



# CONTAINER TRANSPORT OPTION

## PAX / Cargo Quick Change Version with LD Containers

# ATR 42 – PASSENGER TO FREIGHTER CONVERSION

## **Removals**

- All Passenger Amenities

## **Modifications**

### **Fuselage Modifications**

- Above Floor: Fixed or Adjustable Hard Points for Netting
- Floorboard: Additional High Impact Materials Installed
- Under Floor: Additional Stanchions & Channels

### **Door Modifications:**

- Door Entrances and Surrounding Structure Reinforced
- Rear Door Converted to Top-Hinged Canopy Configuration

### **Cabin System Modifications**

- Cabin/Cockpit Air Conditioning /Extraction

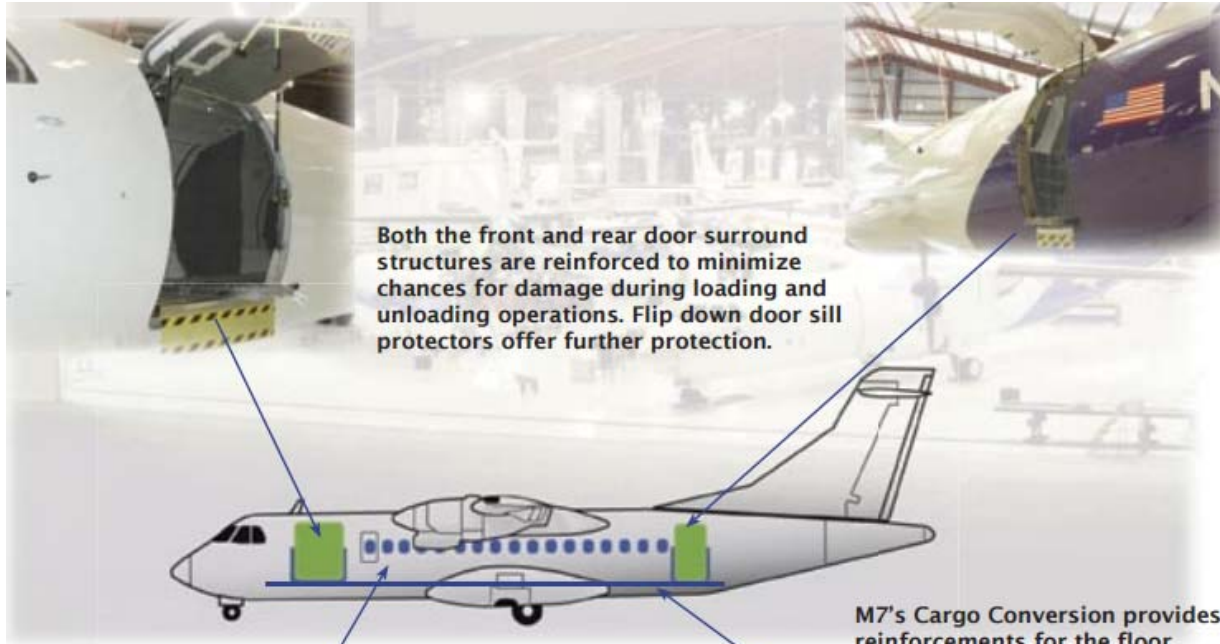
- Cabin Oxygen

### **Electrical Systems Modifications**

- Lighting & Smoke Detection Systems

## **Installations**

- Cabin Liner Support Structure
- Aft Cargo Door Mod
- Vertical / Horizontal Net Hard Points
- Cabin Window Plug Installation
- Overhead, Sidewall, Kick-Panel & T-Channel Installations
- Forward Cargo Bay Kit
- Cargo Compartment Fixtures
- Floor Roller/Conveyer System (optional)
- Tail Stand (optional)
- Light Weight Ladder for Crew Entry



Both the front and rear door surround structures are reinforced to minimize chances for damage during loading and unloading operations. Flip down door sill protectors offer further protection.

Passenger windows are plugged to reduce maintenance and cost of operation.

M7's Cargo Conversion provides reinforcements for the floor structure to prepare the aircraft for the rigors of life as a freight-hauler.



# AIRCRAFT CONVERSION TIME - 40 MINUTES

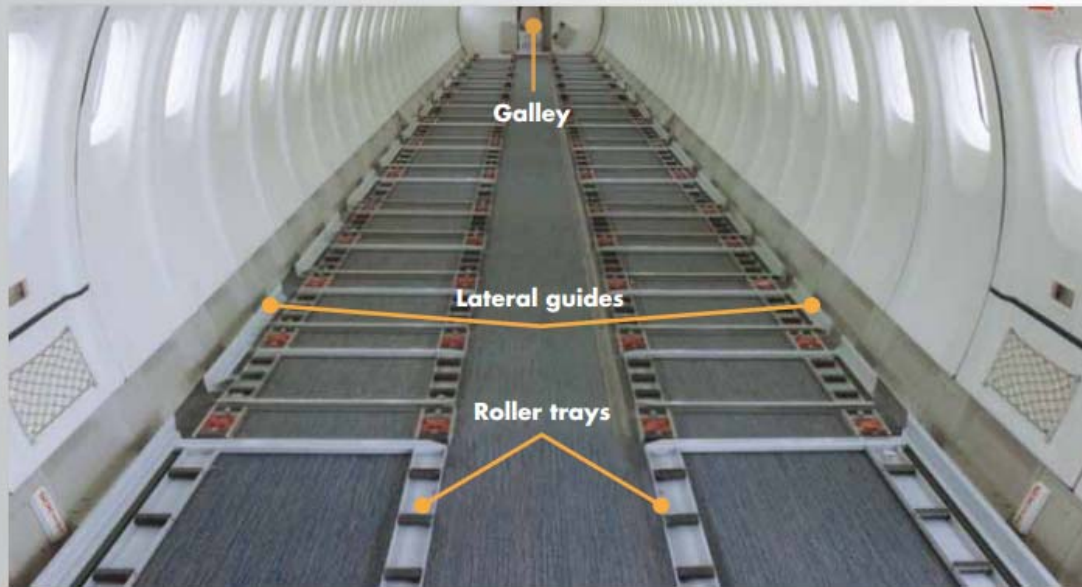


40' to remove seats and install the cargo loading system.

No risk of sidewall panels damaging.

**Required modifications:**

- Smoke detectors
- Floor reinforcement to 400 KG/m<sup>2</sup> (82 lb/sq. ft)
- "E class"



# INTRODUCTION

## ▲ Introduction

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- Container transport principles
- Container transport system features
- Container transport system arrangement
- Cabin cross section
- Container definition (ATR type)
- Container installation
- Pictures
- Payload range
- Payload range

ATR

ATR 42

ATR 72

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## ▲ Conclusion

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# INTRODUCTION OF FREIGHTER CONVERSION

Due to the freight market increase, the GIE ATR proposes an option for Container Transport (CT) operations.

During the day, the airlines operate as passenger transportation and during the night as freight carrier.  
The result is "**More utilization = More profit**".

The ATR 42 and the ATR 72 are well suited to perform efficiently the Container Transport missions because they represent minimum investments and costs for the operators. In fact, the ATR 42 and the ATR 72 benefit from the design-to-cost philosophy, from the latest production methods and from the advances aerodynamics acquired on other major programs. They are characterized by the important following features :

- low fuel consumption
- ease of maintenance.

