

User manual

SA0061 Cattle Crush



Manufacturer:
Wopa Constructiebedrijf B.V.
Rector Hulshofstraat 10
7135 JV Harreveld
Nederland

☎: +31-(0)544 372415
📠: +31-(0)544 372445
E-mail: info@wopa.com
Website: www.wopa.com

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Introduction

Wopa Constructiebedrijf BV are specialists in the development and manufacture of cattle crushes used by professionals and stockholders for the hoof care and treatment of cows and bulls.

Our cattle crushes are developed and manufactured to the highest standards of safety, ease of use, animal welfare and hygiene.

This manual contains important information and instructions for the installation, operation and maintenance of the equipment.



- The cattle crush is not suitable for use in explosive environments.
- All persons responsible for its operation must as a minimum carefully study and understand the sections in these operating instructions relating to its use and safety.
- All persons responsible for the assembly, installation, maintenance and repair of the equipment must read and understand these operating instructions in full.
- The user is responsible for the interpretation and use of this manual in all circumstances. Please contact the owner of the machine or your manager with any questions or uncertainties.
- This manual must be kept close to the installation and accessible to users.
- All important maintenance activities, modifications to the installation and any notes must be retained in a logbook, see Appendix 8.1.
- Modifications to the installation/machine are not permitted without the prior written approval of the supplier.
- Contact the supplier for special maintenance activities not included in this manual.
- The safety requirements set out in Section 3 must be complied with at all times.
- The proper function and safety of the system can only be guaranteed where the recommended maintenance has been carried out correctly and in good time.

Guarantee

The guarantee is subject to the following limitations. The guarantee period for products supplied by Wopa is 12 months from the date on the purchase document. This guarantee is limited to faults in production and materials and therefore does not cover faults due to the exposure to wear of any component of the product. Normal wear which can be expected from the use of the product is therefore excluded.

1. Wopa's responsibility is limited to the replacement of defective components: we will not consider claims for any other form of damage or costs.
2. The guarantee will lapse automatically in the event of overdue or poorly executed maintenance.
3. Contact must always be made with the supplier in the event of any doubt about the required maintenance or if the equipment fails to operate correctly.
4. The guarantee will not apply where the defect is the result of incorrect or late maintenance, or maintenance carried out in conflict with the instructions set out in this manual.
5. The guarantee will lapse where repairs or modifications to the product are carried out by third parties.
6. Defects resulting from damage or accidents due to external factors are excluded from the guarantee.
7. In the event that we replace components in accordance with our obligations under this guarantee, property in the components replaced will pass to us.

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EC declaration of compliance (copy)

We, Wopa Constructiebedrijf B.V.
Rector Hulshofstraat 10
7135 JV Harreveld
Nederland

☎: +31-(0)544 372415
✉: +31-(0)544 372445
E-mail: info@wopa.com
Website: www.wopa.com

hereby declare under our own responsibility that the following product:

machine : Cattle crush
type: SA0061

to which this declaration relates, is in compliance with the requirements of the following Directives:

2006/42/EG (Machinery Directive)
2004/108/EG (EMC Directive)

the following standards have been taken into account:

NEN-EN-ISO 12100	Safety of machinery. General principles for design.
NEN-EN 349	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body.
NEN-EN ISO 13849-1	Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design.
NEN-EN 4413	Hydraulic fluid power - General rules and safety requirements for systems and their components.
NEN-EN 60204-1	Safety of machinery, Electrical equipment of machinery Part 1: General requirements





The undersigned is authorised to draw up the Technical File:

Nederland - Harreveld, June 2017

J.W.A. Wopereis
Director









Summary of symbols used


The following symbols are used in connection with all actions where there exists a hazard to the user and/or technician and where caution is required.

	Note!
	Hazard: High voltage!
	Hazard: High temperature!
	Tip: Provides a quick insight or offers suggestions to make certain actions easier and simpler.

Pictograms

A number of pictograms and warning notices have been applied to the equipment to alert users to potential risks.

Pictogram	Description	Location
	<ul style="list-style-type: none"> Type plate 	<ul style="list-style-type: none"> On the machine frame
	<ul style="list-style-type: none"> Read the user manual Wear safety eyewear during mechanical operations. Wear hearing protection during mechanical operations. 	<ul style="list-style-type: none"> On the machine frame
	<ul style="list-style-type: none"> System under pressure 	<ul style="list-style-type: none"> On both sides of the frame
	<ul style="list-style-type: none"> Pictograms warning of mechanical and electrical hazards 	<ul style="list-style-type: none"> On the machine frame
	<ul style="list-style-type: none"> Trapping hazard 	<ul style="list-style-type: none"> At the rear gate. Where present.
	<ul style="list-style-type: none"> Warning pictogram Risk of trapping of hands 	<ul style="list-style-type: none"> On the machine frame
	<ul style="list-style-type: none"> Warning pictogram Do not pass below the load when lifting. 	<ul style="list-style-type: none"> On the machine frame
	<ul style="list-style-type: none"> Warning pictogram Trapping of feet. 	<ul style="list-style-type: none"> On the machine frame

	<p style="text-align: center;">NOTE!</p> <ul style="list-style-type: none"> Check regularly that the pictograms and markings are still clearly visible and legible. Replace them when this is no longer the case.
---	---


1. Technical information

	SA0061	
General		
Ambient temperature during operation	- 10 to 35	°C
Noise generation	< 75	dB(A)
Maximal dimensions of product		
Length	3515	
Width, 1500 kg shaft	1760	mm
Width, 1600 kg shaft	1780	mm
Height	max 3000	mm
Weight	1500/1600	kg
Electrical connection 230V and/or 400V motor		
<i>Electrical connection 230V</i>		
Power supply	Single phase	-
Voltage dependent on country	230	V
Required fuse	16	A
Connection value	3	Kw
<i>Electrical connection 400V</i>		
Power supply	3 phase	-
Voltage dependent on country	400	V
Required fuse	16	A
Connection value	2.4	Kw
Electrical connection where only a 400V motor is used *		
<i>Electrical connection 230V</i>		
Power supply	Single phase	-
Voltage dependent on country	230	V
Required fuse	16	A
Connection value	0.99	Kw
<i>Electrical connection 400V</i>		
Power supply	3 phase	-
Voltage dependent on country	400	V
Required fuse	16	A
Connection value	2.4	Kw
Hydraulic installation		
Maximal operational pressure	155	bar
Tank capacity	15	litres
Fluid type	See Figure 9	
Date relating to road transport		
Shaft load	1500/1600	kg
Maximum drawbar load	100	kg
Coupling	ISO 55mm	-
Connection plug	13	pole


* See circuit diagram

* The crush must be connected to a wall socket protected by an earth leakage circuit breaker. All to be in accordance with local regulations (30mA).

2. Description of the installation

	<p>FUNCTION</p>
	<ul style="list-style-type: none"> • This Section provides an overview of the most important components and functions. Where detailed information is available elsewhere than in this manual, you will be referred to the relevant sections. • The configuration of your crush may differ from the figures below.

2.1. Description of main components of the SA0061

	<p>FUNCTION</p>
	<ul style="list-style-type: none"> • The SA0061 has been specially developed for the care of the hooves of dairy and beef cattle. • Version SA0061 is provided with a shaft with a drawbar and is suitable for transport on the public highway.

The illustration below shows the main components of the cattle crush:

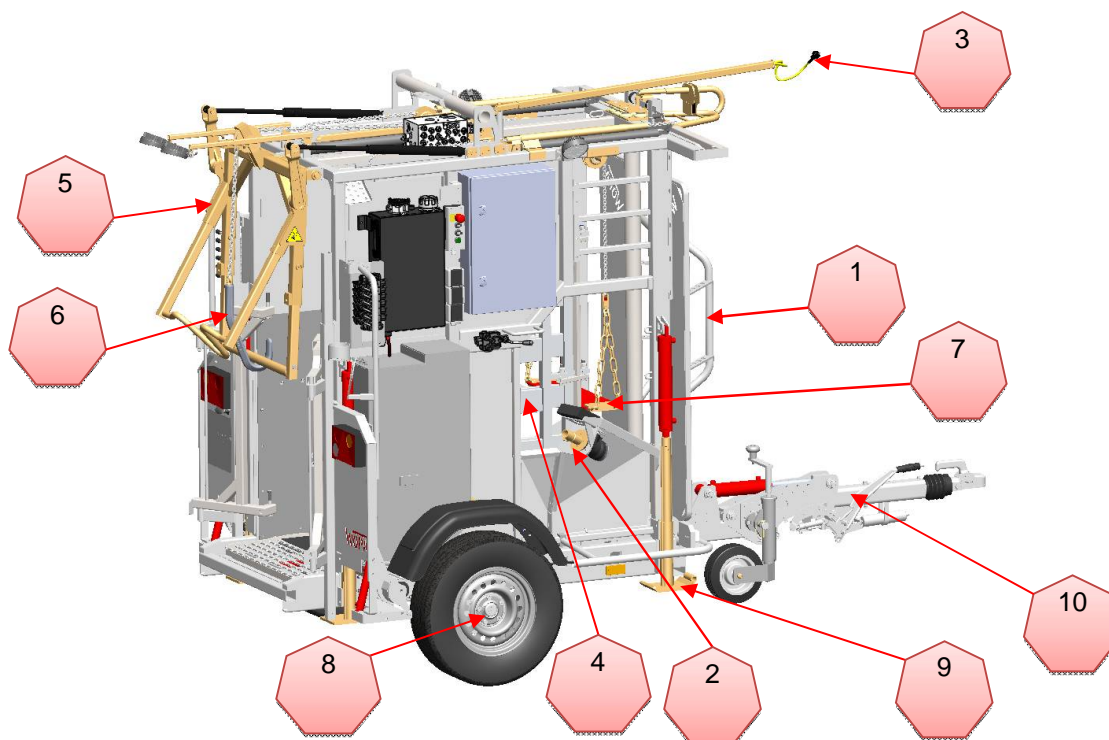




Figure 1: Overview of SA0061

Main components of SA0061:

