

Turf-Tidy 1100



Translation of the original user manual

Version: UM0002089EN-2547

Applicable to: A0002089 Turf-Tidy 1100

USER MANUAL



EU - DECLARATION OF CONFORMITY



We,
Redexim B.V.
Kwekerijweg 8
3709 JA Zeist, The Netherlands

declare that this "EU DECLARATION OF CONFORMITY" has been issued under our full responsibility and applies to the following product:

TURF-TIDY 1100 WITH MACHINE NUMBER AS INDICATED ON THE MACHINE AND IN THIS MANUAL,

to which this declaration relates, complies with the provisions of:

2006/42/EC Machinery Directive

and 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 4254-12:2012** Agricultural machinery – Safety – Part 12: Rotary disc and drum mowers and flail mowers

Zeist, November 18, 2025



C.H.G. de Bree
Redexim B.V.

UK - DECLARATION OF CONFORMITY



We,
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Kwekerijweg 8
3709 JA Zeist, The Netherlands

declare that this "UK DECLARATION OF CONFORMITY" has been issued under our sole responsibility and applies to the following product:

TURF-TIDY 1100 WITH MACHINE NUMBER AS INDICATED ON THE MACHINE AND IN THIS MANUAL,

to which this declaration relates, complies with the provisions 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
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- **ISO 4254-12:2012** Agricultural machinery – Safety – Part 12: Rotary disc and drum mowers and flail mowers

Zeist, November 18, 2025

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

C.H.G. de Bree

FOREWORD

Congratulations on the purchase of your Turf-Tidy 1100. For safe and sustainable operation of this machine, it is necessary to read and understand this user manual. Without full knowledge of the contents it is not possible to work safely with this machine.

This machine is not a self-propelled machine. It is the responsibility of the user to use the correct tractor or other towing vehicle. The user must check the combination of towing vehicle and machine for various aspects, such as noise level and safety risk. In addition, the user instructions for the vehicle and parts to be used must be observed.

All information and technical specifications are the most recent at the time of publication of this document. Design specifications are subject to change without notice.

In this user manual, the term "user" refers to any person operating the machine described herein.

If you have any questions or uncertainties about this manual or the machine in question, please contact your point of sale or dealer.

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

WARRANTY CONDITIONS

The warranty applicable to this product is described in the "General Terms and Conditions of Sale and Warranty", under Article 12 "Warranties", and is available on the Redexim website. You can use the QR code or URL below.



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1 SAFETY INSTRUCTIONS

This machine is designed for safe use. This is only possible if the safety instructions described in this manual are followed entirely.

Read and understand the user manual before you start using this machine. Failure to use the machine as described in the manual may result in injury and/or damage to the machine.

This user manual contains instructions that are numbered in sequence. These instructions must be followed in sequence.

The following signs are used in the manual:

-  indicates safety instructions
-  indicates tips and/or notes

1.1 User obligations

The machine is intended exclusively for working cultivated fields. Any other use is considered improper use. The manufacturer accepts no responsibility for any damage resulting from this, and all risks associated with this are entirely at the user's expense.

All persons designated by the owner to operate, maintain, or repair the machine must have read and fully understood the operating manual, especially the chapter on safety regulations.

Any changes to the machine that adversely affect safety must be rectified immediately.

Before using the machine, the user is obliged to check it for visible damage and defects.

For safety reasons, no modifications or additions to the machine (except for modifications approved by the manufacturer) are permitted. If changes have been made to the machine, the current CE/UKCA marking becomes invalid and the person who made the modifications must obtain a new CE/UKCA marking.

Judicious use also includes following the manufacturer's instructions for use, maintenance, and repair.

The user is responsible for ensuring that the machine and towing vehicle can be safely combined and that they meet the requirements described in the technical data (See Ch. 2). The combination must be tested for noise, safety, risk, and ease of use. In that case, new user instructions must also be drawn up.

Wear appropriate clothing when working with the machine. Wear certified safety shoes, long pants, tie up long hair, and do not wear loose-fitting clothing.

In addition to the instructions in this user manual, the generally applicable safety and health and safety regulations must also be followed.

When using the machine on public roads, the relevant traffic regulations apply.

1.2 Maintenance, repair, and adjustment

Keep a record of repairs.

If the machine is used, maintained, or repaired by unqualified persons, there is a risk of injury to both the user and third parties. This must be avoided!

For safety reasons, use only original Redexim parts for maintenance or repairs.

Repair work on the machine may only be carried out by authorized technical personnel.

During maintenance, adjustment, and repairs, it is necessary to secure the machine against rolling and/or sliding away.

Used oil/grease is harmful to the environment; dispose of it in accordance with local regulations.

1.3 Use of the machine

Connect the machine to the towing vehicle in accordance with the regulations. Be aware of the risk of injury!

The machine must not be used if the protective covers and safety stickers are missing.

Check the machine for loose bolts, nuts, and parts before each use.

Before you start, check that you have a clear view, both near and far.

Before starting work, all users must be familiar with all its functions and controls.

Never crawl under the machine. If necessary, tilt the machine to work on the underside.

Regularly check the hydraulic lines, if present. If they are damaged or show signs of wear, replace them.

2 TECHNICAL DATA

Specification	Turf-Tidy 1100
Recommended vehicle	38 HP with minimum lifting capacity of 610 mm (24") behind the lifting eyes of 530 Kg (1168 lbs)
Vehicle hydraulics	1 single acting valve Min. pressure 120 bar (1740 psi)
Working width	1.5 m (4.9 ft)
Working depth (Scarifying)	0-30 mm (0-1.2")
Working height (Mowing)	0-60 mm (0-2.4")
Working speed (Scarifying)	1-5 Km/h (0.6-6 mph)
Working speed (Mowing)	1-2 Km/h (0.6-1.5 mph)
Working speed (Leaf collecting)	1-8 Km/h (0.6-5 mph)
Capacity (Scarifying)	Max. 7500 m ² /h (80729 ft ² /h)
Capacity (Mowing)	Max. 3000 m ² /h (32292 ft ² /h)
Capacity (Leaf collecting)	Max. 12000 m ² /h (129167 ft ² /h)
PTO speed	540 RPM (CCW)
Distance between the blades	26 mm (1.02")
Weight	530 Kg (1168 lbs)
Hopper capacity	1.1 m ³ (1.44 Cu yard)
Dimensions (LxWxH)	1.85 x 1.88 x 1.57 m (6 x 6.16 x 5.15 ft)
3-point system	Cat. 1
Oil gearbox	GL5 80W90 (1.1L / 1.16 qts.)
Grease bearings	EP2
Standard blades	- Scarify blade 3 mm (0.118") (48 pieces)
Options	- Flail blade (48 pieces) - Back-to-back flail blade (96 pieces)

Table 1

3 GENERAL DESCRIPTION

The Turf-Tidy 1100 is a multi-functional machine for scarifying, mowing or leaf collecting purposes.

The machine is a 3-point machine and needs to be attached to a tractor to be used.

4 SAFETY STICKERS

Safety stickers are affixed to the machine. These safety stickers must always be clearly visible and legible and must be replaced if damaged (Fig. 1).

