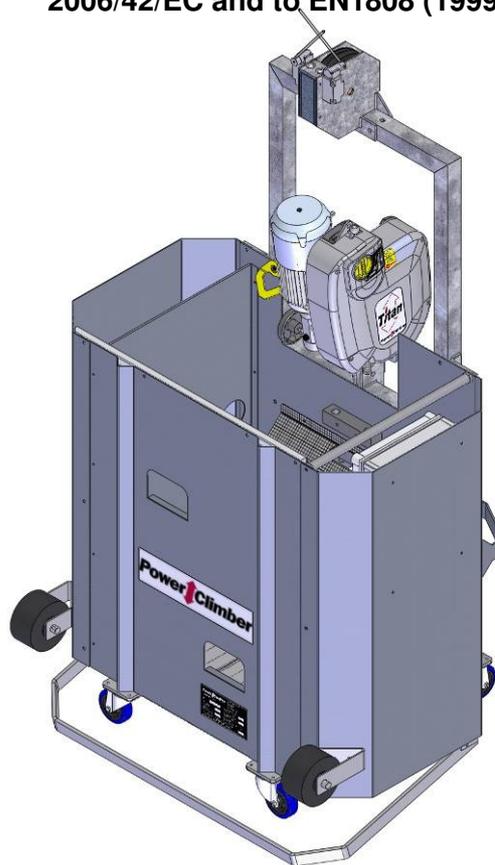


USER MANUAL

BMU WORKCAGE

CONFORM TO THE MACHINE DIRECTIVE
2006/42/EC and to EN1808 (1999)



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 equipment at all times.

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

Manufacturer

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

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

Reference: 38825-E

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Revision: Rev. B

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DESCRIPTION OF BMU WORKCAGE

BMU (Building Maintenance Unit) workcages are intended to be permanently installed and dedicated to a specific building or structure. They are to be used by operators for inspection, cleaning and maintenance of a building where the general public may have access below the suspended workcage.

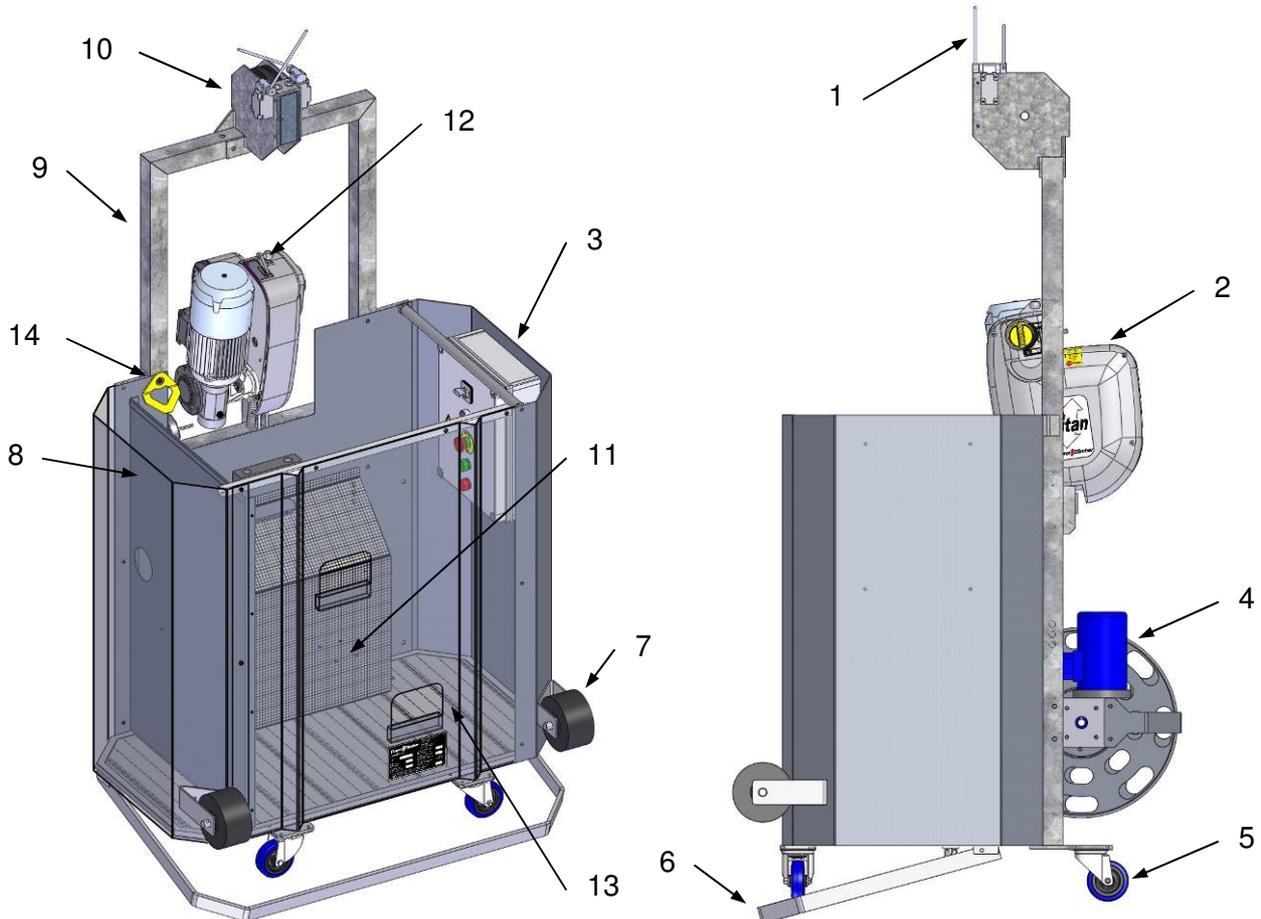
The BMU workcage consists of aluminium cage, fixed to a steel stirrup frame. The lifting traction hoist is fixed to this stirrup.

