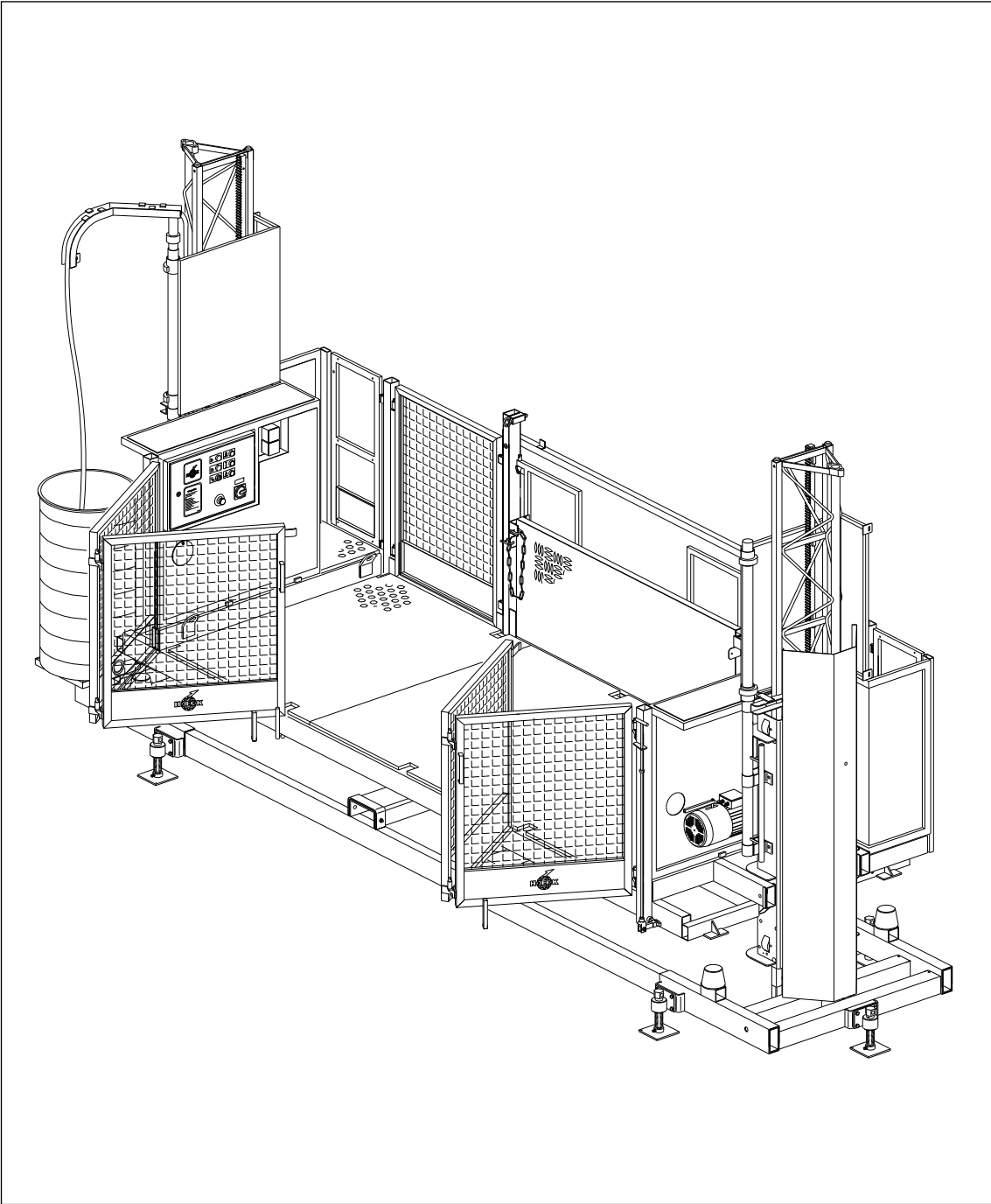


USER'S MANUAL

GTP 1500 TRANSPORT PLATFORM



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HEK GTP 1500 TRANSPORT PLATFORM

Type number :

Machine number :

Year of manufacture :

Owner :

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FOREWORD

The HEK GTP 1500 is an extremely compact transport platform for personnel and material.

This manual describes the installation, operation and maintenance of the transport platform.

The mast, consisting of separate elements, can be adjusted in height to the height of the building. The mast can be simply and safely erected, from the platform.

The transport platform must be anchored.

The HEK GTP 1500 offers a high level of safety. In the construction of this transport platform, particular attention has been paid to all safety requirements.

The drive unit, for example, has been fitted with a motor brake. An additional fail safe brake, which operates by applying a shaft to both racks is fitted.

To simplify transport of the machine to and on the construction site, the HEK GTP 1500 can be equipped with transport wheels.

Thanks to the robust and solid construction of the transport platform, only minimum maintenance is required.

This manual describes only the basic machine, in the standard configuration supplied by HEK Manufacturing B.V.

<p>Read this manual carefully before using the transport platform. Take all the safety precautions as described in chapter 3 into account.</p>

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LIST OF STANDARDS

The GTP 1500 is a machine as intended in appendix IV of the machine directive, figure 16, built according to the requirements of the EC Directive 89/392/EEC, altered in Directive 91/368/EEC and 93/44/EEC.

The following standards were also employed in the construction:

draft EN standard 12158-1 Material hoists

draft EN standard 1495 Lifting platforms - mast climbing work platforms

EN standard 60204-1 Electrical equipment of machines

EMV - Directive 89/336/EEC

MEANING OF THE SYMBOLS USED



WARNING
Failing to (exactly) comply with working or operating instructions may lead to serious injury, fatal accident, severe mechanical damage or operating losses.



During use, no person may stand **under** the machine.



Danger: high voltage.



Danger of falling objects.

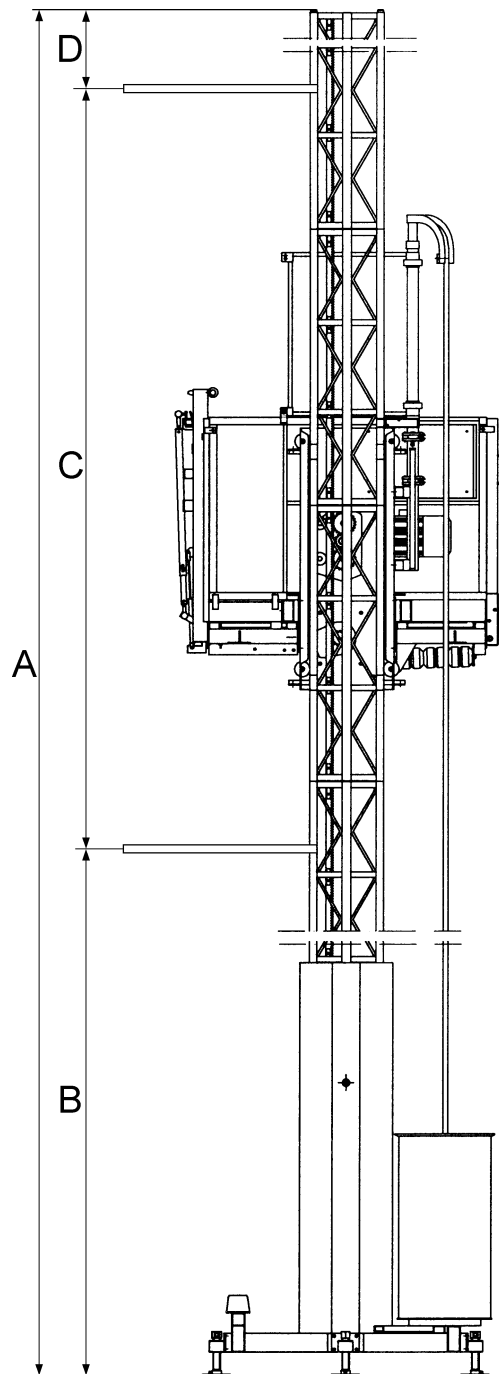


Fig.1-1 Dimensions

1. TECHNICAL DETAILS

Note:

The data in this chapter are based on standard applications for the GTP 1500 transport platform. In special situations, it may be possible to deviate from these data. This may only be done, however, with prior written approval of the supplier.

1.1 General

See also fig. 1.1.

Description	Fig.1-1	GTP 1500
Platform length [m]		4,0
Platform width [m]		1,5
Height of the platform fence [m]		1,1
Distance between the anchors [m]	C	6 - 8
Max. mast height freestanding [m]	A	0
Max. mast height anchored [m]	A	120
Max. mast height above last anchor [m]	D	3
Mast type		DRK400
Max. number of persons		7
Platform speed [m/min.]		12
Loading capacity [kg]		1500 kg (see chapter 1.4)
Distance between cable guides [m]		6
Height of the first anchor for ground frame [m]	B	3 - 4
Min. Platform height [m]		0,40
Noise level		< 70 dB
Weight of basic machine (Incl. 2 Mast elements and 2 top masts [kg]		2095
Transport wheels, type		195/70 R14
Tyre pressure transport wheels [bar]		2
Maximum wind-force during erection		12,5 m/s (6 Beaufort)
Maximum wind-force during use		15,7 m/s (7 Beaufort)

1.2 Mast element

Mast element length	1508 mm
Mast element width	400 mm
Mast element depth	315 mm
Modul rack	5
Mast bolts	M14 x 90 Qual. 8.8
Tightening torque	100 Nm
Mast element weight	50 kg

1.3 Dimensions GTP 1500

Fig.1-2, Dimensions [mm]	
A	6135
B	4000
C	4700
D	4955
E	1700
F	1530
G	1240
H	1500

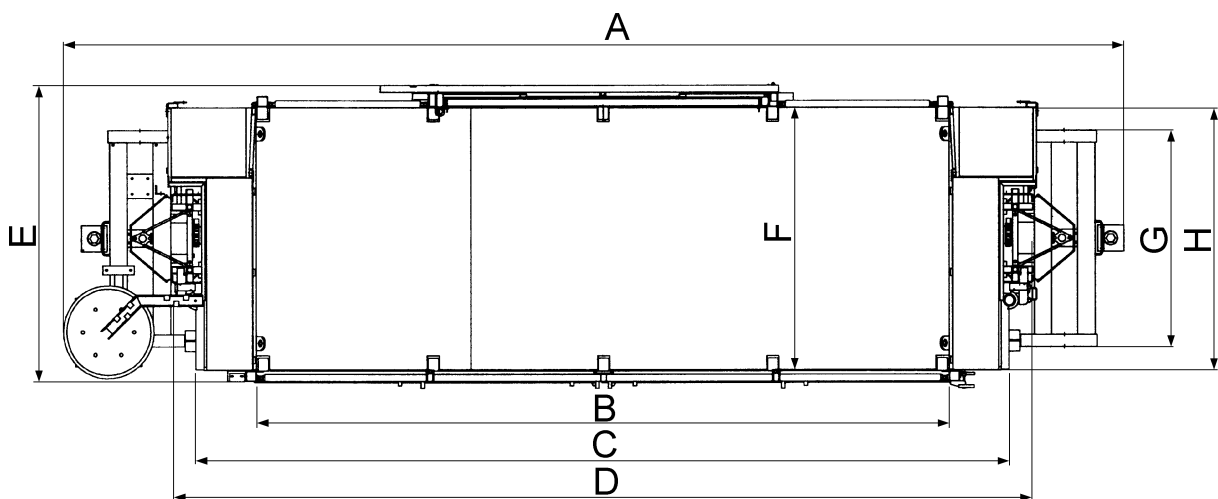


Fig.1-2 Dimensions top

1.4 Electrical installation

		GTP 1500 400V	GTP 1500 230V
Number of motors		2	2
Rated power of work platform		2 x 4,8 kW	2 x 4,8 kW
Max. starting current		110 A	190 A
Power consumption based on		S3-40%	S3-40%
Power consumption		15 kVA	15 kVA
Power consumption at start up		70 kVA	70 kVA
Supply voltage		400 V	230 V
Minimum supply voltage		360 V	205 V
Phases		3 + N + Pe	3 + Pe
Supply frequency (depending on the national conditions regarding to power supply)		50 or 60 Hz	50 or 60 Hz
Fuse at building site (slow)		32 A	50 A
Control voltage		42 Vac	42 Vac
Control voltage frequency		50 / 60 Hz	50 / 60 Hz
Power supply cable (to machine)	up to 50 m	5 x 6 mm ²	4 x 16 mm ²
	up to 90 m	5 x 10 mm ²	4 x 25 mm ²
Machine cable / Weight	up to 45 m	5 x 4 mm ² , 0,47 kg/m	4 x 6 mm ² , 0,51 kg/m
	up to 85 m		4 x 10 mm ² , 0,91 kg/m
	up to 120 m	5 x 6 mm ² , 0,64 kg/m	4 x 16 mm ² , 1,27 kg/m
Single phase outlet		230 V ± 10% / 16 A	230V ± 10% / 16A

1.5 Transport platform loading

The payload must be equally distributed on the platform.

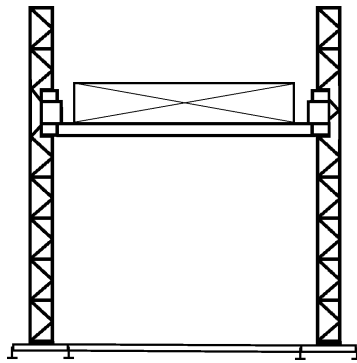


Fig.1-3 Payload distribution

See the table for the maximum load and maximum number of persons.

