



DHOLLANDIA

PASSENGER LIFTS

USER'S MANUAL MAINTENANCE INSTRUCTIONS INSPECTION REPORTS



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GREAT-BRITAIN

This manual needs to be kept in the vehicle cabine at all times.
All mainenance and repair works must be recorded.

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* EEC - declaration of conformity

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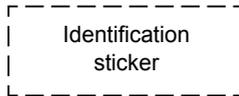
The fitting directives, the safety stickers and a detailed spare part list are available on request.

In this manual you will find the data of the standard executions. Diagrams for special executions are supplied with the tail lifts and are also available on request.

EEC - DECLARATION OF CONFORMITY

Corresponding Directive 2006/42/EC, annex 2, A)

Identification of the tail lift:



Hereby, we declare that the DHOLLANDIA tail lift identified above, based on its design and its construction, is corresponding to the relevant fundamental safety and health demands of the EEC-directives and is destined to be mounted on a vehicle.

This declaration of conformity is only valid, and the use of the tail lift is only allowed, in case the following conditions are satisfied:

- The tail lift is fitted to the vehicle and this fitting complies with the conditions of the EEC-directives, with the fitting instructions of Dhollandia and the body building prescriptions of the manufacturer of the vehicle.
- After the fitting of the lift, the risk analysis and put-into-service test have been carried out with positive result and the fitting declaration (see page C5) has been filled out correctly.

This declaration of conformity and responsibility of the manufacturer is no longer valid if any modification to the tail lift has been made without the prior written permission of the manufacturer, or if the maintenance instructions have been neglected and/or the periodical inspections have not been executed.

EEC applicable directives: 2006/42/EC

Signature + stamp manufacturer

Belsele, / /

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PART A

**USER
MANUAL**

1) GENERAL INTRODUCTION

Dhollandia lifting equipment is developed with special care the user's safety and operational reliability, is manufactured with state of the art technology, and comply with the **European CE Safety regulations**.

The purpose of this user's manual is to instruct you how to use your Dhollandia lift in a correct and safe way, and to guide you through the required maintenance procedures, so that your safety, the safety of your passengers, and the lift's reliability can be guaranteed over a period of many years.

This manual must be kept in the vehicle at all times, and serves as a guide for the use of the passenger lift, its maintenance, and trouble shooting in case when malfunctions should occur. **For your own safety, for the safety of your passenger, and for the safety of accidental bystanders, it is absolutely necessary that the tail lift is only operated by skilled users who know and understand the contents of this manual.**

Your DHOLLANDIA passenger lift has been designed and manufactured with the greatest care, so to guarantee you a safe and foolproof operation. **Therefore, all modifications to the lift construction and its safety devices are strictly forbidden.** If modifications to the lift should be required any way, written approval of these should be applied for at the technical department of Dhollandia. Any modification to the tail lift without a preceding written permission of the manufacturer cannot be allowed and will invalidate the conformity with the EEC-directives and the relating responsibility and liability of the manufacturer. Likewise, the warranty on the passenger lift, and the product liability of the manufacturer are annihilated when repairs are executed using foreign components, this is non-original Dhollandia spare parts.

The illustrations and data printed in this manual are not contractual and cannot lead to any legal action against DHOLLANDIA, whatever the nature or the consequences may be. DHOLLANDIA's policy is one of continuous product development and Dhollandia reserves the right to change product and spare parts specifications without prior notice. Hence, the basic execution of the passenger lift is continuously adapted to new applications and ever changing vehicle characteristics. As a result, lifts might be delivered in a deviating execution, which Dhollandia could not necessarily foresee or anticipate at the time of printing.

Finally, you should take a special interest in Section C. This Section summarizes the legal demands concerning the safety and operation checks prescribed by the EEC-Machine directive. It is for example a requirement that any repair or maintenance action should be inscribed in the log-book on page C15 and following.

2) DESCRIPTION

The DHOLLANDIA tail lifts are developed and produced with state of the art technology, and comply with **European CE Safety Regulations**.

The lift frames are manufactured of high quality steel, the platform is made of meshed steel or aluminium. All platform executions are equipped with a anti-slip surface. The articulation points are provided with low maintenance bearings that can be changed when worn out. All pins are galvanised and equipped with grease nipples.

On the DH-P20, the DH-CH, the DH-RB and the DH-SC, the lifting construction consists of 2 lifting arms and corresponding lift cylinders, in order to guarantee maximum platform stability and optimum safety for the passengers.

The DH-P20, DH-CH and DH-SC are equipped with flat platforms that fit tight to the ground, so that wheelchairs can roll on and roll off with maximum comfort. The DH-RB lift for touring busses is equipped with a conical platform and automatic tilt of the platform at ground level. This means that the point of the conical platform automatically inclines to the ground, when the platform touches the ground, and the buttons for "lowering" are maintained pushed-in.

Every lift is controlled by a electro-hydraulic power pack of 12 or 24 V, that is connected to the electrical battery systems of the vehicle during the fitting process, conform to the ruling legal prescriptions and the instructions of the vehicle manufacturer.

A well-functioning electrical current supply is of the utmost importance for a flawless operation of the tail lift. Therefore the specification of the batteries, the section of the battery cable and the capacity of the alternator should be adapted to the electrical current needs of the tail lift.

Insufficient current supply has a negative influence on the endurance of certain switch elements like the starter solenoid, the electric motor and the contacts. The electric motor, for instance, withdraws a fairly constant current I (in Amp.) from the batteries, irrespective of the condition of these batteries (well, less or badly charged). According as the batteries are less charged, the tension U (in Volt) of the electromotor in operation decreases, so that the total capacity at the disposal of the electric motor in the power pack decreases. This will cause the motor to run less effectively, the cooling to malfunction, the internal temperature to rise and in extreme circumstances the electric motor to burn.

Most of the vehicles are merely provided with power supplies that only cover the primary current needs of the vehicle (starting motor & electrical/electronic standard equipment of the cabine) and therefore need to be adapted. For the calculation of the battery capacity you should also take into account potential supplementary electrical equipment, like refrigeration and heating systems, and the expected duration time for charging and use of the battery. The values set hereafter are minimal; in case of lower electrical supplies, problems are inevitable.

At each fitting, a main current fuse should be installed onto the feeding cable. Make sure you place this main fuse as close as possible to the battery (see the fitting instructions).

Attention: the cable from the battery to the fuse is NOT secured!
The specific gravity of the acid of the batteries needs to be 1.23 minimum.



Remark: the passenger lifts DH-P20, DH-SC and DH-CH are also available in a "business" execution for the commercial transport of goods (ref. DH-P21, DH-SC and DH-C). The standard execution of these commercial lifts may differ from the passenger lifts on a number of points, as for instance the different choice for the platform surface.

Hence, following items are not standard on the commercial lifts: emergency handpump, safety rails on the side of the platform, and automatic roll stops.

2.1 Description type DH-P20

The DH-P20 is a fully automatic linear passenger lift with 350 kg lifting capacity, and suitable for mounting in front of the rear doors on a wide range of vehicles (minibusses, ambulances, light commercial vehicles such as vans,...)

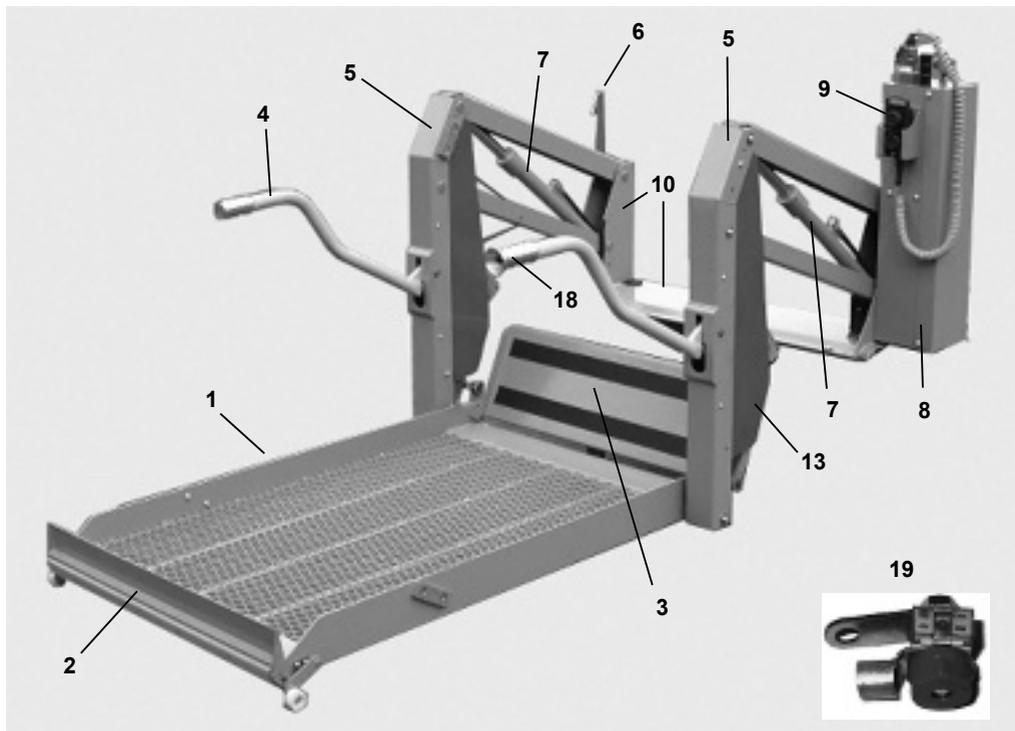
The standard execution of the DH-P20 features a platform in meshed steel, that provides the driver of the vehicle with sufficient view to the rear, that offers excellent grip, and evacuated all dirt, rain,... immediately.

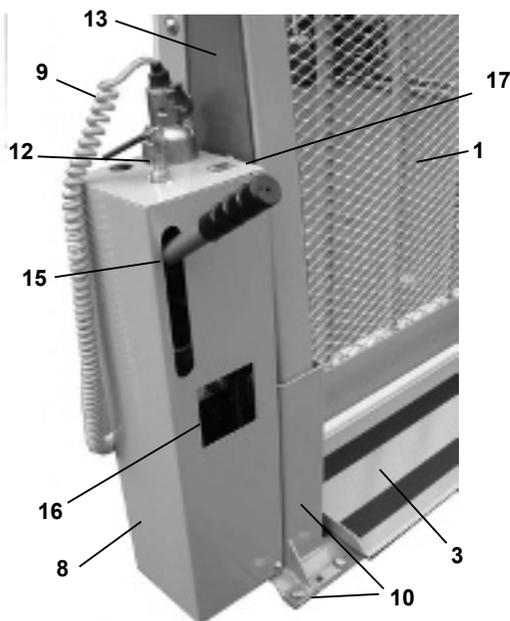
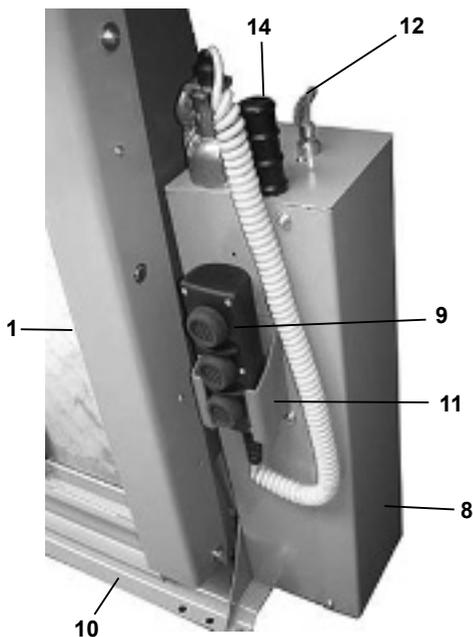
The platform is always equipped with an automatic roll-stop flap at the point, and an automatic bridge plate to the loading floor of the carrying vehicle. This automatic bridge plate can be mounted either to the rear platform edge itself, or to the floor plate of the lift frame (this is the loading floor of the vehicle).

The DH-P20 has safety rails on both sides of the platform, which are deployed automatically when the platform is opened, and automatically restored when the platform is closed. The right hand side safety rail incorporates an ergonomic toggle switch as secondary platform controls.

The electric circuit consists of a main battery switch that allows to switch on/off the main power to the electric motor of the power pack; an easy-to-use 3-button remote control with spiral cables that allows to execute all lift functions (open - lower - lift - close); and an ergonomic platform control on behalf of the passengers themselves, incorporated in one of the safety rails of the platform. The latter platform control only allows to execute the lift - and lower functions, and only when the platform stands horizontal, not when the platform is inclined (or closed) upwards.

For an easy recognition of the principal components of this lift, the schemes below give an overview of this passenger lift.





- 1 platform with transparent and anti-slip surface in meshed steel
- 2 automatic roll-stop flap at the platform point
- 3 automatic bridge plate to the loading floor of the vehicle
- 4 safety rails left and right on the platform, automatically unfolding when opening the lift
- 5 lift arms
- 6 mechanical lock for storing the platform in the driving position
- 7 hydraulic lift cylinder
- 8 electro-hydraulic power pack 12V of 24V
- 9 remote control with spiral cable for the functions open / lower / lift / close
- 10 frame of the passenger lift
- 11 holder for the remote control with spiral cable
- 12 key-operated battery switch to switch on/off the main battery power
- 13 hand-protection on the lift arms
- 14 lever for the handpump, stored away
- 15 emergency handpump in use
- 16 access lid for (1) the emergency descent operation, and (2) the pressure relief valve
- 17 15A fuse for the electric lift controls
- 18 ergonomic toggle switch mounted on right safety rail for the functions lift / lower, only works when the platform stands in the horizontal position
- 19 main fuse on the vehicle battery

2.2 Description type DH-CH

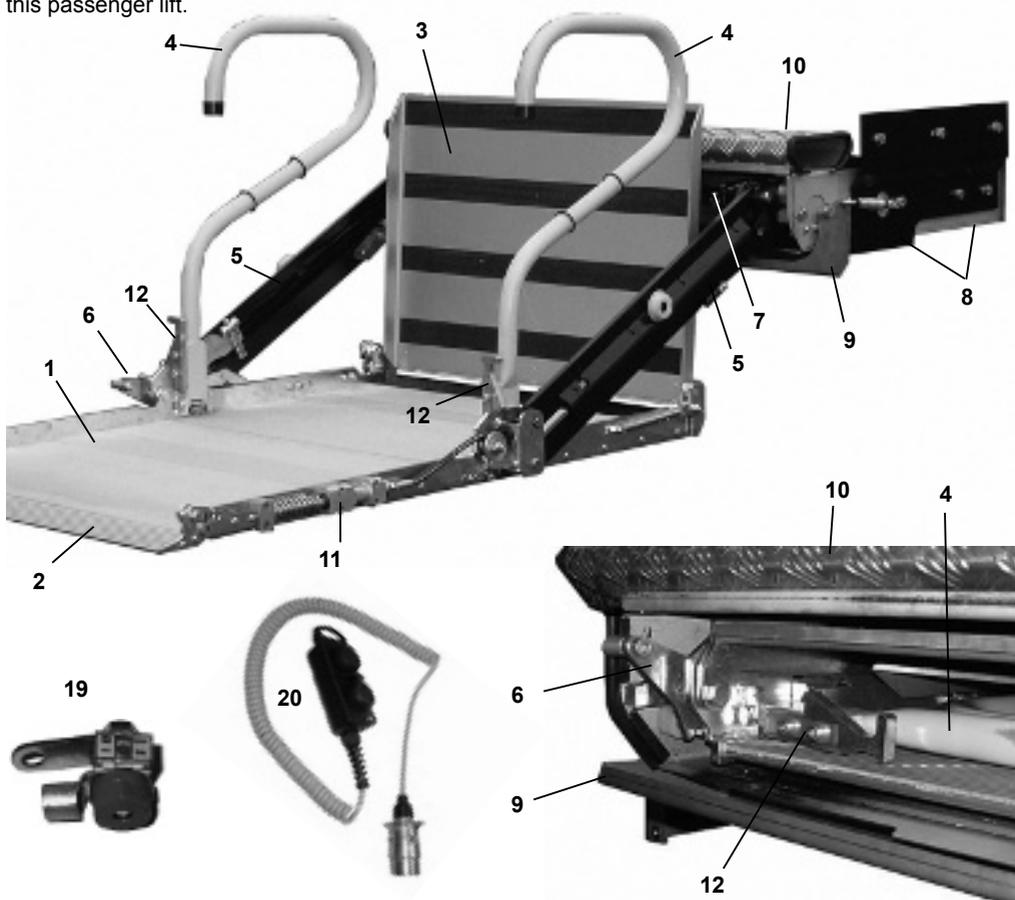
The DH-CH is a compact slider lift with 300 kg lift capacity, specially designed for mounting on a wide range of minibusses and light vans.

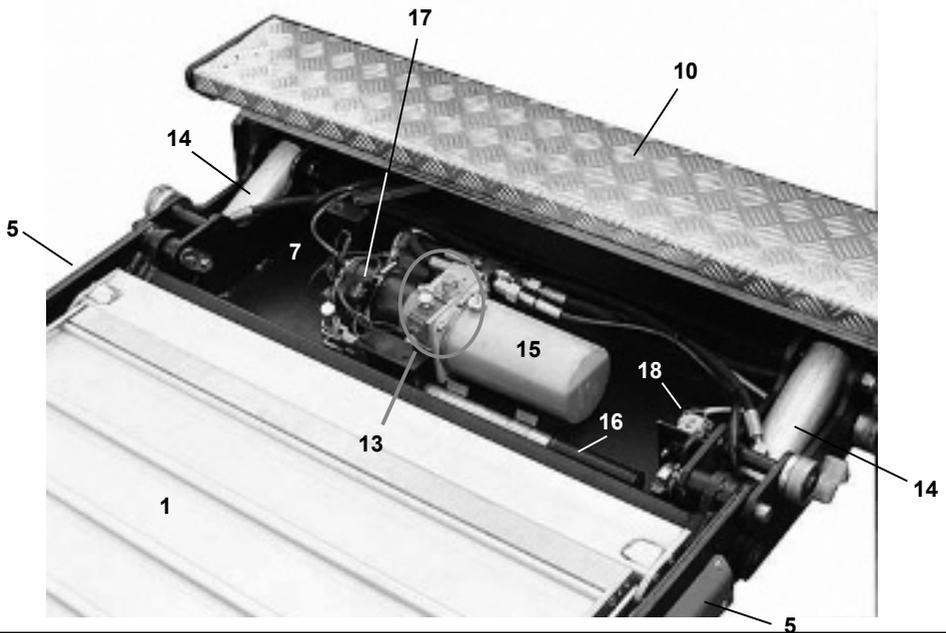
During transit, the platform is stored away in a cassette box under the loading floor of the vehicle, so that the interior of the loading space can be used at its very maximum. The flat platform is made of aluminium with an anti-slip surface, and is equipped with side safety gates on behalf of the wheelchair passengers. These safety gates are unfolded and restored manually, but when unfolded, they lock automatically in the vertical position.

Hence, the platform is equipped with a bridge plate towards to loading floor of the vehicle, which moves automatically over the rear frame of the vehicle, once it has been manually deployed.

The electric circuit consists of a battery switch to switch on/off the main battery power to the power pack of the lift (to be mounted in the vehicle cabin); and an easy-to-use 2-button wander lead with spiral cable that allows to execute all lift functions (lift - lower). The sliding mechanism incorporates a safety switch, that disables the lift function as long as the lift is not fully pulled out in working position. Thus, the lift is protected against abuse or false manoeuvres, when somebody would try to lift the platform when still fully or partially stored in the cassette.

For an easy recognition of the principal components of this lift, the schemes below give an overview of this passenger lift.





- 1 platform with anti-slip surface in aluminium
- 2 automatic roll-stop flap at the platform point
- 3 automatic bridge plate towards the loading floor of the vehicle
- 4 side safety gates, to be unfolded and restored manually
- 5 lift arm
- 6 pull handle plus automatic mechanical lock to secure the platform in the driving position
- 7 frame of the passenger lift
- 8 surrounding cassette box with mounting plates
- 9 protective lid
- 10 entree step
- 11 hydraulic cylinder operating the automatic roll-stop protection flap
- 12 mechanical lock for securing the safety gates in the vertical position
- 13 descent valve with manual emergency operation and pressure relief valve
- 14 hydraulic lift cylinders
- 15 electro-hydraulic power pack 12 or 24 V
- 16 operating handle for the emergency handpump, stored away
- 17 15A fuse securing the control units
- 18 electric safety switch against falls manoeuvres, on/off switch for detection of the lift frame in its working position
- 19 main fuse securing the battery cable to the vehicle batteries
- 20 wander lead with spiral cable for the functions lift - lower

2.3 Description type DH-RB

The tuck-away lift DH-RB is specially designed for touring busses, to aid wheelchair passengers to board and unboard the bus in maximum safety and comfort, or to load and unload wheelchairs or other goods to the alley inside the bus.

