



DHOLLANDIA

USER'S MANUAL MAINTENANCE & REPAIR COMPULSORY INSPECTIONS & REPORTS

Manufacturer:

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Advice to the user: This user's manual must be kept in the immediate vicinity of the tail lift at all times, as reference for the vehicle driver and tail lift operator.

Advice to the driver and service personnel: All maintenance & repair works, and periodic inspections must be duly recorded in this manual.

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CE - DECLARATION OF CONFORMITY

Corresponding Directive 98/37/EC, annex 2, A)

Identification of the tail lift:

We hereby declare that the **DHOLLANDIA** tail lift identified above, based on its design and its construction, complies to the relevant fundamental safety and health requirements of the CE-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 permitted, once the following conditions are met:

- The tail lift is fitted to a vehicle and the fitting complies with the conditions of the CE-Directives, with the fitting instructions of **DHOLLANDIA** and the Fitting and Body Building Instructions of the vehicle manufacturer.
- After the fitting of the lift, the risk analysis, the weight test and put-into-service test has been carried out with positive results and the fitting declaration (see page C3) has been filled out completely and correctly.

This Declaration of Conformity and the responsibility of the manufacturer are no longer valid if any modification to the tail lift is made without the prior written permission of the manufacturer, or if the maintenance instructions have been neglected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

Applicable CE-Directives:

- 89/392/EC
- and subsequent modifications 98/37/EC, 2006/42/EC

Signature + stamp manufacturer

Belsele, / /

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DISCLAIMER

The illustrations and information contained within this manual are not contractually binding, and cannot lead to any form of legal action against **DHOLLANDIA**.

DHOLLANDIA tail lifts are constantly being adapted to new vehicle and chassis developments, and specialised customer requirements. Therefore **DHOLLANDIA** reserves the right to alter product specifications without prior notice; and potentially modifications or new developments might not have been taken into account at the time of printing.



If you require further information on non-conforming parts, contact your official **DHOLLANDIA** agent for advice.

The illustrations shown in this manual represent tail lifts prepared for left-hand drive countries (= continental Europe). The operators of tail lifts prepared for right-hand drive countries (= UK, Ireland, South Africa, Australia,...) shall consider that their equipment, if ordered with the correct option number, is executed mirror wise.

GENERAL INTRODUCTION

This manual explains :

- chapter A: how the **DHOLLANDIA** tail lift is manufactured; what safety devices are incorporated in its design; and how to use the tail lift in a correct way, that guarantees the integrity of the machine over the intended life time and the safety of the operator and any bystanders.
- chapter B: how to maintain and service the tail lift in an appropriate way, that can guarantee its reliability over the intended life time.
- chapter C: what legal requirements re. periodic testing and certification must be observed.



Warning !

- This manual must be kept with the tail lift at all times, as reference book for the operators and technical service personnel.
- **In order to ensure the safety of the operator, and occasional bystanders, the use of the lift is strictly reserved to skilled operators, who have been duly trained, who know and understand the full content of this manual.**
- Negligence can put the operator and third parties at great risk.

Unless otherwise agreed upon ordering (export outside CE-region), **DHOLLANDIA** tail lifts comply with the European CE safety regulations mentioned in the Declaration of Conformity. They have been designed and manufactured with the greatest care, to guarantee a safe and reliable operation.



Warning !

- It is strictly forbidden to modify the construction of the lift and its safety devices in any way.
- **DHOLLANDIA** disclaims liability for any personal injury or property damage that results from operating a product that has been modified from the original design, without explicit written approval from the manufacturer.
- The Declaration of Conformity, the manufacturer's product liability and the warranty are voided in case of disregard in this respect, and when non-original components or spare parts are used to service or repair the lift.

CHAPTER A USER'S MANUAL



A

1. INTENDED USE

DHOLLANDIA tail lifts are designed to be fitted to commercial vehicles (factory built panel vans, commercial trucks, trailers and semi-trailers), and shall be used exclusively to load and unload the goods transported on this vehicle, with obedience of the load chart, and the user's and safety instructions described in this Chapter A.



Warning !

- It is strictly forbidden to use the tail lift in a different way, or for different purposes, than foreseen in fore lying user's manual
- Negligence can put the operator and third parties at great risk.
- **DHOLLANDIA** disclaims liability for any personal injury or property damage that results from improper use.
- The manufacturer's product liability and the warranty are voided in case of disregard in this respect.

2. IDENTIFICATION

Every **DHOLLANDIA** tail lift is identified by and labelled with a unique serial number. Use this reference for any inquiry on this particular lift, or when ordering spare parts.

Apart from the lift type and serial number, the main identification sticker in the control box also mentions the nominal lift capacity, the centre of gravity, and the date of construction [see Fig. 2.1]. Additional identification stickers are used on various components [see Fig. 2.2]

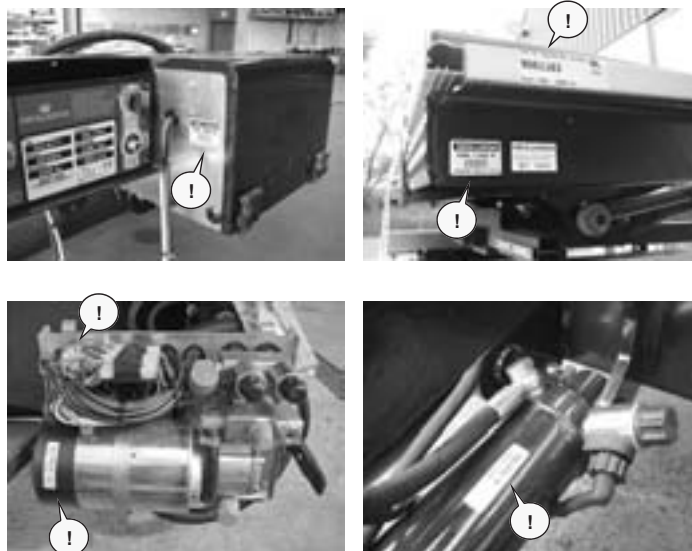
3. DESCRIPTION

DHOLLANDIA tail lifts are developed and manufactured using state-of-the-art technology, high quality materials and components, and comply with the European CE safety regulations mentioned in the Declaration of Conformity (unless agreed otherwise upon ordering - export outside CE region).

Fig. 2.1



Fig. 2.2

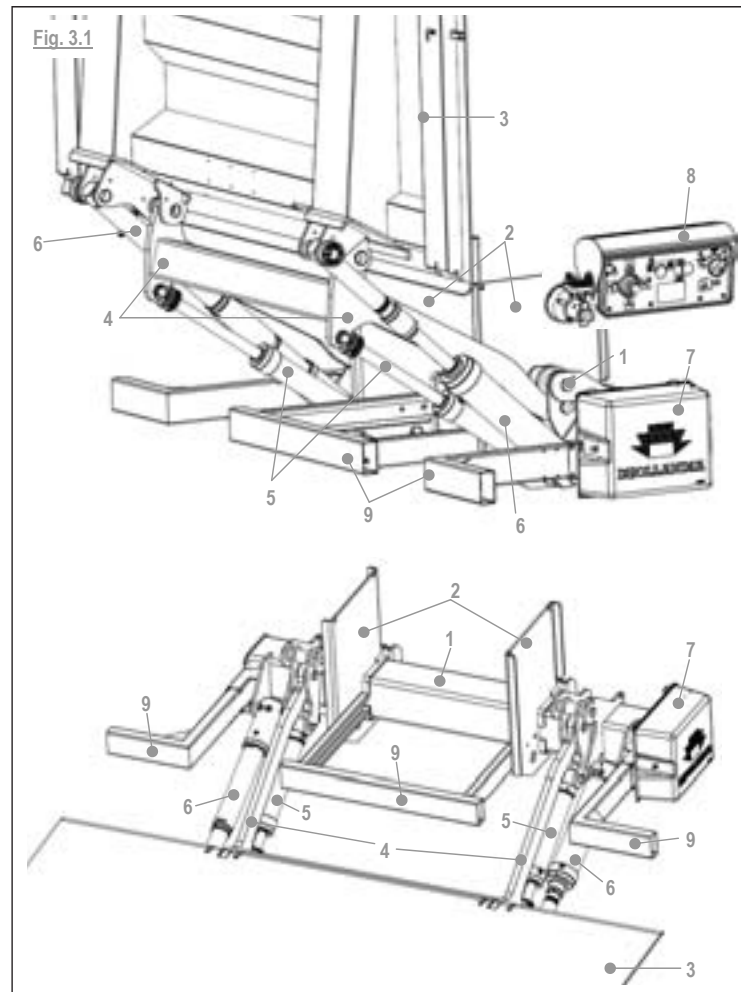


- The **DH-L...** series comprises of a range of **cantilever lifts**, designed for a wide variety of factory built panel vans, trucks, trailers and semi-trailers, and is available with lift capacities of 300 to 9,000kg.

In its travel position, the platform of the cantilever lift is stowed vertically behind the vehicle body. Before use, the platform is tilted open 90° from the vertical travel position, to a horizontal work position.

Main details & terminology:

Fig. 3.1 - Cantilever lift	
N°	Description
1	Lift frame: mounted in a fixed position under the vehicle chassis. It bears the platform and its load via intermediation of the lift arms and hydraulic cylinders.
2	Mounting plates: used to mount the lift frame to the vehicle chassis.
3	Platform: carries the load during loading / unloading. Manufactured from steel or light -weight aluminium and foreseen of a non-slip working surface. Equipped with synthetic rollers to protect it from scraping on the ground.
4	Lift arms: actuated by the hydraulic lift cylinders, used to LIFT / LOWER the platform and its load.
5	Lift cylinders: 1 or 2 hydraulic cylinders used to LIFT / LOWER the lift arms, the platform and its load.
6	Tilt cylinders: 1 or 2 hydraulic cylinders used to OPEN / CLOSE the platform, or to change its angle when opened in work position.
7	Hydraulic power pack: contains the electric motor driving the hydraulic pump, the oil tank, and the control valves.
8	Electric control box: mounted in a fixed position under the vehicle chassis. Contains the electrical switches allowing the operator to execute all tail lift functions.
9	Bumper bar: under run protection device certified conform to CE legislation.



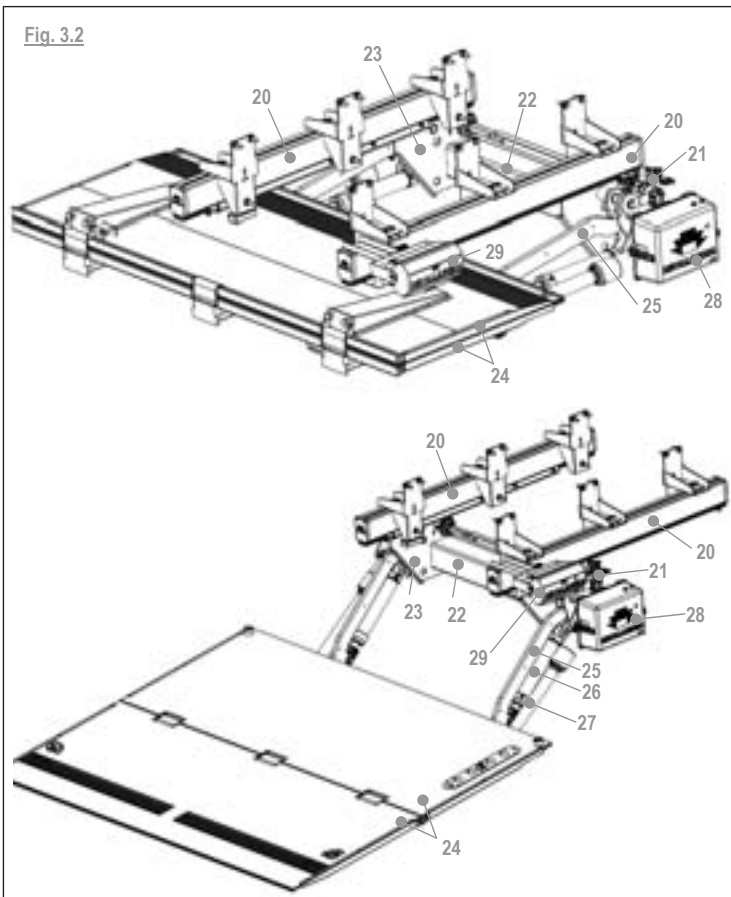
- The **DH-S...** series comprises of a range of **slider lifts**, designed for a wide range of trucks, trailers and semi-trailers, and is available with lift capacities of 400 to 3,000kg.

In its travel position, the foldable platform of the slider lift is safely stored underneath the vehicle chassis. Before use, the lift frame is rolled out from its travel position at the front side of its sliding tubes to a work position at the other extremity of the sliding tubes, then the platform is unfolded.

Main details & terminology:

Fig. 3.2 - Slider lift	
N°	Description
20	Sliding tubes: tubes mounted to the vehicle chassis, used to roll (retract) the lift frame and its platform from a travel position underneath the vehicle chassis to a work position at the end of the vehicle chassis.
21	Hydromotor or retraction cylinder: hydraulic system propelling the lift frame in / out along the sliding tubes.
22	Lift frame: suspended in the sliding tubes mounted to the vehicle chassis. It bears the platform and its load via intermediation of the lift arms and hydraulic cylinders.
23	Slide plates: suspends the lift frame in the sliding tubes. Is equipped with rollers to facilitate the retraction movement.
24	Foldable platform: carries the load during loading / unloading. Available in steel execution with aluminium point, and in full aluminium execution. Foreseen of a non-slip working surface. Equipped with synthetic rollers to protect it from scraping on the ground.
25	Lift arms: actuated by the hydraulic lift cylinders, used to LIFT / LOWER the platform and its load.
26	Lift cylinders: 1 or 2 hydraulic cylinders used to LIFT / LOWER the lift arms, the platform and its load.
27	Tilt cylinders: 1 or 2 hydraulic cylinders used to change the angle of the platform when deployed in work position.
28	Hydraulic power pack: contains the electric motor driving the hydraulic pump, the oil tank, and the control valves.
	...

29 Electric control box: mounted in a fixed position under the vehicle chassis. Contains the electrical switches allowing the operator to execute all tail lift functions.



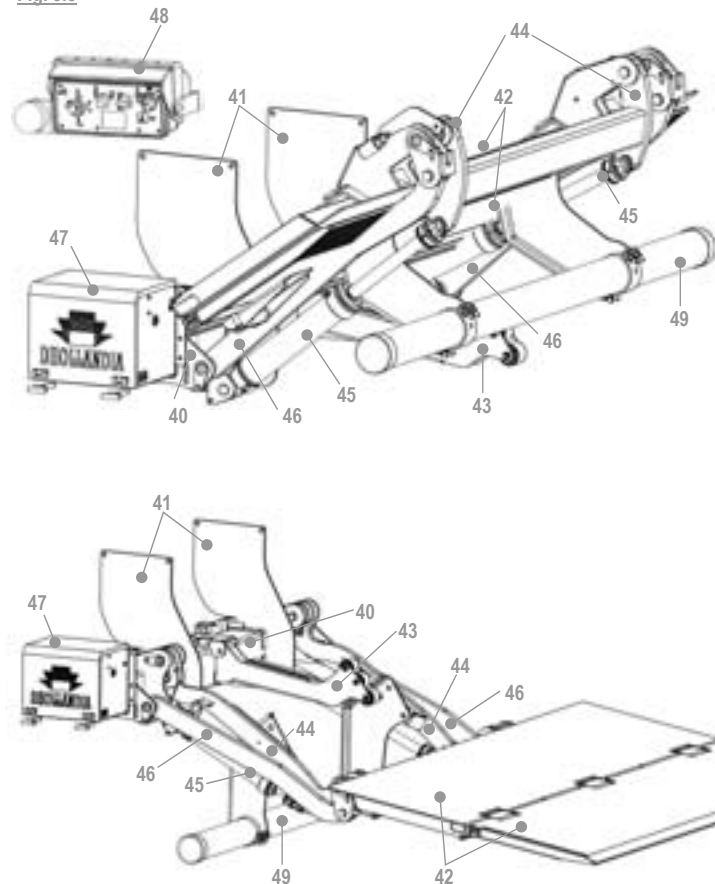
- The **DH-R...** series comprises of a range of **tuck-away lifts**, designed for a wide range of trucks, trailers and semi-trailers, and is available with lift capacities of 500 to 2,000kg.

In its travel position, the foldable platform of the tuck-away lift is safely stored underneath the vehicle chassis. Before use, the platform is tucked-out from its travel position under the vehicle chassis, to its work position behind the vehicle body, and then unfolded.

Main details & terminology:

Fig. 3.3 - Tuck-away lift	
N°	Description
40	Lift frame: mounted in a fixed position under the vehicle chassis. It bears the platform and its load via intermediation of the lift arms and hydraulic cylinders.
41	Mounting plates: used to mount the lift frame to the vehicle chassis.
42	Foldable platform: carries the load during loading / unloading. Available in steel execution with aluminium point, and in full aluminium execution. Foreseen of a non-slip working surface.
43	Roller arm: arm with synthetic rollers, mounted on the lift frame. Guiding the folded platform during the tuck-in / tuck-out movement.
44	Lift arms: actuated by the hydraulic lift cylinders, used to LIFT / LOWER the platform and its load.
45	Lift cylinders: 1 or 2 hydraulic cylinders used to LIFT / LOWER the lift arms, the platform and its load.
46	Tilt cylinders or fixed stabilisers: 2 hydraulic cylinders or fixed rods defining the angle of the platform in work position.
47	Hydraulic power pack: contains the electric motor driving the hydraulic pump, the oil tank, and the control valves.
48	Electric control box: mounted in a fixed position under the vehicle chassis. Contains the electrical switches allowing the operator to execute all tail lift functions.
49	Bumper bar: under run protection device certified conform to CE legislation.

Fig. 3.3



- For all tail lift models above, the electric control box and the hydraulic power pack are connected to the vehicle battery (or auxiliary battery) during fitting, according to the fitting instructions of **DHOLLANDIA**, and the requirements imposed by the vehicle manufacturer.



- To ensure the reliability of the lift over many years, it is extremely important that the batteries, their charging system, the battery- and earth cables, and fuses are dimensioned sufficiently strong, and fitted with care following above mentioned instructions. Insufficient battery tension will cause harm and irreparable damage to the electric components of the lift (starter solenoid, electric motor, electric switches, etc...).
- As most vehicles are supplied with power supplies that cover the primary needs of the original equipment only, the vehicle owner & his contractors should consider upgrading the battery capacity and charging system in function of the additional needs of all auxiliary equipment (tail lift, but also extra heating system, refrigeration units, etc...).
 - The alternator of the vehicle should have a min. rating of 14V/45A for 12V vehicles and 28V/80A for 24V vehicles.
 - In case of long journeys and short periods of tail lift use, the existing alternator and batteries will probably suffice.
 - In case of long journeys and long periods of intensive tail lift use, the batteries will probably need upgrading by heavier duty ones.
 - In case of short journeys and long periods of intensive tail lift use, both the alternator and the batteries will probably need upgrading. (Alternator of 14V/80A or 28V/135A).
- The following min. battery equipment is recommended in function of the tail lift capacity:

Capacity	V	Battery
750-1000kg	12V	1x 140Ah
	24V	2x 88Ah
1500-2000kg	12V	1x 180Ah
	24V	2x 135Ah
+2000kg	12V	Not recommended
	24V	2x 180Ah

4. SAFETY DEVICES

DHOLLANDIA tail lifts are equipped with a wide range of safety devices, in order to effectuate that goods can be loaded / unloaded with a maximum degree of safety for both the operator and the load.

The following safety devices are incorporated or recommended on most tail lifts :

- Fig. 4.1: **Electrical safety valves** mounted to all lift and tilt cylinders. A safety valve locks the hydraulic oil inside the cylinder as long as its solenoid is not activated by a control switch.

Its purpose is to hold the platform in its travel position during driving, or in a fixed position in case of the failure of a hydraulic pipe (as soon as the control button is released).

DHOLLANDIA valves are equipped with a manual emergency control, allowing the operator to open the valve in case of electrical power failure (see chapter B).

- Fig. 4.2: **Mechanical platform lock**, mounted as supplement to the safety valves on the cylinders. Although not compulsory in all CE countries, it is strongly recommended to secure the platform in its travel position by means of such additional lock, to prevent it from falling in case of accidental loss of hydraulic pressure.

If the platform needs to function as load restraint device in the meaning of DIN-EN 12195-1 or DIN-EN 12642 Code XL, the lock might be compulsory depending on the pay-load of the vehicle and the type of tail lift. Ask DHOLLANDIA for further advice.

- Fig. 4.3: **Braking valves** (= flow control valves) mounted to the hydraulic cylinders and the power pack.

Pressure compensating braking valves are used to align the speed of the functions LOWER and OPEN with the legal requirements. This is:

- Vertical movements: max. 15cm/sec
- OPEN & CLOSE: max. 10°/sec (= min. 9 sec. for the opening and closing cycles)
- OPEN speed: max. 40cm/sec up to 500kg capacity, max. 30cm/sec for other lifts
- TILT at groundlevel: max. 4°/sec

"Compensating" means that the valve brakes less / more if the load is lighter / heavier, to obtain similar speeds regardless of the load on the platform.

Fig. 4.1

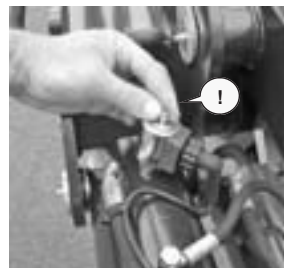


Fig. 4.2

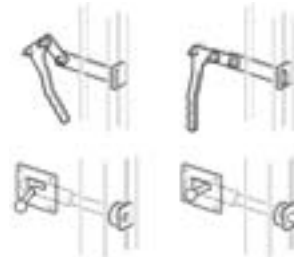
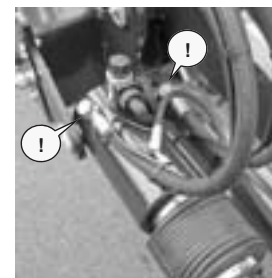
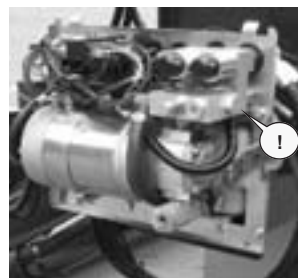


Fig. 4.3



- Fig. 4.4: **Pressure relief valve**: permits the manufacturer and the installer to limit the final performance of the tail lift to its nominal capacity, and protects it against overload during the LIFT cycle.
- Fig. 4.5: **2-hand exterior control box** equipped with functional control switches and a safety or selection switch. The compulsory use of the 2 hands to actuate the tail lift functions, protects the operator from crushing his head or limbs between the rear frame of the body and the lifting or closing platform.
- Fig. 4.6: **Emergency stop**: this stop is formed by a battery switch or selection switch with removable key, integrated in the control box [see Fig. 3.6.a] or mounted by the installer at another location, that is clearly visible and easily accessible to the operator [see Fig. 3.6.b]. The emergency stop allows to cut the electrical power in case of danger.
- Fig. 4.7: **Cabin switch** mounted on the dashboard in the driver cabin (optional): this switch enables the operator to switch the electrical power to the tail lift on / off, and contains a signal as to whether the platform is correctly stowed in its travel position or not.
- Fig. 4.8: **4-button foot controls** mounted to the platform (option S006). The compulsory use of the 2 feet to actuate the functions LIFT and LOWER, immobilises the feet of the operator on a safe location (= the buttons of the foot controls), and protects him from crushing or squeezing his toes, feet or limbs between the edge of the lifting platform and the rear cross member of the vehicle floor. [See also §5.4]
- 4.9: **Protection of toes, feet & limbs**. The choice and position of any type of auxiliary controls influences strongly on the risk that the operator might squeeze, crush or injure his toes or limbs between the edge of the lifting platform, and the rear cross member of the vehicle floor, or between the lowering platform and the ground.

For situations where no 4-button foot controls are used, the Standard for tail lifts EN1756-1 describes a number of body design configurations and applications (non-exhaustive) creating an acceptable level of safety. [see EN1756-1:2001+A1:2008, or our fitting instructions FIT-ELEC_OPTION in its latest revision].

- Fig. 4.10: **Marking of the centre of gravity**: Hydraulic tail lifts are not designed to LIFT / LOWER weights corresponding to their nominal capacity over the full surface of the platform. The nominal capacity is valid at a certain distance or centre of gravity behind the vehicle body. Behind that point that is marked on the platform, the maximum safe working load diminishes according to the load diagrams [see also Point 6]

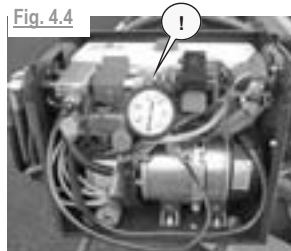


Fig. 4.4



Fig. 4.5



Fig. 4.6



Fig. 4.8



Fig. 4.7



Fig. 4.10

- Fig. 4.11: **Main battery fuse** on the (+) battery cable, **15A fuse** on the wires inside the control box: both fuses are used to protect the electrical system of the tail lift and the vehicle against short-circuits and amperage peaks.
- Fig. 4.12: **Signalling of the deployed platform:** any platform protruding beyond the extremities of the vehicle, must be clearly visible from all approachable sides in daylight and at night.

Check the national regulations of the country where the vehicle will be registered, as these might be very strict on the application of platform lights, and the size and type of the platform flags.

The impact of platform lights [see Fig. 4.12.a], reflective flags [see Fig. 4.12.b] and lateral reflecting tape [see Fig. 4.12.c] on the visibility of the platform strongly depends on the direction of approach, and the light conditions (bright sunlight versus night darkness). A combination of the 3 is ideal to cover all circumstances.

Outside the delivery scope of a HTL, it is good practice to encourage operators to mark the working area of the platform in the streets by means of traffic cones. [see Fig. 4.12.d].

- Fig. 4.13: **Roll-stops on the platform:** any platform aimed to LIFT and LOWER rolling loads, must be equipped with a device that prevents this load from rolling unintentionally off the edge. **DHOLLANDIA** roll-stops can be fitted into the platform point, or at intermediate distances further towards the front edge of the platform.
- Fig. 4.14: **Warning decals:** apart from the identification stickers [see Point 2], every tail lift is supplied with one or more warning decals. They cover the applicable load chart, a simplified set of instructions for use, and other decals warning the operator for specific hazards.

Fig. 4.11

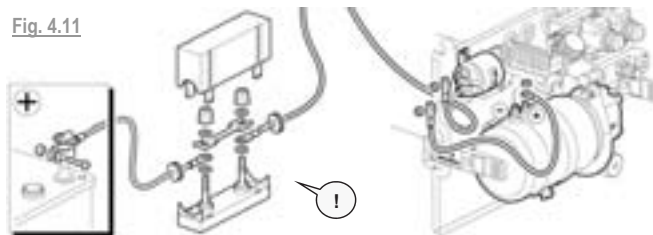


Fig. 4.12.a



Fig. 4.12.b



Fig. 4.12.c



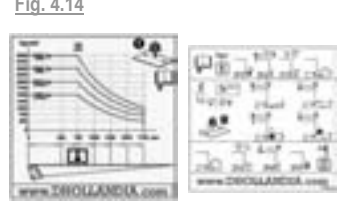
Fig. 4.12.d



Fig. 4.13



Fig. 4.14



5. SAFETY INSTRUCTIONS FOR THE USE OF THE LIFT

§5.1 - Introduction

- **DHOLLANDIA** tail lifts shall be exclusively used to load the goods transported on the carrying vehicle, with obedience of the applicable load chart, the user's and safety instructions described in Chapter A of this manual.



Warning !

- **In order to ensure the safety of the operator, and occasional bystanders, the use of the lift is strictly reserved to skilled operators, who have been duly trained, who know and understand the full content of this manual.**
- Negligence can put the operator and third parties at great risk.
- Simultaneously, the operator should follow all other prescriptions and instructions applicable to his work situation (e.g. health & safety regulations, road traffic regulations, company procedures, Driver Periodic Training according to 2003/59/CE, etc...).
- The operator should have passed the minimum age of 18 years.

§5.2 - General safety instructions

- The operator should use appropriate working clothes. Never wear loose-fitting clothes that may be trapped in the moving parts of the tail lift. Always wear safe footwear with steel protection tips and a good non-slip sole, and protective gloves. [See Fig. 5.1]
- Prior to releasing the mechanical platform lock and using the lift, check if the lift can be used safely. Take precautions to guarantee your own safety, and the safety of occasional bystanders or third parties in traffic. Clear the working area of any objects that could potentially impede the movements of the lift. Make sure the platform is clearly visible from all approach directions (flashing platform lights, platform flags, traffic cones, etc...), and that the working zone is sufficiently illuminated.
- The vehicle must be safely parked, the parking brake applied, and the engine must be switched off. Lock the rear doors and fasten all other moving parts of the vehicle body.

Fig. 5.1



- For trailers & semi-trailers, ensure that the vehicle cannot tip-over when putting heavy weights on the platform.
- If the vehicle or the tail lift are equipped with mechanical or hydraulic stabilising legs, deploy these before opening the platform. Ensure that the stabilising legs are positioned on solid even ground. In case of soft terrain (sand, gravel,...), solid support blocks must be used under the stabilising legs [see Fig. 5.2].
- Ensure that the operator can overview and keep visual control over the whole working area of the lift and its platform at all times.
- The operation of the lift should be confined to a single operator. Upon deployment & use of the lift, the operator should not accept anybody, except himself, to stand in the immediate vicinity of the lift and its platform. Ensure at all times that nobody stands under or within reach of the moving platform.



- Inspect the lift prior to each use. If any unsafe condition exists or unusual noises or movements are noticed, DO NOT use the lift and contact an authorized **DHOLLANDIA** service agent for repair.

- Read and comply with all warning decals, pictograms and instructions affixed to the lift.
- Never leave the lift behind in open position. Before leaving the vehicle behind unattended, store the lift away, and close the doors of the vehicle.
- Don't move the vehicle with the lift in open position. Stow the lift away, and close the doors of the vehicle before moving position. Never move the vehicle while a person stands on the platform, or inside the vehicle body.
- When available, close the mechanical platform lock after closing the platform in its travel position.
- The lift should not be used if the operator is intoxicated or impaired in any way.
- Use extreme care in wet or slippery conditions.
- The tail lift should be used by means of original control units only. **DHOLLANDIA** disclaims liability for any personal injury or property damage that results from operating a product that has been modified from the original design.

- In traffic, always respect a safety distance of 5m to the following car, and ask other drivers to respect an equivalent distance when parking behind your tail lift. [see Fig. 5.3]

Fig. 5.2

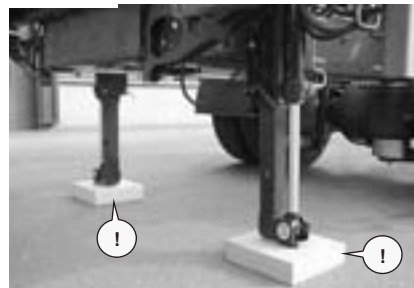
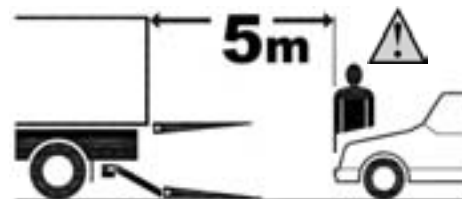
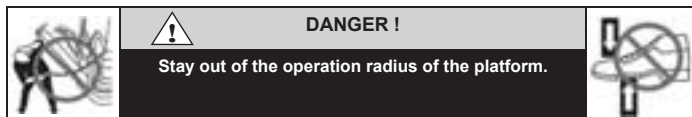


Fig. 5.3



§5.3 - Danger zones, risk of crushing & sheering

- The operator should maintain a clear visual control over the platform, the operation radius of the platform, and the load on the platform at all times.
- The operator should stay out of the operation radius of the platform, and stay clear of the moving parts at all times. Beware at all times for potential risks of crushing or sheering fingers, hands, limbs, feet or toes between the moving parts of the lift arms, hydraulic cylinders and the moving platform.



- The main danger zones for the operator and occasional bystanders in traffic, are the following:
 - the zone directly behind the platform, and within the operation radius of the platform [see Fig. 5.4];
 - the crushing zone between the lowering platform and the ground [see Fig.5.5];
 - the crushing zone between the lifting platform and the rear cross member of the vehicle floor [see Fig. 5.6];
 - the crushing zone between the closing platform and the rear frame of the vehicle body [see Fig. 5.7];
 - the danger zone between the load on the platform and the rear frame of the vehicle;
 - the danger zone between the platform and fixed obstacles like walls, loading docks, etc...
- The prescribed position of the exterior control box [see Fig. 5.8], and the compulsory use of 2 hands to actuate the tail lift functions [see Fig. 4.5], aim to protect the operator from crushing his head between the closing platform and the rear frame of the vehicle body. Therefore never try to look inside the body when closing the platform.