Persons	+	Load (kg)
1 (min.)	+	1400
2	+	1300
3	+	1200
4	+	1100
5	+	1000
6	+	900
7	+	800

1.6 Anchor forces

Tightening torque scaffold
coupling: 50 Nm

The anchor forces depends on the region where the machine has to be placed. The anchor forces in chapter 1.6.1 and 1.6.2 are given for the different wind regions in Europe. In figure 1-4 the different wind regions in Europe are given.

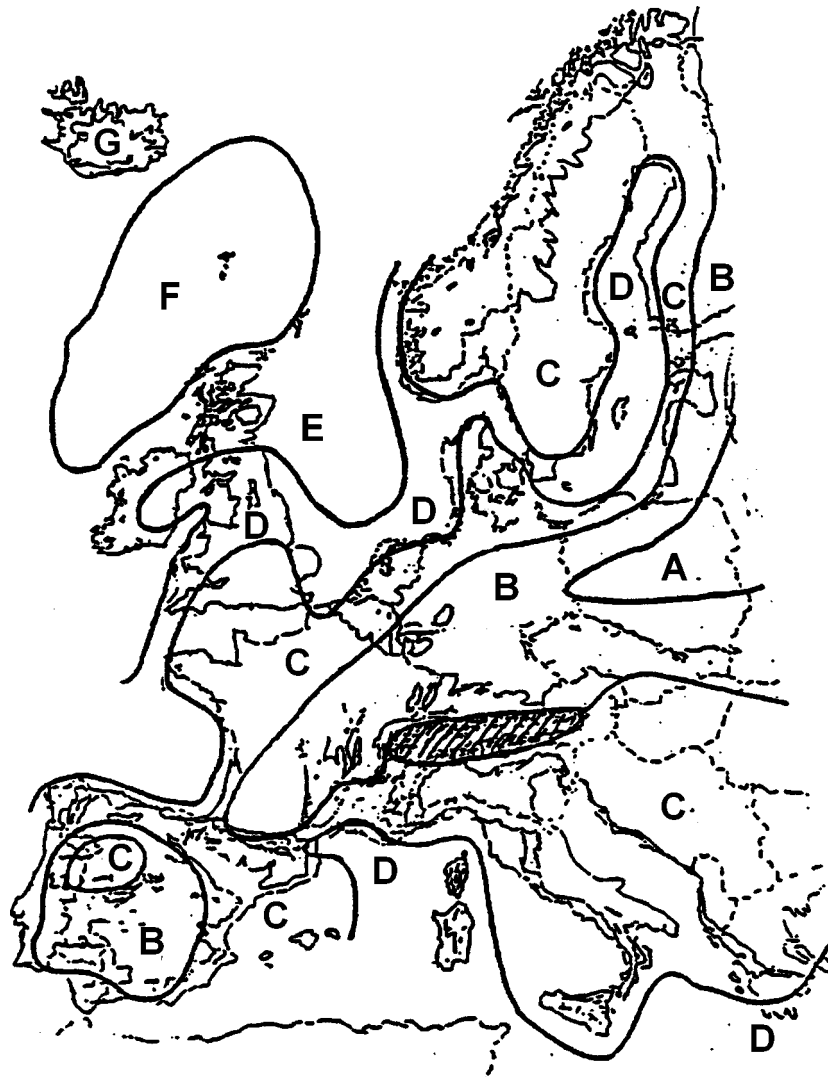


Fig.1-4 European wind map

1.6.1 Anchoring to a scaffolding system

The anchor forces must be transferred to the facade via the scaffolding system, according to static requirements. The transferred forces for the scaffolding system must be static approved.

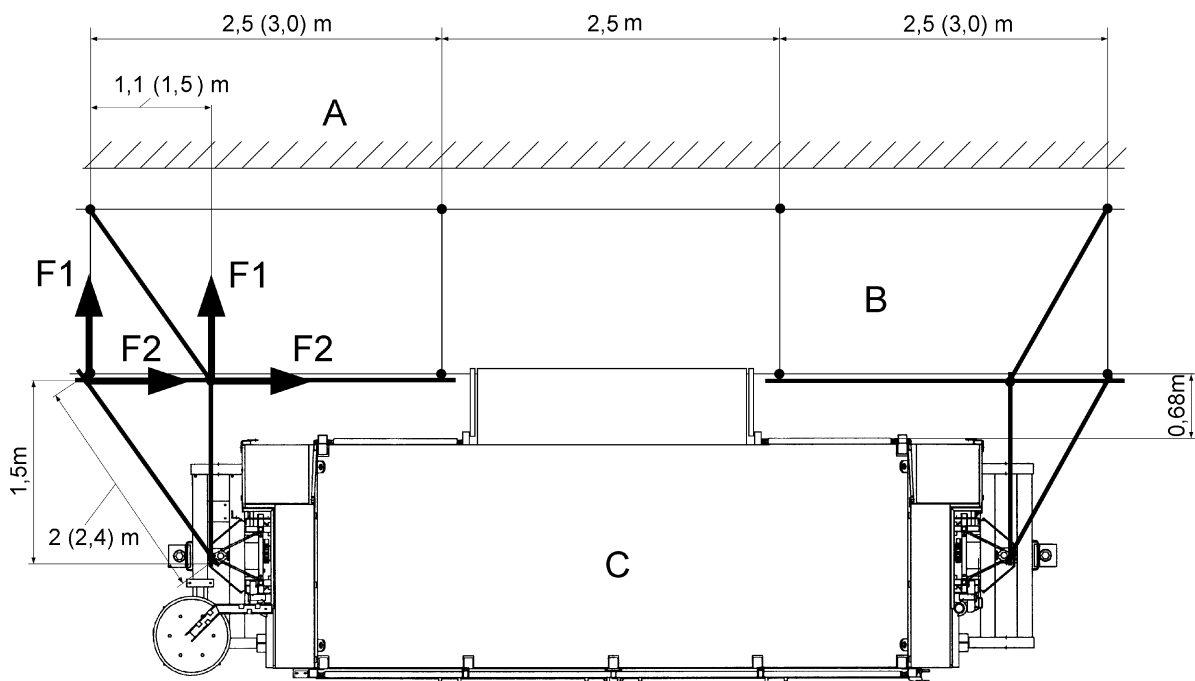


Fig.1-5 Anchoring to the scaffolding system

Scaffold section length 3,0 m						
	Region A-C		Region D		Region E-G	
	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)
* Mast height above last anchor = 3m * Loading ramp in the middle	5,8	3,6	5,8	4,7	Consult your dealer	
* Mast height above last anchor = 0m * Loading ramp in the middle	4,9	3,6	4,9	4,7		
* Mast height above last anchor = 3m * Loading ramp left or right	6,9	3,6	6,9	4,7		
* Mast height above last anchor = 0m * Loading ramp left or right	5,7	3,6	5,7	4,7		

Scaffold section length 2,5 m						
	Region A-C		Region D		Region E-G	
	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)
* Mast height above last anchor = 3m * Loading ramp in the middle	7,2	3,6	8,0	4,7	Consult your dealer	
* Mast height above last anchor = 0m * Loading ramp in the middle	6,1	3,6	8,0	4,7		
* Mast height above last anchor = 3m * Loading ramp left or right	8,3	3,6	8,3	4,7		
* Mast height above last anchor = 0m * Loading ramp left or right	6,9	3,6	8,0	4,7		

1.6.2 Anchoring to the facade

The anchor forces must be transferred to the facade, according to static requirements.

The anchor forces in table 1 are valid for the following circumstances:

- $\alpha = 45^\circ$
- $x = y = 1,5$ up to 2,5m

For example:

- $x = 1,8$ m
- $y = 1,8$ m
- Loading ramp left
- Mastheight above last anchor = 3 m
- Region C

See table 1: - $F1 = 6,9$ kN
 - $F2 = 3,6$ kN

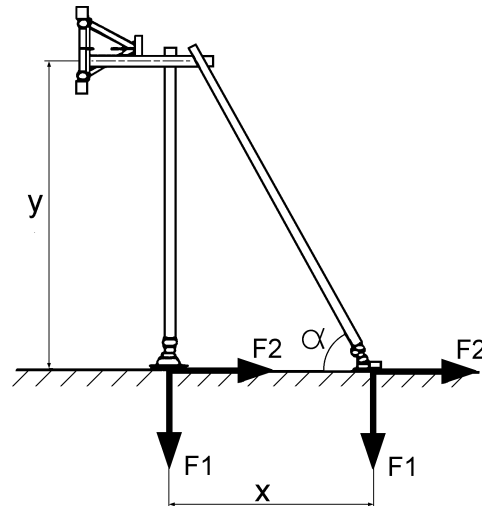


Fig.1-6 Anchoring to the facade

Table 1. Anchor forces to the facade ($\alpha = 45^\circ$)						
	Region A-C		Region D		Region E-G	
	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)
* Mast height above last anchor = 3m * Loading ramp in the middle	5,8	3,6	5,8	4,7	Consult your dealer	
* Mast height above last anchor = 0m * Loading ramp in the middle	4,9	3,6	4,9	4,7		
* Mast height above last anchor = 3m * Loading ramp left or right	6,9	3,6	6,9	4,7		
* Mast height above last anchor = 0m * Loading ramp left or right	5,7	3,6	5,7	4,7		

The anchor forces in table 2 are valid for the following circumstances:

- $\alpha = 46^\circ$ up to 60°
- $y = 1,5$ up to $2,5\text{m}$
- $y / x = 1$ up to $1,75$

For example:

- $x = 1,6$ m
- $y = 1,8$ m
- Loading ramp left
- Mastheight above last anchor = 3 m
- $y / x = 1,8/1,6 = 1,125$
- Region C

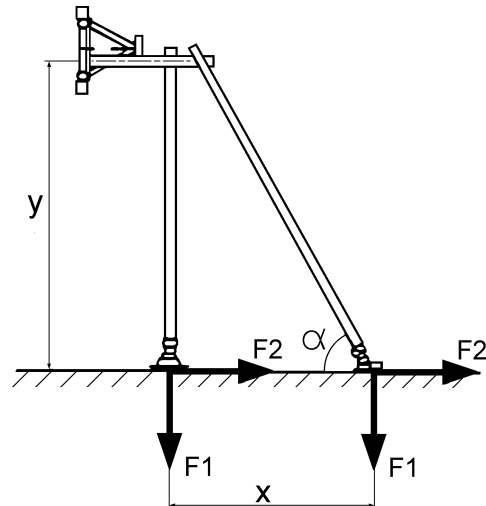


Fig.1-7 Anchoring to the facade

- See table 2: - $F1 = 8,3$ kN
 - $F2 = 3,6$ kN

Table 2. Anchor forces to the facade ($\alpha = 46^\circ - 60^\circ$)						
	Region A-C		Region D		Region E-G	
	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)	F1 (kN)	F2 (kN)
* Mast height above last anchor = 3m * Loading ramp in the middle	7,2	3,6	8,0	4,7	Consult your dealer	
* Mast height above last anchor = 0m * Loading ramp in the middle	6,1	3,6	8,0	4,7		
* Mast height above last anchor = 3m * Loading ramp left or right	8,3	3,6	8,3	4,7		
* Mast height above last anchor = 0m * Loading ramp left or right	6,9	3,6	8,0	4,7		

2. COMPONENTS

2.1 General description

The basic set of the rack and pinion transport platform consists of the following main parts (fig. 2-1):

- * 2 drive units (1)
- * 2 masts (2)
- * Platform with fences, loading ramp and barrier (3)
- * Ground frame (4)
- * Control system (5)
- * Transport wheels (optional)

The drive unit, powered by two electrical motors, is moved along the mast via a rack, using two pinions for each mast. Parallel running on both sides is guaranteed automatically.

The machine is fitted with a fail safe brake. If the maximum speed of descent is exceeded, the fail safe brake will stop the platform.

Much consideration has been given to simple and safe assembly and disassembly.

The ground frame is fitted with fork recesses, so that the machine can be easily loaded onto a truck, using a forklift. For transporting the machine on the construction site, the transport wheels can be used.

Four shackles have been mounted on the platform, for loading and unloading using a crane.

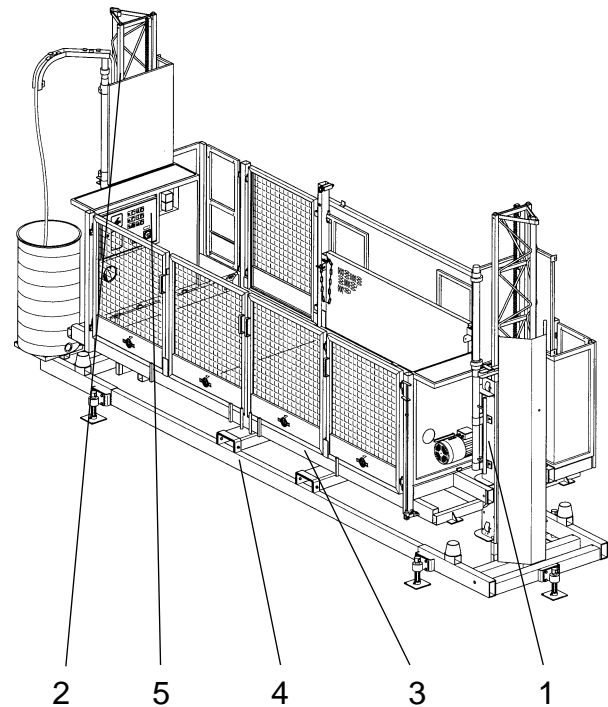


Fig.2-1 Basic set GTP 1500

During machine assembly and use, the platform can only be operated when the barrier is closed and locked in position.

