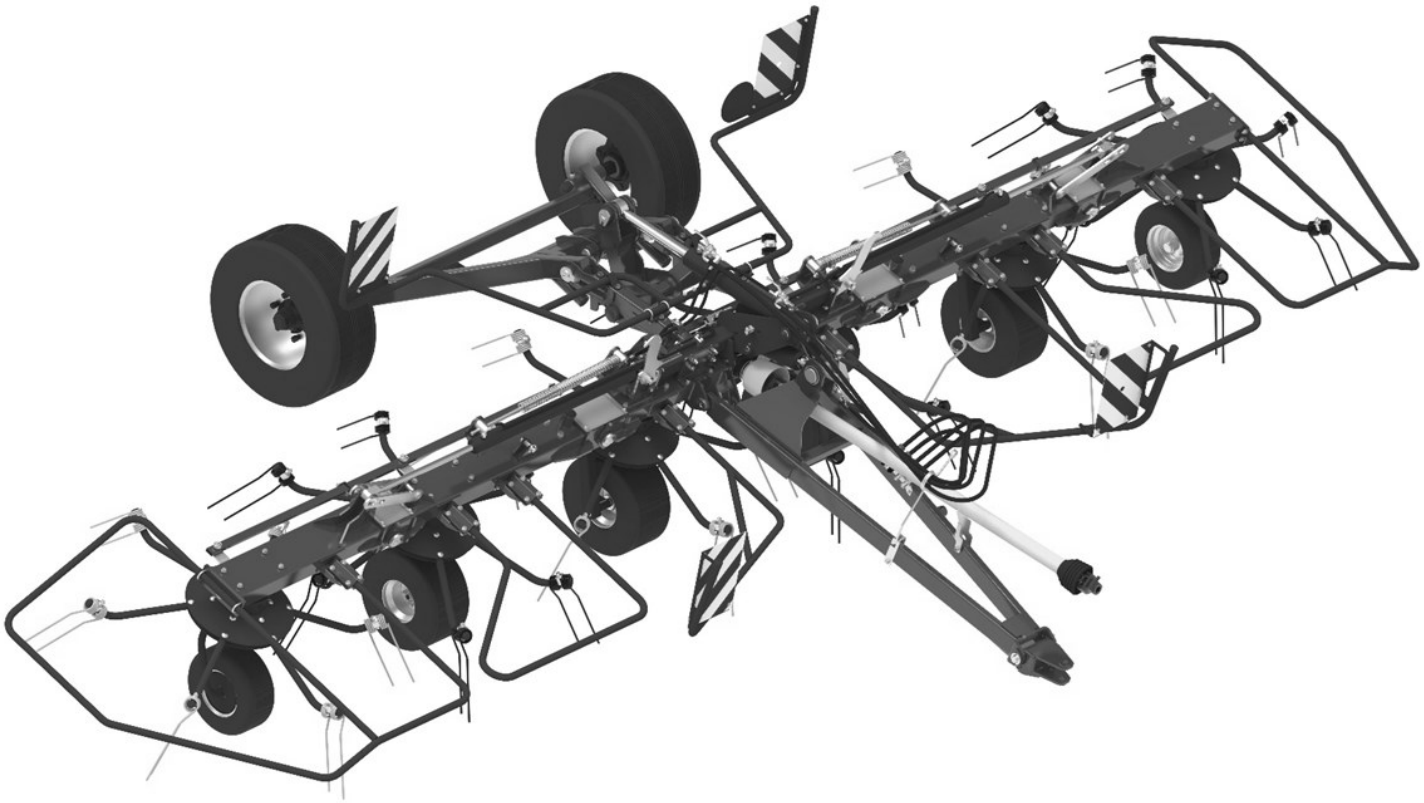
6 Rotor Hay Tedder

PRZ-7900



Operator's Manual

Rel. 03/26

TO THE DEALER:

Assembly and proper installation of this product is the responsibility of the Tar River dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery and Delivery Check Lists in the Owner's/Operator's Manual are completed before releasing equipment to the owner.

TO THE OWNER:

Read this manual before operating your Tar River equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all the adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your selling dealer. The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the unit as specified. Observe all safety information in this manual and safety decals on the equipment. For service, your authorized Tar River dealer has trained mechanics, genuine Tar River service parts, and the necessary tools and equipment to handle all your needs. Use only genuine Tar River service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation.

Record your implement model and serial number in the space provide below. Your dealer will need this information to give you prompt, efficient service.

Model Number: _____

Serial Number: _____

Date Purchased: _____

TO THE DEALER: Part 1 of 2

Assembly and proper installation of this product is the responsibility of the Belco Resources Dealer. Read manual instructions and safety rules. Make sure all items on the Dealer's Pre-Delivery List and Owners Check List in the Owner's/Operator's Manual are completed before releasing equipment to the owner.

NOTE: The machine must by inspected thoroughly by the dealer prior to delivery of machine to owner. Place a check mark in the box beside each item checked. Contact Belco Recourses Equipment of any damages, issues or shortages to the machine.

Pre-Delivery Checklist - Dealer

- ☐ **Gearbox oil level**
- ☐ **Check all fluids, hydraulic, gear oil, etc.**
- ☐ **Grease fittings properly lubricated**
- ☐ **Guards, shields, attachments securely fastened**
- ☐ **All hardware tightened**
- ☐ **Condition and tension of V-belts (if applicable)**
- ☐ **Blades properly installed, blade hardware tightened to proper torque specifications**
- ☐ **PTO attached to the machine (if applicable)**
- ☐ **All decals are clean, legible and in proper location**
- ☐ **Operator's Manual on machine**

Model #: _____ **Serial #:** _____

Inspected by (Initials): _____ **Date:** _____

TO THE DEALER: Part 2 of 2

Dealer is to review the following items to the owner. Place a check mark in the box beside each item reviewed.

Checklist - Owner

- ☐ **Correct attachment of machine to tractor**
- ☐ **Safe operation of the machine**
- ☐ **Importance of regular lubrication, maintenance and inspection**
- ☐ **Troubleshooting**
- ☐ **Replacing broken or worn parts (importance of using only OEM parts)**
- ☐ **Servicing the machine**
- ☐ **Storage**
- ☐ **Warranty**
- ☐ **Encourage owner to read and understand the Operator's Manual before operating the machine**
- ☐ **Encourage owner to fill out the "Warranty Registration", online warranty@br-equipment.com**

Purchase Date:	_____	**Delivery Date:**	_____
Model #:	_____	**Serial #:**	_____
Dealer Signature	_____	**Date:**	_____
Customer Signature	_____	**Date:**	_____

TO THE OWNER:

Read this manual before operating your Belco Resources equipment. The information presented will prepare you to do a better and safer job. Keep this manual handy for ready reference. Require all operators to read this manual carefully and become acquainted with all the adjustment and operating procedures before attempting to operate. Replacement manuals can be obtained from your selling dealer. The equipment you have purchased has been carefully engineered and manufactured to provide dependable and satisfactory use. Like all mechanical products, it will require cleaning and upkeep. Lubricate the machine as specified. Observe all safety information in this manual and safety decals on the equipment. For service, your authorized Belco Resources dealer has trained mechanics, genuine Belco Resources service parts, and the necessary tools and equipment to handle all your needs. Use only genuine Belco Resources service parts. Substitute parts will void the warranty and may not meet standards required for safe and satisfactory operation.

Table Of Contents

1. Introduction

Before the first use of the machine, you must thoroughly read and understand this instruction manual, and follow all the instructions contained herein.

ATTENTION!

Read the instruction manual before use.

This instruction manual contains a description of hazards that can occur in case of non-compliancewith safety rules during operation and maintenance of the machine. The instruction manual specifies precautionary measures to be taken to minimize or avoid risks.

This manual also contains principles of correct use of the machine and specifies the maintenanceoperations to be performed.

If you do not understand any information contained herein, please contact the manufacturer directly.

ATTENTION!

This warning symbol alerts about a hazard. The warning symbol indicates an important hazard information provided in the instruction manual. Please read the information, follow the instructions and exercise particular caution.

2. Machine identification

Each tedder has its rating plate, containing the most important identification data. The ratingplate is located on the machine in such place, that it is easy to find and to read.

3. Rules of safe operation

3.1. User safety

The rotor tedder can only be used by adults who have learned its operation and read this Manual, and are properly qualified. The tedders should be operated with all necessary precautions, in particular:

- Apart from this Instructions Manual, observe also general rules of health and safety at work.
- Observe warning symbols placed on the machine.
- It is strictly forbidden for persons to operate the machine under the influence of alcohol or other intoxicants.
- Never allow the vehicle towing the tedder to be driven by a person other than the tedder operator, and under no circumstances allow any other persons to be on the vehicle, or by the machine, during its operation.
- The tedder may be operated by a person with the proper authorization to drive the vehicle to which it is attached, in accordance with the manufacturer's instructions.
- The operating position of the operator, while working with the tedder, is the cabin of the vehicle to which the machine is attached.
- Please note that there are many elements of the machine that may cause an injury (sharp edges, protruding parts, etc.). During operation, exercise particular caution when moving close to the above-mentioned critical spots, and obligatorily use the following personal protection equipment:
  - protective clothing;
  - protective gloves;
  - safety shoes.
- It is forbidden to transport persons or objects on the machine.
- Persons who have not read the Instructions Manual are not allowed to operate the machine.
- The person operating the tedder should be provided with a first-aid kit containing measures for first aid, along with instructions regarding their use.
- When driving a vehicle with the attached, but not working machine, ensure the safe distance of spring tines from the ground.
- Before starting work, the tedder must be set in the transport position.
- Take special care when driving on public roads, and comply with the applicable road traffic regulations.
- The user is obliged to ensure the visibility of a machine during its transportation: use the reflective markings, warning signs and the optional equipment, the light warning signal.
- Adjust the transport speed to the condition of the road. The speed should not exceed 30 km/h.
- It is forbidden to leave the vehicle with the machine connected on slopes or other inclines without securing the vehicle against rolling off on its own. Put wedges under the wheels of the vehicle.

- The tedder must be adjusted to working height, during its attachment to the vehicle.
- Any preparations, fitting, dismantling or adjustment can be performed only after the drive has been switched off, the engine stopped, the vehicle immobilized and when all the moving parts of the machine have stopped.
- After first hour of operation, check the status of all separable connections, including screws.
- The tedder should be kept on a flat, level, paved surface, out of the reach of strangers and animals. Use the main support foot for stabilizing the tedder.
- Exercise caution during the mounting and dismounting of the tedder, and pay particular attention to the structural elements through which the tedder is connected with the vehicle.
- Before using you must check the condition of machine and of the vehicle it is attached to. The assembly, the vehicle and the tedder unit must be in good technical condition. Any worn or damaged parts must be replaced immediately.
- The tedder must be equipped with all the safety guards (provided by the manufacturer), preventing access to any moving parts. The guards must be complete and fully operational.
- It is not allowed to work with the tedder without safety guards. It is not allowed to work with damaged safety guards.
- It is not allowed to lift the tedder arms when the drive is switched on and rotors are rotating.
- It is not allowed to control the lever of hydraulic lift from outside of the tractor.
- Before beginning to work with the machine, you should familiarize yourself with the way it operates, occupational safety rules and recommendations for maintenance and adjustment procedures, by reading this User Manual.
- The Instructions Manual must be kept with the machine. If you loan the machine for use, ensure that it is in good technical condition, and that it is complete with the Instructions Manual.
- Do not attach additional transport means to the machine.
- During commissioning, check the machine functions and make the initial adjustments.
- Due to the natural wear and tear the state and completeness of machine spring tines should be controlled, using the recommendations described in the chapter “7 Maintenance“
- Operator of the vehicle, working with a tedder, must ensure that no person is approaching the machine during its operation, and the **distance of not less than 50m** from the working tedder is always maintained.
- Before switching on the machine drive, place the machine in the working position.
- It is forbidden to overload the PTO shaft of the machine, and engage the clutch suddenly.
- Ensure suitable visibility when u-turning, reversing or manoeuvring the machine, or ensure assistance from a properly trained person.

- It is prohibited to work while reversing the vehicle.
- When connecting the hydraulic lines, make sure that the hydraulic system is not pressurized.
- Do not stay between the vehicle and the machine when the vehicle engine is running.
- Working on slopes exceeding 10% is not allowed.
- Exercise particular caution when working on slopes.
- When driving on curves and turning, switch off the PTO drive.
- It is forbidden to operate the machine in close proximity of public squares (parks, schools, etc.) or on stony grounds, to prevent the risk of stones and other objects being thrown into the air.
- Do not allow the PTO working speed to exceed 540 rpm, while driving speed must be adjusted to the type of work being done.
- Working with damaged or incomplete articulated power-take off shaft is forbidden. In particular, it is strongly forbidden to work without guards on moving parts.
- The articulated telescopic shaft has marks indicating the end to connect to the tractor; make sure that the direction of rotation of the shaft is correct before starting.
- Never leave the vehicle unattended when the engine is running. Before leaving the driver's seat (the cabin) turn off the engine of the vehicle, remove the ignition key, and apply the handbrake.
- Avoid wearing unbuttoned, hanging parts of work clothes during operation, assembly, disassembly or adjustment. Keep them away from any machine parts which are likely to catch them.
- When commissioning and transporting the machine, inspect its technical condition to check for damage.
- It is forbidden to stand under the raised arms of the tedder, as it may result in being crushed by the structural elements.
- When adjusting, keep your fingers and limbs away from the structural parts of the machine.
- It is forbidden to leave a tractor’s cabin when the machine is running, and before all the rotating parts have stopped.
- The machine should be kept and stored in places protected from unauthorized access of persons and animals, thus eliminating the risk of accidental injuries, an on a flat, hardened surface, under a protective canopy.
- In case of failure, immediately turn off the drive transmitted from the vehicle.
- When working with the machine, use hearing protection headphones to minimize the exposure to noise. In addition, it is recommended to close the doors and windows of the vehicle’s cab.

Failure to follow the above rules may be dangerous for the operator and bystanders and can cause damage to the tedder. The operator is responsible for any damage caused by failure to adhere to the above rules.

3.2.Residual risk assessment

Belco Resources has made every effort to ensure that the design of the machine, and its intended use, do not pose any risk to persons or the environment.

