Revision: 1 Date: 03 AUG 2026

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Shipper Built ULDs

BUPairmail Manual
- English -

Publisher:
Lufthansa Cargo AG
Global Fulfillment Management, FRA F/HG
60546 Frankfurt/Main
Germany

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0 Editorial

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0 Editorial

0.1 Revisions

Layout

This Manual is edited in a content management tool that allows a standardized and consistent layout.

Some content, such as a table of content before each chapter, is part of this standardized layout.

Updates

This Manual is updated twice a year, usually in February and August.

If safety relevant changes occur, more updates are possible.

List of Changes

Revision No.	Status	Subject	Reason for Revision

First Revision in new format, hence manual List of Changes.

Chapter	Topic	Change
1.2.1/2/3	DG Training Requirements	▪ DG Training Requirements clarified
7.3	Application of Fire Containment Covers	▪ Application of FCCs.

1 Introduction

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1 Introduction

1.1 Your Responsibility

Your responsibility

Every day hundreds of aircraft of the Lufthansa Group take off and land. They carry thousands of passengers, tons of cargo and airmail.

Our **customers** rely on Lufthansa Cargo (referred to as LCAG hereafter) to transport their cargo and mail without undue delay or damage.

Our **passengers** rely on Lufthansa to transport them and their baggage in order that they reach their destination safely.

Our **crews** rely on the correct and safe loading of the cargo in our aircraft.

All of them expect that whatever has been loaded inside the aircraft has been done so according to the regulations.

This Manual

With this manual, you will get to know the safety factors involved when building up ULDs, as well as **YOUR responsibility** towards your/our customers, our passengers, crew and aircraft.

The content of this document must be followed whenever Postal Authorities respectively their B/U agents build up ULDs that are tendered for any flight operated by Lufthansa Group or partner airlines.

It must be accessible in its newest version to the personnel responsible for build-up the ULDs.

These guidelines are based on the Lufthansa Group GOM (Ground Operations Manual) and LCAG CHM (Cargo Handling Manual).

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1.2 Training Requirements

General Requirements

- In order to keep the license for tendering Shipper Built ULDs to LCAG, the customer must make sure that sufficient staff, who supervise build-up activities and sign the ULD-tag, are qualified as per the below training plan.
- Qualifications are always applicable to the individual participant, not the company.
- It is consented that supporting staff assists in build-up activities under supervision of BUP-qualified staff. However it is reserved for the BUP-qualified staff to
  - supervise the build-up,
  - finalize the lashing,
  - sign the ULD tag for correct build-up.
- Training records of BUP-qualified staff as well as trainings / onboardings of supporting staff must be documented and presented to LCAG upon request.

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1.2.1 Personnel responsible for Build-Up

BUPairmail

Allows for Shipper Built ULDs containing airmail.

1) Valid DG license

- IATA 7.4; OR
- CBTA equivalent; OR
- function-specific license as per requirements of the National Authority(*).

Refresher training intervals as per IATA DGR 1.5 CBTA or as per requirements of the National Authority must be followed.

2) "BUPairmail" training (Web-Based Training available online) including successful completion of the assessment.

Refresher course (same WBT) must be done latest every 24 months.

1.2.2 Personnel not entrusted with Build-Up activities

Acceptance of general cargo or airmail

Personnel with this function must have a valid DG license

- IATA 7.2; OR
- CBTA equivalent; OR
- function-specific license as per requirements of the National Authority(*).

Refresher training intervals as per IATA DGR 1.5 CBTA or as per requirements of the National Authority must be followed.

1.2.3 Personnel entrusted with combined activities

DG Licenses for Combined Activities

Personnel entrusted with Acceptance activities as well as Build-up activities must hold valid DG licenses for both activities.

Example:

- IATA 7.2 and IATA 7.4

  OR
- CBTA equivalents

  OR
- function-specific licenses as per requirement of the National Authority(*)

for both activities.

(*) function-specific licenses as per requirement of the National Authority:

provided that the training explicitly covers the transport of cargo by air and is equivalent in scope to the applicable ICAO TI / IATA DGR.

2 General

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2 General

2.1 Definitions

Intentionally left blank.

2.2 Forbidden Items

This program only allows the loading of single mailbags that - with regards to weight and dimensions - must comply with UPU rules.

The pre-built ULDs shall **not** contain any of the following items:

- ✖ All weapons, weapons parts and ammunition (SWP)
- ✖ Shipments subject to special security measures, e.g. valuable shipments (VAL), for example gold and precious stones, as well as vulnerable shipments (VUN), for example cellular phones and silver
- ✖ Perishable shipments (PER)
- ✖ Live Animals (AVI)
- ✖ The ICAO TI and the UPU Convention prohibits the transport of dangerous goods in airmail. There are a few dangerous goods exceptionally admitted in airmail (see ATA-DGR 2.4) under condition that these are in compliance with specific provisions in the ICAO TI and UPU manuals. It is in the responsibility of the national Postal Administration to ensure that the regulations and provisions for exceptionally permitted dangerous goods are complied with
- ✖ Airmail exceeding the base dimensions of the ULD (Overhang)
- ✖ Metal sheets and metal plates; plates made out of other materials with individual weight of more than 20 kg
- ✖ Metal pipes and metal bars

  pipes and bars made out of other material are allowed as per loading requirements stated in this Training Manual

2.3 CARDIT

CARDIT

It is mandatory that LCAG receives a CARDIT message in the latest version. The CARDIT must be sent before the handover of the airmail to LCAG and must contain :

- the nesting information,
- the relevant security information,
- the correct flight information,
- AR flag (non EU origin stations).

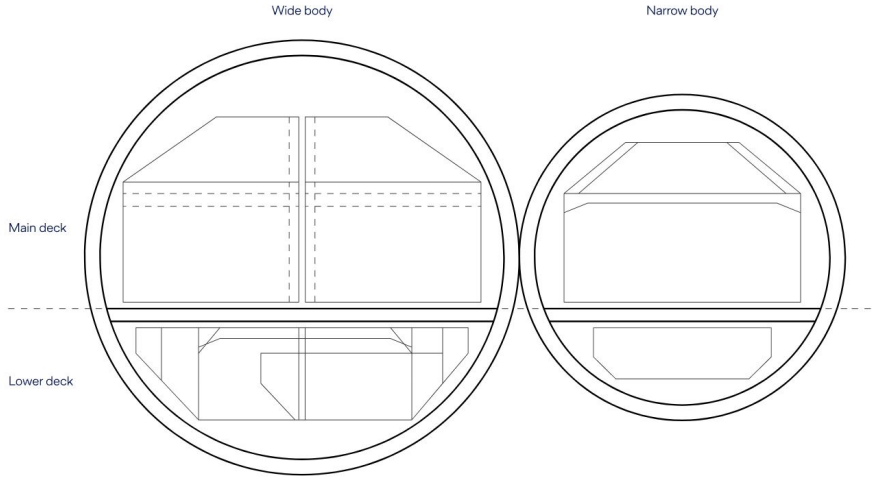
3 Aircraft Terminology

Passenger / Freighter

Passenger Aircraft carry passengers and cargo. Freighter aircraft carry only cargo and air-mail.

Narrow Body / Wide Body

This picture shows only a generalized cross section layout. Neither all wide body nor all narrow body aircraft types have exactly the same size.



Examples of narrow body aircraft, that hold ULDs, are the A320, A321 and A321F.

Examples of wide body aircraft are: A330, A340, A350, A380, B747, B787 and B777.

Main Deck / Lower Deck

Every aircraft has at least two decks: Main Deck and Lower Deck.

In a passenger aircraft, the passenger cabin is located on the Main Deck (and in the B747 and A380 on the Upper Deck). In the Lower Deck of passenger aircraft, baggage, cargo and airmail are transported.

In freighter aircraft, only cargo and airmail are transported in the Main Deck and Lower Deck.

