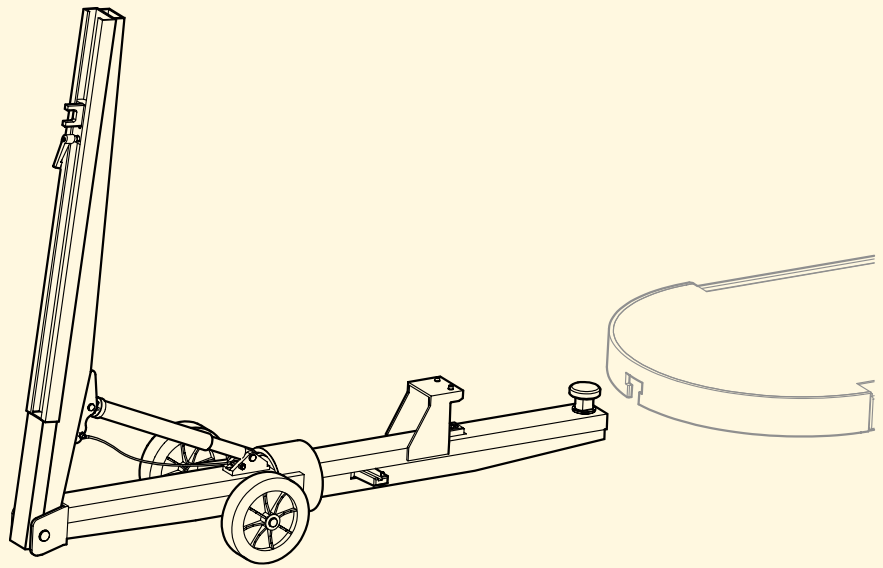


Excellence
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Speed Draw aligner D20



Instruction Manual

(138 03 85 231, rev. 0) **2001-04, GB/US**

CAR-O-LINER®

Foreword

The Speed Draw aligner D20 is designed to perform minor alignment work on the Speed lifting platform. All other use of the equipment, or use which is contrary to the instructions given in this manual, can cause personal injury and/or machine damage.

Car-O-Liner can in no way be held responsible for intentional or unintentional damage, and consequent unlimited loss of profit, loss of income, loss of business opportunity, loss of use or other similar nuisance, irrespective of how this has arisen, that originates from incorrect use of this equipment or its use in a manner not intended.

Warranty

Car-O-Liner offers a one-year guarantee from the date of delivery. This guarantee covers material defects and assumes normal care and maintenance.

The guarantee assumes that:

- the equipment is correctly installed and inspected in accordance with current local regulations.
- the equipment has not been altered or rebuilt without approval from Car-O-Liner.
- genuine Car-O-Liner spare parts are used in any repairs.
- operation and maintenance has been carried out according to the instructions in this manual.
- the draw aligner is not equipped with a hydraulic cylinder with a capacity of over 5 tons.

All claims on warranty must verify that the fault has occurred within the guarantee period, plus that the unit has been used within its operating range as stated in the specifications. All claims must include the product, article number and serial number. This data is to be found stamped on the name plate, see section 1.3 *Marking* for location.

Note

This instruction manual gives advice as well as instructions for installation, operation and maintenance.



IMPORTANT! Read this manual carefully to become familiar with the proper operation of the draw aligner. Do not neglect to do this as improper handling may result in personal injury and damage to the equipment.

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 and appropriate 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 Speed Draw aligner D20 is designed and manufactured by Car-O-Liner, which is an EN-ISO 9001 accredited development and manufacturing organisation.

The Speed Draw aligner is CE-approved by S.A. Sweden. Therefore, it is required that only CE-approved hydraulic equipment is used with the draw aligner.

Contents

1	Introduction	1.1	5	Maintenance	5.1
1.1	General	1.1	5.1	General	5.1
1.2	Draw aligner	1.2	5.2	Hydraulics	5.1
1.3	Marking	1.4	5.3	Mechanical	5.1
2	Safety	2.1	6	Dismantling and salvage	6.1
2.1	General	2.1	6.1	General	6.1
2.2	Warnings and important notices	2.2	6.2	Mechanical components	6.1
2.3	Safety signs	2.4	6.2	Other	6.1
	2.3.1 Placement of safety signs	2.5			
2.4	Safety devices	2.6			
3	Installation	3.1	7	Technical specifications	7.1
3.1	General	3.1			
3.2	Packaging and delivery inspection	3.1	8	Spare parts	8.1
3.3	Fitting	3.2	8.1	Draw aligner	8.2
	3.3.1 Fitting the hydraulic cylinder	3.3	8.2	Fastening arm	8.4
	3.3.2 Fitting the stop wire	3.5			
	3.3.3 Fitting the pneumatic pump	3.6			
4	Operation	4.1			
4.1	General	4.1			
4.2	Fastening the vehicle to the lifting platform	4.2			
4.3	Connecting the draw aligner to the lifting platform	4.7			
4.4	Handling of the draw aligner	4.10			
	4.4.1 Preparations prior to alignment	4.10			
	4.4.2 Alignment	4.10			
4.5	Disconnecting the draw aligner from the lifting platform	4.12			
4.6	Releasing the vehicle from the lifting platform	4.13			

1 Introduction

1.1 General

The Speed Draw aligner D20 is intended to perform minor alignment work on the structure of a vehicle that is properly mounted on the Speed Lifting platform.

The draw aligner makes the alignment work fast and effective. It is easy to install and use.

The adjustment possibilities of the draw aligner give it a large range of movement. It can be continuously inclined 120 degrees sideways, and it can continuously rotate 180 degrees along the circular front of the lifting platform.



WARNING! The draw aligner must only be used with a hydraulic cylinder with a maximum capacity of 5 tons. Risk of injury.



IMPORTANT! The draw aligner is CE-approved and requires that only CE-approved hydraulic equipment is used.

1.2 Draw aligner

The draw aligner can easily be locked to the lifting platform. During alignment work, the vehicle must be fastened to the lifting platform according to the instructions in *Section 4.2*.

The draw aligner knob [1] is placed on the draw aligner body [2], see Figure 1.1. The draw aligner knob is pushed into a rail underneath the lifting platform. The console [3] is placed on the lifting platform and can be moved along the circular end of the platform. The draw aligner can be rotated sideways, but by using the locking wedge [4], the draw aligner is prevented from moving along the circular end of the platform. The hydraulic cylinder [5] allows the draw aligner arm to tilt continuously backwards. The draw aligner arm [6] can also be continuously inclined 120 degrees sideways to obtain the optimum pulling angle. A stop wire [7], which limits the outward movement of the arm, is connected along the cylinder between the draw aligner arm and the draw aligner body.

The hydraulic cylinder has a capacity of 5 tons and is operated with the help of a pump [8].

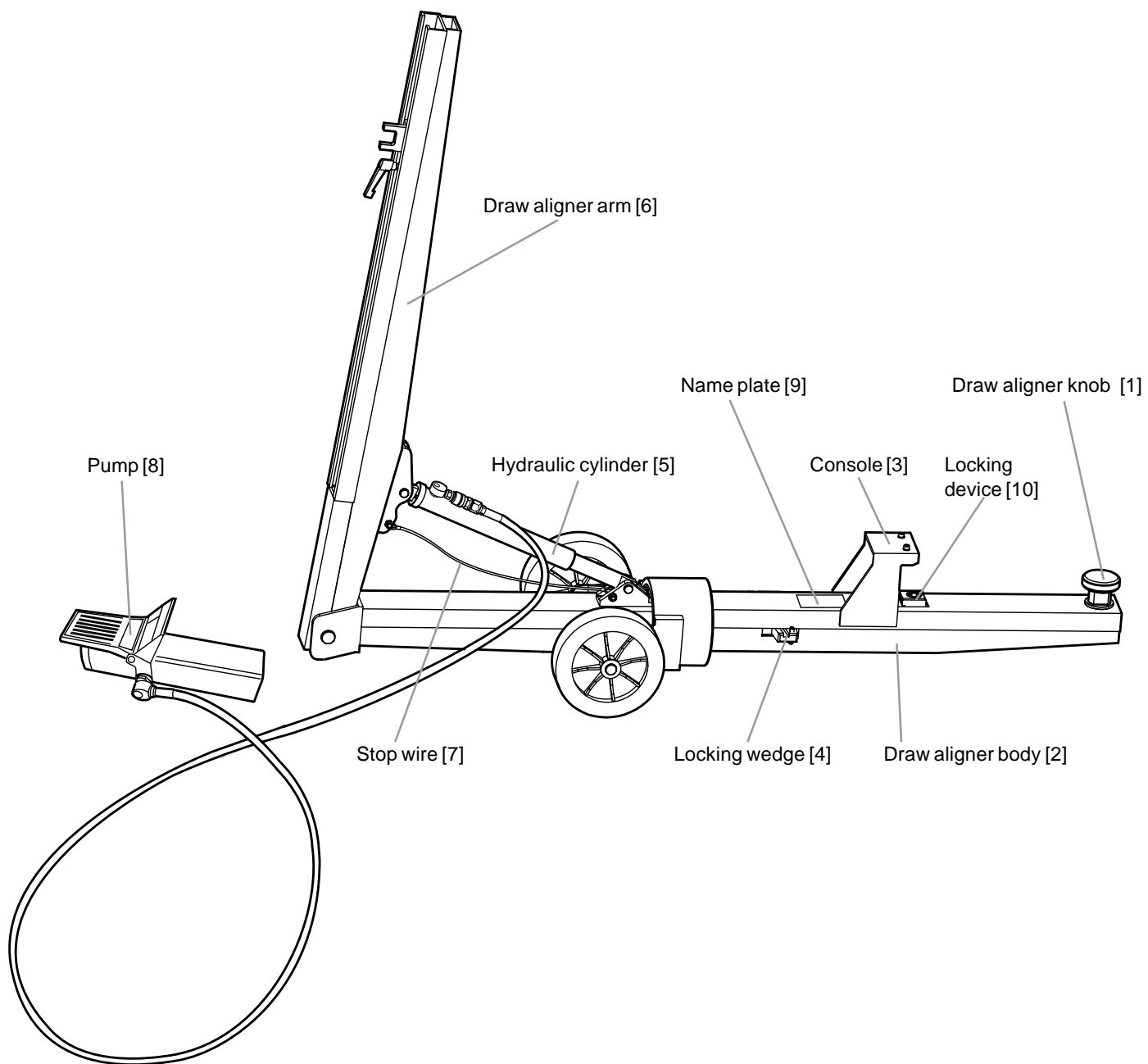


Figure 1.1 The Speed Draw aligner.