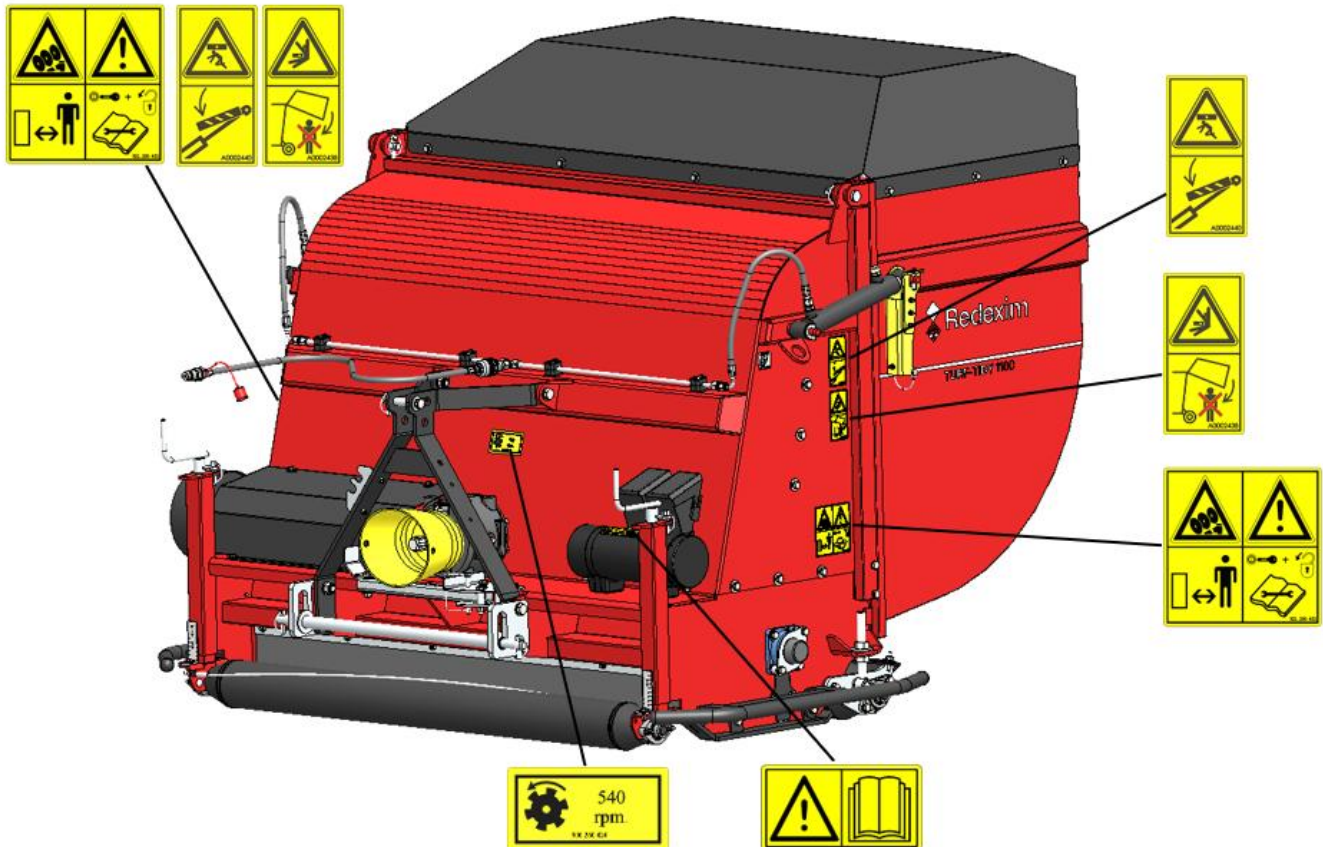







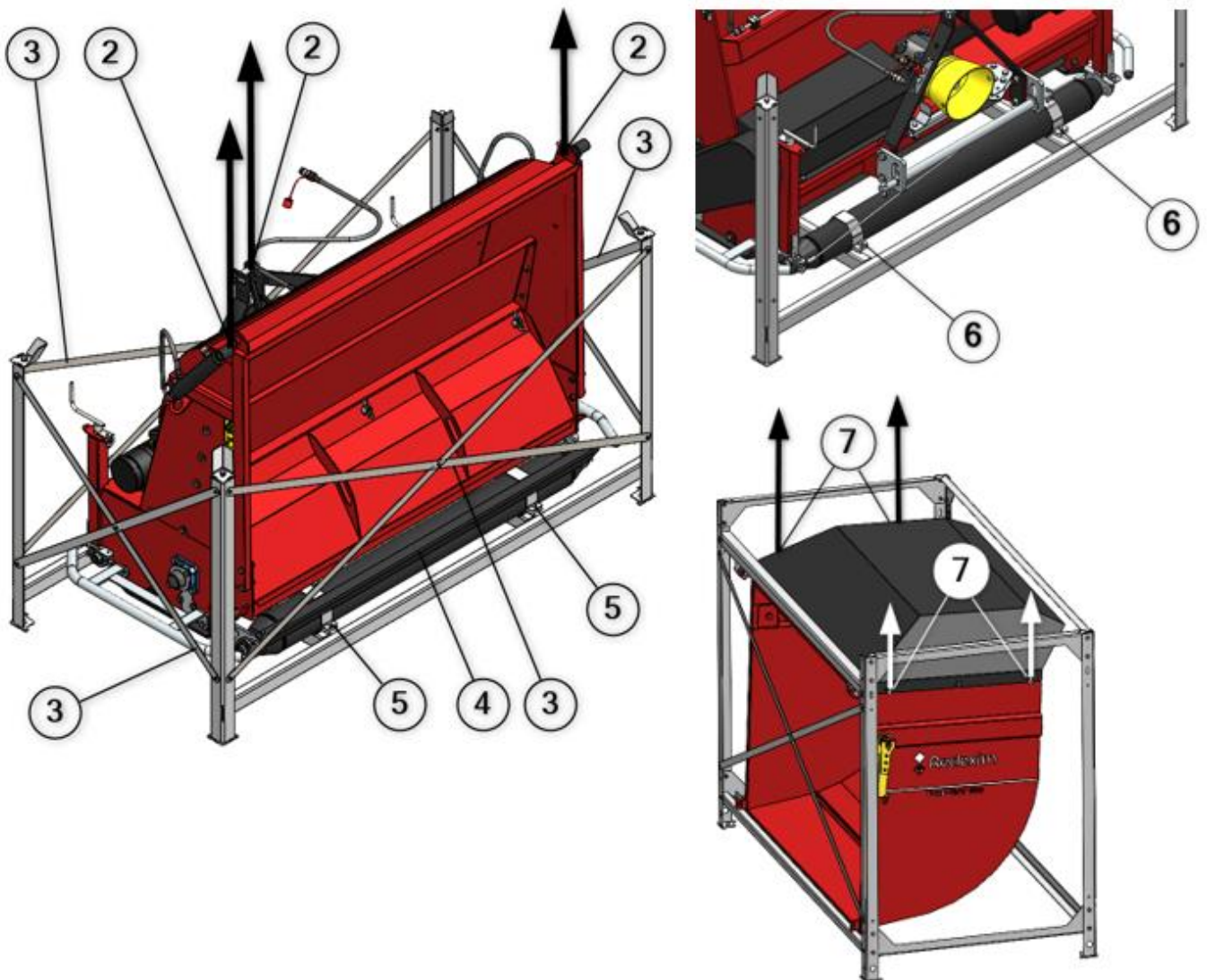
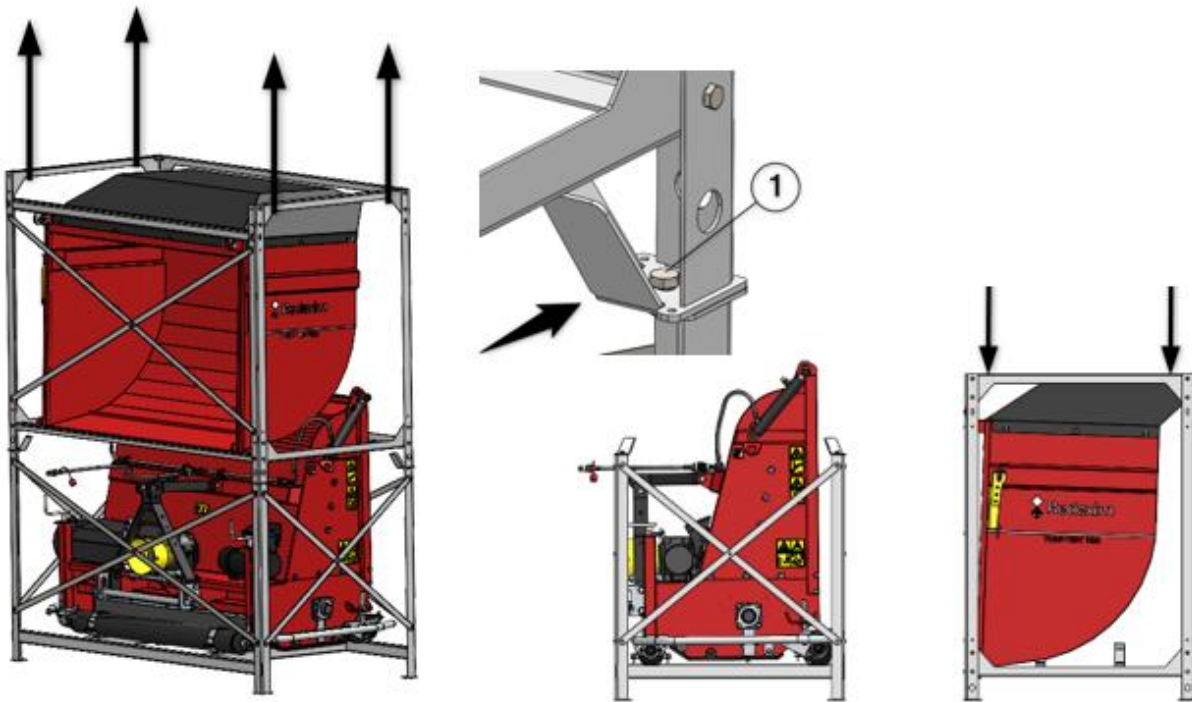
Fig. 1

 <p>921.280.402</p>	<ul style="list-style-type: none"> - During maintenance, adjustment, and repairs, the engine of the towing vehicle and the PTO must always be turned OFF. Block the assembly to prevent it from rolling away/sliding. - Keep a minimum distance of 4 meters when the machine is in operation, except for the user in the towing vehicle. - Keep all persons away from the danger zone while the machine is operating. Moving parts can cause injury.
 <p>900.280.402</p>	<p>Users of the machine must have carefully read the user manual before the machine may be used.</p>

 <p>900.260.424</p>	<p>The safe working range of the machine is up to a maximum of 540 RPM PTO speed.</p>
 <p>A0002440</p>	<p>During maintenance, adjustment, and repairs on the inside of the machine the hydraulic cylinders MUST be blocked and locked with the safety locks.</p>
 <p>A0002438</p>	<p>Be aware of a crushing hazard, always lock the opened hopper to prevent unintended movements.</p>

5 INITIAL INSTALLATION

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



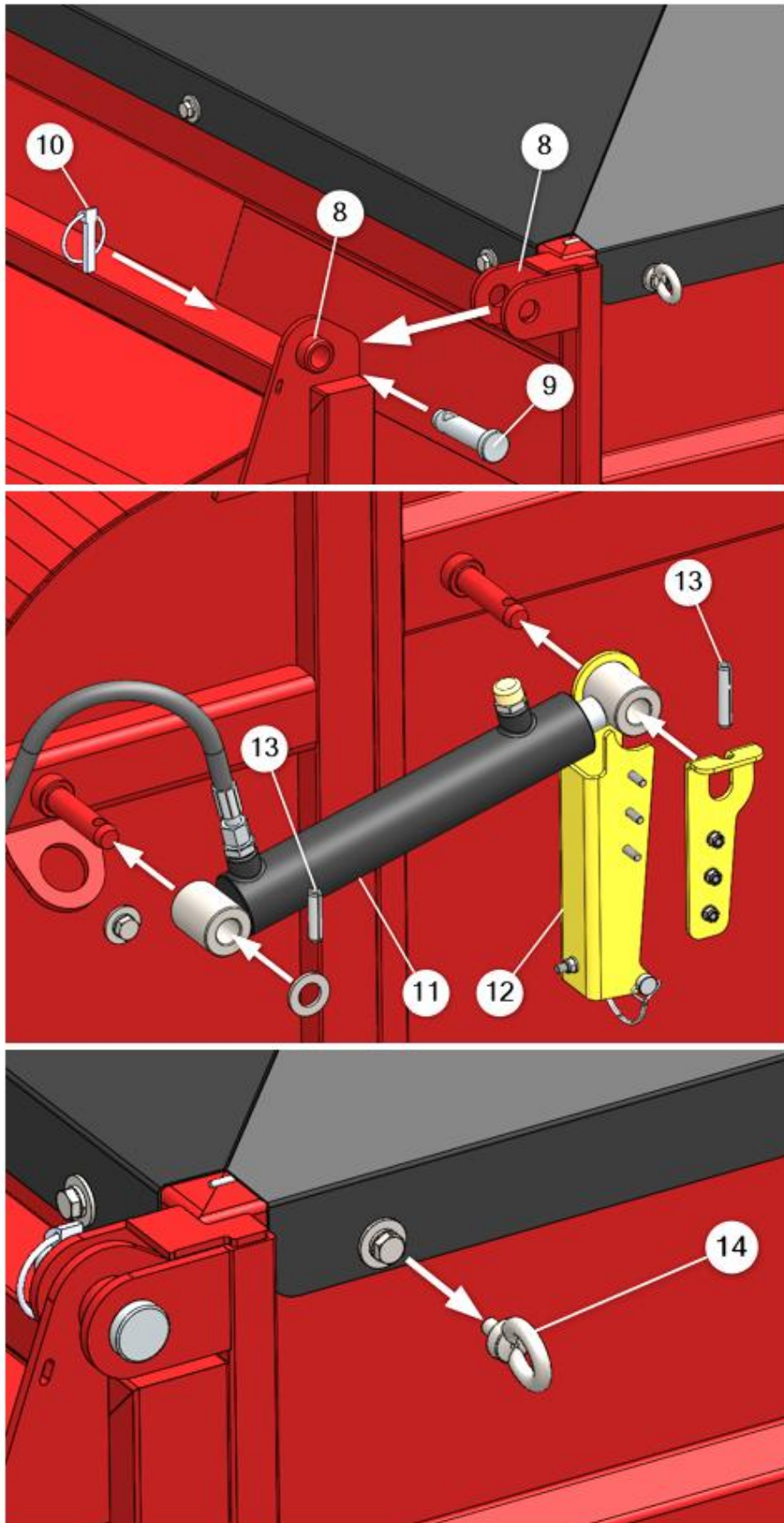







Fig. 2

-  **Ensure that the cable/crane/lift can lift at least twice the weight of the machine. For the weight information, see Ch. 2, "Technical Data".**
-  **Keep a safe distance. The machine may turn or shift during lifting.**
-  **Never crawl under the machine.**
-  **Be aware, the profiles of the transport frame can be sharp. Take appropriate safety measures.**

1. Remove the loose parts, such as the PTO, blades, etc. from the transport frame.
2. Attach the lifting cable to the corners of the top section of the transport frame.
3. Remove the bolts on the corner of the transport frame (1).
4. Lift the top section with the hopper from the lower section and place it securely on the ground.
5. Attach a cable on the processing unit of the machine on points (2).
6. Remove the cross strips (3).
7. If necessary, assemble the blades on the rotor as described in Ch. 10.1.
8. Remove the rear roller scraper (4) to access the straps around the rear roller.
9. Remove the straps (5) and (6) around the rollers and remove the protective material.
10. Lift the processing unit from the transport frame and lower it securely on the ground.
11. Attach a cable on all the eye bolts of the hopper (7) and lift the hopper slightly in a way that the hopper is supported.
12. Remove the pallet profiles to dismantle the transport frame around the hopper.
13. Lift the hopper and place it behind the processing unit.
14. Maneuver the hopper in line with the pivot points (8), place the pins (9) on both sides and secure with the clip (10).
15. Remove the cylinders (11), place the cylinder lock (12) on both sides of the machine and secure it with pins (13).
16. Remove the lifting cables from the hopper and replace the eye bolts with a hexagon bolt M8 x 20 (14).
17. Adapt the PTO shaft as described in Ch. 6.
18. Check the machine in general on the following points:

Checkpoint
Secure loose parts properly.
Presence and legibility of safety stickers. Replace them if damaged or missing.
Check the grease points. If necessary, apply grease.
Check the oil level in the gearbox and top up the oil, if necessary.
Check the V-belt tension.
Check the hydraulics of the machine on proper functioning.
Connect the machine to the tractor and let the machine run for 5 minutes.
Watch and listen for unusual movements and noises.

