
OPERATING INSTRUCTIONS

PC-400 HOIST Type PC401-CTO / PC403-CTO



CONFORM TO EN 1808 – March 1999
MACHINE DIRECTIVE 98/37 EEC

*All persons operating this equipment must read and completely understand this manual.
Any operation in violation of these instructions is at the operator's own risk.
Keep this manual with the hoist at all times.*

Only use spare parts and steel wire rope from POWER CLIMBER.

Manufacturer:

POWER CLIMBER B.V.B.A.
Satenrozen 7
B-2550 Kontich
Belgium

Website: www.PowerClimber.be
Tel: +32-3-451.05.00
Fax: +32-3-451.05.01
e-mail: info@PowerClimber.be

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GENERAL INFORMATION

The equipment covered in this manual is two PC-400 type traction hoists, controlled by one central control box.

Hoist Types.

- PC 401-CTO (Single Phase)
- PC 403-CTO (Three Phase)

Note: Each hoist has to be used together with an independent safety device
Ref: 91139

Central control boxes:

- 95100 (Single Phase)
- 95300 (Three Phase)

This equipment is to be used on Temporary Suspended Platforms (TSP).
The hoists and the central control box are to be mounted on a suitable platform and suspended with steel wire rope from a suitable suspension system.
The strength of the platform and suspension system used in combination with the hoists must be in relation to the Working Load Limit (WLL) of the hoist.

The suspension system can be:

- Counterweighted roof beams
- Parapet clamps
- Davits
- Fixed suspension points
- Other

The suspension system must be calculated for a load of $WLL \times 3$.
(WLL = Working Load Limit of the hoist)
(The maximum allowed stress with this load must be below Yield)

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PRECAUTION LIMITATIONS

1. Only authorized, trained and physically fit persons shall operate the suspended access equipment.
2. Before using the equipment, the operator should read and understand fully the contents of this manual. Serious injuries to personnel may result if the instructions are not followed.
3. At the connection to the power source a main switch must be available.
4. An earth leakage circuit breaker (ELCB) of 30 mA and an automatic fuse of 20 A (Type C) must be used at the power source.
5. Before using the equipment, operators must carry out the daily checks and make sure that the equipment is in perfect working condition.
6. Before using the equipment the suspension system must be checked to ensure the stability of the SAE (Suspended Access Equipment) at all times.
7. In case the area below the SAE is open to the public, preventive measures have to be taken to safeguard the people below.
(E.g. Barriers, roof protected walkways, etc...)
8. An area must be available to allow access operators to get on and off the platform.
9. The operators must stop working with the equipment and notify the supervisor if faults, damage to the equipment or other circumstances may jeopardize safety.
10. Only steel wire rope specified by the manufacturer shall be used. The steel wires shall be inspected regularly, using the guidelines as indicated on the steel wire rope specifications sheet.
11. The operator shall check for obstructions along the travel of the platform.
12. The equipment may not be used when the wind is becomes more than 12,5 m/s (= 45 km/h)
13. When the work is finished the operator shall bring the equipment in the out of service position, switch off and isolate from the main supply.
14. The equipment as described in this manual may not be used as it is for operation in silo's, shafts and underground access, because special precautions may be required for these specific applications.
15. Physical, environment and operating conditions for electric equipment:

Temperature range	+5°C and +55° C
Humidity range	Between 30 % and 95 %
Altitude above sea level	Up to 1200 m
Contaminants	Degree of protection IP 54

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TECHNICAL DATA – PC-400 HOIST

PC-400 Type	Electric motor	Working Load Limit (WLL)	Climbing Speed	Rope Dia.	Running current	Self weight
PC401-CTO	220V / 50Hz / Single phase 1HP	4.000 N (400 kg)	8,5 m/min	8.4 mm	5 A	30 kg
PC403-CTO	380V / 50Hz / Three phase 1HP	4.000 N (400 kg)	8,5 m/min	8.4 mm	2,5 A	30 kg

