



Technical Handbook

EasyKit



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1. Explanation

1.1 Copyright

Berg Hortimotive
De Lier, 2020

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Exceptions to this include parts of the documentation which are intended for reproduction, such as the abridged instructions and specifications on the machine itself.

1.2 Liability

Berg Hortimotive does not accept liability for dangerous situations, accidents and damage that occur as a result of ignoring warnings or instructions, such as those shown on the *EasyKit*, or contained in this documentation - for example:

- inexperienced or incorrect usage or maintenance
- being used for applications other than those for which it was designed, or in circumstances other than those given in this documentation
- the use of components or spare parts which are not approved
- repairs carried out without the consent of Berg Hortimotive and/or a certified dealer
- alterations made to the *EasyKit* which may include:
 - alterations to the controls
 - welding, mechanical works, etc
 - expansion of the *EasyKit* or its controls

Berg Hortimotive does not accept liability:

- if the customer does not meet its obligations with respect to Berg Hortimotive (financial or otherwise)
- for consequential damage caused by defects to the *EasyKit* - e.g. interruption of business, delays, etc.

1.3 Guarantee

For a period of 6 months after delivery, Berg Hortimotive gives the client a warranty on material and manufacturing defects that occur during normal use. This warranty does not apply if the defects are caused by improper use or causes other than by material and manufacture, if Berg Hortimotive - following consultation with the client - delivers used material or used goods or if the cause of the defects cannot be demonstrated clearly.

The warranty provisions are set out in the METAALUNIE CONDITIONS as they read according to the most recent relevant text. The terms and conditions of delivery are available on request.

The warranty given by Berg Hortimotive for all goods and materials not manufactured by Berg Hortimotive will never be more than that given by its supplier. The warranty is ex works. Faulty machines and/or parts must be sent postage paid.

When it is not possible to send out machines or systems, any travel and subsistence expenses will be payable by the client.

Sold and delivered goods with manufacturer's, importer's or wholesaler's warranties are subject only to the warranty provisions set by the suppliers.

Hydraulic pumps are subject only to the manufacturer's warranty, provided the pump comes with an undamaged safety seal from the supplier.

Berg Hortimotive accepts responsibility for the availability of replacement parts, provided they are available from its suppliers at reasonable conditions.

2. Foreword

This handbook describes the *EasyKit*.

This handbook provides you with information regarding the safety aspects, a description of the *EasyKit* together with the working principles, as well as the operating instructions and maintenance of the machine.

Potentially dangerous situations are given, as well as recommendations for avoiding them.

It is important that this handbook is carefully read in order to learn how the *EasyKit* should be operated and maintained. By reading this handbook and then using the *EasyKit*, you, or anyone else, will be assisted in using the *EasyKit* in the correct manner thereby helping to avoid personal injury as well as damage to the machine.

Berg Hortimotive manufactures safe machines. The machines are designed to the latest standards and in accordance with the latest CE approval markings. The user remains responsible for the proper usage and carrying out maintenance on the machine.

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3. Summary of the safety measures

3.1 Textual markings



IMPORTANT: This indicates that something can greatly influence the *EasyKit*, its maintenance and operation.



WARNING: This indicates a possible dangerous situation, which if not avoided, could result in serious injury or even death.



DANGER: This indicates a possible dangerous situation, which if not avoided, will result in serious injury or even death.

3.2 Review of the safety pictograms used

The *EasyKit* is provided with safety pictograms in order to bring possible dangers or dangerous situations to the attention of the operator. You must comply with these warnings at all times.

The pictograms provided must be clearly visible and remain undamaged.

If any questions arise with respect to these pictograms, please contact Berg Hortimotive directly.



Danger of electrical voltage



Dangerous chemical battery: explosive gases and corrosive battery acid



Attention!



Danger of becoming trapped - beware of moving parts



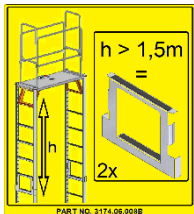
Always read the instructions before starting operations



Disconnect the power supply before starting maintenance



Always disconnect power from the EasyKit when leaving unattended



For plateau height > 1.5 m, always mount the two double stabilization steps

When operating with the *EasyKit* at height, you must always mount the two double stabilization steps for extra stability

WEIGHT xxx KG 		MAX 110 N 	MAX LOAD xxx KG

ART. NR. 3071.01.0001

Suitable for the stated pipe diameter

Suitable for the stated centre-to-centre measurement of the pipe rail system

Maximum sideways manual power in Newton's (kg x10)

Maximum total load in kg (maximum 1x person + secured load)

Maximum tilted position (pipe rail system) 2°

Maximum support spacing 1250 mm

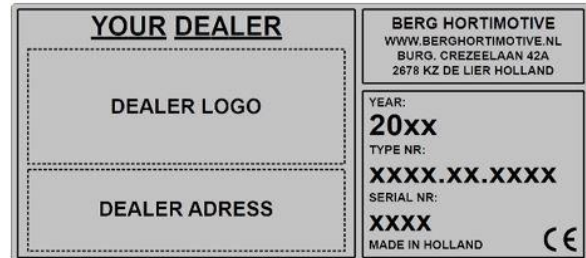
Only to be used indoors (in greenhouse)

Mass of the machine in kg

3.3 Machine type plate

The *EasyKit* is fitted with a machine type plate which contains the following information: address details for Berg Hortimotive, CE mark, serial and type reference, serial number and year of construction.

If you would like to contact Berg Hortimotive, or one of their dealers with respect to this *EasyKit*, please ensure that this information is always readily available.



3.4 General safety measures

- Always read the handbook thoroughly before starting to operate the equipment, then carefully follow the instructions and directions. In case of doubt, please contact the Berg Hortimotive dealer for further information.
- The *EasyKit* is only suitable for operating on pipe rail systems that comply with the horticulture sector guidelines, the health and safety catalog in force in the Netherlands (see chapter 6.2).
- The *EasyKit* should only be used on the correct type of pipe rail system. You must ensure that the centre-to-centre measurement of the pipes rails and the *EasyKit* correspond with each other - see chapter 10: Specifications. This is also visible on the pictogram on the plating.
- The *EasyKit* may only be operated once it has been placed entirely on the pipe rail system.
- Never exceed the maximum load capacity of the *EasyKit* as indicated in the machine specifications - see chapter 10. Always stand on the working platform - it is forbidden to raise the platform using any objects.
- The *EasyKit* may not be switched on when the protective covers are not properly in place. Prior to switching on the *EasyKit* all protective covers must be properly put back in place.
- Always switch off the *EasyKit* prior to carrying out maintenance, repairs or inspections. Always switch off the *EasyKit* using the earth switch.
- Always take up the slack in the operating cable by gathering it up using the Velcro strips provided. This reduces the chances of it becoming caught on something.
- After use, the *EasyKit* should always be turned off with the earth switch, the direction switch should be in the neutral position and the potentiometer should be at zero.
- The *EasyKit* should never be left unattended while the earth switch is still turned on.
- Only authorised, properly trained personnel of at least 18 years of age should be allowed to operate the *EasyKit*. Personnel should be fully aware of the directions and instructions contained in this handbook. Keep your wits about you when using the *EasyKit*. Do not use the *EasyKit* if you are unable to concentrate, under the influence of narcotics (alcohol or drugs) or when using medicines which advise against operating machinery or driving in traffic when being taken.
- All personnel working in the area of the *EasyKit* should be made familiar with relevant safety rules and precautions that apply to it. The employer must ensure that the personnel are fully aware of all the safety precautions that must be taken.
- Only use the *EasyKit* for the purposes for which it was designed. The *EasyKit* may only be used for maintaining crops in greenhouses. Never use the machine on the public highway.
- Using the *EasyKit* when it is tilting more than 2 degrees from the vertical (lengthwise and/or crosswise) is strictly forbidden.

