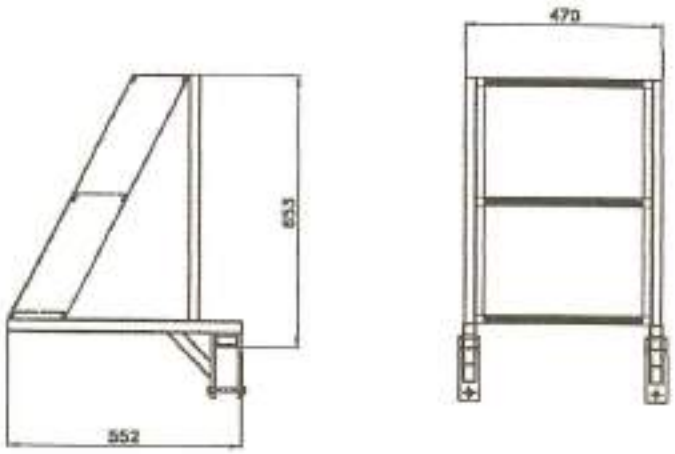


FIG. 4.5.2 access stairway

4.6) Gear-motor unit

Each gear-motor unit, which provides the vertical movement, in its standard version consists of a self-braking electric motor coupled to a speed reducer (see version A of Fig. 4.6.1), which transmits the movement through a pinion in contact with the rack

The JOLLY JUNIOR framework has also been designed and tested to provide the possibility of supplying each individual gear-motor unit in another 2 versions.

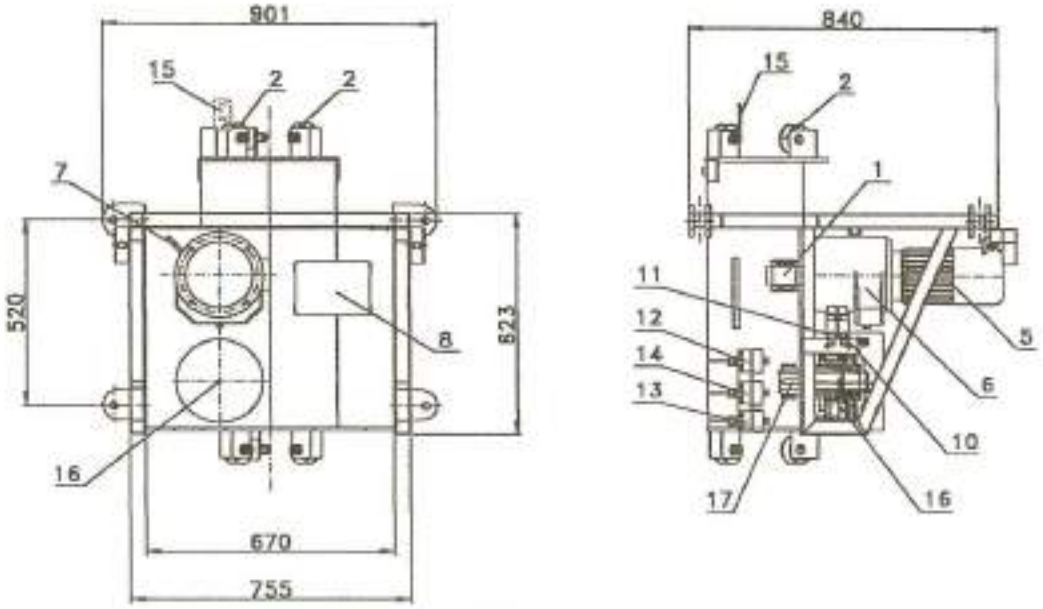
The first version gives the possibility of coupling 2 gear-motors with three-phase power supply 220V-380V (see version B of Fig. 4.6.1).

The second version gives the possibility of coupling 2 gear-motors with single-phase power supply 220V (see version C of Fig. 4.6.1).

The guide along the mast consists of 10 guide rollers, 6 of which with groove, 2 flat and 2 with sprockets.

The electric commands for movement of the two units are enclosed in a sealed switchboard with low-voltage control push-button control strip (24V).

Micro limit switches are also provided at minimum and maximum heights as well as a micro runby switch which cuts off power in the event of incorrect operation during erection.



A– STANDARD VERSION CONSISTING OF 1 THREE–PHASE POWERED GEARMOTOR (220V–380V) AND ONE CENTRIFUGAL SAFETY BRAKE

FIG. 4.6.1 Gear-motor unit

TAB. 5: Components of the gear-motor unit

POS	COMPONENTS	SYMB.
1	Motor pinion	
2	Guide roller with groove	
3	Flat guide roller	
4	Guide sprocket	
5	Self-braking electric motor	
6	Reduction gear	
7	Motor brake release rod	
8	Junction box	
9	Door limit switch	
10	Level limit switch	
11	Level runby limit switch	
12	Ascent limit switch	
13	Descent limit switch	
14	Ascent-descent runby limit switch	
15	Stroke end limit switch	
16	Centrifugal brake	
17	Centrifugal brake pinion	

