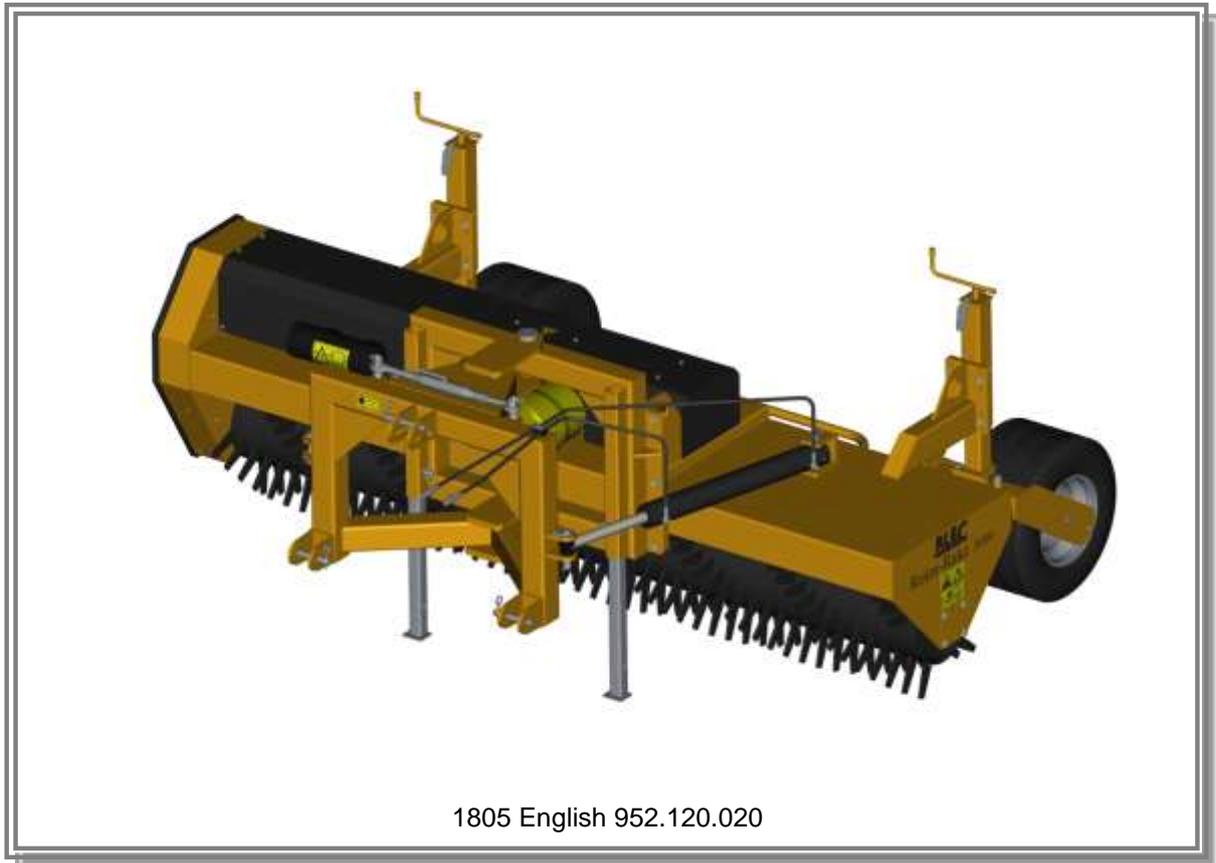


# User Manual and Parts book



## Rotor Rake 3000



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## EU DECLARATION



We – **Redexim BV, Utrechtseweg 127, 3702 AC Zeist, Holland** – declare entirely under our own responsibility that the product:

**ROTOR RAKE WITH A MACHINE NUMBER AS INDICATED ON THE MACHINE AND INDICATED IN THIS MANUAL**

to which this declaration refers, complies with stipulation of the 2006/42/EC machine directive and with the norms NEN-EN-ISO 12100: 2010, NEN-EN-ISO 13857: 2008.

Zeist, 12.02.18



A.C. Bos  
Manager Operations & Logistics  
**Redexim Holland**

## FOREWORD

Congratulations on your Rotor Rake purchase. For safe and long-lasting operation of this machine, it is necessary to read and to understand this user manual. It is impossible to work safely with this machine *without* complete knowledge of the content of the user manual.

This machine does *not* operate independently! It is the user's responsibility to use the correct tractor or other towing vehicle. The user should check the combination of the towing vehicle and the machine with regard to various aspects, such as noise level and safety risks. In addition, the user should comply with the user instructions of the vehicle and spare parts that are used.

All information and technical specifications provided at the moment that this document is published are the most recent ones. Design specifications may be changed without prior notice.

You can contact your sales point or dealer if you have questions and/or if there are ambiguities in this manual or about the machine concerned.

## WARRANTY CONDITIONS

AT THE TIME OF DELIVERY THIS MACHINE IS GUARANTEED AGAINST MATERIAL DEFECTS.

THIS WARRANTY IS VALID FOR A PERIOD OF 12 MONTHS FROM THE PURCHASE DATE.

REDEXIM WARRANTIES ARE SUBJECT TO THE 'GENERAL CONDITIONS FOR SUPPLY OF PLANT AND MACHINERY FOR EXPORT, NUMBER 188' THAT ARE PUBLISHED UNDER THE AUSPICES OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE.

