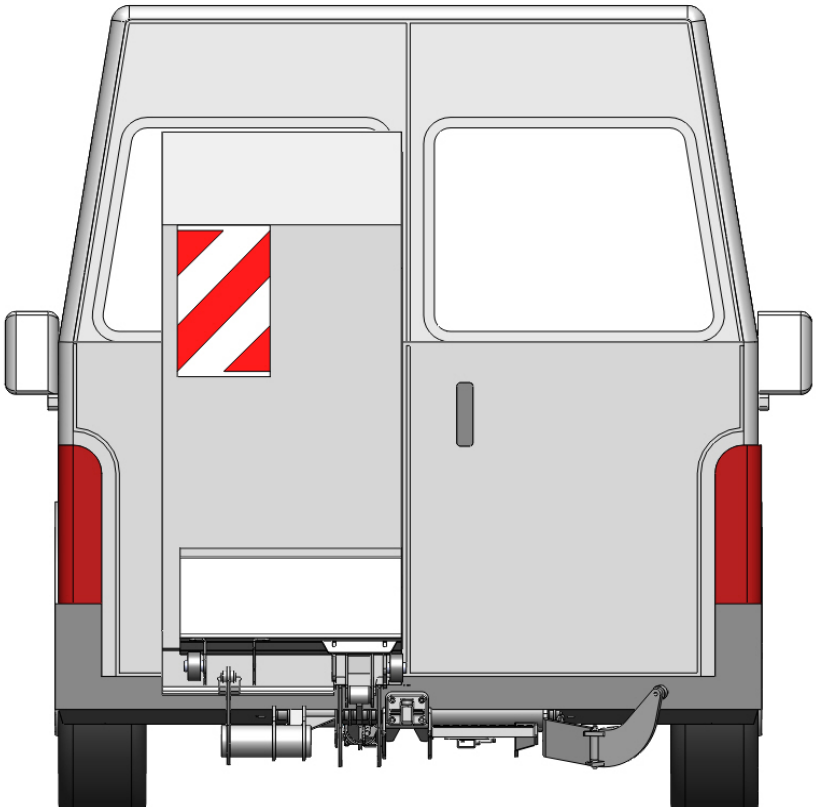
MAXON®

GPC X1-LDF liftgate

Installation Manual
for



Mercedes Benz Sprinter

MAXON®

LIFT CORP.

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X1 TECHNOLOGY

Date 07.2019

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Contents

1 Safety

1.1 Intended use

This liftgate was specially developed for cargo vans. It may be used only on the vehicles for which it was designed.

- To determine whether the liftgate may be installed on a specific vehicle, please contact the manufacturer or customer service.

The liftgate is used for loading and unloading the vehicle and for transferring loads. Any other use is prohibited.

- Do not exceed the maximum load carrying capacity (see rating plate). Be sure to correctly position the load on the platform.
- Do not operate the liftgate with the vehicle in motion.
- Do not use the liftgate to lift any person other than the operator.

This manual is intended for the manufacturer who installs the liftgate on the vehicle. It contains information on transport, installation, and commissioning.

- Read this manual before working on or operating the liftgate.
- Do not deviate from the instructions contained in this manual. By doing so, you risk injury, damage to property, and voiding of the warranty.
- Make sure that this manual always remains with the liftgate or vehicle.

IMPORTANT: For information on operation, cleaning, maintenance, decommissioning, disassembly, and disposal, refer to the accompanying user manual.

1.2 Requirements for personnel

- The tasks described in this manual may be performed only by qualified and trained personnel.
- Use personal safety gear when performing these tasks: protective goggles, work gloves, and protective footwear.
- Perform these tasks at an appropriate working height with the body in an appropriate position. Avoid unusual positions.
- Comply with valid legal and operational guidelines, such as occupational safety regulations and environmental regulations.

1.3 Requirements for installation and commissioning

- Follow the vehicle manufacturer's current installation guidelines for the relevant vehicle. Pay particular attention to safety instructions and warnings.
- Changes to the liftgate's axle assemblies and to the necessary installation adapters are prohibited and invalidate approval by the German Federal Motor Transport Authority.
- Do not modify or remove safety equipment (pressure limiting valves, non-return valves, electrical fuses, and software control routines). By doing so, you risk serious injury.
- Do not modify, cover, or remove product labels (warning labels, instructions, rating plates).

1.4 Fundamental hazards

Electrical system with on-board voltage:
The liftgate receives electrical power from the vehicle's on-board power supply (max. 48 V DC). The electrical system is designed using state-of-the-art technology.

- Do not damage or modify electrical components or wiring.

High-pressure hydraulic system**:**
The liftgate's hydraulic system operates at high pressure (max. 220 bar). The hydraulic system is designed using state-of-the-art technology.

- Do not damage or modify hydraulic components or hoses.

Moving parts with crushing points:
All parts that move in close proximity to one another can potentially crush fingers.

- Watch out for the unexpected movement of moving parts.

Hinges with crushing points (on liftgate with platform foldover section):
Fingers are at risk of being crushed in the hinge area when the platform is folded and unfolded.

- Be careful when folding and unfolding the platform.

1.5 Emergency procedure

If you or another person working on or operating the liftgate experience a dangerous situation:

- Immediately stop what you're doing and seek expert help.

1.6 Presentation of warning notices

The following types of notices are used in this manual to identify hazards and complications:

⚠ WARNING

- Failure to heed this notice can result in death or serious injury.

⚠ CAUTION

- Failure to heed this notice can result in minor or moderate injury.

NOTICE

- Failure to heed this notice can result in damage to property or the environment.

And:

IMPORTANT

- Important information or useful tip for correct use.

2 Introduction

2.1 Scope of delivery

IMPORTANT: All illustrations of the lifting gear are shown without factory-installed cables and hydraulic hoses.

2.1.1 Lifting gear

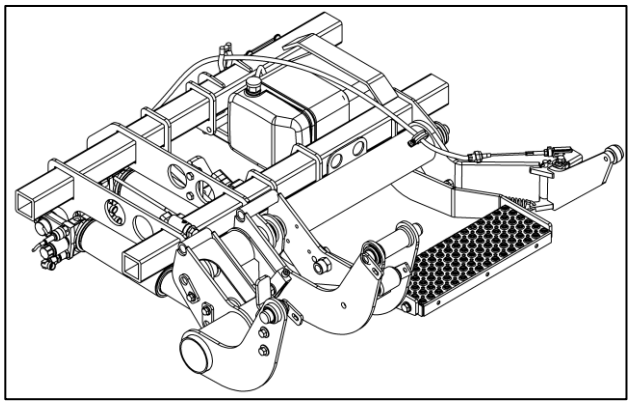


Fig. 1

2.1.2 Platform

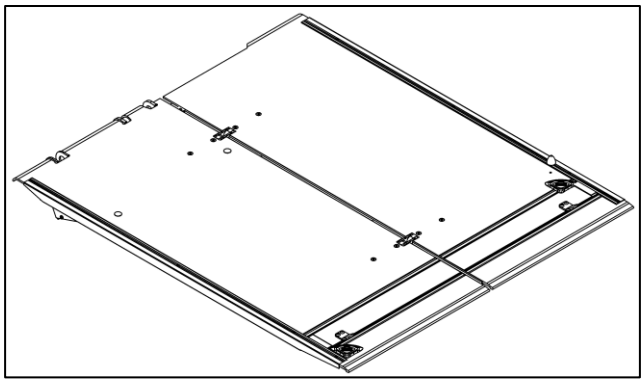


Fig. 2

2.1.3 Bridge plates (20 909 431)

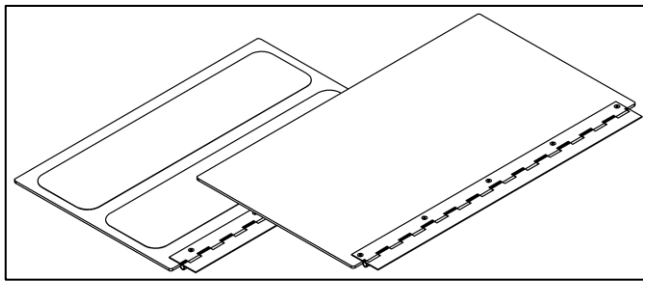


Fig. 3

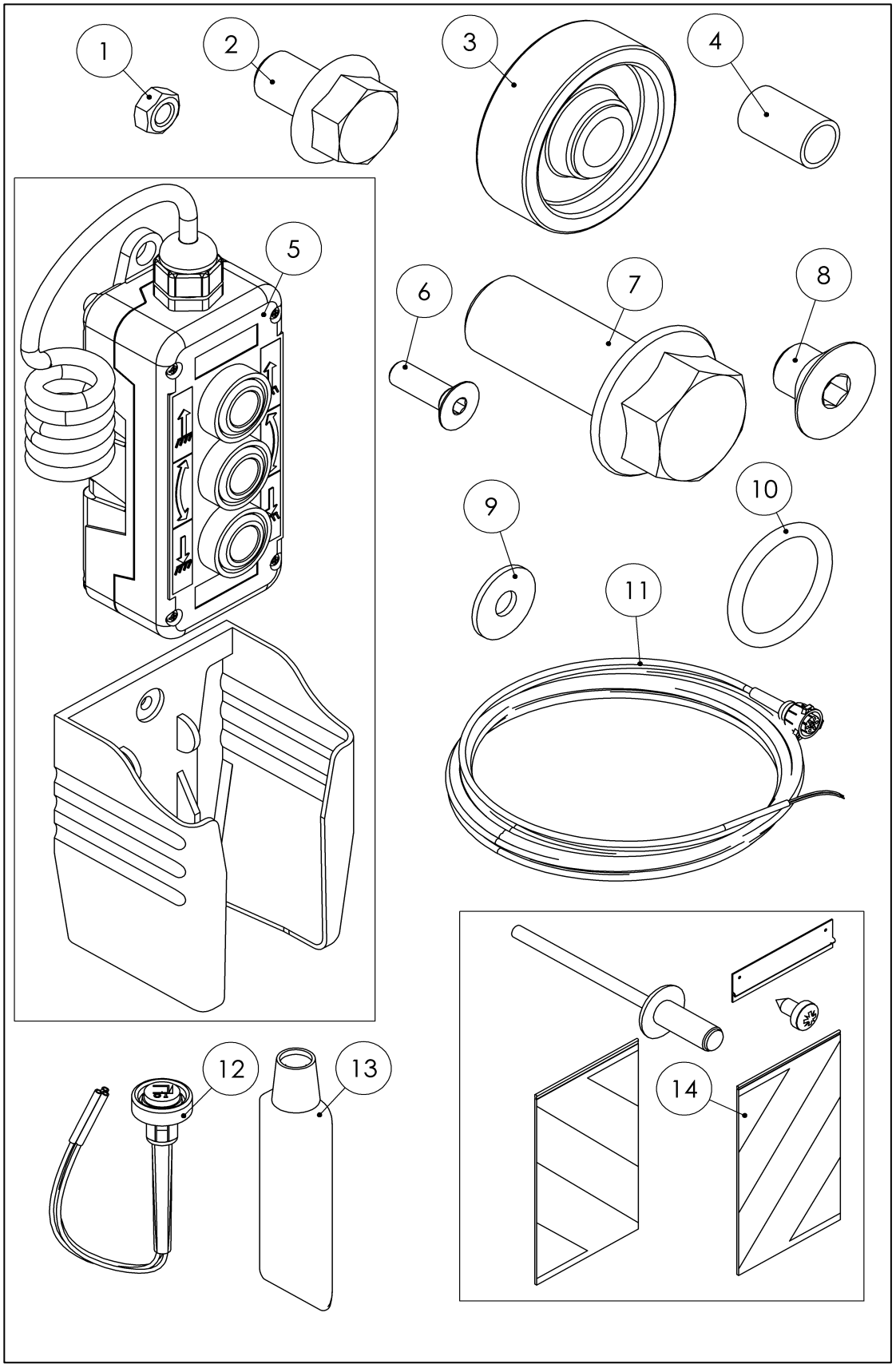


Fig. 4

2.1.4 Accessories kit

Parts list – accessories kit

Item No.	Part No.	Description	Standard	Qty.
1	80 000 046	Hexagon nut	DIN 934 - M5 - A2	4
2	20 908 251	Hexagon flange bolt	DIN 6921 - M10x15 - 10.9 - ZN	2
3	20 907 616	Ground roller		2
4	20 907 615	Bushing	d20/16x32	2
5	20 907 200	Handheld control	3-button	1
6	20 904 647	Countersunk screw with hexagon socket	ISO 10642 - M5x16 - A2	4
7	20 904 600	Flange screw	W 0263 - M16x40 - 10.9 - GEO	2
8	20 901 791	Countersunk screw with hexagon socket	DIN 7991 - M10x12 - A2	1
9	20 850 543	Washer	DIN 9021 - D5,3 - A2	4
10	20 840 117	O-ring	40.65x5.33	6
11	20 906 975	12 m cable with VEHH connector		1
12	20 906 974	Cabin switch		1
13	20 840 405	Lubricating grease		1
14	60 710 330	Warning flag	Kit	1
15	----------	Accompanying documentation		6

Accompanying documents:

- Inspection booklet Part No. 60 700 495
- Installation manual Part No. 20 912 027
- User manual Part No. 20 908 422
- Oil-level sticker Part No. 20 911 907
- Electrical circuit diagram Part No. 20 910 824
- Hydraulic circuit diagram Part No. 20 908 421

IMPORTANT: As a general rule, only existing mounting points (holes in the vehicle chassis) may be used for installation. Different installation adapters are available for each vehicle type as described below.

2.1.5 Installation adapter kit (22 911 216)

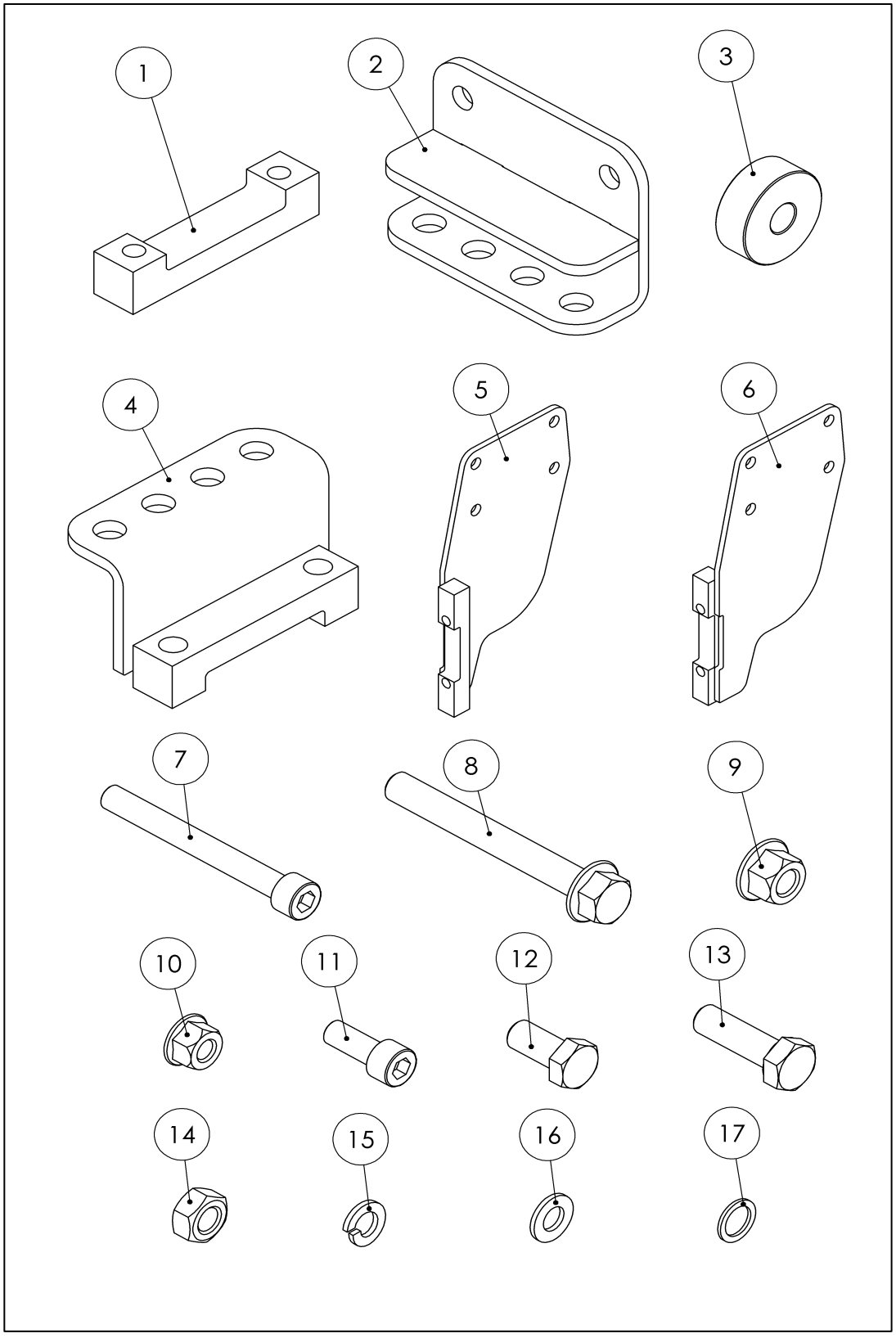


Fig. 5

Parts list – installation adapter kit (Part No. 22 911 216)

Item No.	Part No.	Description	Standard	Qty.
1	20 908 103	Bracket		4
2	20 908 322	Installation adapter		2
3	20 908 395	Spacer ring		2
4	20 908 398	Installation adapter		2
5	20 908 639	Installation adapter		1
6	20 908 640	Installation adapter		1
7	20 909 327	Cheese-head screw with hexagon socket	DIN 912 - M10x90 - 8.8 - ZN - PRE80	8
8	20 911 796	Hexagon flange bolt	MBN 10105 - M12x1.5x100 - 10.9 - DBL	8
9	20 911 797	Hexagon nut with flange and clamping piece	MBN 13023 - M12x1.5 - 10 - DBL	8
10	20 911 864	Hexagon nut with flange and clamping piece	MBN 13023 - M10 - 10 - DBL	4
11	22 902 352	Cheese-head screw with hexagon socket	ISO 4762 - M10x25 - 10.9 - ZFSHL	4
12	80 000 029	Hexagon head screw	ISO 4017 - M12x25 - 8.8 - ZFSHL	2
13	80 000 032	Hexagon head screw	DIN 933 - M12x40 - 8.8 - A2K	2
14	80 000 050	Hexagon nut	DIN 934 - M12 - 8 - A2K	2
15	80 000 061	Spring washer	DIN 127 – A – 10 - ZN	8
16	80 000 072	Washer	ISO 7089 - A - D10 - ZFSH	4
17	80 000 253	Lock washer	VS - D12 - Gal.ZN8	2
18	20 912 022	Cheese-head screw with hexagon socket	MBN 10105 - M10x100 - 10.9 - DBL	4

2.2 Damage during transport

After unloading, inspect the liftgate for damage. If any damage is found, record it in writing on the shipper’s waybill so that claims can be asserted.

3 Preparing for installation

3.1 Requirements for installation

- The vehicle exhaust must not be located at the rear of the vehicle.
- Line the vehicle floor with wood panels. For other types of flooring, verify whether installation is possible.
- The rear doors must open to a minimum angle of 180°.
- A spare tire must not be located between the rear axle and rear bumper.
- The liftgate cannot be installed if the rear bumper has an integrated step. In this case, the vehicle must be fitted with a standard bumper.
- A step must not be installed behind the bumper.
- A supplementary battery and switching strip must be present.
- For vehicles with rear parking sensors, the sensors will no longer function correctly once the platform is installed, because the lifting gear interferes with the sensors.

⚠ CAUTION

Unsuitable transport equipment

When transporting and lifting heavy parts, use transport equipment (e.g. cranes, pallet trucks, or other lifting gear) with a sufficient load carrying capacity.

- Verify the correct and reliable functioning of the transport equipment.

3.2 Lifting the vehicle

➢ Lift the vehicle using a lifting platform.

IMPORTANT: Installation over a pit is also possible, in which case the vehicle must also be raised (using winches or wedges) so that the liftgate and pallet can be inserted under the vehicle.

3.3 Preparing the vehicle

- Secure the vehicle in place to prevent unintentional movement.
- Disconnect the vehicle battery. Follow the vehicle manufacturer’s instructions for correctly handling the battery.
- Be careful not to damage the vehicle. We recommend using appropriate coverings.

3.3.1 Remove spare tire

➢ If the vehicle has a spare tire between the rear axle and the rear bumper, remove the tire (see Fig. 6).

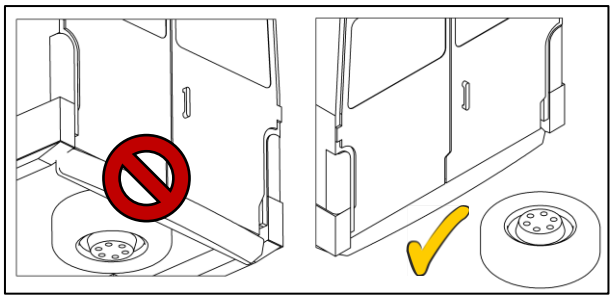


Fig. 6

3.3.2 Move exhaust pipe

➢ If the exhaust pipe is at the rear, move it to the side.

IMPORTANT: Changes to the exhaust system must be carried out by qualified personnel and according to the vehicle manufacturer's guidelines.

NOTICE

- Be sure to maintain a sufficient distance from heat-sensitive parts. The minimum distance from plastics and cables is 300 mm (see Fig. 7).

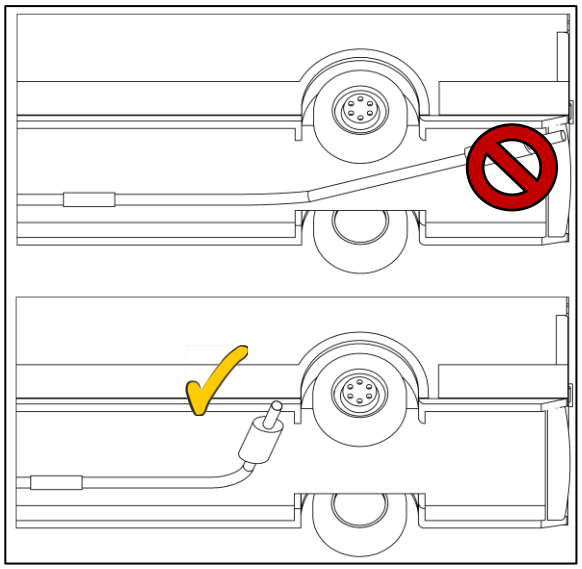


Fig. 7

3.3.3 Mount supplementary battery

➢ If applicable, mount a supplementary battery to supply power to the liftgate.

3.3.4 Install standard bumper on Mercedes Sprinter

➢ If the vehicle has a bumper with an integrated step, replace it with a standard bumper (see Fig. 8).

Fig. 8

3.3.5 Deactivate parking sensors

➢ For vehicles with rear parking sensors, the sensors will no longer function correctly once the platform is installed,

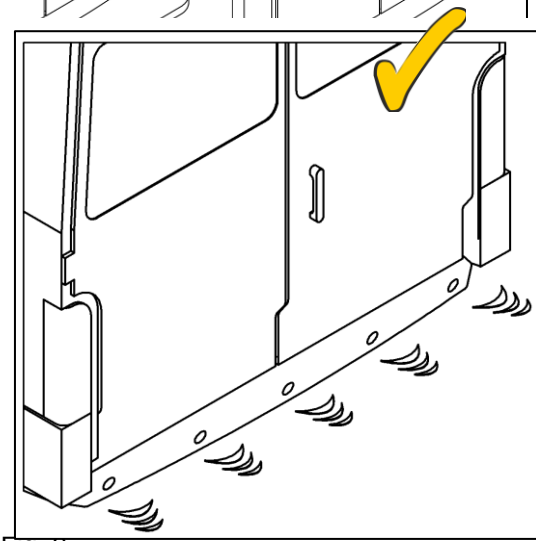


Fig. 9

because the lifting gear interferes with the sensors (see Fig. 9).

3.3.6 Remove trailer hitch or step

➢ If a trailer hitch or step is mounted on the vehicle, remove it (see Fig. 10).

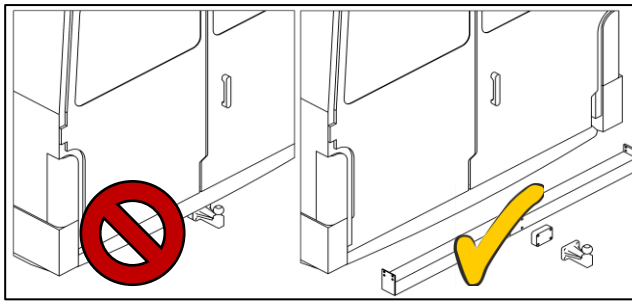


Fig. 10

3.4 Unpacking the lifting gear, installation adapters, and accessories kit

⚠ CAUTION

Unsecured, heavy parts

When transport locks are removed, parts may fall or tip over and the platform may tip over. Risk of injury.

- Secure loose parts. Remove transport locks carefully.
- After disposing of packing materials, store all parts in a secured manner.

NOTICE

Oil leakage

Incorrect positioning of the lifting gear can result in oil leakage. Risk of environmental damage.

- Always transport the lifting gear in an upright position using suitable lifting points.

➢ Check the scope of delivery for completeness (see pages 4 – 8).

IMPORTANT: Dispose of all packing materials in accordance with environmental regulations.

3.5 Pre-installing the installation adapters

Required material from installation adapter kit (Part No. 22 911 216)

Item No.	Part No.	Description	Standard	Qty.
1	20 908 103	Bracket		4
2	20 908 322	Installation adapter		2

3	20 908 395	Spacer ring		2
4	20 908 398	Installation adapter		2
5	20 908 639	Installation adapter		1
6	20 908 640	Installation adapter		1
7	20 909 327	Cheese-head screw with hexagon socket	DIN 912 - M10x90 - 8.8 - ZN - PRE80	8
12	80 000 029	Hexagon head screw	ISO 4017 - M12x25 - 8.8 - ZFSHL	2
13	80 000 032	Hexagon head screw	DIN 933 - M12x40 - 8.8 - A2K	2
14	80 000 050	Hexagon nut	DIN 934 - M12 - 8 - A2K	2
15	80 000 061	Spring washer	DIN 127 - A - 10 - ZN	8

➢ Pre-install the installation adapters on the liftgate's lifting gear as shown in Fig. 11 or Fig. 13, tightening the fittings until hand-tight.

IMPORTANT: Depending on the vehicle, choose either the 3.5 ton (see Fig. 11) or 5 ton (see Fig. 13) installation version.

