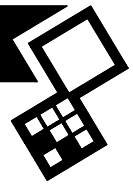


## ***BLECAVATOR 145-210***



Translation of the original User Manual



2201 English 952.120.022 EN



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# EU – DECLARATION OF CONFORMITY



**We,**

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Kwekerijweg 8  
3709 JA Zeist, The Netherlands

**declare that this “EU - DECLARATION OF CONFORMITY” is issued under our sole responsibility and belongs to the following product:**

**BLECAVATOR WITH MACHINE NUMBER AS INDICATED ON THE MACHINE AND IN THIS MANUAL,**

**to which this declaration refers, complies with stipulation of:**

**2006/42/EC Machinery Directive**

**and with the standards:**

- **ISO 12100-1:2010** Safety of machinery - General principles for design - Risk assessment and risk reduction
- **ISO 13857:2019** Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
- **ISO 4254-1:2015** Agricultural machinery - Safety - Part 1: General requirements
- **ISO 4254-5:2018** Agricultural machinery - Safety - Part 5: Power-driven soil-working machine

Zeist, 03-01-2022

A handwritten signature in blue ink, appearing to read 'C.H.G. de Bree', with a stylized flourish at the end.

**C.H.G. de Bree**

**Redexim Handel- en Exploitatie Maatschappij B.V.**

# UK – DECLARATION OF CONFORMITY



**We,**

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3709 JA Zeist, The Netherlands

**declare that this “UK - DECLARATION OF CONFORMITY” is issued under our sole responsibility and belongs to the following product:**

**BLECAVATOR WITH MACHINE NUMBER AS INDICATED ON THE MACHINE AND IN THIS MANUAL,**

**to which this declaration refers, complies with stipulation of:**

**S.I. 2008 No. 1597 HEALTH AND SAFETY The Supply of Machinery (Safety) Regulations 2008**

**and with the standards:**

- **ISO 12100-1:2010** Safety of machinery - General principles for design - Risk assessment and risk reduction
- **ISO 13857:2019** Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
- **ISO 4254-1:2015** Agricultural machinery - Safety - Part 1: General requirements
- **ISO 4254-5:2018** Agricultural machinery - Safety - Part 5: Power-driven soil-working machine

Zeist, 03-01-2022

A handwritten signature in blue ink, appearing to read 'C.H.G. de Bree'.

**C.H.G. de Bree**

**Redexim Handel- en Exploitatie Maatschappij B.V.**

## FOREWORD

Congratulations on your Blecavator 145 / 210 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.

This document is a translation of the original user manual. Upon request, the original user manual is available in Dutch.

## 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	

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## 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

The machine is solely intended for work on fields that should be cultivated. 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 certified safety 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.

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	145	210
Recommended vehicle	35 - 65 hp with a minimum lifting capacity of 800 kg (1764 lbs) at 610 mm (24") behind the lifting eyes	60 - 90 hp with a minimum lifting capacity of 1000 kg (2205 lbs) at 610 mm (24") behind the lifting eyes
Working width	1.45m (57.1")	2.1m (82.7")
Working depth	100 – 180 mm (4"-7")	
Working speed	Depending on the conditions and the required result	
PTO speed	540 rpm	
Number of disks	9	13
Number of cutter knives per disc	6	6
Total number of cutter knives	54	78
Weight in kg	751 kg (1656lbs)	911 kg (2008lbs)
Dimensions (L x W x H)	1.61x1.87x1.07 m (63.4"x73.6"x42.2")	1.61x2.51x1.07 m (63.4"x98.7"x42.2")
Three-point system	Cat. 1-2	
Oil gearbox	GL-5 80W90 (3.4 ltr. / 0.90 gal.)	GL-5 80W90 (3.55 ltr. / 0.94 gal.)
Oil drive	SAE 140EP (2.0 ltr. / 0.53 gal.)	
Grease bearings	EP2	
Standard components	<ul style="list-style-type: none"> <li>- Rear roller</li> <li>- Adjustable levelling bar</li> <li>- Pin rack</li> <li>- Set of cutter knives</li> <li>- PTO with slip coupling</li> </ul>	
Optional	Angled knives	

## 3. GENERAL DESCRIPTION

The Blecavator 145 / 210 is a cultivating machine for preparing the subsoil (e.g., seeding a lawn).  
 The Blecavator 145 / 210 is a 3-point machine. You will need a tractor in order to use the Blecavator 145 / 210.



## 4. SAFETY STICKERS

Safety stickers are attached to both sides of the machine. These safety stickers must always be clearly visible and legible and must be replaced if they have become damaged (see Fig. 1).

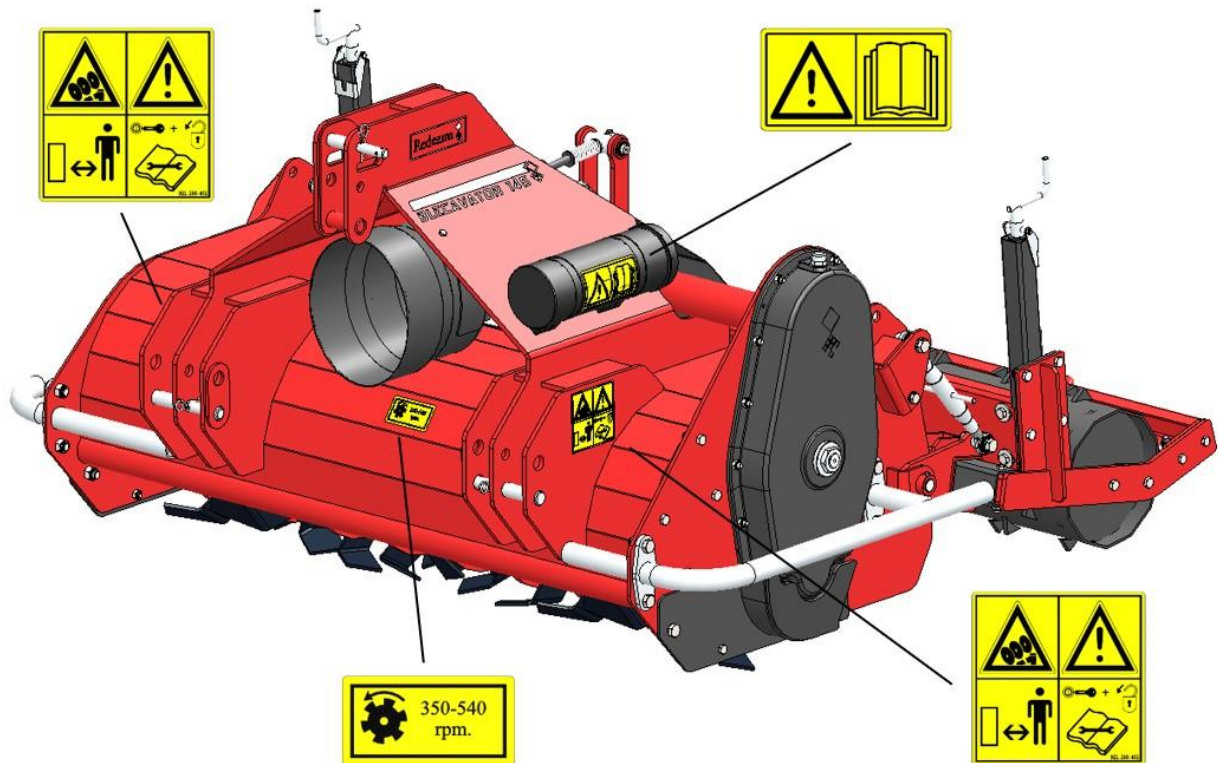






Fig. 1


 <p>921.280.402</p>	<ul style="list-style-type: none"> <li>- In case of maintenance, adjustments and repair, always switch OFF the engine of the towing vehicle and the PTO. Prevent the combination from driving and/or sliding away.</li> <li>- Keep a distance of minimum 4 metres if the machine is operating (except the operator sitting in the towing vehicle).</li> <li>- During operation, NO persons are allowed within the danger zone of the machine, because there is danger of physical injuries caused by moving parts.</li> </ul>
 <p>900.280.402</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>900.260.422</p>	<ul style="list-style-type: none"> <li>- You can operate the machine safely, if the PTO does not exceed 540 rpm.</li> </ul>

## 5. FIRST INSTALLATION

The machine should be prepared for use as follows (see Fig. 2):

 **Make sure that the cable/crane/lift can hoist minimum twice the weight of the machine. (See Chapter 2: Technical Data for the weight.)**

1. Attach a cable to the two hoisting points (1) and one around the rear roller (2).

 **Keep a safe distance. The machine may start to turn/slide away during hoisting/lifting!**

 **Never crawl under the machine!**

2. Carefully lift the machine including the pallet to approx. 100 mm (4") off the ground.
3. Loosen the pallet (4) by removing the pins (3).
4. Lift the machine and off the pallet.
5. Slowly lower the machine and tilt it until it stands safely on the ground (see Fig. 3).
6. When the machine is off the pallet, remove the top plug of the gearbox and replace it with the de-aerator included in the delivery.