## REGISTRATION CARD

For your own information, fill in the table below:

Serial number of the machine	
Dealer name	
Date of purchase	
Remarks	

## TABLE OF CONTENTS

<b>1. SAFETY INSTRUCTIONS .....</b>	<b>5</b>
1.1 Obligations of the user .....	5
1.2 Maintenance, repairs and adjustments .....	6
1.3 Using the machine .....	6
<b>2. TECHNICAL DATA .....</b>	<b>7</b>
<b>3. GENERAL DESCRIPTION .....</b>	<b>7</b>
<b>4. SAFETY STICKERS .....</b>	<b>8</b>
<b>5. FIRST INSTALLATION .....</b>	<b>9</b>
<b>6. THE PTO AXLE .....</b>	<b>10</b>
6.1 Length of the PTO axle .....	10
6.2 Using the PTO axle .....	11
6.3 Slip coupling: Information and maintenance .....	11
<b>7. ATTACHING AND DETACHING THE MACHINE .....</b>	<b>12</b>
7.1 Attaching the machine .....	12
7.2 Detaching the machine .....	13
<b>8. TRANSPORT .....</b>	<b>14</b>
<b>9. PUTTING THE MACHINE INTO OPERATION .....</b>	<b>14</b>
9.1 Safety .....	14
9.2 Working speed .....	14
<b>10. SOIL TREATMENTS .....</b>	<b>15</b>
10.1 Cultivating .....	15
10.2 Raking and levelling .....	16
<b>11. OPTIONS .....</b>	<b>17</b>
11.1 Grass rotor .....	17
<b>12. MAINTENANCE .....</b>	<b>18</b>
12.1 Maintenance schedule .....	18
12.2 Lubrication points .....	19
12.3 Chain tension .....	20
<b>13. TROUBLE SHOOTING (PROBLEM ANALYSIS) .....</b>	<b>21</b>

## 1. SAFETY INSTRUCTIONS

This machine is designed for safe use. This can only be achieved if you completely follow the safety instructions described in this manual.

**Read and understand** the manual *before* you start using this machine.

If the machine is not used as described in this manual, this can result in injuries and/or damage to the machine.

This user manual lists instructions that are numbered in sequence. You should follow this sequence. A



is an indication of a safety instruction. A  means a tip and/or note.

### 1.1. Obligations of the user

Treating fields/lawns is the only purpose of the machine. Any other use is improper. The manufacturer will not accept any liability for damage resulting from improper use. All risks occurring with this are entirely at the expense of the user.

All persons assigned to operate, maintain and repair the machine by the owner must completely read and understand the operation manual and in particular the chapter of **Safety Instructions**.

Modifications to the machine that have a negative impact on the safety must be rectified immediately.

The user is obliged to check the machine for visible damage and defects before using the machine.

For safety reasons it is not permitted to make changes or adjustments to the machine (except those approved by the manufacturer). If modifications to the machine have been made, then the current CE marking is cancelled. The person that has made these modifications has to apply for a new CE marking himself.

Following the use, maintenance and repair instructions prescribed by the manufacturer is also considered proper use of this machine.

The user is responsible for the safe combination of the machine and the towing vehicle, which comply with the requirements as described in the Technical Data (**see Chapter 2**). This entire combination should be tested for noise, safety, risk and user friendliness. User instructions should also be drafted.

Dress appropriately during work activities with the machine. Wear sturdy shoes with steel toecaps, long trousers and tie up long hair. Do not wear loose clothing.

The general applicable health & safety (Dutch: ARBO) regulations must also be followed in addition to the instructions in this user manual.

Relevant traffic regulations also apply in case of using public roads.

## 1.2 Maintenance, repairs and adjustments

Keep a record of the repair activities.

When unskilled people use, maintain or repair the machine, this could result in injuries to the user *and* to third parties. **This should be avoided!**

Use only original **Redexim** parts for maintenance or repairs because of the safety of the machine *and* of the user.

Only authorised technical personnel may carry out repairs to the machine.

When carrying out maintenance, adjustments and repairs, it is necessary to block the machine in order to prevent it from sinking away, driving off *and/or* sliding off.

If a hydraulic installation is present, you should **always** make it pressure-free *before* working on this installation.

Used oil/grease is harmful to the environment. Dispose of these substances according to the regulations that apply in your location.

## 1.3 Using the machine

Attach the machine to the towing vehicle according to the regulations. Pay close attention to the risk of injury!

Never use the machine in the absence of protective guards and safety stickers.

Check the machine for loose bolts, nuts and components *before* every operation.

Check whether you have a clear field of vision – both close by and far away – *before* you start moving.

All persons that are going to operate the machine must be familiar with all the functions and control elements of the machine *before* starting any work activities.

Never crawl under the machine! If necessary, tip over the machine to work at the bottom side.

If present, check the hydraulic hoses regularly and replace these when the hydraulic hoses are damaged or appear old.

## 2. TECHNICAL DATA

Type	<b>Rotor Rake 3000</b>
Recommended vehicle	Vehicle with a 65-100 hp engine and minimum 1,400 kg (3100 lbs) lifting capacity at 610mm behind the lifting eyes
Working width	3.0 m (118")
Working depth	0-50mm (0"-1.9")
PTO speed	350 - 540 rpm
Tyre pressure	2 bar
Weight	1,200 kg
Dimensions (L x W x H)	2.7 x 2.1 x 1.3 m (106"x83"x51")
Three-point system	Cat. 2
Gearbox oil	80W-90 GL-5 (3.3 litres)
Standard components	<ul style="list-style-type: none"> <li>- Adjustable set of wheels</li> <li>- Hydraulic angle-adjustment</li> <li>- PTO axle</li> </ul>

## 3. GENERAL DESCRIPTION

The Rotor Rake is designed to carry out various jobs, such as cultivating, raking and levelling the top layer. The toothed rotor is propelled by the PTO and rotates counter to the driving direction. The rotor can be turned to move stones and other rough materials aside. The operation of the various functions is as follows:

- **Cultivating**

You should lower the rotor to the required depth to grind the soil.