The suspension and the safety wires are wound up by means of a powered twin-drum wire winder unit, which is situated below the hoist.

The platform is controlled from a central control box located in the platform.

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GENERAL VIEW BMU WORKCAGE



- 1. Top Limit and Ultimate Top limit switch
- 2. Titan hoist
- 3. Central Control Box
- 4. Wire winder
- 5. Castor rollers
- 6. Bottom trip bar
- 7. Soft wall rollers
- 8. Storage bin for power supply cable

- 9. Steel stirrup
- 10. Top roller
- 11. Internal cladding winding drum
- 12. Slack rope safety device
- 13. Footstep for in/out
- 14. Safety eye (harness attachment)

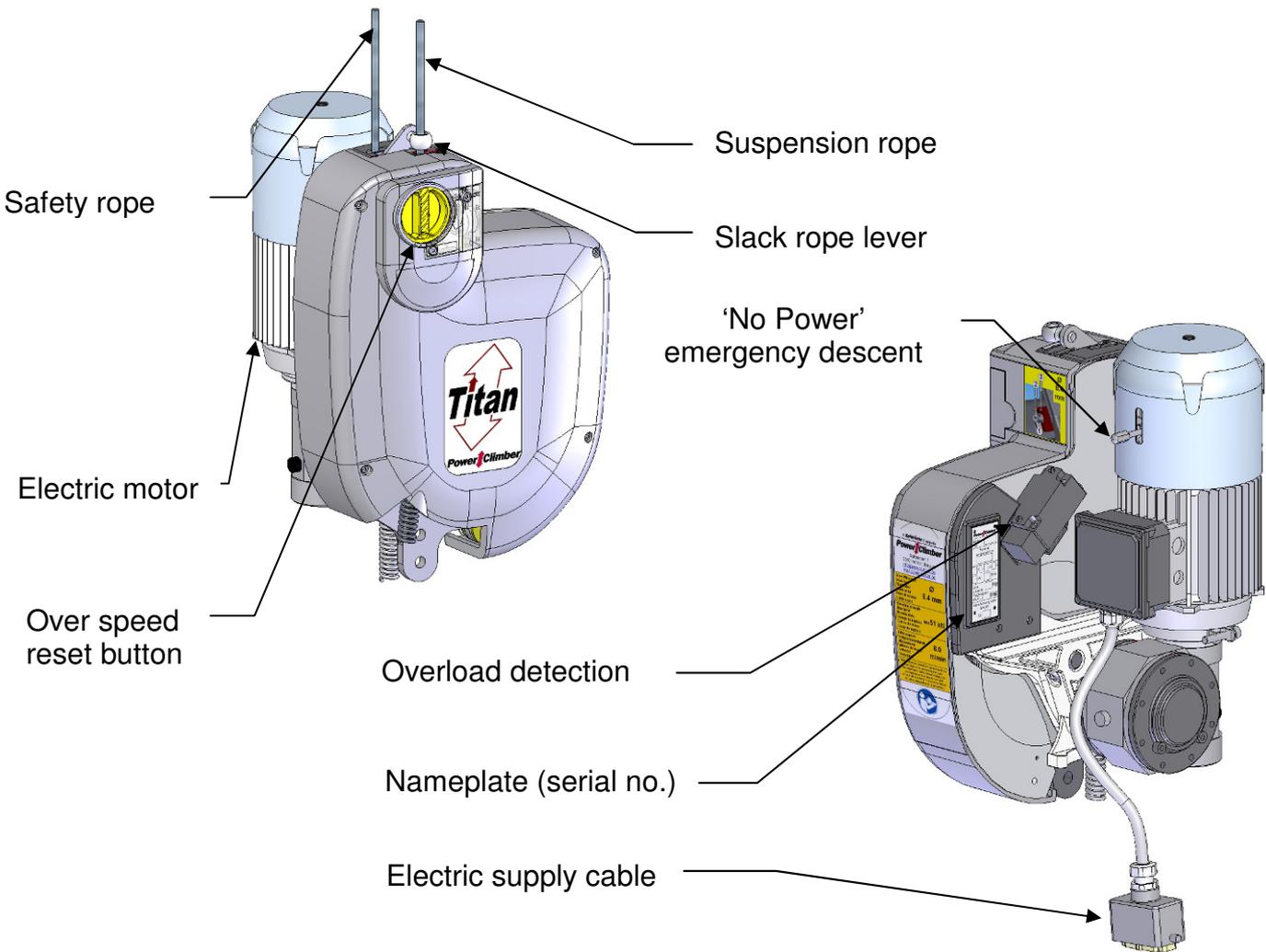
Length (L)	700 mm ^(*)	1100 mm	1500 mm
Self-weight ^(*)	150 kg	160 kg	170 kg
Safe Working Load (SWL)	1200 N	1200 N	1200 N
Number of persons	1		
Climbing speed:	8.5 m/min.		
Safety and suspension rope	Ø 8.4mm (52.3kN)		

