

# ClearLock 631



## *Installation manual*

| Rev | Date     | Nature of the modification                            |
|-----|----------|---|
| 07  | 13-03-13 | Updated single presence sensor layout and description |
|     |          |   |
|     |          |   |
|     |          |   |
|     |          |   |
|     |          |   |

### **ClearLock 631-MT-EN**

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## 1. INTRODUCTION

### 1.1. General information

Automatic Systems has written this Manual in order to assist technicians in installing of the ClearLock 631 Models listed in Table 1-1. See for illustrations of the ClearLock 631.

**Table 1-1 ClearLock 631 Model Numbers**

| Model number | Description   |
|--------------|---|
| 498          | ClearLock 631 - Ø 1150mm / glass thickness up to 19mm |
|              |   |
|              |   |

### 1.2. Parts list

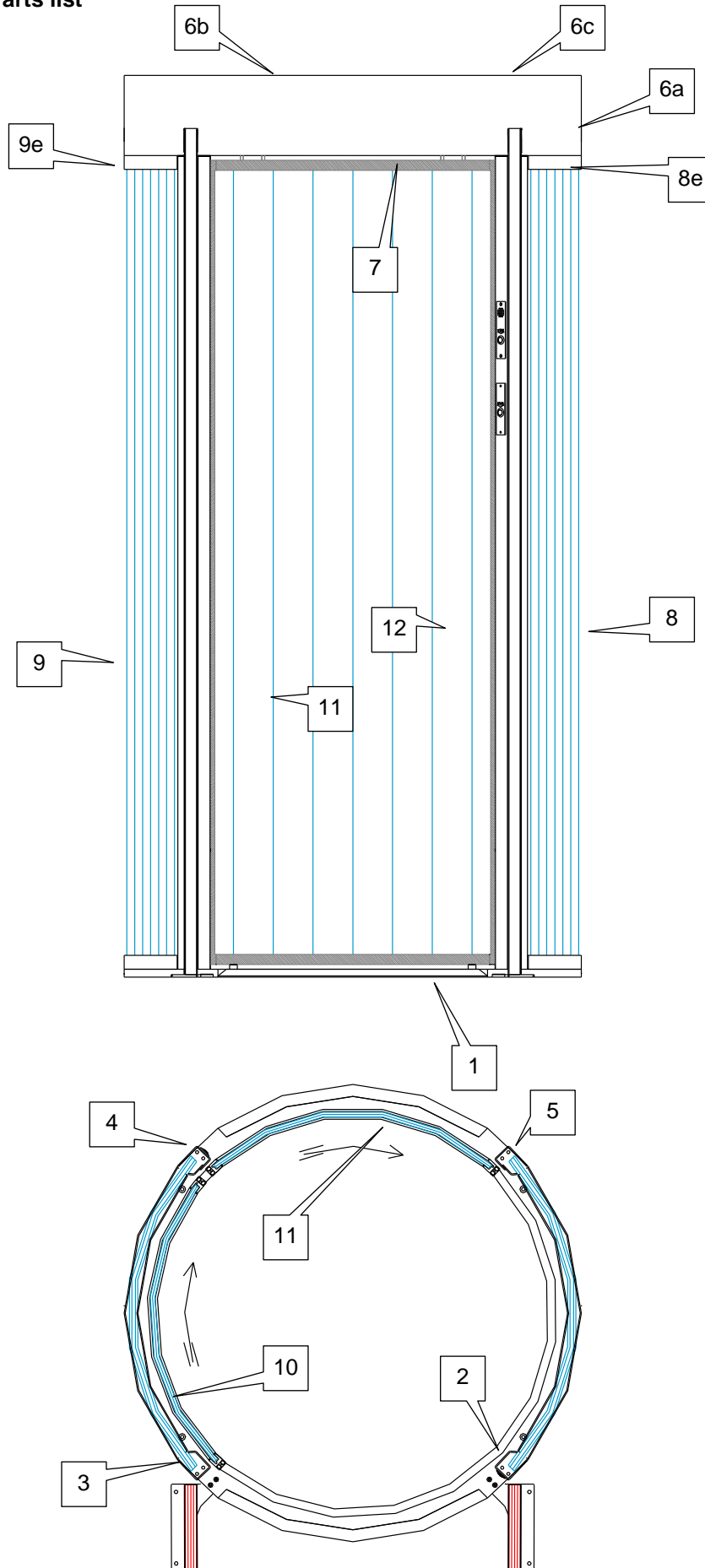
Main parts are shown below. Depending on the model, further parts may be added. (Ref. Figure 1-1).

**Table 1-2 Part list**

| Pos. | Qty. | Item   |
|------|------|--|
| 1    | 1    | Basement   |
| 2    | 1    | Low side jamb "R"  |
| 3    | 1    | Low side jamb "L"  |
| 4    | 1    | High side jamb "R"   |
| 5    | 1    | High side jamb "L"   |
| 6    | 1    | Top canopy   |
|      |      | 6a: top canopy with electronic<br>6b: top canopy cover #1<br>6c: top canopy cover #2 |
| 7    | 1    | Ceiling with sensors   |
| 8    | 1    | Side glass "R"   |
|      |      | 8e: side glass cover (external)<br>8i: side glass cover (internal)                   |
| 9    | 1    | Side glass "L"   |
|      |      | 9e: side glass cover (external)<br>9i: side glass cover (internal)                   |
| 10   | 1    | Low security side automatic sliding door   |
| 11   | 1    | High security side automatic sliding door  |
| 12   | 1    | Internal column  |
| 13   | 1    | Fastening set box (see fastening set part list - pag.9)                              |

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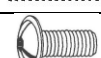
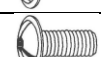

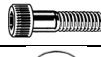


**Figure 1-1 Parts list**



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**Table 1-3 Tools**

| Pos. | Qty. | Item                                | Draw  | Assembly pos. |
|------|------|-------------------------------------|---|---------------|
| 30   | 16   | Countersunk socket Head Screw M6x16 |    | 2,3,4,5       |
| 31   | 8    | Flanged Button Head Screw M6x10     |    | 6a,6b,6c      |
| 32   | 4    | Countersunk socket Head Screw M8x20 |    | 6a,2,3,4,5    |
| 33   | 4    | Flanged bushing                     |    | 6a,2,3,4,5    |
| 34   | ..   | Plastic shims                       |    | 6a,8,9        |
| 35   | 3    | Grey silicone tube                  |   | 8,9           |
| 37   | 16   | Hex Head Bolt M8 lower(wrench #13)  |    | 6a,10,11      |
| 38   | 8    | Threaded stud M8x50                 |    | 6a,10,11      |
| 39   | 8    | Flanged Button Head Screw M8x16     |    | 6a,7          |
| 40   | 10   | Flanged Button Head Screw M4x10     |    | 12            |
| 41u  | 2    | Hex Socket Cap Screw M5x10          |    | 6a,12b        |
| 41l  | 2    | Hex Socket Cap Screw M5x16          |   | 1,12b         |
| 42   | 4    | Flat Washer M5                      |  | 1,6a,12b      |
| 43   | 4    | Spring Washer M5                    |  | 1,6a,12b      |



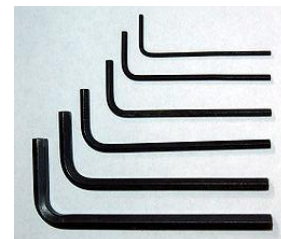
Most screws are already in final places: unscrew them and screw them again after assembling.

### 1.3. Tools and auxiliaries

Fork-ring-wrench size 13 (1 pcs.)



Allen key size 2.5, 3, 4, and 5



Caulking gun



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**Figure 1-2 Tools kit**

- Tool kit (details in Figure 1-1)
- Pry bars
- Utility knife
- Pliers (length: 200 mm)
- Silicone caulking (provided)
- Snips
- Water level
- Shop vacuum cleaner
- Glass cleaner
- Paper towels
- Masking tape or other device for labelling cables and wires
- Percussion Hammer (ø35 mm)
- Hammer drill (ø15 mm)
- Percussion drill bits (3mm, 4mm, 5mm, 6mm, 8 mm, 10 mm, by 15 cm long)
- Cordless 10 mm drill with clutch (to drive screws)
- Screwdriver #2 Phillips bit and #3 Phillips bit, 15 cm long for drill (TORX)
- Step ladders (h 2m)
- plastic shims, various thickness and sizes
- Wire stripper tool
- Console cable (provided in accessories box inside BOX , 50 m)
- Feeder cable (Supplied by others 110-230Vac/10A)
- Intercom cable (provided in accessories box inside BOX , 50 m)
- Tape measure
- Self expanding anchors (provided)

## 1.4. Safety Equipment

Make sure to have the following safety equipment on the job site:

- Hard hat
- Steel toe shoes
- Safety glasses
- Gloves

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## Installation procedure

## 1.5. Pre-installation Inspection

To put into practice a good installation avoiding as much as possible troubles and risks, it is better to check that:

- environment temperature is  $-10^{\circ} < ^{\circ}\text{C} < +70^{\circ}$  for the whole year.
- the passage for power, console and intercom cables was planned before starting booth installation.

Proceed, when it is possible, the laying of cables in connection with booth installation, in any case before installing possible false ceilings or floating floors.

Be sure that the electric plant is appropriate for this installation.

Carefully protect all glass and / or painted parts when working close to the booth

Make sure the floor is leveled about 6 mm within 2 m run. If the floor is not leveled, stop the installation and ask the general contractor to level the floor.

Make sure that the width of the wall opening is larger enough.

Make sure to have a minimum clearance above the booth. This space is necessary to positioning the booth and to allow the technician to make electrical connections and future servicing.

Do not use the booth as a scaffold or as a support for the execution of overhanging works!

Avoid that any acid (also if diluted) used to clean floors or glasses may enter in contact with the base of the booth.

**Do not modify in any way the booth.**

Check floor resistance to booth weight.

Avoid the creation of intermittent windings with additional metal works.

Pay attention that screws, used to fix additional metal works to the booth, do not pierce the non-conducting structure supplied in kit.

Metal Detector correct working may be affected also by noises originated outside the room in which the booth has been installed.

It is necessary to notify installation technicians of this situation in order to solve possible problems arising from noises near the booth, e.g.:

- overhead or underground electric lines;
- transformers;
- radio transmitters;
- neon signs working incorrectly or with no-standard reactors;
- high voltage transformers;
- machines that cause high vibrations;
- the transit nearby of trains or underground;
- high frequency machines;
- Lifts;
- conditioning units, monitors, televisions, cash dispensers.

Moving doors have to be as far away as possible from Metal Detector antennas (at least 100 cm.).

When these doors are closed, they have to be perfectly locked and they have not to swing.

In case one door is used as a passage, it has to be slowed down by a piston pump in order to avoid swinging while closing.

Sectioning cuts must be arranged in the door frame.

Pay attention that possible electric locks do not create intermittent windings between the fixed part and the mobile part, in that case use non-conducting mobile parts. (PVC, resin, laminate, etc.)

Avoid positioning of Metal Detector antennas close to metallic false ceilings: they could create intermittent windings.

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In case it is not possible to use different kinds of material, pay attention that false ceiling support structure is compact and isolated from other metallic parts.

If it is possible, please use plaster cardboard, plastic material or in any case no-magnetic material for false ceilings.

In case of floating floor, carefully check that the supporting structures does not cause intermittent windings.

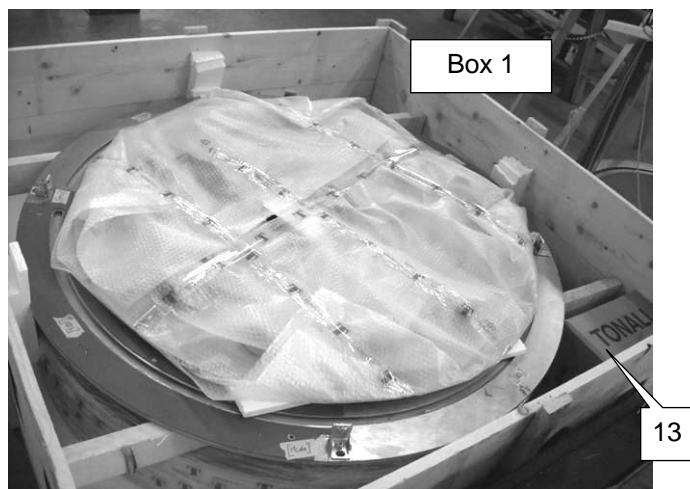
Check that there are no electric dissipations on the ground.

Arrange for a dedicated line with 10 A two poles automatic breaker on the main panel.

## 1.6. Unpacking and Inspecting

- Move the booth packaging (ref. Figure 1-3) near the installation site, open and unpack all single booth component

**Figure 1-3 Packaging**



- Remove the protective plastic foil
- Remove packaging taking care to not cause damage to glasses or surface. Clear all parts from the bottom box
- Check that the parts are not damaged (glasses and surface). In case there is any damage please contact Automatic Systems
- Remove the tool box (#13), lean it on the floor, open it and check that nothing is missing (ref. 1.2 Parts list)

- 1 Console with Handset
- 1 Console cable (50 m)
- 1 Intercomm cable (50 m)
- Fixing screws
- 1 Silicone tube
- 4 Console keys
- 2 Keys for sliding door manual lock (optional)
- Technical manual
- User manual

Check if the Metal Detectors antennas are not visibly damaged during the shipment



If something is missing please contact Automatic Systems

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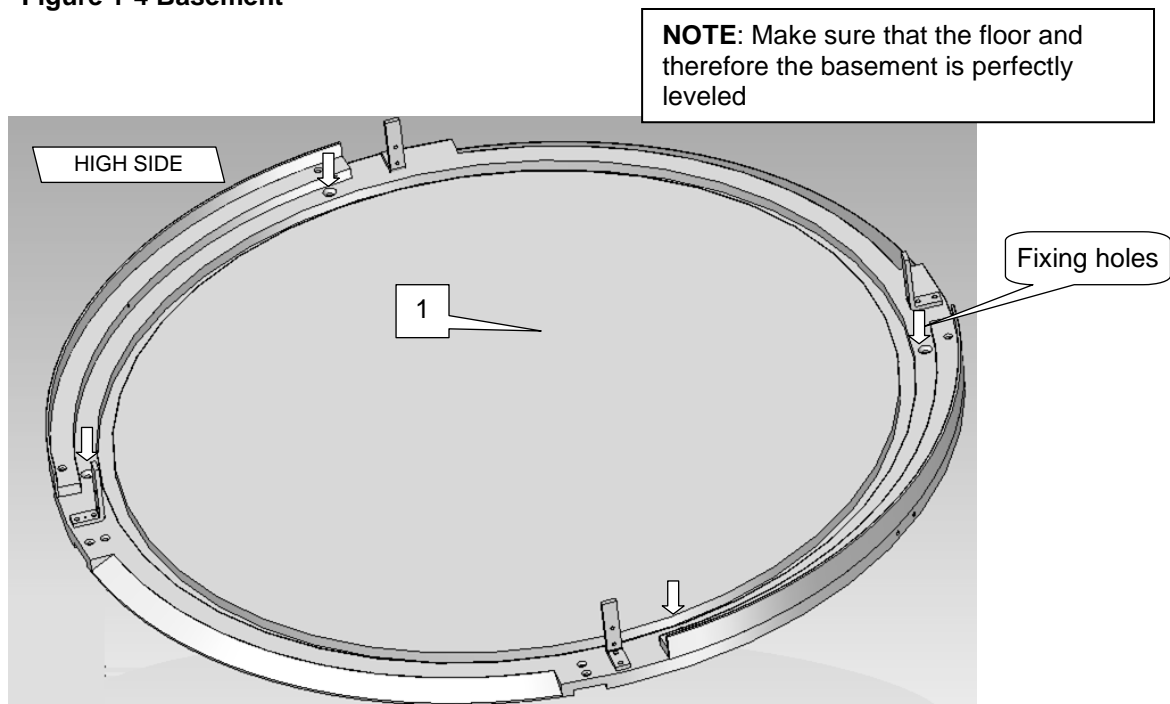
## 1.7. Installation



A : In case the unit is shipped in separate parts

### 1.7.1. Basement

- Locate the basement of the booth (#1) in the place where the booth will be assembled with the rubber part upside
- Fix the basement with self expanding anchors or other similar systems, depending on the type of floor, using the designed fixing holes (Ø8mm) (ref. Figure 1-4)

**Figure 1-4 Basement**



-  Locate the basement according to the installation plans. Take care about lowside and highside.
-  The floor must be perfectly leveled.

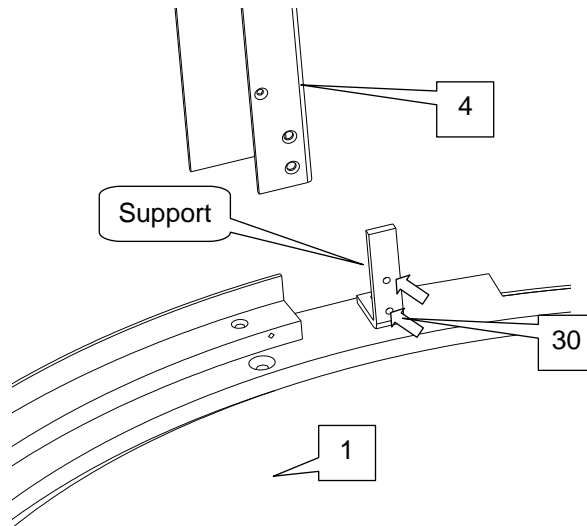
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### 1.7.2. Basement and jambs

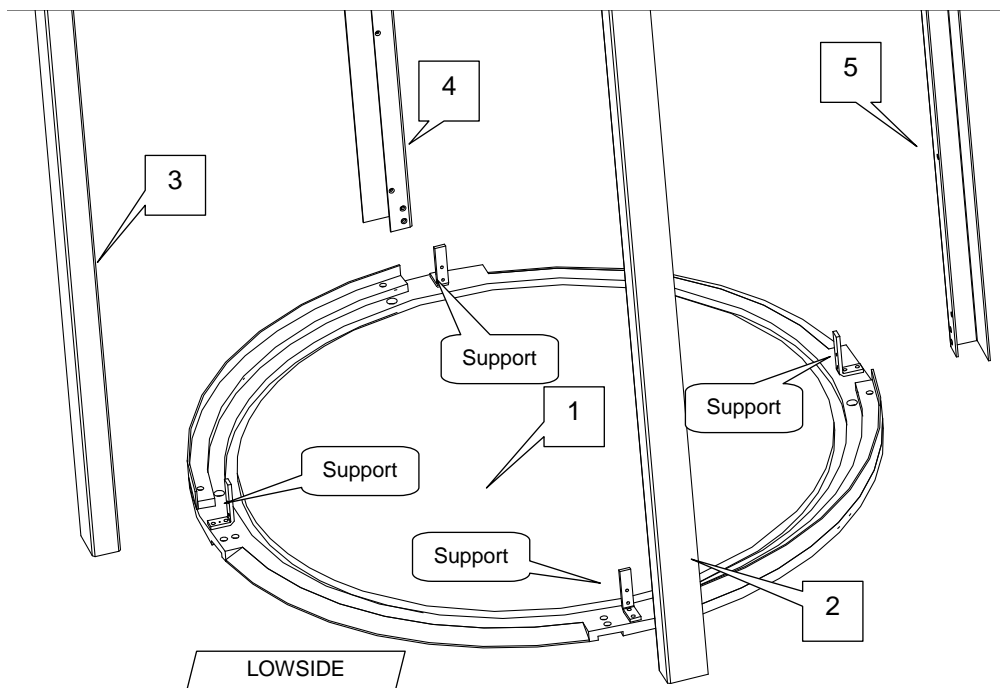
- Unscrew the countersunk socket head screws M6x16 (#30) from the support frame
- Locate the high side jamb "R" (#4) on the support frame
- Screw the high side jamb "R" (#4) using the countersunk socket head screws (#30) (ref. Figure 1-5)

**Figure 1-5 Basement and high side jamb R assembly**



Repeat previous operations for all 4 jambs (#2, #3, #4 and #5) (ref. Figure 1-6)

**Figure 1-6 Basement and jambs assembly**

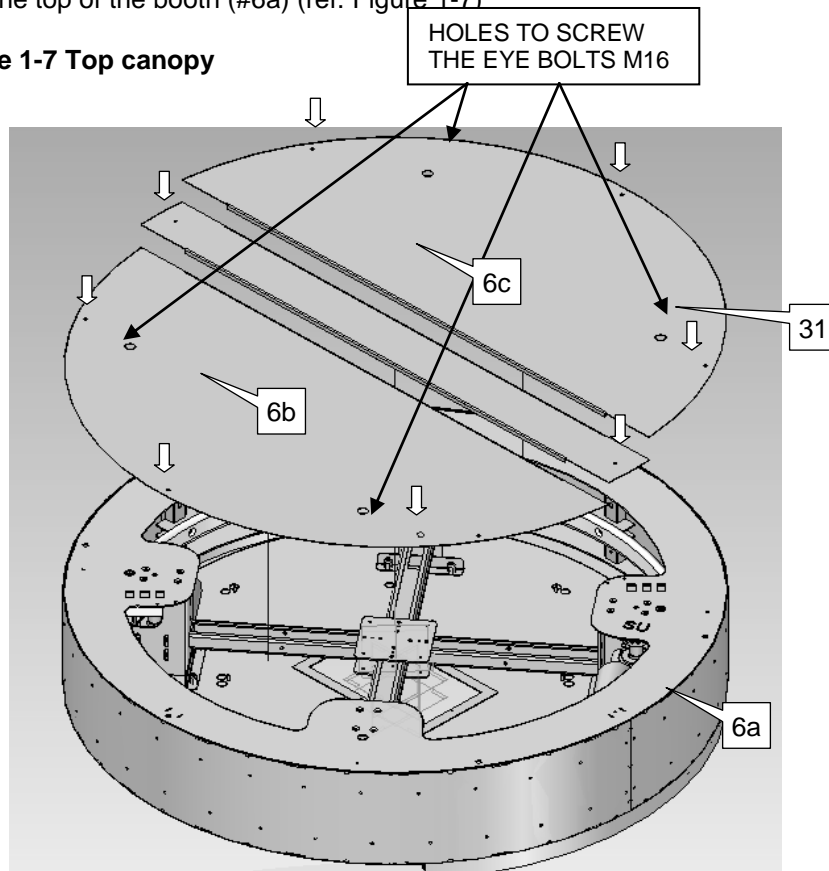


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### 1.7.3. Top and jambs

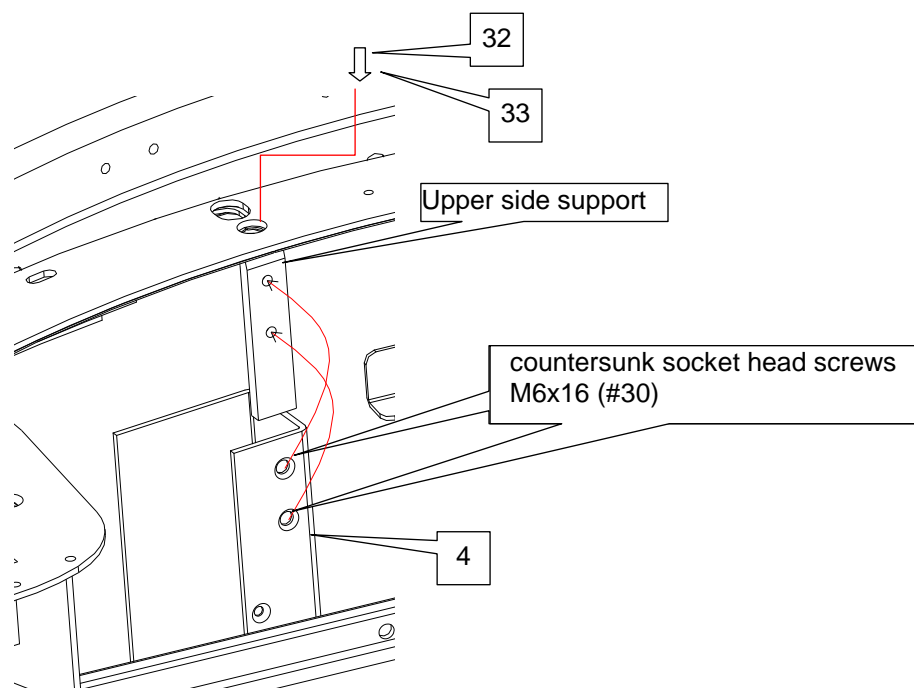
- Unscrew the flanged button head screws M6x10 (#31) and remove the covers (#6b, #6c) from the top of the booth (#6a) (ref. Figure 1-7)

**Figure 1-7 Top canopy**



The upper side support of each jamb is already fixed to the top canopy with countersunk socket head screw M8x20 (#32) and non conducting flanged bushing (#33) (ref. Figure 1-8)

**Figure 1-8 Assembly high side jamb R**

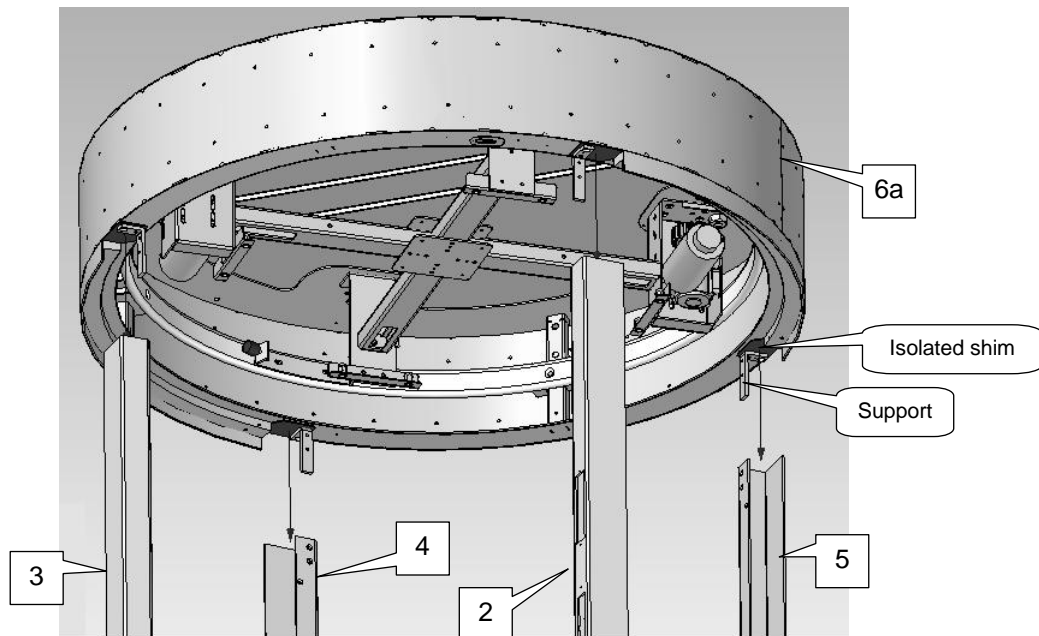


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If necessary to move it up with a crane, screw 4 eye-bolts M16 on the top of the booth (#6a) or use an adequate lifting unit to move it up (approx. weight 150Kg.)

- Locate the top (#6a) above the jambs (#2, #3, #4, #5) (ref. Figure 1-9)

**Figure 1-9 Locating the top canopy above the jambs**



Take care about the lowside and highside.



