EADS	**NOTA TECNICA** **TECHNICAL REPORT**	**Núm. No.**	NT-FA-AE0-07-187
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	Departamento Department Cabin/Cargo Hold	**Avión Aircraft**	**A330-200 MRTT**

Título/Title

A330 MRTT RAAF

A330 MRTT RAAF. COCKPIT DOOR INSTALLATION. GROUND TEST REQUIREMENTS

Palabras clave/Key words	**Clasificación acceso Access class**
A330, ATA 25, MRTT, GTR, DOOR, CDLS	P1

Resumen/Summary

This document establishes the tests to be carried out on the A330 MRTT RAAF Cockpit Door, in order to demonstrate that the installation has been mechanically mounted correctly and function as expected.

This document is applicable to all the A330 MRTT production aircraft.

Distribución/Distribution	**Realización/Execution**	**Fecha 1º Ed /Date 1st issue** Dic-2007
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REGISTRO DE REVISIONES/REVISIONS RECORD

Revision Fecha/Date	Motivo de Modificación/Change reason Capítulos,Secciones,Hojas afectadas/Chapters,Sections,Sheets affected	Aprobado/Approved Firma/Sign	probado/Approved Firma/Sign
A	Report release	Ana I. Palma	José L. de la Fuente
Dic 2007	Complete report		

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1. INTRODUCTION

1.1. TEST OBJETIVE

This document establishes the tests to be carried out on the A330 MRTT RAAF Cockpit Door, in order to demonstrate that the installation has been mechanically mounted correctly and function as expected.
The tests shall demonstrate compliance with the certification requirements JAR 25.1301 (d) of the Cockpit door installation in A330-200 MRTT RAAF aircraft.

1.2. APPLICABILITY

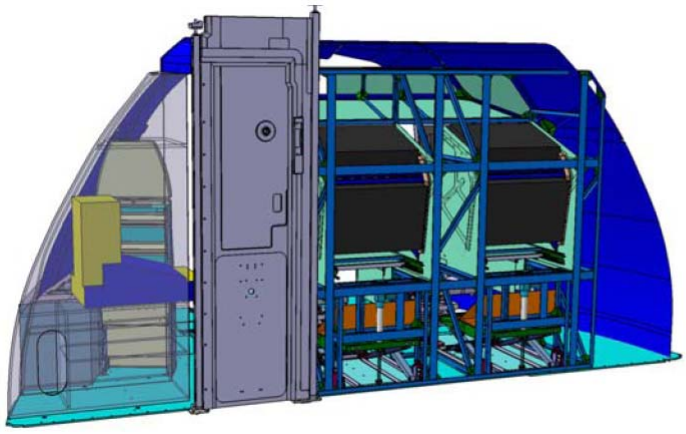
This document is applicable to all the A330 MRTT production aircraft.

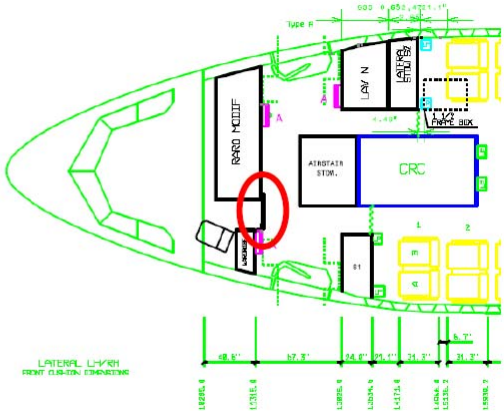
1.3. REFERENCES

1. JAR 25 Change 13 effective on October 5, 1989
2. DT-FA-AE0-06-165 ATA 25 A330-22 CIVIL CERTIFICATION PROGRAM PLAN
3. F251A0003000 COCKPIT DOOR MODIFICATION
4. F251A0110000 COCKPIT DOOR INSTALATION
5. F251A0130000 MAGNETIC LATCH INSTALATION
6. DT-FA-AE0-07-189 A330 MRTT RAAF. COCKPIT DOOR INSTALLATION. GROUND TEST RESULTS
7. AMM 52-51-00 AIRCRAFT MAINTENANCE MANUAL. PASSENGER COMPARTMENT FIXED PARTITION INTERIOR DOORS.

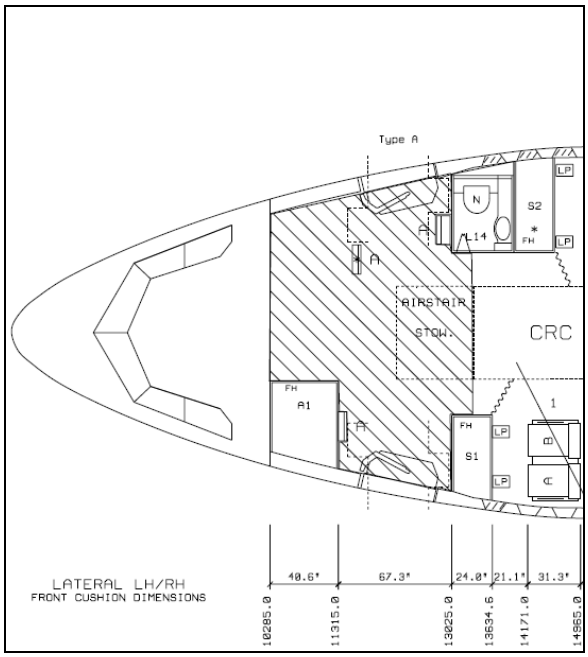
2. GENERAL DESCRIPTION

The cockpit and passenger cabin of A330 MRTT RAAF aircraft are divided with a cockpit door located between frames Fr 12A and 13. The door opens into the flight direction by means of a piano hinge located in a vertical post placed in the left side.

