

# Impact of Functional Analysis & 'ConOps' on Cargo Handling System Solutions

02-Nov-21

# AGENDA

Functional Analysis and Concept of Operation

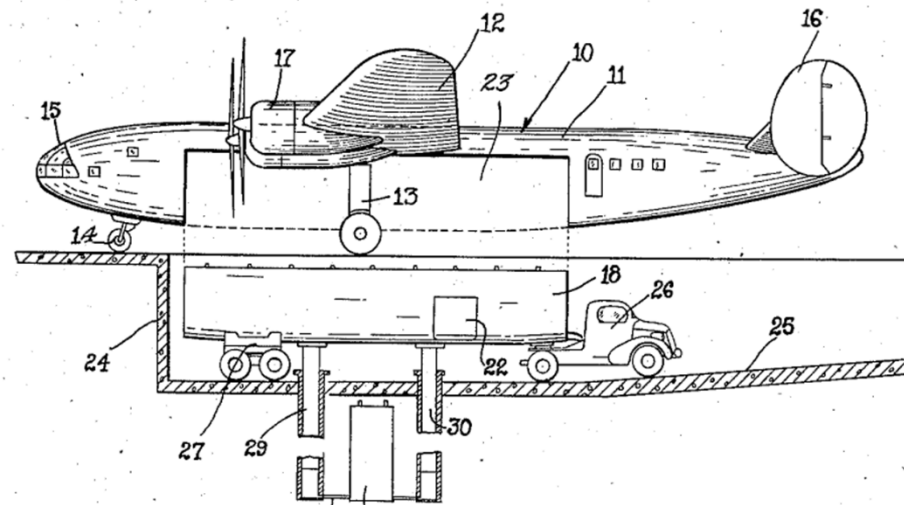
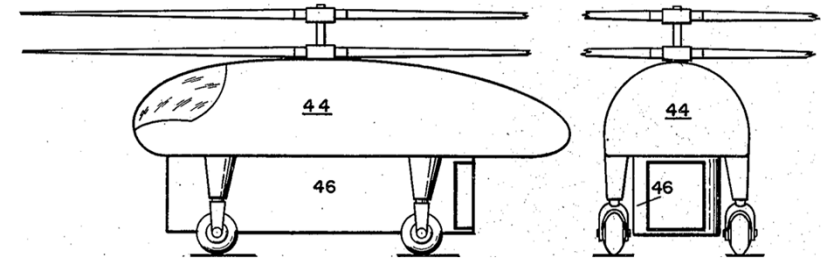
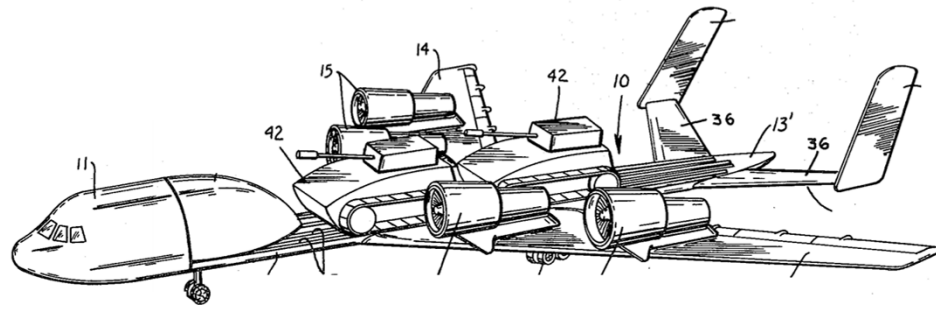
Case: Vehicles

Case: Pallets/Containers

UCA: CHS Development Strategy

Questions

# Why the ConOps on and Function for a Cargo Airplane is important?



# FUNCTIONAL ANALYSIS AND CONCEPT OF OPERATION



## FUNCTION

Tasks: What needs to be performed?