The DH-RB is equipped with a conical platform with anti-slip surface made of aluminium, and **automatic tilting at groundlevel**.

Automatic tilting at groundlevel signifies:

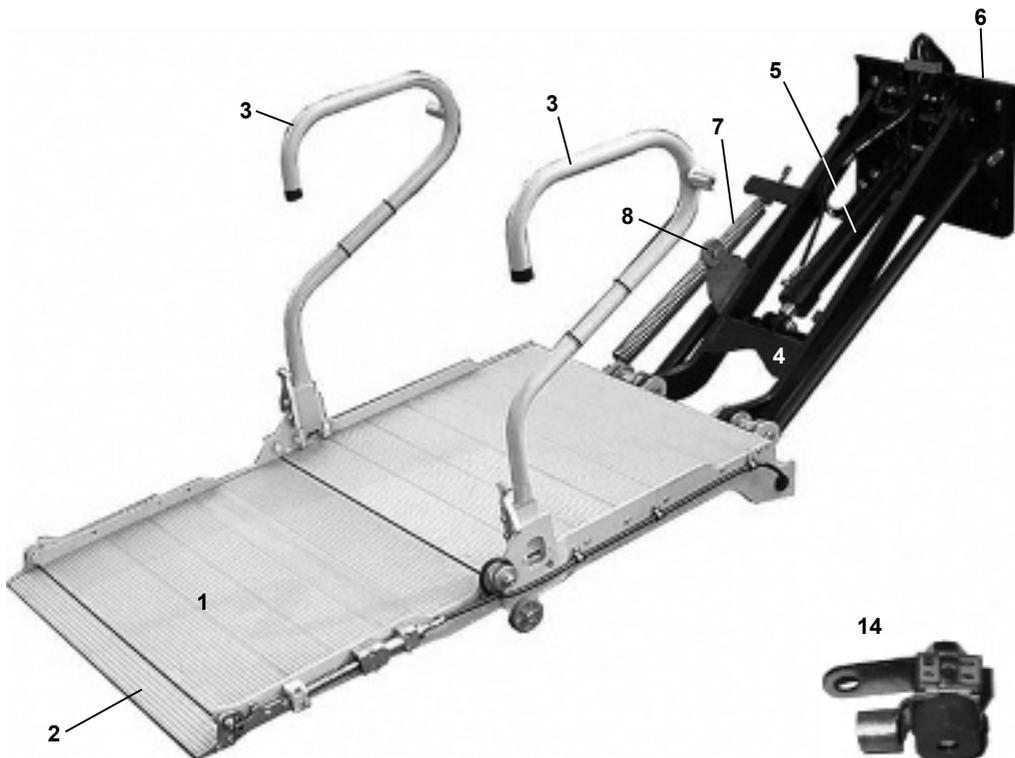
During the "lowering" movement, the point of the platform will automatically tilt to the ground, when the platform touches the ground, and the electric controls for "lowering" are maintained pushed in.

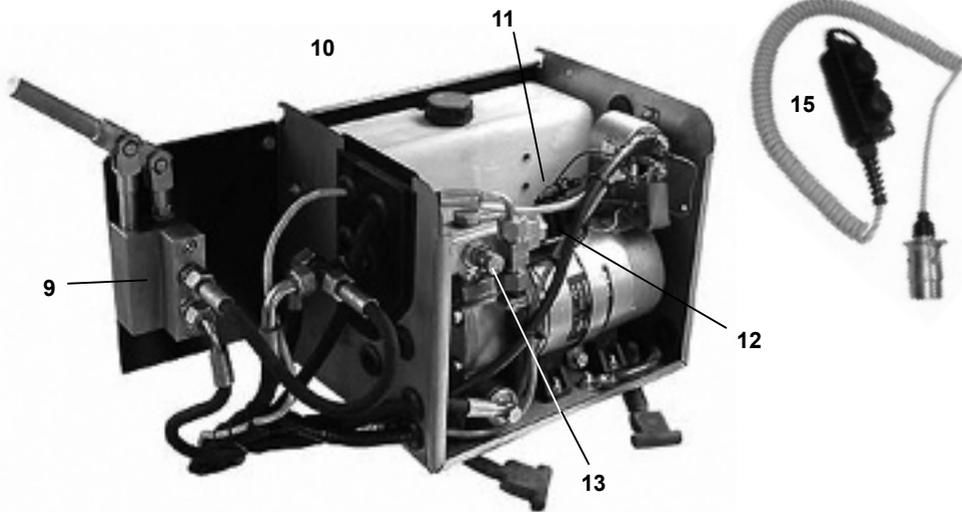
When starting the "lifting" movement off the ground, the platform will first tilt up from the inclined ground position to a preset horizontal position, and then the horizontal position will be lifted to the loading floor of the vehicle.

Hence, the platform is equipped with an automatic roll-stop flap at the platform point, and with safety gates on the left and right hand side of the platform. These safety gates are unfolded manually, and restored manually after use, but they lock automatically in the vertical working position.

The electric circuit consists of a battery switch to switch on/off the main battery power to the power pack of the lift (to be mounted in the vehicle cabin or in the vicinity of the lift); and an easy-to-use 2-button wander lead with spiral cable that allows to execute all lift functions (lift - lower - open - close).

For an easy recognition of the principal components of this lift, the schemes below give an overview of this passenger lift.





- 1 conical platform made of aluminium, with anti-slip surface
- 2 automatic roll-stop flap at the point of the platform
- 3 safety rail left and right on the platform, to be unfolded and restored manually
- 4 lift arm
- 5 central lift cylinder in between the 2 lift arms
- 6 frame of the passenger lift
- 7 torsion spring to assist the platform opening and closing
- 8 jockey-wheel assembly for guiding the opening and closing movement
- 9 emergency hand pump
- 10 electro-hydraulic power pack 12 or 24 V
- 11 15A fuse securing the control units
- 12 descent valve with manual emergency operation
- 13 logical valve with pressure relief valve
- 14 main current fuse securing the battery cable to the battery of the vehicle
- 15 remote control with spiral cable for the functions lifting / lowering

2.4 Description type DH-SC

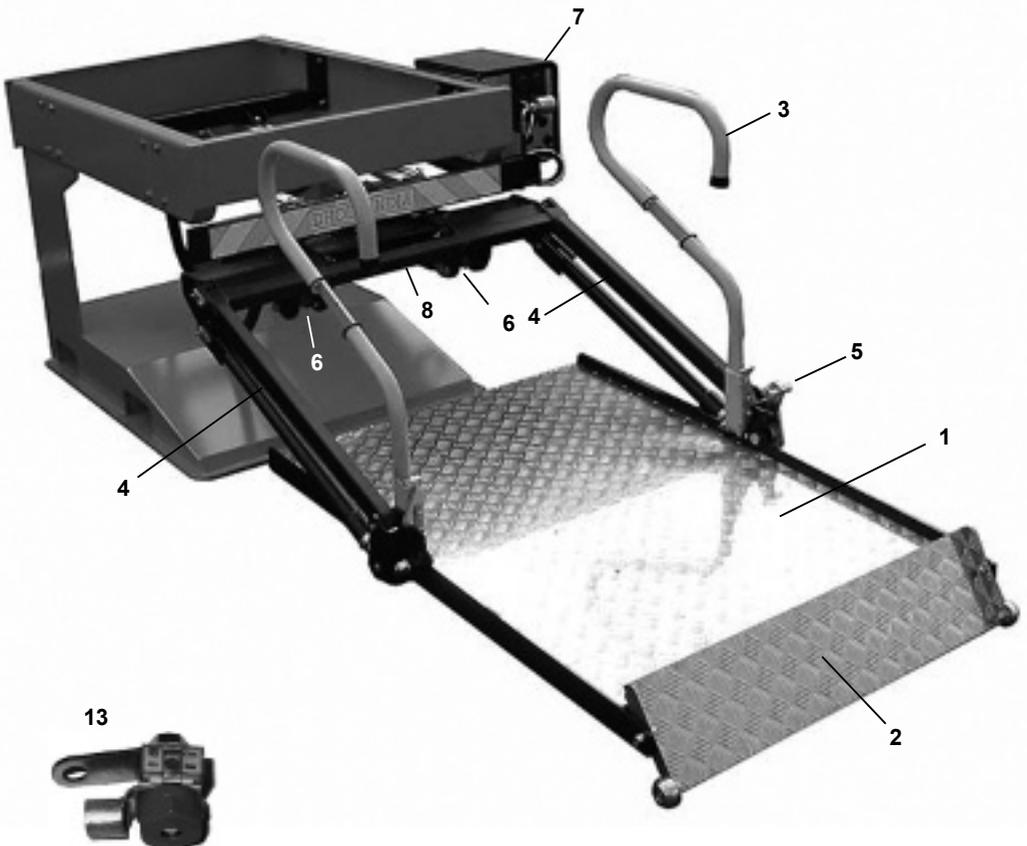
The DH-SC is a slider lift with a lifting capacity of 500 kg, suitable for mounting to a wide variety of different chassis with higher loading floor levels (to max. 1150 mm).

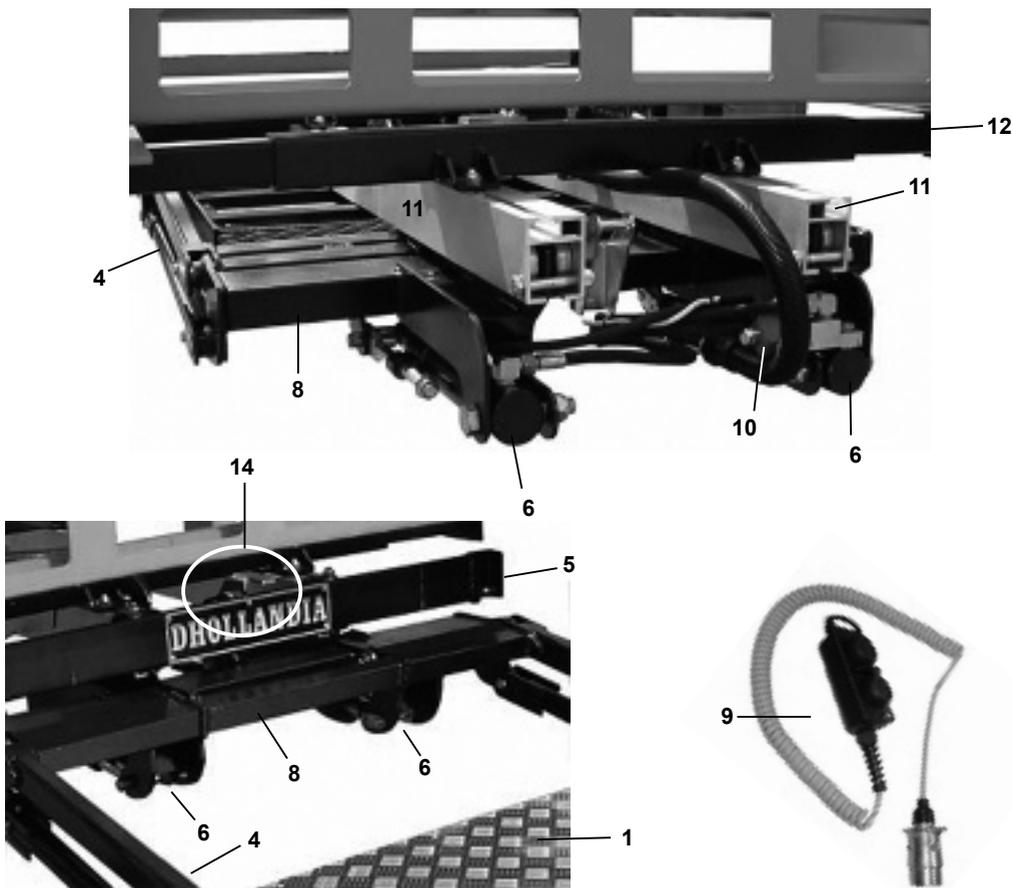
The standard execution of the DH-SC features a flat platform with anti-slip surface in aluminium. In the passenger version, the platform is equipped with safety gates on the right and left side of the platform (unfolding manually, but locking automatically in the raised vertical position), and an automatic roll-stop flap at the platform point.

In order to reduce the proper weight of the lift to very minimum, and simultaneously maximizing the payload of the carrying vehicle, the platform is not slid in- and out hydraulically, but is pulled out by hand, and pushed back in by hand after use.

The electric circuit consists of a battery switch to switch on/off the main battery power to the power pack of the lift (to be mounted in the vehicle cabin); and an easy-to-use 2-button wand lead with spiral cable that allows to execute all lift functions (lift - lower). Hence, 2 separate control buttons are incorporated in the side of the hydraulic power pack, allowing to execute the functions "lifting" and "lowering".

For an easy recognition of the principal components of this lift, the schemes below give an overview of this passenger lift.





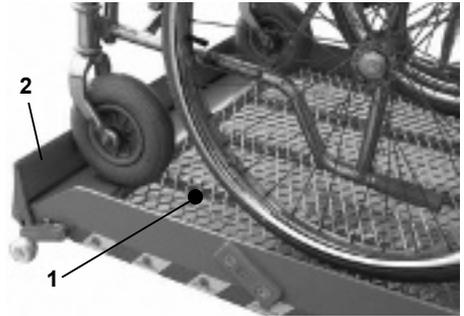
- 1 platform with anti-slip surface in aluminium
- 2 automatic roll-stop at the point of the platform
- 3 safety rail left and right on the platform. to be unfolded and restored manually
- 4 lift arms
- 5 mechanical platform lock to secure the platform in the driving position
- 6 hydraulic lift cylinder with adjustment device for setting the lifting height
- 7 electrohydraulic power pack 12 or 24 V
- 8 frame of the passenger
- 9 wander lead with spiral cable for the functions "lift" and "lower"
- 10 descent valve with manual emergency operation
- 11 aluminium sliding tubes for the retraction of the lift frame
- 12 mounting tubes for fitting the lift frame and the sliding tubes to the chassis of the vehicle
- 13 main fuse securing the battery cable to the battery of the vehicle
- 14 mechanical lock for securing the platform in the working position

3) SAFETY DEVICES INCORPORATED IN DHOLLANDIA LIFTS

In function of the specific conditions of application, the technical possibilities and the applicable safety regulations, Dhollandia passenger lifts are equipped with a variety of safety devices, of which the main representatives are summarized below.

1- Anti-slip surface :

The platform is manufactured either of laterally ribbed aluminium or meshed steel. Both materials offer excellent grip. Moreover, meshed steel is transparent to a large degree, and immediately evacuates accidental dirt or rain through the platform surface. The automatic bridge plate to the vehicle floor is foreseen with anti-slip taping.



DH-P20 :platform made of meshed steel
DH-CH, RB, SC : platform made of ribbled aluminium

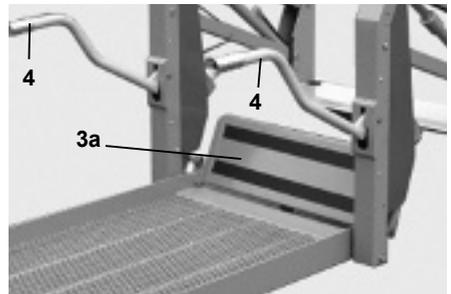
2- Automatic roll-stop flap at the point of the platform :

This protective flap automatically flips up to the raised vertical position as soon as the platform is lifted off the ground, and forms a solid mechanically blocked roll-stop device. The flap is automatically retracted to the flat position as soon as the platform touches the ground.

DH-P20 : mechanical with torsion springs
DH-CH, RB :hydraulically with mechanical lock
DH-SC : mechanical

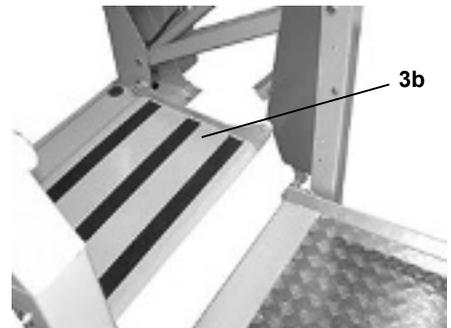
3- Automatic bridge plate to the loading floor :

The standard bridge plate of the DH-P20 and the DH-CH is mounted to the platform of the passenger lift (3a), and automatically moves from a horizontal position at loading floor height to a raised position at groundlevel. Thus, it functions as toe-protection for the passengers during the lift- and lower movements.



In the second version (3b - only for DH-P20/21), the bridge plate is mounted to the floor plate of the lift frame, this is the loading floor of the vehicle.

DH-P20 :as standard mounted to the platform,
.....as option mounted to the loading floor of the vehicle
DH-CH : mounted to the platform edge
DH-RB, SC :in option mounted to the platform edge



4- Safety rails :

The DH-P20 is equipped with safety rails on the left and right side of the platform, which unfold automatically when the platform is opened to the horizontal position, and are restored automatically when the platform is closed to the driving position.

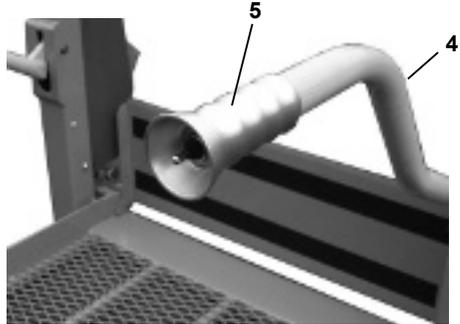
The other types of lifts are equipped with one or two manual safety gates, mounted on hinges to the side edges of the platform. These safety gates are manually unfolded and restored back to driving position, but they automatically lock in the raised vertical position.

DH-P20 : unfolding automatically
 DH-CH, RB, SC : manually unfolding with locking device

5- Ergonomic and safe platform controls :

On behalf of the passenger and his guide, the right hand side safety rail of the DH-P20 platform is equipped with an easy-to-use 1-button toggle switch, which allows to execute the functions lift and lower.

By means of a detection switch at the base of the lift arms, this control unit only works when the platform stands in horizontal position. It cannot be used to tilt the platform.



DH-P20 : standard on right side safety rail
 DH-CH, RB, SC : not applicable

6- Protection against early closing :

The lift arms of the DH-P20 are equipped with a mechanical device, that prevents the platform from being closed as long as a passenger is present on the platform.

DH-P20 : standard
 DH-CH, RB, SC : not applicable

7- side protection plates on the lift arms :

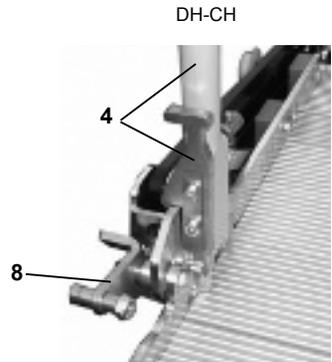
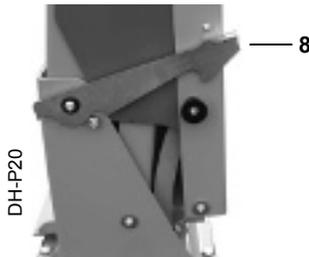
The interior and exterior sides of the lift arms of the passenger lift DH-P20 are equipped with PVC side protection boards, to prevent that the operator of the lift or the passenger would squeeze their hands or fingers between the moving parts of the lift arms and / or the lift cylinders.

DH-P20 : standard
 DH-CH, RB, SC : not applicable

8- Mechanical locking device :

The frame and the platform of the passenger lifts are equipped with a mechanical locking device, that allows to secure the platform in the driving position, and for instance to restore the platform into driving position and keep it in driving position in case of accidental loss of oil pressure or flexible hose rupture.