Vehicle with maximum authorized mass of 3.5 tons
(for 5 ton vehicles, see next page)

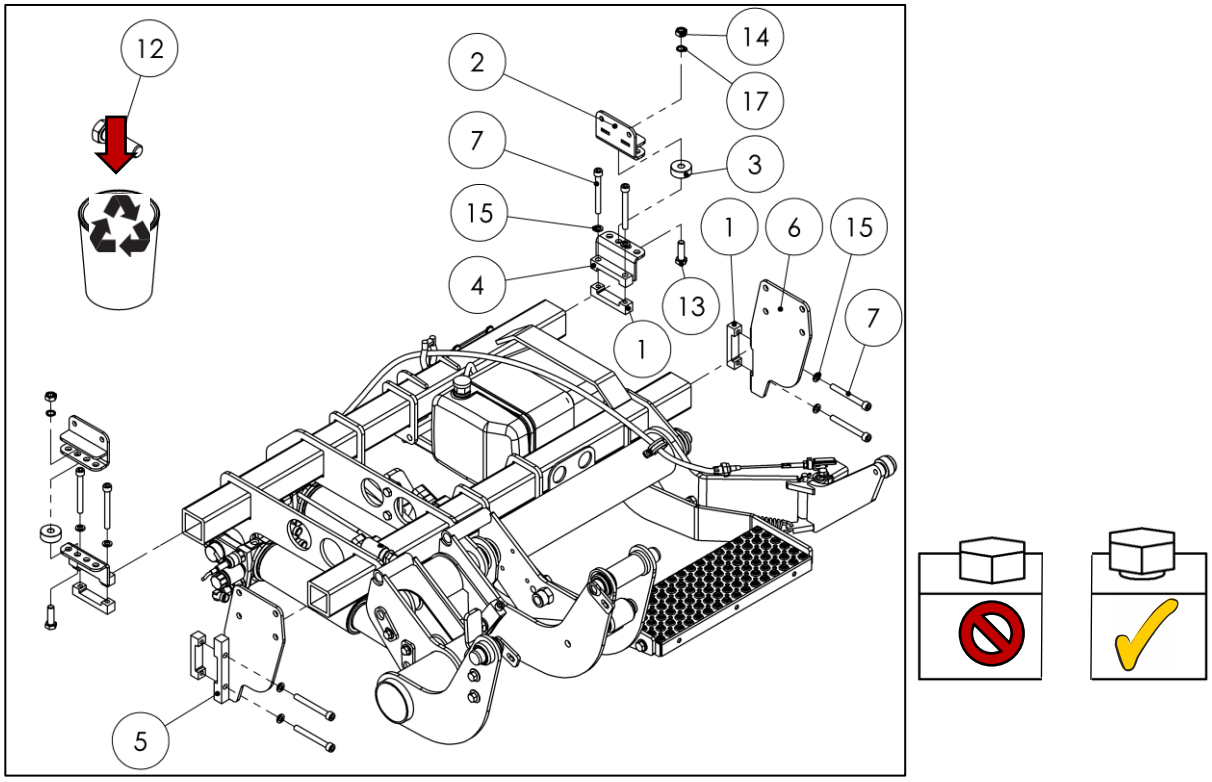


Fig. 11

Depending on requirements, different installation options are available for the front installation adapters (2 and 4) in the installation adapter kit (Part No. 22 911 216) (see Fig. 12).

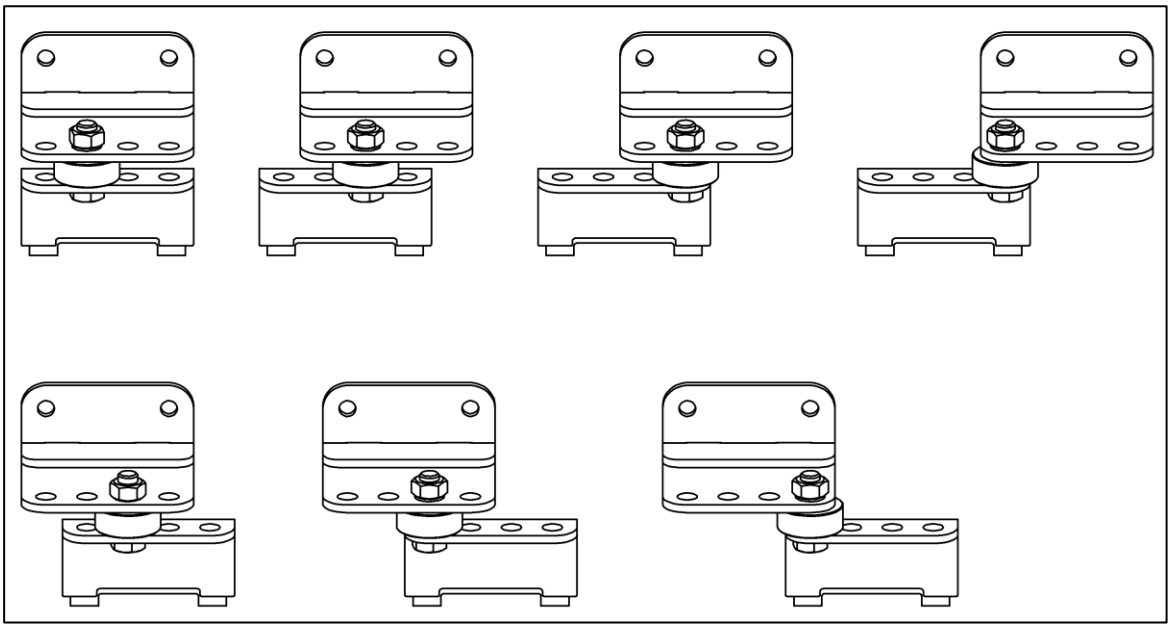


Fig. 12

Vehicle with maximum authorized mass of 5 tons
(for 3.5 ton vehicles, see previous page)

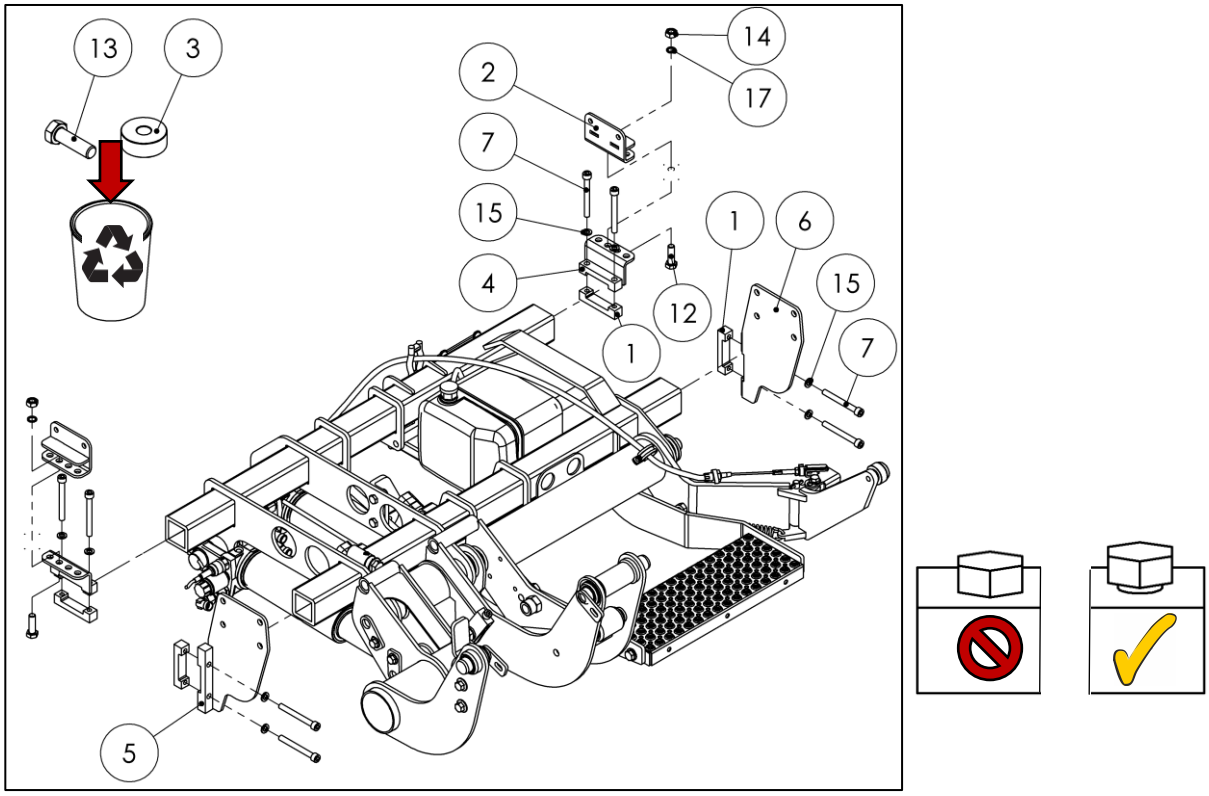


Fig. 13

Depending on requirements, different installation options are available for the front installation adapters (2 and 4) in the installation adapter kit (Part No. 22 911 216) (see Fig. 14).

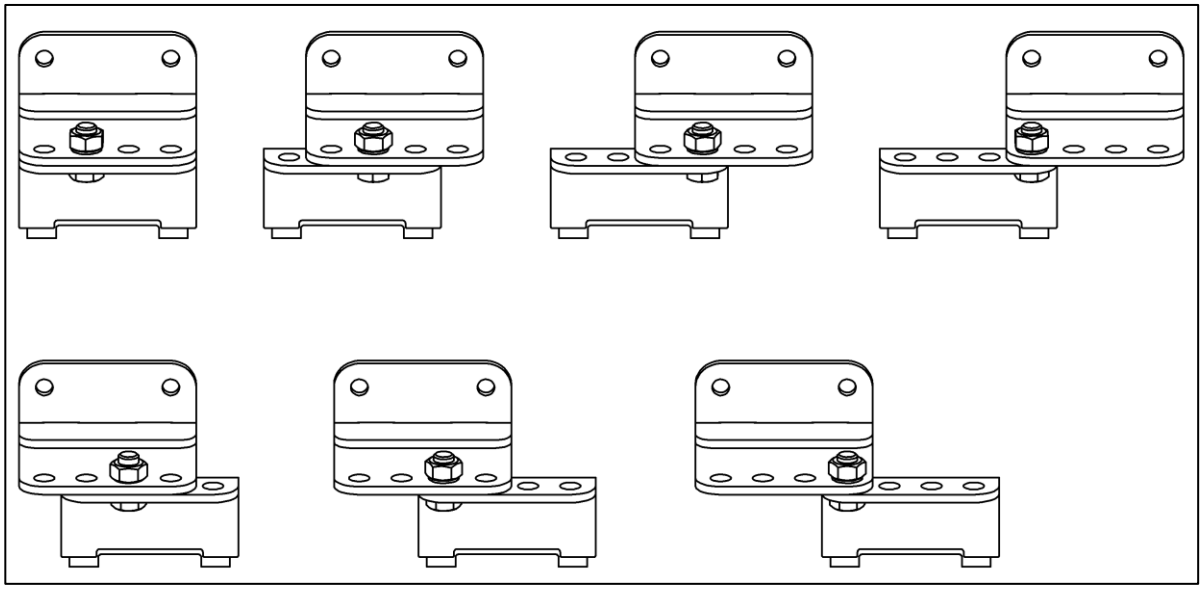


Fig. 14

3.6 Installing the cables/preparation

IMPORTANT: Excess cable must not be wound up in a coil but must be placed in slings. (Fig. 15).

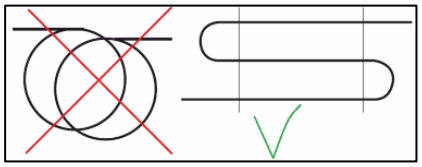


Fig. 15

3.6.1 Cable to the platform

- Route the control unit cable for platform connection (white plastic cover) to the swing-arm assembly in the center of the vehicle (Fig. 16).

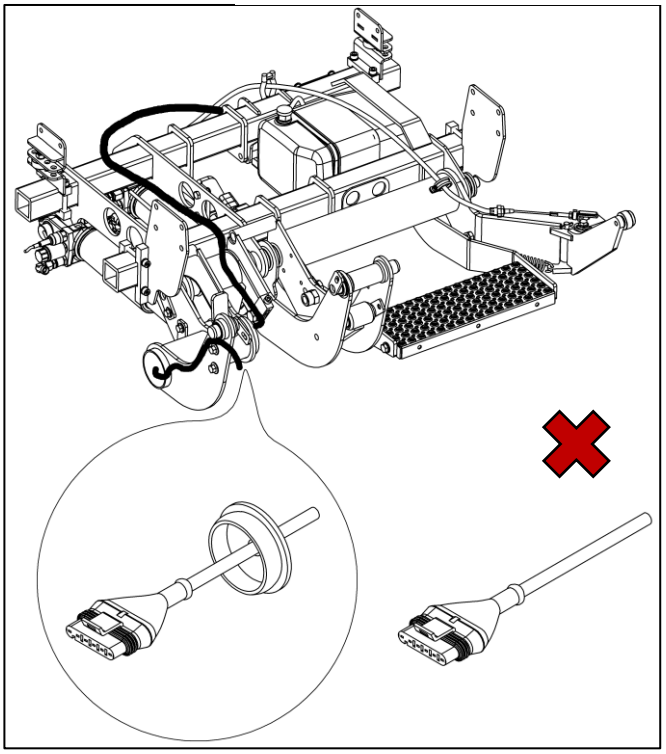


Fig. 16

3.6.2 Cable for the service switch

- Route the control unit cable for service switch connection to the vehicle cargo area (Fig. 17).

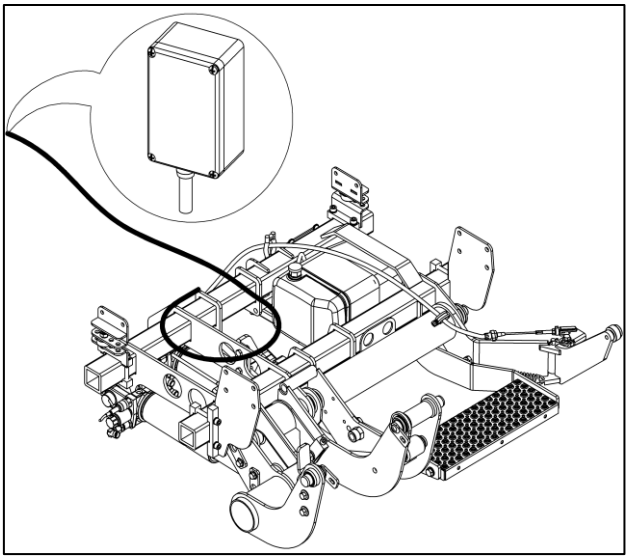


Fig. 17

3.6.3 Routing the cables to the front of the vehicle

For more information, look online under
http://www.taillift.org/en/electrical-vehicle-interface

IMPORTANT: Follow the vehicle manufacturer's installation guidelines.

NOTICE

- When installing cables, make sure they are safe from chafing.
- Do not install cables near heat-dissipating components.

With preparation according to ETMA Code A and Code B

➢ Route the power cable and the cable for the cabin switch unit to the junction box provided (Fig. 18).

Legend:
Item 1
Item 2
Item 3

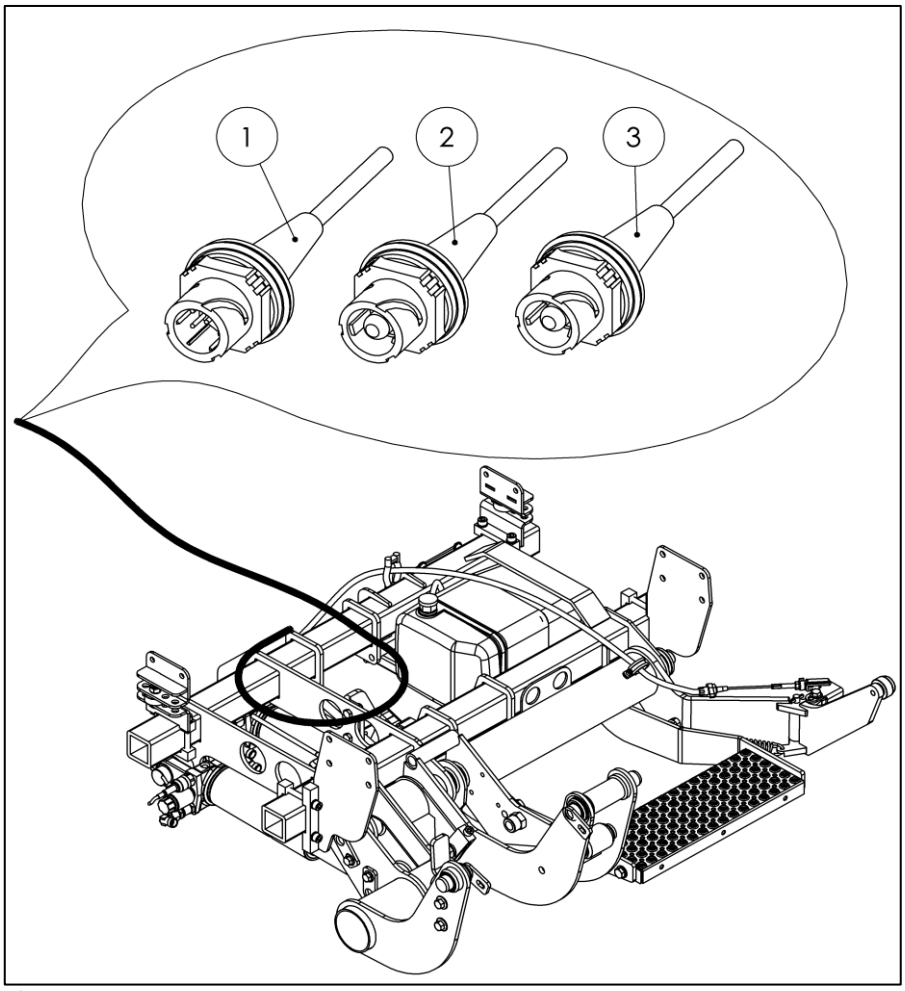


Fig. 18

No preparation according to ETMA Code A and Code B

Power cable

- Insert the positive cable (25 mm² red) (“power unit cable”) for the power supply into a length of slit corrugated tubing (see Fig. 19).

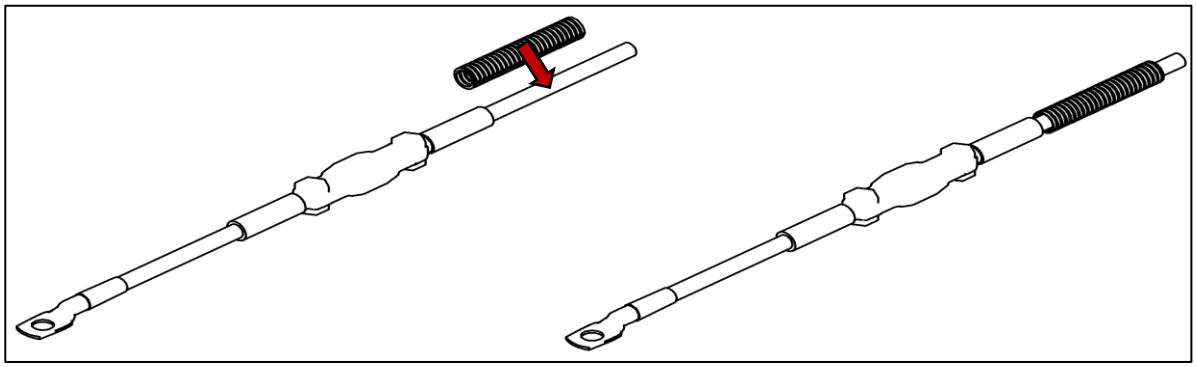


Fig. 19

NOTICE

- Do not yet connect the cables.

Route the positive cable (red) and negative cable (blue) to the terminals but do not yet connect them (see Fig. 20).

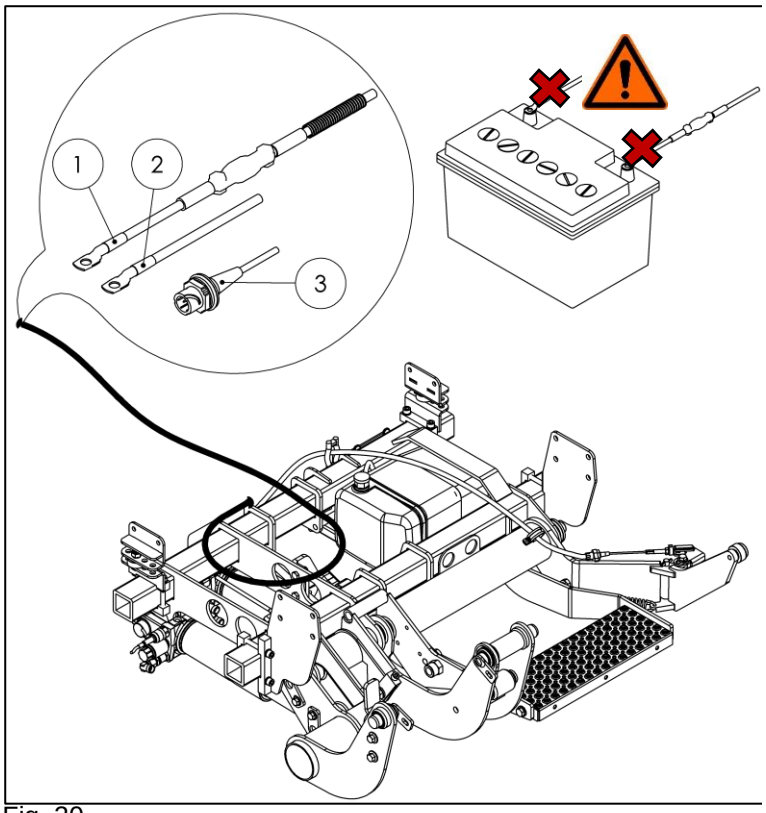


Fig. 20

Legend:

Item 1	Positive cable (red)	Part No. 20 907 673
Item 2	Negative cable (blue)	Part No. 20 907 673
Item 3	Connector for cabin switch unit	Part No. 20 910 754

Cable for cabin switch unit

- Route the cabin switch cable from the **accessories kit (Item No. 11)** to the driver's cabin (see Fig. 21).
- Connect the cabin switch cable to the 7-pin connector (DIN 72585) from the control unit.

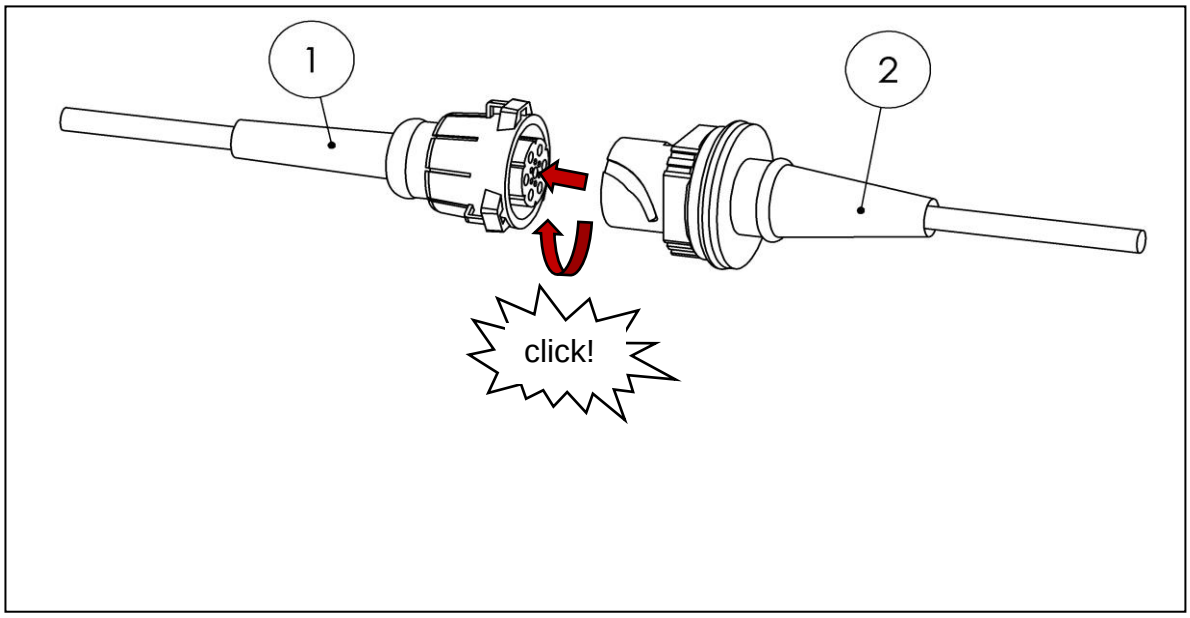


Fig. 21

Legend:

Item 1 7-pin connector (DIN 72585) from control unit
Item 2 Connector for cabin switch unit Part No. 20 910 754

3.6.4 Control panel cable on the control unit

- Route the control unit cable for control panel connection to the right as viewed in the forward direction of travel (see Fig. 22).

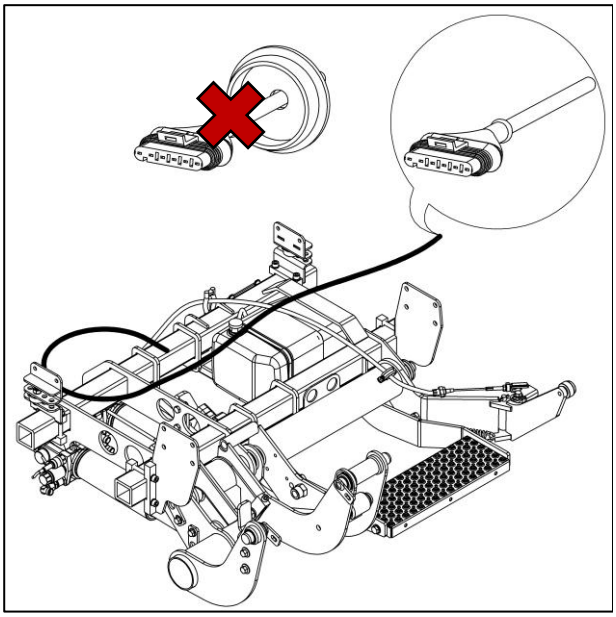


Fig. 22

3.6.5 Handheld control

(optional)

Prepare the cable on the control unit

- Sever the control unit cable (1, red marking with cable tie) for connecting the handheld control (see Fig. 23) Leave the end without a cable tie blank.