The electrical system is mounted in the control box on the platform.

All electrical connections, which must be disconnected for transport purposes, are being made by means of connectors.

The power supply from the building site distribution box to the transport platform is via a supply cable, with 32 A EEC plug.

Thanks to the simple construction system, maintenance has been kept to a minimum.

The most elements, the chassis, the transport platform, the cable guides and various other components are protected from corrosion by means of galvanization or another appropriate surface treatment.

2.2 Protection at landing height

To protect against the risk of falling at loading and unloading points on the scaffold system or facade, landing barriers must be mounted.

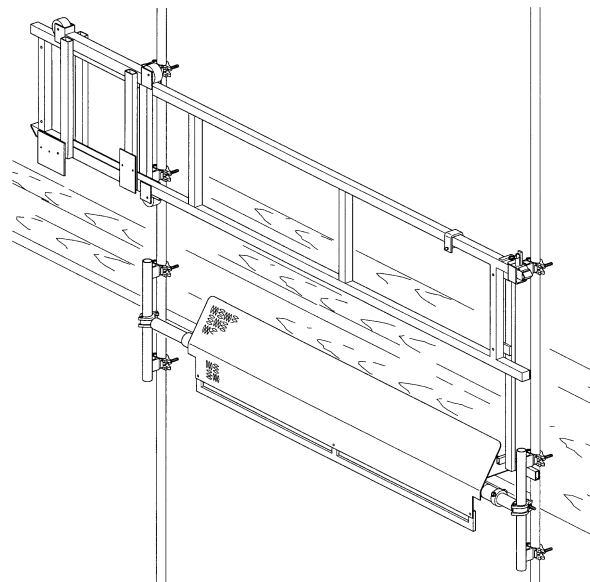


Fig.2-2 Landing barrier

3. SAFETY

3.1 General



No changes or modifications may be made to the machine



The ground surface must be stable to support the weight of the machine and the mast.



The mast must ALWAYS be anchored in accordance with the instructions.



If during assembly and disassembly the fences do not provide sufficient protection, suitable safety harness must always be used at heights above 2 metres.

3.2 Safety prior to use

- The transport platform may not be used freestanding.
- The ground frame must be effectively supported.
- The working area around the machine must be free from obstacles.
- Anchors must be mounted at specified intervals.
- Before use, the switchbox must be checked if it is locked.
- At wind speeds above 12.5 m/s (6 Beaufort), the machine must not be assembled/disassembled.
- The wheel set may not remain fitted during the use, assembly or disassembly of the machine.

3.3 Safety in use



At wind speeds above 15.7 m/s (7 Beaufort) the machine must not be used, and the platform must be set at the lowest position.



There must be no obstructions in the path of the work platform.



During use, no person should stand **under** the machine.



Before a mast element or anchor is installed, or maintenance work carried out, the emergency stop button must be pressed.



Never climb in the mast.



Materials and/or tools must never extend beyond the outer limits of the platform. Items which may roll must be properly secured. Materials must never be stacked against the fencing.



If work must be carried out close to high-voltage cables, a minimum safety distance of 10 meters must be maintained.



When materials and/or tools with a large surface area are used, contact your supplier, in connection with wind sensitivity.



When electrical storms are expected, work on the platform must be stopped in time to avoid the danger of lightning strikes. The power supply must be switched off and the connector withdrawn from the supply socket.

- If the machine is to be used during the hours of darkness, the area must be adequately lit, so that the user has a good view in all conditions. A minimum brightness of 50 lux at control box height is required.
- The machine may only be used for the purpose for which it was designed, namely the vertical transport of persons and materials, to a maximum weight of 1500 kg.
- Loads (materials, persons, etc.) must be distributed in accordance with the loading diagram.
- Work on the transport platform may only be carried out, once the contents of this user's manual are known.
- Inspection and maintenance must be carried out as described in this instruction manual.
- During assembly and maintenance, the machine may not be used for other purposes.
- Local safety laws and regulations must always be followed.
- Fences must never be removed during normal use.
- The working area must be kept free from obstacles (building materials, dirt, snow, etc.)

3.4 Safety after use

- Transport on public roads must only be carried out by a truck intended for that purpose.
- The transport platform must be placed in its bottom position and the main switch must be secured with a padlock to avoid unauthorised use.

3.5 Built-in and additional safety features

The machine has been built to offer maximum safety both during assembly and use. Therefore, the following built-in and additional safety features have been provided:

- electrically monitored mast guard: when the mast guard is open the platform is locked;
- emergency stop button on the control box: when this button is pressed the platform is locked.
- mechanical safety device for the barrier on the transport platform;
- buffer to catch the platform, if all limit switches fail;
- in the event of power failure, the motor brake on the motor brake drive is automatically activated;
- in the event of power failure, by releasing the motor brakes, an emergency descent can be carried out;
- if the maximum speed during descent is exceeded, the fail safe brake is activated;
- if the TOP limit switch fails to operate, and the transport platform continues to rise, the TOP emergency limit switch is activated;

- if the LOWER limit switch fails to operate, and the transport platform continues to descend, the LOWER emergency limit switch is activated;
- if the TOP limit switch fails, and the red top mast has not been fitted, so that the transport platform continues to rise, the drive unit will be caught on the safety hooks;
- parallel running safety device. Parallel running is guaranteed via a connection shaft with two pinions, which interlock with the rack;
- audiovisual warning system: When the transport platform descends it will stop for 3 seconds at 2,5 m above the ground., an intermittent buzzer sounds, and a light flashes on the underside of the platform. After 3 sec. the platform descends further, the buzzer stops and the light goes out.
- electrical monitoring of load gates: when the gate is open the platform is locked;
- electrical monitoring of loading ramp: when the ramp is open the platform is locked;
- static overload device: locks the platform when it is overloaded.

3.6 Personnel

The transport platform may only be assembled, disassembled and controlled by persons who:

- are over the age of 18 years;
 - are instructed about the assembly and disassembly of the transport platform;
 - are authorized by the owner to assemble, disassemble, control and maintain the machine. The authorisation must be on paper;
 - are familiar with the emergency instructions and the contents of this user's manual are known.
- The technical personnel must be in a position to deal with any difficulty encountered, during assembly and disassembly.
 - The operating personnel must be familiar with all situations which can occur during use.
 - If operating or technical personnel note any faults or dangers, or are not in agreement with the safety measures taken, the owner or person responsible must be immediately informed.
 - Work on the electrical systems may only be carried out by a qualified electrician.
 - Personal protective equipment such as hard hat, safety shoes and close-fitting clothing must be used.
 - When entrusting the platform to a third party, an introduction must be carried out, according to the transfer protocol, and fully naming the machine operator.

4. TRANSPORT



The machine may not be transported on the public road, on the transport wheels.



All nationally valid traffic regulations must be observed.



During transport, no load must be present on the platform.



Check that both ground units are locked in position.

The basic unit of the machine has been dimensioned in such a way that it can be transported on a standard truck. Ensure that, during transport, all securing devices are properly fitted and the machine is lowered onto the buffers.

For transport dimensions, see chapter 1.

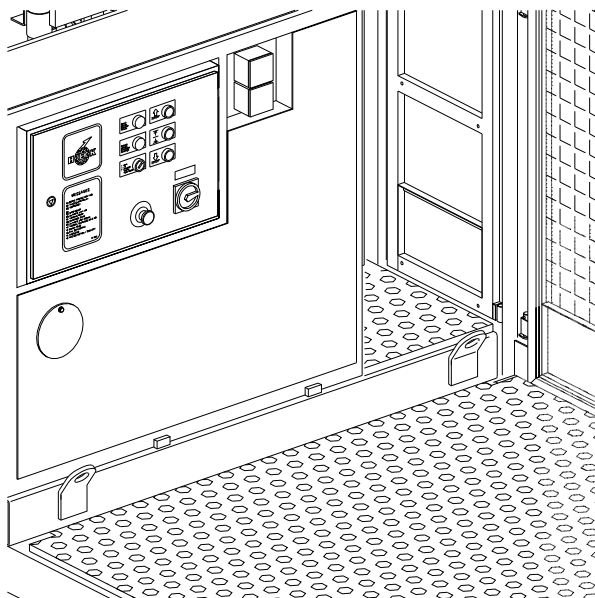


Fig.4-1 Lifting point

Before transporting, disassemble the machine as described in chapter 8.

Before transportation, all additionally mounted mast elements and connection cables must be disassembled, and the jacks withdrawn.

The machine can be loaded and unloaded from the transport vehicle using a crane mounted on the vehicle, a crane on the building site or a forklift truck. See figure 4-1/4-2 for the loading and unloading points.

Fig.4-1: Lifting point for lifting sling

Fig.4-2: Support points for forklift truck fork

Set the machine down carefully to avoid damage.

For transportation, the machine must be tightly lashed down onto the truck flat bed.

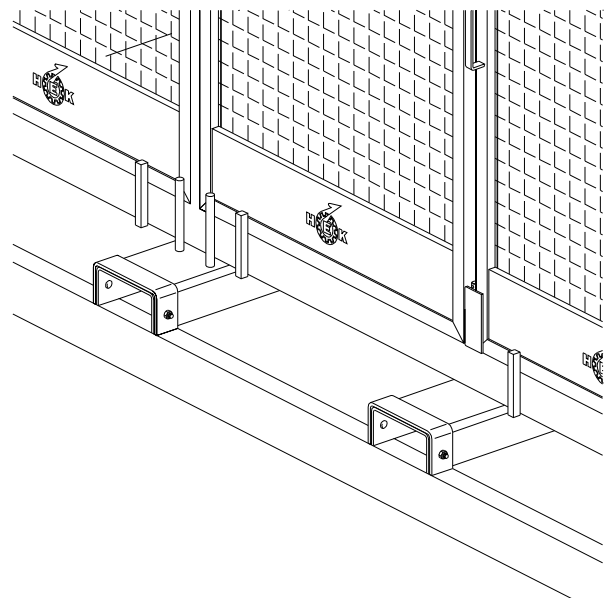


Fig.4-2 Support points forklift truck

4.1 Repositioning on the construction site



Before repositioning the platform, ensure that no trees, power lines, etc. can be affected.



During repositioning, there may be no load or persons on the platform.



The wheel set may not remain fitted during the use, assembly or disassembly of the machine.

On the construction site, the transport platform can be moved, in its lowest position, using the (optional) transport set, consisting of two side wheels, a front wheel and a tow bar.

On smooth, solid and level ground, the mast may be transported, with a maximum mast height of 3 meters. In less favourable conditions, contact the supplier. The transport set can be attached to a vehicle, and towed. The maximum speed during repositioning using another vehicle is 30 m/min.

5. CONTROL COMPONENTS

5.1 Power supply socket for the drive unit

The power supply cable for the electrical supply between the building site distributor and the transport platform is connected to the socket (fig. 5-1, 1) on the cable drum (32 A EEC/400V socket or 63A/230V socket). See chapter 1 for the cable specifications.

5.2 Main switch

This switch (fig. 5-1, 2) is used for activating power supply. This switch may not be used for stopping the machine.

The main switch shall be secured with a padlock to prevent unauthorized use of the platform.

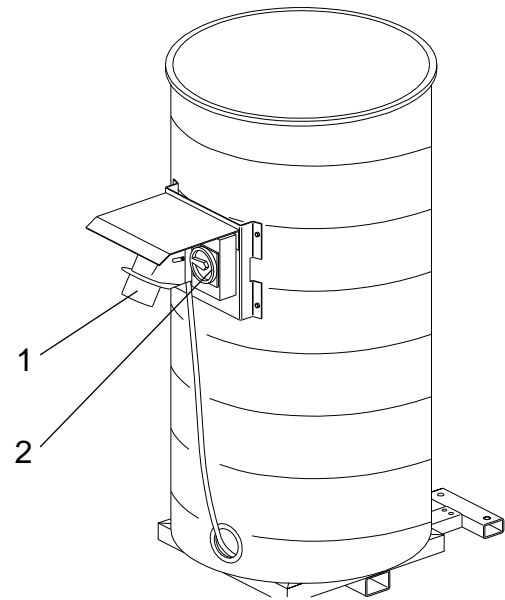


Fig.5-1 Drive unit power supply socket

5.3 Control box on the platform

A control box for the transport platform (fig. 5-2) is mounted on the platform itself.

The following components for machine operation are mounted on the control box:

1. Cabinet lock
Locks the door of the control box.
2. Information panel
This information panel consists of a display on which error codes appear, if an error is detected.
3. Control lamp (green) (operation)
This lamp lights up when the main switch is on and the safety circuit is closed.
4. Push button UP
When this push button is pressed, the lifting platform rises.
5. Push button STOP NEXT LANDING
When this push button is pressed, the transport platform stops at the next landing.
6. Push button DOWN
When this push button is depressed, the lifting platform descends.
7. Main switch
This switch is used for activating power supply. This switch may not be used for stopping the machine.

The main switch shall be secured with a padlock to prevent unauthorized use of the platform.

