

Shipper Built Unit (BUC) Guidelines

This document presents standard procedures and rules for shipper built ULDs. The agent must ensure that the units are “Ready for Carriage” following this document.

NCA reserves the right to amend these guidelines based on updates to the NCA Manual and IATA Guidelines.

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Cleanliness

Before using or storing ULDs, remove all skids, plastic, nets, straps, dirt and debris, old tags, unreadable placards and any other loose items that are not part of the container. This will reduce misrouting and damage to cargo.

B747-F ULD Chart

ULD	Inner dimension	Overall Dimensions	Weight Limitation per square	Max Gross LB	Max Gross KG
PMC	228x301(cm) 89x118.5(inch)	243x317(cm) 96x125(inch)	1952kg/m ²	15,000	6,800
AKE	136x142x156(cm) 53x55x61(inch)	153x156x162(cm) 60.4x61.5x64(inch)	976kg/m ²	3,500	1,588

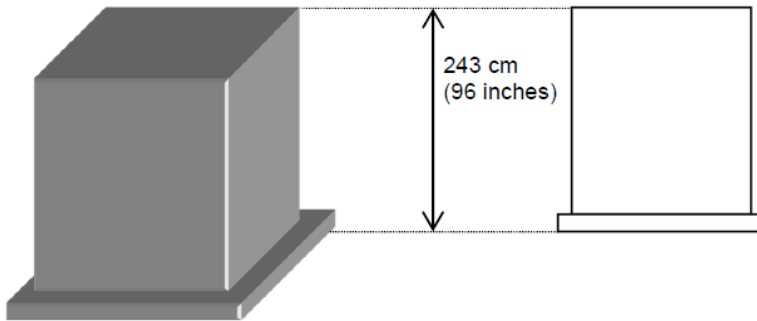
For ULDs not listed in the above table, please the contact nearest NCA Office for further assistance.

Contour Dimensions for B747-F

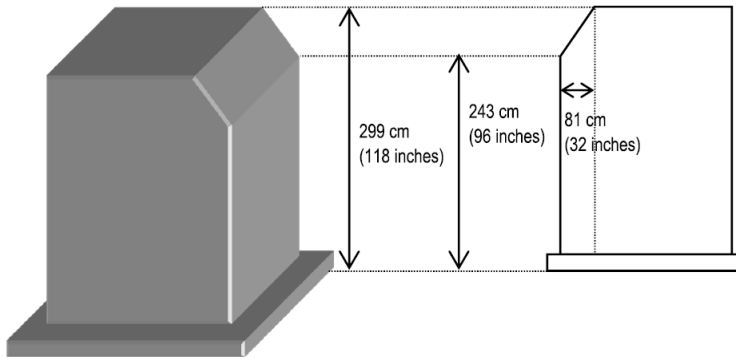
The height of palletized cargo shall be measured from the bottom surface of the pallet to the highest part of the cargo.

Additionally, the cargo must fit within the inner dimension of the ULD following the ULD Compatibility Chart listed above.

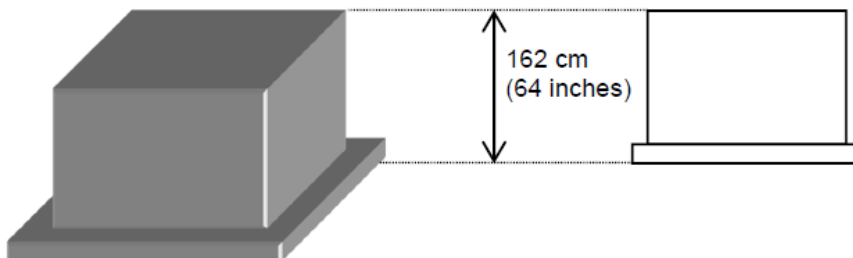
- ☐ Nose (Height Code : N) (IATA Height Code: Q6)
*Main deck



- ☐ Shelf (Height Code SH) (IATA Height Code: Q7)
*Main deck



- ☐ Lower (Height Code L) (IATA Height Code: LD)
*Lower deck



The following cannot be shipped as Shipper Built Units

Item	Definition
Dangerous Goods	All dangerous goods as defined in IATA DGR 9.1.4
Overhang cargo	Cargo that protrudes out over the base of an ULD <u>*For overhang cargo, you must provide necessary information to NCA in advance for verification and to decide whether or not to accept it.</u>
Heavy cargo	A single piece of cargo that weighs more than 500kg <u>*For cargo over 500kg, you must provide necessary information to NCA in advance for verification and to decide whether or not to accept it.</u>
Live Animals	All live animals
Valuable cargo	Any article having a declared value for carriage of US\$1,000.00 or equivalent, or more per gross kilogram.
Human Remains.	Human Remains
Diplomatic Shipment	Government's authority of Post and cargo
Unaccompanied Baggage	Unaccompanied Baggage
Shipments requiring quarantine	Shipments requiring quarantine
Highly sensitive and expensive equipment	Precision machinery that is extremely sensitive to vibration, temperature, and vibration
Firearms swords	Firearms, swords or any other military weapon.
Embargo Cargo	Cargo restricted by NCA and/or local regulations
Intermediate Bulk Container (IBC)	An Intermediate bulk container (IBC) is a container used for transport and storage of fluids. <u>*Acceptable when containing solids.</u>

For further inquiries, please contact the nearest NCA Office.