Figure 1	Component	Description	See Section
1	Front gate	<ul style="list-style-type: none"> The front gate can be set hydraulically in three different positions: Fully open: the animal can walk out of the front of the box. Partially open: the animal's head will pass through the front gate, but the withers will not. Closed: the front gate is closed behind the head of the animal. 	-
2	Foreleg support	<ul style="list-style-type: none"> The foreleg of the animal can be secured to the foreleg support with the aid of a hydraulic winch to allow the foreleg to be worked on. 	5.7
3	Electrical connection cable	<ul style="list-style-type: none"> The crush must be connected to an electrical supply to power the controls and the hydraulic unit. 	
4	Folding gate	<ul style="list-style-type: none"> A folding gate used to guide the animal is provided as standard. 	
5	Hydraulic rear gate	<ul style="list-style-type: none"> Once the animal is located in the box the rear gate is placed loosely against its rear. 	
6	Rear leg (hydraulic)	<ul style="list-style-type: none"> Once a belt or hook has been secured to the rear leg the leg can be raised using the hydraulic winch to allow the hoof to be worked on. 	
7	Belly belt (hydraulic)	<ul style="list-style-type: none"> Once the animal is located in the crush the belly belt behind the forelegs is raised hydraulically. 	
8	Transport equipment	<ul style="list-style-type: none"> A shaft, clamps and mudguards are attached to the crush to allow transport on the public highway. 	
9	Stabiliser legs	<ul style="list-style-type: none"> The 4 stabiliser legs are used to set the crush to the correct height using the hydraulic lift. These must be fully raised and secured for transport. 	
10	Folding drawbar	<ul style="list-style-type: none"> The drawbar must be folded out and secured for transport on the public highway. 	

2.2. Electrical system

	<p>FUNCTION</p> <ul style="list-style-type: none"> • The electrical system supplies power to the hydraulic unit, the lighting and the electrical sockets. • See the circuit diagram for further details on the layout and operation of the electrical installation. The circuit diagram is generally stored in the machine's control cabinet. • The location of control equipment on your machine may differ from the photograph below.
---	---

	<p>NOTE!</p> <ul style="list-style-type: none"> • Work on the electrical installation may be carried out only by a technically competent person.
---	--

The installation consists of the following main components

Fout! Verwijzings bron niet gevonden. a/b	Component	Description	Section/ location
1	Power cable	<ul style="list-style-type: none"> • To connect the machine to the appropriate power supply. 	See 1
2	Operating switches	<ul style="list-style-type: none"> • Used to switch on/off various functions. 	See 5.3
3	Sockets	<ul style="list-style-type: none"> • Tools can be connected to these. 	
4	Control cabinet	<ul style="list-style-type: none"> • This contains the control components. 	
5	Battery box	<ul style="list-style-type: none"> • The battery is located in this box. 	
6	Work lamps	<ul style="list-style-type: none"> • These allow the working area to be illuminated. 	
7	Lighting	<ul style="list-style-type: none"> • Used to switch the lamps on the crush on and off 	
8	230V/380V motor	<ul style="list-style-type: none"> • Used to power the hydraulic system 	
9	24V motor	<ul style="list-style-type: none"> • This drives the 24V system. 	
10	Vehicle lighting plug	<ul style="list-style-type: none"> • This is used to connect the crush to the towing vehicle's lighting system, using a cable. 	
11	Mover plug	<ul style="list-style-type: none"> • The mover's remote control is connected to this. 	
12	Photocell (optional)	<ul style="list-style-type: none"> • This is used to activate the holding system ** 	

** NOTE: When the photocell is in use the animal must walk independently into the crush. If a person walks past the optical sensor at the front they may be trapped.