Correct operator position

Danger zone



Fig. 5.4

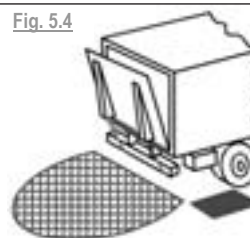


Fig. 5.5

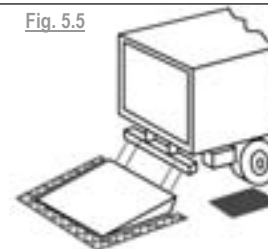


Fig. 5.6

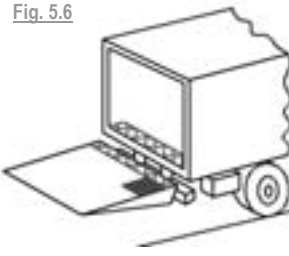


Fig. 5.7

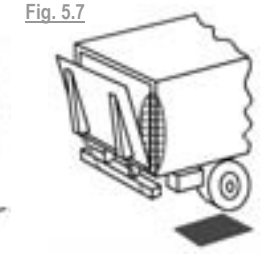
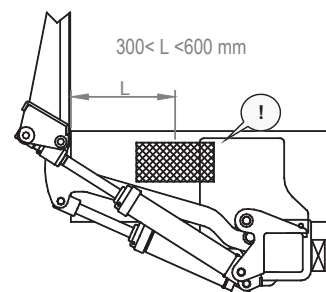


Fig. 5.8



§5.4 - Auxiliary controls / Position of the operator on the platform

- The issue of the choice and position of the auxiliary controls deals with the **protection of the toes, feet and limbs** of the operator working on or around the platform. It deals with the **risk** that the operator might squeeze, crush or injure his toes or limbs between the edge of the rising or closing platform, and the rear cross member of the loading floor of the vehicle; or between the lowering platform and the ground.
- It is generally accepted that the **foot control with compulsory 2-feet operation** provides an efficient remedy against this risk, since it immobilises both feet of the operator on a predetermined and safe location on the platform (= the buttons of the foot control). [see Fig. 5.9]



- **Other auxiliary controls** (wander lead with spiral cable, fixed interior control) should only be used under the safe working conditions described in the European Standard EN1756-1:2001+A1:208 and the latest issue of the **DHOLLANDIA** fitting instructions FIT-ELEC_OPTION.



- Before putting the tail lift in operation, the vehicle owner or employer should ensure that the installation of the tail lift has passed a risk analysis with positive result, and complies with the above mentioned documents. In case of doubt, consult with **DHOLLANDIA** before proceeding further.
- If no hinged foot protector [see Fig. 5.10] or safety cut-out [see Fig. 5.11] is used, the **wander lead with spiral cable** can only be used:
 - **On the platform**, from a safe working zone of min. 400x400 mm, clearly and permanently marked at min. 250 mm distance from the hazard zone between the platform and the rear of the vehicle floor [See Fig. 5.12].
 - **Inside the vehicle body**, from a safe working zone of min. 400x400 mm, clearly and permanently marked at min. 250 mm distance from the hazard zone between the platform and the rear of the vehicle floor [See Fig. 5.13].
 - **On the ground**, from a safe working zone min. 500 mm away from the side edge of the platform [See Fig. 5.14].

Fig. 5.9

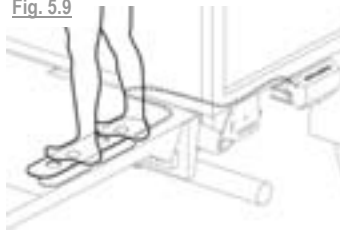


Fig. 5.10

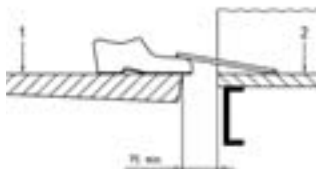


Fig. 5.111

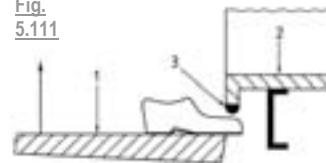
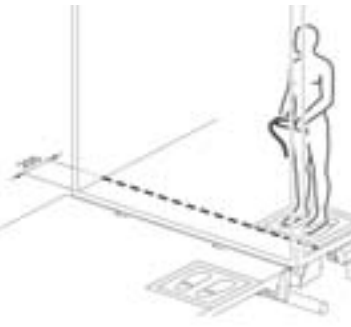


Fig. 5.12



Fig. 5.13



- When lifting / lowering, the operator standing on the platform should hold to the hand grip mounted to the rear frame of the vehicle body.[See Fig. 5.15]
- If no hinged foot protector [see Fig. 5.10] or safety cut-out [see Fig. 5.11] is used, the **fixed interior control** should only be used inside the vehicle body, from a safe working zone of min. 400x400 mm, clearly and permanently marked at min. 250 mm distance from the hazard zone between the platform and the rear of the vehicle floor. [See Fig. 5.16].
- In addition to having the safe working zones on the platform & the vehicle floor permanently marked, it is recommended to mark the hazardous areas at the end of the vehicle floor and the front of the platform in a contrasting colour. [See Fig. 5.17]
- The safe working zones for the operator must be kept clear at all times. It is prohibited to put load on these dedicated areas.
- The operator should always stand besides the load, to prevent him from being crushed between the load and the rear side of the vehicle.
- To prevent injury when falling from heights, it is compulsory to use safety gates along the exposed edges of the platform if the lifting height ≥ 2000 mm.
- To prevent injury by tripping, the operator should pay attention to protruding items on the platform surface at all times (ex.: platform lights, roll-stops and their lever, etc...)
- It is prohibited to use the platform as elevated working platform.
- The power feed to any of the auxiliary controls should be connected to safety switch in the control box. Activation of the auxiliary controls should deactivate the functions on the exterior control box. It is prohibited to bypass any of the safety features of the tail lift.

Fig. 5.14



Fig. 5.15



Fig. 5.16

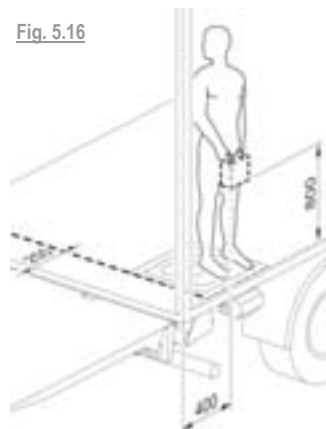


Fig. 5.17



§5.5 - Instructions for loading & unloading

- Follow the loading diagrams & explanatory comments [see Point 6] at all times.
- Never try to scoop loose substance (ex. sand, gravel, rocks, etc...) from the ground, to move it by means of the platform, or to lift / lower it on the platform. [See Fig. 5.17-5.18]
- Never use the platform to level the ground surface, or to push or pull loads or substances by means of the platform. [See Fig. 5.19]
- Never drop any load on the platform (ex. by means of a forklift, gantry crane etc...). Due to the kinetic effect, the impact of dropping a load is far greater than the nominal weight of this load might deceivingly suggest initially. [See Fig. 5.20]
- Never step or climb on a load.
- Prior to putting load on the platform, its angle should be inclined a few degrees upwards to compensate for the compression of the vehicle suspension and the minimal play in the articulations of the lift. Doing so, the platform will find itself in perfect horizontal position after placing the load onto it.
- Never adjust the angle of the platform when it is loaded. Do so only when the platform is empty [see Fig. 5.21].
- At the ground, always use the automatic tilt at ground level. [See § 7.4]
- Platform accessed by fork lifts: is allowed only when the platform is at **full rest** on the ground. The combined weight of the fork lift and the load, should not exceed 150% of the nominal capacity of the tail lift [see Fig. 5.22]
- When unloading the platform at the ground, always push the load off the platform, don't pull. By pushing the load from a higher position, the operator avoids that the load would roll or fall over him, or hit him.
- Loads must be protected against shifting position, and unintentional rolling off the platform. For loads that have no natural resistance against slipping, the use of original **DHOLLANDIA** roll-stops [see §7.11] or alternative fixation devices (ex. ratchet straps) is compulsory. The gravity point of the load should not be able to move during the movements of the platform.

Fig. 5.18

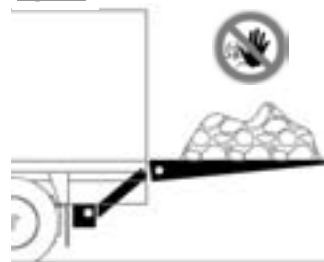


Fig. 5.19

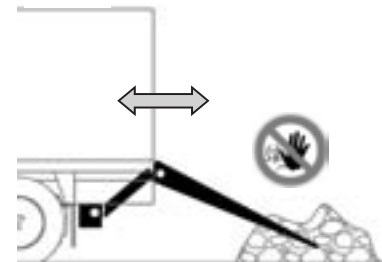


Fig. 5.20



Fig. 5.21



Fig. 5.22



§5.6 - Importance of good maintenance



- Prior to use, inspect the tail lift to ensure that all safety systems and all functions operate correctly, and that no urgent maintenance or damage repair is required. If any unsafe condition exists or unusual noises or movements are noticed, DO NOT use the lift and contact an authorized **DHOLLANDIA** service agent for repair.
- Missing, worn or illegible warning decals must be immediately replaced.
- Competent and regular maintenance is very important for the operational reliability, and the safety of the operator and occasional third parties in traffic.
- All maintenance and repair works should be executed by authorized **DHOLLANDIA** service agents, and using original spare parts only.



Warning in case of breakdowns

- If a tail lift cannot be repaired immediately in case of breakdown, it must be put out of operation and secured against unauthorized use.
- A lift put into its travel position with the help of external devices (forklift, gantry crane, ...), is not supported by its hydraulic cylinders. After releasing the mechanical platform lock, the platform and lifting mechanism will drop in free fall to the start point of the breakdown, without any possibility to stop the fall by means of the regular control box. This can result in the unaware operator and third parties being at great risk.
- To avoid any risk, close the mechanical platform lock and apply additional means to immobilise the platform (eg. by additionally securing the original platform lock, by means of ratchet straps,...). Signal the hazard in a clearly visible way.
- To re-open the lift, use again an external device (forklift, gantry crane,...) for additional support. Or repair the breakdown first, bring the hydraulic system under pressure, and release the platform locks after satisfactory testing of the lift functions.

§5.7 - Instructions for working at loading docks

When using the tail lift platform as bridge plate between the loading floor of the vehicle and the loading dock, follow the instructions below:

- The total weight of the load and the lifting device (forklift, electric or manual transpallet truck, etc...) shouldn't exceed the nominal capacity of the lift [see Fig. 5.23].
- A minimum section of 150mm of the platform point should cover the loading dock [see Fig. 5.24].
- When loading / unloading, the loading floor of the vehicle might lower / rise relative to the loading dock. Use the electrical controls to tilt the platform when the point of the platform rises above or below the dock [see Fig. 5.25]. Negligence to adjust the platform angle could cause severe damage to the tail lift.
- It is forbidden to let the platform float, and use a second articulated link bridge between its point and the loading dock. When loading / unloading, the platform point should always overlap a rigid underground over a minimum of 150mm [see Fig. 5.24].
- It is forbidden to use a folding platform (example: platform of slider or tuck-away lift) as bridge plate [see Fig. 5.27]. The folding platform should remain stored in its travel position, and form no further obstruction at the loading dock [see Fig. 5.28].
- In order to prevent damage, the platform should always be closed in its travel position, prior to driving away from the loading dock.

For cantilever lifts: where-ever the loading dock is equipped with a storage pocket for tail lift platforms, it is strongly recommended to store the platform away in this area. Before reversing into the dock, check if it is deep enough for the depth of the platform. Ensure there is sufficient clearance under and above the platform, taking into account all expected positions of the vehicle suspension. The platform shouldn't touch either the ceiling, or the bottom of the storage pocket in the loading dock [see Fig. 5.29 next page]

Fig. 5.23

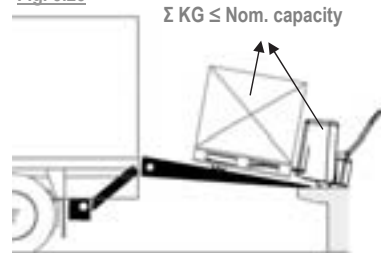


Fig. 5.24

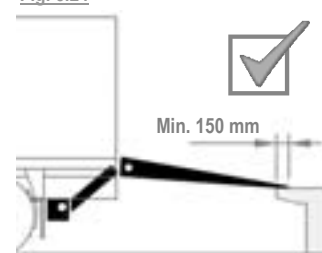


Fig. 5.25

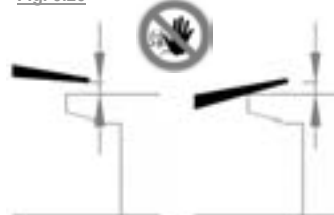


Fig. 5.26

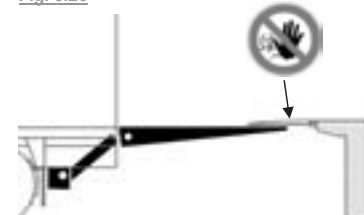


Fig. 5.27

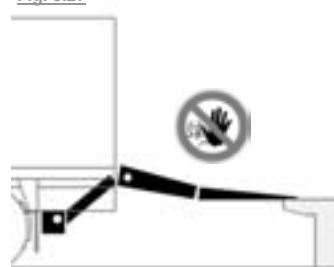
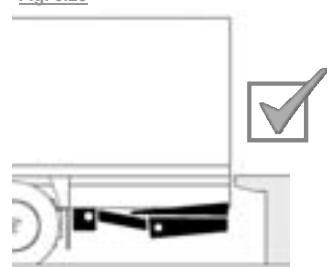


Fig. 5.28



§5.8 - Moving loads between 2 vehicles with cantilever tail lifts

When transferring loads between 2 vehicles equipped with a cantilever platform, proceed as follows [see Fig. 5.30]:

- Open the platform of the vehicle that should be loaded (= L vehicle) fully, below horizontal level, until it cannot be opened any further.
- Open the platform of the vehicle that should be unloaded (= U vehicle) to horizontal level, and reverse until the platform point arrives at 200mm from the rear frame of the body of the L vehicle.
- Tilt the platform of the U vehicle down, and make sure it rests on the platform of the L vehicle. When loading / unloading, the loading floor of one vehicle might lower / rise relative to the other vehicle. Use the electrical controls to tilt the platform of the U vehicle down when its point rises above the platform of the L vehicle. Prior to adjusting the platform angle, make sure the platform is empty (= no load, no operator on the platform).
- If the vehicles are too different in size to follow the instructions above, it is not permitted to transfer loads in this way.
- The safest way to transfer loads, is of course the unload the U-vehicle via the ground, then proceed to reload the L-vehicle of the ground in a second phase.
- If only 1 of 2 vehicles is equipped with a tail lift, transferring loads is only allowed if a minimum section of 150mm of the platform point can cover the loading floor of the other vehicle. [See also Fig. 5.24]
- Again, when loading / unloading, the loading floor of one vehicle might lower / rise relative to the other vehicle. Use the electrical controls to tilt the platform down when its point rises above the loading floor of the other vehicle
- Never drive onto the platform, when its point doesn't lay flat on the ground.

Fig. 5.29

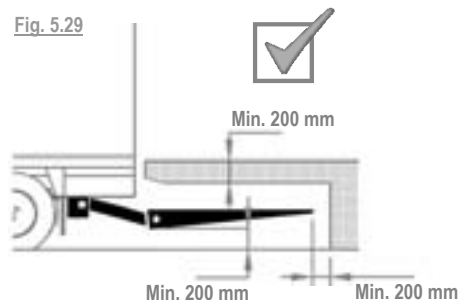
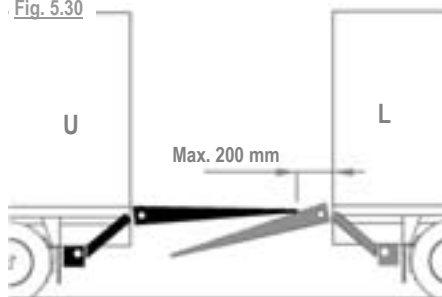


Fig. 5.30



6. LOADING DIAGRAMS

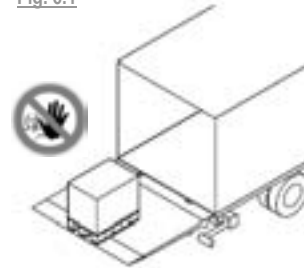
- Hydraulic tail lifts are not designed to LIFT / LOWER weights corresponding to their nominal capacity over the full surface of the platform. The nominal capacity is valid at a certain distance or **centre of gravity** behind the vehicle body. Behind that point that is marked on the platform, the maximum safe working load diminishes according to the load diagrams below.
- When LIFTING, the tail lift is normally protected against overload by the pressure relieve valve in the hydraulic circuit. Most of the overload, and consequential damage, happens when LOWERING loads.



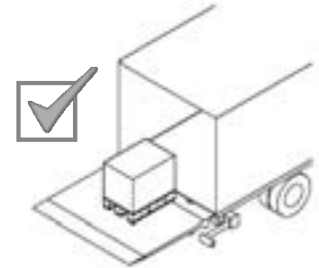
Warning !

- In order to ensure the safety of the operator, and occasional bystanders, and protect the structural integrity of the lift, fore lying loading instructions and diagrams should be followed with great care.
 - Negligence can put the operator and third parties at great risk, or cause premature wear or damage to the tail lift.
 - DHOLLANDIA disclaims liability for any personal injury or property damage that results from overload practices.
-
- The **nominal capacity (= NC)** is the maximum weight that the tail lift should carry under the best possible circumstances:
 - the centre of gravity of the load stands no further than the nominated centre of gravity of the tail lift, marked on the platform surface (always place the load as close as possible to the rear side of vehicle), and
 - the load stands centrally between the lift arms, this is at equal distance from both platform sides.
 - Beyond these best possible circumstances, the maximum **safe working load (=SWL)** goes down according to the load diagrams & instructions below. [see Fig. 6.1 - 6.2]
 - The load should never protrude beyond the side edges or front edge of the platform.

Fig. 6.1



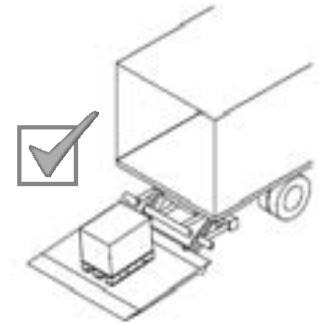
NOT OK: load positioned too close to the platform point



OK: load positioned as close as possible to the rear of the vehicle



NOT OK: load positioned too far off centre



OK: load positioned centrally between the lift arms

→ SWL = 50% of NC

- Be aware that the centre of gravity of the load doesn't necessarily correspond with its physical middle point. The weight can be spread very unevenly.
- Unilateral loading on 1 side of the platform should be avoided. Restrict the load to a maximum safe working load of 50% of the nominal capacity. [see Fig. 6.1].
- Pay attention to avoid "concealed" overload situations, such as:
 - Platform squeezed in the storage pocket of a loading dock: unexpected forces can apply to the lifting mechanism, causing severe damage [see Fig. 5.29].
 - Platform accessed by fork lifts: is allowed only when the platform is at full rest on the ground. The combined weight of the fork lift and the load, should not exceed 150% of the nominal capacity of the tail lift [see Fig. 5.22].
 - Fork lifts offloading merchandise on the platform point standing at the floor level of the vehicle: the kinetic effects of the descend speed & the additional weight of the forks / masts of the forklift often lead to significant overload. Load over the side edge of the platform, place the merchandise centrally between the 2 lift arms (at equal distance from both platform sides). [See Fig. 5.20]



- Note: stickers indicating the nominal capacity + the centre of gravity [see Fig. 6.3] and applicable load diagram [see Fig. 6.2] are supplied with the lift. The operator should take note of this information prior to using the lift.

Fig. 6.2

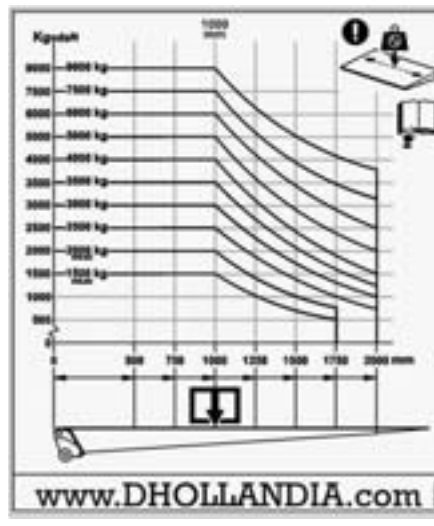
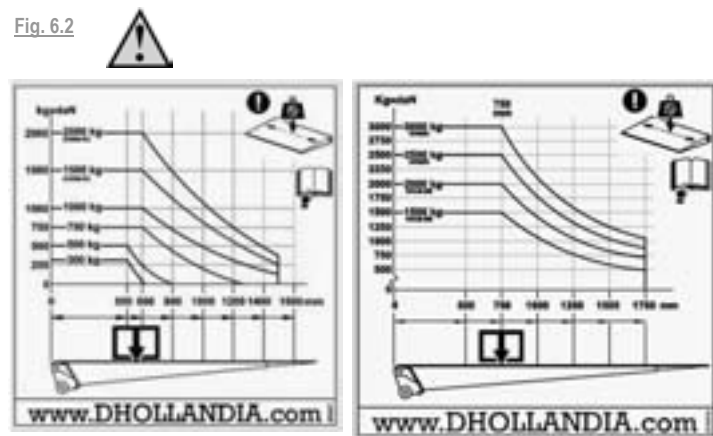
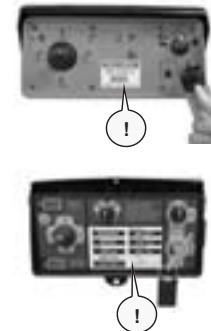


Fig. 6.3



7. OPERATING INSTRUCTIONS

§7.1 - Introduction to the standard control box

- All the symbols in this chapter represent left hand drive vehicles (= continental Europe) with the control box mounted on the right side of the vehicle. For control boxes mounted to the left side of the vehicle, the images should be mirrored.
- The standard control box contains a 4-way joystick operating the functions LIFT / LOWER / OPEN / CLOSE, plus a safety switch.
- The safety switch can be a rotary switch with removable key [see Fig. 7.1], a standard rotary switch [see Fig. 7.2–7.3] or a push button [see Fig. 7.4]. They function as follows:

Rotary switch as safety switch [See Fig. 7.5]	
Switch turned & held clockwise (1)	Activates the joy-stick in the exterior control box, and deactivates the auxiliary controls
Switch turned counter-clockwise (2)	Activates the auxiliary controls, and deactivates the joy-stick in the exterior control box
(1) Hold-to-run principle: when the safety switch is released, it will automatically return to the neutral position, and deactivate the joy-stick	
(2) Fixed position: the auxiliary controls remain active as long as the safety switch is not manually returned to the neutral position	

Push button as safety switch	
Button pushed-in	Activates the joy-stick in the exterior control box
Button left idle	Activates the auxiliary controls

- The joy-stick operates the 4 basic functions LIFT, LOWER, CLOSE & OPEN. [See Fig. 7.5]

Fig. 7.1



Fig. 7.2

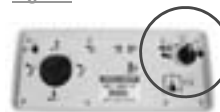


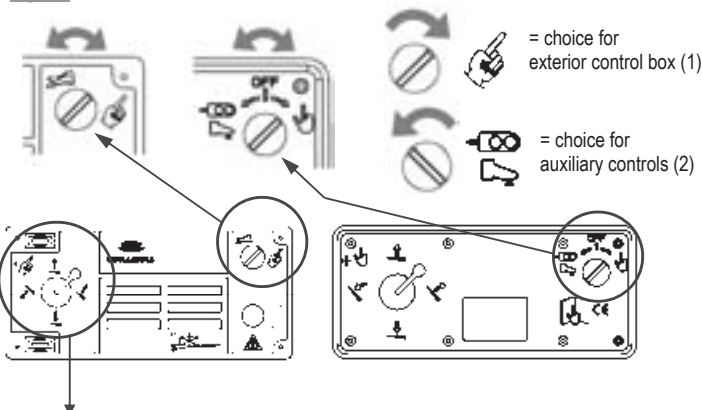
Fig. 7.4



Fig. 7.3



Fig. 7.5



Function	Symbol	Joystick	Function	Symbol	Joystick
LIFT	↑		CLOSE		
LOWER	↓		OPEN		

- Additional rotary switches are foreseen in case of more complex lifts. The functions SLIDE IN, SLIDE OUT in case of slider lifts. The functions LEG IN, LEG OUT in case of lifts with hydraulic stabilising legs. [See Fig. 7.6].

- In practice, the functions on the exterior control box are actuated as follows:

Function	To actuate :	Function	To actuate (*) :
LIFT		SLIDE IN	
LOWER		SLIDE OUT	
CLOSE		LEG IN	
OPEN		LEG OUT	

(*) use of safety switch not required on all lift models

§7.2 - Option S094: 3+1 button control box

- The option S094 features a 1st control box with 3 buttons, plus a 2nd separate control box with 1 safety button. (A separate battery switch should be mounted during installation of the lift).
- This type is for instance used for mounting into the side panel of factory built panel vans.
- The 3 buttons plus the safety button operate the 4 basic functions LIFT, LOWER, CLOSE & OPEN. [See Fig. 7.7]

Fig. 7.6

Function	Symbol	Switch	Function	Symbol	Switch
SLIDE IN			LEG IN		
SLIDE OUT			LEG OUT		

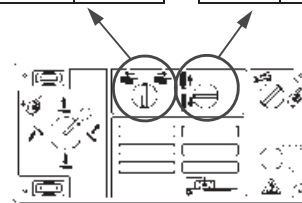
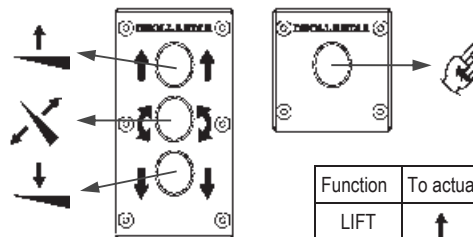


Fig. 7.7



Function	To actuate :
LIFT	
LOWER	
CLOSE	
OPEN	

§7.3 - Auxiliary controls

- The auxiliary controls should be used with full respect of the particular safety instructions of §5.4.
- If the safety switch in the exterior control box is a rotary switch, this switch should be turned counter-clockwise to activate the auxiliary control. [See Fig. 7.8]
- The foot controls (option S006 or S075) are equipped with 4 buttons: 2 buttons to LIFT, 2 buttons to LOWER. Any of the 2 movements is stopped immediately if 1 of the 2 buttons is released, or if a wrong combination of buttons is actuated. [See Fig. 7.9].
- The 2-button wander lead with spiral cable (option S001), and the 2-button fixed interior controls (option S003, S005) are equipped with 2 buttons: 1 button to LIFT, 1 button to LOWER. [See Fig. 7.10].
- The use of 3-button wander leads with spiral cable, enabling the operator to additionally TILT the platform, is disallowed under the European CE Safety Directives.

Fig. 7.8

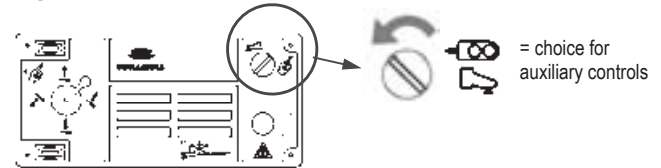


Fig. 7.9

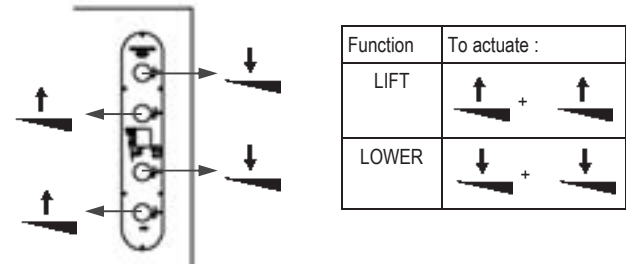
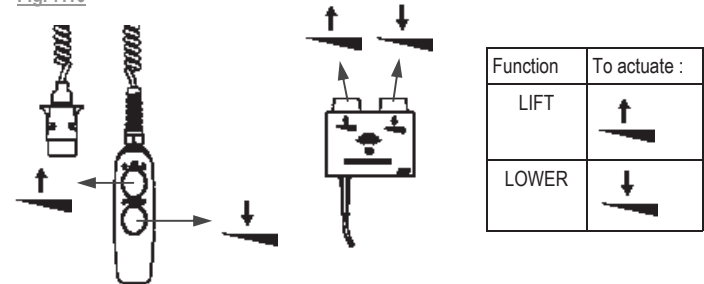




Fig. 7.10





§7.4 - Automatic tilt at ground level

- All tail lifts with a conical platform are equipped with automatic tilt at ground level. This means:

	When the platform touches the ground, its point automatically tilts down when the buttons for "LOWER" remain pushed in.	See Fig. 7.11
	When the buttons for "LIFT" are pushed in, and the platform rises off the ground, it will first tilt up to a preset horizontal position, then lift further in this setting to the vehicle floor.	See Fig. 7.12

- Most types of lifts are equipped with tilt cylinders, which allow the operator to adjust the angle of the platform to the slope of the underground [see Fig. 7.13]. Other types have fixed stabilisers, with a fixed, non-adjustable platform angle.

Function	To actuate :
TILT UP	
TILT DOWN	

Lift type	Automatic tilt at ground level	Adjustable platform angle
Tilt cylinders (DH-LSP..., DH-LM..., DH-LSU, DH-SM..., DH-SSU, DH-SO..., DH-SV, DH-SK, DH-RMC, DH-RCC)	yes	yes
Fixed stabiliser rods (DH-RC, DH-RM, DH-SKS, DH-SC...)	yes	no

- The automatic tilt incorporates a "memory": the angle of the platform (set by the operator upon opening the platform, possibly slightly above or below perfect horizontal level) is automatically repeated upon every new LIFT cycle off the ground. This angle is "memorised".
- Automatic tilt should be used with auxiliary controls featuring the functions LIFT / LOWER only (4-button foot controls, 2-button wander leads, 2-button fixed interior controls). The use of 3- or 4-button auxiliary controls (including TILT) results in confusion and errors. It might cause damage to the tail lift, and injuries to the operator or third parties near by.

Fig. 7.11

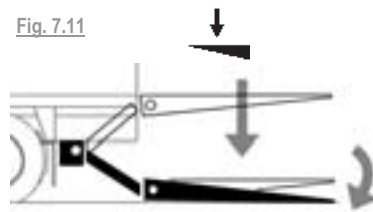


Fig. 7.12

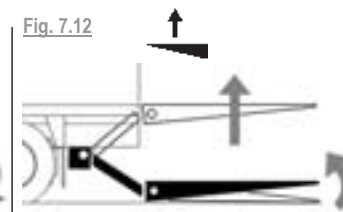
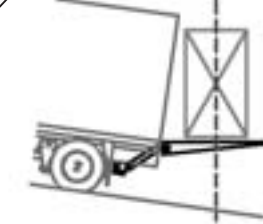
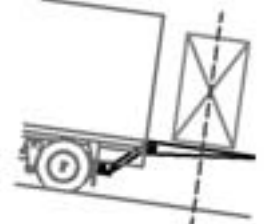
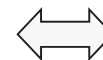
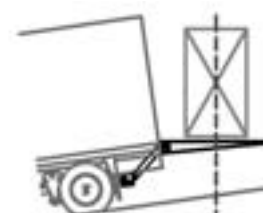
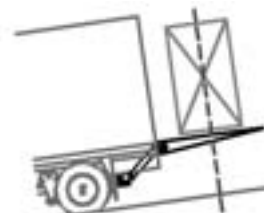


Fig. 7.13



Fixed stabilisers

Tilt cylinders

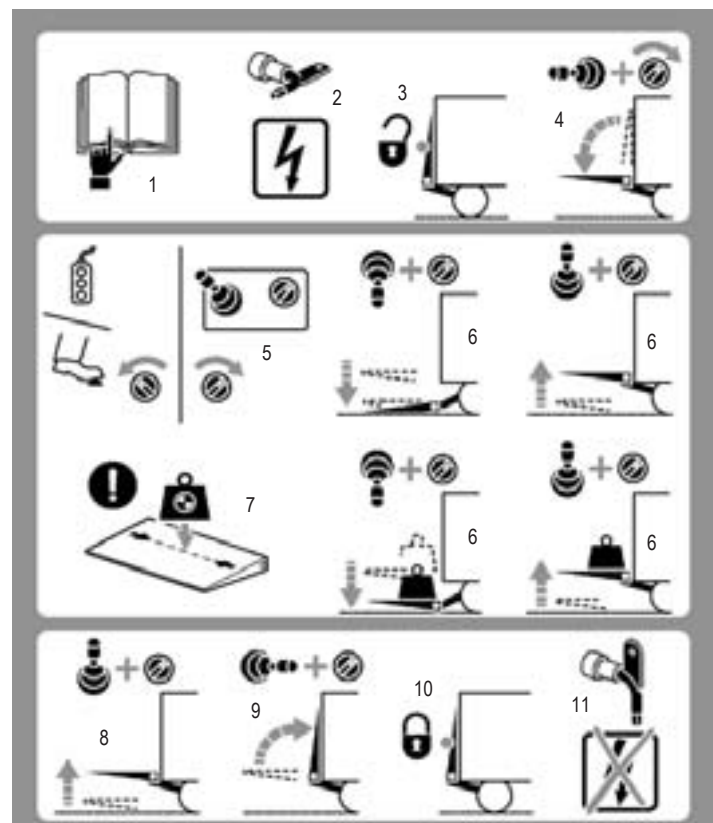


§7.5 - Operating instructions for cantilever lifts

- The standard exterior control box on cantilever lifts should be operated as follows. See also the informative decals EF0500 supplied with the lift (which should be applied to the vehicle body, within eye-sight of the operator).

Fig. 7.14 - Standard exterior control box for cantilever lifts	
N°	Opening the platform
1	Consult the user's manual before getting started.
2	Switch on the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box).
3	Observe all safety instructions, and open the platform lock.
	If applicable, LOWER the mechanical or hydraulic stabilising legs into work position.
4	OPEN the platform approx. 90° into the desired horizontal position. Don't LOWER before the horizontal work position has been reached.
N°	Loading & unloading
5	Select between exterior control box and auxiliary controls
6	Exterior control box: use the depicted combination of joy-stick and safety button to LIFT & LOWER. At the ground, use the automatic tilt at ground level.
7	Observe the loading diagrams & instructions at all times.
N°	Closing up in travel position
8	LIFT the platform up to the level of the vehicle floor prior to closing the platform.
9	CLOSE the platform until it reaches the closed vertical position and you hear the hydraulic system turn in overpressure.
10	Close the platform lock. [see also Fig. 7.16]
	If applicable, LIFT the mechanical or hydraulic stabilising legs into travel position.
11	Switch off the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box). Close the lid of the control box.

