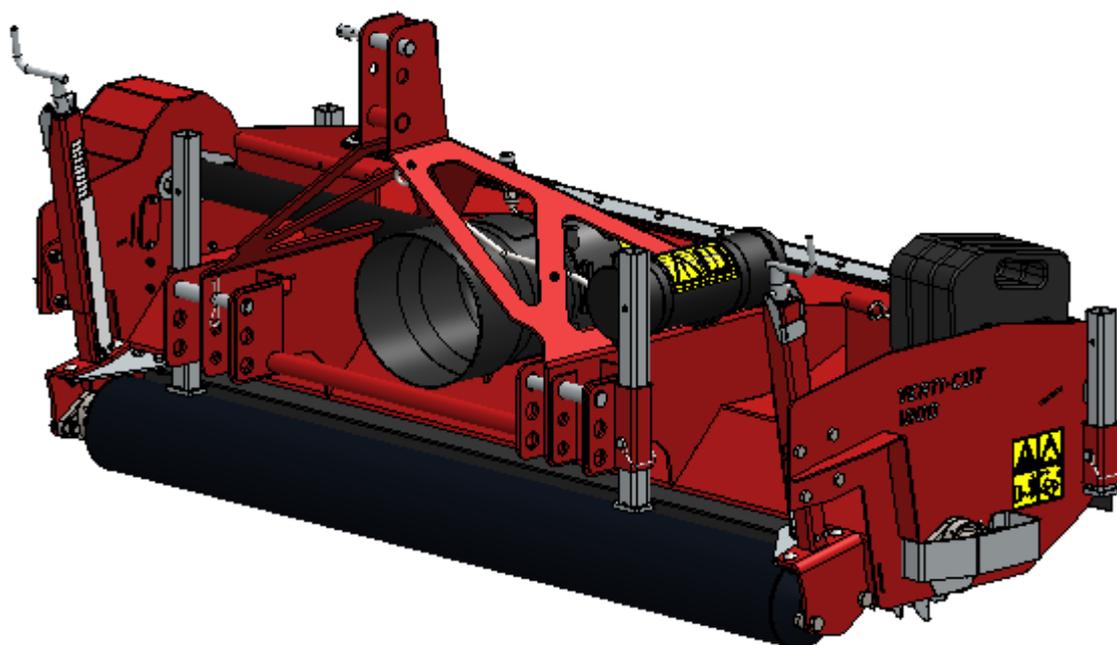


User Manual and Parts book



Translation of the original User Manual

VERTI-CUT 1600-2000



2042 English 944.120.000

REDEXIM

Kwekerijweg 8

3709JA – Zeist – The Netherlands

Tel.: +31 (0)306 933 227

E-mail: redexim@redexim.com

Internet: www.redexim.com

EC-DECLARATION



We,

Redexim BV
Utrechtseweg 127
3702 AC Zeist, Holland,

declare entirely under our own responsibility that the product:

VERTI-CUT WITH MACHINE NUMBER AS INDICATED ON THE MACHINE AND 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, ISO 4254-1:2013, ISO 4254-9:2018.

Zeist, 15.10.2020

A handwritten signature in blue ink, appearing to be 'A.C. Bos', written over a light blue rectangular background.

A.C. Bos
Manager Operations & Logistics
Redexim Holland

FOREWORD

Congratulations on your Verti-Cut 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

1.	SAFETY INSTRUCTIONS	5
1.1	Obligations of the user	5
1.2	Maintenance, repairs and adjustments	6
1.3	Using the machine	6
2.	TECHNICAL DATA	7
3.	GENERAL DESCRIPTION	7
4.	SAFETY STICKERS	8
5.	FIRST INSTALLATION	9
6.	THE PTO AXLE	10
6.1.	Length of the PTO axle	10
6.2.	Using the PTO axle	11
6.3.	Slip coupling: Information and maintenance	11
7.	ATTACHING AND DETACHING THE MACHINE	12
7.1.	Attaching the machine	12
7.2.	Detaching the machine	13
8.	ADJUSTING THE WORKING DEPTH	13
9.	TRANSPORT	13
10.	WORKING SPEED	13
11.	START/STOP PROCEDURE	14
11.1.	Safety	14
11.2.	Starting to dethatch	14
11.3.	Stopping to dethatch	15
12.	MAINTENANCE	16
12.1.	Lubrication points	17
12.2.	Tensioning the chain	18
12.3.	Changing the knives	19
13.	TROUBLE SHOOTING (PROBLEM ANALYSIS)	21

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 grass fields or areas where grass can grow. 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! Kantel, indien noodzakelijk, de machine om aan de onderkant te werken.