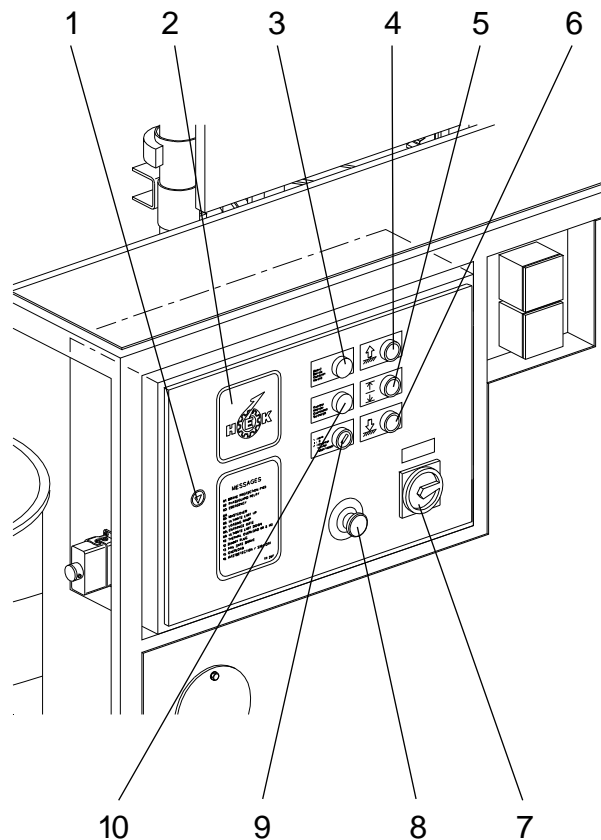


Fig.5-2 Control box

8. Emergency stop button
If this push button is depressed, the lifting platform is “locked” in position.

When the emergency stop button is pressed, it is locked in position; it then remains depressed. Turn the button to release it.

9. Key switch, normal/off/reset
Using this switch, the fail safe brake can be returned to its original position. During normal use the switch must always be removed from the switch box.
10. Overload warning lamp (red)
If the platform is overloaded, this lamp will light up.

5.4 Single phase outlet

Beside the control box a single phase outlet (fig.5-3, 1) is mounted. This outlet can be used for electrical tools, lighting, etc.

5.5 Remote control fail safe brake

A remote control to test the fail safe brake is supplied as an option with the machine.

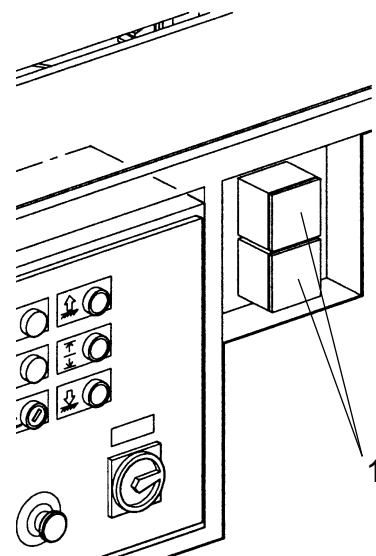


Fig.5-3 Single phase outlet

6. ASSEMBLY AND ANCHORING

This chapter describes the assembling and anchoring of the transport platform.



If assembly work must be interrupted, it must be done in such a way that when the work is restarted, it is clear what stage had been reached when work was stopped. For this reason, always complete a part of the assembly (for example connect, tighten or secure all components for a connection, complete a ground support or completely assemble an anchor) before interrupting assembly.



Whilst the mast is being erected, no more than 2 persons may be on the GTP 1500 transport platform, so that no more than 50% of the lifting capacity is used.

The loading of the transport platform must be planned so that when, during assembly, the maximum mast height is reached above the last anchor (max. distance between anchors is reached), the material load on the platform is at a minimum.



Assembly must always be followed by a test run, as described in section 7.3. Until the test has been performed, the platform may not be used for any purpose other than transporting its own mast elements and anchoring components.

6.1 Preparation for assembly



Ensure that the site where the transport platform is to be assembled meets the locally applicable safety requirements, and that permission for the assembly has been obtained from the relevant authorities.

- Ensure that a suitable power supply, good lighting, lifting equipment and tools are available.
- Ensure that the building site is easily accessible to the vehicle which will deliver the transport platform.
- Prepare the site with suitable support and anchoring facilities.
- Ensure that the position where the transport platform is to be built has good drainage.
- Plan the positioning of the transport platform against a facade in such a way that where anchoring is required, it can be carried out using standard equipment.
- The components of the transport platform should be placed as close as possible to the transport platform assembly site.
- The electrical power supply connection for the transport platform must be placed as close as possible to the transport platform, to reduce voltage drop. In the event of excessive voltage drop, the machine may not function correctly.

6.2 Ground support

The ground support and the soil must meet the following requirements:

- The ground surface must be flat, and offer sufficient load-bearing capacity.
- Ensure an even distribution of forces, over the largest possible surface area.
- The soil must be able to withstand ground pressure of at least 2 kg/cm². If this requirement is not met, soil improvement measures must be carried out, until this minimum requirement is fulfilled.
- The ground support must be able to withstand a pressure of at least 20 kg/cm².
- The ground support must measure at least :
 A = 600 x 600 mm
 B = 350 x 600 mm
- The ground support must be flat, and centrally loaded (fig. 6-1).
- The ground support must be durable, and of such a quality that the load can be transferred without plastic deformation.
- For assembly on a concrete foundation or on a hardened road surface, the installation must be provided with wooden packing, to prevent slipping.

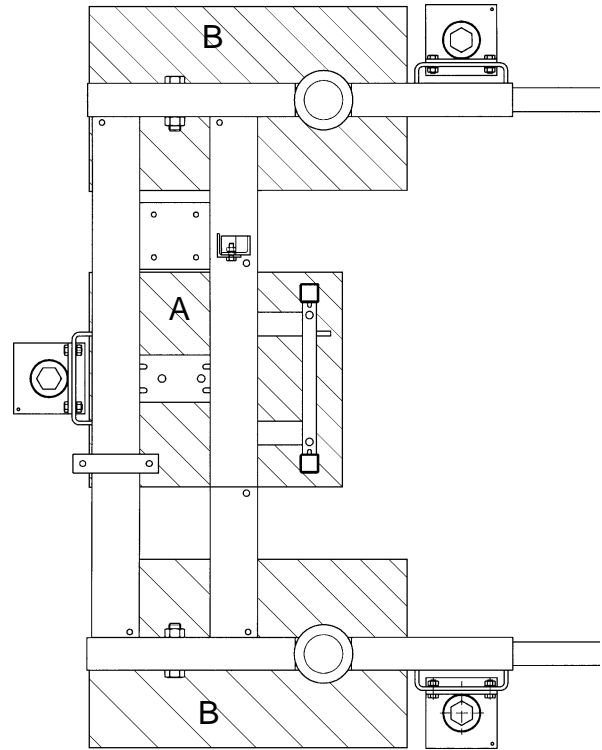


Fig.6-1 Positioning of the ground support

6.3 Distance to the facade



A fence (height 1.10 m) around all sides of the transport platform is compulsory.



The distance between the transport platform and the facade / scaffold must be at least 0,5m



The wheels of the chassis may never be used for load bearing, either during assembly or use.

For the positioning of the transport platform, see fig. 6-2.

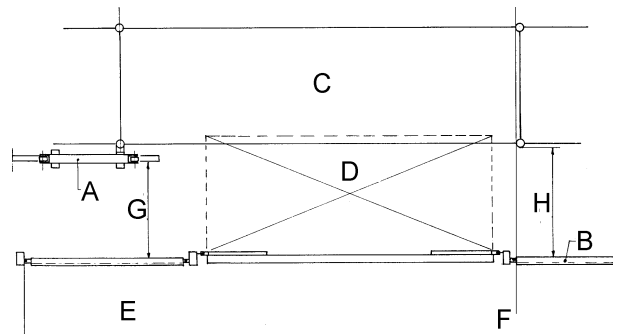


Fig.6-2 Distance to the facade

- A. Landing barrier
- B. Side fence
- C. Scaffolding section 2.5 m or landing
- D. Loading ramp
- E. Transport platform
- F. Positioning line Barrier B and vertical frame in one line
- G. Min. 0,5 metre
- H. 0,65 - 0,67 m measured at the underside of the fence.

6.4 Assembly of the transport platform

1. Place the transport platform parallel to the facade, as shown in chapter 6.3, and level using a spirit level.
2. Place the ground support in position (see section 6.2 for details) beneath the transport platform and lower the transport platform.
3. Check that the masts are vertical, and that the transport platform is horizontal to the ground support. If not, correct the ground support. Measurement must be carried out on two sides of the mast, with a spirit level measuring at least 1 m in length.
4. The jacks (fig. 6-3, A) must be released simultaneously, to cancel any bearing function.
5. Check whether the lower striker plate (fig. 6-4) is fitted in the right position. If not, fit it now.
6. Pull the rail of the 2.5 metre stop fully outwards. The rail is mounted in the left lower mast.

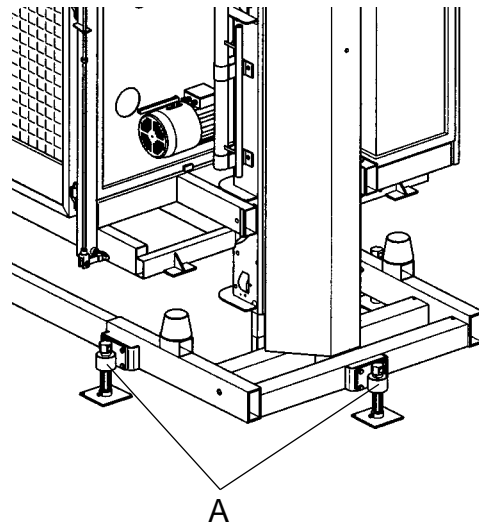


Fig.6-3 Jacks

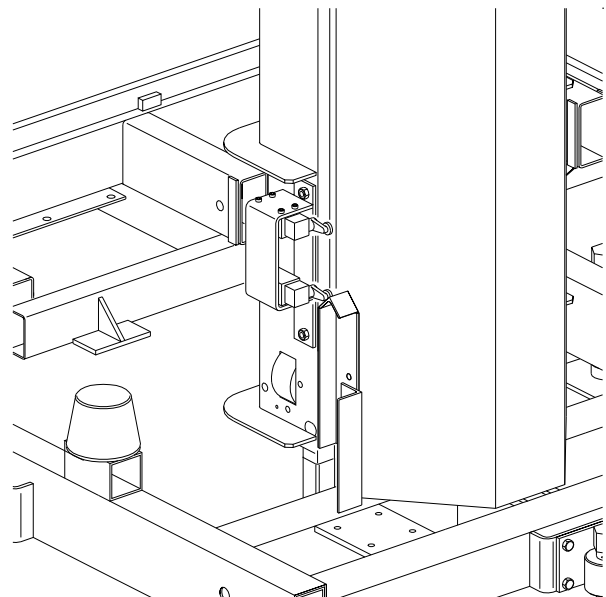


Fig.6-4 Lower striker plate

6.5 Assembly of the mast



If work has to be stopped, always complete the phase being worked on. Tighten all the bolts used for the last attachment, and switch off and secure the main switch, so that the machine cannot be operated.



As the assembly proceeds, the anchor tubes, anchors and cable guides must be installed, as described in chapter 6.6.



Ensure that the power supply of the building site is corresponding with the electric design of the machine.



The mast(s) must always be assembled vertically.



At winds speeds above 12.5 m/s (6 Beaufort), the machine may not be assembled.



While a mast element is being mounted, the emergency stop must be active.

During the erection phase the assembly platform can be used. When the small assembly platform cannot be used during erection, the separate assembly platform (option) should be used.

1. Connect the machine to the power supply, by connecting the power supply socket to the cable drum (fig. 6.5).



Ensure that the cable is fully rolled off, and in an undamaged condition.

2. Switch the main switch (fig.6-5, 2) in position 1.
3. Turn the switch key (fig.6-6, C) in the normal position.
4. Set the main switch (fig. 6-6, A) on the switchbox to position "1" (the position depends on the direction of phase rotation of the power supply). If the green lamp (fig. 6-6, B) does not light up, place the switch in position "2". If the green lamp still does not light up, see the fault tracing table in chapter 10.
5. Check that the proximity switches have been mounted on both sides.
6. When the transport platform is delivered it is lowered into the buffer. In order to remove the transport platform out of the buffer, carry out the following procedure:
 - 1 Turn the key switch "reset positioning".
 - 2 Press the push-button "UP".
 - 3 Turn the key switch in the position normal.