In addition, the ATR 42 and the ATR 72 aircraft family have been designed as flexible, and the adaptation of an optimized Container Transport is easy.

The purpose of this brochure is to present in detail the Container Transport option available on ATR 42 and on ATR 72.

# CONTAINER TRANSPORT PRINCIPLES

## ▲ TYPICAL UTILIZATION

- Either the airlines fly with passengers during the day and with containers during the night
  - Or all the flights are devoted to container transportation.
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## ▲ MINIMUM COST

- The Container Transport (CT) system must not induce major cabin interior modifications in order to reduce the modification cost.
  - The Container Transport (CT) system must use a wide range of standard components.
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## ▲ HIGH PROFITABILITY

- A high level of profit is guaranteed through :
    - High load capacity
    - Wide range possibility
    - High annual utilization.
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## ▲ EASY KIT INSTALLATION

- Flexibility to passenger and to cargo demands
  - Minimum transfer time
  - Easy change.
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# CONTAINER TRANSPORT (CT) PRINCIPLES

▲ Typical Utilization

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▲ Minimum Cost

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▲ High Profitability

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▲ Easy Kit Installation

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# ATR CONTAINER TRANSPORT (CT) FEATURES

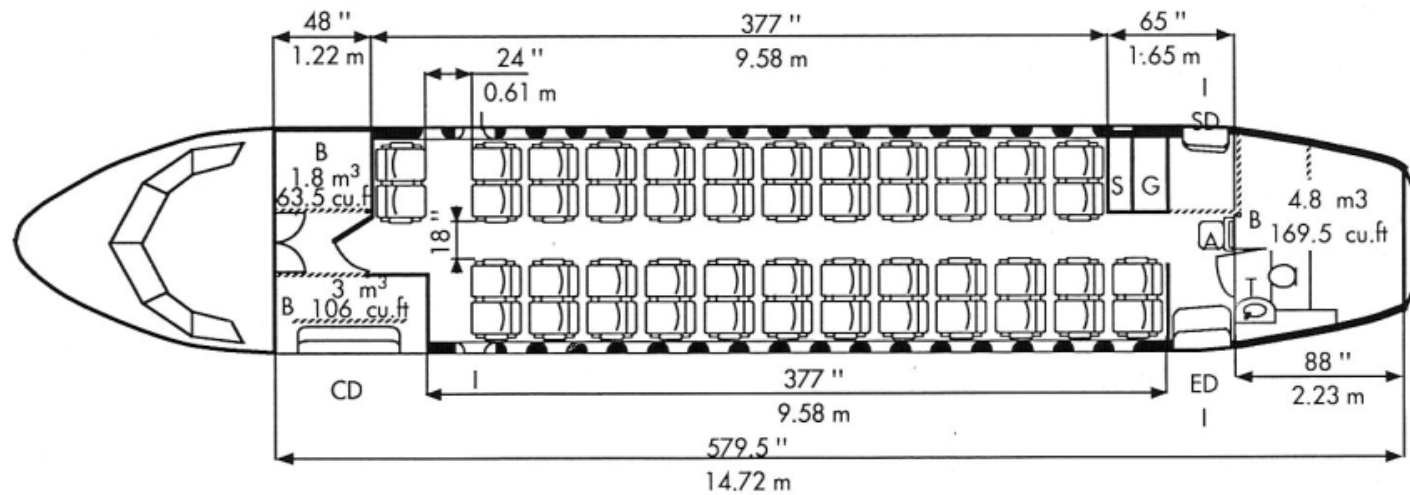
The ATR 42 and the ATR 72 are well suited to perform CT missions through their basic flexibility illustrated by :

- ▲ Front cargo door (1.275m x 1.53m) (50.2" x 60.2") openable either from inside or from outside
- ▲ Passenger seats                      Easily removable
- ▲ Forward partition                      Easily removable
- ▲ Total reinforced floor (400 kg/m<sup>2</sup>)

**Note :** *Container Transport option necessitates the cabin to be, as far as fire protection system is concerned, class E. The class E mainly leads to extend the existing smoke detection system and to install isolating valves on the air-conditioning system. This classification does not allow the use of the attendant seat.*

# ATR 42 BASIC CABIN LAYOUT

- 48 Seats at 30'' Pitch



- A ATTENDANT SEAT
- B BAGGAGE COMPARTMENT
- S STOWAGE
- G GALLEY
- I EMERGENCY EXIT
- T TOILET
- CD CARGO DOOR
- ED ENTRANCE DOOR
- SD SERVICE DOOR

Volumes	m <sup>3</sup>	cu.ft
• Baggage compartment	9.6	339
• Baggage/pax	0.200	7.06
• Total baggage (including overhead bins and stowages)	11.55	408
• Total baggage/pax	0.241	8.50

# CT SYSTEM ARRANGEMENT

To perform efficiently the freight transportation a Container Transport (CT) system is proposed. It is installed as follows :

From a passenger configuration the change into a CT configuration is very easy (3 main steps) :

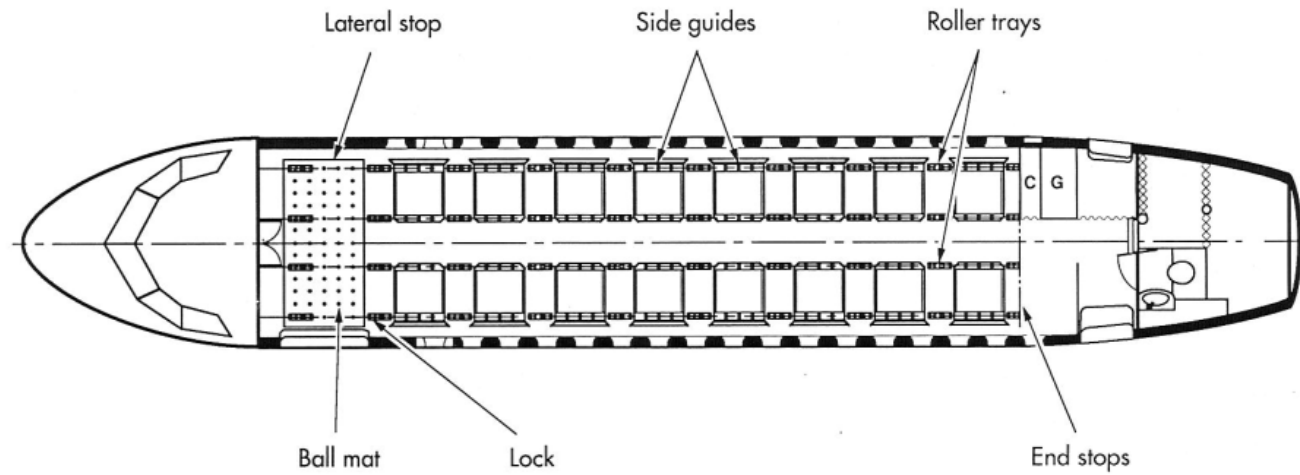
- ▲ Removal of :
  - Forward partition
  - Masts and nets (cargo zone)
  - Passenger seats

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- ▲ Installation of the CT System :
  - Ball mat
  - Side guides and Roller trays
  - Locks
  - End stops

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- ▲ Installation of the preloaded containers :
  - The CT system is composed of a maximum of air cargo standard parts.
  - Only two men are necessary to perform the above operations. The conversion can be performed within about 35 minutes on the ATR 42 and 50 minutes on the ATR 72.
  - The complete system is directly and exclusively fitted on the existing passenger seat tracks.