(*) Self weight is without steel wire ropes and supply cable.
 Add 0.85 kg/m for steel wire rope and power supply cable.
[Use flexible power cable: HO7RNF]

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TITAN HOIST SPECIFICATIONS

		Titan 403 PI
Working Load Limit (W.L.L.)		400 kg
Power Supply		3 x 400V / 50Hz + N + E
Amperage at W.L.L.	RUN	2.5 A
	START	7.5 A
Motor Power		0.74 kW
Motor Speed		1400 RPM
Wire Rope Diameter		8.4 mm (breaking load 52.3 kN)
Hoisting Speed		8.5 m/min
Noise level	UP	60 dBA
	DOWN	64 dBA
	MANUAL	69 dBA



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CENTRAL CONTROL BOX (CCB)

Main Switch: Turns on the main power.

'Power on' indicator: The GREEN indicator lights up when the supply cable is connected correctly and the main switch is on.

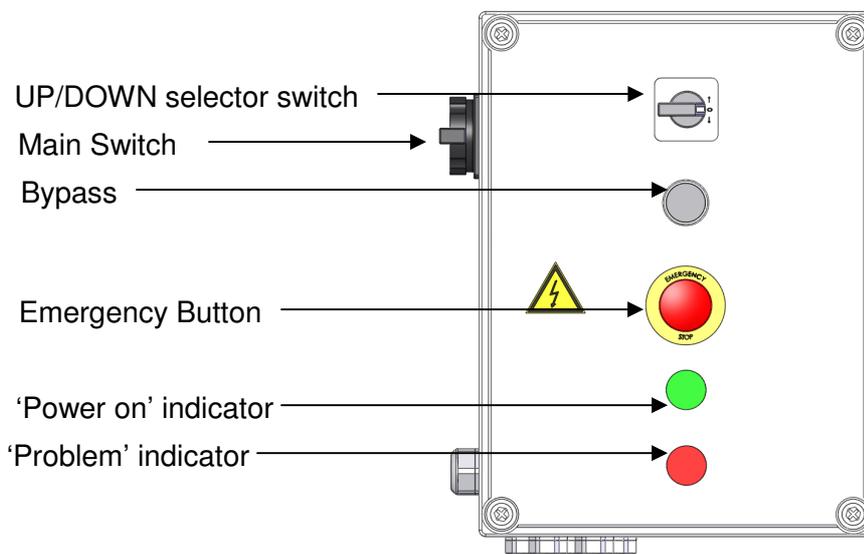
Emergency stop: The emergency stop immediately cuts ALL power. In order to switch the power back on, turn the button in the direction indicated by the arrow.

