

A330-200
TECHNICAL TRAINING MANUAL
MECHANICS / ELECTRICS & AVIONICS COURSE
25 EQUIPMENT/FURNISHINGS
GE Metric

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GENERAL SYSTEM PRESENTATION

General
Cockpit
Passenger Compartment
Cargo Compartments
Emergency Equipment
Avionics Compartment
Crew Rest Compartments

GENERAL

The aircraft equipment and furnishings include the following subsystems:

- the cockpit,
- the passenger compartment,
- the cargo compartments,
- the emergency equipment,
- the avionics compartment and
- the crew rest compartments.

COCKPIT

The cockpit accommodates two pilot seats and two observer seats.

PASSENGER COMPARTMENT

The passenger compartment can accommodate different layouts.

On the combi version, the rear part of the cabin is used to carry cargo.

CARGO COMPARTMENTS

Two underfloor compartments are used to carry cargo.

The forward cargo compartment is located between the avionics compartment and the landing gear bay.

The aft cargo compartment includes the bulk cargo compartment and is located aft of the landing gear bay.

EMERGENCY EQUIPMENT

The cockpit sliding windows, the pax/crew doors and emergency exits, equipped with slide/rafts or slides, are used for an evacuation on ground.

Oxygen systems and portable emergency equipment as flash lights, life jackets and fire extinguishers are also available.

AVIONICS COMPARTMENT

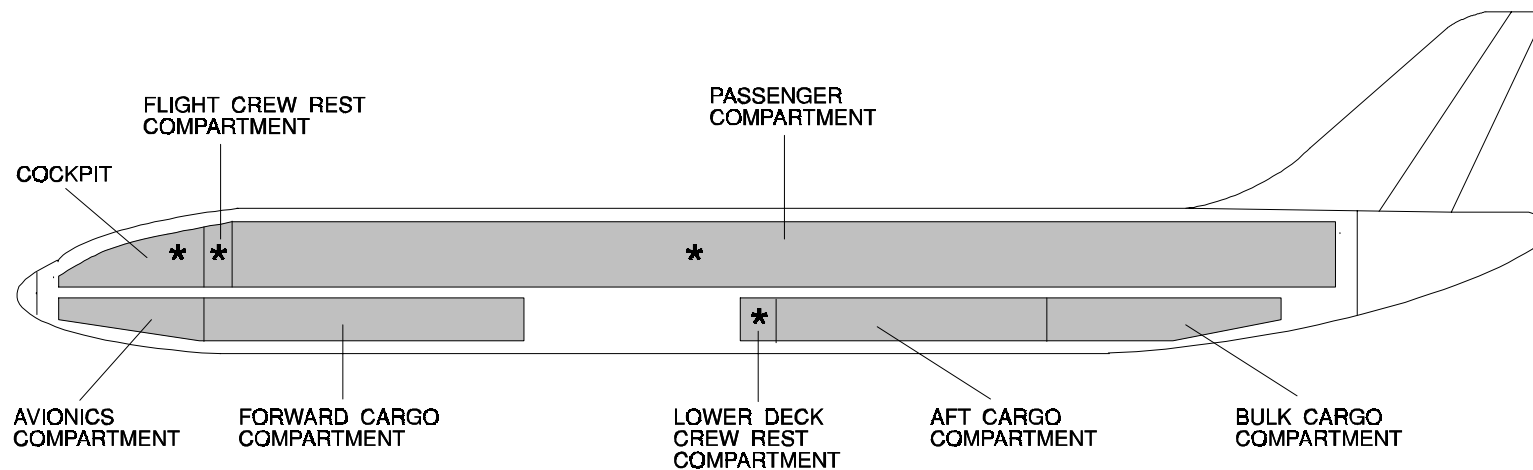
The avionics compartment is located just below the cockpit.

The avionics compartment is accessible from the cockpit, from the cargo compartment and from the ground.

CREW REST COMPARTMENTS

A flight crew rest compartment, equipped with bunks and coat stowage, can be installed aft of the cockpit.

An lower deck crew rest compartment can also be installed in the aft cargo compartment and is accessible by stairs from the cabin.



* EMERGENCY EQUIPMENT

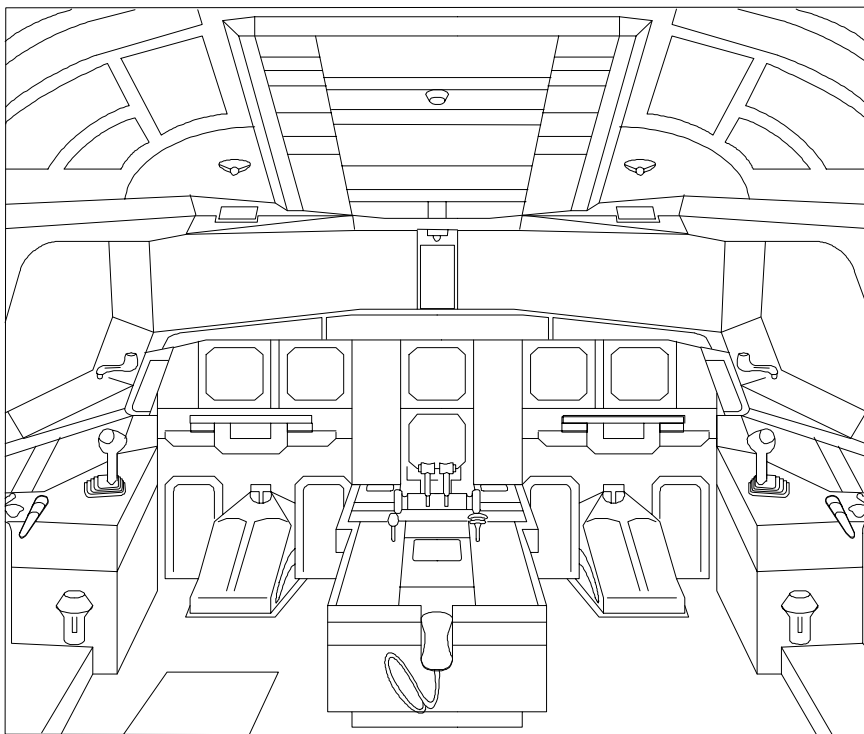
STUDENT NOTES:

COCKPIT PRESENTATION

- General
- Overhead Panel
- Glareshield
- Main Instrument Panel
- Center Pedestal
- Side Consoles
- Avionic Access Hatch

GENERAL

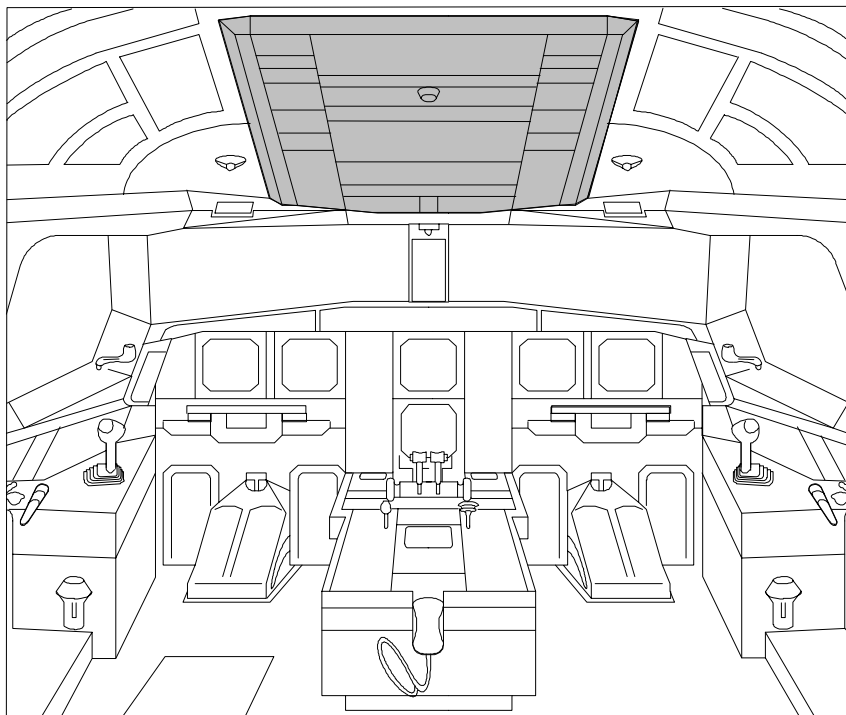
The cockpit accommodates two pilot seats and two observer seats.



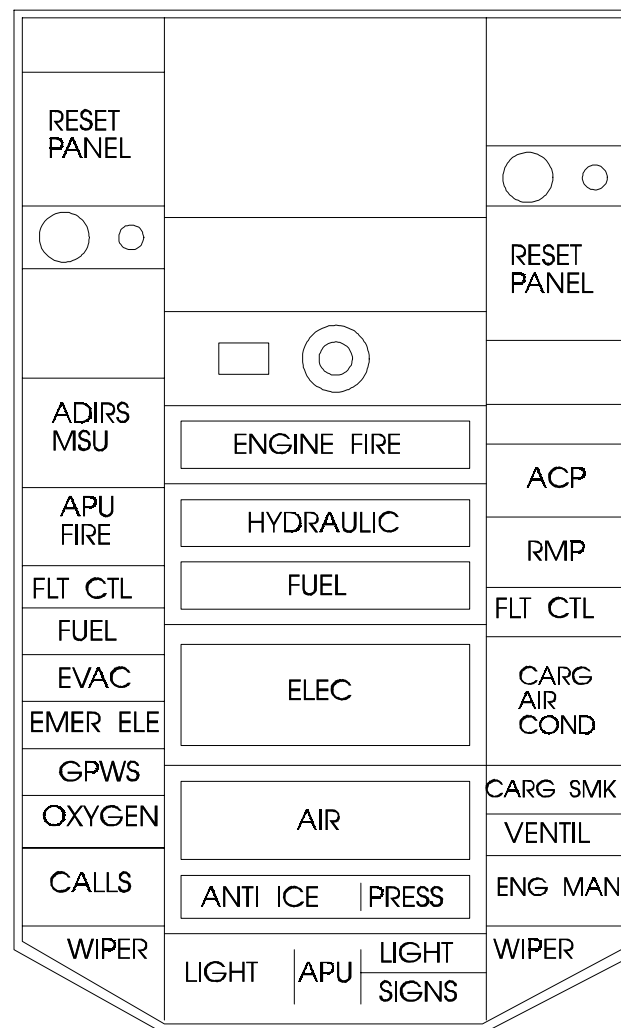
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OVERHEAD PANEL

The controls of most aircraft systems are located on the overhead panel.

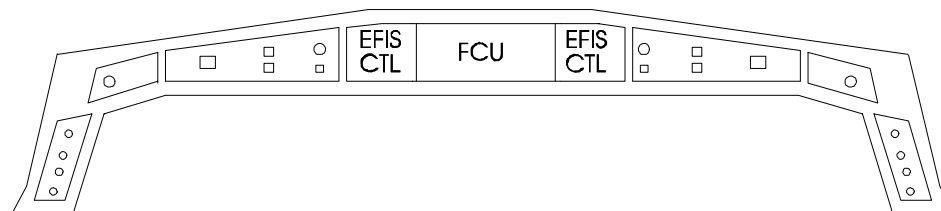
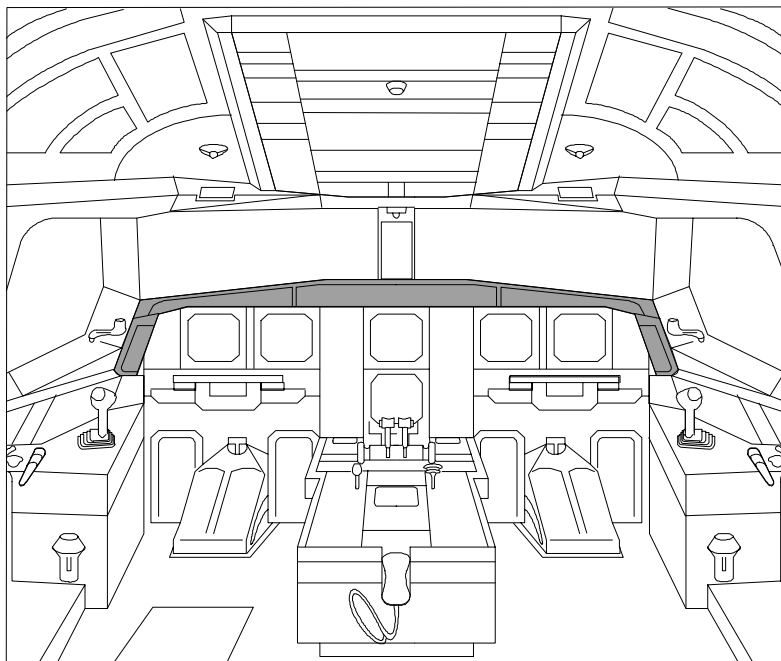


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GLARESHIELD

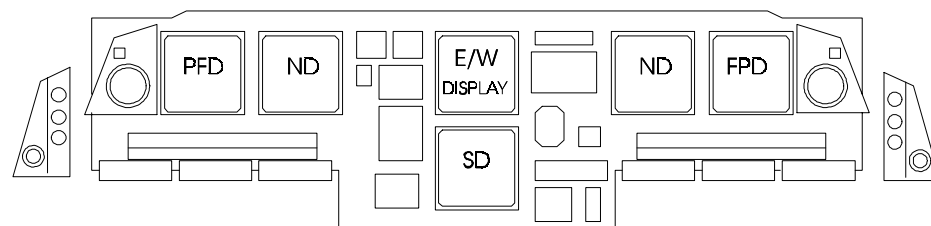
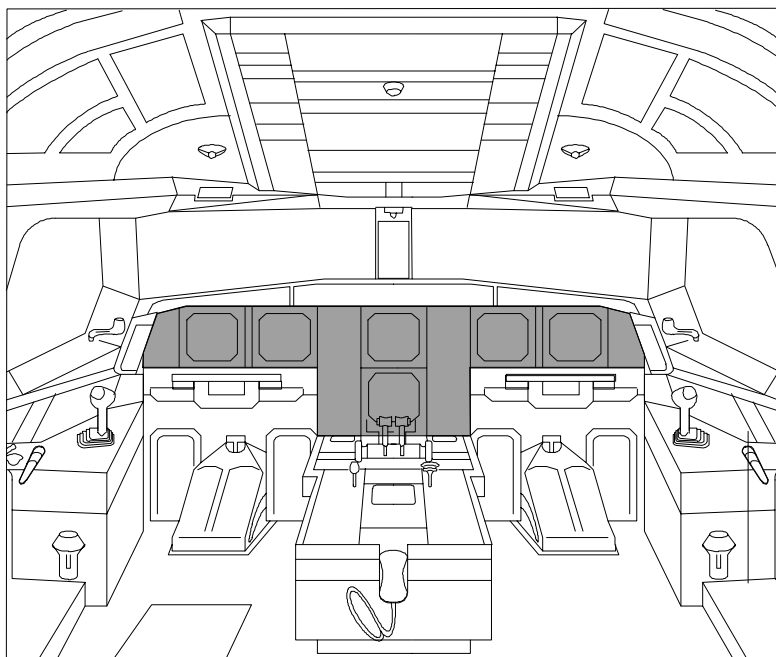
The Flight Control Unit, used for control and monitoring of the autoflight, is located on the glareshield. The "Master Caution" and the "Master Warning" lights are also located on the glareshield.



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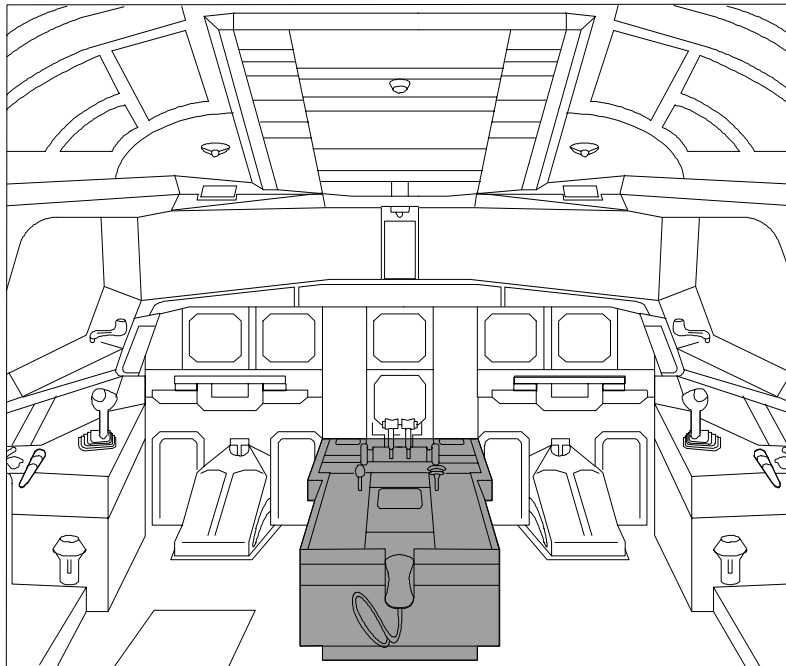
MAIN INSTRUMENT PANEL

Six interchangeable Cathode Ray Tubes are located on the main instrument panel. Two of them are dedicated to the ECAM. The others are two Primary Flight Displays and two Navigation Displays. Stand-by instruments and landing gear controls are also located on the main instrument panel.

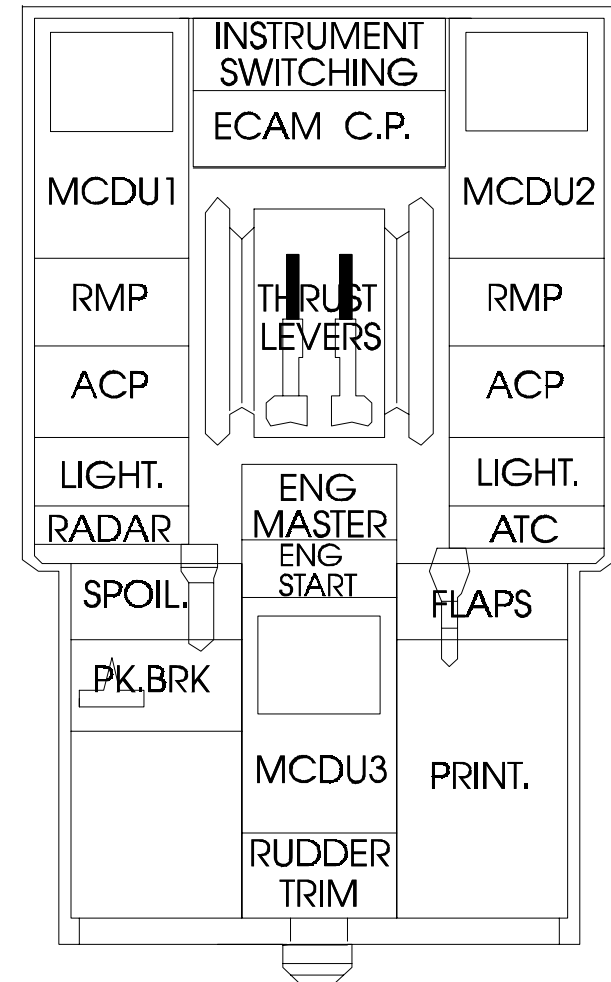


CENTER PEDESTAL

Several control panels are located on the center pedestal as shown on the drawing.

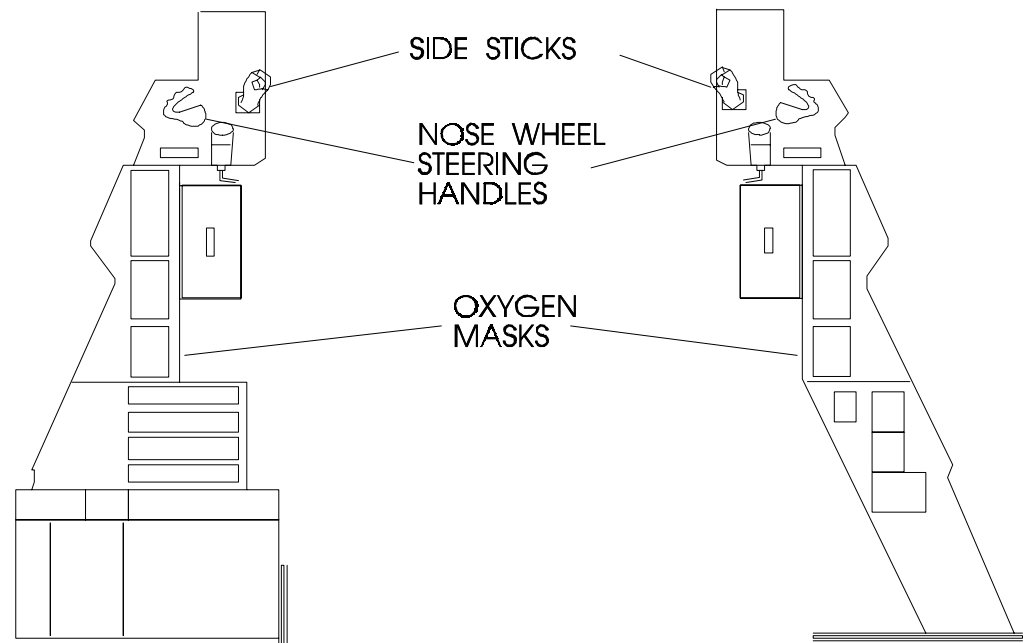
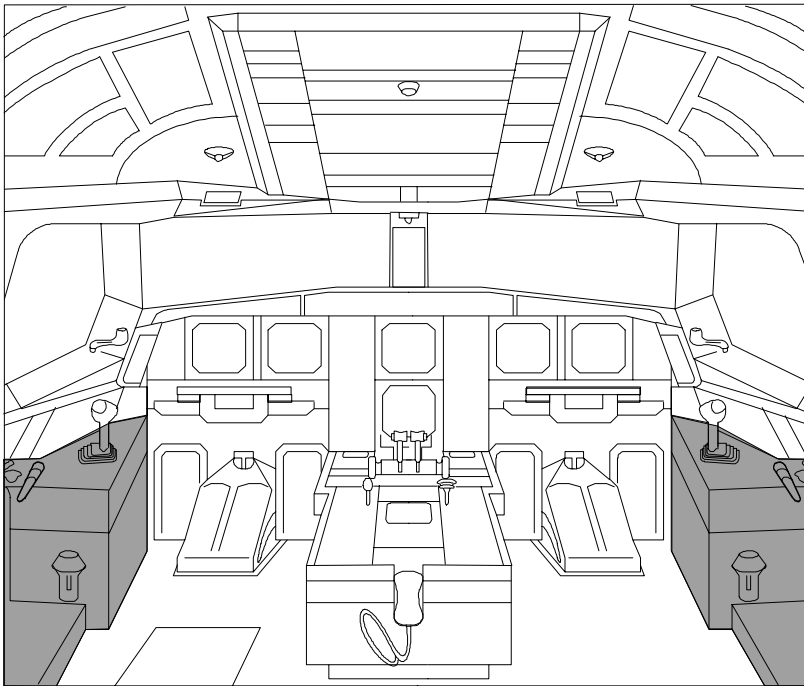


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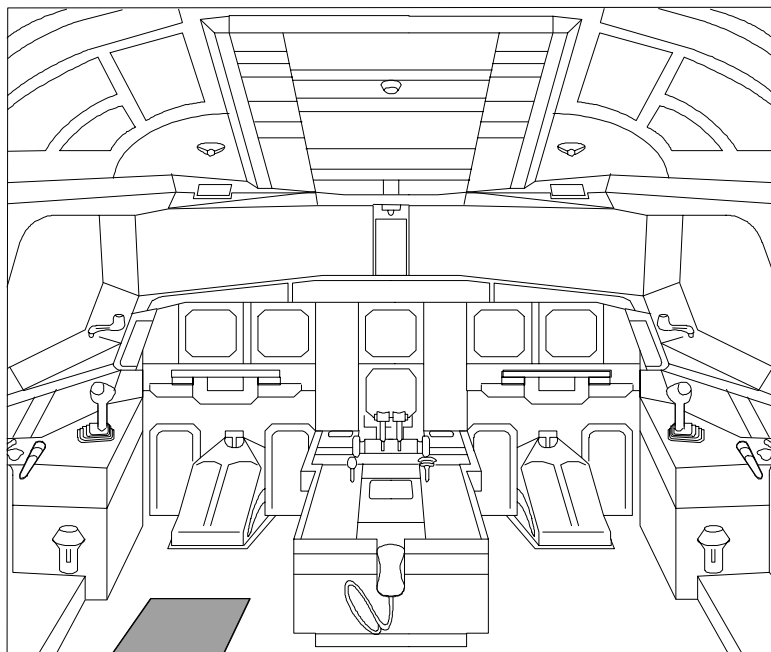
SIDE CONSOLES

The side sticks and nose wheel steering handles are mounted on the side consoles. The side consoles provide documentation stowage, oxygen masks and communication devices.



AVIONIC ACCESS HATCH

A hatch, located aft of the captain seat, allows access to the avionics compartment.



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STUDENT NOTES

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COCKPIT SEAT PRESENTATION

General
Pilot Seats
Third Occupant Seat
Fourth Occupant Seat

GENERAL

The captain and first officer seats are column mounted and electrically operated with manual back-up. The third and fourth occupant seats are only manually operated.

PILOT SEATS

The pilot seats are electrically operated in the horizontal and vertical directions. With no electrical supply or motor failure the seats can be operated manually.

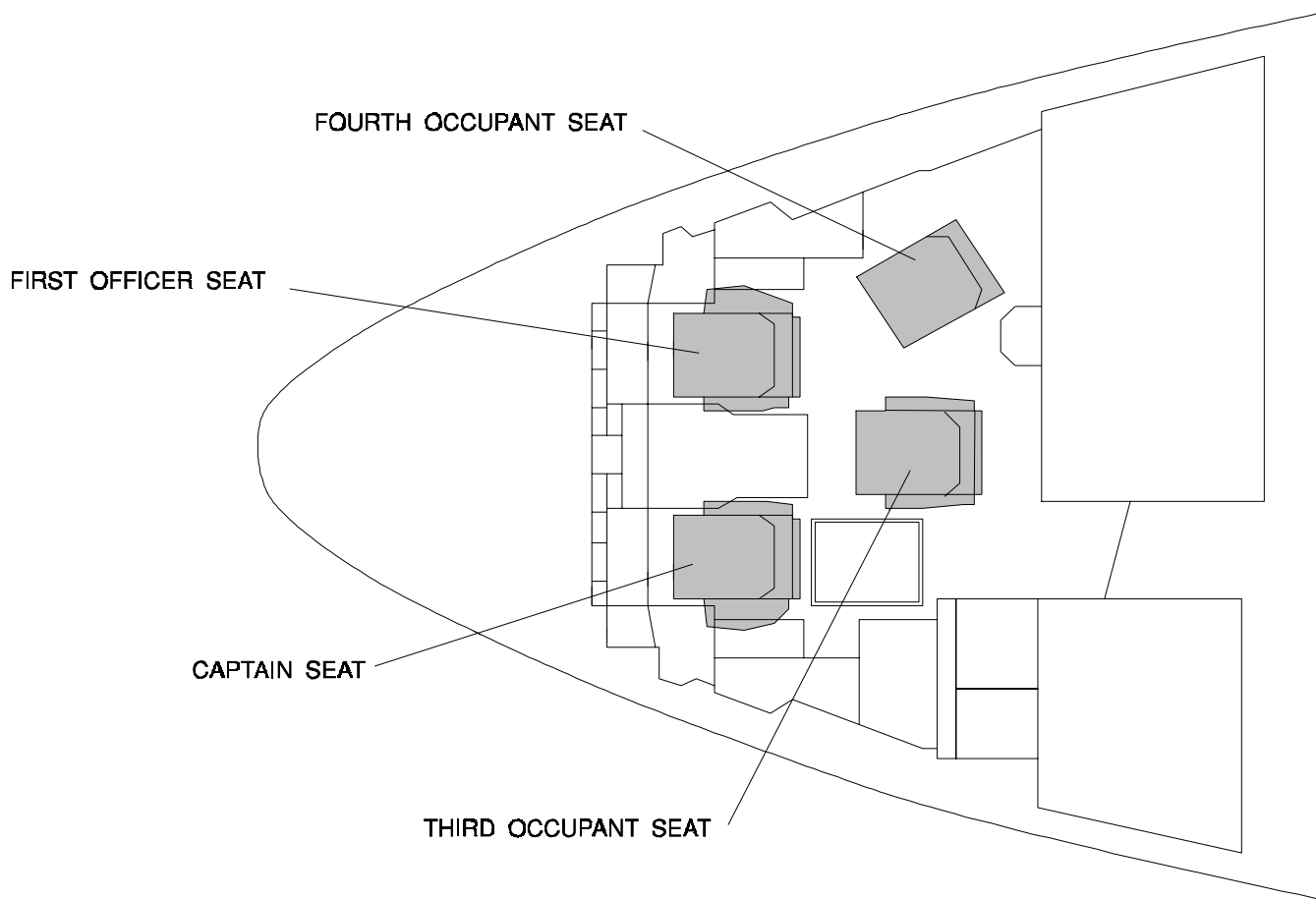
Other adjustments of the seat can be made manually. The arm rest, located outboard, is adjustable to provide a comfortable position to operate the side stick.

THIRD OCCUPANT SEAT

The third occupant seat is manually operated in three directions only. The third occupant seat is also column mounted. It is raised by 100 m.m. (3.94 inch) and it can rotate to provide good visibility and relaxed position.

FOURTH OCCUPANT SEAT

The fourth occupant seat is a floor mounted folding seat.



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STUDENT NOTES:.

COCKPIT COMPONENTS

Sunvisor (left/right)
Sunvisor (center)
Roller Blind
Foot warmers

SUNVISOR (LEFT/RIGHT)

FIN

- left sunvisor : 5004MS
- right sunvisor : 5005MS

ZONE

- left sunvisor : 211
- right sunvisor : 212

COMPONENT DESCRIPTION

Windshield sunvisors are designed so as to protect the flight crew from direct sunlight coming through the front windows.

Left and right sunvisors are symmetrical.

They comprise a support frame with a body (located behind the furnishing panels) and a blind screen which can be stowed in the body. Clean the blind screen with soapy water only and avoid wiping dry.

REMOVAL INSTALLATION

The sunvisor is fixed to the aircraft bracket by one dove tail support on one side and one screw on the other side.

It can be easily installed or removed without removing the front furnishing panel.

SUNVISOR (CENTER)

FIN : 5006MS

ZONE : 210

COMPONENT DESCRIPTION

The center sunvisor is used to protect the flight crew from the sunbeams coming through the front windows.

It comprises a pivot articulated support and a smoked polycarbonate blind screen.

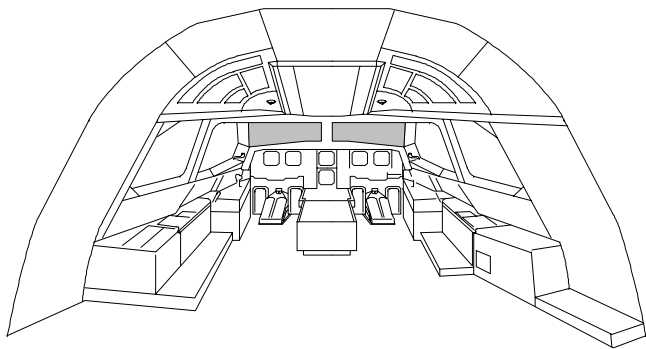
The sunvisor is stowed against the front center furnishing panel. The ball joint movement can be adjusted by turning the ball joint adjustment knob.

The blind screen has to be cleaned with soapy water only.

Avoid wiping dry.

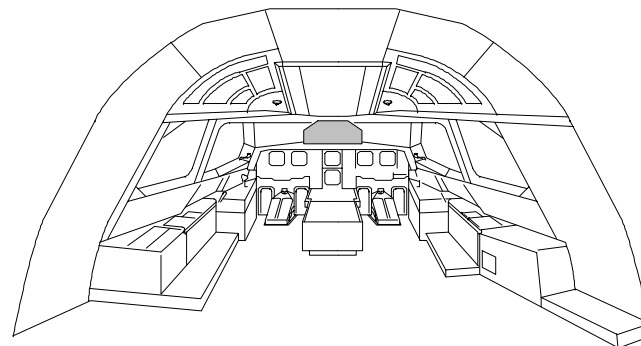
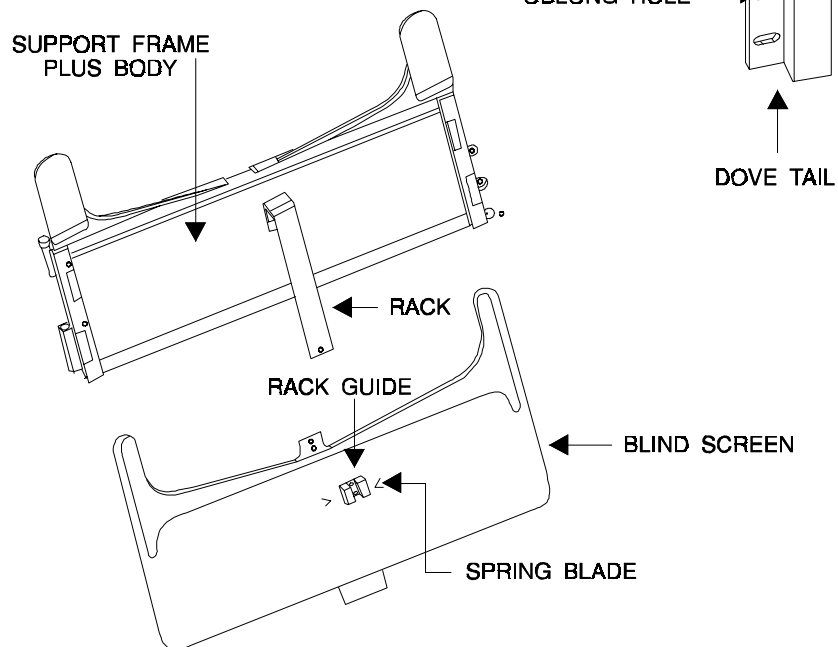
REMOVAL INSTALLATION

The center sunvisor assembly is fixed to the aircraft bracket by three 0.164 inch bolts.

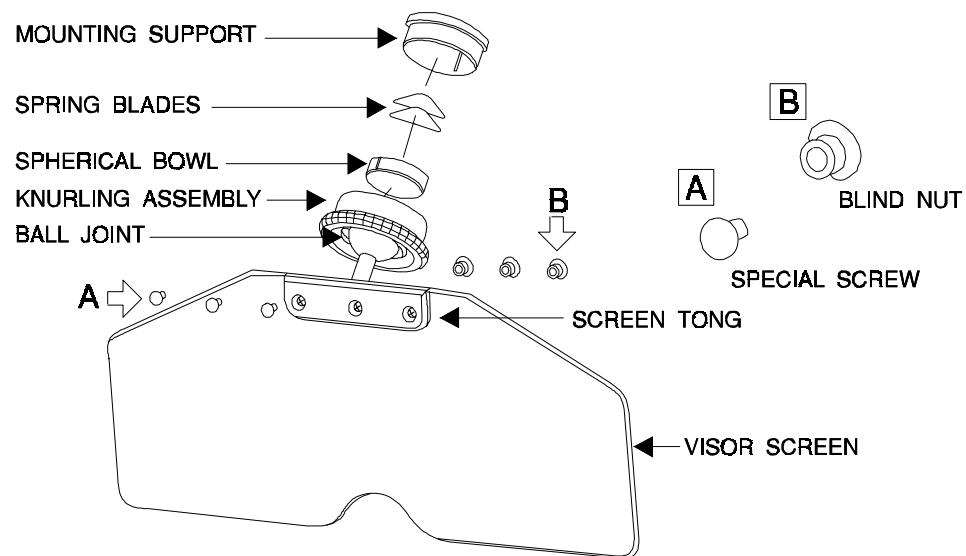


SUNVISOR (LEFT/RIGHT)

REMOVAL/INSTALLATION



SUNVISOR (CENTER)



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ROLLER BLIND

FIN ROLLER BLIND

- left sliding window : 5007MS
- right sliding window : 5008MS
- left fixed window : 5009MS
- right fixed window : 5010MS

ZONE

- left roller blind : 211
- right roller blind : 212

COMPONENT DESCRIPTION

Roller blinds protect the crew from sun beams coming through the cockpit side windows.

The blind consists of a polyamid screen which is metal coated on the outside, a roller tube and drop bar and mounting bearings. The screen is raised by pulling the drop bar upwards.

The hook is located in the center part of the drop bar.

The screen hooks up on the upper part of the trim panel.

Clean the blind with soapy water.

Avoid wiping dry.

SPECIAL DESIGN

A second roller blind is mounted on the sliding windows.

Its format differs and it is raised diagonally.

REMOVAL INSTALLATION

The blind is mounted with two 0.164 inch diameter bolts.

The spring should be fitted on the forward side of roller tube.

The spring pre-tensioning is 8 turns.

Turn the spring shaft clockwise in relation to the screen rolled loosely around its tube.

FOOT WARMERS

FIN

- Capt R foot warmer : 2DR1
- Capt L foot warmer : 2DR3
- F/O R foot warmer : 2DR2
- F/O L foot warmer : 2DR4

ZONE

- capt : 211
- F/O : 212

COMPONENT DESCRIPTION

The flight crew foot warmers consist of heating panels controlled by a switch supplied with 115VAC.

An electronic circuit integral to each foot warmer controls the temperature level.

SPECIAL DESIGN

The foot warmers are controlled by a switch located on the main instrument panel.

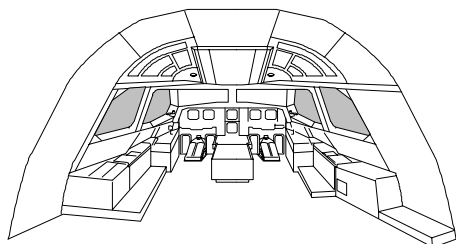
REMOVAL INSTALLATION

Open, safety and tag the corresponding circuit breakers.

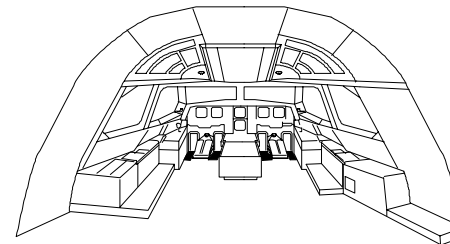
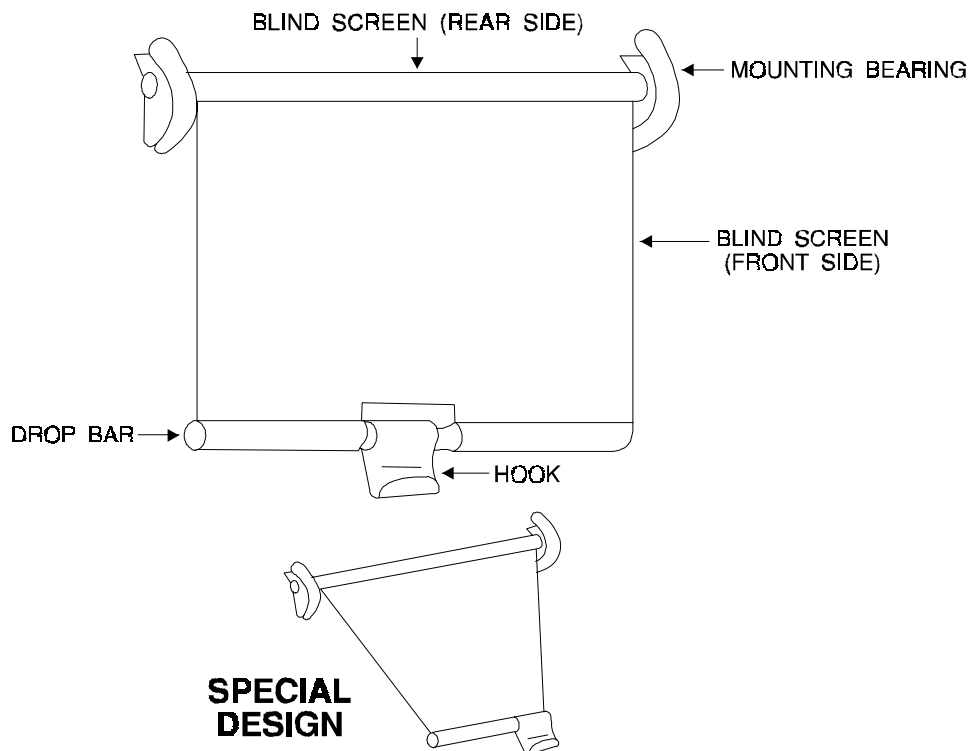
Remove the screws.

Disconnect the electrical connector and put a blanking cap on the electrical connector.

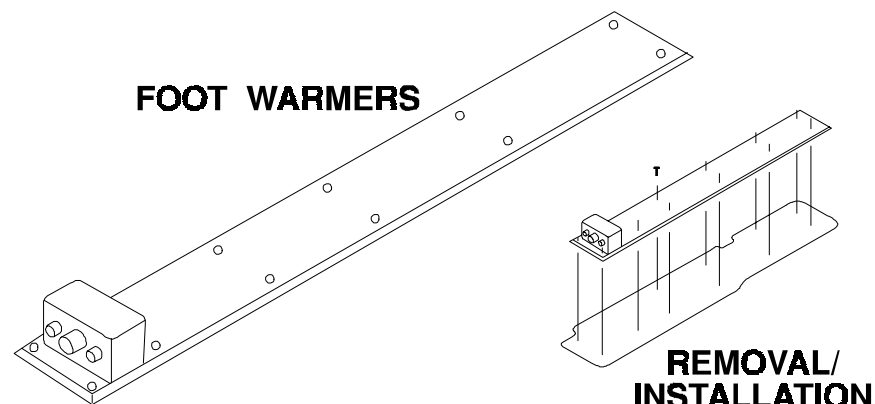
Then remove the foot warmer.



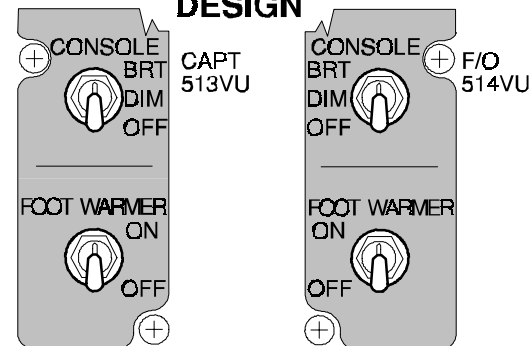
ROLLER BLIND



FOOT WARMERS



SPECIAL DESIGN



STUDENT NOTES

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COCKPIT SEATS

Pilot Seats
Third Occupant Seat
Fourth Occupant Seat

PILOT SEATS

The description, operation and attachment are the same for the captain and the first officer seat as they are symmetrical. However, they are not interchangeable because of the armrests and the controls.

DESCRIPTION

Each pilot seat consists of :

- a backrest,
- two armrests,
- a seating assy,
- a telescopic column,
- a shoulder harness with a control lever,
- a life vest compartment.

Shoulder Harness

The safety harness is a five strap model equipped with a buckle. The straps can be clicked to the buckle in any order. To release the straps, the buckle has to be turned a quarter turn.

Pushing on top releases the shoulder harness alone. The shoulder harness is fitted on an inertia reel which can be locked by a control lever, located behind the backrest.

Backrest

The backrest is designed to offer a maximum comfort to the occupant and to provide good lateral support of the body.

The backrest is divided into two parts :

- the backrest and
- the lumbar rest.

The two parts are integral.

Inboard Armrest

The inboard armrest is located on the pedestal side. The armrest is hinged to the backrest and can be raised vertically and stowed behind the backrest.

Sidestick Armrest

A sidestick armrest is located on the console side and contains the fixed arm, the carrier arm and the table.

It is attached to the seatpan and is independent from the backrest movements. It can be folded back to a vertical position. A free wheel serves to avoid interference between the armrest and the lateral console.

Seating Assy

The seating assy consists of a seatpan and a cushion. The seatpan is a metallic structure, attached to the moving part of the telescopic column.

Footrests are provided on the aft part of the seatpan.

The cushion provides good support and ensures good pressure distribution.

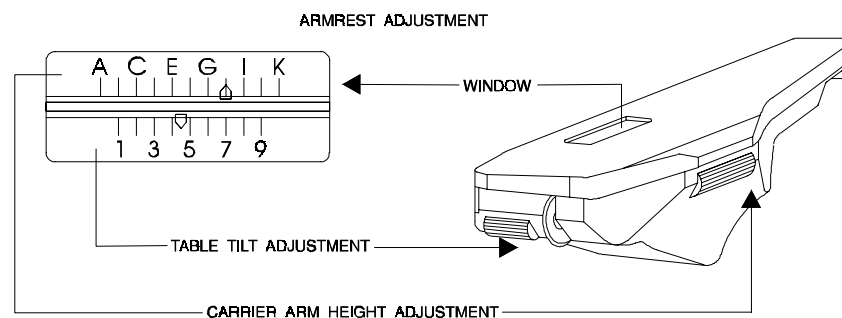
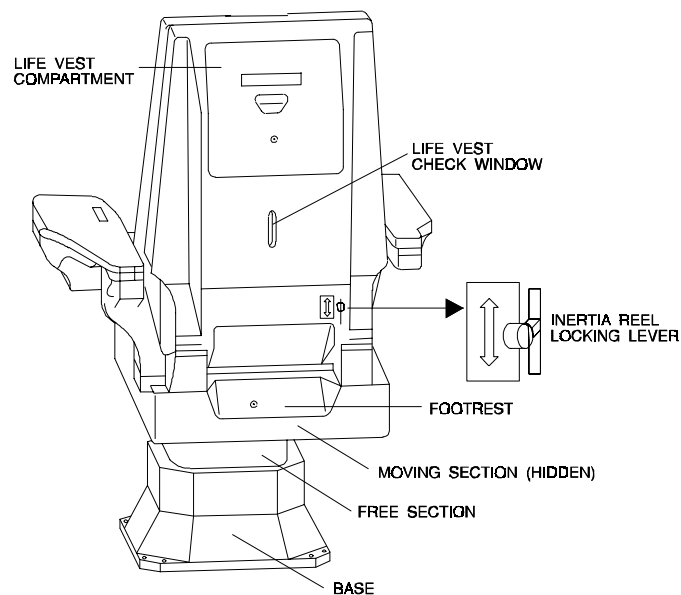
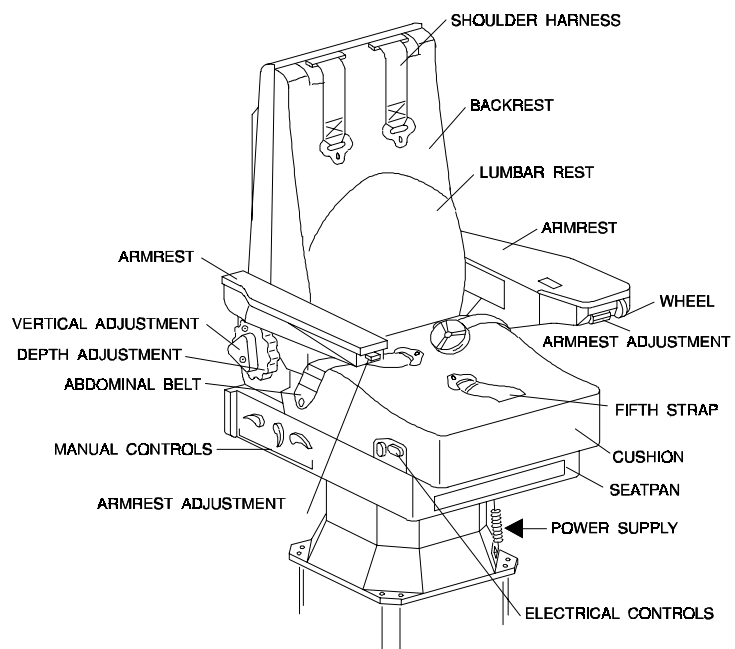
Life Vest Compartment

A life vest is stowed on the AFT side of the backrest in a compartment accessible through a hinged door and held closed by means of two magnets.

Telescopic column

The telescopic column is made in three sections :

- the seatbase, connecting the seat to the cockpit floor,
- the moving section, supporting the seatpan,
- the free section which slides into the moving section and the base.



OPERATION

Pilot seats have electrical controls for horizontal and vertical travel. Mechanical controls may be used to override the electrical controls in case of electrical component failure. Other mechanical controls are used for further adjustment of the seat.

Electrical Controls

Electrical control is provided by 1 gear motor. With vertical travel, the free section is pulled off or pushed into the seat base. Horizontal travel is determined by a roller fitted under the seatpan which slides into the L-shaped track.

Manual Controls

The control levers "V", "H" and "R" are used for mechanical vertical, horizontal or backrest movements respectively.

When a lever is pushed, the system is unlocked. As soon as the lever is released, the system is locked.

A gas cylinder is used to slow down vertical and backrest movements.

Backrest Vertical and Depth Adjustment

Rotation of the triangular knob ensures depth adjustment of the lumbar rest.

Rotation of the second serrated knob ensures vertical movement of the lumbar rest.

Inboard Armrest Adjustment

The button located on the armrest ensures angular adjustment by means of a screw-nut system and associated stop. Continuous adjustment is possible in a range of 15 degrees downwards and 10 degrees upwards.

Sidestick Armrest Adjustment

A sidestick armrest is located on the console side. The table tilt and the carrier arm height can be adjusted

ATTACHMENT

The pilots seats are attached to the cockpit floor by means of eight hex head screws.

Energize the ground service network. Get access to the avionics compartment by door 811. There, open, safety and tag the corresponding circuit breakers.

Remove the sidestick armrest from the seat to get it into the cockpit. Put the seat in position and install the washers and screws and tighten them. Paint the bolts with structure paints.

Reinstall the armrest.

In the avionics compartment, remove the blanking caps from the connectors and connect the electrical connectors.

Clean the working area and de-energize the ground service network.

THIRD OCCUPANT SEAT

The basic structure and shape of the third occupants seat is identical to the pilot seats. Thus the description remains valid.

The differences between the third occupant seat and the pilot seats are as follows:

- It has only mechanical controls. So, no circuit breakers and no electrical connector to deal with during removal and installation.
- The seat is raised by 100 mm. (3.94 inches) on the rotating star for good visibility.
- When aligned with the centerline and in extreme forward position, the seat rotates counter-clockwise to one of three positions : 30, 45 or 68 degrees.
- The lateral travel is 4 inches (101.6 mm.) instead of 3 inches (76.2 mm.) for the pilot seats.
- Both armrests are of the pilots inboard armrest type.
- The life vest is stowed in a box located on the AFT partition of the cockpit.

FOURTH OCCUPANT SEAT

Now, we shall see different aspects of the fourth occupant seat which is a folding seat.

DESCRIPTION

The fourth occupant seat consists of :

- a headrest,
- a backrest,
- a seating panel,
- a shoulder harness with a control lever,
- a life vest stowage.

Shoulder Harness Control Lever

The shoulder harness control lever is located on the right hand side of the seat. It is possible to immobilize the occupant if he is taken ill (or for other reasons). This is therefore an emergency procedure.

Seating Panel

The seating panel rotates down in use.

It automatically returns to the stowed position aligned with the backrest when not in use.

Life Vest Stowage

A stowage compartment is located below the seating panel.

It is closed by means of a lock and it contains a life vest.

Non-removable Headrest

The headrest is integral with the backrest.

Shoulder Harness

The safety harness is a five strap model equipped with a buckle. The abdominal belt has NO sleeve to enable stowage.

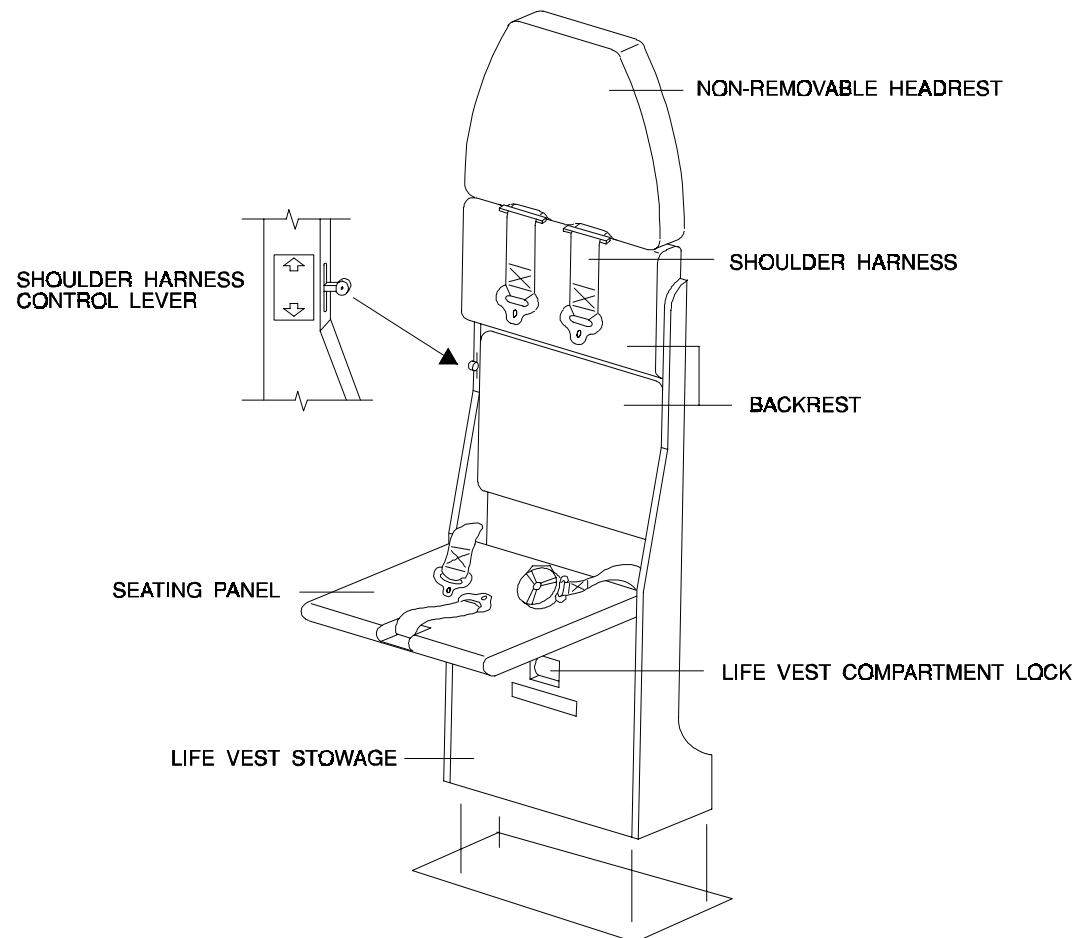
OPERATION

The fourth occupant seat is NOT adjustable.

