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RACK & PINION TRANSPORT PLATFORM

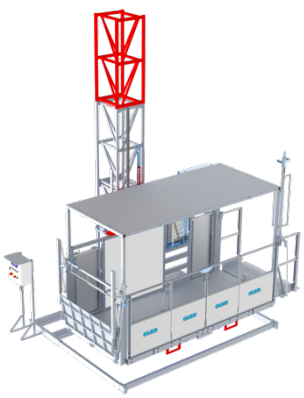
PT 2000F-BEE

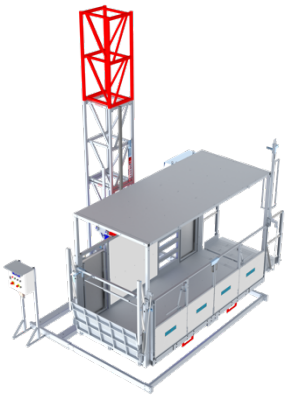
USER GUIDE

- INSTALLATION, USE & MAINTENANCE INSTRUCTIONS
- SPARE PARTS LIST

ANSI American National Standards Institute

ENGLISH COPY





Machine No.: .....

Model: .....

Year of manufacture: .....

Electric connection:
- ☐ 400 V 50 Hz
- ☐ ..... V 60 Hz
- ☐ .....

KEEP THIS GUIDE FOR FUTURE REFERENCE

INDEX

The user´s manual must be kept in good condition. This document contains 76 pages.
ALBA MACREL GROUP, S.L. 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.02: Nov. 2024

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 transport platform and its purpose is to give instructions for proper handling during transportation, erection and maintenance, in compliance with the provisions of ANSI/SAIA A92.10. These instructions 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, AMG commits to immediately adapt the manual to the improvements.

Responsibility:

AMG declines any responsibility for damages caused by improper use of the machine as a consequence of non-compliance with the provisions of the present Manual. AMG declines any responsibility for damages 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 authorisation from the manufacturer.
- Handling by personnel not trained for this purpose.

Only appointed 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 conditions, keeping always a copy close to the machine is recommended.

In any case, the manual is aimed at knowledge strengthening 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.

1.2. 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 authorised personnel. Its main advantage is the ability to connect different building stories for lifting or lowering materials and persons 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 transsporting persons and loads**, in open car, travelling with a minimum gap of 0,46 m [*18 in*] from supporting struture, and vertical speed limited to 12 m/min [*40 ft/min*] When using for transport of persons, car control will be with "hold-to-run" pushbuttons. Car also can be used for **transporting loads**, with exterior control board (ground) and increased speed to 22 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 operation 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 mínimum, the training shall be the same as training requirements for scaffold as set oput I OSHA-CFR Subpart L, Scaffolds – 1926.454 – Training Requirements. 1

- For erection, dismantling, maintenance and repair tasks, only **competent and authorised 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.**

IMPORTANT NOTE:
IN ACCORDANCE WITH THE STANDARD ANSI/SAIA A92.10, BE EQUIPPED WITH A FALLING OBJECTS PROTECTIVE GUARD IS NOT COMPULSORY.
THE GUARD IS SUPPLIED WITH THE MACHINE, AND IT´S REMOVABLE FOR INSTALLATION AND MAINTENANCE TASK.
ONLY IF A SITE-SPECIFIC RISK ASSESSMENT INDICATES THAT THERE IS MINIMAL RISK OF OBJETS FALLING ON THE CAR, THE FALLING OBJETS MAY GUARD BE REMOVED. IT IS THE RESPONSIBILITY OF THE INSTALLER THE USE OF TRANSPORT PLATFORM WITHOUT PROTECTION GUARD.

1.3. Technical data.

TECHNICAL FEATURES:

Vertical speed:	12 ÷ 22 m/min [*40 ÷ 72 ft/min*]
Maximum capacity:	11 people 2.000Kg [*4,400 lb*]
Car dimensions (LxWxH):	3,3 x 1,4 x 2,1 m [*130 x 55 x 82 "*]
Motor control:	FREQUENCY CONVERTER
Maximum height (*):	250 m [*820 ft*]
Anchorage each (max.):	9 m [*30 ft*]
Height over las anchorage:	3 m [*10 ft*]
First anchorage height:	6 m [*20 ft*]
Loading height to ground	
With cable bin:	500 mm [*19.5"*]
With cable trolley:	800 mm [*31.5"*]
Mast:	M550
Lenght:	1,5 m [*4-11*]
Weight – 1 Rack:	98 Kg [*216 lb*]
Weight – 2 Rack:	118 Kg *[260 lb*]
Maximum load (assembly):	500 Kg [*1,100 lb*]
Standard regulations:	ANSI/SAIA A92.10

(*) Case of h > 150 m [*492 ft*], ask to manufacturer.

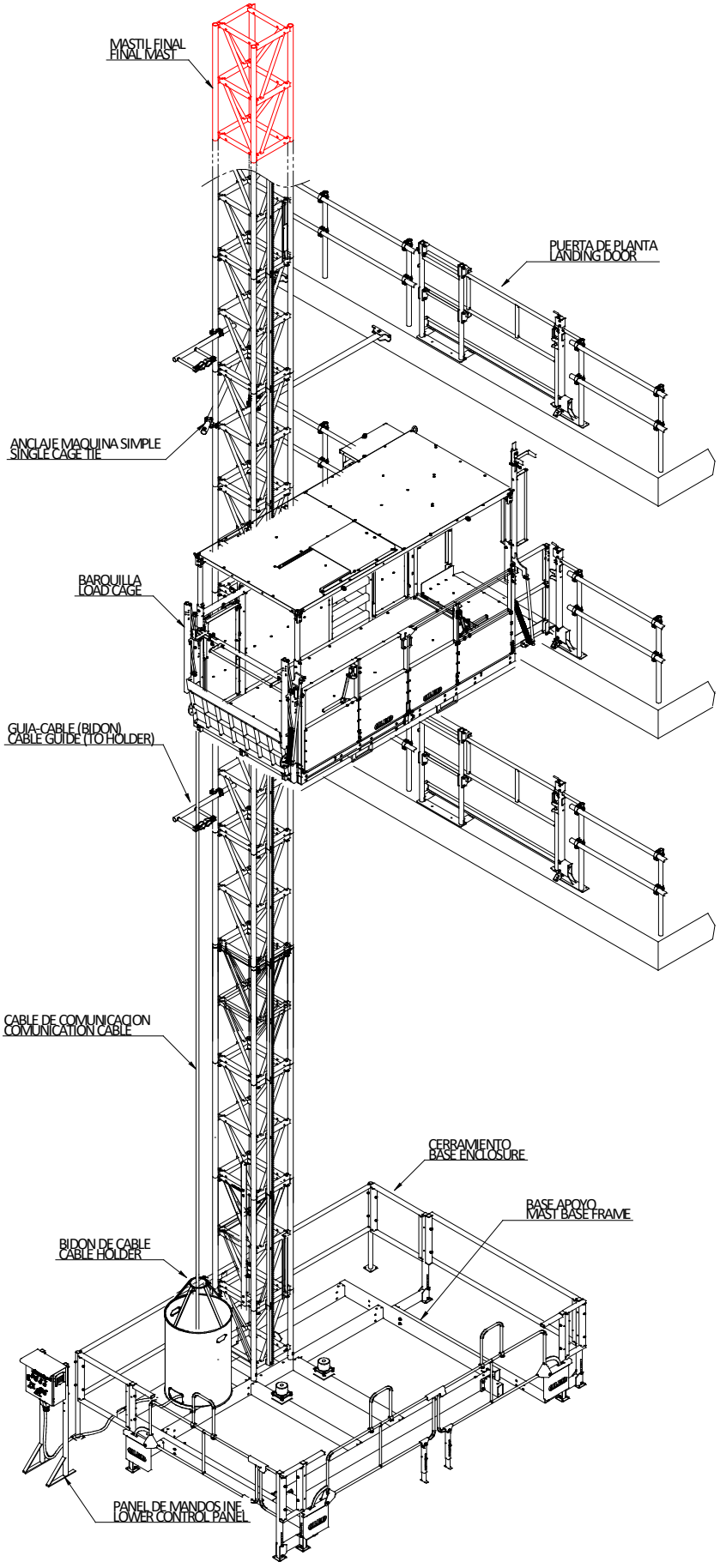
ELECTRICAL DATA:

Motor power:	2 x 5,5 KW
Input power connection:	380÷480 V – 50/60Hz
Power consuption:	18 KW
Nominal current:	32 A
Supply power:	30 KVA
Overload protection:	3 x 40 A
Differential protection:	
Calibre:	40 A
Sensitivity:	300 mA
Contorl voltage:	48 V
Auxiliary handtools socket:	120 V – 60 Hz, 10A
Cable section:	4 x 10 mm^2 / 4 x AWG 8

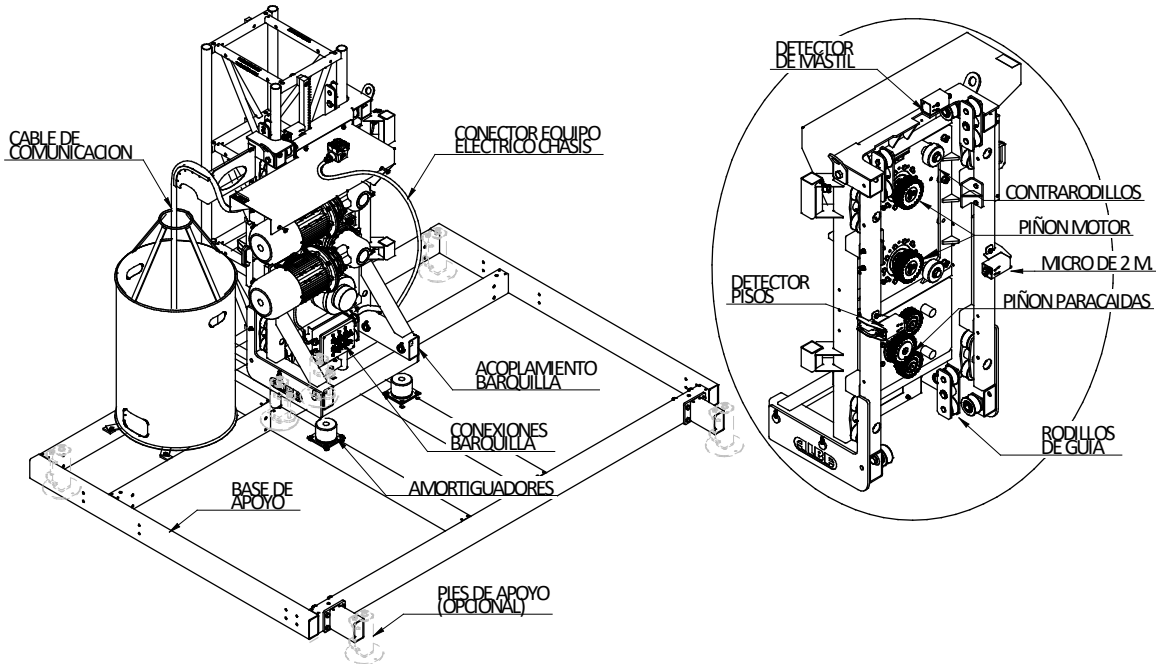
(*) Elements required on main feed switchboard

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

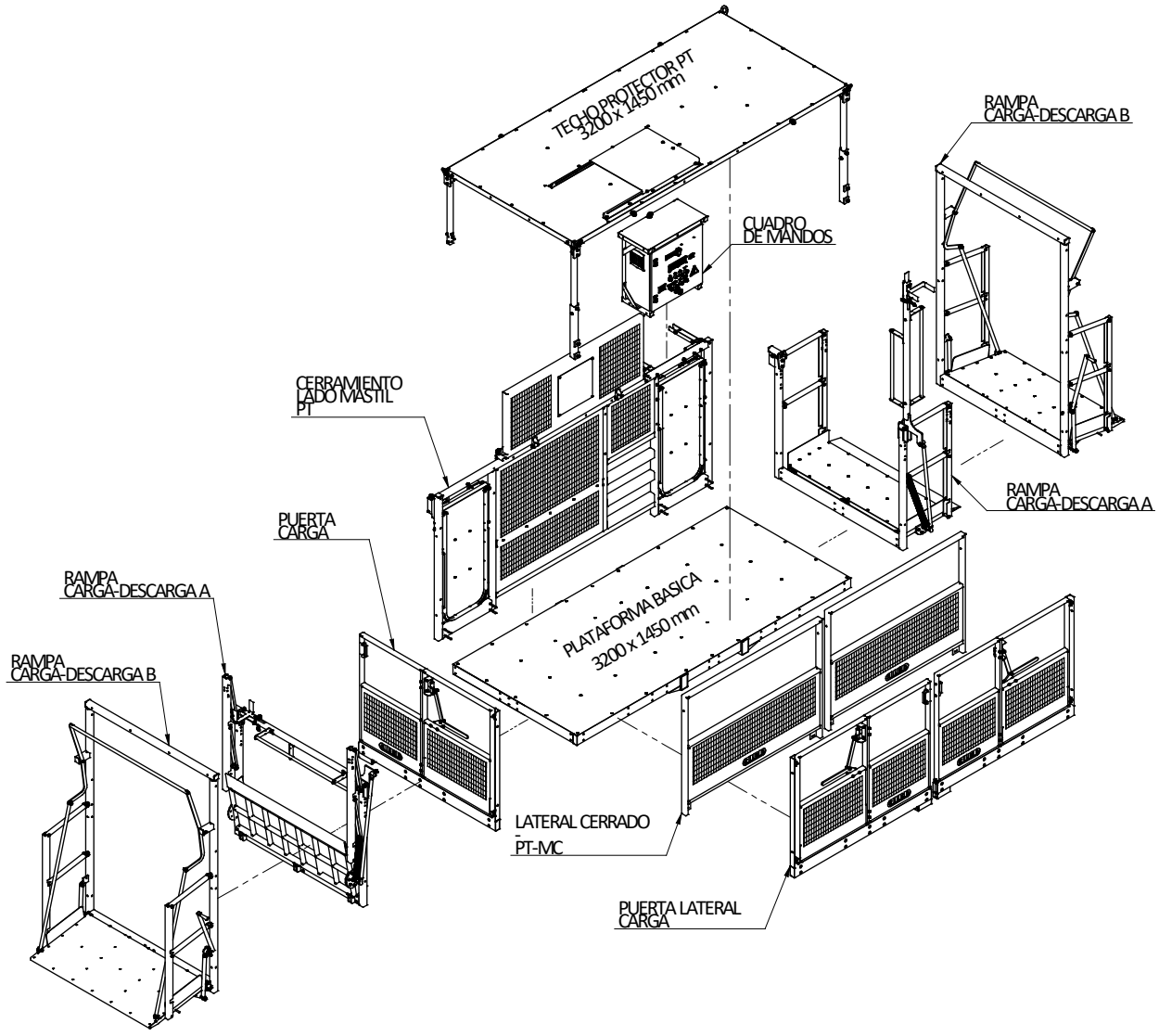
1.4. Main components.



BASE GROUP COMPONENTS:



CAR COMPONENTS:



- 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 cabin with the base. In the base of the machine, it´s also installed the electrical switchboard for electrical supply.

- MAST:
  Modular structure for the elevation of the machine. It consists of a modular square structure of 1,5 m [*4' 11* "]. The mast has a welded rack for the movement of the car over it. They are designed for his union by means of screws and for the anchorage to a vertical structure of support to suitable intervals.

- MOTOR GROUP:
  Structure that incorporates and the system of gearmotor system and provides the movement to the elevator. It incorporates both the motorgears and the safety systems to control the movements of the machine, the overload system, and the floor selector. It fits to the cabin by means of bolts.

- CAR:
  Metallic open structure for transporting persons and loads. It includes gates for the loading and unloading of the machine, and auxiliary catwalk for assembly operations, all of them equipped with safety switches. It also includes an auxiliary protection ceiling to avoid falling object over the car.

- TIE:
  System of mast anchorage to an external support structure. There are some different types, depending on the hoist, configuration, and the origin and type of external anchorage structure.

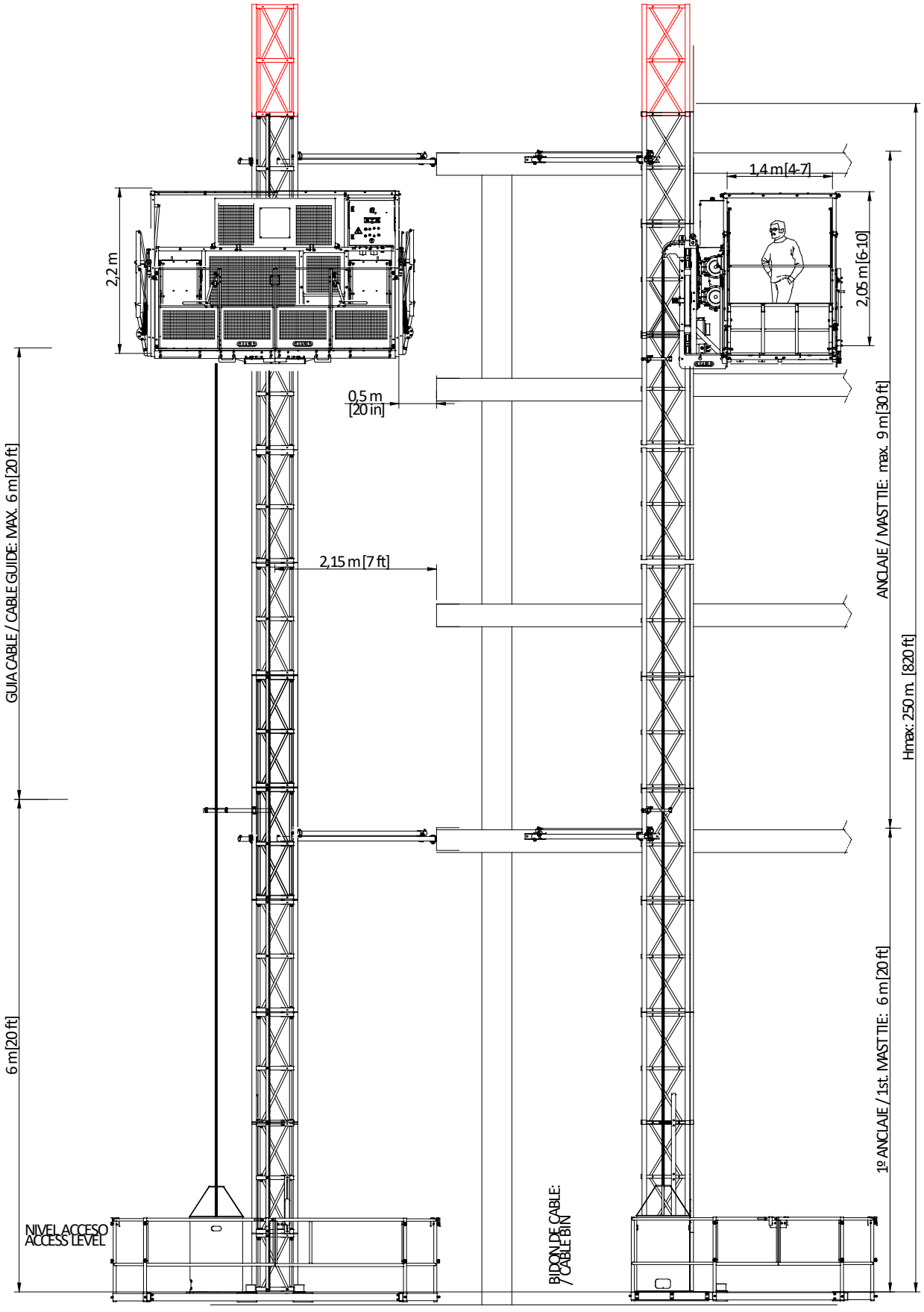
- POWER SWITCHBOARD:
  It contains the principal components of the electrical equipment of the machine, and communicates both the car control panel, and the control and power supply board on the ground, with proper connectors.

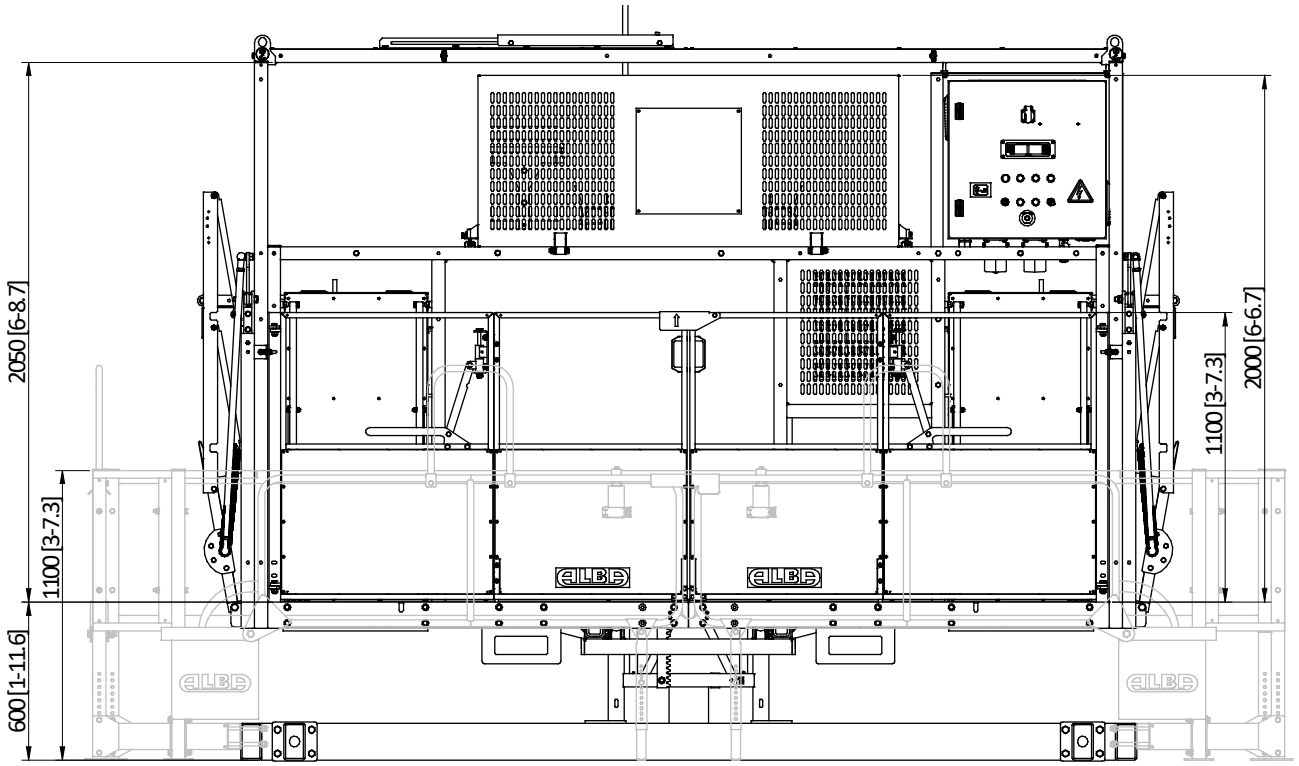
- CABLE DRUM / CABLE TROLLEY:
  Both are used to ensure the travel of communication cable when the hoist is travelling. Cable trolley option allows cable vertically aligned at any time. Cable drum stores the communication cable by coiling it. Cable drum is valid only for single car hoist, and h < 70 m [*230 ft*].

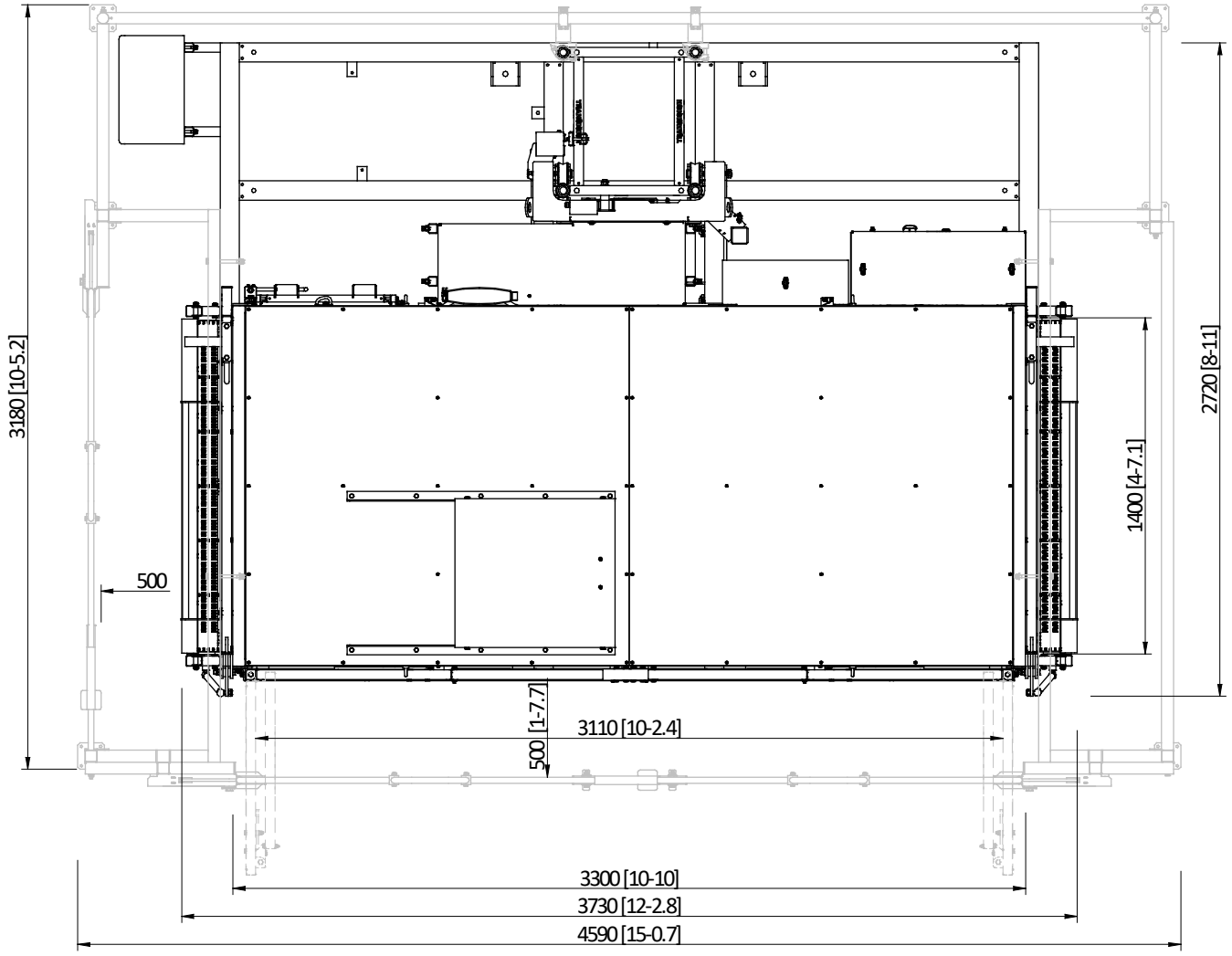
- CABLE GUIDES:
  They are used to keep the communication cable vertical and prevent that it may interfere with the movement of the elevator.

- FINAL MAST:
  Mast module without rack that is installed in the top limit of the column of masts. It prevents that the machine exceeds the top limit of the mast and its red colour allows immediate identification.

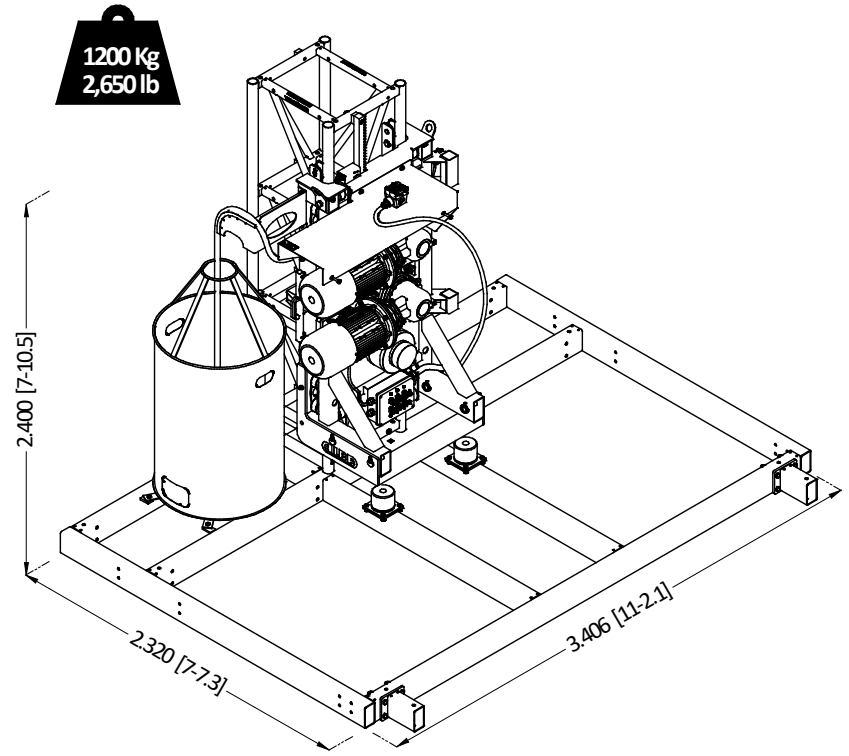
1.5. Main Dimensions.



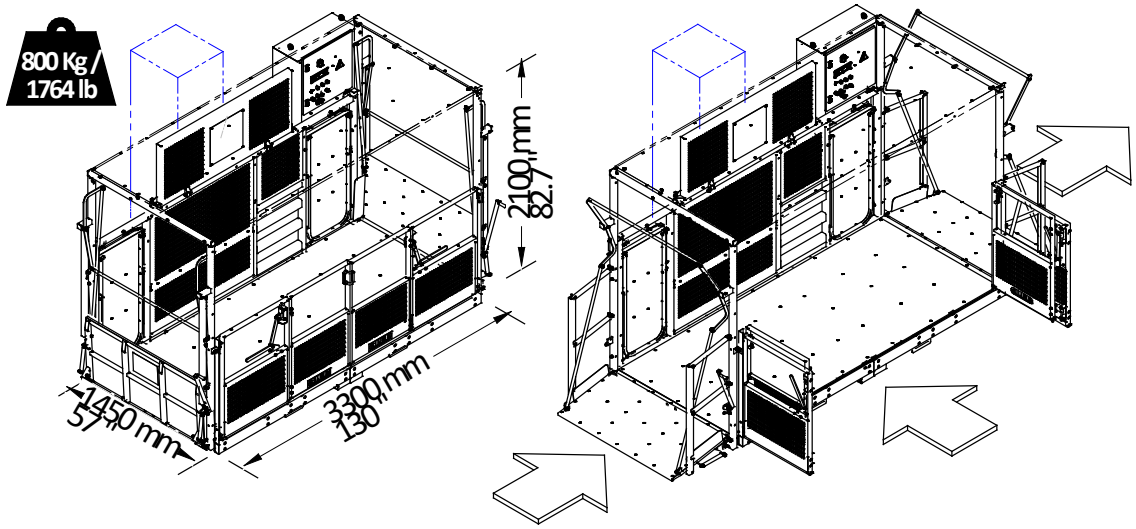

2050 [6-8.7]
1100 [3-7.3]
600 [1-11.6]
2000 [6-6.7]
1100 [3-7.3]


3180 [10-5.2]
500
500 [1-7.7]
3110 [10-2.4]
1400 [4-7.1]
2720 [8-11]
3300 [10-10]
3730 [12-2.8]
4590 [15-0.7]

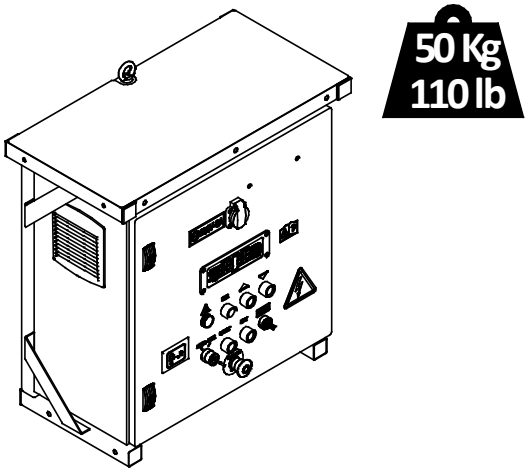
BASE MOTOR-GROUP:



CAR PT-1800FA (3 gates):



ELECTRIC CABINET:



1.6. Hoist safety devices.

a) Gearmotors with **electromagnetic brakes** (friction type) capable to brake speeds of 20 m/min [*65 ft/min*] (and even 25% overspeed) with a delay of 0.2 g. with maximum load.
b) Rubber buffers to damp eventual frame impacts against the base.
c) 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
d) Safety limit switch. Operate in case of failure of upper or lower limit switches
e) Mast presence detector, to be used mainly during mast erection.
f) Switches for opening the car gates, and for landing gates with mechanical interlocking device.
g) Landing gate with electrical and mechanical interlocking, to avoid gate opening unless the hoist is in front of landing gate, and the car ramp folded.
h) Limit switch to stop at 3 m [*9-10 ft*] elevation. Movement under-3 m [*9-10 ft*] with "hold-to-run"
i) **Manual Emergency lowering** in case of power failure (operated from the car).
j) **Safety device (Overspeed emergency brake -PARACHUTE-,** to control the lowering speed.
k) Base enclosure of 1,1 m [*3-7*] height, with a distance to any moving part of the hoist, at least 0,5 m [*1-11*], and switch to prevent car moving if enclosure gate is open.
l) Auxiliary catwalk for assembly, equiped with handrail and toeboard.
m) Car floor of non-slipping galvanized steel.
n) End mast (in red), without rack, to prevent the car from running off in case of failure of other systems.