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# CT SYSTEM ARRANGEMENT



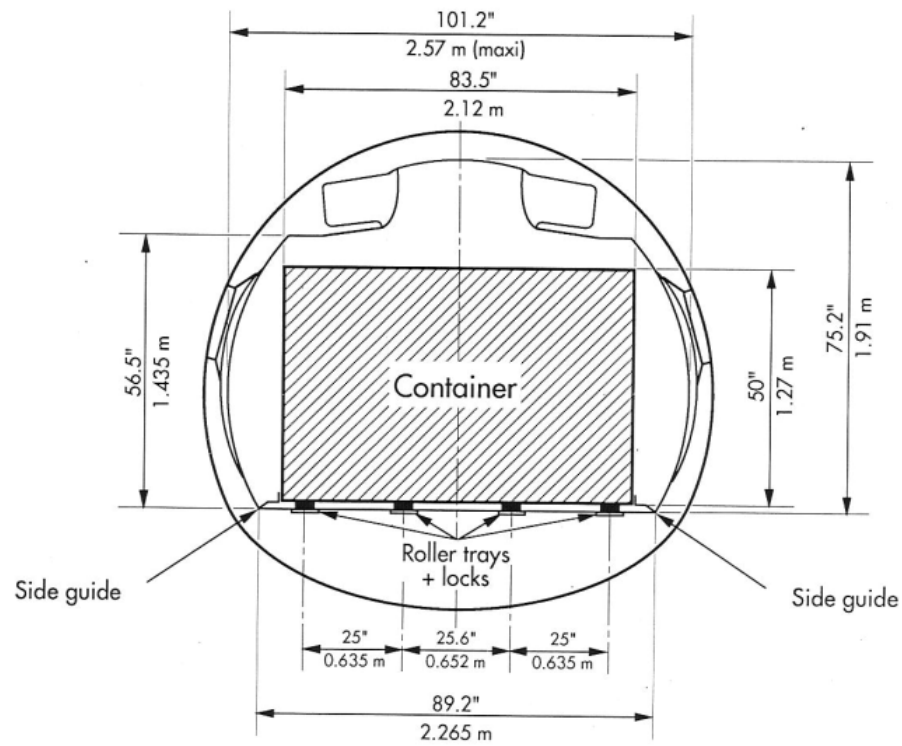
Exclusive interface  
between CT system and aircraft  
=  
passenger seat tracks

# CABIN CROSS SECTION

The containers are moved along the cabin directly between the side guides and on the roller trays. A total of 8 locks secure each container.

This system allows free container displacements in the cabin without damaging the sidewall panels.

# CABIN CROSS SECTION



# ATR TYPE CONTAINER DEFINITION

- ATR type containers have been designed specially for the ATR aircraft family.

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- They offer an important volume.

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- They are made of lightweight and wear-and-tear resistant materials (aluminium).

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- They are easy to stow on ground and to handle in the aircraft.

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- The latest techniques and state of the art used in the air cargo industry are fully applied on the ATR type containers.

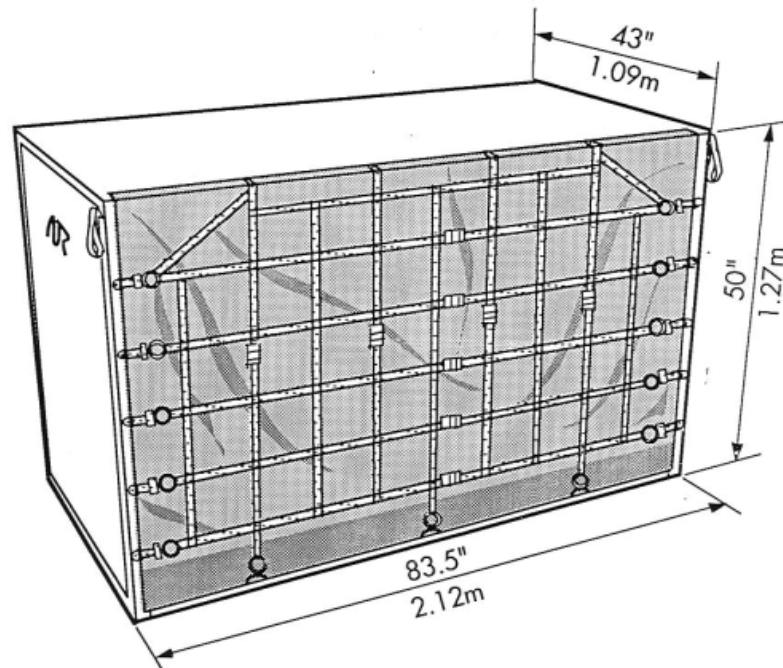
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**Note :** *The ATR type container can be readily dismantled.*

# ATR CONTAINER DEFINITION

Volume : 2.8 m<sup>3</sup> (99 cu.ft)

Max gross weight : 500 kg (1,102 lb)