Before tighten the screws check that jambs are in vertical position.  
If necessary, release a little the countersunk socket head screws M8x20 (#32) and act on the jambs to put them in vertical position and perfectly perpendicularly with the basements. Complete the jambs adjustment tighten the screws (#32).

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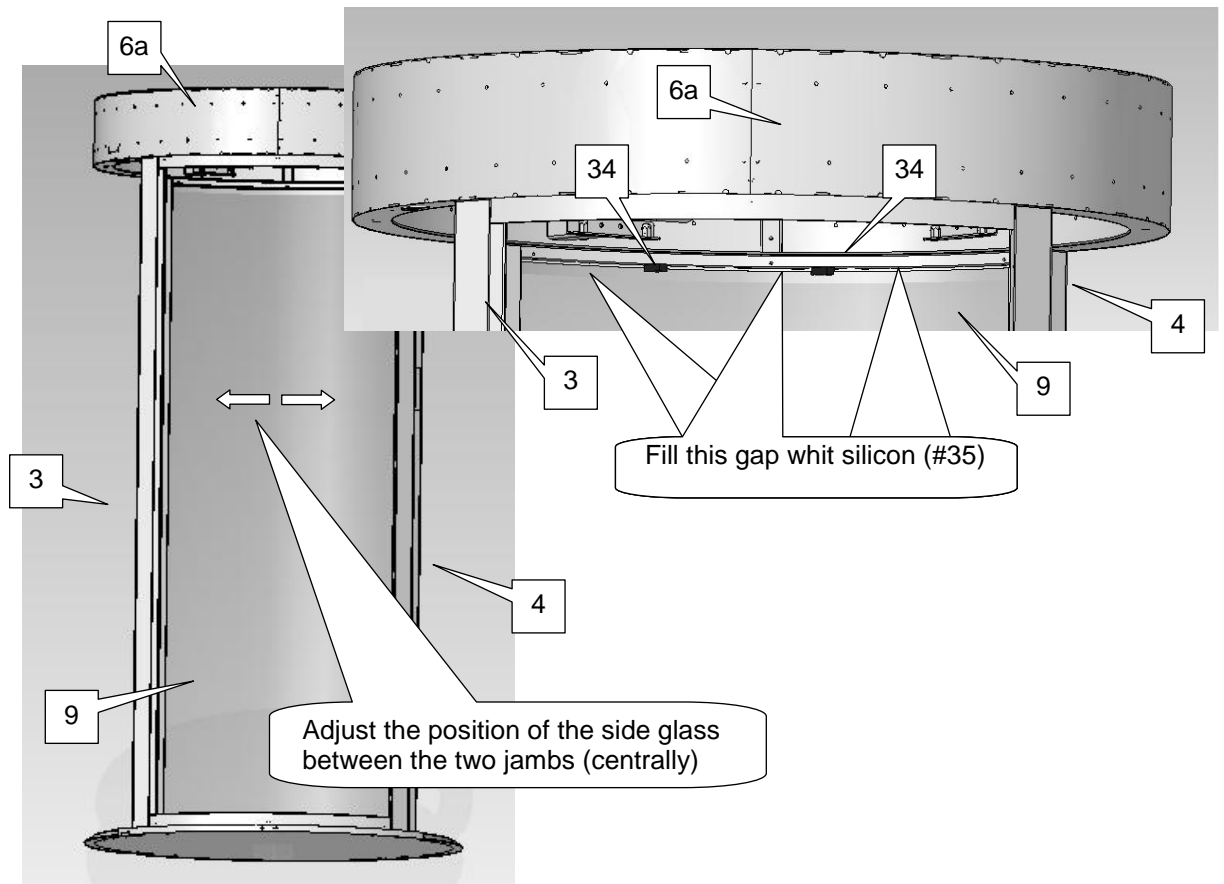
#### 1.7.4. Positioning side glass



If glass covers are already placed in their final position, remove them before proceeding with the side glass fixing

- Position the side glass L (#9) (approx weight 100 kg) in the middle, between the two jambs (#3 and #4) by using lifting belts (two people are necessary)
- Put the necessary plastic shims (#34) between the side glass (#9) and the top (#6a) in order to block the glass (ref. Figure 1-10)

**Figure 1-10 Positioning the side glass**



After having positioned the side glass in its final position, fix it using the inside frame #4i (ref. Figure 1-11 and Figure 1-12)

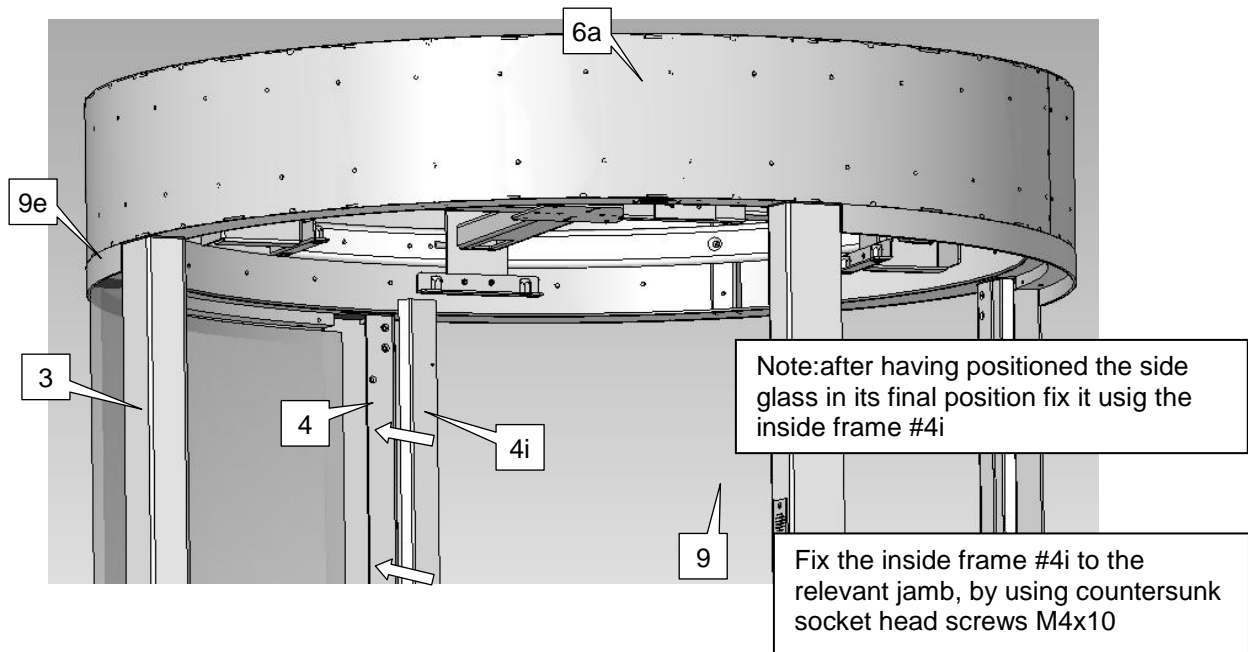


Take care of the position of the glass, it must be vertical.

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**Figure 1-11 Fixing the side glasses**



### 1.7.5. Fixing side glasses

Put the upper and lower side glass covers (#8i, #9i) between glasses and jambs; before, place the rubber foam between glasses and outside covers (if not already present); Screw the three countersunk socket head screws M5x10 for each glass cover (upper and lower). (ref. Figure 1-13 and Figure 1-14)

After having positioned the side glasses, as before describe, proceed inserting the rubber gaskets:

Fill with rubber gaskets the gaps between side glasses (#8, #9) and the outside glass covers (#9e, #8e) up and down.

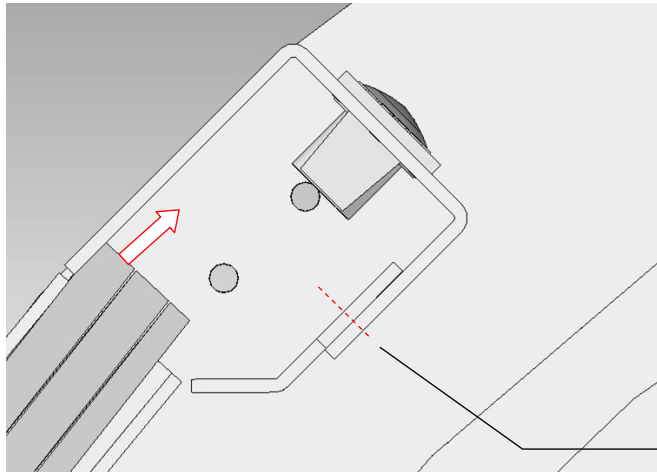
Fill also with rubber gaskets the vertical gaps between side glasses (#8, #9) and the jambs (#2, #3, #4, #5) (booth inside and outside).



Use the supplied rubber gaskets, different thickness, following also the numbers indicated both on the rubber and on the glass covers

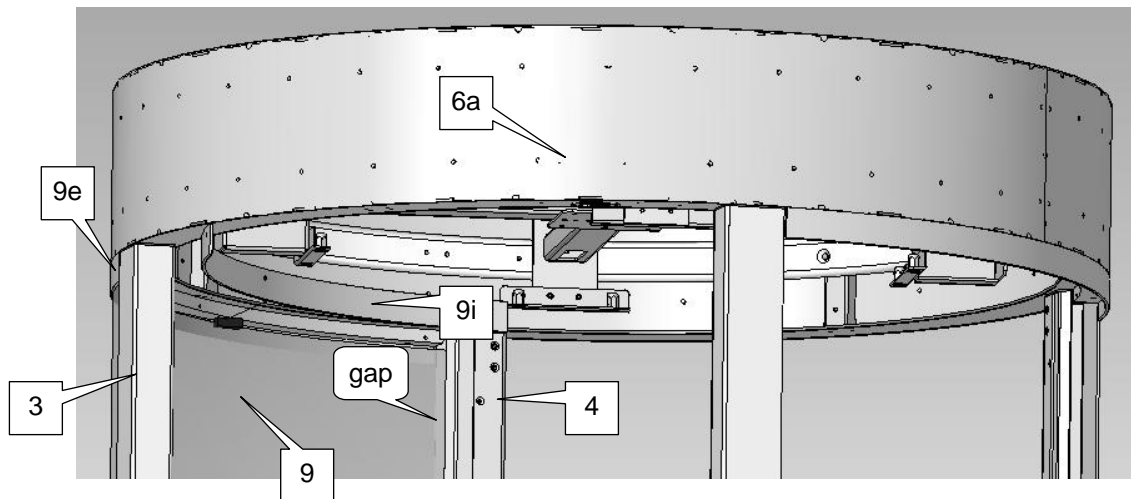
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**Figure 1-12 Fixing the side glasses (high side jamb detail)**

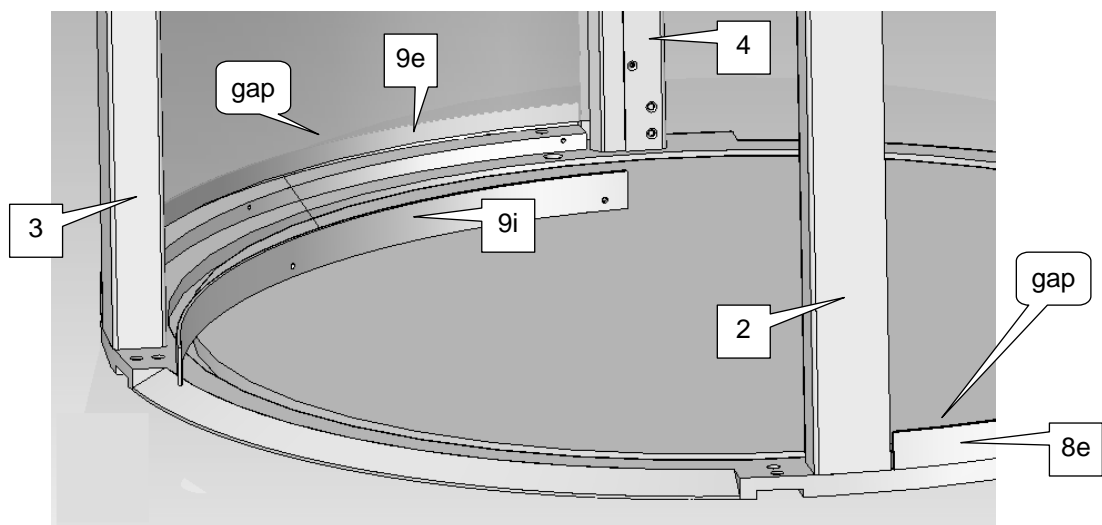


Countersunk socket head screws  
M4x10 internal frame fixing screws

**Figure 1-13 Fixing the side glasses (top)**



**Figure 1-14 Fixing the side glasses (bottom)**



Repeat the operation for the side glass R (#8)

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### 1.7.6. Automatic sliding doors



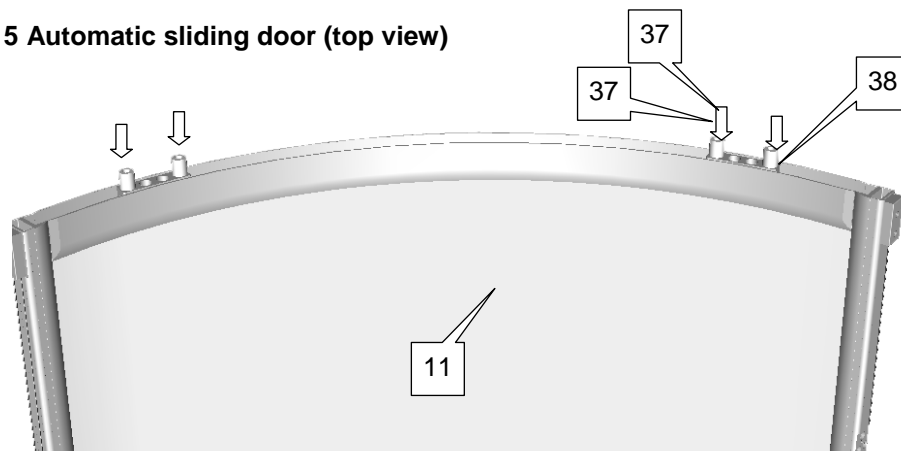
Remove from the racks all the fixing devices (iron wire, tapes, ...) before proceeding.



Before proceeding to install the sliding door, unscrew the screws, which fix the top supports to the above rack (Booth is supplied with the top supports of each sliding door already fixed to the relevant rack) and move the rack away from the motor pignon, in order to make easier fixing the doors to the relevant top supports and adjusting the door as described in section 1.7.7.

Unscrew the upper of the two hex head flange nuts M8 (#37) from the threaded studs M8x50 (#38) (in stainless steel) already fixed on the top side of the sliding door (#11) (ref. Figure 1-15)

**Figure 1-15 Automatic sliding door (top view)**



Insert the sliding door (#11) (approx. weight up to 90 Kg.) between the top (#6a) and the basement (#1): first, introduce the threaded studs into the slotted holes of the top supports and, after positioning the sliding door bottom wheels inside the bottom slide-way, then put it in vertical position (ref. Figure 1-16).

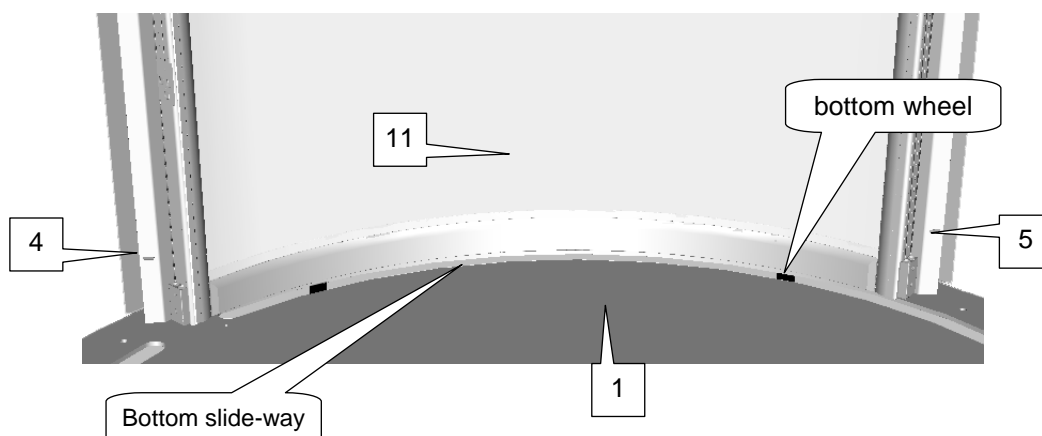


**Note:** Align the two top sliding door supports, moving manually, with the threaded studs (#38) on the upper side of the sliding door (#11)



**Note:** the bottom side of the sliding door must be placed above two wood shims of about 10 mm in order to make the bottom wheel not to touch the low side of the slide way.

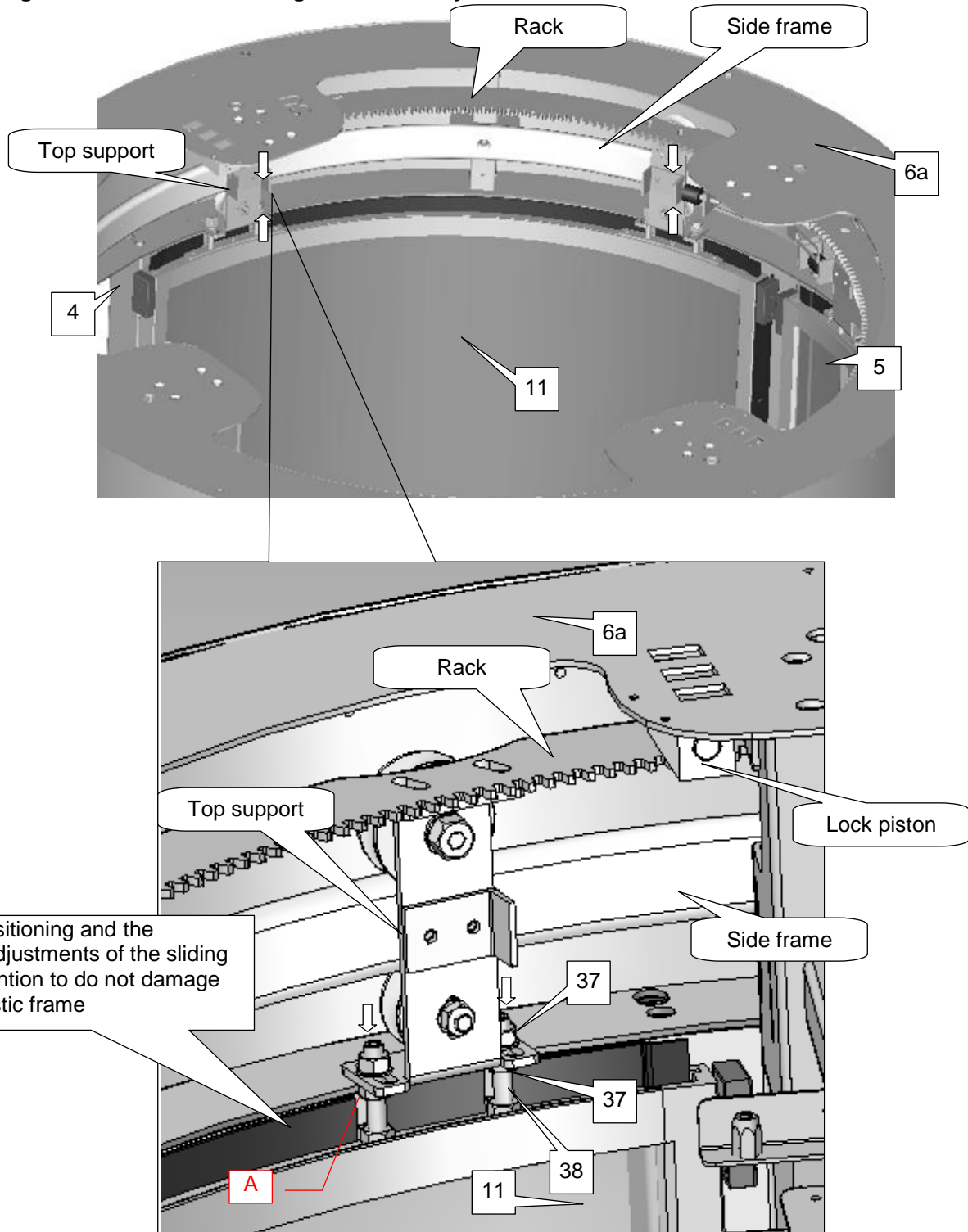
**Figure 1-16 Automatic sliding door (bottom view)**



### ClearLock 631-MT-EN

Screw the automatic sliding door (#11) to the two top supports, by means of the hex head flange nuts M8 (#37), (ref. Figure 1-17).  
Tight the upper flange nuts in order to lift the door until is possible to remove the wood shims (previously positioned below the sliding door).

**Figure 1-17 Automatic sliding door assembly**



Each automatic sliding door is provided with two couple of threaded studs M8 (#38) tightened on the top side of the door, two nuts (#37) are screwed on each stud, used to fix the door to the relevant trailer (top support), and to adjust the correct movement of the door.  
Before to position the doors between the top and basement of the unit remove the highest nuts (#37)

### ClearLock 631-MT-EN



Completed the door adjustment lock the door to relevant supports locking the nuts (#37) below the support (detail A)

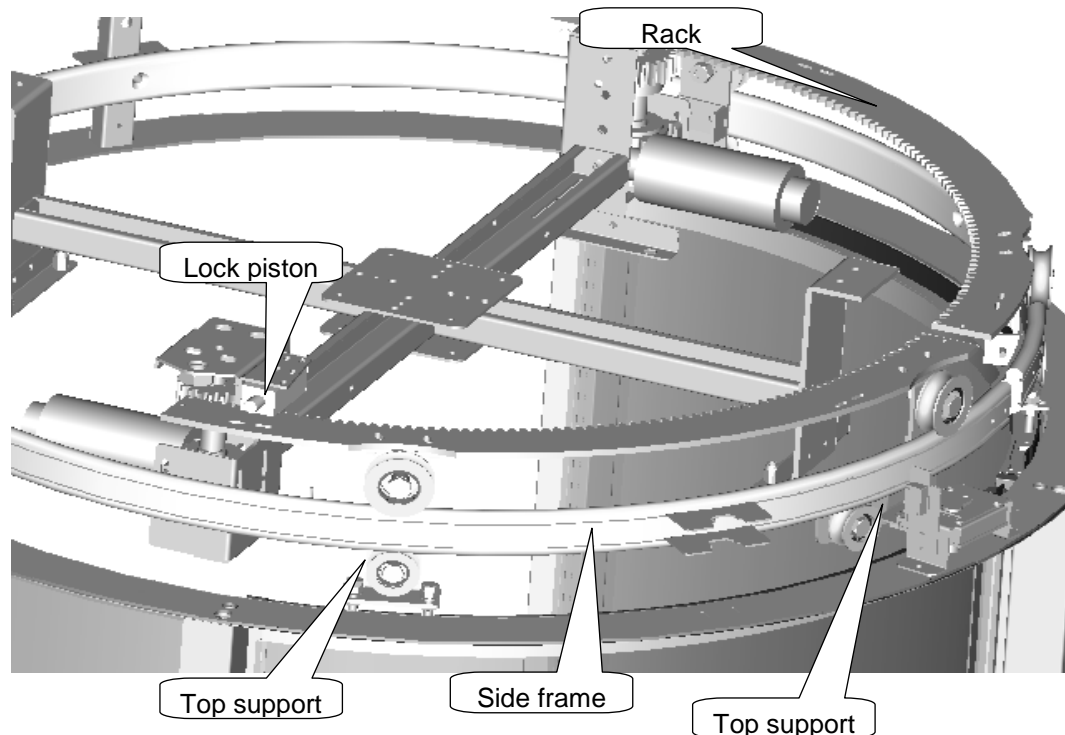
Repeat the previous operation for the lowside sliding door (#10)

### 1.7.7. Adjusting automatic sliding doors



Take care about the correct adjustments. (ref. Figure 1-16, Figure 1-17 and Figure 1-18)

**Figure 1-18 Automatic sliding door system**

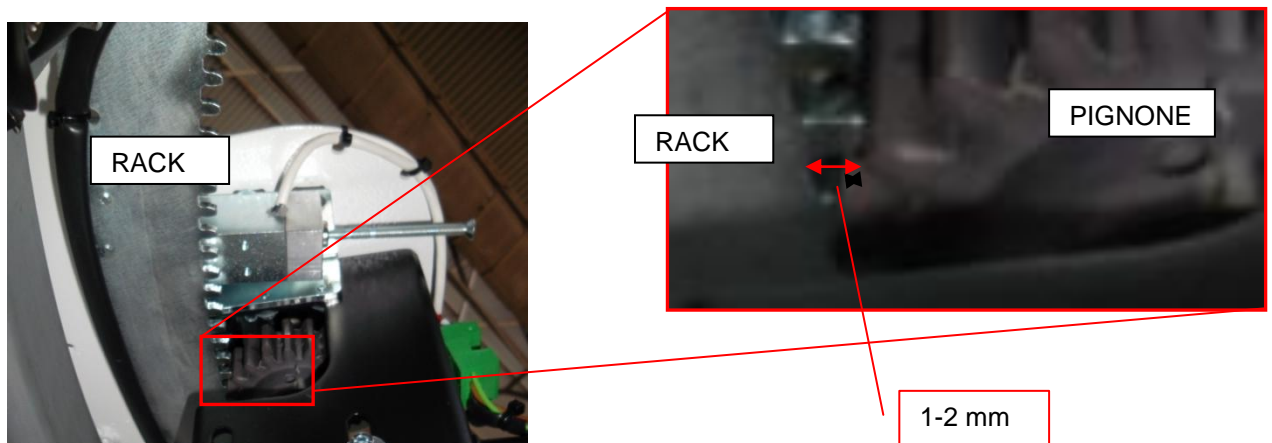


The sliding door has to be vertical and aligned: take as reference the jambs  
 The door bottom wheels have not to touch the bottom part of the slide-way  
 When the ceiling will be assembled the sliding door must not touch it  
 Sliding door movement must be free for whole rotation  
 The top support must run straight  
 The horizontal wheel of the top supports must lean on the top side of the canopy frame lightly  
 The rack and the pinion must work freely for the whole rotation: between the teeth there must be a very little gap.

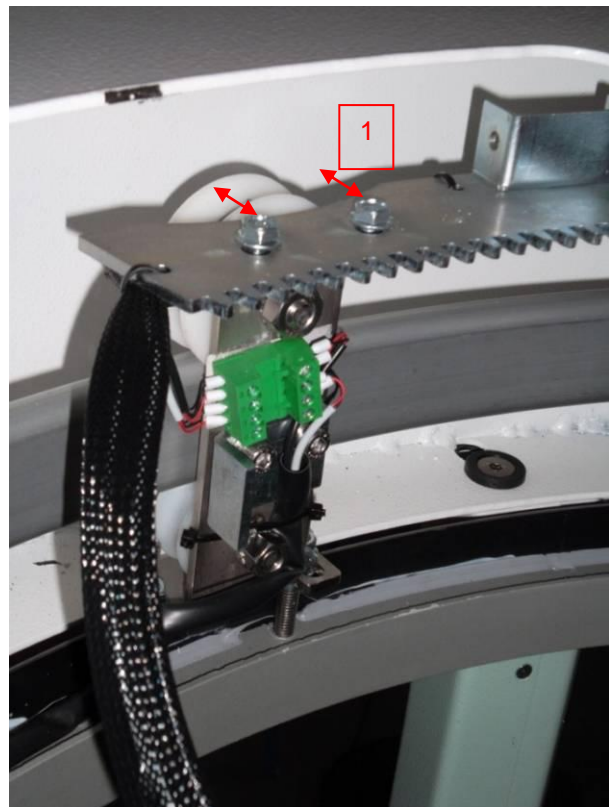
Once the door is fixed and adjusted, fix again the rack to the top supports and adjust it keeping the distance between the tooth (pinion wheel) and the rack tooth about 1-2 mm for the whole door ride (use the rack to top supports fixing eyelets for related adjustments, see ref.1 in Figure 1-20).