Fig. 7.14



§7.6 - Operating instructions for cantilever lifts + option S094

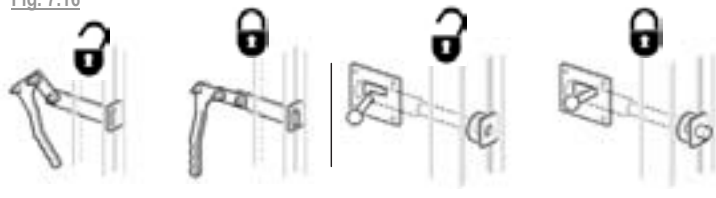
- The optional control box with 3+1 control buttons (option S094...) on cantilever lifts should be operated as follows. See also the informative decals EF0525 supplied with the lift (which should be applied to the vehicle body, within eye-sight of the operator).

Fig. 7.15 - Optional control box for cantilever lifts (option S094)	
N°	Opening the platform
1	Consult the user's manual before getting started.
2	Switch on the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch near the exterior control box).
3	Observe all safety instructions, and open the platform lock.
	If applicable, LOWER the mechanical or hydraulic stabilising legs into work position.
4	OPEN the platform approx. 90° into the desired horizontal position. Don't LOWER before the horizontal work position has been reached.
N°	Loading & unloading
5	Select between exterior control box and auxiliary controls
6	Exterior control box: use the depicted combination of push buttons and safety button to LIFT & LOWER. At the ground, use the automatic tilt at ground level.
7	Observe the loading diagrams & instructions at all times.
N°	Closing up in travel position
8	LIFT the platform up to the level of the vehicle floor prior to closing the platform.
9	CLOSE the platform until it reaches the closed vertical position and you hear the hydraulic system turn in overpressure.
10	Close the platform lock. [see also Fig. 7.16]
	If applicable, LIFT the mechanical or hydraulic stabilising legs into travel position.
11	Switch off the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box). Close the lid of the control box.

Fig. 7.15



Fig. 7.16



§7.7 - Operating instructions for slider lifts

- The exterior control box on slider lifts should be operated as follows. See also the informative decals EF0501 supplied with the lift (which should be applied to the vehicle body, within eye-sight of the operator).

Fig. 7.17 - Exterior control box for slider lifts	
N°	Opening the platform
1	Consult the user's manual before getting started.
2	Switch on the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box).
3	Observe all safety instructions, and open the platform lock.
4	LOWER the foldable platform approx. 20cm (except for mountings with platform slides, see Fig. 7.19)
5	Use the central rotary switch to SLIDE OUT the platform into work position. This is where the lift frame hits the end stops at the end of the sliding tubes.
	If applicable, LOWER the mechanical or hydraulic stabilising legs into work position.
6	Unfold the point of the foldable platform.
N°	Loading & unloading
7	Select between exterior control box and auxiliary controls
8	Exterior control box: use the depicted combination of joy-stick and safety button to LIFT & LOWER. At the ground, use the automatic tilt at ground level.
9	Observe the loading diagrams & instructions at all times.
N°	Closing up in travel position
10	Fold the point of the foldable platform back into travel position.
	If applicable, LIFT the mechanical or hydraulic stabilising legs into travel position.
11	Use the central rotary switch to SLIDE IN the platform into travel position. This is where the lift frame hits the end stops at the front of the sliding tubes.
12	LIFT the platform against the rubber stowage buffers.
13	Close the platform lock. [See also Fig. 7.18]
...	...

- | | |
|----|--|
| 14 | Switch off the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box). Close the lid of the control box. |
|----|--|

Fig. 7.17

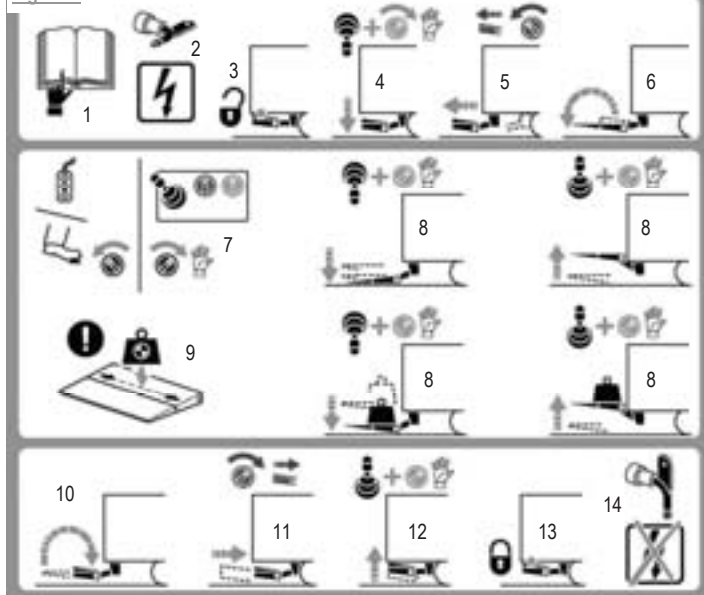


Fig. 7.18

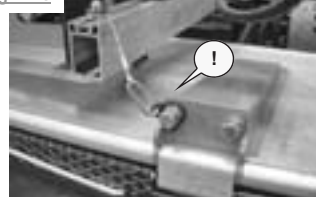


Fig. 7.19



§7.8 - Operating instructions for slider lifts with double folded platform

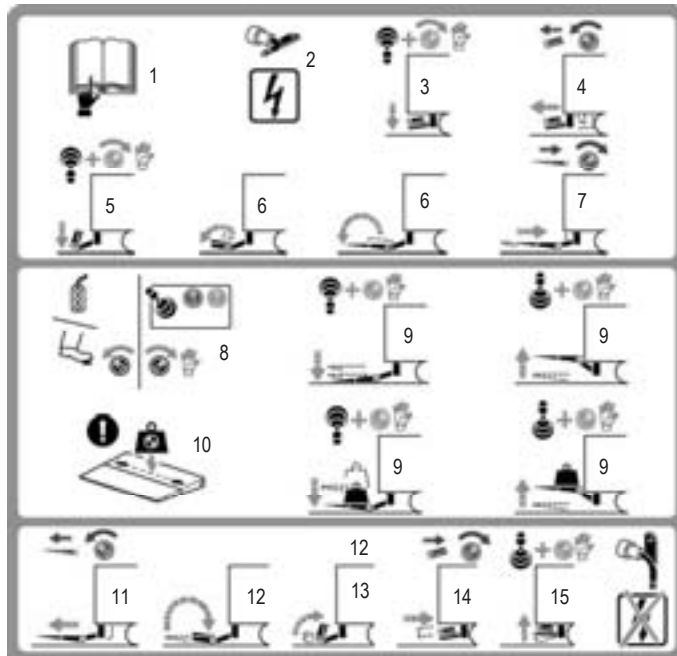
- The exterior control box on slider lifts with double folded platform should be operated as follows. See also the informative decals EF0509 supplied with the lift (which should be applied to the vehicle body, within eye-sight of the operator).

Fig. 7.20 - Exterior control box for slider lifts DH-SMO / SO...

N°	Opening the platform
1	Consult the user's manual before getting started.
2	Switch on the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box).
3	Observe all safety instructions, open the platform lock., and LOWER the foldable platform approx. 20cm.
4	Use the central rotary switch to SLIDE OUT the platform to the rear end of the sliding tubes. This is where the lift frame hits the end stops at the end of the sliding tubes.
5	Lower the platform to just above the ground.
6	Unfold the 2 parts of the double folded platform.
7	Use the central rotary switch to SLIDE IN the platform into the work position.
	If applicable, LOWER the mechanical or hydraulic stabilising legs into work position.
N°	Loading & unloading
8	Select between exterior control box and auxiliary controls
9	Exterior control box: use the depicted combination of joy-stick and safety button to LIFT & LOWER. At the ground, use the automatic tilt at ground level.
10	Observe the loading diagrams & instructions at all times.
N°	Closing up in travel position
	If applicable, LIFT the mechanical or hydraulic stabilising legs into travel position.
11	Use the central rotary switch to SLIDE OUT the platform to the rear end of the sliding tubes.
12	Fold the 2 parts of the foldable platform back into travel position.
...	...

13	LIFT the folded platform until it just touches the lift arms.
14	Use the central rotary switch to SLIDE IN the platform fully into travel position. This is where the lift frame hits the end stops at the front of the sliding tubes.
15	LIFT the platform against the rubber storage buffers, and close the platform lock.
16	Switch off the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box). Close the lid of the control box.

Fig. 7.20

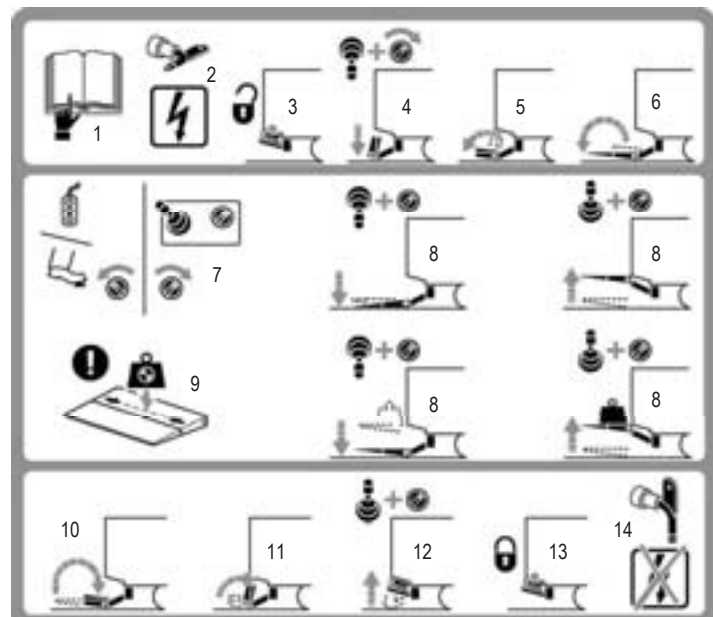


§7.9 - Operating instructions for tuck-away lifts

The exterior control box on tuck-away lifts should be operated as follows. See also the informative decals EF0502 supplied with the lift (which should be applied to the vehicle body, within eye-sight of the operator).

Fig. 7.21 - Exterior control box for tuck-away lifts	
N°	Opening the platform
1	Consult the user's manual before getting started.
2	Switch on the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box).
3	Observe all safety instructions, and open the platform lock.
4	LOWER the foldable platform to the ground. Simultaneously, it will stand up in almost vertical position, to make the manual deployment easier.
5	Unfold the whole platform into horizontal position.
6	Unfold the point of the foldable platform.
N°	Loading & unloading
7	Select between exterior control box and auxiliary controls
8	Exterior control box: use the depicted combination of joy-stick and safety button to LIFT & LOWER. At the ground, use the automatic tilt at ground level.
9	Observe the loading diagrams & instructions at all times.
N°	Closing up in travel position
10	LOWER the platform to 5cm above the ground, and close the platform point.
11	Fold the whole platform back into vertical position, against the rollers on the lift frame.
12	LIFT the platform against the underside of the vehicle chassis / body.
13	Close the platform lock.
14	Switch off the electrical power to the tail lift (cabin switch in the driver's cabin, and battery switch of the exterior control box). Close the lid of the control box.

Fig. 7.21



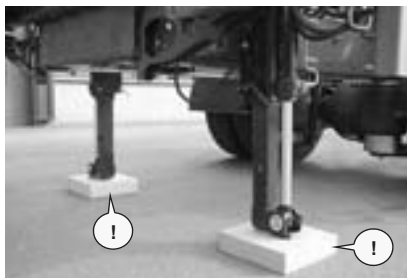
§7.10 - The use of stabilising legs

- **DHOLLANDIA** tail lifts are available with 2 types of stabilising legs:
 - Mechanical stabilising legs are deployed and restored manually by the operator. They are only suitable for light commercial vehicles up to 3.5T GVW, and support maximum 3T total weight.
 - Hydraulic stabilising legs are operated via the exterior control box. They are available in capacities of 2.5T, 4T and 10T, and are therefore suitable for a much wider range of commercial vans and trucks. See page 26 on the practical operation of the functions LEGS IN / LEGS OUT.
- The purpose of the stabilising legs is to prevent the vehicle from tipping over (e.g. central axle trailers), or to support the chassis of the vehicle during loading / unloading (e.g. vehicles with very long overhang, with relatively weak chassis, or in case of extreme lift capacities).



- The use of stabilising legs is compulsory on certain vehicles. Consult the user's manual and / or the Fitting and Body Building Instructions from the vehicle manufacturer.
- When using the stabilising legs, the operator should observe following points:
 - Ensure that the stabilising legs are positioned on solid even ground. In case of soft terrain (sand, gravel,...), solid support blocks must be used under the stabilising legs [see Fig. 7.22].
 - Use the legs upon every loading / unloading activity.
 - Ensure the legs are completely lifted in travel position before sliding the lift in / out (slider lifts), or before moving the vehicle.
 - **DHOLLANDIA** stabilising legs should be used to stabilise the vehicle only. They are not suitable to lift the vehicle (not empty, not fully loaded).
 - In order to ascertain this, the height of the stabilising legs should be adjusted during loading / unloading, to adapt them to the variation in the vehicle suspension.
 - In case of mechanical legs, be very careful when releasing the mechanical lock to store the legs in travel position. If the vehicle has been loaded, the extra weight in the vehicle body might induce significant tension on the sliding foot of the leg, and its locking mechanism.

Fig. 7.22



§7.11 - The use of roll-stops

- Any platform aimed to lift and lower rolling loads, must be equipped with a roll-stop system:
 - to prevent the load from rolling unintentionally off the edge;
 - to protect the load against shifting position, and its centre of gravity to move during the LIFT / LOWER movement.
- As part of the ordering process of the lift, it is important that the vehicle owner and his contractors choose the position of the roll-stops in function of the intended application (pallets, trolleys,...), and the loading diagrams applicable to the nominal capacity chosen. The loading diagrams & instructions of chapter 6 should be observed at all times.
- The standard position is in the platform point, but customized positions can be ordered.
- The option list features 3 types of roll-stop systems:

S215.M = Manual roll-stops, operated by torsion springs [see Fig. 7.23]

OPEN	Press the lever on the side of the roll-stop flap.
CLOSE	Step on the roll-stop flap. When driving a load from the ground onto the platform, the roll-stop will automatically close.

S215.A = Automatic roll-stops, operated by torsion springs [see Fig. 7.24]

OPEN	Kick the lever on the side of the roll-stop flap sideways from position 1 to position 2. S215.A will now function as a <u>manual</u> roll-stop S215.M.
MANUAL MODE	When stepping on the roll-stop flap, or when driving load from the ground onto the platform, the roll-stop will automatically close.
OPEN	Kick the lever on the side of the roll-stop flap sideways + rearward, from position 1 to position 3. S215.A will now function as <u>automatic</u> roll-stop.
AUTOMATIC MODE	When stepping on the roll-stop flap, or when driving a load from the ground onto the platform, the flap automatically jump back to the open position after releasing it, or when the load is passed over it.
CLOSE	Kick the lever into position 1. Step on the roll-stop flap.

S215.V = Vertical roll-stops, no springs [see Fig. 7.25]

OPEN	Kick the button on the side of the roll-stop flap in the direction of the platform point.
CLOSE	Step on the roll-stop flap. When driving a load from the ground onto the platform, the roll-stop will automatically close.

Fig. 7.23

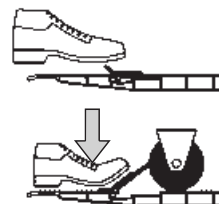


Fig. 7.24

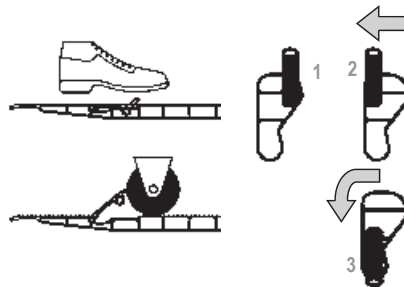
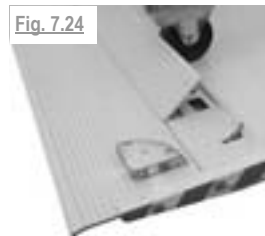
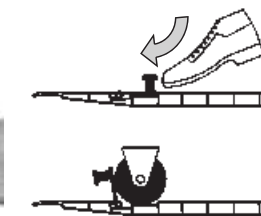
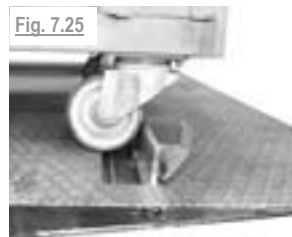


Fig. 7.25



8. WARRANTY CONDITIONS

§8.1 - Abbreviations

DHO = **DHOLLANDIA** or her official national agent / distributor
HTL = Hydraulic tail lift
CV = (Commercial) vehicle

§8.2 - Period

8.2.1 - The warranty period lasts 12 months from the day that the HTL is taken into operation for the first time. This point in time is determined by the date of the weight test and commissioning of the HTL, prescribed by and conform with the CE Machine-Directive and the fitting instructions of DHO, without exceeding however 3 months after the delivery date of the HTL concerned.

For this purpose, the results of the weight test and commissioning must be duly reported and inscribed in the Fitting Declaration in the User's Manual issued with every HTL.

8.2.2 - The initial warranty period is not modified or influenced by occurring service-, repair-, or improvement works, or by the replacement of failing parts.

§8.3 - Conditions

8.3.1 - In case of a warranty claim, DHO has the right to examine the defect or failure, or to have it examined. For this purpose, the supplied object (if mounted to a wheeled vehicle) must be presented at the DHO workshop, or any other workshop appointed by DHO to this respect. The same is also valid for the warranty repair works themselves.

8.3.2 - Warranty can only be attributed to HTL which are maintained in the original delivery condition and specification. Modifications to the construction or safety devices of Dhollandia HTL are strictly forbidden, except in case of explicit prior written approval by DHO.

8.3.3 - Defects, failures, deficiencies in general, that restrict the utility of the HTL due to faulty design / construction, material deficiencies, or failing manufacture, are solved by rectifying works or by substitution / replacement, and this at the discretion of DHO.

8.3.4 - Upon becoming apparent, defects, failures, deficiencies in general, must be immediately reported to DHO via the fastest possible way. Warranty claims, which are older than 30 days, will be declared inadmissible. Parts replaced under warranty become the property of DHO.

8.3.5 - The warranty is only valid for HTL, which are mounted, serviced, repaired and conserved according to the relevant instructions from DHO, and for which all works have been carried out using original DHO spare parts.

8.3.6 - A warranty claim can only be admitted for further investigation, when the following documentation is available:

- A fitting declaration from the hands of the installer of the HTL, confirming that the HTL is correctly fitted according to the Fitting Instructions of DHO, and the Body and Equipment Building Instructions of the manufacturer of the CV;
- A weight test and commissioning certificate with positive result;
- A copy of the last inspection certificate (relating the yearly inspection, TÜV inspection, special inspection, or repeated inspection);
- A copy of the last "maintenance and repair report" as mentioned in the User's Manual.

8.3.7 - The final decision if a warranty claim is accepted and reimbursed by DHO, lies with DHO alone.

8.3.8 - The right of DHO to have specific warranty works carried out in specific workshops appointed by it, doesn't entitle the user of the HTL, in case of repetition or with another HTL under warranty, to have works carried out in a non-DHO workshop. This requires in all cases the prior approval of DHO. Non-observation of this clause annihilates the product warranty.

8.3.9 - Failing parts must be returned to DHO within 15 days after execution of the works, free of transport, port and package charges. Upon positive recognition of the warranty claim, only the cost of the most economical transport means is reimbursed.

8.3.10 - For the parts that DHO acquires from its own suppliers, the warranty supplied and ensured by DHO is limited to the specific warranty conditions given by these suppliers to DHO.

8.3.11 - Outgoing spare parts are temporarily invoiced for administrative reasons. As soon as the failing parts have been returned and the warranty claim has been positively recognized, the invoice is credited.

8.3.12 - Except in case of different contractual agreement, the warranty is always limited to the free replacement of the failing parts. Labour and mileage costs relating to a roadside repair are only reimbursed if the CV is physically blocked due to the nature of the tail lift failure, and

according to the agreed labour rates and standard or agreed repair times. See document C-GAR-02-EN.

In case of different contractual agreement, whereby full warranty is guaranteed, the labour cost is only taken into consideration at the standard repair times prescribed by DHO, which represent an average time required to repair specific problems by trained tail lift technicians, and at the standard hourly labour rates foreseen in the DHO network.

§8.4 - NOT covered under DHO warranty conditions:

8.4.1 - Except for the cases described under Pt. 3.12, labour cost and mileage are excluded from the warranty coverage. Also excluded in all cases and under all circumstances are: sequential damage / loss such as immobility, tractor or other transport / logistic costs, all transport costs to and from the DHO workshop, driver's waiting hours, rental costs for replacement CV, opportunity cost and missed sales.

8.4.2 - All administrative costs and start forfeits, unless different contractual agreement with the service agent concerned.

8.4.3 - Consumables and serviceable parts subject to wear and tear (such as rubber and synthetic parts, hydraulic flexible hoses, platform flags,...); hydraulic oil; defects to foot controls caused by loss of or damage to the protection rubbers; defects to platform lights caused by impact or abuse with pallets, pallet trucks or other foreign objects; defects to wander leads, their spiral cables and plugs.

8.4.4 - The normal regular HTL activities with relation to service / maintenance and paint finish conservation, and the different types of inspections according to the CE-Machine Directive or DHO User's Manual.

8.4.5 - HTL problems, caused by the subsequent use of polluted oil, or oil with technical or hydraulic characteristics that are not compatible with the original oil foreseen by DHO.

8.4.6 - The adjustment of the hydraulic cylinders after the first period of use, and the checking and retightening of bolt connections made during the fitting process.

8.4.7 - All additional components added to the HTL construction after delivery of the HTL to the body builder or the installer of the lift. All defects, failures, deficiencies caused by the use and implementation of non-original DHO spare parts.

8.4.8 - Defects to the electric plugs of the main power supply to the HTL (plus and earth); defects to the batteries; defects to or caused by any type of low-battery appliance, alarm or anti-theft device prescribed or mounted by the customer; all other electrical failures (to the electric motor, the starter solenoid, other switch elements,...) caused by insufficient battery or power capacity.

8.4.9 - Damage caused by normal and natural wear and tear. Damage or defects caused by inaccurate or faulty fitting (unless mounted by DHO). Damage or defects caused by negligence and disregard of the DHO Maintenance and Repair instructions, and by disregards of the prescribed maintenance intervals. Damage or defects caused by negligent or improper use; by negligence and disregard of the general or product-specific DHO user's instructions; by abuse or improper use of the HTL for any application other than its normal intended use as described in the DHO User's Manual; by overload, collision or any other form of accident; and by all other influences as for as they cannot be attributed to a fault or mistake from DHO.

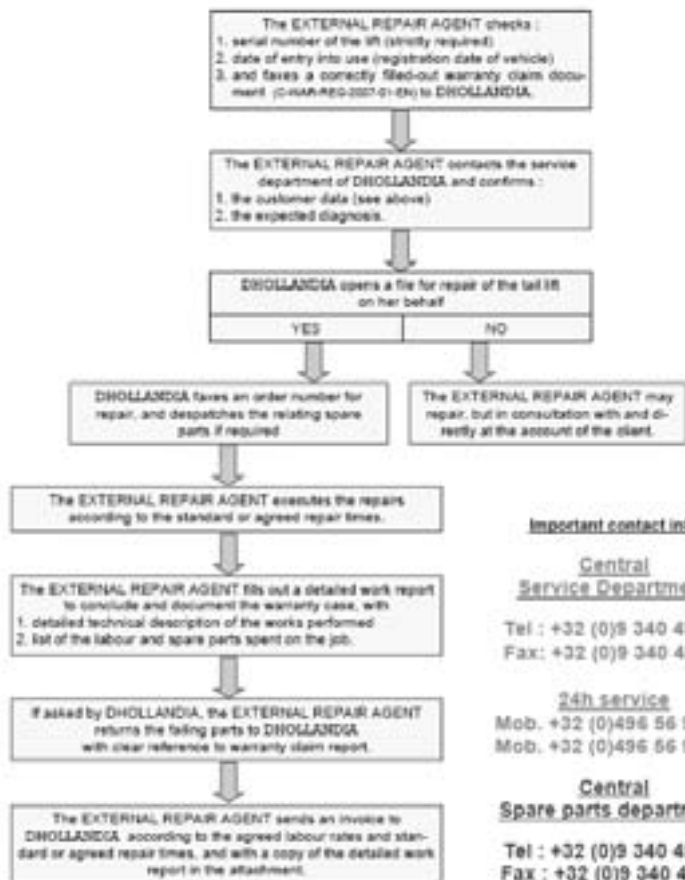
8.4.10 - Defects and damage caused by unauthorized modifications to the original construction or safety devices of the HTL, without explicit prior written approval by DHO, during the fitting process or afterwards (e.g. during repair and maintenance works).

8.4.11 - As far as any given incident is not covered by the legislation on product liability and warranty, a warranty case cannot lead to a damage claim of any kind.



Remark: full conditions (includ. standard repair times), and description of procedures available on request.

Procedures for the initiation and management of a warranty claim



Important contact info

Central Service Department

Tel : +32 (0)9 340 49 67
Fax : +32 (0)9 340 49 69

24h service

Mob. +32 (0)496 56 90 27
Mob. +32 (0)496 56 90 22

Central Spare parts department

Tel : +32 (0)9 340 49 66
Fax : +32 (0)9 340 49 94

		WARRANTY CLAIM REPORT for DHOLLANDIA tail lifts		Date: _____ Code: _____ Version: _____
ID of service agent / statement : _____		ID of operator / owner : _____		
Year ref : _____ Date of repair : _____ Dhollandia order N° : _____		Vehicle reg : _____ SNF + type of lift : _____ Date matriculation : _____		
Description of defect : _____		<input type="checkbox"/> See pictures enclosed <input type="checkbox"/> Diagnosis / work required or performed : _____		
Description / Code : _____ Labour : _____ Oil / leakage : _____		Quantity	Price EUR netto	Allowed by DHO
Total				
Attention: Dhollandia warranty conditions and standard repair times apply to all warranty claims.				
To be filled in by Dhollandia				
<input type="checkbox"/> Claim is accepted <input type="checkbox"/> Claim is accepted in simplified form <input type="checkbox"/> Claim is not accepted		<input type="checkbox"/> Return parts to Dhollandia (+ copy of warranty claim) <input type="checkbox"/> Keep parts <input type="checkbox"/> Don't return the parts, but keep them for inspection for 3 months		
Comments : _____ _____ _____		<input type="checkbox"/> Dhollandia will replace parts <input type="checkbox"/> Dhollandia will credit you for the items <input type="checkbox"/> Other : _____		
		Date : / / Name		
Dhollandia N.V. • Dorland 9 • 9-100 Lisseveld Begijn • Tel +32 (0)9 340 49 00 • Fax +32 (0)9 340 49 17 E-mail: info@dhollandia.nl				
				DHOLLANDIA

CHAPTER B

MAINTENANCE & REPAIR



B

1. SAFETY INSTRUCTIONS FOR MAINTENANCE & REPAIR



Warning !

- In order to ensure the safety of the technical personnel, the operator of the tail lift, and occasional bystanders, the execution of maintenance and repair works is strictly reserved to skilled and authorised service agents, who have been duly trained, who know and understand the content of this manual, and master the safety aspects involved in their job.
- Negligence can put the technical personnel, the operator and third parties at great risk.
- During the maintenance & repair works, the service engineer should follow the general safety instructions for the use of the tail lift [see Chapter A], as well as the specific technical safety instructions described below.

§1.1 - General safety instructions

- Use appropriate working clothes. Never wear loose-fitting clothes that may be trapped in the moving parts of the tail lift (called HTL hereafter). Always wear safety goggles with side guards, safe footwear with steel protection tips, non-flammable overalls, protective gloves, and ear plugs. Wear a safety helmet when working under the HTL or vehicle chassis. Avoid wearing rings, bracelets, necklaces, watches, etc... [See Fig. 1.1]
- Before releasing the mechanical platform lock, check if the hydraulic system builds up pressure (goes in overpressure), and ensure that there is no visible oil leaks. [see Fig. 1.2]
- Take into account that a leak (visible or not) in one or more of the hydraulic components may cause a pressure loss, causing the platform to fall open as soon as the mechanical lock is released. [see Fig. 1.3]
- Consider that in an emergency situation, the platform might have been closed with use of external help (forklift, hoist, gantry crane,...), leaving the hydraulic cylinders empty instead of filled with oil, and causing the platform to fall down as soon as the mechanical lock is released. [see Fig. 1.3 - 1.4]
- Always avoid the area directly behind, and within reach of the moving platform [see Fig. 1.3]. If the nature of the works require that you enter this danger zone nevertheless, make sure that you secure the platform against accidental falling by means of hoists, forklifts, gantry crane, etc... [see Fig. 1.5]. Ideally, rest the platform on the ground before starting the works. [see Fig. 1.6]

Fig. 1.1



Fig. 1.2



Fig. 1.3



Fig. 1.4



Fig. 1.6

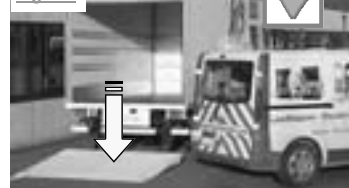


Fig. 1.5



- Avoid to stand on, or sit between the open platform and the rear side of the vehicle. [see Fig. 1.7]
- If the nature of the works require that you enter into one of the danger zones [see §5.3 in Chapter A], or between the movable parts of the HTL, make sure that you switch off the power source to the HTL. Switch off the isolator switch in the vehicle cabin, remove the key from the battery switch in the exterior control box, or disconnect main fuse on the battery, to avoid unsafe, injudicious or unauthorized (also by strangers in traffic!) use of the HTL. [see Fig. 1.7]
- When dismantling & remounting articulation pins, make sure these pins are remounted in the original way, and are duly secured by means of locking pins, bolts & nuts.
- It is prohibited to modify (straighten, heat up, weld, lengthen or shorten, etc...) the construction of the mechanical components (articulation points, lift arms, frames or platforms, cylinders, etc...). In case of damage or failure, these components must be replaced by original spare parts.

§1.2 - Hydraulic components

- In normal working order, a HTL is supported by the hydraulic pressure in the cylinders. Therefore, hydraulic components such as valves, hydraulic pipes, cylinders, etc... should not be removed before the platform and lift arms are secured against accidental falling (by means of a hoist, a forklift, a gantry crane, or by resting the platform on the ground).
- **Dismounting of hydraulic cylinders (general):** release the oil pressure in the hydraulic circuit by pushing the control switches for "LOWER" (for revision of the lift cylinders), or "OPEN" (for revision of the tilt cylinders) for approx. 20 sec. Only when the oil pressure is released, is it allowed to remove the corresponding articulation pins.
- **Dismounting of hydraulic TILT cylinders** (on cantilever HTL): take into account that the "long" tilt cylinders are often equipped with strong internal springs [see Fig. 1.8], and that the "short" tilt cylinders are often equipped with strong external springs inside a tubular extension [see Fig. 1.9], generating a strong pull force on the articulation pins when the platform stands in its closed position.
- In order to remove the articulation pins of such cylinders, the platform must be opened to 45° first to release the tension from the springs (secure platform against accidental fall, see above!). [see Fig. 1.10]
- For the revision of the long tilt cylinders type SKSV with internal spring, keep in mind that the internal springs execute a strong push force on the cylinder head, when the piston rod

Fig. 1.7

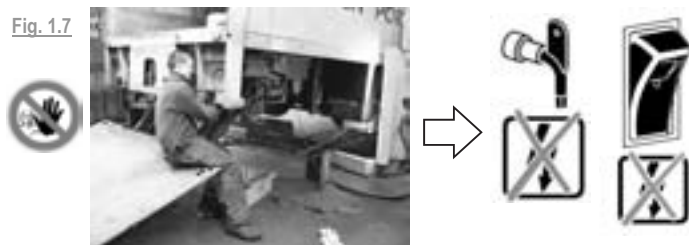


Fig. 1.8 - Type SKSV

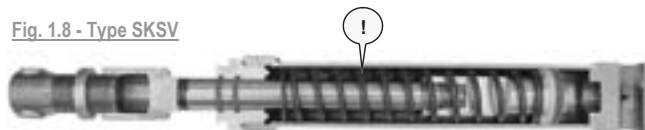


Fig. 1.9 - Type EDS



Fig. 1.10

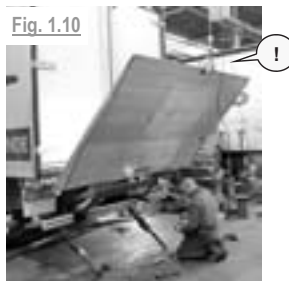
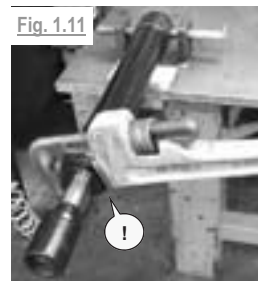


Fig. 1.11



is stroked out, causing the cylinder head to shoot off when being unscrewed from the cylinder tube. [see Fig. 1.11]

- Therefore, before opening a cylinder, make sure that you manually open the safety valve via the manual emergency operation, and that the piston rod is retracted inside the cylinder tube as far as possible. [see Fig. 1.12]
- Support the cylinders during dismounting, to prevent them against free fall onto the ground upon extraction of the articulation pins.
- **Remounting hydraulic cylinders:** when the underside of the cylinder is connected to the frame with the corresponding pin, the easiest way forward is to connect the hydraulic pipe to the cylinder first, so that the cylinder can be extended to the correct length by means of the regular electrical controls.
- Take into account that - after a repair - the cylinders are filled with air, and that the piston rods will slide out with shocks when the cylinder is filled with oil. Therefore, when re-mounting the articulation pins, never check with your finger if the eye of the cylinder is lined up with the holes of the articulations on the platform, lift arm or frame. [see Fig. 1.13]
- Only when all articulation pins are mounted and secured, is it allowed the build up full pressure in the hydraulic system by means of the regular electric controls.
- And only after assuring that the hydraulic system generates over-pressure, and no oil leaks are visible, is it allowed to remove the mechanical devices supporting the platform (hoist, gantry crane, forklift,...).
- **For dismounting and remounting hydraulic valves** (safety valves on the cylinders, control valves in the power pack), the same safety precautions apply.