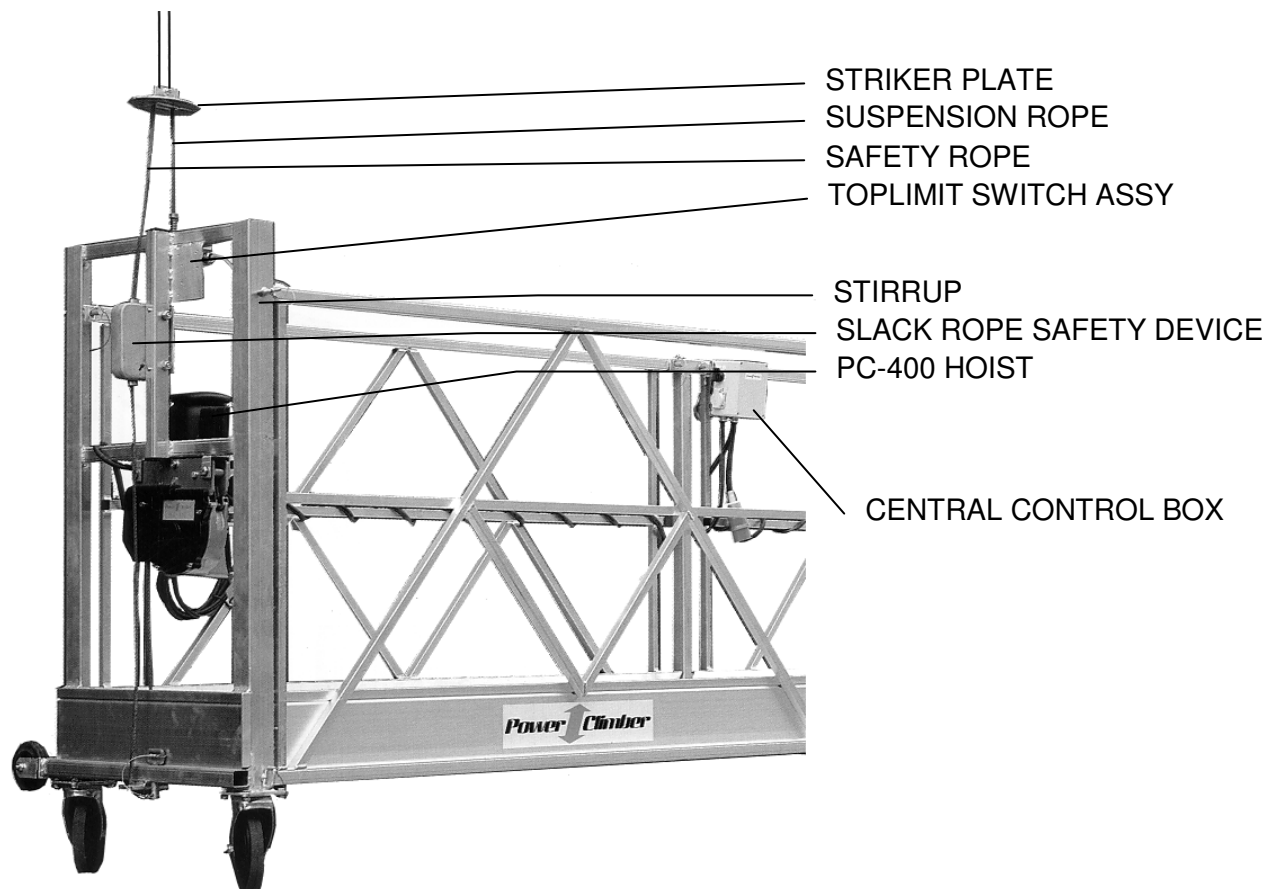
The PC400 Hoist is producing 60 DBA in up direction, 64 DBA in down direction and 69 BDA during lowering with the brake

DESCRIPTION

The PC-400 is a self-reeving hoist, which has a single wrap traction sheave. Power is supplied by an electric motor via a worm/worm wheel gearbox.

In the event of power loss, controlled descent can be achieved by manual release of the 'No Power' emergency descent lever.

The overload limiter is adjusted at 125% of the working load limit of the hoist.



