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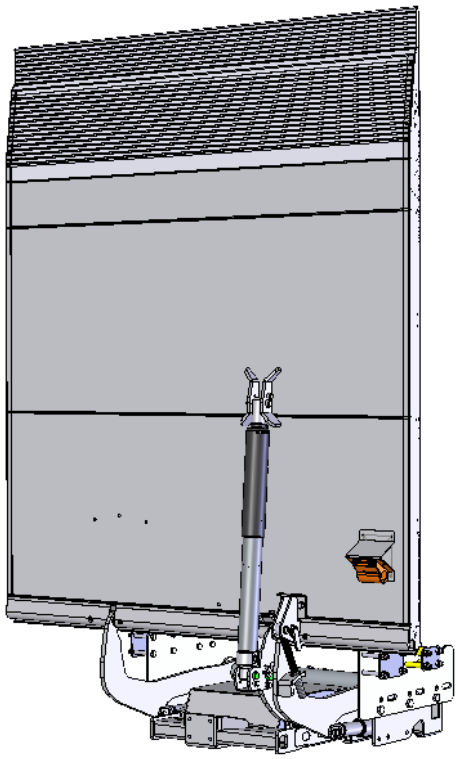
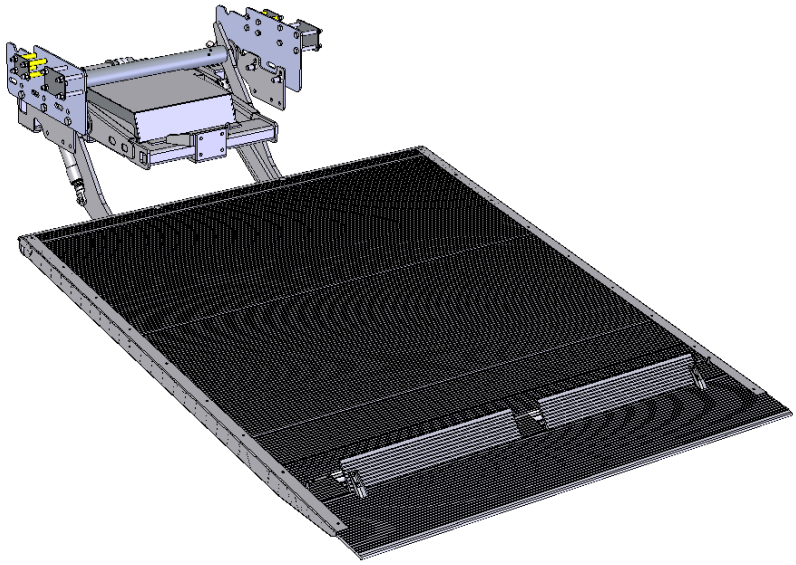
# DHOLLANDIA

# DH-LSP.07 500-750 kg

## INSTALLATION MANUAL



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**Read the operation manual in its entirety before operating the tail lift.**

**Read this installation manual in its entirety before installing the tail lift.**


Order ref : xxx Doc: **FIT_EUR installation manual LSP.07_EUR EN_2021** Rev: **0** Date: MARCH 29, 2021

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# 1 UNDERSTANDING SAFETY AND WARNING SIGNS

- Many safety signs and symbols used in this manual are based on international standards, others refer to specific situations or actions.
- Consult appendix 17.1 on page 56 for an overview of signs and symbols used in DHOLLANDIA manuals, and their meaning. Make sure you understand these signs and symbols prior to starting the installation.
- Please take special notice of the following signs used in the manual. They indicate the likelihood and severity of a potential injury if a person fails to follow the instructions presented on the safety sign.


**DANGER**: indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. [white letters on red background]


**WARNING**: indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury. [black letters on orange background]


**CAUTION**: indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury. [black letters on yellow background]


**NOTICE**: is used to address practices not related to physical injury. [white letters on blue background]


**SAFETY INSTRUCTIONS**: indicate general instructions relative to safe work practices, reminders of proper safety procedures, or the location of safety equipment. [white letters on green background]

**SAFETY ALERT SYMBOL**: is used to alert the user to potential hazards. All safety messages that accompany this sign shall be obeyed to avoid possible harm. [free-standing, or on background colours red, orange, yellow or black]


## WARNING

- Failure to understand and to follow the instructions in this manual can put the operator and any bystanders at great risk of serious bodily injury and death.
- Prior to operating the tail lift, make sure you understand the safety and warning signs used, and read them in conjunction with the instructions in this manual.
- If in doubt, DO NOT operate the tail lift. Contact your national DHOLLANDIA distributor. See page 4 for contact info.

# 2 INTRODUCTION, CONTACT INFO AND DISCLAIMERS

- This manual provides you with the information necessary for the installation of the DH-LSP* 500-600-750 kg van lifts.
- It contains general instructions applicable to the most common types of factory built panel vans. Possibly, specific issues particular to your case are not adequately covered by this manual. If in doubt, contact your national DHOLLANDIA distributor for further assistance prior to continuing.

## ⚠ WARNING

- Improper installation can cause damage to the tail lift, can reduce its durability and reliability, and can put the operator and bystanders at great risk of serious bodily injury and death in many ways.
- It is therefore essential that the tail lifts are installed with proper care, in compliance with the installation instructions of this manual and the fitting and body building instructions of the vehicle manufacturer.
- In case of doubt, ALWAYS contact your national DHOLLANDIA distributor for further advice, prior to continuing.

- DHOLLANDIA tail lifts are regularly adapted to new vehicle and chassis developments and specialized customer requirements. Therefore, DHOLLANDIA reserves the right to alter product specifications without prior notice. Such modifications might not have been included at the time this manual was printed.

## *NOTICE*

- Please confirm you have reviewed the most up-to-date version of this manual prior to operation of the associated DHOLLANDIA tail lift. See below for instructions to download the latest version of the manual.
- It is the sole responsibility of the installer(s) to follow best workshop practices for safety and craftsmanship and to use good common sense.

- Contact your national DHOLLANDIA distributor if you have any questions regarding the installation, operation, repair and maintenance of DHOLLANDIA tail lifts, or to obtain replacement copies of manuals or decals:


If in doubt where to find your national DHOLLANDIA distributor, visit the official DHOLLANDIA website:
**www.dhollandia.com → Country & language selection → Distributors & service**


The latest version of all manuals can also be downloaded from the DHOLLANDIA website:
**www.dhollandia.com → Country & language selection → Downloads → … select required manual**

- Take notice of the following important disclaimers:

## *DISCLAIMERS*

- DHOLLANDIA disclaims liability for any personal injury, death, or property damage that results from **operating a tail lift that has been modified from the original design**, without written approval from the manufacturer.
- DHOLLANDIA disclaims liability for any personal injury, death, or property damage that results from **improper use of the tail lift or negligence to apply the precautions and instructions of the operation manual**.
- DHOLLANDIA disclaims liability for any personal injury, death, or property damage that results from **incorrect of negligent installation**.
- There are no warranties, express or implied, including the warranty of merchantability or a warranty of fitness for a particular purpose extending beyond that set forth in this manual.

# 3 SAFETY PRECAUTIONS FOR OPERATION

- It is essential that the installers understand and apply the safety instructions and precautions contained in the OPERATION MANUAL issued with the tail lift.
- Therefore, make sure you consult the OPERATION MANUAL prior to installing or operating the tail lift.

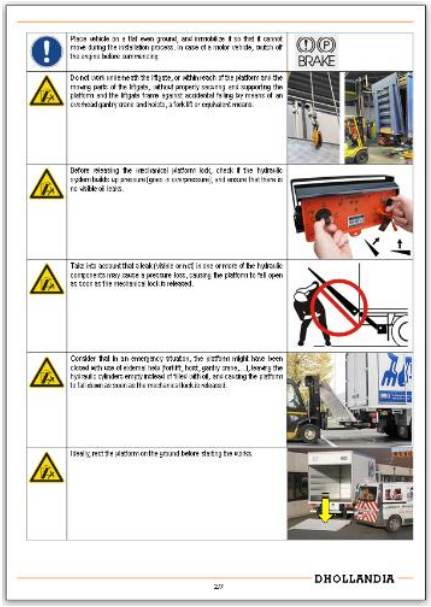
## ⚠ WARNING

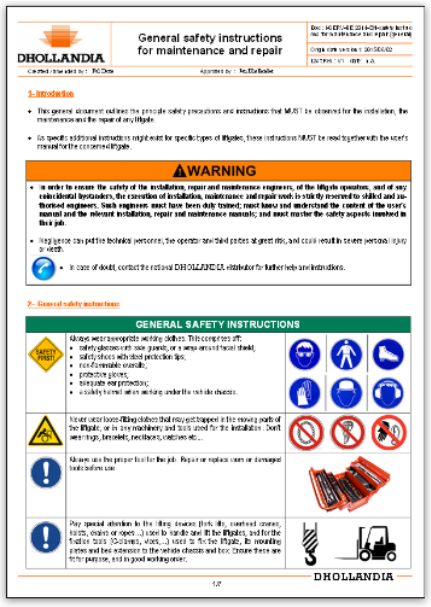
- Improper use of the tail lift will put the operator and other parties at great risk of serious bodily injury and death.
- To reduce the risk of serious bodily injury to the operator and any bystanders, the use of the tail lift is restricted to skilled operators, who have been properly trained, and who know and understand the full content of the operation manual.
- To reduce the risk of serious bodily injury or death, the operator must comply with all safety instructions and warning labels in the operation manual before and while operating the tail lift.
- Please confirm you have reviewed the most up-to-date version of this manual prior to installation and operation of the associated tail lift.

# 4 SAFETY PRECAUTIONS FOR INSTALLATION

- It is essential that the personnel involved in installing, servicing and repairing tail lifts knows, understands and applies the safety instructions and precautions contained in the GENERAL SAFETY INSTRUCTIONS FOR INSTALLATION, MAINTENANCE AND REPAIR manual.
- Make sure you consult these instructions prior to installing the tail lift.
- Safety instructions are a matter of progressive insight. The basics are listed in this manual, but contact the national DHOLLANDIA distributor for a copy of the latest set of instructions [see contact info on page 4], or download the latest edition from the DHOLLANDIA website:

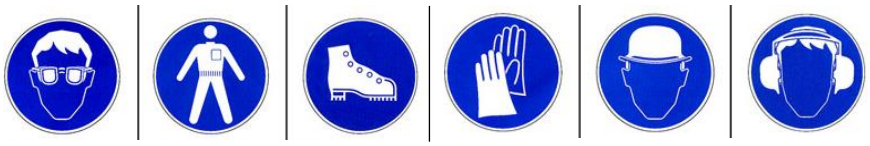
  **www.dhollandia.com → Country & language selection → Downloads → Operation manuals → General information →… select required manual**



## ⚠ WARNING

- The installers are exposed to various dangers. Improper use of the tail lift, ignorance and neglect during installation, will put them at great risk of bodily injury and death.
- Once the tail lift is in service, improper installation can cause damage to the tail lift, can reduce its durability and reliability. Further, it can also put the operator and bystanders at great risk of serious bodily injury and death.
- Therefore installation works MUST be carried out by skilled technicians, who have been professionally trained, and master the content of all manuals:
    1. OPERATION MANUAL
    2. INSTALLATION MANUAL
    3. GENERAL SAFETY INSTRUCTIONS FOR INSTALLATION, MAINTENANCE AND REPAIR
- ALWAYS confirm you have reviewed the most up-to-date version of these manuals prior to installation and operation of the associated DHOLLANDIA tail lift.
- In case of doubt, ALWAYS contact the national DHOLLANDIA distributor for further advice, prior to continuing.
- ALWAYS wear appropriate Personal Protective Equipment. This includes but may not be limited to: safety glasses with side guards or a wrap-around face shield; steel toe safety shoes; fire-resistant overalls; protective gloves; adequate ear protection; a safety helmet when working under the vehicle chassis.



- NEVER wear loose-fitting clothes that may get trapped in the moving parts of the tail lift, or in any machinery and tools used for the installation. Don't wear rings, bracelets, necklaces, watches etc…
- ALWAYS use the proper tool for the job. Replace worn or damaged tools before use.
- Pay special attention to the lifting devices (forklifts with slings, overhead cranes, hoists, etc.) used to handle the tail lifts, and for the clamping tools used to clamp the tail lift, its platform, mounting plates and various other components to the vehicle chassis and / or body. Ensure these tools are appropriate for the job, and in good working order.
- Place the vehicle on a flat even ground and chock the wheels so that it cannot move during the installation. In case of a motor vehicle, make sure the engine is off and the parking brake is engaged.
- Do not work underneath the tail lift or within reach of the platform and the moving parts, without properly securing and supporting the platform and the lift frame against an accidental fall. Use an overhead crane and hoists, a forklift with slings or equivalent means to secure the heavy components.
- NEVER modify DHOLLANDIA tail lifts or their mounting plates without prior written approval from the manufacturer.

## NOTICE

- Make sure the main battery power is disconnected while installing the tail lift. Connect the battery power to the tail lift only when the installation is completed, or as required in the installation instructions.
- **DHOLLANDIA tail lifts are designed as a bolt-on system, and don't require any welding. See appendix 17.2 on page 58 for prescribed torque values.**

- If for any reason, trouble-shooting and / or repair might be needed during the installation process, consult and follow the guidelines and safety instructions of the MAINTENANCE MANUAL.

- If for any reason, welding would be required, check out first if this is allowed by the vehicle manufacturer and take note of the following precautions:

## ⚠ CAUTION

| | |
|---|---|
|  | Welding on galvanised parts can produce hazardous fumes. To avoid intoxication:<br>• ALWAYS wear a suitable respirator.<br>• ALWAYS provide good ventilation.<br>• ALWAYS grind off the galvanisation from the areas to weld. |
|  | • Most tail lifts are equipped with thermoplastic hoses that can be damaged by hot metal chips, welding sparks and slag. Damage to a hose can lead to sudden loss of hydraulic pressure and an accidental drop of the platform.<br>• The penetration of welding sparks and slag can also cause a flash fire.<br>• Both types of incidents can put the welder or installer and any bystanders at great risk of personal injury or death. To avoid these risks:<br>→ ALWAYS protect and cover thermoplastic hoses with a welding blanket, prior to grinding, drilling and welding.<br>→ ALWAYS inspect the hydraulic hoses at the end of the installation process. Make sure all hoses are undamaged, replace them if required. |
|  | Welding can cause severe damage to the electronic components of the vehicle and tail lift. To prevent damage:<br>• ALWAYS follow the instructions and precautions of the vehicle manufacturer.<br>• DO NOT weld if this is not authorised by the vehicle manufacturer.<br>• ALWAYS disconnect the positive and negative battery terminals.<br>• ALWAYS connect the earth directly to the component being welded, as close to the weld as possible.<br><br>Welding should be done by skilled and qualified installers only. |

# 5 TAIL LIFT TERMINOLOGY

## 5.1 DH-LSP* TAIL LIFT TERMINOLOGY

Refer to the OPERATION MANUAL for an overview of the most important terminology used in DHOLLANDIA manuals.

## 5.2 GETTING STARTED

- Many vehicle manufacturers issue important instructions on various aspects of the tail lift installation, specific to the brand and type of chassis. Examples:
  - → welding instructions or the prohibition to weld
  - → instructions on chassis drilling and bolt-on connections to the chassis
  - → recommendations on the use of hydraulic stabilising legs
  - → guidelines on fuses, electrical interfaces, and the connection of battery and earth cables, etc.

**NOTICE**

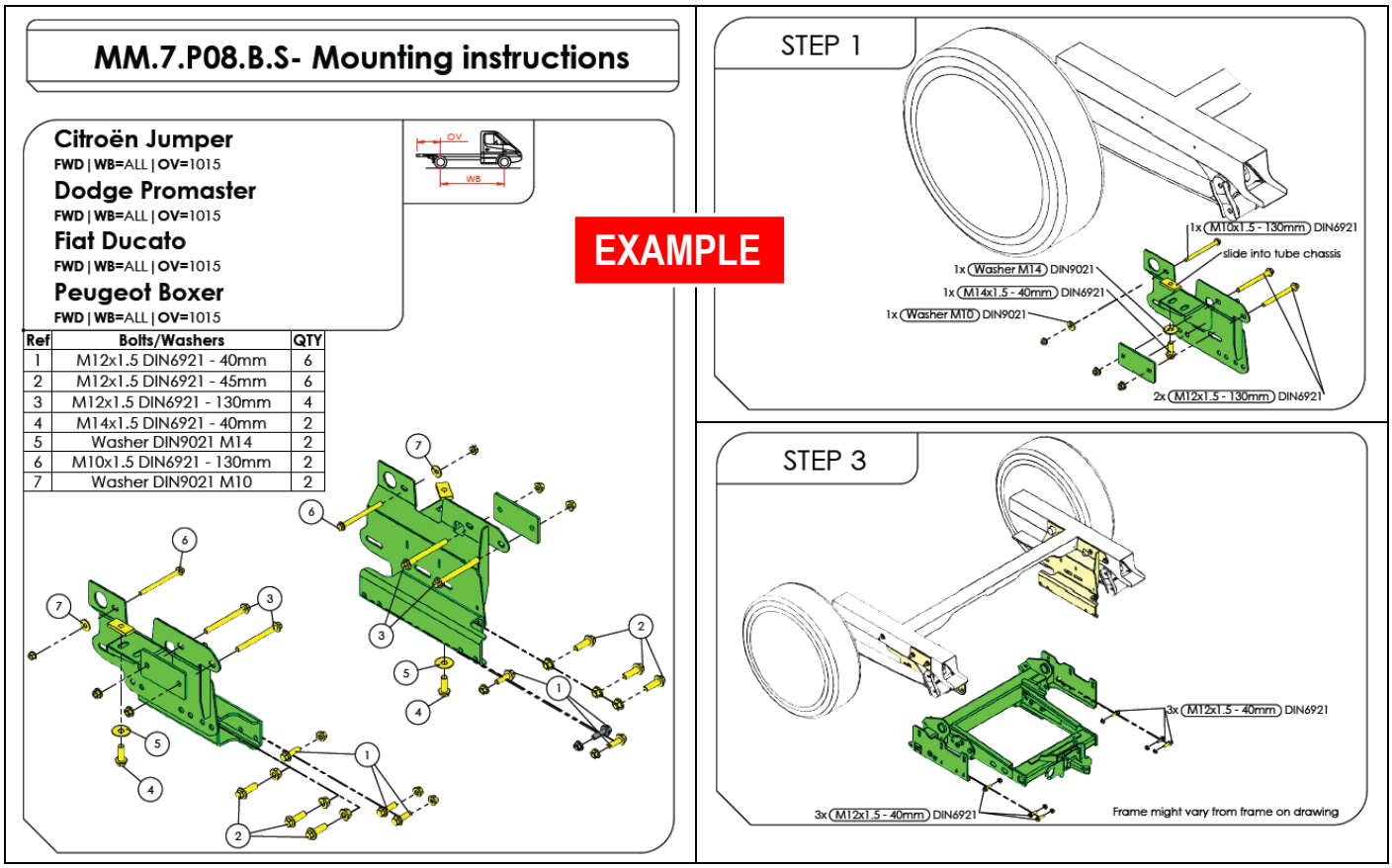
- ALWAYS verify and ensure compatibility between the tail lift and the vehicle.
- ALWAYS ensure compliance with the FITTING AND BODY BUILDING INSTRUCTIONS issued by the vehicle manufacturer.
- Make sure planned modifications to the vehicle chassis and body will not adversely affect the strength and integrity of the vehicle.
- If the instructions of vehicle manufacturer conflict with the installation instructions issued by DHOLLANDIA (e.g. on fuse ratings, etc.), contact your national DHOLLANDIA distributor for further advice. See contact info on page 4.

- Verify if the installation kit is complete and that all parts needed to install the tail lift, are present.
- Compare the voltage of the batteries with the voltage of the hydraulic power pack of the tail lift.
- Compare the actual vehicle dimensions with the maximum installation parameters indicated in the INSTALLATION DRAWING or technical documentation. If the actual dimensions go outside of the maximum installation parameters, DON'T continue and contact your national DHOLLANDIA distributor for further advice.
- Verify and make sure that the vehicle chassis and body are strong enough to support the forces induced by the tail lift at its maximum rated capacity. Refer to the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer for calculation and construction guidelines.
- Execute the required stability and weight distribution calculations.
- Make sure that the body is accurately fitted to the vehicle chassis.
- Remove all objects that impede the installation of the tail lift (bumper bar, spare wheel carrier, pallet racks, tool boxes, etc.). If necessary, consult with the vehicle manufacturer for replacement solutions (e.g. special spare wheel carriers, exhaust pipe modifications, etc.).
- Finish the tail lift in accordance with the road legislation of the country where the vehicle will be registered.
- When connecting hydraulic couplings, make sure that the connections are clean. Don't contaminate the hydraulic oil.
- Grease all bearings and pins before putting the tail lift into service. Preferably, put grease in the bearings before mounting the corresponding articulation pin.
- After installation, work through the checklist of the Pre-Delivery Inspection (PDI) test. Make sure the final inspection is signed off by an inspector who is not part of the installation team.
- Do not pressurise any tail lift functions (LIFT / CLOSE) before the installation is fully finished.
- During installation and testing, verify and make sure that the tail lift and its moving parts don't interfere with any of the vehicle systems (e.g. the suspension, braking system, hydraulic and electrical circuits, etc.), or cause damage to them.
- Do not release the locking bolts of the auto-tilt swing brackets before the tail lift installation is fully finished.

# 6 GENERAL INSTALLATION GUIDELINES

## 6.1 DEDICATED LIFT FRAME AND MOUNTING PLATES

- The DH-LSP* are purpose built for many different brands of factory built panel vans, with no chassis similarities between them. Therefore, make sure you have the correct type of DH-LSP* before starting the installation. In case of doubt, contact your national DHOLLANDIA distributor. See contact info on page 4.
- Also within 1 single brand, the lift frame and required mounting plates can differ in function of the type of vehicle, the wheelbase, the overhang, and the drive train (FWD / RWD / AWD).
- Further variations can occur in function of the propulsion: conventional diesel, natural gas, fully electric etc.
- The INSTALLATION DRAWINGS of the dedicated mounting plates are sent via the order confirmation. Make sure you have the correct installation instructions before starting. If not, contact your national DHOLLANDIA distributor for a copy of the relevant instructions. See contact info on page 4.

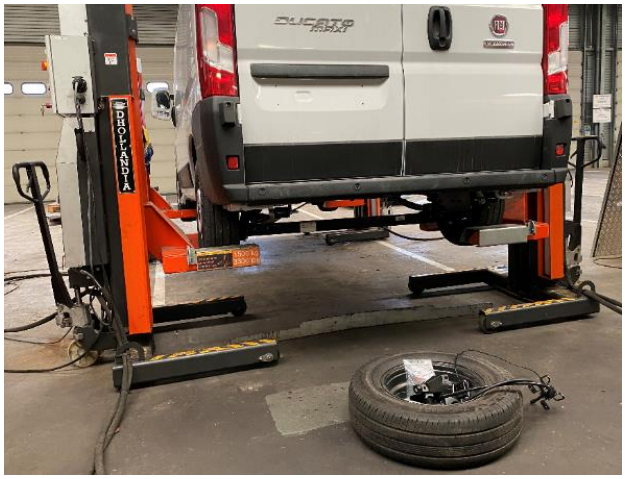



## ⚠ WARNING

- ALWAYS make sure that the lift frame and mounting plates are installed in accordance with the installation instructions of DHOLLANDIA.
- Pay special attention to the type of bolts, minimum quantity per side, minimum size and strength class, and the spread of the bolts over the full surface of the mounting plate. Fasten the bolts and nuts with the required torque. See Appendix 17.2 on page 58.
- Incorrect or negligent installation can cause the tail lift to fall off the vehicle chassis once the platform is loaded, and can put the installers, the operators and bystanders at great risk of bodily injury or death.
- In case of doubt, don't continue, but contact your national DHOLLANDIA dealer for further advice.

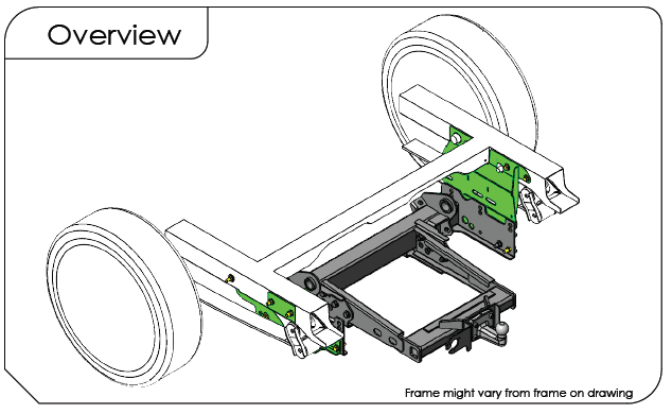
# 7 PREPARATION OF THE VEHICLE CHASSIS AND TAIL LIFT


- Position the vehicle over a workshop pit, or lift it up by means of a workshop lifting bridge or hydraulic jacks. Make sure that you have sufficient access to the underside of the vehicle, so that the installation can be done in a relaxed and safe manner.



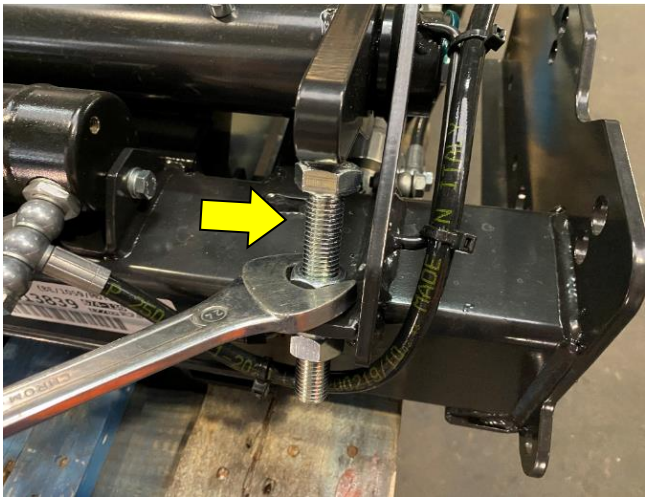

- Remove the spare wheel carrier, part of the exhaust pipe (if required), and any other components interfering with the installation of the lift frame.

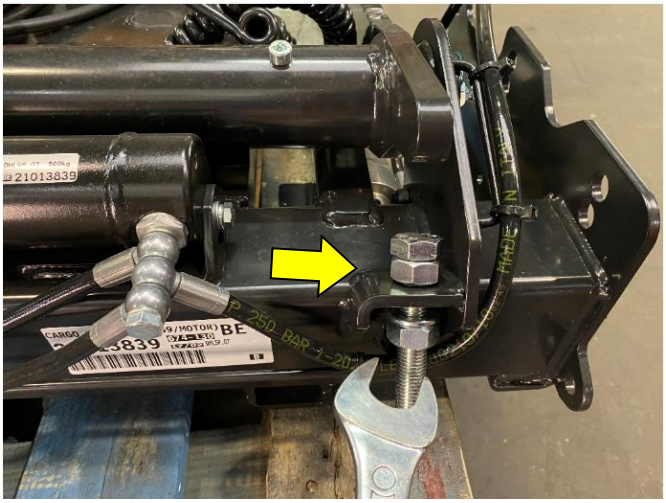
- Compare the maximum installation parameters indicated in the INSTALLATION DRAWINGS with the actual vehicle dimensions. If the actual dimensions go outside the maximum installation parameters, DO NOT continue and contact your national DHOLLANDIA distributor for further advice. See contact info on page 4.
- Verify if you have the correct mounting plates for the job. Determine the scope of the work to firstly mount the mounting plates to the vehicle chassis, secondly to mount the lift frame to the mounting plates.



- Lay the mounting plates ready on the ground and position the lift frame on a wheeled mounting jack, pallet truck or fork lift. This will later be used to slide the lift frame under the vehicle chassis.

- Loosen the 2 hexagonal bolts and locking nuts (1 left / 1 right) at the front side of the lift frame, so that they can be easily adjusted during installation.
- These bolts are mechanical stops for the lift arms and determine the maximum lifting height of the platform.





**⚠ WARNING**

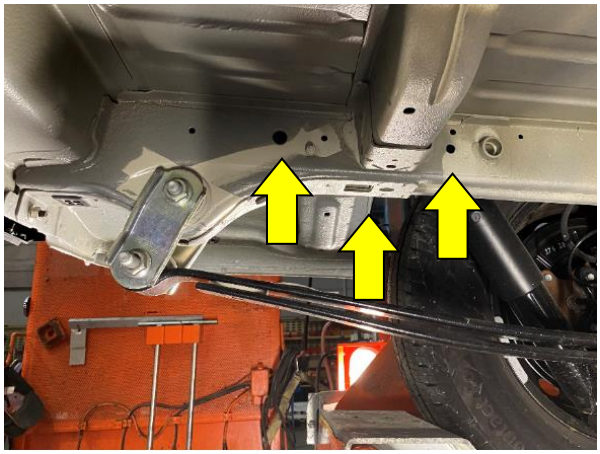
NEVER modify DHOLLANDIA tail lifts or their mounting plates, NEVER deviate from the described installation procedures without prior written consent by the manufacturer.

# 8 INSTALLATION OF THE MOUNTING PLATES

## 8.1 REGULAR GUIDELINES

- The INSTALLATION DRAWINGS explaining how to bolt the quick-fit mounting plates to the vehicle chassis, are issued upon order confirmation, or can be obtained from your national DHOLLANDIA distributor. See contact info on page 4.

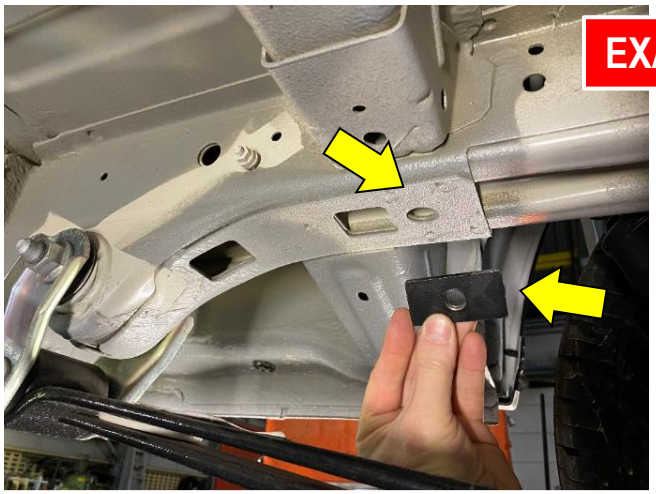
- For certain brands and types of chassis, the mounting plates use original holes only.
- For other brands and types of chassis, there are not enough original holes available. Additional holes must be made. Example of existing chassis holes:

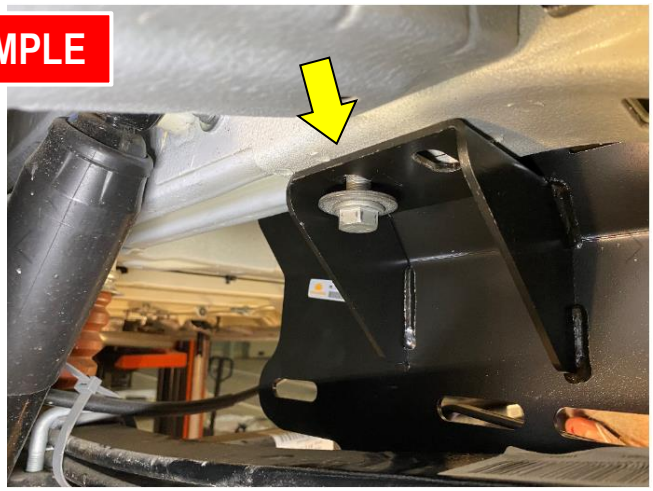


- If additional holes must be drilled, refer to the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer, as most manufacturers have strict procedures how to execute chassis drills.
- Identify the right and left side mounting plates. Distinguish between the front & rear end of the mounting plates. Identify the existing chassis holes that will be used to fit the mounting plates to the chassis.

- Remove the mounting bolts from the plates so that the plates can be married up with the chassis.

- Fit the mounting plates to the vehicle chassis, using the bolts supplied in the kit and in accordance with the INSTALLATION DRAWING.
- Remove the excess mastic or paint if required to hang the mounting plates straight and correctly.
- Push the plates up into correct position against the underside of the vehicle chassis, to ensure that the tail lift will hang straight in the finished stage.
- Mount the bolts, washers and nuts through the chassis and mounting plates and tighten them provisionally.



- For the remaining bolt positions for which no holes are foreseen in the vehicle chassis, drill the holes in the chassis using a drill of the same diameter as the holes in the mounting plates.

- Refer to the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer, as some have strict procedures how to execute the chassis drills.
- Apply adequate anti-corrosive protection (zinc-spray, Dinitrol,…) to the freshly made chassis perforations and allow to dry.

## *NOTICE*

- All drilling works most be executed in accordance with the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer.
- ALWAYS use reinforcement tubes whenever instructed to do so or whenever they are included in the bolt kit of the tail lift.
- All metal works (drilling, cutting, grinding) to the chassis, subframe, rear cross member and vehicle body require adequate anti-corrosion protection.

- At the end of the installation process, all mounting bolts must be fastened with the required torque by means of a torque wrench.

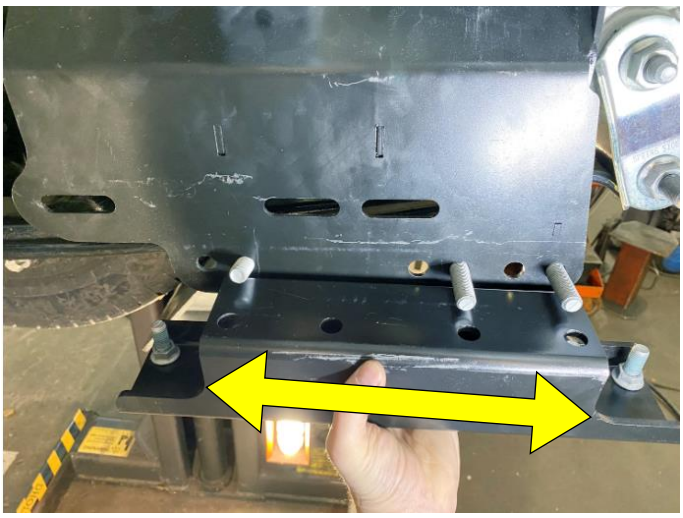
## ⚠ WARNING

- Incorrect installation of the mounting plates and bolts can lead to accidental fall of the tail lift off the vehicle chassis.
- A fall of the tail lift off the chassis can damage the tail lift and / or vehicle chassis and can cause serious bodily injury or death to the operator and any bystanders.
- Therefore, it is essential that the mounting plates are installed following the instructions of this manual.