-
- The maximum loading may consist of one person plus a secured moveable load which together should not exceed 100 kg in weight.
 - No more than one person may stand on the platform at the same time (the controls should be operated by only one person). It is prohibited to carry passengers on the machine.
 - When operating the EasyKit the safety gate should always be closed.
 - When operating with the EasyKit at height, you must always mount the two double stabilization steps for extra stability.
 - Ensure that the recommendations from the manual with respect to voltage (V) and frequency (Hz) are observed. Always remove the charger plug before using the EasyKit.
 - Always keep the EasyKit in good operating condition by carrying out the periodical maintenance and safety inspections as described in this document. Dangerous situations should be always be rectified immediately.
 - Activities with respect to assembly, installation, adjusting, maintenance and repairs should only be carried out by expert, qualified personnel.
 - In order to operate the EasyKit properly, it should always be kept free of obstacles. Operating the EasyKit may only take place when there are no other persons in the vicinity (apart from the operator) of the machine.
 - In order to avoid the danger of becoming trapped or jammed, the greatest of care must be given to the moving parts on the EasyKit.
 - When starting up again after maintenance or repairs, please check whether any tools or spare parts have been left behind either in or on the *EasyKit*.
 - Keep a safe distance from fixed and/or moving parts within the greenhouse, as well as cables and string.
 - It is forbidden to tow objects with the *EasyKit* (steel cables, protective covers, etc).
 - It is also forbidden to push or pull other forms of transport on the pipe rails with the EasyKit.
 - It is forbidden for both people and animals to enter the path on which the *EasyKit* is being operated. Never operate more than one *EasyKit* on the same path.
 - Additional options, accessories and spares must be ordered and supplied exclusively by the manufacturer, Berg Hortimotive.
 - Safety pictograms attached to the *EasyKit* (see chapter 3.2: Review of the safety pictograms that are used), must always be clearly visible.
 - To exit a harvest path you should stop and step out. Check if there are no persons in the immediate vicinity of the concrete path, before the *EasyKit* is manually pulled to the concrete path.
 - It is forbidden to transport loose cargo with the *EasyKit*.

- When stacking the load, ensure that it does not exceed 40 cm above the working platform. All loads should be properly secured.
- Before driving into a path, ensure that there are no obstacles on the pipe rails such as plant remains etc.
- Keep the *EasyKit* clean. Remove the build-up of dirt and plant remains regularly. Never clean the *EasyKit* using a water hose or steam cleaner.
- In order to avoid the risks connected with the batteries, please read the safety instructions for batteries at chapter 8.6: Battery maintenance and appendix 4.
- It is necessary when working with the *EasyKit* to wear shoes or boots with steel toecaps (S1).



Activities not described in this handbook should only be carried by, or in consultation with, personnel at Berg Hortimotive.



This documentation forms a part of the *EasyKit!*
Keep this documentation somewhere safe. It contains information that may be required later on, or necessary for carrying out maintenance for example. It is advisable to always have a copy located on the *EasyKit* itself, as well as filing a copy somewhere safe, such as in your technical department. If necessary, Berg Hortimotive can provide extra copies.

4. General description of the *EasyKit*

The *EasyKit* has been designed for use in the greenhouse horticulture sector.

The machine may only be operated by one person with a minimum age of 18 years who has received thorough instruction in the operation of the *EasyKit* and who is familiar with the safety instructions and this handbook, both of which they have fully understood.

The *EasyKit* runs on pipe rails which have been installed according to the horticultural sector guidelines and is intended to be used as an aid for harvesting and/or maintaining the plants in a greenhouse. Usage of the *EasyKit* for any other purpose is strictly forbidden. The maximum load may consist of one person plus a secured moveable load which together should not exceed 100 kg in weight. The *EasyKit* may only be operated once it has been placed entirely on the pipe rail system.

The platform may not be entered while the machine is on the concrete path. Always walk alongside the machine, therefore not on the chassis, when transporting it over the main path.

Customer-specific systems can have alternative dimensions, therefore the machine that is supplied may differ from the illustrations given in this handbook. In such cases, please refer to the structural drawing (see chapter 12: Technical appendices) of the machine that has been supplied.

4.1 Intended use

The *EasyKit* operates on a pipe rail system and has been designed solely for looking after and maintaining plants in a greenhouse.



Using the *EasyKit* for purposes other than those described in this document is strictly forbidden. Under such circumstances it is not possible for Berg Hortimotive to guarantee the proper operation of the *EasyKit*

If it is necessary to use the *EasyKit* for any other applications, please contact Berg Hortimotive before proceeding. They will be able to inform you whether the *EasyKit* should first be adapted in order to guarantee continued correct operation of the machine.

4.2 Main components of the *EasyKit*

The main components of the *EasyKit* are illustrated at figure 1.



Figure 1: Main components of *EasyKit*

A. Door

B. Rail/ safety railing

C. Control panel

D. Platform

E. Height adjustment

F. Step and double stabilization steps

G. Stands

H. Trailing reel

I. Tilt alarm (optional)

J. Swivelling wheels

K. Drive roller

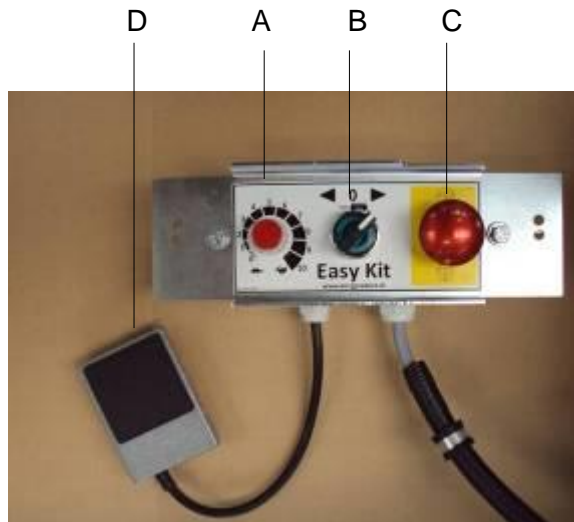


Figure 2: *EasyKit* controls

- A. *Speed regulator button*
- B. *Direction selector switch + (defect) warning lamp*
- C. *Emergency stop*
- D. *Foot pedal*

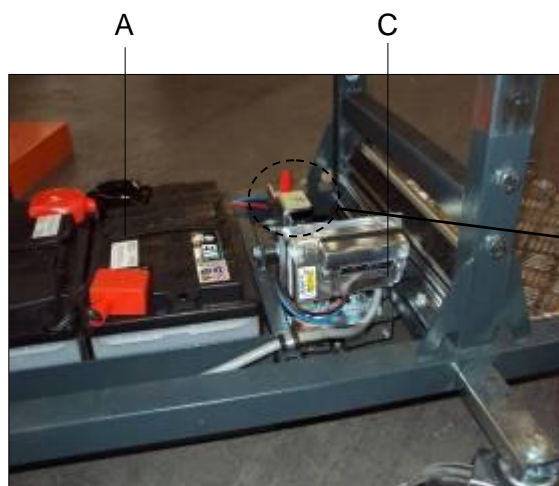


Figure 3: *EasyKit* Chassis

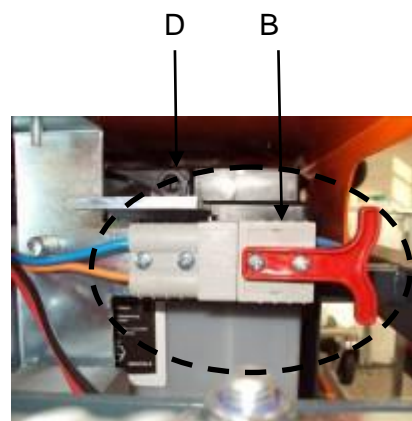


Figure 4. Earth switch

- A. *Battery*
- B. *Charge/ supply plug*
- C. *Motor regulator*
- D. *Earth switch*

5. Transport



Transporting the *EasyKit* must be undertaken with great care in order to avoid damage or accidents occurring.

5.1 External transport

When the *EasyKit* has to be transported, please do as follows:

1. Set the direction switch to neutral (0) and the speedometer to speed 0.
2. Switch off the *EasyKit* using the earth switch (disconnect the supply plug from the socket).
3. Allow the platform to descend and remove the stands.
4. Secure the *EasyKit* properly so that it cannot move about, roll forward or tilt over.
5. Ensure that the *EasyKit* remains frost-free during transportation.
6. When arriving at its destination, the *EasyKit* should be set up in accordance with the points described at chapter 6 (starting up).

6. Starting up



The *EasyKit* is only suitable for operating on pipe rail systems that comply with the horticulture sector guidelines, the health and safety catalog in force in the Netherlands for pipe rail systems.



The *EasyKit* should only be used on the correct type of pipe rail system. You must ensure that the centre-to-centre measurement of the pipe rails and the *EasyKit* correspond with each other - see chapter 10: Specifications. This is also visible on the pictogram on the platform.



The *EasyKit* may only be operated once it has been placed entirely on the pipe rail system.



The *EasyKit* may not be switched on when the protective covers are not properly in place. Prior to switching on the *EasyKit* all protective covers must be properly put back in place.



Only use the *EasyKit* for the purposes for which it was designed. The *EasyKit* may only be used for maintaining crops in greenhouses. Never use the machine on the public highway.



Using the *EasyKit* when it is tilting more than 2 degrees from the vertical (lengthwise and/or crosswise) is strictly forbidden.



Ensure that the recommendations from the manual with respect to voltage (V) and frequency (Hz) are respected. Always remove the charger plug before using the *EasyKit*.



Additional options, accessories and spares must be ordered and supplied exclusively by the manufacturer, Berg Hortimotive.