DH-P20 : left side of the lift frame
 DH-CH : left and right side on the platform
 DH-RB : .to be mounted according to mounting instructions
 DH-SC : right hand side of the platform



9- Electric emergency stop :

The emergency stop is formed by a battery switch with removable key, which is either premounted on the power pack of the lift, or to be mounted by the installer of the lift in the vicinity of the control post. It allows to immediately switch off the main battery power in case of emergency or danger, even for instance if the starter solenoid in the power pack would be stuck.



DH-P20 : premounted on hydraulic power pack
DH-CH, RB, SC : to be mounted by installer

10- Limitation of the operation speeds / flow control :

The lift cylinders are equipped with fixed flow control valves, which regulate the descent speed (even in case of accidental pipe burst), and which optimise the comfort and safety of the passengers during the descent movements. The operation speeds are legally determined as follows:

Legally determined operations speeds

- * Vertical movements: 15 cm/sec
- * Opening & closing: max. 0.2 m/sec

11- Emergency hand pump :

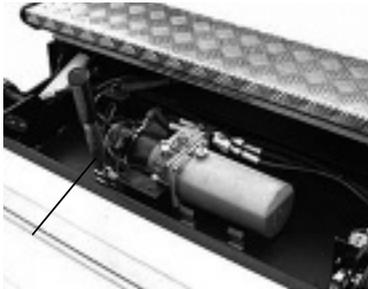
The hydraulic emergency handpump is a standard feature on all passenger lifts. It enables the operator to execute all upward lift functions (lifting and closing if applicable) by means of manually performed effort on the hand pump.

Example: in case of battery failure, or breakdown of one of the components of the electric circuit, the handpump still allows to help the passenger in the vehicle via the platform, and to restore the platform to the closed driving position.

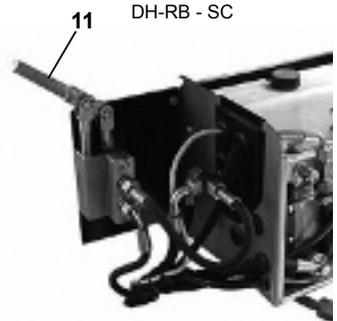
DH-P20



DH-CH



DH-RB - SC



DH-P20 :integrated in the hydraulic power pack
DH-CH :mounted to the lift frame inside the cassette
DH-RB, SC : mounted to the side of the power pack

12- Emergency control for opening / lowering :

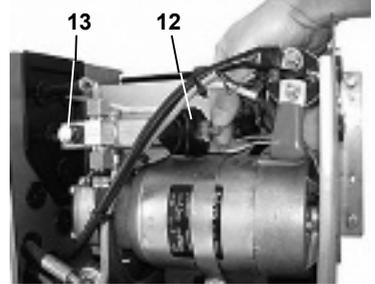
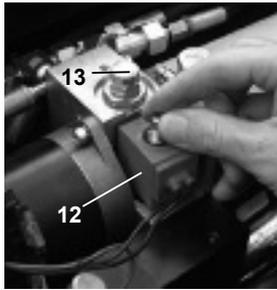
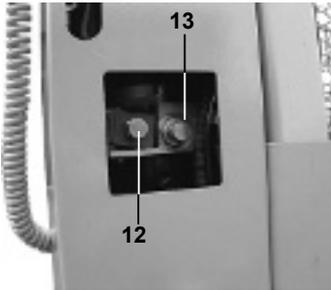
The descent valves in the power pack, and/or on the lift cylinder, are equipped with a manual emergency button. This button (or screw) enables the operator to execute all downward lift functions (lowering and opening if applicable) swiftly and efficiently by means of a simple manual procedure.

Example: in case of battery failure, or breakdown of one of the components of the electric circuit, the emergency operation on the descent valve allows to disembark the passenger in all comfort and quietness.

DH-P20

DH-CH

DH-RB



DH-P20, CH :integrated in hydraulic powerpack
 DH-RB, SC :on logical valve in power pack
 plus additional safety valve on one lift cylinder

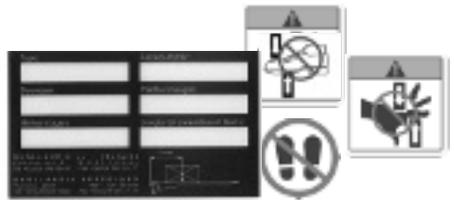
13- Load detection / pressure relief valve :

All hydraulic lifts are equipped with a pressure relief valve, which allows to fine tune the lifting capacity of the lift according to the allowed nominal capacity and the mounting situation. The hydraulic pressure needs to be set in such a way that maximum the nominal capacity can be lifted off the ground.

all :integrated in the hydraulic power pack

As a standard, the identification stickers carrying the serial number of the lift are applied on a clearly visible spot, mostly on one of the sides of the hydraulic power pack.

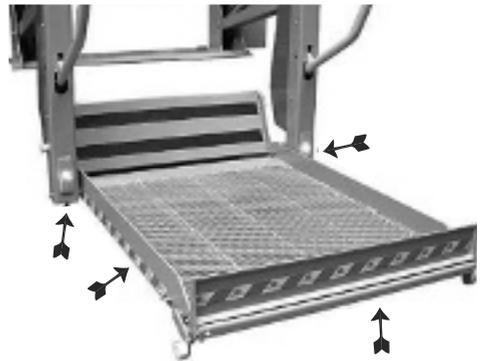
Hence, every lift is supplied with a number of safety or warning decals, which need to be applied according to the mounting instructions, and must be replaced when the get illisible or damaged.



15- Platform visibility and marking :

The operator must ensure that the platform of his passenger lift is clearly visible to third persons in the traffic. This can be obtained by means of reflective tape on the side and front of the platform (standard), or possibly traffic signalisation cones. The must be applied to the platform in a clearly visible way, and must be replaced or cleaned in case of damage or when dirty.

As standard, the passenger lift type DH-P20 is equipped with electric flashing lights, which clearly illuminates the platform in the dark, even without external light source.



16- Main battery fuse :

The enclosed principal fuse has to be installed as close as possible to the batteries of the vehicle.

16



4.1 Introduction

The hydraulic passenger lift is exclusively designed to **assist wheelchair users in embarking or disembarking their transport vehicle**. For your own safety, for the safety of your passenger(s), and for the safety of accidental bystanders, **it is absolutely necessary that the tail lift is only operated by skilled users who know and understand the contents of this manual**.

During the operation of the tail lift, the operator should carefully follow all safety instructions of this manual, all legal health and safety regulations, the employer's working procedures and preventive instructions against accidents, and all legal or other road-safety instructions.

The operator should have passed the age of 18. The operating instructions for the tail lift should be fully explained to the operator by his employer or his authorized trainer. The employer has to confirm explicitly (and in writing) that the operator has been duly trained and is qualified to operate the tail lift. No one except the operator is allowed to stand on the platform or in the working area of the lift during operation.

4.2 General safety prescriptions for the use of Dhollandia passenger lifts

- ⇒ The lift should only be operated by authorised users, who thoroughly master the users instructions of this manual. Don't allow children or other non-authorised persons to play or experiment with the lift.
- ⇒ Check if the tail lift can be used safely and take the necessary precautions to guarantee the safety of the traffic. Apply the hand-break of the vehicle, and switch off the engine.
- ⇒ Clear the working area from any objects that could potentially impede the movements of the lift.
- ⇒ Lock the doors of the vehicle in the open position (plus any other moving parts of the vehicle body), well outside the working perimeter of the moving platform, and outside the working zone of the operator.
- ⇒ Clearly mark and signal the platform in the traffic (for instance by means of the rear lights of the vehicle, by means of reflective marking tape on the sides and front of the platform, or by means of reflecting traffic cones). As an option (standard on DH-P20), the lift can also be equipped with electric flashing lights, which clearly illuminates the platform in the dark, even without external light source. Avoid busy places and dense traffic.
- ⇒ Ensure at all times that nobody stands under or within reach of the moving platform. Keep non-authorised persons clear of the working zone of the lift, both inside and outside the vehicle.
- ⇒ Make sure that the platform and the working zone around the platform are sufficiently illuminated.
- ⇒ Respect the loading diagrams at all times. Passenger lifts are designed for one passenger only per lift or lowering movement. Never overload the platform.
- ⇒ Don't use the lift on a steep slope or on uneven ground. The vehicle should stand parallel to the ground, both in longitudinal as latitudinal direction.
- ⇒ Never leave the platform behind in the open position. Store the lift away, and close the doors of the vehicle before leaving the vehicle unattended.
- ⇒ Never move the vehicle if the lift is not stored in the driving position. Store the lift away, and close the doors of the vehicle before moving the vehicle.
- ⇒ Never move the vehicle when a passenger or some load is present on the platform.
- ⇒ Inspect the lift before use. Check the integrity of the lift structure and frame, and the correct locking of all hinge pins. If an unsecure situation exists or appears, DON'T use the lift. Ask for assistance from a authorised Dhollandia service agent.
- ⇒ The platform should only be operated by means of the originally supplied Dhollandia control units, and by means of the platform controls integrated in the handrails (DH-P20).

4.3 Safety instructions relating to the operation of the passenger lift

- ⇒ Stay out of the operation circle of the platform, and ensure no other person stands within the range (or within reach) of the platform.
- ⇒ Always keep your feet at a safe distance from the edges of the platform, to avoid that the feet are squeezed between the descending platform and the ground. Ensure that also other persons keep sufficient distance.
- ⇒ Avoid at all times the dangerous crushing zone between the ascending platform and the rear frame or loading floor of the vehicle. Take care that the feet are not squeezed between the platform and the bumper or other protruding parts of the vehicle body. Ensure that also other persons keep sufficient safety distance.
- ⇒ At all times, keep the upper and lower limbs clear of the moving parts of the lift arms and the lift cylinders. Be aware for finger traps whenever operating the lift.
- ⇒ Ensure that the automatic bridge plate mounted to the platform cannot be hindered by the passenger or his wheelchair during the lift- and lower movements. Ensure that nobody stands on the bridge plate during the lift- and lower movements.
- ⇒ During all lift- and lower movements, make sure that the space normally occupied by the automatic bridge plate of the platform in the raised position is kept clear, and that the bridge plate can move freely. Ensure nobody stands on the space that is normally occupied by the bridge plate when the platform stands in the raised position.
- ⇒ Make sure that the automatic roll-stop at the point of the platform can function correctly during the lift- and lower movements, and that it cannot be hindered or blocked.
- ⇒ To the extent their physical conditions allows so, ensure that the passenger hold tight to the safety rails mounted left and right on the platform.
- ⇒ Ensure that you or your passengers don't leave the platform before the platform has fully reached groundlevel.



Stay out of the operation circle of the platform.



Beware of the risk of crushing your feet.



Beware of the risk of crushing your feet.

4.4 Special instructions for assisting wheelchair passengers

- ⇒ As operator, always take place behind the wheelchair.
- ⇒ Ensure that the wheelchair is stable, and that its dimensions don't stick over the edges of the loading platform
- ⇒ Make sure that the parking breaks of the wheelchair are correctly applied, so that the wheelchair cannot move during the upward and downward movements.
- ⇒ Users of electric wheelchairs should set the engine in neutral gear, or switch off the power of the wheelchair, before setting the lift platform in motion.
- ⇒ Ensure that the wheelchair and its passenger stay clear



Beware of the risk of crushing your fingers / hands.

of the automatic roll-stop flap at the point of the platform and of the automatic bridge plate on the other extremity of the platform. Ensure that both flaps can operate swiftly without being hindered.

- ⇒ The parking breaks of the wheelchairs are less effective when the wheels or the platform surface are dirty or wet. Take extra care in case of humid or other slippery conditions.
- ⇒ Wenn the passenger disembarks the vehicle, never drive backwards onto the platform. Position the wheelchair so that the passenger is facing backwards, this is with the small front wheels of the chair facing the roll-stops flap, and the big rear wheels of the chair adjacent to the bridge plate. The roll-stop system at the point is not designed to bring the big rear wheels of a wheelchair to a positive stop in case of abrupt heavy movements.
- ⇒ Ensure that the wheelchair always stands in the middle of the platform (this is centrally between the lift arms), and as close to the rear side of the vehicle as possible. The latter however without endangering the passenger in the crushing zone between the rear side of the vehicle and the front edge of the platform (and the automatic bridge plate).
- ⇒ Unilateral positioning of the wheelchair to one side of the platform (this is outside the centre line between the two lift arms) can lead to a situation where the platform slightly sinks on one side, and the platform touches the loading floor or the ground earlier on one side than on the other.



Never stand on the bridge plate during lifting / lowering of the platform.



For the passengers : always use the hand rails to maximise your own stability

4.5 Position of the operator

- ⇒ At all times, and during all lift movements (opening - lowering - lifting - closing), the operator must keep a sufficient safety distance from the danger zones described under point 4.3.
- ⇒ Specifically, when operating the lift, keep the upper limbs clear of the moving parts of the lift frame and lift arms, and keep a safe distance from potential crushing zones between the moving lift parts and the rear side of the vehicle body.
- ⇒ The operator should avoid taking place on the platform with the wheelchair passenger during the lift- and lower movements, so that he cannot get squeezed between the wheelchair and the rear of the vehicle; or so that he cannot get out of balance when standing on the platform point, and fall.

4.6 Loading diagram

- ⇒ In order to prevent premature wear or damage to the tail lift and accidents with possibly personal injuries, it is very important that the safety instructions for the use of the tail lift (point 4.1 to 4.5) are followed strictly, in conjunction with the loading instructions below.
- ⇒ The **nominal lift capacity** of the lift is indicated on the identification sticker and on the CE certificate of conformity, and represents the maximum weight allowed to be carried by the lift in the best possible circumstances, this is under the following conditions:
 - the wheelchair passenger, or the load if applicable, is placed as close as possible to the rear side of the vehicle (so as far as possible to the front of the vehicle), without endangering however the passenger and bringing him to close to the crushing zone between the front edge of the platform and the rear of the vehicle body;

- the wheelchair passenger is placed in the middle of the platform (considered laterally), and therefore stands equidistant from both lift arms, or centrally between the lift arms.
- ⇒ Whenever the circumstances of loading are not the same as in the ideal situation described above, **the maximum allowed weight** decreases.
- ⇒ Under no circumstances should the dimensions of the wheelchair (or the load if applicable) exceed those of the platform, or should the wheelchair (or the load if applicable) reach beyond the perimeter of the platform.

4.7 Maintenance

- ⇒ The user of the passenger lift should check on a daily basis whether the safety features of the hydraulic lift are still operative and if the safety markings are still legible. If not, act immediately to replace them.
- ⇒ The maintenance of the hydraulic lift is very important for its operational safety. Therefore the maintenance instructions have to be followed with the greatest care.
- ⇒ All maintenance and repair works to the lift have to be executed by authorized and trained personnel and only using original DHOLLANDIA spare parts.



WHEN THE PLATFORM HAS TO BE CLOSED IN CASE OF A BREAK-DOWN, THE FOLLOWING IN-STRUCTIONS MUST BE STRICTLY FOLLOWED !



In case of failure the lift has to be put out of operation and be secured against unauthorized use. A hydraulic lift closed by means of an external device like a forklift, a gantry crane,... becomes **deadly dangerous** if it is not secured sufficiently and if the danger is not clearly marked/ signalled.

Because the hydraulic lift has been closed by means of external forces, the cylinders are not filled with oil and the electrical safety valves have become inoperative. Due to this, no further movement of the lift is secured or slowed down. Whenever you open the mechanical lock of the platform, the platform will **drop in free fall** to the beginning point of the failure, without any possibility to stop it or slow it down by means of the electrical controls!

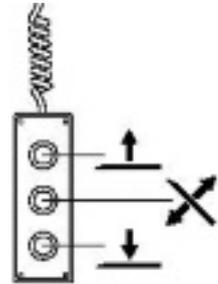
In order to avoid all possible risks, it is strongly recommended to apply **additional means of immobilising** the platform, on top of the standard mechanical platform locks. You could manage this for example by securing the original lock with steel-wire. Besides these precautions, make sure the danger is **clearly signalled in a permanent way**. For re-opening the lift, you should again use an external lifting device (forklift, crane, etc.). It is even better to repair the system with the platform closed and to open the platform only after having brought the hydraulics on full pressure (lift and closing circuit), before releasing the platform locks and other fixtures.

5) OPERATING THE PASSENGER LIFT

5.1 Operation of the passenger lift type DH-P20

5.1.1 Using the wander lead with spiral cable.

- ⇒ The 3-button wander lead with spiral cable forms the main control unit of the DH-P20, and enables the operator to open the platform from the closed vertical position to the open horizontal position, then to lower the platform to the ground, to raise the platform back up to floor height, and finally to close the platform back to the driving position.
- ⇒ The wander lead solely serves to execute the lift movements with empty platform. Whenever a passenger is present on the platform, it is compulsory to use the ergonomic platform control integrated in the safety rail.
- ⇒ The button for "lowering" both allows to open the platform from the closed vertical position to the horizontal position, and to descend the platform to the ground.
- ⇒ With the button for "lifting", the platform can be lifted from the ground to its horizontal position at the vehicle floor. When in combination also the middle button is pushed-in, the platform can be closed further from the horizontal position at floor level to the vertical driving position.

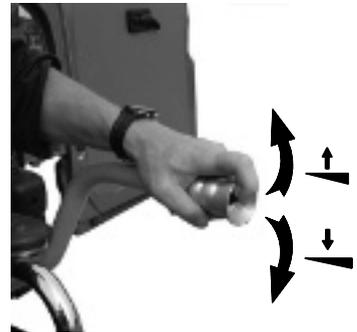


Open :	
Lower :	
Lift :	
Close: ⇒	

+

5.1.2 Using the integrated hand-rail control.

- ⇒ This ergonomic and safe control unit is integrated in the right side safety hand-rail of the platform. It enables one finger only to execute the lift- and lowering functions without error, by pulling up a toggle switch, or pushing it down.
- ⇒ The function "lifting" is routed over a safety detection switch positioned at the base of the right side lift arm, that switches off the hand-rail control as soon as the platform reaches the vehicle floor. This procedure excludes the risk that the platform would be closed or tilted upwards when a passenger is still standing on the platform.



5.1.3 Helping wheelchair passengers on board of the vehicle.

- ⇒ Park the vehicle on a flat and even ground, safely remote from dense traffic. Make sure to reserve sufficient space to execute all lift movements, and to help the wheelchair passengers board the platform in all comfort.
- ⇒ Respect the overall safety instructions described under point 4 of this user's manual for all handlings.
- ⇒ Open the doors of the vehicle and secure them firmly against the side of the vehicle body.
- ⇒ Switch on the main battery switch of the lift, and the cabin switch if applicable.
- ⇒ Undo the mechanical platform lock. When doing so, make sure that you stand beside the lift, or certainly out of reach of the moving platform.
- ⇒ Inspect the lift before use. Check if the lift frame and lift arms are still intact, and if all pivot pins are correctly secured. If an unsafe situation exists, DON'T use the lift.
- ⇒ Use the 3-button wander lead to open the platform, and to lower the empty platform to the ground.

- ⇒ Ride the wheelchair passenger on the platform, with the passenger facing backwards, away from the vehicle. The wheelchair needs to be positioned centrally on the platform. Make sure that both the automatic roll-stop flap and the automatic bridge plate can function unhindered. Apply the parking breaks of the wheelchair so that the wheelchair cannot move when the platform is in motion.
- ⇒ Use the hand-rail control on the platform to lift the wheelchair passenger up to the vehicle floor level. The platform will automatically stop when it arrives at this level.
- ⇒ Ride the passenger carefully inside, and secure the wheelchair against all movements during the journey on the road.
- ⇒ Use the hand-rail control again to bring other wheelchair passengers on board of the vehicle, and follow again the instructions above.
- ⇒ In order to restore the empty platform in drive position, use the 3-button wander lead to close the platform from the horizontal working position to the vertical ride position. Push the buttons "lift" plus "close" until the hydraulic system turns in over-pressure, and the lift arms pressurize against the storage buffers.
- ⇒ Secure the mechanical lock of the platform with the storage hook, switch off the main battery switch and the cabin switch (if applicable). Check the loading situation and close the vehicle doors.