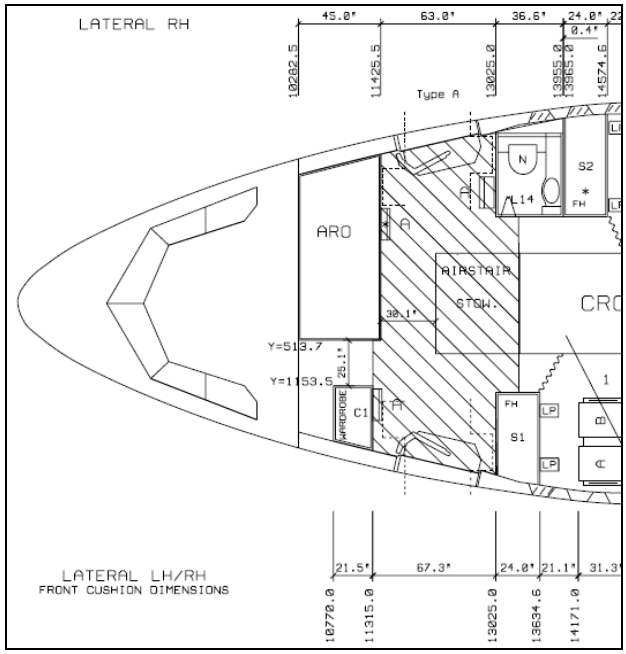




The cockpit door installation in A330 MRTT aircraft is a result of relocating the cockpit door of the green aircraft aft wards and to the left side, according to the following figures.



BEFORE MRTT CONVERSION



AFTER MRTT CONVERSION

Two parts compose the Cockpit door system:

- The cockpit door
- The Cockpit Door Lock System (CDLS)

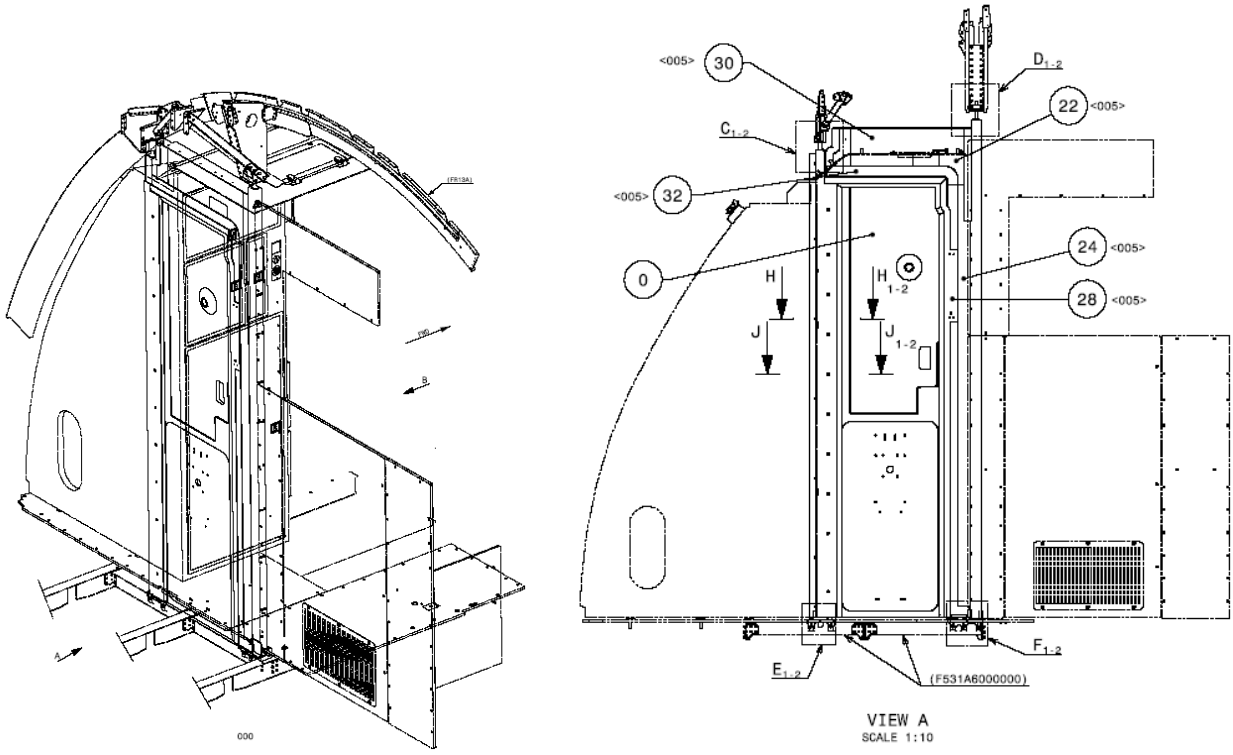
The Cockpit Door Lock System (CDLS) control its electrical release and to prevent an unwanted access into the cockpit.
Furthermore there is a door escape hatch in the cockpit door with a pneumatic operated kinematic. This opens the hatch if a rapid decompression between the cockpit and the cabin occurs.

The MRTT modification in the Cockpit door system only affects to the structural fixation to the aircraft (cockpit door). The rest of cockpit door systems (CDLS) are not affected.