Safety pictograms attached to the *EasyKit* (see chapter 3.2: Review of the safety pictograms that are used), must always be clearly visible.



Extra care must be given during installation!

The chances of incorrect functioning during start-up is higher than normal. If the *EasyKit* is not set up correctly, this can lead to greater exposure to danger. Please ensure that all locks and fixings have been correctly applied.

The *EasyKit* has been specially designed to run on a pipe rail system. When leaving the Berg Hortimotive factory, the *EasyKit* is checked for proper functioning and safety. Before starting up the *EasyKit*, the items described at section 6.1 should be inspected.

The pipe rail system must comply with the requirements as laid down by the horticulture sector guidelines. Article 6.3 in the guidelines provides information regarding the minimum pipe rail specifications with respect to the track width, pipe diameter and the distance between supports.

The pipe rail specification given on the *EasyKit* are taken from the requirements laid down by the horticulture sector guidelines for pipe rail systems from the health and safety catalog in force in the Netherlands. For the full contents of this policy regulation, we refer you to the Ministry of Social Affairs & Employment.

6.1 Inspection prior to start-up



Only use the *EasyKit* for the purposes for which it was designed (see chapter 4.1 Intended use).



Make a visual check for damage on the *EasyKit*. The *EasyKit* may only be used if it has been confirmed that there is no damage, it is functioning correctly and no parts are missing.



Always take up the slack in the operating cable by gathering it up using the Velcro strips provided. This reduces the chances of it becoming caught on something.

The following points should be checked before starting up the *EasyKit*:

- There are no loose electrical connections (all the functions and buttons work properly).
- There is no damage to any of the cables.
- The drive roller and the trailing reel are not damaged and run freely.
- The batteries are fully charged (see chapter 7.3).
- No 'general' mechanical damage.
- No impairment to the visibility of the control components, pictograms and symbols.
- All the protective covers and caps are properly in place.
- The rail on the platform is properly fixed.
- Proper functioning of the 'height adjuster'.

If you have any doubt about the proper functioning of the *EasyKit*, please contact the technical department at your dealer, or the service department at Berg Hortimotive, prior to starting operations.

6.2 Horticulture sector guidelines for pipe rail systems

The *EasyKit* has been designed to run on a pipe rail system. This means that there are rails on the paths between the plants which consists of two pipes of the same diameter, having a fixed width between them (centre-to-centre measurement). The pipes are often used as heating pipes and are supported along fixed distances. The pipe rail system must satisfy the most recent requirements of the horticultural sector guidelines for pipe rail systems. In article 6.3 of the sector guideline, the minimum requirements are also given for the pipe rail systems which are taken from the sector guidelines for pipe rail systems. The pipe rail system on which the *EasyKit* is intended to be used, must also comply with these requirements. All the above-mentioned items should also be checked periodically in accordance with the health and safety catalog in force in the Netherlands. It is absolutely prohibited to use a pipe rail system that does not comply with the sector guidelines or policy regulations. A number of tests are provided in the policy regulations for determining whether it is possible to operate safely with the *EasyKit* on a pipe rail system. These tests should be implemented prior to working with the combination of the *EasyKit* and the available pipe rail system.

6.3 Minimum requirements for the pipe rail system

The rails (normally heating pipes) must have an external diameter of either 51 mm or 45 mm and a wall thickness of at least 2 mm. The minimum material specifications for the pipes is as follows: Steel 37 (S235JR). The distance between the pipe rail system supports may not exceed 1.25 metres (centre-to-centre). When combining pipes having a diameter of 45 mm

with a track width of 420 mm, the distance between the rail supports should not exceed 1 metre. The pipe rail supports used should be in accordance with, or equivalent to the following specifications: 1.5 mm thick steel base plate with reinforcing profile - base plate width of at least 115 mm - the length should be such that the base plate protrudes at least 70 mm from the two vertical supports which carry the load of the pipes. The centre-to-centre distance between the pipes should be at least 42 cm. The pipes must be properly secured, precisely installed and with a maximum tilt of no more than 2 degrees in both length or in width. The pipes must also be properly attached to the supports and the concrete track. Loose fitting pipes may not be used! The top side of the tube should be at least 15cm. on the concrete path .A soil test bore should be carried out using probing equipment (see policy regulation). It should have a so-called cone value on the top layer of more than 0.4 Mpa (62 psa).

The use of rail systems not covered by the policy regulations is permitted on the condition that a stabilisation test is carried out in accordance with the policy regulations from which it appears that the *EasyKit* / pipe rail system combination would be stable. Furthermore, the supports for these other pipe rail systems must be installed no more that 1 metre apart, and the tilt must not exceed 2 degrees in both length and width.

→ The tubes are similar or at least equal to the specifications given in the table below.

The conditions for the axle load stand in the table below.

Cat.	Track-width	Tube-diameter / thickness	Support-distance	Permissible axle load at center to center size			
				420mm [kg]	500mm [kg]	550mm [kg]	600mm [kg]
1	420 t/m 600	51 / 2,25	max. 1000	507	548	573	593
2	420 t/m 600	51 / 2,25	max. 1250	406	438	458	475
3	420 t/m 600	45 / 2	max. 1000	345	372	372	403
4	420 t/m 600	45 / 2	max. 1250	276	298	276	323

- Quality steel 37 (St37)
- Wheelbase between 62.5% and 125% of the support distance.
- All values for other pipe and tube rail supports should be calculated separately.

Source: *The Dutch health and safety catalog in force in the Netherlands*
<http://www.agroarbo.nl/glastuinbouw-1/veiligheid/buisrailsysteem/>

6.4 Tilt alarm (optional)

The *EasyKit* is fitted with a tilt alarm with an acoustic warning signal. The tilt indicator provides an acoustic signal when the machine tilts over in excess of 2 degrees. When this occurs, all activities on the *EasyKit* must be immediately halted and the operator should walk alongside the machine back to the path. Thereafter the pipe rail system should be adjusted before any activities can be restarted. First of all, test the prepared section of rails by running the machine along at low speed. If there are no problems with this, test again at minimum speed. Normal activities can be restarted if no problems arise.

Always try to find a permanent solution to prevent the machine tilting on the rails!

6.5 Installing the *EasyKit*

The installation of the *EasyKit* must be carried out in the proper sequence. The illustrations below clearly show the sequence required for installing the machine.



De-stack the *EasyKits* removing the casings



remove the packaging and slacken the bolts.



Release the control box



use a bench or similar



Put the platform onto the bench



extend the locks



From above, slide the pole into the holes



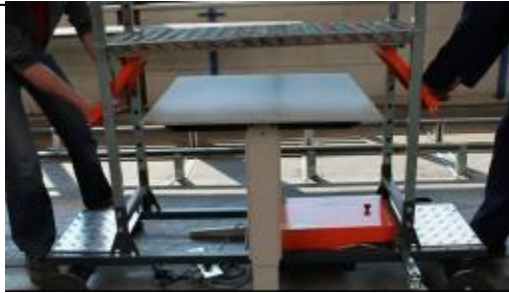
now slide the remaining poles into the holes



Pay attention to numbering for correct positions



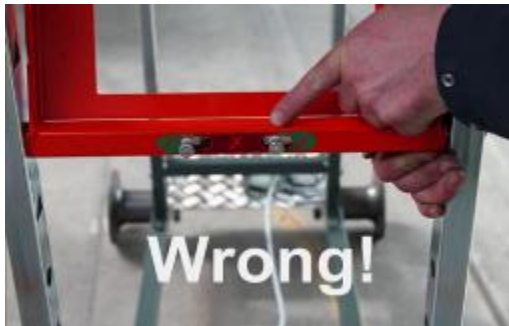
lock the poles by tightening the bolts



Put the platform to the correct height



remove the bench



Ensure that the locks are properly in place



both bolts should be in the green part



Remove the bolts from the foot switch



position the control box and screw it down



Fix the cable clamp



attach the bolts for the foot switch



Remove the bolts for the rail



fit the poles for the rail



Fit the bars of the rail



secure the rail with the bolts



Fit the safety rail spring



put the supply plug into the connector

The *EasyKit* is now ready for use.

6.6 Dismantling the *EasyKit*

Dismantling the *EasyKit* is carried out in the reverse order of the installation.

7. Operating instructions

This chapter contains the instructions for operating the *EasyKit*.

The *EasyKit* should be operated by one person at a time, with a minimum age of 18 years, and who is familiar and complies with the contents of this handbook. Special training is not required, although experience with operating such machinery is required.



The *EasyKit* may only be operated once it has been placed entirely on the pipe rail system.



Never exceed the maximum load capacity of the *EasyKit* which is given in chapter 10: Specifications. Always remain on the working platform, raising the platform using any objects is strictly forbidden!



