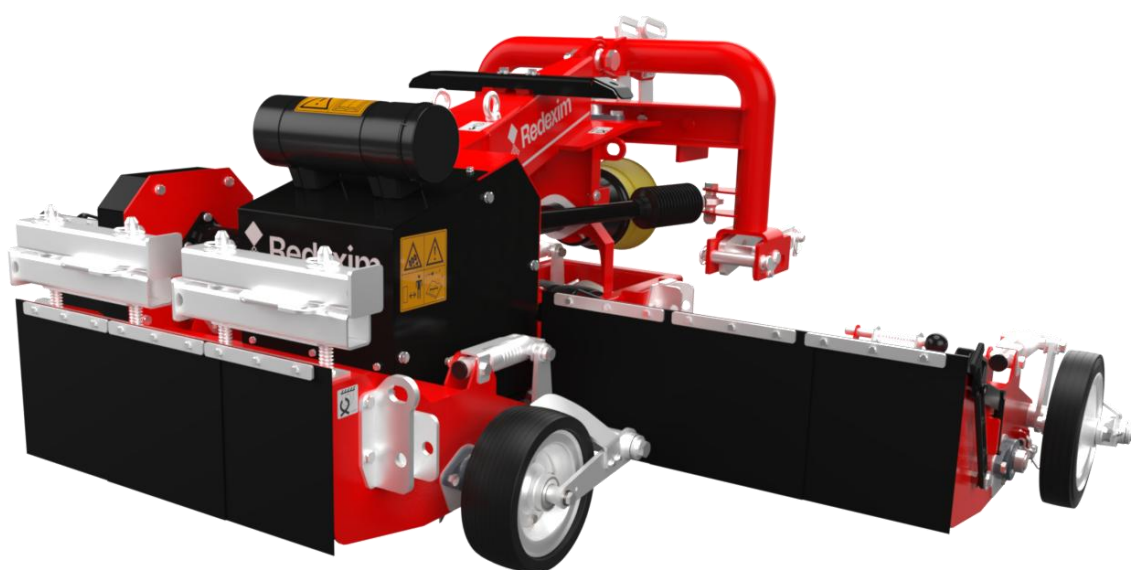


# VERTI-CUT FLEX 2000



**Translation of the original user manual**

**Version:** UM144.200.001EN-2628  
**Applies to:** A144.200.001 Verti-Cut Flex 2000

## USER MANUAL



## EU – DECLARATION OF CONFORMITY



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

**hereby declare that this “EU – DECLARATION OF CONFORMITY” has been issued under our full responsibility and applies to the following product:**

**VERTI-CUT FLEX 2000 WITH THE 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 with the standards:**

- **ISO 12100:2010** 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 machines

Zeist, 12 September 2025



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

## UK – DECLARATION OF CONFORMITY



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

**hereby declare that this “UK – DECLARATION OF CONFORMITY” has been issued under our full responsibility and applies to the following product:**

**VERTI-CUT FLEX 2000 WITH THE 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 12100:2010** 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 machines

Zeist, 12 September 2025

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

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

## FOREWORD

Congratulations on the purchase of your Verti-Cut Flex 2000. To ensure safe and sustainable operation of this machine, it is essential that you read and understand this user manual. Without a full understanding of its contents, it is not possible to operate this machine safely.

This machine is not a self-propelled machine. It is the user's responsibility 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 risks. In addition, the user instructions for the vehicle to be used and its components must be observed.

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

In this manual, the term 'user' refers to any person operating the machine described in this manual.

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 TERMS

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



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## 1 SAFETY INSTRUCTIONS

This machine is designed for safe use. This is only possible if the safety instructions set out 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 the order specified.

The following symbols are used in this manual:



Safety instructions



Tips 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 liability whatsoever for any damage resulting therefrom, and all associated risks are borne entirely by the user.

All persons designated by the owner to operate, maintain or repair the machine must have read and fully understood the user manual, in particular the chapter on safety instructions.

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 a new CE/UKCA marking must be obtained.

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

The user is responsible for ensuring the machine and towing vehicle can be safely combined and they meet the requirements described in the technical data (see chapter 2). The combination must be tested for noise, safety, risk, and ease of use. If the combination does not meet these requirements, do not install or use the machine until a valid combination is achieved. Redexim is not liable for the use of invalid combinations.

Wear appropriate clothing when working with the machine. Wear certified safety shoes, long trousers, 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, repairs and adjustments**

Keep a record of repairs.

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

For maintenance or repairs, use only genuine Redexim parts to ensure the safety of the machine and the user.

Repair work on the machine must only be carried out by authorised technical personnel.

During maintenance, adjustment and repairs, always secure the machine to prevent it from rolling 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 specifications below.

Be aware of the risk of injury!

Do not operate the machine if the protective covers and safety stickers are missing.

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

Inspect hydraulic lines regularly, where fitted. Replace them immediately if you detect signs of damage or wear.

All machine operators must be fully familiar with its functions and controls.

Before every use, do the following:

- Inspect the machine for loose bolts, nuts, or other components and secure them, if necessary.
- Ensure you have a clear and unobstructed view of both the immediate and surrounding area.

## 2 TECHNICAL DATA

| Specification               | Verti-Cut Flex 2000                                                                                                                             |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Recommended vehicle         | 30 to 40 HP with a minimum lifting capacity of 520 kg (1146 lbs) at 610 mm (24") behind the lift eyes                                           |
| Working width               | 2.0 m (78.7")                                                                                                                                   |
| Working depth               | 0 mm – 40 mm (0" – 1.57")                                                                                                                       |
| Working speed               | Depending on conditions and the desired result, max. 5 km/h (3.1 mph)                                                                           |
| PTO speed                   | 540 RPM                                                                                                                                         |
| Blade thickness             | 2 mm (0.079") with carbide tip                                                                                                                  |
| Distance between the blades | 38 mm (1.5") 53 blades (standard)<br>25 mm (1") 75 blades<br>50 mm (2") 39 blades                                                               |
| Weight                      | 420 kg (926 lbs)                                                                                                                                |
| Dimensions (L x W x H)      | 1579 mm x 2435 mm x 822 mm (62.2" x 95.9" x 32.4")                                                                                              |
| 3-point system              | Cat. 1                                                                                                                                          |
| Gearbox oil                 | Comer: GL-5 80W-90 (1.2 l / 0.32 gal.)<br>BRM: SAE 80/90 EP (mineral oil) (1 l / 0.26 gal.)                                                     |
| Bearing grease              | EP2                                                                                                                                             |
| Centre wheel dimensions     | Ø 250 mm x 90 mm (Ø 9.84" x 3.54")                                                                                                              |
| Wheel dimensions (wings)    | Ø 250 mm x 47 mm (Ø 9.84" x 1.85")                                                                                                              |
| Options                     | <ul style="list-style-type: none"> <li>Set of weights (SKU A0001874)</li> <li>Blade with 3 mm (0.118") carbide tip (SKU 341.303.210)</li> </ul> |

Table 1

## 3 GENERAL DESCRIPTION

The Verti-Cut Flex 2000 is a machine for verticutting turf areas.

## 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).

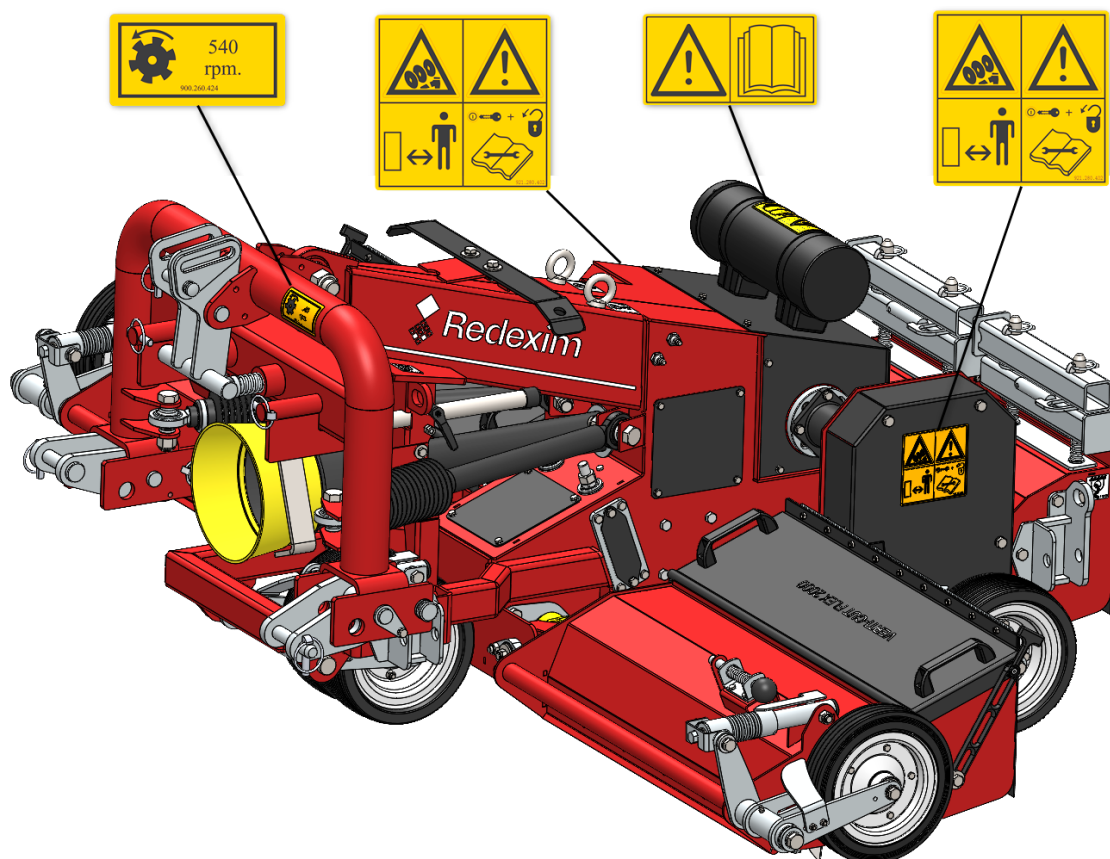


Fig. 1

|                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>921.280.402 | <ul style="list-style-type: none"> <li>- When carrying out maintenance, adjustments or repairs, the engine of the towing vehicle and the PTO must always be switched off. Secure the combination to prevent it from rolling away or slipping.</li> <li>- Keep a minimum distance of 4 metres whilst the machine is in operation, except for the operator seated in the towing vehicle.</li> <li>- During operation, keep all persons outside the machine's danger zone, as there is a risk of physical injury from moving parts.</li> </ul> |
| <br>900.280.402 | <p>Machine users must read and understand the user manual before operating the machine.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <br>900.260.424 | <p>The machine's safe operating range is up to a maximum of 540 RPM PTO.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## 5 INITIAL INSTALLATION

### 5.1 Removing the machine from the pallet

The machine must first be removed from the pallet (see Fig. 2, Fig. 3 and Fig. 4):



**Ensure that the cable/crane/lift can lift at least twice the weight of the machine. For the weight, see chapter 2, Technical data.**



**Never crawl under the machine.**

1. Remove the cross-braces (1) to allow better access.
2. Then, remove the supports (2), brackets (3), wings (4), covers (5), PTO (6) and the box containing loose parts (7) from the pallet.
3. Carefully lift the machine by the lifting points (Fig. 4) to just above the pallet (8).