ATTACHMENT

The fourth occupant seat is attached to the floor by means of four hex head screws. It forms an angle of 28 degrees with respect to the aft partition.

The ground service network has to be energized. Put the seat in position, install the washers and screws (in the life vest compartment) and tighten them. Put the life vest in its compartment and close the door. Make sure that the work area is clean and de-energize the ground service network.



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STUDENT NOTES

CABIN PRESENTATION

- General
- Class Layout
- Passenger Seats
- Cabin Attendant Seats
- Galleys
- Lavatories
- Curtains and Partitions

GENERAL

The passenger compartment can be equipped in different configurations.

CLASS LAYOUT

Three typical cabin configurations are presented in the drawing.

- 1) A typical 3 class layout accommodates a first class with six seats abreast, a business class with seven seats abreast and an economy class with eight seats abreast.
- 2) A typical all tourist class layout accommodates an economy class with nine seats abreast.
- 3) A typical 2 class layout accommodates a business class with six seats abreast and an economy class with eight seats abreast.

PASSENGER SEATS

The passenger seats are mounted on standard tracks which allow quick removal and cabin configuration change.

CABIN ATTENDANT SEATS

Depending on the cabin configuration, the number and location of cabin attendant seats can vary.

There are two main types of cabin attendant seats :

- the floor mounted seats and
- the wall mounted seats

All cabin attendant seats are folding seats.

GALLEYS

The number and location of galleys vary with the cabin configuration and the aircraft utilization.

LAVATORIES

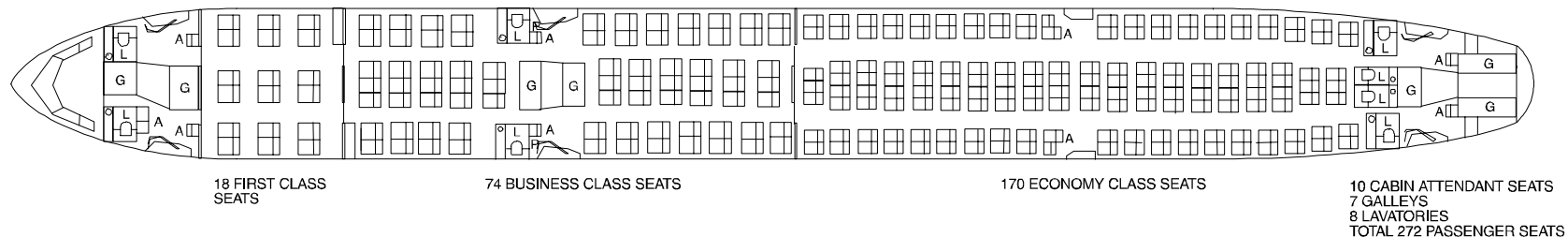
The number and location of the lavatories change with the cabin configuration.

The basic number of lavatories is 8, and the maximum number is 12.

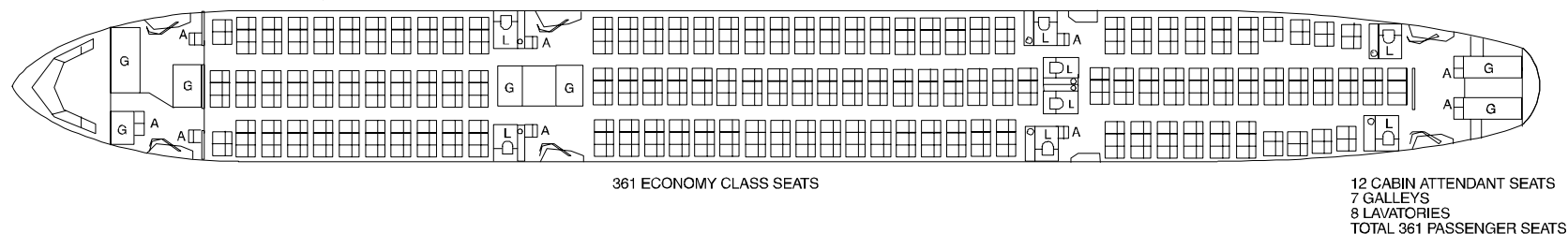
CURTAINS AND PARTITIONS

Classes and zones are divided by floor mounted partitions and ceiling mounted curtains.

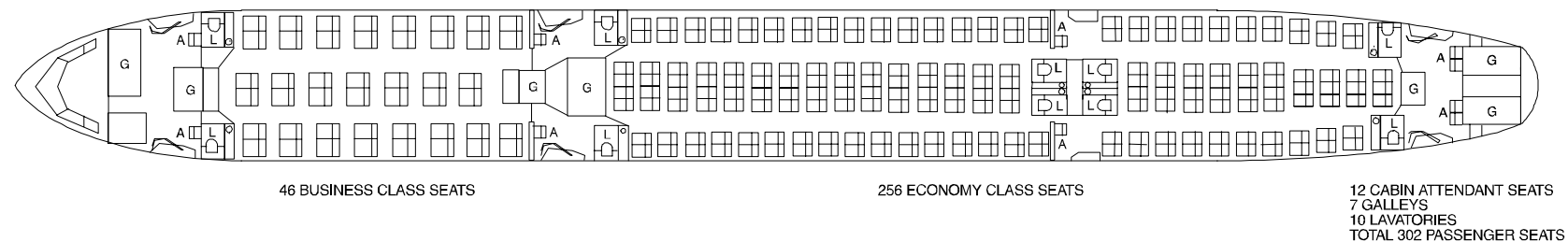
TYPICAL 3 CLASS LAYOUT



TYPICAL ALL TOURIST CLASS LAYOUT



TYPICAL 2 CLASS LAYOUT



G = galley
L = lavatory
A = attendant station

STUDENT NOTES

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CABIN EQUIPMENT AND FURNISHINGS PRESENTATION

General
Dado Panel
Sidewall Panel
Transparant Light Cover
Lateral Overhead Stowage Compartment
Center Overhead Stowage Compartment
Ceiling Panel
PSU/PIU

GENERAL

The cabin interior is equipped with removable panels. The modular lining design allows cabin customization within flexibility areas.

DADO PANEL

The dado (lower sidewall) panels are mounted between the cabin floor and the side wall panels. The dado panels are equipped with rapid decompression doors.

SIDEWALL PANEL

Single and double frame sidewall panels are mounted on the side of the cabin. The sidewall panels include the window contour.

TRANSPARENT LIGHT COVER

Transparent light covers are installed above the sidewall panels. The transparent light covers are removable to allow cabin light replacement.

LATERAL OVERHEAD STOWAGE COMPARTMENT

A row of overhead stowage compartments, incorporating a handrail is fitted along each side wall of the passenger compartment.

CENTER OVERHEAD STOWAGE COMPARTMENT

An optional row of double sided overhead stowage compartments, incorporating a handrail, is fitted along the center line of the passenger compartment.

CEILING PANEL

Removable ceiling panels are mounted in the cabin.

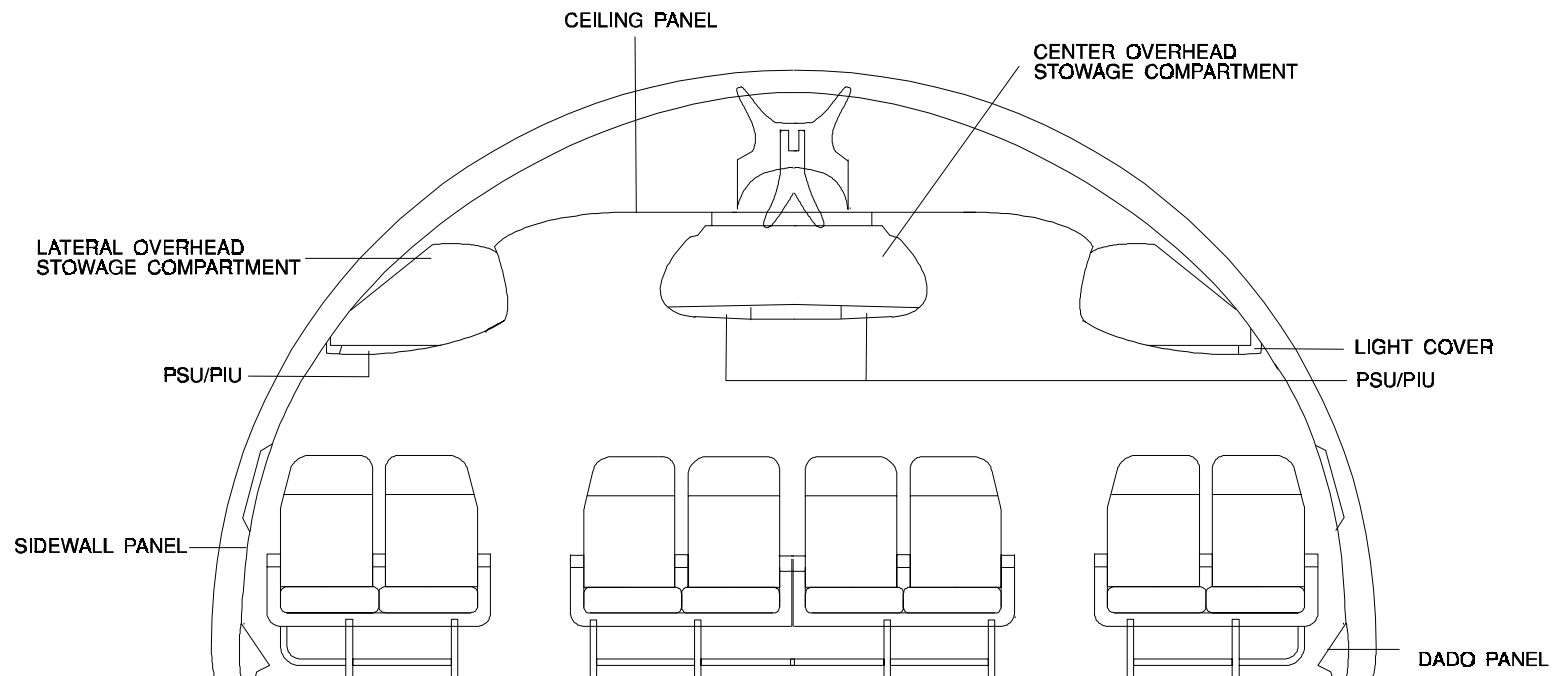
PSU/PIU

Passenger Service Units are mounted below the overhead stowage compartments.

PSU's contain:

- an attendant call push button,
- passenger reading lights
- emergency oxygen masks
- seat numbering and seat row numbering

PIU's (Passenger Information Units) are installed above every second seat row. They contain loudspeakers and pictograms.



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STUDENT NOTES:

TYPICAL GALLEY PRESENTATION

General
Dry Galleys
Wet Galleys

GENERAL

The galleys are Buyer Furnished Equipment. They are either fixed or movable, but all of them are mounted on the standard seat tracks or hard points and ceiling attachments.

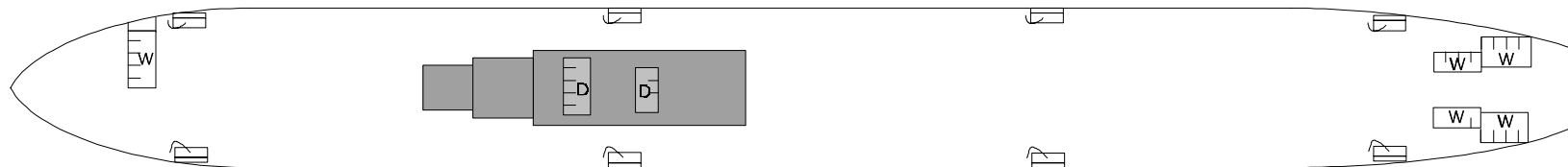
DRY GALLEYS

The dry galleys are not connected to the aircraft systems such as ventilation or potable water. Dry galleys are mainly used to store the trolleys.

WET GALLEYS

The wet galleys are connected to :

- the water and waste system,
- the air extraction system,
- the main air cabin ventilation system and
- the electrical power system.



- FIXED GALLEYS
- MOVABLE GALLEYS
- FLEXIBILITY AREA
- W WET GALLEY
- D DRY GALLEY

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STUDENT NOTES:

GALLEY COOLING SYSTEM

General
Cooling Capacity
Electrical Power
Description

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GENERAL

The galley cooling system consists of several air chiller units which operate independently. These air chiller units supply cooled air for trolley or trolley compartment cooling.

Several fixed air chiller positions have been defined.

To avoid an excessive influence on temperature, humidity and noise, not more than 6 units should be installed in the aircraft.

COOLING CAPACITY

The air chiller/trolley combination will give an average of 7 degrees within the trolley or trolley compartment. Depending upon the installation or cooling requirement, more trolleys per galley may be considered.

COOLING CAPACITY FOR 7 DEGREES	# TROLLEYS
6000 BTU/HR	8
4500 BTU/HR	5
3000 BTU/HR	3

ELECTRICAL POWER

Electrical power supply for the air chiller is taken from the galley power system via a galley internal control and supply unit.

Power consumption for galley cooling reduces the overall galley power supply capacity.

COOLING CAPACITY	POWER CONSUMPTION
6000 BTU/HR	2.4 KW
4500 BTU/HR	1.9 KW
3000 BTU/HR	1.25 KW

DESCRIPTION

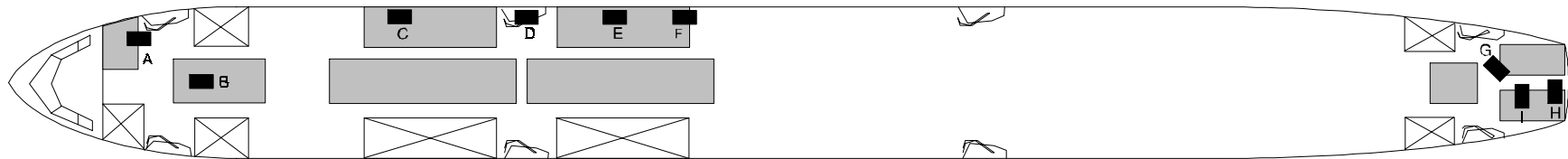
The air chiller units are located underfloor. However, unit B is located above the ceiling.

The units A, G and I are fixed on supports which are attached to the floor structure. The supports for the units B, C, D, E,F and H are attached to the aircraft structure.

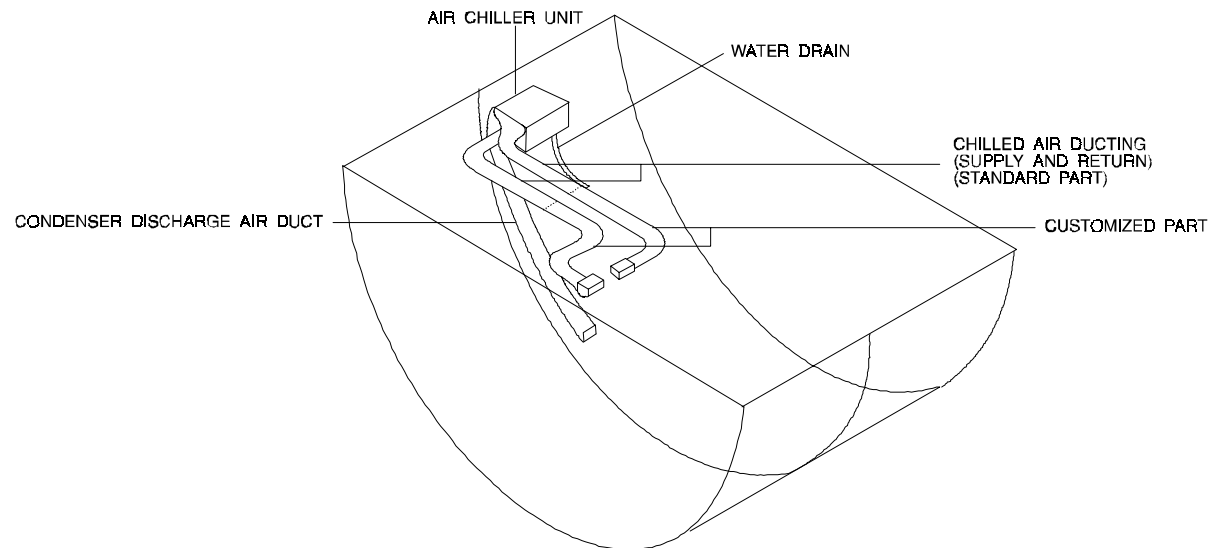
The insulated supply and return chilled air ducting to the galley interface, consists of standard parts and individual connections to the galley. For the air chiller units which are located underfloor, cut-outs in the floor panels are provided for the connection of the galley to the cooling system.

The condenser discharge air from the air chiller is blown through a duct into the lower deck bildge or, for unit B, in the area above the ceiling, to prevent influence on the unit inlet air.

Drain water of the underfloor air chiller unit is fed into the aircraft bildge drainage system. For the unit above the ceiling, the drain water is fed into the waste water system of the galley.



-  COOLING NOT POSSIBLE
-  COOLING CAPABILITY
-  FIXED AIR CHILLER POSITION



STUDENT NOTES:

TYPICAL LAVATORY PRESENTATION

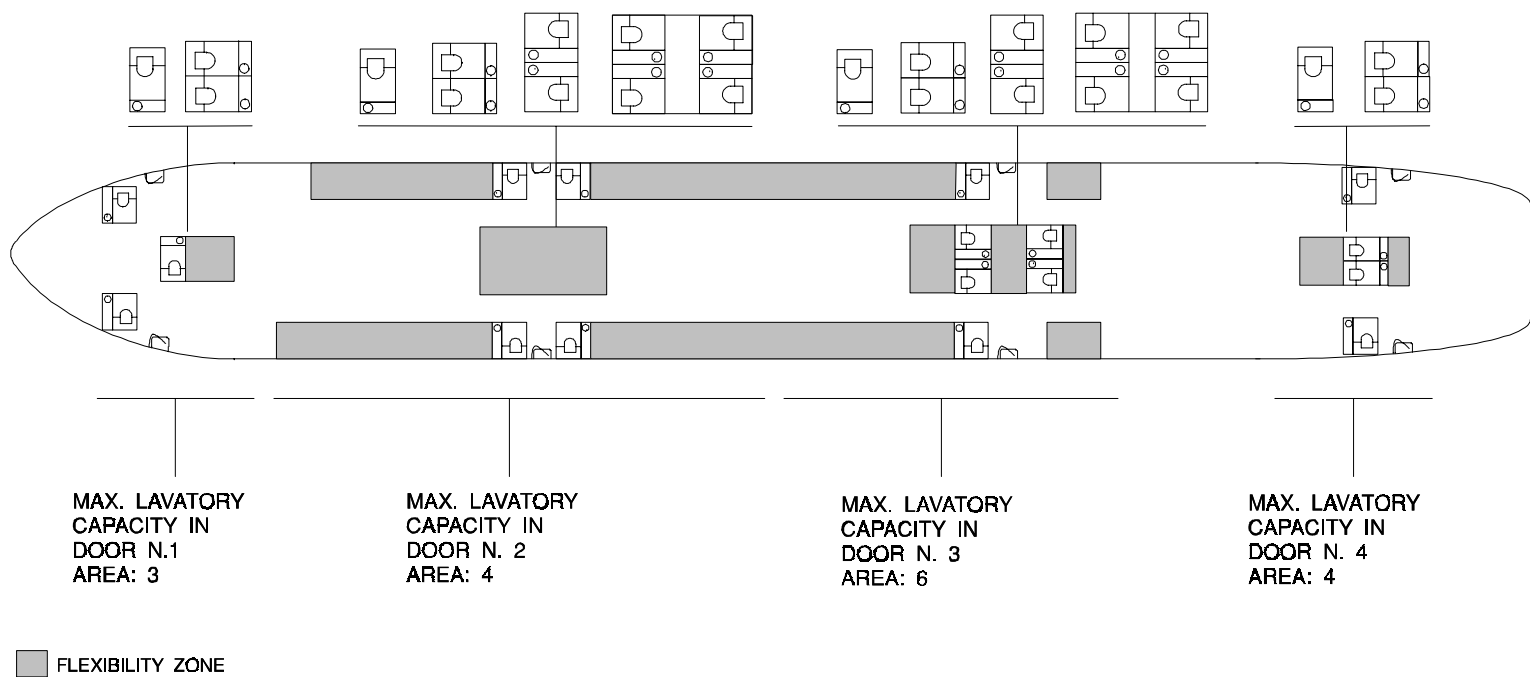
General
Lavatory

GENERAL

The position and the number of lavatories change with the cabin configuration. The basic number of lavatories is 8 and the maximum is 12.

LAVATORY

All lavatories have the same equipment. Depending on its location, the lavatory door can be a sliding door or a folding door. In case of emergency, both types can be unlocked from the outside.



FQW4200 GE Metric

STUDENT NOTES

FQW4200 GE Metric

PASSENGER AND ATTENDANT SEATS

PASSENGER SEATS

PASSENGER SEAT DESCRIPTION

- Framework
- Seatpan
- Backrest
- Table
- Seat Belt
- Armrest
- Pocket

PASSENGER SEAT ATTACHMENT

CABIN ATTENDANT SEATS

CABIN ATTENDANT SEAT DESCRIPTION

- Framework
- Headrest
- Backrest
- Seatpan
- Safety Harness
- Stowage Container

CABIN ATTENDANT SEAT ATTACHMENT

- Wall Mounted
- Free Standing

PASSENGER SEATS

Passenger Seats are designed for the comfort and safety of the passengers. They are located in the cabin, from the cockpit partition to the aft pressure bulkhead.

PASSENGER SEAT DESCRIPTION

The Passenger Seat consists of a framework assembly with :

- an upholstered seatpan,
- an upholstered backrest assembly,
- a folding table,
- seat belts,
- an upholstered armrest and,
- a pocket.

FRAMEWORK

The seat framework holds the seatpan, backrest, armrest and table.

A luggage bar is fitted to the front framework legs.
Holders for life vests are found below each seatpan.

The seat electronic box which serves the passenger service units, is installed between the front and rear legs.

SEATPAN

The upholstered seatpan is installed on the seat framework.
It is not foldable or adjustable.

BACKREST

The upholstered backrest assembly of each seat can be hydraulically reclined backwards until it hits an adjustable mechanical stop.

The backrest can be mechanically folded forward.

TABLE

A folding table is installed in the rear of each backrest.
When not in use, it is kept in a recess in the backrest by means of a latch.
Two hinged arms hold the table when it is folded down.

In-armrest tables are installed in the seats, located just behind partitions, galleys or lavatories.

SEAT BELT

Each seat is equipped with a seat belt. It is attached to the seat framework and has a buckle to lock and to adjust the seat belt length.

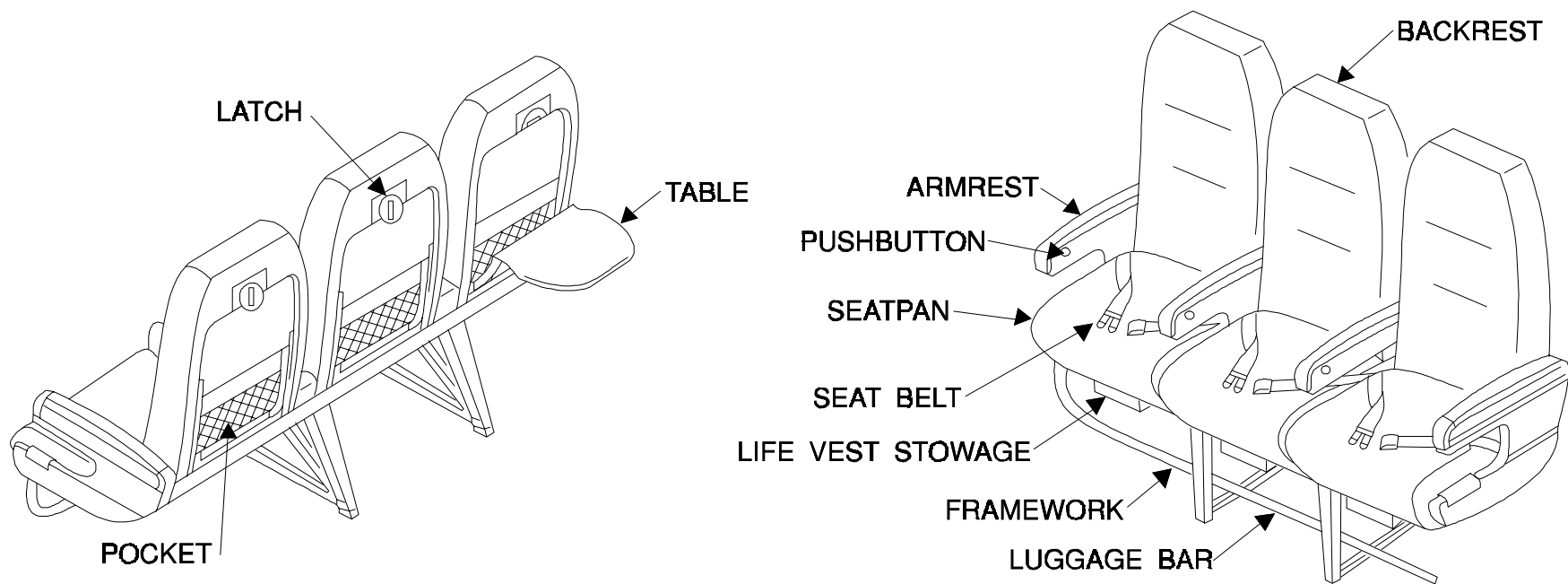
ARMREST

Each seat has armrests.
The outer armrests of a seat unit are not foldable.
The armrests between the seats can be folded up.

The reclining control button for the backrest and an ashtray are installed in the armrest.

POCKET

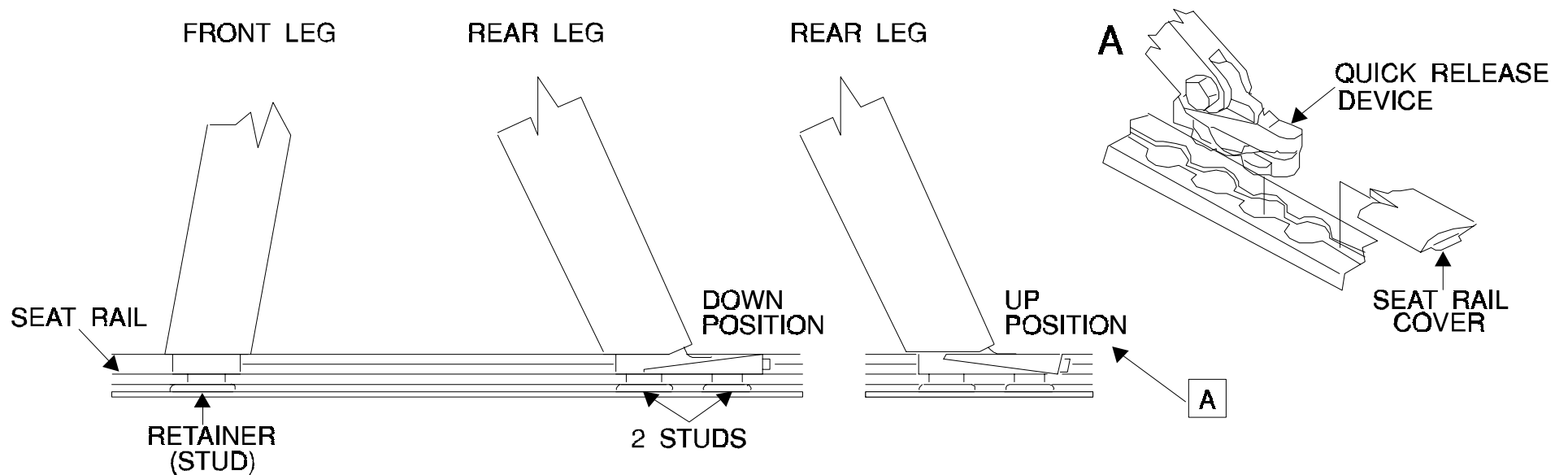
A pocket is installed on the back of each seat backrest.
A safety instruction card and an air-sickness bag are kept in this pocket.



PASSENGER SEAT ATTACHMENT

A quick release fitting in each rear leg and a retainer in each front leg attach the seat unit to the seat tracks.

By placing the quick release device in the up position, the seat can be moved on the tracks or removed completely.



FQW4200 GE Metric

CABIN ATTENDANT SEATS

Free standing or wall mounted Cabin Attendant Seats are installed near the passenger/crew doors.

It is possible to install up to 16 cabin attendant seats in the cabin.

CABIN ATTENDANT SEAT DESCRIPTION

Cabin Attendant Seats consist of :

- an aluminium framework,
- a backrest with cushion,
- a seatpan with cushion,
- a headrest with cushion,
- a stowage container and,
- seatbelts.

FRAMEWORK

The seat frame of the cabin attendant seat is assembled out of two aluminium side frames and a backrest framework.

HEADREST

The headrest cushion is upholstered with foam and seat fabric. The headrest is attached to the seatframe.

BACKREST

The backrest cushion is upholstered with foam and seat fabric.

SEATPAN

The seatpan is made of an aluminium pan.

The seatpan cushion is upholstered with foam and seat fabric. Hinges attach the seatpan to the seatframe.

The seatpan is spring loaded to retract when not in use.

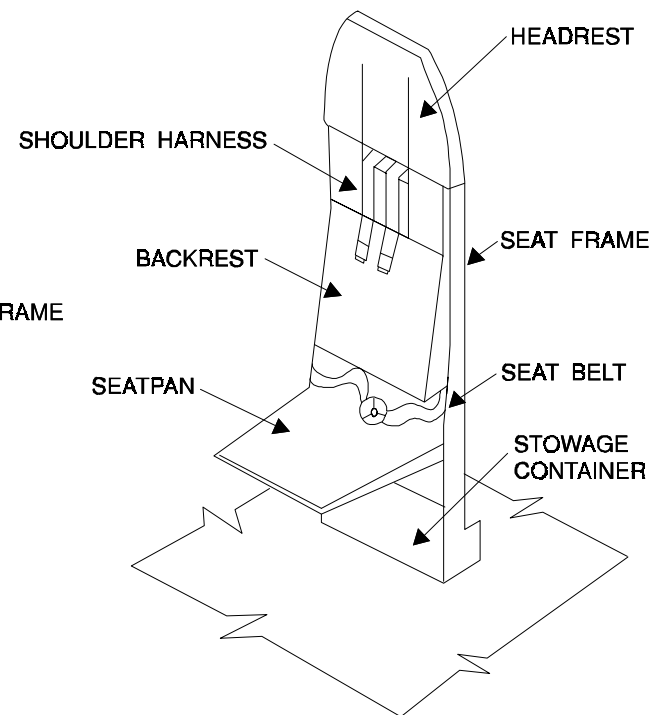
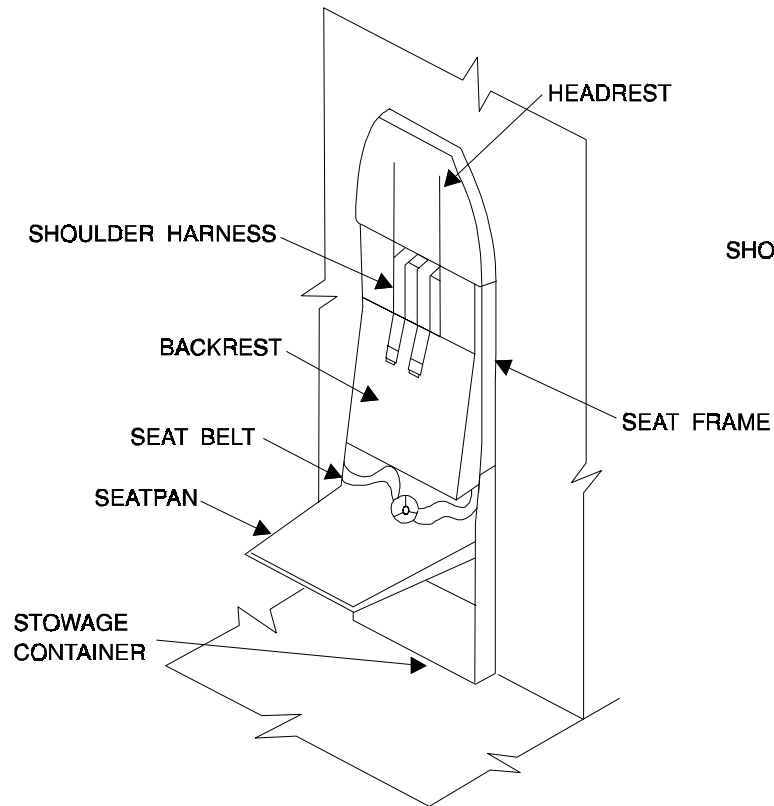
SAFETY HARNESS

Each cabin attendant seat has a seatbelt and a shoulder harness with a center buckle.

The shoulder harness is pulled-in automatically on inertia reels when not in use.

STOWAGE CONTAINER

A stowage container with a latch door is located below the seatpan.



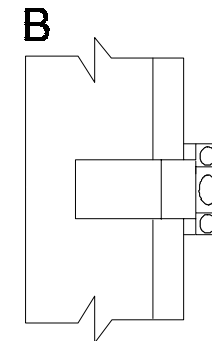
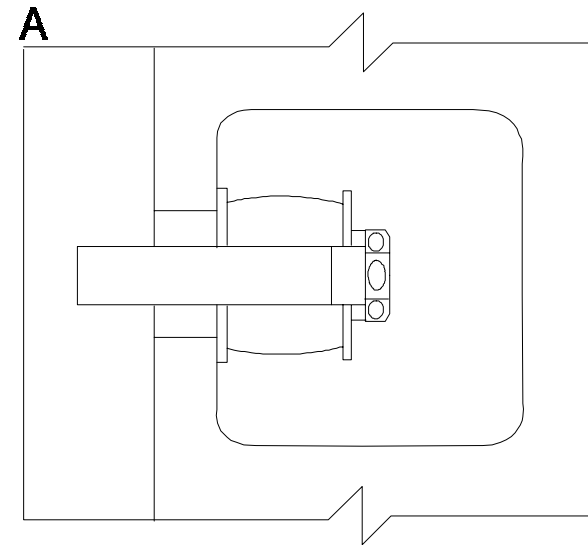
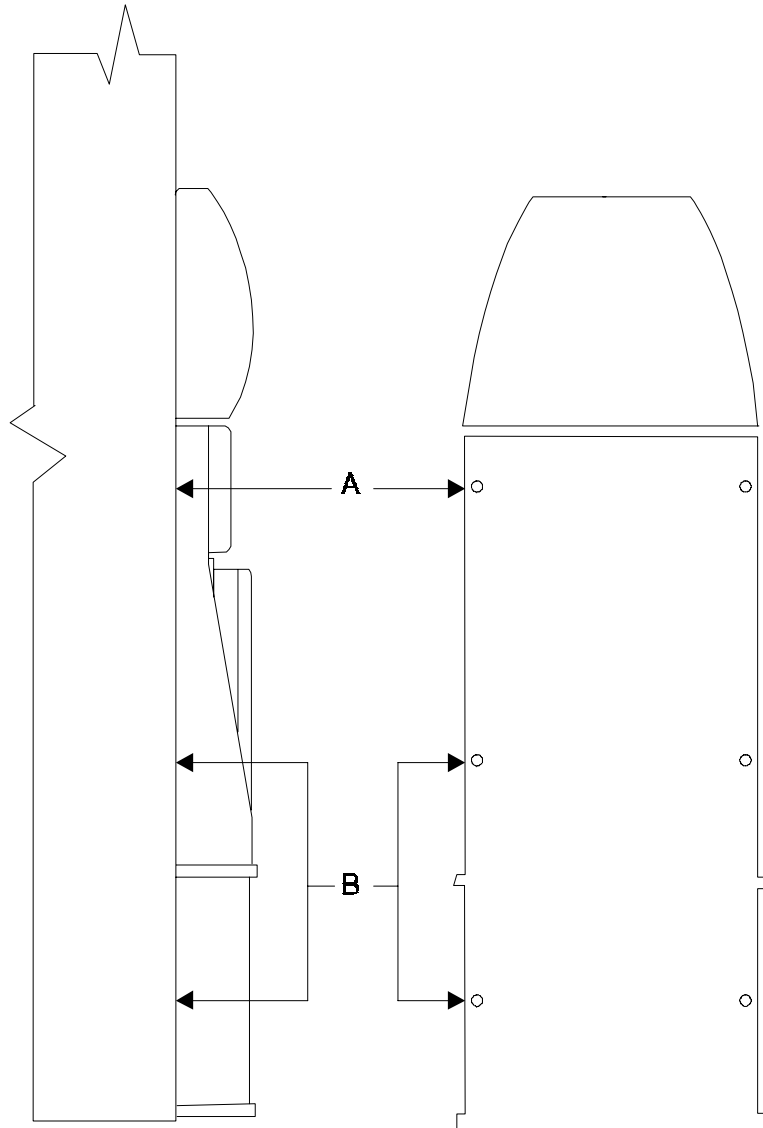
CABIN ATTENDANT SEAT ATTACHMENT

Cabin Attendant Seats are attached to walls or to the cabin floor.

WALL MOUNTED

The three sections of the cabin attendant seat are attached with six bolts to :

- partitions,
- lavatory walls,
- galley walls or to
- stowage walls.



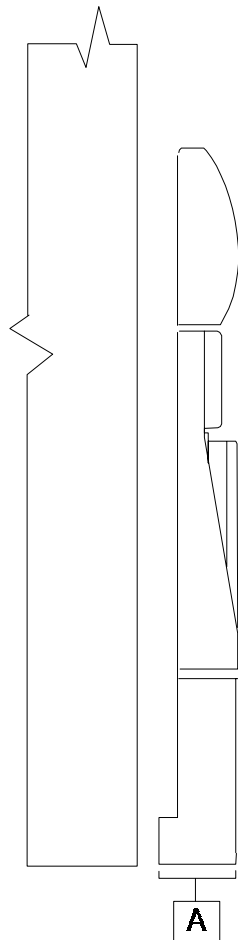
FQW4200 GE Metric

FREE STANDING

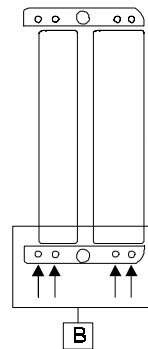
Free standing cabin attendant seats can be mounted on seat rails with inch by inch flexibility.

Free standing cabin attendant seats can also be attached to the cabin floor structure by using hardpoints.

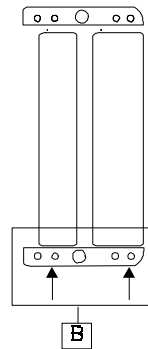
SIDE VIEW



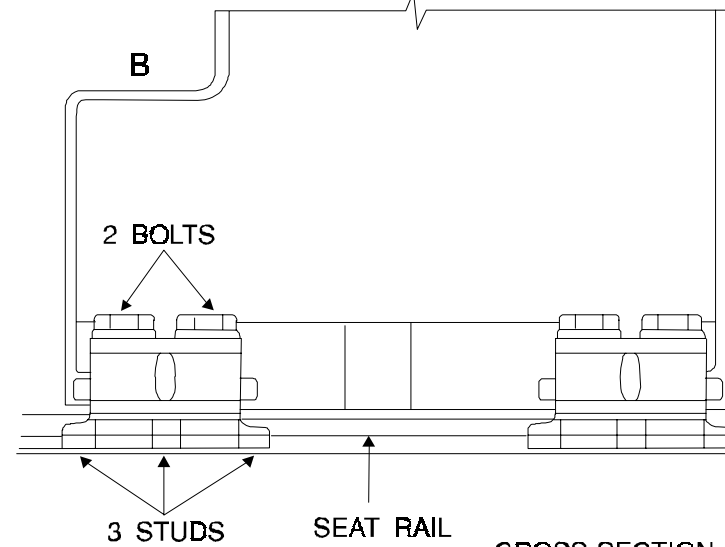
A
BOTTOM VIEW



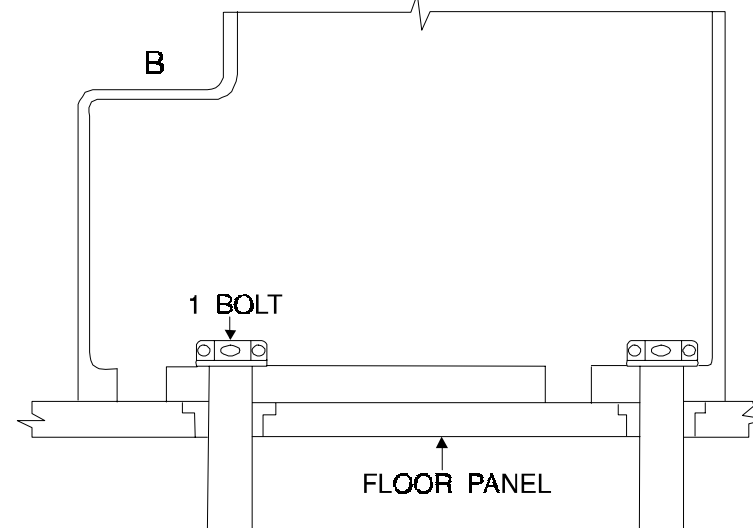
A
BOTTOM VIEW



CROSS-SECTION



CROSS-SECTION



STUDENT NOTES:

CABIN EQUIPMENT AND FURNISHINGS COMPONENTS

- Safety Precautions
- Ceiling Panel
- Lateral Overhead Stowage
- Center Overhead Stowage
- Passenger Service Information Unit
- Upper Sidewall Panel
- Lateral Light Cover
- Dado Panel
- Door Frame Lining
- Door Lining
- Electrical Service Supply
- Floor Covering
- Partition
- Doghouse

SAFETY PRECAUTIONS

The cabin is designed to be easily and quickly removed and installed.

The removal and installation of right hand and left hand panels is the same unless stated.

Before starting any removal or installation procedure, make sure that the ground service network is energized to provide sufficient illumination in the working area.

When working on a panel with electrical installations, make sure that the corresponding circuit breakers are open, safetied and tagged.

Before starting any installation procedure, make sure that all parts are clean and in correct condition.

After the installation procedure, make sure that the work area is clean and de-energize the ground service network.

STUDENT NOTES

FQW4200 GE Metric

CEILING PANEL

FIN : Each ceiling panel has its own FIN number. For detailed information, please refer to your technical documentation.

ZONE : 230/240
250/260

COMPONENT DESCRIPTION

Ceiling panels are installed along the top of the cabin.
They can be equipped with an emergency light and/or exit sign.
Specially formed ceiling panels for the tapered front and aft of the cabin are supplied.

REMOVAL INSTALLATION

1. Put the ceiling panel on the bracket and push it underneath the spring.
2. Hook the cable into the hole at the bracket latch.
(For panels with electrical installation)
3. Fasten the quick lock.

CLOSING COVER

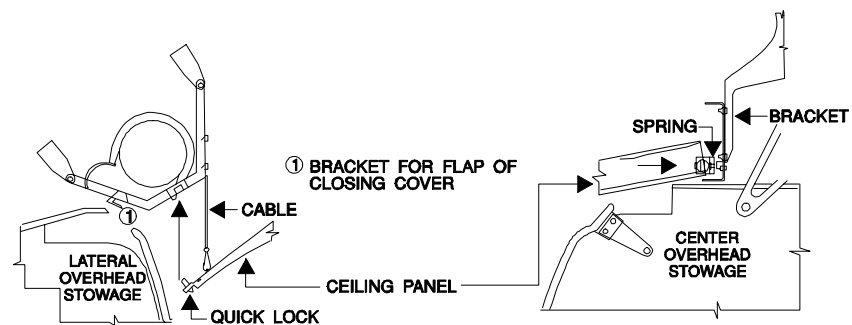
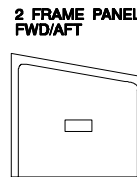
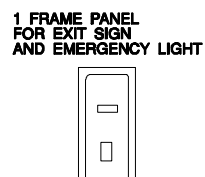
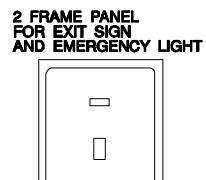
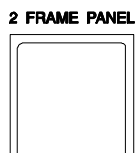
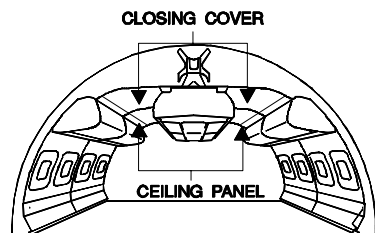
Closing covers are used to cover the space between the ceiling panel and the lateral overhead stowage.
Put the flap of the closing cover in the bracket and push it in the outboard direction and upwards until the lip of the cover engages in the ceiling panel.

COVER PLATE

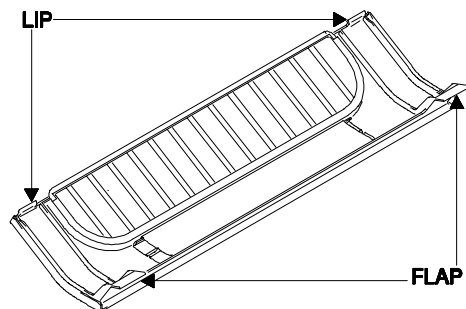
When no center overhead stowage is installed, cover plates are used.
Push the cover plate up until it engages on the pins and mounting rail.

FIRST CLASS

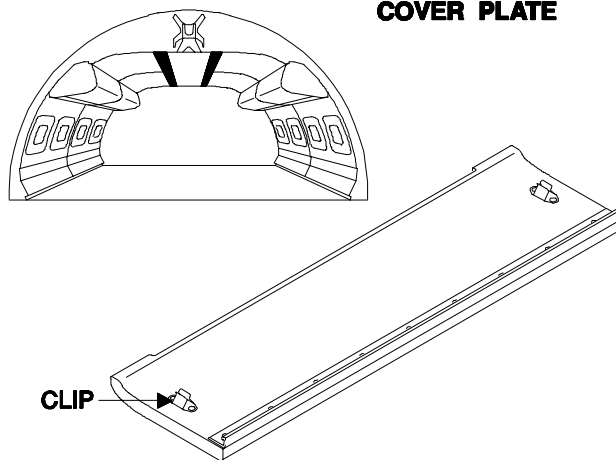
1. In the first class area, the upper closing panels have to be installed first. Put the closing panel in the service channel and install the washers and screws. Then install the section hose in the mounting rail.
2. Now install the first class ceiling panel by putting it in the service channel and then installing the washers and screws.



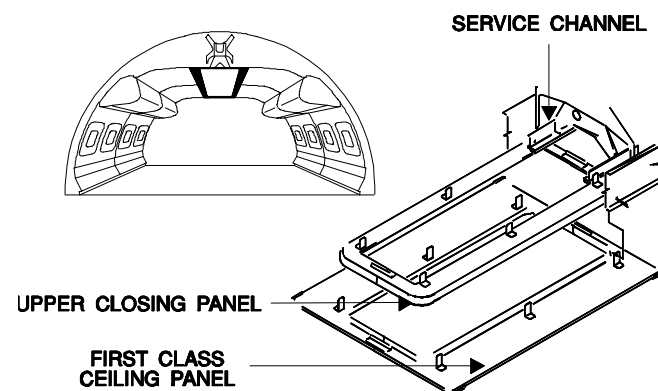
CLOSING COVER



COVER PLATE



FIRST CLASS



FQW4200 GE Metric

LATERAL OVERHEAD STOWAGE

FIN : Refer to your technical documentation to find the FIN number of the exact part of the overhead stowage.

ZONE : 230/250/260

COMPONENT DESCRIPTION

Overhead stowages are installed for the stowage of passenger carry on baggage and miscellaneous equipment.

Lateral stowages are single box structures, made of composite material.

Each stowage has 1 or 2 doors with a locking mechanism.

A hinge mechanism attaches the door to the stowage.

A gas filled damper strut helps the door to open and decreases the speed of the door when it is unlatched.

Each stowage has a grip rail installed along its length below the compartment door.

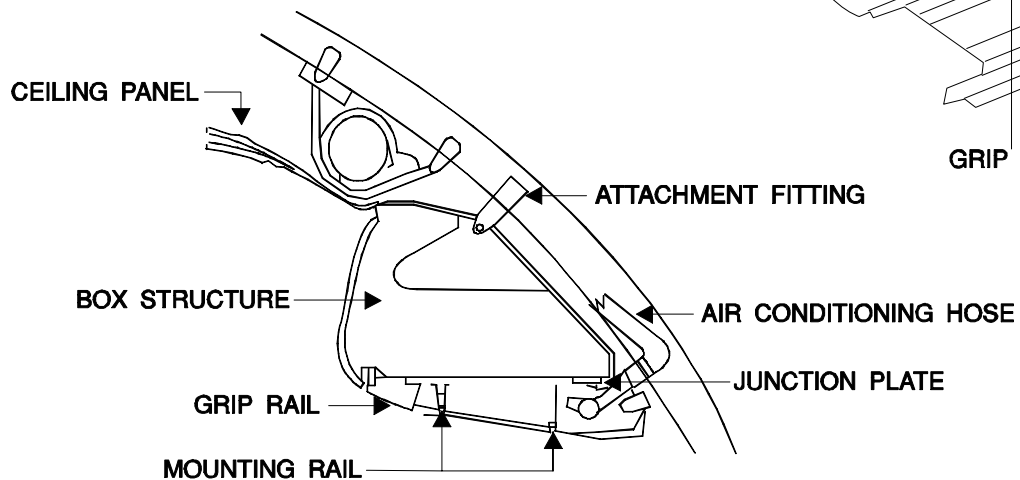
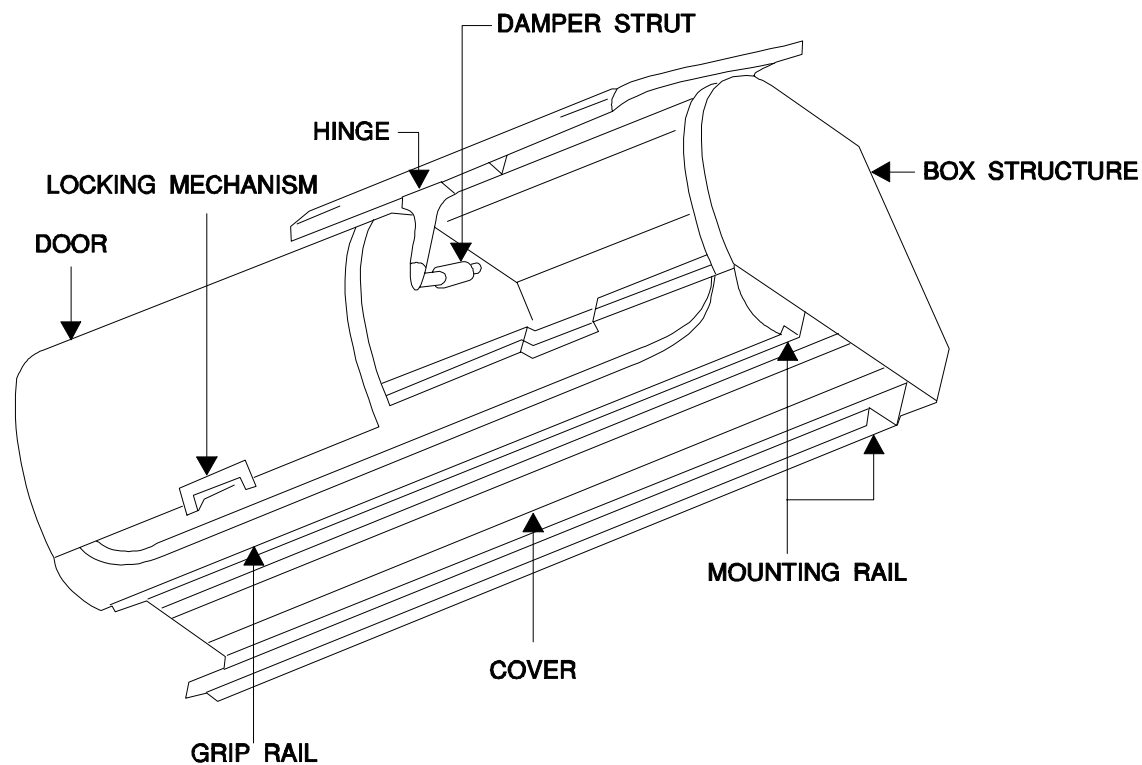
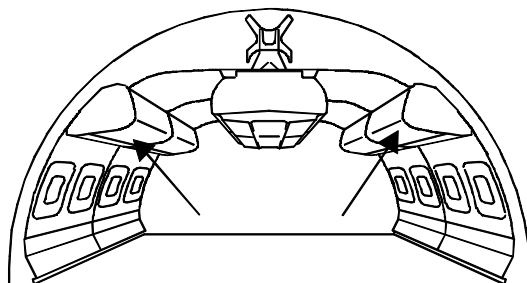
Mounting rails are attached to the bottom of each stowage.

