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### 1.7.-1 General

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General maintenance schedules must be observed, otherwise, our warranty for your shredder will cease to apply.

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The first maintenance and any necessary repairs may only be executed by our service staff. Please refrain from executing any maintenance repair work yourself or assigning any third parties with such works, since otherwise our warranty will cease to apply.

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All maintenance work may only be executed by trained and instructed personnel. Before carrying out any maintenance work, carefully read the instructions contained in the "Safety instructions" section.



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The following must be done before entering the machine and before taking up and maintenance or repair work:

- set the key switch (Start) to the centre position and remove the ignition key,
- set the key switch (Manual-0-Automatic) to "0 " and remove the key,
- turn battery disconnecting switch out,
- keep keys and the battery disconnecting switch in a safe place.

The shredder must always be secured against accidental or unauthorised restarting.

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It is strictly forbidden to climb into or onto the machine during operation, particularly onto the shredding tools and the tilting hopper!



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For servicing the drive engine, it is essential to follow the manufacturer's operating and maintenance manual!

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Dispose of replaced filling liquids according to the manufacturer's instructions in order to avoid endangering people or the environment.

The maintenance schedule contains recommended maintenance intervals for the main components. However, please note that this maintenance schedule may have to be adapted to the actual conditions in your plant.

If you are working under particularly difficult conditions, it may be necessary to shorten the recommended intervals. The following maintenance schedule should therefore be used as a basis for preparing your own schedule, which should take into account your individual operating conditions.

Thanks to their special training, the staff of LINDNER GmbH are able to provide first class technical assistance as well as all maintenance services and spare parts which you require. If you require spare parts or are encountering any problems, please do not hesitate to contact us.

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The contact details of our  
Service Department are:

Phone: + 49 (0) 36920 - 7269 - 600

Fax: + 49 (0) 36920 - 7269 - 99

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**1.7.-2 Important Advice for Welding Work**

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Before any welding work is carried out, the earth switch must be set to "off" and all electronic parts and components (remote control system, engine electronics) must be disconnected from the power supply). Turning out the battery disconnecting switch does not provide sufficient safety. Considerable damage to the electronics is possible in the case of nonobservance.

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All material residues must be removed from the shredder before each welding procedure. Risk of fire!

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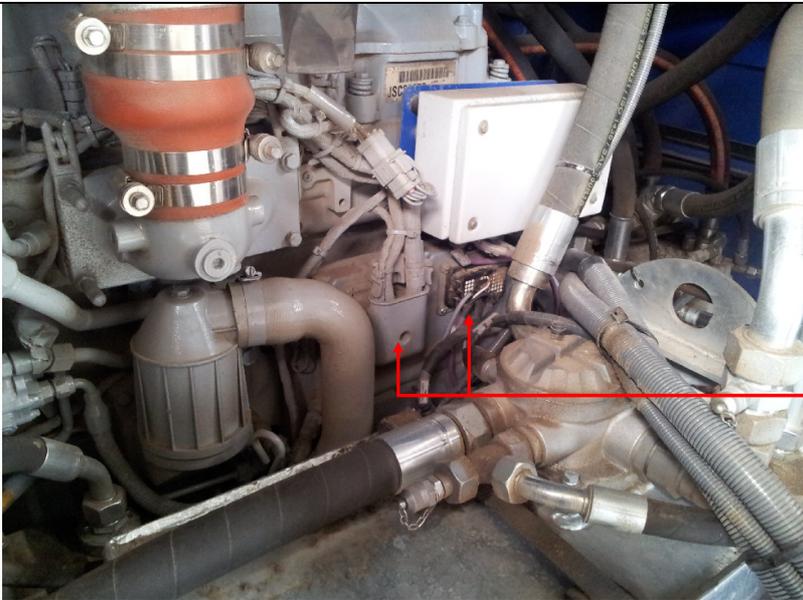
**For performing welding work, prepare the shredder as follows:**

1. Switch off the drive engine.
2. Turn out battery disconnecting switch and secure it against being switched (lock it).
3. Disconnect the two plugs from the electronic engine control (ECM; Put the cable away such that the contact pins of the plugs cannot make any contact.
4. Connect the earth cable of the welding apparatus directly to the part to be welded (connect the earth cable of the welding apparatus as closely as possible to the welding point).

Before you start welding, the cable and other combustible parts must be covered so that they cannot be damaged by weld spatters.



Battery disconnecting switch



Plug of the electronic engine control (ECM)

1.7.-3 Filling Liquids

Recommended filling liquids for your LINDNER shredder			
	Total filling capacity including filters as required		Changing interval
<b>Fuel<sup>1</sup></b>	approx. 450 litres	Diesel oil according to DIN 51601	as required
<b>Coolant<sup>1</sup></b>	approx. 55 litres	coolant mix of distilled water and antifreeze according to ASTM D4985-89 (ethylene glycol basis)	every 3000 hours or annually <sup>1</sup>

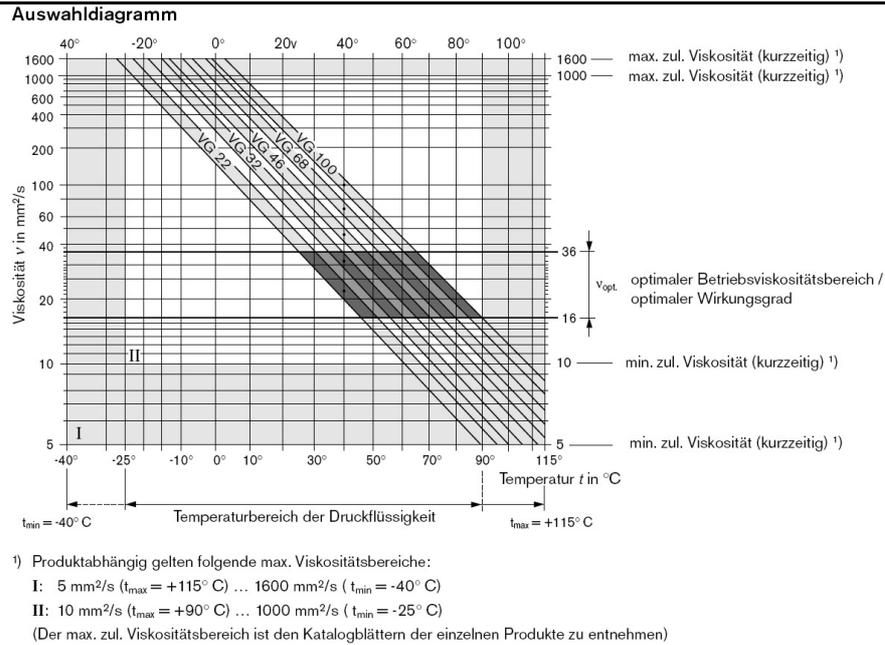
Protection Level	Anti-freeze (%)	Distilled water (%)
Protection down to -71°C	68	32
Protection down to -54°C	60	40
Protection down to -37°C	50	50
Protection down to -23°C	40	60