- **Raking**

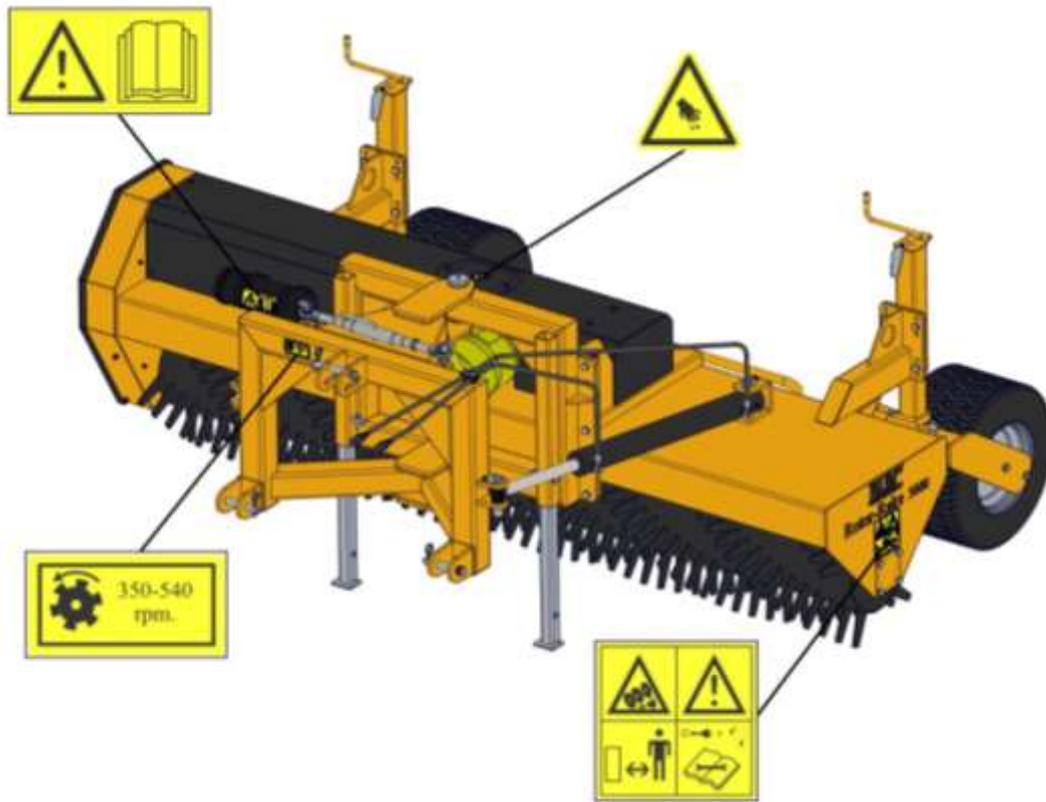
Rubbish and stones can be moved aside by adjusting the working depth so that the rotor teeth cut at least through the soil.

- **Levelling**

Levelling can be done by adjusting the machine so that the rotor teeth touch the irregularities in the field and fill these up.

## 4. SAFETY STICKERS

Safety stickers are located on both sides of the machine. These safety stickers must always be clearly visible and legible and must be replaced if they have become damaged.



 <p><b>921.280.402</b></p>	<ul style="list-style-type: none"> <li>- In case of maintenance, adjustments and repair, <b>always switch OFF the engine of the towing vehicle.</b></li> <li>- Keep a distance of minimum 4 metres if the machine is operating (except the operator).</li> </ul>
 <p><b>900.280.402</b></p>	<ul style="list-style-type: none"> <li>- Prior to using the machine, the operators of the machine must read the user manual carefully.</li> </ul>
 <p><b>900.280.404</b></p>	<ul style="list-style-type: none"> <li>- The user is at great risk of being injured by other rotating parts.</li> </ul>
 <p><b>900.260.422</b></p>	<ul style="list-style-type: none"> <li>- The safe operation range of the machine is between 350 and 540 rpm.</li> </ul>

## 5. FIRST INSTALLATION

The machine should be prepared for use as follows (**Figures 1 and 2**):

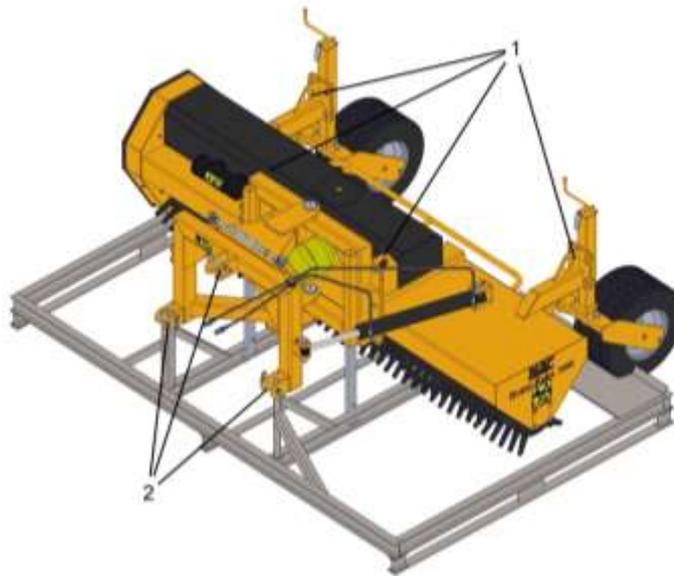
1. Attach cables to the hoisting points **(1)**.  
Make sure that the crane and hoisting cable can handle minimum **2,000 kg (3,300 lbs)**.
2. Lift the machine including the pallet approx. 10 cm (4") off the ground.
3. Loosen the pallet by removing the 3-point pins **(2)**.
4. Pull the pallet from under the machine.
5. Pull pin **(3)** out of the support and slowly lower the support **(4)**.
6. Retighten the support **(4)** using the pin **(3)** at the lowest position.
7. Carefully lower the machine until it stands safely on the ground.