4.7) Electrical system

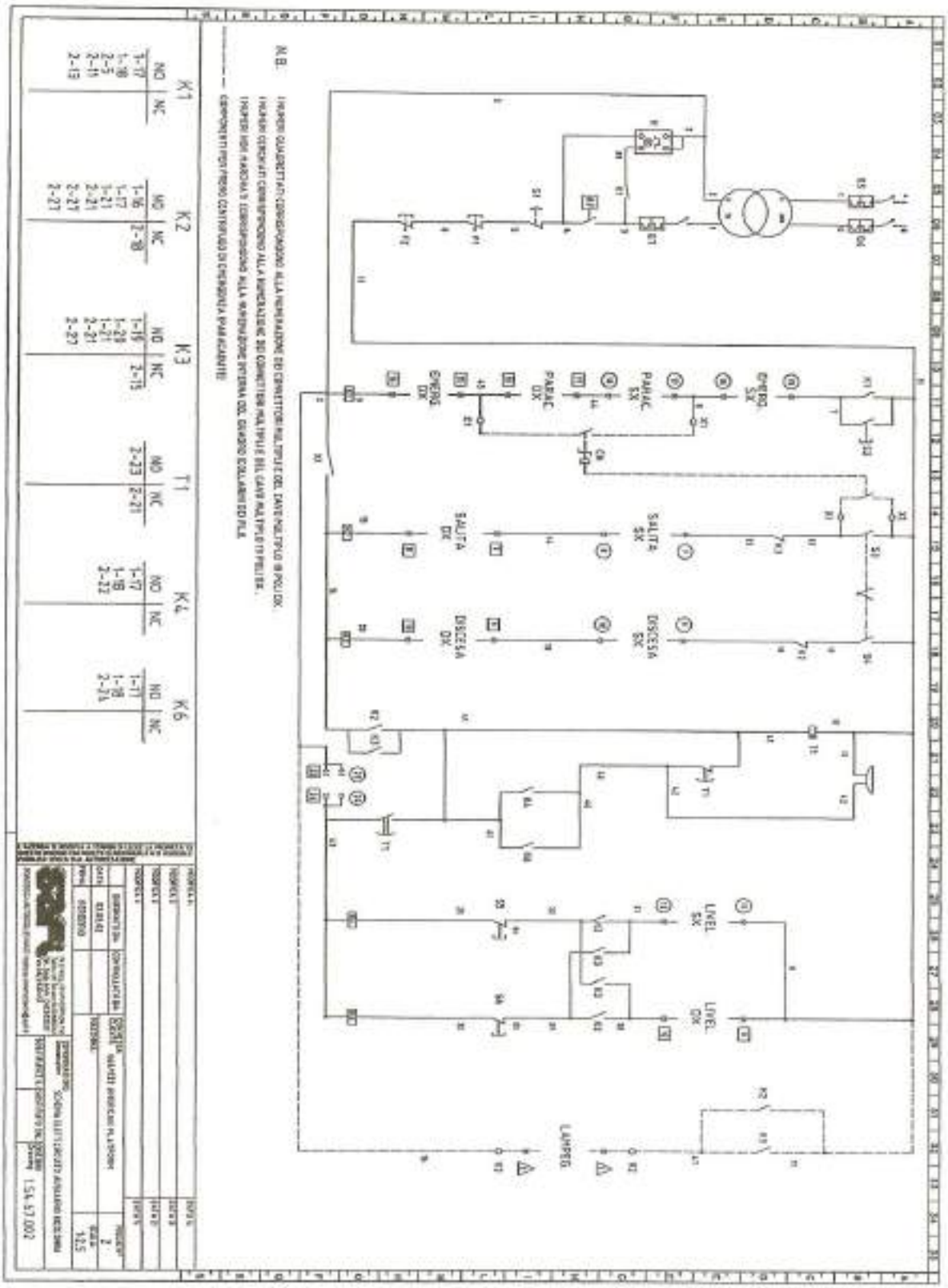


FIG. 4.7.1 JOLLY JUNIOR CE twin-mast platform auxiliary circuit

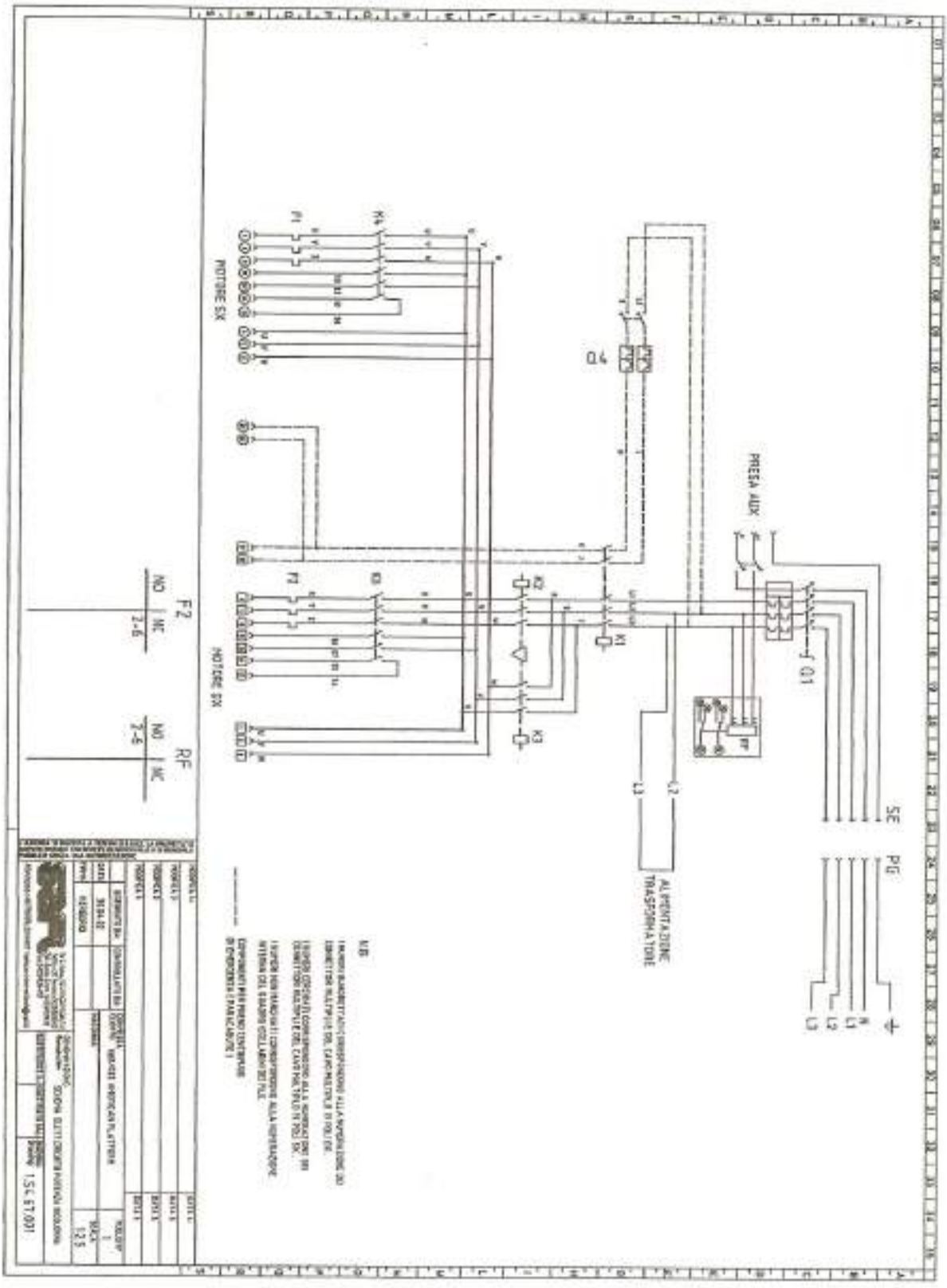


FIG. 4.7.2 JOLLY JUNIOR CE twin-mast platform power circuit

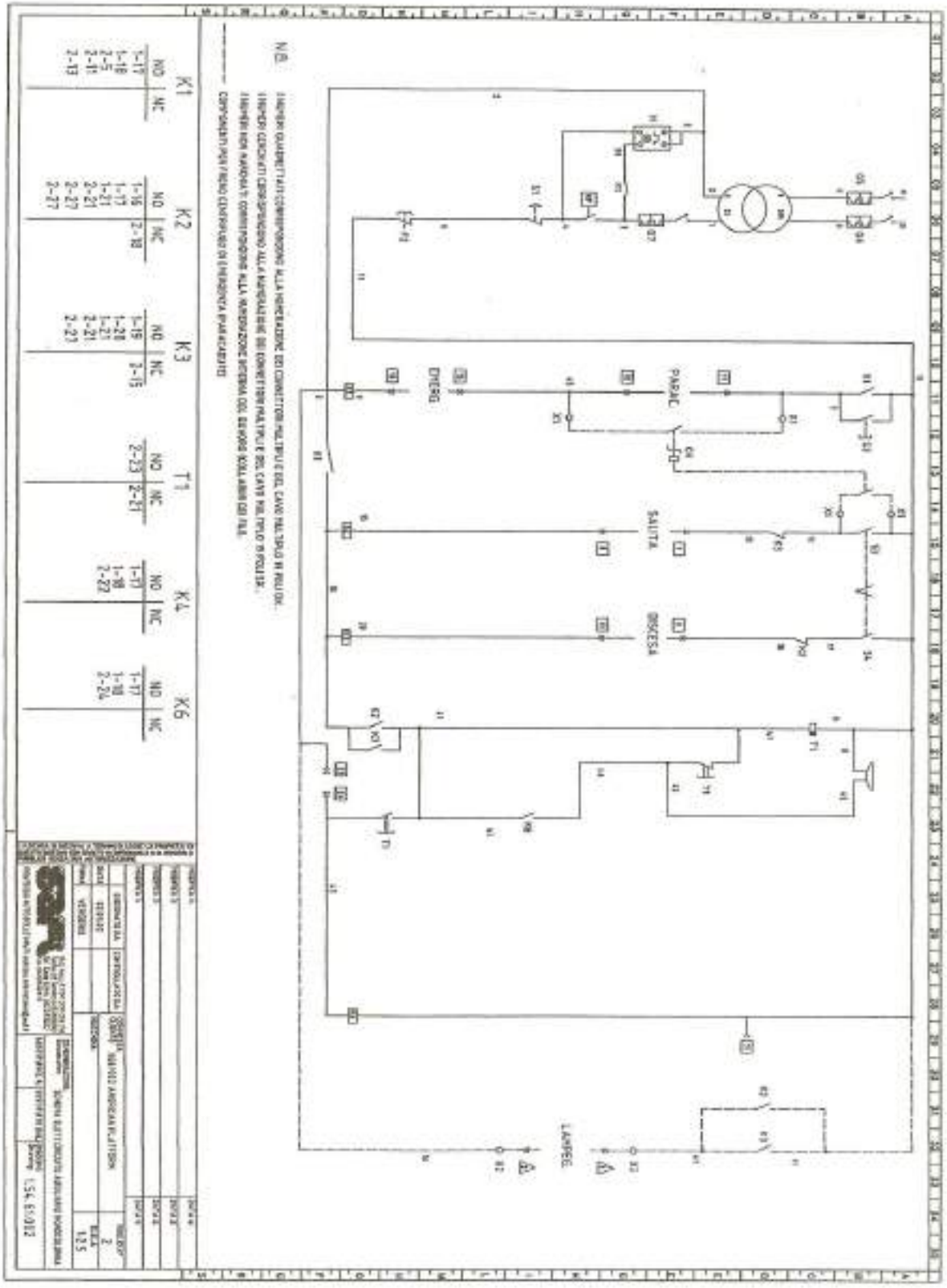


FIG. 4.7.3 JOLLY JUNIOR CE single-mast platform auxiliary circuit

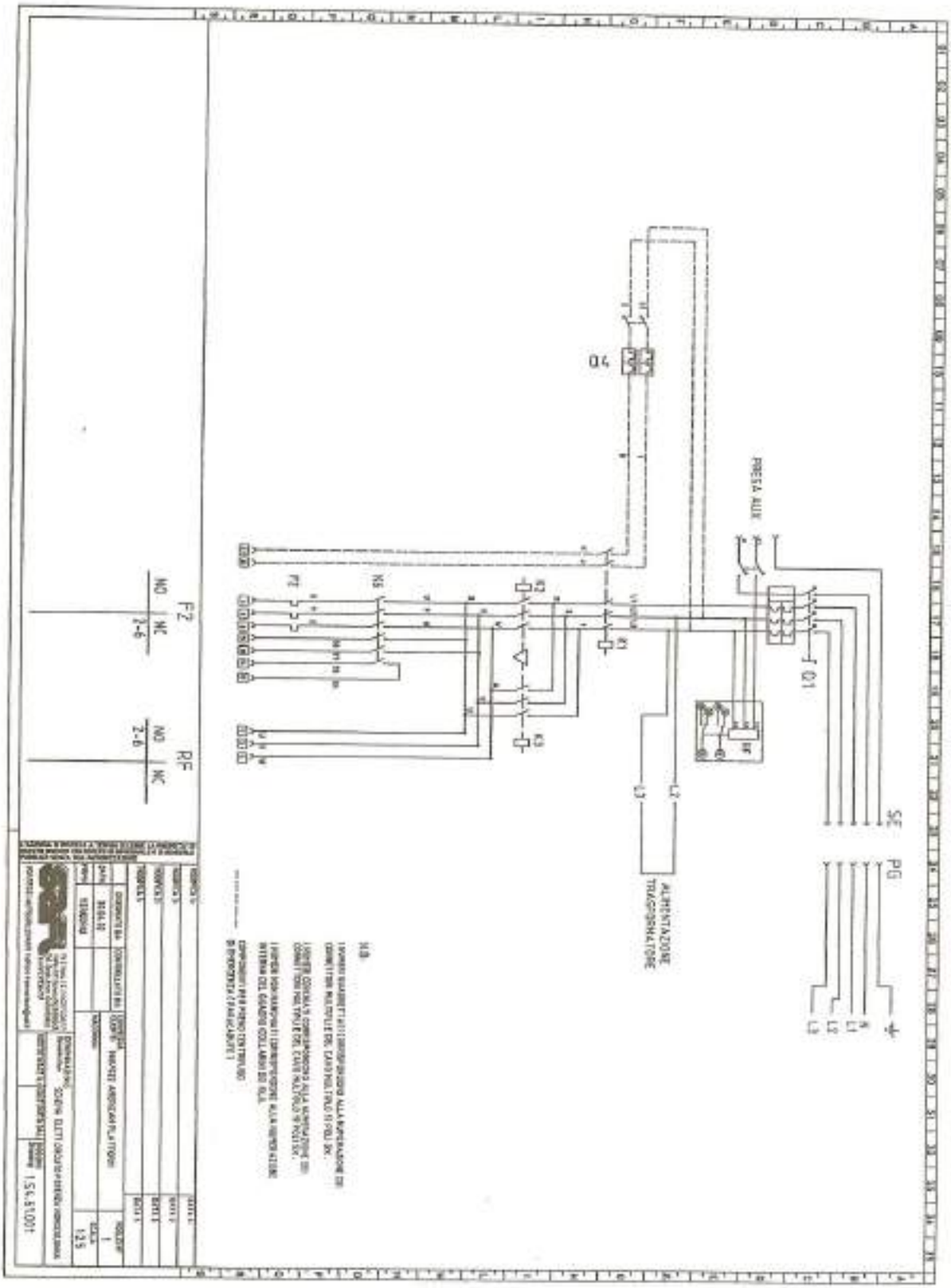


FIG. 4.7.4 JOLLY JUNIOR CE single-mast platform power circuit

TAB. 6: Wiring diagram symbols

POS.	DESCRIPTION
PG	Power supply outlet
SE	Power supply plug with reverse
Q1	Thermo-magnetic cut-out switch
RF	Phase control relay
PS	Service outlet
Q2	Switch of service outlet
Q3	Commutator 230/400 V
K1	Running electromagnetic switch
K2	Up electromagnetic switch
K3	Down electromagnetic switch
K4	Connecting electromagnetic switch 230 V left (bridge)
K5	Connecting electromagnetic switch 400 V left (bridge)
K6	Connecting electromagnetic switch 230 V right
K7	Connecting electromagnetic switch 230 V right
F1	Thermal switch for left motor
F2	Thermal switch for right motor
Q5	Transformer primary circuit protecting switch
TR	Transformer
Q7	Transformer secondary circuit protecting switch
H	Pilot lamp
S1	Mushroom-head emergency push-button
S2	Running button
S3	Up button
S4	Down button
S5	Left motor stop button
S6	Right motor stopo button
CH	Emergency brake resetting key
T1	Timer for acoustic signalling device (start)
T2	Timer for acoustic signalling device (descente)