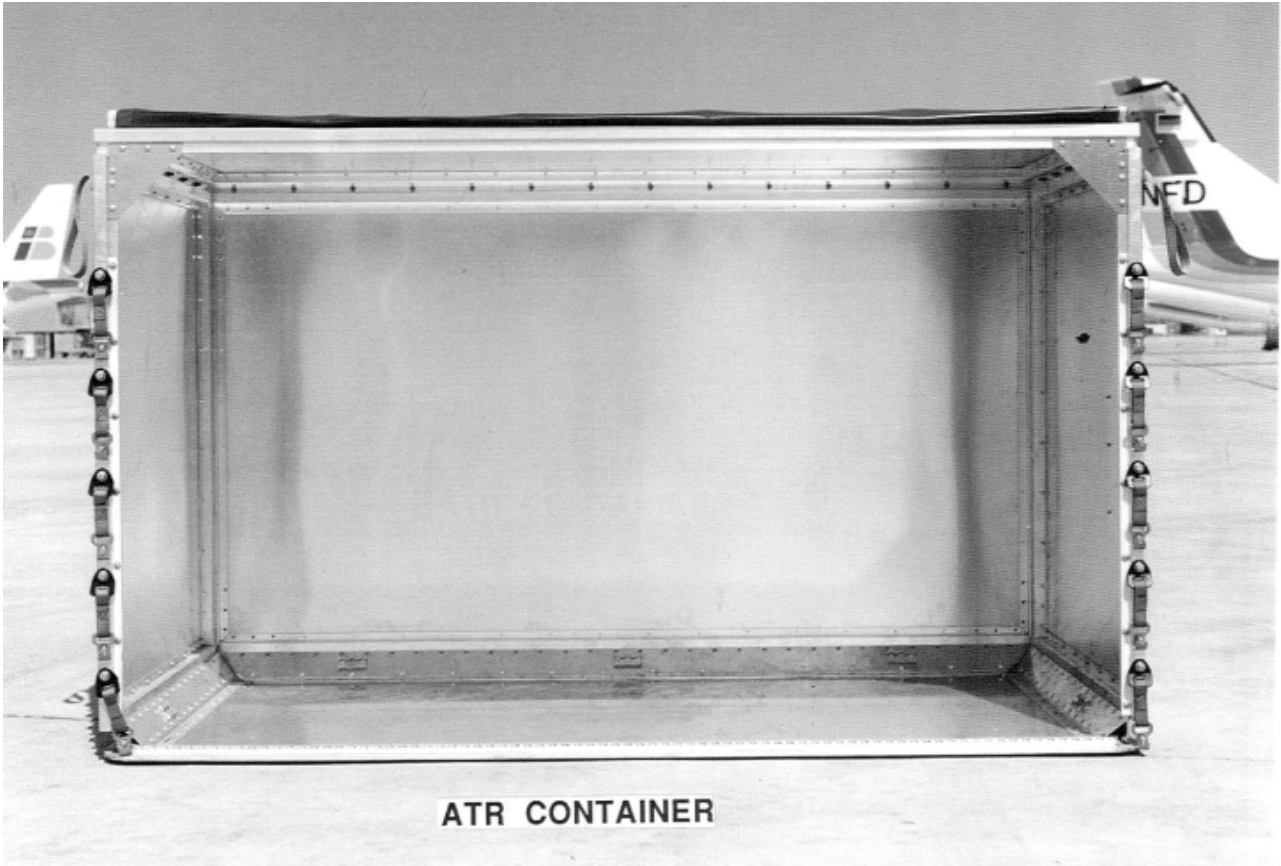




# ATR CONTAINER



# ATR CONTAINER



# CONTAINER INSTALLATION

- ▲ 9 ATR containers can be installed in the ATR 42 cabin.
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- ▲ 13 ATR containers can be installed in the ATR 72 cabin.
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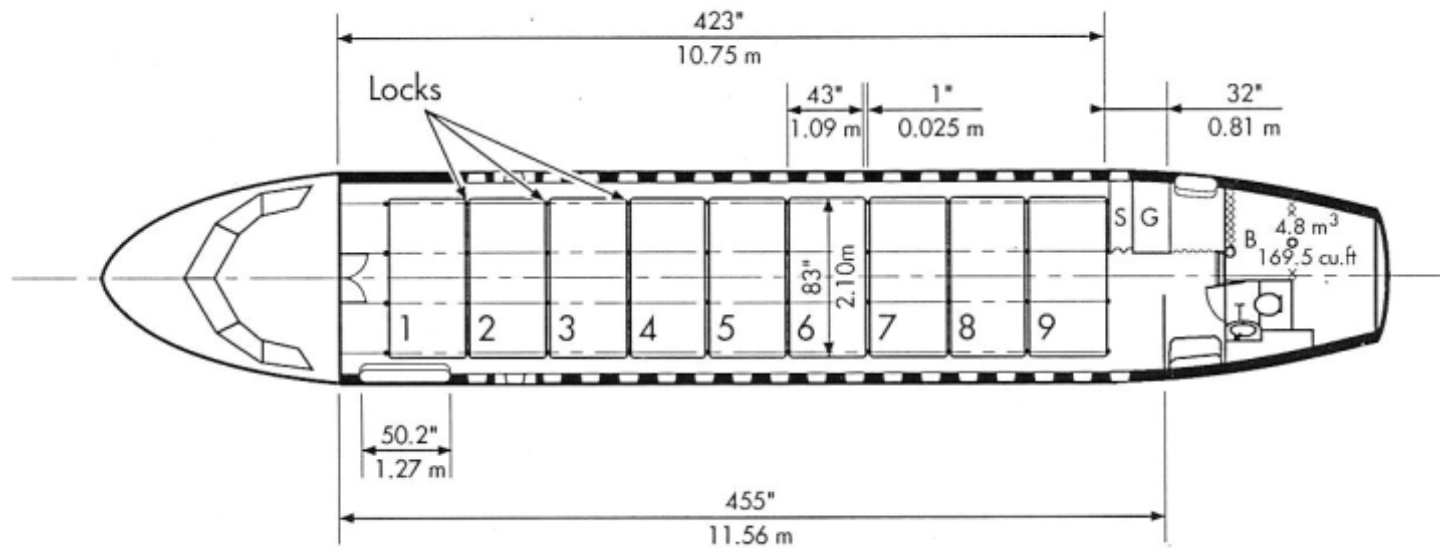
- ▲ A free access is possible through the front cargo door in front of the first container.
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# CABIN LAYOUT WITH CONTAINERS



# 9 ATR CONTAINER CONFIGURATION

Total containerized volume : 25.2 m<sup>3</sup> (891 cu.ft)  
+ bulk freight in the AFT cargo zone



# CT SYSTEM INSTALLATION

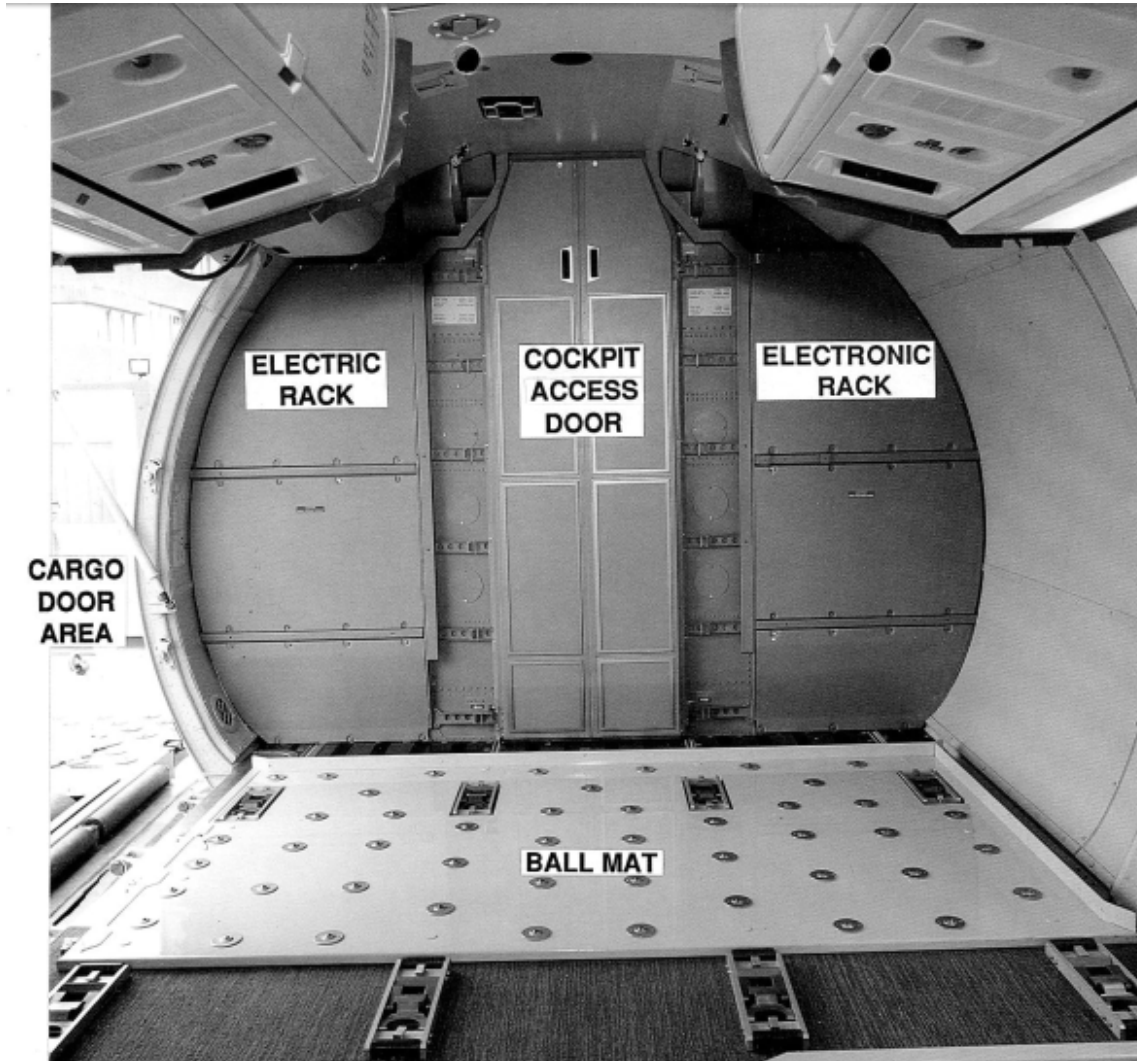
The following set of pictures have been taken on the ATR 72. They illustrate the operational capabilities of such a system.