These make up the service channel.

A cover is installed between the grip rail and the inboard mounting rail.

REMOVAL/INSTALLATION

Turnbuckles are used for lateral adjustment of the lateral overhead stowage compartments.



FQW4200 GE Metric

CENTER OVERHEAD STOWAGE

FIN : Refer to your technical documentation to find the FIN number of the exact part of the overhead stowage.

ZONE : 230/250/260

COMPONENT DESCRIPTION

Center overhead stowages are double box structures attached back to back.

Each stowage has 2 or 4 doors with a locking mechanism on the bottom edge of the door.

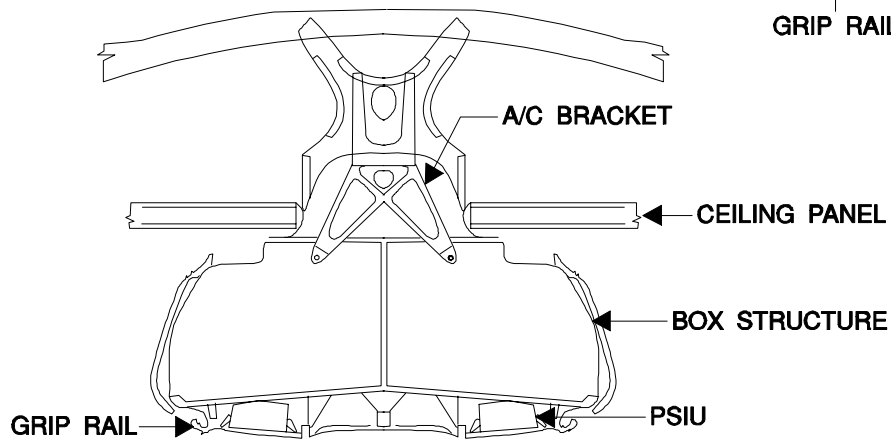
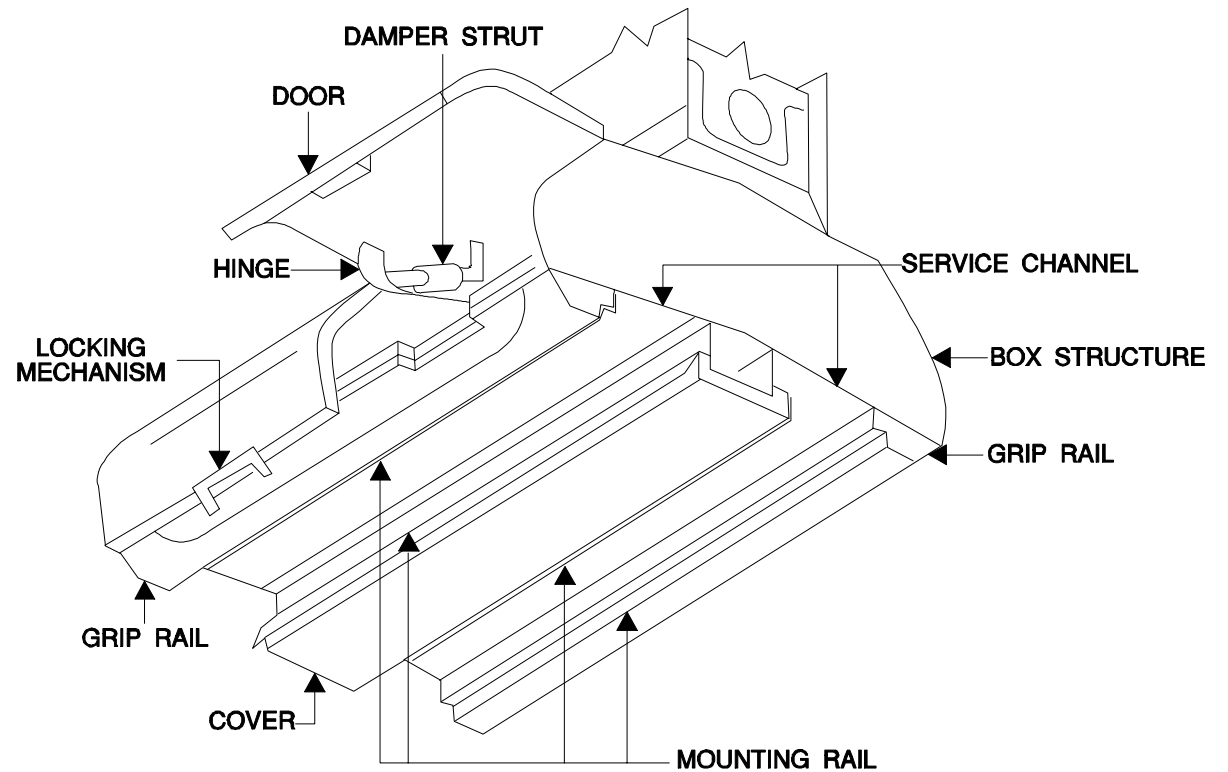
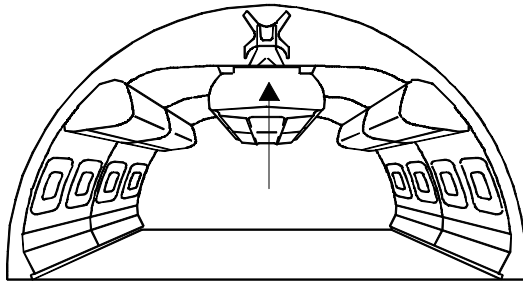
A hinge mechanism attaches the door to the stowage.

A gas filled damper strut, attached at each door hinge arm, helps the door to open and decreases the speed of the door when it is unlatched.

Each stowage has a grip rail installed along its length below the compartment door.

Mounting rails are attached to the bottom of each stowage to make two service rails.

A cover is installed between the service channels.



FQW4200 GE Metric

PASSENGER SERVICE INFORMATION UNIT

FIN : Refer to your technical documentation to find the FIN number of the exact part of the PSIU.

ZONE : 230/250/260

COMPONENT DESCRIPTION

Each PSIU has two primary units:

- the Passenger Service Unit (PSU) and
- the Passenger Information Unit (PIU).

The PSUs have:

- a switch panel with an attendant call pushbutton, the seat and seat-row number and the smoker or no-smoker sign,
- a reading light panel,
- a fresh air outlet panel.

The PIUs are installed above every second seat row to give acoustic and visual information.

They contain:

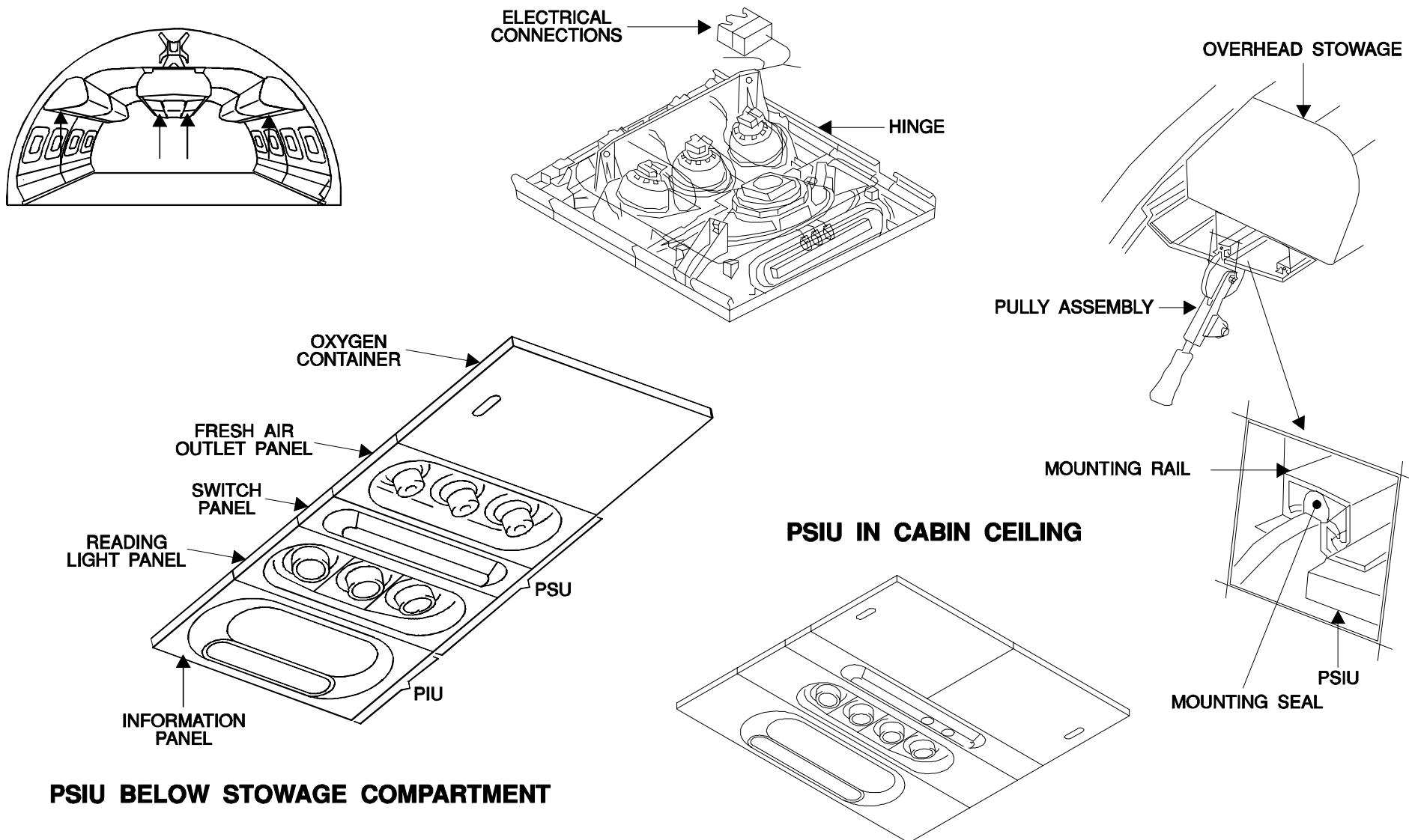
- a loudspeaker,
- a lighted fasten seat belt sign,
- a lighted no smoking sign.

SPECIAL DESIGN

When no center overhead stowages are installed, the PSIU's are installed in the cabin ceiling.

These units are larger than the units which are installed below an overhead stowage.

The ceiling PSUs don't have fresh air outlet panels and on their switch panels only the seat and seat-row numbering are available.



FQW4200 GE Metric

UPPER SIDEWALL PANEL

FIN : To find the FIN number of the exact upper sidewall panel,
please refer to your technical documentation.

ZONE : 230/250/260

COMPONENT DESCRIPTION

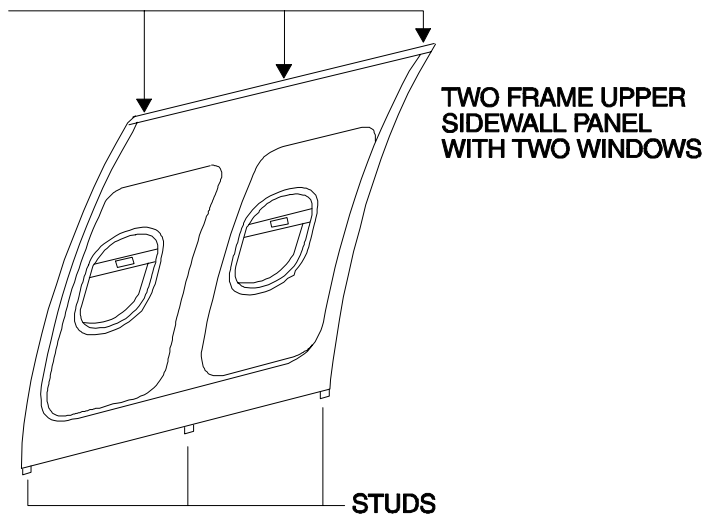
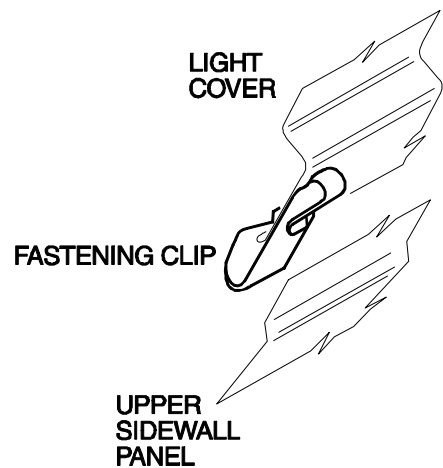
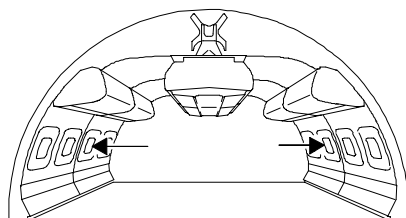
Sidewall panels are installed in the cabin along the sidewalls.
Specially formed sidewall panels for the conical front and aft cabin
area are supplied.

Available sidewall panels are:

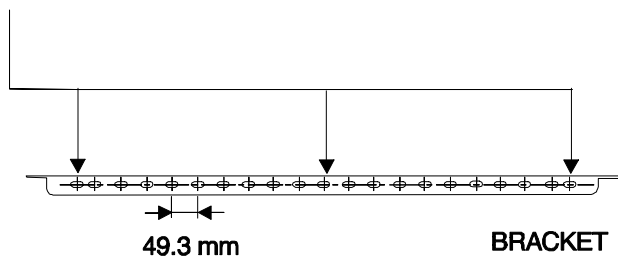
- 2- frame pitch panels with 2 windows,
- 2- frame pitch panels with 1 window,
- 1- frame pitch panels with 1 window.

NOTE:

For lining adaption, ready-to-cut 2-frame pitch panels with
1 window are available.
They are cut to the galley-, lavatory- or stowage contours.



STUDS



49.3 mm

BRACKET

LATERAL LIGHT COVER

FIN : To find the FIN number of the exact lateral light cover, please refer to your technical documentation.

ZONE : 230/250/260

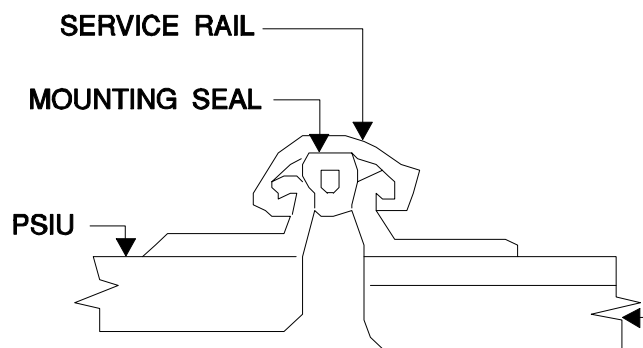
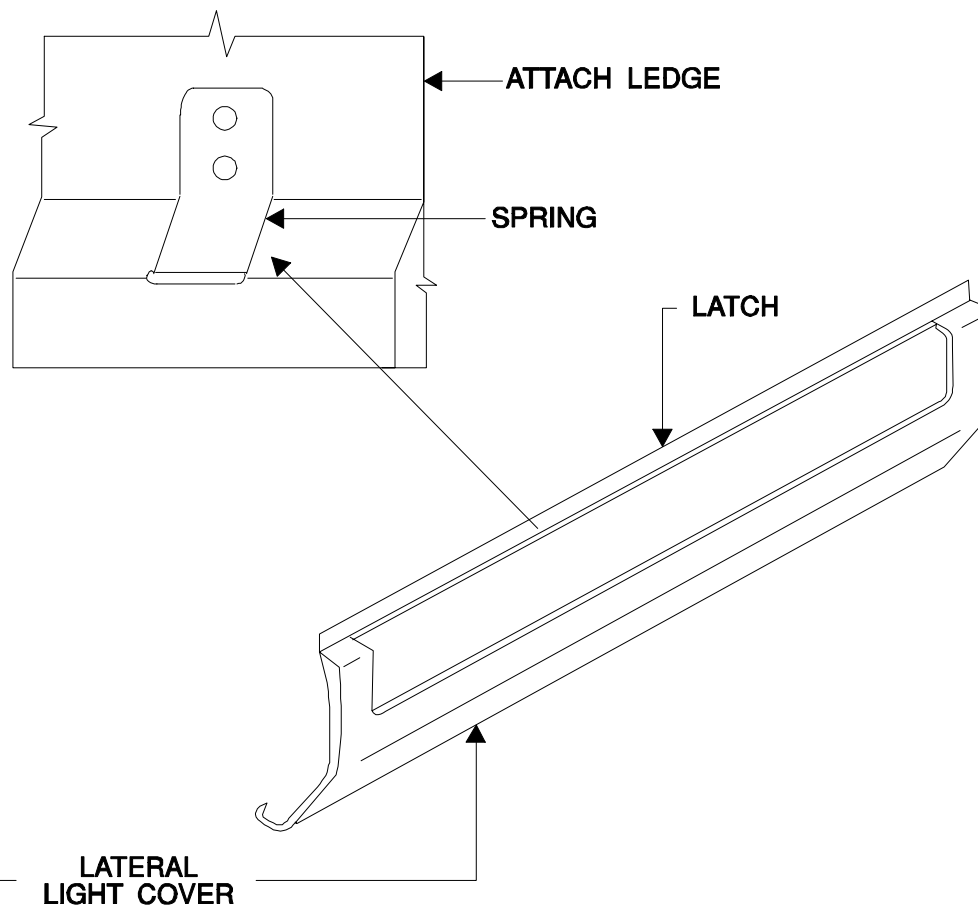
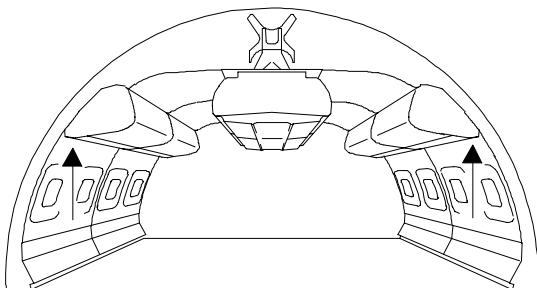
COMPONENT DESCRIPTION

Lateral light covers are installed in the cabin below the right hand and left hand overhead stowage compartments.

There are 1- frame pitch and 2- frame pitch light covers available.

NOTE:

For lining adaption, ready-to-cut spacer light covers are available in 1- or 2- frame dimensions.



FQW4200 GE Metric

DADO PANEL

FIN : To find the FIN number of the exact dado panel, please refer to your technical documentation.

ZONE : 200

COMPONENT DESCRIPTION

A rapid decompression safety system is installed in the fuselage to prevent structural damage to the fuselage and equipment and furnishings.

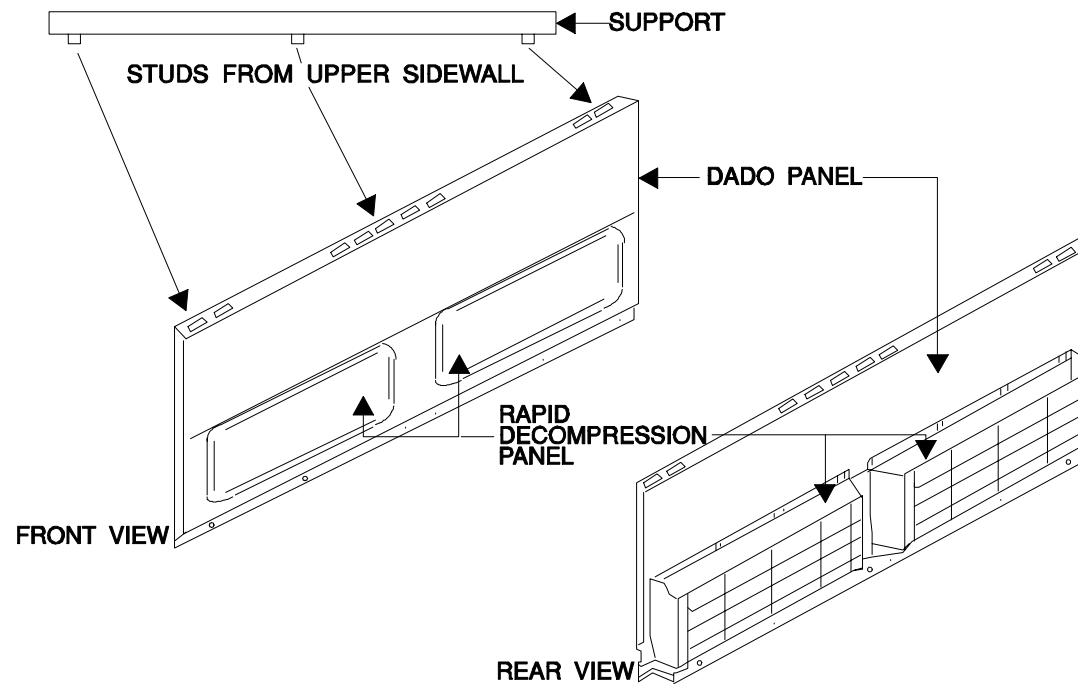
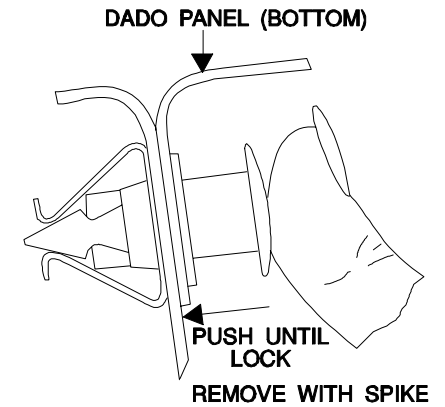
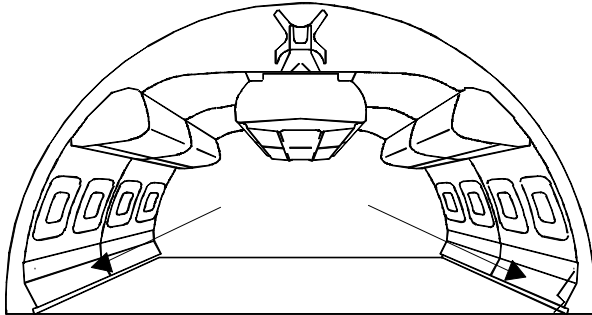
If a rapid decompression in the cargo compartment occurs, the differential pressure will push the decompression panels against fasteners.

This force will release the levers and the panels are blown into the cargo compartment.

Air can now flow freely from the cabin to the underfloor compartment.

In a blow-out case (decompression in the cabin), the panels are blown out from the cargo compartment to let the air flow from the underfloor compartment to the cabin.

There are 1- and 2- pitch dado panels available.



DOOR FRAME LINING

FIN : Each door frame lining has its own FIN number. For detailed information, please refer to your technical documentation.

ZONE : 831/841
832/842
834/844
833/843

COMPONENT DESCRIPTION

The door frame linings are installed around each door between the dado panels, the sidewall panels, the lateral overhead stowages and door linings.

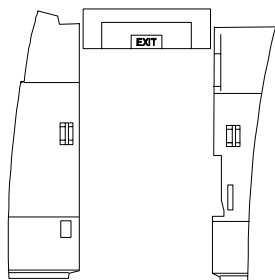
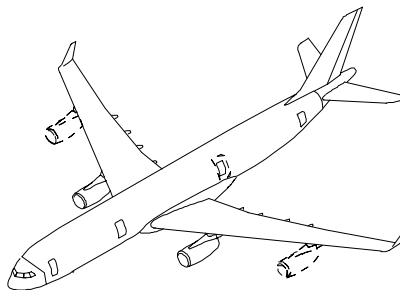
The following equipment is possible:

- exit marking signs,
- floor-path marking signs-exit identifiers,
- vacuum cleaner sockets,
- attendant working light switch,
- emergency oxygen containers,
- fasten seat belt and no smoking sign,
- handsets,
- attendant indication panel/additional attendant panel,
- medical outlets.

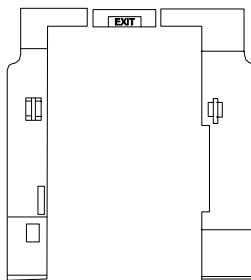
REMOVAL / INSTALLATION

Each part of the door frame lining can be removed separately.

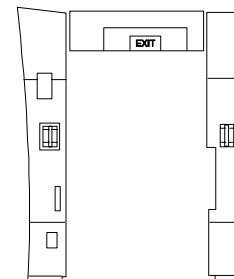
ONLY LEFT
HAND DOOR
FRAME LININGS
ARE SHOWN



DOOR 1
TYPE A

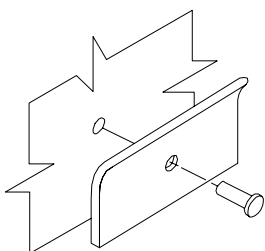


DOOR 2 - 3
TYPE A

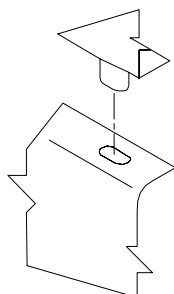


DOOR 4
TYPE A

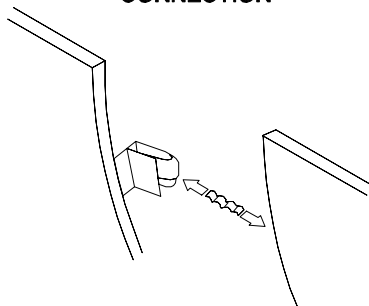
EXAMPLE OF ATTACHMENT
TO AIRCRAFT STRUCTURE



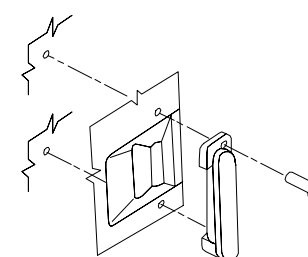
EXAMPLE OF PANEL
CONNECTION



EXAMPLE OF PANEL
CONNECTION



EXAMPLE OF HANDLE
ATTACHMENT



DOOR LINING

FIN : Each door lining has its own FIN number. For detailed information, please refer to your technical documentation.

ZONE : 831/841
832/842
834/844
833/843

COMPONENT DESCRIPTION

Door linings are installed on each door and provide insulation against heat and sound.

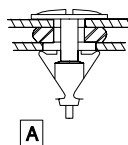
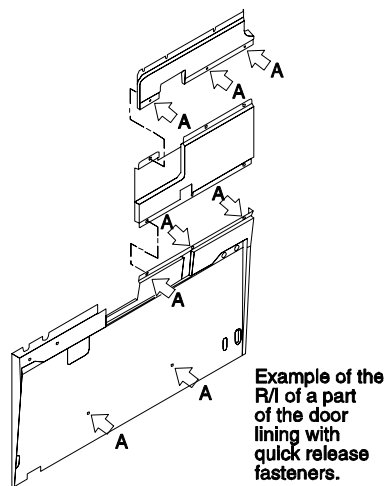
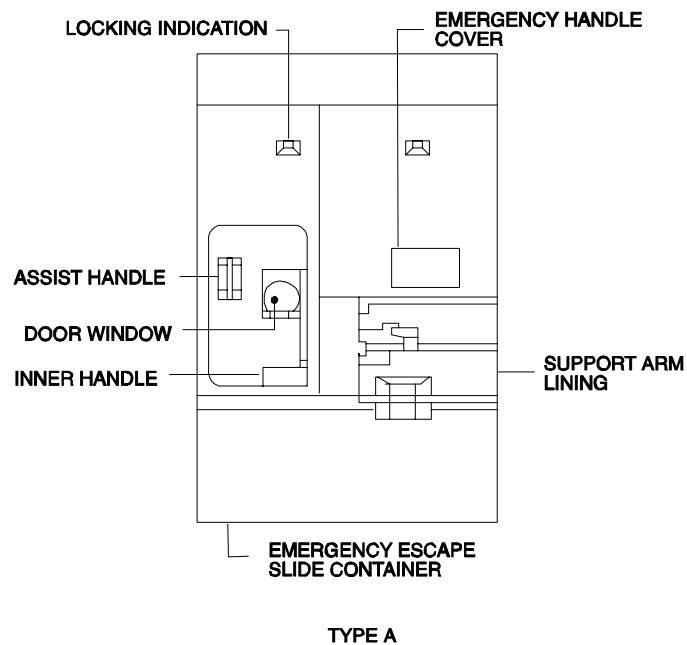
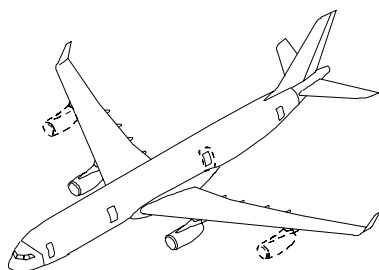
The lining is installed in several pieces.

The material and the color of the lining is the same as the cabin lining

REMOVAL / INSTALLATION

Each part of the door frame lining can be removed separately.

Quick release pins and velcro tape attach them to the inner door structure.



ELECTRICAL SERVICE SUPPLY

FIN : 7ME/8ME/9ME/10ME
11ME/12ME/13ME/14ME
24ME/25ME/26ME

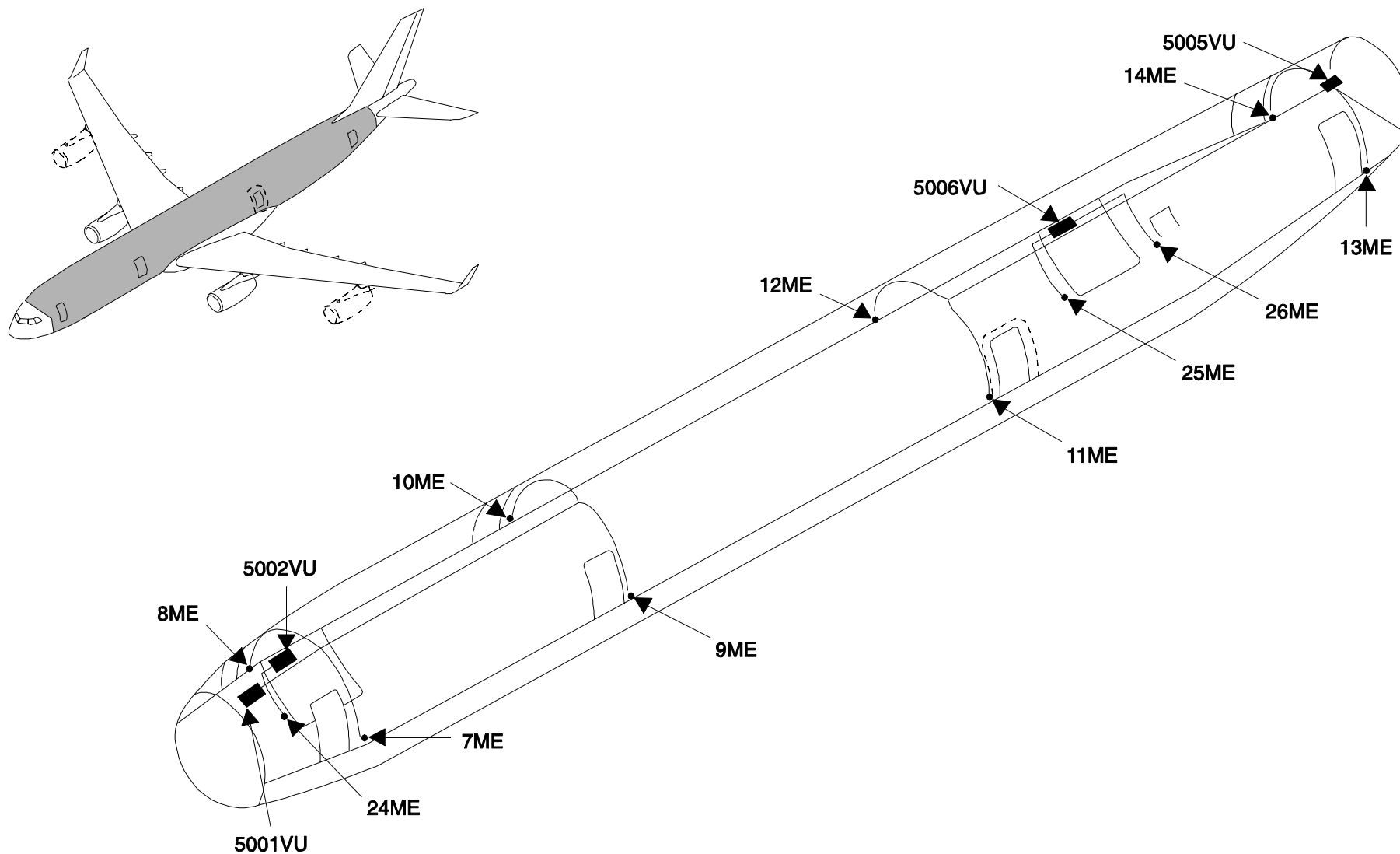
ZONE : 221/222/241/242
251/252/271/272
132/152/162

COMPONENT DESCRIPTION

The electrical service supply-system is divided into 4 parts:

- the forward cabin system,
- the aft cabin system,
- the forward cargo-compartment system,
- the aft cargo-compartment system.

The aircraft electrical system supplies power to the service supply system.



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FLOOR COVERING

FIN : To find the FIN number of the exact floor covering, please refer to your technical documentation.

ZONE : 200

COMPONENT DESCRIPTION

Textile floor covering is installed in the passenger area to provide passenger comfort and soundproofing.

It also protects the floor panels and is flame and slip resistant.

Double sided adhesive tape attaches the carpet to the floor panel.

Plastic seat track covers are installed to engage the edges and to give a smooth surface to the carpets at the seat tracks.

Stainless steel cover strips are fitted across the aisles to cover the joints between textile and non-textile floor coverings.

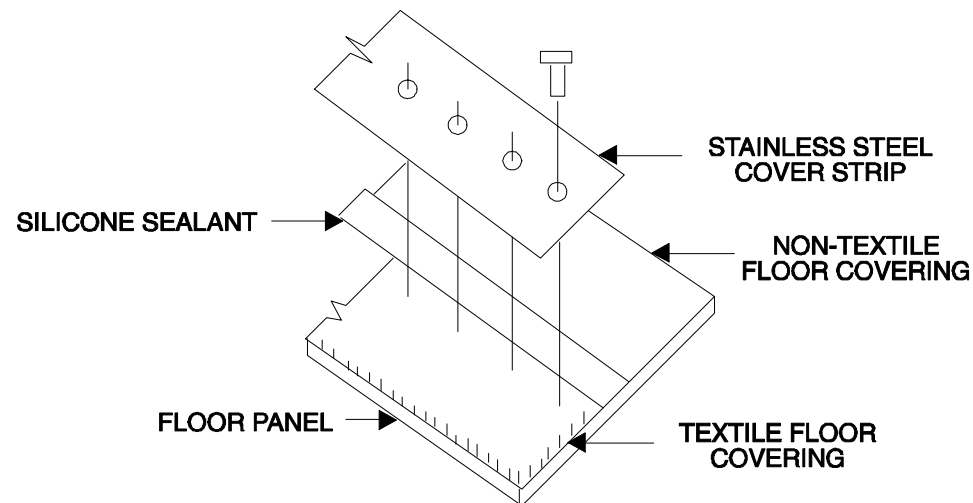
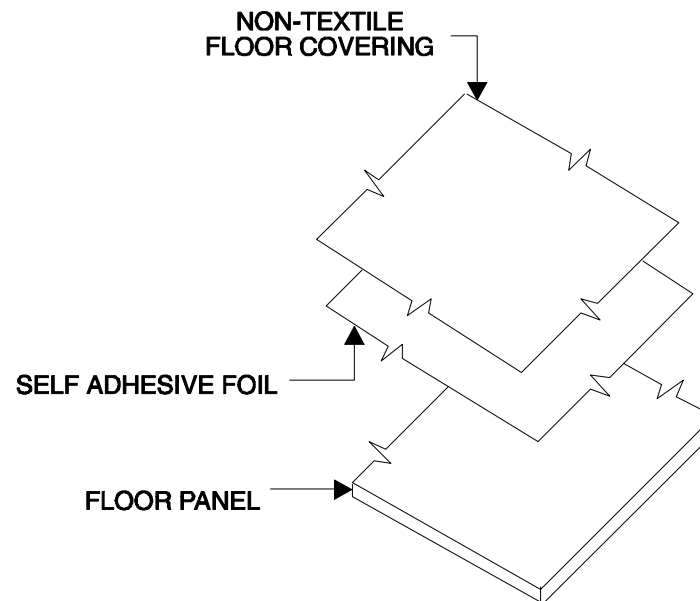
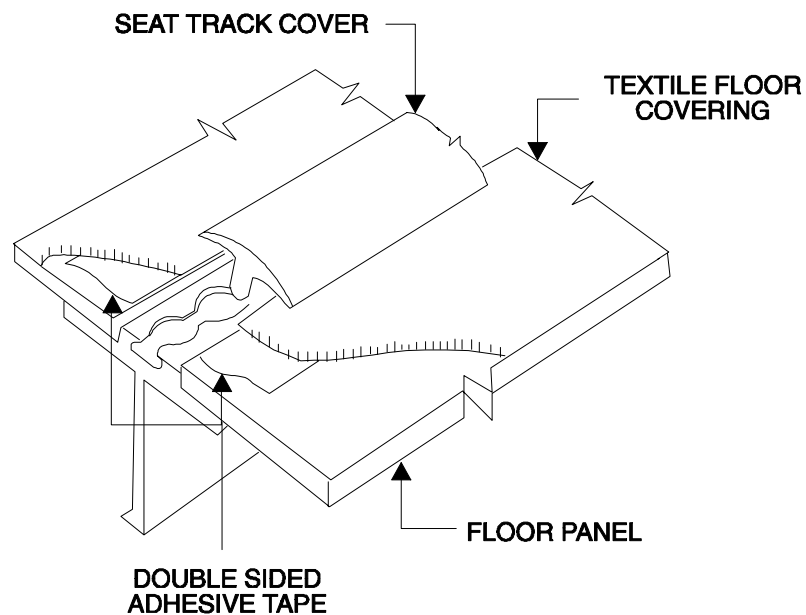
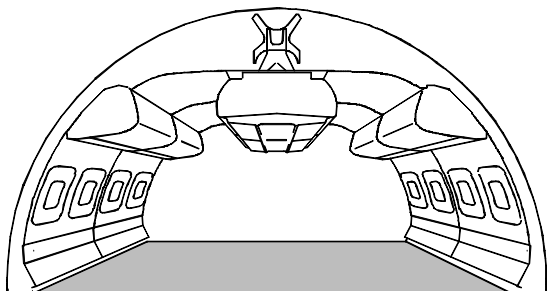
ADDITIONAL INFORMATION

Non-textile floor covering is installed in each utility area to protect the floor structure from liquids that can cause corrosive damage.

A layer of self adhesive foil is attached to the floor panels. Double sided adhesive tape attaches the non-textile floor covering to the foil.

The cut outs and outer contours are pretreated with primer and sealed with a silicone sealant.

Stainless steel cover strips are fitted across the aisles to cover the joints between the textile and non-textile floor coverings.



PARTITION

FIN : To find the FIN number of the exact partition, please refer to your technical documentation.

ZONE : 220/230/240
250/260/270

COMPONENT DESCRIPTION

Partitions are installed to divide the seating areas in the cabin.

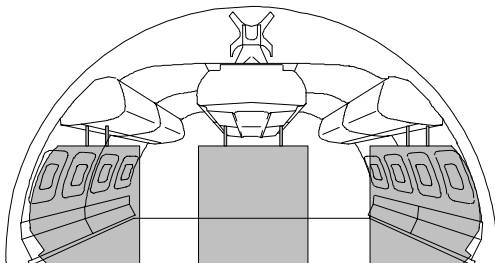
Each partition is made of composite structure material.

The surface of partitions have a decorative cover which is dirt repellent.

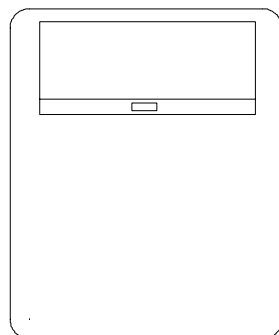
The edges of the partitions have a light alloy profile.

There are different types of partitions available:

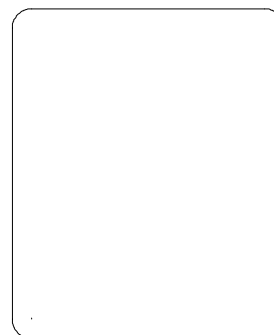
- center and lateral windscreens (installed in the areas of passenger/crew doors),
- center and lateral class dividers.



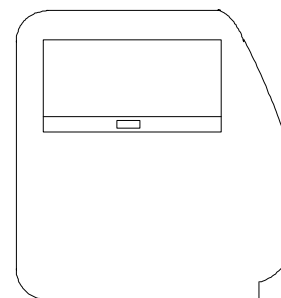
CENTER PARTITION
WITH SLIDING
UPPER PART



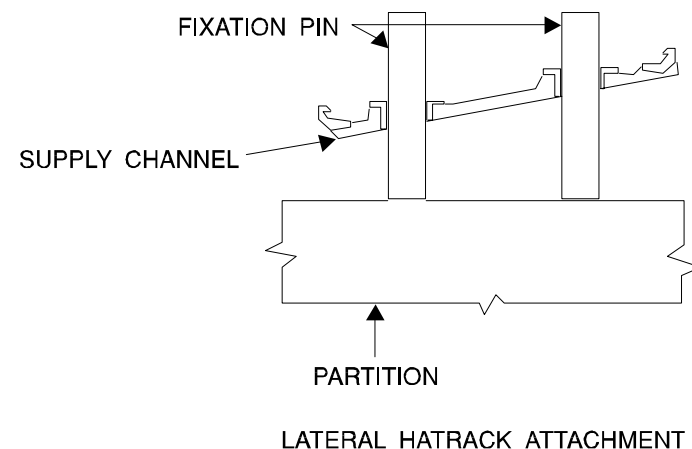
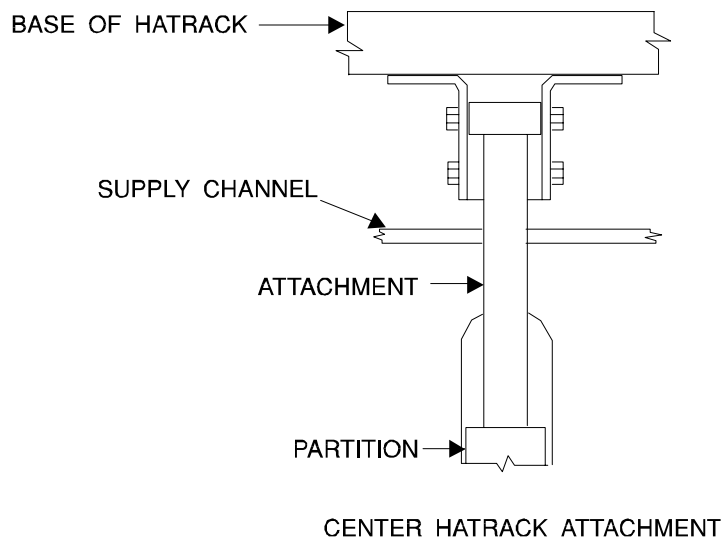
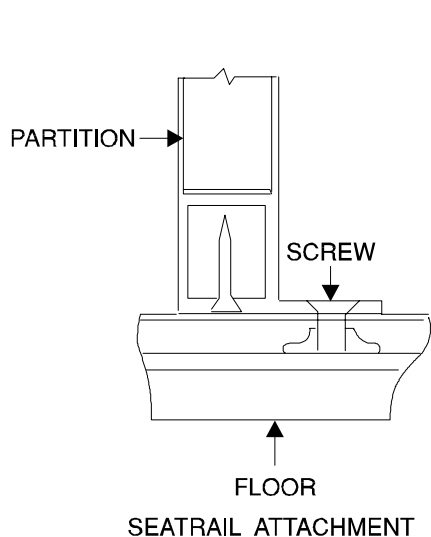
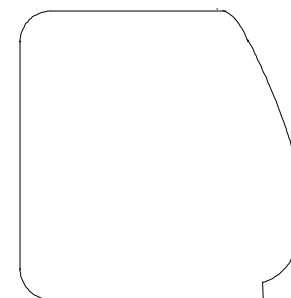
CENTER PARTITION



LATERAL PARTITION
WITH SLIDING
UPPER PART



LATERAL PARTITION



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DOGHOUSE

FIN : To find the FIN number of the exact doghouse, please refer to your technical documentation.

ZONE : 200

COMPONENT DESCRIPTION

Doghouses are stowages which may be installed behind last seat rows or in front of partitions, stowages, galleys or lavatories.

They are available in 6, 8 or 10 inches width and are closed by means of a drawer or door.

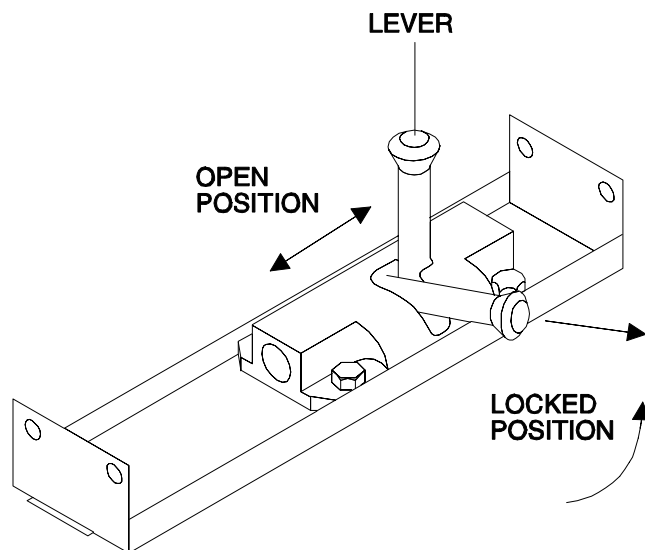
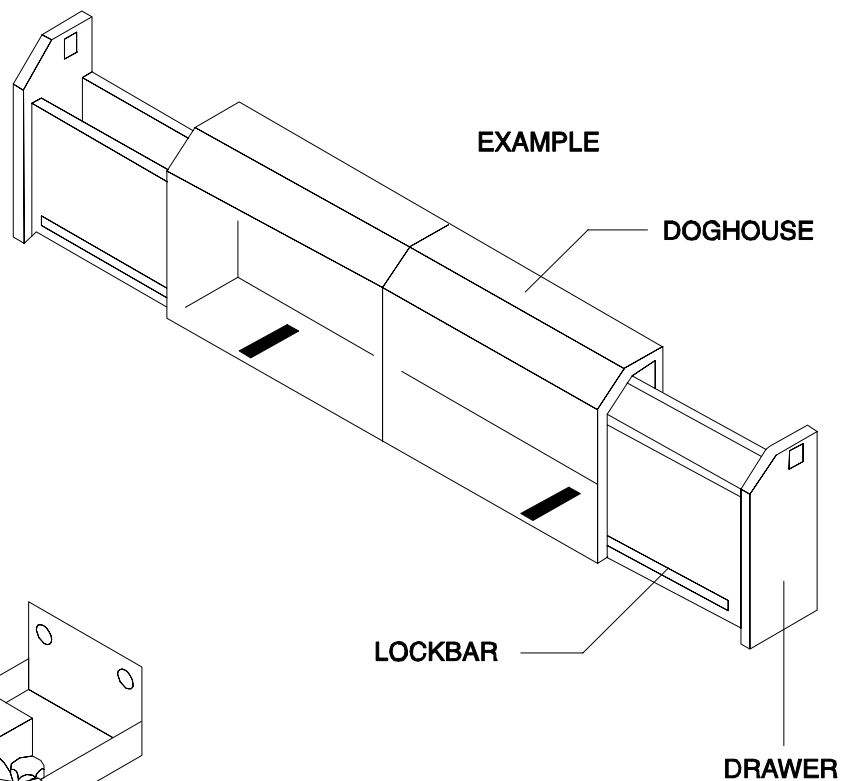
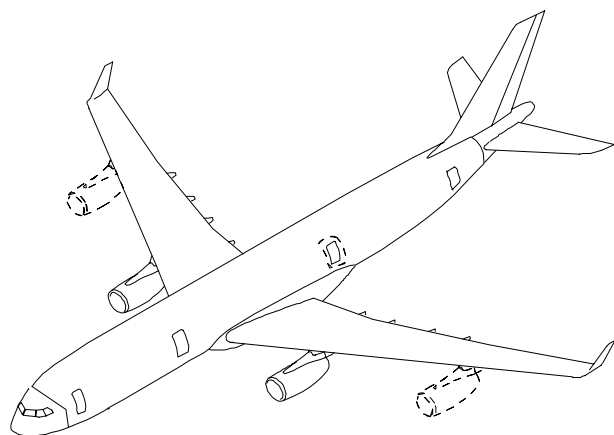
Lateral doghouses for the tapered rear of the aircraft are used beyond frame F59.

They are identical to those in the cylindrical area, but require an adaptation of the lower attachment pins to fit in the tapered area.

REMOVAL / INSTALLATION

Removal: Open the drawer and push the lockbar to remove the drawer. Then, move the lever to the open position and remove the doghouse.

Installation: Put the doghouse in position and move the lever to the locked position. Put the drawers in position and close them.



FQW4200 GE Metric

STUDENT NOTES

FQW4200 GE Metric

CREW REST COMPARTMENT PRESENTATION

General
Cabin
Underfloor

GENERAL

A crew rest compartment is located aft of the cockpit. An optional one is located underfloor, in the aft cargo compartment.

CABIN

The flight crew rest compartment is provided with various items of equipment:

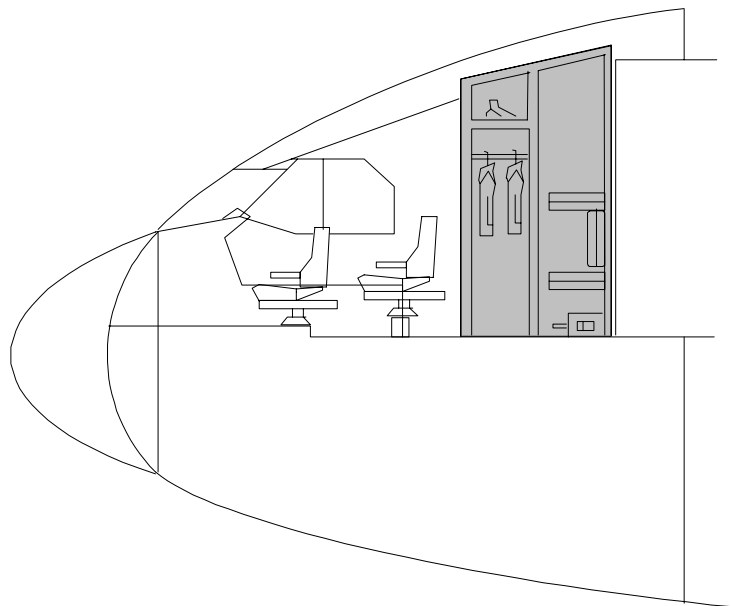
- internal lights,
- emergency lights,
- reading lights,
- additional attendant panel,
- cabin interphone,
- loudspeaker,
- audio control units,
- lighted signs,
- attendant indication panel,
- rest bunks,
- folding table,
- folding seat,
- stowages,
- air conditioning and
- oxygen.

UNDERFLOOR

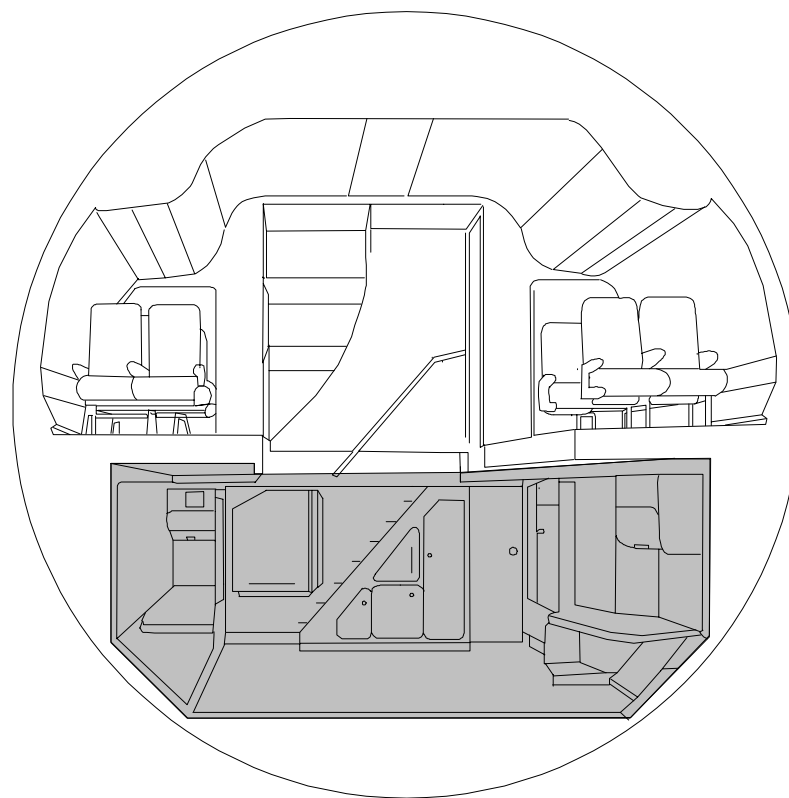
The underfloor crew rest compartment is provided with various items of equipment :

- internal lights,
- emergency lights,
- reading lights,
- cabin interphone,
- loudspeakers,
- audio control units,
- lighted signs,
- attendant indication panel,
- additional attendant panel,
- bunks,
- stowages,
- staircase,
- air conditioning,
- oxygen,
- smoke detection and
- fire extinguishing.