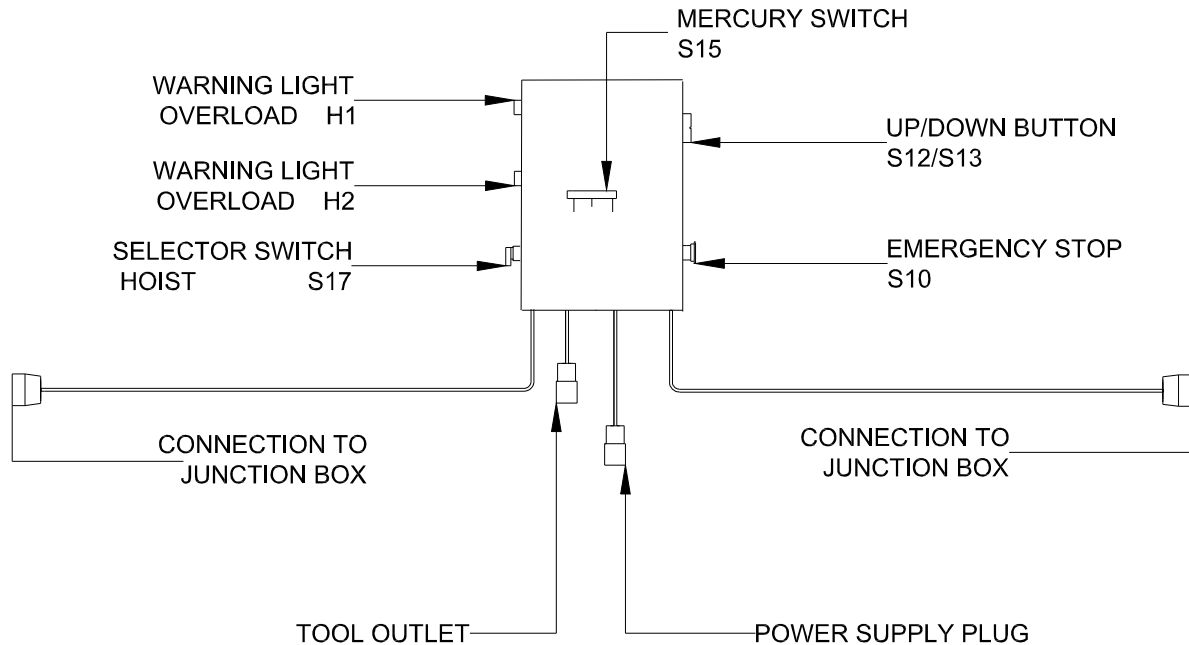
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TECHNICAL DATA – CENTRAL CONTROL BOX



Types:

- 95100 (Single Phase 230V/50 Hz+E)
- 95300 (Three Phase 3 x400V/50 Hz +N+E)

The central control box can be hooked over the rear guard rail in the middle of the platform. The control box is equipped with a Male CEE plug for the power connection and a Female CEE plug to power tools (230V/50Hz/single phase, 16 Amp). The connection to the hoists is made by aluminium Harting plugs. Inside the control box a mercury switch is mounted to maintain the horizontal level of the platform.

Connection plugs to junction box:

10 pole

Self weight of control box :

10 kg

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TECHNICAL DATA – STEEL WIRE ROPES

The recommended steel wire rope to be used with the PC400 hoist is the Power Climber Greenflex.

Specifications

- 5 x 26 WSR (Warrington Seale Compacted) construction,
- with HDDP (High Density Polypropylene) core,
- right hand regular lay,
- preformed
- galvanized

		DIA 8,4 mm (+0/-0,2mm)
Weight		0.255 kg/m
Breaking loads	Actual	52.3 kN
	Calculated	66.0 kN

Steel wires must be replaced in any of the following conditions:

- More than 10 broken wires over a length of 30xd
- Kinking, crushing or any other distortion of the wire structure.
- Excessive corrosion
- Damage due to heat.
- Reduction of the nominal diameter by more than 10 %

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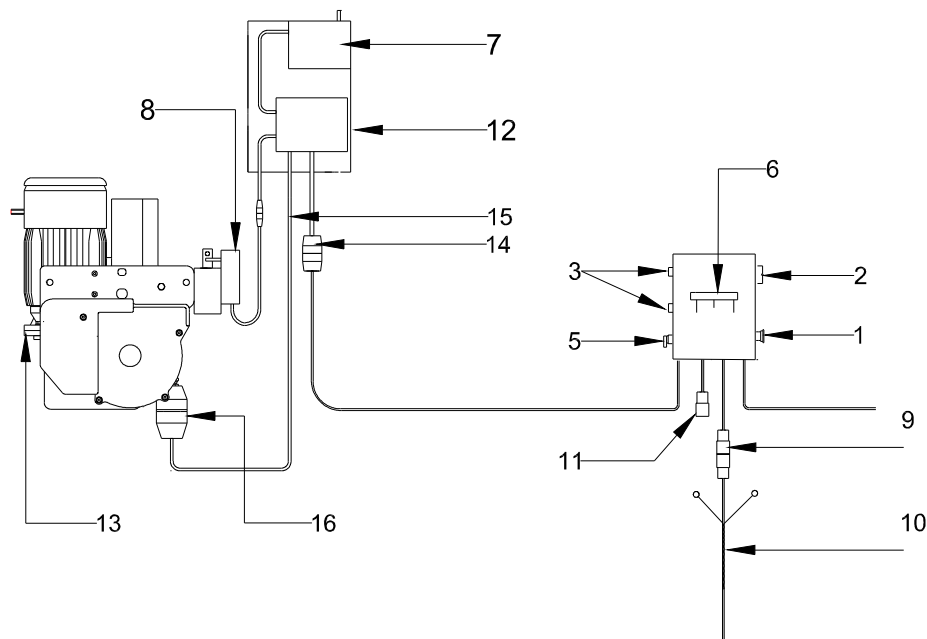
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OPERATING INSTRUCTIONS