No	*Risk*	*Hazard source (cause)*	*Risk preventive measures*
1	Overloading the locomotor system (physical load)	Working in a standing position, inclined-forced position, walking, moving objects	Reading and understanding the instruction manual, workplace training including lifting standards for the manual transportation labour, proper techniques for lifting and carrying weights, use of another person's assistance, moving devices such as jacks, winches
2	Fall on the same level (tripping, slipping, etc.)	Uneven terrain, messy environment - objects lying and standing around, cables lying on communication roads, slippery surfaces	Suitable working footwear, levelled terrain, paying attention, maintaining order, reading the Instructions Manual
3	Bumping into stationary, protruding parts of the machine	Machine and its surroundings	Proper positioning of a machine, safe space to move around, proper organisation of work, paying attention, reading the Instructions Manual
4	Being hit by moving objects	Tedded plants, accidentally removed soil, stones	Maintaining caution, marking the danger zone, banning walking in the immediate surrounding of the working machine, banning staying in the immediate surrounding of the working machine, use of personal protective equipment (helmet, safety glasses), reading the instruction manual
5	Sharp, dangerous edges	Protruding parts of the machine structure, use of hand tools	Personal protective equipment – safety gloves, buttoned up work clothes, exercising special attention
6	Gear units	Power take-off shaft, no guards of movable parts	Prohibiting walking around, approaching and adjusting the settings of the machine when it is running, exercising special attention, reading the Instruction Manual
7	Weight of the standing machine	Improper mounting, aggregating, wrong setting of the machine, improper operation	Exercising special attention, use of personal protective equipment - safety footwear, safety gloves, secure position of the machine, help of others, use of lifting jacks and hoists, reading the Instructions Manual
8	Micro climate - variable weather conditions	Work carried out in varied weather conditions	Suitable working clothes, beverages, creams with sun screens, proper rest, reading the Instruction Manual
9	Noise	Excessive rotational speed of the machine, damaged, loose, vibrating parts	Operation of the machine in good technical condition, inspections on a regular basis, proper rotational speed, reading the Instruction Manual
10	Blow to the head, trunk, lower limbs and hand cuts	Being in a wrong position while lowering the machine in the working position	Paying special attention, use of personal protective equipment - safety footwear, protective gloves, secure setting of the machine, help of another person, use of appropriate tools, cautious work without haste. familiarization with the instruction manual
11	Danger of seizing and pulling	Changing the tedder position during work by rotating working elements, work without safety guards	Using special caution, never approach the machine when it is working, never approach the rotating power take-off shaft, wear close-fitting clothes. Read the Instructions Manual Observe the warnings on the machine

Table 1 Residual risk assessment

3.3. Safety signs on the machine

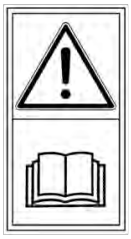
 1.1 - Prior to using the machine, read the instruction manual	 1.2 - Switch off the engine and remove the ignition key before any servicing or maintenance procedures	 1.3 - Keep a safe distance from the machine. Do not allow unauthorized persons within the range of 50 m from the machine
 1.4 - Danger relating to the rotating power take-off shaft	 1.5 - Note: Danger of seizing by the rotating rotor	 1.6 Do not touch machine elements until all its assemblies stop
 1.7 - Do not stay in the zone of the area taken up by the folding side arm	 1.8 - Avoid exposure to liquids flowing under pressure. Read the manual and lear enance works.	
 1.9 - Pulling elements	 1.10 - Before entering the hazard zone, turn on the safety block	 1.11 - Place of machine seizing during transport
 1.12 – Do not exceed the maximum rpm	 1.13 – Maximum tyre pressure symbol	 1.14 - Grease nipple symbol denoting the solid lubrication point
 1.15 – Warning message about pressure in the hydraulic system	 1.16 – Wear protective overall	 1.17 – Use safety gloves
 1.18 – Use a safety helmet	 1 .19 – Use hearing protectors	 1.20 – Use protection goggles

Table 2 Safety signs

4. Intended use of the machine

The 6-rotor tedder is designed for field works related to preparing feed for animals. The machine can be used solely for tedding cut grass, straw or hay. The machine should be used on grass or grazing lands, on which stones have been previously removed or where the terrain is without stones.

Using the machine in other circumstances will be construed as inconsistent with the intended use. Strict compliance with the requirements for the use of the machine and operation and maintenance as recommended by the manufacturer is a prerequisite for use as intended.

The machine should be operated, serviced and repaired by people familiar with its specific characteristics and acquainted with the rules of conduct in terms of occupational safety.

Accident prevention regulations and all basic health and safety rules, as well as the highway code must always be observed.

Unauthorized changes in design of the machine without permission of the manufacturer waive manufacturer's liability arising due to any resulting damage or injury.

5. Equipment, design and principle of operation

5.1. Basic equipment

The basic elements of the tedder include the following:

- User Manual together with Spare Parts Catalogue and Warranty Card – 1pc.,
- Power take-off shaft – 1pc.,
- Warning plates –4 pcs.,

The basic equipment of the machine does not include lamps and warning lights. The above items can be purchased additionally from the manufacturer or at the machines' point of sale.

5.2. Technical specifications

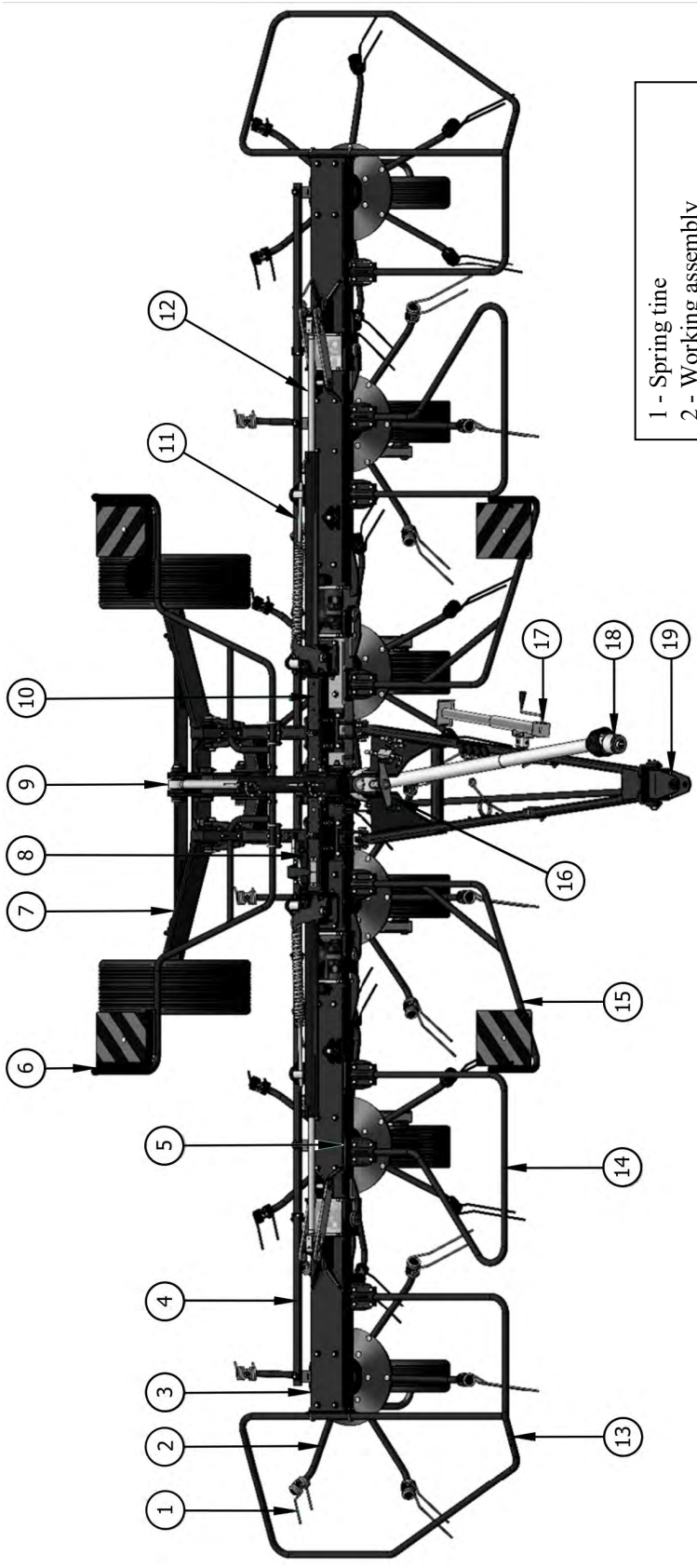


Figure 2 General Design

For technical and operational data, see Table 3

No.	Size	Unit	Data
1	Total length in transport position	[mm]	3910
2	Total length in working position	[mm]	3260
3	Transport width	[mm]	max. 3000
4	Working width	[mm]	8200
5	Operation width	[mm]	8000
6	Height in transport position	[mm]	max. 4000
7	Tractor power demand	[HP]	min. 80*
			recommended min. 100**
8	PTO shaft rotational speed	[RPM]	540
9	Rotors' rotational speed	[RPM]	150
10	Hitch type – towed		Hitch
11	Net weight	[kg]	1470
12	Number of rotors	[pcs.]	6
13	Number of rotor arms	[pcs.]	36
14	Working efficiency	[ha/h]	9.6
15	Working speed	[kph]	max. 12
16	Transport speed	[kph]	max. 30
17	Oil in main gear	-	SAE.90EP
18	Grease in side gears	-	SHELL ALVANIA EP NLGI 0
19	Oil volume in main gear	[dm^3]	1.2
20	Grease mass in side gears	[kg]	0.2
21	Required number of connections in tractor	[pcs.]	2
22	Nominal pressure of the hydraulic system	[MPa]	16
23	Number of wheels	[pcs.]	8
24	Wheel sizes	Central rotors	4 pcs. 18.5x8.50/8 max. 3.4 bar
		Outer rotors	2pcs. 16x6.5/8 max. 4.9 bar
		Running axle	2pcs. 10x75/15.3 max. 3.9 bar
25	Power take-off shaft	-	460Nm L-2113 wide angle, M34 ratchet coupling

Table 3 Technical and operational data of the tedder

*, ** when working with large quantities of material on uneven ground min. 100 HP

5.3. Principle of operation

The hitch connected with the central frame allows to aggregate the machine with the tractor. The central gear is driven from the tractor PTO with the help of the power take-off shaft. Next, the drive is transferred onto the side gears (6 pcs.), which ensure rotational movement of the rotors. The rotor equipped with spring tines constitute a machine working assembly. In addition, the machine was fitted with safety barriers and four warning signs (front and rear).

The transport axle located behind the machine is used to transport the machine. A single actuator is responsible for its folding and unfolding. The folding of side arms for transport is done through the operation of two hydraulic actuators equipped with a mechanical lock blockade. The machine is equipped with a hitch actuator, which enables full transition of machine inclination in the working position to the transport position from the tractor cabin level (towed version). The machine is additionally equipped with a steering wheels cylinder for optimal operation when tedding from the verge.

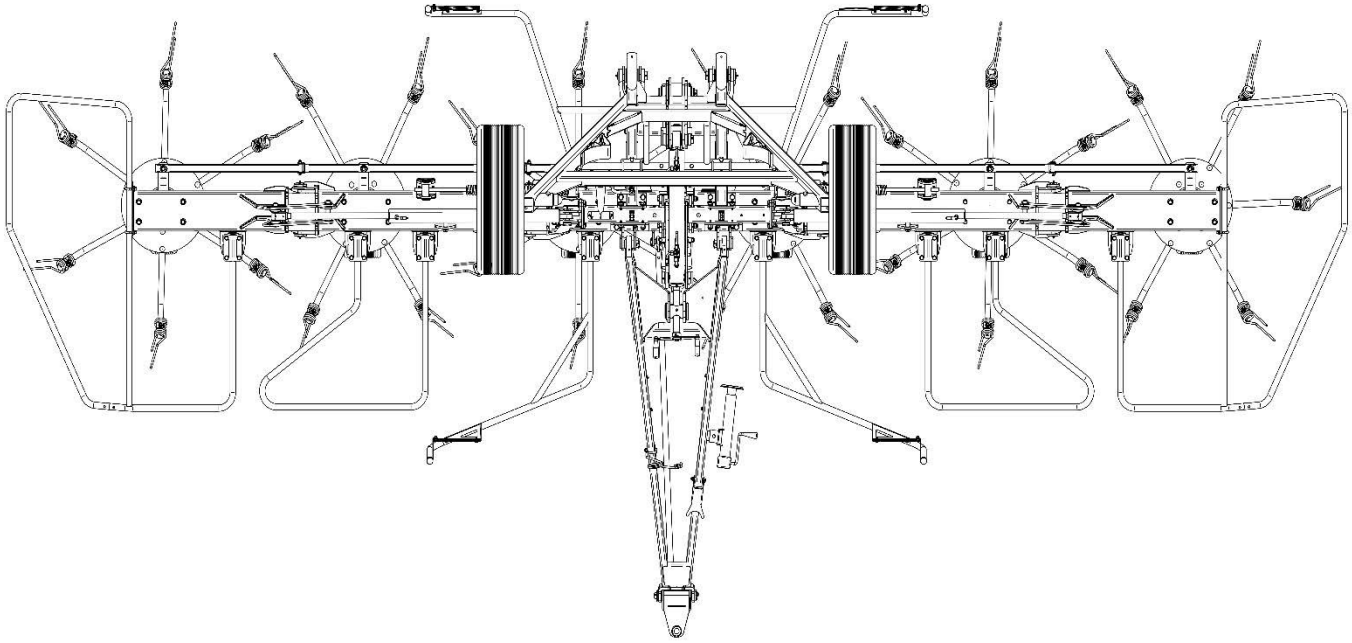


Figure 3 Tedder principle of operation - arrows indicate the rotors rotation direction

TURN ON THE MACHINE DRIVE ONLY IN THE WORKING POSITION!!!

6. Machine operation

The manufacturer guarantees that the machine was checked and approved for operation in full working order. Nevertheless, the user is obliged to check the machine after delivery and before the first use. Before commencing any works related to aggregating the tedder with the tractor, the user should check the technical condition of the machine and prepare it for the commissioning. In order to do so, the user should:

a) read carefully all the information related to the safety, design, functioning, operation, transport, technical service, etc. included in the manual,

b) familiarize themselves with the design and principle of operation,

c) check the completeness of the machine, whether all require protections, screws are in place,

d) check the condition of screw connections, whether all screws are tightened – Table 3,

e) check the condition and pressure of tyres,

f) check the appropriateness of wheel mounting,

g) check the painting coating condition,

h) check the overall condition of the machine with regard to any damage caused during transport, loading or due to other circumstances (breakage, indentations, cracks, punctures, etc.),

i) check all lubrication points, whether there are lubrication signs (if needed, lubricate acc. to the guidelines in Section “7.2 Machine lubrication“).

j) check the appropriateness of rotor arms fastening,

k) check the appropriateness of rotor spring tines fastening,

l) check the appropriateness of safety barriers fastening,

m) check the technical condition of the hitch assembly with regard to completeness, and damage of all required bolts and safety pins.

After performing all activities and stating that the machine condition raises no concerns, the user may set about aggregating the tedder with the tractor.

Every time the machine is used, its mechanical condition needs to be checked, and especially the condition of working unit, power transmission system, hydraulic system and protective barriers

6.1. Connecting the tedder to a tractor

The tedder can be aggregated with the tractor of power higher than 80 HP, which is equipped with a hitch. The aggregating of the tedder with the tractor should be performed on hard and even ground.

Before commencing the aggregation of the tedder, familiarize yourself with the instruction manual. Additionally, always pay particular attention to maintaining the safety during aggregating the machine with the tractor!

