

BenchRack

4200 5000 5500 6300

Instruction Manual



(32163, rev 5) 2018-04 EN

CAR-O-LINER®

Foreword

This equipment is used to facilitate high quality repairs to collision-damaged vehicles. All other use of the equipment, or use that is contrary to the instructions in this manual, can cause personal injury and/or equipment damage.

Car-O-Liner Group AB including any company within the Car-O-Liner Group of companies ("Car-O-Liner") can not be held responsible for any claims for loss or damages as a result from incorrect use of this equipment or its use in a manner not intended. Save for product liability claims for loss or damages as a result of personal injury or damage to property to the extent caused by the negligence, gross negligence, breach of contract, or other wrongdoing of Car-O-Liner (as prescribed by the Product Liability Act (1992:18) or similar legislation applicable on other markets), Car-O-Liner shall in no event be liable for any loss or damage to revenues, profits or goodwill or other special, incidental, indirect or consequential damages of any kind.

Warranty

Car-O-Liner offers a one-year limited guarantee from the date of installation of the equipment at end users premises. This guarantee covers only material defects and assumes normal care and maintenance according to Car-O-Liner specification.

The guarantee assumes that:

- The equipment is correctly installed and inspected in accordance with current local laws and regulations.
- The equipment has not been altered or rebuilt without prior written approval from Car-O-Liner.
- Genuine Car-O-Liner spare parts are used in any repairs and conducted by Car-O-Liner certified technician.
- Operation and maintenance have been carried out according to the instructions in this manual.

All claims on warranty shall be notified through your authorized Car-O-Liner Distributor by use of Car-O-Liner's VisionWeb platform without undue delay and shall verify that the fault has occurred within the guarantee period and that the unit has been used within its operating range as stated in the specifications. All

claims shall include the product type and article number as well as a detailed description of the problem and actions taken trying to solve it. This data is stamped on the name plate (refer to section 1.2 "Marking" for location).

Note

This instruction manual provides advice as well as instructions for installation, operation, maintenance and trouble shooting.

IMPORTANT! Read this manual carefully to become familiar with the proper operation of the equipment. It is recommended that you use your authorized Car-O-Liner Distributor for maintaining, servicing and upgrading your products. Never perform repairs, adjustments or any other work on the products which may result in personal injury and damage to the product.

Your Car-O-Liner Distributor employs factory trained technicians and is focused on offering you the best overall experience with your new Car-O-Liner product. Any revisions or upgrades of the products, as required by Car-O-Liner, shall be performed by your authorized Car-O-Liner Distributor.

The photographs and drawings in this manual are intended only to be illustrative and do not necessarily show the design of the equipment available on the market at any given time. The equipment is intended for use in accordance with current trade practice, applicable laws and safety regulations. The equipment illustrated in the manual may be changed without prior notice.

The contents in this publication can be changed without prior notice.

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Conformity with directives and standards

The equipment is designed and manufactured by Car-O-Liner, which is an EN-ISO 9001 and 14001 accredited development and manufacturing organisation.


The equipment is CE-approved by Inspecta, Sweden. It is required that only Car-O-Liner approved spare parts and accessories are used with the equipment.

Conformity with directives and standards

The BenchRack repair system is manufactured by Car-O-Liner AB, which is an ISO 9001:2008 and ISO 14001:2004 accredited organisation.

Below an example of how the EC Declaration of Conformity for the BenchRack is outlined.

A signed and dated copy of the EC Declaration of Conformity, including serial number, is included in the documentation for the BenchRack. Please contact your distributor if you need a new copy of the Declaration of Conformity.

CAR-O-LINER®	
EC DECLARATION OF CONFORMITY	
We	CAR-O-LINER GROUP AB Hulda Mellgrens gata 1 SE- 421 32 Västra Frölunda SWEDEN
herewith declare under the sole responsibility that the product:	
Type of equipment:	Vehicle Lifts for Base Frame BenchRack 4200, 5000 and 5500
Model/Type:	BenchRack 4200-5500
Serial number(s):	
is in conformity with the provisions of the following EC directive(s):	
2006/42/EC	Machinery Directive
References of standards and/or technical specifications applied for this declaration of conformity:	
European Standards	EN 1493+A1:2006, EN 12100-1/A1:2009, EN 12100-2/A1:2009
Other references:	
EC Type-Examination Certificate	No. 10-SKM-CM-0088, valid until 20XX-01-15
By	Inspecta Sweden AB, Notified Body No. 0409
(Place and date of issue)	
(Name, signature and title or equivalent marking of authorized person)	
	
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1 Introduction

1.1 General

BenchRack is used for vehicle alignment and has an integrated, variably adjusted scissors lift which can raise the bench frame to the maximum working height of 1170 mm.

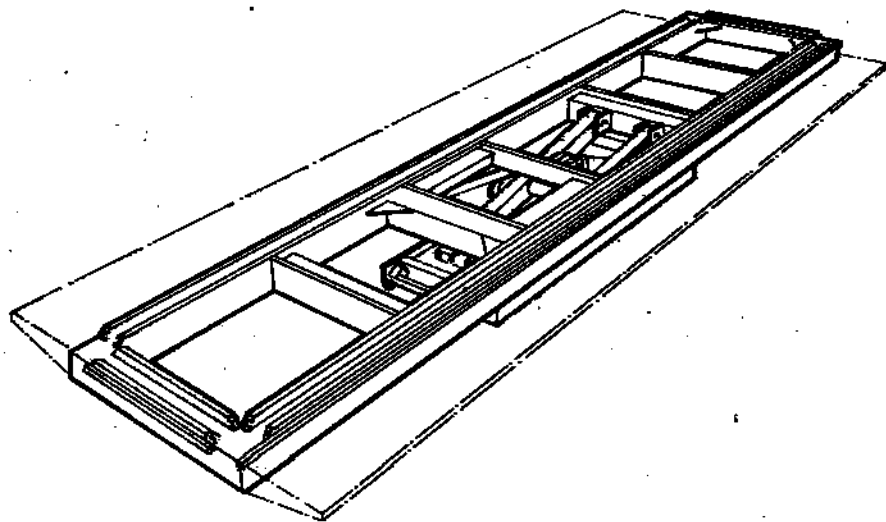
The bench frame has drive-on ramps and ramp sections, so-called “side ramps”. The side ramps are easily hooked to the side tracks of the bench frame.

The ramps permit a vehicle to be driven on to the bench frame for quick anchoring of chassis clamps (such as Standard Clamp B106).

The bench frame may be tilted to facilitate driving on the vehicle.

Maximum permitted vehicle weight is 4200 kg.

Maximum load per ramp section is 1000 kg.



IMPORTANT! The complete vehicle shall be positioned on the bench when carrying out alignment work. The lift and bench frame shall not be used to lift one end of the vehicle while the other end remains on the floor. Moreover, the lift's working platform shall not be used for anything other than vehicle repair.

1.2 Marking

Placing of the BenchRack vehicle lift name plate:

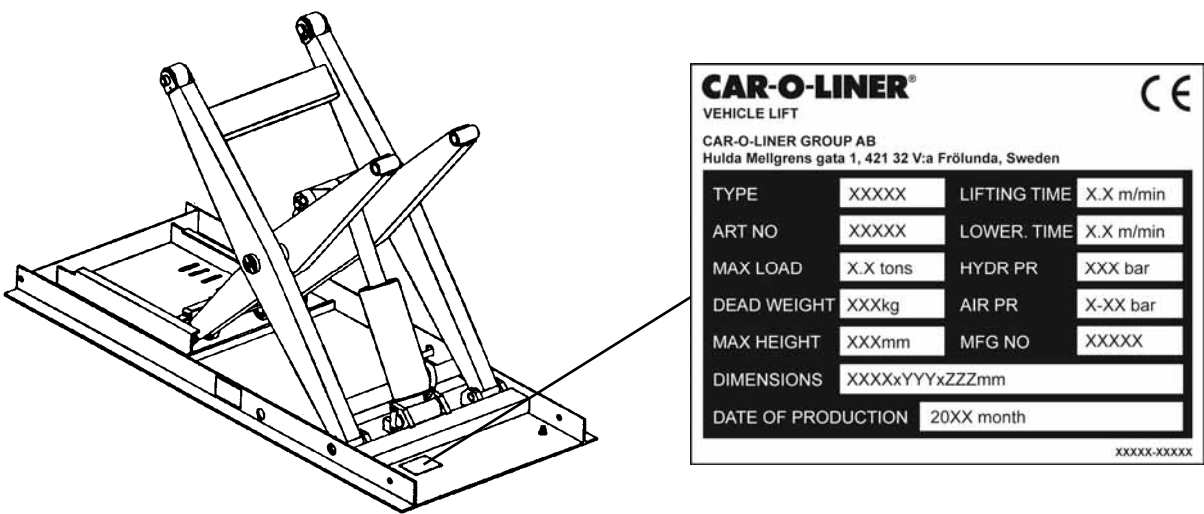


Figure 1.1 Example of BenchRack vehicle lift nameplate

Placing of the BenchRack base frame name plate:

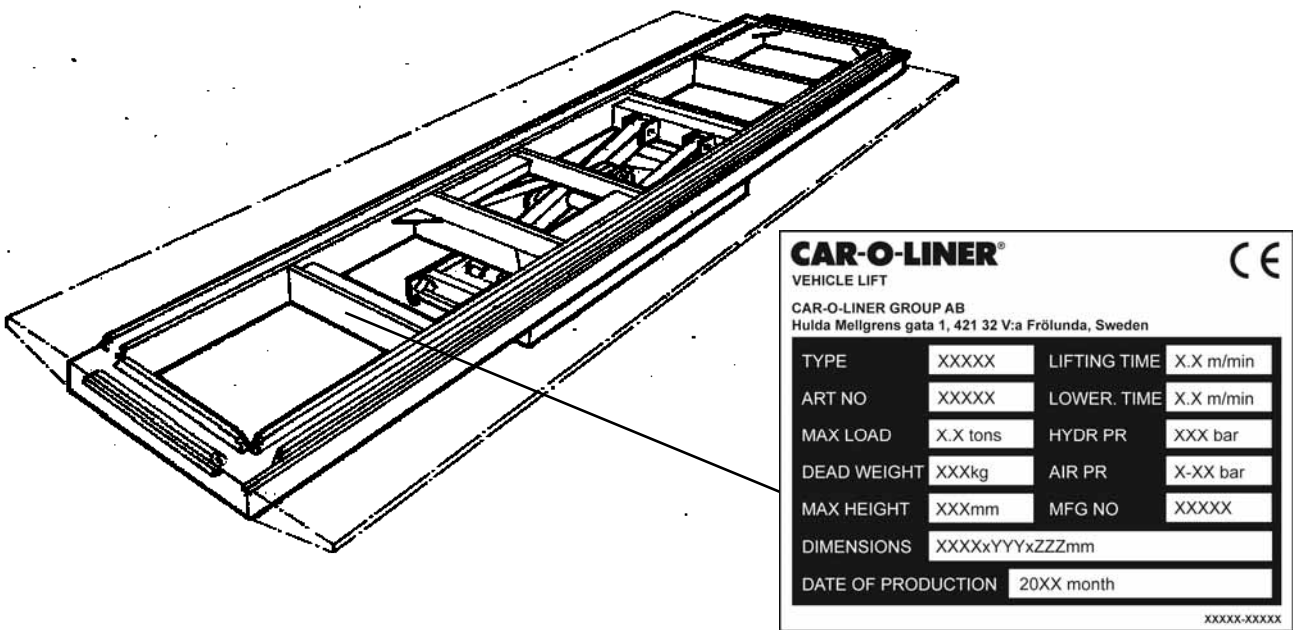


Figure 1.1 Example of BenchRack base frame nameplate

2 Safety

2.1 General

BenchRack has been designed and tested to meet strict safety requirements. Please read the following instructions carefully before operating BenchRack and refer to them as needed to ensure the continued safe operation of the equipment.

Information provided in this manual describes the suggested best working practices and should in no way take precedence over individual responsibilities or local regulations.

Great effort has been placed on the design and manufacture of BenchRack in order for it to comply with all applicable safety aspects for this type of equipment. During operation and other work it is always each individual's responsibility to consider:

- Their own and other's personal safety.
- The safety of the BenchRack through correct use of the equipment in accordance with the descriptions and instructions provided in this manual.

By observing and following the safety precautions, users of BenchRack will ensure safer working conditions for themselves and their fellow workers.

2.2 Warnings and important notices

The following types of safety signs are used on the equipment and in Car-O-Liner's instruction manuals:

**Prohibited**

Prohibits behaviour that can cause injury.

**Command**

Prescribes a specific responsibility or action.

**Warning**

Warns of risks for personal injuries and or damages to equipment.

The following warnings and important notices are used in the instruction manual:



WARNING

Warning (in bold type) is used in this manual to indicate a possible danger that could lead to personal injury. An instruction is normally given, followed by a short explanation plus the possible effect if the instruction is not followed.



IMPORTANT

Important (in bold type) is used to indicate a possible danger that could lead to damage to the equipment and/or cause environmental damage.



Note: (in bold type) is used to accentuate supplementary information that is required for problem-free use or optimal use of the equipment.

In addition to the safety signs illustrated in *section 2.3 "Safety signs"*, the following warnings and important notices appear in the manual:



WARNING! Maximum load per ramp = 1000 kg.