Securing of Additional Equipment

Item	Purpose of Usage
Skids	Prevention of wet, Bottom up, Shoring
Spreader Board	Prevention of leaning, Height adjustment, Shoring
Corner Pad	Prevention of damage
Shrink Wrap	Prevention of leaning
Plastic Sheet	Prevention of wet
Tie-Down Straps	Prevention of leaning, Cargo securing
Blotter Sheet	Prevention of leakage on A/C floor (For liquid cargo)

※ Skids and spreader board must be in serviceable condition. (No missing slats, no nails sticking out)

Inspection of ULD and Cargo Net

ULD and Cargo Net shall be inspected before each use. Any unserviceable ULD or Cargo Net shall be immediately returned to NCA.

- ☐ Check if pallet base is bent, cracked, broken.
- ☐ Check if container is crushed, cracked, broken, or holed. (check four sides of walls and ceiling to prevent wet damage)
- ☐ Check if container door and door lock operates properly.
- ☐ Check if Technical Service Order (TSO) tag of the cargo net is attached or any other defect is found.
- ☐ Check if any used tags on cargo net or container are removed.

Note: See “ULD Serviceability Standard” on later page for details. You can check the serviceability.

Setting of ULD

To assist in the prevention of the damage to ULDs during the build-up phase, ULDs are to never be lifted when the ULD is in direct contact with the floor as the lifting device may puncture, bend, damage the ULD during the lifting procedure.

All ULDs must be placed either on a dolly, workstation, or any other lifting support that may include but not limited to skid, suitable wood framings, or equivalent structures. This allows the lifting device to get under the ULD without damaging the ULD.

Build-Up on Pallets

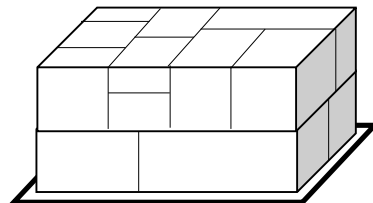
Build-Up

Build-up on pallets shall proceed according to the following steps.

- ❑ Place 1-ply plastic sheet on the bottom and 2-ply plastic sheets on the upper side to prevent from wet damage.



- ❑ Place heavy cargo at the bottom position and lighter pieces on top.
- ❑ Ensure that the pallet shape of the load is within the contour allowed for the aircraft on which it will be carried. Contour shall be checked by contour gauge or measurement
- ❑ Cargo must be evenly placed to maintain equal distribution.
- ❑ Long and narrow cargo must be built up to prevent it from leaning against other cargo. This ensure that when other cargo is removed during breakdown, the long and narrow cargo does not collapse.

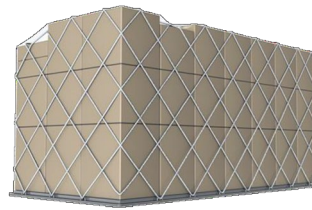
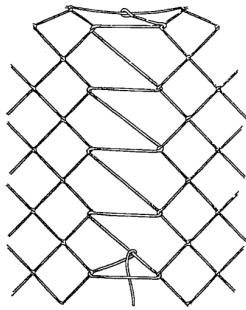


- ❑ Follow the direction of the This Side Up label.
- ❑ The maximum height for any pallet or container carried on NCA's aircraft is 299cm (118 inches) (Measured from the bottom of the pallet). This measurement includes the height of the pallet board, net, and tie-down straps.
- ❑ Apply tie-downs to fully restrain the cargo before covering it with a cargo net to prevent any movement during transportation, especially for heavy and unstable cargo due to its shape, size or height.
- ❑ After building up the cargo, wrap it with shrink wrap.
- ❑ Tuck the remaining parts of the plastic sheets under the palletized cargo and secure them with gummed tape. Cover the entire load on the pallet with 2-ply plastic sheets. Then secure the remaining parts of the sheets by tying knots at each 96 inches side of the pallet.

Covering Cargo Net

Covering cargo net shall proceed according to the following steps.