The *EasyKit* may not be switched on when the protective covers are not properly in place. Prior to switching on the *EasyKits*, all protective covers must be properly put back in place.



After use, the *EasyKit* should always be turned off with the earth switch, the direction switch should be in the neutral position and the speed regulator knob should be set at zero.



Only authorised, properly trained personnel of at least 18 years of age should be allowed to operate the *EasyKit*. Personnel should be fully aware of the directions and instructions contained in this handbook. Keep your wits about you when using the *EasyKit*. Do not use the *EasyKit* if you are unable to concentrate, or when using medicines which advise against operating machinery or driving in traffic when being taken. It is also forbidden to use the machine while under the influence of narcotics (alcohol or drugs).

All personnel working in the area of the *EasyKit* should be made familiar with relevant safety rules and precautions that apply to it. The employer must ensure that the personnel are fully aware of all the safety precautions that must be taken.



Only use the *EasyKit* for the purposes for which it was designed. The *EasyKit* may only be used for maintaining crops in greenhouses. Never use the machine on the public highway.



Using the *EasyKit* when it is tilting more than 2 degrees from the vertical (lengthwise and/or crosswise) is strictly forbidden.



The maximum loading may consist of one person plus a secured moveable load which together should not exceed 100 kg in weight.



No more than one person may stand on the platform at the same time (the controls should be operated by only one person). It is prohibited to carry passengers on the machine.



When operating the *EasyKit* the safety gate should always be closed.



When operating with the *EasyKit* at height, you must always mount the two double stabilization steps for extra stability.



Ensure that the recommendations from the manual with respect to voltage (V) and frequency (Hz) are respected. Always remove the charger plug before using the *EasyKit*.



In order to operate the *EasyKit* properly, it should always be kept free of obstacles. Operating the *EasyKit* may only take place when there are no other persons in the vicinity (apart from the operator) of the machine.



In order to avoid the danger of becoming trapped or jammed, the greatest of care must be given to the moving parts on the *EasyKit*.



Keep a safe distance from fixed and/or moving parts within the greenhouse as well as cables and ropes.



It is forbidden to tow objects with the *EasyKit* (steel cables, protective covers, etc).



It is forbidden for both people and animals to enter a path on which the *EasyKit* is being operated. Never operate more than one *EasyKit* on the same path.



When entering a main path, you must first stop and check whether anybody is standing in the direct vicinity of it prior to continuing.



When stacking the load, ensure that it does not exceed 40 cm above the working platform. All loads should be properly secured.



Before using a path, ensure that there are no obstacles on the pipe rails such as plant remains etc.



It is necessary when working with the *EasyKit* to wear shoes or boots with steel toecaps (S1).

7.1 Switching ON the *EasyKit*



When operating the *EasyKit*, the emergency stop button can be used in the case of emergency. The *EasyKit* will then stop immediately.

1. After reading chapter 6: Starting up, the *EasyKit* can be switched on.
2. Turn on the earth switch on the *EasyKit* by putting the supply plug into the contact. The *EasyKit* is now ON.
3. Pull out the emergency stop if it happens to be engaged. The warning lamp starts flashing.
4. Push the *EasyKit* completely on the tubes. The right direction is first drive roller / caster side.
5. After entering the working platform, the *EasyKit* must first be reset when starting up, this can be done by setting the potentiometer to 0. The warning lamp will remain lit. Thereafter the continuously variable speed of the *EasyKit* can be set using the speed regulator button - 0 = standstill and 10 = maximum speed.
6. After setting the desired speed, the direction of travel should be determined using the direction selector switch. The direction of travel is determined by setting the selector in the desired direction. The switch has a central neutral position (0). When leaving the *EasyKit* unattended, always put the switch to the central position.
7. By pressing the foot pedal, the *EasyKit* will start to move in the preset direction at the predetermined speed.
8. Before you drive on the concrete path you must get off the *EasyKit*. Turn the direction switch in neutral position and push the *EasyKit* on the concrete path. For entering the next path see point 4.



7.2 Switching OFF the *EasyKit*

1. The *EasyKit* stops as soon as the foot pedal is released.
2. The electrical circuit is broken by pressing the emergency stop button.
3. After leaving the working platform of the *EasyKit* the earth switch should be switched off by removing the supply plug from the contact.

7.3 Charging the batteries on the *EasyKit*

An acoustic warning goes off when the batteries on the *EasyKit* are almost flat. At this point the batteries should be recharged using the battery charger.

Charge the batteries twice weekly for normal usage - preferably on Wednesdays and Friday evenings or Saturday mornings, and when the *EasyKit* is **not** being used, at least once every three weeks. Always remove the supply plug when carrying out maintenance. Only a suitable charger should be used - see the specifications on the charger.

1. Position the *EasyKit* near a wall socket (for the correct specifications please see chapter 10: Specifications). Apply the brakes on the swivelling wheels.
2. Switch off the *EasyKit* by turning off the earth switch.
3. Now put the supply plug into the charging plug on the battery charger. Ensure that the cables are not damaged.
4. Once the charging plug is connected to the charger, put the charger plug into the wall socket. The batteries will now be charged.
5. Once the batteries have been charged up, the charging plug should be removed from the supply plug on the *EasyKit*. (consult the battery charger handbook for the correct charging indicators)
6. Reconnect the earth switch on the *EasyKit*.
7. The *EasyKit* is now ready for use.

7.4 Efficient use of the pipe rail wagon and the batteries

The following recommendations are aimed at facilitating the efficient use of the pipe rail wagon and to improve the life-cycle of the batteries.

Basic principles:

- The battery goes flat sooner when running at higher speeds.
- High levels of starting and stopping also increase electrical energy consumption.
- Through using the pipe rail wagon, the remaining capacity and battery voltage gradually reduce, while simultaneously the current consumption increases. This results in increasing heat generation at the motor and speed regulator as the batteries gradually lose their charge.
- Rolls of string and rusty chains (poor maintenance) result in higher energy consumption. (for instructions, see website: <http://www.bergproduct.com/nl/bsa/bsa-film>)
- Allowing batteries to go completely flat also reduces the life-span.
- Charging when required and good maintenance help to increase the life-cycle of the batteries.
- Charging when required also lowers the generation of heat in the motor and speed regulator, as well as the battery charger.

Efficient usage:

- Endeavour to set the level of speed as closely as possible to the work tempo (potentiometer).
- If the speed is set optimally, fewer stops and starts are required which has a very positive effect on the wear of the pipe rail wagon.
- By following the above recommendations, the productivity of the workers will increase.

Regardless of the level of usage, charge the batteries at least once weekly using a suitable charger! This will ensure that the batteries are not totally flat when you recharge them!

7.5 Moving the *EasyKit* on the main path

When moving the *EasyKit* you should always walk alongside. Thanks to the swivelling wheels on the *EasyKit*, the drive rollers enter the main path free of soil. Therefore the *EasyKit* is easy to turn around and move sideways.

7.6 Using the emergency stop

The *EasyKit* is fitted with an emergency stop. The *EasyKit* can immediately be brought to a standstill by applying the emergency stop button. The emergency stop is easily recognised thanks to its red colour on a yellow background. The *EasyKit* stops immediately when the emergency stop button is pressed.

The switch remains blocked mechanically, and the machine cannot be restarted. Help can therefore be provided immediately in the event of an accident.

The emergency stop can also be used immediately when a dangerous situation arises - when the operation goes wrong, for example.

Once the danger has passed, the emergency stop button can be unblocked (see chapter 7.7 Restarting after the emergency stop was applied).

7.7 Restarting after the emergency stop was applied



Never unblock the emergency stop if it is not known how or why it was activated in the first place.

1. Check whether the situation is safe for restarting the *EasyKit*.
2. Set the direction of travel selector switch to "0".
3. Set the speed regulator button to "0".
4. Now pull out the EMERGENCY STOP.
5. The *EasyKit* is now restarted, continue with step 5, chapter 7.1

7.8 Out of use for longer periods

When the *EasyKit* is not being used, switch off at the earth switch and then store it along with the batteries in a place which is free of dampness and frost. It is recommended to connect the batteries on the *EasyKit* to a trickle charger. If there is not a trickle charger, then the batteries should be recharged at least once every three weeks (also when the *EasyKit* is out of use over longer periods). Ensure that the ground underneath is level and the brakes are applied to the swivel wheels. If after a long period the *EasyKit* (longer than 2 weeks) is put back into operation, it should first be inspected as described at chapter 6.1 (Inspection before starting up).

7.9 Machine noise

Unusual noises coming from the *EasyKit* normally indicate wear, loose or damaged components or wrong settings on the *EasyKit*. These defects must be attended to as soon as possible in order to avoid further wear or damage to the *EasyKit* or any ancillary equipment. If the *EasyKit* is used in accordance with the instructions, the noise level emitted should never exceed 70 dB.