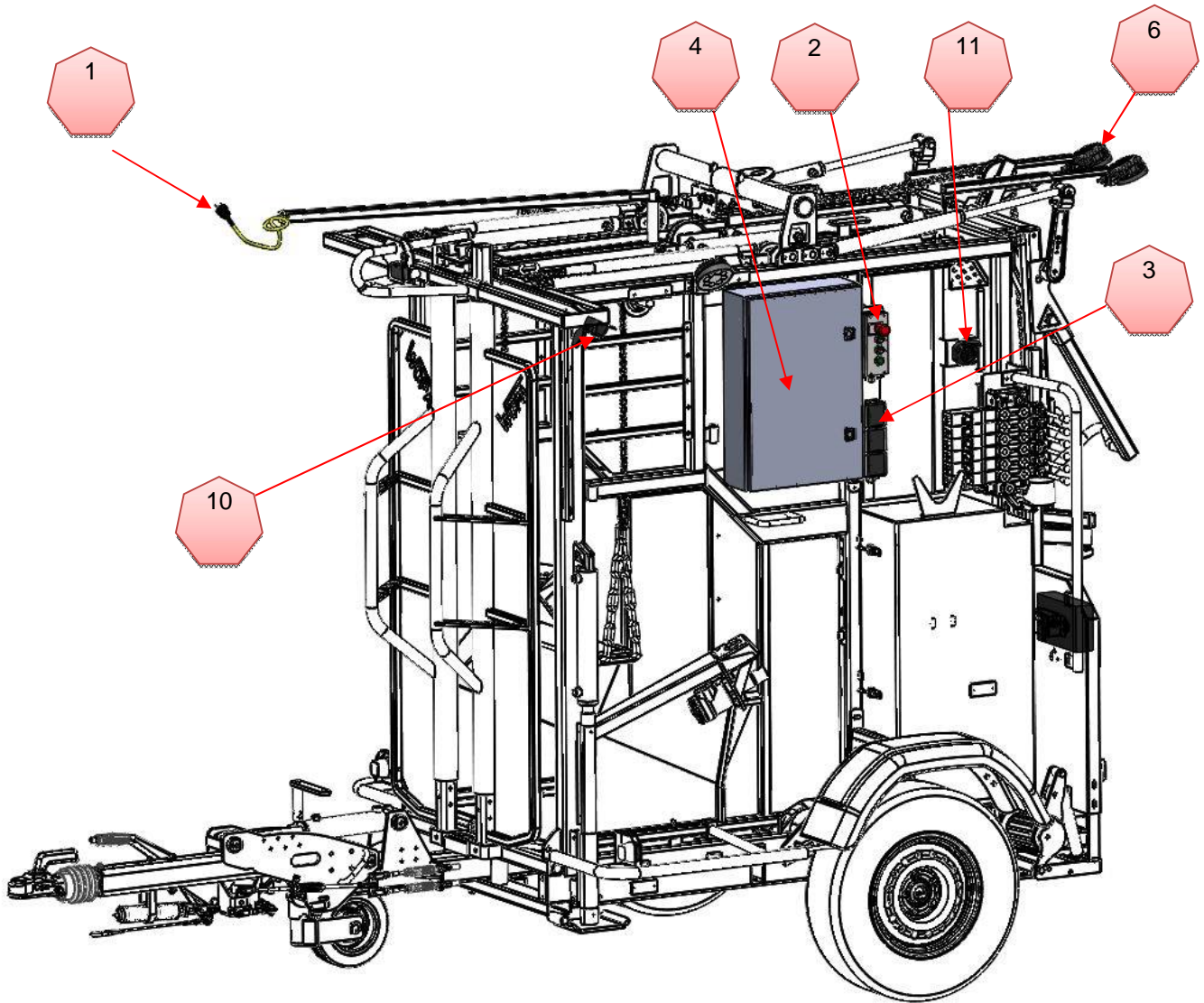


Figure 2a Overview of main electrical components

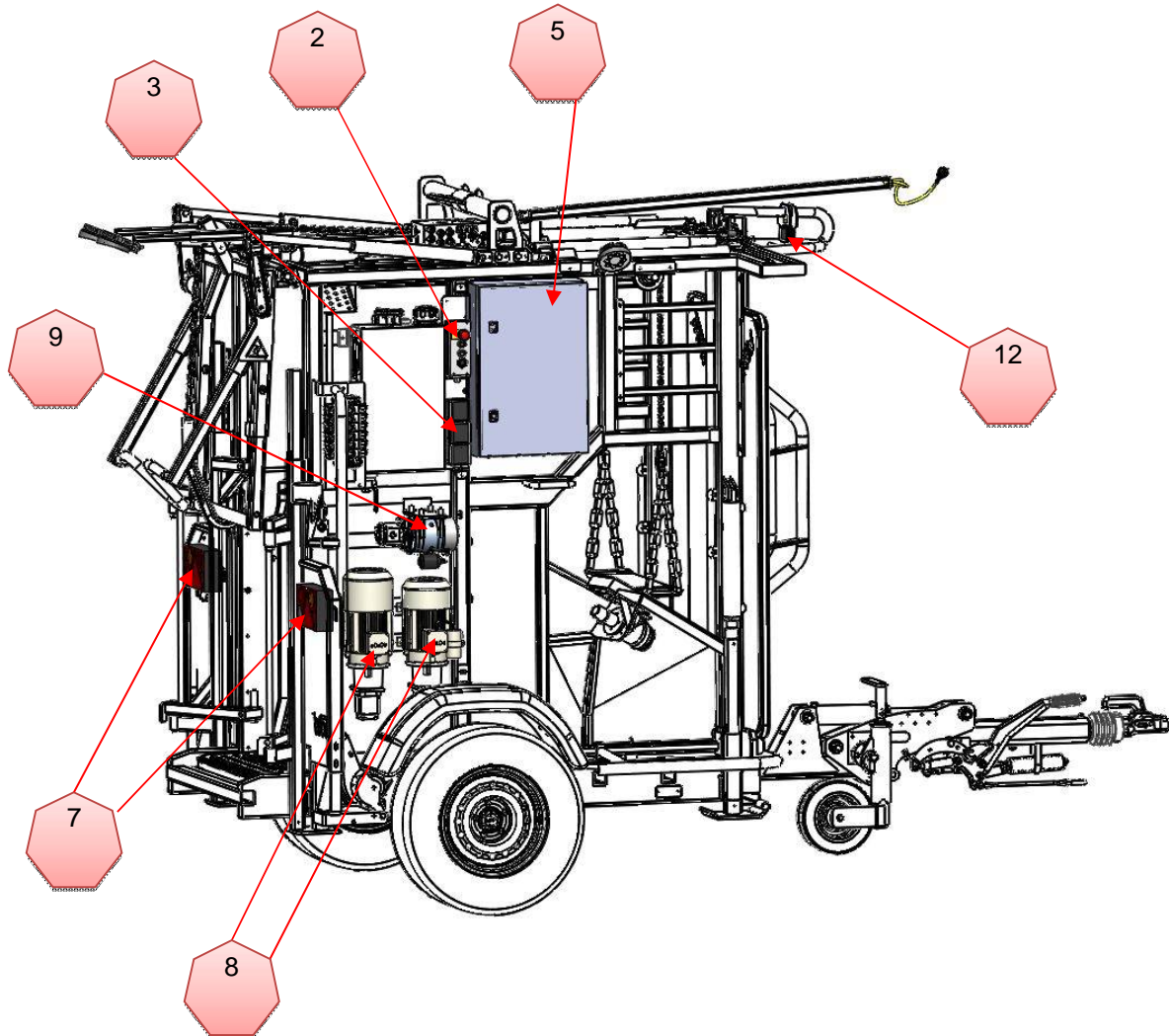




Figure 3b Overview of main electrical components

2.3. Hydraulic installation

	<p style="text-align: center;">FUNCTION</p> <ul style="list-style-type: none"> • Various functions are powered using the hydraulic installation. • See the hydraulic circuit diagram for a detailed description of the system. • The location of control equipment on your machine may differ from the photograph below.
	<p style="text-align: center;">NOTE!</p> <ul style="list-style-type: none"> • Work on the hydraulic installation may be carried out only by a technically competent person. • Always ensure that the accumulator is depressurised when working on the equipment. This is achieved by removing the plug from the socket. Check that the system is depressurised using the manometer.

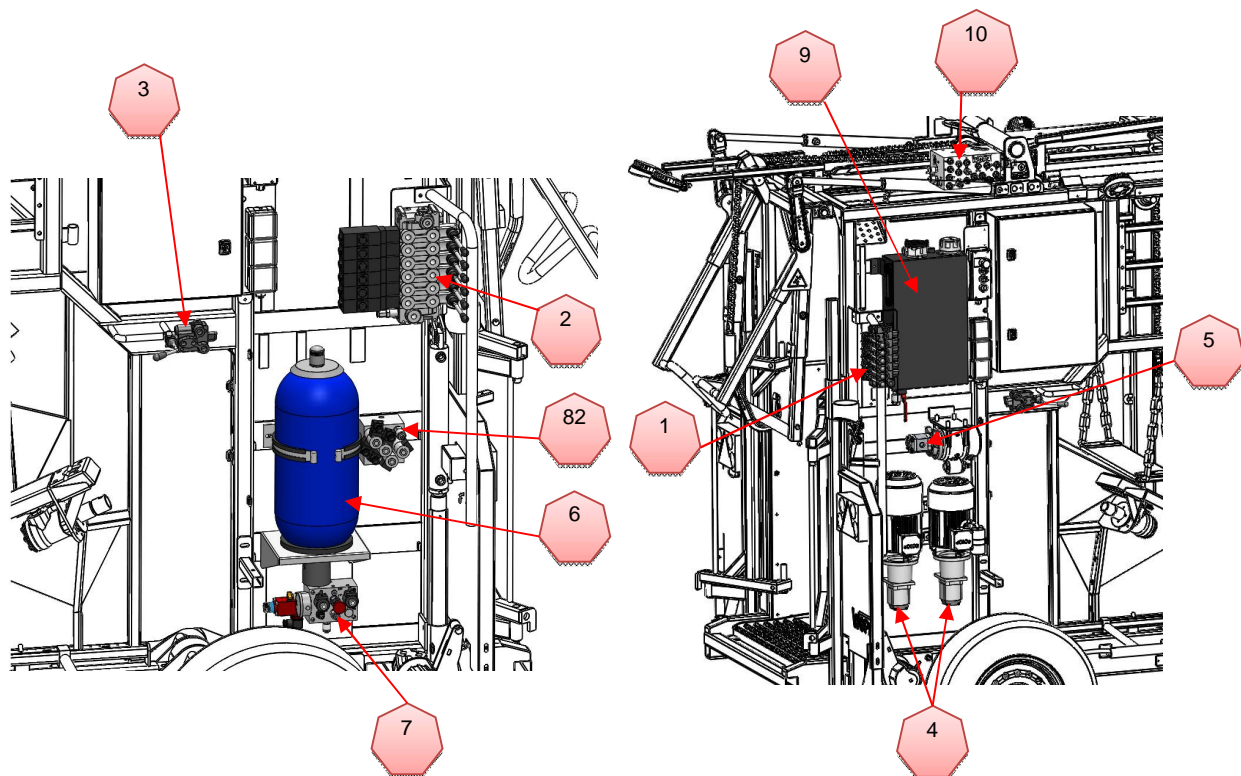



Figure 4 Hydraulic components


The installation consists of the following components

Figure 4	Component	Description	Section/Location
1	Right valve case	<ul style="list-style-type: none"> • Various functions are controlled using valves. 	
2	Left valve case	<ul style="list-style-type: none"> • Various functions are controlled using valves. 	
3	Foreleg valve	<ul style="list-style-type: none"> • Operates the winch for the forelegs. 	
4	Hydraulic pump	<ul style="list-style-type: none"> • Pumps for the standard hydraulic system. 	
5	24 V hydraulic pump motor	<ul style="list-style-type: none"> • Hydraulic system pump mounted on the accumulator. 	
6	Accumulator	<ul style="list-style-type: none"> • The accumulator holds hydraulic fluid under pressure so that hydraulic power is available to operate the hydraulic functions. 	
7	Lower manifold	<ul style="list-style-type: none"> • A manometer is mounted here, used to read off the hydraulic pressure. • When the shut-off valve on the manifold is closed the pump cannot be switched on. 	
8	Mover manifold	<ul style="list-style-type: none"> • Control valves for hydraulic mover. 	
9	Fluid tank	<ul style="list-style-type: none"> • A hydraulic fluid tank with filter. 	
10	Upper manifold	<ul style="list-style-type: none"> • Valves controlling the various functions of the box. 	

3. Safety

3.1. General

	<ul style="list-style-type: none">• The guarantee will lapse and no liability will be accepted in the event of damage caused by repairs and/or modifications not authorised by the supplier.• In the event of faults please contact the supplier.• The working area around the installation must be safe. The owner of the installation must take the necessary precautionary measures in order to operate the installation safely.• Starting up the installation in an area with a risk of explosion is prohibited.• The installation has been so designed that production is safe under normal ambient conditions.• The owner of the installation must ensure that the instructions in this manual are followed in practice.• The safety features provided must not be removed.• Correct operation and safety of the system can only be guaranteed where maintenance is carried out correctly and in good time, as prescribed.• Where work is to be carried out on the installation it must be disconnected from the power supply, the power supply must be locked off and the system must be depressurised.• There is a risk of trapping when operating driven moving parts. It is the operator's responsibility to ensure that the installation is only started up when no parts of his own or other people's bodies are in the vicinity of the trapping zone.
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	<ul style="list-style-type: none">• Only authorised persons appointed by the owner may carry out work on the electrical installation.• Ensure by means of internal procedures and supervision that all applicable power supplies have been switched off.• The installation must not be used during cleaning, inspection, repairs or maintenance, and must be disconnected from the electrical supply by means of the plug and/or the main switch. During maintenance work the plug must be visible to the fitter.• Welding work must not be carried out on the installation unless the cable connection to the electrical components has first been disconnected.• The power supply to the control cabinet must not be used for the connection of machinery other than the hand tools provided for.
---	---

3.2. During normal use




- Check before commencing operations that no work is being carried out on the installation and that it is ready for use.
- Unauthorised persons must not enter the operational area of the installation. It is the operator's task to check this.
- Components of the hydraulic system may reach high temperatures. Contact with these components may cause injury.

3.3. Operating personnel




- Operating personnel must be aged 18 or above.
- Only authorised persons may carry out work with or on the installation.
- Only work for which proper training has been received must be carried out. This applies both to maintenance activities and normal use.
- The operating personnel must be familiar with all potential situations, so that rapid and effective action can be taken in an emergency.
- Where a member of operational staff observes defects or risks or is not in agreement with the safety measures, this must be reported to the owner or the manager.
- Safety footwear is mandatory.
- Suitable work clothing is mandatory.
- Use safety eyewear, gloves and hearing protection.
- All employees must observe the safety instructions to avoid presenting a risk to themselves and others. Comply strictly with the operating instructions at all times.