1.7. Other hoist data.

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 and EN ISO 4871. **Note:** **Noise emission values and uncertainty represent un upper limit of the range in which the measured values are susceptible to be present.**	
Temperature range for use:	-15°C – 45°C [*5°F – 113°F*]
Relative humidity:	30 % – 90 %
Max. height for installation:	1000 m [*3,280 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 [*3200 ft*] height, and if the temperature exceeds 45° C [*113°F*], ask to manufacturer for limitations.

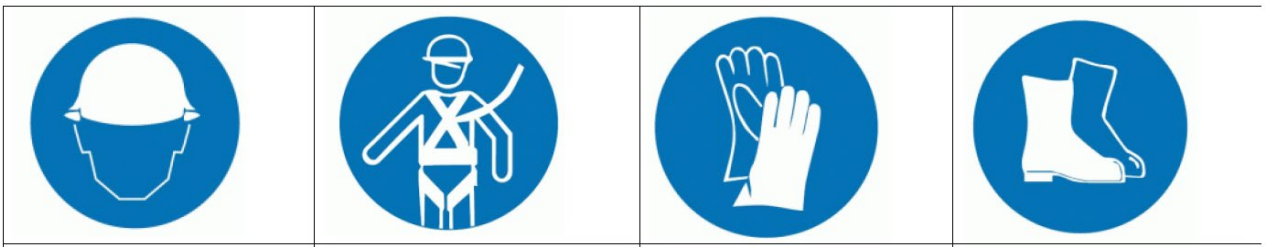
IN CASE OF NEED A SPECIAL CONFIGURATION OF MACHINE, OR MODIFICATION OF STANDARD FEATURES, ASK THE MANUFACTURER FOR DRAWINGS WITH SPECIFIC DIMENSIONS AND CHARACTERISTICS.

2. 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 HOIST SHALL BE USED PROTECTIVE EQUIPMENT AGAINST FALLS FROM HEIGHT, AND IN ANY CASE A PROTECTIVE HELMET FOR THE HEAD, PLUS ADDITIONAL MEANS OF PROTECTION DEFINED ON CONSTRUCTION SITE

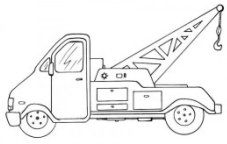


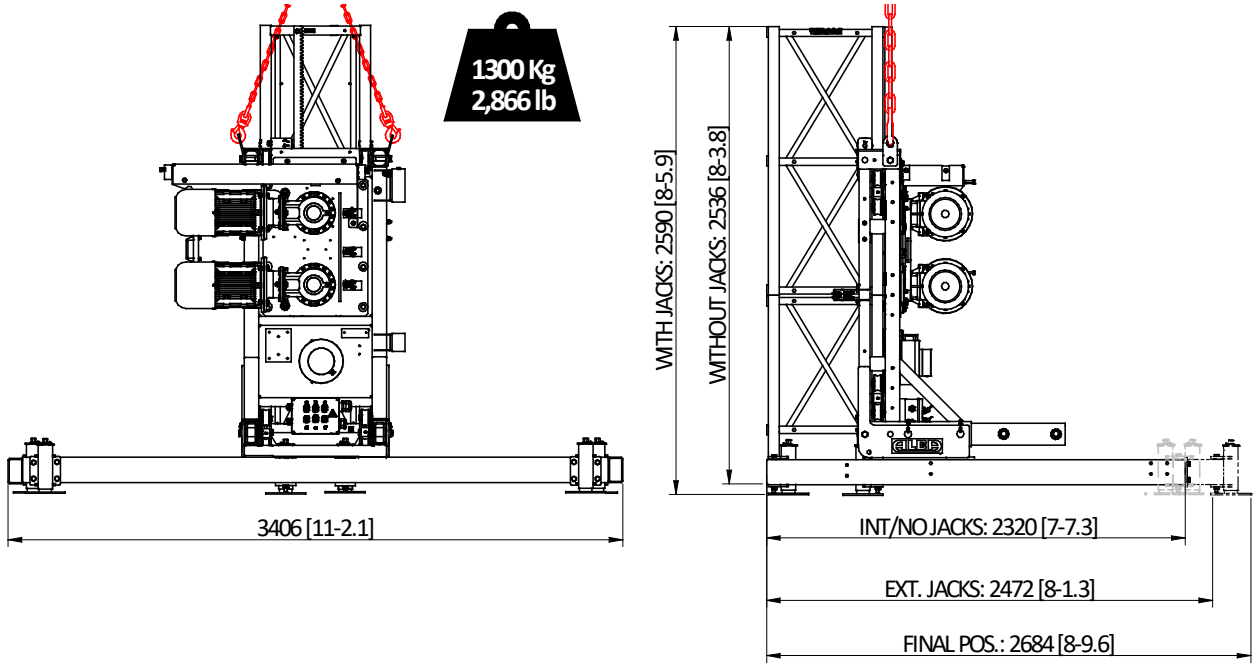
It is important to follow the instructions in detail, to avoid risks in the assembly and disassembly process. The user is obliged to observe, by himself, and for those working in the vicinity, all sources of additional risk, and to comply with all applicable safety standards for the type of equipment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

2.2. Hoist transport.

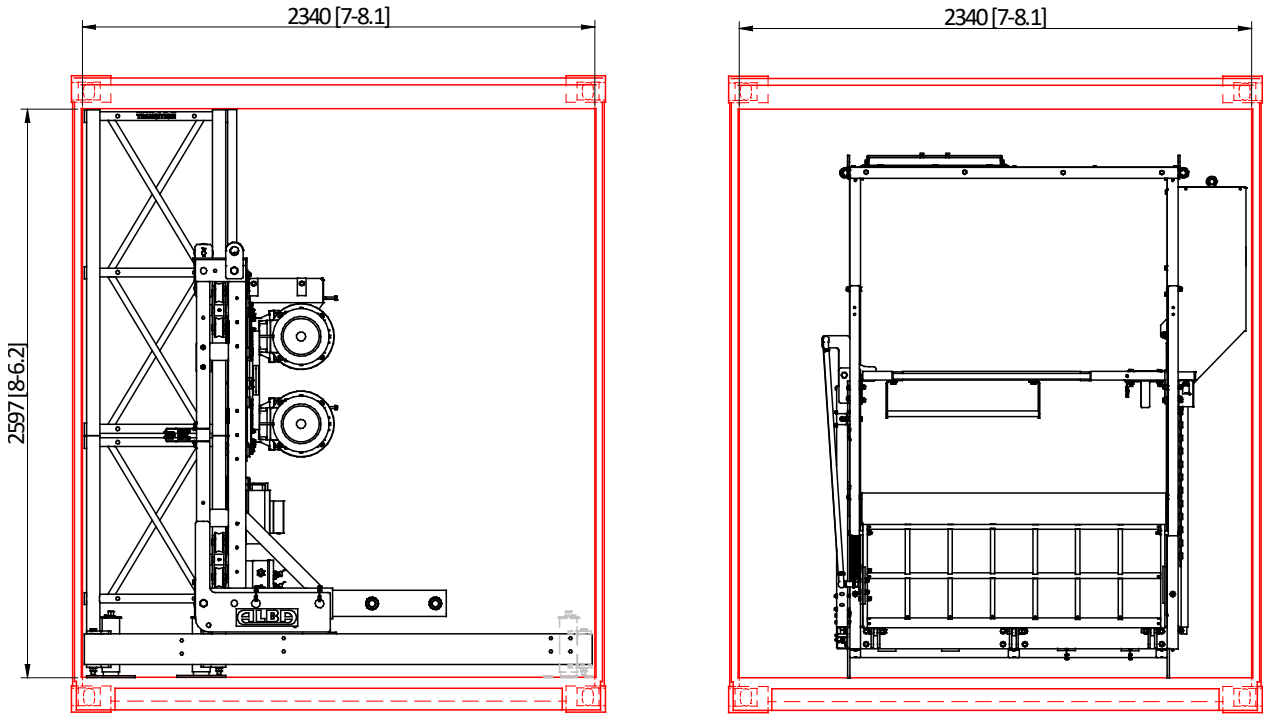
The elevator is supplied disassembled, unless specifically indicated otherwise. For assembly of the components and safe handling of the base assembly and a correct positioning on the ground using a crane is needed.

IMPORTANT:
FOR ASSEMBLY OF THE COMPONENTS AND MOUNTING THE PLATFORM IT WILL BE USED A CRANE-TRUCK, OR IF AVAILABLE, YOU CAN USE BUILDING CRANE-TOWER.

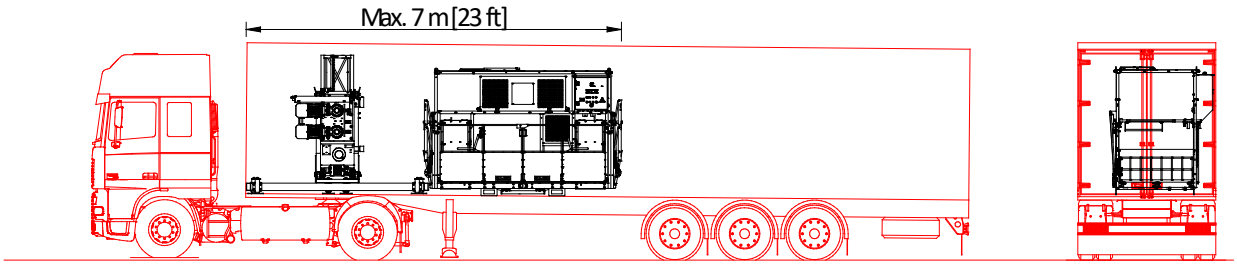




BASE GROUP MANIPULATION



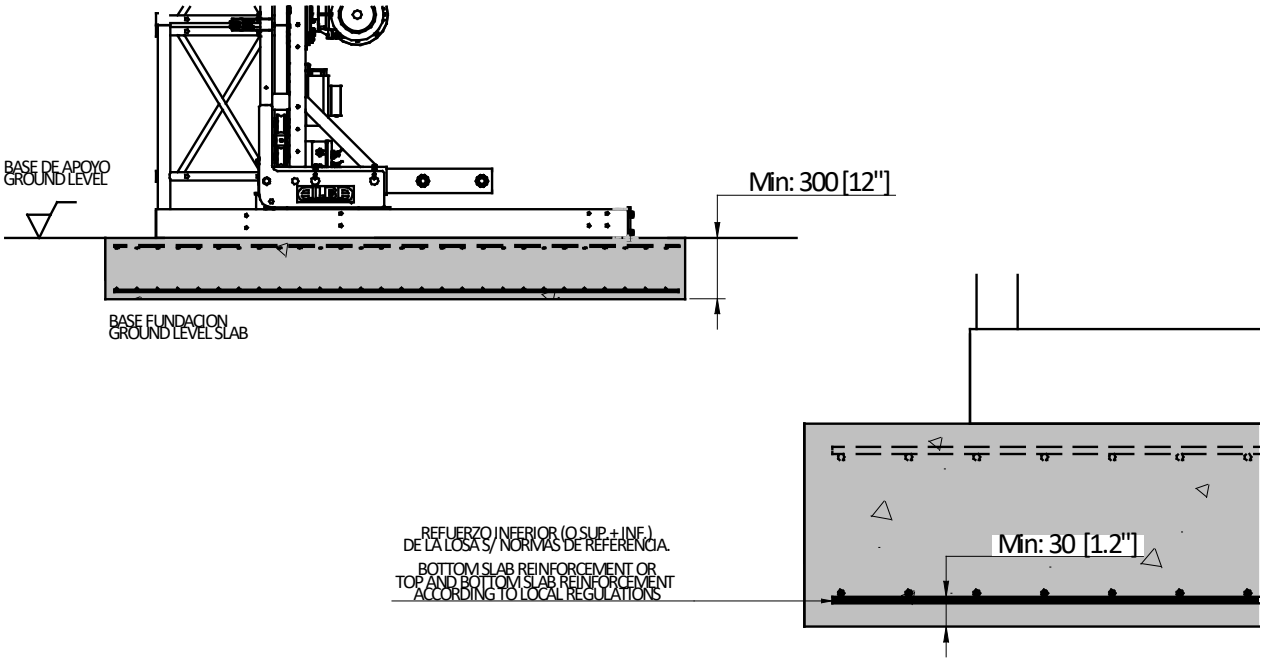
40' STANDARD HIGH CUBE LOAD



TRUCK LOADING REQUIRED LENGHT

2.3. Machine erection procedure:

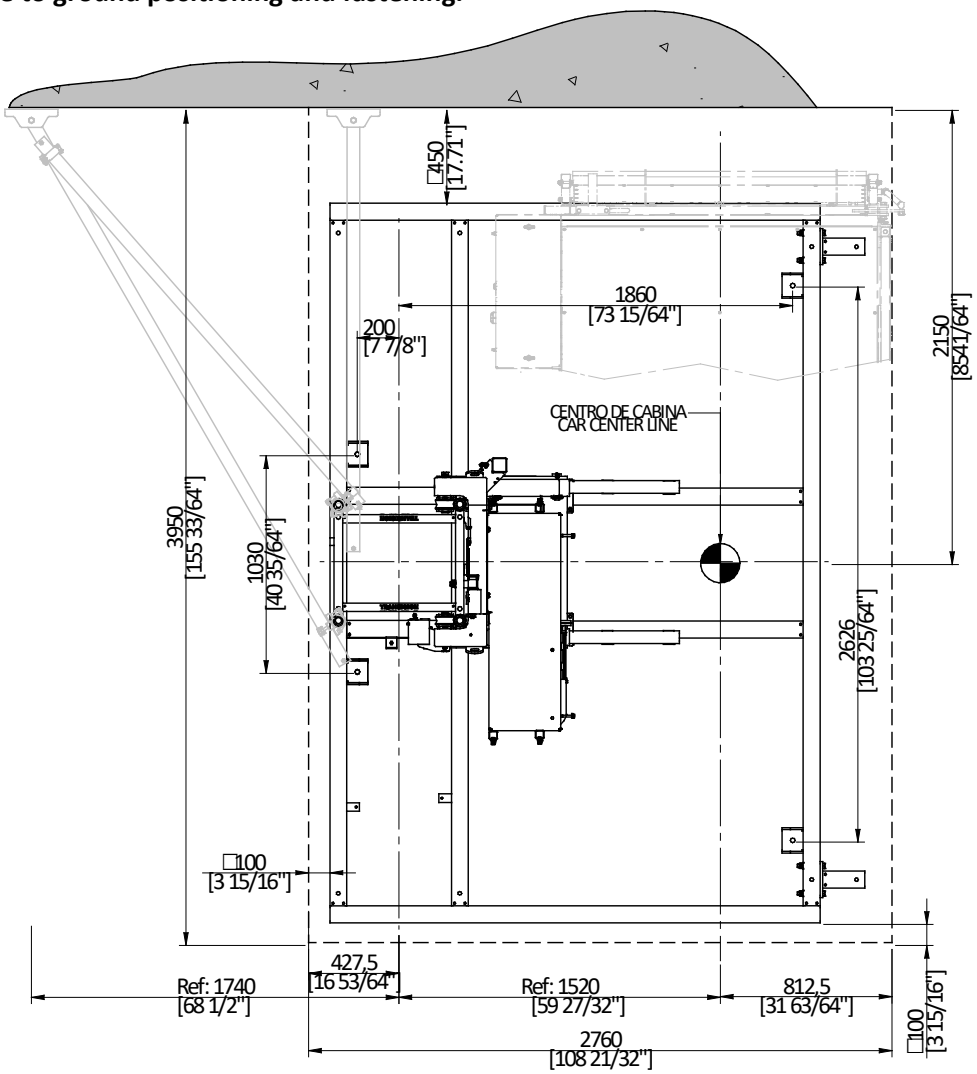
- **Step 1. Site preparation and foundation**



PT.1 LOADS TO GROUND TRANSMISSION		
Height [m/ft.]	TOTAL LOAD (EST.) [KN]	**TOTAL LOAD (DIN.) [KN]**
10/33	43,41	66,76
20/66	49,98	73,33
30/98	56,55	79,90
40/131	63,13	86,48
50/164	69,70	93,05
60/197	76,27	99,62
70/230	82,85	106,19
80/262	89,42	112,77
90/295	95,99	119,34
100/328	102,56	125,91
110/361	109,14	132,48
120/394	115,71	139,06
130/427	122,28	145,63
140/459	128,85	152,20
150/492	135,43	158,77
160/525	142,00	165,35
170/558	148,57	171,92
180/591	155,15	178,49
190/623	161,72	185,07
200/656	168,29	191,64
210/689	174,86	198,21
220/722	181,44	204,78
230/755	188,01	211,36
240/787	194,58	217,93
250/820	201,15	224,50
		(x225) = [lbf]

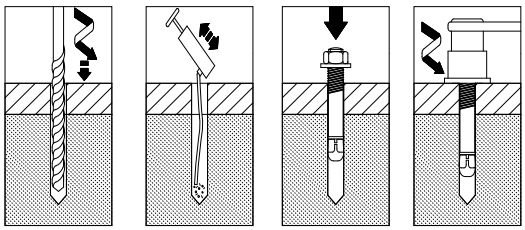
PT.2 LOADAS TO GROUND TRANSMISSION		
Height [m/ft.]	TOTAL LOAD (EST.) [KN]	**TOTAL LOAD (DIN.) [KN]**
10/33	80,05	126,75
20/66	87,94	134,63
30/98	95,82	142,52
40/131	103,71	150,41
50/164	111,60	158,29
60/197	119,49	166,18
70/230	127,37	174,07
80/262	135,26	181,96
90/295	143,15	189,84
100/328	151,03	197,73
110/361	158,92	205,62
120/394	166,81	213,50
130/427	174,70	221,39
140/459	182,58	229,28
150/492	190,47	237,17
160/525	198,36	245,05
170/558	206,25	252,94
180/591	214,13	260,83
190/623	222,02	268,72
200/656	229,91	276,60
210/689	237,79	284,49
220/722	245,68	292,38
230/755	253,57	300,26
240/787	261,46	308,15
250/820	269,34	316,04
		(x225) = [lbf]

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

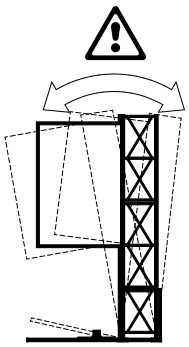


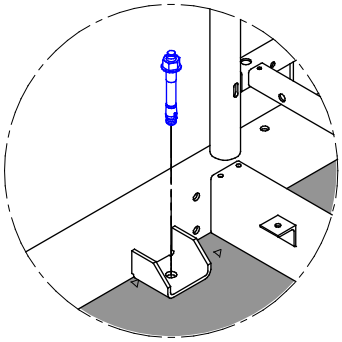
MINIMUM SLAB INSTALLATION DIMENSIONS AND BASE POSITION.

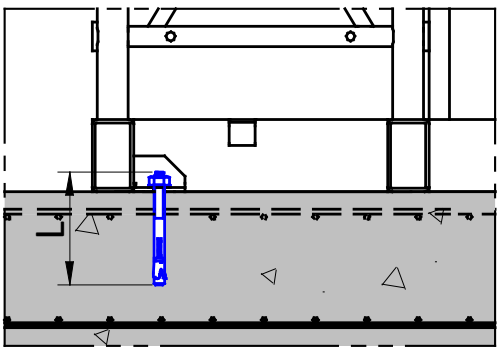
IMPORTANT:
BASE HOIST SHALL BE FASTENNED TO GROUND TO AVOID HAZARDOUS MOVEMENTS BEFORE ANCHORING. USE EXPANSION ANCHOR BOLTS:



DETALLES DE INSTALACION		
D_o	Drill diameter	20 mm [*25/32"*]
H_1	Minimum drill depth	130 mm [*5 1/8 "*]
H_{nom}	Minimum mounting depth	90 mm [*3 35/64 "*]
L	Anchor length	170 mm [*6 11/16 "*]
T_{ins}	Torque	200 N·m [*147.5 lb·ft*]

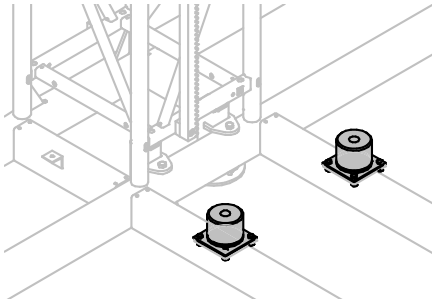


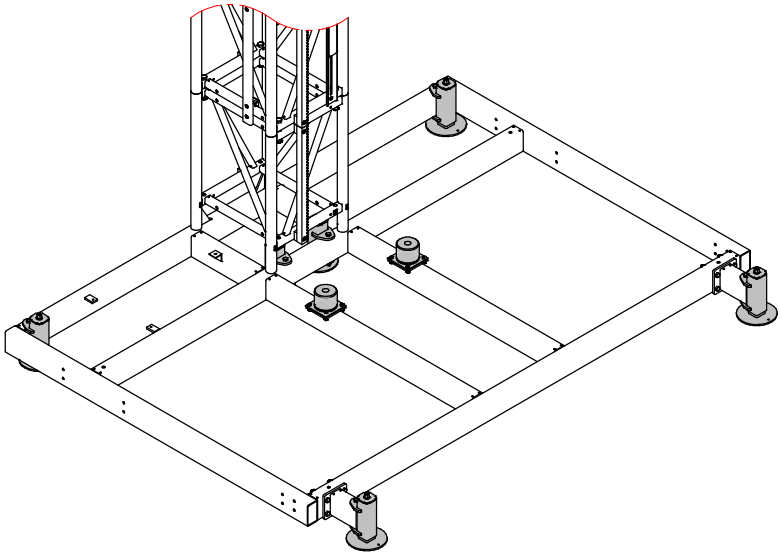




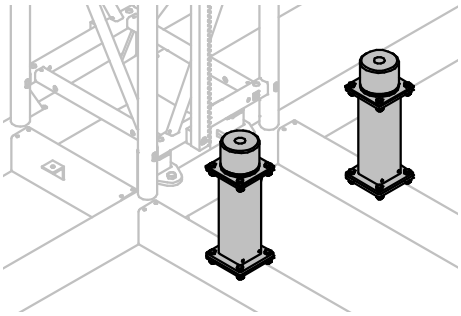
IMPORTANT:
CASE OF USING BASE JACKS, MAXIMUM INSTALLATION HEIGHT SHALL BE 150m [*492ft*]

BASE BUFFERS FOR CABLE BIN:

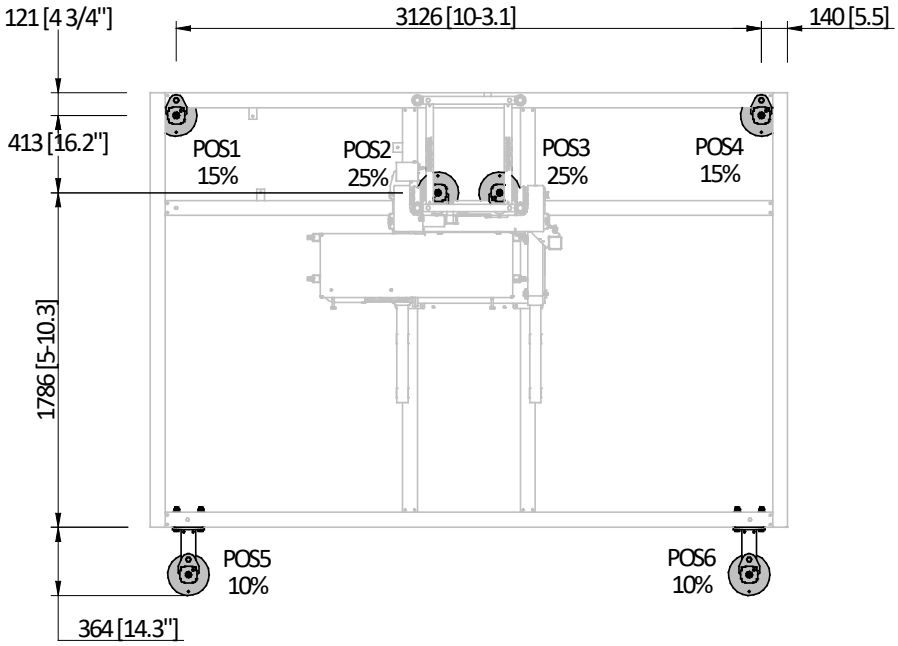


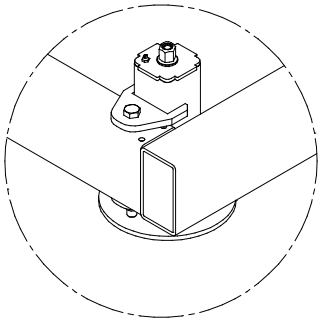


BASE BUFFERS FOR CABLE TROLLEY:

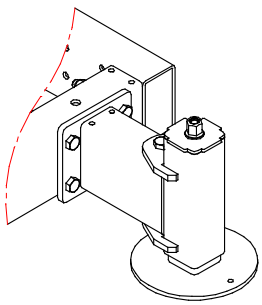


ASSEMBLY OF BASE WITH JACKS



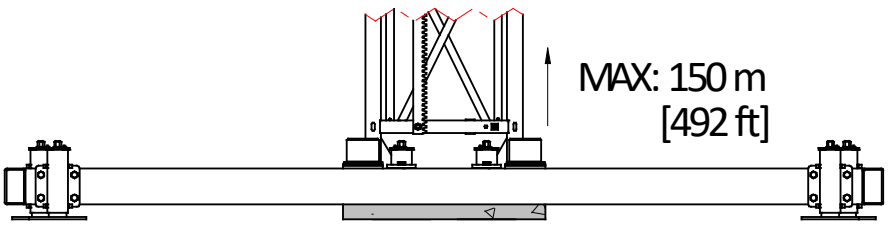


POS1...4

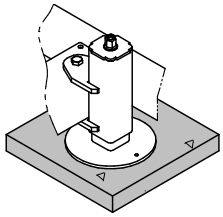


POS5, POS6

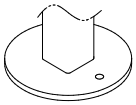
LOADS TO GROUND (SEE PAGE 15)

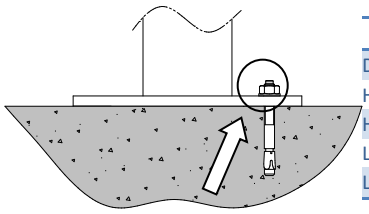


WEDGE UNDER THE BASE BELOW BUFFERS RECOMMENDED



WOODEN BOARD RECOM.

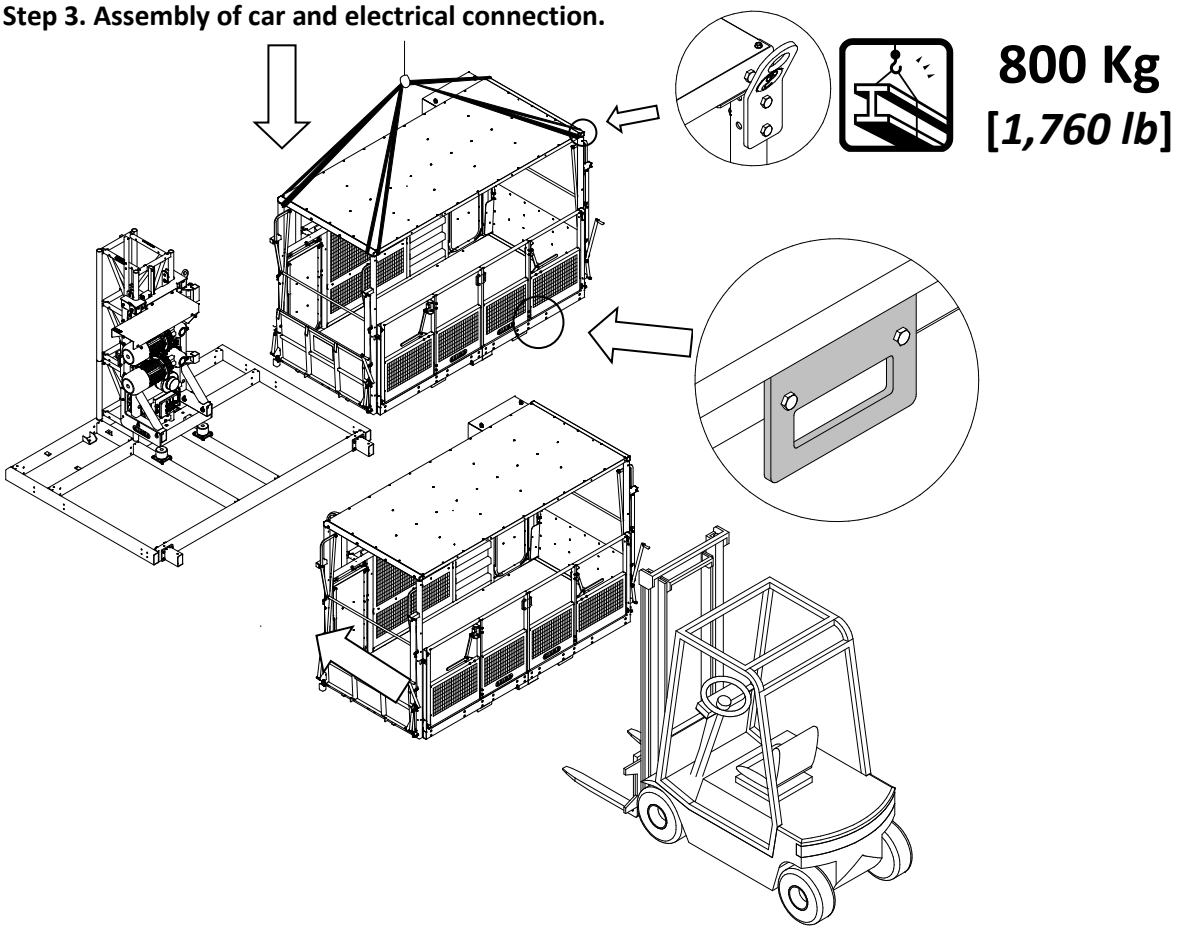




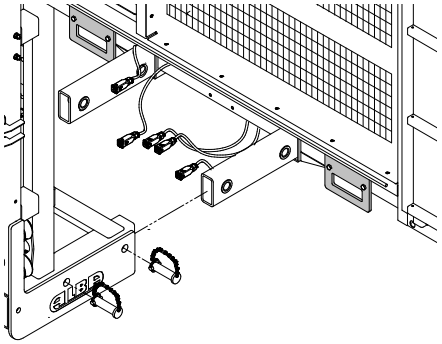
RECOMMENDED FITTING TO GROUND

DATOS DE INSTALACION		
D_o	Drill diameter	10 mm [*25/64"*]
H_1	Minimum drill depth	70 mm [*2 3/4"*]
H_{nom}	Minimum mounting depth	42 mm [*1 21/32"*]
L	Anchor length	50 mm [*1 31/32"*]
L_r	Screw length	30 N·m [*22.13 lb·f*]]

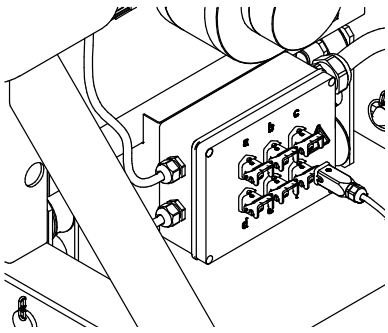
- **Step 3. Assembly of car and electrical connection.**



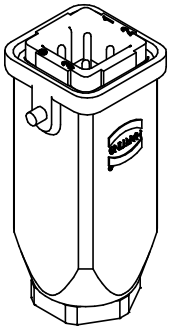
ASSEMBLY OF THE LOAD, USING FORKLIF OR CRANE



LOAD CAR COUPLING

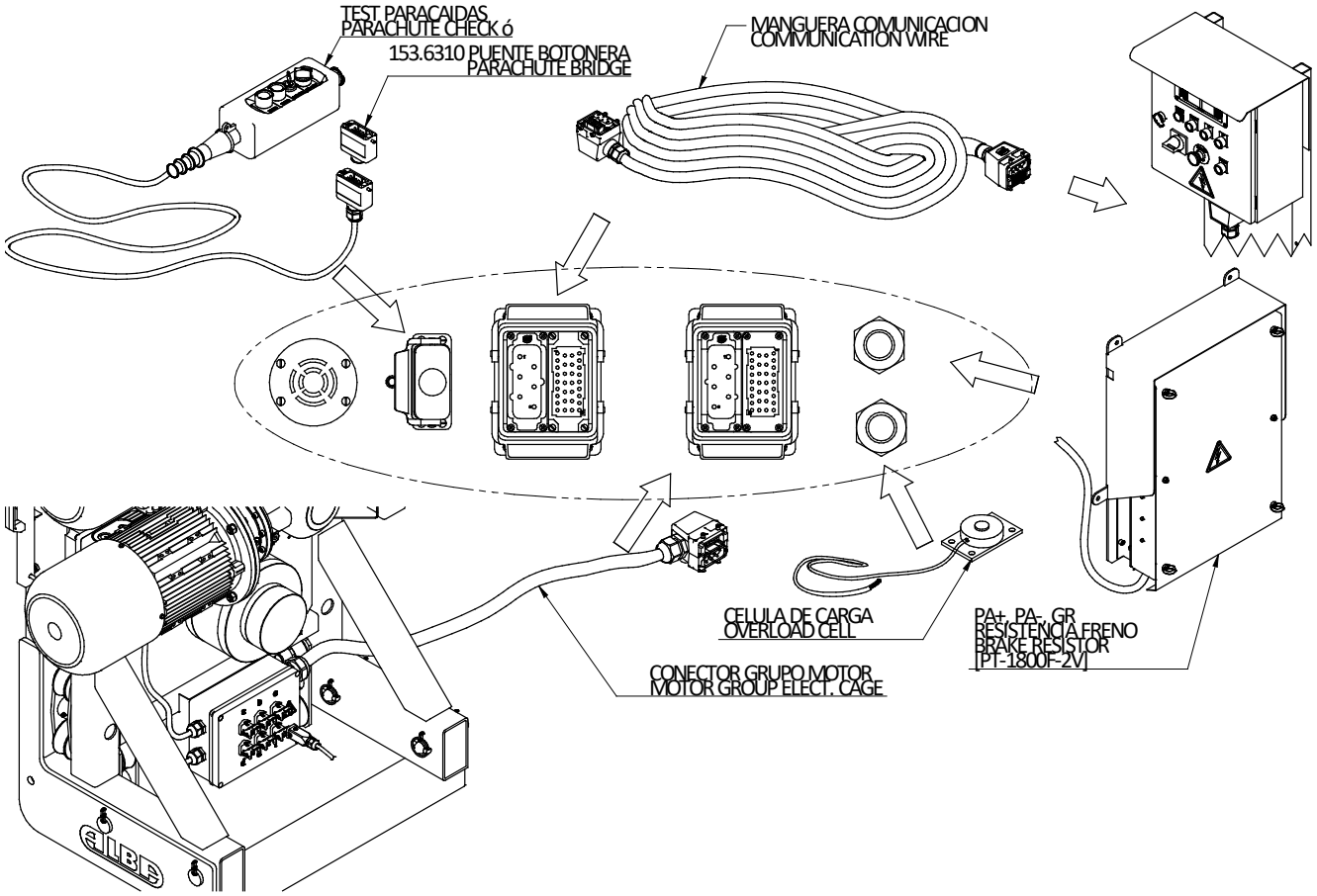


CONNECTION OF THE GATES

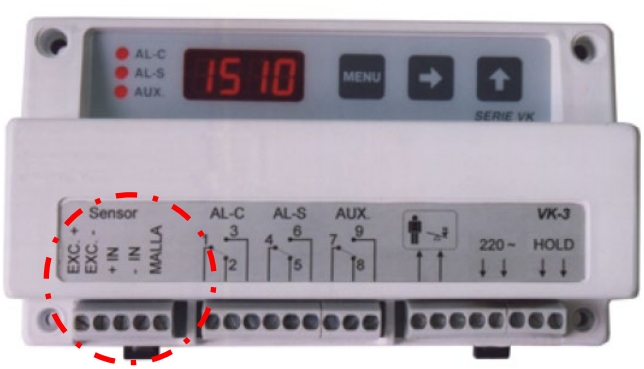


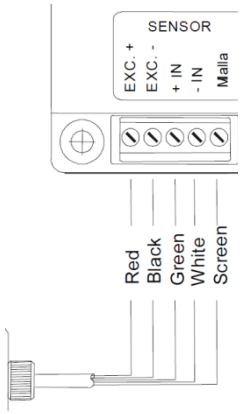
BRIDGE CONNECTOR 155.6030

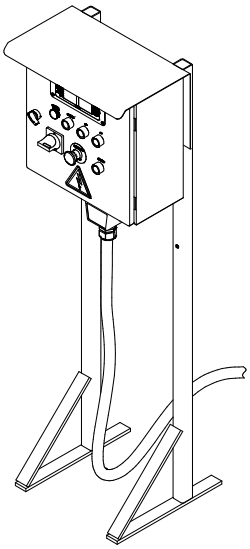
WARNING:
TO FINISH ASSEMBLY, CONNECT GATE SWITCH CABLES TO NUMBER CONNECTORS Nº 1 A Nº 6. COMPLETE NON-USED GATE INPUTS WITH BRIDGE CONNECTORS REF: 155.6030.

