FLORIUS
fresh & colourful

STANDARD OPERATION PROCODEDURES

FLOWER EXPORTS DUBAI - UNITED STATES

June 2023

DUBAI TRANSIT HANDLING – TIMELINE

- Shipment arrives on ET600
  ETA 2:55 UTC+3

- ULD unloaded and transported to DFC
  ETA 4:00 UTC+3

- DNATA breaks down the ULD, boxes go through scanning
  ETC *6:00 UTC+3*

- Boxes are chimney stacked onto pallets
  ETC *7:00 UTC+3*

- Chimney stacked pallets are cold-stored
  ETC 9:00 UTC+3

- Box are retrieved and ULD is built
  ETC 20:00 UTC+3

- ULD is stored and kept in cool-dolly at 1°C
  ETC 21:00 UTC+3

- ULD is loaded and flight KL428 depart
  ETD 0:55 UTC+3

TRANSPORT ESSENTIALS

Quick transfers

Our flowers are perishable. It is fundemental that tranfers from one cold-area to another is done as quick as possible and the exposure to environmental temperature is as little as possible.

Temperature sensitive

Our flowers are highly sensitive to heat and temperature changes. After heating up during the flight, it is key that the flowers are kept a cold-storage upon arrival.

0-1°C	0-2°C	0-4°C
BEST	GOOD	ACCEPTABLE

Moisture sensitive

Moisture hastens the browing of our flowers. The storage of the flowers has to be cool and dry. They must be kept out of direct sunlight and rain at all times.

PHYSICAL DAMAGE OFTEN OCCURS DURING FLIGHT AND TRANSPORT OF OUR FLOWERS. FOLLOWING THE GUIDELINES LISTED ABOVE WILL REDUCE THE CHANCES OF OUR BOXES AND FLOWERS BEING DAMAGED.

Holding the flowers horizontaly limits the movent of the flowers

Less movent = Less damage

Holding the flower vertically allows the flower to move more in the box.

Move movent = More damage

ETA 5:00 DELIVERY AT DFC

ULD delivered to the Dubai Flower Center

Breakdown of ULD upon arrival

Broken down boxes are chimney stacked

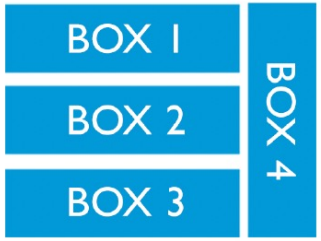
Chimney stacked palles go to the coldest cold-store

CHIMNEY STACKING PROCEDURE

STEP 1

Begin by placing 1 box (BOX 4) over the width of the pallet. Then place boxes over the lengt adjectent to each other, spread over the width of the pallet. This will leave some space in between them.

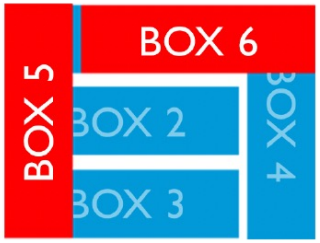
FIGURE 1



STEP 2

Begin the second layer by placing again one box (BOX 5) over the width of the pallet, and place again 3 boxes over the length on top of the previous one to fill the layer.