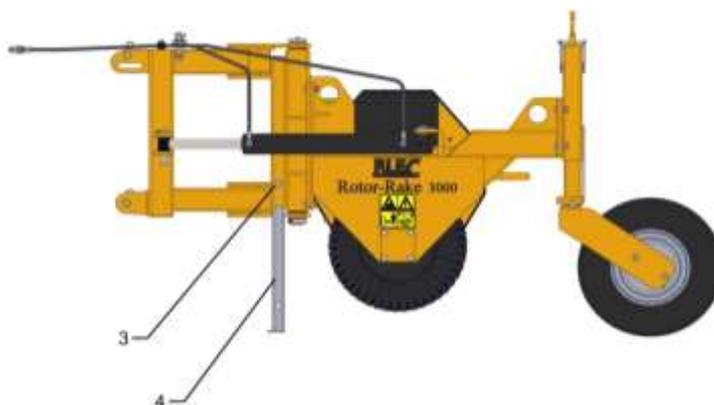
**!! KEEP A SAFE DISTANCE. THE MACHINE MAY START TO SLIDE DURING HOISTING !!**



**!! NEVER CRAWL UNDER THE MACHINE !!**



**Figure 1**



**Figure 2**

## 6. The PTO AXLE

The PTO axle (the Power Take Off axle) is a very important component, which takes care of the drive from the tractor to the machine. The PTO axle ensures safe use of the machine on condition that it is properly installed and maintained. The PTO has its own CE certification and manual. These are located on the PTO axle.

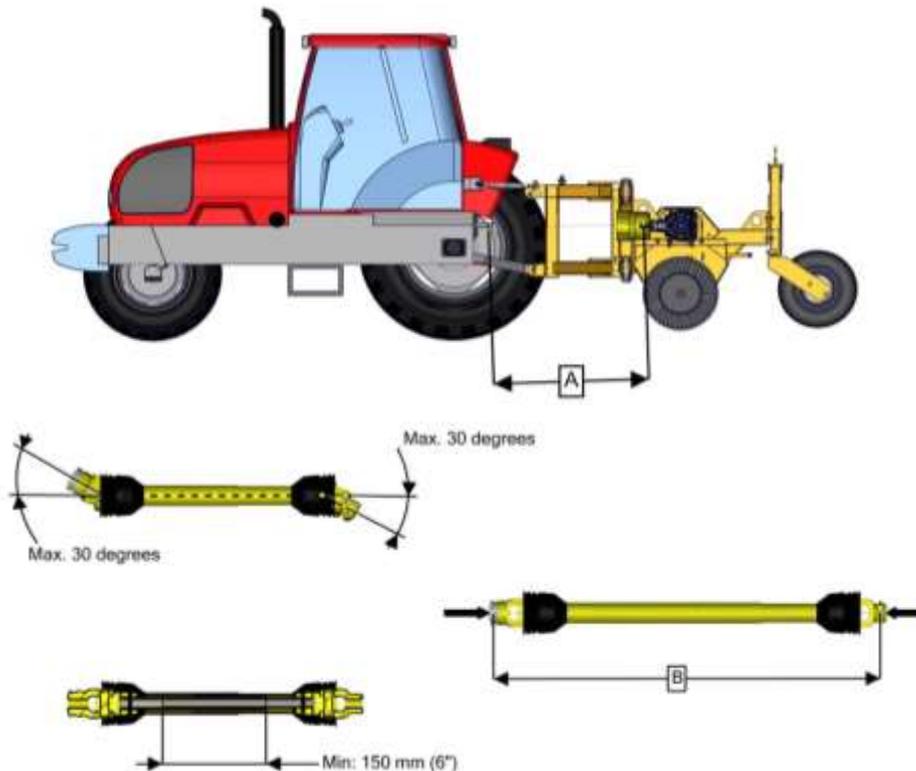


Figure 3

### 6.1 Length of the PTO axle

The length of the PTO is very important. If it is too long, it can damage the drive of the tractor and/or the machine. If the overlapping length of the cylinders becomes less than 150 mm (6") at any time, it can damage the PTO axle. The required length changes when the machine is lifted or when a different tractor is used! If a new machine is purchased or if another vehicle is used, the length of the PTO axle should be checked and shortened, if necessary (see **Figure 3**):

1. Measure the distance 'A' (from groove to groove) between the tractor's PTO and the machine's connection point, when the machine is horizontal on the ground and the tractor is attached.
2. Measure the distance 'B' of the PTO in its shortest position from the locking pin to the locking bolt.
3. Divide the PTO in two parts and remove the protection cap at both ends.
4. The ends of the cylinders *and* the protection caps should be shortened:  $(B-A) + 75 \text{ mm (3")}$ .
5. Smooth off all components and then assemble all components. For this purpose, use lubrication grease.
6. Attach the PTO axle at the machine side.
7. Attach the other end of the PTO axle to the tractor.
8. Check the overlap of the cylinders.



**Never use the machine if it has a damaged PTO protection cap. First replace the protection cap.**

## 6.2 Using the PTO axle

The following items must be checked for correct use of the PTO axle:

1. The angle of the rotation points should always be smaller or equal to 30 degrees during work activities.
2. The PTO axle of the tractor must be parallel to the PTO axle of the machine.
3. The overlap of the cylinders must always be minimum 150 mm.
4. Never use the machine if it has a damaged PTO protection cap.
5. For lubrication, please refer to **Chapter 10**.