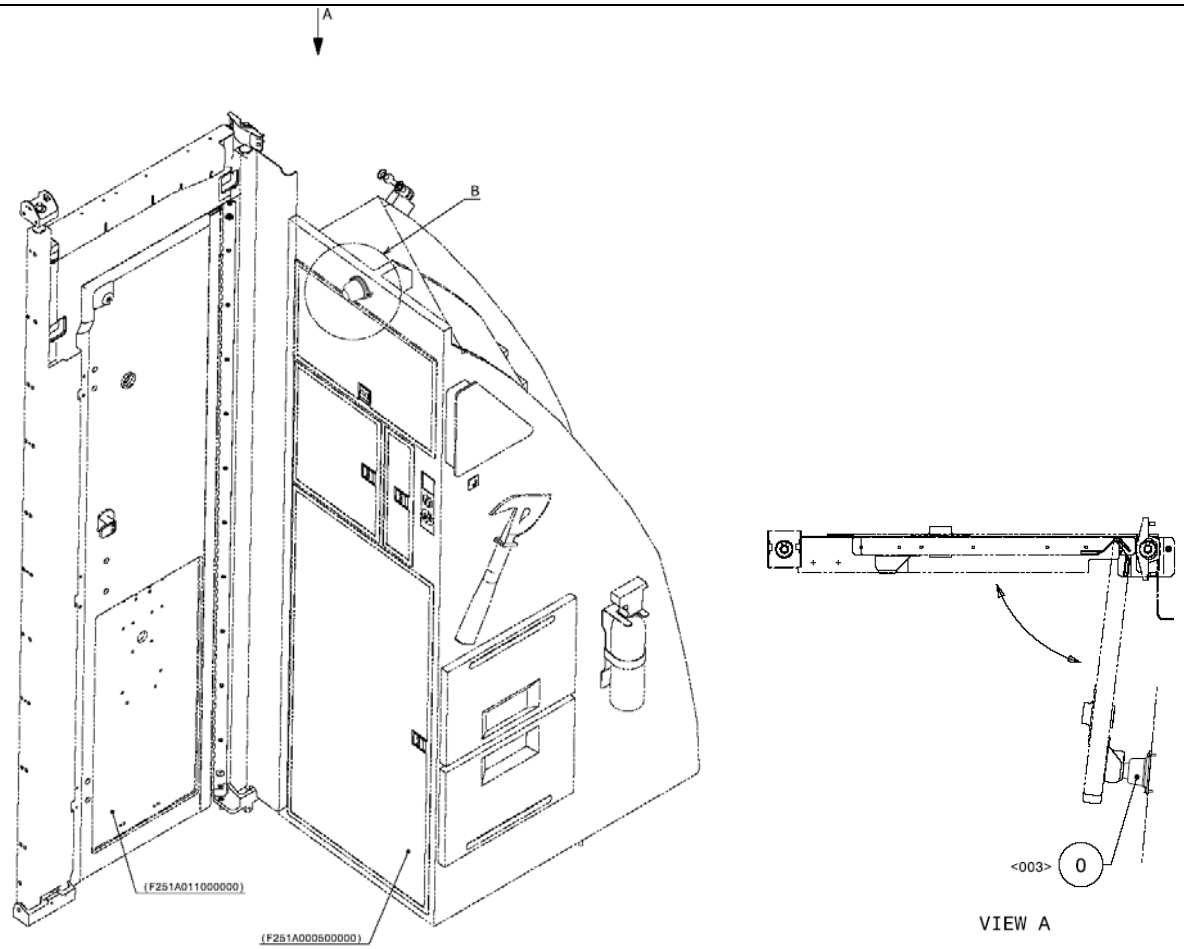
2.1. COCKPIT DOOR

The Cockpit door modification due to MRTT conversion affects to the following parts:

- New hard points in the new location and new attachment parts in the door frame
- New magnetic latch installation due to the MRTT cockpit configuration (new stowage C1 in the cockpit left side)



F251A0110000 COCKPIT DOOR INSTALATION (EXTRACT)

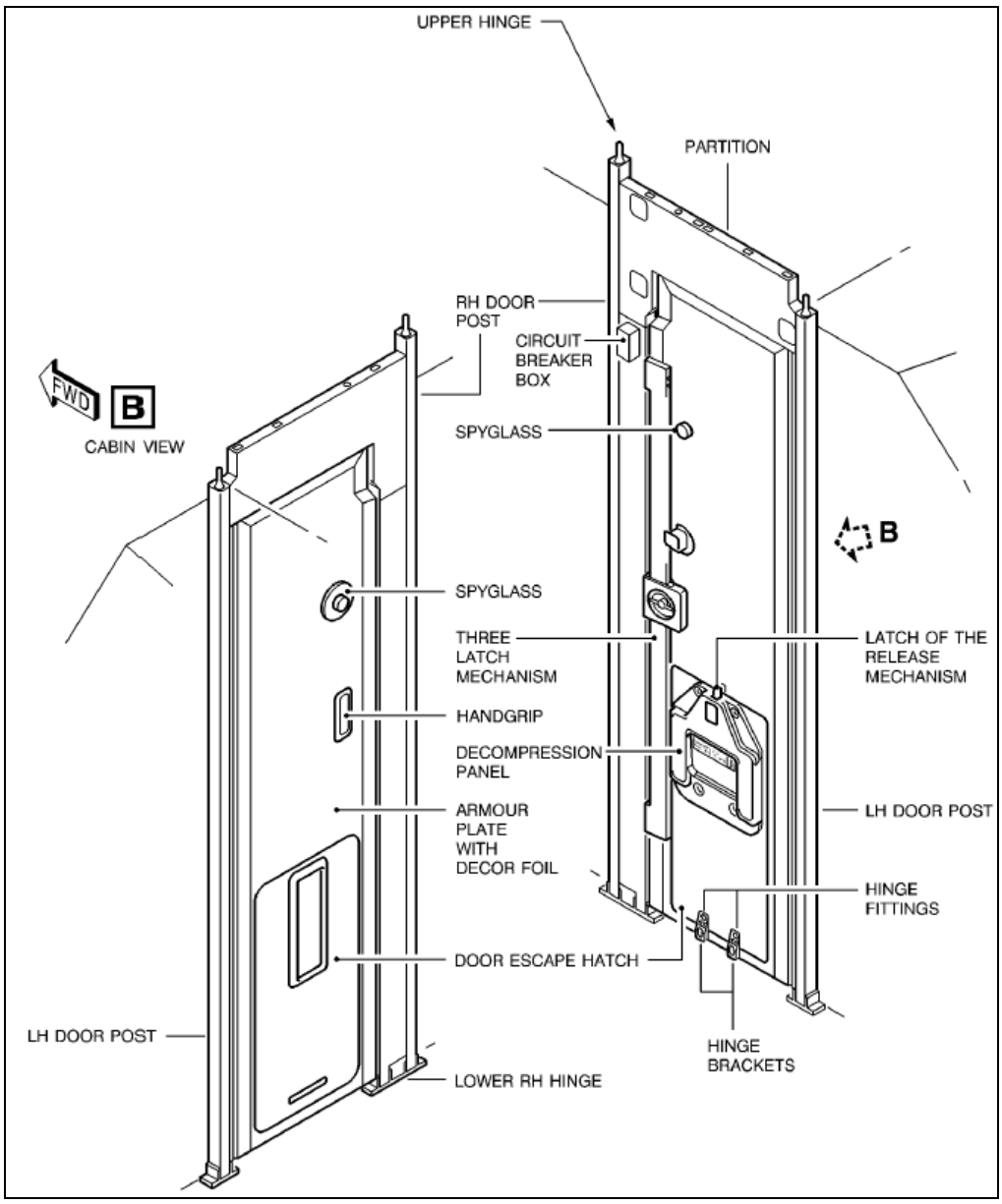


F251A0130000 MAGNETIC LATCH INSTALATION (EXTRACT)

The components of the cockpit door are the following:

a) Three latch mechanism
b) Door escape hatch

The manually operated three-latch mechanism keeps the door in its closed position. The top, center and bottom latches engage with the electrical release strikes, installed opposite, in the RH doorpost. If a rapid decompression in the cabin occurs, the internal release mechanism of the decompression panel operates pneumatically. Then the hatch opens against the flight direction.