## ⚠ WARNING

- It is essential that bolts and nuts used to mount the lift frame to the vehicle chassis, are fastened with the required torque by means of a proper torque wrench. See appendix 17.2 on page 58.
- If you use mounting bolts not supplied by DHOLLANDIA, obtain confirmation of the required torque from your supplier and make sure they guarantee at least an equivalent strength.
- Check and retighten the bolts after the static and dynamic weight test performed during the PDI test.

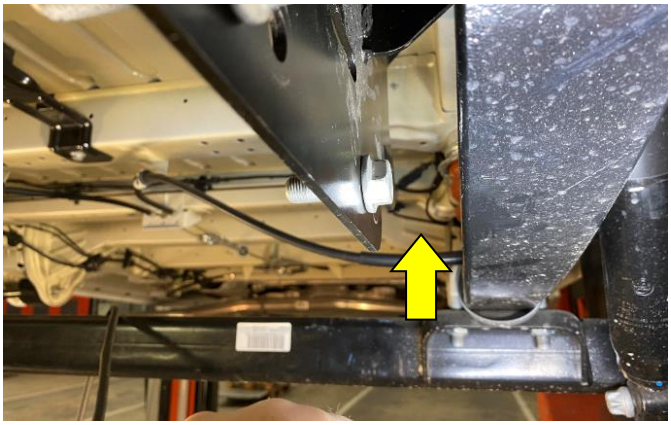
- Mounting plates and / or parts thereof can be mounted in different positions to reflect the various positions of the lift arms behind the vehicle.
  1. Regular position of a tail lift with full width platform behind the vehicle doors
  2. More advanced position of a tail lift with full width platform in a rear frame without rear doors [option OAT200…]
  3. More rearward position of a tail lift with foldable platform (DH-LSPZ + option OAP406), or with guard rails.
- Refer to the INSTALLATION DRAWING to verify the correct mounting position.



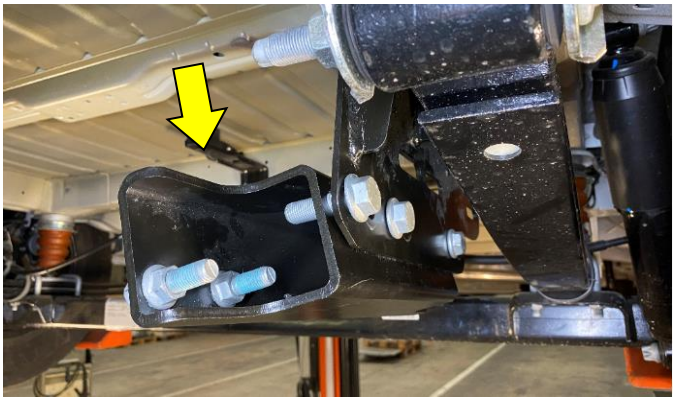
ALWAYS direct the mounting bolts in such a way that they stay clear of the vehicle suspension and moving parts of the vehicle or tail lift.

- Bolt too close to the spring leafs = NOT OK

- Bolt at safe distance from the spring leafs = OK

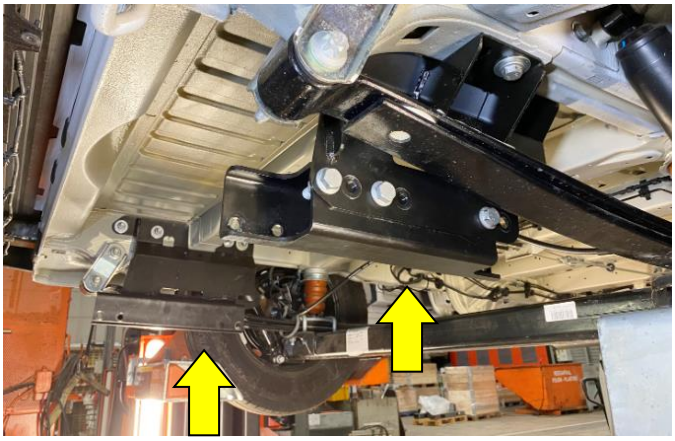


- If there is additional mounting brackets to be added to the main mounting plate, mount these brackets in accordance with the INSTALLATION DRAWING.



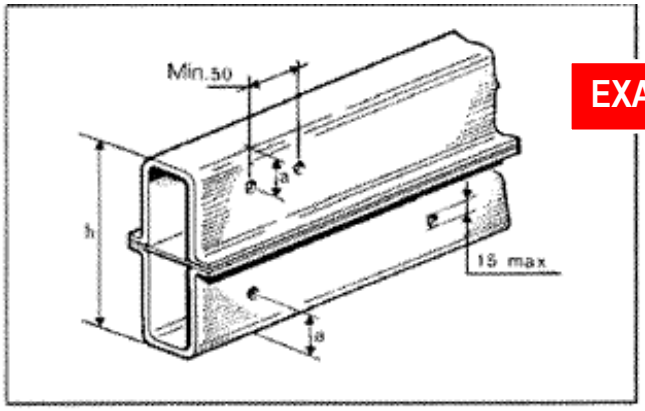
- Fasten the mounting bolts with the required torque by means of a torque wrench.

- Perform an equal installation on the left and right side
- The mounting plates can now receive the lift frame.

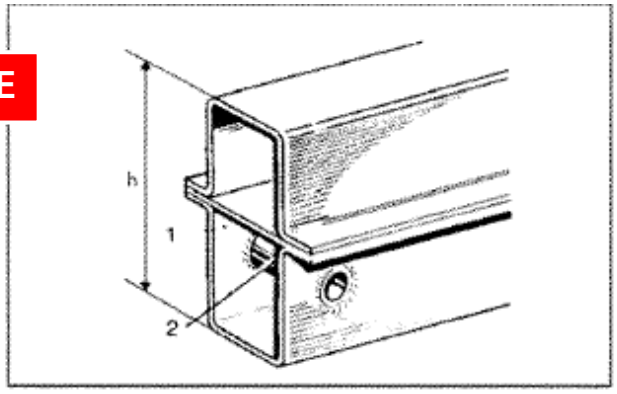


## 8.2 REINFORCEMENT TUBES INSIDE THE CHASSIS

- ALWAYS refer to the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer. Some have strict procedures how to execute chassis drills and prescribe the use of reinforcement tubes to strengthen the chassis.
- ALWAYS use reinforcement tubes whenever instructed to do so or whenever they are included in the bolt kit of the tail lift.

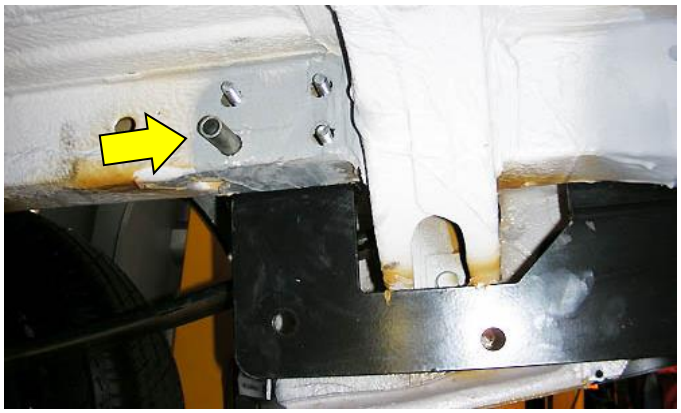


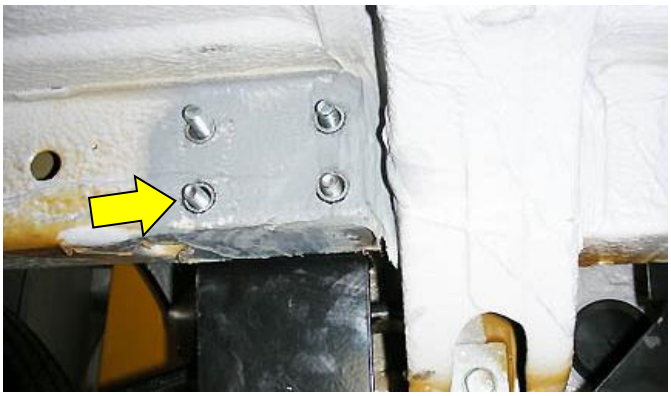

**EXAMPLE**




- If reinforcement tubes are required, first use the mounting plates to mark the position of the holes and drill to the size of the mounting bolts.
- Then dismount the mounting plates again and drill to the size of the larger reinforcement tubes, using a drill bit of the same diameter as the outside diameter of the tubes.

- Apply adequate anti-corrosive protection (zinc-spray, Dinitrol,…) to the freshly made chassis perforations and allow to dry.
- Insert the reinforcement tubes into the chassis, fit the mounting plates into correct position, mount the bolts, washers and nuts through the chassis and mounting plates and fasten them with the required torque by means of a torque wrench. See appendix 17.2 on page 58.



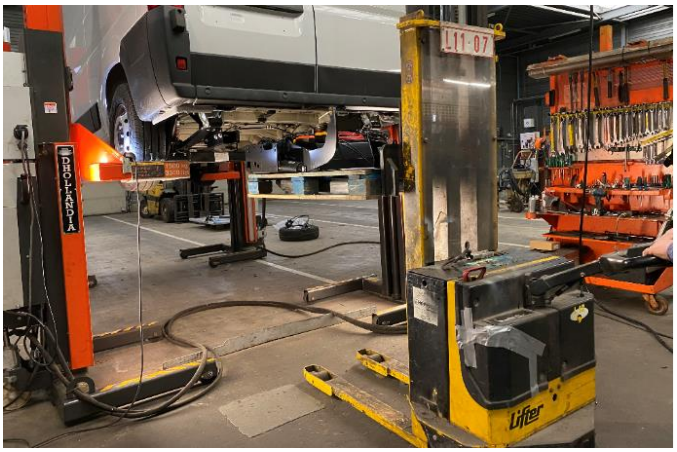


# 9 MOUNTING OF THE LIFT FRAME

**⚠ CAUTION**

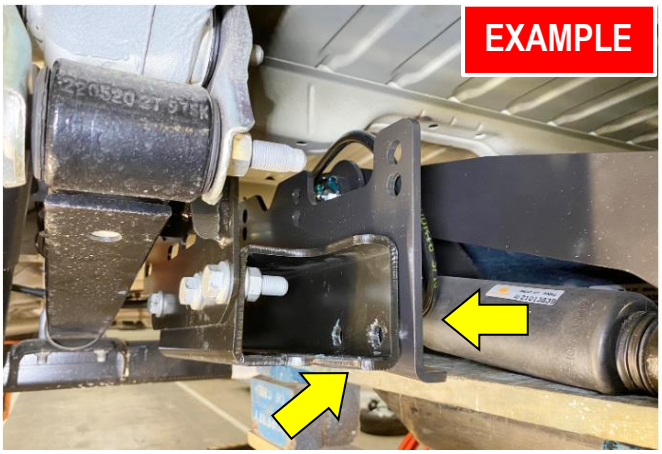
- The lift frame is heavy! When falling on a person it can cause serious personal injury or death.
- Therefore, handle the lift frame with extreme care. Use an adequate wheeled mounting jack to move the lift frame safely, without a risk of collapse.

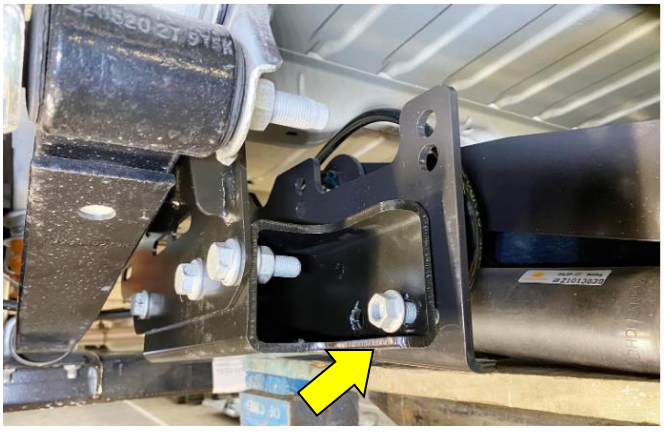
- Slide the lift frame under the vehicle chassis by means of a wheeled mounting jack or pallet truck.
- Centre and align the lift frame to the centre line of the vehicle, so that outside mounting plates on the lift frame line up with the plates already mounted on the chassis.




- The lift frame or mounting plates can be mounted in different positions in function of following executions:
  1. Regular position of a tail lift with full width platform behind the vehicle doors
  2. More advanced position of a tail lift with full width platform in a rear frame without rear doors [option OAT200…]
  3. More rearward position of a tail lift with foldable platform [DH-LSPZ + option OAP406], or with guard rails.
- Refer to the INSTALLATION DRAWING to verify the correct mounting position of the lift frame and mount it accordingly.

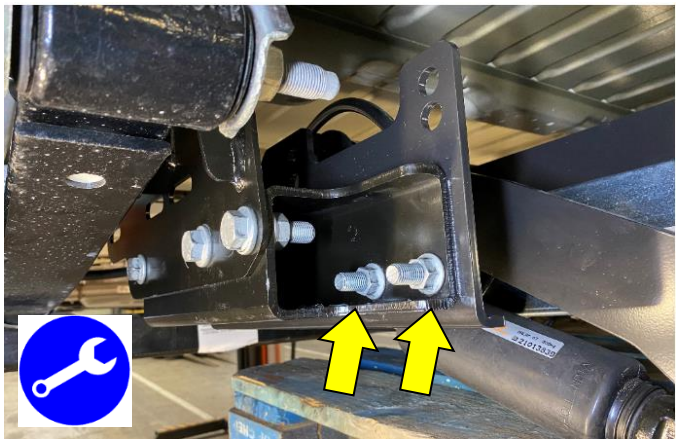
- Raise the lift frame.
- Bring the holes in the mounting plates on the lift frame in line with the holes in the plates already mounted on the chassis.

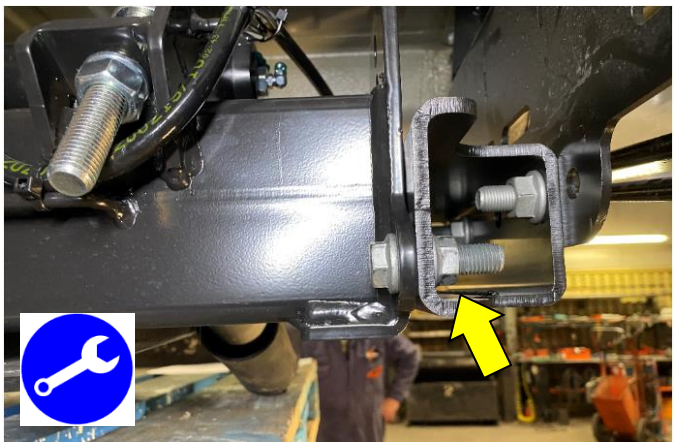


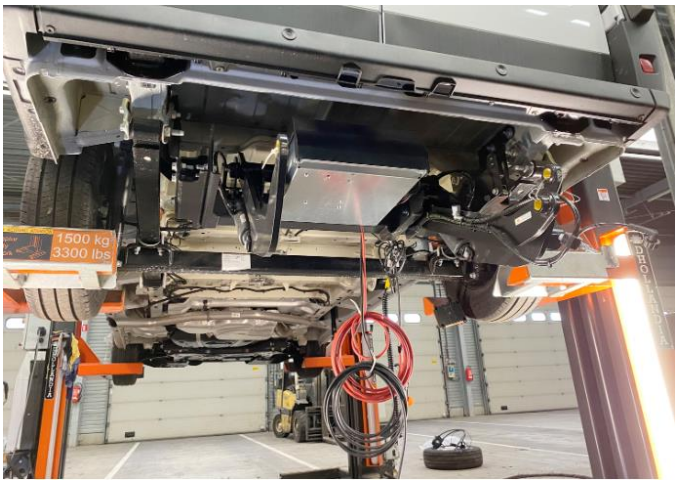
- Mount the mounting bolts and nuts in accordance with the INSTALLATION DRAWING.

- Fasten all bolts and nuts with the required torque by means of a proper torque wrench. See appendix 17.2 on page 58.





- Drop the forks of the pallet truck or the wheeled mounting jack and remove it from the installation area.
- The lift frame should now be correctly fitted in its final position, in accordance with the INSTALLATION DRAWING.




- The following steps require electric power to the tail lift. Connect the red (+) battery cable and the black (-) earth cable to an auxiliary battery pack.
- Or refer to 12.2 on page 37 for the permanent installation of the (+) battery and (-) earth cable.

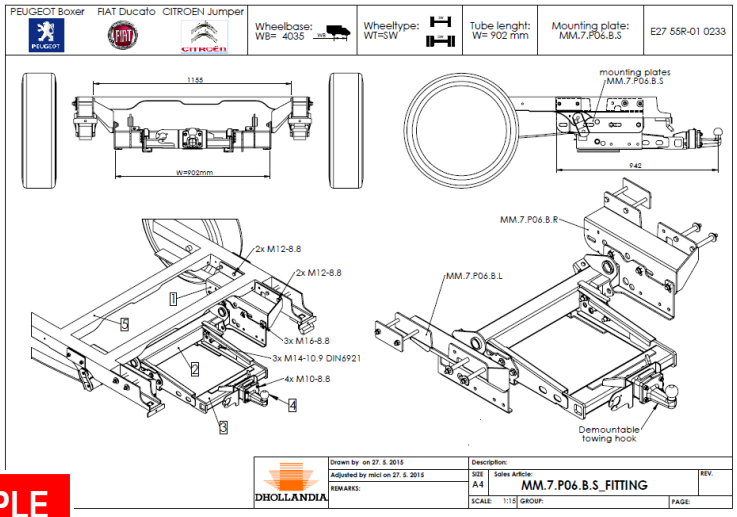
# 10 TOWING HITCH

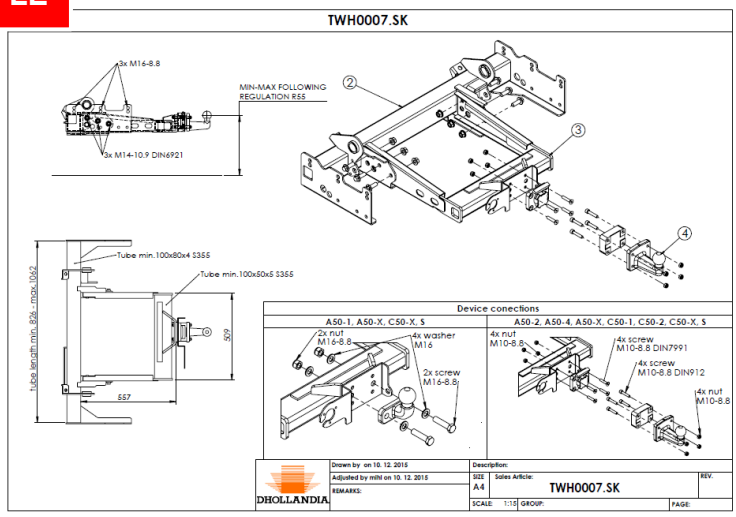
| NOTICE | ⚠ WARNING |
|---|---|
| • Bumper bars and towing hitches are manufactured and certified in accordance with strict European Standards, to guarantee maximum safety in traffic.<br>• Bumper bar and towing hitches must be installed according to DHOLLANDIA's instructions, and all bolts fastened with the required torque [see Annex 17.2 on page 58]. It is not allowed to modify these constructions without prior written approval from DHOLLANDIA.<br>• Disregard can lead to an infraction against the applicable legislation and refusal of the vehicle upon inspection. It can put other parties in traffic at great risk and could result in sever injury or death. | |

- The instructions for quick-fit mounting plates OAM014 for irregular chassis are sent upon order confirmation or can be obtained from your national DHOLLANDIA distributor. See contact info on page 4.

  - If not yet mounted on the lift frame ex works, the towing hitch should be bolted to the lift frame and its mounting plates in accordance with the instructions, dedicated per brand, type of vehicle, wheelbase and overhang dimensions.
  - The bolt kit supplied with the tail lift contains the prescribed bolts.
  - Pay special attention to the type of bolts, minimum quantity per side, minimum size and strength class, and position. Fasten the bolts and nuts with the required torque by means of a proper torque wrench.
- Install the electric plug in accordance with the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer.

EXAMPLE



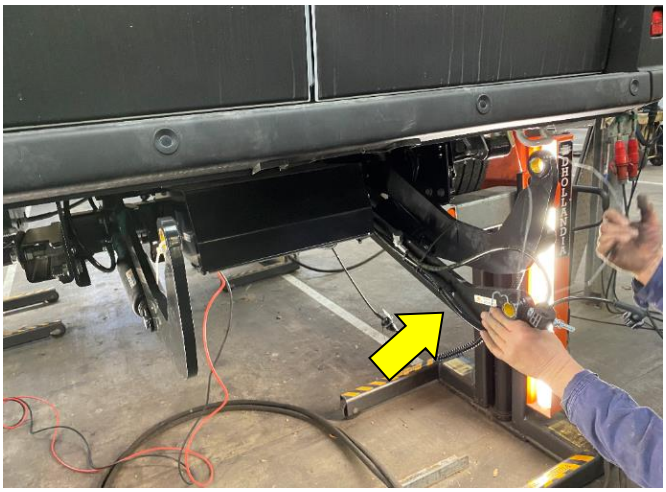
# 11 MOUNTING OF THE PLATFORM

## 11.1 PHYSICAL MOUNTING OF THE PLATFORM

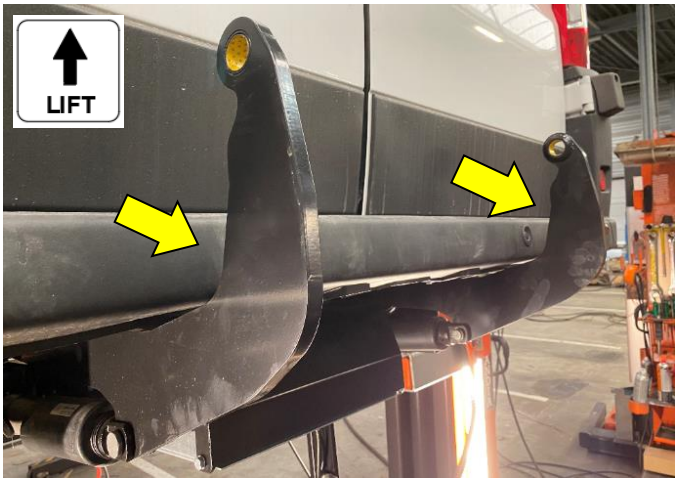
**⚠ WARNING**

- The platform is very heavy! When falling on a person it can cause serious personal injury or death.
- Therefore, handle the platform with extreme care. Use adequate lifting aids such as a forklift with slings, a gantry crane, hoists etc. to secure the platform and prevent it from falling.
- ALWAYS secure the platform against falling, as long as you work within reach of the platform.
- From the moment the platform is no longer secured, ALWAYS remain vigilant as long as the air in the hydraulic system has not been bled. Stay out of reach of the platform, and keep clear of the moving parts of the tail lift.

- Remove the wire or strap that holds the stabiliser arm to the lift arm. Gently lower the stabiliser arm to a natural hanging position.



- Use the electric controls and press LIFT to bring the lift cylinders under pressure.
- Make sure that you don't crush the bumper bar of the vehicle.

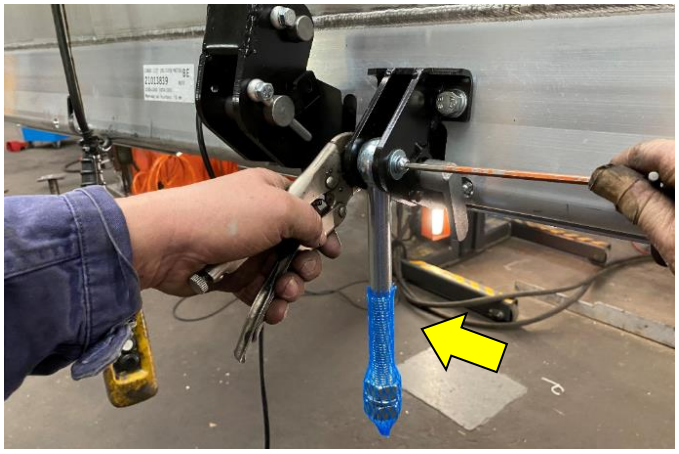


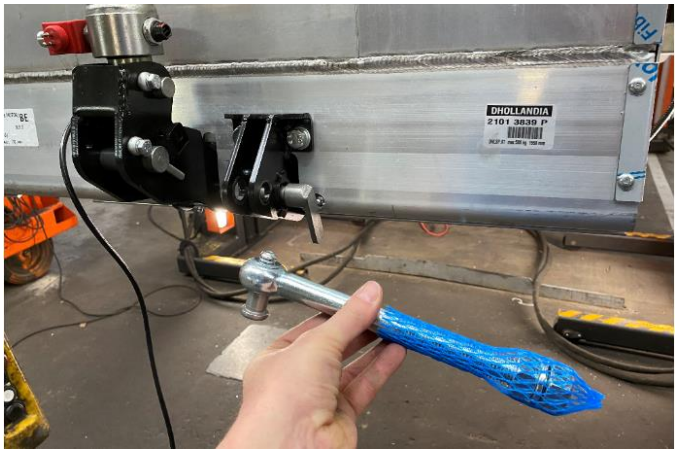

**⚠ CAUTION**

- The hydraulic cylinders and circuits might contain air. The piston rods might slide out with shocks when cylinder is filled with oil.
- ALWAYS observe the safety instructions and precautions contained in the GENERAL SAFETY INSTRUCTIONS FOR INSTALLATION, MAINTENANCE AND REPAIR manual.
- ALWAYS keep hands clear of the moving items on the platform and on the lift frame.
- In case of doubt, contact the national DHOLLANDIA distributor for further assistance.

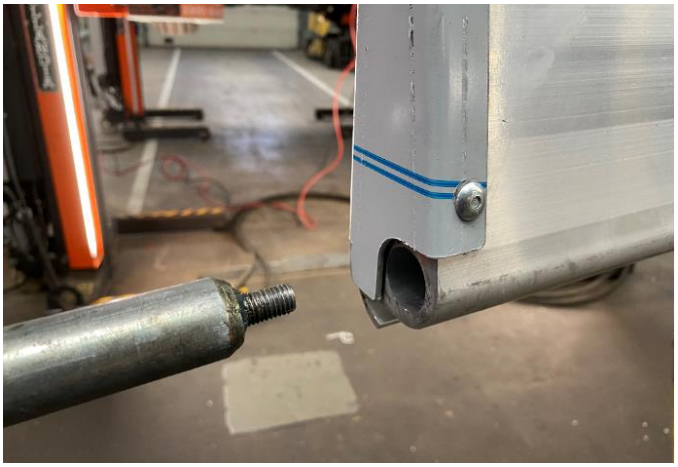
- The following steps can be done while the platform is still laying on the ground or hanging in the air.
- Raise the platform safely (by hoist, overhead crane, fork lift with slings etc.) and bring it in front of the lift frame.
- If so equipped, cut the straps of any wiring on the platform.

- Platforms positioned behind the rear doors are equipped with an adjustable stop for the platform in the travel position [option OAP434]. (Option OAP434 is not required for installations without rear doors).
- Dismount the articulation pin and remove the eye bolt from the platform

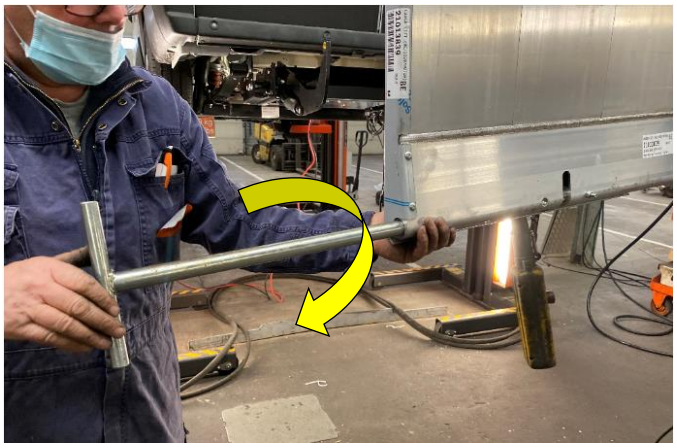





- 2 articulation pins are mounted inside the platform, one for each lift arm.
- Use a bar dia. 25 mm with M10 bolt to extract the pins from the left and right side of the platform as explained below.

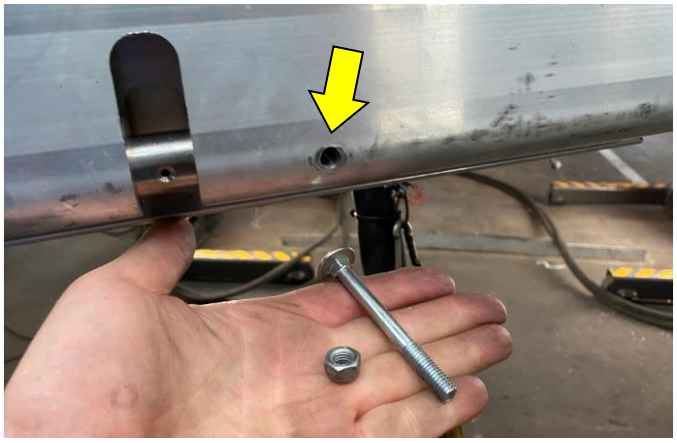


- Start at the left side. Slide the dia. 25 mm bar in the side channel of the platform until it hits the articulation pin inside.
- Then turn the bar clockwise to screw the M10 bolt in the thread foreseen in the articulation pin.

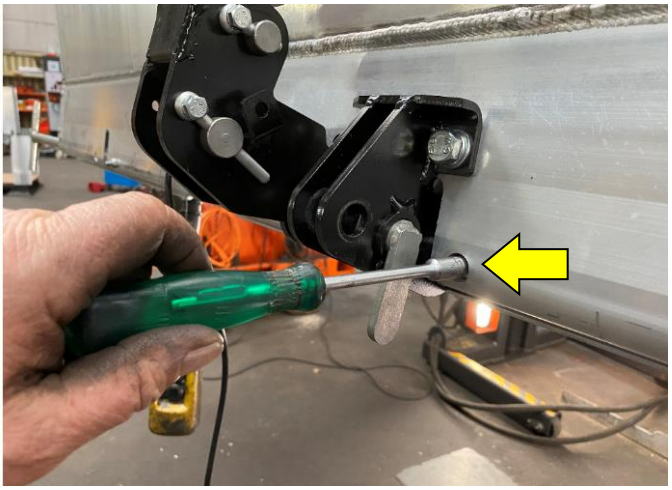


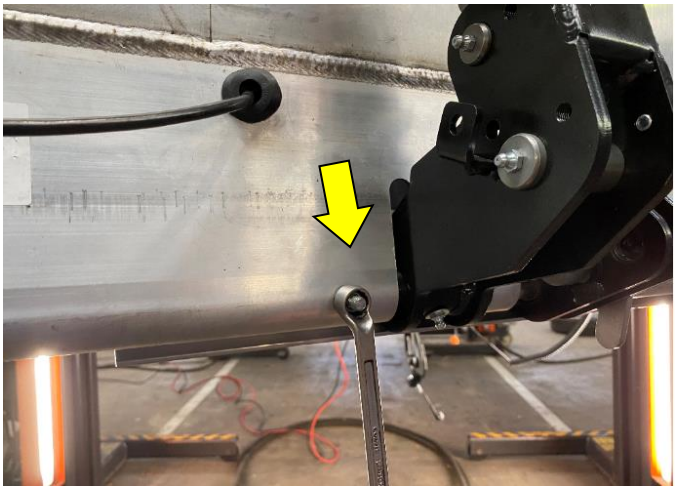
- Continue at the right side. Use another dia. 25 mm bar with M10 bolt to extract the articulation pin at the opposite side.
- When full screwed in, use a marker pen to mark how deep the bar sits inside the platform.This will help later to position the articulation pins back in their original position when connecting the platform to the lift arms.


- Remove the grease nipple and the locking bolt from the left side articulation pin.

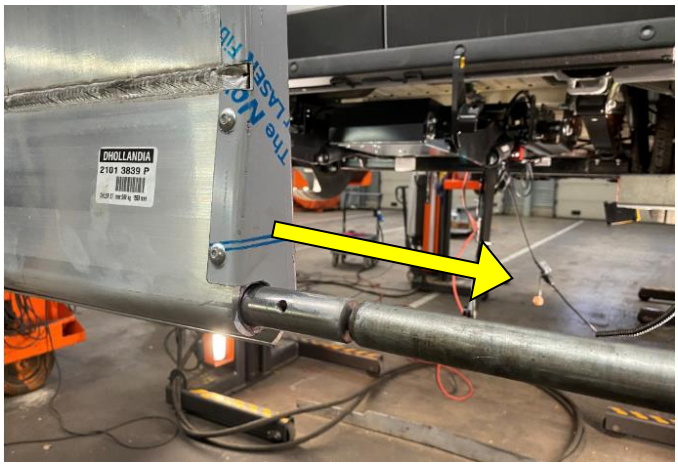


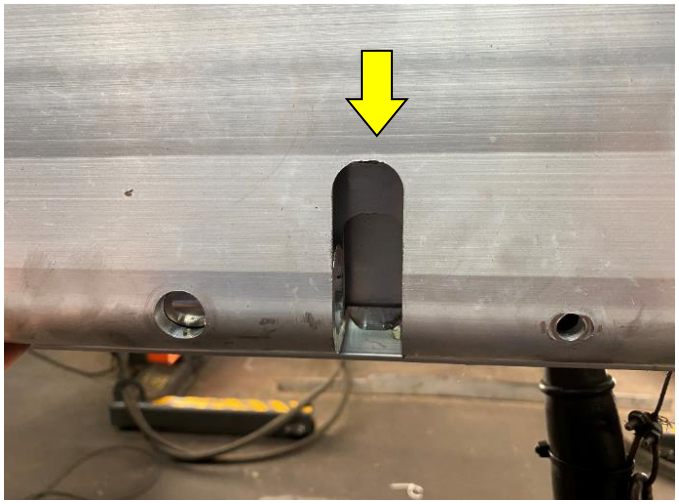
- Remove the grease nipple and the locking bolt from the right side articulation pin.