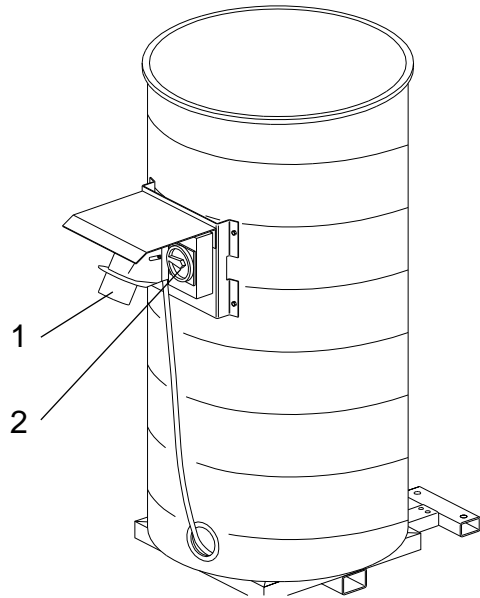


Fig.6-5 Connection to cable drum

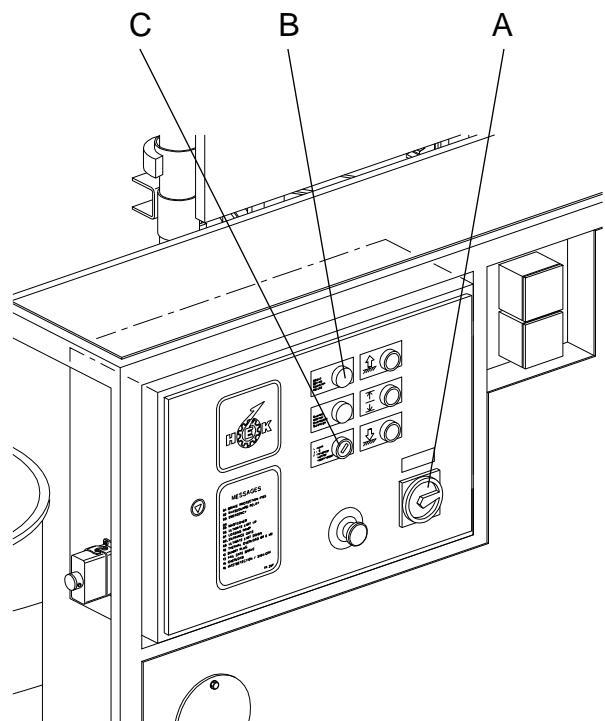


Fig.6-6 Control box

7. Raise the transport platform by approximately 50 cm, by pressing the UP button. Once again lower the transport platform, by pressing the DOWN button. In this way, you can test the operation of the bottom limit switch. In addition, an emergency stop push button is provided. When this button is pressed, the power of the motors will be shut off.

8. Place (using a forklift truck or a crane) mast elements and anchoring material on the platform. Take note of the maximum load permitted during assembly.

9. Open the assembly platform gate and affix into position using the bolt (fig.6-7).

A. Position of the gate during erection.

10. Open the mast guard (fig. 6-8).

11. Attach the first mast element left and right with 4 bolts, spring washers and nuts. When there is no crane available the mast elements must be placed by two persons. Tighten with a torque wrench to the specified torque (see chapter 1).

If a crane is available on the construction site, the mast can be assembled more rapidly. In this case, four mast elements can be assembled on the ground and positioned on the mast, using the crane.

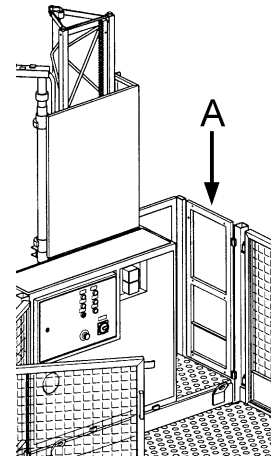


Fig.6-7 Assembly platform

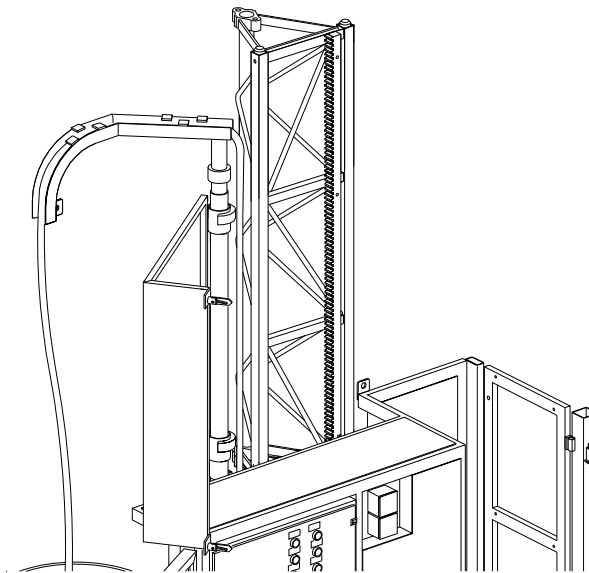


Fig.6-8 Mast guard

12. Mount the first anchor. See section 6.6.
13. Close the mast guard.
14. Then raise the platform to the top of the mast element and repeat this working method until new mast elements are required from below. Plan your work in such a way that when an anchor has to be installed (maximum anchor distance), the material load is minimal.



Ensure that anchors are fitted at the prescribed distances. See chapter 1.

15. Repeat this method until the mast has reached the required height. The last element assembled must always be the red top element. The maximum permitted mast height may not be exceeded (see chapter 1).
16. Mount the red top striker plate (top and emergency stop) to the mast ends (see figure 6-9)
17. The mast may not extend too far above the uppermost anchor (max. 3m). To achieve good stability, it is always better to place an anchor as close to the top of the mast as possible.

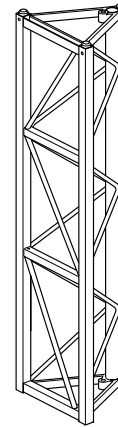


Fig.6-9 Red top mast element

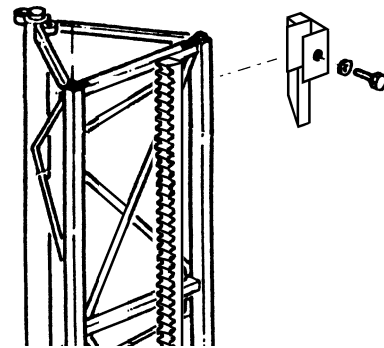


Fig.6-10 Top striker plate

18. On construction sites where there is a risk that people may walk through the path of the platform, the entire machine must be secured with safety fencing.
19. Close the assembly platform gate and affix into position using the bolt (fig.6-11).

B. Position of the gate during use.

20. Assembly is now complete, and a test run must be carried out, as described in chapter 7.2 & 7.3. Also a fail safe brake test must be carried out.

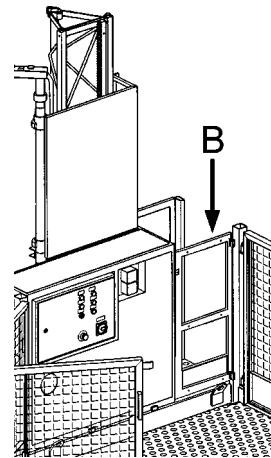


Fig.6-11 Assembly platform

6.6 Anchoring the masts



If work must be stopped, always complete the current phase before stopping. Tighten all the bolts for the latest fixture and secure the main switch so that the transport platform cannot be operated.



The loading of the transport platform must be planned in such a way that the material load on the platform is minimal, when during mast assembly, the maximum mast height above the last anchor (maximum anchor distance) has been reached.



The facade must be capable of absorbing all occurring anchor forces (see section 1.6). These anchor forces must be approved by the owner/person responsible for the building to which the anchor is to be attached.



In the event of anchoring against a scaffold system, this approach must be agreed with the scaffold builder and a static confirmation is required.



Before starting anchoring work, check once again, using a spirit level with a length of at least 1 meter, that the mast is actually vertical (see also section 6.4). Repeat this process at every anchor.

While an anchor is being mounted, the emergency stop must be active.

Anchors may be attached either to the scaffolding system or the facade.

Scaffold:

the anchor forces must be transferred to the facade via the scaffolding system, according to static requirements.

Facade:

the anchor forces must be transferred to the facade, according to static requirements.

1. Check that the mast is vertical with a spirit level at least one metre long. Recheck as each anchor is secured.
2. The mast must be anchored to the building at the distances specified in the table in section 1.1.
3. Fixing the anchors:
 - Anchors must be carried out using bolt couplings, nut and bolt fastenings and washers. If conditions make it necessary, use may be made of other approved attachment materials, suitable for the forces occurring. (Consult your dealer.)
 - Cemented-in anchors must be fitted before assembly of the transport platform, to give the cement enough time to dry. The cement or concrete used must meet the specifications.
 - If chemical anchors or expansion bolts are used, these must be tested, and capable of withstanding the forces involved.
 - Specifications for these types of bolt are available from the supplier. Permission to use these connection types must be obtained from the local authorities.

An anchor consists of a mast anchor, scaffold tubes, wall anchor plates, standard couplings, twist couplings and screw couplings with bolts. The scaffold pipes are available in various lengths.



The mast must be simultaneously anchored mounted on both sides.

4. Attach the mast anchor (fig. 6-12/6-13, 2) to the mast (fig. 6-12/6-13, 1).
5. Fit the wall plates (fig. 6-12, 4) to the facade (not applicable for assembly on scaffolding system). For assembly to the facade, first drill the holes required for the wall plates.
6. Attach the horizontal anchor pipes (fig. 6-12/6-13, 3) between the mast adapters and the wall plates (for assembly to the scaffolding system: between mast adapters and scaffolding).
7. Using the adjusting device, set the mast in a vertical position, and parallel to the facade.
8. Tighten the couplings for the horizontal anchor pipe to the specified torque.

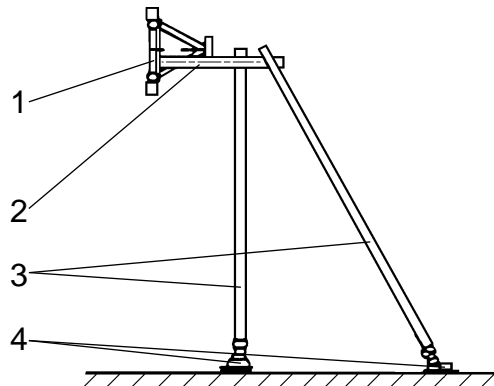


Fig.6-12 Anchoring to the facade

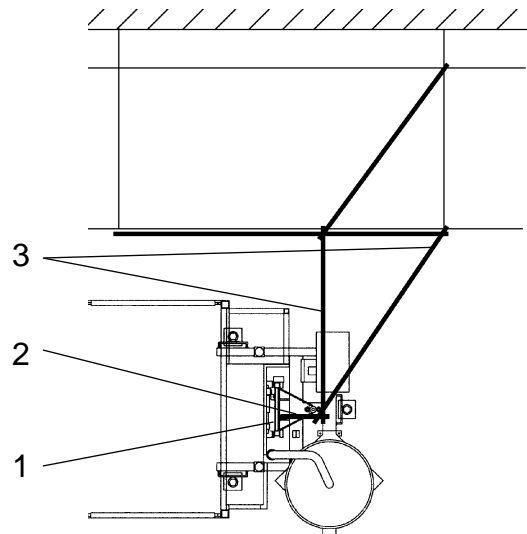


Fig.6-13 Anchoring to the scaffolding system

6.7 Lightning protection

1. Install the connection cable between ground frame and earth.
The mast must be earthed with a 25 mm² cable, to the lightning conductor, or to another earthed point. There is often also an earthed point in the box at the building site. Have the on-site expert determine the earthing point. As standard, a 25 mm² cable with a length of 25 metres will be supplied.

6.8 Landing barriers

The access and loading points on a building or scaffolding system must be secured by landing barriers.

1. Install the landing barriers (fig.6-14, A) and kick boards (fig.6-14, B) at the required loading and unloading positions on the facade or scaffolding system.
2. Mount the rail (fig.6-15, A) with striker plate (fig.6-15, B) for the landing stop in the mast, at the required height.

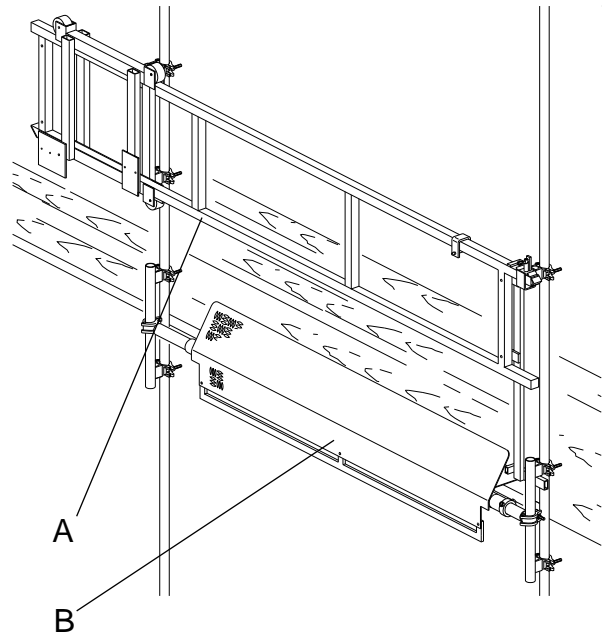


Fig.6-14 Landing striker plate

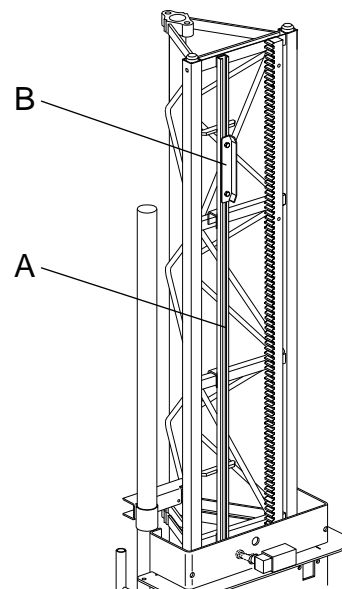


Fig.6-15 Landing barrier

7. OPERATION

7.1 General



No person may stand under the machine whilst it is in use.



The load may never extend beyond the edge of the platform. Items which can roll must be properly secured. The load must never be supported against the fencing.



The maximum reaction force (for instance caused by tools) of the platform, in respect of the facade may not exceed 400 N.



When work stops or is interrupted, and when leaving the construction site, the main switch must be secured with a padlock.