5.1.4 Helping wheelchair passengers disembark the vehicle.

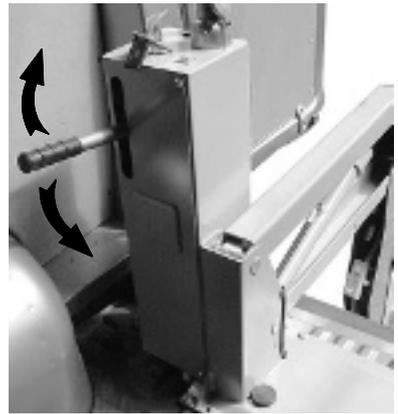
- ⇒ Park the vehicle on a flat and even ground, safely remote from dense traffic. Make sure to reserve sufficient space to execute all lift movements, and to help the wheelchair passengers board the platform in all comfort.
- ⇒ Respect the overall safety instructions described under point 4 of this user's manual for all handlings.
- ⇒ Open the doors of the vehicle and secure them firmly against the side of the vehicle body.
- ⇒ Switch on the main battery switch of the lift, and the cabin switch if applicable.
- ⇒ Undo the mechanical platform lock. When doing so, make sure that you stand beside the lift, or certainly out of reach of the moving platform.
- ⇒ Inspect the lift before use. Check if the lift frame and lift arms are still intact, and if all pivot pins are correctly secured. If an unsafe situation exists, DON'T use the lift.
- ⇒ Use the 3-button wander lead to open the platform to the horizontal position.
- ⇒ Ride the wheelchair passenger on the platform, with the passenger facing backwards, away from the vehicle. The wheelchair needs to be positioned centrally on the platform. Make sure that both the automatic roll-stop flap and the automatic bridge plate can function unhindered. Apply the parking breaks of the wheelchair so that the wheelchair cannot move when the platform is in motion.
- ⇒ Use the hand-rail control to lower the wheelchair passenger from the vehicle floor level to the ground. Don't try to push the wheelchair off the platform as long as the platform is not in full rest at ground-level, and the automatic roll-stop flap is inclined to the ground.
- ⇒ Ride the wheelchair off the platform with care.
- ⇒ Use the hand-rail control again to disembark other wheelchair passengers from the vehicle, and follow again the instructions above.
- ⇒ In order to restore the empty platform in drive position, use the 3-button wander lead to close the platform from the horizontal working position to the vertical ride position. Push the buttons "lift" plus "close" until the hydraulic system turns in over-pressure, and the lift arms pressurize against the storage buffers.
- ⇒ Secure the mechanical lock of the platform with the storage hook, switch off the main battery switch and the cabin switch (if applicable). Check the loading situation and close the vehicle doors.

5.1.5 Use of the available emergency facilities.

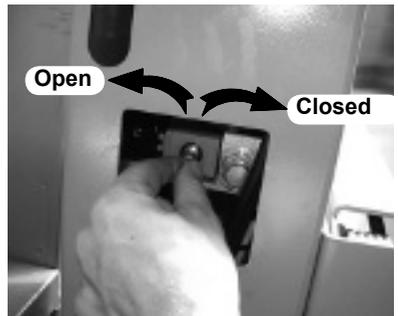
- ⇒ The DH-P20 is equipped with 2 different emergency operation systems, that allow the operator to execute each of the lift functions in case of battery power failure, or breakdown in one of the components of the electric circuit.

⇒ The **hydraulic emergency handpump** enables the operator to execute the **upward lift functions** (this is lifting and closing) by means of manually performed effort on the handpump. Thus, in absence of a sound electrical system, the wheelchair passenger can still be helped inside the vehicle, and / or the platform can still be restored to the vertical ride-position.

⇒ In order to operate the emergency handpump, get the lever out of its storage pocket on top of the hydraulic power pack, insert it in the sleeve on the front side of the power pack, fit it over the arm of the hand-pump, and move the lever up and down until the required height (or driving position) is reached.



⇒ The **manual emergency operation** on the descent valve enables the operator to execute the **downward lift functions** (this is lowering and opening) swiftly and efficiently by means of a simple manual procedure. Thus, in absence of a sound electrical system, the wheelchair passenger can still be helped out of the vehicle in all comfort.



⇒ Remove the lid over the emergency hatch, to provide access to the emergency descent facility.

⇒ In order to open the lift, unscrew the bronze button on the extremity of the descent valve counter clockwise. The speed at which the movement is executed, can be carefully fine-tuned by unscrewing the bronze button a little bit more, or a little bit less.

⇒ In order to lower the platform to the ground, unscrew the bronze button on the extremity of the descent valve counter clockwise, or maintain the bronze button open if you have already executed the "open" movement manually. The speed at which the movement is executed, can be carefully fine-tuned by unscrewing the bronze button a little bit more, or a little bit less.

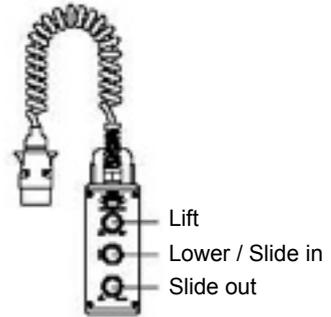
⇒ In order to interrupt the manually executed "open" and "lower" movements, or just in order to reset the valve into neutral closed position, turn the bronze button on the extremity of the descent valve clockwise, untill the screw sits tight.

⇒ **Attention:** when executing the emergency procedures, respect the safety prescriptions of point 4, and point 5.1.3 to 5.1.4 at all times.

5.2 Operation of the passenger lift type DH-CH

5.2.1 Using the wander lead with spiral cable.

- ⇒ The 3-button wander lead with spiral cable forms the main control unit of the DH-CH, and enables the operator to control all movements electrohydraulically (slide-out / lift / lower / slide-in).
- ⇒ The power to this wander lead goes over a tail lift position detection switch (see ref. 18 on page A6), that only activates the control unit when the platform is fully retracted to its correct working position.
- ⇒ Respect the overall safety instructions described under point 4 of this user's manual for all operations.



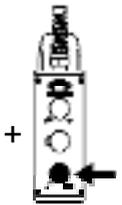
5.2.2 Helping wheelchair passengers on board of the vehicle. Helping wheelchair passengers disembark the vehicle.

- ⇒ Park the vehicle on a flat and even ground, safely remote from dense traffic. Make sure to reserve sufficient space to execute all lift movements, and to help the wheelchair passengers board the platform in all comfort.
- ⇒ Open the doors of the vehicle and secure them firmly against the side of the vehicle body.
- ⇒ Switch on the main battery switch of the lift, and the cabin switch if applicable.

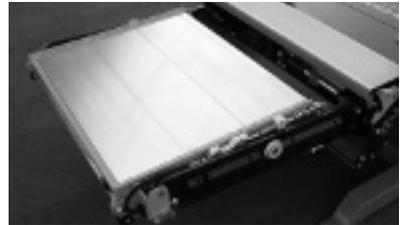
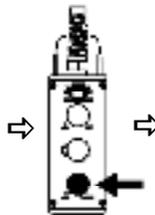
- ⇒ Push down the safety lock on the right side of the cassette with your foot, and press the function "Slide out" on the wander lead.



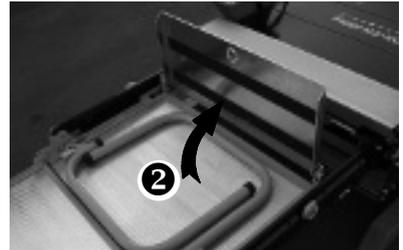
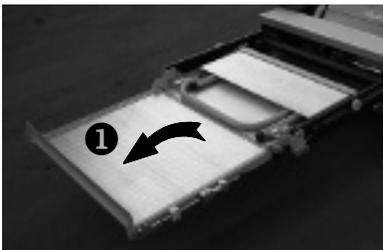
Slide-out



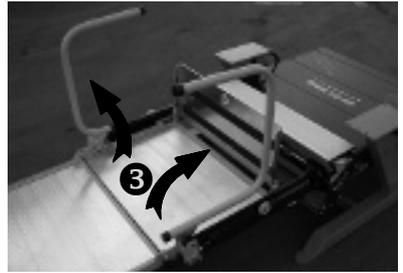
- ⇒ These actions open the lid of the cassette, and make the platform slide out. Keep pressing the button "Slide out" to make the platform retract completely.



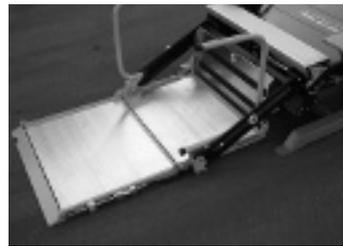
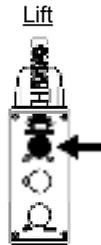
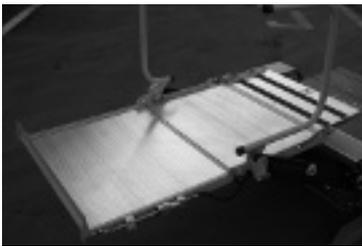
- ⇒ Fold open part after part (1) the platform; (2) the bridge plate between the platform and the vehicle loading floor:...



- ⇒ ... and (3) raise the safety gates in vertical position. Control if the safety gates are adequately locked.
- ⇒ Inspect the lift before use. Check if the lift frame and lift arms are still intact, and if all pivot pins are correctly secured. If an unsafe situation exists, DON'T use the lift.

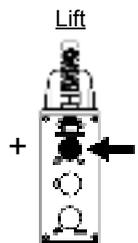


- ⇒ Use the 3-button wander lead to lower the platform to the ground, or to raise it back to the vehicle floor level, according to the functions mentioned in 5.2.1.

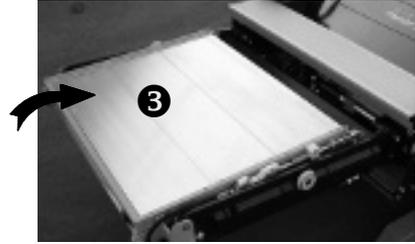
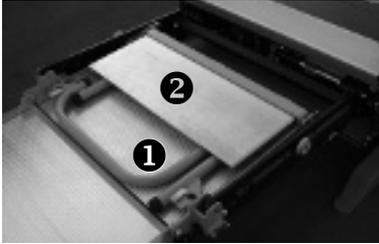


- ⇒ Ride the wheelchair passenger on the platform, with the passenger facing backwards, away from the vehicle. The wheelchair needs to be positioned centrally on the platform. Make sure that both the automatic roll-stop flap and the automatic bridge plate can function unhindered. Apply the parking breaks of the wheelchair so that the wheelchair cannot move when the platform is in motion.
- ⇒ Use the 3-button wander lead again to lift the wheelchair passenger to the vehicle floor level, or to lower the chair to the ground. The platform will automatically stop when either of these levels is reached.
- ⇒ For ascending movements, ride the passenger carefully inside, and secure the wheelchair against all movements during the journey on the road. For descending movements, don't try to push the wheelchair off the platform as long as the platform is not in full rest at groundlevel, and the automatic roll-stop flap is inclined to the ground. Ride the wheelchair off the platform with care.
- ⇒ Use the 3-button wander lead again to aid other passenger to get on board of the vehicle or disembark, and follow again the instructions above.

- ⇒ In order to restore the empty platform in the cassette:
lift it 10 cm under the vehicle loading floor, so that the platform is located just above the detector on the right side lift arm.



- ⇒ After that, fold piece after piece (1) the safety gates; (2) the bridge plate towards the loading floor of the vehicle; and (3) the foldable part of the platform.



- ⇒ Push the button to "Lower". The platform lowers to the level of the detector on the lift arm. Then the platform continues to slide in, until the complete closure of the lid of the cassette.

Lower



- ⇒ Switch off the main battery switch and / or the cabin switch, check the loading situation and close the vehicle doors.

5.2.3 Use of the available emergency facilities

- ⇒ The DH-CH is equipped with different emergency operation systems, that allow the operator to execute each of the lift functions in case of battery power failure, or breakdown in one of the components of the electric circuit. Thus, in absence of healthy electrical power supply, the emergency routine still helps to assist wheelchair passengers to board / unboard the vehicle, or to restore the lift into driving position when deployed at the time of electrical failure.

- ⇒ For SLIDING IN / OUT, the platform can be retracted freely by hand, once the lid of the cassette is released and open.



- ⇒ For LIFTING, take the hand pump lever out of its storage pocket at the front of the power pack, fit it over the arm of the handpump. Then push the soft front cap of the hydraulic valve in lowest position, and operate the hand pump lever at the same time.

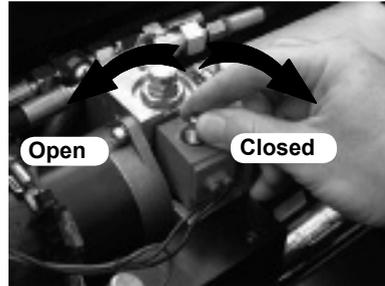


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- ⇒ For LOWERING, the relevant electrovalves are all equipped with a manual emergency button that enables the operator to open the valves by means of a quick and simple manual procedure.

In order to lower the platform to the ground, (1) unscrew the bronze button on the extremity of the descent valve counter clockwise. The speed at which the movement is executed, can be carefully fine tuned by unscrewing the bronze button a little bit more, or a little bit less.



(2) Then push the soft front cap of the hydraulic valve mounted in lowest position on the aluminium valve block adjacent to the hydromotor.

- ⇒ In order to interrupt the manually executed "lower" movement, release the soft cap of bespoke valve. Then reset the descent valve to neutral position by turning the bronze button on the extremity of the valve clockwise, until the screw locks tight.



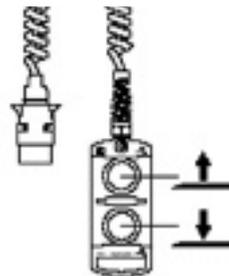
- ⇒ Attention: when executing the emergency procedures, respect the safety prescriptions of point 4, point 5.3.1 to 5.3.2, and point 3.4 at all times.

If some of the illustrations differ from the valves that you have on the object, please refer to point 3.4 for alternative emergency operation.

5.3 Operation of the passenger lift type DH-RB

5.3.1 Using the wander lead with spiral cable.

- ⇒ The 2-button wander lead with spiral cable forms the main control unit of the DH-RB, and enables the operator to deploy the closed platform or store it back the the drive position on one hand; and to execute the regular lift- and lower movements on the other hand.
- ⇒ Respect the overall safety instructions described under point 4 of this user's manual for all operations.



5.3.2 Helping wheelchair passengers on board of the vehicle.

Helping wheelchair passengers disembark.

- ⇒ Park the vehicle on a flat and even ground, safely remote from dense traffic. Make sure to reserve sufficient space to execute all lift movements, and to help the wheelchair passengers board the platform in all comfort.
- ⇒ Open the doors of the vehicle and secure them firmly against the side of the vehicle body.
- ⇒ Switch on the main battery switch of the lift, and the cabin switch if applicable.
- ⇒ Push the button "lowering" of the 2-button wander lead to tilt the platform open from the closed position to the ground (see picture on right). Pull the platform open to the horizontal position (this movement is reinforced by side-mounted torsion springs), unfold the foldable point-section of the platform, and lock the side safety gates in the vertical position.
- ⇒ Inspect the lift before use. Check if the lift frame and lift arms are still intact, and if all pivot pins are correctly secured. If an unsafe situation exists, DON'T use the lift.
- ⇒ Use the 2-button wander lead to raise the platform to the vehicle floor, or to lower it back to the ground, according to the functions mentioned in 5.3.1.
- ⇒ During all lift movements, take special care to stay away from the crushing zone between the raising platform and the exposed parts of the vehicle body.
- ⇒ Ride the wheelchair passenger on the platform, with the passenger facing backwards, away from the vehicle. The wheelchair needs to be positioned centrally on the platform. Make sure that both the automatic roll-stop flap and the automatic bridge plate (if applicable) can function unhindered. Apply the parking breaks of the wheelchair so that the wheelchair cannot move when the platform is in motion.
- ⇒ Use the 2-button wander lead again to lift the wheelchair passenger to the vehicle floor level, or to lower the chair to the ground.
- ⇒ For ascending movements, ride the passenger carefully inside, and secure the wheelchair against all movements during the journey on the road. For descending movements, don't try to push the wheelchair off the platform as long as the platform is not in full rest at groundlevel, and the automatic roll-stop flap is inclined to the ground. Ride the wheelchair off the platform with care.
- ⇒ Use the 2-button wander lead again to aid other passenger to get on board of the vehicle or disembark, and follow again the instructions above.



- ⇒ In order to restore the lift to the drive position, fold the safety gates onto the platform, and fold the foldable point-section of the platform back to the closed position. Pull the folded platform upwards to the vertical position (this movement is supported by a side-mounted torsion spring). Use the function "lift" of the 2-button wanderlead to raise the platform and tuck it back under the loading floor of the vehicle, until the end stop against the bottom side of the body is reached.
- ⇒ Apply the mechanical lock of the platform, check the loading situation, and close the vehicle doors.
- ⇒ **Remark** : The DH-RB is equipped with a conical platform and automatic tilting at groundlevel. During the "lowering" movement, the point of the platform will automatically tilt to the ground, when the platform touches the ground, and the electric controls for "lowering" are maintained pushed in. When starting the "lifting" movement off the ground, the platform will first tilt up from the inclined ground position to a preset horizontal position, and then the horizontal position will be lifted to the loading floor of the vehicle.

5.3.3 Use of the available emergency facilities.

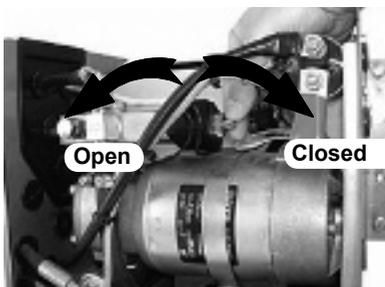
- ⇒ The DH-RB is equipped with 2 different emergency operation systems, that allow the operator to execute each of the lift functions in case of battery power failure, or breakdown in one of the components of the electric circuit.

- ⇒ The **hydraulic emergency handpump** enables the operator to execute the **upward lift functions** (this is lifting and closing) by means of manually performed effort on the handpump. Thus, in absence of a sound electrical system, the wheelchair passenger can still be helped inside the vehicle, and / or the platform can still be restored to the vertical ride-position.

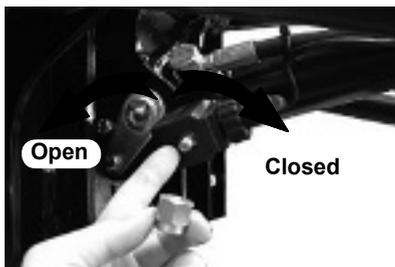


- ⇒ In order to operate the emergency hand pump, get the lever out of its storage pocket besides the hydraulic power pack, fit it over the arm of the handpump, and move the lever up and down until the required height (or driving position) is reached.

- ⇒ The **manual emergency operation on the descent valve in the power pack** and on the **safety valve on the lift cylinder** enables the operator to execute the **downward lift functions** (this is lowering and opening) swiftly and efficiently by means of a simple manual procedure. Thus, in absence of a sound electrical system, the wheelchair passenger can still be helped out of the vehicle in all comfort.



- ⇒ In order to lower the platform to the ground, unscrew the bronze button on the extremity of the descent valve counter clockwise, or maintain the bronze button open if you have already executed the "open" movement manually. The speed at which the movement is executed, can be carefully fine-tuned by unscrewing the bronze button a little bit more, or a little bit less.

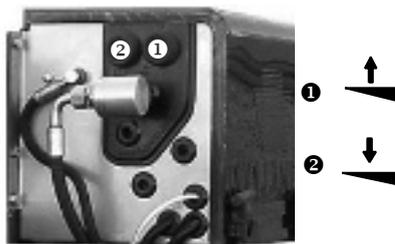


- ⇒ In order to interrupt the manually executed "lower" movements, or just in order to reset the valve into neutral closed position, turn the bronze button on the extremity of the descent valve clockwise, until the screw sits tight.
- ⇒ **Attention**: when executing the emergency procedures, respect the safety prescriptions of point 4, and point 5.3.1 to 5.3.2 at all times

5.4 Operation of the passenger lift DH-SC

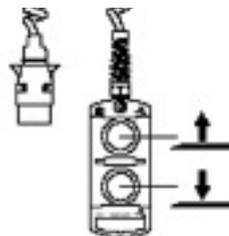
5.4.1 Using the buttons on the side of the power pack.

- ⇒ The power pack of the DH-SC has 2 push-buttons incorporated on the side, which allow to execute the functions "lift" and "lower". The lift is pulled out and pushed back in by hand, so that the retraction needs no electric circuit.