Use a piece of wood under the machine to protect it.

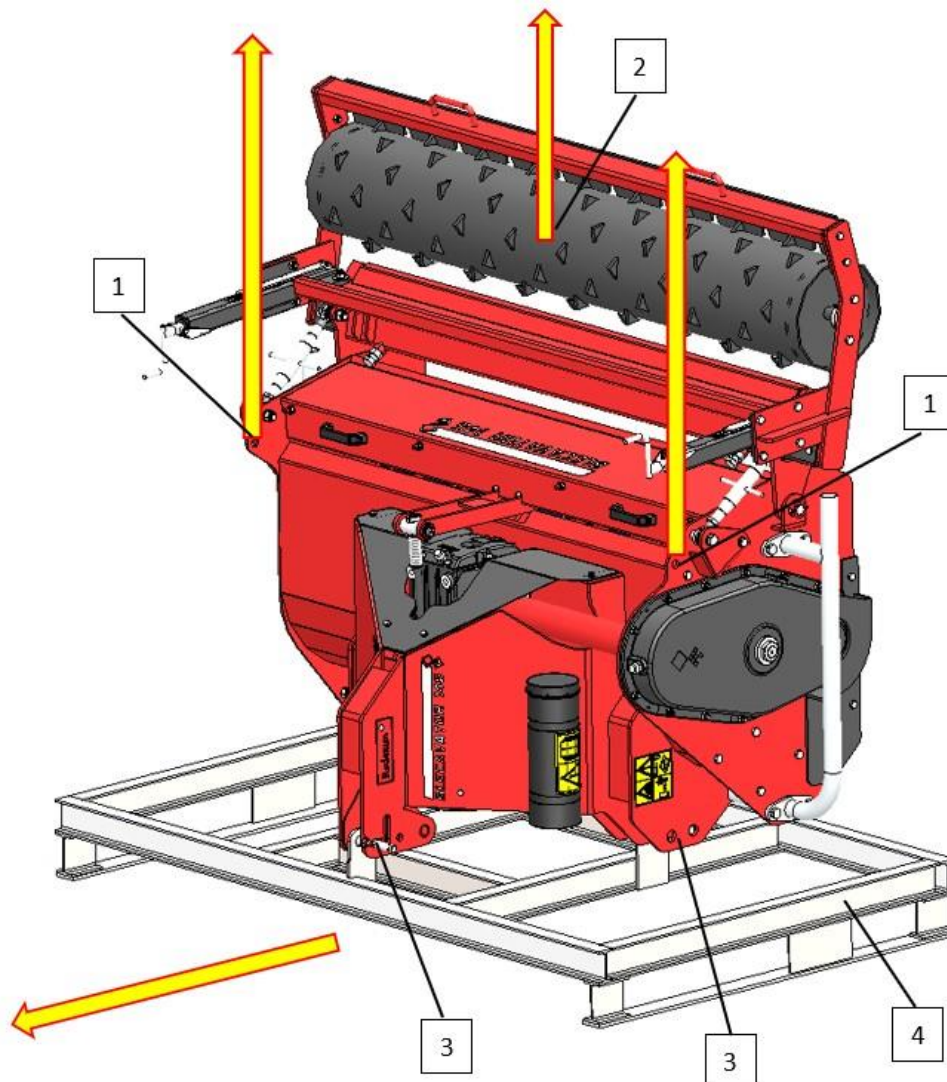


Fig. 2

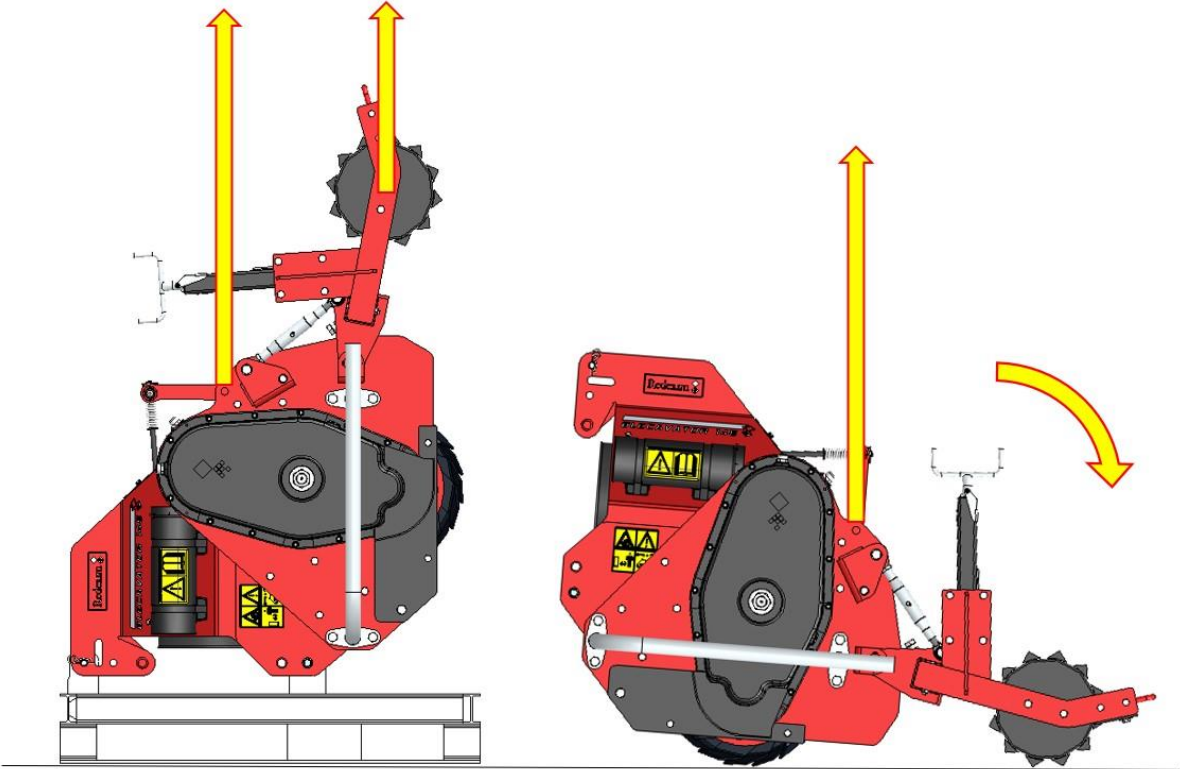


Fig. 3

## 6. The PTO AXLE

The PTO is a very important component that 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. This manual is located near the PTO axle.

See the details listed on the PTO page of the components booklet for specific adjustment values. DO NOT exceed these values. This could result in an unsafe situation and could overload the machine, resulting in damage to the machine.