'Hold-to-run' buttons for operating up- and downward

Bypass – button: To be used when the platform needs to be set entirely at the bottom or for de-reiving the steel wires from the hoist.

Problem indicator: The RED indicator lights up when:

- The electro-mechanical overload limiter was activated. (Overload condition = useful load exceeded by 25%)
- The Emergency stop is pressed
- The ultimate top limit is activated
- The thermal protection of the hoist motor is activated



Note:

- The place of the buttons might change without warning. Always verify the name of the button on the CCB to make sure you use the correct button.
- Integrated Trolley controls are optional.

SAFETY FUNCTIONS

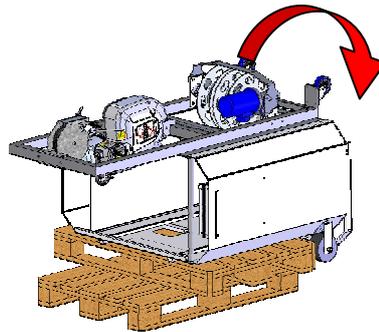
	HAZARD	SAFETY ACTION	RESULT
1.	Breaking of suspension wire.	→ Suspension wire becomes slack. → Slack rope safety device is activated.	→ Safety device will grab the safety wire and hold the workcage. → Down direction is cut off.
2.	Overspeed condition of a hoist.	→ Overspeed safety device is activated.	→ Safety device will grab the suspension wire, and hold the workcage. → Down direction is cut off.
3.	Overload condition or the workcage is hooked under a part of the building.	→ Overload detection device is activated	→ Workcage will be stopped. → Up and down direction is cut off.
4.	Workcage is hitting part of the building, or reaches ground level.	→ Bottom limit trip bar is activated.	→ Workcage will be stopped. → Down direction is cut off.
5.	Workcage has reached top-position.	→ Top limit switch is activated by striker plate.	→ Workcage will be stopped. → Up direction is cut off.
6.	Failure of top limit switch.	→ Ultimate top limit is activated by striker plate.	→ Workcage will be stopped. → Up and down direction is cut off.
7.	Slack of suspension wire.	→ Slack rope safety device becomes activated.	→ Safety device will grab the safety wire and hold the workcage. → Down direction is cut off.
8.	Slowly creeping down of workcage.	→ Workcage is descending slowly enough for the overspeed safety device to be activated manually.	→ Safety device will grab the suspension wire and hold the workcage. → Down direction is cut off.
9.	Power failure.	→ Release service brake manually by pulling down the emergency descent lever.	→ Workcage will move down at a lower speed than the normal downwards speed.

BMU WORKCAGE

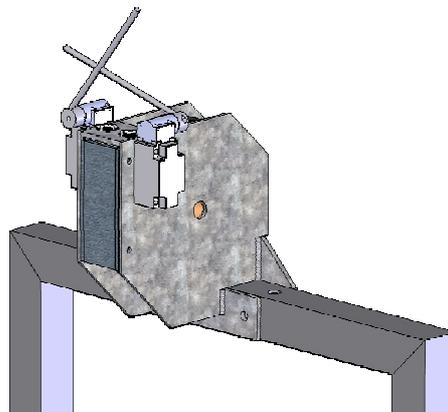
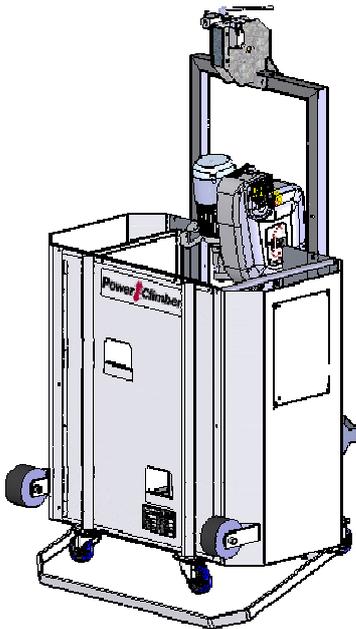
UNPACKING

Follow the steps below to unpack the BMU workcage:

1. Remove all the protective foil from the packaging and inspect the platform for any damage.
2. Remove the wooden protection and the support bracket.
3. Position the workcage upright on its wheels.



4. Rotate the roller assembly at the top of the workcage back to the normal position.



5. The workcage is now ready to be installed.

INSTALLATION

The workcage is suspended and fully tested at the Power Climber facility before packing and shipping.