1.3 Marking

The name plate is placed on the lower mounting point of the draw aligner arm. For the exact placement, refer to Figure 1.1, position [9].

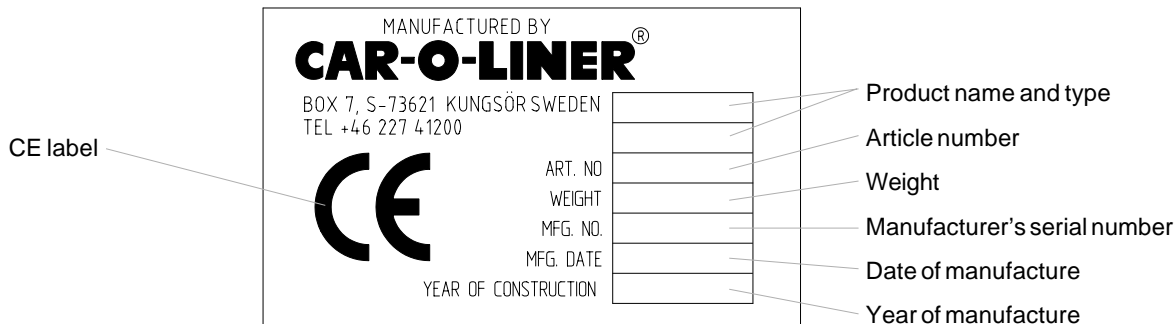


Figure 1.2 The name plate.

2 Safety

2.1 General

Information given 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 the Speed Draw aligner D20 so that it will 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 others' personal safety.
- The safety of the draw aligner through correct use of the equipment in accordance with the descriptions and instructions given in this manual.

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

To avoid personal injury, the following regulations must be observed:

- The draw aligner must only be used with a hydraulic cylinder with a maximum capacity of 5 tons.
- Check to make sure that the vehicle is securely fastened to the lifting platform (refer to *Section 4.2*) and that the vehicle cannot be set in motion during pulling.
- Make sure that you use a soft headed hammer when hammering the locking wedge.
- Always wear safety glasses when hammering the locking wedge in or out.
- Check to make sure that there are no objects obstructing the movement of draw aligner.
- Always keep a careful watch on the draw aligner and the vehicle during alignment.
- Read the manual carefully for installation (refer to *Chapter 3*), operation (refer to *Chapter 4*) and maintenance (refer to *Chapter 5*).

Various warnings and notices are placed beside the illustrations and important descriptive texts in this manual. These warnings and notices are important to ensure the safety of the user and others.

Safety signs must also be in place on the equipment. These are intended to warn of hazardous situations or to draw attention to incorrect use of the equipment.

2.2 Warnings and important notices

The following types of safety signs are used on the draw aligner and in the instruction manual:



Command (blue with white symbol)
Describes a specific responsibility.



Warning! (yellow background, black symbol, black border). Warns of safety risks.

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

WARNING! (in bold, italic 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! (in bold, italic type) is used in this manual to indicate practical information. It is also used to indicate a possible danger that could lead to damage to the draw aligner or other equipment and/or cause environmental damage.

Note! (in bold, italic type) is used to accentuate supplementary information that is required for problem-free use or optimal use of the draw aligner.

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



WARNING! The draw aligner must only be used with a hydraulic cylinder with a maximum capacity of 5 tons. Risk of injury.



WARNING! Make sure that the stop wire is correctly fitted and undamaged. Otherwise, the draw aligner arm might hit somebody if the hydraulic cylinder malfunctions.



WARNING! Make sure that the safety wire is correctly fitted and undamaged. Otherwise, the pulling chain might cause injuries if it loses its grip on the vehicle.



WARNING! Watch out for flying objects during alignment work. Do not stand behind or near the draw aligner during a pull. Risk of injury.



WARNING! Watch out for tripping on loose hoses. Risk of injury.



WARNING! Always be extremely careful when working with jacks or hydraulic equipment. Risk of falling or flying objects.



WARNING! Do not perform any alignment work if the vehicle is not fastened with the clamps. The draw aligner might overturn the vehicle and cause injuries.



WARNING! Inspection and maintenance must take place each time the draw aligner is put to use. Risk of malfunction, which may cause injuries.



WARNING! Before moving the draw aligner, always place the arm in an upright position. Risk of tripping.



WARNING! Always wear safety glasses when hammering the locking wedge in or out. Risk of splinters.



WARNING! Make sure that you use a soft headed hammer when hammering the locking wedge. Risk of splinters.



WARNING! Make sure that the hydraulic hose is undamaged. The working pressure is approximately 700 bar (10 200 PSI). If the hose springs a leak, the oil under high pressure can cause injuries and/or damage.



WARNING! Make sure that the draw aligner is correctly secured to the lifting platform. Risk of injuries.



WARNING! Never leave the draw aligner unattended when it is under pressure. Risk of injuries.



WARNING! Make sure *not* to release the locking wedge when performing alignment. Risk of injuries.



WARNING! Make sure that the lifting pads are placed correctly underneath the sill flange of the vehicle. Otherwise, Risk of vehicle overturning and causing injuries.



IMPORTANT! The draw aligner is CE-approved and requires that only CE-approved hydraulic equipment is used.



IMPORTANT! It is the responsibility of the owner to ensure that the draw aligner has been installed as specified in the instructions provided. It is also the owner's responsibility to ensure that the draw aligner is inspected in accordance with current and local regulations before it is used.



IMPORTANT! The draw aligner should not be used for anything other than alignment work on vehicles.



IMPORTANT! Make sure that the serrated jaws are clean and fitted properly. This ensures the best possible grip on the sill flange.



IMPORTANT! To obtain maximum performance and to avoid damage to the draw aligner, the pulling chain must run in the same direction as the hydraulic cylinder.



IMPORTANT! For the sake of the environment, dismantle the equipment in an environmentally friendly way.

2.3 Safety signs

Undamaged safety signs must always be affixed at the indicated places, refer to *Section 2.3.1*. If any signs are damaged or missing, the user is responsible for their immediate replacement. The safety signs are available as accessories.

The following safety signs can be found on the draw aligner:



Command!

Safety glasses must be worn when hammering in the locking wedge. For placement, refer to *Section 2.3.1*. The label has article No. 99791.



Warning!

The draw aligner is to be equipped with a hydraulic cylinder with a maximum capacity of 5 tons. For placement, refer to *Section 2.3.1*. The label has article No. 99812.



Warning!

Watch out for flying objects during aligning work. Do not stand behind or near the draw aligner during a pull. For placement, refer to *Section 2.3.1*. The label has article No. 99789.



Warning!

Risk of tripping due to loose hoses, etc.. For placement, refer to *Section 2.3.1*. The label has article No. 99786.

2.3.1 Placement of safety signs

The safety signs are placed as follows:

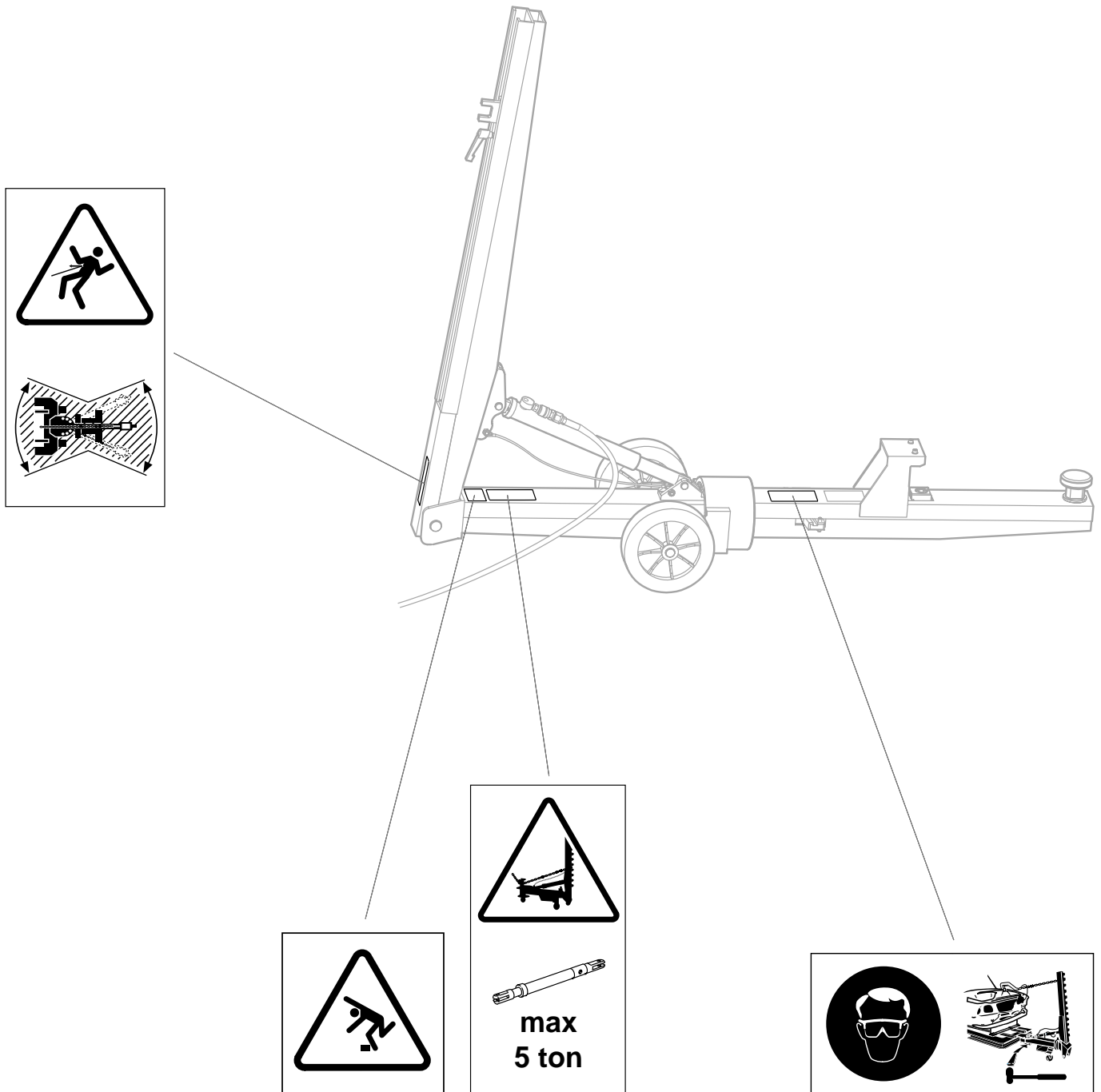


Figure 2.2 Placement of the safety signs.

2.4 Safety devices

The stop wire between the draw aligner arm and hydraulic cylinder mounting prevents the arm from falling too far backwards during movement or if the pull should come loose.



WARNING! Make sure that the stop wire is correctly fitted and undamaged. Otherwise, the draw aligner arm might hit somebody if the hydraulic cylinder malfunctions.

The safety wire must be fastened between the vehicle and the draw clamp. This wire prevents accidents if the clamp should lose its grip.



WARNING! Make sure that the safety wire is correctly fitted and undamaged. Otherwise, the pulling chain might cause injuries if it loses its grip on the vehicle.



WARNING! Watch out for flying objects during aligning work. Do not stand behind or near the draw aligner during a pull. Risk of injury.

3 Installation

3.1 General

The Speed Draw aligner D20 is inspected and checked prior to leaving the factory to guarantee consistent quality and maximum reliability.

Instructions for installation, with general tips and directions, are provided as follows.

3.2 Packaging and delivery inspection

Check the delivery against the packing list, consignment note, or other delivery documentation to verify that everything is included in the correct quantity. Check the draw aligner carefully to make sure that no damage has occurred during transport. If any part is damaged or missing, the draw aligner may not be used until the component is repaired or replaced. Please contact your supplier.

Remove all packaging material from the draw aligner.

3.3 Fitting

The draw aligner must be fitted as follows:

- Fitting the hydraulic cylinder
- Fitting the stop wire
- Fitting the pneumatic pump

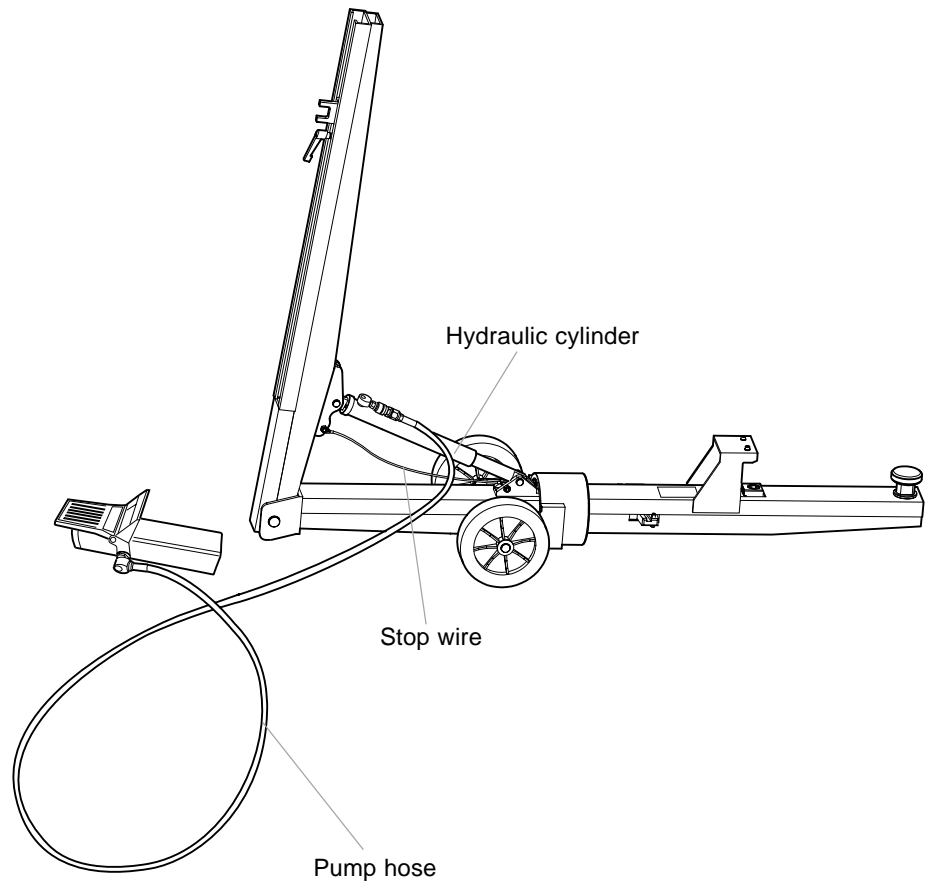


Figure 3.1 Fitting the draw aligner.

3.3.1 Fitting the hydraulic cylinder

- 1 Place the hydraulic cylinder so that its mounting holes are centered on the *big* holes on the mounting flanges.

Note! Make sure that the cylinder is placed so that the piston rod points downwards.

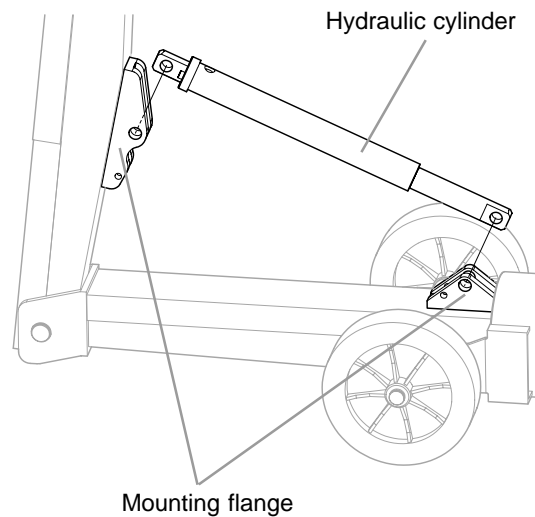


Figure 3.2 Fitting of the hydraulic cylinder.



WARNING! The draw aligner must only be used with a hydraulic cylinder with a maximum capacity of 5 tons. Risk of injury.

- 2 **Place the locking pins so that they run straight through the cylinder mounting holes and through the big mounting holes on the draw aligner .**

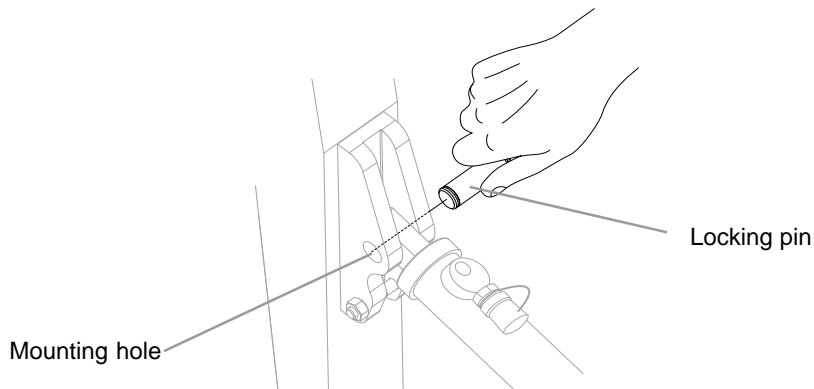


Figure 3.3 Fitting the cylinder with locking pins.

- 3 **Fasten the locking pins by placing one circlip in each track on the locking pins.**

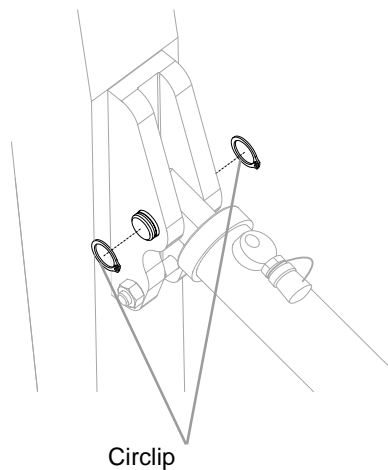


Figure 3.4 Placing the circlip on the locking pins.

Note! There are four tracks on the locking pins. Make sure that all four are secured with a circlip.