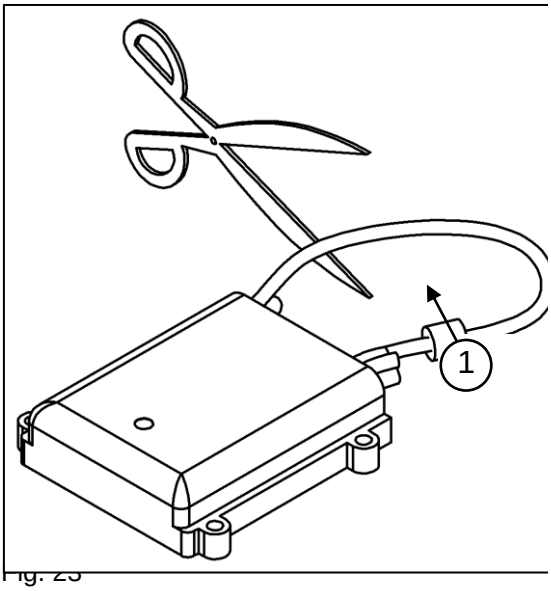


Fig. 23

- Strip the end of the control unit cable section with a red marking for connecting the handheld control (see Fig. 24).

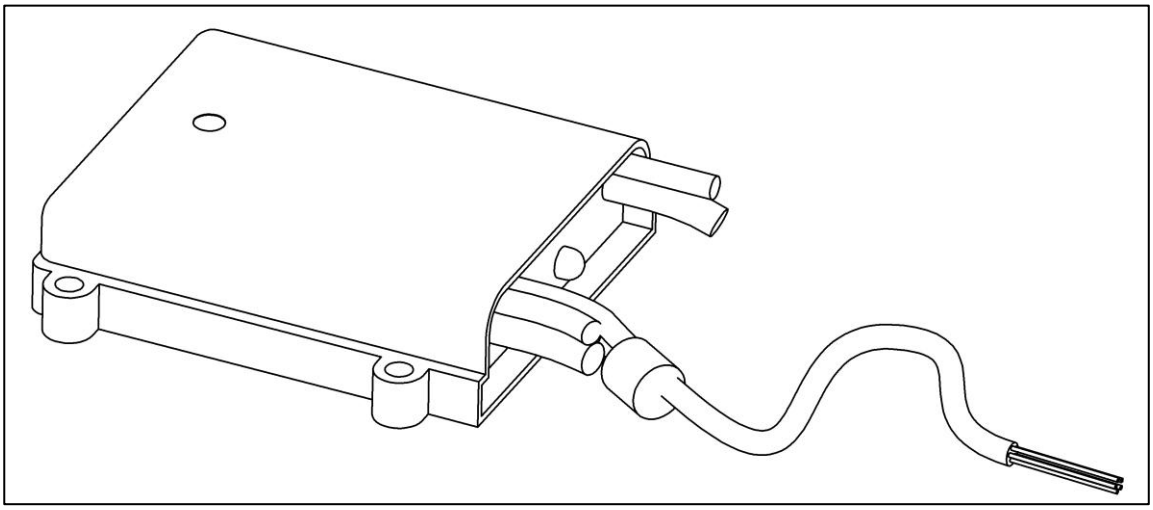


Fig. 24

Handheld control

- Determine the installation location for the handheld control and route the cable to the installation location (see Fig. 25).
- Find the bushing into the cargo area.

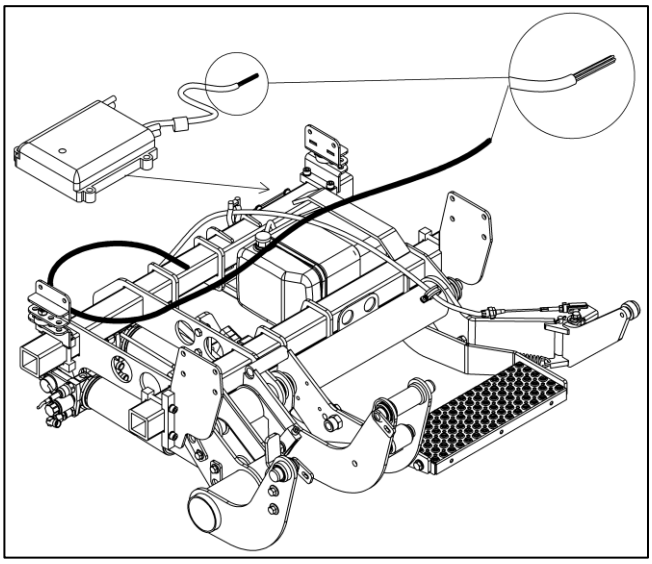


Fig. 25

3.7 Aligning the lifting gear

- Align the lifting gear under the vehicle on a mounting tool or pallet (see Fig. 26).

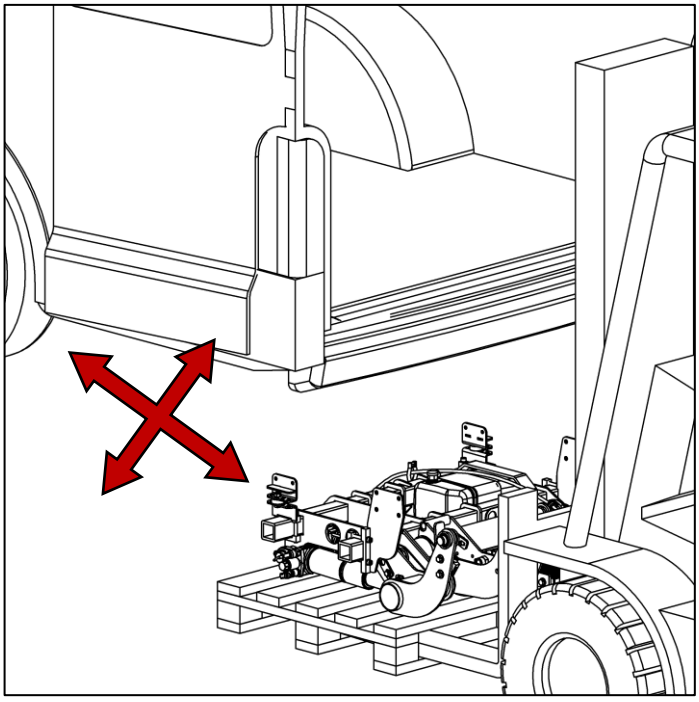


Fig. 26

- Line up the installation adapters on the lifting gear with the manufacturer's holes in the vehicle chassis (see Fig. 27).

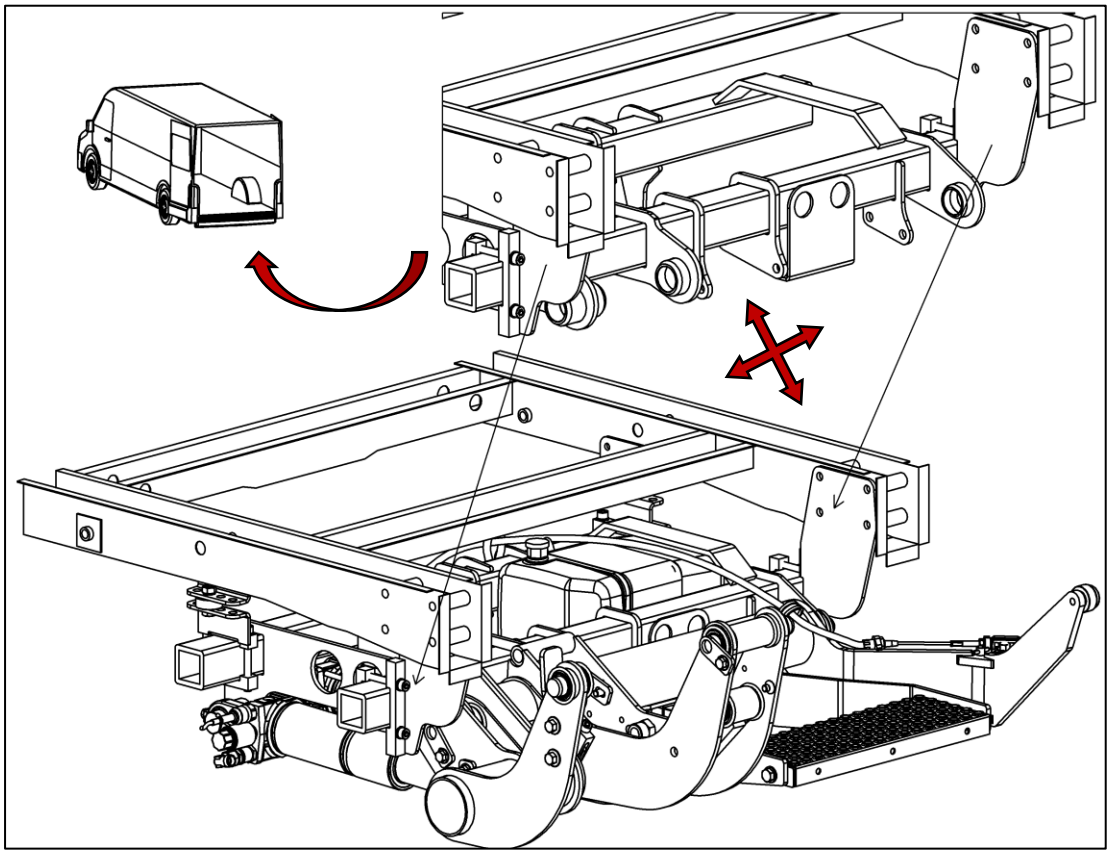


Fig. 27

3.8 Mounting holes on the vehicle

IMPORTANT: Follow the vehicle manufacturer's installation guidelines.

- Find the mounting holes on the vehicle.
- Make any new mounting holes that are necessary.
- If necessary, weld spacer sleeves onto the vehicle chassis.
- Remove underbody coating in the area of the mounting points (contact surfaces between vehicle and installation adapters).
- Seal any areas of the vehicle body that are thus exposed (with corrosion protection).

4 Installation

4.1 Positioning the lifting gear

- Place the prepared lifting gear (on a pallet) under the vehicle using a suitable means of transport, e.g. pallet truck, forklift, etc. (see Fig. 28).

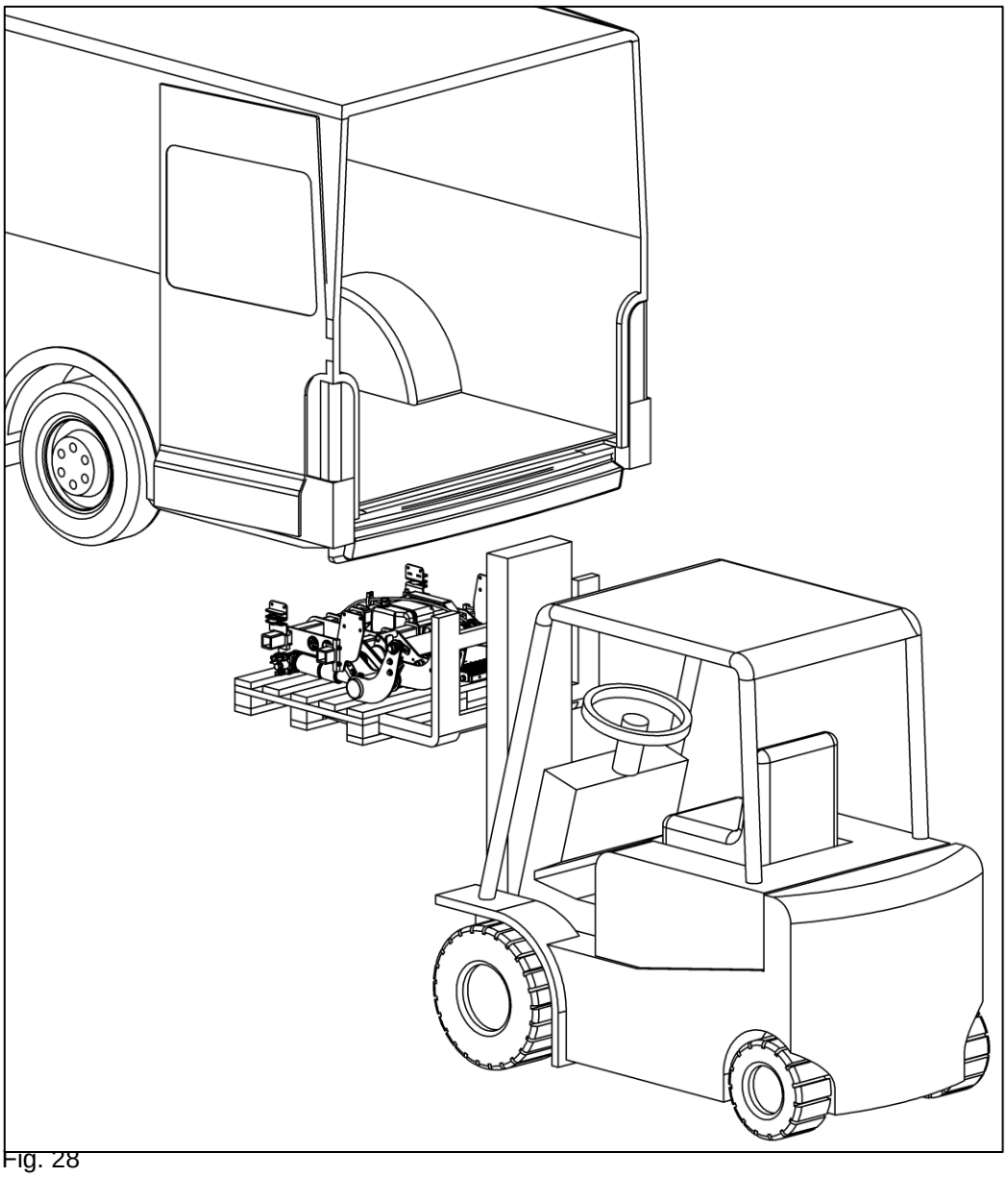


Fig. 28

4.2 Tightening the lifting gear fittings until hand-tight

⚠ WARNING

Installation at crushing and shearing points

Fingers are at risk of being crushed or sheared when the lifting gear is installed on the vehicle.

- Be careful at the connecting points between the lifting gear and vehicle.

➢ Raise the lifting gear. Insert the rear bolts (**installation adapter kit – Part No. 22 911 216)** as viewed in the forward direction of travel and tighten until hand-tight as shown in Fig. 29.

NOTICE

- Do not damage cables.

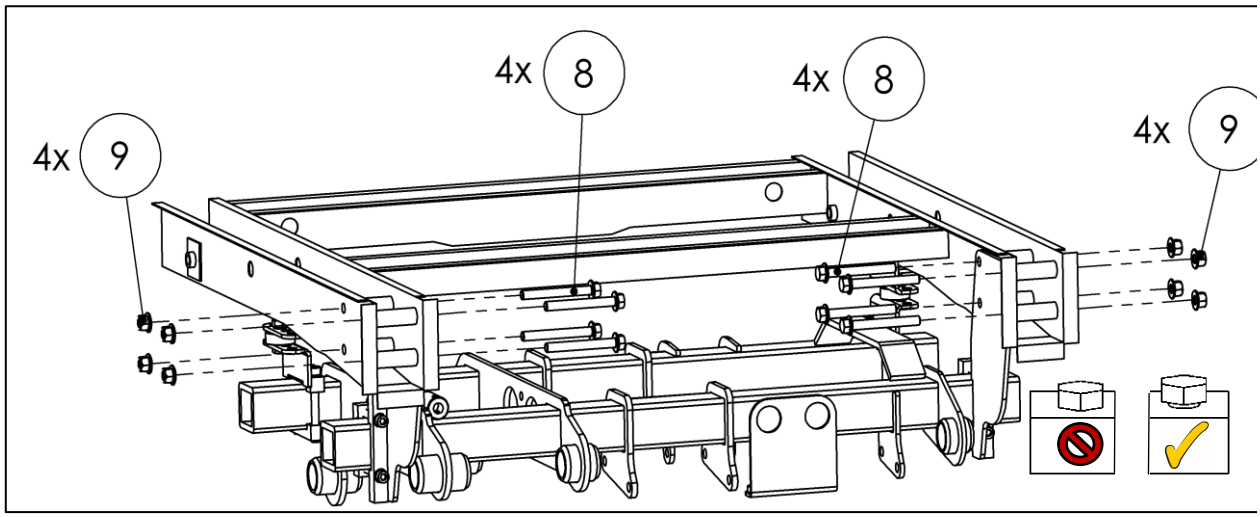


Fig. 29

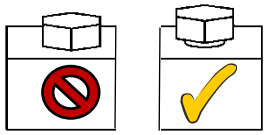
Excerpt from parts list: Installation adapter kit (Part No. 22 911 216)

Item No.	Part No.	Description	Standard	Qty.
8	20 911 796	Hexagon flange bolt	MBN 10105 - M12x1.5x100 - 10.9 - DBL	8
9	20 911 797	Hexagon nut with flange and clamping piece	MBN 13023 - M12x1.5 - 10 - DBL	8

➢ Insert the front bolts (**installation adapter kit – Part No. 22 911 216**) as viewed in the forward direction of travel and tighten until hand-tight as shown in Fig. 30.

NOTICE

- Do not damage cables.



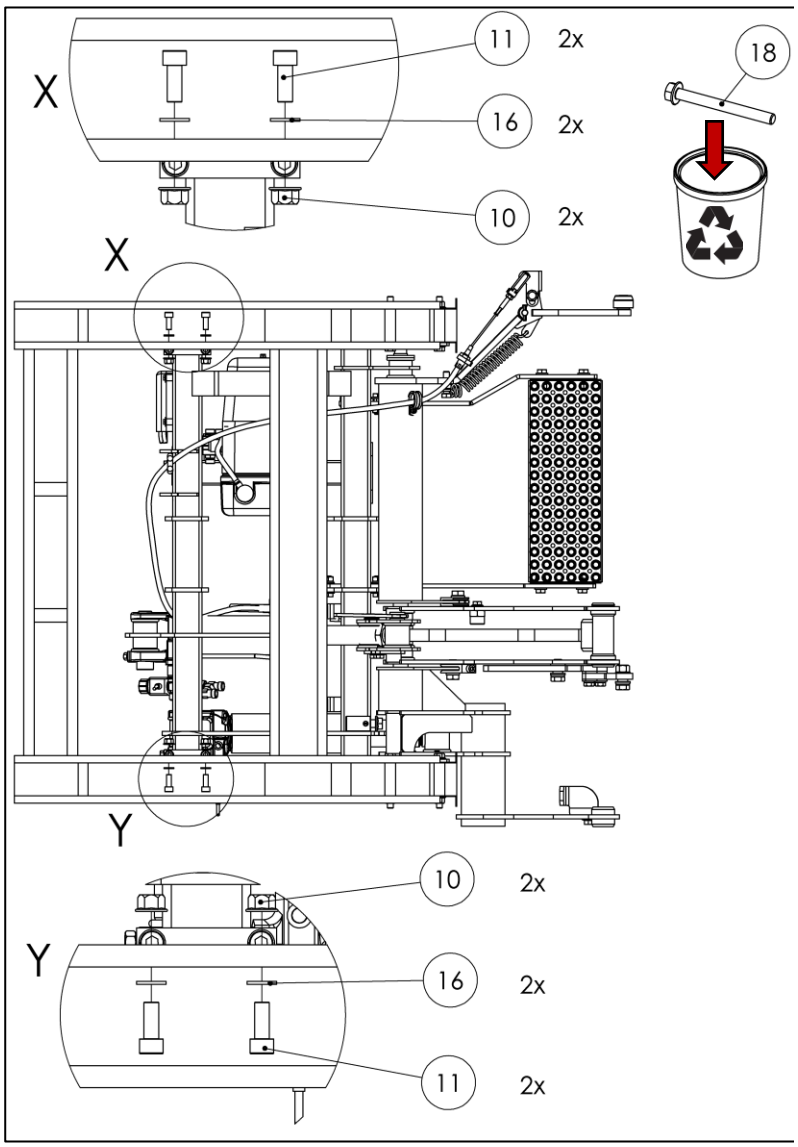


Fig. 30

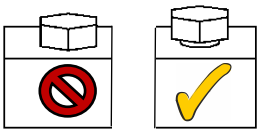
Excerpt from parts list: Installation adapter kit (Part No. 22 911 216)

Item No.	Part No.	Description	Standard	Qty.
10	20 911 864	Hexagon nut with flange and clamping piece	MBN 13023 - M10 - 10 - DBL	4
11	22 902 352	Cheese-head screw with hexagon socket	ISO 4762 - M10x25 - 10.9 - ZFSHL	4
16	80 000 072	Washer	ISO 7089 - A - D10 - ZFSH	4

Optional: Insert the front bolts (**installation adapter kit – Part No. 22 911 216**) as viewed in the forward direction of travel and tighten until hand-tight as shown in Fig. 31.

NOTICE

- Do not damage cables



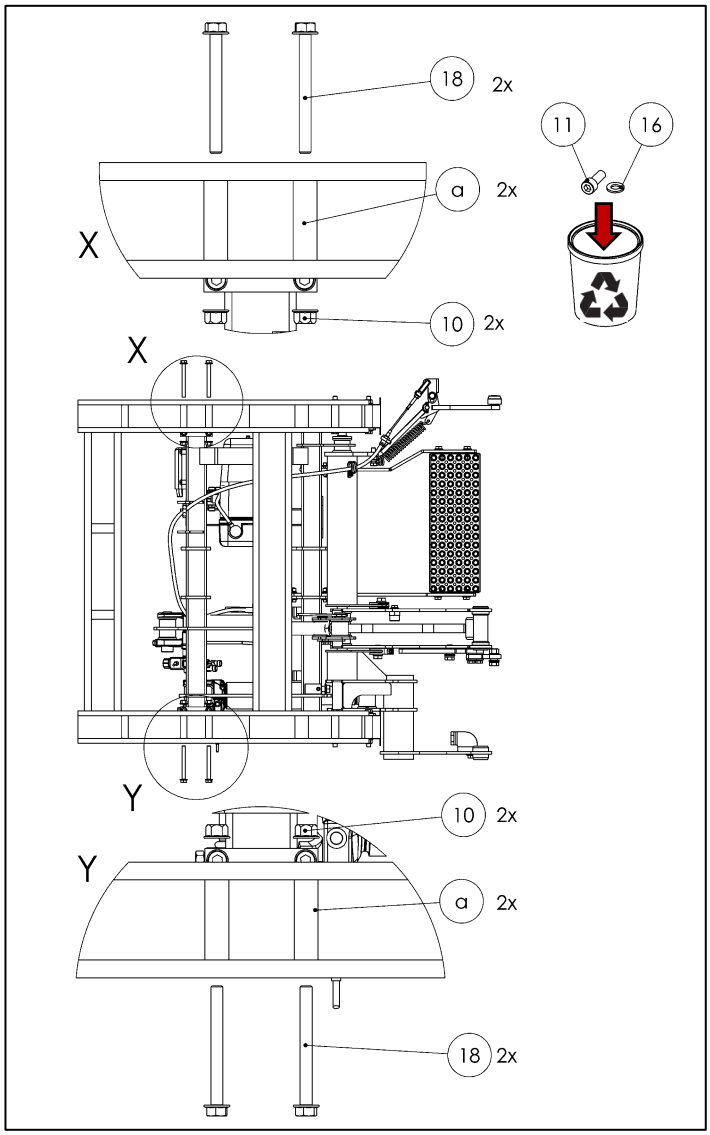


Fig. 31

Legend:

a Welded-on bushing as per manufacturer's installation guidelines

Excerpt from parts list: Installation adapter kit (Part No. 22 911 216)

Item No.	Part No.	Description	Standard	Qty.
10	20 911 864	Hexagon nut with flange and clamping piece	MBN 13023 - M10 - 10 - DBL	4
18	20 912 022	Cheese-head screw with hexagon socket	ISO 4762 - M10x - 10.9 - ZFSHL	4

4.3 Securing the lifting gear to the vehicle

- Secure the lifting gear (with adapters) to the vehicle and tighten to a torque of 115 Nm in the rear and 70 Nm in front (see Fig. 32).

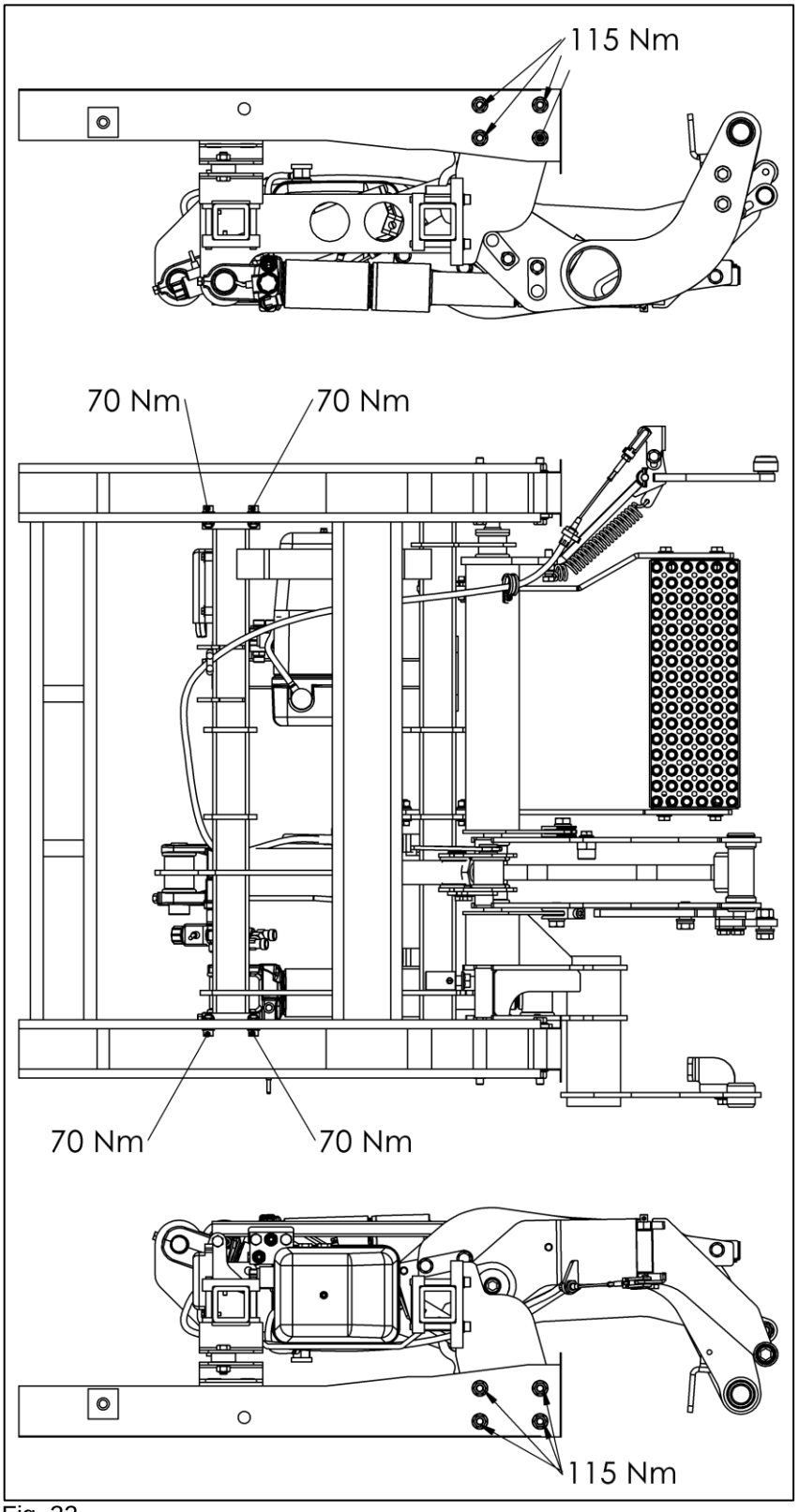


Fig. 32

4.4 Laterally aligning the lifting gear

➢ Shift the lifting gear to the left so that the brand emblem on the rear door does not collide with the platform (see Fig. 33).