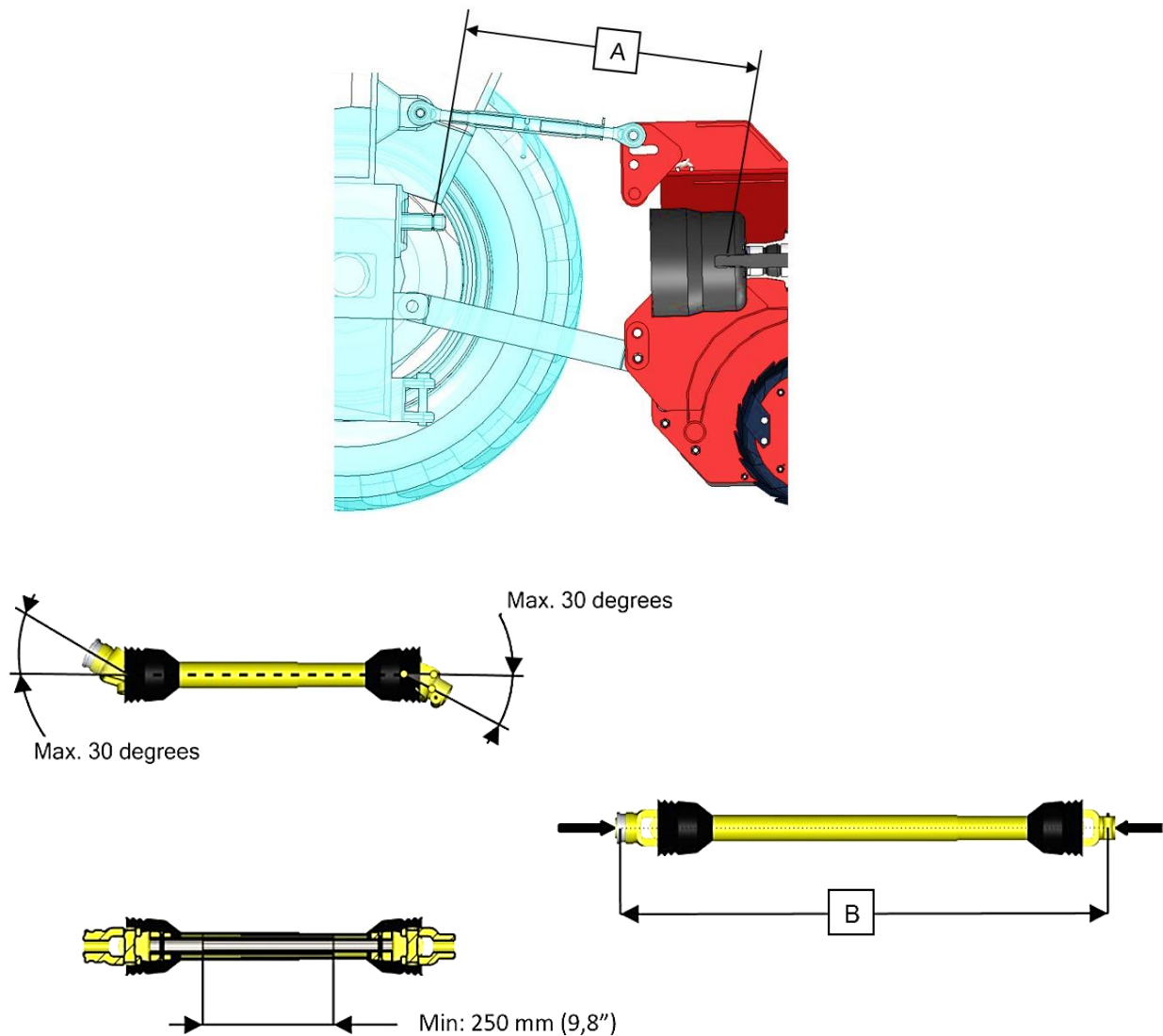


Fig. 4

### 6.1. Length of the PTO axle

The length of the PTO axle 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 250 mm (9.8") 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 towing vehicle is used, the length of the PTO axle should be checked and shortened, if necessary (see Fig. 4):

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 axle in its shortest position from the locking pin to the locking bolt.
3. Divide the PTO axle in two parts and remove the protection cap at both ends.
4. The ends of the cylinders *and* the protection caps should be shortened:  $(B-A) + 125 \text{ mm (4.9")}$ .
5. Smooth off all components and then assemble all components. For this purpose, use lubrication grease.
6. Mount the PTO axle including the slip coupling 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.**



**If the PTO is shortened incorrectly or if another tractor is used, the gearbox may be overloaded and cause damage.**

## 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 250 mm (9,8").
4. Never use the machine if it has a damaged PTO protection cap.
5. See the PTO manual for information about lubrication.



## 7. ATTACHING AND DETACHING THE MACHINE

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

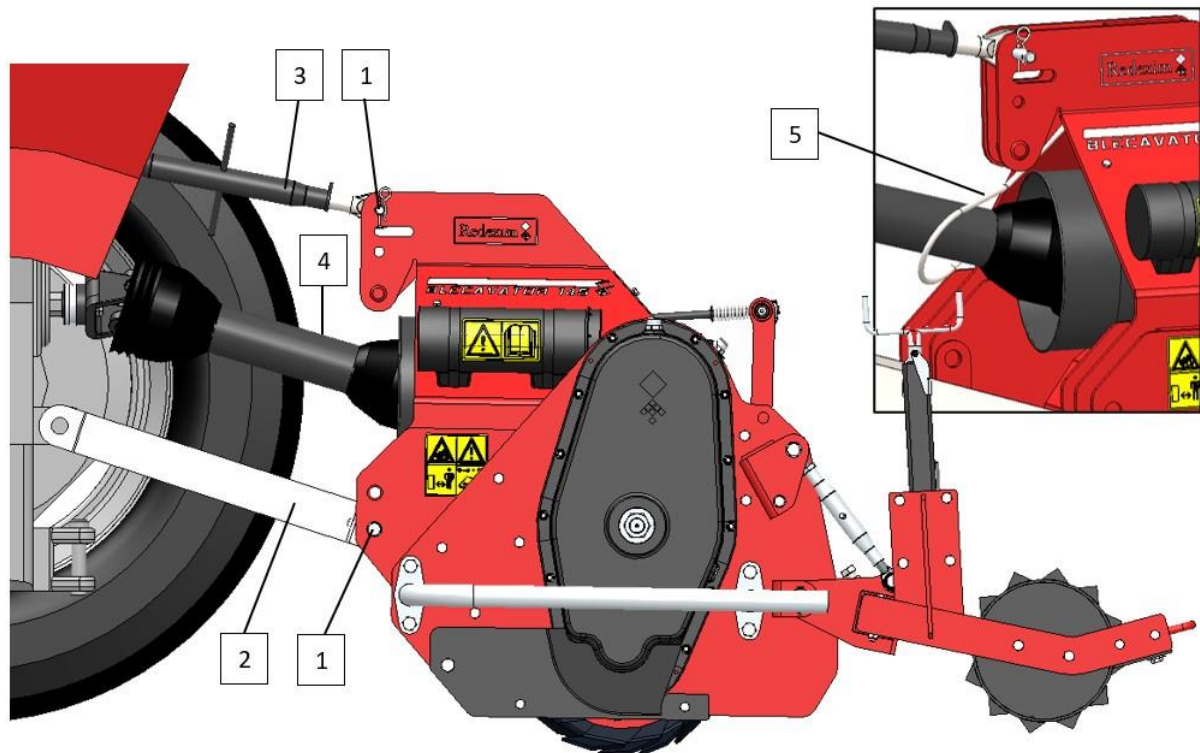


Fig. 5

### 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 the machine for loose components and tighten them.
- 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 (see Fig. 5):

1. Remove the 3-point pins **(1)** from the machine.
2. Carefully drive the tractor backwards until the lifting arms **(2)** 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 **(2)** to the machine using the 3-point pins. Lock the pins using the clips.

4. Set the stabilizer of the lifting arms **(2)** to 100 mm lateral stroke.
5. Mount the top rod **(3)** on the tractor and attach it to the machine.  
Set the top rod **(3)** in such a manner that in working position the machine is parallel to the underground.



**If the machine is incorrectly attached to the tractor, the different PTO angles can cause vibrations in the driveline of the machine. These vibrations may damage the machine.**

6. Attach the PTO **(4)** to the tractor (slip coupling at the machine side) and fold the bracket **(5)** into the holder.



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

7. Start the tractor and lift the machine.

## 7.2. Detaching the machine

The machine should be detached in the following manner (see Fig. 5):

1. Drive to a spot where the machine should be detached.



**Make sure that the parking place has a firm underground and that the machine cannot sink.**



**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. Carefully place the machine on the ground.



**Check again whether the machine is stable on the ground.**

3. Loosen the top rod **(3)** and remove it.
4. Disconnect the lifting arms **(2)** from the machine.
5. Detach the PTO **(4)** at the tractor side and support it by using the bracket **(5)**.
6. 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.