Activities which should be performed in order to connect the tedder:

A. Towed version

- drive up to the tedder,
- in reverse, slowly back up to the hitching point of the tedder, paying particular attention that no-one is between the machines,
- when reversing, approach with the hitch as close as possible to the tedder hitch,
- stop the tractor and prevent its accidental movement,
- connect the hitch of the machine to the tractor hitch with a pin, secure it with a cotter pin,
- lift the support foot and secure it in the right position (along the hitch arms),
- connect the PTO shaft to the tractor not forgetting to connect it with the tractor with the right side (see the detailed instruction attached to the shaft),
- connect hydraulic conduits of the machine to tractor hydraulic sockets,

Figure 4 Tedder connected to the tractor

It is necessary to use shafts in accordance with the manufacturer's recommendations. It is also necessary to cut the shaft to the required length (see detailed instructions supplied with the PTO)

6.2. Design and working principle of the hydraulic system

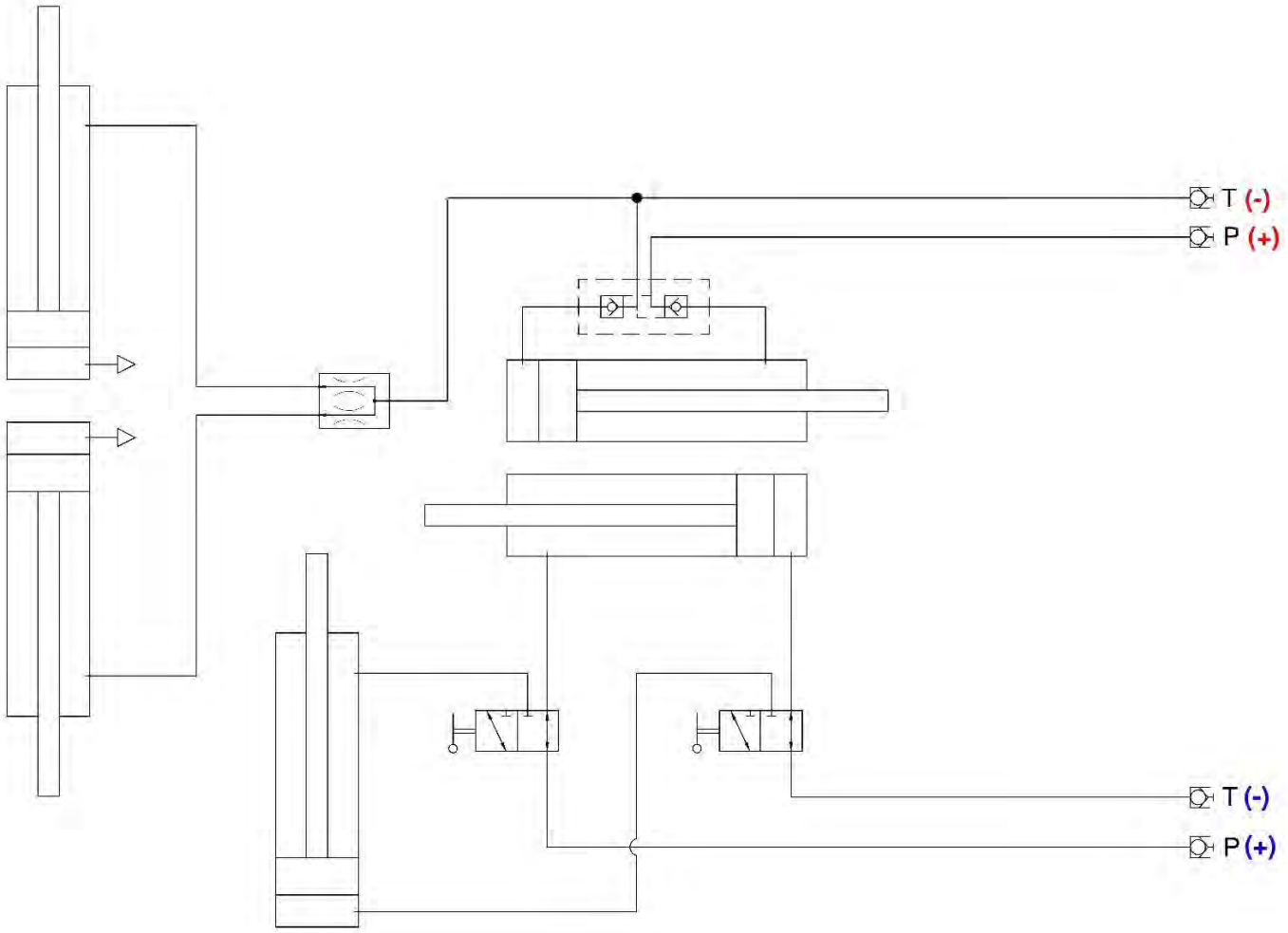


Figure 5 Hydraulic system diagram for the tedder – towed version: 1 - hydraulic quick couplings (section I- red), 2 - twin check valve, 3 - hitch hydraulic cylinder, 4 - flow divider, 5 - side frame hydraulic cylinder, 6 - hydraulic quick couplings (section II- blue), 7 - three-way ball valve, 8 - hydraulic cylinder of transport axle, 9 - hydraulic cylinder of steering wheel

The towed version of the machine is equipped with 2 hydraulic sections (Figure 5). They allow three 2-way actuators and two 1-way actuators to be powered.

The hydraulic system is designed in the following way:

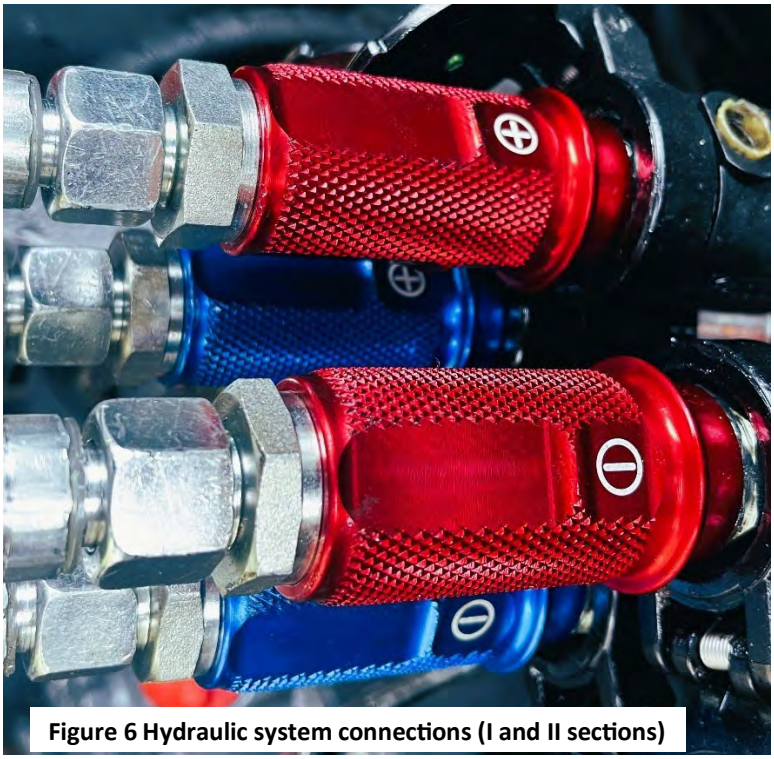


Figure 6 Hydraulic system connections (I and II sections)

I. The First section **(red)** is responsible for folding the arms and for tilting the machine.

- By supplying pressure from the first hydraulic outlet **(red "+")** the hitch cylinder (item 3) is activated, tilting the machine towards the tractor.
- By supplying pressure from the second hydraulic outlet **(red "-")** the hitch cylinder (item 3) will start first, tilting the machine upright, then the arm cylinders (item 5) will start simultaneously, causing the arms to lift.

II. Second section **(blue)** is responsible for folding and unfolding the transport axle and (after switching the ball valves) for the turning of the road wheels (edge shaking).

- By supplying pressure from the first hydraulic outlet **(blue "+")** the cylinder of the transport axle (item 8) will be activated, lifting it. Alternatively, when the ball valve (item 7A) is switched, the running wheel actuator (item 9) will activate, causing the wheels to turn to the left.
- By supplying pressure from the second hydraulic outlet **(blue "-")** the cylinder of the transport axle (item 8) will be activated, by lowering it. Alternatively, when the ball valve (item 7B) is switched, the travel wheel actuator (item 9) will activate, causing the wheels to turn to the right.

Avoid contact with oil! Use personal protective equipment:
protective clothing, footwear, gloves and goggles.

6.3. Working position

6.3.1 Transition from the transport position to the working position.

When switching the tedder to the working position, unauthorised persons are not allowed to stay in the immediate surrounding of the machine!

In order to pass to the working position, the user should:

1. By applying pressure to the **blue "+"** fold the transport axle until the central running wheels contact the ground (the machine rests on the central running wheels and the transport wheels).

Figure 7 Working position - stage I

2. Release the mechanical locks on the arm actuators by pulling the cable (Figure 8A). To allow the interlocks to open, pressure must be applied to the **red "-"** (folding of the arm actuators).

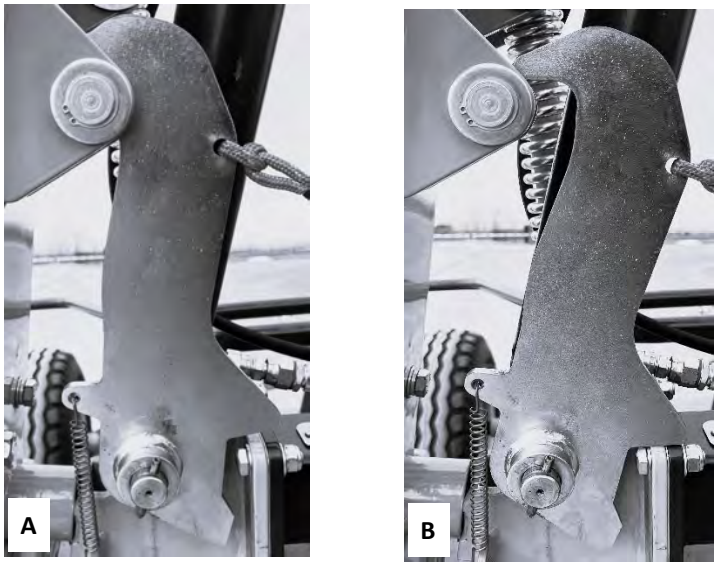


Figure 8 Mechanical cylinder lock A-open, B-closed

3. Enable the red section to float, allowing the arms to drop.

Figure 9 Working position - stage II

4. Once the arms are fully descended, by applying pressure to the blue “+” raise the transport axle complete.

Figure 10 Working position - stage III

5. By applying pressure to the **red "+"** tilt the machine towards the tractor.

6. Move the ball valves located on the transport axle actuator to acutate the road wheel steering actuator.

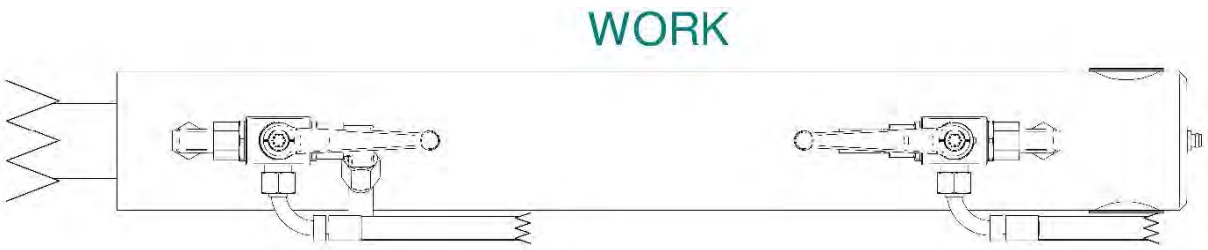


Figure 11 Ball valves set up for operation. Working position - Stage IV

Strictly observe the correct order of unfolding and folding of the machine. Failure to do so risks permanent damage to the machine.

6.3.2 Prohibited positions during operation

1st In the working position it is forbidden to raise arms for transport

Figure 12 Prohibited position No. 1

2nd When the arms are extended, it is forbidden to drive only on the transport axle

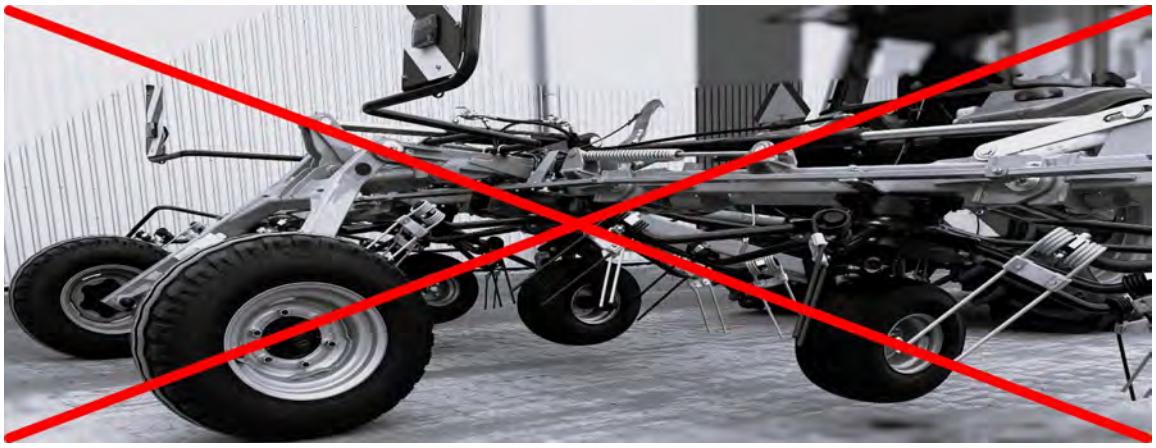


Figure 13 Prohibited position No. 2

6.3.3 Appropriate working position

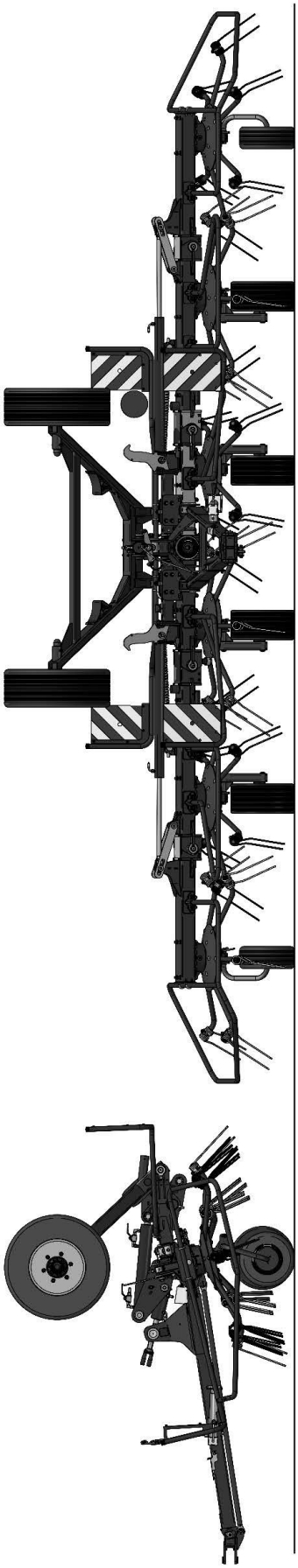


Figure 14 Working position of the tedder - towed version

Before commencing work, make sure that the machine position is appropriate. The tedder in the working position is shown in Figure 14. The distance of the tedder tines from the ground should be between 1 and 5 cm depending on the type of ground and type of material being tedded (Figure 15, H-value). The height of the fingers and their angle can be adjusted. To do this, manually turn the hitch cylinder by hand using the knob (figure 15- B) until the required height is reached, making sure to leave the cylinder knob horizontal to the ground. Before starting work, carry out a trial run of the machine making sure that all components are working correctly.