<sup>1</sup> Refer to the drive engine operating and maintenance manual

<b>Engine oil<sup>2</sup></b>	32 litres Select the lubricant viscosity according to the ambient temperature:	every 250 hours or every 6 months																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3" style="text-align: center;">Required oil viscosity</th> </tr> <tr> <th rowspan="2" style="text-align: center;">Diesel engine multigrade oil EMA LRG-1 API CH-4 APICG-4 and APICF-4 Degree of viscosity</th> <th colspan="2" style="text-align: center;">Ambient temperature</th> </tr> <tr> <th style="text-align: center;">min.</th> <th style="text-align: center;">maximum</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">SAE 0W / 20</td> <td style="text-align: center;">-40 °C (-40 °F)</td> <td style="text-align: center;">10 °C (50 °F)</td> </tr> <tr> <td style="text-align: center;">SAE 0W / 30</td> <td style="text-align: center;">-40 °C (-40 °F)</td> <td style="text-align: center;">30 °C (86 °F)</td> </tr> <tr> <td style="text-align: center;">SAE 0W / 40</td> <td style="text-align: center;">-40 °C (-40 °F)</td> <td style="text-align: center;">40 °C (104 °F)</td> </tr> <tr> <td style="text-align: center;">SAE 5W / 30</td> <td style="text-align: center;">-30 °C (-22 °F)</td> <td style="text-align: center;">30 °C (86 °F)</td> </tr> <tr> <td style="text-align: center;">SAE 5W / 40</td> <td style="text-align: center;">-30 °C (-22 °F)</td> <td style="text-align: center;">40 °C (104 °F)</td> </tr> <tr> <td style="text-align: center;">SAE 10W / 30</td> <td style="text-align: center;">-20 °C (-4 °F)</td> <td style="text-align: center;">40 °C (104 °F)</td> </tr> <tr> <td style="text-align: center;">SAE 15W / 40</td> <td style="text-align: center;">-15 °C (5 °F)</td> <td style="text-align: center;">50 °C (122 °F)</td> </tr> </tbody> </table>		Required oil viscosity			Diesel engine multigrade oil EMA LRG-1 API CH-4 APICG-4 and APICF-4 Degree of viscosity	Ambient temperature		min.	maximum	SAE 0W / 20	-40 °C (-40 °F)	10 °C (50 °F)	SAE 0W / 30	-40 °C (-40 °F)	30 °C (86 °F)	SAE 0W / 40	-40 °C (-40 °F)	40 °C (104 °F)	SAE 5W / 30	-30 °C (-22 °F)	30 °C (86 °F)	SAE 5W / 40	-30 °C (-22 °F)	40 °C (104 °F)	SAE 10W / 30	-20 °C (-4 °F)	40 °C (104 °F)	SAE 15W / 40	-15 °C (5 °F)	50 °C (122 °F)	<p><u>ATTENTION:</u></p> <p><u>Mandatory!</u></p> <p>After <b>100 – 200</b> operating hours, the customer must order an inspection to be performed by LINDNER.</p> <p>After <b>100-200</b> operating hours, the engine inspection has to be performed by the responsible, authorised dealer or OEM dealer to ensure the warranty for the engine. The customer must order this inspection independently.</p>
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Factory-filled: SAE 10W / 40																															
<b>Gearbox oil</b>	<p>60 litres (depending on sight glass level)</p> <p>Types of oil: Oils with characteristics as per API GL-5</p> <p>Ambient temperature: -10 °C to +30 °C SAE 80W/90</p> <p style="padding-left: 150px;">+20 °C to +45 °C SAE 85W/140</p> <p>Factory-filled: CLP 220</p>	after first 100 hours, then every 500 hours or twice yearly																													
<b>Greases</b>	<p>Standard multipurpose grease for antifriction and plain bearings (e.g. MARSON L2),</p> <p>Operating temperature range from -30 to + 120 °C</p>	see lubrication chart in the manual																													

<sup>2</sup> Refer to the drive engine operating and maintenance manual

<b>Hydraulic oil</b>	approx. 120 litres	Hydraulic oil according to DIN 51524 part 2, select the viscosity class from the diagram according to the climatic conditions	every 500 to 1000 hours or twice yearly
	Purity class	18/13 according to ISO 4406 or better.	(depending on contamination level)
	Factory-filled:	HLP 46	



**Auswahldiagramm**

A = arktische Verhältnisse oder für extrem lange Leitungen  
 W = winterliche Verhältnisse in Mitteleuropa  
 S = sommerliche Verhältnisse in Mitteleuropa oder geschlossene Räume  
 T = tropische Verhältnisse oder Räume mit starkem Wärmeeinfall  
 U = übermäßig starker Wärmeeinfall (z.B. durch Verbrennungsmaschinen)

Max. zul. Viskosität (kurzzeitig)  
 Optimaler Betriebsviskositätsbereich optimaler Wirkungsgrad  
 min. zul. Viskosität (kurzzeitig)  
 min. zul. Viskosität (kurzzeitig)  
 Temperatur t in °C

1) Druckflüssigkeitstemperaturbereich  
 Produkt- bzw. nenngrößenabhängig gelten folgende Viskositätsbereiche:  
 (Der max. zul. Viskositätsbereich ist den Katalogblättern der einzelnen Produkte zu entnehmen)

**Selection diagram**

A = arctic conditions or for extremely long lines  
 W = winterly conditions in Middle Europe  
 S = summerly conditions in Middle Europe  
 T = tropical conditions or rooms with high heat exposure  
 U = excessively high heat exposure (e.g., by combustion engines)

max. permissible viscosity (short-term)  
 Optimal operating viscosity range, optimal efficiency  
 min. permissible viscosity (short-term)  
 min. permissible viscosity (short-term)  
 Temperature t in °C

1) Pressure liquid temperature range  
 The following viscosity ranges apply, depending on product or nominal size:  
 (For the maximum admissible viscosity range, refer to the catalogue sheets of every product.)

The oil change intervals for the gear and hydraulic oil can be extended subject to written approval of our Service Department if the results of an oil analysis (laboratory report) have been submitted.

You can have the oil analysis

- conducted yourself in a certified laboratory and then send us the laboratory report, or
- further advice and information concerning the oil analysis can be found at [www.wearcheck.de](http://www.wearcheck.de).

The maximum oil change intervals are 1000 h and must on no account be exceeded.

#### 1.7.-4 Initial Maintenance Work

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When servicing the drive engine, observe the separately enclosed operating and maintenance manual of the engine manufacturer!

#### **ATTENTION: Mandatory!**



After **100 operating hours**, the customer must order an inspection to be performed by LINDNER.

After 100 -200 operating hours, the engine inspection has to be performed by the responsible, authorised CAT dealer or OEM dealer to ensure the warranty for the engine. The customer must order this inspection independently.