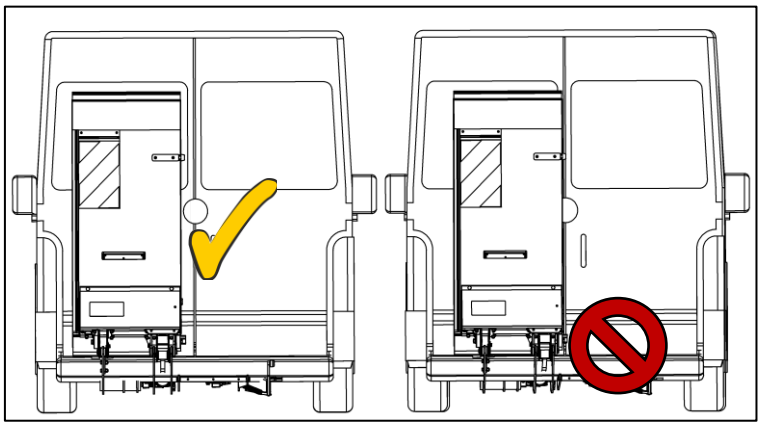


Fig. 33

4.5 Securing the axle assemblies

➢ Secure the installation adapters to the lifting gear and tighten to the specified torque of 53 Nm (see Fig. 34).

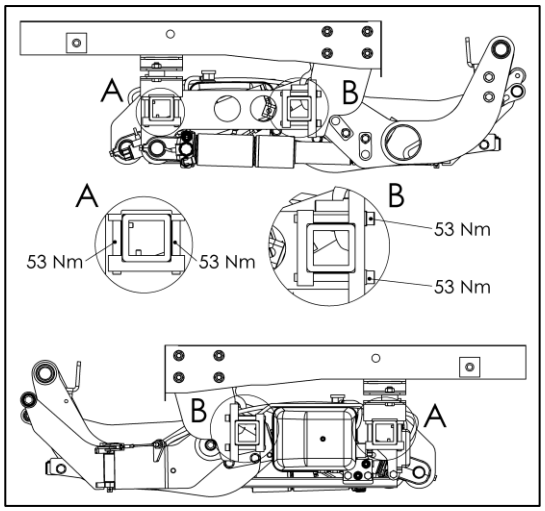


Fig. 34

4.6 Securing the installation adapters

➢ Secure the front installation adapters to the lifting gear and tighten to a torque of 70 Nm (see Fig. 35).

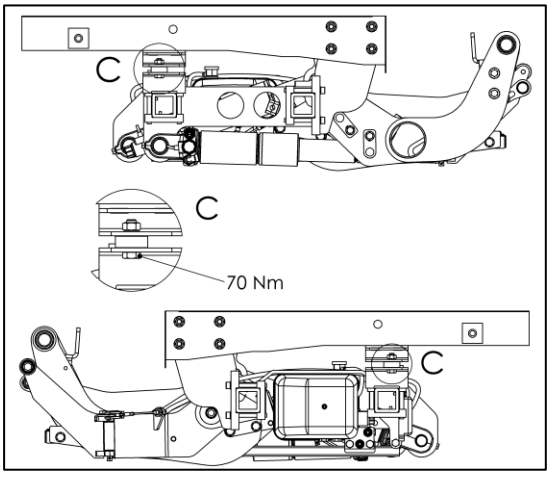


Fig. 35

4.7 Connecting the cables to the lifting gear

4.7.1 Installing and connecting the service switch

- Disconnect the service switch box from the cable by loosening the screw terminals in the housing (see Fig. 36).

Legend:

Terminal 30 Black cable
Terminal Y1 Blue cable
Terminal KM Gray cable
Terminal YA Brown cable
Terminal Y3 Green/yellow cable

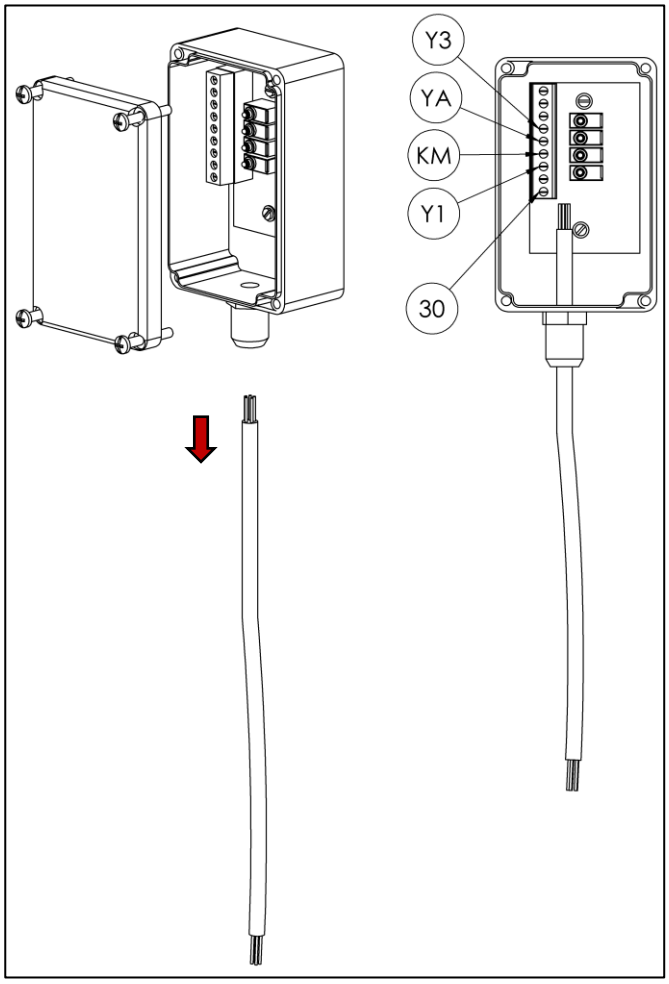


Fig. 36

- Route the cable to the cargo area via a bushing opening.
- Reconnect the service switch to the routed cable as shown in Fig. 36.
- Secure the service switch box.

4.7.3 Installing and connecting the control panel

⚠ WARNING

Penetration of water

Over the long term, the improper installation of cables can result in water penetrating the control panel and causing it to malfunction.

Risk of serious injury in subsequent operation.

- Route the cable to the control panel only from below.

Mount the control panel on door

➢ Route the control panel cable to the cargo area so that it can be secured to the right-hand door (a) (protect against kinks and ensure correct cable length for fully opened door, using corrugated tubing if necessary) (see Fig. 37).

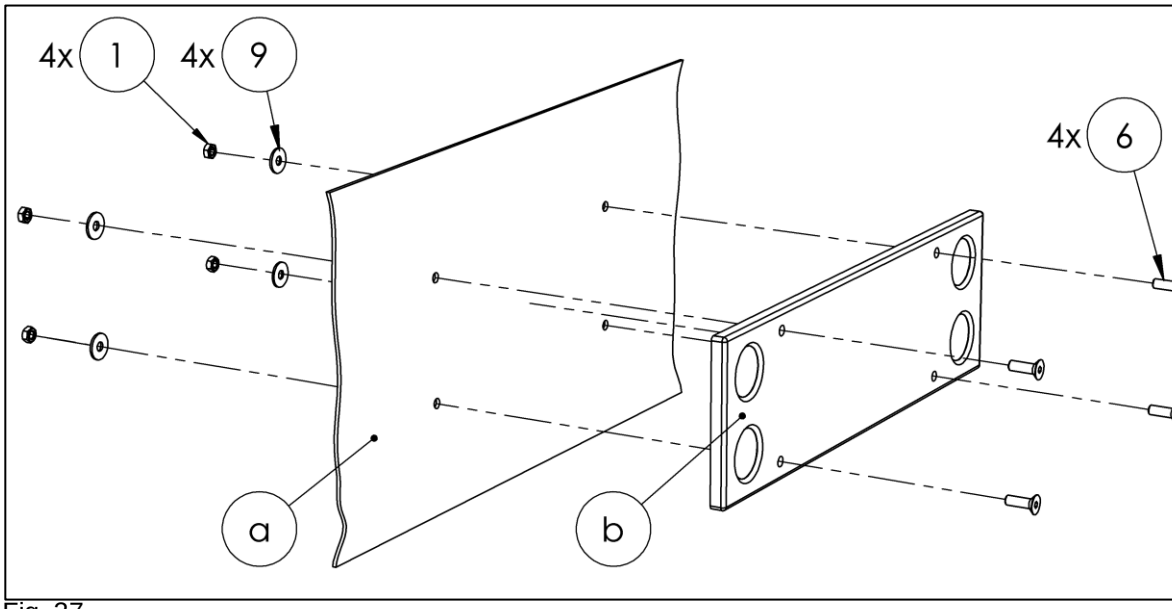


Fig. 37

➢ Disassemble the control panel SUPERSEAL connector and, if appropriate, the control unit SUPERSEAL connector so that the control panel cable can be routed to the control unit cable via openings.

IMPORTANT: A release tool is required for disassembling the SUPERSEAL connector.

IMPORTANT: When reassembling, pay attention to the position of the individual wires! Return the wires to their original positions (see Fig. 39 for 1 and Fig. 38 for 2).

Fig. 39

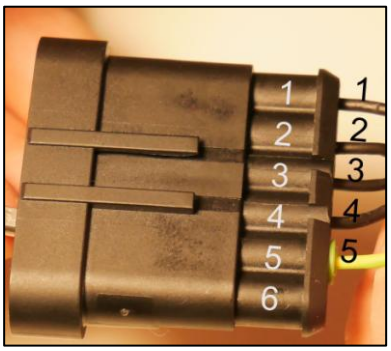


Fig. 38

Legend:

Item 1 Socket housing (Fig. 39) of the control unit

Control unit wires (1)	Pin No. and Wire No.	Control panel wires (2)
Black	1	Black
Brown	2	Black
Gray	3	Black
Blue	4	Black
White	5	Green/yellow
Green/yellow	6	

Item 2 Pin housing (Fig. 38) of the control panel

- Using the release tool, release the safety guard from the socket housing and pin housing (see Fig. 40 and Fig. 41).

- For the socket housing, release the latches on the contact pins and pull the wires out of the back of the housing (see Fig. 42 and Fig. 43).


Fig. 42

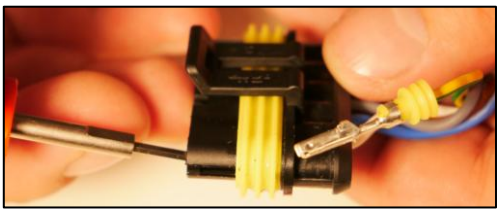


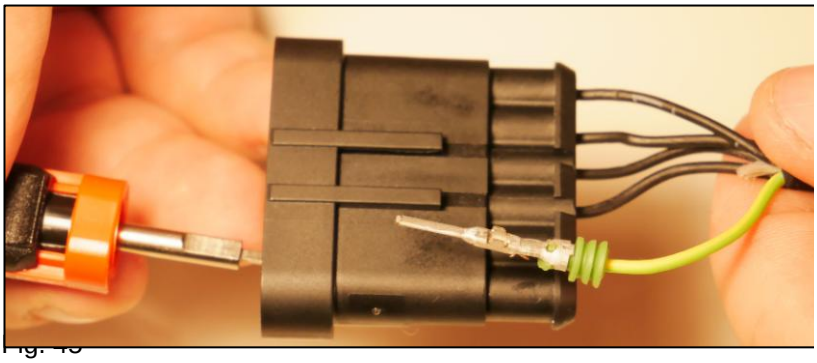
Fig. 43

- For the pin housing, first use the release tool to pry out the safety guard (see Fig. 44).


Fig. 44

- For the pin housing, release the latches on the contact pins and pull the wires out of the back of the housing (Fig. 45 and Fig. 46).

Fig. 46



- Reassemble the control panel SUPERSEAL connector and the control unit SUPERSEAL connector.

- Connect the control panel connector (1) to the control unit connector (2) (see Fig. 47).

Legend:

Item 1 Connector from control panel for connection to control unit

Item 2 Connector from control unit for connection to control panel

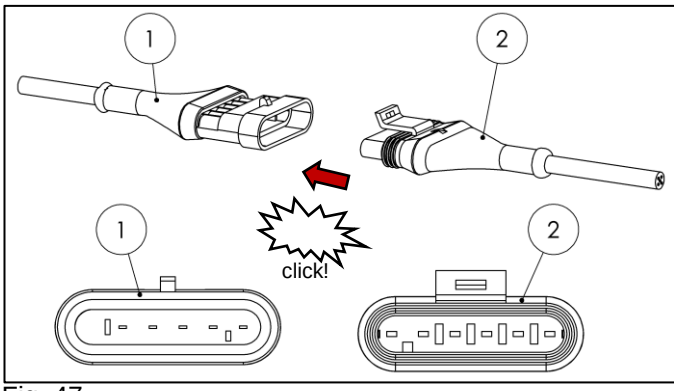


Fig. 47

- Secure the control panel (b) to the right-hand vehicle door (a) using the fasteners (1, 6, 9) from the **accessories kit**, maintaining a distance of 400 mm +/-100 mm (15 ¾" +/- 1 15/16") as per specifications
(see Fig. 37 und Fig. 48).

Required material from accessories kit

Item No.	Part No.	Description	Standard	Qty.
1	80 000 046	Hexagon nut	DIN 934 - M5 - A2	4
6	20 904 647	Countersunk screw with hexagon socket	ISO 10642 - M5x16 - A2	4
9	20 850 543	Washer	DIN 9021 - D5,3 - A2	4

Legend:

Item a Right-hand vehicle door

Item b Control panel

X = distance
400 mm +/-100 mm
(15 3/4" +/- 1 15/16")

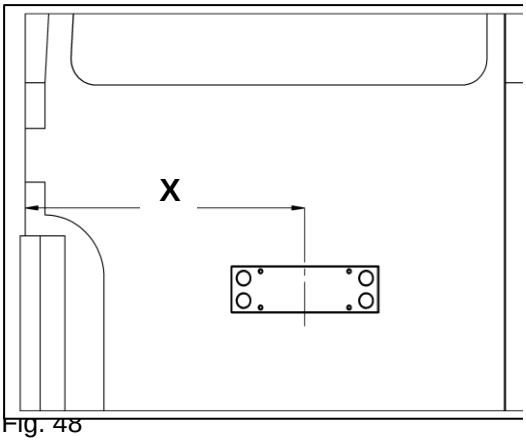


Fig. 48

4.7.4 Connecting the handheld control (optional)

- Connect the cable from the handheld control (2) to the stripped control unit cable section (1) with the red marking at the installation location (see Fig. 49).

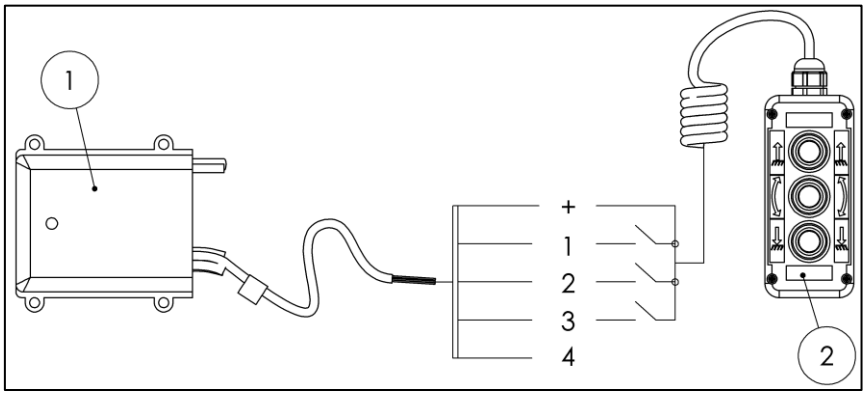


Fig. 49

Legend:

Item 1 Control unit

Connection	Function	Control unit cable	Handheld control cable
+	+	Black wire	Red wire
1	Lift	Blue wire	Blue wire
2	Lower	Gray wire	Gray wire
3	Tilt up/down	Brown wire	Brown wire
4	31 (ground)	Green/yellow wire	

Item 2 Handheld control

4.7.5 Mounting the bracket for the handheld control (optional)

- Mount the bracket (1) for the handheld control (2) on the vehicle wall (3) using, for example, 2 screws or adhesive (see Fig. 50).

Legend:

Item 1 Bracket for handheld control
Item 2 Handheld control
Item 3 Vehicle wall

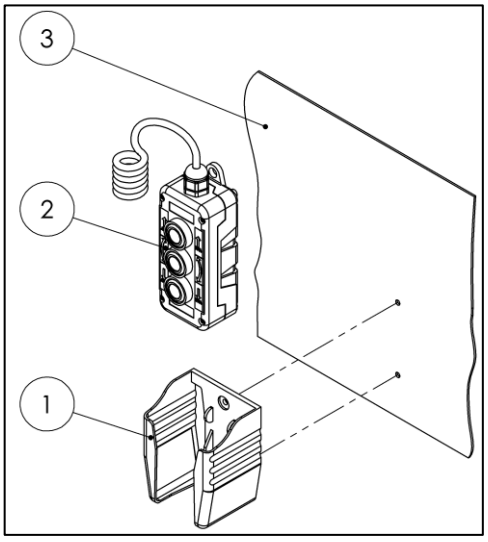


Fig. 50

4.7.6 Connecting the cables (front of

vehicle)

⚠ WARNING

Vehicle battery short-circuit

Improper connection of the device to the vehicle battery can cause a short-circuit and explosion of the battery.

Risk of damage to property, fire, and injury.

- Follow the vehicle manufacturer's instructions for correctly handling the battery.

With preparation according to ETMA Code A and Code B

➢ Connect the power cable and the cable for the cabin switch unit to the sockets provided (see Fig. 51).

NOTICE

- Connect cables only to cables of the same color.

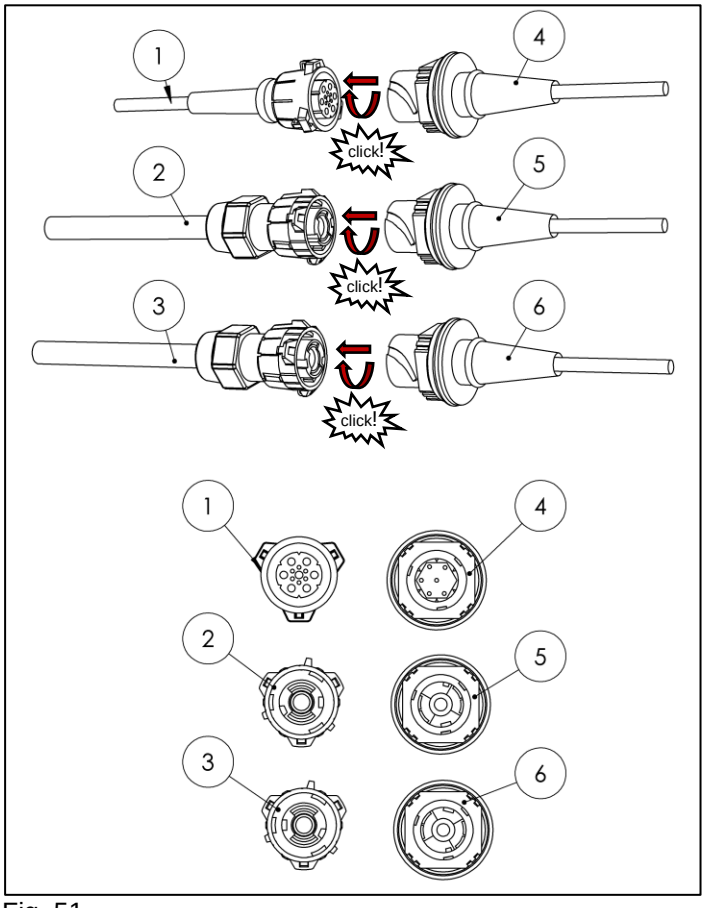


Fig. 51

Legend:

Item 1	Connector for cabin switch unit	Part No. 20 910 754
Item 2	Positive cable (red)	Part No. 20 907 673
Item 3	Negative cable (blue)	Part No. 20 907 673
Item 4	7-pin connector (DIN 72585) from control unit	
Item 5	Connector for positive cable	
Item 6	Connector for negative cable	

No preparation according to ETMA Code A and Code B

Power cable

- Route the “power unit cable,” positive cable, and negative cable (25 mm²) for the power supply to the terminals provided for the battery and connect (see example in Fig. 52).

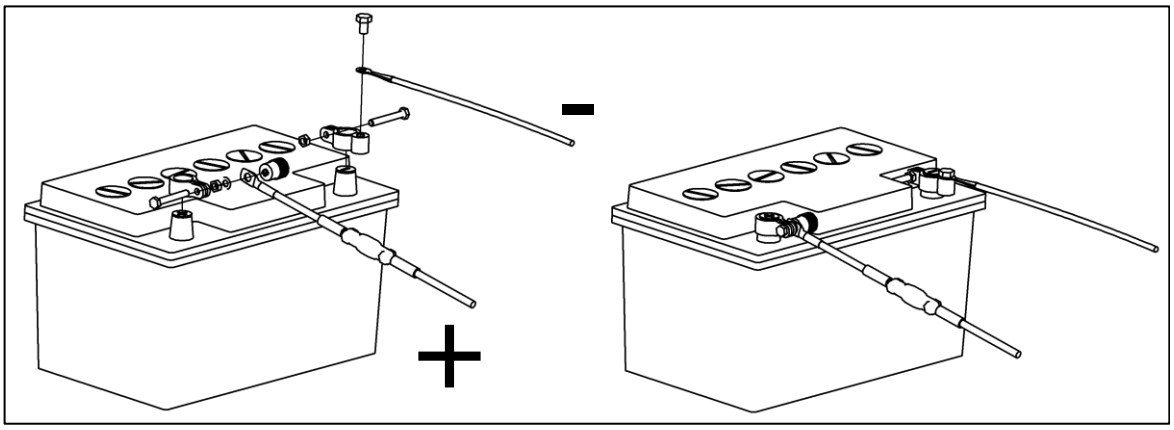


Fig. 52

Cabin switch unit

- Drill a 16 mm dia. hole for the cabin switch (12) in a suitable location on the dashboard.
- Snap the cabin switch (12) into the hole.
- Route the cabin switch unit cable (11) from the lifting gear to the front.
- Connect the cabin switch unit as shown in Fig. 53.

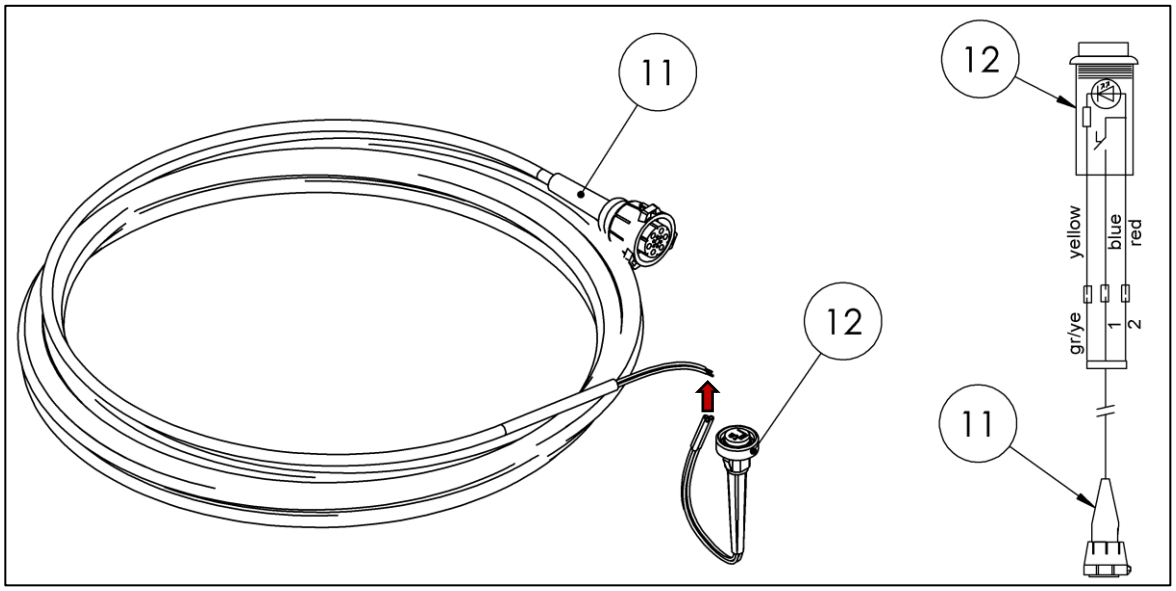


Fig. 53

Excerpt from parts list: accessories kit

Item No.	Part No.	Description	Qty.
11	20 906 975	Cabin switch unit cable 12 m with VEHH connector	1
12	20 906 974	Cabin switch	1

4.8 Unpacking the platform

➢ Check the scope of delivery for completeness (see pages 4f.)

IMPORTANT: Dispose of all packing materials in accordance with environmental regulations.

4.9 Raising the platform

➢ Lift the platform using suitable means, e.g. crane, assembly table, or pallet truck and pallet (see Fig. 54).