6 PTO SHAFT

 The description below is only an indication of how the PTO shaft can be customized. The instructions described in the specific manual supplied with the PTO shaft are always leading.

The PTO shaft is a very important component. It provides the drive from the tractor to the machine. When properly maintained and installed, the PTO shaft ensures safe use of the machine. The PTO shaft has its own CE certification and manual. This is located with the PTO shaft.

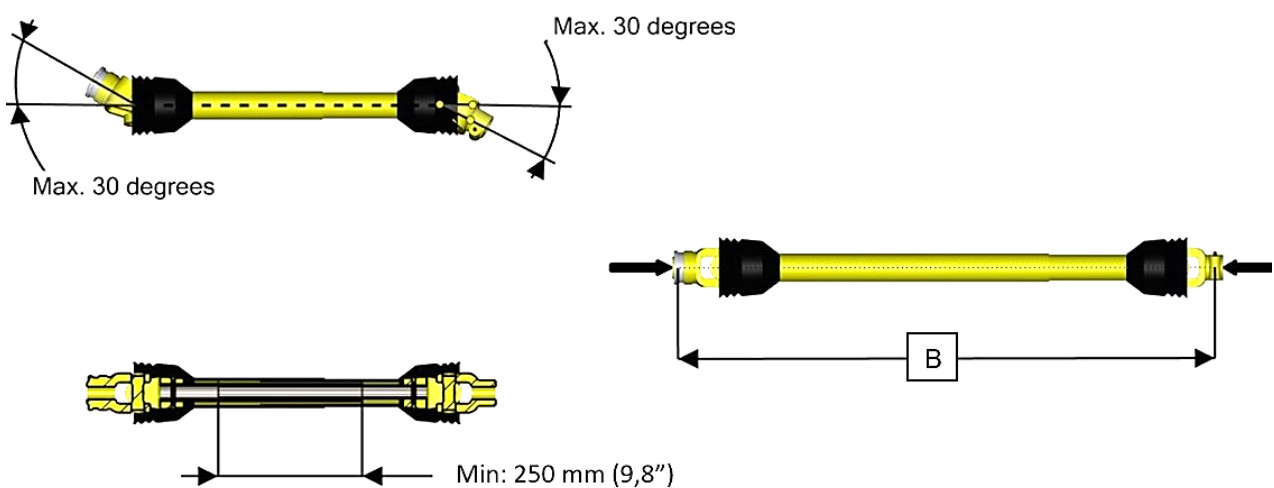
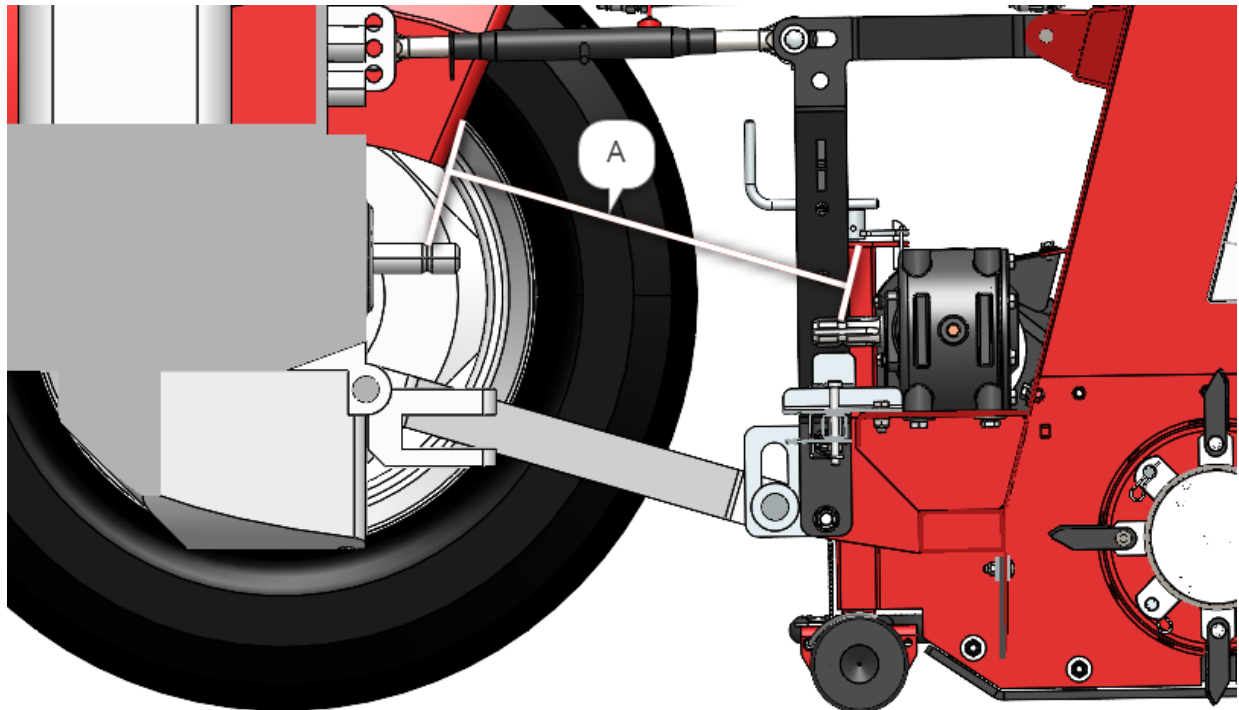


Fig. 3

6.1 Length of the PTO shaft

The length of the PTO shaft is very important. If it is too long, the tractor and/or machine drive may be damaged. If the overlapping length of the sleeves becomes less than 250 mm (9.8") at any point, the PTO shaft may be damaged. The required length changes when the machine is lifted or when a different towing vehicle is used. When the purchased machine is new, or when a different towing vehicle is used, the length of the PTO shaft must be checked and shortened, if necessary (*Fig. 3*):

1. Measure the distance **A** (from groove to groove) between the tractor's PTO and the machine's connection when the machine is horizontal on the ground and connected to the tractor.
2. Measure the distance **B** from the PTO shaft in its shortest position from the locking pin to the locking bolt.
3. Split the PTO shaft into two parts and remove the protective cap from both ends.
4. Both the ends of the tubes and the protective caps must be shortened: $(B-A) + 125 \text{ mm (4.9")}$.
5. Deburr all parts and assemble them. Use lubricating grease for this.
6. Mount the PTO shaft with the slip clutch on the machine side.
7. Attach the other end of the PTO shaft to the tractor.
8. Check the overlap of the sleeves.



Never use the machine with a damaged PTO protective cap. Replace it first.



If the PTO has been shortened incorrectly, or if a different tractor is used, the gearbox may be subjected to additional stress, which could cause damage.

6.2 Using the PTO shaft

For correct use of the PTO shaft, the following items must be checked:

- During operation, the angle of the pivot points must always be less than or equal to 30 degrees.
- The tractor's PTO shaft must be parallel to the machine's PTO shaft.
- The overlap of the sleeves must always be at least 250 mm (9.8").
- Never use the machine with a damaged PTO shaft protective cover.
- For maintenance and lubrication, see the PTO manual.

7 CONNECTING AND DISCONNECTING THE MACHINE

You must proceed with caution when connecting and disconnecting the machine. Follow the instructions below:

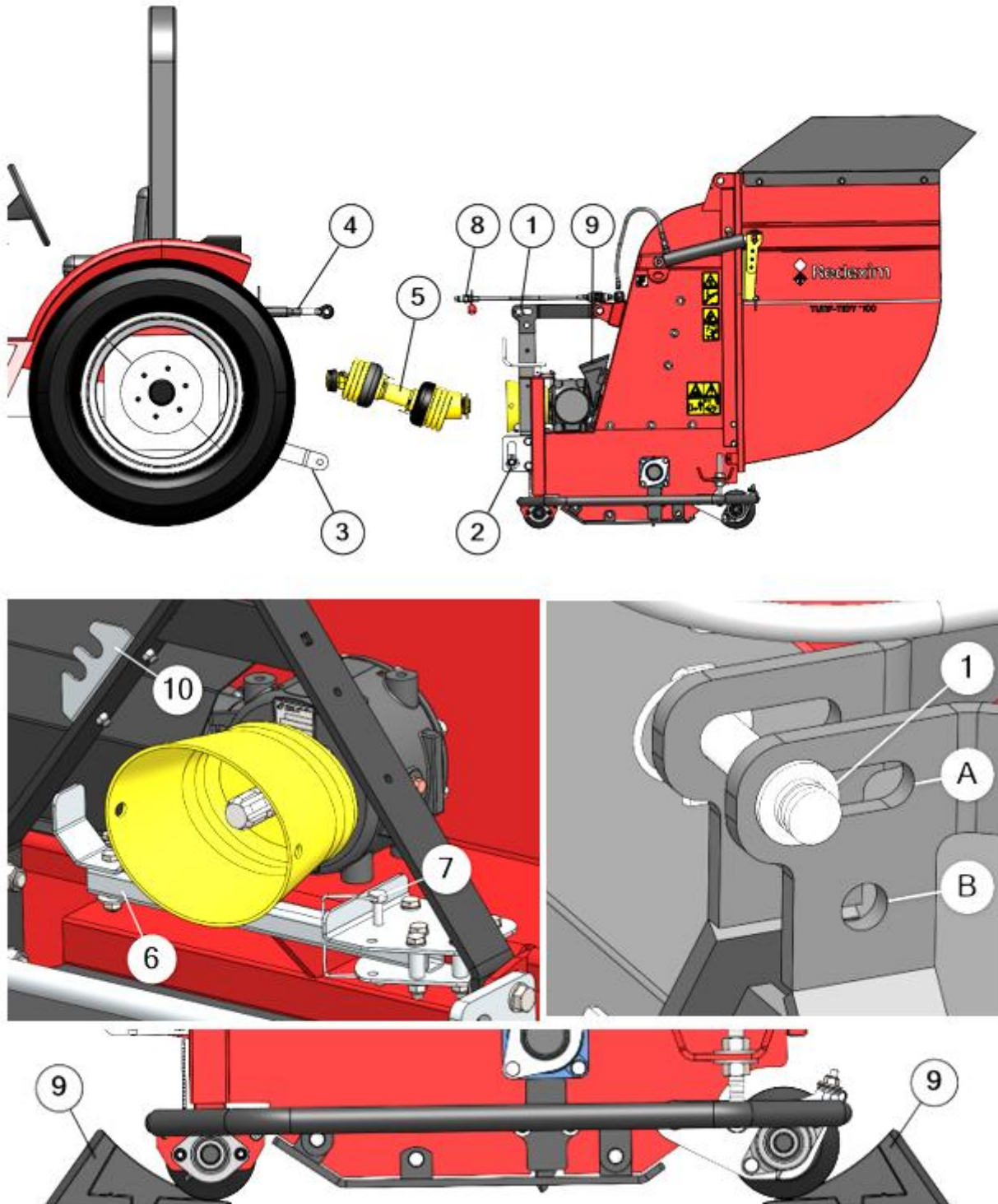


Fig. 4

7.1 Connecting the machine

Before connecting the machine, check the following points:

- Check that the machine is not damaged and that it is safe to connect and use.
- Check for loose parts and tighten them.
- Check that all safety stickers are present on the machine and that they are undamaged and legible. Never use the machine with damaged or illegible stickers.