FIGURE 2

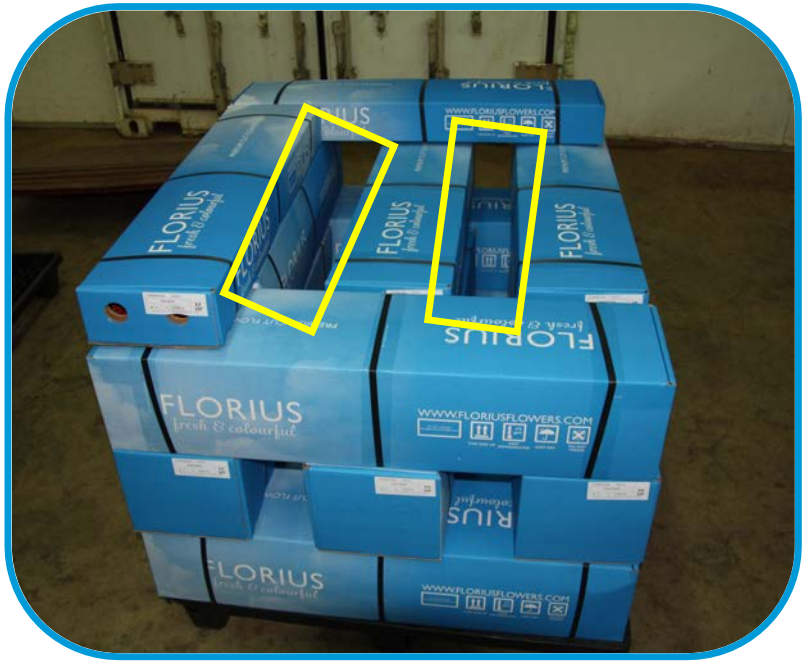


Use standard “Block pallets”
120 cm x 100 cm / 48 inch x 40 inch

CHIMNEY STACKING PROCEDURE

Pallet after STEP 1 and 2

After building the layer of step 2, you build the next one as step 1 again



Pallet after STEP 1 and 2

Building like this will create 2 holes in the center, the ”chimneys” which are never covered, these allow the warm air to escape to the top.

Use standard “Block pallets”
120 cm x 100 cm / 48 inch x 40 inch

CHIMNEY STACKING PROCEDURE

STEP 3

If there's multiple box types, first finish the pallet as far as possible with the HB's, the biggest, then switch to QB, as shown to the left, after finishing the QB's switch to the EB's as shown below.

If there's not enough boxes from the same type to finish the layer;
1 HB can be replaced by:

- 2 QB
- 4 EB
- 1 QB & 2 EB

1 QB can be replaced by

- 2 EB

EIGHT BOX (EB)

APPROXIMATE WEIGHT:	2.25 KGS
BOXES PER CHIMNEY STACKED PALLET:	152 BOXES
MAX LAYERS PER CHIMNEY STACKED PALLET:	19 LAYERS (8 EB / LAYER)

QUARTER BOX (QB)

APPROXIMATE WEIGHT:	4.5 KGS
BOXES PER CHIMNEY STACKED PALLET:	76 BOXES
MAX LAYERS PER CHIMNEY STACKED PALLET:	19 LAYERS (4 QB / LAYER)

HALF BOX (HB)

APPROXIMATE WEIGHT:	9 KGS
BOXES PER CHIMNEY STACKED PALLET:	36 BOXES
MAX LAYERS PER CHIMNEY STACKED PALLET:	9 LAYERS (4 HB / LAYER)

CHIMNEY STACKING PROCEURE

HALF BOX (HB)

APPROXIMATE WEIGHT: 9 KG
BOXES IN A PALLET: 36 BOXES
MAX LAYERS IN A PALLET: 9 LAYERS (4 HB / LAYER)

QUARTER BOX (QB)

APPROXIMATE WEIGHT: 4.5 KG
BOXES IN A PALLET: 60 BOXES
MAX LAYERS IN A PALLET: 15 LAYERS (4 QB / LAYER)

EIGHT BOX (EB)

APPROXIMATE WEIGHT: 2.25 KG
BOXES IN A PALLET: 120 BOXES
MAX LAYERS IN A PALLET: 15 LAYERS (8 EB / LAYER)

6:00 PALLET COLD-STORING

- After the chimney stacking the boxes get cold-stored as soon as possible.
- Store it in the coldest cold-store available
- Flower must be chimney stacked and cold-store because they generate ORGANIC HEAT

WHAT IS ORGANIC HEAT?

ORGANIC HEAT IS PRODUCED BY ANY LIVING MATTER. ORGANIC HEAT IS DISPERSED DURING RESPIRATION OR TRANSPIRATION.

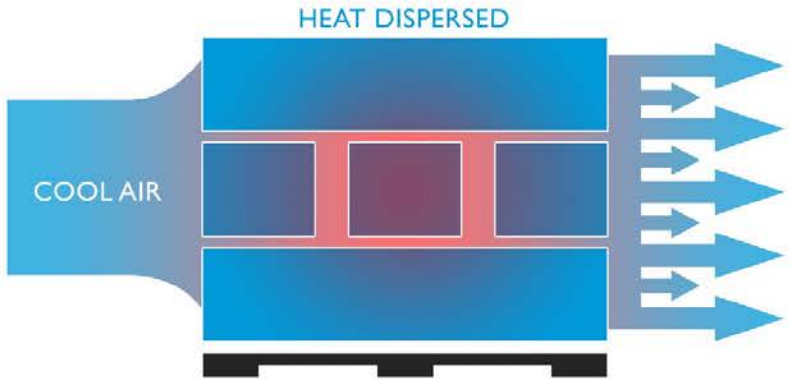
FAQs ABOUT ORGANIC HEAT

- ORGANIC HEAT INCREASES EXPONENTIALLY; THIS MEANS THAT THE HEAT TEMPERATURE INCREASE DOUBLES THE LONGER THE PRODUCT/S ARE NOT SUBJECTED TO RE-COOLING.