4.9) Switchboard

4.9.1) Description

The switchboard is the "man present" type, i.e. machine movements are only possible if the operator keeps the push buttons pressed down.
The switchboard consists of a die-bent sheet metal box with door, fitted with internal hinges and lock.
The on/off switch may be padlocked and has a door-lock system which prevents the door from being opened before the power supply has been cut off to all the circuits inside the switchboard.
All connection points of the other equipment (remote-control devices, protective relays, transformer) are in any case protected against direct or indirect accidental contact.

4.9.2) Electrical connections

1. Take care to install the switchboard in a position where the operator can control platform ascent.
2. Check the value of the supply voltage and the available power.
3. Check the voltage of the electric motors and of the switchboard transformer. If necessary change voltage.
4. Connect the motors to the switchboard, using the multiple plugs provided.
5. Earth the whole plant.
6. Lastly, connect the switchboard to the supply line.
7. Put the on/off switch to position "I".

TAB. 7 Electric control panel

POS.	DESCRIPTION
1	Complete emergency button
2	Complete start button
3	Complete left-hand motor stop button
4	Complete right-hand motor stop button
5	On/off switch with door-lock knob (Reset control with door lock)
6	Complete emergency warning light (Phase control)
7	Lock
8	Manipulator
9	Female 24-pin connector for right-hand motor
10	Fixed supply plug with phase inversion
11	Box
12	Screen-printed table with instructions
13	Se Acoustic warning device 24V
14	Female 24-pin connector for left-hand motor
15	Auxiliary socket for assembly/erection
16	Mechanical interlock
17	Descent remote control switch
18	Single-phase magneto-thermal cut-outs
19	Magneto-thermal circuit breaker
20	Auxiliary contacts
21	Start remote control switch
22	Complete voltage change
23	Ascent-descent auxiliary contacts
24	Transformer
25	Complete left-hand temperature relay
26	Left-hand remote control switch 220 V
27	Left-hand remote control switch 380
28	Right-hand remote control switch 220 V
29	Right-hand remote control switch 380 V
30	Complete right-hand temperature relay
31	Timer complete with base
32	Auxiliary contacts
33	Magneto-thermal cut-out for service tap
34	Ascent remote control switch
35	Cyclic timer for bell

ELECTRIC SWITCHBOARD PANEL

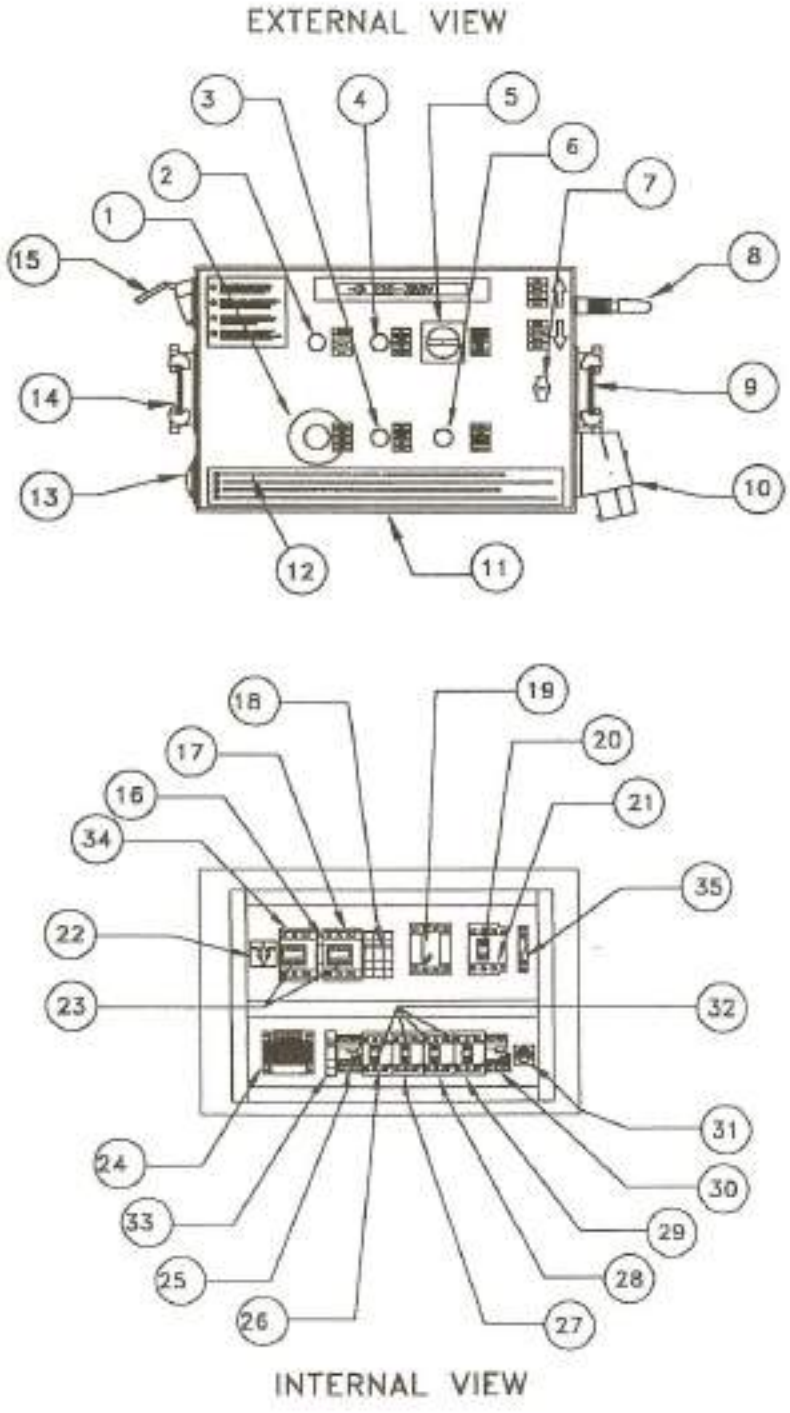


Fig. 4.9.1 External and internal view of the switchboard

CHAPTER 5

Erection and dismantling

5.1) General information

The platform may reach a maximum total length of 16 m. This length may be decreased by assembling a smaller number of beams. For this purpose refer to the paragraph "Platform arrangements and payload tables" on page 76 in this booklet.

5.2)Safety norms

The twin-mast platform should always be erected and dismantled under the direct supervision of a site engineer and carried out by competent, suitably trained personnel.
During erection, dismantling and use, no-one should be allowed to transit or remain below or near the bridge; use appropriate warning signs and enclosures for this purpose as indicated in figure 5.2.1 (Safety area).

ATTENTION!
CLOSE OFF THE PLATFORM BY MEANS OF A CHAIN OR WHITE-RED TAPE IN ORDER TO PREVENT THE POSSIBILITY OF CRUSHING

Platform loads should never exceed the values given in this booklet.
All the erection/dismantling, safety, maintenance and electrical norms given in this booklet and those established by current laws should be observed.
Every platform comes with the relative booklet, which should be kept in the place of use of the actual platform.
The work deck should have as many safety belts as there are operators working on it, which should be used under particular conditions of danger.
Wind speed should not exceed 45.7 km/h (24.8 miles/h) during erection or dismantling.
Use hoisting equipment to assemble elements weighing over 30 kg (66 lbs) per person.
Already during the erection stage take into consideration the foreseeable use of the platform in relation to the length and loads to be lifted.
Scrupulously follow the instructions in the order in which they are given below.
The JOLLY JUNIOR CE platform may only be used near walls/structures with openings that allow the actual platform to be abandoned by the users in an emergency. The openings should be at least 9m apart in a vertical direction.
The platform should be erected at no more than 300 mm (0.98 feet) from the wall/structure in order to allow it to be abandoned in all safety.