2.2. COCKPIT DOOR LOCK SYSTEM (CDLS)

The door has an electro-mechanically operated release system CDLS for the cockpit security. The cockpit door is in the locked condition when the CDLS is energized with electrical power, and in the unlocked condition when not energized.

The CDLS is not affected by MRTT conversion except for the Electrical harnesses to reach the new location.

The CDLS is composed by the following components:

c) ***Three electrical release strikes***: top (30MQ), middle (31MQ), bottom (31MQ)

They are installed in the RH doorpost opposite the door latch mechanism. Each electrical release strike has a solenoid; when it is energized the door is LOCKED, and when is de-energized the door is UNLOCKED.
In addition, the center latch mechanism can send a signal to the indicator light (OPEN) in 119 VU when it is not engaged.

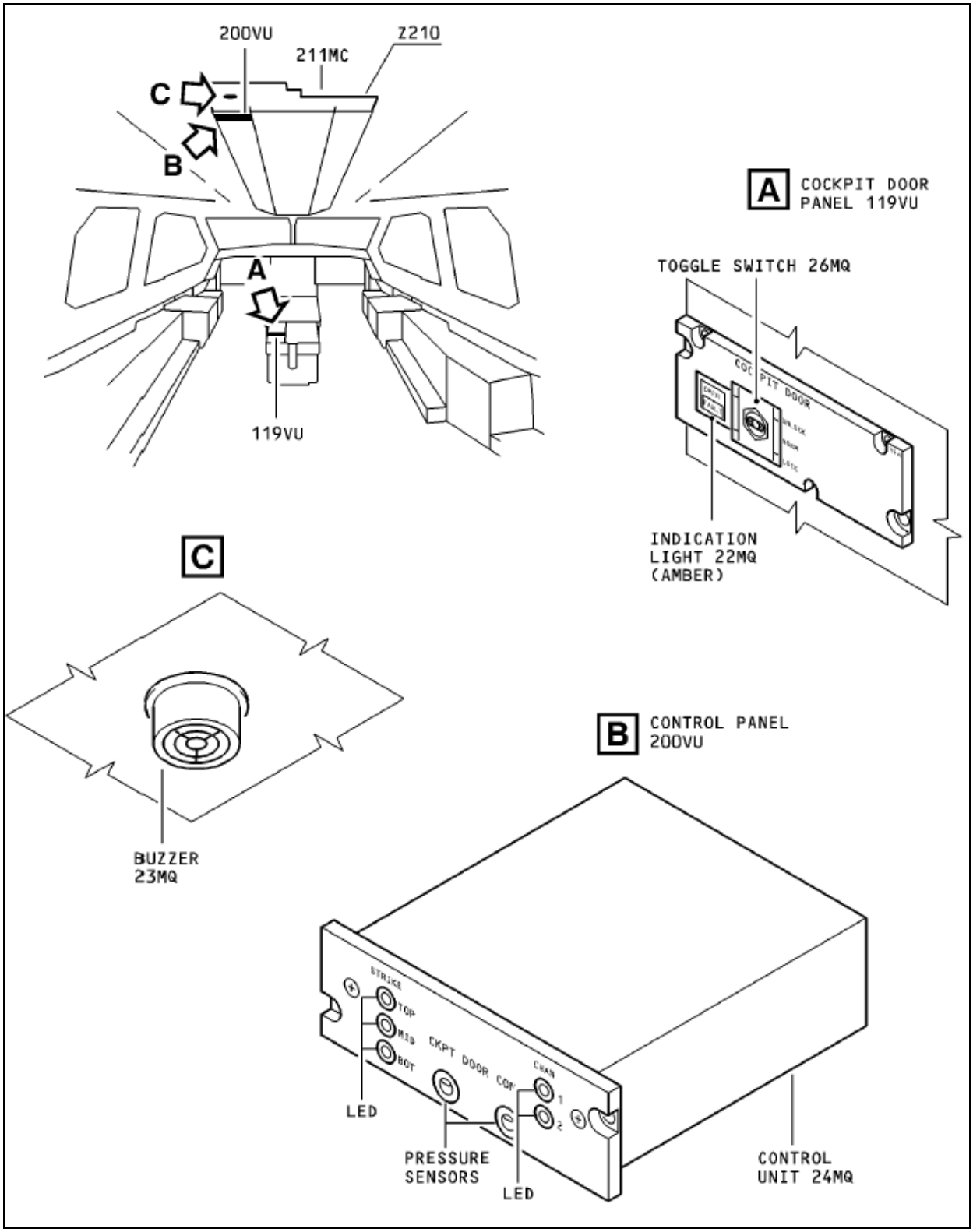
d) ***Keypad (25MQ)*** in the RH door post (cabin side).
It enables the cabin crew to request access to the cockpit. There are two different access request types: "Routine access" or "Emergency access".