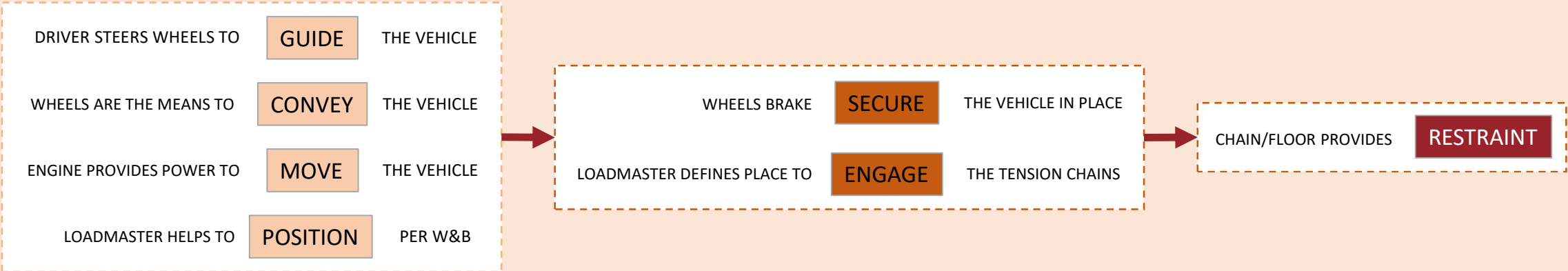


## CONOPS

Clarification of the job to be performed  
Why? What? Where? When? Who? How?

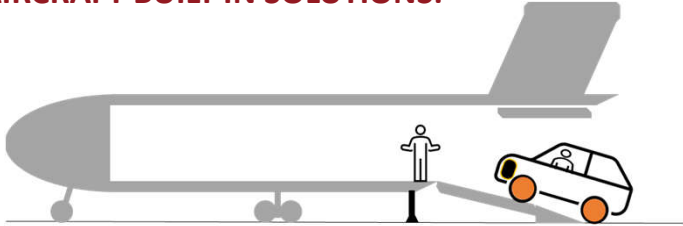
# CASE: VEHICLE

TASK WHAT HOW WHO WHERE WHEN  
 LOAD A SELF-PROPELLED VEHICLE WITH A DRIVER COORDINATED BY A LM IN THE AMAZON ON A RAINY DAY

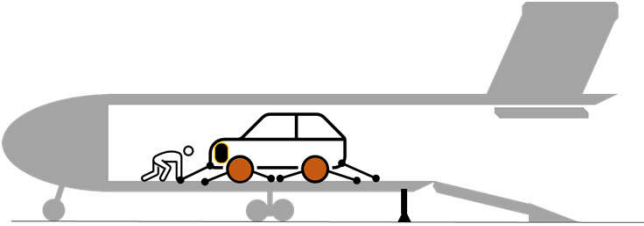


STRUTS AND CARGO RAMP PROVIDE SUPPORT TO **STABILIZE/BRIDGE** THE LOADING OPERATION FROM THE GROUND TO THE AIRPLANE

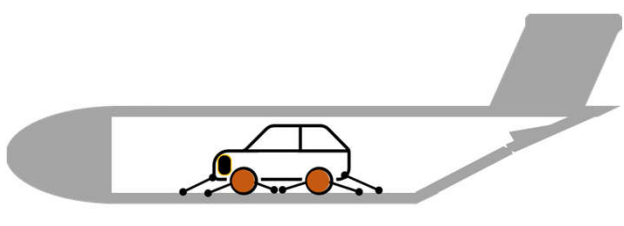
### AIRCRAFT BUILT IN SOLUTIONS:



- Cargo Capacity Volume
- Cargo Ramp
- Ramp Toes
- Struts



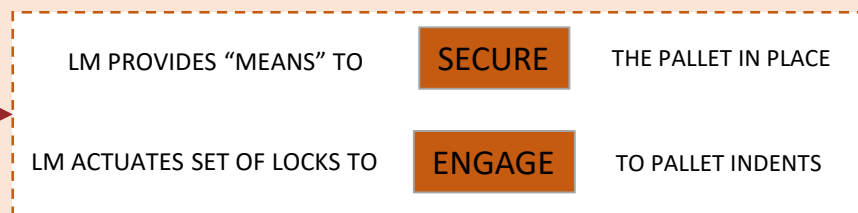
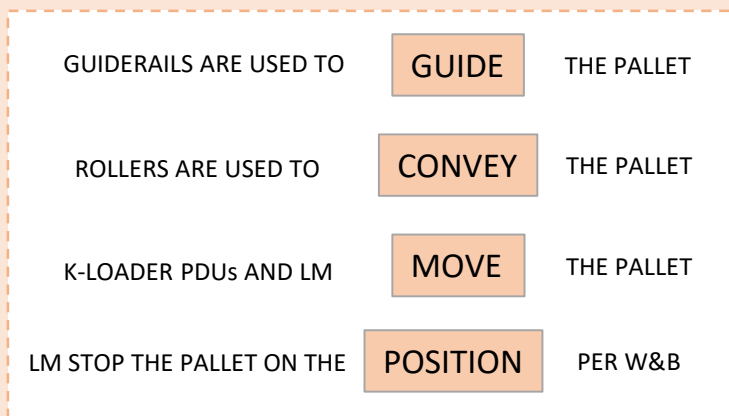
- Tiedown Rings
- Nonslip Floor



- Qualified for:**
- Vehicle Inertial Loads
  - Environmental Operational Conditions

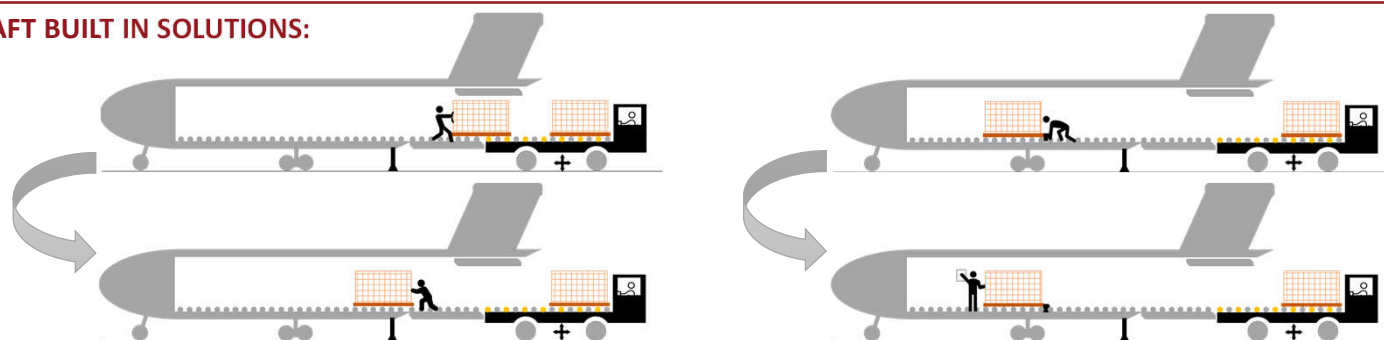
# CASE: PALLETS/CONTAINERS 463L

TASK WHAT HOW WHO WHERE WHEN  
 LOAD PALLETS WITH A K-LOADER COORDINATED BY A LM IN THE DESERT DURING A SUNNY DAY



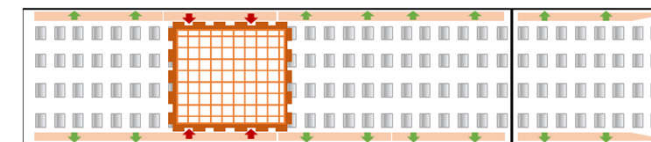
STRUTS AND CARGO RAMP PROVIDE SUPPORT TO **STABILIZE/BRIDGE** THE LOADING OPERATION FROM THE K-LOADER TO THE AIRPLANE