All maintenance work may only be executed by trained and instructed personnel. Before carrying out servicing work, you must always read the safety instructions.

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The initial maintenance tasks are performed 16 hours (2 working days) and 100 - 200 hours (1 month) after installation and commissioning of the machine.

The daily and the regular maintenance tasks are carried out according to section 1.7-5.

<b>Maintenance after 16 hours or 2 working days (to be executed by the customer)</b>					
<b>Filter elements</b>	<b>Hydraulic system</b>	<b>Conveyor belt</b>	<b>Cooler</b>	<b>Gearbox</b>	<b>Others</b>
Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed
				<ul style="list-style-type: none"> <li>▪ Retighten all fastening bolts</li> </ul>	<ul style="list-style-type: none"> <li>▪ Retighten all bolts, especially on the rakes, shaft bearings, hoppers and engine fastening bolts.</li> <li>▪ Inspect the V-belts of the fans</li> </ul>

Maintenance after 100 hours or one month (by an LINDNER GmbH engineer)					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed	Daily maintenance tasks to be executed
Replace suction filter.  Replace suction/return filter  Replacing the tank aeration filter  Check main air filter element				Change gearbox oil.	Commissioning inspection of the drive engine

### 1.7.-5 Maintenance Intervals

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When servicing the drive engine, observe the separately enclosed operating and maintenance manual of the engine manufacturer!

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All maintenance work may only be executed by trained and instructed personnel. Before carrying out servicing work, you must always read the safety instructions.

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The long-term maintenance tasks always include the performance of all more frequent maintenance tasks.

Daily maintenance tasks					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
<ul style="list-style-type: none"> <li>▪ Check and clean the main air filter element</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check oil level and refill if necessary</li> </ul>	<ul style="list-style-type: none"> <li>▪ Visual check for damage</li> <li>▪ Check alignment and functioning of the rollers</li> <li>▪ Check the belt support and clean if necessary.</li> <li>▪ Remove any jammed material from the conveyor belt</li> <li>▪ Check belt tensioning and alignment</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check coolant level and refill if necessary.</li> <li>▪ Check if clean.</li> <li>▪ Visual check for damage and leaks.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check oil level and refill if necessary.</li> <li>▪ Visual check for damage and leaks</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check engine oil level and refill if necessary.</li> <li>▪ Functional test of all (Emergency Stop) buttons and safety devices</li> <li>▪ Overall visual check of the entire machine for damage, leaks, loose connections, loose or worn belts and take any remedial action necessary</li> <li>▪ Check tire pressure</li> </ul>

Maintenance every 250 hours or quarterly					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
<ul style="list-style-type: none"> <li>▪ Check the main air filter element and clean if necessary (max. six times) or replace. Replace the safety elements after every third cleaning of the main element</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check oil and filters</li> </ul>			<ul style="list-style-type: none"> <li>▪ Change oil of the main gearbox</li> </ul>	<ul style="list-style-type: none"> <li>▪ Engine maintenance (in accordance with the engine manual)</li> </ul>

Maintenance every 500 hours or every six months					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
<ul style="list-style-type: none"> <li>▪ Replace suction filter.</li> <li>▪ Replace suction/return filter</li> <li>▪ Replace the tank aeration filter</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check preset pressure settings.</li> <li>▪ Change the hydraulic oil + filters</li> </ul>	<ul style="list-style-type: none"> <li>▪ Check belt tension and adjust if necessary.</li> </ul>		<ul style="list-style-type: none"> <li>▪ Change oil of the main gearbox</li> </ul>	<ul style="list-style-type: none"> <li>▪ Functional test of all safety devices</li> <li>▪ Check shredding tools and scrapers for wear.</li> <li>▪ Check all bolted connections.</li> <li>▪ Engine maintenance (in accordance with the engine manual)</li> </ul>

Maintenance every 1000 hours or annually					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
				<ul style="list-style-type: none"> <li>▪ Change oil of the main gearbox</li> </ul>	

Annual maintenance					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
<ul style="list-style-type: none"> <li>Replace the main air filter element</li> </ul>					

Maintenance every 3000 hours or annually					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
			<ul style="list-style-type: none"> <li>Check and clean the cooling system and change the coolant</li> </ul>		

Maintenance every 6 years					
Filter elements	Hydraulic system	Conveyor belt	Cooler	Gearbox	Others
	<ul style="list-style-type: none"> <li>Replace all hydraulic hoses</li> </ul>				

### 1.7.-6 Inspecting / Changing the Hydraulic Oil Filters

A suction/return filter and a suction filter are installed in the shredder. The filter cartridges have to be replaced when the <Oil filter> indicator light lights up or at least every 500 operating hours.



Although hydraulic oil filters are electronically monitored, maintenance still must be carried out at regular intervals. Therefore, replace the filters after 500 operating hours at the latest.

When changing the filter, pay attention to the hydraulic oil temperature. Danger of scalding.



All installed filter elements are also listed in the enclosed machine data sheet.

#### ▪ Suction/return filter of the hydraulic oil tank

The integrated suction/return filter is equipped with a return and a suction connector. It is equipped with an integrated oil temperature control device. Furthermore, it is equipped with intelligent valve technology to control the oil temperature exceeding 50°C. To prevent air from being drawn into the suction pipe, an oil guiding system has been installed.

To replace the suction/return filters, proceed as follows:

1. Have the new filter cartridge to hand. To find out which type of filter cartridge you have to choose, please refer to appendix "Modules and Spare Parts".
2. Remove the complete cap using an appropriate tool by turning it counter clockwise.
3. Pull the cap with the filter element out of the hydraulic tank.
4. Replace the old filter cartridge by a new one.

## Suction filter

To replace the suction filter, proceed as follows:

1. Have the new filter(s) to hand. Filter cartridge type: see Appendix "Modules and spare parts".
2. Unscrew the old filters from the filter head.
3. Clean the filter head sealing surface. The old sealing ring may still be sticking to the filter head. If this is the case, remove it carefully.
4. Fill the oil filter with clean hydraulic oil.
5. Apply a thin hydraulic oil film on the filter seal.
6. Screw the filter onto the filter head. Tighten the filters until the seal touches the surface of the filter head.
7. Tighten the filter by about another half to three-quarters of a turn.

### 1.7.-7 Replacing the Tank Aeration Filter

The tank aeration filter on the hydraulic tank must be replaced every 500 operating hours. The type of filter to be used is listed in the Appendix "Modules and Spare Parts".