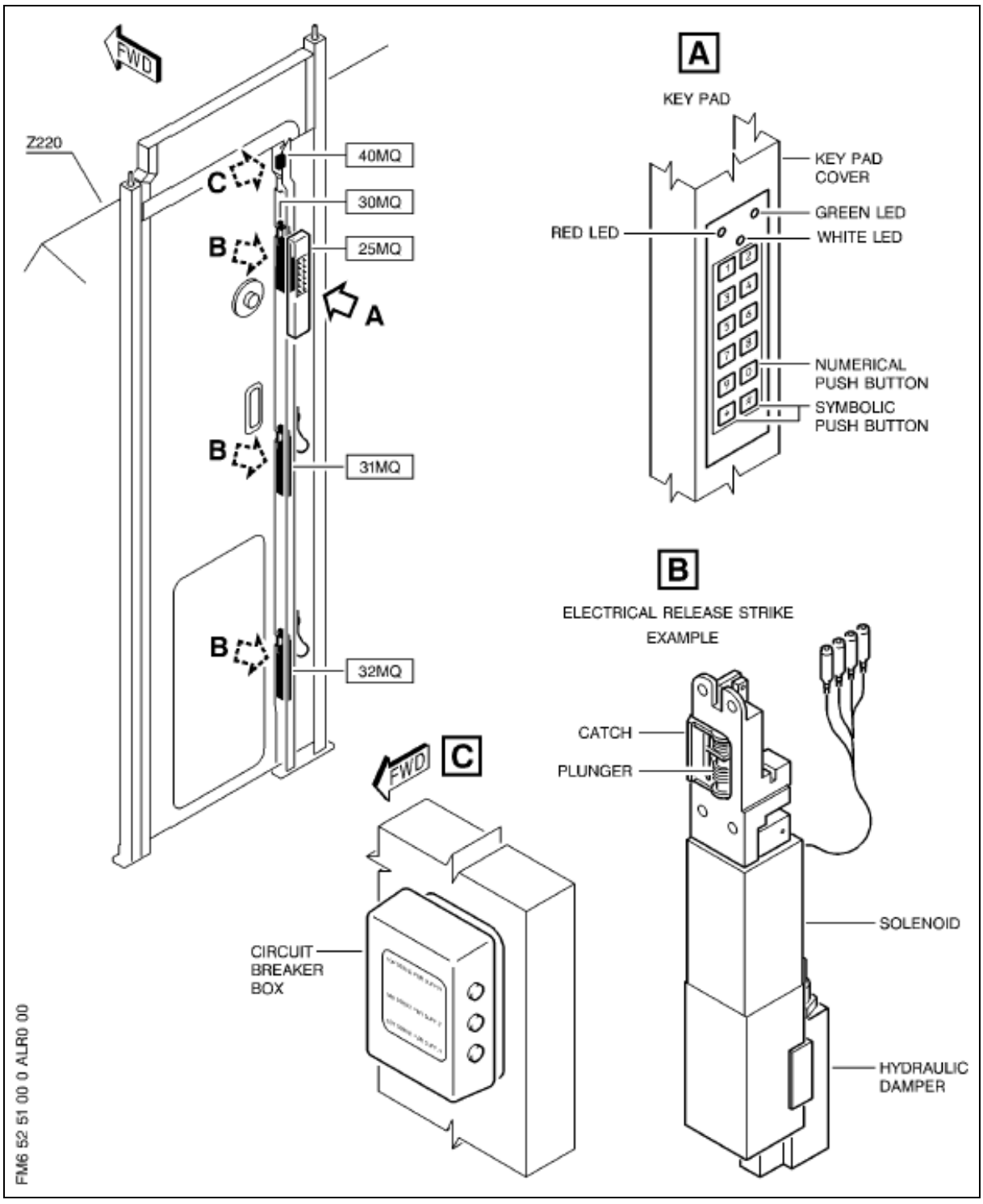
e) ***Circuit breaker box (40MQ)*** in the RH door post (cockpit side)
It controls the power supply of the electrical release strikes separately. The corresponding circuit breaker opens and stops the power supply when the electrical release strike has a malfunction.

f) ***Control panel (200VU)*** in the overhead panel (control unit 24MQ)
It is the system controller in charge of:
- Locking or unlocking the door latches, upon flight crew action
- Unlocking the door, in case of cockpit decompression
- Indicating system failures of electrical latches and pressure sensors
- Activating the access request buzzer and turning on the keypad LEDs.

g) ***Cockpit door panel (119VU)*** in the center pedestal, with two elements:
1. Toggle switch.
   It is a three-position switch (UNLOCK, NORM and LOCK), spring-loaded, that returns to the NORM position automatically.
2. Indication light (OPEN/FAULT)
   The legend OPEN comes amber when the cockpit door is opened
   The legend FAULT comes amber when there is a malfunction in the CDLS.

h) ***Buzzer*** (23MQ) in the cockpit ceiling
It sounds in the cockpit for 1 to 9 seconds to indicate that a routine access request has been made, of sound continuously if an emergency access procedure has been initiated.


200VU
211MC
Z210
C
B
A
119VU
A COCKPIT DOOR PANEL 119VU
TOGGLE SWITCH 26MQ
INDICATION LIGHT 22MQ (AMBER)
C
BUZZER 23MQ
B CONTROL PANEL 200VU
LED
PRESSURE SENSORS
LED
CONTROL UNIT 24MQ



The CDLS has two operation modes:

A. Normal mode

(1) Routine Access into the Cockpit from the Cabin side

Push the "#" pushbutton or a numbered pushbutton plus the "#" on the keypad. Then the buzzer comes on which tell the flight crew that an access into the cockpit is requested.

When the flight crew sets the toggle switch (center pedestal) to the **UNLOCK** position, the control unit in the overhead panel acts in the following way:

- To de-energize the solenoids of the electrical release strikes, so that they do not block the latches.
- To send a signal to the keypad so that the green LED comes on.

The green led in the keypad shows that the cockpit door is unlocked and the access is available.
Push the cockpit door into the flight direction so that it is fully opened. Then the amber OPEN indication light in the center pedestal comes ON.

When the flight crew sets the toggle switch (center pedestal) to the **LOCK** position, the control unit in the overhead panel acts in the following way:

- Not to e-energize the solenoids of the electrical release strikes, so that the latches remain blocked.
- To send a signal to the keypad so that the red LED comes on.

The red LED in the keypad shows that the cockpit door is locked and the access is rejected.
In this case the operation of the keypad and the buzzer is cancelled during a defined time (adjustable between 5min and 15 min.)

(2) Opening of the cockpit door from the Cockpit side
Lift and turn the D-ring of the center latch mechanism through 90 degrees.

B. Emergency mode

(1) Emergency access into the cockpit from the cabin side
Enter the numerical emergency entry code plus the "#" pushbutton on the keypad. This causes the buzzer to come on continuously and the green led on the keypad to flash. Furthermore the indicator light on the pedestal flashes in amber.