## ClearLock 631-MT-EN

**Figure 1-19 Sliding door rack adjusting (1)**



**Figure 1-20 Sliding door rack adjusting (2)**



## ClearLock 631-MT-EN

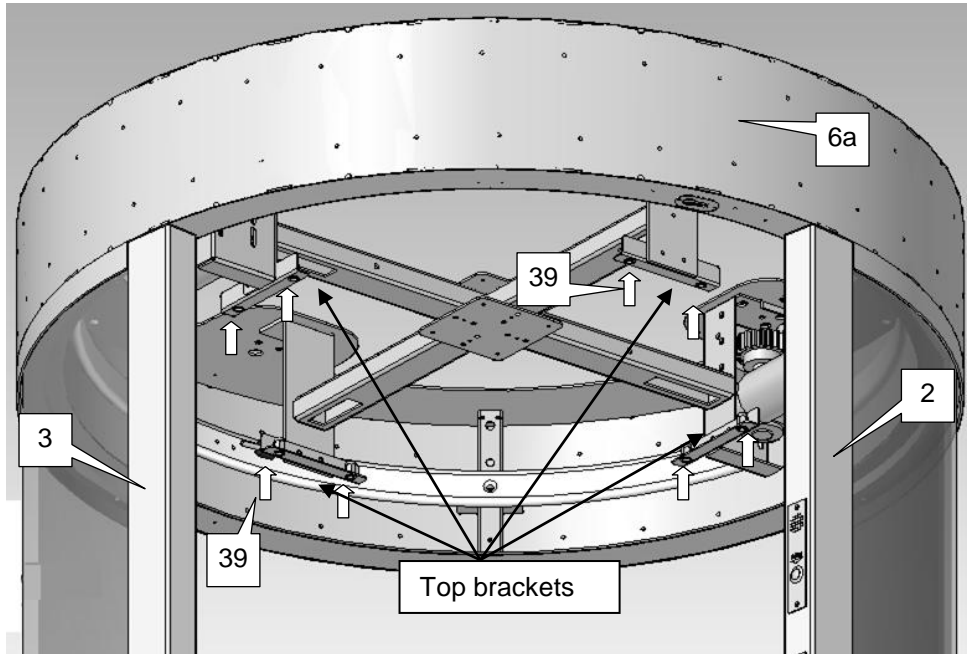
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### 1.7.8. Ceiling

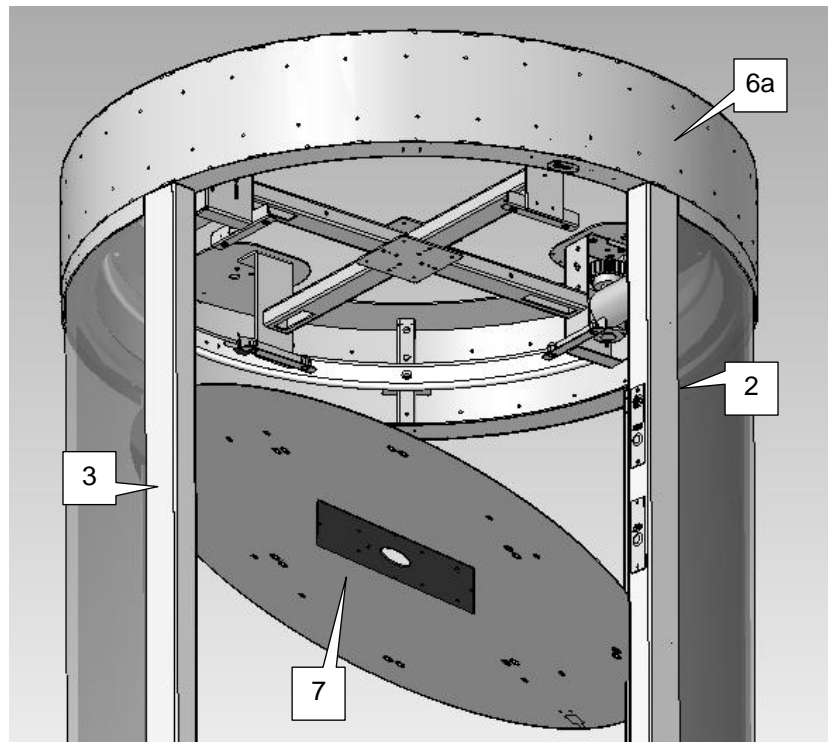
- Unscrew the flanged button head screws M8x16 (#39) from the top of the booth (#6a) (ref. Figure 1-21)

**Figure 1-21 The ceiling assembly (1)**



- Position the ceiling (#7) under the top canopy (#6a): first, introduce the sloped ceiling, then put it horizontally and center with the top brackets (ref. Figure 1-22)

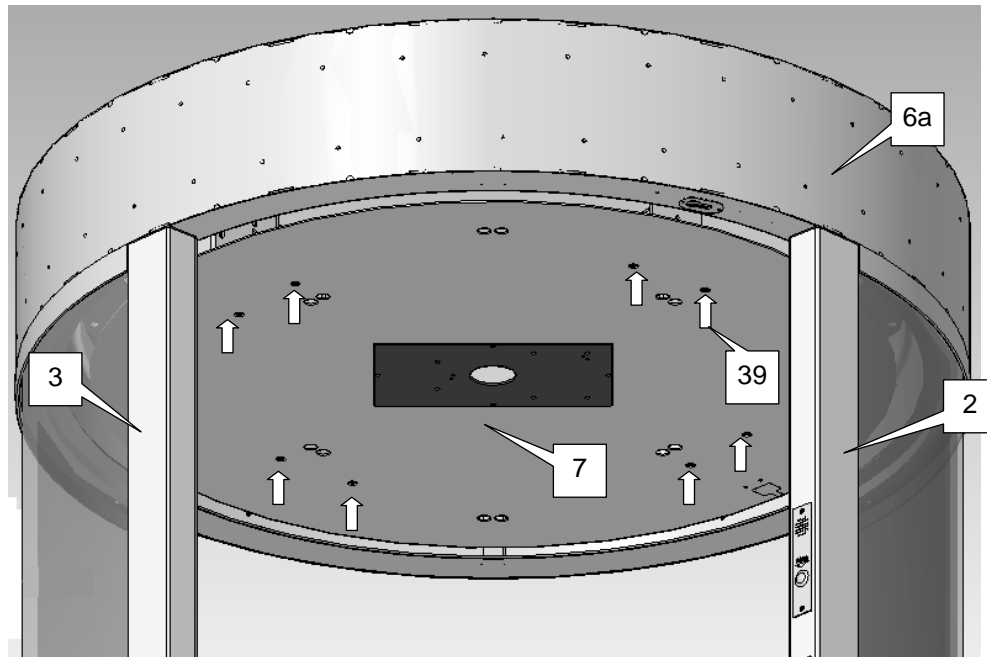
**Figure 1-22 The ceiling assembly (2)**



- Screw the ceiling (#7) with the flanged button head screws M8x16 (#39) (ref. Figure 1-23)

## ClearLock 631-MT-EN

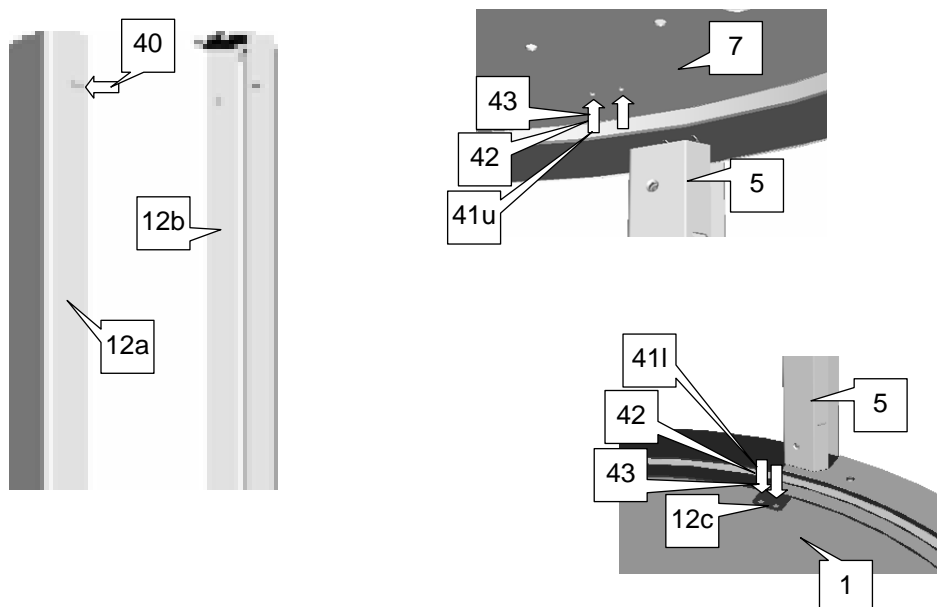
**Figure 1-23 The ceiling assembly (3)**



### 1.7.9. Internal column (if fitted)

- Unscrew the flanged button head screws M4x10 (#40) from the column cover (#12a) (ref. Figure 1-24)

**Figure 1-24 The internal column assembly (1)**

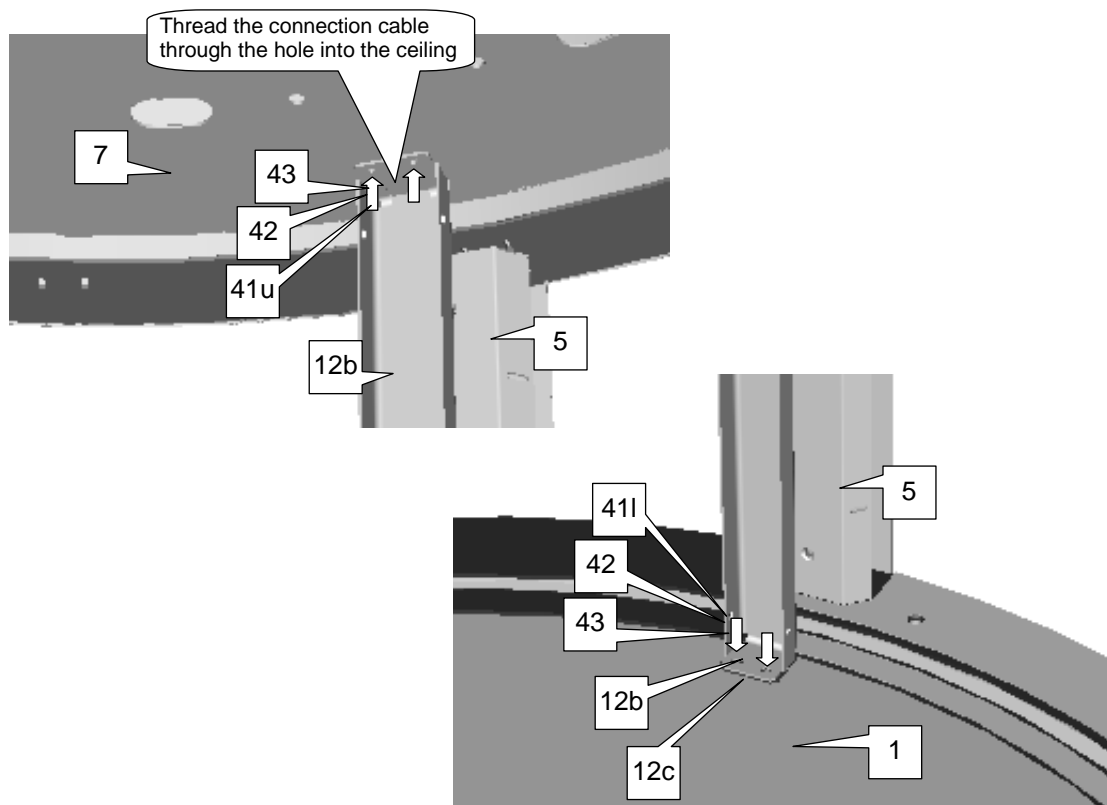


- Unscrew the hex socket cap screws M5x10 (#41u), the flat washer M5 (#42) and the spring washer (#43) from the ceiling (#7) and the hex socket cap screws M5x16 (#41l), the flat washer M5 (#42) and the spring washer (#43) from the basement (#1) (ref. Figure 1-24)
- Place the rear of the column (#12b) between the ceiling (#7)\* and the basement (#1) with the plate (#12c) (ref. Figure 1-25)

## ClearLock 631-MT-EN



**Figure 1-25 The service column assembly (2)**



- Screw the upper side of the rear of the column (#12b) with hex socket cap screws M5x10 (#41u), the flat washer (#42) and the spring washer (#43) and also te lower side of the column (#12b) with hex socket cap screws M5x16 (#41l), the flat washer (#42) and the spring washer (#43) (ref. Figure 1-25)

- Screw the cover (#12a) on the rear of the column (#12b) with the flanged button head screws M4x10 (#40) (ref. Figure 1-24)



\* NOTE: thread the connection cable through the hole into the ceiling with care.

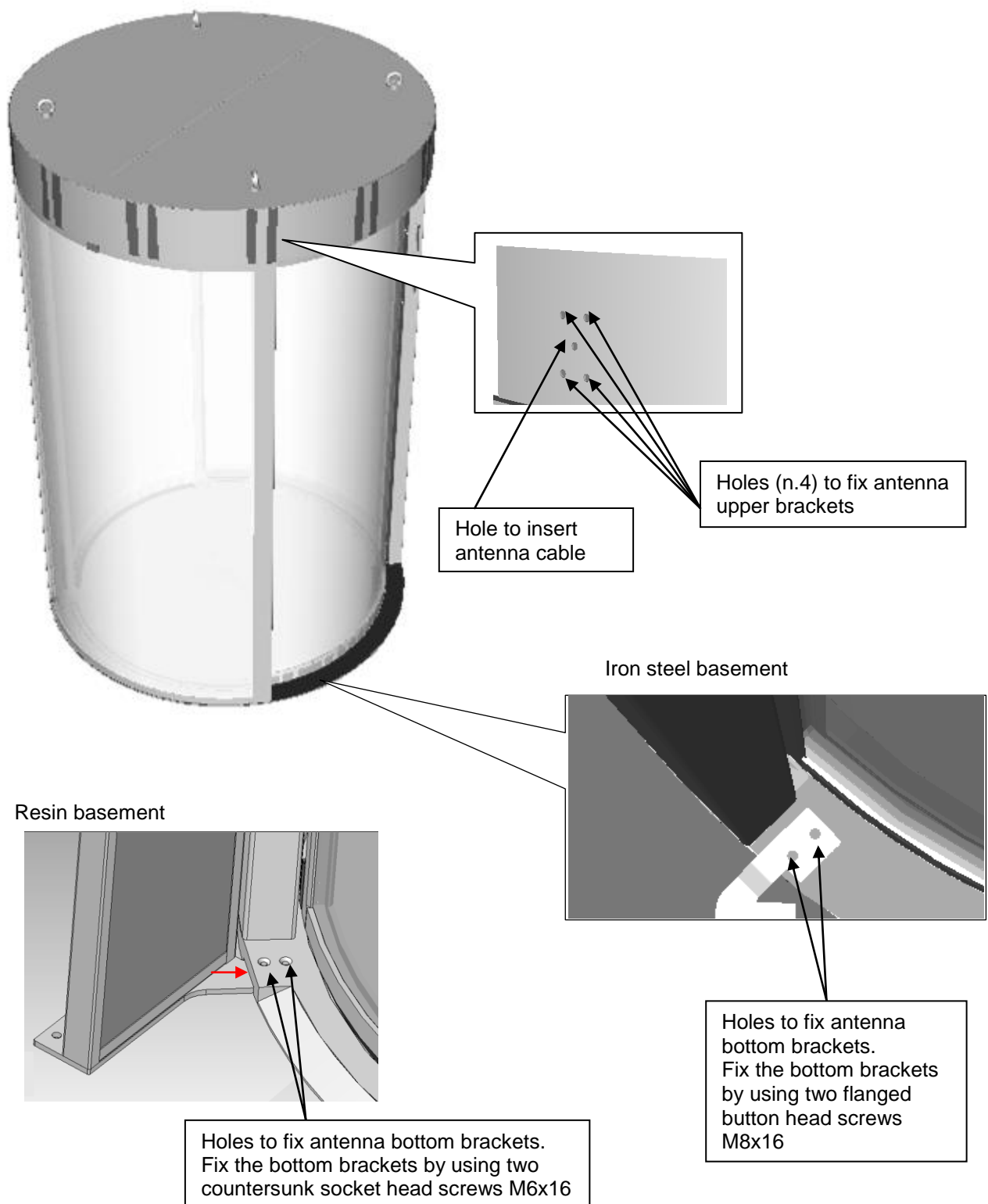
## ClearLock 631-MT-EN

If metal detector is provided follow this step, if not go to the next one

#### 1.7.10. Metal detector assembly

The metal detector provided units are supplied with the holes to fix two metal detector antennas to the top canopy of the unit (see Figure 1-26)

**Figure 1-26 Metal detector antennas details**

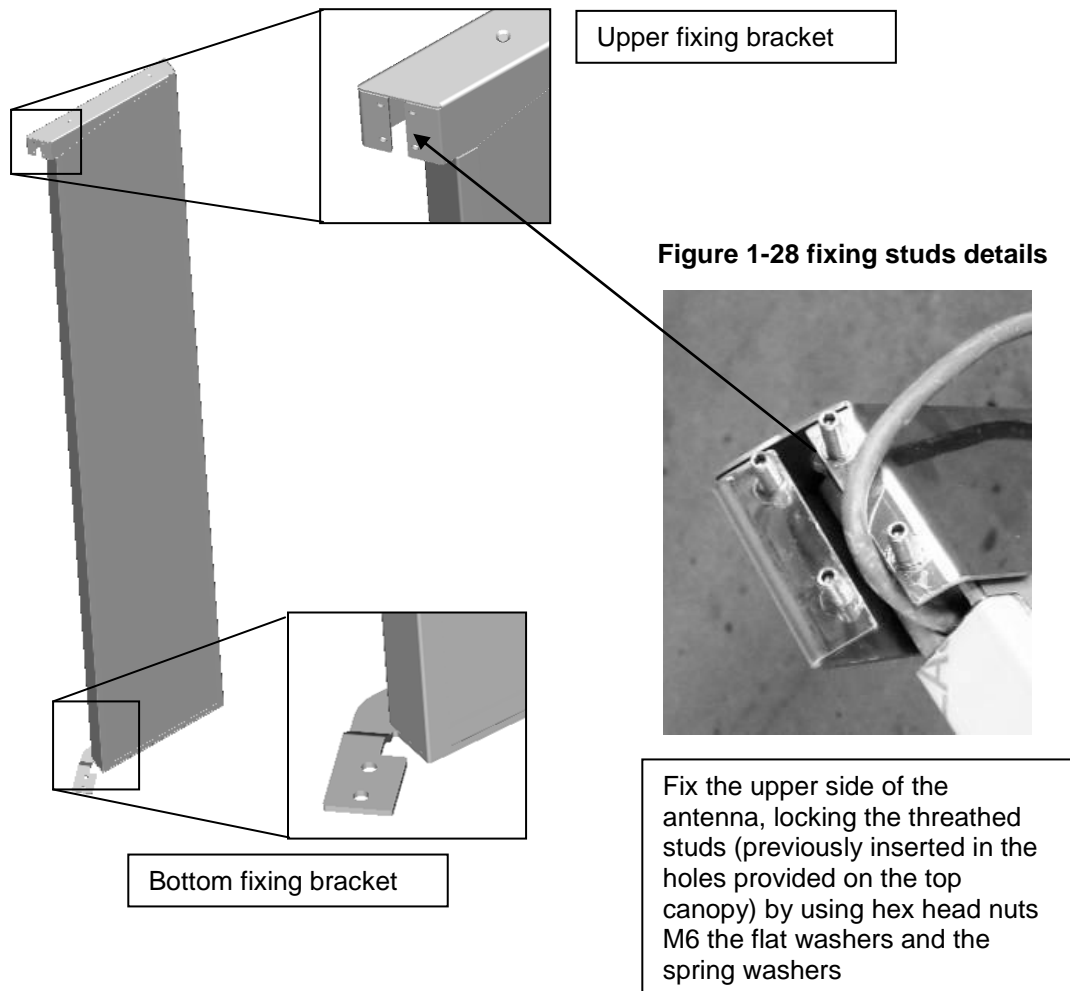


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Antennas are supplied with upper and bottom fixing brackets. On upper bracket of each antennas are presents 4 studs (M6x30) (see Figure 1-27 and Figure 1-28)

**Figure 1-27 MD antenna fixing brackets details**



How to fix antennas:

Note: pay attention to the proper positioning of the antennas - on the right side the receiving antenna – black cable (#12); on the left side the transmitting antenna – red cable (#11). See Figure 1-29.

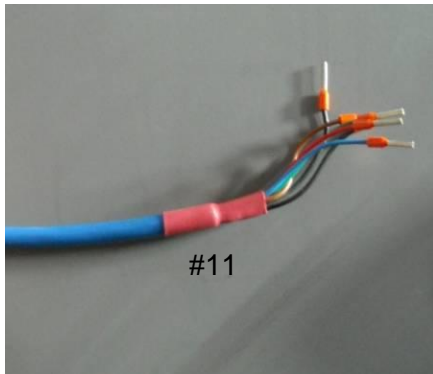
Insert the cable of each antenna in the dedicated hole (see Figure 1-26), close the antenna to the unit and insert the studs in the hole on the top canopy (see Figure 1-26) fix each stud with relevant bolt and washer supply. Place bottom fixing bracket in the right position making sure that the holes in the bracket and those in the base of the unit are aligned, proceed to the insertion of two screws (Flanged Button Head Screw M8x16)  
Complete the tightening of upper studs.

After have terminated the mechanical assembly of the two antennas, then proceed to connect the two cables up to the metal detector board, as described in the section Metal Detector setting of this manual (see Figure 2-13 metal detector board electrical wiring connection a page 58).

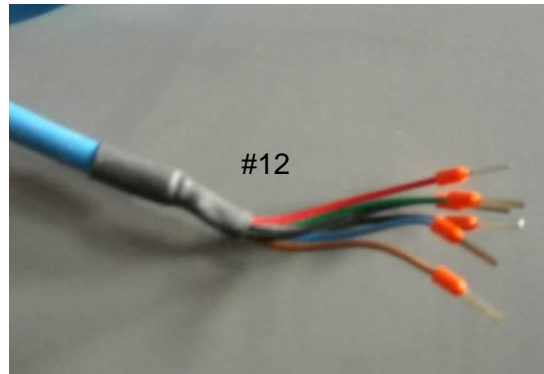
## ClearLock 631-MT-EN

**Figure 1-29 MD antenna cable (coloured collar details)**

Red collar



Black Collar



Proceed to Paragraph 1.8

### **ClearLock 631-MT-EN**

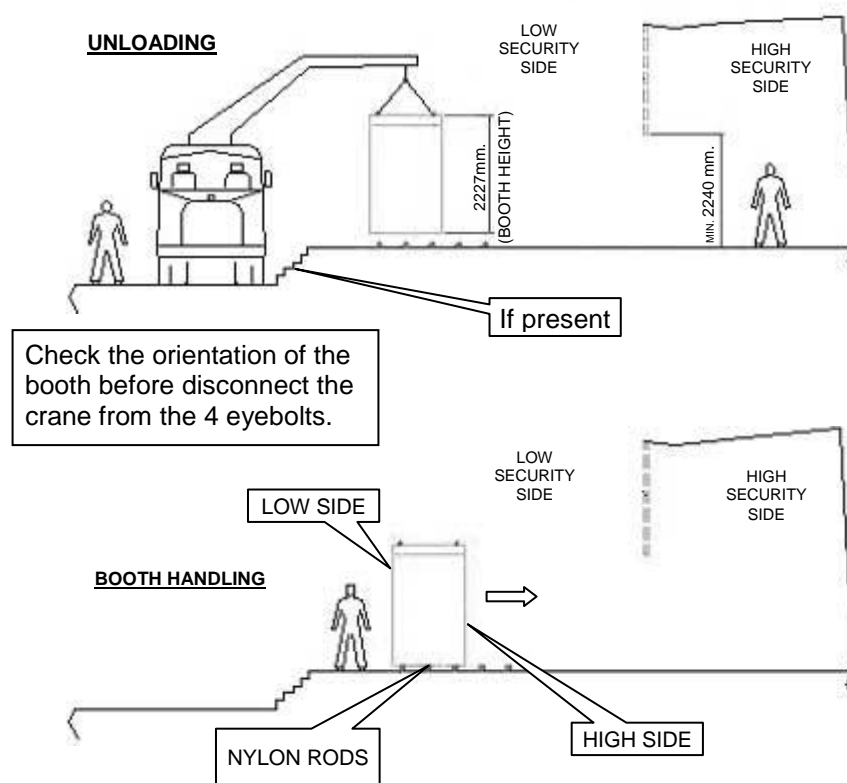
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B : In case the unit is shipped in monoblock

### 1.7.11. Introduction

- Connect the crane of the truck up to the 4 eyebolts on the top of the booth
- Before moving the CLEARLOCK 631 on the floor, be sure that the 4 nylon rods have been positioned in the right place
- Move the booth on the 4 nylon rods as you can see in the next figure (*booth weight: 650 Kg*) See Figure 6-32
- Disconnect the crane from the 4 eyebolts on the top of the booth. Move the CLEARLOCK 631 manually with 4 people till the booth arrives in the correct position for the final installation; when one rod in the back position remain free from the base of the booth place it in front of the booth.
- NOTE: Be careful during the movement of the booth
- Using the pry bars to move the booth away from the rods taking care of the entrance / exit reference orientation
- During the fixing check the slope of the base with the water level (must be null). This is very important for the door movement)
- Disconnect the eyebolts from the top of the booth
- Remove the dehydrating salt bags inside the top
- Clean the base of the booth with the vacuum cleaner and clean the glasses with a soft cloth
- Remove adhesive tapes from the spot lights slowly

**Figure 1-30 How to position the booth on the floor when already assembled**



Proceed to Paragraph 1.8

## ClearLock 631-MT-EN

## **1.8. Final operations**

### **1.8.1. Electrical assembling**

- Follow the electrical assembling instructions described at page 31 “Electrical wiring”.
- Perform functional test of the system

### **1.8.2. Top covers mounting**

- If present, unscrew the eye-bolts from the top of the booth (#6a) (ref. Figure 1-7)
- Cut covers (#6b, #6c) to make the power, intercom and console cables go out
- Screw the covers (#6b, #6c) on the top of the booth (#6a) with the flanged button head screws M6x10 (#31) (ref. Figure 1-7)