7.10 Disposing of the *EasyKit*

When the *EasyKit* is being scrapped, the local, current regulations regarding waste disposal must be observed.

The construction of the *EasyKit* uses generally recognised materials. At the time of construction, waste disposal processes were in existence and there were no specifically identified risks for those involved in disposal activities.



The *EasyKit* should simply be dismantled and the chemical components removed. The batteries should be taken to an authorised waste disposal processor.



8. Maintenance instructions

When working on the *EasyKit* the electrical supply should be disconnected by way of the earth switch.



The *EasyKit* may not be switched on when the protective covers are not properly in place. Prior to switching on the *EasyKit*, all protective covers must be properly put back in place.



Always switch off the *EasyKit* prior to carrying out maintenance, repairs or inspections. Always switch off the *EasyKit* using the earth switch and remove the charging plug.



The *EasyKit* should never be left unattended when the electrical supply plug is still in place.



Always keep the *EasyKit* in good working condition by carrying out regular safety inspections. Dangerous situations should be always be rectified immediately.



Activities with respect to assembly, installation, adjusting, maintenance and repairs should only be carried out by expert, qualified personnel.



When starting up again after maintenance or repairs, please check whether any tools or spare parts have been left behind either in or on the *EasyKit*.



Keep the *EasyKit* clean. Remove the build-up of dirt and plant remains regularly. Never clean the *EasyKit* using a water hose or steam cleaner.



In order to avoid the risks connected with the batteries, please read the safety instructions for batteries.

8.1 Maintenance instructions

Thanks to its simple, though robust design, the *EasyKit* requires little regular maintenance. In order to guarantee efficient and problem-free operation, the maintenance schedule below should be strictly observed. Repairs and maintenance activities should be recorded in the maintenance logbook - see appendix 1. The employer is also responsible for periodically checking tools and equipment according to the current Working Equipment Guidelines that cover this.

Maintenance - Checks	Tools	Day	Week	Month	Year
Cleaning	Brush	X			
Sufficiently charged battery	Users schedule	X	X		
Damage to operating components	Visual	X			
Damage to/visibility of pictograms & stickers	Visual	X			
Foot pedal + platform cleaning	Brush / damp cloth	X			
Cleaning control panel	Brush / damp cloth		X		
Check for leaks from battery and damaged cables	Visual		X		
Check for ingrained dirt or string around wheels and chains	Visual		X		
Charge batteries	Battery charger		X		
General mechanical damage	Visual		X		
Check battery fluid levels (1 cm fluid covering plates - see appendix 4)	Distilled water, gloves, screwdriver (+), goggles			X	
Check operation of tilt warning	Testing > 2 degrees			X	
grease swivel wheels, drive chain and bearings	Bearing grease, chain grease or other universal lubricants			X	
Check chain tension (see 8.5)	Ring key			X	
Maintenance carbon brushes on the motor and replace if less than 1 cm (see 8.4)	Visual & Air pressure				X
Check the height adjuster locks	visual	X			
Test the springs in the locks	visual	X			

Figure 4: Maintenance schedule

If the checks above indicate that there is a fault with the *EasyKit*, immediate contact should be made with the Berg Hortimotive dealer. Continuing to use the machine after identifying defects could lead to dangerous situations and is therefore forbidden!

8.2 Specialist maintenance

Maintenance and repairs to the items listed below may only be carried out by qualified specialists recognised by Berg Products BV:

- Repairs to the electrical components/wiring (excluding exchanging foot pedals and batteries).
- All activities to the drive unit (excluding cleaning, readjusting or replacing the chain or chain sprockets).
- For activities that can be carried out by the owner please consult <http://www.berghortimotive.com/service/bsa-film> for the BSA films.

8.3 Pipe rail system maintenance

The pipe rail system on which the *EasyKit* runs should be checked on a regular basis. The system should always satisfy the Horticulture Sector Guidelines for Pipe Rail Systems in greenhouses. It is prohibited to use the *EasyKit* on a pipe rail system that does not satisfy these guidelines.

Always ensure that the pipe rails are sufficiently supported at a maximum distance of 1.25 m for 51 pipes and at 1 metre for 45 pipes, and that the supports are not distorted and the pipes are properly secured (clamped). Moreover, the pipes on the concrete path should be secured

and must not be loose. The top side of the pipe should lie at least 15 cm on the concrete path. At the pipe ends (in front of the wall) there should be an end-stop welded on that is at least 5 cm high, check at the change of each season whether the stops are still functioning properly. The ground under the pipe rail system should be dry, flat and hard. Soft or damp spots should be repaired and surface indentations permanently repaired.

8.4 Carbon brush maintenance

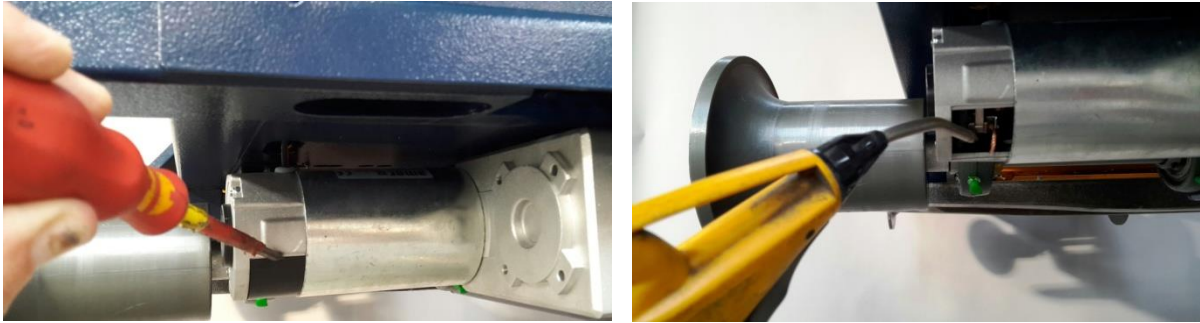


Figure 5a: Carbon brushes

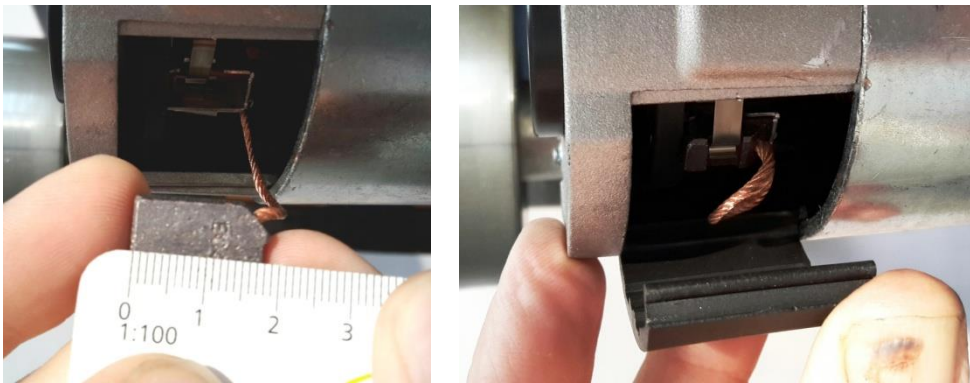


Figure 5b: Carbon brushes inspection

Please contact your dealer when the carbon brushes are shorter than 1 cm and require to be replaced.

8.5 Chain maintenance (<http://www.berghortimotive.com/service/bsa-film>)

1. Remove the electrical supply plug.
2. Unscrew the locking nut (illustration 6)
3. Tension the chain by rotating the adjuster bolt (illustration 7)
4. Lock the adjuster bolt by tightening the locking nut (illustration 6)
Make sure the chain play is around 1 cm.



Figure 6: Unscrewing / tightening locking nut



Figure 7: Tensioning chain

8.6 Battery maintenance (<http://www.berghortimotive.com/service/bsa-film>)

Avoid the battery fluid coming into contact with skin, wear safety goggles and gloves as battery acid is highly corrosive. Wash with soap and water if it comes into contact. If it comes into contact with the eyes, immediately rinse in running water for a period of at least five minutes and call for medical assistance. Always ensure there is sufficient soap and water in the vicinity and that assistance is within calling distance when people have to work near batteries. Avoid short circuits (sparks), and ensure that there is no electrical connection between the battery poles. The battery cover should be in good condition. Bare patches or dents could cause short circuits!

Explosive gas is released while batteries are being charged. Always stay well clear with sparks, naked flames or cigarettes. Ensure that the place where batteries are charged and/or stored is well ventilated. Ensure that no metal objects can fall on top of the batteries as this could cause short circuits or sparks which could lead to an explosion.