The machine must be connected to the tractor in the following manner (Fig. 4):

1. Remove the 3-point pin (1) from the machine.
2. Remove the 2 clips from the lower connection bar (2).
3. Carefully reverse the tractor until the lifting arms (3) can be connected to the machine.



Ensure that the tractor and machine cannot move during coupling.



Before connecting the machine, make sure to turn OFF the tractor engine and remove the key.

4. Connect the lift arms (3) to the machine using lower connection bar (2). Secure the bar with the 2 clips.
5. Adjust the stabilizer of the tractor lift arms (3) to approx. 100 mm (4") lateral stroke.
6. Mount the top link (4) on the tractor and connect it to the machine.

There are 2 points to connect the top link to the machine, as follows:

- A. **Floating position**, use this position for scarifying on undulating terrain to follow the contours. Adjust the working depth of the machines by using the rear roller and level the machine with the front roller. Adjust the top link to the center of the slot hole to have terrain following clearance.
- B. **Fixed position**, use this position for mowing or leaf-collecting on level surfaces with the front roller lifted and the rear roller as depth control.



The fixed position B is also the position used for securing the machine during transport. If the machine is not placed in this position it can shake heavily while lifted, moving over unlevelled surfaces and causing damage or hazardous situations.



Ensure that the 3-point pins are secured with the 3 clips.

7. Connect the PTO (5) to the tractor with the safety device on the machine side and chains of the guards connected to the machine and tractor.
8. Fold the bracket (6) into the holder and secure it with the pin (7).
9. Adjust the top link (4) so that the machine is parallel to the ground in the working position.







If the machine is not correctly mounted behind the tractor, large uneven PTO angles can cause vibrations in the machine's drive train. These vibrations can damage the machine.

10. Connect the hydraulic hose (8) to the tractor.
11. Remove the chocks (9) and store them on the machine.
12. Start the tractor and lift the machine.



7.2 Disconnecting the machine

The machine must be disconnected as follows (Fig. 4):


1. Drive to the location where the machine is to be disconnected.
 -  **Ensure that the storage location has a stable surface and that the machine cannot slide.**
 -  **Ensure that the machine and tractor cannot move during uncoupling.**
 -  **Before stepping off the tractor, make sure to turn OFF the tractor engine and remove the key.**
2. Carefully place the machine on the ground.
 -  **Check again that the machine is stable on the ground.**
3. Apply the chocks (9) to the rollers to prevent the machine from rolling.
4. Remove the hydraulic hose (8) and place it in the holder (10).
5. Loosen and remove the top link (4).
6. Disconnect the lift arms (3) from the machine.
7. Disconnect the PTO (5) on the tractor side and support it by using the bracket (6).
8. Start the tractor and drive it away.

8 TRANSPORT

The user is responsible for transporting the machine on public roads. Check national legislation for regulations. Given the weight of the machine, it is not advisable to drive faster than 20 km/h (12.4 mph) with the machine raised. Higher speeds can lead to dangerous situations and damage to the machine and tractor.

-  **When the machine is lifted off the ground, at least 20% of the tractor's weight must be supported on the front axle.**
-  **Check the connection position of the top link, see Ch. 7.**

When the machine is not being transported behind the tractor, it may be secured/hoisted at the following points (Fig 5):

 922.340.008	Securing points are located near these stickers, on both sides of the machine.
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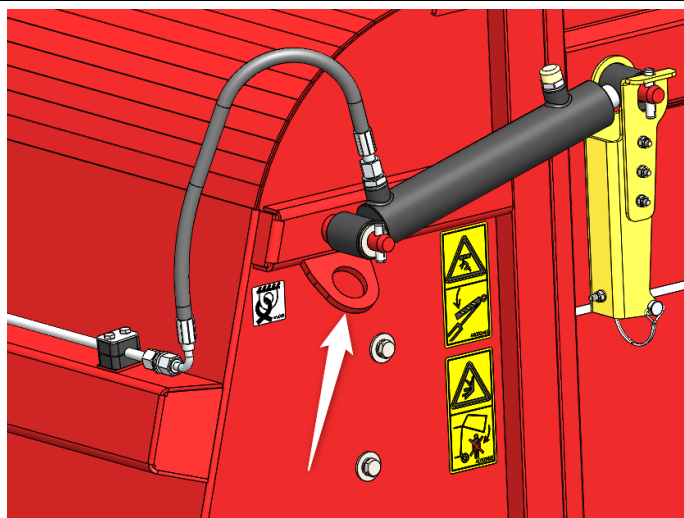


Fig. 5

9 COMMISSIONING THE MACHINE

9.1 Safety

Before the machine can be used, the following must be checked:

- Are there any loose objects on the field? Remove these first.
- Are there any slopes? The maximum slope on which this machine may be used is 20 degrees. Always work from the bottom up.
- Are there any hard objects in the ground? If so, use the machine at an appropriate speed and adjust the working depth.
- Is there a risk of situations that distract the operator's attention? If so, the machine must **NOT** be used.
- Is there a risk of sliding or slipping? If so, postpone the operation.
- When the ground is frozen or very wet, postpone the work until conditions improve.
- Do not take sharp turns when the machine is resting on the ground.

9.2 Working speed

The maximum working speed of the machine depends on the ground conditions, working depth/height, and the desired result.

The recommended maximum working speed is limited to 5 km/h (3.1 mph). Higher speeds are not recommended due to excessive wear and damage that may occur to the machine.



If hard objects are to be expected in the soil, the working speed must be reduced.

9.3 Working depth/height setting

The machine can be used for scarifying, mowing, or leaf collecting. Depending on the type of operation you need, set the working depth/height as follows:

Scarifying (Fig.6):

1. Depending on the type of terrain, set the top link in the appropriate position, as described in Ch. 7.1.
2. Lift the machine and adjust the front roller to the desired depth by removing the clip (3) and by activating the spindle levers (1) on both sides of the machine. Use the indicators (2) to read out the depth setting. See the table in *Fig. 6* for reference.
3. When the correct depth is set, lock the levers with the clips (3).
4. Adjust the rear roller depending on the appropriate setting of the top link. (See Ch. 7.1)

Top link in floating position A: Adjust the rear roller to set the machine level.

Top link in fixed position B: Adjust the rear roller to a small distance above the soil to act as an anti-scalp roller.



Always test the settings on a short passage to determine whether the machine settings produce the desired result.

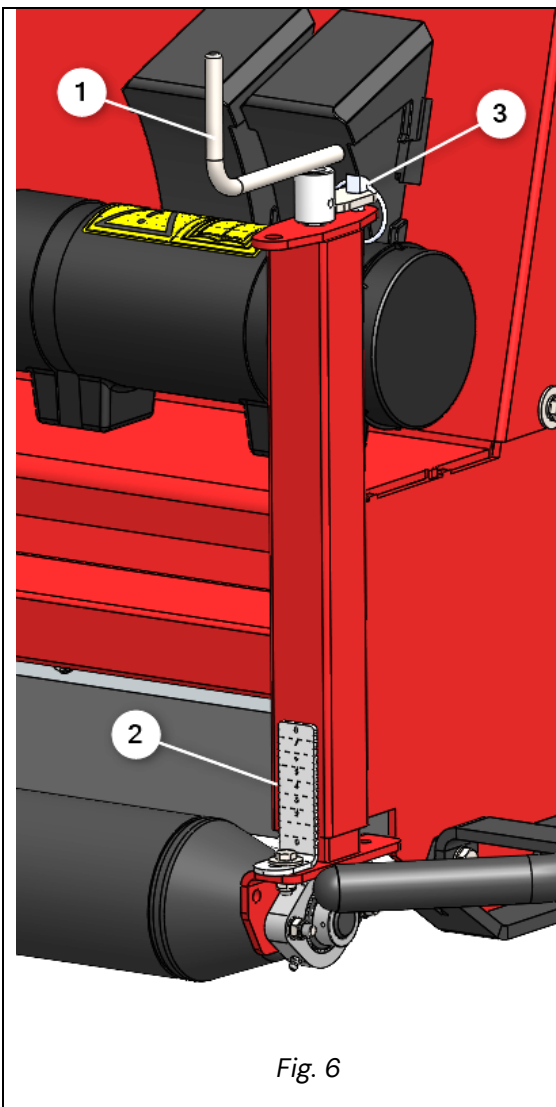


Fig. 6

Indicator setting (2) vs. theoretical depth with unworn blades and solid soil conditions.

(- indicates distance above soil)