Lower Deck Holds

The Lower Deck on both the passenger and freighter aircraft is broken into 2 holds:

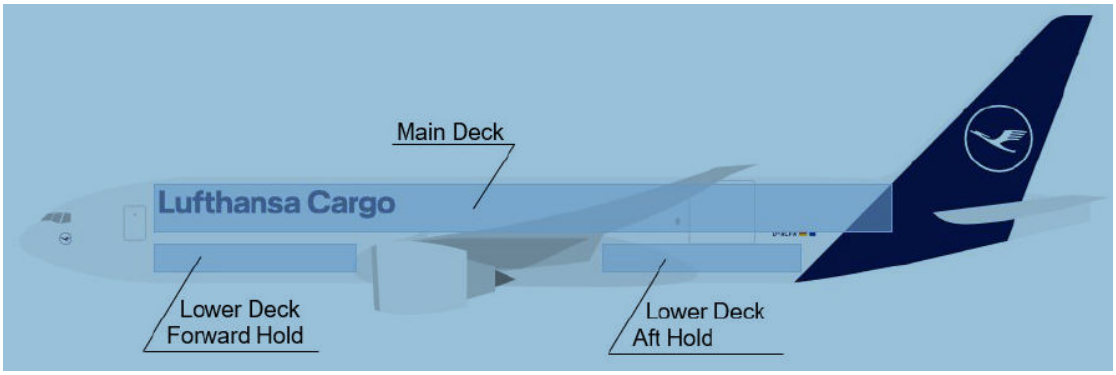
Forward and Aft hold.

The Forward and Aft hold are broken down further into compartments, which may be numerically different depending on the aircraft type

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Example

Here the example of the B777 freighter aircraft:



4 ULDs, Fleet, and Contours

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4 ULDs, Fleet, and Contours

The following ULDs and Contours have been selected according to their relevance for Shipper Built ULDs. This might differ from the usage within LCAG when LCAG is doing the build-up.

4.1 ULDs and Contours for Narrow Body Aircraft

4.1.1 ULDs for the A320/A321/A321F Lower Deck

Code	AKH / AKW	
Type	Container	
Base dimensions	153 x 156 cm	60.4 x 61.5 in
Height	114 cm	45 in
Max Gross Weight	1000 kg	



4.1.3 ULDs for the A321F Main Deck

Code	AAY	
Type	Container (fire resistant)	
Base dimensions	224 x 318 cm	88 x 125 in
Height	208 cm	88 in
Max Gross Weight	1800 kg	
Contour	Y	

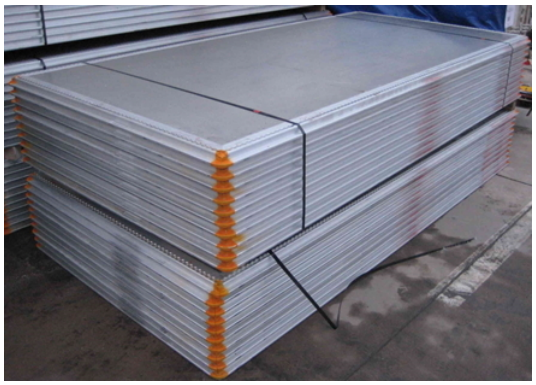


4.2 ULDs and Contours for Wide Body Aircraft

4.2.1 ULDs for Wide Body Aircraft Lower Deck

Code	AKE (LD3)	
Type	Container	
Base Dimensions	153 x 156 cm	60.4 x 61.5 in
Height	163 cm	64 in
Max Gross Weight	1500 kg	
Contour	E	

Code	AMP	
Type	Container	
Base dimensions	244 x 318 cm	96 x 125 in
Height	163 cm	64 in
Max Gross Weight	5000 kg	
Contour	P	

Code	PLA	
Type	Pallet (60.4")	
Base dimensions	153 x 318 cm	60.4 x 125 in
Lower Deck all Wide Body Aircraft (only passenger, not B777F)		
max. Height (incl. base of pallet)	163 cm	64 in
Max Gross Weight	3000 kg	
Contour	P	

Code	PLW	
Type	Pallet (60.4" with side extensions)	
Base dimensions	153 x 318 cm	60.4 x 125 in
Lower Deck all Wide Body Aircraft (only Passenger, not on B777F)		
max. Height (incl. base of pallet)	163 cm	64 in
Max Gross Weight	3000 kg (350 kg per side extension)	
Contour	P	

Code	PAJ	
Type	Pallet (88")	
Base dimensions	224 x 318 cm	88 x 125 in
Lower Deck all Wide Body Aircraft		
max. Height (incl. base of pallet)	163 cm	64 in
Max Gross Weight	4000 kg	
Contour	P	



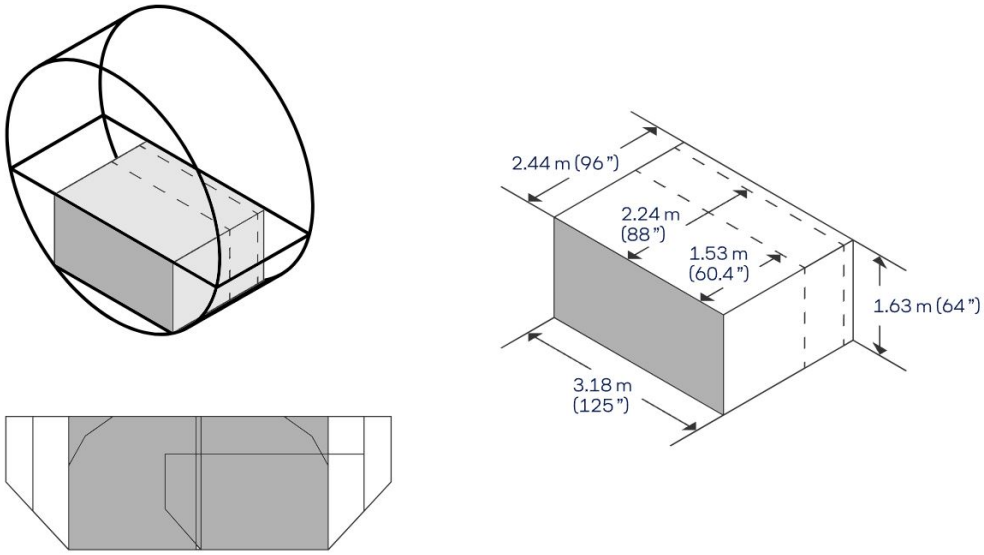
Code	PMC	
Type	Pallet (96")	
Base dimensions	244 x 318cm	96 x 125in
Lower Deck all Wide Body Aircraft		
max. Height (incl. base of pallet)	163 cm	64 in
Max Gross Weight	5000kg	
Contour	P	



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4.2.2 Contours for Wide Body Aircraft Lower Deck

P-Contour



Example of a P-contour.



4.2.3 ULDs for Freighter Aircraft Main Deck

Code	**AMJ**	
Type	Container	
Base dimensions	244 x 318 cm	96 x 125 in
Height	244cm	96 in
Max Gross Weight	5800 kg	
Contour	J	



Only the fire resistant AMJ containers (AMJ 49000 LH - AMJ 49999 LH) may be used for the build-up of airmail.