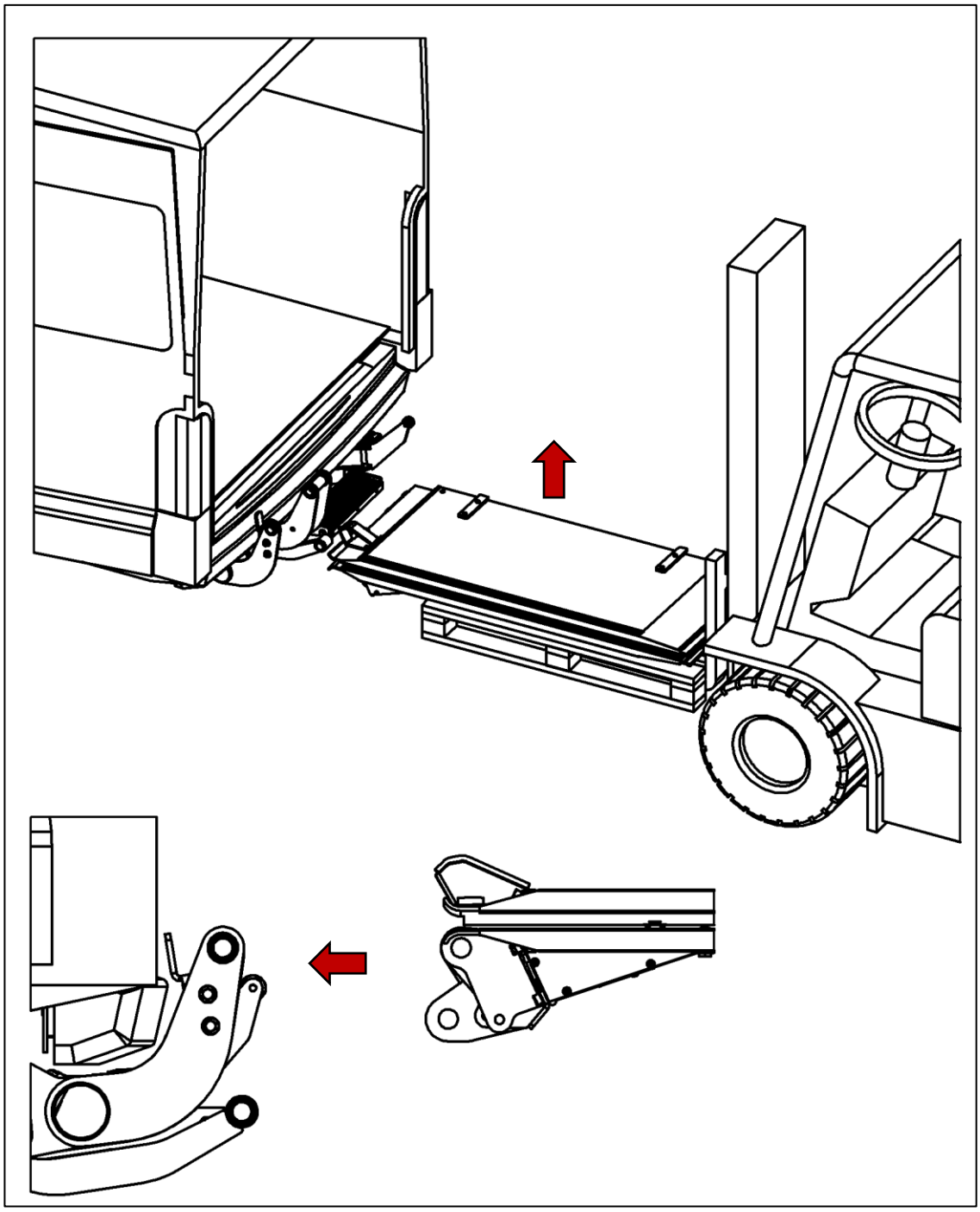


Fig. 54

4.10 Installing the platform

⚠ WARNING

Installation at crushing and shearing points

Fingers are at risk of being crushed or sheared when the platform is installed on the lifting gear.

- Be careful at the connecting points between the platform and lifting gear.

➢ Remove the transport lock (cable tie).

➢ Remove the pins (a, b, c) (see Fig. 55).

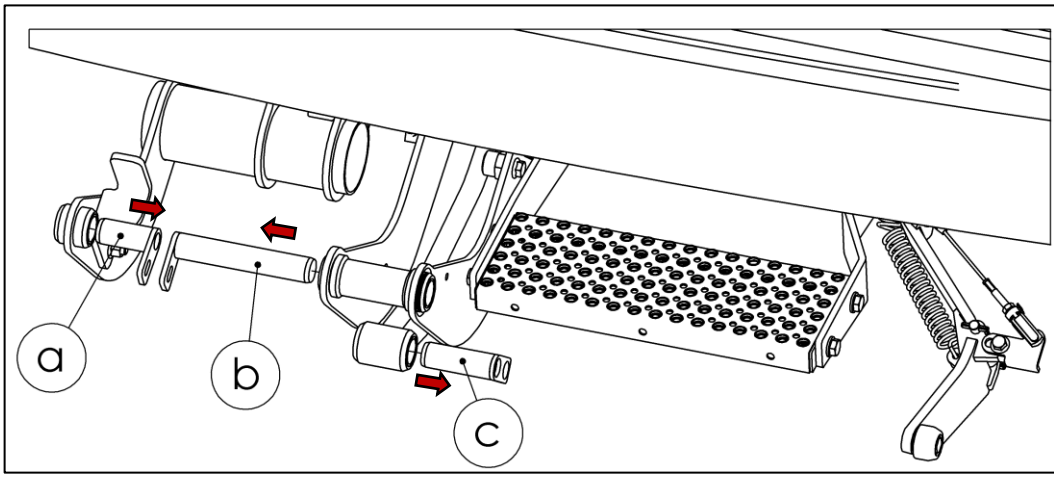


Fig. 55

Legend:

Item a	Pin	Part No. 20 905 057
Item b	Pin	Part No. 20 840 722
Item c	Pin	Part No. 20 907 775

➢ Thread 6 O-rings (accessories kit parts list – Item No. 10) onto the steel bushings (see Fig. 56).

Excerpt from parts list: accessories kit

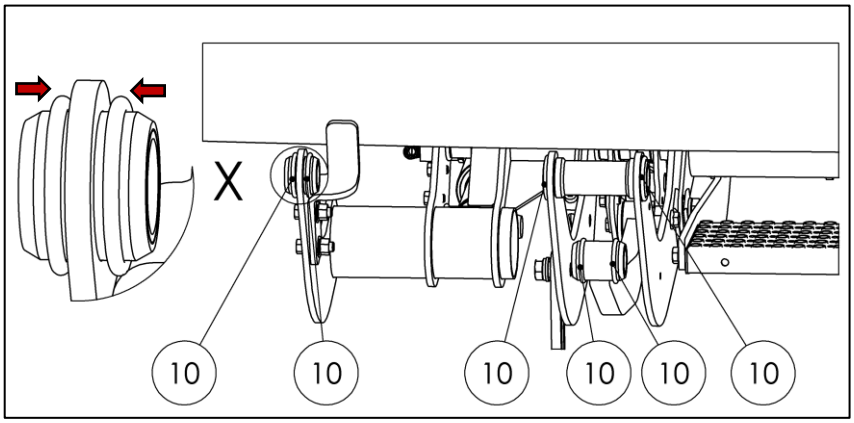


Fig. 56

Item No.	Part No.	Description	Standard	Qty.
10	20 840 117	O-ring	40.65 x 5.33	6

- Loosen the platform stop (1) and push it toward the vehicle (see Fig. 57).

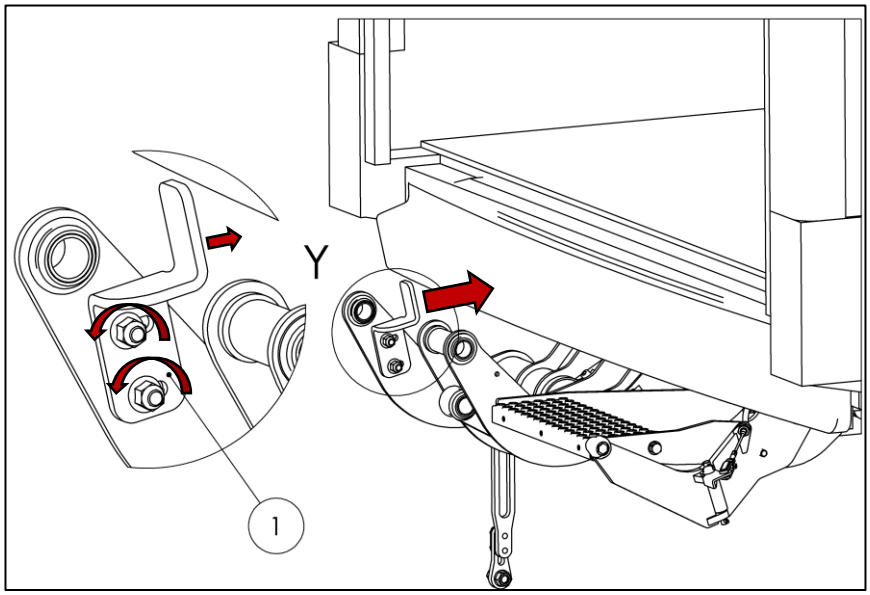


Fig. 57

Legend:
Item 1 Platform stop

- Thoroughly grease the bearing bushes with the special assembly grease (accessories kit parts list – Item No. 13) (see Fig. 58).

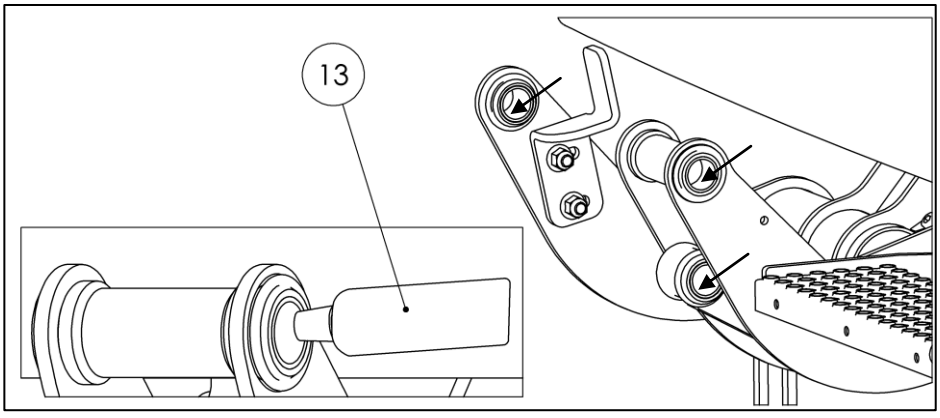


Fig. 58

Excerpt from parts list: accessories kit

Item No.	Part No.	Description	Standard	Qty.
13	20 840 405	Lubricating grease		1

- Align the top bearing points of the platform (platform attachment points) with the swing-arm bearing points (top attachment points of the lifting gear) (see Fig. 59).

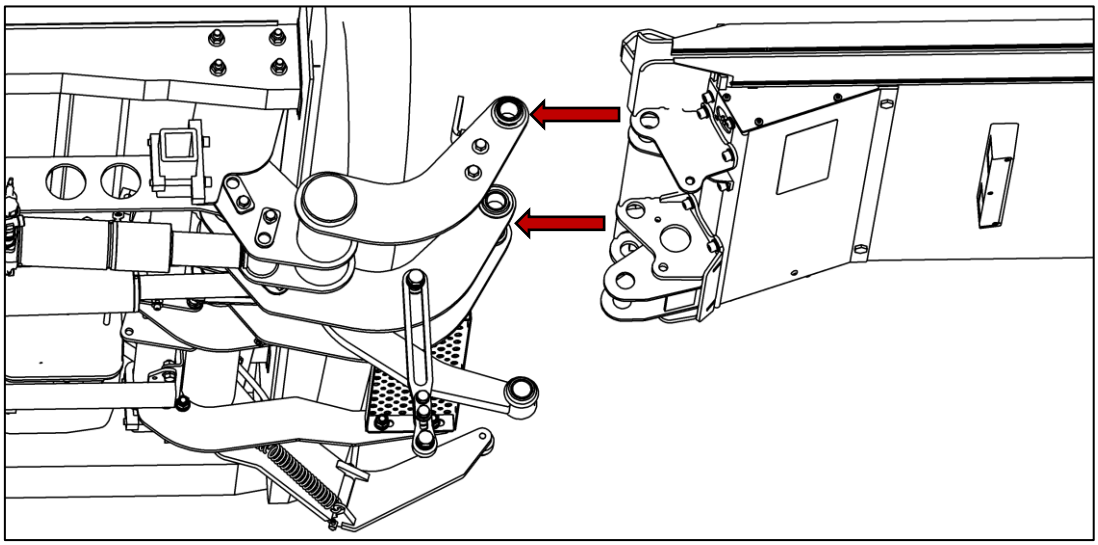


Fig. 59

- Insert the two pins (a, b) through the top attachment points of the platform and the attachment points of the swing-arm assembly.

IMPORTANT: Note the direction of insertion (see Fig. 60).

- Mount the bolts from the accessories kit (2) to secure the pins and tighten them to 70 Nm.

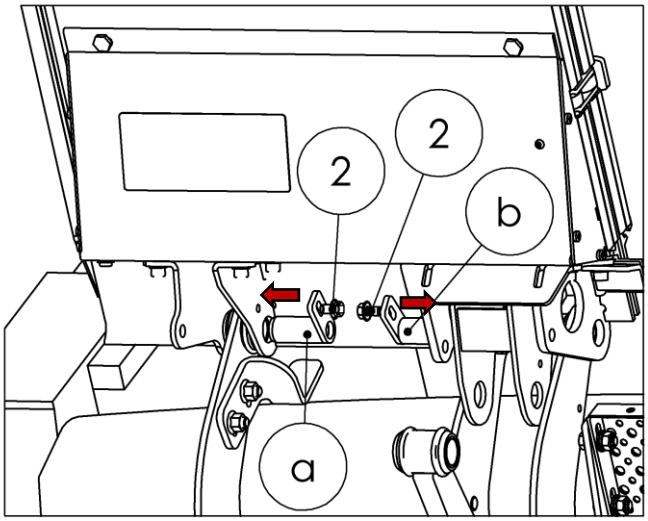


Fig. 60

Excerpt from parts list: accessories kit

Item No.	Part No.	Description	Standard	Qty.
2	20 908 251	Hexagon flange bolt	DIN 6921 - M10x15 - 10.9 - ZN	2

Legend:

Item a	Pin	Part No. 20 905 057
Item b	Pin	Part No. 20 840 722

- Lift the tip of the platform until the closing-rod bearing point (attachment point for the closing rod) is aligned with the swing-arm bearing point (bottom attachment point on the platform) (see Fig. 61).

IMPORTANT: If necessary, slightly retract or extend the closing rod.

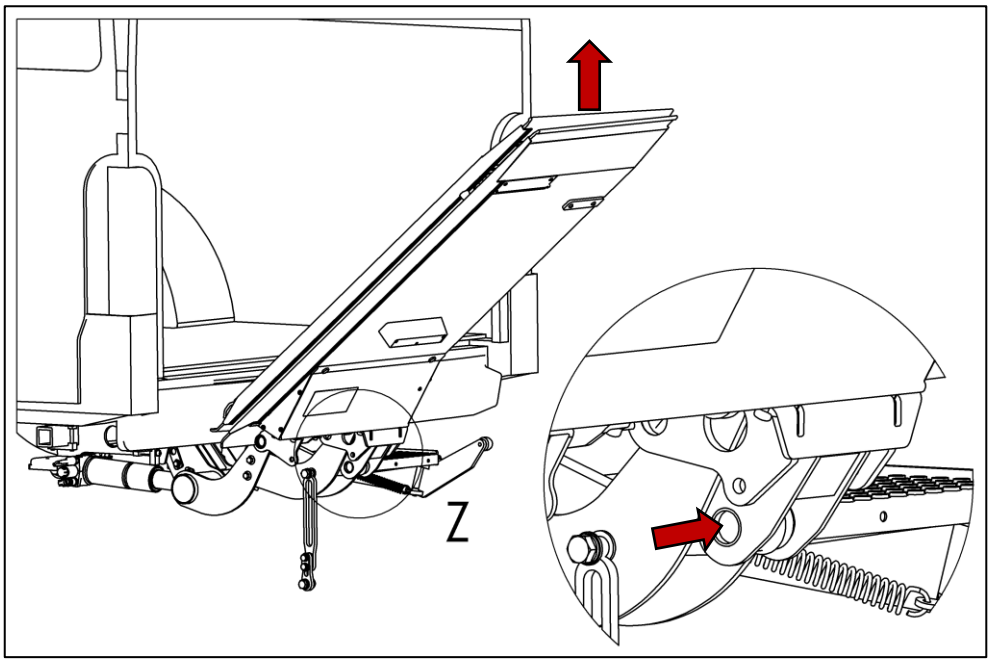


Fig. 61

- Insert the pin (c).
- Mount the screw (8) from the accessories kit to secure the pin (Fig. 62).

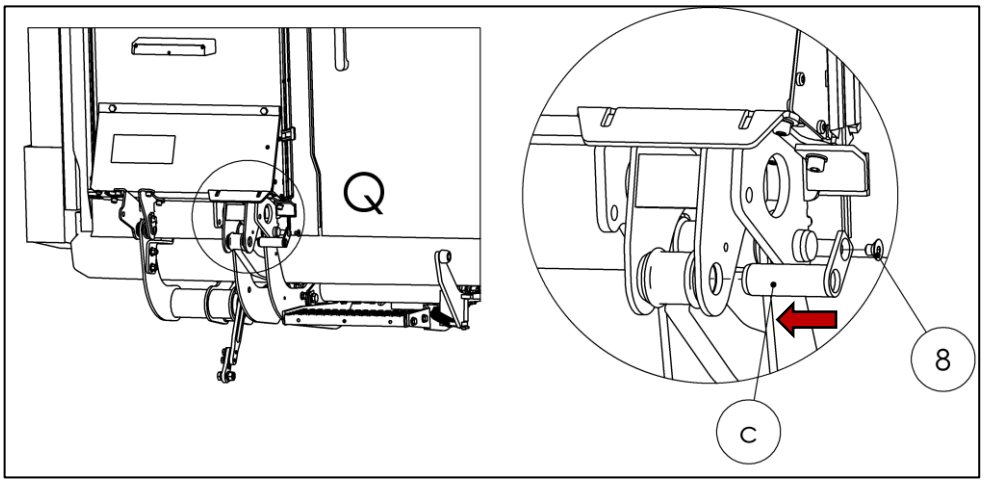


Fig. 62

Excerpt from parts list: accessories kit

Item No.	Part No.	Description	Standard	Qty.
8	20 901 791	Countersunk screw with hexagon socket	DIN 7991 - M10x12 - A2	1

Legend:

Item c Pin Part No. 20 907 775

- Move the 6 pre-fitted O-rings (accessories kit parts list – Item No. 10) into their correct positions (see Fig. 63).

  IMPORTANT: All bearing points are sealed with O-rings.

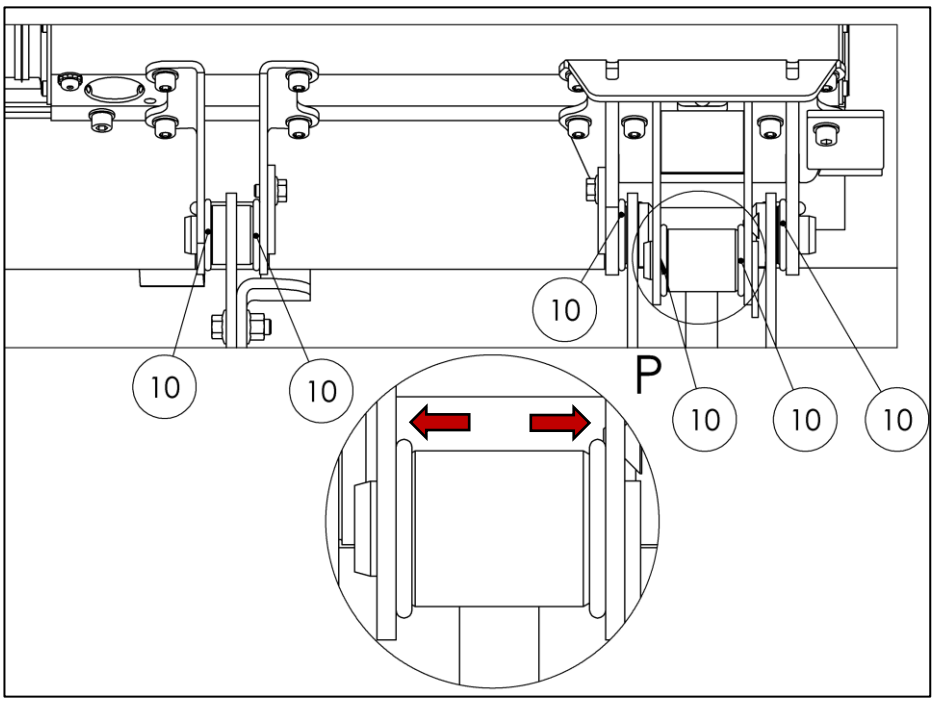


Fig. 63

Excerpt from parts list: accessories kit

Item No.	Part No.	Description	Standard	Qty.
10	20 840 117	O-ring	40.65 x 5.33	6

4.11 Mounting the platform lock on the closing arm

- Remove and properly dispose of the nut on the transport lock (1) (see Fig. 64).

Legend:

Item 1 Nut Part No. 80 000 052

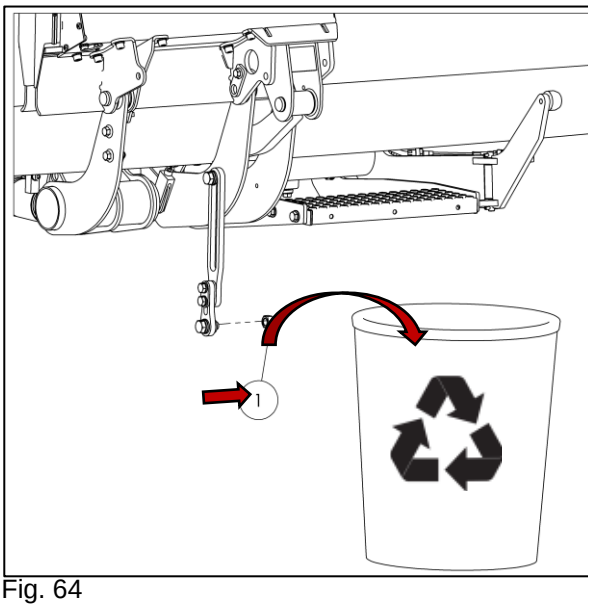


Fig. 64

- Mount the screw (1) for the platform lock, including the spring washer (2), washers (3), and sleeve (4), on the platform bearing (see Fig. 65).

Legend:

Item 1	Hexagon head screw
Item 2	Spring washer
Item 3	Washer
Item 4	Sleeve

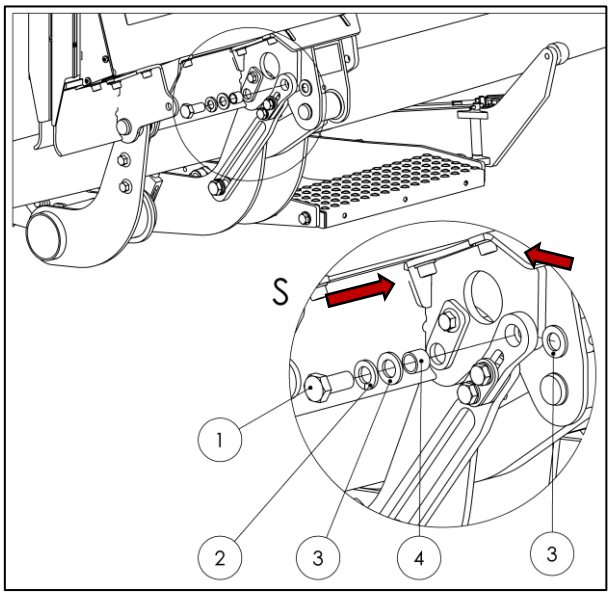


Fig. 65

4.12 Mounting the ground rollers

Required material from accessories kit

Item No.	Part No.	Description	Standard	Qty.
3	20 907 616	Ground roller		2
4	20 907 615	Bushing	d20/16x32	2
7	20 904 600	Flange screw	W 0263 - M16x40 - 10.9 - GEO	2

- Remove the flange screws (7), bushings (4), and ground rollers (3) from the accessories kit (see Fig. 66).

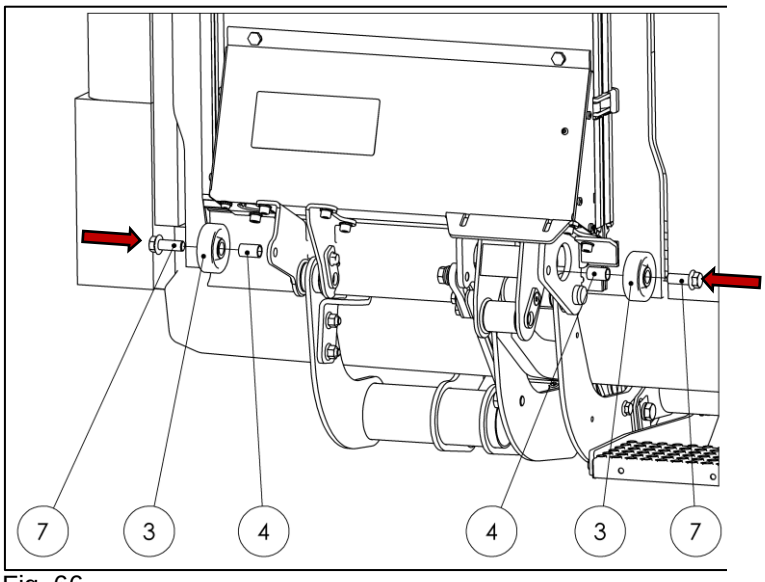


Fig. 66

4.13 Installing supports (vehicle-dependent)

With some vehicle types and installation versions, maximum loading of the platform can cause the front of the vehicle to lift up.

⚠ WARNING

Shift in center of gravity and lifting up of front end of the vehicle

Unexpected movements of the vehicle can result in the severe injury or death of bystanders.

- Follow the vehicle manufacturer's installation guidelines. If necessary, install supports.