## **ClearLock 631-MT-EN**

## 2. Electrical wiring

### 2.1. Assembling instructions

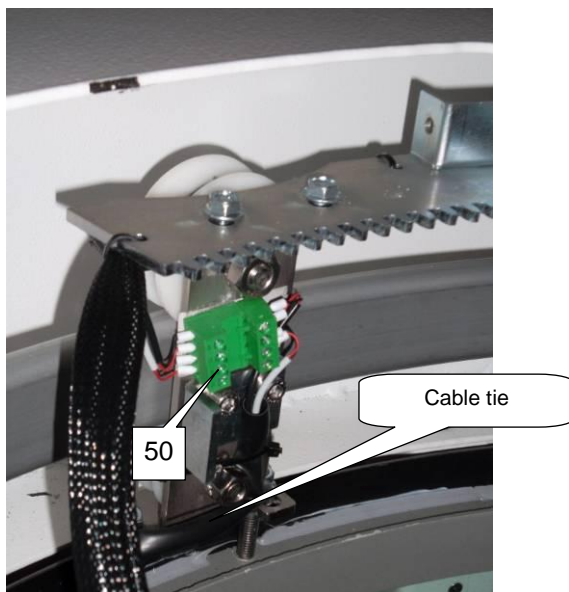


Remove from the cables all the fixing devices (iron wire, tapes, ...) before proceeding

#### 2.1.1. Safety beams wiring

- Connect the safety beams to the amplifier board on the four dedicated connectors (#50), located nearby the external top sliding doors supports, and fix the cables with a cable tie, in order to not disturb the door movements (ref. Figure 2-1)

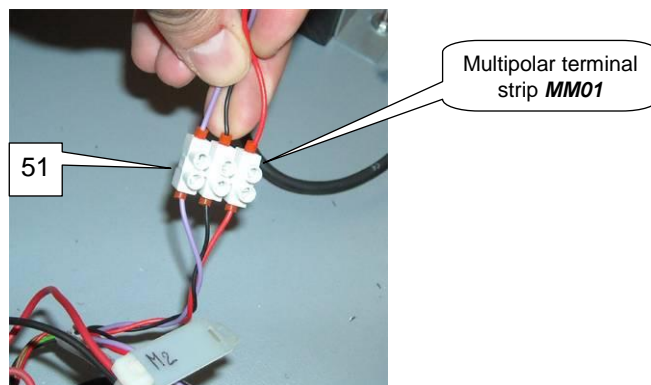
**Figure 2-1 Connecting safety beams**



#### 2.1.2. Emergency button wiring (if fitted)

- Connect the "Emergency push button" of the internal column to the electronics to the dedicated three multipolar terminal strip "MM01" (#51), located upon the ceiling, following the colours (ref. Figure 2-2)

**Figure 2-2 Connecting emergency button**

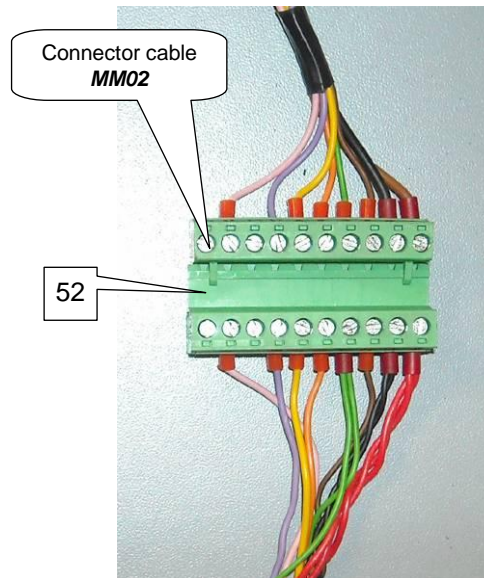


## ClearLock 631-MT-EN

### 2.1.3. Ceiling located devices wiring

- Connect the ceiling located devices to the electronics using the connector cable “MM02” (#52), located upon the ceiling (ref. Figure 2-3)

**Figure 2-3 Connecting ceiling located devices**



### ClearLock 631-MT-EN

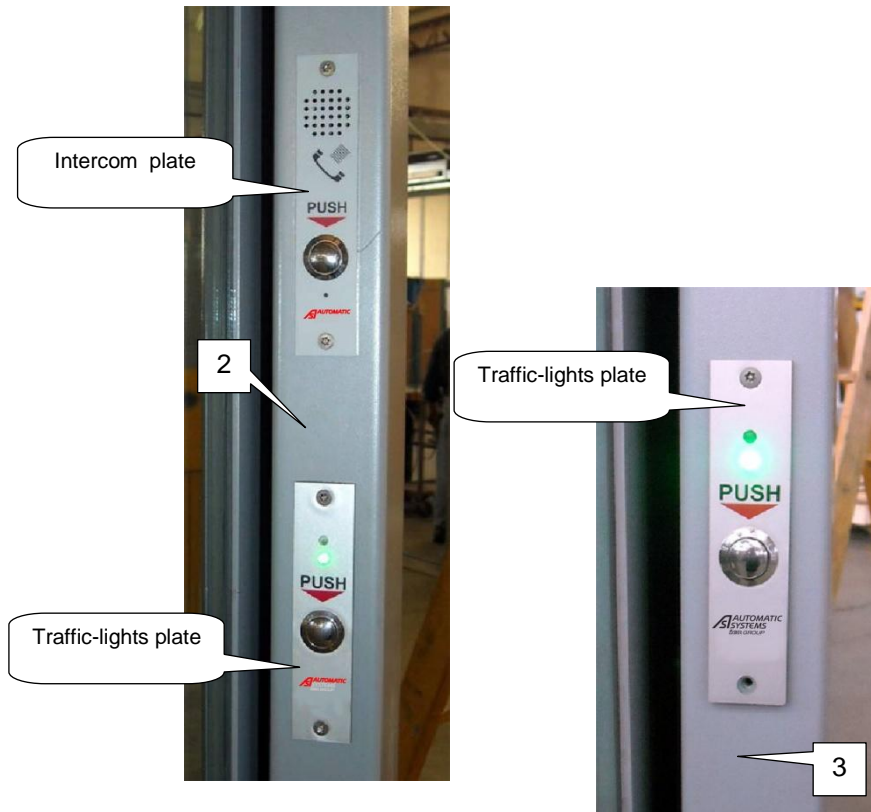
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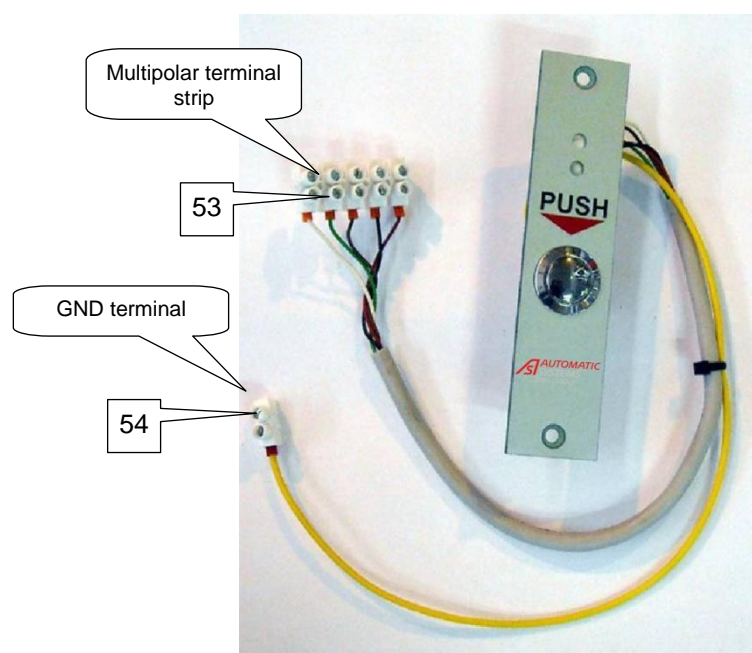
#### 2.1.4. Traffic-light plates wiring

- Lead the connection cable “W002” (with GND cable) into the jamb (#2)
- Connect the traffic-light plate to the dedicated connector cable (#53) following the colours and the GND connector (#54) to the GND cable (ref. Figure 2-5)

**Figure 2-4 Installing plates on the jambs**



**Figure 2-5 Connecting traffic-light plates**



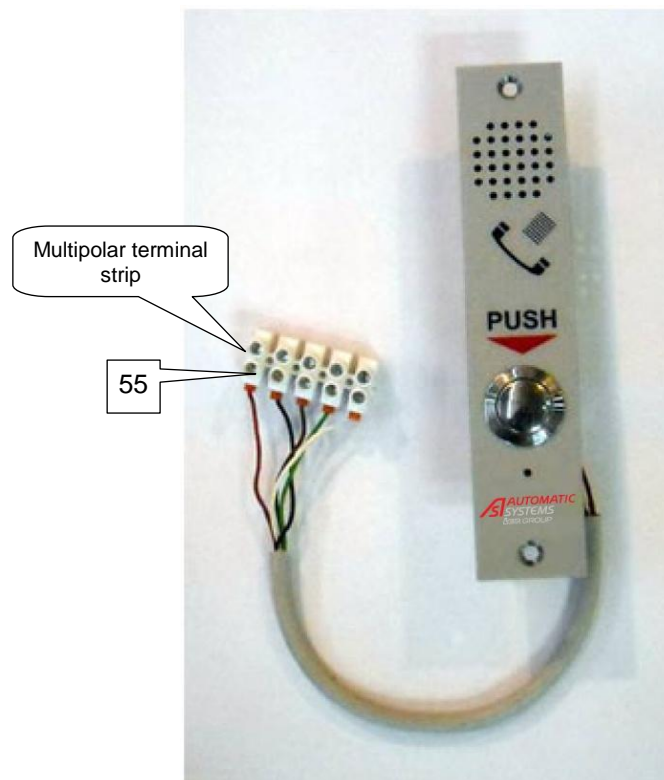
#### ClearLock 631-MT-EN

- Screw the traffic-light plate on the jamb (#2) with the hex flat head pin-in-TORX screw
- Lead the connection cable “W003” (with GND cable) into the jamb (#4)
- Connect the traffic-light plate on the dedicated connector cable (#53) following the colours and the GND connector (#54) to the GND cable (ref. Figure 2-5)
- Screw the traffic-light plate on the jamb (#4) with the hex flat head pin-in-TORX screw

### 2.1.5. Intercom plate wiring

- Lead the connection cable “W001” into the jamb (#2)
- Connect the intercom plate on the dedicated connector cable (#55) following the colours (ref. Figure 2-6)

**Figure 2-6 Connecting intercom plate**



- Screw the intercom plate on the jamb (#2) with the hex flat head pin-in-TORX screw

### 2.1.6. Console wiring

- Connect the console to VB3406 board

## ClearLock 631-MT-EN

### **2.1.7. Power wiring**

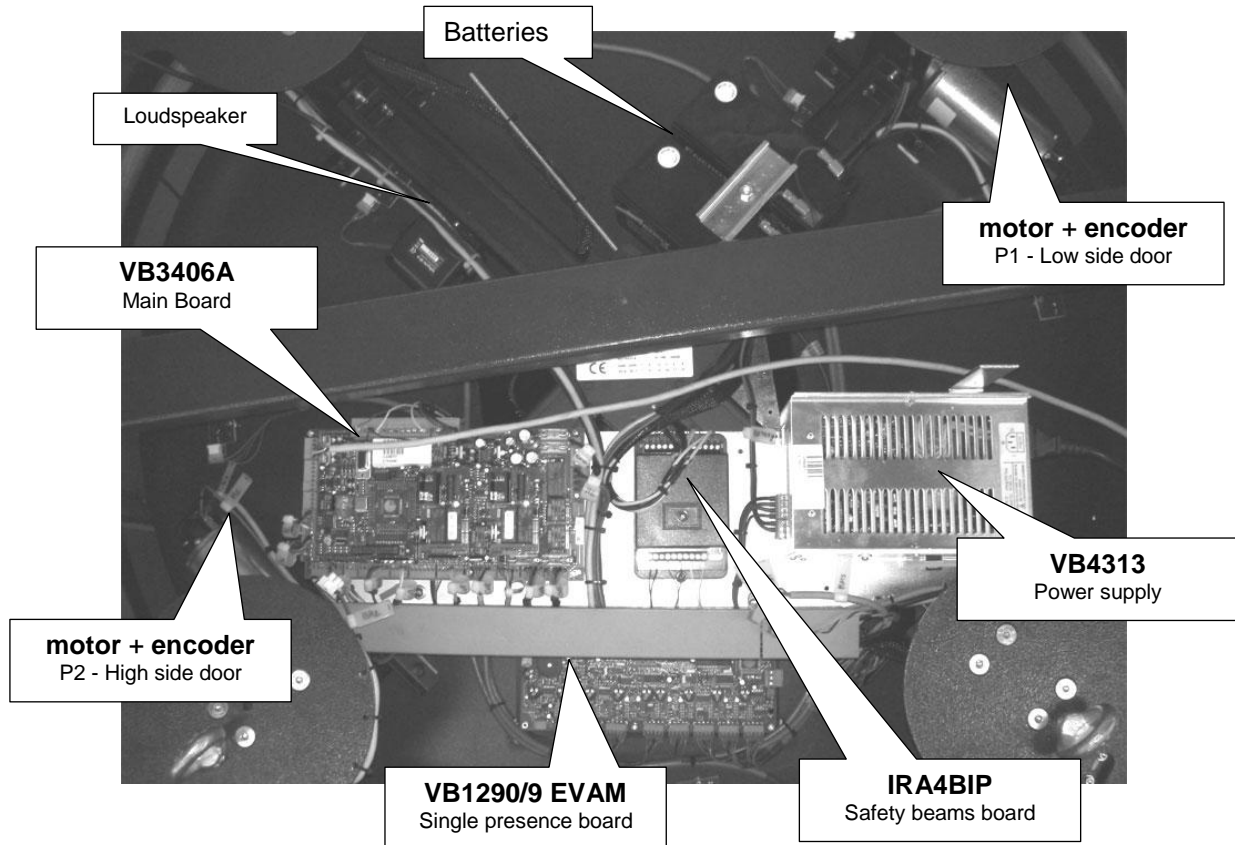
- Connect the power supply to the back-up batteries
- Connect the power supply to the main power

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## 2.2. Wiring diagram

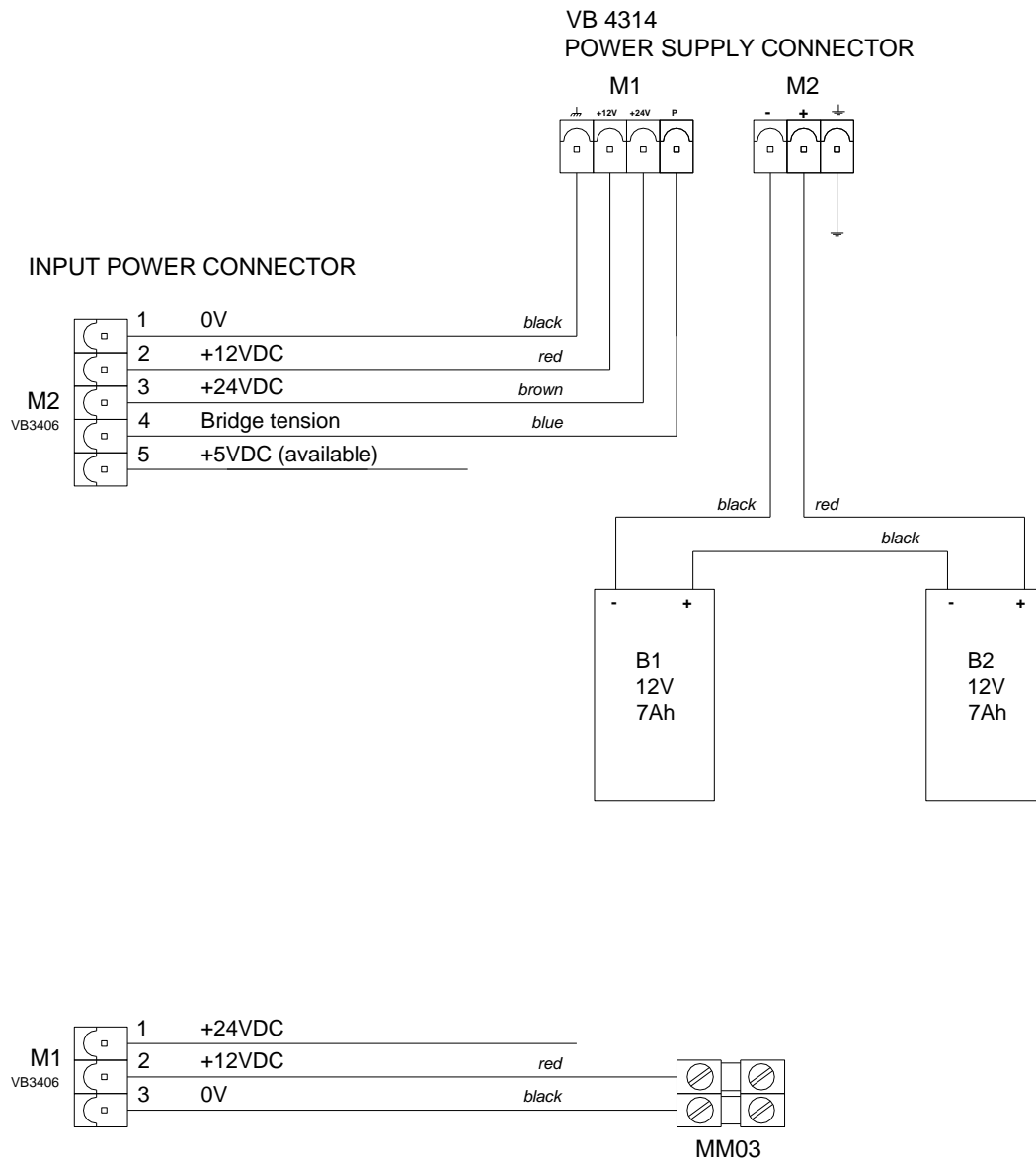
### 2.2.1. Electronics layout



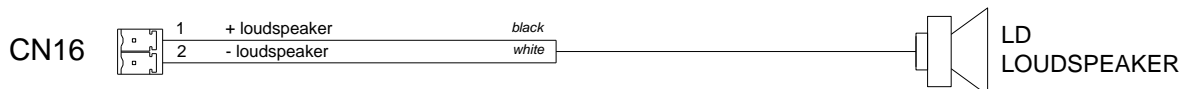
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### 2.2.2. Power wiring

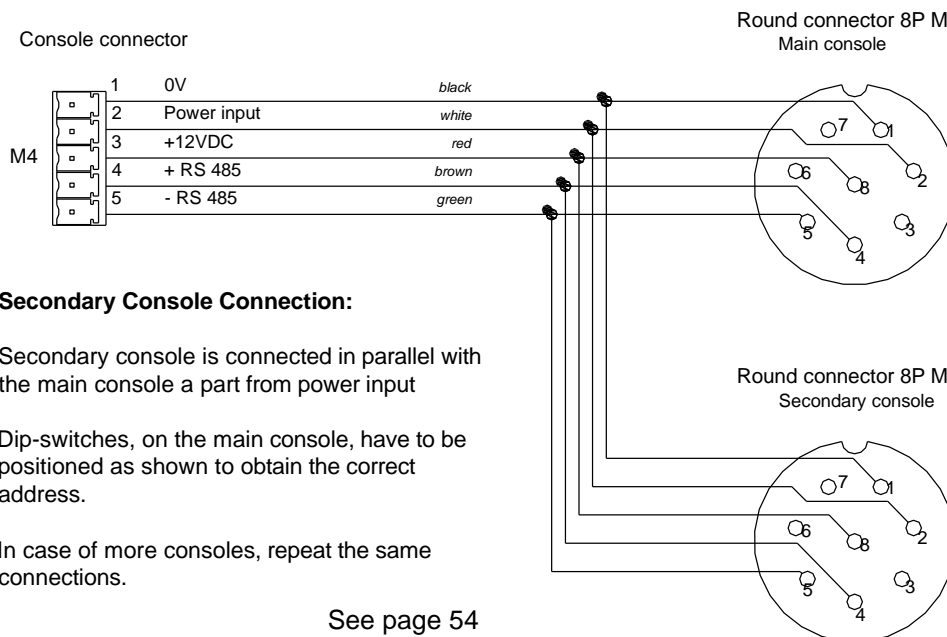


### 2.2.3. Loudspeaker wiring



## ClearLock 631-MT-EN

## 2.2.4. NCD2 console wiring



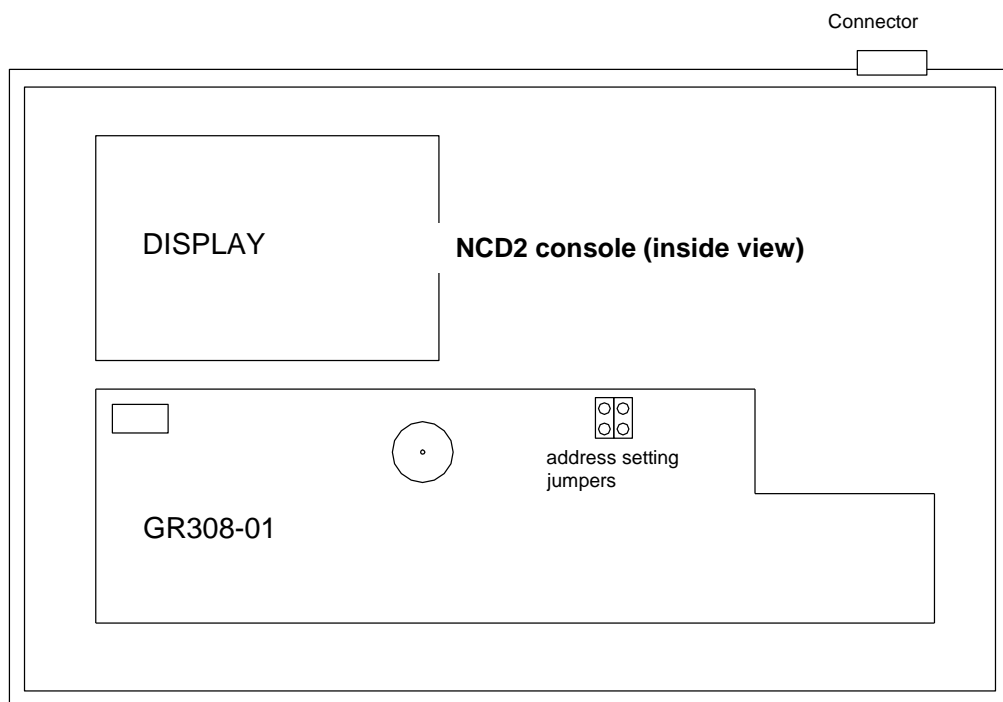
### NCD2 address setting with GR308-01 board



address setting  
main console

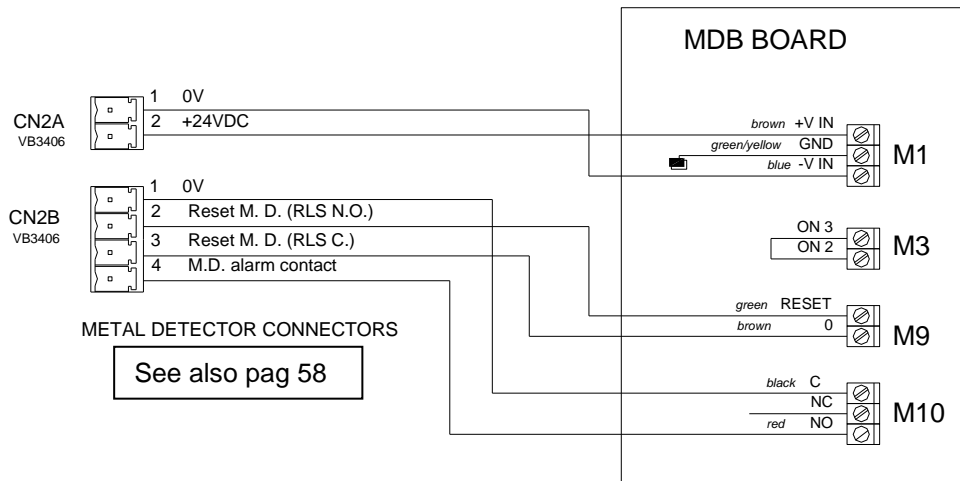


address setting  
secondary console

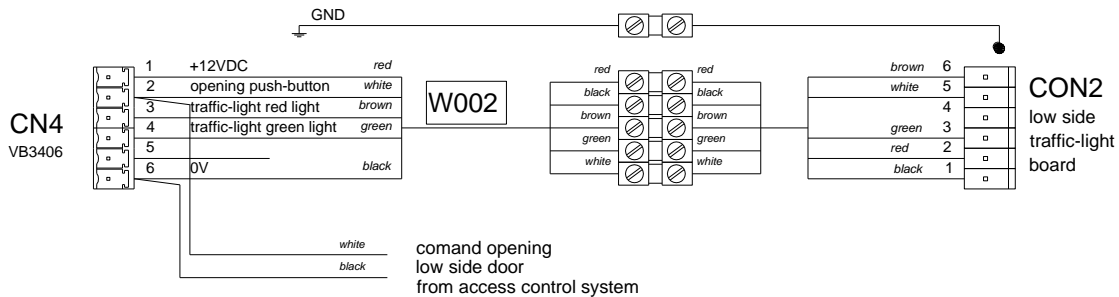
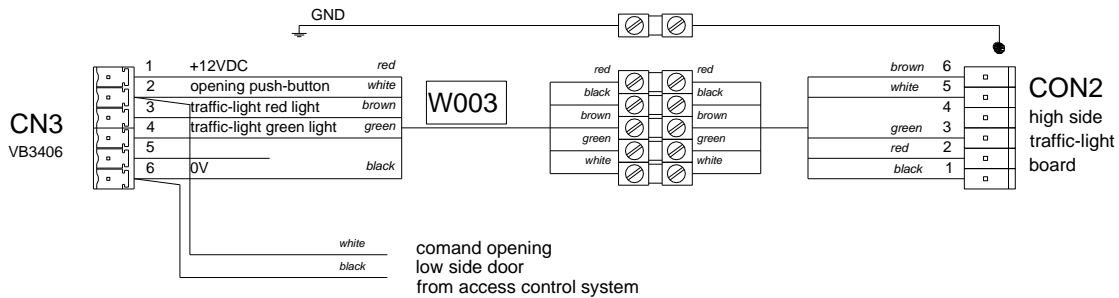


## ClearLock 631-MT-EN

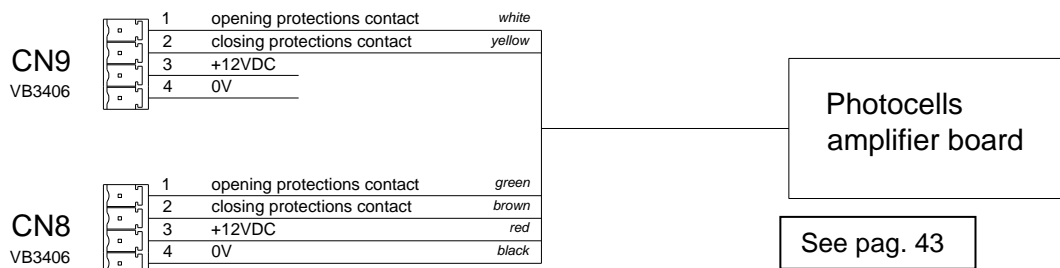
## 2.2.5. Metal detector wiring (if present)