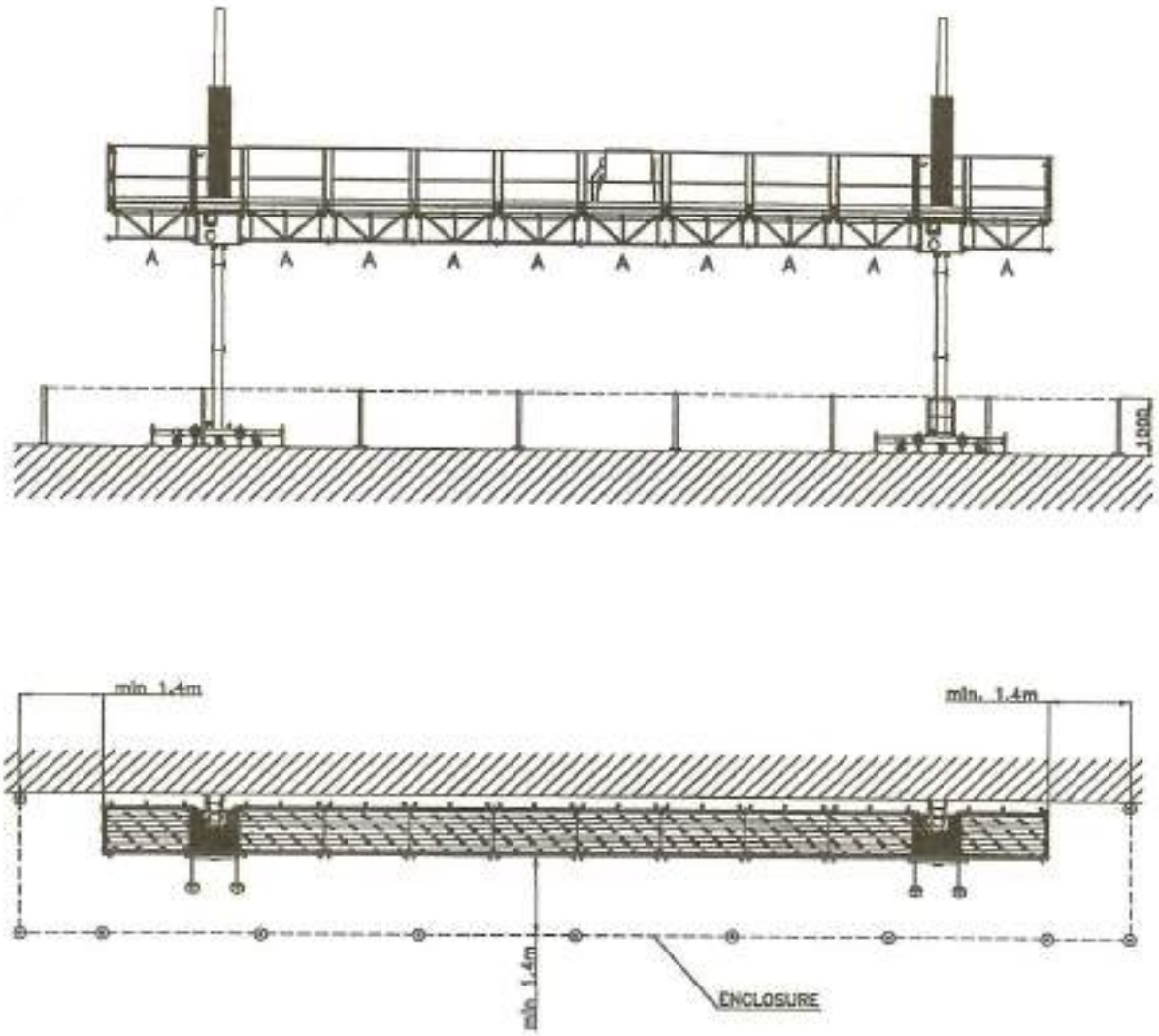


FIG. 5.2.1 Safety area

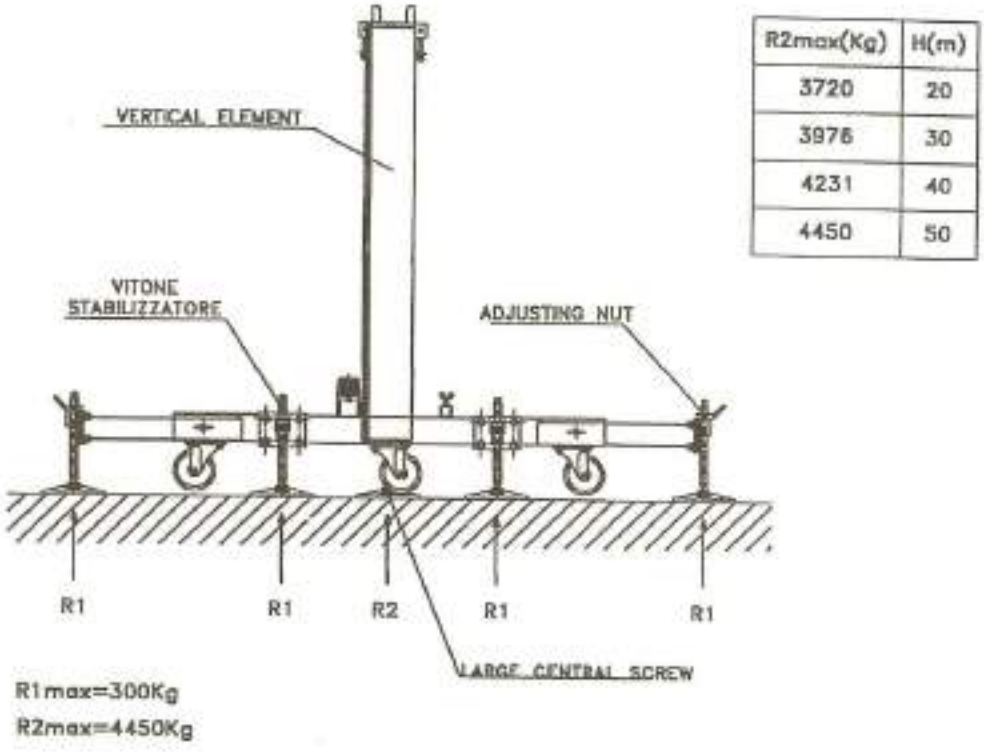
5.3) Assembly of base and positioning of stabilisers

1 - The base is delivered already joined to the first vertical element with the hoisting or lifting unit.
The vertical element is welded onto the base figure 5.3.1. The limit switch shoe is fixed onto the wall of the vertical element by means of the relative screws.
For the bolt tightening values, see table 11 on page 62 of the handbook.

2 - The stabilisers should be positioned on ground so that they can withstand the maximum reactions R1 and R2 given in figure 5.3.1.
The supporting surface which must support the load should therefore be made up (at the stabiliser points of support) of 50 mm (0.16 feet) thick boards with width and length calculated on the basis of the maximum indicated reaction and ground strength. In any case the minimum dimensions of the stabiliser feet supporting boards should be equivalent to 300 x 300 x 50 mm.
Using the stabilisers (outriggers), raise the base until there is a gap of a few centimetres between the wheels and the ground.

ATTENTION!
PARTICULAR ATTENTION SHOULD BE PAID TO CORRECT POSITIONING OF THE CENTRAL STABILISER

3 - For positioning on the level, check if there are protuberances on the wall. If the distance between the wall and the platform is less than or equal to 300 mm (0.98 feet), guardrails need not be assembled on the side next to the wall.
If the wall-platform distance is greater than 300 mm (0.98 feet), it is compulsory to mount the supplied guardrails also on the side next to the wall. When positioning against a wall, the stabilisers are usually positioned as shown in figure 5.3.2 and figure 5.3.3. The base extensions or outriggers should be extracted until the red colour on them appears and in any case for a length equal to 500mm (1.64 feet).
The JOLLY JUNIOR CE platform may only be used near walls/structures with openings that allow the actual platform to be abandoned by the users in an emergency. The openings should be at least 9m apart in a vertical direction.
The platform should be erected at no more than 300 mm (0.98 feet) from the wall/structure in order to allow it to be abandoned in all safety.



R2max(Kg)	H(m)
3720	20
3976	30
4231	40
4450	50

FIG. 5.3.1 Maximum stabiliser reactions

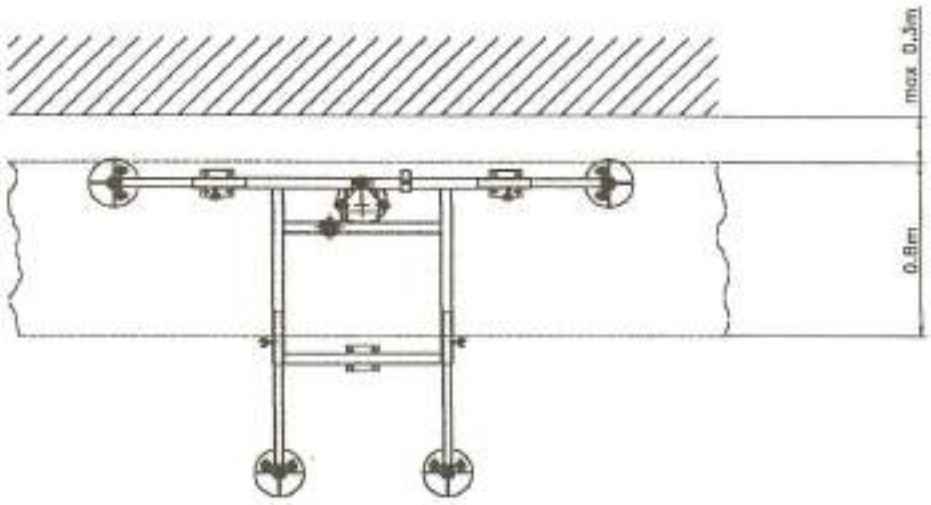


FIG. 5.3.2 Positioning of platform stabilisers

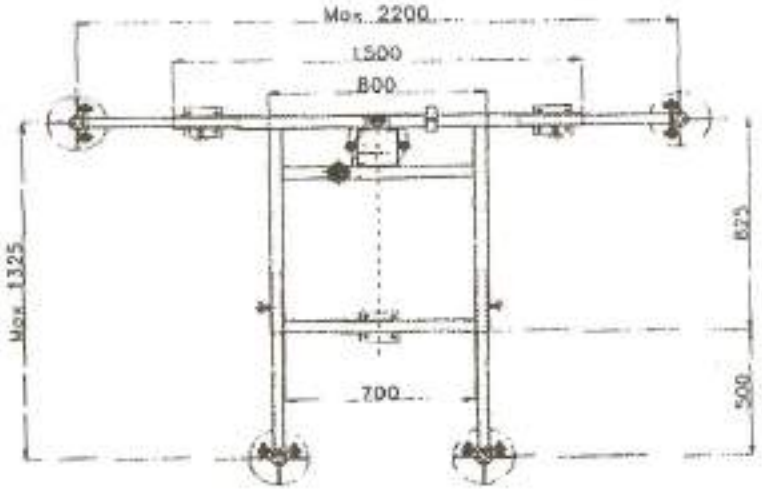


FIG. 5.3.3 Base - maximum dimensions

4 - The operation is carried out for both bases, which may also be positioned on different levels, as shown in figure 5.3.4, with a distance between the masts that can vary according to requirements, up to a maximum of 12.305 m (40.37 feet) (figure 5.3.4).