**⚠ When the machine is raised off the ground, the front axle of the tractor has to support minimum 20% of its weight.**

If the machine is not transported towed by the tractor, the machine may be secured/hoisted at the following points (see Fig. 6):

1. Hoisting point for hoisting the machine
2. Securing points positioned at both sides of the machine

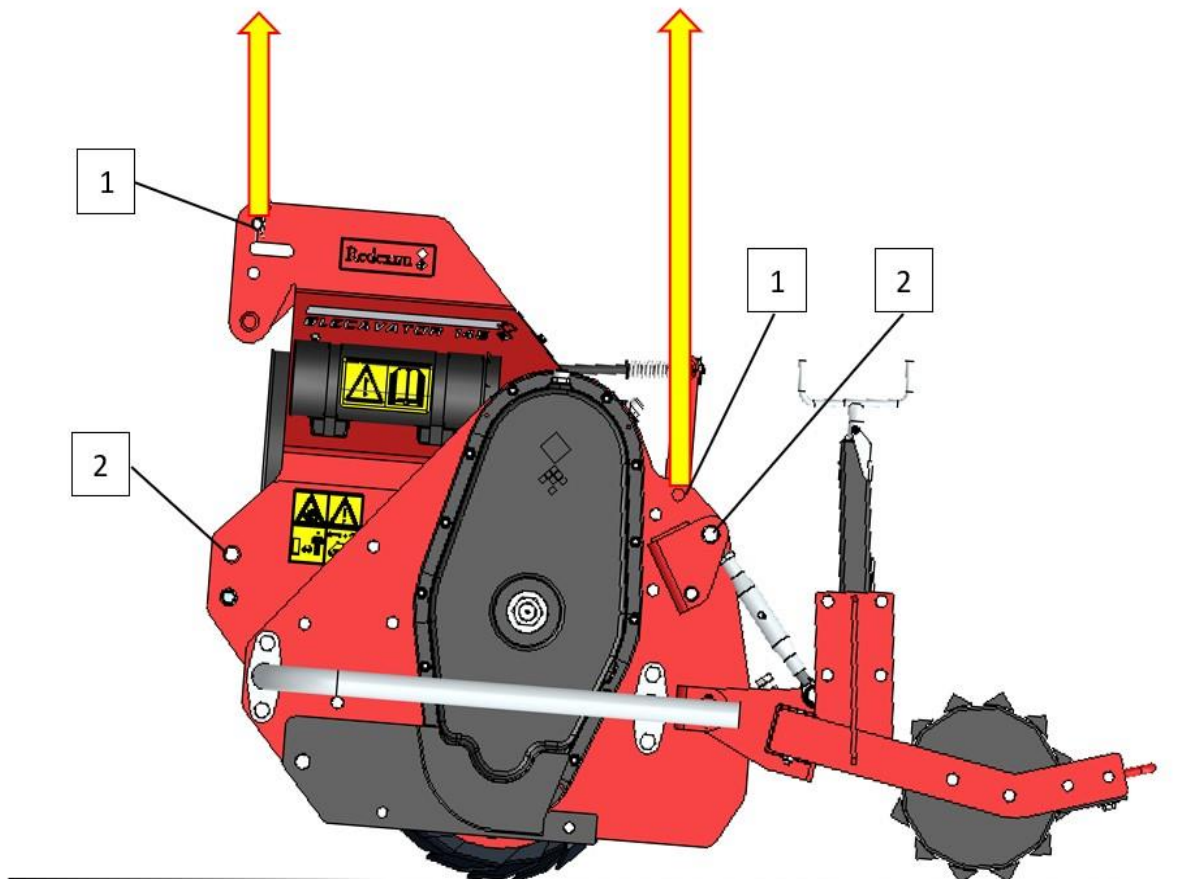


Fig. 6



## 9. PUTTING THE MACHINE INTO OPERATION

### 9.1. Safety

Before using the machine, you should check the following:

1. Are there loose objects in the field? First remove these objects.
2. Are there slopes? The maximum slope is 20 degrees for this machine. Always work from bottom to top.
3. Are there cables/pipes buried in the ground? If so, determine their depth and adjust the working depth of the machine to 60% of the depth of the cables/pipes.
4. Are there hard objects in the ground? If so, use the machine at an adjusted speed and adjust the working depth.
5. Is there danger of situations that distract the attention of the driver? If so, the machine **CANNOT** be used.
6. Is there danger of sinking/sliding away? If so, postpone the processing.
7. If the soil is frozen or very wet, postpone the activities until conditions improve.
8. Do NOT make sharp curves when the machine touches the ground.

### 9.2. Working speed

The maximum working speed depends on the soil conditions, working depth, gearbox settings and the desired result.

The maximum working speed is limited to 6 km/h (3.75 mph) Higher speeds are not recommended and might result in excessive wear & tear and damage to the machine.




**If hard objects can be expected, the working speed should be reduced.**

### 9.3. Start/Stop procedure

The start procedure is **VERY** important. If this procedure is not executed as described below, it might result in serious damage to the machine.

#### The start procedure is as follows:

1. Check the machine for loose components and look whether all components function properly.  
 **If loose components are observed or components do not function properly, the problems must be solved *before* using the machines.**
2. Drive to the spot where the processing should take place.
3. Lower the machine so that it is just slightly above the ground.
4. Set the tractor's engine to approx. 1200 rpm.
5. Put the tractor in the correct gears and drive forwards.
6. Switch ON the PTO.
7. **While it turns**, lower the machine **carefully** into the ground **during** the forward drive.
8. Increase the PTO's revolutions to the maximum allowed value of 540 rpm.
9. Treat a piece of land and assess whether the machine delivers the desired result.

#### Stopping occurs as follows:

1. Lower the PTO's revolutions.
2. Detach the PTO and lift the machine off the ground.
3. Go to the next location and start again as described above.

## 10. TECHNICAL INFORMATION

Generally speaking, the Blecavator 145 / 210 is not a complicated machine. A number of technical issues will be explained. If you still have questions, please contact your dealer who is always ready to assist you.

### 10.1. Adjusting the working depth

The working depth can be adjusted by adjusting the rear roller as follows (see Fig. 7):

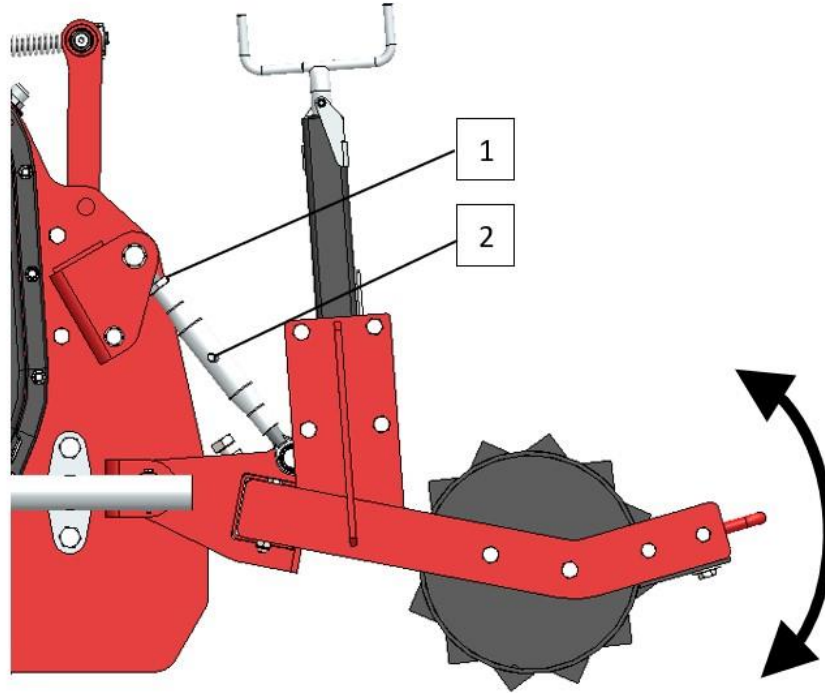


Fig. 7



**!! Switch off the tractor's engine *before* descending !!**



**!! Make sure that the tractor and the machine and PTO cannot move uncontrolled !!**

1. Loosen the nuts **(1)** of the spindles **(2)** on both sides of the machine one whole turn.
2. Turn the roller to the required working depth using the spindles **(2)** on both sides of the machine.
3. Tighten the nuts **(1)** of the spindles **(2)**.

## 10.2. Putting the rear roller off centre

If required, the rear roller can be put off centre. You can slide the roller to the left or to the right so that you overlap the part that is already treated.

Adjusting is done as follows (see Fig. 8):

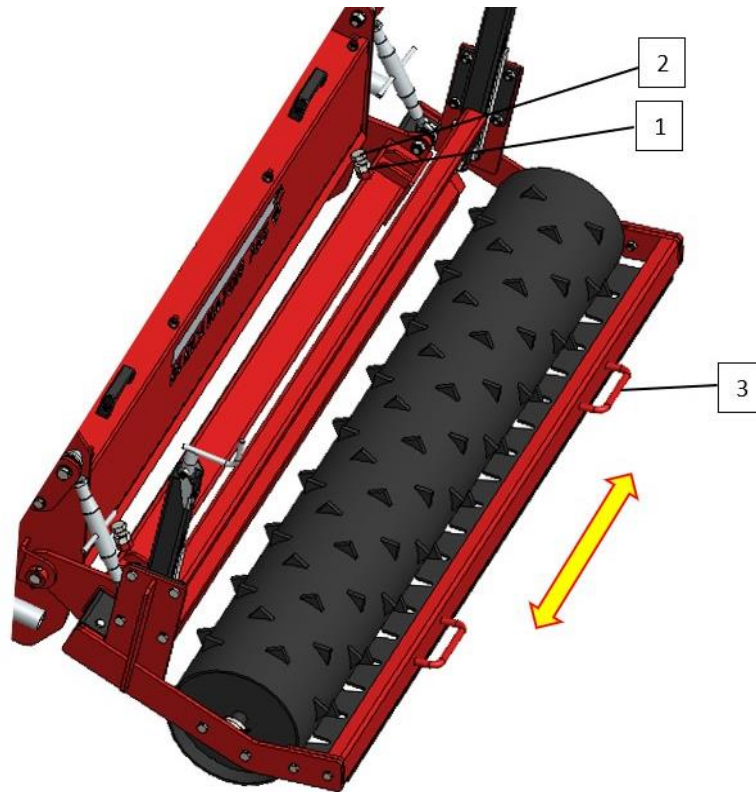


Fig. 8



**!! Switch off the tractor's engine and PTO *before* descending !!**



**!! Make sure that the tractor and the machine cannot move uncontrolled !!**

1. Loosen the two nuts **(1)** and the two bolts **(2)** a few turns.
2. Slide the roller to the required position by lifting the rear roller slightly using the two handgrips **(3)**.
3. Tighten the bolts **(2)** and nuts **(1)**.