## AIRCRAFT BUILT IN SOLUTIONS:



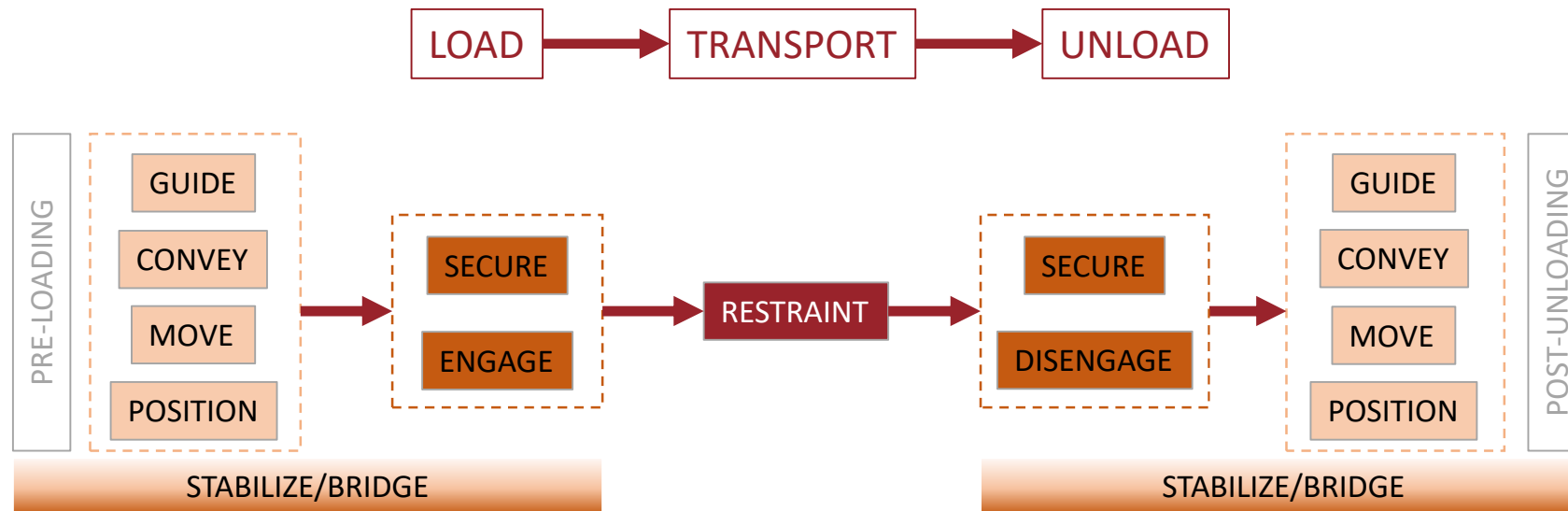
- Cargo Ramp
- Struts
- Rollers
- Guiderails

- Locks
- Actuation Control



- Qualified for:**
- Pallet Inertial Loads
  - Mechanisms Endurance
  - Environmental Operational Conditions

# UCA: CHS DEVELOPMENT STRATEGY



What: Pallets, Containers, Bulk Cargo, Vehicles

Where: Airfield

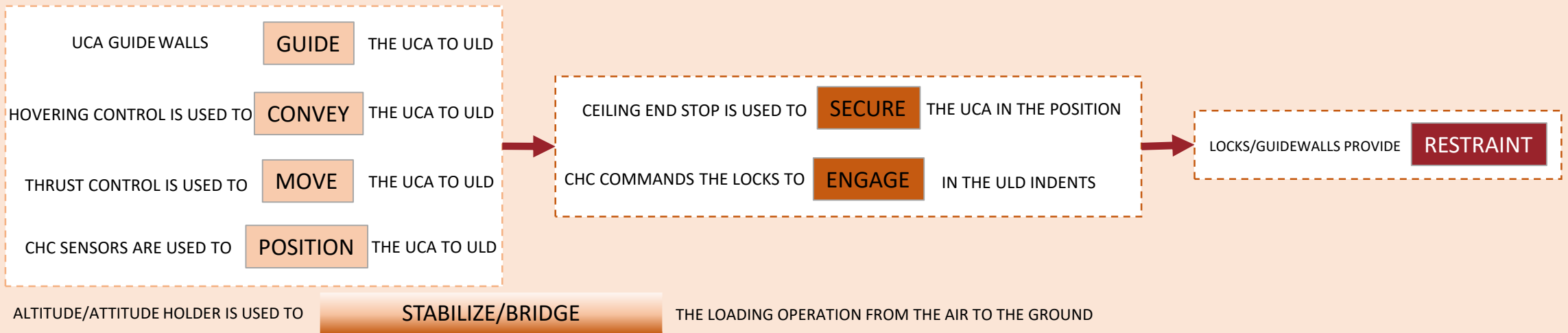
When: Environmental/Time Constraints

Who: Ground Staff, UCA Operator or Automatic Equipment

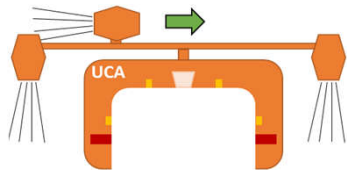
How: With or without MHE/Auxiliary Equipment