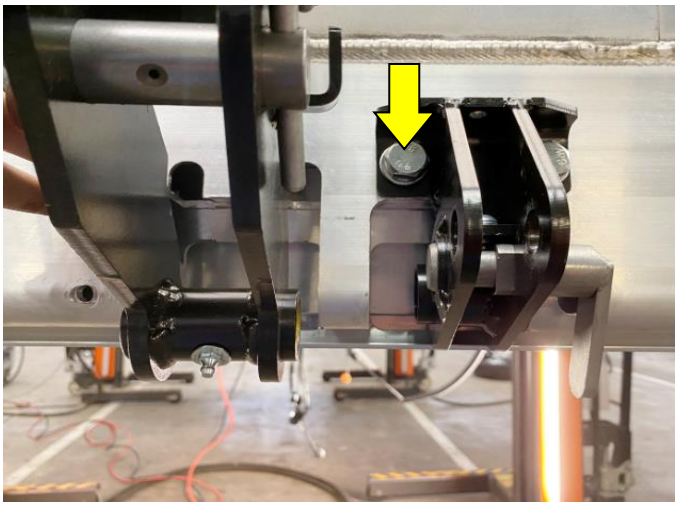




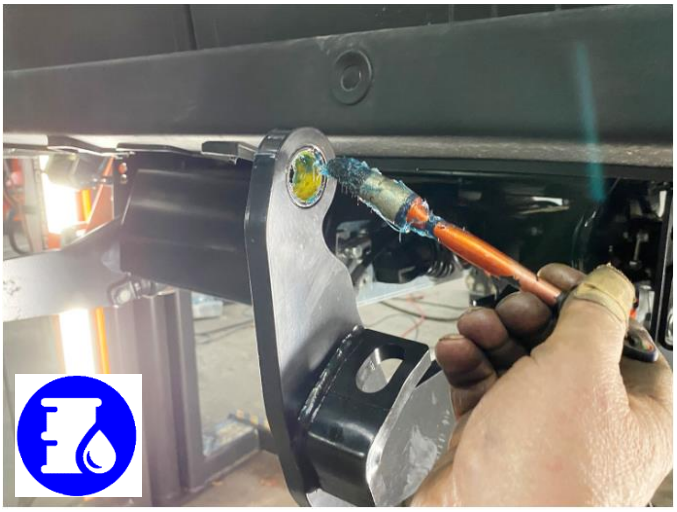
- When the grease nipples and locking bolts are removed, retract the 2 articulation pins far enough to open up the cut-outs for the lift arms in the platform profile.

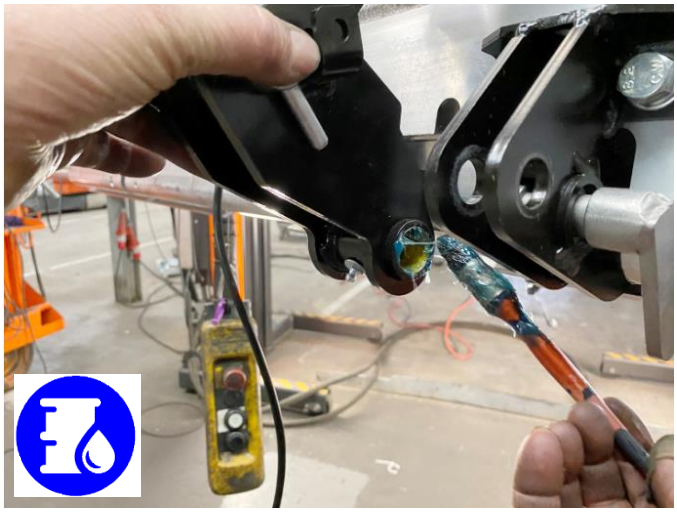




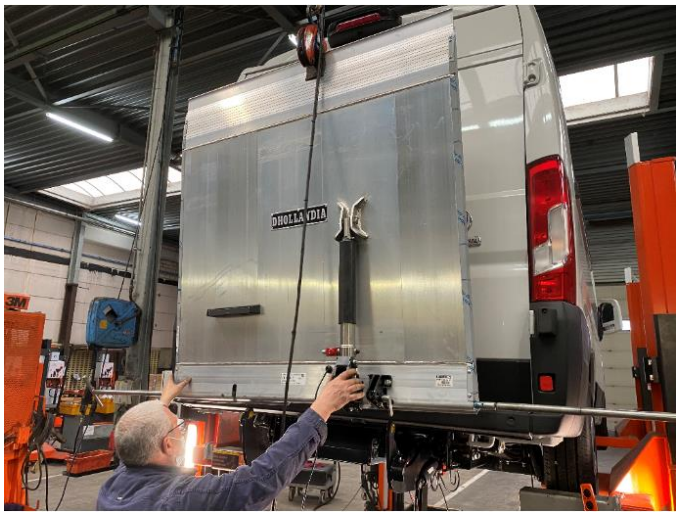


- Grease the bearings of the lift 2 lift arms L+R and the bearings of the tilt cylinder bracket.

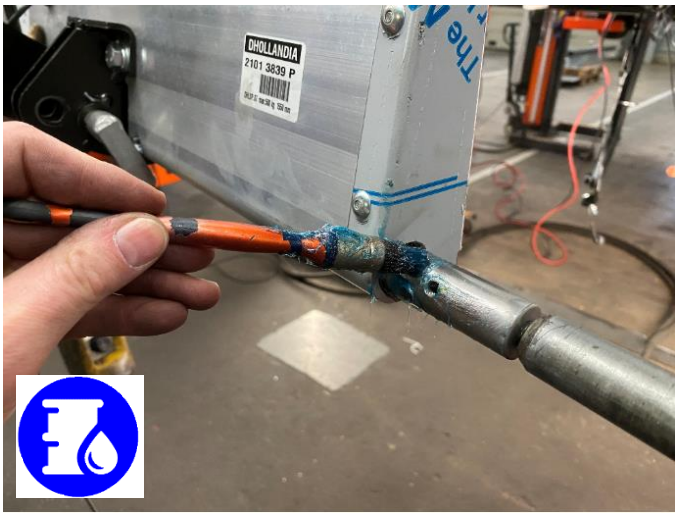




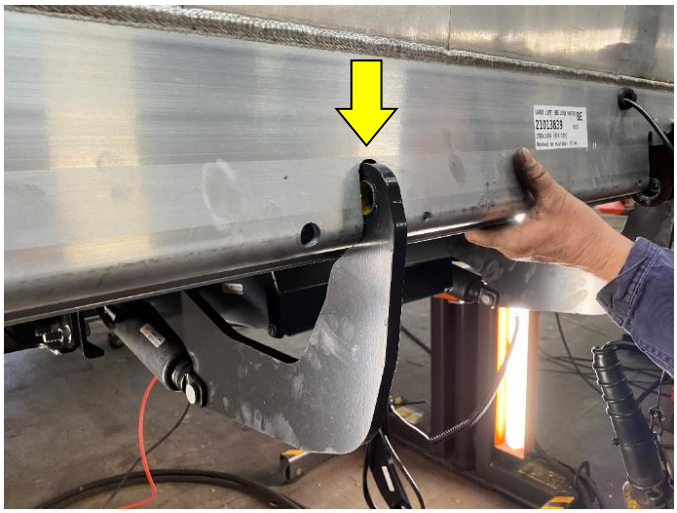
- Bring the platform close to the rear frame of the vehicle body.
- While doing so, ALWAYS make sure that you keep the platform, the hoist, clamp, slings etc. clear of the rear doors, to avoid damage.
- Also beware that you don't damage the tilt cylinder, the safety valves, flexible pipes and cables that connect the lift frame with the platform.

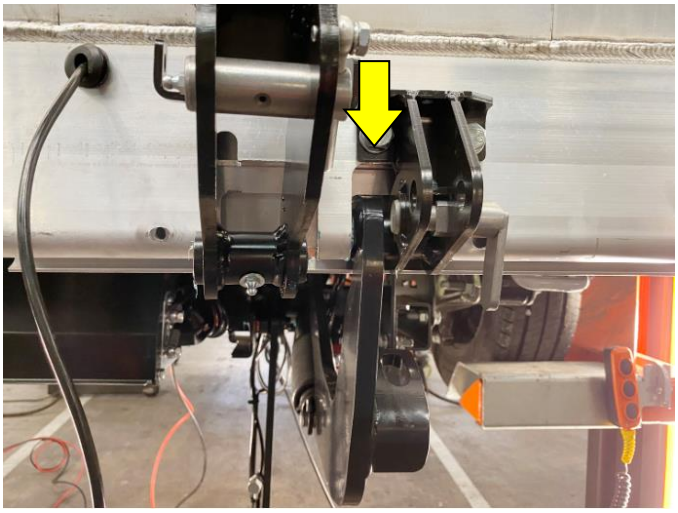



- Apply grease to the L+R articulation pins in the channel of the bottom platform profile.

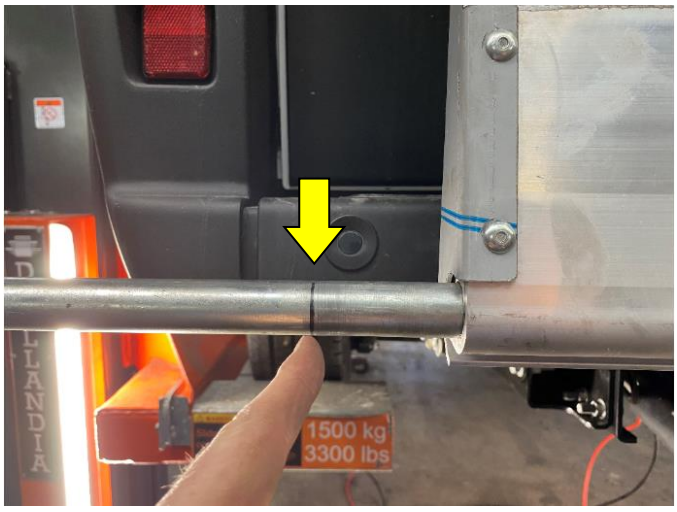



- Manoeuvre the platform over the lift arms. Align the cut-outs in the bottom platform profile with the lift arms.

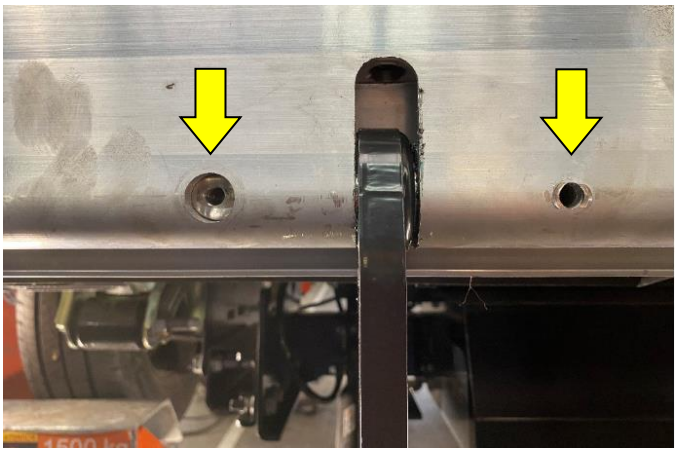




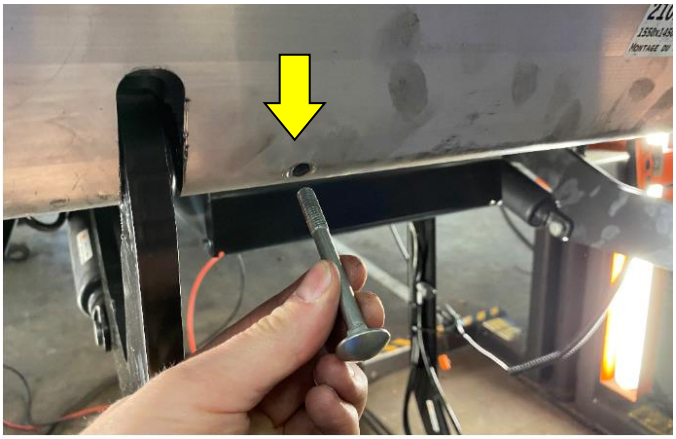
- Start again at the left side.
- Align the holes in the lift arm with the round channel in the bottom platform profile.
- Use the dia. 25 mm bar to push the articulation pin back inside the bottom platform profile and through the lift arm.
- Refer to the mark you have made on the pins to stop a the correction position.



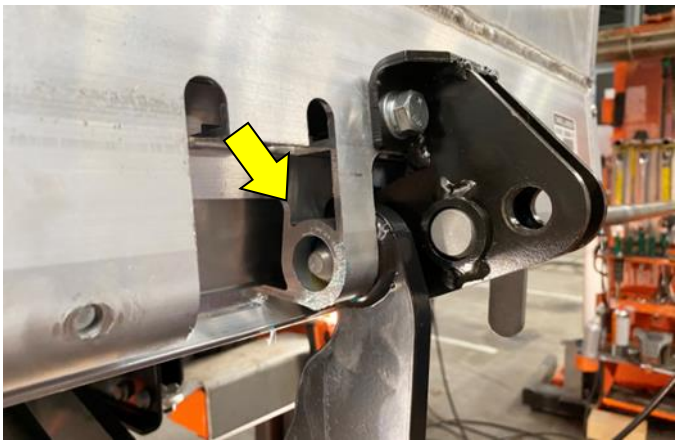
- Turn the dia. 25 mm bar around until the holes for the grease nipple and the locking bolt in the articulation pin line up with the holes in the bottom platform profile.



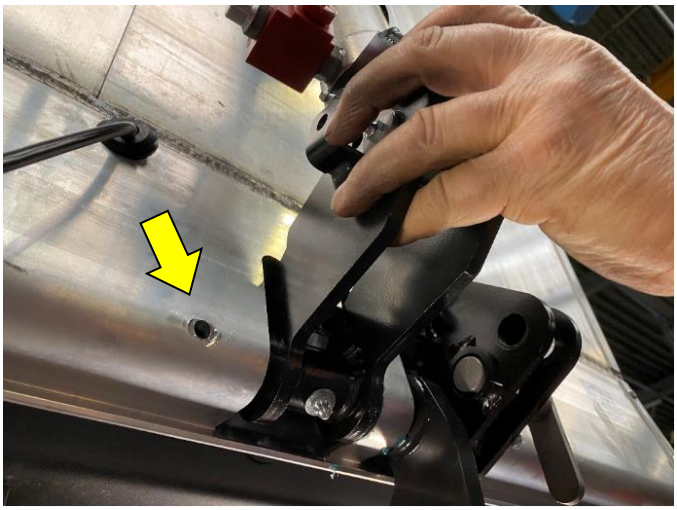
- Mount the locking bolt and nut through the bottom platform profile and the articulation pin. If there is insufficient space between the platform and the bumper to insert the bolt, mount the bolt in opposite direction temporarily.
- Mount the grease nipple back in the articulation pin.



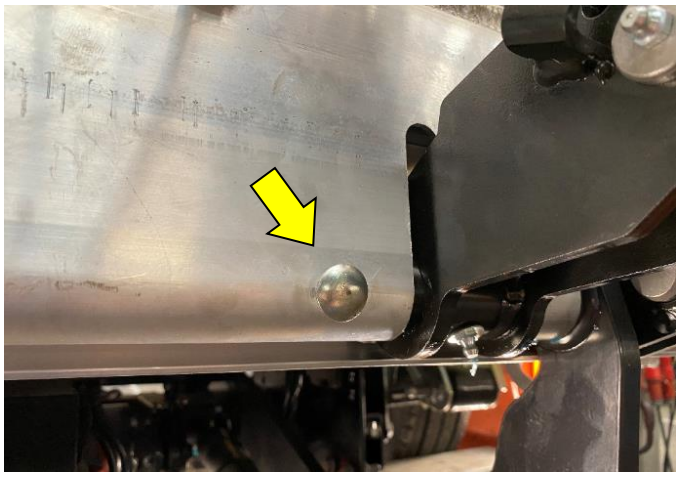
- Continue on the right hand side.
- Align the holes in the lift arm with the round channel in the bottom platform profile.
- Use the dia. 25 mm bar to push the articulation pin back inside the bottom platform profile and through the lift arm.
- Stop the pin at the cut-out for the tilt cylinder bracket.

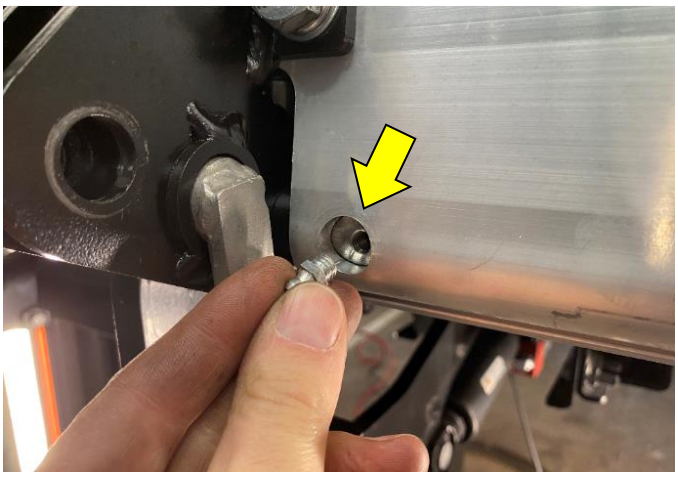


- Align the holes in the tilt cylinder bracket with the round channel in the bottom profile.
- Use the dia. 25 mm bar to push the articulation pin further back inside the bottom platform profile, through the lift arm and through the tilt cylinder bracket.
- Refer to the mark you have made on the pins to stop a the correction position.



- Mount the locking bolt and nut through the bottom platform profile and the articulation pin. If there is insufficient space between the platform and the bumper to insert the bolt, mount the bolt in opposite direction termporarily.
- Mount the grease nipple back in the articulation pin.

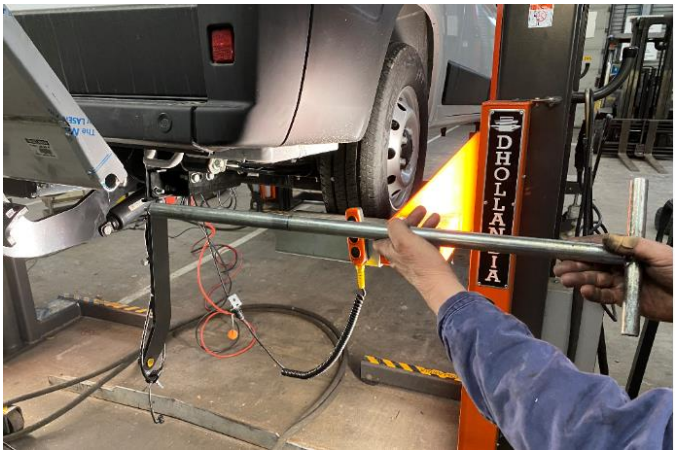




- While keeping the platform ALWAYS safely supported by means of a hoist, overhead crane, slings etc., open the platform to approx. 45°.

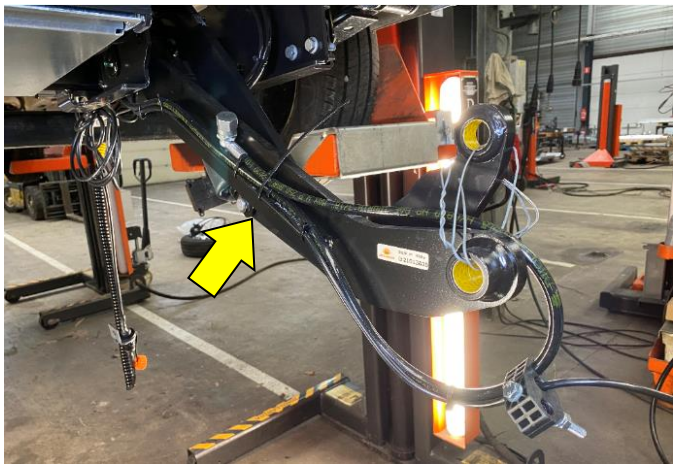
- Remove the temperarily mounted locking bolts, turn them over to the correct side, push them through the bottom platform profile and the articulation pins and mount the locking nuts.
- Fasten the bolts and nuts with the required torque by means of a proper torque wrench. See appendix 17.2 on page 58.

- When the grease nipples, the locking bolts and nuts are properly mounted and fastened with the required torque, retract the dia. 25 mm bars from the channel in the bottom platform profile.



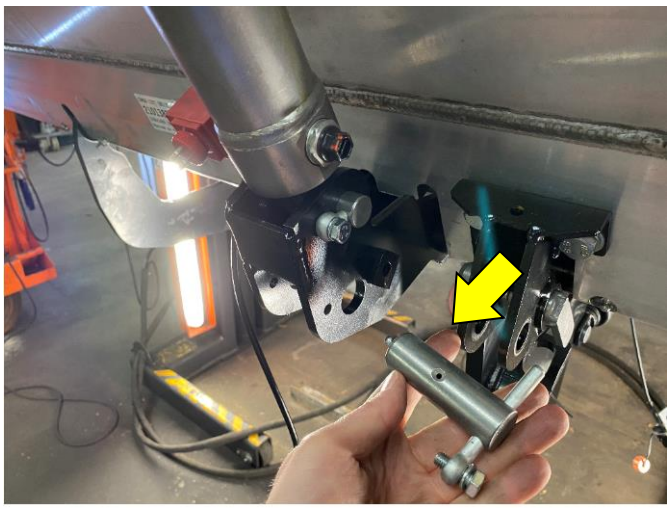
## 11.2 STABILIZER ARM

- Cut the cable tie loose that holds the loop in the hydraulic pipe of the tilt cylinder against the stabilizer arm.

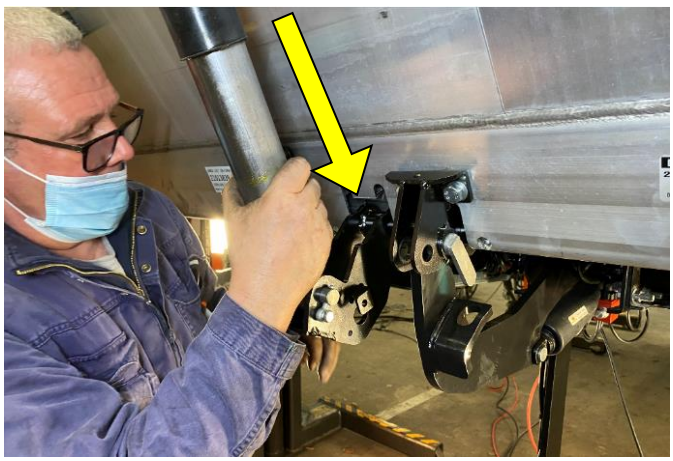


- Grease the bearing of the stabilizer arm.

- Dismount the articulation pin of the stabilizer arm from the tilt cylinder bracket.

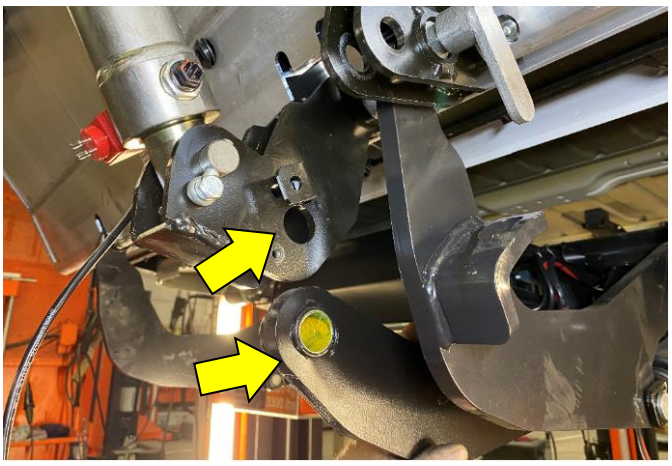


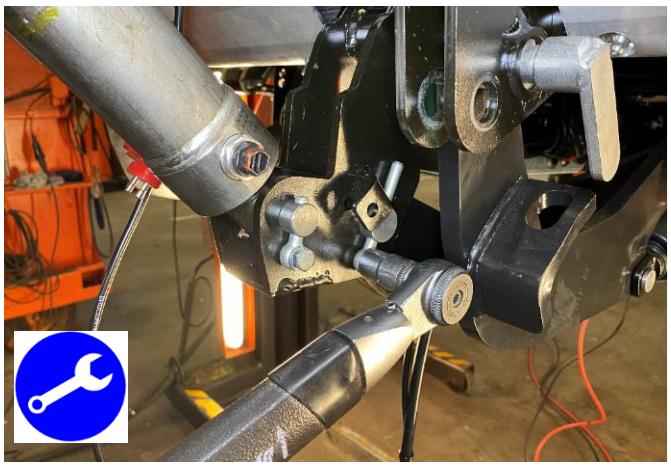
- Manually pull down the bottom end of the tilt cylinder and swing down the tilt cylinder bracket.



- Bring the eye in the stabilizer arm in line with the eyes in the tilt cylinder bracket.

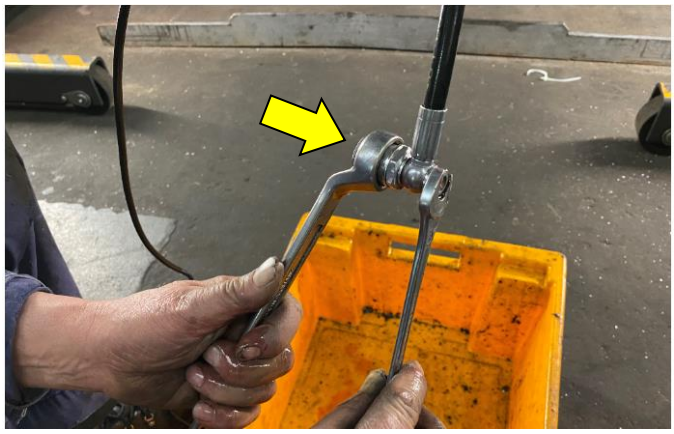
- Mount the articulation pin, the locking bolt and spring washer. Tighten all bolts with the required torque by means of a proper torque wrench. See appendix 17.2 on page 58.



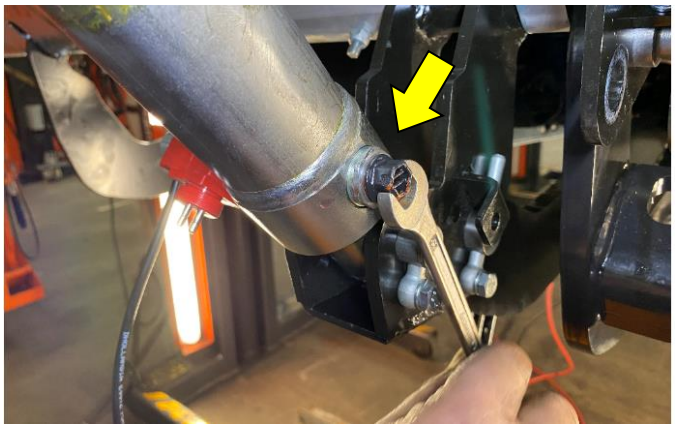


## 11.3 TILT CYLINDER: HYDRAULIC HOSE AND ELECTRIC WIRING

- Place an oil container below the stabilizer arm and the hydraulic hose.
- Observe the position of the cupper O-rings before and behind the banjo coupling.
- Dismount the banjo coupling from the stud so that the hydraulic hose can be mounted to the tilt cylinder.

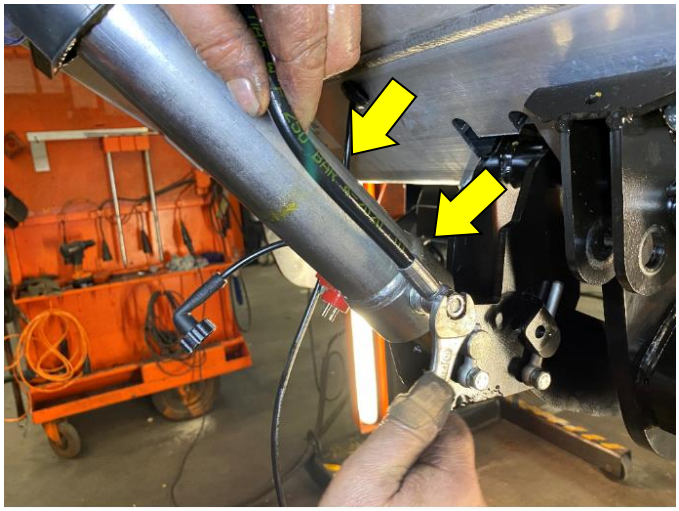


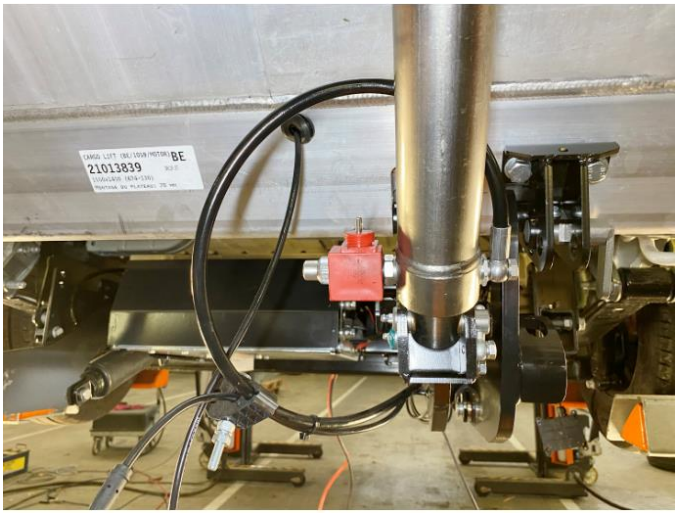
- Dismount the plug from the bottom end of the tilt cylinder.



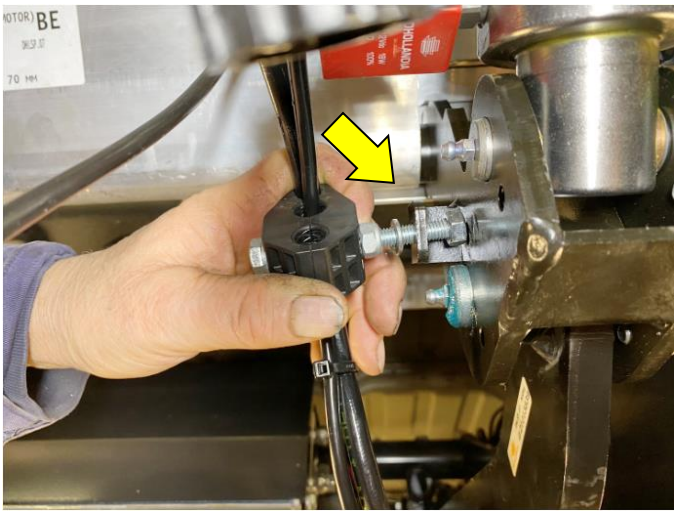
- Route the flexible hose behind the tilt cylinder in a nice, smooth curb from the stabilizer arm to the connection point on the tilt cylinder.
- Swap over the banjo coupling to the other side if that provides a better fitting.
- Put the cupper O-rings back as you dismounted them from the flexible hose before: at least 1 on either side of the coupling of the hose.

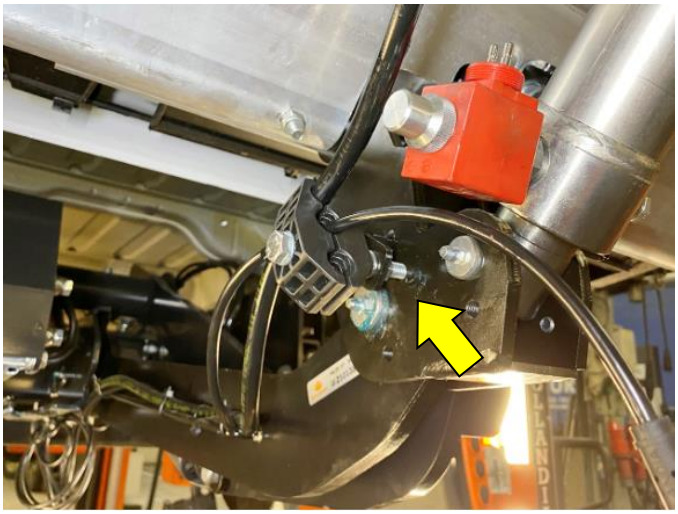
- When fastening the banjo coupling, direct the hydraulic hose parallelly to and in line with the cylinder tube.
- Fasten the banjo coupling with the required torque (M10 banjo coupling: 18 Nm or 13 lbsf/ft).



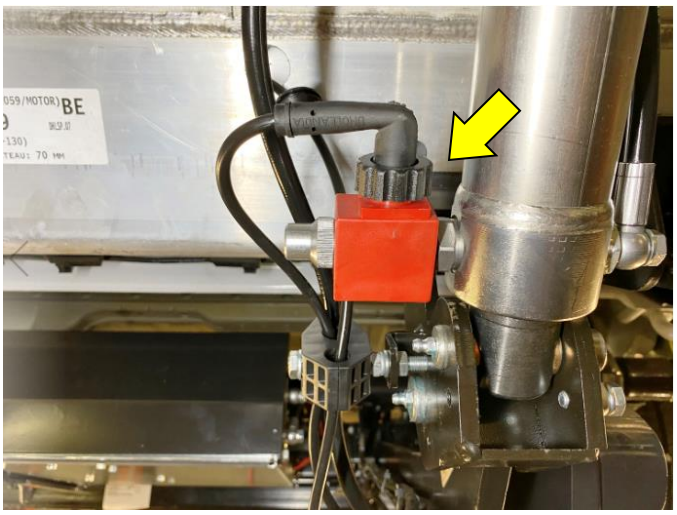


- Remove the nut from the bolt on the pipe clamp. Provisionally mount the pipe clamp on the L-shaped bracket welded at the side of the tilt cylinder bracket.
- The pipe clamp should not be fully tigthened to remove all movement. Enable the clamp to rotate slightly in function of the position of the flexible hose during the various platform movements.

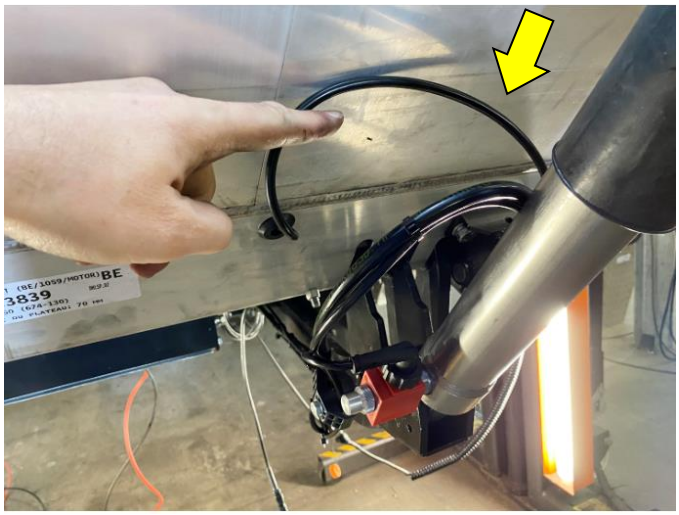




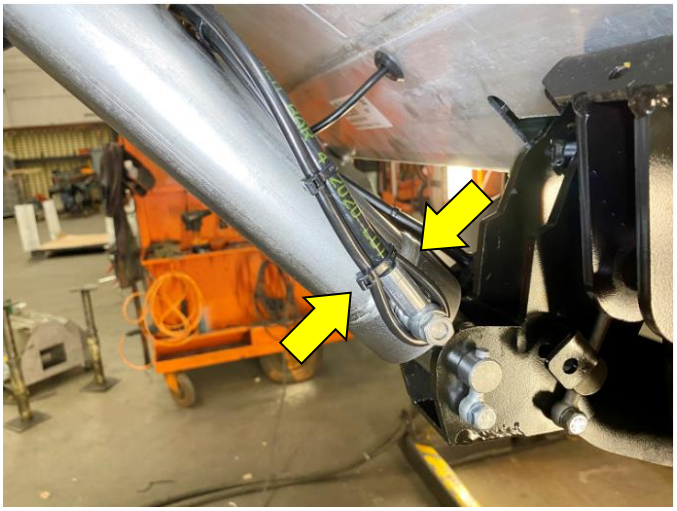
- Mount the plug of the safety valve on its coil and fasten the locking ring hand-tight.