4. Installation

	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• Consult section 1 technical data and the circuit diagram provided for the correct specifications.
---	---

4.1. Installation

	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none">• The machine must be transported and installed upright.• Place the machine on a level, stable and non-slippery surface.• Take account of the instructions in section 3 when carrying out any activity. Failure to follow these may lead to serious injury.
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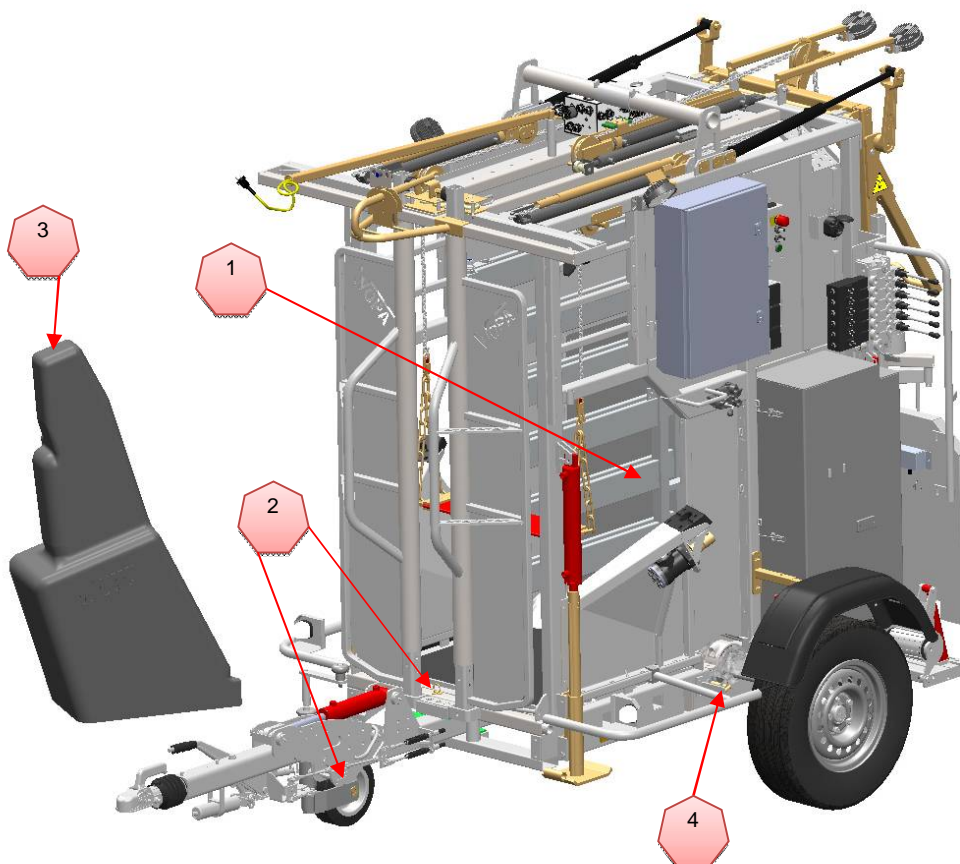




Figure 5: Details of conversion from transport set-up to working set-up (SA0061)

No.:	What to do	Action	Outcome
1.	Tip the nose wheel downwards and manoeuvre the crush into the desired position.	<ul style="list-style-type: none"> Ensure that the crush is resting on the nose wheel. 	
2.	Remove the clamps	<ul style="list-style-type: none"> Remove the clamps and store them. 	
3.	Connect the crush.	<ul style="list-style-type: none"> See 4.2,5.1 	
4.	Place the crush on the lift.	<ul style="list-style-type: none"> First remove the folding gates from the crush (Figure 5:1) and allow it to rise under hydraulic pressure. 	
5.	Remove the locking pins from the shaft.	<ul style="list-style-type: none"> Remove the locking pins (Figure 5:2) and place these in the location provided. 	
6.	Tilt the nose wheel back up.	<ul style="list-style-type: none"> Ensure that the nose wheel is folded away during the work. 	
7.	Use the hydraulic system to place the drawbar in its working position.	<ul style="list-style-type: none"> Use the left valve to place the drawbar in its working position. 	
8.	Place the protective cover over the drawbar.	<ul style="list-style-type: none"> Place the protective cover over the drawbar to cover the sharp edges. (Figure 5:3) 	
9.	Remove the mudguards.	<ul style="list-style-type: none"> Loosen the locking elements and lift the mudguard out of the adapter. 	
10.	Tilt the shaft.	<ul style="list-style-type: none"> Hold the locking pin in the torsion shaft and operate the valve until the wheels are folded up. (Figure 5:4) 	


4.2. Connect the machine.

	<p>NOTE</p> <ul style="list-style-type: none"> Check that the voltage specified on the machine plate matches the mains supply. The machine must always be connected to an earthed socket to avoid the risk of fire or electric shocks (the earth connection is coded green/yellow). See also pg. 10 The electrical installation including the sockets must be connected in accordance with local regulations. The power cable must always be free and nothing must be placed on top of it. Replace the power cable immediately if it is damaged.
---	--


4.3. Preparing for transport

	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none">• Preparing for transportation is the reverse procedure to installation (see 4.1).• It is essential that all locking equipment is correctly installed.
---	--

4.4. Lifting

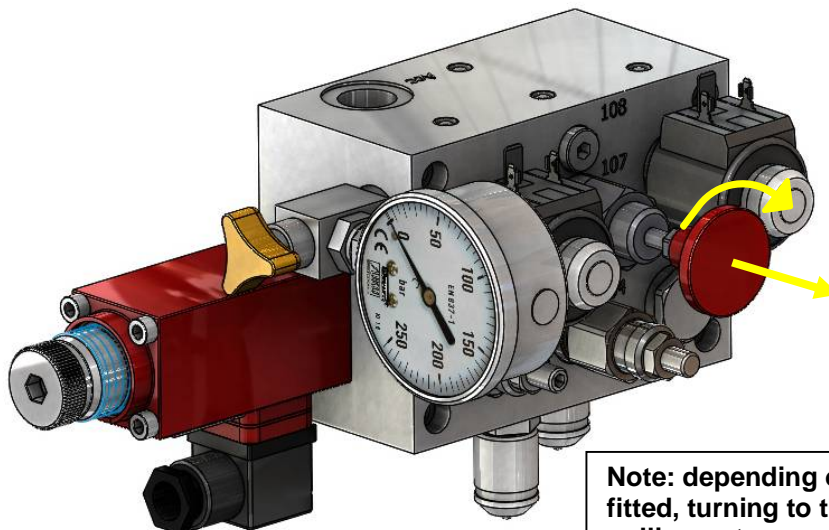
	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none">• The crush must be lifted only with the appropriate lifting eyes/pins.• Use only the lifting beam intended for the SA0061.
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5. Operation

	<p>NOTE</p> <ul style="list-style-type: none"> Take account of the instructions in section 3 when carrying out any activity. Failure to follow these may lead to serious injury.
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5.1. Starting up


No.:	What to do	Action	Outcome
1.	Switch on the power.	<ul style="list-style-type: none"> Insert the plug in the socket. 	
1.	Reset the emergency stop.	<ul style="list-style-type: none"> Pull out the emergency stop buttons. 	The control unit is now ready for use.
2.	Activate the hydraulic system.	<ul style="list-style-type: none"> Open the shut-off valve (Figure 6) at the accumulator. 	



Note: depending on the type fitted, turning to the right or pulling out opens the valve! If the valve isn't assembled, you don't have to do anything.

Figure 6 Lower manifold

5.2. Emergency stop

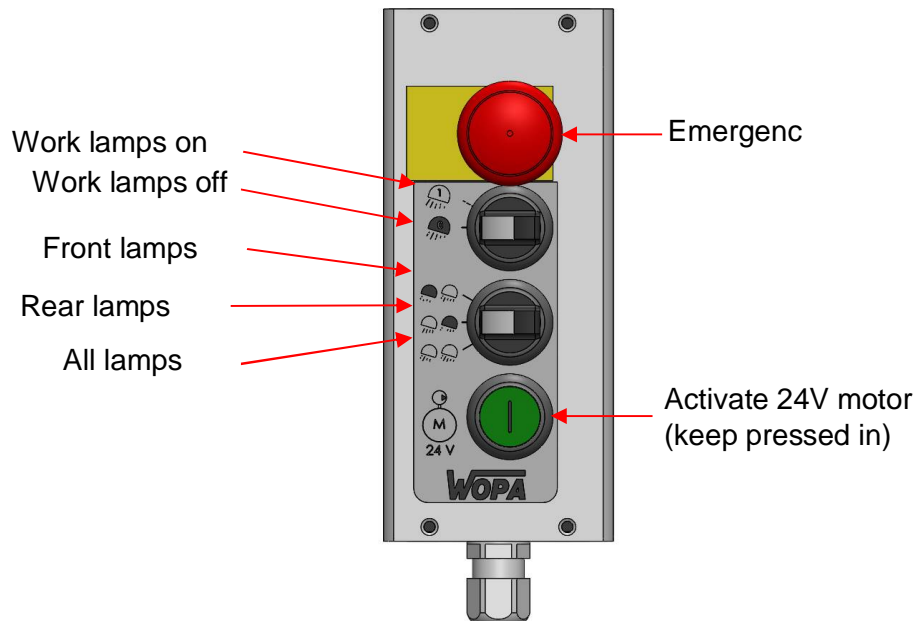
	<p>NOTE</p> <ul style="list-style-type: none"> • The emergency stop button must always be pressed in in the event of an emergency. • All motions will cease following operation of the emergency stop button and the accumulator will be depressurised. • In order to take the machine back into use after an emergency stop the emergency stop button must first be reset. See table below. • Before resetting the emergency stop button it must be ensured that restarting the moving parts of the machine will not lead to a hazardous situation.
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- **Reset the emergency stop**