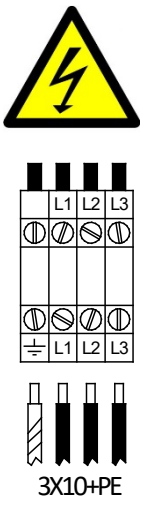


ELECTRIC CONNECTIONS









CONNECTING LOAD CELL TO LOAD LIMITOR ON MAIN SWITCHBOARD

ELECTRIC SUPPLY (4 AWG 8)

ATTENTION:

CONNECT ELECTRICAL EQUIPMENT TO MAIN SWITCHBOARD, WITH SPECIAL ATTENCTION TO LOAD CELL CONNECTION TO THE PROGRAMER.

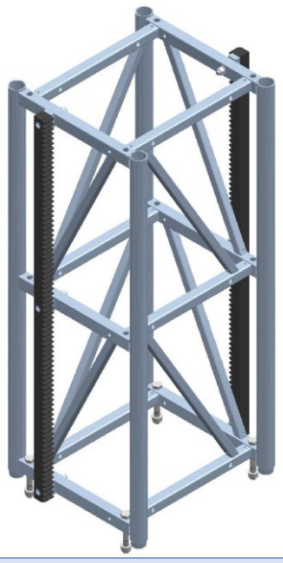
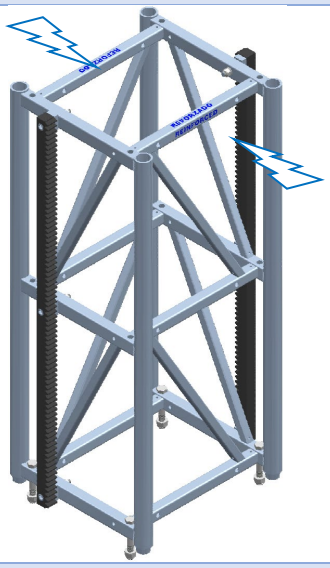
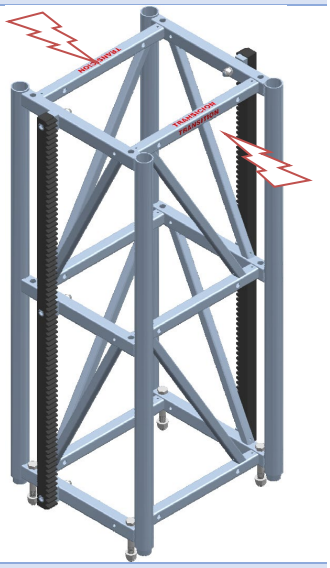
PLEASE, CONSULT THE SPECIFIC INSTRUCTIONS FOR ADJUSTING THE LOAD DETECTOR PARAMETERS ON ANEX AT THE END OF THIS MANUAL.

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

Step 4. Erection of the mast.

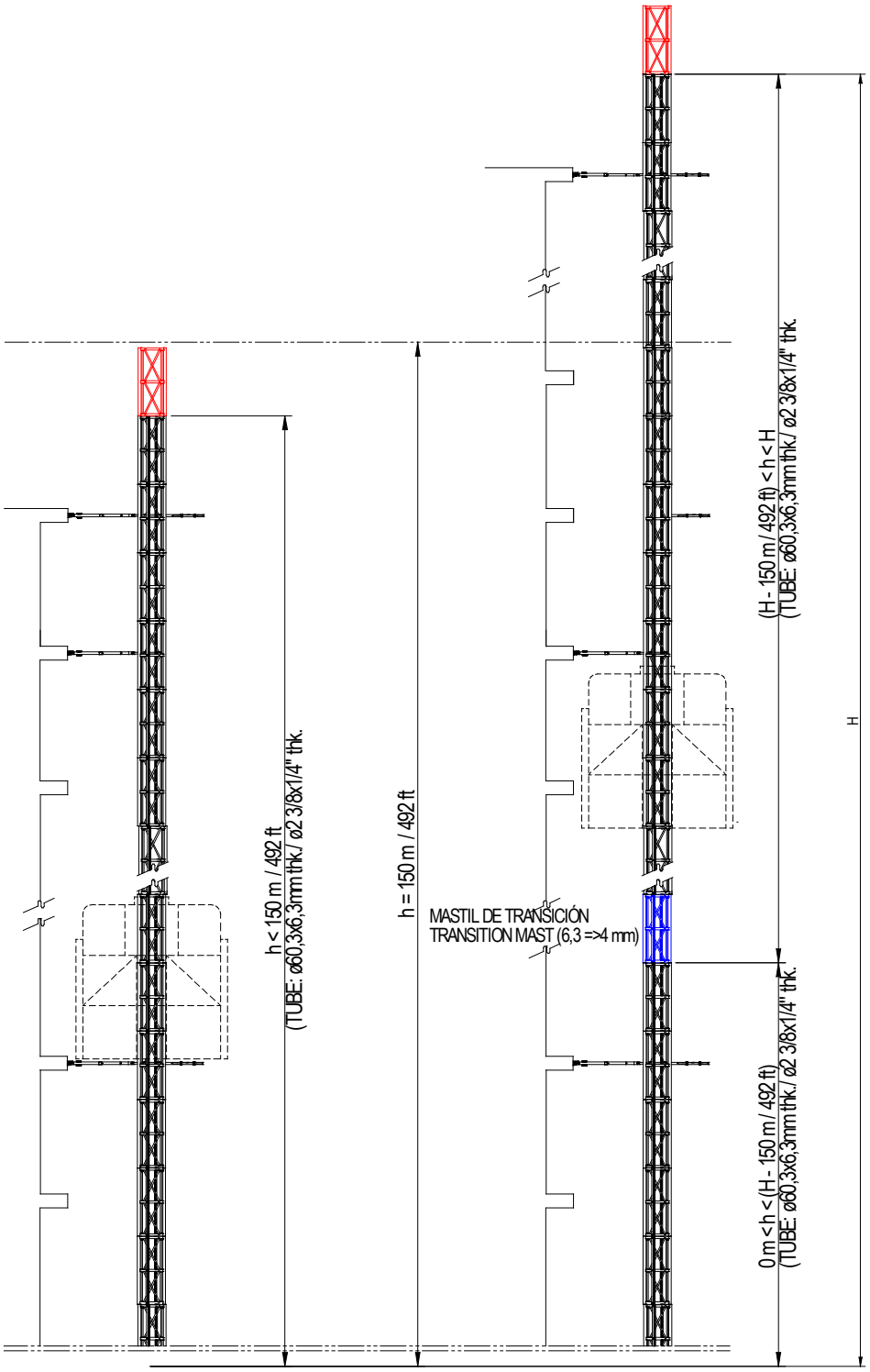
ATTENTION:
TO ASSEMBLE THE MASTS WILL USE, PREFERABLY A CRANE, OR A DAVIT AUXILIARY MACHINE (OPTIONAL). NEVER MANIPULATE THE MASTS BY HAND. IT´S RECOMMEND TO MOUNT SECTIONS OF 9 m [*29.5 ft*] (6 MODULES) ON THE GROUND AND FASTEN THE WHOLE GROUP TO THE MACHINE WITH THE HELP OF A CRANE.
FIRST MAST IS TRANSITION MAST, AND IT´S FITTED TO HOIST BASE FRAME.
DON´T REMOVE FROM THAT POSITION, EXCEPT FOR ASSEMBLY OVER 150 m [*492 ft*]

MAST TECHNICAL DATA

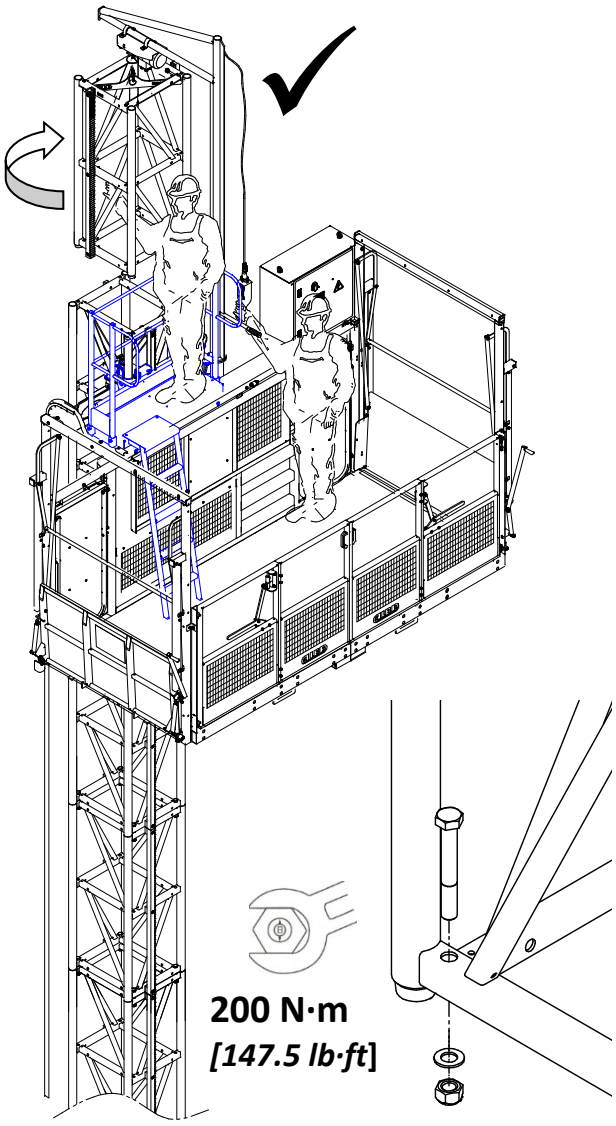
Type:	STANDARD MAST	REINFORCED MAST	TRANSITION MAST
MAST			
Vertical Tube:	**Ø60,3x4 [*2 3/8"x 5/32"*]**	**Ø60,3x6,3 [*2 3/8" x 1/4"*]**	**Ø60,3x(6,3➔4)**
Code:			
· 1 rack:	**150.2-1**	**150.3-1**	**150.4-1**
· 2 racks:	**150.2-2**	**150.3-2**	**150.4-2**
Weight:			
· 1 rack:	**98 Kg [*216 lb*]**	**114 Kg [*251 lb*]**	**98 Kg [*216 lb*]**
· 2 racks:	**118 Kg [*260 lb*]**	**134 Kg [*295 lb*]**	**118Kg [*260 lb*]**
Mast screws:	(4x) Screw M20x140 DIN 931 8.8		
	Washer A21 DIN 125		
	Self-locking nut M20 DIN 985		
Torque:	410 N·m [*300 lb·ft*]		
Rack screws:	(3x) Screw M16x105 DIN 912 8.8/10.9		
	Washer A17 DIN 125		
	Self-locking nut M16 DIN 985		
Torque:	200 N·m [*147 lb·ft*]		

IMPORTANT:
TO MOUNT THE MACHINE, AND FOR INSPECTION AND MAINTENANCE TASKS, ALWAYS USE THE "MANUAL" MODE OF OPERATION (PLATFORM CONTROL). SEE CHAPTER 3 BEFORE STARTING HOIST ERECTION.

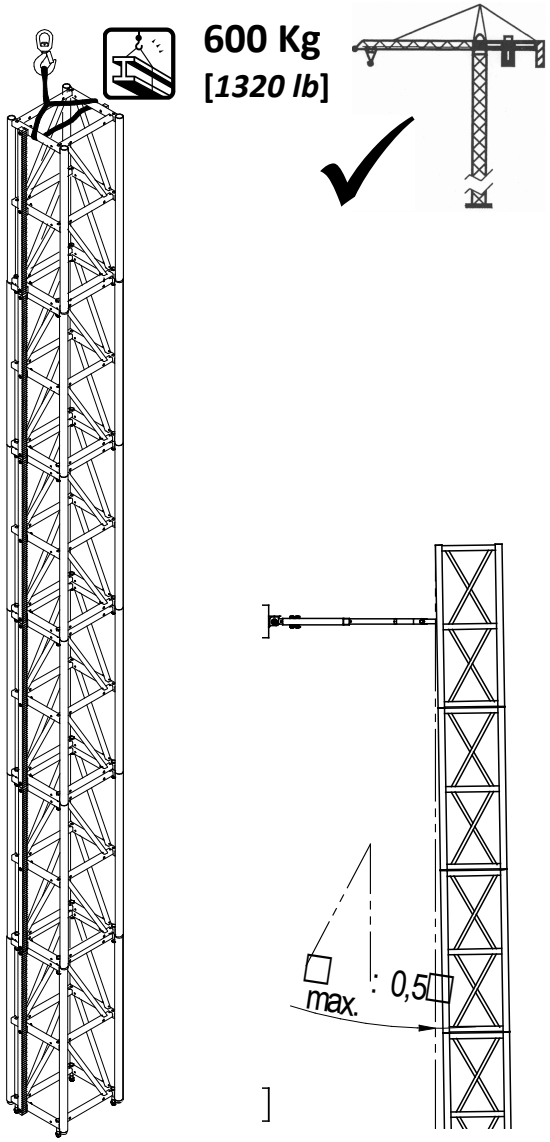
IMPORTANT (H>150 m [*492 ft*]):
WHEN ASSEMBLING THE HOIST MAST, REINFORCED MASTS MUST BE USED IN THE LOWER ZONE, THEN INSTALL TRANSITION MAST SUPPIED WITH THE HOIST, AND AT THE END, NORMAL MAST MODULES.
IF DOUBLE PLATFORM HOIST IS NOT INSTALLED, THE COMPLETE MAST COLUMN CAN BE ASSEMBLED USING STANDARD (∅60,3x4 [*3/8 x 5/32"*] MAST MODULES UP TO 250 m [*820 ft*]



ATTENTION:
FOR MAST ASSEMBLY TASK, FOLDING THE MAST PROTECTION AND DISMANTLE FALLING OBJETS PROTECTION CEILING IS ALLOWED.
CHECK LIMITATIONS TO THE USE OF THE PLATFORM WITH NO CEILING.IN ADDITION, THE AUXILIARY CRANE CAN BE USED TO MANIPULATE THE MASTS.



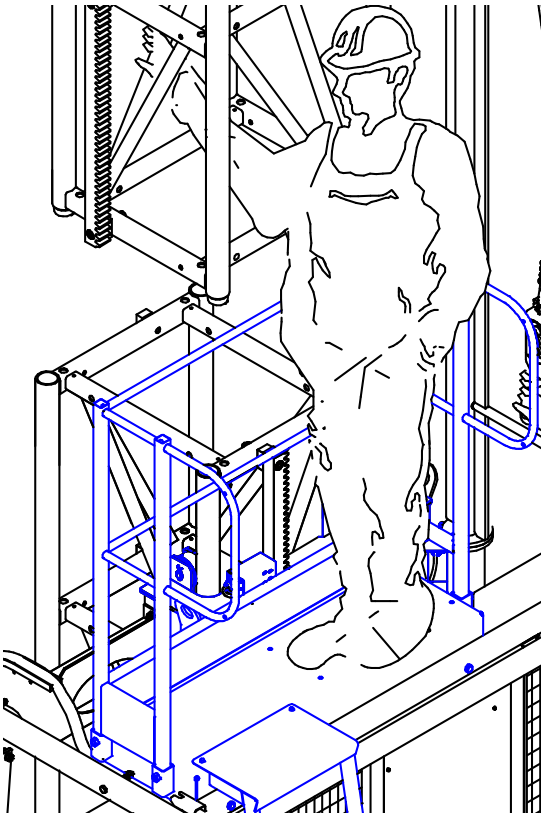
MANUAL ASSEMBLY OF THE MASTS COLUMN

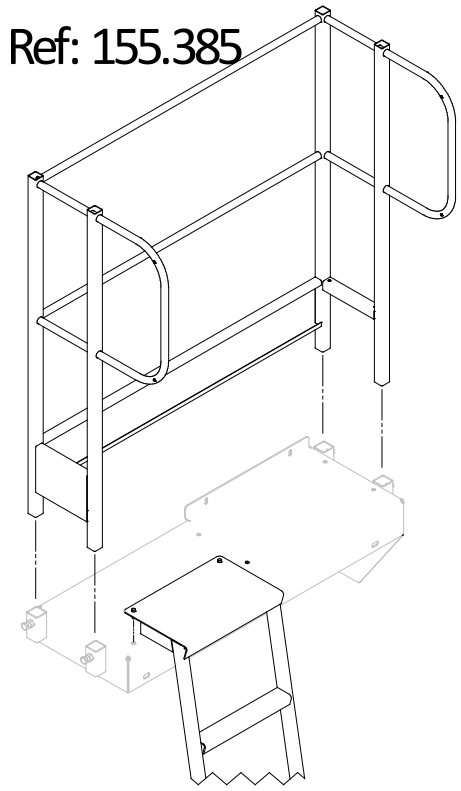


RECOMMENDATION OF ASSEMBLY WITH CRANE

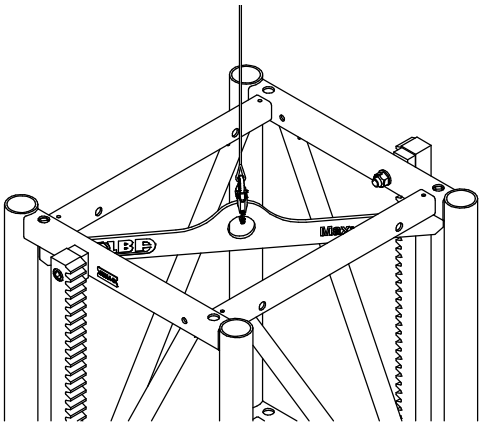
ATTENTION:
FIT / REMOVE MAST AND SCREWS ALWAYS AT THE SAME TIME!
NEVER RAISE THE HOIST OVER A NON-SCREWED MAST MODULE!
THEN THERE IS HAZARD OF COLLAPSE AND SERIOUS INJURY!

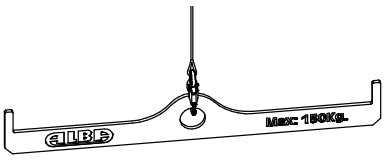
ATTENTION:
OPERATE THE HOIST IN AUTO MODE FROM GROUND CONTROL TO ASSEMBLY TASK IS NOT ALLOWED. USE MANUAL MODE, WITHOUT LOADS.

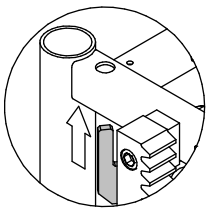




MAST ACCESS KIT FOR ASSEMBLY AND MAINTENANCE TASKS







SPECIAL TOOLING FOR MASTS ASSEMBLY (CONSULT Step 14. Assembling the auxiliary crane)

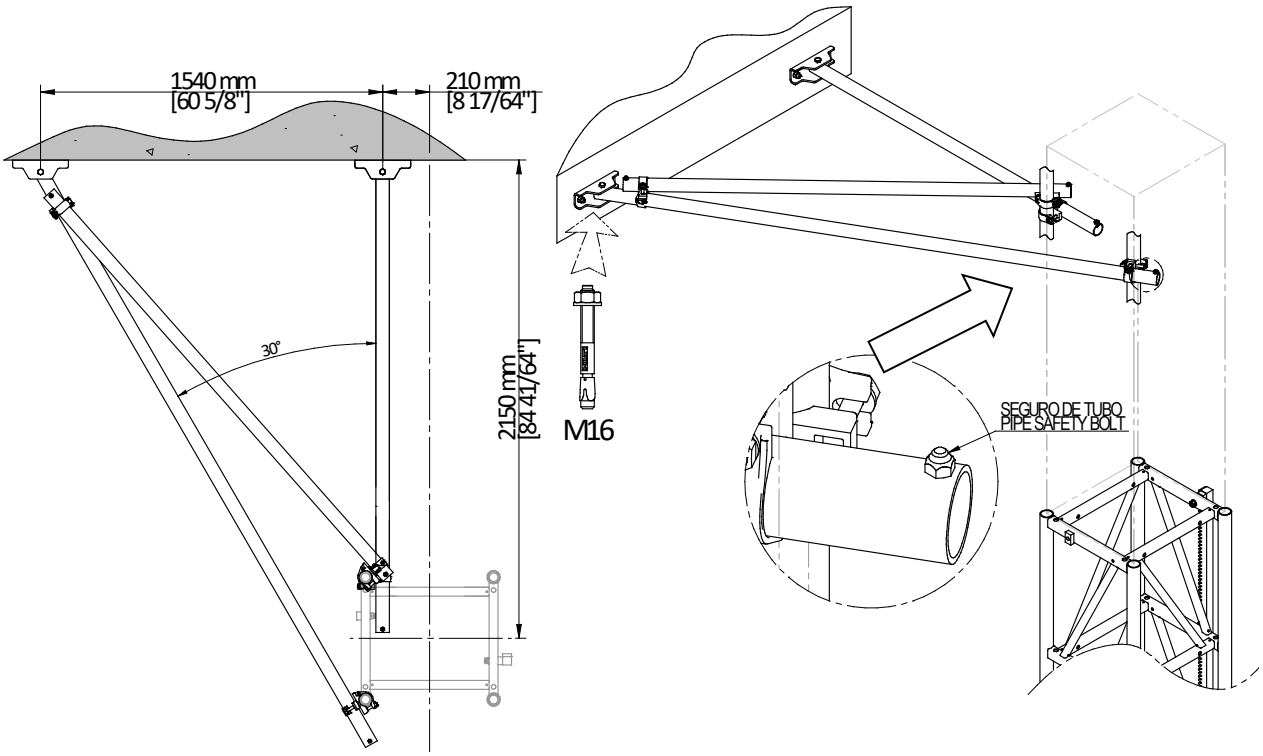
Step 5. Installation of mast anchorage.

IMPORTANT NOTE FOR THE INSTALLATION OF ANCHORS:
ANCHOR TO INSTALL, MÁX, EACH 9 m [*29.5 ft*] IN CASE OF INSTALLATION OVER 120 m [*394 ft*] IT´S ADVISABLE TO REDUCE TIE DISTANCE TO 6 m [*20 ft*]

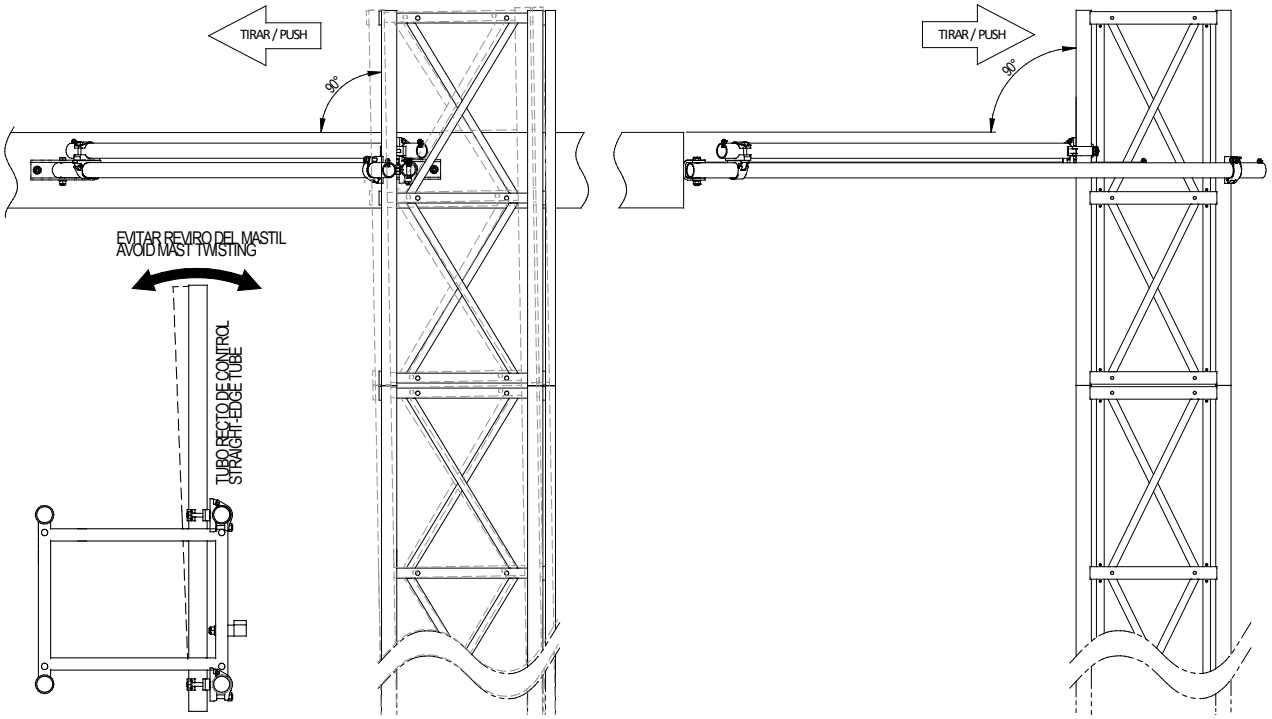
DUE TO THE DEFLECTION OF THE MAST, RESPECT TIE DISTANCE ESPECIALLY WHEN INSTALLING LANDING GATES, EVEN INSTALLING EXTRA TIES IF REQUIRED.

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 IN THE MOST UNFAVORABLE DIRECTION (X).

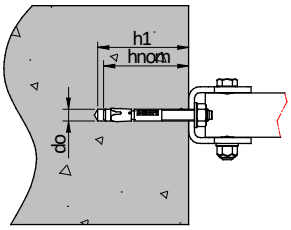
SINGLE CAR ANCHORAGE:



ANCHORAGE ASSEMBLY

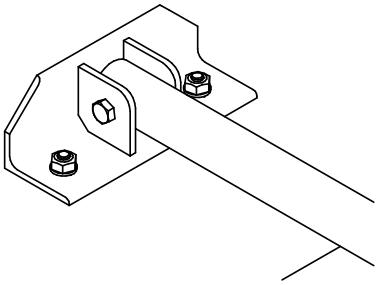


FIXING THE BEARING STRUCTURE

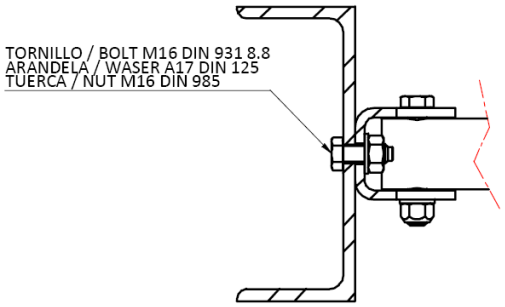


DATOS DE INSTALACION		
D_o	Drill diameter	16 mm [*5/8"*]
H_1	Minimum drill depth	115 mm [*4 17/32"*]
H_{nom}	Minimum mounting depth	95 mm [*3 47/64"*]
L	Anchor length	140 mm [*5 33/64"*]
L_r	Screw length	70 mm [*2 3/4"*]
T_{ins}	Torque	100 N·m [*73.7 lb·ft*]

RECOMMENDED ANCHORAGE SYSTEM

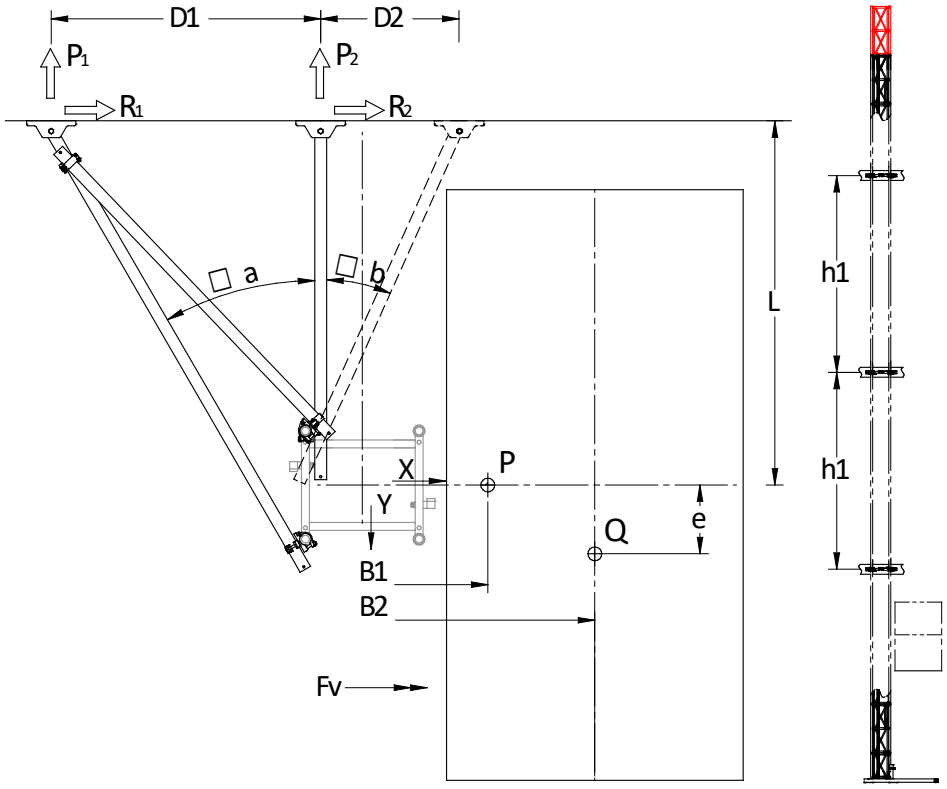


FLANGE FOR FORGED ASSEMBLY (Ref: 153.84)



SCREWED FLANGE TO METALLIC STRUCTURE

ALTERNATIVE ANCHORING SYSTEMS



INSTALLATION DATA:

DISTANCE TO ANCHOR POINT 1 (D1):	**1.540**	mm.
DISTANCE TO ANCHOR POINT 2 (D2):	**0**	mm.
HOIST TO FACADE DISTANCE (L):	**2.150**	mm.
MAIN ANCHORAGE ANGLE (Va): +-	30	°
SECONDARY ANCHORAGE ANGLE (Vb): +-	0	°

REACTION FORCES CALCULATION:

P1:	**13,09**	KN.
P2:	**-10,22**	KN.
R1:	**9,38**	KN.
R2:	**0,00**	KN.