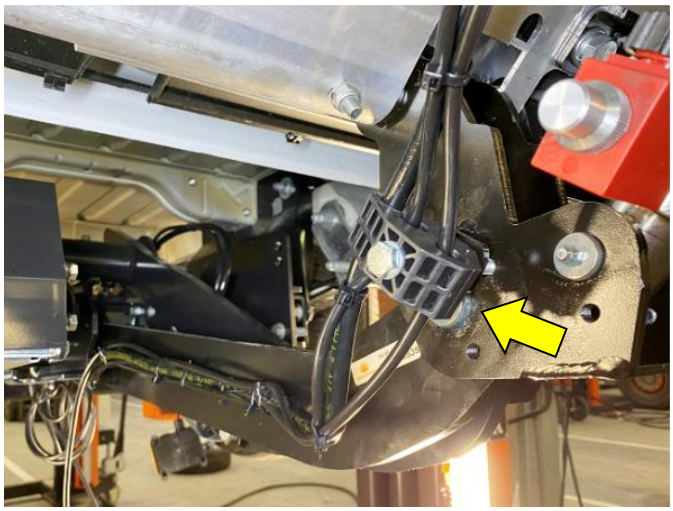
- If so equipped, route the cable of the licence number plate light [option OAE210] in a nice, large and smooth loop from the point where it exits the platform profile to the banjo coupling of the flexible hose of the tilt cylinder.



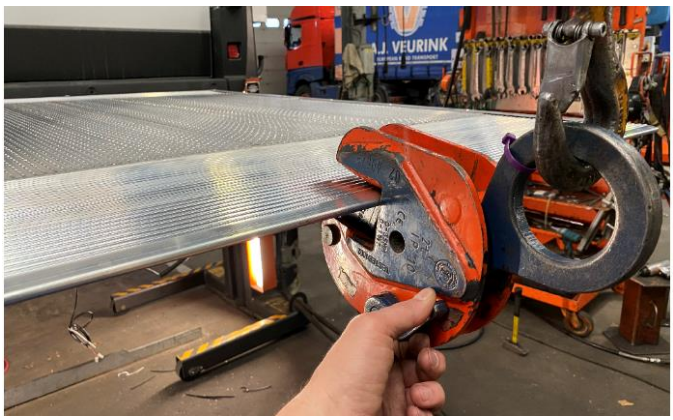
- Loop the cable around the banjo coupling and fix it with cable ties.
- Guide the cable alongside the flexible hose and fix it with cable ties every 100 mm.



- Run the cable through the pipe clamp. Loosen up the bolt slightly if the cable cannot be inserted in the clamp.
- Finish the installation of the the pipe clamp on the L-shaped bracket.
- Fasten the nut that holds the bolt to the L-shaped bracket tightly so that the bolt cannot come loose.
- But DO NOT overtighten the locking nut holding the pipe clamp shut.DO NOT remove all movement of the pipe clamp. Enable the clamp to rotate slightly in function of the position of the flexible hose during the various platform movements.



- The cable [option OAE210] is equipped with a sealed plug, that enables easy disconnection from the platform if ever the platform would need to be removed for repair or maintenance works.
- Route the cable alongside the flexible hose to the front side of the lift frame.
- From here, the cable will need to be connected to the rear light cluster, once the platform and the rear doors have been opened.



- OPEN the platform further by means of the hoist, overhead crane, slingts etc. to secure the platform against falling.
- ALWAYS make sure you stand safely on the side of the platform when OPENING / CLOSING / LIFTING or LOWERING it.
- Remove the platform clamp, hoist, overhead crane etc.

## 11.4 TILT CYLINDER: END STOP AND ADJUSTMENTS

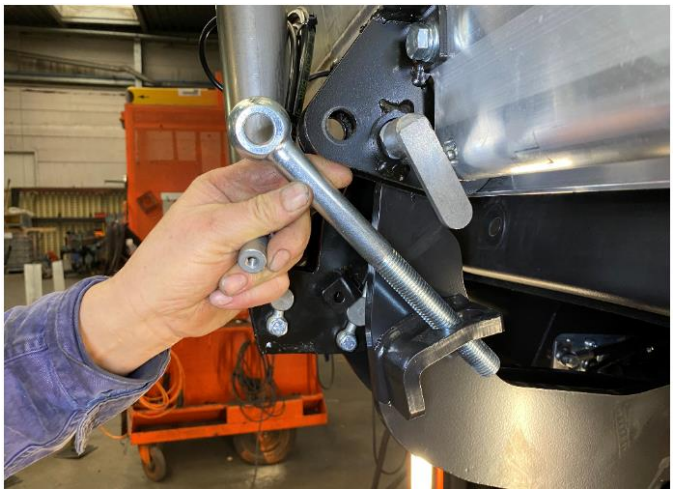
**⚠ CAUTION**

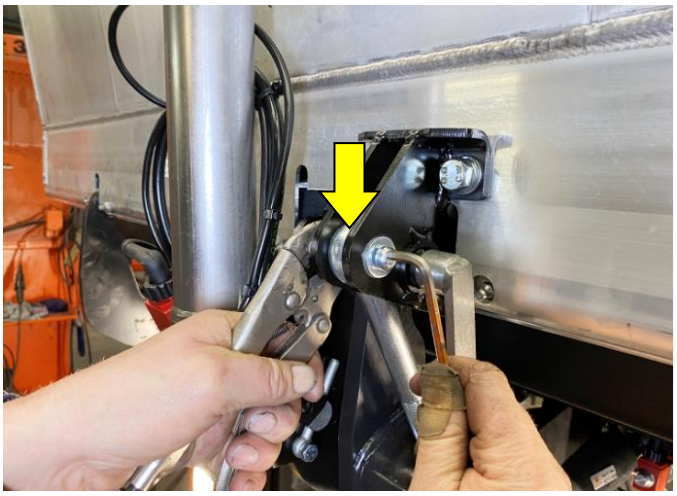
- The hydraulic cylinders and circuits might contain air. The piston rods might slide out with shocks when cylinder is filled with oil.
- The tilt cylinder is opened by a powerful spring. The piston rod can react quickly and suddenly when valves are opened or pressure is released. ALWAYS keep hands clear of the moving items on the platform and on the lift frame.
- ALWAYS observe the safety instructions and precautions contained in the GENERAL SAFETY INSTRUCTIONS FOR INSTALLATION, MAINTENANCE AND REPAIR manual.
- In case of doubt, contact the national DHOLLANDIA distributor for further assistance.

- Carefully operate CLOSE to bring the platform in an almost vertical position.
- Make sure the platform doesn't crush into the rear doors. Stop in time!


- Take the eye bolt, removed in section 10.1 of this manual, and remove the nuts on the threaded end. Slide it through the bracket on the side of the lift arm.

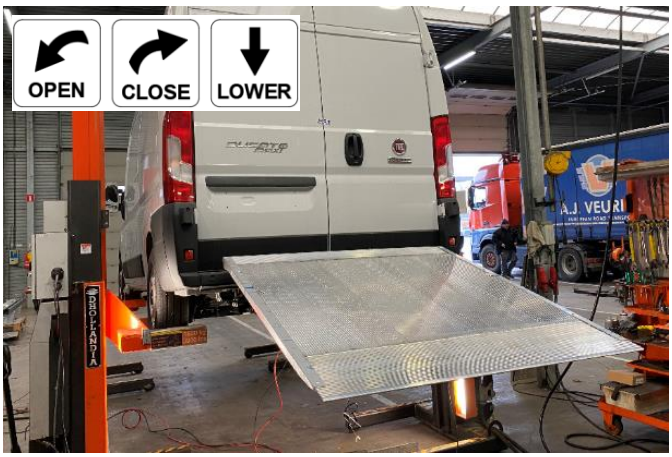
- Mount the articulation pin, locking bolt and spring washer. Fasten the bolt with the required torque.



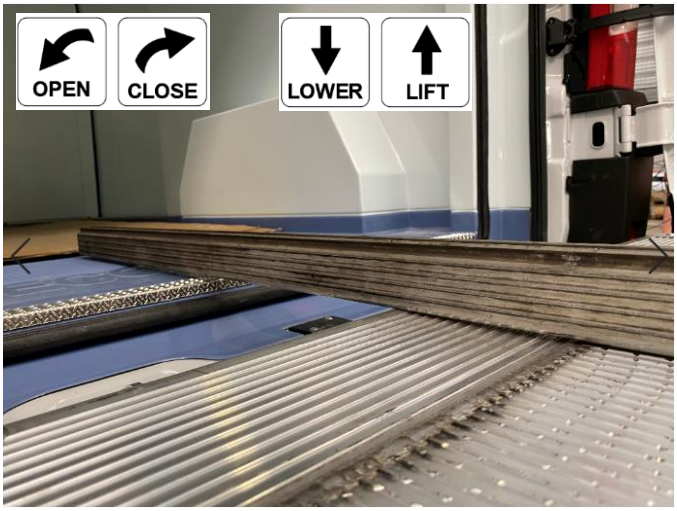


- Mount the 2 nuts with spring washer in between back on the threaded end of the eye bolt. These nuts will be used later to fine-tune the travel position of the platform behind the rear doors of the vehicle.
- Use the upper nut to stop the platform at the desired position when CLOSING. The bottom nut is a locking nut. After fine-tuning the platform's travel position, fasten this locking nut with the required torque.

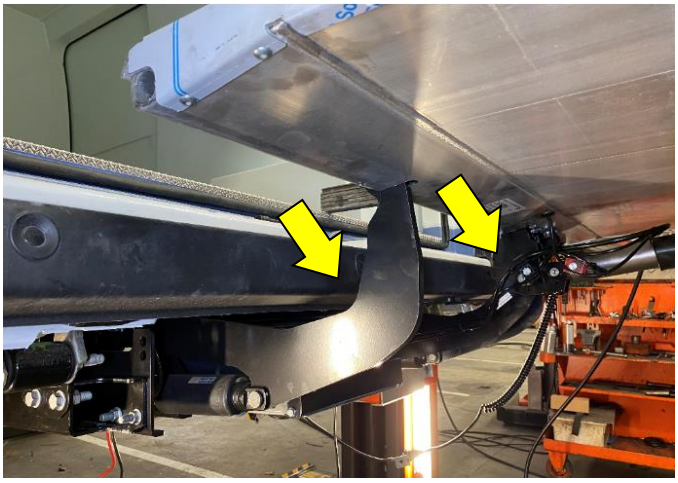
- Operate OPEN to purge the hydraulic tilt circuit a first time.
- Operate CLOSE to tilt it back up to the horizontal work position.
- LOWER the platform and open the rear vehicle doors



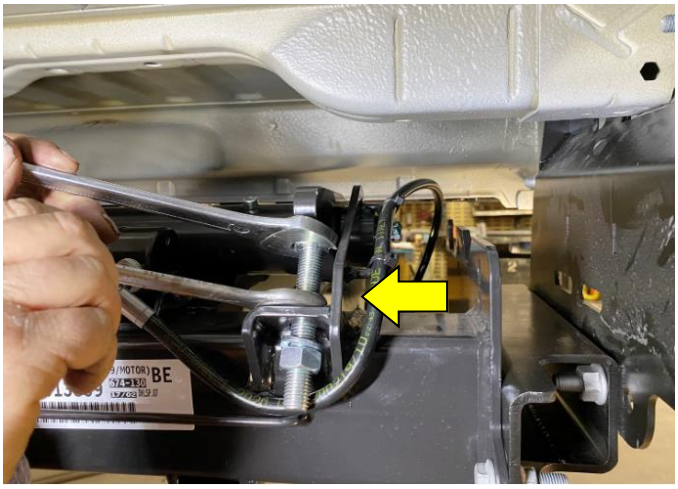

- OPEN / CLOSE the platform to align it with the angle of the vehicle floor.
- Lay a profile on the platform surface that protrudes the inboard platform edge by approx 300 mm.
- LOWER / LIFT the platform until it aligns up with the height of the vehicle floor.
- If a hinged bridge plate [option OAM008] is used, set the platform approx 10 mm lower than the vehicle floor. This will provide a smoother passage between the vehicle floor and the platform in use.



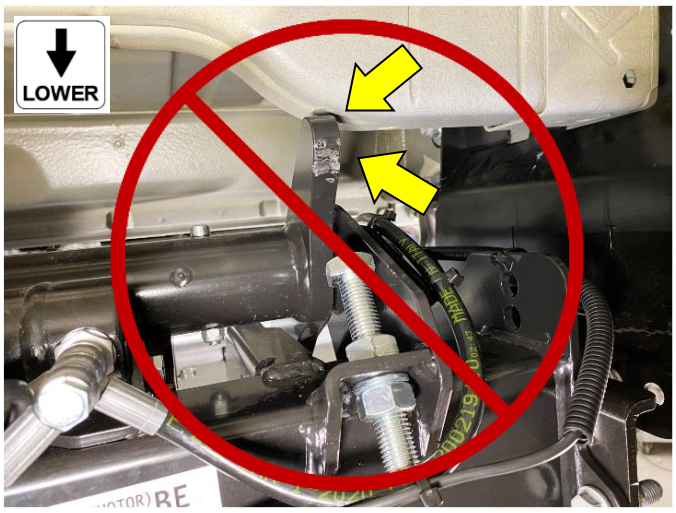
- When LIFTING, make sure the lift arms don't crush into the bumper bar of the vehicle.



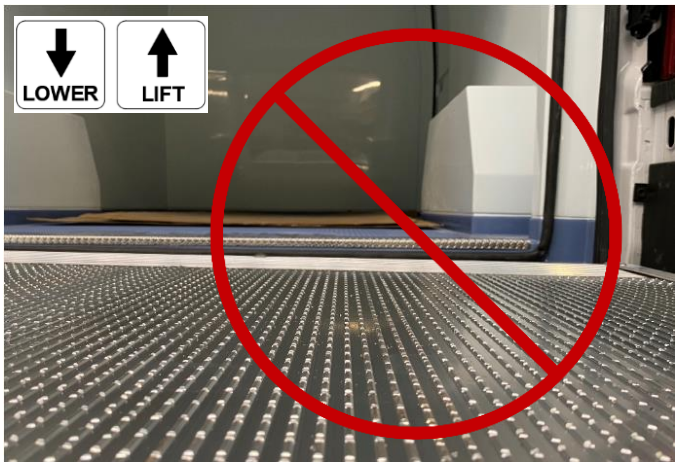
- Use the end stops at the left and right side of the lift frame to stop the lift arms at the desired position.
- Use the top nut to adjust the length of the end stops.
- Use the bottom nut and the spring washer in between as a locking nut.
- When finished, fasten the nuts with the required torque.



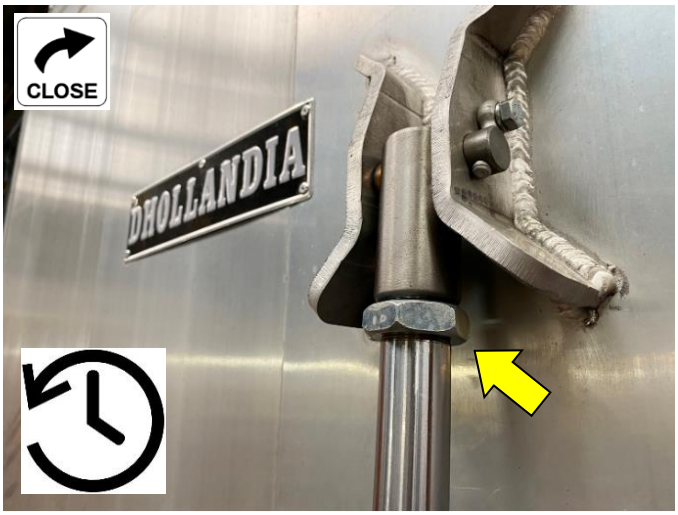
- When fully LOWERING to the ground the first time, make sure that upper part of the end stops cannot crush into the vehicle chassis and its cross members.
- Contact your national DHOLLANDIA distributor if this risk exists. See contact info on page 4.




- LOWER the platform 100 mm and LIFT it again until you hear the hydraulic system turn in overpressure.
- Verify if the platform reaches the choosen height.
- Verify if the platform is parallel with the vehicle floor from left to right.
- Fine-tune your adjustments if required.



- Carefully CLOSE the platform to the vertical travel position.
- Make sure the platform doesn't crush into the rear doors. Stop in time!



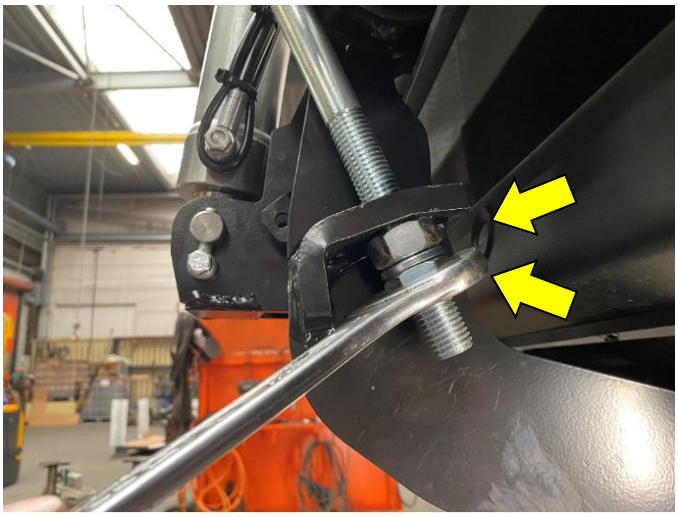

- If the platform doesn't close far enough, dismount the collar of the rubber gaiter and drop the gaiter down.
- Turn the locking nut counter-clockwise. Move it away from the extension and press it against the base of the piston rod.

- OPEN the platform to approx. 45° to remove the tenstion from the internal spring.
- Turn the locking nut further counter-clockwise to extend the stroke of the tilt cylinder and bring the platform closer to the rear doors.
- CLOSE the platform to test the result of your actions on the platform's travel position.
- OPEN the platform again to do further adjustments.


- After final adjustment, turn the locking nur clockwise and fasten it tightly against the extension.


- Raise the rubber gaiter back up in its original position and fasten the collar.

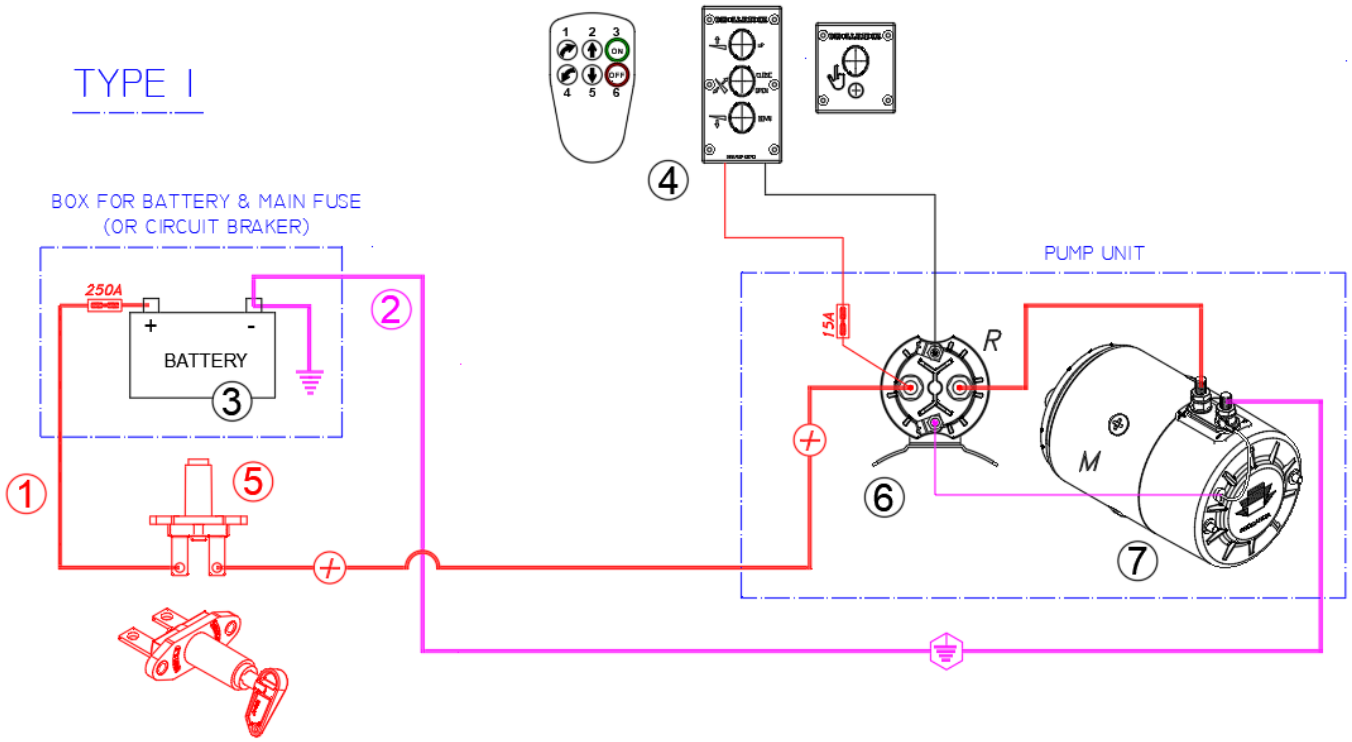
- Revisit the eye bolt.
- Tigthen the upper nut firmly to put the eye bolt under tension against the forces generated by the closing tilt cylinder.
- Fasten the lower locking nut firmly with the required torque. See appendix 17.2 on page 58.
- Make sure the platform is firmly stabilized in the travel position. Try to rock it forwards and backwards by hand. Increase the eye bolt tension if not yet satisfactory.

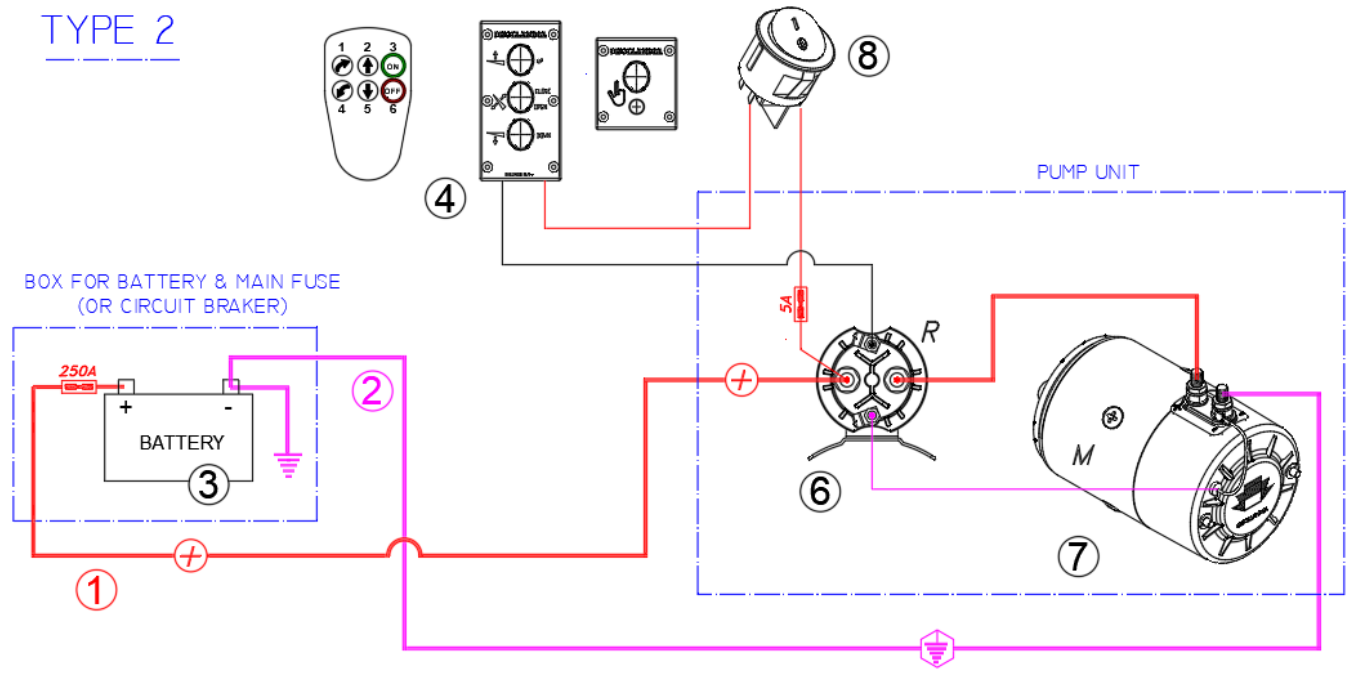


# 12 ELECTRICAL INSTALLATION

## 12.1 INTRODUCTION

- Electric power to the tail lift can be organised in 2 ways:
  1. Type 1: main battery disconnect switch mounted in the driver's seat. This switch is mounted on the main 16 or 25 mm² (+) battery cable from the battery to the starter solenoid in the power pack.
  2. Type 2: cabin switch. This switch is mounted on the 1 mm² power feed to the control box. It doesn't allow the driver the disconnect the power pack from the battery, only to activate / deactivate the main external controls.




Legend:
1 = (+) battery cable
2 = (-) earth cable
3 = 12 or 24V battery
4 = main external control box
5 = main battery disconnect switch
6 = starter solenoid
7 = electric motor
8 = cabin switch

- It is good practice to run dual cables, this is:
  1. A (+) battery cable from the main battery fuse (over or not over a main battery disconnect switch) to the incoming main terminal of the starter solenoid;
  2. And a (-) earth cable from the negative terminal of the batteries to the negative terminal of the electric motor.
- A short (-) earth cable to the vehicle chassis is prone to oxidation, bad contact and failure. Moreover, it is not allowed on many modern commercial vehicles.

## 12.2 INSTALLATION OF THE (+) BATTERY AND (-) EARTH CABLE

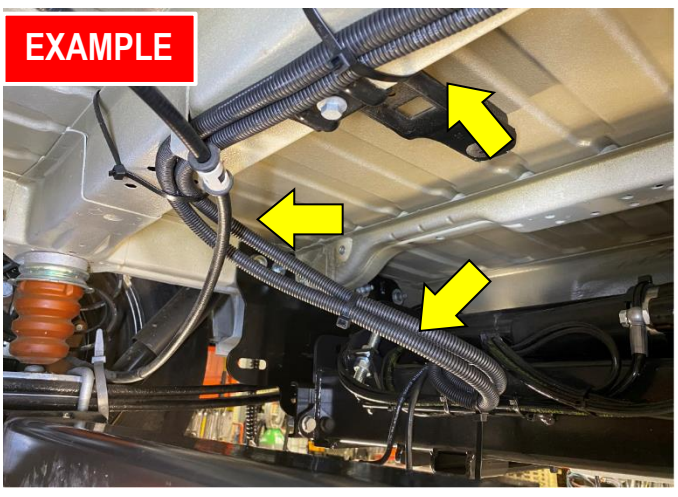
**NOTICE**

- 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 in accordance with 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.).
- Many vehicle manufacturers issue specific instructions where to connect the (+) battery cable and (-) earth cable, what fuses to use etc. Make sure you observe these instructions when installing tail lifts. If such prescriptions conflict with the fitting instructions of DHOLLANDIA, contact the vehicle importer or DHOLLANDIA for further advice.
- When installing cables, make sure these cannot be cut, squeezed, chafed, heated and melted or damaged otherwise by the equipment mounted on the vehicle or by the moving parts of the tail lift.
- Make sure that cables do NOT interfere with the vehicle suspension, the brake and hydraulic circuits or wire looms of the vehicle. Make sure cables are mounted sufficiently far from the exhaust pipe and other heat radiating parts.

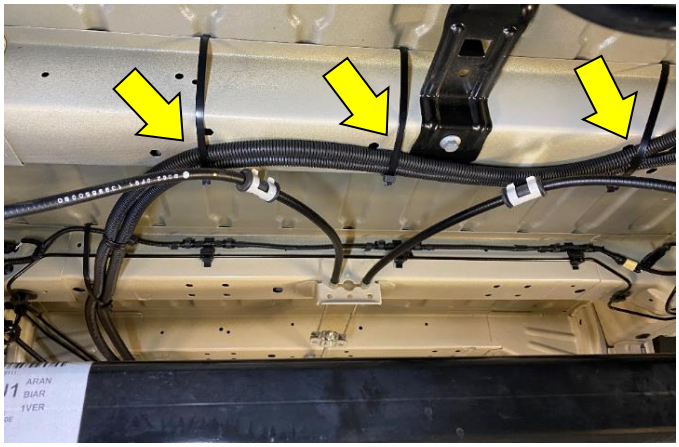
- The instructions below showcase one type of vehicle. The explained methods and procedures apply however to installations on all types of vehicles. In case of doubt, contact your national DHOLLANDIA distributor. See page 4 for contact info.

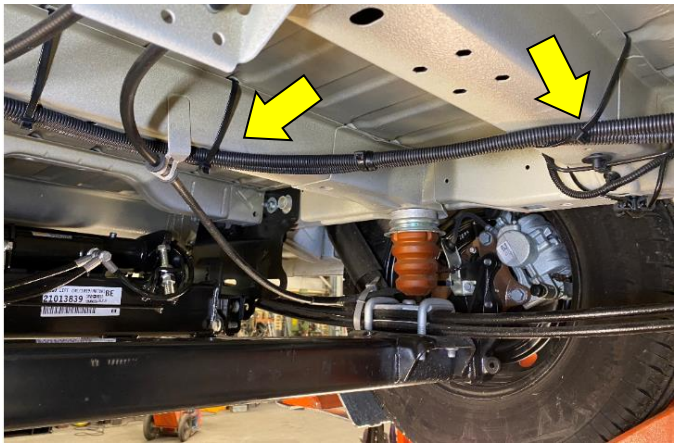
- Mount protective conduits over the full length of the (+) battery cable and the (-) earth cables. Start where these cables exit the power pack.
- Make sure this conduit is suitable for automotive purposes, and its class is adapted to possible sources of heat nearby. In case of doubt, contact your national DHOLLANDIA distributor. See page 4 for contact info.

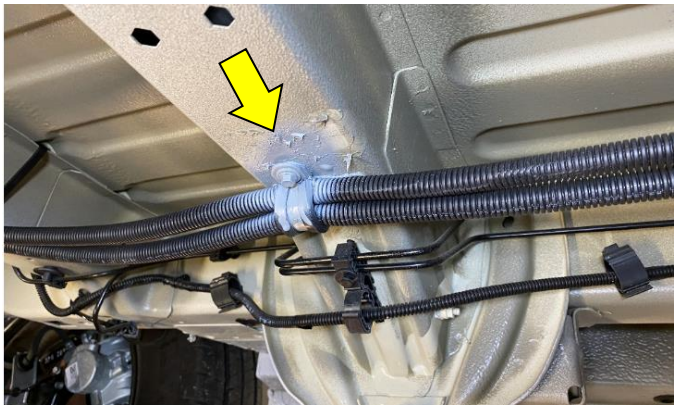
- Determine carefully how to route the (+) battery and (-) earth cable to the battery in the best possible way.
- Pay special attention to the NOTICE above!
- If the battery is mounted at the opposite side as where the cables exit the power pack, crossing the cables at the first possible chassis cross member is recommended.



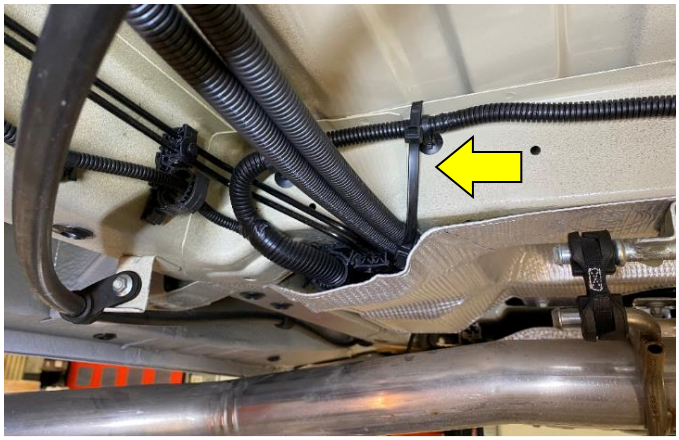
- Where possible, use cable ties to attach the conduits to existing passages in or through the chassis.
- NEVER attach the conduits to the original brake and hydraulic circuits or wire looms of the vehicle!

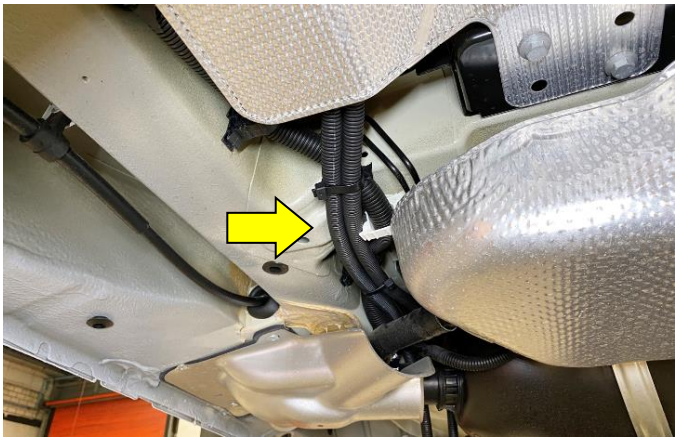


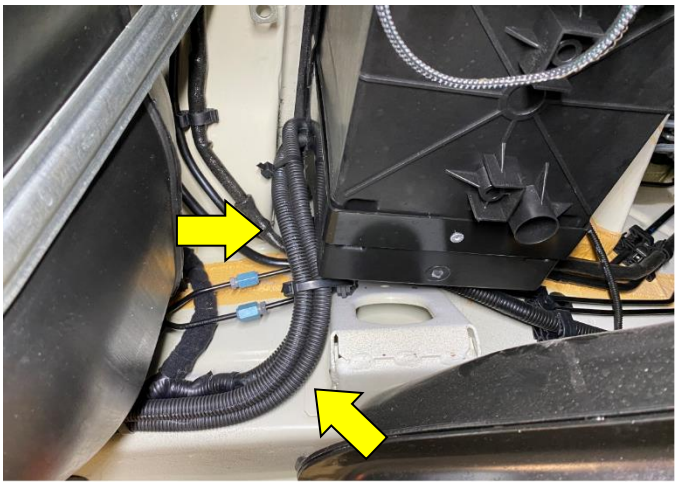




- Where holes are drilled in the chassis and cable clamps are used, apply adequate anti-corrosive protection (zinc-spray, Dinitrol, etc.) to the freshly made chassis perforations and allow to dry.
- ALWAYS avoid places of great heat radiation, such as the exhaust pipe, catalysers etc.
- If not possible, use the heat shields available in that area to protect the (+) battery and (-) earth cable from overheating or melting. Or install additional heat shields.