WARNING! The drive-off stops should always be correctly fitted to the bench. Risk of improper weight distribution.



WARNING! Ensure that the crush guard is fitted so that it always drops down of its own weight and does not jam. Risk of crushing injuries.



IMPORTANT! Exercise care when transporting BenchRack.



IMPORTANT! When a wrench is used to tighten nuts and bolts, ensure that it is set to a maximum of 200 Nm to avoid damage to the equipment.



WARNING! The lift must be bolted to the floor. Risk of tipping.



IMPORTANT! It is the responsibility of the owner (user) of the equipment to ensure that inspection, in accordance with current local regulations, is carried out before the lift is put into use.



IMPORTANT! Transport protection must be used whenever the equipment is moved.



WARNING! All work on the electrical equipment must be carried out by qualified personnel.



WARNING! Maximum vehicle weight = 4200 kg. Minimum allowed distance between axles is 2500 mm..



WARNING! During all service and fitting work, the lift must be blocked up while in the raised position to prevent accidental lowering. Risk of crushing injuries.



WARNING! The cable protection must be properly fastened over the air and hydraulic hoses. Risk of tripping.



IMPORTANT! If there is any uncertainty about the quality of the floor, contact a building engineer for an inspection.



WARNING! During set-up of the vehicle on the bench, care must be exercised so that the vehicle does not roll or slide out of the supports or mountings. Risk of crushing injuries.



IMPORTANT! Ensure that the toothed segments are clean and fitted correctly.



WARNING! When other personnel are in the vicinity exercise care when operating the lift. Risk of crushing injuries.



WARNING! Ensure that all of the bench legs hang straight down. Risk of injury.



WARNING! The control lever must be fully pushed in. Risk of injury.



WARNING! Before raising or lowering the lift, ensure that no-one is near the bench. Risk of crushing injuries.



WARNING! Observe high standards of cleanliness when working with the hydraulic system. Dirt in the hydraulic oil can cause operating problems.



WARNING! Never lift the vehicle with two pillar jacks placed under the vehicle's center of gravity. Risk of instability and of crushing injuries.



WARNING! Never lift the vehicle with two pillar jacks placed under the center of gravity of the vehicle. Risk of instability and of crushing injuries.



WARNING! Make sure the cam lock is fully twisted before tightening the pillar jacks.



IMPORTANT! It is not recommended to use the T48 on top of the drive on ramps. Risk of falling off from the ramps.



IMPORTANT! The complete vehicle shall be positioned on the bench when carrying out alignment work. The lift and bench frame shall not be used to lift one end of the vehicle while the other end remains on the floor. Moreover, the lift's working platform shall not be used for anything other than vehicle repair.



IMPORTANT! Lifting at two lifting points at the front or rear is recommended.



IMPORTANT! Depending on the nature of damage, the pillar jacks can be placed to lift the vehicle one side at a time using the B23 sill support.



IMPORTANT! Suitable lifting points when lifted at the front or rear are the front or rear subframe fixations or the axle beams.
For a lift of a vehicle with separate frame, lift straight on the frame.
For a lift on the sill box of a vehicle with unibody chassis, the B23 sill support must be used.



IMPORTANT! Before first vehicle setup, remove all grease from the milled surfaces of the bench tracks to prevent the bench mountings from slipping.



IMPORTANT! Do not use abrasives to remove rust from the milled bench tracks. Use rotating steel brush or similar tool. Risk of material damage.



IMPORTANT! All nuts and bolts shall be cleaned and greased monthly.



IMPORTANT! BenchRack must only be used together with Car-O-Liner T6XX range Power Unit, *see separate Car-O-Liner T6XX range Instruction Manual*.

There is also a 220V 1 phase UL approved Power Unit version available.

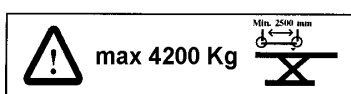
2.3 Safety signs

Undamaged safety signs shall always be affixed at the indicated places (*see section 2.3.1 "Placement of safety signs"*). If any signs are damaged or missing, the user is responsible for their immediate replacement. The following safety signs can be found on the equipment:



PROHIBITED

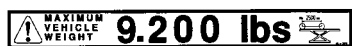
For personnel to be on the lift while it is moving.



WARNING

Maximum vehicle weight = 4200 kg.

Minimum allowed distance between axles is 2500 mm.



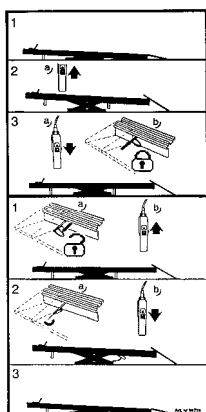
WARNING

During inspection and maintenance with the lift unit in the raised position, the lift unit must be blocked against unintentional lowering.

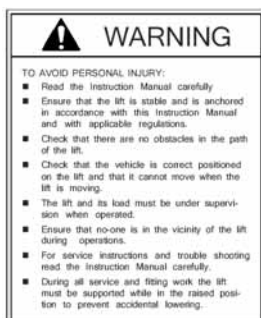


WARNING

Danger of tripping due to loose hoses, etc.



TILTING OPERATION DECAL



SAFETY SIGNS

The sign must be placed in the vicinity of the lift/bench and in such a way that it can be seen clearly by the operator.

2.3.1 Placement of safety signs

The safety signs are placed as follows:

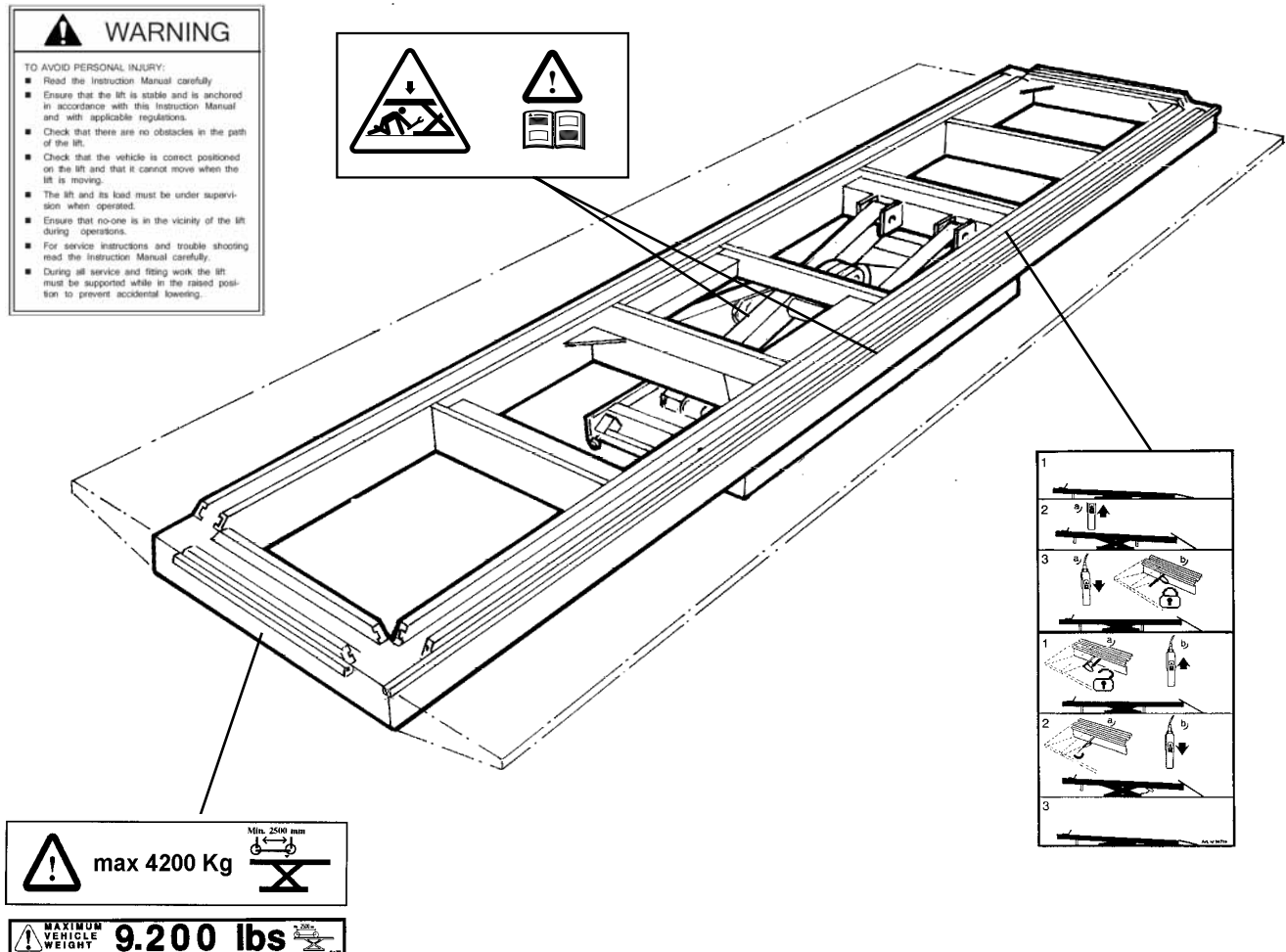
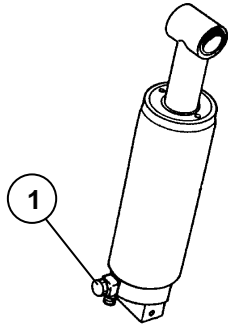


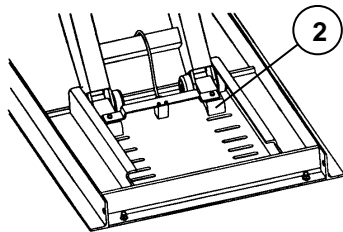
Figure 2.1 Placement of safety signs and tilting operation decal.

2.4 Safety devices

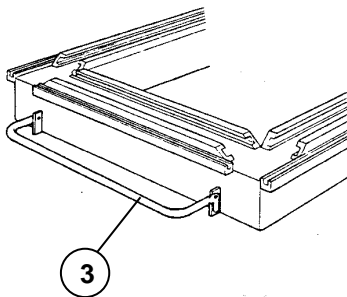


The lift cylinder is a single-acting hydraulic cylinder with **fixed flow regulator** [1]. This flow regulator ensures that the lift slowly sinks in the event of a hydraulic hose rupture or other leakage.

To avoid accidental lowering when the bench is more than 500 mm from the floor, the mechanical **safety latches** [2] prevent the lift from sinking more than a maximum of 100 mm in the event of leakage.



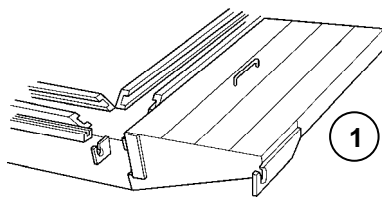
BenchRack has a **crush guard** [3] to prevent feet from being caught between the bench and the floor during tilting operations.



3 Installation

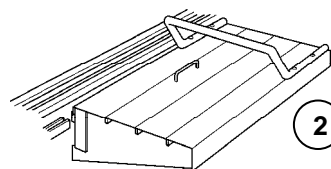
3.1 General

3.2 BenchRack with lift



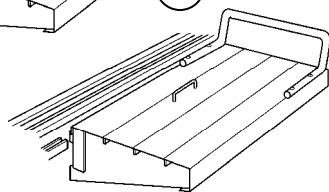
The bench frame is made up of welded square section. The top face is milled and equipped with tracks for fitting bench mountings and pulling components.

The sides are also equipped with tracks for fitting side ramps and the draw aligner.



On the underside are legs upon which the bench frame rests in its lowest position as well as bench supports for the draw aligner position.

BR 5500
BR 6300



BR 4200
BR 5000

The side ramps are suspended from the side rails of the bench frame. There are three types of side ramps:

- 1 **A pair equipped with mountings to which the drive-on ramps may be attached. These side ramps are always placed nearest the drive-on end.**
- 2 **A pair equipped with welded guide plates used to steer the ramp into the forward side rails. The enclosed drive-off stops are to be fitted to these ramps with the accompanying bolts and nuts as shown.**
- 3 **Side ramps that may be fitted between ramp types 1 and 2.**

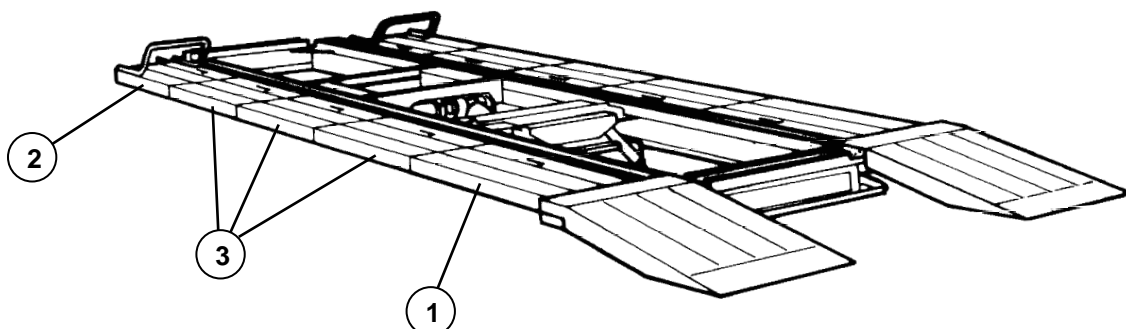


NOTE! A wider ramp is available for ramp models 1-3.

