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# RACK & PINION TRANSPORT PLATFORM

# PT 1200

## USER GUIDE

- INSTALLATION, USE & MAINTENANCE INSTRUCTIONS
- SPARE PARTS LIST

ANSI American National Standards Institute

ENGLISH COPY

## PT 1000F

Machine No.:

Model:

Year of manufacture:

Electric connection:

***KEEP THIS GUIDE FOR FUTURE REFERENCE***

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**ELECTRICAL PARTS**
**SPARE PARTS LIST**

The user´s manual must be kept in good condition. This document contains 68 pages.
Canopy brands Europe S.L.U. reserves the right of incorporating contents or modifications at any time with the purpose of improving both the machine and the information available on the same.


Rev. 1.5: Jan. 2025

# 1. DESCRIPTION OF THE MACHINE

## 1.1. Introduction.

Prior to erection and use, all users must read this manual. A thorough reading is recommended for full compliance with safety regulations.

This manual is delivered with the hoist, and its purpose is to give instructions for proper handling during transportation, erection, and maintenance, in compliance with the provisions ANSI/SAIA A92.10. This instruction manual deals with proper use of the machine as well as proper erection and maintenance.

The manufacturer reserves the right to modify the machine for improvements, so that differences may be found in some manual details. In any case, the manufacturer commits to immediately adapting the manual to the improvements.

**Responsibility:**

CANOPY BRANDS EUROPE, S.L.U., declines any responsibility for damage caused by improper use of the machine as consequence of non-compliance with the provisions of the present Manual. Specifically declines any responsibility for damage derived from:

- Non-compliance with the provisions of this manual.
- Improper use of the machine.
- The use of non-original spare parts mentioned in the applicable section of this manual.
- Modifications introduced without express authorization from the manufacturer.
- Handling by personnel is not trained for this purpose.

Only appointed and trained personnel may use the machine and only qualified technical personnel acquainted with the machine may operate on any part of the same.

This manual must be available to the user at any time for any type of immediate consultation. In order to maintain it in perfect condition, keeping always a copy close to the machine is recommended.

In any case, the manual is aimed at strengthening knowledge and as a reminder for the personnel, who must previously be well trained by engineers or supervisors, who at the same time must be very experienced in this machine operation.

**1.1. General information.**

It´s based on the principle of geared motor transmission to a rack and pinion mechanism. Components are modular and easy to install. It is simple to use and safe for facade work or rehabilitation, significantly reducing the erection time and man-hours.

This machine has been designed for temporary installation on site and must be used by skilled authorized personnel. Its main advantage is the ability to connect different building stories for lifting or lowering materials and people in a fast and safe way. Below, please find the main points to bear in mind prior to erection and use of the machine.

- The hoist is designed **for transporting persons and loads**, in an open car, travelling with a minimum gap of 0,46 m [*18 in*] from supporting structure, and vertical speed limited to 12 m/min [*40 ft/min*]. When using for transport of persons, cage control will be with "hold-to-run" pushbuttons. Cars also can be used for **transporting loads**, with an exterior control board (ground) and increased speed to 24 m/min [*72 ft/min*]. In each case follow the conditions of use stated in this manual.

- The machine runs vertically, geared to the mast rack and guided with support rollers.

- Machine operations must be carried out by **appointed personnel** trained in transport platform operation, and the instructions to operate the machine safely.

- Travelling on the hoist is allowed only for **authorized passengers**, instructed by the operator appointed to management of the car. They shall have the necessary knowledge or experience or shall have received training prior to being on the Transport Platform. As a minimum, the training shall be the same as training requirements for scaffold as set out in OSHA-CFR Subpart L, Scaffolds – 1926.454 – Training Requirements. 1

- For erection, dismantling, maintenance and repair tasks, only **competent and authorized technical personnel,** trained and qualified with practical experience on said operations, are allowed to travel on the hoist.

- The transport platform enables a mode of operation from the outside as hoist only for loads. When using as hoist for loads, loading and unloading operations must be performed by **instruded people.**

- The machine is designed to tie at appropriate intervals to a supporting structure, as the slabs of the floors of a building, a metallic structure or similar. ALBA includes in this user´s manual all the information regarding reaction forces to the structure and to the base ground. It is the responsibility of the technicians responsible on site to ensure that both supporting structure and base ground support transmitted loads.

**WARNING SYMBOLS:**

**WARNING:**
**IMPORTANT SAFETY INSTRUCTIONS DURING INSTALLATION OR OPERATION IS TO BE ENTERED IN TEXT BOXES LIKE THIS, INCLUDING THE WARNING SIGN.**

### 1.3. Technical data.

TECHNICAL FEATURES:

| | PT-1200-2V | PT-1000F-2V |
|---|---|---|
| Motor control: | FREQ. CONVERT. | |
| Vertical speed: | 12-20 m/min [*40-65 ft/min*] | |
| Maximum capacity: | 6 people 1.200 Kg [*2650 lb*] | 5 people 1.000 Kg [*2200 lb*] |
| Car dimensions (LxWxH): | 2 x 1,4 x 2,1 m [*79'' x 55'' x 83''*] | 2,5 x 1,4 x 2,1 m [*98'' x 55'' x 83''*] |
| Maximum height (*): | 120 m / [*400 ft*] | |
| Anchorage each (max.): | 6 m / [*20 ft*] | |
| Height over las anchorage: | 1,5 m / [*60''*] | |
| First anchorage height: | 6 m / [*20 ft*] | |
| Loading height to ground | 400 mm / [*16''*] | |
| Mast: | Triangle | |
| Length: | 1,5 m / [*59.4''*] | |
| Weight: | 48 Kg / [*106 lb*] | |
| Maximum load (assembly): | 500 Kg / [*1100 lb*] | |
| Normative reference: | ANSI A92.10 | |

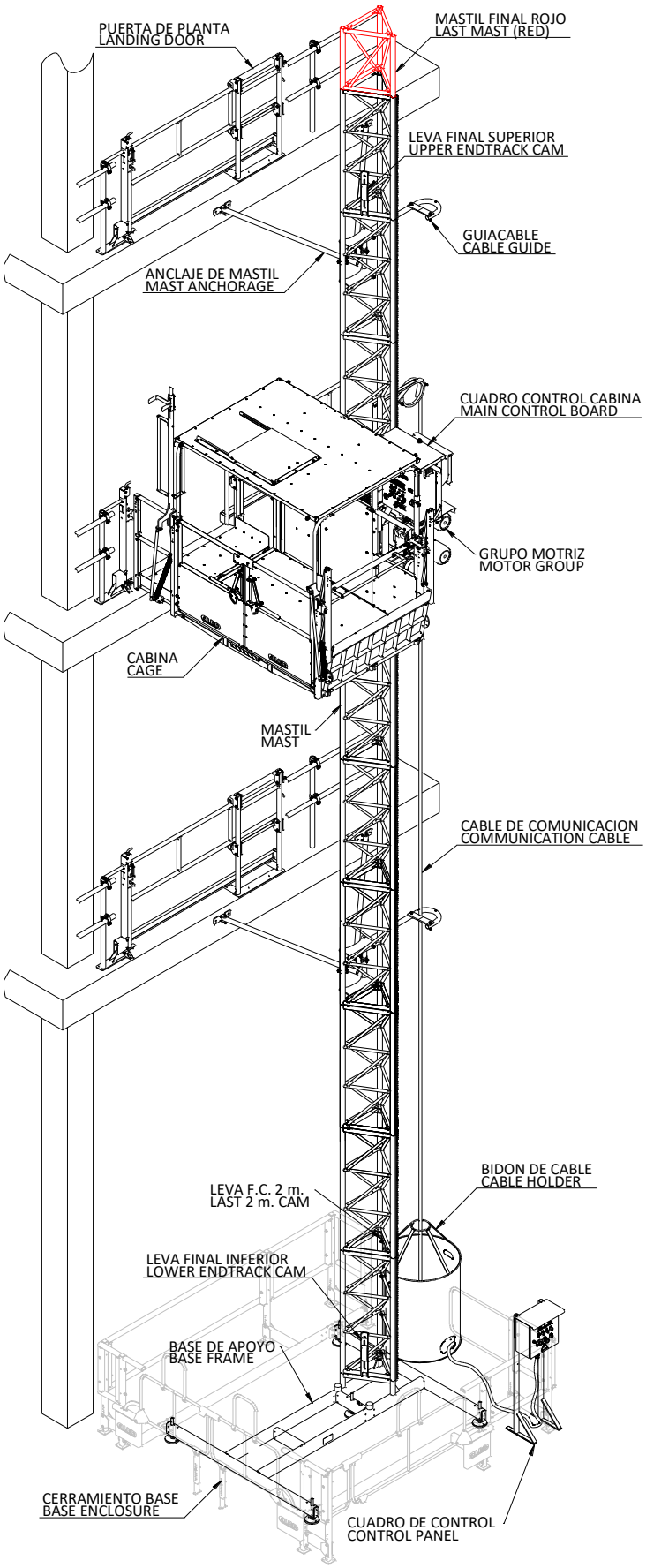
ELECTRICAL DATA:

| | PT-1200-2V<br>PT-1000F-2V |
|---|---|
| Motor power: | 2 x 3 KW (50 Hz) |
| Input power connection: | 208V – 60 Hz |
| Power consumption: | 7,5 KW |
| Nominal current: | 42 A |
| Supply power: | 20 KVA |
| Overload protection: (*): | 3 x 63 A |
| Differential protection (*) | |
| Caliber: | 63 A |
| Sensitivity: | 300 mA |
| Control voltage: | 48 V |
| Auxiliary hand tools socket: | 120 V – 60 Hz, 10 A |
| Cable section: | 4 x 10 $mm^2$ / 4 x AWG 7 |

(*) Elements required on main feed switchboard

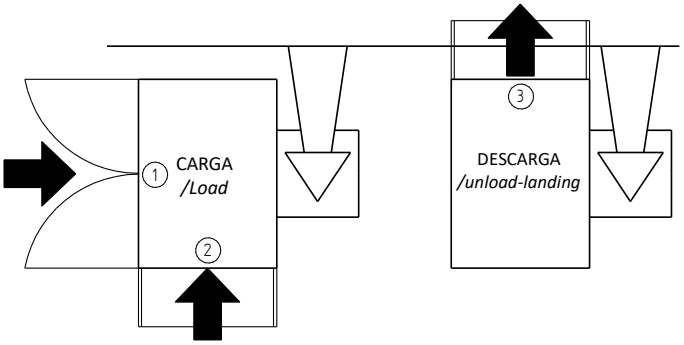
| ACOUSTIC DATA | |
|---|---|
| **A-weighted emission sound pressure level, LpAd**<br>**Place: Operation point** | **<70dB** |

### 1.4. Main components.

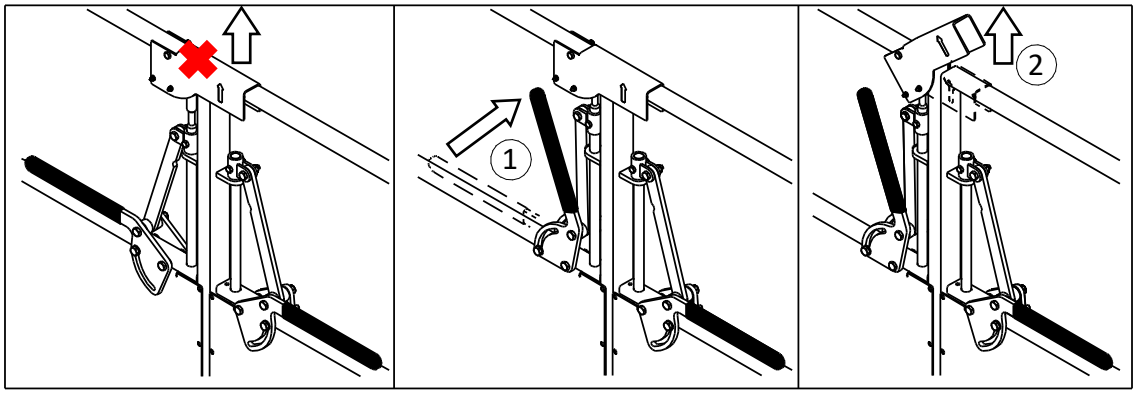



**ASSEMBLY EXAMPLE. TRANSPORT PLATFORM PT-1200/1000F**

- MAST BASE SUPPORT:
  Main structure that is used as a support for the hoist and for the column of masts. It transmits the efforts generated to the ground and it´s surrounded with a safety enclosure that avoids the risk of damage. The base incorporates absorbers to avoid blows of the car with the base. In the base of the machine is the electrical switchboard for electrical supply.
- MAST:
  Modular structure for the ascent of the machine. It consists of a modular triangle structure of 1,5m[*5ft*]. The mast has a welded rack for the movement of machine. They are designed for his union by means of bolts, and for the anchorage to a vertical structure to intervals.
- DRIVE UNIT:
  Structure that incorporates and the system of motor gear system and that provides the movement to the elevator. It incorporates both the motor gears and the safety systems to control the movements, overload system, and the floor selector. It fits the car with bolts.
- CAR:
  Metallic open structure for the transport of people and loads. It includes gates for the loading and unloading of the machine, and an auxiliary catwalk for assembly operations, all of them equipped with safety switches.



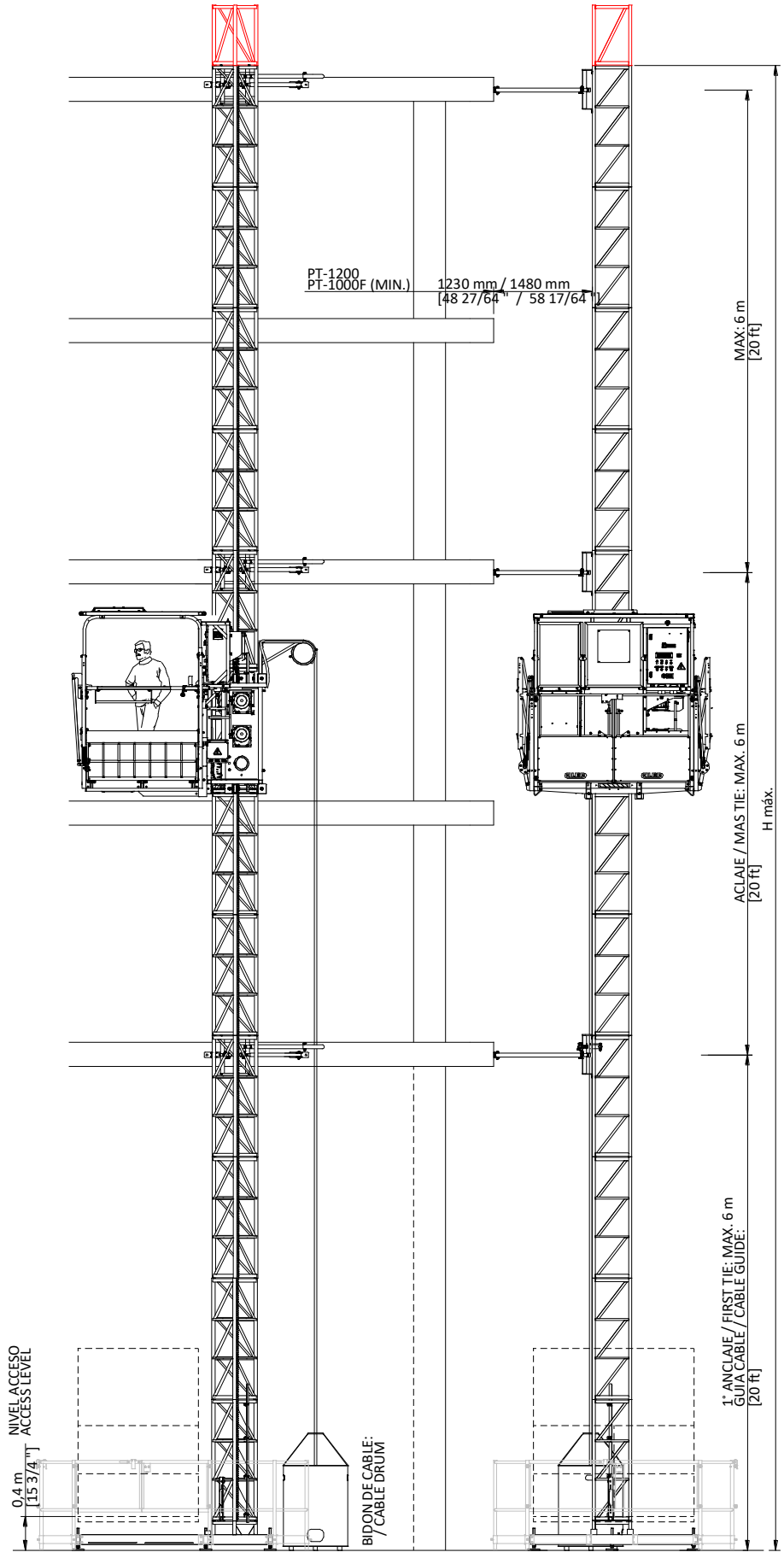

1 LOAD GATE
· ONLY AVAILABLE ON GROUND LEVEL
· DOUBLE DELIBERATE MANUAL ACTION
2 SWING RAMP
· LOAD / UNLOAD IN GROUND LEVEL
3 SWING RAMP
· LOAD / UNLOAD ON LANDING LEVELS
· AUTOMATIC LATERAL RAILING
· AUTOMATIC RAMP (GAP COVERING)

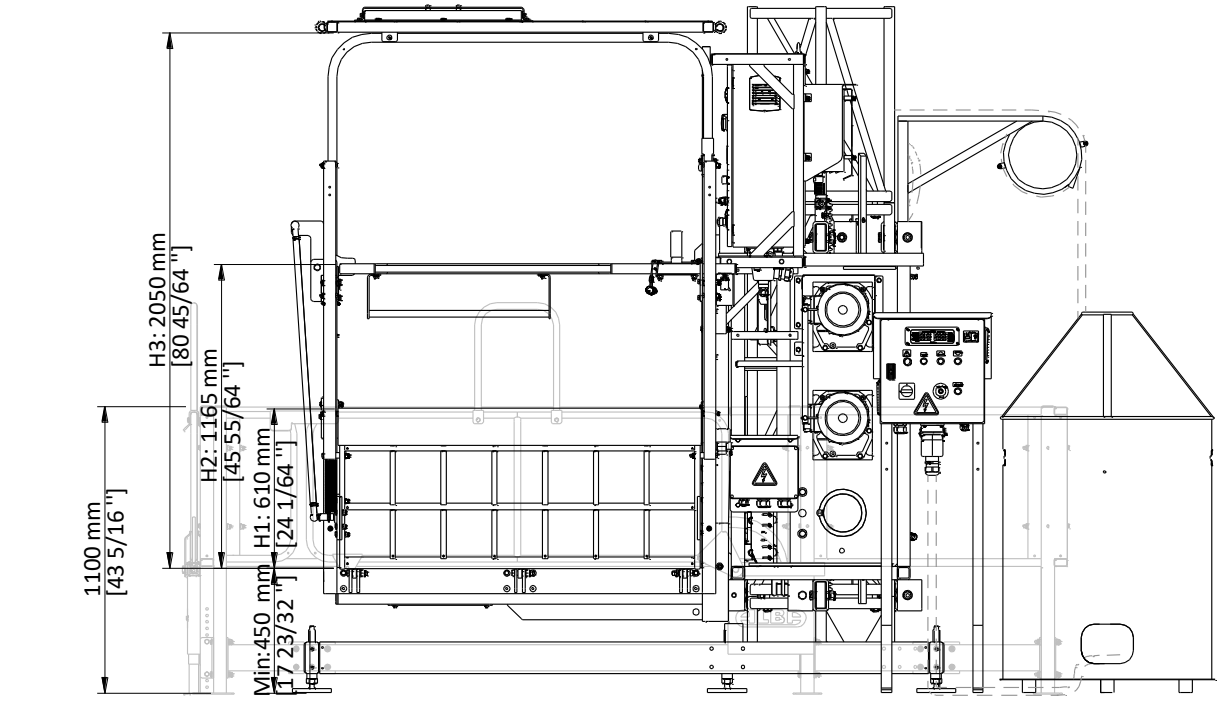


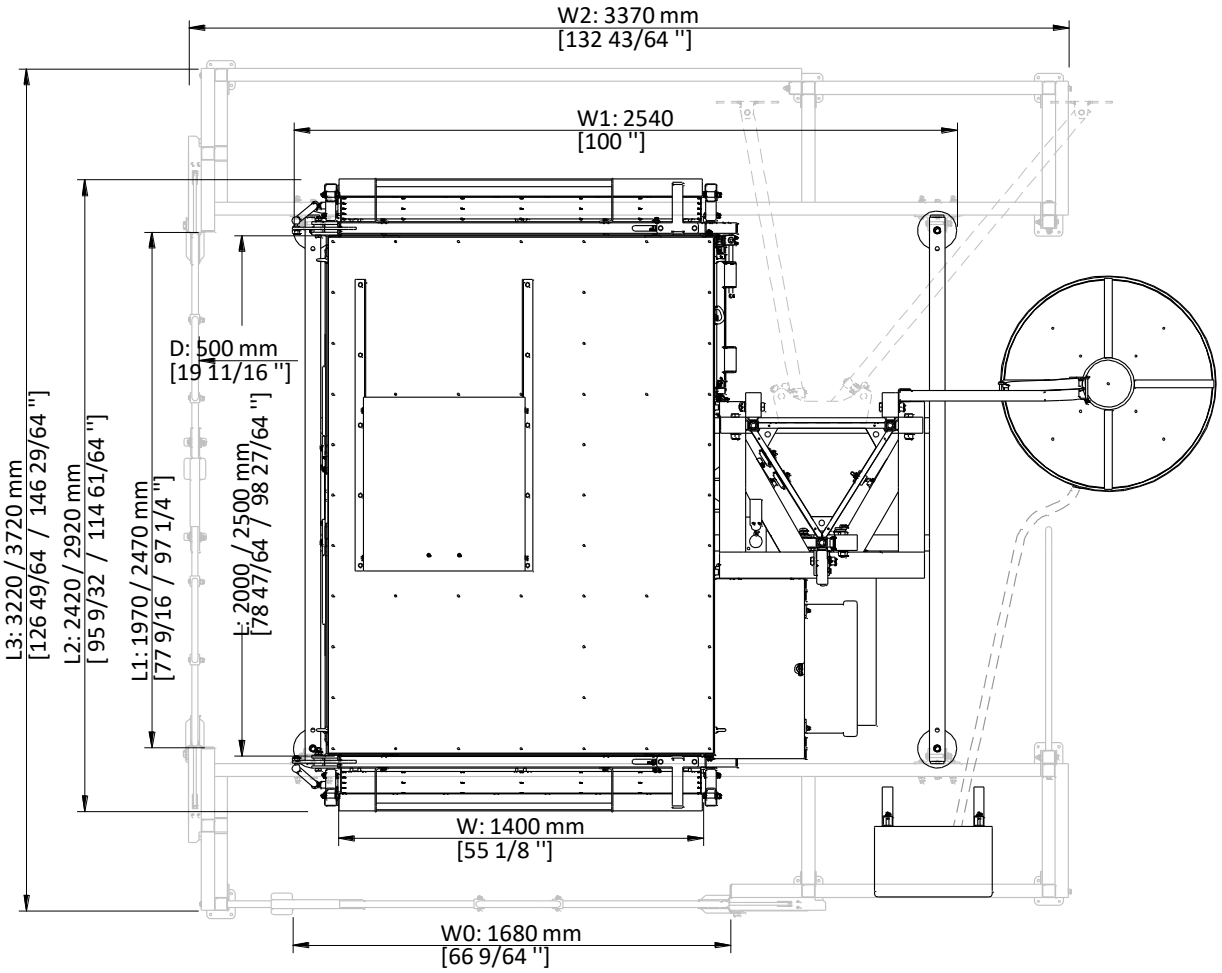

ACTION REQUIRED TO OPEN LOAD GATE -1-

- TIE:
  System of mast tie to an external support structure. It consists of a bracket screwed to and a pair of telescopic pipes for adjusting to external support structure.
- CONTROL PANEL:
  It contains the electrical equipment of the machine and communicates the car control panel and power supply control panel on the ground with proper connectors.
- CABLE DRUM:
  Keep the cable of the machine during the movement. The cable bin stores the communication cable coiling it.
- END MAST MODULE:
  Mast module without rack that is installed in the top limit of the column of masts. It prevents the machine from exceeding the top. It´s red color for immediate identification.