1. Unpack the workcage and check for any damage.
2. Position the workcage below the suspension system.
3. Secure the male plug into the power socket.

IMPORTANT: An earth leakage circuit breaker (ELCB) of 30 mA and an overcurrent protection device of 16A (Type C) must be used at the power source. Check that the specifications of the electrical supply cable match the power requirement of the platform and will avoid a voltage drop due to the cable length.

4. Check that the hoist and wire winder turns when pushing the up button. The top of the winder should rotate away from the workcage. Check that only the hoist turns when pushing the down button.

Note: All three-phase workcages are fitted with phase protection and will not operate if the phases are incorrectly connected. See troubleshooting section (in BMU Workcage Appendix 8-E) for additional information on correct phase connection.

WARNING: DO NOT change any connection in the central control box.

Secure the power supply cable to the suspension system using the cable retainer.

5. Make sure that the length of the steel wire rope is sufficient. (suspension and safety wires)

IMPORTANT: Required length of steel wire rope = the building height + 5 m.

6. At roof level, uncoil the safety rope and lay it on the roof surface. Attach the safety rope to the suspension system with the safety hook fitted to the rope and lower the rope to the ground.
7. Reeve the safety ropes (see 'Reeving the steel cables').
8. At roof level, uncoil the suspension rope and lay it on the roof surface. Attach the suspension rope to the suspension system with the safety hook fitted to the rope and lower the rope to the ground.
9. Reeve the suspension ropes (see 'Reeving the steel cables').

Tip: By separately reeving the safety rope and the suspension rope you can avoid getting them twisted together.

10. Proceed with **Testing and Commissioning** as described in BMU Workcage appendix 3-E.
11. Only after completing these tests, can you take a first trip to the top of the building and fit the top limit switch striker plate.

IMPORTANT:
CLAMP THE STRIKER PLATE TO THE SAFETY ROPE ONLY
THE SUSPENSION ROPE PASSES FREELY THROUGH THE SLOT IN THE PLATE

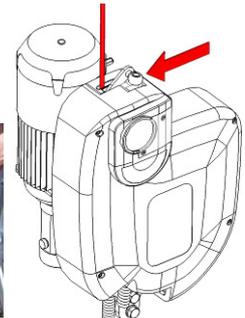
INSTALLATION (Continued)

A) Reeving the steel wire ropes

WARNING:
Always reeve the safety rope first before reeving the suspension rope.

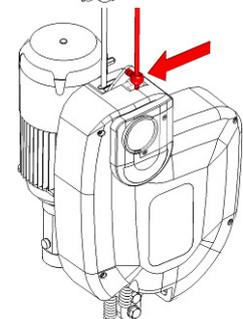
Safety rope

1. Put the slack rope lever in its upright position to open the clamps of the slack rope safety device and push the safety cable through the rear slot of the slack rope safety.
2. Put the tail end of the safety rope through the hole in the wire winder.
3. Operate upward in order to tighten the cable.



Suspension rope

1. Put the slack rope lever in its upright position and put the cable through the eye of the slack rope lever and at the top of the hoist. Push until you experience resistance.
2. Operate upward to allow the cable to move through the hoist. The tail end of the cable will come out at the bottom of the hoist.
3. Repeat step 2 and 3 of the safety cable to load the suspension cable on the wire winder.



Tip: If there are problems with reeving the suspension cable, you can bend the tail end of the cable a little in the direction of the plate before putting the cable in the hoist.

B) Dereeving the steel wire ropes

Tip: Always unreeve the safety cables first and keep the hoist cable tight so the slack cable fall safety stays open and the safety cable is easy to remove.

Safety rope

Pull the safety rope manually out of the slack rope safety device and out of the wire winding drum.

Suspension rope IMPORTANT: The bottom trip bar must be bypassed manually in order to be able to dereeve the hoist cable.

1. Push the bypass button on the central control panel.
2. Operate the hoist downward until the hoist cable no longer comes out of the hoist at the top. Then, pull out the rest of the cable by hand.

Warning:
REEVING THE SUSPENSION CABLE INCORRECTLY IS THE MOST COMMON CAUSE OF ENTANGLEMENT OF CABLES
SOLELY USE ORIGINAL POWER CLIMBER STEEL CABLES

DAILY CHECK LIST

TEST MUST BE PERFORMED BEFORE START OF OPERATION OF THE BMU.

Inspect the platform visually to detect damage, loose or missing parts before beginning with the check list.