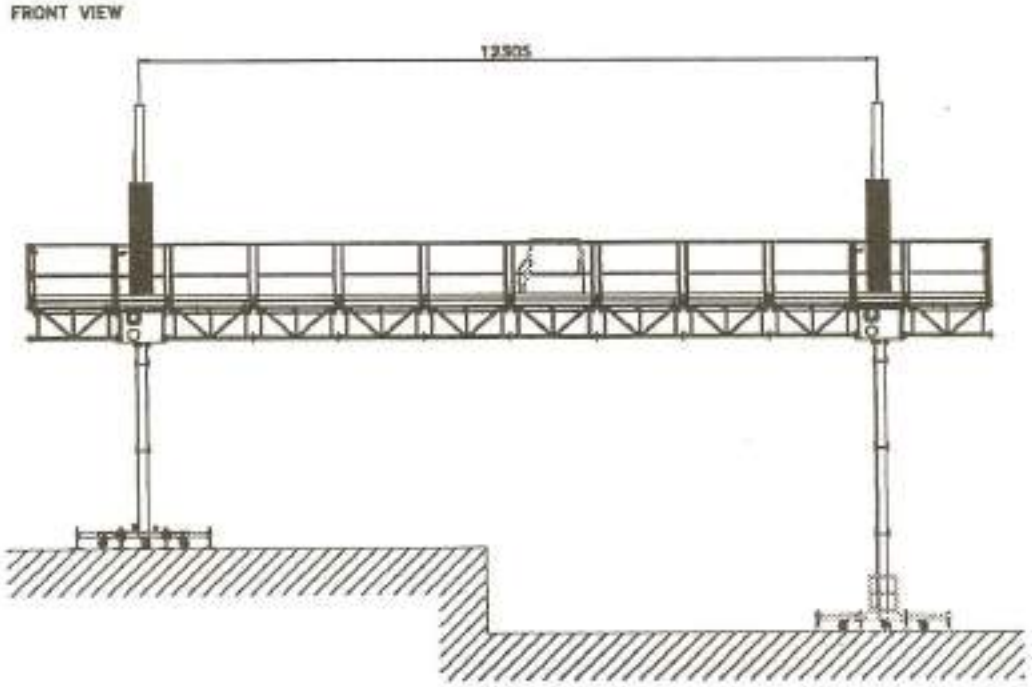


FIG. 5.3.4 Twin-mast platform – front view

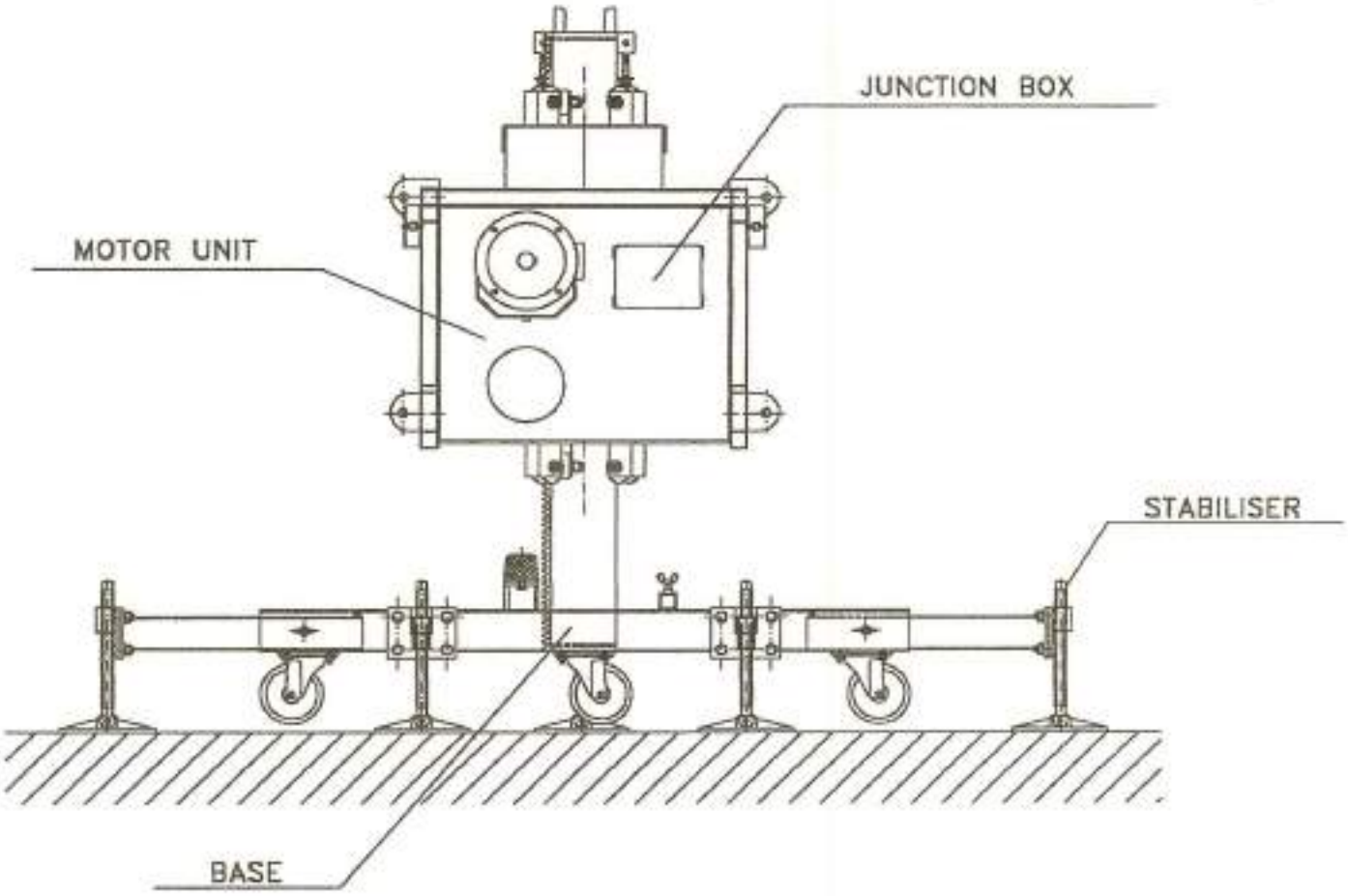


FIG. 5.3.5 Assembly of lifting unit

5.4) Assembly of platform

The work deck should be assembled at the lowest possible height, i.e. at approx. 1.5 metres (4.9 feet) from the ground.

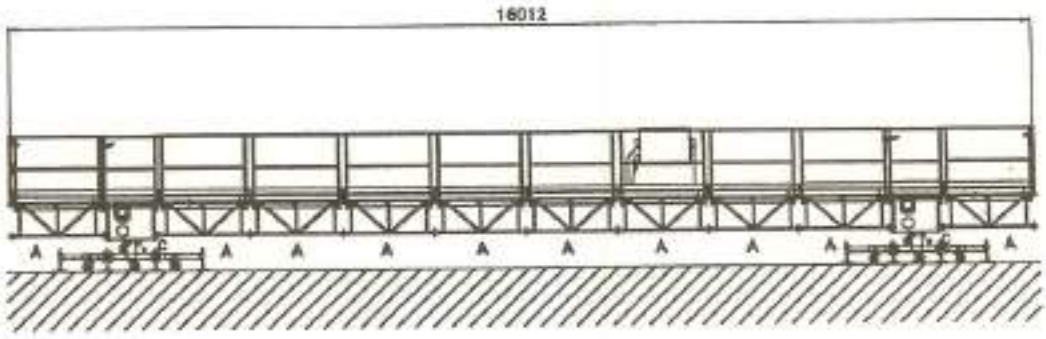
5.4.1) Assembly of the twin-mast platform

- The twin-mast work platform is formed by joining the beams and the two trestles or frames of the gear-motor units together using lock pins. The total length of the platform may be varied by omitting or inserting beams according to requirements (for allowed arrangements, see chapter 7.1).
- The platform with brackets retracted is 800 mm (2.62 feet) wide. If this is insufficient, the side brackets may be extended, also to adapt the platform to any protuberances on the wall. It always holds good that if the distance from the wall exceeds 300 mm (0.98 feet), it is compulsory to mount the supplied guard-rails around the whole platform.
- The beams making up the platform should be assembled by means of suitable hoisting equipment.

Setting up a twin-mast platform with a length of 16 m (52.5 feet) involves assembling the beams as per the diagram below.

A – BEAM 1433

C – MOTOR UNIT 841



FRONT VIEW

FIG. 5.4.1 Twin-mast platform – e.g. 16.012 metres (52.53 feet) arrangement

1 - First the two BEAMS A must be joined to the left motor unit, fixing them by means of the lock pins supplied (figure 5.4.2).

ATTENTION: the lower platform pin between the two masts should not be inserted in the lifting unit and if present should be removed to allow the bridge to oscillate during work.

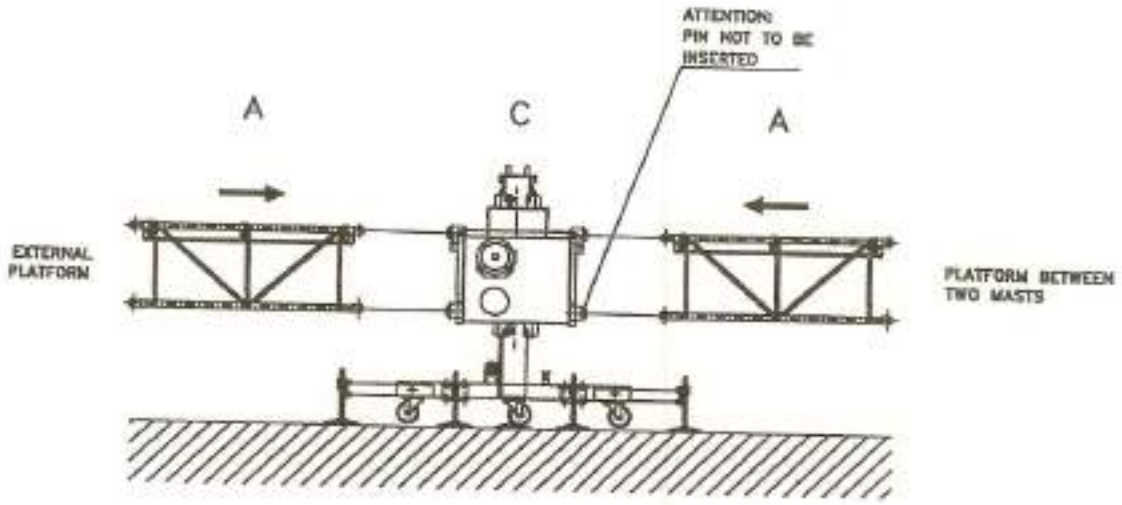


FIG. 5.4.2 Twin-mast platform - erection stage 1

2 - Having inserted the first two beams, assemble the subsequent beams inserting the pins.