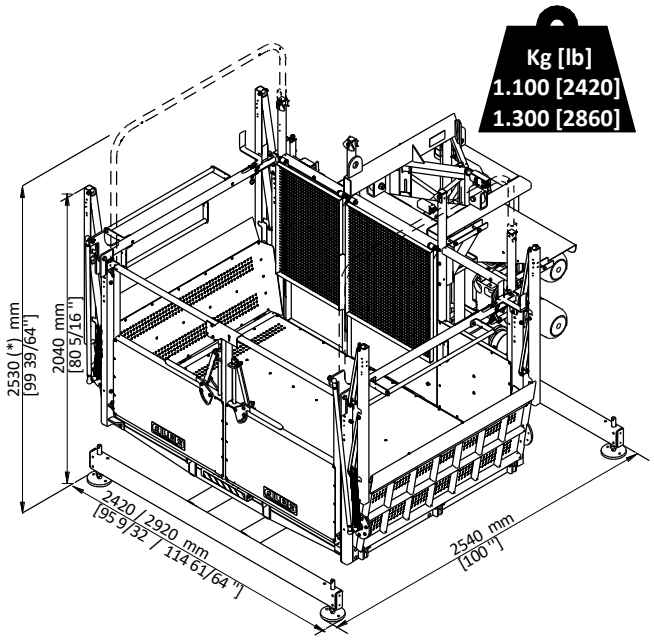
**1.5. Main dimensions.**





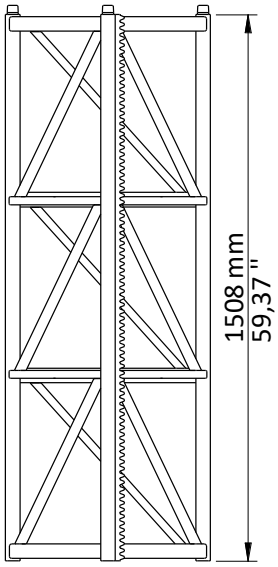



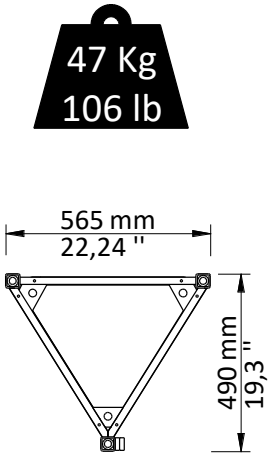

**MAIN DIMENSIONS. TRANSPORT PLATFORM PT-1200/1000F**



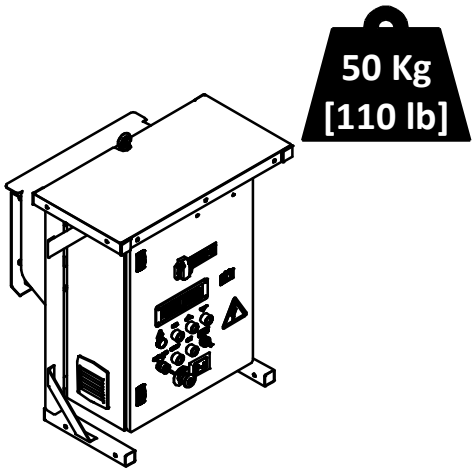

**MAIN TRANSPORT SET**

**(*)**REMOVABLE

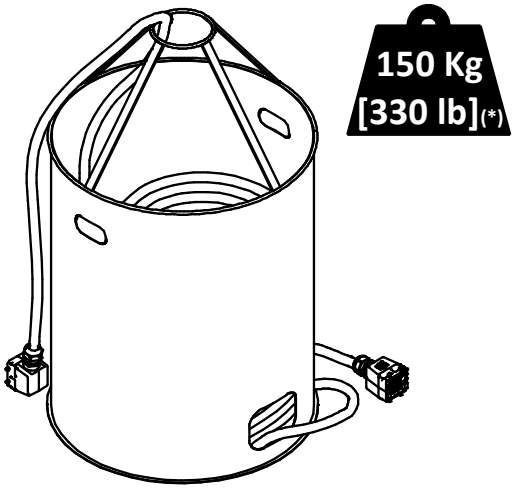



**TRIANGLE MAST MODULE 086.2**

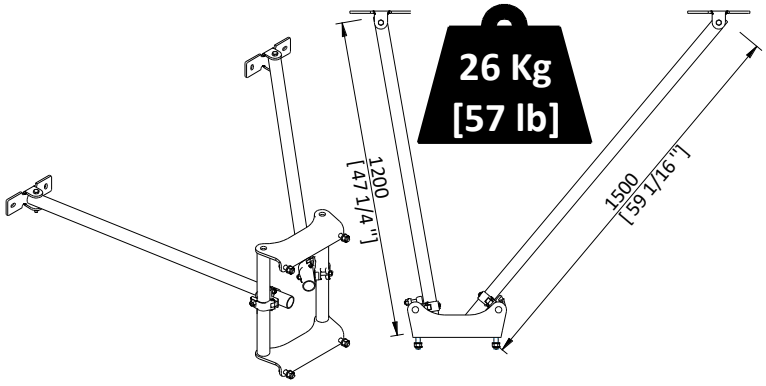



**CAR CONTROL PANEL**



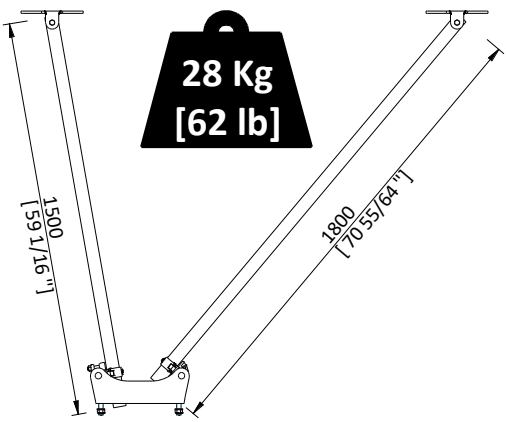

**CABLE DRUM**

(*) FOR L=50m

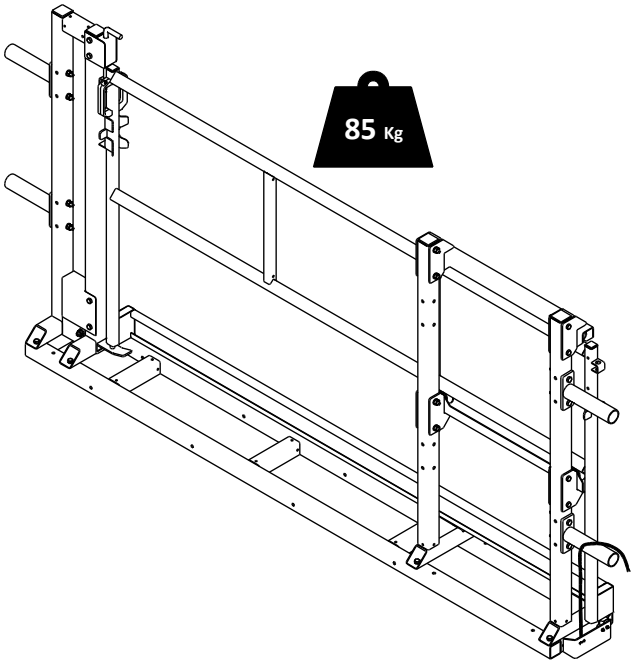



**TIE SET**

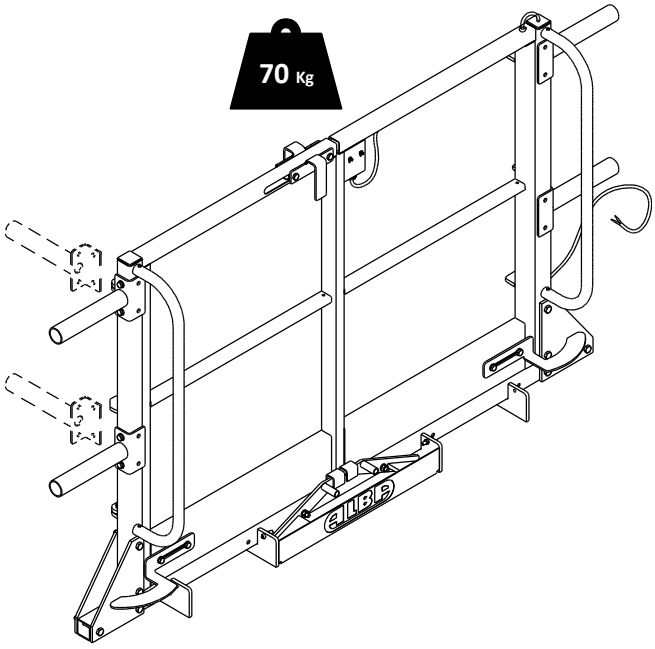
**TIE 161.81 – PT 1200**




**TIE 161.82 – PT 1000F**




LANDING GATE WITH SLIDING GATE




LANDING GATE WITH SWINGING GATES

**1.6. Safety devices of the hoist.**

a) Gearmotors with **electromagnetic brakes** (friction type) capable of brake speeds of 20m/min [*65ft/min*]. (and even 25% overspeed) with a delay of 0.1 up to 0.2 g. with maximum load.
b) Rubber buffers to damp eventual frame impacts against the base.
c) Car roof finished in hot galvanized steel.
d) Upper and lower limit switches. Stop the lowering and lifting movements of the car when reaching the lower and upper stops located at the first and next to last masts.
e) Safety limit switch. Operate in case of failure of upper or lower limit switches.
f) Mast presence detector, to be used during mast erection.
g) Switches for opening the car gates and landing gates with mechanical interlocking device.
h) Electromechanical interlocking on car load gate, to avoid gate opening out of ground level.
i) Unload ramps with automatic bridge and lateral protection railing included, for safety opening from the inside/outside of car.
j) Landing gates interlock, prevent opening unless the car is on landing level and the ramp is opened.
k) Limit switch to stop at 2m [*6.5ft*] elevation. Movement under-2m/[*6.5ft*] with "hold-to-run"
l) **Manual Emergency lowering** in case of power failure (operated from the car).
m) **Safety device (Overspeed emergency brake -PARACHUTE-),** to control the lowering speed.
n) Base enclosure of 1,1m [*3,6ft*] height, with a distance to any moving part of the hoist of 0,5m/[*1,6ft*]. and switch to prevent platform movements if the enclosure gate is open.
o) Platform floor of non-slipping galvanized steel.
p) End mast (in red), without rack, to prevent the car from running off in case of failure of other systems.

## 1.7. Other data of the hoist.

| NOISE EMISSION DECLARATION | |
|---|---|
| | Condition |
| | Outside car |
| **A-weighted emission sound pressure level, $L_{pA}$:** | 71 dB |
| **Uncertainty $K_{pA}$** | 3 dB |

**Values determined according to the acoustic test given in EN 12158-1 with use of basic international standards EN ISO 3744 y EN ISO 4871.**

**Note:**
**Noise emission values and uncertainty represent un upper limit of the range in which the measured values are susceptible to being present.**

| | |
|---|---|
| **Temperature range for use:** | -15°C - 45°C / [*5°F - 113°F*] |
| **Relative humidity:** | 30 % – 90 % |
| **Max. height for installation:** | 1000 m [*3280 ft*] (**) |
| **Max. wind speed (SERVICE):** | 55 Km/h [*34 mph*] |
| **Max. wind speed (ERECTION):** | 45 Km/h [*28 mph*] |
| **Max. wind speed (OUT OF SERVICE *):** | 130 Km/h [*80 mph*] |

(*) Position OUT OF SERVICE corresponds with hoist al the lowest point and power supply disconnected.
(**) For installation in locations above 1000m/[*3280ft*] of height., and if the temperature exceeds 45°C/[*113°F*], ask to manufacturer for limitations.

# 1. ASSEMBLY OF THE MACHINE

### 2.1. Introduction.

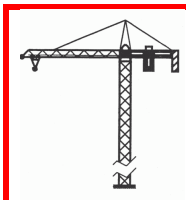
The following section is dedicated to the safely assembly of the machine. The installation of the hoist can only be performed by qualified personnel authorized to travel on it.

**WARNING:**
**TO MOUNT THE ELEVATOR SHALL BE USED PROTECTIVE EQUIPMENT AGAINST FALLS FROM HEIGHT (ACCORDING TO EN 358, EN 361, EN 364) AND IN ANY CASE A PROTECTIVE HELMET FOR THE HEAD (ACCORDING TO EN 397), PLUS ADDITIONAL MEANS OF PROTECTION.**

It is important to follow the instructions in detail, to avoid risks in the assembly and disassembly process. The user is obliged to observe, by himself, and for those working in the vicinity, all sources of additional risk, and to comply with all applicable safety standards for the type of equipment used.

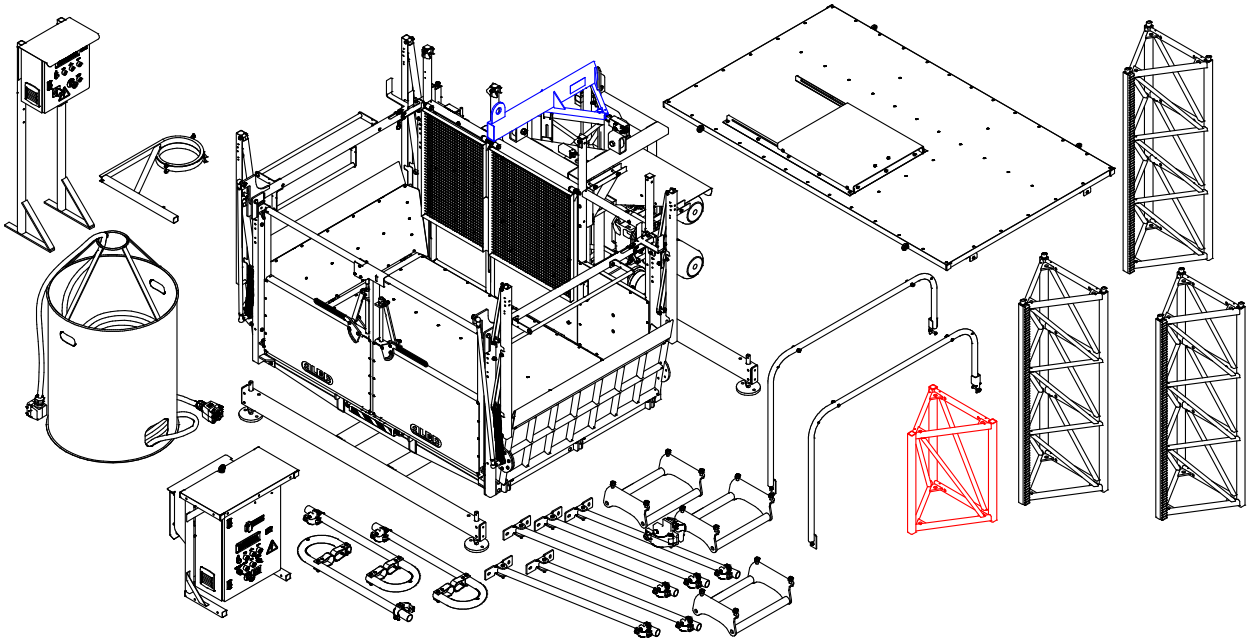
### 2.2. Hoist transport and coupling.

The elevator is supplied unmounted, unless specifically indicated otherwise. For the coupling of main components of the hoist it´s necessary to use a crane.

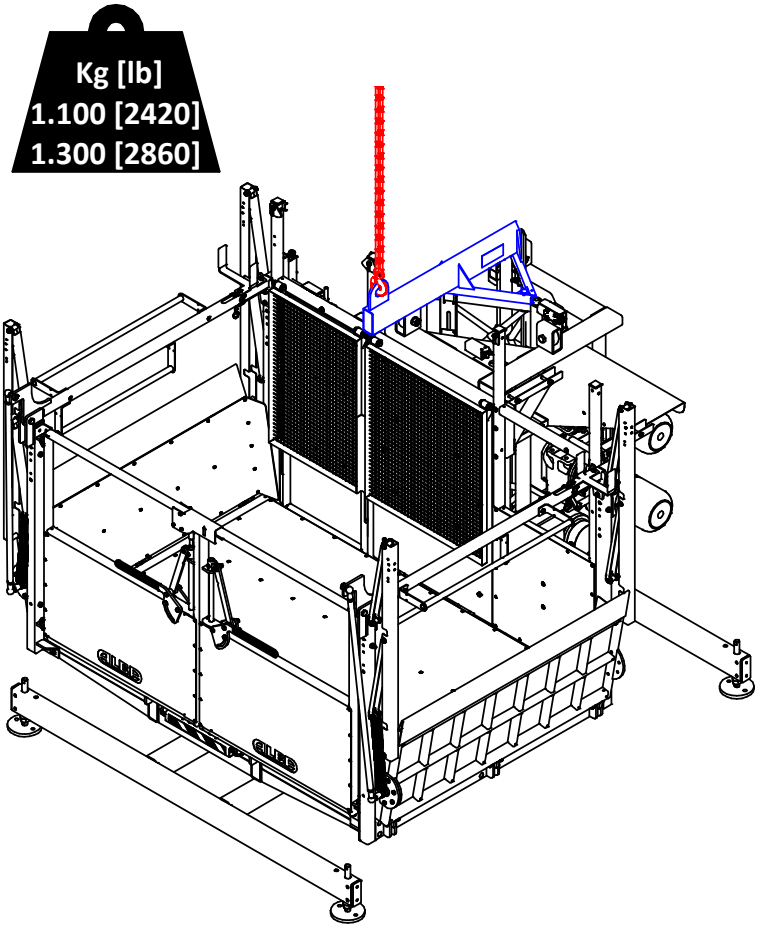


**IMPORTANT:**

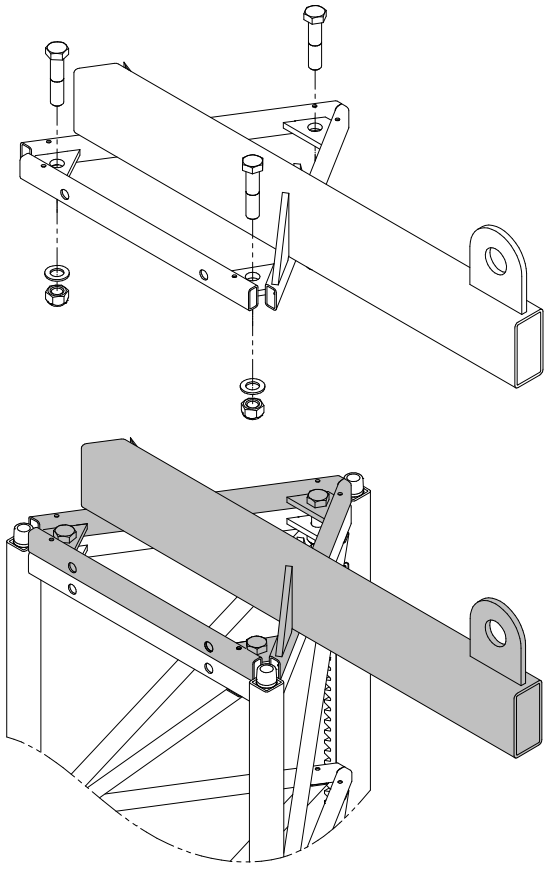
**TO ASSEMBLE THE COMPONENTS AND THE ASSEMBLY WILL USE A TRUCK LIFT CRANE, OR IF AVAILABLE, ALSO A TOWER CRANE CAN BE USED FOR IT.**



**ASSEMBLY OF CAR. USE A CRANE OR FORKLIFT**




**HANDLE OF ASSEMBLED HOIST**



**TRANSPORT HOLDER Ref: 094.12**

## 2.3. Machine erection procedure:

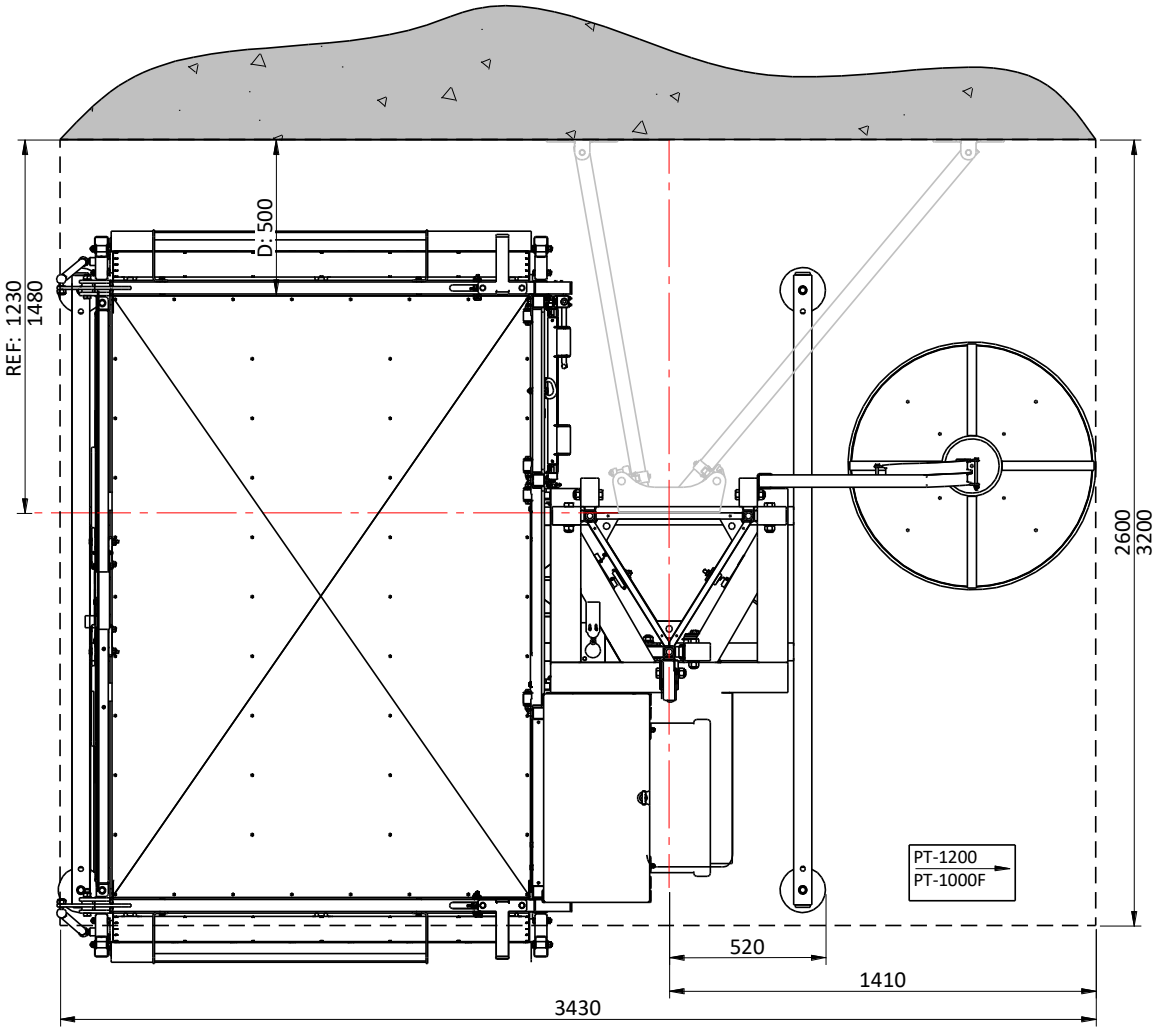
- **Step 1. Site preparation and foundation**

| TRANSMISSION OF LOADS TO GROUND PT-1200 / 1000F | | |
|---|---|---|
| Height [m.]/[ft] | TOTAL TOAD (EST.) [KN] | TOTAL LOAD (DYN.) [KN] |
| 10 / 33 | 27,22 | 40,56 |
| 20 / 66 | 30,36 | 43,70 |
| 30 / 99 | 33,50 | 46,84 |
| 40 / 131 | 36,64 | 49,98 |
| 50 / 164 | 39,78 | 53,12 |
| 60 / 196 | 42,92 | 56,26 |
| 70 / 230 | 46,06 | 59,40 |
| 80 / 263 | 49,20 | 62,54 |
| 90 / 295 | 52,34 | 65,68 |
| 100 / 328 | 55,48 | 68,82 |
| 110 / 361 | 58,61 | 71,96 |
| 120 / 394 | 61,75 | 75,10 |

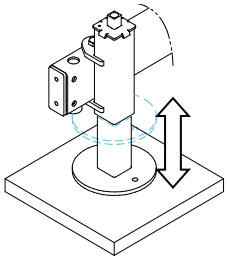
(x225) = [lbf]

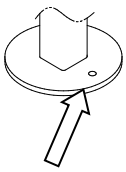
(*) For intermediates, add 35 kg/m 23,5lb/ft to table above.

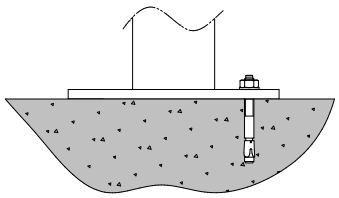
- **Step 2. Base to ground positioning and fastening.**




**POSITIONING THE HOIST ON THE GROUND**







| INSTALLATION DETAILS | | |
|---|---|---|
| $D_o$ | Drill diameter | 10 mm [*0.4''*] |
| $H_1$ | Minimum drill depth | 70 mm [*2.75''*] |
| $L_r$ | Screw length | 42 mm [*1.65''*] |
| $H_{nom}$ | Min. mounting depth | 50 mm [*1.96''*] |
| $T_{ins}$ | Torque | 30 N·m [*22.13 lbf·ft*] |

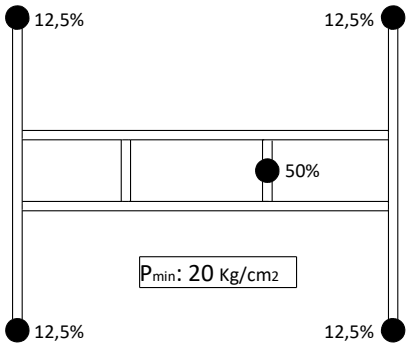
**BASE JACKS TO SOIL**

**FITTING TO GROUND RECOMENDATION**

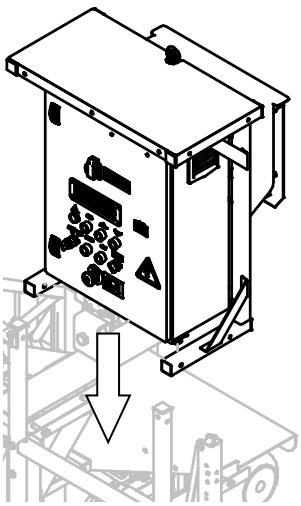
**ATTENTION:**
**FOR HOIST POSITIONING IT´S REQUIRED A MINIMUM SUPPORT AREA WITH DIMENSIONS OF 2.600/3200X3.500mm - [*8.5/10,5]X11.5ft*], INCLUDING CABLE BIN.**

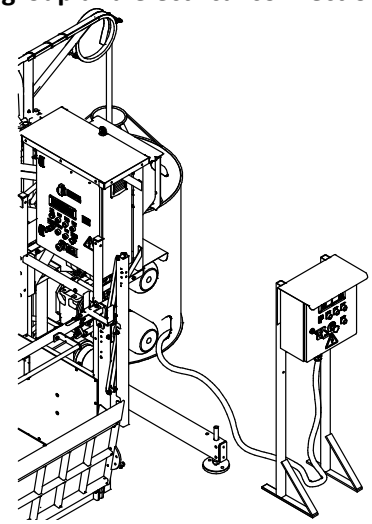
**MAKE SURE THE RESISTANCE OF THE GROUND TO WITHSTAND THE MAXIMUM LOADS TRANSMITTED BY THE PLATFORM.**

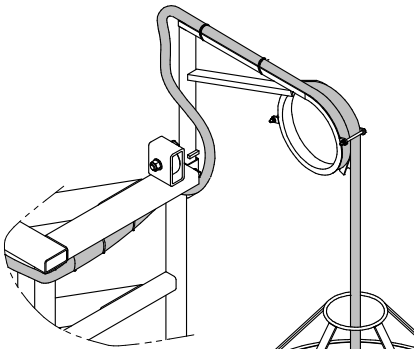
DISTRIBUCION DE PESO / *Load distribution*

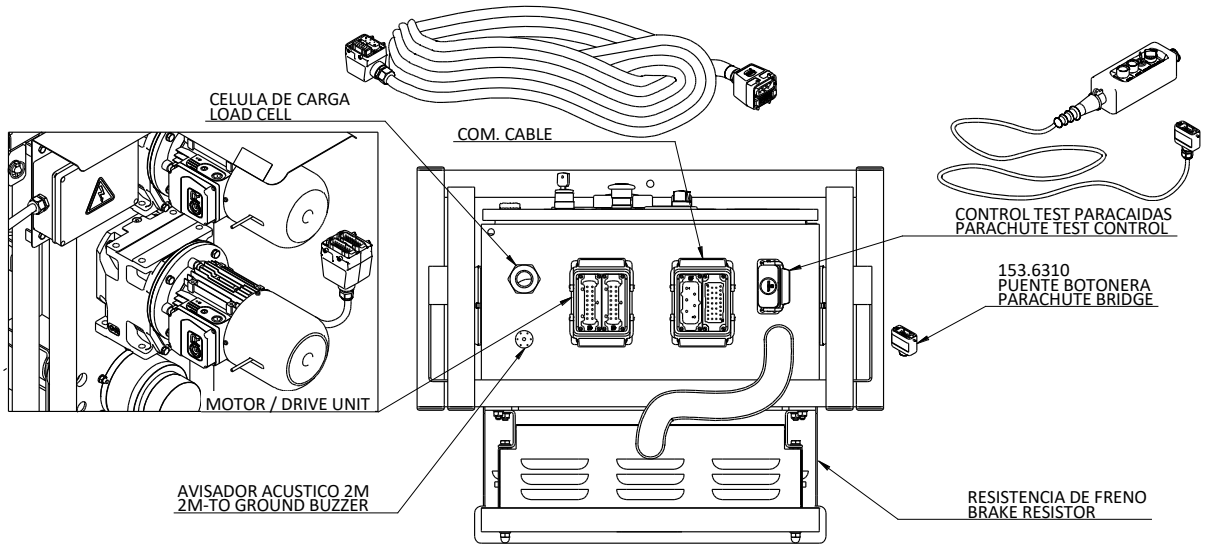



- **Step 3. Assembly of motor group and electrical connection.**

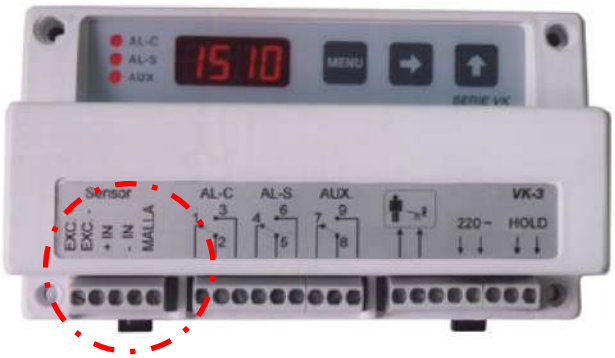


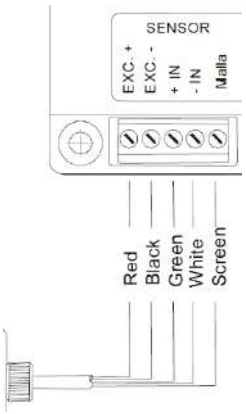




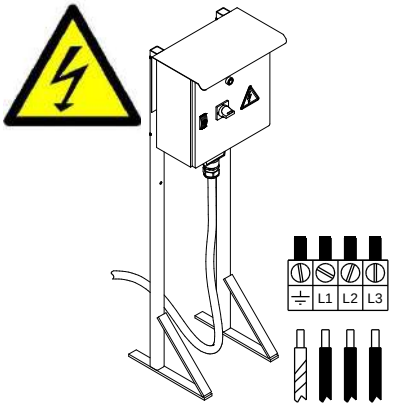



**ASSEMBLY OF ELECTRIC COMPONENTS AND CONNECTION**



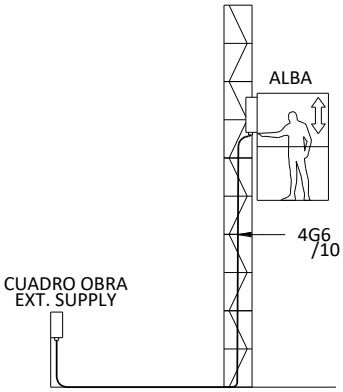

**CONNECTING LOAD CELL TO LOAD LIMITOR ON MAIN SWITCHBOARD**



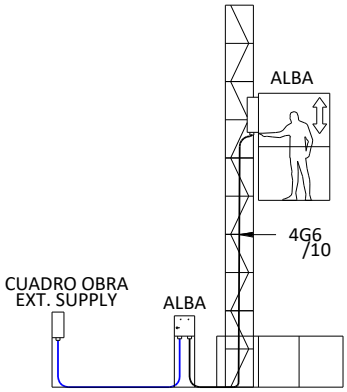

**ELECTRIC SUPPLY**

**ATTENTION:**
**CONNECT ELECTRICAL EQUIPMENT TO THE MAIN SWITCHBOARD, WITH SPECIAL ATTENCTION TO THE LOAD CELL CONNECTION TO THE PROGRAMER.**
**PLEASE, CONSULT THE SPECIFIC INSTRUCTIONS FOR ADJUSTING THE LOAD DETECTOR PARAMETERS ON ANEX AT THE END OF THIS MANUAL.**