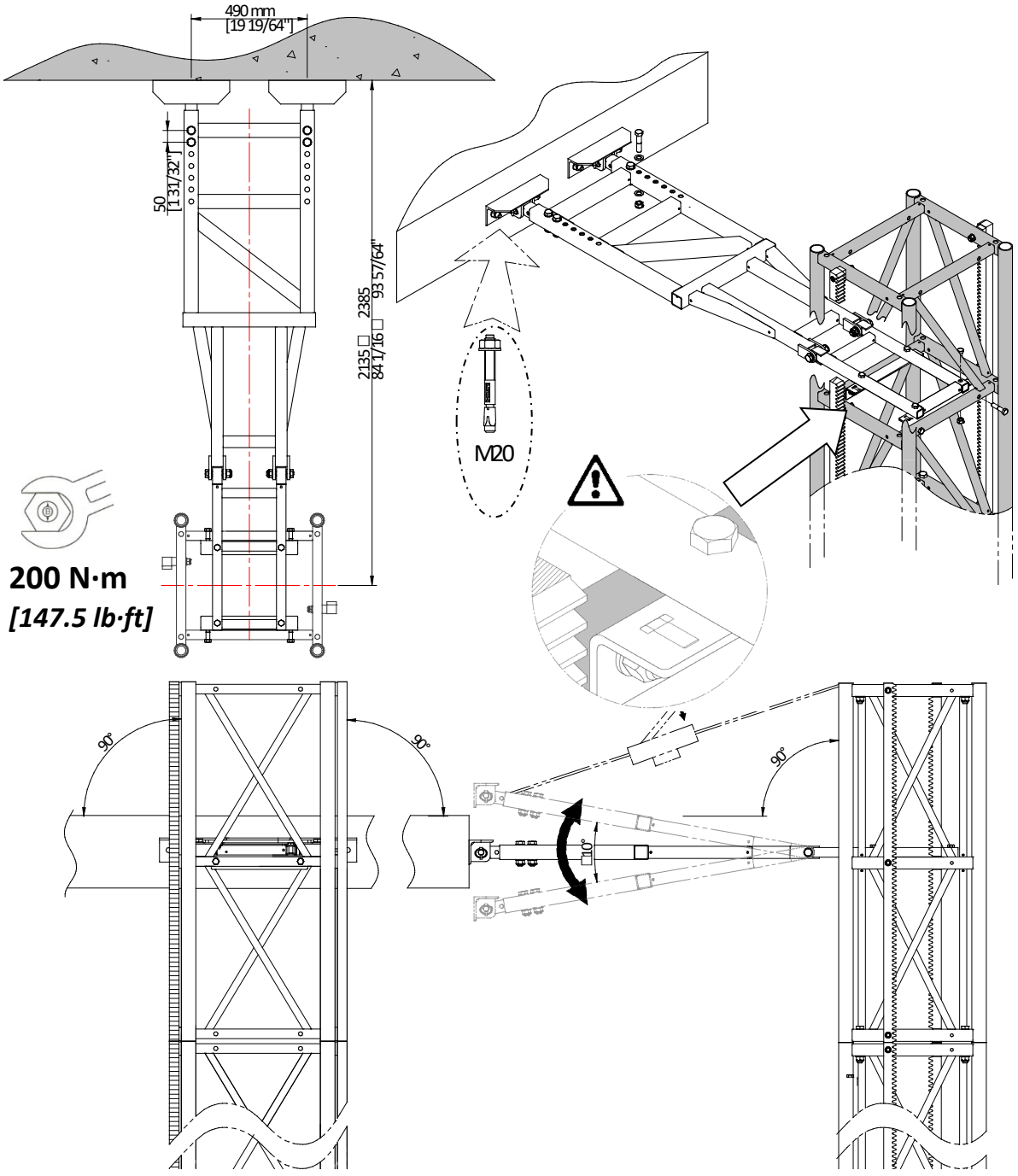
(x225) = [lbf]

REACTIONS TRANSMITTED TO THE SUPPORT STRUCTURE

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.

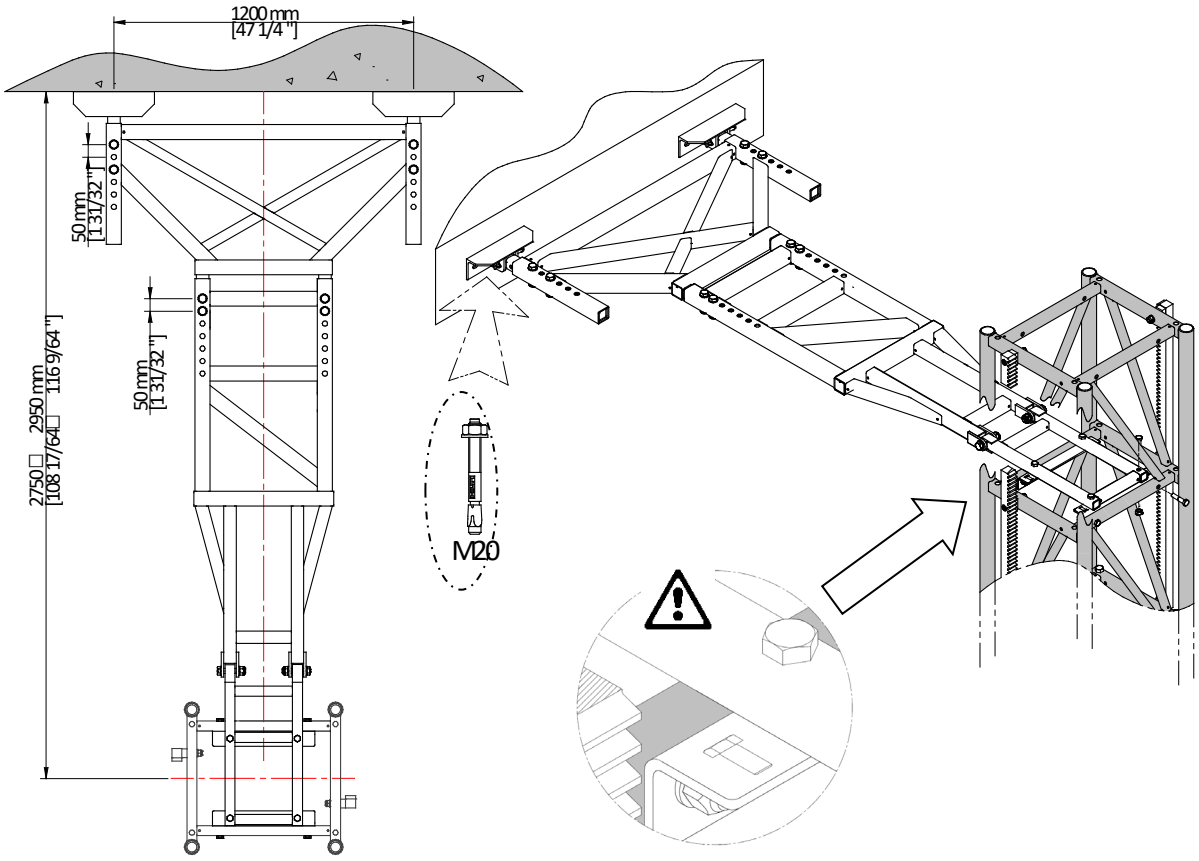
ATTENTION:
VERTICALLY LEVEL THE MASTIL IN THE TWO ADDRESSES AND ALSO THE TURN BEFORE FIXING THE POSITION OF THE ANCHORING FLANGES. CORRECT THE ADJUSTMENT IF NECESSARY. IF THE CRANE IS NOT AVAILABLE, USE AN INTERMEDIATE PROVISIONAL ANCHOR POINT TO CONTROL VERTICALITY AND REVERSE.

TWIN CAR ANCHORAGE – TYPE B ANCHORAGE:

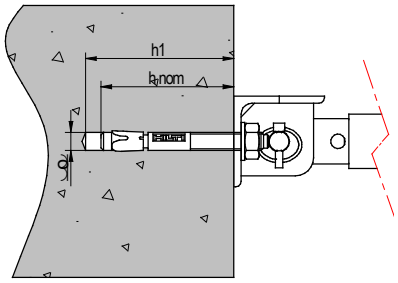


INSTALLING ANCHORAGE AND FIXING TO SUPPORTING STRUCTURE

ATTENTION:
INSTALL FIXING ANGLES WITH TIE BOLT AS INDICATED IN THE DRAW. OTHERWISE THERE´S IMPORTANT RISK OF COLLISION WITH MOBILE PLATFORM STRUCTURE.

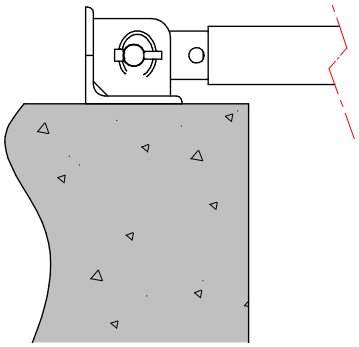


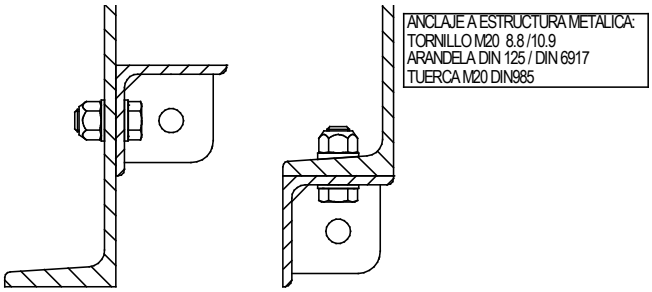
ANCHORAGE EXTENSION



DATOS DE INSTALACION		
D_o	Drill diameter	20 mm [*25/32"*]
H_1	Minimum drill depth	130 mm [*5 7/64"*]
H_{nom}	Minimum mounting depht	115 mm [*4 33/64"*]
L	Anchor length	230 mm [*9 3/64"*]
L_r	Screw length	85 mm [*3 11/32"*]
T_{ins}	Torque	200 N·m [*147 lb·ft*]

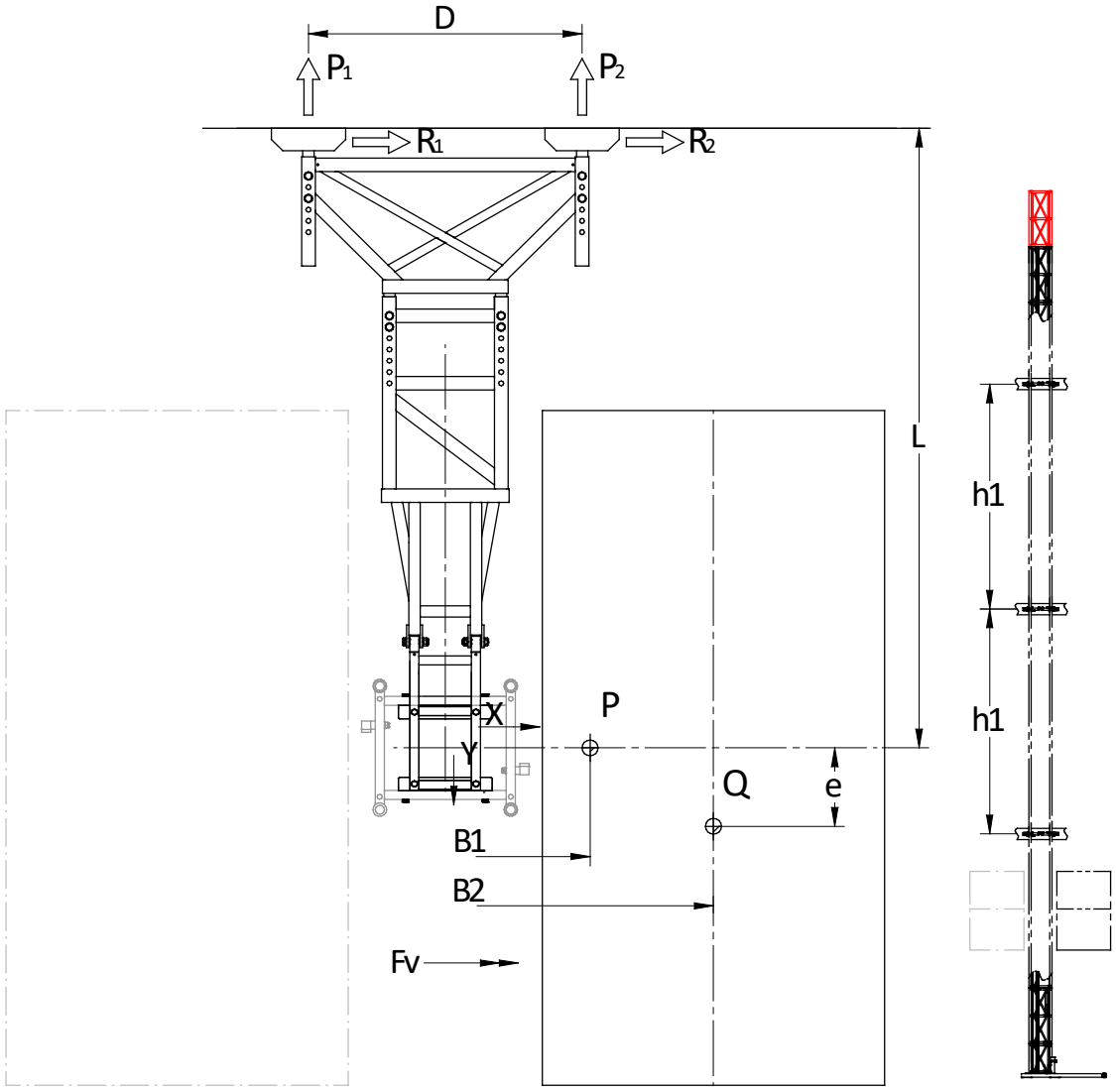
RECOMMENDED ANCHORAGE SYSTEM





INSTALLING ABOVE / BELOW SLAB **SCREWED ANCHOR TO METALLIC STRUCTURE**

ALTERNATIVE ANCHORING SYSTEMS



INSTALLATION DATA:

DISTANCE OF ANCHOR POINTS (D):	**490**	mm.
HOSIT TO FACADE DISTANCE (L):	**2.135**	mm.

REACTION FORCES CALCULATION:

P1:	**25,42**	KN.
P2:	**-23,70**	KN.
R1:	**4,96**	KN.
R2:	**4,41**	KN.

(x225) = [lbf]

INSTALLATION DATA:

DISTANCE OF ANCHOR POINTS (D):	**1.200**	mm.
HOSIT TO FACADE DISTANCE (L):	**2.985**	mm.

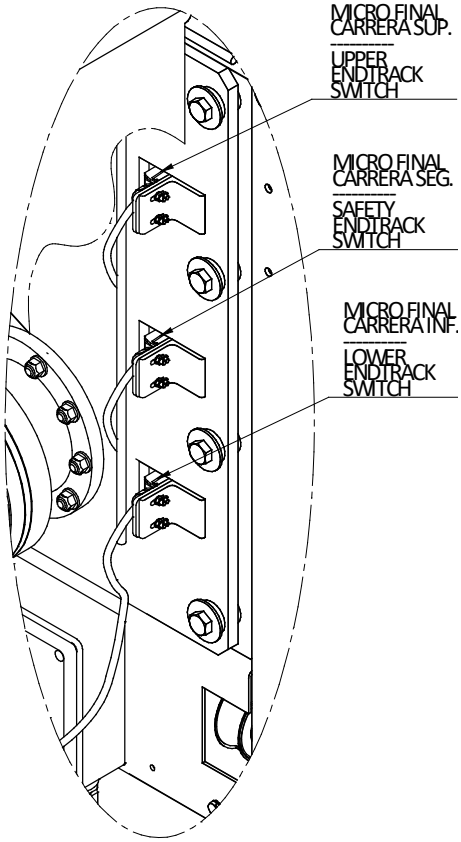
REACTION FORCES CALCULATION:

P1:	**19,48**	KN.
P2:	**-17,22**	KN.
R1:	**5,05**	KN.
R2:	**4,32**	KN.

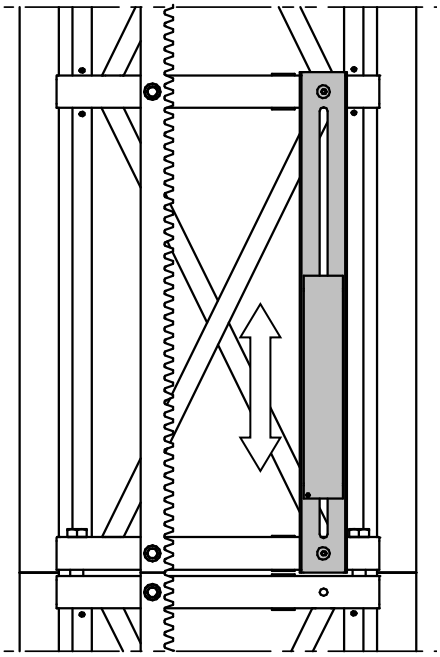
(x225) = [lbf]

REACTION FORCES TO STRUCTURE. ANCHOR TYPE B – STANDARD / EXTENDED ANCHOR

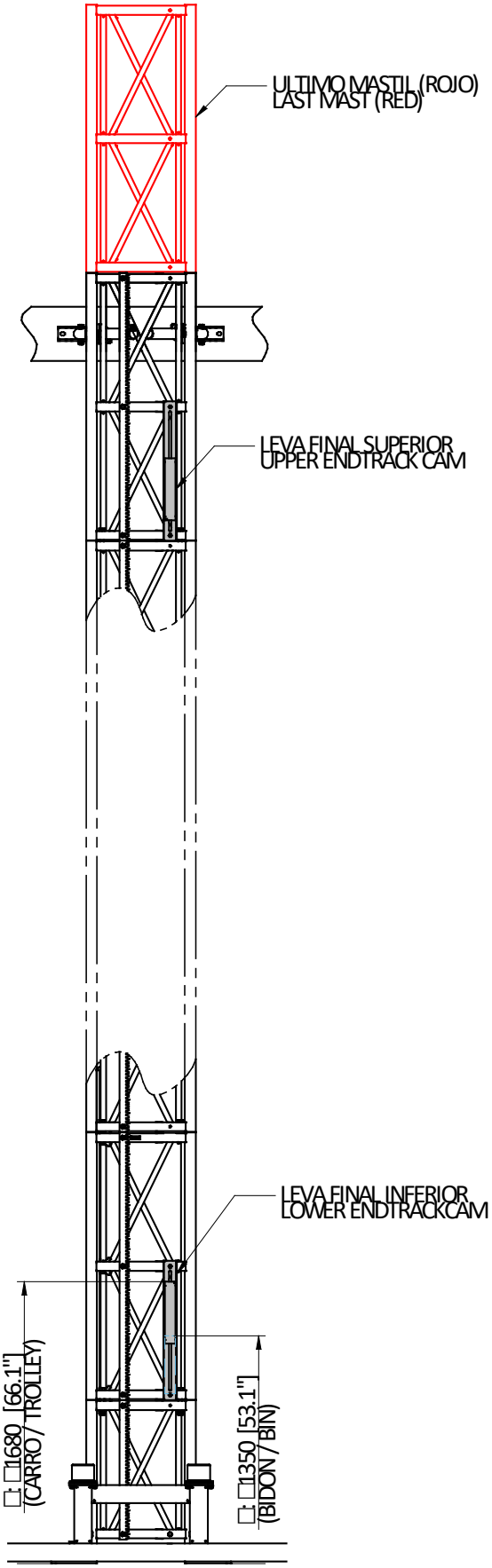
Step 6. Installing endtrack cams and last mast.



ENDTRACK SWITCHES IN THE CHASSIS



ENDTRACK CAM IN THE MASTIL



UPPER END TRACK AND FINAL 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.

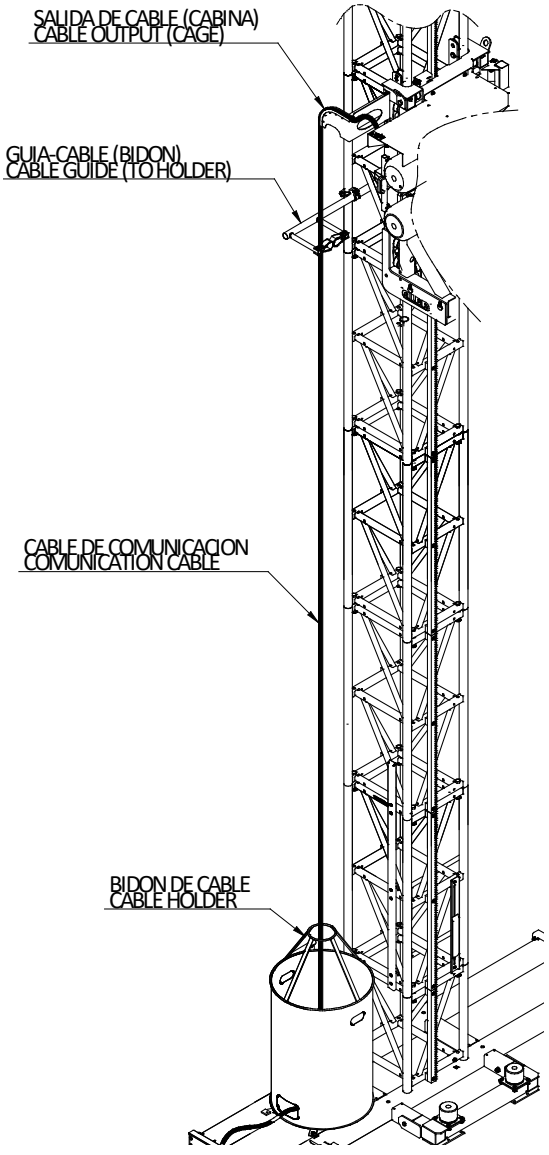
CHECK IF HOIST STOP IS PROPERLY PERFORMED:

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.**

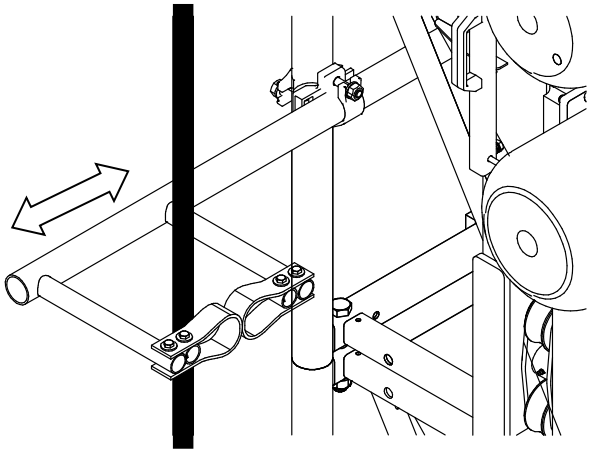
2. **DESCEND ("MANUAL" MODE) UNTIL HOIST STOPS AND CHECK IF 3 m [9' 10"] SWITCH HAS REACHED INFERIOR CAM. CHECK THAT LAST TRAVEL UNTIL Ref. Point ONLY CAN BE COMPLETED WITH "HOLD-TO-RUN" BUTTON OF PLATFORM CONTROL. CHECK IF THE MACHINE STOPS WHEN F.C.B SWITCH TOUCH INFERIOR CAM. (Ref. Point)**

THESE TESTS ARE VERY IMPORTANT BEFORE FURTHER ASSEMBLY!!

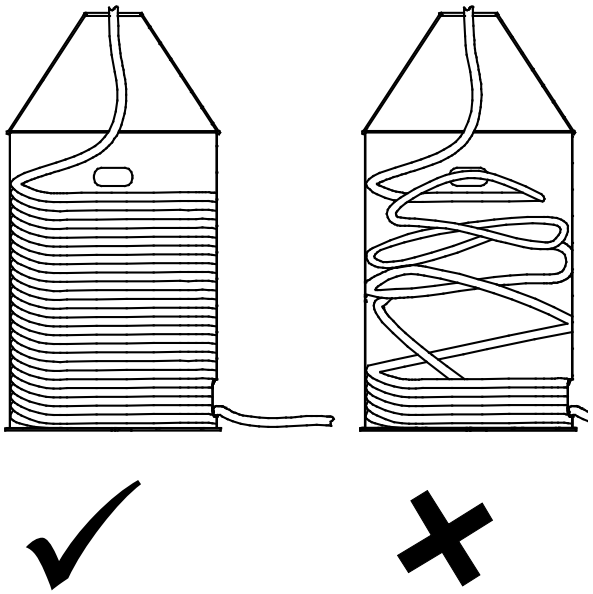
Step 7. Installing cable trolley / cable holder.



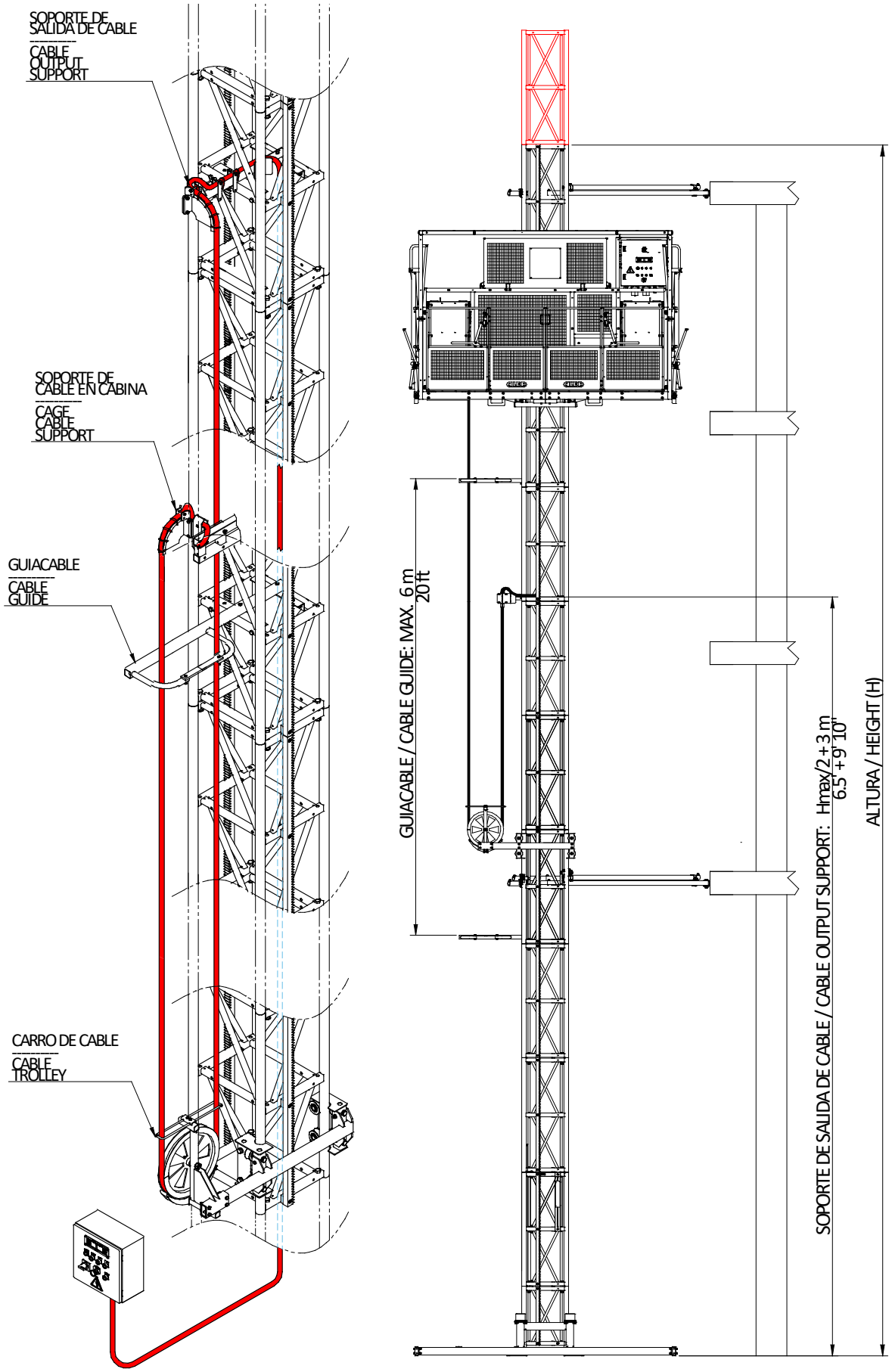
CABLE HOLDER INSTALLATION



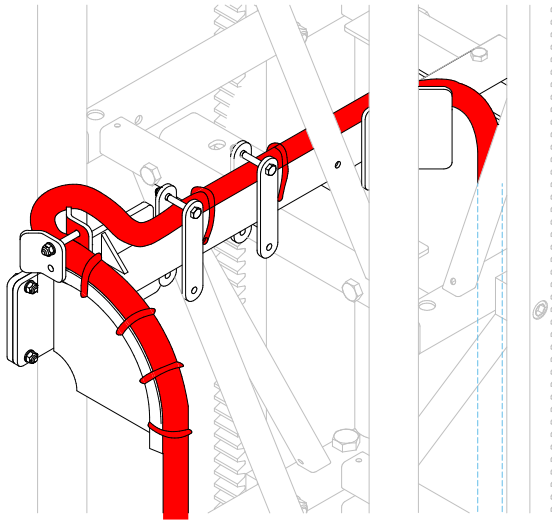
INSTALLATION OF CABLE GUIDES



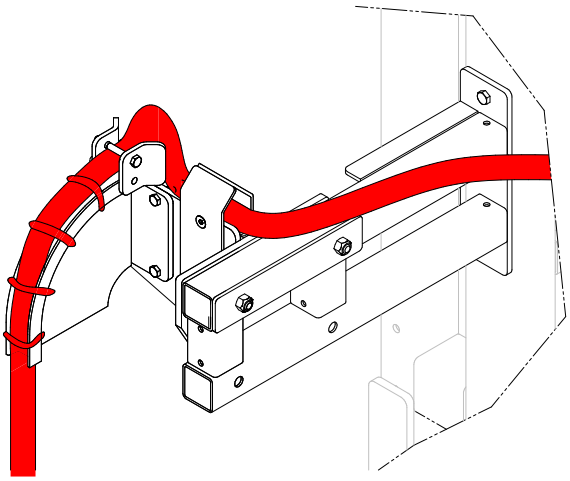
CABLE ROLLING IN CABLE HOLDER



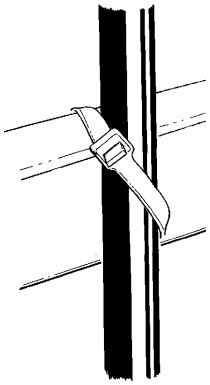
CABLE HOLDER INSTALLATION SCHEME



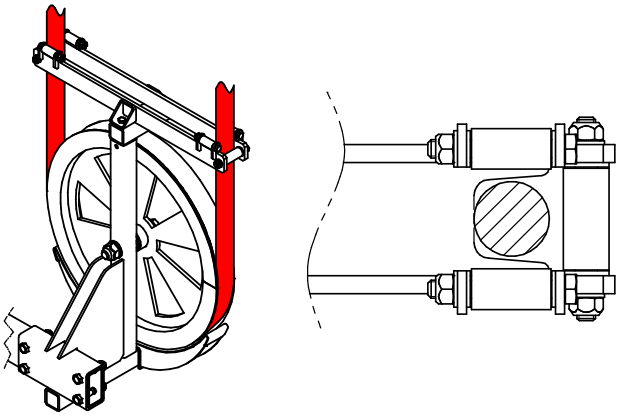
CABLE OUTPUT SUPPORT



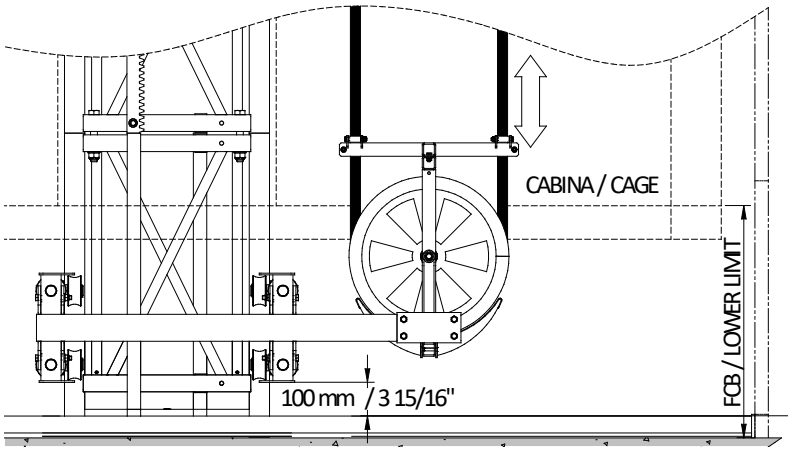
CAR CABLE SUPPORT



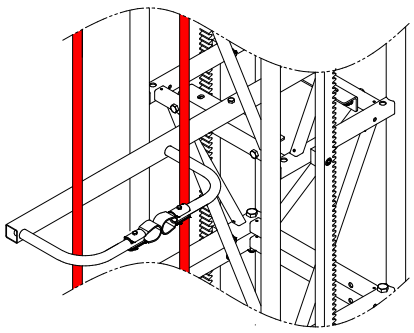
FIXING CABLE INSIDE THE MAST



CABLE POSITION IN THE CABLE TROLLEY



ADJUSTING THE CABLE TROLEY



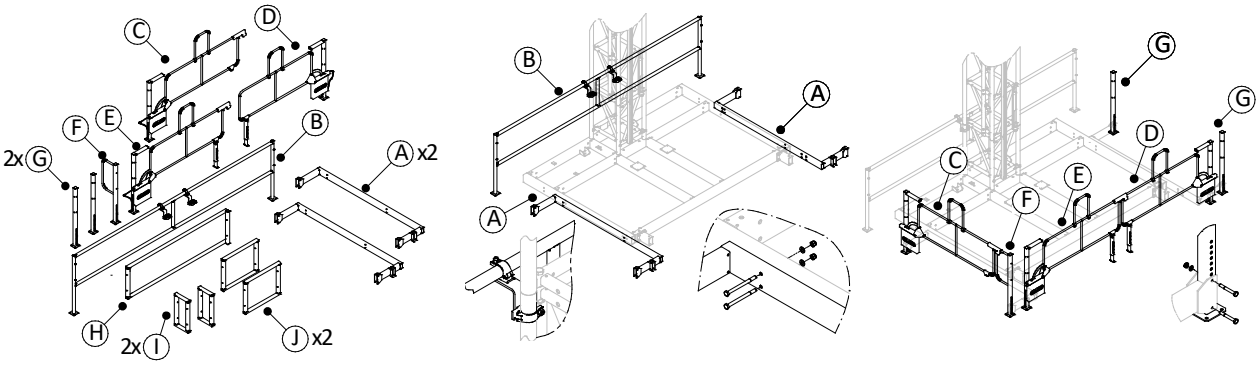
INSTALLATION OF CABLE GUIDES

ATTENTION:
MAX. INSTALLATION HEIGHT USING CABLE HOLDER: 70m [*229.5ft*] CASE OF HIGHTER INSTALLATION, CABLE TROLLEY MUST BE INSTALLED. ONLY FOR SINGLE PLATFORM.