# CASE: VTOL UCA

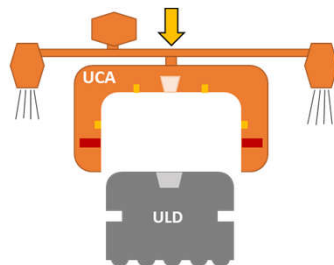
TASK WHAT HOW WHO WHERE WHEN  
 LOAD AN ULD AUTOMATICALLY BY A CH CONTROLLER IN ANTARTICA ON A WINDY DAY



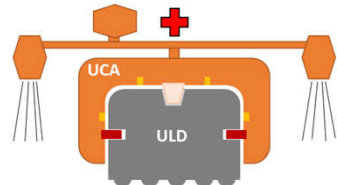
## AIRCRAFT BUILT IN SOLUTIONS:



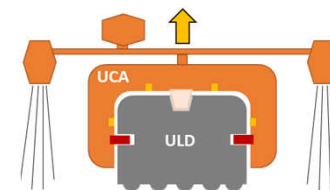
- ULD Guidewalls
- Prox Sensor



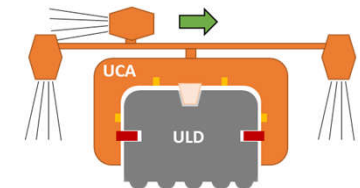
- Locks
- CHC (Cargo Handling Controller)



- Ceiling End Stop



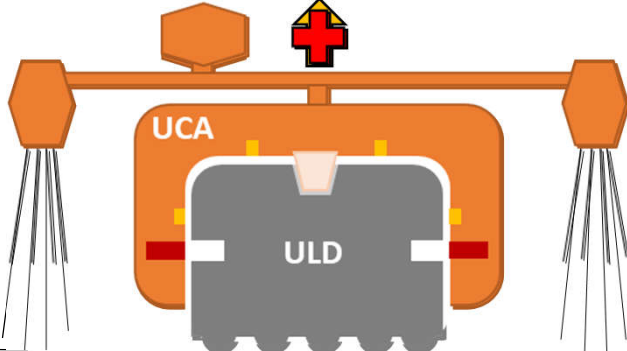
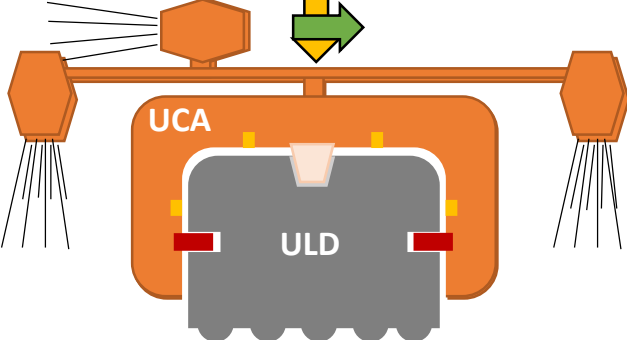
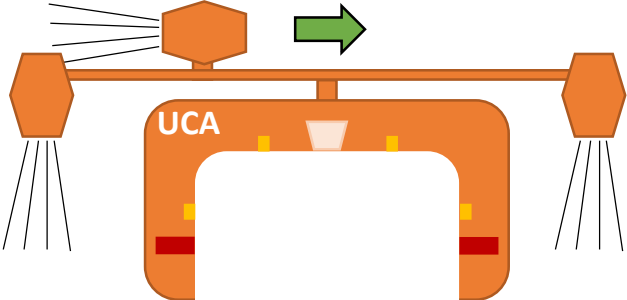
- Qualified for:**
- ULD Inertial Loads
  - Mechanisms Endurance