3.3.2 Fitting the stop wire

Secure the hydraulic cylinder by fitting the stop wire:

- 1 Fit the stop wire by inserting the screws through the *small* holes on the mounting flanges. Lock the screws by fasten the nuts.**

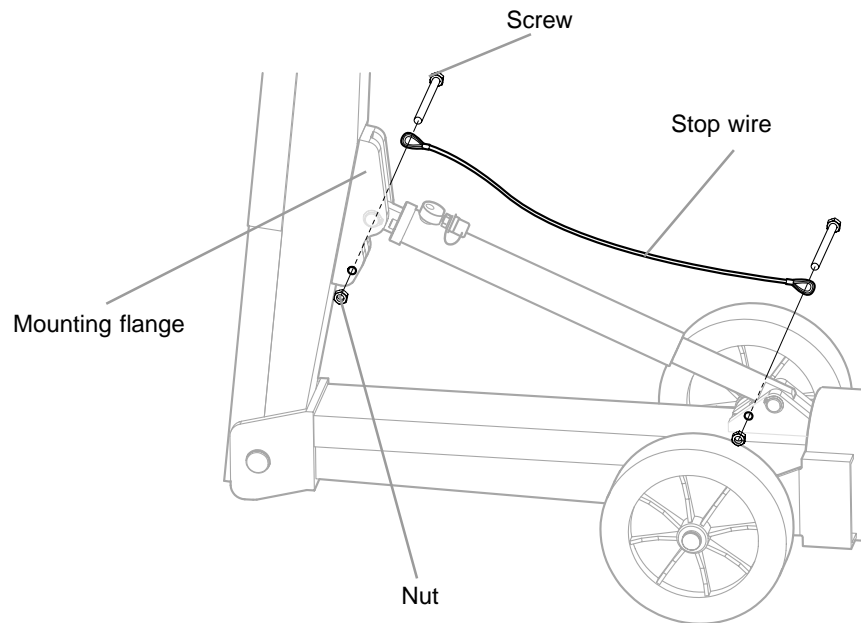


Figure 3.5 Fitting the stop wire.

3.3.3 Fitting the pneumatic pump

- 1 Remove the nipple cap from the nipple at the upper side of the cylinder. Also remove the nozzle cap from the hose's nozzle.**

Note! Do not entirely remove the cap from the cylinder and from the nozzle. The caps should be replaced on the nipple and on the nozzle if the pump hose is removed.

- 2 Connect the nozzle to the cylinder nipple.**

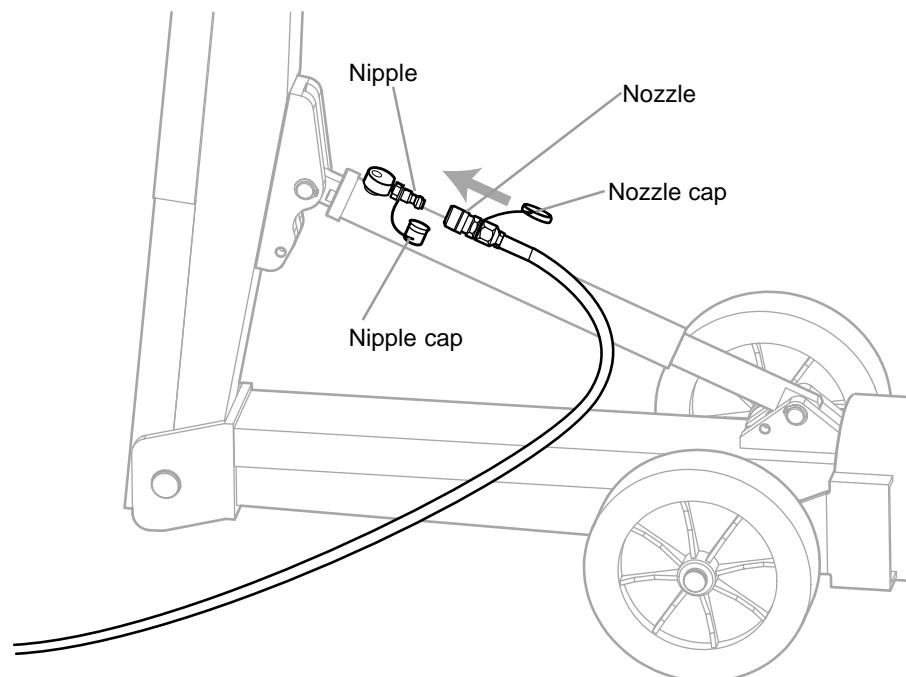


Figure 3.6 Connecting the pump to the cylinder.



WARNING! Watch out for tripping on loose hoses. Risk of injury.

Releasing the pneumatic pump:

- 1 Pull back the locking ring to unlock the nozzle from the cylinder's nipple.**

- 2 Remove the nozzle from the nipple.**

- 3 Replace the caps on the nipple and on the hose's nozzle.**

4 Operation

4.1 General



IMPORTANT! It is the responsibility of the owner to ensure that the draw aligner has been installed as specified in the instructions provided. It is also the owner's responsibility to ensure that the draw aligner is inspected in accordance with current and local regulations before it is used.

The Speed Draw aligner D20 is inspected and checked prior to leaving the factory to guarantee consistent quality and maximum reliability.

The draw aligner is intended to perform minor alignment work on the structure of a vehicle. It makes the alignment work fast and effective. The vehicle must be fastened to the Speed Lifting platform prior to alignment work.



WARNING! Always be extremely careful when working with jacks or hydraulic equipment. Risk of falling or flying objects.



WARNING! Do not perform any alignment work if the vehicle is not fastened with the clamps. The draw aligner might overturn the vehicle and cause injuries.



IMPORTANT! The draw aligner should not be used for anything other than alignment work on vehicles.

4.2 Fastening the vehicle to the lifting platform

To safely align a collision-damaged vehicle, one must fasten the vehicle to the Speed Lifting platform. The vehicle is fastened to the lifting platform by clamps.

The clamps [1] are bolted to the fastening arms [2]. Refer to Figure 4.1. The rails on the fastening arms are hooked to the tracks on the long sides of the lifting platform.

The clamps have serrated jaws [3], which grip the sill flange of the vehicle.

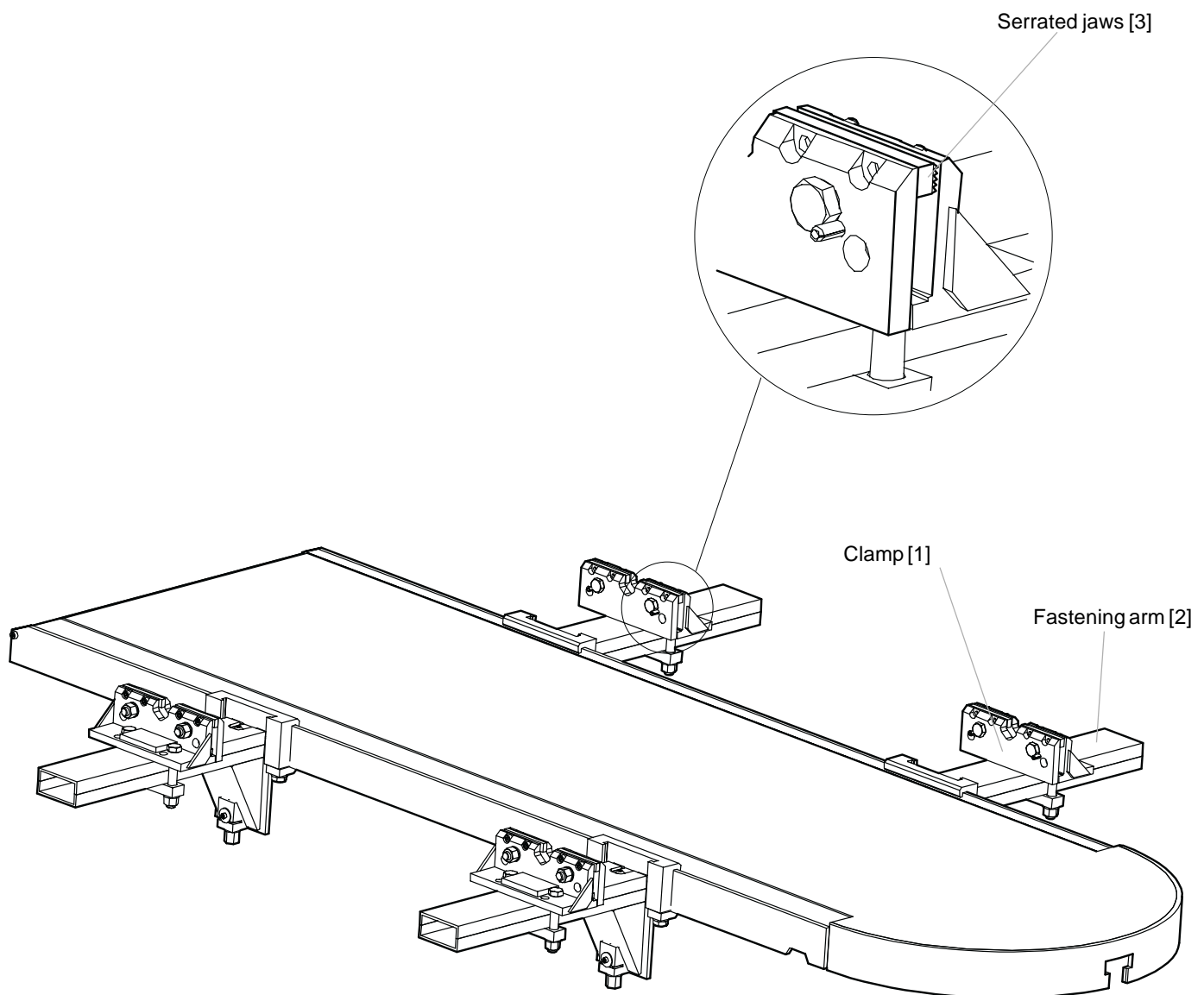


Figure 4.1 The clamps and fastening arms.