Code	**PAJ**	
Type	Pallet (88")	
Base dimensions	224 x 318 cm	88 x 125 in
Main Deck B777F		
max. Height (incl. base of pallet)	300 cm	118 in
Max Gross Weight	5000 kg	
Contour	J4	



Code	**PMC**	
Type	Pallet (96")	
Base dimensions	244 x 318 cm	96 x 125 in
Main Deck B777F		
max. Height (incl. base of pallet)	300 cm	118 in
Max Gross Weight	5800 kg	
Contour	J4	

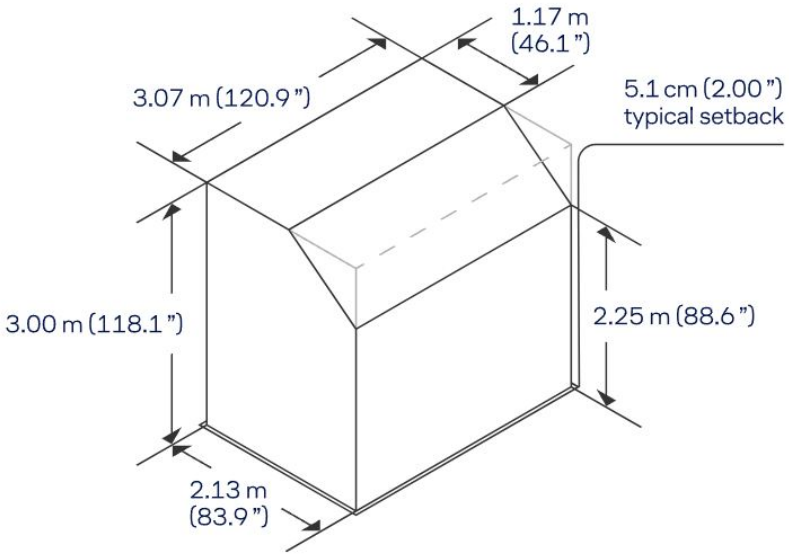


4.2.4 Maximum Contour for the B777 Freighter Main Deck

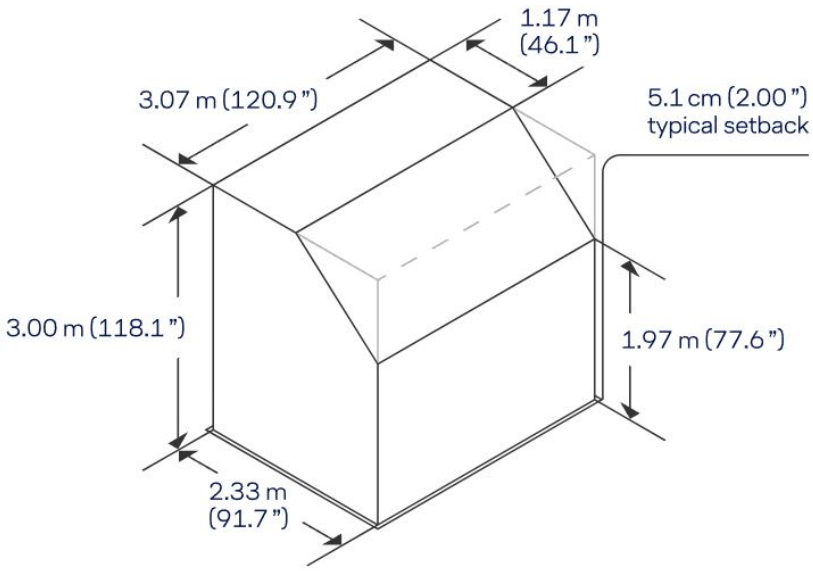
J4-Contour

Consider the different measures of the outer height when building a J4-contour on a 88" resp. 96" pallet (on the right of each picture below).

J4-contour on a 88" pallet.



J4-contour on a 96" pallet.



Example of a J4-contour.



4.3 Summary ULDs and Contours

4.3.1 Summary of Pallets and Containers

Pallets	Code	Base Dimensions	Net Type	Loadability / Notes
	PLA	153 x 318 cm 60.4 x 125 in	NLA	Lower Deck all wide body passenger aircraft A330, A340, A350, A380, B747, B787, B777(pax)
	PLW	153 x 318 cm 60.4 x 125 in	NLA	Lower Deck all wide body passenger aircraft A330, A340, A350, A380, B747, B787, B777(pax) 350kg maximum per side extension
	PAJ	224 x 318 cm 88 x 125 in	NME	Lower Deck or Main Deck all wide body aircraft A330, A340, A350, A380, B747, B787, B777, B777F Main Deck A321 Freighter
	PMC	244 x 318 cm 96 x 125 in	NME	Lower Deck or Main Deck all wide body aircraft A330, A340, A350, A380, B747, B787, B777, B777F

Containers	Code	Base Dimensions	Height	Loadability / Notes
	AKW / AKH	153 x 156 cm 60.4 x 61.5 in	114 cm 45 in	Lower Deck A320, A321, A321F
	AKE (LD3)	153 x 156 cm 60.4 x 61.5 in	163 cm 64 in	Lower Deck all wide body aircraft A330, A340, A350, A380, B747, B787, B777, B777F
	AMP (LD9)	244 x 318 cm 96 x 125 in	163 cm 64 in	Lower Deck all wide body aircraft A330, A340, A350, A380, B747, B787, B777, B777F
	AMJ	244 x 318 cm 96 x 125 in	244 cm 96 in	Main Deck B777 Freighter Containers with IDs AMJ 49000 LH - AMJ 49999 LH are fire resistant.
	AAY	224x 318 cm 88 x125 in	208 cm 88 in	Main Deck A321 Freighter Fire Resistant Container

4.3.2 Summary of the Maximum Gross Weight and Contours on Pallets

Lower Deck	max Gross Weight				Contour	max Height
	PKC (60.4“)	PLW/PLA (60.4“)	PAJ (88")	PMC (96")		
A320, A321, A321F	1000 kg				straight up	114 cm (45 in)
A330, A340, A350, A380 B747, B777pax, B787		3000 kg	4000 kg	5000 kg	P	163 cm (64 in)
B777F			4000 kg	5000 kg	P	163 cm (64 in)

Main Deck	max Gross Weight				Contour	max Height
	PAJ (88")	PMC (96")	PZA (16ft)	PGA (20ft)		
B777F	5000 kg	5800 kg	10000 kg	10000 kg	J4	300 cm (118 in)

4.3.3 Summary of the Maximum Gross Weight of Containers

Lower Deck	max Gross Weight			max Height
	AKH/AKW	AKE	AMP	
A320, A321, A321F	1000 kg			114 cm (45 in)
A330, A340, A350, A380, B747, B787, B777pax, B777F		1500 kg	5000 kg	163 cm (64 in)

Main Deck	max Gross Weight		max Height
	AAY	AMJ	
A321F	1800 kg		208 cm (88 in)
B777F		5800 kg	244 cm (96 in)

5 Serviceability, Storage and Transportation of ULDs and Loading Material

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5 Serviceability, Storage and Transportation of ULDs and Loading Material

Always check ULDs for serviceability

LCAG checks ULDs prior to their release to an Agent/Customer. Nevertheless, you must double check any ULD for their serviceability before loading.

The person signing the ULD-tag for the correct build-up is responsible to check the serviceability of ULDs and loading material.

- ✔ Unserviceable ULDs may only be carried onboard either empty or as part of a pallet stack when being shipped to FRA for repair.
- ✖ Never load airmail on / into unserviceable ULDs.
- ✖ Provisional fixes to ULDs are not allowed.

Handle with care

Also, ULDs must be handled (stored, transported) with utmost care in order to avoid damages.

Any damage to a ULD, making it unserviceable

- can affect the safety of the cargo loaded within the ULD,
- can affect the safety of the aircraft on which it is loaded,
- produce high repair cost for LCAG.



5.1 Serviceability Check of ULDs and Loading Material

5.1.1 Serviceability Check of ULDs

All regulations of this subsection are also valid for ULDs (pallets and containers) povided by other airlines when transported on Lufthansa Group aircraft.

Damages within the limits of this subsection are only acceptable if
- the function of the restraint system is not restricted, **and**
- containers: the door can still be closed properly.

Certificate

- Type label or type markings must be fixed or engraved **and** readable as proof of certification.
- All ULDs must be certified by either ETSO (JTSO) or TSO.