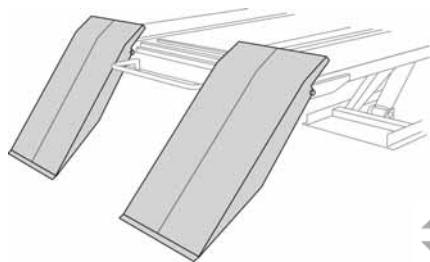
The ramps may be removed as necessary to facilitate access during measurement and alignment work.



WARNING! Maximum load per ramp = 1000 kg.



3.2.1 Drive-on ramps



The drive-on ramps are attached to the brackets on the end of the bench and to the two side ramp brackets.

The drive-on ramps may remain in place while the bench is raised or lowered, but can be removed if necessary.



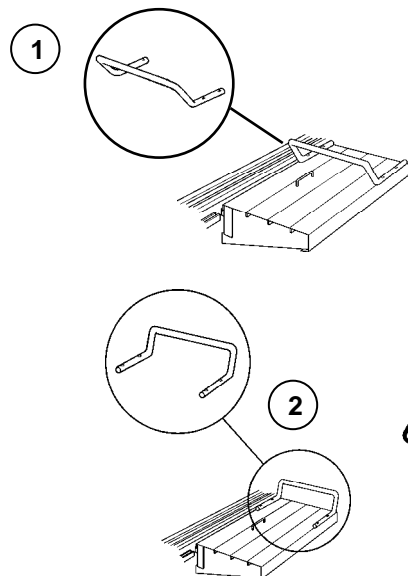
NOTE! The vehicle must be firmly attached to the bench frame!

The drive-on ramps also act as drive-off stops when the lift is raised. The drive-on ramps are used with all tilt able BenchRacks.



NOTE! A wider drive-on ramp is available for all BenchRack models!

3.2.2 Drive-on stops B44



The drive-off stops should always be properly fitted (see illustration). The stops not only prevent a vehicle from rolling forward off of the BenchRack, but also prevent improper weight distribution on the bench and lift.

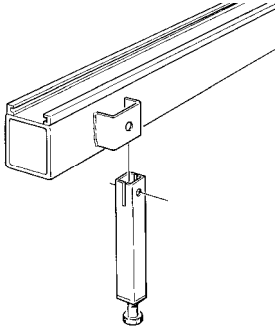
1 Applies to BR5500 and BR6300

2 Applies to BR4200 and BR5000

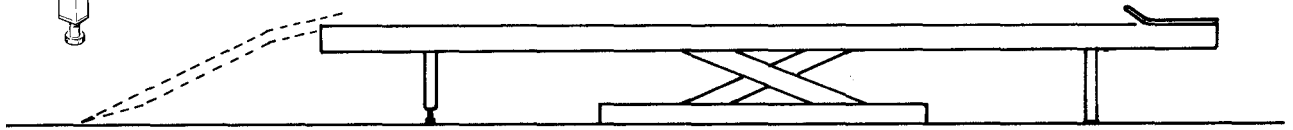


WARNING! The drive-off stops should always be correctly fitted to the bench. Risk of improper weight distribution.

3.2.3 Bench support for draw aligner height

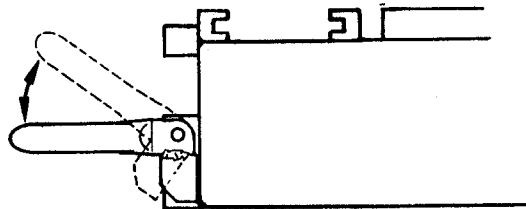
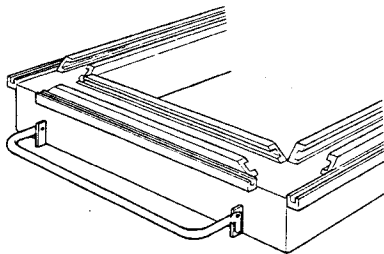


The enclosed bench supports are fitted as shown in the illustration. The other bench supports are fitted to the underside of the bench. When the bench is raised from floor level, the supports are automatically extended. When the bench is subsequently lowered, it stops at the proper height for the connection of the draw aligner. To lower the bench to the floor, the bench supports must be folded up manually.



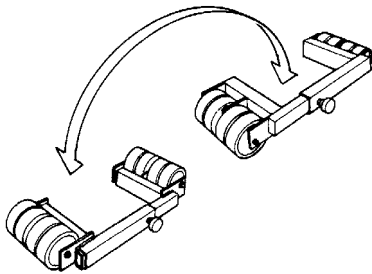
3.2.4 Crush guard B58

Used to avoid crushing injuries when tilting the BenchRack. The crush guard is designed with a hinge mechanism (see illustration).



WARNING! Ensure that the crush guard is fitted so that it always drops down of its own weight and does not jam. Risk of crushing injuries.

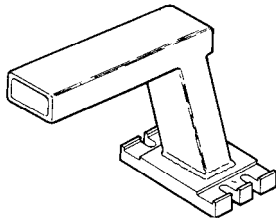
3.2.5 Loading trolley/Roll stop B57



The loading trolley is designed to be placed under a damaged (locked) wheel, thus allowing the vehicle to be winched on to the bench.

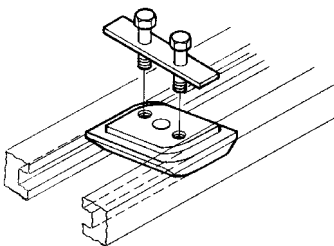
By turning the loading trolley upside down so that it does not roll freely, it may be used as a roll stop. This stop must be placed under an undamaged wheel when the vehicle is set up on the bench with the help of the pillar jack to prevent the vehicle from rolling.

3.2.6 Bench mounting



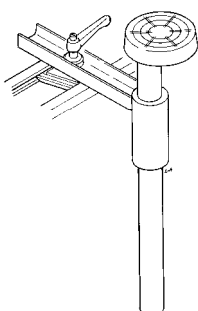
The bench mountings are fitted to the tracks on the upper side of the bench. They may be turned inward or outward depending upon the width of the vehicle. The bench mountings are adjustable in height. (Variations of the mountings may differ from the illustrated model.)

3.2.7 Cam locks B626



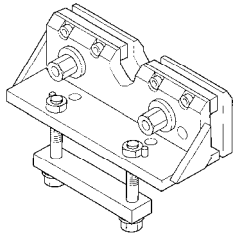
Used for fitting bench mountings, track plates, etc.

3.2.8 Pillar jack B633



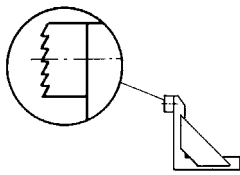
Fitted to the bench tracks. Used to lift a vehicle when setting up on the bench.

3.2.9 Chassis clamp B106



The B106 Chassis Clamp is bolted to the bench mounting arm and is provided with toothed segments that grip the vehicle's sill edge.

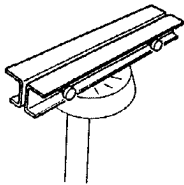
The toothed segments may either be fastened to the clamp's angle or to the mounting plate. Alternatives for various vehicles are listed on the data sheets.



The accompanying illustration shows a toothed segment fitted to the base bracket.

Special chassis clamps are available for some vehicles. Consult the CAR-O-LINER data sheet for a list of vehicles concerned.

3.2.10 Sill support B23



Used to avoid damage to the sill edge when setting up the vehicle.

3.3 Lift

3.3.1 Applications

The scissors lift is designed solely to lift the bench system and vehicle.

The maximum permitted vehicle weight is 4200 kg and the minimum distance between axles is 2500 mm.

The lift consists of two main components:

- Lift Unit
- Power Unit



IMPORTANT! BenchRack must only be used together with Car-O-Liner T6XX range Power Unit, *see separate Car-O-Liner T6XX range Instruction Manual.*

There is also a 220V 1 phase UL approved Power Unit version available.

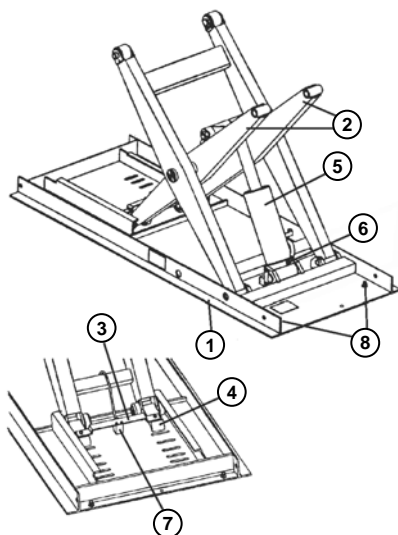
3.3.2 Lift unit

The lift is hydraulic-driven and is built on a base frame to which the scissors arms and the hydraulic cylinder are fitted.

The base frame is also equipped with a mechanical latch to prevent the lift from sinking. This latch (4) is released with the help of an air cylinder (7) so that the lift may be lowered.

The upper ends of the scissors arms are connected to the bench frame.

The hydraulic cylinder is single-acting, with hydraulic pressure provided by the power unit.



1. Base frame
2. Scissors arms
3. Safety latch cam
4. Safety latch
5. Hydraulic cylinder
6. Hose rupture valve
7. Air cylinder
8. Expander bolts,
 - 4 pcs for BR4200, 5000 and 5500.
 - 6 pcs for BR6300.

3.4 Transport and inspection of delivery

The bench and the bottom frame are held together by transport hooks to ensure safe transport.

These hooks must be used whenever the bench and frame are moved. Weight is 1200 kg.

If a fork lift truck is used to move the unit, it must have a fork width of at least 850 mm. The lift must be centred on the long side of the unit.



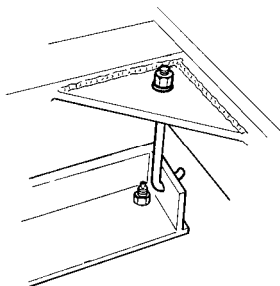
IMPORTANT! Exercise care when transporting BenchRack.

3.4.1 Transport protection

On delivery the equipment must be checked with regard to transport damage.

If any part is damaged, the lift may not be used until the damage has been repaired.

Contact your supplier.

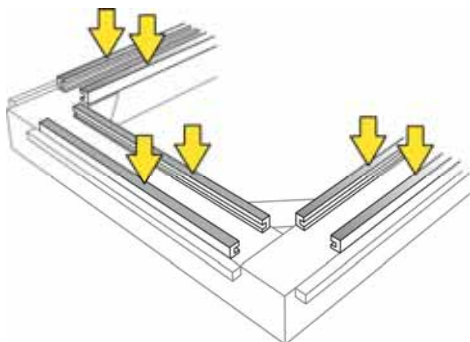


All models of BenchRack are equipped with transport protection that holds the base frame against the bottom of the bench.

IMPORTANT! Remove transport protection before the lift is put in use; otherwise damage can occur.

3.4.2 Storing in workshop/Transport outside workshop

Due to bare metal in combination with humid conditions easily causes corrosion to the milled surfaces. Rust protection of milled bench tracks (*see illustration*) must be carried out when the bench is stored and not in use or transported outside workshop. Apply Cortec VpCI-369 from Tribotec or equivalent.



3.4.3 Mains connections check

Ensure that the electric motor is supplied with the correct voltage and frequency and that it turns in the right direction after connection. For connection information, see the separate instruction manual for the Power unit.

3.5 In shop installation

3.5.1 In shop installation, General

The recommended space for installation is shown in the diagrams below.

The lift must be bolted to a flat, good quality concrete floor. *section 3.5.3*
"Anchoring to the floor"

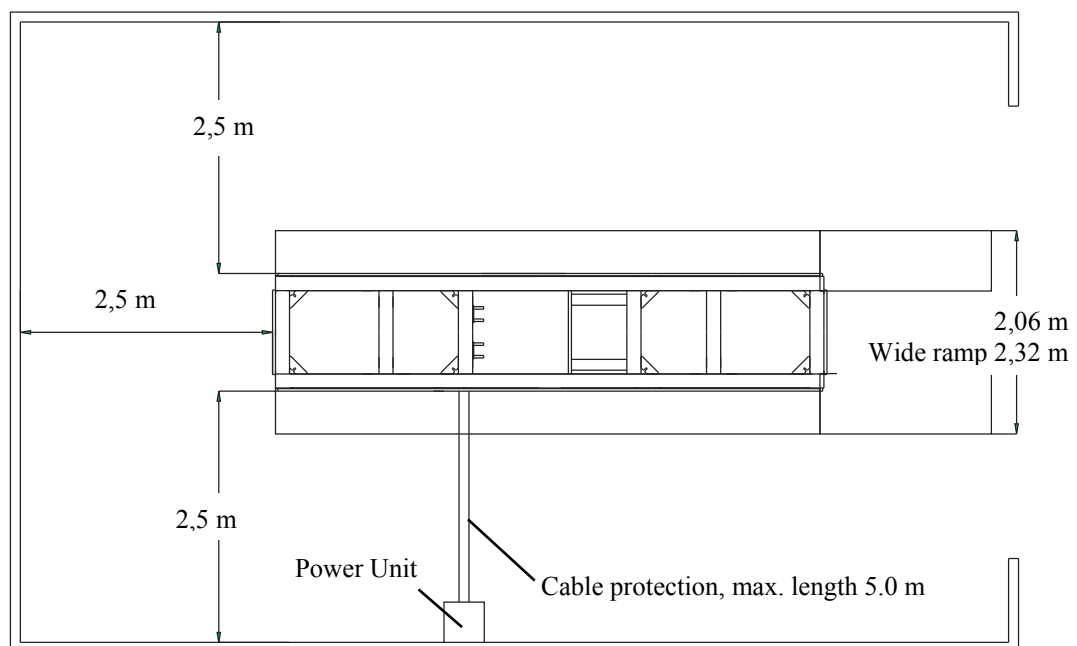


WARNING! The lift must be bolted to the floor. Risk of tipping.