**Keep a safe distance. The machine may turn or shift whilst being lifted.**

4. Remove the pallet (6) and lower the machine back to the ground.

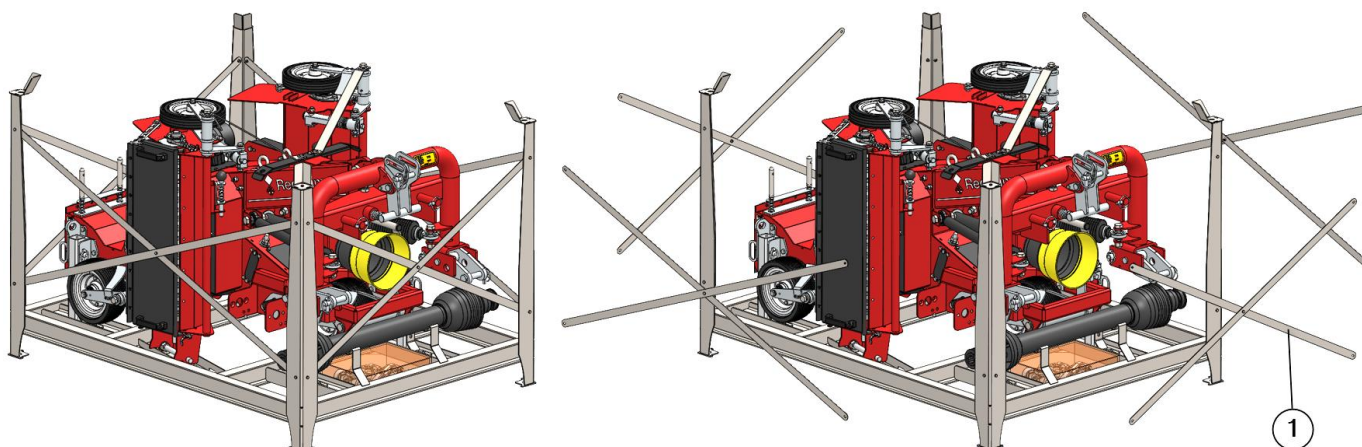


Fig. 2

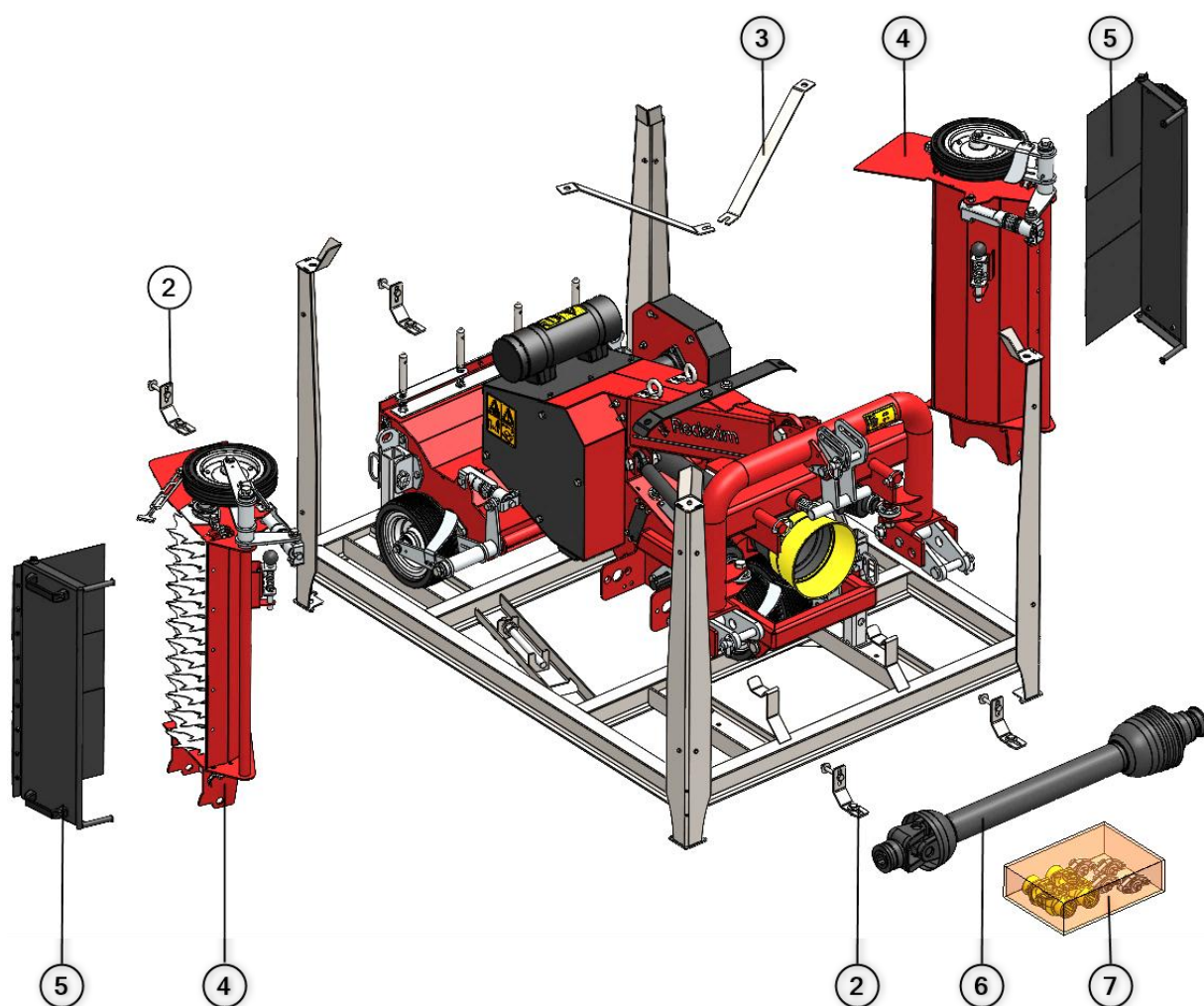


Fig. 3

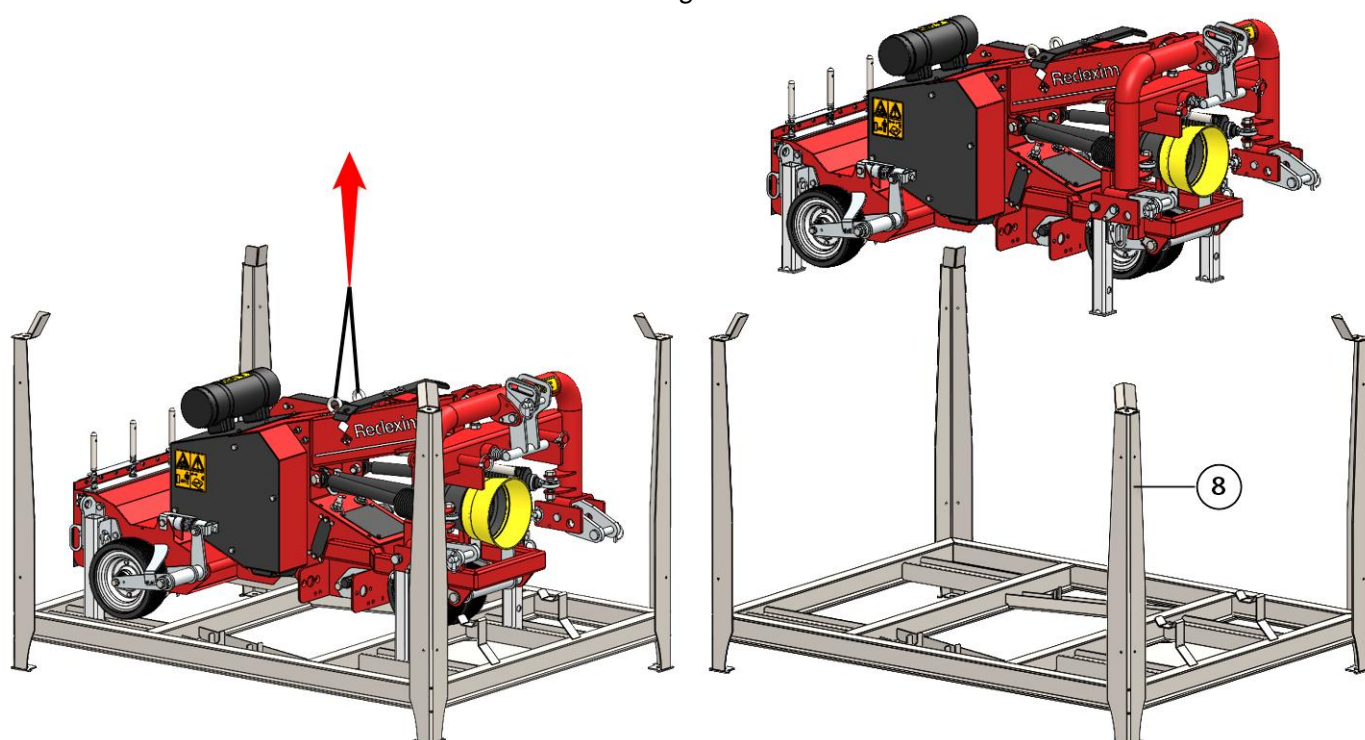


Fig. 4

## 5.2 Assembling the machine

The machine must be prepared for use as follows (see *Fig. 5* and *Fig. 6*):

1. Slide the coupling (9) and the key (11) onto the shaft of the wing (4) and secure them with the adjusting screw (12).
2. Next, slide the wings (4) over the splined shafts of the central section of the machine.
3. Then, secure the wings (4) with two sets of fasteners (10) per side, consisting of:
  - M12x55 bolt (802.120.550)
  - Heavy-duty washer M12 (864.120.063)
  - Hinge bushing (402.300.270)
  - M12 flat washer (864.120.031)
  - Lock nut M12 (830.120.120)
4. Check that the hinge points and the couplings (9) are aligned with one another to ensure the wings (4) rotate smoothly. If necessary, the couplings (11) can be adjusted slightly by loosening the adjusting screw (12). Once adjusted, this must be tightened again.
5. Fold the wings (4) upwards until they are secured in the locking mechanism (13).
6. Place the covers (5) on the wings (4) in their locking mechanisms and secure the tension strap (14).

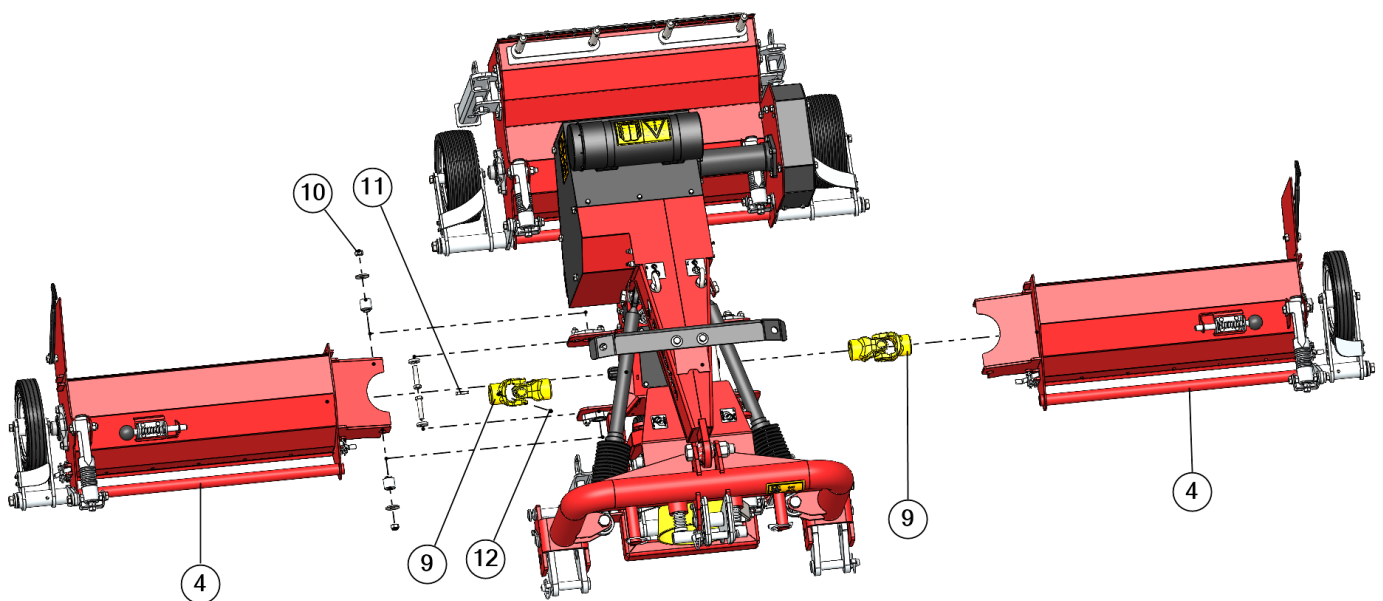


Fig. 5

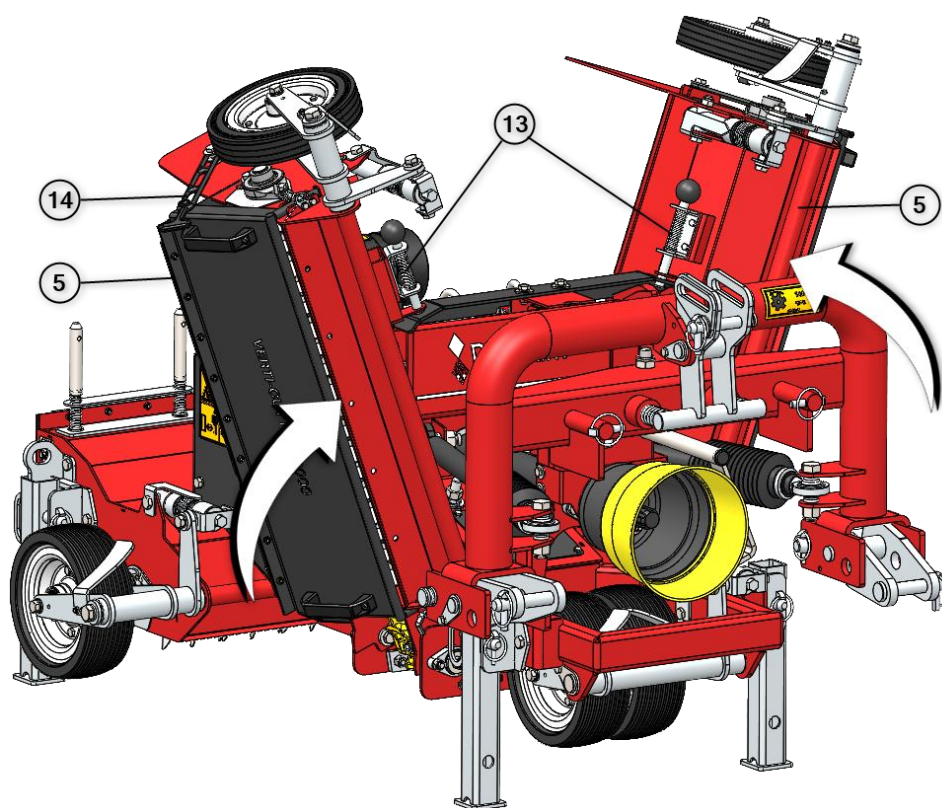


Fig. 6

## 6 PTO SHAFT

**⚠ The description below is merely an indication of how the PTO shaft can be cut to size. The instructions set out in the specific manual supplied with the PTO shaft always take precedence.**

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 the safe operation of the machine. The PTO shaft has its own CE certification and manual, which is supplied with the PTO shaft.

For specific adjustments, refer to the details provided on the PTO page, in the parts manual.

Do not exceed the specified values. This may lead to an unsafe situation and overload the machine, resulting in damage.