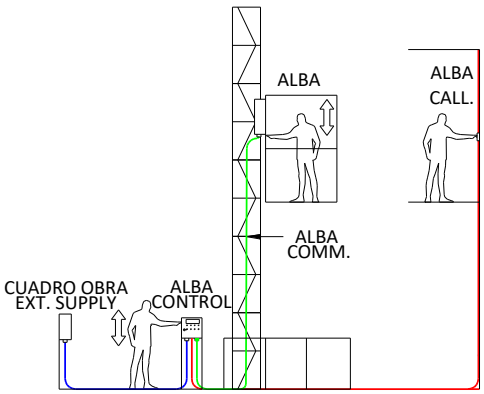
**ONCE THE BASE GROUP IS INSTALLED, ACCORDING WITH THE PREVIOUS INSTRUCTION HOIST CAN BE RUN UP FOR MAST COLUMN ERECTION.**



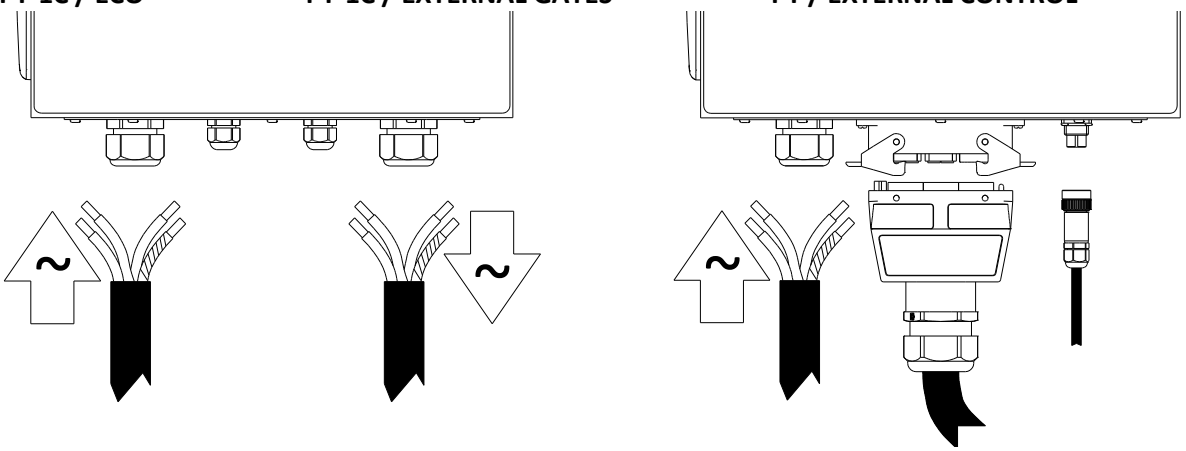

**PT-1C / ECO**




**PT-1C / EXTERNAL GATES**



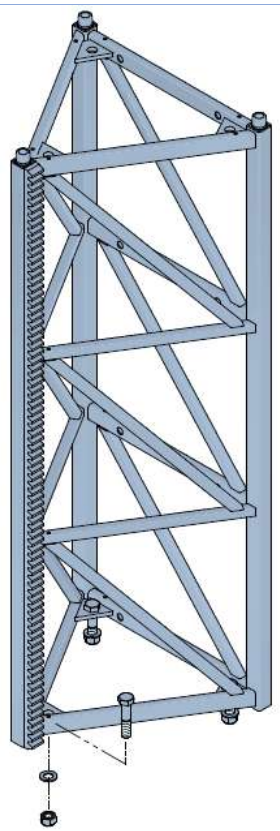

**PT / EXTERNAL CONTROL**



**GROUNF PANEL POWER SUPPLY AND CONNECTION**

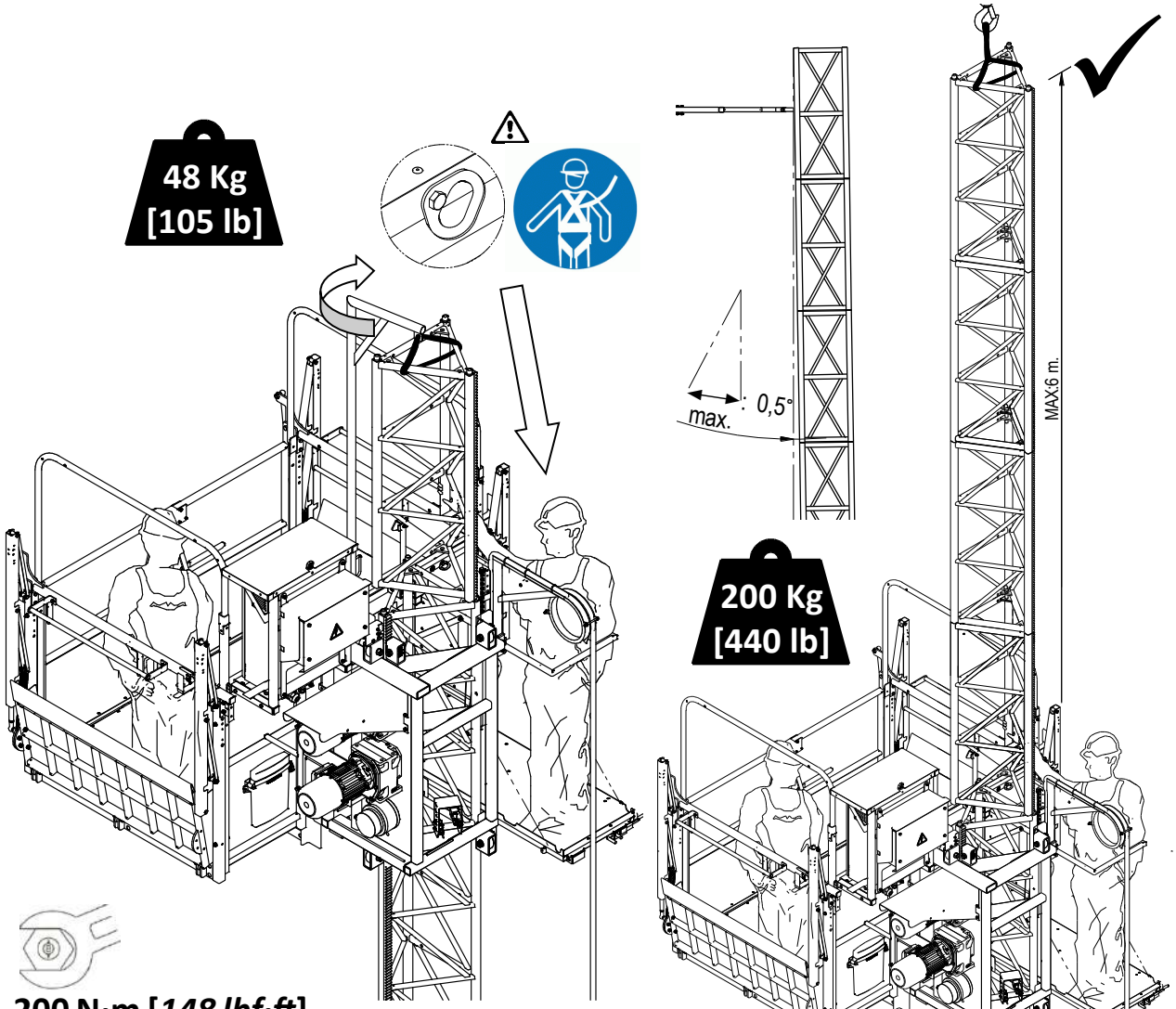
- **Step 4. Erection of the mast.**

**ATTENTION:**
**TO ASSEMBLE THE MASTS WILL USE, PREFERABLY A BUILDING SITE CRANE, OR AN AUXILIARY DAVIT (OPTIONAL). NEVER MANIPULATE THE MASTS BY HAND. IT´S RECOMMENDED TO MOUNT SECTIONS OF 6 M [20 ft] (=4 MODULES) ON THE GROUND AND FASTEN THE WHOLE GROUP TO THE MACHINE WITH THE HELP OF A CRANE. THE FIRST MAST OF THE MACHINE, COUPLED TO THE BASE FRAME, INCLUDES THE NUMBER ID OF THE MACHINE.**



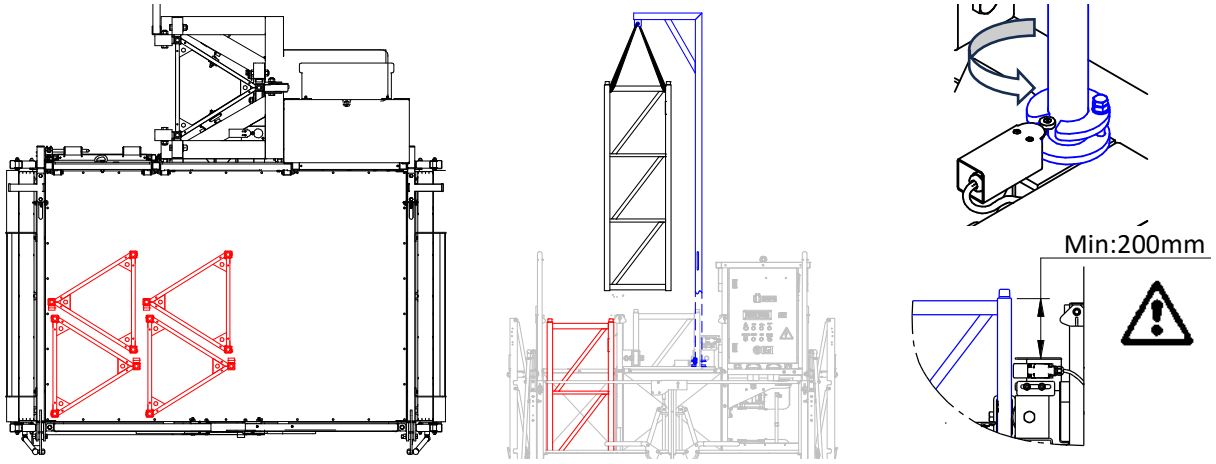
| MAST TÉCHNICAL DATA |
|---|
| **Weight:** 48 Kg [*106lb*] |
| **Rack union:** |
| Welded |
| **Mast screws:** |
| (3x) Screw M20x90 DIN 931 8.8 |
| Washer A21 DIN 125 |
| Self-locking nut M20 DIN 985 |
| **Torque (max):** |
| 200 N·m [*148 lbf·ft*] |

**IMPORTANT:**
**TO MOUNT THE MACHINE, AND FOR INSPECTION AND MAINTENANCE TASKS, ALWAYS USE THE "MANUAL" MODE OF OPERATION (CAGE CONTROL).**
**SEE CHAPTER 3 BEFORE STARTING HOIST ERECTION.**
**¡¡ MAST ERECTION IN "AUTO" MODE IS NOT ALLOWED!**



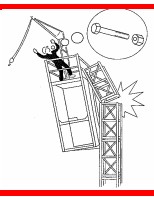

MANUAL ASSEMBLY OF MASTS COLUMN

RECOMMENDATION. ASSEMBLY WITH CRANE



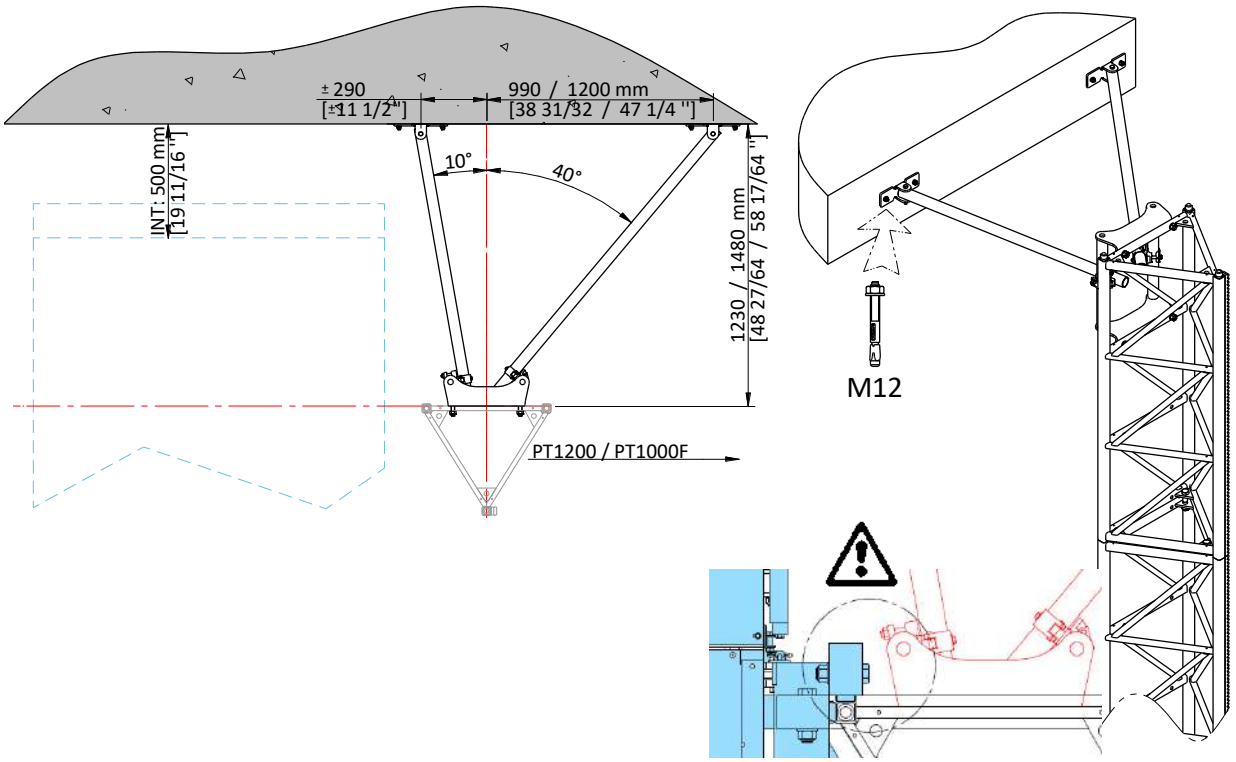

TRANSPORT AND SUPPLY OF MAST INSIDE THE CAGE (SEE Step 14)

**ATTENTION:**
**FIT / REMOVE MAST AND SCREWS ALWAYS AT THE SAME TIME!**
**NEVER RAISE THE HOIST OVER A NON-SCREWED MAST MODULE!**
**THEN THERE IS A HAZARD OF COLLAPSE AND SERIOUS INJURY!**

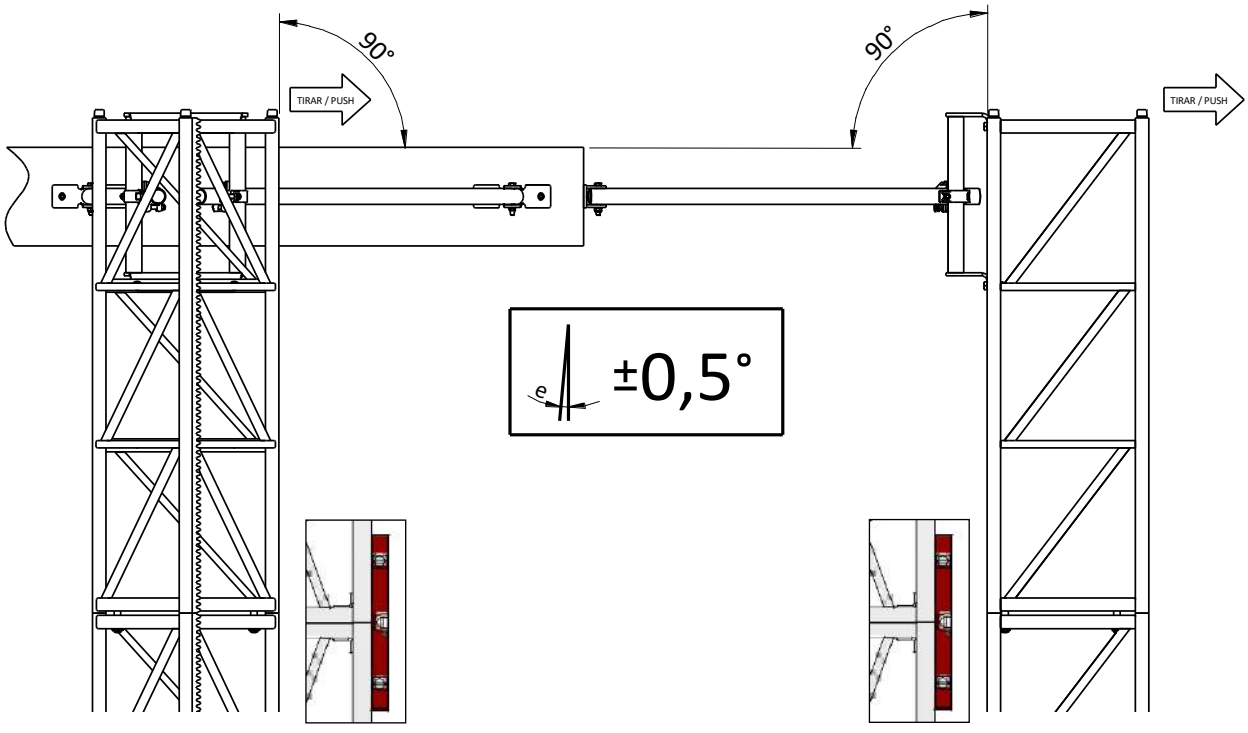


**ATENCION:**
**IT IS IMPORTANT THAT THE BASE IS PERFECTLY LEVELED AND MAST CORRECTLY VERTICAL. ENSURE LEVELING TO AVOID FUTURE PROBLEMS.**

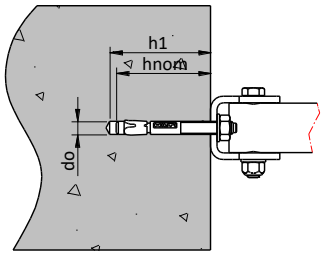
- **Step 5. Installing mast tie.**




**ANCHORAGE ASSEMBLY. DIMMENSIONS. CHECKING INTERFERENCE**

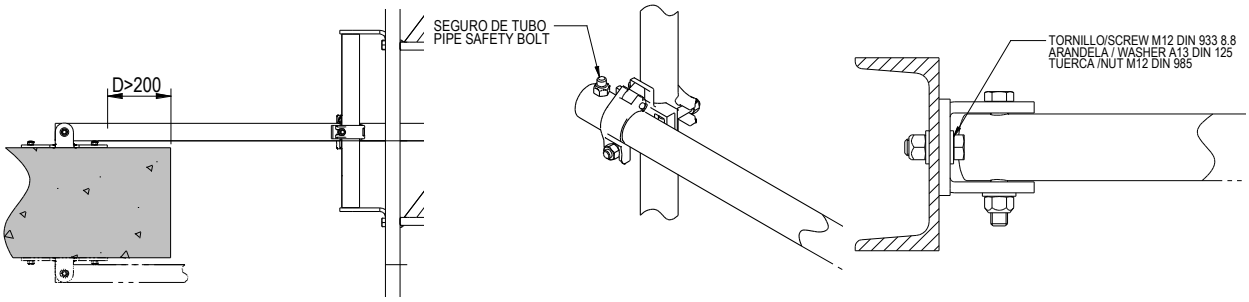



**FIXING TO THE SUPPORTING STRUCTURE**




| INSTAATION DATA | | |
|---|---|---|
| $D_o$ | Drill diameter | 12 mm [*15/32 ''*] |
| $H_1$ | Minimum drill depth | 95 mm [*4 ''*] |
| $H_{nom}$ | Min. mounting depth | 80 mm [*3 ¼ ''*] |
| L | Anchor length | 120 mm [4 23/32''] |
| $L_r$ | Screw length | 65 mm [*2 9/16''*] |
| $D_o$ | Torque | 50 N·m [*37lbf·ft*] |

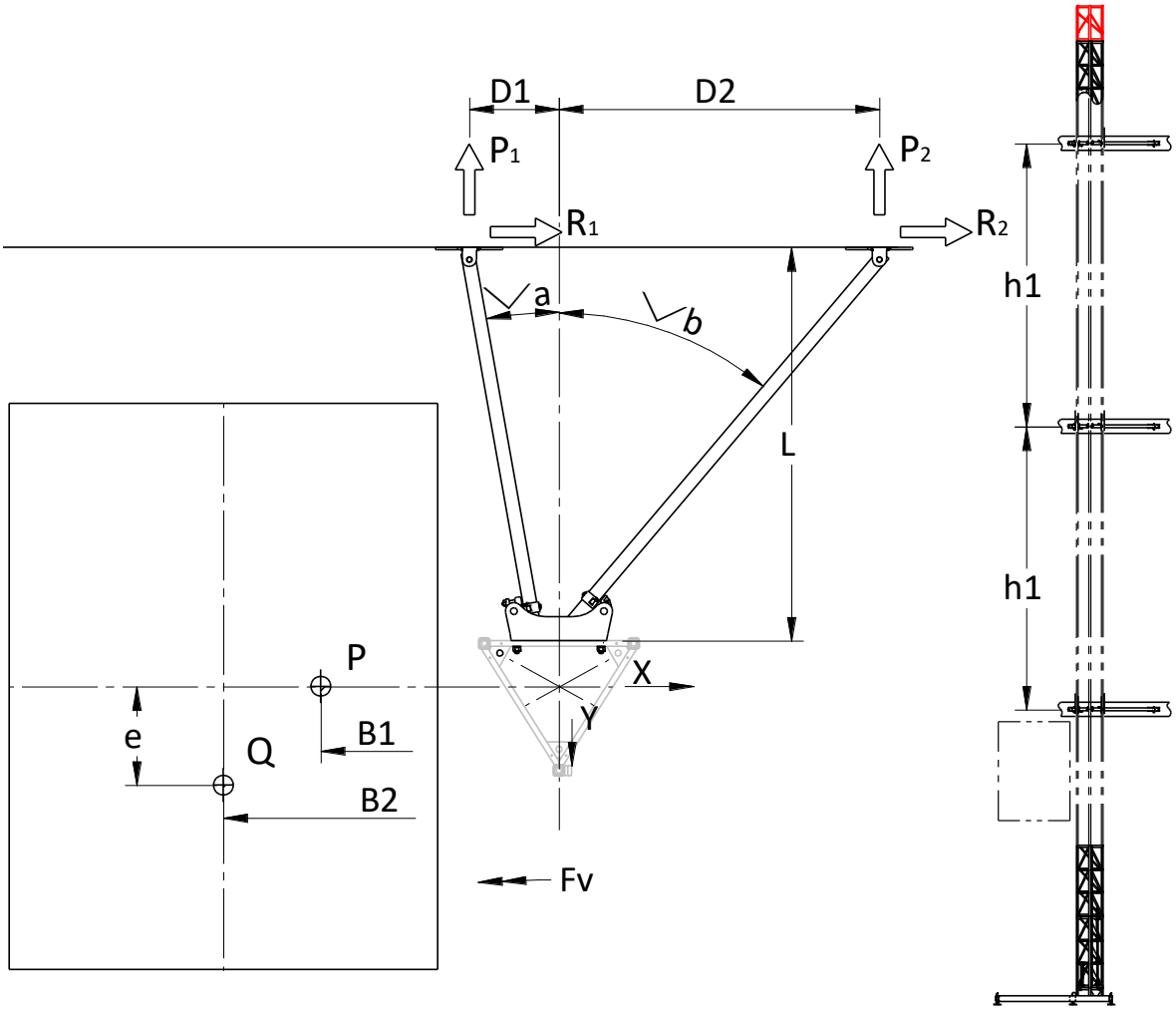
**RECOMMENDED ANCHORAGE SYSTEM**




**INF / SUP SLAB EDGE FITTING** **TO VERTICAL TUBES / SCAFFOLD.** **SCREWED JUNCTION**

**ALTERNATIVE ANCHORAGE SYSTEMS**

## REACTION FORCES TRANSSMITED TO STRUCTURE




### INSTALLATION DATA

| | | |
|---|---|---|
| DISTANCE TO ANCHOR POINT 1 (D1): | **250** | mm. |
| DISTANCE TO ANCHOR POINT 2 (D2): | **1.000** | mm. |
| HOIST TO FACADE DISTANCE (L): | **1.230** | mm. |
| SECONDARY ANCHORAGE ANGLE (Va): +- | 10 | ° |
| PRIMARY ANCHORAGE ANGLE (Vb): +- | 36 | ° |

### REACTION FORCES

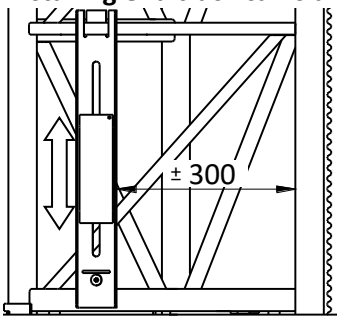
| | | |
|---|---|---|
| P1: | **7,33** | KN. |
| P2: | **-5,74** | KN. |
| R1: | **1,49** | KN. |
| R2: | **4,67** | KN. |

(x225) = [lbf]

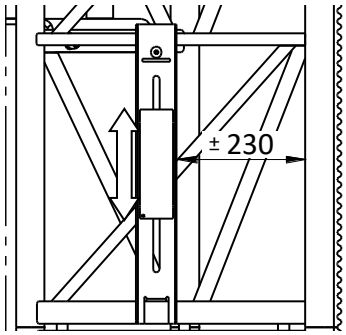
**IMPORTANT:**
**TRANSMITED FORCES TO THE STRUCTURE DECREASE WHEN INSTALLATION ANGLE AND DISTANDE "D" ARE INCREASED.**
**SEPARATE ANCHORAGE PLATES FROM EACH OTHER TO REDUCE TRASNMITTED LOADS TO STRUCTURE IF NECESSARY. CONSULT THE MANUFACTURER THE VALUES OF REACTIONS TO THE STRUCTURE RESULTING.**

**IMPORTANT:**
**TO TAKE INTO ACCOUNT THE EFFECT OF THE WIND IN SERVICE IN THE CALCULATION OF THE REACTIONS IN THE ANCHORS, TO THE VALUES OF REACTIONS RX, AND TO BE ADDED A FORCE Fv APPLIED MOST UNFAVORABLE DIRECTION (X)**

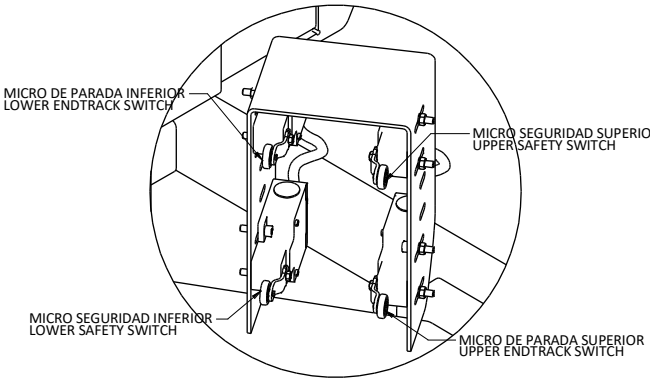
- **Step 6. Installing end track cams and final mast.**