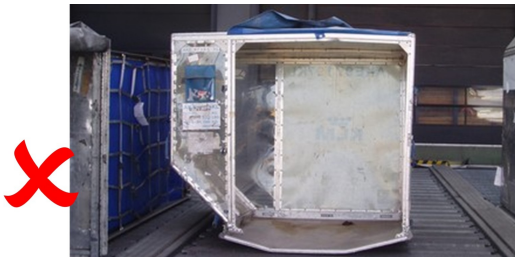




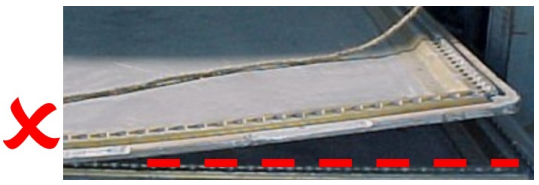
Base Plate

- ✔ No deformation larger than 2.5 cm (1 in).

  This includes the lower outbord panel of an AKE or AKH (following the F- resp. H-contour)
- ✔ No deformation that prevents any lock being raised properly over the ULD edge.





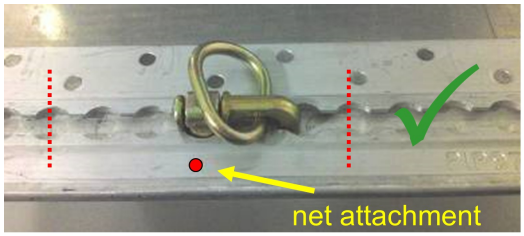
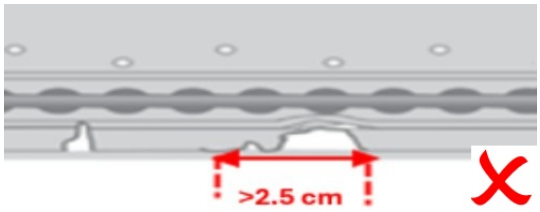


- ✔ No holes or cracks in the ULD base.

5 small holes are drilled into pallets, this is intended and for water drainage.



Base Edge Profiles

✔ Min 3 adjacent pairs of tie-down tracks on the right or left side of each net attachment point are undamaged.	 
✔ Max. 2 missing fasteners (screw or rivet) per edge profile.	
✔ No missing fastener (screw or rivet) at the corner.	
✔ Max. one deformation up to 2.5 cm (1 in) per 1 m (3 ft 3 in), **OR** ✔ max. three deformations up to 2.5 cm (1 in) per 2 m (6 ft 6 in).	

Corners

✔ No damaged or missing corner.		

Container Panels (walls, roof)

- ✔ No crack or hole larger than 10 cm (4 in).
- ✔ No more than 2 holes or cracks less than 30 cm (12 in) apart from each other.

Serviceability requirements for wall and roof panels are also applicable for all light weight containers





Container Gussets

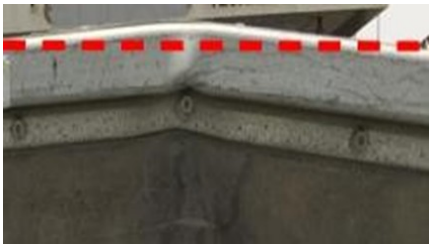
- ✔ No gusset is missing, loose, bent or broken.



Containers Extrusions (Frame Profile)

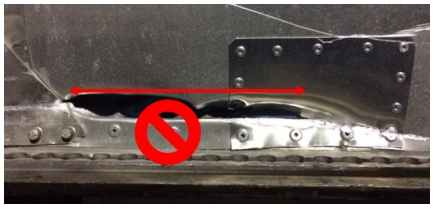
The green lines show the extrusions (frame profiles) of a container:	
✔ No hole larger than 2 cm (0.8 in) per each frame profile ✔ No crack or deformation longer than 8 cm (3 in) in the longitudinal direction of the frame profiles (extrusions).	
No crack or deformation longer than 0.5 cm (0.2 in) in the transverse direction of frame profiles (extrusions).	

Container Roof (Extrusion and Panel)

✔ No cracks in the upper extrusion. ✔ No deformation of the roof panel greater than 5 cm (2 in).	

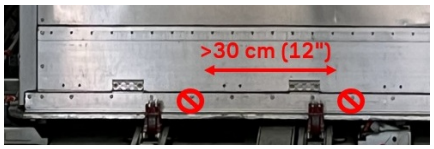
Container Base

- ✔ No crack longer than 8 cm (3 in);
- ✔ No hole greater than than 2 cm (0.8 in) in diameter.



Container Base Fasteners

- ✔ No more than 2 missing or damaged fasteners (rivets or screws) per side;
- ✔ The distance between two missing fasteners must be greater than 30 cm (12 in).

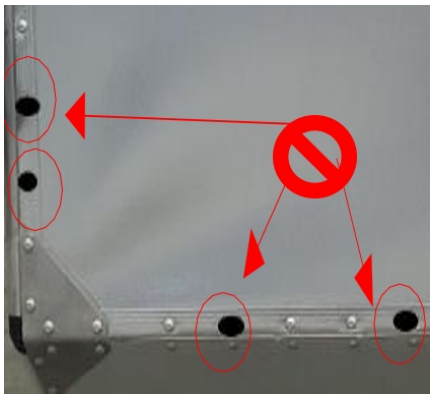


Container Panel Fasteners

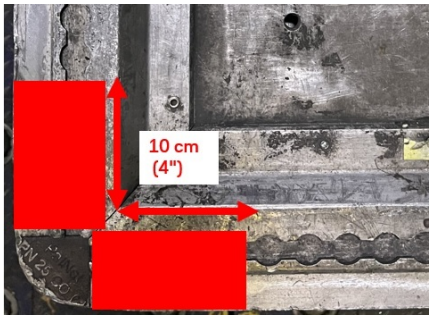
- ✔ Lightweight and Aluminum containers:

  Max. 1 fastener (rivet, screw) per extrusion (frame profile) is missing or damaged.
- ✔ Aluminum containers only:

  No missing or damaged fastener on the roof.



No Damage Zones

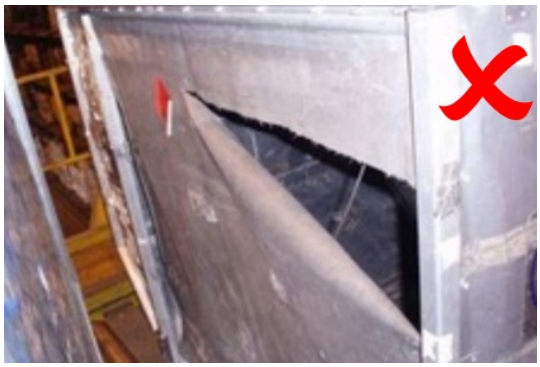
✔ No damage within 10 cm (4 in) from the corner of the edge rail.	
✔ No damage within 10 cm (4 in) of fastener line (rivet line).	
✔ No damage within 5 cm (2 in) on curtain edge and locking.	

Containers: Door Tarpaulins

Containers equipped with a door strap net remain serviceable even if the tarpaulin is damaged.

Applicable only to containers in which the tarpaulin serves as load securing:

- ✔ Max. two holes or cracks up to 10 cm (4 in) with a min. distance of 50 cm (19.5 in).



- ✔ All door hooks and tarpaulin eyes must be in place.

  Deflections of the hooks are allowed, if the door can still be locked properly at all hooks.



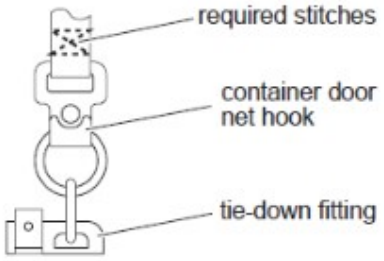
- ✔ Velcro or other straps used to lock the doors must not be damaged or worn out.







Containers: Door Strap Nets

✔ No strap must be torn or cut	
✔ No tie-down hook or fitting is missing, damaged or distorted.	
✔ No stitches at strap connecting fittings are torn or missing.	

Only the stitches at the connecting fittings as shown in the picture are relevant. Stitches which connect the crossing horizontal and vertical straps are only for stabilization to avoid tangling when folding and unfolding the net.

Pallets with permanent fixed net

Please do not try to remove, cut or exchange the nets.