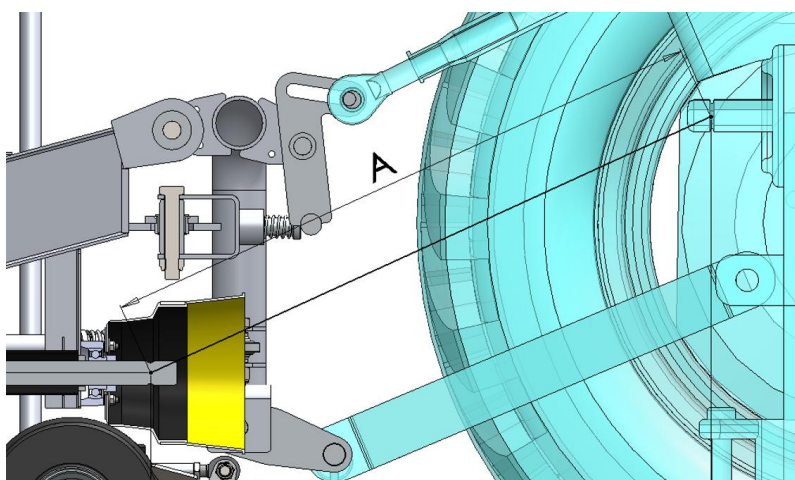


Fig. 7

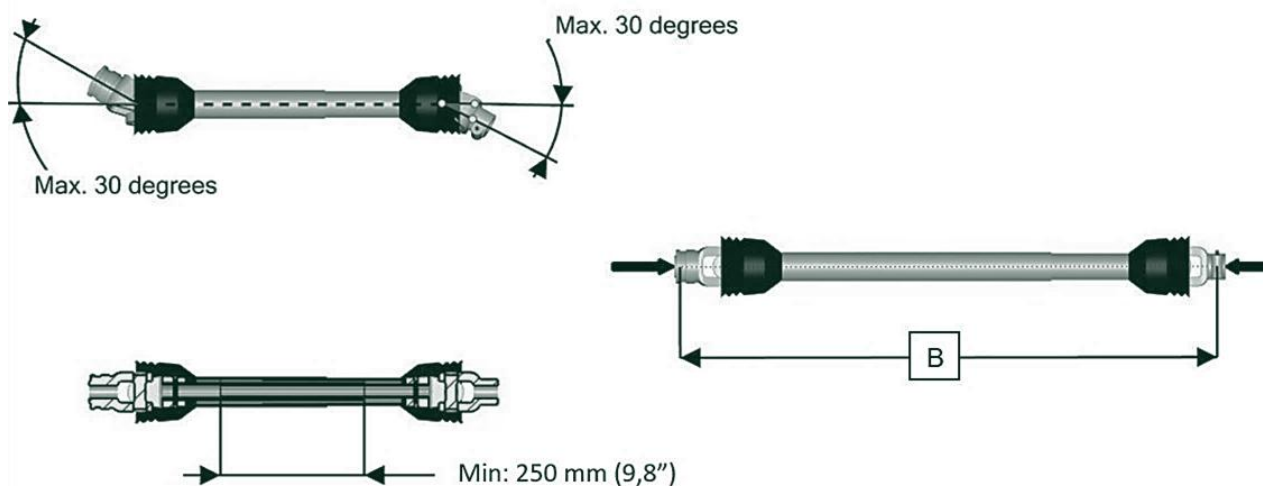


Fig. 8

### 6.1 Length of the PTO shaft

The length of the PTO shaft is very important. If it is too long, the tractor's and/or the machine's drive system may be damaged. If the overlapping length of the sleeves falls below 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 machine is purchased as new, or when a different towing vehicle is used, the length of the PTO shaft must be checked and, if necessary, shortened (Fig. 7 and Fig. 8):

1. Measure the distance **A** (from groove to groove) between the tractor's PTO and the machine's coupling, whilst the machine is standing horizontally on the ground and is coupled 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 sections and remove the protective caps from both ends.
4. Both the ends of the sleeves and the protective caps must be shortened by:  $(B-A) + 125 \text{ mm (4.9")}$ .
5. Deburr all parts and assemble them. Use lubricating grease when doing so.
6. Fit 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 cover. Replace it first.**



**If the PTO has been cut to the wrong length, or if a different tractor is used, the gearbox may be subjected to excessive strain, which could cause damage.**

## **6.2 Use of the PTO shaft**

To ensure correct use of the PTO shaft, the following points 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 guard.
- For lubrication, see the PTO manual.

## 7 CONNECTING AND DISCONNECTING THE MACHINE

You must proceed with caution when connecting and disconnecting the machine.

To do so, follow the instructions below.

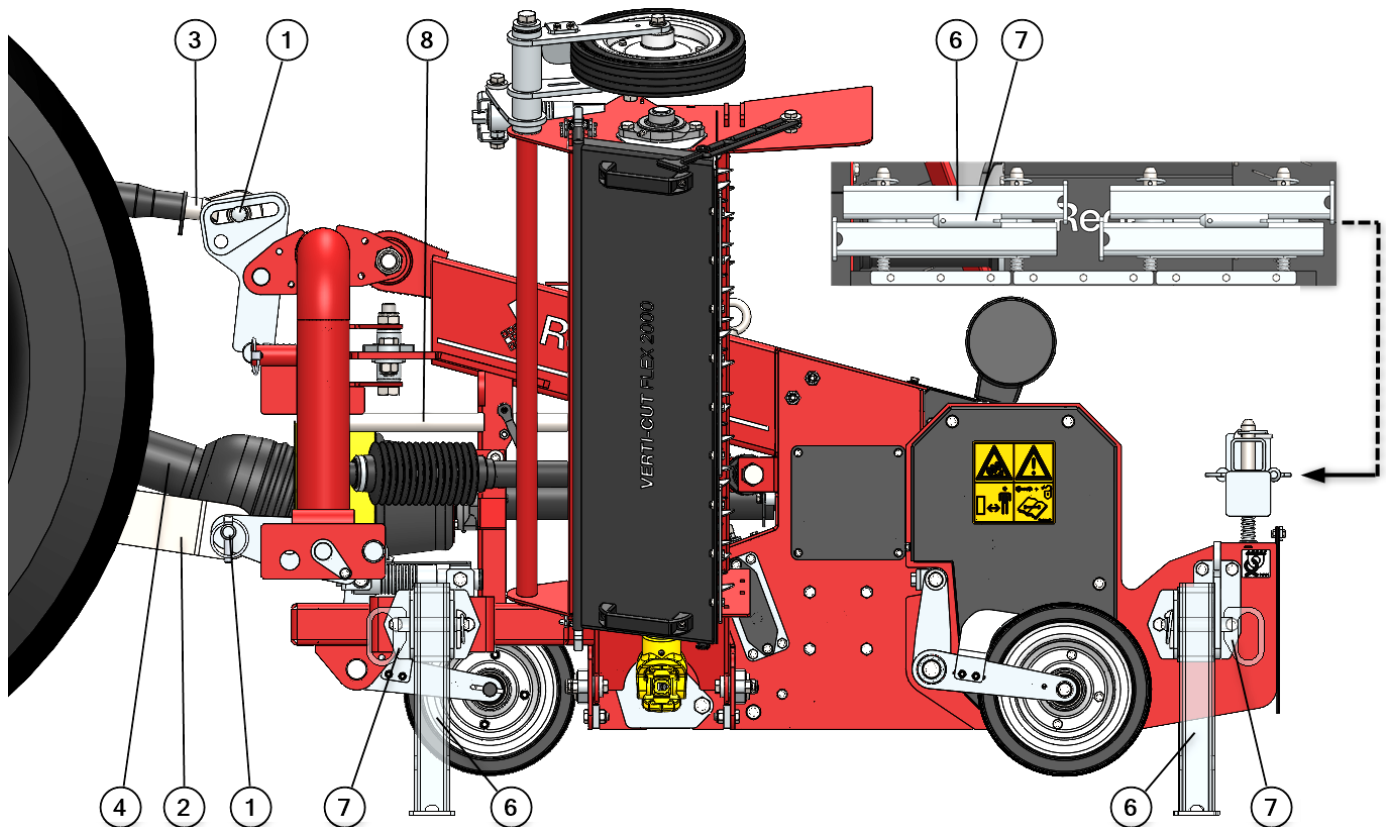


Fig. 9

### 7.1 Connecting the machine

Before connecting the machine, check the following points:

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

The machine must be coupled to the tractor as follows (Fig. 9):

1. Remove the 3-point pins (1) from the machine.
2. Carefully reverse the tractor until the lift arms (2) can be attached to the machine.



**Ensure that the tractor and the machine cannot move whilst being coupled.**



**Switch off the tractor's engine before coupling the machine.**

3. Attach the lift arms (2) to the machine using the three-point pins. Secure the pins with the clips.
4. Adjust the stabiliser on the lift arms (2) to 100 mm of lateral travel.
5. Fit the top link (3) to the tractor and connect it to the machine.
6. Adjust the top link (3) so that the three-point pin (1) is centred in the slotted hole.



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

7. Connect the PTO (4) to the tractor (slip clutch on the machine side) and fold the bracket (5) into the holder.



**Ensure that the three-point pins are secured with the clips.**

8. Start the tractor and raise the machine.
9. Remove the support legs (6) by removing the pins (7) and their retainers. Place the support legs (6) and the pins (7) in the machine's storage location as shown in the illustration.

## **7.2 Disconnecting the machine**

The machine must be disconnected as follows (*Fig. 9*):

1. Drive to the location where the machine is to be disconnected.



**Ensure that the storage area has a stable surface and that the machine cannot slide.**



**Ensure that the machine and tractor cannot move whilst being uncoupled.**



**Switch off the tractor's engine before uncoupling the machine.**

2. Refit the support legs (6) and the pins (7) with their locking mechanisms from the storage compartment to the side of the machine.
3. Carefully lower the machine to the ground.



**Check once again that the machine is stable on the ground.**

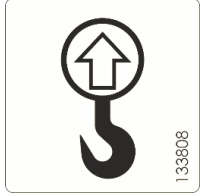
4. Loosen the top link (3) and remove it.
5. Disconnect the lift arms (2) from the machine.
6. Disconnect the PTO (4) on the tractor side and support it by using the bracket (8).
7. Start the tractor and drive it away.

## 8 TRANSPORT

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

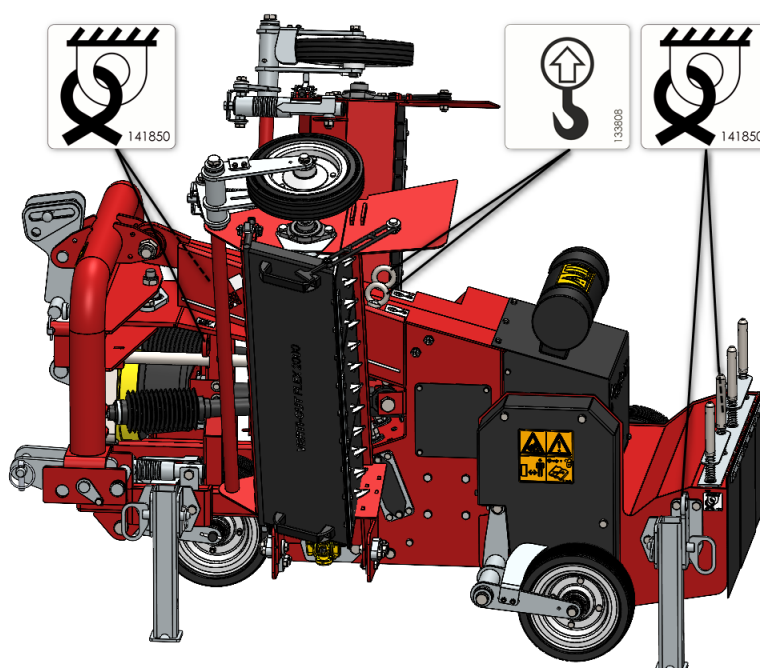
**⚠ When the machine is raised off the ground, at least 20 per cent of the tractor's weight must be supported by the front axle.**

If the machine is not transported behind the tractor, you can secure/hoist it at the following points (*Fig. 10*):

|                                                                                                       |                                                         |
|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------|
|  <p>922.340.008</p>  | <p>Securing points are located near these stickers.</p> |
|  <p>953.340.000</p> | <p>Lifting points are located near these stickers.</p>  |

- Securing points positioned on both sides of the machine.
- Lifting point for lifting the machine.

**⚠ Keep a safe distance. The machine may rotate or slip whilst being lifted.**



*Fig. 10*

## 9 COMMISSIONING THE MACHINE

### 9.1 Safety

Before using the machine, check the following:

- Are there any loose objects on the field? Remove these first.
- Are there any slopes? The maximum inclination on which this machine may be used is 20 degrees. Always work from the bottom upwards.
- Are there any cables or pipes in the ground? If so, determine their depth and set the machine's working depth to a maximum of 60% of the measured cable or pipe depth.
- Are there any hard objects in the ground? If so, operate the machine at an appropriate speed and adjust the working depth.
- Is there a risk of situations that could distract the operator? If so, the machine must **NOT** be used.
- Is there a risk of sinking or slipping? If so, postpone the work.
- If the ground is frozen or very wet, postpone work until conditions improve.
- Do not take sharp turns whilst the machine is resting on the ground.

### 9.2 Working speed

The machine's maximum working speed depends on ground conditions, working depth, the number of blades and the desired result.