IMPORTANT! It is the responsibility of the owner (user) of the equipment to ensure that inspection, in accordance with current local regulations, is carried out before the lift is put into use.

Example of space requirements:



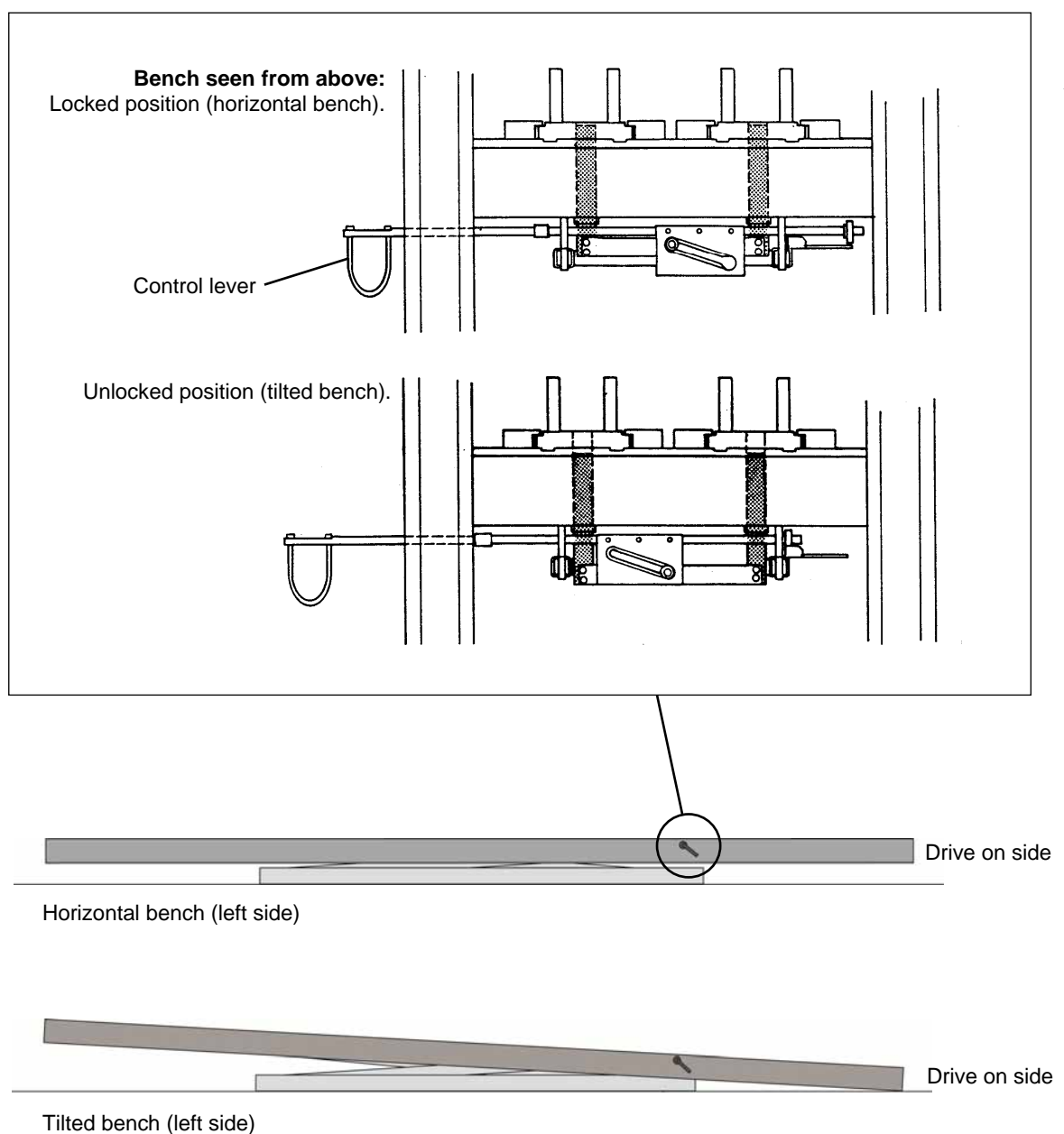
3.5.2 Installation



IMPORTANT! Transport protection must be used whenever the equipment is moved.

Move the bench and lift to the installation area and remove the transport protection. The control lever must be installed (*see illustrations below*).

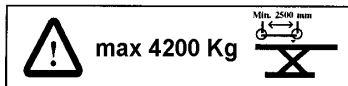
The control lever for tilting is fitted on the left side according to the illustrations below. (Cover plates not illustrated.)





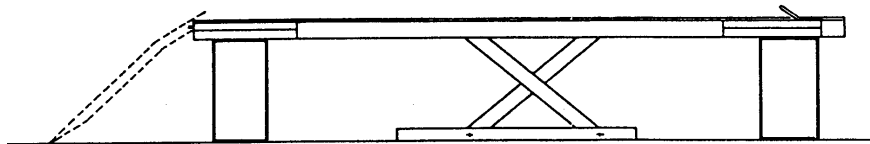
WARNING! All work on the electrical equipment must be carried out by qualified personnel.

Make the electrical and hydraulic connections to the lift and drive unit. For electrical installation, see the separate instruction manual for the Power unit.



WARNING! Maximum vehicle weight = 4200 kg.
Minimum allowed distance between axles is 2500 mm.

Raise the lift to the highest position and block up the bench frame.



WARNING! During all service and fitting work, the lift must be blocked up while in the raised position to prevent accidental lowering. Risk of crushing injuries.

Engage the two safety latches.

Mark the 4-6 mounting holes on the floor and fit the floor brackets according to the, *section 3.5.3 "Anchoring to the floor"*.

Raise the lift and remove the blocks from under the bench frame.



WARNING! Before raising or lowering the lift, ensure that no one is near the bench. Risk of crushing injuries.

Lower the lift to the draw aligner height.

Ensure that the draw aligner can be easily connected to all sides of the bench frame (see section on draw aligner). Adjust using the support screws if necessary.

Install the cable protection (optional) over the air and hydraulic hoses.



WARNING! The cable protection must be properly fastened over the air and hydraulic hoses. Risk of tripping.

Raise and lower the lift a few times to ensure that the safety latch element (*Figure 3.2*) falls easily into the slot. Lubricate if necessary.



WARNING! Ensure that the crush guard is fitted so that it always drops down of its own weight and does not bind. Risk of crushing injuries.

Position the warning decals and signs providing instructions for lift and alignment work, *section 2 "Safety"*.



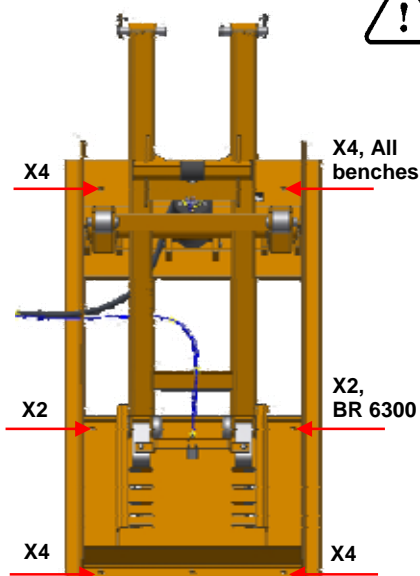
IMPORTANT! Before first vehicle setup, remove all grease from the milled surfaces of the bench tracks to prevent the bench mountings from slipping.

3.5.3 Anchoring to the floor

BenchRack must be anchored to the floor.



WARNING! The lift must be bolted to the floor. Risk of tipping.



Expander bolts M16x125, Car-O-Liners Art No. 36819.

4 bolts (BR 4200, 5000 and 5500) or 6 bolts (BR 6300) are supplied with the bench system. See picture on the left for bolt positions.

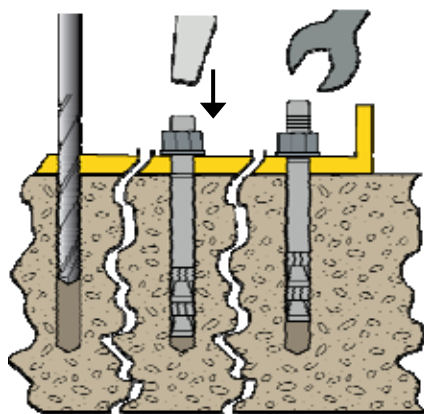
The lift should be anchored to a flat floor with the following properties:

- A minimum of K25 concrete floor quality.
- A minimum slab thickness of 150 mm (6 in).
- The requirements of the floor or the flatness of the floor (under the lifting platform) is 2 mm/m or better.

Procedure

Expander bolts M16x125, Car-O-Liners Art No. 36819. 4 bolts are supplied with the BenchRack system.

Drill holes in the floor using the base plate holes as a template. Drill diameter 16 mm ($\frac{5}{8}$ in), hole depth 110-120 mm (4-5 in).



- 1 **Clean the holes with vacuum cleaner and air hose. Unscrew the nut so that only the un-threaded top of the bolt is above the nut. Gently tap the expander bolts into the holes with a hammer.**
- 2 **Tighten the bolts with a torque wrench set to 100 Nm.**



NOTE! If the above torque is not attained, the anchorage is not satisfactory.



IMPORTANT! If there is any uncertainty about the quality of the floor, contact a building engineer for an inspection.



IMPORTANT! It is the responsibility of the owner (user) of the equipment to ensure that inspection, in accordance with current local regulations, is carried out before the lift is put into use.

4 Operation

4.1 General



WARNING! During set-up of the vehicle on the bench, care must be exercised so that the vehicle does not roll or slide out of the supports or mountings. Risk of crushing injuries.

The vehicle may be driven onto the ramps or winched up even if the wheels are damaged.

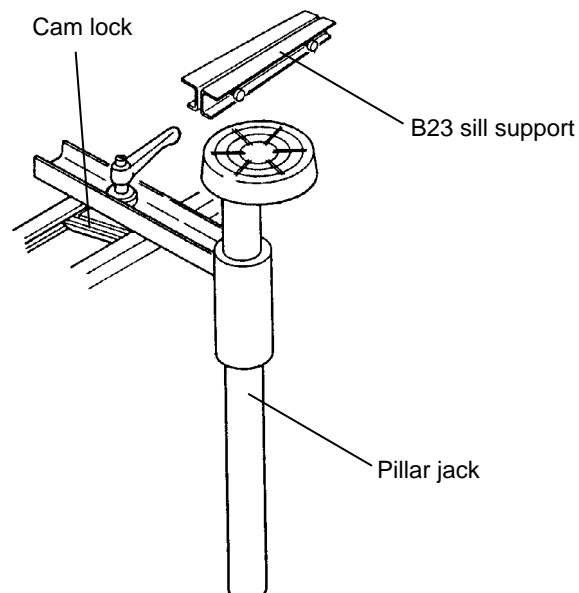
The vehicle is lifted free of the ramps with the help of pillar jacks. Then the bench mountings and chassis clamps may be fitted.



IMPORTANT! Lifting at two lifting points at the front or rear is recommended.



IMPORTANT! Depending on the nature of damage, the pillar jacks can be placed to lift the vehicle one side at a time using the B23 sill support.



4.2 Operating the Lift



WARNING! When other personnel are in the vicinity exercise care when operating the lift. Risk of crushing injuries.

Raising and lowering is controlled by push-buttons on the pendant station.

Pressing the Down button [1] to the first position lowers the lift to the nearest mechanical latch position, see Fig. A.

When the Down button is fully depressed, the air cylinder lifts the safety latch, see Fig. B.

Pressing the Down button to the second position (fully depressed) allows the lift to be lowered to the draw aligner height or to the lowest level.



NOTE! When the lift has been lowered and stopped by the safety latch (section 3.3.2 "Lift unit") and further lowering is desired, the lift must be raised slightly to release the latch. When the Down button is subsequently depressed fully, the lift will be lowered past the safety latch stops.