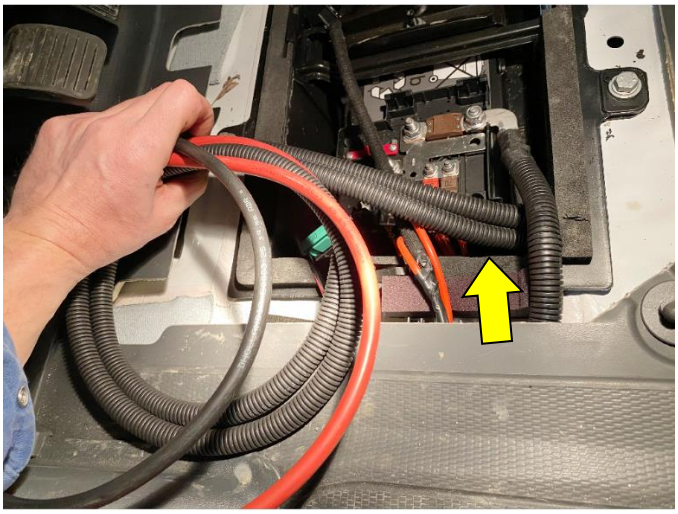




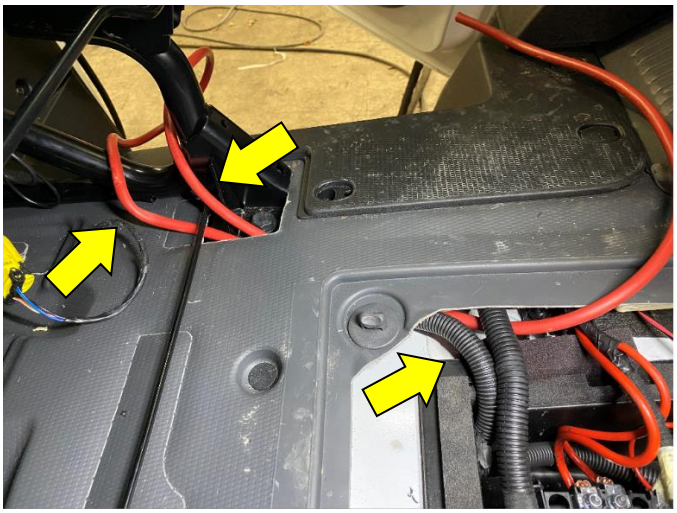


- Search for an adequate entry for the (+) battery cable and (-) earth cable into the battery compartment.
- Most types of vans are equipped with a dedicated rubber diaphragm to pass wires from the chassis area to inside the battery compartment or vehicle cabin.

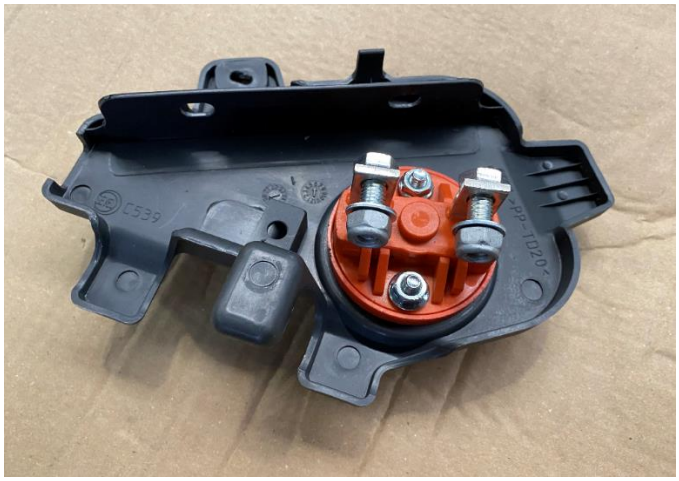
- If not, drill extra holes to bring the cables inside the battery compartment.
- Seal the holes after pulling the conduits through, to prevent penetration of rain, dirt, etc.

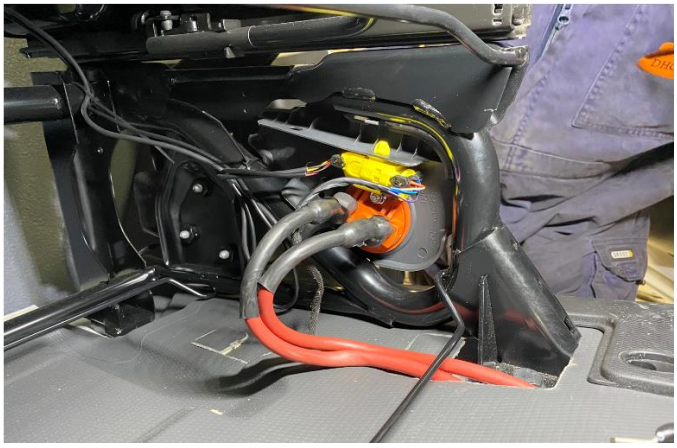


- If the tail lift is equipped with a main battery disconnect switch [option OAE038.A], determine where to mount it.
- Pull the (+) battery cable to the chosen position for the main battery disconnect switch.

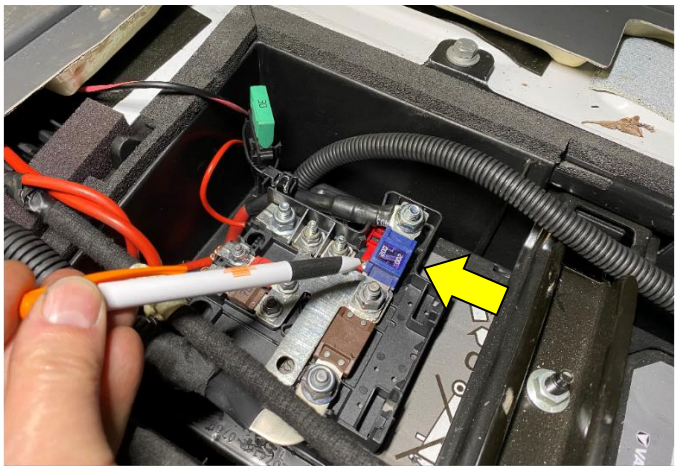


- Mount the main battery disconnect switch.
- Mount cable eyes at the 2 ends of the incoming and outgoing (+) battery cables.
- Slide 2 bits of 100 mm heat shrink over the cable eye connections. Use a heat gun to wrap the heat shrink over the cable and the cable eyes.
- Connect the cable eyes to the studs of the main battery disconnect switch and fasten the M8 bolts with the required torque.





- Refer to the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer for the designated (+) battery and (-) earth connection points.
- Mount the cable eye of the (+) battery cable to the main fuse. This fuse should have a min. rating of 200A.
- In case of doubt, contact the vehice importer or DHOLLANDIA for further advice. See contact info on page 4.



- Mount the cable eye to the end of the (-) earth cable.
- Slide a bit of 100 mm heat shrink over the cable eye connection. Use a heat gun to wrap the heat shrink over the cable and the cable eye.
- Connect the cable eye to the designed (-) earth point and fasten the bolt with the required torque.

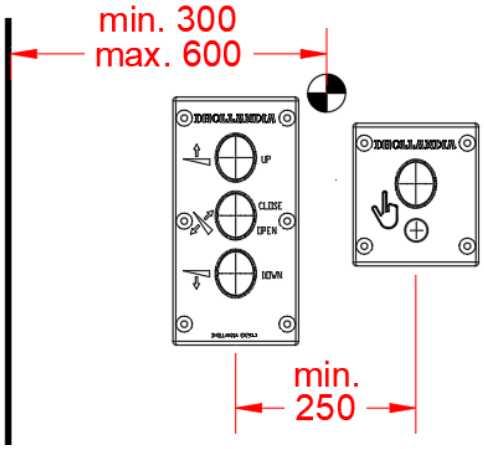

- Fasten all connections at both ends of the cables thoroughly. Loose connections can lead to bad contacts and overheating, followed by premature failing of the electrical circuit.
- Apply a thick layer of dielectric grease to the electric connections to the main fuse and the batteries.

## 12.3 CABIN SWITCH

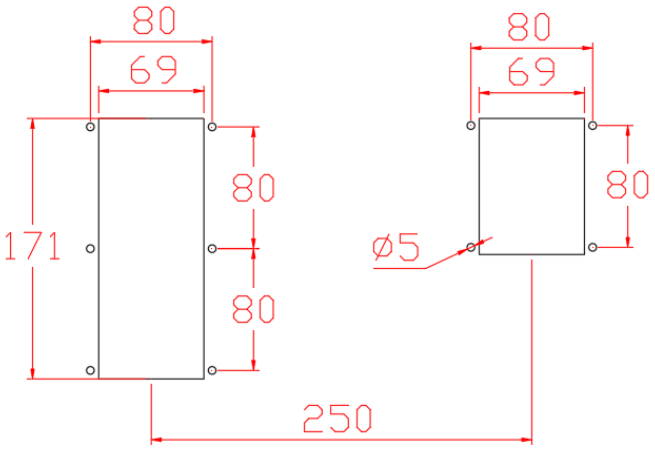
- If a cabin switch is used to power the tail lift, refer to the wiring diagram in Annex 17.10 on page 72 for installation details.
- Determine if the vehicle is equipped with an original cabin switch and associated wiring to the rear of the chassis.
- If not, refer to FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufacturer for instructions how and where to mount the cabin switch.

## 12.4 MAIN EXTERNAL CONTROL BOX

- The DH-LSP* can be equipped with a 3+1 button control box [option OAE031.Z.0] to be integrated in the side panel of the vehicle body, or a wireless remote control [option OAE045.LSP.PR].




- To comply with CE safety regulations, the main external control box must be installed in accordance with the shown safety distances.

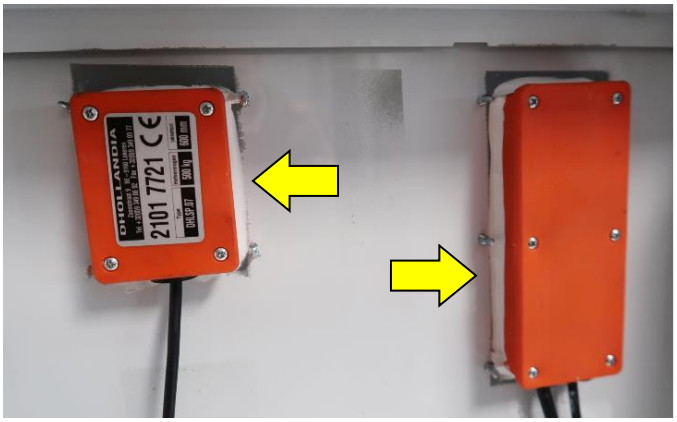



- Locate a flat surface of side panel without reinforcements at the inside in accordance with the shown cut-out dimensions.
- Only drill the fixation holes (see below) if you use bolts and nuts to install the control box. Self tapping screws can usually be applied directly.
- It is recommended to use stainless steel bolts and nuts or self tapping screws (not included in the kit).

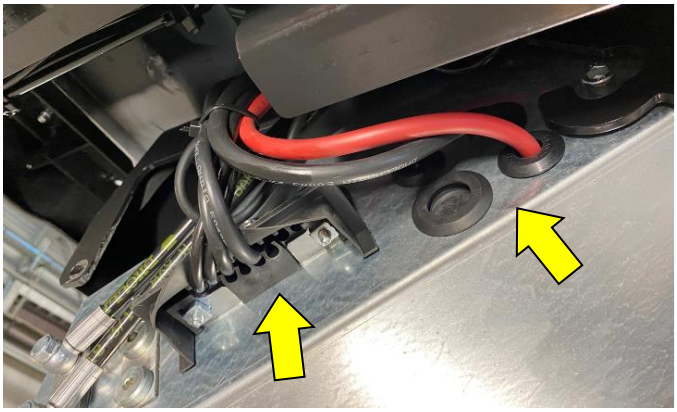
- Carefully cut the 2 slots in the side panel of the vehicle body.
- Deburr the cut-outs. Apply masking tape around the cut-outs, within the outside dimensions of the front covers of the control boxes.
- Apply adequate anti-corrosive protection to the freshly made cuts and allow to dry.

- The control box is prewired in the power pack and must be disconnected for installation. Use the wiring diagram in Annex 17.10 on page 72 to disconnect the control box. Note clearly where the colored wires are originally plugged in.
- Mount the control boxes in the side panel.
- Check the alignment of the control boxes with main lines of the vehicle body prior to drillling any holes or applying self-tapping screws.

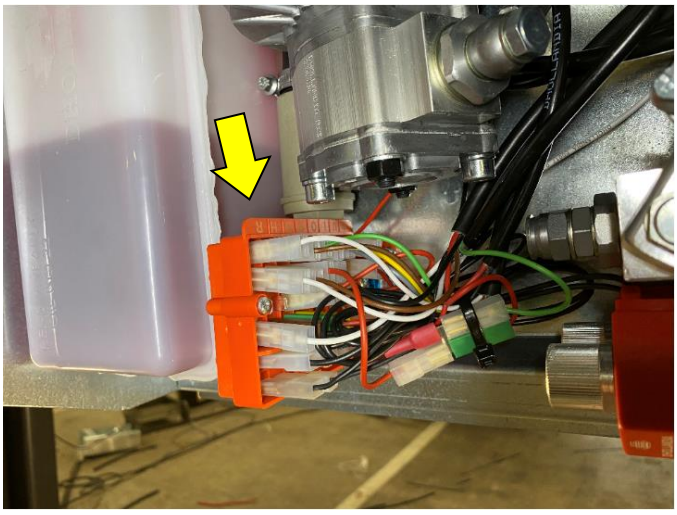
- Drill the holes for the bolts and nuts and mount the controls in the side panel, or apply the self-tapping screws.
- Finish the fixation of the control boxes.
- Apply a water-tight seam of silicone around the inside contours of the control boxes to seal the area.


- Route the electric cable to the power pack. Make sure that the cable cannot be cut, squeezed, chafed, heated and melted or damaged otherwise by vehicle body, moving parts of the vehicle and tail lift.
- Mount a protective conduit over the full length of the cable.
- Attach the cable with cable ties at min. 200 mm intervals.
- Enter the cable into the power pack, either via the multi-cable entry seal or via one of the single cable glands.



- Refer to the wiring diagram in Annex 17.10 on page 72.
- Connect the wiring of the control box back to the orange connection block in the power pack in accordance with the notes you have taken earlier or the applicable wiring diagram.



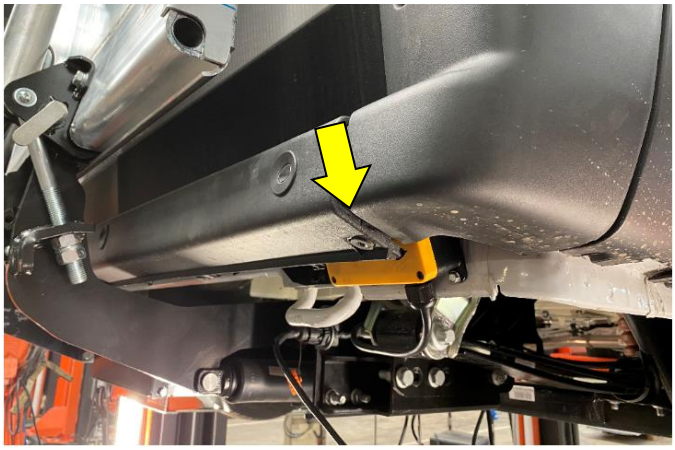
- Close the power pack again and test all functions OPEN / LOWER / LIFT / CLOSE of the main external control box.

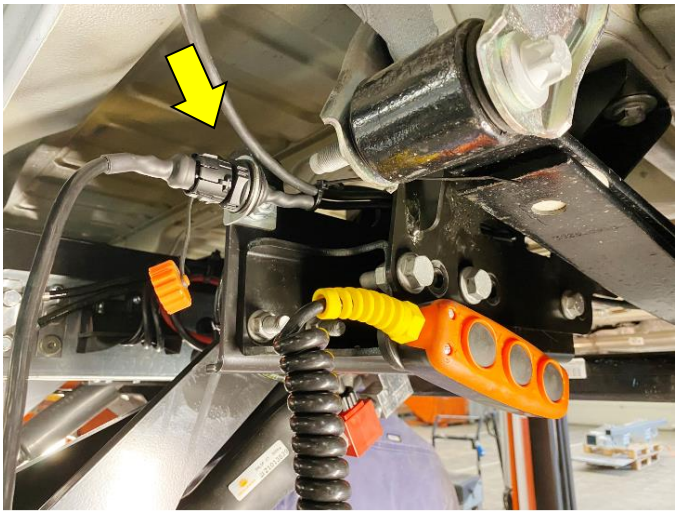
## NOTICE

- DO NOT operate LIFT or CLOSE while the power pack is hanging open. The hydraulic pump might suck air and a purge of the pump might be required when neglecting this NOTICE.
- ALWAYS close the power pack prior to LIFTING / CLOSING the platform.

## 12.5 WIRELESS CONTROL UNIT

- If the DH-LSP* is equipped with a wireless remote control [option OAE045.LSP.PR], no cut-outs in the side panel of the vehicle body are required.
- The wireless control unit features following configurations:
  1. Wireless control unit [option OAE045.LSP.PR] and plug [option OAE046.1] for an emergency back-up wander lead with spiral cable
  2. 3-button wander lead with spiral cable [option OAE046.2] as emergency back-up control in case of failure of the wireless remote control.
- Refer to Annex 17.8 on page 70 for general installation guidelines.
- Refer to the wiring diagrams in Annex 17.10 on page 72 for the electrical connections.
- Determine where to install the receiver physically, in accordance with the guidelines for the safe operator position in Annex 17.8 on page 70.
- In order to avoid interference by the steel body, it is recommended to install the receiver in one of the cavities of the compostie bumper parts whenever this is possible.
- Test the set-up prior to installing the receiver, drilling holes, etc.
- Route the electric cable to the power pack. Make sure that the cable cannot be cut, squeezed, chafed, heated and melted or damaged otherwise by vehicle body, moving parts of the vehicle and tail lift.
- Mount a protective conduit over the full length of the cable.
- Attach the cable with cable ties at min. 200 mm intervals.
- Enter the cable into the power pack, either via the multi-cable entry seal or via one of the single cable glands.
- Connect the wiring of the wireless controls to the orange connection block in the power pack in accordance with the applicable wiring diagram

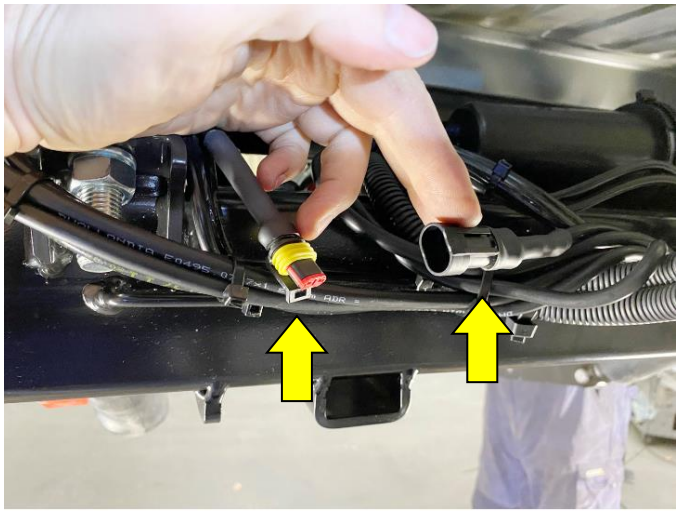


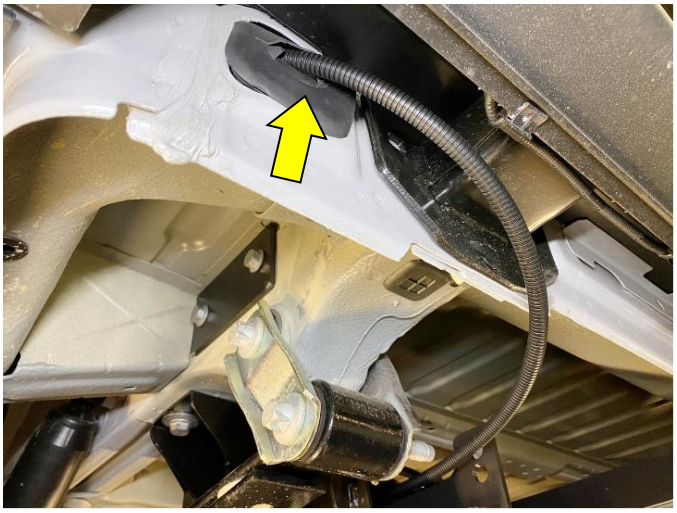


- Determine where to install the plug [option OAE046.1] physically. The bracket can be connected to the mounting plate with means of the regular mounting bolts.
- The 3-button wander lead with spiral cable [option OAE046.2] is usually stored inside the vehicle cabin.
- Test all functions of the wireless control and the 3-button wander lead with spiral cable.

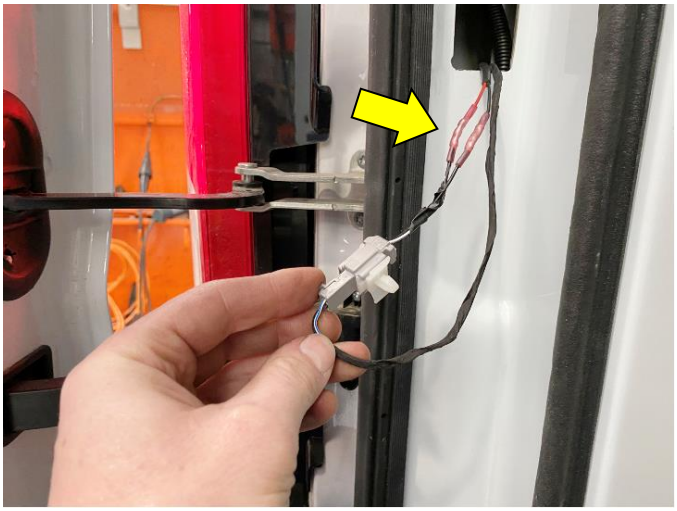
## 12.6 LICENSE NUMBER PLATE LIGHT [OPTION OAE210]

- Refer to 11.3 on page 28 for the installation of the cable for the license number plate light from the platform to the lift frame.
- This option replaces the original light on the vehicle door.
- Mount a protective conduit over the stretch of cable behind the plug.
- Route the cable to the rear light cluster on the side where the original light was located. Make sure that the cable cannot be cut, squeezed, chafed, heated and melted or damaged otherwise by vehicle body, moving parts of the vehicle and tail lift.
- Attach the cable with cable ties at min. 200 mm intervals.





- The new cable must be connected in lieu of the wiring of the original license number plate light.
- Refer to the FITTING AND BODY BUILDING INSTRUCTIONS of the vehicle manufactuer for further detail. Or instruct the manufacturer's dedicated workshop to make this connection.



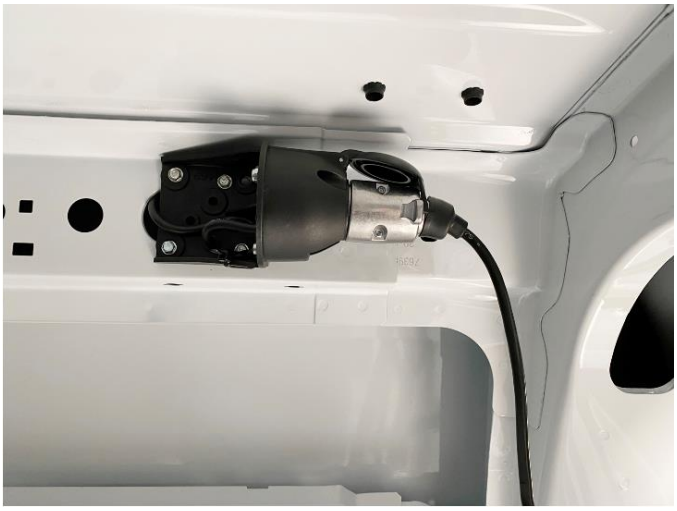
- Switch on the vehicle lights.
- Test the license number plate light installed on the platform.

## 12.7 INTALLATION OF EXTRA CONTROLS

- Because of the large choice in different controls, the installation of these systems is dealt with in a separate document.


- Read and follow the instructions FIT-ELEC-OPTION-… (latest update). If not supplied with the tail lift, these can be downloaded from the “DOWNLOAD” section on our website:

  **www.dhollandia.com → Country & language selection → Downloads → Mounting instructions → General → … select required manual**



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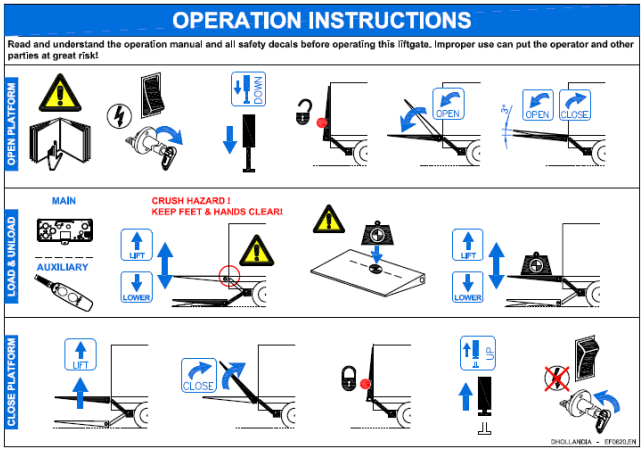
# 13 PUTTING THE TAIL LIFT INTO SERVICE

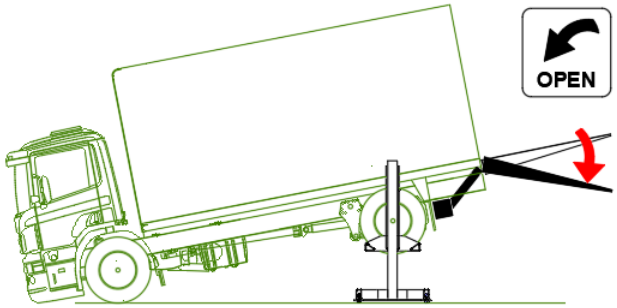
- Make sure that the lift frame and mounting plates are installed in accordance with the installations drawings and instructions.
- Make sure that all bolts and nuts are fastened with the required torque. See appendix 16.2 on page 57.
- Make sure that all electrical connections are finished in accordance with the instructions under 12 from page 36 onwards.
- Refer to the operation manual and decals for instructions how to operate the tail lift safely. See also 15 from page 52 onwards.
- Switch on the electrical power to the tail lift (cabin switch, main battery disconnect switch, or a combination of both).
- Operate LIFT to raise platform up to vehicle floor. Stop when you hear the hydraulic pump turn in overpressure.
- Operate CLOSE to close platform against rear frame of the body. Stop when you hear the hydraulic pump turn in overpressure.

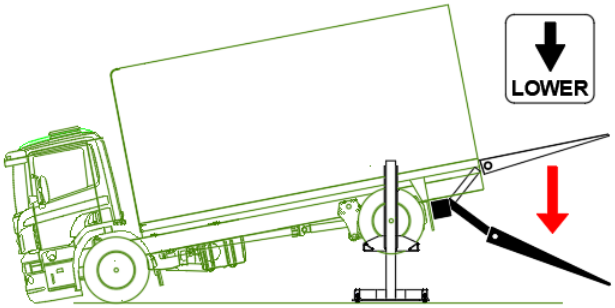



## ⚠ WARNING

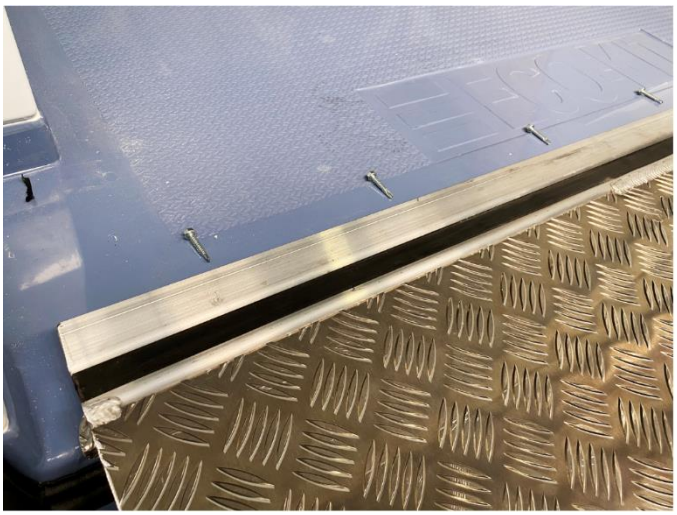
- Improper use of the tail lift can put the operator at great risk of serious bodily injury and death. If in doubt how to use tail lift correctly, ALWAYS consult the operation manual prior to continuing.
- Check for visible leaks of hydraulic oil as the system is being pressurised. If there is leakage, correct the problem prior to continuing.
- Air might be trapped in the hydraulic circuits, as long as the tail lift has not been bled. Air can cause the platform to make unexpected movements, and can put the installer at great risk of serious bodily injury. The installer MUST remain vigilant, and stay out of the range of motion of the platform and the moving parts of the lift as long as the hydraulic circuits have not been bled and all functions duly tested.

- If not done so yet, remove the wheeled mounting jack or pallet truck. Remove all remaining mounting aids (hoists, forklift with slings, C-clamps, etc.) that have been used during installation.
- Operate OPEN followed by LOWER to lower the platform to the ground.
- Verify the safety valves on all cylinders. Make sure the coils and their cables are positioned so that they cannot be pinched or damaged during the various functions. Make sure the locking nut of the coil is firmly tightened.
- Execute all functions at least 5 times. Makes sure there is no interference or collision between the tail lift and the vehicle. The tail lift should operate smoothly and quietly, and at a fairly constant pace. Only the sound of the power pack should be audible. In case of jerking movements or odd sounds, discontinue, investigate the issue at hand, and correct prior to continuing.
- Bleed the air from the hydraulic circuits. Preferably, raise the rear end of vehicle off the ground, or raise its air suspension to the allowed maximum.
- Starting from the platform in closed position:
  1. OPEN the platform fully to the lowest point and press OPEN for extra 20 sec. CLOSE the platform again and repeat until no more air bubbles back to the oil reservoir.
  2. LOWER the platform fully to the lowest point and press LOWER for extra 20 sec. LIFT the platform again and repeat until no more air bubbles back to the oil reservoir.




- In case of a regular installation with rear doors, determine the adequate position for the bridge plate [option OAM008].
- Cut the bridge plate to the desired width.
- Mount the bridge plate to the vehicle floor.

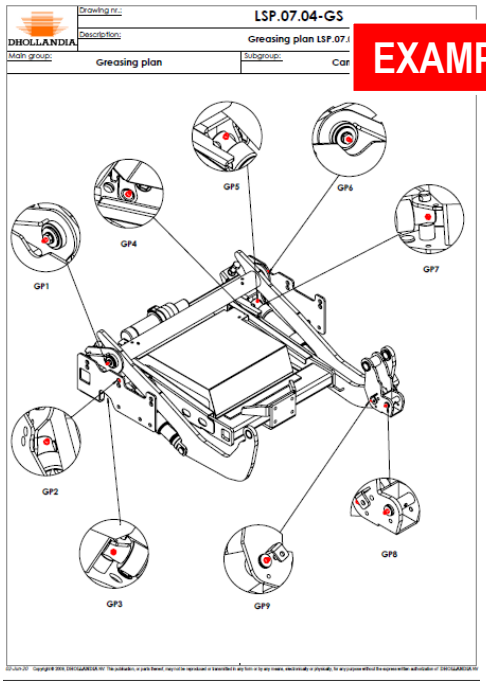


# 14 LUBRICATION INSTRUCTIONS

- All articulation points equipped with grease nipples should be lubricated with acid free grease after installation, and once in service with intervals as indicated in the MAINTENANCE AND REPAIR MANUAL.


- Refer to appendix 17.4 from page 61 onwards for the relevant grease plan of the tail lift, or download any from the website:

  **www.dhollandia.com → Country & language selection → Downloads → Maintenance & Repair → Grease plans → … select required plan**

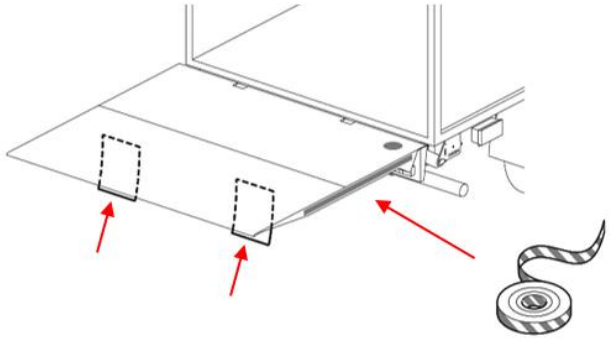



- Use the grease gun to inject grease, until a grease collar is formed on both sides of the articulation that will protect it from ingress of water, salt, sand and dirt etc.
- Note that some grease nipples might be less visible, located in the pin itself, or in the larger assembly that pivots around the pin.
- In case a pin has 2 grease nipples, grease both sides.
- Ensure all grease nipples work correctly. Replace any defective nipples.
- Always acid-free grese. The use of graphite grease is not allowed.