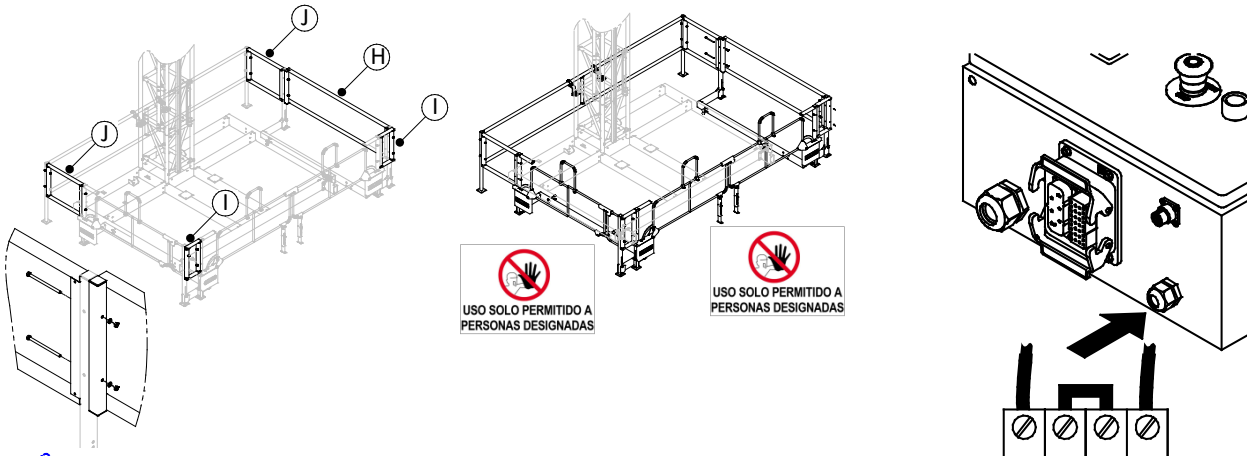
IMPORTANT:
FIX THE LOWER POSITION OF THE CABLE CART BY MAINTAINING A 100mm [*4"*] CLEARANCE WITH THE ELEVATOR AT THE LOWER POINT OF THE ROUTE.

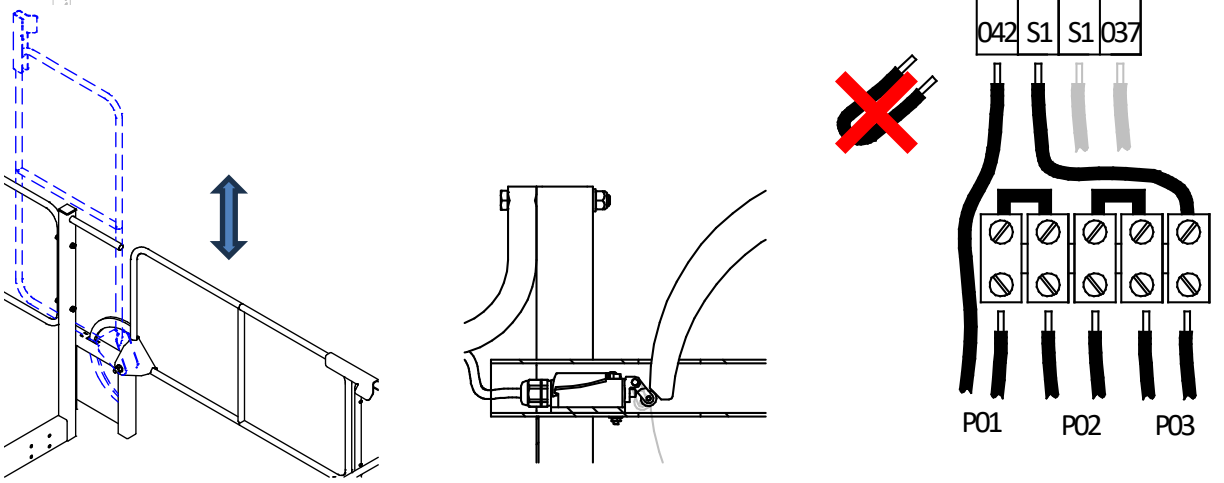
Step 8. Installing base enclosure.

ATENTION:
ACCORDING TO ANSI/SAIA A92-10 STANDANDARD, PROTECTION REGARDING HAZARDOUS AREAS AROUND THE TRANSPORT PLATFORM IS REQUIRED.



ASSEMBLY OF BASE ENCLOSURE



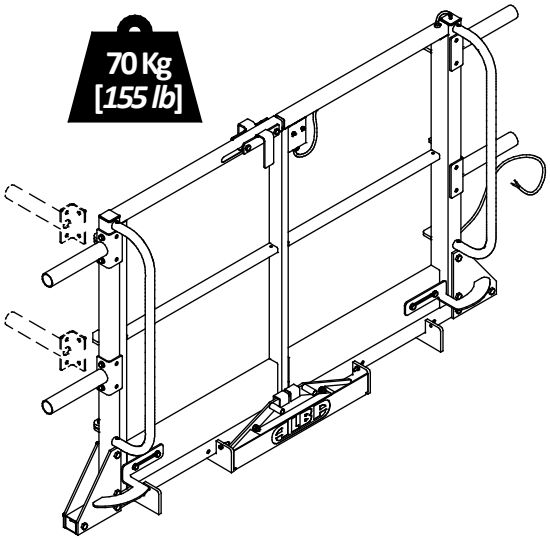


GATE SWITCH FITTING **GATE SWITCH CONNECION**

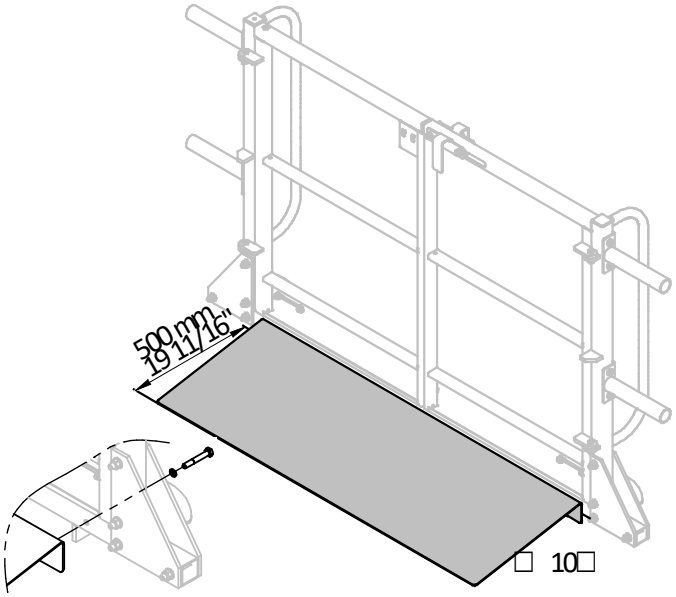
ATTENTION:
THE ENCLOSURE OF THE BASE ALLOWS A PERIMETER PROTECTION OF 500mm [*20"*] AROUND THE BASE OF THE MACHINE, TO PREVENT HAZARD OF SHEARING OR CUTTING WHEN HOIST IS MOVING
IN NORMAL USE, DOWNWARDS MOVEMENT WILL BE STOPPED AT A HEIGHT OF 3m [*9-10*] ABOVE BASE. FURTHER DOWNWARDS MOVEMENT IS ONLY POSSIBLE BY NEW PERMANENT RESELECTION OFF "RUN" BUTTON.

Step 9. Installing landing gates.

· SWINGING GATE LANDING GATES (USUALLLY TO SLAB):

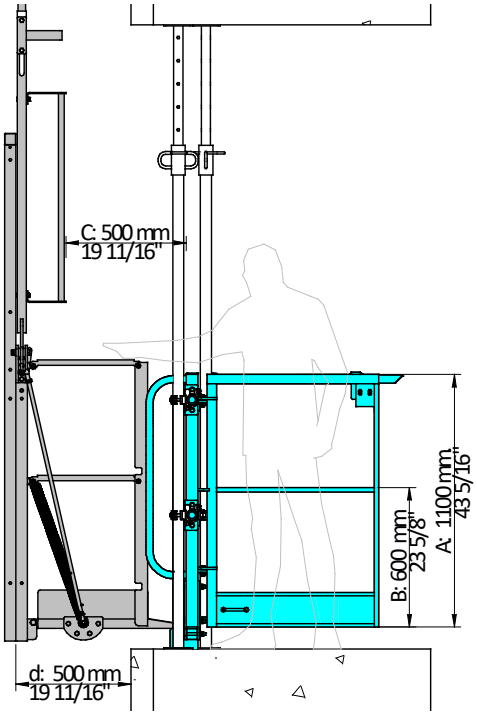


163.5 SWINGING LANDING GATE 1400

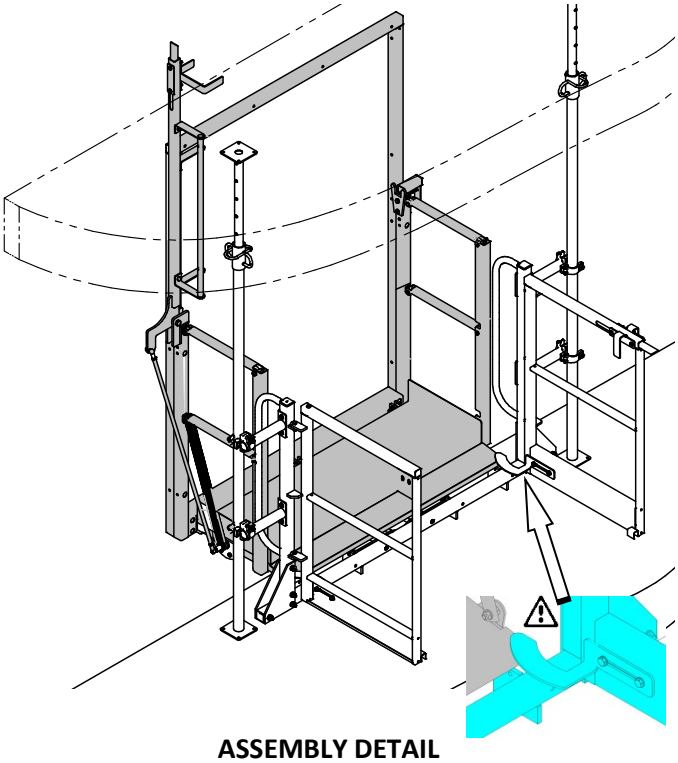


OPTION – 163.56 ACCESS RAMP

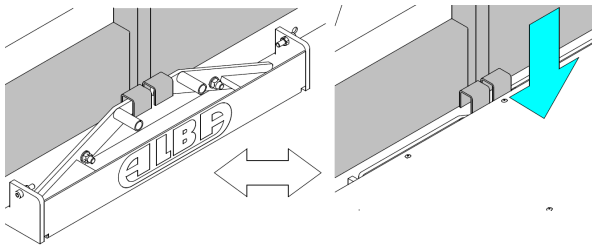
INSTALLATION IN CONCRETRE SLAB OR STRUCTURE



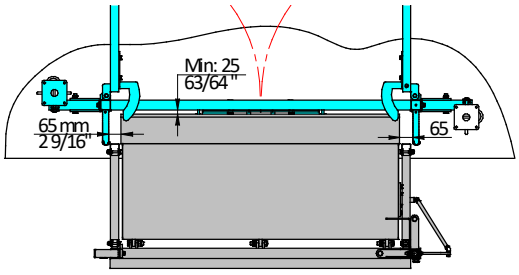
INSTALLATION DISTANCES



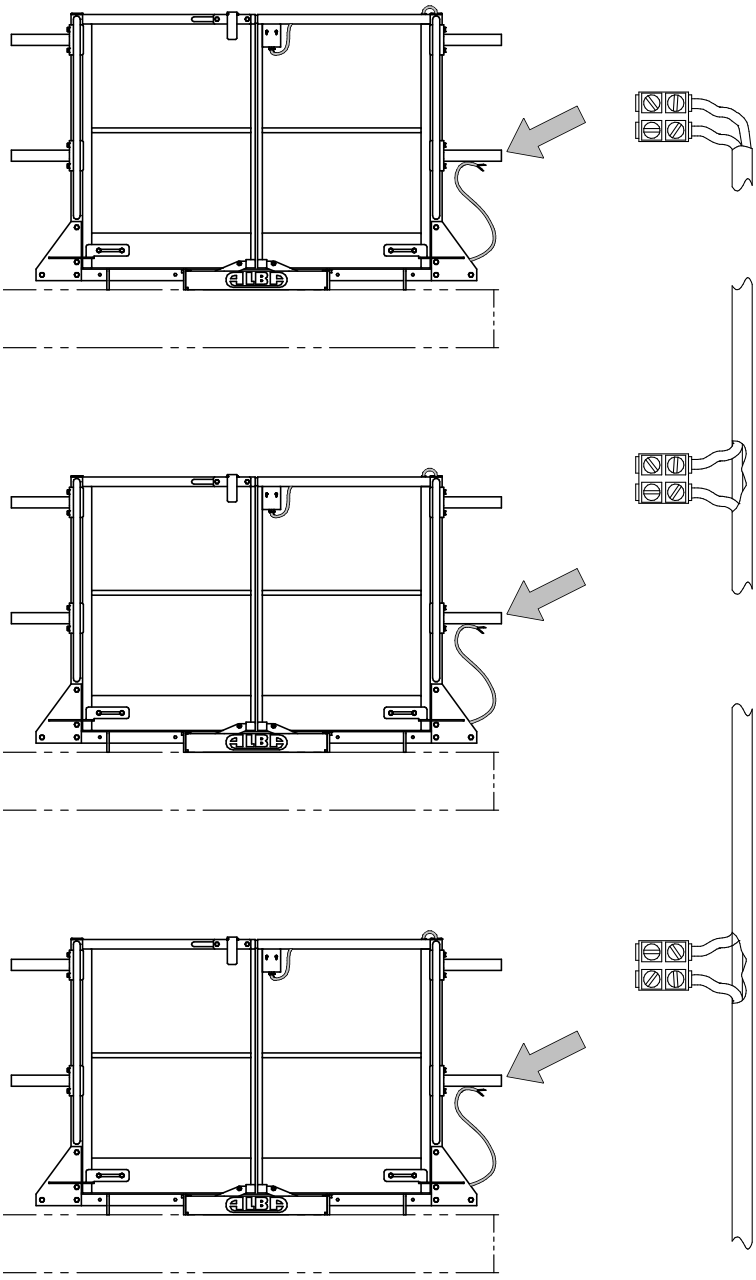
ASSEMBLY DETAIL



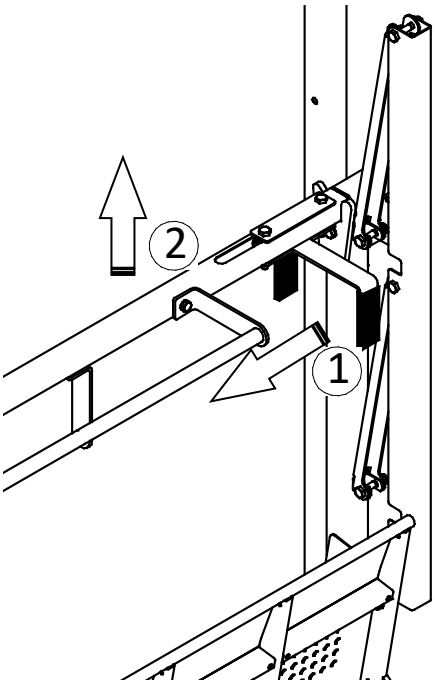
UNLOCKING – OPENING LANDING GATE



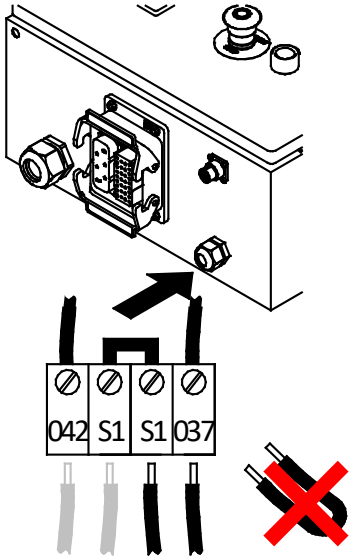
GATE ASSEMBLY ADJUSMENT



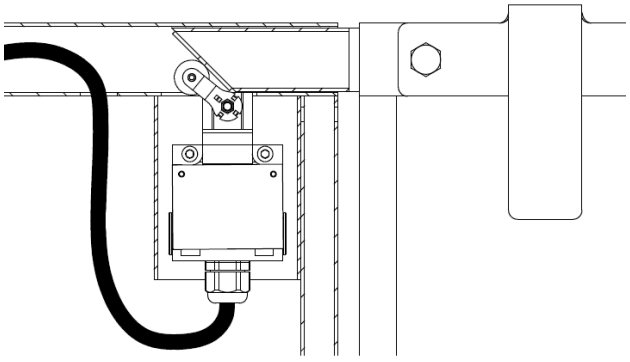
CONNECTION OF LANDING GATE ELECTRICAL SWITCHES (S1-037)



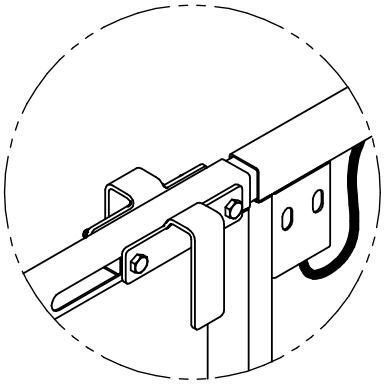
OPENING LANDING GATE



CONNECTION TO BASE PANEL



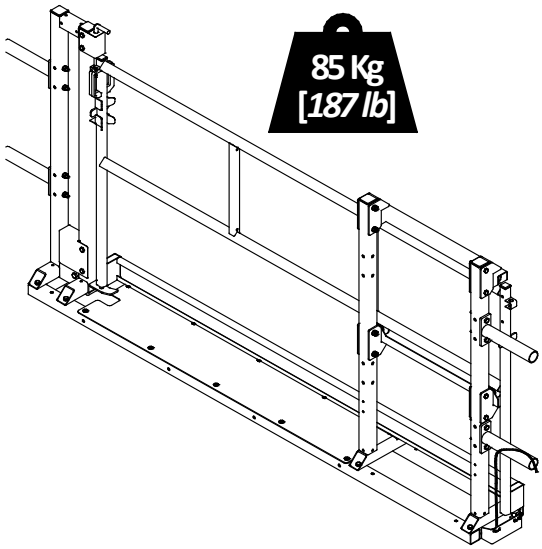
ADJUSTMENT OF LANDING GATE SWITCH



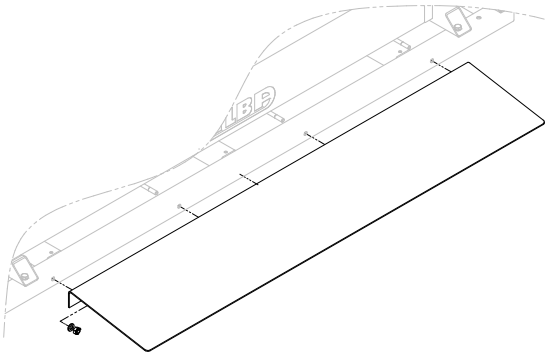
LANDING GATE LATCHING

· SLIDING GATE LANDING GATES (USUALLY TO SCAFFOLD):

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

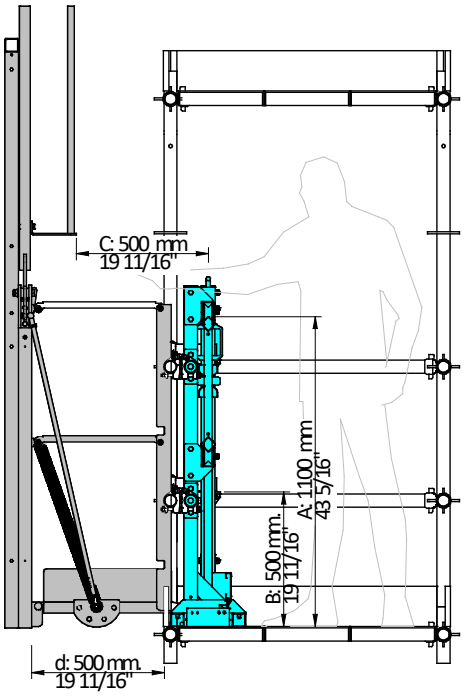


161.5 SLIDING GATE LANDING GATE 1400

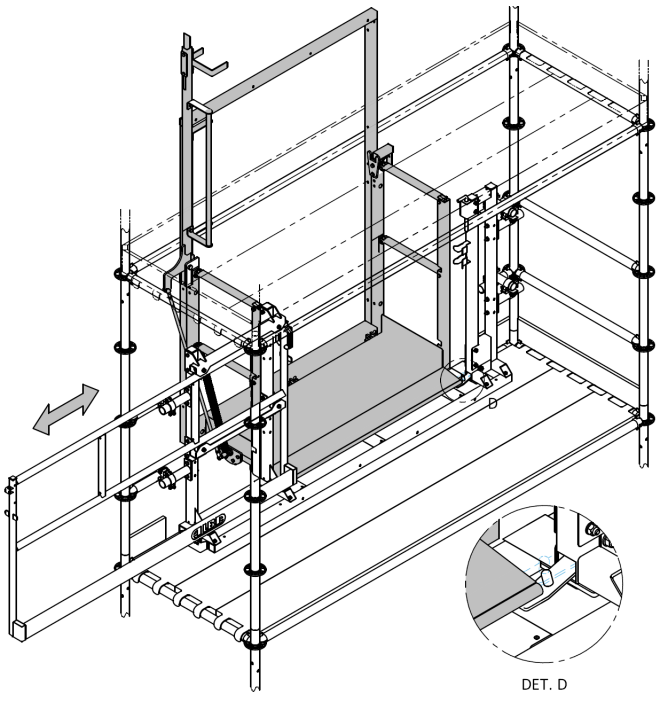


OPTION – 161.56 ACCESS RAMP (∠ 10°)

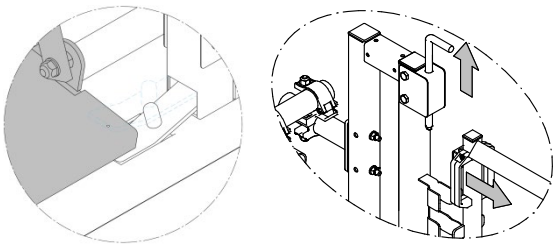
INSTALLATION IN TO SCAFFOLD STRUCTURE



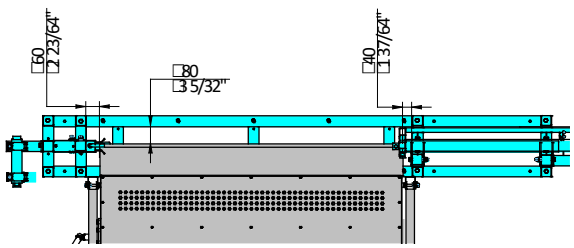
INSTALLATION DISTANCES



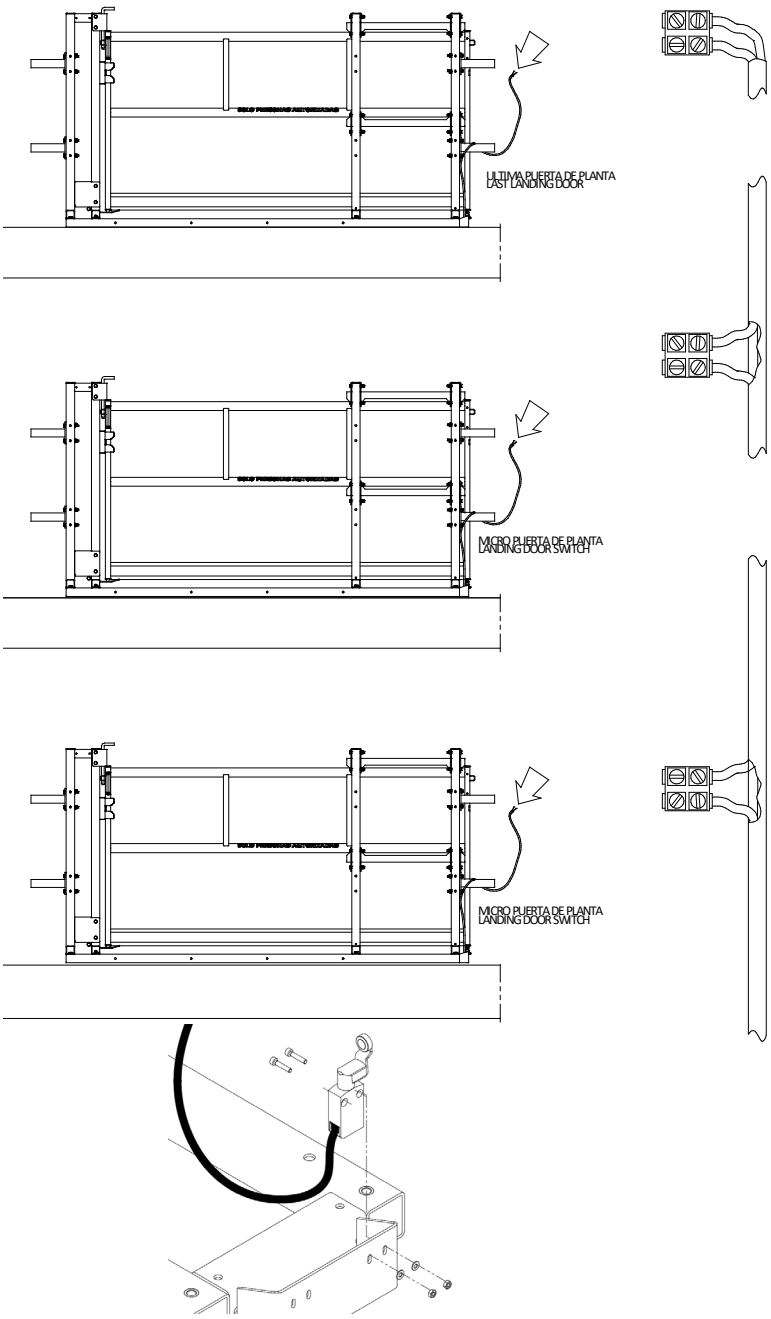
ASSEMBLY DETAIL



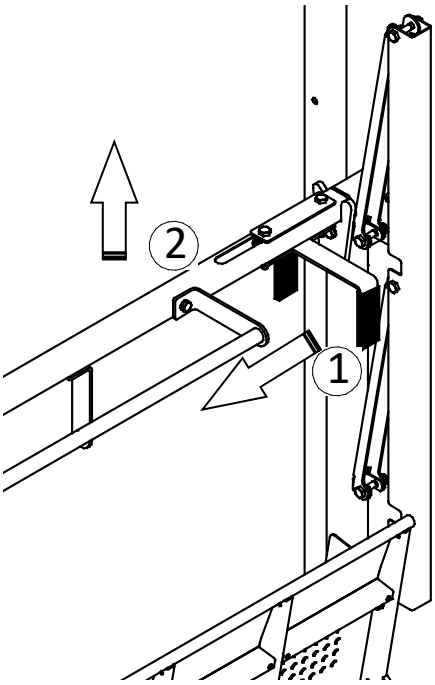
UNLOCKING – OPENING LANDING GATE



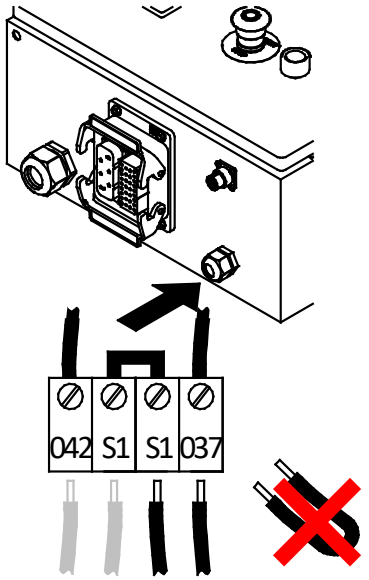
GATE ASSEMBLY ADJUSTMENT



LANDING GATES SWITCHES CONNECTION (S1 - 037)



OPENING LANDING GATE

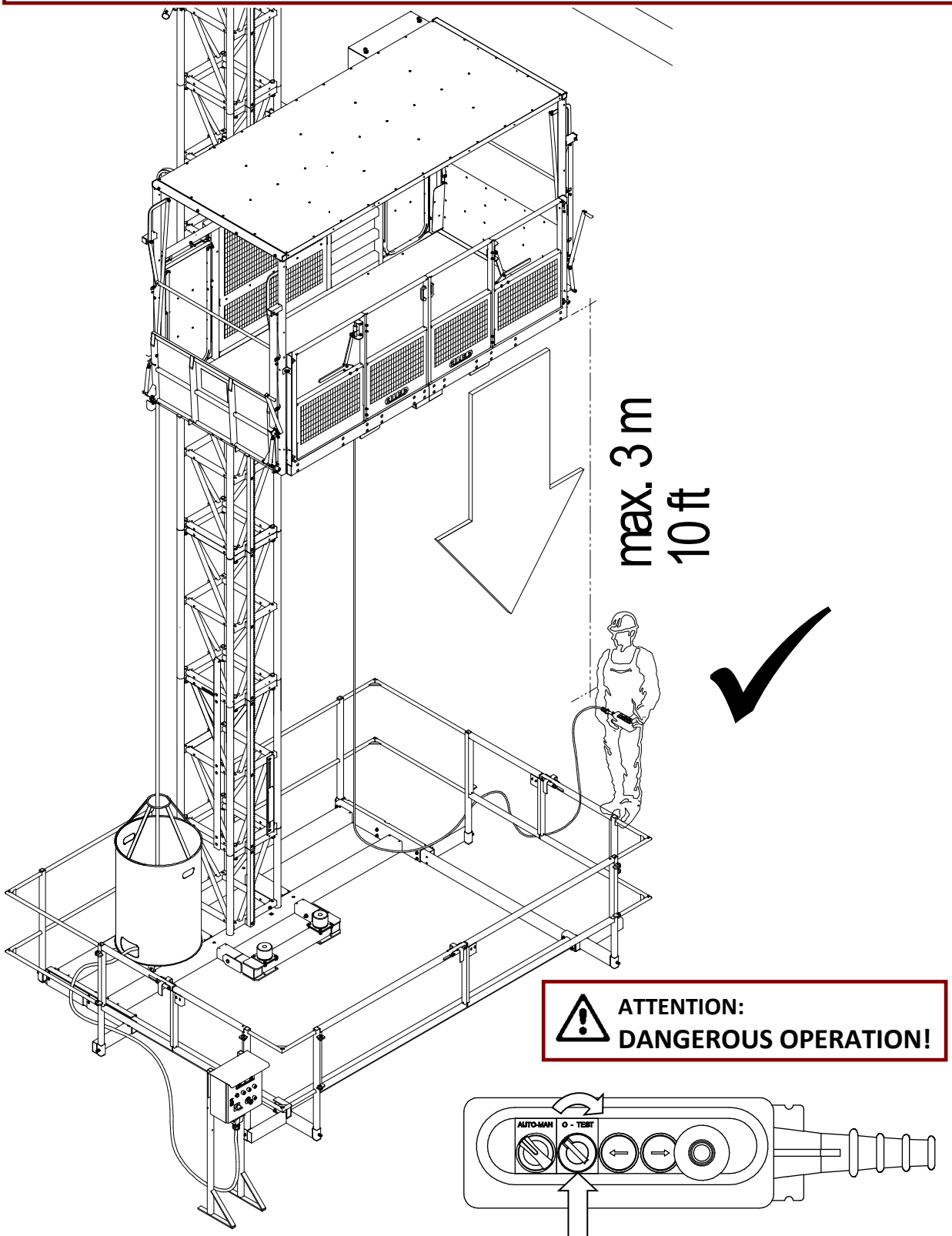


BASE CONTROL PANEL SWITCHES CONNECTION

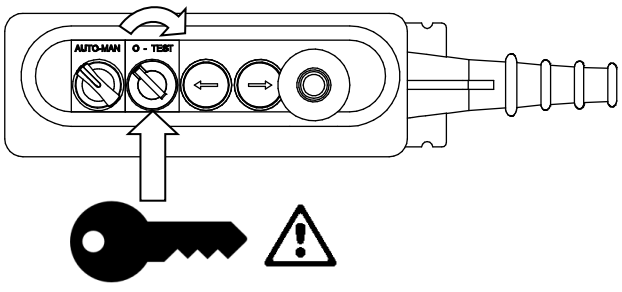
IMPORTANT:
ONCE THE GATE SWITCHES ARE INTER-CONNECTED, AND CONNECTED TO BASE CONTROL PANEL, IT´S NECESSARY THAT ALL GATES ARE CLOSED TO MOVE THE PLATFORM.
MAKE SURE THAT THE PLATFORM GATES ARE PROPERLY CLOSED AND LOCKED BEFORE MOVING THE HOIST.