Remove all personal objects including rings, bracelets, neck chains and wrist watches when working within the vicinity of batteries. For example, a short circuit could melt a ring resulting in serious burn injuries.

See also appendix 4 for further information about batteries and maintenance.

8.7 Removing the battery cover

The *EasyKit* is fitted with a battery cover which can be removed via a single knob for the purposes of cleaning and maintaining the batteries and other components



8.8 Cleaning procedure



Always switch off the *EasyKit* before cleaning. Always switch off the *EasyKit* using the earth switch and remove the charging plug from it.



If the cleaning is to be carried out by other than the personnel operating the machine, e.g. the cleaning department or an external cleaning firm, it is important that they are given the correct instructions on how to clean the machine in safety.



For cleaning, you must always take into account the requirements that are given on the safety sheet for the battery (see appendix 4).

Regularly remove any remains of plants, leaves, etc, and brush off any sand and dust. Clean the *EasyKit* with a dry/damp cloth and soft brush. It is also possible to clean the *EasyKit* using compressed air, provided that it is dry. Never pour water over the *EasyKit* or clean it using a steam or high-pressure water cleaner which could lead to serious damage being caused to the electrical circuits in the equipment.



Prior to applying a cleaning agent, please check whether it is suitable to be used on the materials used in the construction of the *EasyKit*. In case of doubt, please contact the Berg Hortimotive dealer.

8.9 Repairs

Repairs may only be carried out under the direction of the Berg Hortimotive dealer during the guarantee period.

Repairs and maintenance activities should be recorded in the maintenance logbook - see appendix 1.

All components that are replaced should at least meet the specifications of the original parts.



Deviations from the above instructions could have serious consequences for the safety of the machine. In such cases Berg Hortimotive will accept no liability.

9. Problems, causes & solutions

no.	problem	Cause	solution
1	EasyKit does not move	No voltage	Supply plug in contact
			Unlock emergency stop
			break in wire
		No drive	Chain broken
			Motor gearwheel is loose
			Drive roller is jammed
			Controls do not react
		Controls do not react	Direction of travel switch defective
			Reset using potentiometer
			Foot switch defective
2	Height adjustor defective	Status LED flashing	Potentiometer defective
			Consult your dealer
		Locks not operating	Damaged shaft
			Damaged hole in sleeve
		Does not slide up and down	Sleeve jammed in plate
	Damaged sleeve		

Figure 8: Fault list

10. Specifications

Dimensions[mm]:	Type:	standard
Centre-to-centre		420-800
Length		1740
Width		c-to-c + 220
Chassis step-up height from concrete path		210
Step-up height on platform in lowest position		400
Length of work platform		950
Width of work platform		420
Maximum work platform height		2800
Maximum Load capacity [kg]		100
Maximum lateral pressure [N]		110
Weight [kg] (c-to-c 550)		155
Motor power Moving [kW]		0.15
Maximum speed on rails [m/min]		40
Voltage [Volt DC]		24
Battery capacity [Ah]		2x60
Noise level [dB]		<70
Wheelbase [mm]		1542

Physical operating conditions

Ambient temperature,
 Transport & Storage : 5 to +40 degrees Celsius
 Working : 5 to +40 degrees Celsius
 Rel Humidity (RH) : 0% to 90%, not condensation
 Lighting : Normal vicinity lighting.

The machine is not designed to be used outdoors.
 The machine is not suitable for operating in explosive atmospheres.

11. DECLARATION OF CONFORMITY

Berg Hortimotive, Burg. Crezeelaan 42a, 2678 KZ De Lier, the Netherlands, +31 (0) 174-517 700

Customer:.....
Order number:.....
Date of order:.....
Date of delivery:.....

We, Berg Hortimotive,
hereby declare under its own responsibility, that the product:

WO no:
Product description: *EasyKit*

to which this declaration relates, is in accordance with the standard(s) or other normative documentation:

EN- ISO 12100

(Safety of Machines - Basic principles of design - Risk assessment and risk reduction)

EN- ISO 13850

(Safety of Machines - Emergency stop - Design principles)

EN- ISO 14122- 2

(Safety of Machines - Permanent access facilities to machines - Part 2: Working platforms & footpaths)

EN- ISO 14122- 3

(Safety of Machines - Permanent access facilities to machines - Part 3: Stairs, stepladders and banisters)

EN- ISO 14738

(Safety of Machines – Anthropometric requirements for the design of work spaces on machines)

EN 953

(Safety of Machines - Protection - General requirements for the design and construction of fixed and moving protective covers)

EN 60204- 1

(Safety of Machines - Electrical fittings on machines - Part 1: General requirements)

EN 61310- 1

(Safety of Machines - Signalling, markings and control - Part 1: Requirements for visible, audible and perceptible signals)

EN 61310- 2

(Safety of Machines - Signalling, markings and control - Part 2: Requirements for markings)

EN 61310- 3

(Safety of Machines - Signalling, markings and control - Part 3: Requirements for the position and operation of control elements)

NEN 5509

(User handbook - Content, structure, formulation and presentation)

in accordance with the definitions in the directives:

2006/ 42/ EG	(Machinery Directive)
2004/ 108/ EG	(Directive EMC)
2006/ 95/ EG	(Low voltage directive)

De Lier, the Netherlands.

Date

Signature of management or other authorized representative.

Leo Persoon

12. Technical appendices



QUICK OPERATION GUIDE EASYKIT MOVE



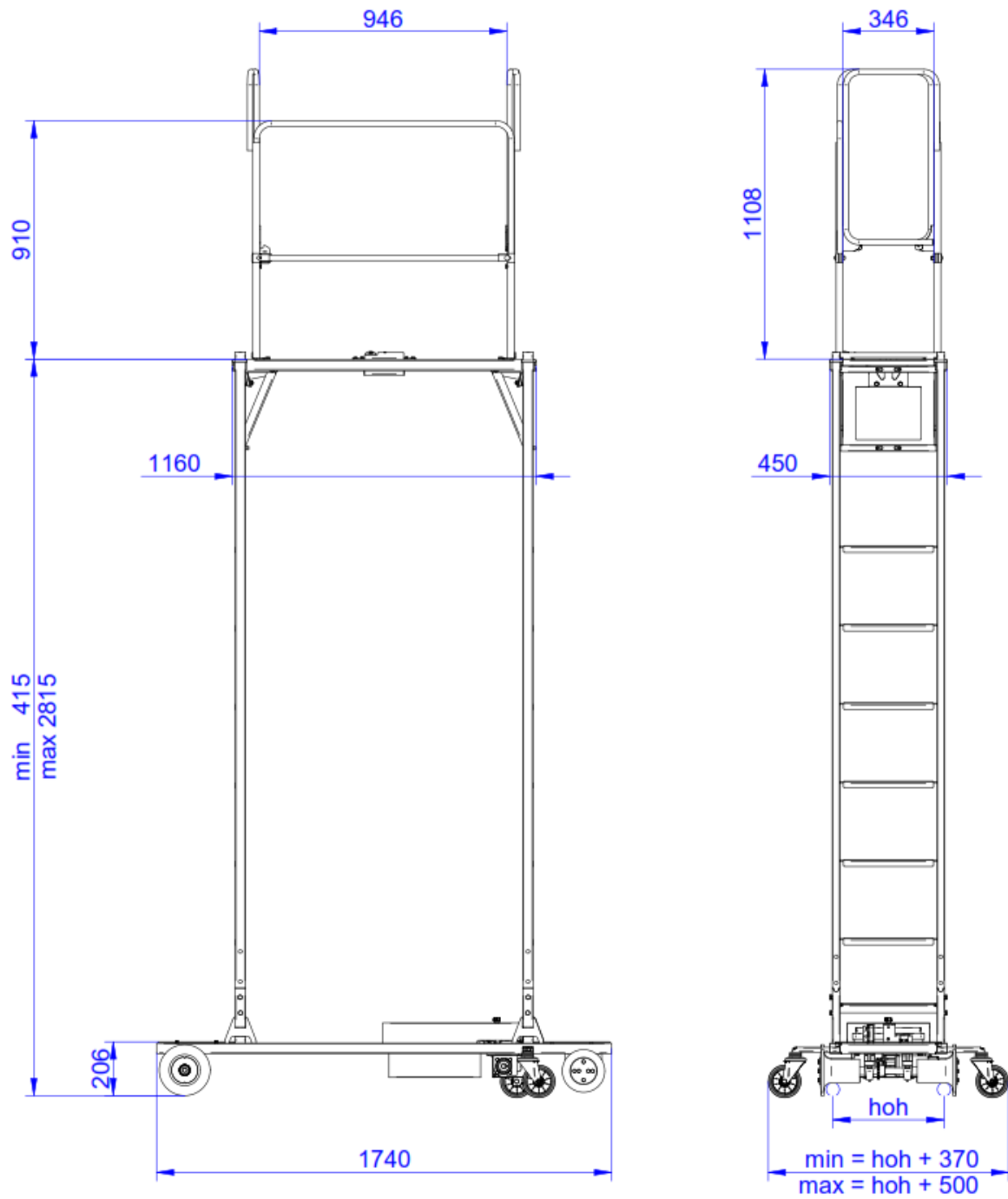
#1	#2	#3	#4	#5
 <p>USE ONLY IN EMERGENCY</p>	 <p>IF USED EMERGENCY BUTTON SET SPEED TO 0</p>	 <p>SET SPEED</p>	 <p>SET DIRECTION</p>	 <p>PRESS FOOTSWITCH TO MOVE</p>
<u>Emergency</u>		<u>Normal use</u>		
Short break= do <u>not</u> use <u>emergency</u> button				