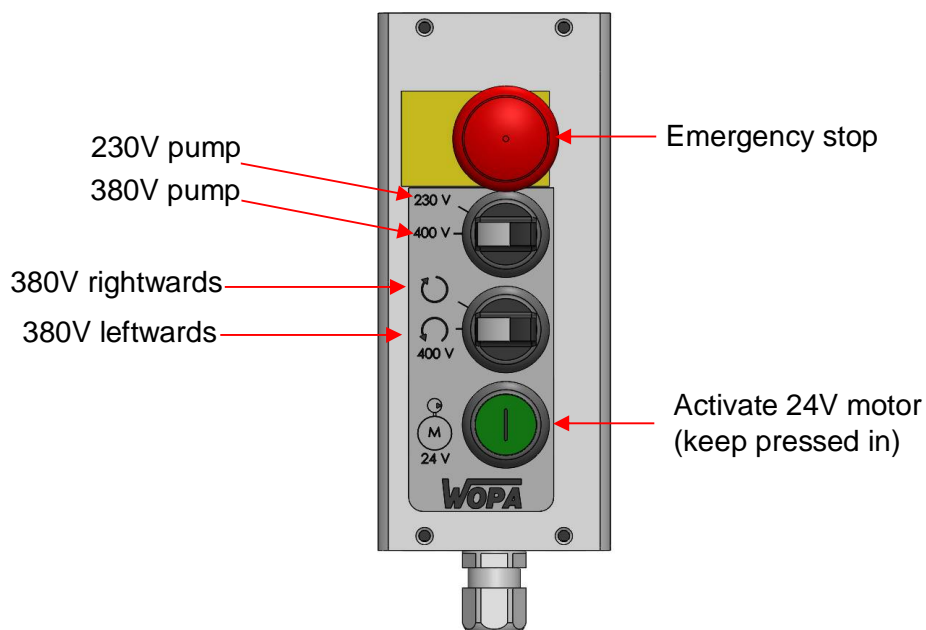
No.:	What to do	Action	Outcome
1.	Reset the emergency stop button.	<ul style="list-style-type: none"> • Reset the emergency stop button by pulling it out or rotating it (depending on the type installed) so that it returns to its original position. 	The machine is now ready for use.

5.3. Operating switches

Right hand side of the crush



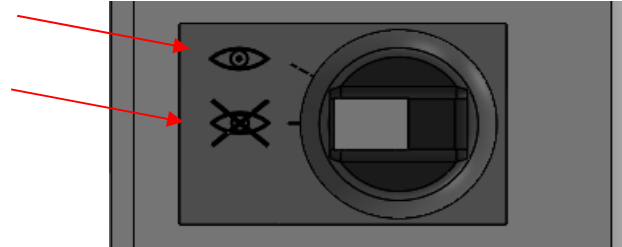
Left side hand side of the crush:



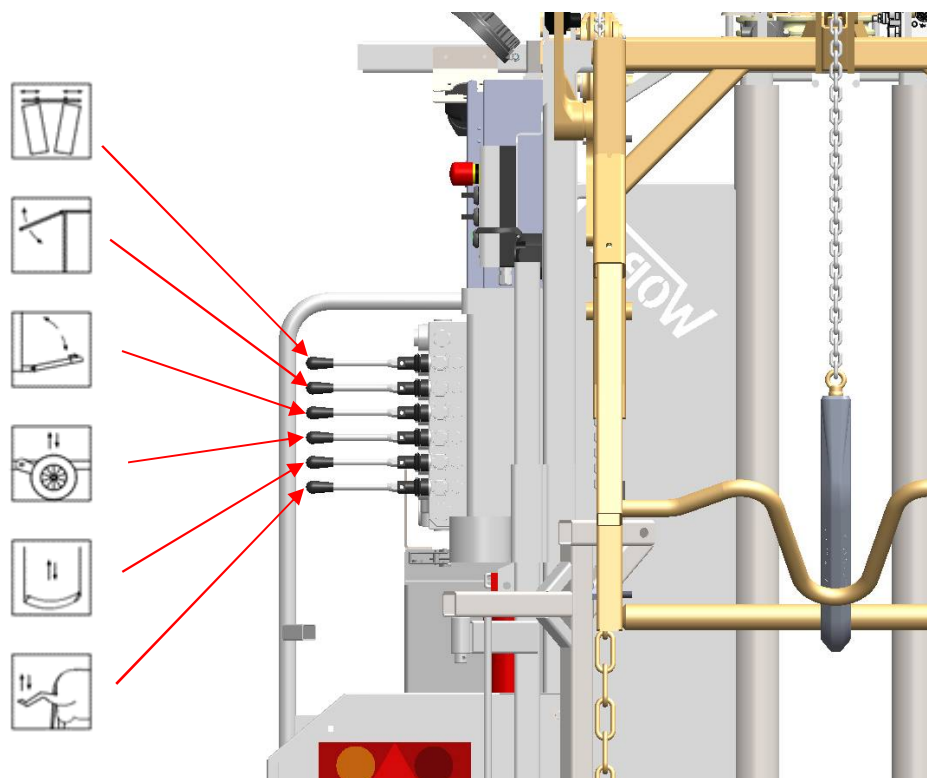
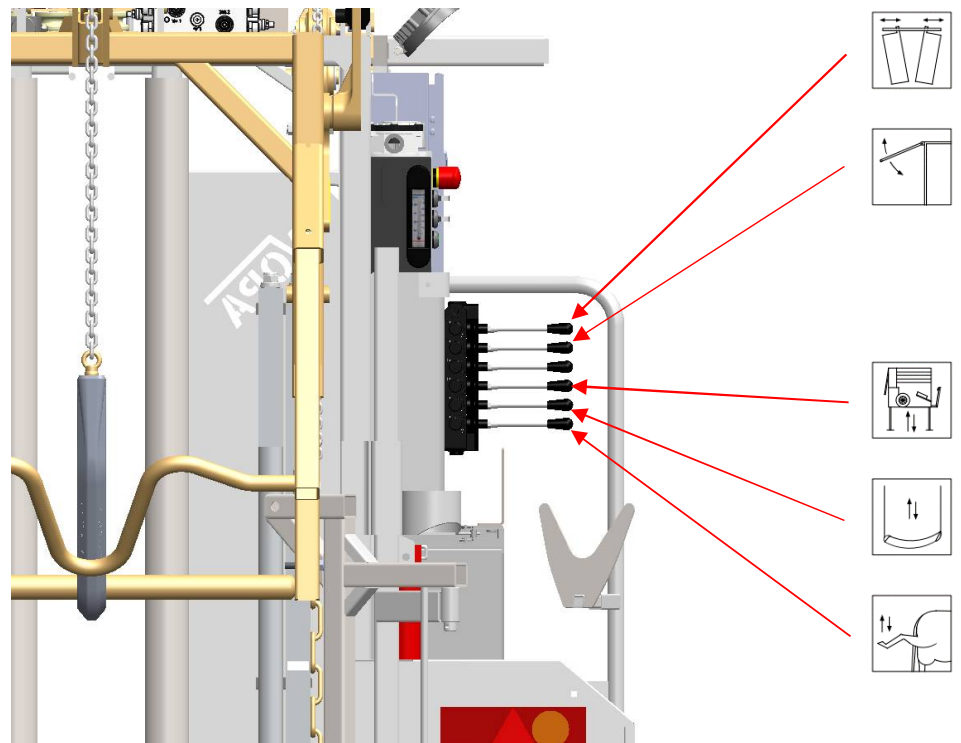
Photocell (optional) Operation of switch