7.2 Preparation

1. Before the transport platform can be used, it must be visually inspected (daily if used every day) for:
 - anchors and cable guides
 - presence of all safety devices
 - connections between mast elements
 - vertical assembly of the masts, and horizontal positioning of the platform
 - any loose components
 - ground supports and ground quality
 - electrical connections (cable and voltage)
 - presence and securing of protective devices
 - safety aspects
 - correct operation of the limit switches (top, bottom, emergency top, and emergency bottom)
 - no obstacles in the path of the platform
 - oil leaking from the drive units
 - operation of the motor brakes
2. Switch on the site power supply.
3. Close the sliding gate, the loading ramp and the landing barriers.
4. Remove the padlock from the main switch.
5. Check that the EMERGENCY STOP buttons on the control box (fig. 7-1, B) is switched off (the buttons must be withdrawn).

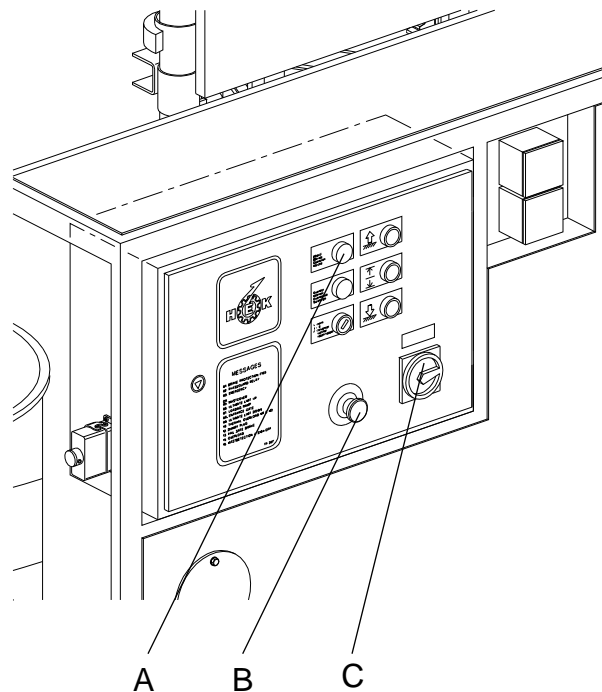


Fig.7-1 Control box

6. Switch the key switch in the Normal position.
7. Switch the main switch (fig. 7-1, C) to position "1" or "2". The green warning lamp "operation" (fig. 7-1, A) on the control box should light up.

7.3 Testing

1. Now test the platform and perform all the inspections as described in appendix 1.

7.4 Operation from the platform

The machine may only be operated by a qualified person.

UP (fig.7-2, A):

When this push button is pressed, the platform is raised. When the push button is released, the platform stops immediately (hold to run).

DOWN (fig.7-2, C):

When this push button is pressed, the platform is lowered. When the push button is released, the platform stops immediately (hold to run).

LANDING (fig.7-2, B):

When the UP or DOWN button is pressed, followed by the landing button, the platform rises or descends to the next landing. This button shall only be pressed shortly.

EMERGENCY (fig.7-2, D):

When this push button is pressed, the machine is switched off.

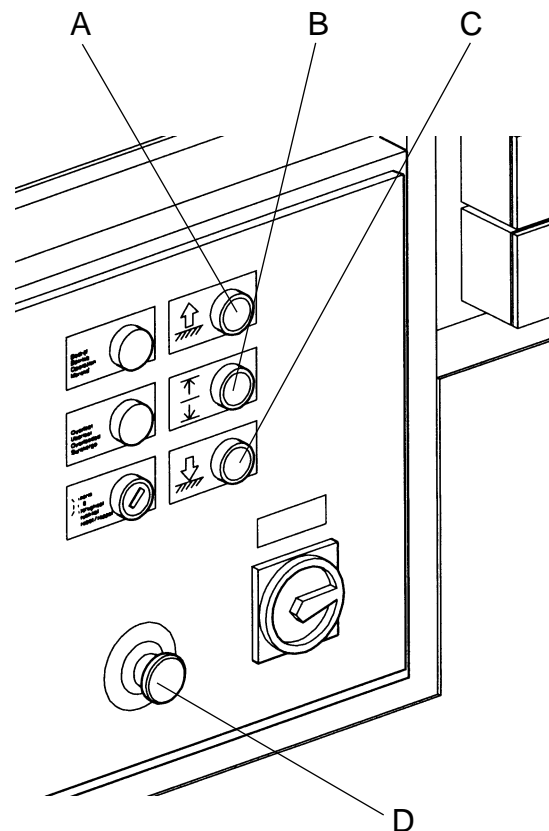


Fig.7-2 Push buttons control box

The machine is fitted with a 2.5 m stop; this means that during lowering, the platform stops at a height of 2.5 m for approx. 3 seconds. During these 3 seconds, a warning signal tone is heard. The DOWN push button must once again be pressed, to permit the platform to be further lowered.

7.5 Stepover to scaffolding or platform

When approaching a stepover, the following must be carried out.

Opening:

- Raise the platform to the required height.
- Open the side fences (fig. 7-3, 1).
- Open the upper 1.10 m-lever (fig. 7-3, 2) (further travel is halted via a limit switch, which interrupts the safety circuit). The loading ramp (fig. 7-3, 3) opens automatically.
- The footboard (fig. 7-4, 2) is automatically pushed down by the loading ramp, thus mechanically releasing the landing barrier (fig. 7-4, 1).
- Open the landing barrier.
- Safe stepover is now permitted.

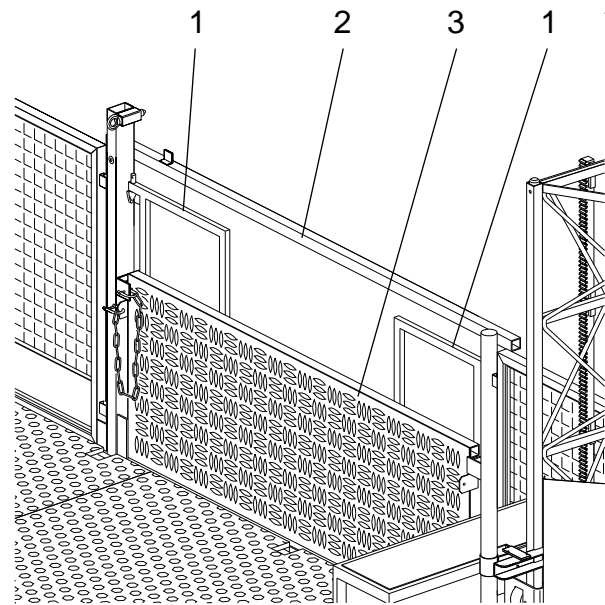


Fig.7-3 Loading ramp

Closing:

- First close the landing barrier, or the loading ramp will remain mechanically locked in the open position.
- Close the lever. The loading ramp will close automatically.
- Close the side fences.
- The limit switches will be released, the safety circuit closed, and the transport platform can now be either raised or lowered.

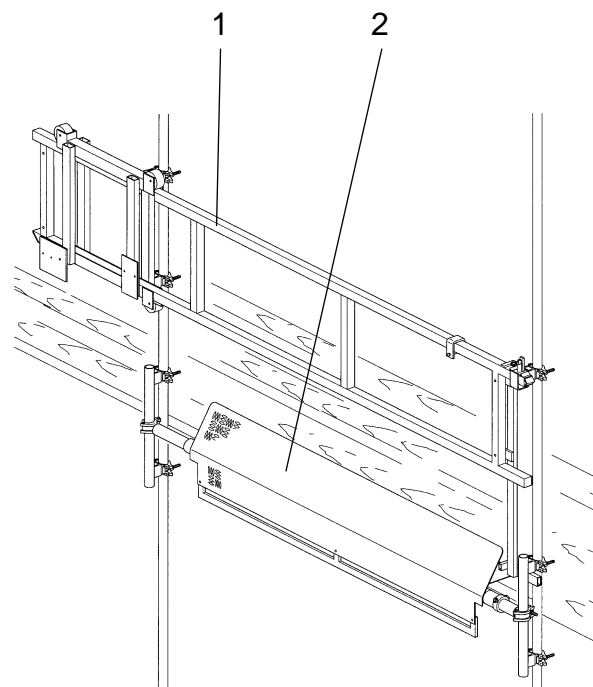


Fig.7-4 Landing barrier

7.6 Sliding gate

Opening:

- Release the locking mechanism of the gate upwards (fig.7-5, A).
- Open the gate.

Closing:

- Close the gate. The gate will be locked automatically.

7.7 Operation in an emergency situation

In an emergency situation, for example in the event of a power failure, the platform can always be lowered.

- Using the fault-tracing table in chapter 10, attempt to solve the problem. If the problem cannot be solved, it is possible to make an emergency descent to the next landing down, as follows:
 1. On each motor, there is a lever which permits the motor brake to be released.
 2. If this lever is operated, the platform will descend. The brake lever must be operated by two persons, according to an agreed clear system. It is, however, possible for one person to “carefully” operate the motors to lower the platform by approx. 5 cm on each side.

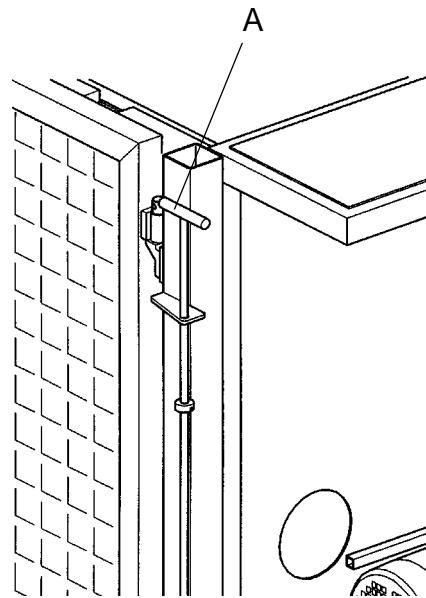


Fig.7-5 Locking sliding gate

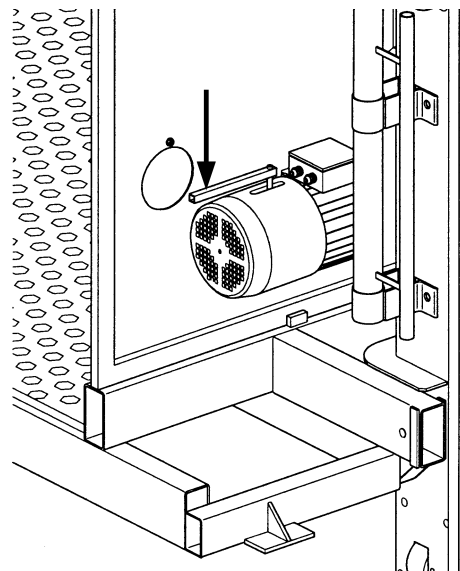


Fig.7-6 Brake release lever



The lowering speed must not exceed the lowering speed during normal operation. If lowering speed is too high, the fail safe brake will be activated.



After a maximum descent of 5 meters, stop the platform for at least 2 minutes, in order to prevent overheating of the brakes, which will result in less efficient operation.

3. Due to a connection shaft between the masts, the platform cannot become inclined. The machine can, however, recognise an “overload” situation. If a motor brake is released, the entire load is shifted to the other motor. This motor then registers an overload. This overload can be equalized, if the load-bearing motor is slightly released, until both motors once again take up the load.

7.8 Fail safe brake

When the allowable descending speed of the platform is exceeded, the fail safe brake will stop the platform.



Whenever the fail safe brake has been operated, the origin of the fault must first be determined. The fault must first be corrected before the fail safe brake may be returned to its normal position. In event of uncertainty the service organisation must be informed.

For returning the fail safe brake in its original position, see section 9.4.

7.9 Static overload device

The transport platform is equipped with an overload safety device, which measures the static overload of the platform.

If the load on the platform exceeds the permitted maximum load, the static overload device is activated. If the static overload device is active, the red warning lamp (fig. 7-7, A) on the platform illuminates, and a signal tone is sounded. The machine cannot be operated. To correct this situation, part of the load must be removed from the platform.

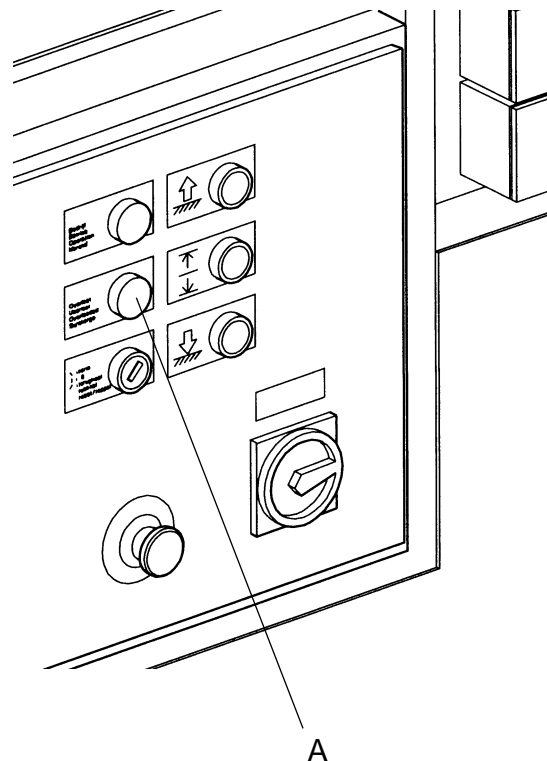


Fig.7-7 Static overload device warning lamp

8. DISASSEMBLY AND TRANSPORT



Ensure that the maximum loading allowed during assembly is not exceeded.