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

2. TECHNICAL DATA

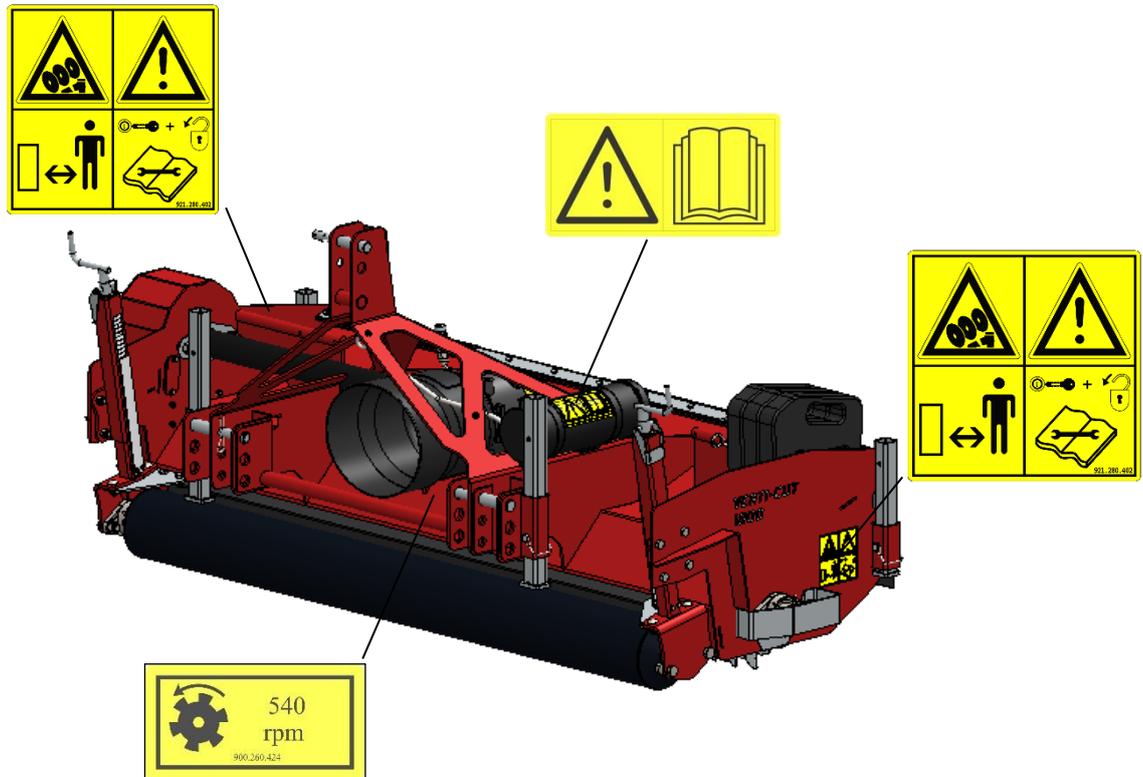
Type	<u>Verti-Cut 1600</u>	<u>Verti-Cut 2000</u>
Recommended vehicle	Vehicle with a 43 hp engine and minimum 592 kg (1305 lbs) lifting capacity at 610mm (24") behind the lifting eyes	Vehicle with a 52 hp engine and minimum 640 kg (1410 lbs) lifting capacity at 610mm (24") behind the lifting eyes
Working width	1.6m. (63")	2 m. (78.7")
Working depth (in case of non-worn knives)	0-50 mm (0"-1.96")	0-50 mm (0"-1.96")
Thickness of the knives	2mm (carbide punt) (0.07")	2mm (carbide punt) (0.07")
Distance between the knives	30mm – 55 knives (1.18") 58mm – 29 knives (2.28")	30mm – 67 knives (1.18") 58mm – 34 knives (2.28")
Capacity (Theoretical capacity at a speed of 5km/h (3.1 mph))	8.000m ² /h (86.112ft ² /h)	10.000m ² /h (107.640ft ² /h)
Grease of the chain casing (side)	EP 0	EP 0
Oil gearbox	GL-5 80W-90 1.1L(0.29 gallon)	GL-5 80W-90 1.1L (0.29 gallon)
Weight	395 kg (871 lbs)	430 kg (948 lbs)
Dimensions (L x W x H)	0.85 x 2.01 x 0.94 m. (33.5" x 79.1" x 37")	0.85 x 2.37 x 0.94 m. (33.5" x 93.3" x 37")
3-point connection	Cat 1-2	Cat 1-2
Bearing grease	EP 2	EP 2
Standard components	Adjustable legs PTO	Adjustable legs PTO

3. GENERAL DESCRIPTION

The Verti-Cut is a machine for dethatching grass surfaces.

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>921.280.402</p>	<ul style="list-style-type: none"> - ALWAYS switch off the engine of the towing vehicle when carrying out maintenance, adjustments and repairs. - Keep a distance of minimum 4 metres if the machine is operating (except the operator). - Keep a distance of minimum 10 metres (32.8 ft) if you access an area within the range of the spray to prevent the risk of flying material.
 <p>900.280.402</p>	<ul style="list-style-type: none"> - Prior to using the machine, the operators of the machine must read the user manual carefully.
 <p>900.260.424</p>	<ul style="list-style-type: none"> - You can operate the machine safely, if the PTO does not exceed 540 rpm.