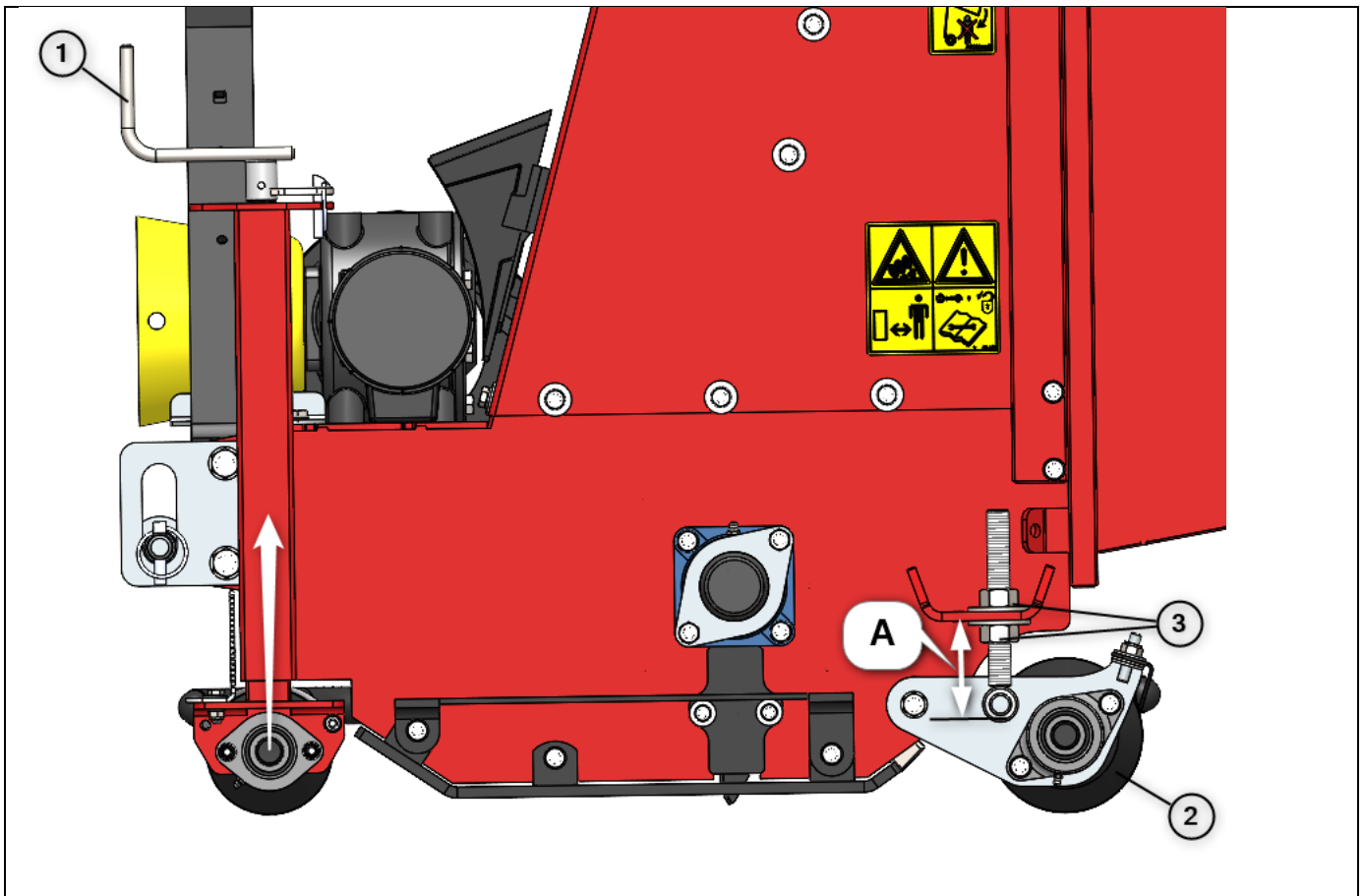
Indicator setting	Approx. depth
0	30 mm (1.2")
1	20 mm (25/32")
2	10 mm (25/64")
3	0 mm (0")
4	-10 mm (-25/64")
5	-20 mm (-25/32")
6	-30 mm (-1.2")
7	-40 mm (-1.6")
8	-50 mm (-2")

Mowing / Collecting (Fig.7):

1. Place the top link in the fixed position (B). (See Ch. 7.1.)
2. Turn the front spindles (1) max. up on both sides of the machine.
3. Lift the machine and adjust the rear roller (2) to the appropriate mowing height setting on both sides of the machine. See the table in Fig. 7 for reference.
4. Fix the rear roller with the nuts (3).



Always test the settings on a short passage to determine whether the machine settings produce the desired result.



Spindle dimension A vs. theoretical depth with unworn blades and solid soil conditions.

Approx. mowing height	Dimension A
0 mm (0")	102 mm (4.01")
10 mm (25/64")	108 mm (4.25")
20 mm (25/32")	115 mm (4.53")
30 mm (1.2")	122 mm (4.80")
40 mm (1.6")	130 mm (5.12")
50 mm (2")	140 mm (5.51")
60 mm (2.4")	153 mm (6.02")

Fig. 7

9.4 Setting the opening/closing speed of the hopper

The opening and closing speed of the machine can be adjusted to meet the user's demand. This can be adjusted as follows (Fig. 8):

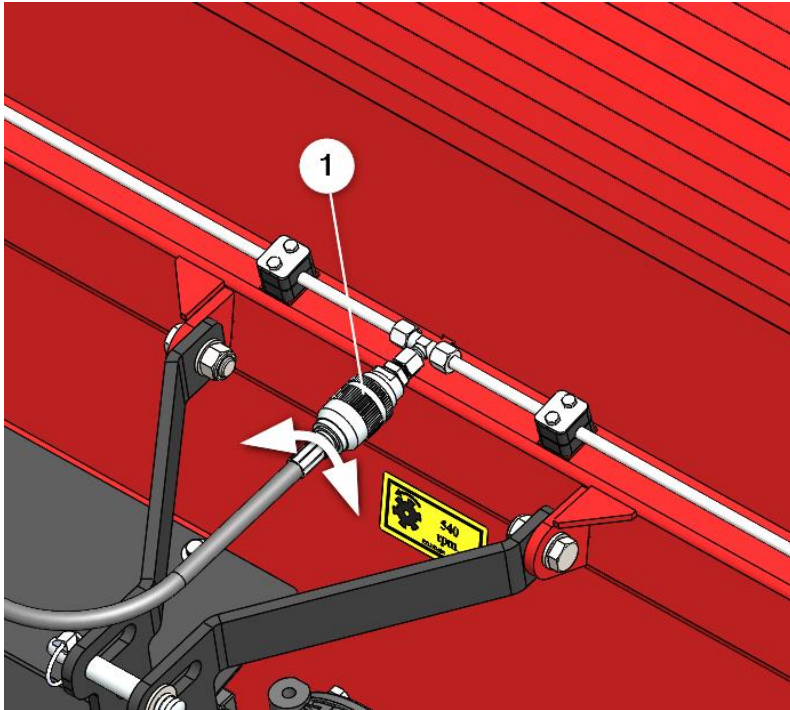







Fig. 8

1. Start by determining if the opening/closing speed needs to be faster or slower.

-  **Be aware that opening and closing too fast might damage the machine.**
-  **Lower the machine and ensure that the storage location has a stable surface and that the machine cannot slide.**
-  **Turn OFF the tractor engine and remove the key.**
-  **Ensure that the machine and tractor cannot start or move during the operation.**
-  **Be careful, the machine elements and control valve may be hot.**

2. Adjust the flow control valve (1) to the appropriate setting.

Clockwise = closing

Counterclockwise = open

3. Start the tractor and check if the setting is correct. If not, repeat Steps 1-2.

9.5 Start/Stop procedure

The start procedure is **VERY** important. Failure to follow this procedure as described below may result in serious damage to the machine.

The start procedure is as follows:

1. Check the machine thoroughly for loose parts and make sure that all parts are functioning properly.



If loose parts are found or parts are not functioning properly, the problems must be rectified before using the machine.

2. Drive to the location where the operation is to take place.
3. Lower the machine just above the ground.
4. Set the tractor engine to approximately 1200 rpm.
5. Put the tractor in the correct gear and drive forward.
6. Engage the PTO.
7. While driving forward, carefully lower the machine into the ground while it is rotating.
8. Increase the PTO speed to the maximum permissible value of 540 rpm.
9. Work a section of soil and assess whether the machine settings produce the desired result.



When scarifying, drive straight lines to prevent damage to the soil.

To stop, proceed as follows:

1. Reduce the PTO speed.
2. Disconnect the PTO and lift the machine from the soil.



Be aware that the rotor does not stop immediately but continues to spin for some time.

3. Move to the next location and start again, as described above.

9.6 Procedure to empty the hopper

1. Drive to the location where the hopper can be emptied.



Only empty the hopper on a solid, level surface.



Ensure that there are no people in the hazard zone of the machine.

2. Activate the connected hydraulic outlet of the tractor to open the hopper.
3. Drive slowly forwards to empty the hopper.
4. Close the hopper door by activating the hydraulic outlet of the tractor.





10 TECHNICAL INFORMATION

Generally speaking, the Turf Tidy 1100 is not a complicated machine. A number of technical items will be explained. If you still have questions after reading this section, please contact your dealer, who will be happy to assist you.

10.1 Changing blades

The machine can be equipped with different types of blades. When the blades are worn or another operation needs to be performed with the machine, you must change the blades.

The procedure on how to do this is explained as follows (Fig. 9):

1. Drive to the location where the machine is to be maintained.
-  **Ensure that the storage location has a stable surface and that the machine cannot slide.**
2. Carefully place the machine on the ground.
-  **Check again that the machine is stable on the ground.**
3. Open the hopper door by activating the tractor hydraulic output.
-  **Turn OFF the tractor engine and remove the key.**
-  **Ensure that the machine and tractor cannot start or move during operation.**
4. Lock the hydraulic cylinders by rotating the locks (1) on both sides of the machine. Secure the locks with the pin (2).

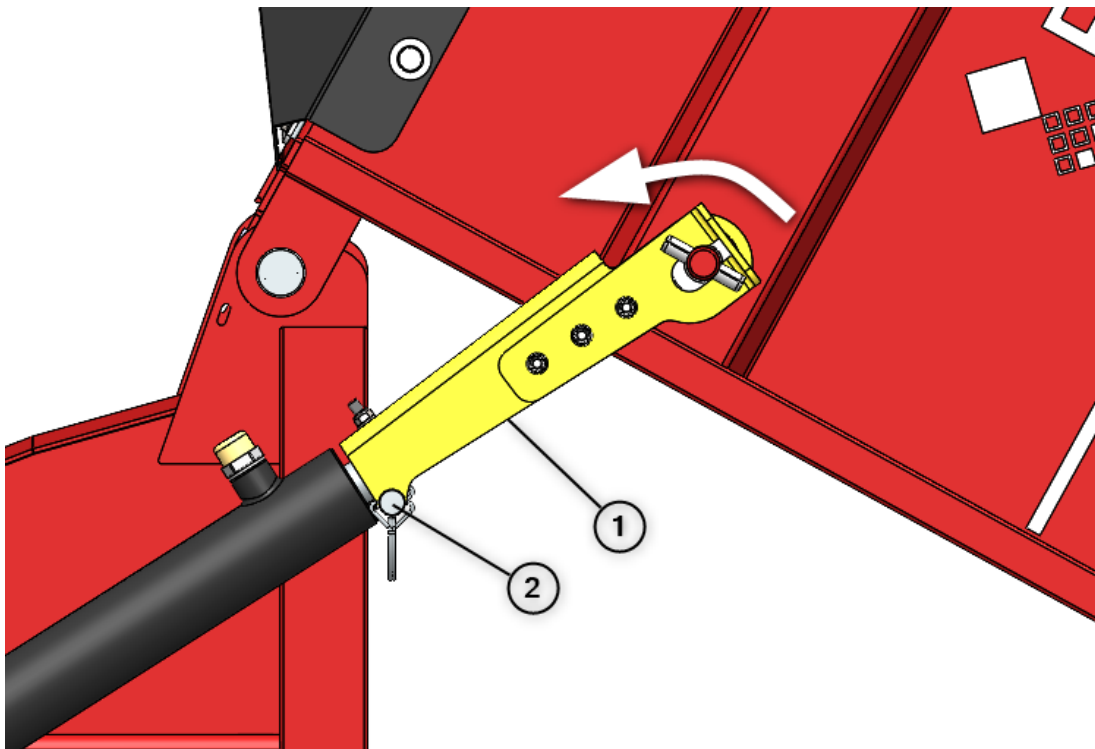


Fig. 9

 Before entering the machine, ensure that the locks are secured and locked, tractor is turned OFF, the key is removed, and the machine is not activated.