Tank aeration filter

### 1.7.-8 Checking the Hydraulic Oil Level / Changing the Hydraulic Oil

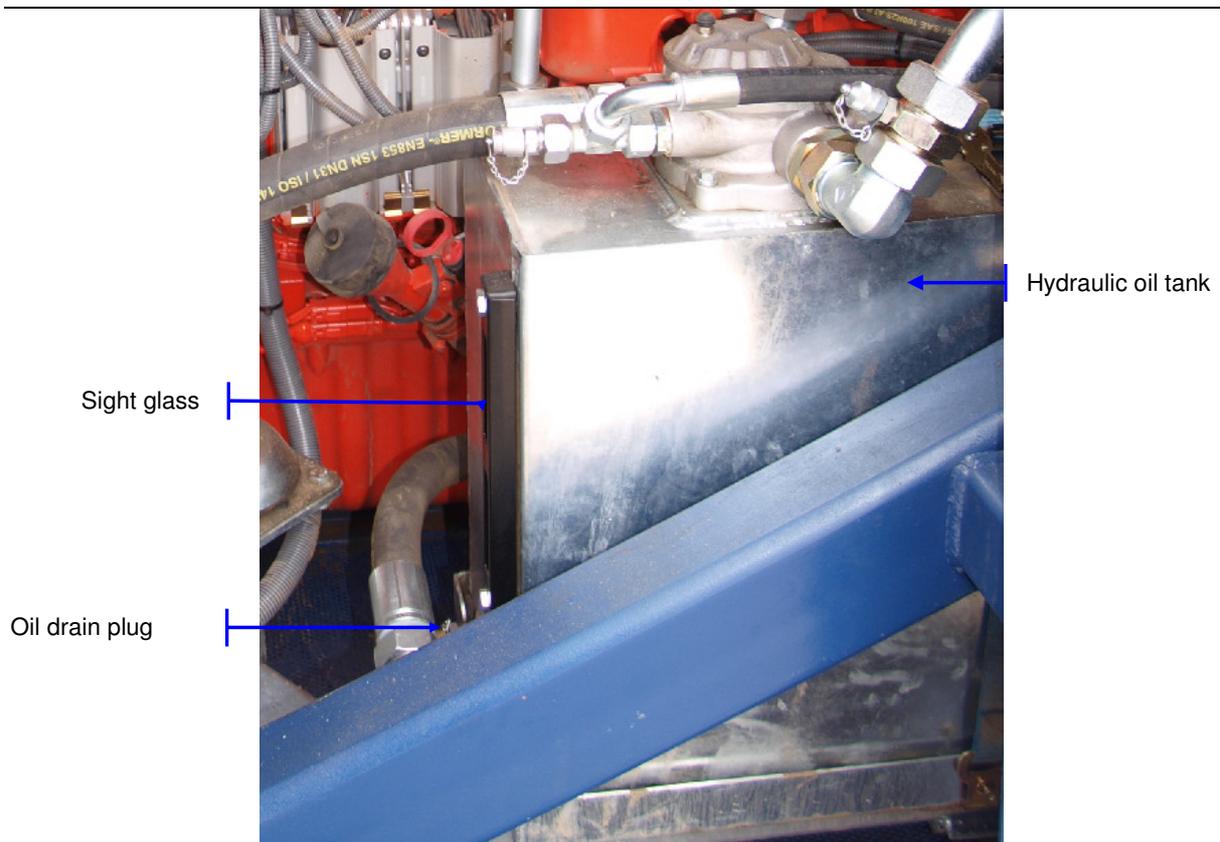


Maximum oil filling is only permissible with retracted hydraulic cylinders.

#### ▪ Checking the oil level

If the oil drops below the minimum level, the <Hydraulic oil level> indicator light lights up on the control panel. In this case, the machine switches off immediately.

The hydraulic oil level must be checked daily via the sight glass; the oil should be approximately in the upper third of the sight glass. Ensure that the shredder is standing horizontally.



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## Changing the hydraulic oil

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Change the oil while the plant is at operating temperature (not later than 15 minutes after switching off the shredder).

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The hydraulic filter should be replaced when changing the hydraulic oil.

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Only use new hydraulic oil of purity class 18/13 according to ISO 4406 or better.

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The shredder is equipped with a hand-operated pump for replacing the hydraulic oil. The pump is mounted on the inside of the right tank door. By turning the screw in the respective direction, the hydraulic unit can be filled or emptied using the pump.

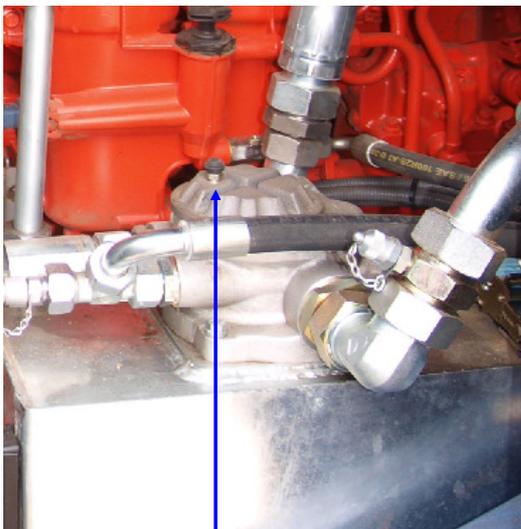
## Pumping out the old oil

1. Unscrew the protective cap from the oil drain plug of the hydraulic tank.
2. Remove the hydraulic hose with quick-release coupling from the hand-operated pump and connect it to the oil drain plug.
3. Hang the second hydraulic hose into a suitable container.
4. Pump the oil out with the hand-operated pump. Remove the hydraulic hose from the tank and screw on the protective cap.
5. Dispose of the used oil according to the valid regulations.

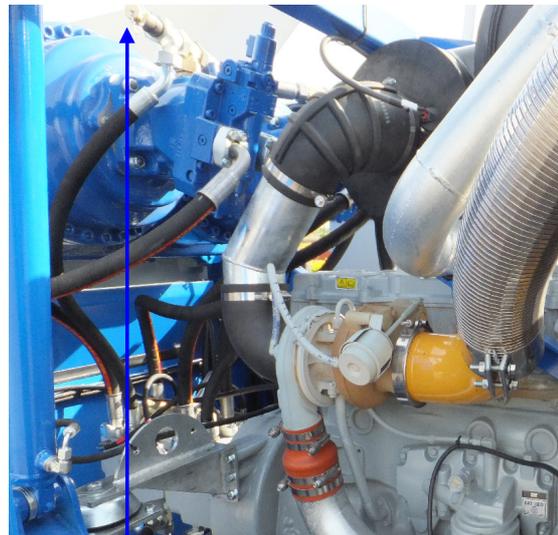
## Refilling hydraulic oil

1. Hang the hydraulic hose of the hand-operated pump without quick-release coupling into a container containing fresh oil.
2. Flush the hand-operated pump by pumping fresh oil into the old oil container with four or five revolutions of the hand-operated pump.
3. Connect the hydraulic hose of the hand-operated pump to the upper hydraulic oil pipe using a quick-release coupling.
4. Open the measuring connection on the hydraulic oil cooler (next to the upper hydraulic hose connection) and open the vent valve on the suction/return filter.