## 10.3. Adjusting the levelling bar

The levelling bar is used to obtain a nice looking, flat surface after treatment.

The levelling bar should be set to the required height, which depends on the conditions and composition of the ground.

In general, a nice looking, even end-result is created if a small quantity of soil remains in front of the bar during treatment.

Adjusting is done as follows (see Fig. 9):

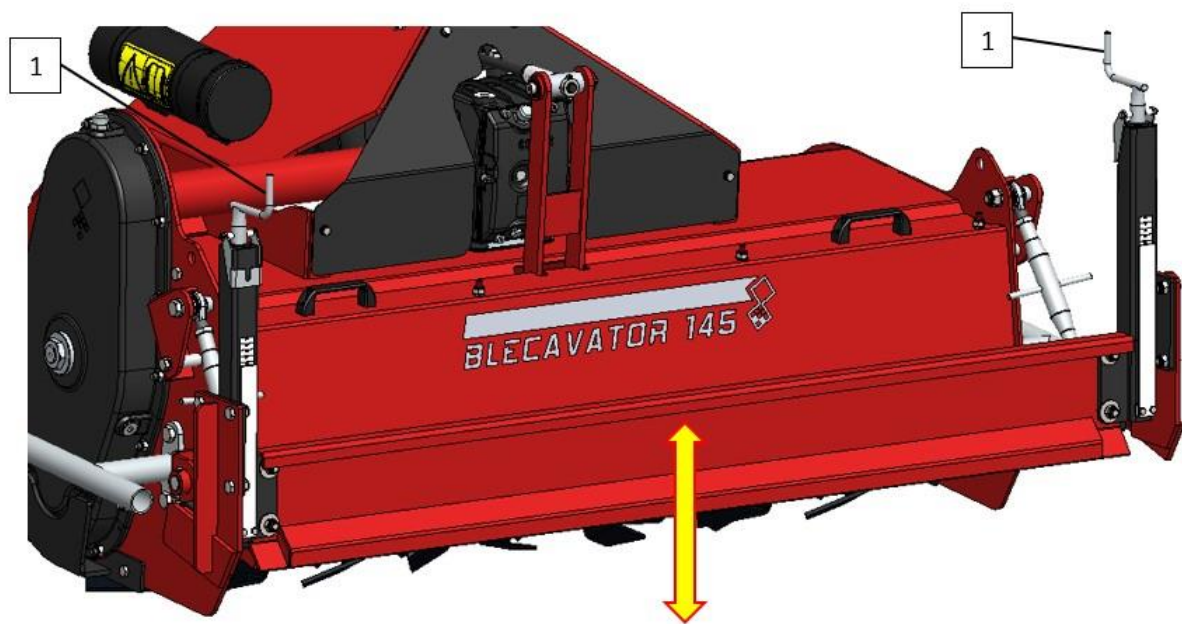


Fig. 9



**!! Switch off the tractor's engine and PTO *before* descending !!**



**!! Make sure that the tractor and the machine cannot move uncontrolled !!**

1. Turn the spindles **(1)** on both sides of the machine until the correct position has been reached.



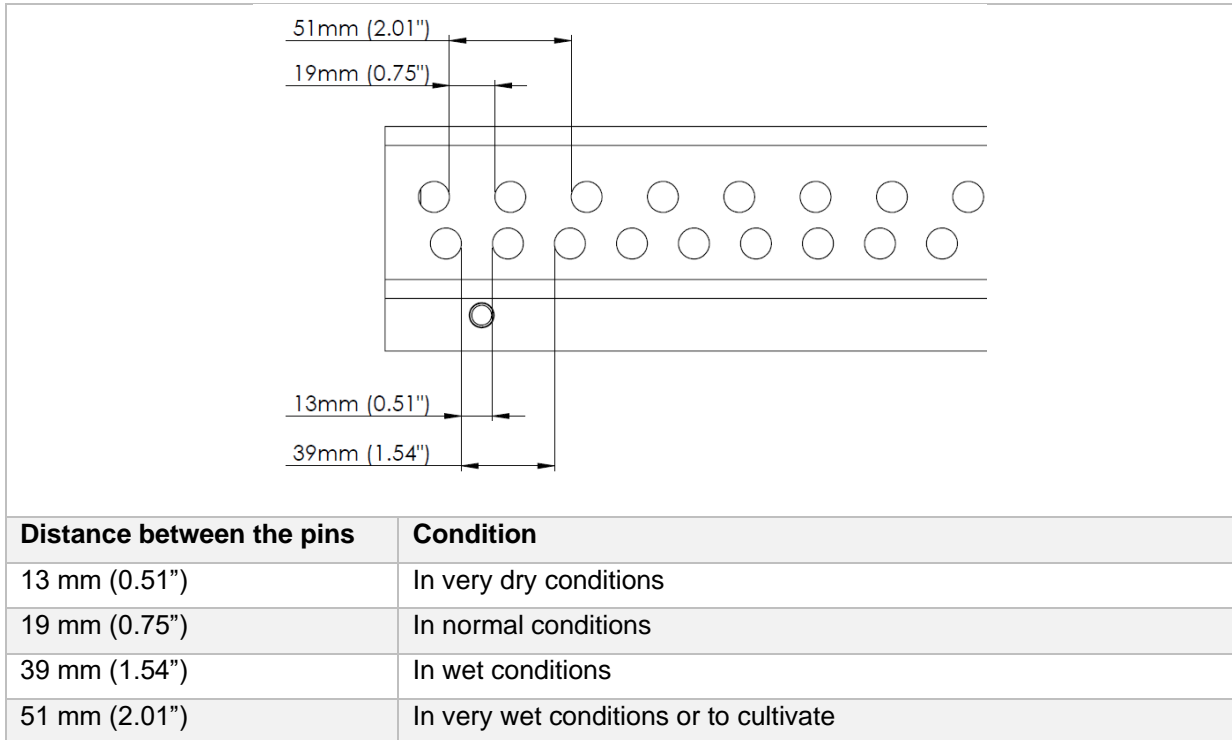
Attention: Both sides of the machine should be positioned at the same depth.

### 10.4. Pin rack

A pin rack is mounted behind the rotor. This pin rack catches large irregularities such as stones. It filters the soil, creating a nice-looking underground that is ready to be sown.

Depending on the ground conditions and the desired result, the filtering can be set to coarser or finer by changing the position and the number of pins.

The following configurations are possible:



Adjusting is done as follows (see Fig. 10):

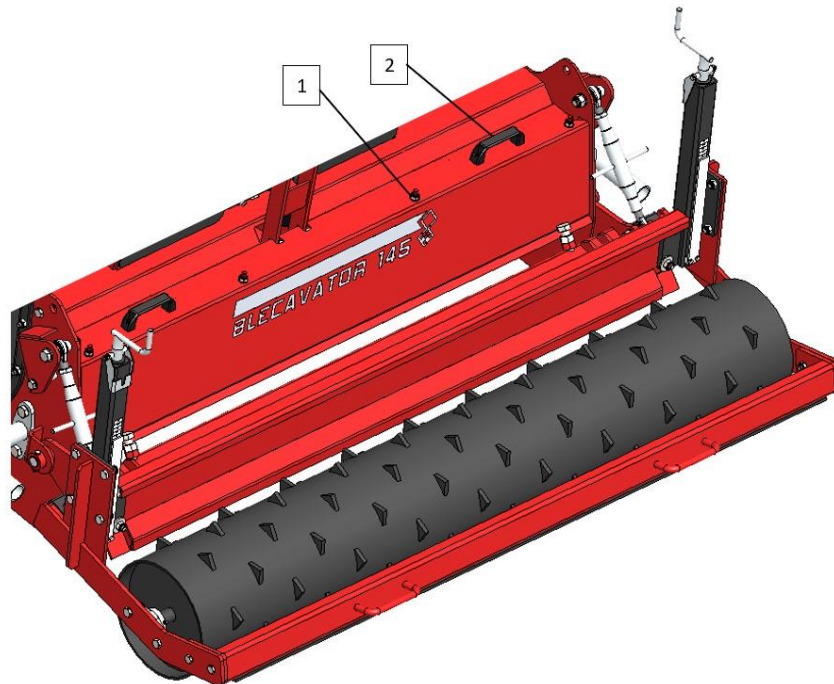


Fig. 10



**!! Switch off the tractor's engine and PTO *before* descending !!**



**!! Make sure that the tractor and the machine cannot move uncontrolled !!**

1. Loosen the nuts **(1)** of the protective covers **(2)** and remove them.
2. Move the pins to the required configuration.
3. Store the removed pins very securely.
4. Return the protective covers **(2)** and tighten the nuts **(1)**.