CABIN



UNDERFLOOR



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STUDENT NOTES

FQW4200 GE Metric

LOWER DECK CREW REST COMPARTMENT

GENERAL

LOCATION

ATTACHMENT

INTERFACES

POWER SUPPLY

COMPONENTS

Lights

Interphone

Loudspeakers

Passenger Control Unit (PCU)

Lighted Signs

Attendant Indication Panel (AIP)

Bunks

Stowages

Oxygen

Smoke/Fire

Air Conditioning

STAIRCASE HOUSING

Location

Description

Attachment

Components

Power Supply

Interfaces

GENERAL

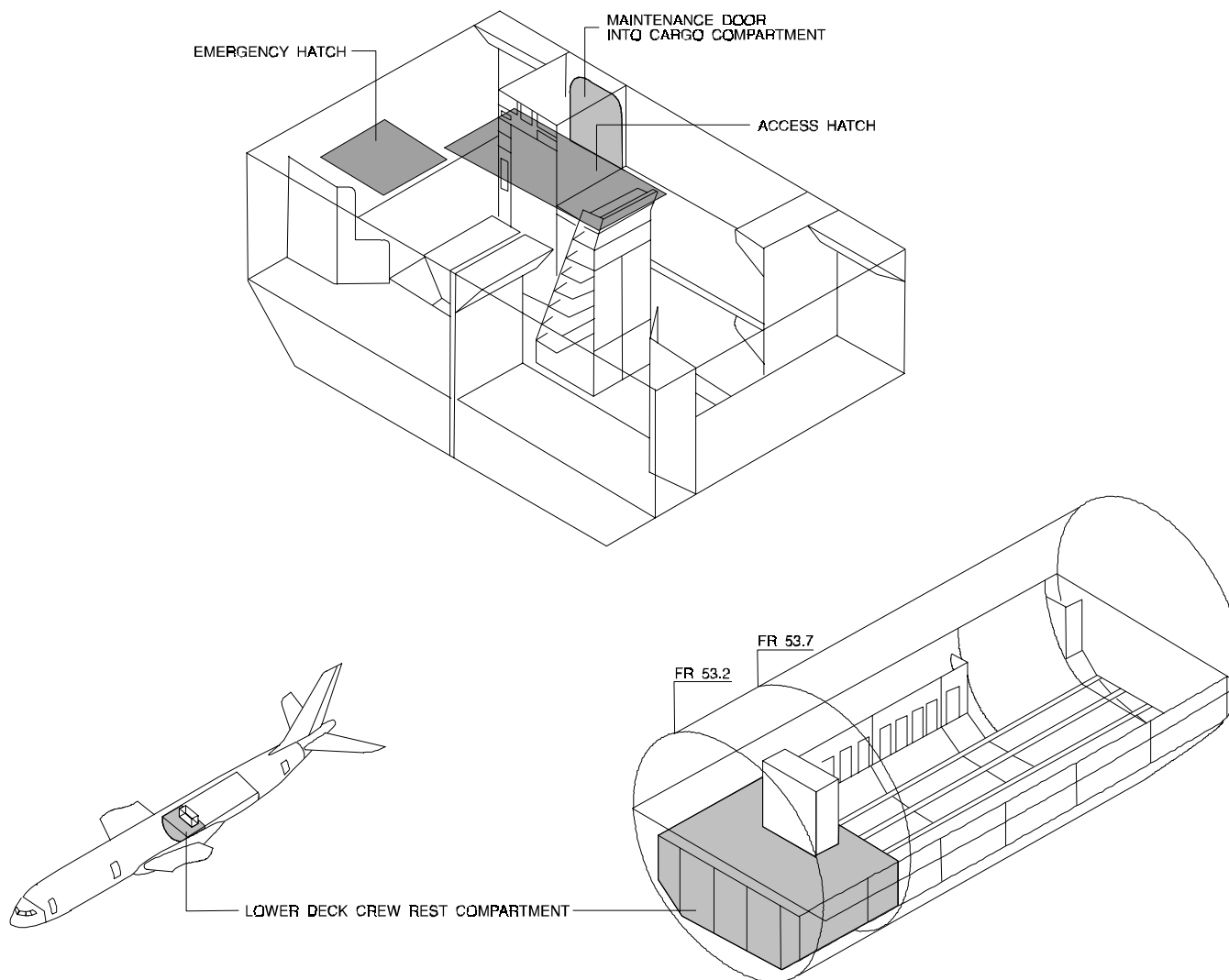
The lower deck crew rest compartment is a fully assembled unit with an integrated floor. Here, the crew members can relax on long trips. The compartment is made of composite materials. It has a large cut out for access and a small cut out as an emergency exit.

A door which gives access into the cargo compartment is installed in the rear wall of the crew rest room.

LOCATION

The crew rest compartment is installed in the forward end of the aft cargo compartment.

The compartment has the same shape as an LD6 container.

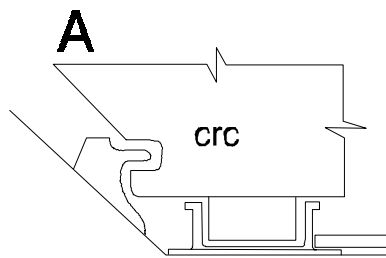
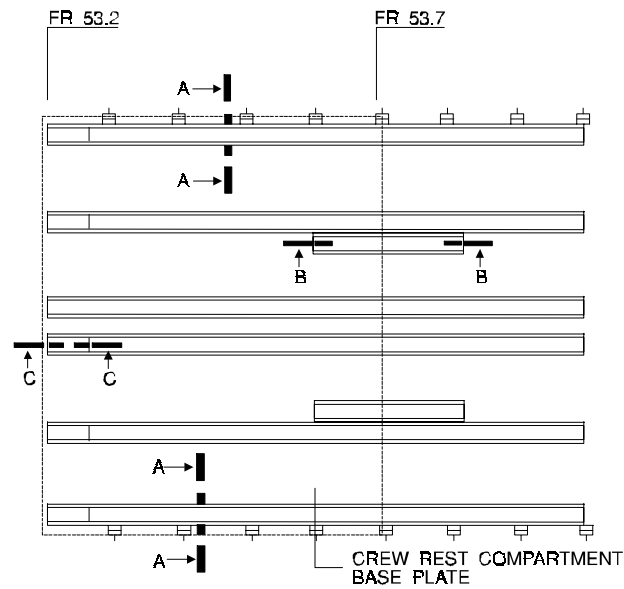


FQW4200 GE Metric

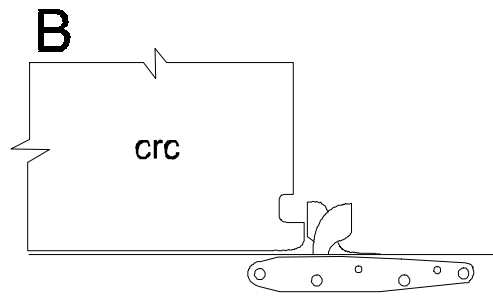
ATTACHMENT

The crew rest compartment is attached with: YZ-latches on the left and right side, X-latches on the forward end and container latches on the aft end.

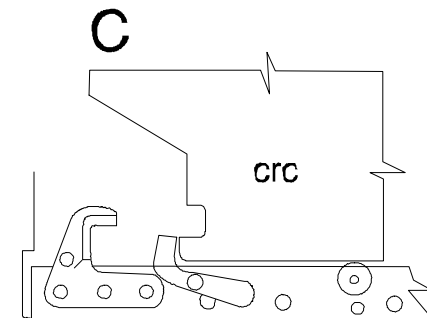
The YZ-latches hold the crew rest compartment in both the Y- and the Z-direction. The X-latches and the container latches hold the crew rest compartment in the X-direction.



YZ-LATCH



CONTAINER LATCH



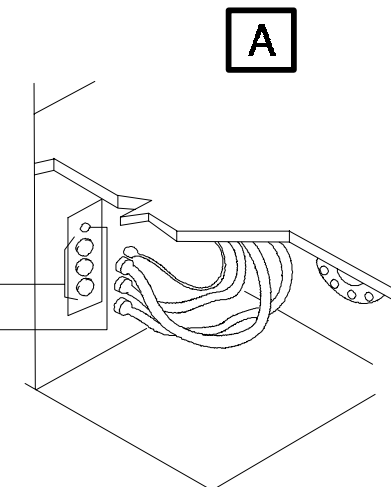
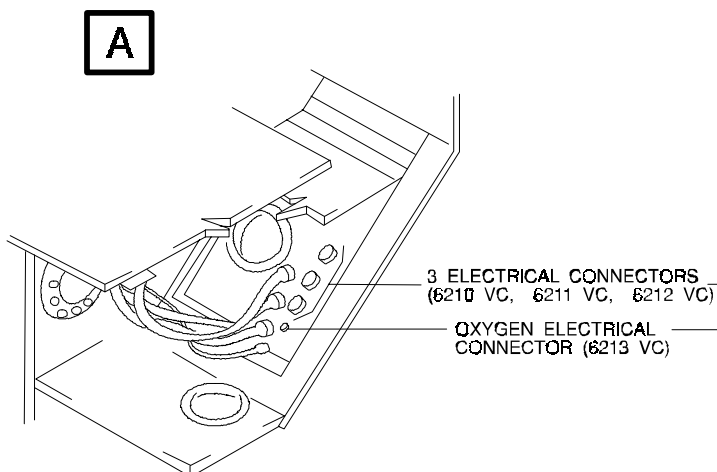
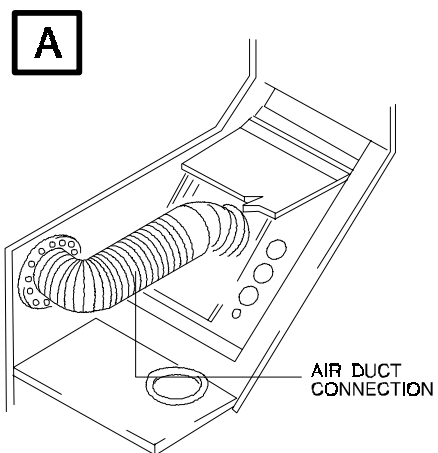
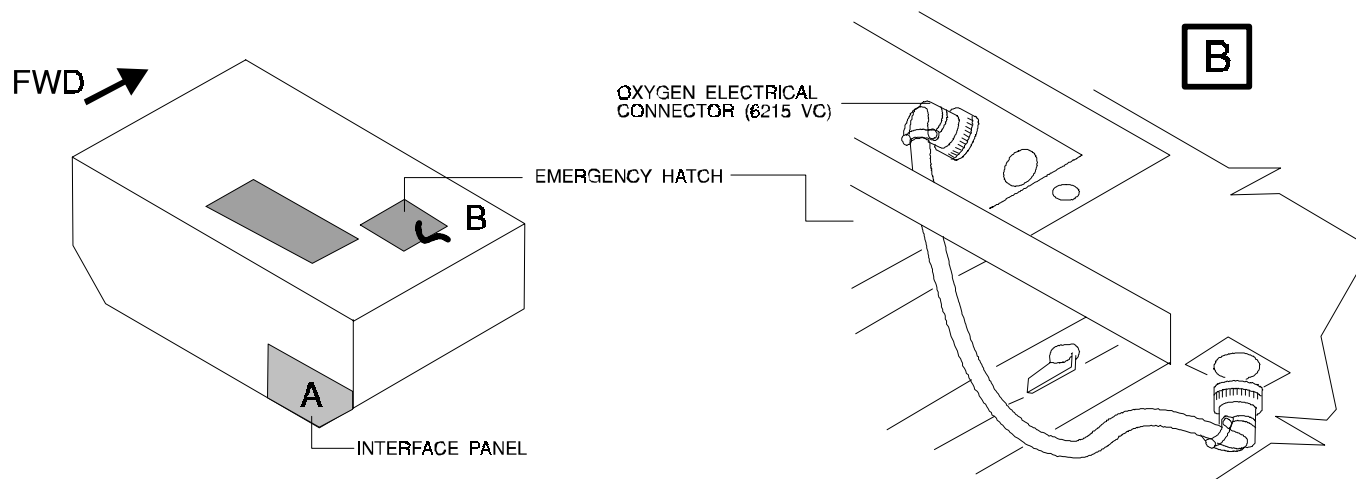
X-LATCH

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INTERFACES

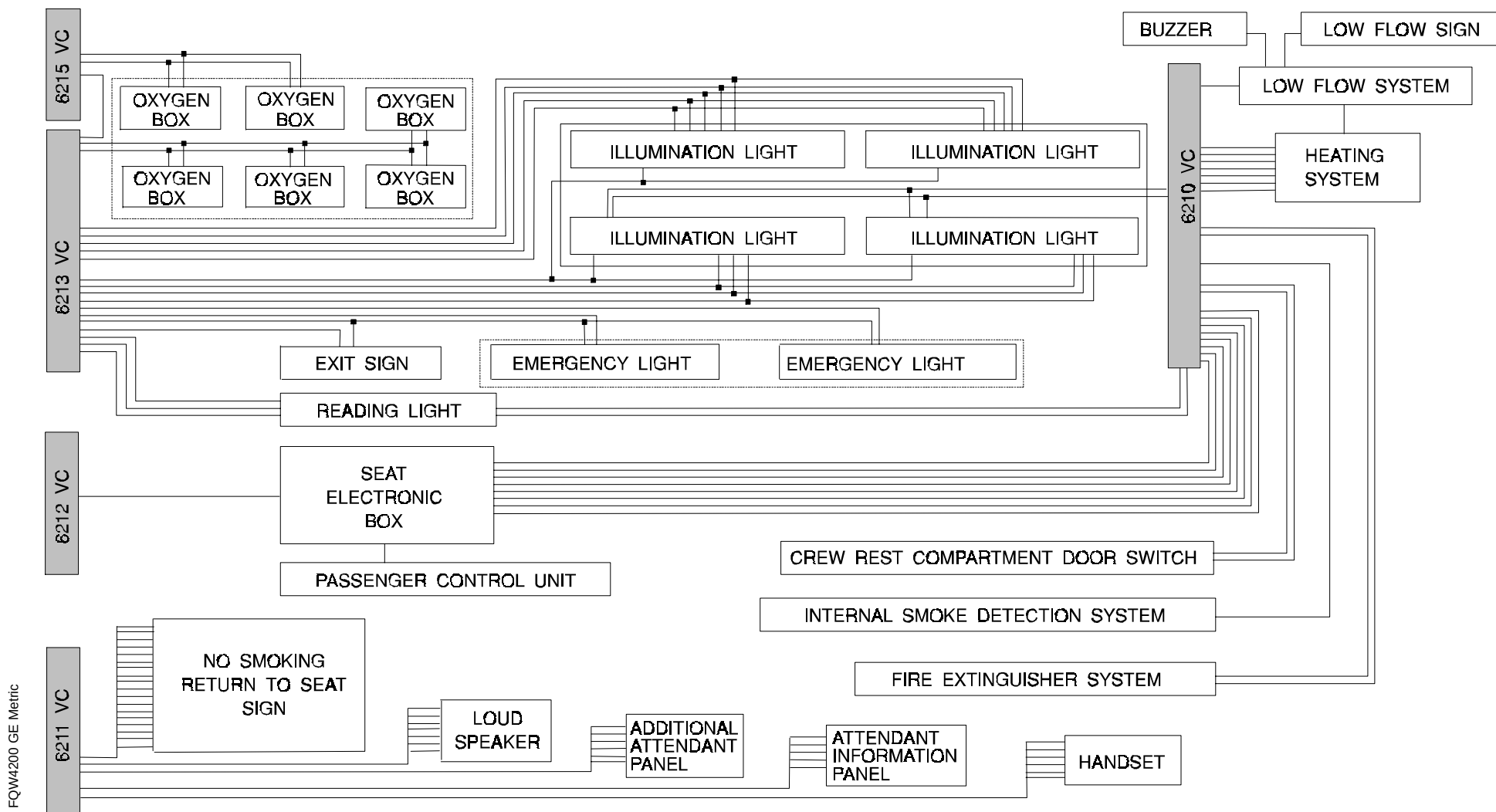
The crew rest compartment has interfaces with several systems:

- cabin air distribution and recirculation system
- individual air-distribution system
- passenger address and entertainment system
- interphone system
- CIDS
- electrical power system
- lavatory smoke-detection system
- cabin lighting system
- lavatory lighted-signs system
- emergency lighting system
- passenger oxygen system



POWER SUPPLY

The connectors 6210 VC, 6211 VC, 6212 VC, 6213 VC and 6215 VC supply the crew rest compartment with electrical power. These connections are designed to enable quick removal time.



FQW4200 GE Metric

COMPONENTS

The crew rest compartment is equipped with several components.

LIGHTS

Different lights are installed in the crew rest compartment: ceiling lights, a floor light and a staircase light. An additional attendant panel is installed to control these lights.

Emergency lights are installed in the ceiling and reading lights are installed above each rest bunk.

INTERPHONE

A cabin interphone is installed near the maintenance door into the cargo compartment.

LOUDSPEAKERS

Loudspeakers are installed in the wall near the maintenance door and above the stowage in the staircase. They are connected to the passenger address system.

PASSENGER CONTROL UNIT

A PCU is installed above each rest bunk.

LIGHTED SIGNS

A lighted sign is installed above each rest bunk. It shows the NO SMOKING and FASTEN SEAT BELT signs.

Lighted signs are also installed in the wall near the maintenance door.

ATTENDANT INDICATION PANEL

An AIP is installed near the maintenance door into the cargo compartment.

BUNKS

Lower rest bunks and an upper rest bunk are installed. Lower bunks without an upper bunk can be used as a seat.

Seat belts are installed in all bunks. They can be used while sitting or lying on the bunk.

STOWAGES

Stowage compartments are installed in the staircase to keep emergency equipment. These stowages are closed by means of a latch with a lock.

OXYGEN

A chemical oxygen system is installed above each rest bunk.

The connectors 6213 VC and 6215 VC supply the chemical oxygen system with electrical power.

SMOKE/FIRE

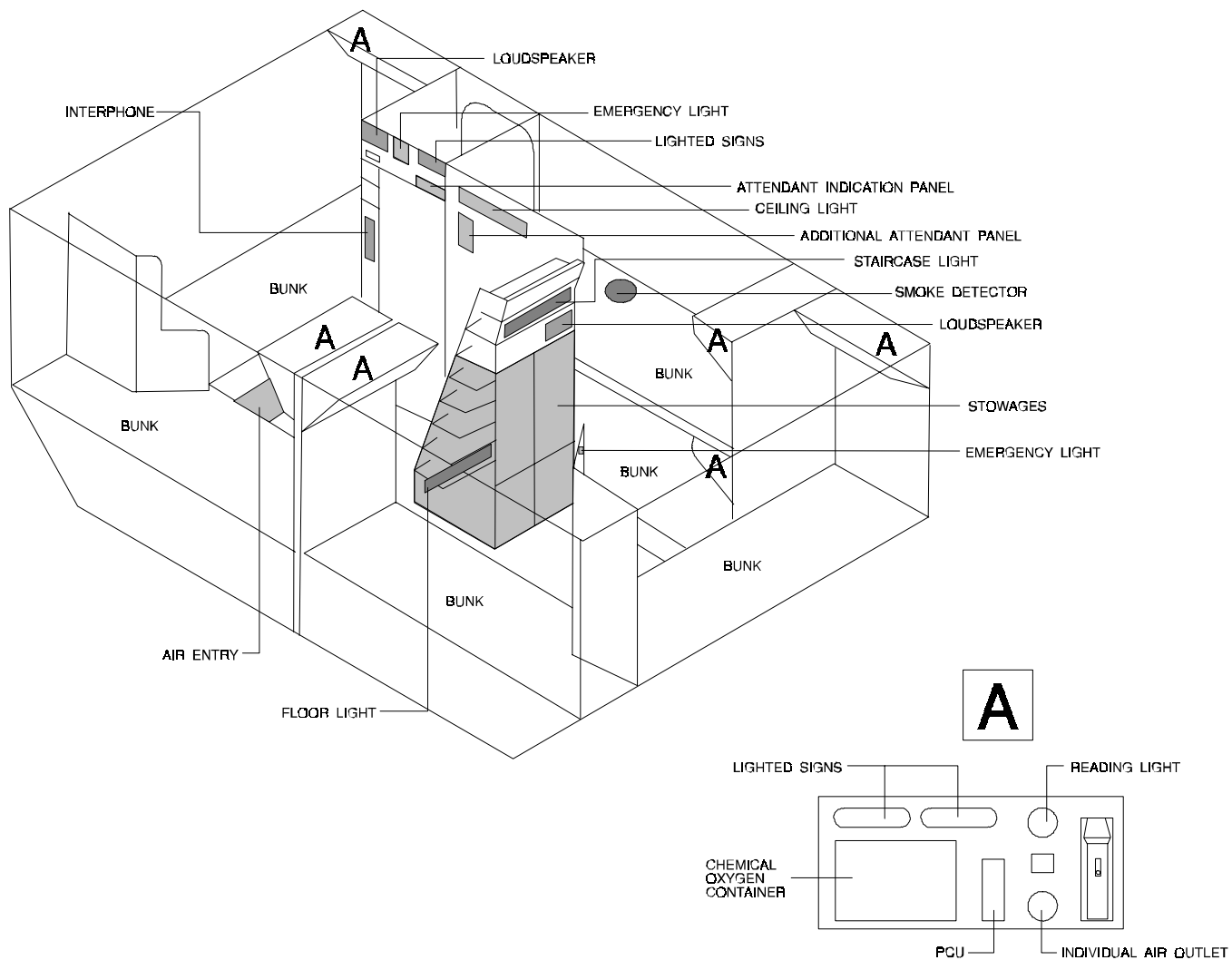
A smoke detector is installed under the staircase. The internal smoke detection system has an interface to the Smoke Detection Control Unit (SDCU).

In case of a fire, in inbuild fire extinguisher system operates automatically. This system operates when the internal smoke detection system gives a signal and both hatches are closed.

AIR CONDITIONING

The cabin air distribution and recirculation system supplies the air to the crew rest compartment. The air enters below the right hand bunk and goes out through the ceiling grill of the staircase housing. The individual air distribution system supplies the air to the individual air outlets.

The crew rest compartment air conditioning system consists of a heating system, air outlets, an air discharge duct, individual air outlets and a duct flow sensor.



STAIRCASE HOUSING

The staircase housing gives access to the crew rest compartment.

LOCATION

The staircase housing is installed in the area of the emergency exit door in the passenger compartment.

DESCRIPTION

The staircase housing is a fully assembled unit made of composite materials. A door is installed in the sidewall panel on the aisle side. Pelmet is installed on top of the staircase housing so that you cannot see the structure and the connections to the interface systems. Inside the staircase housing there is an access hatch installed in the floor structure.

ATTACHMENT

The staircase housing is attached to the seat rails on 4 points and to the aircraft structure with 2 tie-rods.

COMPONENTS

The staircase housing consists of several components:

- internal lights,
- an emergency light,
- a hatch light,
- an Additional Attendant Panel (AAP),
- a call light,
- a smoke detector and
- a stowage

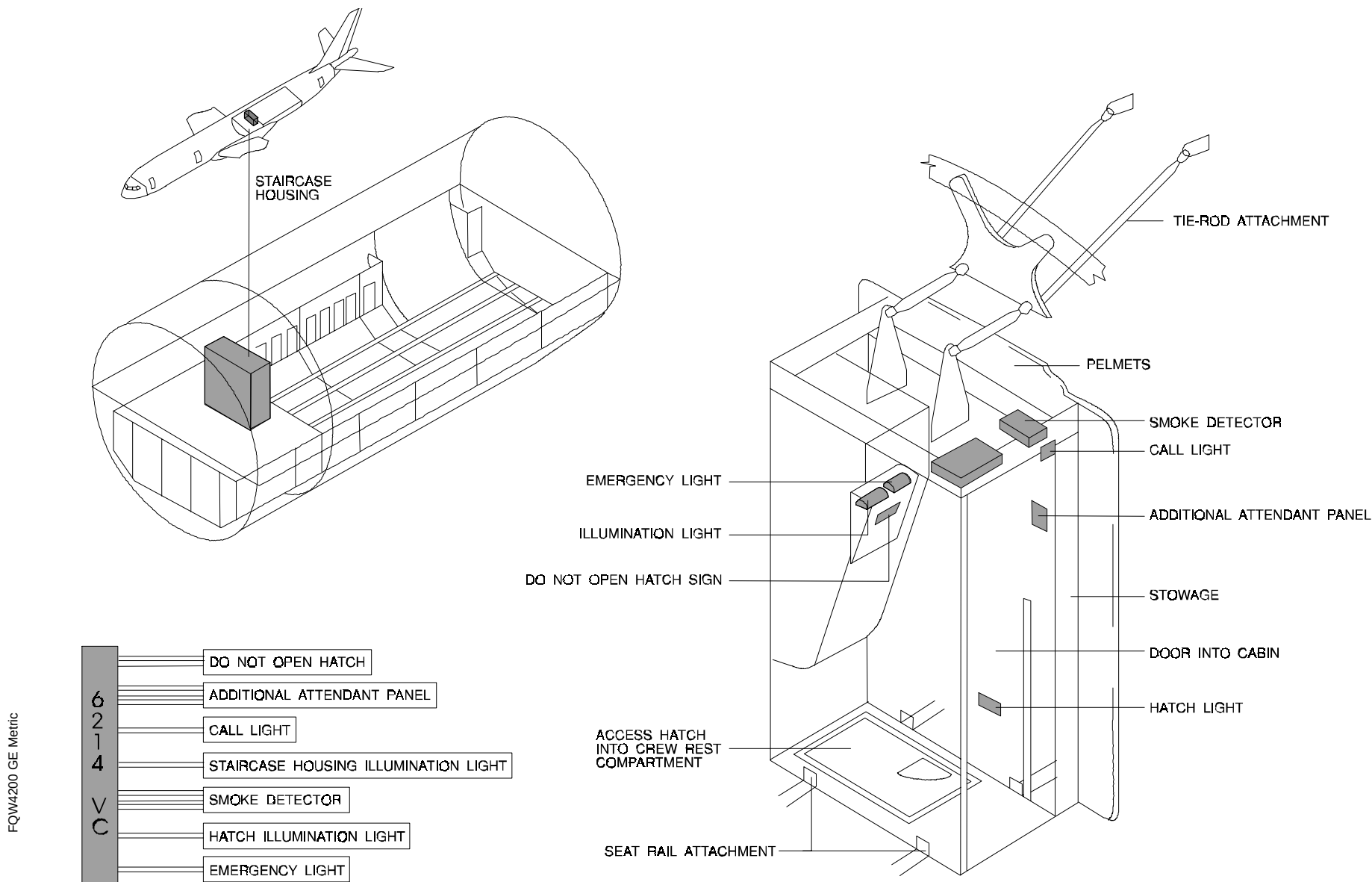
POWER SUPPLY

The connector 6214 VC supplies the staircase housing with electrical power.

INTERFACES

The staircase housing has several interfaces:

- cabin intercommunication data system,
- cabin lighting system,
- lavatory smoke detection system,
- emergency lighting system.
- lavatory lighting system,



STUDENT NOTES

FQW4200 GE Metric

ESCAPE FACILITY PRESENTATION

General
Cockpit
Pax Door Slide/Raft
Emergency Exit Slide/Raft
Door Installation

GENERAL

Escape facilities are provided for passengers and crew evacuation.

COCKPIT

In case of emergency, there are three possibilities for the cockpit crew to leave the cockpit.

- 1) The cockpit crew can evacuate through the sliding windows by using the escape ropes which are stowed in the left and right overhead stowages
- 2) They can also evacuate the cockpit through the cabin and then use the passenger door slide/raft.
- 3) A third possibility to leave the cockpit is through the avionics compartment by using the access hatch and the escape ladder which is located in front of the nose landing gear.

PAX DOOR SLIDE / RAFT

Each passenger compartment door is equipped with a dual lane slide/raft.

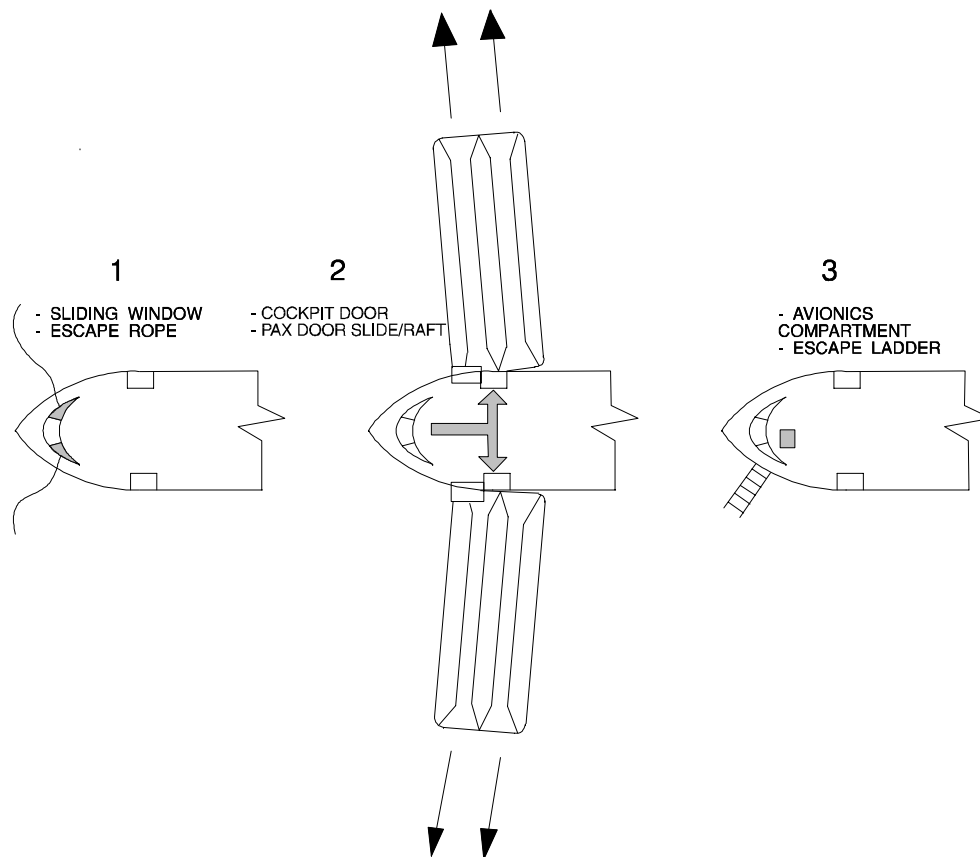
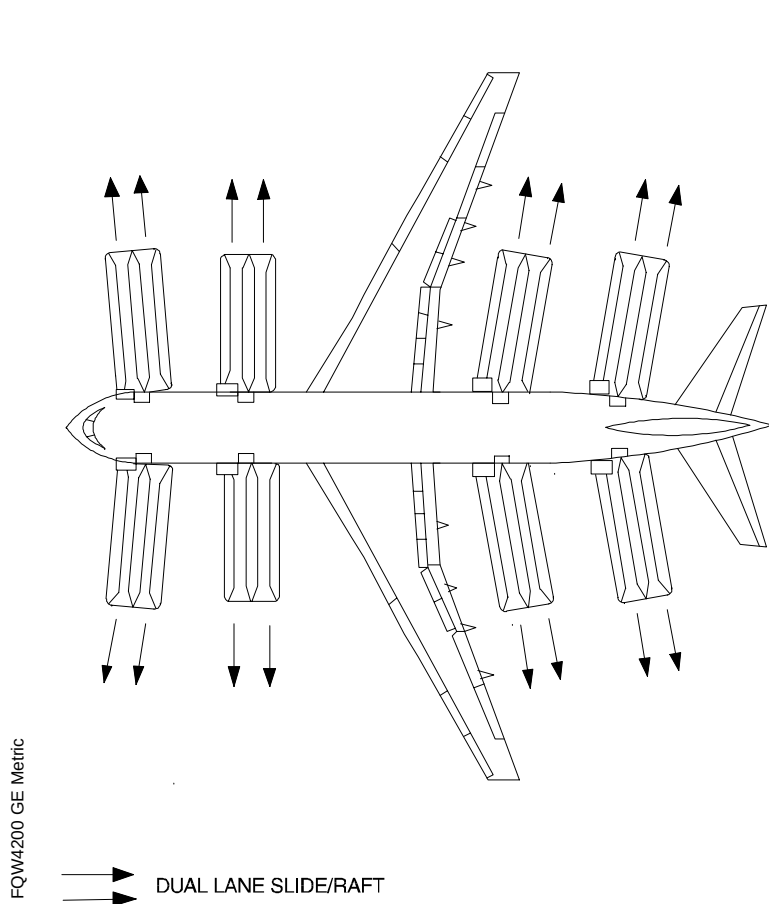
EMERGENCY EXIT SLIDE / RAFT

The door number three emergency exit is equipped with a dual lane escape slide/raft.

DOOR INSTALLATION

Each slide/raft is installed on the door frame. When the evacuation system is armed, the slide/raft is attached to the aircraft structure. Opening the door at this time will cause deployment and inflation of the slide/raft.

COCKPIT ESCAPE POSSIBILITIES



STUDENT NOTES:

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TYPICAL EMERGENCY EQUIPMENT PRESENTATION

General

FQW4200 GE Metric

GENERAL

Emergency equipment is installed throughout the aircraft. The exact number and location of each item depends on the individual airline cabine layout and local authority requirements.



O2 BOTTLE AND MASK



FIRE EXTINGUISHER



SMOKEHOOD



CRASH AXE



FIRST AID KIT



MEGAPHONE



EMERGENCY RADIO BEACON



FLASH LIGHT



LIFE JACKET FOR CREW



LIFE JACKET FOR PASSENGER

DEMO AND CHILDREN LIFE JACKETS
ARE ALSO AVAILABLE



MANUAL RELEASE TOOL

STUDENT NOTES

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ESCAPE FACILITY COMPONENTS (COCKPIT)

Escape Rope

ESCAPE ROPE

SAFETY PRECAUTIONS

Before working on the escape rope, be always sure that the aircraft electrical circuits are energized to provide sufficient illumination in the working area.

When the procedure is finished, de-energize the aircraft electrical circuits.

FIN (CAPT) : 5012MS1

FIN (F/O) : 5012MS2

ZONE : 210

COMPONENT DESCRIPTION

If an emergency occurs on ground, the cockpit crew can use descent devices to leave the cockpit. When the cabin is not pressurized, each sliding window can be opened, using a control handle which is located forward on the sliding window.

The windshield panels are provided with an open-position locking system.

A 6.7 m. (22 feet) long knotted rope is located in a stowage compartment above each sliding window. These stowage compartments are marked by red labels. The ropes and their attachments can support a load of 900 kg.

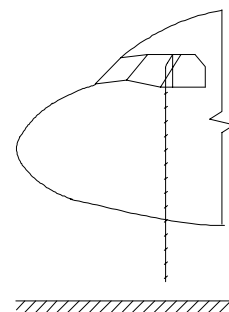
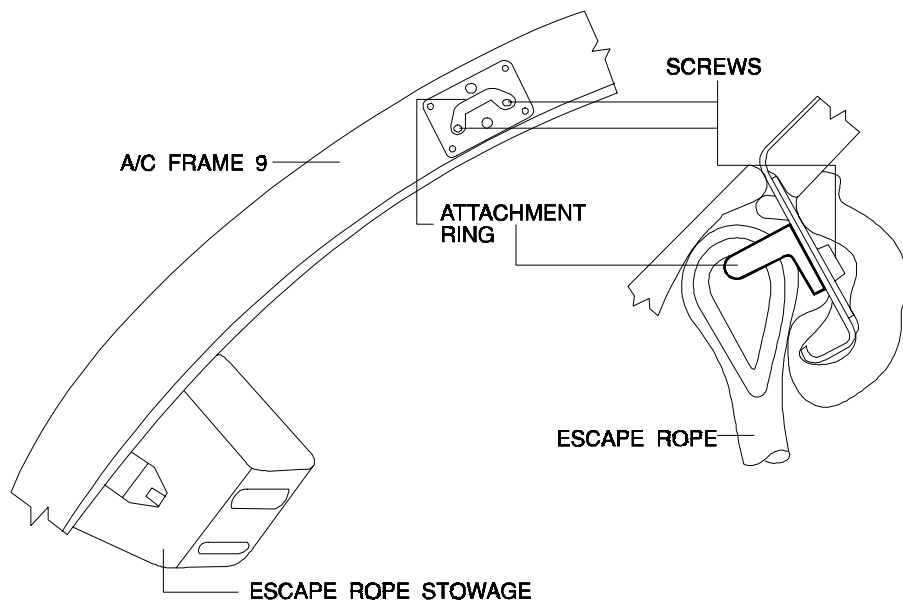
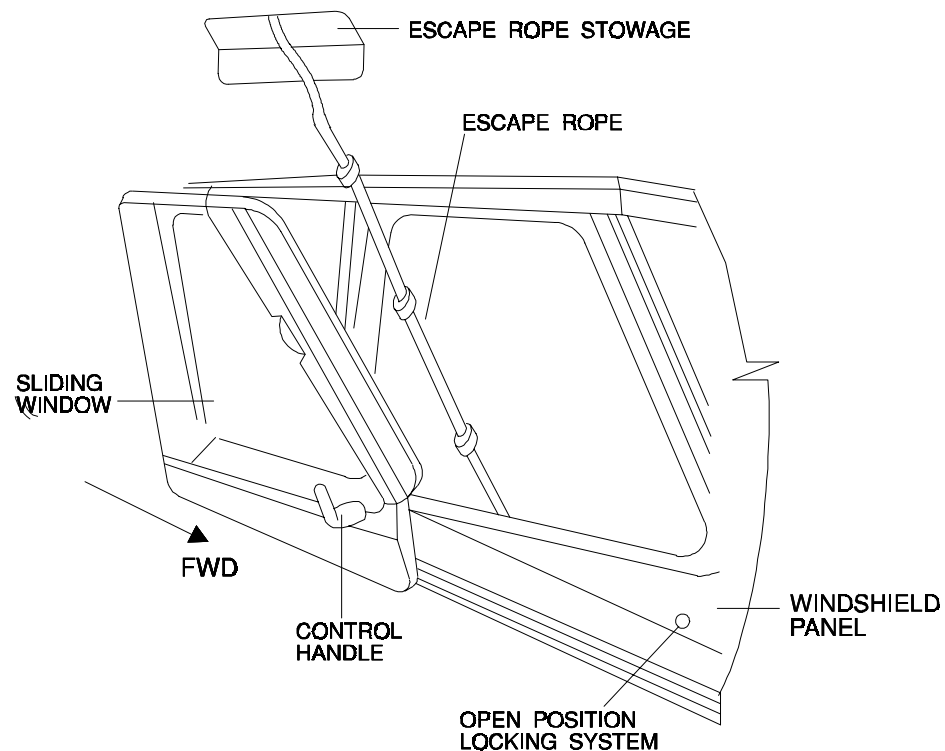
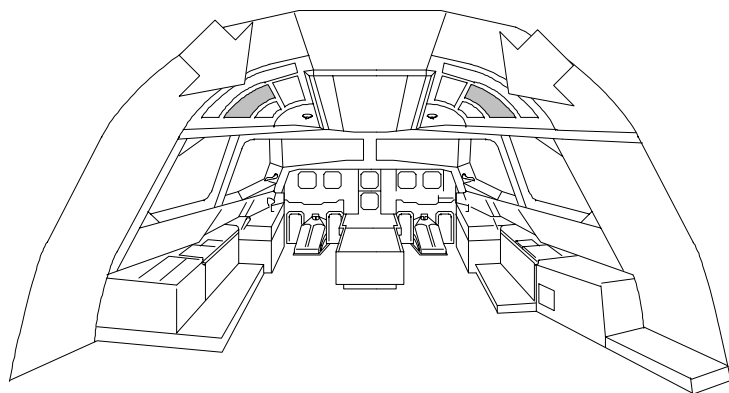
REMOVAL / INSTALLATION

Removal:

- get access to the attachment ring.
- remove the screws from the ring.
- remove the rope.

Installation:

- engage the loop of the rope in the ring.
- install the ring.
- put the rope in the stowage.
- put the aircraft back in its initial configuration.



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STUDENT NOTES

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PASSENGER/CREW DOOR SLIDE/RAFT DESCRIPTION/OPERATION

General
Packboard Assembly
Inflatable Chambers
Girt Bar Assembly
Inflation System
Electrical Connection
Lighting System
Canopy
Accessories
Operation

GENERAL

Slide/rafts are installed on each passenger/crew door to permit quick evacuation for crew and passengers in an emergency situation.

The slide/rafts are of the dual-lane type and have two functions:

- as an escape slide and
- as an inflatable life raft.

For doors 2, the slide/raft is cantered in order to ensure deployment with an acceptable clearance away of the engines.

PACKBOARD ASSEMBLY

The packed slide/raft in its packboard assembly is installed on the inner side of the door structure. The packboard assembly is made of composite materials.

Mounting rails attach the packboard to the passenger/crew door structure.

INFLATABLE CHAMBERS

The inflatable chambers are made of heat-reflecting coated fabric tubes. The slide/raft has two (upper and lower) structurally connected tube assemblies. The center tube is also a lane divider.

GIRT BAR ASSEMBLY

The girt bar assembly connects the slide/raft to the aircraft structure. When the door is in the ARMED mode, the girt bar is attached to the aircraft door seal structure.

When the door is in the DISARMED mode, the girt bar is attached to the door structure.

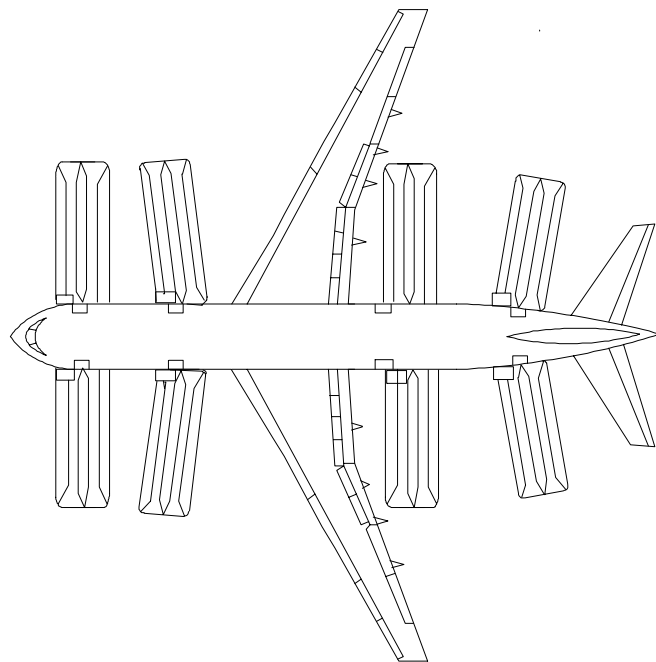
INFLATION SYSTEM

The inflation reservoir keeps the gas under high pressure. A valve regulator assembly controls the gas flow.

The pressure can be checked on the gauge, fitted on the reservoir. Its status is monitored by the PIMS.

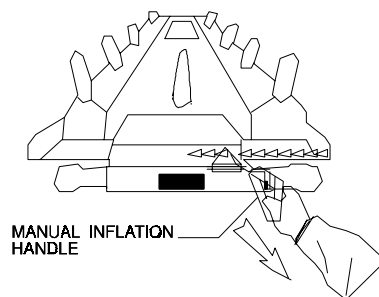
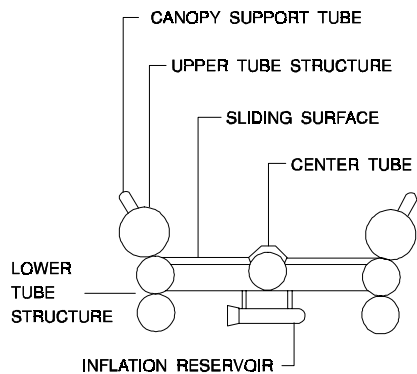
Two aspirators working as suction devices (jet pumps) suck ambient air into the tube assemblies for primary inflation. The gas from the reservoir completes the inflation.

If the inflation is not automatically initiated, a handle, located at the right side of the girt extension, allows inflation to be initiated.

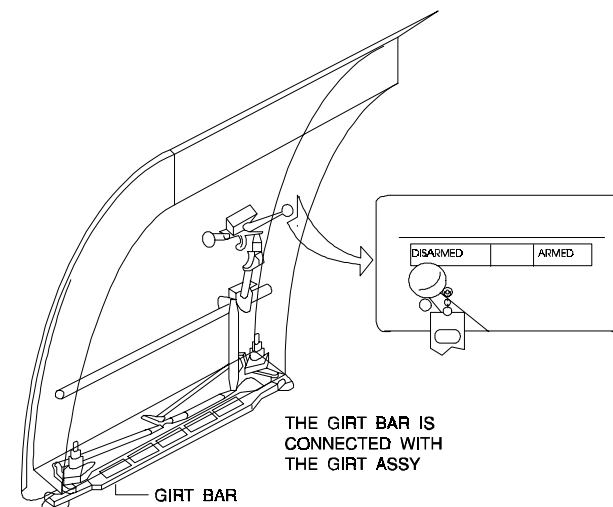


PASSENGER/CREW DOOR

PACKBOARD ASSEMBLY



MANUAL INFLATION
HANDLE



THE GIRT BAR IS
CONNECTED WITH
THE GIRT ASSY

GIRT BAR

FQW4200 GE Metric

ELECTRICAL CONNECTION

The lighting of each slide/raft is connected to the Emergency Lighting System Circuit through a socket which is located on the passenger crew door.

The status of the inflation reservoir pressure-sensor and the maintenance transport safety pin is monitored through the CIDS system.

LIGHTING SYSTEM

The slide/raft is equipped with an integrated lighting system. The lights are located along the longitudinal tubes and across the runway tube.

The lighting system is automatically activated by the slide deployment. If no aircraft power is available, the lights will illuminate for 10 minutes supplied by the Emergency Power Supply Unit batteries.

CANOPY

The canopy gives the occupants protection against different environmental conditions. The canopy support has no rods and one person can put it up. The canopy is highly visible (orange/ yellow) and is resistant to wind speeds up to 52 miles per hour.

ACCESSORIES

Each slide/raft is equipped with several accessories:

- assist handles
- boarding aids
- mooring/re-entry line
- heaving/trailing line
- survival kit
- quick release mechanism
- life line
- sea anchor.

OPERATION

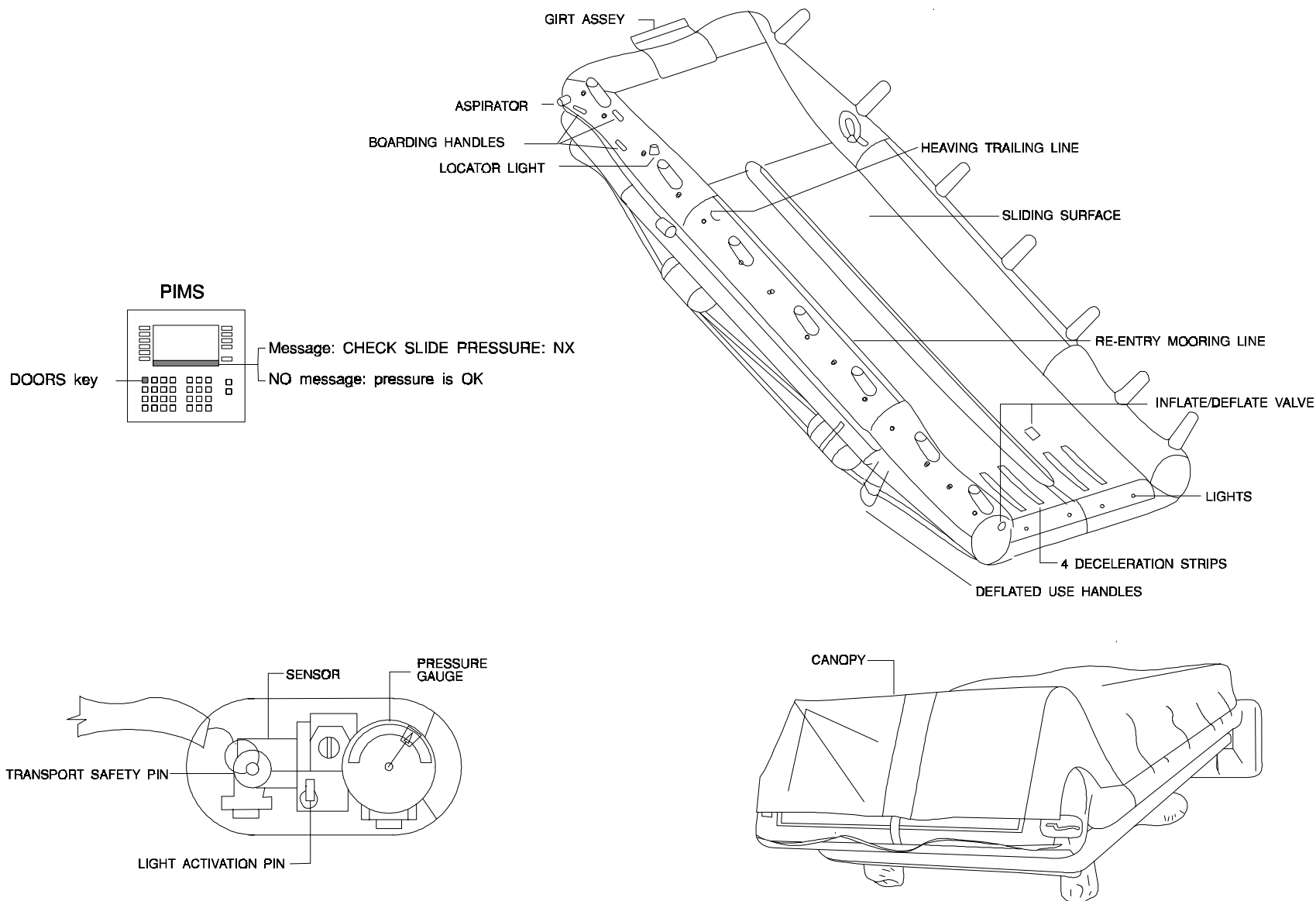
The deployment and inflation of the slide/raft unit are automatically initiated when the door is opened in the ARMED mode. As the door opens, the girt tensions and pulls the packboard off the door. The speed lacing releases and the slide/raft unit falls from the packboard.

A firing lanyard actuates the regulator valve and primary gas is supplied to the aspirators and the inflation is initiated.

An intermediate tie device restrains the slide/raft to prevent it from inflating underneath the fuselage. When the slide/raft becomes sufficiently pressurized, the intermediate tie releases and the slide/raft is projected outward and downwards to contact the ground.

The slide/raft inflates and deploys within 4 seconds.

After emergency, the inflated slide/raft can be removed from the aircraft: Enter the aircraft over the slide/raft with the re-entry line. Then pull the quick release handle to disconnect the slide/raft from the aircraft.



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STUDENT NOTES

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PASSENGER/CREW DOOR SLIDE/RAFT DISCONNECTION

- Set-Up
- Remove Parts From Door
- Remove Inflated Slide/Raft
- Remove Girt Assembly
- Close-Up

SET-UP

Before the inflated slide/raft can be removed, first remove the decorative cover which is still on the door. Also safety the exit with the safety barrier strap.

In the avionics compartment, the circuit breakers concerning the cabin emergency light and the door & slides control have to be opened, safetied and tagged.

REMOVE PARTS FROM DOOR

Disconnect the electrical connector and put a blanking cap on it. Then, remove the screws and the two release rails.

Keep the release rails and the electrical cable with the escape slide/raft.

REMOVE INFLATED SLIDE/RAFT

Attach a rope to the ring pad and pull the rope until it takes the weight of the slide/raft. Then pull the flap on the girt assembly to get access to the quick release handle. When you are sure that there is a person on ground to hold the packboard, you can pull the quick-release handle to disconnect the slide/raft from the aircraft.

Release the rope and let the person on ground remove the packboard. Then, carefully lower the slide to the ground.

Note: The mooring/re-entry line can be used if no rope is available.