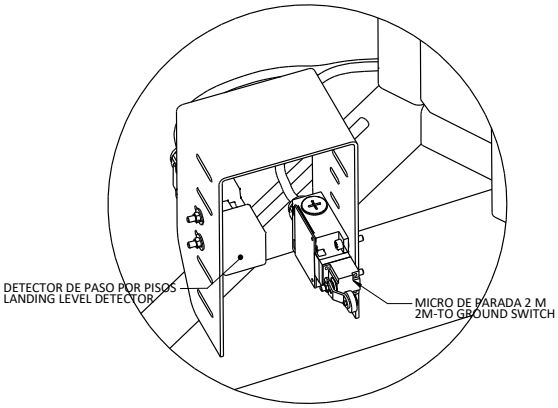

**ADJUSTING SUPERIOR ENDTRACK CAM**



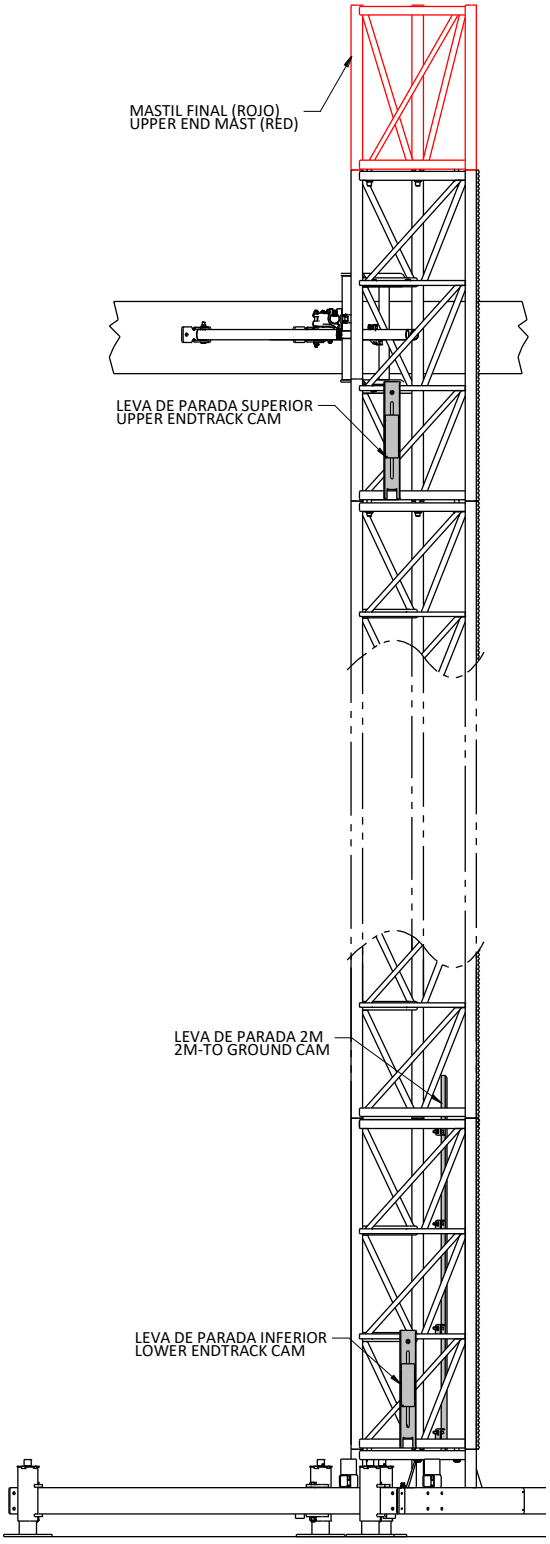

**ADJUSTING INFERIOR ENDTRACK CAM**




**ENDTRACK SWITCHES ON CHASSIS**




**LAST 2m SWITCH AND LANDING LEVELS DETECTOR**




**ENDTRACK CAMS AND RED MAST POSITION**

**IMPORTANT:**
**INSTALL SUPERIOR ENDTRACK CAM ON THE LAST MAST AND THEN RED MAST WITHOUT RACK. USE VERTICAL REGULATION TO ACHIEVE BETTER STOP POINT.**

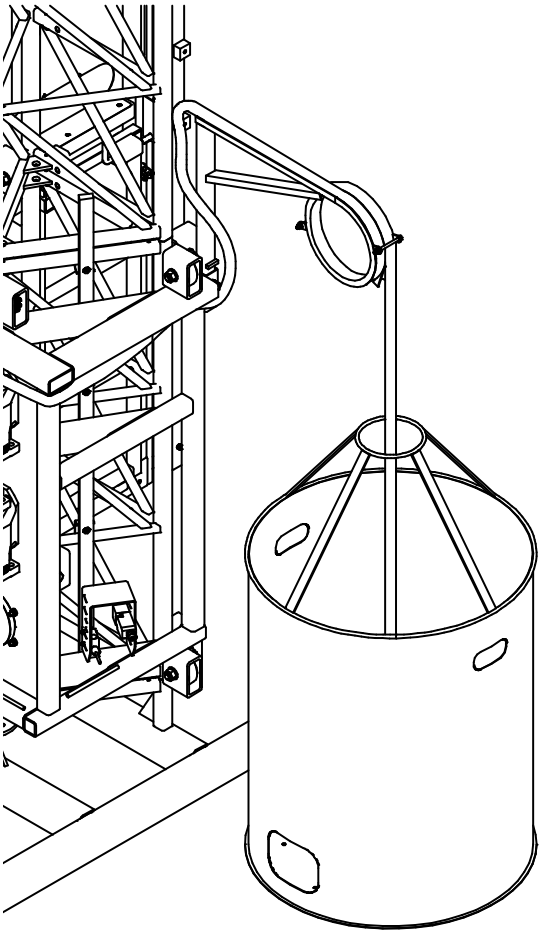
**CHECK IF HOIST STOP IS PROPERLY PERFORMED:**

1. **RAISE ("MANUAL" MODE) UNTIL HOIST STOPS. CHECK THAT THE MACHINE STOPS WHEN F.C.S SWITCH TOUCH SUPEROR CAM, AND ALSO THAT RED MAST´S NOT REACHED.**

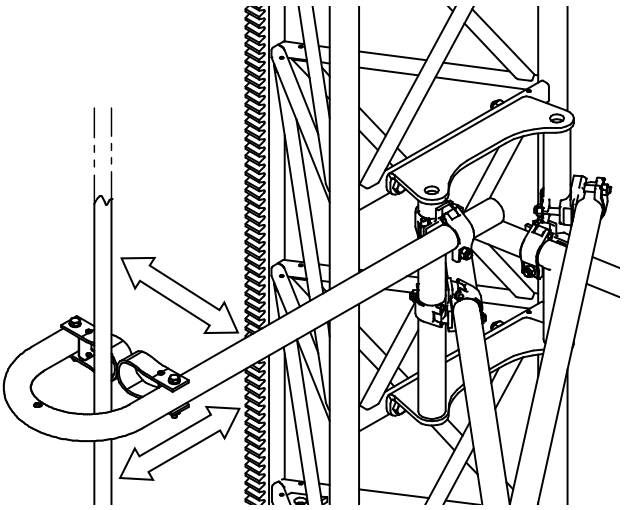
2. **DESCEND ("MANUAL" MODE) UNTIL HOIST STOPS AND CHECK IF 2 m SWITCH HAS REACHED INFERIOR CAM. CHECK THAT LAST TRAVEL UNTIL Ref. Point ONLY CAN BE COMPLETED WITH "HOLD-TO-RUN" BUTTON OF CAGE CONTROL. CHECK IF THE MACHINE STOPS WHEN F.C.B SWITCH TOUCH INFERIOR CAM. (Ref. Point)**

**THESE TESTS ARE VERY IMPORTANT BEFORE FURTHER ASSEMBLY!!**

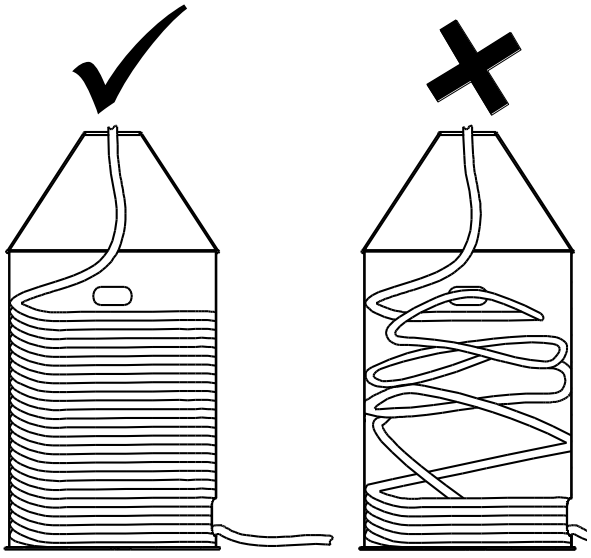
- **Step 7. Installing cable holder.**



**INSTALLING CABLE HOLDER**



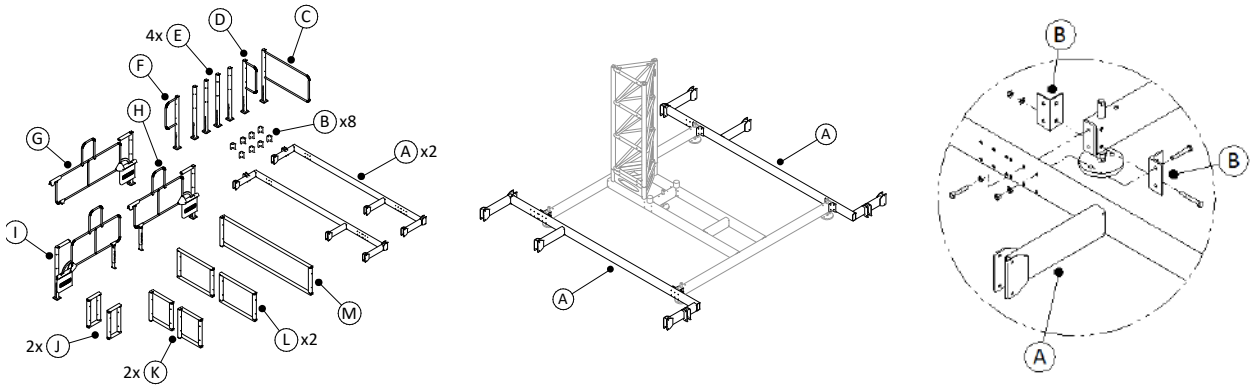
**INSTALLING CABLE GUIDES**



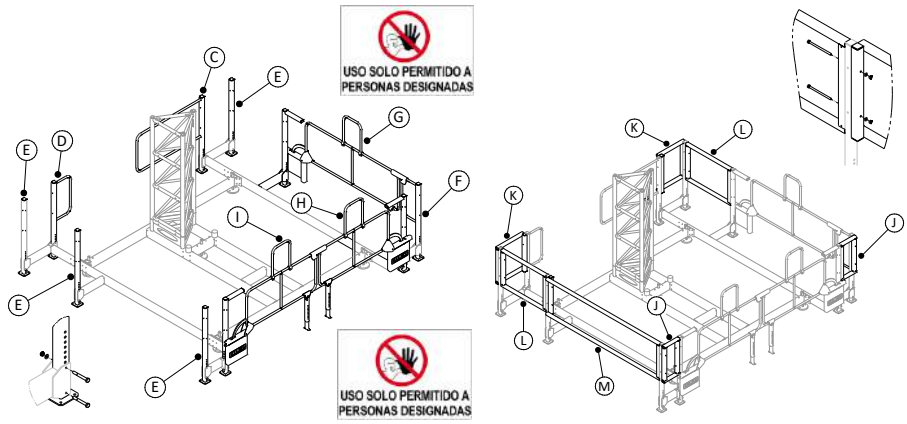
**CABLE ROLLLING IN CABLE HOLDER**

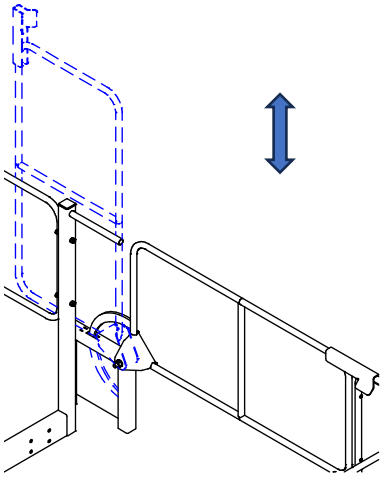
- **Step 8. Installing base enclosure.**

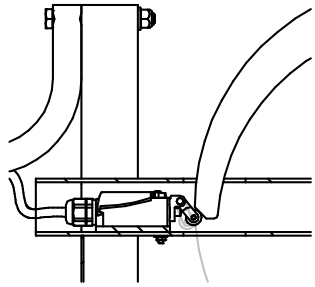
**ATTENTION:**
**THE INSTALLATION OF A BASE ENCLOUSE IS RECOMMENDED, IN ORDER TO PROTECT HAZARDOUS AREAS AROUND THE TRANSPORT PLATFORM.**



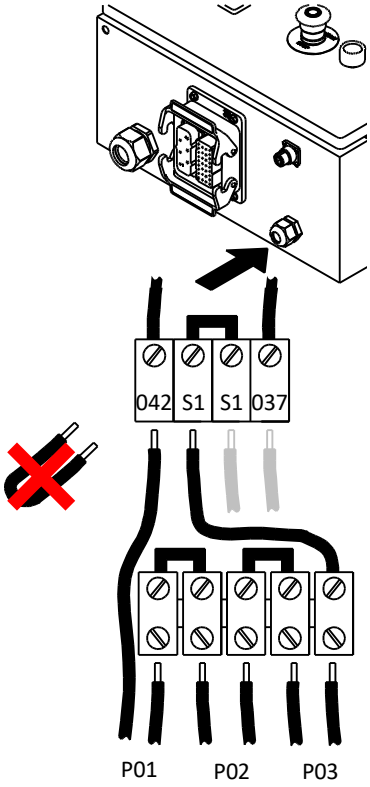

**BASE ENCLOSURE ASSEMBLY**





**ADJUSTING ENCLOSURE GATE SWITCH**

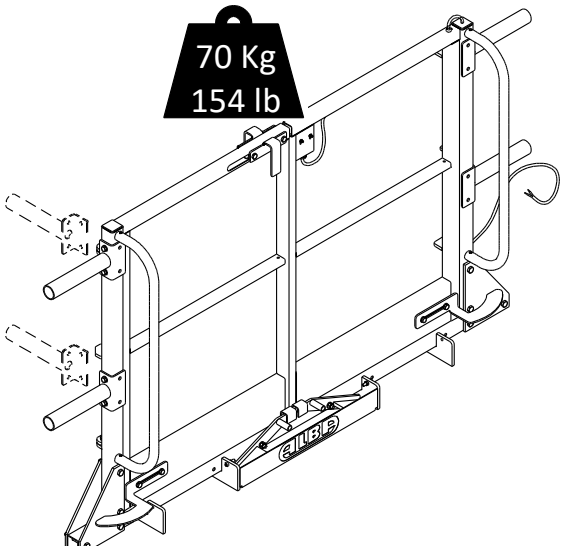



**GATES SWITCH CONNECTION**

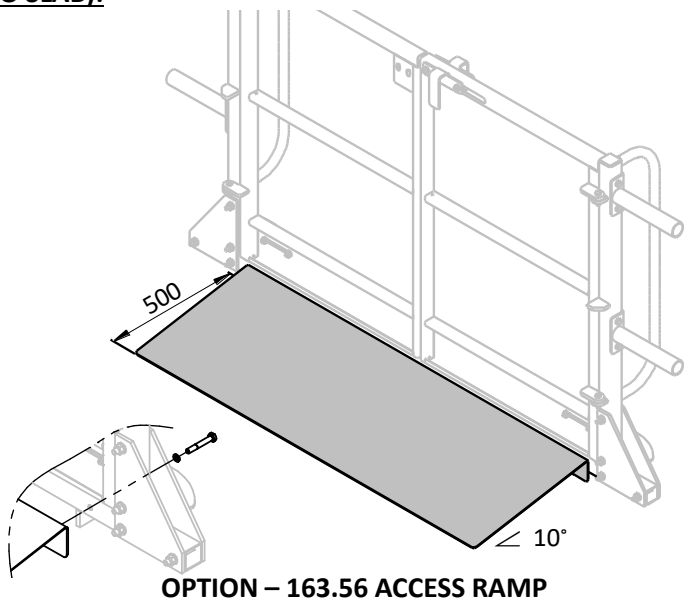
**ATTENTION:**
**THE ENCLOSURE OF THE BASE ALLOWS A PERIMETER PROTECTION OF 500 mm [*20´´*] AROUND THE BASE OF THE MACHINE, TO PREVENT HAZARD OF SHEARING OR CUTTING WHEN HOIST IS MOVING**
**IN NORMAL USE, DOWNWARDS MOVEMENT WILL BE STOPPED AT A HEIGHT OF 3 M [*10 ft*] ABOVE BASE. FURTHER DOWNWARDS MOVEMENT IS ONLY POSSIBLE BY NEW PERMANENT RESELECTION OFF "RUN" BUTTON.**

• **Step 9. Installing landing gates.**

**· SWINGING LANDING GATES (USUALLLY TO SLAB):**

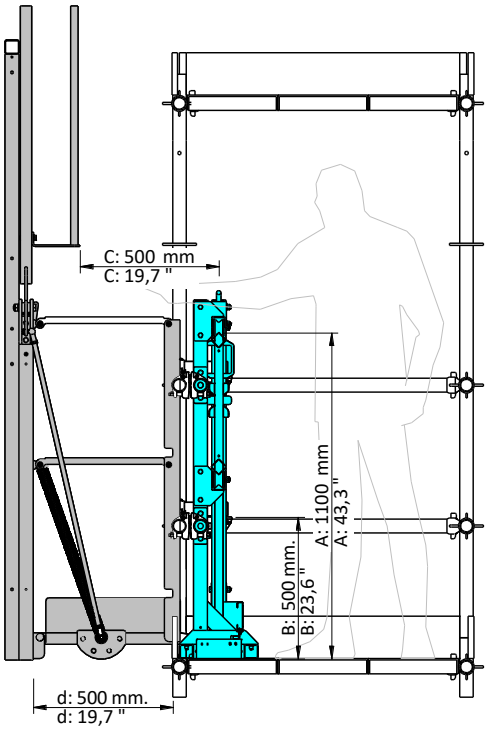



**163.5 SWINGING LANDING GATE 1400**

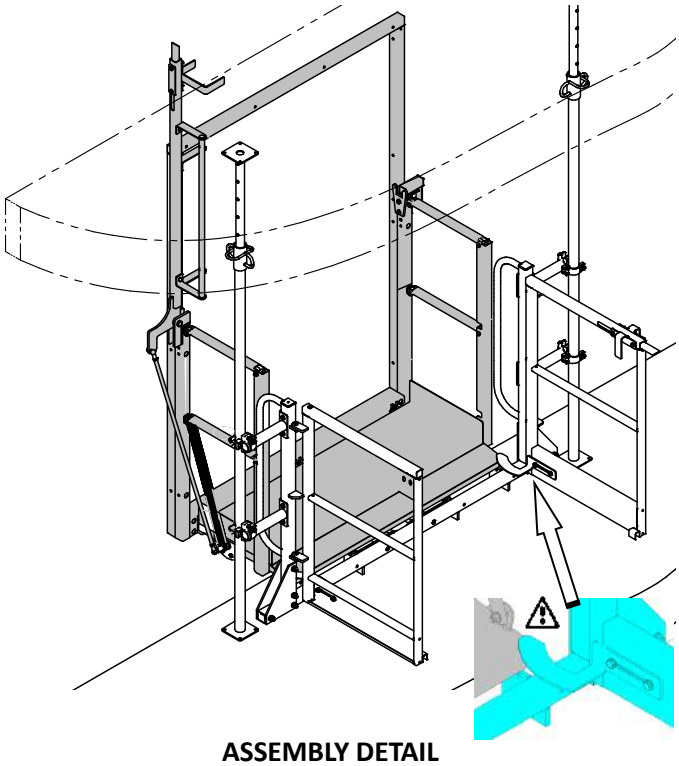



**OPTION – 163.56 ACCESS RAMP**

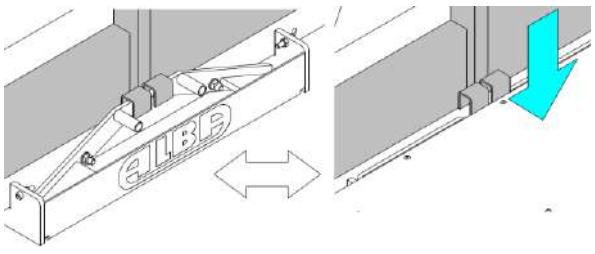
**INSTALLATION IN CONCRETRE SLAB OR STRUCTURE**



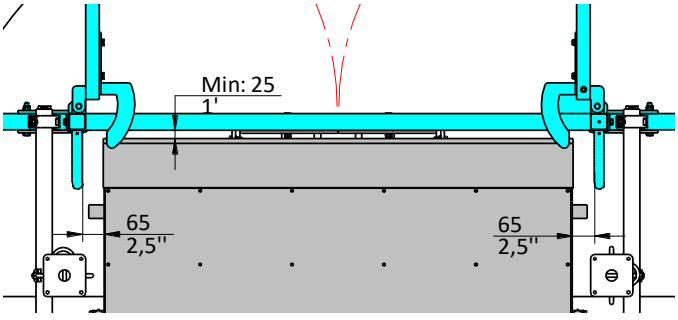

**INSTALLATION DISTANCES**



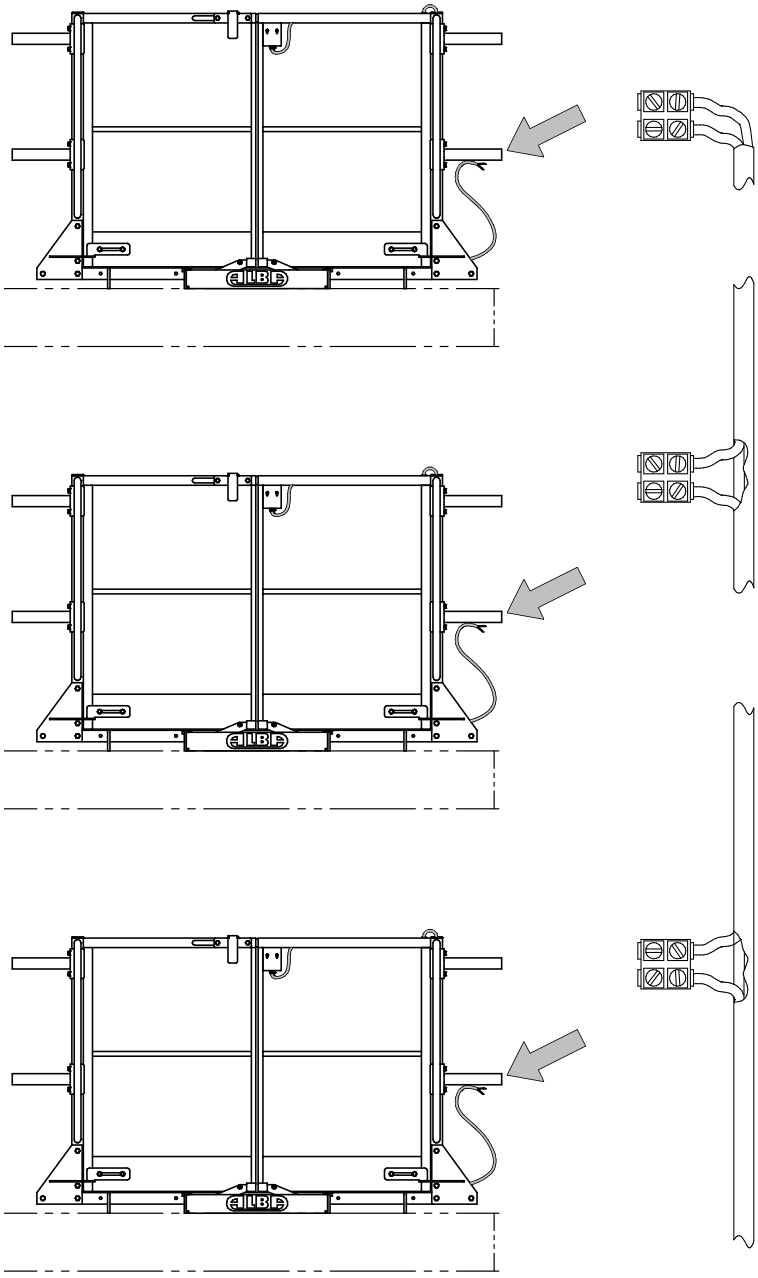
**ASSEMBLY DETAIL**



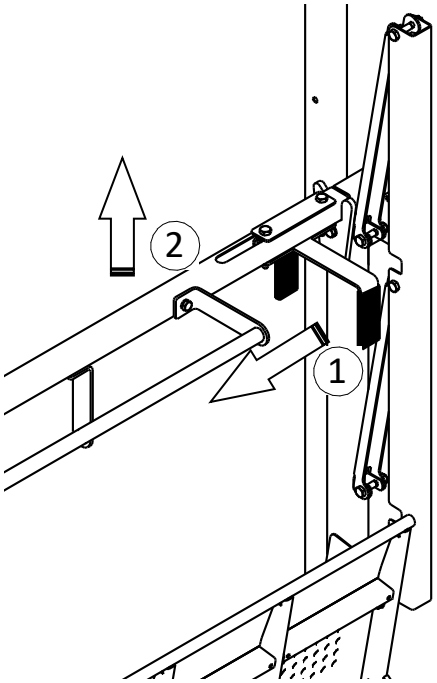
**UNLOCKING – OPENING LANDING GATE**



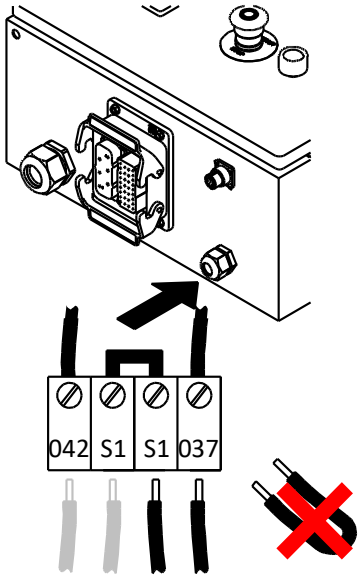

**GATE ASSEMBLY ADJUSMENT**



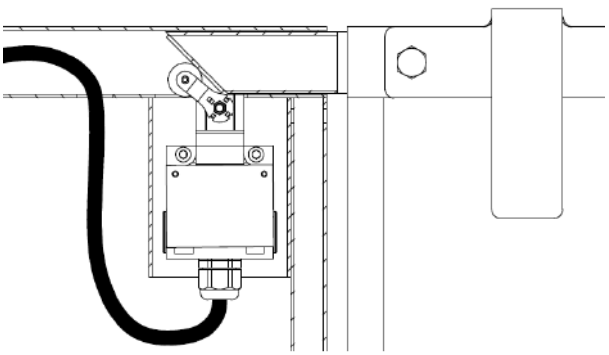
CONNECTION OF LANDING GATE ELECTRICAL SWITCHES (S1-037)



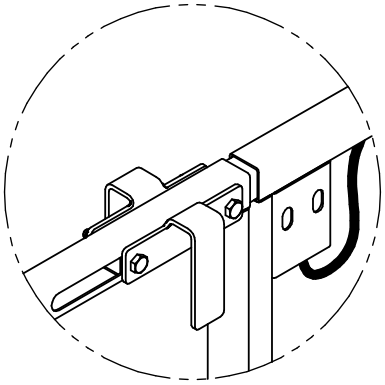

CAGE GATE OPENING




CONNECTION TO BASE PANEL



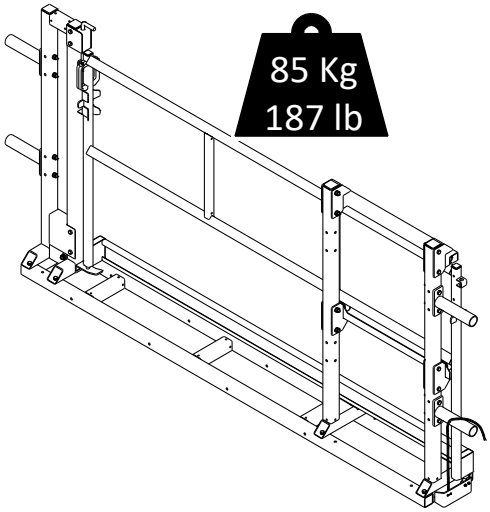
ADJUSTMENT OF LANDING GATE SWITCH



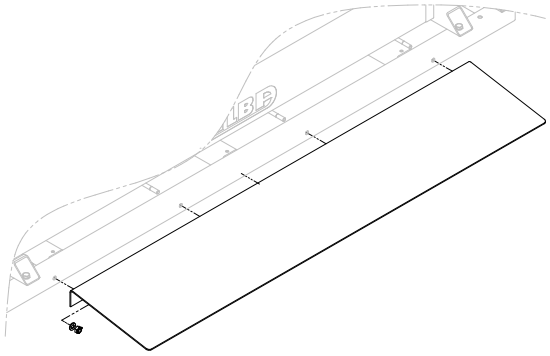
LANDING GATE LATCHING

**· SLIDING LANDING GATES (USUALLY TO SCAFFOLD):**

**ATTENTION:**
**ADJUST GATE POSITION SO THAT, WHEN THE CAR RAMP IS DROPPED, THE LANDING GATE INTERLOCK IS RELEASED AND GATE CON CAN SLIDE TO OPEN.**

