.
ULD Inspection

ULD Inspection plays an important role in maintaining continued airworthiness.
ULD Inspection

ULD damages are varied, we will focus on the “hidden” ones.
ULD Inspection

Cracks, wear or tear of edge rails at the bottom of the pallet or container

It will damage the aircraft Cargo Loading System (CLS)
Cracks at lower extrusions of the container
Brackets attached to the base extrusion and door post

Door post weakly, then container body could be moveable. It might damage the panel of the aircraft.
ULD Inspection

Brackets attached to the roof extrusion and door post

Strength of the roof frame is reduced and the container could be out of the shape, then damage the panel of the aircraft.
ULD Inspection
Holes on door cover – a flight safety risk

View from Outside

View from Inside
Repair Data Analysis

QTY

Percentage

HOLE BROKEN EXTRU

80%
70%
60%
50%
40%
30%
20%
10%
0%

HOLE BROKEN EXTRU
• As a certified repair station, based on our repair data, we could analyze the most typical and frequent damages and the respective causal factors for our customer.

• We could contribute to the effective reduction of ULD damages by working together with our customers.
• To ensure flight safety, un-airworthy ULD shall be prevented from being loaded onto aircraft.
• Everyone involved in ULD operations shall take the responsibility for maintaining the ULD continued Airworthiness. Repair station is only one part.
Everyone involved shall be properly trained to perform their task/job function.
• It’s not easy. To facilitate ULD serviceability check in the field, IATA developed ODLN (Operational Damage Limited Notice) in the ULDR.

• Today more and more ULDs are being attached with the ODLN.
• Everybody involved shall prevent ULD from becoming a hazard to the aircraft structure or system.

• Although airlines are ultimately responsible for flight safety, we as repair station are willing to provide technical support to effectively reduce ULD damage rate which in turn contribute to flight safety.
Thank You!

Our repair keeps your ULD flying safer and longer
Panel Discussion
Cargo Safety Strategy
– Managing Safety Risk Across Air Cargo Supply Chain

Moderator: Brendan SULLIVAN, Head, e-Commerce & Cargo Operations, IATA
Panelists: Daniel COUTELIER, Senior Better Regulations Officer, EASA
          Randolph CHAPPELL, Global ULD Control Manager, UPS
          John STEWART, Executive Vice President The Americas & Global Repair Network, ACL Airshop
          LIAO Zhi Yong, Cargo Business Process & Standards, IATA
1. Define the scope of Cargo Safety
2. Identify Cargo Safety risks across the chain and the weakest link
3. Are all the parties aware of the safety consequences of what they do that may have impact on flight safety?
4. Are all the parties clear about their safety responsibilities (training, regulatory compliance, SOP)
5. Are the existing industry standards sufficient, accurate and up-to-date? Where are the gaps to be closed and improved?
Panel Discussion
Cargo Safety Strategy
– Managing Safety Risk Across Air Cargo Supply Chain

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          John STEWART, Executive Vice President The Americas & Global Repair Network, ACL Airshop
          LIAO Zhi Yong, Cargo Business Process & Standards, IATA
Greetings from the Father of AKE

James Jackson
Retired
American Airlines
Chairman’s Closing Remarks & Celebration of the 60th Birthday of ULD

Benoit Dumont
Chief Executive Officer
Unilode Aviation Solutions
Networking Lunch
12:30 to 14:00 in Roselle Simpor Ballroom
Kindly Sponsored by:
ULD Track

Kindly Sponsored by:

unilode®