§1.3 - Electrical components

- Before dismounting and remounting electrical components, ensure that the components are without tension.
- It might be insufficient to just switch-off the battery switch in the exterior control box, or the isolator switch on the dashboard in the vehicle cabin. For certain works, the main fuse or the connection to the battery will need to be disconnected.
- First, define clearly which area you need to work on, then interrupt the circuit at a point which is nearer to the battery or power source.

Fig. 1.12

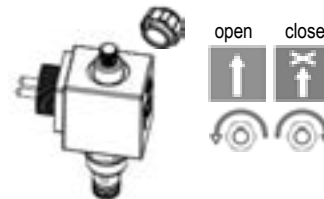
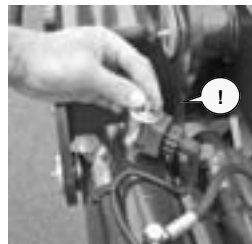


Fig. 1.13



2. MAINTENANCE

- Competent and regular maintenance is extremely important, not only in order to maximise the life expectancy of the tail lift (called HTL hereafter), but also in order to guarantee the operational reliability and safety of the operator (and potential bystanders).



Warning !

- Only original **DHOLLANDIA** spare parts should be used to execute maintenance and repair works.
 - The warranty and product liability are only valid for HTL which are maintained in good working condition according to the instructions in this manual.
 - DHOLLANDIA** disclaims liability for any personal injury or property damage that results from operating a product that has been modified from the original design, that hasn't been serviced / repaired according to the instructions in this manual, or when non-original components or spare parts are used.
-
- The HTL should work smoothly and quietly, and at a fairly constant pace. During LIFT and LOWER, only the sound of the hydraulic power pack should be audible. Any other (creaking, grinding or shrieking,...) noise should be carefully investigated to avoid damage.
 - The maintenance frequency depends on the intensity and conditions of use. The minimum frequency for the various works is given below:
 - **W52** = 52 x/year = weekly check (by owner / operator)
 - **M3** = 3x / year = 4-monthly check (by a qualified **DHOLLANDIA** service agent)
 - **J1** = 1x / year = yearly winter maintenance (to be executed just before the winter, so that any condensation water in the hydraulic circuit can be removed during the oil change, and frost problems during the winter can be avoided).
 - HTL are subject to compulsory periodic inspections by an expert / competent person [see §2.4 in chapter C]. The frequency of these inspections is set at minimum 1 / year for most countries in Europe. In the United Kingdom, the frequency of the LOLER examination, or the Statutory Thorough Examination, is set at minimum 2 / year by the Health and Safety Executive (HSE).

- During this periodic inspection or Statutory Thorough Examination (jointly called STE hereafter), the expert / competent person assesses the rate of deterioration of the equipment, identifies any defects, and certifies that the equipment is safe for continued use for the following period up to the next STE (6 months for UK, 12 months in most other countries across Europe).

- No maintenance or repair work is done during a STE. The scope of STE therefore implies all points of the checklist below (with exception of the actual greasing work (§2.2) and the purging work (§2.8)). Other points are specially reserved for the STE, and are marked as follows:

→ **STE** = Statutory Thorough Examination or periodic inspection.

- Follow the scheme on the next pages, verify point after point and "tick-off" as you make progress.



- Some steps in the check list require special skills and specific knowledge [see **DHOLLANDIA** Repair & Maintenance training program]. In case of doubt on how to proceed, **DON'T** go any further, but ask your local **DHOLLANDIA** distributor for professional advice.

- Remark: When checking on the correct tightening of the bolts, the only accurate tool to use is a torque wrench. The following values are prescribed:

Prescribed tightening moment M (N.m)			
Type of thread	Size	Strength class	
		8.8	10.9
Standard	M6 x 1	10	14
	M8 x 1.25	24	33
	M10 x 1.5	47	68
	M12 x 1.75	82	115
	M14 x 2	129	185
	M16 x 2	195	285
Fine	M14 x 1.5	135	195
	M16 x 1.5	208	300
	M20 x 1.5	360	-
	M24 x 2	450	-

CHECKLIST FOR MAINTENANCE & INSPECTION

Legend

W52 = Weekly check (by owner / fleet operator)

M3 = 4-monthly check = 3x / year (by a qualified DHOLLANDIA service agent)

J1 = Yearly winter maintenance (by a qualified DHOLLANDIA service agent)

STE = Statutory Thorough Examination (UK), or Periodic inspection by expert / competent person

To be verified during maintenance AND periodic inspection STE

Additional points, only to be verified during periodic inspection STE

<u>§2.1 - High pressure cleaning</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Complete HTL at the rear + under the vehicle chassis	<ul style="list-style-type: none"> Clean the HTL thoroughly to make all greasing points, welding seams, bolt and pin connections, hydraulic pipes and couplings tidy, and clearly visible for inspection. 	M3 J1

<u>§2.2 - Greasing</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> All articulation points with grease nipples <input type="checkbox"/> Slider lift: sliding tubes (excl. hydromotor systems) <input type="checkbox"/> Mechanical platform lock	<ul style="list-style-type: none"> Grease thoroughly with acid-free grease, according to the grease plans under Point 3. 	M3 J1
<input type="checkbox"/> <i>Correct and complete greasing</i>	<ul style="list-style-type: none"> <i>Verify correct and complete greasing according to the points above</i> 	STE
Remark :		

<u>§2.3 - Documents & reports</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> <i>CE Declaration of Conformity</i> <input type="checkbox"/> <i>Fitting Declaration (by the installer)</i> <input type="checkbox"/> <i>User's manual in the correct language</i> <input type="checkbox"/> <i>Repair & Maintenance Reports</i> <input type="checkbox"/> <i>Inspection Reports</i>	<ul style="list-style-type: none"> <i>Presence in the driver's cabin</i> <i>Readability</i> <i>Completeness, reports duly filled out after each intervention</i> 	STE
Remark :		


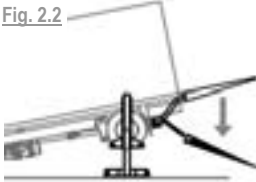
<u>§2.4 - Identification, marking & safety decals</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Identification sticker + serial number <input type="checkbox"/> Pictograms on the various control units <input type="checkbox"/> Decal with user's pictograms near the exterior control box <input type="checkbox"/> Marking of the centre of gravity <input type="checkbox"/> Marking of the safe working zone on the platform (for wander lead with spiral cable & fixed interior control) <input type="checkbox"/> Other originally applied safety decals & signs	<ul style="list-style-type: none"> Readability completeness Fixation & adhesion to the surface 	W52 M3 J1 STE
Remark :		

<u>§2.5 - Protection against unauthorized use</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> On/off isolator switch for the HTL in the vehicle cabin	<ul style="list-style-type: none"> • General condition • Function & operation 	W52 M3 J1
<input type="checkbox"/> Battery switch in the exterior control box of the HTL <input type="checkbox"/> Safety switch in the exterior control box	<ul style="list-style-type: none"> • General condition • Function & operation, automatic return to the neutral 0-position (all switches) 	W52 M3 J1
Remark :		

<u>§2.6 - Electrical control devices</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Exterior control box <input type="checkbox"/> Joy-stick, push buttons, rotary switches <input type="checkbox"/> Protection rubbers on the buttons & switches <input type="checkbox"/> Lid over the control box <input type="radio"/> <i>Position of the exterior control box</i>	<ul style="list-style-type: none"> • General condition • Function & operation • Automatic return to the neutral 0-position (all switches) • Conditions of electrical cables, wires, and protection rubbers <ul style="list-style-type: none"> • <i>Conformity with the fitting instructions (between 300 & 600mm from centre line of the control box to the rear side of the vehicle body)</i> 	W52 M3 J1 STE
<input type="checkbox"/> 15A fuse in the exterior control box <input type="checkbox"/> Electrical contacts (in the various control units)	<ul style="list-style-type: none"> • General condition • Moisture inside the control unit & corrosion • Fixation & tightening of all cable & wire connections 	J1
<input type="checkbox"/> Foot controls (optional) <input type="radio"/> <i>Safety issues on foot controls</i>	<ul style="list-style-type: none"> • See points above + • Condition, routing & guidance of the electrical cables from the platform over the lift arms to the connection point in the power pack or exterior control box <ul style="list-style-type: none"> • <i>Connection to the safety button in the exterior control box (see fitting instructions)</i> • <i>Compulsory 2-feet operation</i> 	W52 M3 J1 STE
<input type="checkbox"/> Wander lead with spiral cable (optional) <input type="checkbox"/> Fixed interior control (optional) <input type="radio"/> <i>Safety issues on these controls</i>	<ul style="list-style-type: none"> • See points above + • Condition of the spiral cable, condition of the plug connections • Position inside the vehicle body, protection against damage by the load <ul style="list-style-type: none"> • <i>Connection to the safety button in the exterior control box (see fitting instructions)</i> • <i>Marking of safe working zone on the platform and / or on the loading floor inside the vehicle body</i> • <i>Conformity with fitting instructions re. toe-protection</i> 	W52 M3 J1 STE
Remark :		

<u>§2.7 - Electrical installation</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Batteries <input type="checkbox"/> 35mm ² (+) BATTERY cable to the battery (1) <input type="checkbox"/> 35mm ² (-) EARTH cable to the battery or earth point (1) <input type="checkbox"/> Electrical plug connections between truck & trailer: Harrison, Rema,... (1) where 35mm ² is mentioned, also other cable sections (25mm ² , 50mm ² ,...) are implied	<ul style="list-style-type: none"> • General condition • Good mounting & fixation of electrical cable & wire connections (see fitting instructions) • Technical maintenance of the batteries, power circuit, battery charging circuit and earth circuit • Apply grease or Vaseline to all connections to protect them against corrosion 	M3 J1
<input type="checkbox"/> 250/300A main fuse near the battery <input type="checkbox"/> Battery switch in the exterior control box and / or near the battery	<ul style="list-style-type: none"> • General condition • Corrosion, burn marks / arcing • Good tight fixation of the 35mm² (+) BATTERY & (-) EARTH cables • Apply grease or Vaseline to all connections to protect them against corrosion 	M3 J1
<input type="checkbox"/> 35mm ² (+) BATTERY & (-) EARTH cables <input type="checkbox"/> Cables between exterior control box and power pack <input type="checkbox"/> Cables to the safety valves on the cylinders <input type="checkbox"/> Cables to the auxiliary controls <input type="checkbox"/> Cables to the platform (foot controls & platform lights)	<ul style="list-style-type: none"> • Routing & guidance, protection against squeezing, sheering or rubbing • Damage, good insulation & protection • Sufficient fixation to the vehicle body or chassis • Clearance from dangerous vehicle components (exhaust, braking circuit, drive & engine parts, ...) 	M3 J1
<input type="checkbox"/> All cable connections inside the exterior control box <input type="checkbox"/> All cable connections inside the power pack <input type="checkbox"/> All cable connections inside the auxiliary controls	<ul style="list-style-type: none"> • General condition, insulation of the separate wires • Moisture inside the control unit & corrosion • Fixation & tightening of all cable & wire connections 	M3 J1
<input type="checkbox"/> Limit switches, pressure switches, reed sensors, ... (optional)	<ul style="list-style-type: none"> • General condition • Function & operation, automatic return to the neutral 0-position 	W52 M3 J1
Remark :		

<u>§2.8 - Hydraulic pipes, flexible hoses, hydraulic couplings</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Hydraulic pipes & flexible hoses <input type="checkbox"/> Flexible hoses of the retraction cylinder between the chassis beams	<ul style="list-style-type: none"> • General condition: outside rubber coat is intact, inside steel braids are not visible • Routing & guidance, protection against squeezing, sheering or rubbing • Fragility & porosity • Age: to be replaced every 4th year (+ fill out Maintenance Report) 	M3 J1
<input type="checkbox"/> Couplings <input type="checkbox"/> Fixed hydraulic pipes in steel	<ul style="list-style-type: none"> • General condition • Corrosion, fixation • Hydraulic system is free from leaks, both during operation & at rest. 	M3 J1
Remark :		

§2.9 - Hydraulic power pack	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Oil reservoir, casing of the power pack & lid <input type="checkbox"/> Fixation of the power pack to the HTL frame or to the chassis	<ul style="list-style-type: none"> • General condition, no cracks or deformation in the mechanical parts & mounting brackets • Protection against corrosion, sealing of all the holes • Condition of the lid & the rubber locking straps • Hydraulic system is free from leaks, both during operation & at rest. • Tightness of the collars of the suction hose and return hose 	M3 J1
<input type="checkbox"/> Hydraulic oil	<ul style="list-style-type: none"> • Check oil level & refill if required. • Oil type: ISO 22 as standard (other types used as option - check before refill) • Oil level: rest the platform in work position on the ground. The correct oil level reaches to the MAX mark on the oil reservoir. • Change oil & clean filter. To remove all the oil, lift the rear of the vehicle off the ground, so that the lift & tilt cylinders can contract fully, and no oil remains in the cylinders. 	M3 J1 J1
<input type="checkbox"/> Hydraulic functions Fig. 2.1  Fig. 2.2 	<ul style="list-style-type: none"> • Hydraulic system is free from leaks, during execution of all functions. • If oil needs to be refilled, search for reason and repair. • Purge the hydraulic system. <ol style="list-style-type: none"> 1. OPEN the platform completely (below horizontal level), until the tilt cylinders are fully retracted, and continue to push the function OPEN for another 20 sec [See Fig. 2.1]. 2. Tilt the platform back up to horizontal position, and LOWER the platform completely (further down below normal ground level), until the lift cylinders are fully retracted, and continue to push the function LOWER for another 20 sec [See Fig. 2.2]. (*) and after each replacement of hydraulic pipes or revision of hydraulic cylinders	M3 J1 J1 (*)
<input type="checkbox"/> Starter solenoid + electric motor <input type="checkbox"/> Electrical connection block in the power pack <input type="checkbox"/> Control valves on the logical valve block	<ul style="list-style-type: none"> • General condition, correct amperage • Corrosion, burn marks / sparkles • Fixation & tightening of all cable & wire connections 	M3 J1
<input type="checkbox"/> Pressure relief valve	<ul style="list-style-type: none"> • General condition • Verify the maximum oil pressure in function of the nominal capacity of the HTL, and adjust if required (HTL lifts too little or too much weight). Max. oil pressure = 220 BAR. 	J1
Remark :		

§2.10 - Hydraulic cylinders	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> All cylinders	<ul style="list-style-type: none"> • General condition • Hydraulic system is free from leaks, both during operation & at rest. • Fixation & locking of all articulation pins 	M3 J1
<input type="checkbox"/> Piston rods	<ul style="list-style-type: none"> • Surface should be free of paint, dirt & scratches. 	M3 J1

... continued <input type="checkbox"/> Rubber gaiters	General condition, gaiters are supple & dry, free from cracks & damage Positioning, free evacuation of air out of the gaiters	M3 J1
<input type="checkbox"/> Electrical safety valves	<ul style="list-style-type: none"> • General condition • Function & operation of the manual emergency button • Clearance to the bumper, mounting plates, and other fixed parts • Condition of the electrical cable to the power pack 	M3 J1
<input type="checkbox"/> Tilt cylinders (on cantilever HTL)	<ul style="list-style-type: none"> • Condition of the springs used for function OPEN • Setting & locking of the adjustable extension (see fitting instructions) 	J1
Remark :		

<u>§2.11 - Lift frame</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Frame construction <input type="checkbox"/> Lift arm construction	<ul style="list-style-type: none"> • General condition, condition of the welds • Check for cracks & deformation. • Corrosion 	M3 J1
<input type="checkbox"/> Articulation points	<ul style="list-style-type: none"> • General condition • Cracks, deformation, elliptic deformation 	M3 J1
<input type="checkbox"/> Articulation pins <input type="checkbox"/> Articulation bearings	<ul style="list-style-type: none"> • General condition, deformation • Locking of the articulation pins by locking pins, bolts & nuts • Wear of bearings, rollers, pins, and slide surfaces (if applicable) • Presence of grease nipples, correct and regular greasing 	M3 J1
<input type="checkbox"/> HTL with mechanical tilt at ground level: brackets for the mechanical tilt	<ul style="list-style-type: none"> • General condition, check for cracks & deformation • Operation & function of the automatic tilt at ground level 	M3 J1
<input type="checkbox"/> Mounting plates, fixation to the vehicle chassis	<ul style="list-style-type: none"> • General condition, check for cracks & deformation • Presence, condition & correct tightening of all mounting bolts 	M3 J1
Remark :		

<u>§2.12 - Platform</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Platform construction	<ul style="list-style-type: none"> • General condition, condition of the welds • Check for cracks & deformation. • Corrosion 	M3 J1
<input type="checkbox"/> Articulation points <input type="checkbox"/> Articulation pins	<ul style="list-style-type: none"> • General condition, check for cracks, deformation, elliptic deformation • Locking of the articulation pins by locking pins, bolts & nuts • Presence of grease nipples, correct and regular greasing 	M3 J1

<input type="checkbox"/> ... continued <input type="checkbox"/> Load restraints, roll-stops <input type="checkbox"/> Platform lights / flags / traffic cones <input type="checkbox"/> Foot controls <input type="checkbox"/> Platform lock <input type="radio"/> <i>Visibility of the platform in public traffic</i>	<ul style="list-style-type: none"> • General condition, function & operation • Condition, routing & guidance of the electrical cables from the platform over the lift arms to the connection point in the power pack or exterior control box 	M3 J1 STE
<input type="checkbox"/> Synthetic platform rollers	<ul style="list-style-type: none"> • General condition, replace when damaged or worn out 	M3 J1
Remark :		

<u>§2.13 - Extra for slider lifts</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Slide plates, slide blocks, rollers <input type="checkbox"/> Sliding tubes in steel or aluminium	<ul style="list-style-type: none"> • General condition, check for cracks & deformation • Smooth SLIDING IN / OUT • Wear to the slide blocks and / or rollers • Correct & regular greasing (if required - check the grease plans) 	M3 J1
<input type="checkbox"/> End stops in the sliding tubes	<ul style="list-style-type: none"> • The end stops at the rear of the sliding tubes are positioned correctly; when LIFTING the platform arrives flush with the loading floor of the vehicle. 	M3 J1
<input type="checkbox"/> Hydromotor + gear wheel assembly <input type="checkbox"/> Retraction cylinder	<ul style="list-style-type: none"> • General condition of the hydromotor, the gear wheel, and the tooth racks • General condition of the retraction cylinder, its mounting to the lift frame and to the vehicle chassis • Check for cracks, damage & deformation. 	M3 J1
Remark :		

<u>§2.14 - Extra for tuck-away lifts</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Roller arm for deployment of the platform	<ul style="list-style-type: none"> • General condition, check for cracks & deformation • Smooth folding in / out 	M3 J1
<input type="checkbox"/> Torsion / traction springs	<ul style="list-style-type: none"> • General condition • Adequate tension: effective but not too strong 	M3 J1
Remark :		

<u>§2.15 - Practical tests</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> General operation with empty platform	<ul style="list-style-type: none"> • Execute all movements several times with ALL available control units. The movements should be executed smoothly & quietly, without strange noises. • Verify occurrence of any play or deformation in the articulation points when driving over the platform, and when OPENING / CLOSING the platform. 	W52 M3 J1
<input type="radio"/> <i>Static test at 125% overload - test on DEFORMATION</i>	<ul style="list-style-type: none"> • <i>Position the platform at 1/2 height.</i> • <i>Note the distance and angle to the vehicle floor.</i> • <i>Put a load of 1.25 x nominal capacity at the centre of gravity, and remove it again.</i> • <i>Verify the distance and angle to the vehicle floor. No permanent deformation should be noted.</i> 	STE
<input type="radio"/> <i>Static test at 125% overload - test on INCLINATION</i>	<ul style="list-style-type: none"> • <i>Position the platform at the level of the vehicle floor.</i> • <i>Put a load of 1.25 x nominal capacity at the centre of gravity.</i> • <i>Note the distance and angle to the vehicle floor.</i> • <i>Repeat the same measurements after 15 min.</i> • <i>The platform should not be lowered more than 15 mm, and should not be tilted down more than 2°.</i> 	STE
<input type="checkbox"/> Dynamic test at 100% nominal capacity	<ul style="list-style-type: none"> • Verify if the lift has sufficient lift capacity. • Verify the general performance & stability. • Verify the working speeds LIFT & LOWER: max. 15 cm/sec OPEN & CLOSE: max. 10°/sec AUTOMATIC TILT at ground level: max. 4°/sec 	J1
<input type="radio"/> <i>Overload test</i>	<ul style="list-style-type: none"> • <i>Place the platform at rest on the ground</i> • <i>Put a load of 1x nominal capacity at the centre of gravity; adjust the hydraulic pressure on the pressure relief valve so that the nominal capacity is just reached. Seal the pressure relief valve after final adjustment.</i> • <i>Put a load of 1.25x nominal capacity at the centre of gravity; the platform should not be able to lift..</i> 	STE
Remark :		

<u>§2.16 - Administrative obligations</u>	What to verify? Execute, service or repair if required !!	Freq.
<input type="checkbox"/> Maintenance & repair reports <input type="checkbox"/> Certificates for Periodic inspection; Special Inspection, Re-inspection	<ul style="list-style-type: none"> • All works are duly documented in the corresponding report or certificate documents 	always
Remark :		

3. GREASE PLANS

- All **DHOLLANDIA** tail lifts (called HTL hereafter) are equipped with low maintenance bearings. Therefore, under normal conditions of use and a single labour shift, the greasing frequency can be limited to 3 thorough greasings per year.
- In case of very intensive use (multiple shift, 24h operation,...) or use in a hostile environment (food industry, frequent high pressure cleaning with strong detergents,...), the frequency of greasing should be increased / adjusted to the specific working conditions according to practical experience. In case of doubt, contact your local **DHOLLANDIA** agent.
- Before greasing, the HTL should be cleaned with a high pressure steam cleaner, in order to clear all articulation points and grease nipples from sand and dirt.
- The greasing must be executed in such a way that all articulation points get a grease collar on both sides of the bearing or articulation, protecting it against ingress of water, salt, sand or dirt.
- Ensure all grease nipples function correctly, and replace any defective nipples. For articulations that cannot be greased, even after replacing the grease nipple, the articulation pin must be dismantled and polished, and its grease channel must be cleaned. (As ultimate solution, the articulation pin must be renewed).
- Always use acid-free grease. The use of graphite grease is not allowed.
- Verify if the platform lock (and the locking pins under the lift arm if applicable) operate smoothly, and lubricate with oil if necessary.
- For slider HTL with rectangular synthetic slide blocks [see Fig. 3.1], the sliding tubes must be cleaned by high pressure steam cleaner min. 4 times/year, and subsequently greased with light grease (i.e. spray grease) over their full length.
- For slider HTL with slide rollers [see Fig. 3.2], the slide tubes mustn't be greased. It can be required though, in function of the conditions and environment of use, to clean the sliding tubes regularly by means of a high pressure steam cleaner.
- The various types of HTL should be greased according to the grease plans in Fig. 3.3 and following.

Fig. 3.1



Fig. 3.2

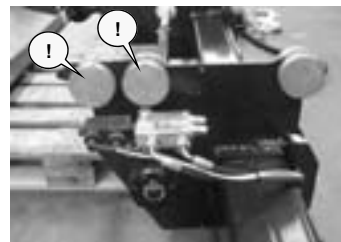
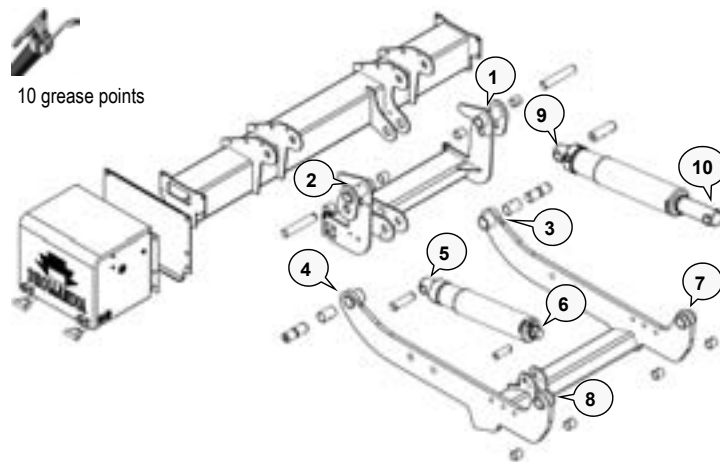


Fig. 3.3 : DH-LC 500-750kg



In case of special tail lifts deviating from these images, contact **DHOLLANDIA** to obtain further instructions.

Fig. 3.4 : DH-LSP 300-500kg

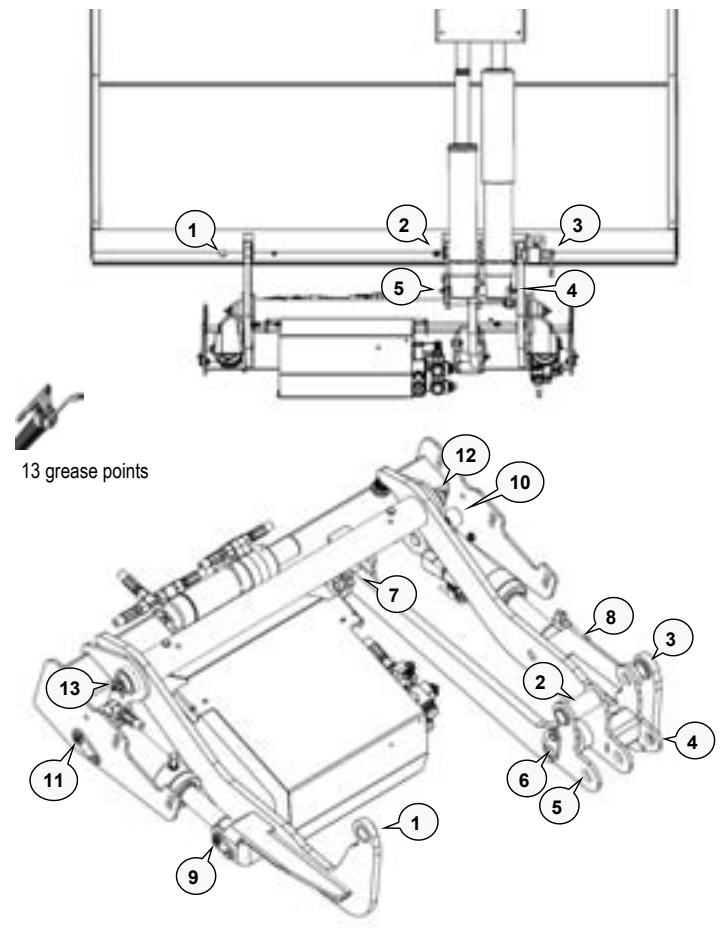


Fig. 3.5 : DH-LM.10 500-1000kg, DH-LM.20 1500-2000kg, DH-LM.35 2000-3500kg

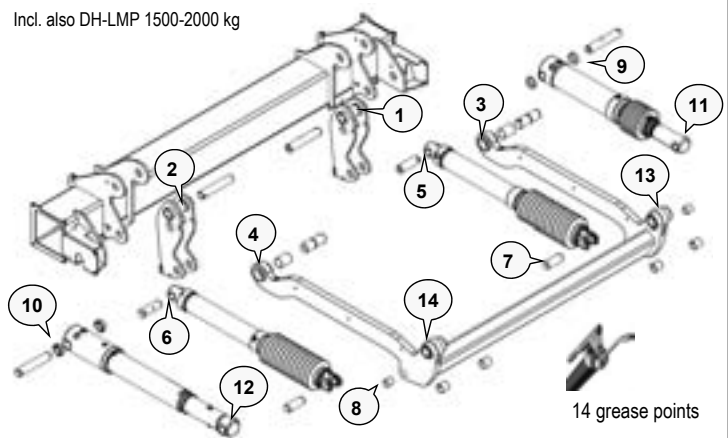


Fig. 3.6 : DH-LSP4/6 500-1000kg, DH-LSU 2000-4000kg

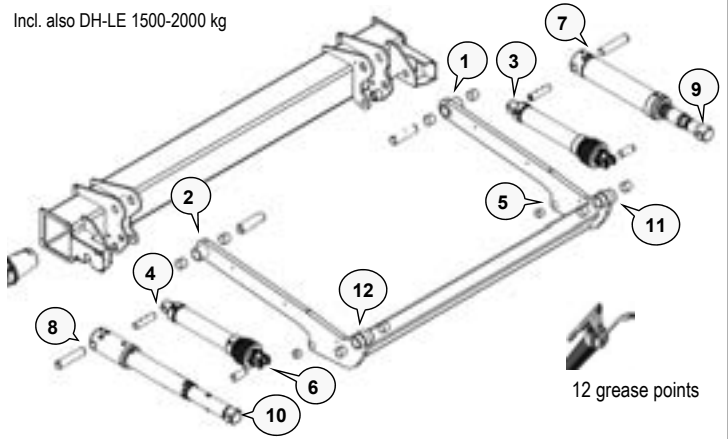


Fig. 3.7 : DH-SM(R).20 1500-2000kg, DH-SM(R).30 2000-3000kg

Incl. also DH-SMP 1500-2000 kg, DH-SMO 750-1000kg

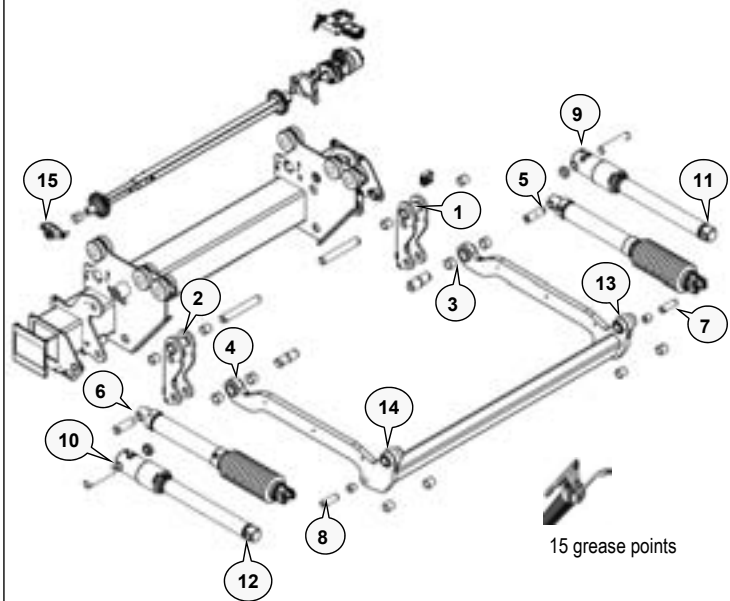
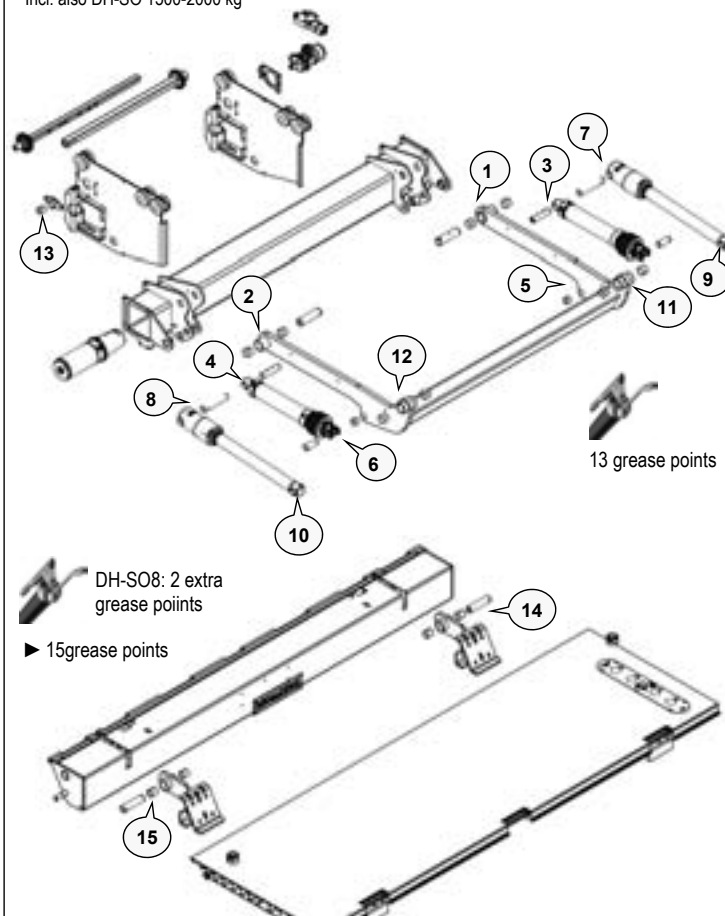


Fig. 3.8 : DH-SV/SP.20 1500-2000kg, DH-SSU 2000-3000kg

Incl. also DH-SO 1500-2000 kg



4. ORDERING SPARE PARTS

- The following information must be confirmed when ordering spare parts:
 - Type, year of construction & serial number of the tail lift
 - Spare parts reference [consult the spare parts lists]
 - The desired quantity of each item
 - Your administrative data: company name, invoice address + VAT number, purchase order number, delivery address, and expected delivery time.
- The type, year of construction & serial number of the tail lift can be found on the identification stickers [see point 2 in Chapter A].