Any preparations, fitting, dismantling or adjustment can be performed only after the drive has been switched off, the engine stopped, the vehicle immobilized and when all the moving parts of the machine have stopped.

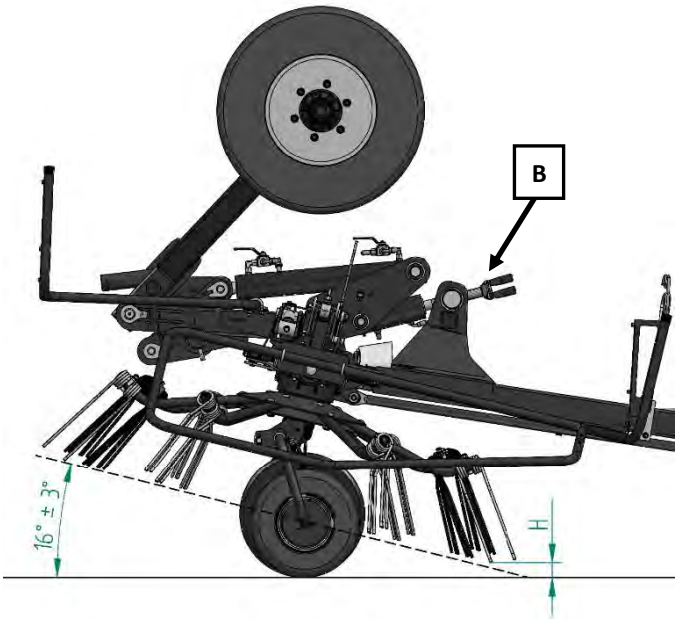


Figure 15 Appropriate tedder working position.

6.3.4 Tiller tines assembly

The direction of rotor rotation is shown in Figure 16. The proper assembly of tedder tines is also shown on the figure.

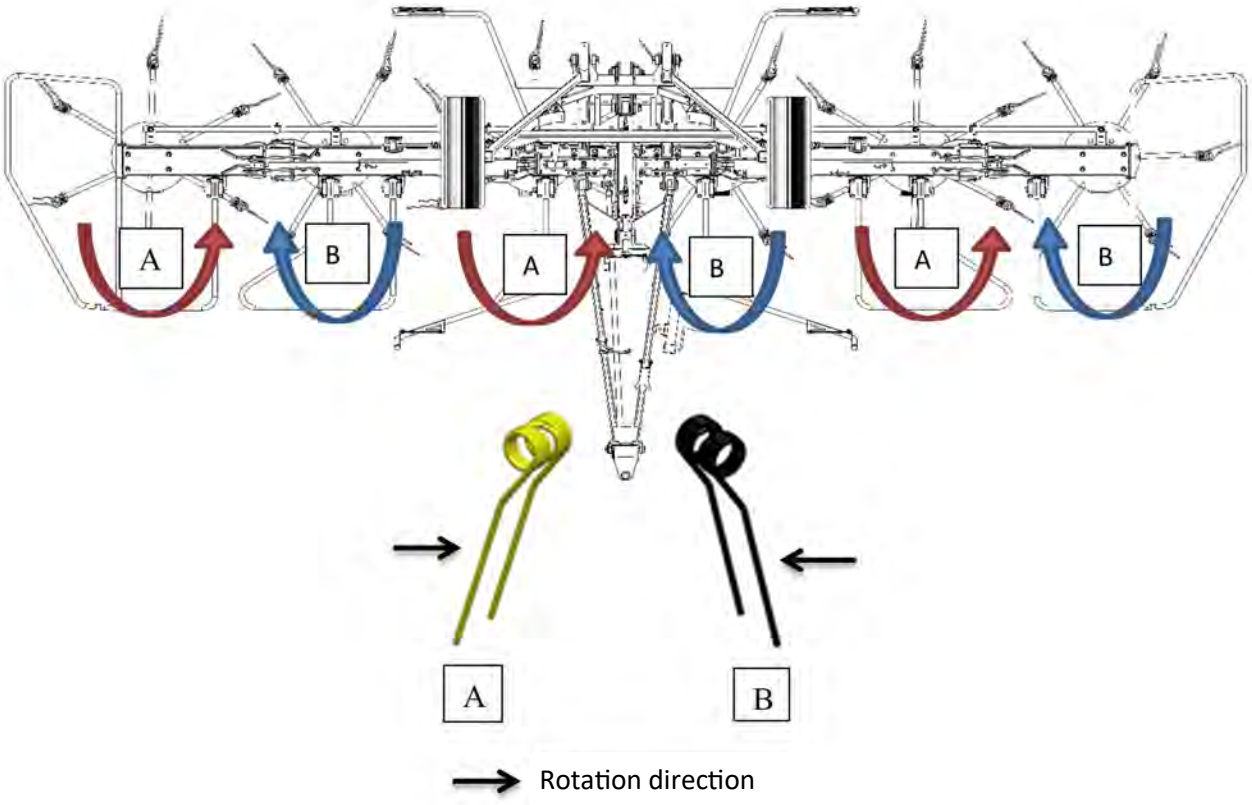


Figure 16 Appropriate tedder tines assembly

Normally, the tedder tines have paint coating in different colors for differentiation:

A. Yellow - a left tedder tine

B. Black - a right tedder tine.

6.3.5 Edge tedding

The machine is equipped with six, interconnected running wheels.

Swath tedding from grassland edges towards the center is ensured through the possibility of turning the tedder right (Figure 17-A) or left (Figure 17-B).

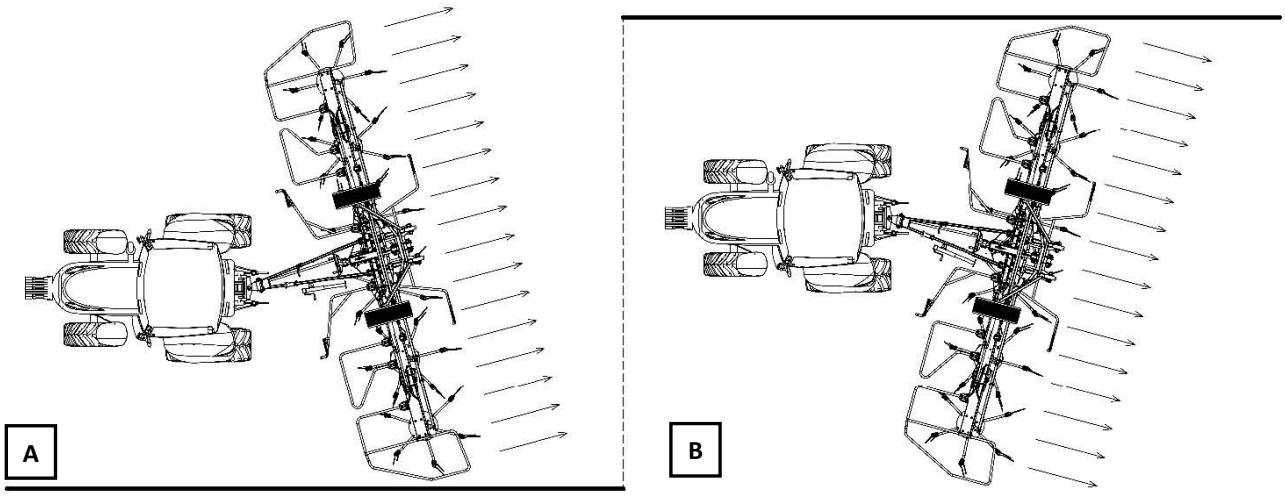


Figure 17 Swath tedding from edges

To turn the machine in the working position, make sure that the ball valves are in the correct position (Figure 10). The turning the wheels to the right or left is achieved by the operation of an actuator. To activate it, hydraulic pressure must be applied to the **blue "-/+"**. The current position of the wheels can be seen on an indicator on the center frame (Figure 20).

Only use the machine's steering in the working position! Always move the running wheels to the center position before finishing work! When folding arms, the wheels must be in the central position!

6.3.6 Additional operation angle adjustment

The machine is equipped with the angle change, distance of the green fodder discharge through the change of the wheel bow fastening. To this end, the wheel bow should be fastened in the upper hole (Figure 18, item 1) or lower (Figure 18 item 2). Remember that the change of the wheel bow fastening results in the change of ground following quality - this relates to the change of the wheel axle position towards the machine frame axle.

Normally, the fastening is done in the middle hole. This ensures sufficient spreading and excellent ground following.

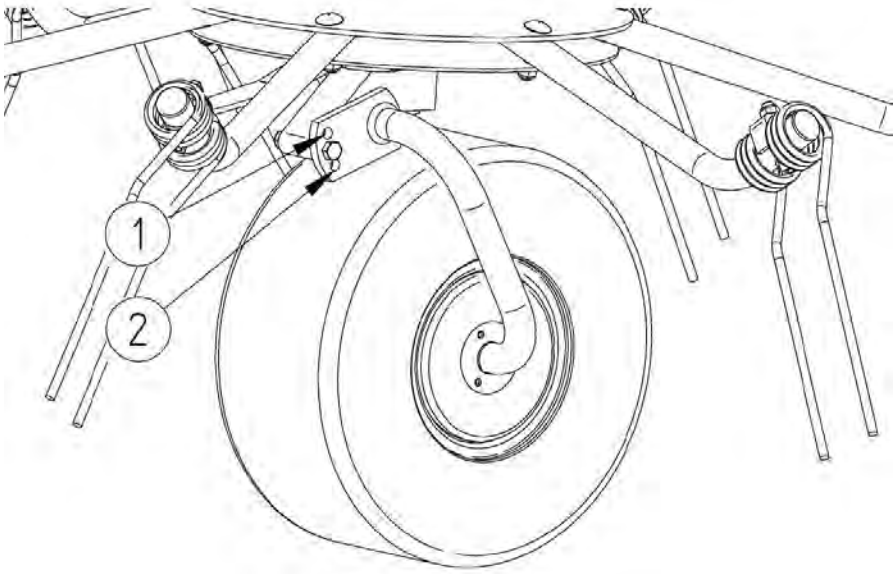


Figure 18 Additional operation angle adjustment

6.4. Transportation position

The transport axle is used for transport, the central running wheels are raised. In the transport position, the side frames of the tedder are raised, locked by a mechanical lock. The hitch cylinder is in the extended position.

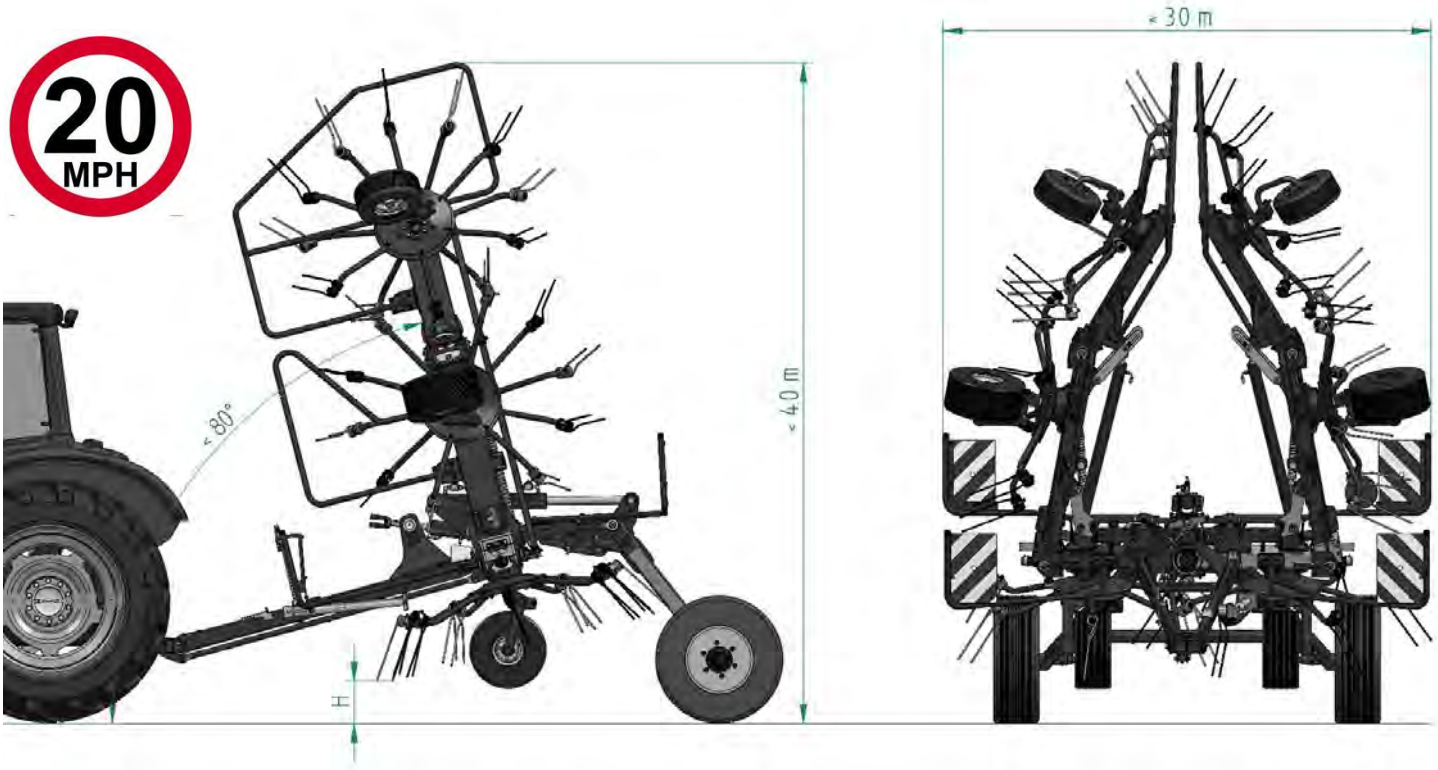


Figure 19 Tedder transportation position

The distance of tedder tines from the ground should be 25 cm (Figure 19 – H). Remember that the machine should be tilted towards the tractor (Figure 19) – this enables stability during transport.

Only use the machine's steering in the working position! Always move the running wheels to the center position before finishing work! When folding arms, the wheels must be in the central position!

6.4.1. Transition from working position to transport position

1. Ensure that the running wheels are in the centre position, if necessary set the indicator to the centre by applying pressure to the **blue "+ " or "-"**, then adjust the ball valves located on the transport axle actuator to actuate the transport axle actuator.