5.4.2 Using the wander lead with spiral cable.

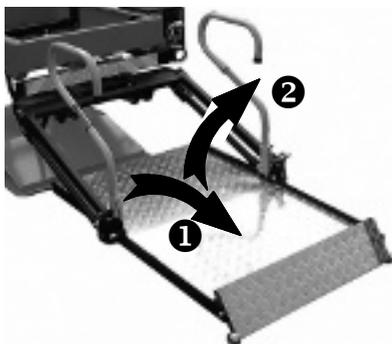
- ⇒ The 2-button wander lead with spiral cable forms the main control unit of the DH-SC, and enables the operator to move the platform up and down, after it has first been pulled out manually.



5.4.3 Helping wheelchair passengers on board of the vehicle.

Helping wheelchair passengers disembark.

- ⇒ Park the vehicle on a flat and even ground, safely remote from dense traffic. Make sure to reserve sufficient space to execute all lift movements, and to help the wheelchair passengers board the platform in all comfort.
- ⇒ Open the doors of the vehicle and secure them firmly against the side of the vehicle body.
- ⇒ Switch on the main battery switch of the lift, and the cabin switch if applicable.
- ⇒ Respect the overall safety instructions described under point 4 of this user's manual for all operations.
- ⇒ Inspect the lift before use. Check if the lift frame and lift arms are still intact, and if all pivot pins are correctly secured. If an unsafe situation exists, DON'T use the lift.
- ⇒ Pull back the handle of the mechanical lock (ref. 5 on page A9/10), en use the function "lower" of the wander lead to clear the platform from the lock. Pull-out the platform by hand, untill it locks in the mechanical lock for the working position (ref. 14 on page A10). Unfold the foldable point-section of the platform, and lock the side safety gates in the vertical position.
- ⇒ Use the 2-button wander lead, or the push buttons on the side of the power pack (if the position of the power pack allows the operator to use these in a safe manner), to raise the platform to the vehicle floor level, or to lower it back to the ground, according to the functions 5.4.1 and 5.4.2.
- ⇒ During all lift movements, take special care to stay away from the crushing zone between the raising platform and the exposed parts of the vehicle body.
- ⇒ Ride the wheelchair passenger on the platform, with the passenger facing backwards, away from the vehicle. The wheelchair needs to be positioned centrally on the platform. Make sure that both the automatic roll-stop flap and the automatic bridge plate (if applicable) can function

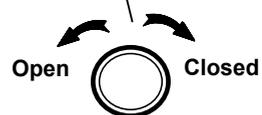
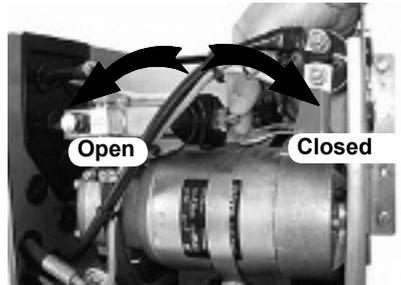


unhindered. Apply the parking breaks of the wheelchair so that the wheelchair cannot move when the platform is in motion.

- ⇒ Use the 2-button wander lead again to lift the wheelchair passenger to the vehicle floor level, or to lower the chair to the ground. The platform will automatically stop when either of these levels is reached.
- ⇒ For ascending movements, ride the passenger carefully inside, and secure the wheelchair against all movements during the journey on the road. For descending movements, don't try to push the wheelchair off the platform as long as the platform is not in full rest at groundlevel, and the automatic roll-stop flap is inclined to the ground. Ride the wheelchair off the platform with care.
- ⇒ Use the 2-button wander lead again to aid other passenger to get on board of the vehicle or disembark, and follow again the instructions above.
- ⇒ In order to restore the lift into driving position, fold the safety gates back onto the platform surface, and fold the foldable point-section back over the main part of the platform. Undo the lock for the working position (ref. 14 on page A10), and push the folded platform back under the chassis of the vehicle until it reaches a positive end stop. Use the function "lift" on the wander lead to raise the platform up into driving position, and ensure that the spring loaded travel lock (ref. 5 on page A10) is activated.
- ⇒ Check the loading situation and close the vehicle doors.

5.4.4 Use of the available emergency facilities.

- ⇒ The use of the emergency handpump proceeds completely identically as described for the DH-RB in point 5.3.3.
- ⇒ The **manual emergency operation** on the **descent valve in the power pack** and on the **safety valve on the lift cylinder** enables the operator to execute the **downward lift functions** (this is the lowering function) swiftly and efficiently by means of a simple manual procedure. Thus, in absence of a sound electrical system, the wheelchair passenger can still be helped out of the vehicle in all comfort.
- ⇒ In order to lower the platform to the ground, unscrew the bronze button on the extremity of the descent valve counter clockwise, or maintain the bronze button open if you have already executed the "open" movement manually. The speed at which the movement is executed, can be carefully fine-tuned by unscrewing the bronze button a little bit more, or a little bit less.
- ⇒ In order to interrupt the manually executed "lower" movements, or just in order to reset the valve into neutral closed position, turn the bronze button on the extremity of the descent valve clockwise, until the screw sits tight.
- ⇒ **Attention:** when executing the emergency procedures, respect the safety prescriptions of point 4, and point 5.4.3.



6) WARRANTY TERMS

6.1 Period

- ⇒ The warranty period for Dhollandia passenger lifts is 12 months from the invoice date of the lift to the coach worker / installer.

6.2 Conditions

- ⇒ Warranty is only granted for passenger lifts in the configuration that they have been delivered to the body builder or fitter of the equipment.
- ⇒ The basic condition for the recognition of any warranty claim, is a normal use and a correct maintenance in conformity with the Dhollandia users' and maintenance instructions.
- ⇒ Further conditions for the recognition of any warranty claim, are:
 - a correct fitting according to the fitting instructions of Dhollandia, and the body building prescriptions of the manufacturer of the vehicle;
 - a put-into-service test with positive result;
 - a correctly filled-out fitting declaration by the body-builder / fitter of the tail lift;
 - a correctly updated set of periodic control reports, extra-ordinary control reports and repair reports (see section C of this users' manual).

All rights coming forth from the warranty terms are annihilated if and when the reports mentioned are not correctly filled out, dated, signed and stamped by the authorised tail lift experts.

- ⇒ Each warranty claim has to be supported by a copy of the fitting declaration, and a copy of the invoice of the last maintenance or repair intervention on the tail lift, together with copy of the relating repair report. The failing part must be joint to these documents, in order to make the claim complete.
- ⇒ The final decision about whether a part is covered by the warranty or not, is entirely up to the constructor of the passenger lift
- ⇒ The tail lift must have been serviced or repaired with the use of original Dhollandia spare parts only.
- ⇒ The warranty is limited to the free replacement of the failing spare part.

6.3 Not covered by the warranty:

- ⇒ Labour hours, mileage, potential logistic costs to and from the workshop, other related costs like renting costs (replacement vehicles), costs due to immobility, consequential detriment, missed sales,...
- ⇒ Rubber and synthetic parts, hydraulic pressure hoses.
- ⇒ Tail lift problems caused by the use of polluted oil or by the use of oil with the wrong specifications.
- ⇒ The adjustment of hydraulic cylinders after the first period of use, and the checking up on the fitting bolts.
- ⇒ Failures to electrical plugs of the main current supply and failures or imperfections of batteries.
- ⇒ Electrical failures (to the electromotor, the start relay, switch elements) caused by the use of an insufficient capacity of the current source. This sort of electrical components is only covered by warranty if the electrical circuit has been equipped with a battery voltage protector that interrupts the electrical circuit whenever a voltage lower than 10V has been measured in a 12V-installation, or lower than 20V in a 24V-installation.
- ⇒ Imperfections or failures caused by violating the prescriptions for the fitting, or if the construction of the tail lift or one of its components has been modified without preceding written permission of our study department.
- ⇒ Failures caused by unpermitted or improper use of the lift, by neglecting the strict conditions for operating and maintaining the lift (over-loading, negligence, maintenance done incompletely or too late, etc.)

- ⇒ Failures caused by collision or other kind of accident.
- ⇒ Under no condition a warranty case can lead to damage claims of any kind.

7) ORDERING SPARE PARTS

- ⇒ In order to deliver spare parts quickly and correctly, we need the following data:
 - type and serial number of the tail lift
 - year of construction of the tail lift
 - the ordering code of the spare part (to be found in the spare part list)
 - the quantity of the parts wanted
 - your administrative data: name, address, order form number, address for delivery (if different), way of transport or collecting the goods, desired term of delivery).
- ⇒ You can find these data of your tail lift on the identification sticker on the inside of the control box, or on the one adhered to your declaration of conformity in this manual.
- ⇒ For the passenger lifts type DH-P20, DH-RB and DH-SC, the serial number can be traced back to the hydraulic power pack. For the passenger lift type DH-CH, the serial number can be retrieved from the hatch that closes off the cassette box.

PART B

MAINTENANCE AND REPAIR

1) SAFETY INSTRUCTIONS FOR MAINTENANCE AND REPAIR

The repair and maintenance works described in this chapter can only be executed by engineers who know and understand the contents of this manual, who have built up a solid technical experience by training and practice, and who have been technically trained by DHOLLANDIA or one of her agents and are able to prove this with a certificate. The engineer working on the Dhollandia equipment should not only follow the general safety regulations for the use of the passenger lift (see point 4 and 5 in chapter A), but he must also observe the safety issues below.

1.1 General safety regulations for repair and maintenance

- ⇒ Before opening the mechanical lock of the loading platform, check whether the hydraulic system is building up pressure and whether there are no major oil leaks.
- ⇒ Take into account that a flexible hose, a cylinder seal or a hydraulic coupling might be leaking, and that the hydraulic circuit might lack pressure for that reason. This could cause the platform to fall open upon releasing the mechanical platform lock.
- ⇒ Keep in mind that the loading platform may have been closed by means of exterior helps (crane, fork lift, etc.), so that the cylinders might not be filled with oil, and the platform might fall open as soon as the mechanical lock is released.
- ⇒ Avoid the area under the platform or within the reach of the platform at all times. If the nature of the repair or maintenance works require you enter this danger zone anyway, then support and immobilise the platform by means of gantry crane, forklift, ... or equivalent means of immobilisation.
- ⇒ Never stand or sit in between the platform and the back of the vehicle.
- ⇒ Always wear adjusted protective clothing when working on hydraulic lifts.
- ⇒ When you need to work inside the danger zone, or on one of the moving parts of the tail lift, always turn off the power and remove the battery key in order to avoid improper, unauthorized or unsafe use of the tail lift.
- ⇒ The dismantling and remounting of hinge pins always has to be done safely and the platform always has to be re-attached into its original hinge points.
- ⇒ It is prohibited to straighten, weld together, lengthen or shorten the articulation points, lift arms, lift beams or platforms. In case of failure, these structural parts need to be replaced by original replacement components.
- ⇒ Some types of passenger lifts are equipped with a number of **spiral torsion springs** and **torsion bars**, that can be under high tension in certain positions, and therefore can cause sudden unexpected movements of different parts of the lift arms and the platform when you start to disassemble the lift structure. In order to prevent personal injuries, make sure that these parts are without tension, and stand in their neutral position when you intend to repair, dismantle, and refit these parts.
- ⇒ In case of doubt about the safe working procedures for torsion spring, revision of hydraulic cylinders or other technical interventions, consult the technical department of your Dhollandia agent before getting started.

1.2 Hydraulic components

A passenger lift is a hydraulic device that is supported at all times, as well in transit as when using the lift, by the hydraulic oil pressure in the cylinders. Therefore, the key hydraulic components such as valves, flexible hoses, pipes, cylinders, ... should never be dismantled if the platform and the lift arms are not correctly secured against falling, and if the platform is not immobilised in a safe position. If possible, leave the platform at rest on the ground while working on the lift.

✚ **Dismantling the cylinders:**

First of all, secure the platform against accidental fall by hanging it onto a chain or gantry crane, by locking the platform, by supporting it or by resting it on the ground. Secondly, release the oil pressure by pressing both the 'down' and 'open' buttons for approx. 20 seconds. Only after the oil pressure has

been released, may the articulation pins be removed.

Support the cylinders during the dismantling in order to avoid them to fall down on the ground when the hinge pins are being removed.

Refitting of the cylinders:

From the moment that 1 side of the hydraulic cylinder is fitted to its articulation point by means of the relating pin, the easiest way forward is to connect the hydraulic pipes so that the cylinder can be powered out to the correct length. Keep in mind that the cylinders are filled with air after a revision, and that they will slide out with little shocks. **Never** check with your hand or finger whether the eye of the cylinder is in line with the holes in the hinge points on the platform or on the beam, to which the hinge pin is to be fitted.

Only when all the hinge pins are in place and secured, you can bring the cylinders under full pressure by means of the control panel. And only after checking whether the hydraulic system generates over-pressure and there are no more oil leaks, the mechanical platform lock may be released.

For dismantling and refitting hydraulic valves, the same safety instructions apply as for the

For the dismantling and refitting of the **valves**, the same safety instructions as for the cylinders are to be followed. Also here, the platform needs to be sufficiently supported, immobilised or hung up on a gantry crane, so that it cannot fall down to the ground in case of sudden pressure loss in the hydraulic circuit.

1.3 Electrical components

Before the dismantling and the refitting of electrical components, make sure that the relevant parts are completely without tension. This can be done by turning off the main battery switch in the outside control box of the tail lift (or in the cabin of the vehicle), if the working area is located in the hydraulic aggregate or in the control box. For repairs to the main battery switch itself or repairs to the current supply cable, you have to turn off the battery switch on the batteries (if available) or to disconnect the battery poles.

2) MAINTENANCE

2.1 Introductory note

Regular maintenance is not only important to influence the duration of your lift's life in positive sense, it is also indispensable to be able to guarantee the safety of the operator and the operational reliability of the passenger lift. The maintenance intervals depend on the intensity with which the tail lift is used. In many cases the maintenance of the lift can be done at the same time as the maintenance of the truck.

The hydraulic lift should operate smoothly and quietly. During the lifting and the closing, the only sound you should hear is the sound of the hydraulic aggregate. Every other strange noise (creaking or grinding) should be examined thoroughly in order to avoid serious damage.

As a guide line for a maintenance, it is recommended to use the check lists under point 5 in chapter C.

2.2 Weekly checks

- Check if the identification sticker, the sticker bearing the safety instructions, and the other safety devices (see point 3 in chapter A,...) are still present, functional and readable.
- Check whether the control switches of the outside control panel (joy stick, tumbling switches and

push buttons) are automatically springing back into their neutral position (hold-to-run principle).

- ❑ Check whether the control switches of the supplementary control unit spring back automatically into their neutral position and whether the protective rubbers of all buttons are intact.
- ❑ Check if the height-limitation switch on the hand-rail control (DH-P20) is still in good working order. This means: check if the platform automatically stops when it reaches floor height by means of the hand-rail control.
- ❑ Check whether the covers of the control box and the hydraulic power pack are still present and intact.
- ❑ If dirt or foreign particles threaten to disorder the correct function of any of the mechanical components or safety devices of the lift, the passenger lift must be thoroughly cleaned. See point 2.5.

2.3 Three-monthly maintenance

- ❑ Execute the same maintenance steps as for the weekly check-up.
- ❑ Grease all crucial articulation points thoroughly according to the grease plan under point 2.5.
- ❑ Execute all movements of the hydraulic lift several times, both by using the principal control unit and by using the supplementary control unit(s) (if available). All movements have to progress smoothly and without shocks. Apart from the sound of the engine of the hydraulic aggregate, you should not hear any grinding, creaking or other strange noises.
- ❑ Check up on the general condition of the hinge points, the platform and the beam, and of the mounting plates.
- ❑ Check the correct locking of all hinge pins, and of the bolts of the lift's suspension to the body of the vehicle. Adjust the locking if necessary.
- ❑ Check the oil level and refill if this level is too low.

Oil type: ISO 15 or 22 with a viscosity index of minimum 150 points.

Fill level: to check the oil level, the loading platform should be placed on the ground.

DH-P20 and DH-CH : oil level should reach to 2 cm below the filling tap

Normal tank capacity = ca. 1.2 L

DH-RB and DH-SC : oil level should reach up to the maximum oil level indication (about 5 cm from the top of the tank).

Normal tank capacity = ca. 6 L

- ❑ If the oil needs a refill, find out the cause of the oil loss and repair it. During the operation of the tail lift no oil is consumed, therefore it can only disappear by leaking.
- ❑ Check all electrical wiring for damages, scubbings, oxidation and check whether all wires are still firmly connected to their relating contacts. Replace the rubber protectives of the control buttons if they should be damaged.
- ❑ Check the general condition of the electrical fuses (main fuse near the batteries and the 15A fuse in the control box).
- ❑ Check the hydraulic hoses for potential damage done to the rubber layer and repair damages due to squeezing, scrubbing or other damage.
- ❑ Check the condition of the batteries (general condition, voltage under strain of loaded platform) and of the battery poles. Clean the poles if they are oxidated or burnt in and grease them with vaseline. The specific gravity of the acid in the batteries has to be minimum 1.23. Be careful: week batteries can lead to a damaged electromotor, battery switch or start relay !

2.4 Yearly maintenance

The yearly maintenance is best done during the autumn, in order to be able to remove condensed wa-

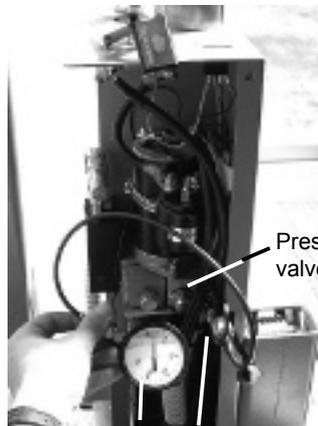
ter during the oil change. This is necessary to eliminate potential freezing problems during the winter.

- ❑ Execute the same maintenance steps as for the three-monthly maintenance.
- ❑ Change the oil and clean the oil filter. To be able to change all of the oil, it is recommended to lift the back of the truck (workshop - legs), or to place it on higher level (car hoist or drive-on ramp) in order to enable the platform to descend lower than the normal ground level and the hydraulic cylinders to be compressed maximally.
- ❑ Purge the hydraulic circuit after changing the oil. This de-aeration is done by bringing the platform down into its lowest position first, followed by pressing both buttons for 'down' and 'open' for approximately 20 seconds. Close the platform again, and reiterate the same procedure 4 times.
- ❑ Thoroughly check all electrical wiring connected to the batteries, control box and power pack. Also check the earth connections.
- ❑ Check all electrical wiring for potential damages to the insulation layer, and potential oxidation to the connections.
- ❑ Clean the power pack.
- ❑ Carry out a weight test, measure the working pressure, and adjust it if necessary.
 - Always use a manometer when checking on the lift capacity!
 - Measure the oil pressure, and set the pressure relief valve to the value that corresponds with max. 100% (not more!!) lifting capacity off the ground. Use the put-into-service test from chapter C as your reference. After setting the pressure relief valve correctly, seal the pressure relief valve and lead it, so that it cannot be tempered with.



Increase working pressure

Reduce working pressure



Pressure gauge ref. K0106

- In order to adjust the hydraulic pressure, remove the sealing cap from the pressure relief valve. Turning the adjustment screw clockwise will raise the pressure. Turning the adjustment screw counter clockwise will reduce the hydraulic pressure.
- ❑ Check the tolerance or potential deformation of the hinge pins and the bearings when driving over the platform.
- ❑ Fill out the "maintenance and repair report" in chapter C. Make sure the periodical inspection is executed by an expert and ask him to write down the test results in the "inspection report" in chapter C of this manual.