5. FAULT FINDING & REPAIR

- In case of a malfunction, the operator can verify a number of points himself, before calling an approved **DHOLLANDIA** service agent:
 - Is the isolator switch for the tail lift (called HTL hereafter) in the vehicle cabin switched on? Are the main power plugs between the tractor unit and the trailer properly connected? Is the battery switch in the exterior control box switched on?
 - Is the main fuse for the HTL near the vehicle batteries still functional?
 - Is the connection of the HTL to the vehicle batteries ok?
 - Are the batteries (auxiliary batteries) too weak?
 - Has the mechanical platform lock been released?
- If all this has been verified, and an approved service agent intervenes to repair the HTL, it is very important that the fault analysis is executed in a logical and systematic way. Too often components are replaced at random until the malfunction disappears. Such method is very expensive however on labour hours and spare parts cost.
- Therefore, it is very important to **identify quickly and precisely if a malfunction has an electrical, a hydraulic or a mechanical cause.**
- For instance, when a HTL doesn't LOWER, it can be that:
 - The coil(s) of control valve H in the power pack, or one of the safety valves D on the lift cylinders receive no current (= electrical fault);
 - one of the cartridges of the safety valves D on the lift cylinders has been hit and bent by a projecting stone, or that one of the braking valves on the cylinders is blocked (= hydraulic fault);
 - one of the piston rods of the lift cylinders is bent by overload or accident (= mechanical fault);
 - ...
- The tables below can be used as guide during the further fault analysis.



- Some steps in the check list require special skills and specific knowledge [see **DHOLLANDIA** Repair & Maintenance training program]. In case of doubt on how to proceed, DON'T go any further, but ask your local **DHOLLANDIA** distributor for professional advice. These cross-references to the training program are marked as for example:
[see RMT HB3] = see Repair & Maintenance Training, Hydraulic Base techniques N° 3

§5.1 - Summary: activation of electrical solenoids per tail lift function ?

Scheme	MECH.E MECH.SA MECH <u>Single Acting</u>	HYDR. (Hydraulic)	MECH.X (mixed system)	OMM3 (Open With Motor 3)	MECH. DA MECH <u>Double Acting</u>	
Year of construction	... - 2002 2008 - 2009	... - 2002 2008 - ...	2009 - ...	2008 - ...	2003 - 2007	
Tilt at ground level	Mechanical tilt	Hydraulic tilt	Mechanical tilt	Mechanical tilt	All types mechanical & hydraulic tilt	
HTL types	DH-LM, LC, SM, SMR, SMP, SMO, RM, RC	DH-LSP...LSP6, LSU, SSU, SV, SO	DH-LM, LC, SM, SMR, SMP, SMO, RM, RC,	DH-LM	All types DH-L*, DH-S*, DH-R*	
						
LIFT - UP	R + H	R + H	R+ H	R + D	R + H	R + H
LOWER - DOWN	D	B + H	D	D + S	D + H	B + H
CLOSE	R + S	R + S	R + S	R + O	R + S	R + S
OPEN	O	B + S	O + S	O + R + S	O + S	B + S
SLIDE OUT	R + U	R + U	R + U	-	R + U	R + U
SLIDE IN	R + I	R + I	R + I	-	R + I	R + I
LEG OUT	R + US	R + US	R + US		R + US	R + US
LEG IN	R + IS	R + IS	R+ IS		R + IS	R + IS
	All valves H, D, S, O, I, U, IS, US = SA	H, S = DA B, I, U, IS, US = SA	S = DA H, D, I, U, IS, US = SA	O, D = DA S= 4/2 way valve	H, S, U, I = DA D, O, B = SA	

SA = single acting electrovalve
DA = double acting electrovalve

R = starter solenoid of the electric motor
H = control valve LIFT in the power pack
D = safety valve LOWER on the lift cylinders

S = control valve CLOSE in the power pack
O = safety valve OPEN on the tilt cylinders
I = control valve SLIDE IN in the power pack, or on the hydromotor
U = control valve SLIDE OUT in the power pack, or on the hydromotor
IS = control valve LEG IN in the power pack, or on the stabilising leg
US = control valve LEG OUT in the power pack, or on the stabilising leg

§5.2 - HTL moves at normal speed, without any control switch being operated.

- Button or switch of the exterior control or auxiliary control doesn't return to the neutral 0-position.
- Button or switch does return to the 0-position, but one of the electrical contacts behind the switch is stuck or burnt.
- Short circuit between the various wires in one of the electrical cables.

Typically, a malfunction at normal speed is usually caused by an electrical failure.

Determine this by isolating the power source from the solenoid concerned, e.g.. Remove the solenoid from the electrovalve. (when this action doesn't end the malfunction, the cause is not electrical: e.g.. dirt in the cartridge, damaged sealing;...).

Disconnect the auxiliary control to further isolate the problem and narrow down the scope.

Measure the tension at the electrical distribution block in the power pack, and repair the fault.

§5.3 - HTL doesn't react on the exterior control, nor on the auxiliary control.

- Isolator switch for the HTL in the vehicle cabin is not switched on.
- Main power plugs between the tractor unit and the (semi-) trailer are defective or not plugged in.
- 250A main fuse is out of order (corroded, heated and burnt by bad connection,...).
- Battery switch in the exterior control box is not switched on, or is out of order (doesn't pass the current).
- 15A fuse in the control box is defective.
- The power pack is not properly earthed.

Switch on the isolator switch for the HTL in the vehicle cabin.

Plug in, measure the tension and / or repair the plugs between the tractor and (semi-) trailer: (+) battery link, (-) earth link and the charging system.

Verify the 250A main fuse, and repair or replace if necessary.

Switch on the battery switch in the exterior control box. Measure if the switch passes current to the 2nd pole.

Verify the 15A fuse on the control panel of the exterior control box, and repair or replace if necessary.

Establish a direct earth link to the HTL batteries, and verify if the power pack is properly earthed: none of the electric valves, starter solenoid, electric motor can work without a good earth link.

§5.4 - Symptoms of weak batteries or damaged current supply.

- The downward functions (OPEN & LOWER) are working, but the upward movements (LIFT & CLOSE) are failing.
- The electric motor still runs, but audibly slower and laboriously.
- The starter solenoid switches on, but the electric motor doesn't react.
- The starter solenoid quickly switched on and off (doorbelling).
- Nothing at all happens.

(*) where 35mm² is mentioned, also other cable sections (25mm², 50mm²,...) are implied.

Remove the lid of the power pack, and measure the tension at the incoming pole of the starter solenoid, when the system is under strain (push the function LIFT).

If you measure 24V/12V, check the working of the starter solenoid when pushing the function LIFT (you should measure 24V/12V at the outgoing pole of the starter solenoid); verify and measure the 35mm² (*) battery cable to the electric motor, check the earth link of the starter solenoid and the earth link of the electric motor up to the vehicle batteries.

Also if you measure 24V/12V on the multimeter, also check if there is sufficient Amp by using a test bulb. If the bulb doesn't light, check for poor connection at the 250A main fuse, and the whole 35mm² battery cable up to the power source.

If no 24V/12V is measured at the incoming pole of the starter solenoid, verify the 35mm² battery cable to the battery switch in the exterior control box, and measure if the battery switch itself passes through the current.



... §5.4 - Symptoms of weak batteries or damaged current supply.

... continued

If no 24V/12V is measured at the incoming pole of the battery switch, check out the 35mm² (+) battery cable, the 250A main fuse, all plug connections (if applicable), and the complete power circuit up to the batteries of the vehicle.

Charge the batteries, verify the function of the separate cells, and renew the batteries if necessary.

Seek the reason for flat batteries (damaged or corroded fuse, under-rated alternator,...) and repair or adjust.

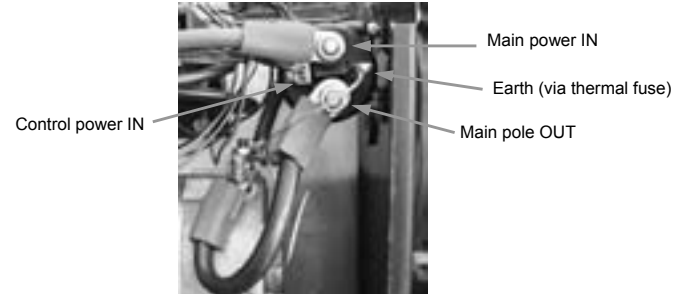
§5.5 - The electric motor doesn't run, but the downward functions OPEN / LOWER work fine.

- The button / switch or electric contacts are faulty, or the connection to one of the contacts is loose.
- The electric cable is cut or damaged, or there is a bad contact.
- The incoming or outgoing connection to the electrical distribution block in the power pack is faulty.
- The starter solenoid in the power pack is defective.
- The carbon brushes of the electric motor are worn out.
- The thermal fuse inside the electric motor (= earth of the starter solenoid) is switched off by overheating (caused by overload or insufficient battery tension).
- The 35mm² (*) (+) battery or (-) earth cable is damaged, or loose at the connection to the battery pole.
- Insufficient battery tension.

(*) where 35mm² is mentioned, also other cable sections (25mm², 50mm²,...) are implied.

Remove the lid of the power pack, and feel the temperature of the electric motor. If the motor feels hot, the thermal fuse inside the motor probably has interrupted the earth of the starter solenoid. (This can be verified by giving the starter solenoid a direct connection to the earth. After a cooling period of approx. 15 min., the thermal fuse automatically restores the earth of the starter solenoid, and the electric motor becomes operational again).

If not, measure the tension at the incoming poles of the starter solenoid (main power & control power). If no 24V/12V is measured, measure and verify the main power circuit and the control power circuit.



If 24V/12V is measured at both incoming poles, measure the tension at the outgoing main pole of the starter solenoid. If no 24V/12V is measured here, and the electric motor doesn't feel overheated, the thermal fuse or the starter solenoid itself is defective, or the electric motor containing the earth of the starter solenoid, is badly earthed as a whole. (The failure of the thermal fuse can be verified by replacing the thermal fuse by a direct earth connection).

If you measure 24V/12V with the multimeter at the outgoing main pole of the starter solenoid, also check if there is sufficient Amp by using a test bulb. If the bulb doesn't light, check for poor connection at the 250A main fuse, and the whole 35mm² battery cable up to the power source.

Also if you measure 24V/12V at the outgoing main pole of the starter solenoid, verify the earth of the electric motor.

If the earth of the electric motor is ok, revise the motor or replace it.

§5.6 - The electric motor doesn't switch off.

- The button or switch for LIFT in the exterior control box or auxiliary control doesn't return to the neutral 0-position.
- The button or switch returns to 0-position, but one of the electric contacts behind the switch is stuck or burnt.
- Short circuit between the various wires in one of the electrical cables.
- The contacts of the starter solenoid are burnt and remain activated.

Remove the plug of the control power to the starter solenoid: (if this action doesn't remove the fault, the starter solenoid is burnt and remains activated).

If the fault lies with the control circuit: uncouple the auxiliary controls to narrow down the scope.

Measure the electrical distribution block in the power pack, and repair the electric fault.

If the control circuit isn't at fault, switch off the battery switch in the exterior control box (or cut the power in a different way, e.g. remove the 250A main fuse) and replace the starter solenoid.

Check the battery voltage , when the system is under load (push the function LIFT). Insufficient battery voltage (doorbelling) is a frequent cause of starter solenoid failure !!

§5.7 - The platform doesn't LOWER, the other functions work ok.

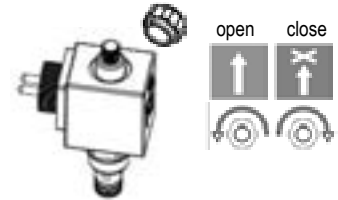
- The button / switch or electric contact are faulty, or the connection to one of the contacts is loose.
- The incoming or outgoing connection to the electrical distribution block in the power pack is faulty.
- The electric cable to one of the safety valves D is interrupted, or has a bad contact.
- Solenoid H (LIFT- LOWER) is defective. Or the cartridge of the valve is mechanically blocked. [only for the schemes HYDR, and MECH DA, not for MECH SA nor for MECH X]
- One of the solenoids D (lift cylinders) is defective, or the cartridge of one of the valves is mechanically defective.
- One of the braking valves on the cylinders or in the power pack is mechanically blocked (by ice, dirt or by mechanical malfunction).
- One of the lift cylinders is blocked (piston rod bent by accident, badly greased,...).

Verify the electrical operation of the safety valves D on the lift cylinders:

- with a magnetic tester (a solenoid generates a magnetic field when it is electrically activated);



- or open the safety valves manually via the emergency operation (if the valves are opened manually, and the platform LOWERS, the cause is electrical for sure).



If the electrical operation of the safety valves D is ok, verify the control valve H in the power pack in a similar way.

If one of the valves is not energized, measure the current & earth circuit to that solenoid into the control box, and repair.

If the electrical operation of all solenoids is correct, verify the cartridges of the valves for mechanical damage. Dismount the braking valves on the cylinders and in the power pack to verify if they work ok.

Finally, verify the lift cylinders themselves for mechanical damage or bad greasing.

§5.8 - The platform doesn't OPEN, the other functions work ok.

- The button / switch or electric contact are faulty, or the connection to one of the contacts is loose.
- The incoming or outgoing connection to the electrical distribution block in the power pack is faulty.
- The electric cable to one of the safety valves O is interrupted, or has a bad contact.
- Solenoid S (OPEN - CLOSE) is defective. Or the cartridge of the valve is mechanically blocked. [only for the schemes HYDR, MECH DA, and MECH.X, not for MECH SA]
- One of the solenoids O (tilt cylinders) is defective, or the cartridge of one of the valves is mechanically defective.
- One of the braking valves on the cylinders or in the power pack is mechanically blocked (by ice, dirt or by mechanical malfunction).
- The platform lock has not been opened, or for cantilever lifts: the platform is squeezed or blocked in the rear frame of the vehicle body.
- For cantilever lifts with short tilt cylinder type EDS: the traction spring or its fixation bolt is broken.
- One of the tilt cylinders is blocked (piston rod bent by accident, interior spring or piston is seized up for type SKSV, badly greased,...).

Verify if the platform lock is open, and - for cantilever lifts- if the platform is not squeezed or blocked in the rear frame of the vehicle body.

Verify if the electrical operation of the safety valves O on the tilt cylinders is ok.

- with a magnetic tester (a solenoid generates a magnetic field when it is electrically activated);
- or open the safety valves manually via the emergency operation (if the valves are opened manually, and the platform OPENS, the cause is electrical for sure).

See explanation of the different techniques under §5.7.

If the electrical operation of the safety valves O on the cylinders is ok, verify the control valve S in the power pack in a similar way.

If one of the valves is not energized, measure the current & earth circuit to that solenoid into the control box, and repair.

If the electrical operation of all solenoids is correct, verify the cartridges of the valves for mechanical damage. Dismount the braking valves on the cylinders and in the power pack to verify if they work ok.

Finally, verify the tilt cylinders and their spring for mechanical damage or bad greasing.

§5.9 - The lift capacity is insufficient, the HTL doesn't reach the full nominal capacity.

- The load is too heavy, or removed too far from the centre of gravity.
- The pressure relief valve is set too low.
- The pressure relief valve is polluted or mechanically blocked in open position.
- The pump sucks insufficient oil: the oil or filter are polluted, clogged up with ice or dirt, or the oil is too viscous (after refilling with oil of incorrect specifications).
- The hydraulic pump is worn out.
- The seal of one of the lift cylinder is leaking.
- HTL with hydraulic tilt at ground level: the seal of the hydraulic memory cylinder is leaking.

Fit a pressure gauge to the power pack, and measure the maximum pressure delivered by the pump. [see RMT HB1]

If set too low, try to adjust the pressure relief valve (to max. 220 bar, and only as far as required). [See RMT HB3]

If the adjustment of the pressure relief valve doesn't show any result, try first to purge this valve. [See RMT HB4]

If no result, dismount the oil filter and clean it (dirt or ice when freezing).

If also without result, the pump is probably worn out. (A worn out pump heats up quickly).

If the oil pressure can be raised, but the lift capacity remains insufficient, probably one of the seals of the lift cylinders or the hydraulic memory cylinder is leaking. Verify if the cylinders are free of internal leaks. [See RMT HB6a]

§5.10 - The HTL doesn't reach floor height

- The HTL is mounted too steeply, or the end stops for the lift arm have not been fitted correctly.
- The vehicle body has been moved backwards.
- The frame is twisted by overload or accident.
- The lift arm, or one of the articulation points is deformed by overload or accident.
- Insufficient quantity of oil in the reservoir.

Verify the oil level in the power pack, and top-up oil if necessary. (Rest the platform in work position on the ground. The correct oil level reaches to the MAX mark on the oil reservoir).

Check the position of the stops for the lift arms, and adjust them when required.

Verify and compare the fitting height and vehicle dimensions with the fitting instructions.

Verify the general condition of the HTL frame, lift arms and articulation points (pins & bearings).

§5.11 - The electric motor seemingly runs at normal speed, but the platform doesn't move

- Insufficient quantity of oil in the reservoir. The hydraulic pump sucks air.
- The oil filter between the reservoir and pump is clogged up (dirt or ice formation).
- The drive shaft between the electric motor and the hydraulic pump is broken.
- The hydraulic pump is completely worn out.
- The seals of the cylinder(s) are heavily damaged, or torn off by incorrect manipulation.

Verify the oil level in the power pack, and top-up oil if necessary. (Rest the platform in work position on the ground. The correct oil level reaches to the MAX mark on the oil reservoir).

Dismount the filter and clean it. Replace the filter if a complete rinse is not possible.

Feel the temperature of the pump (a worn out pump heats up quickly).

Dismount the pump off the electric motor, and verify the condition of the drive shaft.

Test and verify the tightness of the hydraulic cylinders. [See RMT HB 6a / 6b]

§5.12 - The platform LOWERS (OPENS) very slowly, when the function LOWER (OPEN) is actuated.

- HTL is badly greased, the pins seize up in the articulation bearings.
- HTL is deformed in one of the articulation points (pins or bearings).
- One of the piston rods of the lift cylinders (tilt cylinders) is bent by overload or by accident.
- The braking valve in the power pack, or one of the braking valves in the banjo couplings on the lift cylinders (tilt cylinders) is blocked (mechanical defect, or blocked by dirt or ice,...).
- By frosty weather: ice formation in the hydraulic pipes, valves.
- The braking valve in the power pack, or the braking valves on the lift cylinders (tilt cylinders) are dimensioned too small.

Grease the HTL thoroughly, and verify the clearance of all pins in the articulation bearings.

Verify the general condition of the articulation points, pins and bearings for deformation.

Verify if the piston rods of the lift (tilt) cylinders are straight, and if they move freely and smoothly through the cylinder head.

Dismount the braking valve in the power pack, and the banjo couplings on the lift (tilt) cylinders. Verify if all run freely and work correctly.

If the free movement is ok, adjust the diameter of the plunger in consultation with the official DHO service agent.

By frosty weather: renew the oil, store the vehicle in a warm atmosphere, and try to melt occurring ice with a hot air blower.

§5.13 - The platform LIFTS and CLOSES simultaneously, when the function LIFT is actuated.

- The solenoid of the control valve S CLOSE is electrically activated, while it should remain without tension.
- The cartridge of the control valve S CLOSE is polluted or stuck in open position, or defective in another way.
- Error in delivery: the centre distance between the lift arm and tilt cylinder is different on the lift frame than on the platform.

Remove the solenoid of control valve S. If the fault remains, the cartridge of the valve is probably leaking (stuck in open position).

Flush / purge the valve or replace. [See RMT HB 5].

If the fault disappears after removal of solenoid S, the cause is electrical. Measure the control circuit of the function CLOSE (switches, electrical contacts, electrical distribution block in power pack,...) to identify the origin of the malfunction.

Measure the centre distance between lift arm and tilt cylinder on the frame and on the platform, compare both values, and compare with the fitting data.

§5.14 - The platform LOWERS (OPENS) with shocks, when the function LOWER (OPEN) is actuated.

- HTL is badly greased, the pins seize up in the articulation bearings.
- HTL is deformed in one of the articulation points (pins or bearings).
- One of the piston rods of the lift cylinders (tilt cylinders) is bent by overload or by accident.
- The logical 3-way valve in the main valve block V012 or V096 in the power pack leaks, and opens / closes the return of oil to the reservoir alternately.
- The braking valve in the power pack, or one of the braking valves in the banjo couplings on the lift cylinders (tilt cylinders) is blocked (mechanical defect, or blocked by dirt or ice,...).

Grease the HTL thoroughly, and verify the clearance of all pins in the articulation bearings.

Verify the general condition of the articulation points, pins and bearings for deformation.

Verify if the piston rods of the lift (tilt) cylinders are straight, and if they move freely and smoothly through the cylinder head.

Dismount the non-return valve from the 3-way valve in the main block V012 of V096. Clean the seat of the bullet (ball), reshape it if required, renew the bullet and reassemble the valve.

Dismount the braking valve in the power pack, and the banjo couplings on the lift (tilt) cylinders. Verify if all run freely and work correctly.

§5.15 - The platform LOWERS slowly without any control being actuated (the platform angle remains unchanged).

- The safety valve D on the lift cylinders) is (are) leaking. The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirty or ice.
- The control valve H in the power pack is leaking. The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirt or ice.
- The seal on the piston of the lift cylinder(s) is (are) leaking.
- HTL with hydraulic tilt at ground level: the seal of the hydraulic memory cylinder is leaking.

Remark: Take into account the quantity of cylinders and their safety valves, and whether the control valves in the power pack are single acting or double acting.

For most types of HTL with 4 cylinders, there must be a combination of different defects if the platform lowers spontaneously: safety valve leaking on one cylinder, and the cylinder seal leaking on the other; or the safety valves on both cylinders leaking and the control valve in the power pack leaking;... A single malfunction wouldn't be enough.

Verify if the manual emergency operation on the valves is firmly closed.

Test and verify if the lift cylinders and hydraulic memory are not leaking internally. [See RMT HB 6a / 6b]. Revise the cylinders if required.

Flush / purge the cartridge of the safety valves D, and / or of the control valve H in the power pack [see RMT HB5], revise (replace O-rings) or replace the part.

§5.16 - The platform falls open beyond horizontal level, the point of the platform tips down.

- The safety valve O on the tilt cylinders is (are) leaking. The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirty or ice.
- The control valve S in the power pack is leaking. The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirty or ice.
- The seal on the piston of the tilt cylinder(s) is (are) leaking.
- HTL with hydraulic tilt at ground level: the seal of the hydraulic memory cylinder is leaking.

Remark: Take into account the quantity of cylinders and their safety valves, and whether the control valves in the power pack are single acting or double acting.

For most types of HTL with 4 cylinders, there must be a combination of different defects if the platform falls open spontaneously: safety valve leaking on one cylinder, and the cylinder seal leaking on the other; or the safety valves on both cylinders leaking and the control valve in the power pack leaking;... A single malfunction wouldn't be enough.

Verify if the manual emergency operation on the electro valves is firmly closed.

Test and verify if the tilt cylinders and hydraulic memory are not leaking internally. [See RMT HB 6a / 6b]. Revise the cylinders if required.

Flush / purge the cartridge of the safety valves O, and / or of the control valve S in the power pack [see RMT HB5], revise (replace O-rings) or replace the part.

§5.17 - The platform of the cantilever HTL falls open to approx. 45°, not further to horizontal level.

- The seal on the piston, or the seal between the piston and the piston rod of the long tilt cylinder (mostly on right hand side) is leaking.
- Safety valve O on the long tilt cylinder is leaking, and the control valve S in the power pack is leaking (in case of double acting valve). The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirty or ice.

Remark: most of the cantilever HTL from 1500kg onwards have a short tilt cylinder type EDS (left side), and a long tilt cylinder type SKS (right side). If the platform falls open to 45°, but not further to horizontal level, the malfunction must be searched in this long tilt cylinder.

Verify if the manual emergency operation on the valves is firmly closed.

Test and verify if the long tilt cylinder is not leaking internally. [See RMT HB 6a / 6b]. Revise the cylinders if required.

Flush / purge the cartridge of the safety valve O, and / or of the control valve S in the power pack [see RMT HB5], revise (replace O-rings) or replace the part.

§5.18 - The slider HTL (+ retraction cylinder) doesn't SLIDE IN. The vertical functions work ok

- The control valve I in the power pack is not activated.
- The control valve U is mechanically blocked in the open position. The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirty or ice.
- The solenoid of control valve U is electrically activated, while it should remain without tension.
- The fixation of the retraction cylinder to the HTL frame or vehicle chassis is broken.
- The seals on the piston of the retraction cylinder are worn out, or pulled off the piston by an accident.
- The piston is broken loose of the piston rod by an accident.
- The slide blocks or rollers are worn out, or the slide system is deformed.

Verify if the control valve I in the power pack works ok.

Verify if the manual emergency operation on the valve U is firmly closed. Remove the solenoid of valve U, and verify if it is without tension. If valve U is open, the oil from the pump flows directly back to the oil reservoir.

Verify the mechanical fixation of the retraction cylinder on both sides. Repair if necessary

Uncouple the hydraulic pipe for SLIDE OUT at the retraction cylinder, and try to SLIDE IN. If large quantities of oil continuously leak from the pipe, and the piston rod doesn't move, the cylinder seals are worn out, or the piston is broken loose. Dismount the retraction cylinder and revise it.

Verify the oil pressure: if the system turns in overpressure, and the HTL doesn't SLIDE IN, the slide blocks or rollers are probably worn out, or the slider system is deformed.

§5.19 - The slider HTL (+ retraction cylinder) doesn't SLIDE OUT. The vertical functions work ok

- The control valve U in the power pack is not activated.
- The control valve I is mechanically blocked in the open position. The O-ring of the cartridge is damaged, or the valve is stuck in open position by dirty or ice.
- The solenoid of control valve I is electrically activated, while it should remain without tension.
- The fixation of the retraction cylinder to the HTL frame or vehicle chassis is broken.
- The slide blocks or rollers are worn out, or the slide system is deformed.

Verify if the control valve U in the power pack works ok.

Verify if the manual emergency operation on the valve I is firmly closed. Remove the solenoid of valve I, and verify if it is without tension. If valve I is open, the oil from the pump flows directly back to the oil reservoir.

Verify the mechanical fixation of the retraction cylinder on both sides. Repair if necessary.

Verify the oil pressure: if the system turns in overpressure, and the HTL doesn't SLIDE OUT, the slide blocks or rollers are probably worn out, or the slide system is deformed.

§5.20 - The slider HTL (+ hydromotor system) doesn't SLIDE IN. The vertical functions work ok

- The control valve I on the hydromotor is not activated, or the electrical wiring to the solenoid is defective.
- The solenoid of the control valve I is defective.
- The cartridge of the 4/2 way valve on the hydromotor is blocked or clogged up with dirt.
- One of the gear wheels, or the drive system of the gear wheels is deformed or broken.
- One of the tooth racks is deformed or broken.
- The slide blocks or rollers are worn out, or the slide system is deformed.

Verify if the electrical operation of the solenoid on valve I is ok (e.g. magnet tester). If not, measure the current & earth circuit to that solenoid until the control box, switches and contacts; and repair. Replace the solenoid if necessary.

Verify the various parts of the retraction system (hydromotor, gear wheels, tooth racks, and slide blocks / rollers on the slide plates) for deformation or damage. Repair or replace if necessary.

Dismount the cartridge of the 4/2 way valve on the hydromotor, try to clean it and loosen it up, or replace to verify the result.

§5.21 - The slider HTL (+ hydromotor system) doesn't SLIDE OUT. The vertical functions work ok

- The control valve U on the hydromotor is not activated, or the electrical wiring to the solenoid is defective.
- The solenoid of the control valve U is defective.
- The cartridge of the 4/2 way valve on the hydromotor is blocked or clogged up with dirt.
- One of the gear wheels, or the drive system of the gear wheels is deformed or broken.
- One of the tooth racks is deformed or broken.
- The slide blocks or rollers are worn out, or the slide system is deformed.

Verify if the electrical operation of the solenoid on valve U is ok (e.g. magnet tester). If not, measure the current & earth circuit to that solenoid until the control box, switches and contacts; and repair. Replace the solenoid if necessary.

Verify the various parts of the retraction system (hydromotor, gear wheels, tooth racks, and slide blocks / rollers on the slide plates) for deformation or damage. Repair or replace if necessary.

Dismount the cartridge of the 4/2 way valve on the hydromotor, try to clean it and loosen it up, or replace to verify the result.

6. EMERGENCY OPERATION

§6.1 - Introduction and safety instructions

- Most types of **DHOLLANDIA** tail lifts (called HTL hereafter) are equipped with a manual emergency operation on the electrovalves used on their cylinders and in their power pack.
- This emergency operation
 - enables the operator to execute certain movements by hand (e.g. LOWER, OPEN)
 - and help the service agent in fault finding, to distinguish between electrical and hydraulic malfunctions.



Warning !

- Prior to manipulating the manual emergency operation on the valves, take maximum safety precautions, and take notice of the safety instructions for use, for repair & maintenance, and the ones included in this section.
 - In case of doubt, stop immediately, and ask advice from **DHOLLANDIA** prior to continuing.
 - Negligence can put the technical personnel, the operator and third parties at great risk.
-
- Switch off the isolator switch in the vehicle cabin, remove the key from the battery switch in the exterior control box, or disconnect main fuse on the battery, to avoid unsafe, injudicious or unauthorized use (also by strangers in traffic!) of the HTL. [See Fig. 6.1]
 - Stay out of the operation radius of the platform, and stay clear of the moving parts at all times. Beware at all times for potential risks of crushing or sheering fingers, hands, limbs, feet or toes between the moving parts of the lift arms, hydraulic cylinders and the moving platform. [See Fig. 6.2]
 - Work from a position beside the HTL frame, or over the front side of the HTL frame. Never behind the HTL frame or under the lift arms! [See Fig. 6.3]
 - Refer to the summary in §5.1 to determine which valves (on the cylinders, and also in the power pack in case of Double Acting valves) need to be opened in order to actuate the functions OPEN or LOWER, and proceed accordingly.

Fig. 6.1



Fig. 6.2



Fig. 6.3



- For HTL with Double Acting valves in the power pack:
 - If the power pack is mounted on the side of the HTL frame, manipulate the valves on the cylinders first, and open the valve in the power pack afterwards.
 - If the power pack is mounted in the middle of the frame between the lift arms, it is safer to manipulate the valve in the power pack first, and open the valves on the cylinders afterwards.
- After use, don't forget to close the buttons for the manual emergency operation again, and the mount the protective cap again on top of the cartridge of the valve.

§6.2 - Operation of the SINGLE ACTING valves

- Refer to the summary in §5.1 to determine which valves are Single Acting, and can be manipulated as described in this §. Except for OMM3 wiring diagrams, these valves V036/V037 or V036.H/V037.H are mounted on all hydraulic lift & tilt cylinders. Depending on the wiring diagram, they are also mounted in the power pack. [See Fig. 6.4]
- First remove the protective cap from the top of the cartridge of the valve. [See Fig. 6.5] Under this cap sits a bronze-coloured button that can be screwed / unscrewed.
- Unscrew this button (= counter-clockwise) to OPEN the valve manually. [See Fig. 6.6]
- The flow of oil through the valve, and the speed of the downward movement can be adjusted by opening the valve more (= faster) or less (= slower).
- After use, screw the button in (= clockwise) to CLOSE the valve manually. [See Fig. 6.6] Lock it hand-tight in closed position.
- To end, mount the protective cap again on top of the cartridge of the valve.