## 2.2.1. Traffic-light plate wiring

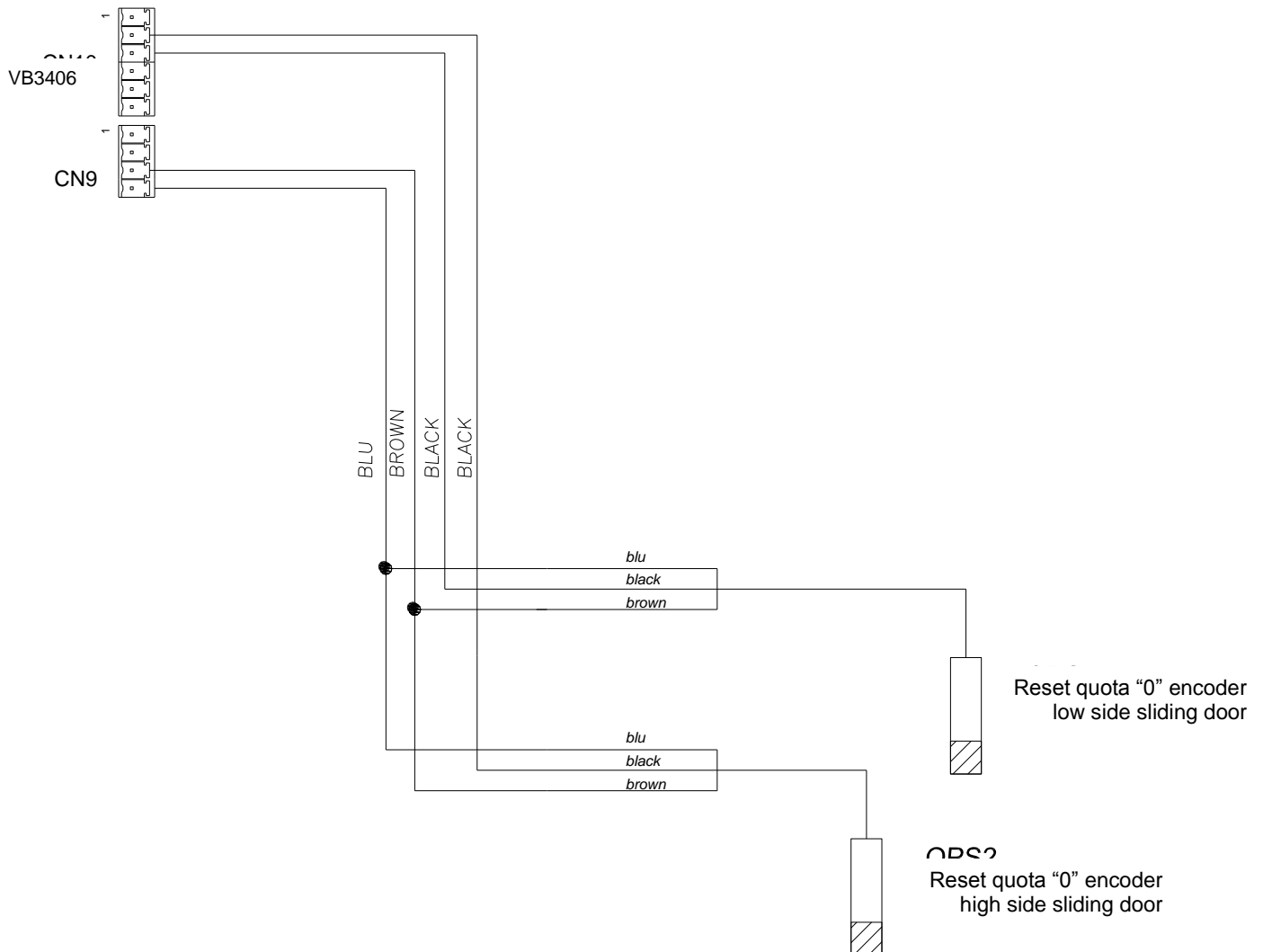


## 2.2.2. Photocells amplifier general wiring



## ClearLock 631-MT-EN

### 2.2.3. High and low side reset "0" quota sensor



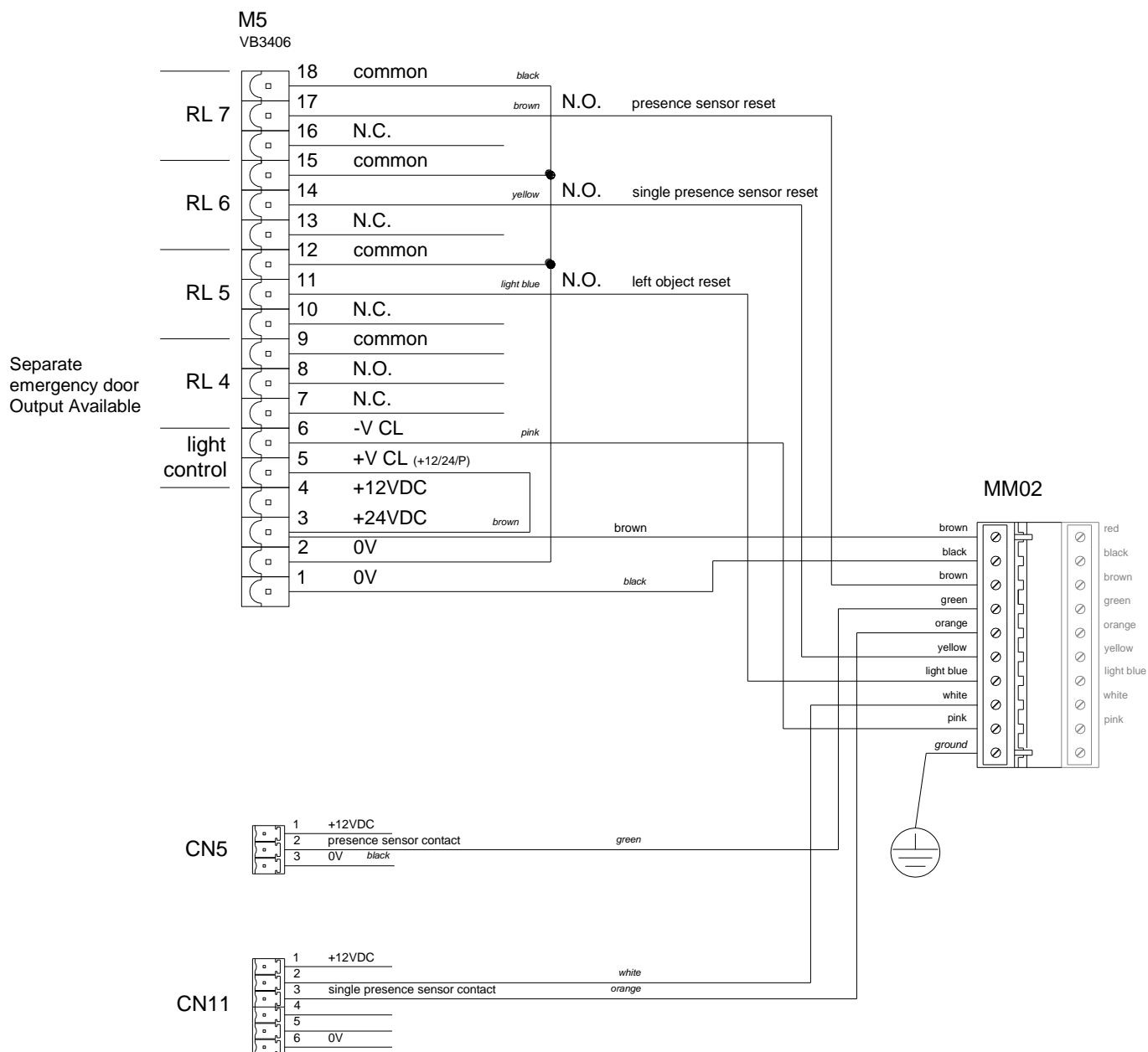
### 2.2.4. Mechanical lock switch low side door



## ClearLock 631-MT-EN



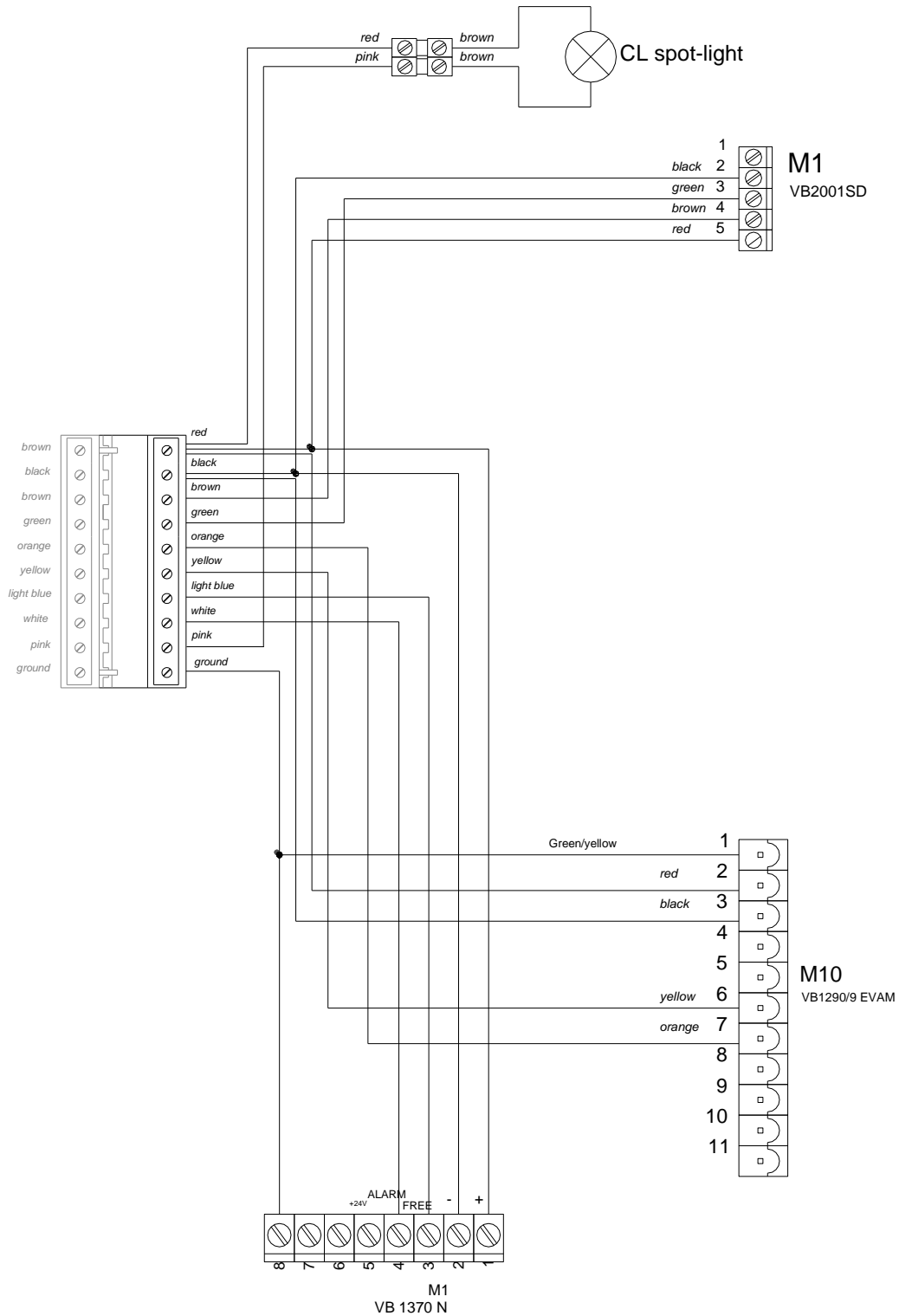
## 2.2.5. Connector MM02 wiring (part 1)



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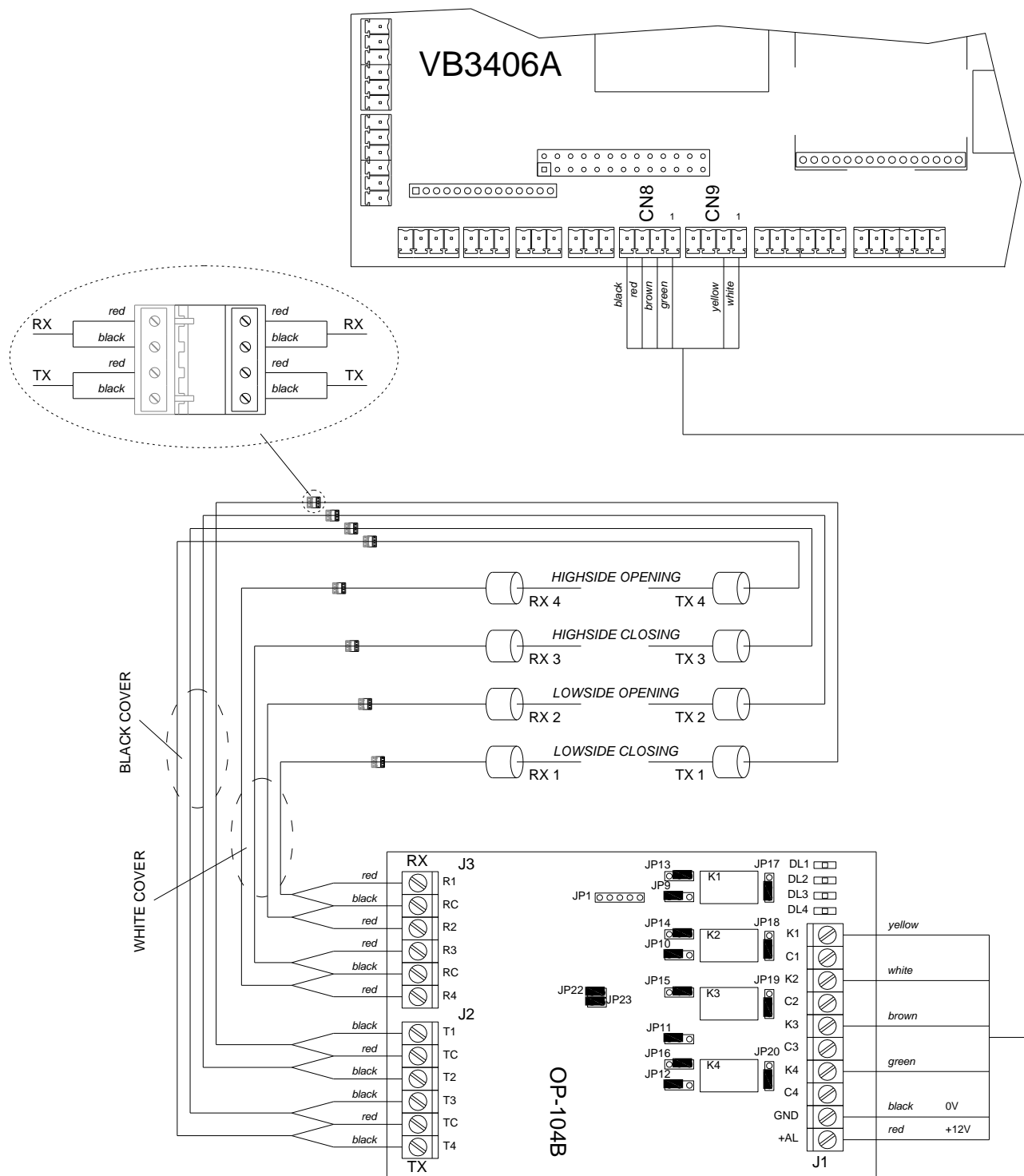
## 2.2.6. Connector MM02 wiring (part 2)



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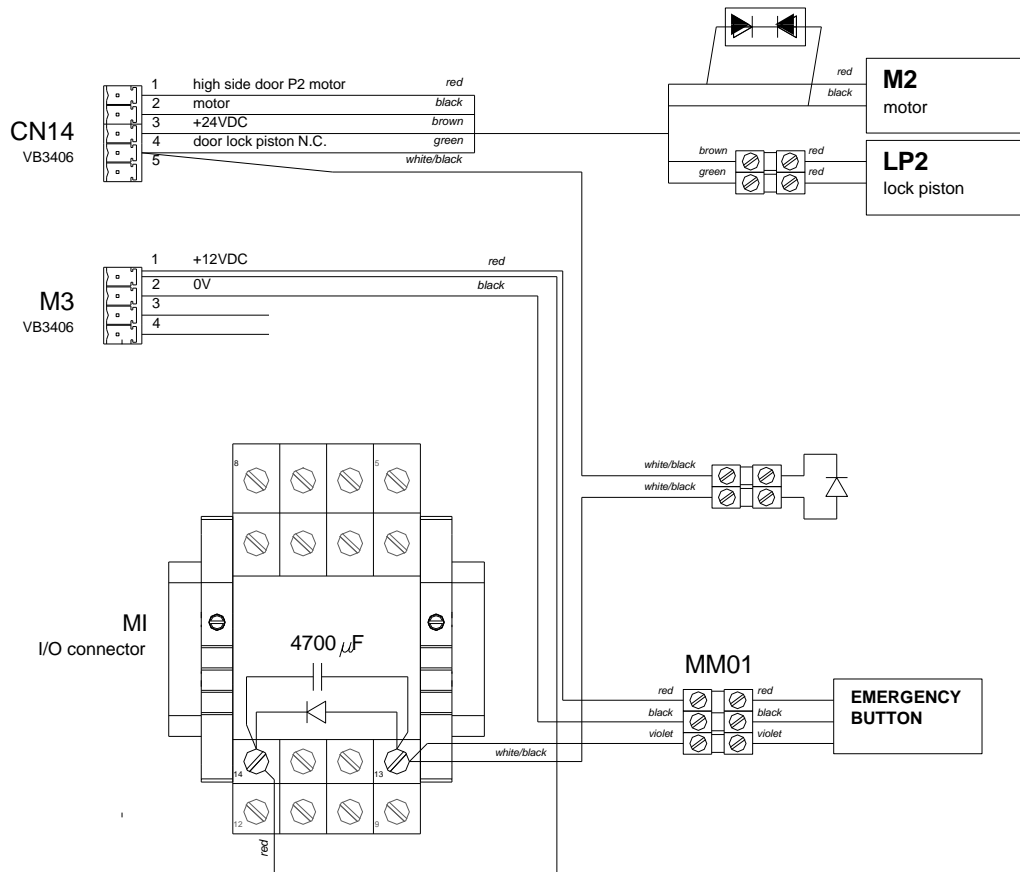
## 2.2.7. IRA-4BIP safety beams amplifier board wiring



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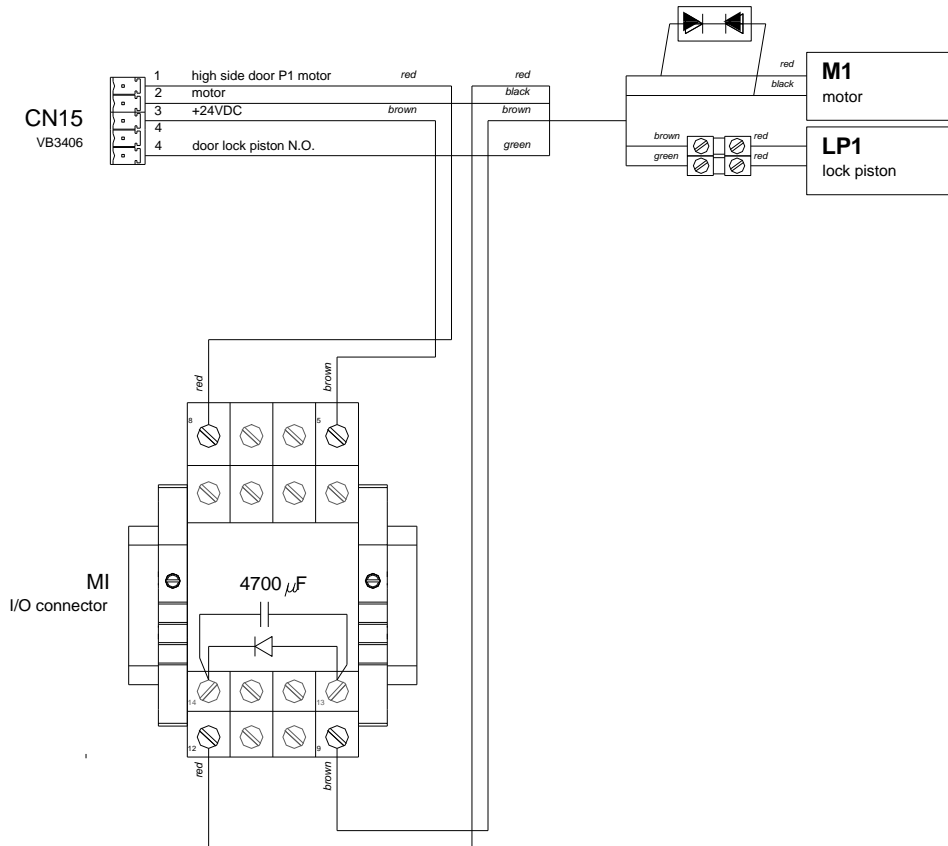
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## 2.2.8. High side motor wiring (if emergency push button is present)



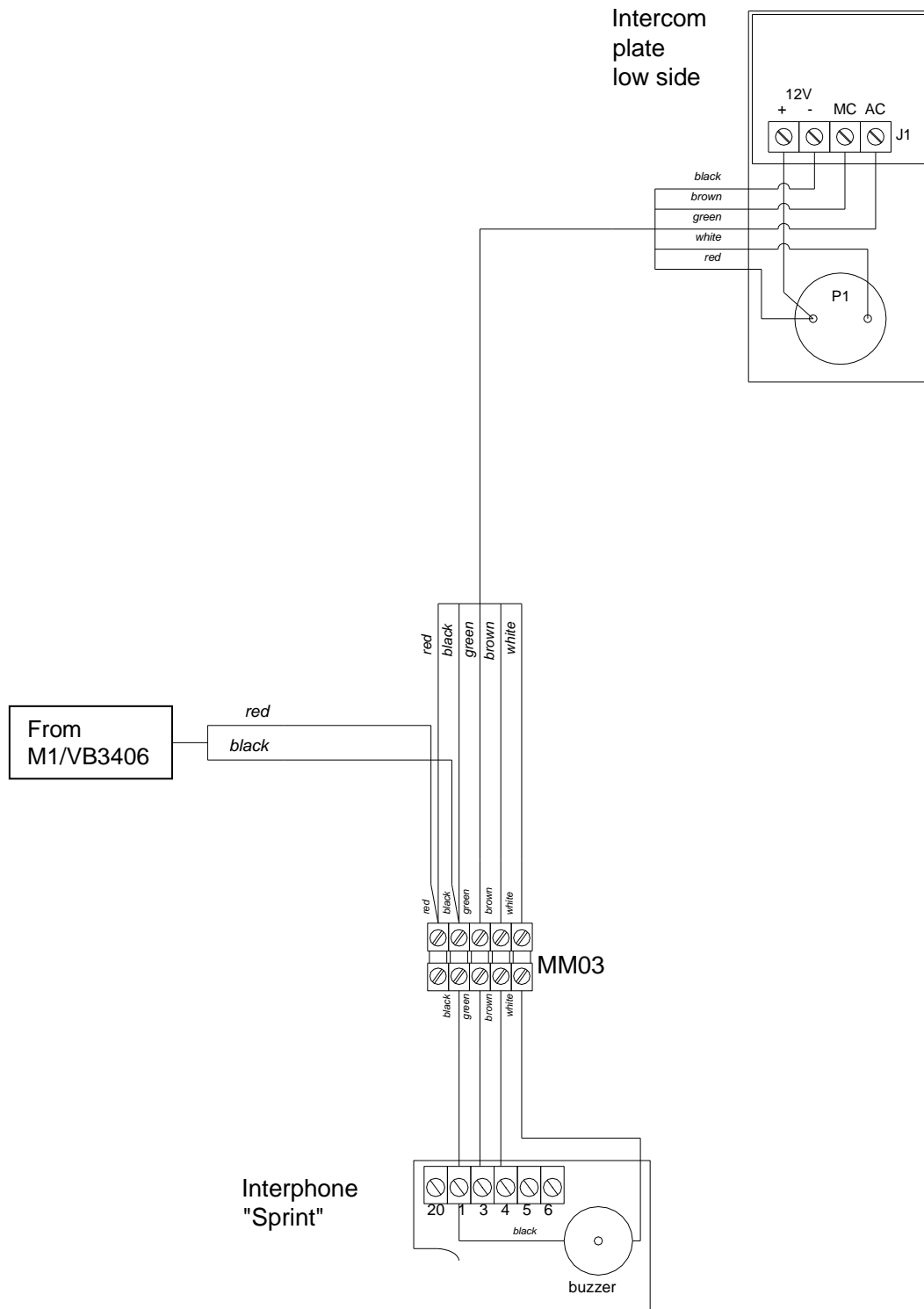
## ClearLock 631-MT-EN

## 2.2.9. Low side motor wiring (if emergency push button is present)



## ClearLock 631-MT-EN

## 2.2.10. Intercom system wiring



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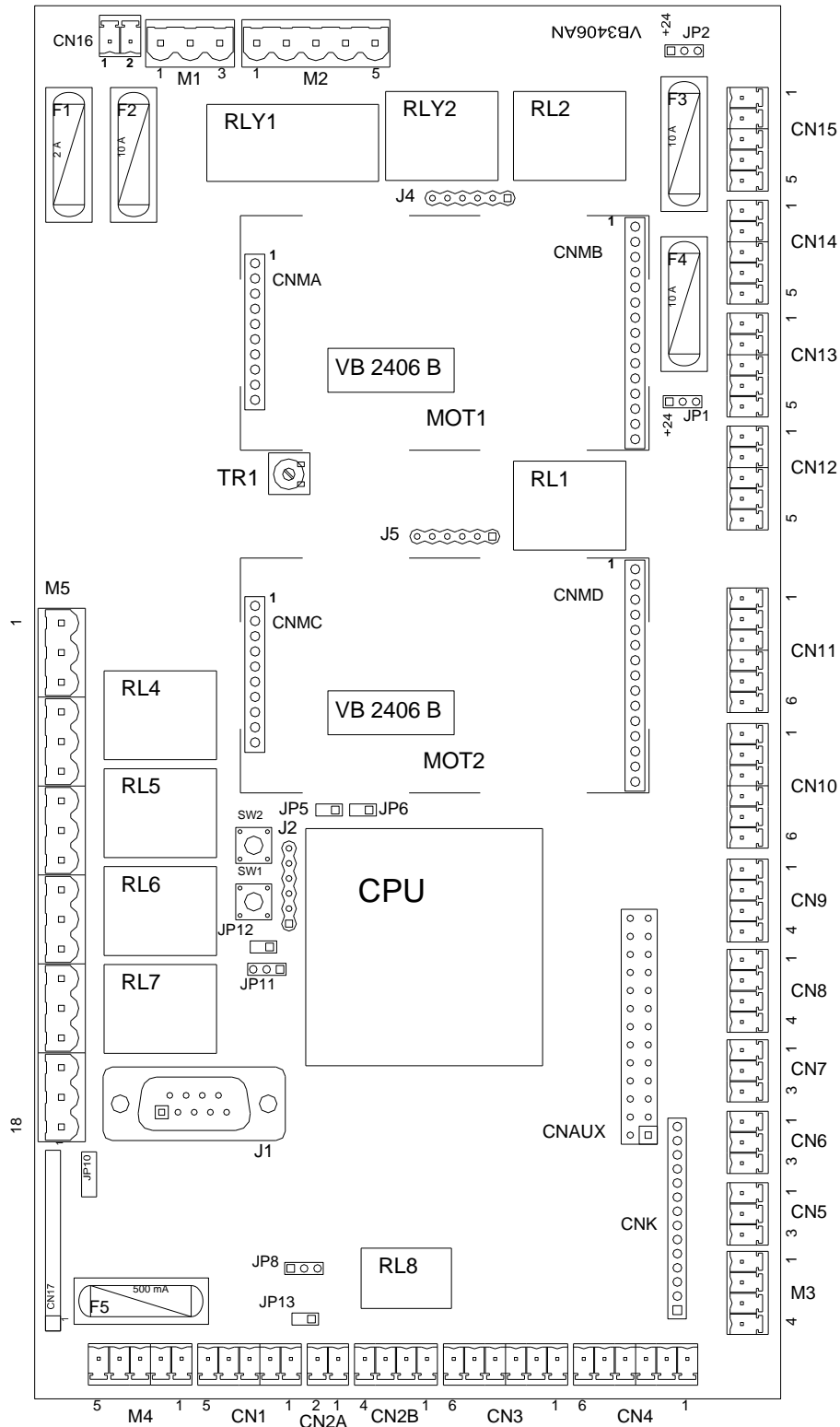
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## 2.2.11. LAY OUT – Intercom and traffic lights plates