5. Pump new oil into the hydraulic circuit using the hand-operated pump until hydraulic oil comes out of the measuring connection opening on the oil cooler and of the suction/return filter vent valve.
6. Screw the measuring connection to the oil cooler and close the vent valve on the suction/return filter.
7. Connect the hydraulic hose of the hand-operated pump to the oil drain plug of the hydraulic tank and continue to pump oil into the hydraulic circuit until the oil level reaches the top edge of the sight glass on the hydraulic tank.
8. Remove the hydraulic hose of the hand-operated pump from the oil tank and screw on the protective cap.
9. Start the shredder and allow the shredding tools to run and actuate fitting functions until the corresponding functions are performed correctly.  
(In so doing, the hydraulic oil is distributed throughout the lines and the system is deaerated.)
10. Check the oil level again. The hydraulic oil level must be slightly above the centre of the sight glass. If necessary, top up the hydraulic oil as described in sections 1.7-8 to 1.7-10



Suction/return filter  
with vent valve



Upper  
hydraulic pipe



Never fill the hydraulic system directly via the cap of the hydraulic tank. Always use the upper hydraulic pipe for this purpose. Filling via the tank allows air to enter the hydraulic system which will cause damage to the components.

### 1.7.-9 Checking the Gearbox Oil Level / Changing the Gearbox Oil

The gearbox oil level must be checked daily via the sight glass; the oil level must be slightly above the centre of the sight glass.



Change the oil while the plant is at operating temperature (not later than 15 minutes after switching off the shredder).

### Pumping out the old gearbox oil

The old gearbox oil must be pumped out in the same way as the hydraulic oil is pumped out.

### Refilling new gearbox oil

1. Hang the hydraulic hose of the hand-operated pump without quick-release coupling into a container containing fresh oil.
2. Release the hydraulic hose with quick-release coupling from the gearbox and hang it into the old oil container.
3. Flush the hand-operated pump by pumping fresh oil into the old oil container with four or five revolutions of the hand-operated pump.
4. Connect the hydraulic hose to the oil drain plug using the quick-release coupling.
5. Pump fresh oil into the gearbox until it reaches the centre of the sight glass.
6. Remove the hydraulic hose of the hand-operated pump and screw on the protective cap.



Oil drain plug

Sight glass

### 1.7.-10 Checking / Changing Engine Oil and Filter



Change the oil while the plant is at operating temperature (not later than 15 minutes after switching the shredder off )

Checking the engine oil level and changing the engine oil and the engine oil filter is to be performed in accordance with the drive engine operating and maintenance manual (enclosed separately).

The engine oil can be changed using the hand-operated pump.

### 1.7.-11 Checking the Coolant Level / Changing the Coolant



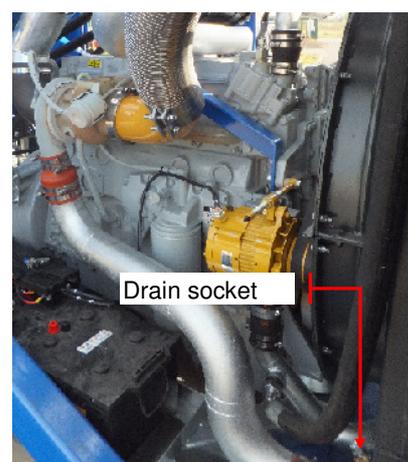
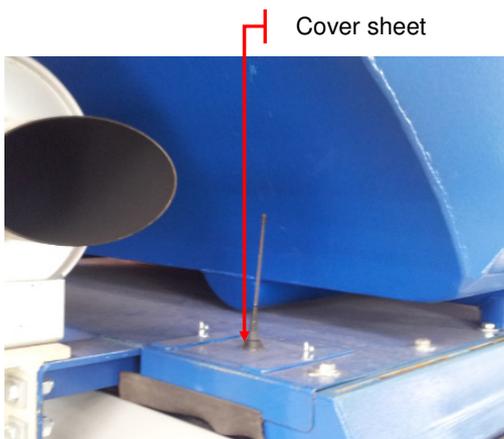
Only check the coolant level with the engine switched off and when engine and cooler are cold. At operating temperature, the coolant is hot and under pressure.

**CAUTION:** Do not remove the pressure cap of the cooler unless the temperature is below 50°C. Otherwise high-pressure steam can be released and cause injuries due to hot coolant.

#### Procedure:

1. Remove cover sheet with butterfly screws.
2. Remove filler cap. In doing so, take the filler cap off slowly in order to reduce any possible pressure.
3. Refill coolant.
4. Check the filler cap seal for damage and replace if necessary.
5. Fasten filler cap.
6. Check the cooler fins for contamination and clean if necessary.
7. Mount cover sheet with butterfly screws.

Cleaning the cooling system and changing the coolant must be done in accordance with the drive engine operating and maintenance instructions.



For draining the coolant, use the drain plug on the right hand engine side of the shredder. The coolant is pumped out by means of the hand-operated pump. Proceed as follows:

1. Remove the protective cap from the drain socket.
2. Connect the hose of the hand-operated pump to the drain socket and hang the second hose into a suitable container (such as a barrel).
3. Pump out the coolant.
4. After all coolant has been pumped out, disconnect the hose from the drain socket and screw the protective cap back on.

### 1.7.-12 Changing the Air Filter

The air filter consists of two elements: main element and safety element.

The main air filter element can be cleaned up to three times before it has to be replaced. The main element must be changed at least every six months, irrespective of the operating hours.

The safety element must be changed at least after the main element has been changed 5 times, or every 2 years.

When cleaning filter elements, carefully check for cracks in the filter material. Clean the filter according to these instructions.

**Procedure:**

Notes: (If only the main element is being changed, ignore points 3, 5 and 6)

1. Loosen the snap locks and lift off the cap.
2. Take out the main element
3. Take out the safety element
4. Check or replace the main air filter element as required
5. Check and clean or if necessary replace the safety element
6. Insert new or cleaned safety element
7. Insert new or cleaned main filter element
8. Set the cap back on and fasten it



Do not knock or hit the filter elements to clean them. Do not use any filter elements with damaged fins or seals to prevent damage to the engine.

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### 1.7.-13 Maintaining the Water Sprinkler Filter (Option)

A water sprinkler is installed in the shredder to bind the dust produced during shredding. The water filter is equipped with a pipe connection.

The water jet pressure can be set using the hand wheel for setting the holding pressure. We recommend a pressure of between 2 and 3 bar for optimal sprinkling of the material to be shredded.

The filter is suitable for use in cold water up to maximum water and ambient temperatures of 30°C. Material damage may occur at higher temperatures or due to direct sunlight.

▪ **Initial commissioning or start-up after maintenance work:**

1. Connect the water hose with quick-release coupling to the shredder, open the water supply
2. Deaeration of the water filter:  
For this purpose, perform backwashing in the automatic mode (open the solenoid switch).