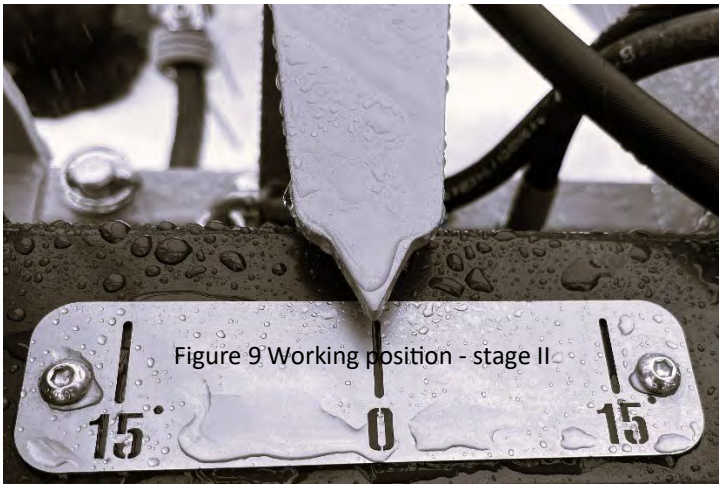


Figure 9 Working position - stage II

Figure 20 Running wheel position indicator

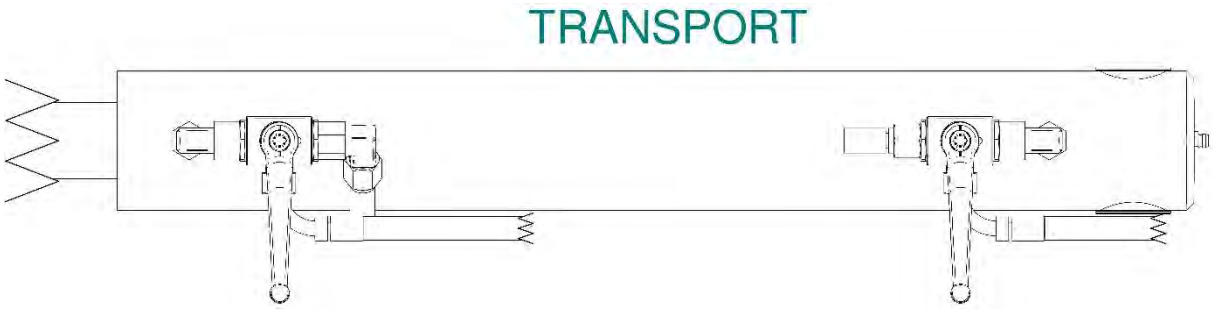


Figure 21 Ball valve set up for transport. Transport position - phase I

2. By applying pressure to the blue “-”, lower the transport axle until the wheels make contact with the ground (the machine rests on the central running wheels and the transport wheels).

3. By putting pressure on the red “-” tilt the machine vertically, then lift the arms upwards until the mechanical mechanism engages (Figure 8B).

Figure 22 Transport position - phase II

Figure 23 Transport position - phase III

After folding the arms, pay attention to the mechanical actuator lock, check that the actuator lock is closed.

4. By applying pressure to the blue "-" lower the transport axle completely, the central running wheels should lift up.

Figure 24 Transport position - phase IV

Strictly observe the correct order of unfolding and folding the machine. Failure to do so risks permanent damage to the machine.

6.4.2. Transition from working position to transport position

It is forbidden to transport the machine on the running wheels with the transport axle raised.

Figure 25 Prohibited position No. 3

The machine is transported exclusively by means of a transport axle!

It is also prohibited to transport on the four centre wheels (as in Figure 25)

6.5. Rest Position

The tedder may be stored in two different positions:

A. arms folded as in the transport position

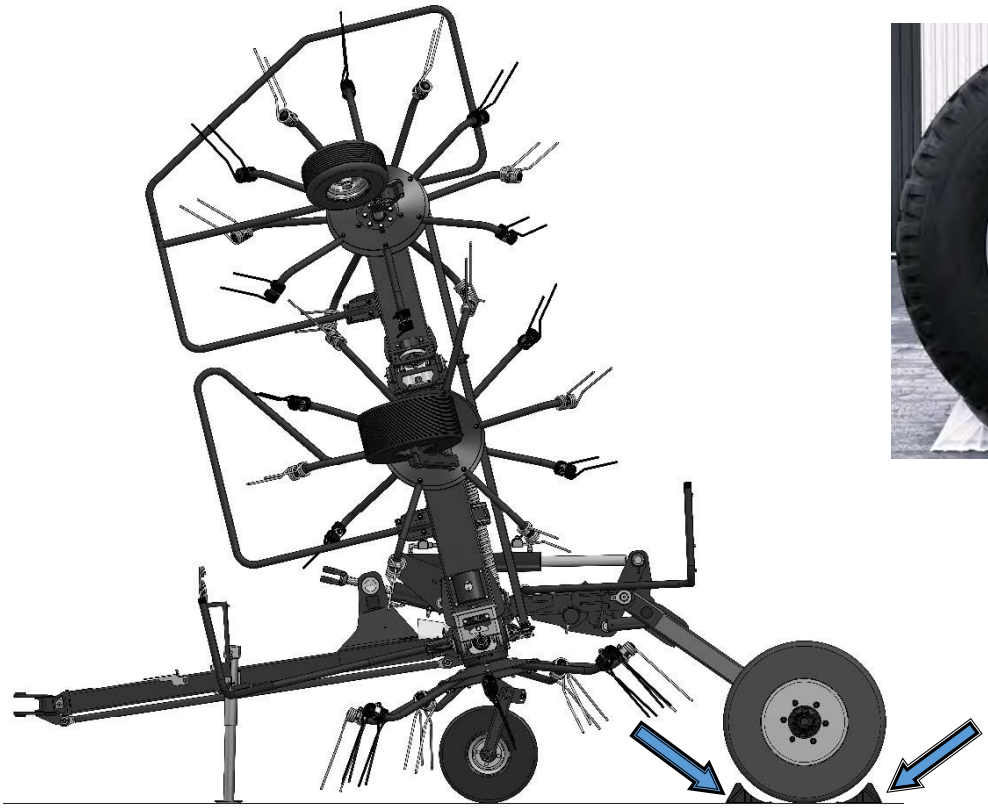


Figure 26 Rest position (A)

This position ensures compact dimensions of the machine when stored. Remember to use a support foot to increase the stability of the machine's storage, and to use brake wedges under the wheels to prevent the machine from moving.

B. Arms extended as in working position

Remember to use a support foot to increase the stability of the machine's storage, and to use brake wedges under the wheels to prevent the machine from moving.

Park the drill on a firm surface. It is forbidden to put the machine down on uneven or tilled surface.

In the case of long time of idleness, the machine should be slightly moved in order to change the tyre position, so that they do not deform and the air pressure in tyres should be checked. This procedure should be carried out once a year on average.

You should ensure that the access to the machine is blocked, in particular, when it comes to the side zones - injury risk caused by spring tines, risk of crushing by the machine.

7. Maintenance

7.1. Maintenance after work

After the work is finished, the machine should be thoroughly cleaned and washed with running water stream. In the case of high pressure devices, exercise caution and do not direct the stream directly towards any types of labels on the machine and elements such as bearings, shaft joints, etc., It is recommended that cleaning and washing be carried out on the wash equipped with a water treatment system or a clarifier for waste neutralisation.

Having performed the cleaning and drying of the machine, check the general technical condition of all sub-assemblies and, if needed, remove any found damage or replace a worn element with a new one.
In case of varnish coating damage, remove any mechanical residues of old painting, degrease, and then apply ground coat. When the ground coat is dry, apply the varnish coating. Replace damaged and worn out parts with new ones. Check all the screwed joints, tighten the loose screws and nuts according to Table 3.

Note:

Manufacturer of the machine, Talex company, provides all spare parts.

Durability	6.8	8.8	10.9	12.9
Metric thread	Tightening torque [Nm]			
M5	4.5	5.9	8.7	10
M6	7.6	10	15	18
M8	18	25	36	43
M10	37	49	72	84
M12	64	85	125	145
M14	100	135	200	235
M16	160	210	310	365
M18	220	300	430	500
M20	310	425	610	710
M22	425	580	820	960
M24	535	730	1050	1220

Table 3 Tightening torque values for screws and nuts.

Lubricate the mower according to the instruction –7.2 Machine lubrication .
All safety signs placed on the machine should be kept clean.

7.2. Maintenance lubrication

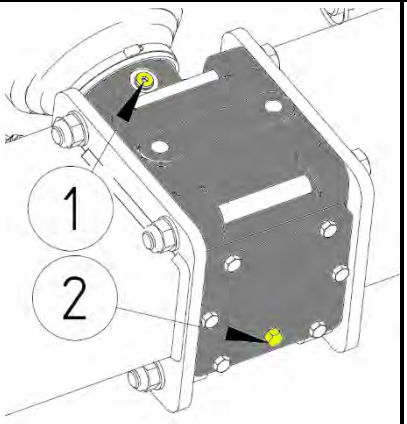
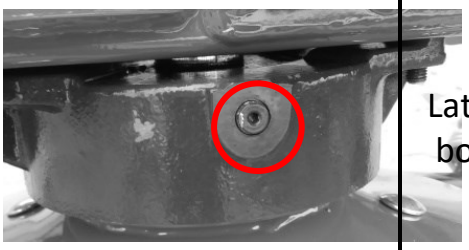
Appropriate periodical maintenance works considerably decrease the wear and tear of mating components and additionally protect against corrosion.

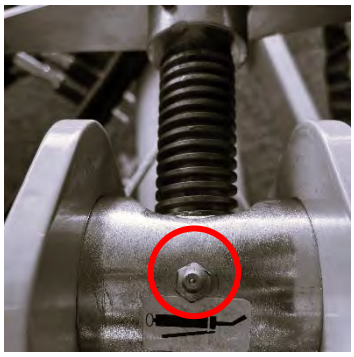
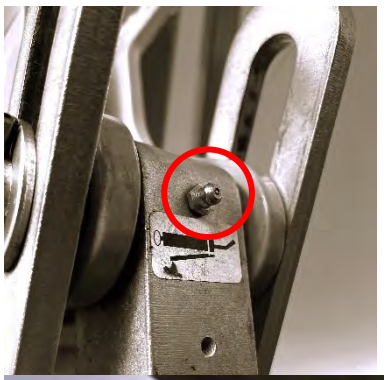
You should lubricate all the lubrication points enumerated below. The lubrication should be performed with use of a greaser. Before commencement of lubrication works, the point to be lubricated should be cleaned from any dirt and residues of previous grease layers and the grease fitting should be checked for damage. Replace the grease fitting, if damaged. After the lubrication has been performed, excessive grease should be removed in order to limit dirt adherence.

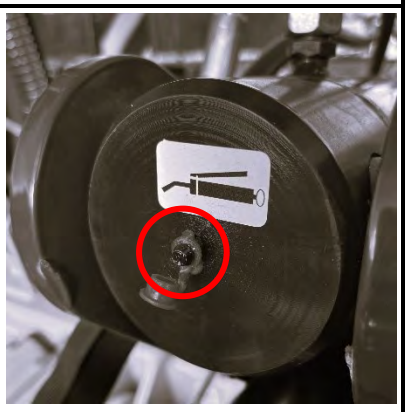
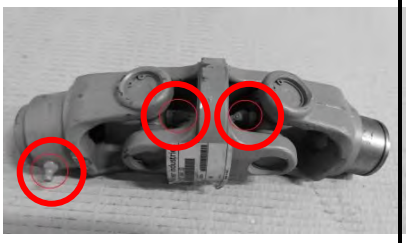
All maintenance works should be done with the switched off engine of the vehicle, released pressure and stopped rotations, and with both, the vehicle and machine. properly secured.

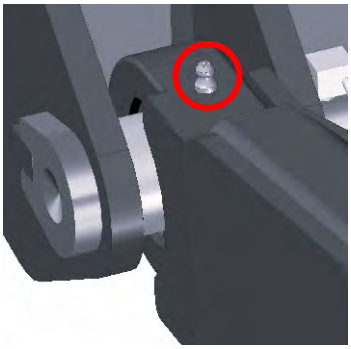
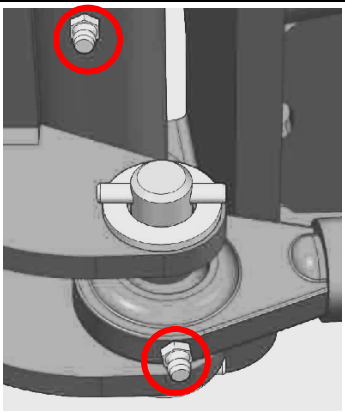
Avoid contact with oil and grease!
Use the personal protective equipment: protective clothing, footwear, gloves and goggles.

The power take-off shaft should be operated and lubricated strictly according to the operating instructions provided by the manufacturer of the shaft.

5No.	Lubrication point	Description	Lubrication interval	Lubrication agent
1		Main gear 1 – filler plug 2 – drain plug	Oil replacement after first 50h of operation; 600h or at least once a year	Oil SAE.90EP-ISO VG 320 – 1.2l
2		Lateral gearbox (6 pcs.)	400 h or at least once a year	NLGI 2 SHELL Gadus S2 V220 - 0.2kg

3	 	Hitch actuator (1 pc.)	50h	Grease
4	 	Side frame actuator (2 pcs.)	50h	Grease

5	 	Transport axle cylinder (1 pc.)	50h	Grease
5		Double joint (2 pcs)	After each start-up, every 5h of continuous operation	Grease
6		Single joint (2 pcs.)	After each start-up, every 5h of continuous operation	Grease
7		Bearing support of the side drive shaft (2 pcs.)	50h	Grease

8		Power take-off shaft – (1 pc.)	Acc. to the instruction enclosed to power take-off shaft	Grease
9		Coupling frame fixing (2 pcs.)	10h	Grease
10		Hook (1 pc.) Hitch adjuster (2 pcs.)	10h	Grease
11		Pivot pins (8 pcs.)	10h	Grease
12		Transport axle connection pins (2 pcs.)	10h	Grease

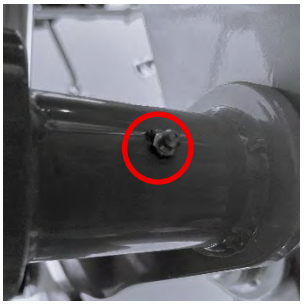
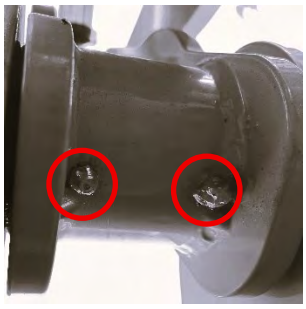
13		Transport axle link - wider (1 pc.)	10h	Grease
		Transport axle connector - narrower (1 pc.)	10h	Grease

Table 4 Lubrication schedule

7.3. Tedder tine operation

The spring tines of the tedder are made of spring steel, thanks to which they are highly resistant to dynamic loads. Despite considerable durability, due to constant contact with ground, the tines are subject to regular wear and tear. Additionally, due to vibrations, the screw connections fastening tines to the arms may loosen. Therefore, check the technical condition of each tine and the tension of each fastening screw before starting work Table 3. Replace the tine, if it is found to be damaged. The repair of a damaged tine is forbidden.

The adjustments should always be performed with the vehicle, drive switched off and on even ground. Immobilize the vehicle and the machine.