4.14 Connecting the platform to the electrical system

4.14.1 Connecting the platform cable to the electrical system

➢ Connect the platform cable connector (1) to the control unit connector (2) (see Fig. 67)

IMPORTANT: The control unit connector is identified by the white plastic cover on

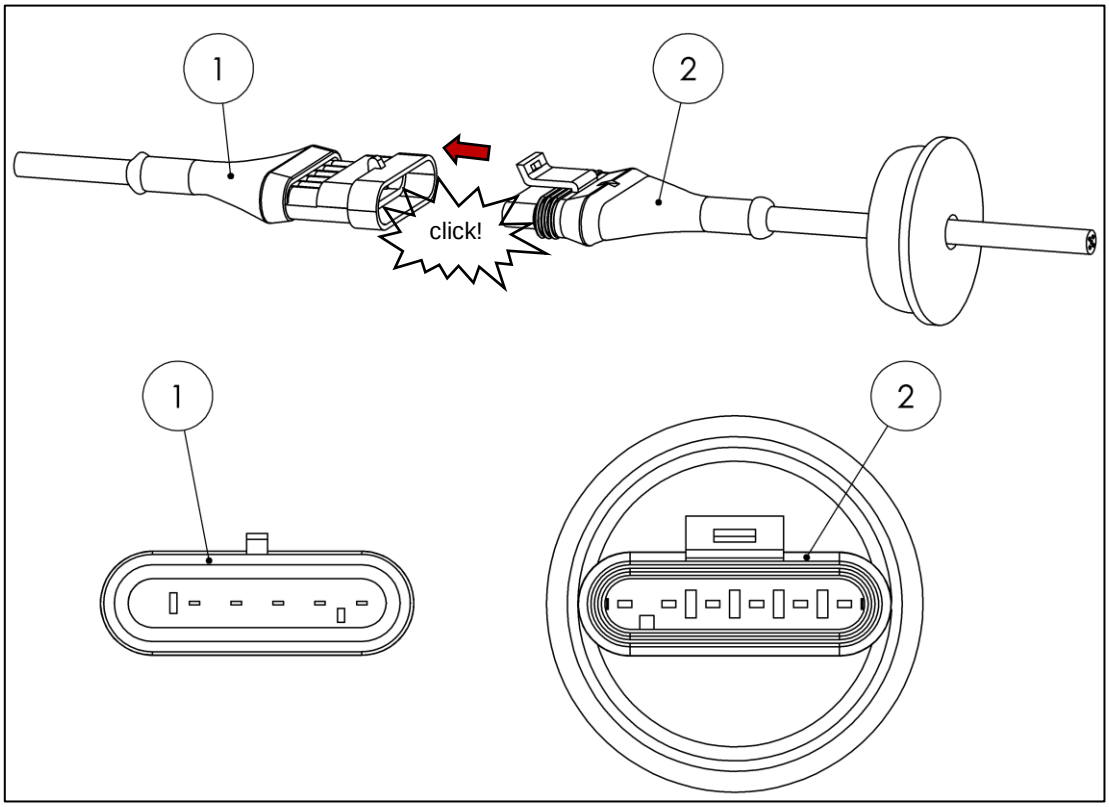


Fig. 67

the cable.

Legend:

Item 1 Platform connector for connection to control unit

Item 2 Control unit connector for connection to platform

4.14.2 Connecting the license plate light

- Find the cable connection point for the license plate light in the C column (a) on the Mercedes Benz Sprinter (see Fig. 68).

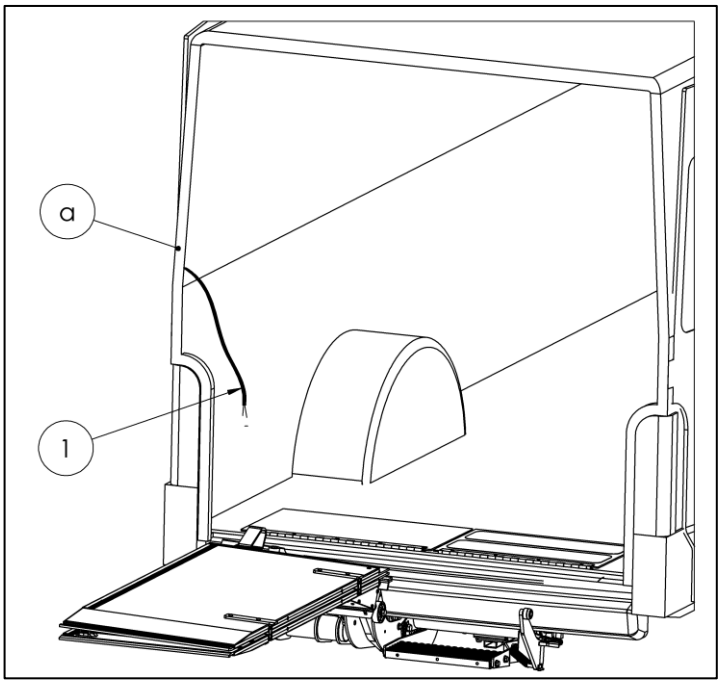


Fig. 68

- Route the license plate light cable (2) (cable outlet from platform's aluminum torsion box) along the closing arm (see Fig. 69).

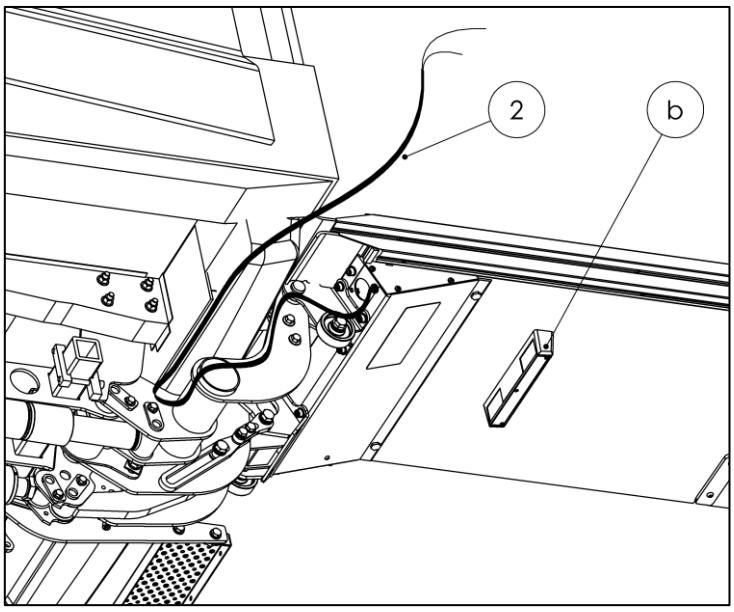


Fig. 69

Legend:
Item b License plate light

- Join the two cables (1) and (2) and connect.

IMPORTANT: Follow the vehicle manufacturer's installation guidelines.

4.15 Mounting the license plate holder

- Mount the license plate holder below the license plate light.

IMPORTANT: When positioning the holder, make sure the license plate is sufficiently illuminated.

4.16 Mounting the bridge plates (20 909 431)

- Fasten the bridge plate with the non-skid coating (2) on the right side. The non-skid coating must face upward when the bridge plate is folded shut (see Fig. 70).
- Fasten the non-coated bridge plate (1) on the left side (see Fig. 70).

Legend:

Item 1 Bridge plate
Part No. 20 911 718

Item 2 Bridge plate
Part No. 20 911 699

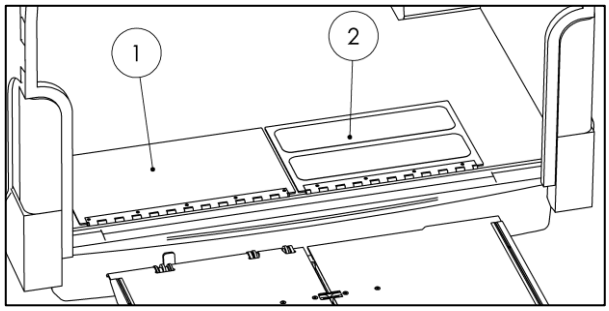


Fig. 70

4.17 Mounting the warning flags

- Remove the warning flag kit (14, Part No. 60 710 330) from the accessories kit and mount it in accordance with the installation instructions below (Fig. 71, Fig. 72, and Fig. 73).

Required material from accessories kit

Item No.	Part No.	Description	Standard	Qty.
14	60 710 330	Warning flag	Kit	1

IMPORTANT: <u>Mounting specifications:</u> Comply with these mounting specifications (see Fig. 71):
Dimension **A** – Move the holder far enough away from the tip of the platform to leave 20 mm clearance between the holder and the ground when the platform is lowered. The holder must not touch the ground when the platform is lowered.
Dimension **B** – Position the warning flag as close as possible to the outside platform edge.

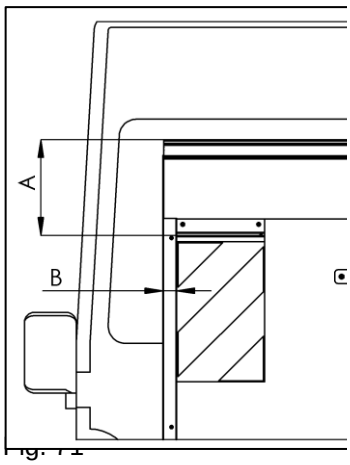


Fig. 71

- Close the liftgate (place in driving position).
- Align the warning flag holder (14c).

IMPORTANT: Comply with the mounting specifications.

- Transfer the existing holes in the warning flag holder to the platform and pre-drill holes for the 2 blind rivets.
- Rivet the warning flag holder (14c) using 2 blind rivets (14d).
- Slide the left warning flag (14a) into the slot in the warning flag holder (14c).

IMPORTANT: Identify the left warning flag (14a) by the angle of the pattern (see Fig. 72).

- Secure the warning flag using the Phillips-head screw (14e).

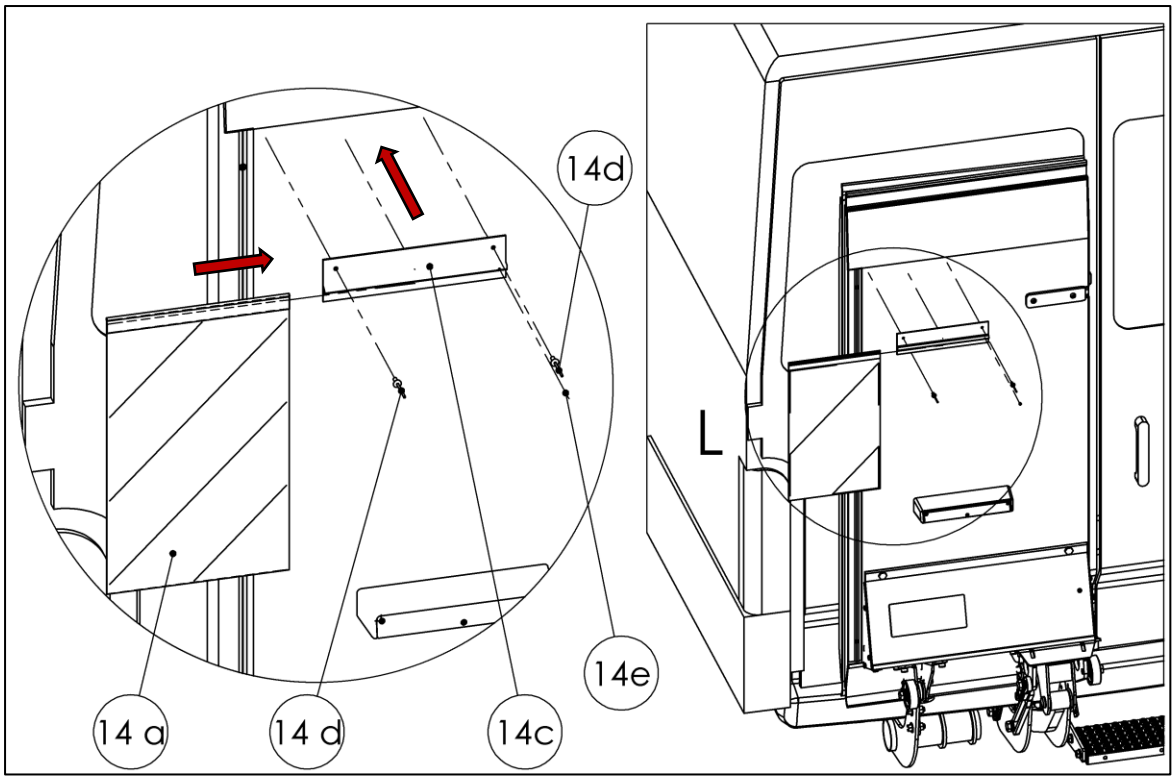


Fig. 72

Legend:

Item 14a	Left warning flag
Item 14b	Right warning flag
Item 14c	Warning flag holder
Item 14d	Blind rivet
Item 14e	Phillips-head screw

- Move the liftgate to the horizontal position.
- Fold out (open) the liftgate.
- Bring the open liftgate as far as necessary into the vertical position to comfortably mount the right warning flag.

⚠ CAUTION

Not a normal operating position

Risk of injuring yourself or damaging the vehicle or liftgate.

- Align the warning flag holder (14c).

IMPORTANT: Comply with the mounting specifications.

- Transfer the existing holes in the warning flag holder to the platform and pre-drill holes for the 2 blind rivets.
- Rivet the warning flag holder (14c) using 2 blind rivet (14d).
- Slide the right warning flag (14a) into the slot in the warning flag holder (14c).

IMPORTANT: Identify right warning flag (14a) by the angle of the pattern (see Fig. 73).

- Secure the warning flag using the Phillips-head screw (14e).

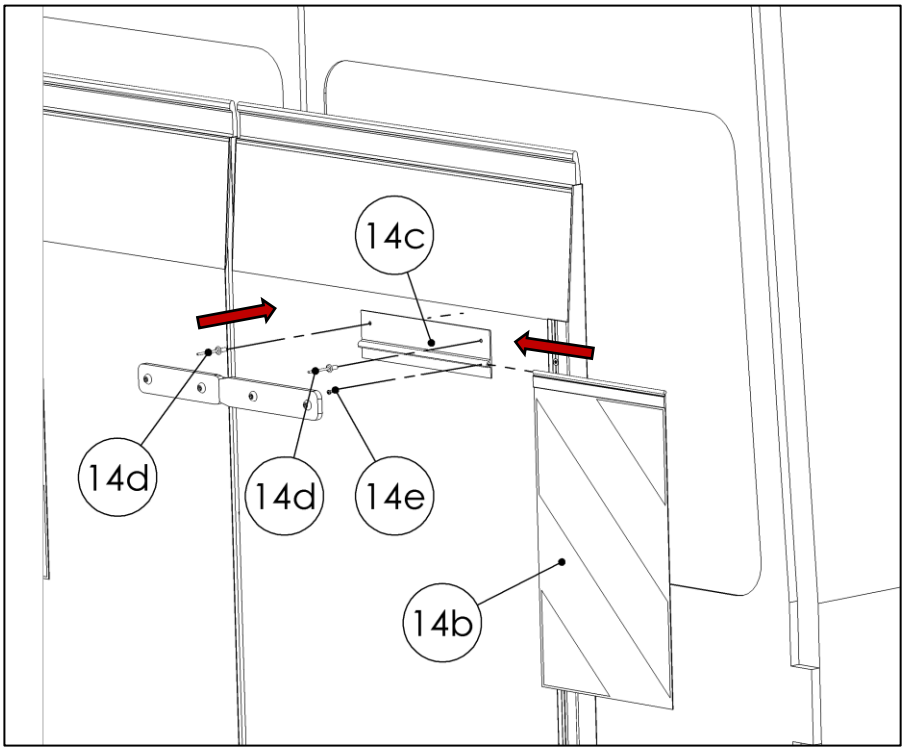


Fig. 73

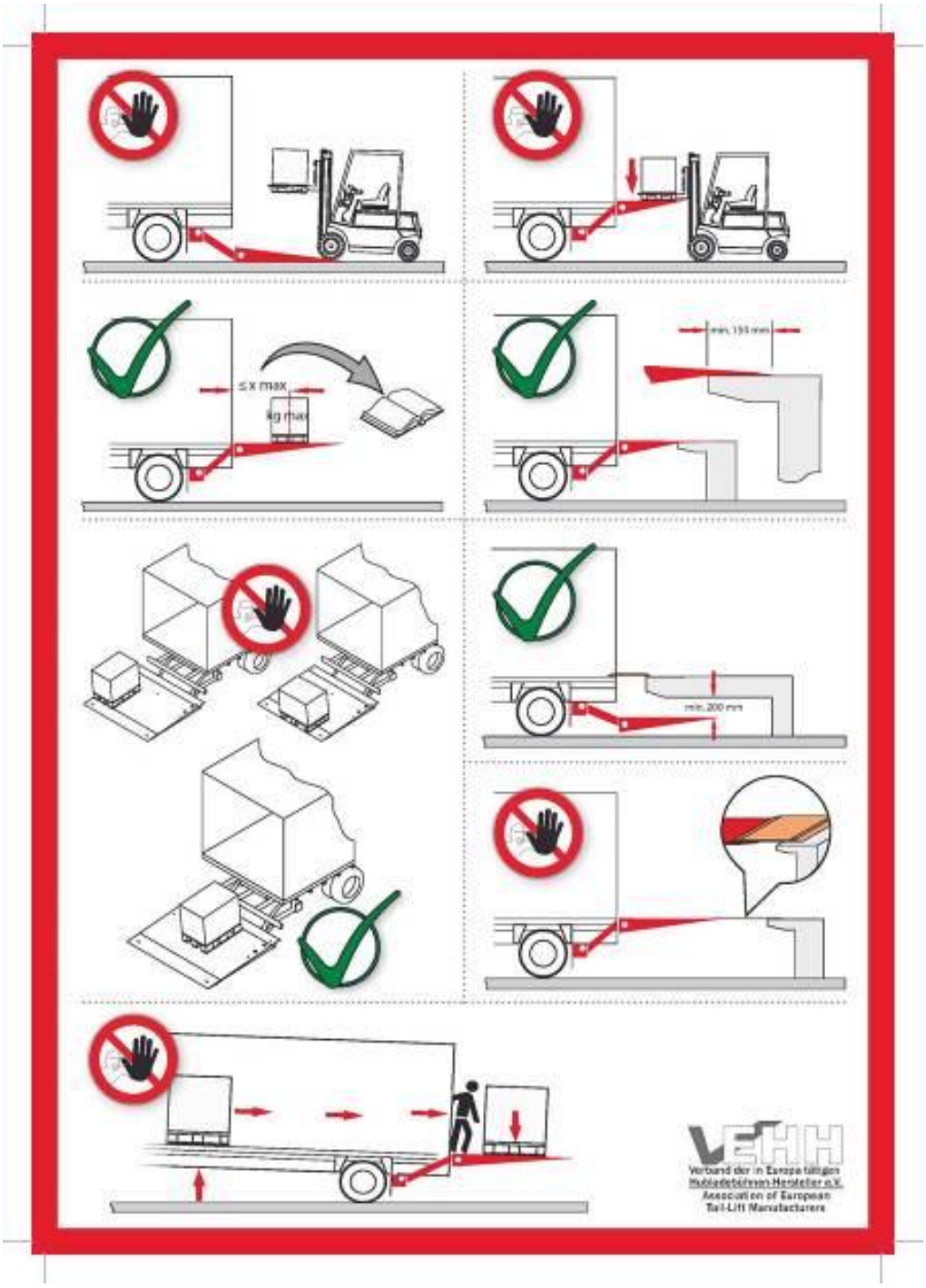
Legend:

Item 14a	Left warning flag
Item 14b	Right warning flag
Item 14c	Warning flag holder
Item 14d	Blind rivet
Item 14e	Phillips-head screw

4.18 Affixing the danger notice sticker

- Affix the danger notice sticker “Safe handling of the liftgate.”

IMPORTANT: This sticker is supplied with all new liftgates. The installing company must place it in an easily visible location on the inside of the vehicle cargo area. The danger notice sticker uses pictograms to indicate potential incorrect and correct use of the liftgate.



5 Adjusting the liftgate

5.1 Setting the lift height to the vehicle floor level using the adjustable stop on the axle assembly

Use the adjustment screw (1) pre-mounted on the axle assembly of the X1A 600F/GPC X1 and an appropriate tool (e.g. a ring wrench) to set the lifting gear to the desired height with relation to the vehicle floor.

➢ Use the adjustment screw (1) to set the lift height (see Fig. 74).
- Rotate to left: lower lift height
- Rotate to right: higher lift height

Legend:
Item 1 Adjustment screw

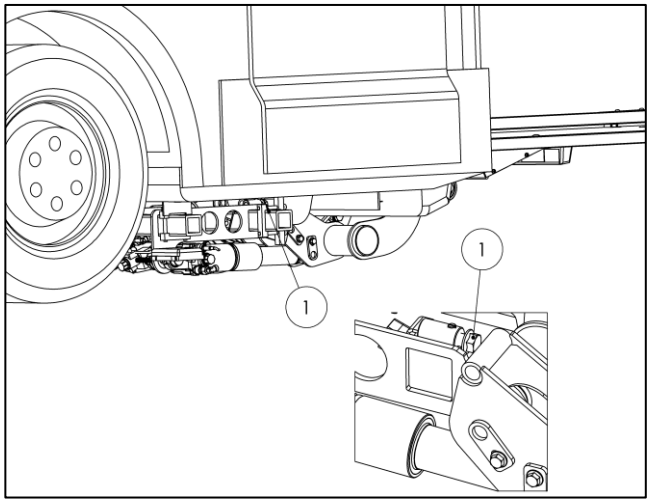


Fig. 74

5.2 Aligning the platform parallel to the vehicle floor

NOTICE

- If no readjustment is necessary, make sure that the screws (1 and 3) are securely tightened.

➢ To align the platform parallel to the vehicle floor, adjust the lifting gear using the left-hand adjustment fork (adjustment screw accessible from above) (see Fig. 75).

With the platform open, operate the lifting gear to the height of the vehicle floor (not against the stop).

Legend:
Item 1 Adjustment screw
Item 2 Adjustment fork
Item 3 Hex bolt

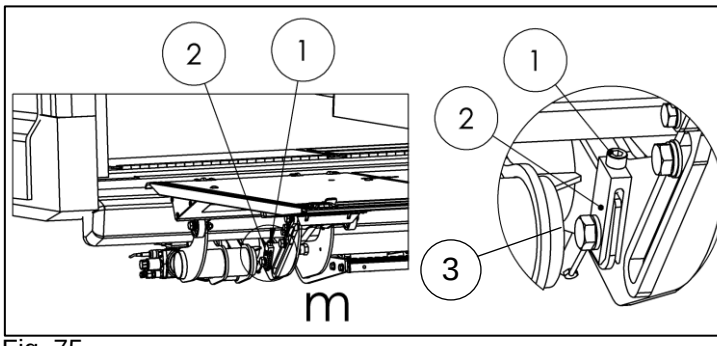


Fig. 75

- Loosen the hex bolt (3).
- Rotate the adjustment screw (1) to the left or right.

- Rotating the adjustment screw (1) to the right moves the right side of the platform closer to the vehicle chassis. This slightly lifts the platform on the right side of the vehicle (see Fig. 76).
- Rotating the adjustment screw (1) to the left moves the right side of the platform away from the vehicle chassis. This slightly lowers the platform on the right side of the vehicle (see Fig. 76).

- When finished adjusting, tighten the bolt (3) for securing the torsion bar to 115 Nm (see torque table on page on page 68 and see Fig. 77).

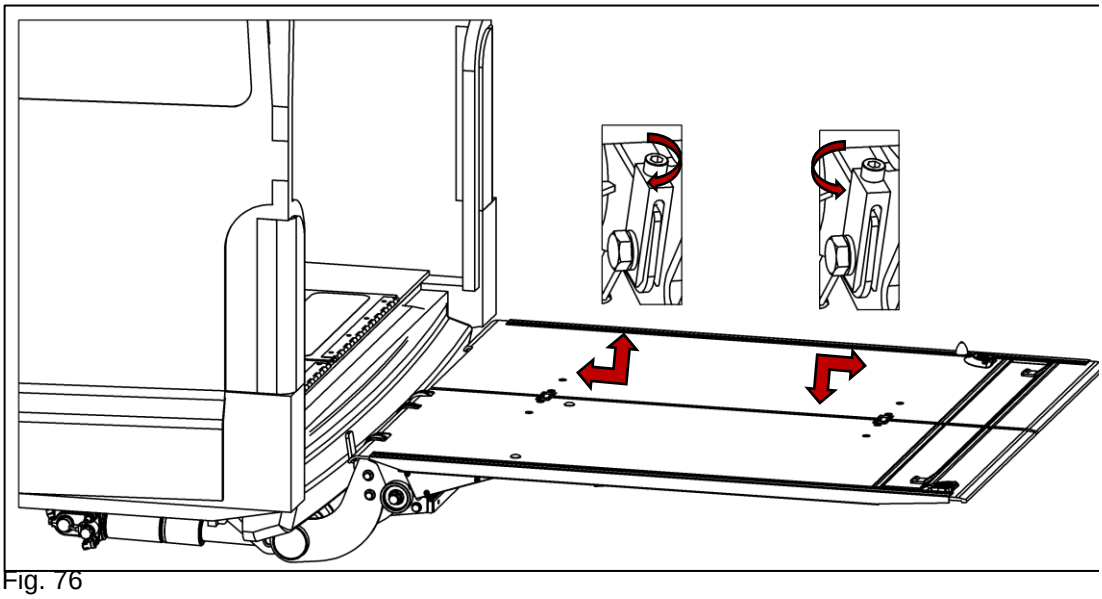


Fig. 76

5.3 *Aligning the platform (foldover section) parallel to the vehicle floor*

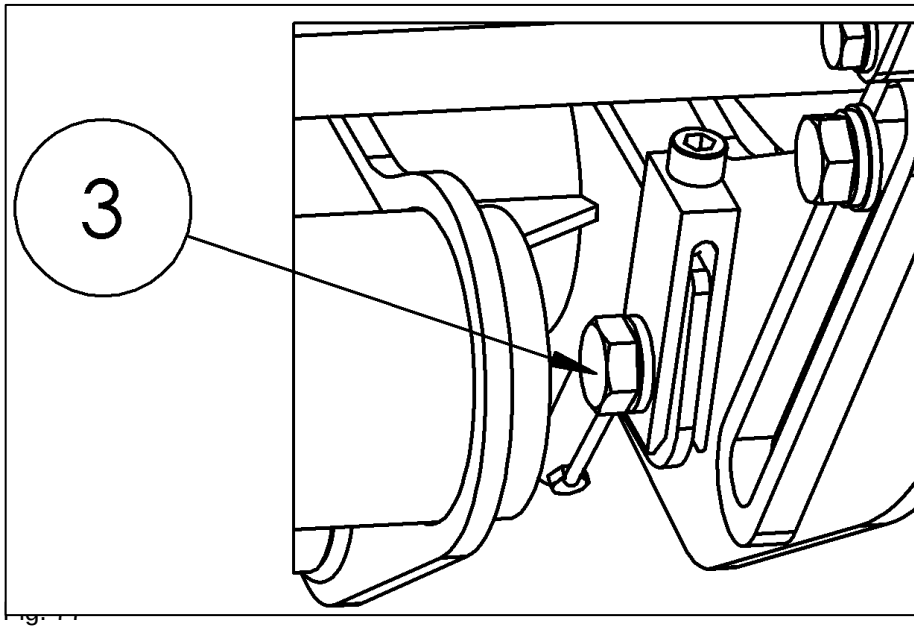


Fig. 77

If necessary, adjust the height of the foldover section on the right side of the platform using the right-hand adjustment fork (2) (adjustment screw accessible from below)

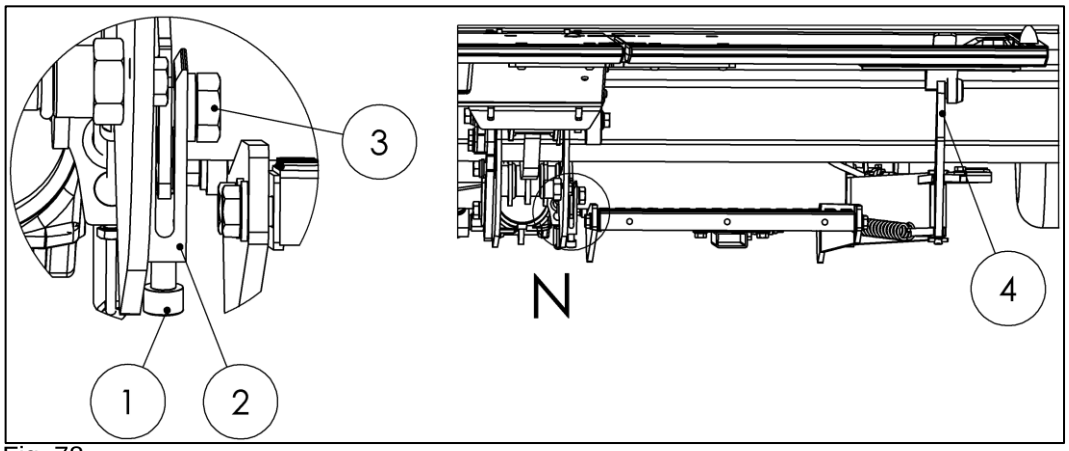


Fig. 78

(see Fig. 78).