▪ **Cleaning the water filter:**

The water filter sieve is to be cleaned by backwashing. It should be cleaned every two months (or at shorter intervals in case of heavy soiling).

Procedure:

1. For backwashing, turn the rotating basket fully to the left.

The sieve and glass bell are cleaned by the backwash water.

Collect or drain off the backwash water.

2. After cleaning (visual inspection of the sieve), turn the rotating basket to the right until it engages (until no more water comes out).
3. If necessary, repeat the backwashing several times until the sieve is clear.
4. Set the date for the next backwashing on the filter head.

Only use water and mild liquid cleaning agents (soap) to clean the outside of the filter, never use solvents.

1.7.-14 Adjusting the Belt Tensioning and Alignment

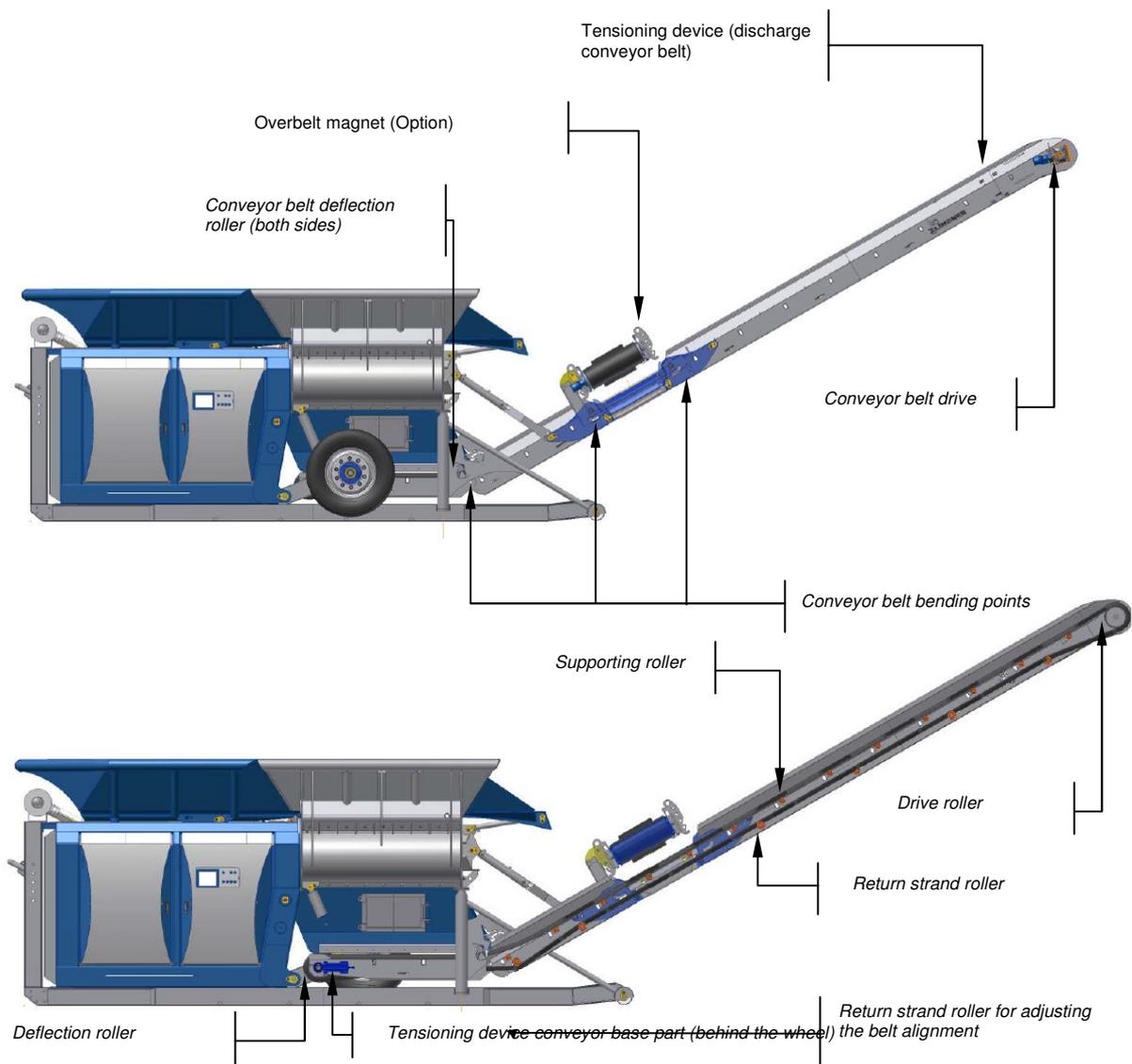


Do not tension or align the discharge conveyor belt unless it is switched off. Any adjustment work performed while the conveyor belt is running involves danger of death!

Wear work gloves when carrying out repair work to reduce the risk of injuries.



The belt tensioning and belt alignment must be checked and if necessary be readjusted after each change of location.



▪ Tensioning the conveyor belt

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For tensioning, use the tensioning bolts located in the upper part of the conveyor belt. The conveyor belt must neither be too tight nor too loose.



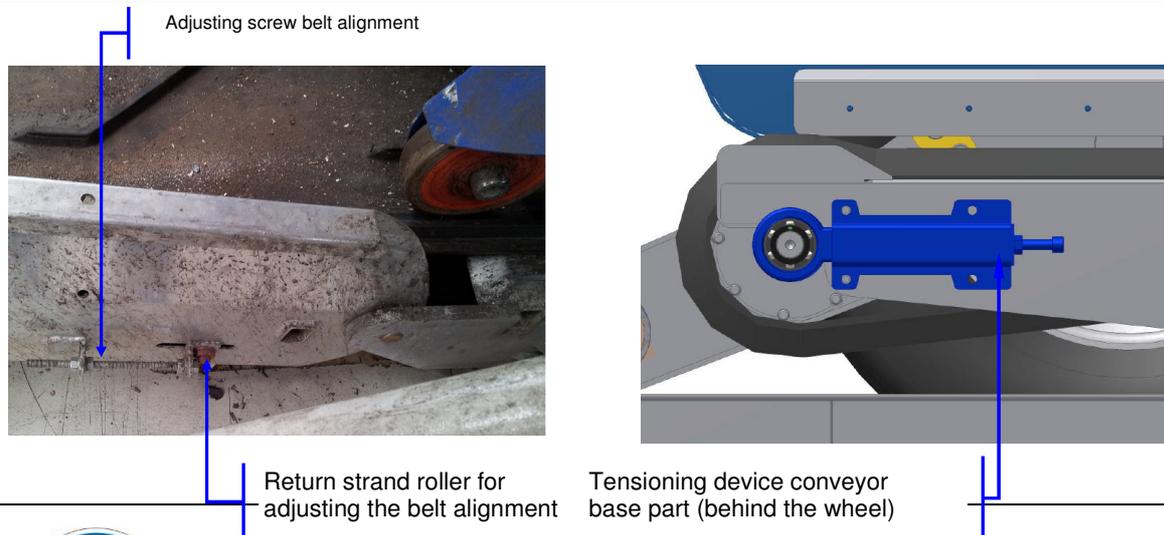
Please ensure that the axles of the belt are always running parallel, i.e. the distance of the axes between the drive roller and the bending point of the belt and between the bending point of the belt and the deflection roller must be equal both on the right and on the left-hand side of the conveyor belt.