## 11. OPTIONS

### 11.1. Angled knives

The standard construction of the machine includes slightly angled knives.

If required, the machine can also be constructed to include perpendicular knives (optional). These knives are slightly less bent than the standard knives. This ensures a less tossing treatment of the underground.

See the components booklet for more information.



Fig. 11

## 12. MAINTENANCE

### 12.1. Maintenance schedule

Time schedule	Check point	Work activities
Before <b>any</b> use	Check for loose components.	Tighten the loose components in the correct manner.
	General check	Attach the machine to the tractor and let it run for 5 minutes. Listen and observe any strange movements/sounds.
	Check for oil leakage and check the oil level in the gearbox / side-drive.	Repair the oil leakage and if necessary, top up oil using SAE140 EP (side-drive) / GL-5 80W90 (gearbox).
	Safety stickers	Presence and readability of the safety stickers Replace these if not present or damaged.
	Loose hanging parts around the PTO	Tighten the parts so that they cannot reach the PTO.
After the <b>first</b> 20 working hours (new or repaired)	Lubricate the PTO and bearings.	Use 2 shots of EP2 grease. See Section 12.3 for the position of the lubrication points.
	Check for loose components.	Tighten the loose components in the correct manner.
	General check	Attach the machine to the tractor and let it run for 5 minutes. Listen and observe any strange movements/sounds.
	Check for oil leakage and check the oil level in the gearbox / side-drive.	Repair the oil leakage and if necessary, top up oil using SAE140 EP (side-drive).
	Loose hanging parts around the PTO	Tighten the parts so that they cannot reach the PTO.
After the <b>first</b> 50 working hours (new or repaired)	Change the oil in the gearbox / side-drive.	Use 3.1 ltr. (0.82 gal.) of GL-5 80W90 for he gearbox and 2.0 ltr. (0.53 gal.) of SAE140 EP for the side-drive.
After the <b>every</b> 50 working hours	Lubricate the PTO and bearings.	Use 2 shots of EP2 grease. See Section 12.3 for the position of the lubrication points.
	Check for loose components.	Tighten the loose components in the correct manner.
	General check	Attach the machine to the tractor and let it run for 5 minutes. Listen and observe any strange movements/sounds.
After <b>every</b> 500 hours or after one (1) year	Change the oil in the gearbox / side-drive.	Use 3.1 ltr. (0.82 gal.) of GL-5 80W90 for he gearbox and 2.0 ltr. (0.53 gal.) of SAE140 EP for the side-drive.
	Check the level of grease in the bearing house near the rotor suspension.	Use NLGI3 grade grease. Use approx. 40 ml (1.35 oz.) to fill the bearing house up to maximum 30-40% of the volume of the house.



## 12.2. Cleaning

If a high-pressure cleaner is used to clean the machine, then observe the following rules:

- Do not use aggressive cleaning agents that can affect the machine.
- Maximum water pressure: 70 Bar (1015 PSI)
- Maximum water temperature: 50°C (122°F)
- Do not aim the jet of the high-pressure nozzle directly at the bearings, oil seals, lubrication points and stickers.
- Keep a minimum distance of 0.5 m (1.6 ft) between the head of the high-pressure cleaner and the surface you want to clean.



Grease the bearing points after cleaning the machine.

## 12.3. Lubrication points

To guarantee the proper functioning of the machine, all lubrication points at both sides of the machine must be greased periodically, except the bearing house of the rotor suspension (see Fig. 12). Lubricate all points according to the maintenance schedule (see Section 12.1).

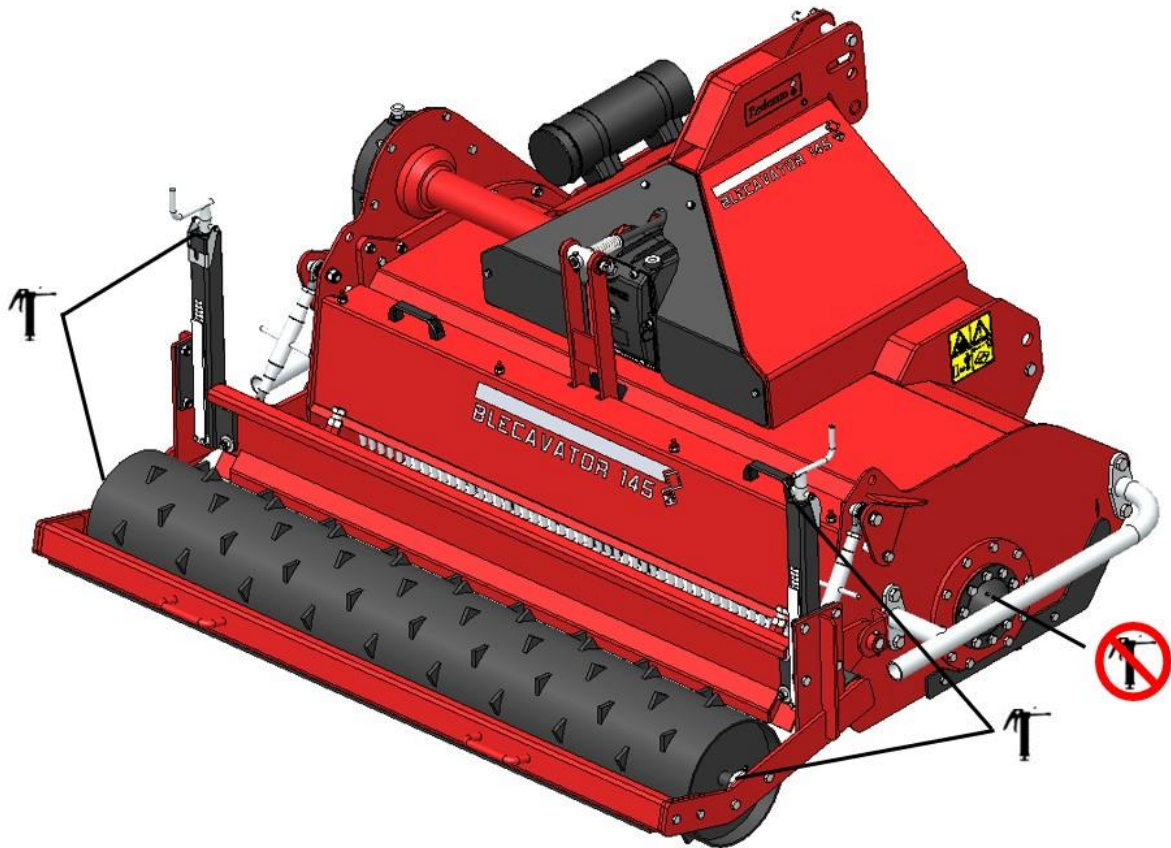


Fig. 12



## 12.4. Changing the oil in the drive

The oil in the side-drive and gearbox should be changed periodically.