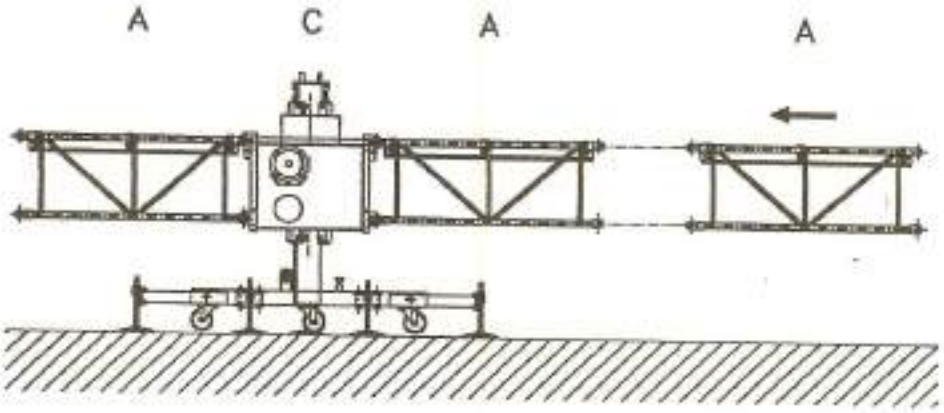


FIG. 5.4.3 Twin-mast platform - erection stage 2

3- Insert the subsequent beams in the order indicated for example in point 1. As the beams are gradually assembled, the resulting platform part overhangs and therefore needs to be supported. This may be done by placing a beam between the platform and the ground.

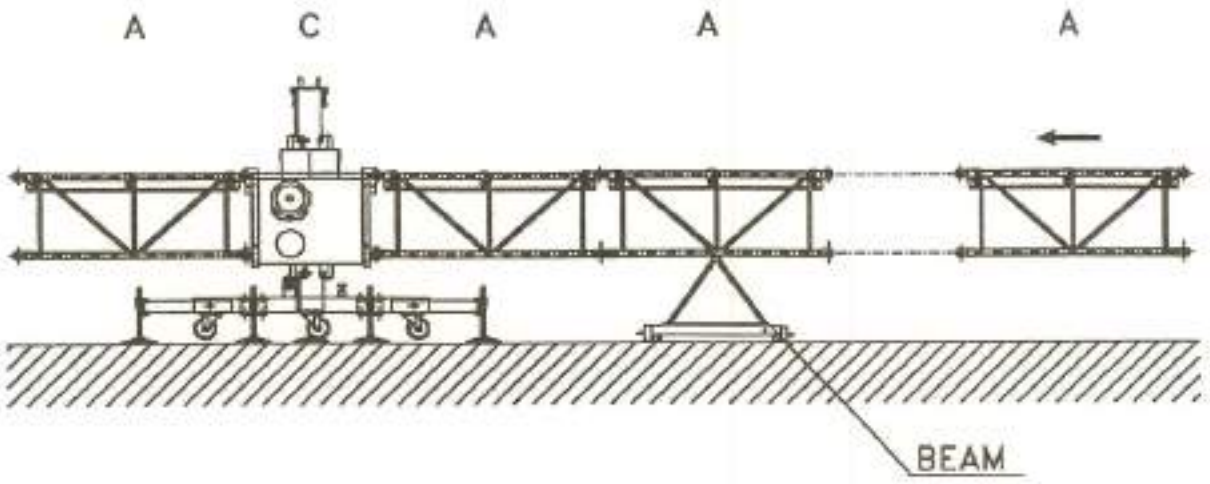


FIG. 5.4.4 Twin-mast platform - erection stage 3

4 - Bring the right-hand base to the end of the platform and close the safety locking devices which join the bridge to the gear-motor unit.
ATTENTION: as previously, also in this case the lower pin of the lifting unit inside the platform should not be inserted and if present should be removed.

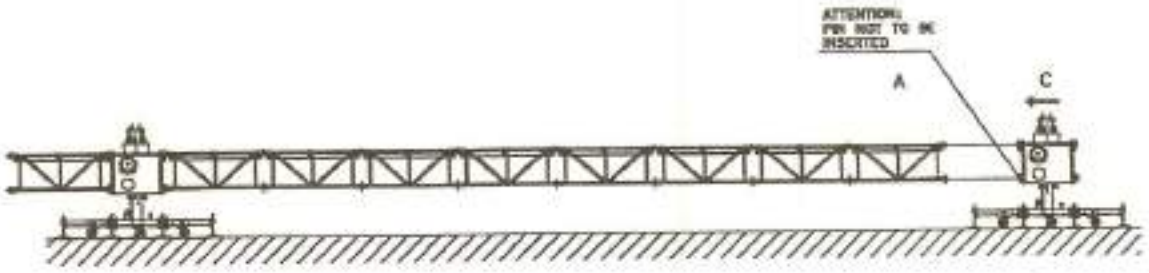


FIG. 5.4.5 Twin-mast platform - erection stage 4

5 - Complete assembly by inserting the remaining two beams onto the lifting unit (figure 5.4.6).

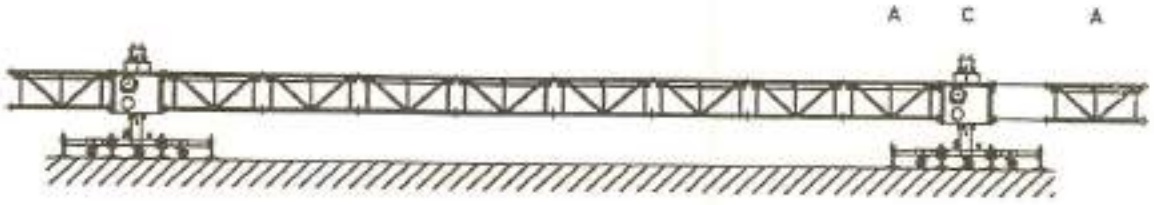


FIG. 5.4.6 Twin-mast platform - erection stage 5

6 - After full assembly of the beams, the bases should be levelled by means of the stabilisers. As already seen, these should be tightened until there is a few centimetres gap between the wheels and the ground. At this point, check and if necessary correct the levelness of the base in both right-angle directions. Also check the verticality of the column in both right-angle directions. Level the bases and lock the large central screw using the relative lock nut.

7 - Lay the boards making up the platform floor, using wooden boards having a thickness of 40 mm (0.13 feet).

FIG. 5.4.7 Twin-mast platform - erection stage 6

8 - Insert the "side opposite the wall" guard-rails, the 2 end guard-rails and the sliding gates into the relative bushes to be found at the ends of the cross elements of the twin-mast platform and lock them by tightening the relative screws. These guard-rails present a lower toe-board or kick-plate in sheet metal at a height of 200 mm (0.65 feet), which should rest on the floor.

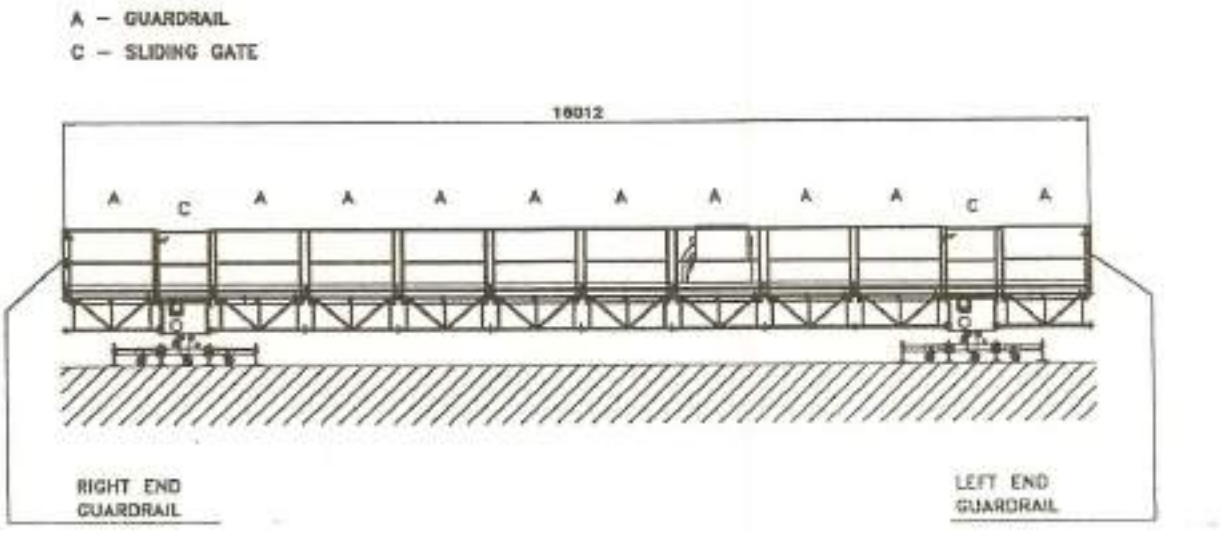


FIG. 5.4.8 Twin-mast platform - erection stage 7

9 - If the distance between the work deck and the wall exceeds 300 mm (0.98 feet). insert the columns for the "wall side" guard-rails (see point 5.3). These consist of tubular uprights with

relative seats for the boards and are inserted into the bushes, to be found on the ends of the wall-side brackets kept in a fully retracted position, and locked by screws. The suitably thick boards are fixed to the uprights with nails.
If the distance of the work deck from the wall or the structure of the actual wall necessitates use of the side brackets (inserted in the cross elements of the work deck), they should be drawn out by the necessary length and then locked with the screw to be found in the cross element. The maximum allowed length is 0.6 m (1.97 feet) which can be identified by the colour red appearing on the extension. The floor of the part obtained by drawing out the side brackets should be made with 40 mm (0.13 feet) thick boards.
If, for various reasons, the side brackets are not all drawn out by the same length, double columns should be mounted on the ends of the recesses with relative guard-rail boards (see figure 5.4.9).
10 - Connect the platform electrically following instructions given in paragraph 5.5.