Figure 27 Tedder tines operation

7.4. Storage

Includes all the tasks listed in the paragraph 7.1 Maintenance after work. It is recommended that the machine be kept in a closed and roofed building in order to limit the environmental factors causing corrosion and ageing of any materials. Additionally, during long periods of idleness (e.g. a winter period), it is recommended to lubricate any movable joints with fresh grease. Additionally, cover the surface of screws and pins with widely available anti-corrosion agents in order to stop the corrosion process. Additionally, the user should protect the tyres against UV impact, spraying them with widely available tyre maintenance agents, 2-3 times a year. In the case of a long time of idleness, the machine should be slightly moved in order to change the tyre position, so that they do not deform and the air pressure in tires should be checked. This procedure should be carried out once a year on average.

8. Disassembly, utilization and environment protection

In the event the machine is worn to the extent which prevents its further use, it should be scrapped. This also applies to regular repairs and replacement of damaged parts. Clean the machine thoroughly before scrapping. Drain oil from the machine and have the machine decommissioned. Next, disassemble the machine by segregating its parts according to the materials used in them. Segregated parts should be transported to a scrap yard or disposed of.

The machine is 100% environmentally friendly. 98% of the materials used in the production process are recyclable. Worn machine parts must be disposed of in line with the local environment protection regulations. Prevent oil leakage throughout the period of use of the machine, as oil may pollute the environment.

Protect your hands (body) against injuries, and the harmful effects of lubricants and oils. Use personal equipment measures and tools which are in good mechanical condition. Machine elements, which when dismounting can move or rotate, must be properly secured.

Worn or damaged parts removed during repair (disassembly) should be stored in a separate location, with a limited access for persons and animals. Worn out metal parts must be delivered to the scrap metal collection points. Worn out plastics must be delivered to the chemical waste collection (disposal) points. When filling up or replacing the oil, avoid spilling it. Store the waste oil in sealed containers, and periodically deliver it to the special collection (utilization) points.

Abandoned parts or machine components, spilled oil may pose a risk of accident, cause an environmental pollution and violate applicable laws.

9. Spare parts catalogue

9.1. How to order spare parts

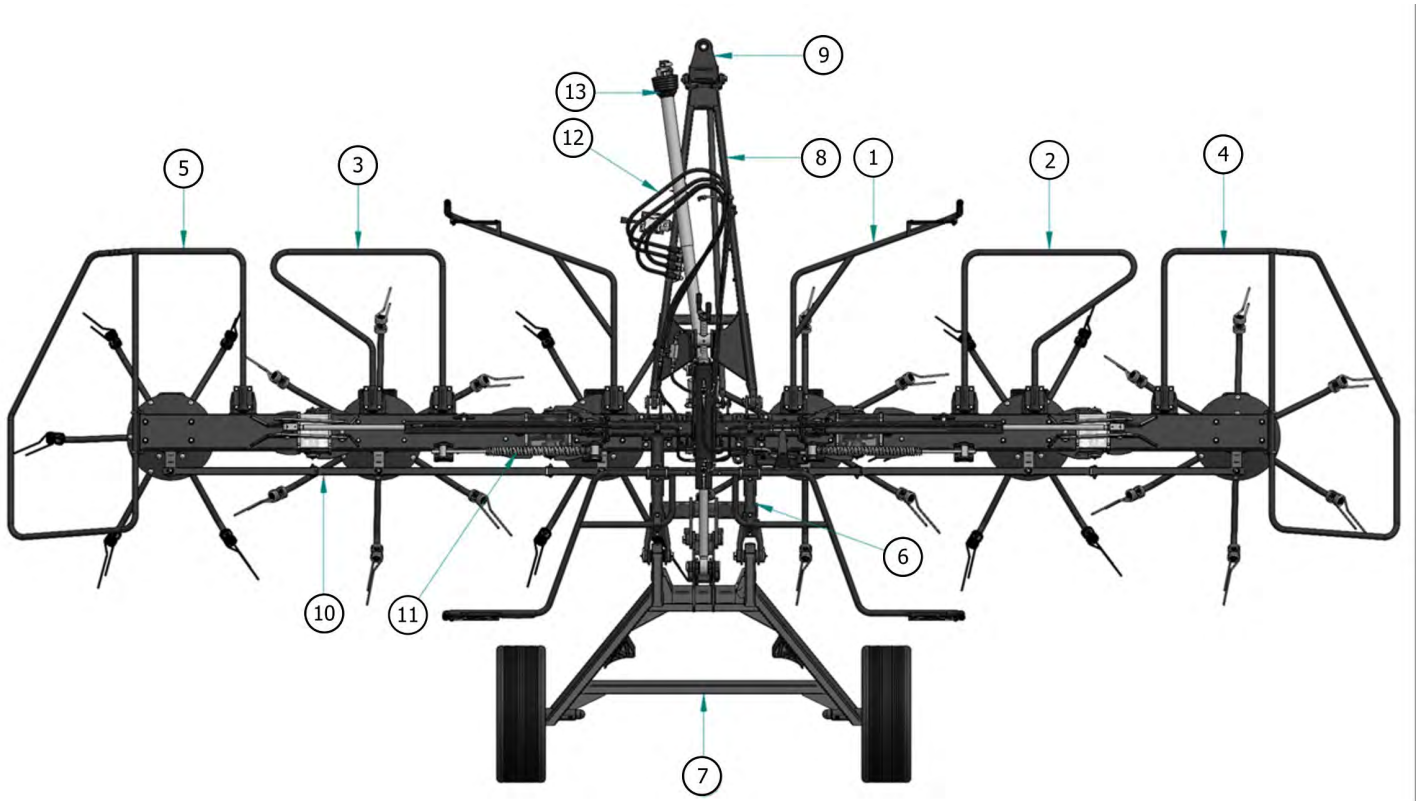
Each order form should include the following:

- address of the buyer;
- exact shipping address (place where machine is located or other means for delivery collection);
- terms of payment;
- serial number and year of production of the tedder (according to the plate located on the machine),
- spare part number;
- spare part name;
- number of parts ordered.

Spare parts must be ordered at the points of sale of the machines or from the manufacturer. Use only the original spare parts provided by the manufacturer, to guarantee safe and reliable operation of the machine. Using non-original parts or repairing damaged parts will void the warranty.

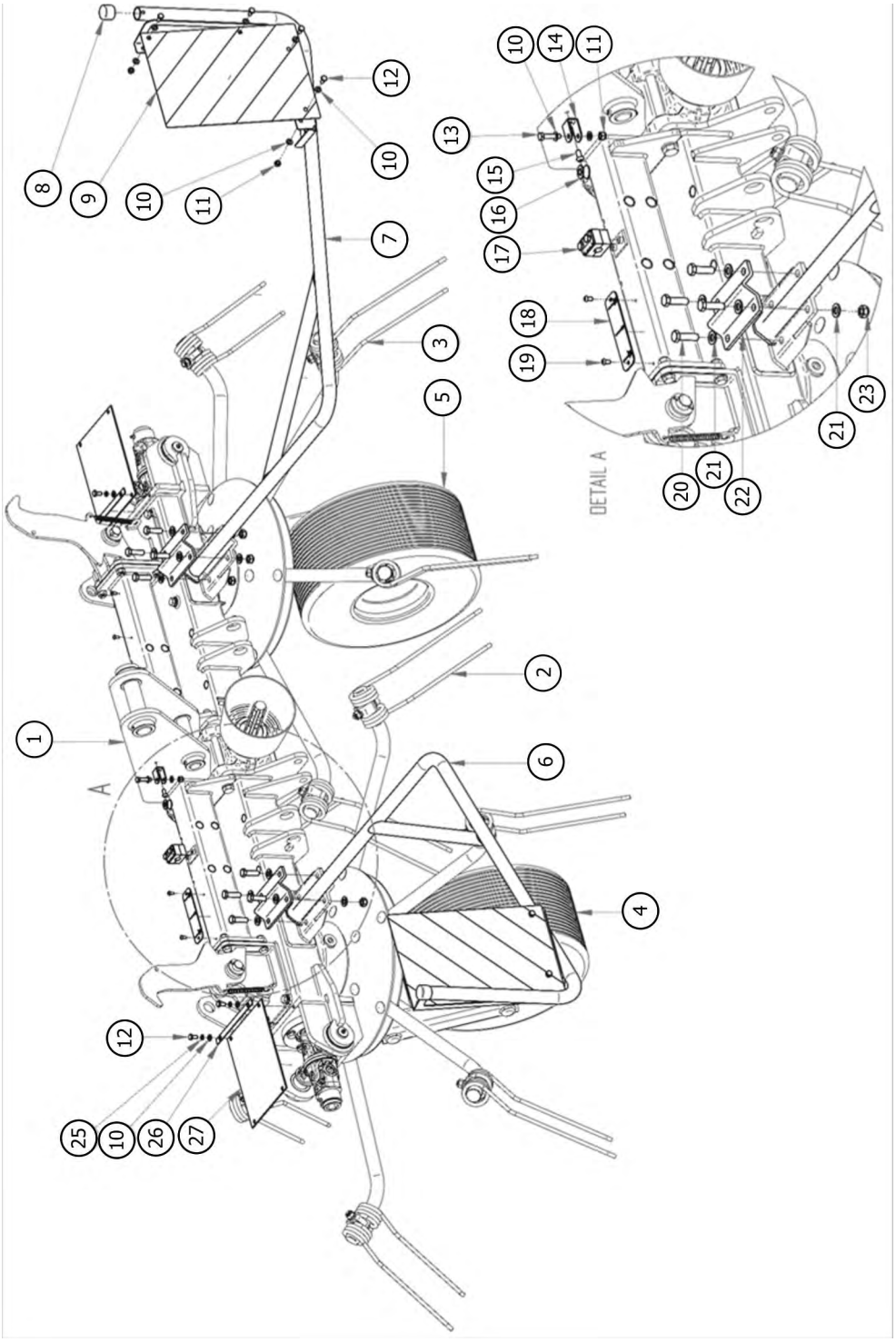
The manufacturer reserves the right to introduce changes to the design of parts presented in the particular assembly drawings in this spare parts catalogue. Such changes may not always be updated in the manual and the spare parts catalogue. Individual drawings may differ from the actual look of the parts.

9.2. General design



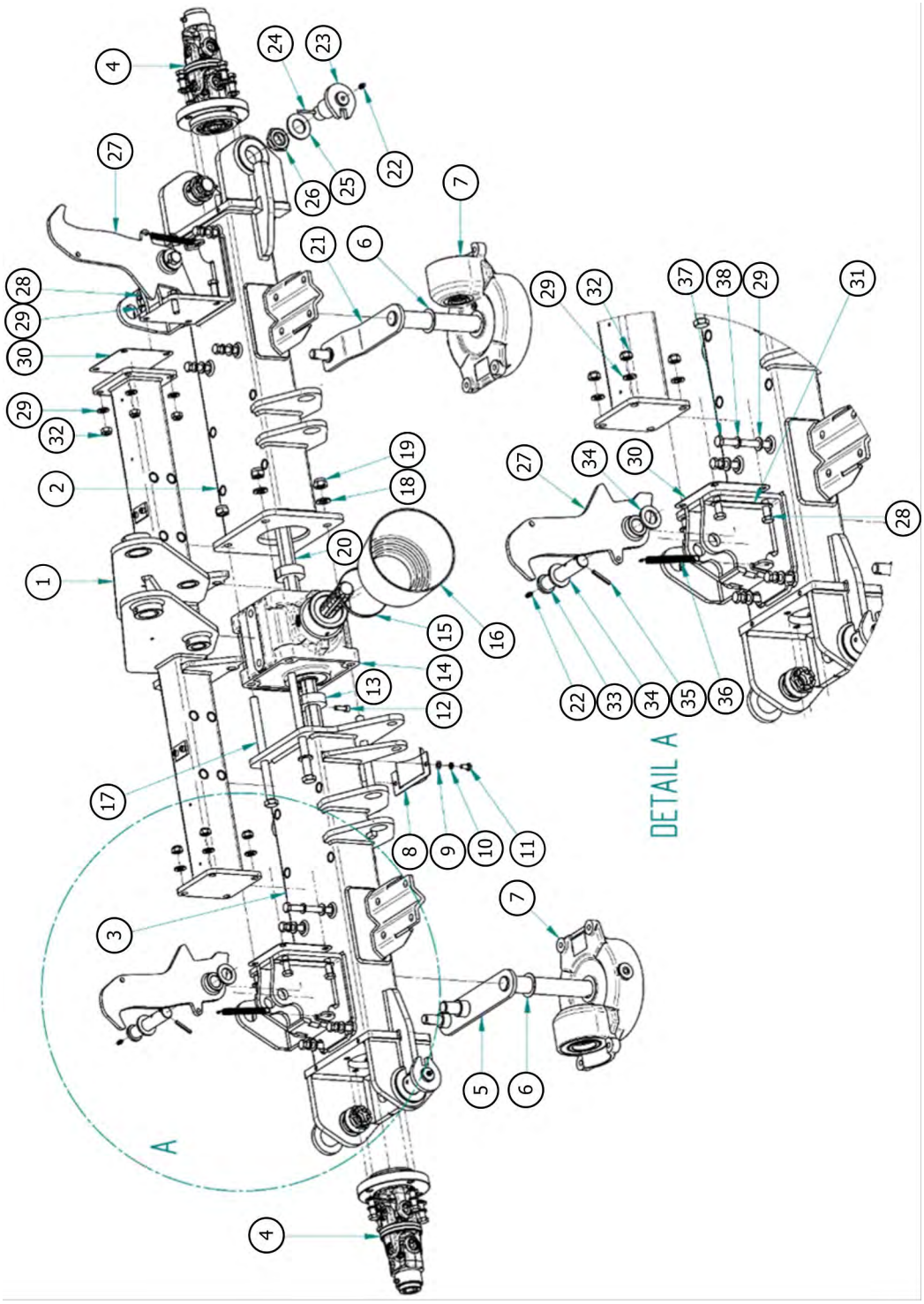
Item	Part #	Description	Qty.
1	Section 9.3.	Main frame set	1
2	Section 9.5.	Right side frame set	1
3	Section 9.6.	Left side frame set	1
4	Section 9.9.	Right end frame set	1
5	Section 9.10.	Left end frame set	1
6	Section 9.20.	Connecting frame for transport axle set	1
7	Section 9.22.	Transport axle set	1
8	Section 9.23.	Hitching frame set	1
9	Section 9.24.	Hitch, complete	1
10	Section 9.25.	Wheel control arms set	1
11	Section 9.26.	Side spring set	2
12	Section 9.27.	Hydraulic system set	1
13	PRZ10166	Telescopic power take-off shaft 460NM L-2113 with M34 ratchet coupling, wide angle on one side	1

9.3. Main frame set



Item	Part #	Description	Qty.
1	Section 9.4.	Middle frame set	1
2	Section 9.13.	Left working set	1
3	Section 9.14.	Right working set	1
4	Section 9.16.	Right wheelset	1
5	Section 9.15.	Left wheelset	1
6	PRZ10008	Right front barrier	1
7	PRZ10009	Left front barrier	1
8	PR-T309	Pipe cover 1"	2
9	PRZ10010	Yellow/red board 282X423 double-sided DIN 30710	2
10	FW08	Plain washer M8 DIN 125	24
11	LNM08125	Self locking nut M8 DIN 985	10
12	BM0812516	Bolt M8x16 8.8 DIN 933	12
13	BM0812535	Bolt M8x35 8.8 DIN 933	2
14	PRZ10011	Roll bracket - bent	2
15	BM0812516	Bolt M8x16 8.8 ISO 7380	2
16	PRZ10012	Stainless steel roller D=25 mm	2
17	PRZ10013	15 mm cable clamp set	1
18	PRZ10014	Wheel position indicator	1
19	BM061012	Bolt M6x12 8.8 ISO 7380	4
20	BM1217540	Bolt M12x40 8.8 DIN 933	8
21	FW12	Plain washer M12 DIN 125	16
22	PR-T505	Barrier fastening	2
23	LNM12175	Self locking nut M12 DIN 985	8
25	FW08	Spring washer DIN 7980	4
26	PR-T220	Joint guard rubber fastening	2
27	PR-T435	Joint shield	2