5. FIRST INSTALLATION

The machine should be prepared for use as follows (see **Figure 1**):

1. Attach cables to the hoisting points **(1)**.



Make sure that the crane and hoisting cable can handle at least the following weights:

Verti-Cut 1600 650 kg (1430 lbs)

Verti-Cut 2000 700 kg (1540 lbs)

2. Lift the machine including the pallet approx. 10 cm (4") off the ground.
3. Loosen the pallet by removing the lowest 3-point pins **(2)**.
4. Pull the pallet from under the machine.
5. Lower the adjustable legs and attach them in this low position **(3)**.
6. 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 !!

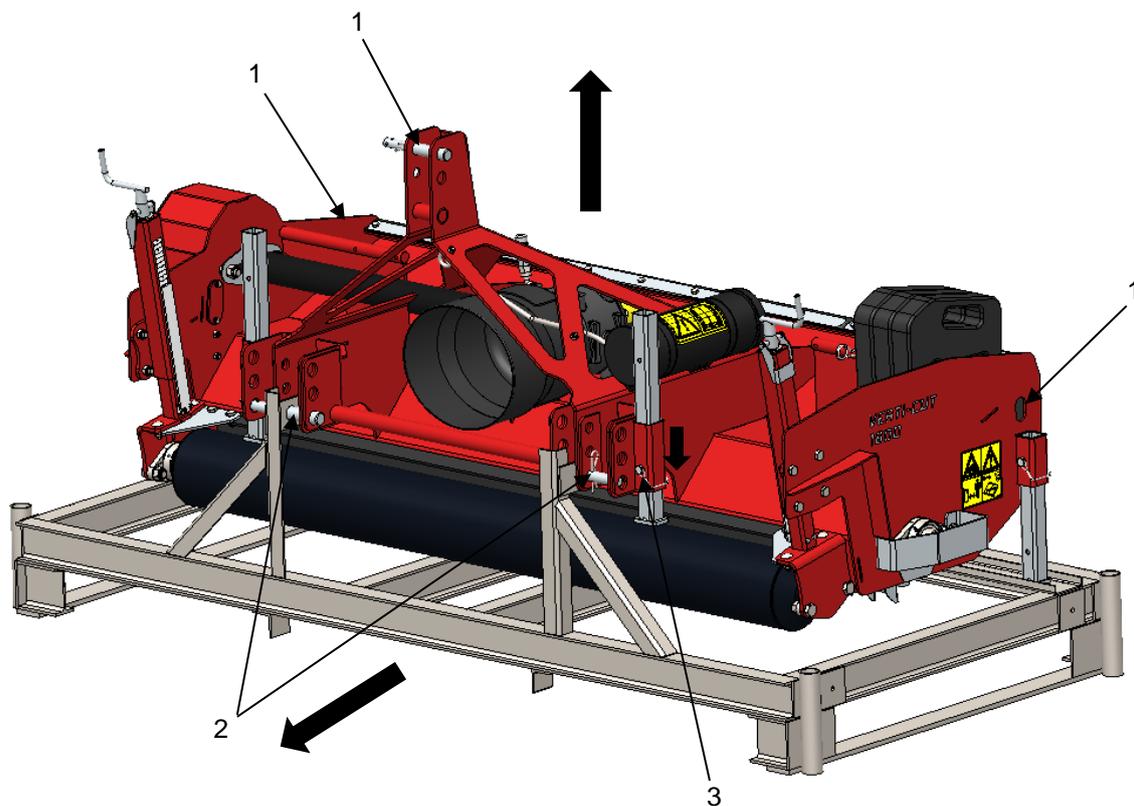


Figure 1

6. The PTO Axle

The PTO axle, or 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 delivered together with the PTO axle.