Fig. B

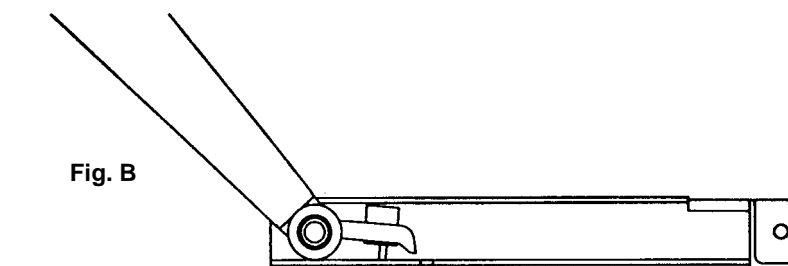
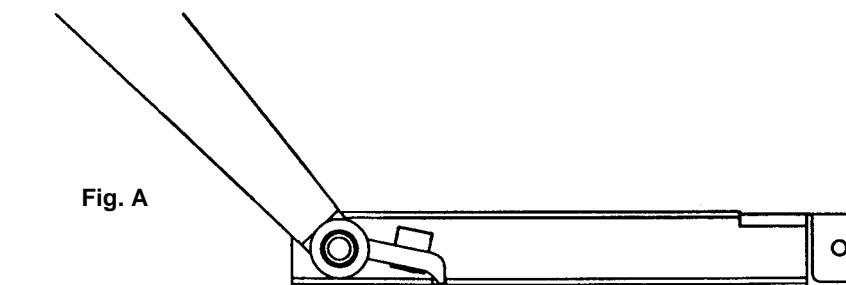
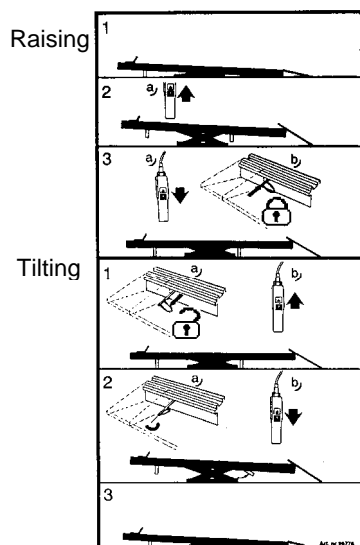


Fig. A



4.3 Tilting the bench



Raising:

- 1 The bench is in the tilted position.
- 2 Raise the lift until all legs hang free and straight down.



WARNING! Ensure that all of the bench legs hang straight down. Risk of injury.

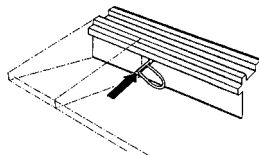
- 3 Lower the lift so that the bench is supported by the four legs. Push in the control lever to lock the bench in a horizontal position.
- 4 In this position the draw aligner may be connected.
- 5 Raise to desired height.



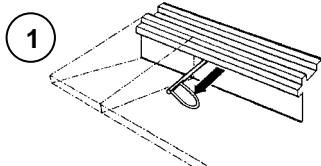
WARNING! The control lever must be fully pushed in. Risk of injury.

In this position the draw aligner may be connected.

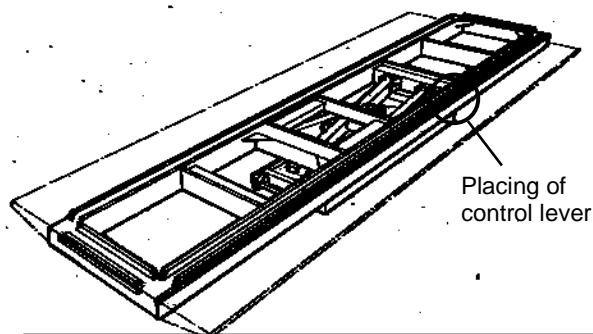
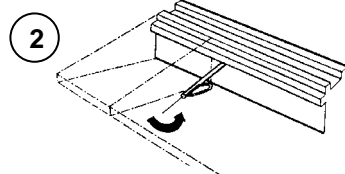
Locking the control lever



Unlocking



Turning the control lever



Placing of control lever

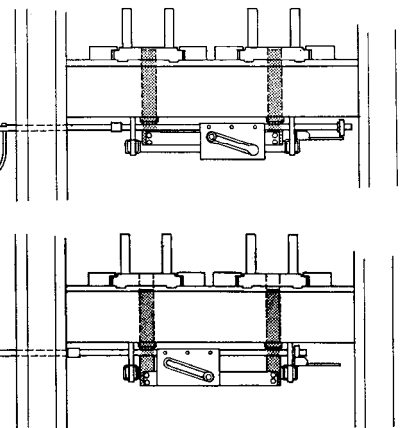
Tilting:

- 1 The bench must be in the draw aligner position. Pull out the control lever to enable the tilt function. Raise the lift until all legs hang free.
- 2 Turn the control lever anti clockwise so that the forward pair of legs fold up and remain there, then lower the lift.
- 3 The bench is now in the lowest position and tilted.

Bench seen from above:
Locked position
(horizontal bench)

Control lever

Unlocked position
(tilted bench)



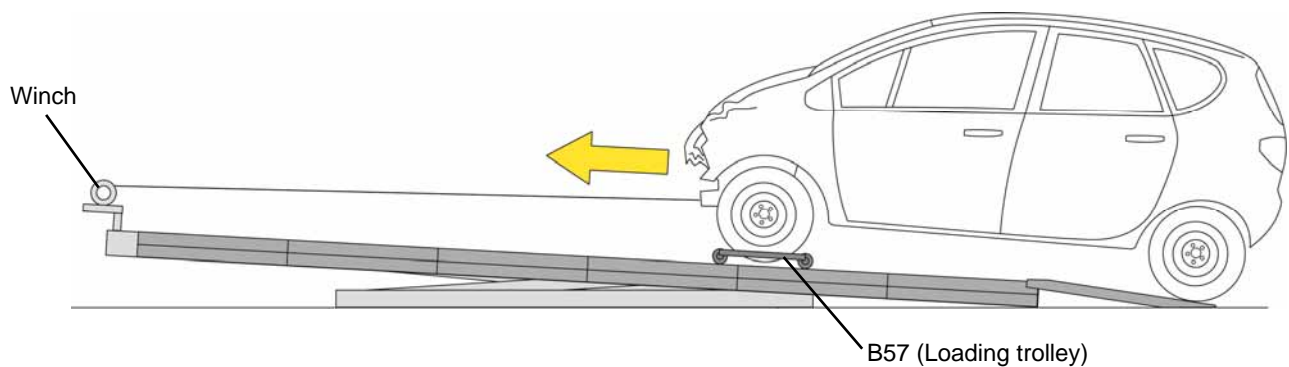
4.4 Vehicle setup

4.4.1 Drive on to BenchRack

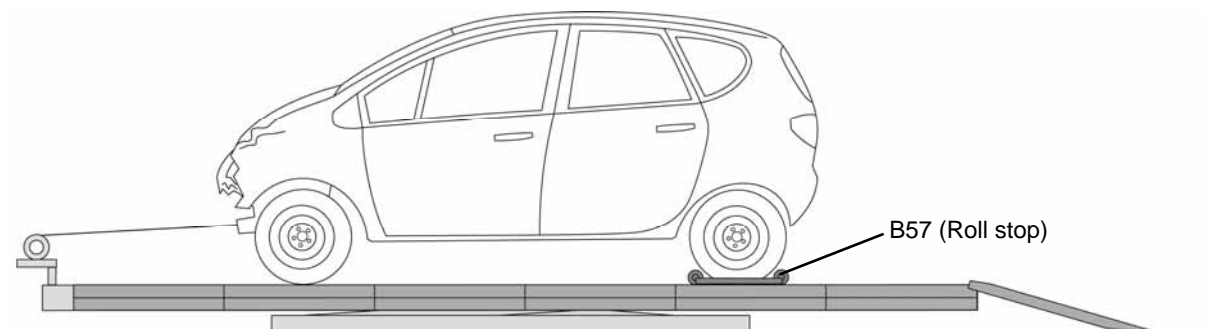


WARNING! During set-up of the vehicle on the bench, care must be exercised so that the vehicle does not roll or slide out of the supports or mountings. Risk of crushing injuries.

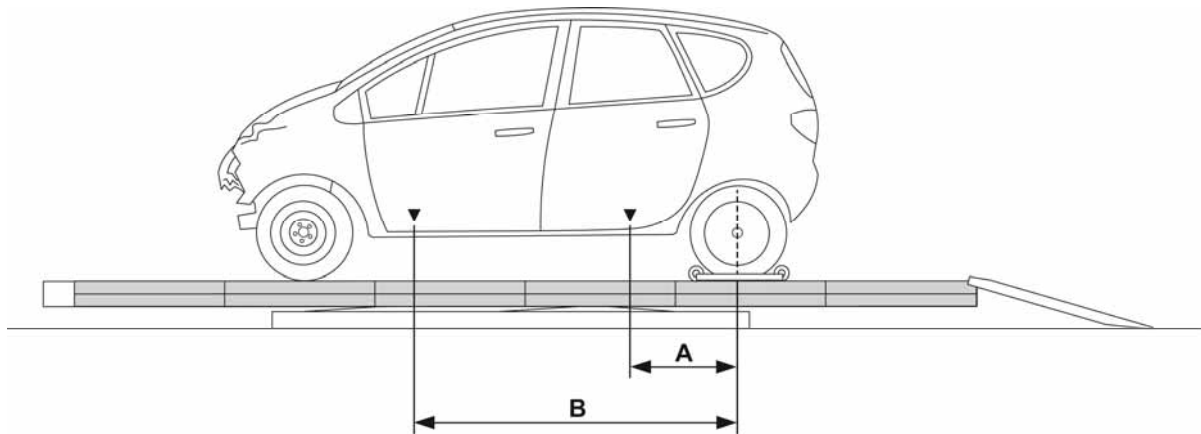
1. **Position centre line of the vehicle as closely as possible to the centre line of the bench. Winch or drive the vehicle to the correct position on the side ramps. Use B57 if wheels can not roll or rotate.**



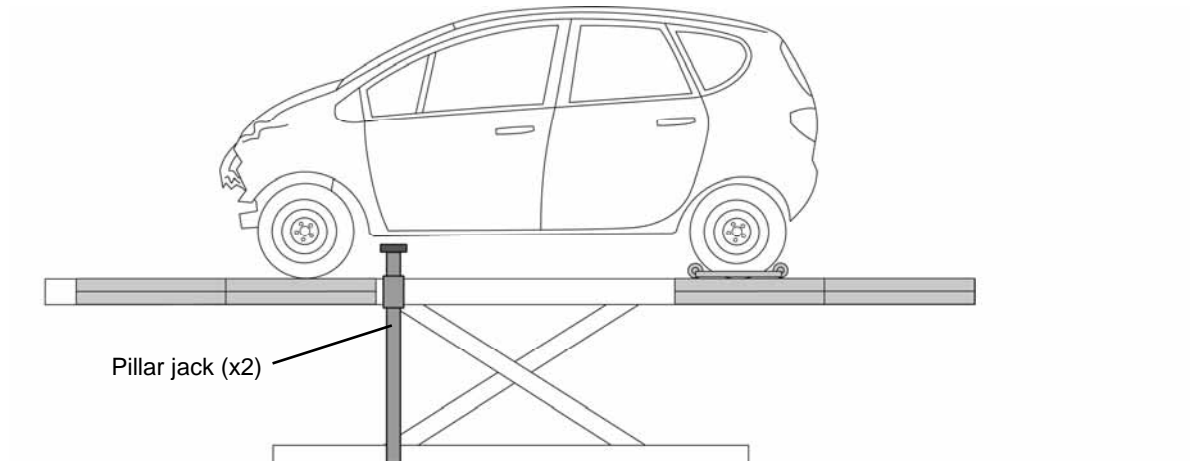
2. **Place B57, upside down, under an undamaged wheel on the side not being lifted to prevent the vehicle from rolling.**



3. Mark the placement points A and B for the chassis clamps. The measurements are given in the DataSheet (see Measuring software). Remove underseal and dirt from the sill edge to give the chassis clamps a good grip and to ensure that the correct height is obtained when measuring (important when using Car-O-Mech).

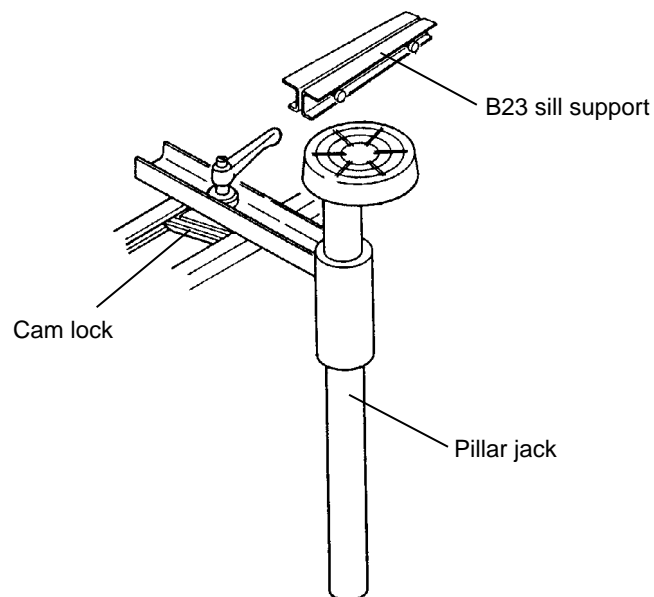


4. Raise the lift to its highest position and fit two pillar jacks according to picture (right and left side of the vehicle). Remove ramps where the pillar jacks are to be positioned. Adjust the position of the pillar jacks for a suitable lifting point.



WARNING! Never lift the vehicle with two pillar jacks placed under the center of gravity of the vehicle. Risk of instability and of crushing injuries.