A. FUNCTION DESCRIPTION

1. **Emergency stop:** Pushing this button disconnects the power to both hoists.
2. **Operating buttons:** Hold to run operation for up/down direction of the hoist.
3. **Warning light Overload:** This red light indicates the presence of an overload condition.
5. **Selector switch:** Switching to operate left hoist / both hoists / right hoist.
6. **Mercury switch:** Maintains the horizontal level of the platform. Cuts the down direction of the lower hoist and the up direction of the upper hoist.
7. **Top limit switch:** when the striker plate activates the top limit switch of either hoist, the up direction of both hoists is cut. Only down is possible.
8. **Overload switch:** The up direction of both hoists will be cut when the switch is activated due to overloading of either of the hoists.
9. Pigtail for power supply cable.
10. Power supply cable with retainer.
11. Tool outlet 230V/50Hz/single phase (16 amp).
12. **Junction box.**
13. **Handwheel:** To operate the hoist manually up to reset the overspeed in case the safety device has tripped and there is a power failure.
14. **Connection Control box/ Junction Box:** 10 Pole plug.
15. **Connection Overload switch / Junction Box:** 4-pole plug.
16. **Connection Hoist/ Junction Box:** 10 pole.

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OPERATING INSTRUCTIONS (CONT.)

B. OPERATING INSTRUCTIONS

TO START

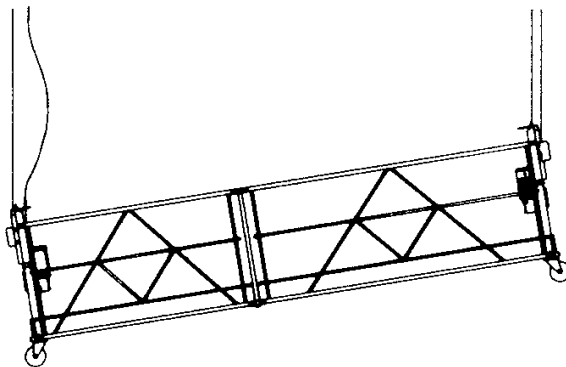
- Turn the selector switch (5) in the required position to operate both hoists.
- The platform can now be driven up or down using the operating buttons (2).

OVERLOAD CONDITION

- The overload switch (8) opens the up circuit in both hoists. The red light (3) indicates an overload on the platform.
- Remove excessive weight to reset the overload device. (It might be required to remove a bit more weight to allow the springs to reset)
- The platform can now be operated again in up direction.

OUT OF LEVEL CONDITION

When the inclination of the platform is more than 6°, the up direction of the upper hoist, and the down direction of the lower hoist will be cut until the platform becomes level again.



Out of level condition

PHASE PROTECTION RELAY (FOR 3 PHASE HOISTS ONLY)

- The control box of a 3-phase system has a phase protection relay. The main contactor can only be switched on if the three phases (L1, L2, L3) are connected in the correct sequence. The neutral and earth wires have to be correctly connected.
- If the platform will not operate with the power supply connected, change over a pair of phases on the **incoming supply only**.