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If the belt is tensioned too tightly, the rubber will be pushed into the deflection rollers at the bending point. Ideally, the belt should lie on the return strand rollers (under the belt) and hang down slightly. Under the belt, the conveyor belt must have close contact with the return strand roller for adjusting the belt alignment.

▪ **Adjusting the belt alignment**

The belt alignment is adjusted using the set screw on the return strand roller above the bending point. Before adjusting the belt alignment, check the belt tensioning and make sure that the axes of the drive roller, the bending points and the deflection roller are in parallel.



Never adjust the belt alignment on the tensioning device of the drive roller.

If you set the return strand roller higher using the adjusting screw, the belt will run more to the left on the drive roller (towards the operator). If you set the return strand roller lower, the belt will run more to the right on the drive roller (away from the operator).

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### 1.7.-15 Assembly and Disassembly of the Discharge Conveyor Belt Rollers

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Wear work gloves when carrying out repair work to reduce the risk of injuries.

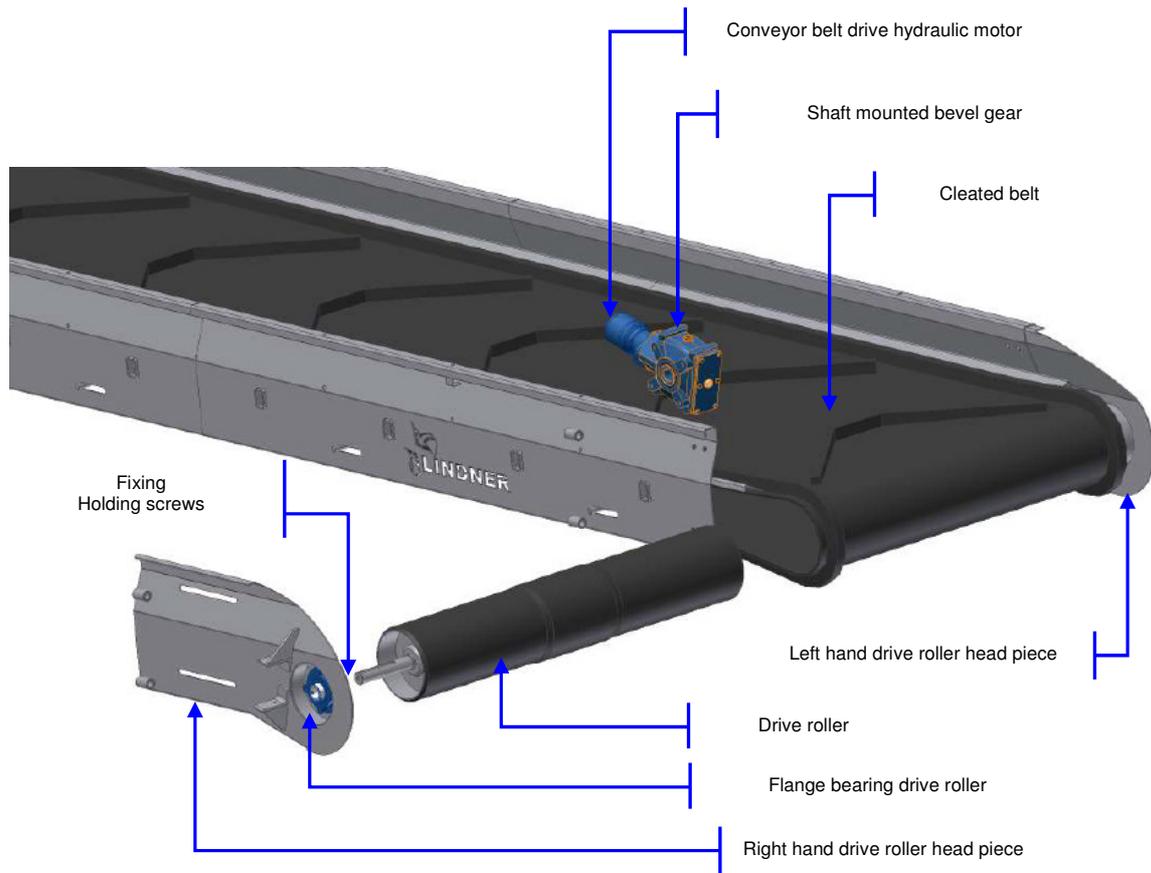
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Only use suitable and approved hoisting gear.

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Disassemble the discharge conveyor belt drive roller in the following order:

1. Drive belt into lowest position.
2. Slacken belt on tightening screws of the head pieces as far as possible.
3. Remove holding screw shaft mounted bevel gear.
4. Remove holding screw drive roller on the opposite side
5. Pull off shaft mounted bevel gear.
6. The hydraulic hoses can remain installed. Put shaft mounted bevel gear with mounted hoses carefully down on the belt in the upper belt area.
7. Remove head piece on the side of the shaft mounted bevel gear. Attention, drive roller drops due to its own weight.
8. Take drive roller out towards the side from the head piece opposite side and belt. Attention, because of the heavy weight use equipment or another person to help you.