At wind speeds above 12.5 m/s (6 Beaufort) the machine may not be disassembled.



Never remove any intermediate anchor.



Never remove an uppermost anchor unless the mast above the anchor is disassembled and the platform is unloaded.

1. Check all connections, safety devices, switches and safety measures. Record any discrepancies.
2. During the disassembly the assembly platform (fig.8-1) can be used.

A. Position of the railings during disassembly.

B. Position of the railings during use.

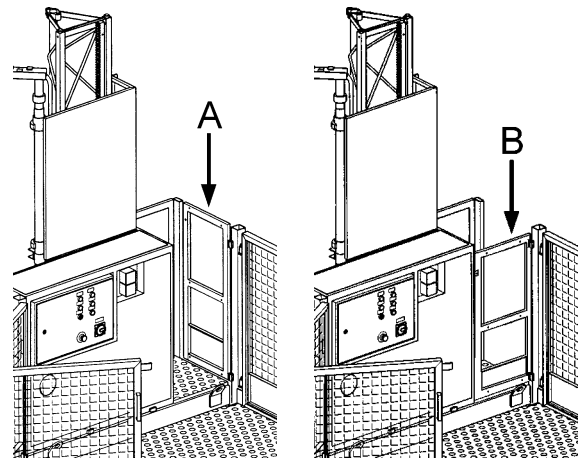


Fig.8-1 Assembly platform

3. Open the mast guards (fig. 8-2) from both masts.
4. Disassemble the upper mast elements with a crane or with two persons, above the uppermost anchor. Before disassembling the uppermost anchor, remove all material, to keep the weight of the lifting platform as low as possible.
5. Raise the platform to the uppermost anchor and disassemble the anchor.
6. When disassembling the mast, simultaneously remove the anchors on both removed mast elements. During disassembly, other work on the facade may be continued.
7. If a crane is available on the building site, the mast can be more quickly disassembled. As many as four mast elements can be removed together and lowered to the ground with the crane. The mast elements can be further disassembled on the ground.
8. Repeat this procedure until the mast, with the platform in its lowest position, has been completely disassembled.
9. See chapter 8.1 and 8.2 for continuing of the disassembling.

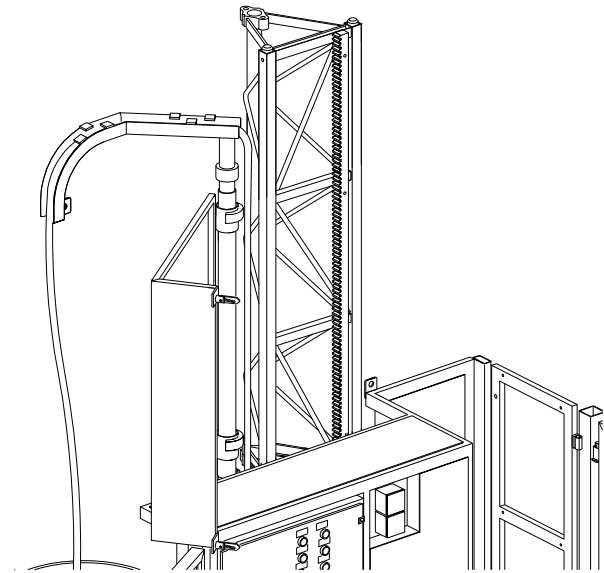
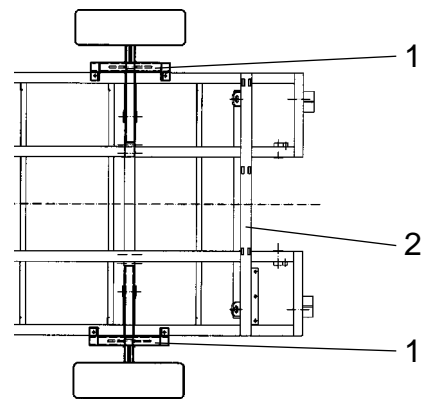


Fig.8-2 Mast guard

8.1 Transport platform without transport set

1. Lower the platform onto the buffer, by releasing the motor brake.
2. Switch the main switch to the zero position "0".
3. Disconnect the power supply, and remove the plug.
4. Store all cables in a safe place.
5. Lower the jacks, and remove the ground support.



8.2 Transport platform with transport set

1. Slide the wheel set (fig.8-3,1) beneath the underside of the platform (fig.8-3,2) on the control box side.
2. Fit the cross-brace (fig.8-4,1) using the bolts (fig.8-4,2).
3. Tighten the bolts (fig.8-4,3) to remove the play from the wheel set.

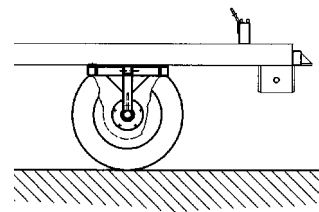


Fig.8-3 Rear wheel set

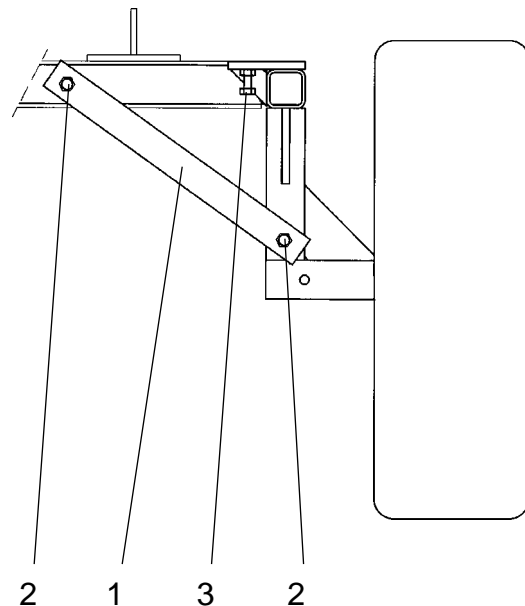


Fig.8-4 Rear cross-brace

4. Slide the wheel set for the steering side (fig.8-5,1) into the front of the platform (fig.8-5,2) and lock it onto the underside of the platform using locking pins (fig.8-5,3).
5. Grease the grease nipple on the turning point of the front wheels (if necessary).
6. Fit and lock the tow bar (fig.8-5,4).
7. Check the tyre pressures.
8. Operate the "down" button until the machine is switched off by the limit switch.
9. The ground frame can be pulled up in the following manner:
 - A. Turn the key switch to the "call back" position.
 - B. Press the "down" button. The machine will be switched off by the lower emergency switch.
 - C. Turn the key switch to the "0" position.
10. Switch the main switch to the zero position "0".
11. Disconnect the power supply, and remove the plug.
12. Store all cables in a safe place.

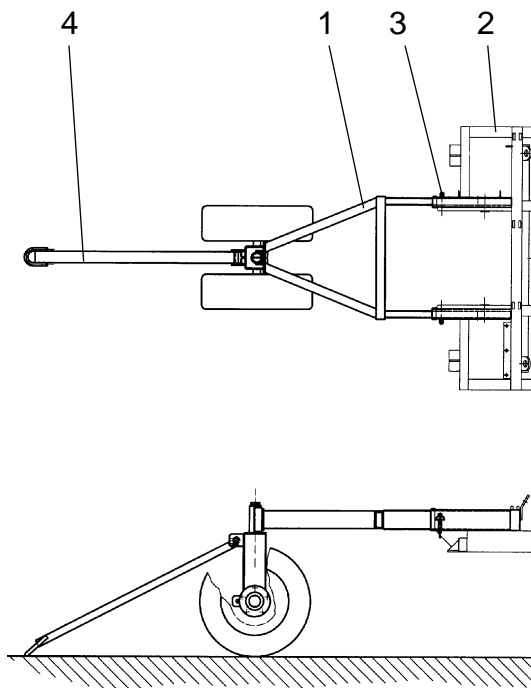


Fig.8-5 Front wheel set

9. MAINTENANCE

9.1 General

The simple, robust construction of the machine ensures that maintenance can be kept to a minimum. Sensible use of the machine, regular checks for correct functioning and regular cleaning will result in a minimum requirement for maintenance. This will guarantee a long working life for the machine.




Maintenance on the transport platform may only be carried out by persons with adequate knowledge and qualifications to do so. Preferably by qualified persons from the manufacturer or the dealer.

Spare parts must comply with the technical specifications of HEK Manufacturing B.V. Use only original parts from HEK Manufacturing B.V.



Before maintenance is carried out:

- Switch off the main switch. The main switch shall be secured with a padlock (The main switch having been switched off, there still remains voltage on the parts marked with ).
- remove the power supply socket
- lower the platform onto the buffers.
- When maintenance work is being carried out under the platform, the platform must be mechanically blocked.

9.2 Maintenance intervals

The following maintenance activities are essential:

Daily maintenance

Daily maintenance is described in chapter 7.2.

A. Weekly maintenance

- Carry out the work described in the chapter “daily maintenance”.
- Grease the rack and pinion. If these are heavily contaminated with sand or grit, they must first be cleaned.
Grease lubricant specification:
 - HEK rack and pinion grease
 - Shell Rhodina 2
- Clean the transport platform and the drive unit. Pay particular attention to any encrustation of the motor cooling fins.
- Visually check the rack and pinion (pitting).



The rack and pinion should be lubricated more regularly, if the transport platform is subject to intensive use.

B. Monthly maintenance

- First carry out all work described in A.
- Check the guide rolls and guides (visible inspection of security devices, gaskets and bearings).
- Check that all mast bolts are still in place, and tighten to the specified torque (use a torque wrench).
- Check that all bolts are still in position, and thoroughly tightened.
- Check all locking bars and hinges.
- Check all mast anchors and re-secure any loose parts.
- Lubricate the jacks and if fitted, the steering knuckle of the transport wheel.
- Check the operation of all limit switches.
- Check the oil level in the reduction gear unit. If necessary, top up with the same type of oil:
 - TRIBOL 800/460 (Iso Viscosity Class ISO VG 460)

C. Quarterly maintenance

- First carry out all work described in B.
- Check the motor brakes (see chapter 9.3.3).
- Check play in the guide rollers and guides.
- Carry out a fail safe brake test.

D. Annual maintenance

- First carry out all work described in C.
- Carry out a general inspection of paintwork, corrosion and welds.
- Check the attachment bolts for the rack and pinion.
- Check whether the bolts attaching the lower mast to the ground frame are corroded. If corrosion is present, replace the bolts, and tighten to 140 Nm.
- A professional inspection must be carried out every year.

E. Maintenance every three years

- First carry out all the work described in D.
- Change the oil in the reduction gear units of the drive unit.
Lubricant specification for motor:
 - TRIBOL 800/460 (Iso Viscosity Class ISOVG460)

F. Maintenance during machine storage

- Carry out a general inspection of the machine.
- Check all vital parts and if necessary replace any damaged machine parts.
- Clean and grease the rack and pinion.
- Inspect the mast elements (with racks), and check that all separate connection pieces are in order.
- Check the lowest mast bolts for corrosion, and if necessary replace them.
- Cover the basic machine with a tarpaulin; the control box and limit switches must at all times be covered.
- The machine should be stored on the ground frame (not on the wheels) for any long periods.
- For long-term storage, consult your dealer.

9.3 Motor brake

9.3.1 General

The motor has a built-in electromagnetic brake (fig. 9-1). This brake functions according to the “normally ON” principle, in other words, when the motor has no power supply, the brake is active, and the motor shaft will be braked ($n = 0$ rpm). The braking effect is achieved by friction between the various discs. The brake can only be used “dry” (not greased).

9.3.2 Operating principle

The brake mechanism houses a metal rotor (A) coated on both sides with friction material.

Four pressure springs (C) in the stator (G) exert an axial force on the anchor disc (E). This anchor disc is pressed by the spring force against the rotor. The rotor has been mounted on the motor shaft in such a way that it can slide in an axial direction, along the shaft. Because the anchor disc presses against the rotor, the rotor is forced against the end shield (G). The contact between the friction material on both sides of the anchor disc, the armature and the end shield, results in the required braking effect.

The stator has a built-in braking coil (H), which produces a strong magnetic field when DC current is applied.

When the motor brake is to be released, a current is passed through the braking coil. The resulting magnetic field “pulls” the anchor disc against the stator, thus releasing the brake.

It is also possible to release the brake manually, using the release lever. If the manual release lever is pushed in the direction indicated by the arrow on the cover, the anchor disc is moved against the spring pressure towards the stator, with the aid of two ball bolts, thus releasing the brake.

9.3.3 Maintenance

In normal use, the motor brake is practically maintenance-free. Only following frequent raising and lowering of the transport platform, it can be necessary to adjust the air gap between the anchor disc and the stator, and possibly to replace the rotor.

In order to check the condition of the brake, the width of the air gap “a” and the thickness of the friction material “x” on the rotor should be measured every three months. (See fig.9-1).

The air gap “a” is factory-set to 0.3 mm, and may under no circumstances exceed 0.7 mm. The overall thickness of the rotor (including friction material) must not be less than 6 mm.