- ORGANIC HEAT IS DIRECTLY RELATED TO VASE LIFE AND QUALITY. TO PUT IT SIMPLY, MORE ORGANIC HEAT EQUALS LESS VASE LIFE.

- ORGANIC HEAT INCREASES THE GERMINATION AND TRANSPIRATION OF CUT FLOWERS. THIS IS WHY IT IS VERY IMPORTANT TO KEEP THE SUGGESTED TEMPERATURE RAGES TO LIMIT ORGANIC PRODUCTION.

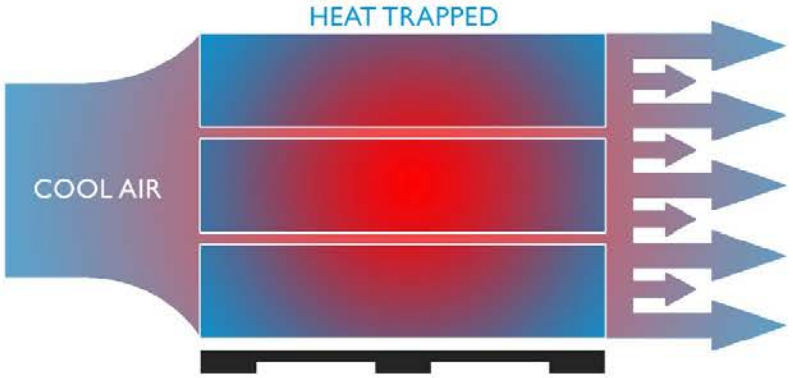
6:00 PALLET COLD-STORING



CHIMNEY STACKING (RECOMMENDED)

WITH CHIMNEY STACKING METHOD, IT CAN BE SEEN THAT AIRFLOW IS VERY EFFICIENT. ORGANIC HEAT IS EASILY DISPERSED.

CHIMNEY STACKING GIVES ENOUGH BREATHING ROOM FOR EACH BOX. THIS IS WHY CHIMNEY STACKING IS THE STANDARD STACKING METHOD USED FOR FLOWER BOXES DURING EXPORT AND STORAGE.



TRADITIONAL STACKING (NOT RECOMMENDED)

WITH TRADITIONAL STACKING METHODS, AIRFLOW IS VERY LIMITED, THIS IN TURN TRAPS ALL THE BUILT-UP ORGANIC HEAT. THE HIGHEST HEAT CONCENTRATION CAN BE FOUND IN THE MIDDLE OF THE STACK.

FAILING TO ADHERE TO THE TEMPERATURE GUIDELINES WILL INCREASE THE GERMINATION AND DEGRADATION OF OUR FLOWERS WHICH RESULTS TO LESSER QUALITY AND SHORTER VASE LIFE.

9:00 BOX RELABELING

1. Agent and shipper finalize the documents while the boxes are cold-stored.

THIS ENTIRE PROCESS IS DONE AS FAST AS POSSIBLE TO KEEP THE AFFECT ON THE TEMPERATURE TO MINIMUM.
THE AIM IS TO HAVE THEM NO LONGER THEN 30 MIN OUT OF THE COLD-STORE.

30 mins

2. When all preparations are done, cargo is requested from DNATA to be moved out and relabeled.

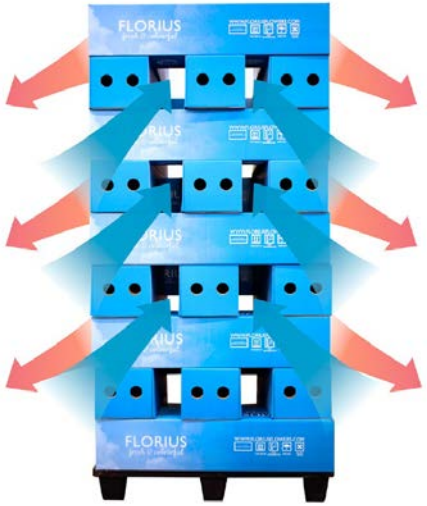
3. While relabeling, the boxes a rebuilt into chimney stacked pallets again.