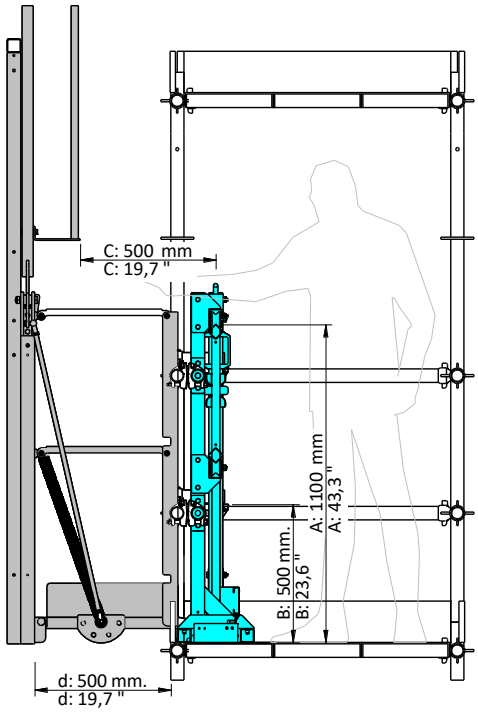



**161.5 SLIDING LANDING GATE 1400**

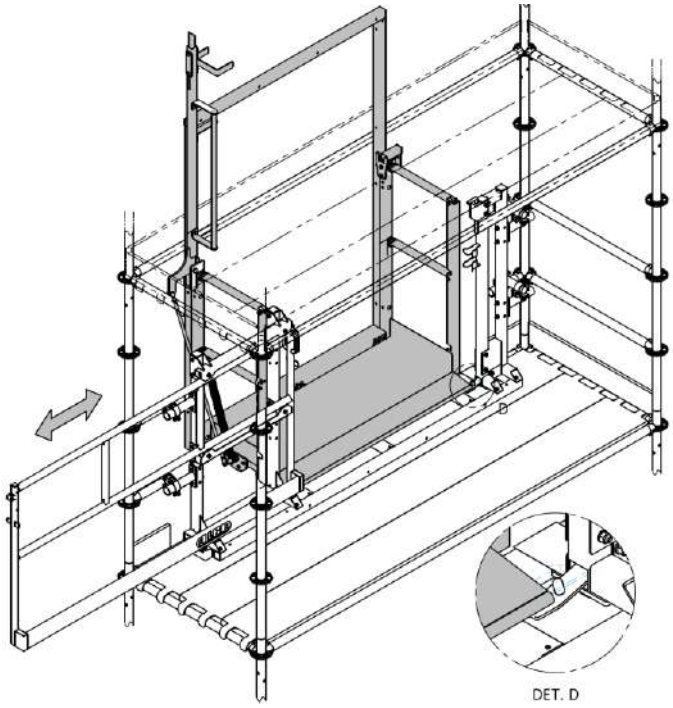


**OPTION – 161.56 ACCESS RAMP (∠ 10°)**

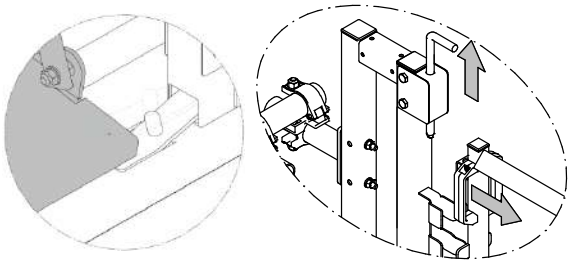
**INSTALLATION IN TO SCAFFOLD STRUCTURE**



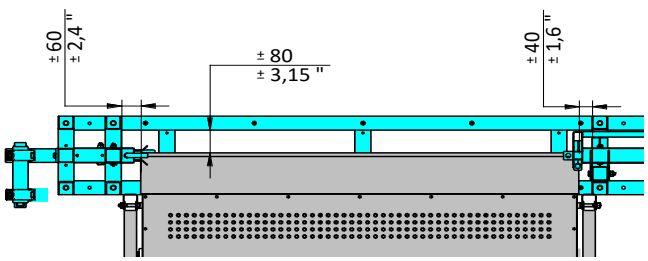

**INSTALLATION IN TO SCAFFOLD STRUCTURE**



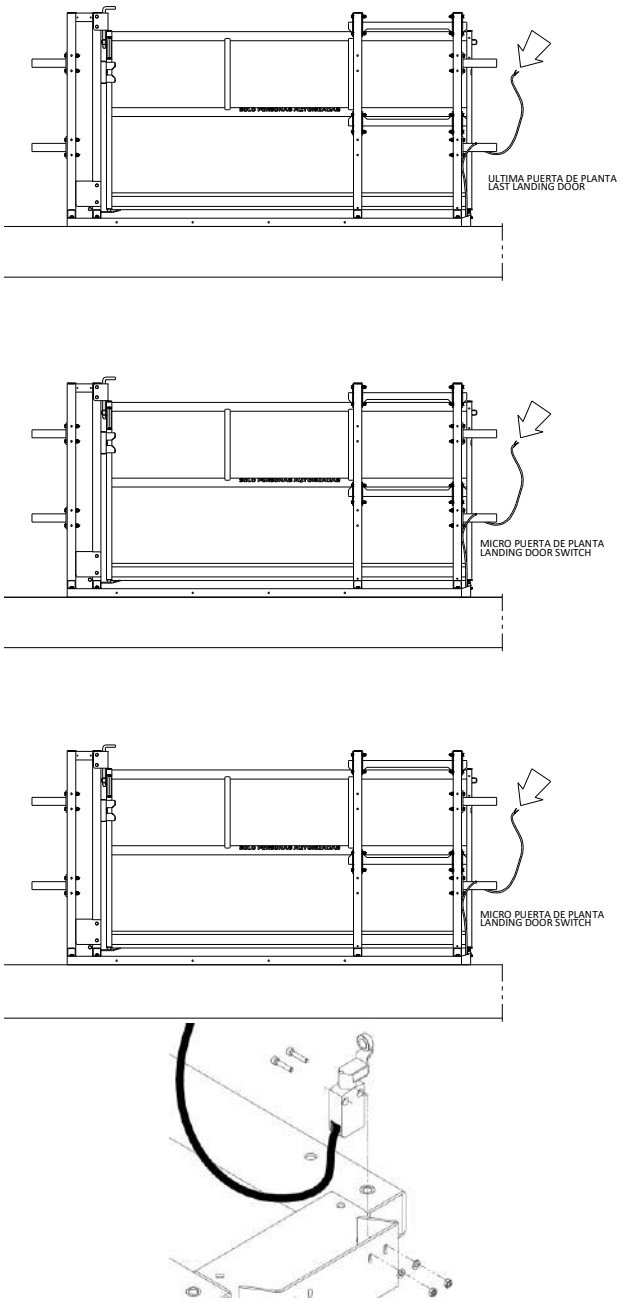

**INSTALLATION IN TO SCAFFOLD STRUCTURE**

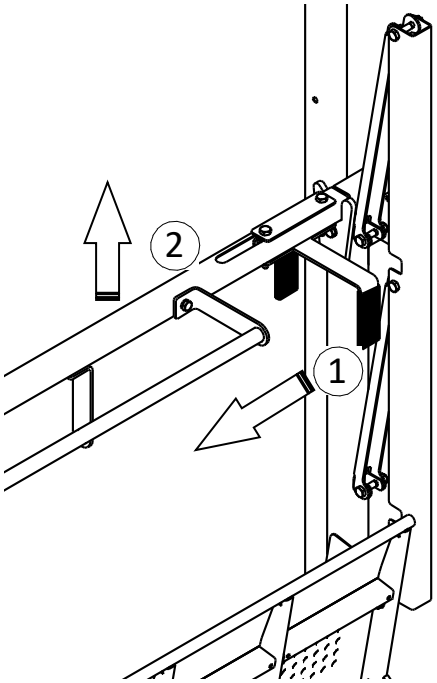


**UNLOCKING – OPENING LANDING GATE**

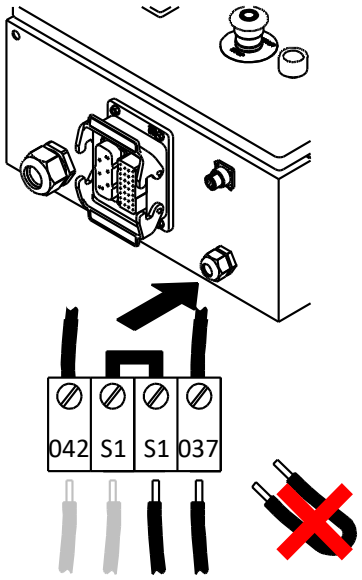



**GATE ASSEMBLY ADJUSTMENT**




**CAGE GATE OPENING**



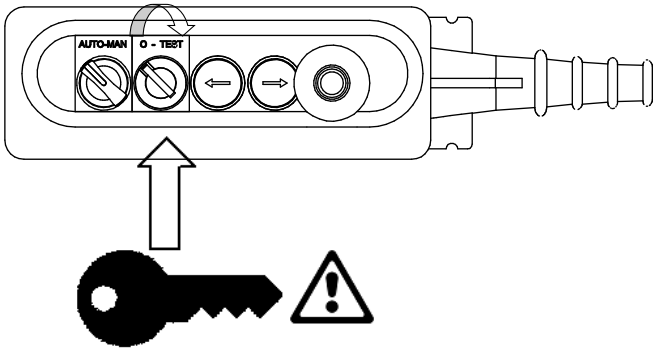

**CONNECTION OF LANDING GATE ELECTRICAL SWITCHES (S1-037)**

**CONNECTION TO BASE PANEL**

**IMPORTANT:**
**ONCE THE GATE MICROSWITCHES ARE INTER-CONNECTED, AND CONNECTED TO THE BASE CONTROL PANEL, IT´S NECESSARY THAT ALL GATES ARE CLOSED TO MOVE THE PLATFORM.**
**MAKE SURE THAT THE CAGE GATES ARE PROPERLY CLOSED AND LOCKED BEFORE MOVING THE HOIST.**

- **Step 10. Parachute testing.**

**IMPORTANT:**
**AT THE END OF THE ASSEMBLY OF THE MACHINE, PRIOR TO USE, IT WILL BE MADE A TEST ON THE PARACHUTE**





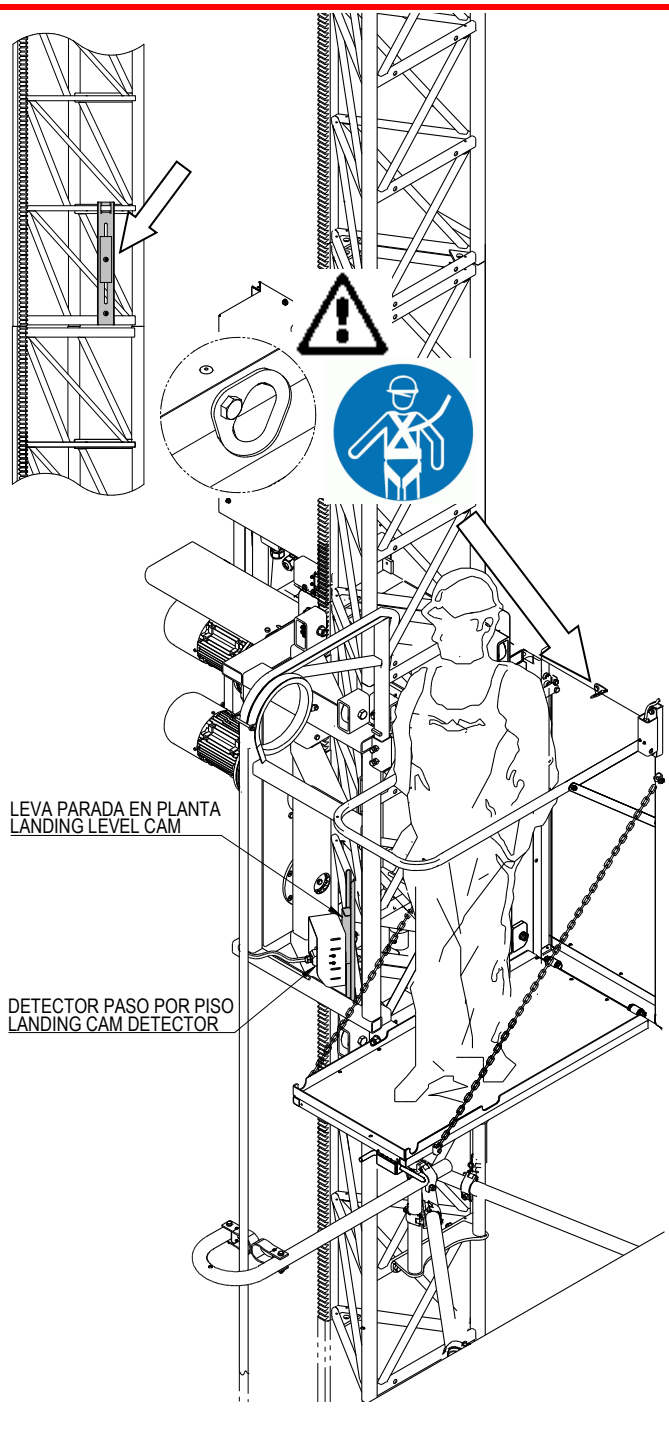


**ATTENTION!**
**DANGEROUS TASK!**

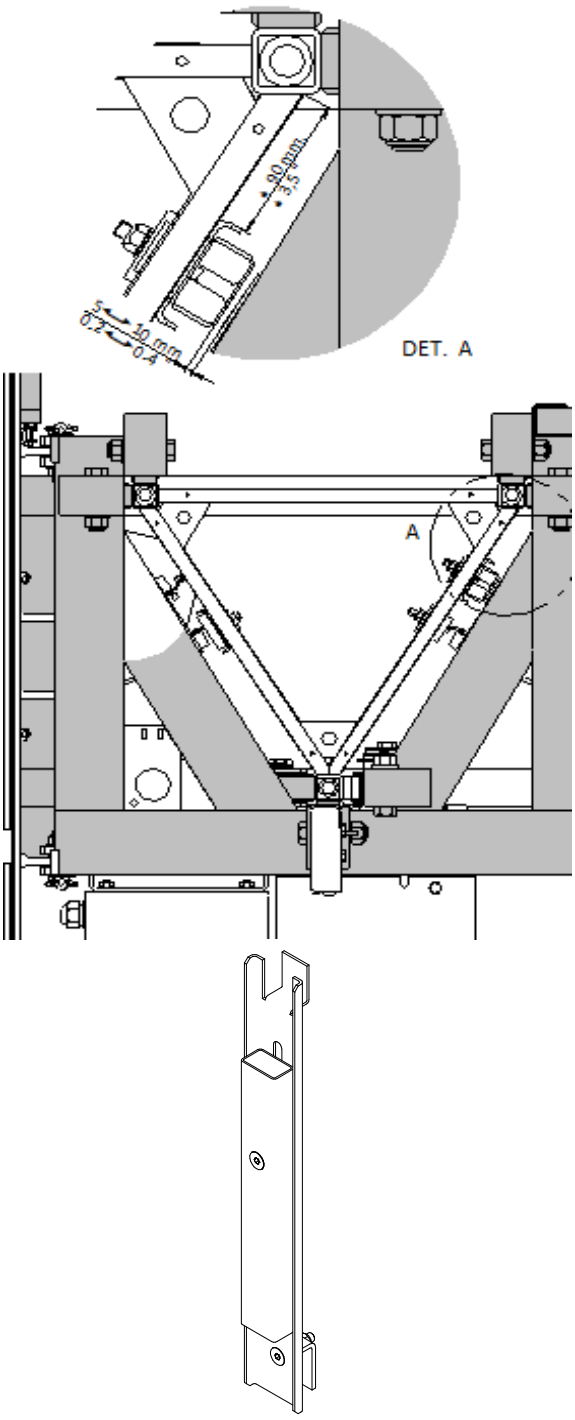
**PARACHUTE TEST PROCEDURE (Cap. 4)**

- **Step 11. Installing landing level cams.**

**ATTENTION:**
**BEFORE USING THE PLATFORM, IT IS NECESSARY TO INSTALL THE LANDING CAMS IN THE MAST AT DESIRED LANDING LEVELS.**




**INSTALLING LANDING LEVELS CAM IN THE MAST**




**PT-2V LANDING CAM**

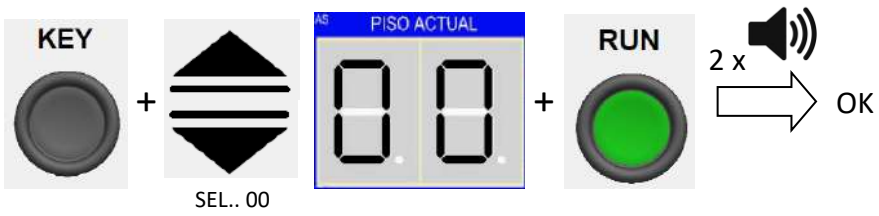
**IMPORTANT:**
**ONCE THE FLOOR CAMS ARE INSTALLED, MAX. NUMBER OF FLOOR IS TO BE PROGRAMMED IN THE CPU SYSTEM, SO THAT WAY, OPERATOR OF THE PLATFORM ONLY CAN SELECT ONE OF THE LANDING LEVELS PROGRAMMED.**

- **Step 12. Programming landing levels.**

**PROGRAMMING OPERATIONS ARE CARRIED OUT FROM THE CAR SWITCHBOARD. IN EVERY NEW ASSEMBLY, OR IF THE ER E2 MESSAGE APPEARS, YOU MUST PROCEED TO REBOOT THE MEMORY OF THE CPU.**

**DELETE MEMORY / INITIALIZATION**

- Step 1. Select MANUAL mode.
- Step 2. Place the elevator in the Reference Point (INFERIOR ENDTRACK LIMIT) (FCB).
- Step 3. Process:

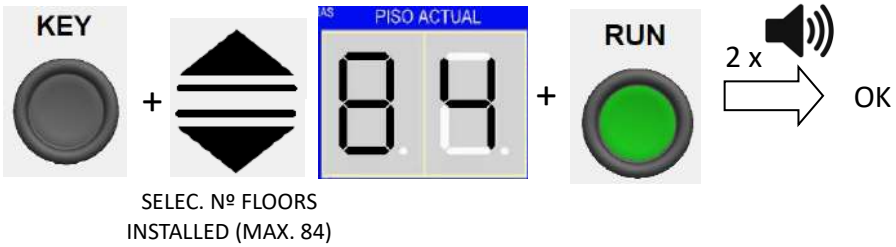



- Step 4. Release KEY: 1 x → INITIALIZATION. OK

**MAXIMUM FLOOR PROGRAMMING**

**ATTENTION:**
**THE CONTROL ALLOWS TO MEMORIZE THE NUMBER OF FLOORS THAT HAVE BEEN INSTALLED, TO PREVENT THAT A FLOOR BE SELECTED IN OPERATION ABOVE THE LAST INSTALLED CAM.**

- Step 1. Select MANUAL mode.
- Step 2. Press up from the car control until you leave the Reference point FCB (a few cm.)
- Step 3. Process:




- Step 4. Release KEY. 1 x → MEMO Nº MAX. FLOORS OK

**IMPORTANT:**
**AFTER SAVING THE MAXIMUM NUMBER OF FLOORS, THE HOIST MUST BE DOWN TO FCB IN "MANUAL" MODE. AFTER CHANGING TO "AUTO" MODE YOU WILL BE ABLE TO START WORKING.**

**NEGATIVE FLOORS**

**IMPORTANT:**
**THE HOIST ALLOWS DISPLAY NEGATIVE FLOORS. DEFINING NEGATIVE FLOORS DISPLACES. REF. POINT TO THE LOWEST POINT OF THE ROUTE. NEGATIVE FLOORS ONLY AFFECT THE DATA SHOWN ON THE DISPLAY.**

- Step 1. Select MANUAL mode.
- Step 2. Place the hoist in reference point FCB
- Step 3. Process:

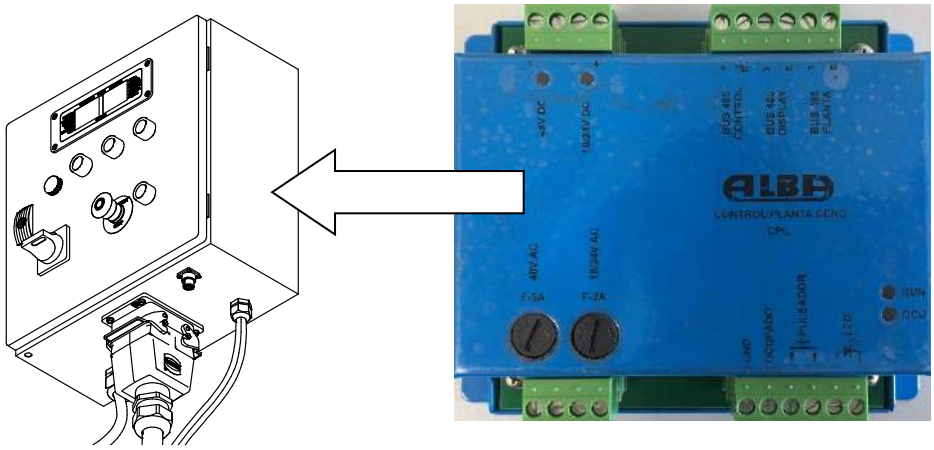

SELEC. FLOOR
NEGATIVE (MAX. -9)

- Step 4. Release KEY 1 x → MEMO NEW REFERENCE POINT IN NEGATIVE FLOOR

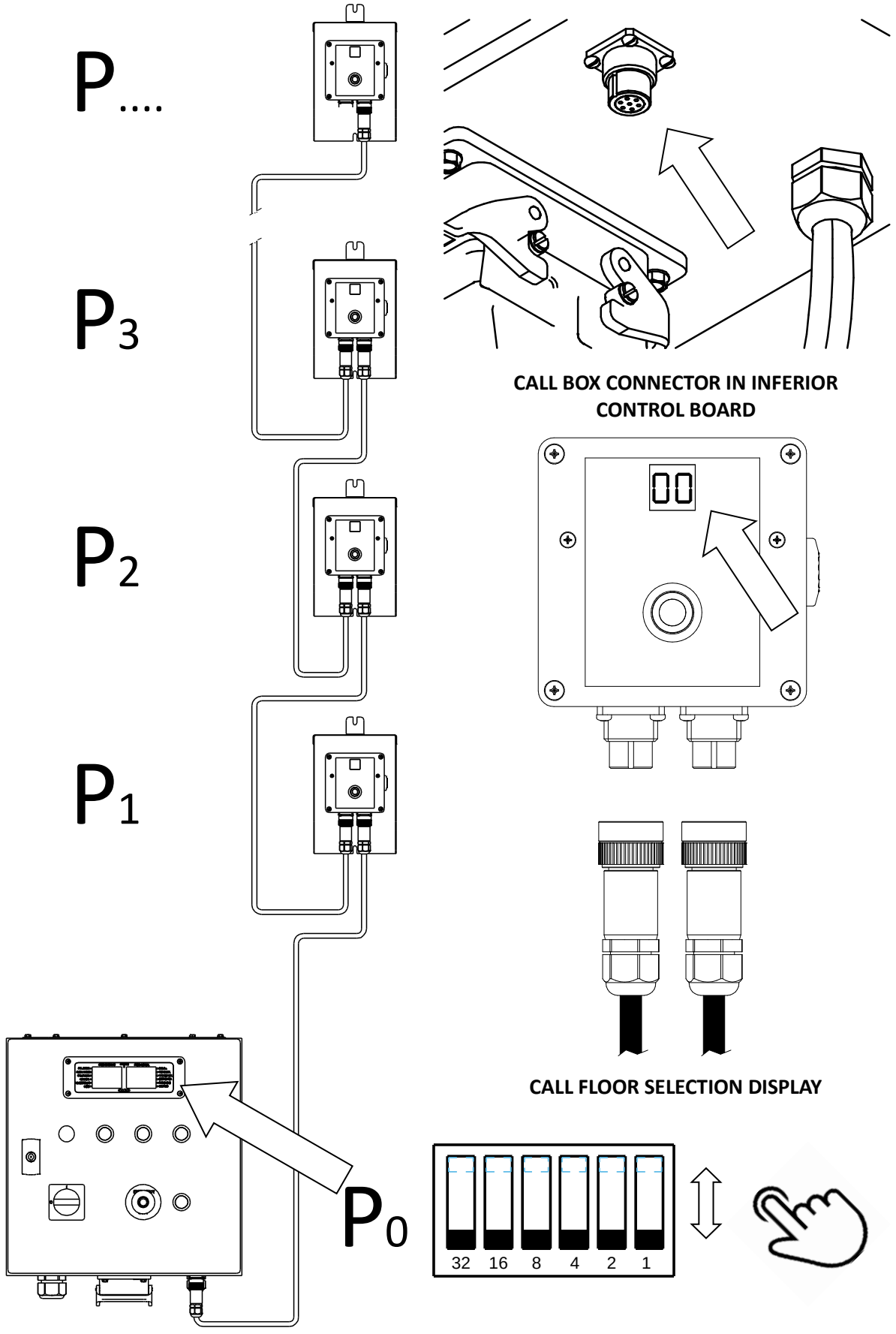
**IMPORTANT:**
**WHEN DEFINING NEGATIVE FLOORS, THE REFERENCE POINT IS DEFINED ON THE LOWER FLOOR. WHEN PROGRAMMING MAX. NUMBER OF FLOORS MUST BE TAKEN INTO ACCOUNT OF NEGATIVE FLOORS.**
**Example: PTO. REF.: -5, P.MAX: 15" THE DISPLAY SHOWS ONLY: -5 ÷ 10**

- **Step 13. Installing landing levels call system – OPTION.**

**ATTENTION:**
**CALLING THE HOIST FROM THE FLOORS WILL ONLY BE POSSIBLE WHEN THE HOIST IS FREE (GREEN PILOT OFF).**



**E-CPC-A CARD FOR FLOOR CALLS MANAGEMENT ON INFERIOR CONTROL BOARD**




INSTALLATION OF FLOOR CALL BOXES



CALL BOX CONNECTOR IN INFERIOR CONTROL BOARD



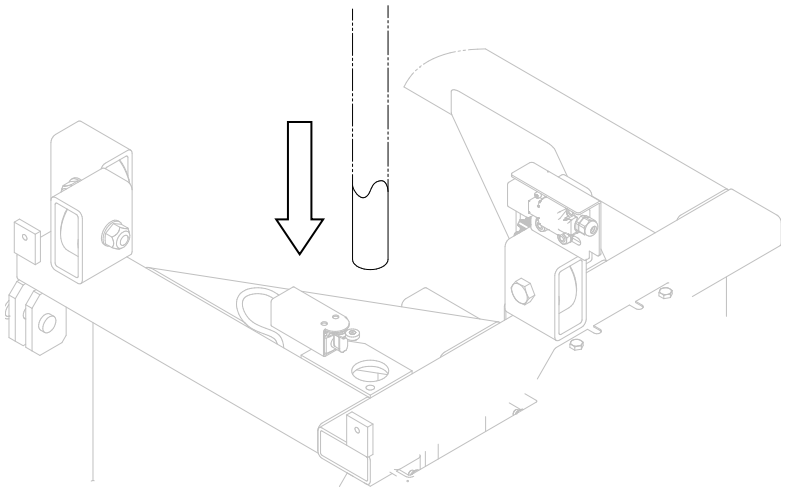


CALL FLOOR SELECTION DISPLAY

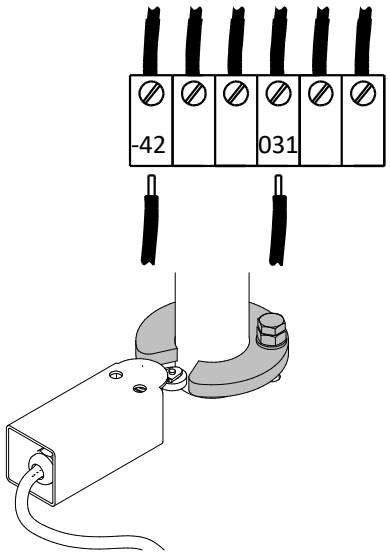



SELECTING THE CALL FLOOR (BINARY CODE)

- **Step 14. Installing aux. crane for mast erection – OPTION**

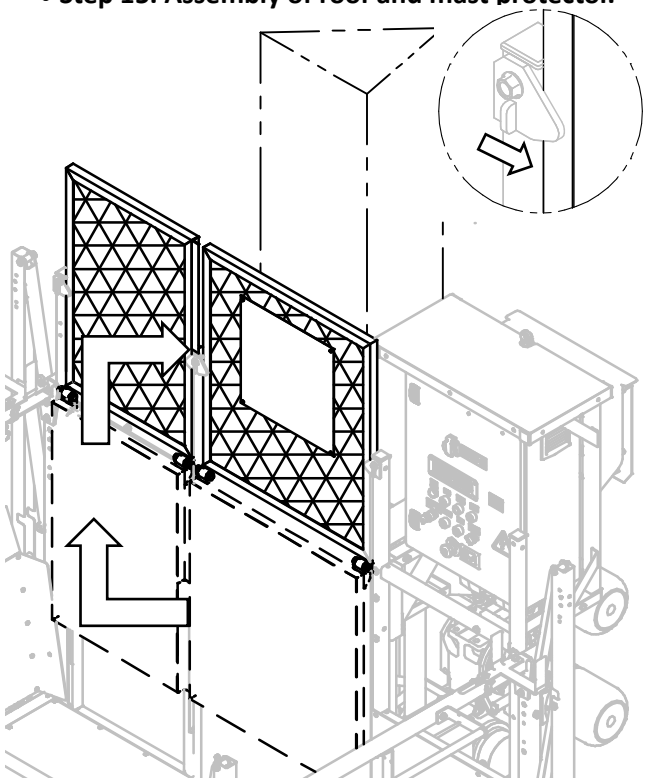


**CRANE FITTING TO CHASSIS**

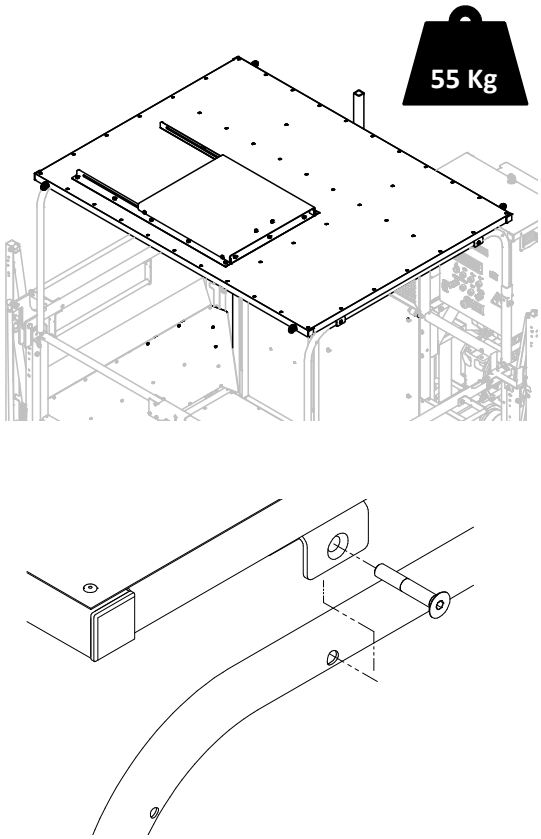



**CRANE POSITION SWITCH AND ELECTRIC CONNECTION**

- **Step 15. Assembly of roof and mast protector.**



**ASSEMBLY OF MAST PROTECTOR**




**ASSEMBLY OF ROOF FOR FALLING OBJETS**

**ATTENTION:**
**UPON COMPLETION OF ASSEMBLY, THE MAST GUARD MUST BE FIXED IN POSITION BEFORE THE PLATFORM IS COMMISIONED FOR THE USERS.**
**SEE CONDITIONS OF USE OF THE TRANSPORT PLATFORM WITH PROTECTIVE ROOF ACORDING TO REGULATIONS. (SEE Page 12)**

## 2.4. Dismantling the hoist

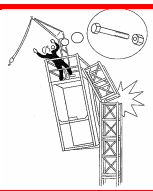
For the dismantling of elevator perform the reverse process to that described in this manual, with particular attention to the tasks that present a risk of falling.