5. Enter the hopper area and remove the maintenance cover (1) by unlocking the latches (2), (Fig. 10).

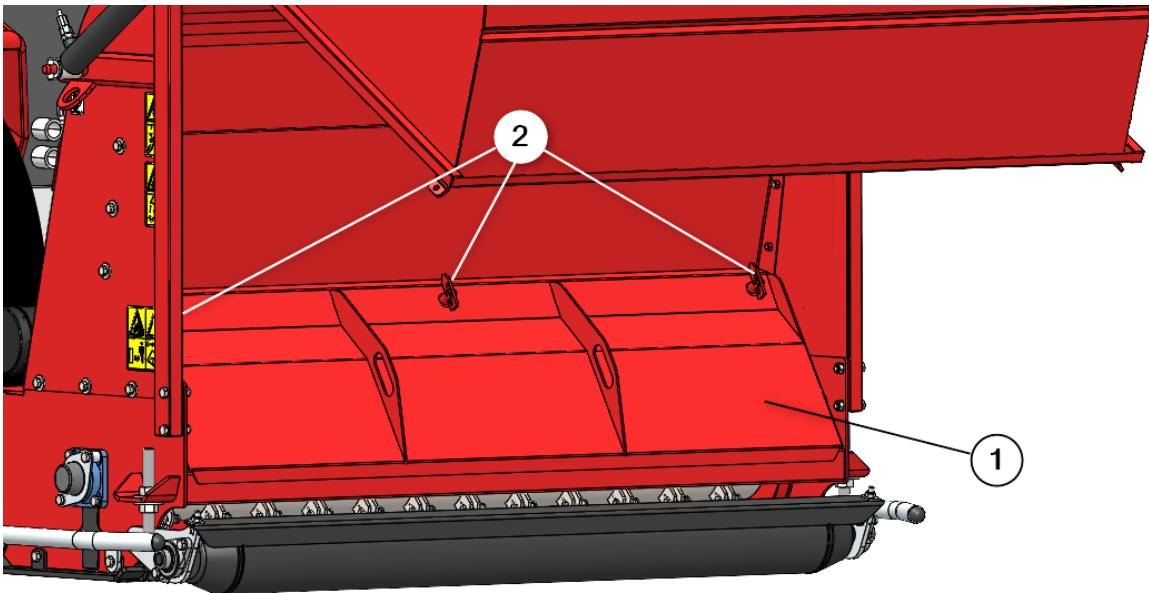


Fig. 10

6. Remove the clip (1), support the blade and slide out the pin (2). The blade can now be taken out (Fig. 11).

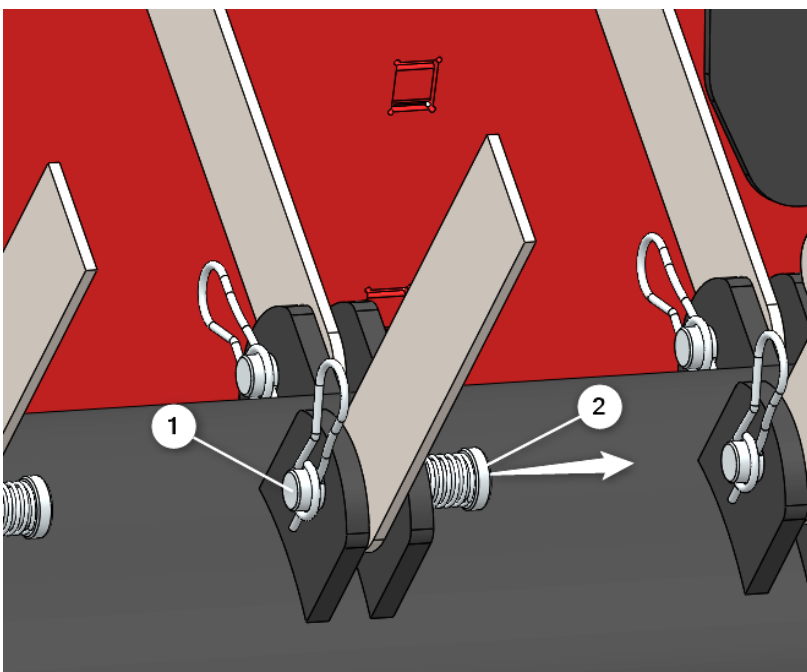


Fig. 11

7. Check the pin for visible wear signs and if necessary, replace it.
8. Change the blade and slide the pin in the rotor.

-  For machines with flail blades, consider the specific rotation direction of the blades (*Fig. 12*).

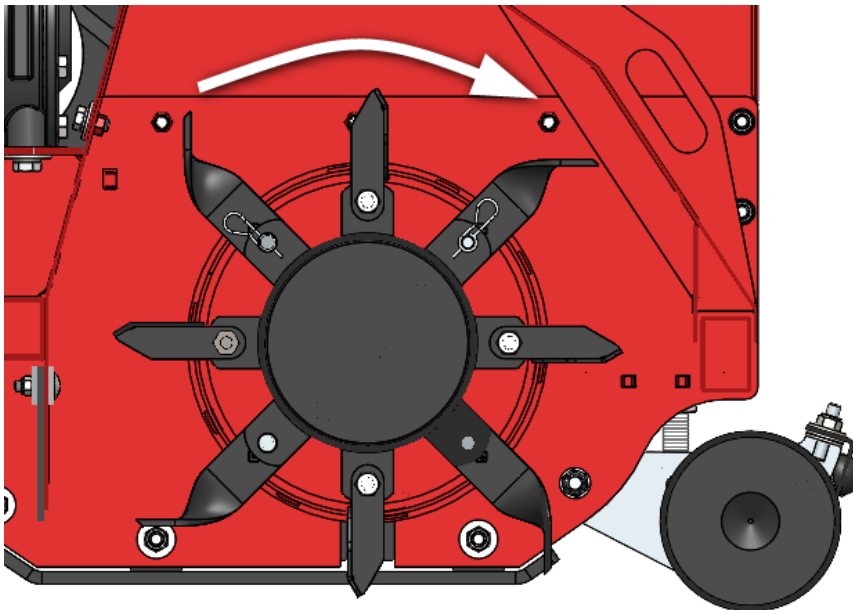


Fig. 12

9. To secure the pin correctly, apply the clip as shown in *Fig. 13*.

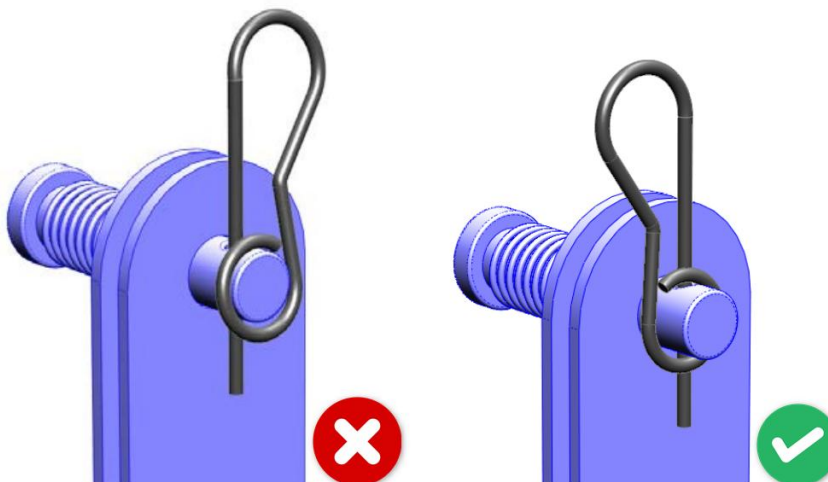


Fig. 13

10. Move to the next blade and proceed as described in Steps 6–9.

 **It is very important to fully equip the rotor with identical blades to keep it balanced. If this is not done properly and blades are missing, the imbalance can cause damage to the machine.**

11. When finished, close the maintenance cover (1) and lock the latches (2), (*Fig. 10*).

12. Unlock the cylinder locks and rotate them back to the working position. Ensure that the lock is secured by the pin (Fig. 14).

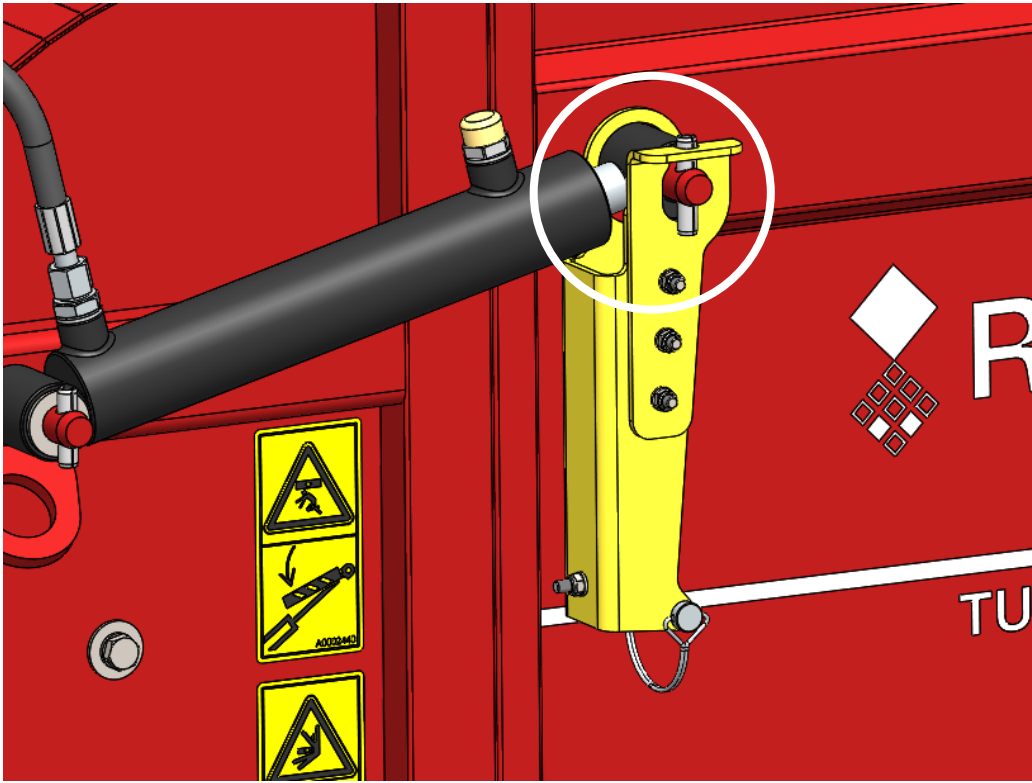


Fig. 14

13. Start the tractor and close the hopper.

11 OPTIONS

11.1 Blades

There are different blade types and combinations available to be used with the machine (*Fig. 15*).

1. Scarify blade
2. Flail blade
3. Back to back flail blade
4. Back to back flail blade + Scarify blade



Fig. 15

More information about quantities and SKU numbers can be found in the parts manual.