4. When the pallets are finished, the shipment goes through x-ray scanning and back to the cold-store.

9:30 PALLET COLD-STORING

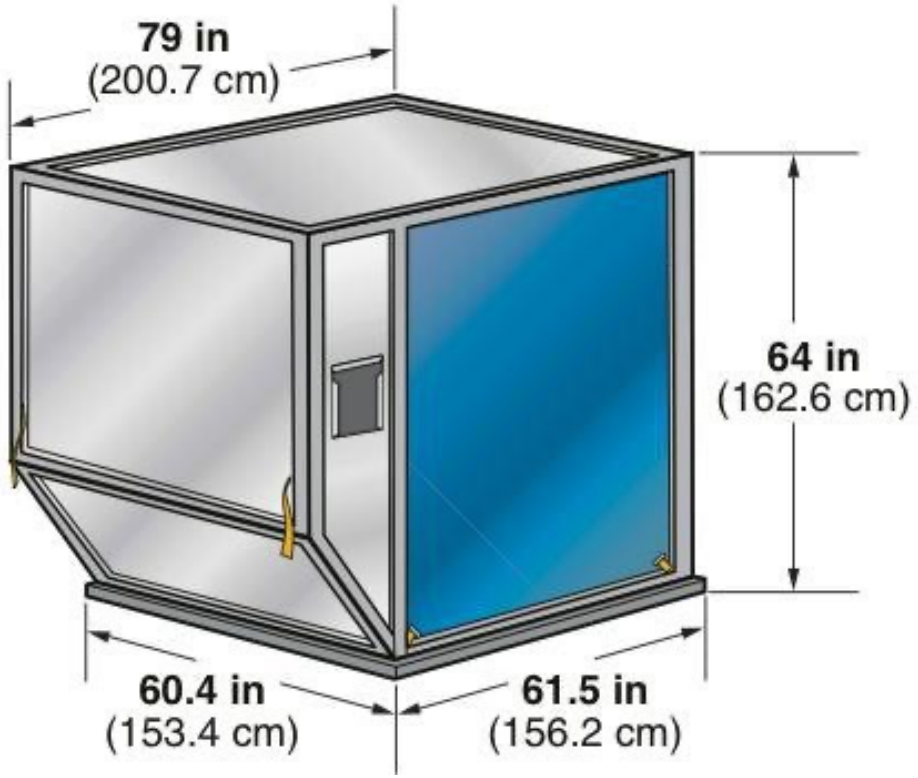
After scanning and relabeling the boxes go back to the cold-store awaiting built-up.

The earlier the boxes are back in the cold-store, the lower the departure and therefor arrival temperature will be.