**ATTENTION:**
**FOR MACHINE DISMANTLING "MANUAL" MODE IS TO BE USED, WITHOUT LOADS, AND OPERATING THE HOIST FROM CAGE CONTROL.**

Step 1. Dismantling mast column and anchorages

Remove first the red Mast and upper stop cam and then the column of masts and anchors. For that, you can remove the platform falling objects protector ceiling and fold the mast protector.

**ATTENTION:**
**REMOVE MAST AND SCREWS ALWAYS AT THE SAME TIME!**
**NEVER RAISE THE HOIST OVER A NON-SCREWED MAST MODULE!**
**THEN THERE IS A HIGH CHANCE OF COLLAPSE AND SERIOUS INJURY!**



Step 2. Dismantling cable system and guides

Remove the cable bracket and remove the cable guides, continuing with the dismantling of the mast column to the lower limit.

Step 3. Electrical devices disconnecting

Once you reach the lower limit, disconnect the power supply and remove electrical equipment.

Step 4. Dismantling the cage

Remove the cage by releasing union bolts, by the same procedures described for mounting.

Step 5. Dismantling base frame

Release buffers, remove anchorage to ground. The hoist is ready for transport.

# 3. USING THE MACHINE.

## 3.1. Introduction.

**WARNING:**
**HOIST CAN ONLY BE USED BY THE DESIGNATED PERSONS, WHO HAVE BEEN INSTRUCTED IN THE SAFELY HOIST OPERATION**

**ACCESS TO THE PLATFORM FOR LOAD AND UNLOAD ONLY IS ALLOWED FOR TRAINED PERSONS**

**FIT THE LOAD CONVENIENTLY INSIDE THE CAGE, ESPECIALLY IF IS TRANSPORTED WITH PEOPLE TRAVELING TOGETHER.**

**IMPORTANT:**
**TWO OPERATION MODE ARE POSSIBLE WITH THE HOIST:**


- **"MANUAL" MODE (ONLY FOR ASSEMBLY): HOIST MOVEMENTS ARE PERFORMED WITH HOLD-TO-RUN BUTTONS. CONTROL IS ALLOWED ONLY FROM CAGE CONTROL (▲ ▼).**
- **KEEP THE KEY FOR "MANUAL" MODE SWITCH OUT OF THE REACH OF ELEVATOR USERS.**
- **"AUTO" MODE: THE MACHINE IS USED BOTH FROM THE CONTROL ON THE FLOOR (ONLY LOADS), AND FROM THE CAGE CONTROL (PERSONS AND LOADS). THE MACHINE IS MOVING ON PROGRAMED LANDING LEVELS. (SEE LANDING LEVELS PROGRAMMING)**
- **HOIST ALLOWS (AS AN OPTION) A LANDING LEVELS CALLING CONTROL SYSTEM).**

**ATTETION:**
**DUE TO SAFETY PURPOSES, WHEN DESCENDING, HOIST STOPS WHEN IT REACH 3M [*10 ft*] REMAINING TRACK UNTILL INFERIOR ENDTRACK LIMIT IS ONLY TO BE POSSIBLE BY HOLDING "RUN" BUTTON.**
**IN "PERSONS" MODE, THE CONTROL HAS A DELAY OF 3 SEC. TO COMPLETE DOWNWARDS MOVEMENT OF 2M ZONE.**

**WARNING:**
**"MANUAL" MODE ONLY IS ALLOWED FOR AUTHORIZED AND COMPETENT TECHNICAL PERSONS, WHO WILL KEEP THE KEY TO PREVENT USE BY UNAUTHORIZED PERSONNEL.**

### 3.2. Using "MANUAL" mode.

**WARNING:**
**"MANUAL" MODE IS USED FOR HOIST ASSEMBLY / DISMANTLING TASKS, AND FOR INSPECTION AND MAINTENANCE.**
**HOIST HANDLING IS PERFORMED ONLY FROM THE CAR CONTROL.**
**OPERATE THE PLATFORM IN "MANUAL" MODE IS FORBIDDEN BY UNAUTHORIZED USERS.**

**MAKE SURE THE CAGE GATES ARE PROPERLY CLOSED AND LOCKED BEFORE MAKING ANY MOVEMENT WITH THE PLATFORM.**

**DESCRIPTION OF THE CONTROLS - MANUAL MODE**

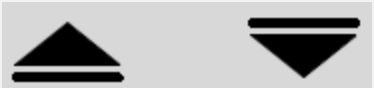

**MANUAL MODE ACTIVE**

**LIGHT - OUT OF SERVICE**

**START**
**EQUIPMENT RESET BUTTON**


**MANUAL MODE SELECTOR**

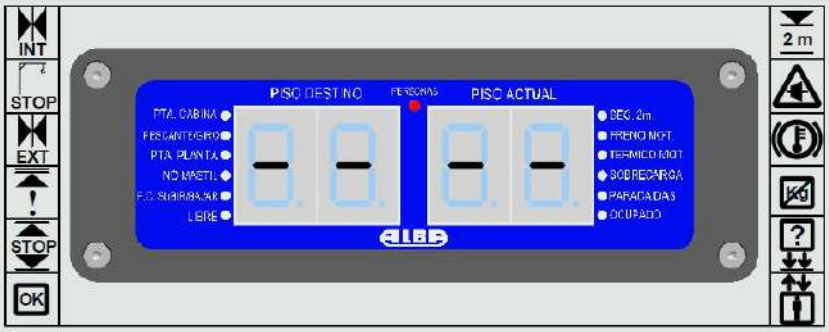

**SELECTOR NOT ENABLED**

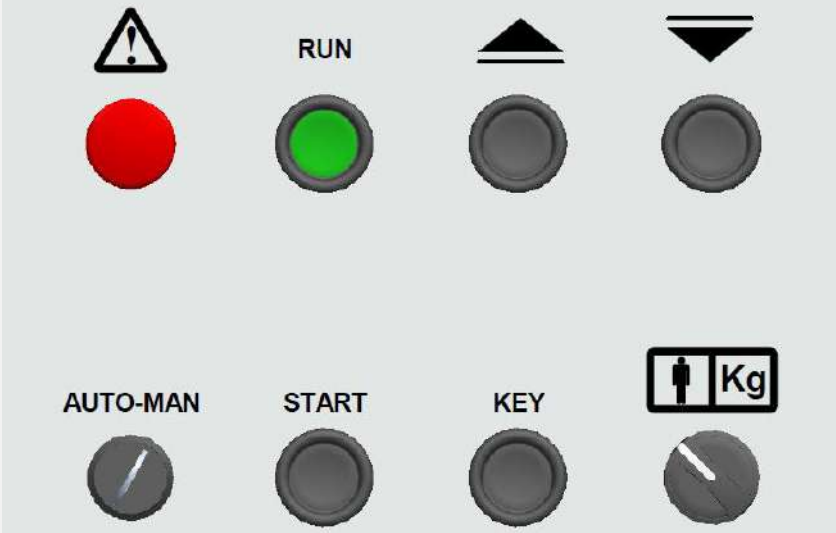


**UP - DOWNLOAD MANUAL**

**KEY**
**PROGRAMMING BUTTON**

**RUN**
**LOWERING MANUAL - ZONE 2 m.**




**ATTENTION:**

**ALL MOVEMENTS IN CASE OF USE OF THE MANUAL MODE WILL BE WITH THE CONTROL UP - DOWN PUSHING CONTINUOUSLY AND WITH SLOW SPEED.**

### 3.3. Using "AUTO" mode.

**IMPORTANT:**
**"AUTO" MODE IS USED FOR NORMAL HANDLING OF THE HOIST BETWEEN PROGRAMMED LEVELS, WITH BOTH CAGE CONTROL ("PERSONS") AND GROUND CONTROL ("LOADS")**

**· AUTO MODE – "PERSONS" SELECTOR:**

**DESCRIPTION OF CONTROL – AUTO MODE-"PERSONS" (MAIN CONTROL BOARD)**


**AUTO MODE WITH HOIST IN THE POINT OF REFERENCE**

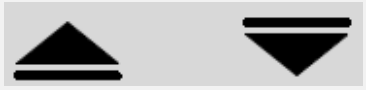

**AUTO MODE WITH HOIST OUT OF THE POINT OF REFER.**

**LIGHT - OUT OF SERVICE**

**AUTO-MAN**

**SELECTOR AUTOMATIC MODE**

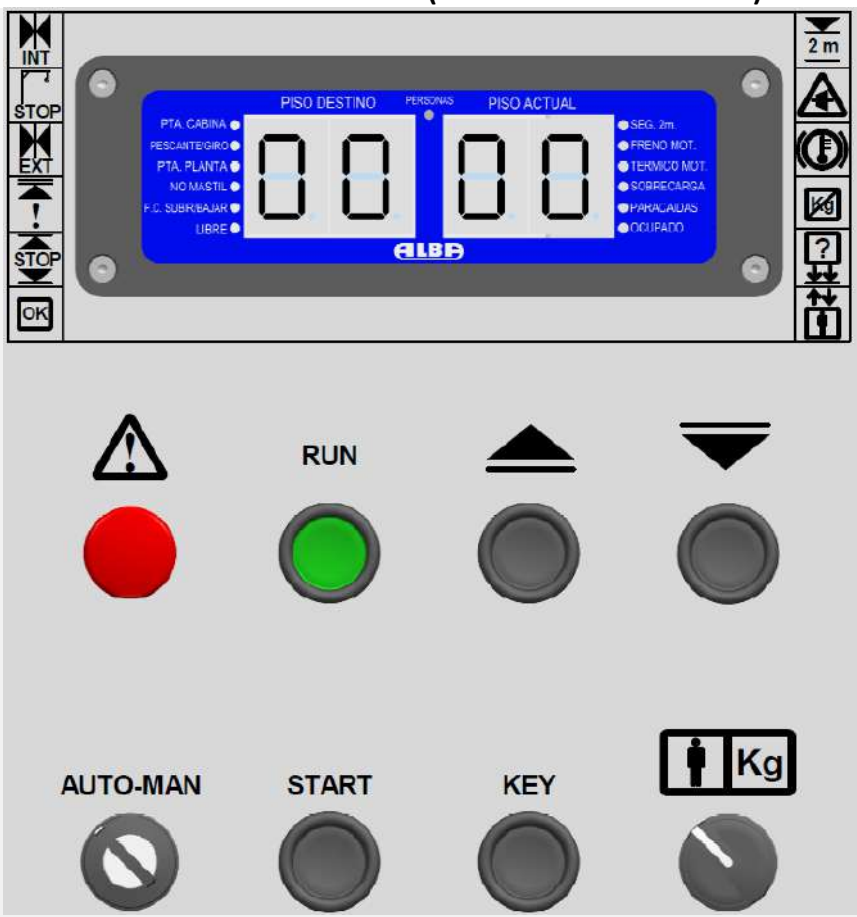

**"PERSONS" MODE**



**DESTINATION FLOOR SELECTION**

**RUN**

**SHIPPING TO DESTINATION FLOOR**




**ATTENTION:**

**THE MOVEMENT UP TO THE FLOOR DESTINATION OF THE HOIST IN AUTO- PEOPLE MODE WILL BE WITH THE CONTROL "RUN" PULSED IN A CONTINUOUS MANNER AND SLOW SPEED.**

**ATENTTION:**
**IF "AUTO" MODE IS SELECTED WITH THE HOIST OUT OF REFERENCE POINT, ONLY "TOTAL DESCEND" TO REFERENCE POINT IS ALLOWED. ONCE THE HOIST UN ON REFERENCE POINT, IT CAN BE COMMISIONED AGAIN.**

**ATENTTION:**
**IF OPERATOR TURNS CONTROL FROM AUTO – "PERSONS" TO AUTO – "ONLY LOADS" HOIST WILL REMAIN "OCCUPIED" FOR 15sg. AFTER THAT TIME, LOWER INFERIOR CONTROL PANEL FOR USE AS "ONLY LOADS" HOIST IS ENABLED.**

**· AUTO MODE – "ONLY LOADS" SELECTOR:**

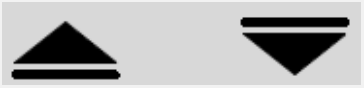
**DESCRIPTION OF CONTROLS – AUTO MODE-"ONLY LOADS" (GROUND PANEL)**

**AUTO MODE WITH HOIST IN THE POINT OF REFERENCE**

**AUTO MODE WITH HOIST OUT OF THE POINT OF REFERENCE.**

**LIGHT - OUT OF SERVICE**

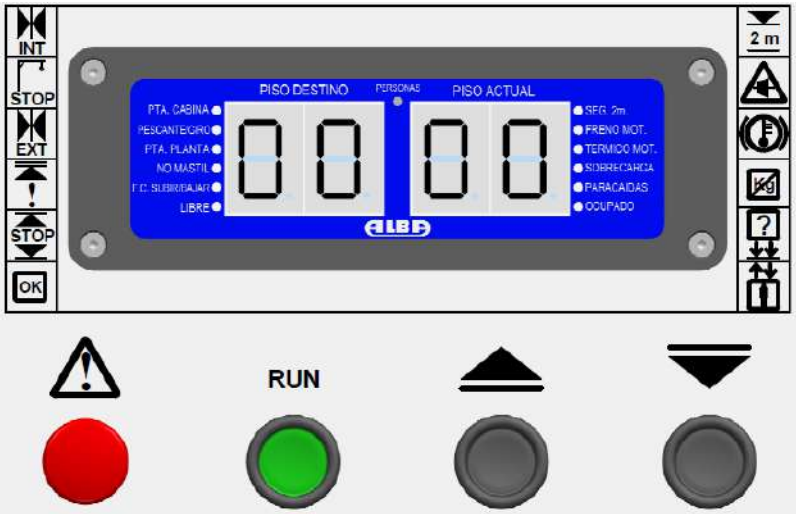

**MODE "SOLO CARGAS" (ON CAGE)**



**SELECTION OF DESTINATION FLOOR BUTTONS**

**RUN**

**SHIP TO DESTINATION FLOOR**








**ATENCION:**

**THE MOTION TO THE FLOOR DESTINATION OF THE HOIST IN AUTO MODE – "ONLY LOADS" WILL BE AUTOMATIC AFTER PULSING "RUN", AND AT NOMINAL SPEED.**

**ATTENTION: MODEL PT-1200/1000F-2V**
**WHEN "AUTO" MODE IS SELECTED, PERSONS USE (CAGE) OR LOADS USE (GROUND) HAVE TO BE CHOSEN.**
**ANY EXCHANGE PERSONS - LOADS SELECTOR WHEN THE PLATFORM IS IN MOVEMENT, IS EFFECTIVE ONLY AFTER FINISHING THE CURRENT MOVEMENT.**

### 3.4. Safety messages on display.

**IMPORTANT:**
**DURING THE OPERATION OF THE HOIST, TWO TYPES OF SAFETY MESSAGES CAN BE RECEIVED IN THE DISPLAY:**
**· MESSAGES "SECU": THE HOIST REMAINS OPERATIONAL IF IT WILL BE SAID FROM THE CAUSE OF THE SAFETY MESSAGE.**
**· MESSAGES "STOP": REQUIRES THE ACTION OF AN AUTHORIZED TECHNICIAN TO RESOLVE THE PROBLEM AND REACT THE CONTROL.**

## "SECU" MESSAGES (ACTION OF AN HOIST USER)


| LED | | PROCEDURE | |
|---|---|---|---|
| OVERLOAD | | | |
| AUXILIARY CRANE | MAN | Resolve warning - Resume operation | |
| CAGE GATES | AUTO | Resolve notice - Press RUN | |
| LANDING GATES | | | |

## "STOP" MESSAGES (ACTION BY AN AUTHORIZED AND COMPETENT TECHNICIAN)


| LED | | PROCEDURE |
|---|---|---|
| PARACHUTE | MAN | 1) Press UPWARDS until display shows REST<br>2) Press DOWNWARDS until Ref. point (FCB)➔ Press KEY |
| | AUTO | Turn key to MAN |
| NO MAST | MAN | 1) Press DOWNWARDS until display shows REST<br>2) Press DOWNWARDS until Ref. point (FCB)➔ Press KEY |
| | AUTO | Turn key to MAN |
| ENDTRACK UP | MAN | 1) Press DOWNWARDS until display shows REST<br>2 Press DOWNWARDS until Ref. point (FCB)➔ Press KEY |
| | AUTO | Turn key to MAN |
| TEMP MOTOR | MAN | 1) Resume relay (RT1,RT2), display shows REST<br>2) Press DOWNWARDS until Ref. point (FCB)➔ Press KEY |
| | AUTO | Turn key to MAN |
| FAULT BRAKE | AUTO/MAN | DESCEND to lower endtrack limit ➔ Call Tech. service. |
| | SAT | 1) Check rectifier and rearm E4➔ display shows RESET<br>2) Press KEY. |

## NORMAL MESSAGES

| | |
|---|---|
| ENDTRACK DOWN | Ref. point platform (FCB) |
| 2 m. ZONE | 2 m. safety zone platform |
| HOIST FREE | Platform stopped and prepared |
| HOIST BUSY | Platform moving or busy |
| PERSONS | Control inside cage activated |

(FCB): Inferior end track. Reference point for hoist movements.

**IMPORTANT:**
**IN CASE OF SHOWING "STOP" MESSAGE, YOU MUST GO TO "MANUAL" MODE, AND FOLLOW THE INDICATIONS OF THE TABLE, UNTIL THE DISPLAY MARK "RSET" (RESET), TURN OFF THE ELEVATOR TO THE REFERENCE POINT (FCB) AND PRESS THE RESET BUTTON (KEY).**

**IMPORTANT:**
**MAKE SURE THAT THE CAGE GATES ARE PROPERLY CLOSED AND LOCKED BEFORE MOVING THE HOIST.**

## OTHER MESSAGES IN THE DISPLAY

MANUAL Mode selected

Total descent to FCB (Ref. point) and RESET

Total descent to FCB (Negative Ref. point)

Memory error (ERASE MEMORY)

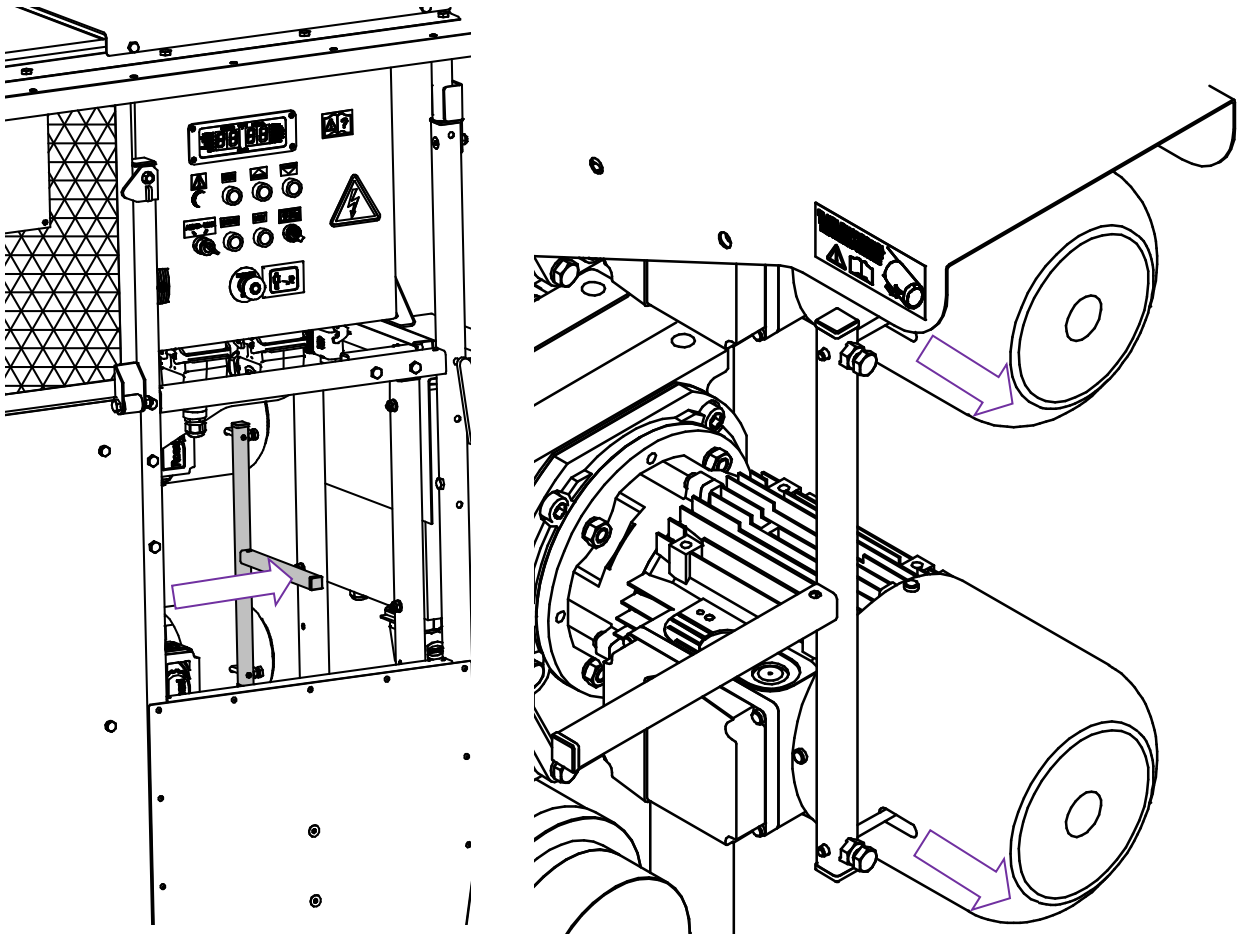
Reset control (PRESS KEY en FCB)

Hoist in AUTO mode and in FCB

### 3.5. Emergency lowering.

In case of power failure without the possibility of restoration, you can descent the cage handpicked, acting WITH EXTREME CAUTION on the release levers of the motor brakes on the cage roof. This must be done in small intervals to avoid machine acceleration.

**CAUTION: DANGEROUS TASK**
**IF SAFETY GEAR SPEED IS EXCEEDED, PARACHUTE IS AUTOMATICALLY ENGAGED, BLOCKING ANY FURTHER CAGE MOVEMENT UNTIL TECHNICAL ASSISTANCE.**



**EMERGENCY LOWERING PROCEDURE**

**WARNING:**
**CASE OF PARACHUTE ACTIVATION HOIST SERVICE WILL BE SUSPENDED AND TECHNICAL SERVICE WILL BE NOTIFIED FOR INSPECTION AND HOIST RELEASING.**

### 3.6. Checking hoist operation before commissioning.

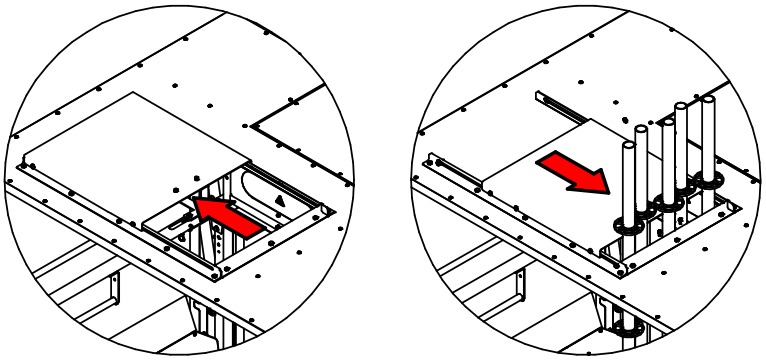
**IMPORTANT:**
**BEFORE HOIST COMMISSIONING, HOIST SERVICE RESPONIBLE WILL CHECK IF HOIST IS IN COMPLIANCE WITH FOLLOWING POINTS:**

- Hoist is installed with all operational safety systems:
  - Landing levels are properly programmed
  - No destination can be chosen over the last floor programmed.
  - FCS microswitch stops hoist before reaching red mast.
  - Overload detector (inductive sensor) works properly
  - The brakes support the maximum load correctly.
  - FCB microswitch stops hoist on Ref. Point before reaching buffers.
  - The mast presence detector works correctly.
  - Display shows safety activation and operational LEDs correctly.
  - Landing levels hoist calling system works OK (if installed.
  - Hoist control inside cage works properly

- There´s no interference of hoist and external items, mast, ties, supporting structure, …
- Landing gates are installed and there´s no interference with hoist mobile elements.
- Base fence is installed and there´s no interference with hoist mobile elements.
- Gate releasing system for cage gate / landing gate / fence gate are operative.
- Control microswitch for cage gate / landing gate / fence gate work correctly
- The points of access to the platform and hoist way have adequate lighting.