A damaged permfix-net equals a damaged pallet. Consequently, mark the ULD with a damage tag and file a damage report.

The ULD may be loaded with cargo, but a serviceable pallet net must be used for securing the cargo.

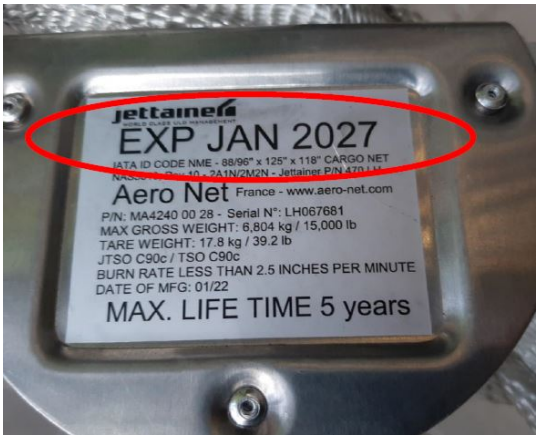
5.1.2 Serviceability Check of Nets and Straps

Expiry Date of LH Nets

This regulation is only valid for Pallet Nets of the LH Group (jettainer).

- ✔ The expiry date ("EXP") must not be exceeded which means, the net is not older than 5 years





Expiry Date and Weight Limit of OAL Nets

This regulation is only valid for Pallet Nets of Other Airlines.

- ✔ Nets of other airlines must not be older than 3 years, starting from the Date of Manufacturing (DATE OF MFG).
- ✔ Min. one type label must be fixed for proof of certification, and the label must show markings that it fulfils NAS 3610 or JTSO C90 or TSO C90.
- ✔ The weight limit when using OAL nets is 3000 kg.

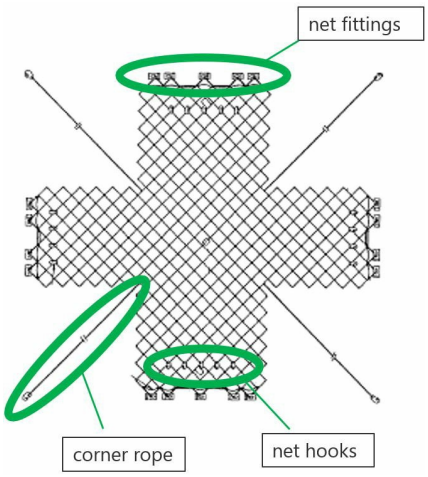
  If the cargo is heavier, either use a second net or use an LH net.

All Nets (LH and OAL)

Nets are serviceable and may be used if:

- ✔ All double studs (net fittings) and all net hooks are attached and undamaged.
- ✔ All corner lashing lines are attached and undamaged.

  If a corner lashing line is damaged or too short (less than 3.7 m, 145 in) it may be replaced by a serviceable red-and-white lashing line from LCAG.
- ✔ Min. one type label is fixed and readable.
- ✔ **No** cords or meshes are torn.





Weight Limitation for Minor Damages

- 2 minor damages are acceptable, if not adjacent to each other.
- Refer to below table for details and the applicable weight limitation for LH nets.
- **Preferrably use an undamaged LH net!**

Net type	Studs for Net type	# missing / damaged ...	... Studs / Meshes	... Hooks (*)
NME (PMC/PAJ)	Double Studs	1	3400 kg	unchanged
		2	2310 kg	5780 kg
NKA (PKC)	Single Studs	1	790 kg	unchanged
		2	539 kg	1110 kg
NLA (PLA/PLW)	Single Studs	1	1580 kg	unchanged
		2	1079 kg	2698 kg
NGE (PGE/PZA)	Double Studs	1	6800 kg	unchanged
		2	4625 kg	12510 kg

(*) As long as the net can still be secured tightly.

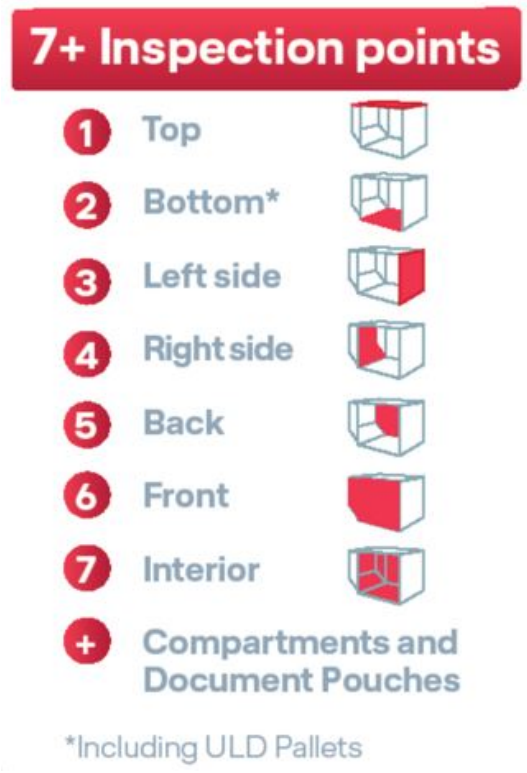
5.2 Security Check of ULDs

ULD Security Check

All inner and outer sides of a container can be manipulated, and must be checked.

Pay attention to:

- ✖ Tare weight discrepancies
- ✖ Abnormal characteristics, dimensions, contours
- ✖ Unusual wider outer walls or double floorings
- ✖ Unusual repairs
- ✖ Grinded / cut / removed parts
- ✖ Manipulated seams







If there is suspicion of manipulation, please report findings to your superior and security office.

5.3 Storage of ULDs and Nets

5.3.1 Storage of Containers

Empty Containers

- ✔ Store empty containers preferably on roller racks or ball mats.
- ✔ Storage of empty containers on ground is only allowed if 2 spacers of either plastic foam material or wooden planks or skids are used underneath
- ✔ Make sure to have container doors (both tarpaulin or solid) closed to avoid damages of the doors and contamination of the interior.



Stacking:

- ✔ Container stacks must be protected against strong winds.
- ✔ Stacking of empty containers on the ground is only allowed if 2 spacers of either plastic foam material or wooden planks or skids are used underneath and in between.
- ✔ In a rack up to 4 containers may be stacked using spacers.
- ✖ AMJ / AMH containers must not be stacked on ground.





Loaded Containers

✔ Store loaded containers only on slave pallets, roller racks, ball point mats or dollies. ✖ Do not store loaded containerson the ground, not even on spacers!	
✖ Never use a forklift for lifting or moving of loaded containers.	

5.3.2 Storage of Pallets

Empty Pallets

✔ Use a pallet rack (funnel) for proper alignment of the pallets. ✔ Stack a maximum of 50 pallets in a rack. ✔ On a shelf, without a rack, a maximum of 20 pallets may be stacked.	
✔ Wings pallets (PLW): avoid excessive bending of wing pallets by using spacers after every 5th pallet.	

Loaded Pallets

✔ Store loaded pallets only on slave pallets, roller racks, ball point mats or dollies.	
✖ Do not store loaded pallets on the ground, not even on spacers!	
✖ Never use a forklift for lifting or moving of loaded pallets.	

5.3.3 Storage of Nets

Serviceable Nets

✔ Serviceable nets may be kept attached to the pallet on one of the long sides: position the net on the pallet surface and ensure that no part of the net is hanging outside the pallet edge. ✔ Serviceable nets may be packed in a net bag (PN115, one net per sack) and be stored in dry rooms.	

Unserviceable Nets

✔ Unserviceable nets must be collected in a separate container (packed in PN0115) and be returned to Lufthansa Cargo.	

PermFix Nets

✖ Never cut off nets that are permanently fixed to a pallet! Keep them attached to the pallet as descibed above also for the return to Lufthansa Cargo. They are marked with several red signs.	