ATTENTION!

THERE MUST BE NO GAPS GREATER THAN 15 MM (0.05 FEET) ON THE WORK DECK, INCLUSIVE OF EXTENSIONS OBTAINED WITH THE SIDE BRACKETS.

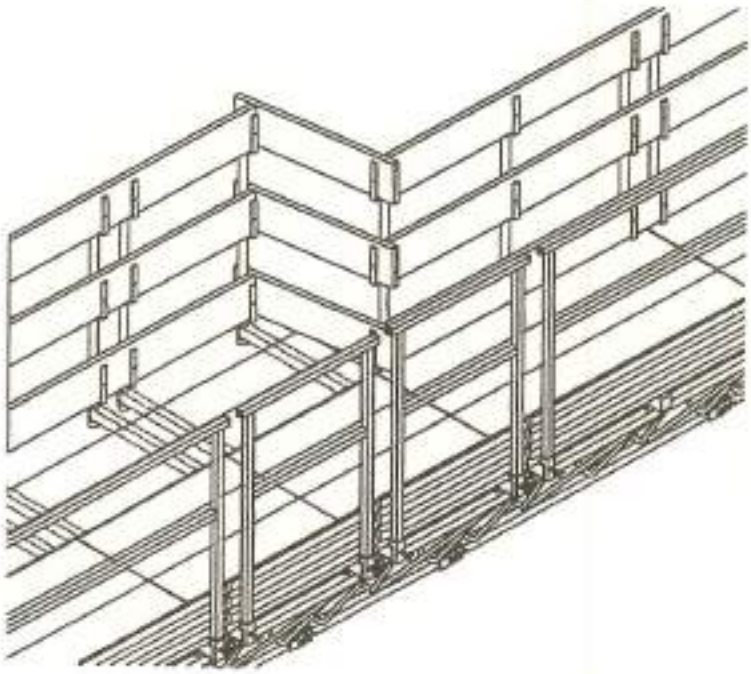


FIG. 5.4.9 Overhang/cantilever towards the wall
11 - Mount and adjust the levelling system, following the procedure given below.

Levelling

Description

The platform may suffer inclination due to imperfect synchronism of the two lifting units or to uneven distribution of work loads. The platform is therefore fitted with an automatic levelling device which serves to automatically correct, without intervention by the operator, any excessive inclination of the deck. The automatic levelling device consists of a level limit switch and an out-of-level limit switch positioned on each of the two lifting units. The shifting of the deck due to inclination activates the limit switches through suitable adjusting slides; the limit switches in turn activate contactors located inside the electric switchboard, thereby bringing the lifting units back onto the same level.

Assembly

Attention: During erection of the twin-mast platform, the lower pins inside the work deck of each lifting unit should not be inserted. The work deck is therefore only joined to the lifting units at the ends of the upper boom.

This is to allow inclination of the deck if the lifting units do not remain at the same level (figure 5.4.10 and figure 5.4.11).

FIG. 5.4.10 Levelling operation

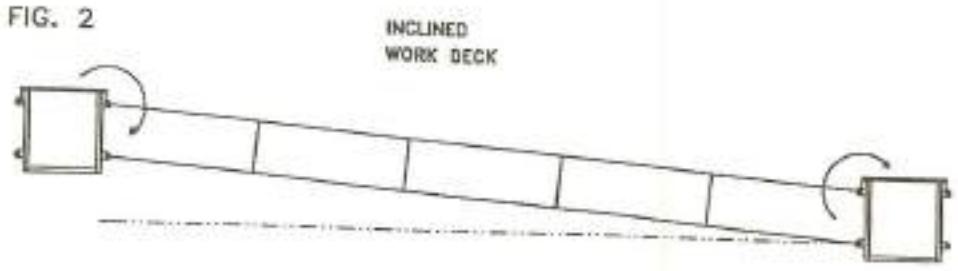


FIG. 5.4.11 Levelling operation - e.g. of inclined surface

The limit switches are positioned on each of the two lifting units inside the twin-mast platform at the end of the lower boom (toe-board) of the work deck (figure 5.4.12) and each one is fitted with a rod so that any movement of the deck may be perceived through the inclination (figure 5.4.12).

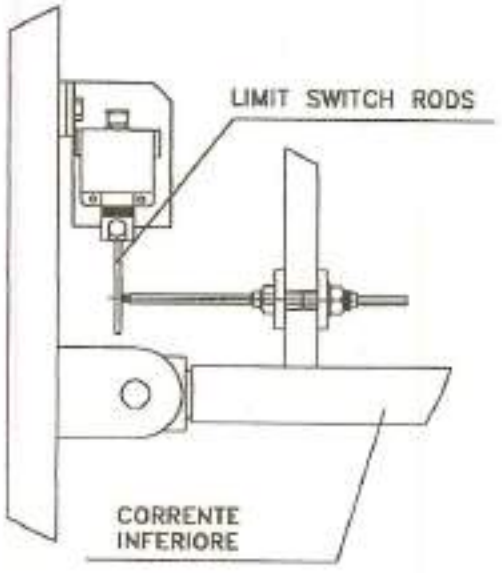


FIG. 5.4.12 Detail of levelling system

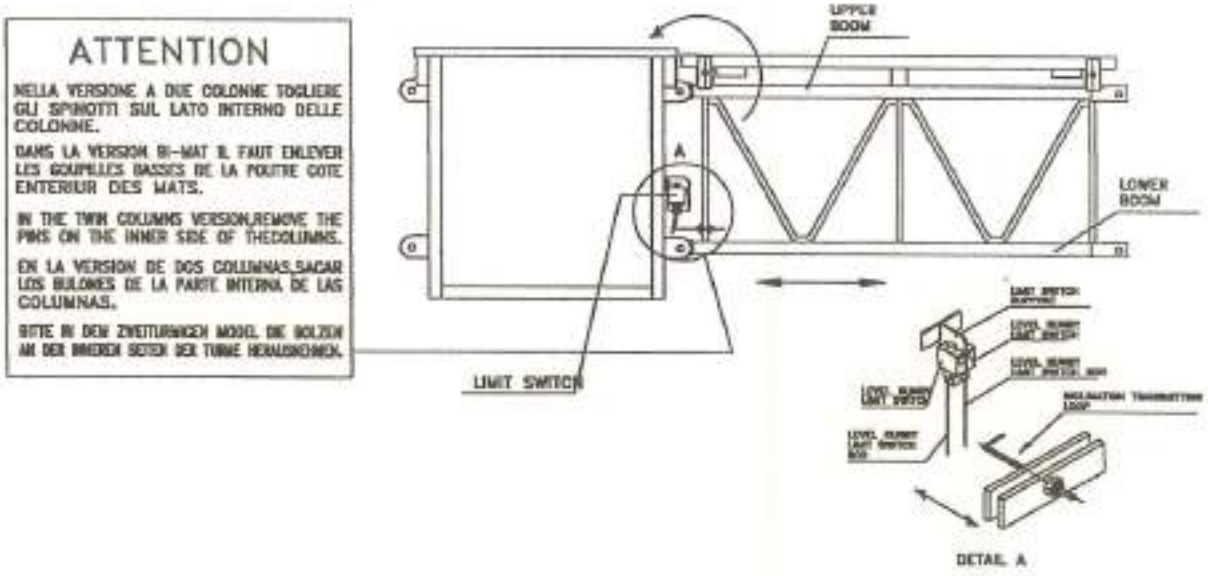


FIG. 5.4.13 View of levelling system

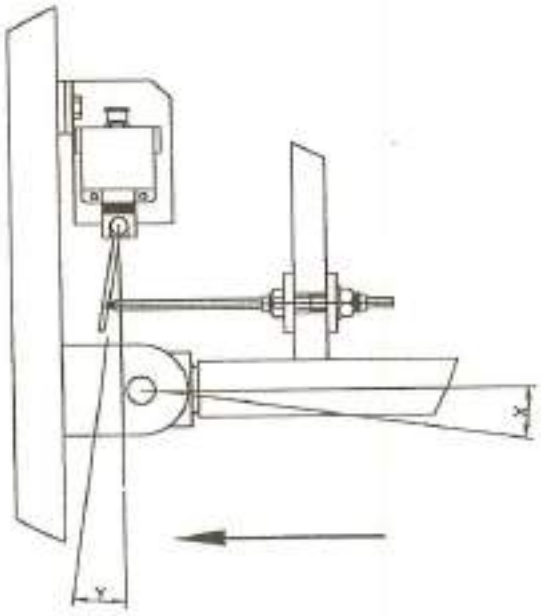


FIG. 5.4.14 Detail of operation

Operation in ascent

When the work deck is horizontal (Figure 5.4.10 on page 52) the limit switches are not activated

because the ends of the lower boom remain at a certain distance from the limit switch rods (Figure 5.4.12). When one lifting unit is faster than the other, by way of example let's take the left-hand unit, the work deck starts to slope at an ever increasing angle (X). The left-hand end of the lower boom starts to press on the limit switch rods, pushing them into an angle (Y) which gradually increases (Figure 5.4.14). The level limit switch rod precedes the out-of-level limit switch (Figure 5.4.12), so the level limit switch is the first to be activated. When this happens, the power supply to the highest lifting unit is cut off. The lowest lifting unit continues to move; in this way the angle of inclination (X) gradually decreases and the work deck returns to a horizontal position.
As the angle (X) decreases, the end of the lower boom which had activated the limit switch, starts to return towards its original position, thereby releasing the limit switch rod. When the angle (Y) goes below a certain pre-established value, the lifting unit which had been stopped is re-powered and the platform starts to rise normally again. The emergency level limit switch is not normally activated because it is always anticipated by the level limit switch. It only activates in the event of malfunctioning of the level limit switch. In this case the main power supply is cut off and the platform stops. Care must be taken over regulating the activation of the level limit switch so that the angle (X) of inclination of the work deck is 1° or less. The emergency level limit switch should instead be adjusted so that the lifting unit stops after no more than 100 mm from the position of activation of the level limit switch. The angle (Y) is in proportion to the angle (X), so, once the maximum allowable inclination of the work deck has been established, angle (Y) is established, correcting the position of the limit switches on the supporting plate(Figure 5.4.12) by means of the clamping screws on the limit switches.
The limit switch rods are positioned through the clamping screws on the limit switches and by adjusting the loop transmitting the inclination of the work deck.
In compliance with current norms, the value of ±1° having to be observed, adjustment by activation of the limit switches may be carried out by referring to the difference in height of the unit corresponding to 1 degree of inclination.
The following table gives the values of the height of the motor unit corresponding to one degree in relation to the distance between the two masts.