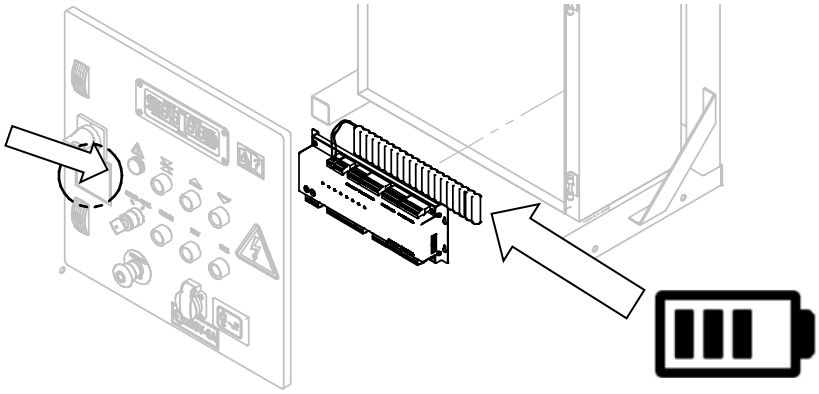
**IMPORTANT:**
**KEEP ORDER AND CLEANING IN THE ELEVATOR AND SURROUNDINGS**

### 3.7. Use of the hatch.



**ATTENTION:**
**THE USE OF THE HATCH IS LIMITED TO THE TRANSPORT OF MATERIAL WHOSE LENGTH EXCEEDS THE DIMENSIONS OF THE BASKET. THE HATCH OPENING SHALL BE ADJUSTED TO THE DIMENSIONS OF THE LOAD, AVOIDING UNNECESSARY GAPS IN THE ROOF OF THE BASKET.**

### 3.8. Notes on the use of -1C platforms (equipped with BATT)

**CONTROL BOARD (-1C) EQUIPED WITH BATTERY**

**ATTENTION:**
**PLATFORM MODEL -1C EQUIPED WITH ONLY POWER CABLE HAS A BATTERY TO AVOID LOSS OF POWER SUPPLY TO THE CPU WHEN THE PLATFORM IS STOPPED ON A LANDING LEVEL IN SERVICE.**
**CLOSE THE GATES AND RESTART THE CONTROL, TO AVOID DISCHARGING THE BATTERY, OR SWITCH OFF THE CONTROL IF IT IS TO REMAIN STATIONARY FOR A LONG TIME.**

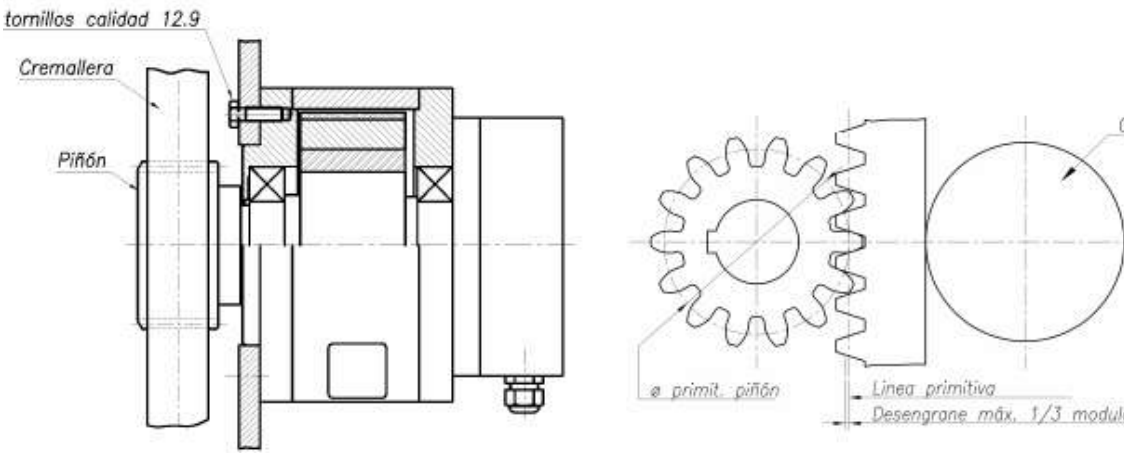
### 3.9. Applications and uses forbidden.

- DON´T use the hoist on explosive atmospheres.
- DON´T use the hoist with higher load than shown in the plate
- Load CAN´T be piled up at the cage floor bounds, **it must be located as near mast as possible**.
- DON´T transport loads out of cage floor.
- DON´T use the hoist in adverse weather conditions, rain, ice, snow, (See Ap. 1.3) ...
- DON´T use the hoist in unacceptable physical condition, treatment of serious illness, under alcoholic drinks effects, or under stress or mental overload condition.
- DON´T use the machine with other parts than those originals from the manufacturer.
- DON´T work without the necessary personal protection gear. These safety devices will vary upon different conditions, therefore, a qualified person in the requirement of safety and health must evaluate the working conditions and mode of use before starting works.
- DON´T access the elevator with inappropriate clothing, hanging chains, rings or loose long hairs.
- DON´T put raised brackets on the cage floor. If travelling, user´s feet must be on the cage floor.
- DON´T use the hoist if the key switch has been forgotten in the lock and can be manipulated.
- DON´T dismantle integrated equipment whose maintenance is only allowed authorized personnel (i.e.: electrical motor, brake, gear-reductor).
- DON´T manipulate electrical system without express permission of the manufacturer.
- DON´T use the hoist without a differential switch on the main power supply connection line.
- DON´T use the machine with personnel traveling in the basket in MANUAL mode, except in the case of maintenance tasks and by authorized personnel.
- Do not use the machine under insufficient lighting conditions. If necessary, local lighting will be installed at access points, illuminating the hoist way. You will also install local lighting in the control panel area, that allows the correct vision of the elevator controls as needed, using the auxiliary power outlet available in the upper part of the panel.

# 4. SAFETY DEVICE. PARACHUTE FPC-1000

## 4.1. Introduction

According to ANSI/SAIA A92.9 specifications, the hoist must have a safety device for mechanical locking to act if the speed exceeds a set value. The parachute safety system is a mechanical unit designed to prevent accidental loss of the machine. The system only operates during the fall, when the speed exceeds a predetermined value, acting as a hoist speed tracker, not making any effort on lifting device, during normal operation of the machine.




**ASSEMBLY OF PARACHUTE. GENERAL DESIGN**

**4.2. Features:**

A parachute works by blocking the drop in the case of there is a speed rising over the nominal value. The overspeed detection system is based on the principle of action of the centrifugal force to engage driven pinion into the elevator structure. On the elevators there are two intermediate crowns as parachute pinion and rack transmission. Its main components are as follows:

**· Cover:**

The parachute has waterproof housing that allows confining the security unit, preventing it from dust and corrosive atmosphere inside. It must also prevent unauthorized adjustment, so that screws should not be handled by unauthorized persons.

**· Buffer:**

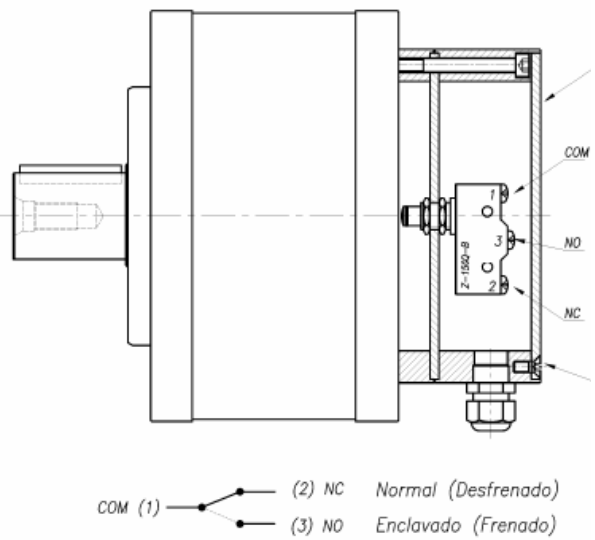
The parachute has a progressive braking system so that locking is produced in a buffered way, so that after a controlled braking, the cage is stopped, according to deceleration specifications of reference standards to avoid accidents resulting from major efforts generated by moving mass inertia.

**· Locking:**

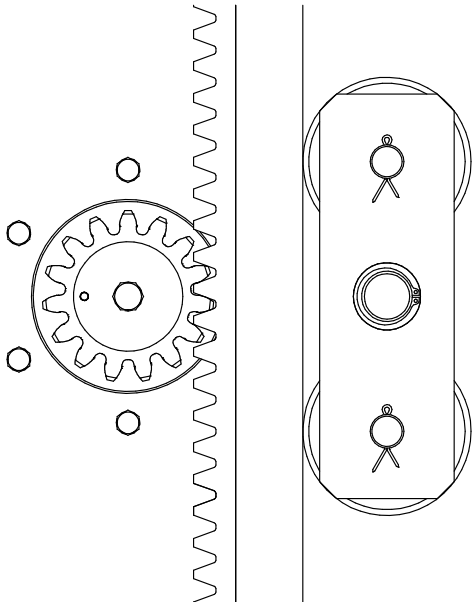
The device features a brake consisting of four sectors, which are charged up to torque referred to the elevator, so that deceleration is controlled accurately, even in case of free drop of the machine, according to the specifications of harmonized standards reference.

**· Integrated switch:**

The parachute includes a switch that is activated in case of brake locking, allowing the signal to cut the movement of hoist and preventing further operations of the machine, until the action of a person designated to release the hoist.




**SAFETY SWITCH AND INTERNAL CONNECTION**



**SAFETY PINION AND COUNTER-ROLLER**

**· ID plate and features of the device:**

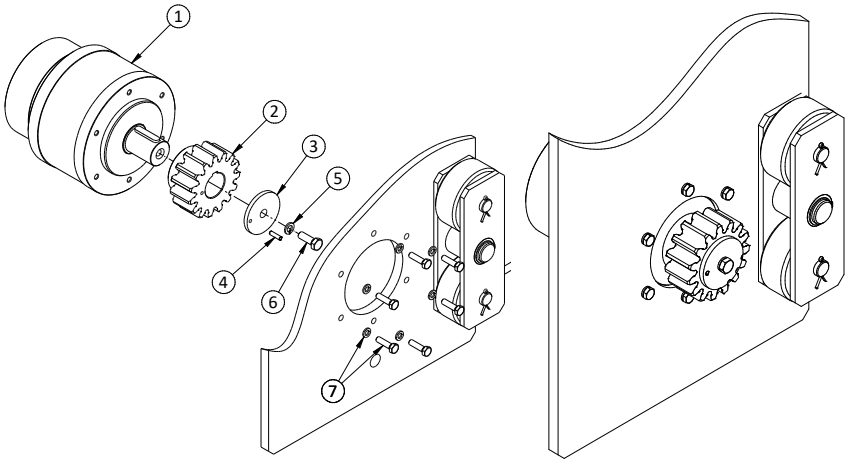
The parachute is equipped with an identification plate, with CE logo stamped and brake characteristics:

- Brake type, mounting position and lock sense.
- Locking speed (r.p.m.) and brake torque (N·m)
- Number, date and reference of manufacture.


**ID PLATE EXAMPLE ON THE PARACHUTE**

### 4.3. Installing the parachute

The unit shall be firmly fixed to the chassis of the cage, so that the pinion is centered with the fitting hole, to rotate at the speed of normal movement of the elevator. The unit mast be fitted to the hoist with all screws and safety washers.




1: PARACHUTE
2: PARACHUTE PINION
3: SAFETY WASHER
4: SAFETY PIN
5: SPRING WHASER
6: SAFETY SCREW
7: FITTING SCREWS

**INSTALLING SAFETY UNIT IN TO THE HOIST**

**WARNING:**
**DON´T INSTALL A PARACUTE IN A HOIST WITH OTHER FEATURES THAN THOSE MARKED IN THE PLATE**

**WARNING:**
**HANDLING AND TESTING OF THE PARACHUTE ONLY IS ONLY ALLOWED TO THE MANUFACTURER OR AUTHORIZED SERVICE PERSSONEL.**

Finally, install the safety switch wire on its correct position, according to the scheme, to avoid further movement of the hoist if the safety device locks, until the actuation of technical personnel.

Once the assembly of the unit is finished, install back cover, so the device remains watertight and mechanical characteristics of the parachute are preserved along the time. Nobody but the manufacturer is allowed to manipulate screws of the unit itself.

### 4.4. Parachute testing.

In accordance with the reference harmonized standard, tests on the parachute must be performed, to verify its functioning properly.

A) MANUFACTURER TEST

ALBA performs a test on each lift during the machine assembly to ensure the safety and proper functioning of the device. The test result is reflected in the TEST CERTIFICATE, which accompanies this manual of the machine.

B) USER TEST

Periodically, **every 4 months**, or **after each assembly machine on site,** a functional test of the parachute shall be performed, in accordance with the instructions set out below. The test of the parachute must be further supplemented with a brake inspection, checking the correct appearance of all the elements and the sealing of the outer cover. This process is repeated more often if the machine operates in extreme environmental conditions.

1.- The area under the machine must be free of people and obstacles.

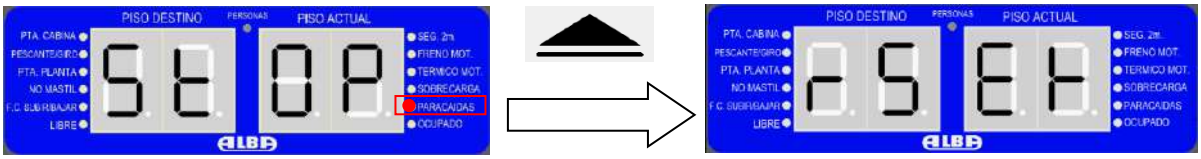
2.- The hoist shall be securely fastened to the facade or structure.

3.- Remove the parachute bridge on the mainboard and connect the pendant control.

4.- Leave the hoist and put into the cage **MAXIMUM** load and take position at safe distance.

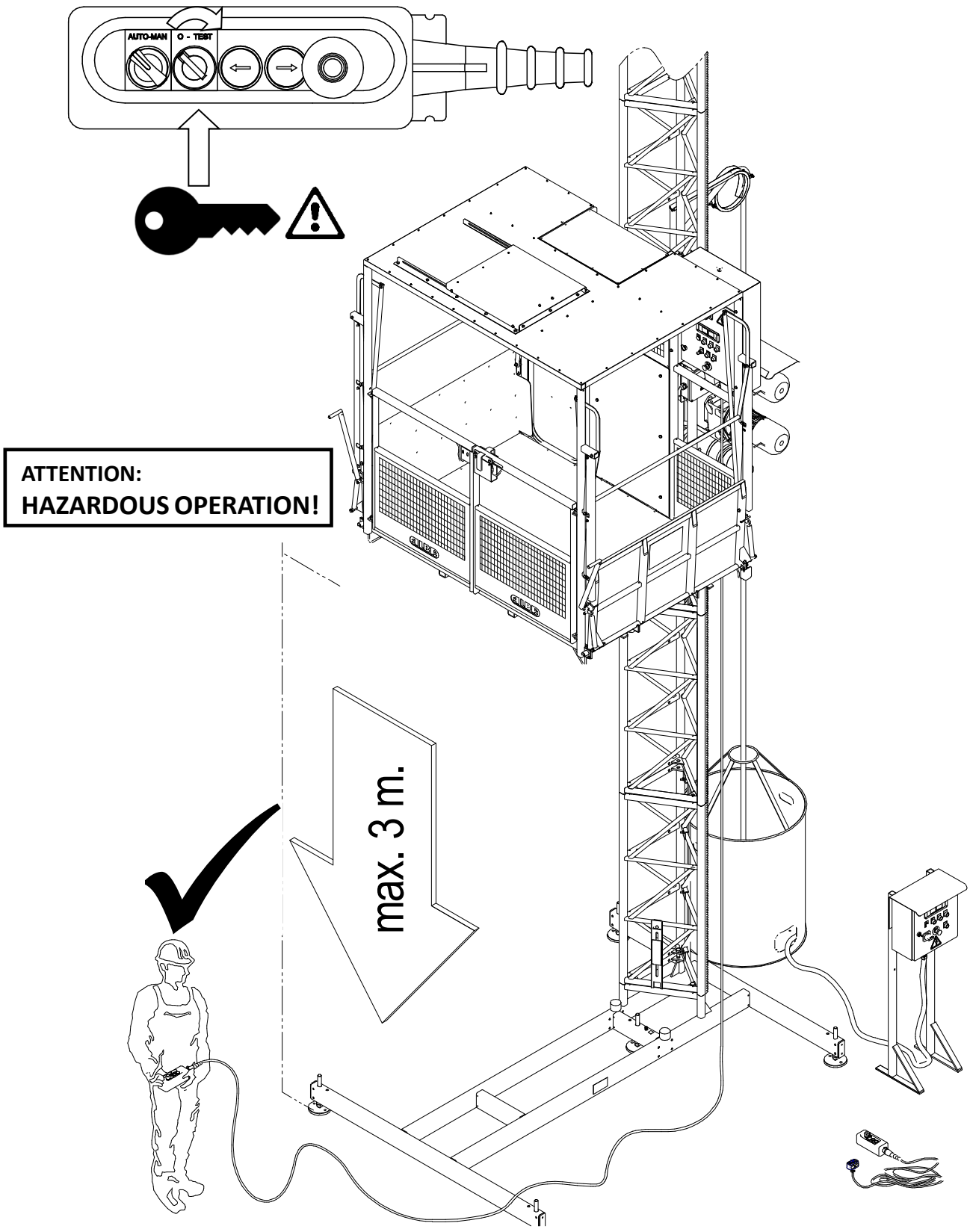
5.- Raise the hoist with pendant control and stop it at approx. 3 m above the ground.

6.- Turn on the left “TEST” key and let the hoist drop until parachute activates and cage stop. Check if elevator stops after a little slip, and then it´s blocked for further descent movements.




7.- To release the parachute, it´s necessary to press “UP” for a while, until display shows RESET. Then hoist can be recovered and must be descended to reference point. After pressing “KEY” button to reset, the hoist is released and can be commissioning again.

**IMPORTANT:**
**TEST THE PARACHUTE PERIODICALLY AND WRITE THE RESULT IN THE OPERATOR'S MANUAL REGISTRATION.**




**PARACHUTE TEST PROCEDURE**

### 4.5 Actions to take if safety device is activated.

The parachute is activated in case that the emergency lowering speed exceeds normal download speed of the hoist. This can only happen in the following cases:

A) Case of power failure or electrical malfunction, and it is necessary to descent the hoist manually, using the manual lever to release the brake of motor, and this procedure is performed without considering the information in this manual operator, exceeding the speed of the parachute jump

B) Case of accident or structural failure that causes gear pinion disengage or gearmotor shaft breaking or any of its elements.

C) Case of parachute testing.

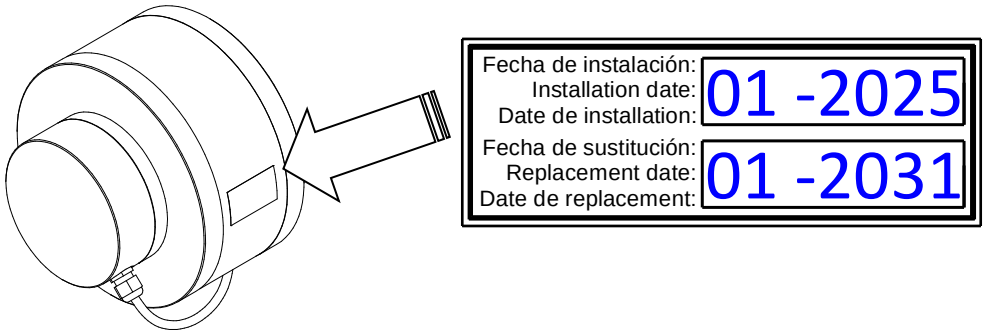
Case of scenario A or C, the person who performs emergency descent will be a qualified technician who is trained to release device and reset the hoist. This requires connecting the keypad to test and reset parachute.

**ATTENTION:**
**MOTOR BRAKE MANUAL RELEASE ONLY IS ALLOWED TO TECHNICAL PERSONNEL AUTHORIZED TO TRAVEL ON THE ROOF OF THE CAGE.**

In case of occurrence of case (B) shall cease machine operation until the action of an authorized technician which chooses the best option depending on the severity of problem. If there is no clear solution, perform the disassembly of the machinery with auxiliary means.

### 4.6. Replacement of parachute

Following the instructions of the safety device manufacturer, to ensure integrity of the device, along the time, parachute shall be replaced after **6 YEARS** from the date of installation on the hoist. See installation plate**.**




**INSTALLATION AND REPLACEMENT PLATE**

· For more information: https://www.eide.net/en/productos/fpc-overspeed-safety-brake/

**IMPORTANT:**
**AFTER REPLACEMENT OF THE PARACHUTE, DROP TEST OF THE NEW DEVICE MUST BE PERFORMED. WRITE THE RESULT IN THE USER'S MANUAL LOG.**

## 5. MAINTENANCE OF THE MACHINE.

**WARNING:**
**BEFORE PERFORMING ANY MAINTENANCE ACTION, TURN THE POWER OFF AND IF REQUIRED, BLOCK VERTICAL MOVEMENT AT LEAST 1.8 m. HEIGHT UNDER THE CAGE. MAINTENANCE TASKS MUST BE PERFORMED WITHOUT LOADS.**

### 5.3. DAILY Maintenance.

Daily maintenance includes basic operations of visual inspection in the hoist, performed by the person responsible of the hoist on the building. Every day, prior to use, visual inspection of the elevator should be done, according to the following service points:

- ☐ There´s no accumulation of ice, snow or debris inside the cage, or near the hoist.
- ☐ There´s no excessive wear in the rack, or in the vertical pipe of the mast.
- ☐ All the cage protections are installed, and there´s no dangerous holes or gaps.
- ☐ Identification and characteristics plate is installed inside the cage.
- ☐ Zone below hoist is bounded and base fence is installed.
- ☐ There isn´t any warped or cracked part (Case of, change it).
- ☐ Electrical wires are correctly installed and tightly guided on the hoist.
- ☐ Guide rollers are in touch with mast tube and without excessive wear.
- ☐ There are no power lines near the hoist that endanger people or machine.
- ☐ There are no outgoing elements in the facade that may interfere with the machine.
- ☐ Electrical safety devices are operational (gates, end track switch, mast sensor).
- ☐ Emergency stop works properly.
- ☐ Facade anchorages are correctly installed.
- ☐ Cage gate, fence gate and landing gate auto-lock system work properly.
- ☐ Cage floor and walls are in good condition.
- ☐ Rack-pinion transmission is correctly engaged.
- ☐ Control and power boards are in good condition
- ☐ Cage lamp lights properly.
- ☐ All the controls, panels and indicators work properly.
- ☐ Cable travels and slides over the cable holder properly.

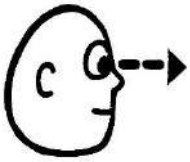
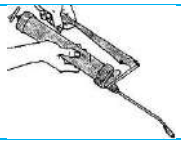
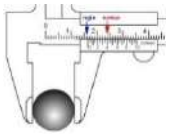
After reviewing all the checkpoints listed, and solved any problem, the machine can be used safely.

### 5.2. Periodic maintenance schedule

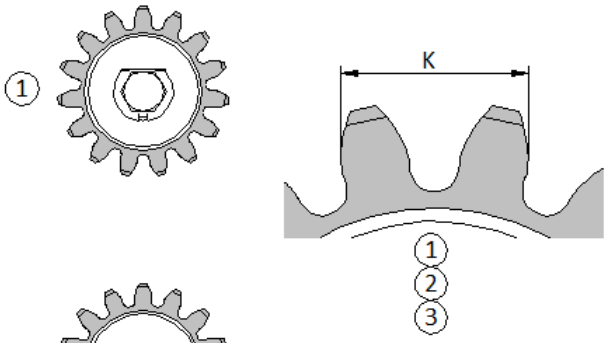
**WARNING:**
**IN CASE OF ELECTRICAL MALFUNCTION IN THE HOIST, DO NOT HANDLE ELECTRICAL EQUIPMENT. MAINTENANCE AND INSPECTION OF THE HOIST ONLY MUST BE PERFORMED BY AUTHORIZED PERSONNEL.**

Maintenance of the lift must be performed by the staff responsible for the machine and the results must be recorded on the MAINTENANCE RECORD.

**MAINTENANCE TASKS SCHEDULE**

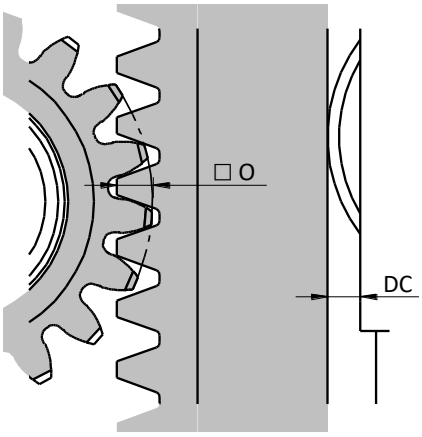
| | OPERATION | ELEMENT | TOOL | PERIODICITY |
|---|---|---|---|---|
| 1 |  | • FIXING BOLTS CAGE-CHASSIS (CHECKING).<br>• ENDTRACK CAMS.<br>• MAST SENSOR (CHECK GAP: ±5 mm.).<br>• MOTORGEAR OIL LEVEL.<br>• GATE MICROSWITCH<br>• LOAD CELL (CHECK FUNTION)<br>• SWITCHBOARD LIGHTS ANS BUTTONS.<br>• MAST TUBES (WEAR OR WELDING FAILURE).<br>• GUIDE ROLLERS RETAINING RINGS.<br>• MOTOR BRAKE RECTIFIER (CHECK FUNCTION)<br>• COMMUNICATION CABLE (INSPECTION)<br>• GUIDE ROLLERS (INSPECTION).<br>• ANCHORAGE (CHECK INTERFERENCE OR LOOSENING)<br>• BASE BUFFERS (INSPECTION)<br>• GRASE LEVEL OF AUTOMATIC GREASER (OPC.) | - | 40 h WORK (ONCE A MONTH) |
| 2 |  | • MAST RACK<br>• GEARMOTOR PINION.<br>• PARACHUTE PINION. | LITHIC GREASE | 40 h WORK (ONCE A MONTH) |
| 3 |  | • CAGE GUIDE ROLLER ROCKER | LITHIC GREASE | 40 h WORK (ONCE A MONTH) |
| 4 |  | • MAST SCREWS.<br>• GUIDE ROLLERS SCREWS.<br>• BASEFRAME TO GROUND SCREWS.<br>• ANCHORAGE TO SUPPORTING STRUCTURE SCREWS<br>• GATE FOLDING SYSTEM SCREWS | SPANNER | QUARTERLY (4 TIMES/YEAR) |
| 5 |  | • ROLLER GUIDE DIMENSION CHECKING<br>• MAST RACK DIMENSION CHECKING<br>• GEARMOTOR PINION CHECKINGS<br>• BRAKE MOTOR CHECKING | CALIBER<br>CALIBER MICROMETER GAUGES | ANNUAL (OR AFTER DISMANTLIING) |
| 6 | **GENERAL REV.** (AFTER DISMANTLING OR PROLONGED NON-USE PERIOD)) | 1. DEFORMATION OR DAMAGE ON MASTS, ANCHOR, GATES, HANDRAILS, FLOOR…<br>2. GEARMOTOR AND BRAKE INSPECTION (Rectifier, Voltage & Coil resistance) | | |

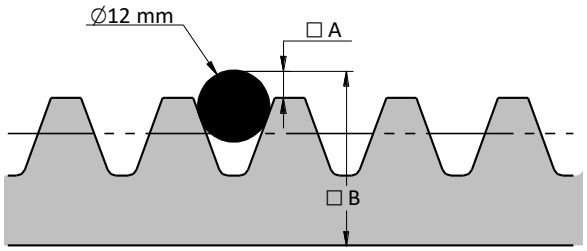
## MECHANICAL CHECKING DIAGRAM




| CONTROL DISTANCE K mm [inch] | | |
|---|---|---|
| | Nom. | Min. |
| PINION 1 - Z15 | 27,82 [1.095] | **25 [0.98]** |
| PINION 2 - Z15 | 27,82 [1.095] | **25 [0.98]** |
| PINION 3 - Z15 | 27,82 [1.095] | **25 [0.98]** |