Chimney stacked pallet airflow

21:00 ULD BUILD-UP



LD3 AKE

Load configuration

75 HB

- Layer 1: 8HB
- Layer 2: 7HB
- Layer 3-7: 12 HB
- Layer 8: 10 HB

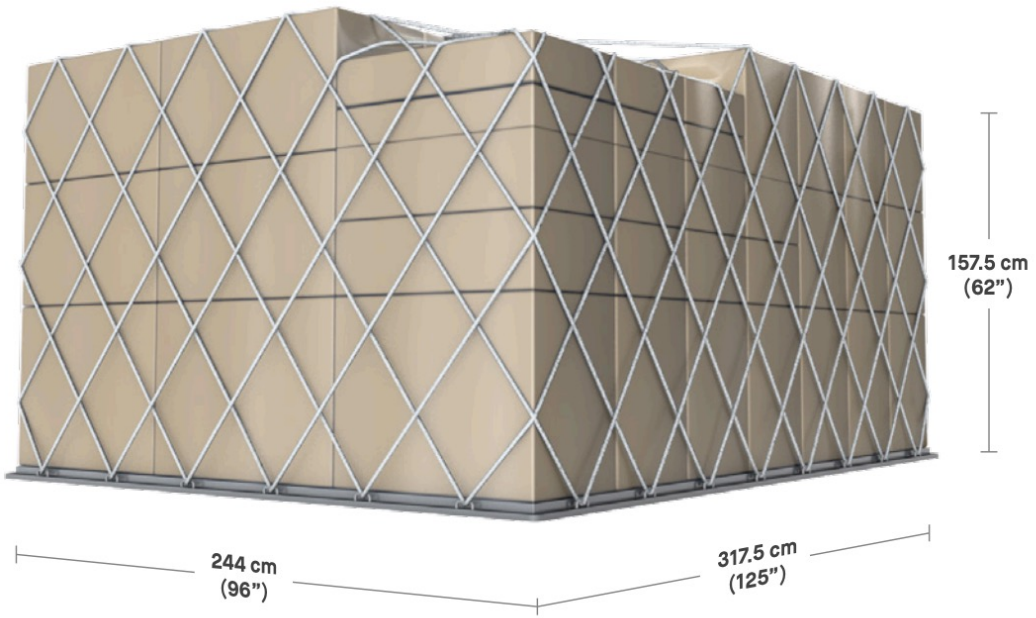
Weight ~ 650 kg

Since two QB's equal the size of one HB and two EB's equal the size of one QB, we might exchange one HB's for two QB boxes though never will the other way around since that will not fit.

Always start with the HB layers first and finalize with the smaller boxes at the top. Each layer of HB and QB's will have EB's to fill up the gaps, hence the 27 HB and 6EB configuration per layer, this creates the most optimal pallet configuration.

Don't build ULD earlier than 5 hours before confirmed departure

21:00 ULD BUILD-UP



PMC LOWERDECK

Load configuration

189 HB

27 QB

45EB

- Layer 1-7: 27 HB & 6 EB
- Layer 8: 27QB & 3EB

Weight ~ 1900 kg

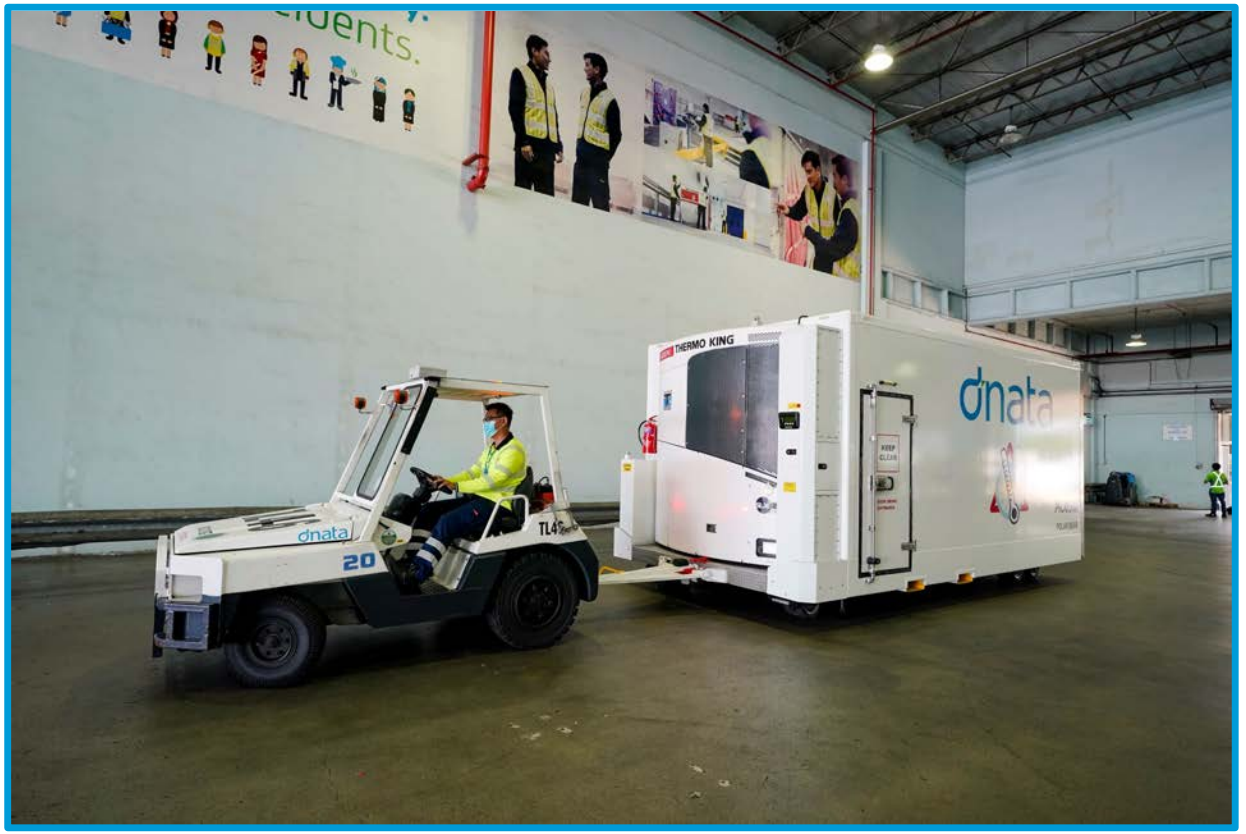
Since two QB's equal the size of one HB and two EB's equal the size of one QB, we might exchange one HB's for two QB boxes though never will the other way around since that will not fit.