TAB. 8: Height values in relation to the length

	12.305 m	9.439 m	6.573 m
	21.5 cm	16.5 cm	11.5 cm

Operation in descent
The automatic levelling system in descent activates according to the same principal as operation in ascent.

5.4.2) Single-mast platform assembly
The differences in assembly compared to the twin-mast platform regard the following points:
a - The lower pin should be inserted in the lifting unit to allow connection with the bridge beams.
b - There is no levelling system.
c - The beam elements must be assembled symmetrically.
The platform floor should be assembled at the lowest possible height, i.e. about 1.5 metres (0.49 feet) from the ground.
The single-mast working platform consists of beams joined together by lock pins and the framework of the gear-motor unit.
The total length of the platform 3.707m (12.16 feet).
With side brackets retracted, the platform is 800 mm (2.62 feet) wide. Should this be insufficient, the side brackets may be extended, also to adapt the platform to any protrusions on

the wall. It should be remembered that if the distance between the platform and the wall is greater than 300 mm (0.98 feet) at any point up the mast, it is compulsory to assemble the guard-rails provided around the whole platform.
The beams making up the platform should be assembled using suitable lifting equipment.
Setting up the single-mast platform, e.g. 3.7 m long (12.16 feet), includes assembly of the beams according to the diagram given below (figure 5.4.15/ 5.4.16/ 5.4.17 / 5.4.18).

ATTENTION!

The WORKING DECK of the single-mast platform must be symmetrical in relation to the lifting unit, i.e. the same number and types of beam elements must be mounted to the left and to the right of the MOTOR unit.

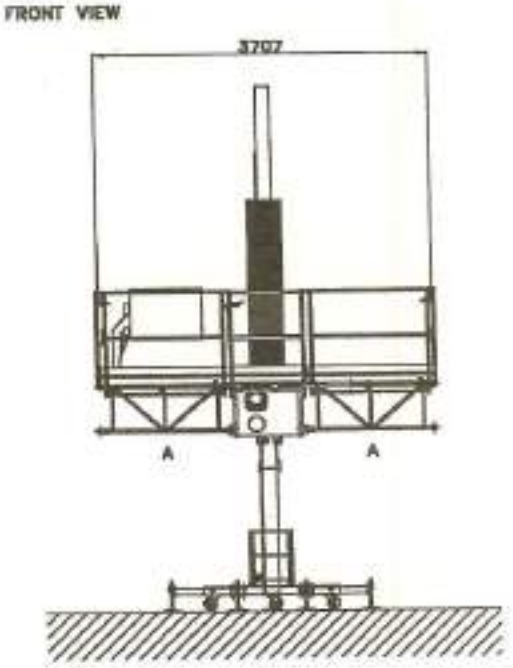
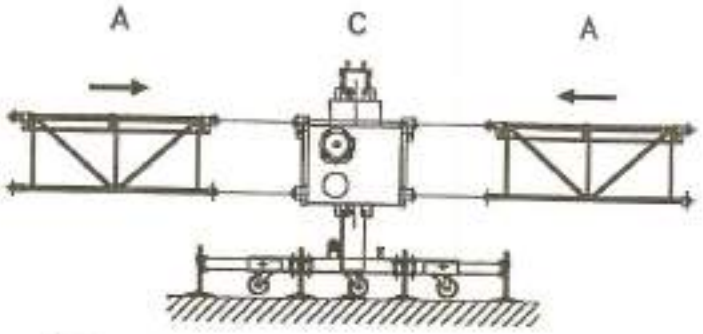


FIG. 5.4.15 Single-mast platform – 3.7 m (12.16 feet) arrangement

1 - Check that the ground on which the platform will rest is level and firm.
2 - Position the motor unit on the base.
3 - Proceed by connecting the beams to the motor unit, fixing them with the lock pins provided (figure 5.4.16)



A – BEAM 1433
C – LIFTING UNIT

FIG. 5.4.16 Single-mast platform – erection stage 3

4 - Complete insertion of the two beams.

5 - Proceed with positioning the floorboards, stairway and gate.

6 - Upon completion of beam assembly, the bases are levelled by means of the stabilisers. As has already been seen, these should be tightened until there are just a few centimetres between the wheels and the ground. Then check, using a spirit level, and if necessary correct the levelness of the base in both right angle directions. Also check the verticality of the mast in both directions of the right angle. Make the bases level and lock the large central screw with the relative lock nut.

7 - Make sure that load-distribution boards are suitably placed under the stabiliser points of support. Should the distance between the beams and the wall exceed 300 mm (0.98 feet), insert the columns for the guard-rails on the wall side. Suitably thick boards should be fixed to the uprights with nails.

8 - Carry out the electrical connections according to instructions given in chap. 5.5.

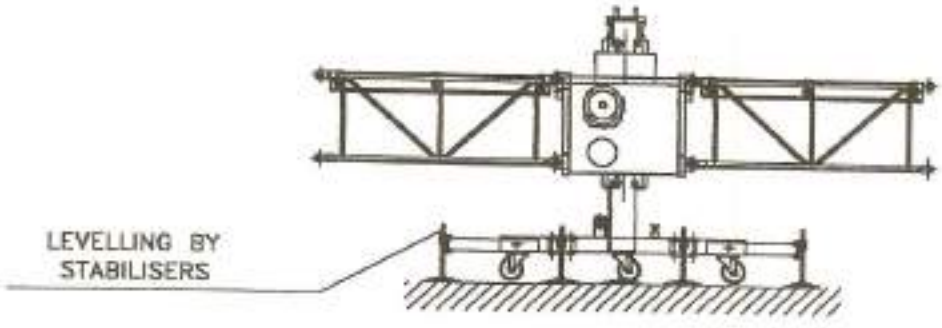


FIG. 5.4.17 Single-mast platform – erection stage 4

FRONT VIEW

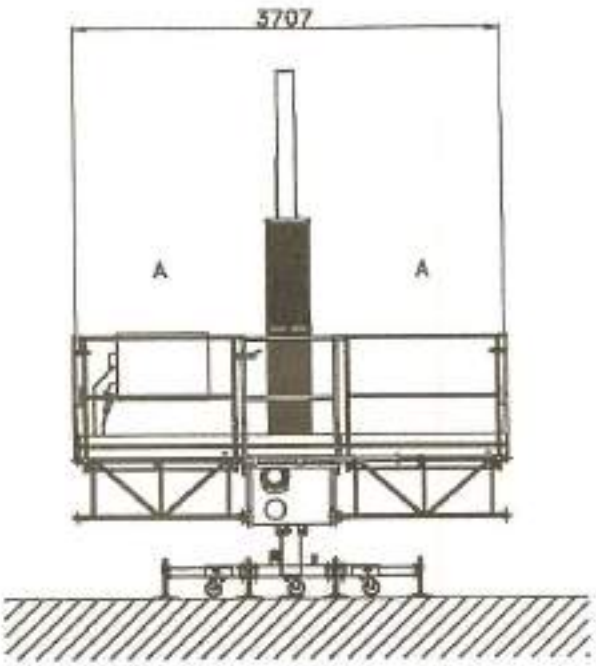


FIG. 5.4.18 Single-mast platform- example of erection

5.5) Electrical connections

Mount the control panel on the guard-rail, fixing the relative shield using the screws provided.

1 - Fix the supply cable onto the upper cross element of the beam or of the guard-rail.

2 - Check the value of the supply voltage and the available power.

3 - Check that the mains voltage corresponds to that indicated on the control panel (220V-380V).

If necessary change the voltage by means of the relative control situated inside the control panel.

4 - Connect the motors to the control panel using the multiple plugs provided.

ATTENTION!

It is compulsory to connect the machine to the mains supply co-ordinating the protective devices in accordance with regulations and legislation in force.

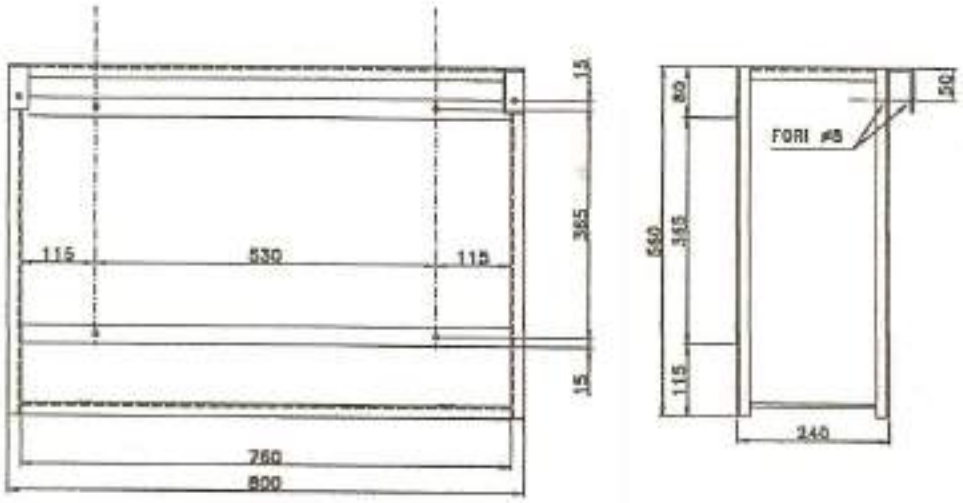


FIG. 5.5.1 Control panel shield