## 6.3 Slip coupling: Information and maintenance



**Figure 4**

If used and maintained correctly, the slip coupling will protect your machine against damage. You can access to the slip coupling by removing the cap (1) (see **Figure 4**). The following data are important for adjusting the slip coupling:

1. The depressed length of the springs is standard set at 33 mm (1.3”).
2. Whenever the slip coupling slips, the bolts/nuts can be tightened a quarter of a turn until you achieve a minimum length of 31.5 mm (1.25”) of the springs. Additional compression will overload the machine.



**Screwing the bolts/nuts too tight could ultimately damage the machine or create unsafe situations.**



**!! If the slip coupling starts to operate, you should switch off the PTO, lift the machine off the ground, and repeat the start procedure. !!**

## 7. ATTACHING AND DETACHING THE MACHINE

Attaching and detaching the machine has to be done carefully. Follow the instructions below:

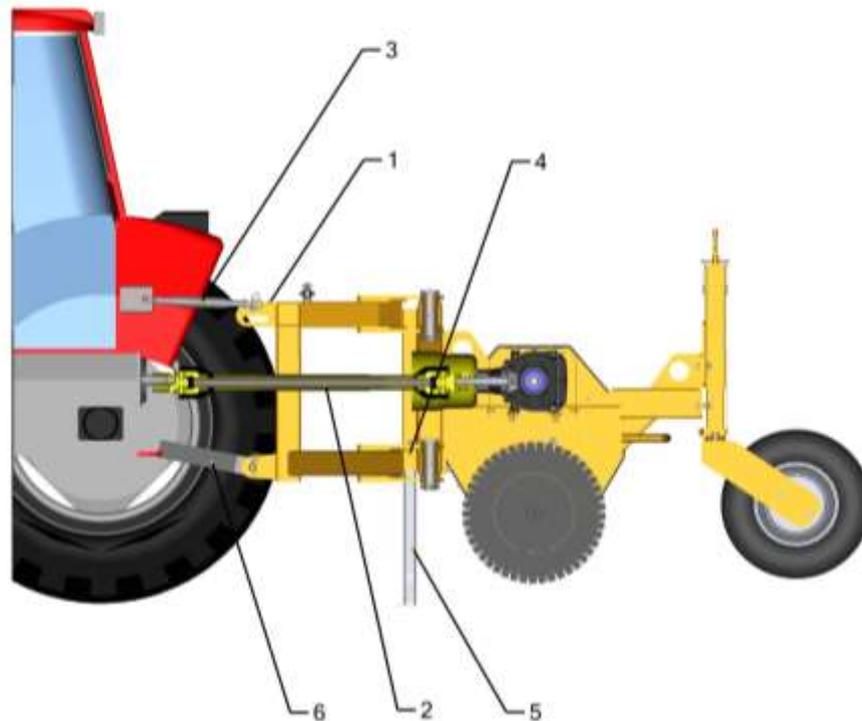


Figure 5

### 7.1. Attaching the machine

Prior to attaching the machine, check the following points:

- Check whether the machine is undamaged and whether it is safe to attach and use the machine.
- Check whether the bolts and nuts are tightened with the correct torque.
- Check whether all safety stickers are on the machine and whether these are undamaged and easily readable. **Never** use the machine if it has damaged or unreadable stickers.

The machine should be attached to the tractor in the following manner:

1. Remove **the 3-point pins (1)** from the machine (**see Figure 5**).
2. Carefully drive the tractor backwards until the lifting arms **(6)** can be attached to the machine.



**!! Make sure that the tractor and the machine cannot move while you are attaching them !!**



**!! Switch off the tractor engine before attaching the machine !!**

3. Attach the lifting arms **(6)** to the machine using the 3-point pins. Lock the pins using the R-clips.
4. Set the stabilizer to a sideways stroke of 100 mm.

5. Mount the top rod **(3)** onto the tractor and attach it to the machine.
6. Adjust the top rod in such a manner that the machine is horizontal.
7. Attach the hydraulic hoses to the tractor.
8. Connect the PTO **(2)** between the machine and the tractor.



**!! Make sure that the 3-point pins are locked using the R-clips !!**

9. Start the tractor and lift the machine off the ground.
10. Dismount the pin **(4)** of the support **(5)**, slide the support **(5)** into the highest position and subsequently, lock it again using the pin **(4)**.

## **7.2 Detaching the machine**

The machine should be detached in the following manner (see **Figure 5**):

1. Place the tractor and the machine on a flat surface.



**!! Make sure that the machine and the tractor cannot move while you are detaching them !!**



**!! Switch off the tractor engine before detaching the machine !!**

2. Dismount the pin **(4)** of the support **(5)**, slide the support **(5)** into the lowest position and subsequently, lock it again using the pin **(4)**.
3. Carefully place the machine on the ground.
4. Loosen the top rod **(3)** and remove it.
5. Loosen the lowest arms **(2)**.
6. Detach the PTO **(6)**.
7. Detach the hydraulic hoses.
8. Start the tractor and drive off.

## 8. TRANSPORT

The user is responsible for transporting the machine on public roads. Verify the national legislation regarding the regulations. In view of the machine's weight, it is not advised to drive faster than 20 km/h (12.4 mph) with a raised machine. Higher speeds can lead to hazardous situations and result in damage to the machine and tractor.

## 9. PUTTING THE MACHINE INTO OPERATION

### 9.1. Safety

Before using the machine, you should check the following:

1. Are there slopes? The maximum slope is 20 degrees for this machine. Always go from top to bottom.
2. Are there hard objects in the ground? If so, use the machine at adjusted speed.
3. Is there danger of flying objects (e.g., golf balls) that distract the attention of the driver? If so, the machine **cannot** be used.
4. Is there danger of sinking/sliding away? If so, postpone the treatment.
5. If the soil is frozen or very wet, postpone the activities until conditions improve.
6. Do NOT make sharp curves when the machine touches the ground.