Fig. 6.4



Fig. 6.5

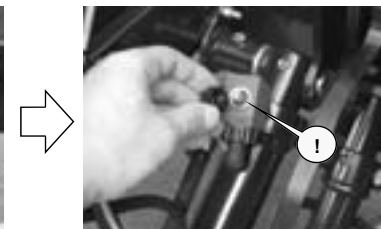
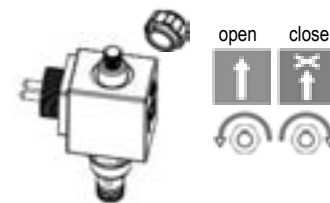


Fig. 6.6



§6.3 - Operation of the DOUBLE ACTING valves

- Refer to the summary in §5.1 to determine which valves are Double Acting, and can be manipulated as described in this §. For OMM3 wiring diagrams, these valves V071/V072 or V071.H/V072.H are mounted on all hydraulic lift & tilt cylinders. Depending on the wiring diagram, they are also mounted in the power pack. [See Fig. 6.7]
- For V071.H/V072.H : the protective caps on the cartridge of the valve are equipped with an elastic skin, covering an emergency button that can be pushed in by the finger. These valves can be operated manually without dismantling anything.
- Push-in the button under the protective rubber cap to OPEN the valve manually. [See Fig. 6.8]
- Release the button under the protective rubber cap to CLOSE the valve manually. [See Fig. 6.8]

§6.4 - Manual override of the starter solenoid

- When the main pole IN of the starter solenoid [see §5.5] receives normal 24V/12V tension, but the electric motor doesn't function, the starter solenoid can be overridden as follows.
- Switch off the isolator switch in the vehicle cabin, remove the key from the battery switch in the exterior control box, or disconnect the main fuse on the battery. [See Fig. 6.1]
- Connect the main poles IN & OUT of the starter solenoid with 2 spanners of the same string (!) of a starter cable. Ensure non of the spanners touches the earth (steel casing of the starter solenoid, electric motor or power pack itself) ! [See Fig. 6.9]
- Re-establish the electric power to the power pack: switch on the isolator switch in the vehicle cabin, insert the key from the battery switch in the exterior control box, or reconnect the main fuse on the battery. If the starter solenoid is the failing part, the electric motor will now start to run.
- Alternatively, you can maintain the electric power on the power pack, and link the 2 main poles IN & OUT of the starter solenoid with an old screw driver, or other metal object. Again ensure not to make any connection to the earth. [See Fig. 6.10]

Fig. 6.7



Fig. 6.8

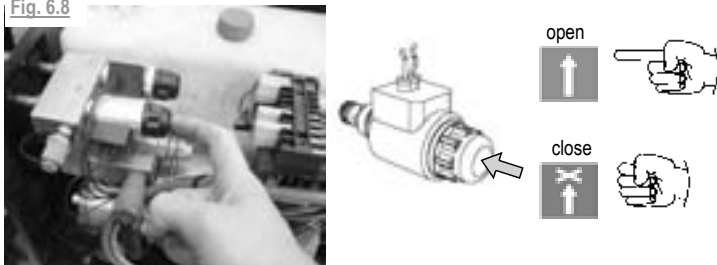


Fig. 6.9

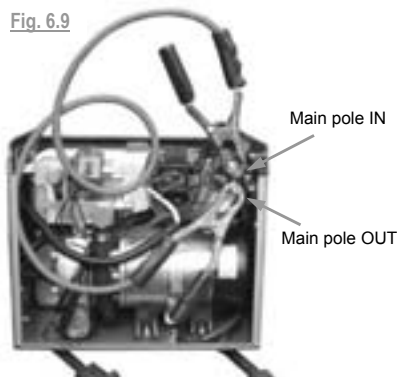



Fig. 6.10



§6.5 - Course of action

- The table below shows which courses of action can be taken in case of a breakdown, resulting from a failure on one of the solenoids R, D, O, H, S, I, U,... The actions are ranked from high preference (if relevant parts and professional labour skills are available) down to "last help" (if parts or professional labour skills are not available, if a correct diagnosis for definitive repair cannot be established quickly).
- In case of doubt, stop immediately, and ask advice from **DHOLLANDIA** prior to continuing.

R	<ul style="list-style-type: none">• Identify the failure and repair.• Override the starter solenoid as described above.• Apply an external auxiliary battery directly to the electric motor.• Use an external power pack to LIFT and CLOSE the platform back into its travel position.
D, O, B, H, S	<ul style="list-style-type: none">• Identify the failure and repair.• Use the manual emergency operation on the valve to actuate the corresponding function.
I, U	<ul style="list-style-type: none">• Identify the failure and repair.• Use the manual emergency operation on the valve to actuate the corresponding function (retraction cylinder).• Open the valve I manually, or mechanically disconnect the retraction cylinder or gear wheel system, and use a forklift to push the platform slowly and gently back into its travel position.

High
preference

Last help

7. ELECTRICAL & HYDRAULIC WIRING DIAGRAMS

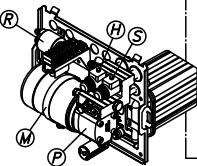
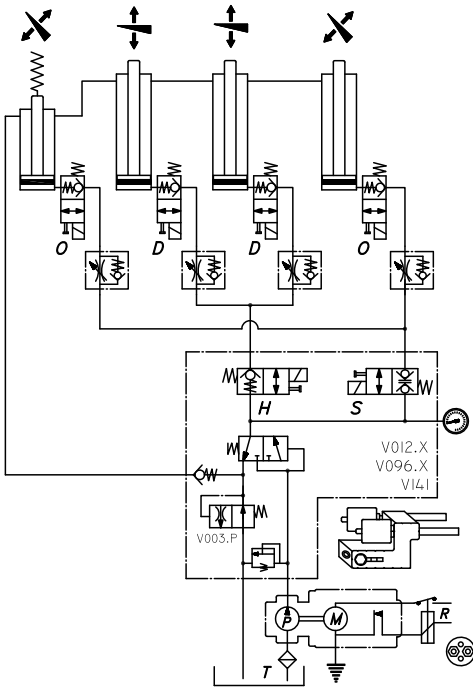
- The following pages contain the main wiring diagrams for **DHOLLANDIA** tail lifts as supplied in their standard execution.



- In case of special lifts, should the original wiring diagram joined to the lift be lost or unavailable, contact **DHOLLANDIA** for further help.

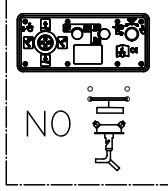
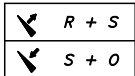
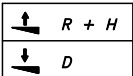
S008.Z - NO E068

EXTERIOR CONTROL BOX REF. EC103K0 (OR T0) / EC123K0 (OR T0)

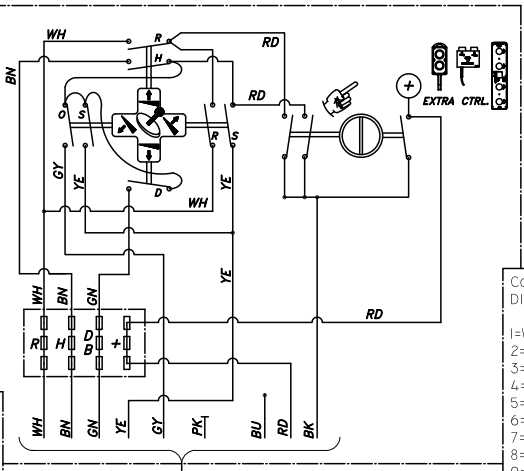


MECH - X

(POWER PACK:
SINGLE ACTING VALVE ON LIFT H
DOUBLE ACTING VALVE ON TILT S)

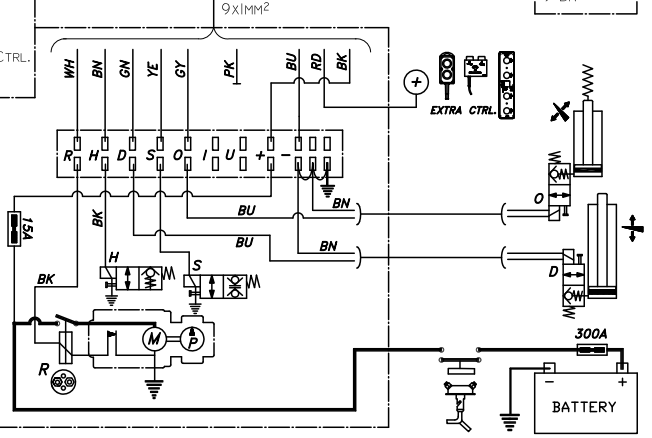


WH-> R
BN-> H
GN-> D
YE-> S
GY-> O
PK->
BU-> - EARTH
RD-> + EXTRA CTRL.
BK-> + 24/12V



COLOUR CODES:
DIN 47100

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



Type : STANDARD LIFT DH-LM (MECH-X, no E068) - 2009/...

Power pack : GT-LX-motor pump-...

Plan N° : Sch_LM-V096.X-2009-10

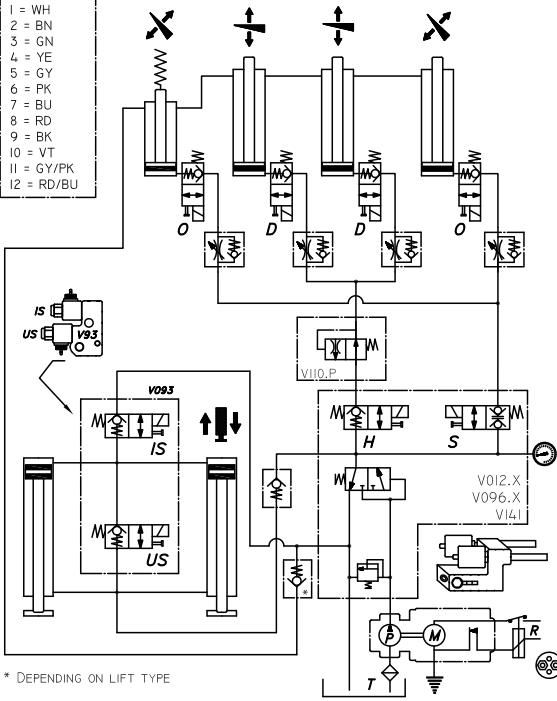
Valve : V012.X / V096.X / V141

Date : 25/03/2009

DEOLANDIA

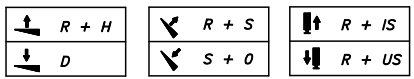
COLOUR CODES
DIN 47100

- 1 = WH
- 2 = BN
- 3 = GN
- 4 = YE
- 5 = GY
- 6 = PK
- 7 = BU
- 8 = RD
- 9 = BK
- 10 = VT
- 11 = GY/PK
- 12 = RD/BU



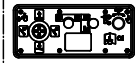
* DEPENDING ON LIFT TYPE

MECH - X



(POWER PACK:
SINGLE ACTING VALVE ON LIFT H
DOUBLE ACTING VALVE ON TILT S)

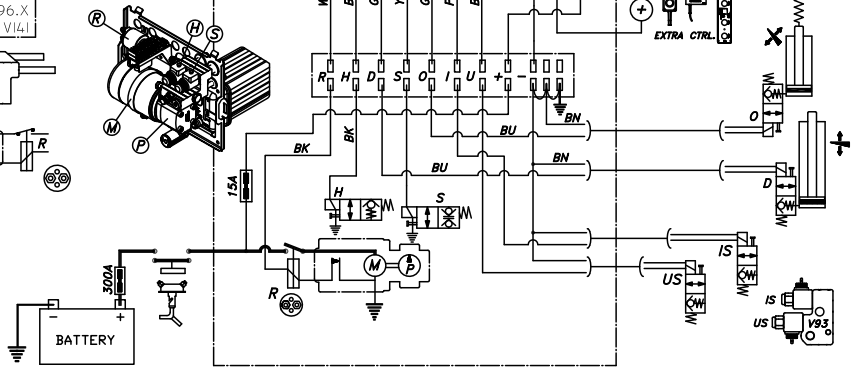
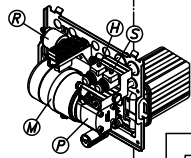
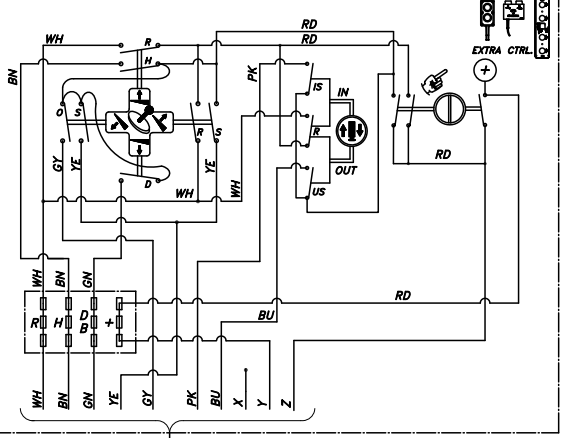
S008.Z - NO E068



- WH-> R
- BN-> H
- GN-> D
- YE-> S
- GY-> O
- PK-> IS
- BU-> US
- X-> - EARTH
- Y-> + EXTRA CTRL.
- Z-> + 24/12V

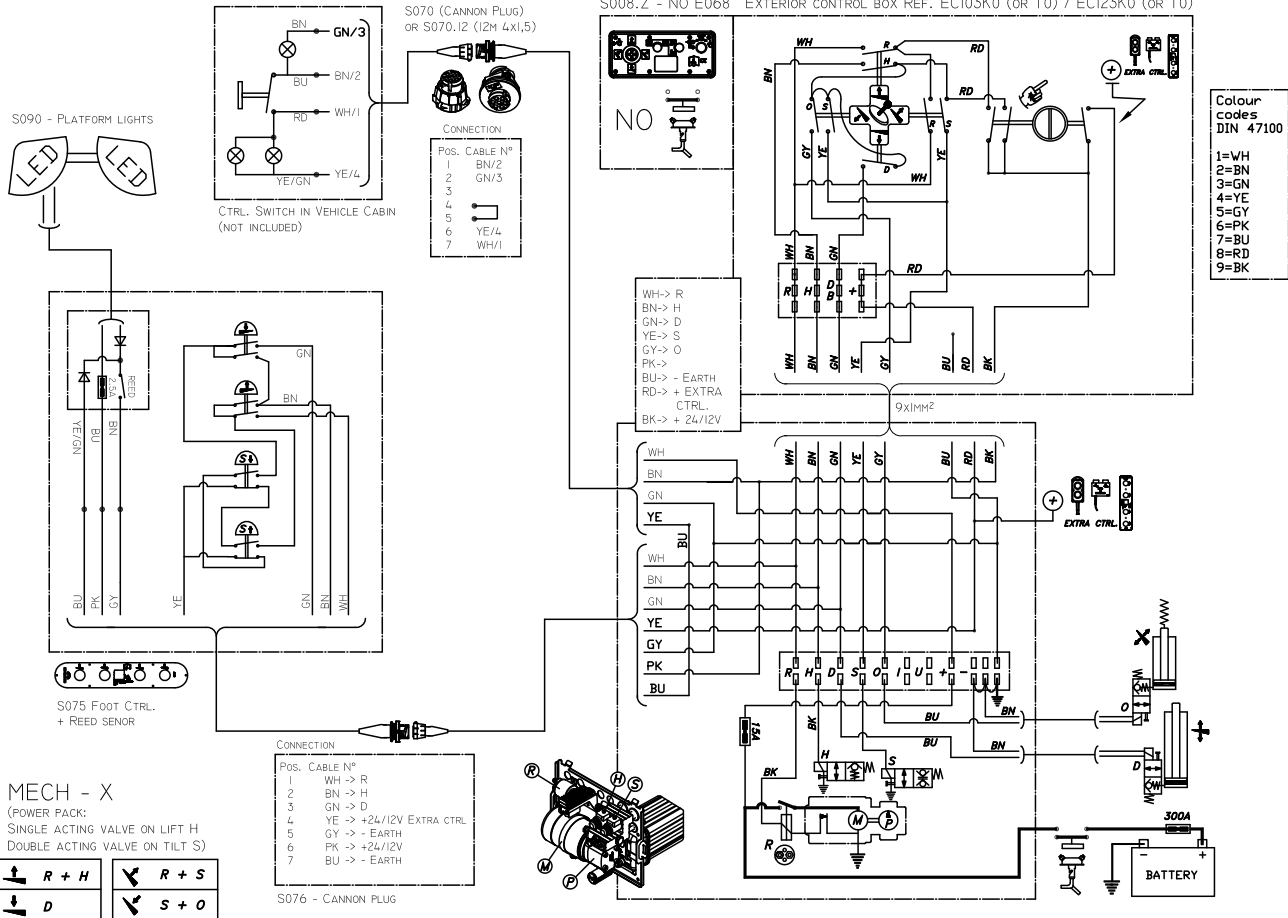
X	10X1MM ²	12X1MM ²
Y	RD	VT
Z	BK	GY/PK
	VT	RD/BU

EXTERIOR CONTROL BOX REF. EC113K0 (OR T0) / EC133K0 (OR T0)



Type : DH-LM (MECH-X, no E068) + HYDR. STABILISING LEGS - 2009/...
 Power pack : GT-LX-motor pump-...
 Valve : V012.X / V096.X / V141 + V093
 Plan N° : Sch_LM-ST-V096.X-V093-2009-10
 Date : 25/03/2009





Type : STANDARD LIFT DH-LM (no E068) (MECH-X, no E068) - 2009/...

Power pack : GT-LX-motor pump-...

Valve : V012.X / V096.X / V141

Plan N° : Sch-LM-V096.X-DE-Truck-2009-10

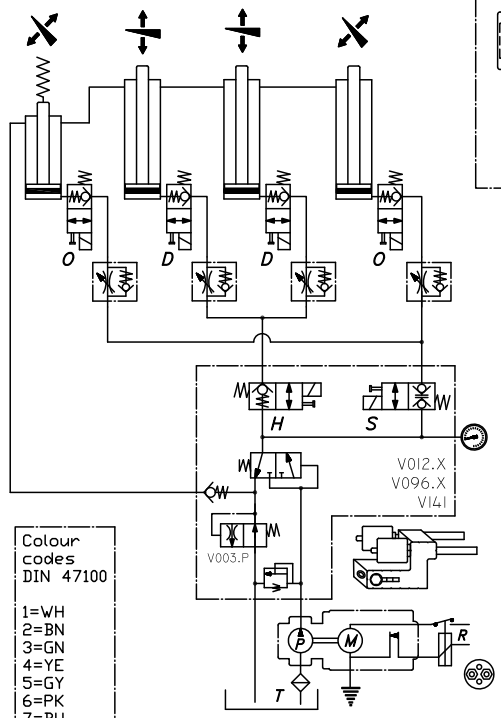
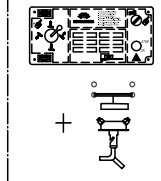
Date : 25/03/2009

DEOLANDIA



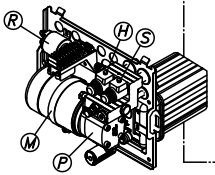
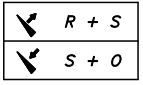
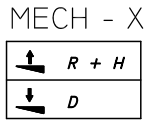
EXTERIOR CONTROL BOX REF. EB103

S008.B + E068

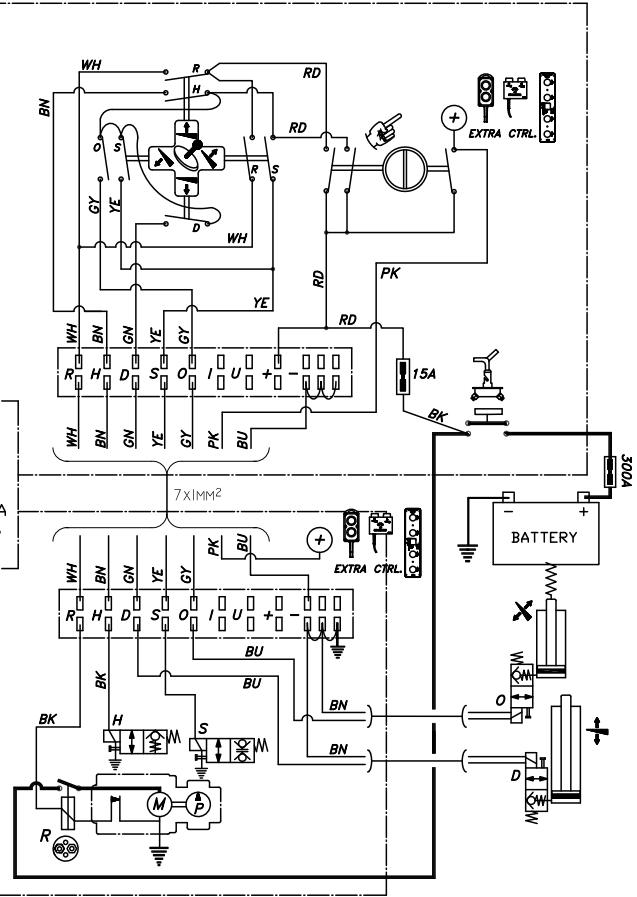


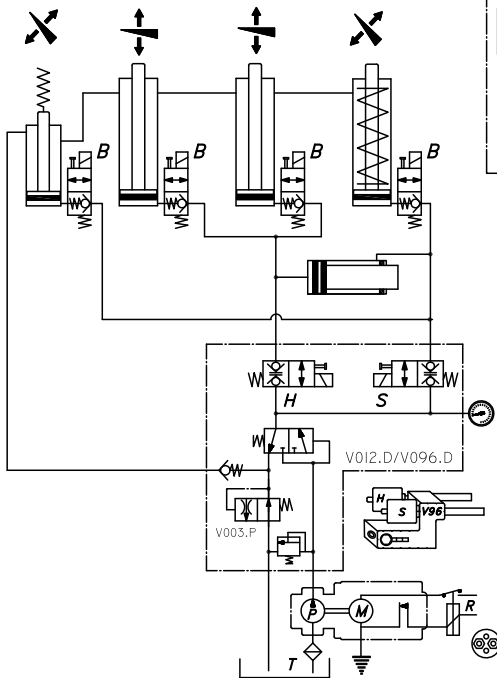
- Colour codes
DIN 47100
- 1=WH
 - 2=BN
 - 3=GN
 - 4=YE
 - 5=GY
 - 6=PK
 - 7=BU

(POWER PACK:
SINGLE ACTING VALVE ON LIFT H
DOUBLE ACTING VALVE ON TILT S)



- WH -> R
- BN -> H
- GN -> D
- YE -> S
- GY -> O
- PK -> EXTRA CTRL.
- BU -> -

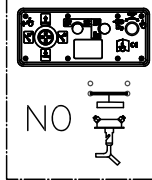




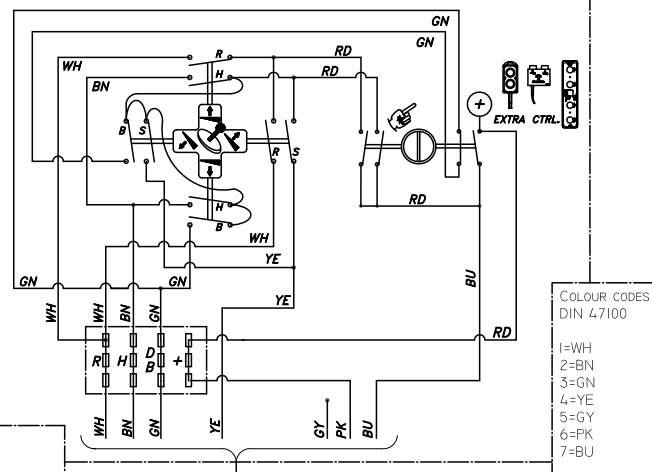
(POWER PACK:
DOUBLE ACTING VALVES
ON LIFT H & TILT S)

	R + H		R + S
	B + H		B + S

S008.Z - NO E068

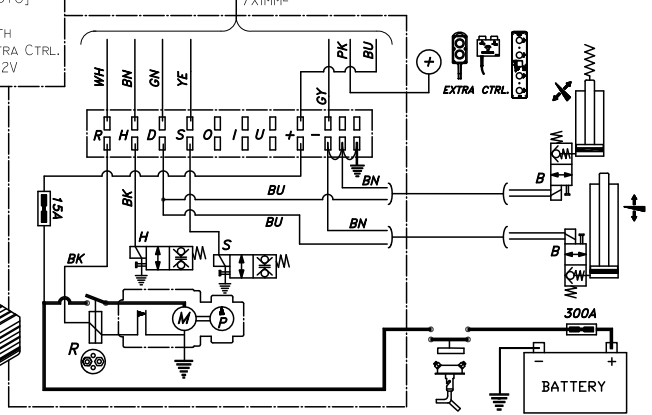
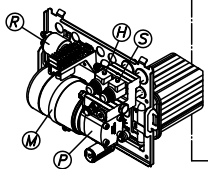


EXTERIOR CONTROL BOX REF. ECI01K0 / ECI21K0



WH-> R
BN-> H
GN-> B [B=D+O]
YE-> S
GY-> - EARTH
PK-> + EXTRA CTRL.
BU-> + 24/12V

COLOUR CODES
DIN 47100
1=WH
2=BN
3=GN
4=YE
5=GY
6=PK
7=BU

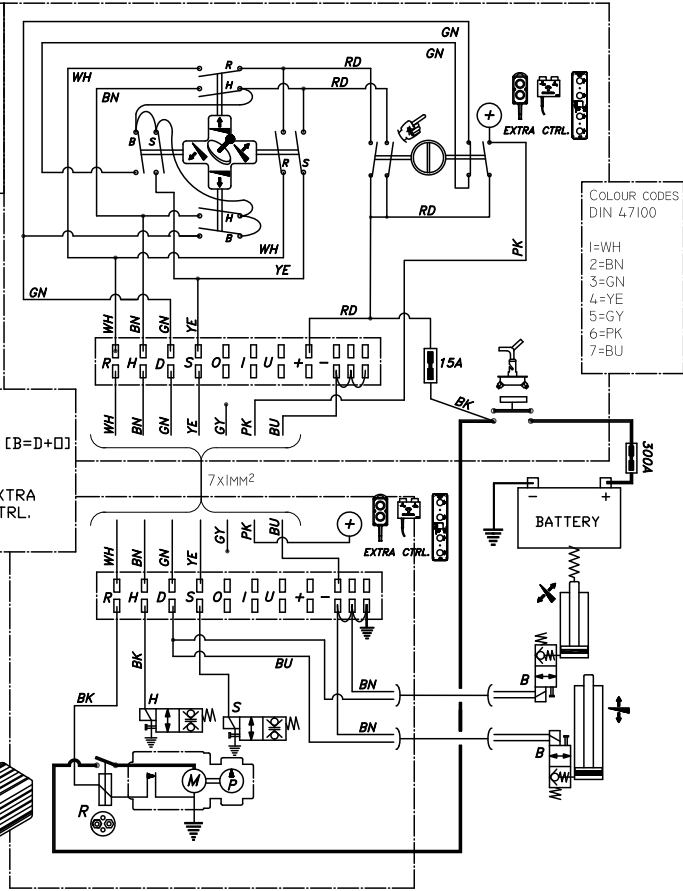
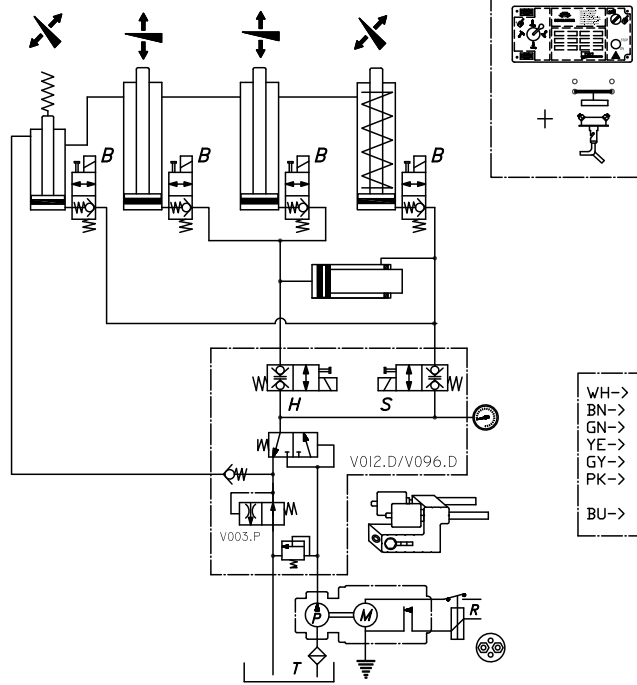


Type : STANDARD LIFT DH-LE / LSU (no E068) + HYDR. MH- 2008/...
 Power pack : GT-LD-motor pump-...
 Plan N° : Sch_LSU-V096.D-2008-11
 Valve : V012.D / V096.D
 Date : 29/08/2008
 DEOLANDIA



EXTERIOR CONTROL BOX REF. EB101

S008.B + E068



COLOUR CODES
DIN 47100

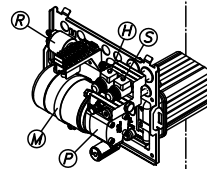
- 1=WH
- 2=BN
- 3=GN
- 4=YE
- 5=GY
- 6=PK
- 7=BU

WH -> R
BN -> H
GN -> B [B=D+□]
YE -> S
GY -> □
PK -> EXTRA CTRL.
BU -> -

(POWER PACK:
DOUBLE ACTING VALVES
ON LIFT H & TILT S)

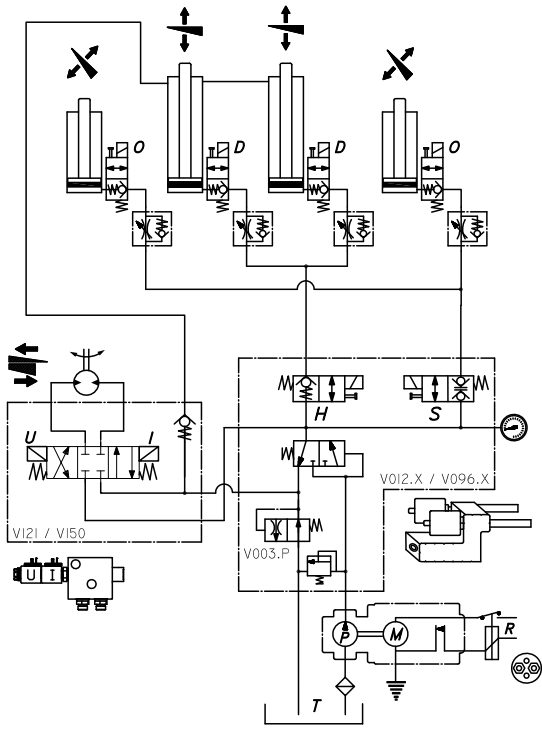
HYDR.

	R + H		R + S
	B + H		B + S

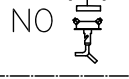
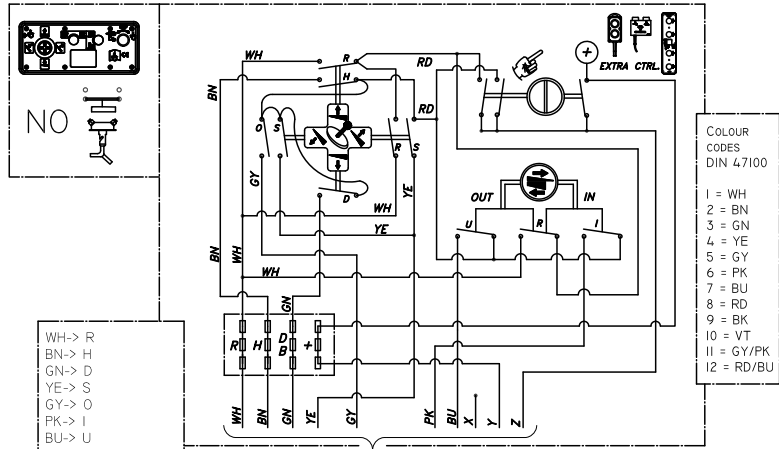
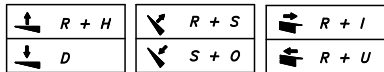


S008.Z - NO E068

EXTERIOR CONTROL BOX REF. EC203K0 (OR T0) / EC223K0 (OR T0)



(POWER PACK:
SINGLE ACTING VALVE ON LIFT H
DOUBLE ACTING VALVE ON TILT S)

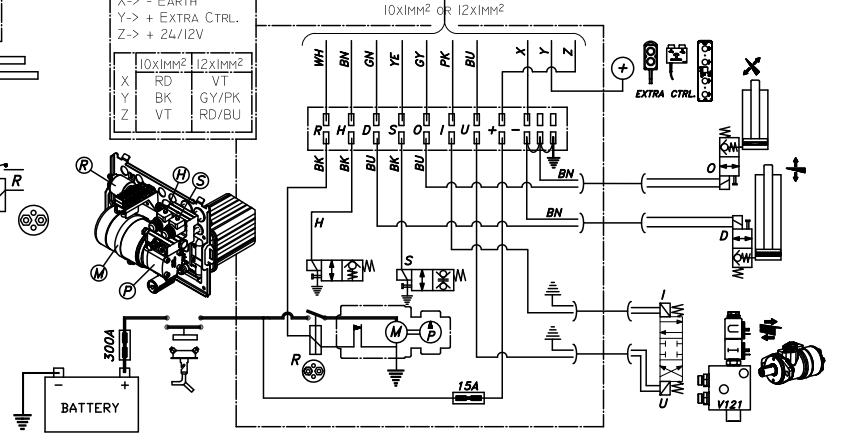


WH-> R
BN-> H
GN-> D
YE-> S
GY-> O
PK-> I
BU-> U
X-> - EARTH
Y-> + EXTRA CTRL.
Z-> + 24/12V

	10x1mm ²	12x1mm ²
X	RD	VT
Y	BK	GY/PK
Z	VT	RD/BU

COLOUR CODES
DIN 47100

- 1 = WH
- 2 = BN
- 3 = GN
- 4 = YE
- 5 = GY
- 6 = PK
- 7 = BU
- 8 = RD
- 9 = BK
- 10 = VT
- 11 = GY/PK
- 12 = RD/BU



Type : SLIDER LIFT DH-SM80 (MECH-X, no E068) - 2009/...

Power pack : GT-SX-motor pump...