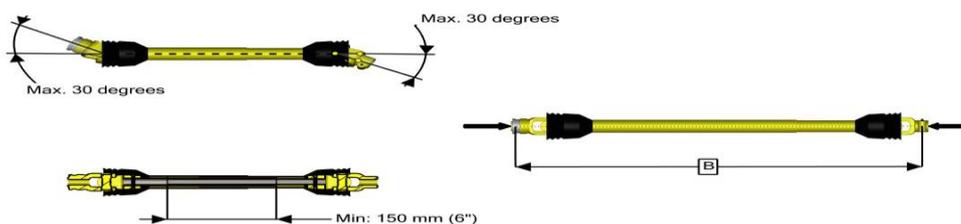
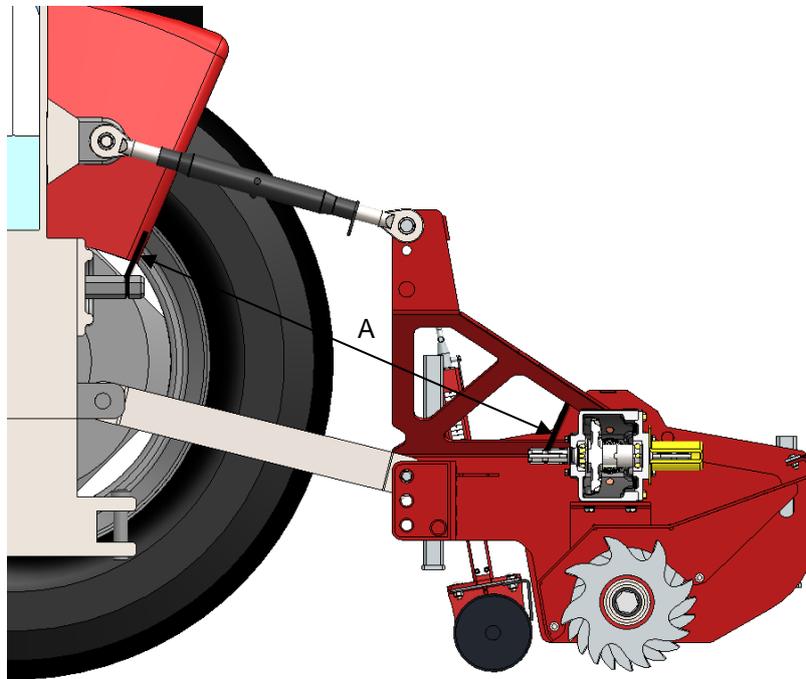


Figure 1

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 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 towing vehicle is used, the length of the PTO axle should be checked and shortened, if necessary (see Figure 1).

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: $(B-A) + 75 \text{ mm (3")}$.
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 remove any damaged parts.

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. See the PTO manual for information about lubrication.

6.3. Slip coupling: Information and maintenance

If used and maintained correctly, the slip coupling will protect your machine against damage. The following data are important for adjusting the slip coupling (see Figure 2).

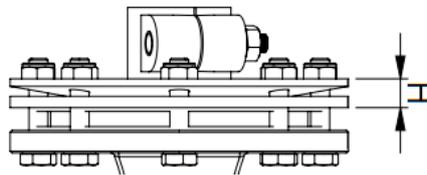


Figure 2

1. The depressed length H of the cup spring is standard set at 15mm (0.59") (550 Nm (4868lbf.inch)).
2. Set the length H to 14.7mm (0.58") (625Nm (5531lbf.inch)) to achieve a safe and slip-free functioning of the machine.
3. If the slip coupling skids, then the bolts/nuts should be tightened gradually up to the point when the minimum length of 14.6mm (0.57") of the cup spring (675Nm (5974lbf.inch)) is achieved. 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:

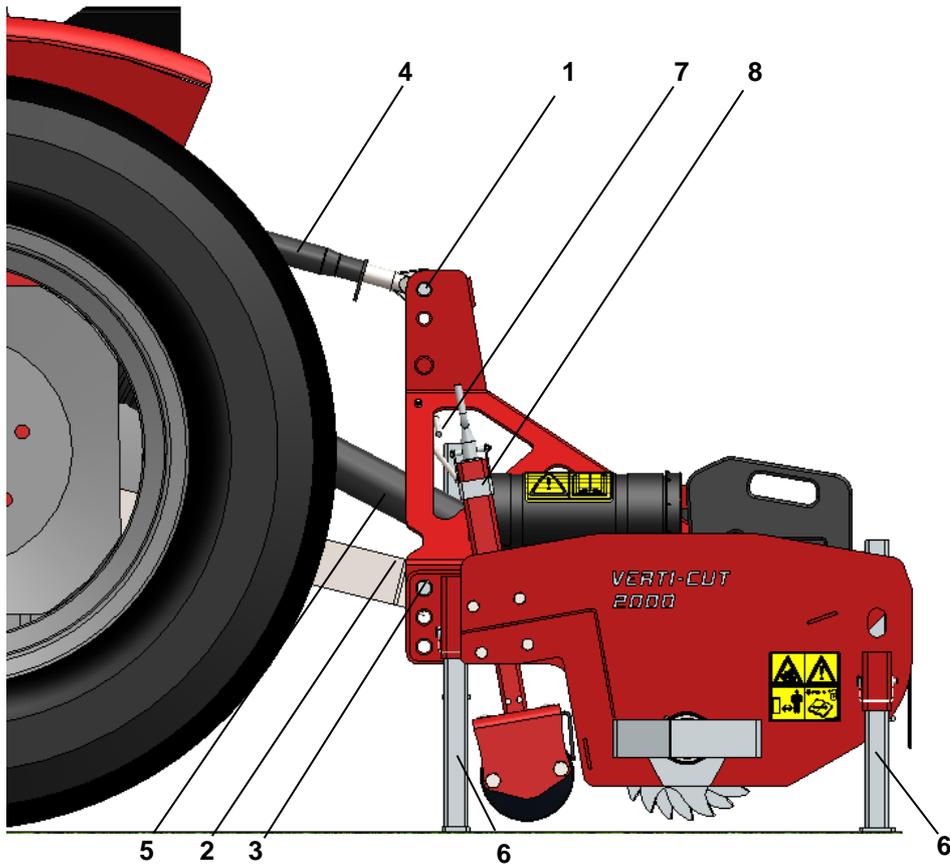


Figure 3

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)** at the top from the machine (see **Figure 3**).
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 **(3)**. Lock the pins using the R-clips.
4. Set the stabilizer to a sideways stroke of 100mm.
5. Mount the top rod **(4)** onto the tractor and attach it to the machine.
6. Connect the PTO **(5)** between the machine and the tractor. Slip coupling at the machine side.
7. Adjust the top rod in such a manner that the machine is horizontal.



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

8. Start the tractor and lift the machine off the ground.
9. Slide the adjustable legs **(6)** upwards and secure these with the locking pin(s).

7.2. Detaching the machine

The machine should be detached in the following manner (see **Figure 3**):

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. Slide the adjustable legs **(6)** downwards and secure it with the locking pin.
3. Carefully place the machine on the ground.



Check again whether the machine is stable on the ground.

4. Loosen the top rod **(4)** and remove it.
5. Loosen the lowest arms **(2)**.
6. Detach the PTO **(5)** at the tractor side and hang it in the PTO hook **(7)**.
7. Start the tractor and drive off.

8. ADJUSTING THE WORKING DEPTH

The machine's working depth is adjusted by turning the spindles **(8)** clockwise or counter-clockwise to the required level, which can be read on the ruler (see **Figure 3**). Set the spindles in such a way that the machine obtains a level working depth.

9. TRANSPORT

The user is responsible for transporting the Verti-Cut in back of the tractor over public roads. Verify the national legislation regarding the regulations. On open fields while the machine is raised, the maximum permitted speed is 20 km/h (12.4 mph) due to the weight of the Verti-Cut. A higher speed can be dangerous for the driver and/or the public and can even damage the machine.



!! When the machine is raised off the ground, the front axle of the tractor has to support minimum 20% of the tractor's weight !!

10. WORKING SPEED

The working speed of the Verti-Cut is maximum 5 km/h (3.1 mph). However, in practice you should adjust your speed to the soil that has to be treated *and* the required working depth.

11. START/STOP PROCEDURE

11.1. Safety

Before using the Verti-Cut, 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 go from top to bottom.
3. Are there hard objects in the ground? If so, use the Verti-Cut with an adjusted speed.
4. Is there danger of flying objects (e.g., golf balls) that distract the attention of the driver? If so, the Verti-Cut **CANNOT** be used.
5. Is there danger of sinking/sliding away? If so, postpone dethatching.
6. If the soil is frozen or very wet, postpone the activities until conditions improve.
7. Do NOT make sharp curves when the Verti-Cut stands still on the ground.



!! NEVER drive in reverse with the knives in the ground !!

11.2. Starting to dethatch

The start procedure is **VERY** important. If this procedure is not executed as described below, serious damage to the machine / subsoil could be the result.

The start procedure is as follows:

1. Check the Verti-Cut 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 Verti-Cut !!

2. Drive to the spot where the processing should take place.
3. Put the machine on the surface that has to be treated and adjust the working depth of the machine statically as described in Chapter 8.



!! Make sure that the Verti-Cut and the tractor cannot move during adjustment activities !!

4. Lift the machine.
5. Engage the tractor in the correct gear.
6. Adjust the tractor engine to around 1200 rpm and switch the PTO on.
7. Slowly lower the machine until it reaches the required working depth.
8. Drive forwards and increase the rotational speed until the PTO rotational speed of 540 rpm is achieved.
9. For the first few meters:
10. Check whether the required working depth is achieved. If necessary, adjust the working depth as described in Chapter 8.

11.3. Stopping to dethatch

Stopping occurs as follows:

1. Decrease the engine revs to approx. 1200 rpm.
2. Lift the machine off the ground.
3. Switch the PTO off as soon as the knives no longer touch the subsoil.
4. Lift the machine even more.
5. Go to the next location and start again as described above.



!! It is preferred to drive in straight lines. Otherwise, damage can occur to the subsoil and/or the machine !!