Changing the oil is done as follows:

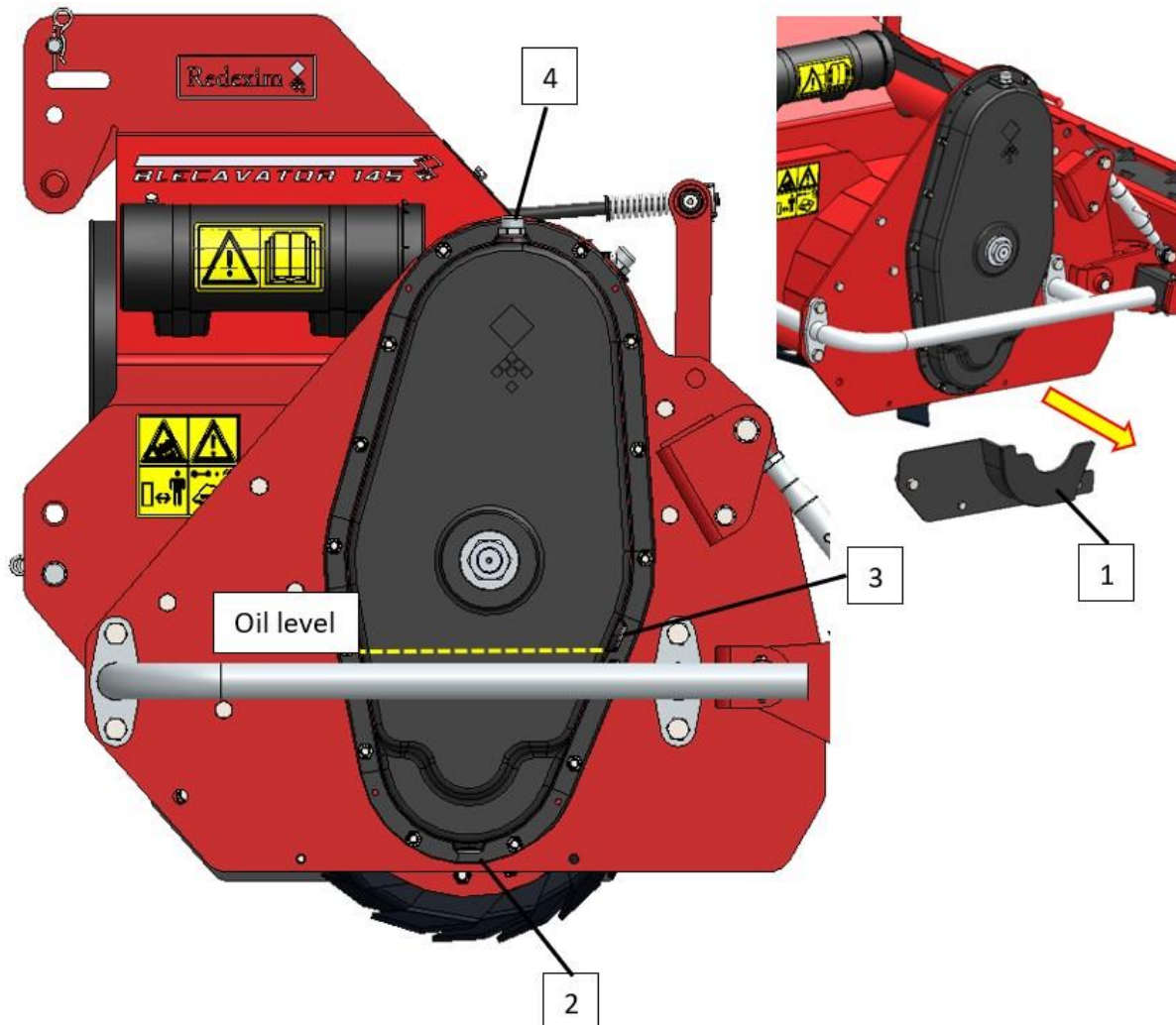


Fig. 13

### Side-drive (see Fig. 13):

1. Remove the protective cover (1) under the side-drive.
  2. For a few minutes, let the machine run above the ground so that the oil becomes warm.
  3. Stop the machine and lower it onto the underground so that it is parallel to the underground.
- ⚠ **!! Switch off the tractor's engine and PTO before descending !!**
- ⚠ **!! Make sure that the tractor and the machine cannot move uncontrolled !!**
- ⚠ **!! Never crawl under the machine !!**
4. Place a sufficiently large oil receptacle (larger than 2.0 ltr. (0.53 gal.)) under the plug (2).
- ⚠ **!! Watch out because the oil can be hot and injure the skin !!**
5. Remove the bottom (2) and let the oil run into the receptacle.
  6. Check the contamination of the oil. Steel particles in the oil might indicate a problem in the side-drive.
- ⚠ **Used oil / grease is harmful to the environment. Dispose of these substances according to the regulations that apply in your location.**

7. Mount the plug **(2)** and the protective cover **(1)** onto the machine.
8. Remove the de-aerator **(4)**.
9. Fill the side-drive using approx. 2.0 ltr. (0.53 gal.) of SAE 140 EP oil through the opening of the de-aerator **(4)**.
10. Check the oil level by removing the plug **(3)**. The oil level should be level with the opening of the plug **(3)**.
11. Mount the plug **(3)** and the de-aerator **(4)**.

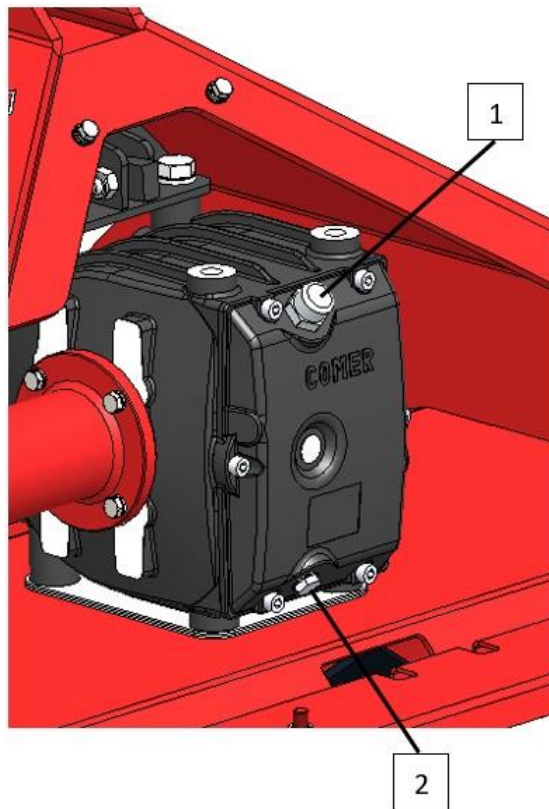







Fig. 14

### Gearbox (see Fig. 14):

1. For a few minutes, let the machine run above the ground so that the oil becomes warm.
  2. Stop the machine and lower it onto the underground so that it is parallel to the underground.
-  **!! Switch off the tractor's engine and PTO before descending !!**
-  **!! Make sure that the tractor and the machine cannot move uncontrolled !!**
-  **!! Never crawl under the machine !!**
1. Remove the de-aerator **(1)**.
-  **!! Watch out because the oil can be hot and injure the skin !!**
2. Suck the gearbox empty using an oil pump or - as an alternative - put a sufficiently large oil receptacle (more than 3.55 ltr. (0.94 gal.) under the plug **(2)** and remove the de-aerator **(1)**.
  3. Check the contamination of the oil. Steel particles in the oil might indicate a problem in the side-drive.
-  **!! Used oil / grease is harmful to the environment. Dispose of these substances according to the regulations that apply in your location !!**
4. Mount the plug **(2)**.

5. Fill the gearbox using approx. 3.4 ltr. (0.90 gal.) of GL-5 80W90 oil for the Blecavator 145 and approx. 3.55 ltr. (0.94 gal.) of GL-5 80W90 oil for the Blecavator 210 through the opening of the de-aerator **(1)**.
6. Mount the de-aerator **(1)**.

## 12.5. Checking the grease level in the rotor's bearing house.

The grease level in the rotor's bearing house should be checked periodically.