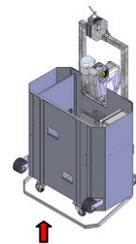
1. Check if the controls are function correctly:

- 'Power on' indicator lights up:
- 'UP' and 'DOWN' buttons
- Check whether the hoist and the winding drum work properly when pushing the 'UP' button. The winding drum must turn away from the platform. The wire winder cannot rotate when pushing the 'DOWN' button.



2. Bottom trip bar

Raise the bottom trip bar. Check if the downward movement has been cut. Push the bypass button to check if the platform is allowed to move downward again.



3. Emergency stop

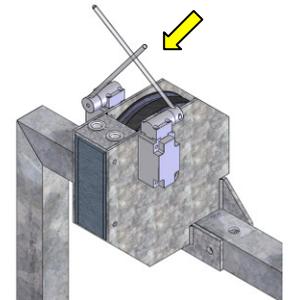


Push the emergency stop on the central control panel and check whether the platform can still move up- or downward. (to undo action, turn the button in the direction indicated by the arrow on the button)

4. top limit switch and ultimate top limit switch

Push down the end switch lever and check whether the platform can no longer move upward but downward.

Push down the emergency (ultimate) end switch lever. Make sure the platform can move neither upward nor downward. Repeat this procedure for the other hoist.



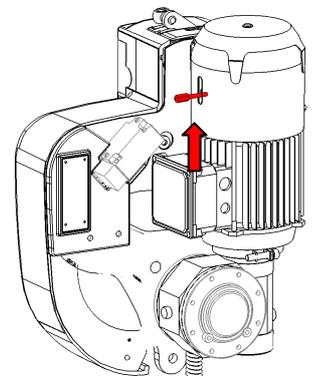
Move the platform to 1-2 metres above the ground to perform the following tests.

5. Slack rope safety device and 'no power' descent.

Cut the power supply using the main switch at the central control panel. Pull up the brake lever on one hoist and check if you are able to lower the hoist at a controlled speed.

Continue pushing until the slack cable fall safety is activated (at about 10 degrees) so the platform cannot slope further.

Repeat the procedure by manually lowering the other hoist.



DAILY CHECK LIST (Continued)

6. Steel wire rope and power supply cable

Move the platform all the way to the top. Along the way check the safety cables and the hoist cables for kinks, broken wires or other damage.
At the same time, check the supply cable for damage.

IMPORTANT: In every day use, always be mindful of possible damage of the steel cables or the supply cable.

See BMU Workcage Appendix 5-E: "Steel wire rope specifications" for further details on the steel cable.

NEVER USE MATERIAL THAT DOES NOT FUNCTION PROPERLY!

CHECK LIST AFTER USE

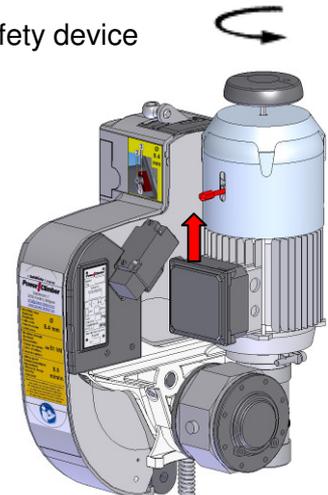
1. Turn off the main switch on the central control panel. Lock if necessary.
2. Disengage the supply cable.
3. If the platform is not used for a longer period, it should be stored.

See BMU Workcage Appendix 3-E: "Storage and maintenance" for more details.

USE OF HAND WHEEL FOR MOVING UPWARD WITHOUT POWER SUPPLY

This might be necessary to reset the overspeed- and /or slack rope safety device during power failure when one of the safety devices has come in.

1. Turn off the main switch on the central control panel (to prevent unwanted movement of the motor when suddenly regaining power).
2. Remove the plastic cover at the top of the motor shield to install the hand wheel.
3. Take the hand wheel and insert it in the hole at the top of the motor.
4. Turn the hand wheel simultaneously counter clockwise and lift the brake lever to open the brake.
5. Release the brake lever and repeat the procedure, until:
 - In case of overspeed: the yellow reset button can be reset.
 - In case of slack rope: the suspension cable is no longer slack



TIP: Hold the hand wheel firmly while the brake opens to prevent further lowering.

6. After use, put the plastic cover back in the hole and put the hand wheel back in its storage place!
7. Put the main switch back on. If the power is restored you can continue working.
Else you can use the emergency descent lever to lower to ground level.

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