REMOVE GIRT ASSEMBLY

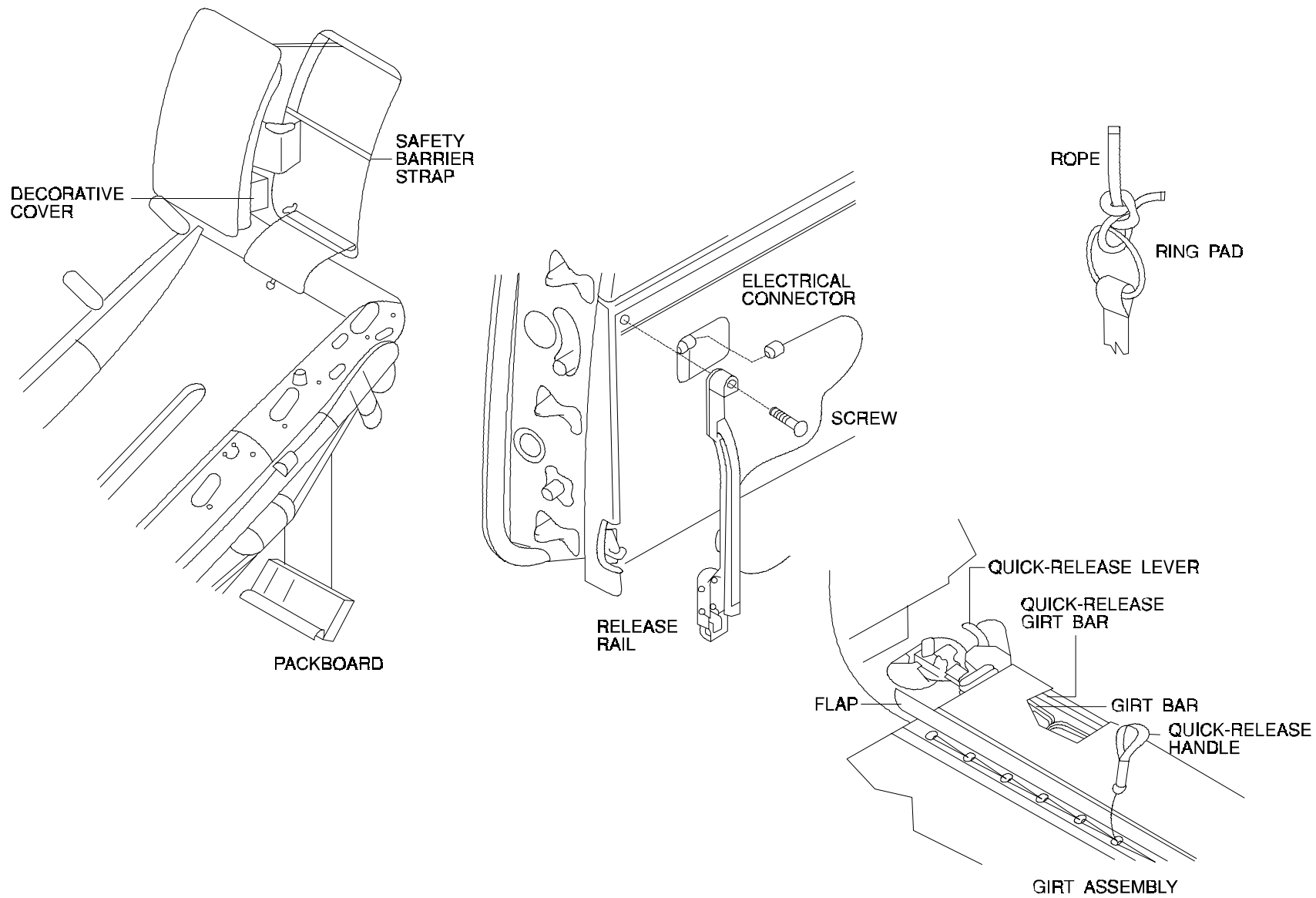
Push the release lever to disconnect the quick-release girt bar from the girt bar. Then, pull the quick-release girt bar out of the girt assembly and reconnect it to the girt bar.

Note: The quick release girt bar and the girt bar stay with the aircraft. The girt assembly stays with the slide/raft.

CLOSE-UP

Release the safety barrier strap and close the passenger/ crew door with the emergency control handle in the ARMED position. Then put the emergency control handle in the DISARMED position and install the safety pin.

Finally, open the passenger/crew door and make sure that the girt bar is attached to the door structure. Close the door.



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STUDENT NOTES

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PASSENGER/CREW DOOR SLIDE/RAFT INSTALLATION

Safety Precautions
Electric Preparation
Slide/Raft Installation
Installation Check
Decorative Cover

SAFETY PRECAUTIONS

Before starting the installation procedure, get access to the avionics compartment to open, safety and tag the necessary circuit breakers on circuit breaker panels 721 V.U., 722 V.U. and 742 V.U.

Open the passenger/crew door and make sure that the door emergency control handle is DISARMED and that the safety pin is installed.

Energize the ground service network.

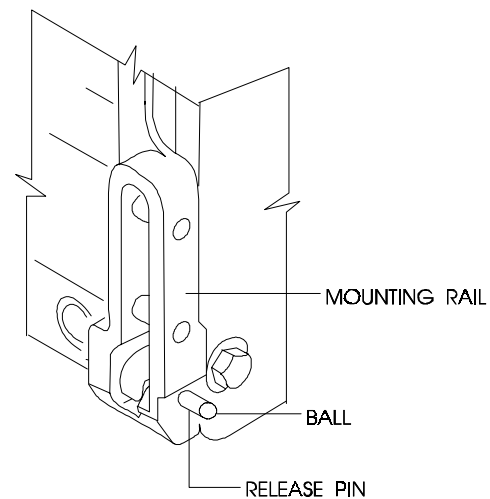
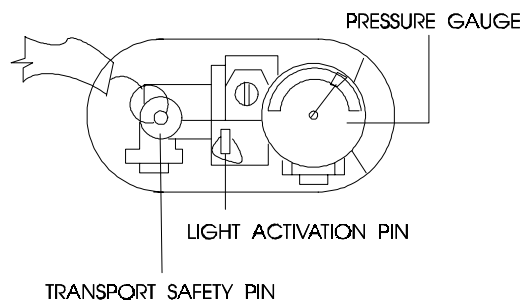
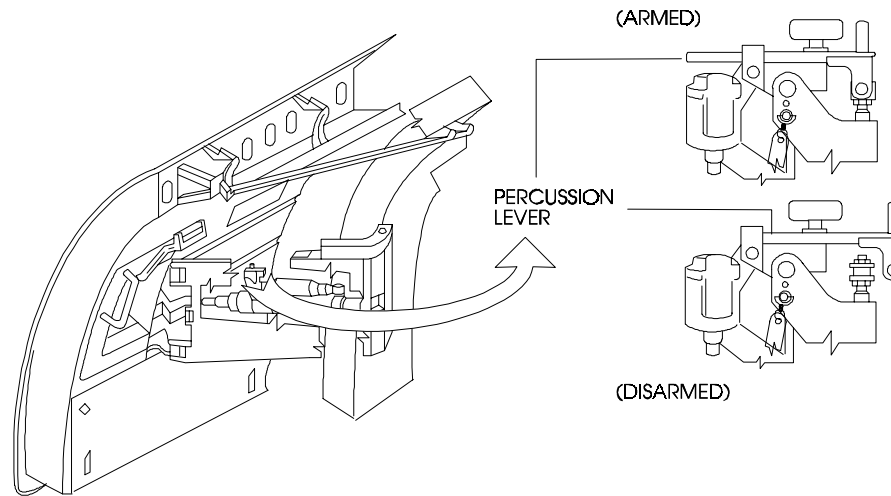
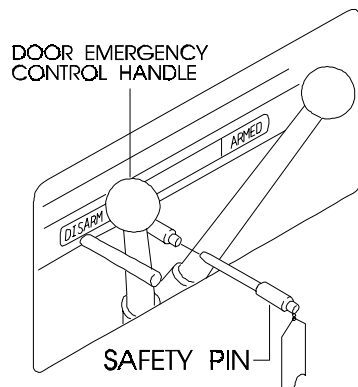
Make sure that the percussion lever on the emergency operating cylinder is DISARMED and that the safety pin is installed.

Make sure that the transport safety pin is installed in the slide/raft bottle.

Check that the light activation pin is fully engaged in its housing.

Check that the pressure read on the gauge is correct. (orange needle in green zone.)

Make sure that the release pins are fully engaged into the mounting rails. (Ball must be visible.)



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ELECTRIC PREPARATION

Open the cable pocket, remove the cable completely and feed it under both straps of the pack.

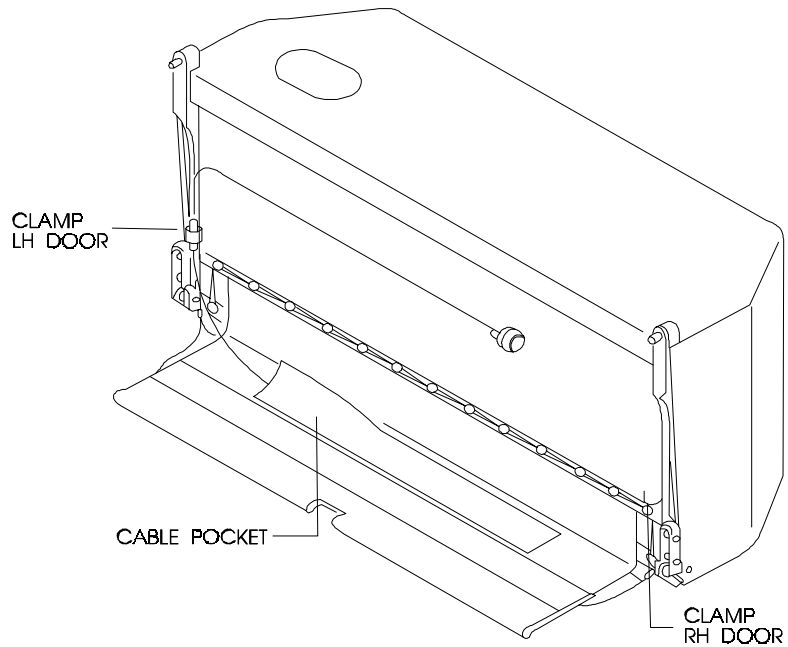
Remove the related clamp and move it over the heat shrink tube on the cable.

Screw the clamp securely onto the rail

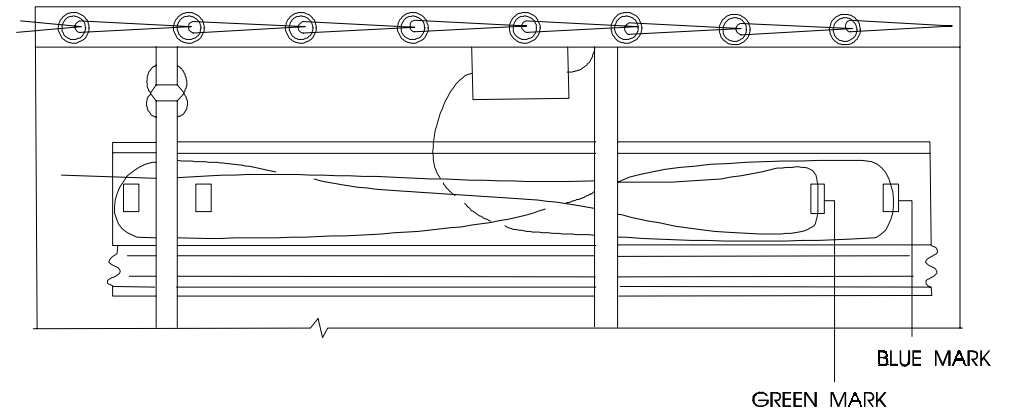
The cable is now folded by making two loops:

- Lay the blue mark on the cable against the blue mark on the pocket.
- Lay the green mark on the cable against the green mark on the pocket. (Second loop is laid on top of first loop. Both loops are always underneath the two straps.)

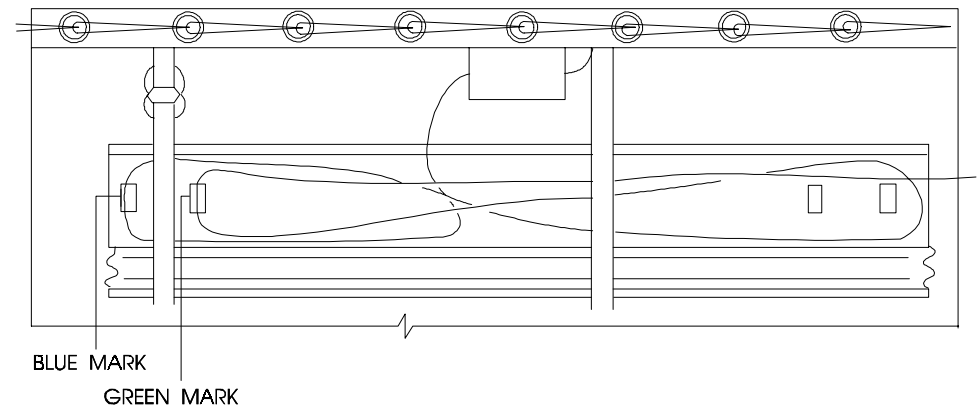
Close cable pocket by fastening the Velcro securely.



LEFT DOOR



RIGHT DOOR



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SLIDE/RAFT INSTALLATION

Before closing the door, make sure that nobody will open the door from the outside. Then close the door, remove and stow the safety pin in the support arm lining and move the emergency control handle in the ARMED position.

Push the quick release lever to disconnect quick release girt bar from the girt bar.

Put the quick release girt bar into the girt assembly.

Move the slide/raft pack assembly to the related door.

Remove the blanking caps from the electrical connector and connect the electrical connector in the door socket.

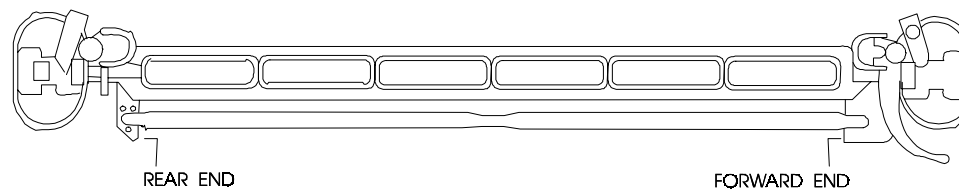
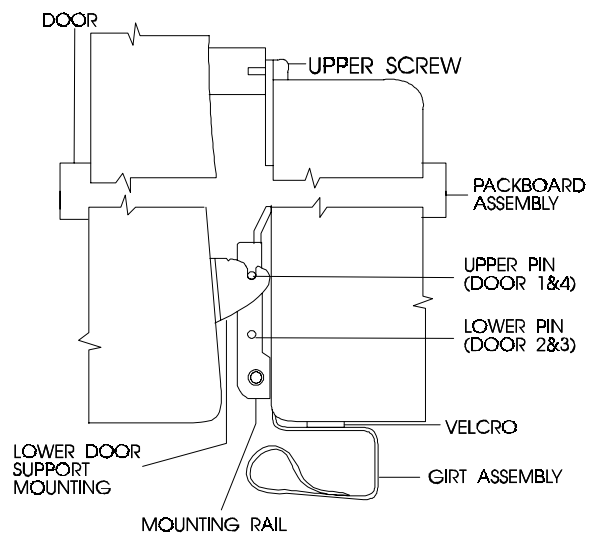
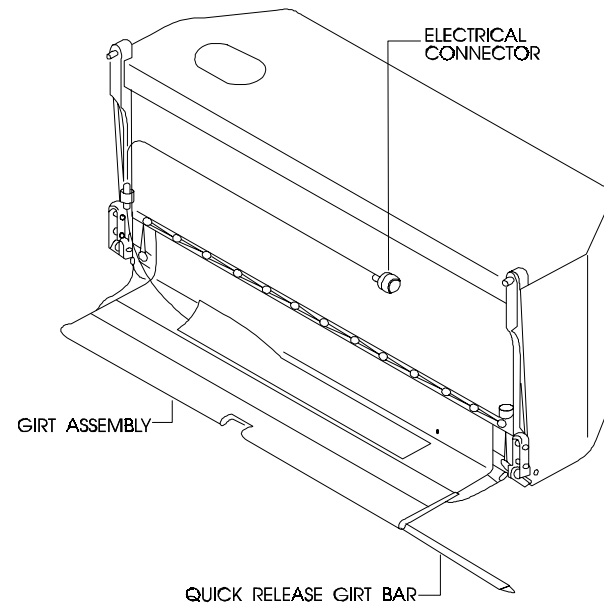
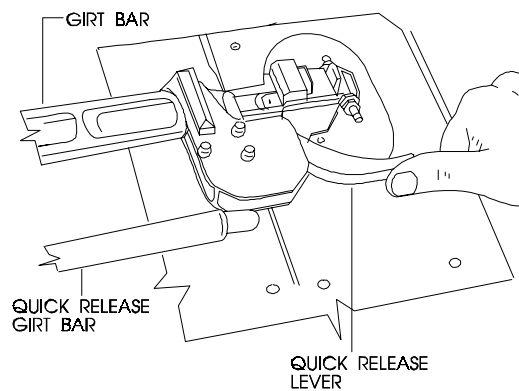
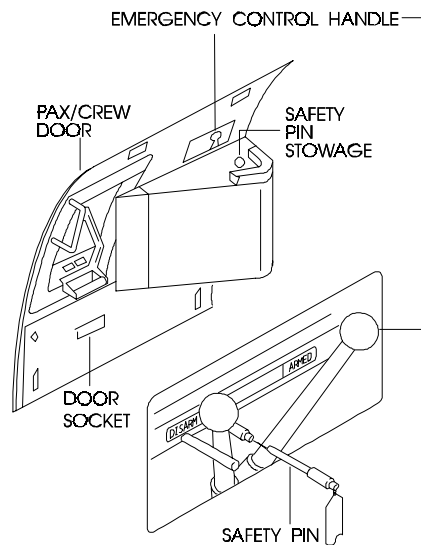
Lift the pack with the pins on the mounting rails on the support mountings on the door. Then fasten the upper mounting screws.

Raise the door (DO NOT OPEN THE DOOR !) to connect the quick release girt bar (rear end first and then forward end).

Lower and close the door and put the emergency control handle in the DISARMED position. Then, install the safety pin.

Open the door and make sure that the girt assembly is attached to bottom of the slide/raft pack assembly (Velcro). Ensure also that the quick release girt bar is correctly attached in the girt bar.

Remove the safety clips and tags and close the circuit breakers.



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INSTALLATION CHECK

Close the passenger/crew door and energize the aircraft electrical circuits on the overhead ELEC panel.

Lift door slowly open to check that there is sufficient clearance between the pack assembly and the door frame lining.

With the door fully open, check that there is sufficient clearance between the pack assembly and the fuselage.

Ensure that the girt assembly is correctly attached to the Velcro.

Ensure that the quick release girt bar is attached to the girt bar.

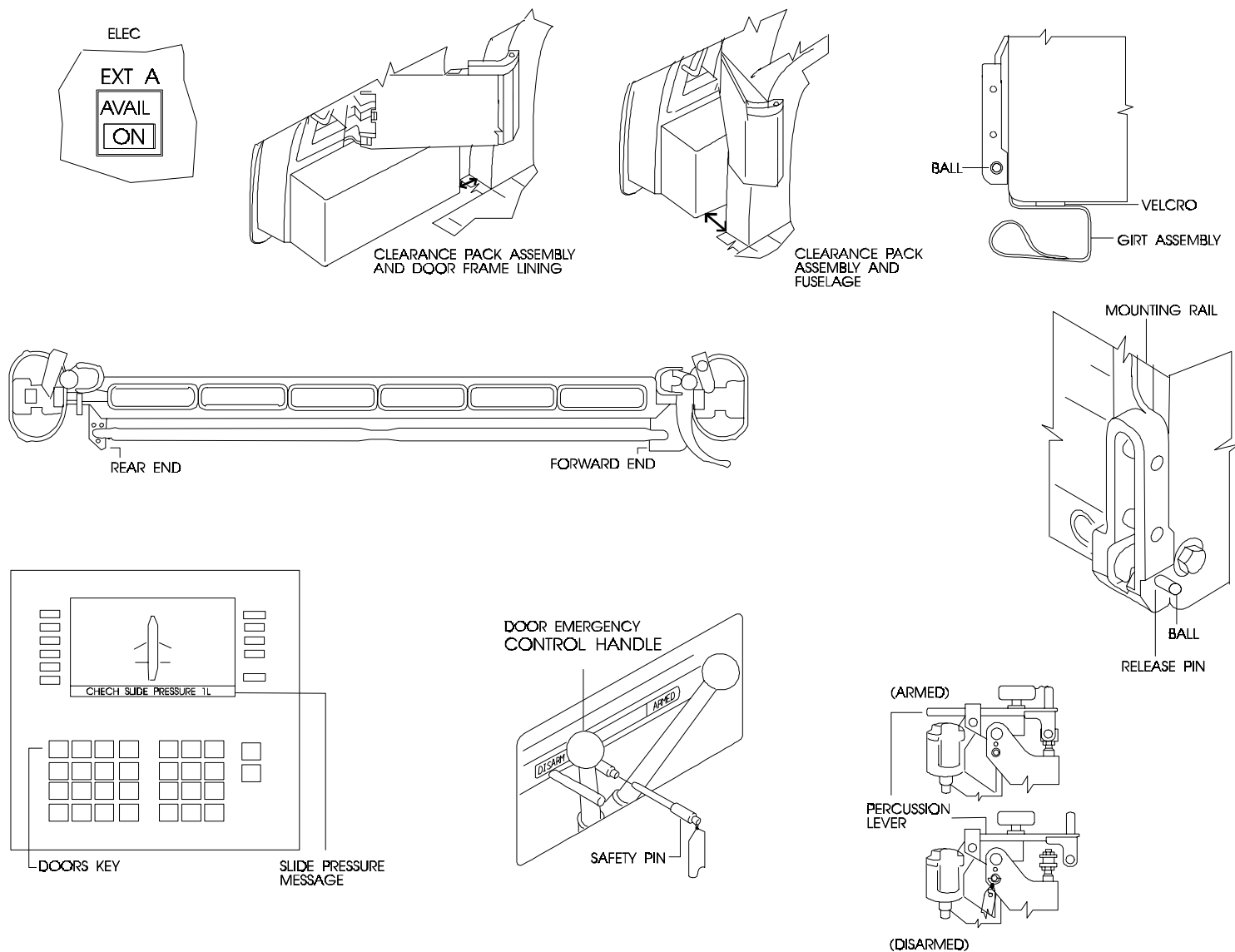
Ensure that the release pins are fully engaged into the mounting rails (The ball must be visible).

Close the door and do the operational test of the slide/raft pack assembly on the PIM.

De-energize the aircraft electrical circuits on the ELEC panel in the cockpit.

Put the emergency control handle in the DISARMED position and install the safety pin.

ARM the percussion lever of the emergency operating cylinder (and remove the safety pin).



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DECORATIVE COVER

Before installing the decorative cover, ensure that the door emergency control handle is DISARMED and that the safety pin is installed.

Remove the transport safety pin from the slide/raft bottle. Stow the transport safety pin in the pocket on the sealing skirt of the decorative cover.

Engage the support mounting of the cover in the holes on top of the packboard.

Move the decorative cover down to engage the Velcro pads.

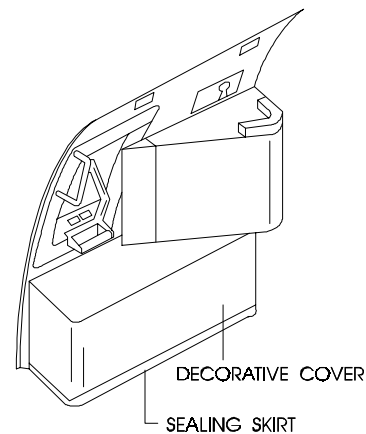
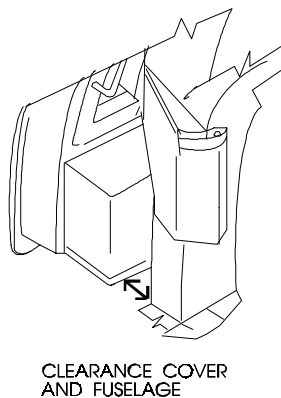
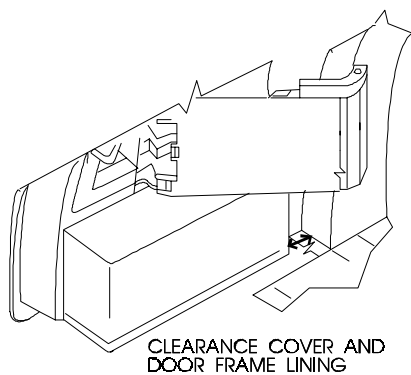
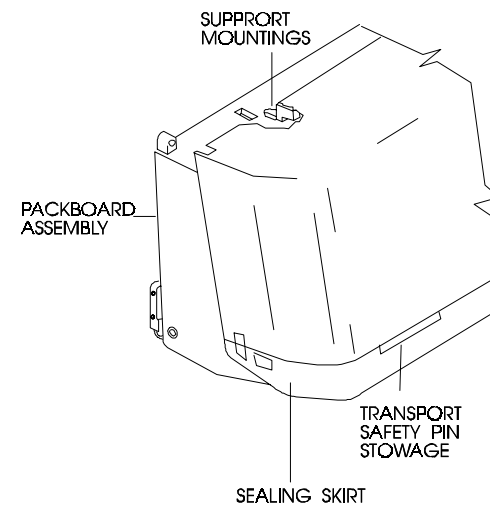
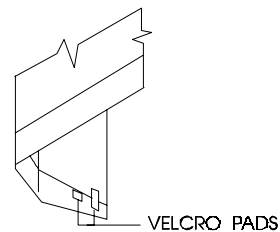
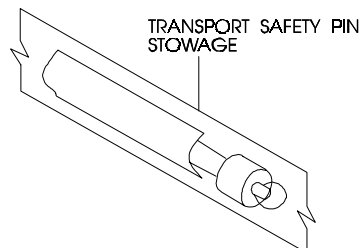
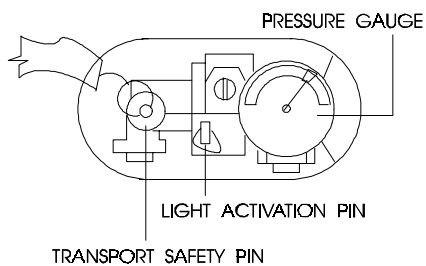
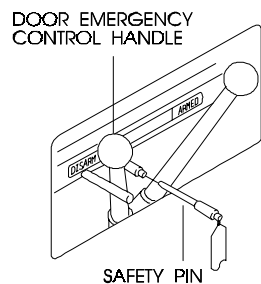
After installing the decorative cover, check if it fits correctly:

Lift door slowly open and check that there is sufficient clearance between the cover and the door frame lining.

With the door fully open, check that there is sufficient clearance between the cover and the fuselage.

With the door closed, check the correct fit of the sealing skirt.

De-energize ground service network.



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STUDENT NOTES

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PASSENGER DOOR SLIDE/RAFT REMOVAL

- Step 1: Removal of the Decorative Cover
- Step 2: Safety Precautions During the Removal of the
Slide/Raft Pack Assembly
- Step 3: Removal of the Slide/Raft Pack Assembly

STEP 1: REMOVAL OF THE DECORATIVE COVER

Before starting the removal procedure, energize the ground service network and get access to the avionics compartment to open, safety and tag the necessary circuit breakers on circuit breaker panel 721 V.U., 722 V.U. and 742 VU.

Make sure that nobody can open the door from the outside.

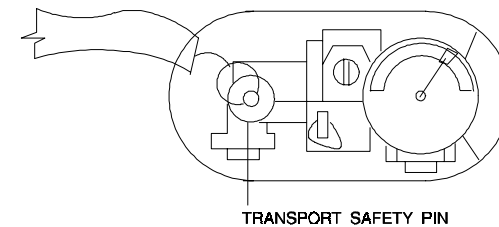
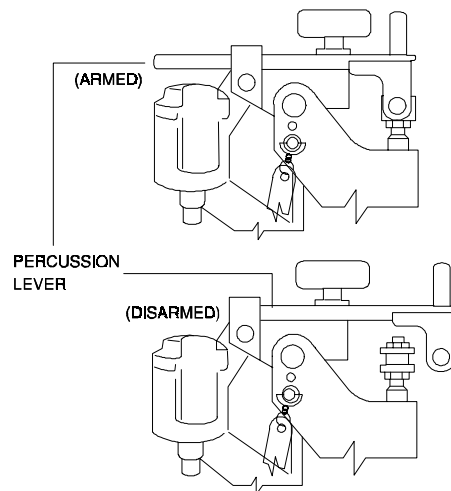
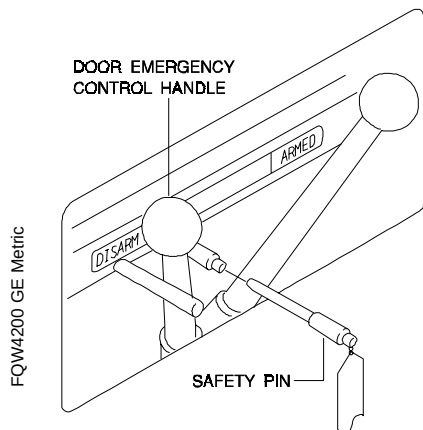
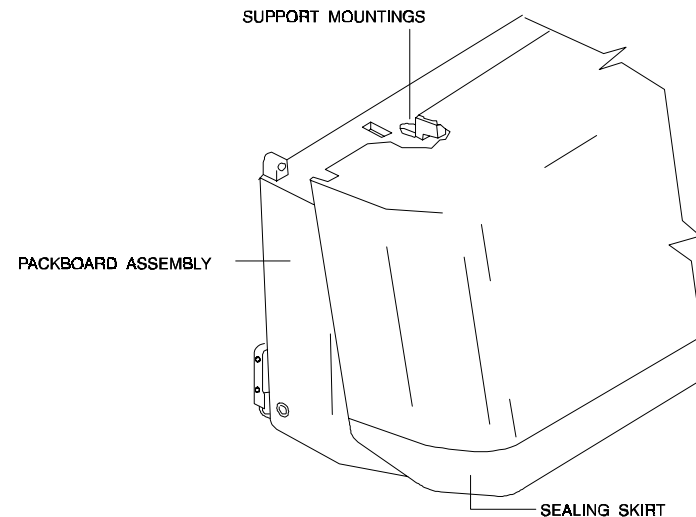
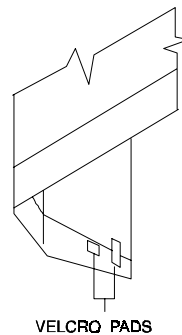
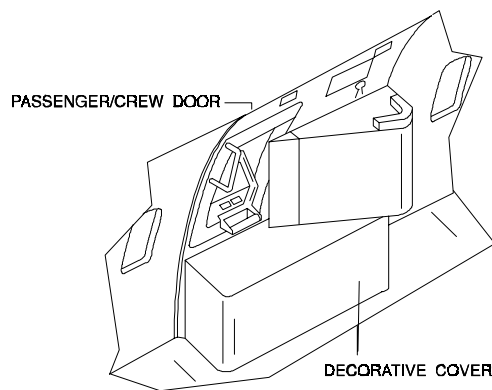
Close the passenger/crew door to start the removal of the decorative cover.

1. Hold the decorative cover near the Velcro pads
2. Pull the cover sideways to release it from the Velcro
3. Pull the cover inboard and up to release the support mountings from the packboard assembly

STEP 2: SAFETY PRECAUTIONS DURING THE REMOVAL OF THE SLIDE/RAFT PACK ASSEMBLY

The safety precautions for the removal of the slide/raft pack assembly are listed below:

1. Put the door emergency handle in the DISARMED position and install the safety pin.
2. Put the percussion lever of the door emergency opening cylinder in the DISARMED position and install the safety pin
3. Install the transport safety pin in the slide/raft bottle valve.



STEP 3: REMOVAL OF THE SLIDE/RAFT PACK ASSEMBLY

First of all, make sure that the passenger/crew door is closed. Then, start the procedure to disconnect the quick release girt bar.

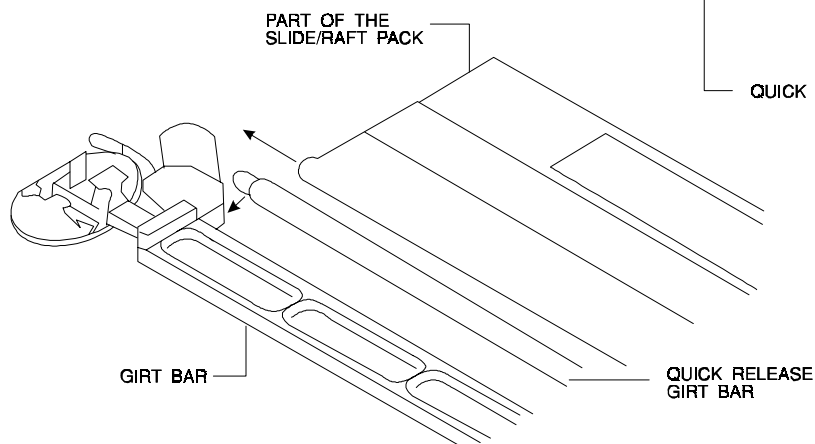
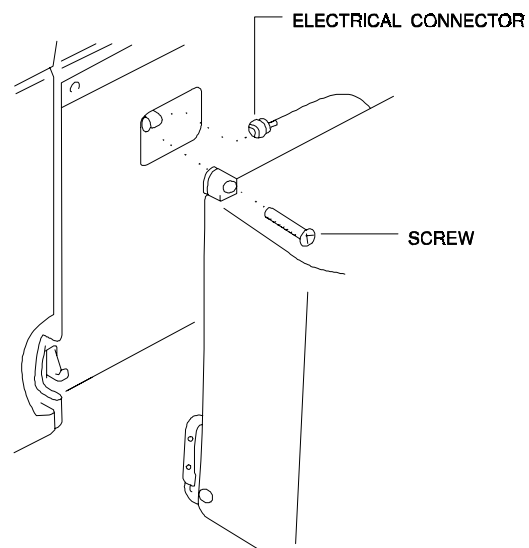
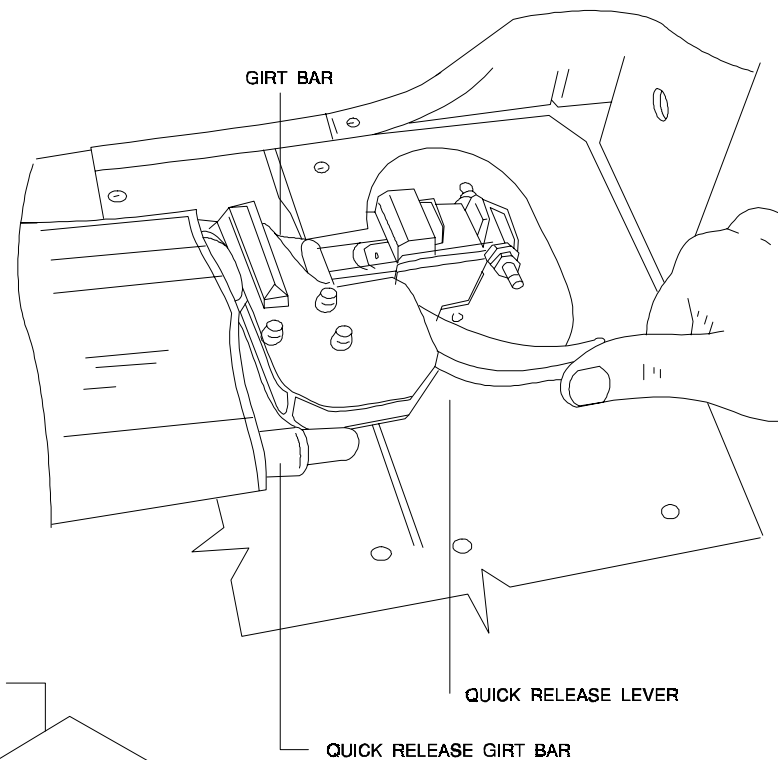
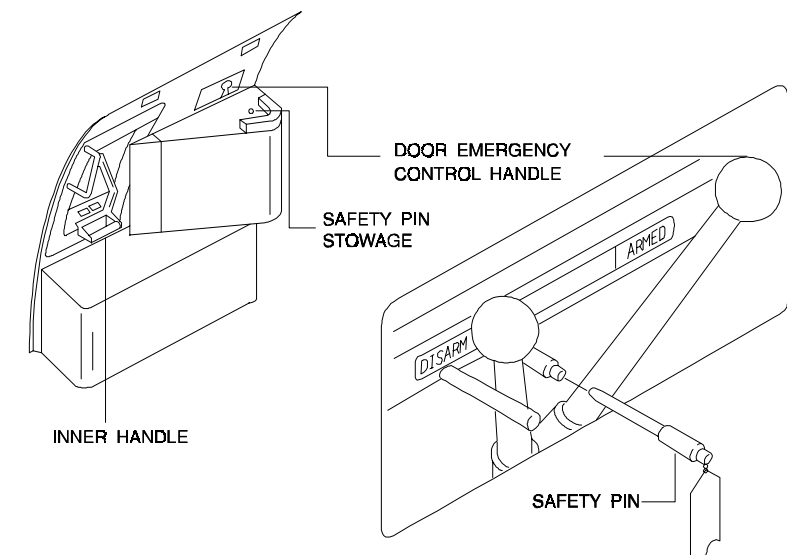
1. Remove the door emergency control handle safety pin and stow it in the support arm.
2. Put the door emergency control handle in the ARMED position.
3. Push the release lever to disconnect the quick release girt bar from the girt bar.

Now, remove the slide/raft pack assembly from the door:

1. Remove the screws on top of the pack assembly.
2. Move the top of the pack inboards to disconnect the electrical connector.
3. Lift the pack assembly from the support hooks on the door.
4. Put a blanking cap on the disconnected electrical connector.

Finally, perform these last three steps to finish the removal procedure:

1. Pull the quick release girt bar from the girt bar assembly and attach it to the girt bar.
2. Put the door emergency control handle back in the DISARMED position and install the safety pin.
3. Open the door to ensure that the quick release girt bar is attached to the door structure.



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STUDENT NOTES

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EMERGENCY EXIT SLIDE DESCRIPTION/OPERATION

Description/Operation

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DESCRIPTION/OPERATION

The type 1 door is equipped with a single lane escape slide.

The operational sequence for the escape slide begins when the door is opened in armed configuration.

The packboard assembly is released and falls clear of the door sill.

The inflation is automatically initiated. The slide is retained from deploying until it is sufficiently pressurized. The deployment sequence lasts approximately 6 seconds.

One aspirator is connected to the pressure cylinder by means of a flexible hose. When the unit falls from the packboard, the regulator valve on the cylinder is actuated and primary gas is supplied to the aspirator. Outside air is drawn in at the multiple ratio to the primary gas mix.

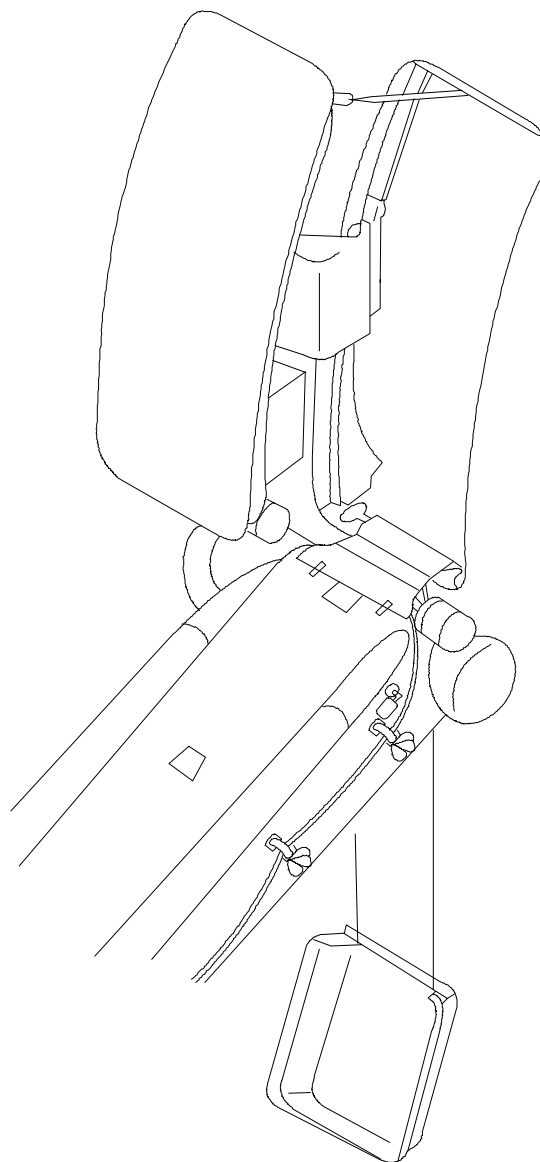
If the escape slide does not immediately inflate, the red manual inflation handle, located on the right hand side of the girt extension, must be pulled.

A lighting system is installed along the longitudinal tubes and across the runway end of the slide. The lights are automatically activated during the deployment sequence.

Low fail handles are located on both sides for assisting people to support the slide whenever used not inflated as a hand held evacuation shoot.

A re-entry strap is fixed along one side of the slide.

To separate the escape slide from the cabin floor, unsnap the white buttons on each side of the girt. Lift the flap on the girt. Grasp the white handle and pull.



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STUDENT NOTES

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EMERGENCY EXIT SLIDE DISCONNECTION

Set-Up
Remove Parts from Door
Remove Inflated Slide
Remove Girt Assembly
Close-Up

SET-UP

Before the inflated slide can be removed, first remove the decorative cover which is still on the door. Also safety the exit with the safety barrier strap. In the avionics compartment, the circuit breakers concerning the cabin emergency light and the doors & slides control have to be opened, safetied and tagged.

REMOVE PARTS FROM DOOR

Disconnect the electrical connector and put a blanking cap on it. Then, remove the screws and the two release rails.

Keep the release rails and the electrical cable with the escape slide.

REMOVE INFLATED SLIDE

Attach a rope to the ring pad and pull the rope until it takes the weight of the slide. Then pull the flap on the girt assembly to get access to the quick-release handle.

When you are sure that there is a person on the ground to hold the packboard, you can pull the quick-release handle to disconnect the slide from the aircraft. Release the rope and let a person on ground remove the packboard. Then carefully lower the slide to the ground.

Note: The re-entry line can be used if no rope is available.

REMOVE GIRT ASSEMBLY

Move the sliders out of the locking plates and remove the girt bar together with the girt assembly. Then pull the girt bar out of the girt assembly by removing the sliders from the girt bar.

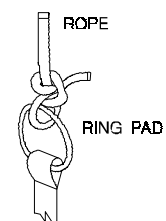
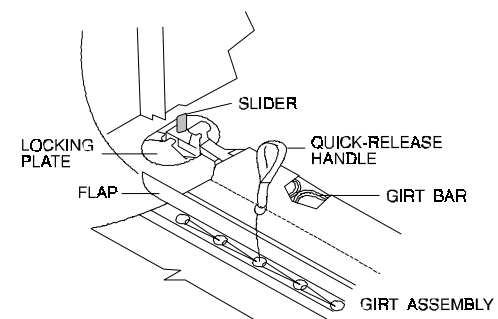
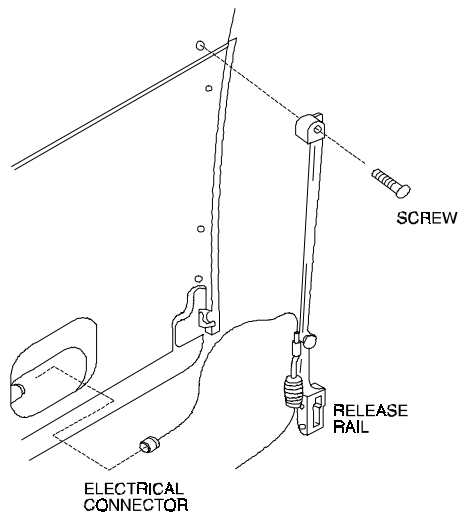
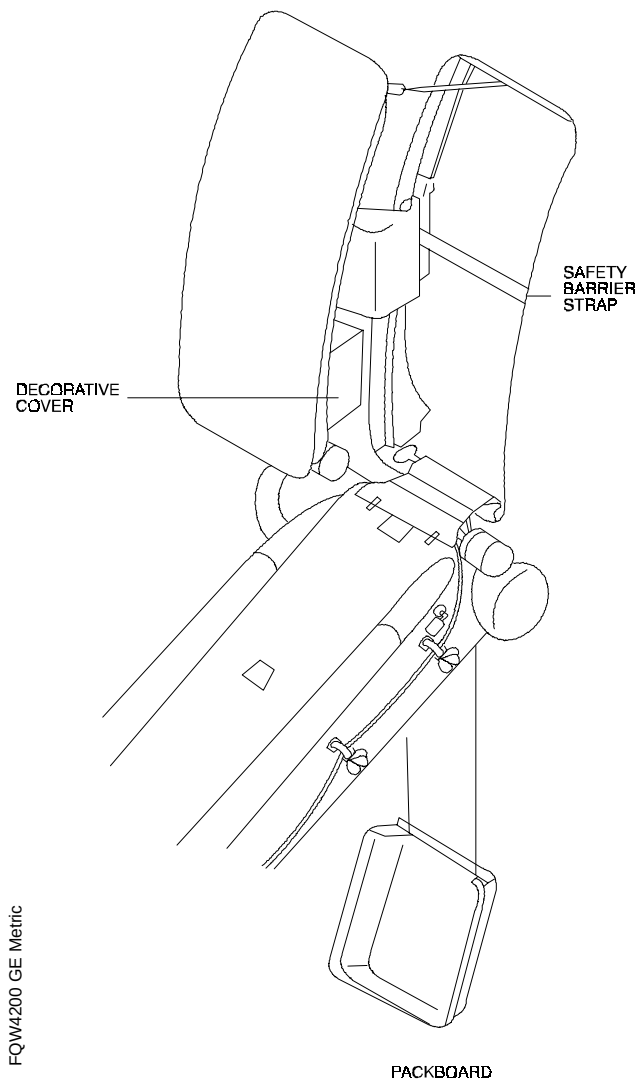
Re-install the sliders to the girt bar and put the girt bar into the locking plates.

Note: The girt bar stays with the aircraft. The girt assembly stays with the slide.

CLOSE-UP

Release the safety barrier strap and close the door with the emergency control handle in the ARMED mode. Make sure that the door fittings engage correctly with the sliders.

Finally put the emergency control handle in the DISARMED position and install the safety pin. Open the door to make sure that the girt bar is attached to the door structure. Then, close the door.



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STUDENT NOTES

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EMERGENCY EXIT SLIDE REMOVAL/INSTALLATION

Removal Set-Up
Removal
Installation Set-Up
Installation
Installation Check
Close-Up

REMOVAL SET-UP

Before you start to work on the door, energize the ground service network and open, safety and tag the circuit breakers of the cabin emergency light and of the doors and slides control. Then, remove the decorative cover.

Put the emergency control handle in the DISARMED position with the safety pin installed.

Put the percussion lever of the door damper and emergency operation cylinder in the DISARMED position with the safety pin installed.

Install the transport safety pin in the regulator valve assembly.

REMOVAL

To disconnect the girt bar, lift the door with the emergency control handle in the ARMED position. Then, move the sliders out of the locking plates and lift the girt bar inboard.

To remove the pack assembly, remove the screws and lift the assembly from the hooks. Disconnect the electrical connector and put a blanking cap on it. Remove the sliders from the girt bar and pull the girt bar out of the girt assembly. Reinstall the sliders and put the girt bar into the locking plates. Lower the door and make sure that the door fittings engage with the sliders. Close the door, put the emergency control handle in the DISARMED position and install the safety pin.

Open the door and check that the girt bar is attached to the door structure.

Close the door.

INSTALLATION SET-UP

As the removal has been done, the ground service network is already energized and the circuit breakers are open, safetied and tagged.

The emergency control handle and the percussion lever are still disarmed with their safety pins installed.

The transport safety pin is also installed.

Further, make sure that the electrical harness is attached to the release rail and correctly folded in the pocket.

Check that the door damper and emergency operating cylinder has the correct pressure.

Also make sure that the pressure gage shows the correct pressure, that the light activation pin is fully engaged and that the release pins are fully engaged so that you can see the balls.

INSTALLATION

With the emergency control handle in the ARMED position, lift the door and move the sliders out of the locking plates to remove the girt bar. Lock the door and remove the sliders from the girt bar and put the girt bar into the girt assembly. Then, re-install the sliders.

To install the escape slide pack assembly, connect the electrical connector, lift the pack assembly on the hooks and install the screws. Then lift the door and move the sliders into the locking plates. Lower the door and make sure that the door fittings engage correctly with the sliders. Close and lock the door.

INSTALLATION CHECK

Move the emergency control handle several times and check that there is no resistance. Safety the handle in the DISARMED position and install the safety pin.

Then, open the door and make sure that the girt is correctly folded and that the girt bar is correctly attached to the door structure.

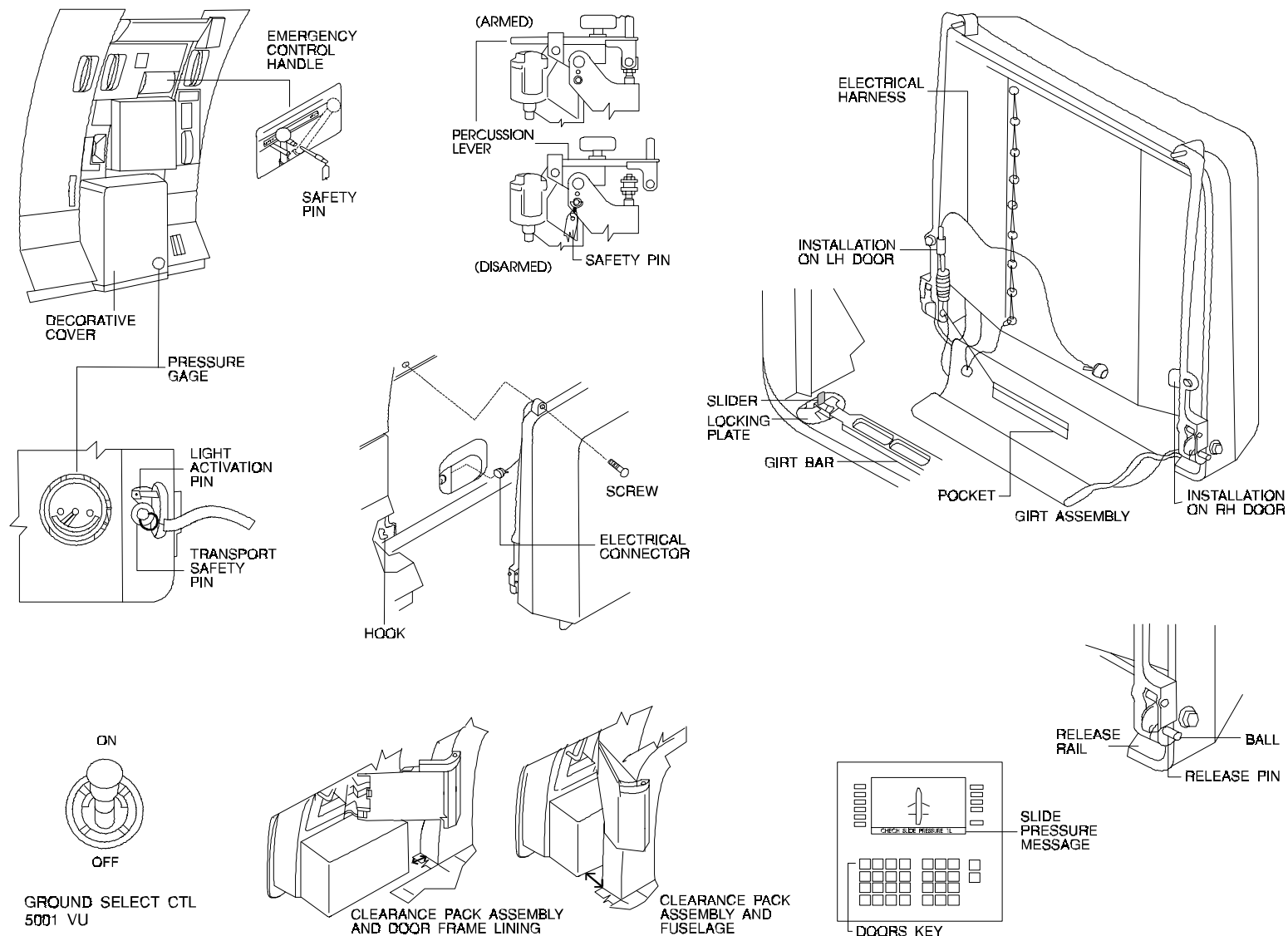
Also make sure that there is sufficient clearance between the pack assembly and the door frame lining and between the pack assembly and the fuselage. Check that the release pins are correctly engaged in the release rail so that you can see the ball.

Finally remove the safety clips and tags and close the corresponding circuit breakers.

CLOSE-UP

Do the test of the escape facilities pressure control monitoring on the PIM. Arm the slide pack assembly by removing the transport safety pin.

Arm the percussion lever of the door damper and emergency operating cylinder. Finally reinstall the decorative cover and de-energize the ground service network.



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STUDENT NOTES

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AVIONICS COMPARTMENT SERVICE LADDER

General
Door 811
Strap
Locking Lever
Locking Device

GENERAL

The avionics compartment service ladder can be used to enter and leave the aircraft while performing maintenance procedures.

In case of an emergency on ground, the flight crew can use the service ladder when they leave the aircraft through the avionics compartment.