When the flight crew does not operate the toggle switch on the pedestal within a define time (between 15sec. And 2 min.), the CDLS acts allowing the access for 5 sec.

When the flight crew sets the toggle switch within a define time (between 15 sec. And 2 min.) to the UNLOCK position, the CDLS acts allowing the access (see para. A.(1)).

When the flight crew sets the toggle switch within a define time (between 15 sec. And 2 min.) to the LOCK position, the CDLS acts rejecting the access (see para A(1)).

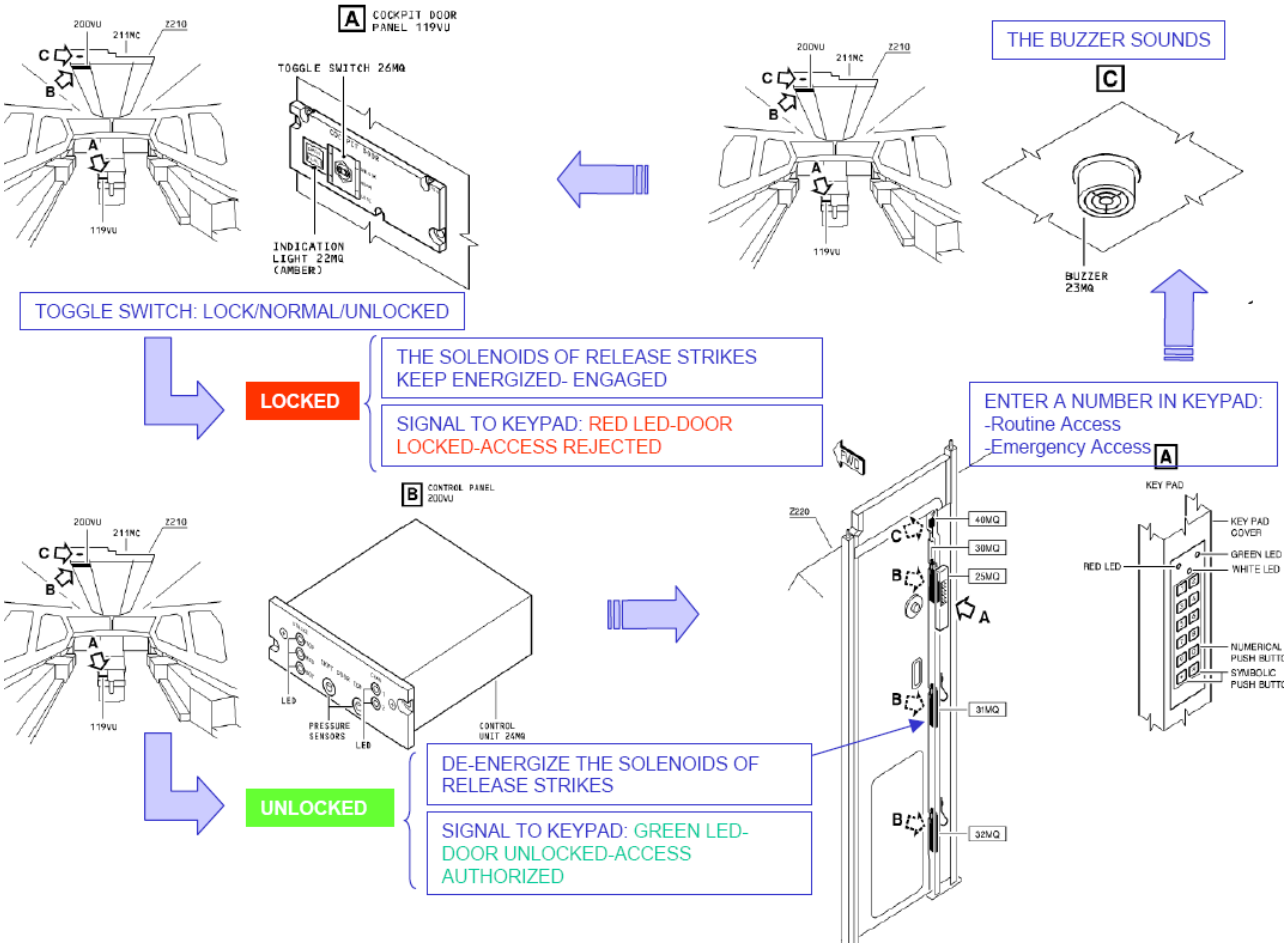
(2) Opening of the cockpit door from the cockpit side

See para. A(2).

(3) Opening of the door escape hatch

To unlock the door escape hatch the marked area of the decompression panel must be kicked. This operates the internal release mechanism so that its latch retracts.

Then, pushing the door escape hatch to the cabin direction, it comes free from the cut-out section of the cockpit door.



SYMPLIFIED SCHEME FOR ACCESS TO COCKPIT FROM CABIN SIDE

3. TEST REQUIREMENTS

3.1. AIRCRAFT CONFIGURATION

The Cockpit door is installed in the aircraft according to the following assembly drawing:

F251A0003000 COCKPIT DOOR MODIFICATION

F251A0110000 COCKPIT DOOR INSTALATION

F251A0130000 MAGNETIC LATCH INSTALATION

The following actions are to be performed prior to the beginning of the test activity:

- Confirm that all the equipment has been installed according to their applicable installation drawings and instructions
- The bonding and electrical tests have been satisfactorily performed
- AMM tasks have been performed:
  - TASK 52-51-00-200-801 Detailed Inspection of Mechanical Parts of Door Locking System
  - TASK 52-51-11-820-801 Adjustment of the Cockpit Door and Door Latch Mechanism

3.1.1. Test equipment

No special tooling is required.

3.1.2. Personnel required for the test

- Two (2) operators
- One (1) observer

3.1.3. Aircraft preparation

(1) The cockpit door must be closed
(2) The ground service network must be energized
(3) The following circuit breakers must be closed: 1MQ (COCKPIT DOOR LATCH) at 722VU.

3.2. OPERATING PROCEDURES

A. TEST OF THE COCKPIT DOOR LOCK SYSTEM (CDLS)

1) On the center pedestal cockpit door panel, set and hold the toggle switch on the UNLOCK position:
   →The cockpit door will be unlocked.