The 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 expected in the working area, the working speed must be reduced.**

### 9.3 Folding the machine

Fold the machine as follows (Fig. 11):

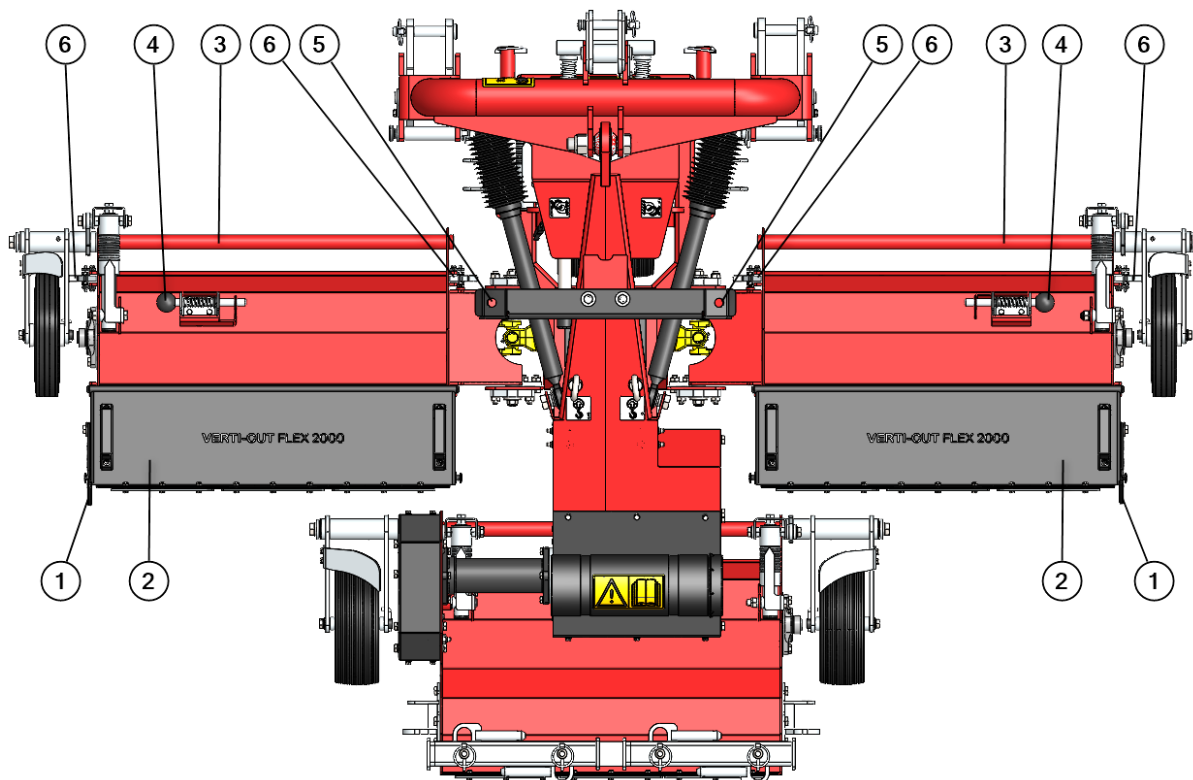


Fig. 11



Switch off the tractor's engine and PTO if it is coupled to the machine.



Ensure that the tractor and/or the machine cannot move uncontrollably.

1. Loosen the rubber fastener (1).
2. Remove the cover (2) from the wing (3) and set it aside.
3. Grasp the wing (3) by the handle and fold it up until the pin (4) engages in the lock (5).
4. Take the cover (2) and fit it underneath the wing (3).
5. Check that the cover (2) is securely locked on both sides by the locking ring (6).
6. Attach the rubber fastener (1) to the cover (2).

## 9.4 Unfolding the machine

Unfold the machine as follows (Fig. 12):

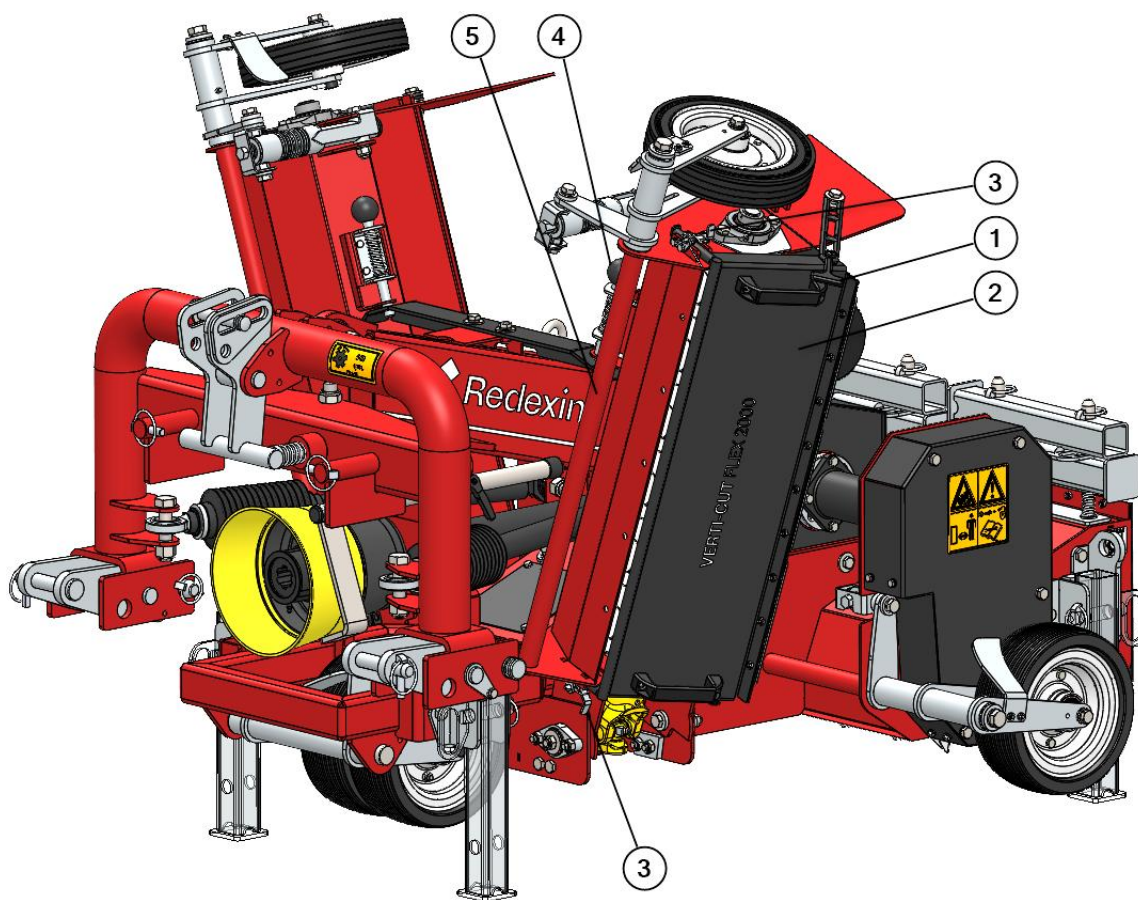


Fig. 12



Switch off the tractor's engine and PTO if it is coupled to the machine.



Ensure that the tractor and/or the machine cannot move uncontrollably.

1. Loosen the rubber fastener (1).
2. Grasp the cover (2) and release the locking ring (3).
3. Then, remove the cover (2) from the wing (5) and set it aside.
4. Grasp the wing (5) by the handle and release the pin (4).
5. Now, carefully lower the wing (5) to the ground.
6. Fit the cover (2) onto the top of the wing (5) and secure the rubber fastener (1).

## 9.5 Start/stop procedure

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

### To start, proceed as follows:

1. Check the machine thoroughly for loose parts and ensure that all components are functioning correctly.



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

2. Drive to the location where the work is to be carried out.
3. Lower the machine to just above the ground.
4. Set the tractor engine speed to approximately 1200 rpm.
5. Select the correct gear on the tractor and drive forwards.
6. Engage the PTO.
7. Whilst driving forwards, carefully lower the machine into the ground whilst it is running.
8. Increase the PTO speed to the maximum permissible value of 540 rpm.
9. Work a section of soil and assess whether the machine's settings are producing the desired result.
10. You can take gentle turns whilst working.

### To stop, proceed as follows:

1. Reduce the PTO speed.
2. Disengage the PTO and lift the machine out of the ground.



**Only lift the machine out of the ground when it is positioned directly behind the tractor to prevent damage to the machine and the ground.**

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

## 10 TECHNICAL INFORMATION

Generally speaking, the Verti-Cut Flex 2000 is not a complicated machine. A number of technical points will be explained. If you still have any questions afterwards, please contact your dealer, who will be happy to assist you.

### 10.1 Adjusting the working depth

To set the working depth, adjust the wheels as follows (Fig. 13):

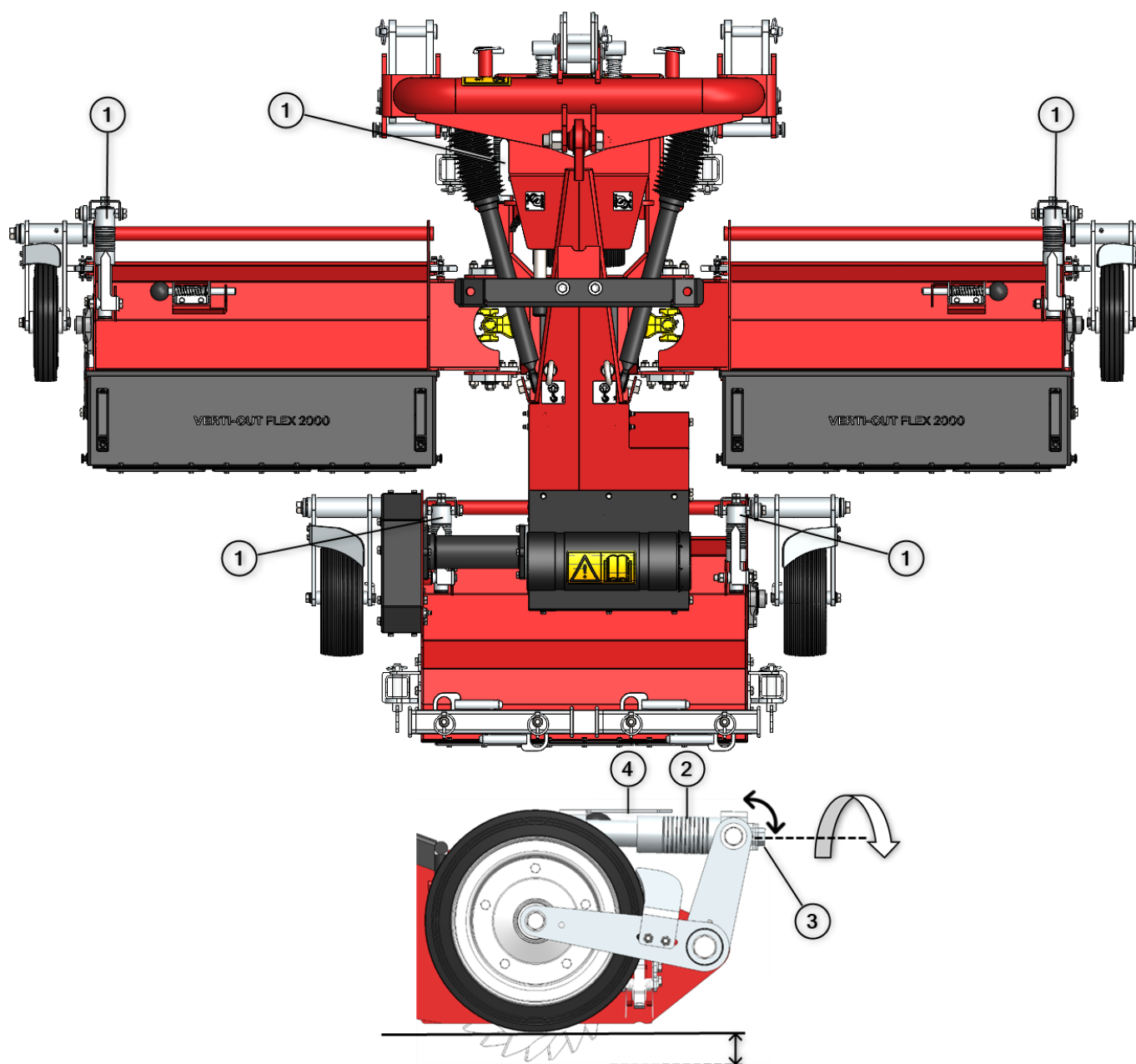


Fig. 13



**Switch off the tractor's engine and PTO when it is coupled to the machine.**



**Ensure that the tractor and/or the machine cannot move uncontrollably.**

1. In total, there are 5 height adjustment points (1) on the machine. Ensure that all adjustment points are set to the same height.
2. Then, turn the hexagon socket head screw (3) with a 17 mm (0.67") connection to adjust the height.
3. Use the indicator (4) to check whether the desired depth has been reached.
4. Turn the locking mechanism (2) on the adjustment mechanism (1) 90° downwards.

## 11 OPTIONS

### 11.1 Verti-Cut Flex weight kit

If you need to apply more pressure to the wings, you can add weight to them using a weight kit: SKU A0001874. This kit includes two weights, each weighing 20 kg (44 lb).

Install and use the weight kit as follows (Fig. 14):

1. Position the strips (2) and the brackets (3) in the desired position.
2. Loosen the knob (4) one turn and set the lock (5) to the vertical position.
3. Place the weight (1) over the locking mechanism.
4. Turn the locking mechanism to the horizontal position and tighten it again using the knob (4).
5. If the weights (1) are no longer in use or the wings need to be folded up, the weights can be stored and locked at the front of the machine.