Photocell on


Photocell off

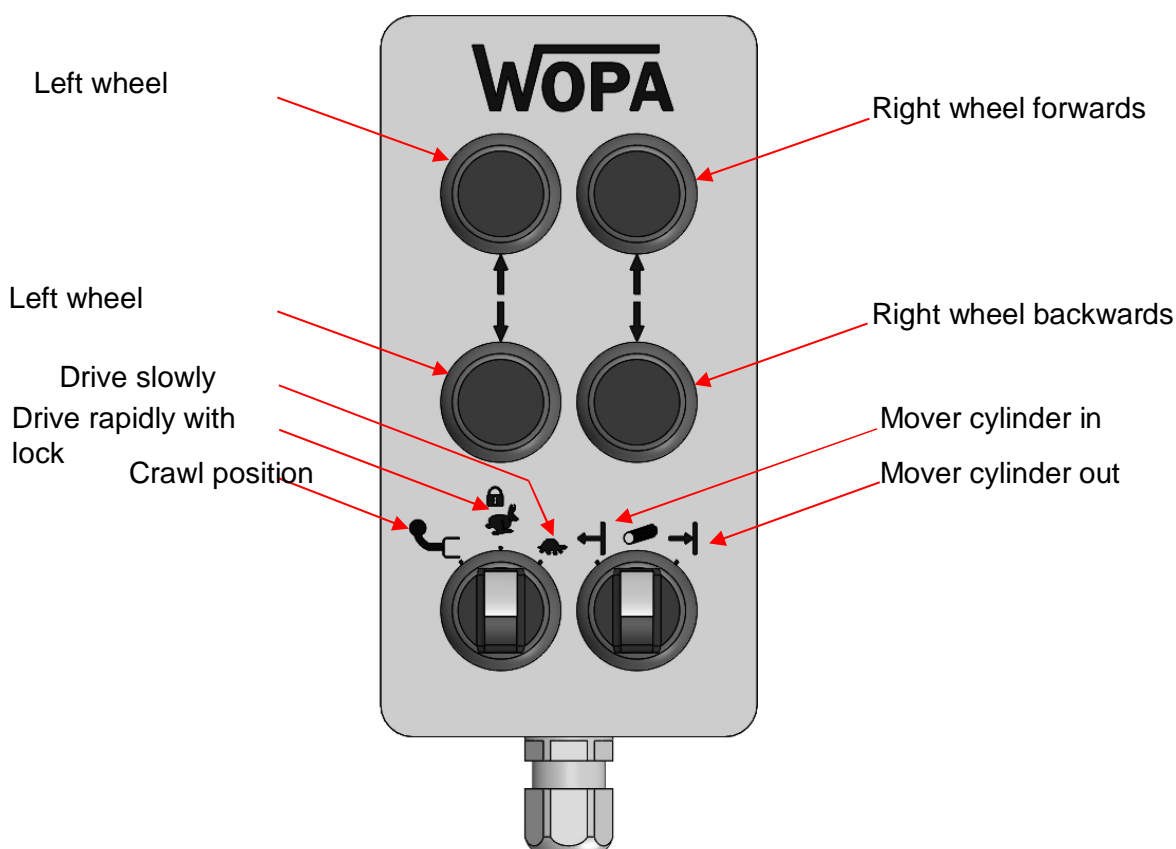


5.4. Hydraulic control levers



5.5. Mover control

	<p>NOTE</p> <ul style="list-style-type: none"> • When using the mover always check that there are no obstacles, persons or animals in the vicinity of the crush. • Maintain a suitable separation distance when operating the mover. • Do not use the mover as a parking brake. • To avoid tipping of the crush always orient the drawbar downwards (downhill) when manoeuvring the machine on a slope. • It is important that the tyres are inflated to the correct pressure, see 6.7.
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At least one of the red buttons on the underside of the remote control unit must be pressed in when the mover is to be used. If the button is released the mover will automatically switch off.

5.6. Operation

No.	What to do	Action	Outcome
1.	Check that the crush is ready for use.	<ul style="list-style-type: none"> See sections 5.1 and 5.2. 	
2.	Place the front gate ready.	<ul style="list-style-type: none"> Open the front gate so that the head of the animal can pass through but not its withers. When the front gate is closed hydraulically it will stop at the correct position and the handle can be released. This means that the holding position is always the same. 	
3.	Place the cow in the crush.	<ul style="list-style-type: none"> Lead the cow into the crush until its head has passed through the front gate. Close the front gate. Where a sensor is installed (option) the front gate will close automatically when the animal is in position.*** 	
4.	Bring the rear gate into position.	<ul style="list-style-type: none"> Lower the rear gate. In order to avoid the risk of damage to the forelegs, ensure that the rear gate is NOT pressed up tightly against the animal. 	
5.	Raise the belly belt.	<ul style="list-style-type: none"> Bring the belly belt up under the belly of the cow. 	
6.	Process a rear hoof.	<ul style="list-style-type: none"> Place the belt or hoof hook around the rear leg and raise the leg. Ensure that the cow's udder is not trapped when attaching the hook or belt. Process the rear hoof. Allow the leg to drop and release it. 	
7.	Process a front hoof.	<ul style="list-style-type: none"> Attach the front leg as shown in Figure 7. Operate the winch hydraulically until the leg is tight up against the block. Process the front hoof. Release the rope. 	See Section 5.7
8.	Lower the belly belt.	<ul style="list-style-type: none"> Lower the belly belt until it is on the ground. 	
9.	Release the crush.	<ul style="list-style-type: none"> Check that all ropes and belts have been freed. Open the front gate. Lead the animal out of the crush. 	
10.	Place the rear gate in its raised position.	<ul style="list-style-type: none"> Raise the rear gate. 	

*** NOTE: When the photocell is in use the animal must walk independently into the crush. If a person walks past the optical sensor at the front they may be trapped.

5.7. Hook up the front leg.


	<p style="text-align: center;">NOTE</p> <ul style="list-style-type: none">• To avoid injury to the front leg the rope must be applied correctly (see Figure 7).• Avoid pulling the foreleg too tightly up to the block! Pulling the foreleg too tightly up to the block may result in permanent injury.• If a foreleg support hook is used it must be attached as shown below.
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Figure 7: Detail of hooking up front leg

5.8. Use of the 24V motor



CAUTION!

- Always disconnect the machine from the power supply by pulling out the plug.
- **Do not use the 24V motor for hoof trimming.** This motor is intended for brief and limited use, for example when spraying something to clean it.
- The 24V system can also be switched off using the switch in the control cabinet. If this is switched off no operations at all can be carried out using the crush.

6. Maintenance



CAUTION!


- Always disconnect the machine from the power supply by disconnecting the plug(s). Ensure that the disconnected plug is always visible to the fitter. Always check that the accumulator is depressurised.
- Test the installation on completion of maintenance work or repairs to ensure that it can be used again safely.
- Only trained technical personnel may carry out the maintenance activities described and repair work.

6.1. Maintenance diagram

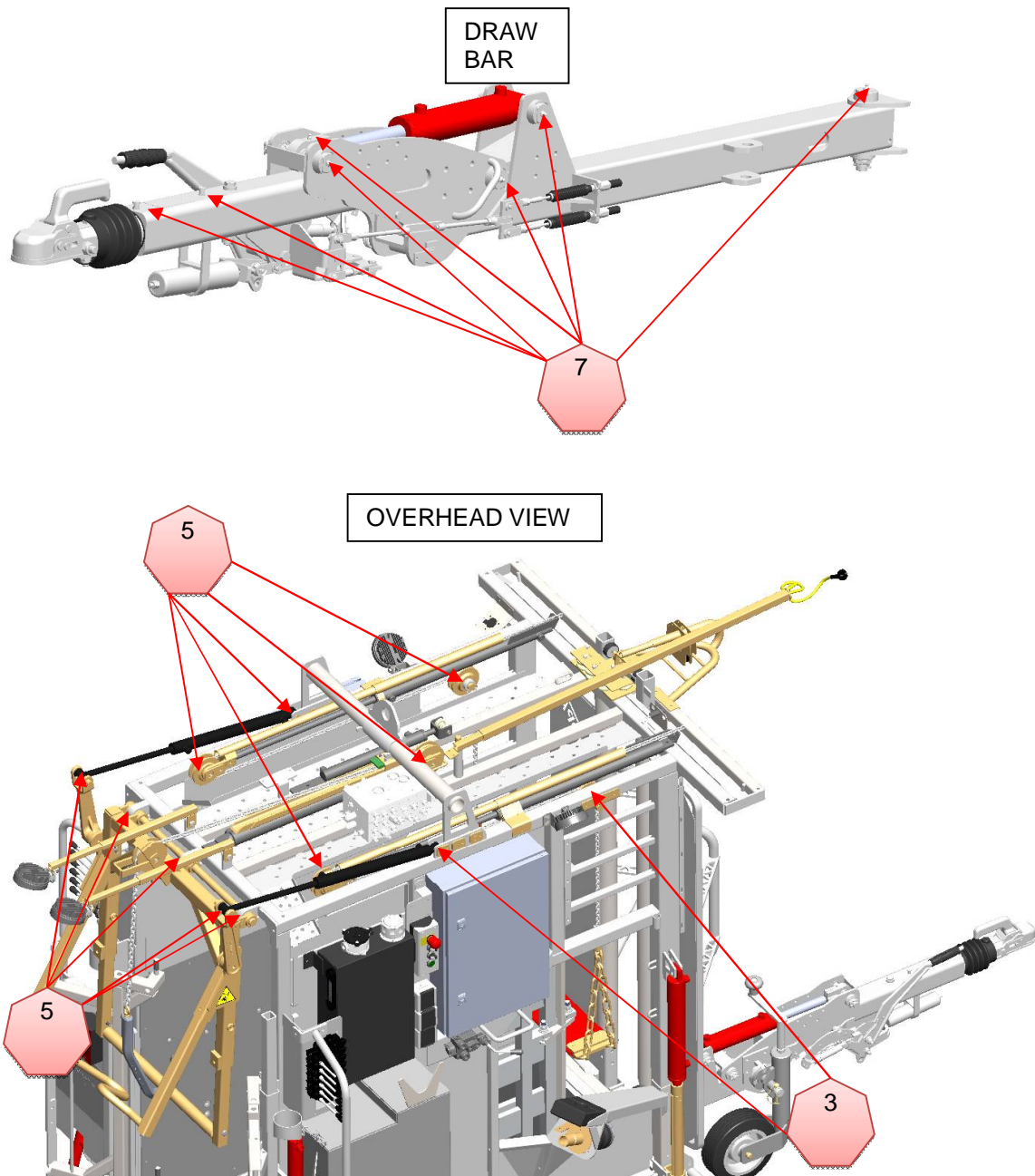
The diagram below shows the maintenance activities to be carried out.