5. **Tighten the pillar jacks. Make sure the cam locks are fully twisted before tightening.**
Use B23 sill supports if necessary.



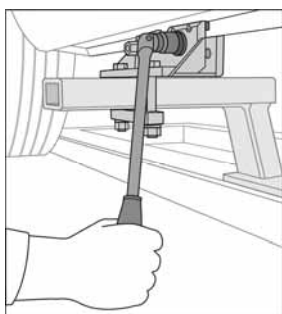
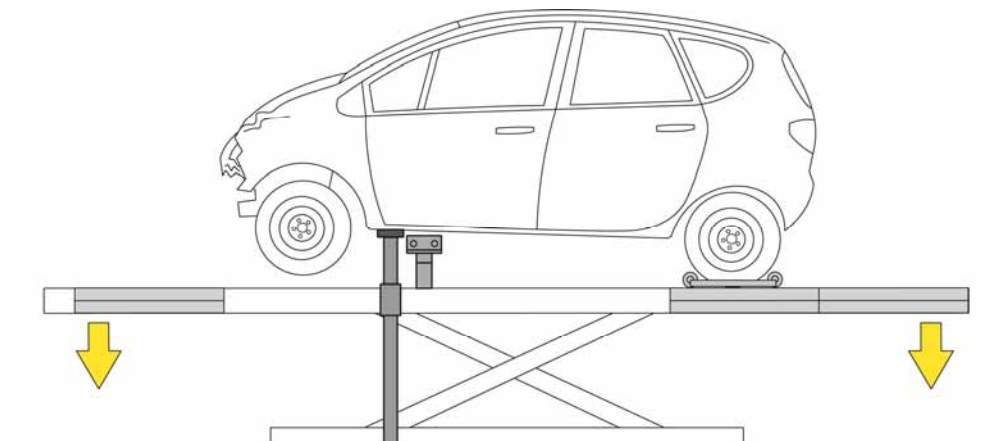
WARNING! Make sure the cam lock is fully twisted before tightening the pillar jacks.



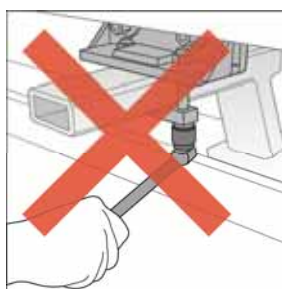
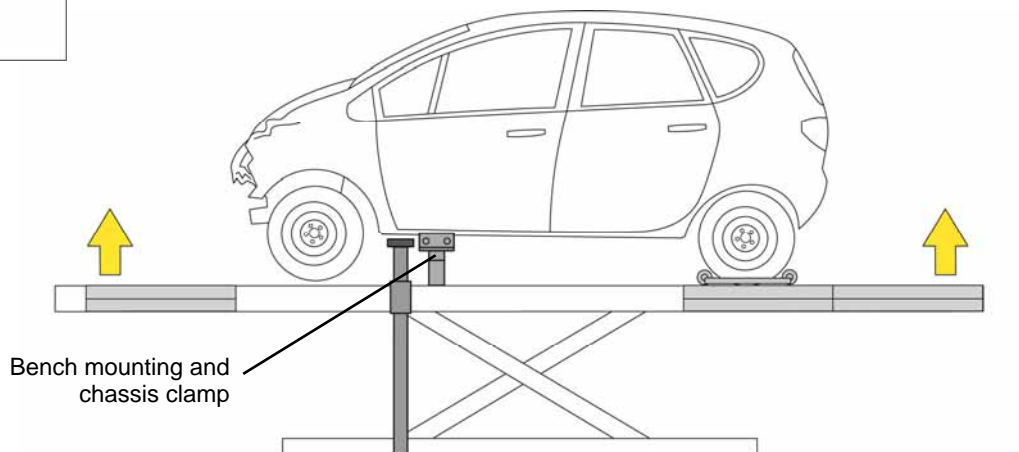
IMPORTANT! Suitable lifting points when lifted at the front or rear are the front or rear subframe fixations or the axle beams.
For a lift of a vehicle with separate frame, lift straight on the frame.
For a lift on the sill box of a vehicle with unibody chassis, the B23 sill support must be used.

4.4.2 Setup with chassis clamps

1. With the vehicle supported by the pillar jacks (left and right side), gently lower the lift to give space for the front bench mountings and chassis clamps to be fitted. Remove side ramps from under the front wheels.



2. Place the front bench mountings and cam locks in the centre of the B mark (see section 4.2.1 "Drive on to BenchRack"). Tighten the bench mountings with the cam locks to the bench. Fit the chassis clamps to the bench mountings and check that they are placed directly under the sill edge. Gently raise the the bench to fit the clamps to the sill flange. Tighten the clamps to the sill flange.

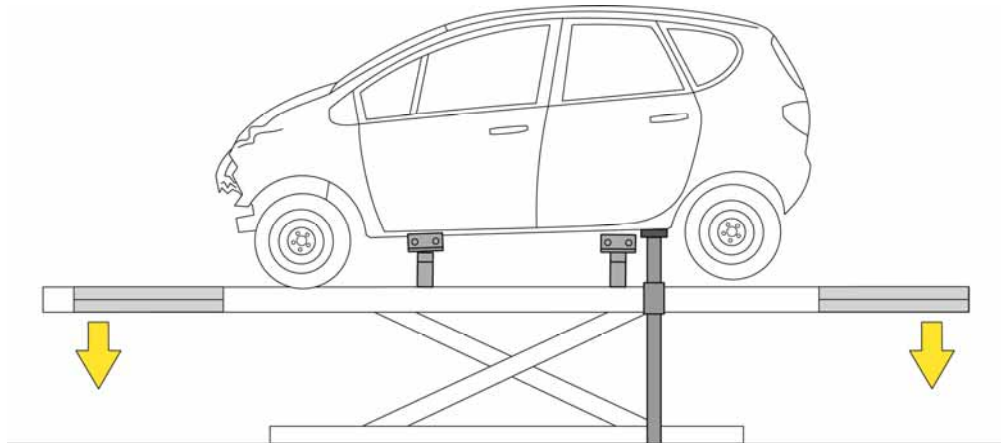


NOTE! Do not tighten the bolts for the clamp plates to the bench mounting before all 4 chassis clamps are in position.

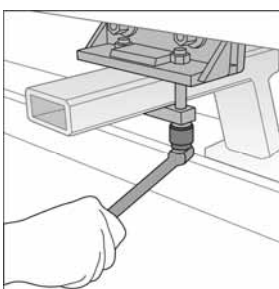
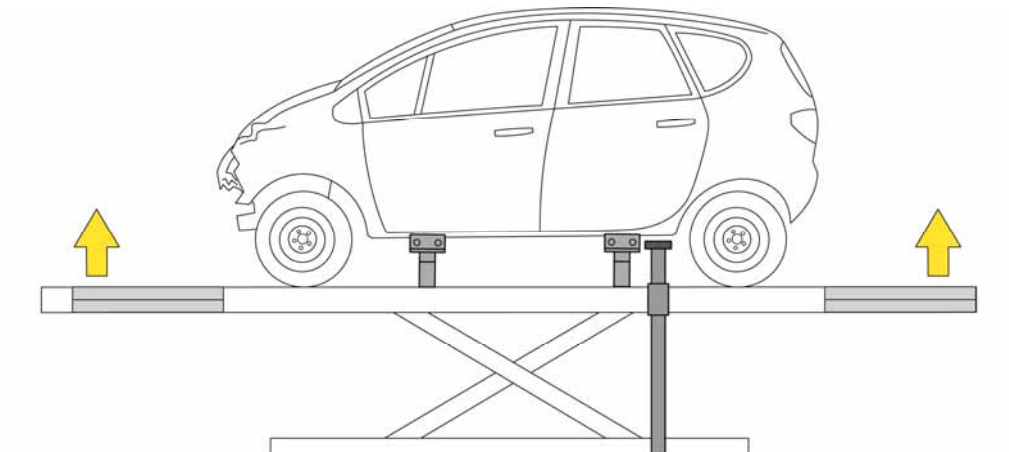


IMPORTANT! Ensure that the toothed segments are clean and fitted correctly.

3. Move the pillar jacks to the rear of the vehicle (left and right side). Gently lower the lift to allow the rear bench mountings and chassis clamps to be fitted. Remove side ramps from under the rear wheels.



4. Place the rear bench mountings in the centre of the A mark (see section 4.2.1 "Drive on to BenchRack") and tighten the bench mountings with the cam locks to the bench. Fit the chassis clamps according to the procedure described in step 2.



NOTE! Tighten all four chassis clamps to the bench mountings.

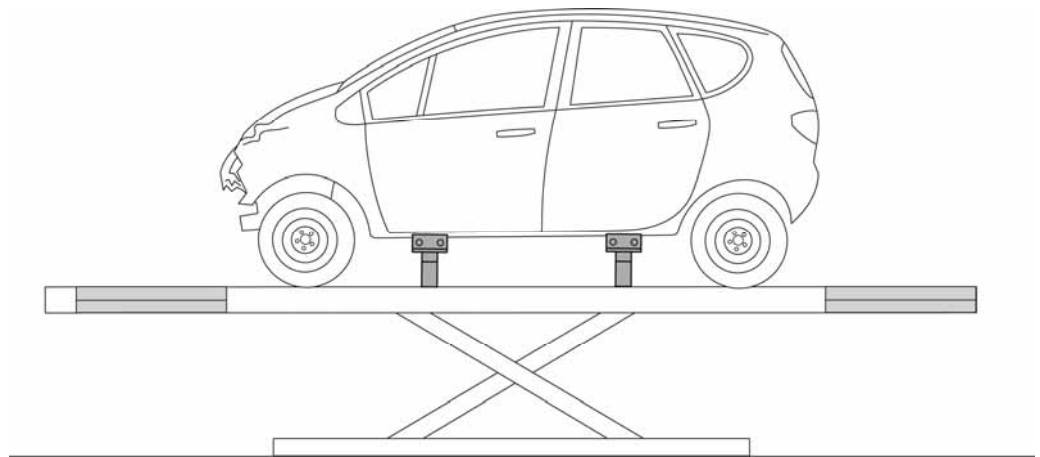


IMPORTANT! When a wrench is used to tighten nuts and bolts, ensure that it is set to a maximum of 200 Nm to avoid damage to the equipment.



IMPORTANT! All nuts and bolts shall be cleaned and greased regularly.

- 5. Remove pillar jacks. Raise or lower the bench to convenient working height. The vehicle is now ready for alignment work!**



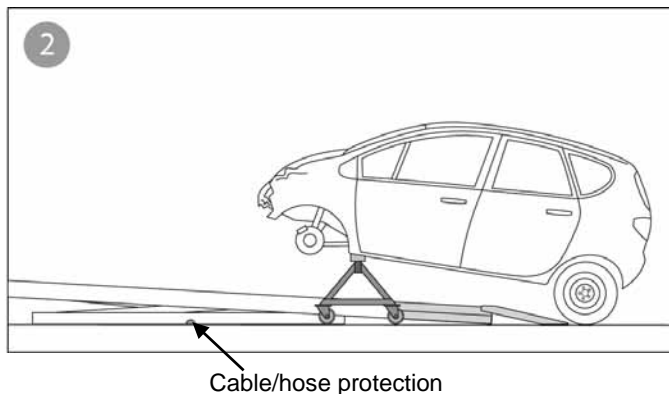
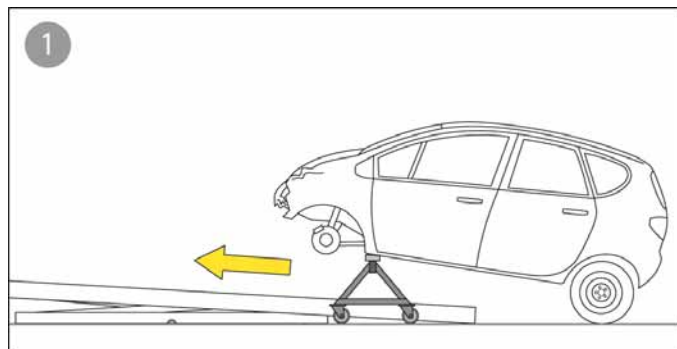
4.4.3 Driving on/Setting up a vehicle without front or rear sub frame or wheels

Illustrations below show the recommended way to set up the vehicle by using the T48 Support stand.

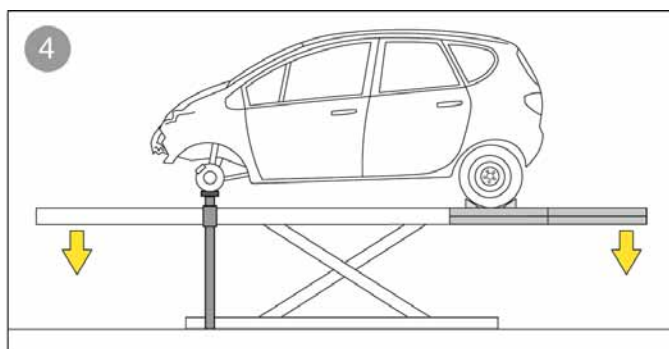
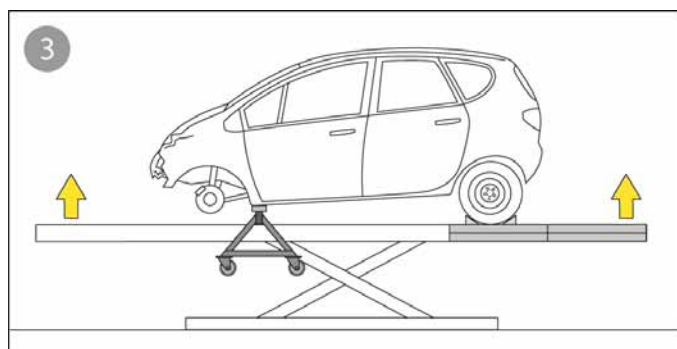


IMPORTANT! It is not recommended to use the T48 on top of the drive on ramps. Risk of falling off from the ramps.