Mount the fastening arms and the clamps as follows:

- 1 Hook the rail of the fastening arm holder to the long side tracks of the lifting platform.**

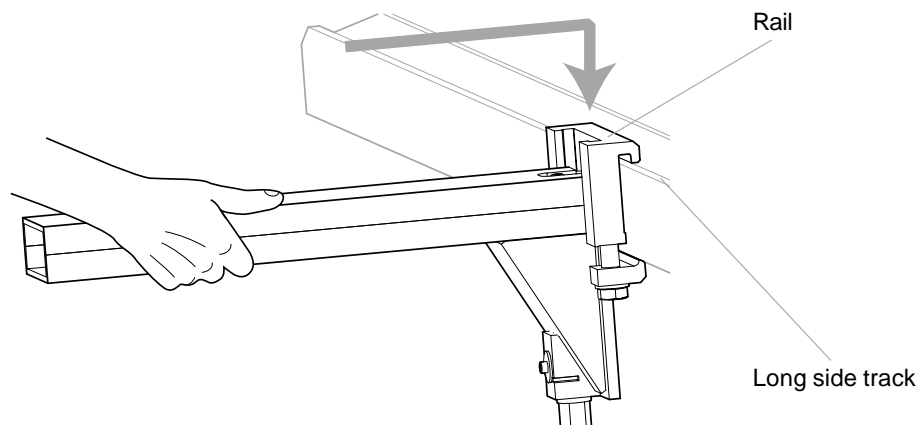


Figure 4.2 Mounting of the fastening arms.

- 2 Secure the fastening arm to the lifting platform by tightening both bolts underneath the arm.**

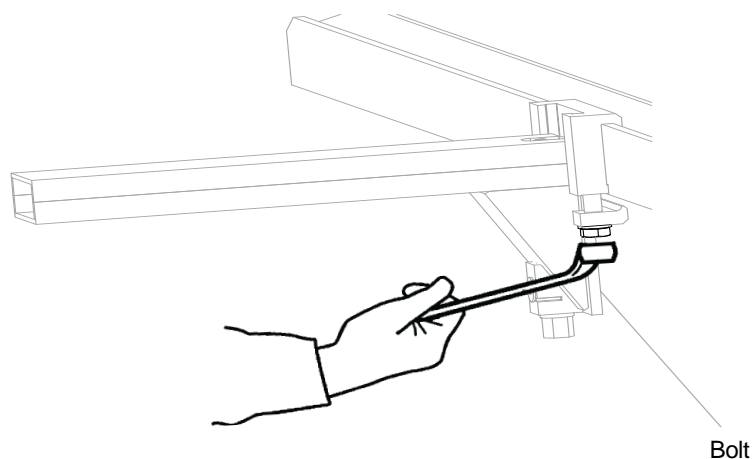


Figure 4.3 Tightening the fastening arm onto the lifting platform.

- 3 Scrape the sill flange (see Figure 4.1 position [3]) clean from underseal compound and dirt so that the clamps will attach securely.**

4 Push the clamp onto the fastening arm.

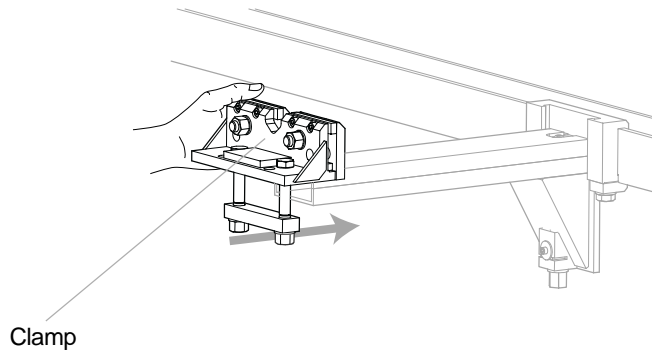


Figure 4.4 Placing the clamp onto the fastening arm.



IMPORTANT! Make sure that the serrated jaws are clean and fitted properly. This ensures the best possible grip on the sill flange.

Note! There are special clamps available for certain vehicles.

5 Open the clamp by loosening the bolts on the front of the clamps.

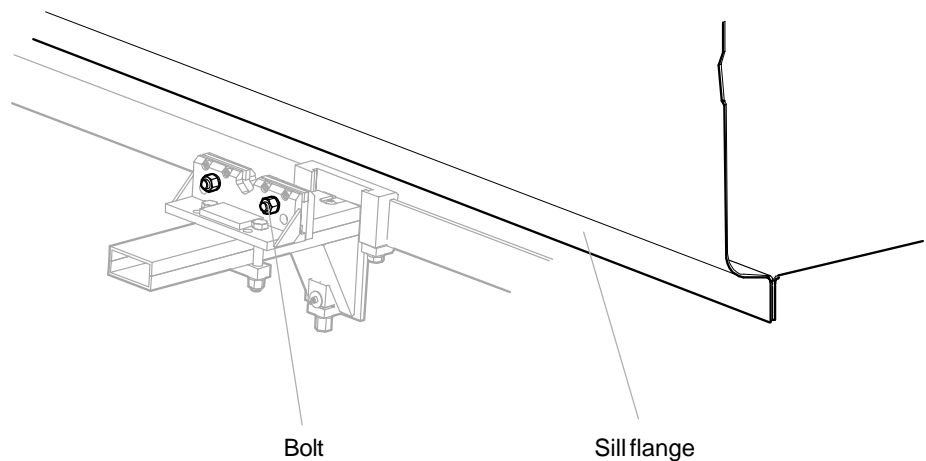


Figure 4.5 Opening the clamp.

- 6 Move the open clamp horizontally along the fastening arm until the clamp is placed directly below the vehicle's sill flange.
- 7 Move the fastening arm vertically until the sill flange is positioned directly between the serrated jaws of the clamp.

Note! Do not lift the vehicle with the fastening arm.

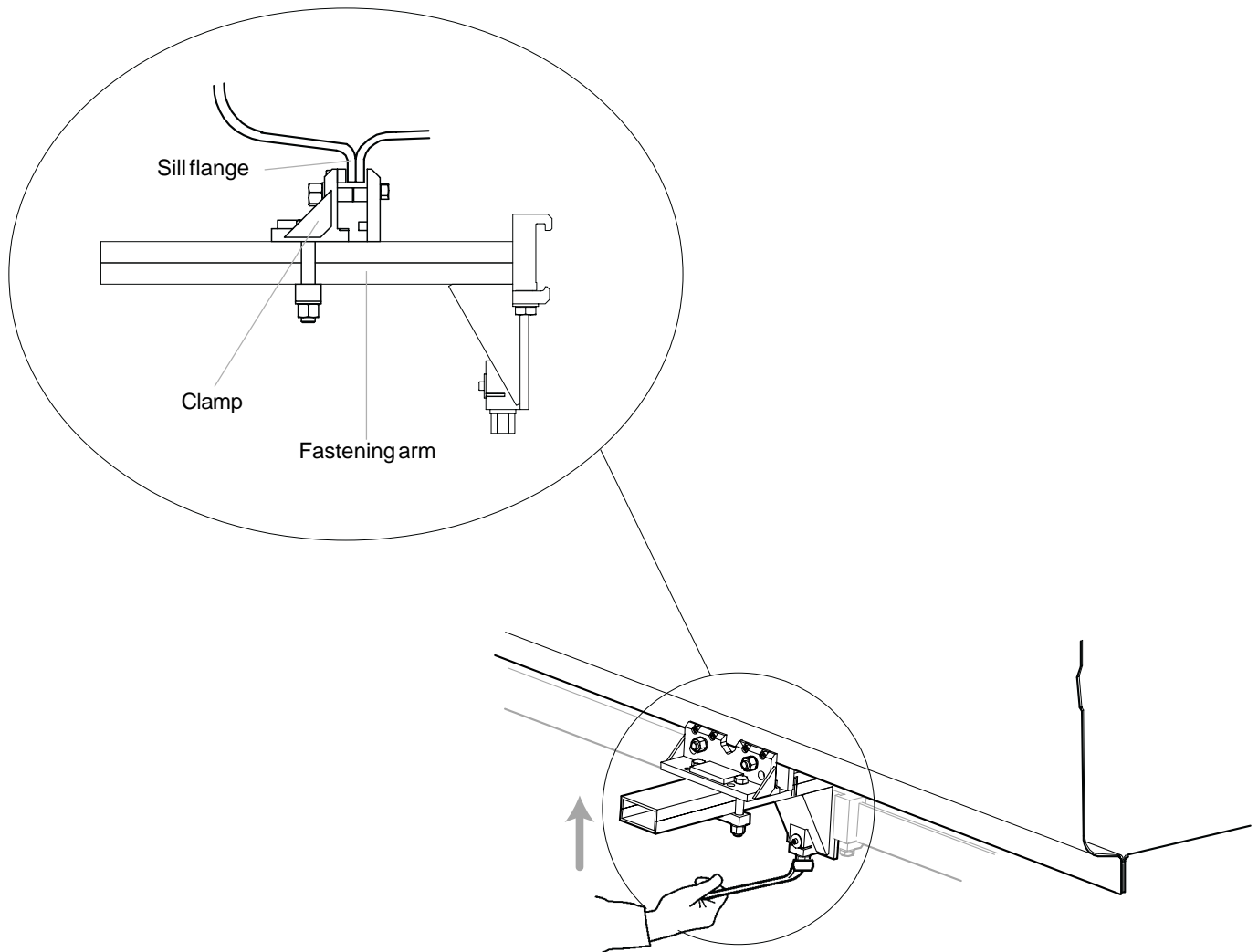


Figure 4.6 Moving the fastening arm vertically.

Note! The fastening arm is vertically adjusted by screwing the bolt on the fastening arm.