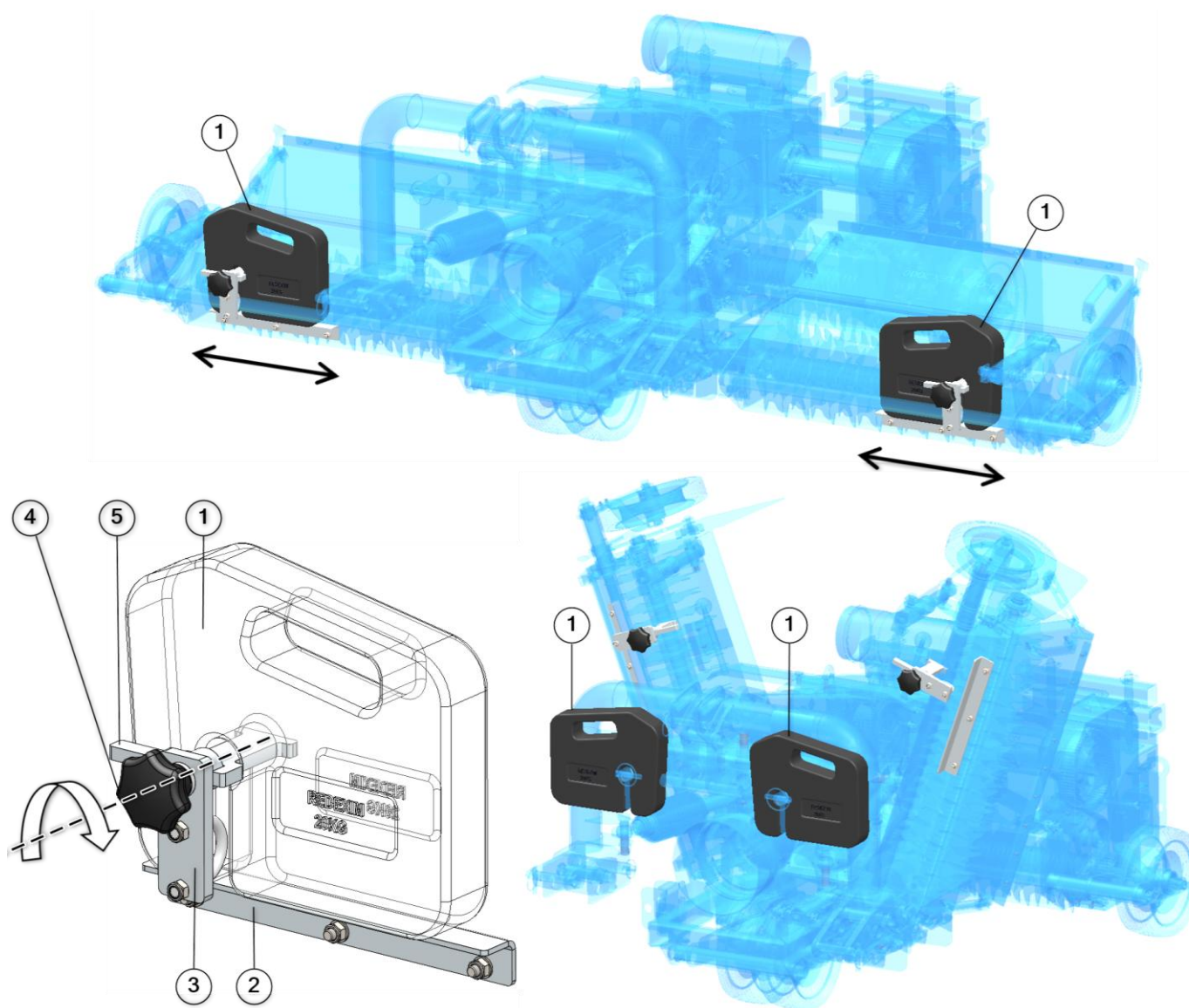


Fig. 14

## 11.2 Scarifying blade 3 mm

It is possible to use 3 mm scarifying blades (SKU 341.303.210) instead of the standard 2 mm scarifying blades. Because 3 mm blades require more power, use them only with the standard 38 mm (1.5") spacing or the 50 mm (2") spacing. Adjust the working depth if necessary.

Refer to chapter 12.5 for instructions on fitting the blades.

 **Not suitable for use with 25 mm (1") spacing.**

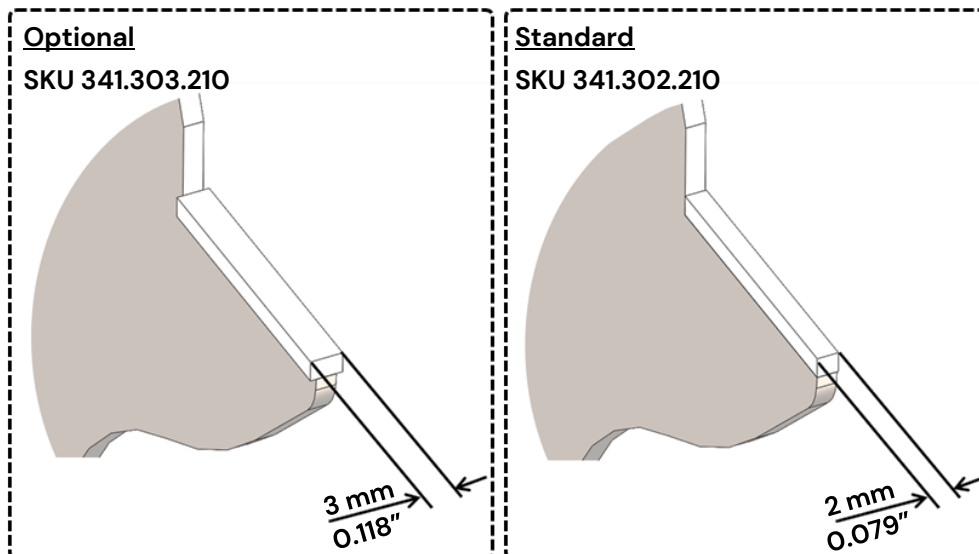
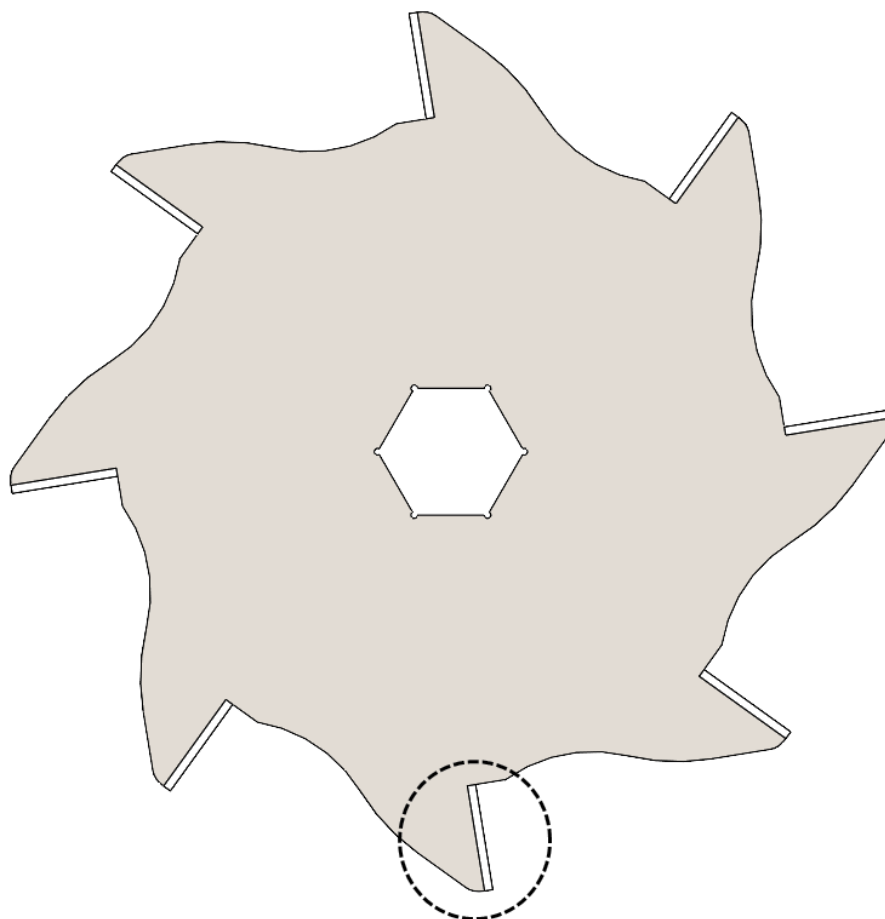


Fig. 15

## 12 MAINTENANCE

### 12.1 Maintenance schedule

| Timeline                                                | Checkpoint                                            | Work                                                                                                    |
|---------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Before each use                                         | Check for loose parts.                                | Secure any loose parts correctly.                                                                       |
|                                                         | General check                                         | Connect the machine to the tractor and let it run for 5 minutes. Check for unusual movements or noises. |
|                                                         | Check for oil leaks and the oil level in the gearbox. | Rectify any leaks and top up the oil to the correct level. See ch. 2, Technical data.                   |
|                                                         | Safety stickers                                       | Check that safety stickers are present and legible. Replace them if they are damaged or missing.        |
|                                                         | Loose parts around the PTO                            | Secure the parts so that they cannot come into contact with the PTO.                                    |
| After the first 20 operating hours<br>(New or repaired) | Lubricate the PTO and roller bearings.                | Use 2 shots of EP 2 grease. See ch. 12.3 to locate the lubrication points.                              |
|                                                         | Check for loose parts.                                | Secure any loose parts correctly.                                                                       |
|                                                         | General check                                         | Connect the machine to the tractor and run it for 5 minutes. Check for unusual movements or noises.     |
|                                                         | Check for oil leaks and the oil level in the gearbox. | Rectify any leaks and top up the oil to the correct level. See ch. 2, Technical data.                   |
|                                                         | Loose parts around the PTO                            | Secure the parts so that they cannot come into contact with the PTO.                                    |
| After the first 50 operating hours<br>(New or repaired) | Change the oil in the gearbox.                        | See chapter 2, Technical data.                                                                          |
| After every 50 operating hours                          | Lubricate the PTO and roller bearings.                | Use 2 shots of EP 2 grease. See ch. 12.3 for the location of lubrication points.                        |
|                                                         | Check for loose parts.                                | Secure any loose parts correctly.                                                                       |
|                                                         | General inspection                                    | Connect the machine to the tractor and run it for 5 minutes. Check for unusual movements or noises.     |
| After every 500 operating hours or 1 year               | Change the oil in the gearbox.                        | See chapter 2, Technical data.                                                                          |

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 from the high-pressure cleaner directly at bearings, oil seals, lubrication points or stickers.
- Maintain a minimum distance of 0.5 m (1.6 ft) between the nozzle of the high-pressure cleaner and the surface to be cleaned.

 Re-lubricate the bearing points after cleaning the machine.

## 12.3 Lubrication points

To ensure proper machine operation, all lubrication points on both sides of the machine must be lubricated periodically, except for the bearing housing at the rotor suspension point (*Fig. 16*).

Lubricate the points according to the maintenance schedule (chapter 12.1).

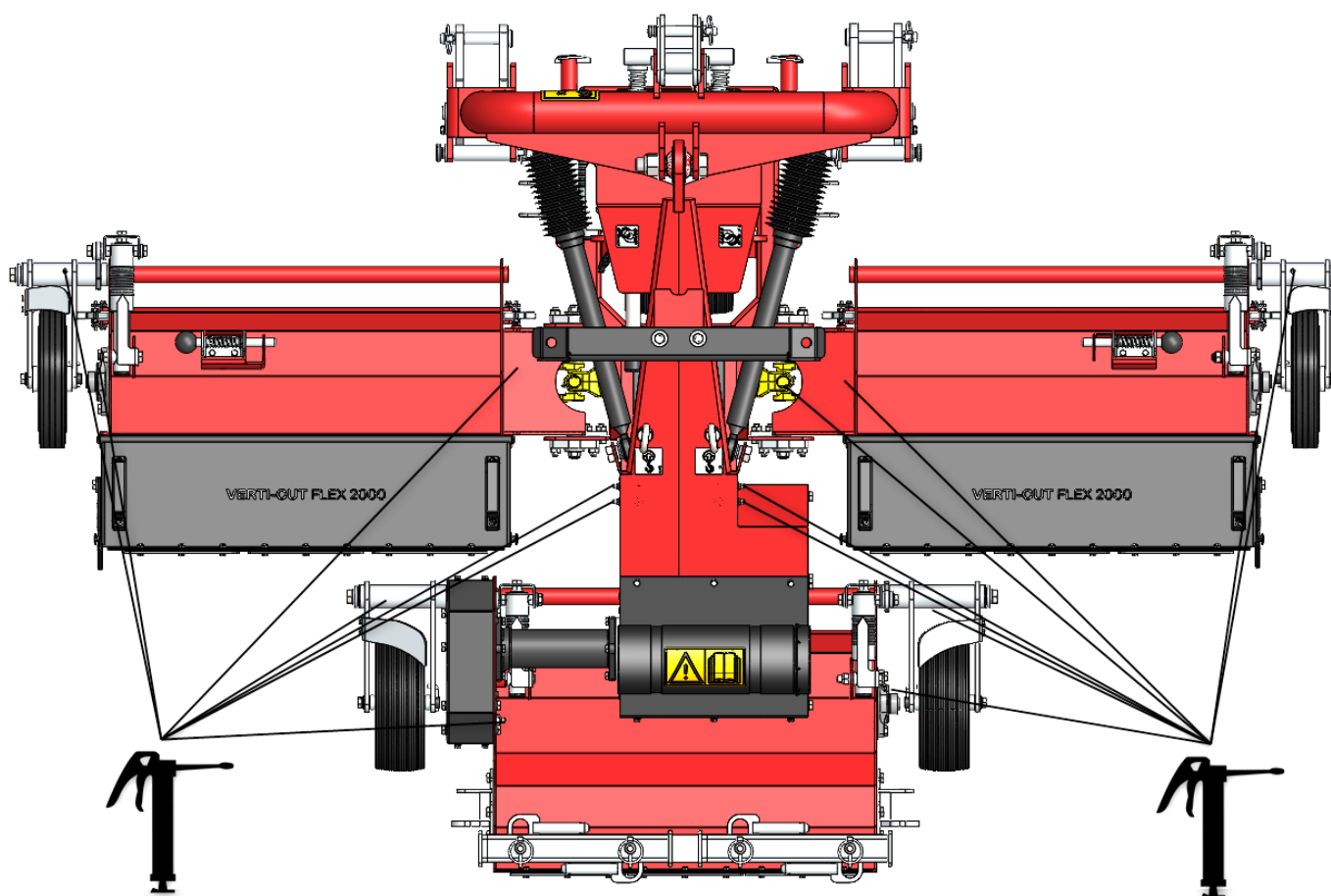


Fig. 16

## 12.4 Changing the gearbox oil

The oil in the gearbox must be changed periodically.