- ☐ Spread the net out to disentangle any knots and separate the corner ropes from the body of the net.
- ☐ Spread the net evenly over the entire load, ensuring all packages are covered by it.
- ☐ Attach all fittings before attempting to shorten or tension the net. Ensure fittings are evenly spaced out.
- ☐ Pull the meshes on the roof of the net taut so that any slack is in net side pieces of the net.
- ☐ Loosely tension each side of the net with a tensioning hook, starting from the center and working outward in each case.
- ☐ Tension around the net a second time with tensioning hook as tightly as possible.
- ☐ Use the corner ropes to connect adjacent sides of the net.
- ☐ If the load has a small floor area and/or height, the corner ropes can be woven into any row of meshes on the net sides to achieve appropriate tension.



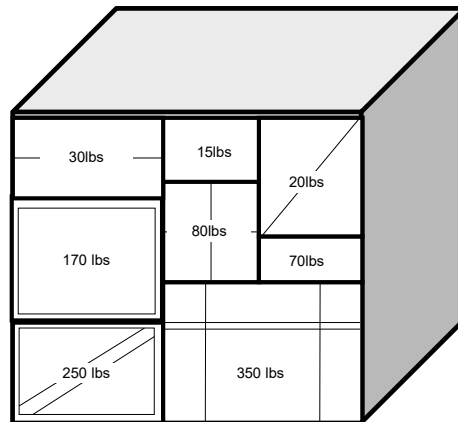
- ☐ A properly built net comprises both a serviceable pallet and a serviceable cargo net. No pallet should be shipped out without a net.
 - The cargo net serves as the primary cargo restraint.
 - Tie-down straps can be used as supplemental restraints but cannot serve as the primary restraint.

Build-Up in container

Build-Up

Build-up in container shall proceed according to the following steps.

- ☐ Place heavy cargo at the lowest position and lighter pieces on top.
- ☐ Ensure heavy pieces are not excessively loaded on one side of a ULD; distribute them evenly throughout.



- ☐ Exercise extra caution when loading an LD3 unit. Place heavy items in the center of the cabin to prevent the ULD from tipping.
- ☐ Items with sharp exposed edges can cause tears in the aluminum and should not be placed against the side walls.
- ☐ Avoid using any device or action to widen the door opening in order to accommodate pieces larger than the door. This action damages the container frame and renders the ULD unserviceable.
- ☐ Follow the direction of 'This Side Up' label.
- ☐ Do not scoop up or handle palletized ULDs directly with forklift unless the ULDs have fork entries.

Securing Cargo in Containers

The following items shall be tied down on the container floor. If not secured properly it may result in damage to personal and or equipment.

- ☐ Item supposed to tumble or roll easily in the container because of its shape, such as drum or cylindrical container, irrespective of its weight.
- ☐ Any package containing liquefied nature.
- ☐ Pieces weighing 150kg or more shall be individually tied down, except when the container is volumetrically full.

Specific Types

Prevention of Leaning

- ❑ When building up pail cans, do not stack more than 2 layers. If stacking exceeds 2 layers, employ a spreader board for every 2-layer stack and secure them with shrink wrap for stability.
- ❑ When building up small cartons, an interlocking stack is strongly recommended. This method secures the load and prevents shifting.



- ❑ When building up small cartons to a significant height, they shall be wrapped several times with shrink wrap.
- ❑ Poor supporting base materials, such as Styrofoam or cardboard, might lead to leaning or irregular contouring if heavy cargo stacked on top.

Prevention of Wet Damage

- ❑ Cover the load by using at least 1 plastic sheet for bottom and 2 plastic sheet for upper side.
Note: As for containers, use container cover, or cover by plastic sheet, if necessary.
- ❑ If necessary, skid up the loads to prevent wet damage to the cargo at the bottom.
- ❑ When building up liquid shipment, regardless of package material and whether dangerous goods or not, place blotter sheet on the bottom of the pallet prior to building up to prevent wet damage.

Drums

- ❑ Metal-made single packages, containing dangerous goods, must be over-packed for both liquid and solid shipments. This precaution is necessary as even minor damage to the bottom of metal-made single packages due to structural reasons can cause leakage, especially in liquid shipments, regardless of whether liquids are classified as dangerous goods or not.

Over pack requirement :

	Dangerous Goods			Non-Dangerous Goods		
	Liquid	Gel	Solid	Liquid	Gel	Solid
Metal drum/jerrican (Single Package)	Required	Required	Required	Required	Required	<i>Not required</i>
Metal drum/jerrican (Double Package)	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>
Metal Composite package	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>
Plastic Drum/ jerrican (Single and double package)	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>	<i>Not required</i>

Temp Control Shipper Built units

- ☐ All Temp Control ULD (RAP and RKN) shall be built to current IATA Temp Control Regulations (TCR).
- ☐ All Temp Control BUP that are built up on/in a non-temperature controlled ULD shall follow this document for serviceability and build requirements and the IATA Temp Control Regulations.