DOOR 811

In the avionics compartment, first open the floor panel which covers the avionics compartment access door handle. (A coin may be necessary to open the lock.)

To open the access door, lift the handle and pull the door into the compartment until it is latched onto the upper stop.

STRAP

Remove the elastic strap which attaches the ladder assembly.

As there is a lot of tension on the strap, the easiest way is to pull the strap with one hand in the middle while pushing back the ladder with your knee.

LOCKING LEVER

Lift the lever, located aft of the lower rung of the aft section of the ladder, to unlock the ladder assembly.

Then, swing the ladder towards the opening.

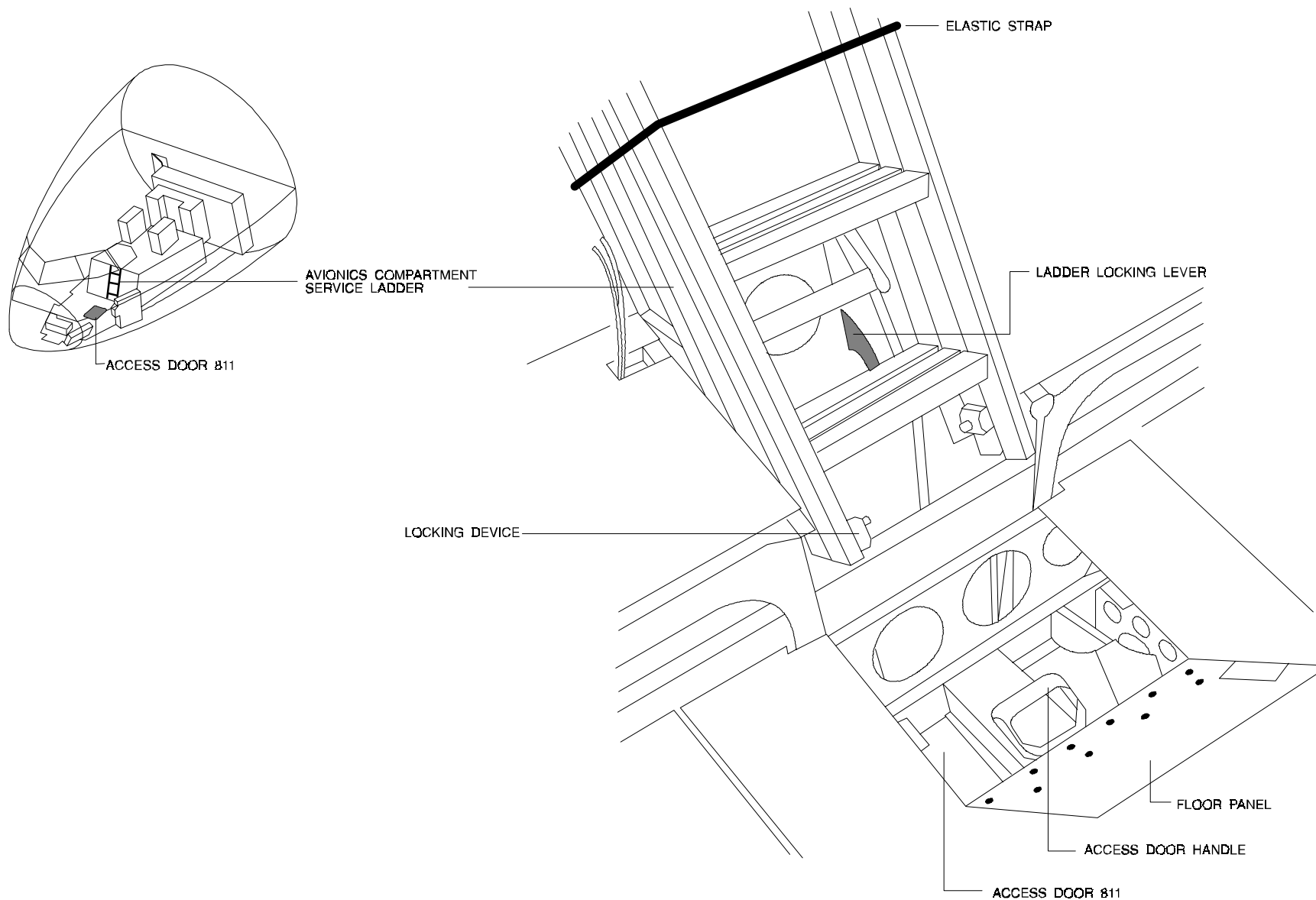
LOCKING DEVICE

To extend the ladder, release the locking device of the forward section by pulling the orange handle forward. Move the forward section down until it latches.

Then, release the locking device of the intermediate section and move this section down until it latches.

Finally, release the locking device of the aft section of the ladder and move it down until the ladder touches the ground.

To retract the service ladder, perform all steps in reverse order.



STUDENT NOTES:

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LOWER DECK CARGO COMPARTMENT PRESENTATION

Forward cargo compartment
Aft cargo compartment
Bulk cargo compartment
Access

FORWARD CARGO COMPARTMENT

The forward lower hold is referred to as forward cargo compartments 1 and 2.

The forward lower hold extends from frame C20 to frame C39.2.

It is equipped with a semi automatic electrically powered cargo loading system and can accommodate cargo in containers or on pallets.

AFT CARGO COMPARTMENT

The aft lower hold is referred to as aft cargo compartments 3 and 4.

It is separated from the bulk compartment by a divider net.

The aft lower hold extends from frame C53.2 to frame C65.

It is equipped with a semi automatic electrically powered cargo loading system and can accommodate cargo in containers or on pallets.

BULK CARGO COMPARTMENT

The bulk cargo compartment is referred to as cargo compartment 5.

It is designed for transportation of bulk cargo, passenger luggage and live animals.

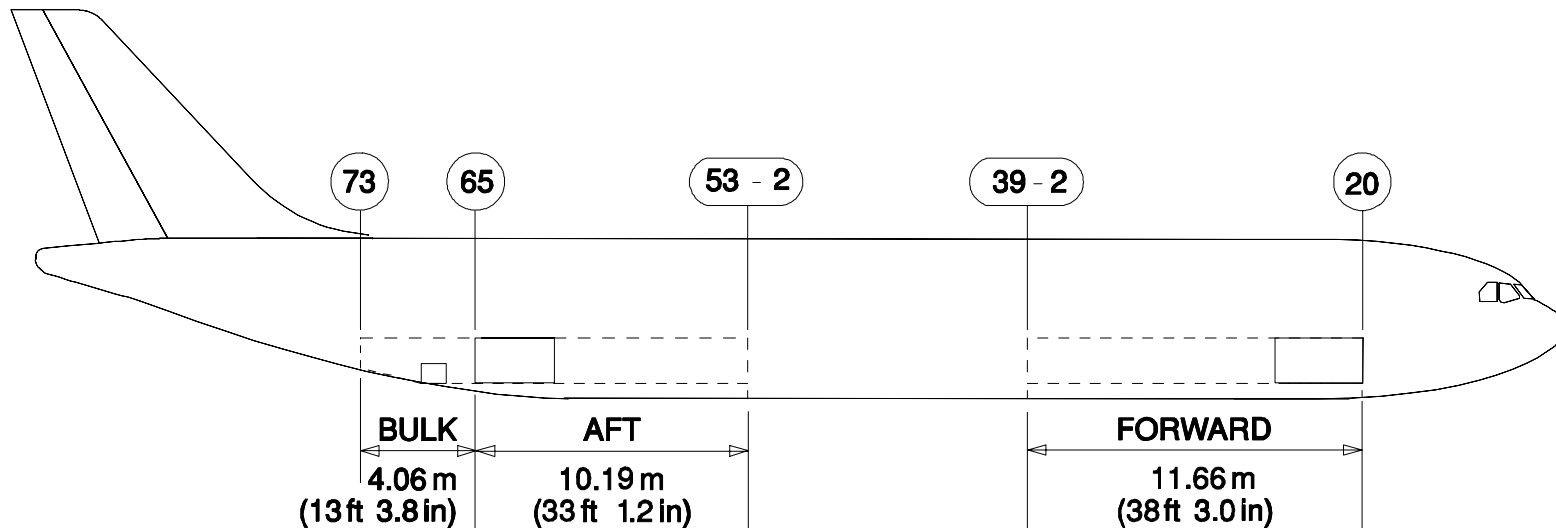
This compartment extends from frame C65 to frame C73. A removable net separates it from the aft cargo. This net is equipped with tensioners to prevent sagging in service. Large packages can be loaded in the bulk compartment through the aft cargo compartment door.

Note : you can transport live animals in the bulk cargo only if it is heated.

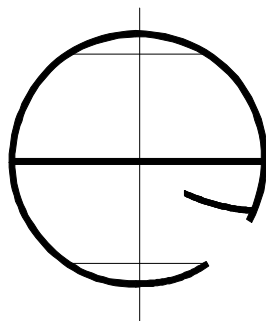
ACCESS

Access to the forward, aft and bulk cargo compartments is gained through doors located on the righthand side of the fuselage.

Two hydraulically operated outwards opening doors provide access to the forward and aft cargo compartments, while the bulk cargo is equipped with one manually operated door which opens inwards.

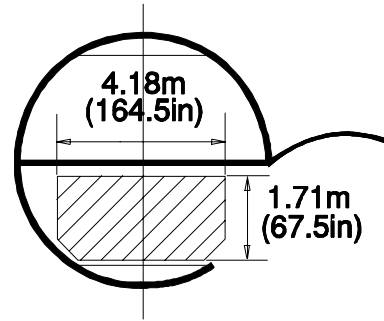


BULK CARGO



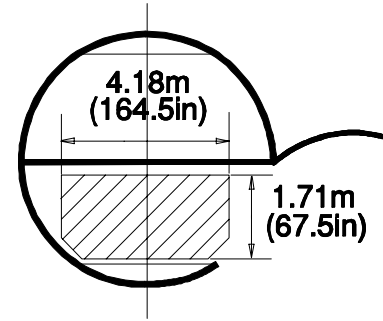
DOOR
clear width x clear height
0.95m x 1.07m
(37.4in x 42.1in)

AFT CARGO



DOOR
clear width x clear height
2.72m x 1.68m
(107.1in x 66.1in)

FWD CARGO



DOOR
clear width x clear height
2.70m x 1.70m
(106.3in x 66.8in)

STUDENT NOTES

LOWER DECK CARGO COMPARTMENT INTERIOR

- General
- Forward cargo compartment
- Aft cargo compartment
- Bulk cargo compartment
- Compartment drainage
- Safety precautions

GENERAL

The inside of the cargo compartments is fitted with floor and ceiling panels, side linings and partition walls.

All the linings are sealed to prevent leakage of water and spilt fluids.

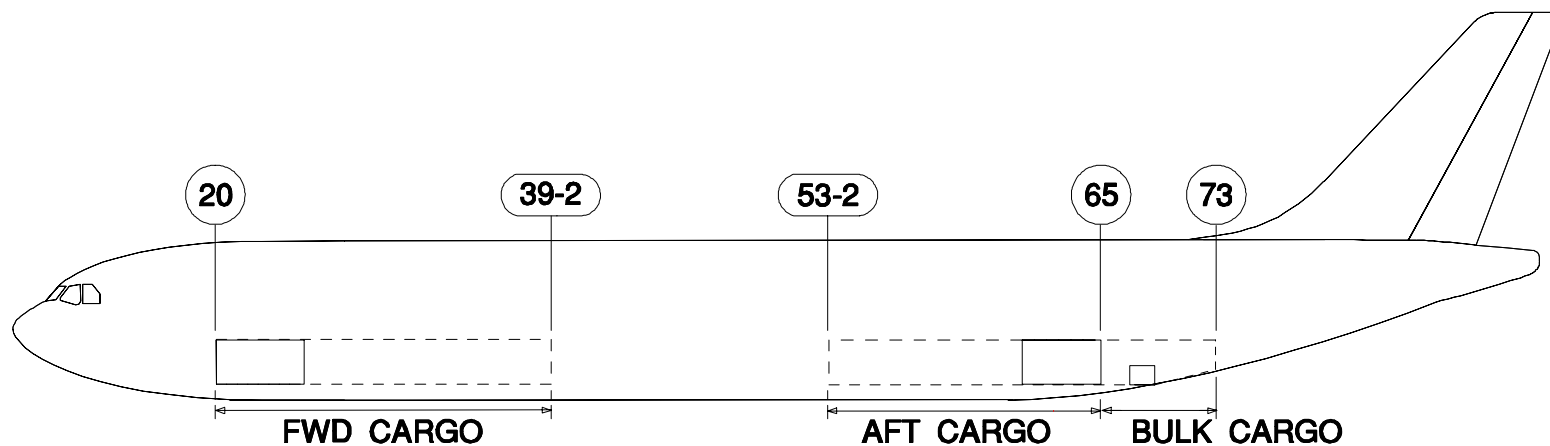
Rapid decompression panels (blow in, blow out panels) are installed in the linings to prevent damage from differential pressure during climb and descent.

Access panels are installed for the maintenance of the components located behind the linings.

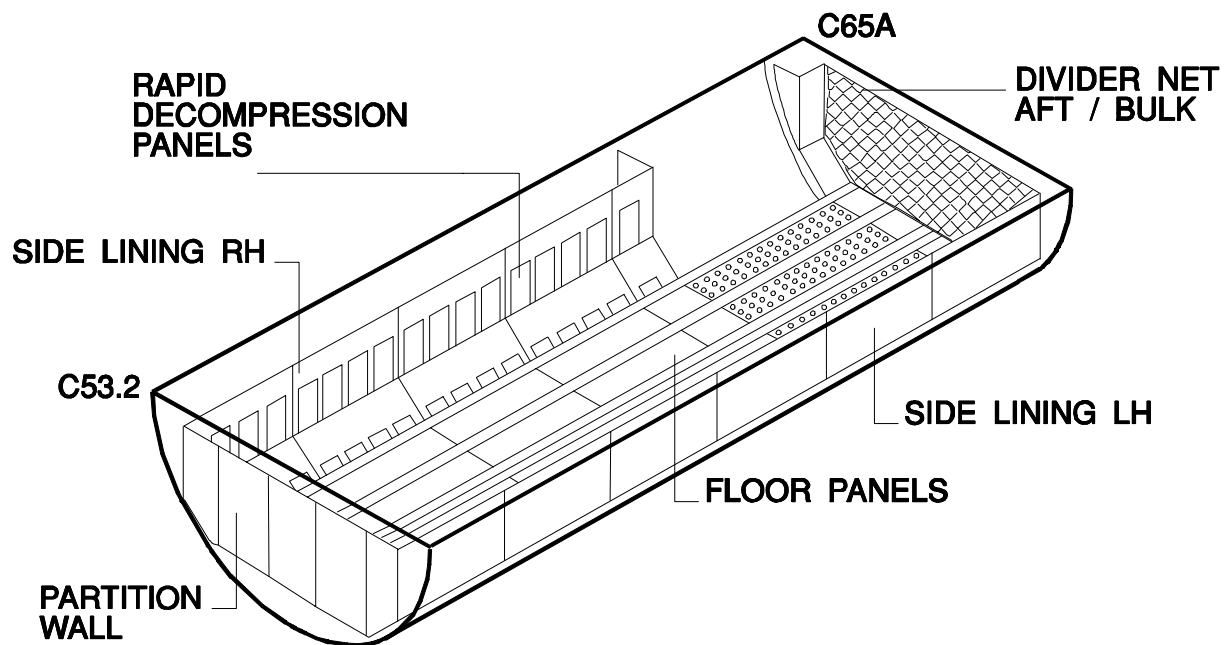
The bulk cargo compartment is equipped with nets.

The nets are installed to separate the bulk and aft compartments.

All the compartments, (forward, aft and bulk) are equipped with a drain system.



GENERAL VIEW OF THE AFT CARGO COMPARTMENT



FQW4200 GE Metric

FORWARD CARGO COMPARTMENT

Floor panels

The floor panels are installed in the areas between the roller tracks.
The floor panels are of a sandwich construction and equipped with a non slip surface.
The door entrance area is equipped with a ball mat.

Ceiling panels

The ceiling panels are attached to the upper structure.
They are of a sandwich construction and incorporate cut-outs for the lights and smoke detectors.

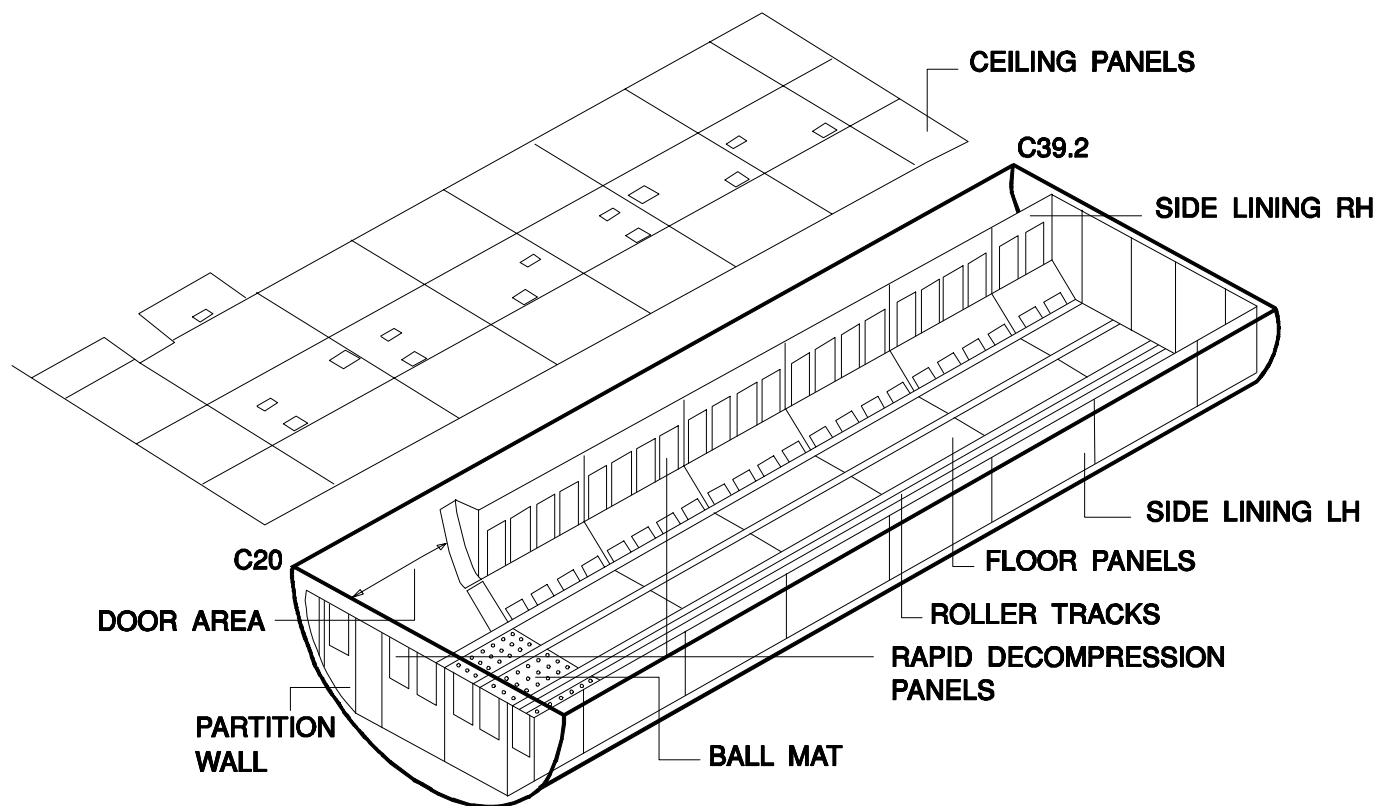
Side linings

The side linings are made of flame-resistant synthetic material.
They keep smoke in the compartment and prevent damage to the electrical wires should a fire occur.
The side linings are attached to the compartment structure by quick-release fasteners.

Partition walls

The forward cargo compartment is fitted with two partition walls; one located at frame C20, the other one at frame C39.2.
The partition walls, which are of honeycomb construction, are attached to the ceiling crossbeams and to the floor.
The partition wall at C20 is equipped with an access door, installed on the RH side of the partition, which opens into the avionics compartment.

FORWARD CARGO COMPARTMENT INTERIOR



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AFT CARGO COMPARTMENT

The aft cargo compartment interior components are similar to those of the forward compartment except the rear partition wall, which is replaced by a separation net.

Floor panels

The floor panels are installed in the areas between the roller tracks.
The floor panels are of a sandwich construction and are equipped with a non slip surface.
The entrance area is equipped with a ball mat.

Ceiling panels

The ceiling panels are attached to the upper structure.
The ceiling panels are of a sandwich construction.
They incorporate cut-outs for the lights and smoke detectors.

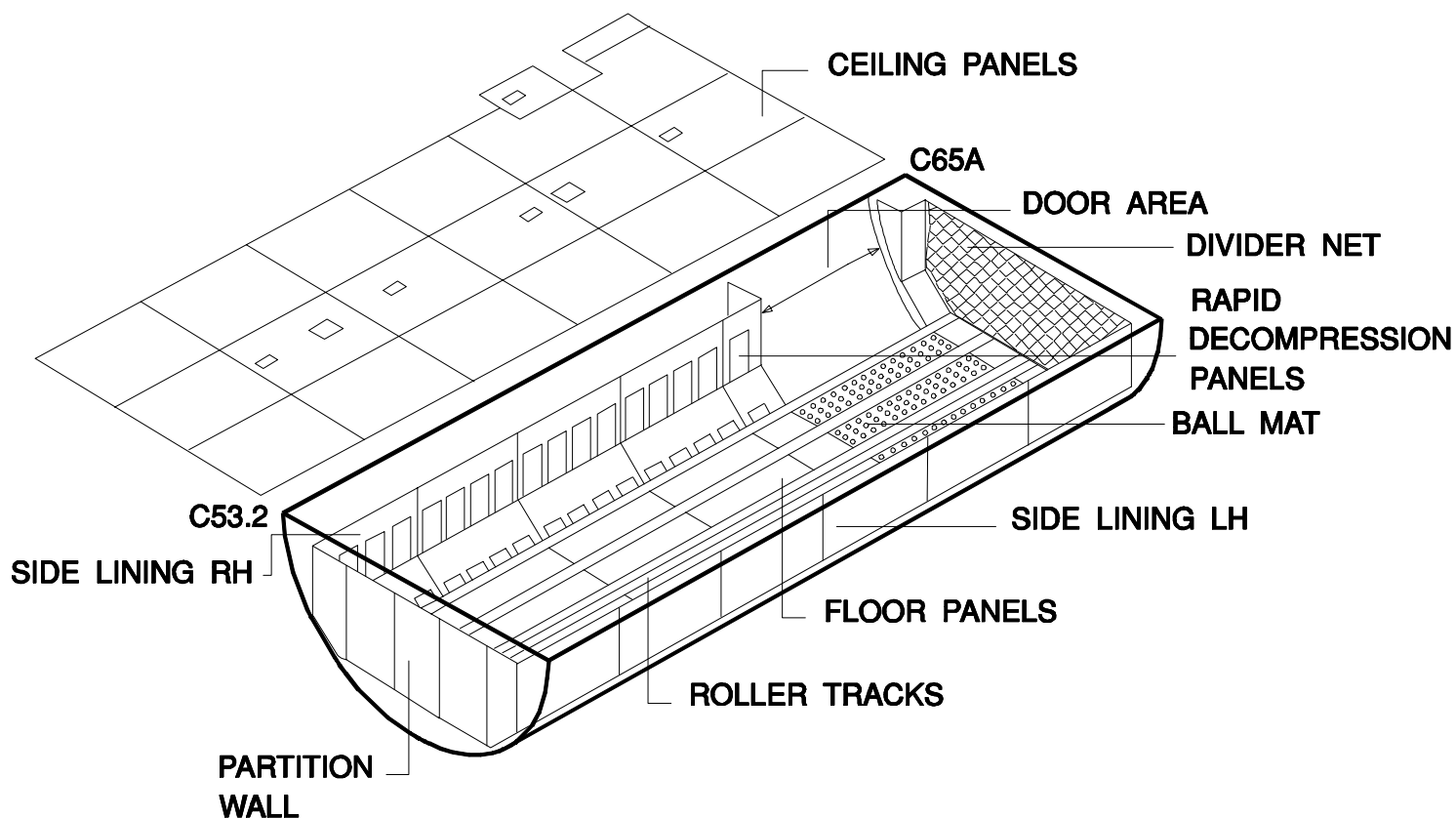
Side linings

The side linings are made of flame resistant synthetic material.
They keep smoke in the compartment and prevent damage to the fuel lines and electrical wires in case of fire.
The side linings are attached to the compartment structure by quick-release fasteners.

Partition wall

The aft compartment is equipped with one partition wall located at frame C53.2.
The partition wall is of honeycomb construction.
The partition wall is attached to the ceiling crossbeams and to the floor.
A net divides the aft and bulk compartments at frame C65A.

AFT CARGO COMPARTMENT INTERIOR



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BULK CARGO COMPARTMENT

Floor panels

The floor panels are of a sandwich construction.
They are equipped with a non slip surface.
The floor panels are attached by screws to the floor structure.

Ceiling panels

The ceiling panels are of a sandwich construction.
They are equipped with cut-outs for the lights and smoke detector cavity.
The ceiling panels are attached to the upper structure.

Side linings

The side linings are made of flame-resistant synthetic material.
They keep smoke in the compartment and prevent damage to the fuel lines and electrical wires in case of fire.
The side linings are attached to the compartment structure by quick-release fasteners.

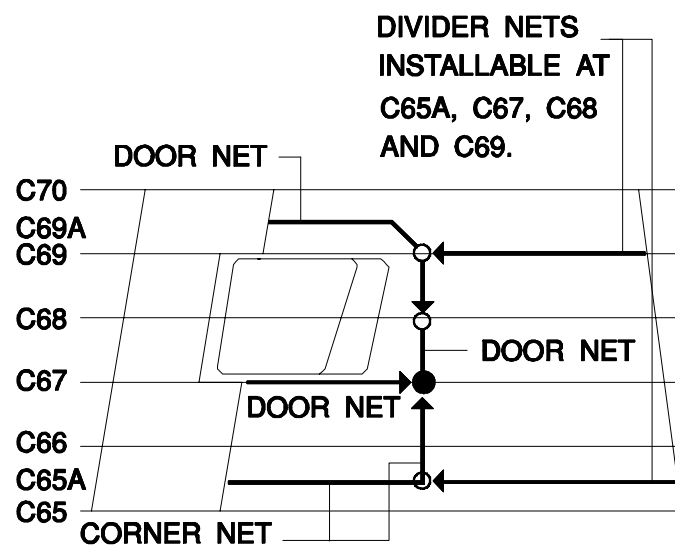
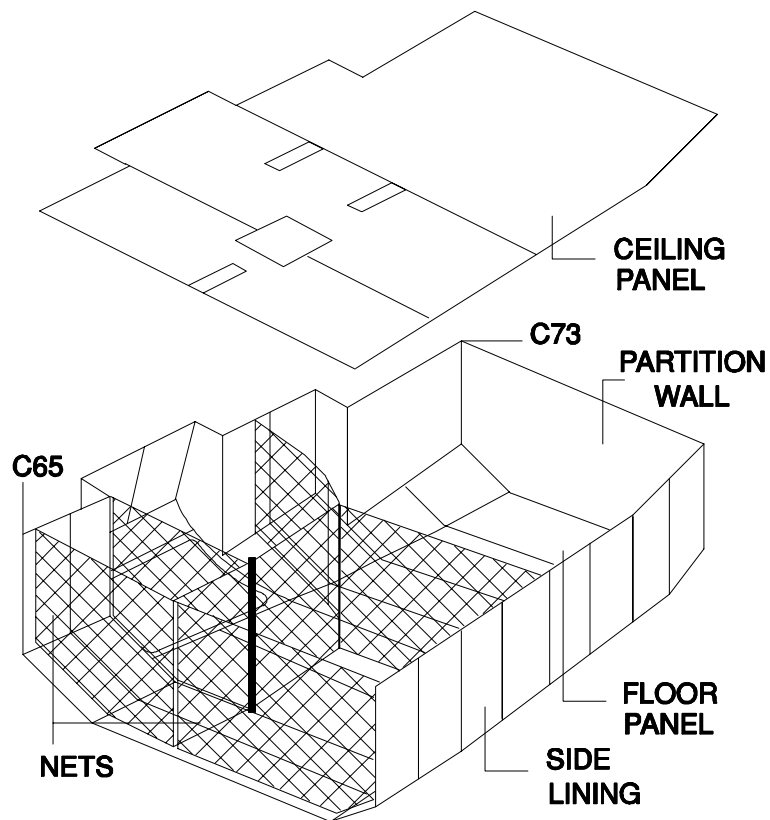
Partition wall

One partition wall is installed at frame C73.
The partition wall is of honeycomb construction and is attached to the ceiling crossbeams and to the floor.
An access door located on the RH side of the partition provides access to the aft cabin underfloor compartment.

Nets

The bulk cargo compartment is subdivided into sections by nets.
These sections are sections 51, 52, 53 and the door area.
Fittings attach the nets to attachment points installed in the compartment.

BULK CARGO COMPARTMENT INTERIOR

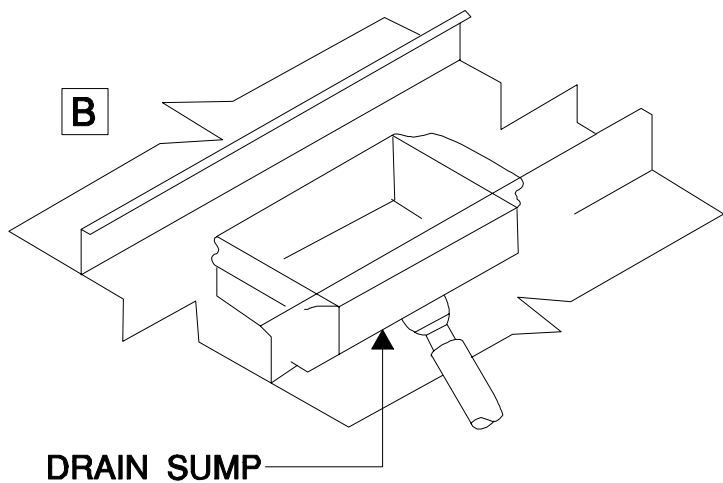
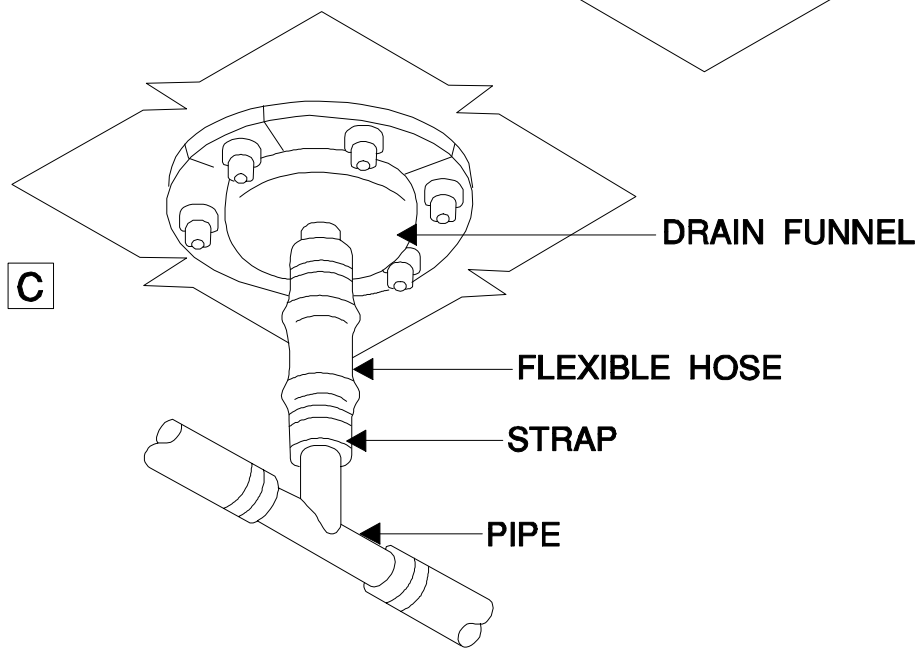
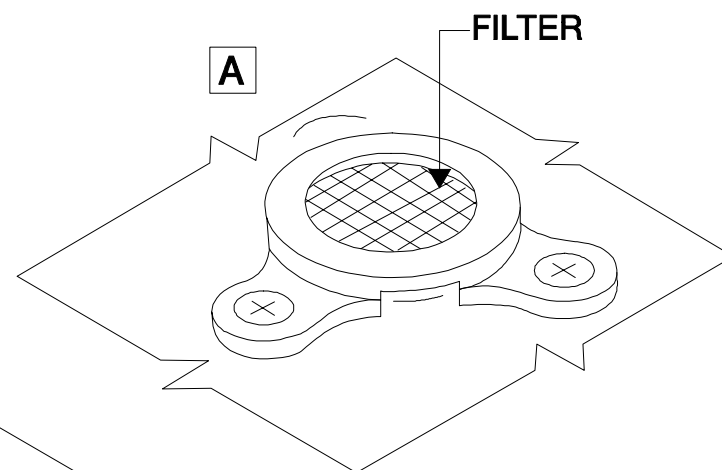
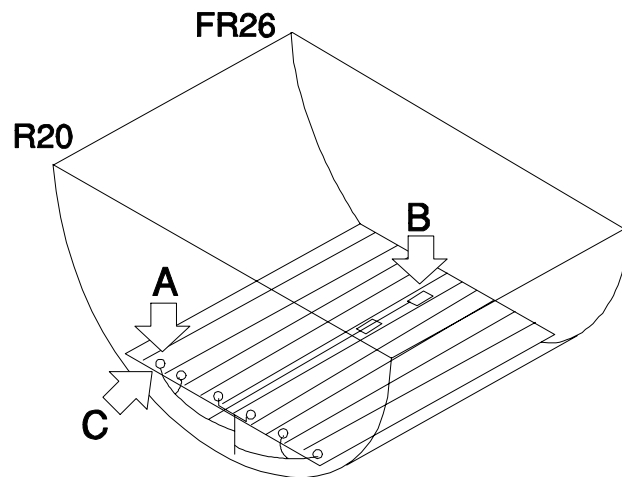


CARGO COMPARTMENT DRAINAGE

The forward, aft and bulk cargo compartments are equipped with a drainage system.

The drainage system consists of screens, drain funnels, flexible hoses and pipes.

The system collects water and spilt liquids and drains them from the cargo compartment into the fuselage bilge.



FQW4200 GE Metric

SAFETY PRECAUTIONS

- ensure the integrity of the cargo compartment linings for fire protection.

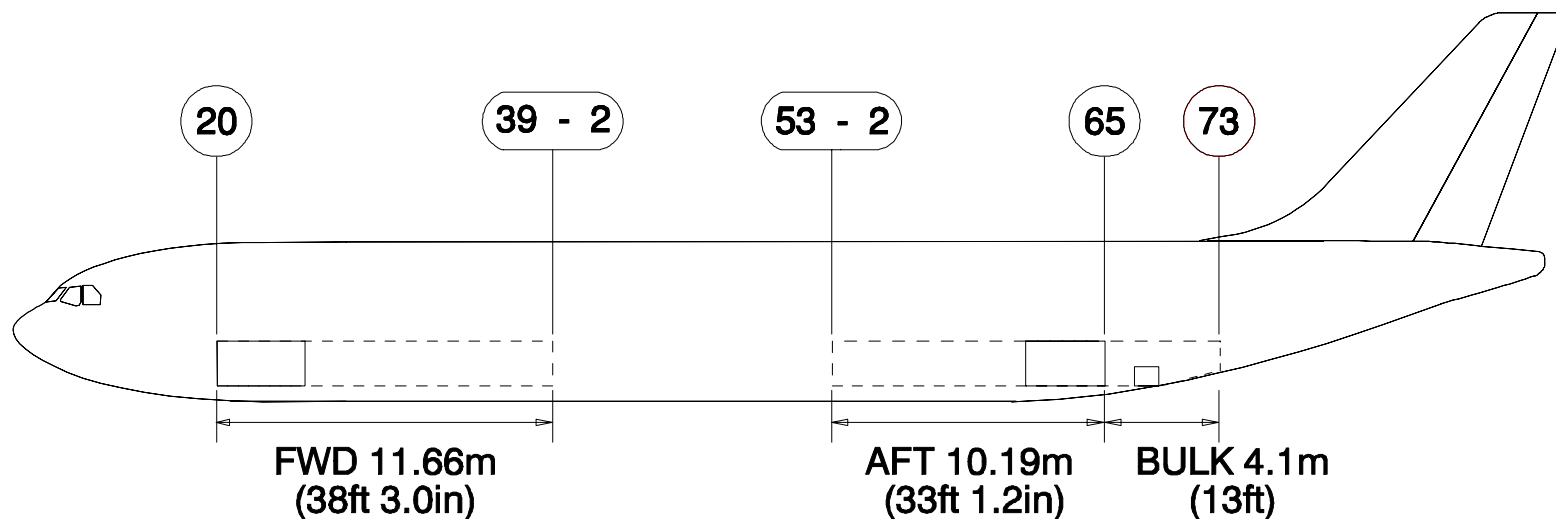
LOWER DECK CARGO COMPARTMENT CAPABILITIES

- General
- Forward cargo compartment
- Aft cargo compartment
- Bulk cargo compartment

GENERAL

The forward and aft cargo compartments can accomodate cargo in containers or on pallets of the same standard as those used on the other modern wide-bodied aircrafts.

The lower cargo compartment 5 is provided for the transport of bulk cargo (goods, bagage, mail) and for the special transport of animals.



FORWARD cargo usable volume

Based on LD3 containers	62.6 m ³ 2212 ft ³
Based on pallets "96x125" in	46 m ³ 1628 ft ³
Based on pallets "88x125" in	42.1 m ³ 1488 ft ³

AFT cargo usable volume

Based on LD3 containers	53.6 m ³ 1896 ft ³
Based on pallets "96x125" in	46 m ³ 1628 ft ³
Based on pallets "88x125" in	42.1 m ³ 1488 ft ³

BULK cargo usable volume

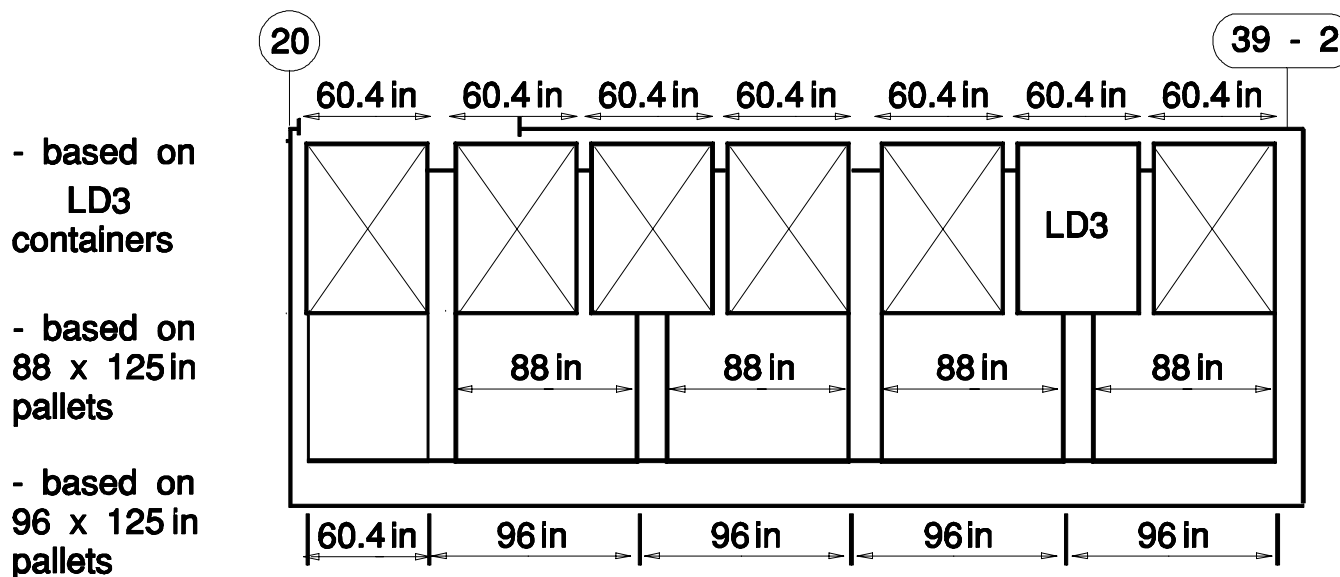
19.68 m³
695 ft³

FORWARD CARGO COMPARTMENT

Single type Unit Load Devices (ULDs) can be loaded in the forward cargo compartment as shown on the related table.

A mixed loading of the mentioned ULDs is possible:

- 6 half size containers instead of 2 pallets 88 x 125 / 96 x 125 inches
or 88 x 125 / 88 x 125 inches.

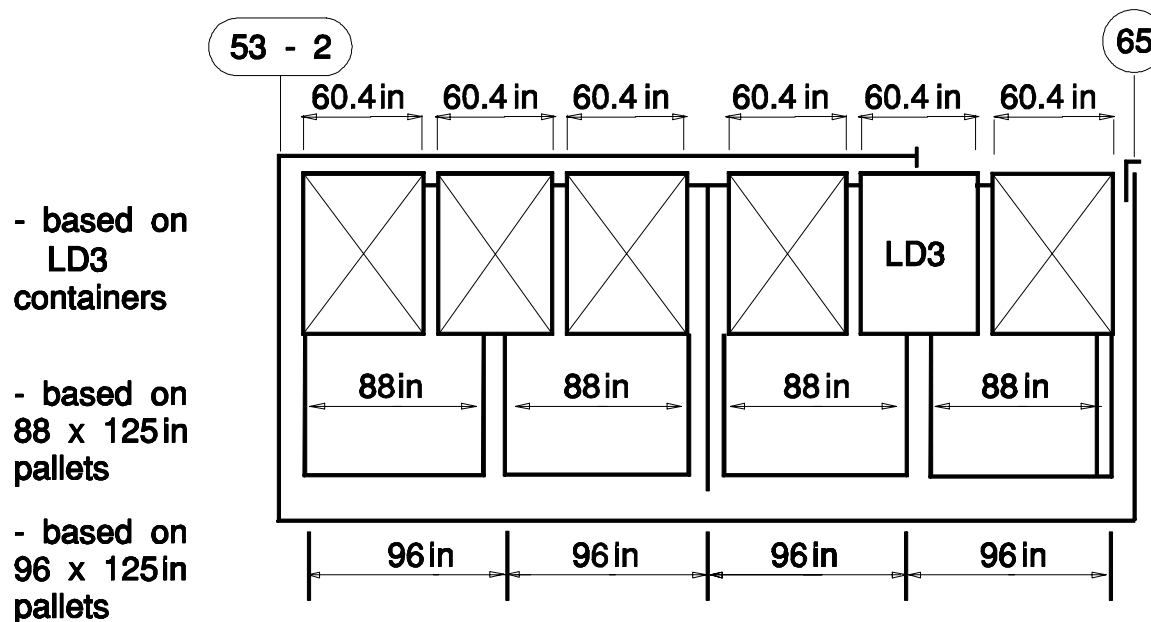


ULD		Allowable (lbs)	MGW (kg)	Max N°
Half-size	LD3	3500	1587	14
Half-size	LD1	3500	1587	7
"60.4 x 61.5" in		3500	1587	14
Full-size	LD6	7000	3174	7
"60.4 x 125" in		7000	3174	7
"88 x 125" in		10200	4626	4
"96 x 125" in		11250	5103	4

AFT CARGO COMPARTMENT

The aft cargo can accommodate single type unit load devices as seen from the associated table.

A mixed loading of the related ULDs can be performed in a way that an optimum mixing of pallets and containers can be achieved with a minimum loss of volume.

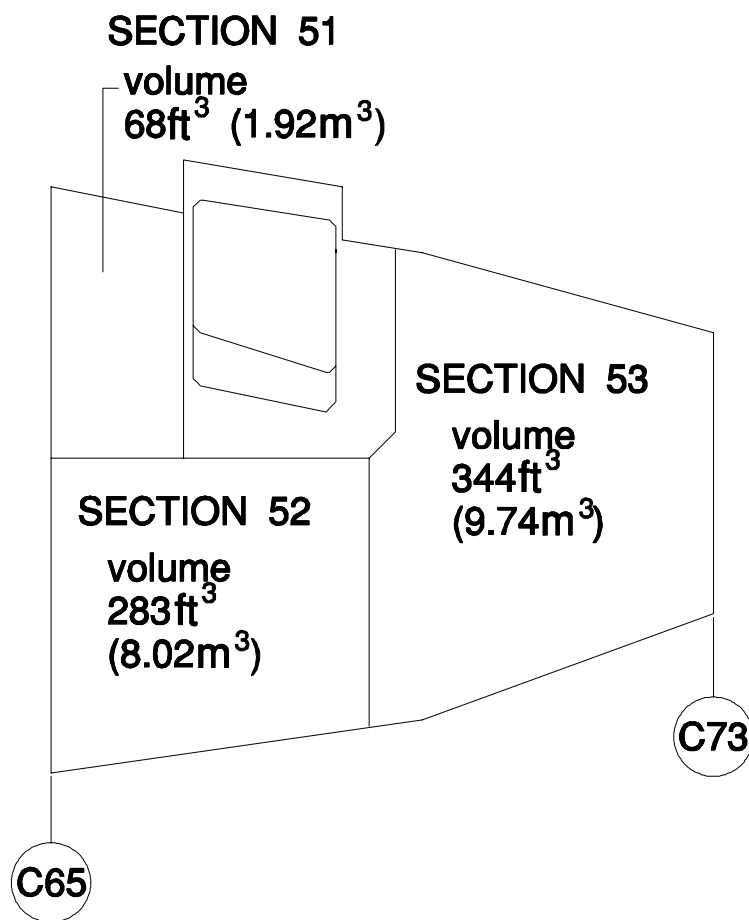


ULD		Allowable MGW		Max N°
		(lbs)	(kg)	
Half-size	LD3	3500	1587	12
Half-size	LD1	3500	1587	6
"60.4 x 61.5" in		3500	1587	12
Full-size	LD6	7000	3174	6
"60.4 x 125" in		7000	3174	6
"88 x 125" in		10200	4626	4
"96 x 125" in		11250	5103	4

BULK CARGO COMPARTMENT

This compartment is designed for bulk cargo and transportation of livestock. There is an optional possibility of loading an additional LD3 container in the bulk compartment.

The compartment is subdivided into three sections separated by nets which prevent shifting of the cargo and protect the door and the structure.



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STUDENT NOTES

FQW4200 GE Metric

LOWER DECK CARGO LOADING SYSTEM PRESENTATION

Logic
Latching Components
Guiding Components
Transport Components

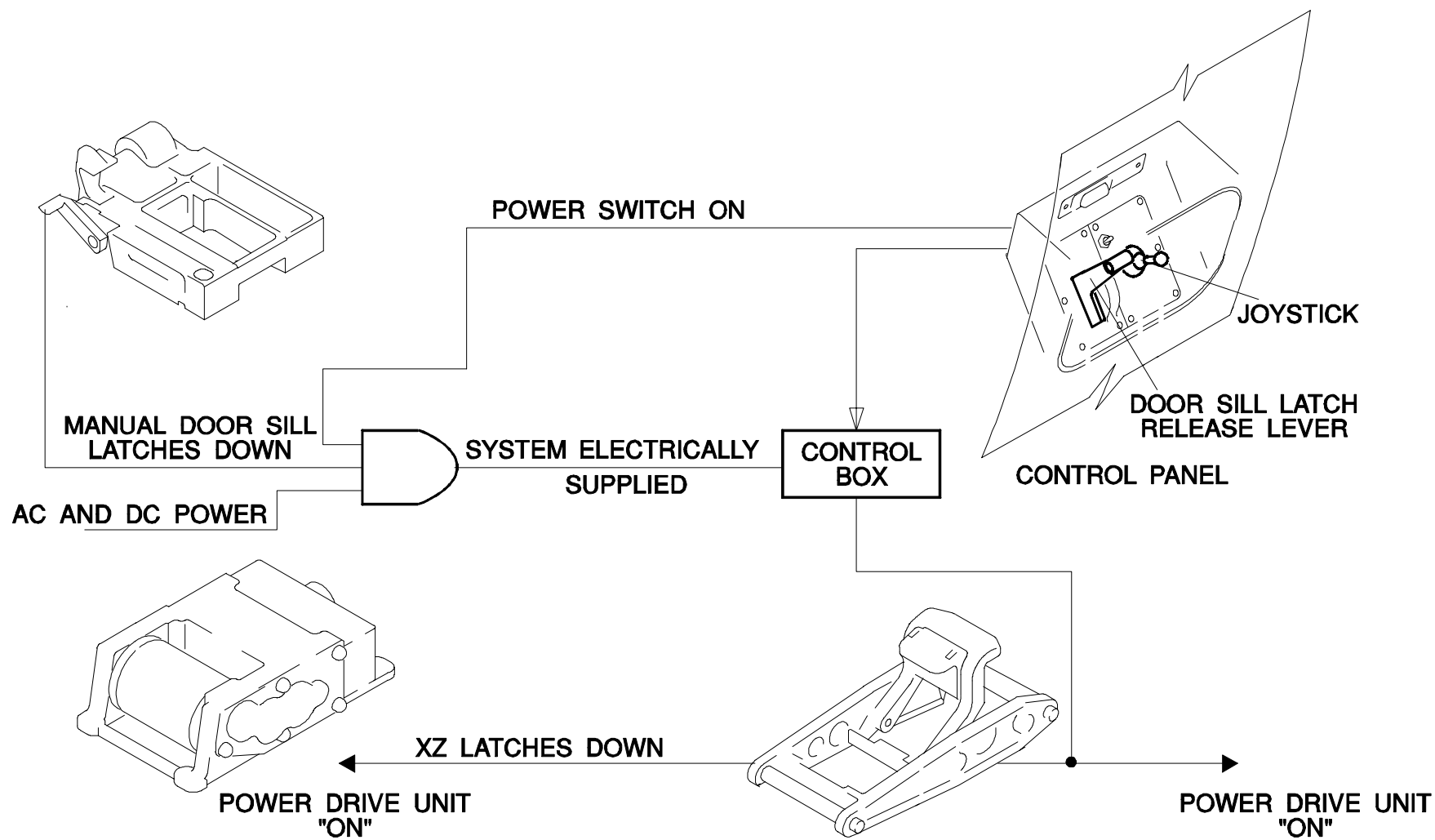
LOGIC

The semi-automatic cargo loading systems in the forward and aft compartments are almost identical ; they have the same components and operate similarly.

Each FORWARD and AFT cargo loading system is controlled from a control panel installed adjacent to the compartment door in the outer skin of the aircraft.

With no electrical power available, it is possible to load or unload the Unit Loading Devices (ULD) manually.

Electrical impulses are fed from the control panel via the control box to the PDUs, provided the corresponding XZ latches are down.



FQW4200 GE Metric

LATCHING COMPONENTS

DOOR SILL LATCHES

Door sill latches are provided in the door sills to lock the ULDs in the YZ direction.

The door sill latches incorporate two different types of latches :

- a manually operated YZ-latch
- an overridable Y-latch.

When unloading containers, the door sill latch release lever must be operated for each container to lower the Y-latch.

MANUALLY OPERATED AND OVERRIDABLE YZ-LATCHES

Overridable YZ-latches are installed on the aircraft centerline in both compartments.

The manually operated YZ-latch must be in the down position for the cargo loading system to operate.

YZ single latches hold the half width pallets and containers in the lateral and vertical directions.

The overridable YZ-latches are lowered against spring pressure when a full width pallet is moved over them.