## ClearLock 631-MT-EN

## 2.2.12. VB3406 layout



## ClearLock 631-MT-EN



**Table2-1 VB3406 components legend**

(see also page 48)

JP1 output selection +12/24VDC 3 - CN14  
 JP2 output selection +12/24VDC 3 - CN15



output selection +12VDC



output selection +24VDC

JP3 RS 485 serial line end jumper  
 JP5 Service jumper – DO NOT touch (closed)  
 JP6 Service jumper – DO NOT touch (closed)  
 JP7 Vocal messages Write protect jumper – close=write protect  
 JP12 Service jumper – DO NOT touch (pos. 1-2 closed)

LD5 Relay RL1 state led  
 LD7 Low side door data movement recording led  
 LD9 RS-232 communication led  
 LD10 RS-485 communication led  
 LD15 Relay RL2 state led  
 LD20 High side door data movement recording led  
 LD21 Relay RL4 state led  
 LD22 Relay RL5 state led  
 LD26 Relay RL6 state led  
 LD27 Relay RL7 state led  
 LD34 Power ON led  
 LD40 Relay RL8 state led

TR1 Messages volume setting  
 SW1 Main microprocessor RESET button  
 SW2 Available button

F 1 Fuse 2A quick burning (+12VDC power in)  
 F 2 Fuse 10A quick burning (+24VDC power in)  
 F 3 Fuse 10A quick burning (low side door motor - CN15)  
 F 4 Fuse 10A quick burning (high side door motor - CN14)  
 F 5 Fuse 500mA quick burning (M4 connector power out +12/24VDC)

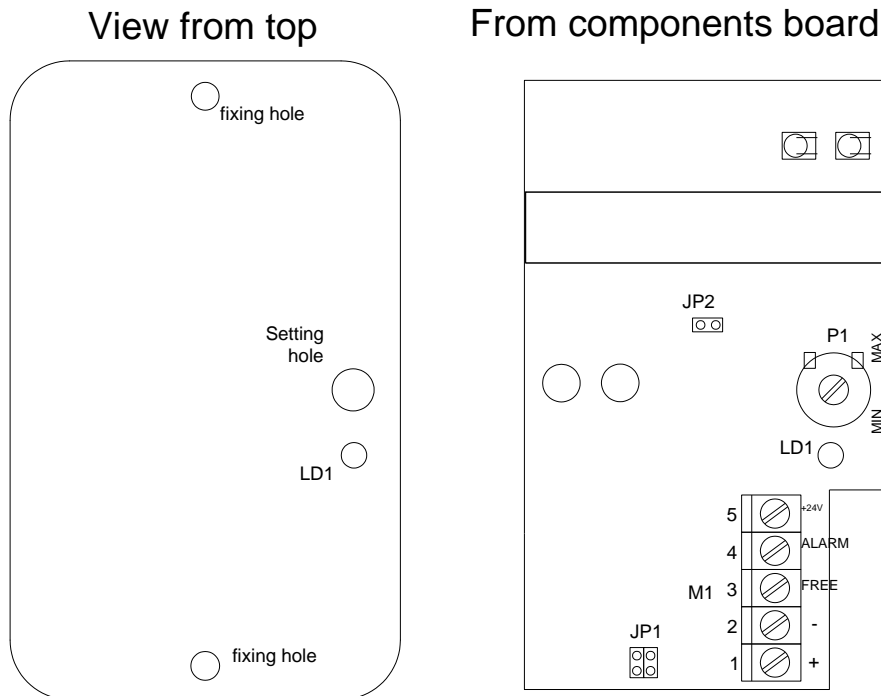
J1 RS-232 connector  
 J2 IN-CIRCUIT main CPU programming connector  
 J3 Connettore di servizio – factory test  
 J4 IN-CIRCUIT low door motor CPU programming connector  
 J5 IN-CIRCUIT high door motor CPU programming connector

CNAUX Connector for additional I/O VB 403 board

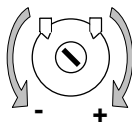
CNMA-CNMB Connectors for VB 3406 B motor board - CN15 connector  
 CNMC-CNMD Connectors for VB 3406 B motor board - CN14 connector

## ClearLock 631-MT-EN

## 2.2.13. VB 2001 SD presence sensor



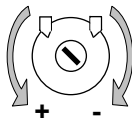
TR1 sensitivity setting potentiometer



View from top

- Rotate CLOCKWISE to improve sensitivity
- Rotate ANTI-CLOCKWISE to decrease sensitivity

TR1 sensitivity setting potentiometer **with the NEW BOARD**



**View from top**

- Rotate CLOCKWISE to **decrease** sensitivity
- Rotate ANTI-CLOCKWISE to **improve** sensitivity

LD1 alarmed sensor signalling led

JP1,JP2 work frequency setting



1,579 KHz



1,610 KHz



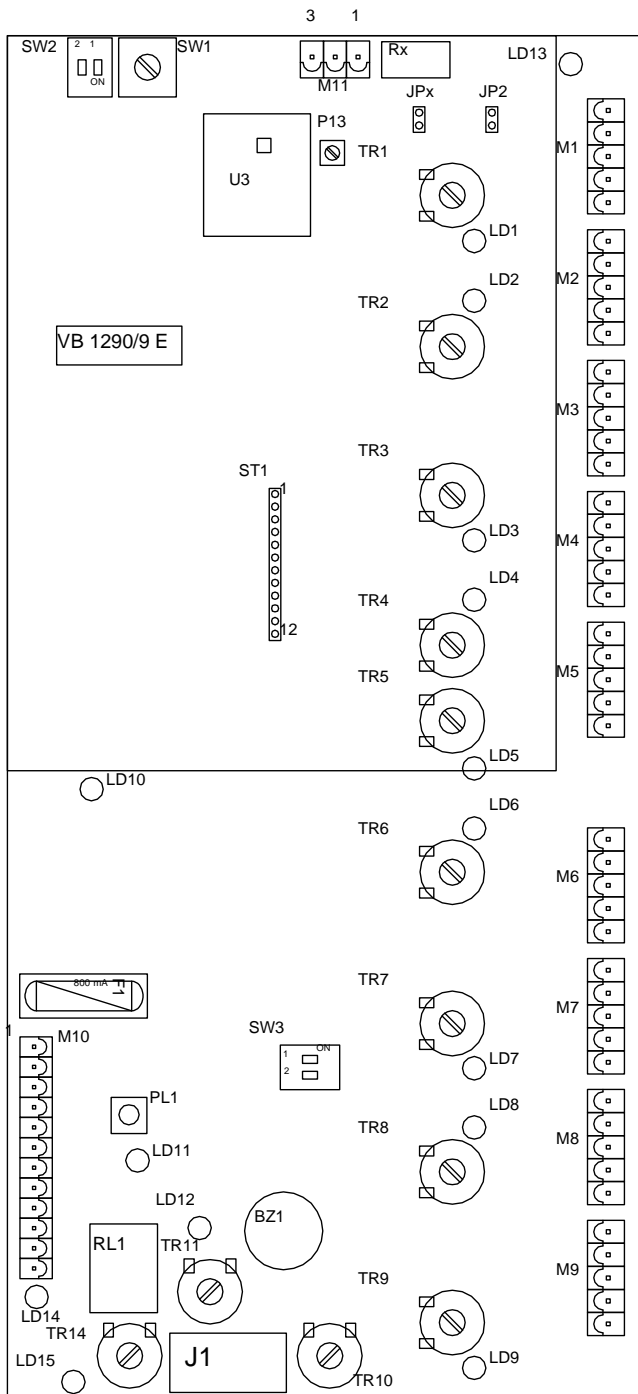
1,650 KHz



1,690 KHz

## ClearLock 631-MT-EN

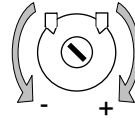
### 2.2.14. VB1290/9 EVAM layout



LD1,2,3,4,5,6,7,8,9  
Transducers signal intensity led

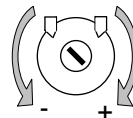
Transducers signal setting (for each transducer use relevant potentiometer;  
ex. TR1 = transducer 1)

TR1



Rotate CLOCKWISE to increase the signal.  
Rotate ANTI-CLOCKWISE to decrease the signal.

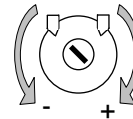
TR10 collapsing effect setting potentiometer



Rotate CLOCKWISE to increase the collapsing effect.  
Rotate ANTI-CLOCKWISE to decrease the collapsing effect.

TR11 sensitivity setting potentiometer

LD12    Alarmed sensor signalling led



Rotate CLOCKWISE to increase the sensitivity.  
Rotate ANTI-CLOCKWISE to decrease the sensitivity.

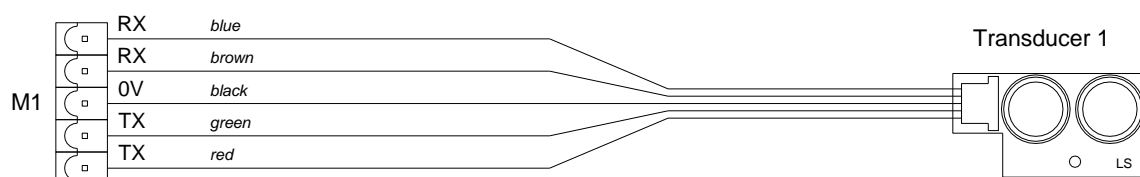
- |      |   |
|------|---|
| PL1  | Sensor RESET push button  |
| LD11 | Signalling Led for sensor RESET                                 |
| LD13 | Blinded sensor signalling led                                   |
| P13  | Blinding sensitività potentiometer                              |
| JP2  | General alarm for blinded sensor jumper                         |
| J1   | Connector to remote bar-graph display                           |
| F1   | Fuse (800mA)  |
| SW1  | Program selection switch  |
| SW2  | Factory setting only  |
| SW3  | OFF position to increase 50% the signal; ON position for buzzer |
| LD10 | ON master, blinking slave                                       |
| J1   | Bar graph remote connection point                               |

TR14 setting collapsing effect threshold (valid when HE input pin11/M10 is closed to 0V)




LD15 (yellow) signalling time during which the input HE stay ON (closed to 0V)

LD14 (green) signalling when input HE is activated

Transducers wiring (from connectors M1, M2, M3, M4, M5, M6, M7, M8 and M9 to transducers through the supplied cable)



### Blinded sensor alarm contact wiring

|     |   |   |              |
|-----|---|---|--------------|
| M11 |  | 3 | Common       |
|     |  | 2 | N.O. contact |
|     |  | 1 | N.C. contact |

Transducer 1

### 2.2.15. VB1290/9 sigle presence sensor setting

To proceed to the configuration of the sensor, it is necessary to use a “tester” with a bar graph display (tester must be purchased separately).

Tester (see Figure 2-8) must be connected at the J1 connector on the sensor, via a flat cable. The bar graph of the tester has 10 led; the first one (that one near the connector) signals the alarm condition (turn ON if an alarm occurs). The second led doesn't work. The other eight leds are use to set the sensor (these leds have a double intensity: the lowest is used to verify and set the threshold, while the highest intensity is use to adjust the sensibility of the sensor, as describe in the follow:

- 1) Connect the separately provided bar-graph display to the dedicated connector J1
  - 2) With cabin empty and doors closed, set trimmer TR11 (sensitvity setting potentiometer) in order to have the bar-graph display device leds ON: LED3, LED4, LED5 (low intensity light)
  - 3) Check that the program selected on SW1 is adequate to the booth model
  - 4) Completely rotate clockwise trimmer TR10 (collapsing effect setting potentiometer) and position the trimmers from TR1 up to TR9 in their half position.
  - 5) Ask for the collaboration of a possibly corpulent person (target person [TP]) to help you during the settings, and let him cross the cabin from low to security side.
  - 6) Let the TP enter inside the cabin and check that, when door is closed, on the bar-graph display (see Figure 2-7) the signal 1 (LED3) or signal 2 (LED4) is ON (high intensity light): if YES, let the TP exit and go to point number 8.
  - 7) Let the TP exit and set trimmers from TR1 up to TR9\* in order to reach on the bar-graph display 1 or 2 bar ON (high intensity light): rotate\*\* clockwise for increase; rotate\*\* anti-clockwise for decrease number of leds light ON. Go to point number 6.
  - 8) Rotate\*\* anti-clockwise TR10 (see figure beside).
- 
- 9) Let the TP enter inside the cabin and check that on the bar-graph display none or one bar (LED3) is ON (high intensity light): if YES, let the TP exit and go to point number 11.
  - 10) Let the TP exit and set trimmer TR10 in order to reach on the bar-graph display none or one bar (LED3) ON (high intensity light): rotate\*\* clockwise for increase; rotate\*\* anti-clockwise for decrease. Go to point 9.
  - 11) Try simulating different transit conditions.
  - 12) Disconnect the bar-graph display.

**ATTENTION:** all above mentioned checks and settings must be performed with doors (both sides) closed, either with the TP in or out.

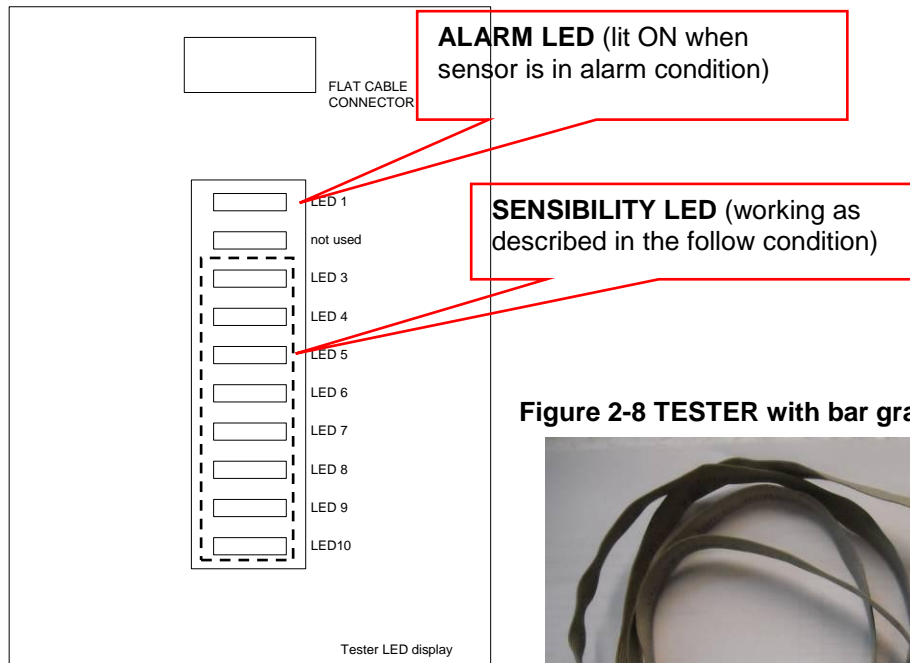
\* Note: all the trimmers from TR1 up to TR9 are set approximately at the same value (in the same same angular position).

\*\* Note: the rotation has to be very short.

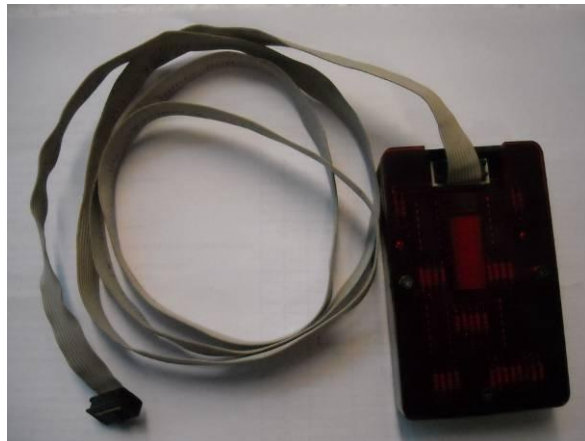
## ClearLock 631-MT-EN

NOTE: When single presence control must be performed during the transit of a challenged person, see setting description at page **Erreur ! Signet non défini. (Erreur ! Source du renvoi introuvable.)**

**Figure 2-7 Tester with bar graph display (schematic view)**



**Figure 2-8 TESTER with bar graph display**



THE TESTER WITH BAR GRAPH DISPLAY IS USED TO CONFIGURATE AND TO VERIFY THE OPERATION MODE OF THE SINGLE PRESENCE SENSOR. The tester must be connected to the sensor board, through the provided flat cable (see Figure 2-8). Reading the number of LEDs turned ON and the relevant light intensity, in various working conditions, it is possible to configure and to verify the sensor functioning.

The booth is supplied with the sensor configured so that, when empty, only three LED (LED 3, LED 4 and LED 5) are lit on with low intensity. During a transit (with single presence sensor activated) the intensity of the LEDs increases and the number of LEDs affected by the brightness increasing grows.

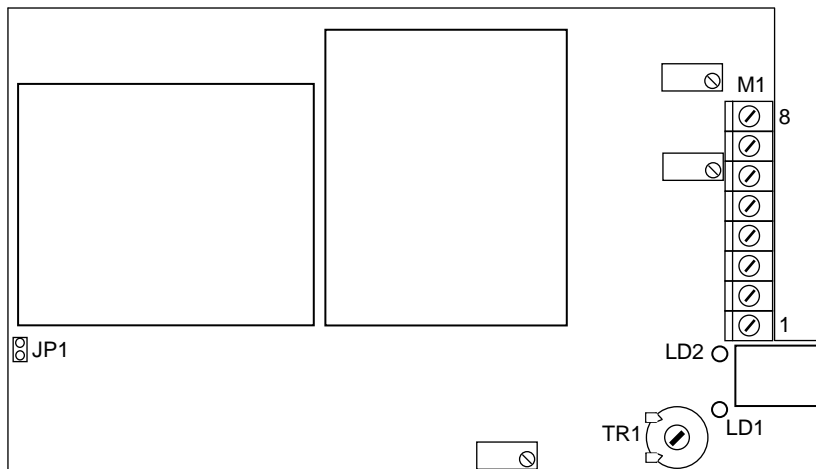
The increase will be greater as larger will be the size of the individual who is transiting. When the alarm threshold is exceeded (all three LEDs mentioned turn on in bright light), the sensor goes into alarm. This situation is indicated by LED 1 that turn ON.

If the booth electronic control board, which is electrically connected to the single presence sensor, receives the alarm signal from the sensor, it will block the transit cycle (typically entry cycle): the opening of the high side door is inhibited and, preceded by a voice message, which invites to go out and to repeat the process, the low side door is opened.

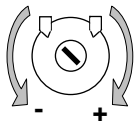
The procedure described in the section 2.2.15, in this document, explains how to set the sensor threshold: higher is the set sensitivity, lower is the number of LEDs with low intensity, when booth is empty, on the contrary a lower sensitivity corresponds to a greater number of LEDs with low intensity, when booth is empty. The latter condition is potentially dangerous because the sensor may fail to discriminate between a big person and two people, who are passing close to each other (typical condition of coercion).

## 2.2.16. VB 1370 N left object board (if fitted)

Lay-out board



TR1 Sensitivity setting potentiometer



- Rotate CLOCKWISE to increase sensitivity
- Rotate ANTI-CLOCKWISE to decrease sensitivity

LD1 Alarmed sensor signalling led

LD2 Sensor reset signalling led

JP1 Clocking selection



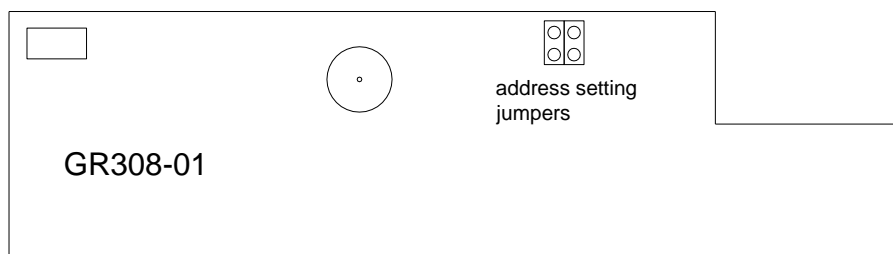
MASTER



SLAVE

## 2.2.17. GR308-01 board layout

LAYOUT GR308-01 board



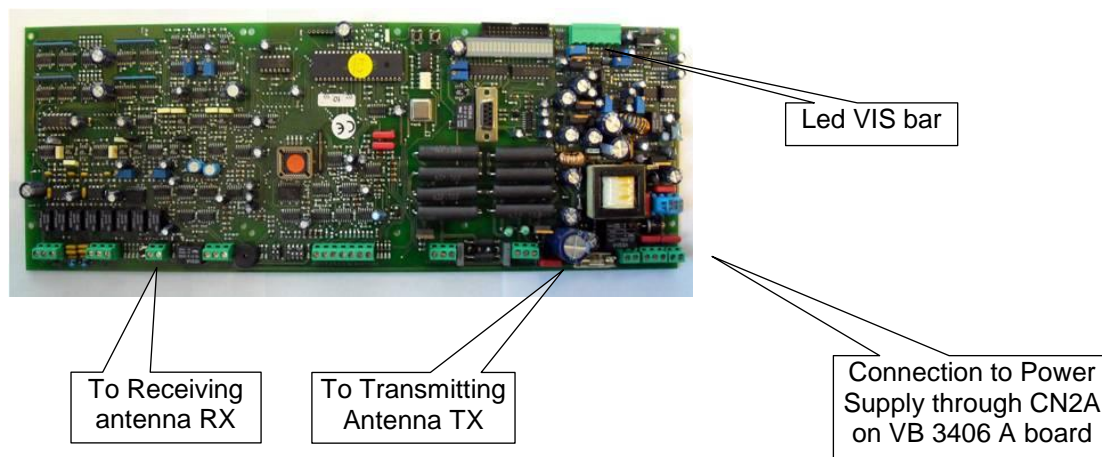
## ClearLock 631-MT-EN

## 2.2.18. Metal Detector setting

If in the CLEARLOCK 631 is fitted a metal detector follow these instructions.

The metal detector board is located in the top of the booth as can be seen from the following Figure 2-9

**Figure 2-9 Metal Detector Board**

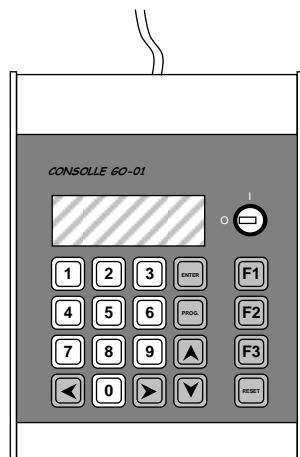


The layout of the board is shown on Figure 2-12.

This board can be connected to a programming console. The console is not used during the normal operation of the metal detector, but it is needed during activation and maintenance procedures. (see Figure 2-10)

The console can be used for more than one booth with metal detector. Just one console is requested in case of multiple units with multiple metal detectors.

**Figure 2-10 Metal Detector programming console**



### 2.2.18.1. Electrical wiring connections

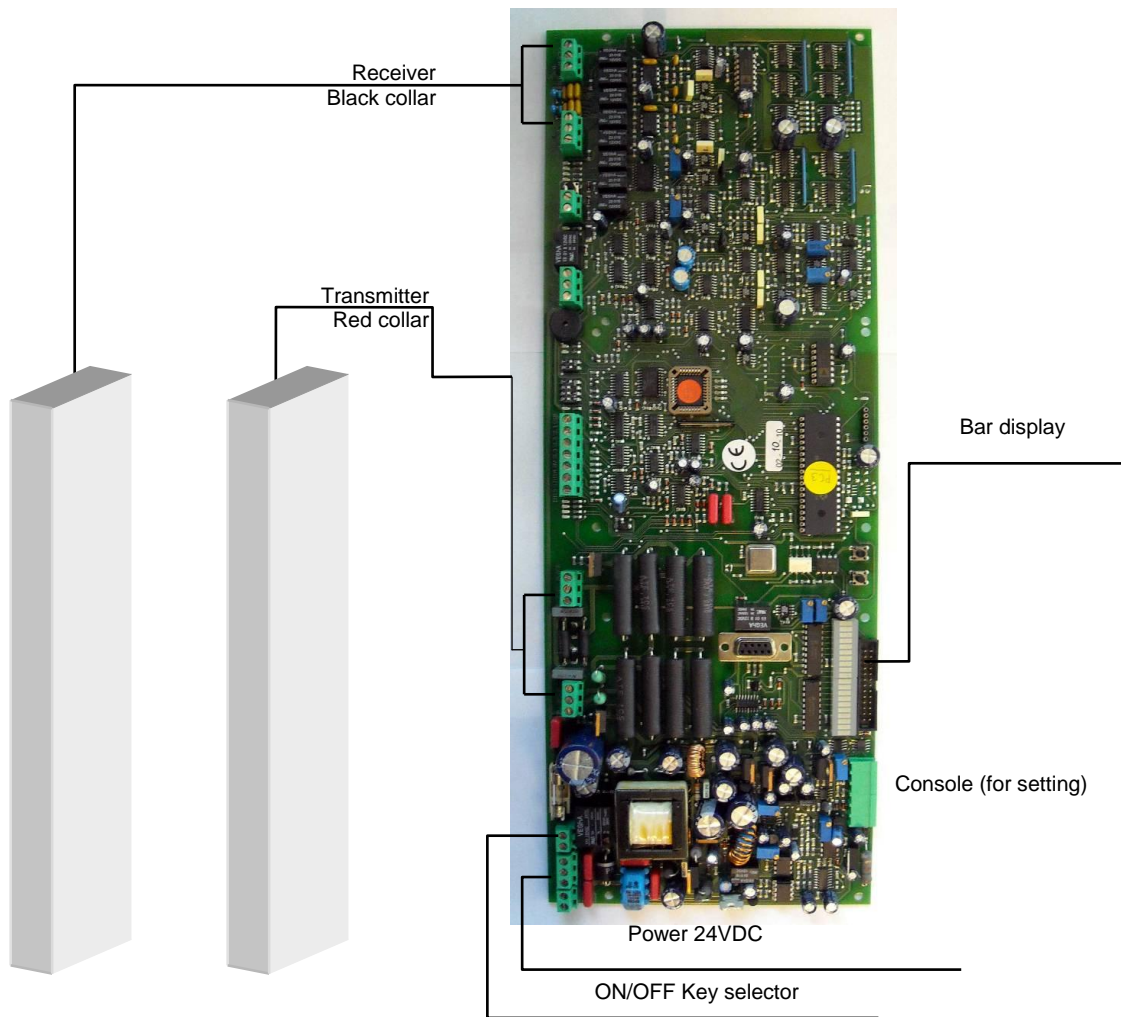
The next figures will show all wiring connections among metal detector board, the programming console and the two antennas.