Activity	Note	Daily	Weekly	Every 100 animals	Annually	Every 2 years	See section
General							
Check on panic locks and hooks.	Renew where damage is visible.						
Check ropes and chains.	Renew where damage is visible.						
Check plugs, cables, controls and connections.	Alert a competent fitter where damage is visible.						
Cleaning							
Clean the machine.							6.2
Lubrication							
Grease nipples on rear gate sliding section.	Bearing grease.						6.3
Other grease nipples.	Bearing grease.						
Hydraulic installation							
Check the fluid level.	Checks must be carried out after 500 animals or where leakage occurs.						
Replace oil and filter.							
Axle and wheels							
Check play in the wheels.							6.7
Check the tyre profile.	Have this inspected by a competent person.						
Check the tyre pressures.	Have this inspected by a competent person.						
Check the adjustment of the brakes.	Have this inspected by a competent person.						6.4
Check the brake shoes.	Alert a competent fitter where damage or wear are visible.						
Drawbar							
Play in ball mounting.	Replace where minor play is evident, or see markers on the side of the ball mounting.						
Check the shaft bolts.	Every 10,000 km.						6.8

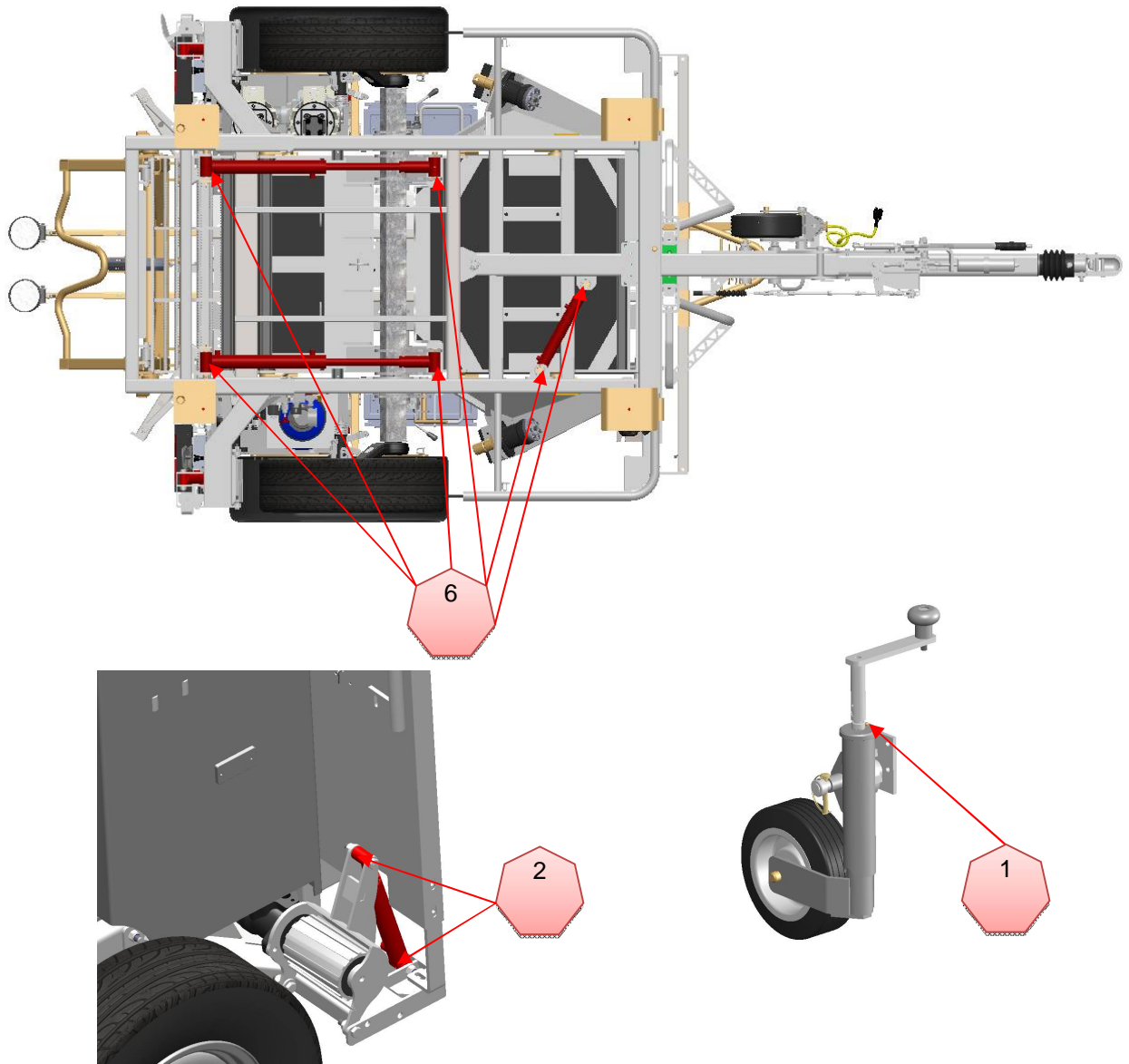
6.2. Clean the machine.


	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• A high-pressure cleaner may be used for cleaning.• Avoid bearings, winches, motors and electrical components when cleaning with a high-pressure cleaner. Spraying in these areas may result in a sharp reduction in service life.
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6.3. Lubrication of machine



VIEW FROM
BELOW



	<p>EXPLANATION</p> <ul style="list-style-type: none"> • The rear gate is slid out with the aid of gas springs fitted to the gate. • To prevent grease entering the gas springs and causing damage, the gate must only be lubricated when it is fully drawn back.
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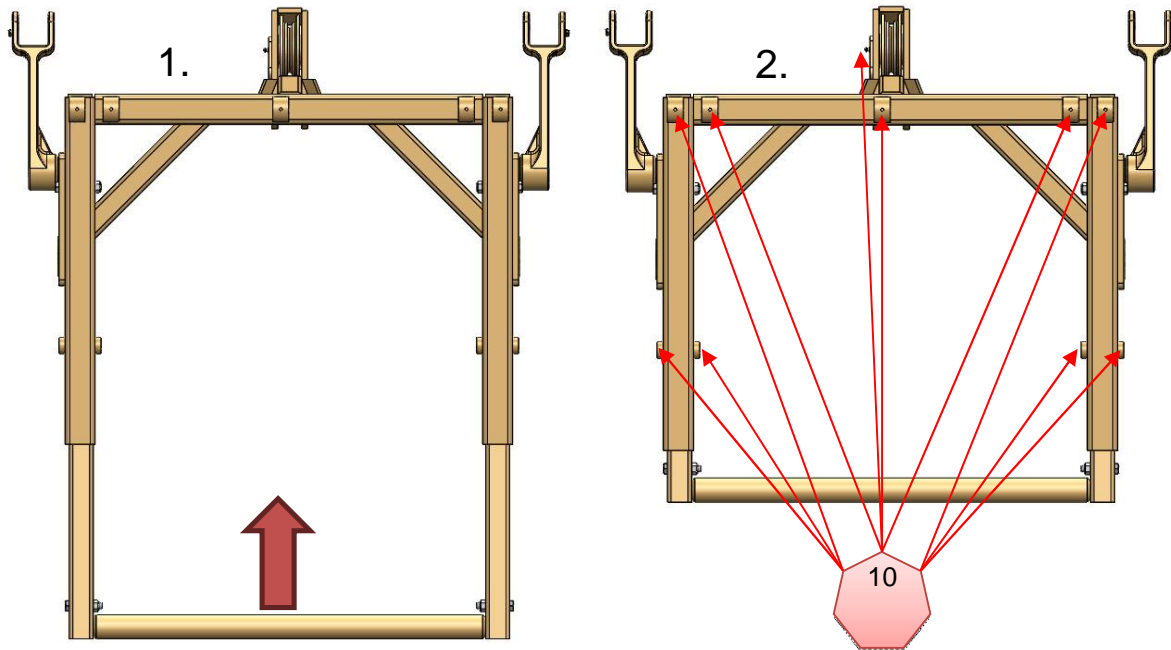



Figure 8: Lubrication of rear gate

No.	What to do	Action	Outcome
1.	Retract the rear gate.	<ul style="list-style-type: none"> • Attach the rear leg winch to the rear gate and tighten until the gate is fully retracted. 	
2.	Grease the nipples.	<ul style="list-style-type: none"> • Lubricate the rear gate nipples using a grease gun. 	

6.4. Brake adjustment.

	<p>EXPLANATION</p> <ul style="list-style-type: none"> • This instruction applies only where a braked axle is fitted. • Play in the brakes will increase as the brake shoes wear.
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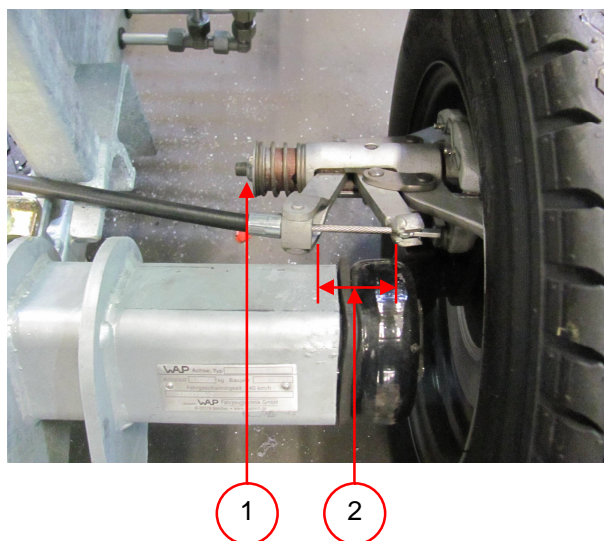



Figure 9: Detail of brake adjustment

No.	What to do	Action	Outcome
1.	Check the play	<ul style="list-style-type: none"> • The play between the 2 levers (Figure 9:2) must not exceed 50 mm. 	
2.	Adjust the brakes.	<ul style="list-style-type: none"> • Rotate the adjusting bolt (Figure 9:1) until the play is less than 50 mm. 	

6.5. Check fluid level/replace fluid.

- **Emptying the accumulator/gauging the fluid level**

No.	What to do	Action	Outcome
1.	Retract the cylinders.	<ul style="list-style-type: none"> • Put the cylinders in the installation in their retracted position by operating the valves. 	
2.	Allow the accumulator to empty.	<ul style="list-style-type: none"> • Ensure that the air bleed valve is in its open position on the lower manifold. (Figure 6) 	
3.	Disconnect the machine from the power supply	<ul style="list-style-type: none"> • The accumulator will empty, the hydraulic system will be depressurised. 	The accumulator will gradually empty.
4.	Check the fluid level.	<ul style="list-style-type: none"> • The oil level must now be between the minimum and maximum levels (see instructions on "changing the oil"). 	