### 9.2 Working speed

The maximum safe working speed of the machine is approx. 4 km/h. However, the user should check which speed is optimal to achieve the required result per individual situation and soil treatment

## 10. SOIL TREATMENTS

### 10.1. Cultivating

The start procedure of cultivating is very important. Follow the described procedure, because otherwise the machine can get damaged. The Rotor Rake has a maximum working depth of 50 mm, which are continuously adjustable.

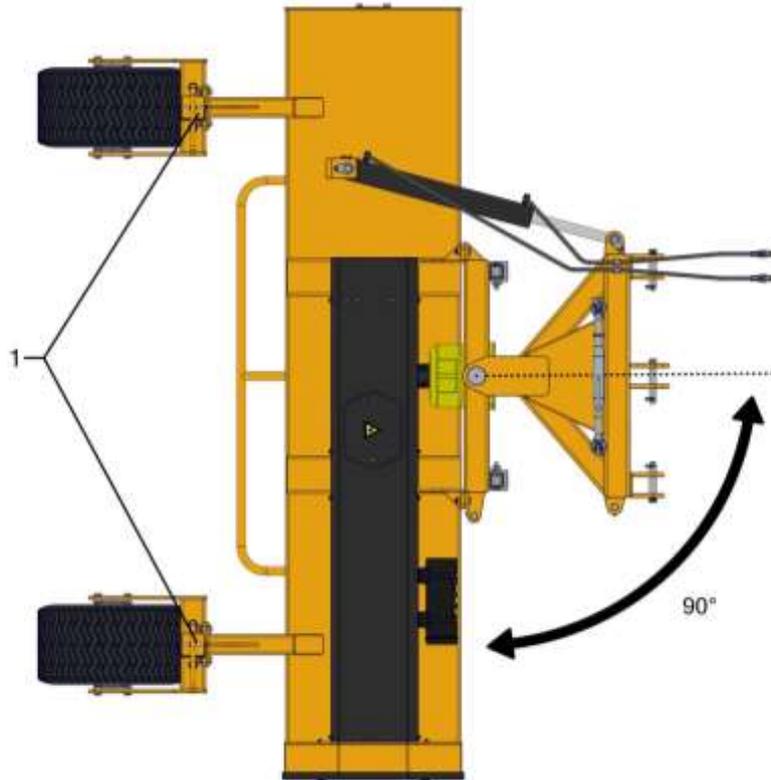


Figure 6

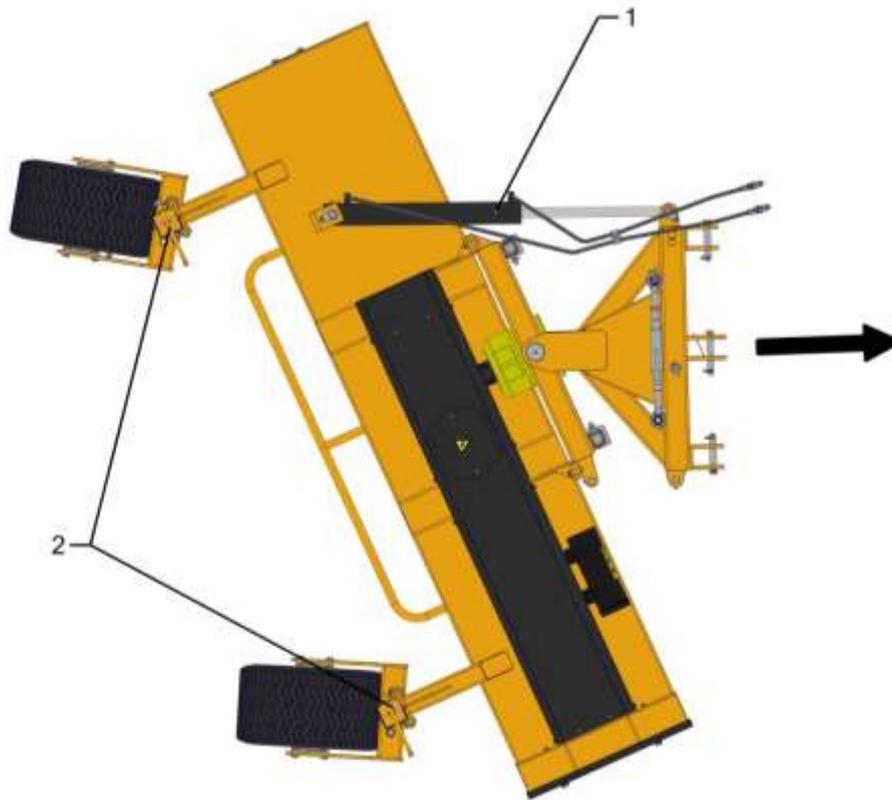
1. Make sure that the rotor frame is perpendicular to the tractor (see **Figure 6**). If not, the rotor frame can be rotated by means of the hydraulic control on the tractor.
2. Lower the machine to a level just slightly above the ground.
3. Set the rotational speed to approx. 1,200 rpm and engage the PTO.
4. Increase the PTO's number of revolutions to 540 rpm.
5. Start moving the tractor and lower the machine to the required depth. The soil is turned over and an even picture is created behind the machine.
6. To adjust the working depth, the wheels can be adjusted by turning the spindles (1) clockwise or counter-clockwise. The settings can be seen on the indicators on the spindles.

#### Stopping occurs as follows:

1. Reduce the speed.
2. Lift the machine off the ground.
3. Switch OFF the PTO.

## 10.2 Raking and levelling

The Rotor Rake is designed to move soil, stones, rubble and other materials aside.