2) Move the cockpit door in the open direction.
   → The OPEN indication on center pedestal comes on.

3) On the center pedestal cockpit door panel, release the toggle switch. It returns to the NORM position automatically.
   → The door catches are blocked.

4) Move the door in the close direction. It is automatically locked.
   → The OPEN indication on the center pedestal goes off.

5) Turn the D-ring of the door latch mechanism and move the door in the open direction.
   → The OPEN indication comes on center pedestal.

6) Close the cockpit door.
   → The OPEN indication on the center pedestal goes off
   → The door latch mechanism locks the door automatically.

B. TEST OF THE COCKPIT DOOR ROUTINE ACCESS

1) Push the "#" pushbutton or "defined number N" +"#" on the keypad. The buzzer comes on.

2) On the center pedestal door panel, put and hold the toggle switch in the UNLOCK position.
   → The green LED on the key pad comes on
   → The cockpit door is unlocked.

3) Push or pull the cockpit door in the open direction.
   → The OPEN indicator light in center pedestal comes on.

4) On the center pedestal door panel , release the toggle switch. It returns to the NORM position automatically.
   → The door catches are blocked.
   → The green LED on center pedestal VU comes on.

5) Push or pull the cockpit door in the close direction.
   → The door is automatically locked. It will not open.
   → The OPEN indicator in center pedestal goes off.

6) Push the "#" pushbutton or "defined number N+"#" on the keypad. The buzzer comes on.

7) On the center pedestal door panel, put and hold the toggle switch in the LOCK position:
   → The red LED on the keypad comes on.
   → The door stays in the locked condition (during a period of 5 to 15 min the functions of the keypad and the buzzed will be off, unless the toggle switch comes back to unlock position)

8) Release the toggle switch. It returns to the NORM position automatically.

C. TEST OF THE COCKPIT DOOR EMERGENCY ACCESS

1) Enter the "emergency entry code 0763" +"#" on the keypad:
   → The buzzer comes on.
   → The OPEN indicator light in center pedestal flashes.
   → The green LED on the keypad flashes.

2) Wait for the defined period of time (adjustable between 15 sec. and 2 min.) to simulate no "flight crew reaction":
   → The cockpit door is unlocked for 5 sec.
   → The OPEN and FAULT indications in center pedestal comes on for 5 sec.
   → The green LED comes on for 5 sec.

3) Open the cockpit door and close it again. It moves to the open direction and back in its locked position.

4) Enter the "emergency entry code"+"#" on the keypad:
   → The buzzer comes on.
   → The OPEN indicator light in center pedestal flashes.
   → The green LED on the keypad flashes.

5) In the center pedestal door panel, set and hold the toggle switch to the UNLOCK position, within a defined period of time (between 15 sec. And 2 min).
   → The door is unlocked.
   → The green LED on the key pad comes on
   → The buzzer goes off.

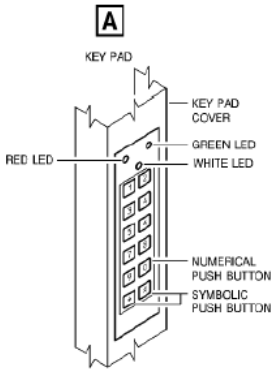
6) Open the cockpit door and close it again. It moves to the open direction and back in its locked position.

7) Enter the "emergency entry code"+"#" on the keypad:
   →The buzzer comes on.
   → The OPEN indicator light in center pedestal flashes.
   → The green LED on the keypad flashes.

8) In the center pedestal door panel, set and hold the toggle switch to the LOCK position, within a defined period of time (between 15 sec. And 2 min).

→ The door remains locked
→ The buzzer goes off.
→ The green LED on the key pad goes off
→ The red LED comes on.

(during this period of time the functions of the key pad and the buzzer are isolated. You can reactivate these when you set the toggle in the UNLOCK position).



KEYPAD LIGHT INDICATORS:

WHITE light ON briefly:	The light comes one each time the cabin crew presses a key
GREEN light ON:	The door has been unlocked by: - a flight crew action - automatically (for 5 sec.) when no flight crew action after an emergency access request
GREEN light flashes:	An emergency request has been made. The buzzer sounds continuously but no action yet taken by the flight crew
RED light ON:	The flight crew has denied access, and the door remains locked

CENTER PEDESTAL COCKPIT DOOR PANEL:

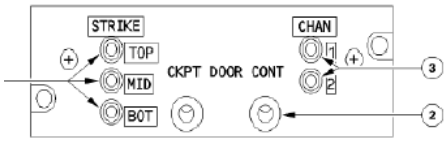
1) TOGGLE SWITCH:

UNLOCK position:	Enable the cabin crew to open the door
NORM position:	All latches are locked, and EMERGENCY access is possible
LOCK position:	The door is locked; emergency access, buzzer, and keypad are inhibited for a preselected time (5 to 20 min)

2) FAUL/OPEN INDICATOR:

OPEN light ON:	The door is not closed, or not locked
OPEN light flashes	An emergency access procedure has been initiated.
FAULT light ON:	A system failure has been identified (the indicators in overhead control unit shows the faulty item)

OVERHEAD CONTROL PANEL:



1) STRIKES' STATUS LIGHTS:

OFF:	The corresponding latch is operative (upper, mid or lower)
ON:	The corresponding latch is faulty (upper, mid or lower)

2) PRESSURE SENSOR: Two redunt differential pressure sensors detect rapid pressure variation

3) PRESSURE SENSOR LIGHTS:

OFF:	The corresponding pressure sensor is operative (1 or 2)
ON:	The corresponding pressure sensor is faulty (1 or 2)

SUMMARY OF CDLS INDICATIONS

4. TEST PROCEDURES

Every test step has a relevant data to be filled (see Chapter 5. Test Data Sheets). The different activities will be performed by:

- One operator (acting as a flight crew member) from the cockpit side (OP-1)
- One operator (acting as a cabin crew member) from the cabin side (OP-2).
- One observer who will fill the data sheet with the results.