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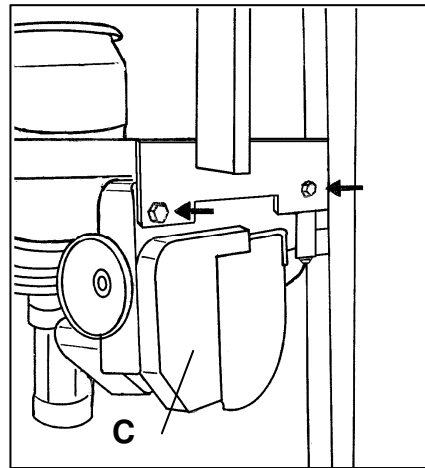
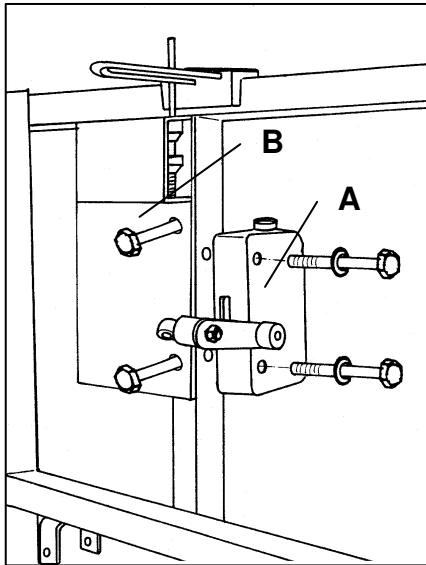
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INSTALLATION

- A. Fit slack rope safety device
- B. Fit top limit switch assembly
- C. Fit PC-400 hoist
Use bolts with self-locking nuts, delivered together with hoist.

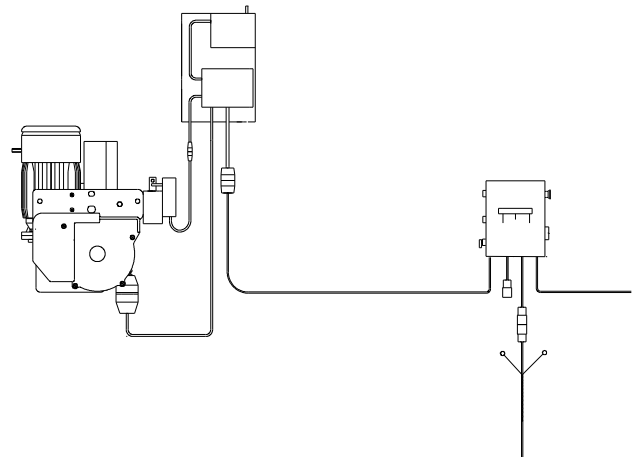


CENTRAL CONTROL BOX

- Fit central control box on rear guardrail.
- Check if line voltage corresponds with voltage on motor nameplate.
- Connect plugs to junction box.
- Plug in trailing supply cable and secure the retainer on the midrail.
- Both hoists have to be connected to the central box & junction box.

ATTENTION:

Use earth leakage relay of 30 mA!



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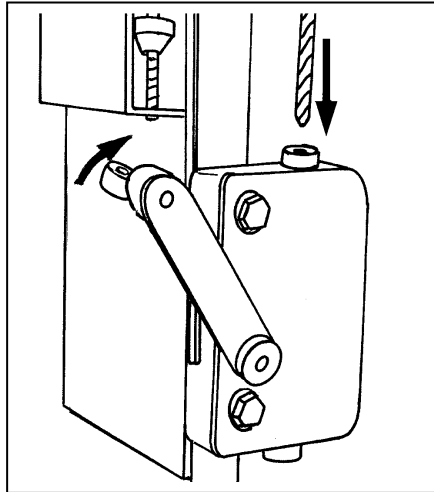
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REEVE SAFETY ROPE

Lift safety device lever and reeve safety rope.

Attach a weight of about 8 kg to the bottom of the safety rope, just above the ground, to keep it straight.

Always reeve the safety rope before the suspension rope!



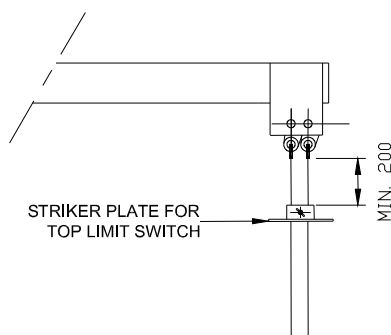
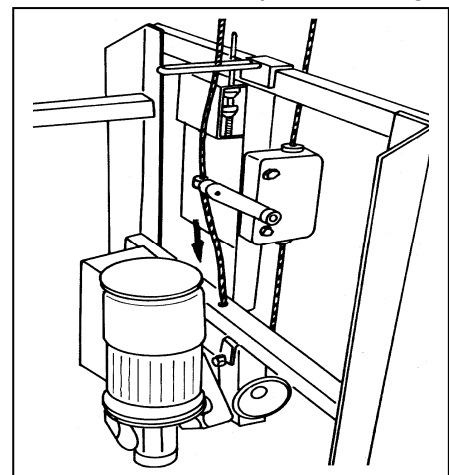
REEVE SUSPENSION ROPE

Feed the suspension rope through:

- stainless steel 'U'-piece on stirrup;
- through the eye of safety device lever and
- through the hole in stirrup as far as you can; to push the wire into the top of the hoist.