**Figure 7**

1. Rotate the rotor frame by pushing the cylinder **(1)** outwards (**Figure 7**) so that the material is moved to the left-hand side.
2. Make sure that the working depth is set so that the teeth of the rotor just cut the soil. To adjust the working depth, the wheels **(2)** can be put higher or lower by turning the spindles **(2)**.
3. Lower the machine so that it just not touches the ground.
4. Set the rotational speed to approx. 1,200 rpm and engage the PTO.
5. Increase the PTO's number of revolutions to 540 rpm.
6. Start moving the tractor and lower the machine to the required depth. Rubble and rocks will now accumulate at the front of the rotor and will be moved to the side. At the same time, the surface that is treated will be levelled.

### **Stopping occurs as follows:**

1. Reduce the speed.
2. Lift the machine off the ground.
3. Switch OFF the PTO.

## 11. OPTIONS

### 11.1 Grass rotor

The Rotor Rake can be equipped with another rotor: the grass rotor (see **Figure 8**). This rotor is designed to take grass or to level it. The rotor includes gear wheels and chain.



Artikelnummer: **252.300.000**

**Figure 8**

## 12. MAINTENANCE

### 12.1 Maintenance schedule

Time schedule	Check point	Work activities
Before <b>every</b> use	Loose parts, bolts and nuts	Tighten loose bolts/nuts with the correct tightening moment.
	Safety stickers	Presence and readability of the safety stickers Replace these if not present or damaged.
	Tyre pressure	Check whether the tyres are under pressure (2 bar).
	General check	Attach the machine to the tractor and operate the machine for 5 minutes. Listen and observe any strange movements/sounds.
After <b>every</b> use	Cleaning	Clean the machine using water. If you clean with high pressure, you should avoid the lubricated components.
After <b>every</b> 20 working hours	Lubrication points	Use EP 2 grease (see Section 9.2).
After the <b>first</b> 50 working hours	Gear-wheel case	Change the oil (3.3 litres GL-5 80W-90).
After <b>every</b> 50 hours	Chain tension	If necessary, tighten the chain (see Section 9.3).
After <b>every</b> 500 hours or after one (1) year	Gearbox	Change the oil (3.3 litres GL-5 80W-90).

## 12.2 Lubrication points

To guarantee the proper functioning of the machine, the lubrication points at both sides of the machine (**Figure 9 and 10**) must be greased periodically. Grease these points according to the maintenance schedule (see **Section 9.1**).

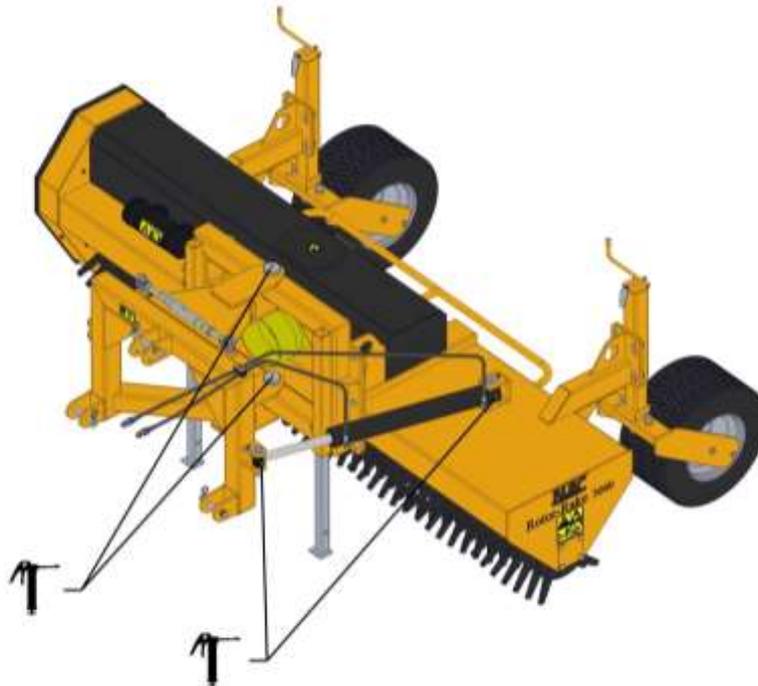


Figure 9

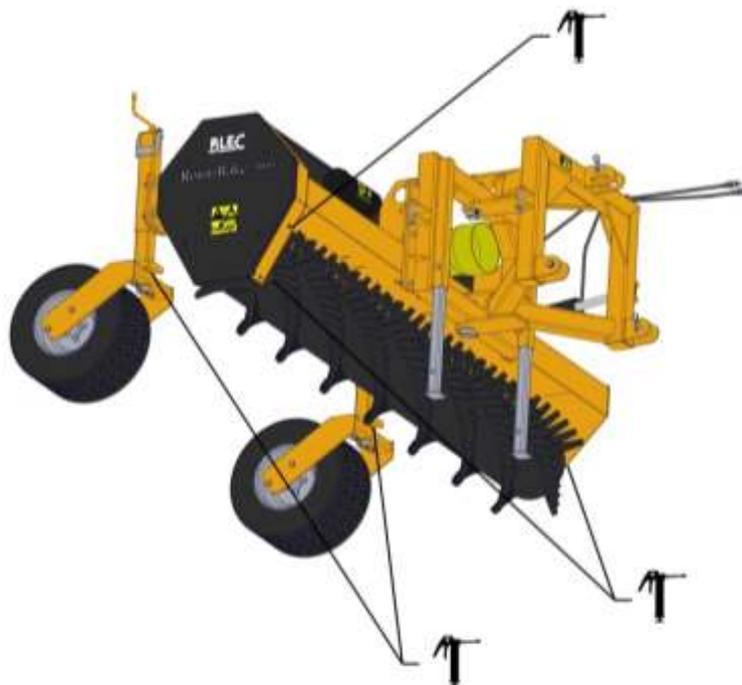


Figure 10

### 12.3 Chain tension

The chain tension is important and should be checked regularly. It is also important to regularly clean the chain and sprocket wheel and lubricate these with grease when necessary (**Figure 11**).