5.4 Transportation of ULDs

Empty Containers

- ✔ Preferably on dollies or slave pallets, but allowed by forklift.
- ✔ On trucks spacers must be used underneath if no roller beds or similar exist.
- ✔ On trucks stacking of up of two containers is allowed (except AMJ) using spacers underneath and in between.



Empty Pallets

- ✔ A stack of maximum 40 pallets using slave pallets or dollies only.

Loaded Containers and Pallets

- ✔ The transportation of loaded Containers or Pallets is allowed only on dollies, roller beds or ball point mats.
- ✔ On trucks/trailers slave pallets, roller beds or ball point mats are mandatory .
- ✖ Never forklift loaded Containers or Pallets unless a slave pallet is used.







5.5 Return of ULDs and Loading Material

ULDs

- ✔ Pallets and containers must be returned principally cleaned.

Straps

- ✔ Straps have to be rolled up for return.

Pallet Nets

- ✔ Nets **that are not permanently fixed to a pallet** must be packed into net sacks for return. One net per sack is allowed.

7 Build-Up Principles

7.1 **Build-Up of ULDs** 2

7.2 **Weather Protection on Pallets** 4

7.3 **Build Up Procedure for FCCs** 5

7 Build-Up Principles

7.1 Build-Up of ULDs

General

- Before using a ULD, check its **Serviceability** (chapter → 5.1) and **Security** (→ 5.2).
- ULDs must be handled with utmost care.
- Loading of ULDs must only happen on on slave pallets, roller racks, ball point mats or dollies (chapter → 5.3).
- All mailbags loaded on a ULD must be destined to the same unloading station.
- Use the bricklayer method to stabilise the load, whenever possible.
- On the maindeck of freighters, airmail may only be built-up
  - B777F and A321F: in fire-resistant containers (FRC), see chapter → 4.3.1
  - B777F only: on pallets with a fire-containment cover (FCC), see chapter → 7.3

✖ It is not permitted to use air or gas filled dunnage bags to secure the load inside a ULD.







Containers

- Airmail must be stacked well-built so that it does not fall out of the container when the door is opened.
- Airmail loaded in containers which have a flexible door must be skillfully loaded to avoid pressing against the tarpaulin door.



Pallets

- Secure small pieces properly so that they cannot slide through the pallet net meshes.
- If necessary, cover the load with a plastic net with small meshes (not provided by LCAG) before applying the normal pallet net.
- Keep the pallet edge (tie down rail) free of load to enable the attachment of the tie down equipment.

  This is also important for the correct locking of the ULD in the aircraft.



7.2 Weather Protection on Pallets

Weather Protection

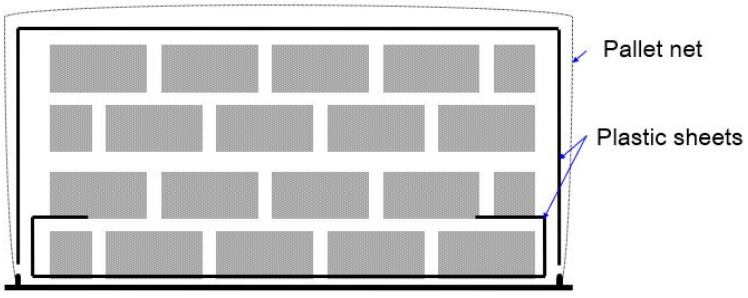
Any load on a pallet must be protected against rain and snow with **transparent** plastic foil or sheeting.

Exception: usage of a Fire Containment Cover (FCC) for Main Deck pallets.

- Cover the base of the pallet with plastic.
- The plastic sheeting underneath must be tucked in between the first and second layer loaded.
- The plastic sheeting over the top must be pulled down so that it covers the plastic protecting the bottom layers.
- Use adhesive tape in order to keep the plastic in place and to avoid it hanging over the edge of the pallet.
- Make sure that there are no tears or holes in the plastic;
  otherwise start over again.
- Finally, apply the pallet net (chapter → 8.2).







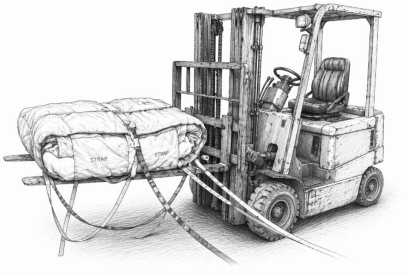
7.3 Build Up Procedure for FCCs

General

- ✔ Verify that the FCC is only installed on PAJ or PMC pallets.
- ✔ Confirm the applicable height option by checking the Deployment Kit color: blue (maximum height J3) or grey (maximum height J4).
- ✔ Ensure no sharp objects are protruding from the cargo that could damage the FCC.
- ✔ A minimum of two people are recommended for the installation. The combined weight of the Deployment Kit with FCC is up to 64 kg, depending on the manufacturer.

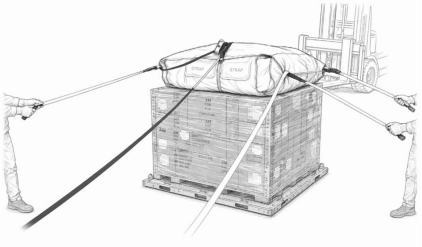
Preparation of the FCC Kit

- ✔ Align the long side of the Deployment Kit with the long side of the cargo.
- ✔ Remove the red strap and undo the closure fittings on both sides of the Deployment Kit.
- ✔ Remove the Deployment Ropes (black) and Deployment Straps (white and blue) from their respective pockets and lay them out completely on the ground.
- ✔ Using a forklift, lift the Deployment Kit off the ground.



Positioning on Cargo

- ✔ While holding all Deployment Ropes and Straps clear of the forklift path, use the forklift to place the Deployment Kit on top of the cargo.
- ✔ If the load surface is uneven, position the Deployment Kit at the highest point of the load.
- ✔ The Deployment Straps may be used to stabilize the Deployment Kit while removing the forklift.
- ✔ Use the same Deployment Straps to make any necessary positional adjustments.



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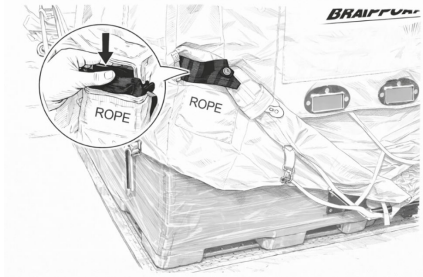
Deployment

- ✔ Pull the Deployment Ropes (black) on one side to deploy that side of the FCC down over the load.
- ✔ Repeat on the opposite side.
- ✔ Continue pulling the FCC down on all four sides until the cargo is fully covered.
- ✔ Ensure the cover is fully deployed and that there are no folds at any corner.



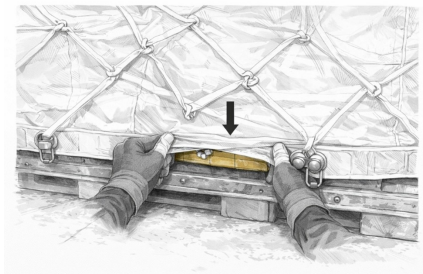
Securing the Deployment Ropes

- ✔ Tuck the Deployment Ropes (black) into their respective pockets located at all four corners on the inside of the FCC.



Fastening the Net

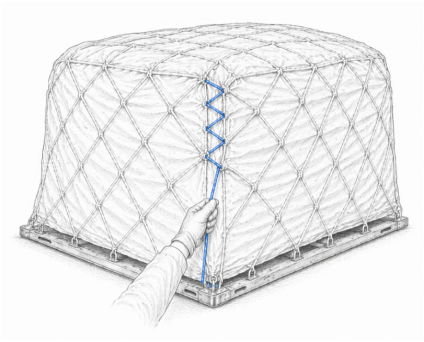
- ✔ Close the FCC net by fastening all double studs. Before engaging each double stud, pull the cover upward so that it lies flush with the surface of the pallet.
- ✔ Tighten the net using the tensioner hooks. Make sure that neither straps nor fabric are hanging loosely.
- ✔ Attach each tensioner hook to a higher mesh position directly above the existing hook location to prevent the net from twisting.
- ✔ If required, apply tension around the net a second time to achieve a tight, even fit.