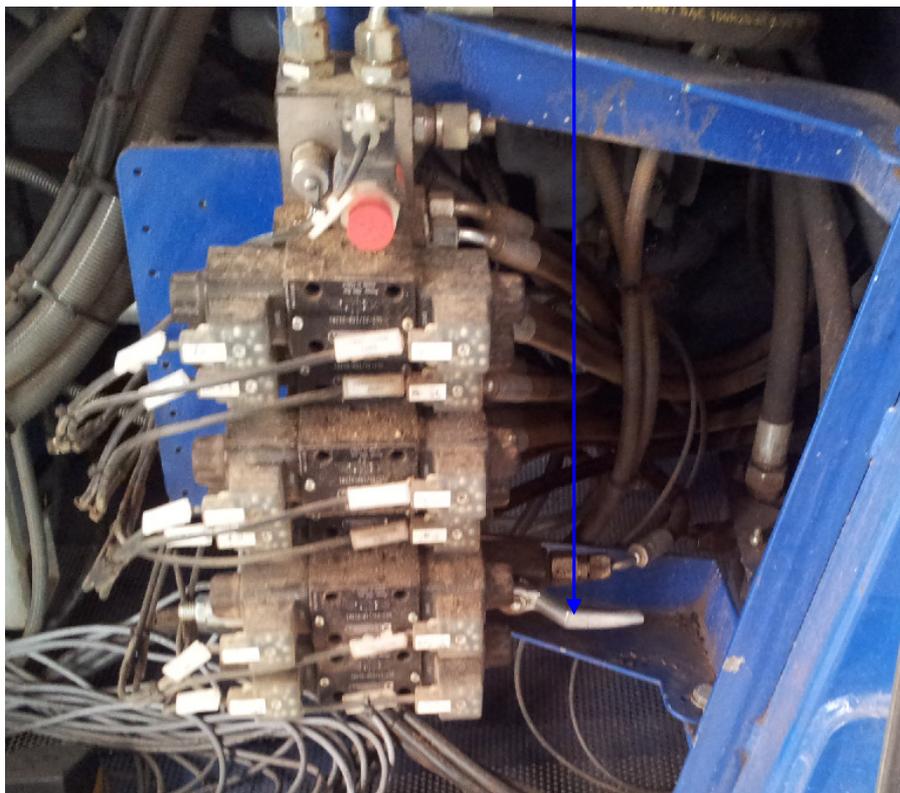


### 1.7.-16 Tilting Hopper 1 up

Proceed as follows if maintenance and repair work has to be performed underneath the raised tilting hopper 1:

1. Set the key switch (Manual-0-Automatic) to "Manual".
2. Switch to "Prepare"
3. Activate tilting hopper 1 with the icon.
4. When the tilting hopper reaches the upper position, close ball valve (tilting hopper 1) on the valve block in the engine compartment.
5. The tilting hopper must be secured mechanical against lowering. It is not sufficient to have the hydraulic cylinders fully extended.

Ball valve tilting hopper 1

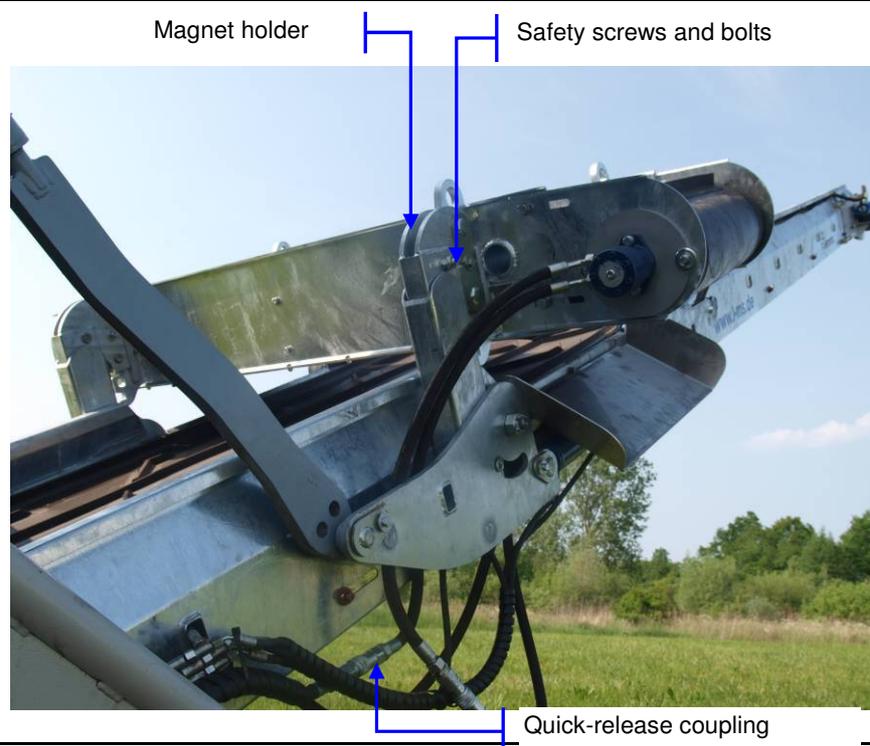


Remove the mechanical securing device after completion of the work, then set the ball valve (tilting hopper 1) to initial position (tilting hopper is lowered).

### 1.7.-17 Dismounting the Overbelt Magnet (Option)

When you remove the overbelt magnet from the shredder, you have to fold out the discharge conveyor belt and proceed as follows:

1. Discharge conveyor belt into lowest position.
2. Remove hoses from the quick release. Attention, note the position of the hoses for re-installation of the hoses.
3. Secure the overbelt magnet using suitable sling gear (e. g. ropes, chain set with suspension bar). - In doing so, make sure to observe their load bearing capacity.
4. Remove the securing screws on both sides.
5. Bring the magnet slightly into tension by means of lifting equipment.
6. Remove the securing screws on both sides.
7. Take the overbelt magnet down under consideration of the safety regulation and place it on a level surface or Euro pallet.
8. Safely attach the hydraulic hoses to the holder (e. g. by means of cable ties).



Always wear personal protective equipment (work gloves, safety boots, etc.) to minimise the injury risk.



The hydraulic hoses must be free of pressure. Accordingly, the shredder has to be switched off before dismantling the overbelt magnet and be secured against restarting.

Always proceed with utmost care when dismantling the hydraulic hoses due to high hydraulic oil temperatures. Danger of scalding! The oil escaping while dismantling must be collected in a container and must never flow onto the ground.

**1.7.-18 Welding in new Knives, Breakers and Blocks**



Remove the shredding tools before proceeding.

Knife, breakers and blocks are welded using basic-coated rod electrodes under inert gas (MAG).

The following parameters should be observed when performing welding work:

Recommended welding parameters	
<b>Welding fillers for joint welding</b>	SG 3
<b>Inert gas filler rod thickness</b>	min. 1.2 mm (VOG 16/60)
<b>Output of the welding apparatus</b>	350 – 400 Amperes
<b>Welding current</b>	approx. 250 – 280 amperes
<b>Number of welding layers</b>	3 layers (block: 1 item)

**Procedure:**

Welding in the knives			
No.	Activity	Result	Notes
<b><u>Prerequisites</u></b>			
	<ul style="list-style-type: none"> <li>✓ Knife is broken off.</li> <li>✓ Switch the shredder off and secure it against accidental restarting.</li> </ul>		
<b><u>Safety instructions</u></b>			
	<ul style="list-style-type: none"> <li>✓ Observe occupational health and safety regulations (protective goggles).</li> <li>✓ No combustible material in the working area!</li> </ul>		
1	Remove the shredding tools.		Only use hoisting and sling gear that complies with the regulations.
2	Place the shredding tool down in such that welding can be performed in a horizontal position.		Secure the shredding tool against turning.
3	Remove all pieces of the broken knife and grind the shaft.	The joint must be prepared for welding on a new knife.	
4	The earth cable of the welding apparatus must always be connected to the shredding tool.		Connect the earth cable as closely as possible to the welding point.
5	Weld the knives on in the correct position.		