1. Start to roll the vehicle on the T48, with no ramps on the bench.
2. Fit first side ramp and drive on ramp to the bench. Continue to roll on the vehicle and fit additional side ramps. Pay attention when rolling the T48 wheels over the cable/hose protection!



3. Gently raise the bench to the highest position with vehicle on T48 support stand.
4. Fit two pillar jacks according to picture (right and left side of the vehicle). Remove the T48. Adjust the position of the pillar jacks for a suitable lifting point.



IMPORTANT! Use B57 Roll stop to prevent the vehicle from rolling.

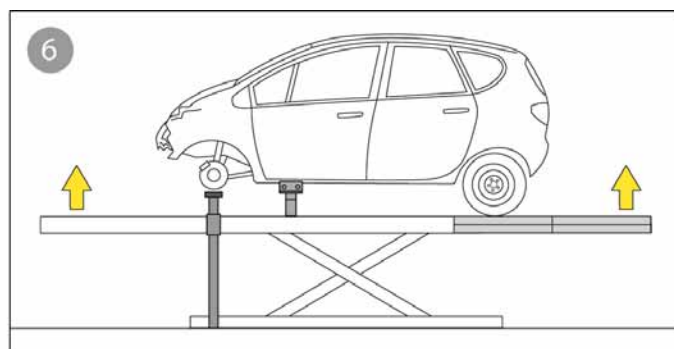
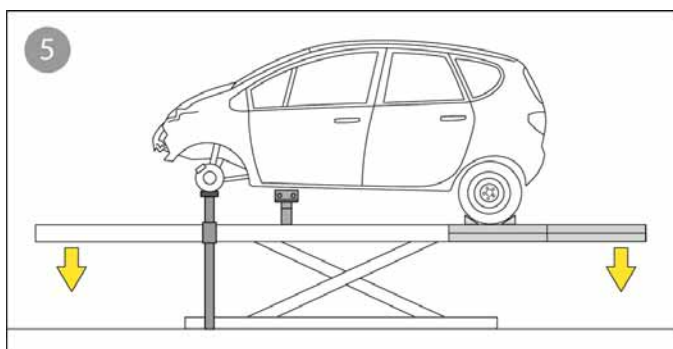
5. With the vehicle supported by the pillar jacks (left and right side), gently lower the lift to allow the front bench mountings and chassis clamps to be fitted. For correct placing of the bench mountings and chassis clamps, see section 4.2.1 *Drive on to BenchRack*.
6. Gently raise the the bench to fit the clamps to the sill flange. For correct fitting of the bench mountings and chassis clamps, see section 4.2.2 *Setup with chassis clamps*.



NOTE! Do not tighten the bolts for the clamp plates to the bench mounting before all 4 chassis clamps are in position.



NOTE! Tighten the chassis clamps; first against the sill edge and then against the bench mounting.



7. Repeat the procedure described in step 5.

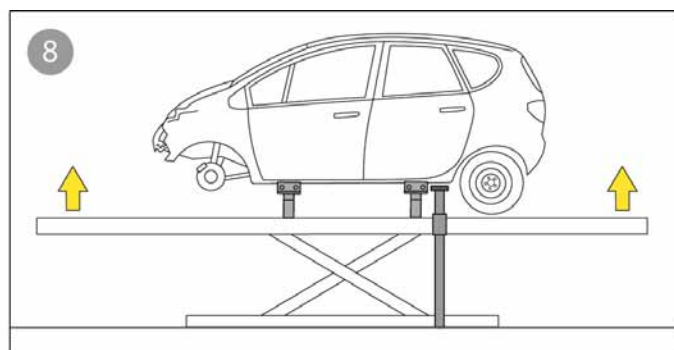
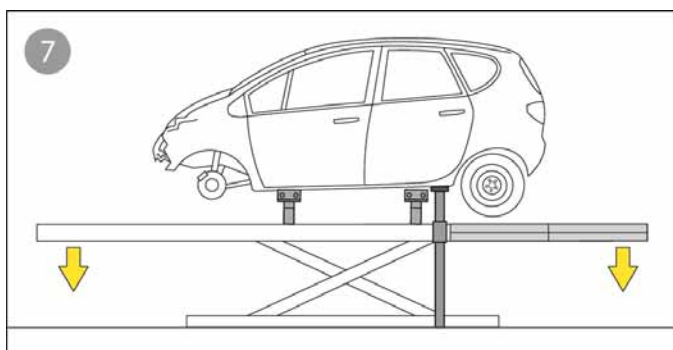
8. Repeat the procedure described in step 6.



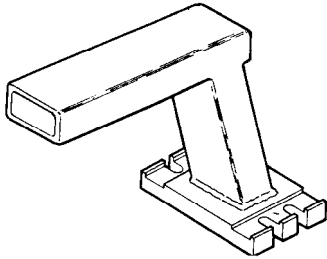
NOTE! Do not tighten the bolts for the clamp plates to the bench mounting before all 4 chassis clamps are in position.



NOTE! Tighten the chassis clamps; first against the sill edge and then against the bench mounting.



4.4.4 Bench mounting



Please note that there are different types of bench mountings.

If the vehicle is damaged so that it does not lie correctly in one or more of the chassis clamps, the following procedure is recommended:

- Lift the chassis clamp toward the sill edge with a suitable tool, then tighten the clamp against the sill edge.
- Tighten the chassis clamp bolts against the bench mounting, forcing the vehicle into the correct position.
- When all of the bolts have been properly tightened, alignment work can begin.

During the course of the alignment work, distortion may be checked by loosening the chassis clamp in question to see if the stress remains.



IMPORTANT! When a wrench is used to tighten nuts and bolts, ensure that it is set to a maximum of 200 Nm to avoid damage to the equipment.



IMPORTANT! All nuts and bolts shall be cleaned and greased regularly.

5 Service and Maintenance

5.1 General warnings



WARNING! During all service and fitting work, the lift must be blocked up while in the raised position to prevent accidental lowering. Risk of crushing injuries.



WARNING! All work on the electrical equipment must be carried out by qualified personnel.



WARNING! Observe high standards of cleanliness when working with the hydraulic system. Dirt in the hydraulic oil can cause operating problems.



IMPORTANT! All nuts and bolts shall be cleaned and greased monthly.

5.2 Inspection and service plan



IMPORTANT! Do not use abrasives to remove rust from the milled bench tracks. Use rotating steel brush or similar tool. Risk of material damage.

Follow the Inspection plan below for correct inspection intervals and service actions:

	Daily inspection	Weekly inspection	Monthly inspection
The safety latch shall drop easily into its slot.	●		
Check that crush guard does not jam.	●		
Check that drive-off stops are tightened and not damaged.		●	
Check that the tilting mechanism moves freely and folding legs do not jam.		●	
Clean and lubricate safety latch moving parts.			●
Check that hydraulic hose and air hoses are positioned properly and are in good condition.			●
Check that joint axles and locking screws are tightened. Tighten if necessary.			●
Check for oil leakage at cylinders and power unit. Contact Service & Support			●
Check the level in the hydraulic oil tank. Top up as necessary. Change oil and filter at least once a year.			●
Check the warning signs . Replace if damaged or missing.			●
Check the anchoring to the floor for cracks in the concrete and the tightness of the anchoring bolts (<i>read safety instructions about working under the lift in section 2.3 Safety signs</i>).			●
Check all functions of the pendant station. Correct if necessary.			●
Check milled bench tracks for corrosion. Remove if necessary (<i>see Important notice above</i>).			●
Clean and grease all nuts and bolts			●

6 Troubleshooting

6.1 General

The trouble shooting instructions in this chapter will help you to quickly find and correct the most common faults that may occur when using the Car-O-Liner Power unit.



WARNING! All electrical connections must be carried out by authorized personnel. Risk for electrical shock.



WARNING! Observe high standards of cleanliness when working with the hydraulic equipment. Dirt in the hydraulic oil can result in breakdown and subsequent loss of revenue.

6.2 Problem: The lift cannot be raised.

Fault	Possible cause	Solution
The motor does not run.	1. Phase error, blown fuse.	Check for voltage on all three phases. Check the fuse.
	2. Voltage drop or wrong voltage.	Check the voltage and make sure that the motor and electrical component box are connected for the correct voltage.
	3. Faulty contactor.	Check the contactor and contactor coil. Replace any defective components.
	4. Overcurrent breaker has tripped, is set incorrectly or is defective.	Ensure that the overcurrent breaker has not tripped. Check settings on the switch and reset.
	5. Fault in the lifting control circuits.	Check the auxiliary contactors in the overcurrent breaker. Check the fuse and control circuits. Replace or repair any defective components.
	6. Cable to the pendant station broken.	Check the cable to the pendant station. If broken contact your local Car-O-Liner representative.

Fault	Possible cause	Solution
The motor runs, but the lift cannot be raised.	1. Excess load on the lift.	Maximum load on the lift is 4200 kg.
	2. Motor rotating in the wrong direction.	Change the phase order on the electrical connection and check the direction of rotation.
	3. Low oil level.	Check the oil level. Top up with oil if necessary. See "Recommended Types of Oil", section 8 "Technical Specifications".
	4. Oil leakage.	Check the hoses and couplings. Replace defective components.
	5. Dirt in the lowering valve, see the separate instruction manual for the Power unit.	Clean. Change the oil.
	6. Defective lowering valve, see the separate instruction manual for the Power unit.	The lowering valve has jammed in the open position. Replace the valve.
	7. Defective relief valve, see the separate instruction manual for the Power unit.	Connect a pressure gauge to the hydraulic hose and check the pressure (should be 210 bar). Pressure is set at the factory; if the pressure is incorrect, contact your supplier.
	8. Defective pump, see the separate instruction manual for the Power unit.	Replace the pump unit.

6.3 Problem: The lift drops

Fault	Possible cause	Solution
Lowering valve leaks.	Dirt in the lowering valve. See the separate instruction manual for the Power unit.	Lower the lift and dismantle the lowering valve.
		Blow out the valve.
		Change the oil.
Oil leakage.	Leakage from the hose or coupling.	Check hoses and couplings for leakage. Replace defective components.
Oil leakage in the cylinder.	Worn gaskets.	Dismantle the cylinder and change gaskets. Change the oil.
Non-return valve in the pump defective or leaking.	Non-return valve defective.	Replace the non-return valve.

6.4 Problem: The lift cannot be lowered

Fault	Possible cause	Solution
Lowering valve fails to open. See the separate instruction manual for the Power unit.	1. No current to the magnetic coil.	Check the voltage on the coil (24 V AC). Trouble shoot according to the diagram.
	2. The valve is blocked with dirt.	Clean the valve.
	3. The valve sticks.	Change the valve and the oil.
	4. The latch pawl (4) is stiff or sticks.	Clean so that the pawl enters the slot easily.
Mechanical safety latch (3) is jammed.	Air cylinder (7) does not lift the latch pawl from the slot.	Check the air supply to the air valve, see the separate instruction manual for the Power unit, and that the air valve receives 24 V AC. Make sure that the air hose is not crushed or blocked.
Jumper connector on electrical box not inserted.		Plug in the jumper connector

7 Dismantling and salvage

7.1 Mechanical Components

When scrapping or dismantling lift components, oil must be emptied from cylinder, hoses and pump.

Waste oil should be sent for disposal or to a recycling station.

7.2 Other Components

All electrical components, plastic hoses, steel and aluminium should be sorted for recycling.

8 Technical Specifications

Maximum vehicle weight	4200 kg
Maximum lifting height	1170 mm
Min. height (equipment height)	400 mm
Lifting time	30 - 40 seconds
Lift dimensions	Drive on-ramps 2060 x 4200- 6300 mm (1170 mm without ramps)
	Wide drive-on ramps 2320 x 4200-6300 mm (1170 mm without ramps)
Bottom frame dimensions	780 x 2200 mm
Weight (lift + frame)	950 - 1300 Kg
Recommended type of oil	
Hydraulic oil	DIN 51524 del 2 groupe HLP. ISO 6743/4 group HM. Viscosity class 32 according to ASTM D445 or ISO 3448.
Power Unit for BenchRack. See separate instruction manual.	