To do so, follow the steps below (Fig. 17):

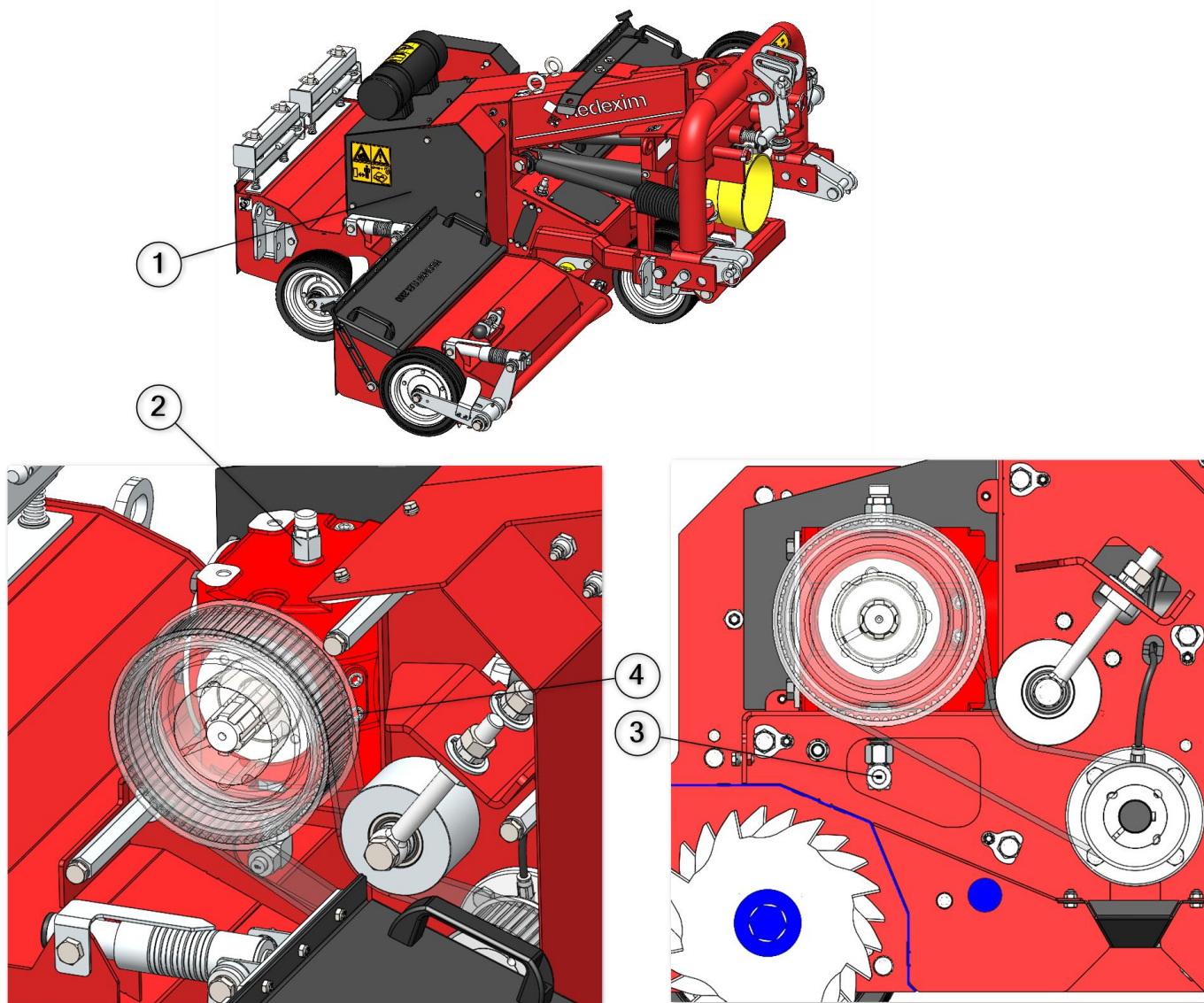


Fig. 17

Run the machine for a few minutes off the ground to allow the oil to warm up.

1. Stop the machine, lower it to the ground and position it parallel to the ground.

-  **Switch off the tractor's engine and PTO before getting out.**
-  **Ensure that the tractor and the machine cannot move uncontrollably.**
-  **Never crawl under the machine.**

2. Remove the rear cover (1).
3. Remove the bleed screw (2).

-  **Be careful: the oil may be hot and harmful to the skin.**

4. Drain the gearbox using an oil pump.  
An alternative option is to remove the blind plug (3) at the bottom. Do ensure you first place a collection tray with sufficient capacity (more than 1.2 l [0.32 gal]) under the gearbox to collect the oil.
5. Check the oil for contamination. Steel particles may indicate a problem in the gearbox.



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

6. Fit the plug (3).
7. Fill the gearbox with oil (see chapter 2) via the opening in the breather (2).
8. Remove the level plug (4) and check whether oil is leaking from the gearbox. If so, refit the level plug (4).  
If no oil leaks from the hole, check for leaks and top up the gearbox until oil leaks from the hole in the level plug, then refit the level plug (4).
9. Fit the breather (2).

## 12.5 Replacing the blades/adjusting the blade spacing

To replace the blades, proceed as follows:

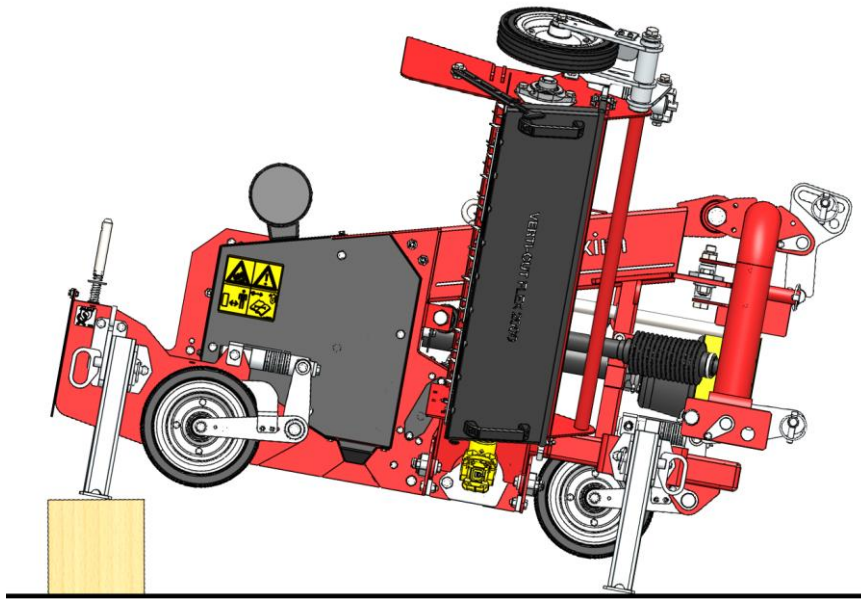


Fig. 18

1. Disconnect the machine from the tractor as described in chapter 7.2.
2. Whilst disconnecting, place blocks under the rear support legs (see Fig. 18).



**Switch off the tractor's engine and PTO before getting out.**



**Never crawl under the machine.**

3. See Fig. 19. Remove the protective covers (1), loosen the timing belt and remove it (only the centre section).
4. Loosen the bolts on the bearing blocks (2) for each rotor and carefully remove the rotors. Remember which rotor belongs where or mark them accordingly.
5. See Fig. 20. Loosen the nut (3) from the shaft. To do this, secure the key at the other end. Use a tool for this, such as a profiled socket, to ensure the shaft remains undamaged.
6. Remove all bushings and blades.
7. See
8. Table 3 for the correct sleeves and number of blades per rotor.
9. Fit the bushings and blades. Ensure that the blades are fitted in a spiral pattern. Also take note of the direction of rotation of the shaft.
10. Fit the nut and tighten it to 240 Nm. Here too, use an aid, such as a profiled sleeve, to block the keyway at the other end.
11. Slide the bearing blocks (2) back onto the rotor shafts and fit the rotors in the correct position.
12. Align the rotors relative to one another to ensure the correct blade spacing, then tighten the ring on the bearing block (2).
13. Check that all blades are facing the correct direction, see Fig. 21.
14. Fit the timing belts; for the correct procedure, see chapter 12.6.
15. Fit the protective covers (1).

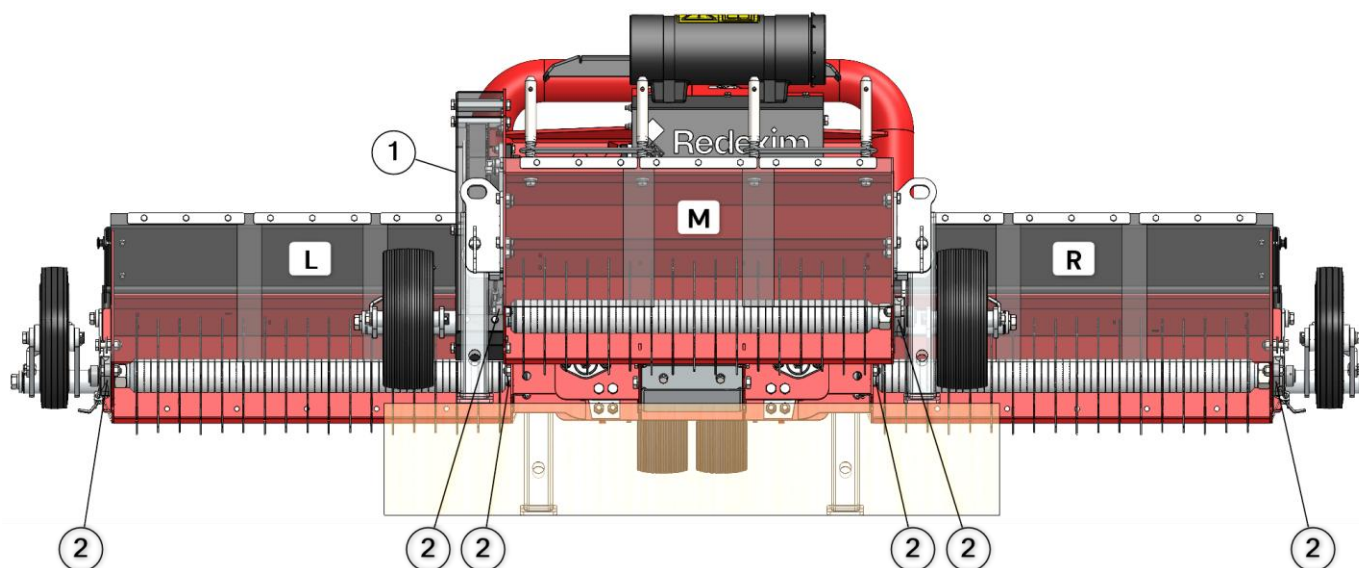


Fig. 19

| Pos. | Description                               | 25 mm (1")   |              |              | 38 mm (1.5")<br>Standard |              |              | 50 mm (2")   |              |              |
|------|-------------------------------------------|--------------|--------------|--------------|--------------------------|--------------|--------------|--------------|--------------|--------------|
|      |                                           | L            | M            | R            | L                        | M            | R            | L            | M            | R            |
| (4)  | Scarifier blade (SKU 341.302.210)         | 25           | 25           | 25           | 18                       | 17           | 18           | 13           | 13           | 13           |
| (5)  | Start bushing: 12.1 mm<br>(SKU A0002577)  |              |              |              |                          | 1            |              | 1            | 1            | 1            |
| (6)  | Spacer: 12.1 mm (SKU A0002577)            | 48<br>(24x2) | 48<br>(24x2) | 48<br>(24x2) | 51<br>(17x3)             | 48<br>(16x3) | 51<br>(17x3) | 48<br>(12x4) | 48<br>(12x4) | 48<br>(12x4) |
| (7)  | End bushing: 17.5 mm<br>(SKU 406.270.180) |              |              |              | 1                        |              | 1            |              |              |              |
|      | End bushing: 21 mm<br>(SKU 406.270.210)   |              | 1            |              |                          |              |              |              |              |              |
|      | End bushing: 24 mm<br>(SKU 406.270.240)   |              |              |              |                          | 1            |              |              |              |              |
|      | End bushing: 31.5 mm<br>(SKU 406.270.320) |              |              |              |                          |              |              |              | 1            |              |
|      | End bushing: 41 mm<br>(SKU 406.270.410)   | 1            |              | 1            |                          |              |              |              |              |              |
|      | End bushing: 51 mm<br>(SKU 406.270.510)   |              |              |              |                          |              |              | 1            |              | 1            |