- 8 **Secure the clamp on the sill flange by tightening the bolts on the front of the clamp.**

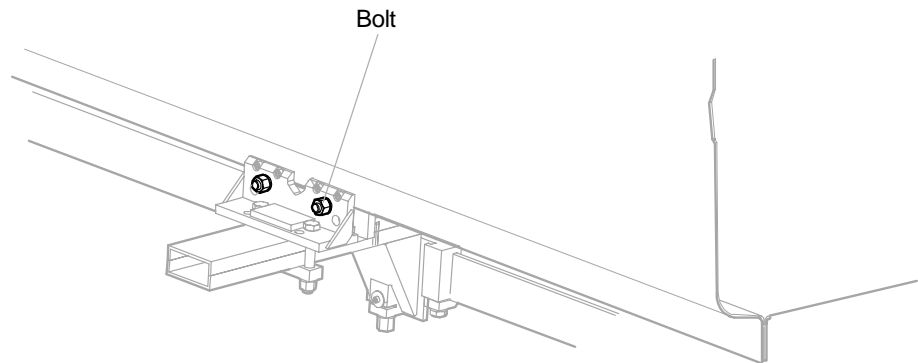


Figure 4.7 Securing the clamp on the sill flange.

- 9 **When the clamp is correctly positioned, secure the clamp to the fastening arm by tightening the bolts underneath the clamp.**

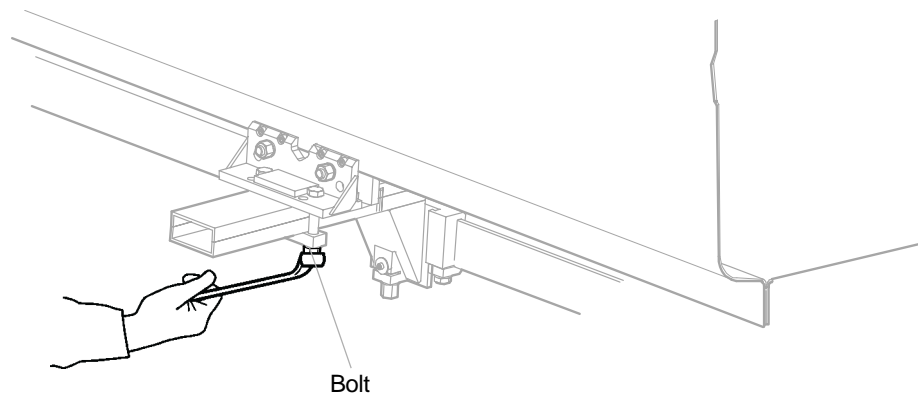


Figure 4.8 Securing the clamp to the fastening arm.

- 10 **Fasten the three remaining fastening arms and clamps by repeating steps 1 to 9.**

4.3 Connecting the draw aligner to the lifting platform



WARNING! Inspection and maintenance must take place each time the draw aligner is put to use. Risk of malfunction, which may cause injuries.

To connect the Speed Draw aligner D20 to the lifting platform, you have to place the hydraulic lift at draw aligner height. This is done as follows:

Note! The draw aligner height is the only height at which the draw aligner can be connected to the lifting platform.

- 1 Raise the lifting platform. Regarding operation of the power unit, please refer to the separate Instruction manual for the power unit.**
- 2 Lower the lifting platform. It will automatically stop at a preset height, which is the draw aligner height.**
- 3 Place the draw aligner in front of the circular end of the lifting platform. Make sure that the draw aligner is positioned so that the draw aligner knob is pointing towards the front of the lifting platform.**



WARNING! Before moving the draw aligner, always place the arm in an upright position. Risk of tripping.

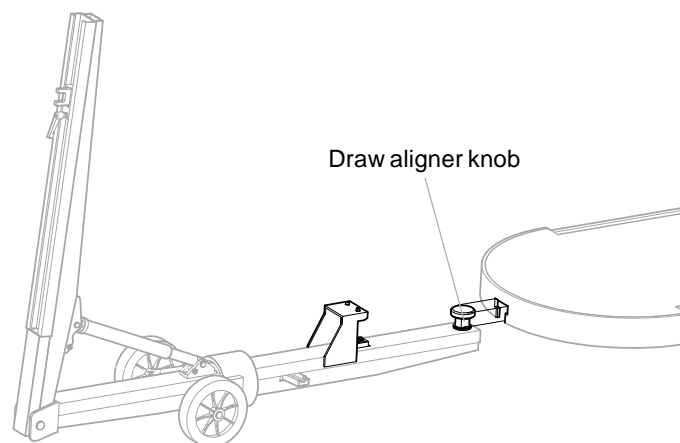


Figure 4.8 Placing the draw aligner in front of the lifting platform

- 4 Insert the draw aligner knob into the rail underneath the lifting platform.**

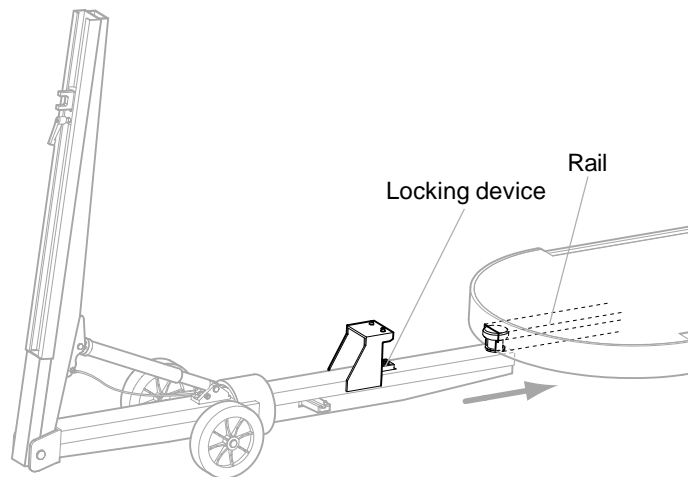


Figure 4.9 Inserting the draw aligner into the lifting platform.

- 5 Push the draw aligner forward, about 400 mm (16 in), until it stops. When the draw aligner knob is completely pushed into the rail, make sure that the console is placed onto the front of the platform. Also make sure that the locking device in front of the console is pushed into the rail.**

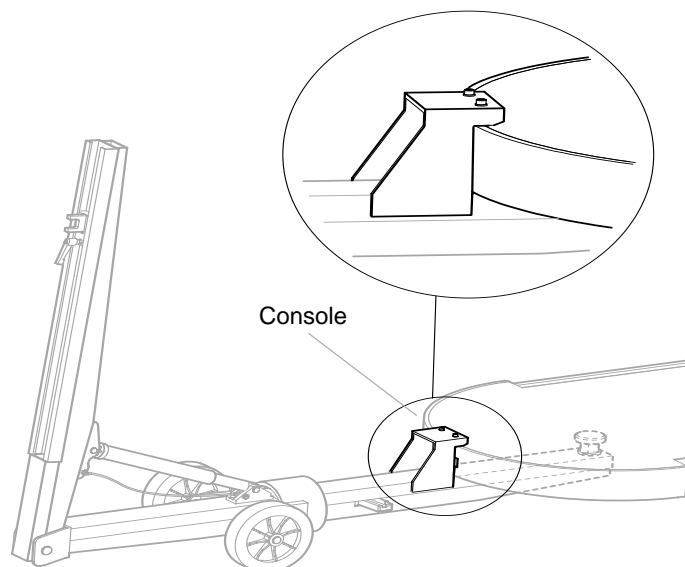
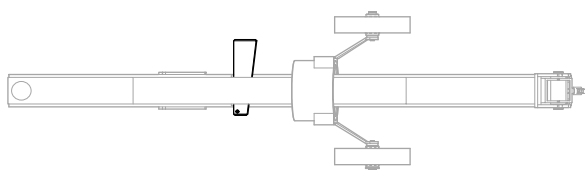
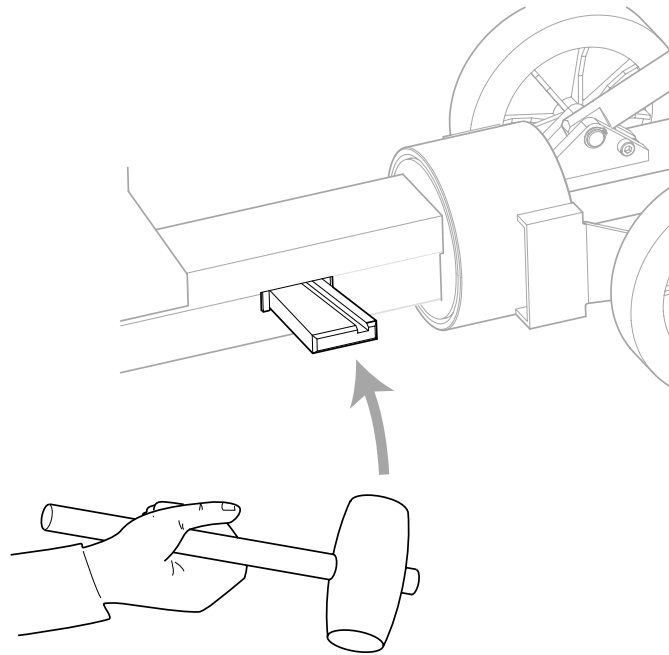


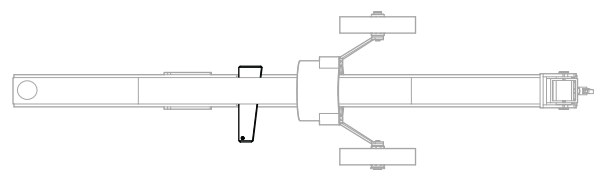
Figure 4.10 Placing the draw aligner console on the lifting platform.