It must be outlined that :

- The exclusive interface between CT system and aircraft is achieved through the existing passenger seats rails available all along the cabin.
- Internal furnishings protection is not necessary.
- Easy access is allowed through the large front cargo door.
- All items of cargo equipment can be easily installed without specific tools.

After removing the passenger seats, the front partition, the masts and the nets, the first operation to do is to install the ball mat.

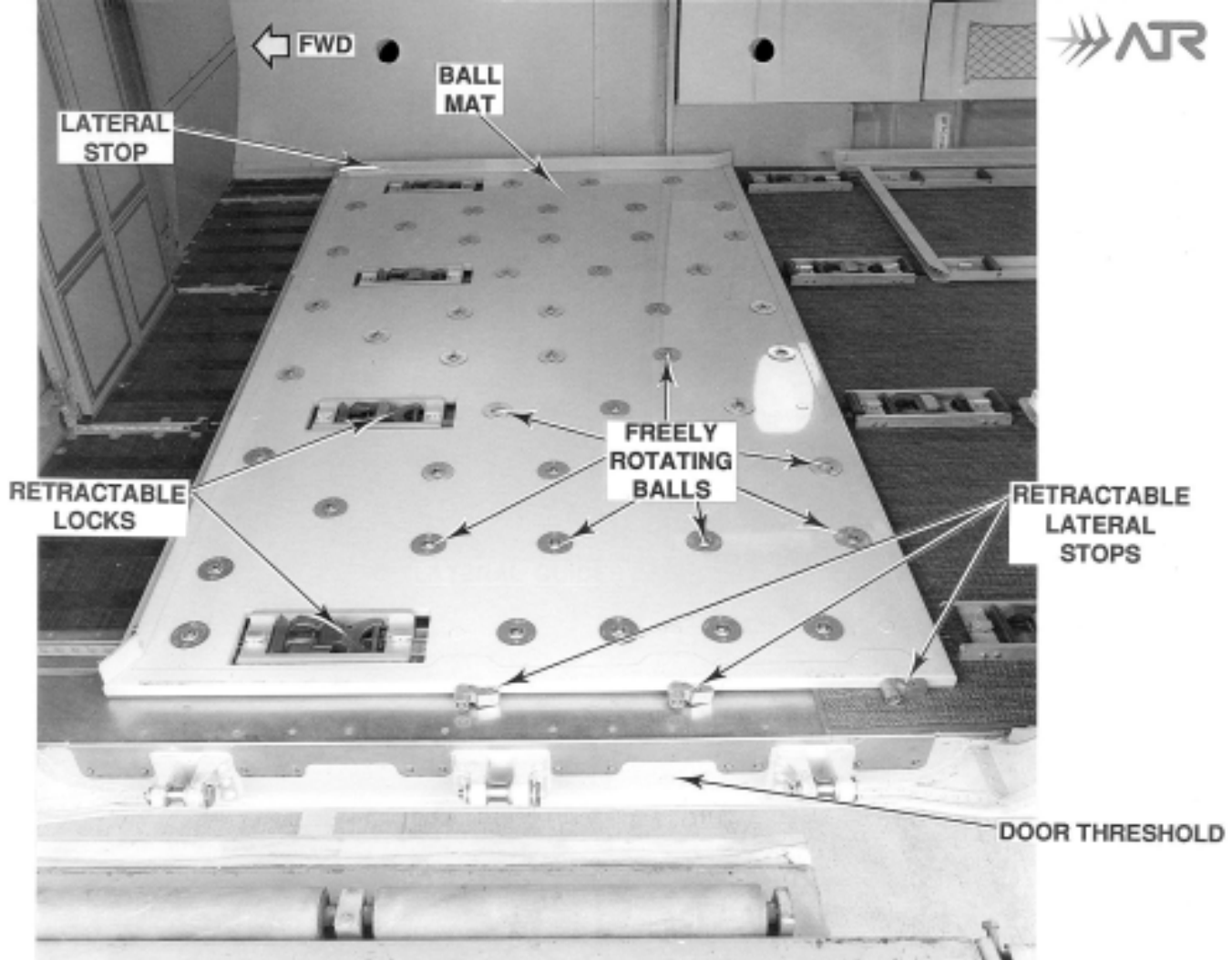
The ball mat is directly laid on the floor beside the cargo door and is fitted on the existing rails.





Ball mat consists of freely rotating balls located in housings and protruding above surrounding surfaces.

It is used to enable omnidirectional movements of containers.