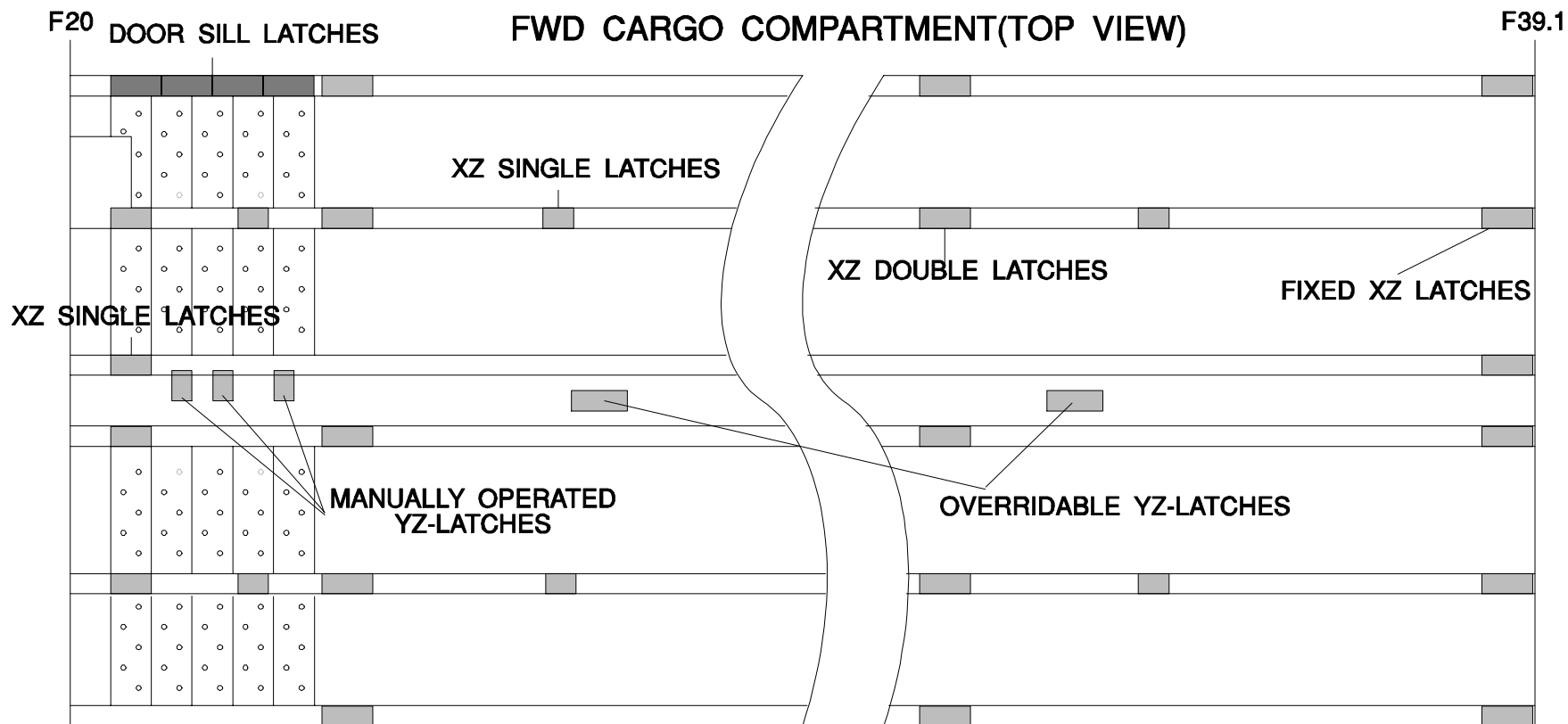
XZ SINGLE, DOUBLE AND FIXED LATCHES

The XZ-latches hold the pallets and containers in the longitudinal and vertical directions.

The XZ-latches are installed in the roller tracks in the FWD and AFT compartments and are manually operated.

When the XZ-latches are lifted, the Power Drive Units behind this latch row are turned off.

Fixed XZ-latches (endstops) are also installed in the roller tracks.



FQW4200 GE Metric

GUIDING COMPONENTS

ENTRANCE GUIDES

Entrance guides are installed at the door sills of the FORWARD and AFT compartments.

The entrance guides allow proper guiding of the Unit Loading Devices and protect the door frame.

FIXED Y- GUIDES

A row of four fixed Y-guides is installed in the rear end of the ball mat area in the AFT compartment.

Each Y-guide incorporates a vertical guide roller and a Z-nose for locking of the ULDs in the vertical direction.

XY-GUIDES

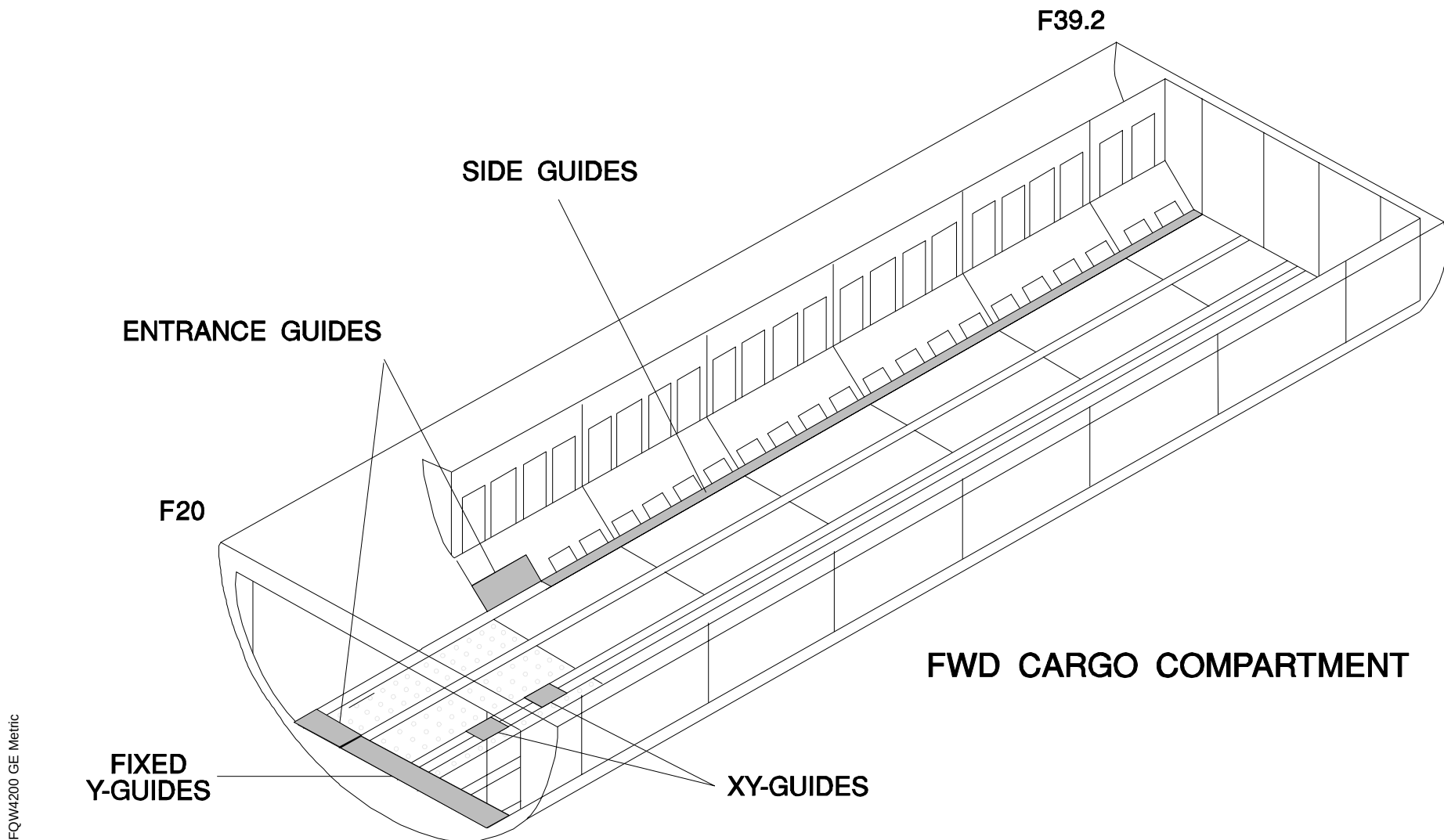
XY-guides are installed on the aircraft centerline.
They are used to align half width containers.

FWD : two one-way overridable manual retractable XY-guides
AFT : one one-way overridable manual retractable XY-guide.

SIDES GUIDES OR CONTINUOUS SIDE GUIDE

For the smooth movement of ULDs, side guides are fitted between the fixed YZ-latches.

The AFT cargo is fitted with lateral continuous side guides.



FQW4200 GE Metric

TRANSPORT COMPONENTS

BALL MAT

The ball mats are installed in the door area between the roller tracks in the FORWARD and AFT compartments.

The ball mats extend across the full length of the FWD and AFT compartments.

They are used to change the direction of the ULDs during loading and unloading operations.

POWER DRIVE UNITS

Power Drive Units (PDUs) are installed for movement of the ULDs in the lateral and longitudinal movement.

PDUs have cam-operated self lifting rollers.

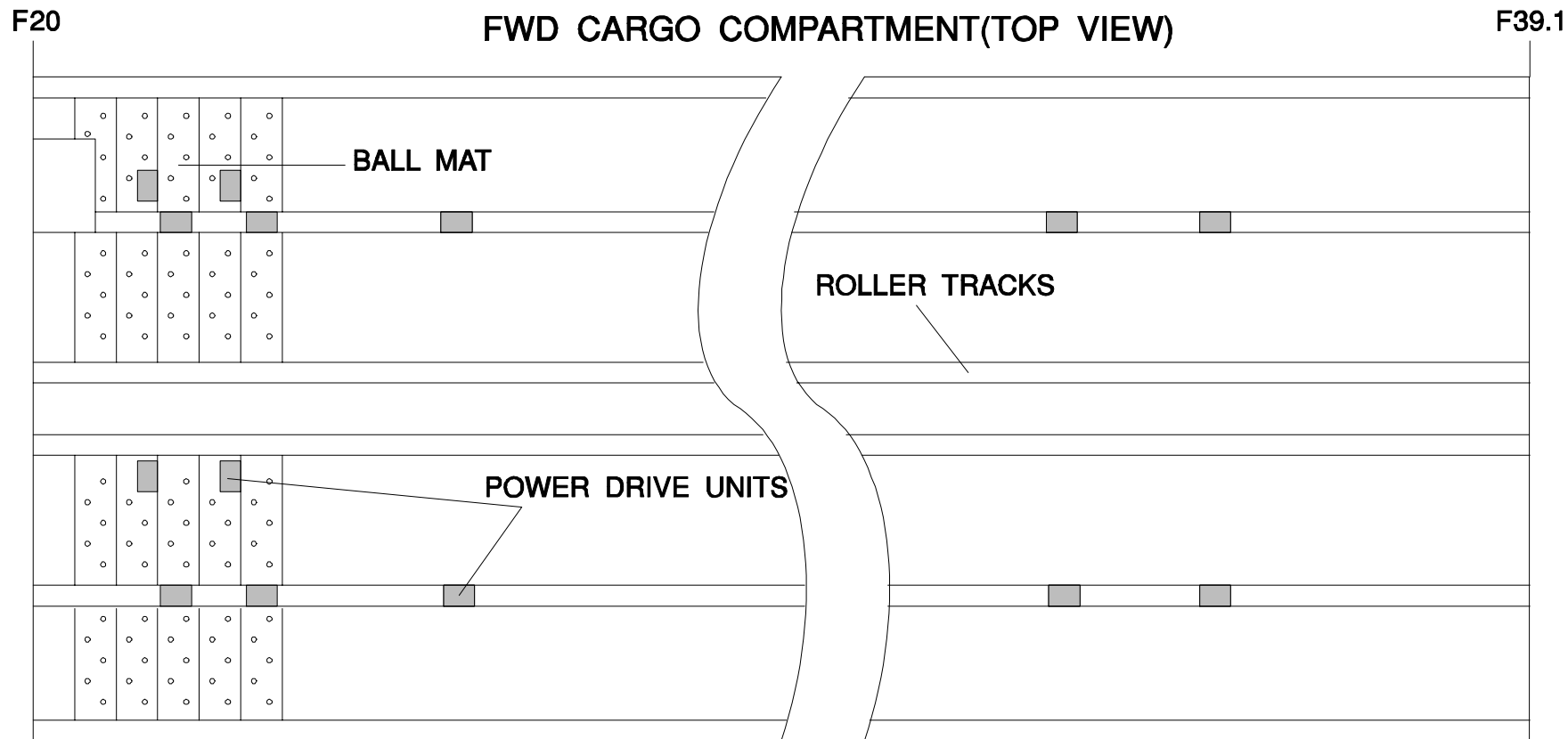
The PDUs (Power Drive Units) for lateral movement are installed in the ball mat area, those for longitudinal movement are installed in the roller tracks.

ROLLER TRACKS

Six roller tracks are installed along the full width of the FORWARD and AFT cargo compartments.

The braking rollers prevent an inadvertent forward movement of the ULDs when the XZ-latches are not raised due to the nosedown attitude of the aircraft.

The roller tracks are part of the compartment floor structure. They incorporate free-running rollers and braking rollers on which the ULDs are moved in the compartment.



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STUDENT NOTES:

FQW4200 GE Metric

CONTROL PANEL DESCRIPTION AND OPERATION

FWD Cargo Control Panel
AFT Cargo Control Panel

FQW4200 GE Metric

Each cargo loading system can be operated by one person, by means of its dedicated control panel.

The control panels are installed in a recess adjacent to the cargo compartment door, and they are protected by an access door.

FWD CARGO CONTROL PANEL

The panel light illuminates the control panel when the cargo loading system is electrically supplied.

The power switch is used to energize or de-energize the cargo loading system.

When ON, the POWER switch energizes the cargo loading system.

The joystick controls the movements of the ULDs to and from their loading positions in the cargo compartment.

The joystick has five positions, but only one can be selected at a time.

JOYSTICK POSITIONS

IN: Transverse PDUs operate in load direction.

OUT: Transverse PDUs operate in unload direction.

FWD: Longitudinal PDUs operate in forward direction.

AFT: Longitudinal PDUs operate in aft direction.

SPLIT: Left transverse PDUs operate in load direction and right transverse PDUs operate in unload direction.

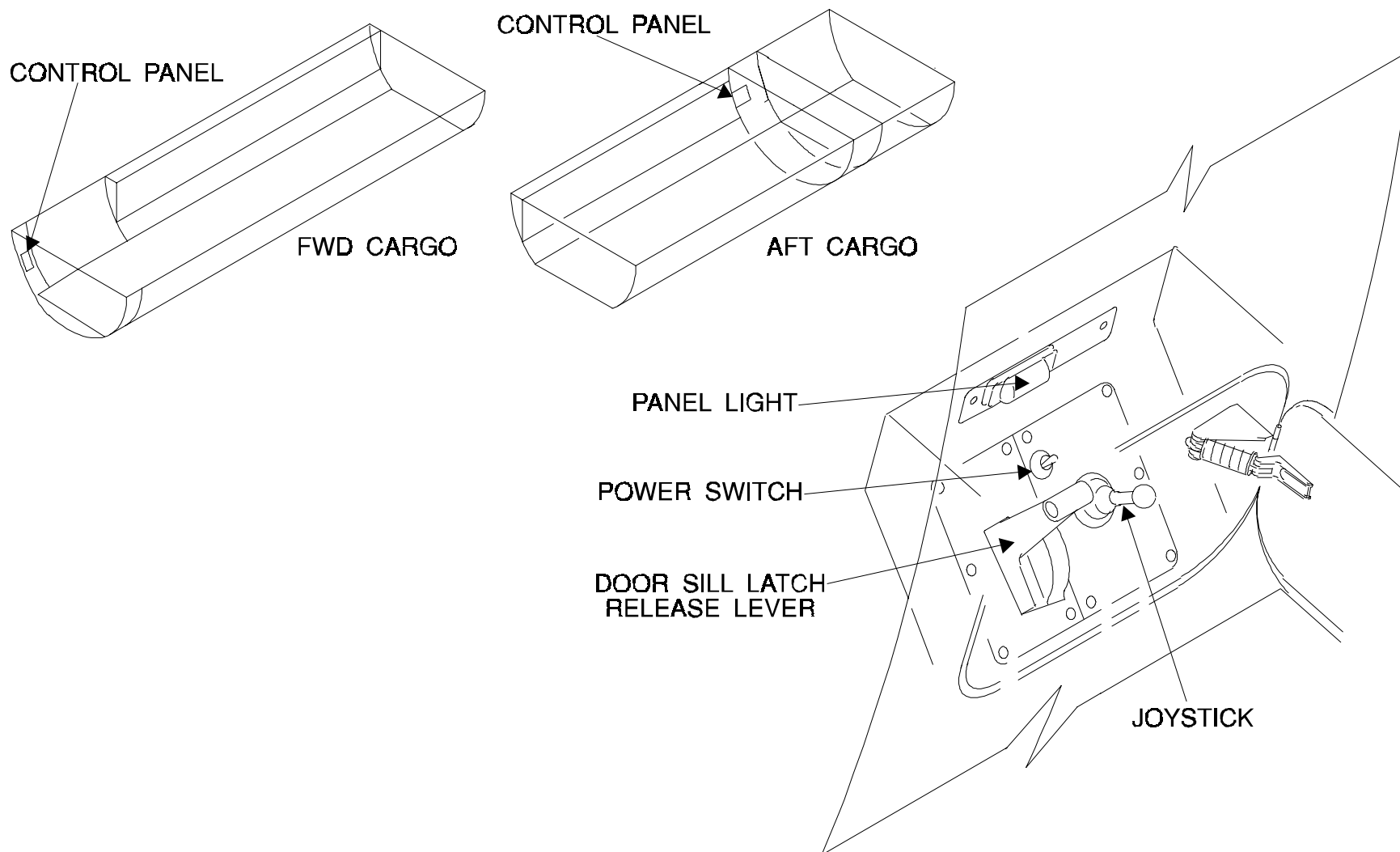
To select SPLIT position, the joystick has to be pushed down when in NEUTRAL position.

The SPLIT function is used only when half-width containers are loaded in pairs.

When released, the joystick is springloaded in NEUTRAL position.

The release lever is used during the unloading operation of the Unit Loading Devices.

When released, the lever and the y-latches lift slowly to the locked position, provided there is no ULD on top of the y-latches.



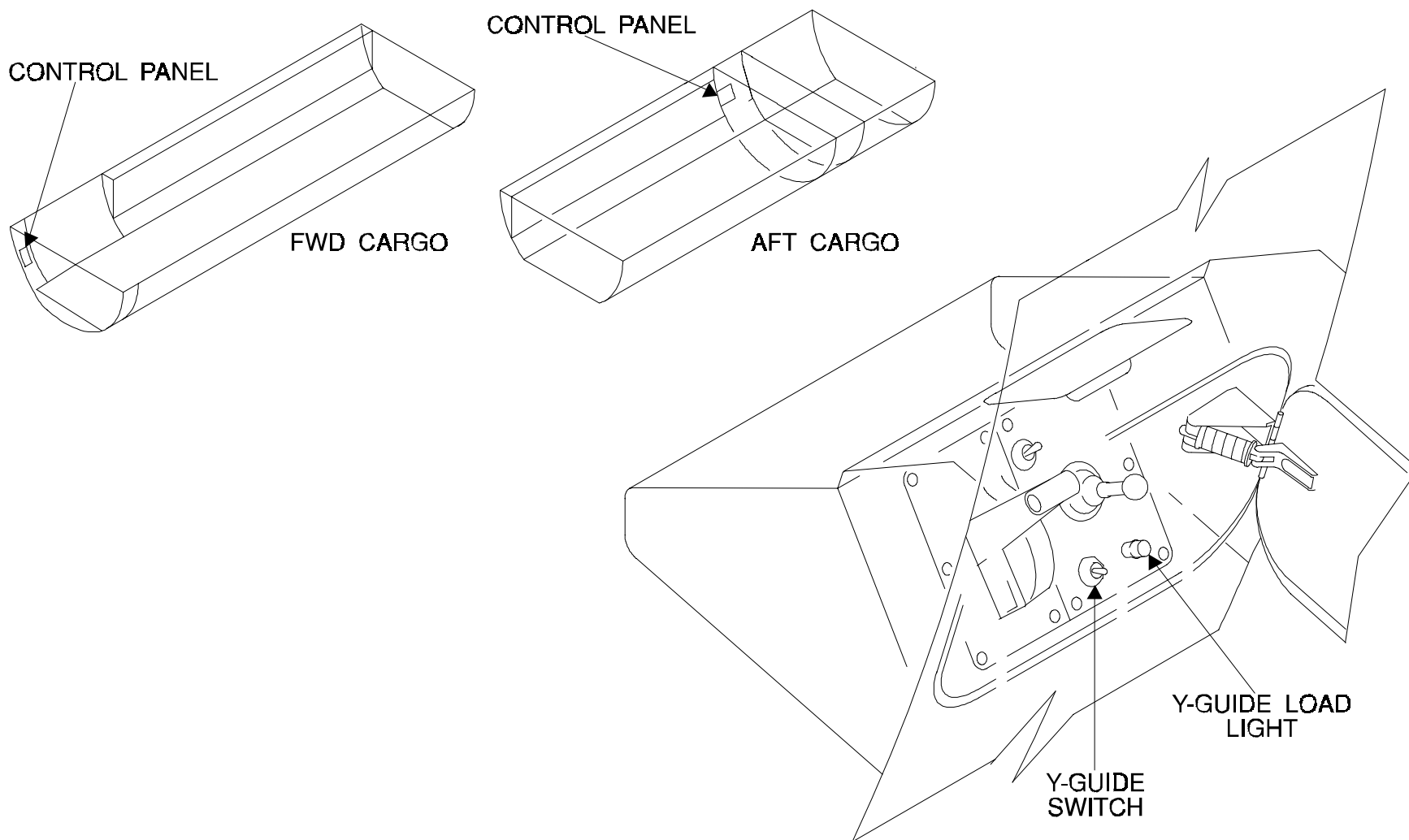
FQW4200 GE Metric

AFT CARGO CONTROL PANEL

The aft cargo compartment control panel is similar to the fwd one except the control and indicating system of the Y-guides.

The Y-guide switch is used to unlock the Y-guides in the load direction. For unloading, the Y-guides are overridable.

The Y-guide load light comes on when one or more Y-guides are inoperative.



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STUDENT NOTES:

FQW4200 GE Metric

LOWER DECK CARGO LOADING SYSTEM OPERATION (FILM)

Single LD3 Loading/Unloading
Dual LD3 Loading/Unloading
Full Size Container Loading/Unloading
"96 x 125" in. Pallet or Container Loading/Unloading
Electrical Y-guides Deactivation/Activation

STUDENT NOTES

FQW4200 GE Metric

LATCHING AND GUIDING COMPONENTS

- Doorsill Latches (FWD Cargo)
- Doorsill Latches (AFT Cargo)
- Entrance Guides
- Y-Z Guides
- Y-Z Latches
- Side Guides
- Overrideable Y-Z Latches
- X-Z Latches
- Retractable Electrical Y-Guides (AFT Cargo)
- Retractable XY-Guides
- Y-Guide (AFT Cargo)

DOORSILL LATCHES (FWD CARGO)

FIN / ZONE

FIN: 5054VE, 5050VE1
5050VE2, 5050VE3

Zone: 130

COMPONENT DESCRIPTION

4 doorsill latches are installed on the cargo compartment doorsill. The doorsill latches lock the Unit Load Devices (ULDs) in the ball mat area in the YZ-direction. 3 of the doorsill latches have an additional overrideable Y-latch to prevent unwanted roll-out of ULDs when you load or unload them.

Each doorsill latch has:

- a housing,
- a guide-in roller,
- an overrideable Y-latch (but not on the forward doorsill latch),
- a manually-operated YZ-latch.

1 Guide-In Roller

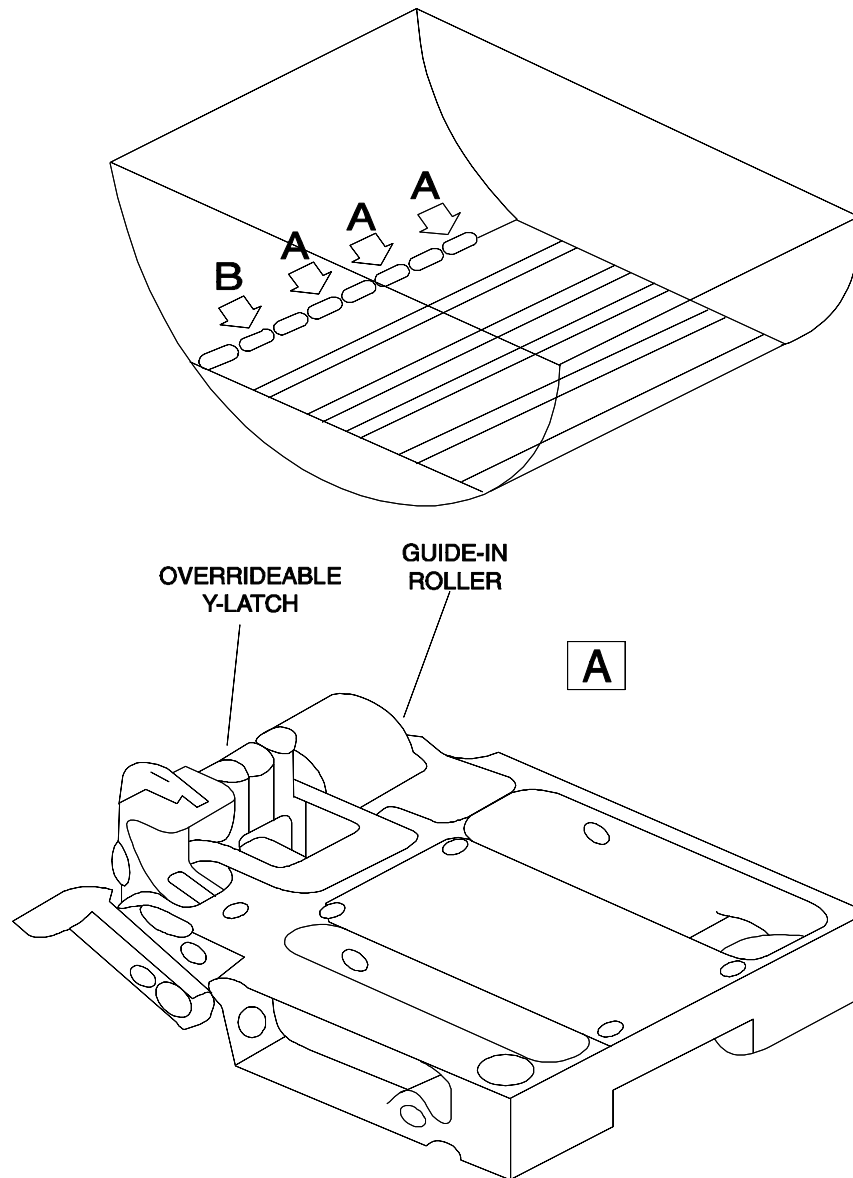
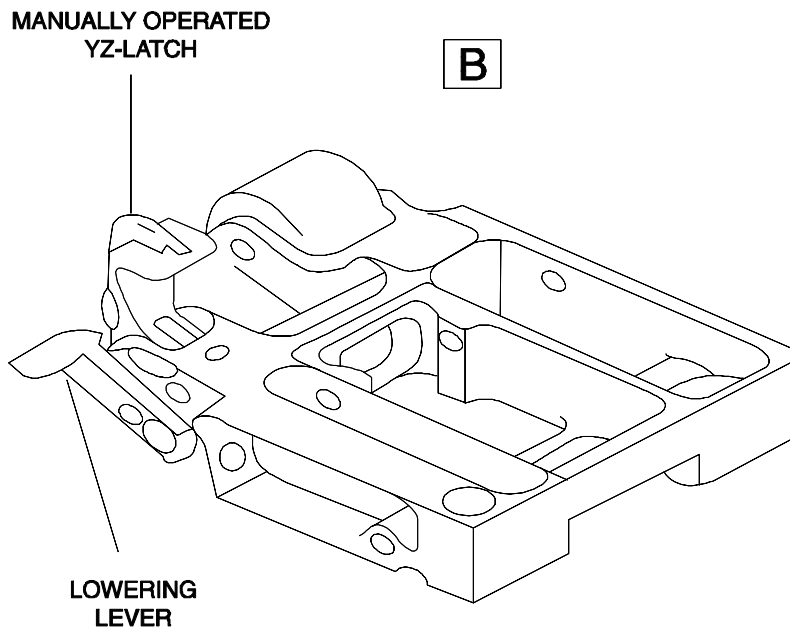
The guide-in-roller prevents damage to the cargo compartment doorsill. It also makes allowance for small differences in height between the cargo compartment and the loader.

2 YZ-Latch

A spring loaded pawl locks the latch in the lifted position. You must push the release lever to release the latch and then you can lower it. An electrical switch detects the position of the latch. This switch has 2 functions. When the latch is locked in the lifted position it electrically isolates the cargo loading system. When the latch is lowered you cannot close the cargo compartment door.

3 Y-Latch

An overrideable Y-latch is attached to 3 doorsill latches. The Y-latch is overrideable in the load direction only. To unload you must lower the Y-latch manually. A lever is installed on the control panel of the cargo loading system. When you hold the lever in the LOWERED position, the Y-latch stays lowered. When you release the lever, the Y-latch and the lever lift slowly to the locked position. A hydraulic damper lets the spring operated lever and Y-latch move slowly. A control cable, a lever assembly and a drawbar connect the lever to the Y-latches.



DOORSILL LATCHES (AFT CARGO)

FIN / ZONE

FIN: 5052VE1, 5052VE2
5052VE3, 5052VE4

Zone: 150

COMPONENT DESCRIPTION

4 doorsill latches are installed on the cargo compartment doorsill. The doorsill latches lock the ULDs in the ball mat area in the YZ-direction. 3 of the doorsill latches have an additional overrideable Y-latch to prevent unwanted roll-out of ULDs when you load or unload them. Each doorsill latch has:

- a housing,
- a guide-in roller,
- an overrideable Y-latch (but not on the forward doorsill latch),
- a manually-operated YZ-latch.

1 Guide-In Roller

The guide-in-roller prevents damage to the cargo compartment doorsill. It also makes allowance for small differences in height between the cargo compartment and the loader.

2 YZ-Latch

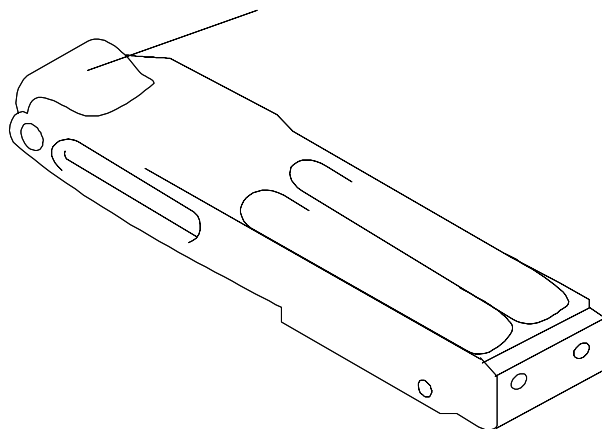
A spring loaded pawl locks the latch in the lifted position. You must push the release lever to release the latch and then you can lower it. An electrical switch scans the position of the latch. This switch has 2 functions. When the latch is locked in the lifted position it electrically isolates the cargo loading system. When the latch is lowered you cannot close the cargo compartment door.

3 Y-Latch

An overrideable Y-latch is attached to 3 doorsill latches. The Y-latch is overrideable in the load direction only. To unload you must lower the Y-latch manually. A lever is installed on the control panel of the cargo loading system. When you hold the lever in the LOWERED position, the Y-latch stays lowered. When you release the lever, the Y-latch and the lever lift slowly to the locked position. A hydraulic damper lets the spring operated lever and Y-latch move slowly. A control cable, a lever assembly and a drawbar connect the lever to the Y-latches.

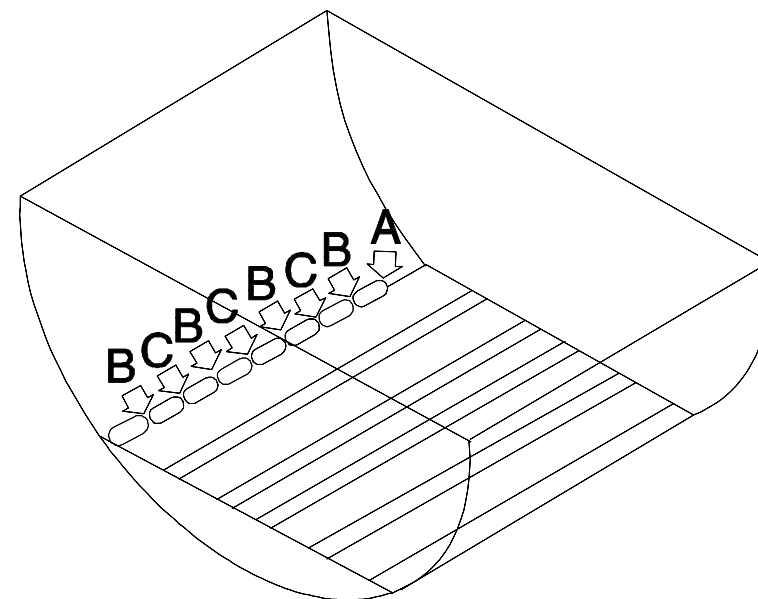
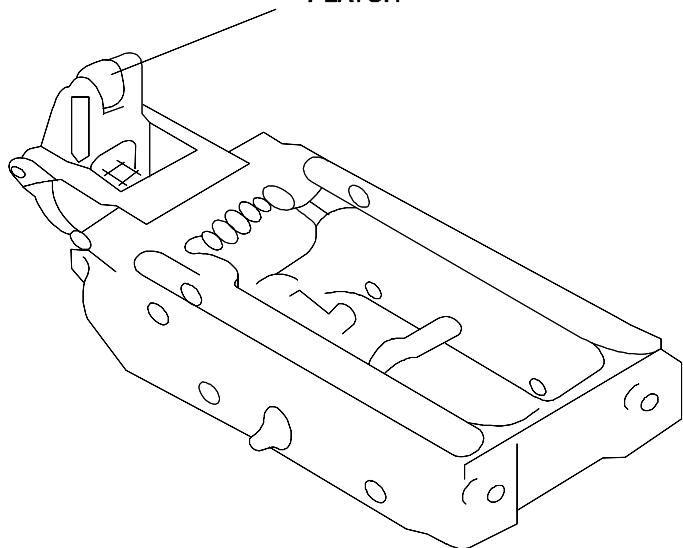
A

GUIDE - IN ROLLER



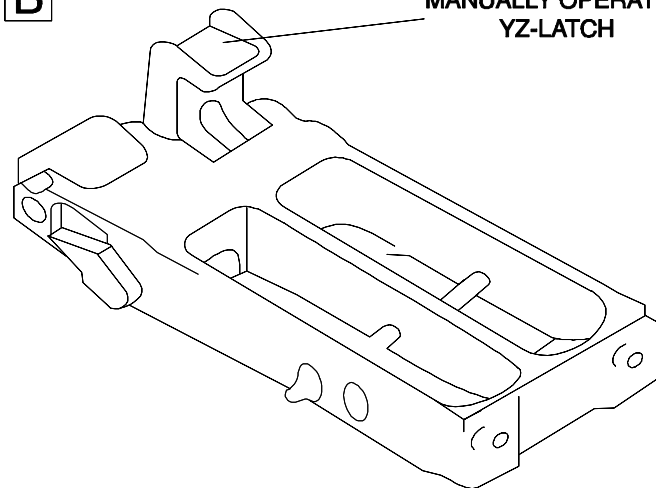
C

OVERRIDEABLE
Y-LATCH



B

MANUALLY OPERATED
YZ-LATCH



FQW4200 GE Metric

ENTRANCE GUIDES

FIN / ZONE

FIN: -

Zone (FWD): 130

Zone (AFT): 150

COMPONENT DESCRIPTION

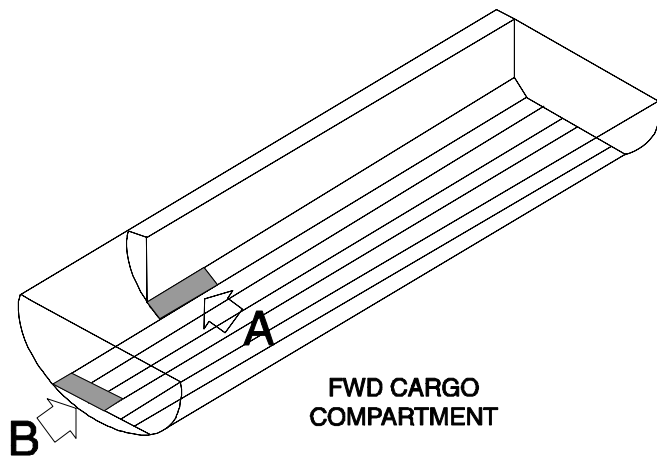
The 2 entrance guides are installed at the doorsill to give correct guidance to load and unload the ULDs. They also protect the cargo-compartment door frame.

1 Entrance Guide

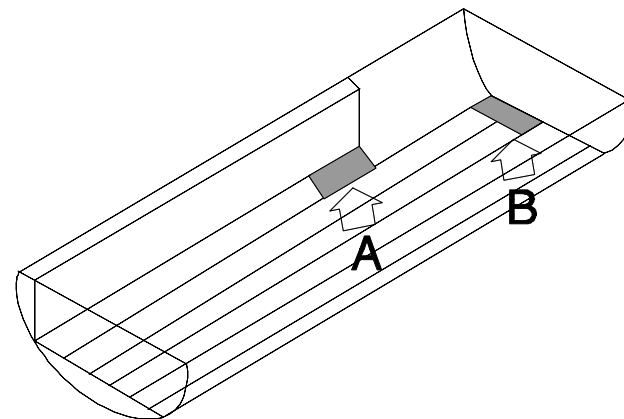
The guide has a sloped front plate, 4 guide rollers and a spring loaded guide rail with an actuator.

2 XY-Guide

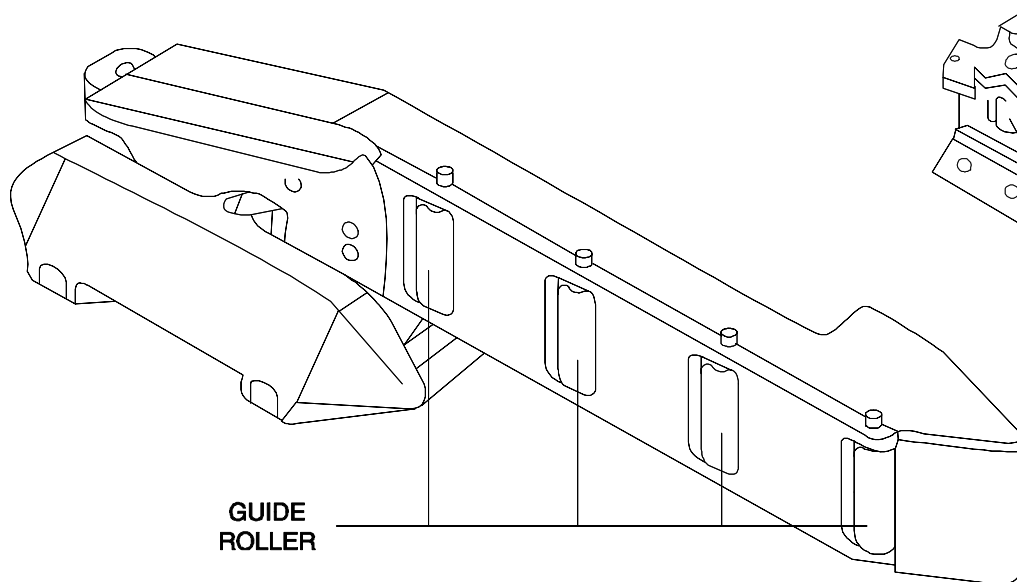
The guide has a sloped front plate with a guide roller which can absorb shocks and a guide rail with 2 guide rollers.



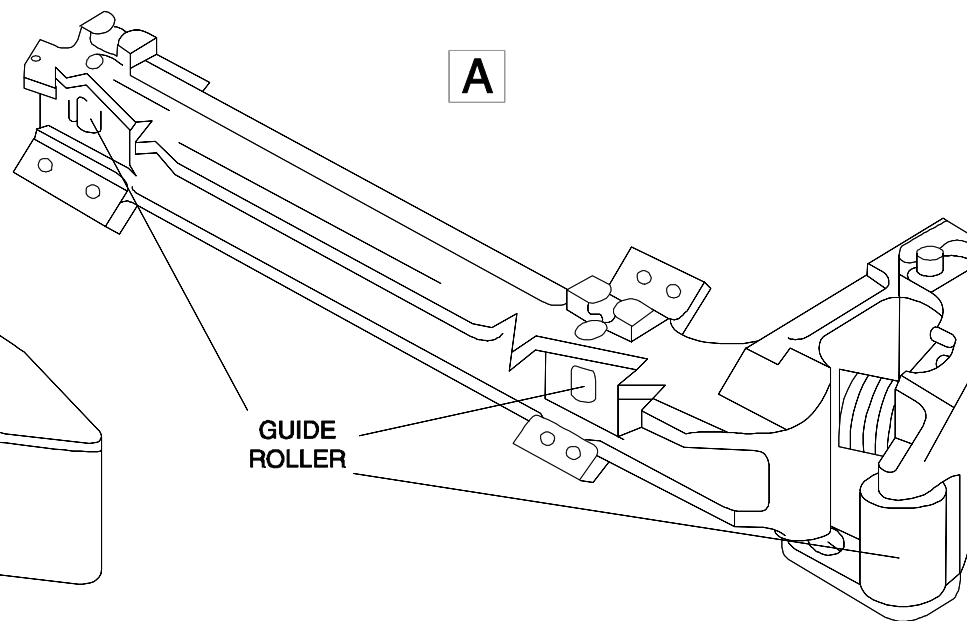
FWD CARGO
COMPARTMENT



AFT CARGO
COMPARTMENT



GUIDE
ROLLER



GUIDE
ROLLER

FQW4200 GE Metric

Y-Z GUIDES

FIN / ZONE

FIN: -

Zone (FWD): 130

Zone (AFT): 150

COMPONENT DESCRIPTION

A row of 5 YZ-guides and 2 Y-guide rails are installed across the forward end of the ball mat area in the FWD cargo compartment. The YZ-guides have 2 functions:

- as YZ-guides when you load or unload the ULDs,
- as XZ-latches when the ULDs are locked in position.

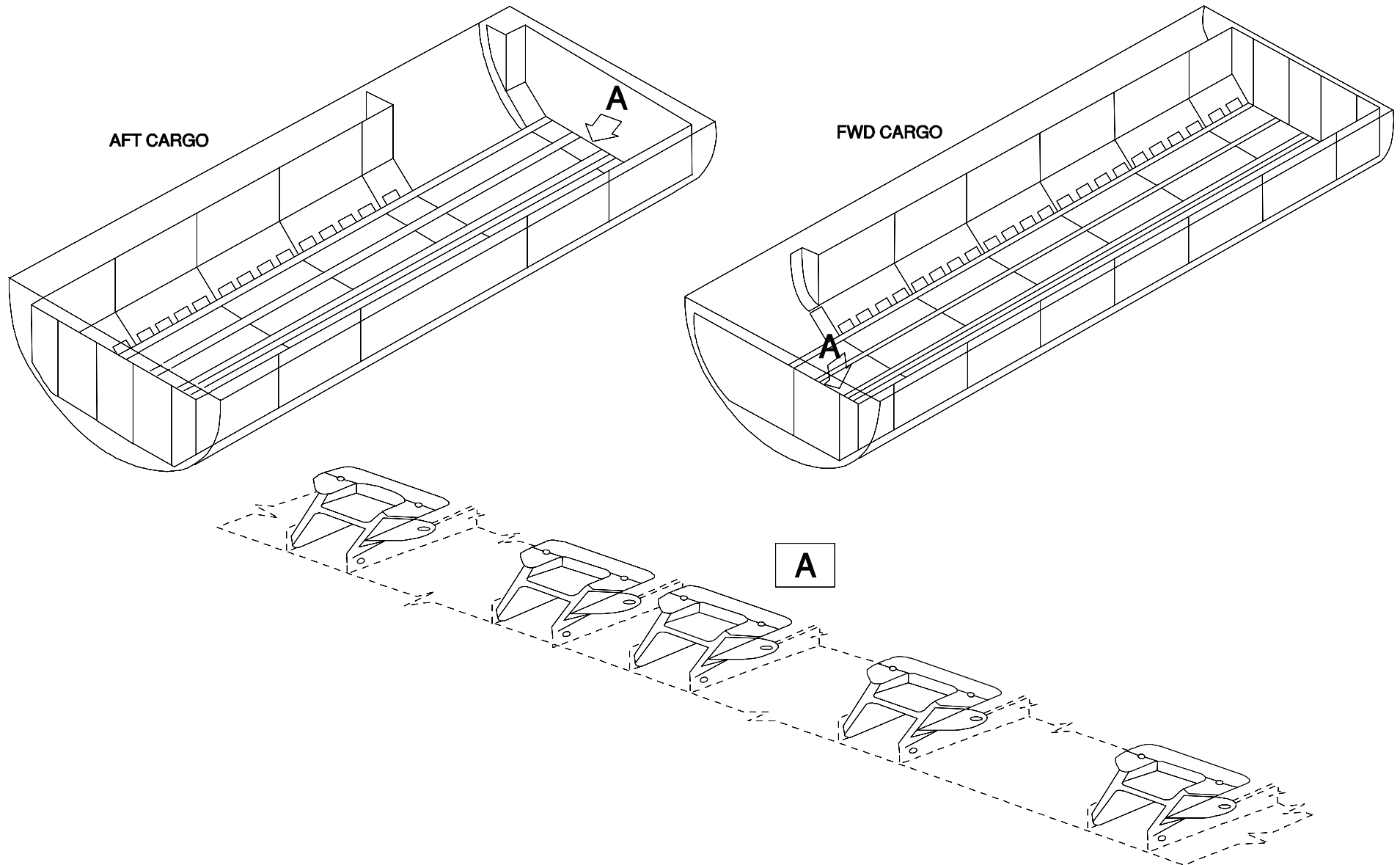
Each YZ-guide can have no, one or two vertical guide rollers.

Each Y-guide rail has 2 vertical guide rollers.

A row of 5 YZ-guides is installed across the rear end of the ball mat area in the AFT cargo compartment. The YZ-guides have 2 functions

- as YZ-guides when you load or unload the ULDs,
- as XZ-latches when the ULDs are locked in position.

Each YZ-guide can have no, one or two vertical guide rollers.



FQW4200 GE Metric

Y-Z LATCHES

FIN / ZONE

FIN: 5010MY
5110MY

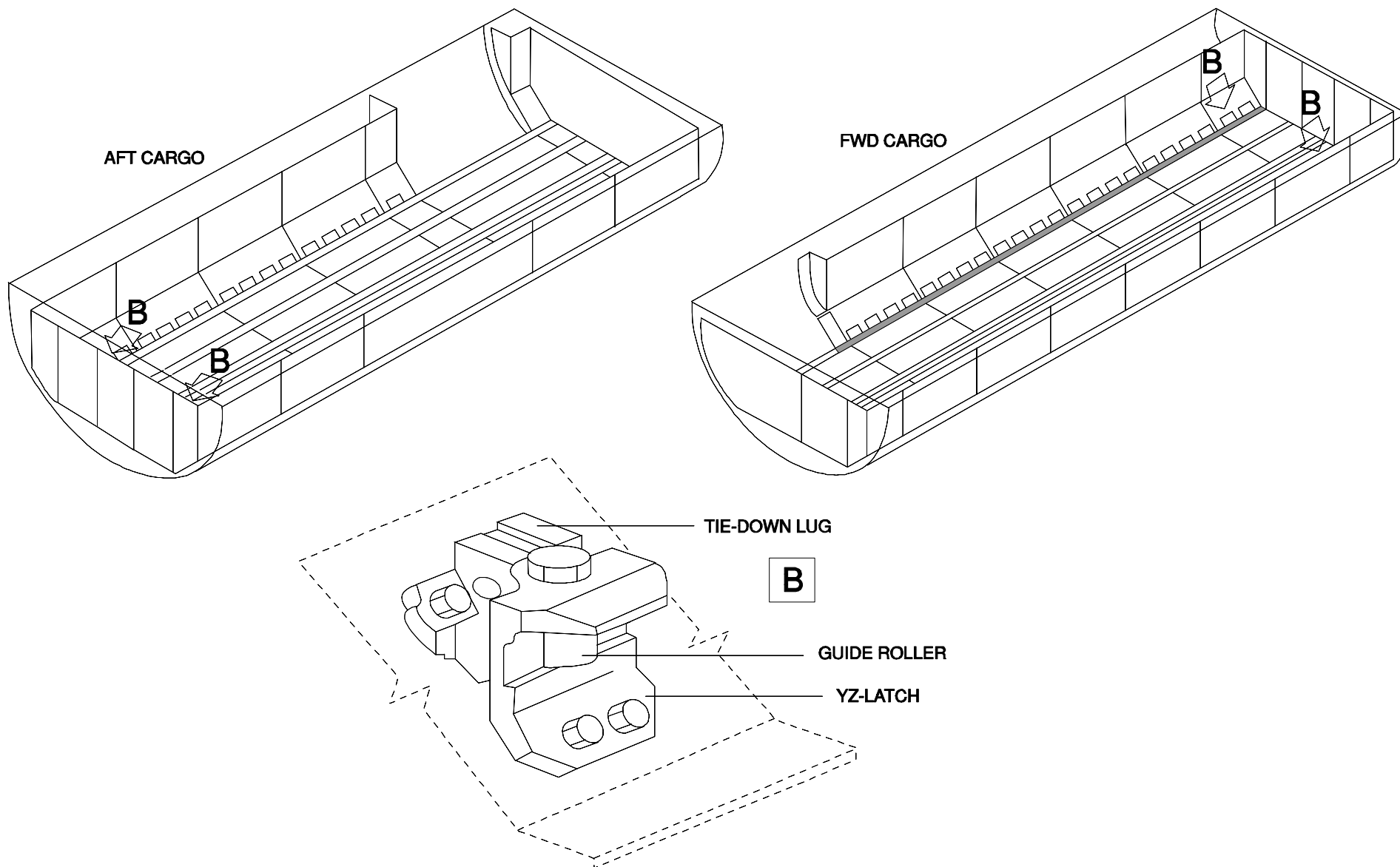
Zone (FWD): 130
Zone (AFT): 150

COMPONENT DESCRIPTION

The YZ-latches have 3 functions:

- as XZ-guides when you load or unload the ULDs,
- as YZ-latches when the ULDs are locked in position,
- as tie-down lugs.

The YZ-latches are installed on the sidewalls of the cargo compartments at each frame position, but not in the cargo-compartment door area. The latches hold the pallets and containers in both the Y- and Z-direction. A vertically mounted roller gives guidance in the X-direction. The upper part of the latch is a tie-down lug.



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SIDE GUIDES

FIN / ZONE

FIN: -

Zone (FWD): 130

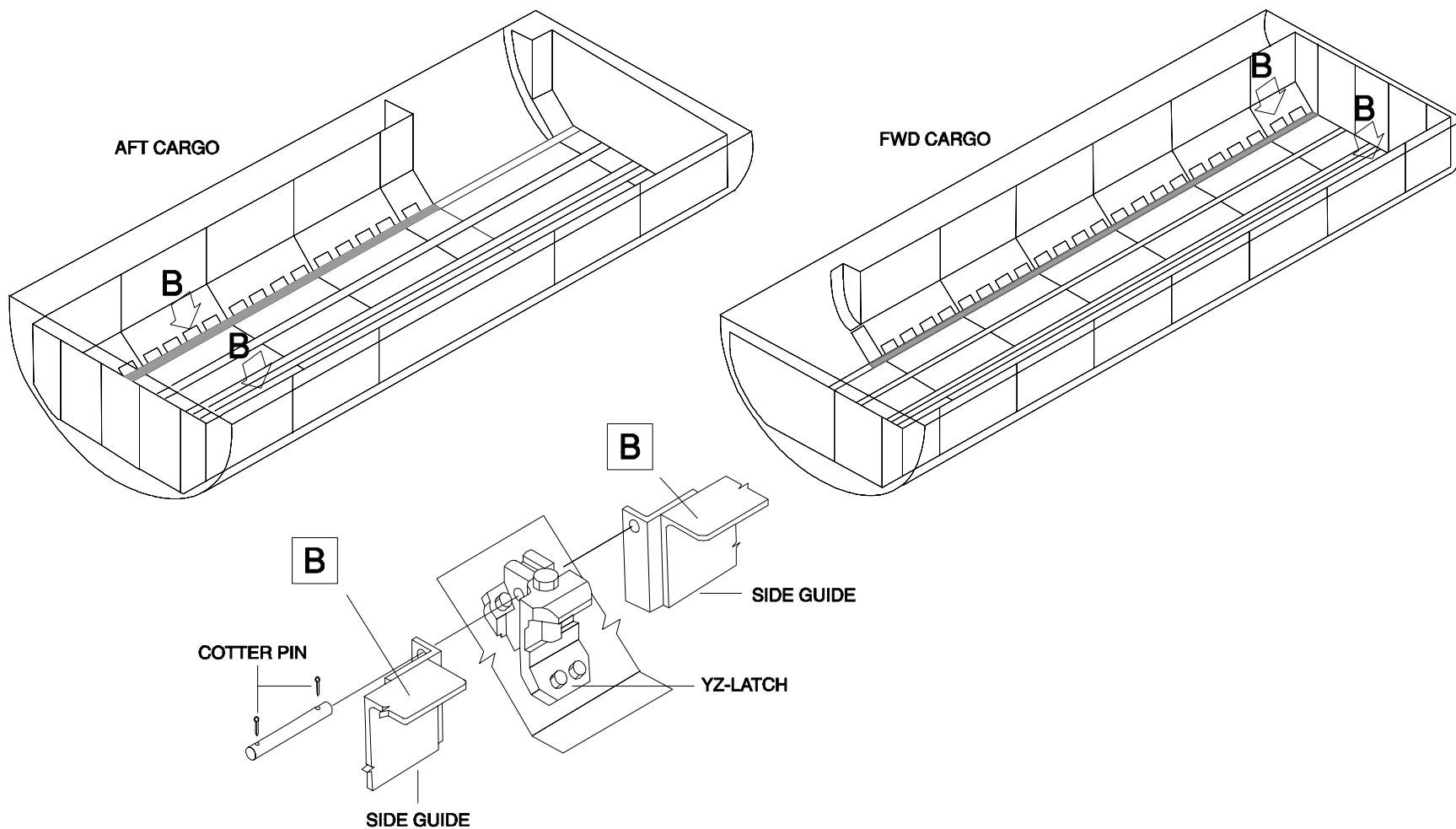
Zone (AFT): 150

COMPONENT DESCRIPTION

To get smooth transport of ULDs, side guides are fitted between the fixed YZ-latches. These guides shall prevent ULDs from stopping before the latching position is reached.