12. MAINTENANCE

Time schedule	Check/Grease point	Method
Before every use	Check for loose bolts / nuts.	Tighten loose bolts / nuts with the correct tightening moment.
	Presence and readability of the safety stickers	Replace these if not present or damaged.
After every use	Clean the machine.	Watch out for the bearings if a high-pressure sprayer is used.
After the first 20 working hours (new or repaired)	Check for loose bolts / nuts.	Tighten loose bolts / nuts with the correct tightening moment.
	Provide the lubrication points with grease.	Use EP2 grease 1 shot
	Check whether the drive chain is greased adequately.	Top the chain casing up to the edge of the opening. See Section 12.2
	Check the tension of the chain.	If necessary, adjust the tension of the chain See Section 12.2
After every 100 hours	Check whether the gearbox contains sufficient oil.	Top the gearbox up to the filling hole using 80W-90 oil.
	Check whether the drive chains are greased adequately.	Top the chain casing up to the edge of the opening. See Section 12.2
	Check the tension of the chain.	If necessary, adjust the tension of the chain. Replace the chain if necessary. See Section 12.2
	Check for oil leakage.	Replace or repair
	Provide the lubrication points with grease.	Use EP2 grease
After every 500 hours	Change the oil in the gearbox.	Empty the gearbox and top it up to the filling hole using \pm 1.1 L (0.29 gallon) 80W-90 oil.
	Check whether the drive chains are greased adequately.	Top the chain casing up to the edge of the opening. See Section 12.2

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

12.1. Lubrication points

To guarantee the proper functioning of the Verti-Cut, the lubrication points at both sides of the machine (see **Figure 6**) must be greased periodically. Grease these points according to Table 7.