FWD

BALL MAT

LATERAL STOP

FREELY ROTATING BALLS

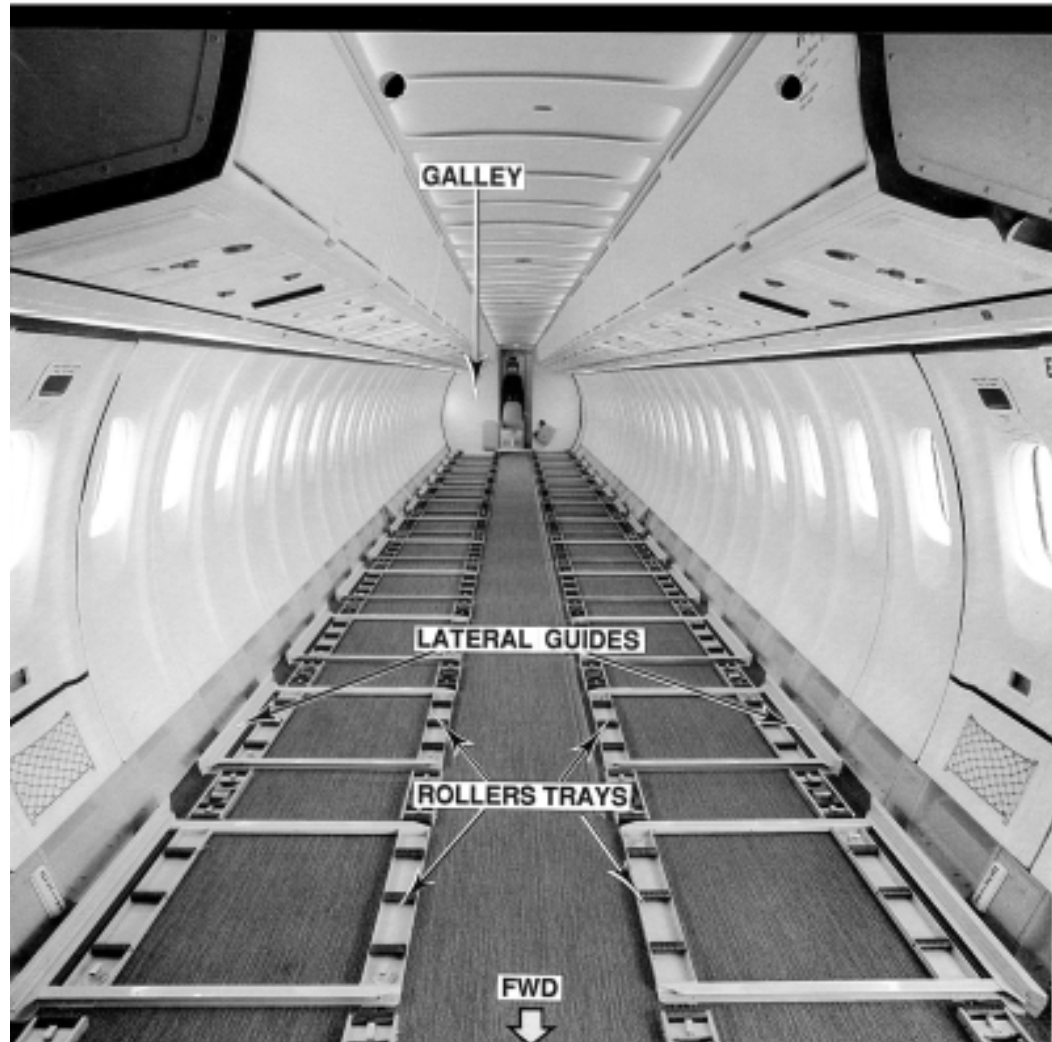
RETRACTABLE LOCKS

RETRACTABLE LATERAL STOPS

DOOR THRESHOLD



Conveyor system consists in roller trays above which the containers can be moved and in lateral guides to allow easy movement of them all along the cabin.



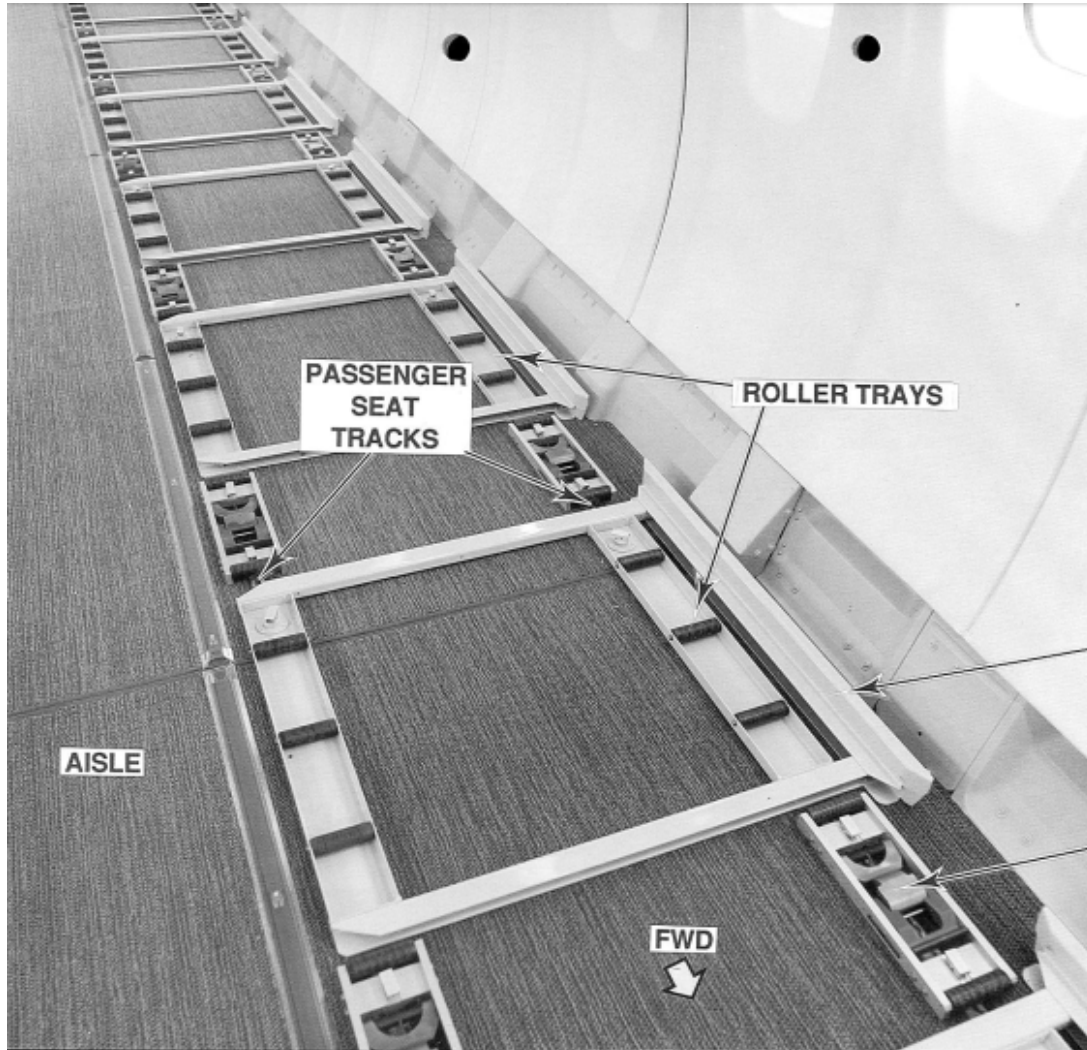
GALLEY

LATERAL GUIDES

ROLLERS TRAYS

FWD

The restraint system is composed of retractable locks. These locks, fitted on seat rails, secure the containers onto the floor to prevent any movement during the flight.