For the connection to the main board VB 3406.

## ClearLock 631-MT-EN



**Figure 2-11 General wiring connections**

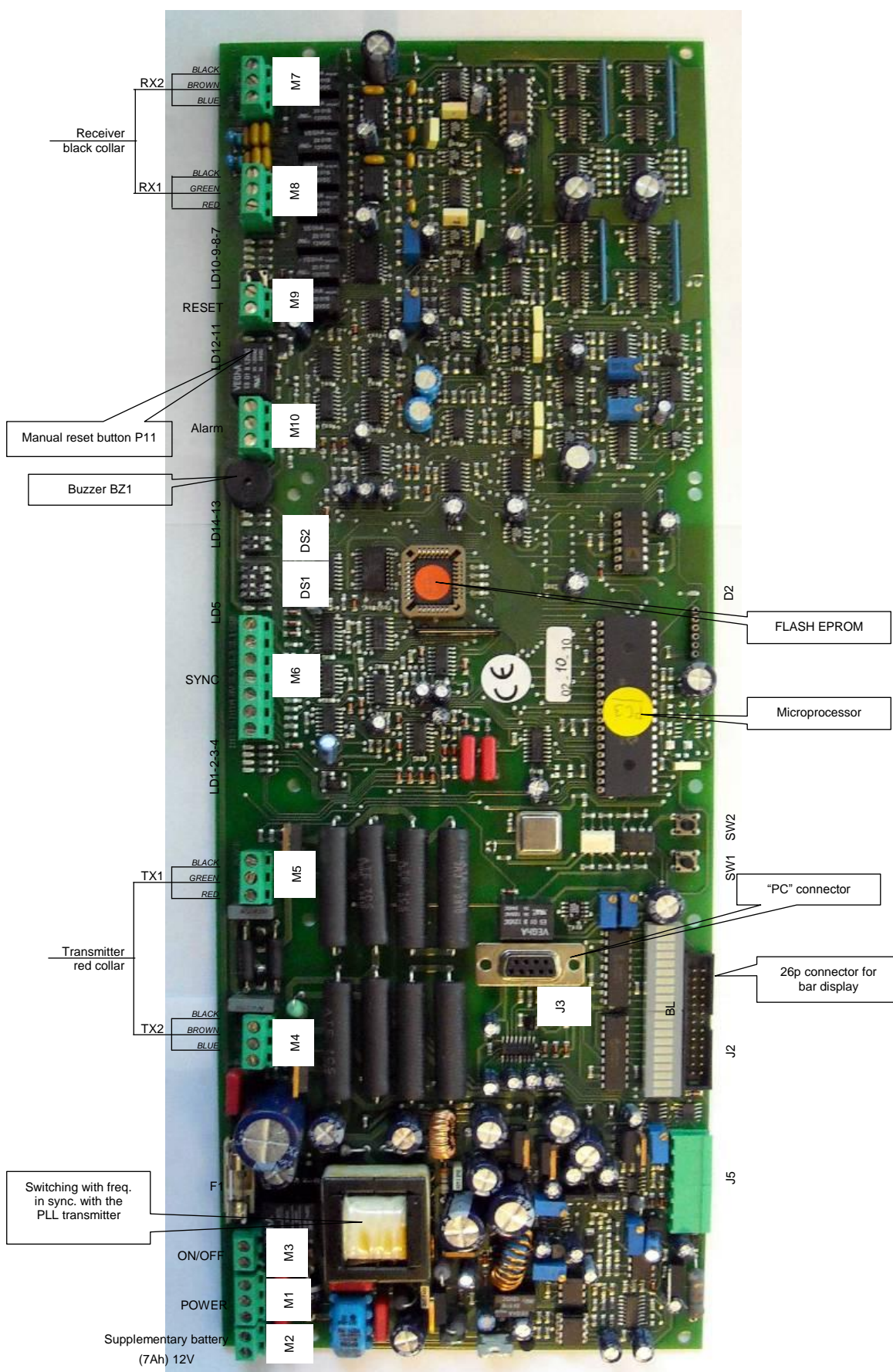


### ClearLock 631-MT-EN

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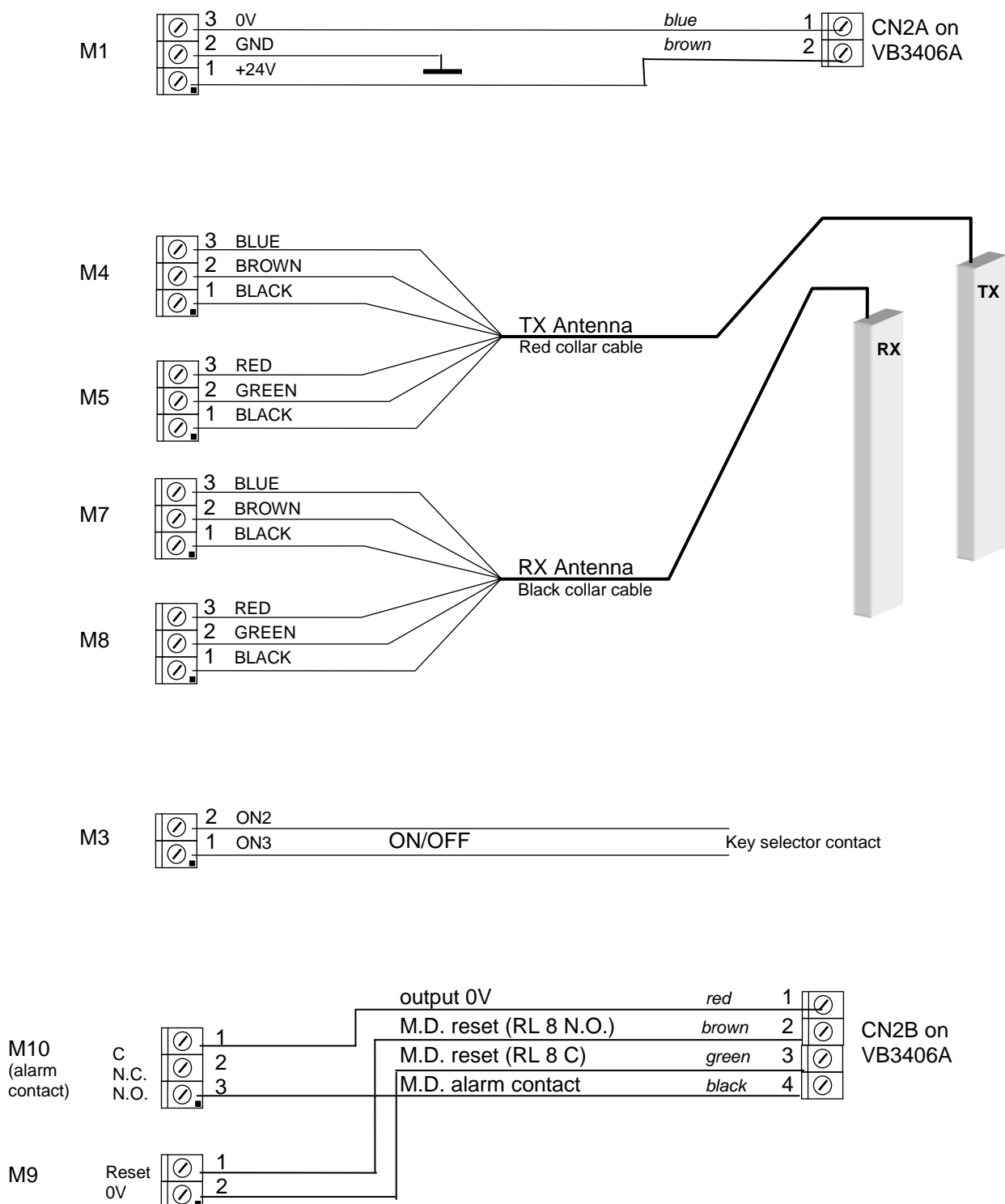
**Figure 2-12 Metal detector board layout**



## ClearLock 631-MT-EN

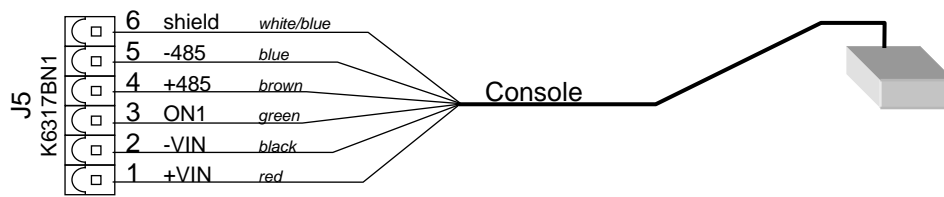
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**Figure 2-13 metal detector board electrical wiring connection**

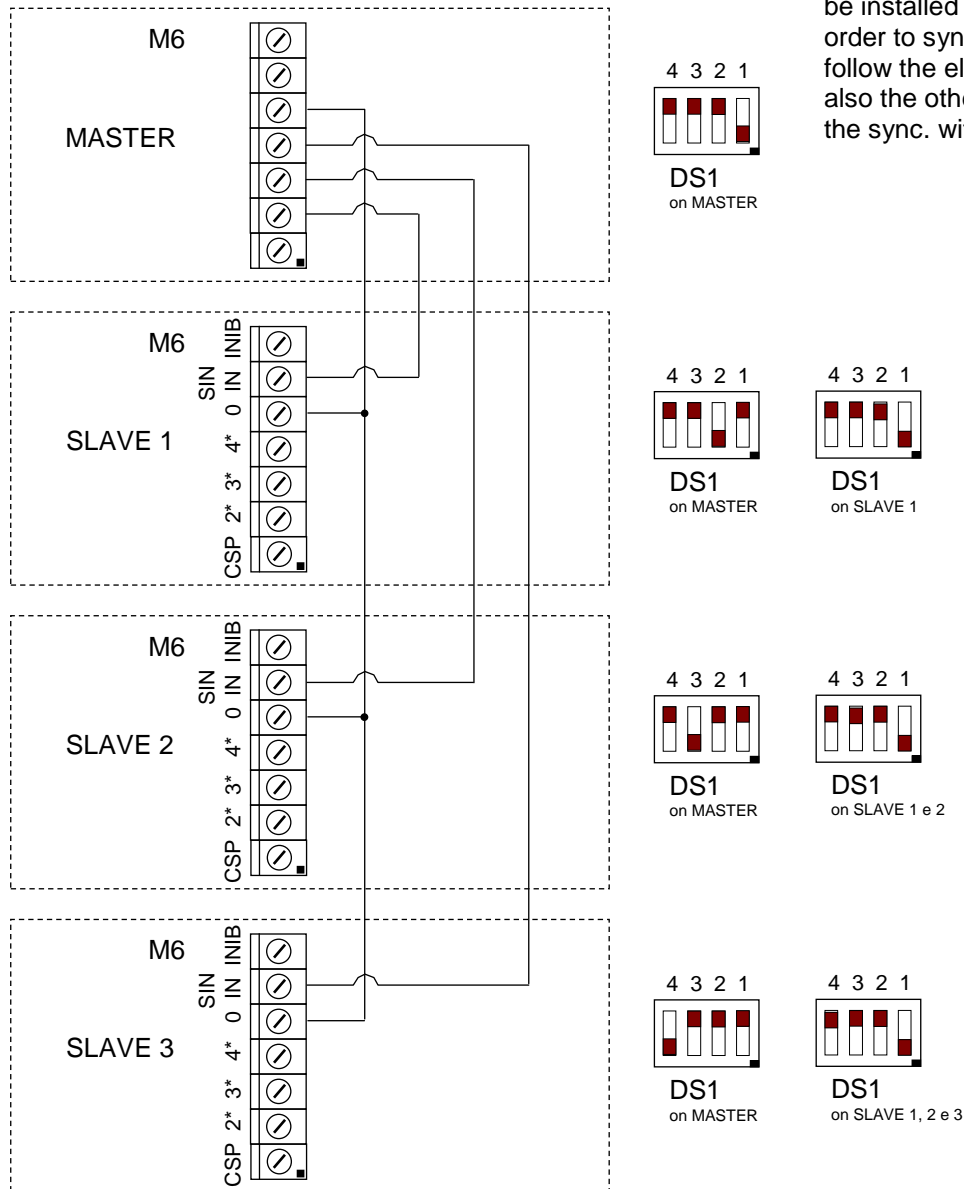


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**Figure 2-14 metal detector console wiring connection**



**Figure 2-15 metal detector board electrical wiring connection**



## ClearLock 631-MT-EN

**Table 2-2 metal detector board components description**

DS1

MASTER/SLAVE setting on MASTER M.D.

| DS1 |                  | 1   | 2   | 3   | 4   |
|-----|------------------|-----|-----|-----|-----|
| 0   | ONLY MASTER      | ON  | OFF | OFF | OFF |
| 1   | MASTER + 1 SLAVE | OFF | ON  | OFF | OFF |
| 2   | MASTER + 2 SLAVE | OFF | OFF | ON  | OFF |
| 3   | MASTER + 3 SLAVE | OFF | OFF | OFF | ON  |

MASTER/SLAVE setting on SLAVE M.D.

| DS1 |            | 1  | 2   | 3   | 4   |
|-----|------------|----|-----|-----|-----|
| --  | M.D. SLAVE | ON | OFF | OFF | OFF |

DS2

Settings.

| DS2                 | ON     | OFF     |
|---------------------|--------|---------|
| 1<br>Buzzer         | Enable | Disable |
| 2<br>OUT OF SERVICE | Enable | Disable |

BL

Bar with 20 led indicating sensitivity/signal level. This M.D. model is not provided with the led bar on board.

BZ1

Alarm buzzer. Switch selector 1 on DS2 to ON to activate.

M1

Power connector (24VDC - 3A max).

| M1 | Ref. | Description              |
|----|------|--------------------------|
| 1  | +VIN | +24VDC                   |
| 2  | GND  | Ground + antennas shield |
| 3  | -VIN | 0VDC                     |

M2

Connector for supplementary back-up battery 12V – 7Ah.

| M2 | Ref. | Description |
|----|------|-------------|
|----|------|-------------|

## ClearLock 631-MT-EN

|   |   |           |
|---|---|-----------|
| 1 | + | Battery + |
| 2 | - | Battery - |

**M3**

ON/OFF connector. To switch ON contact must be bridged.

When the M.D. has to stay ON all the time install a fixed bridge.

| <b>M3</b> | <b>Ref.</b> | <b>Description</b>        |
|-----------|-------------|---------------------------|
| 1         | <b>ON2</b>  | Switch connector terminal |
| 2         | <b>ON3</b>  | Switch connector terminal |

**M6**

I/O connection to external devices

| <b>M6</b> | <b>Ref.</b>   | <b>Description</b>                        |
|-----------|---------------|---|
| 1         | <b>CSP</b>    | Main Synchronization command              |
| 2         | <b>SL1</b>    | Synchronism slave 1                       |
| 3         | <b>SL2</b>    | Synchronism slave 2                       |
| 4         | <b>SL3</b>    | Synchronism slave 3                       |
| 5         | <b>0</b>      | "0"                                       |
| 6         | <b>SIN IN</b> | Synchronism signal (input)                |
| 7         | <b>INIB</b>   | Inhibition signal (transmission stand by) |

## ClearLock 631-MT-EN

**M4**

Channel 2 (TX 2) connector.

| <b>M4</b> | <b>Ref.</b> | <b>Description</b>                    |
|-----------|-------------|---------------------------------------|
| <b>1</b>  | <b>M4.1</b> | Antenna cable (red collar/black wire) |
| <b>2</b>  | <b>M4.2</b> | Antenna cable (red collar/brown wire) |
| <b>3</b>  | <b>M4.3</b> | Antenna cable (red collar/blue wire)  |

**M5**

Channel 1 (TX 1) connector.

| <b>M5</b> | <b>Ref.</b> | <b>Description</b>                    |
|-----------|-------------|---------------------------------------|
| <b>1</b>  | <b>M5.1</b> | Antenna cable (red collar/black wire) |
| <b>2</b>  | <b>M5.2</b> | Antenna cable (red collar/green wire) |
| <b>3</b>  | <b>M5.3</b> | Antenna cable (red collar/red wire)   |

**M7**

Channel 2 (RX 2) connector.

| <b>M7</b> | <b>Ref.</b> | <b>Description</b>                       |
|-----------|-------------|--|
| <b>1</b>  | <b>M7.1</b> | Antenna cable (black collar/ black wire) |
| <b>2</b>  | <b>M7.2</b> | Antenna cable (black collar/ brown wire) |
| <b>3</b>  | <b>M7.3</b> | Antenna cable (black collar/ blue wire)  |

**M8**

Channel 1 (RX 1) connector.

| <b>M7</b> | <b>Ref.</b> | <b>Description</b>                       |
|-----------|-------------|--|
| <b>1</b>  | <b>M8.1</b> | Antenna cable (black collar/ black wire) |
| <b>2</b>  | <b>M8.2</b> | Antenna cable (black collar/green wire)  |
| <b>3</b>  | <b>M8.3</b> | Antenna cable (black collar/ red wire)   |

**ClearLock 631-MT-EN**

#### M9

External "reset" command connector. To be used when the M.D. is set-up on "static", or other devices are connected. (e.g. inside an interlocking equipment). When M9 is bridged the alarm signal is reset.

| M9 | Ref.  | Description   |
|----|-------|---------------|
| 1  | RESET | Reset command |
| 2  | 0     | "0" reference |

#### M10

External alarm signal connector. (Available either as N.O. or N.C. - max 1A 30VDC).

| M10 | Ref. | Description                              |
|-----|------|--|
| 1   | C    | Common (max 1A 30VDC)                    |
| 2   | N.C. | Normally Closed Contact (M.D. is active) |
| 3   | N.O. | Normally Open Contact (M.D. is active)   |

#### J2

Connection to the external led bar display with 26 wires flat cable. Available for M.D. stand alone unit only

#### F1

Main fuse: 2,5A max.

#### LD1, LD2, LD3, LD4

Abnormal operation red signaling leds: switched off on correct working condition. Lit on in case of M.D. antennas malfunctioning. **WHEN LIT CALL ON SERVICE.**

#### LD14

Generic "failure" red led: switched off on normal use; **WHEN LIT CALL ON SERVICE.** If LD14 is ON together with LD3/LD4, check if the wiring on M7/M8 is correctly fixed, or if the receiver antenna has been visibly damaged. In the second case the receiver antenna has to be replaced. If LD14 is ON together with LD1/LD2, the metal detector board is out of order and has to be replaced.

#### LD12, LD13

LD12 (green leds) lights ON on normal use; LD13 is OFF on normal use; LD12 switched off in case of M.D. alarm; LD13 lights ON red in case of M.D. alarm.

#### LD11

Operational green led: switched OFF on normal use; lights ON when the M.D. "reset" command is ON. (M9).

## ClearLock 631-MT-EN



LD7, LD8, LD9, LD10

Operational green leds: when lights ON the relevant filter ( LD7 – Filter 1; LD8 – Filter 2; ...) has been chosen at the M.D. remote console (see Function 11 page 68).

#### **Table 2-3 K6317AN1 board components description**

P11

"Reset" button: for M.D. setting-up and start-up procedures.

LD5

Operational green led: lit ON when the M.D. is "inhibit" (INIB on M6) that is to say the turnstile is stopped – M.D. alarm is not displayed on booth console. When the turnstile starts rotating the led is OFF and M.D. alarm is displayed on the booth console too.

#### **Table 2-4 K6317BN1 board components description**

SW1

Microprocessor reset button: for M.D. test procedures.

SW2

"Password reset" button: used in case of programming password lost.

D2

Transmission led yellow: lights on when the M.D. is transmitting to the console (this happens during M.D. setting).

### **2.2.18.2. Programming**

Programming can be selected using the dedicated console.

Metal Detector has 12 programming sections, as shown here below:

- 1) working frequency selection
- 2) sensitivity level adjustment
- 3) object catching sensitivity
- 4) automatic refresh times
- 5) pre-amplification setting
- 6) vibration noise damping channel 1 and channel 2
- 7) static / dynamic modality
- 8) password selection
- 9) channel amplification selection
- 10) program number selection
- 11) filter selection
- 12) ON / OFF channel 1 and channel 2 during vibration noise damping programming section.

Console buttons legenda:

to ▲ go to the next programming section

to ▼ go back to the previous programming section

to ◀ decrease values of each programming section

to ▶ increase values of each programming section.

## **ClearLock 631-MT-EN**



With **PROGR** button it is possible to confirm the set values.

After having finished wiring connections as shown in the diagrams, proceed as shown here below:

Turn ON Metal Detector rotating the console key to ON position (position1).

The console display will light and on the display will appear:

Introduce password  
0 to 9 buttons  
Enter to confirm

The preset password is 58, to change the password see Function 8.

### 2.2.18.3. Functions

All MENU function changes have to be recorded pushing button PROGR to automatically re-establish the normal condition of metal detector working.

Anyway, it is possible to see in real time metal detector working only about these functions:

FREQUENCY – SENSITIVITY – VIBRATION NOISE DAMPING CHANNEL 1 AND CHANNEL 2

In case the operator has to modify one of these function parameters, he/she can do that without pushing button PROGR, except at the end when he/she will find the correct value. Otherwise the operator can turn the console key in position 3 for a second and then re-position the key in position 1 (position 0: M.D. OFF, position 1: M.D. ON) and at the same time press RESET button until the display LCD return in the normal position.

After this operation when the operator enters in MENU with the password, he/she can remain in MENU for the period he/she needs and not only for 20 second as in normal conditions.

To stop this function turn again the key in position 2 for a second and then in position1 without pressing any other button.

#### 1 Function 1 – Working frequency selection

This function is used to set an optimum working frequency according to the environment in which the metal detector has been installed, avoiding outside noises (neon signs, motors, electric devices, etc.) can affect metal detector correct working.

It is possible to see the noise on the led bar BL, central leds move with an irregular movement. To change preset parameter enter in this function and with dedicated buttons increase / decrease the value (each value increases / decreases of 0.6 Hz) till the correct frequency has been found (the led bar BL on the top of the two metal detector antennas has the central leds stable).

The metal detector working frequency has to be in the range of 450Hz – 971.8Hz.

#### 2 Function 2 – sensitivity level adjustment.

This function is used to set the metal detector sensitivity level, the value must be in the range of 0 (minimum sensitivity) to 255 (maximum sensitivity).

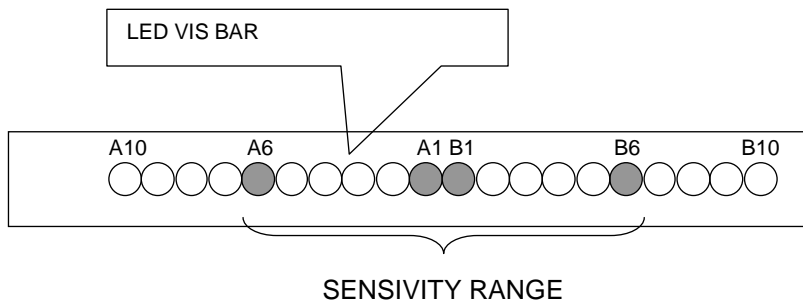
The sensitivity level can be also seen on the led bar BL made of 20 leds, located on the top of the two metal detector antennas.

In the central part C led is ON when metal detector is in stand-by (no metal objects are crossing the two antennas).

There are other two leds that are ON in asymmetrical way with reference to the central led C : ex. A6 and B6 (see Figure 2-16).

It is possible to move these leds to change the sensitivity level: increasing the sensitivity level, the field between the leds is shorter and they will be nearer A1 and B1 leds, decreasing the sensitivity level, the field between the two leds is larger, moving to A10 and B10 leds.

## ClearLock 631-MT-EN

**Figure 2-16 Led VIS bar**

After having found the requested sensitivity, confirm the value with PROGR button.

### 3 Function 3 – Object catching sensitivity

This function is used to set the object catching sensitivity while the object is crossing the two antennas.

There are 4 levels in the range of 5Hz – 20Hz : 5-10-15-20 (low – medium-low – medium-high – high)

After having chosen the requested catching sensitivity, confirm with PROGR button.

**Note:** for CLEARLOCK 631 metal detector the value suggested is 10.

**Note:** this function is connected with environmental noise immunity ( the less noises are, the higher objects catching sensitivity is accepted).

- minimum object catching sensitivity (5) maximum noises control
- maximum object catching sensitivity (20) minimum noises control.

The transmitting antenna (red cable) must be on the side of possible noise source (ex: X ray device)

### 4 Function 4 – Automatic refresh times

This function is used to set metal detector automatic refresh times canceling false alarms due to environmental noises that are different in each place.

There are 5 levels (0-1-2-3-4) with a value in the range from 0 (no correction in case of environmental noises) to 4 (maximum correction in case of environmental noises).

After having found the best automatic refresh times, confirm the value with PROGR button.

**Note:** for CLEARLOCK 631 metal detector the value suggested is 4.

### 5 Function 5 – Pre-amplification setting

This function is used to set pre-amplification parameters in connection with used metal detector antennas and the requested program selection (range 1:1 / 1:2 / 1:4).

**Note:** for CLEARLOCK 631 metal detector the value must be set up to 1:2.

### 6 Function 6 – Vibration noise damping channel 1 and channel 2

Vibration noise damping setting allows to optimize metal detector working, avoiding possible noises due to antennas movement and/or vibrations due to objects near metal detector.

The setting has to be done introducing only one channel per time (see function 12 to ON / OFF channels) and using function 6, with different values according to the chosen program: for CLEARLOCK 631 the program to be selected is the n. 0 and the range values is 225-230. After having turn OFF the channel that has not to be set (function 12), move the two antennas a little bit.

If it is possible to see on the led bar **BL** leds oscillation (from the central to A10 and B10), change the present setting until it was found a value that reduce the minimum leds oscillation. Do the same thing for the other channel and press **PROG** to confirm the value.

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## **7 Function 7 – Static / dynamic modality**

In “static” modality there is a continuous alarm in case of a metallic object between the two antennas, instead, in “dynamic” modality there is a short alarm each time a metal object cross the two antennas.

The decision between the two options depends on clients needs.

**Note:** for CLEARLOCK 631 the metal detector static/dynamic modality has to be set in “dynamic”.

## **8 Function 8 – Password selection**

This function is used to change the pre-set password digiting on the console a new number with maximum 12 characters and press ENTER button.

Then press PROGR button.

In case the operator forget the password, he/she can press the dedicated button on the board with the microprocessor (see Table 2-5): in this case the set password is **123456** that allows the operator to enter in MENU and follow this procedure to introduce a new password.

## **9 Function 9 – Channels amplification selection**

Value must be in the range of 1-2-3-4.