1. Remove the protective cover.



**!! Make sure that the tractor is blocked well and cannot move on its own accord !!**



**!! Switch off the tractor before descending !!**



**!! Make sure that the machine stands firmly on the ground and is blocked against sliding *before* descending from the tractor !!**

2. You should be able to depress the chain (**1**) between 10 mm (0.4") and 15 mm (0.6"). If this is not possible, you need to adjust the chain tension.
3. Loosen the nuts (**2, 3 and 4**).
4. Rotate the nuts (**2 + 3**) until you reach the desired chain tension.
5. Tighten the nuts (**2, 3 and 4**) again.
6. Place the protective cover back on the machine.

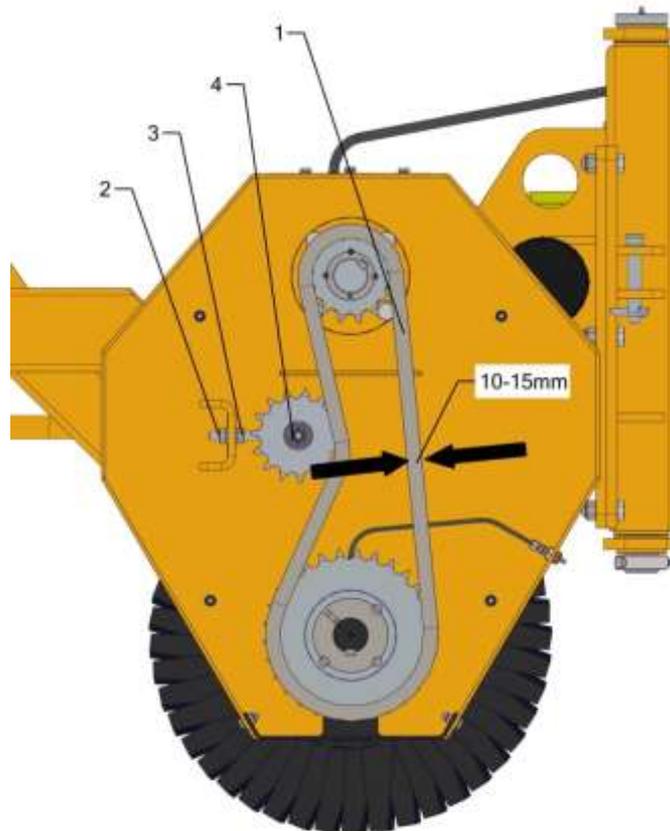


Figure 11

### 13. TROUBLE SHOOTING (PROBLEM ANALYSIS)

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Too much damage to the treated ground	<ul style="list-style-type: none"> <li>- Rotor teeth are damaged.</li> <li>- Not driving in a straight line.</li> <li>- Soil is too wet.</li> <li>- Machine is adjusted too deep.</li> </ul>	<ul style="list-style-type: none"> <li>- Mount new teeth.</li> <li>- Try to drive in a straight line.</li> <li>- Postpone the work until the soil is sufficiently dry.</li> <li>- Adjust the machine to less depth.</li> </ul>
The slip coupling of the PTO skid too often.	<ul style="list-style-type: none"> <li>- Slip coupling is worn out.</li> <li>- Too many rocks</li> <li>- Soil is too hard.</li> <li>- Driving speed is too high.</li> <li>- PTO's rpm is too low.</li> </ul>	<ul style="list-style-type: none"> <li>- Adjust or replace the skip coupling (see Chapter 4).</li> <li>- Adjust the working depth.</li> <li>- Adjust the working depth.</li> <li>- Adjust the driving speed.</li> <li>- Increase PTO's rpm.</li> </ul>
Machine vibrates.	<ul style="list-style-type: none"> <li>- Obstacle(s) between the teeth</li> <li>- Worn or broken teeth</li> <li>- Rotor is bent.</li> </ul>	<ul style="list-style-type: none"> <li>- Remove the obstacle(s).</li> <li>- Replace with new teeth.</li> <li>- Replace the rotor.</li> </ul>
Working depth is not achieved.	<ul style="list-style-type: none"> <li>- Rear wheels are not adjusted correctly.</li> <li>- Subsoil is too hard.</li> <li>- Driving speed is too high.</li> </ul>	<ul style="list-style-type: none"> <li>- Adjust the rear wheels correctly.</li> <li>- Lower the driving speed or pass over the soil more than once.</li> <li>- Reduce the driving speed.</li> </ul>
Too small granulating of the soil	<ul style="list-style-type: none"> <li>- Driving speed is too low.</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the driving speed.</li> </ul>
Too coarse treatment of the soil	<ul style="list-style-type: none"> <li>- Driving speed is too high.</li> <li>- Subsoil is too wet.</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce the driving speed.</li> <li>- Wait for better conditions.</li> </ul>
Treated subsoil is not level.	<ul style="list-style-type: none"> <li>- Rear wheels are not adjusted correctly.</li> </ul>	<ul style="list-style-type: none"> <li>- Set both rear wheels to the same depth; use the indicators.</li> </ul>
Rotor is jammed.	<ul style="list-style-type: none"> <li>- Subsoil is too wet.</li> <li>- Obstacle(s) between the rotor and the frame</li> <li>- Driving speed is too high.</li> <li>- Too much overgrowth</li> </ul>	<ul style="list-style-type: none"> <li>- Wait for better conditions.</li> <li>- Remove the obstacle(s).</li> <li>- Reduce the driving speed.</li> <li>- Cut the overgrowth.</li> </ul>