ULD storage

ULD shall be stored in accordance with the following principles so as to prevent the damages:

- ☐ Store in the specified place.
- ☐ Do not store on the ground without suitable base support except ULD with forklift able devices.
- ☐ Do not stack one ULD on top of another except the pallet and the ULD specially designed for stacking.
- ☐ Do not store the pallet in standing containers.
- ☐ Securely close or latch doors of containers.
- ☐ Do not place any article on the roof of containers.

ULD Serviceability Standard

Pallet

If pallets have following defects, they shall be not serviceable

- ☐ Edge Rails
 - Permanent deformation (bent) shall not exceed 1.3cm (0.5inch) measured vertically over full length of edge rail.
- ☐ Corners
 - There shall be no broken corners.



- ☐ Seat Tracks
 - There shall be no more than 4 groups of damaged seat track lips per edge rail
 - Eight (8) damaged adjacent seat tracks must be repaired..
- ☐ Plate
 - When the pallet rests on a flat surface, the vertical distance measured between the surface and any point on the plate shall not exceed 2.5cm (1inch), due to warped (dished) plate.
 - Permanent indentation in the plate should not exceed 0.5cm (0.2inch)
 - There shall be no cracks or holes in the plate
- ☐ Rivets
 - There shall be no more than 5 loose or missing rivets per edge rail.
 - Minimum distance between loose or missing rivets shall be 50cm (20inches).
- ☐ TSO Marking
 - TSO marking shall be readable

Cargo Net

If cargo nets have following defects they shall be not serviceable.

- ☐ 1 damaged mesh per side
- ☐ Missing ropes and shortened/parted ropes
- ☐ 1 damaged fitting per side
- ☐ 1 damaged hook per side
- ☐ Missing TSO Tag
- ☐ Past the expiration date on the TSO Tag

Container

If containers have following defects they shall be not serviceable.

- Base
 - Edge Rails
 - Permanent deformation (bent) shall not exceed 1.3cm (0.5inch) measured vertically over full length of the edge rail.
 - Corners
 - There shall be no broken corners.
 - Seat Tracks
 - There shall be no broken or permanently deformed lips in seat track of the front edge rail.
 - Plate
 - a) When the base rests on a flat surface, the vertical distance measured between the surface and any point on the plate shall not exceed 2.5cm (1inch), due to warped (dished) plate.
 - b) Permanent indentation in the plate should not exceed 0.5cm (0.2inch)
 - c) There shall be no cracks or holes in the plate
 - Rivets
 - a) There shall be no more than 3 loose or missing rivets per edge rail.
 - b) Minimum distance between loose or missing rivets shall be 30cm (12inches).
- Body Panels
 - Panel Sheets
 - a) Length of cut or diagonal length of hole shall not exceed 10cm (4inches).
 - b) There shall be no cuts or holes inside a distance of 5cm (2inches) from any rivet.



- Frame
 - a) Permanent deformation of frame or stiffener extrusion shall not protrude beyond max container contour.
 - b) Length of any weld crack shall not exceed 2.5cm (1inch).
- Rivets
 - a) No more than 10% of rivets on one panel shall be loose or missing.
 - b) Minimum distance between loose or missing rivets shall be 12.5cm (5inches).
- TSO Plate
 - There shall be no missing plate.

ULD Safety

Safety is top priority in ULD handling, you shall follow these guidelines to prevent injury or damage to the aircraft. To ensure the safety of personnel and ULDs, it includes:

- ☐ The contour dimensions for B 747-F must be followed. The maximum height for any pallet or container carried on NCA's aircraft is 299cm (118 inches).
- ☐ ULD and Cargo Net shall be inspected according to ULD serviceability standard before each use. Any unserviceable ULD or Cargo Net shall be promptly removed from service and returned to NCA.
- ☐ If cargo is stackable, the heaviest, the largest and the highest density item shall be loaded first as the bottom layer of the stack. Medium weight or density items shall be loaded on top of it and lastly the lightest/smallest and fragile items shall be loaded..
- ☐ The build-up on ULD and covering with the net shall proceed according to this guideline.
- ☐ Cargo shall be placed evenly to maintain an equal distribution.
- ☐ If an item is prone to tumbling or rolling, any package containing liquid or pieces weighing more than 150kg shall be tied down on the container floor.
- ☐ All containers shall have their doors closed, strapped and latched.
- ☐ Do not leave pallets in areas where tugs, forklifts or other vehicles or equipment can run over them.
- ☐ Do not drive on, into or over any ULD or Net.
- ☐ Foamed polystyrene shall not be used as a "Space saver" to prevent leaning.
- ☐ Do not cut nets at any time to remove or access contents of the ULD.
- ☐ Do not vertically build long and thin cargo.
- ☐ Precautions shall be taken to prevent leaning and wet damage.
- ☐ ULD shall be stored properly to prevent damage.
- ☐ Metal-made single packages containing liquid and gel, even non-Dangerous Goods shipment shall be over-packed.