The test procedures will consist on the following activities:

1) Check the Cockpit Door Locking System (CDLS), according to operating procedure 3.2.A. 1) to 4)
2) Check the opening of the cockpit door from the cockpit side, according to operating procedure 3.2.A. 5)
3) Open the Cockpit door completely until it is secured with the magnetic latch in the C1 stowage (door upper area). Pull the cockpit door (releasing of the magnetic latch) and close the door.
4) Check the Cockpit Door Routine Access, simulating an AUTHORIZED ENTRY, according to operating procedure 3.2.B. 1) to 5)
5) Check the Cockpit Door Routine Access, simulating an REJECTED ENTRY by the flight crew, according to operating procedure 3.2.B. 6) to 8)
6) Check Emergency Access Procedure, simulating NO REACTION by the flight crew member, according to 3.2.C. 1) to 3)
7) Check Emergency Access Procedure, simulating AUTHORIZED ENTRY by the flight crew member, according to 3.2.C. 4) to 6)
8) Check Emergency Access Procedure, simulating REJECTED ENTRY by the flight crew member, according to 3.2.C. 7) to 8)

5. TEST DATA SHEET

Examination date: Test site:			Examination time: A/C model:	
PART 1 – Checking the CDLS				
No	**To check**	**WHO**	**Action expected**	**Compliance**
1.1	On 119 VU (pedestal) set and hold the toggle switch on the UNLOCK position	OP-1	Solenoid of electrical release strikes de-energized and catches free.	
1.2	Move the cockpit door in the open direction	OP-2	The door opens	
			The OPEN indication on center pedestal comes on.	
1.3	Release the toggle switch	OP-1	The toggle switch returns to the NORM position automatically	
			The door catches are blocked.	
1.4	Move the door in the close direction	OP-2	The door is automatically locked	
			The OPEN indication on the center pedestal goes off.	
Remarks:				
PART 2 – Checking the opening from the cockpit side				
No	**To check**	**WHO**	**Action expected**	**Compliance**
2.1	Turn the D-ring of the door latch mechanism and move the door in the open direction	OP-2	The door opens	
			The OPEN indication comes on center pedestal.	
2.2	Close the cockpit door	OP-2	The OPEN indication on the center pedestal goes off	
			The door latch mechanism locks the door automatically	
Remarks:				

PART 3 – Checking the Magnetic Latch (secured opened position)				
No	**To check**	**WHO**	**Action expected**	**Compliance**
3.1.	Open the cockpit door completely	OP-2	The two parts of the magnetic latch engaged correctly and the door is secured.	
3.2.	Pull the cockpit door	OP-2	The magnetic latch is released with the expected man load.	
			The door can be opened	
Remarks:				

Part 4- Checking the Routine Access-AUTHORIZED ENTRY				
No	**To check**	**WHO**	**Action expected**	**Compliance**
4.1.	Push the "#"pusbutton on the keypad at RH door post.	OP-2	The buzzer comes on.	
4.2.	Put and hold the toggle switch in 119 VU (center pedestal) in the UNLOCK position	OP-1	The green LED on the key pad comes on	
			The cockpit door is unlocked.	
4.3.	Push or pull the cockpit door in the open direction	OP-2	The door opens	
			The OPEN indicator light in center pedestal comes on	
4.4.	Release the toggle switch in 119 VU.	OP-1	The toggle switch returns to the NORM position automatically	
			The door catches are blocked.	
			The green LED on 119 VU comes on	
4.5	Push or pull the cockpit door in the close direction.	OP-2	The door is automatically locked.	
			The OPEN indicator in center pedestal goes off.	
4.6	Try to open the cockpit door	OP-2	It will not open.	
Remarks:				

Part 5- Checking the Routine Access-REJECTED ENTRY				
No	**To check**	**WHO**	**Action expected**	**Compliance**
5.1.	Push the "#"pusbutton on the keypad at RH door post.	OP-2	The buzzer comes on.	
5.2.	Put and hold the toggle switch in 119 VU (center pedestal) in the LOCK position	OP-1	The red LED on the key pad comes on	
			The cockpit door stays locked ((during a period of 5 to 15 min the functions of the keypad and the buzzed will be off, unless the toggle switch comes back to unlock position))	
5.3.	Release the toggle switch.	OP-1	It returns to the NORM position automatically.	
Remarks:				

Part 6- Checking the Emergency Access-NO REACTION				
No	**To check**	**WHO**	**Action expected**	**Compliance**
6.1.	Enter the "emergency entry code 0763"+"#" on the keypad	OP-2	The buzzer comes on	
			The OPEN indicator light in center pedestal flashes	
			The green LED on the keypad flashes.	
6.2.	Wait for the defined period of time (adjustable between 15 sec. And 2 min.) to simulate no "flight crew reaction		The cockpit door is unlocked for 5 sec	
			The OPEN and FAULT indications in center pedestal comes on for 5 sec	
			The green LED comes on for 5 sec	
6.3.	Open the cockpit door and close it again	OP-2	It moves to the open direction and back in its locked position	
Remarks:				

Part 7- Checking the Emergency Access-AUTHORIZED ENTRY				
No	**To check**	**WHO**	**Action expected**	**Compliance**
7.1.	Enter the "emergency entry code 0763"+"#" on the keypad	OP-2	The buzzer comes on	
			The OPEN indicator light in center pedestal flashes	
			The green LED on the keypad flashes.	
7.2.	In the center pedestal door panel, set and hold the toggle switch to the UNLOCK position, within a defined period of time (between 15 sec. And 2 min).	OP-1	The door is unlocked.	
			The green LED on the key pad comes on	
			The buzzer goes off.	
7.3.	Open the cockpit door and close it again	OP-2	It moves to the open direction and back in its locked position	
Remarks:				

Part 8- Checking the Emergency Access-REJECTED ENTRY				
No	**To check**	**WHO**	**Action expected**	**Compliance**
8.1.	Enter the "emergency entry code 0763"+"#" on the keypad	OP-2	The buzzer comes on	
			The OPEN indicator light in center pedestal flashes	
			The green LED on the keypad flashes.	
8.2.	In the center pedestal door panel, set and hold the toggle switch to the LOCK position, within a defined period of time (between 15 sec. And 2 min).	OP-1	The door is remains locked	
			The red LED on the key pad comes on	
			The buzzer goes off.	
			The green LED on the key pad goes off	
Remarks:				