Table 3

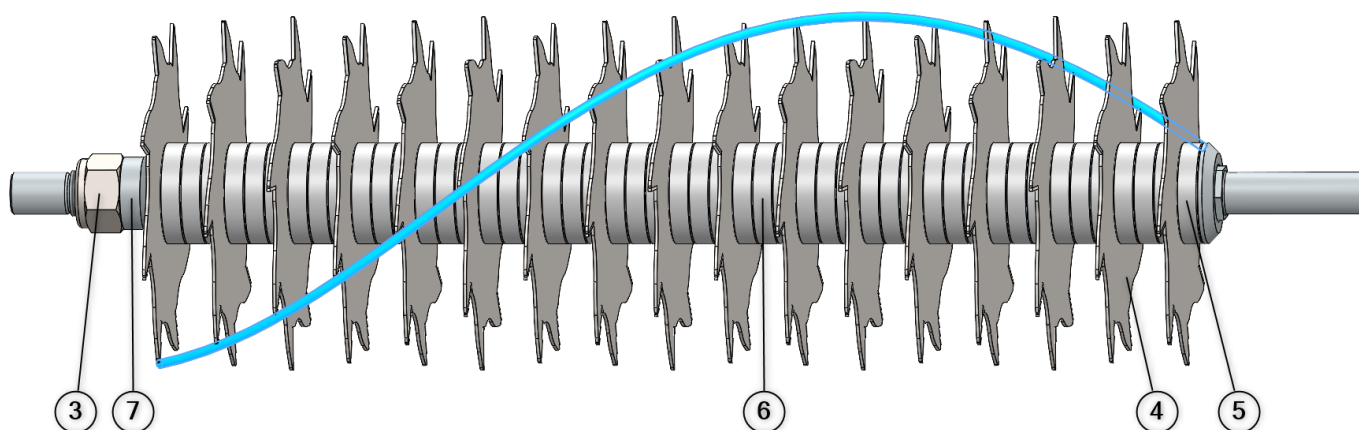


Fig. 20

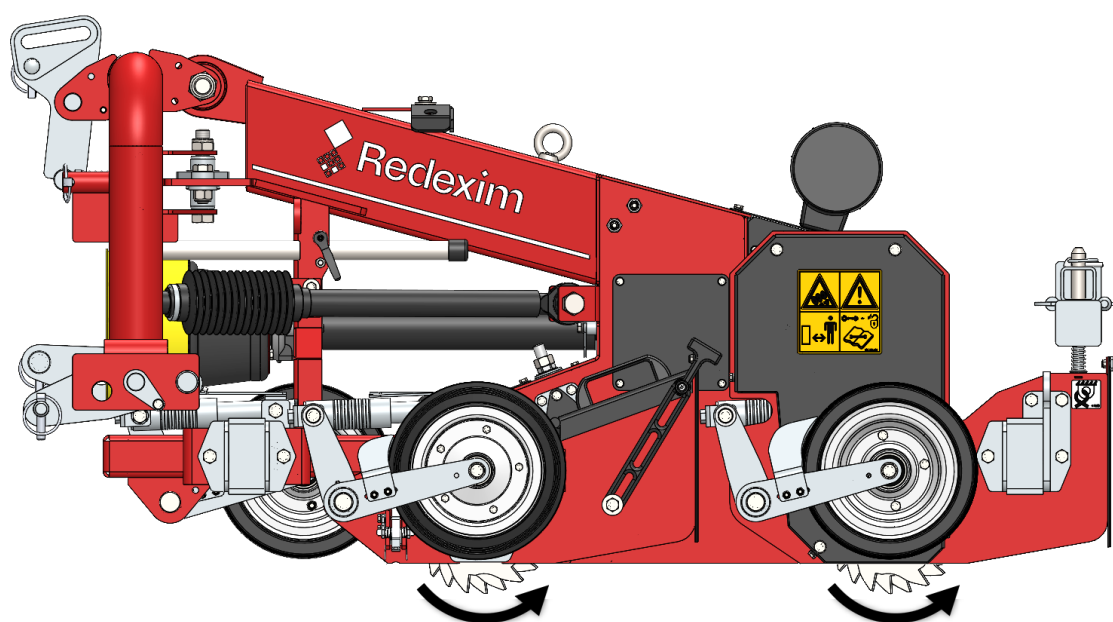


Fig. 21

## 12.6 Replacing and tensioning the belts

To replace and tension the belts, proceed as follows:

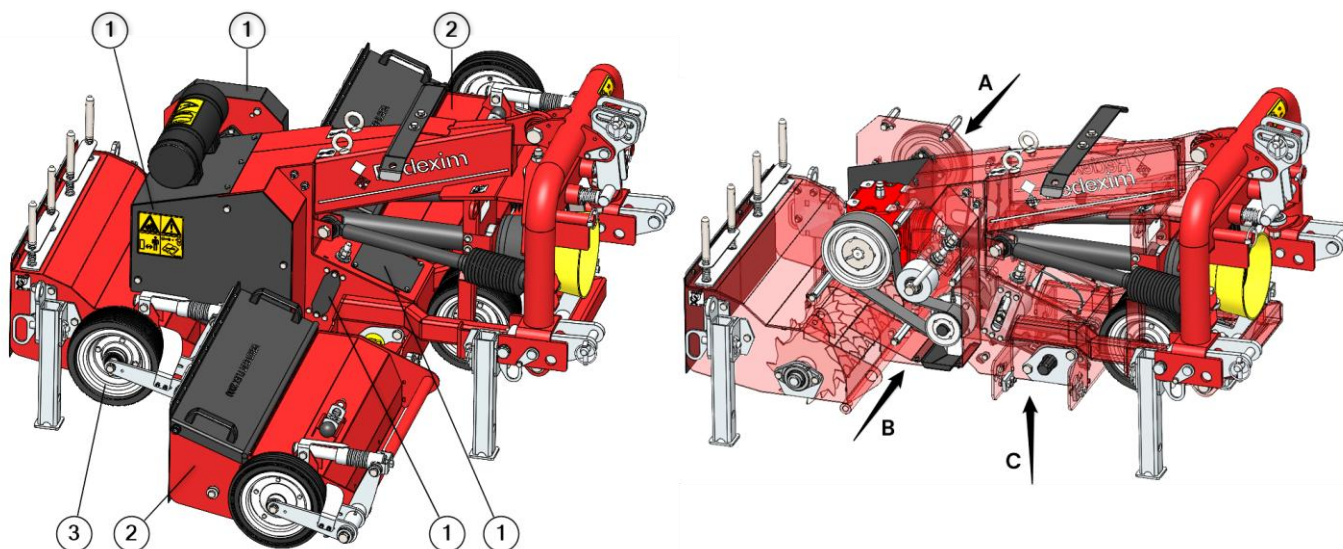


Fig. 22

1. Disconnect the machine from the tractor as described in chapter 7.2.
2. If desired, position the machine on a raised surface to make it easier to work on it.

 **Ensure that the machine is always on a stable surface so that work on the machine can be carried out safely.**

3. See 22. Remove the protective covers (1) and, if necessary, the wings (2) and the rear wheels (3) if you wish to replace the timing belts in their entirety.  
To tension the belts only, just remove the protective covers.
4. The machine contains 3 timing belts, which are marked A, B and C in Fig. 22.  
Instructions on how to replace and tension each timing belt are provided below.
5. After replacing the timing belts, refit the protective covers, wings and wheels to the machine.
6. After replacing or tensioning the timing belts, check that they run smoothly over the pulleys and that the machine does not make any unusual noises. To do this, connect the machine to the tractor as described in chapter 7.1 and run the machine just above the ground.

 **Ensure that the test run of the machine is carried out safely and that no one is standing close to or on the machine.**

7. Repeat the above steps if the timing belt is not yet correctly adjusted and is making too much noise or is slipping off the pulleys.

### 12.6.1 Timing belt A

Timing belt A is located at the rear left. To replace and tension it, proceed as follows (see Fig. 23):

1. Use a 17 mm spanner (2) to loosen the nut on the tensioner pulley (3) by one turn. The tensioner pulley can now move freely back and forth.
2. If the timing belt (4) (SKU A0002092) needs replacing, it can now be removed from the timing belt pulleys, and a new one can be fitted.

3. The timing belt (4) must be retensioned. To do this, use a 19 mm spanner (1) and place it on the hexagonal stub.
4. Apply a little force and then use a 17 mm spanner to tighten the nut slightly, just enough to keep the tensioner pulley in place.
5. Then use a frequency tension tester to check the tension of the timing belt. The correct frequency for a new and existing timing belt is shown in Fig. 23.
6. If the frequency is too low, the tensioner pulley must be pressed harder against the belt. To do this, use both open-ended spanners (1 and 2) again and check the frequency once more.
7. Once the correct frequency of  $\pm 3$  Hz has been achieved, tighten the nut (2) on the tensioner pulley to the correct torque; see chapter 12.7.

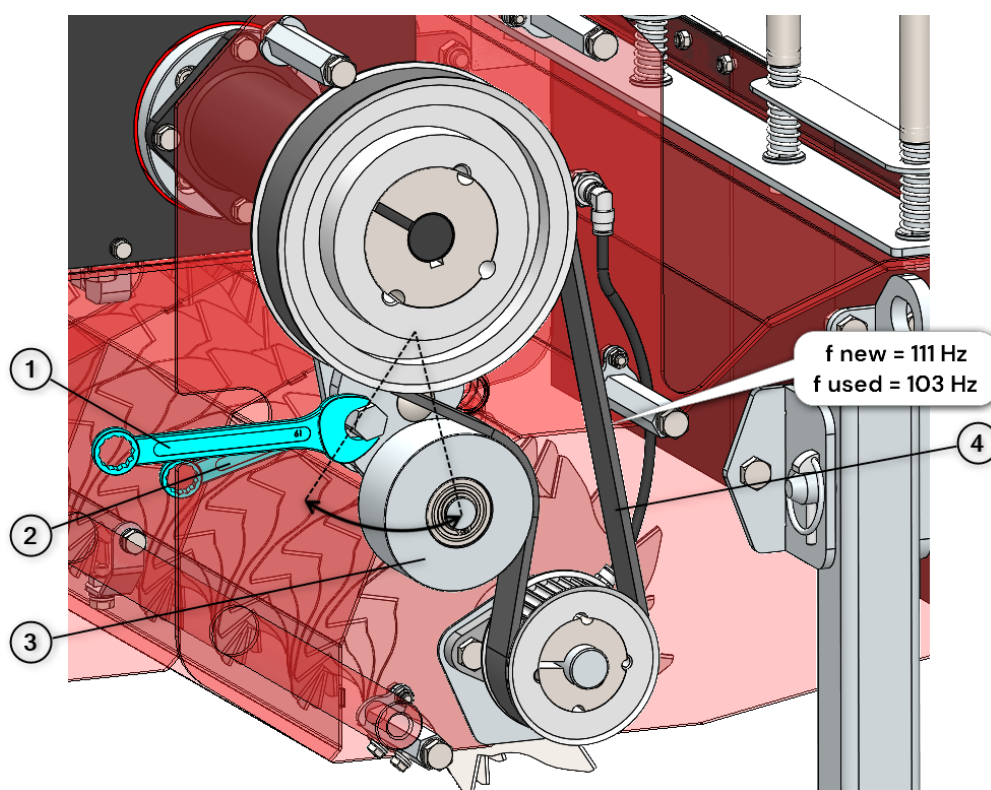


Fig. 23

### 12.6.2 Timing belt B

Timing belt B (4) (SKU 651.501.064) is located at the rear right-hand side. Replacement and tensioning are carried out as follows (see Fig. 24):

1. Use a calliper to measure the height of the two eye bolts relative to the mounting surface and make a note of these measurements.
2. Use a 24 mm spanner to loosen the M16 bolt (1) on the tensioner pulley by one turn.
3. Loosen the two lock nuts (2) by as much as you wish to move the tensioner pulley. When replacing the timing belt (4) note that this will be slightly further than when tensioning the timing belt (4).
4. Then, adjust the two height-adjustment nuts (3) by approximately the same amount. You can check this by comparing the measurement with the one recorded earlier. Ensure that the tensioner moves as parallel as possible.
5. Tighten the M16 bolt (1) slightly again, along with the lock nuts (2).
6. After that, use a frequency tension tester to check the tension of the timing belt.

7. See Fig. 24 to check the correct frequency for a new or existing timing belt.
8. If the frequency is too low, the tensioner pulley must be pressed more firmly against the belt. To do this, repeat the steps above.
9. Once the correct frequency of  $\pm 3$  Hz has been achieved, the M16 bolt (1) and the two lock nuts (2) can be tightened to the correct torque; see chapter 12.7.