It is now safe to use the draw aligner for minor alignment work and it may be rotated along the circular end of the lifting platform. To lock the draw aligner at the needed position, proceed as follows:

6 Drive in the locking wedge with a soft headed hammer (e.g. brass or copper).



Unlocked - locking wedge Out



Locked - locking wedge In

Figure 4.11 Locking the draw aligner.

Note! To rotate the draw aligner along the lifting platform, drive out the locking wedge with a soft headed hammer.



WARNING! Always wear safety glasses when hammering the locking wedge in or out. Risk of splinters.



WARNING! Make sure that you use a soft headed hammer when hammering the locking wedge. Risk of splinters.

4.4 Handling of the draw aligner

4.4.1 Preparations prior to alignment



Before using the draw aligner, observe the following:

WARNING! Make sure that the hydraulic hose is undamaged. The working pressure is approximately 700 bar (10 200 PSI). If the hose springs a leak, the oil under high pressure can cause injuries and/or damage.

Make sure that there is no air in the hydraulic system. Bleed the system as follows:

- Connect the pump hose to the cylinder.
- Extend the cylinder fully.
- Hold the pump 1.5 to 2 metres (60 to 80 inches) above floor level and release pressure. The built-in spring will force the cylinder back and expel any air from the system.
- Repeat this procedure once more.

4.4.2 Alignment



WARNING! Make sure that the draw aligner is correctly secured to the lifting platform. Risk of injuries.



WARNING! Never leave the draw aligner unattended when it is under pressure. Risk of injuries.



WARNING! Make sure *not* to release the locking wedge when performing alignment. Risk of injuries.

1 Position the draw aligner based on the impact angle of the damage.

Note! A correct position of the draw aligner minimizes the number of times it must be moved during the course of work.

Note! The draw aligner can rotate side-ways. The draw aligner arm can be continuously inclined 120 degrees sideways to obtain the optimum pulling angle. The draw aligner arm automatically locks at the desired position.

- 2 Clean the area on the vehicle to which the pulling clamp is to be fastened to ensure a good grip.**

Note! Always use an approved pull chain such as Car-O-Liner T17 and ensure that the pulling clamp, hook and plate are in good shape.

- 3 By making a loop, the pulling chain is secured to the chain holder at the back of the draw aligner arm. Make a loop by placing the chain around the draw aligner arm. Secure the loop by hooking the chain hook to one of the chain links.**

Note! By untighten the locking device on the chain holder, you can continuously adjust the chain holder along the draw aligner arm.



IMPORTANT! To obtain maximum performance and to avoid damage to the draw aligner, the pulling chain must run in the same direction as the hydraulic cylinder.

- 4 Fasten the pulling clamp to the damaged part of the vehicle.**
- 5 Secure the pulling chain and the pulling clamp by fastening the safety wire to the draw aligner and to the vehicle.**
- 6 To operate the draw aligner, step on the pedal on the pneumatic pump.**



WARNING! Watch out for flying objects during alignment work. Do not stand behind or near the draw aligner during a pull. Risk of injury.

4.5 Disconnecting the draw aligner from the lifting platform



WARNING! Make sure that the draw aligner is correctly secured to the lifting platform. Risk of injuries.



WARNING! Never leave the draw aligner unattended when it is under pressure. Risk of injuries.

- 1 Remove the safety wire.
- 2 Remove the pulling clamp from the vehicle.
- 3 Remove the pulling chain from the chain holder.
- 4 Drive out the locking wedge, refer to page 4.9.
- 5 Rotate the draw aligner so that its locking device is in front of the rail. Make sure that the draw aligner is in upright position.

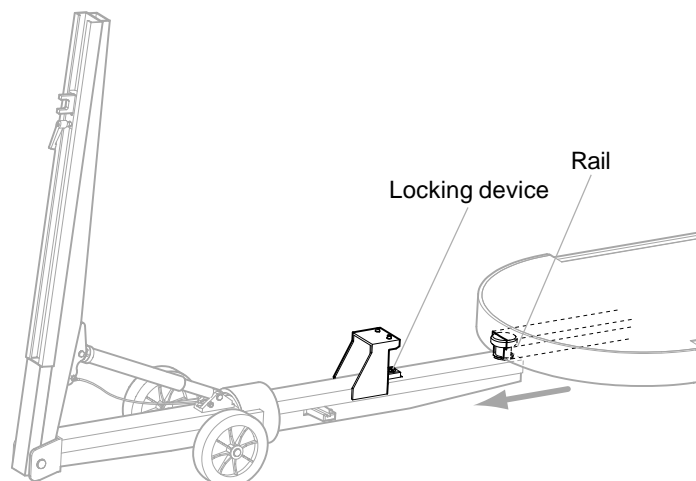


Figure 4.12 Disconnecting the draw aligner from the lifting platform.

- 6 Lower the lifting platform. It will automatically stop at a preset height - the draw aligner height.**

Note! The draw aligner height is the only height at which the draw aligner can be connected to the lifting platform.

- 6 Pull the draw aligner backwards, about 400 mm (16 in), until it is fully removed from the lifting platform**

4.6 Releasing the vehicle from the lifting platform

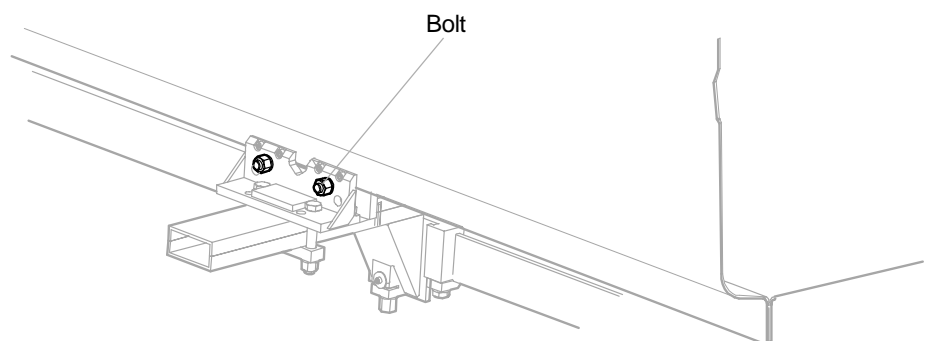
When the alignment work is fully completed, it is safe to release the vehicle from the clamps.

Remove the fastening arms and the clamps as follows:



WARNING! Make sure that the lifting pads are placed correctly underneath the sill flange of the vehicle. Otherwise, Risk of vehicle overturning and causing injuries.

- 1 Loosen the clamp's grip on the sill flange by loosening the bolts on the front of the clamp.**

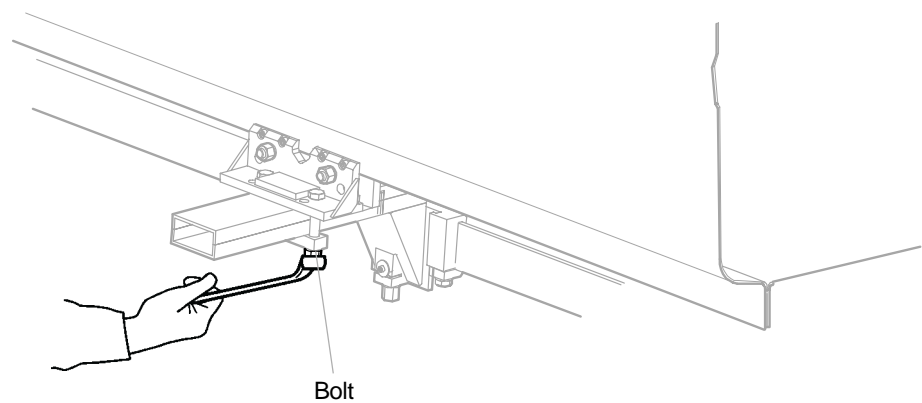


4.13 Loosening the clamp from the sill flange.

- 2 Move the fastening arm downwards until the entire clamp is positioned below the sill flange.**

Note! The fastening arm is vertically adjusted by screwing the bolt underneath the fastening arm.

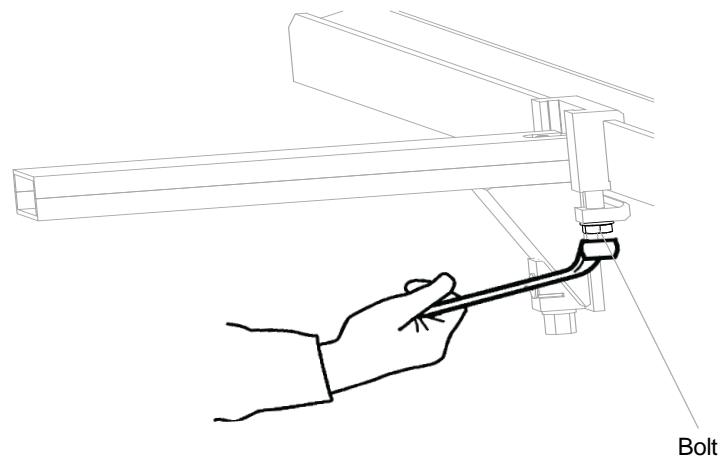
- 3 Loosen the clamp's grip on the lifting arm by loosening the bolts underneath the clamp.**



4.14 Loosening the clamp from the lifting arm.

- 4 Remove the clamp from the fastening arm.**

- 5 Loosen the fastening arm from the lifting platform by loosening the bolts underneath the arm.**



4.15 Loosening the fastening arm from the lifting platform.

- 6 Remove the fastening arm from the lifting platform.**
- 7 Remove the remaining fastening arms and clamps by repeating steps 1 to 6.**

5 Maintenance

5.1 General

The draw aligner and its component parts are subject to large amounts of loading and strain. Therefore, they need regular inspection and replacement of any worn parts.

Inspection must take place each time the draw aligner is put to use.