It depends on which program has been chosen and which kind of antennas has been installed.

**Note:** for CLEARLOCK 631 metal detector the value must be set up to 3.

## 10 Function 10 – Program selection

This function is used to change the program number.

**Note:** for CLEARLOCK 631 metal detector the program must be set up to 0.

**Table 2-5 Program selection**

| Program  | Vibration noise damping | Filter selection |
|----------|-------------------------|------------------|
| <b>0</b> | <b>≈ 230</b>            | <b>1=ON</b>      |
| 1        | ≈ 230                   | 1=ON             |
| 2        | ≈ 180                   | 1=ON             |
| 3        | ≈ 170                   | 4=ON             |
| 4        | ≈ 230                   | 1=ON             |
| 5        | ≈ 220                   | 1=ON             |
| 6        | ≈ 230                   | 1=ON             |
| 7        | ---                     | ---              |
| 8        | ≈ 60                    | 1=ON 4=ON        |
| 9        | ≈ 220                   | 1=ON             |
| 10       | ≈ 140                   | 4=ON             |
| 11       | ≈ 240                   | 1=ON             |

## 11 Function 11 – Filter selection

It is possible to introduce 4 different kind of filters, it depends on which kind of program is used and also which kind of electromagnetic noise is present in the area where the metal detector has been installed.

Usually it is used filter 1 ON but in particular condition it can be better using another filter ON.

**Note :** for CLEARLOCK 631 metal detector, filter 1 must be set up to ON; filters 2-3-4 must be set up to OFF).

## 12 Function 12 – ON / OFF channel 1 and channel 2

This function is connected with function 6, because if vibration noise damping of channel 1 has to be cancel channel 2 has to be put in OFF position vice-versa.

Before going to function 6 memorize the set channel with PROGR.

To exit from MENU remember to press any time PROGR button to confirm the chosen setting. If not, metal detector may work with different parameters from the chosen ones. Be careful in case the console key has not been turn into position 2 (see page 55) because after 20 second without pressing any button the console automatically exit from MENU re-introducing the last saved parameters.

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**DIP-SWITCH:**

**DS2 :** 1 ON: internal buzzer ON  
          1 OFF: internal buzzer OFF  
2 ON: alarm in case of out of order  
2 OFF: no alarm in case of out of order condition

2 must be always in ON position

In case of out of order condition (for example short circuit of TX or RX winding – a real rare situation), the output relay will be always in alarm, so that the buzzer will sound.  
In this case it is not possible to enter in MENU also with the password but it is necessary to turn OFF the device.

**DS1:** used to synchronize M.D. near to the master one, till a maximum of 3 (3 SLAVE + 1 MASTER).

Ex. 1 ON single metal detector installation [1MASTER]  
2 ON Two metal detectors installation [1 MASTER + 1 SLAVE (1=ON)]  
3 ON Three metal detectors installation [1 MASTER + 2 SLAVE (1=ON)]  
4 ON Four metal detectors installation [1 MASTER + 3 SLAVE (1=ON)]

Notes: the working frequency on the slave M.D. console is 1/2 of master M.D. in case there is 1 master and 1 slave M.D.; it is 1/3 in case there are 1 master and 2 slaves M.D.; it is 1/4 in case there are 1 master and 3 slaves M.D.

During parameters setting the operator may, if necessary, re-position leds to the central led with the manual reset (see Figure 1-4), or pushing button RESET on the console after having digit the password to enter in the MENU.

In option, in case of lack of power, there is a back up battery that supports metal detector for 2 hours

**ClearLock 631-MT-EN**

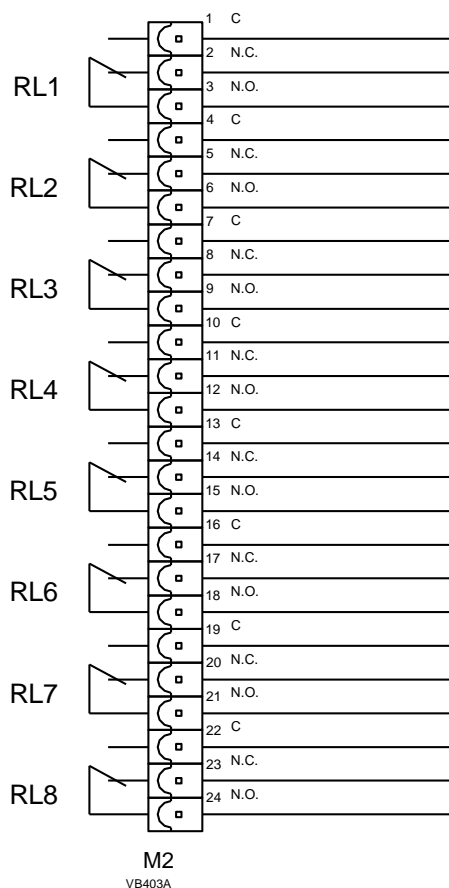
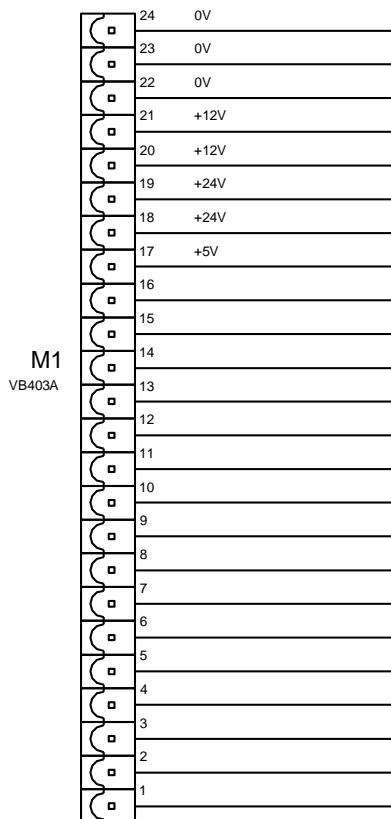
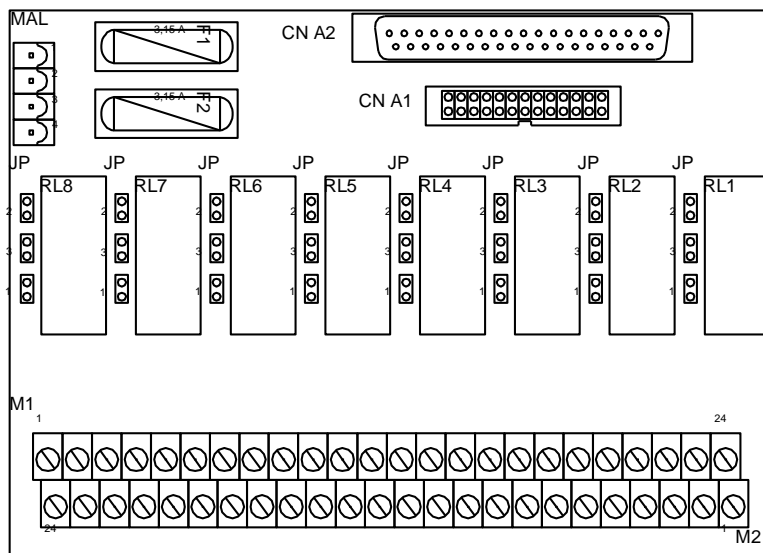
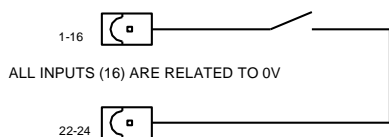
## 2.2.19. VB403A I/O board expansion layout

(for details see also addendum)

Connected to the main control board (VB3406) through a flat cable (using CNA1 connector).

LAYOUT componenti  
scheda VB 403 A

JP2 close= common relé +12V  
JP3 close= common relé +24V  
JP1 close= common relé 0V  
All jumper open= free contact



## ClearLock 631-MT-EN

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### **3. Preventive Maintenance and Adjustments**

#### **3.1. Intent of this Section**

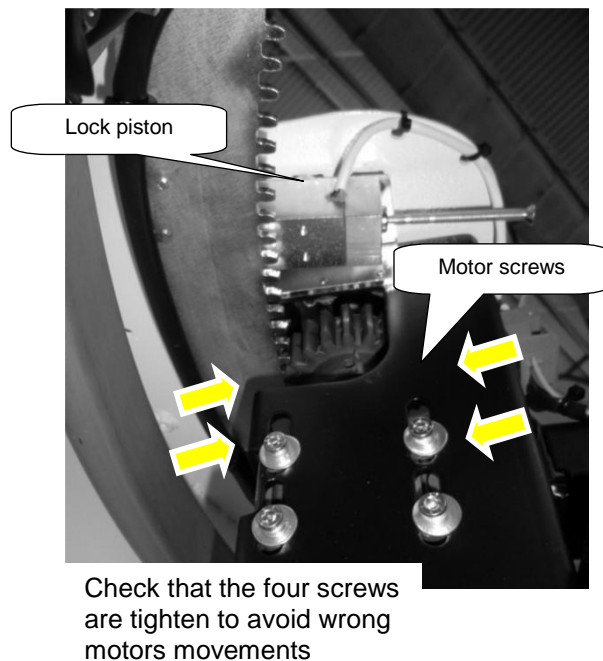
This section covers the recommended procedures to reduce service calls and prolong the life and appearance of the ClearLock 631.

#### **3.2. Main Checks**

After having installed the booth to be sure that everything is working correctly, some checks have to be done. These checks should be done at least twice a year:

- 1) Check that the two motors are correctly fixed and tighten (ref. Figure 3-1)

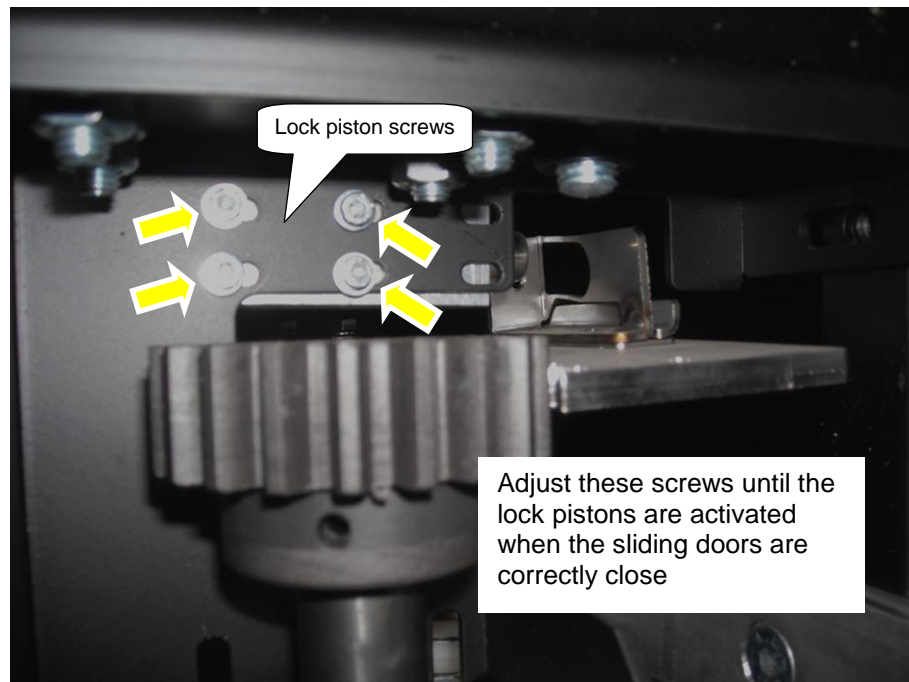
**Figure 3-1 Motors check**



#### **ClearLock 631-MT-EN**

Check that sliding doors end pistons are correctly fixed (ref. Figure 3-2)

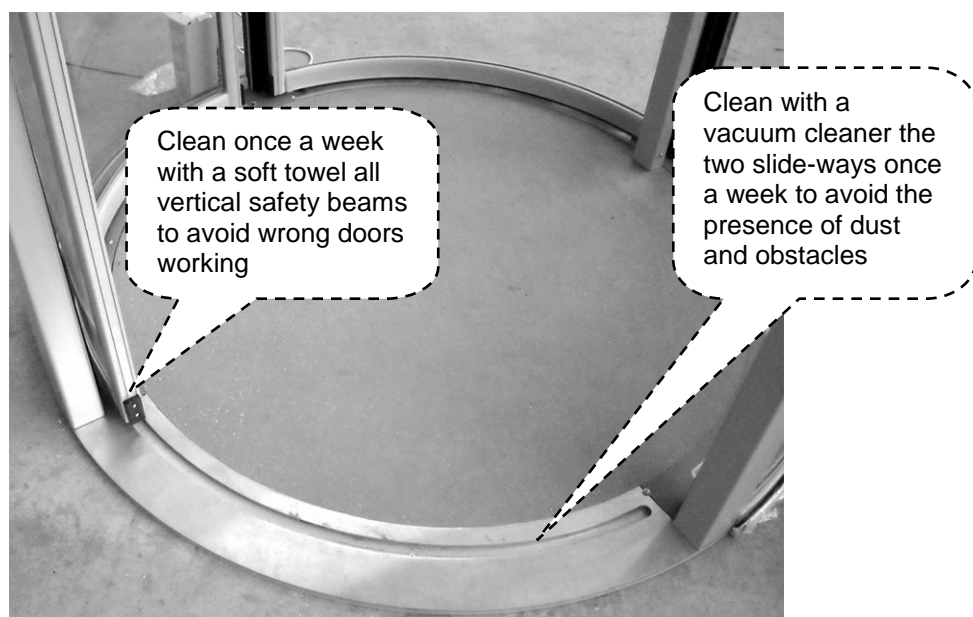
**Figure 3-2 Sliding doors lock pistons check**



### 3.3. Basic Maintenance

Clean once a week with a soft cloth all photocells because if they are dirty they may cause a wrong doors working (sliding doors may stop with no reason, because dust on the photocells seem to be an object between the sliding door and the booth).  
(ref. Figure 3-3)

**Figure 3-3 Booth cleaning**



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In case a wrong doors working still remain, contact Automatic Systems because probably photocells are in wrong position.

Clean also, with a vacuum cleaner the two slide-ways once a week to avoid the presence of dust and obstacles. (ref. Figure 3-3)

Check if all users information stickers (ex. Only one person at a time), if fitted, are present, if not please contact Automatic Systems.

If the ClearLock 631 needs a different kind of maintenance, that is to say some parameters have to be changed, please see other paragraphs.

**Ceiling Lamp removal, replacement:** Using a glove or paper towel grab the bulb and pull it from its socket. Using a glove or paper towel push a new bulb into the fixture socket.

**Ceiling Lamp Fixture removal, replacement:** Remove the wiring of the faulty fixture from the main board VB3406A. Pull the fixture and its wiring down through the hole. Thread the wire up through the hole in the ceiling panel and push the light fixture into hole until it snaps into place. Wire the light fixture to the main board.

**Traffic-lights plate removal, replacement:** when a traffic lights has to be replaced unscrew the traffic-lights plate and replace it with a new one.

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### 3.4. Doors parameters setting

To change doors parameters follow these procedures:

From the console enter in Service Programming turning selector S1 clockwise to PROGRAM. On the display appears:

|  |
|--|
| COMMAND MODE<br>7=>AM 8=>PM 9=>NIGHT<br>4=>.....<br>5=>..... |
|--|

Pushing in rapid sequence the buttons F3, F4 and 1 the service menu is entered. On the display appears:

|   |
|---|
| SERVICE MENU<br>1= READ PATH<br>2= MOTOR PARAMETERS |
|---|

**READ PATH:** Push button 1 to access the “path” menu to change the opening/closing path points of the doors. On the display appears:

|  |
|--|
| DOOR SELECTION<br>1= INTERNAL DOOR<br>2= EXTERNAL DOOR |
|--|

Pressing buttons 1 - 2 it is possible to introduce new parameters in closing and in opening for the high door and the low door.

Push button 1 to introduce new parameters in closing and in opening for the high door. On the display it appears:

|               |          |
|---------------|----------|
| READ INT PATH |          |
| XX            |          |
| 3= Reset      | 7= Save  |
| 4= Open       | 8= Close |

Follow the next steps in order to introduce the new path:

- 1) push button 8 until the door is completely closed
- 2) push button 3 to reset the old path  
(on the display it appears 00 instead of the old points number)
- 3) push button 4 until the door is completely opened
- 4) push button 7 to save the new data. On the display it appears:

|                                    |         |
|------------------------------------|---------|
| SAVE DATA AND RECORD<br>THE PATH ? |         |
| 3= Cancel                          | 7= Save |

Push button 3 to cancel the new parameters.

Push button 7 to introduce the new parameters: the booth automatically makes a new door initialization to record the new path.

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Push button **2** to introduce new parameters in closing and in opening for the low door. On the display it appears:

|               |          |
|---------------|----------|
| READ EXT PATH |          |
| xx            |          |
| 3= Reset      | 7= Save  |
| 4= Open       | 8= Close |

Follow the next steps in order to introduce the new path:

- 1) push button 8 until the door is completely closed
- 2) push button 3 to reset the old path  
(on the display appears 00 instead of the old points number)
- 3) push button 4 until the door is completely opened
- 4) push button 7 to save the new data. On the display it appears:

|                                    |         |
|------------------------------------|---------|
| SAVE DATA AND RECORD<br>THE PATH ? |         |
| 3= Cancel                          | 7= Save |

Pressing button 3 to cancel the new parameters.

Pressing button 7 to introduce the new parameters: the booth automatically makes a new door initialization to record the new path.

Rotate S1 selector back to ON position to get out of this function.

**MOTOR PARAMETERS:** Push button **2** to access the “parameters” menu to change the doors movements setting. On the display it appears:

|                  |  |
|------------------|--|
| DOOR SELECTION   |  |
| 1= INTERNAL DOOR |  |
| 2= EXTERNAL DOOR |  |

Pressing buttons 1 - 2 it is possible to introduce new parameters for the high door and the low door. On the display appears:

|                       |       |               |
|-----------------------|-------|---------------|
| A) PROTECTION THRESH. |       | Selected door |
| xx                    |       |               |
| 5=> Inc               | EXT   | 6=> Dec       |
| 4=> Pre               | #=>OK | 8=> Next      |

The two doors have the same menu voices: on the display appears which door is selected at the moment.

- push button 5 to increase the current value
- push button 6 to decrease the current value
- push button 4 to access the previous menu item
- push button 8 to access the next menu item
- push button # to save the new data. On the display appears:

|                                    |         |
|------------------------------------|---------|
| SAVE DATA AND RECORD<br>THE PATH ? |         |
| 3= Cancel                          | 7= Save |

## ClearLock 631-MT-EN

Pressing button 3 to cancel the new parameters.

Pressing button 7 to introduce the new parameters: the booth automatically makes a new door initialization to record the new path.

Rotate S1 selector back to ON position to exit from this function.

**A) PROTECTION THRESH.:** value from 1 to 100. It represents the “power” that the door uses to win an obstacle during the run. An higher value makes the door “stronger”.

**B) INITIALIZ.SPEED:** value from 1 to 100. It is the speed of the door during the initialization process or when the door performs a “reverse” during the run (example: when a safety beam is alarmed). A higher value makes the door “faster” during initialization.

**C) OPEN: SPEED:** value from 1 to 100. It is the speed of the door in opening. A higher value makes the door “faster”.

**D) OPEN: % PATH ACCELL:** value from 1 to 100. It is the % of the whole space in which the door accelerate up to the normal speed in opening (item C). A higher value makes the door “slower”.

**E) OPEN: START BRAKE:** value from 1 to 100. It is the % of the whole space covered by the door in opening before the door starts decelerating up to 0.

**F) OPEN: TIME BRAKE:** value from 1 to 1000. It is the time of the short circuit applied on the motor when the door starts to brake in opening. Value expressed in milliseconds.

**G) OPEN: BRAKE SPEED:** value from 1 to 100. It is braking speed of the door in opening. A higher value makes the door “faster”.

**H) CLOSE: SPEED:** value from 1 to 100. It is the speed of the door in closing. A higher value makes the door “faster”.

**I) CLOSE: % PATH ACCELL:** value from 1 to 100. It is the % of the whole space in which the door accelerate up to the normal speed in closing (item H)). A higher value makes the door “slower”.

**L) CLOSE: START BRAKE:** value from 1 to 100. It is the % of the whole space covered by the door in closing before the door starts decelerating up to 0.

**M) CLOSE: TIME BRAKE:** value from 1 to 1000. It is the time of the short circuit applied on the motor when the door starts to brake in closing. Value expressed in milliseconds.

**N) CLOSE: BRAKE SPEED:** value from 1 to 100. It is the braking speed of the door in closing. A higher value makes the door “faster”.

## ClearLock 631-MT-EN

## 4. Troubleshooting Guide

\* If something on request has not been fitted, the relevant problem cannot exist

| <b>One or both doors do not operate correctly</b>                                     |  |  |
|---|--|--|
| <b>Possible Cause</b>   | <b>Check Point</b>   | <b>Action</b>  |
| 1) in the slide – way of the door there is an object that hamper the correct movement | Check that no object is inside the slide-way   | Remove the object and clean the slide-way with a vacuum cleaner  |
| 2) one of the door parameters is not appropriate for that place                       | Please see “Doors parameters setting” at page 74 of this manual and follow the instructions                                    | Adjust accordingly   |
| 3) one or more safety beams photocells are dirty                                      | Check if there is some dust on one or more safety beams photocells   | Clean with a soft towel. Don't use solvents  |
| 4) one or more safety beams photocells have been broken or they are misaligned        | Check if one or more safety beams photocells are correctly fixed to the frame and aligned                                      | Replace the safety beams photocells paying attention to connect the new one in the same way if it's broken, and aligned them carefully |
| 5) the console is set on manual function or that booth is set for entrance/exit only  | Check if you are in manual function on the display console and check if the door you approach is the correct one to enter/exit | Change the programming to requested function<br>See the operating guide.   |

| <b>The console is OFF</b>  |   |   |
|--|---|---|
| <b>Possible Cause</b>  | <b>Check Point</b>  | <b>Action</b>   |
| 1) S1 selector at the console is in OFF position                           | Check that S1 selector is in ON position  | If it is in OFF position turn clockwise the key of 90°                                      |
| 2) Connectors between the console and the booth are not properly connected | Check that the console connection is properly wired with the console cable and that the wiring of connection cable at the main board is ok (see page 38 of this manual) | Act accordingly   |
| 3) One or two fuses are burnt  | Check that fuses F1 and F2 on VB3406A are not burnt   | Replace the burnt fuses with new ones with same characteristic (see page 48 of this manual) |

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| <b>The consoles signals the lack of power</b>                                       |  |  |
|---|--|--|
| <b>Possible Cause</b>   | <b>Check Point</b>   | <b>Action</b>                          |
| 1) Booth power switch of the main power board of the building is in OFF position.   | Check if the booth power switch of the main power board of the building is in ON position. | If not turn ON the main power          |
| 2) The power supply plug is not correctly connected or there is a fault in the plug | Check that the plug is not damaged and correctly connected                                 | In case the plug is damaged replace it |
| 3) There is a lack of the main power  | Check main power presence at the power supply with proper test instrument                  | Call the Energy supplier               |

| <b>*2 people are allowed to enter even if the single presence sensor system is ON (on the console)</b> |   |   |
|--|---|---|
| <b>Possible Cause</b>  | <b>Check Point</b>  | <b>Action</b>   |
| 1) VB1290/9 EVAM has to be adjusted  | people do not alarm VB1290/9 EVAM                           | See page 51 and follow the setting instructions                       |
| 2) Problem with the connection between VB1290 and VB3406A  | there is an alarm on VB1290 but 2 people can enter the same | Check the connection between VB1290 and VB3406A                       |
| 3) VB1290 not working  | 2 people do not alarm VB1290                                | After having checked that it isn't point 1, VB1290 has to be replaced |

| <b>Spot light are OFF during booth working</b> |                    |                                 |
|--|--------------------|---------------------------------|
| <b>Possible Cause</b>                          | <b>Check Point</b> | <b>Action</b>                   |
| 1) spot light are broken                       | spot light is OFF  | Replace the relevant spot light |
| 2) wrong connection on VB3406A                 | spot light is OFF  | Check the connection on VB3406A |

| <b>One or both traffic lights don't work</b> |  |                                 |
|--|--|---------------------------------|
| <b>Possible Cause</b>                        | <b>Check Point</b>                           | <b>Action</b>                   |
| 1) one or two leds are broken                | Only the red or the green light doesn't work | Replace the traffic lights      |
| 2) wrong connection on VB3406A               | Both lights are OFF                          | Check the connection on VB3406A |

| <b>*The loudspeaker doesn't work</b> |                                     |                                 |
|--------------------------------------|-------------------------------------|---------------------------------|
| <b>Possible Cause</b>                | <b>Check Point</b>                  | <b>Action</b>                   |
| 1) wrong connection on VB3406A       |                                     | Check the connection on VB3406A |
| 2) the loudspeaker is broken         | Check if the loudspeaker is damaged | Replace the broken loudspeaker  |

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| <b>*The intercom doesn't work</b> |                             |   |
|-----------------------------------|-----------------------------|---|
| <b>Possible Cause</b>             | <b>Check Point</b>          | <b>Action</b>   |
| 1) wrong connection               | Intercom is visibly damaged | Adjust the connection on intercom plates and on the handset |
| 2) one intercom is broken         | Intercom is visibly damaged | Replace the broken intercom                                 |

| <b>During initialization one or both doors do not close as first action</b> |   |                                  |
|---|---|----------------------------------|
| <b>Possible Cause</b>   | <b>Check Point</b>                              | <b>Action</b>                    |
| 1) The connection to motors is inverted                                     | One or both doors start opening and not closing | Invert the wiring on the motor/s |

| <b>During initialization one or both doors do not move</b> |  |  |
|--|--|--|
| <b>Possible Cause</b>                                      | <b>Check Point</b>   | <b>Action</b>  |
| 1) one or both motors are not correctly connected          | Check the wiring to the motor/s  | Adjust the wiring  |
| 2) on VB3406A there isn't the correct voltage              | Check the voltage of 24V on VB3406A at point (connector M2 page 37 of this manual) | See the next point                                       |
| 3) one or more fuses are burnt                             | Check that fuses F2, F3 and F4 on VB3406A are not burnt                            | Replace the burnt fuses with new ones with same features |
| 4) VB3406B boards are not correctly connected with VB3406A | Locate the VB3406B on the main board (VB3406A)                                     | Check that VB2406B boards are correctly connected        |

| <b>During initialization one or both doors do not move correctly</b>                               |  |   |
|--|--|---|
| <b>Possible Cause</b>  | <b>Check Point</b>   | <b>Action</b>   |
| 1) the encoder/s are not correctly connected or are broken   | Check the wiring on the encoders or if they are damaged                                      | Adjust the wiring or replace encoder/s if they are broken |
| 2) the doors moving is limited by an obstacle or the mechanical lock has not been opened correctly | Check if there is an object in the slide – ways and if the mechanical lock is correctly open | Remove the object / open the lock                         |

| <b>Low side door does not move</b> |                                    |   |
|------------------------------------|------------------------------------|---|
| <b>Possible Cause</b>              | <b>Check Point</b>                 | <b>Action</b>                                   |
| 1) emergency button is pushed      | Check the emergency button state   | Put the emergency button in the operating state |
| 2) wrong connection                | The emergency button is not pushed | Adjust the connection                           |

## ClearLock 631-MT-EN