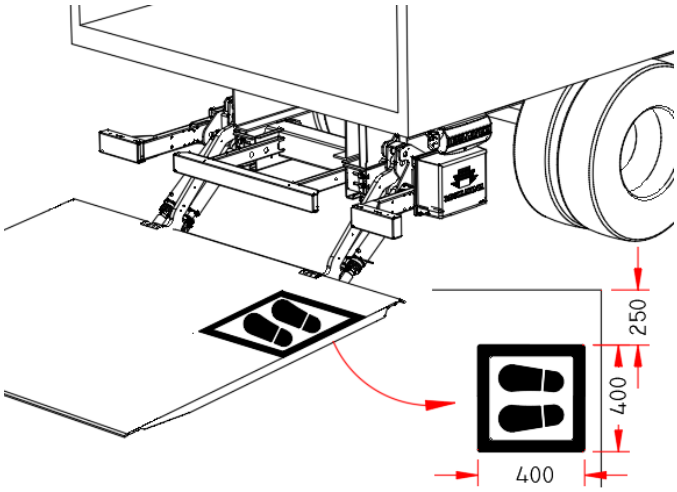
| ***NOTICE*** |
| --- |
| To give the tail lift a good start and maximize its longevity, it is important to grease all pivot points thoroughly after installation. |

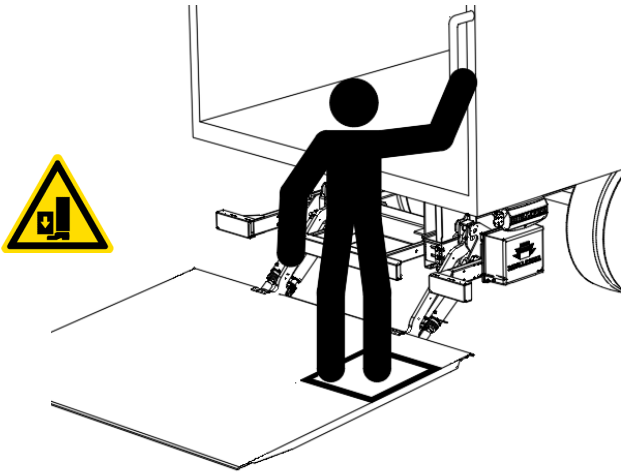
# 15 QUALITY CONTROL AND PDI TEST

- Finish the tail lift in accordance with local regulations.
- Execute all functions min. 5 times to ensure the tail lift functions correctly. In particular:
  1 Verify that the automatic tilt at ground level operates properly.
  2 Verify that the end stops for the lift arms correctly set and the locking bolt fastened.
  3 Verify that the platform in work position aligns level with vehicle floor or bridge plate [option OAM008].
  4 Verify that the platform closes correctly in travel position.
- Make sure that the platform will be clearly visible in public traffic:
  1. Apply the RD/WH reflective marking tape on both sides of the platform.
  2. Install the platform flags to the underside of the platform point.
  3. If applicable, connect the flashing platform lights and verify their function.

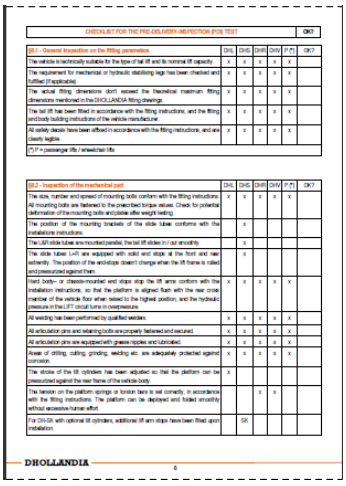


- If the operator is allowed to travel up and down on the platform by other means than original foot controls, mark a safe operator position of 400 x 400mm at a safe distance of 250 mm from the hazardous crushing area between the inboard platform edge and the rear cross member of the vehicle floor.

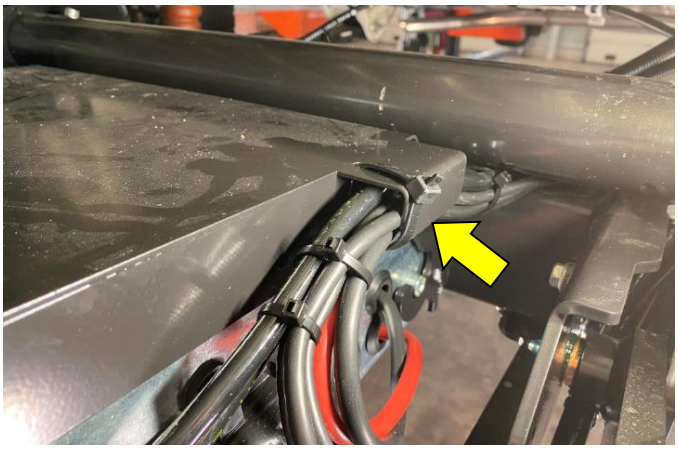


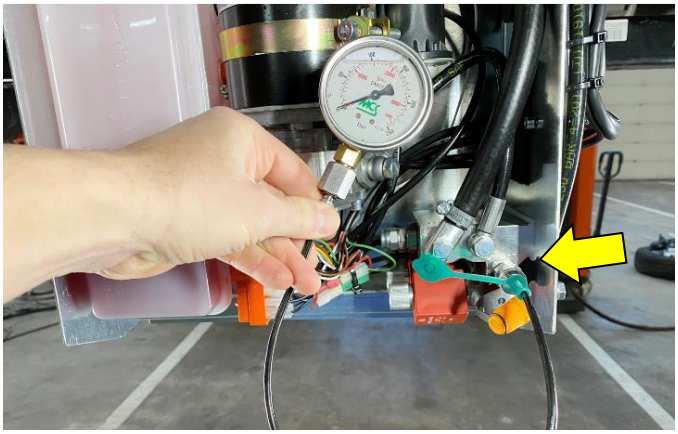
- Refer to the CE IDENTIFICATION AND INSPECTION LOGBOOK.
- Work through the CHECKLIST FOR THE PRE-DELIVERY INSPECTION (PDI) TEST.
- Complete the practical tests indicated therein.
- Fill-out the FITTING DECLARATION.



- Cut the cable tie that holds the wire loom to the side of the power pack, in order to get access to the pressure relief valve for the weight test.

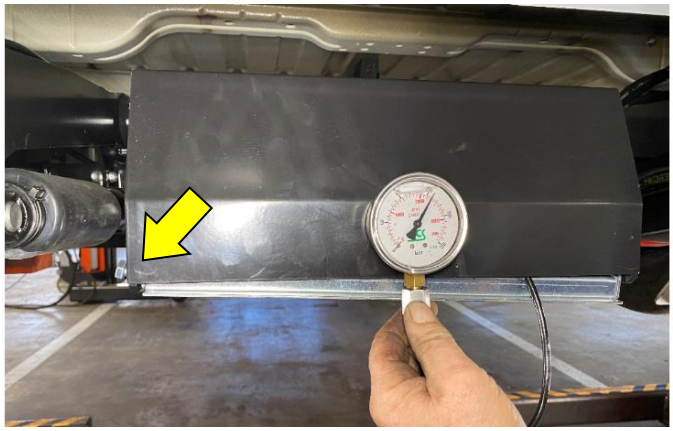


- Connect the pressure gauge ref. K0106 to the pressure reading point.

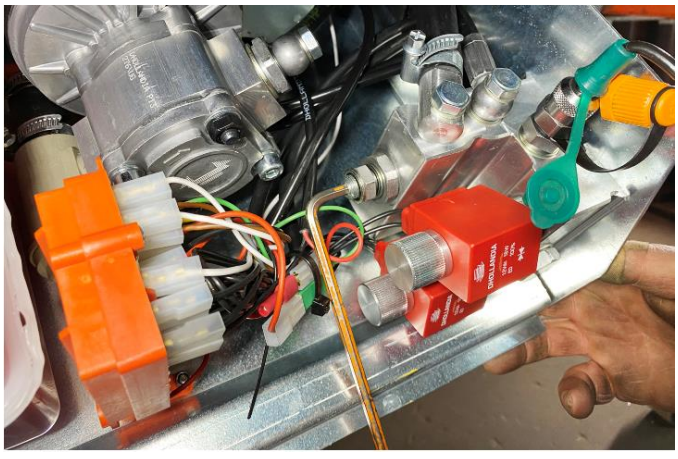


## NOTICE

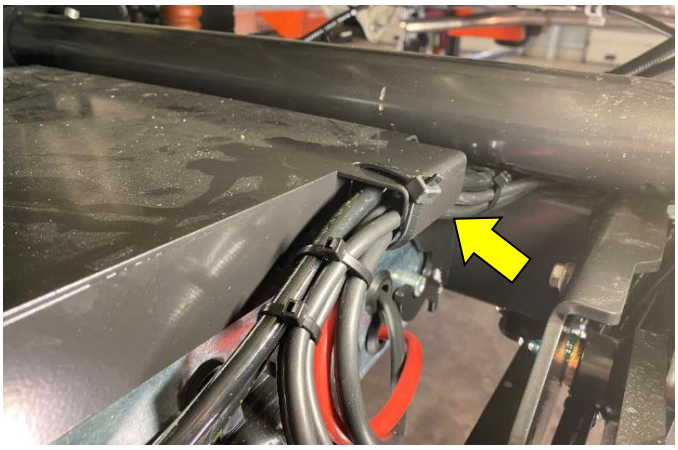
- DO NOT operate LIFT or CLOSE while the power pack is hanging open. The hydraulic pump might suck air and a purge of the pump might be required.
- ALWAYS raise the power pack as much as possible prior to LIFTING / CLOSING the platform.



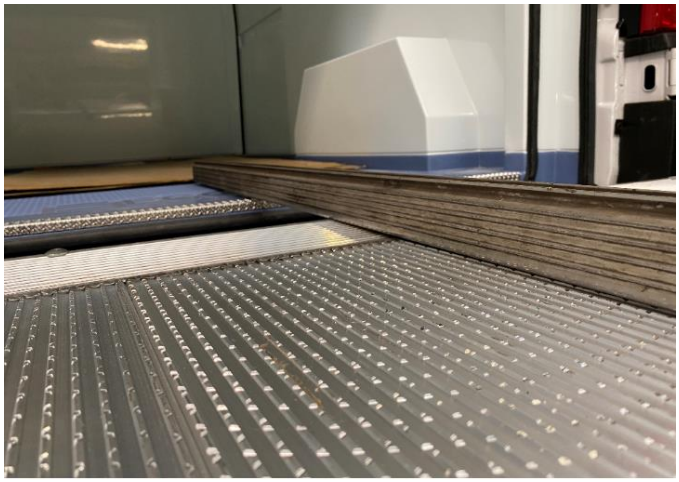
- During the weight test, adjust the hydraulic blow-off pressure at the main valve block inside the power pack in accordance with the maximum rated capacity of the tail lift.
- Adjust the pressure if too high or too low, seal the pressure relief valve after that.
- If in doubt how to adjust the pressure relief valve, refer to procedure I-SERV-G-003 of the MAINTENANCE AND REPAIR MANUAL, or contact your national DHOLLANDIA distributor for help. See contact info on page 4.

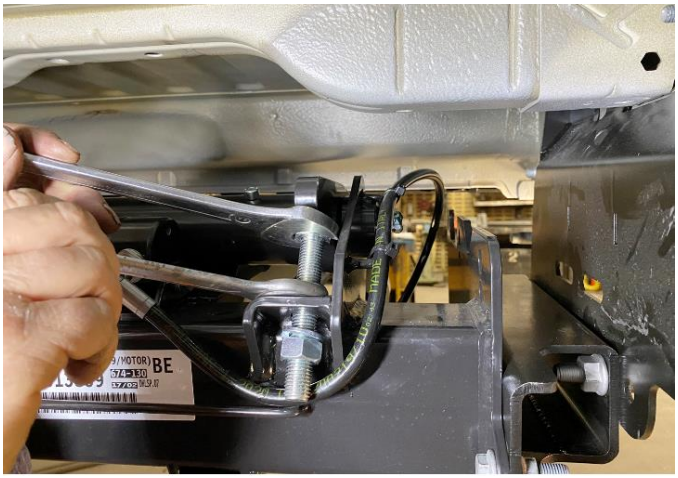


- If you have cut the cable tie of the wire loom at the side of the power pack earlier, replace that cable tie by a new one and firmly attach the wire loom to the holder.

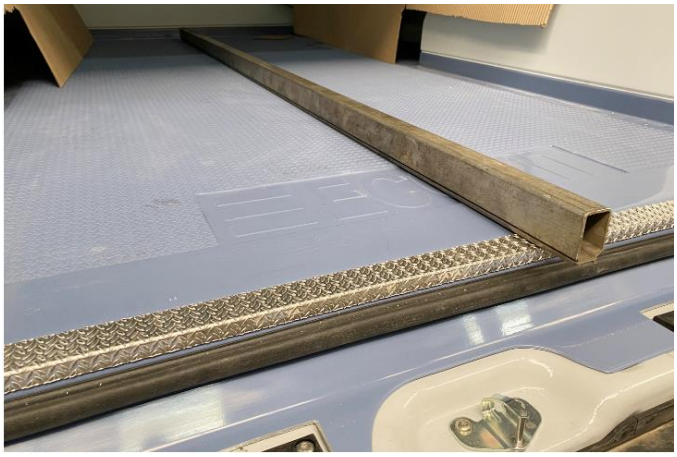


- Refer to 11.4 from page 31 onwards. Again lay a profile on the platform that protrudes the inboard platform edge by approx. 300 mm.
- Verify if the platform still aligns up correclty with the vehicle floor or bridge plate.
- Adjust the end stops of the lift arms if required.





- During the weight test, lay a long profile on the vehicle floor as reference.
- Verify and make sure the vehicle floor doesn't flex or distort while performing the dynamic weight test.



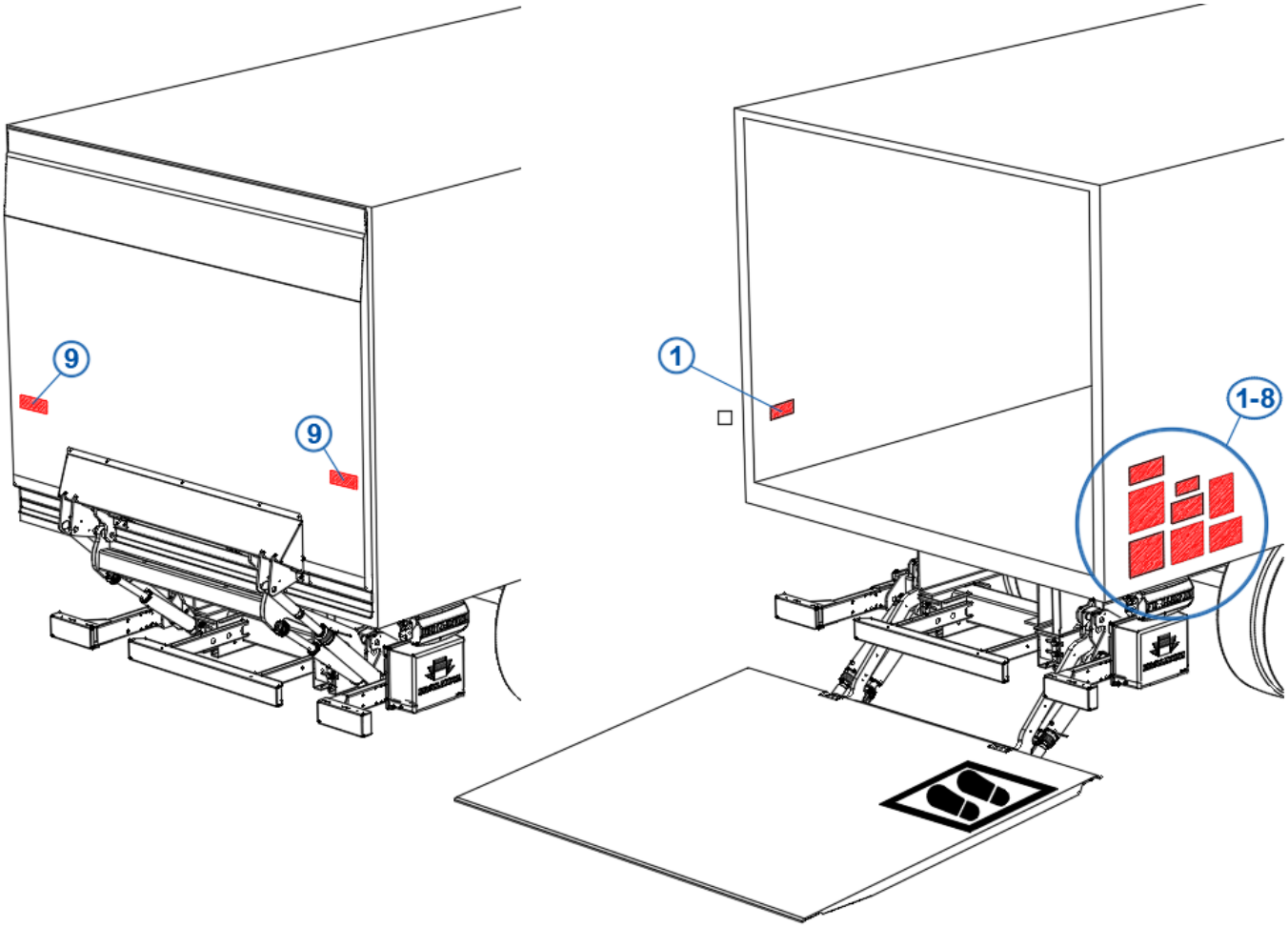
- Check and retighten the mounting bolts and nuts after the static and dynamic weight test performed during the pdi test.

- Apply the safety decals to the tail lift and vehicle body before delivery to the customer, see 16 on page 53.

| NOTICE | ⚠ WARNING |
|---|---|
| • The PDI check-list completes the final quality inspection of the installation. Once completed successfully, it will certify the safe and reliable operation of the tail lift.<br>• Operating a tail lift that hasn't successfully passed the PDI test can lead to premature wear or damage of the tail lift itself.<br>• Operating a tail lift that hasn't successfully passed the PDI test can put the operator and third parties at great risk, and could result in sever personal injury or death. | |

## 16 DECALS

- Affix the safety decals to the tail lift and vehicle body in accordance with the instructions below.
- Note: the decals marked as "EXAMPLE" can vary in function of the maximum rated capacity of the tail lift, or the chosen type of external control box.

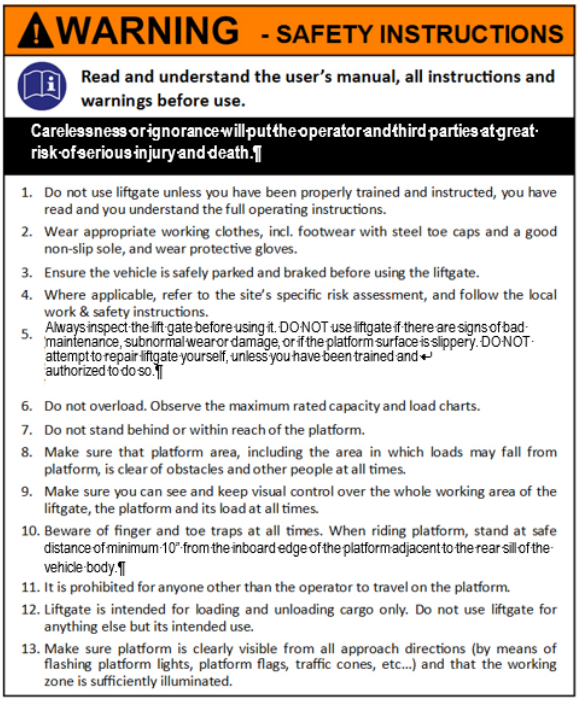


1

EF0583.LM.EN

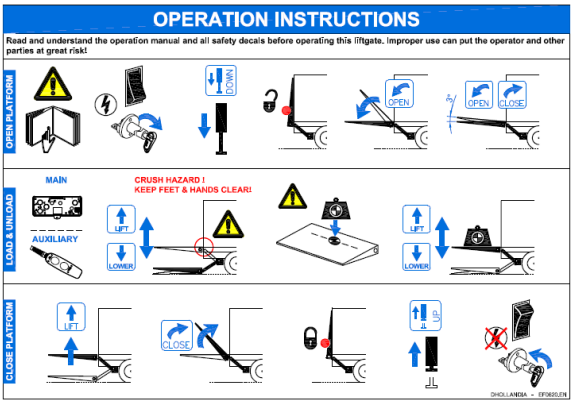

2

EF0565.EN




3

EF0620.EN

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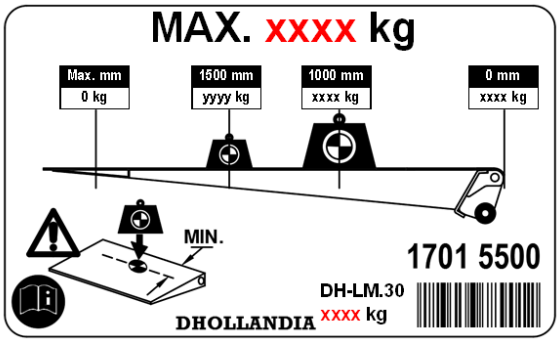
EF0570.CAP

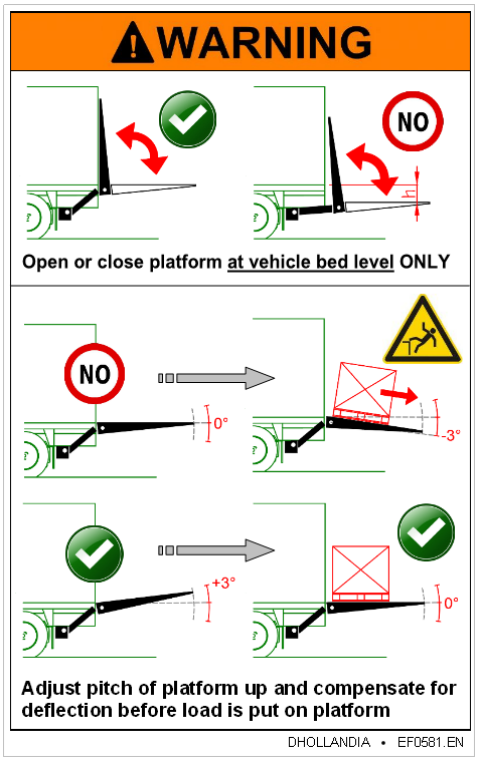

5

EF0585.US



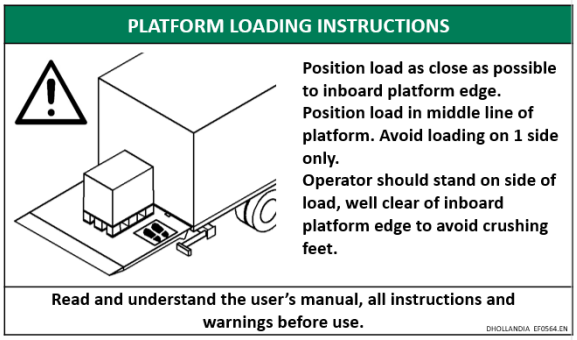

6

EF0581.EN



7 EF0563.EN


8 EF0564.EN




9 EF0562.EN


- Tail lift decals used and affixed in areas, other than the rear of the vehicle.

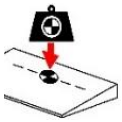
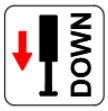
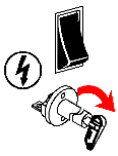
1 EF0814..EN.CE


Cabin switch in driver's cabin to switch electrical power to tail lift on / off (if so equipped)

# 17 APPENDIX

## 17.1 MEANING OF THE SAFETY AND WARNING SIGNS

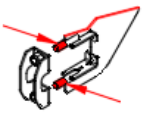
| WARNING signs | | MANDATORY ACTION signs | |
|---|---|---|---|
|  | Overview and keep visual control over the working area of the tail lift at all times. |  | Contact your regional DHOLLANDIA distributor. |
|  | General warning sign used to alert the user to potential hazards. All messages that follow this sign shall be obeyed to avoid possible harm. |  | Consult the DHOLLANDIA website.<br>Download from DHOLLANDIA website. |
|  | Entrapment hazard. Keep hands, limbs, loose clothes and long hair away from moving parts. |  | Read the manual or instructions. |
|  | Crushing & shearing hazard. Keep hands away from moving parts. |  | Hold onto guard rail. Protect yourself from falling off the platform, or vehicle floor. |
|  | Crushing & shearing hazard. Keep feet away from moving parts. |  | Wear safety gloves. |
|  | Slipping hazard. |  | Wear safety-toe shoes. |
|  | Tripping hazard. |  | Wear appropriate work clothes, avoid loose-fitting clothes that might be trapped in the moving parts of the lift. |
|  | Hazard caused by tilting objects. |  | Wear safety protection, eye protection and a safety hard hat. |
|  | Hazard of falling from heights. |  | Follow these welding instructions. |
|  | Crushing and entrapment hazard. Keep head, upper body and limbs away from moving parts |  | Follow these bolt instructions. Fasten the bolts and nuts with the required torque. |
| | |  | Grease / lubricate.<br>Inject grease in the grease nipples. |
| **PROHIBITION signs** | | | |
|  | General prohibition. DO NOT do! |  | DO NOT use machine by more than 1 operator! |
|  | General prohibition. DO NOT do! |  | DO NOT step or stand here! |

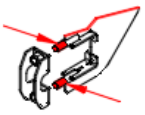
| OTHER frequently used signs | | Signs for the electric / hydraulic functions | |
|---|---|---|---|
|  | Yes do this way. Correct work procedure. |  | OPEN the platform, or TILT DOWN. |
|  | No, DO NOT do this way. -Incorrect work procedure. |  | LOWER the platform. |
|  | Position the load at the applicable center of maximum load. Follow the load instructions. |  | LIFT the platform. |
|  | Tail lift with mechanical auto-tilt at ground level (and auto-tilt swing brackets). |  | CLOSE the platform, or TILT UP. |
|  | Tail lift with hydraulic auto-tilt at ground level (and hydraulic memory cylinder) |  | SLIDE OUT the platform. |
|  | Unlock.<br>Disengage the mechanical locking system. |  | SLIDE IN the platform. |
|  | Lock.<br>Engage the mechanical locking system. |  | Push the stabilising LEGS DOWN. |
|  | Switch ON the electrical power. |  | Pull the stabilising LEGS UP. |
|  | Switch ON the electrical power to the tail lift via the main battery disconnect switch and / or cabin switch. |  | Lower the hydraulic RAMP DOWN. |
|  | Switch OFF the electrical power. |  | Raise the hydraulic RAMP UP |
|  | Switch OFF the electrical power to the tail lift via the main battery disconnect switch and / or cabin switch. |  | Switch between external and internal controls. |
|  | This is an operation to be executed manually (as opposed to an electrical function controlled by means of one of the control units). | | |

## 17.2 PRESCRIBED TORQUE VALUES FOR BOLTS AND NUTS

- The installer MUST verify that all bolted connections are fastened with required torque in accordance with the table below.
- After weight testing, the installer MUST verify that all bolted connections between lift frame and mounting plates, and between mounting plates and vehicle chassis are still tightened in accordance with required torque. Retighten if required.
- Use a calibrated torque wrench to tighten bolts and nuts to the prescribed torque value.

| NOTICE | ⚠ WARNING |
|---|---|
| • Incorrect, too soft or too hard tightening of bolts can lead to accidental fall of the tail lift off the vehicle chassis.<br>• A fall of the tail lift off the chassis can damage the tail lift and / or vehicle chassis and can cause serious bodily injury or death to the operator and any bystanders.<br>• Therefore, it is essential that the mounting plates are installed following the instructions of this manual. | |

| Nm<br>Metric Value | Type of Stress<br>STD = 8.8 * = 10.9<br>Pull | <br><br>Shear |
|---|---|---|
| 1. M08 x 1.25 | 8 | 23 |
| 2. M10 x 1.50 | 15 | 46 |
| 3. M12 x 1.75 | 26 | 79 |
| 3. M12F x 1.5 | 65 * | 125 * |
| 5. M14 x 2.00 | 65 | 125 |
| 6. M14F x 1.50 | 100 * | 195 * |
| 8. M16 x 2.00 | 100 | 195 |
| 7. M16F x 1.50 | 150 * | 280 * |
| 9. M20F x 1.50 | 160 ** | |
| 10.M24F x 2.00 | 270 ** | |
| * = 10.9 ** =  | | |

| LbsFt<br>Imperial Value | Type of Stress<br>STD = 8.8 * = 10.9<br>Pull | <br><br>Shear |
|---|---|---|
| 1. M08 x 1.25 | 6 | 17 |
| 2. M10 x 1.50 | 11 | 34 |
| 3. M12 x 1.75 | 19 | 58 |
| 3. M12F x 1.5 | 48 * | 92 * |
| 5. M14 x 2.00 | 48 | 92 |
| 6. M14F x 1.50 | 74 * | 144 * |
| 8. M16 x 2.00 | 74 | 144 |
| 7. M16F x 1.50 | 111 * | 206 * |
| 9. M20F x 1.50 | 118 ** | |
| 10.M24F x 2.00 | 199 ** | |
| * = 10.9 ** =  | | |

## 17.3 ELECTRIC AND HYDRAULIC REQUIREMENTS

- The applicable wiring diagrams are stored at the inside of the main external control box.


- A copy of the wiring diagrams can also be obtained from the national DHOLLANDIA distributor [see contact info on page 4]; or downloaded from the DHOLLANDIA website:
  **www.dhollandia.com → Country & language selection → Downloads → Electrical & hydraulic wiring diagrams → … select required diagram**

- Remark: the following cable sections are recommended (+) battery cables and (-) earth cables. Note: these are general data. Subject to agreement with our order department, other configurations are possible.

| Recommended cable sections for (+) battery cables and (-) earth cables | |
|---|---|
| **Size electric motor** | **Cable section** |
| 500 W | 16 mm² - 5 AWG |
| 12V ● 1200 – 2000 W<br>500 – 1500 kg capacity / length ≤ 10 m<br>500 – 1500 kg capacity / length 10 – 18 m<br>Capacity > 1500 kg<br>Length > 18 m | <br>25 mm² - 3 AWG<br>35 mm² - 1 AWG<br>50 mm² - 0 (1/0) AWG<br>50 mm² - 0 (1/0) AWG |
| 24V ● 1200 – 2000 W<br>500 – 2000 kg / length ≤ 18 m<br>Capacity > 2000 kg<br>Length > 18 m | <br>25 mm² - 3 AWG<br>35 mm² - 1 AWG<br>35 mm² - 1 AWG |
| 24V ● 3000 W<br>Length < 18 m<br>Length > 18 m | <br>35 mm² - 1 AWG<br>50 mm² - 0 (1/0) AWG |
| Long motor cycles > 25 sec (double deck, power down) | 50 mm² - 0 (1/0) AWG |

- Batteries and their charging system should be chosen to comply with the following minimum requirements:

| | Voltage System | | | | | |
|---|---|---|---|---|---|---|
| | 12V | | | 24V | | |
| **Tail lift capacity (lb / kg)** | **Electrical power (Amp)** | **Battery capacity (Ah)** | **Generator output (A)** | **Electrical power (Amp)** | **Battery capacity (Ah)** | **Generator output (A)** |
| ≤ 1750 lbs / 750 kg | 200 | 143 | 70 | 150 | 105 (2X) | 70 |
| ≤ 2200 lbs / 1000 kg | 250 | 143 | 70 | 200 | 105 (2X) | 70 |
| ≤ 3300 lbs / 1500 kg | 250 | 180 | 90 | 200 | 180 (2X) | 90 |
| > 3300 lbs / 1500 kg | 250 | 180 | 110 | 200 | 180 (2X) | 110 |
| > 3300 lbs / 1500 kg Frequent usage | 300 | 220 | 110 | 250 | 220 (2X) | 110 |

## NOTICE

- To ensure the reliability of the tail lift over many years, it is extremely important that the batteries, their charging system, the (+) battery and (-) earth cables, fuses and circuit breakers are dimensioned sufficiently strong, and fitted with care in accordance with the DHOLLANDIA installation instructions. Insufficient battery power will cause harm and irreparable damage to the electric components of the tail lift (starter solenoid, electric motor, electric switches, etc.).
- Insufficient cable gauge on the (+) battery and (-) earth cables can lead to overheating, bad performance of the electrical system, and premature wear of the main electrical components.
- (-) earth circuits are as important as (+) battery circuits for the good operation of the tail lift, but often overlooked in troubleshooting. Make sure you take these into consideration when executing repairs or maintenance checks.

- DHOLLANDIA mainly uses 3 types of oils in its hydraulic systems.

| Option code | Temperature range | Type of oil, examples |
|---|---|---|
| Standard | Mild to hot | ISO VG 22 |
| OAH001 winter oil | Down to -30°C / -22°F | ISO VG 15 |
| OAH002 arctic oil | Down to -50°C / - 58°F | Hydr. Fluids such as Castrol Aero HF585B |

## NOTICE

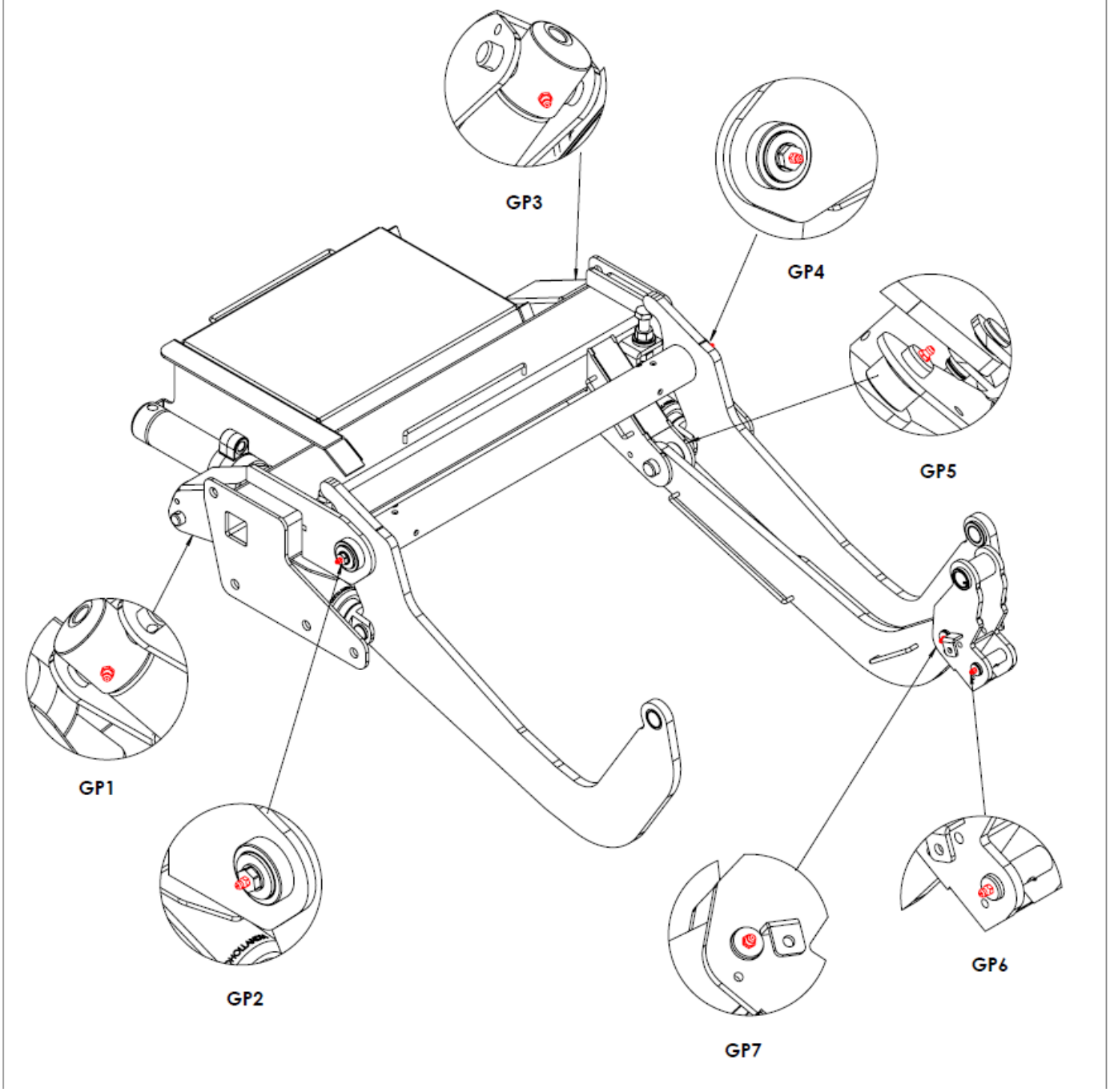
It is important to follow these guide-lines with due care. A lot of oils or fluids used in automotive industry, such as transmission fluids and ATF oils, are not suitable for tail lift use. DHOLLANDIA has not tested the potential consequences of oils and fluids with deviating specifications and cannot be held responsible or legally liable for any damage to the tail lift caused by the replenishment with non-compatible oils or fluids; nor for the consequential damage to property or physical harm to individuals.