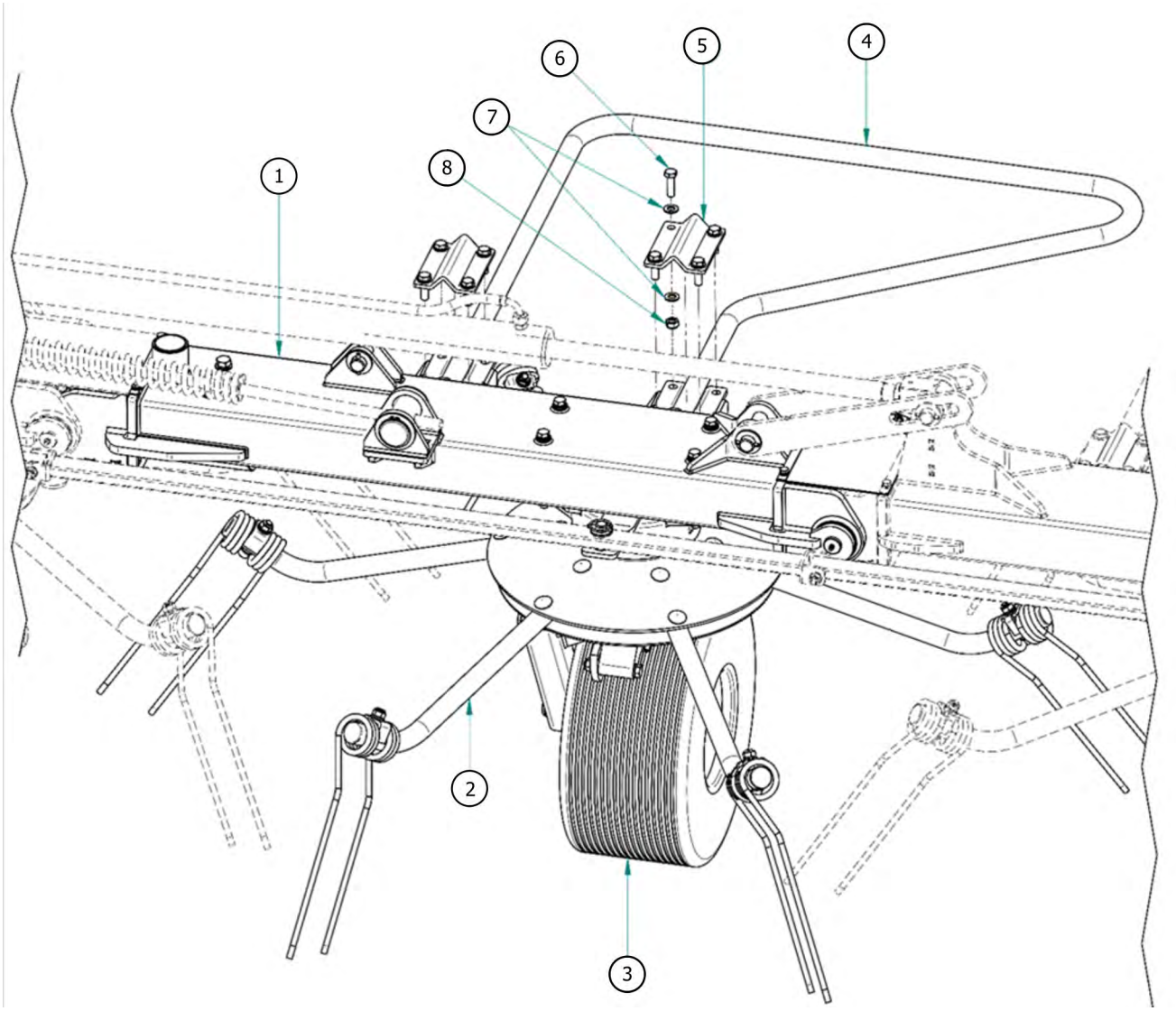
9.4. Middle frame set



Item	Part #	Description	Qty.
1	PRZ10015	Connecting beam	1
2	PRZ10016	Centre frame - left	1
3	PRZ10017	Centre frame - right	1
4	PRZ10018	Double joint set	2
5	PRZ10019	Wheel alignment pins	1
6	PRZ10020	Sliding washer 50x35x1.5	2
7	PR-T216	2:1 side gearbox	2
8	PRZ10021	Transmission guard	2
9	FW08	Plain washer M8 DIN 125	4
10	LW08	Spring washer M8 DIN 7980	4
11	BM0812516	Bolt M8x16 8.8 DIN 933	4
12	BM0812525	Bolt M8x30 10.9 DIN 912	2
13	PR-T223	Drive shaft distance	2
14	PRZ10022	Central gearbox 1.77:1	1
15	RC3	Band clip 80*100	1
16	PR-T433	Cone shield 18/101	1
17	FW16	Bolt M16x230 8.8 DIN 931	4
18	LNM1620	Plain washer M16 DIN 125	6
19	PR-T428	Self locking nut M16 DIN 985	4
20	PR-T207	Middle drive shaft	1
21	PRZ10023	Wheel alignment pin	1
22	PRZ10024	Grease nipple M8*1 DIN 71412-A	6
23	PRZ10025	Pivot pin	4
24	PRZ10026	Spring pin 7x40 DIN 1481	4
25	FW30	Plain washer M30 DIN 125	4
26	PRZ10028	Crown nut - low M30x1.5 DIN 937	4
27	PRZ10029	Arm cylinder protection	2
28	BM1217540	Bolt M12x40 8.8 DIN 933	8
29	FW12	Plain washer M12 DIN 125	16
30	PRZ10030	Distance plate 0.5 mm	2*
	PRZ10031	Distance plate 1 mm	2*
31	PRZ10032	Cover plate	2
32	LNM12175	Self locking nut M12 DIN 985	8
33	FW25	Plain washer M24 DIN 125	4
34	PRZ10033	Actuator pawl pin	2
35	PRZ10034	Spring pin 6x40 DIN 1481 galv.	2
36	PRZ10035	Spring 5042/02-052/0	2
37	BM12175140 PT	Bolt M12x140 8.8 DIN 933	8
38	LW12	Spring washer M12 DIN 7980	8

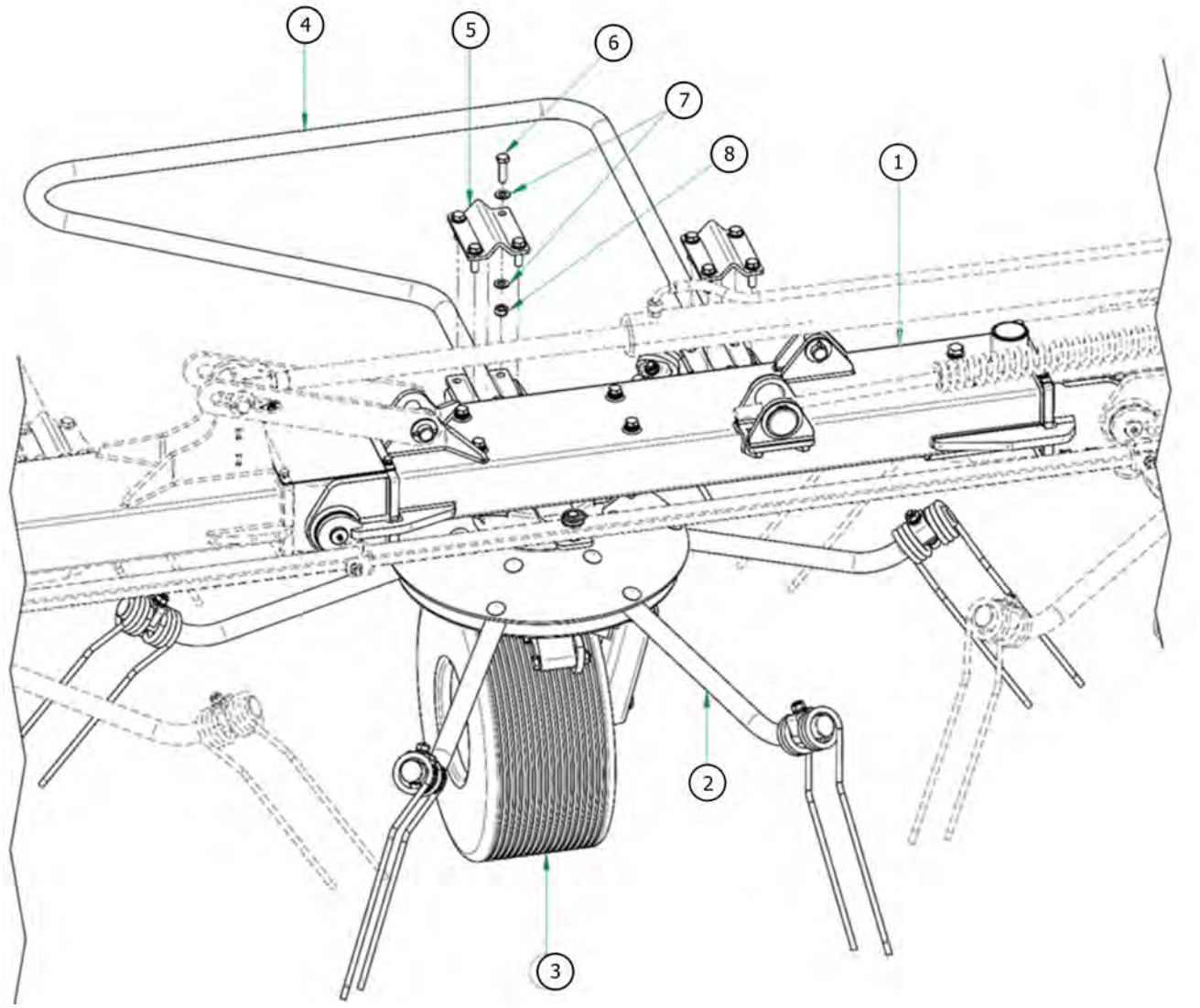
* - As required

9.5. Right frame set



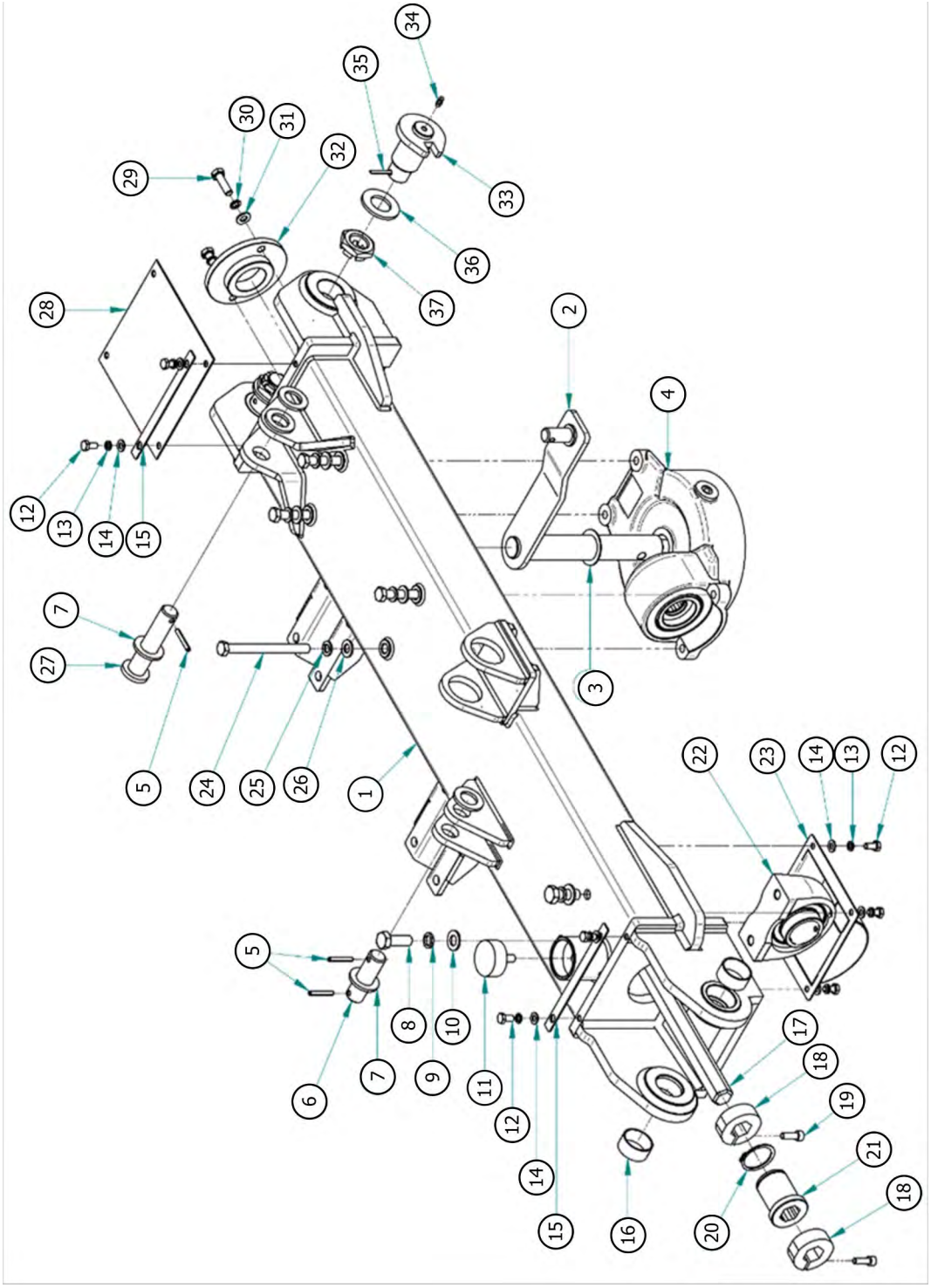
Item	Part #	Description	Qty.
1	Section 9.7.	Right side frame	1
2	Section 9.14.	Right working set	1
3	Section 9.15.	Left wheelset	1
4	PRZ10164	Side rail - right	1
5	PR-T505	Barrier fastening	2
6	BM1217540	Bolt M12x40 8.8 DIN 933	8
7	FW12	Plain washer M12 DIN 125	16
8	LNM12175	Self locking nut M12 DIN 985	8