PASSENGER  
SEAT  
TRACKS

ROLLER TRAYS

AISLE

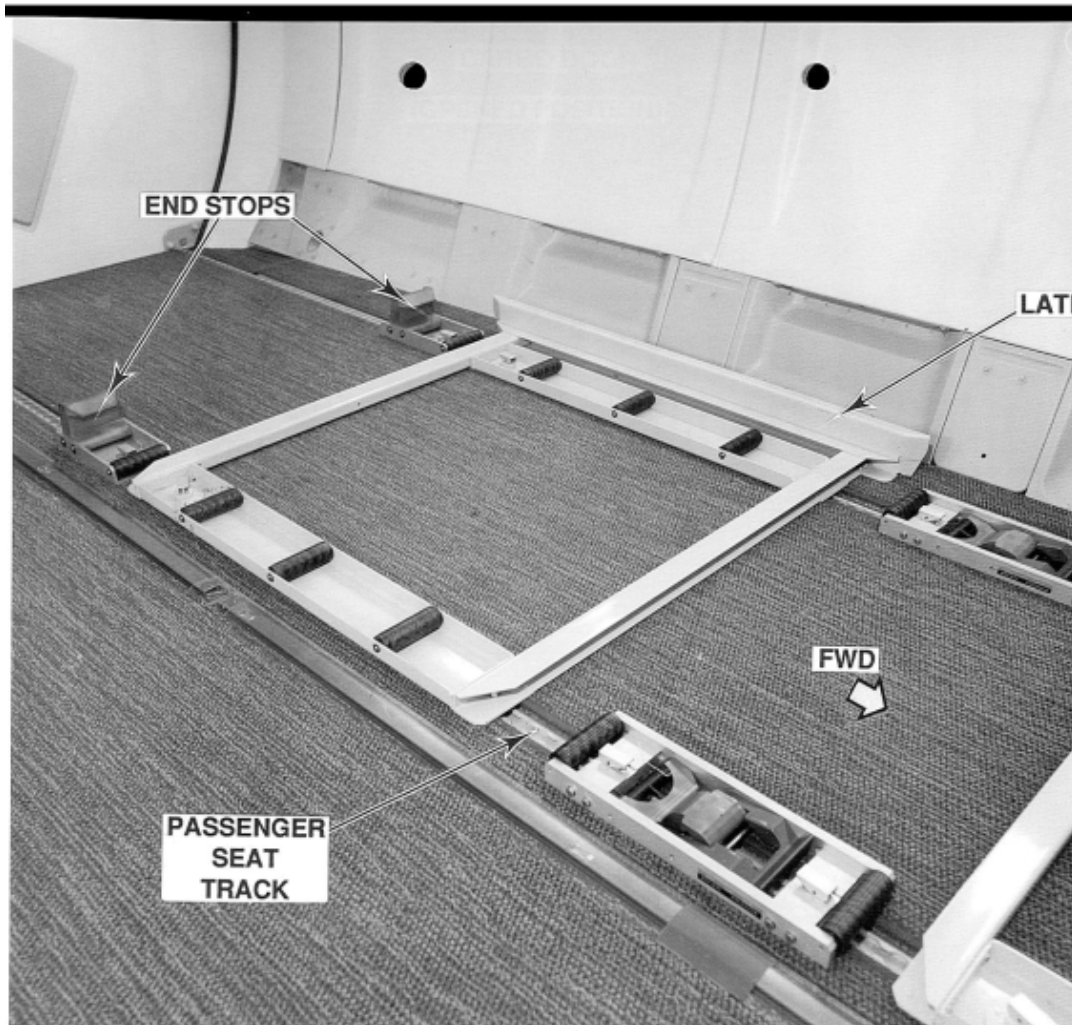
LATERAL GUIDE

RETRACTABLE  
LOCK

FWD



Restraint system is also composed of end stops which secure the first container installed in the back of the cabin to prevent any movement during the flight and to avoid container contacts with the galley.



END STOPS

LATERAL GUIDE

FWD

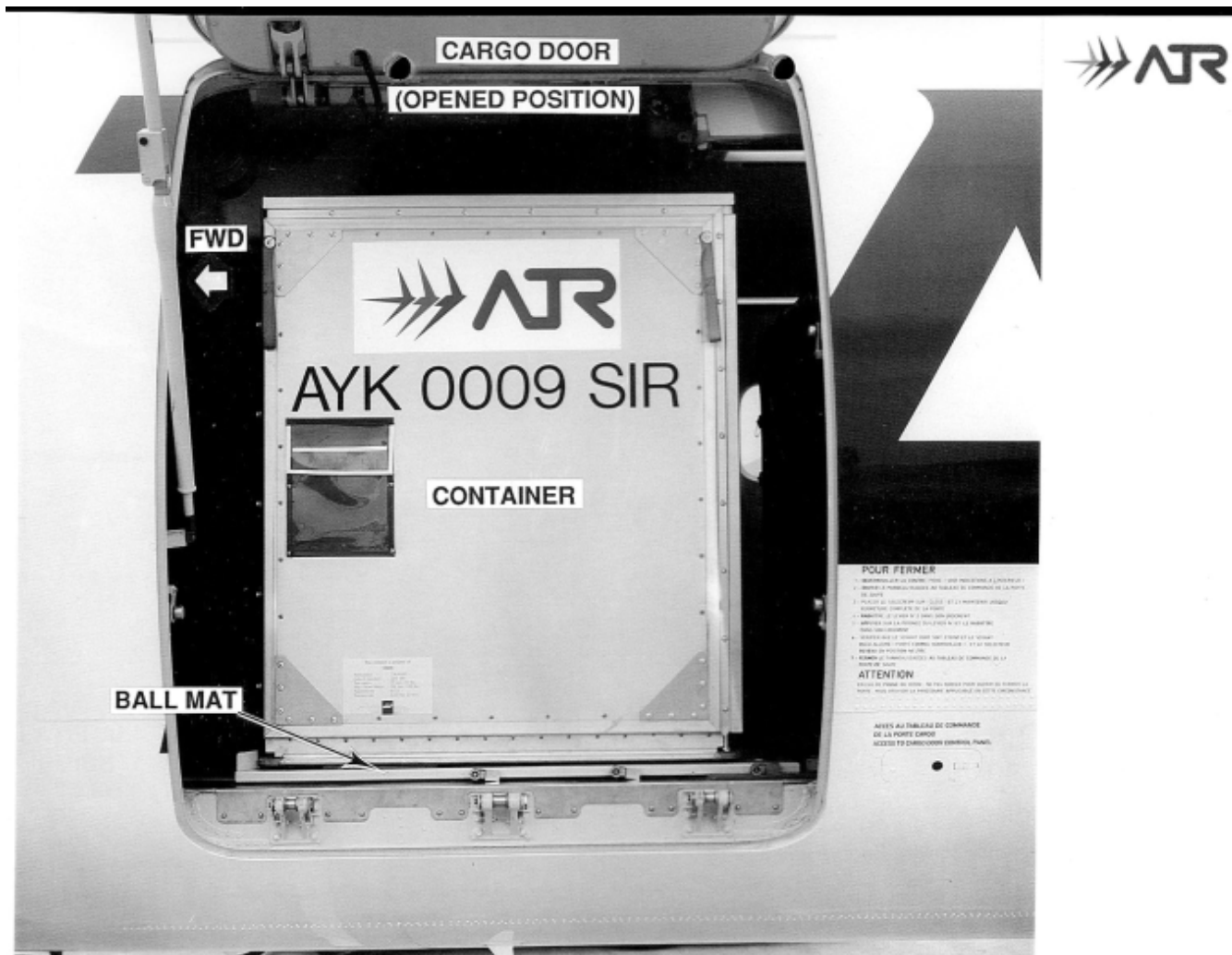
PASSENGER  
SEAT  
TRACK



Preloaded ATR type container is installed on the ball mat before moving rearward.



The clearance left by the last container in the cargo door area is sufficient enough to allow a free crew embarkment and disembarkment.



CARGO DOOR

(OPENED POSITION)



FWD



AYK 0009 SIR

CONTAINER

BALL MAT

**POUR FERMER**

- 1. RETOURNER LE CÂBLE TIRER VERS L'AVANT ET LE PRESSER CONTRE LE PNEUMATIQUE AU TABLEAU DE COMMANDE DE LA PORTES DE CARGO.
- 2. POUSSER LA TIGNE EN POSITION "DOWN" ET LA POSITIONNER EN POSITION "UP" EN SUITE.
- 3. ARRÊTER LE CÂBLE TIRER EN POSITION "UP".
- 4. ARRÊTER LA TIGNE EN POSITION "UP".
- 5. ARRÊTER LA TIGNE EN POSITION "UP".

**ATTENTION**

NE PAS TOUCHER LE CÂBLE TIRER NI LA TIGNE EN POSITION "UP". NE PAS TOUCHER LE PNEUMATIQUE EN POSITION "UP".