Legend:

Item 1 Adjustment screw
Item 2 Adjustment fork
Item 3 Hex bolt
Item 4 Support arm

- Use the adjustment screw (1) to set the support arm (4) so that the platform stop rests on and is supported by the support arm (4).

IMPORTANT: At the same time, check the stop (Section 5.4) on the foldover section.

- Rotating the adjustment screw (1) to the right lifts the support arm (4).
- Rotating the adjustment screw (1) to the left lowers the support arm (4) (see Fig. 79).

- When finished adjusting, tighten the bolt (3) for securing the torsion bar to 115 Nm (see torque table on page 68).

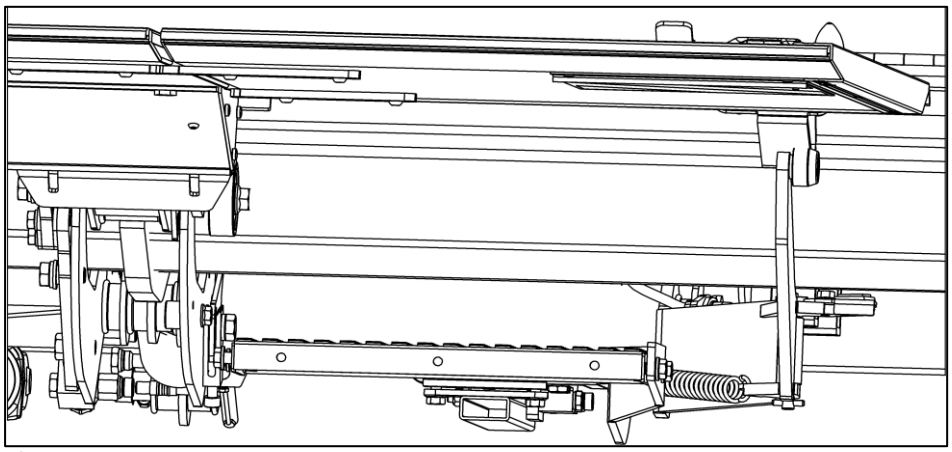


Fig. 79

5.4 Checking the stop on the foldover section of the platform

➢ Check the stop on the foldover section of the platform.

IMPORTANT: The roller (1) on the support arm (2) must remain against the stop (3) throughout the entire lifting process. If necessary, loosen the stop (3) and shift it slightly by loosening 2 cheese-head screws (4). At the same time, the stop (3) must not be shifted too far. When the platform is folded over, the plastic spacer (5) must hold the platform in place (see Fig. 80).

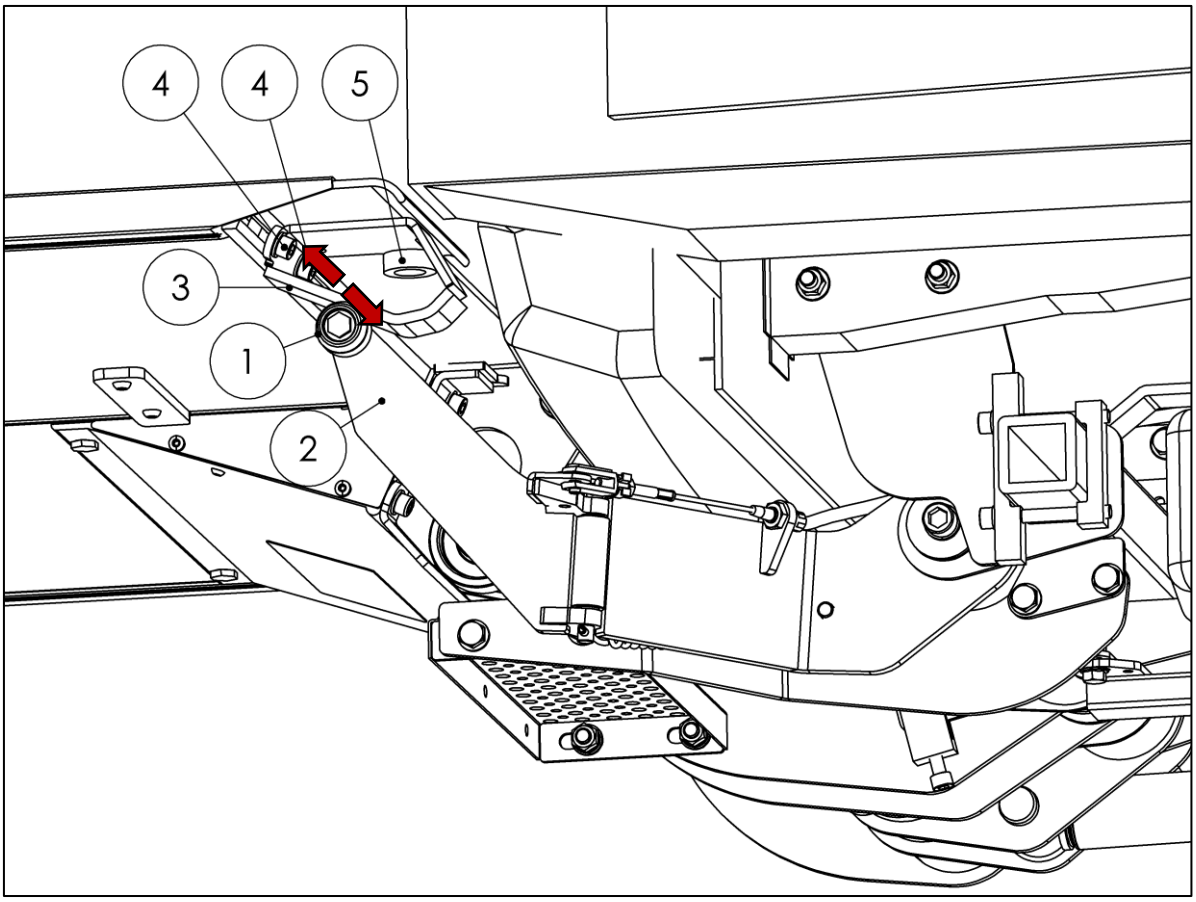


Fig. 80

Legend:

Item 1	Roller on support arm
Item 2	Support arm (supports foldover section of platform when platform is open)
Item 3	Stop (on foldover section of platform)
Item 4	Cheese-head screw (2 pieces)
Item 5	Plastic spacer (holds platform in driving position)

5.5 Setting the end stop for the closed platform

The end stop for the platform in the closed position is mounted on the closing arm. The platform requires no additional stops on the vehicle.

IMPORTANT: Adjust the platform so that it stands vertically behind the vehicle when closed and in the driving position.

- Loosen the 2 screws (1) on the clamping plate (2) (see Fig. 81).

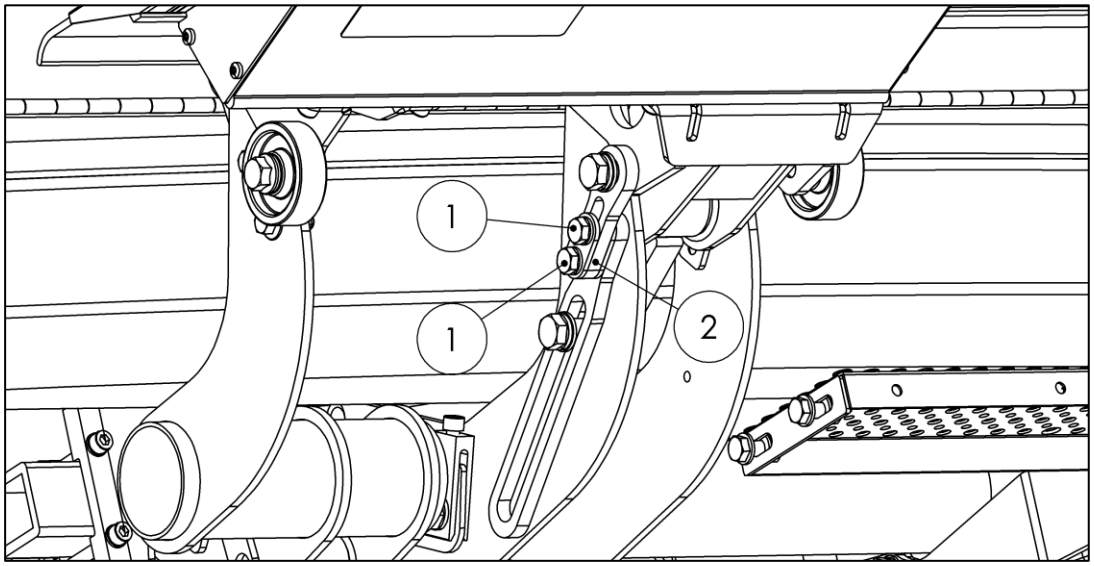


Fig. 81

- Hydraulically close the platform until not quite vertical, leaving it open 3° to 4° (see Fig. 82).

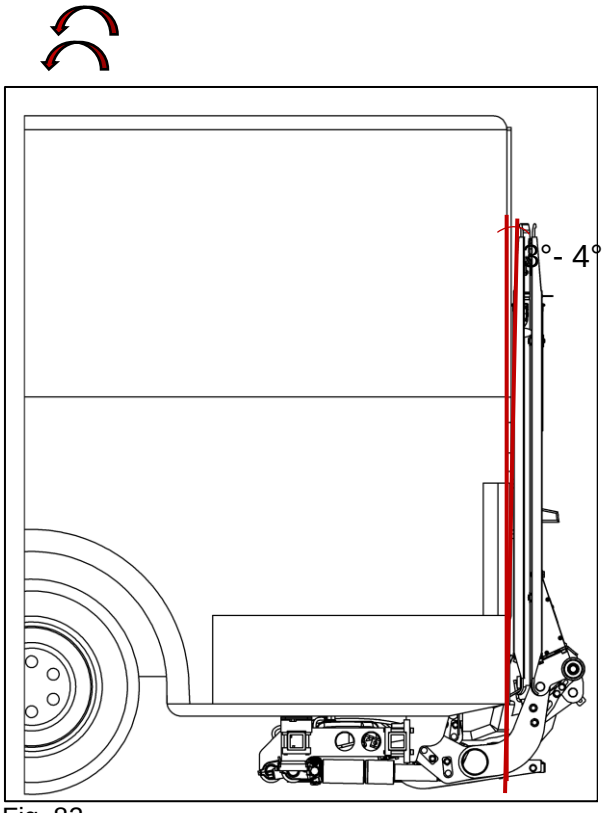


Fig. 82

- Retighten the 2 screws (1) on the clamping plate (2) on the platform stop to a torque of 195 Nm (see Fig. 83).

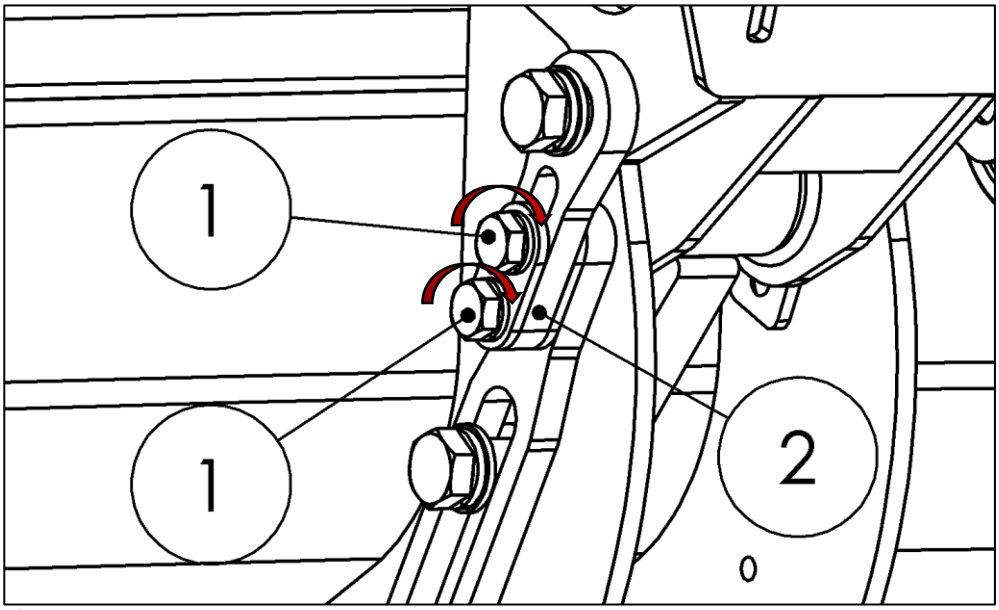


Fig. 83

When you reclose the platform, it will stand vertically behind the vehicle (see Fig. 84).

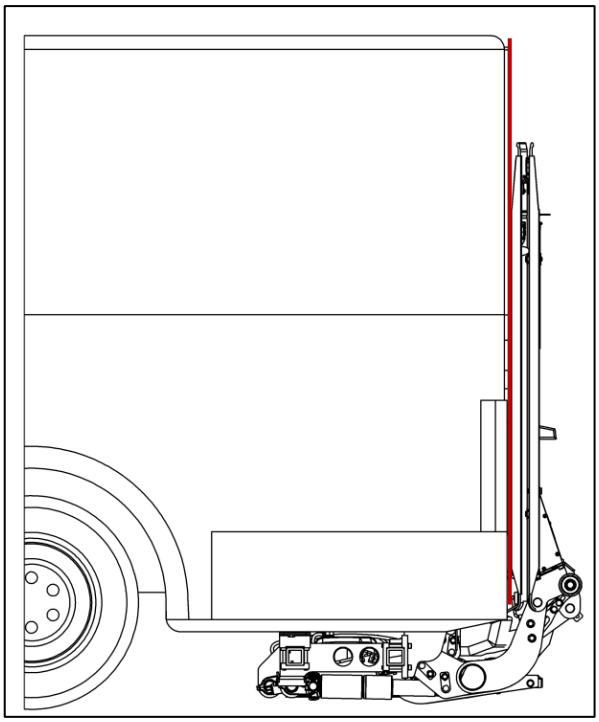


Fig. 84

5.6 Adjusting the stopper for fastening the platform

The stopper fastens the right-hand foldover section of the closed platform and keeps the platform from hitting the vehicle while driving.

IMPORTANT: Make the adjustment with the platform folded and closed (driving position).

- Loosen the nuts (1) and bolts (2) on the stopper (3).
- Press the stopper (3) firmly against the plastic disk (4) (see Fig. 85).

Legend:

Item 1 Hexagon nut

Item 2 Screw

Item 3 Stopper

Item 4 Plastic disk

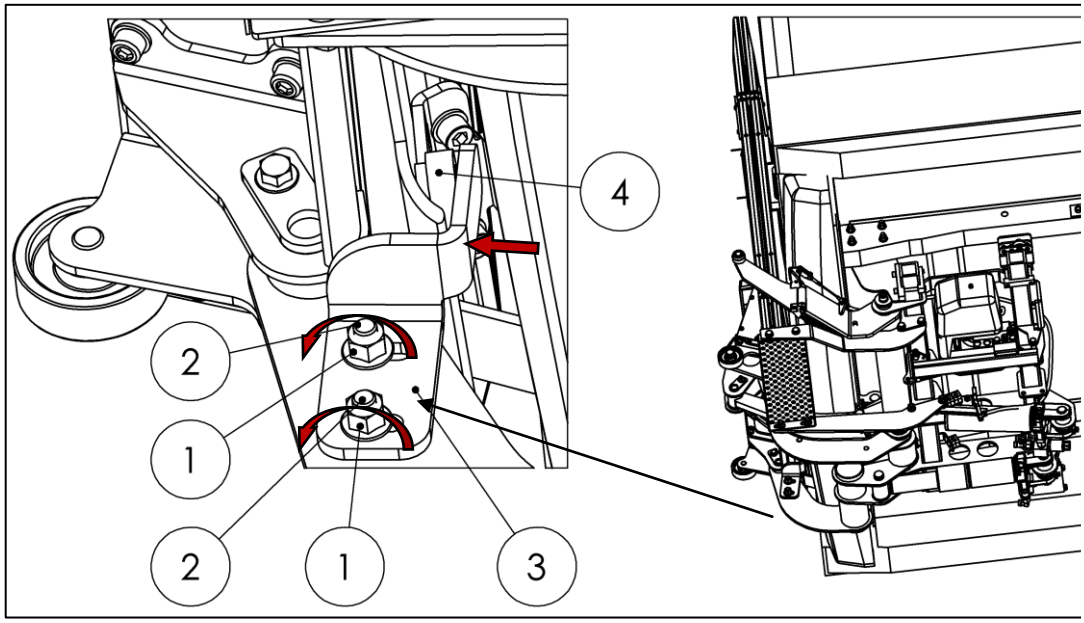


Fig. 85

- Tighten the nuts (1) and bolts (2) on the stopper (3) to a torque of 80 Nm (see Fig. 86).

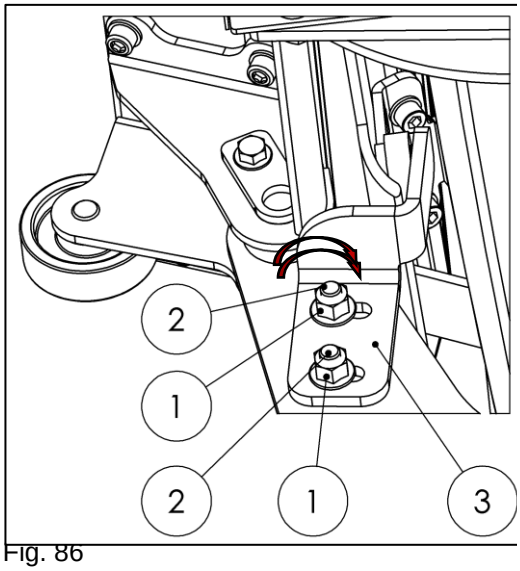


Fig. 86

5.7 Adjusting the support arm for the driving position using the Bowden cable

Adjust the support arm (1) so that it can be pulled as close to the vehicle as desired when the platform is closed. The adjustment is made outside at the Bowden cable (2) and, if applicable, also at the screw on the lever (3). While making the adjustment, release the Bowden cable (2) and open the platform (see Fig. 87).

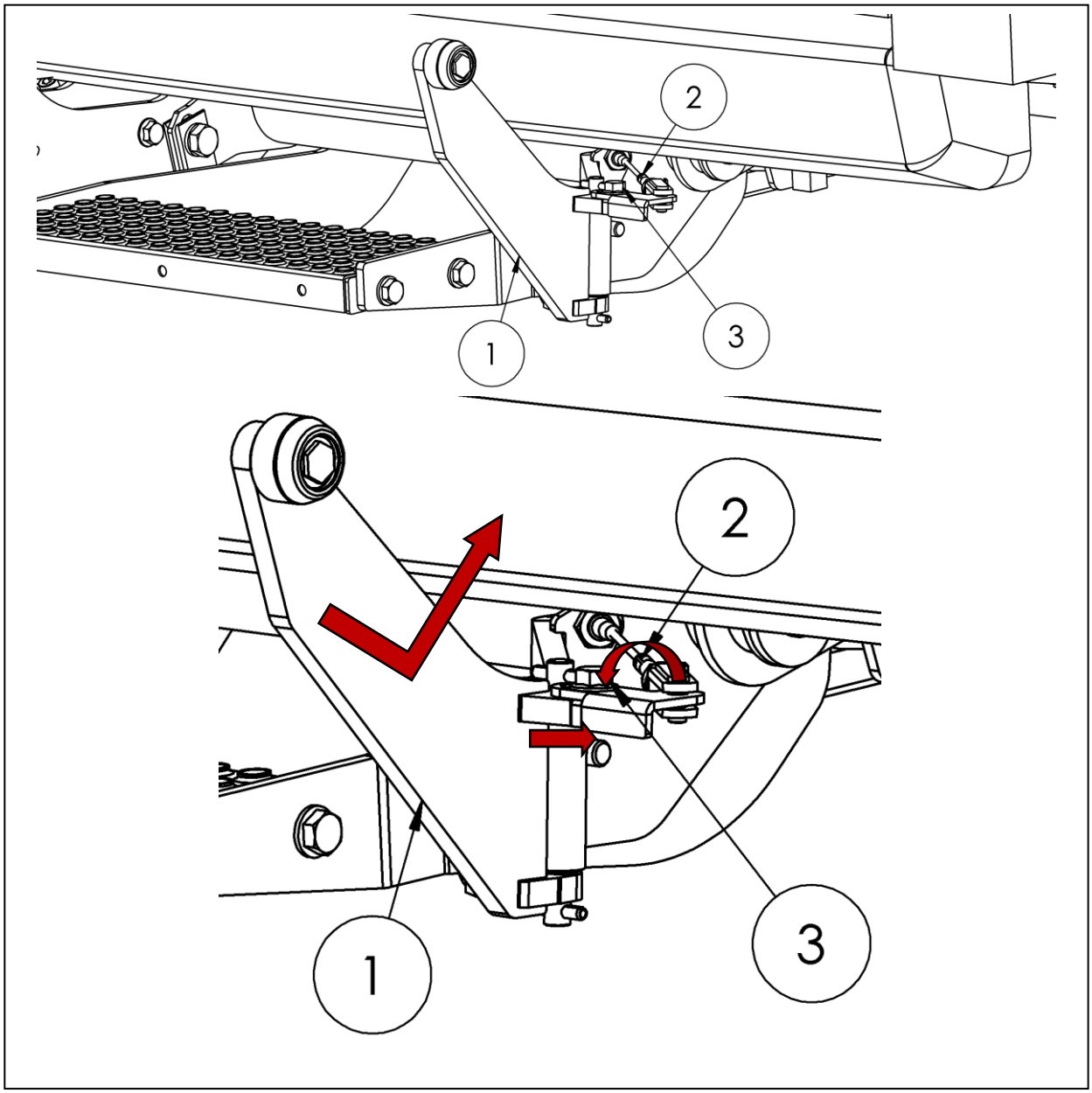


Fig. 87

Legend:

Item 1	Support arm
Item 2	Bowden cable
Item 3	Screw

5.8 Programming the tilt sensor

Platform tilt is adjusted by programming the tilt sensor. The tilt sensor is programmed by pressing a combination of buttons on the control panel (a) (see Fig. 88).

- Using the manual control, move the platform to a horizontal position.

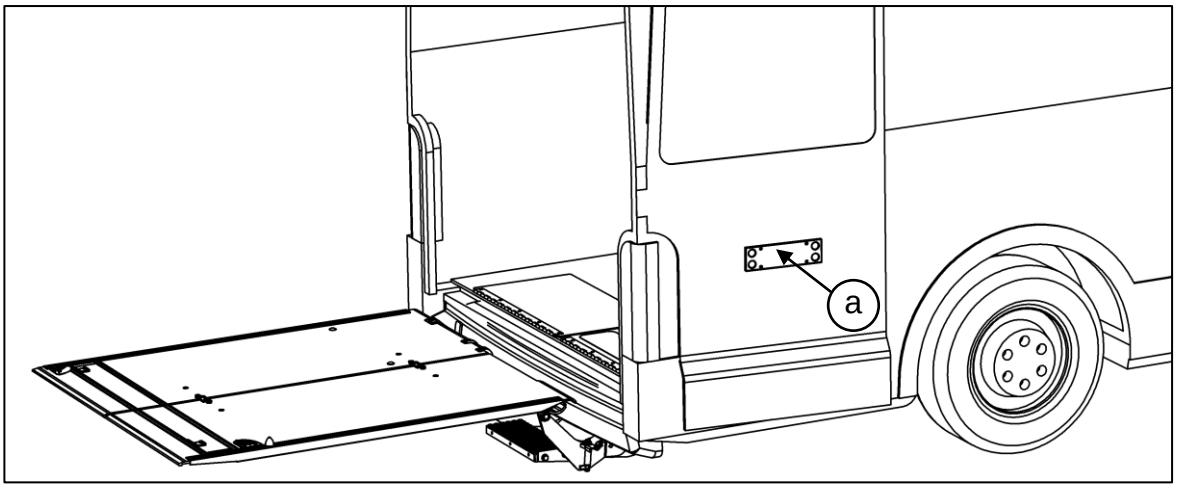


Fig. 88

- On the control panel (a), press button 1 (top left) 3 times, then
- On the control panel (a), press button 2 (top right) 3 times (see Fig. 89).