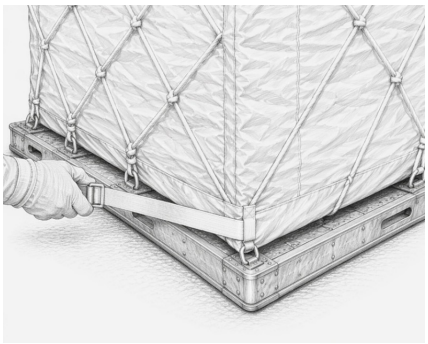


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Corner Lashing and Final Closure

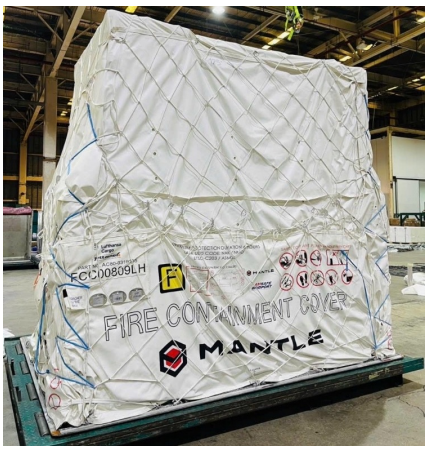
- ✔ Lash the net at all four corners using the lashing line.
- ✔ Pull each corner belt and attach its fitting to the pallet on the adjacent side. Repeat on all sides.
- ✔ Pull the cover downward to close any gap between the bottom seam and the pallet base.
- ✔ Verify that all double studs are fully engaged and that no gaps are present between the bottom seam and the pallet base.





Final Check

- ✔ No ropes or straps are hanging out from beneath the FCC.
- ✔ All double studs are fully engaged.
- ✔ All tensioner hooks are engaged and the cover is tightly wrapped around the cargo.
- ✔ All corner belts are attached and lashing lines are tightened.
- ✔ No gaps are present between the bottom seam of the FCC and the pallet base.



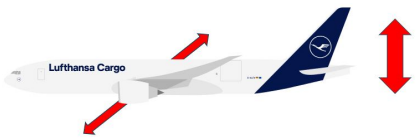
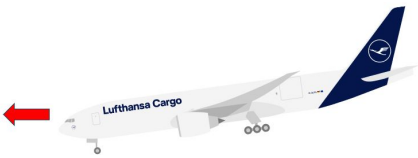
8 Lashing

8.1 **Lashing of Airmail** 2

8.2 **Primary Lashing on a Pallet** 3

8 Lashing

During the different flight phases, the aircraft and the freight loaded is exposed to various forces:

During take-off and the climb phase, the aircraft will experience a backward force.	
In flight, the aircraft may experience turbulences. These are the Up and Down and Lateral forces.	
During decent and landing, a forward force appears.	

Airmail must be secured against these forces.

8.1 Lashing of Airmail

Lashing

Lashing protects Airmail against the above mentioned forces.

If Airmail is loaded onto a pallet, a pallet net must be used for lashing.

The net must be sufficiently tightened

- without bowing the pallet,
- without damaging loaded Airmail.

If loaded in a container, Airmail is protected against the above mentioned forces by the container itself.

8.2 Primary Lashing on a Pallet

Primary Lashing

A **pallet net** must be used for Primary Lashing on a pallet.

All pallets with the appropriate net will be provided by Lufthansa Cargo.

Lashing material must be sufficiently tightened without

- ✖ bending the pallet,
- ✖ damaging loaded cargo.



LH vs. OAL Nets

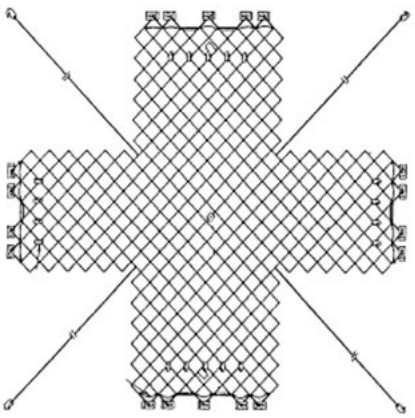
Preferably Lufthansa Cargo nets are to be used on Lufthansa Cargo pallets.

If you use a pallet net from other airlines, please refer to the regulations in chapter → 5.1.2, epsecially the weight limitation up to 3000 kg.

Corner Lashing Lines

- ✔ All 4 corner lashing lines have to be available (not or damaged, not too short).
- ✔ If a corner lashing line is missing or too short, only replace it with a serviceable Lufthansa Cargo lashing line.

  You may also send back the net to Lufthansa Cargo and use another serviceable net.
- ✖ It is not allowed to repair a net or increase the length of a corner lashing line with ropes or straps.

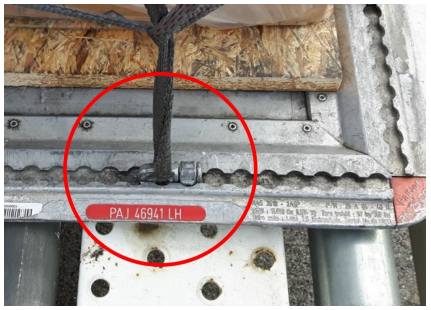


Net Attachment Points and Tie-Down

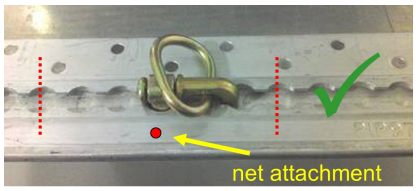
On the pallet edge net attachment points are located.

These markings tell where the net has to be fixed to the pallet, 5 fittings on the long side and 4 fittings on the shorter side of the LCAG 88/96" pallets.

✔ All net fittings must be utilised.



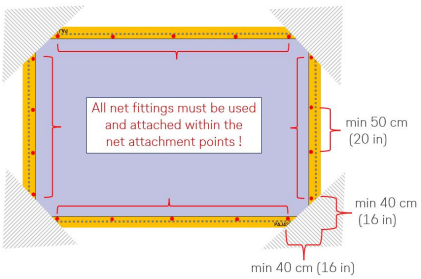
✔ A net tie-down fitting may be attached up to two holes left or right to the net attachment point marking.





This assures

- the minimum distance of 40 cm (16 in) between strap attachments and the pallet corners;
- the minimum distance of 50 cm (20 in) between net fittings.



10 ULD-Tag

10.1 ULD-Tag for Airmail 2

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10 ULD-Tag

Signature

The person signing the ULD-tag must hold a valid BUP training certificate.

By signing the ULD-tag the agent takes full responsibility for the correct build-up of the ULD as per the requirements of this manual.

10.1 ULD-Tag for Airmail

Lufthansa- or IATA-Tag

For Airmail the Lufthansa- or IATA-tag must be used.