ACCÈS AU TABLEAU DE COMMANDE DE LA PORTES CARGO ACCÈS À LA DISTRIBUTION ÉLECTRIQUE

A total of 8 locks secure the container on the floor (4 on each face).

Note the lateral sufficient clearances.



CARGO DOOR

FWD

ATN

AYK 0009 SIR

CONTAINER

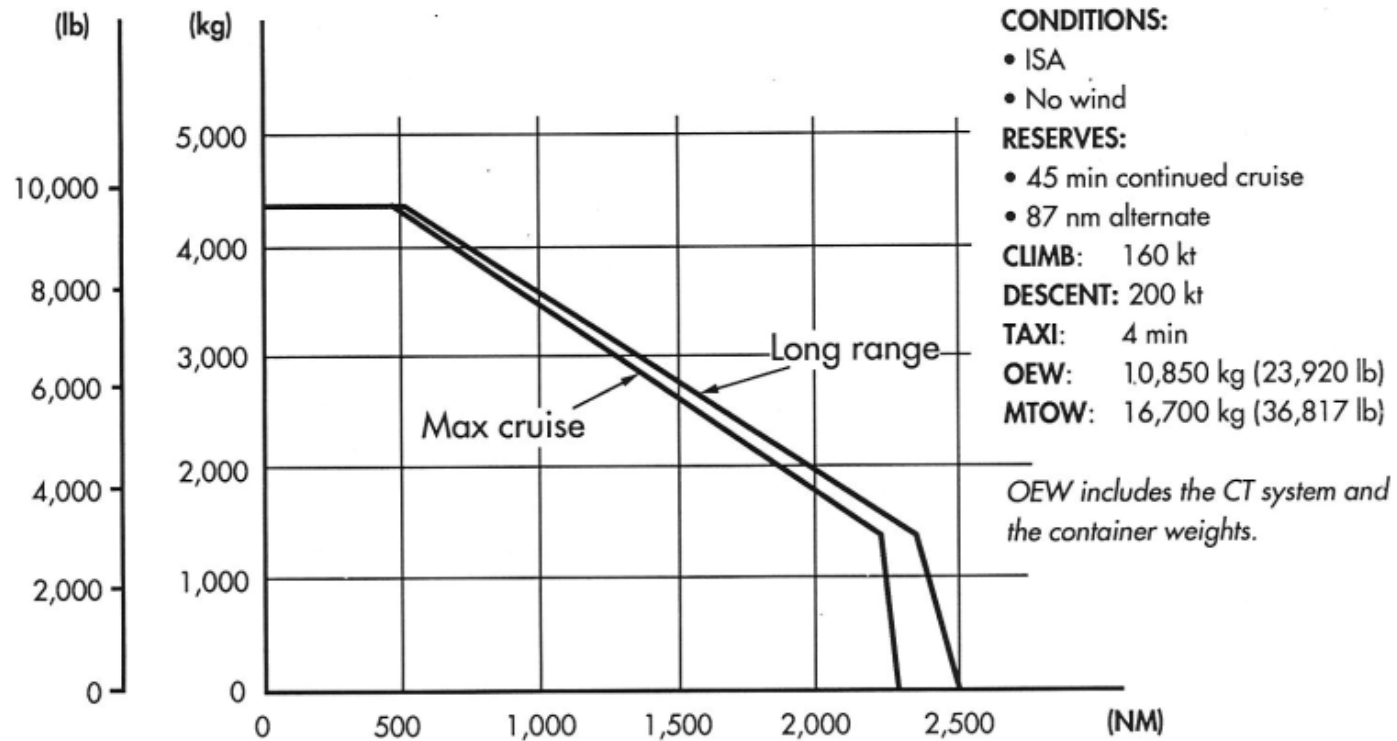
POUR FERMER

- 1. S'assurer que la charge est correctement attachée et sécurisée.
- 2. Vérifier que la charge est correctement attachée et sécurisée.
- 3. Vérifier que la charge est correctement attachée et sécurisée.
- 4. Vérifier que la charge est correctement attachée et sécurisée.
- 5. Vérifier que la charge est correctement attachée et sécurisée.

ATTENTION

ATTENTION - AFTER THE CARGO DOOR IS OPENED, DO NOT ATTEMPT TO CLOSE THE DOOR UNTIL THE CARGO IS SECURELY LASHED TO THE CONTAINER. - ACCESS TO CARGO AREA CONTROL PANEL.

# PAYLOAD & RANGE CHARACTERISTICS – 9 ATR CONTAINERS





TWO DIFFERENT SOLUTIONS TO FAVOR ALTERNATIVELY PAYLOAD OR VOLUME OPTIMIZATION:



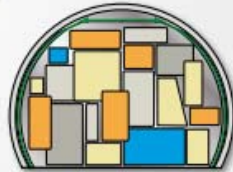
**Light Tube:**

**PAYLOAD OPTIMIZER**

- ◆ Maximize payload for dense Bulk transportation.
- ◆ Freight fixed with Spider Nets.
- ◆ Containerized operations.

*\*: depending on ATR version*

<b>MAX PAYLOAD</b>	ATR 42	from 5,753 to 6,613 kg - from 12,683 to 14,579 lb*
	ATR 72	from 8,604 to 8,904 kg - from 18,968 to 19,630 lb*
<b>GROSS VOLUME</b>	ATR 42	47 m <sup>3</sup> - 1,660 cu. ft
	ATR 72	64 m <sup>3</sup> - 2,260 cu. ft



**Structural Tube:**

**VOLUME OPTIMIZER**

- ◆ Maximize volume for rough loading operations transportation.
- ◆ Reinforced lateral panel with installation of tracks and multiple attachment points.

<b>MAX PAYLOAD</b>	ATR 42	from 5,613 to 6,473 kg - from 12,374 to 14,270 lb*
	ATR 72	from 8,423 to 8,723 kg - from 18,569 to 19,230 lb*
<b>GROSS VOLUME</b>	ATR 42	56 m <sup>3</sup> - 1,978 cu. ft
	ATR 72	75.5 m <sup>3</sup> - 2,666 cu. ft

*\*: depending on ATR version*



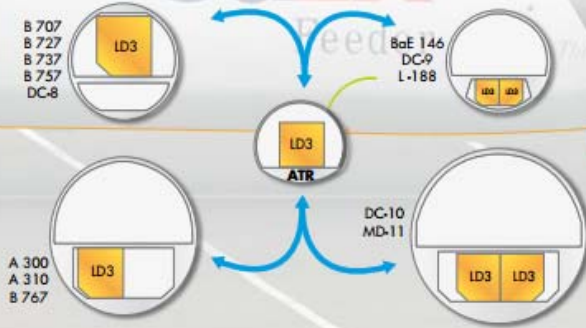
**Special ATR Container available for both tubes configurations**



- ◆ Volume: 2.8 m<sup>3</sup> (99 cu.ft)
- ◆ Max. gross weight: 500 Kg (1,102 lb)
- ◆ Container weight: 76 Kg (167.5 lb)



ATR ULDs Loading capabilities			
	LD3	88" x 108" pallets	88" x 62" pallets
ATR 42	5	3	6
ATR 72	7	5	9



THE ATR FREIGHTERS WITH LCD CAN BE FEED WITH THE SAME LD3 OR 88"X108" AS A MD11 OR A DC-10