Checking is done as follows (see Fig. 15):

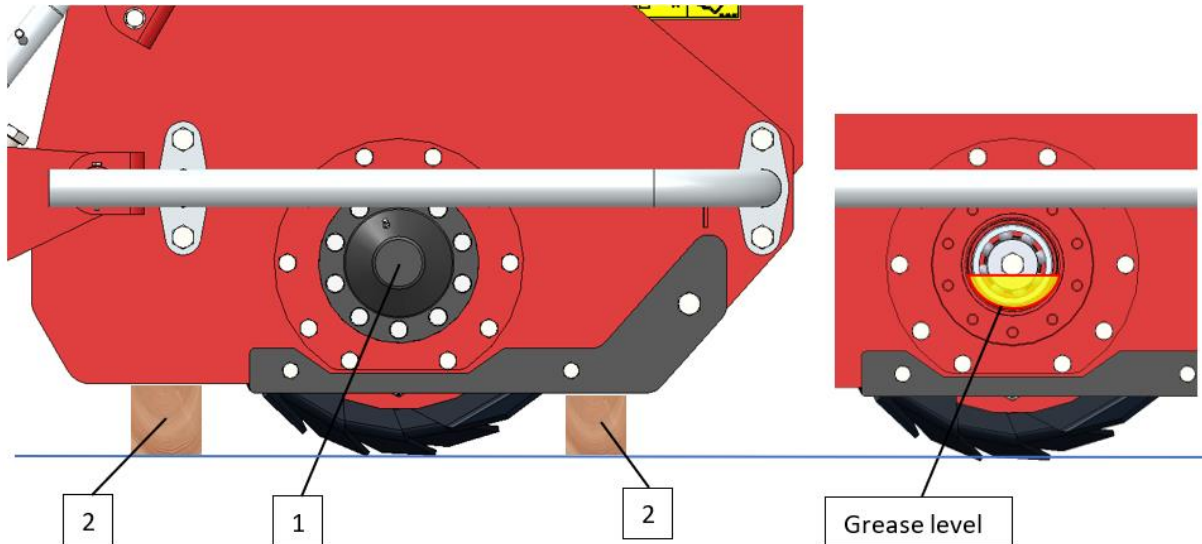







Fig. 15

-  **!! Switch off the tractor's engine and PTO *before* descending !!**
  -  **!! Make sure that the tractor and the machine cannot move uncontrolled !!**
  -  **!! Never crawl under the machine !!**
1. Make sure that the machine and the rotor stand firmly on the ground and fill up the frame using wooden chocks **(2)**.
-  **!! Filling up is necessary to prevent the frame from sinking while dismantling the protective cover **(1)** !!**
2. Remove the protective cover **(1)**.
  3. Check the level and quality of the grease and replace this, if necessary. Use NLGI grade 3 grease and do not fill the compartment more than 30 - 40%.
-  **!! Used oil / grease is harmful to the environment. Dispose of these substances according to the regulations that apply in your location !!**
4. Seal the protective cover **(1)** and place it back. Use an acid-free silicone sealant such as Loctite 5970.

## 12.6. Replacing the knives.

Take the following steps to replace the knives by new or different ones (see Fig. 16):

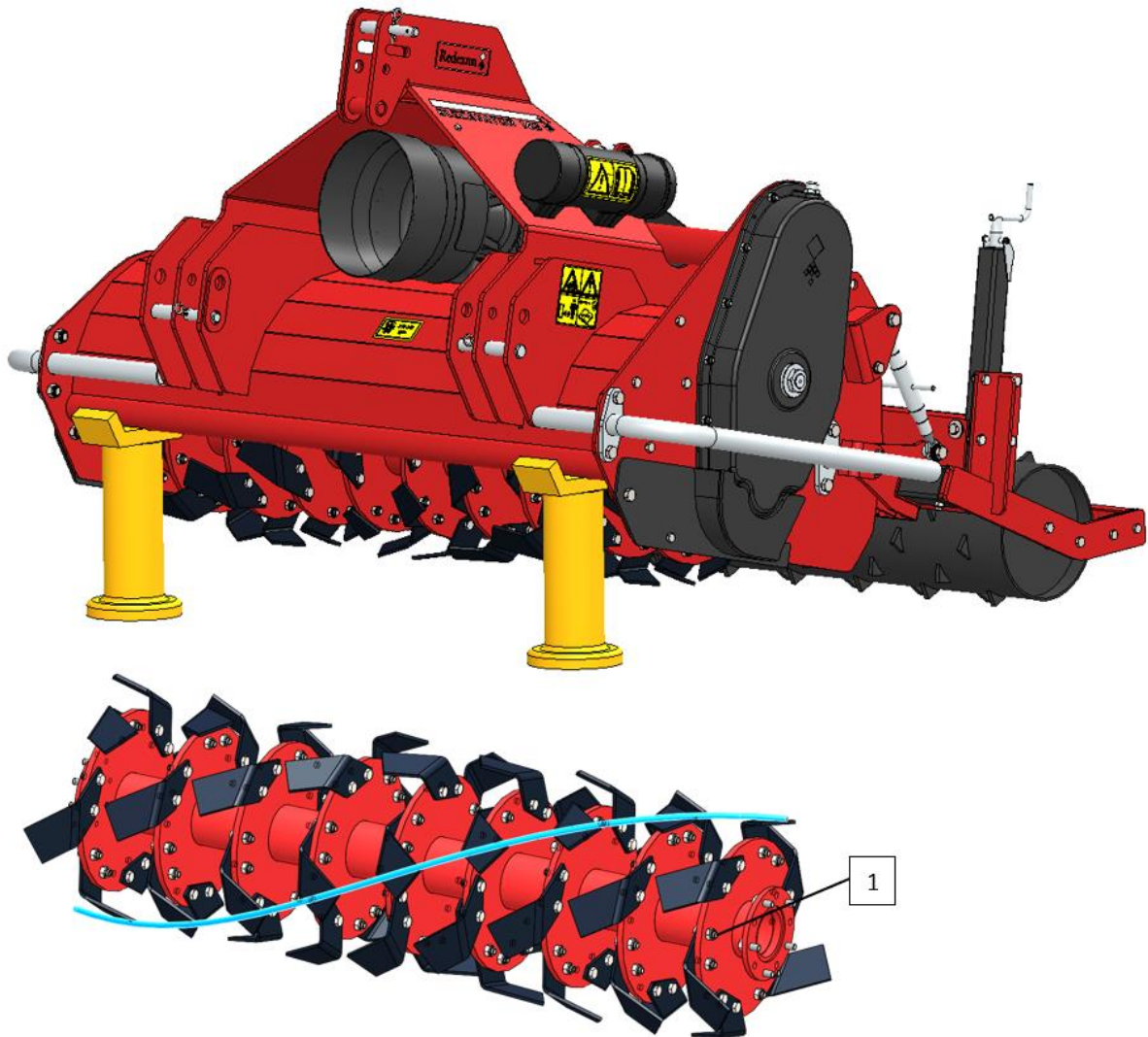




Fig. 16

1. Attach the machine to the tractor as described in Section 7.2.
2. Lift the machine at the front side and support the machine.
-  **!! Make sure that the tractor and the machine cannot move uncontrolled !!**
-  **!! Never crawl under the machine !!**
3. Remove the bolts/nuts (1) and the knives that should be replaced.
4. Put the new knives with the sharp edge to the front and mount these using the bolts/nuts (1). Put the knives around the rotor in a spiral pattern!
5. Lift the machine, remove the support and lower the machine cautiously onto the underground.

### 13. TROUBLE SHOOTING (PROBLEM ANALYSIS)

<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Machine vibrates.	<ul style="list-style-type: none"> <li>- Obstacle(s) between the knives</li> <li>- Angles cross the PTO differently.</li> <li>- Knives are not mounted in a spiral pattern.</li> <li>- Wrong knives or knives are mounted incorrectly, so that the blunt side touches the ground first.</li> <li>- Worn or broken knives.</li> <li>- Rotor is bent.</li> <li>- Wear &amp; tear in the drive(s)</li> </ul>	<ul style="list-style-type: none"> <li>- Remove the obstacle(s).</li> <li>- Rotate the top rod to an acceptable angle.</li> <li>- Mount the knives in a spiral pattern.</li> <li>- Replace the knives or mount them with the sharp edge to the front.</li> <li>- Replace the knives.</li> <li>- Straighten or replace the rotor.</li> <li>- Check the drive(s).</li> </ul>
Working depth is not achieved.	<ul style="list-style-type: none"> <li>- Rear roller is 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 roller correctly.</li> <li>- Reduce the driving speed, put the gearbox in a lower position or drive more passes.</li> <li>- Reduce the driving speed.</li> </ul>
Too fine treatment of the soil	<ul style="list-style-type: none"> <li>- Driving speed is too low.</li> <li>- Underground is too dry.</li> <li>- Levelling bar is set too low.</li> <li>- Pin rack is set too fine.</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the driving speed.</li> <li>- Wait for better conditions.</li> <li>- Set the levelling bar higher.</li> <li>- Set the pin rack coarser.</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> <li>- Levelling bar is set too high.</li> <li>- Pin rack is set too coarse.</li> </ul>	<ul style="list-style-type: none"> <li>- Reduce the driving speed.</li> <li>- Wait for better conditions.</li> <li>- Set the levelling bar lower.</li> <li>- Set the pin rack finer.</li> </ul>
Rotor is blocked.	<ul style="list-style-type: none"> <li>- Subsoil is too wet.</li> <li>- Obstacle(s) between the knives</li> <li>- Levelling bar is too low.</li> <li>- Rotor speed is too low.</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>- Adjust the levelling bar.</li> <li>- Put the gearbox in a higher position.</li> <li>- Reduce the driving speed.</li> <li>- Cut the overgrowth.</li> </ul>