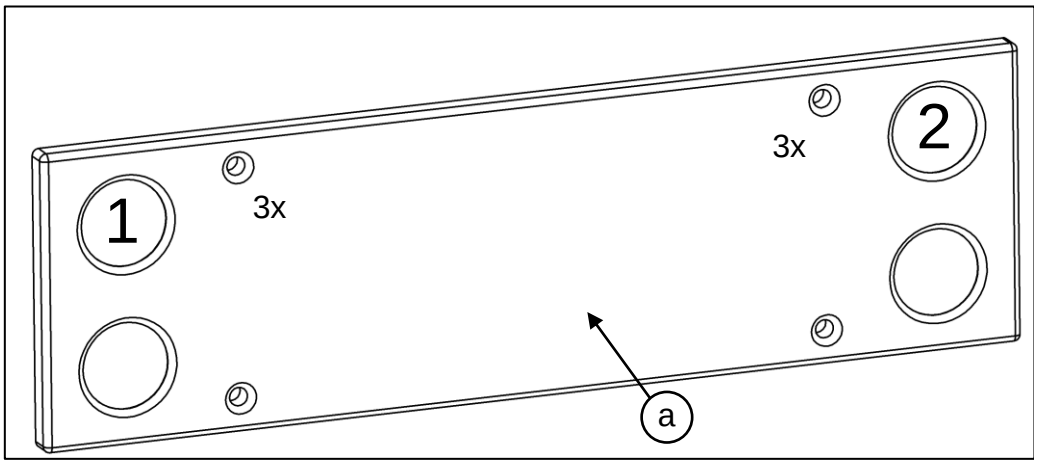


Fig. 89

IMPORTANT: Each of the programming sequences with button 1 and then button 2 must be completed within a period of 2 seconds.
The selected position will continue to be used each time the liftgate is operated until the sensor is reprogrammed.

6 Testing the liftgate

6.1 Function test

➢ Test: opening, lifting, lowering, tilting down, tilting up, closing

⚠ CAUTION

Platform at ground level

In the fully lowered position, the platform is easily overlooked and may cause people to trip, resulting in injury.

- If leaving the platform in this position for a longer period of time, secure the area.

6.2 Testing the operating speed

6.2.1 Vertical speed

Test: vertical speed (lifting and lowering)
The vertical speed must not exceed (lifting and lowering) 15 cm/sec.

⚠ WARNING

Permissible vertical speed exceeded

Risk of injury when operating the liftgate.

- Contact customer service.

6.2.2 Closing and opening speed (90° to 10°)

Test: angular velocity when opening and closing (see Fig. 90)
The angular velocity when opening and closing must not exceed **10°/sec.**

⚠ WARNING

Permissible angular velocity exceeded

Risk of injury when operating the liftgate.

- Contact customer service.

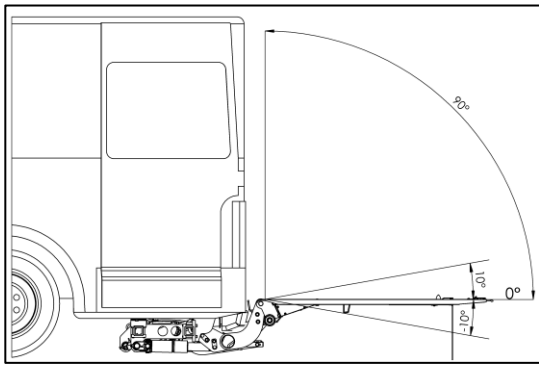


Fig. 90

6.2.3 Tilting speed (10° to -10°)

Test: angular velocity when tilting up and down (see Fig. 90)**.**
The angular velocity when tilting up and down must not exceed **4°/sec.**

⚠ WARNING

Permissible angular velocity exceeded Risk of injury when operating the liftgate.

- Contact customer service.

6.3 Load tests

⚠ WARNING

High loading of components

Incorrect installation or defective components may cause components to fail and break.

Risk of injury when operating the liftgate.

- Perform all the load tests specified here.

6.3.1 Static test

- ➢ Operate the horizontal platform to the height of the vehicle floor.
- ➢ Place a test load weighing 125% of the rated capacity on the platform within the loading distance.
- ➢ During a test period of 15 minutes, the platform must not lower more than15 mm and must not tilt down more than 2°.

IMPORTANT: The permissible loading distance and the rated capacity are engraved on the liftgate's rating plate. The loading diagram on the rating plate shows the permissible loads when the loading distance is changed.

IMPORTANT: After the static test, the installer must inspect the liftgate for deformation.

6.3.2 Dynamic test

- ➢ Test the lifting, lowering, and tilting functions using the maximum permissible load.

IMPORTANT: The pressure limiting valve is adjusted ex-works. A correction is generally unnecessary. If adjustment is necessary, contact the factory.

- ➢ The maximum permissible pressure is printed on the liftgate's rating plate.
- ➢ After performing the static and dynamic tests, visually inspect the hydraulics system for tightness.

6.3.3 Testing against lifting an overload

- ➢ Perform a test to guarantee that a load of more than 125% of the maximum rated capacity cannot be lifted off the ground.

6.3.4 Testing the safety devices

- ➢ Operate all the functions to their end positions until all the safety devices respond.

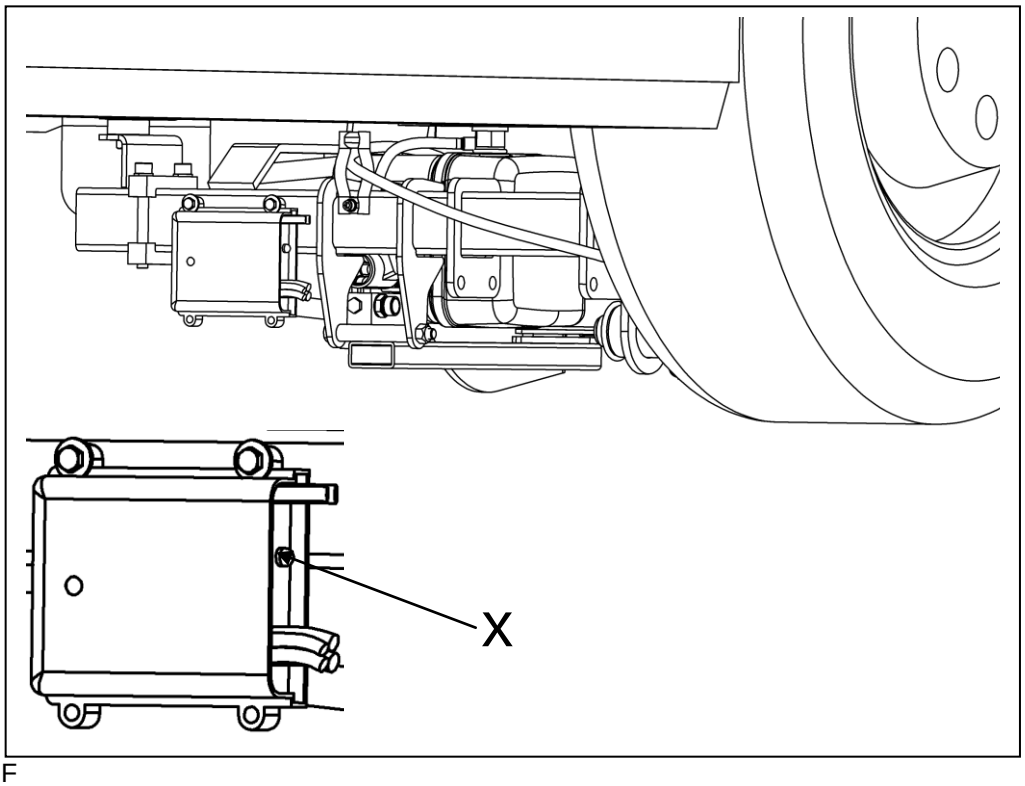
6.4 Explanation of diagnostic LED on the control unit

LED monitoring function	Cabin switch in driver's cabin or key switch	LED off	LED on	LED flashing
Platform closed (90°)	Off	X		
Platform closed	On		X	
Platform open (90° to 60°)	On		X	
Platform open (60° to 0°)	On	X		
Platform tilted down (0° to -10°)	On		X	
Switch being actuated *	On			X

Description:

90° = Platform is closed
0° = Platform is open to the horizontal position
-10° = Tip of platform is tilted down

*If a control element on the handheld control (toggle switch, remote control pushbutton, or foot switch) is actuated, the control LED flashes (see Fig. 91).



F
ig. 91

Legend:

X Control unit LED for control function

6.4.1 Checking tilt sensors S1 and S2 in the platform

- Platform closed and liftgate switched on:

LED on.
Power supply is functioning correctly.

- Platform position 0 ° to approx. 60 °:

LED off
Tilt sensor S1 in switching position is functioning correctly.
Corner lights are activated.

- Platform position 0° to -10° (tilted down)

LED on.
Tilt sensor S2 in switching position is functioning correctly.
The switchover occurs in the horizontal position, making it possible to set the automatic tilt-up function.

6.4.2 Checking pressure switch S4

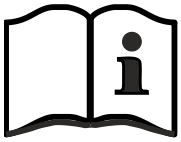
➢ Begin lowering the platform using the two bottom control panel buttons.

LED flashes.
As soon as the platform reaches the ground and the pressure switch is actuated, the flashing changes to continuous on – LED is on and the platform tilts down.
This indicates that the pressure switch was actuated. If it doesn't occur, the pressure switch is defective.

6.5 Entry in inspection record book

➢ Once the liftgate has been assembled, installed on the vehicle, adjusted, and has passed the function test, a qualified specialist must fill out and sign the section of the inspection record book entitled "Results of test performed by specialist before first operation."

7 Recommendations and instructions regarding the liftgate



IMPORTANT:
To ensure safe operation of the liftgate read the safety instructions and warnings in the accompanying user manual.

7.1 Hydraulic oil recommendations

HLPD 22 (ISO-VG 22) “detergent” so that free water remains emulsified (e.g. to prevent ice formation in winter) and to improve oil film adhesion.
In colder regions, we use HLPD 10 grade hydraulic oil.

Sörensen hydraulic oil HLPD 10	Part No. 20 841 181
Sörensen hydraulic oil HLPD 22	Part No. 60 700 283
Sörensen bio oil	Part No. 20 858 811

7.2 Painting the lifting gear

The lifting gear is powder-coated black ex-works. If another color is desired, painting must be performed by the vehicle manufacturer.

IMPORTANT:

- Roughen the powder-coated surface before painting.
- Mask the black connecting rods before painting.
- Carefully remove extra paint and masking material from the connecting rods after painting to avoid damaging the seals and voiding the warranty.

7.3 Rating plate

The rating plate with the loading diagram and factory number is affixed to the liftgate closing arm on the right side of the vehicle as viewed in the forward direction of travel. A second rating plate is affixed to the power unit cover. The device number and stamped figures are also stamped into the mounting flange on the left as viewed in the forward direction of travel.

8 Useful information

8.1 About the service switch

The service switch mounted in a housing enables trained service personnel to control and test the functioning of the liftgate directly (see Fig. 92).

If the liftgate's handheld control malfunctions, a trained person can operate the liftgate to any position using the service switch (emergency function).

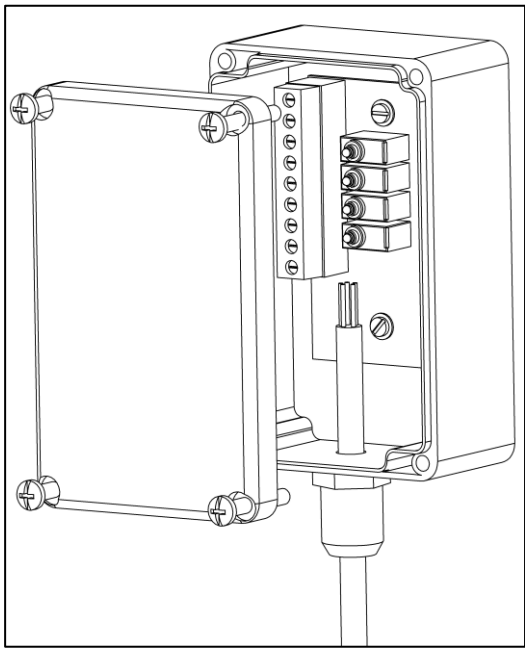
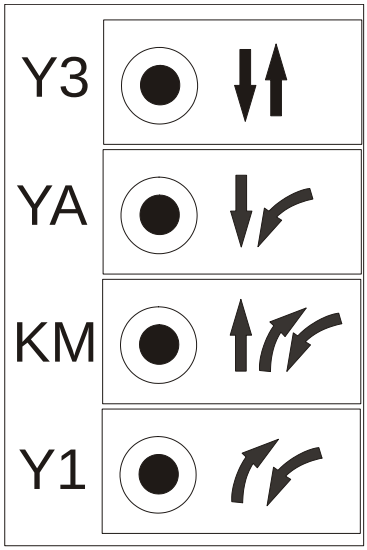


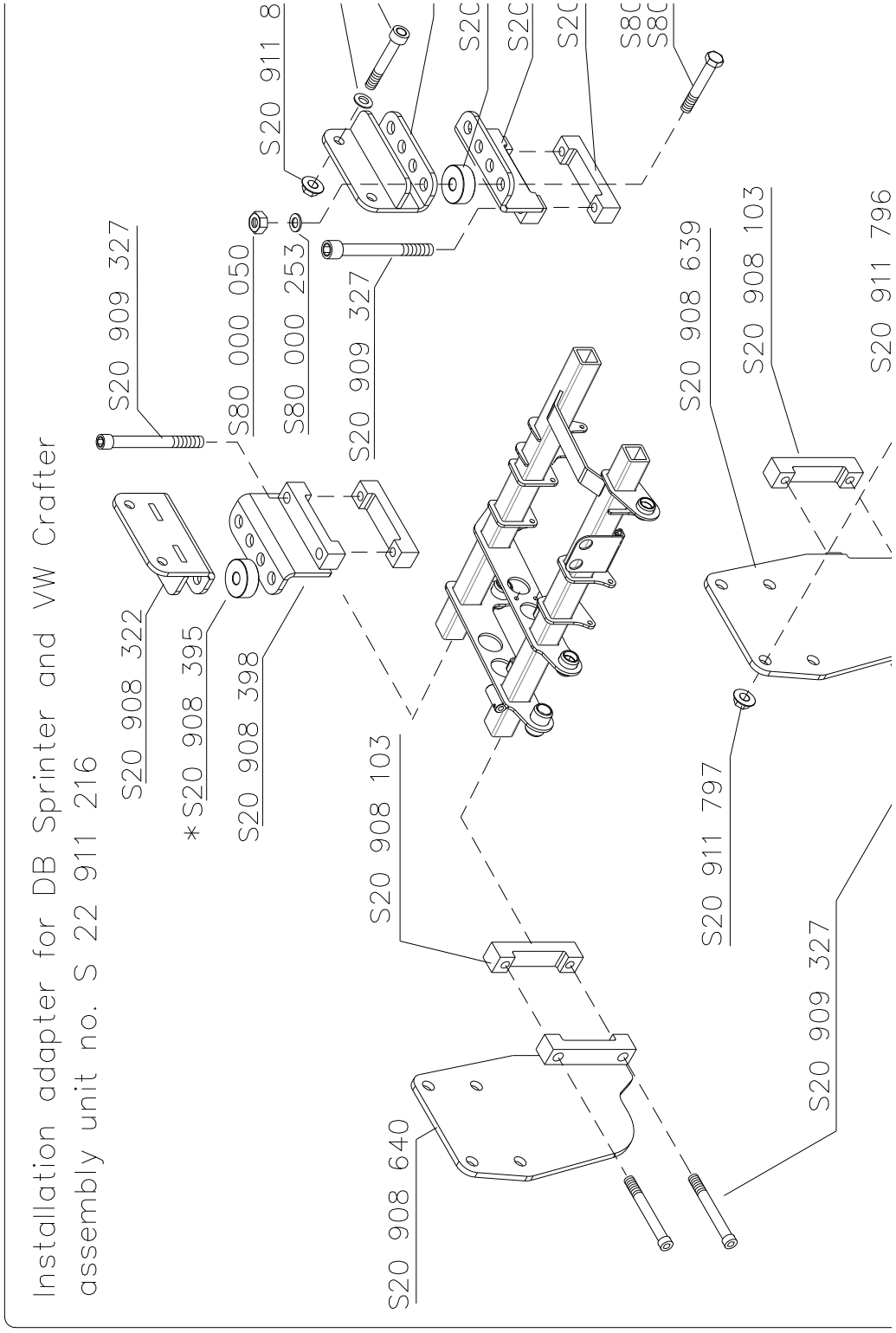
Fig. 92



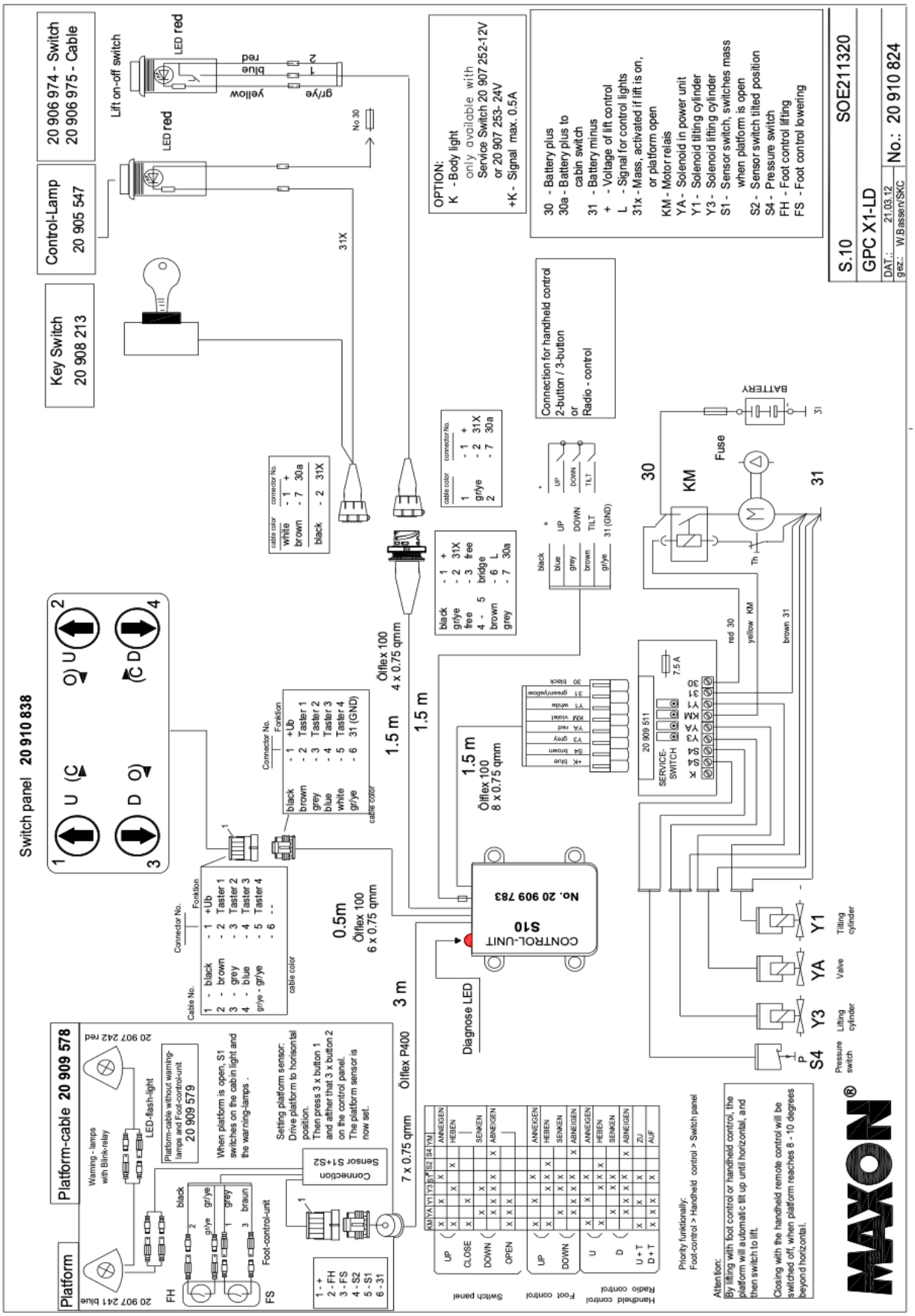
Function	YA	Y1	Y3	KM
Power light green		●		
Lift			●	●
Lower	●		●	
Open/tilt down	●	●		●
Close/tilt up		●		●

Please follow the sequence shown. Always operate KM last.

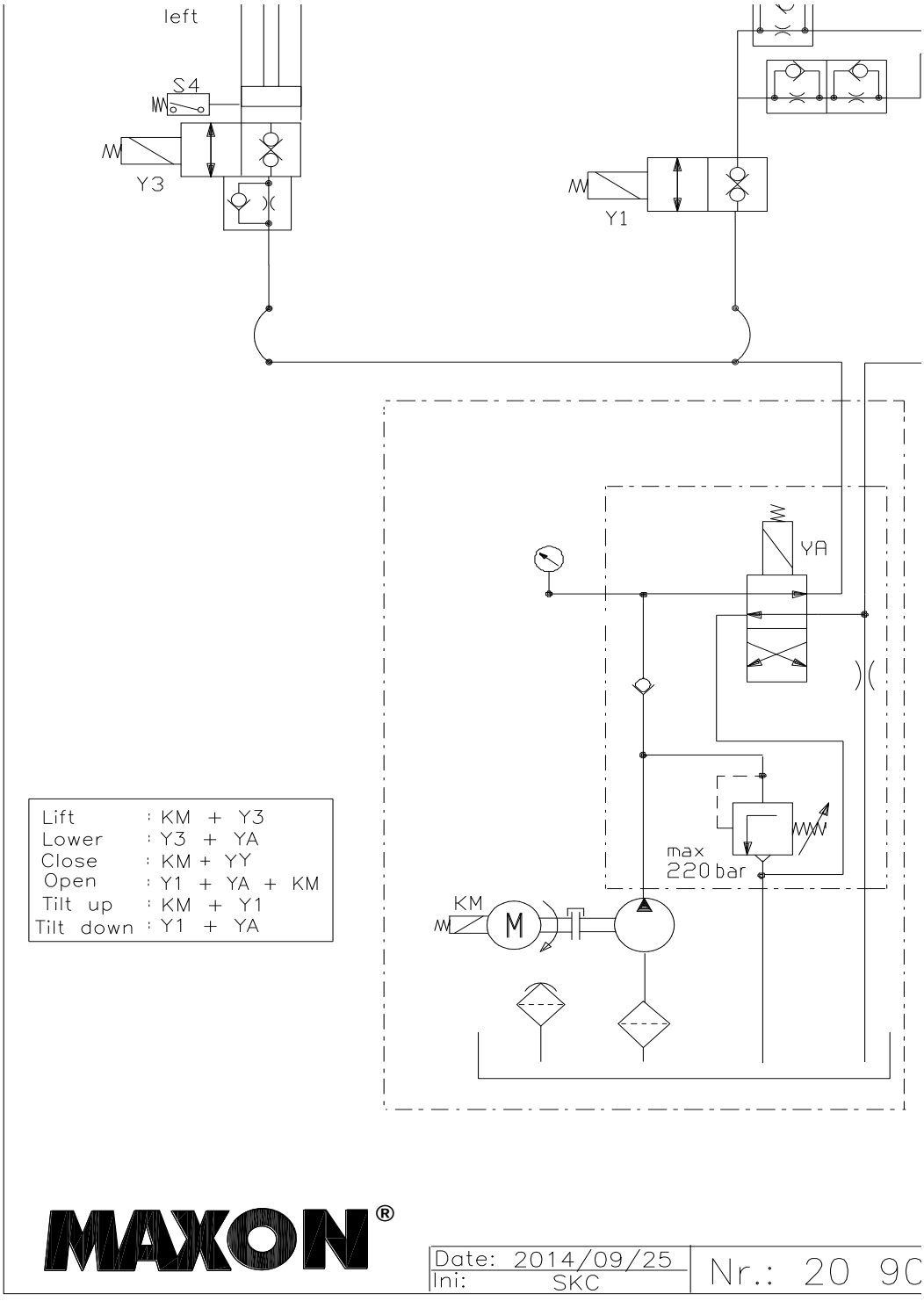
8.2 Assembly drawings of installation adapters



8.3 Electrical circuit diagram



8.4 Hydraulic circuit diagram



8.5 Torque table

Valid torque table for all the bolts and screws supplied and installed on our liftgates

Screw size **8.8**	**Tightening torque in Nm**
M4	2.7 ± 0.1
M6	9.5 ± 0.3
M8	23 ± 0.7
M10	53 ± 1.6
M12	80 ± 2.4
M14	130 ± 3.9
M16	195 ± 5.9
M20	385 ± 11.6
10.9	
M10	70 ± 2.1
M12	115 ± 3.5
M14	180 ± 5.4
M16	275 ± 8.3
M20	542 ± 16.3
Platform bearing **10.9**	
M12	60 ± 1.8
M16	150 ± 4.5
Serrated flange screw	
M14	215 ± 6.5
M16	310 ± 9.3

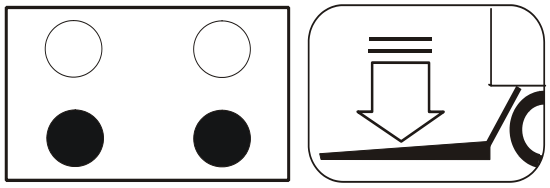
Thread sizes DIN 3852	**Tightening torque in Nm**
G1/4“	40 ± 1.2
G3/8“	95 ± 2.9
G1/2“	130 ± 3.9
Union nuts	
M16 x 1.5	60 ± 1.8
M18 x 1.5	60 ± 1.8
Plugs	
G1/8“	15 ± 0.5
G1/4“	33 ± 1
G3/8”	70 ± 2.1

8.6 Activating the liftgate

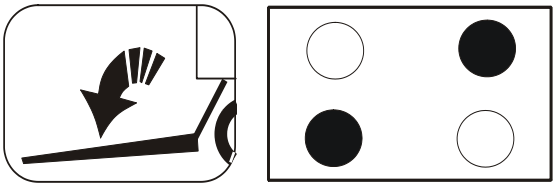
Switch on the liftgate control unit using the pushbutton in the driver's cabin. When the red indicator light is illuminated, the liftgate is ready to operate.

8.7 Operation using the control panel

From the control panel, all functions are initiated by pressing two different pushbuttons simultaneously. The diagram shows which buttons are responsible for each individual function.

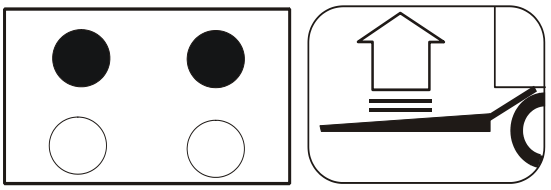


Lower



Open/tilt down

Lift



Close/tilt up

8.8 Operation using the optional handheld control

The 3-button handheld control can be used to operate the lifting and lowering functions as well as the tilting up and down functions when the platform is open.