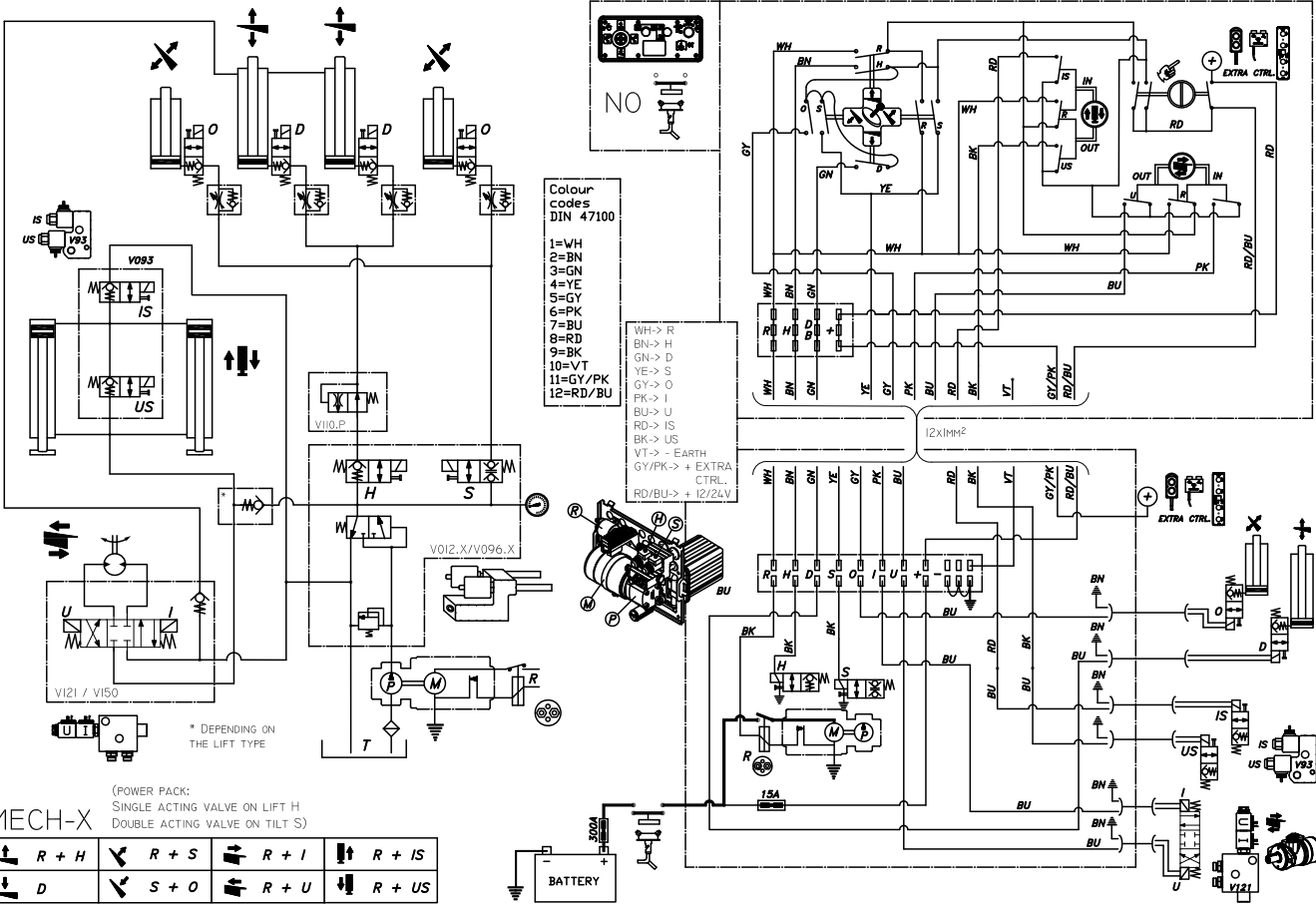
Plan N° : Sch_SM80-V096.X-2009-10

Valve : V012.X / V096.X

Date : 25/03/2009

DEOLANDIA

Type : SLIDER LIFT DH-SM80 (MECH-X, no E068) + STABIL. LEGS - 2009/...
 Power pack : GT-SX-motor pump... Valve : V012.X/V096.X + V093
 Plan N° : Sch_SM80-ST-V096.X-V093-2009-10 Date : 25/03/2009
 DEOLANDIA



Colour codes
 DIN 47100

- 1=WH
- 2=BN
- 3=GN
- 4=YE
- 5=GY
- 6=PK
- 7=BU
- 8=RD
- 9=BK
- 10=VT
- 11=GY/PK
- 12=RD/BU

WH-> R
 BN-> H
 GN-> D
 YE-> S
 GY-> O
 PK-> I
 BU-> U
 RD-> IS
 BK-> US
 VT-> - EARTH
 GY/PK-> + EXTRA CTRL.
 RD/BU-> + 12/24V

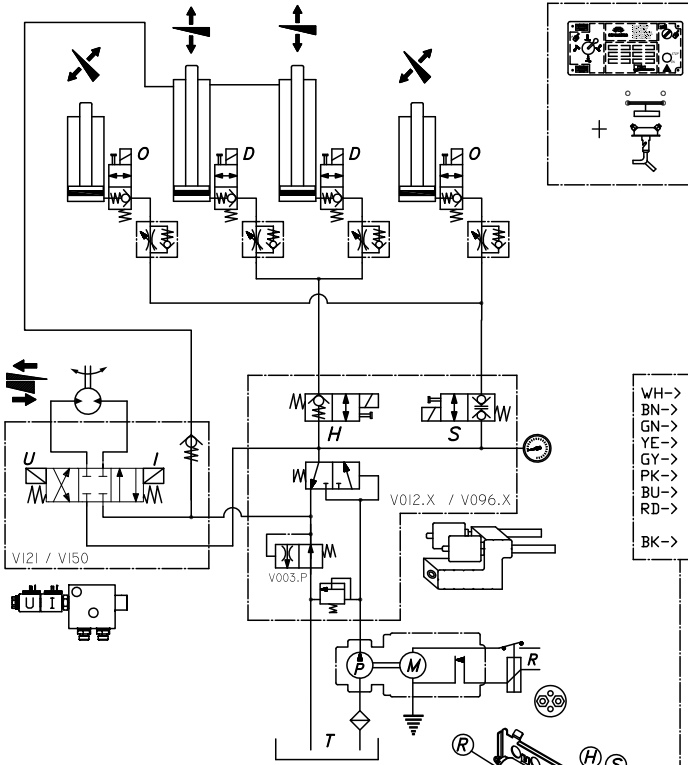
MECH-X

(POWER PACK:
 SINGLE ACTING VALVE ON LIFT H
 DOUBLE ACTING VALVE ON TILT S)

R + H	R + S	R + I	R + IS
D	S + O	R + U	R + US

S008.B + E068

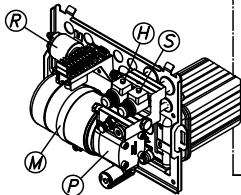
EXTERIOR CONTROL BOX REF. EB203...



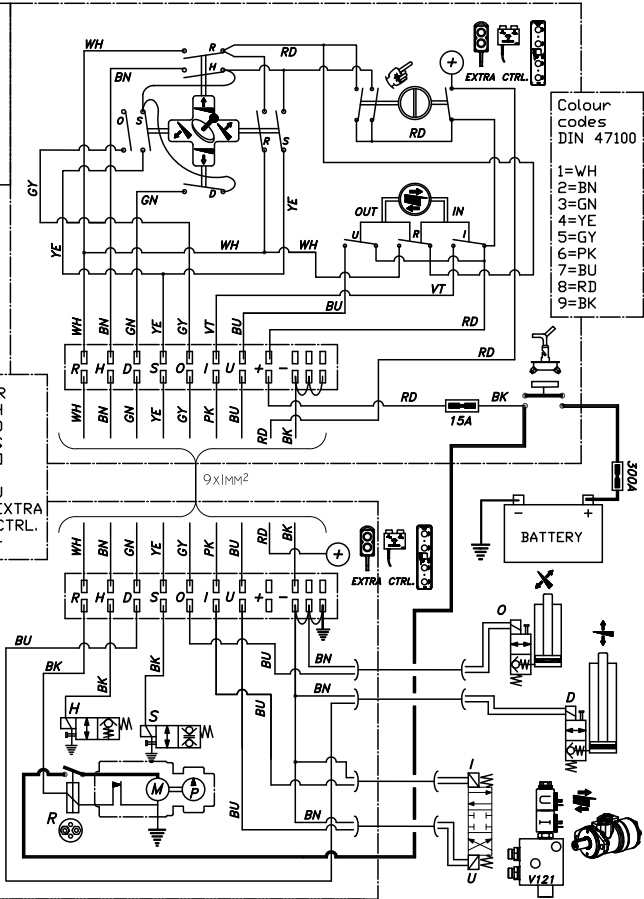
MECH - X

(POWER PACK:
SINGLE ACTING VALVE ON LIFT H
DOUBLE ACTING VALVE ON TILT S)

	R + H		R + S		R + I
	D		S + O		R + U

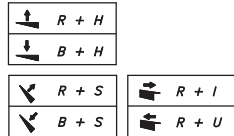
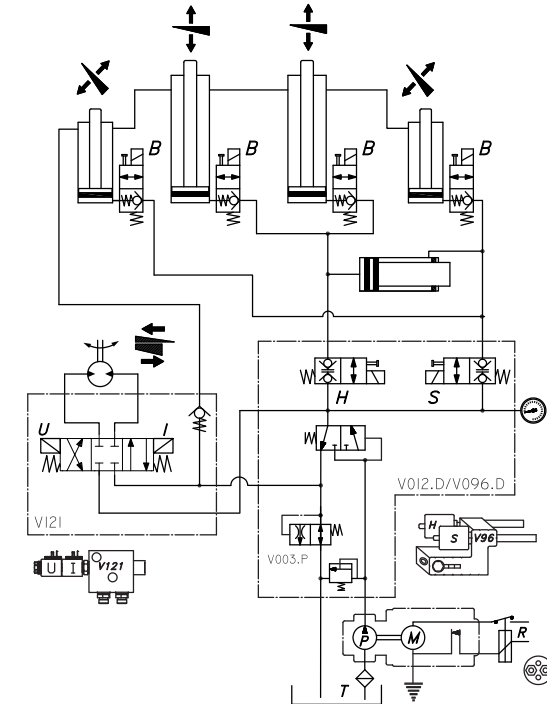


- WH -> R
- BN -> H
- GN -> S
- YE -> D
- GY -> O
- PK -> U
- BU -> I
- RD -> M
- BK -> EXTRA CTRL.



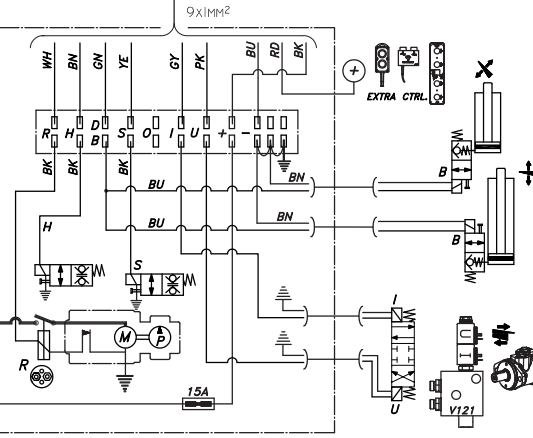
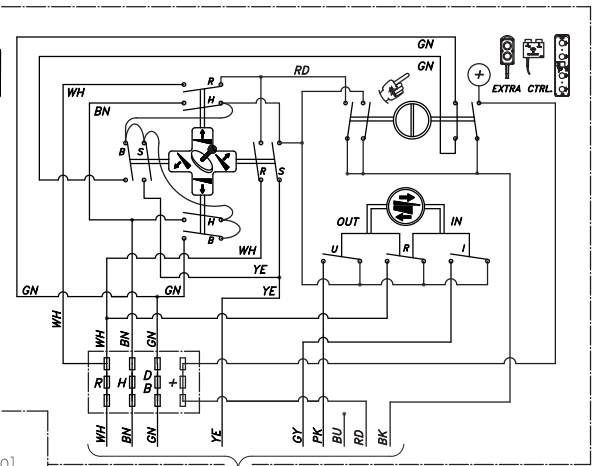
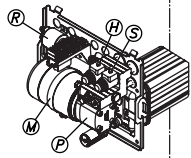
- Colour codes DIN 47100
- 1=WH
 - 2=BN
 - 3=GN
 - 4=YE
 - 5=GY
 - 6=PK
 - 7=BU
 - 8=RD
 - 9=BK

Type : SLIDER DH-SM80 (MECH-X + E068) + HYDROMOTOR & GEARWHEEL - 2009/..
 Power pack : GT-SX-motor pump-...
 Valve : V012.X / V096.X
 Plan N° : Sch-SM80-V096.X-S008.B-2009-01
 Date : 31/03/2009
 DEOLANDIA



- COLOUR CODES
DIN 47100
- 1 = WH
 - 2 = BN
 - 3 = GN
 - 4 = YE
 - 5 = GY
 - 6 = PK
 - 7 = BU
 - 8 = RD
 - 9 = BK

- WH-> R
 BN-> H
 GN-> B [B=D+O]
 YE-> S
 GY-> I
 PK-> U
 BU-> - EARTH
 RD-> + EXTRA CTRL.
 BK-> + 24/12V



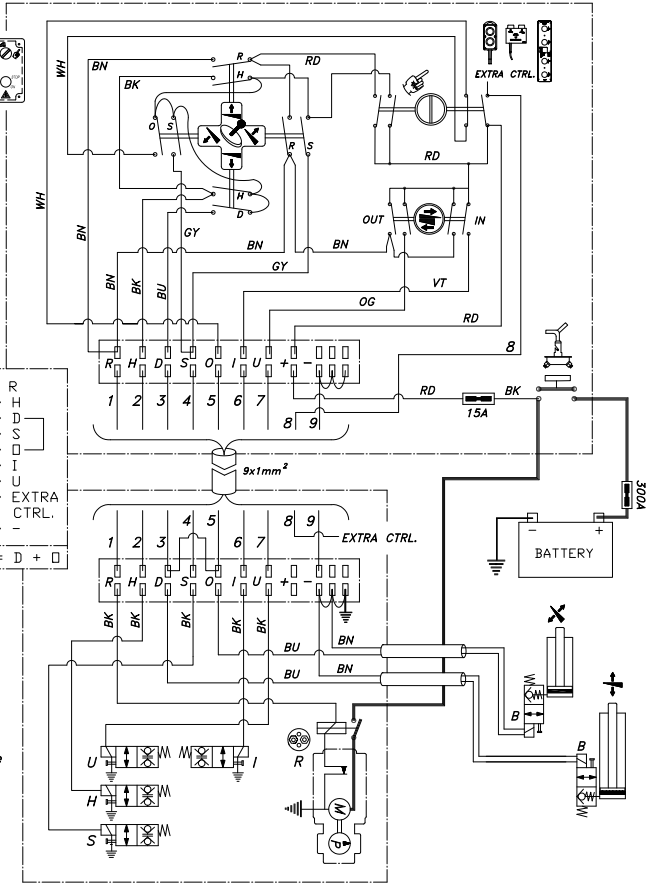
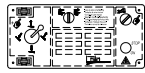
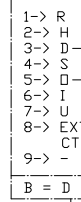
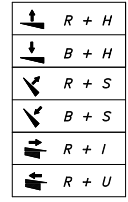
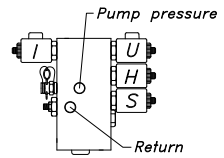
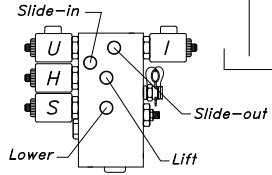
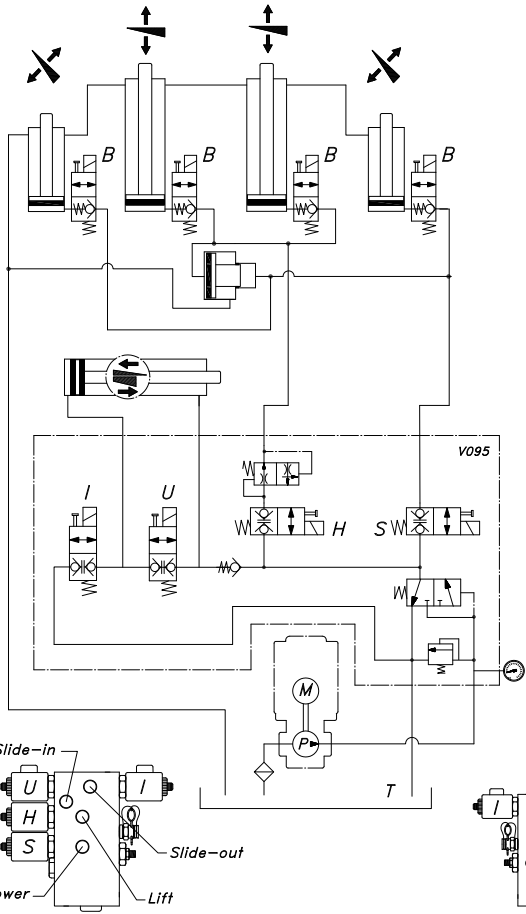
Type : SLIDER LIFT DH-S07/8 (HYDR. TILT) + RETRACT CYL.
 Power pack : G-S0C3...5
 Plan N° : S07-V095-DW-2006-01

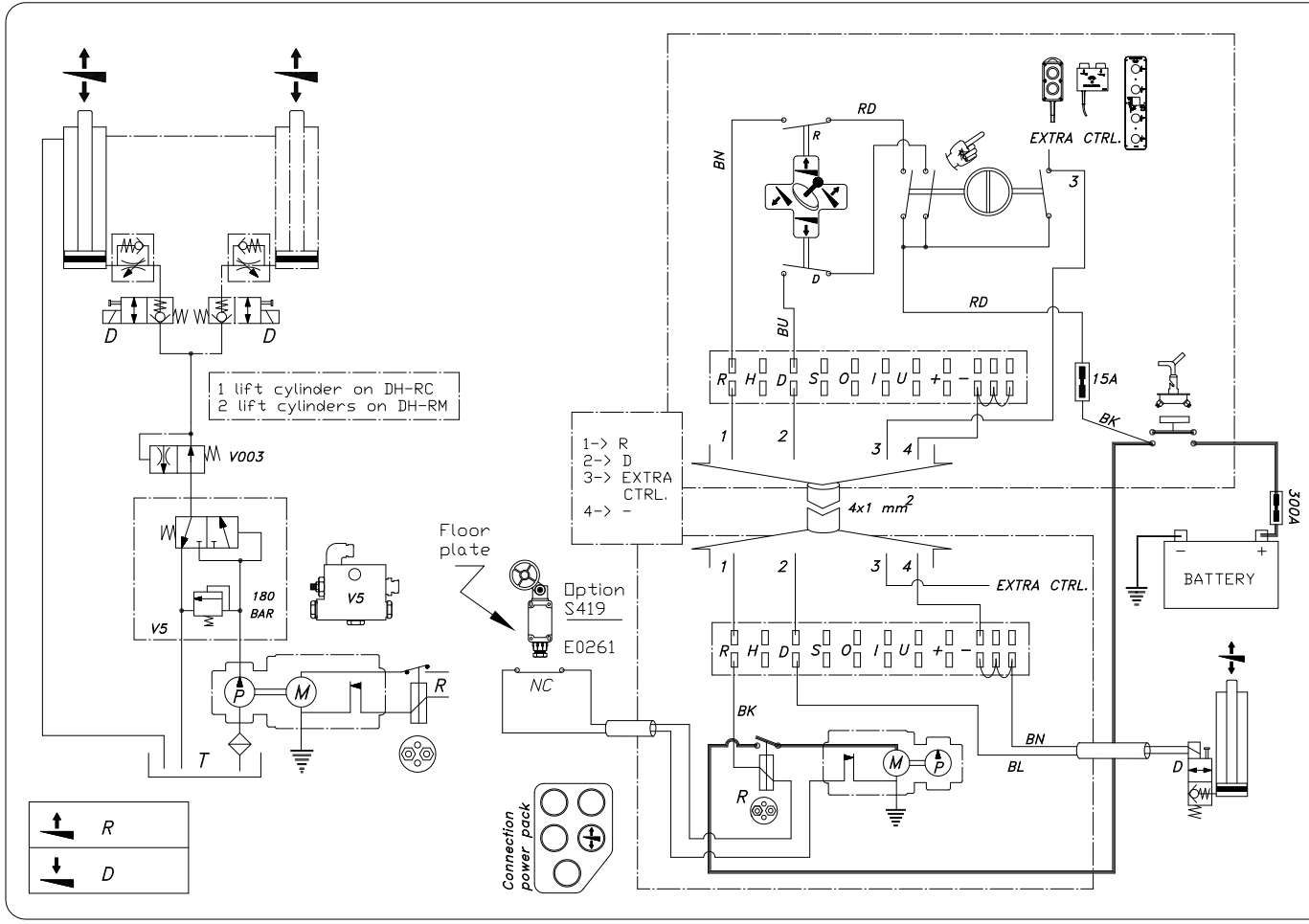
Valve : V095

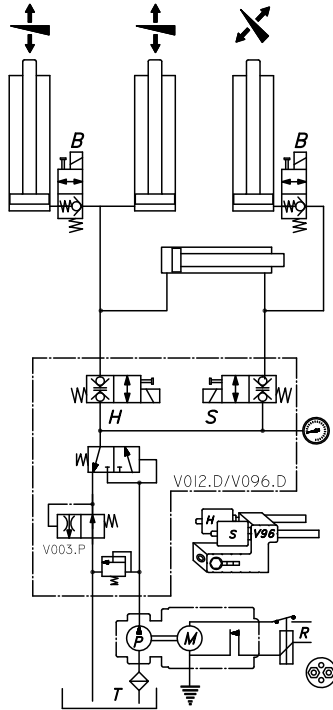
Date : 01/11/2006

2006/...

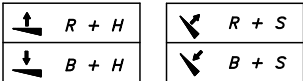
DEOLANDIA







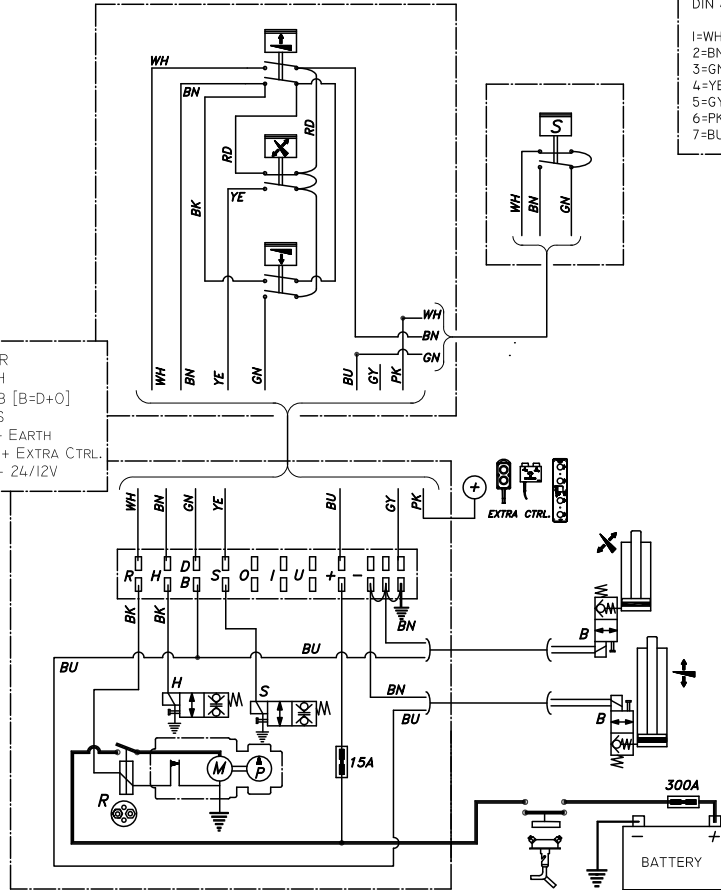
HYDR.
 (POWER PACK:
 DOUBLE ACTING VALVES
 ON LIFT H & TILT S)



EXTERIOR CONTROL BOX REF. E0178.H08

COLOUR CODES.
 DIN 47100
 1=WH
 2=BN
 3=GN
 4=YE
 5=GY
 6=PK
 7=BU

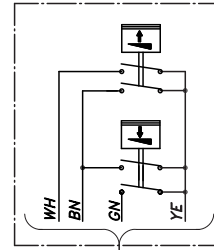
WH-> R
 BN-> H
 GN-> B [B=D+O]
 YE-> S
 GY-> EARTH
 PK-> + EXTRA CTRL.
 BU-> + 24/12V



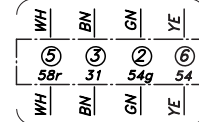
Type : VAN LIFT DH-LSP.05 (HYDR. TILT) - 2006/...
 Power pack : G-LSP01...02
 Plan N° : Sch_LSP.05-V012.D-2008-01
 Valve : V012.D
 Date : 05/01/2009
 DIEOLI/AMINDIA



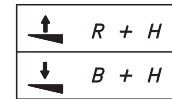
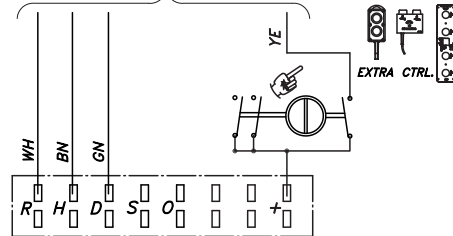
E0783.H -> H8



E0075 4x1 mm²



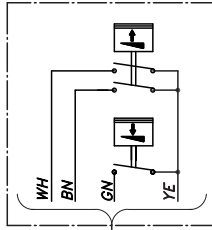
L=4100 mm 4x1 mm²



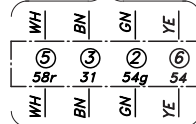
COLOUR CODES
DIN 47100

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

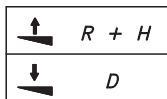
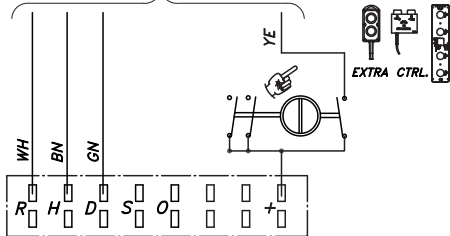
E0783.M -> M8



E0075 4x1 mm²

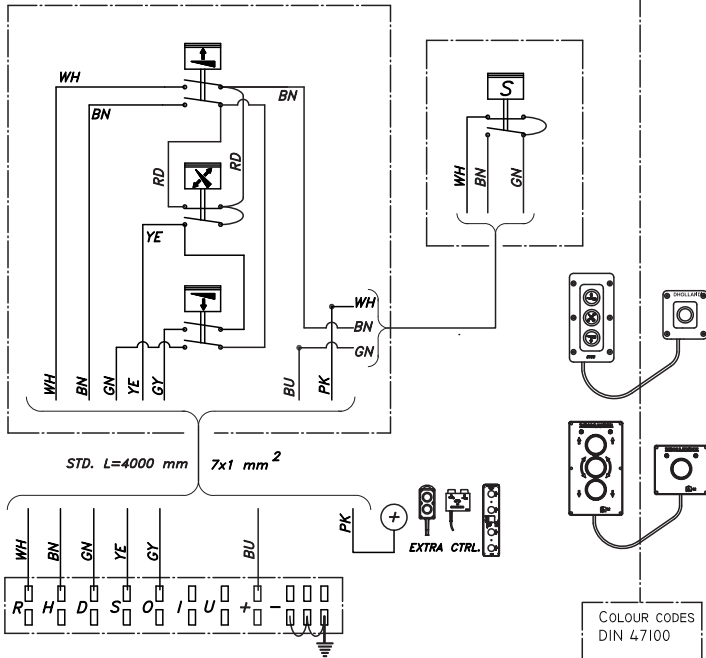


L=4100 mm 4x1 mm²



E0178.M08

USE:
 OPTIONS S094.M.3+1 & S094.M.3+1.Z
 MECHANICAL TILT (LM, LMP, LC...)

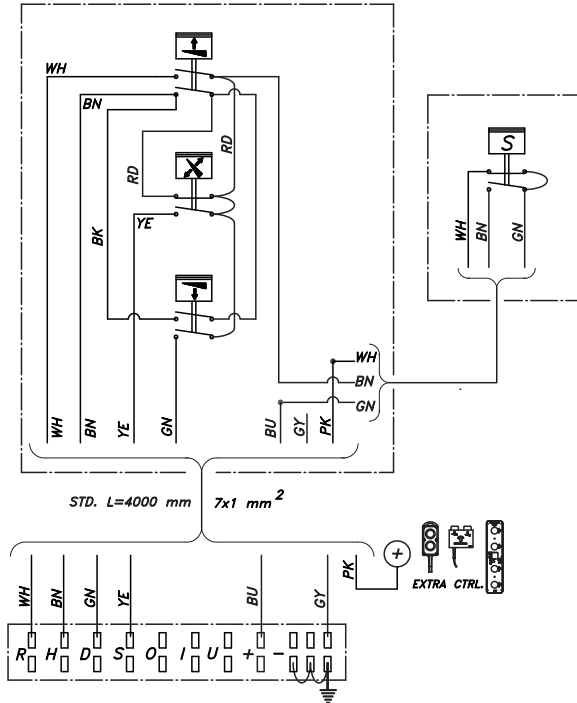


COLOUR CODES
 DIN 47100

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

E0178.H08

USE:
 OPTIONS S094.H.3+1 & S094.H.3+1.Z
 HYDRAULIC TILT (LSU, LSP, SP, SV, LE,...)



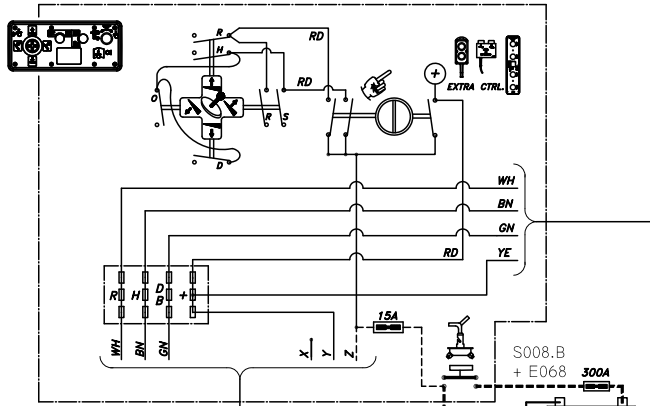
Type : S094.3+1 3+1 button panel controls MECH and HYDR. tilh
 Power pack : -
 Valve : -

Plan N° : Extra-E0178.M08_H08-2008-01
 Date : 22/05/2008

DEOLANDIA

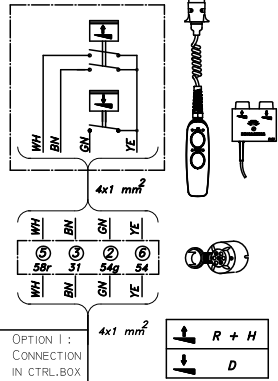


EXTERIOR CONTROL BOX REF. EC1XX



MECH.EW

EXTRA CONTROL E0783.M

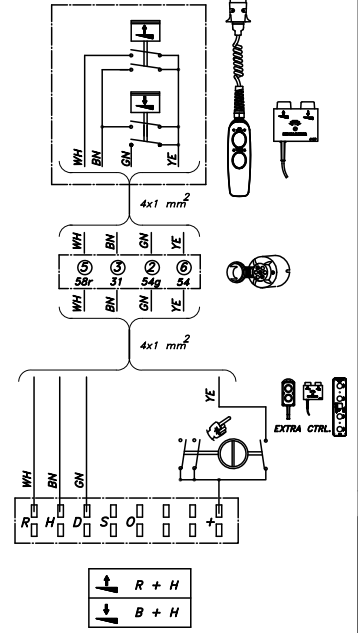


OPTION 1 :
CONNECTION
IN CTRL.BOX

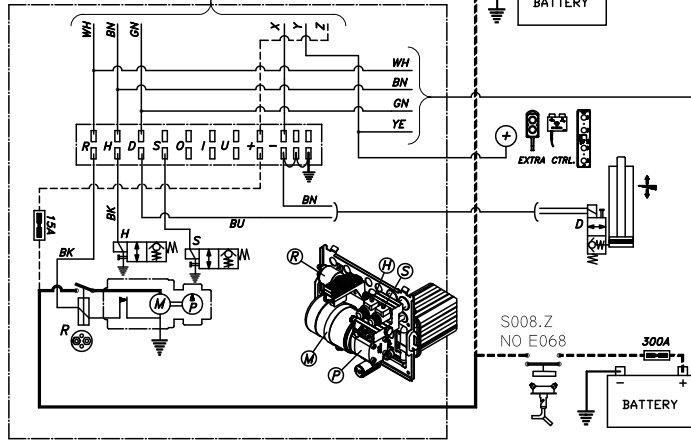
OPTION 2 :
CONNECTION
IN POWER PACK

HYDR.