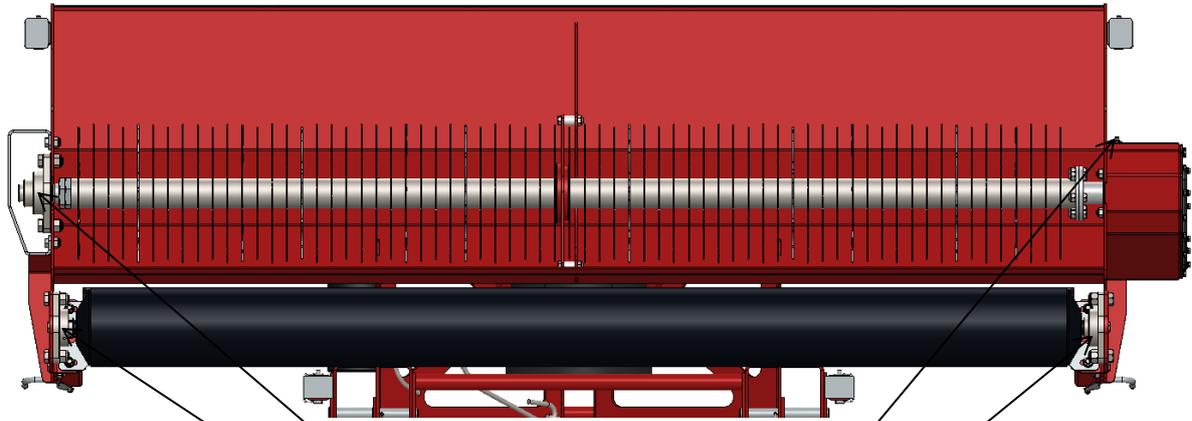


Figure 4



12.2. Tensioning the chain

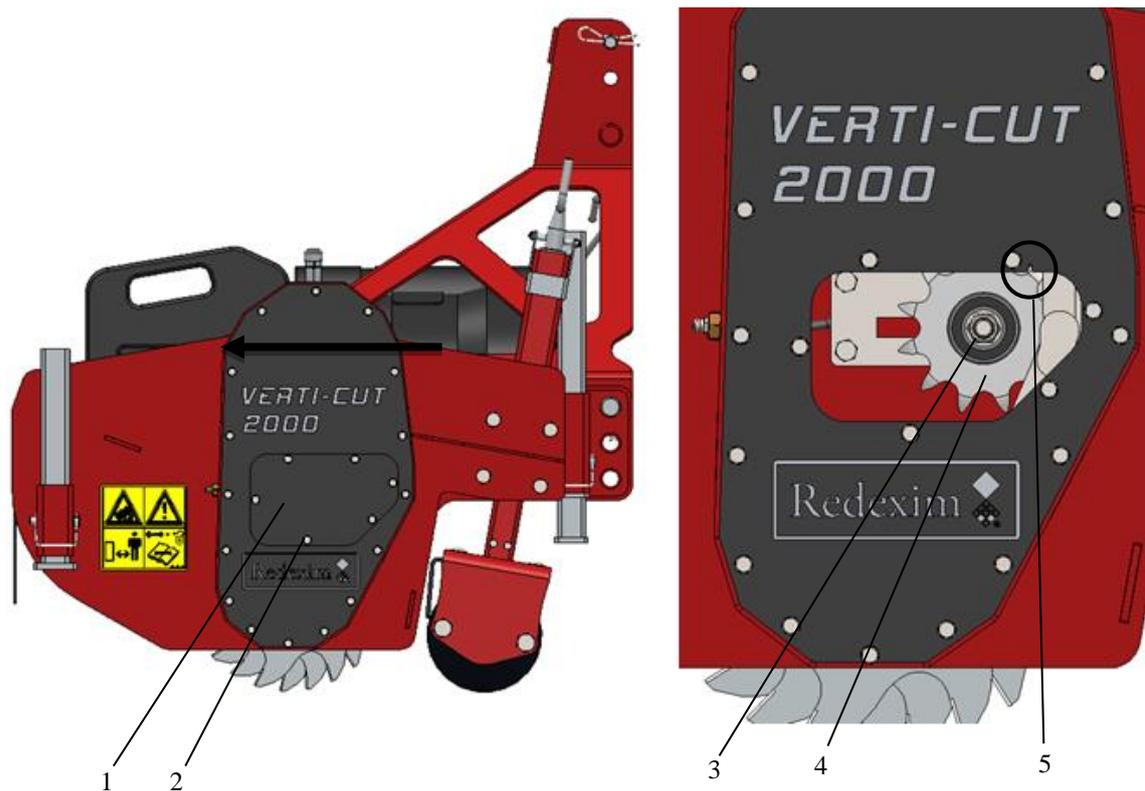


Figure 5

The Verti-Cut is standard equipped with a tensioning wheel that keeps the chain taut. Depending on the intensity of using the machine, the driveline could be affected by wear and tear. This can result in slacking of the chain and undesired noise.

Adjusting the tensioning wheel is carried out as follows (see Figure 5):

- ⚠ **!! Make sure that the machine is blocked well and cannot move on its own accord !!**
 - ⚠ **!! Make sure that the PTO is detached from the machine !!**
1. Remove all bolts **(1)** and the sight plate including its rubber **(2)**.
 2. Loosen the nut **(3)** slightly so that the tension is just off.
 3. Press the chain wheel **(4)** against the chain. Tension the chain so that it moves 6mm (0.39") when pressed.
 4. Check the position of the chain wheel in relation to the maximum **(5)**. If the chain wheel reaches the maximum and it emerges that the chain is no longer taut, the chain should be replaced.
 5. Tighten the nut **(3)** if the chain is taut.
 6. Return the rubber and the cap **(2)** and mount all bolts **(1)**.

12.3. Changing the knives

Worn-out knives should be replaced. This is done according to the following procedure (see Figure 6):



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



!! Make sure that the PTO is detached from the machine !!

1. Remove all bolts (1) and the sight plate including its rubber (2).
2. Loosen the nut (3) slightly so that the tension is just off.
3. Remove the tension from the chain by sliding the chain wheel (4) to the left.
4. Lift the machine and remove the bolts (5) from the centre bearing (6).
5. Make sure that the rotor is supported horizontally and lower the machine onto the ground.



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

6. Remove the bolts (7) from the safety clamp (8).
7. Remove the bolts (9) from the bearing (10) at the left-hand side of the machine.
8. Remove the bolts (11) from the flange.
9. Slide the axle horizontally to the left, so that the axle becomes free of the shaft end (12).
10. Lift the machine and remove the rotor axle that includes the knives.



!! Watch out: the knives may be sharp !!

11. Remove the nuts (13) of the rotor axle and remove the end bush (14), knives (15), centre bushes (16) and the centre bearing (6).
12. Check the centre bearing (6) for functioning and wear & tear. Immediately replace the centre bearing in case of poor functioning or wear & tear.
13. Reconstruct the rotor axle by sliding the knives in a spiral and stepped way onto the axle. Take into account that the centre bearing (6) of the **Verti-Cut 1600** should be mounted on the flange at a distance **A = 837mm (32.95")** and that the centre bearing (6) of the **Verti-Cut 2000** should be mounted on the flange at a distance **A= 1016mm (40")**. **ATTENTION!** The welded side of the bearing house should be mounted directed at the nut side (13) of the rotor!
14. Block the axle using the end bush (14) and tighten the nuts (13) firmly.
15. Support the rotor axle horizontally and slide it back into the machine so that it is well positioned on the shaft end (12).
16. Mount the bolts (11) and tighten them firmly.
17. Mount the left-hand bearing (10) and tighten the bolts (9) firmly.
18. Mount the safety clamp (8) and tighten the bolts (7) firmly.
19. Attach the centre bearing (6) using the bolts (5) and tighten them firmly.
20. Tension the chain by sliding the chain wheel (4) to the right, until the chain is taut (see Section 12.2) and tighten the nut (3).
21. Attach the sight plate including its rubber (2) using the bolts (1) and tighten them firmly.
22. Check whether the machine rotates properly.
23. Make a test run with the machine to verify its operation.

If the number of knives must be reduced, every second knife should be removed from the rotor. The correct distance is achieved by sliding the centre bushes against each other.