2.5 Cleaning the lift + greaseplan

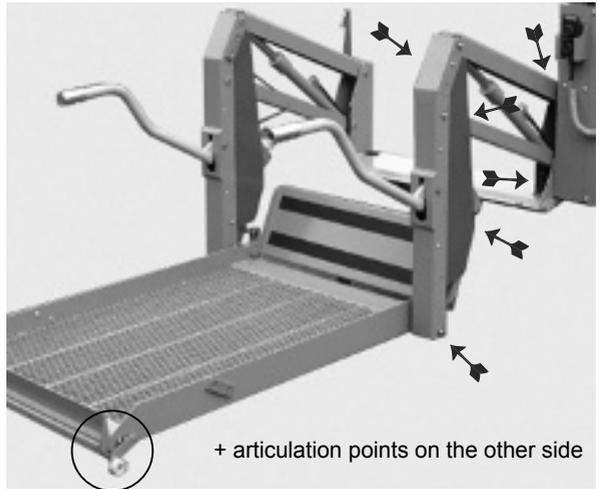
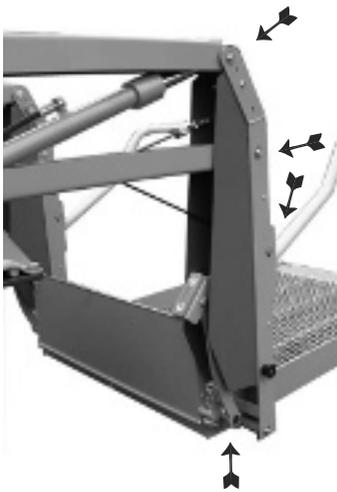
Dhollandia passenger lifts are equipped with low maintenance bearings, which reduce the normal greasing frequency to once a year during the annual maintenance service. In case of heavy lift use, the

greasing intervals will need to be more frequent and regular, in function of the intensity of use and the specific application of the lift.

It is certainly important to clean the hydraulic lift thoroughly and to grease it afterwards if the good working order of some of the mechanical components, or one of the safety devices threatens to be distorted by dirt oxidation, foreign particles,... Proceed as follows:

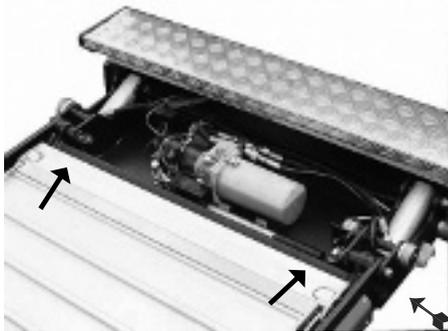
- ❑ First clean the tail lift thoroughly, in order to make sure that the grease nipples and articulations points are clean. Preferably use a neutral detergent, and avoid the use of the acid or alkaline degreasers at all times. D'hoollandia will not accept liability for the impact of aggressive chemicals applied on painted or non-painted surfaces.
- ❑ The hinge points without grease nipples are equipped with low-maintenance bearings. To lubricate these articulations, use a resin-free and acid-free lubricating oil with strong penetrating characteristics, that protects, fights corrosion and evacuates moisture. Focus the beam on the centre and the whole surface of the articulation elements.
- ❑ Because of their higher lift capacity, some of the pivot points of the DH-RB and DH-SC are equipped with grease nipples on the hinge pin extensions. These articulation points must be greased with an acid-free grease (for instance LM grease), so that a grease collar builds up on the sides of the articulations, that protects against the ingress of water, dirt, salt,...
- ❑ Before greasing, rest the platform on the ground so that all articulations are free of tension.
- ❑ Check whether all grease nipples effectively spread their grease to the outside collar of the hinge bearings and replace the damaged grease nipples.
- ❑ After greasing, remove the surplus of greasing material from the surfaces of the lift frame and platform, and from the exterior sides of the articulation points with a soft rug, so that dust is not attracted unnecessarily, and the risk of slipping can be avoided.
- ❑ Check if the platform lock functions ok, and lubricate it if necessary.

Grease-plan DH-P20



Grease points = 
Method = spray can of penetrating oil

Grease-plan DH-CH



+ articulation points on the other side



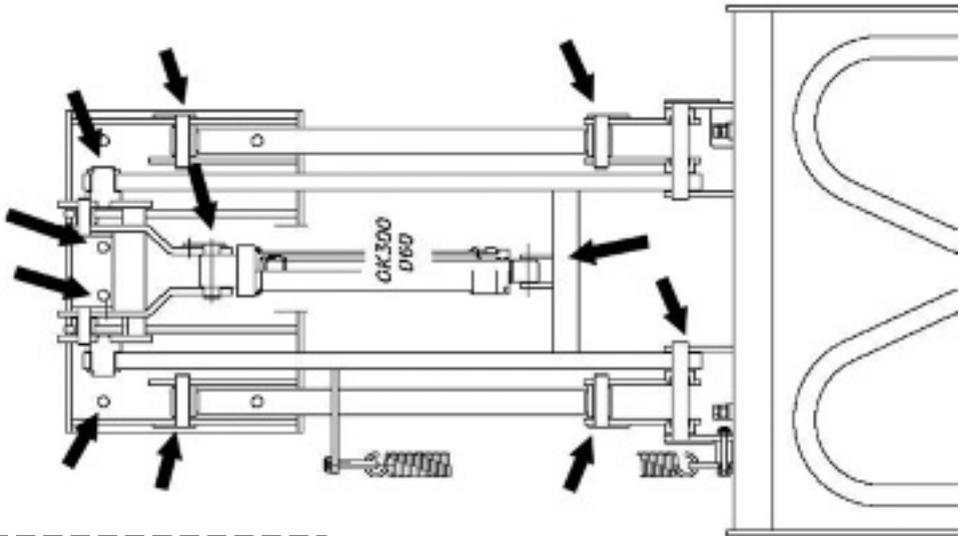
Grease points = 

Method = spray can of penetrating oil

Grease points =

Method = acid free grease

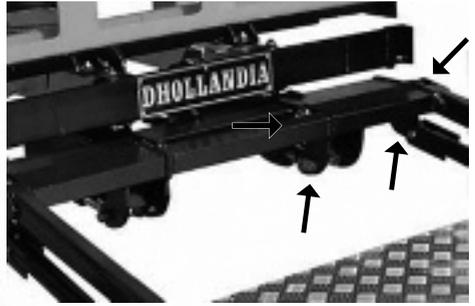
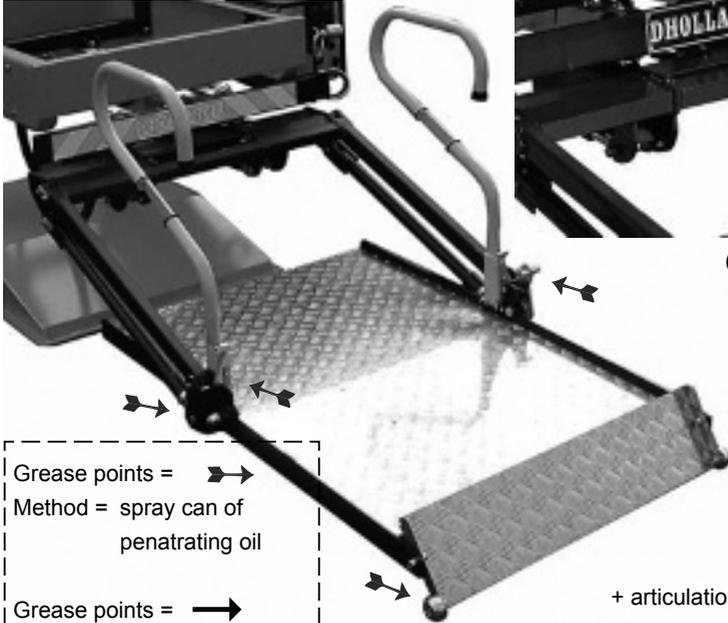
Grease-plan DH-RB



Grease points = 

Method = acid free grease

Grease-plan DH-SC



(8 grease nipples L + R)

Grease points = 
Method = spray can of penetrating oil

Grease points = 
Method = acid free grease

+ articulation points on the other side

3.1 Remarks

In case of an apparent failure, the **user** can check a number of points by himself before consulting an expert service agent from the DHOLLANDIA network.

- Are the switch in the cabin, the main current switch on the batteries and the battery switch in the principal control box switched on?
- Is the lift's main fuse, which is normally fitted near the battery, still intact?
- Is the platform lock opened?
- Are the batteries charged sufficiently?
- Is the fuse / are the fuses in the control box still intact?
- Could the electromotor in the hydraulic aggregate be overheated? If so, then the thermal security of the electromotor has been activated, and the electromotor has been turned off and will automatically turned on again when the motor has cooled down enough (after approx. 20 minutes) .

The procedure to be followed at the service agent:

Repair works to tail lifts are too often done by subsequently replacing different spare parts until the disorder has been solved. This manner of working is not very effective and is a cause of high repair costs (labour hours and spare parts). In addition, one type of failure can have different causes: if a platform cannot be lowered for instance, it could be that the control button does not pass on any current, it could be that the wire leading towards the electrical safety valves is interrupted, that the cartridge of the electrical safety valve is defective, that the piston rod of one of the lift cylinders is bent, ... Therefore the service engineer should search **systematically** for the cause of the disorder, by testing step by step and elimination. During the repair, all of the described safety instructions must be given full consideration.

In order to rank the disorders logically, they are academically divided into 2 main categories:

✚ 3.2 Electrical disorders:

- 3.2.1 Introduction
- 3.2.2 The lift moves at normal speed without touching any control button
- 3.2.3 Symptoms of weak batteries or damaged current supply
- 3.2.4 A solenoid does not work when its relating button is pressed
- 3.2.5 Tension is measured on solenoids that should not be activated
- 3.2.6 The electromotor does not work
- 3.2.7 Checking the reaction of valves when the solenoids are activated
- 3.2.8 Resuming table for the operation of the solenoids.

✚ 3.3 Hydraulic / mechanical disorders:

- 3.3.1 Introduction
- 3.3.2 The lifting capacity of the tail lift is insufficient
- 3.3.3 The loading platform does not reach the height of the loading floor
- 3.3.4 The tail lift lifts too slowly
- 3.3.5 The platform lowers too slowly when the function 'down' is activated
- 3.3.6 The tail lift lowers in shocks
- 3.3.7 The platform lowers horizontally without touching any control button
- 3.3.8 The motor runs, but the tail lift does not move

3.2 Electrical failures

3.2.1 Introduction:

The control panel passes on electrical impulses from the control panel to the power pack and to the valves of the cylinders. The logical working order in case of failure requires the service engineer to check whether the control buttons and their contacts receive electrical current and afterwards, during the manipulation of the buttons, whether they pass on (NO-contacts) or interrupt (NC-contacts) the current correctly. Then he has to check whether the impulses of the buttons control the correct solenoids and, finally, whether the solenoids themselves are still functioning correctly.

As a guideline for this analysis the engineer should use the enclosed electrical circuit diagrams. The pictograms at the bottom left of the diagrams show which solenoids need to receive an electrical current per movement. The valves that are not mentioned, should absolutely remain tensionless.

Example: for **DHRB LOWER** = safety valve 'D' + descent valve 'B' in power pack



Important: when checking the solenoids, you have to connect your testing equipment to **the concerned solenoid's earth connection (mass) wire**. Doing so, you avoid not finding that the solenoid's earth connection is malfunctioning, because your testing equipment is connected to a central earth connection.

3.2.2 The lift moves at normal speed without touching any control button:

Whenever a disorder of this kind occurs (e.g. the platform keeps going down at normal speed without being operated), you are probably dealing with an electrical disorder. To make sure that it is an electrical disorder, you should disconnect the current supply from the concerned solenoids. If the disorder has stopped, you can be sure that the cause of the problem is of electric nature, if the disorder has not stopped, the cause is non-electrical (dirt in the control valve, a broken seal kit,...).

Potential electrical causes of this problem can be:

- A control button of the outside control or the supplementary control remains has got stuck.
- A short-circuit in the wiring.
- The control buttons return well to their neutral position, but one of the relating contact has got stuck

3.2.3 Symptoms of weak batteries or damaged current supply:

- The hydraulic lift can be opened and lowered, but not lifted or closed anymore
- The motor runs, but has little power
- The starter solenoid reacts, but the motor does not work
- The starter solenoid quickly clicks on and off
- Nothing at all happens
- Working procedure for 24 V:**
 - Check the voltage on the battery switch **when the lift is working** (this is under strain). If you measure **24 V on the battery switch**, measure on the 35mm² cable of the starter solenoid if the connection between the control box and the power pack is not damaged, or if the battery switch itself is operating correctly. It is possible that the wire is damaged on its inside, even if the wire does not show any sign of damage on the outside.
 - If you do **not measure 24 V** on the battery switch, you should start from the battery poles on the batteries and measure the battery cable down to the battery switch. Also check whether the main fuse is intact and whether the battery switch itself is functioning correctly.
 - If the batteries prove to be empty or weak, you have to charge them, test them, check the water level and measure out the alternator. A 12 V alternator should maximally give 16 V, a 24 V alternator 28 V. When you are using supplementary batteries (e.g. on a trailer), you should also diagnose the trailing vehicle's charging system with diodeblock or other charging systems.

3.2.4 A solenoid does not work when its relating button is pressed:

- There is no current supply or insufficient current supply from the batteries.

- Check the fuses (main fuse fitted to the battery + 15 A fuse in the control box).
- A wire between the control box and the relating solenoid has been damaged.
- The solenoid concerned is not or insufficiently earth-connected or the earth connection is interrupted.

3.2.5 Tension is measured on solenoids that should have been tensionless:

- Check if no control button has got stuck in the activated position
- Check if no contact has got stuck in the activated position, or is corroded
- Check if there is no short-circuit in the wiring of the main control box or of the extra controls.

3.2.6 The electromotor does not work:

- Check whether there is tension on the outgoing pole of the starter solenoid (wire connecting the motor and the starter solenoid). Pay attention to the fact that some electric motors (>1500W, so on DH-SC and DH-RB) are equipped with a **thermal contact** that interrupts the earth-connection of the starter solenoid when the motor is overheated. This thermal contact restores itself after approx. 20 minutes.
- Check the carbon brushes. These need to be at least 10 mm long.
- Check if the motor has sufficient earth-connection.
- If the starter solenoid does give sufficient tension and the motor earth is intact, the motor needs revision or replacement.

3.2.7 Checking the reaction of valves when the solenoids are activated:

- Checking the solenoid resistance with an Ohm meter
Required values 12V coil 5.5 Ohm +- 15% 24V coil 22.2 Ohm +- 15%
- When you activate a solenoid, you create a magnetic flux that can easily be checked with a magnetic pencil or by holding the steel part of a screwdriver about 5 mm from the solenoid. If the solenoid is activated, the screwdriver will be magnetically attracted or the magnetic pencil will light up.

3.2.8 Resuming table: solenoid and relay activation per movement

Types	DH-P20	DH-CH	DH-RB	DH-SC
<u>Functions :</u>				
Lifting	R	R	R	R
Lowering	Dg	Dg	D + Dg	D + Dg
Closing	R	-	R	-
Opening	Dg	-	D + Dg	-

All valves D and Dg are single acting

Description of the symbols used:

- R = starter solenoid of the electric motor
- D = safety valve on the lift cylinder
- Dg = descent valve in the hydraulic power pack

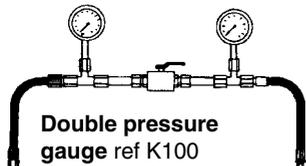
3.3 Hydraulic / mechanical disorders

3.3.1 Introduction:

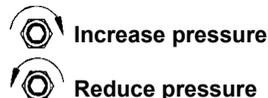
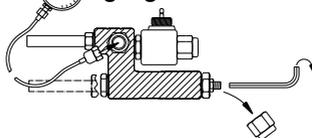
It is of the utmost importance to determine with certainty whether the spare part replaced really is the cause of the failure. A hydraulic disorder can be caused either by a defective valve or by leaking seal in the cylinder.

3.3.2 The capacity of the hydraulic lift is insufficient:

- Always use a to revise the lifting capacity !



Simple pressure gauge ref K106



- Measure the max. working pressure (refer to the put-into-service-test as reference - normally approx. 180 bar). If the pressure is lower (or too low), you can adjust it with the pressure relief valve. The pressure adjustment screw is turned in (clockwise) for an increase or turned out (counter-clockwise) for a decrease of the working pressure.
- If the pressure gauge does not read any change after the pressure relief valve has been adjusted, this means:
 - that the pressure relief valve is dirty (the pressure relief valve can be purged by unscrewing the pressure adjustment screw completely when the motor is running and screwing it back in until the correct pressure has been reached).
 - that the pump is worn out (if the pumps heats up quickly, this normally reflects complete wear).
 - insufficient oil suction from the reservoir to the pump (frozen condensation water or dirty oil filter).
- The seal in one of the lift cylinders can be leaking. This can be tested quite simply by disconnecting the return hoses from the front of the lift cylinders, and lifting the platform up several times to the vehicle floor and lowering again. During the first lifting movements, any remaining return oil is pushed out of the return hole at the front of the cylinder. Upon the following lifting movements, no more oil should leak from the front of the cylinder. If oil continues to flow out of the return chamber of the cylinder, this points to an internal leak in the cylinder (sealing kit to be renewed).
- One of the return hoses could be stopped-up. This disables the oil from the lifting cylinders to return to the oil tank.

3.3.3 The platform does not reach loading floor height:

- One or more of the hinge points of the lift arms or cylinders are bent or deformed.
- One or more of the hinge pins or articulation bushes are seriously worn out or deformed
- The oil level in the oil tank is too low.
- The body of the vehicle has moved, or the fitting plates of the lift beam are deformed.

3.3.4 The hydraulic lift list too slowly:

- In frosty weather: ice has formed in the oil, or the oil has become too thick if the wrong type of oil was used.
- The batteries are not supplying enough current. Check the batteries and their charging system.
- The oil filter is stopped-up: change the oil and clean the suction filter.
- The carbon brushes in the electromotor are worn out or blocked.
- Check whether the voltage of the tail lift corresponds to the voltage of the vehicle.

- The braking valve is blocked, or working improperly.
- The seal in one of the lift cylinders is leaking (see also under point 4.3.2).
- One of the return hoses could be stopped-up. This disables the oil from the lifting cylinders to return to the oil tank.
- The pump debit is too small compared to the content of the cylinder.

3.3.5 The platform lowers too slowly when the function 'down' is activated:

- The hydraulic lift is badly greased, the pins in the articulation bushes get seized up. Grease the tail lift well and make the hinge points free. If necessary, remove the pins to clean them or to replace them.
- One of the hinge points, pins or bearings has been deformed (due to overloading).
- One of the piston rods of the lift cylinders is bent.
- The braking valve is blocked: open the valve and make the braking plunger functional again.
- In frosty weather: there might be formed some ice in the valves or in the conducts. First defrost the potential ice and change the oil afterwards.
- The braking valve is too small. Replace it by a bigger one.

3.3.6 The hydraulic lift lowers in shocks:

- The braking valve is blocked: open the valve and make the braking plunger mobile again.
- The lift is badly greased, the pins in the articulation bushes get stuck (see also 4.3.5).

3.3.7 The platform lowers horizontally without touching any control button:

- The safety valve on the lift cylinder is leaking (the sealing O-ring is damaged or the valve cartridge is kept half open by dirt)
An electrical safety valve can be rinsed by unscrewing it manually with the aid of the manual emergency control (see also point 5 - Emergency procedures on the road), and subsequently making the pump run for about 15 seconds. Afterwards, screw the cartridge valve back into the closed position.
- There is a leak on the seals of the lift cylinder(s)
- Note: some types of hydraulic lifts (DH-RB and DH-SC) are equipped with 1 safety valve on the lift cylinders, and an additional descent valve in the power pack. As a result, even if the valve on the lift cylinder would be leaking, the platform would still be supported by the valve in the power pack. Therefore, in this configuration, the platform can only lower from its own when there are simultaneous leaks in the valve on the lift cylinder and in the cartridge on the descent valve in the power pack.

3.3.8 The electric motor runs, but the tail lift does not move:

- The oil tank is empty or insufficiently filled.
- The drive shaft in between the electromotor and the pump is broken; to check this, the pump has to be removed from the motor).
- The suction filter between the oil reserve and the pump is obstructed. Renew the oil and clean the suction filter.
- In frosty weather: potential formation of ice in the valves and / or in the conducts. Make sure the system is defrosted and renew the oil afterwards.
- The seals of the lifting cylinders are seriously damaged or worn out. The oil that is pumped into the cylinders returns immediately through the seals, without exercising any power on the cylinder rods (very rare).
- There is no tension on the coil of the lifting valves.

4) ELECTRIC & HYDRAULIC WIRING DIAGRAMS

The following pages contain the electric and hydraulic wiring diagrams for the different types of passenger lifts.

Type : CASSETTE passenger lift DH-CH + hydromotor - 2008/...