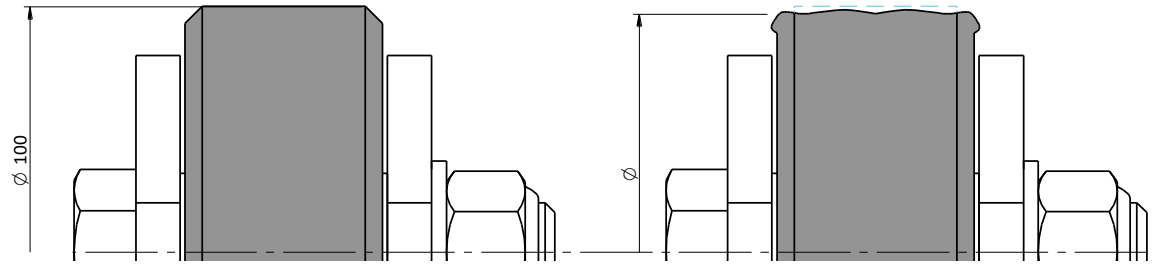
| OVERLAP mm [inch] | | |
|---|---|---|
| | Nom. | Min. |
| □ O | 11 [*0.43*] | **8 [*0.31*]** |
| DC | 10 [*0.39*] | **5 [*0.196*]** |

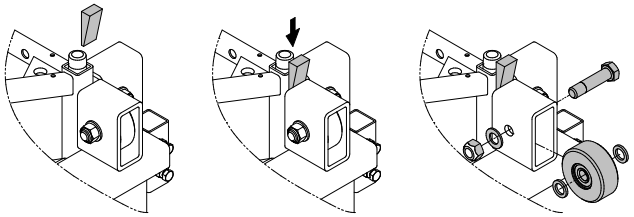



| CONTROL DISTANCE □ mm [inch] | | |
|---|---|---|
| | Nom. | Min. |
| □ A | 4,6 [*0,18*] | **3,4 [*0,13*]** |
| □ B | 29,6 [*1,16*] | **28,4 [*1,12*]** |

## CHECKINGS FOR RACK AND PINION



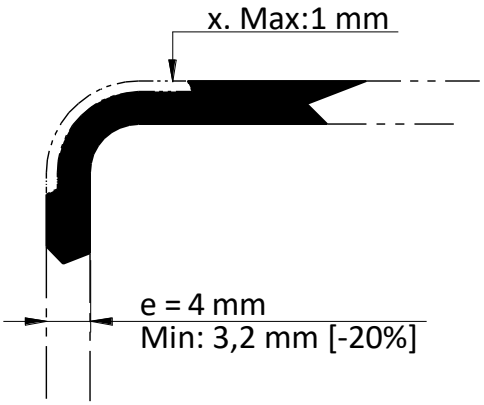



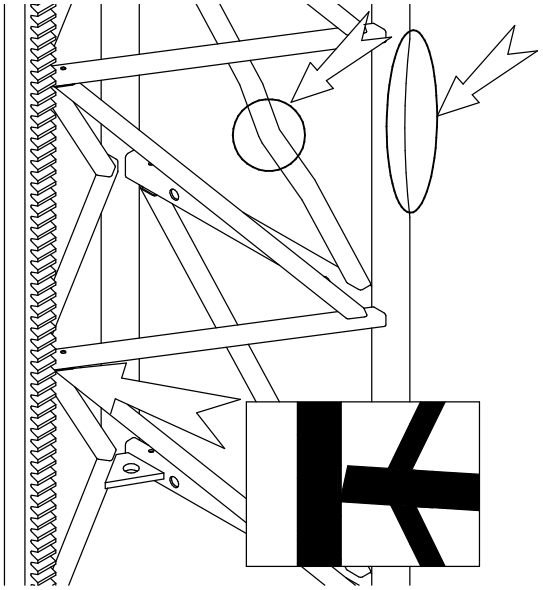
| CONTROL MEASURES mm [inch] | | |
|---|---|---|
| | Nom. | Min. |
| Ø | Ø100 [*3,93*] | **Ø97 [*3,81*]** |

## DISMANTLING ROLLER GUIDE PROCEDURE

**ATENTION:**

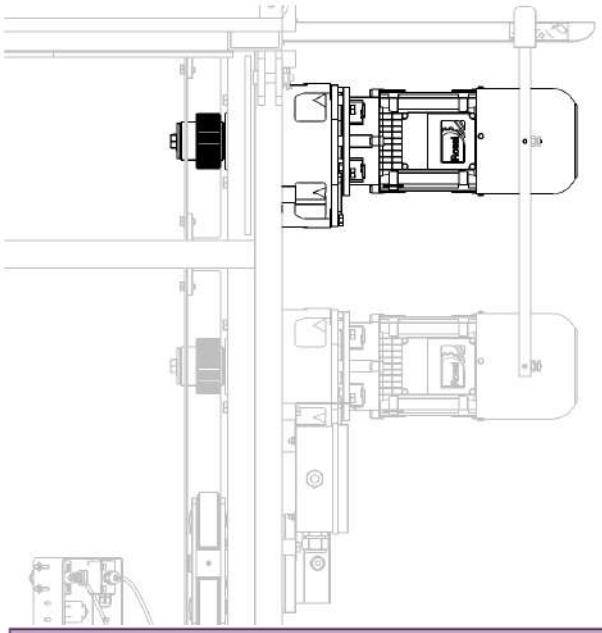
**ENSURE ROLLER'S WEAR IS UNIFORM ALONG THE CONTACT'S CIRCUNFERENCE**

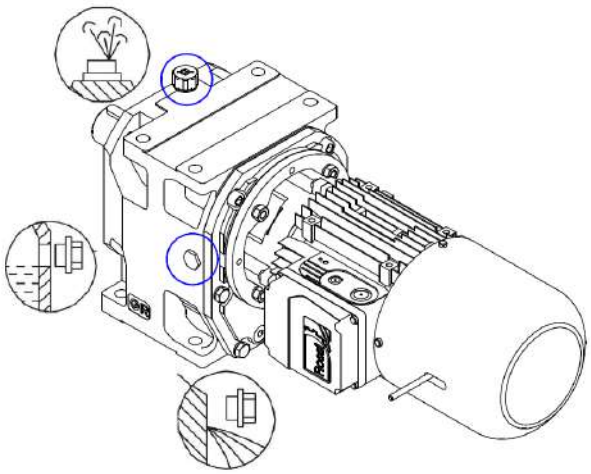


**CHECKINGS FOR MAST WEAR**

**ATENTION:**
**CHECK FOR POSSIBLE DAMAGES AND EXCESSIVE WEAR ON MASTS BEFORE AND AFTER ERECTION TAKEN INTO ACCOUNT PERIODICITY INDICATED**





OIL PLUGS POSITION

| Properties | | | Method | Shell Omala S4 GXV 220 |
|---|---|---|---|---|
| Kinematic Viscosity | @40°C | $mm^2/s$ | ASTM D445 | 220 |
| Kinematic Viscosity | @100°C | $mm^2/s$ | ASTM D445 | 30 |
| Viscosity Index | | | ASTM D2270 | 171 |
| Flash Point (COC) | | °C minimum | ASTM D92 | 240 |
| Pour Point | | °C | ASTM D97 | -42 |
| Density | @15°C | $kg/m^3$ | ASTM D4052 | 864 |
| Four Ball EP Weld load | | kg minimum | ASTM D2783 | 250 |
| FZG Load Carrying Test | | failure load stage minimum | A/8,3/90 | 14 |

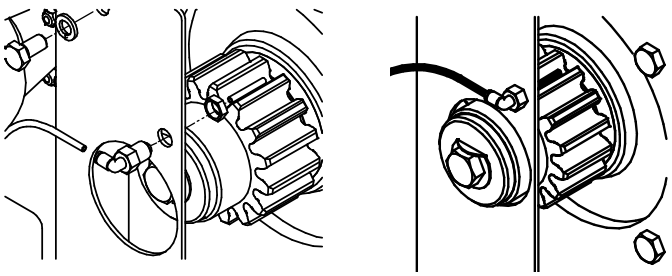
**MOTOR GEAR MAINTENENACE**

**IMPORTANT:**
**MOTOR GEARS ARE INSTALLED FILLED OF 220 SYTHETIC OIL FOR ITS LIFE-TIME LUBRICATION, IN ABSENCE OF EXTERIOR CONTAMINATION. REPLACE THE OIL IF NECESSARY. REPLACE WITH OIL ACCORDING TO THE GRADE INDICATED.**

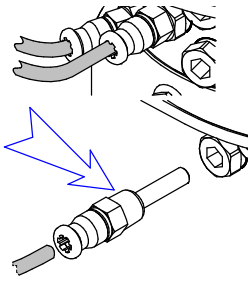
**IMPORTANT:**
**MOTORGEAR OIL IS GOOD TO USE IN RANGE 0°C < Tª < 40°C (32°F < Tª < 104 °F) WITH PEAKS -20°C < Tª < 50 °C (-4°F < Tª < 122°F). REPLACE OIL COMPLETELY. DO NOT MIX DIFFERENT OILS.**

**AUTOMATIC GREASING SYSTEM (OPT)**


**AUTOMATIC GREASING CENTER**



**PINION GREASING POINTS POSITION**



**GREASING FLOW DISTRIBUTOR**

| GREASING SYSTEM TECHNICAL FEATURES | | |
|---|---|---|
| Grease TYPE | Lithium grease | |
| Types of grease allowed: | NLGI | ASTM |
| Very soft | 0 | 355 – 385 |
| Medium soft | 1 | 310 – 340 |
| Medium (Recomended) | **2** | **265 - 295** |
| Tank capacity: | 0,5 l. | |
| Lubrication speed: | 2x12 gr/h. | |
| Tank life: | ~ 70 h. (Hoist working) | |



**CONTROL LOCKED (PRESS ⇑⇓ TO UNLOCK)**

**YELLOW – GREASING PUMP WORKING**

**RED – GREASING MOTOR BLOCKED**

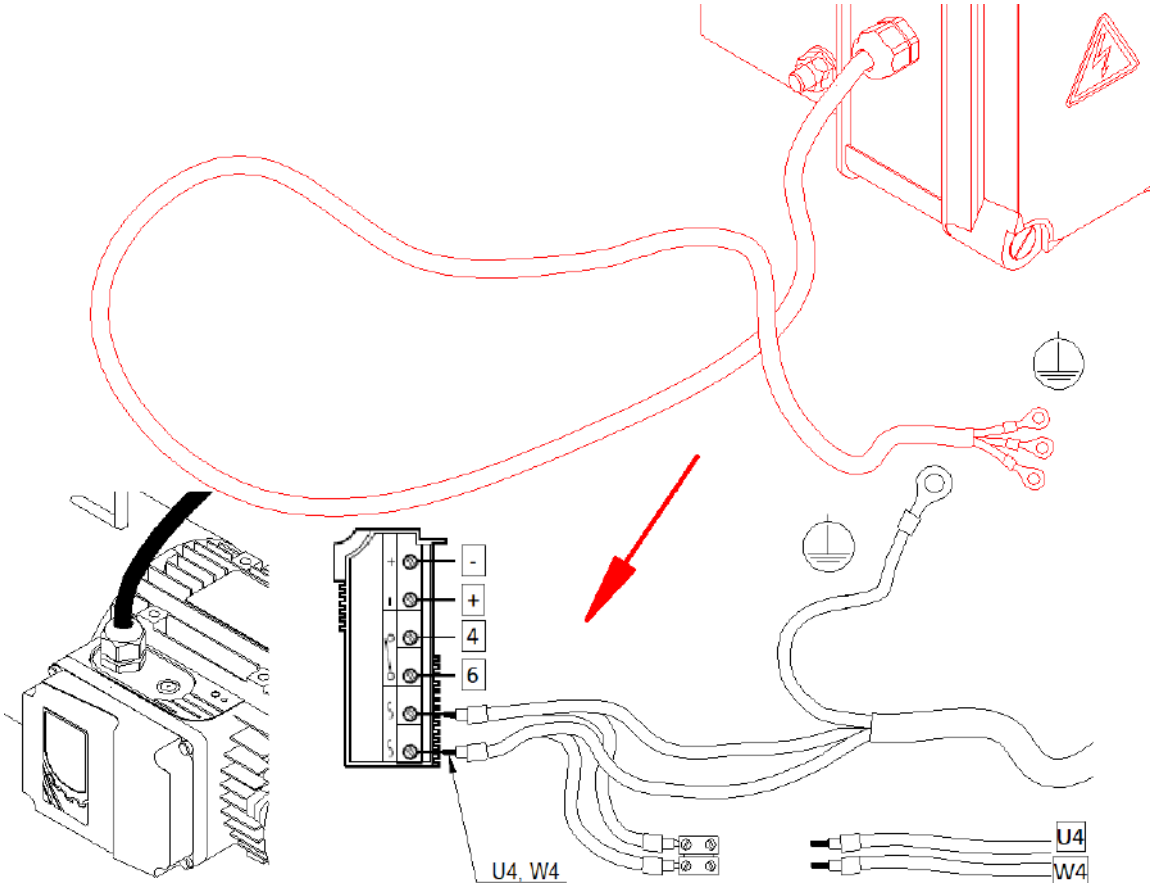
**RED – MIN. GREASE TANK LEVEL**

**RED – VOLTAGE UNDER MIN. LEVEL**

**CANCEL ALARM / GREASING EXTRA CYCLE**

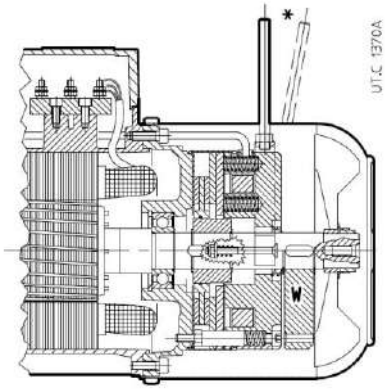
**INCREASE OR REDUCE GREASING FREQ. /CYCLE. SIMULTANEUNS PRESS. – LOCK CONTROL**

**GREASING UNIT CONTROL CONSOLE**

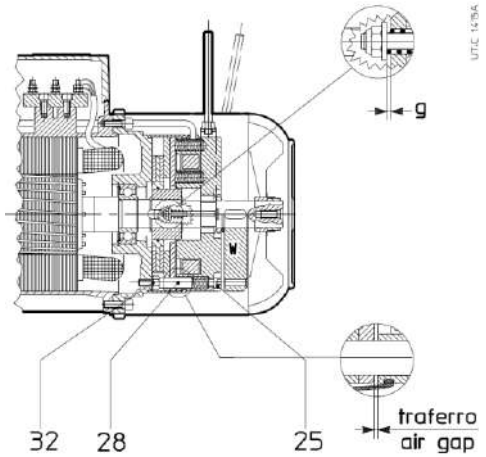


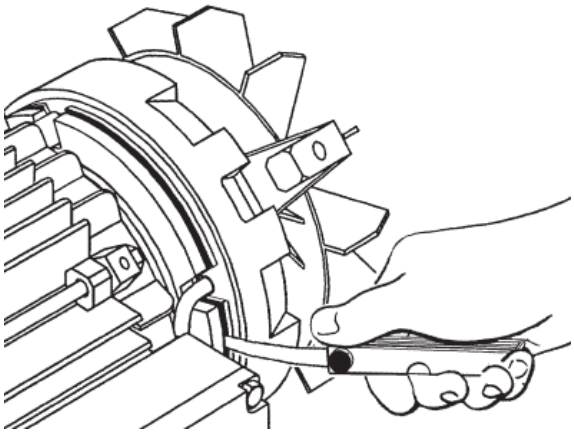

**ELECTRIC CONNECTION OF GREASIG SYSTEM (PT-1200/1000F-2V)**

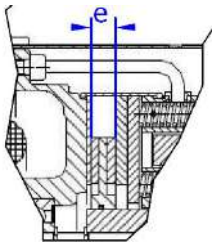
## INSTRUCTION FOR MAINTENANCE OF ELECTRIC MOTOR-BRAKE



**MOTOR BRAKE WITH D.C. BRAKE AND MANUAL RELEASE LEVER**






| CONTROL MEASURES mm/[inch] | | | |
|---|---|---|---|
| | Nom. | Max. | Min. |
| Air gap | - | 0,45 [*0.017*] | 0,30 [*0.011*] |
| Brake disc thick.(e) | - | - | 7 [*0.27*] |
| Lever play (g) | 0,6 [*0.023*] | - | - |

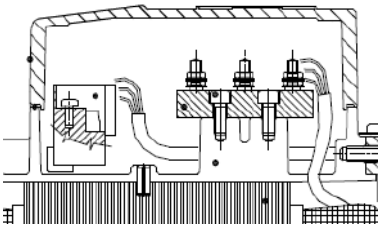
**BRAKE DISC ADJUSTMENT**

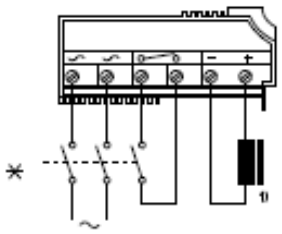
**IMPORTANT:**
**AIR GAP HIGHER THAN THE MAXIMUN VALUE MAY AFFECT BRAKE TORQUE. CHECK PERIODICALLY AIR GAP AND BRAKE DISC THICKNESS.**

**BRAKE ADJUSTMENT PROCEDURE:**

1. Unlock nuts **No.32**, located on 3 positions spaced 120°
2. Tight fixation bolts **No.25** [in case of flywheel, act through the available holes] up to reach the minimum airgap measured in 3 positions spaced 120° with feeler gauges, as close as possible to guides **No.28**.
3. Tight nuts **No.32** keeping same position of fixation bolts **No.25**.
4. Check final airgap and compare with values indicated on table.

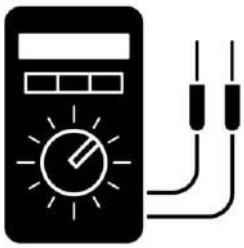
**IMPORTANT:**
**AFTER SEVERAL AIR GAP ADJUSTMENTS, VERIFY THE BRAKE THICKNESS (e) IS NOT LOWER THAN MINIMUN INDICATED ON TABLE. REPLACE IF NECESSARY**

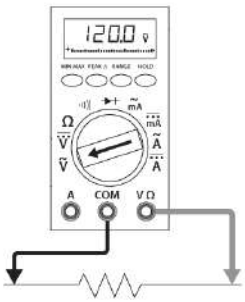


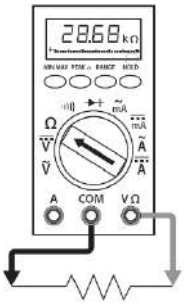


**BRAKE'S D.C. SUPPLY RECTIFIER**

| RECTIFIER CHECK TABLE | | |
|---|---|---|
| a) Vac power supply | ( ~ . ~ ) | 208 Vac |
| b) Vdc power output | ( - . + ) | 75 – 105 Vdc |
| c) Coil resistance (*) | ( - . + ) | ±250 Ω |







**a) ~.~ ; b) - . +** **c) Ω**

**RECTIFIER CHECKING**

**IMPORTANT:**
**CHECK POWER INPUT/OUTPUT WITH HOITS UNDER MOVEMENTS TO ENSURE RECTIFIER FUNCTIONS. ATTENTION! ELECTRIC RISK.**

**IMPORTANT (*):**
**TO CHECK BRAKE COIL CONDITION, REMOVE SUPPLY CABLES FROM RECTIFIER (+, -) AND CHECK RESISTANCE READING ACCORDING TO PROCEDURE c). REPLACE IF NECESSARY.**

**IMPORTANT:**
**AFTER BRAKE ADJUSTMENT, CHECK RELEASE IF LEVER BAKCLASH (g) ALLOWS MANUAL BRAKE RELEASING PROPERLY. IF NECESARY, AMEND (g) VALUE ACCORDING TO TABLE ABOVE.**

Rossi — a company of the Rebesit group — www.rossi-group.com — IEC 60034-1 — IE1 — CE — made in Italy

MOT. 3~ N. 06202/11 01/11 — IP 55 — kg 9.2 — AMB. 40°C IC 411 — I.CL. F S 1 CONT.

HBZ 80B4 B5

| Freno Brake | Nm | V~ / Hz | A | V ⎓ |
|---|---|---|---|---|
| BZ04 | 15 | 110÷480/50÷60 | 0,11 | RM1 103 |

Esecuzione / Execution

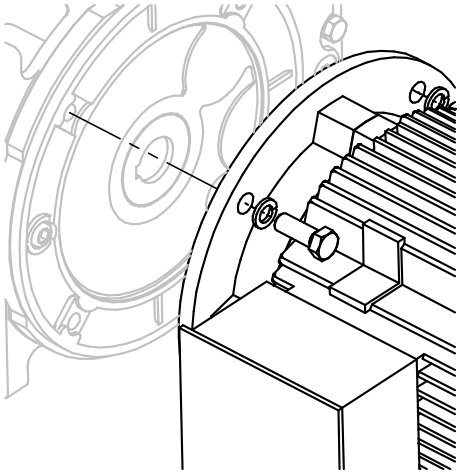
| Δ V Y | Hz | A | kW | min⁻¹ | cos φ |
|---|---|---|---|---|---|
| 230 / 400 | 50 | 3.3 / 1.9 | 0.75 | 1400 | 0,72 |
| 265 / 460 | 60 | 3.3 / 1.9 | 0.75 SF1.15 | 1690 | 0,68 |

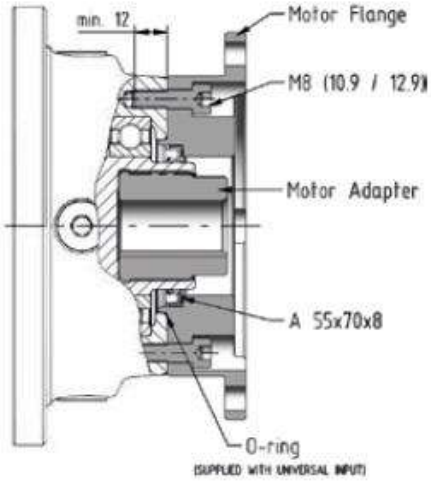
50Hz IE1 74,7(100%) 74,2(75%) 70,5(50%)

60Hz NEMA NOM.EFF. 78,5% 1HP DES.C CODE K

**MOTOR PLATE EXAMPLE TO SPARE PART REQUESTING**

**GEARMOTOR – ELECTRIC MOTOR SUBSTITUTION**






1. Clean motor and gearbox surfaces to be fitting thoroughly.
2. Mount the parallel key on the motor axel and perform coupling to gearbox hole carefully.
1. Fit the motor flange to gearbox flange with screws and nuts.

**PREVENTIVE MAINTENANCE OF MOTOR AND ELECTRIC BRAKE:**

- Keep external surfaces free from oil, dust and machining residuals.
- Keep free all air cooling circuits (housing, air input).
- Check that electric connections are fitted properly.
- Check the correct tightness of the motor and see that there are no leaks in the seals.
- Check that motor run is free from vibrations and anomalous noises.

**ATTENTION:**
**TO ORDER SPARE PARTS FOR THE MOTOR OR ELECTRIC BRAKE, IT IS NECESSARY TO REFER TO THE MOTOR PLATE INFORMATION.**
**THAT WAY, SPARE PART SUPPLY ERRORS ARE AVOIDED.**

**INFORMATION:**
**IF YOU REQUIRE TECHNICAL ASSISTANCE FOR GEARMOTOR, YOU CAN CONTACT THE MANUFACTURER, OR THE SERVICE MOTOR MANUFACTURER IN EACH COUNTRY. SEE CONTACT POINTS: http://www.rossi-group.com**

**ATENTION:**
**CHECK IF HOIST IS CONNECTED TO A POWER SUPPLY EQUIPED WITH DIFFERENTIAL PROTECTION 300mA.**

### 5.3. Instructions for troubleshooting.

| GEARMOTOR | | |
|---|---|---|
| **Problem** | **Probable cause** | **Solution** |
| Motor doesn´t work | Supply line fault | Check 3-phase electric supply |
| | Motor box connection fault | Check motor connection |
| | Brake doesn´t work | Check brake s/section. 5.2 |
| | Motor internal fault | Ask the manufacturer |
| Motor can´t raise rated load | Motor connection problem | Check motor connection |
| | Insufficient voltage supply | Check supply line |
| | Supply voltage drop | Check supply cross section wire |
| Motor overheats | Motor connection error | Check motor connection |
| | Motor locked | Check brake s/section. 5.2 |
| | Voltage supply error | Check supply line |
| | Fan covers obstructed | Release air passage to the fan |
| | Insufficient ventilation air flow | Check for obstacles to ventilation |
| | Brake doesn´t work | Check brake s/section. 5.2 |
| Excessive current consumption | Brake locked | Check brake s/section. 5.2 |
| | Motor coil damage | Ask the manufacturer |
| Motor brake doesn´t release | Brake connection fault | Check motor connections |
| | Rectifier damaged | Check the rectifier s/section. 5.2 |
| | Excessive brake airgap | Check air-gap s/section. 5.2 |
| | Brake coil damaged | Check brake coil s/section. 5.2 |
| Brake doesn´t hold the load | Excessive brake airgap | Check brake coil s/section. 5.2 |
| | Brake coil damaged | Ask the manufacturer |
| | Excessive brake disk wear | Replace brake disk |
| Excessive brake noise | Excessive airgap | Check air-gap s/section. 5.2 |
| **GENERAL** | | |
| Hoist doesn´t run (OUT OF SERVICE RED LIGHT ON) | There´s safety device activated | Check emergencies stop buttons (SE), or safety end track microswitches FCSG. |
| | Frequency converter error | Check frequency converter status. |
| | E1 fault | Check electric diagrams. Rearm E1 |
| | Phase error | Change supply phase connection |
| Hoist moves doing abnormal noise or it doesn´t smoothly. | Guide roller damaged. | Check and change guide rollers. |
| | Lack of grease in pinion. | Check the bearings and change if required. |
| | Lack of grease in rack | Apply grease in pinion and rack. |
| Hoist slides down when charging loads | Problem or brake wear. | Check brake coil s/section. 5.2 |
| | Overload on the cage | Remove overload |
| Hoist doesn´t stop in upper/lower limits, or at landing gates | Problem with magnetic sensors | Check encoder and Magnetic Ring |
| | Problem with end track limit switches | Check end track limit switches |
| Hoist doesn´t stop on 2 m point | Problem with 2 m. switch or cam. | Check 2 m. end track switch and cam. |
| E3 or E4 fault | Problem in control transformers | Check / Replace transformer |
| E2 fault | Hand tool socket excessive consumption | Check hand tools socket connection |
| E5 fault | Brake supply rectifier fault | Check the rectifier s/section. 5.2 |
| Hoist stops suddenly | Overload | Check the load on the cage. |
| | Power supply failure | Check electrical connection. |
| | Gate open | Check landing gates and cage gates. |
| The cage of the hoist vibrates abnormal. | Non tightened screws. | Check guide roller s/section. 5.2 |
| | Rack or pinion wear problem. | Check rack and pinion gear. |
| | Lack of lubrication. | Lubricate rack and pinion. |
| | Mast tube tubes wear problem. | Check mast for tube wear. |
| Gearmotor sounds abnormally | Lack of oil on the motor box. | Check oil level and oil leaks |
| | Gearbox bearing failure | Ask the manufacturer |
| Hoists suffer stop when moving | Communication cable damaged. | Check communication cable. |
| | End track or gate switches unadjusted. | Check the end track limit switches position. |
| Hoist can´t raise rated load. | Cross section wires inadequate. | Check supply wire |
| | Motor brake damaged. | Check brake s/section. 5.2 |
| | Supply voltage inadequate. | Check voltage supply |
| Hoist doesn´t move up or down. | LED panel indication | Check indications |
| | Cage or landing gate incorrectly closed | Check the cage / landing gates. |

### 5.4. Maintenance record.

According to the procedure specified in the user´s manual, the person responsible for maintenance of the hoist should fill this table according to the frequency indicated, for the record of scheduled tasks.

| No. | DATE | TASK DESCRIPTION | NAME | SIGNATURE |
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| No. | DATE | TASK DESCRIPTION | NAME | SIGNATURE |
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### 5.5. Trouble record

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
|---|---|---|---|---|---|
| Code | Denomination | Quantity | Code | Denomination | Quantity |
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ALBA authorized technical person

User

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Place .....

Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
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ALBA authorized technical person

User

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Place .....

Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
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| Code | Denomination | Quantity | Code | Denomination | Quantity |
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ALBA authorized technical person User

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Place ..... Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
|---|---|---|---|---|---|
| Code | Denomination | Quantity | Code | Denomination | Quantity |
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ALBA authorized technical person User

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Place ..... Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
|---|---|---|---|---|---|
| Code | Denomination | Quantity | Code | Denomination | Quantity |
| | | | | | |
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ALBA authorized technical person

User

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Place .....

Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
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| Code | Denomination | Quantity | Code | Denomination | Quantity |
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ALBA authorised technical person

User

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Place .....

Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
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ALBA authorized technical person

User

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Place .....

Date.....

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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| PARTS TO CHANGE | | | | | |
|---|---|---|---|---|---|
| Code | Denomination | Quantity | Code | Denomination | Quantity |
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ALBA authorized technical person

User

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Place .....

Date.....