To reduce additional friction, the guides are covered with a friction reducing layer.

The AFT cargo compartment is equipped with lateral continuous side guides.



OVERRIDEABLE Y-Z LATCHES

FIN / ZONE

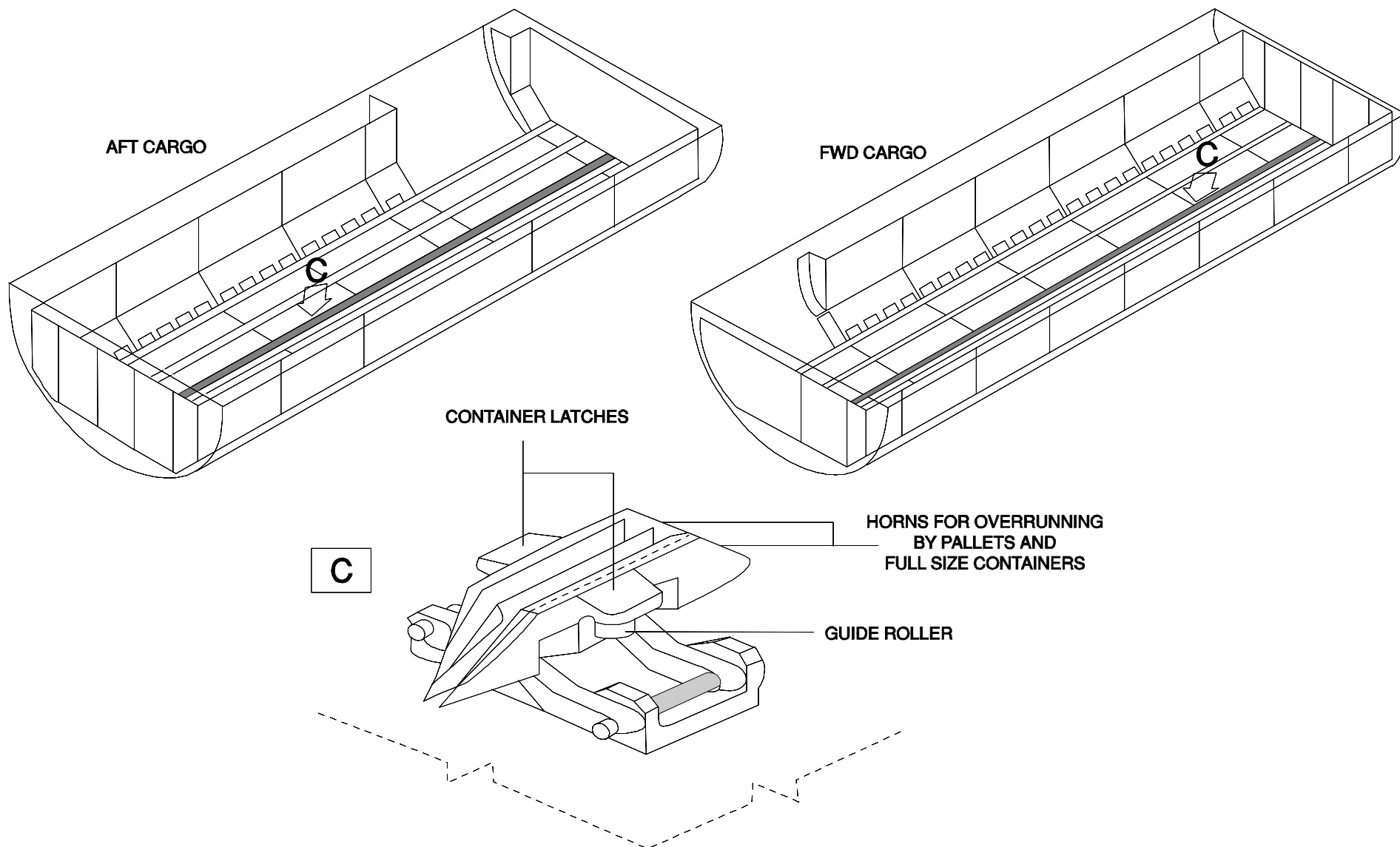
FIN: -

Zone (FWD): 130

Zone (AFT): 150

COMPONENT DESCRIPTION

The overrideable YZ-latches are installed on the cargo compartment centerline at some frame positions, but not in the ball mat area. The latches hold the half-width pallets and containers in the Y- and Z-directions. When full-width pallets or containers move over the latches, the pallet or container bottoms push down (override) the latch against spring pressure. When the pallet or container is removed, spring pressure automatically lifts the latch.



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X-Z LATCHES

FIN / ZONE

FIN: 5009MY, 5109MY
5006MY, 5106MY
5007MY, 5107MY
5010MY, 5110MY

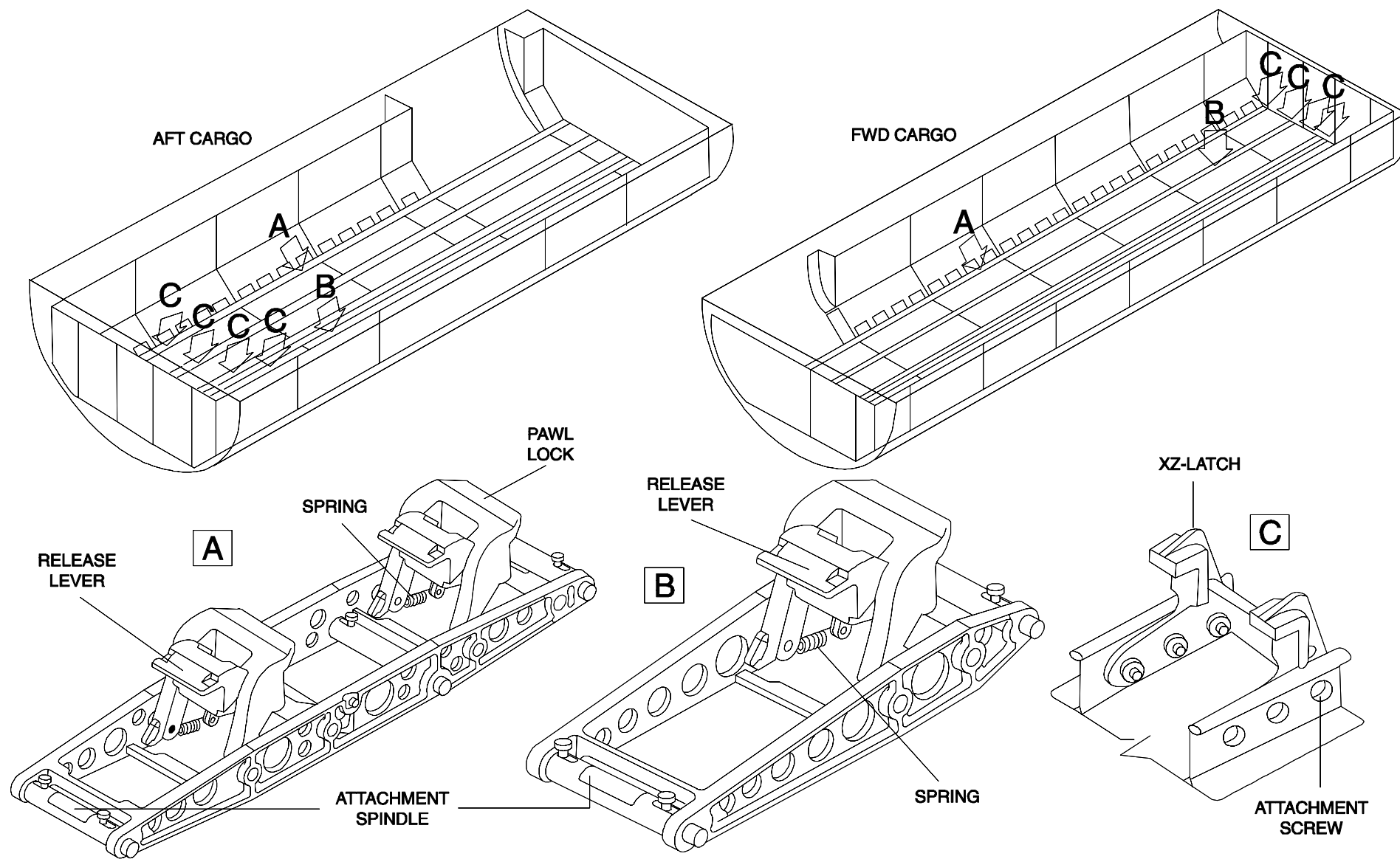
Zone (FWD): 130
Zone (AFT): 150

COMPONENT DESCRIPTION

There are different types of XZ-latches:

- XZ-single latch,
- XZ-double latch,
- XZ-fixed latch.

The XZ-latches hold the pallets and containers in the Y- and Z-direction. These latches are installed in different configurations of the roller tracks. All latches are manually operated. Proximity switches are attached to XZ-latches and connected in series with the PDUs. When you lift the XZ-latches the PDUs behind these latch rows are electrically isolated. The fixed XZ-latches have no moving parts and are used as endstops in the roller tracks.



FQW4200 GE Metric

RETRACTABLE ELECTRICAL Y-GUIDES (AFT CARGO)

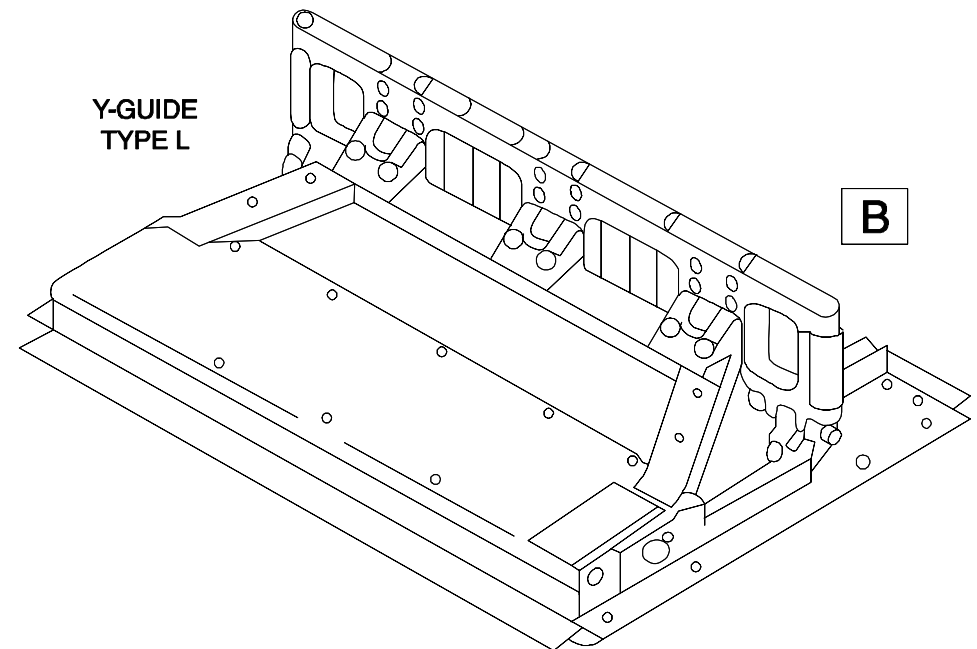
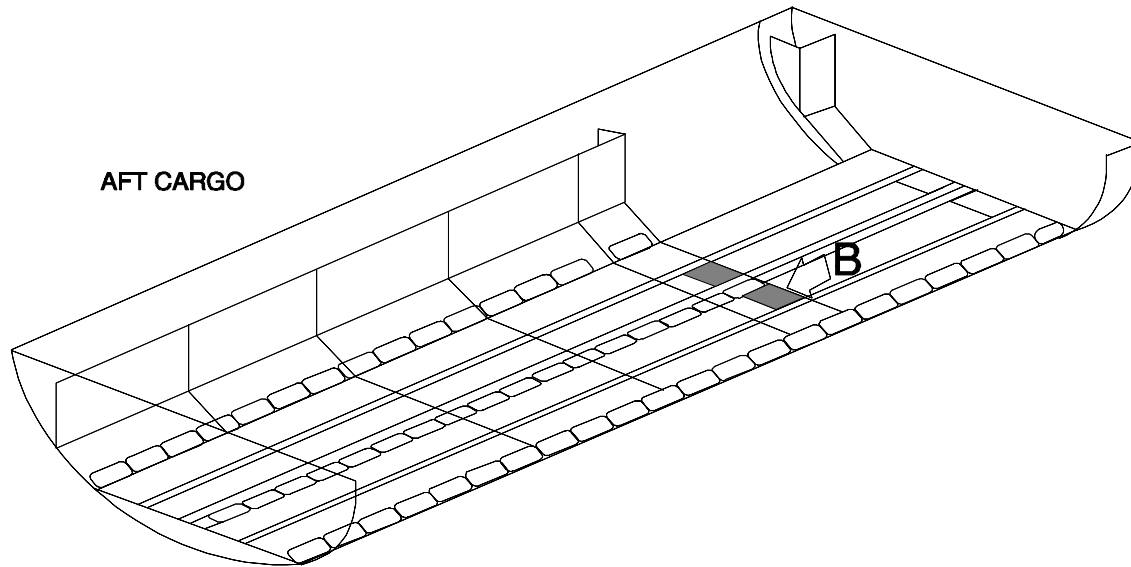
FIN / ZONE

FIN: 116MY, 117MY

Zone: 150

COMPONENT DESCRIPTION

A row of 3 retractable electrical Y-guides is installed across the forward end of the ball mat area in the AFT cargo compartment. These retractable Y-guides are controlled from the control panel. The Y-guides provide lateral guidance of the ULDs when you load or unload them. When you unload the ULDs in the longitudinal direction, the Y-guides are overrideable.



RETRACTABLE XY-GUIDES

FIN / ZONE

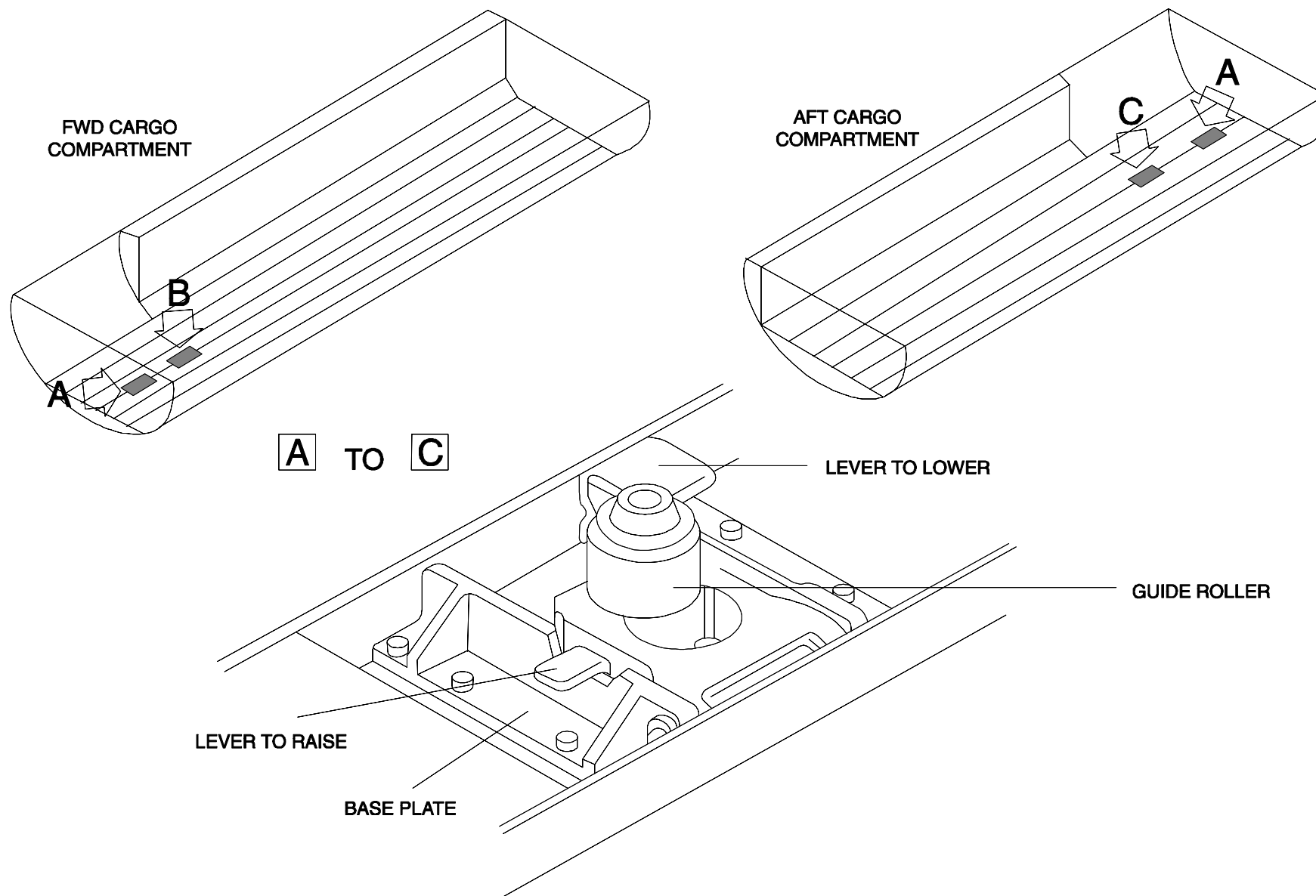
FIN: -

Zone (FWD): 130

Zone (AFT): 150

COMPONENT DESCRIPTION

2 retractable XY-guides are installed on the aircraft centerline to align the half-width ULDs. The retractable XY-guides are overrideable in one way. You can retract and lift them manually.



FQW4200 GE Metric

Y-GUIDE (AFT CARGO)

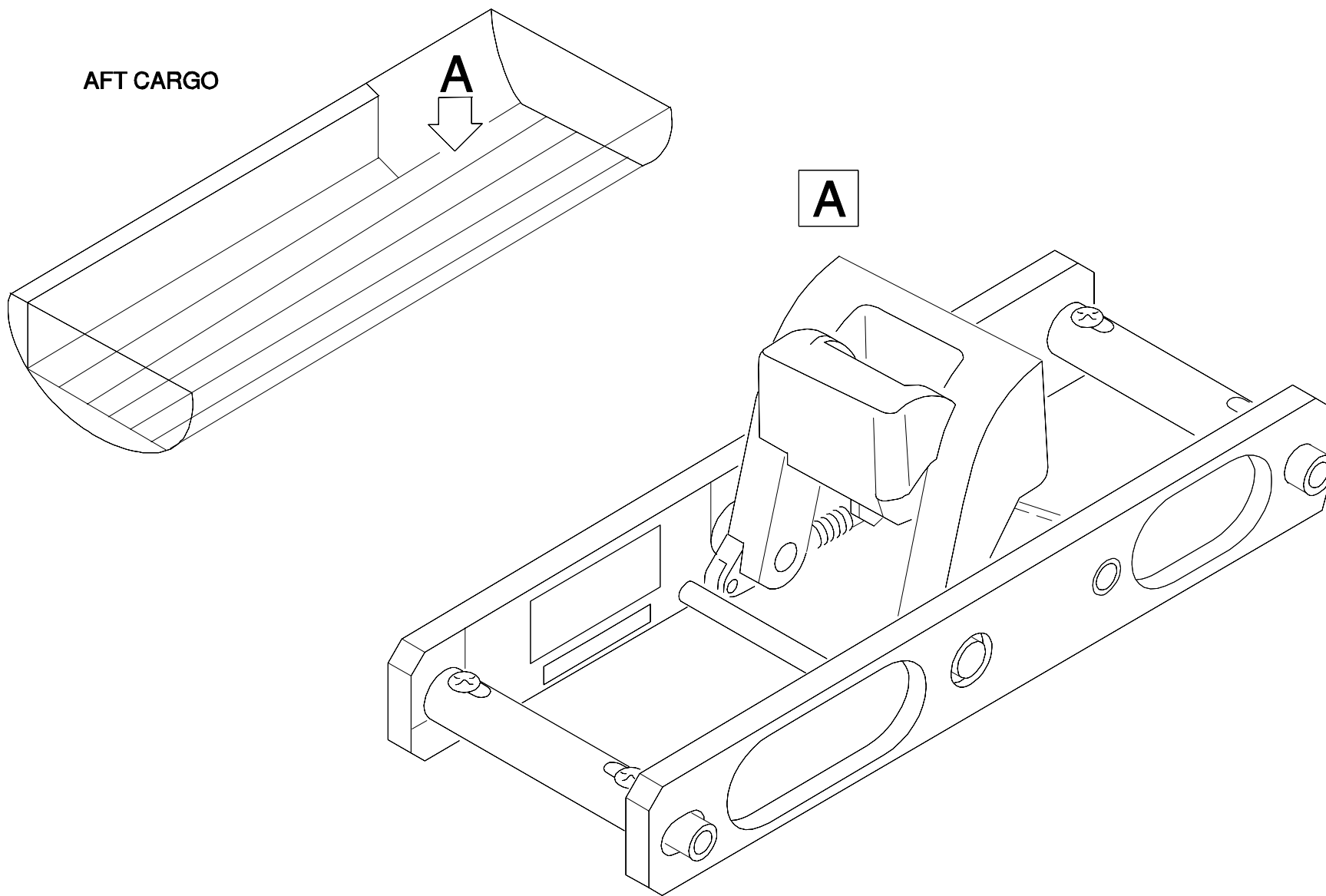
FIN/ZONE

FIN: 5109MY

Zone: 150

COMPONENT DESCRIPTION

One Y-guide is installed in the AFT cargo compartment in the door sill area. The Y-guide provides lateral guidance of the ULDs when you load the last container row.



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STUDENT NOTES

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TRANSPORT COMPONENTS

Ball Mats
Roller Tracks
Transport Rollers
Power Drive Units (PDU)
Braking Rollers

BALL MATS

FIN / ZONE

FIN : 5000MY
5100MY
Zone : 130 (FWD)
150 (AFT)

COMPONENT DESCRIPTION

The ball mats extend across the full width of the cargo compartment. They are used to change the direction of the ULDs during loading/unloading. Ball mats and ball strips have light-alloy plates which contain a number of ball units. The ball mats are installed between the roller tracks. The ball strips are installed in the roller tracks.

Ball Unit:

Each ball unit has a ball installed in a bearing shell. This shell is contained in a circular housing. A top cover holds the ball and bearing shell in the housing. The top cover has 2 spring struts for installation.

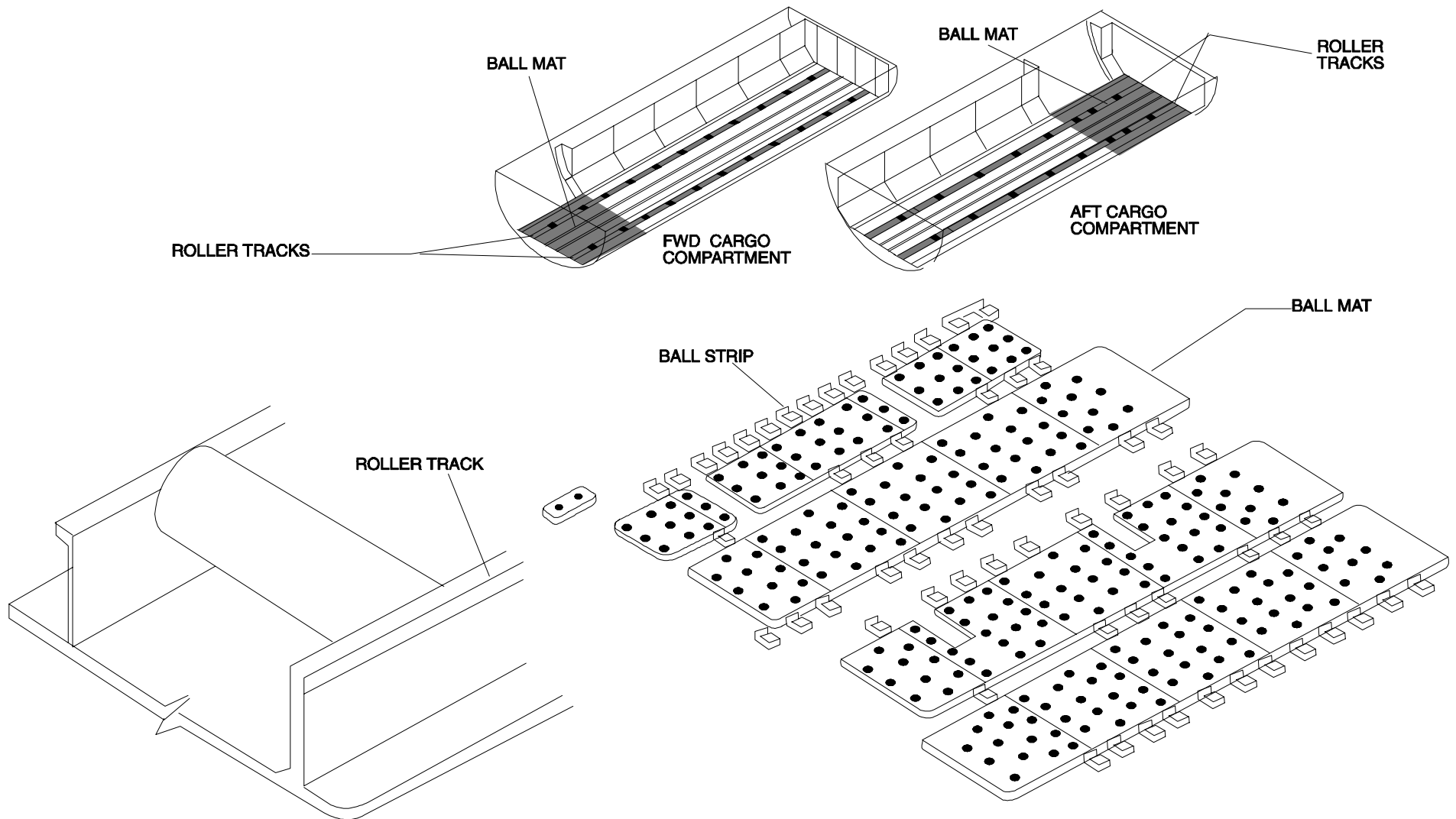
ROLLER TRACKS

FIN / ZONE :

FIN : ---
Zone : 130 (FWD)
150 (AFT)

COMPONENT DESCRIPTION

Roller tracks are installed through the full length of the cargo compartments. They are part of the floor structure of the cargo compartments. Transport rollers and braking rollers are installed in the roller tracks. The ULDs are moved in the cargo compartment on these rollers.



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TRANSPORT ROLLERS

FIN / ZONE :

FIN : 5001MY

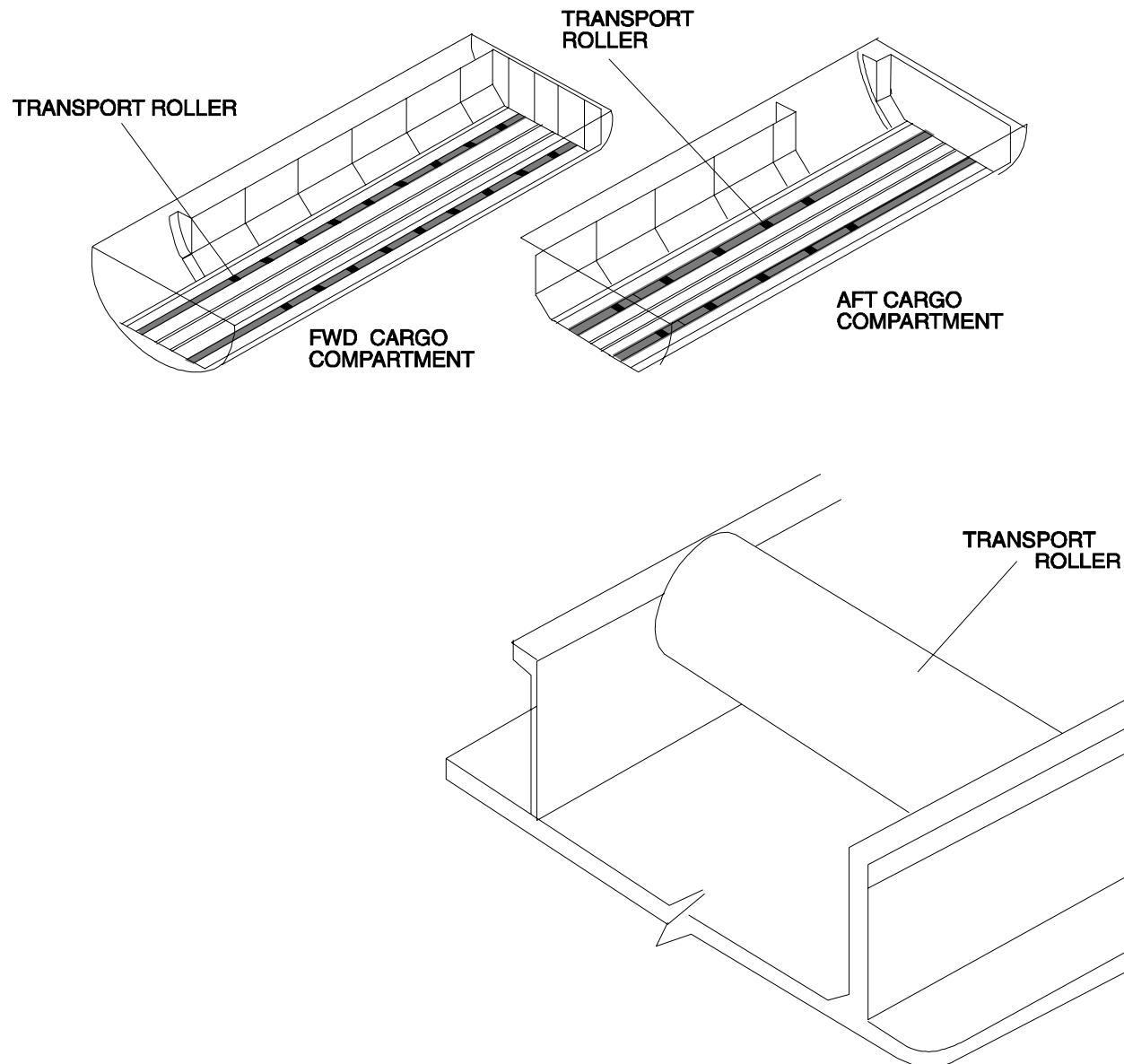
5101MY

Zone : 130 (FWD)

150 (AFT)

COMPONENT DESCRIPTION

Each transport roller assembly has a roller and 2 bearings installed on a shaft. A washer and cotter pin on each end of the shaft safety the roller assembly to the roller track.



POWER DRIVE UNITS (PDU)

FIN / ZONE :

FIN : 14MY

114MY

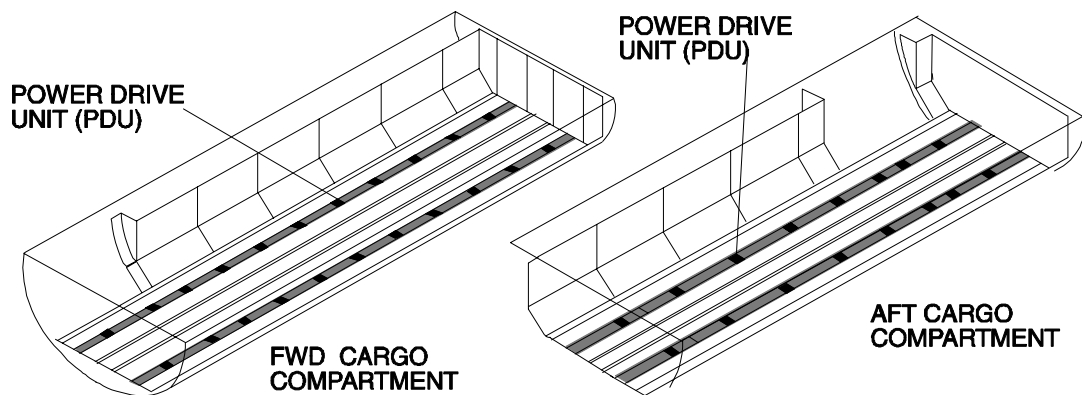
Zone : 130 (FWD)

150 (AFT)

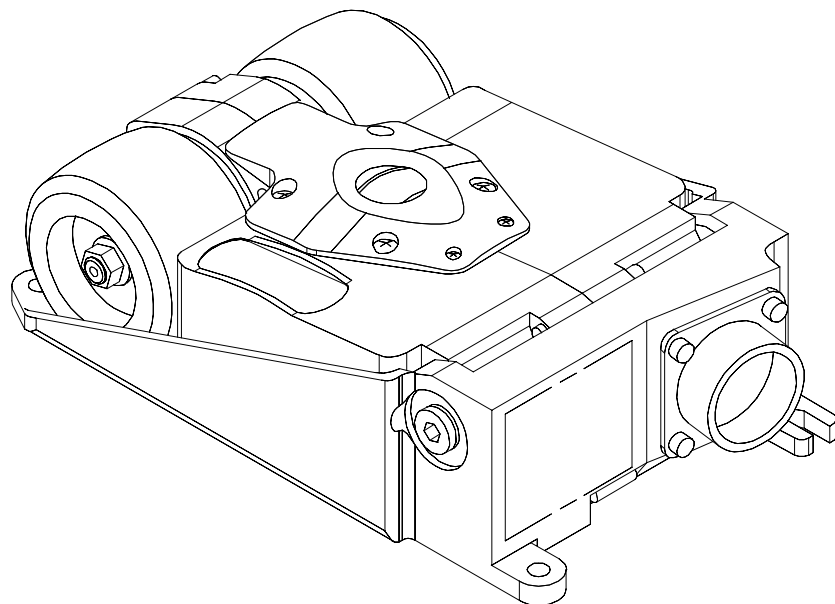
COMPONENT DESCRIPTION

Power drive units are installed for movement of the ULDs in the lateral and longitudinal direction. The PDUs have self-lifting rollers. Electrical AC power supplies the PDUs. When the unit is energized the drive roller is lifted until it touches the bottom of the ULDs. When the unit is de-energized the roller stops and is lowered under system weight.

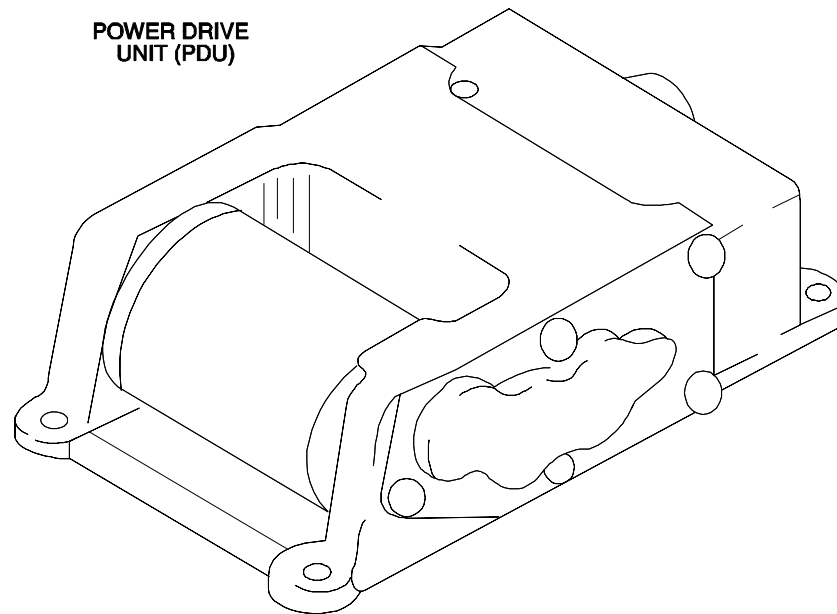
The ball mat area is fitted with sensorized PDU's. The infrared scanning system controls the START/STOP function of the PDU, supplying it only if a ULD is monitored above the sensor.



**SENSORIZED
POWER DRIVE
UNIT (PDU) - BALL MAT AREA**



**POWER DRIVE
UNIT (PDU)**



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BRAKING ROLLER ASSEMBLY

FIN / ZONE :

FIN : 5004MY

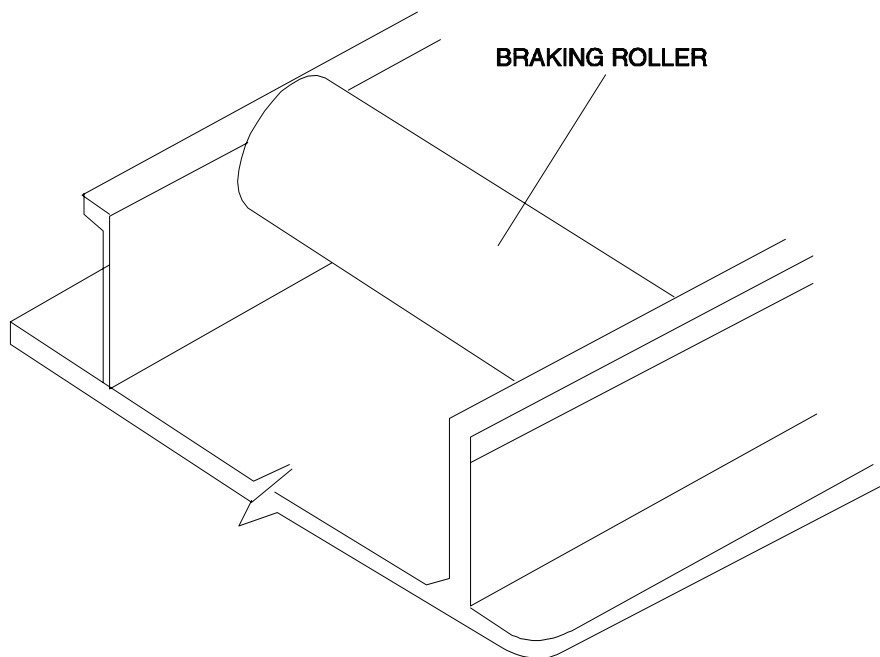
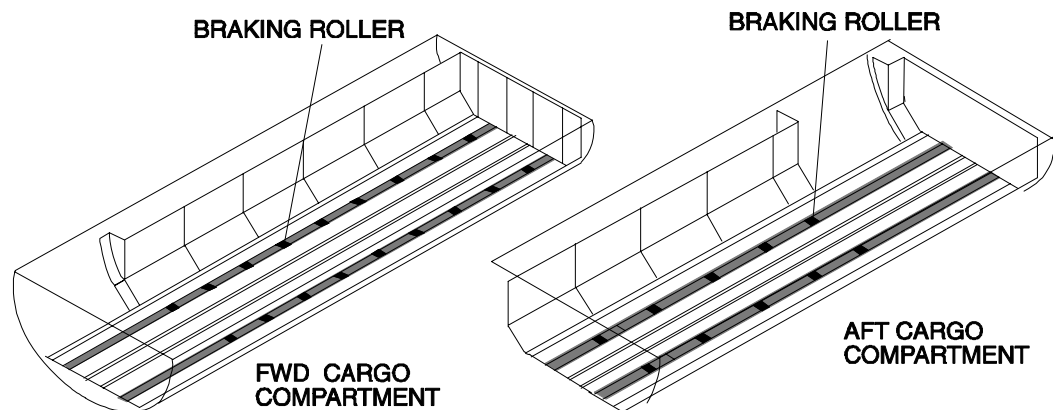
5104MY

Zone : 130 (FWD)

150 (AFT)

COMPONENT DESCRIPTION

Each braking roller assembly has a roller, 2 bearings and a mechanical brake installed on a shaft. Bolts attach the shaft to the roller track. In one direction the roller turns freely, in the other direction the mechanical brake engages. This prevents movement of the ULDs before they are latched.



STUDENT NOTES

CONTROL COMPONENTS

Control Panel (FWD Cargo)

Control Panel (AFT Cargo)

CONTROL PANEL (FWD CARGO)

FIN / ZONE

FIN : 5020VE

Zone : 130

COMPONENT DESCRIPTION

You can get access to the control panel when you open the access door 122DR.

The control panel has:

- the sill lock lever,
- the power switch,
- the joystick.

1- Sill Lock Lever

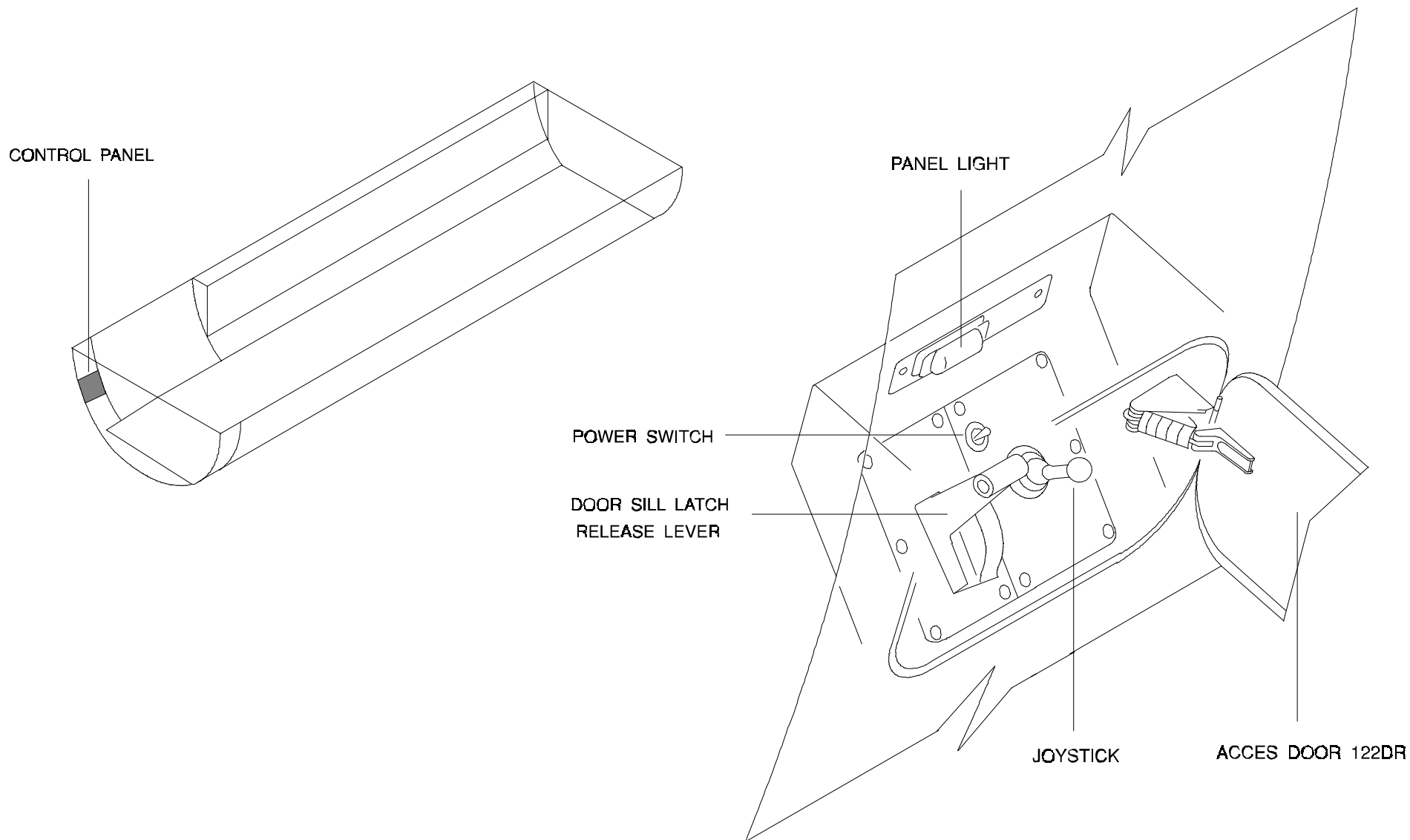
The sill lock lever is used to unlock the overrideable Y-latches of the cargo compartment doorsill.

2- Power Switch

The power switch is used to energize/de-energize the cargo loading system.

3- Joystick

The joystick has 5 positions, but you can select only one position at a time. The available positions are:
IN,OUT,FWD,AFT and SPLIT.



FQW4200 GE Metric

CONTROL PANEL (AFT CARGO)

FIN / ZONE

FIN : 5056VE

Zone : 150

COMPONENT DESCRIPTION

You can get access to the control panel when you open the access door 152DR.

The control panel has:

- the Y-guide indicator light,
- the sill lock lever,
- the power switch,
- the Y-guide switch,
- the joystick.

1- Y-Guide Load Light

The load light comes on when one or more Y-guides are inoperational.

2- Sill Lock Lever

The sill lock lever is used to unlock the overrideable Y-latches of the cargo compartment doorsill.

3- Power Switch

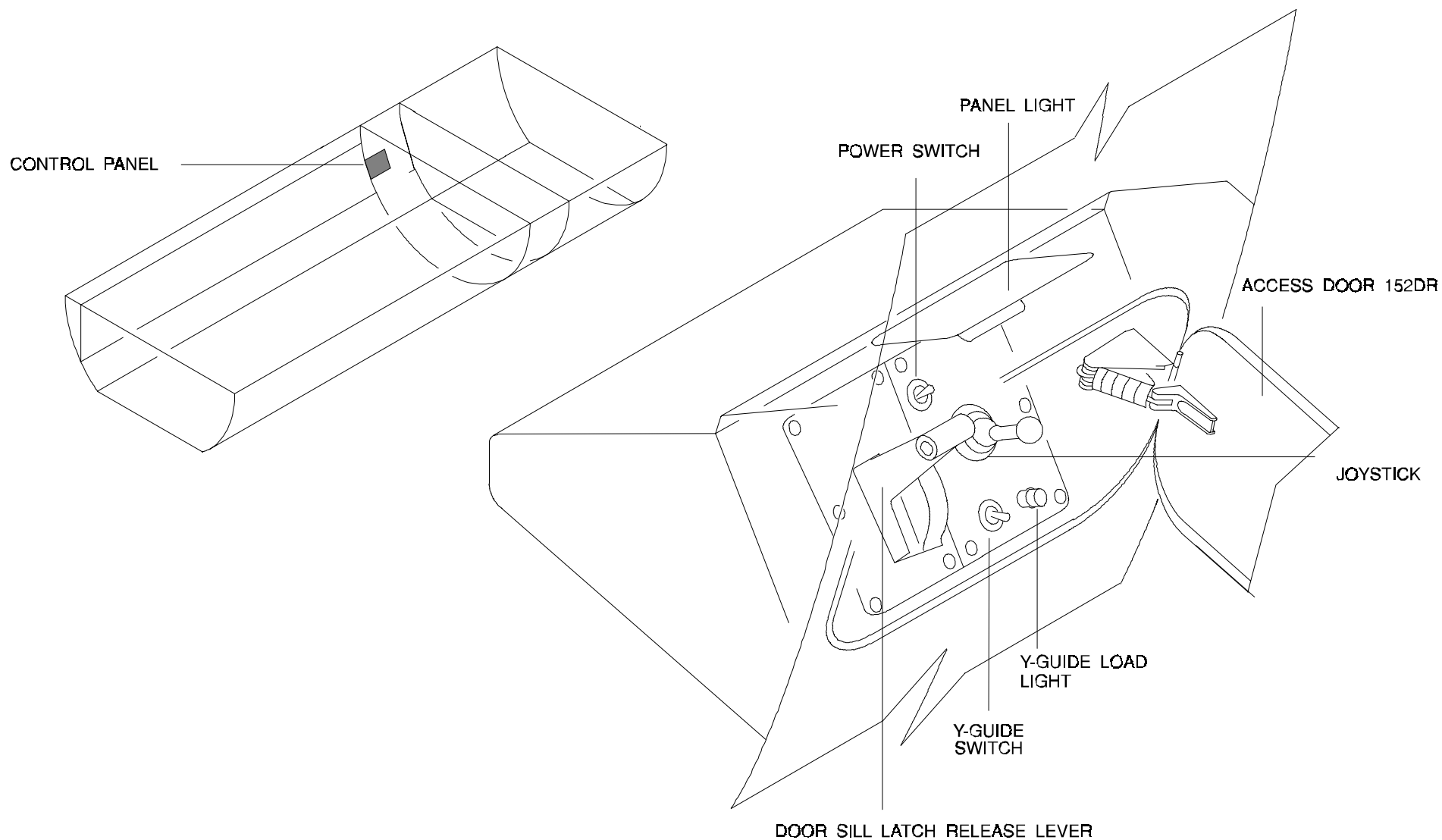
The power switch is used to energize/de-energize the cargo loading system.

4- Y-Guide Switch

The Y-guide switch is used to unlock the Y-guides in the load direction.

5- Joystick

The joystick has 5 positions, but you can select only one position at a time. The available positions are:
IN,OUT,FWD,AFT and SPLIT.



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STUDENT NOTES:

FQW4200 GE Metric

DRAINING SYSTEM DESCRIPTION AND OPERATION

FWD Cargo
AFT Cargo

FQW4200 GE Metric

FWD CARGO

The forward cargo compartment draining system collects fluids from the ball mat area and drains them into the bilge area.

For cold weather operating conditions (snow/ice on ULD), the FWD cargo compartment draining system is heated and insulated.

The FWD cargo compartment has :

- filters,
- drain funnels,
- drain sumps,
- flexible hoses,
- pipes.

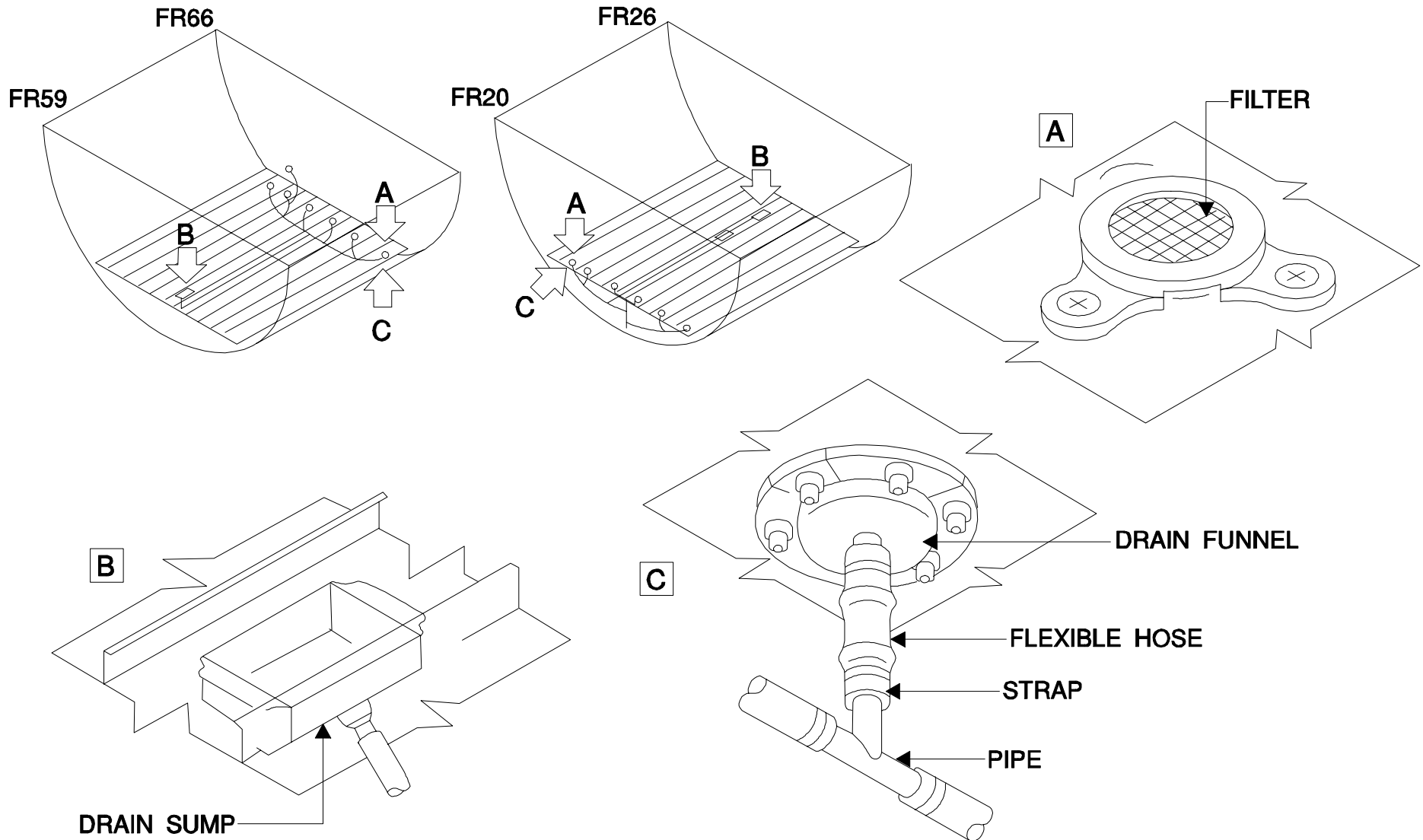
AFT CARGO

The aft cargo compartment draining system collects fluids from the ball mat area and drains them into the bilge area.

For cold weather operating conditions (snow/ice on ULD), the AFT cargo compartment draining system is heated and insulated.

The AFT cargo compartment has :

- filters,
- drain funnels,
- drain sumps,
- flexible hoses,
- pipes.



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STUDENT NOTES

FQW4200 GE Metric