## 17.4 GREASE PLANS

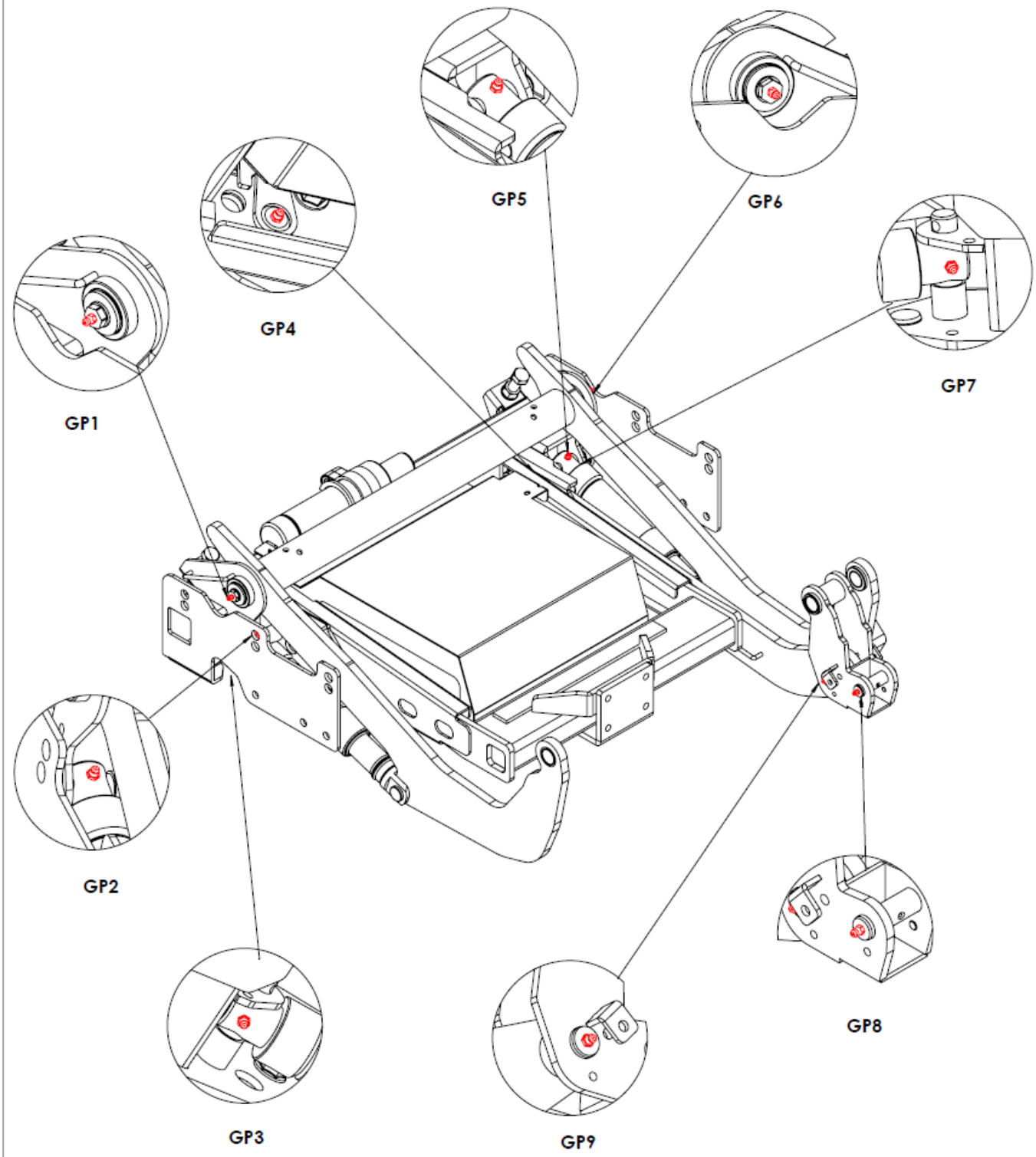
- This annex includes grease plans for the most frequent tail lifts DH-LSP* 500-1000 kg.


- A copy of the grease plans can also be obtained from the national DHOLLANDIA distributor [see contact info on page 4]; or downloaded from the DHOLLANDIA website:
  **www.dhollandia.com → Country & language selection → Downloads → Maintenance | Repair → Grease plans → … select required plan**

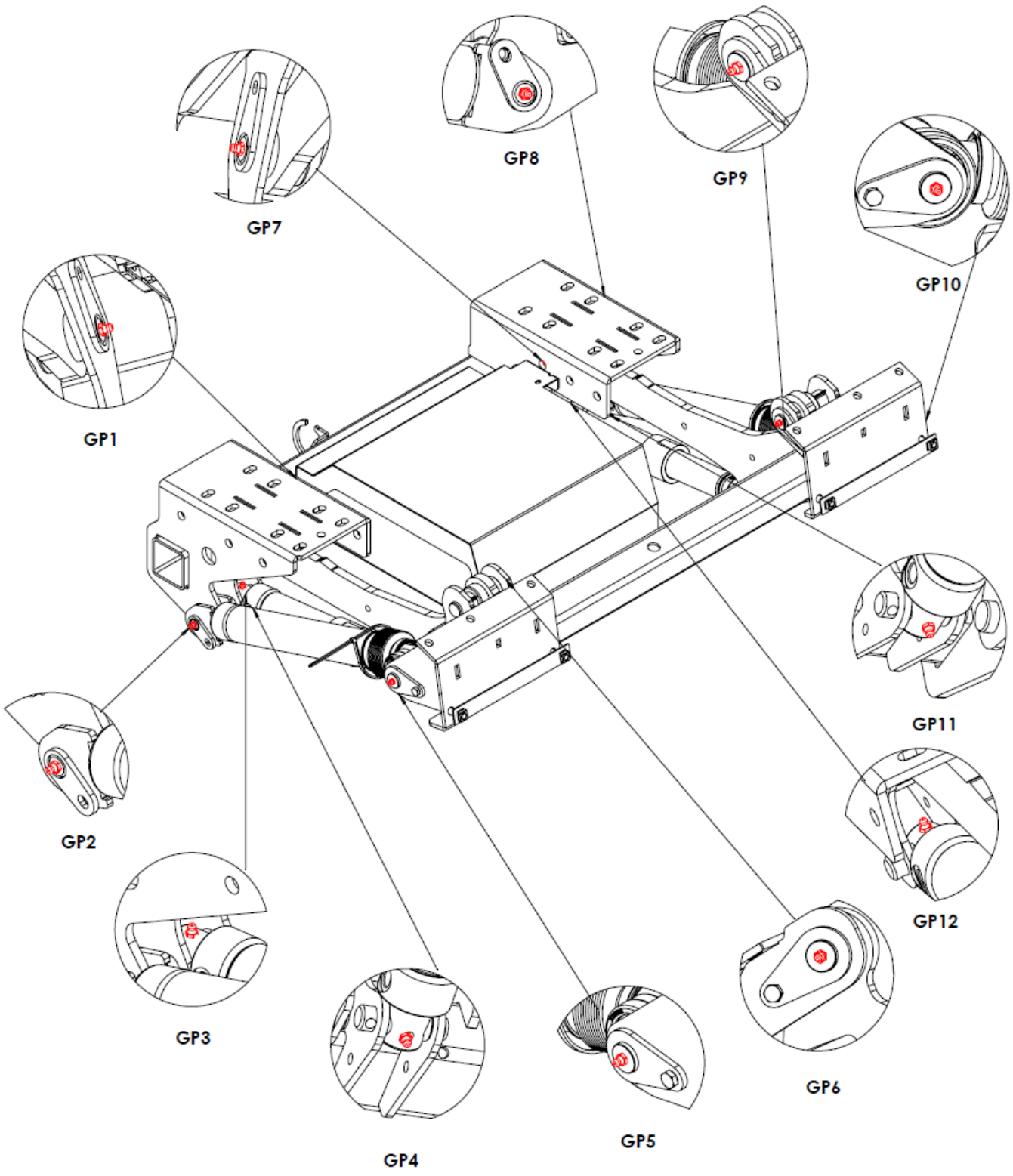
| DHOLLANDIA | Drawing nr.: | LSP.07.03-GS |
|---|---|---|
| | Description: | Greasing plan LSP.07.04 |
| Main group: | Greasing plan | Subgroup: Cantilever lift |



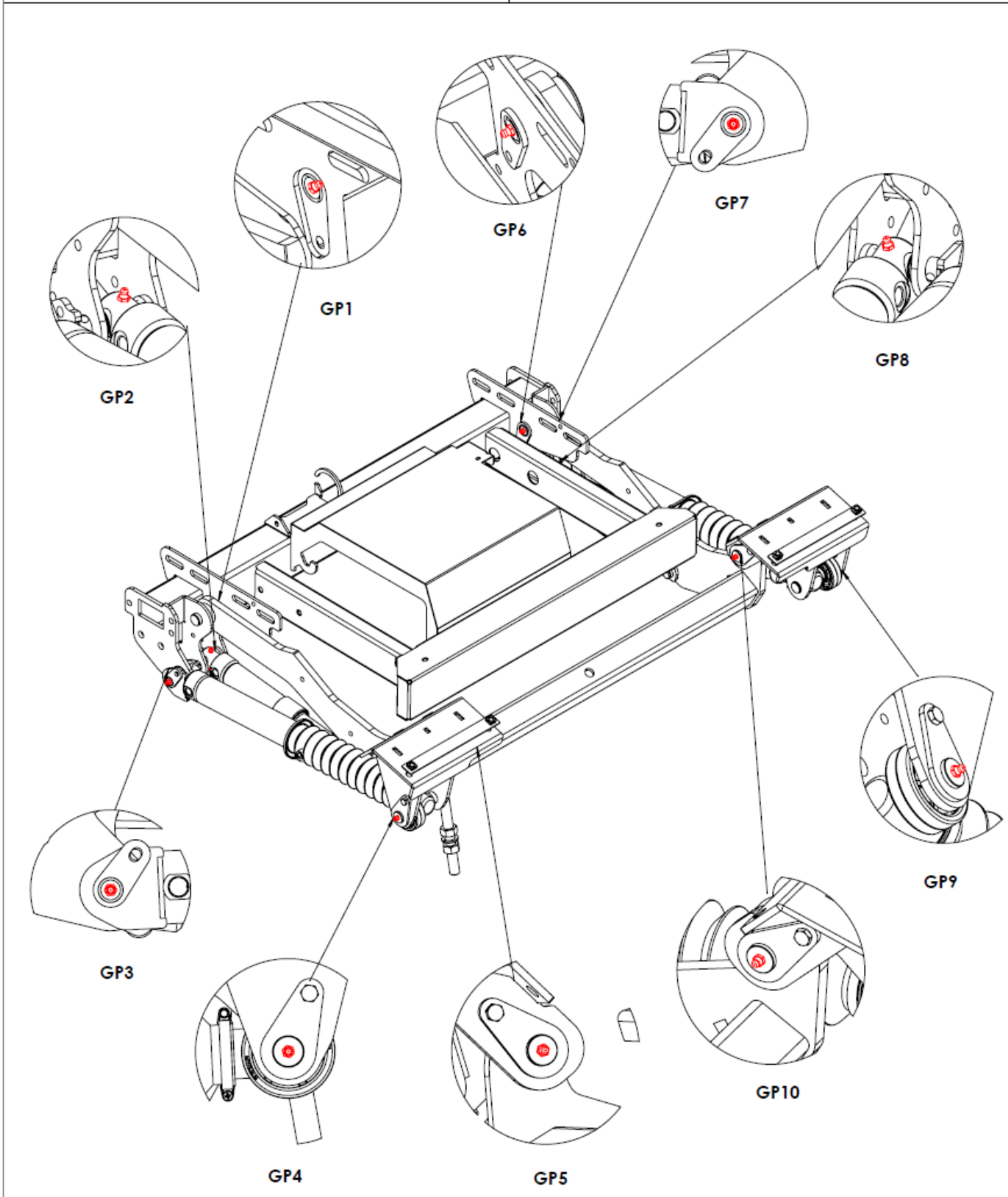
| | | |
|---|---|---|
| DHOLLANDIA | Drawing nr.: | LSP.07.04-GS |
| | Description: | Greasing plan LSP.07.04 |
| Main group: | Greasing plan | Subgroup: Cantilever lift |



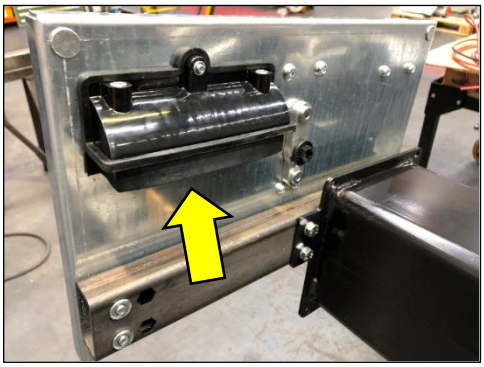
| | | |
|---|---|---|
| DHOLLANDIA | Drawing nr.: | **LSP.10.01-GS** |
| | Description: | **Greasing plan LSP.10.01** |
| Main group: **Greasing plan** | | Subgroup: **Cantilever lifts** |

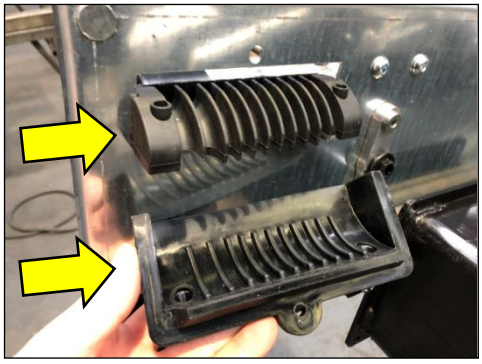


| | | |
|---|---|---|
| DHOLLANDIA | Drawing nr.: | **LSP.10.02-GS** |
| | Description: | **Greasing plan LSP.10.02** |
| Main group: **Greasing plan** | | Subgroup: **Cantilever lift** |

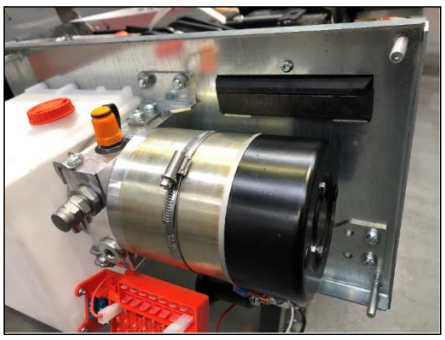


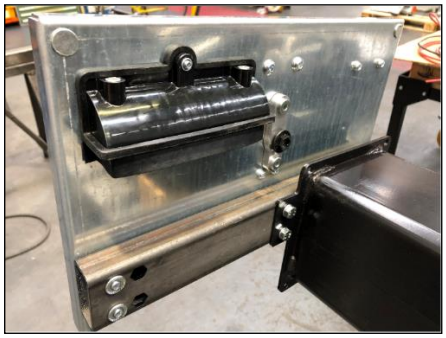
## 17.5 CONNECTIONS TO THE MAIN EXTERNAL CONTROL BOX TYPE 1

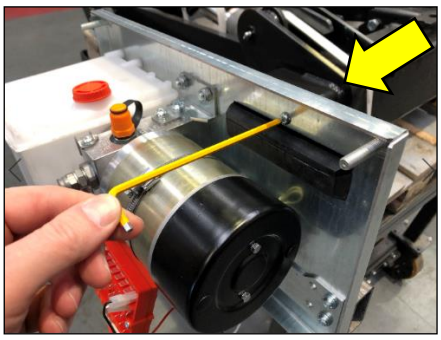




Most types of power packs are equipped with a multi-cable entry seal, with dedicated channels for narrower and wider diameter cables. Follow the instructions below to run cables through the entry seal.

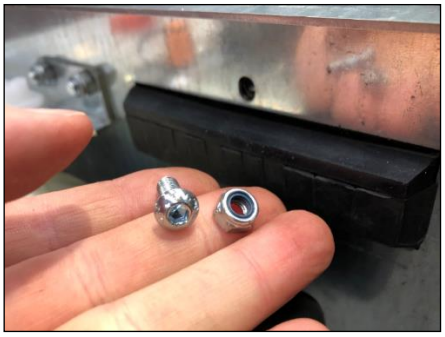






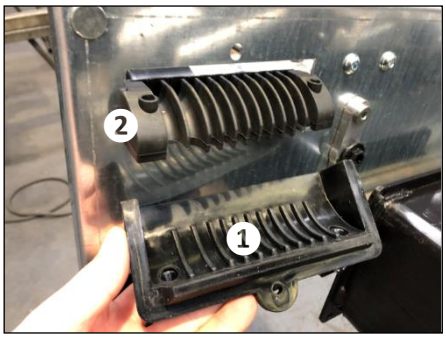
Above images show what the entry seal looks like, when no cables are mounted. To pass the cables through to entry seal, proceed as explained in the following steps.

From the inside, unbolt the middle Allen bolt that bolts the entry seal to the back plate of the power pack, by means of an Allen key nr. 4.

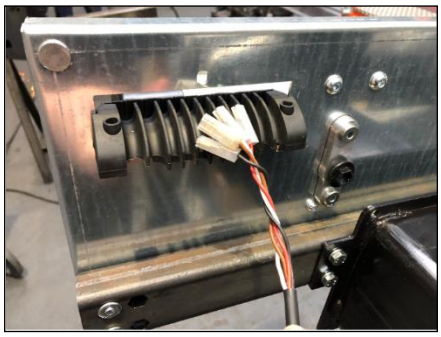


Unscrew the bolt and nut.

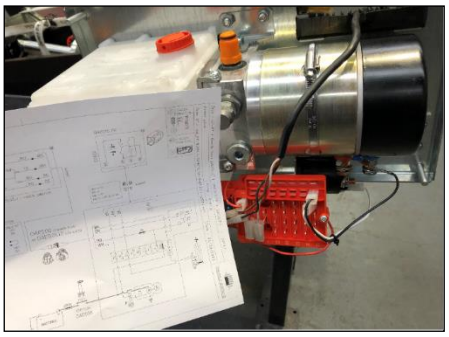
From the outside, unbolt the 2 vertical Allen bolts that hold the 2 main elements of the entry seal together, by means of an Allen key nr. 5.




Pull back and lift the upper element [1]. The entry seal has wider and narrower channels. Reserve the wider for the ticker battery & earth cables. Use the narrower for control units, cables of safety valves etc.

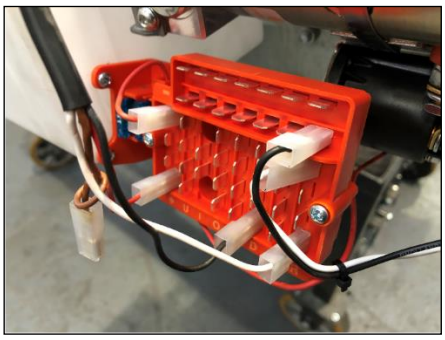


For control units, lead the cable through the entry seal. Use one of the narrower channels..

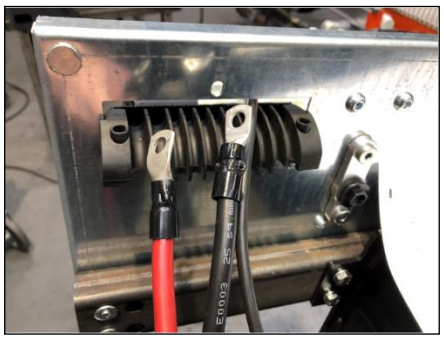


Lead the wire to the orange connection block and connect as per wiring diagram supplied with the tail lift.

Route the cable in such a way that it cannot be damaged or pinched.

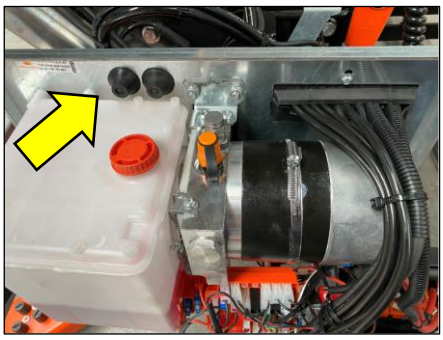


Connect the cable as per wiring diagram supplied with the tail lift.

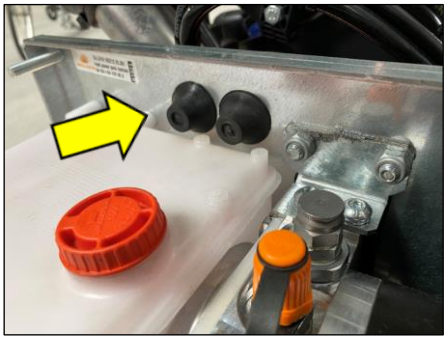


For the battery & earth cables, lead the cables through the entry seal. Use one of the wider channels.

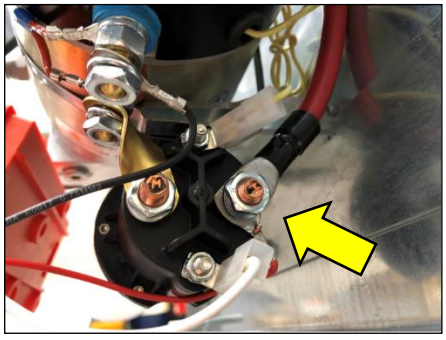
Route the cables in such a way that it cannot be damaged or pinched.



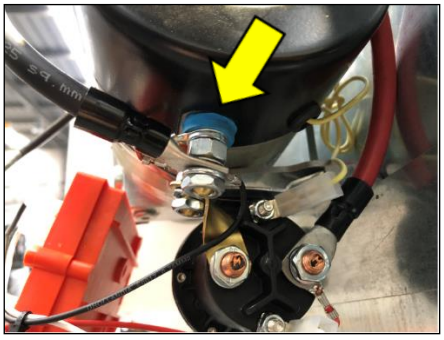
As alternative, 2 rubber grommets are available through which the battery & earth cables can be lead inside the power pack.



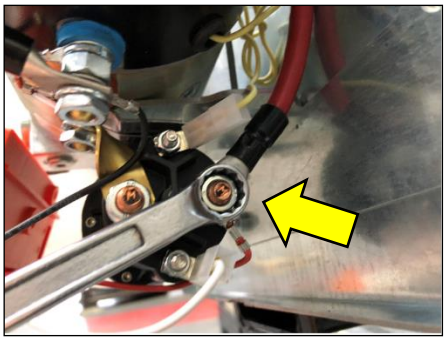
Make sure all rubber grommets are repositioned correctly after passing the cables.



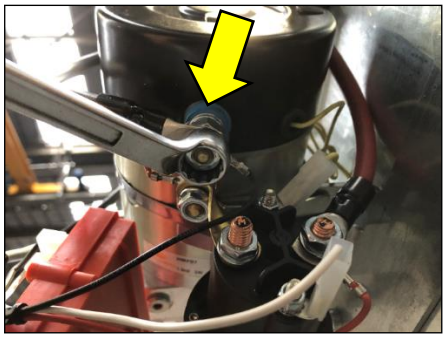
A- If no main battery disconnect switch, connect the battery cable to the incoming main terminal of the starter solenoid. [see B- below]



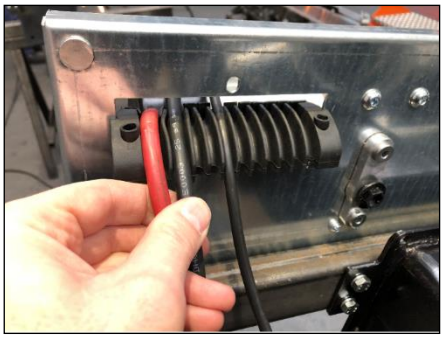
Connect the earth cable to the earth point of the DC motor.



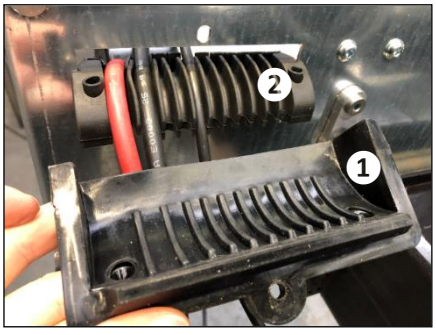
Tighten the nut of the incoming main terminal of the starter solenoid by means of a hexagonal key nr. 13.



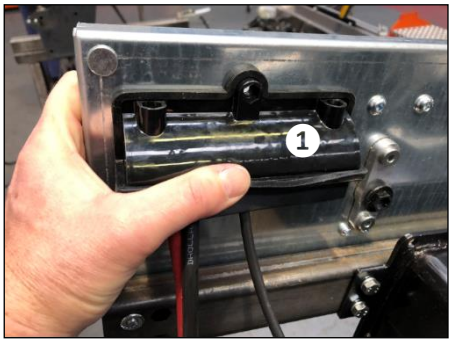
Tighten the nut of the earth point of the DC motor by means of a hexagonal key nr. 13.



Neatly arrange the various cables in their assigned channels. Push them down into the groove, make sure the cables don't overlap the vertical divider lips between the various channels.

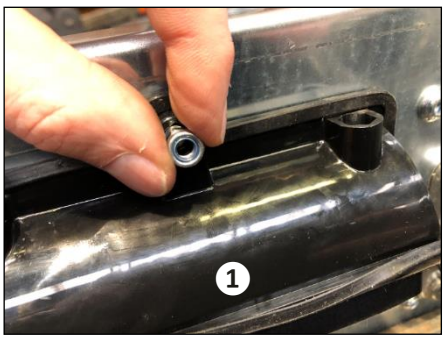


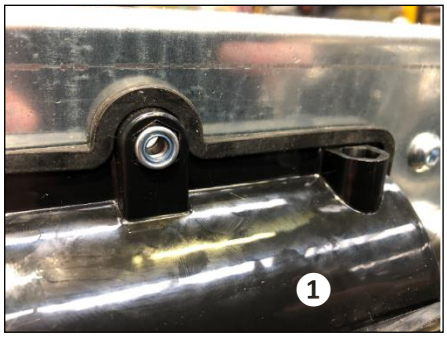

Prepare to place the top element [1] back on top of the bottom element [2].

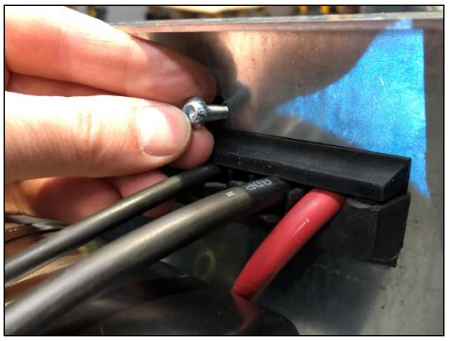

Slide the top element [1] back in the cut-out foreseen in the back plate of the power pack, and press it hard against the back plate.

Make sure the sealing lips between the various cables remain straight, don't get curled or deformed. Make sure that the various cables remain nicely located in their assigned channel.

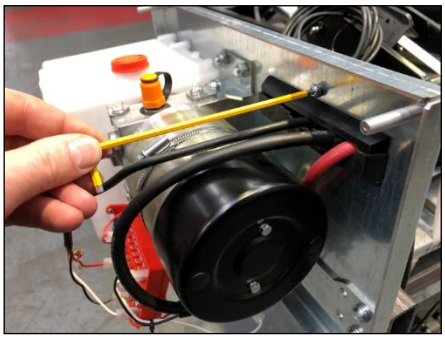


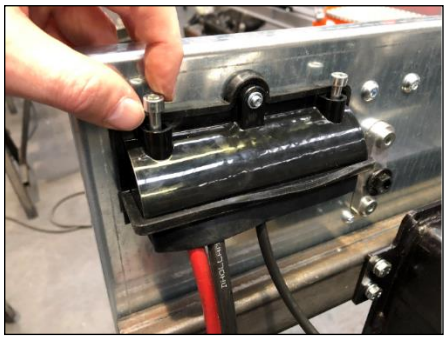

If the nut was dismounted or had become dislocated, insert it back into its socket.



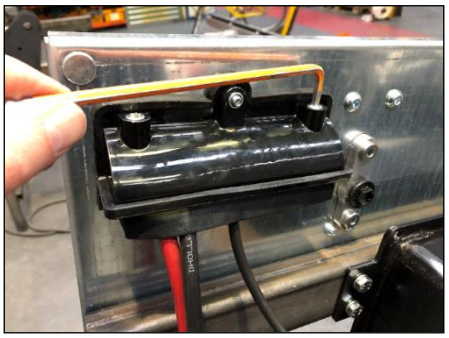
At the inside, mount the Allen bolt back in its original position.



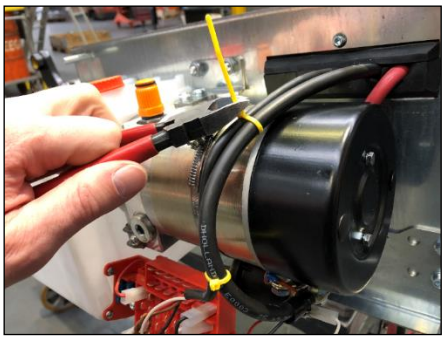
Tighten the bolt firmly by means of an Allen Key nr. 4.



At the outside, mount the 2 Allen bolts back in their original vertical position.

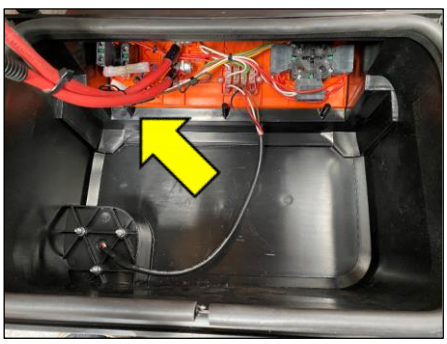


Tighten the 2 bolts firmly by means of an Allen Key nr. 5.

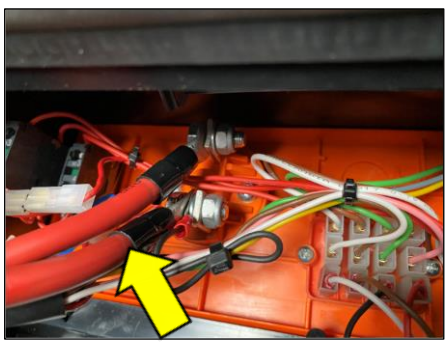


At the inside, route all cables so that they are protected against damage, pinching and chafing.

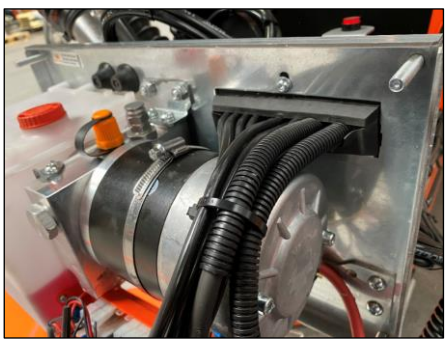
Use cable ties to bind the cables together, protect cables against vibration, and finish off in a clean way.



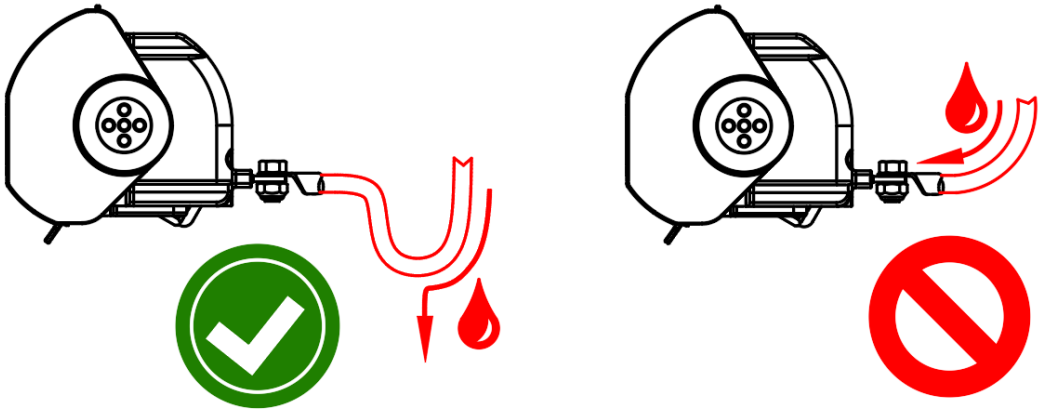
B- If so equipped, connect the battery cable to the incoming terminal of the main battery disconnect switch.



Tighten the nut of the incoming terminal of the main battery disconnect switch by means of a hexagonal key nr. 13.



Finish off the multi-cable entry seal as explained above for the case without main battery disconnect switch.



When mounting electrical cables, ALWAYS make sure they make a downward curb as they exit the control box or power pack; so that water can drop off in a natural way. This is an easy way to prevent water ingress through the grommets or cable glands.