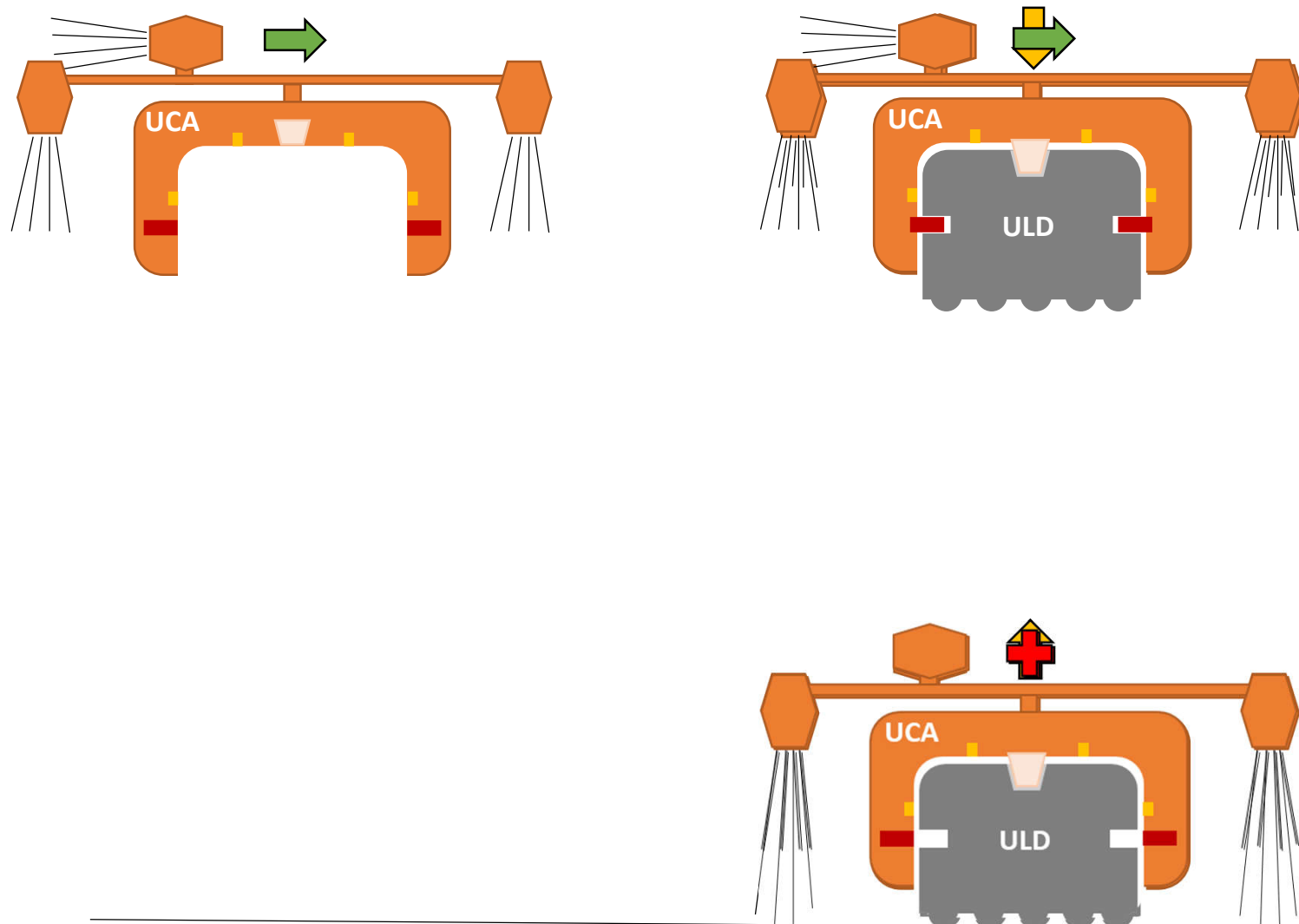
- Environmental Operational Conditions



# CASE: VTOL UCA



# CASE: VTOL UCA



QUESTIONS?

**CONTACT:**

**Behno Klava**  
VP of Engineering & Quality  
E-mail: [bklava@uscargosystems.com](mailto:bklava@uscargosystems.com)