The following fields must be filled in:

1) ID Code: ULD ID number

2) Destination: airport of destination

3) mark the BUP checkbox with "X"; (IATA-tag: not available)

4) B-number or signature
IATA-tag: put it down untder "Remarks" next to 10)

5) Loaded at: airport of origin

6) Flight No.: flight number and date

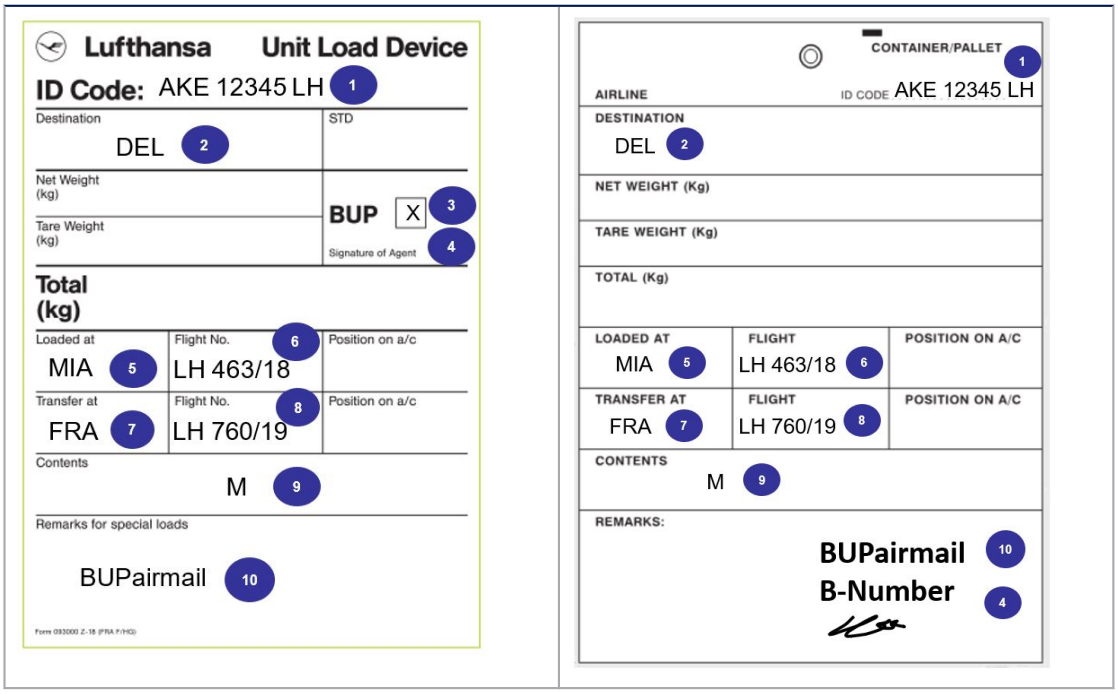
7) Transfer at: airport of transit (if applicable)

8) Flight No: connecting flight and date (if applicable)

9) Contents: always put "M" for airMail

10) Remarks for special loads:
- BUP license type: BUPairmail

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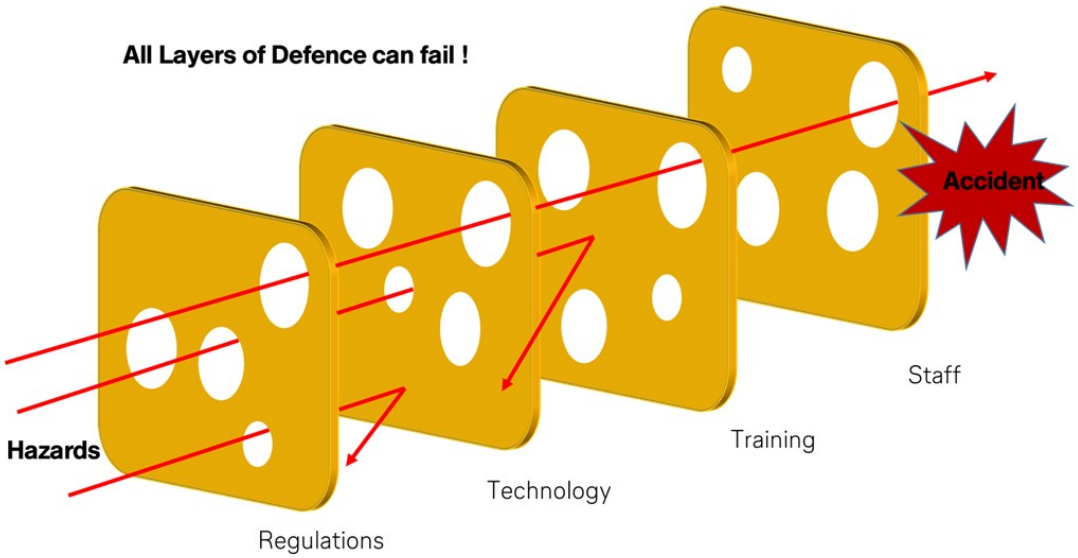

Lufthansa Unit Load Device
ID Code: AKE 12345 LH 1
Destination
DEL 2
STD
Net Weight (kg)
Tare Weight (kg)
BUP X 3
Signature of Agent 4
Total (kg)
Loaded at
MIA 5
Flight No.
LH 463/18 6
Position on a/c
Transfer at
FRA 7
Flight No.
LH 760/19 8
Position on a/c
Contents
M 9
Remarks for special loads
BUPairmail 10
CONTAINER/PALLET 1
AIRLINE
ID CODE AKE 12345 LH
DESTINATION
DEL 2
NET WEIGHT (Kg)
TARE WEIGHT (Kg)
TOTAL (Kg)
LOADED AT
MIA 5
FLIGHT
LH 463/18 6
POSITION ON A/C
TRANSFER AT
FRA 7
FLIGHT
LH 760/19 8
POSITION ON A/C
CONTENTS
M 9
REMARKS:
BUPairmail 10
B-Number 4

11 The Human Factor

Humans Make Mistakes

Human error is the unintentional act of performing a task incorrectly like:

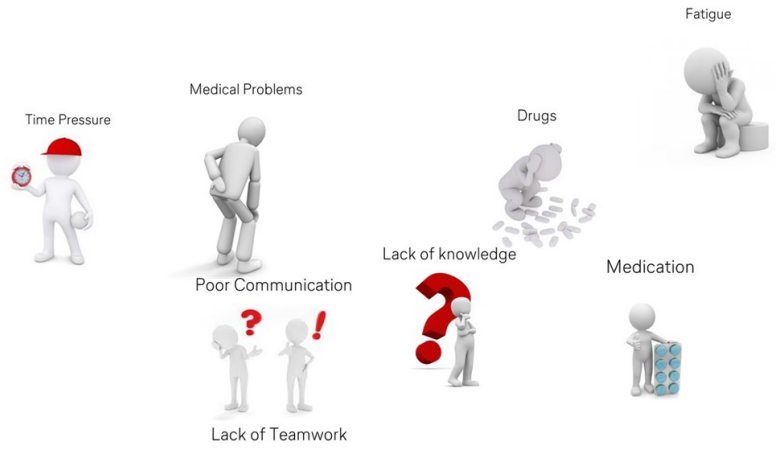
- Not performing a task or an act
- Accomplishing a task incorrectly
- Performing a task not authorized



You Can Reduce Risks

Human error, rather than mechanical failure, underlies most aviation accidents.

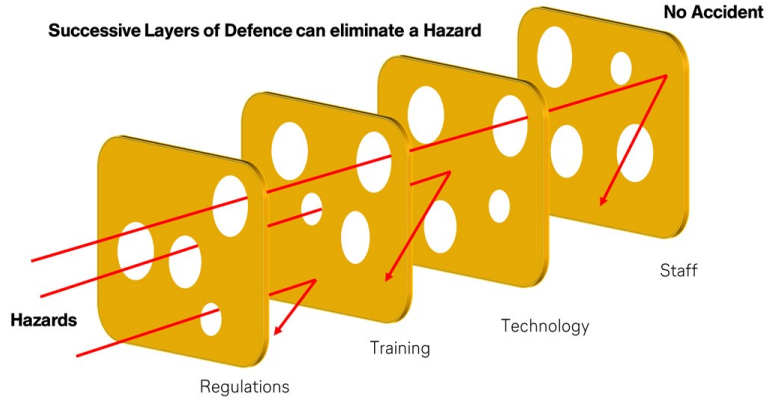
The list of human factors that can affect work performance is broad, like:



In Aviation, every Hazard or Risk can lead to an Accident. You can reduce those risks:

- Keep yourself fit.
- Get enough rest.
- Don't work if you don't feel okay.
- Keep yourself up-to-date.
- Always expect to find something wrong.
- Never sign-off something that you did not fully check.
- Always double-check your work.

Mission Accomplished



And if you have identified a risk or made a mistake ...

- **REPORT IT !!**

Even if it is against human nature to show weakness, **report what happened**, and support others by learning from errors.