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



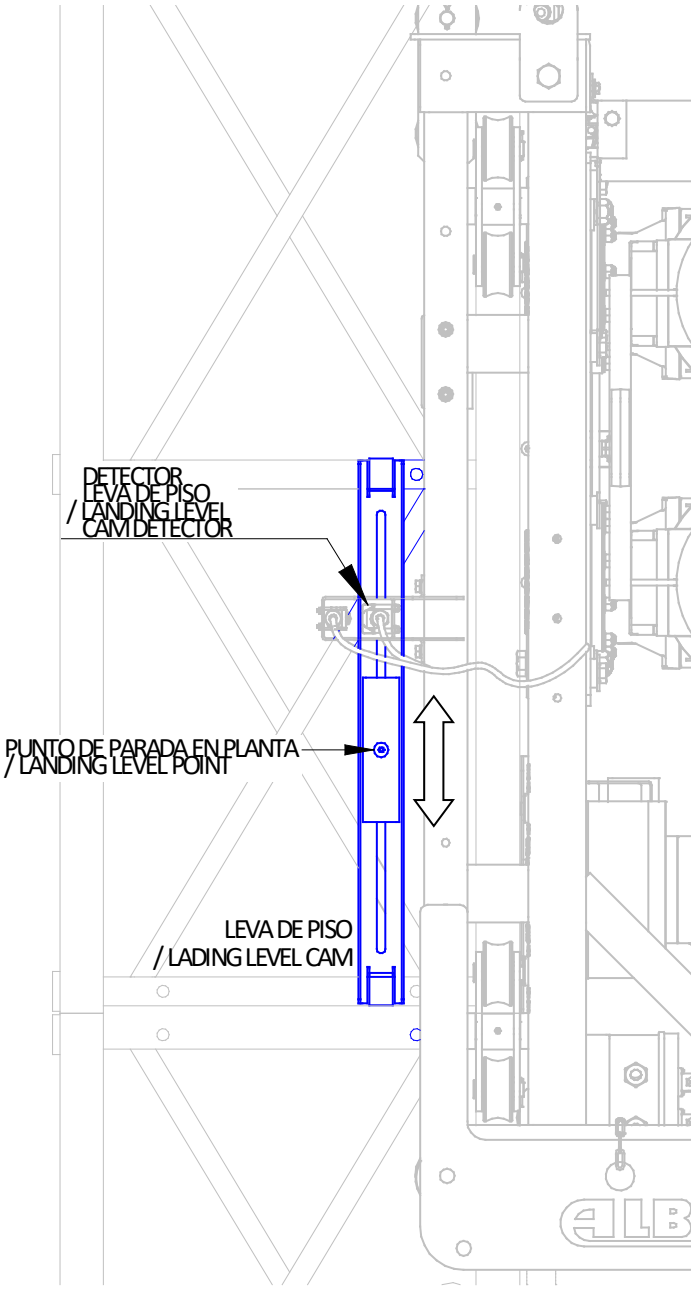
ATTENTION:
DANGEROUS OPERATION!



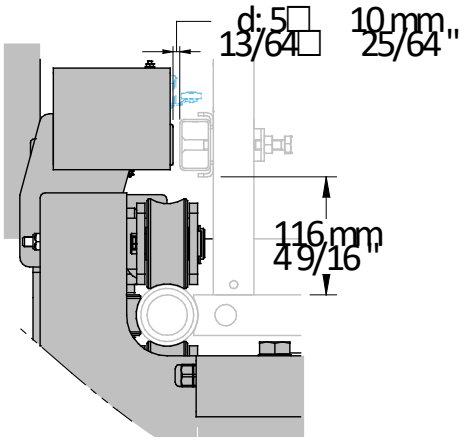
PARACHUTE TEST PROCEDURE (See Chap.4)

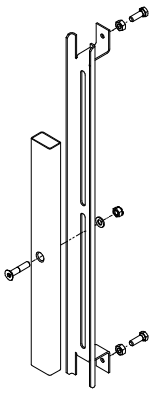
Step 11. Installing landing level cams.

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

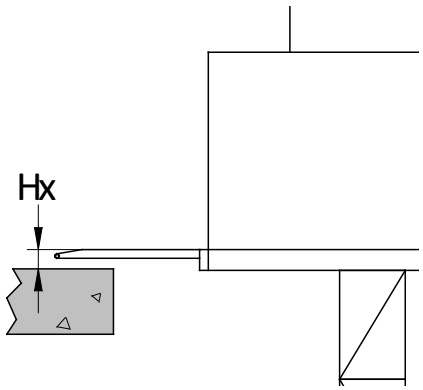


INSTALLING LANDING LEVELS CAM IN THE MAST





PT-2V
ASSEMBLY OF LANDING CAM



Hx = 90mm [*3 35/64"*]↔ SLIDING GATE
Hx = 130mm [*5 1/8"*] ↔ SWINGING GATE

REFERENCE HEIGHT TO STOP

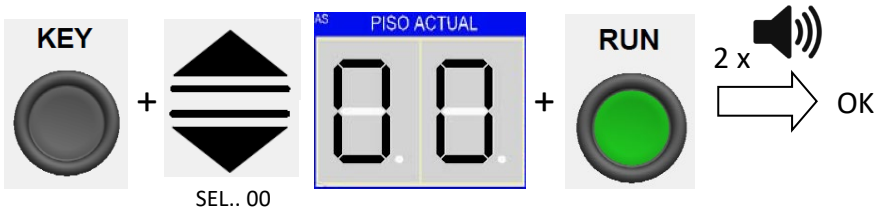
IMPORTANT:
ONCE THE FLOOR CAMS ARE INSTALLED, MAX. NUMBER OF FLOOR IS TO BE PROGRAMMED IN THE CPU SYSTEM, SO THAT WAY, OPERATOR OF THE PLATFORM ONLY CAN SELECT ONE OF THE LANDING LEVELS PROGRAMMED.

Step 12. Programming landing levels.

PROGRAMMING OPERATIONS ARE CARRIED OUT FROM THE CABIN SWITCHBOARD.
IN EVERY NEW ASSEMBLY, OR IF THE ER E2 MESSAGE APPEARS, YOU MUST PROCEED 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:

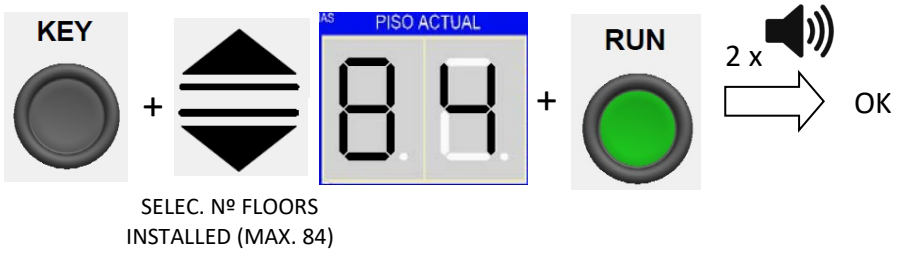


- Step 4. Release KEY: 1 x → INITIALIZATION. OK

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 cabin control until you leave the Reference point FCB (a few cm.)
- Step 3. Process:



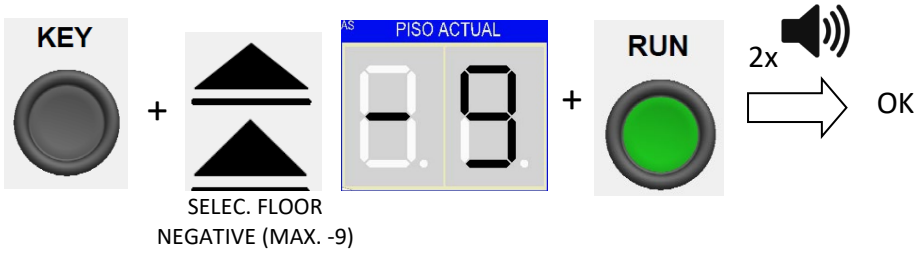
- Step 4. Release KEY. 1 x → MEMO Nº MAX. FLOORS OK

IMPORTANT:
AFTER SAVING 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 TO 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.

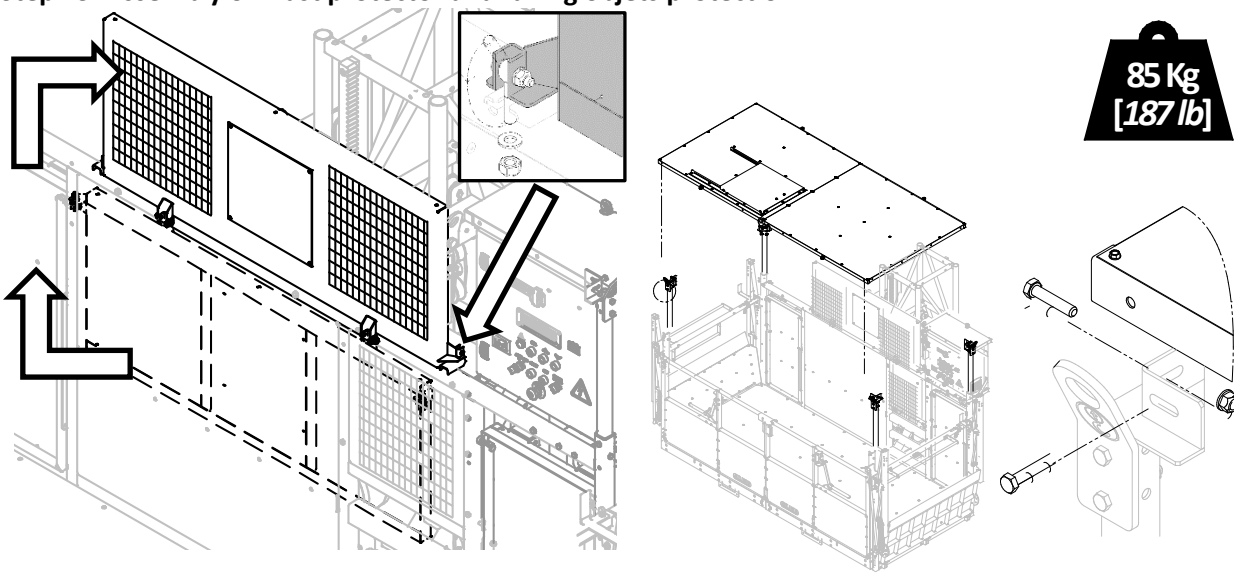
- Step 1. Select MANUAL mode.
- Step 2. Place the hoist in reference point FCB
- Step 3. Process:



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

IMPORTANT:
WHEN DEFINING NEGATIVE FLOORS, 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. Assembly of mast protector and falling objets protection.

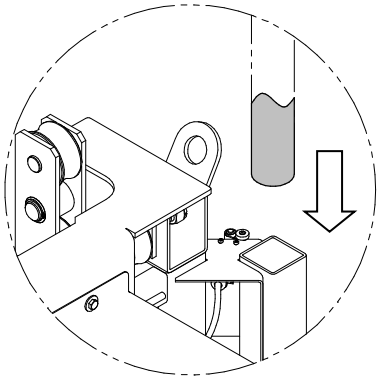


INSTALLING MAST PROTECTOR **FALLING OBJETS PROTECTION**

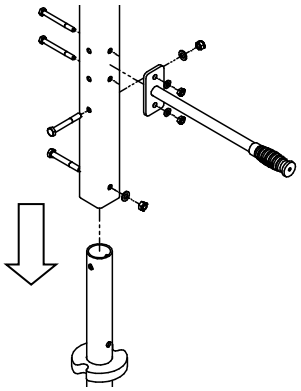
WARNING:
AT THE END OF ASSEMBLY PROCEDURE, THE MAST PROTECTION MUST BE FIXED IN POSITION BEFORE HOIST COMMISSIONING.

CONSULT THE CONDITIONS FOR USING THE PLATFORM WITHOUT ASSEMBLING FALLING OBJETS PROTECTION (SEE Page 4)

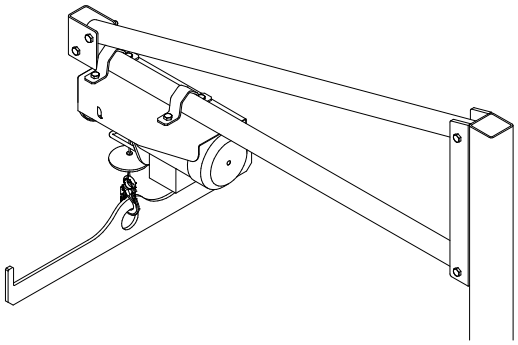
Step 14. Installing auxiliary crane.



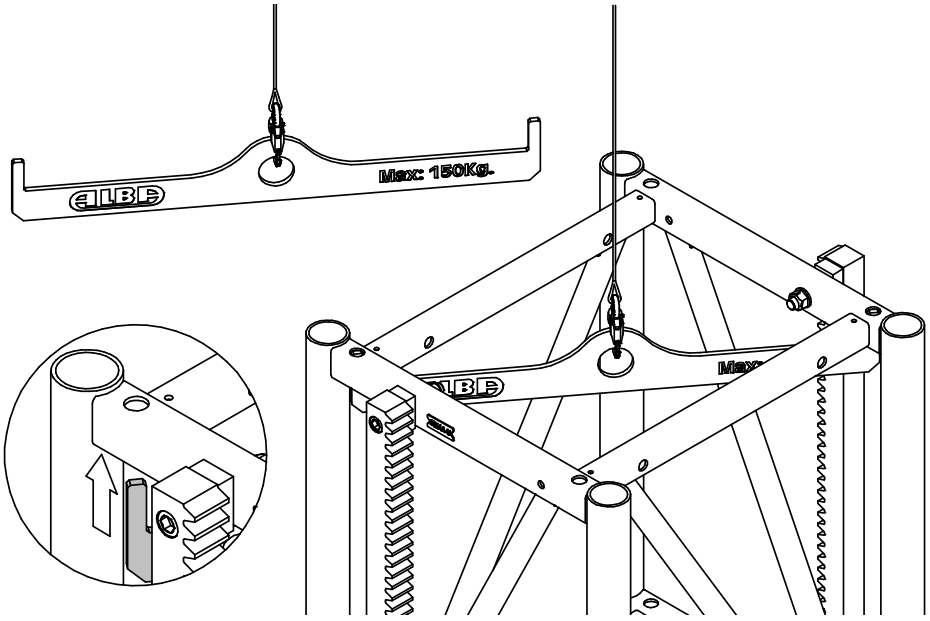
FIT PIPE INTO HOLE



MAST ASSEMBLY



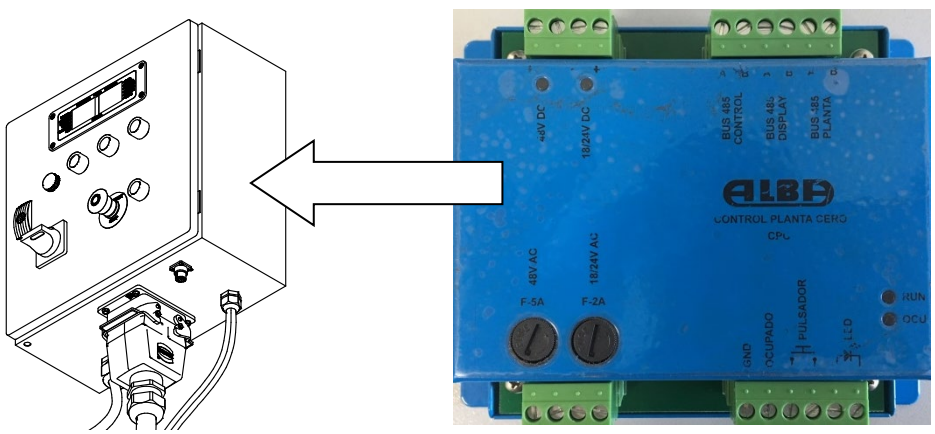
ASSEMBLY AUX. CRANE AND SUPPORT



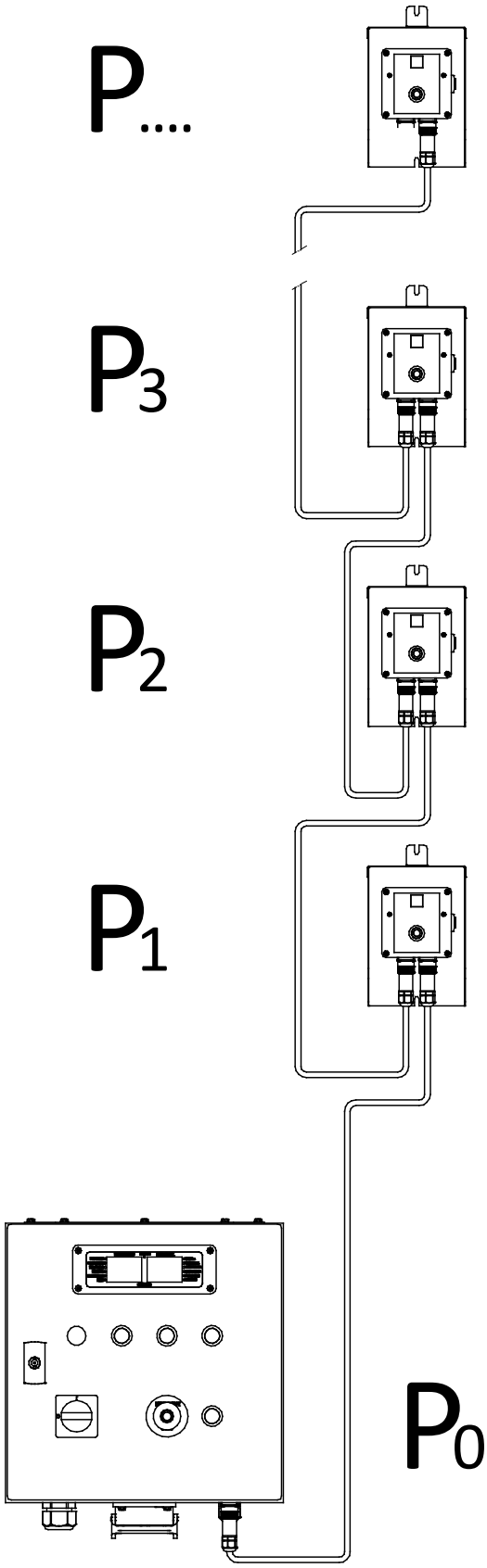
AUXILIARY SUPPORT FOR MAST MANIPULATION

WARNING:
NEVER EXCEED THE MAXIMUM LOAD CAPACITY OF THE RIGGING.
THE AUXILIARY CRANE HAS SECURITY SWITCH. IF THE FISH IS OUT OF THE SAFETY AREA OF THE CABIN, THE MACHINE WILL NOT WORK.

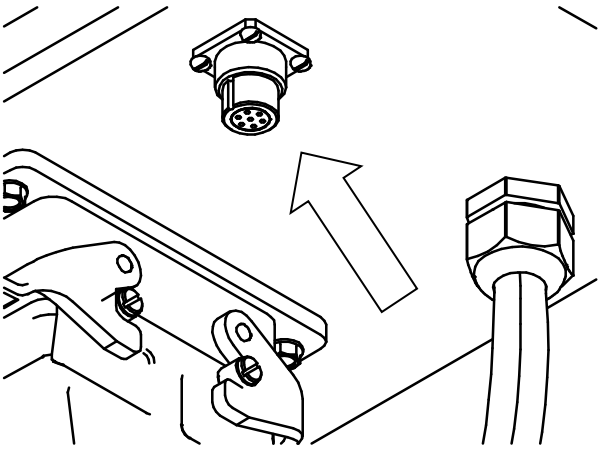
Step 15. Installing landing levels call system (optional)



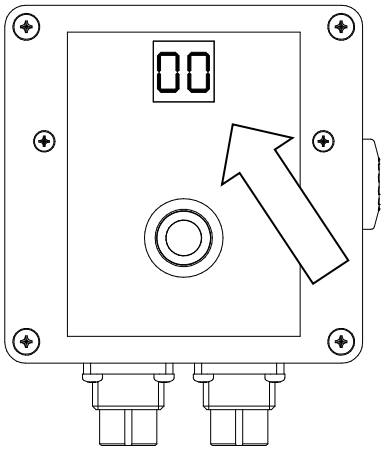
E-CPC-A CARD FOR CALL ORDER MANAGEMENT IN INFERIOR CONTROL BOARD

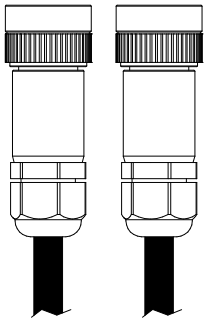


INSTALLATION OF CALL BUTTONS BOXES

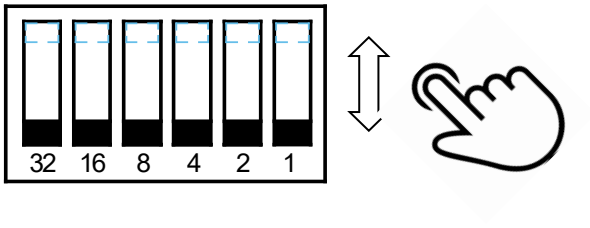


CALL CONNECTOR IN INFERIOR CONTROL BOARD





CALL FLOOR SELECTION DISPLAY



SELECTING THE CALL FLOOR (BINARY CODE)

ATTENTION:
THE CALL FROM THE FLOOR WILL ONLY BE POSSIBLE WHEN THE HOIST IS IN A FREE SITUATION (GREEN PILOT OFF).

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 CAR 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 car falling objets protector ceiling and folding 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 HIGH CHANCE OF COLLAPSE AND SERIOUS INJURY!

Step 2. Dismantling cable system and guides.

If it has been used the cable trolley system, remove the cable bracket from the column and remove the cable trolley, continuing the dismantling of the mast column to the lower limit.

Step 3. Electrical devices disconnection.

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

Step 4. Dismantling the car.

Remove the car 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 PEOPLE, WHO HAVE BEEN INSTRUCTED IN THE SAFELY HOIST OPERATION

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

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

IMPORTANT:
TWO OPERATION MODE ARE POSSIBLE WITH THE HOIST:

AUTO - MAN

- **"MANUAL" MODE (ONLY FOR ASSEMBLY): HOIST MOVEMENTS ARE PERFORMED WITH HOLD-TO-RUN BUTTONS. CONTROL IS ALLOWED ONLY FROM THE PLATFORM 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 PLATFORM CONTROL (PEOPLE 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 [*9-10*]. REMAINING TRACK UNTIL F.C.B. (Inferior endtrack switch) IS ONLY TO BE POSSIBLE BY HOLDING "RUN" BUTTON.
IN "PERSONS" MODE, THE CONTROL HAS A DELAY OF 3sec. TO COMPLETE DOWNWARDS MOVEMENT OF 3m [*9-10*] ZONE.

WARNING:
"MANUAL" MODE ONLY IS ALLOWED FOR AUTHORIZED AND COMPETENT TECHNICAL PEOPLE, 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 PLATFORM CONTROL.
OPERATE THE PLATFORM IN “MANUAL” MODE IS FORBIDDEN BY UNAUTHORIZED USERS.

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

DESCRIPTION OF THE CONTROLS - MANUAL MODE

MANUAL MODE ACTIVE

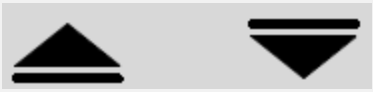
LIGHT - OUT OF SERVICE

START
EQUIPMENT RESET BUTTON

AUTO-MAN

MANUAL MODE SELECTOR

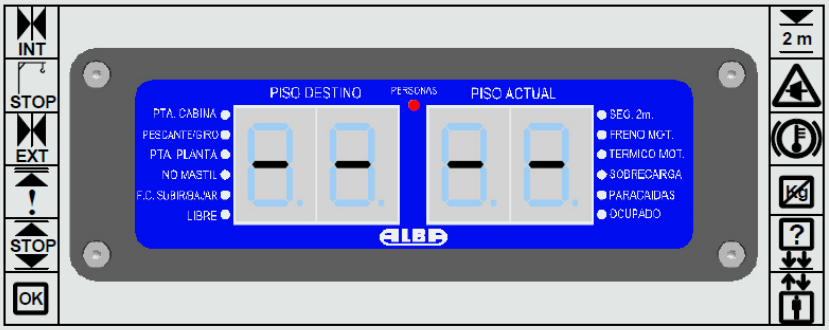
SELECTOR NOT ENABLED

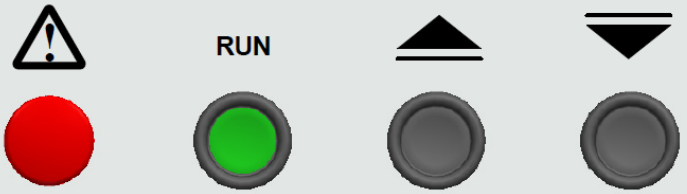


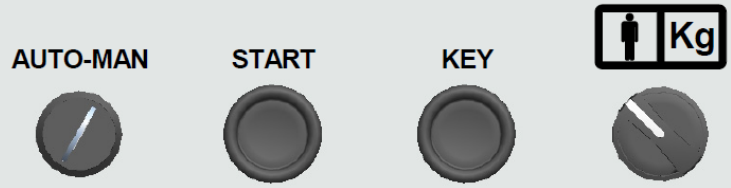
UP - DOWNLOAD MANUAL

KEY
PROGRAMMING BUTTON

RUN
LOWERING MANUAL - ZONE 3 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.

WARNING:
IF THE HOIST IS IN "MANUAL" MODE, THE CONTROL FROM THE BOTTOM PANEL IS DISABLED, PREVENTING THE HANDLING OF THE HOIST BY USERS.

3.3. Using “AUTO” mode.

IMPORTANT:
“AUTO” MODE IS USED FOR NORMAL HANDLING OF THE HOIST BETWEEN PROGRAMMED LEVELS, WITH BOTH PLATFORM CONTROL (“PEOPLE”) AND GROUND CONTROL (“LOADS”)

· AUTO MODE – “PEOPLE” SELECTOR:

DESCRIPTION OF CONTROL – AUTO MODE- “PEOPLE” (MAIN CONTROL BOARD)

AUTO MODE WITH HOIST IN THE POINT OF REFERENCE

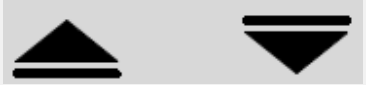
AUTO MODE WITH HOIST OUT OF THE POINT OF REFER.

LIGHT - OUT OF SERVICE

AUTO-MAN

SELECTOR AUTOMATIC MODE

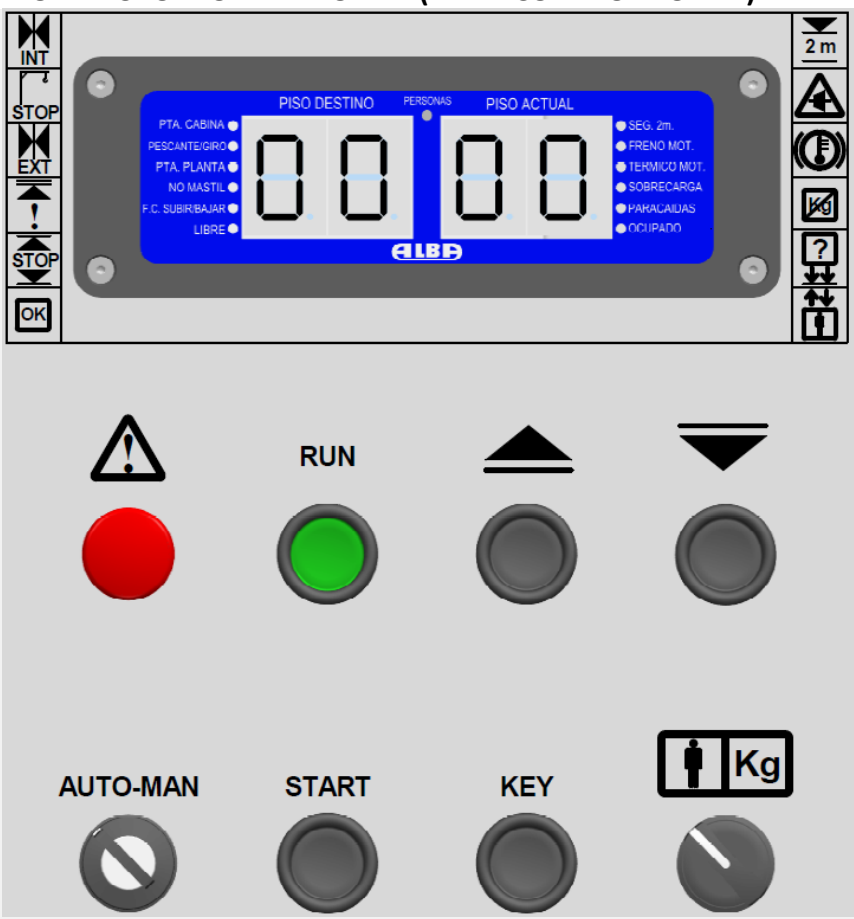
“PERSONS” MODE



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 – "PEOPLE" TO AUTO – "ONLY LOADS" HOIST WILL REMAIN "OCCUPIED" FOR 15 SEC. AFTER THIS TIME, THE LOWER AUTO – "ONLY LOADS" CONTROL PANEL IS ENABLED.

· AUTO MODE – "ONLY LOADS" SELECTOR (ALL MODELS):

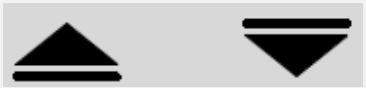
DESCRIPTION OF CONTROLS – AUTO MODE- "ONLY LOADS" (GROUND PANEL)

AUTO MODE WITH HOIST IN THE POINT OF REFERENCE

AUTO MODE WITH HOIST OUT OF THE POINT OF REFERENCE.

LIGHT - OUT OF SERVICE

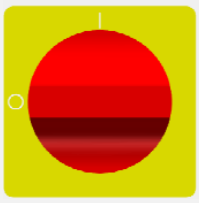
MODE "ONLY LOADS" (ON PLATFORM)



SELECTION OF DESTINATION FLOOR BUTTONS

RUN

SHIP TO DESTINATION FLOOR

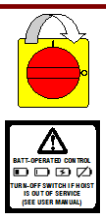


ATENCION:

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:
WHEN "AUTO" MODE IS SELECTED, PEOPLE USE (PLATFORM) 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.

IMPORTANT:
CASE OF BATTERY POWERED CPU ("1C" TRANSPORT PLATFORMS) THE OUT OF SERVICE RED LIGHT WILL REQUIRE SWITCHING OFF THE POWER SUPPLY AND RESOLVE THE ISSUE. ONCE POWER SUPPLY IS RESTORED, SWITCH TO MANUAL, DESCENT TO FBC, AND RESET.



3.4. Security messages in the 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**
PLATFORM 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 2) Press DOWNWARDS until Ref. point (FCB)➔ Press KEY
		AUTO	Turn key to MAN
NO MAST		MAN	1) Press DOWNWARDS until display shows REST 2) Press DOWNWARDS until Ref. point (FCB)➔ Press KEY
		AUTO	Turn key to MAN
ENDTRACK UP		MAN	1) Press DOWNWARDS until display shows REST 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 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 E5➔ display shows RESET 2) Press KEY.

NORMAL MESSAGES

ENDTRACK DOWN		Ref. point platform (FCB)
3m [9-10] ZONE		3 m / 9'10" safety zone platform
HOIST FREE		Platform stopped and prepared
HOIST BUSY		Platform moving or busy
PERSONS		Control inside platform activated

(FCB): Inferior Endtrack. 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 PLATFORM GATES ARE PROPERLY CLOSED AND LOCKED BEFORE MOVING THE HOIST.