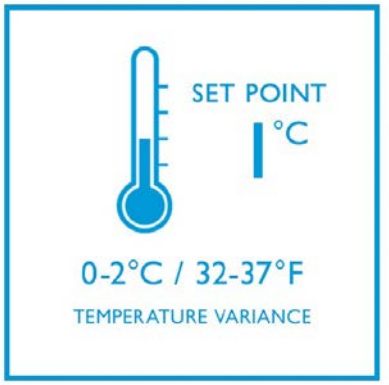
Always start with the HB layers first and finalize with the smaller boxes at the top. Each layer of HB and QB's will have EB's to fill up the gaps, hence the 27 HB and 6EB configuration per layer, this creates the most optimal pallet configuration.

Don't build ULD earlier than 5 hours before confirmed departure

22:00 Awaiting loading

When the ULD build-up is finished, the ULD must be stored in a COOL-DOLLEY awaiting loading and departure.



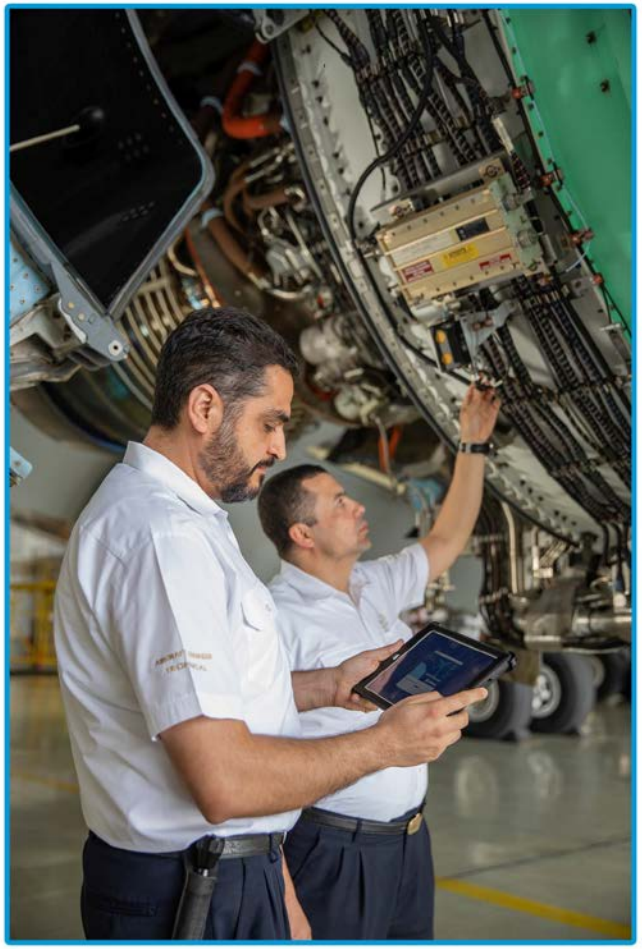


ETD 0:55 (+1) – Bon voyage

Notion to captain:

June 2023

Delays – What to do?



	DELAY		
	< 4 HOURS	4-12 HOURS	12 < HOURS
ONBOARD	Leave ULD on the plane	Offload, take ULD back to the cooler	Offload, take ULD back to the cooler
NOT ONBOARD	Take ULD back to the cooler	Take ULD back to the cooler	Take ULD back to the cooler

Break ULD back into chimney stacked pallets.

Key is to never leave the boxes in ULD if there is no new ETD or if the delay is longer then 12 hours.