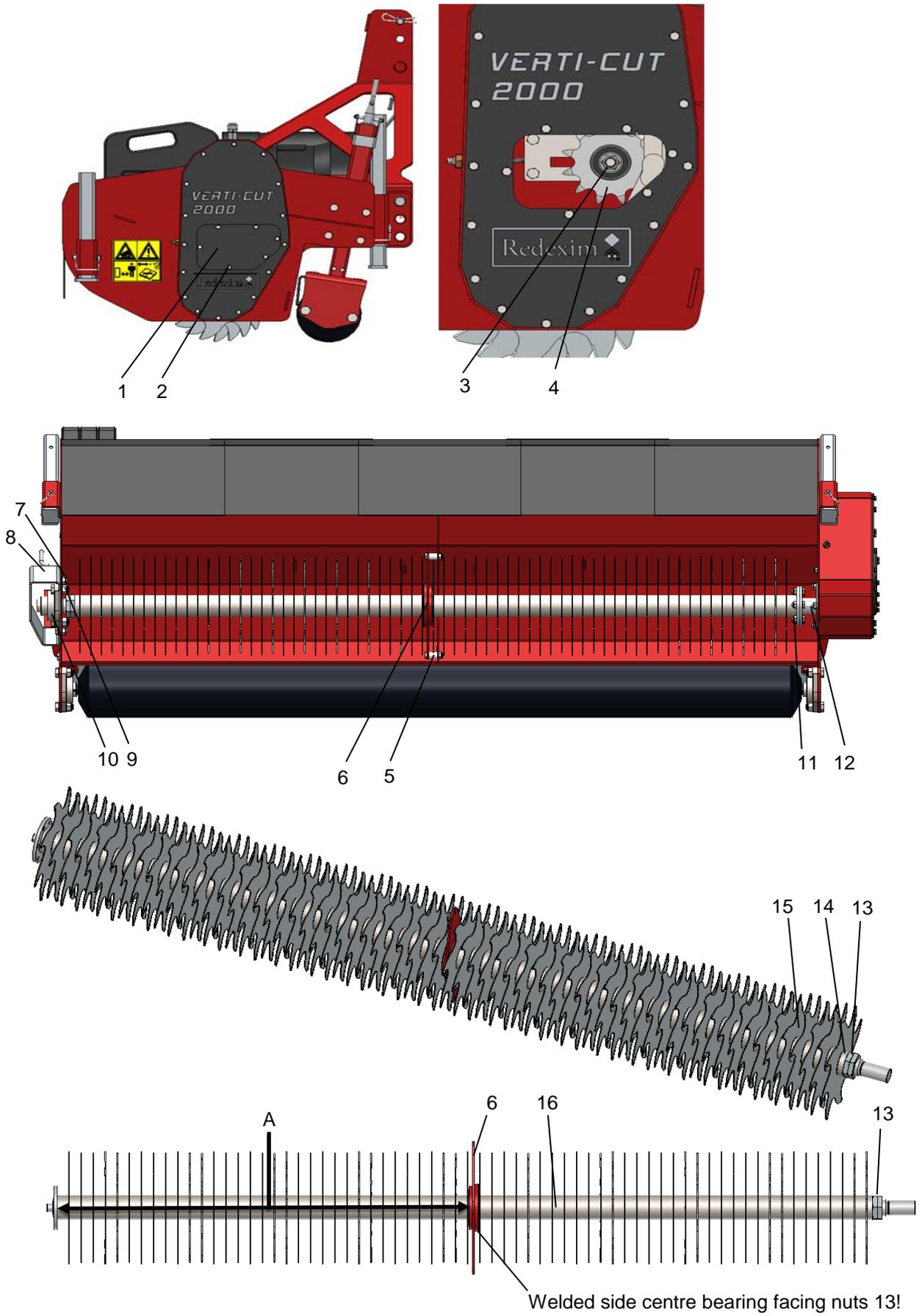


Figure 6

13. TROUBLE SHOOTING (PROBLEM ANALYSIS)

Problem	Possible cause	Solution
Knife rotor does not rotate.	Machine is adjusted too deep.	Set the machine less deep.
	Chain breakage	Remove the sight plate and replace the chain, if a chain breakage is observed.
	Slip coupling	Check the slip coupling. Circumstances are too difficult.
Crackling noise during operation of the machine	Bearings are worn or are not lubricated.	Replace defect bearings and/or grease functioning bearings.
	Chain is too slack.	Tension the chain.
Sloppy image of the field after processing	Machine is adjusted too deep.	Set the machine less deep.
	Driving speed is too high.	Reduce the driving speed.
	Knives are worn and/or warped.	Replace the knives.
	Centre bushes between the knives are damaged.	Replace the centre bushes.
	No driving in a straight line.	Only drive in straight lines during work.
	Weights are distributed incorrectly.	Distribute the weight so that the non-driven side always has three (3) more weights than the driven side.
Damage to the grass	Too many knives for the working depth	Reduce the working depth. Lower the working speed. Decrease the number of knives.
	Blunt knives	Replace the knives.
Machine does not reach its working depth.	Subsoil is too hard.	Spray water on the subsoil. Add weights.