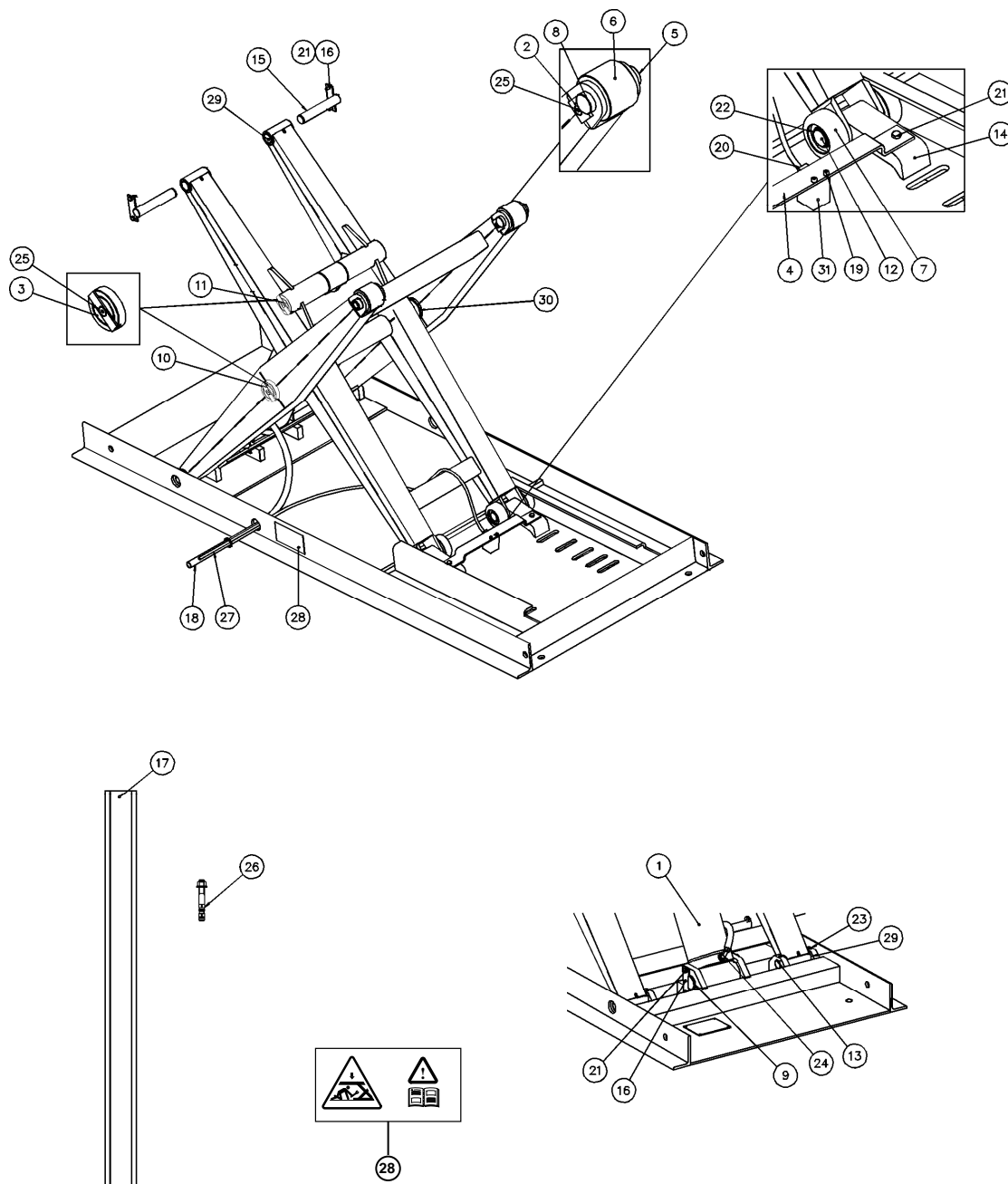
9 Spare Parts

The spare parts required for the maintenance of the BenchRack are listed in this chapter.



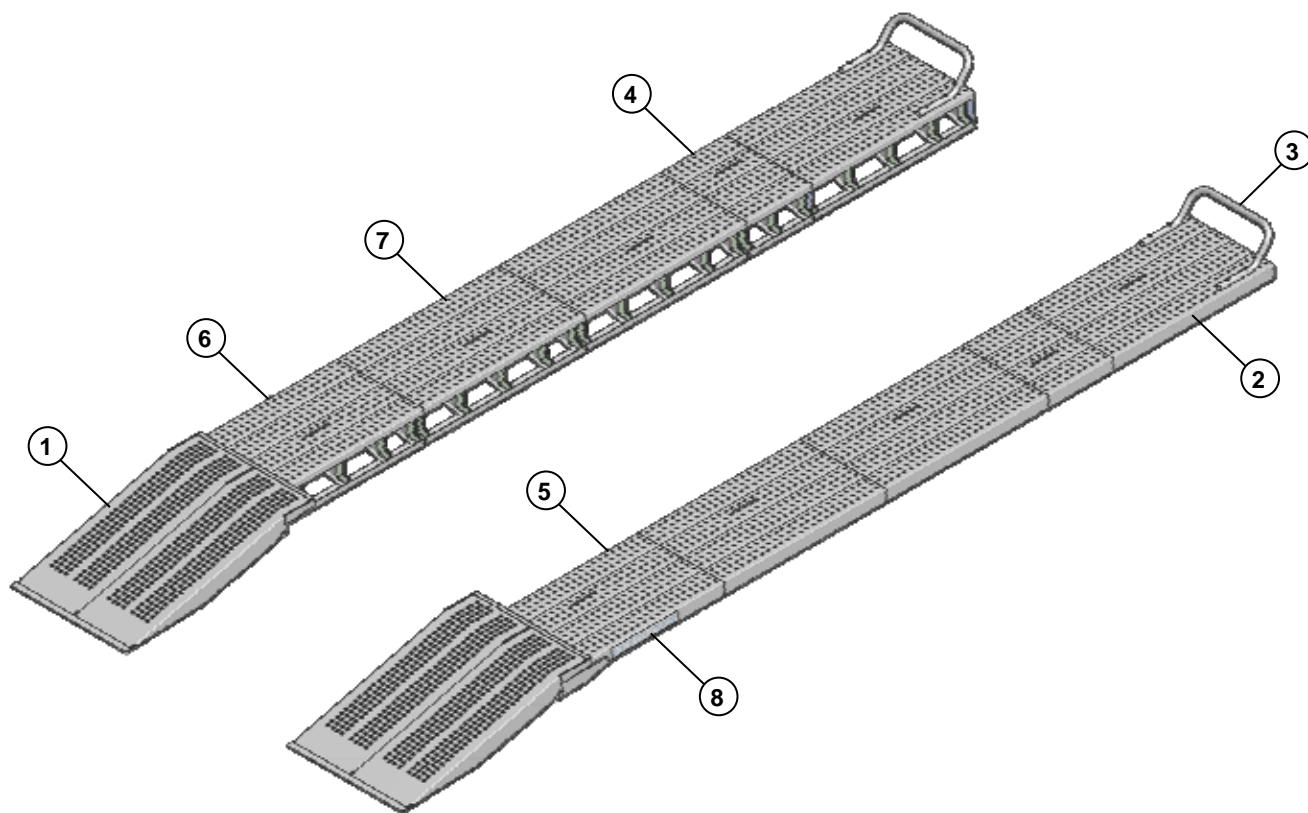
Note! Only use genuine Car-O-Liner spare parts for repairs.

9.1 Lift



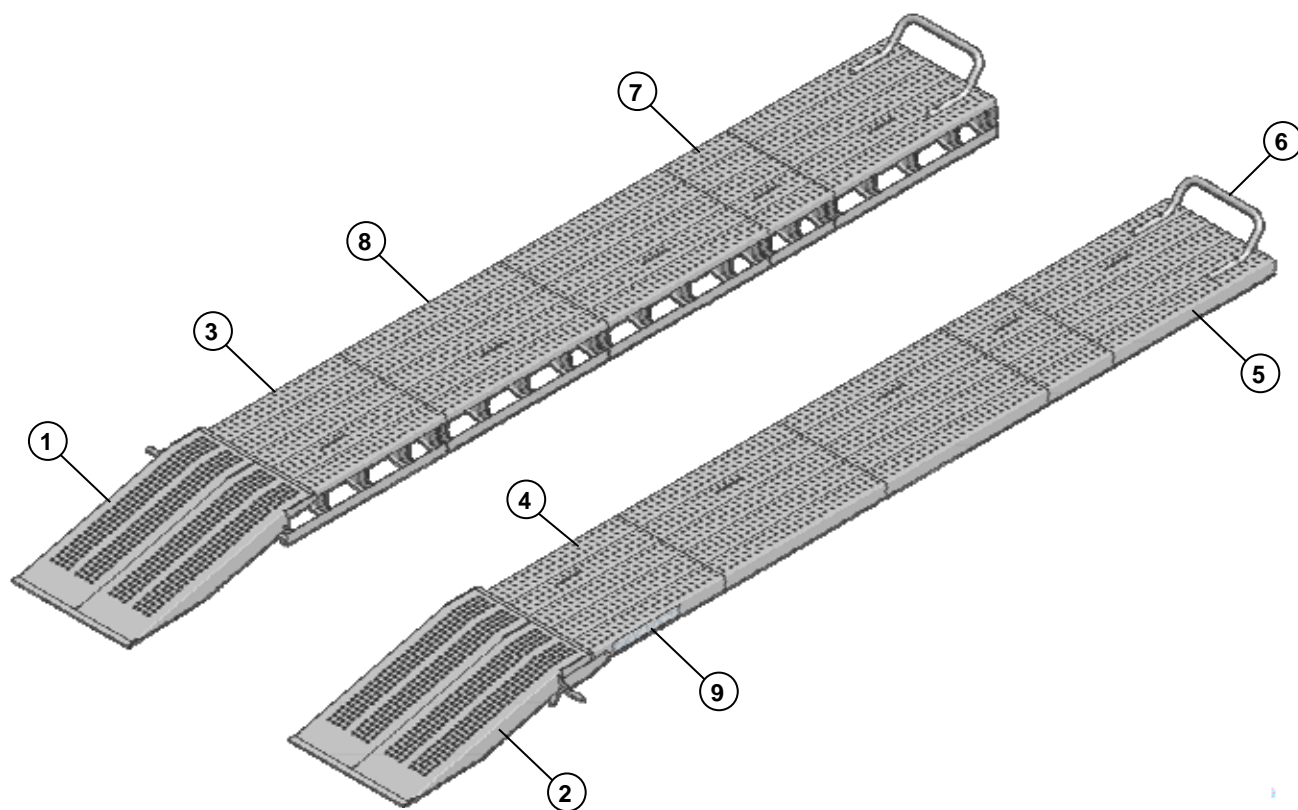
Pos.		Quantity	Part No.
1	Cylinder	1	32552
2	Securing plate	2	32549
3	Securing plate	4	32541
4	Safety latch cam	1	32542
5	Wheel	2	32553
6	Wheel 80x60	2	32535
7	Wheel 8x32	4	32534
8	Shaft	2	32536
9	Cylinder shaft	1	32539
10	Centre shaft	1	32537
11	Shaft	1	32538
12	Shaft for wheel	2	32532
13	Shaft for scissors arm	2	32543
14	Safety latch	2	32545
15	Shaft for scissors arm	2	32669
16	Locking plate	4	31034
17	Hose protection	1	31040
18	Hose	1	31038
19	Screw MC6S TT 5x20	2	91147
20	Straight connection 6mm R1/8	1	99459
21	Screw M6S 8x14 8.8	10	91274
22	Locking washer SGA 30x1.5	4	91963
23	Screw SK6SS M 10x16	4	91045
24	Straight connection Temeto XGE 10PLR-ED	1	99480
25	Screw MF6S 8x15	6	91159
26	Expander bolt M16x125	4-6	36819
27	Plastic tube 6, 1 metre (9 metres required)	1	99452
28	Safety sign "Risk for crushing injuries"	2	99794
29	Slide bearing SBP 30/34x30	8	99117
30	Slide bearing SBP 50/55x60	2	99111
31	Air cylinder	1	99472

9.2 Ramps, standard



Pos.		Quantity	Part No.
1	Drive-on ramp	1	32150
2	Drive-off stop ramp	1	32138
3	Drive-off stop	1	30964
4	Ramp section short	1	32139
5	Ramp section right	1	32137
6	Ramp section left	1	32136
7	Ramp section	1	32135
8	Decal kit BechRack	1	46062
	Ramp kit complete, BR4200	1	31927
	Ramp kit complete, BR5000	1	30984
	Ramp kit complete, BR5500	1	31934

9.2 Ramps, wide



Pos.		Quantity	Part No.
1	Wide drive-on ramp left	1	33982
2	Wide Drive-on ramp right	1	33983
3	Wide ramp section left, with hook	1	33979
4	Wide ramp section right, with hook	1	33980
5	Wide drive-off stop ramp	1	33981
6	Drive-off stop	1	30964
7	Wide ramp section short	1	33984
8	Wide ramp section	1	33978
9	Decal kit BechRack	1	46062
	Wide ramp kit complete, BR4200	1	33986
	Wide ramp kit complete, BR5500	1	33989
	Wide ramp kit complete, BR6300	1	33990

Car-O-Liner Service Support Department

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Car-O-Liner® is a Leading Global Provider of Assured and Profitable Alignment Processes to the Automotive Industry, including Technical Development, Training and Service. Over 55 000 Car-O-Liner Collision Repair Systems are in use worldwide. Car-O-Liner runs operations of its own in Scandinavia, USA, UK, France, Germany, Thailand, India and China and sells through local distributors in more than 60 countries.

Car-O-Liner products are well known for their high quality, advanced technology and ergonomic design.