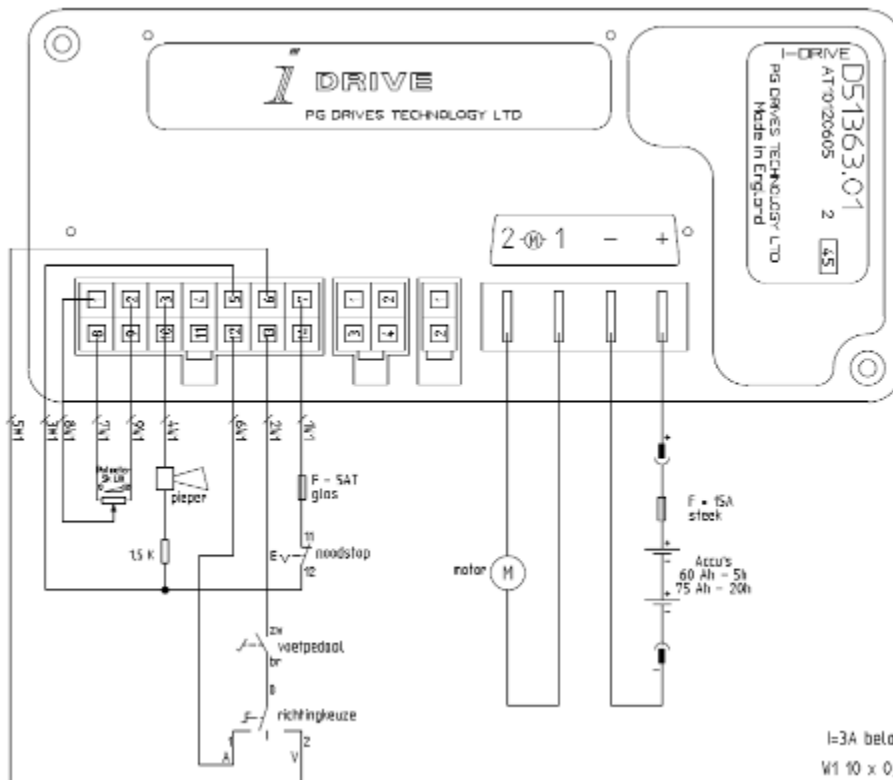
Appendix 1: Maintenance logbook

Date	Description of repair/maintenance Type no: Serial no:	Company name/ engineer

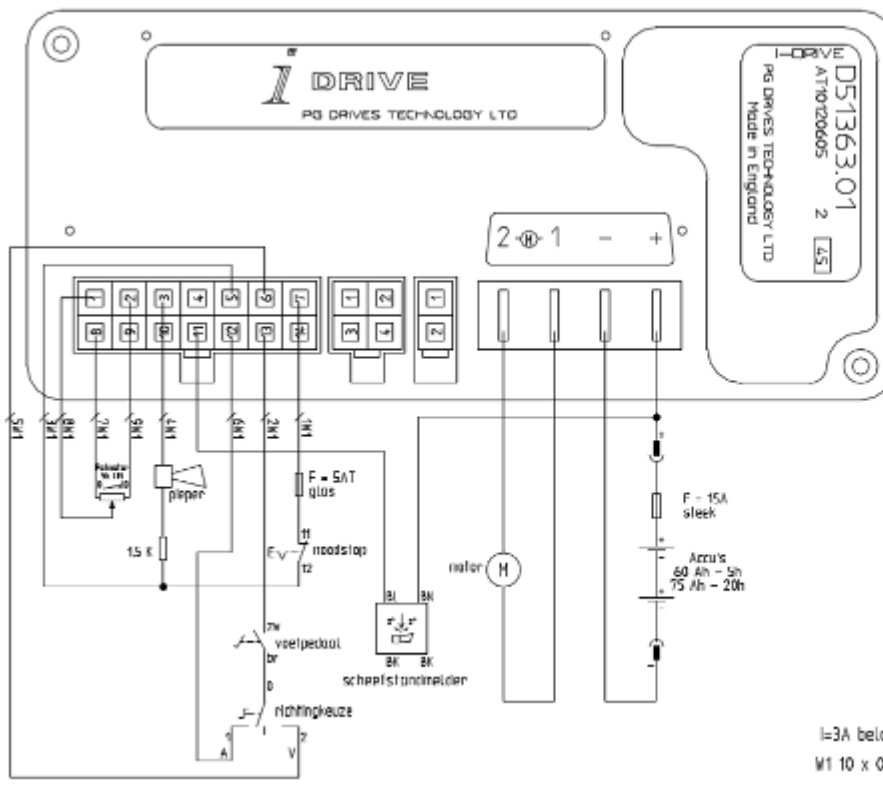
Appendix 2: Technical drawings



Appendix 3: Electrical diagrams



Version: EasyKit MRT 2011 without tilt warning



Version: EasyKit MRT 2011 with tilt warning

Appendix 4: Battery safety sheet

Battery recommendations

The following chapter provides recommendations for efficient usage, safety and maintenance.

Efficient use of the pipe rail wagon and the batteries

The following recommendations are aimed at facilitating the efficient use of the pipe rail wagon and to improve the life-cycle of the batteries.

Basic principles:

- The battery goes flat sooner when running at higher speeds.
- High levels of starting and stopping also increase electrical energy consumption.
- Through using the pipe rail wagon, the remaining capacity and battery voltage gradually reduce, while simultaneously the current consumption increases. This results in increasing heat generation from the motor and speed regulator as the batteries gradually lose their charge.
- Rolls of string and rusty chains (poor maintenance) result in higher energy consumption. (for instructions, see website: <http://www.berghortimotive.com/service/bsa-film>)
- Allowing batteries to go completely flat also reduces the life-span.
- Charging when required and good maintenance help to increase the life-cycle of the batteries.
- Charging when required also lowers the generation of heat in the motor and speed regulator, as well as the battery charger.

Efficient usage:

- Endeavour to set the level of speed as closely as possible to the work tempo (potentiometer).
- By following the above recommendations, the productivity of the workers will increase.

Regardless of the level of usage, charge the batteries at least once weekly using a suitable charger! This will ensure that the batteries are not totally flat when you recharge them!

Safe use of batteries

Below are recommendations for usage and maintenance.

WARNING!

- Explosive gas is created while the batteries are being charged, therefore no fires, naked flames or smoking are permitted!
- Charging should only take place in well ventilated spaces!
- The battery fluid levels must be checked at least once a month! The battery fluid must be at least 1 cm above the level of the plates
- Top up batteries with distilled water (demineralised) only - always wear gloves!



Discharging the battery to less than 20% of its capacity has a negative effect on both the battery and the charger. Charge the batteries at least once every week which helps increase the life-cycle of the batteries, the motor and the speed regulator! Always recharge a flat battery immediately, as this increases the life-cycle substantially. It is important to check the specific gravity of the battery acid at least once a week, though it should certainly be done each month using a hydrometer (table below).

The specific gravity of a fully charged battery should be 1280 g/l:

100% volts	sg 1280	g/l = 12.7
80%	1240	12.5
60%	1210	12.3
40%	1170	12.1
20%	1140	11.9

Before charging, disconnect the *pipe rail wagon* at the main switch. When charging batteries, always connect them to the charger before switching it on. After the batteries have been charged, switch off the charger first, then disconnect the batteries.

Overcharging can cause damage to the batteries through boiling the battery acid dry.

It is advisable to use a modern battery charger with an automatic cut-off - these are available from Berg Hortimotive. **Use only a charger that is suitable for the appropriate batteries! (see charger instructions)**

The charging process should never be interrupted - charging should be completed - see the charge indicator.

When charging batteries, do not make repairs to the *pipe rail wagon* nor carry out cleaning or any other activities.

Turn off everything that consumes electricity before removing the batteries - this reduces the possibility of creating sparks.

Always disconnect the earth cable (-) first when removing the batteries. When reinstalling the batteries, connect the earth cable (black) last.