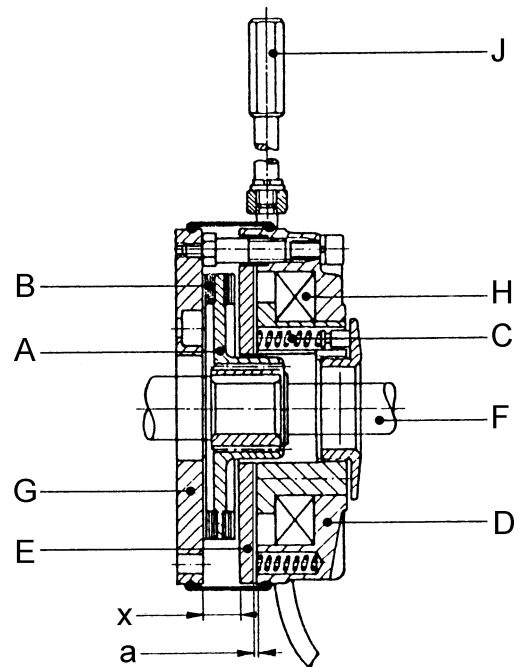


Fig.9-1 Motor brake

Inspection:

1. Switch off the transport platform at the main switch, and secure the switch with the padlock.
2. Remove the brake release lever (J) with an open-ended spanner.
3. Remove the fan cover from the motor.
4. Use a feeler gauge to measure the width of the air gap "a" close to the three hollow adjusting screws.
5. Remove the rubber dust protection ring, and using a vernier caliper gauge, measure the thickness of the rotor "x". If less than 6 mm thick, replace the rotor. The brake adjusting ring must once again be screwed as far as possible into the stator, following assembly.
6. Adjust the width of the air gap "a" as follows:
 - Use an open-ended spanner to screw the three hollow adjusting screws further into the stator. Ensure that these screws are all screwed into the stator by the same amount.
 - Use a feeler gauge to measure the width of the air gap "a" close to each screw, and screw further down as necessary, until the air gap at each screw is 0.3 mm.
 - Retighten the three retaining screws (p).

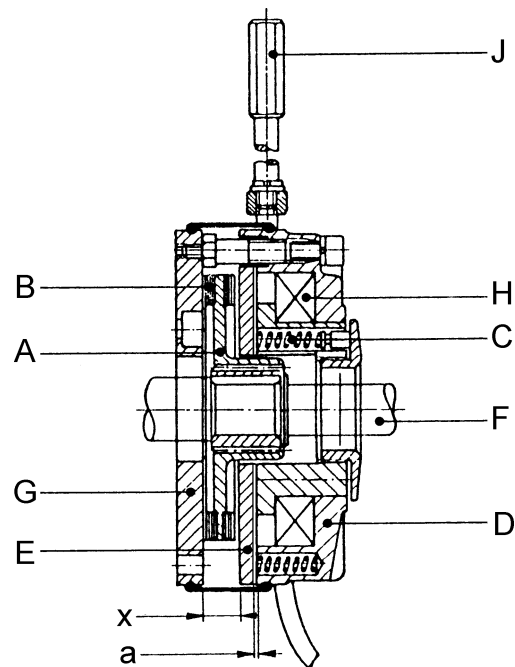


Fig.9-2 Motor brake



The adjustment of the manual release may not be changed, even when the air gap “a” has been readjusted, since this may reduce the degree of security.

7. Reinstall the rubber dust protection ring, the fan cover and the brake lever.

9.4 Fail safe brake

If the maximum speed of descent is exceeded, the lifting platform will be halted and held in position by the fail safe brake.



Whenever the fail safe brake has been operated, the origin of the fault must first be determined. The fault must first be corrected before the fail safe brake may be returned to its normal position. In the event of uncertainty, consult the service organization.



The fail safe brake may only be reset by a competent person.

Consult your dealer for load situations and for information referring to legislation in your country.



The fail safe brake is preset by the manufacturer at the correct maximum speed. This setting must not be altered.

9.4.1 Fail safe brake test



During the fail safe brake test, no person must be on or below the transport platform.

Check the operation of the fail safe brake as follows:

1. Remove the dummy plug (fig.9-3, A).
2. Connect the fail safe brake control box.
3. Place the switch (fig. 9-4, 4) in position I, and raise the transport platform to a height of 3 meters, using the up push button (fig. 9-4, 1).
4. Place the switch (fig. 9-4, 4) in position II.
5. Press the brake test button (fig. 9-4, 5). The brakes will be released and the transport platform will accelerate to excess speed. After approx. 25 to 35 cm, the machine should stop.
6. If the fail safe brake fails to operate, the brake test button must immediately be released. The fail safe brake control box is also equipped with an emergency stop push button (fig. 9-4, 3).
7. If the fail safe brake does not operate, warn the service department.
8. Following the fail safe brake test, the fail safe brake must be reset, see 9.4.2.

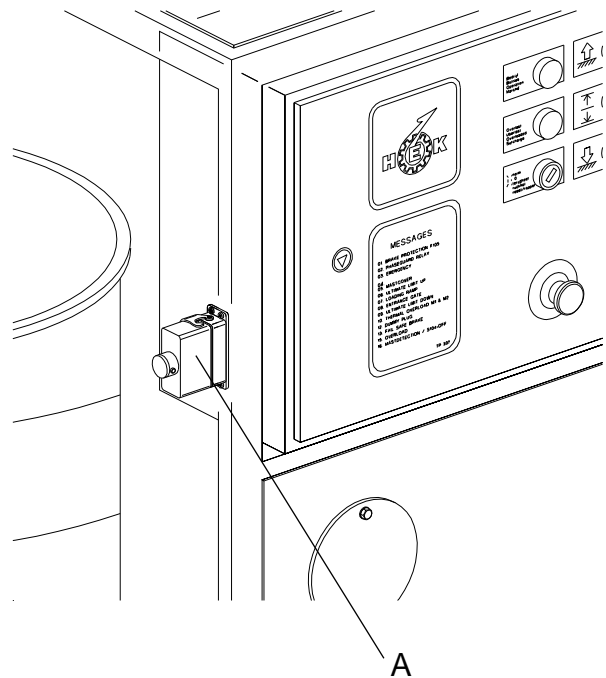


Fig.9-3 Plug socket

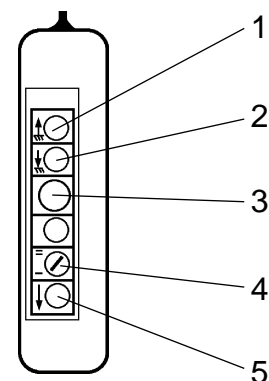


Fig.9-4 Fail safe brake drop test box

9.4.2 Resetting the fail safe brake

1. Raise the transport platform, using the “up” push button.
2. Remove the fail safe brake control box.
3. Return the connection plug to the socket, so that the control circuit is closed.

9.5 Testing the static overload device

Now test the static overload device:

The machine must be on ground level or floor level.

1. Load the platform to 1500 kg. The red warning lamp (fig. 9-5, 3) on the lifting platform should not yet light up.
2. Load the platform to 1650 kg. The warning lamp should light up.

If the warning lamp does not light up, contact your dealer.

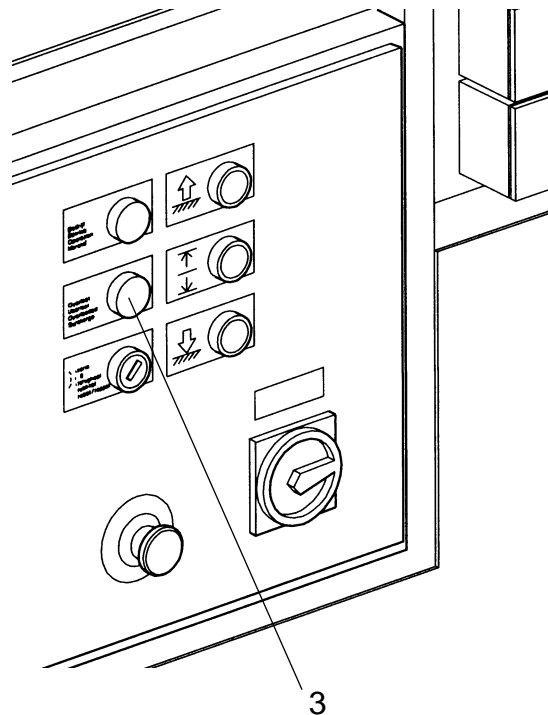


Fig.9-5 Control box

10. MALFUNCTION ANALYSIS

The control box on the platform can be provided with an “information panel”. This “information panel” consists of a display on which fault codes appear in the event of a malfunction. An explanatory list of fault codes is attached to the control box as an aid to rapid and efficient fault repair. The following table gives an indication of the methods to be employed in the event of a malfunction.

Code	Description	Malfunction	Solution
01	Brake protection	Fault in brakes, F105 switched off	Consult electrician
02	Phaseguard relay	Wrong main switch setting	Reset main switch: if problem not corrected, consult electrician
03	Emergency off	Push button pressed	Release push button
04			
05	Mast guard	Mast guard open	Close mast guard
06	Emergency top limit switch	Machine raised too far	Consult electrician
07	Loading ramp	Loading ramp not closed	Close loading ramp
08	Sliding gate	Sliding gate still open	Close sliding gate
09	Emergency bottom limit switch	Machine lowered too far	Consult electrician
10	Motor protection M1 and M2	Platform too heavily loaded, motor blocked	Reduce load, consult electrician
12	Dummy plug	Dummy plug not in socket	Insert dummy plug
13	Fail safe brake	Machine in fail safe brake during lowering	Consult electrician
15	Overload	Platform overloaded	Reduce load
16	Mast detection	Machine raised too far during assembly phase / S104 = off	Lower machine



Motor does not run	No power supply	<ul style="list-style-type: none"> - Defective fuse in building site supply - Damaged cable - Motor safety relay F102 switched off - Main switch, switched off
	Supply voltage too low	<ul style="list-style-type: none"> - Incorrect cable type - Cable too long
	42 Vac control voltage not present	<ul style="list-style-type: none"> - Automatic fuse F103 or F104 switched off
	42 Vac control voltage not switched	<ul style="list-style-type: none"> - Check safety circuit - emergency stop button pressed
Voltage present but platform cannot be raised or lowered	Relay K101, K102 or K103 and K106 are energized, but platform does not move up or down	<ul style="list-style-type: none"> - Motorbrake locked - Adjust brake - Brake rectifier defective
Other malfunction	Braking distance too long	<ul style="list-style-type: none"> - Adjust brake
	Platform does not develop sufficient power	<ul style="list-style-type: none"> - Inform technical department or dealer

In all cases not dealt with in the malfunction analysis tables, consult the importer's service department or the nearest HEK branch.

11. MACHINE DISPOSAL

General

Following a number of years of reliable service, the life of every machine inevitably comes to an end. The machine must then be disposed of, in the most environmentally-friendly manner as possible.

Amongst others, the following possibilities present themselves:

- part exchange for a new machine
- disposal by a recycling facility
- scrapping

Discarding the machine

- Drain all oil from the reduction gearbox, and dispose of the oil via an authorized facility.
- Remove any usable parts.
- Dispose of all remaining parts via a waste disposal facility.

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1. PERIODIC INSPECTION

The inspections described in these appendices should be carried out every time the machine is erected/set up and during use at least once a year.

This inspection list does not replace the maintenance instructions provided in the user manual.

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	Details	Remarks
Owner		
Inspection date		
Inspected by		
Machine type		
Machine number		
Year of manufacture		
Mast height		
Number of anchors		
Power supply cable type		
Options		
Electric circuit diagram no.		
User manual no.		



Part	Inspect/check for	In order	Not in order	Remarks
Masts				
Mast extensions	Corrosion			
Mast struts	Damage, straightness			
Bolt connections	Tightening torque			
Gear rack	Mounting, lubrication, wear			
Top mast	Presence			
Upper striker plate	Presence			
Landing striker plate	Presence, adjustment			
Anchoring				
Anchors	Mounting mast side and wall side			
Ground frame				
Spindles	Free movement			
Ground frame	Corrosion damage			
Buffers	Damage			
Lifting device	Damage			
Set up				
Entire machine	Stability			
Ground support	Quality, drainage			
Set up position	Free space			
Machine path	No obstacles in machine path			
Landing fittings	Operation, guards			

Part	Inspect/check for	In order	Not in order	Remarks
Platform				
Type plates	Legibility			
Floor	General condition			
Fences	Damage, fastenings			
Mast guard	Mounting			
Motor reductor	Mounting, leakage			
Pinion	Wear, meshing in gear rail			
Guide rollers	Wear			
Brakes	Size of the air gap			
Sliding gates	Damage, locking, operation			
Loading ramp	Damage, locking, operation			
Cable support arm	Damage			



Part	Inspect/check for	In order	Not in order	Remarks
Electrical system				
Machine cable	Damage, cable path			
Cable drum	Damage, contamination			
Switch box	Mounting, damage			
Main switch	Operation			
Key switch	Operation			
Up button	Operation			
Down button	Operation			
Landing button	Operation			
Emergency stop	Operation			
2.5 m stop + buzzer	Operation			
Lower limit switch	Operation, corrosion			
Lower emergency limit switch	Operation, corrosion			
Upper limit switch	Operation, corrosion			
Upper emergency limit switch	Operation, corrosion			
Proximity switch	Operation			
Gate switch	Operation, corrosion			
Loading ramp switch	Operation, corrosion			
Mast guard switch	Operation, corrosion			
Control lamps	Operation			
Safety circuit	Operation			
Overload device	Operation			
Various				
Fail safe brake	Operation (perform a droptest)			
Emergency descent	Operation			

Inspector's signature:.....