OTHER MESSAGES IN DISPLAY

MANUAL Mode selected

Total descent to FCB (Ref. point) and RESET

Total descent to FCB (Negative Ref. point)

Memory error (ERASE MEMORY)

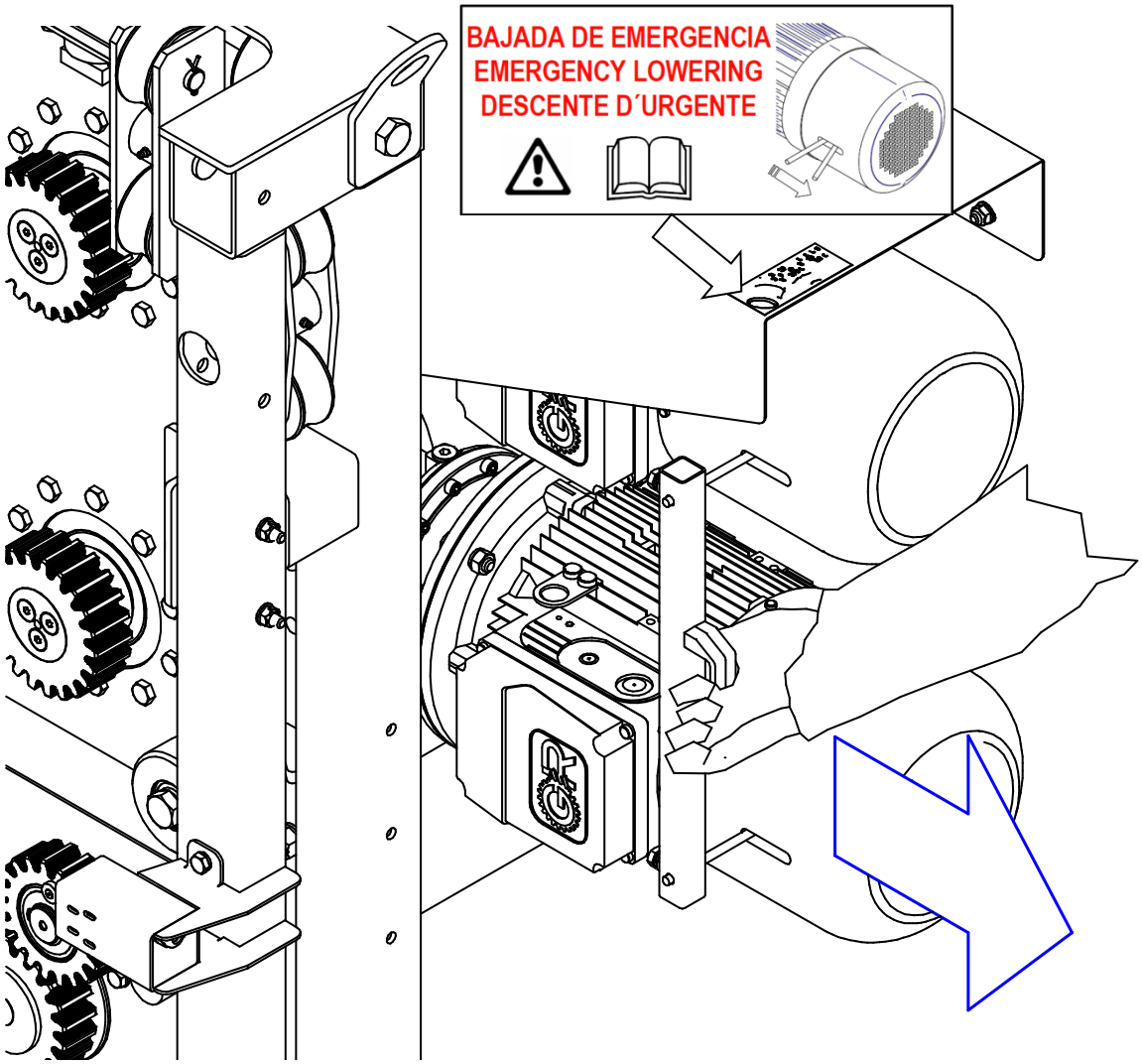
Reset control (PRESS KEY en FCB)

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 platform handpicked, acting with extreme caution on the release levers of the motor brakes on the platform 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.



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

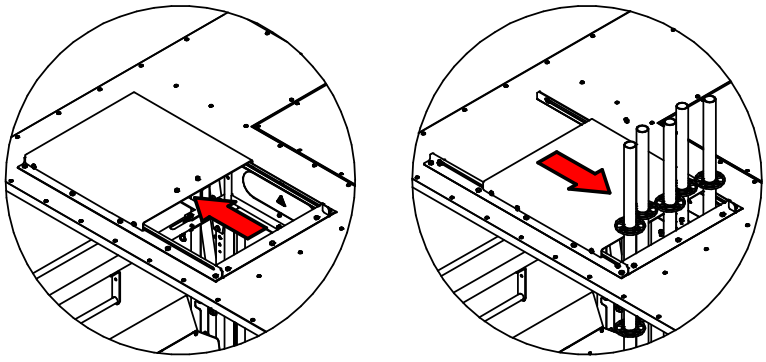
3.6. Checking hoist operation before commissioning.

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

- Hoist ´s installed with all operational safety systems:
  - Landing floors are properly programmed
  - No destination can be chosen over last floor programmed.
  - FCS switch stops hoist before reaching red mast.
  - Overload detector (inductive sensor) works properly
  - Brakes support the maximum load correctly.
  - FCB switch stops hoist on Ref. Point before reaching the buffers.
  - The mast presence detector works correctly.
  - Display shows safety activations and operational leds correctly.
  - Landing levels hoist calling system works OK (if installed.
  - Hoist control inside platform 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 platform gate / landing gate / fence gate are operative.
- Control switch for platform gate / landing gate / fence gate work correctly
- The points of access to the platform and hoistway have adequate lighting.

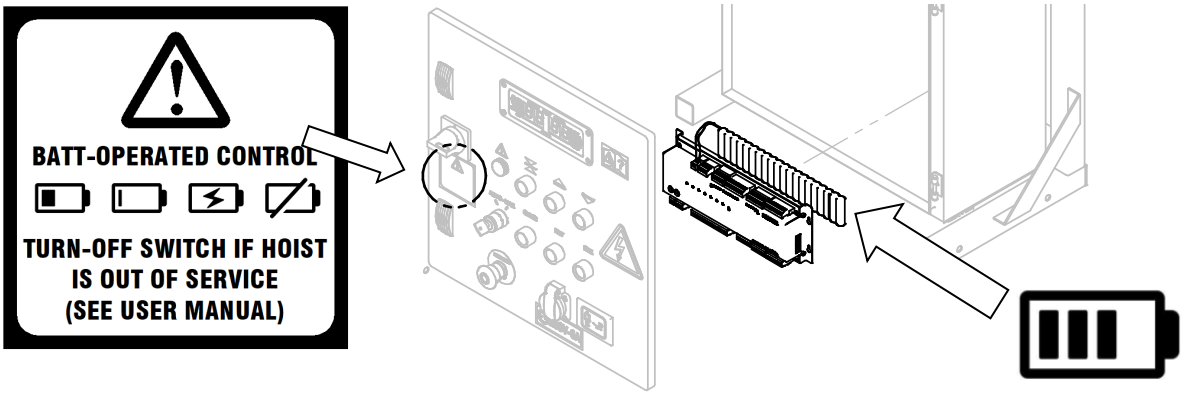
IMPORTANT:
KEEP ORDER AND CLEANING IN THE ELEVATOR AND SURROUNDINGS

3.7. Using the hatch



ATTENTION:
THE USE OF THE HATCH IS LIMITED FOR TRANSPORTING MATERIALS WHOSE LENGTH EXCEEDS THE DIMENSIONS OF THE CAGE. 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 DOORS AND RESTART THE CONTROL, TO AVOID DISCHARGING THE BATTERY, OR SWITCH OFF THE CONTROL IF IT IS TO REMAIN STATIONARY FOR A LONG TIME.

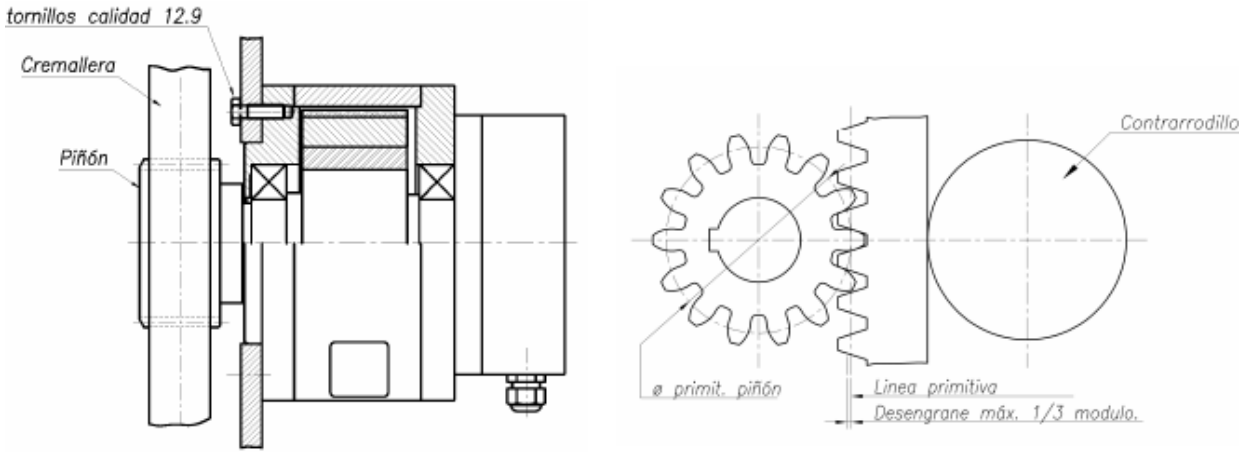
3.9. Applications and uses forbidden

- 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 platform bounds, **it must be located as near from mast as possible**.
- DON´T transport loads out of platform 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 platform floor. If travelling, user´s feets must be on the platform 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 (ej.: 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 hoistway. 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-3500

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. 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 to lift 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 a waterproof housing that allows confining the security unit, preventing it from dust and corrosive atmosphere inside. It must also prevent unauthorized adjustment, so that should not be screws handling by unauthorized persons.

· Buffer:

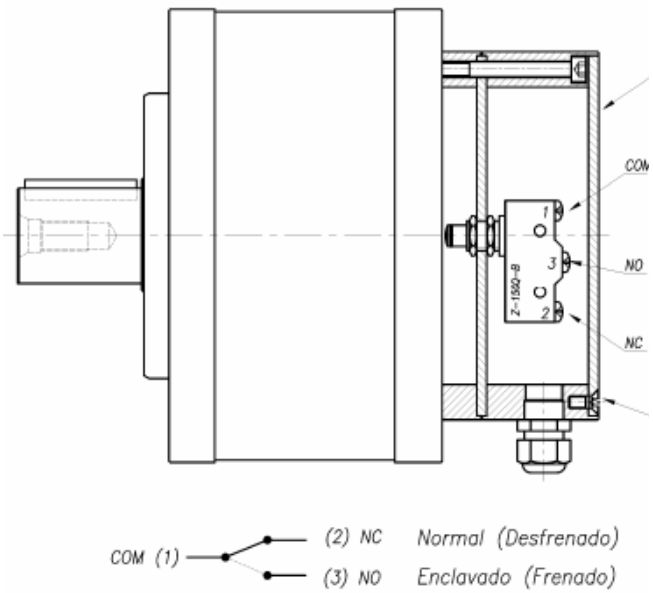
The parachute has a progressive braking system so that locking is produced in a buffered way, so that after a controlled braking, the platform is stopped, according to deceleration specifications of reference standards to avoid accidents resulting from major efforts generated by moving mass inertia.

· Locking:

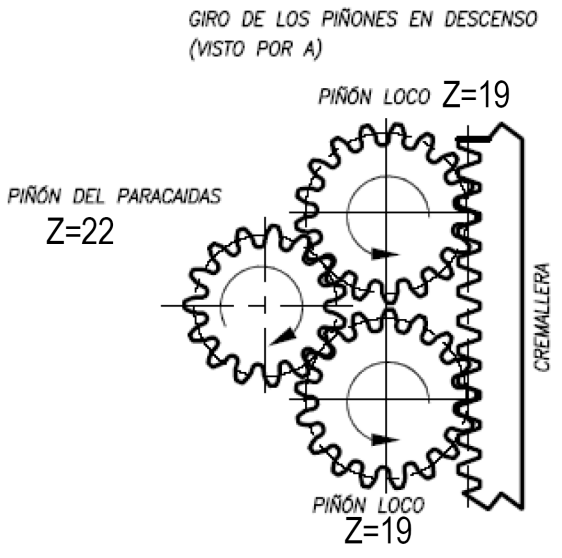
The device features a brake consisting of four sectors, which are charged up to torque referred to the elevator, so that deceleration is controlled accurately, even in case of free drop of the machine, according to the specifications of harmonized standards reference.

· 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 DRIVEN WHEELS

· ID plate and features of the device:

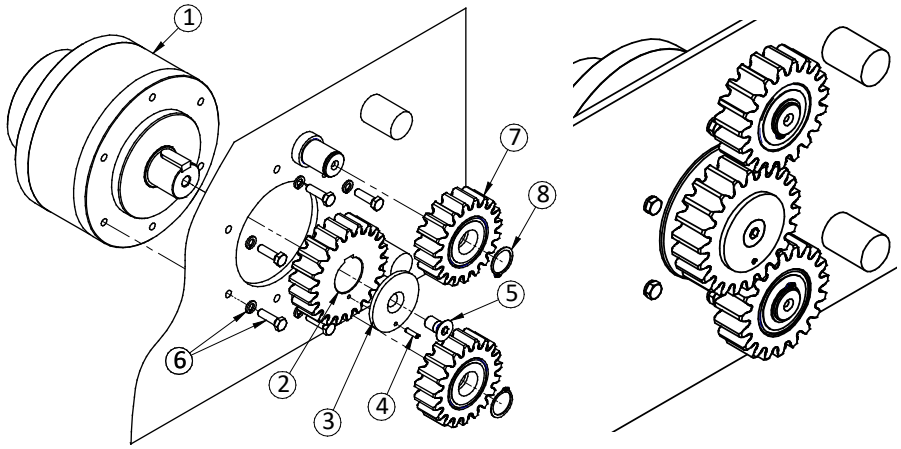
The parachute is equipped with an identification plate, with CE logo stamped and brake characteristics:

- 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 ON THE PARACHUTE

4.3. Installing the parachute.

The unit shall be firmly fixed to the chassis of the platform, so that the pinion is centered with the mast rack crowns, 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: SAFETY SCREW
6: FITTING SCREWS
7: DRIVEN WHEELS
8: SAFETY RING

INSTALLING SAFETY UNIT IN TO THE HOIST

WARNING:
DON´T INSTALL A PARACHUTE 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, in order 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 have to be performed, in order to verify its functioning properly.

A) MANUFACTURER TEST

ALBA MACREL GROUP, SL perform 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.

PARACHUTE TEST PROCEDURE

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

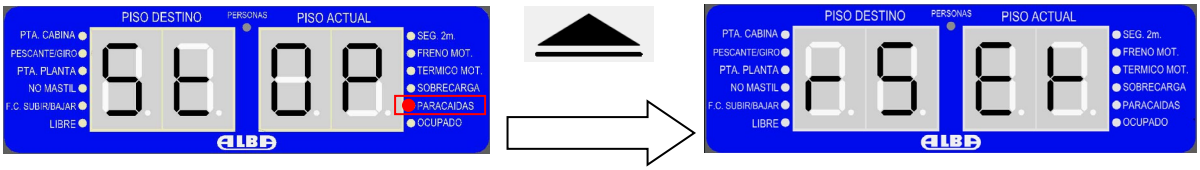
2.- The hoist shall be securely fastened to the facade or structure.

3.- Remove parachute bridge of the mainboard and connect instead the parachute test board.

4.- Leave the hoist and load the platform with Qn (±2.000 Kg [*4,400 lb*]) and take a position at a safe distance.

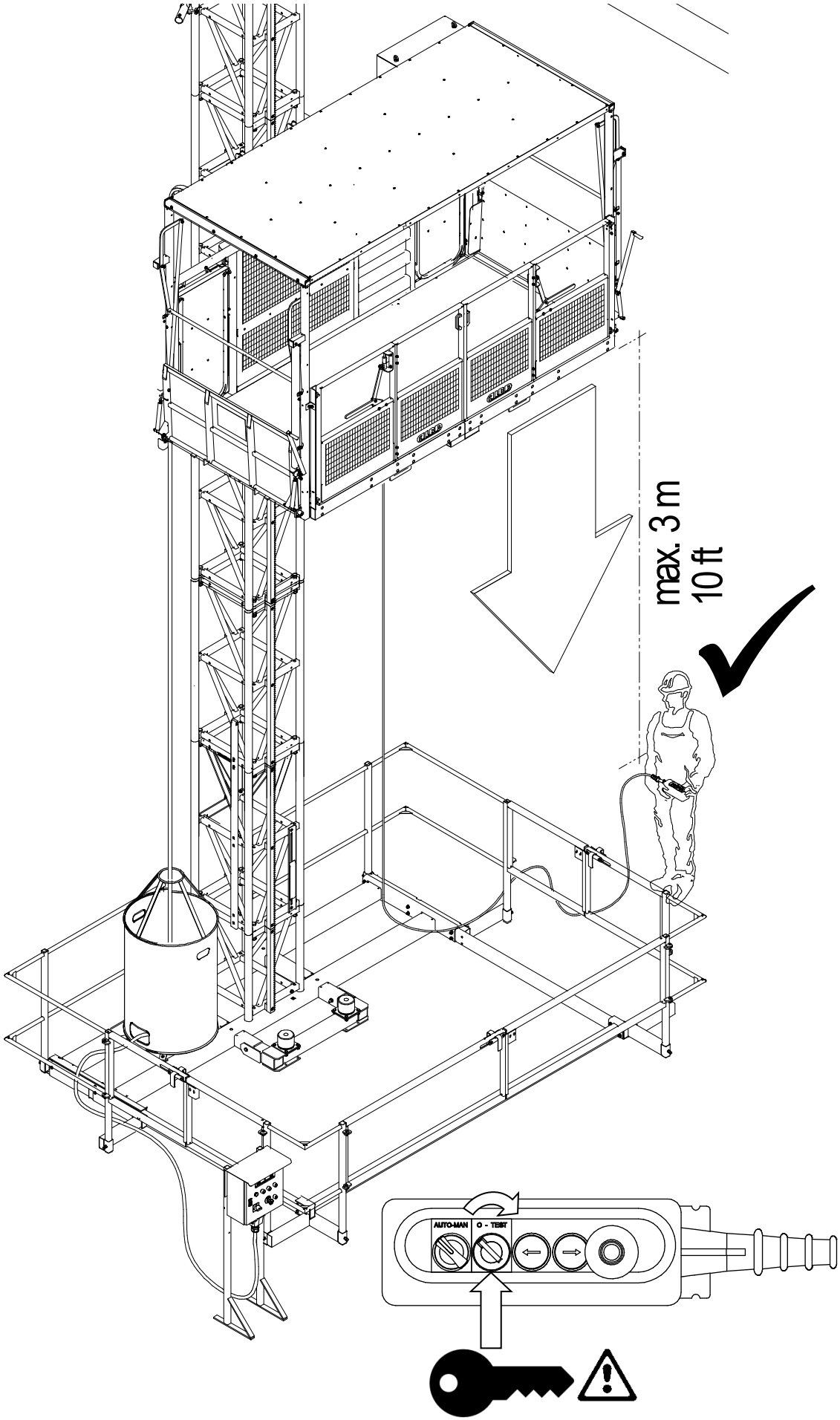
5.- Raise the hoist with test board and stop it at approx. 3 m [*10 ft*] above the ground.

6.- Turn on the left “TEST” key and let the hoist drop until parachute activates and car stops. Check if hoist 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:
CHECK THE PARACHUTE PERIODICALLY AND WRITE THE RESULT IN THE OPERATOR'S MANUAL REGISTRATION.


max. 3 m
10 ft
AUTO-MAN
0 - TEST

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 taking into account 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.

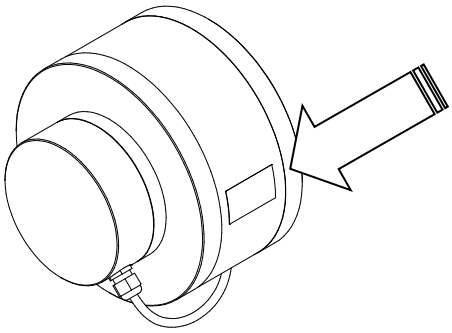
ATTENTION:
MOTOR BRAKE MANUAL RELEASE ONLY IS ALLOWED TO AUTHORIZED TECHNICAL PERSONNEL.

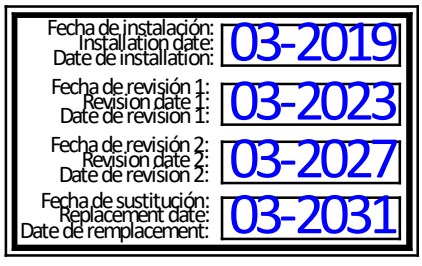
In the case of occurrence of case (B) shall cease machine operation until the action of an authorized technician which choose the best option depending on the severity of problem. If there is no clear solution, perform the disassembly of the machinery with auxiliary means.

4.6. Revision and replacement of the parachute.

Following the instructions of the safety device manufacturer, in order to ensure integrity of the device, along the time, the responsible of the hoist must proceed as follows:

0. Installation of the device on the hoist. Drop test to check.
1. After **4 YEARS**: The parachute has to be shipped to manufacturer for revision and recalibration.
2. After **8 YEARS**: The parachute has to be shipped to manufacturer for revision and recalibration.
3. After **12 YEARS**: Replace the parachute of the hoist.





INSTALLATION, REVISION AND REPLACEMENT PLATE

· Additional information of device: 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 1,8m [*5-11*] HEIGHT UNDER THE CAGE. MAINTENANCE TASKS MUST BE PERFORMED WITHOUT LOADS.

5.1. 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 car, or near the hoist.
- □ There´s no excessive wear in the rack, or in the vertical pipe of the mast.
- □ All the car protections are installed, and there´s no dangerous holes or gaps.
- □ Identification and characteristics plate is installed inside the car.
- □ Area below hoist is bounded and base fence is installed.
- □ There isn´t any warped or cracked part (Case of, change it).
- □ Electrical cables 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 switches, mast sensor).
- □ Emergency stop works properly.
- □ Facade ties are correctly installed.
- □ Car gates, fence gates and landing gates auto-lock system work properly.
- □ Car floor and walls are in good condition.
- □ Rack-pinion transmission is correctly engaged.
- □ Control and power panels are in good condition
- □ Car lamp lights properly.
- □ All the controls, panels and indicators work properly.
- □ Cable travels and slides over the cable holder properly.

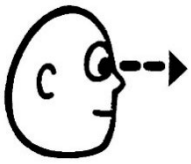
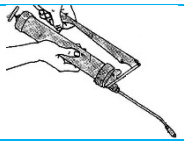
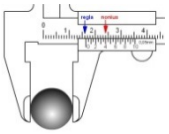
After reviewing all the checkpoints listed, and solved any problem, the machine can be used safely.

5.2. Periodic maintenance schedule

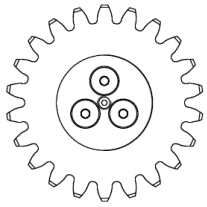
WARNING:
IN CASE OF ELECTRICAL MALFUNCTION IN THE HOIST, DO NOT HANDLE ELECTRICAL EQUIPMENT. MAINTENANCE AND INSPECTION OF THE HOIST ONLY MUST BE PERFORMED BY AUTHORIZED

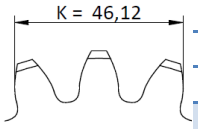
Maintenance of the lift must be performed by the staff responsible for the machine and the results have to be recorded on the MAINTENANCE RECORD.

MAINTENANCE TASKS SCHEDULE

	OPERATION	ELEMENT	TOOL	PERIODICITY
1		• FIXING BOLTS CAR-CHASSIS (CHECKING). • ENDTRACK CAMS. • MAST SENSOR (CHECK GAP: ±5 mm.). • MOTORGEAR OIL LEVEL. • GATES SWITCHES. • LOAD CELL (CHECK FUNTION) • SLIDING MOTOR PLATE BOLTS AND NUTS (INSPECTION) • CONTROL PANEL LIGHTS ANS BUTTONS. • MAST PIPES (WEAR OR WELDING FAILURE). • GUIDE ROLLERS RETAINING RINGS. • MOTOR BRAKE RECTIFIER (CHECK FUNCTION) • COMMUNICATION CABLE (INSPECTION) • GUIDE ROLLERS (INSPECTION). • TIES (CHECK INTERFERENCE OR LOOSENING) • BASE BUFFERS (INSPECTION)	-	40 h.WORK (ONCE A MONTH)
2		• MAST RACK • GEARMOTOR PINION. • PARACHUTE PINION / CROWN WHEEL.	LITHIC GREASE	40 h.WORK (ONCE A MONTH)
3		• CAGE GUIDE ROLLER ROCKER	LITHIC GREASE	40 h.WORK (ONCE A MONTH)
4		• MAST SCREWS. • GUIDE ROLLERS SCREWS. • BASEFRAME TO GROUND SCREWS. • LANDING GATES AND ENCLOSURE CAM SCREWS. • ANCHORAGE TO SUPPORTING STRUCTURE SCREWS	LLAVES FIJAS	QUARTERLY (4 TIMES/YEAR)
5		• RACK TO MAST FIXING BOLTS.	ALLEN WRENCH	SEMESTRE (2 TIMES/YEAR)
6		• GUIDE ROLLER DIMMENSIONS • RACK DIMMENSION • MOTORGEAR PINION MEASUREMENT • MOTOR BRAKE CHECKING	CALIBER CALIBER MICROMETER GAUGES	ANNUAL (OR AFTER DISMANTLIING)
7	GENERAL REV. (AFTER DISMANTLING OR PROLONGED NON USE PERIOD)	1. DEFORMATION OR DAMAGE ON MASTS, TIES, GATES, HANDRAILS, FLOOR,… 2. GEARMOTOR AND BRAKE INSPECTION (Rectifier, Voltage & Coil resistance)		

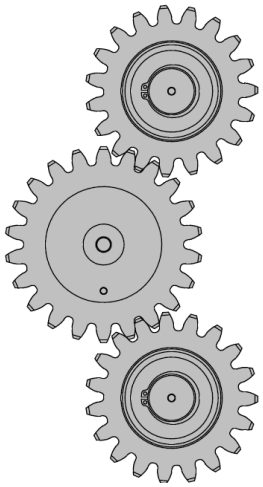
MECHANICAL CHECKING DIAGRAM

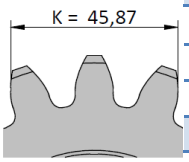


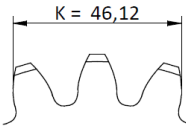


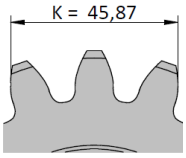
CONTROL MEASURES K [mm/inch]		
	Nom.	Min.
PINION Z22	46,12 [1 13/16]	44 [1 47/64]

WHEEL Z19	45,87 [1 13/16]	43 [1 11/16]
PINION Z22	46,12 [1 13/16]	44 [1 47/64]
WHEEL Z19	45,87 [1 13/16]	43 [1 11/16]

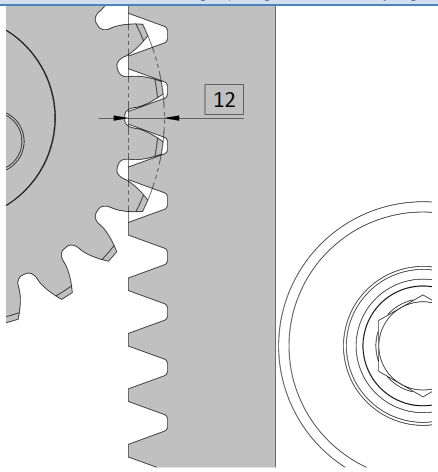


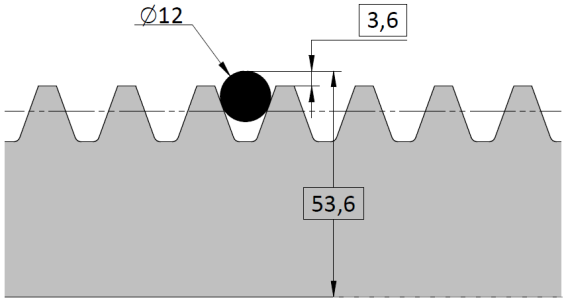






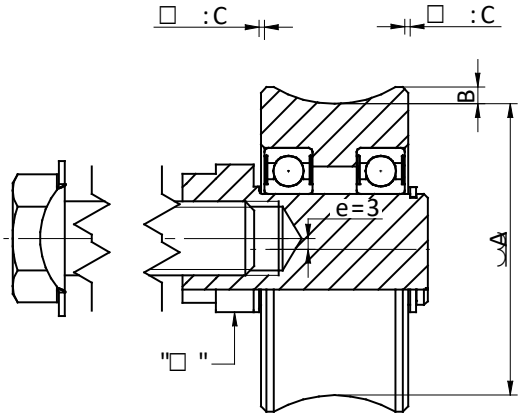
OVERLAP □ [mm/inch]		
	Nom.	Min.
□	12 [15/32]	10,7 [27/64]





CONTROL MEASURES □ [mm/inch]		
	Nom.	Min.
□ A	3,6 [9/64]	2,5 [3/32]
□ B	53,6 [2 7/64]	52,5 [2 1/16]

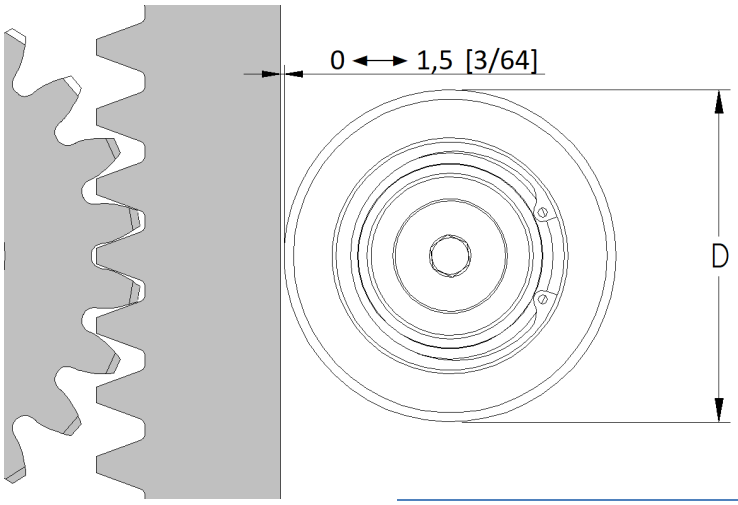
CHECKING RACK AND PINION WEAR



CONTROL MEASURES [mm/inch]		
	Nom.	Min.
A	Ø79 [3 7/64]	Ø77 [3 1/32]
B		3 [1/8]
C		1,5 [1/16]

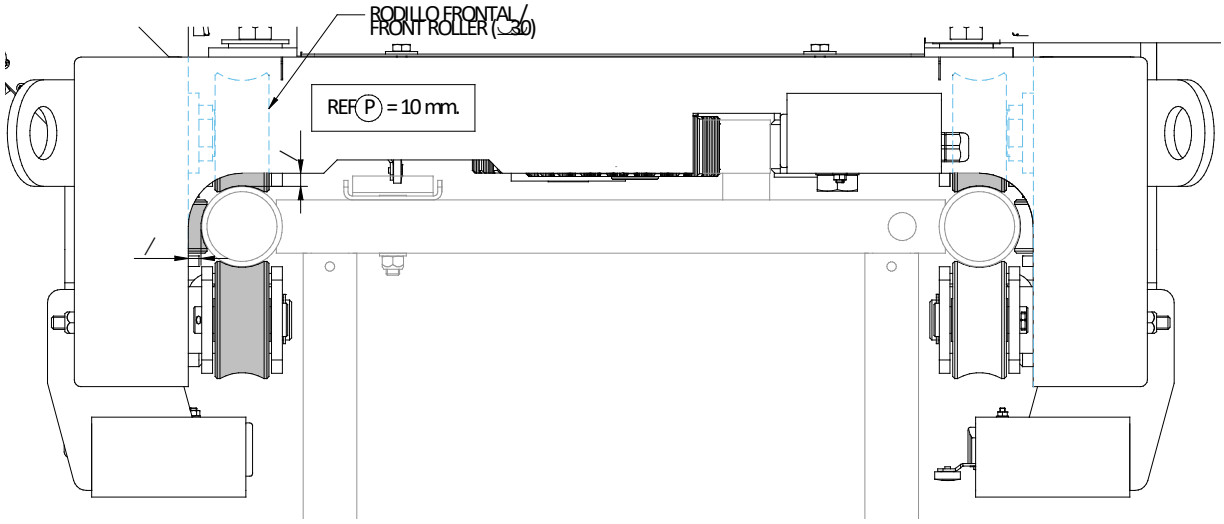
CHECKING MAST GUIDE ROLLERS

IMPORTANT:
CHECK IF ROLLER WEAR IS THE SAME THROUGHOUT THE ENTIRE CIRCUMFERENCE OF CONTACT.