5.2 Hydraulics

Check that the piston rod is undamaged and that there is no leakage.

Check that the locking pins at the cylinder attachment points are undamaged and that the locking washers are in place and undamaged. Replace where necessary.

Check that the hose couplings are whole and undamaged and do not leak. Replace where necessary.

For the hydraulic components, also see the manufacturer's instructions.

5.3 Mechanical

Check that all bolts and screws are tight.

Check the locking wedge for damage and deformations. Replace if necessary.

6 Dismantling and salvage

6.1 General



IMPORTANT! For the sake of the environment, dismantle the equipment in an environmentally friendly way.

To limit the stress on the environment and its natural resources, recycle the different parts of the draw aligner.

6.2 Mechanical components

If the mechanical components in the draw aligner are to be dismantled or scrapped, the oil in the cylinder, hose and pump must be drained off.

The mechanical components should be separated for material recycling and the used oil must be sent for destruction or recovery.

6.2 Other

The electrical components, plastic hoses, steel and aluminium should be separated for material recycling.

7 Technical specifications

Total weight	50 kg	110 lbs
Maximum cylinder pressure	5 tons	

8 Spare parts

The spare parts required for the maintenance of the Speed Draw aligner D20 is stated in Figure 9.1.

Note! Use only genuine Car-O-Liner spare parts in any repairs.

8.1 Draw aligner

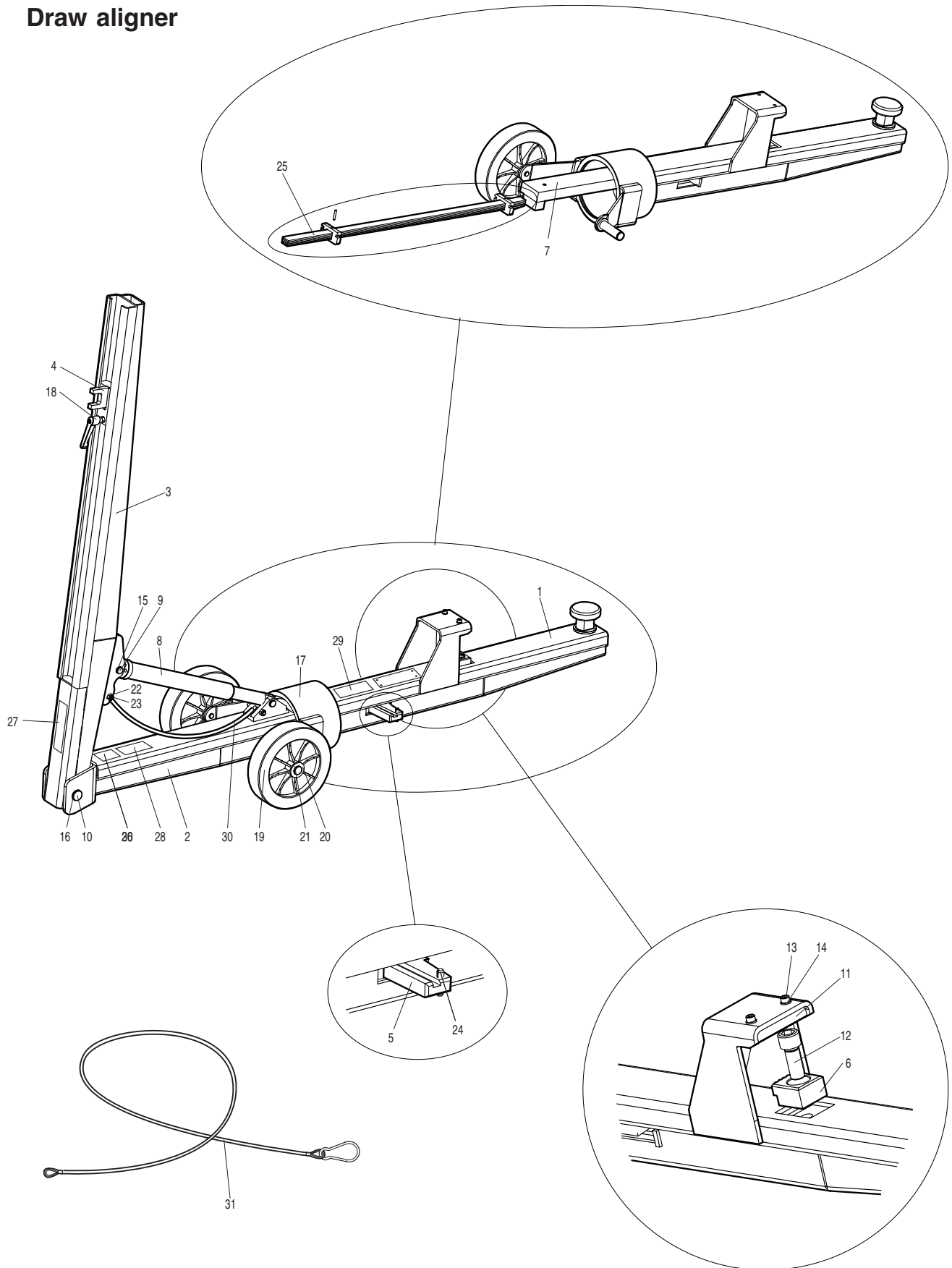


Figure 9.1 The spare parts required for the maintenance of the Speed Draw aligner D20.

Position	Quantity	Art No.	Object
1	1	138 03 85 203	Table attachment
2	1	138 03 85 202	Rear draw aligner beam
3	1	138 03 85 200	Draw aligner arm
4	1	138 03 85 201	Chain fastener
5	1	138 03 85 121	Locking wedge
6	1	138 03 85 124	Locking device
7	1	138 03 85 204	Draw bar
8	1	138 03 85 010	Cylinder 5 ton
9	2	138 03 85 125	Locking pin Ø16
10	1	138 03 85 126	Locking pin Ø25
11	1	138 03 85 109	Sliding plastic
12	1	91123	Screw
13	2	91102	Screw
14	2	91304	Washer BRB 6.4x12x1.6
15	4	91974	Circlip SGA 16
16	2	91961	Circlip SGA 25
17	1	91980	Circlip SGH 135
18	1	99328	Adjustable locking handl
19	2	99070	Wheel 200x45
20	2	91970	Spring washer SGA 20
21	2	91342	Washer
22	2	91291	Screw
23	2	91603	Nut Ny-lock M8
24	1	91943	Spring pin FRP 8x32
25	1	138 03 85 240	Spring, complete
26	1	99786	Safety sign "Risk for tripping"
27	1	99789	Safety sign "Watch out for flying objects"
28	1	99812	Safety sign "Cylinder capacity max 5 tons"
29	1	99791	Safety sign "Safety glasses must be worn"
30	1	138 03 85 002	Stop wire D20
31	1	131 01 09 008	Safety wire T34 (5 ton)

8.2 Fastening arm

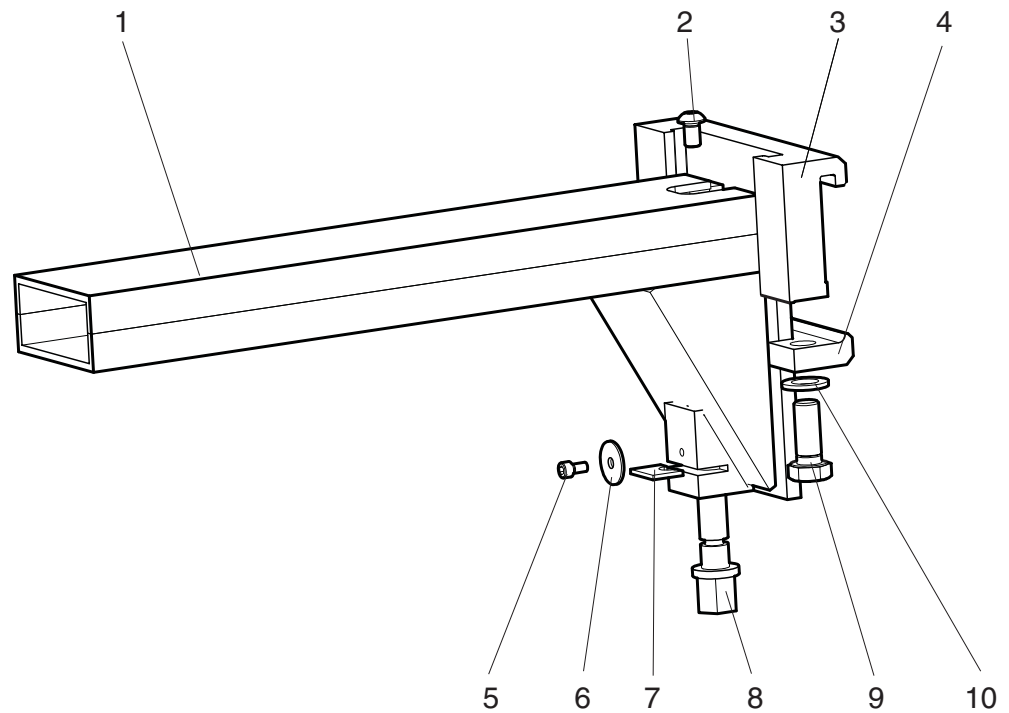


Figure 9.2 The spare parts required for the fastening arm.

Position	Quantity	Art No.	Object
1	1	138 01 15 200	Fastening arm
2	1	911 67	Screw
3	1	138 01 15 201	Fastening arm holder
4	1	138 01 15 101	Locking rail, lower
5	2	911 09	Screw
6	1	913 36	Washer
7	1	138 01 15 110	Stop
8	1	138 01 15 202	Tightening bolt
9	1	910 17	Tightening bolt
10	2	913 19	Washer

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