12 MAINTENANCE

12.1 Maintenance schedule

Timeframe	Checkpoint	Work
Before each use	Check for loose parts.	Secure loose parts properly.
	General check	Connect the machine to the tractor and let the machine run for 5 minutes. Watch and listen for unusual movements and noises.
	Check for oil leaks and the oil level in the gearbox.	Repair any leaks and if necessary, top up the oil. For procedures and specifications, see Ch. 12.4.
	Safety stickers	Presence and legibility of safety stickers. Replace them, if damaged or missing.
	Loose parts around PTO	Secure the parts so that they cannot come into contact with the PTO.
After the first 20 operating hours (new or repaired)	Lubricate PTO, roller bearings.	Use 2 pumps of EP 2 grease. See Ch.12.3 for lubrication point locations.
	Check for loose parts.	Secure loose parts properly.
	General check	Connect the machine to the tractor and let the machine run for 5 minutes. Watch and listen for unusual movements and noises.
	Check for oil leaks and the oil level in the gearbox.	Repair any leaks and if necessary, top up the oil. For procedures and specifications, see Ch. 12.4.
	Loose parts around PTO	Secure the parts so that they cannot come into contact with the PTO.
	Check V-belt tension.	See Ch. 12.5 for instructions.
After the first 50 operating hours (new or repaired)	Change the oil in the gearbox/side drive.	For specifications and quantity, see Ch. 12.4.
After every 50 operating hours	Lubricate PTO, roller bearings.	Use 2 pumps of EP 2 grease. See Ch. 12.3 for lubrication point locations.
	Check the hydraulic hoses.	Check on wear and cracks. Replace, if necessary.
	Check for loose parts.	Secure loose parts properly.
	General check	Connect the machine to the tractor and let the machine run for 5 minutes. Watch and listen for unusual movements and noises.
	Check V-belt tension.	See Ch. 12.5 for instructions.
After every 500 operating hours or 1 year	Change the oil in the gearbox.	Repair any leaks and if necessary, top up the oil. For procedures and specifications, see Ch. 12.4.

Table 2

12.2 Cleaning

When using a high-pressure cleaner to clean the machine, observe the following rules:

- Do not use aggressive cleaning agents that could damage 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 sprayer directly at bearings, oil seals, lubrication points, and stickers.
- Maintain a minimum distance of 0.5 m (1.6 ft) between the head of the high-pressure cleaner and the surface to be cleaned.

 Lubricate the bearing points after cleaning the machine.

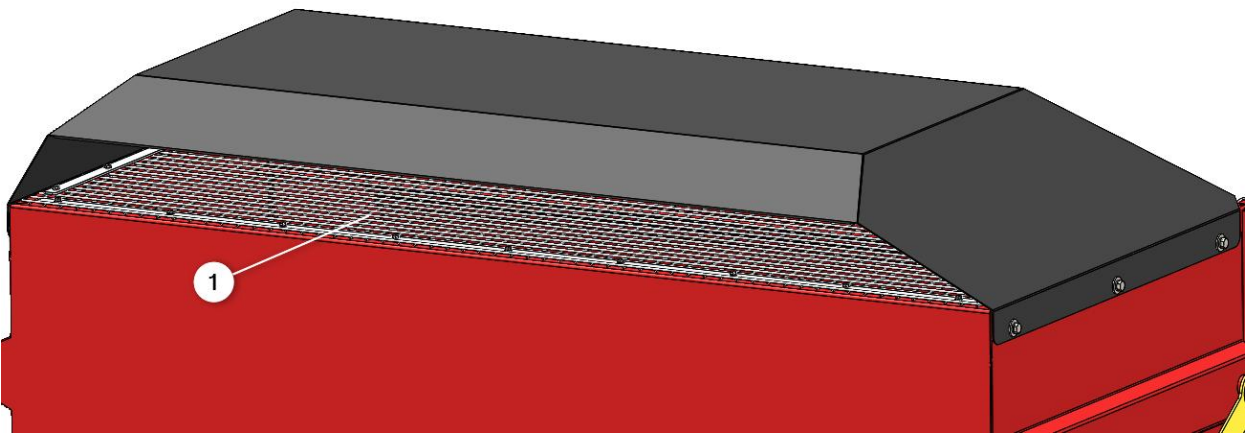



Fig. 16

 Pay extra attention to keeping the hopper air discharge opening (1) clean, as this is very important to proper machine functionality (Fig. 16).

12.3 Lubrication points

To ensure proper operation of the machine, all lubrication points on both sides of the machine must be lubricated periodically (Fig. 17). Lubricate the points according to the maintenance schedule. (See Ch.12.1)

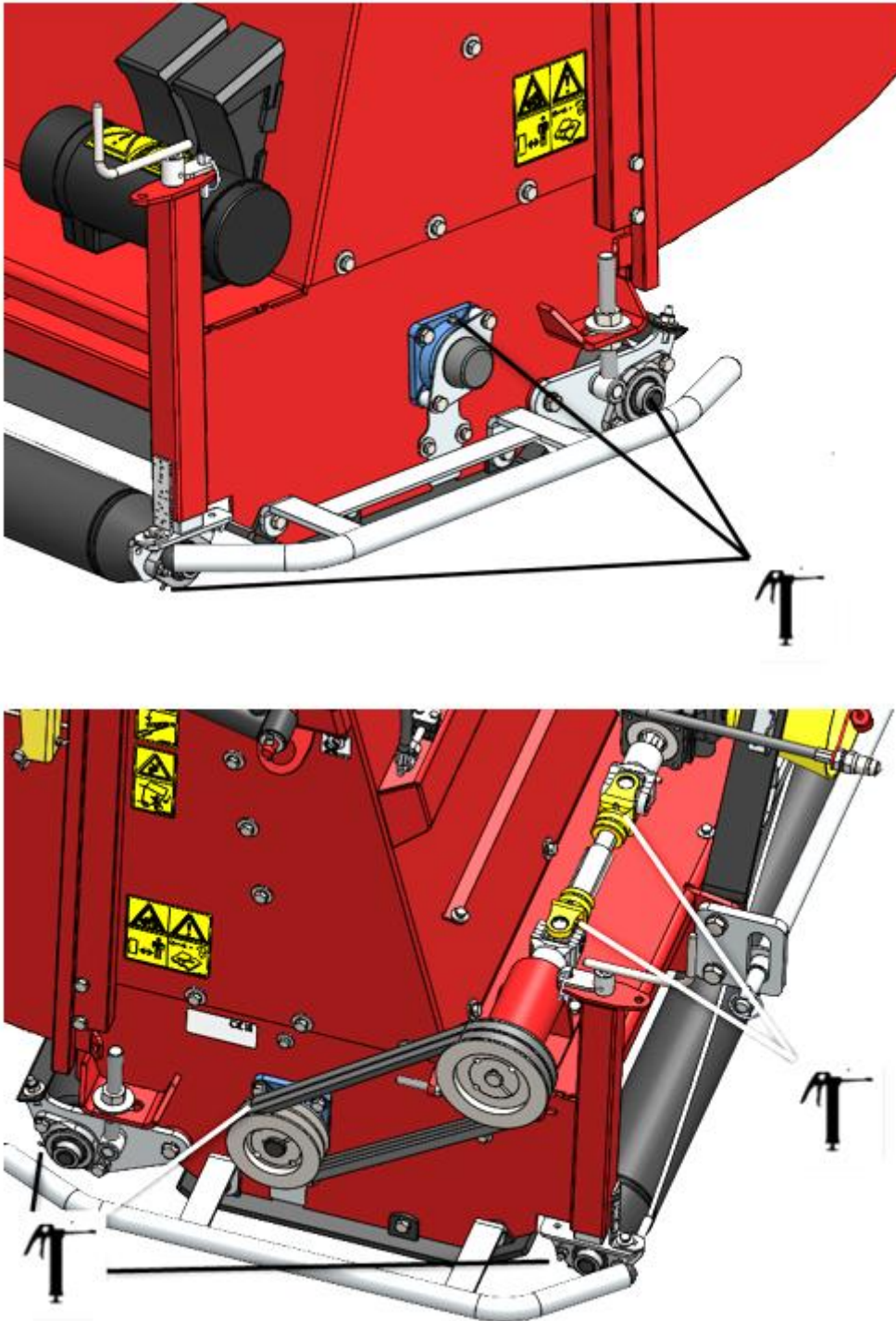


Fig. 17

12.4 Replacing the gearbox oil

From time to time, it is necessary to check the oil level or replace the oil. This is done according to the following procedures (Fig. 18):

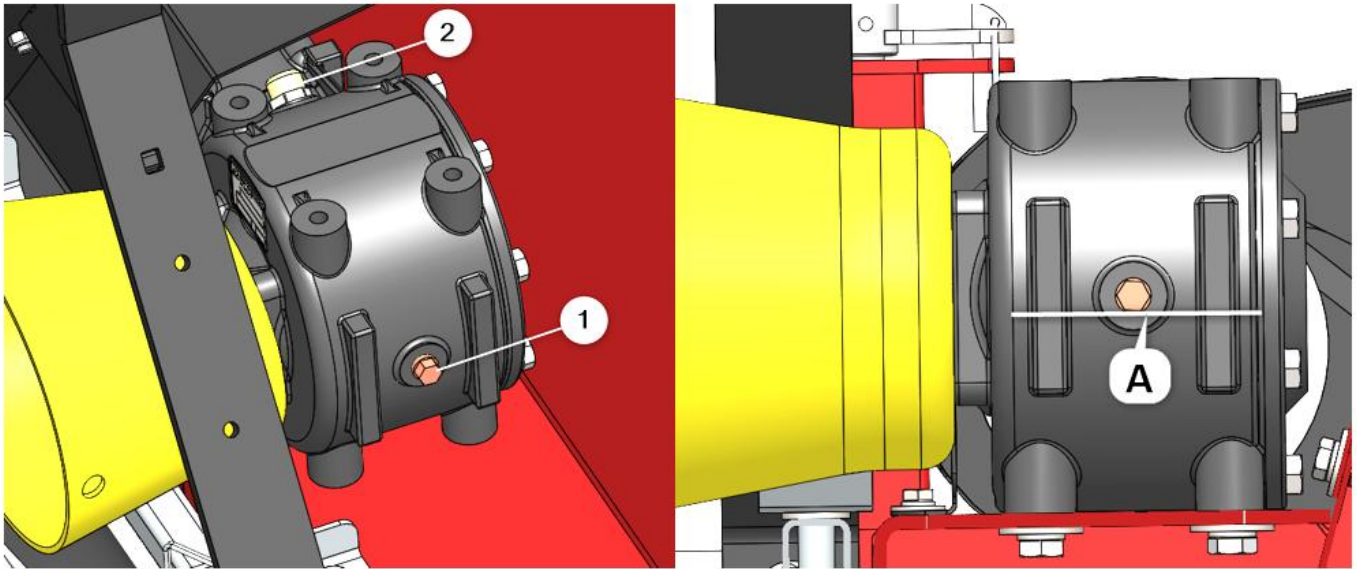








Fig. 18

Oil level check






-  Lower the machine and ensure that the storage location has a stable surface and that the machine cannot slide.
-  Turn OFF the tractor engine and remove the key.
-  Ensure that the machine and tractor cannot start or move during the operation.
-  Be careful, the oil may be hot and harmful to the skin.
-  Waste oil/grease is harmful to the environment; dispose of it in accordance with local regulations.

1. Make sure the machine is level/positioned straight.

 Keep a cloth within reach to wipe away any leaked oil.

2. Carefully remove the level plug (1) from the side of the gearbox.
3. Check the oil level (A), it should just reach the bottom of the hole.
4. If needed, remove the breather (2) and fill the missing quantity with GL5 80W90 oil.

Replacing the oil

-  Lower the machine and ensure that the storage location has a stable surface and that the machine cannot slide.
-  Turn OFF the tractor engine and remove the key.
-  Ensure that the machine and tractor cannot be engaged or move during the operation.
-  Be careful, the oil may be hot and harmful to the skin.
-  Waste oil/grease is harmful to the environment; dispose of it in accordance with local regulations.

1. Make sure the machine is level/positioned straight.



Keep a cloth within reach to wipe away any leaked oil.