## NOTICE

- To ensure the reliability of the lift over many years, it is extremely important that the installer connects the battery cables and earth cables to the control box and power pack, heat shrinks and seals the connections with due care.
- Insufficient torqueing of the connection bolts can cause overheating and short circuits. Improper sealing can cause water ingress, and premature corrosion of the connections.
- DHOLLANDIA disclaims liability for any personal injury or property damage that results from improper or negligent installation.

## 17.7 SAFE OPERATOR POSITION ON THE PLATFORM

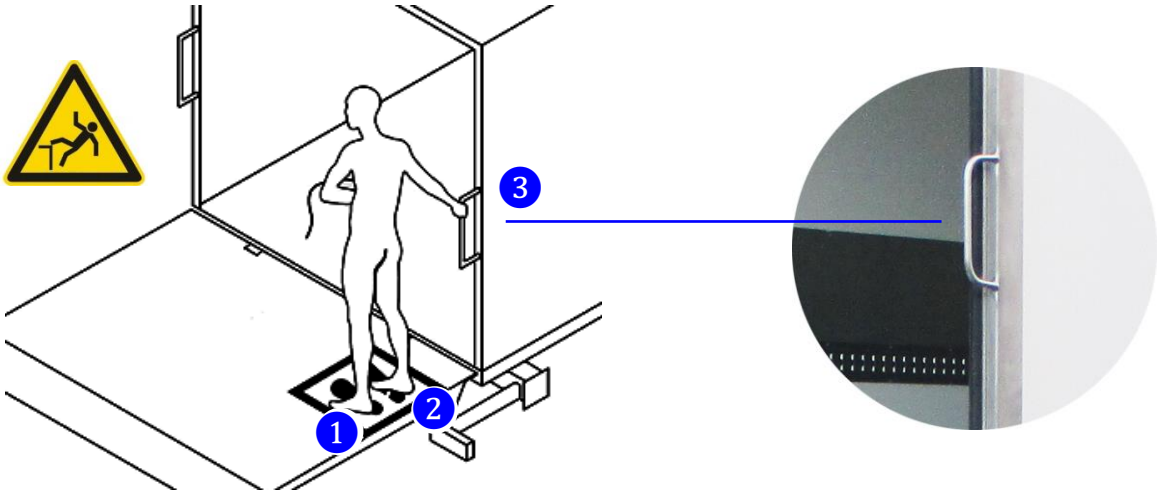
- Consult the OPERATION MANUAL section 7 on safety instructions for using the tail lift.

- The operator travelling up and down on the platform, faces 2 main risks:

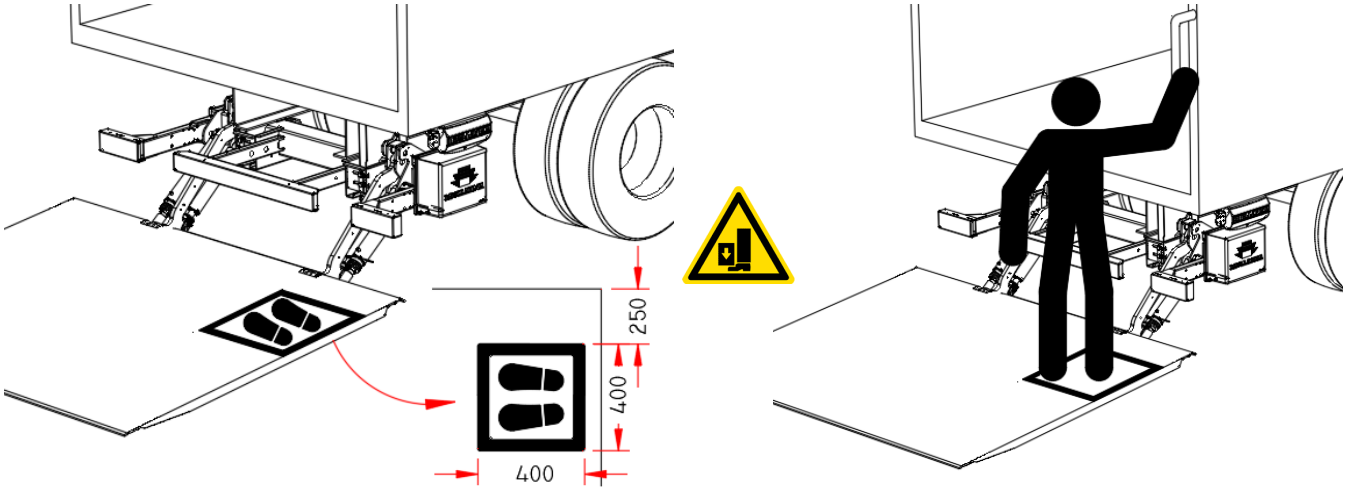
1. Falling from the platform. Falling from the platform can result in serious bodily injury or death.

2. Crushing and shearing the limbs between the raising platform and the rear end of the vehicle floor / floor plate / bed extension. Crushing or shearing body parts can will result in serious bodily injury or death.

- To reduce the risk of falling, mount a handgrip to the rear frame of the vehicle body. This handgrip will enable the operator to maintain 3 points of contact while travelling on the platform, in accordance with the operation manual.
- The handgrip is normally foreseen by the body builder as part of the design of the body. A DHOLLANDIA alternative can be ordered with spare part ref. M1406.

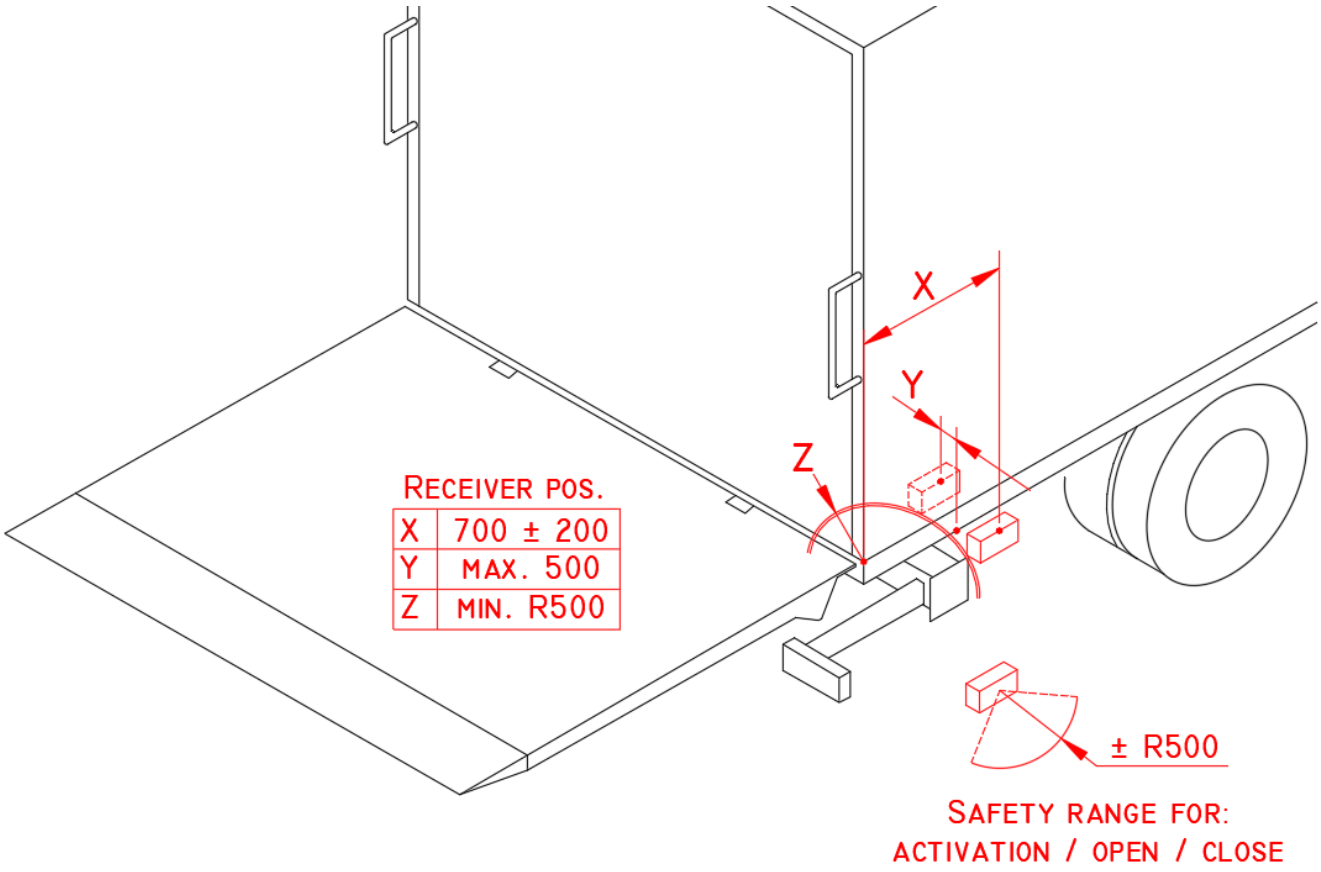



- To reduce the risk of crushing and shearing, permanently mark a safe operator position of 400 x 400 mm at a safe distance of 250 mm from the inboard platform edge, if the operator is allowed to travel on the platform by other means than the original foot controls.
- The marking is normally foreseen by the body builder, or can be ordered from DHOLLANDIA with option ref. OAT140.L / OAT140.R. A metal paint mask can be ordered from DHOLLANDIA with spare parts ref. EF0100.



## 17.8 WIRELESS REMOTE CONTROLS – GENERATION 2020

- The 2020 generation of wireless remote controls [E0463.2.S for 2-button control; E0463.4.S for 4-button control] incorporates following functions and restrictions to comply with European Standard EN1756-1:
  1. ACTIVATION of the 2- and 4-button controls can only be done when the transmitter is held at a distance of max. +- 500 mm from the receiver.
  2. OPEN & CLOSE on the 4-button controls can only be done under the same condition, when the transmitter is held at a distance of max. +- 500 mm from the receiver.
  3. LIFT & LOWER function normally from a safe operator position on the platform or besides the vehicle body.
- The receiver is used as a safety device to ensure that :
  1. the operator activates the wireless control from a position where he can oversee the working area of the tail lift and guarantee that nobody stands under, behind or within reach of the moving platform;
  2. the operator cannot stand under or behind the platform when opening it;
  3. the operator cannot crush his head, hands, upper body between the closing platform and the rear frame, when closing it.
- The installer shall position the receiver in a **safe but workable position** just outside of an arch of 500 mm from the rear corner of the vehicle body
  1. at a position that keeps the operator out of the crushing and shearing danger zones as described above;
  2. but still close enough to the rear so that the operator can maintain visual inspection over the working area of the platform at all times.



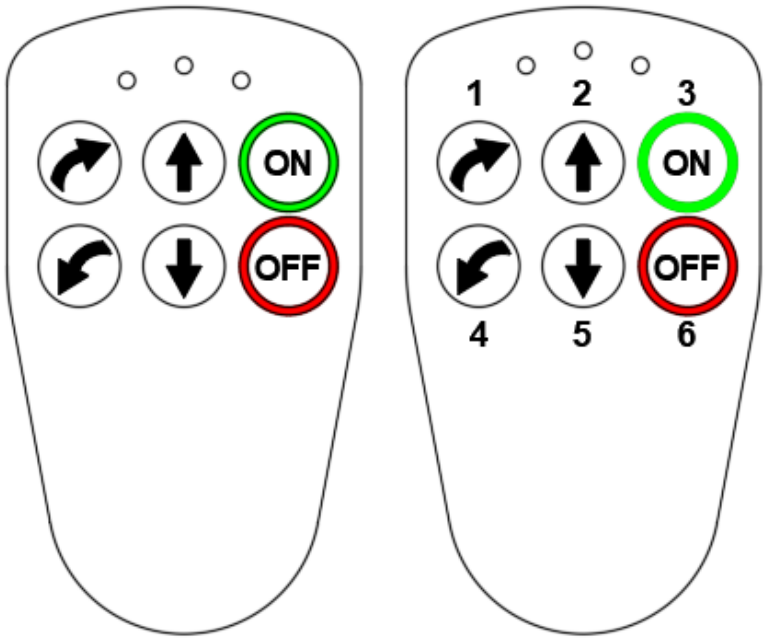

- The 2021 generation of wireless remote controls [E0463.4.XR.S for 4-button control] incorporates a safety stop after 4 seconds of OPEN / CLOSE movement. At the safety stop, the operator must ascertain he stands at a safe distance of the moving platform at the side of the vehicle and reconfirm the OPEN / CLOSE function to continue.
- The wireless remote control incorporates various modes adapted to the functional logic and wiring diagram of the tail lift. Follow the instructions below to changes modes.

- The following modes are available

| Mode selection | Lift type - functional logic |
|---|---|
| Default mode 1 | MECH X / OMM6 |
| Mode 2 | HYDR |
| Mode 3 | OMM 4 |
| Mode 4 | HYDR + safety stop after 4 sec. |

- To change the mode / mode selection:
  1. Switch power OFF at the receiver
  2. Switch power ON at the receiver
  3. Within 60 sec, switch power ON at the portable transmitter
  4. Hold button LIFT + button ON and press CLOSE → mode 1
  5. Hold button LIFT + button ON and press OPEN → mode 2
  6. Hold button LIFT + button ON and press LOWER → mode 3

| Mode selection | Functional logic | Hold | Press & select |
|---|---|---|---|
| Default mode 1 | MECH.X / OMM6 | - | - |
| Mode 2 | HYDR | LIFT + ON (button 2 + 3) | OPEN (button 4) |
| Mode 3 | OMM4 | LIFT + ON (button 2 + 3) | LOWER (button 5) |
| Mode 4 | HYDR + safety stop | LIFT + ON (button 2 + 3) | CLOSE + OPEN (button 1+4) |
| Back to default mode 1 | MECH.X / OMM6 | LIFT + ON (button 2 + 3) | CLOSE (button 1) |



## 17.9 END NOTE

- DHOLLANDIA would like to thank you for using our products and leave you with this final notice and warning.
- Additional information about this tail lift and many other DHOLLANDIA products is available at the following link: http://www.dhollandia.com/

**NOTICE**

- Competent and regular preventative maintenance is essential to the operational reliability and safety of the operator or bystanders.
- All maintenance and repair work should be performed by authorized DHOLLANDIA service agents.
- Only original DHOLLANDIA replacement parts should be used for all repairs.
- Consult the separate MAINTENANCE AND REPAIR MANUAL for safety instructions, maintenance guidelines, and troubleshooting support.

**⚠ WARNING**

- Improper use of the tail lift may result in damage, premature wear or failure of the tail lift, and will increase the risk of serious injury or death to the operator or bystanders.
- To maximize the durability, ensure long-term reliability of the tail lift, and protect operators and bystanders from serious bodily injury or death, the operator MUST comply with the proper loading instructions and safe working procedures in the OPERATIONS MANUAL.

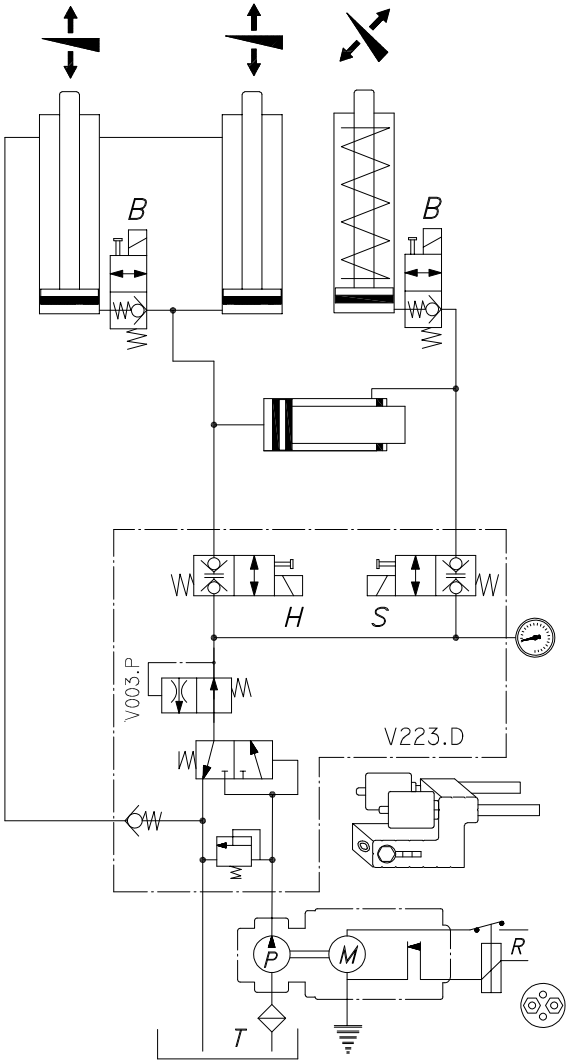
## 17.10 BASIC WIRING DIAGRAMS

- Because of the large choice in different control boxes, electric and hydraulic options, only the basic wiring diagrams are listed hereafter.
- A copy of the applicable diagram is usually stored inside the control box or power pack.
- Replacement copies can be obtained from your national DHOLLANDIA distributor, or downloaded from our website.


If in doubt where to find your national DHOLLANDIA distributor, visit the official DHOLLANDIA website:
**www.dhollandia.com → Country & language selection → Distributors & service**


Most wiring diagrams can also be downloaded from the DHOLLANDIA website:
**www.dhollandia.com → Country & language selection → Downloads → Electrical & hydraulical wiring diagrams → … select required wiring diagram**

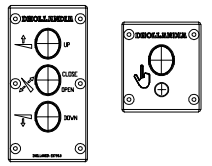
DH-LSP.05 / 07 + OAE031.Z.0 + OAE038.A

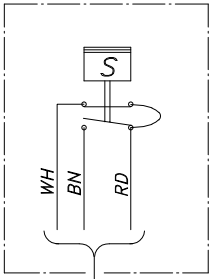


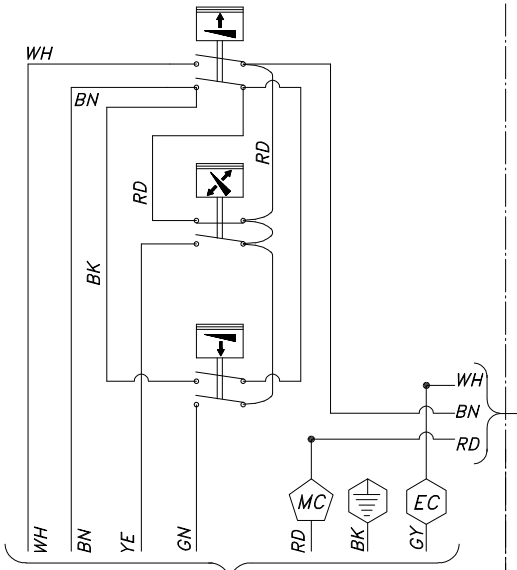

HYDR.

| | | | |
|---|---|---|---|
| DA | | R + H | R + S |
| DA | | B + H | B + S |

EXTERIOR CONTROL BOX REF. E0793.31.0.H

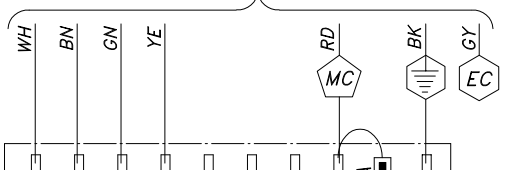


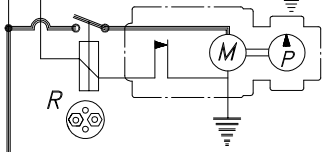


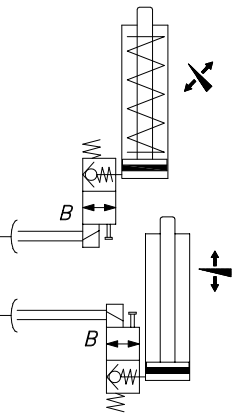




WH-> R
BN-> H
GN-> B [B=D+0]
YE-> S
GY-> +12/24V EXTRA CTRL
BK-> - EARTH
RD-> + 12/24V

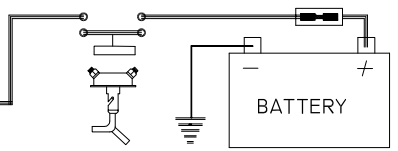
7X1MM²



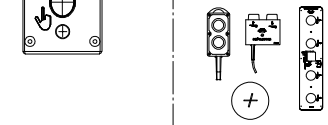



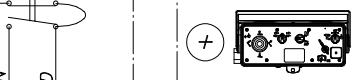

OAE038.A




EC = 24/12V EXTRA CTRL.



MC = 24/12V MAIN CTRL.



Type : VAN LIFT DH-LSP.05 (HYDR. TILT) - 2021/...

Power pack : GMA.LPDD.063008.020.X.201 | Valve : V223.D

Plan N° : wd_LSP.05-HYD-2021-01 | Date : 31/03/2021

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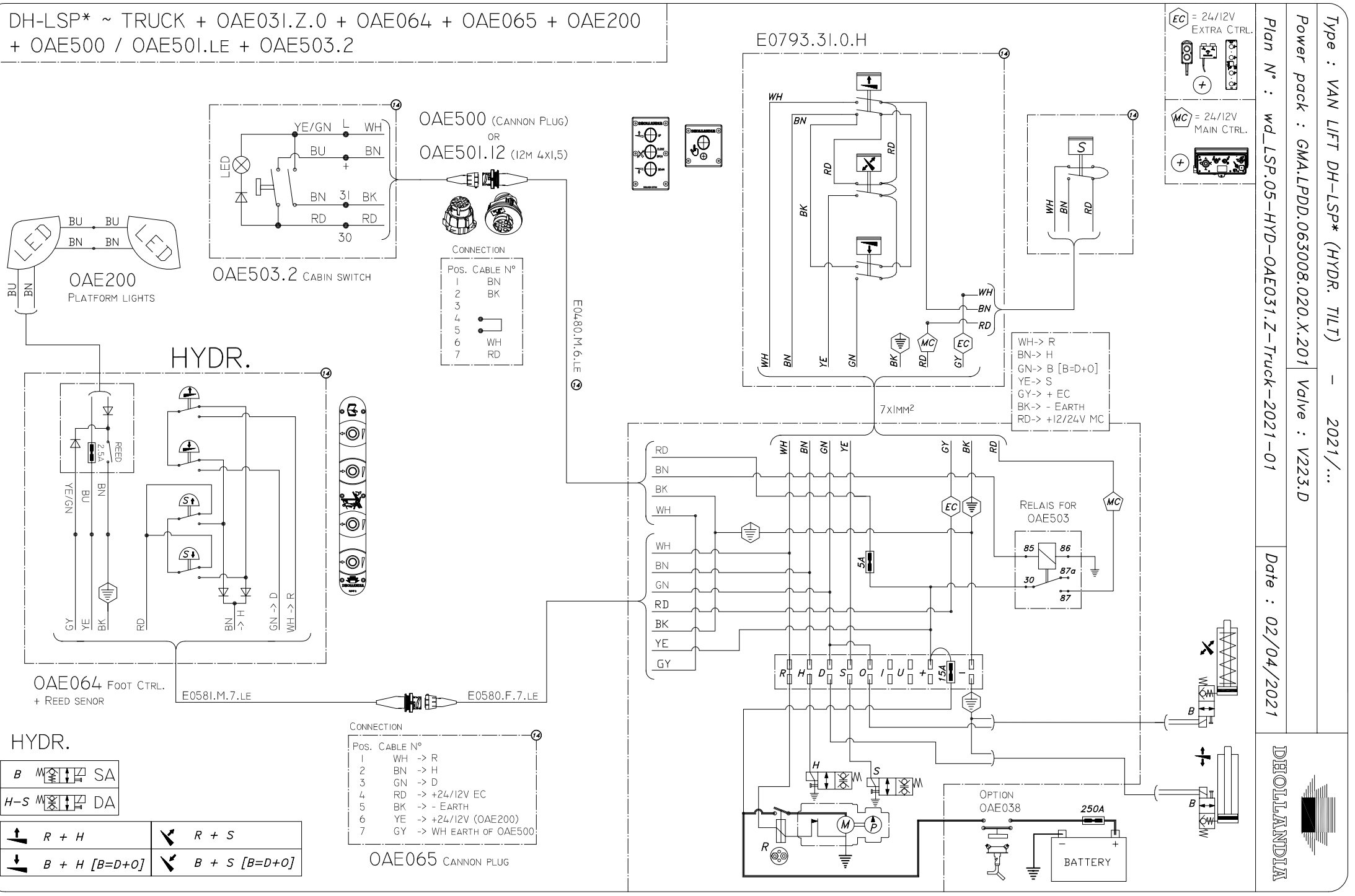
# DH-LSP* ~ TRUCK + OAE031.Z.0 + OAE064 + OAE065 + OAE200 + OAE500 / OAE501.LE + OAE503.2




CONNECTION

| POS. | CABLE N° |
|---|---|
| 1 | BN |
| 2 | BK |
| 3 | |
| 4 | |
| 5 | |
| 6 | WH |
| 7 | RD |

HYDR.

| | |
|---|---|
| B | SA |
| H-S | DA |

| | |
|---|---|
| R + H | R + S |
| B + H [B=D+O] | B + S [B=D+O] |

CONNECTION

| POS. | CABLE N° | |
|---|---|---|
| 1 | WH | -> R |
| 2 | BN | -> H |
| 3 | GN | -> D |
| 4 | RD | -> +24/12V EC |
| 5 | BK | -> - EARTH |
| 6 | YE | -> +24/12V (OAE200) |
| 7 | GY | -> WH EARTH OF OAE500 |

Type : VAN LIFT DH-LSP* (HYDR. TILT) - 2021/...

Power pack : GMA.LPDD.063008.020.X.201 | Valve : V223.D

Plan N° : wd_LSP.05-HYD-OAE031.Z-Truck-2021-01 | Date : 02/04/2021

DHOLLANDIA

# DH-LSP.05 ~TRUCK + OAE045.LSP.PR + OAE046.1 + OAE046.2 + OAE200 + OAE500 + OAE502 + OAE503.2

EC = 24/12V EXTRA CTRL.

MC = 24/12V MAIN CTRL.

OAE500 (CANNON PLUG) OR OAE501.12 (12M 4X1,5)

OAE503.2 CABIN SWITCH

CONNECTION

| POS. | CABLE N° |
|---|---|
| 1 | BN |
| 2 | BK |
| 3 | |
| 4 | |
| 5 | |
| 6 | WH |
| 7 | RD |

E0480.M.6.LE (14)

MODE CHANGE WIRELESS CONTROL:

* SWITCH POWER OFF AT RECEIVER
* SWITCH POWER ON AT RECEIVER
* WITHIN 60 SEC, SWITCH POWER ON AT TRANSMITTER
* HYDR MODE -> HOLD LIFT + ON THEN PRESS OPEN
* HYDR MODE + SAFETY STOP -> HOLD LIFT + ON THEN PRESS CLOSE + OPEN

OAE045.LSP.PR 7X1MM² WIRELESS CTRL.

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

OAE046.2 E0784.H.C

5X1MM² = E0256 (14)

OAE046.1 E0592.F.5.LE

OAE200 PLATFORM LIGHTS

OAE210 LIGHT LICENSE PLATE

I ABC 123

OAE502 FOLLOW (*) IF WITH PLUG

E0591.M.2.LE — EA0631 — EA0570 — E0591.F.2.LE

OAE502 — (*) — E0482.F.7.LE

RELAIS FOR OAE503

HYDR

| | |
|---|---|
| R + H | |
| B + H [B=D+O] | |
| R + S | |
| B + S [B=D+O] | |

CONNECTION

| CABLE N° | POS. | CABLE N° |
|---|---|---|
| - | 1 | WH -> R |
| - | 2 | BN -> H |
| - | 3 | GN -> D |
| - | 4 | RD -> +24/12V EC |
| BN | 5 | BK -> - EARTH |
| BU | 6 | YE -> +24/12V (OAE200) |
| YE | 7 | GY -> WH EARTH OF OAE500 |

OAE065 - CANNON PLUG

250A

BATTERY

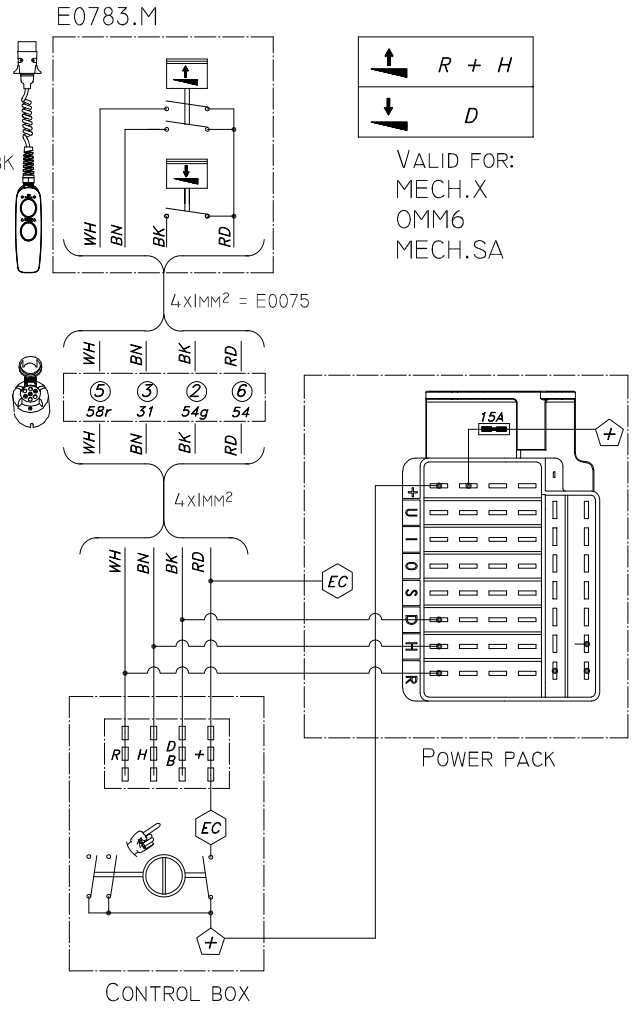
Type : Van Lift DH-LSP.05 + OAE045.LSP.PR wireless remote ctrl. - 2021/...

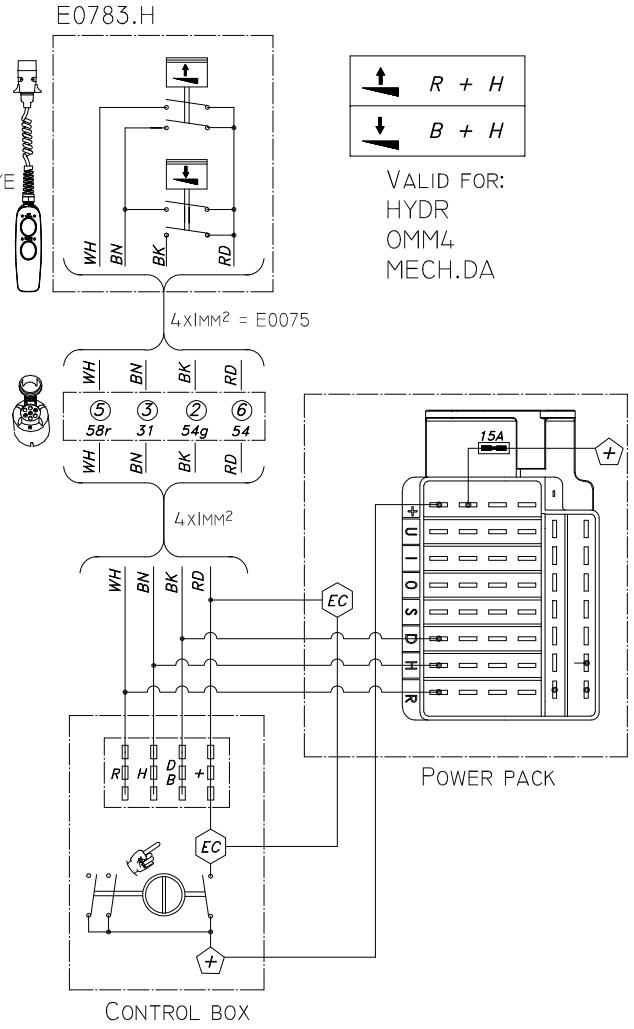
Power pack : GMA.LPDD.063008.020.X.201 | Valve : V223.D

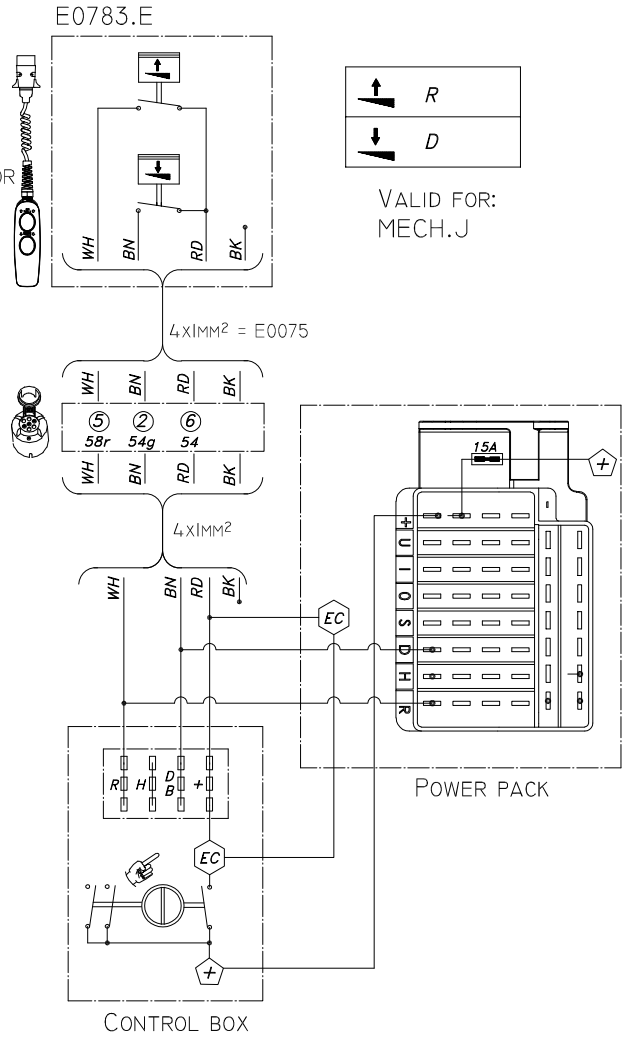
Plan N° : wd_LSP.05-HYD-OAE045-TruckZ-2021-02 | Date : 02/04/2021

DHOLLANDIA

# OPTION OAE001 ~ 2-BUTTON WANDER LEAD




Type : OAE001 2-button wander leads with spiral cable

Power pack : –

Valve : –

Plan N° : wd_Extra-OAE0012021-01

Date : 02/04/2021

DHOLLANDIA