Power pack : G.C01...04

Valve : V122

Plan N° : CH-E146-2008-01

Date : 07/06/2008

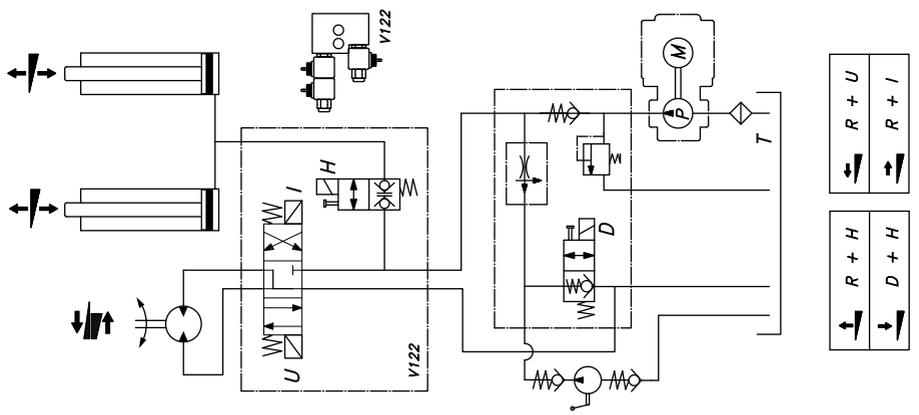
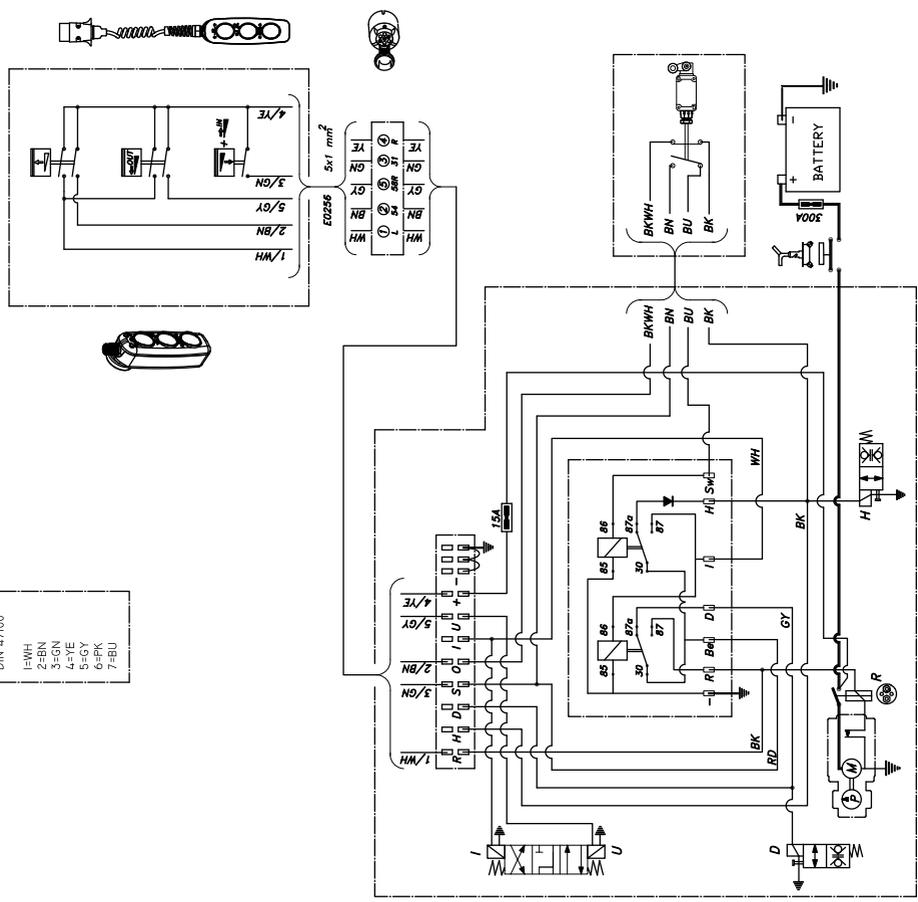


DHOLLANDIA

E0784.CH -> CH8

COLOUR CODES
DIN 47100

1-WH
2-BN
3-GN
4-YE
5-GY
6-BK
7-BU



↑	R + H	↑	R + U
↓	D + H	↓	R + I

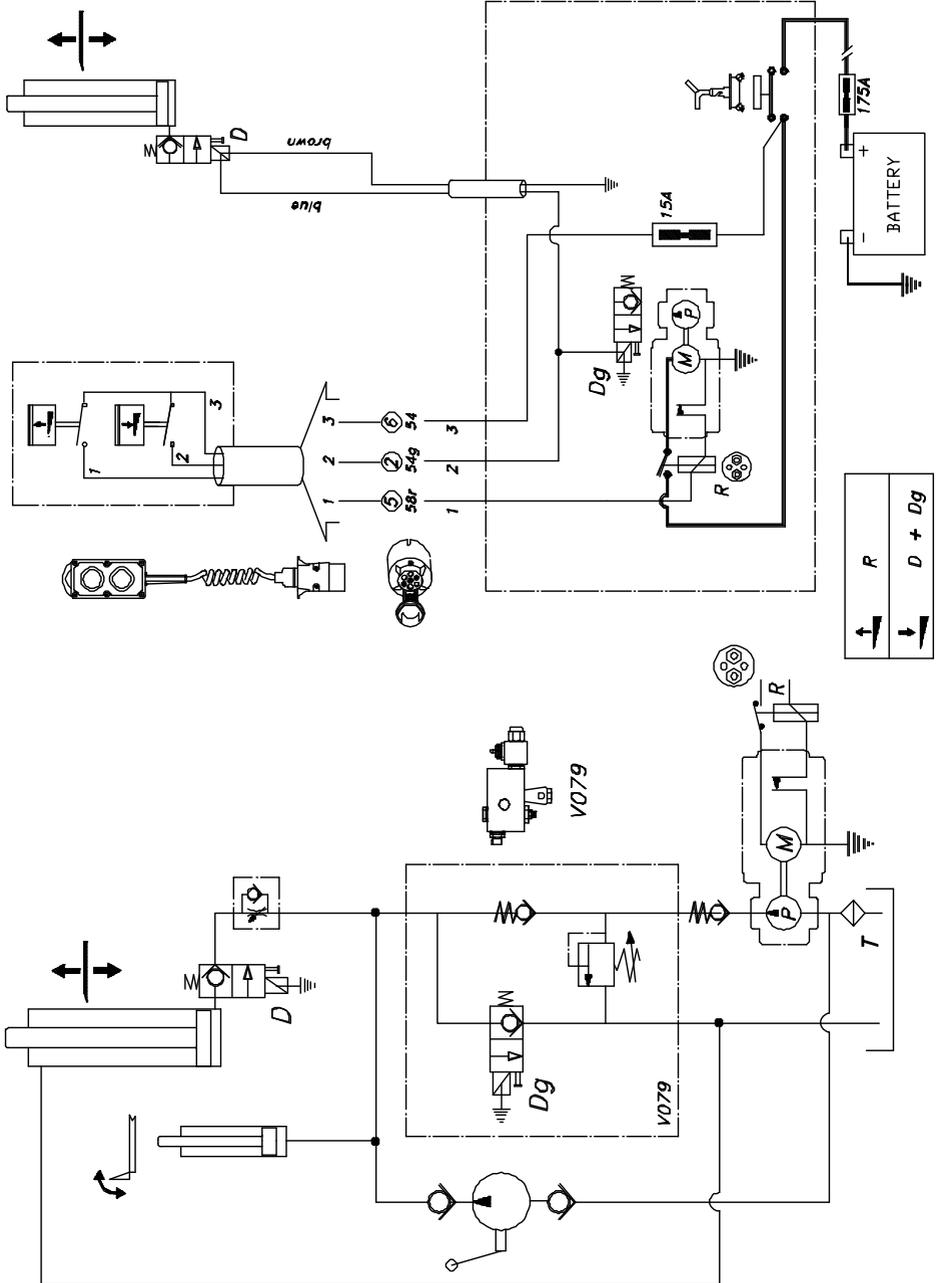
Type : Passenger lift for coaches - type DH-RB - 1999/...

Power pack : -

Valve : V079

Date : 30/06/2003

Plan N° : RB-1-EN



Type : City slider lift type DH-SC - 2002/...

Power pack : -

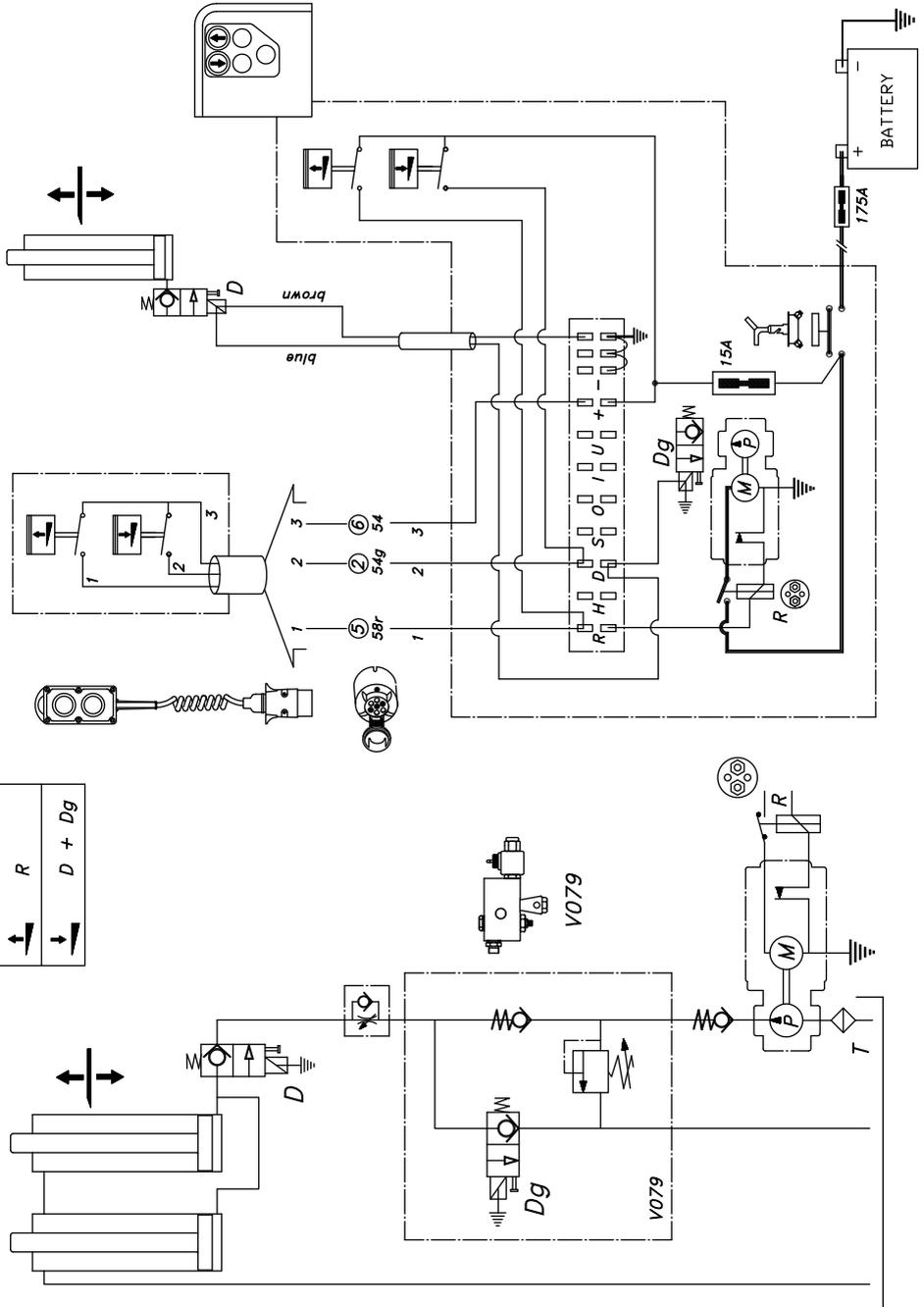
Valve : V079

Date : 30/06/2003

Plan N° : SC-1-EN



D'HOLLANDIA



Type : SLIDER LIFT DH-SC20 + S521 hydromotor - 2009/...

Power pack : G-SC-L-01...02

Valve : V123 + V079

Plan N° : Sch_SC20-V123-2009-01

Date : 01/02/2009

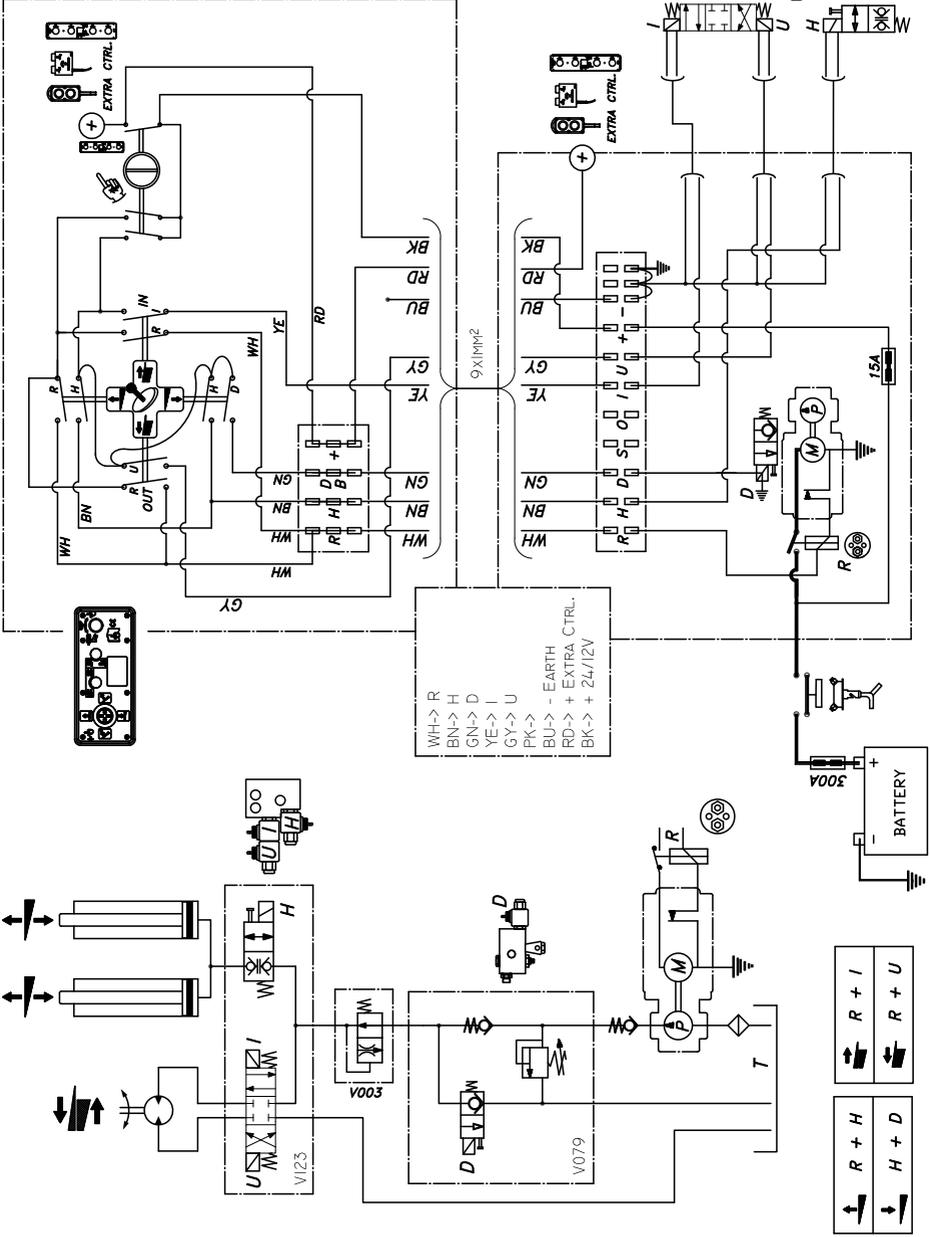


S008.Z - NO E068

EXTERIOR CONTROL BOX REF. EC544,K0.CI509 (OR T0) / EC564,K0.CI509 (OR T0)

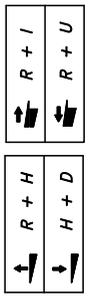
COLOUR CODES
DIN 47100

1 =	WH
2 =	BN
3 =	GN
4 =	YE
5 =	GY
6 =	PK
7 =	BU
8 =	RD
9 =	BK



9X11Mx2

WH->	R
BN->	H
GN->	D
YE->	I
GY->	U
PK->	- EARTH
BU->	- EXTRA CTRL.
RD->	+ EXTRA CTRL.
BK->	+ 24V/2V



PART C

MAINTENANCE & INSPECTION REPORTS

1) INTRODUCTORY REMARKS

Since the 1st of Jan. 1997, all hydraulic lifts, sold in one of the EEC-members, have to comply with the European Machine directive 89/392/CEE and its subsequent amendments. As a consequence, all DHOLLANDIA passenger lifts are designed and manufactured in accordance with the relative regulations since that date and they are carrying the "CE"-mark.

These 'regulations' include:

- the CEE Machine Directive 89/392 in its most recent version
- the derived and applicable EN-norms in their most recent version
- the national norms that become applicable upon execution of the Machine directives.

By means of a declaration of conformity (see first page), the manufacturer confirms that the delivered tail lifts are complying with the regulations stated above.

2) INSPECTIONS

According to the directives that are in force today, all hydraulic lifts must be submitted to the inspections mentioned below (see points 2.1 to 2.3).

2.1 The put-into-service test and the fitting declaration

All hydraulic lifts are largely pre-assembled and tested by the manufacturer, and receive a CE conformity declaration annex II a because of their design and mode of construction. According to the CE directives however, the complete vehicle, including the lift and any other equipment mounted, is regarded as one single machine, and the CE conformity declaration of the lift, as well as the authorisation to put the equipment into service, must be validated by a put-into-service test by an expert, and must be validated by a fitting declaration. The content of this compulsory put-into-service test is explained under point 4 on pages C2 to C4.

2.2 Periodical inspections

After the hydraulic lift has been put into service, which according to 2.1 should only happen after a put-into-service test with positive result, the lift needs to be subjected periodically, and at least once per year, to a technical control carried out by a tail lift expert. The content of these technical inspections need to be reported in the inspection reports on page C10 and following.

2.3 Repair reports and special inspections / re-inspections

Additional repairs, that are carried out apart from the planned periodic controls, must be reported in the repair and maintenance reports. In case of severe repair works, the passenger lift must be subjected to an extraordinary inspection, the content of which depends on the gravity of the repair works, but which must at least cover the items discussed under point 5 on the pages C6 to C9. This extraordinary control must be documented on the foreseen inspection reports on page C10 and following.

2.4 Expert

The expert is a person appointed by the user or owner of the hydraulic lift, who by his technical knowledge and experience, and by his expertise on the health and safety regulations, is qualified to judge on the operational safety and reliability of the lift. This expert must dispose of this users' manual, of the

technical documentation on the passenger lift, and all other relevant information that is required for a correct execution of the inspection duties.

Upon every inspection, the expert has to write down at least the following points:

- * the name of the expert and the address of the inspection company
- * the scope of the executed inspection
- * any inspections that need to be rehearsed on a later date
- * a technical judgement on the further use of the passenger lift.

2.5 Initiative to organise the technical inspections

The initiative to organise the inspections is entirely up to the user of the passenger lift and so is the responsibility for selecting the technical expert. The expert selected for the inspection job, must at least meet the requirements mentioned under 2.4.

3) THE VALIDATION OF THE WARRANTY

The operational reliability and the durability of the passenger lift and its components largely depend on the quality of the fitting works. Therefore, the warranty on the lift can only be activated and validated by a conscientiously performed put-into-service test, and a correct documentation in the fitting declaration. Your Dhollandia dealer or importer will not be able to honour any warranty claim, if upon deposition of the claim, he is not supplied with a copy of this fitting declaration (together with a copy of the invoice of the last service intervention on the hydraulic lift, and a copy of the last maintenance and repair report).

4) SCOPE OF THE WEIGHT TEST & COMMISSIONING

The put-into-service test includes a visual inspection of various aspects that determine the operational safety of the passenger lift on the one hand, and a series of obligatory static and dynamic weight tests on the other hand.