EXTRA CONTROL E0783.H



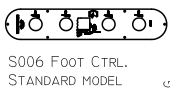
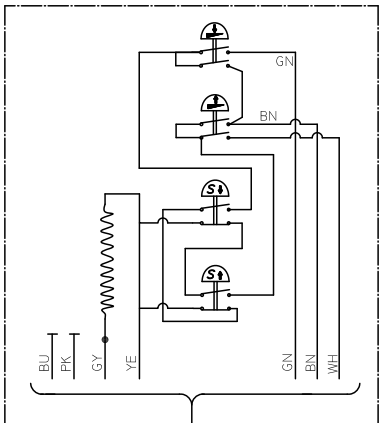
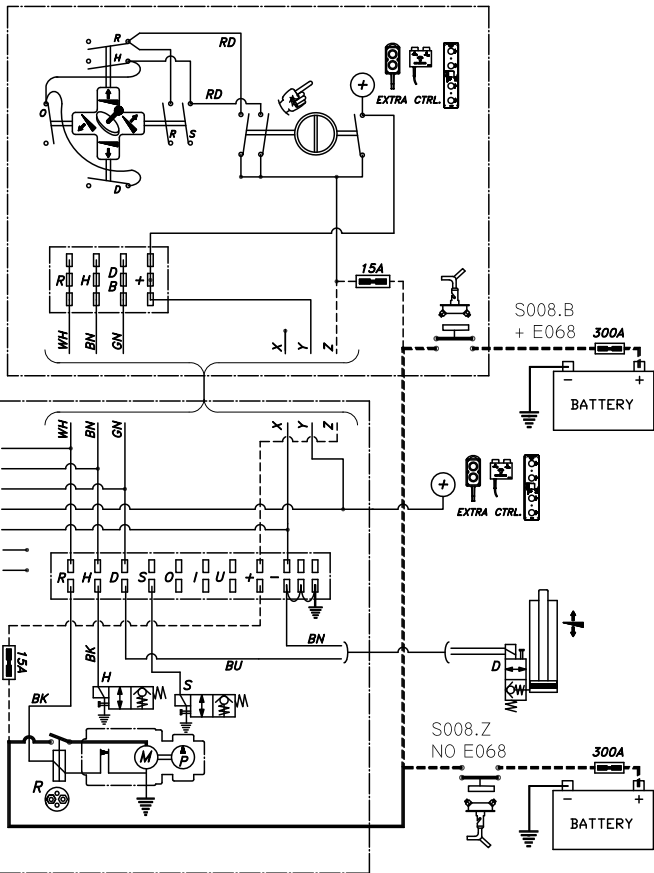
- COLOUR CODES
DIN 47100
- 1=WH
 - 2=BN
 - 3=GN
 - 4=YE
 - 5=GY
 - 6=PK
 - 7=BU
 - 8=RD
 - 9=BK



Type : Connection: 2-button wander lead + spiral cable S001
 Power pack : n.a.
 Valve : n.a.
 Plan N° : Sch_Extra_EC-S001-2009-02
 Date : 02/06/2009
DEOLANDIA

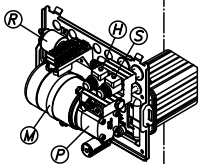


EXTERIOR CONTROL BOX REF. EC1XXX



CONNECTION

Pos.	CABLE N°
1	WH -> R
2	BN -> H
3	GN -> D
4	YE -> +24/12V EXTRA CTRL
5	GY -> - EARTH
6	PK -> +24/12V
7	BU -> - EARTH



Colour codes
DIN 47100

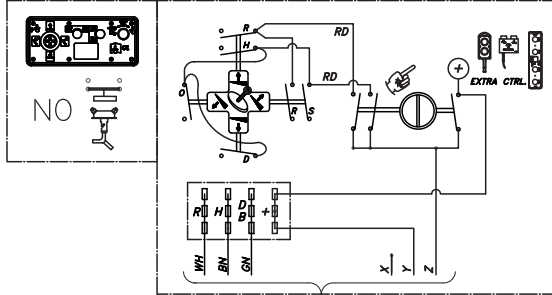
- 1=WH
- 2=BN
- 3=GN
- 4=YE
- 5=GY
- 6=PK
- 7=BU
- 8=RD
- 9=BK

CONNECTION OF S006 FOOT CONTROLS (BASIC CONFIGURATION)
APPLICATION: POSSIBLE ON ALL LIFT TYPES

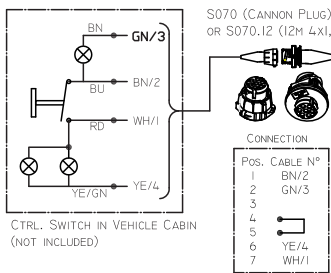


EXTERIOR CONTROL BOX REF. EC1XXX

S008.Z - NO E068

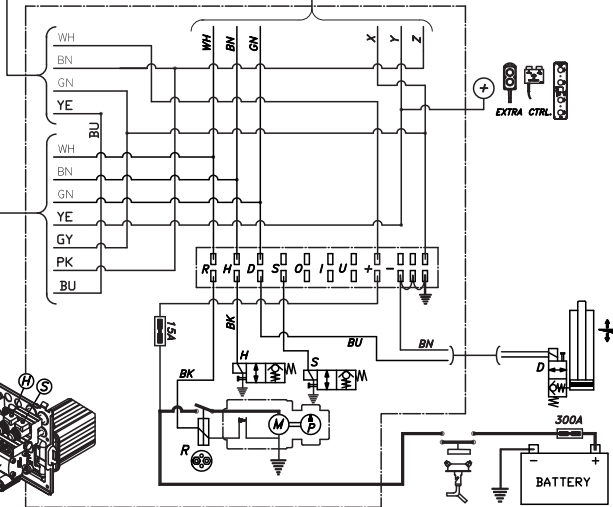


S070 (CANNON PLUG)
OR S070.I2 (12M 4x1,5)

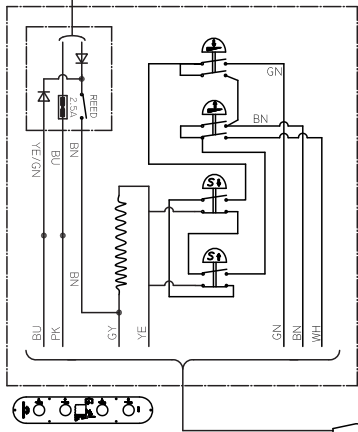
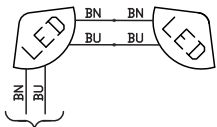


Colour codes
DIN 47100

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



S090 - PLATFORM LIGHTS



S075 FOOT CTRL.
+ REED SENOR

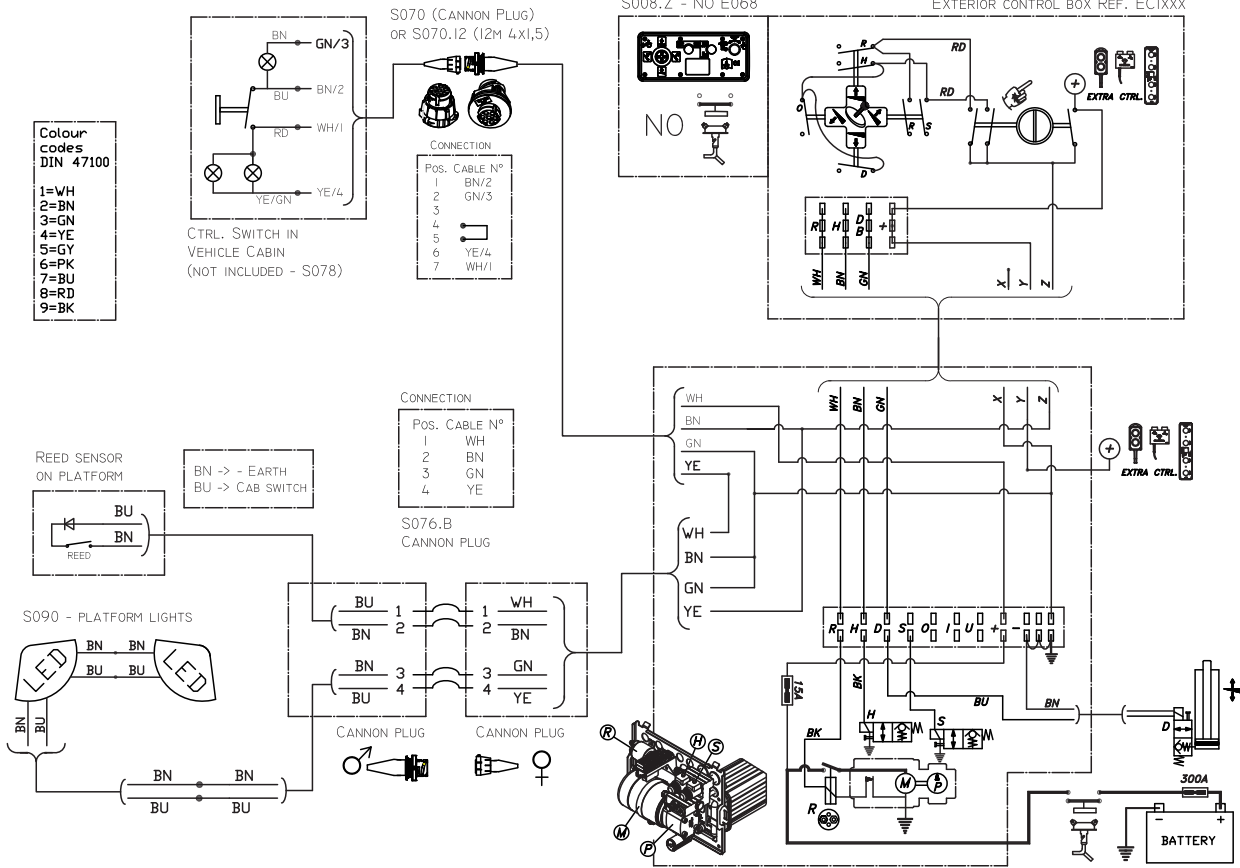
CONNECTION

Pos.	CABLE N°
1	WH -> R
2	BN -> D
3	GN -> D
4	YE -> +24V/12V EXTRA CTRL
5	GY -> - EARTH
6	PK -> +24V/12V
7	BU -> - EARTH

S076 - CANNON PLUG

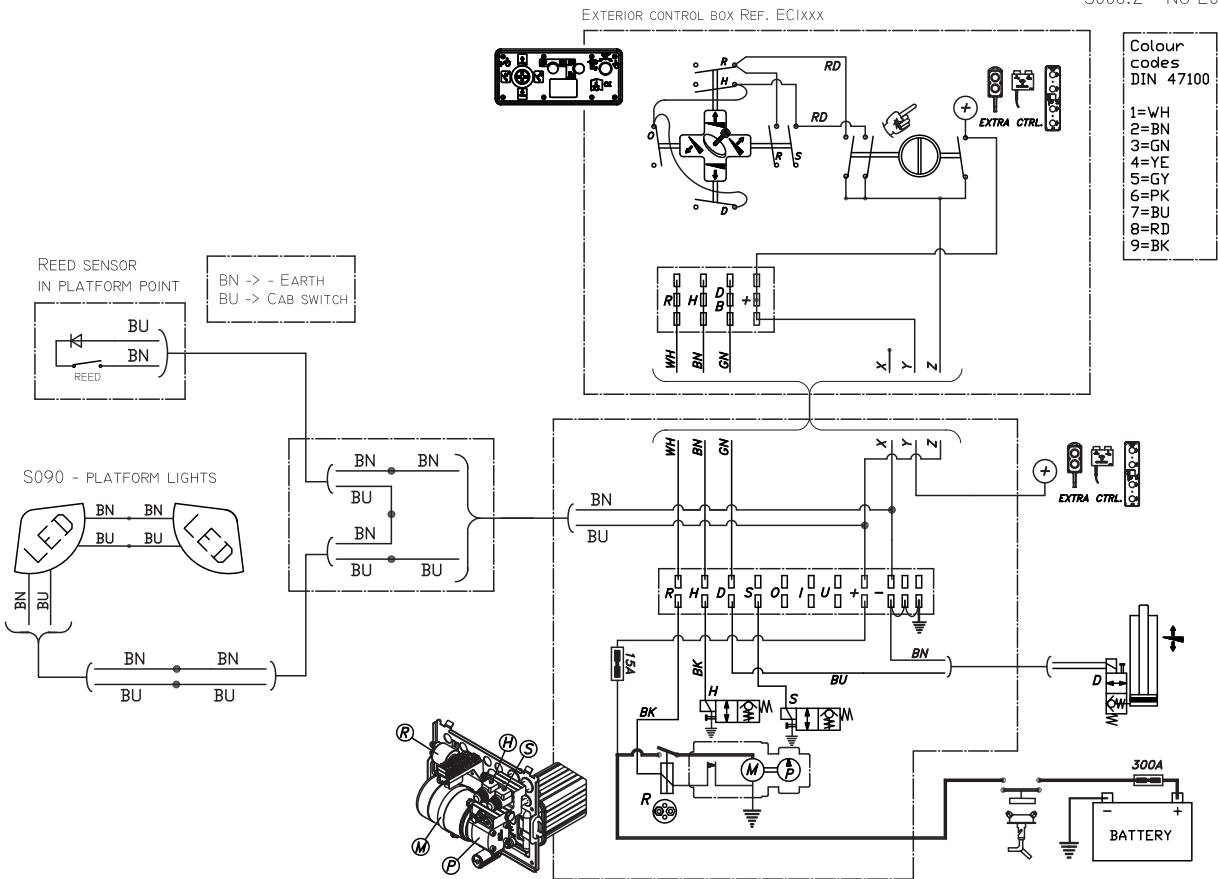
CONNECTION OF S075 4-BUTTON FOOT CONTROLS + REED SENSOR + S090 PLATFORM LIGHTS
APPLICATION: ALL DH-L* WITH S075 FOOT CONTROLS + INTEGRATED REED SENSOR

CONNECTION OF S090 PLATFORM LIGHTS + S070.R REED SENSOR
 APPLICATION: ALL DHL* WITH S070.R REED SENSOR



Type : Connection: S075 foot controls with reed sensor + S090 platform lights
 Power pack : -
 Valve : -
 Plan N° : Sch_Extra_EC-S090-S070.R-S070-2009-01
 Date : 29/08/2008
 IDEOLANDIA

S008.Z - NO E068

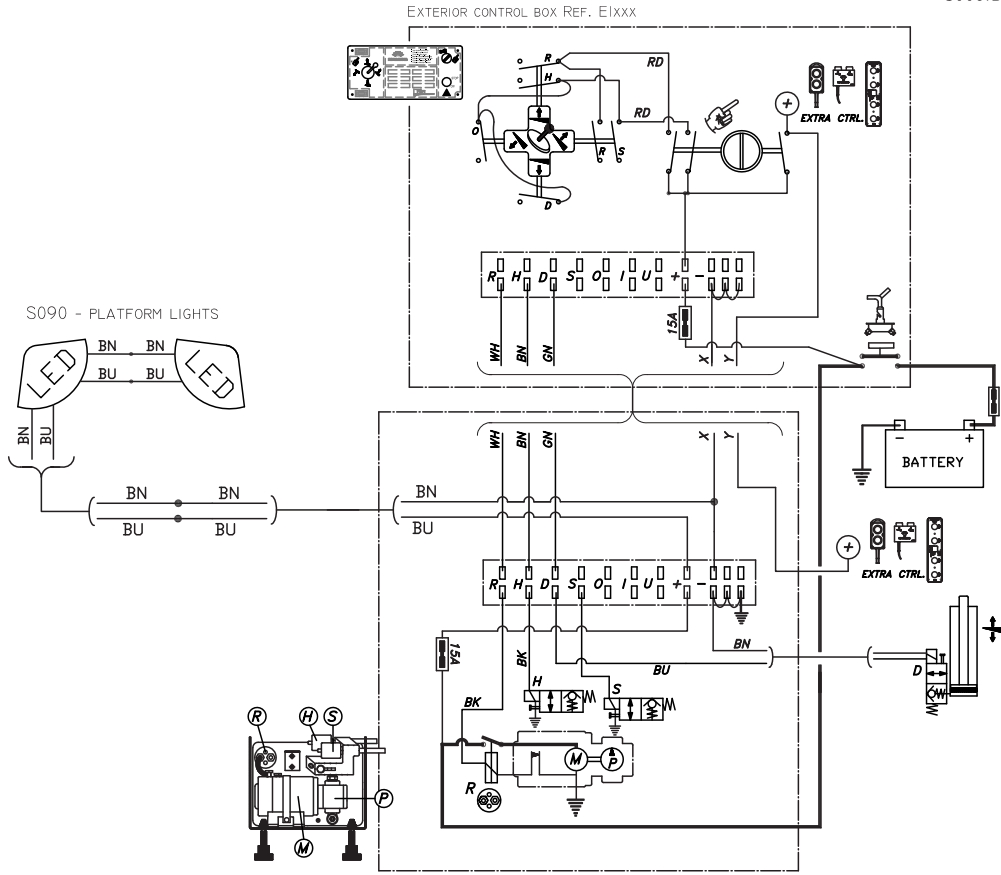


CONNECTION OF S090 PLATFORM LIGHTS (BASIC CONFIGURATION)
 APPLICATION: ALL CONTROL BOXES EC1xxx = OPTION S008.Z... WITHOUT BATTERY SWITCH

S008.B - WITH E068

Colour codes
DIN 47100

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



Type : Platform lights S090 on control box E1xxx WITH battery switch E068

Power pack : n.a.

Plan N° : Sch_Extra_E-S090-2007-01

Valve : n.a.

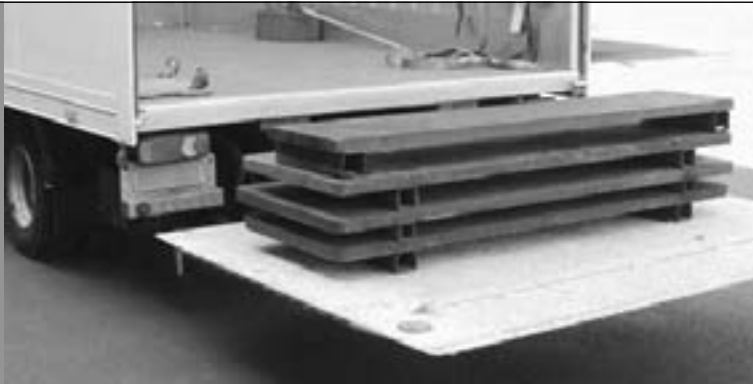
Date : 15/03/2009



CONNECTION OF S090 PLATFORM LIGHTS. (BASIC CONFIGURATION)
APPLICATION: ALL CONTROL BOXES E1XXX = OPTION S008.B WITH BATTERY SWITCH

CHAPTER C

MAINTENANCE & INSPECTION REPORTS



C

1. INTRODUCTORY REMARKS

- Since the 1st of Jan. 1997, all tail lifts sold in one of the EC member states should comply with the European Machine Directives 89/392/EC and 98/37/EC and subsequent amendment 2006/42/EC. As a consequence, all **DHOLLANDIA** tail lifts are designed and manufactured in accordance with these regulations, and they are carrying the "CE"-mark.
- These 'regulations' include:
 - the CE Machine Directive 89/392/CEE in its most recent version (called CEMD hereafter)
 - the EN-Standards derived from the Directives, that enable manufacturers to prove conformity of their machines with the Directives
 - the national norms that become applicable upon execution of the Machine Directives.
- By means of a Declaration of Conformity (see Chapter 1), the manufacturer confirms that the machines supplied comply with the regulations stated above.

2. INSPECTIONS

- All tail lifts should be subjected to a number of compulsory inspections, as explained below.

§2.1 - Put-into-service test and Fitting Declaration

- All tail lifts are largely pre-assembled and tested by the manufacturer, and receive a CE Declaration of Conformity "Annex II a" covering the design and mode of construction.
- Tail lifts are no stand-alone application though, and must be incorporated into a complete vehicle to become operational. CEMD regards the complete vehicle, including the tail lift and any other ancillary equipment as one single machine. The manufacturer's Declaration of Conformity and the authorisation to put the equipment into service, must be reinforced 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 in Chapter C - Point 4.

§2.2 - Periodic inspections

- Once in service, every tail lift should be inspected periodically, at least once per year, by an expert / competent person to evaluate its condition and suitability for continued use, or if a specific repair or maintenance is required. The findings of these inspections should be summarised in the relevant inspection certificates [see pg. C6 & following]
- In Great-Britain, these periodic inspections are called Statutory Thorough Examinations, and they require a frequency of min. 2 times per year.
- The content of this compulsory periodic inspection is explained in Chapter B - Point 2.

§2.3 - Maintenance & Repair Reports, special inspections, re-inspections

- All maintenance & repair works performed on the tail lift, should be reported in the Main-tenance & Repair Reports [see pg. C11 & following], to provide any service agent or safety officer intervening on the lift, with a full history of the works carried out.
- In case of important repair works with significant impact on the structural integrity of the lift or the safe working conditions, the lift should be subjected to a special inspection by an expert / competent person to evaluate if it is safe to continue to use it. The findings of these inspections should be summarised in the relevant inspection certificates [see pg. C6 & following].
- If a tail lift has failed to pass a periodic or special inspection, it should be repaired and be subjected to a further inspection (= re-inspection) by an expert / competent person to evaluate if it is safe to continue to use it after the latest repair. The findings of these inspections should be summarised in the relevant inspection certificates [see pg. C6 & following].
- The content of these compulsory inspections is explained in Chapter B - Point 2.

§2.4 - Expert / competent person

- The expert or competent person (in UK law) is a person appointed by the user or owner of the tail lift. By his expert technical knowledge and experience, and by his expertise in health and safety regulations, he should be qualified to form an impartial judgement regarding the safety and reliability of a tail lift.
- The British ACOP (Approved Code of Practice), Regulation 9 describes it as follows: the owner should ensure that the person carrying out a thorough examination has such appropriate practical and theoretical knowledge and experience of the lifting equipment to be thoroughly examined as will enable them to detect defects or weaknesses and to assess their importance in relation to the safety and continued use of the lifting equipment.
- The expert / competent person should read and use the content of this user's manual, of the technical documentation of the tail lift, and all other information required to execute the various inspections in a professional way.
- The expert / competent person should perform all inspections with due diligence, fill-out all points of the relevant inspection certificates, and sign.

§2.5 - Initiative to organise inspections

The initiative to choose an expert and organise the inspections described above, lies with the owner of the vehicle or fleet operator.

3. VALIDATION OF THE MANUFACTURER'S WARRANTY

- The safety, reliability and durability of any tail lift and its components depends on the quality of the fitting works.
- Therefore, the manufacturer's warranty can only be activated and validated if it has been mounted correctly and professionally to conform with the fitting instructions; if a put-into-service test has been executed with an affirmative result; and if the findings of this test have been duly reported in the relevant inspection certificates.



Warning !

- **DHOLLANDIA** disclaims liability for any personal injury or property damage that results from operating a product that has not been fitted according to the fitting instructions, or if the put-into-service test has been omitted or its findings falsified.
- The Declaration of Conformity, the manufacturer's product liability and the warranty are voided in case of disregard in this respect.

4. SCOPE OF THE PUT-INTO-SERVICE TEST

- The put-into-service test [see also §2.1] comprises of:
 - a visual inspection on the fitting work of the tail lift on the vehicle chassis, and of the various aspects determining the operational safety of the tail lift;
 - a series of static and dynamic weight tests.
- Most points of the visual inspection will be executed through practical tests without load. The test shall allow the expert to evaluate if the tail lift has been incorporated on the vehicle chassis in accordance to the manufacturer's fitting instructions, if the tail lift is safe to be used, if it can be operated safely & correctly from all existing controls, if it can execute all functions smoothly, without unexpected movements or sounds.
- The content of this compulsory put-into-service test is explained hereunder.

FITTING DECLARATION (by installer of the tail lift)

Name & address of the fitting company :

Name & function of the inspector :

By means of this Fitting Declaration, I declare that the tail lift identified in the Declaration of Conformity in this manual has been fitted conform to the fitting instructions from the manufacturer, and that the put-into-service test has been executed with affirmative result. As a consequence, the tail lift has been found suitable for use in its fitted condition.

The following results have been noted:

- The vehicle is technically suitable for the installation and use of the tail lift concerned YES NO
- The installation has been executed conform to the fitting instructions of Dhollandia, and the put-into-service test has been executed following the instructions of this manual YES NO
- After weight testing with nominal capacity, the hydraulic pressure has been at : BAR

Remarks :

Date : _____

Signature of the inspector : _____

CHECKLIST FOR THE PUT-INTO-SERVICE TEST

§4.1 - General inspection on the fitting parameters

The vehicle is technically suitable for the type of lift and its nominal capacity.	
The requirement for mechanical or hydraulic stabilising legs has been checked, and been fulfilled (if applicable).	
The actual fitting dimensions don't exceed the theoretical maximum fitting dimensions mentioned in the fitting drawings.	
The lift has been fitted to conform with the fitting instructions of DHOLLANDIA , and the Fitting & Body Building instructions from the vehicle manufacturer.	
All safety decals & labels (identification sticker, decal with user's pictograms, decal with load diagram, ...) have been fitted conform with the fitting instructions.	

§4.2 - Inspection of the mechanical part

The size, number and spread of mounting bolts conform with the fitting instructions. All mounting bolts are fastened to the prescribed torques. Check for potential deformation after weight testing.	
All welding has been performed by qualified welders.	
All articulation pins are properly fastened and locked.	
All articulation pins are equipped with grease nipples and are duly greased.	
Cantilever lifts: the stroke of the tilt cylinders has been adjusted.	

§4.3 - Inspection of the electrical part

Voltage of the lift is compatible with voltage of the vehicle. The foreseen batteries & alternator suit the lift capacity, application & frequency of use.	
The cabin switch in the driver's cabin, and the battery switch of the exterior control box function OK.	
The main fuse, the battery and earth cables are fitted correctly and conform to the fitting instructions, all bolted connections of cables and fuses are properly tightened.	
...	

The position of the exterior control box conforms to the fitting instructions.	
The power feed to all auxiliary controls is wired into the safety switch on the exterior control panel. When the exterior control box is alive, non of the auxiliary control units is activated, and vice versa.	
The "hold-to-run" principle works on all control units: any ongoing movement should immediately stop when one of the corresponding switches is released.	
The cables going to the platform (platform lights, foot controls, ...) are properly routed, and cannot be damaged during the various movements of the lift.	

§4.4 - Inspection of the hydraulic part

There are no visible oil leaks after the weight tests, all cylinders are free from paint remainders.	
The hydraulic circuits have been purged conform to the fitting instructions.	
During the various movements of the lift, the flexible oil pipes stay clear from the the vehicle chassis & body. They cannot be damaged by rubbing, squeezing, ...	

§4.5 - Inspection of the platform

The centre of gravity is correctly marked, and corresponds with the data mentioned on the identification sticker in the exterior control box.	
The safe working zone for the operator is clearly and permanently marked on the platform (If applicable). The foreseen foot protection conforms with the fitting instructions.	
The platform is made sufficiently visible for the surrounding traffic (platform lights, flags, reflective tape, traffic cones,...)	
A hand grip for the operator to hold when lifting / lowering with the platform, is mounted on the rear frame of the vehicle body.	

§4.6 - Additional inspection for slider lifts

The free-moving flexible oil pipes of the retraction cylinder stay clear from the vehicle chassis & body. They cannot be damaged by rubbing, squeezing, ...	
The end-stops at the rear end of the sliding tubes, are fitted correctly and the platforms arrives flush with the loading floor when LIFTING.	
...	

The retraction cylinder (if applicable) stays clear from the vehicle chassis & body (includ. air pipes, brake conducts, etc...), during all movements of the lift, and for all positions of the vehicle suspension.	
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§4.7- General operation, practical tests	
General operation with an empty platform: execute all movements several times with ALL available control units. The movements should be executed smoothly & quietly, without strange noises.	
Static test at 125% overload - Test for deformation <ul style="list-style-type: none"> • Position the platform at 1/2 height. • Note the distance and angle to the vehicle floor. • Put a load of 1.25 x nominal capacity at the centre of gravity, and remove it again. • Verify the distance and angle to the vehicle floor. No permanent deformation should be noted. 	
Static test at 125% overload -Test on inclination <ul style="list-style-type: none"> • Position the platform at the level of the vehicle floor. • Put a load of 1.25 x nominal capacity at the centre of gravity. • Note the distance and angle to the vehicle floor. • Repeat the same measurements after 15 min. • The platform should not be lowered more than 15 mm, and should not be tilted down more than 2°. 	
Dynamic test at 100% nominal capacity <ul style="list-style-type: none"> • Verify if the lift has sufficient lift capacity. • Verify the general performance & stability. • Verify the working speeds: <ul style="list-style-type: none"> → LIFT & LOWER: max. 15 cm/sec → OPEN & CLOSE: max. 10°/sec → AUTOMATIC TILT at ground level: max. 4°/sec 	
Overload test - Limitation of the lift capacity <ul style="list-style-type: none"> • Place the platform at rest on the ground. • Put a load of 1x nominal capacity at the centre of gravity; adjust the hydraulic pressure on the pressure relief valve so that the nominal capacity is just reached. Seal the pressure relief valve after final adjustment. • Put a load of 1.25x nominal capacity at the centre of gravity; the platform should not be able to lift vertically. 	

§4.8 - European homologation of the bumper bars

- Upon technical vehicle inspection, compliance of the vehicle with the European Directive for rear bumper bars (2006/20/EG) will be checked.
- In case of slider lifts, the platform functions as bumper bar, and it is homologated as such. In case of cantilever or tuck-away lifts, an additional bumper bar with official homologation is available as an option.
- Remark: **DHOLLANDIA's** homologations only cover the equipment in their original delivery format, and mounted conform to **DHOLLANDIA's** fitting instructions.



- If needed, the homologations can be downloaded from the internet. See : www.dhollandia.com > Downloads > Bumper certificates after 2007

INSPECTION CERTIFICATE for:

PERIODIC INSPECTION

SPECIAL INSPECTION

RE-INSPECTION

Date of inspection :

Evaluation : the tail lift is safe and suitable for further use ?

The tail lift identified in the Declaration of Conformity has been inspected on its operational safety and reliability.

YES NO

During this inspection, no imperfections have been found, or

Place, date :

Name & function of the expert :

Name & address of the inspection body :

During this inspections, the following shortcomings have been identified:

Scope of the inspection :

Follow-up by the owner or fleet operator

Shortcomings have been acknowledged

Shortcomings have been repaired

Place, date :

Name & signature of the owner or fleet operator :

Partial inspections to follow :

INSPECTION CERTIFICATE for:

PERIODIC INSPECTION

SPECIAL INSPECTION

RE-INSPECTION

Date of inspection :

Evaluation : the tail lift is safe and suitable for further use ?

The tail lift identified in the Declaration of Conformity has been inspected on its operational safety and reliability.

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Scope of the inspection :

Partial inspections to follow :

Evaluation : the tail lift is safe and suitable for further use ?

YES NO

Place, date :

Name & function of the expert :

Name & address of the inspection body :

Follow-up by the owner or fleet operator

Shortcomings have been acknowledged

Shortcomings have been repaired

Place, date :

Name & signature of the owner or fleet operator :

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Place, date :

Name & function of the expert :

During this inspections, the following shortcomings have been identified:

Name & address of the inspection body :

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Follow-up by the owner or fleet operator

Shortcomings have been acknowledged

Shortcomings have been repaired

Place, date :

Name & signature of the owner or fleet operator :

Partial inspections to follow :

INSPECTION CERTIFICATE for:

PERIODIC INSPECTION

SPECIAL INSPECTION

RE-INSPECTION

Date of inspection :

Evaluation : the tail lift is safe and suitable for further use ?

The tail lift identified in the Declaration of Conformity has been inspected on its operational safety and reliability.

YES NO

During this inspection, no imperfections have been found, or

Place, date :

Name & function of the expert :

Name & address of the inspection body :

During this inspections, the following shortcomings have been identified:

Scope of the inspection :

Follow-up by the owner or fleet operator

Shortcomings have been acknowledged

Shortcomings have been repaired

Place, date :

Name & signature of the owner or fleet operator :

Partial inspections to follow :

MAINTENANCE & REPAIR REPORTS

DATE	NATURE OF THE REPAIR OR MAINTENANCE	IDENTIFICATION OF SERVICE AGENT

MAINTENANCE & REPAIR REPORTS

DATE	NATURE OF THE REPAIR OR MAINTENANCE	IDENTIFICATION OF SERVICE AGENT

MAINTENANCE & REPAIR REPORTS

DATE	NATURE OF THE REPAIR OR MAINTENANCE	IDENTIFICATION OF SERVICE AGENT

5. PUWER & LOLER IN GREAT-BRITAIN

- The CE Machine Directives apply to the manufacturers of all kinds of machines, including tail 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 neglect or failure to comply with the provisions can lead to financial penalties or imprisonment.
- This legislation imposes following obligations on owners / fleet operators:
 - 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".
 - This appointed "competent person" should establish a thorough examination procedure (minimum every six months).
 - Rectify any reported defects.

§5.1 - PUWER = the Provision and Use of Work Equipment Regulations 1998

- Applies to all work equipment, including tail 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 = the Lifting Operations and Lifting Equipment Regulations 1998

- Employers must ensure that the lifting equipment, its mounting and the load itself are adequately strong.
- Tail 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 tail 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 6 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 : the particular and national character of the Puwer and Loler regulations don't 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. **DHOLLANDIA's** own written instructions are of prime importance to comply with the overall CE-Safety Directives, with **DHOLLANDIA's** code of good practice re. maintenance, and with the validation of the product warranty.

6. INTERNATIONAL DISTRIBUTOR NETWORK

Australia.....	Tieman Industries PTY LTD, Melbourne.....	(+61) 3 9469 6700
Austria.....	Dhollandia Austria, Neuhofen im Innkreis.....	(+43) 7752 70 270
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.....	Nolako, Naestved.....	(+45) 55 70 0201
Estonia.....	Widni Baltic, Tallinn.....	(+372) 6532 431
Finland.....	Widni, Vantaa.....	(+358) 9751 80 500
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
Latvia-Lithuania.....	Dhollandia Latvia, Riga.....	(+371) 28 305 904

Malta.....	Alexander Xerri, Qormi.....	(+356) 21 470 900
Netherlands.....	Dhollandia Netherlands, Breda.....	(+31) 765 81 14 55
Norway.....	Trailer Pro As, Kjeller.....	(+47) 982 213 33
Poland.....	Dhollandia Poland, Krakow.....	(+48) 12 260 61 10
Portugal.....	Dhollandia Plataformas, Villa Franca de Xira ...	(+351) 263 286 570
Romania.....	Dhollandia Romania, Bucharest.....	(+40) 744 571 655
Russia.....	Dhollandia Russia, Moscow.....	(+7) 916 531 36 00
Saudi-Arabia.....	Alaa Industrial Equipment, Damman.....	(+966) 1448 4482
Slovakia.....	Dhollandia CE, Predmier.....	(+421) 41 500 10 80
South-Africa.....	Greenco, Capetown.....	(+27) 21 555 90 00
Spain.....	Dhollandia Spain, Madrid.....	(+34) 91 877 16 50
	Reder System, Barcelona.....	(+34) 937 18 09 94
Sweden.....	Dhollandia Sweden AB, Alvesta.....	(+46) 8 594 63 400
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