EXPLANATION	
	<ul style="list-style-type: none"> • Checking the fluid level ensures that the necessary minimal amount of fluid is present. The cylinders must be retracted for this purpose and the accumulator must be empty. The plug must be removed from the socket. • The general rule is that the fluid and filter should be replaced every two years.

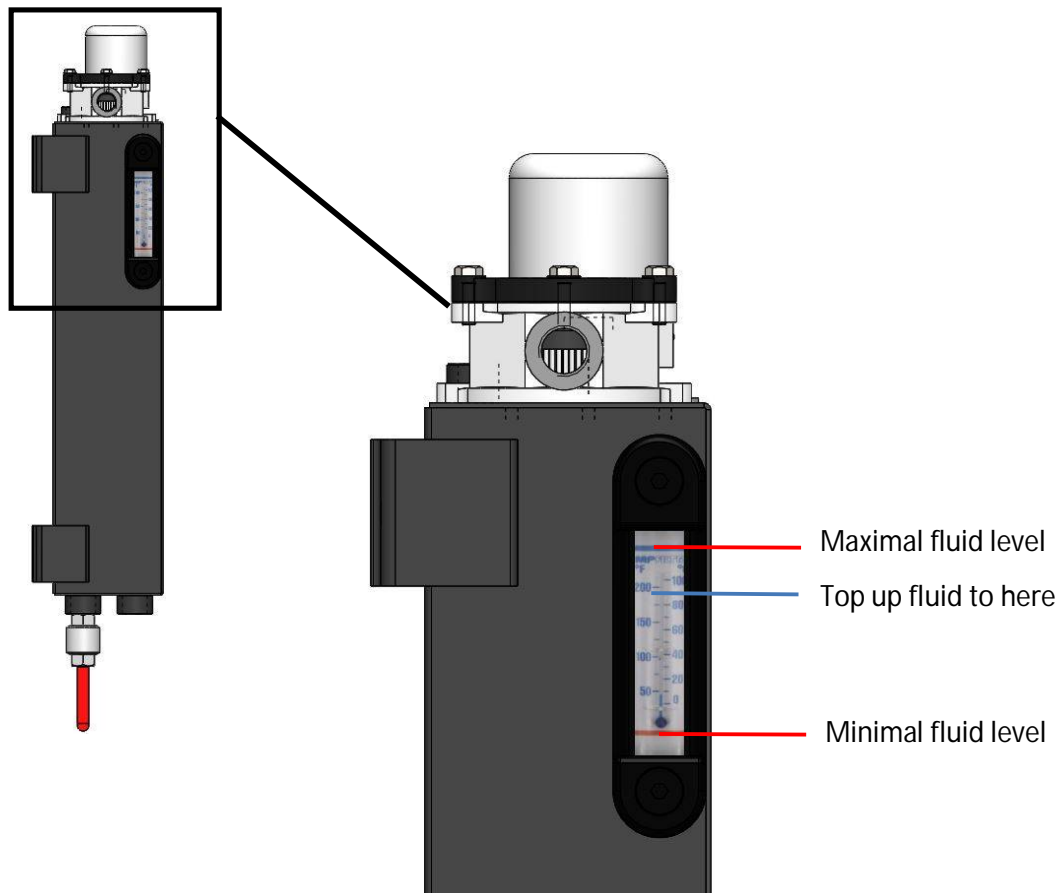


Figure 10: Details of filling of hydraulic unit

- **Changing the fluid**

No.	What to do	Action	Outcome
1.	Bring the fluid to the tank.	<ul style="list-style-type: none"> • See the instruction on "emptying the accumulator/gauging the fluid level". 	
2.	Empty the tank	<ul style="list-style-type: none"> • Open the front valve below the tank and allow the fluid to run out until it is empty. 	Tank will empty.
3.	Fill the system	<ul style="list-style-type: none"> • This must be done at the filter. First clean the lid and the exterior of the filter. Remove the filter lid on the top of the tank by loosening the bolts. Next remove the lid and fill the tank through the orifice in the filter. • Use the correct type of fluid (Figure 11) 	
4.	Check the fluid level.	<ul style="list-style-type: none"> • Check the oil level, as shown in Figure 10. 	

- The following types of fluid are suitable for use in the hydraulic installation:

Supplier	Fluid
• Castrol	• Hyspin AWH-M46
• BP	• Energol SHF- HV 46
• Shell	• Tellus T S2 V 46
• Petronas	• Hydraulic HV 46
• Gulf	• Harmoni HV 46
• Mobil	• UNIVIS N 46
• Texaco	• RANDO Hydraulic oil HDZ 46
• Total	• Equivis ZS 46
• Valvoline	• Ultramax HVLP 46
• Kroon Oil	• Perlus XVI 46
• Unil	• Hydraulic HVX 46

Figure 11: Hydraulic fluids to be used

6.6. Replacement of filter


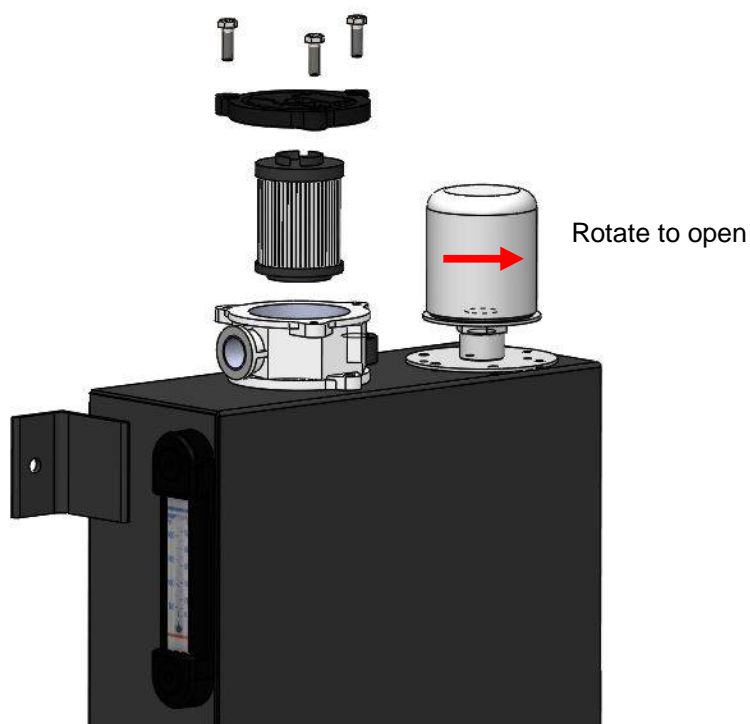

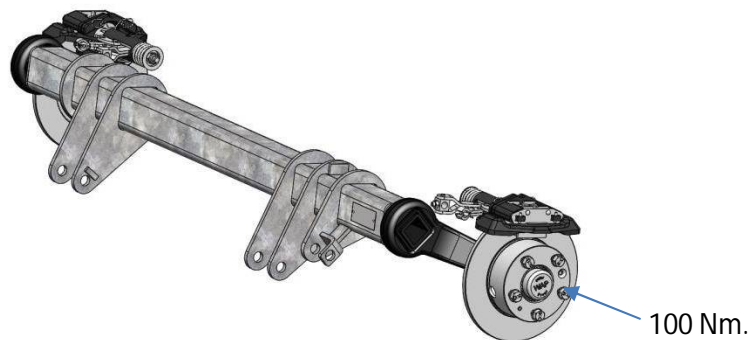
	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• Allow the accumulator to empty (Section 6.5)• Ensure that the power cable is disconnected from the socket.• Loosen the bolts and replace the filter.• The tank is also provided with a ventilation filter. This filters the air entering the tank. To replace this open it by rotating to the left.
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Figure 12 Replace oil filter




6.7. Checks on wheels


	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• Raise the wheels from the ground and feel if any play is present.• If play can be detected this must be corrected by a competent person, or otherwise the bearings and seals must be replaced.
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	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• Check after the first 50 km that all wheel bolts are still free of play. Tighten the wheel bolts to 95 Nm using a torque wrench.
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	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• Check the physical condition and profile of the tyres regularly.• The tyres must be inflated to 4.5 bar.
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6.8. Check the shaft bolts.

	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• After 10,000 km or once annually the shaft bolts must be tightened with a torque wrench in accordance with the figure below.
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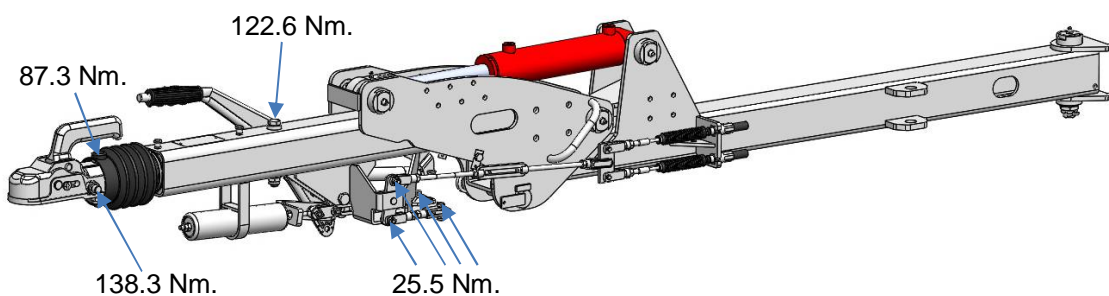



Figure 13: Details of drawbar bolt torque settings

6.9. Components

	<p style="text-align: center;">EXPLANATION</p> <ul style="list-style-type: none">• Consult the website at www.wopa.com for information on the available options and the parts available to order. Warning stickers and pictograms are also available from the website.
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7. Disposal as waste

Oil and components must not be disposed of as domestic waste. When replacing components or oil or at the end of the service life, ensure that all materials are collected and destroyed or reused in a legal and environmentally friendly manner.