Most points of the visual inspection will be covered by doing a practical test without load, that enables the expert to evaluate whether the lift can be operated correctly from all available controls, and whether the lift can execute the different movements smoothly and without shocking.

4.1 Inspection by the installer before the fitting

- The EEC-declaration of conformity on the first page of this manual, has been filled out and signed.
- The vehicle is technically suitable for fitting the concerned lift to it (also in relation to the stability of the vehicle and the weight distribution)
- The actual fitting dimensions don't exceed the maximum fitting dimensions mentioned on the installation drawings.

4.2 Inspection of the mechanical part

- The fitting and the final inspection have been executed in accordance with the fitting instructions from Dhollandia.
- All mounting bolts of the mounting plates to the lift beam, and of the mounting plates to the chassis of the vehicle, are mounted and locked in accordance to the fitting instructions of Dhollandia, conform to the body building prescriptions of the manufacturer of the vehicle, and have been fastened by means of the correct torque wrench. Check for potential deformations after the weight test.
- All welding has been performed by qualified welders, according to the fitting instructions.
- All hinge pins are properly fastened and locked.

- All hinge points are equipped with grease nipples and are properly greased.
- The course of the tilt cylinder has been properly adjusted and locked according to the fitting instructions.
- For cases where the stability of the vehicle with loaded platform is initially insufficient, mechanical or hydraulical stabilising legs have been foreseen on the chassis vehicle (see body-building prescriptions of the manufacturer of the vehicle, or the technical card of the vehicle)

4.3 Inspection of the electrical part

- The electrical installation of the hydraulic lift is compatible with the installation of the truck (voltage).
- All electrical cables have been mounted according to the fitting instructions and electrical diagrams for the hydraulic lift, and conform to the installation prescriptions of the manufacturer of the vehicle.
- If required, the on / off cabine switch has been installed on the dash board in the cabin, and the switch is correctly wired and connected to the tail lift.
- The outside control is mounted in such a way that the operator has a good view on the platform and the working area around the lift.
- The height-detection for the hand-rail controls on the DH-P20 functions correctly, this means:

The function "lift" of the toggle switch on the hand-rail control only functions when the platform stands in horizontal position, and automatically stops during the lift movement at the moment that the platform reaches the vehicle floor level. The toggle switch doesn't allow to close or tilt the platform.

The function "lift" of the 3-button wander lead with spiral cable only functions when the platform stands in horizontal position, and automatically stops during the lift movement at the moment that the platform reaches the vehicle floor level. In order to further close the platform to the vertical drive position, it is required to push the middle button additionally.

- The "hold-to-run" principle should be working for all control systems, this means that the introduced movement should stop immediately after releasing one single control button.
- A battery switch, functioning as an emergency stop, has been installed directly near the outside control.
- The principal fuse on the 35 or 50 mm² main electric wire has been fitted as close as possible to the power supply in accordance with the fitting instructions.
- The safety and identification stickers and the loading diagram are clearly visible and are permanently fixed at the inside or in the direct vicinity of the outside control box.
- The electrical wires cannot be squeezed, grinded or deformed during the different movements of the lift.

The following things have to be checked:

- the wires leading from the platform to the tail lift,
- the wires leading from the control box to the hydraulic aggregate,
- the wires leading from the control box or the hydraulic aggregate or the power supply,
- the wires leading from the frame of the tail lift to the control box or to the hydraulic aggregate.

4.4 Inspection of the hydraulic part

- There are no visible oil leaks after the tests and all cylinder rods are free from paint remainders.
- The hydraulic circuits for lowering and lifting have been properly de-aerated.
- The oil tank is filled with the prescribed oil and the oil level is correct.
- The free-moving hydraulic hoses cannot be squeezed, scrubbed or deformed during the different movements of the lift.

4.5 Inspection of the platform

- The standing place for the operator is clearly and permanently marked on the platform (see fitting instructions). The foot protection corresponds with the fitting instructions and the CE-regulations.
- The working area is sufficiently lit to be able to guarantee your safety during the loading / unloading.
- The loading platform has been marked with reflecting tape on the sides and has been equipped with original DHOLLANDIA signalling flags or electrical flashing lights in order to make the platform

clearly visible for traffic.

- The mechanical platform lock (or any other equivalent mechanism for immobilising the platform in the road-position) is working correctly.
- If the platform is to be used for lifting and lowering rolling loads, the platform has to be equipped with a device that prevents the loads from unintended rolling off of the platform during the loading / unloading. This device needs to be at least 50 mm high.

4.6 Inspection of the use of the lift with nominal load - DYNAMIC TEST

- Load the platform with a weight that corresponds with a 100% of the nominal capacity of the tail lift. Put this weight on the prescribed centre-of-the-gravity point of the platform "L". Check whether the lifting and lowering movements, as well as the automatic tilting at the ground are working correctly.
- Check the speed of the different movements. It should be:
 - for vertical movements:max. 15 cm / sec
 - for opening and closing: max. 0.2m / sec
- Adjusting the final lift capacity: after the tests, the pressure relief valve must be adjusted in such a way that not more than 100% of the nominal capacity can be elevated from the ground. After having adjusted the working pressure correctly, the pressure relief valve has to be sealed.
- The oil pressure adjusted during the fitting, has to be written down on the fitting declaration.

4.7 Inspection of the use of the lift with an overload - STATIC TEST

- Static test in relation to deformation:
 - Set the platform half-way between the ground and the loading floor
 - Note the distance and the angle of the platform in comparison to the loading floor of the vehicle
 - Put a weight, corresponding with 125% of the nominal capacity, on the centre of gravity of the load, and remove the test weight again
 - Measure the distance and the angle of the platform in comparison to the loading floor again, and establish in this way if no permanent deformation has arisen in the tail lift, or its suspension to the chassis.
- Static tests in relation to inclination:
 - Set the platform horizontally at loading floor level
 - Put a weight, corresponding with 125% of the nominal capacity, on the centre of gravity of the load
 - Note the distance and the angle of the platform in comparison to the loading floor of the vehicle
 - Take the same dimensions again after 15 min.
 - Between the 2 measurements, the platform should not have lowered more than 15 mm
 - Between the 2 measurements, the platform should not be inclined more than 2°.

5) GREAT BRITAIN'S PUWER AND LOLER REGULATIONS

The CE Safety Directives for Machinery mainly apply to the manufacturers of all kinds of machines, including hydraulic passenger lifts, and require that machines are designed and manufactured to be safe.

The Government of Great Britain has complemented these CE Directives with a legislation called **PUWER** (The Provision and Use of Work Equipment Regulations 1998) and **LOLER** (The Lifting Operations and Lifting Equipment Regulations 1998), which focuses on the users of the same machinery.

PUWER and LOLER fall under UK criminal law, and the neglect of their prescriptions can therefore lead to financial penalties or periods of imprisonment.

The main obligations under the bespoke legislation can be summarized as follows:

- Operate safely.
- Carry out a risk assessment of your operation.
- Set up a formal maintenance plan.
- Ensure that both lift users and service personnel are trained, and that they have written instructions.
- Ensure that lifts are safe. Lifts provided after 1997 should meet the Machinery Directive.
- Plan lifting operations, and ensure they are supervised.
- Appoint a "competent person".
- The appointed "competent person" should establish a thorough examination procedure (minimum every six months).
- Rectify any reported defects.

5.1 PUWER...

- Applies to all work equipment, including hydraulic lifts, but also includes vehicles.
- Strengthens the requirements of the Management of Health and Safety at work Regulations 1992.
- Stipulates that vehicles and lifts must be maintained in a good state of repair.
- Only competent, trained people should operate, repair and service the equipment.
- Lifts supplied from 1993 - 1996 may require upgrading to meet the Essential Safety Requirements of the Machinery Directive.
- For more information, refer to "Safe Use of Work Equipment" ACOP and guidance L22 HSE Books 1998 ISBN 0 7176 16266.

5.2 LOLER...

- Employers must ensure the lifting equipment, its mounting and the load itself are adequately strong.
- Hydraulic lifts, which lift people, must be operated in a way that avoids risks to operators or passengers.
- Employers should be sure that the lift has been installed properly, and that in use the vehicle and tail lift are positioned so as to ensure safe working conditions for operators and bystanders.
- Lifting tasks must be planned, supervised and carried out safely.
- The hydraulic lifts must be thoroughly examined after they have been installed on the vehicle, and before they are first used. In service, they must be thoroughly examined at least every six months. The content of these thorough examinations is defined not by the tail lift manufacturer (*), but by a "competent person" appointed, normally from outside the company, by the user of the equipment. He will report any defects and specify the time within which they must be rectified.
Whilst this examination may well include testing, there is no legal requirement (*) for a weight test to be performed every six months.
- For more information, refer to "Safe Use of Lifting Equipment" ACOP and guidance L113 HSE Books ISBN 0 7176 16282.

(*) Remark : some of the specificities of the Puwer and Loler regulations don't annihilate or liberate the users and owners of Dhollandia tail lifts in any way of the full requirements with regards to periodic servicing and testing, reporting... described in the user's manual, which might be of prime importance with regards to the ruling CE-Safety Directives, Dhollandia's code of good practice with regards to maintenance, or the validation of the warranty on Dhollandia lifting products.

FITTING DECLARATION

by the installer of the tail lift

Identification of the fitting company (stamp) :

Name of the inspector : _____

Function : _____

With this, I declare that the hydraulic lift, as identified in the declaration of conformity on the first page of this manual, has been fitted in correspondence with the fitting instructions and fitting dimensions from Dhollandia and that the put-into-service test has been executed with a positive result, as described in section 4 on page C2-C4, so that the tail lift therefore has been approved for putting into use.

I have noted the following results:

*	the vehicle is techni-
cally suitable for the fitting	Yes No
of the concerning hydraulic lift	

* The fitting has been executed in accordance with the fitting instructions of DHOLLANDIA and the put-into-service test has been executed in accordance with the directives in this manual	Yes No
--	-------------

* The oil pressure set after the weight test with nominal load =	Bar
--	-----

Notes: _____

Date : _____

Signature
of the inspector :

6) SCOPE OF THE PERIODICAL AND EXCEPTIONAL INSPECTIONS

Before executing a periodical or extra-ordinary inspection, the hydraulic lift has to be cleaned. The user manual containing the inspection procedures has to be available on site. After the inspection, an inspection report must be filled out, as printed on pages C10 and following.

At the occasion of a yearly inspection, the following points have to be checked:

Subject	Component	Nature of the inspection
5.1 Identification and markings	<input type="checkbox"/> identification sticker in control box <input type="checkbox"/> sticker with condensed safety instructions <input type="checkbox"/> label with serial number on platform and hydraulic aggregate <input type="checkbox"/> symbols / pictograms in control box <input type="checkbox"/> marking of the centre of the gravity point on the platform	legibility, completeness, correct language, attachment
	<input type="checkbox"/> user manual	presence, language completeness of the reports
5.2 Protection against unauthorized tail lift use	<input type="checkbox"/> battery switch on the main power cable <input type="checkbox"/> on / off cabin power switch (optional)	general condition, good working order
	<input type="checkbox"/> selection switch in control box	condition, functioning, spring condition
5.3 Control instruments	<input type="checkbox"/> control panel	condition, humidity on inside, corrosion, view on working area, presence of lid / cover
	<input type="checkbox"/> push buttons, turning buttons and joy-stick on the outside control, 15A fuse <input type="checkbox"/> push buttons on the auxiliary control (foot control) <input type="checkbox"/> protective rubbers on the buttons	condition, humidity on inside, corrosion, faultless functioning, return to neutral position
	<input type="checkbox"/> opening & closing	only possible from the exterior controls
5.4 Electrical installation	<input type="checkbox"/> battery cable to the power supply <input type="checkbox"/> connection of battery cable to power supply <input type="checkbox"/> earth cable to chassis or battery pole <input type="checkbox"/> battery cable + control cable between the control box and the power pack <input type="checkbox"/> wire safety valves <input type="checkbox"/> cable running to platform (foot control or platform lights) or auxiliary controls	squeezing, scrubbing, general damage, mouting & fixation, insulation / protection, corrosion on the connections
	<input type="checkbox"/> batteries	compatibility, technical maintenance degree of acidity

	<input type="checkbox"/> main current fuse	specification, location, condition / corrosion
	<input type="checkbox"/> platform lights <input type="checkbox"/> safety switches / end switches	condition, working order, humidity inside, corrosion
5.5 Hydraulic power pack	<input type="checkbox"/> pressure relief valve	relief pressure, sealing of the cap
	<input type="checkbox"/> oil tank	oil level, purity of the oil, filter cleaning
	<input type="checkbox"/> eletromotor / starter solenoid	protection by cover, good working order, general condition, burning-in, carbon brushes
	<input type="checkbox"/> coupling to conducts & flexible hoses <input type="checkbox"/> connection tank / pump <input type="checkbox"/> connection pump / logical valve	general condition, oil leaks
5.6 Hydraulic conducts & flexible hoses	<input type="checkbox"/> flexible hydraulic hoses	squeezing, damage, mounting, routing oil leaks, condition, wear and tear, replaced every 4 years
	<input type="checkbox"/> fixed tube conducts and couplings	damage, corrosion, mouting, oil leaks
5.7 Hydraulic cylinders	<input type="checkbox"/> lift cylinders <input type="checkbox"/> tilt cylinders <input type="checkbox"/> hydraulic stabilising legs (if applicable)	general condition, oil leaks, condition rubber gaitors,de-aeration of air, no paint on piston rods, state of piston extension
	<input type="checkbox"/> rubber gaitors	condition, free outlet of air, good positioning
	<input type="checkbox"/> safety valves	oil leaks, condition of the wiring, squeezing danger of connection plug of the electric wire, good working order of the emergency control

5.8 Platform mechanical	<input type="checkbox"/> platform construction	general condition, condition of the weldings, corrosion of the steel platforms (reinforcement beams), cracks, deformations
	<input type="checkbox"/> anti-slip surface	condition, deformation
	<input type="checkbox"/> hinge points	general condition, deformation, ovalisation
	<input type="checkbox"/> rolling-off protection <input type="checkbox"/> mechanical platform lock	general condition, good working order
5.9 Hinge points mechanical	<input type="checkbox"/> hinge pins	general condition, deformation, wear, locking / fastening
	<input type="checkbox"/> hinge bearings	condition, wear, regular greasing
5.10 Tail lift frame mechanical Lift arms	<input type="checkbox"/> frame construction <input type="checkbox"/> lift arm construction	general condition, condition of weldings, cracks, deformation, corrosion
	<input type="checkbox"/> articulation points	general condition, deformation, ovalisation
	<input type="checkbox"/> hinge pins <input type="checkbox"/> hinge bearings	condition, deformation, wear, locking / fastening
	<input type="checkbox"/> swing of the automatic mechanical tilt	condition, deformation, good working order
	<input type="checkbox"/> suspension to the vehicle body	condition, deformation, locking of fitting bolts
5.11 General operation Practical tests	<input type="checkbox"/> maximum allowed speed for moving - vertical movements: 15 cm /sec. - opening / closing : 0.2 m /sec	speed of empty platform speed of loaded platform
	<input type="checkbox"/> tilting angle under loading floor	max. 10°
	<input type="checkbox"/> weight test at 100% of the nominal capacity positioned at the centre of gravity of the load	speed, smooth movement, functionality, safety, lift capacity, reaches the loading floor, general performance, stability of the vehicle

INSPECTION CERTIFICATE for :

PERIODICAL INSPECTION

SPECIAL INSPECTION

RE-INSPECTION

The lift identified in the declaration of conformity has been tested on the ____ / ____ / ____
with regards to the operational safety and reliability of the equipment.

During this inspection, no imperfections have been found

During this inspection, the following imperfections have been found

Scope of the inspection : _____

Partial inspections to follow : _____

The tail lift is suitable for further use:

Yes

No

City (town), date : _____

Name & function of the expert : _____

Name & address of the inspecting company : _____

Follow-up by owner / user :

Failures have acknowledged

Failures have been repaired

Name & signature of the owner / user

INSPECTION CERTIFICATE for :

PERIODICAL INSPECTION

SPECIAL INSPECTION

RE-INSPECTION

The lift identified in the declaration of conformity has been tested on the ____ / ____ / ____
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During this inspection, the following imperfections have been found

Scope of the inspection : _____

Partial inspections to follow : _____

The tail lift is suitable for further use: Yes No

City (town), date : _____

Name & function of the expert : _____

Name & address of the inspecting company : _____

Follow-up by owner / user :

Failures have acknowledged

Failures have been repaired

Name & signature of the owner / user

7) DEALERS AND SERVICE STATIONS ACROSS EUROPE

Australia	Tieman Industries PTY LTD, Melbourne	(+61) 3 9469 6700
Austria	Dhollandia Austria, Neuhofen im Innkreis	(+43) 7752 70 270
Baltic states	Dhollandia Latvia, Riga	(+371) 28 305 904
(Estonia, Latvia, Lithuania)		
Belgium & Luxemburg	Dhollandia Service, Lokeren	(+32) 9 349 06 92
Brazil	Dhollandia Brasil, Sumaré	(+55) 19 3832 4000
Bulgaria	Dhollandia Bulgaria, Sofia	(+359) 2 870 42 76
Czech Republic	Dhollandia Czech Republic, Troubsko	(+420) 545 232 603
Denmark	Dhollandia branch ~IKJ, Aabenraa	(+45) 45 70 0201
Finland	Dhollandia, Helsinki	(+358) 45 26 900 77
France	Dhollandia France, Argenteuil	(+33) 134 11 74 00
	Free service number	(+33) 825 042 966
Germany	Dhollandia Germany, Hamburg	(+49) 40-76 11 96-0
Great-Britain	Dhollandia UK, Huntingdon	(+44) 1480 435 266
	Free service number	0800 0855 141
Greece	Smyrliadis Truck & Trailer, Athens	(+30) 210 816 12 18
Hungary	Liberatus, Budapest	(+36) 23 312 398
Ireland	Ballinlough Refrigeration, Dublin	(+353) 146 00 322
Israel	Amir Engineering, Petach-Tikva	(+972) 39 222 750
Italy	Dhollandia Italy, Diegaro die Cesena	(+39) 0547 347 615
Kuwait	Bader al Mulla, Kuwait	(+965) 48 15 077
Malta	Alexander Xerri, Qormi	(+356) 21 470 900
Netherlands	Dhollandia Netherlands, Breda	(+31) 765 81 14 55
Norway Dhollandia	Norway, Oslo	(+47) 98221333
Poland	Dhollandia Poland, Krakow	(+48) 12 260 61 10
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Switzerland	Dhollandia Vertretung, Müllheim	(+41) 52 762 77 00
Ukraine	Dhollandia Ukraine, Kiev	(+380) 44 492 86 49
United Arab Emirates	Hytec, Dubai	(+971) 4 333 13 99

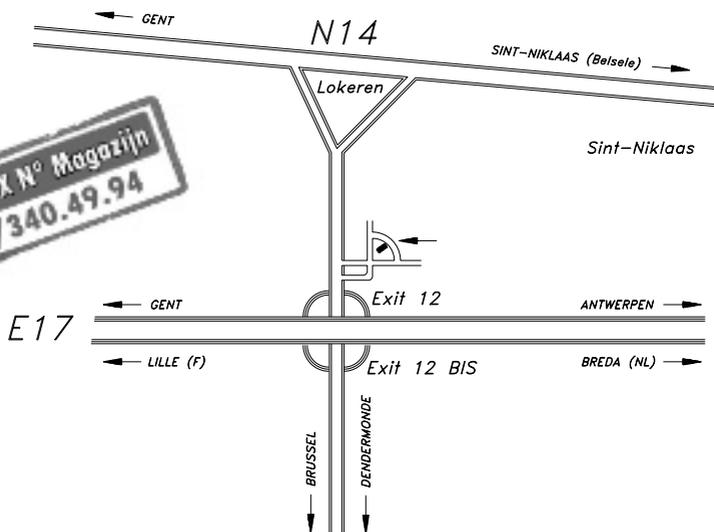
**The national distributors can help you to locate the nearest Dhollandia service centre.
See www.dhollandia.com for the latest update on the service network.**

**FOR REPAIRS &
COLLECTING SPARE PARTS**



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Opening hours:
Monday to Friday: 7.00 - 20.00 Uhr
Saturday: 7.30 - 12.00 Uhr