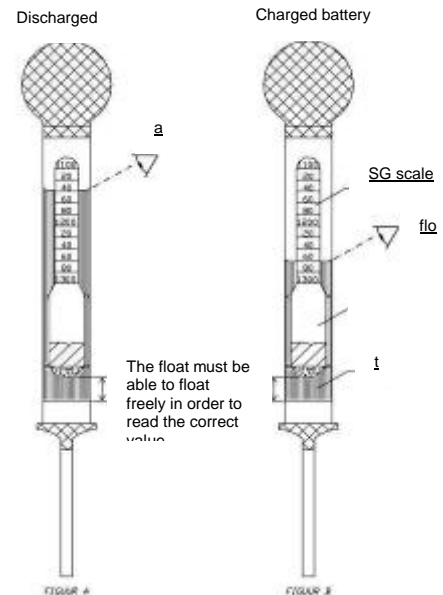
WARNING!

Always connect the positive terminal (+ = red) to the positive pole and the negative terminal (- = black) to the negative pole on the battery.

Battery fluid is corrosive - avoid contact with clothing, skin and eyes.

Wash battery acid splashes on clothing or skin immediately with soap and water - thereafter thoroughly rinse in running water.

If acid splashes into the eyes, rinse them for at least 5 minutes in clean, running water and call for medical assistance immediately!



Note

Check the number of batteries you can connect up into a single group. This can be calculated by multiplying the amperage by the voltage. e.g.: $16A * 230V = 3620W$

Now check the output of the battery charger. Divide this total amount by the output of the battery charger. e.g.: $3620/700 = 5.17$. In this case 5 batteries can be connected.

Also check whether the voltage at the charging location corresponds with the required voltage stated on the battery charger. Long cables can lead to voltage drop. If this is the case please consult your dealer.

Check whether it is a suitable charger for your machine. The battery specifications suitable for the charger are stated on the charger itself!

Only use chargers suitable for charging 24V-110Ah/5h lead/acid batteries! (see charger instructions) for Pipe rail wagons 150 / 170 / 185 Benomic B-air 1400 / B-air 2000

Only use chargers suitable for charging 24V-60Ah/5h lead/acid batteries! (see charger instructions) EasyKit

Substance Batteries wet, filled with acid, electric storage
UN Number 27
HIN 80
ADR Label 8
ADR Class 8
Packing group -

Emergency Response Information

CORROSIVE SUBSTANCE

1. Characteristics

- Corrosive, causing damage to skin, eyes and air passages
- Not flammable

2. Hazards

- Heating of container(s) will cause pressure rise with risk of bursting and subsequent explosion (BLEVE).
- Gives off corrosive and irritant fumes, also when burning
- May attack metals and produce hydrogen gas which may form explosive mixture with air
- The vapour may be invisible and is heavier than air. It spreads along the ground and may enter sewers and basements

3. Personal protection

- Chemical protection suit.
- Respiratory mask equipped with ABEKP1 filter

4. Intervention actions

4.1 General

- Keep upwind. Put on protective equipment before entering danger area.

4.2 Spillage

- Stop leaks if possible.
- Dilute spillage with water spray as far as necessary to reduce hazard. Contain run off by any means available.
- If substance has entered a water course or sewer, inform the responsible authority.
- Ventilate sewers and basements where there is no risk to personnel or public

4.3 Fire (involving the substance)

- Keep container(s) cool with water
- Extinguish with water fog (spray)
- Do not use water jet to extinguish
- Use water spray to knock down fire fumes if possible
- Avoid unnecessary run-off of extinguishing media which may cause pollution.



5. First aid

- If substance has got into eyes, wash out with water for at least 15 minutes and seek immediate medical attention.
- Remove contaminated clothing immediately and drench affected skin with plenty of water.
- Persons who have been in contact with the substance or have inhaled fumes should get immediate medical attention. Pass on all available product information.
- Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus

6. Essential precautions for product recovery

- Use acid resistant equipment
- Recover spilled product in vented container fitted with absorption filter

7. Precautions after intervention

7.1 Undressing

- Drench contaminated suit and breathing apparatus with water before removing facemask and suit.
- Use chemical protection suit and self-contained breathing apparatus while undressing contaminated co-workers or handling contaminated equipment.

7.2 Equipment clean up

- Drench with water before transporting from incident.



INSTRUCTIONS TRACTIONBLOCKS



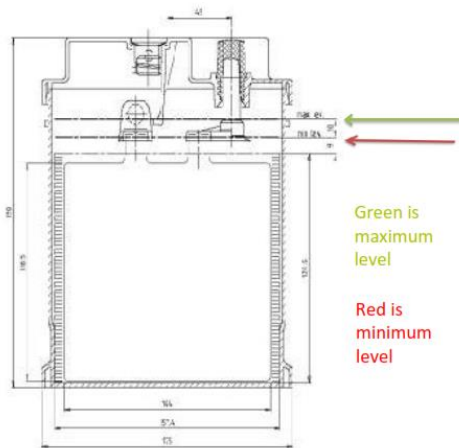
Daily maintenance EW75:

- Only discharge the battery to 80% maximum (Electrolyte level 1130 SG)
- Connect the battery to the charger, switch on charger and charging should start automatically
- Do not disconnect the battery until charge cycle has finished
- When charge cycle has completed make sure charger is switched off before disconnecting the DC plug

Weekly maintenance EW75:

- Check the level of the Electrolyte on the battery
Only top up battery with demineralised water
- Only top up after charge cycle has completed
- The battery should only need topping up every 2 weeks
- If required more frequently please contact the manufacturer
- Check for signs of corrosion on cables or bolts clean as required
- The battery tops should be kept clean and dry
No smoking or naked flames to be in the area of charging

Only top up the battery after the charging cycle has been completed to avoid electrolyte spilling from the battery!
No smoking or naked flames to be in the area of charging.



Always follow the manufacturer's instructions



No smoking or naked flames



Electrical Hazard



Danger risk of explosion



Always wear the correct PPE



Avoid contact of skin and eyes



Room must be well ventilated



All disused batteries must be recycled

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Appendix 5: Cleaning the powder coating

The importance of cleaning and maintenance:

- It retains the appearance and image of the product over a longer period.
- It extends the life-span.
- It prevents corrosion.
- It helps prevent the spread of plant diseases.
- It stimulates employees to operate the machines with care.

Removing contamination periodically prevents any chemical substances that may be present from affecting the powder coating. The protective layers are vulnerable to acids, salts and corrosive substances which cause premature aging. Moreover, thick layers of dirt and contamination absorb more moisture which increases the effects of corrosion on the protective layers.

The cleaning frequency depends on the following factors:

- The level of contamination depends on what is being grown.
- Type of product, or usage between the crops or, e.g. usage only on concrete tracks.
- Exposure to chemical fluids (spraying equipment).
- Exposure to chemical vapours or mists (treating the air space in the greenhouses).
- Exposure to sunlight and UV rays.
- Humidity in the air and condensation.

The above results in a load factor that depends on the type of usage, and where applicable, the following cleaning schedule should be followed.

When to clean:

- | | |
|--|------------------------------|
| • Plant and product residues. | daily |
| • Earth and sand | 2x weekly |
| • Glass, string, plastic, elastic, clips, wire hooks, etc. | 2x weekly |
| • Exposure to chemicals | immediately after use |
| • Dullness or contamination on the top layer | periodically after detection |

How to clean:

- Remove dirt or contamination on the top layer using a soft brush or cloth, or a compressed air line (<6 bar).
- Chemical contamination should be removed using a coarse sponge or soft cloth drenched in tap water.
- Clean a dull or contaminated top layer using a neutral cleaning agent with a pH value between 5 and 8 (check the label on the packaging) and a sponge or soft cloth.
- **Tip**, when a cleaning agent is used for the first time it is recommended to initially test the agent on a small section of the top layer before continuing.

What you must not do:



- Never clean the powder coating using an abrasive or burnishing cleaning agent.
- Never use cleaning equipment with an abrasive surface (steel wool, pot scourer, etc).
- Pressing down, polishing or scrubbing, etc, is not permitted.
- Never use organic cleaning solutions for cleaning or maintaining the powder coating.
- Pouring over water, using a water hose or high pressure cleaner can cause damage.

After cleaning:

- Ensure that the cleaned surfaces are properly dry and temporarily remove overlapping protective covers and screens.
- All pivots and hinges, etc, that have been in contact with cleaning agents should be lubricated according to the recommendations given in the maintenance schedule in the user manual.
- Treat any damaged areas on the powder coating layer with lacquer or paint.

Please note:

The above are only **recommendations** and therefore responsibility for the proper cleaning remains with the person carrying it out. Please contact the manufacturer if you have any queries regarding the appropriate cleaning products to be used.