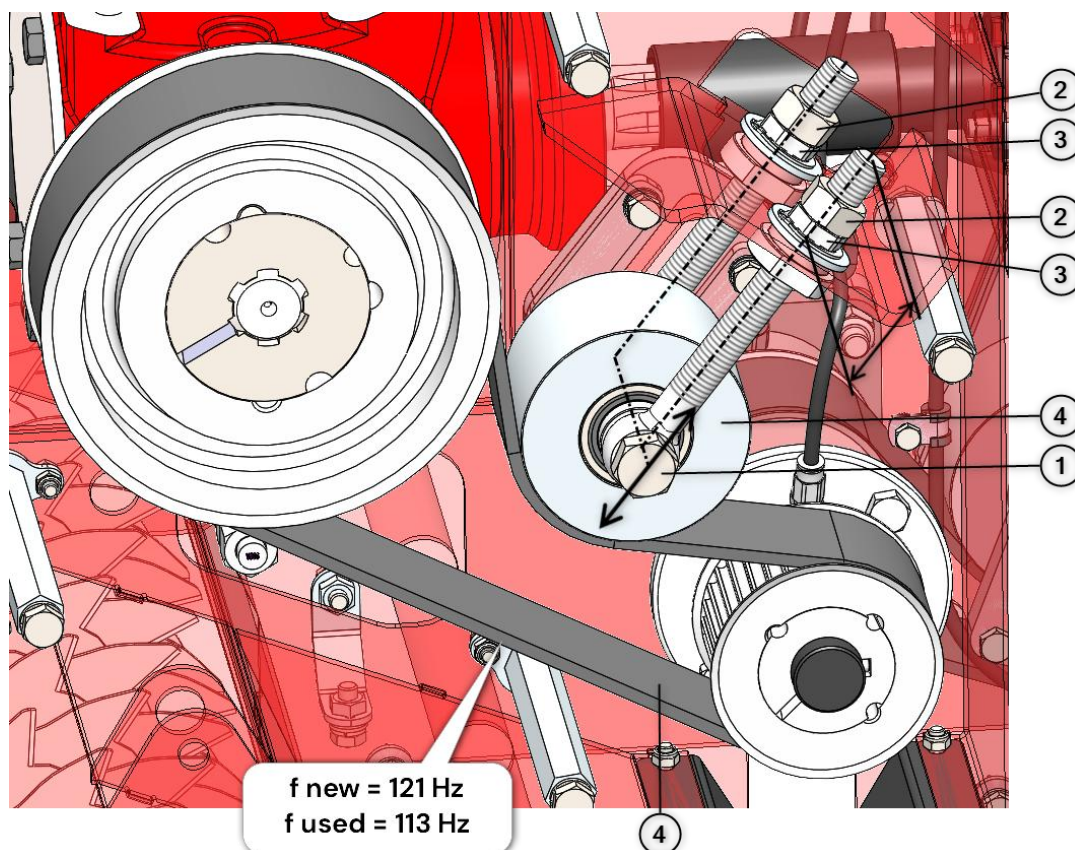


Fig. 24

### 12.6.3 Timing belt C

Timing belt C (6) (SKU 651.500.856) is located in the centre of the machine. Unlike timing belts A and B, timing belt C cannot simply be removed from one side. To do this, several additional components must be removed. Replacement and tensioning are carried out as follows (see Fig. 25):

1. Use a calliper to measure the height of the two eye bolts relative to the mounting surface and make a note of these measurements.
2. Use a 24 spanner to loosen the M16 bolt (1) on the tensioner pulley by one turn.
3. Loosen the two lock nuts (2) by as much as you wish to move the tensioner pulley. When replacing the timing belt (6), this will need to be slightly further than when tensioning the timing belt (6).
4. Remove the spacer plate (1) by removing the bolts from the bearing block. Then, loosen the bearing points (2) and slide the shaft downwards. The timing belt (6) can now be removed and, if necessary, a new one fitted; then refit the bearing points (2) in reverse order, including the spacer plate (1).

5. Now, adjust the two height-adjustment nuts (5) by approximately the same amount. You can check this by comparing the measurement with the one recorded earlier. Ensure that the tensioner pulley moves as parallel as possible.
6. Next, tighten the M16 bolt (1) slightly, along with the locking nuts (2).
7. Use a frequency tension tester to check the tension of the timing belt. *Fig. 25* shows the correct tension for a new and an existing timing belt.
8. If the frequency is too low, the tensioner pulley must be pressed more firmly against the belt. To do this, repeat the steps above.
9. Once the correct frequency of  $\pm 3$  Hz has been achieved, the M16 bolt (1) and the two lock nuts (2) can be tightened to the correct torque; see chapter 12.7.

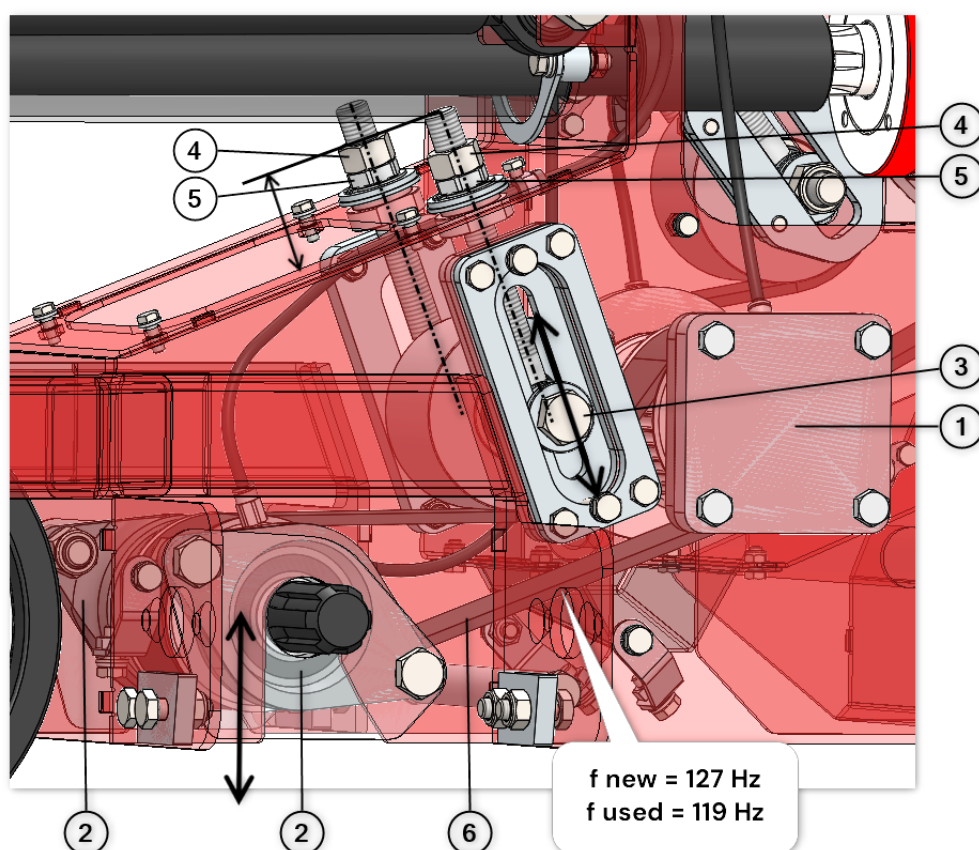
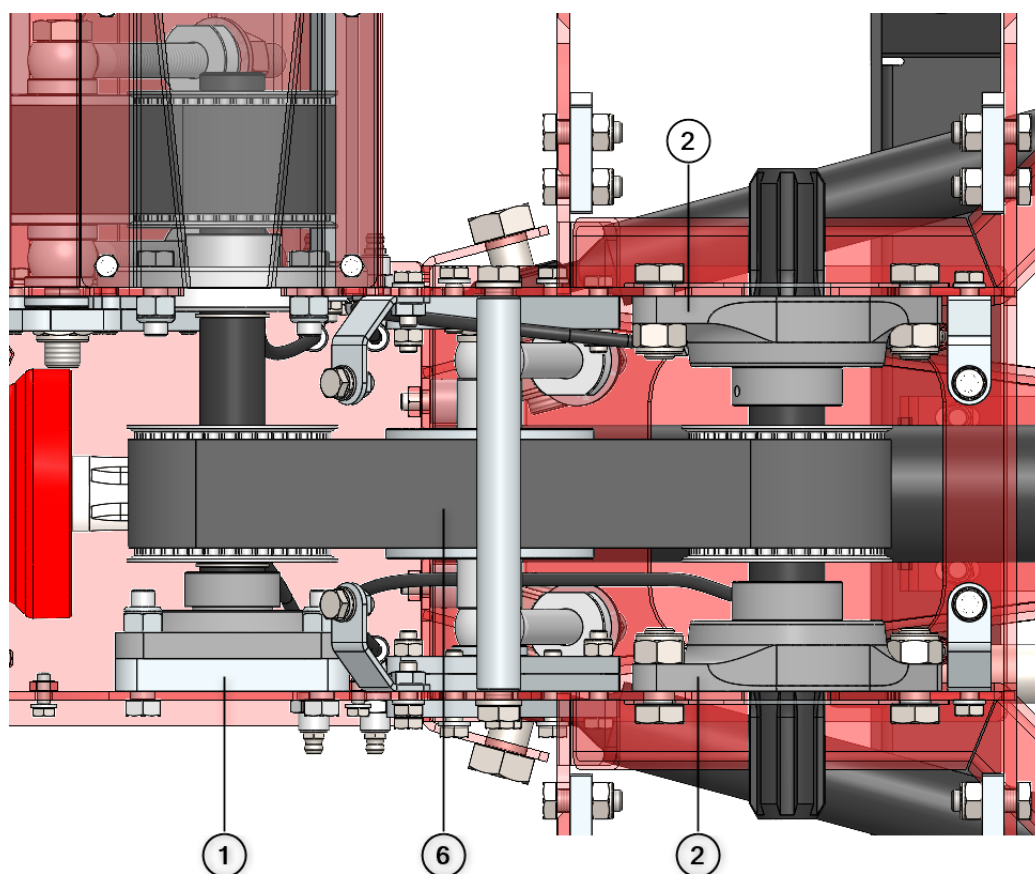


Fig. 25

## 12.7 Recommended tightening torques for standard bolt and nut combinations

The table below lists the recommended tightening torque values for general bolt-nut combinations used to clamp metal components.

**Note:** Where applicable, for critical applications inside the machine, the tightening torque values are clearly stated in a separate section of the manual. These values always take precedence over the general tightening torque values listed in *Table 4*.

Always bear the following in mind before applying the tightening torques:

- The threaded surface must be clean, both on the bolt and on the nut.
- Be aware of the difference in torque between dry and lubricated threads.
- The hardness of the clamped surface between the bolt head and the nut, which affects the installation.

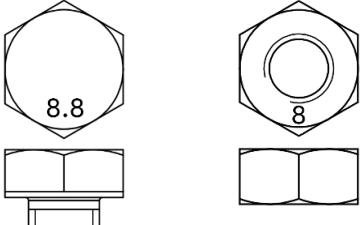
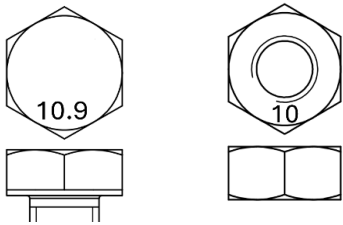
| Thread size       | Bolt grade 8.8 and nut grade 8                                                     |        |              |        | Bolt grade 10.9 Bolt and nut grade 10                                                |        |              |        |
|-------------------|------------------------------------------------------------------------------------|--------|--------------|--------|--------------------------------------------------------------------------------------|--------|--------------|--------|
|                   |  |        |              |        |  |        |              |        |
|                   | Dry*                                                                               |        | Lubricated** |        | Dry*                                                                                 |        | Lubricated** |        |
|                   | Nm                                                                                 | lbf-ft | Nm           | lbf-ft | Nm                                                                                   | lbf-ft | Nm           | lbf-ft |
| <b>M5 x 0.80</b>  | 7.0                                                                                | 5.1    | 5.2          | 3.8    | 9.8                                                                                  | 7.2    | 7.3          | 5.4    |
| <b>M6 x 1.00</b>  | 11.9                                                                               | 8.8    | 8.9          | 6.5    | 16.8                                                                                 | 12.4   | 12.5         | 9.2    |
| <b>M8 x 1.25</b>  | 28.8                                                                               | 21.2   | 21.3         | 15.7   | 40.4                                                                                 | 29.8   | 30.0         | 22.1   |
| <b>M10 x 1.50</b> | 56.7                                                                               | 41.8   | 42.0         | 31.0   | 79.8                                                                                 | 58.8   | 59.1         | 43.6   |
| <b>M12 x 1.75</b> | 98.6                                                                               | 72.8   | 73.0         | 53.8   | 139                                                                                  | 102    | 103          | 75.7   |
| <b>M14 x 2.00</b> | 157                                                                                | 116    | 116          | 85.8   | 221                                                                                  | 163    | 164          | 121    |
| <b>M16 x 2.00</b> | 241                                                                                | 178    | 178          | 131    | 339                                                                                  | 250    | 250          | 184    |
| <b>M18 x 2.50</b> | 337                                                                                | 248    | 248          | 183    | 473                                                                                  | 349    | 349          | 258    |
| <b>M20 x 2.50</b> | 471                                                                                | 348    | 347          | 256    | 663                                                                                  | 489    | 488          | 360    |
| <b>M22 x 2.50</b> | 638                                                                                | 471    | 468          | 345    | 897                                                                                  | 662    | 658          | 485    |
| <b>M24 x 3.00</b> | 815                                                                                | 601    | 599          | 442    | 1145                                                                                 | 845    | 842          | 621    |
| <b>M27 x 3.00</b> | 1184                                                                               | 873    | 867          | 640    | 1665                                                                                 | 1228   | 1220         | 900    |
| <b>M30 x 3.50</b> | 1611                                                                               | 1188   | 1182         | 872    | 2265                                                                                 | 1671   | 1662         | 1226   |

Table 4

\* Dry refers to galvanised bolts and nuts without lubricant.

\*\* Lubricated means that bolts and nuts are coated with a lubricant such as oil, grease or a liquid thread sealant.

## 13 TROUBLESHOOTING

| Problem                                      | Possible cause                         | Solution                                                                               |
|----------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------|
| The blade rotor is not rotating.             | Machine set too deep                   | Adjust the machine to a shallower depth.                                               |
| Creaking noise whilst the machine is running | Worn bearings                          | Replace faulty bearings                                                                |
|                                              | Bearings not lubricated                | Lubricate the bearings. See chapter 12.3.                                              |
|                                              | Wings at too great an angle            | Drive on different tracks to reduce the angle difference.                              |
| Damage to grass                              | Too many blades at the working depth   | Reduce the working depth.<br>Reduce the working speed.<br>Reduce the number of blades. |
|                                              | Dull blades                            | Replace the blades.                                                                    |
|                                              | Corners taken too sharply              | Take gentler turns.                                                                    |
|                                              | Poor turf                              | Reduce the working depth.<br>Reduce the working speed.<br>Reduce the number of blades. |
| Uneven working result                        | Machine set too deep                   | Adjust the machine to a shallower depth.                                               |
|                                              | Soil too damp                          | Postpone work until conditions improve.                                                |
|                                              | Blades are bent.                       | Replace the blades.                                                                    |
|                                              | Travel speed too high                  | Reduce the forward speed.                                                              |
|                                              | Centre bushings between blades damaged | Replace the centre bushings.                                                           |
| Machine is not reaching working depth.       | Surface too hard                       | Water the surface.                                                                     |

Table 5



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