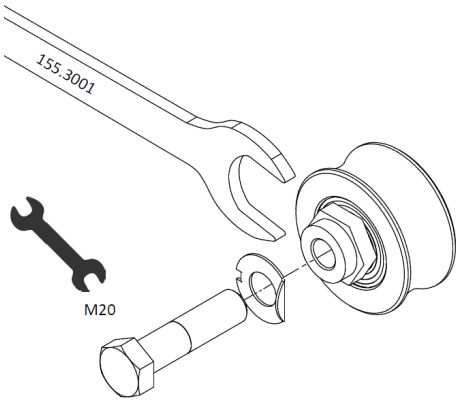


CONTROL MEASURES [mm/inch]		
	Nom.	Min.
D	Ø98 [*3 55/64*]	Ø96 [*3 25/32*]

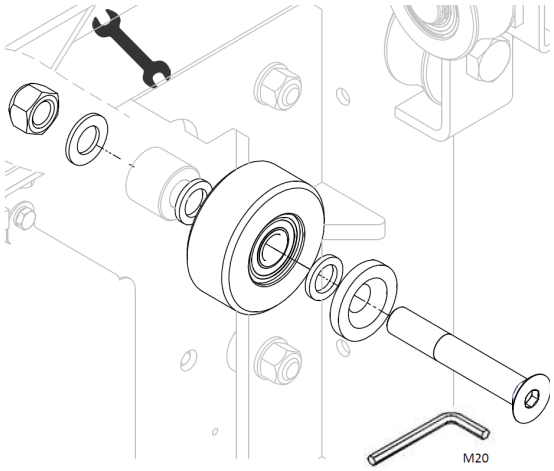
CHECKING RACK COUNTEROLLERS



ROLLER REPLACEMENT DIAGRAM



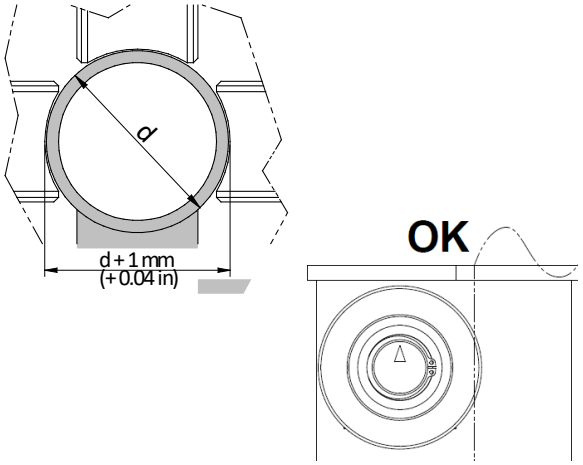
ASSEMBLY OF ø30 ECCENTRIC ROLLER



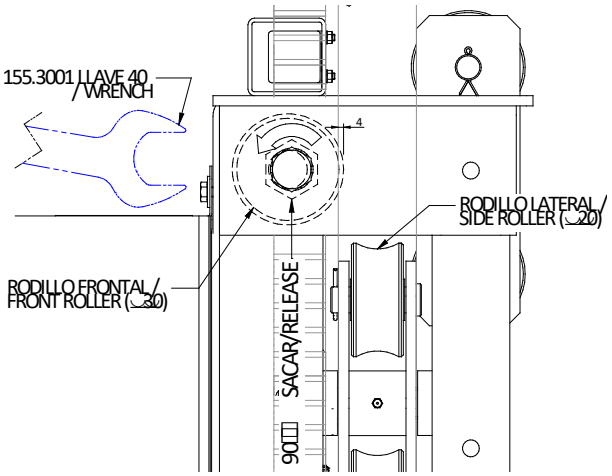
COUNTEROLLER ASSEMBLY

M06 - 10 N·m
[*7.4 lb·ft*]
M08 -24 N·m
[*17.7 lb·ft*]
M10 - 50 N·m
[*36.9 lb·ft*]
M12 - 85 N·m
[*62.7 lb·ft*]
M16 -210 N·m
[*155 lb·ft*]
MAX. TIGHT. TORQ. (s/ manufacturer)

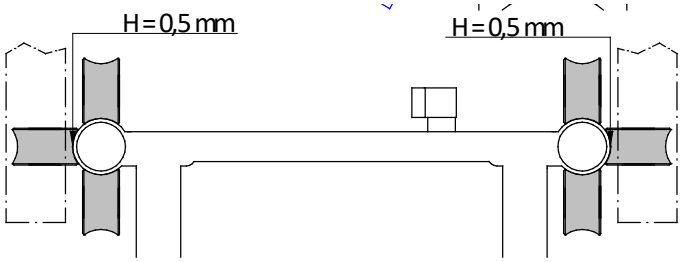
120N·m
[*88 lb·ft*]
= ALBA SPECIFIC TORQ



ASSEMBLY POSITION AND TUBE - ROLLER GAP

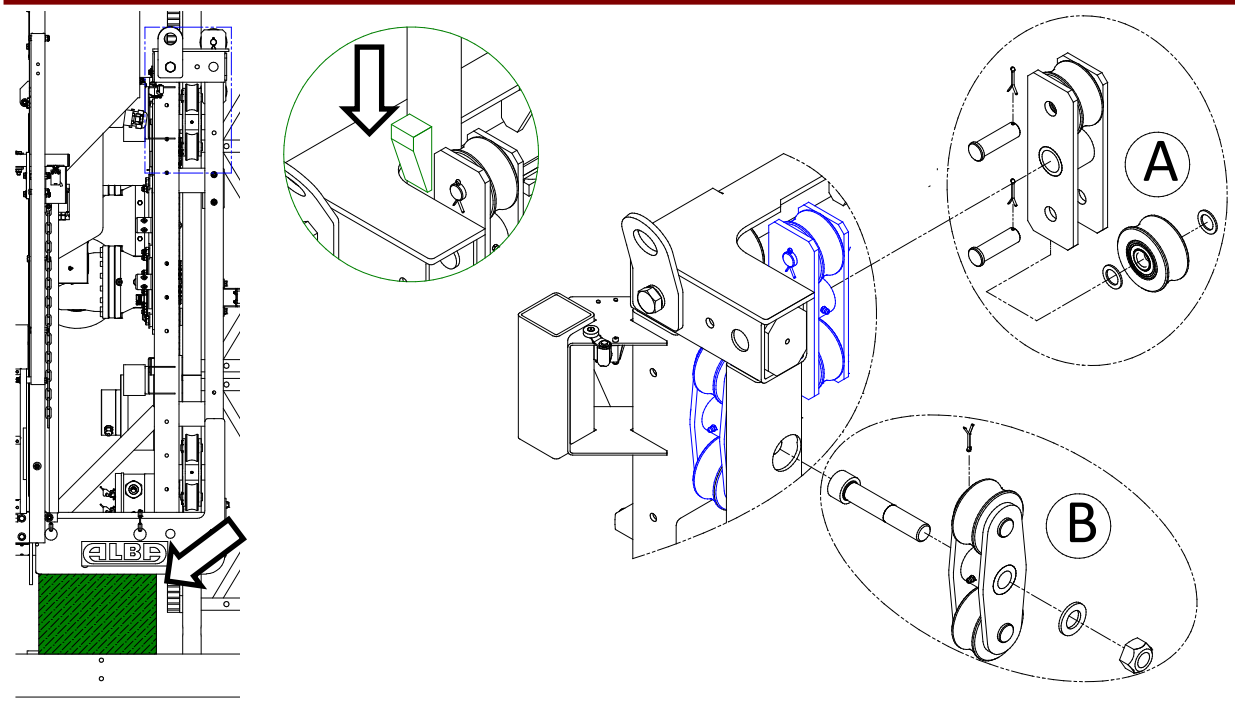


ECCENTRIC ROLLER ASSEMBLY



ROLLER TO MAST TUBE ADJUSTMENT

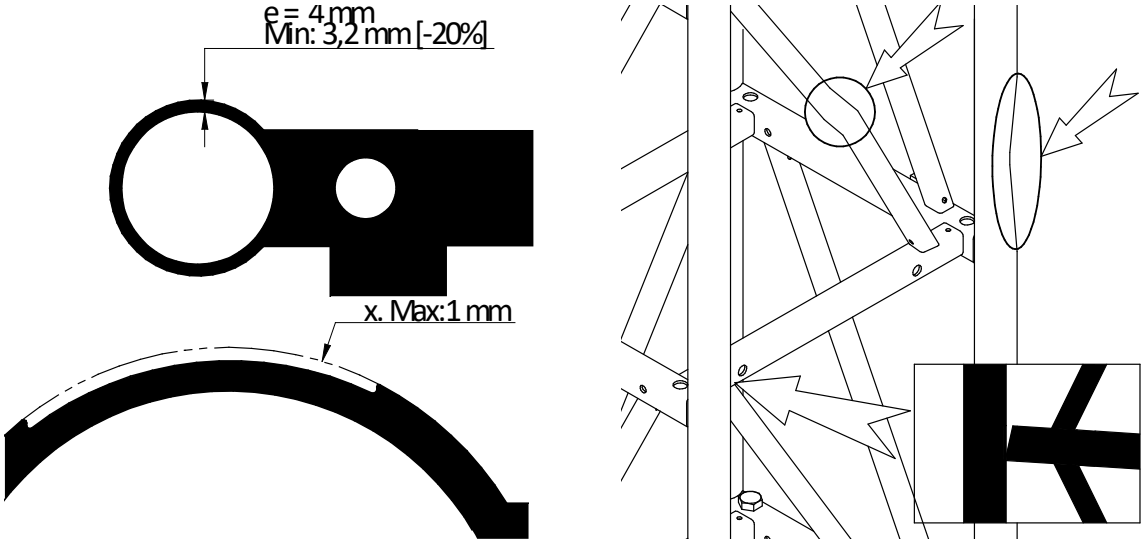
IMPORTANT:
TO ADJUST ROLLER POSITION, LOSSEN ROLLER GUIDE SCREW AND ROTATE ECCENTRIC AXEL WITH SPECIAL TOOL 155.3001. TIGHTEN ROLLER SCREW WHILE MAINTAINING AXEL POSITION WITH THE TOOL.
ADJUST ROLLERS POSTIONT WHITOUT LOADS IN THE HOIST.



REPLACING ø20 CAGE ROLLERS.
A: LATERAL ROLLER. B: ROCKER ROLLERS

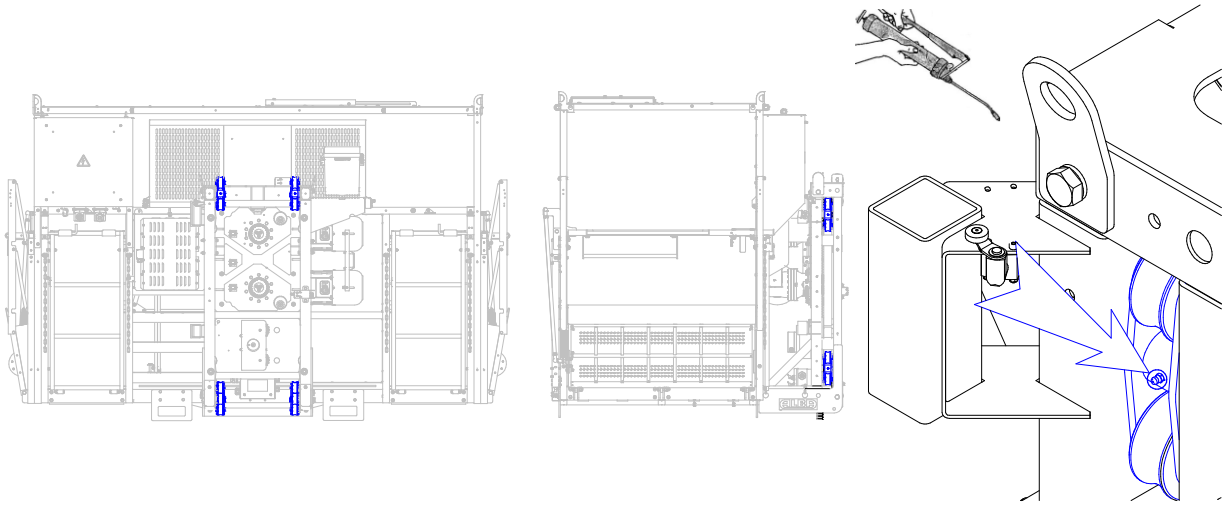
IMPORTANT:
ADJUST GUIDE ROLLERS POSITION SO THAT THE CABIN STRUCTURE IS PARALLEL TO THE MAST VERTICAL AXIS AND MOTOR AND PARACHUTE PINIONS CENTERED WITH THE RACK.

IMPORTANT:
CHECK GUIDE ROLLERS LATERAL GAP, WHICH SHOULD BE APPROX 0.5mm ON EACH SIDE.
PLEASE NOTE THAT IT IS POSSIBLE THAT OCCASIONALLY, DUE TO THE ARRANGEMENT OF THE LOAD, THE SIDE ROLLERS DO NOT CONTACT THE MAST CONTINUOUSLY ON BOTH SIDES.
THIS DOES NOT INDICATE A MALFUNCTIONING OF THE HOIST.



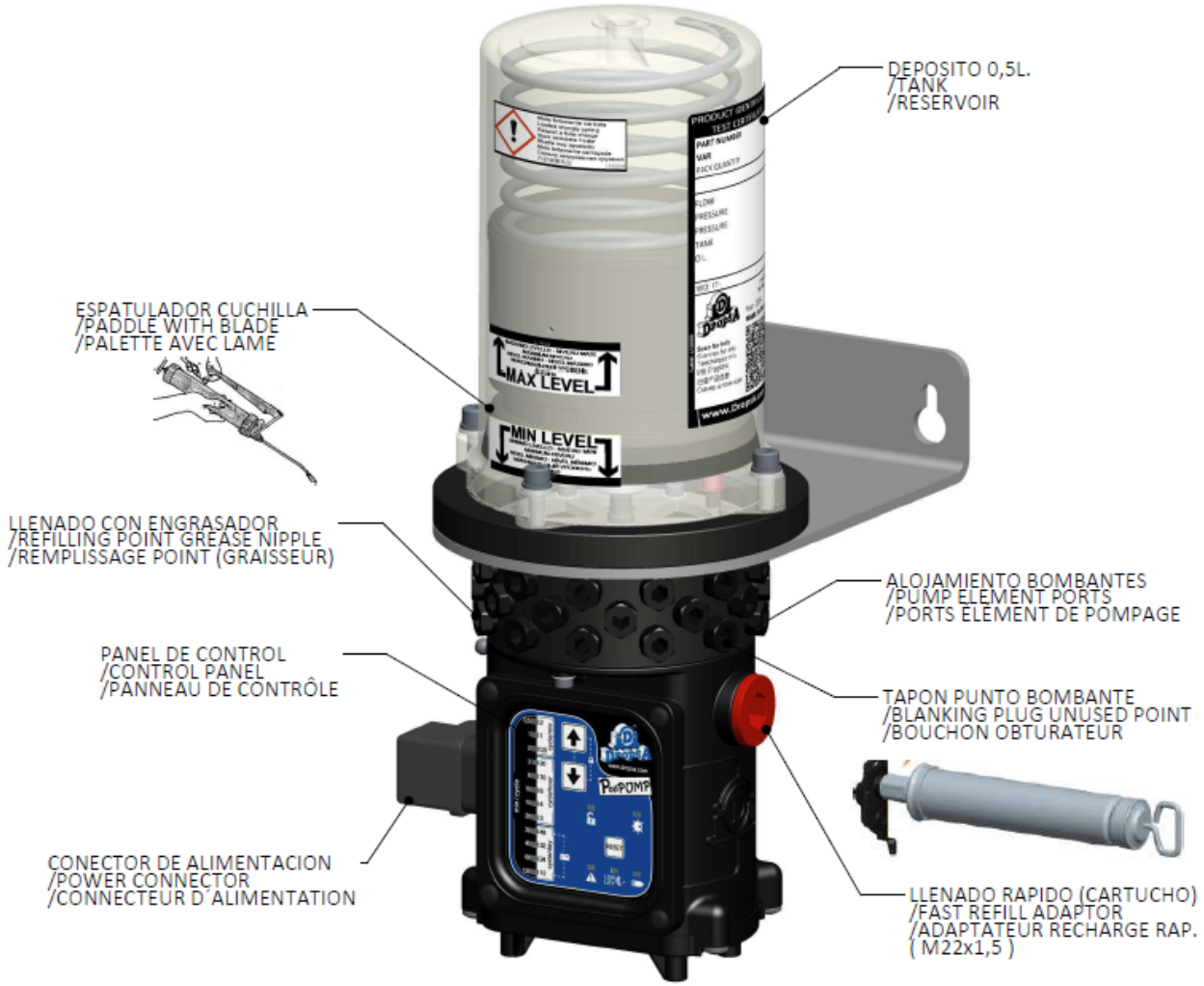
CHECKING MAST FRAME AND VERTICAL TUBES WEAR

ATTENTION:
CHECK FOR POSSIBLE DAMAGE AND EXCESSIVE WEAR OF THE MAST TUBES BEFORE ASSEMBLY AND LATER, WITH THE PERIODICITY INDICATED.

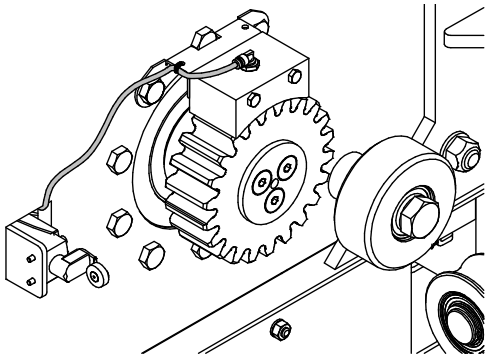


CABIN GREASING POINTS

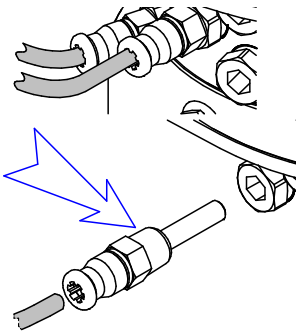
AUTOMATIC GREASING SYSTEM (OPT)



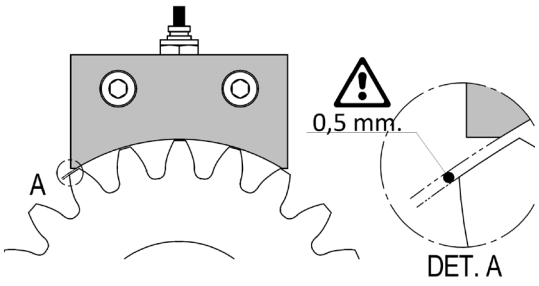
AUTOMATIC GREASING CENTER

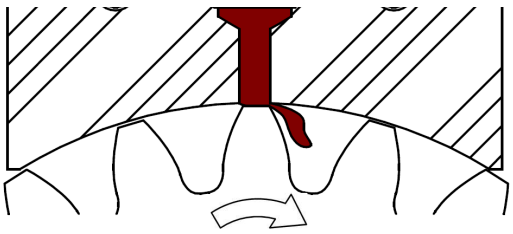


PINION GREASING POINTS POSITION



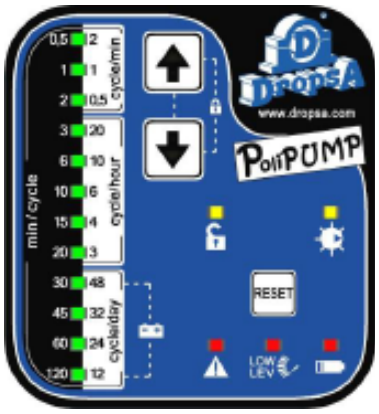
GREASING FLOW DISTRIBUTOR





CHECKING PINION GREASING SYSTEM

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:	~ 30 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

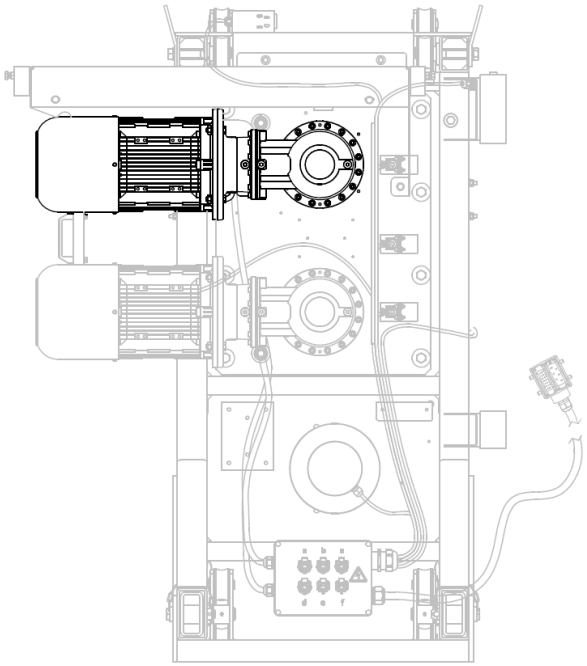
CANCEL ALARM / GREASING EXTRA CYCLE

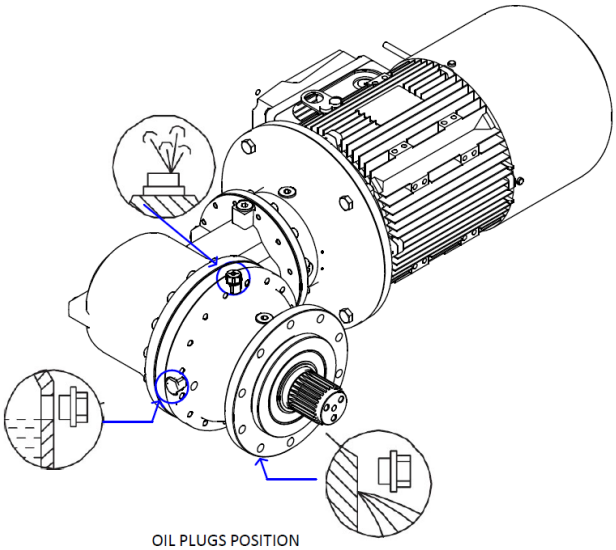
INCREASE OR REDUCE GREASING FREQ. /CYCLE.
SIMULTANEUNS PRESS. – LOCK CONTROL

GREASING UNIT CONTROL CONSOLE

IMPORTANT:
DO NOT MANIUPULATE GREASING CYCLES. CHECK PERIODICALLY AVAILABLE GREASE LEVEL. CASE OF MALFUNCTIONING OF THE PUMP, PLEASE CONSULT THE MANUFACTURER.

GEARBOX MAINTENANCE





OIL PLUGS POSITION

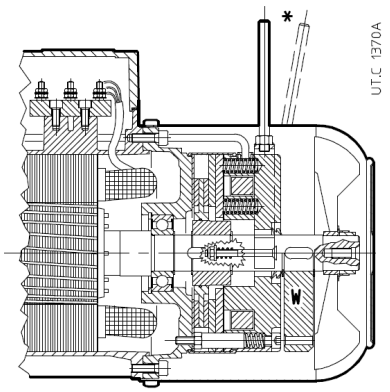
Properties			Method	Shell Omala S4 GXV 220
Viscosidad Cinemática	@40°C	mm^2/s	ASTM D445	220
Viscosidad Cinemática	@100°C	mm^2/s	ASTM D445	30
Índice de Viscosidad			ASTM D2270	171
Punto de Inflamación (COC)		°C minimo	ASTM D92	240
Punto de Congelación		°C	ASTM D97	-42
Densidad	@15°C	kg/m^3	ASTM D4052	864
Ensayo EP Cuatro Bolas - Carga de Soldadura		kg minimo	ASTM D2783	250
Ensayo FZG		Etapa de fallo - Minimo	A/8,3/90	14

GEARBOX OIL CHARACTERISTICS

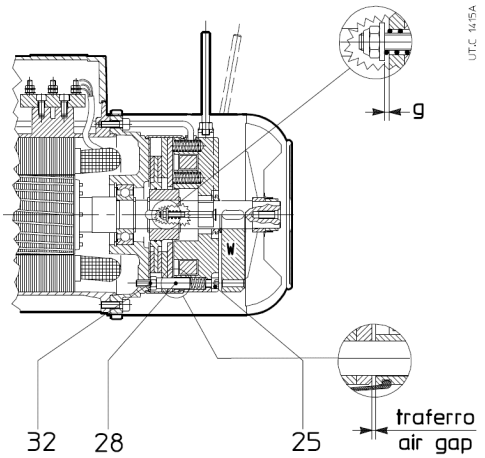
IMPORTANT:
GEARBOXES ARE INSTALLED COMPLETE WITH SYNTHETIC 220 OIL FOR "LIFE LUBRICATION", IN THE ABSENCE OF EXTERNAL CONTAMINATION.
IF IT IS NECESSARY TO REPLACE THE OIL, REPLACE IT WITH OIL WITH THE VISCOSITY GRADE INDICATED IN THE TABLE.

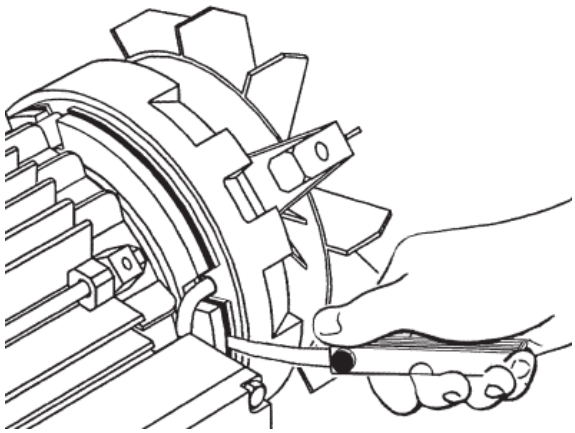
IMPORTANT:
GEARBOX LUBRICATION OIL IS PREPARED TO USE WITH AMBIENT TEMPERATURE RANGE 0°C < T < 40 °C [32°F – 104°F], WITH PEAKS TILL -20°C < T < 50 °C. [-4°F – 122°F].

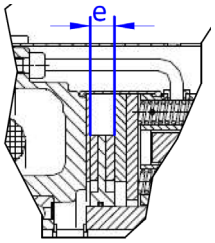
INSTRUCTION FOR MAINTENANCE OF ELECTRIC MOTOR-BRAKE



MOTOR-BRAKE WITH D.C. BRAKE AND MANUAL RELEASING LEVER







CONTROL MEASURES [mm/inch]			
	Nom.	Max.	Min.
Traferro (air gap)	-	0,55 [*0.019*]	0,3 [*0.011*]
Brake disk thickness (e)	-	-	7 [*9/32*]
Lever backlash (g)	0,7 [*0.027*]	-	-

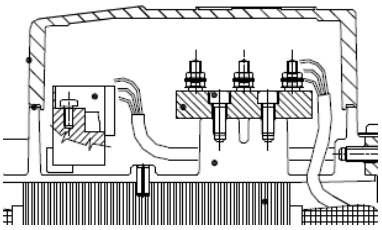
BRAKE PERIODICAL MAINTENANCE

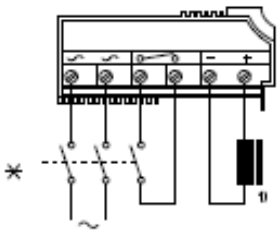
IMPORTANT:
EXCESSIVE AIR-GAP, SUPERIOR TO MAX. VALUE, COULD PRODUCE BRAKE TORQUE DECREASING. CHECK PERIODICALLY AIR-GAP AND ALSO BRAKE DISK THICKNESS, ACCORDING TO TABLE ABOVE.

PROCEDIMIENTO DE REGULACIÓN DEL FRENO:

1. Unlock nuts **No.32**, located on 3 positions spaced 120º.
2. Tight fixation bolts **No.25** [in case of flywheel, act through the available holes] up to reach the minimun airgap measured in 3 positions spaced 120º 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.

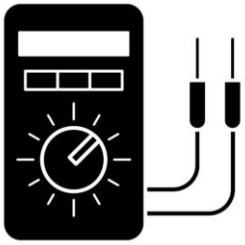
IMPORTANT:
AFTER SEVERAL AIR GAP ADJUSTMENTS, VERIFY THE BRAKE THICKNESS (e) IS NOT LOWER THAN MINIMUN INDICATED ON TABLE. REPLACE IF NECESSARY.

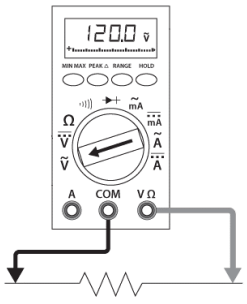


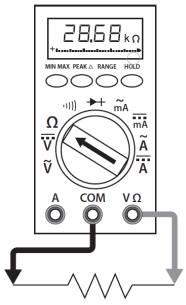


AC / DC VOLTAGE RECTIFIER TO SUPPLY BRAKE.

BRAKE RECTIFIER CHECKING TABLE		
a) Input voltage Vac	(~ . ~)	380 – 415 Vac
b) Output voltage Vdc	(- . +)	75 – 105 Vdc
c) Coil resistance value (*)	(- . +)	150 Ω







a) ~.~ ; b) - . + **c) Ω**

BRAKE RECTIFIER COMPROBATION TABLE

IMPORTANT:
CHECK INPUT VOLTAGE Vac AND OUTPUT VOLTAGE Vdc WITH HOIST WORKING, IN ORDER TO VERIFY RECTIFIER PERFORMANCE.
¡¡ ATENTION: ELECTRICAL CONTACT HAZARD!!

IMPORTANT (*):
IN ORDER TO CHECK BRAKE COIL, RELEASE RECTIFIER VOLTAGE OUTPUT WIRES (+ , -) AND VERIFY COIL RESISTANCE VALUES IN TABLE ABOVE, ACCORDING TO POINT c) INSTRUCTION. REPLACE BRAKE COIL 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 Habasit group www.rossi-group.com IEC 60034-1 IE1 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

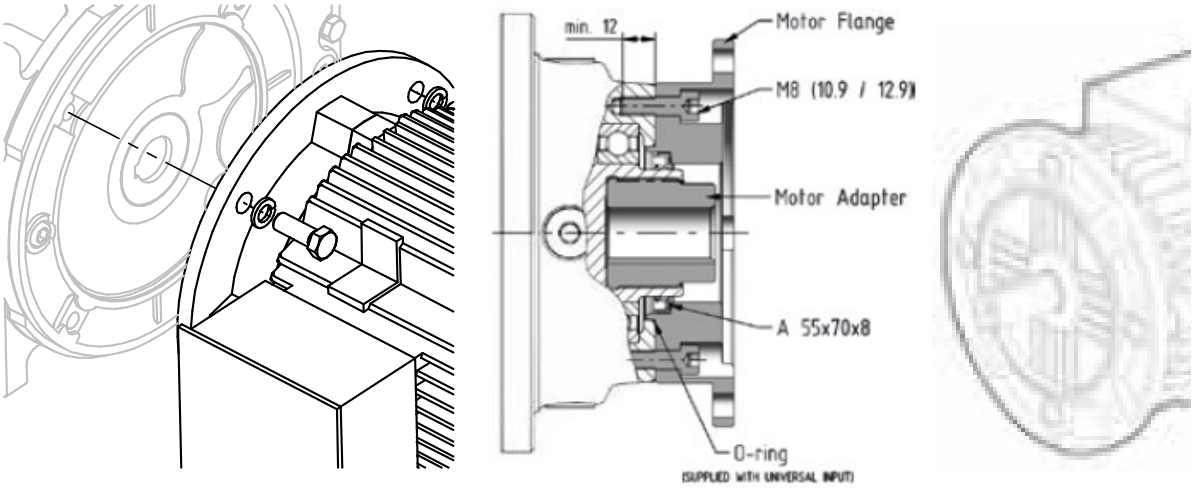
Esecuzione Execution

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, thooroughly.
2. Mount the parallel key on the motor axel and perform coupling to gearbox hole carefully.
3. Fit 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 cooliong circuits (housing, air input).
- Checl that electric connections are fitted properly.
- Check the correct tightness of the motor and 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 to the manufacturer
Motor can´t raise rated load	Motor connection problem	Check motor connection
	Insufficient voltaje supply	Check supply line
	Supply voltage drop	Check supply crossection wire
Motor overheats	Motor connection error	Check motor connection
	Motor locked	Check brake s/section. 5.2
	Voltage supply error	Check supply line
	Fan cover 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 consuption	Brake locked	Check brake s/section. 5.2
	Motor coil damage	Ask to the manufacturer
Motor brake doesn´t release	Brake connection fault	Check motor connections
	Rectifier damaged	Check rectifier s/section. 5.2
	Excessive brake air-gap	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 air-gap	Check brake coil s/section. 5.2
	Brake coil damaged	Ask to the manufacturer
	Excessive brake disk wear	Replace brake disk
Excessive brake noise	Excessive air-gap	Check air-gap s/section. 5.2
GENERAL		
Hoist doesn´t run (OUT OF SERVICE RED LIGHT ON)	There´s safety device activated	Check emergency stop buttons (SE), or safety endtrack switches FCSG.
	Frequency invertir error	Check frequency invertir status.
	E1 fault	Check electric driagram. 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 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 doors	Problem with magnetic sensor	Check encoder and magnetic ring
	Problem with endtrack limit switches	Check endtrack limit swithes
Hoist doesn´t stops on 3m [*9-10*]	Problem with 3m [*9-10*] switch or cam.	Check 3m [*9-10*] endtrack switch and cam.
E3 or E4 fault	Problem in control transformer	Check / Replace transformer.
E2 fault	Hand tool socket excessive consumption	Check handtools socket connection
E5 fault	Brake supply rectifier fault	Check rectifier s/section. 5.2
Hoist stops suddenly	Overload	Check load on the cage.
	Power supply failure	Check electrical connection.
	Door open	Check landing doors and cage doors.
Cage of the hoist vibrates abnorm.	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 motorbox.	Check oil level and oil leaks
	Gearbox bearing failure	Ask to the manufacturer
Hoist suffer stops when moving	Communication cable damaged.	Check communication cable.
	Endtrack or door switches unadjusted.	Check endtrack limit switches position.
Hoist can´t raise rated load.	Crossection wire 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 door uncorrectly closed	Check cage / landing doors.

5.4. Maintenance record.

According to the procedure specified in the user´s manual, the 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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5.5 Trouble record

TYPE OF FAILURE: .....

Cause: .....

Reparations performed: .....

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PARTS TO CHANGE					
Code	Denomination	Quantity	Code	Denomination	Quantity

ALBA authoriced 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

ALBA authoriced 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

ALBA authoriced 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

ALBA authoriced 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

ALBA authoriced 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

ALBA authoriced technical person User

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