2. Remove the breather (2), (*Fig. 18*).
3. Drain the gearbox by using an oil suction pump.
4. Check the oil for contamination. Steel particles may indicate a problem.
5. Fill the gearbox with GL5 80W90 oil $\pm 1.1L$ (1.16 qts) through the breather hole (2).
6. Check the oil level by carefully removing the level plug (1).
7. When completed, install the level plug (1).
8. Install the breather (2).

12.5 Checking the V-belt tension

Periodically checking the V-belt tension is necessary to keep the machine's drive in good condition. Check the V-belt tension as follows (Fig. 19):

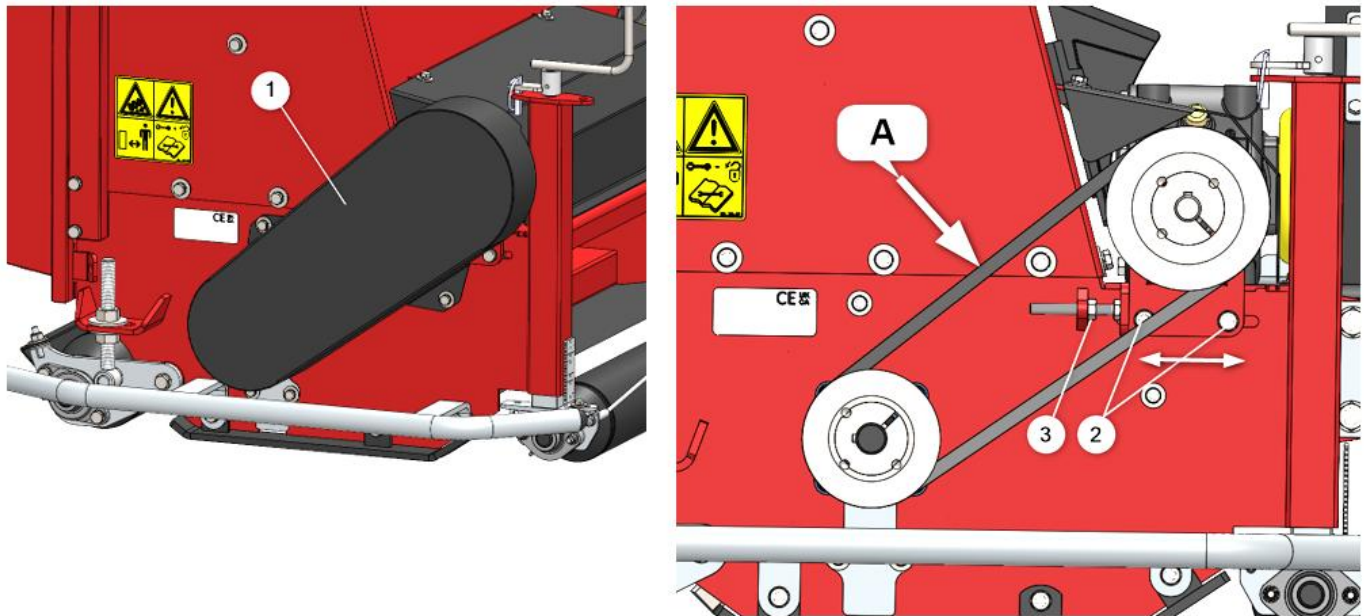





Fig. 19

-  Lower the machine and ensure that the storage location has a stable surface and that the machine cannot slide.
-  Turn OFF the tractor engine and remove the key.
-  Ensure that the machine and tractor cannot start or move during the operation.

1. Remove the safety cover (1).
2. Check the tension of the V-belts by pressing the belt on point A.

For new belts, apply a pressure between 6.1 – 6.5 Kg (13.4 – 14.3 lbs). The compression needs to be 7 mm (9/32") per belt.

For used belts, apply a pressure between 5.3 – 5.7 Kg (11.7 – 12.6 lbs). The compression needs to be 7 mm (9/32") per belt.

3. If adjustment is needed, loosen the bolts (2) by one turn and use nut (3) to slide and adjust the carriage in the correct position.
4. Fix the bolts (2) and check the tension, as indicated in Step 2. If necessary, repeat the procedure.
5. Place the safety cover (1) back.

12.6 Assembly instructions taper-lock bush

For the correct assembly and disassembly of the taper-lock clamping bush, please follow the procedures below (Fig. 20):

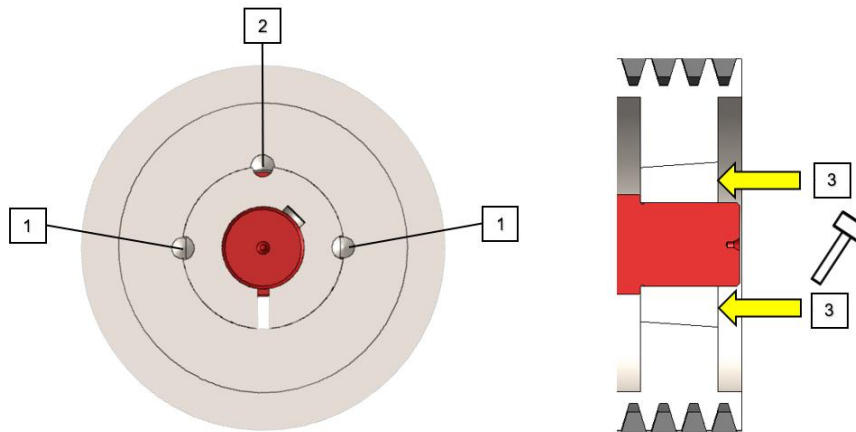


Fig. 20

Disassembly:

1. Remove the socket-screws from position 1.
2. Apply oil to one socket-screw and place it in position 2.
3. Tighten the socket-screw up to the point that the clamping bush comes loose from the pulley.
4. Remove both parts from the axle.

Assembly:

1. Thoroughly clean the clamping bush/pulley and axle, so that grease and dirt are removed from them.
2. Place the clamping bush in the pulley in the correct position. The three holes (1 + 2) of the taper-lock bush must be aligned with the holes of the pulley.
3. Apply oil to the socket-screws, insert them into the holes (1) and turn them hand-tight.
4. Place the pulley, including the taper-lock bush, over the axle and place in the required position.
5. Tighten both socket-screws evenly until the corresponding tightening torque is achieved.
6. Using a hammer and a wooden chock or adaptor ring, beat the outermost ring surface (3) of the clamping bush to settle the ring.
7. Tighten the socket-screws again, until the corresponding tightening torque is achieved. Repeat this once or twice.
8. Let the machine run for approx. one hour and check whether the torque setting of the socket-screws has not deviated. If this is the case, tighten the socket-screws until the corresponding tightening torque is achieved and repeat the procedure.

Clamping bush type

Tightening torque (lubricated)

1008/ 1108	6 Nm (4.4 lbf.ft)
1210/ 1215/ 1310/ 1315/ 1610/ 1615	20 Nm (14.8 lbf.ft)
2012	30 Nm (22.1 lbf.ft)
2517	50 Nm (36.9 lbf.ft)
3020/ 3030	90 Nm (66.4 lbf.ft)
3535	115 Nm (84.8 lbf.ft)

Table 3

12.7 Recommended torque values for standard bolt and nut assemblies

In the table below, the recommended torque values are listed for general bolt–nut combinations clamping metal parts.

Notice: If applicable, for critical applications inside the machine, the torque values will be clearly identified in a special section in the manual. These values are always leading over the general torque values mentioned in Table 4.

Before applying the torque values, always consider the following:

- The thread surface is clean on both the bolt and nut.
- Awareness of the difference in torque between dry and lubricated thread.
- Hardness of the clamped surface between the bolt head and nut which affects the installation.

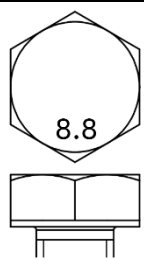
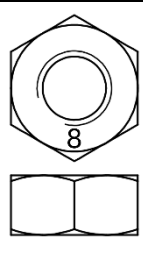
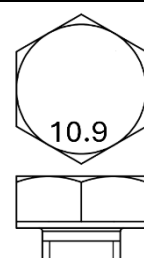
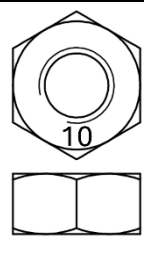
Thread size	Bolt class 8.8 and nut class 8				Bolt class 10.9 Bolt and nut class 10			
								
	Dry*		Lubricated**		Dry*		Lubricated**	
	Nm	lbf.ft	Nm	lbf.ft	Nm	lbf.ft	Nm	lbf.ft
M5 x 0.80	7.0	5.1	5.2	3.8	9,8	7.2	7.3	5.4
M6 x 1.00	11.9	8.8	8.9	6.5	16,8	12.4	12.5	9.2
M8 x 1.25	28.8	21.2	21.3	15.7	40,4	29.8	30.0	22.1
M10 x 1.50	56.7	41.8	42.0	31.0	79,8	58.8	59.1	43.6
M12 x 1.75	98.6	72.8	73.0	53.8	139	102	103	75,7
M14 x 2.00	157	116	116	85.8	221	163	164	121
M16 x 2.00	241	178	178	131	339	250	250	184
M18 x 2.50	337	248	248	183	473	349	349	258
M20 x 2.50	471	348	347	256	663	489	488	360
M22 x 2.50	638	471	468	345	897	662	658	485
M24 x 3.00	815	601	599	442	1145	845	842	621
M27 x 3.00	1184	873	867	640	1665	1228	1220	900
M30 x 3.50	1611	1188	1182	872	2265	1671	1662	1226

Table 4

* Dry means zinc plated bolt and nut without any lubricant.

** Lubricated means bolt and nut coated with a lubricant such as oil, grease, or a thread sealant in liquid state.

13 TROUBLESHOOTING

Problem	Possible cause	Solution
Machine vibrates.	Missing blades	Check and replace.
	Obstacle between the blades	Remove the obstacle.
	Rotor is out of balance.	Check for damage and/or material wrapped around the rotor.
	Rotor bearings are defective.	Check and replace.
	PTO angles are uneven.	Adjust the top link to an acceptable angle.
	PTO shaft RPM is too high.	Adjust the RPM.
	Working speed is too high.	Adjust the working speed.
	Surface is too hard.	Postpone work until conditions improve.
Rotor does not rotate.	V-belts are slipping.	Check tension and/or replace V-belts.
	Malfunction in gearbox	Check the gearbox.
	Malfunction on driveshaft between gearbox and side drive	Check the driveshaft.
Crunching sound when machine is in operation	Bearings need maintenance.	Check the bearings, grease or replace.
Hopper closes too fast/slow.	Check setting of flow control valve.	See Ch. 9.4 for procedure.
Not enough material removed	Working depth/height setting is not correct.	Adjust working depth/height setting. See Ch. 9.3 for procedure.
	Driving speed is too high.	Lower the driving speed.
	The hopper air discharge opening is clogged.	Clean the mesh of the air discharge opening. See Ch. 12.2.
	V-belts are slipping.	Check the tension and/or replace V-belts.
	Blades are worn.	Replace the blades.
Poor field appearance after treatment	Working depth/height setting is not correct.	Adjust the working depth/height setting. See Ch. 9.3 for the procedure.
	Surface is too moist.	Postpone work until conditions improve.
	Blades are worn.	Replace the blades.
	Operator did not drive in straight lines.	Drive in straight lines.

Table 5