Now select this hoist only at central control box and push the UP-button to complete reeving.

Install the striker plates after testing the platform during the first run Up. The striker plates should be clamped on the safety wire at a distance of min. 200 mm from the talurit clamp. **Check the function of the top limit switch each time before using the equipment.**



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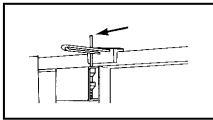
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DAILY CHECKLIST AND ROUTINE TESTS

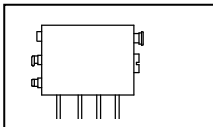
Check before using the PC-400 hoist



1. TOP LIMIT SWITCH

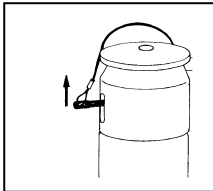
Run the PC400 in up direction and manually press down the top limit switch.

The PC400 stops and can only be powered downwards, while the limit switch is depressed



2. EMERGENCY STOP

Move the platform about 1 m. While moving press the emergency stop. The platform will stop immediately and cannot be driven up or down. To reset twist the knob in the direction of the arrow on the top of the knob.

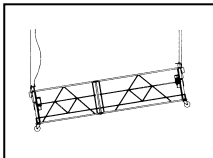


3. 'NO POWER' EMERGENCY DESCENT SYSTEM

In the event of power failure, the platform can be lowered at a controlled speed by opening the brake manually.

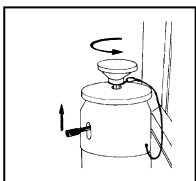
- Remove brake lever from storage position and locate into brake through opening in motor cover.
- Lift brake lever on both hoists at the same time.

IMPORTANT: Always keep platform horizontal when lowering!
Return brake lever to its storage position after use!



4. SLACK ROPE SAFETY DEVICE

Lower platform to the ground. Slacken the suspension rope. Pull up on the safety rope to make sure the safety device is gripping the rope.



5. HANDWHEEL

Sometimes it is necessary to wind the PC-400 hoist a few centimetres up to be able to reset the safety device. To operate:

- Remove plug from top cover on motor.
- Remove the hand wheel from its storage position and place shaft into top of the motor.
- Remove brake lever from its storage position and locate into brake. Wind the PC-400 hoist in the up-direction at the same time as you lift the brake lever to open the brake. Grip the hand wheel firmly while opening the brake.

DO NOT USE EQUIPMENT THAT IS NOT OPERATING PROPERLY!

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MAINTENANCE

MAINTENANCE MAY ONLY BE EXECUTED BY PERSONS AUTHORISED BY THE MANUFACTURER!

A. ROUTINE MAINTENANCE

- The Suspended Access Equipment should be inspected by a qualified person on a regular basis, which for normal platform use should be every three months.
- Carry out the daily checklist procedure as detailed in the manual. Make any adjustments and rectify any problems as necessary.
- Open the central control panel and disconnect all plug socket connections and check for any signs of water penetration.

B. ANNUAL MAINTENANCE

- Annual maintenance should preferably be done in a workshop equipped with a test rig.
- Remove the hoist and control box from the platform, completely strip the hoist, inspect all parts and replace worn parts if necessary.
- Clean, lubricate and reassemble.
- Test the hoist on a test rig. (Carry out the daily check list)
- Test the overload limiter at 125 % of WLL.
- Check the central control box and all plugs and socket connections for any signs of water penetration.
- Fill in the maintenance sheet of each hoist indicating repairs done or parts replaced.
- Mount the hoist and the control box back on the platform.
- Run the platform over the full height of the building and carefully inspect the suspension wire rope and safety wire rope for kinks, broken wires or other damage. Also inspect the trailing supply cable for damage. Replace any damaged ropes or supply cable.

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