9.6. Left side frame set



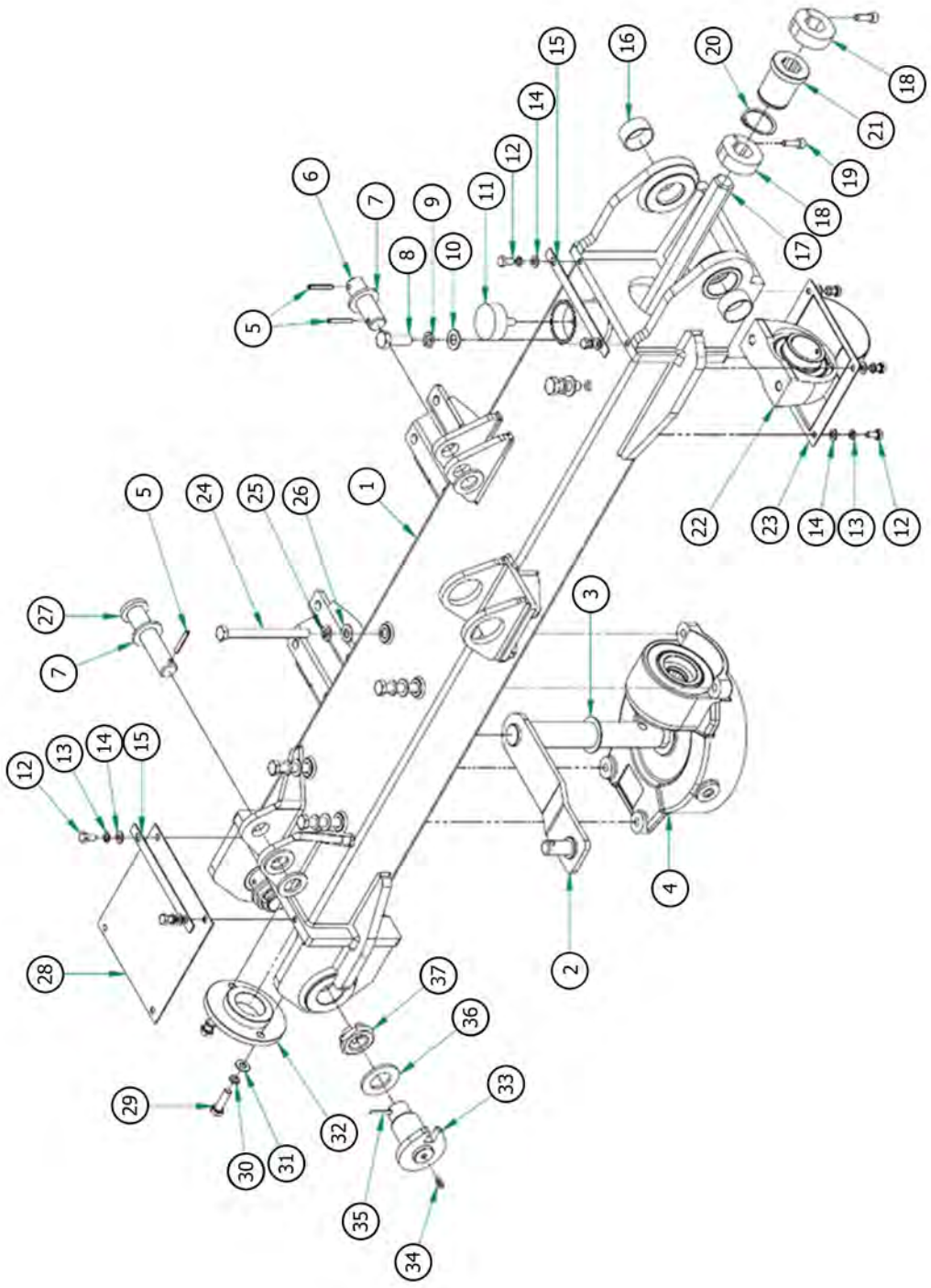
Item	Part #	Description	Qty.
1	Refer to Section 9.8.	Left side frame	1
2	Refer to Section 9.13.	Left working set	1
3	Refer to Section 9.16.	Right wheelset	1
4	PRZ10036	Side rail - left	1
5	PR-T505	Barrier fastening	2
6	BM1217540	Bolt M12x40 8.8 DIN 933	8
7	FW12	Plain washer M12 DIN 125	16
8	LNM12175	Self locking nut M12 DIN 985	8

9.7. Right side frame



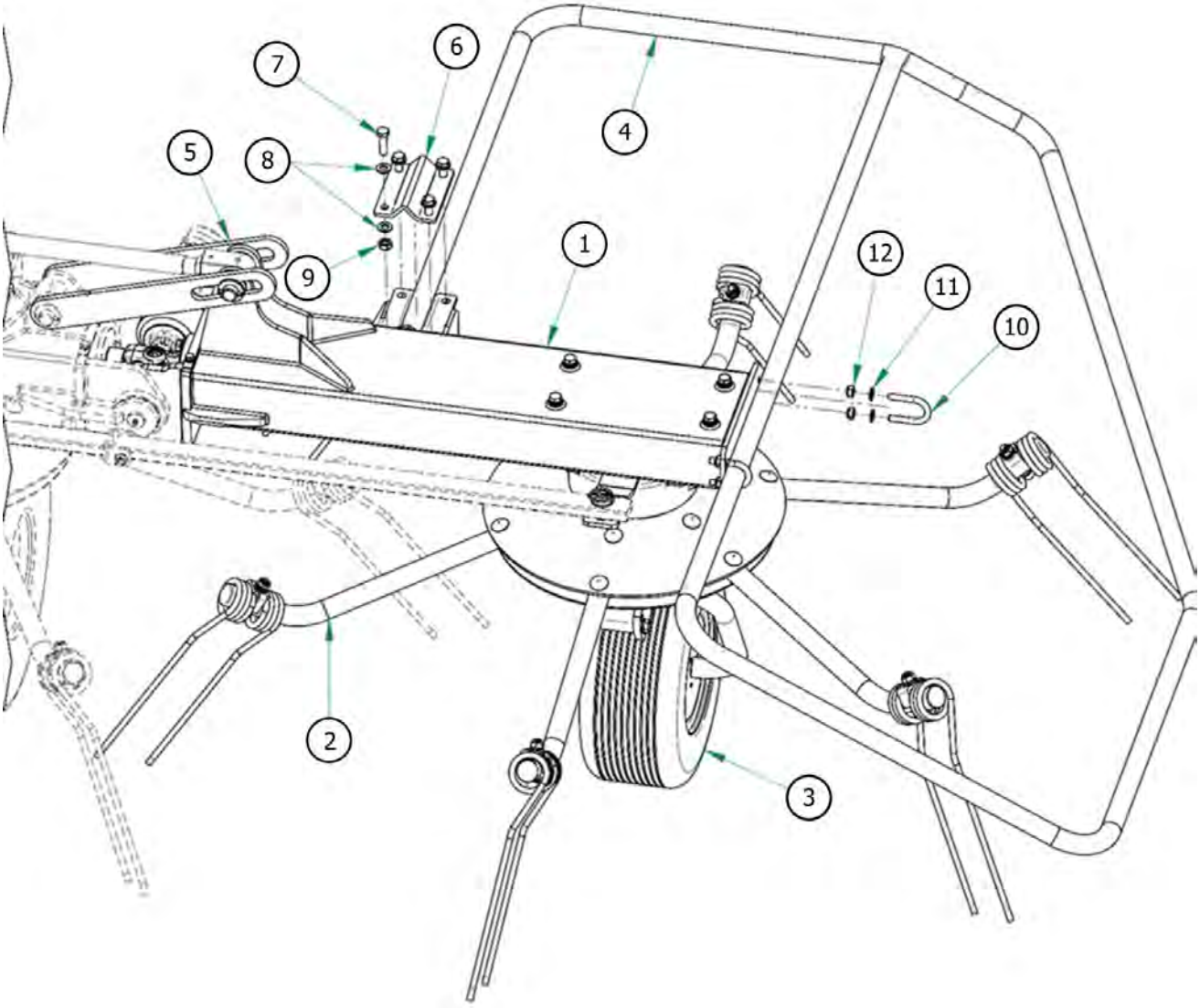
Item	Part #	Description	Qty.
1	PRZ10037	Right side frame	1
2	PRZ10023	Wheel alignment pin	1
3	PRZ10020	Sliding washer 50x35x1.5	1
4	PR-T216	2:1 side gearbox	1
5	PRZ10034	Spring pin 6x40 DIN 1481 galv.	3
6	PRZ10041	Actuator pawl pin	1
7	FW25	Plain washer M24 DIN 125	2
8	BM142040	Bolt M14x40 8.8DIN 933	2
9	LW14	Spring washer M14 DIN 7980	2
10	FW14	Plain washer M14 DIN 125	2
11	PR-T215	Rubber bumper	1
12	BM0812516	Bolt M8x16 8.8 DIN 933	8
13	LW08	Spring washer M8 DIN 7980	8
14	FW08	Plain washer M8 DIN 125	8
15	PR-T220	Joint guard rubber fastening	2
16	PR-T415	Slip bushing PAP4020-P20	2
17	PRZ10042	Side drive shaft	1
18	PR-T223	Drive shaft distance	2
19	BM0812525	Bolt M8x30 10.9 DIN 912	2
20	SRE-45	Snap ring 45Z	1
21	PR-T407	Drive shaft support sleeve	1
22	UCPA209	Bearing assembly, UCPA209	1
23	PR-T212	Bearing guard	1
24	BM12175140	Bolt M12x140 8.8 DIN 933	4
25	LW12	Spring washer M12 DIN 7980	4
26	FW12	Plain washer M12 DIN 125	4
27	PRZ10043	Actuator coupling pin	1
28	PRZ10044	Single joint cover	1
29	BM101535	Bolt M10x35 8.8 DIN 933	2
30	LW10	Spring washer M10 DIN 7980	2
31	FW10	Plain washer M10 DIN 125	2
32	PRZ10045	Single joint support	1
33	PRZ10046	Pivot pin	2
34	GN081S	Grease nipple M8*1 DIN 71412-A	2
35	PRZ10026	Spring pin 7x40 DIN 1481	2
36	FW30	Plain washer M30 DIN 125	4
37	PRZ10028	Crown nut - low M30x1.5 DIN 937	4

9.8. Left side frame



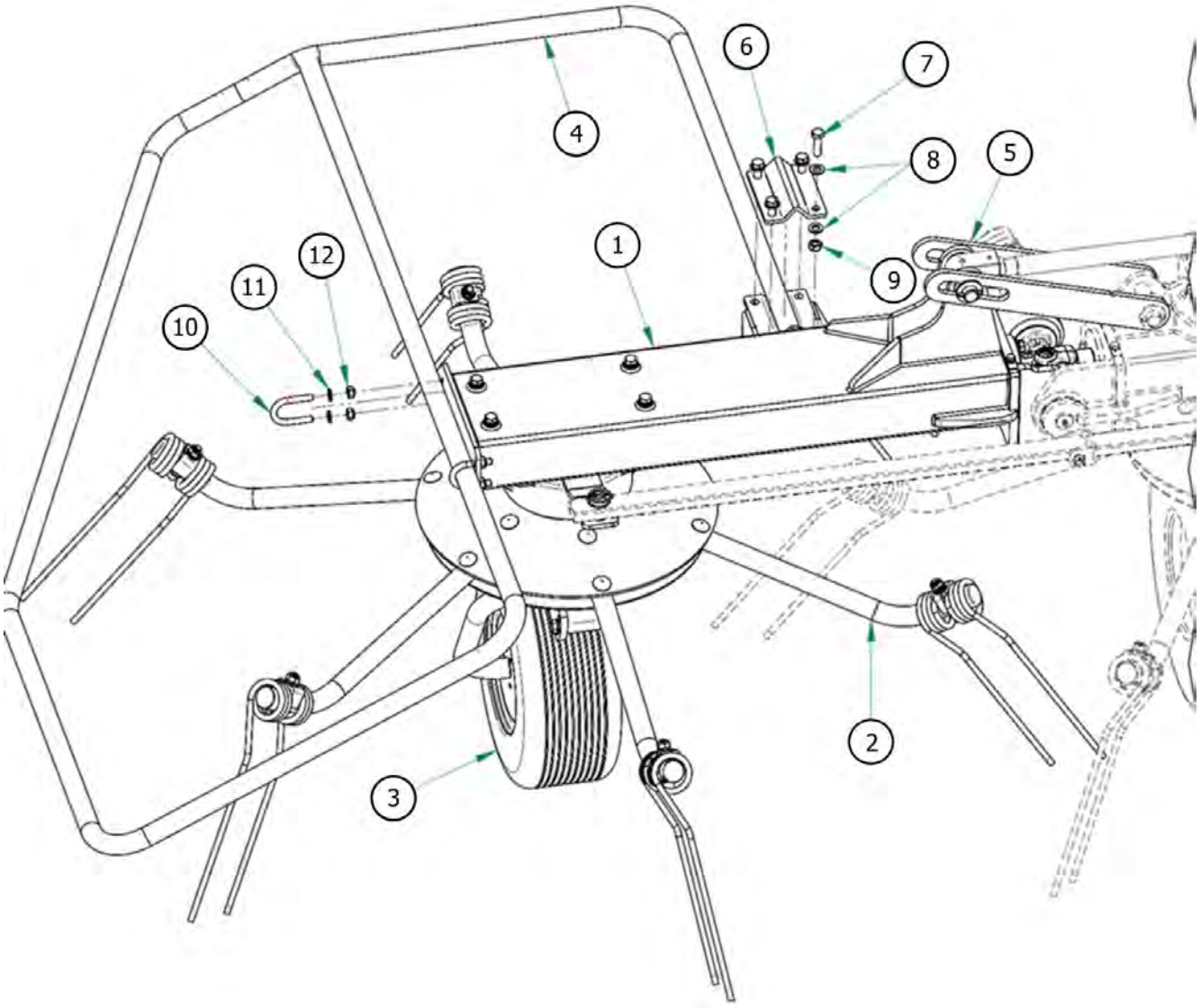
Item	Part #	Description	Qty.
1	PRZ10038	Left side frame	1
2	PRZ10023	Wheel alignment pin	1
3	PRZ10020	Sliding washer 50x35x1.5	1
4	PR-T216	2:1 side gearbox	1
5	PRZ10034	Spring pin 6x40 DIN 1481 galv.	3
6	PRZ10041	Actuator pawl pin	1
7	FW25	Plain washer M24 DIN 125	5
8	BM142040	Bolt M14x40 8.8DIN 933	2
9	LW14	Spring washer M14 DIN 7980	2
10	FW14	Plain washer M14 DIN 125	2
11	PR-T215	Rubber bumper	1
12	BM0812516	Bolt M8x16 8.8 DIN 933	8
13	LW08	Spring washer M8 DIN 7980	8
14	FW08	Plain washer M8 DIN 125	8
15	PR-T220	Joint guard rubber fastening	2
16	PR-T415	Slip bushing PAP4020-P20	2
17	PRZ10042	Side drive shaft	1
18	PR-T223	Drive shaft distance	2
19	BM0812525	Bolt M8x30 10.9 DIN 912	2
20	SRE-45	Snap ring 45Z	1
21	PR-T407	Drive shaft support sleeve	1
22	UCPA209	Bearing assembly, UCPA209	1
23	PR-T212	Bearing guard	1
24	BM12175140	Bolt M12x140 8.8 DIN 933	4
25	LW12	Spring washer M12 DIN 7980	4
26	FW12	Plain washer M12 DIN 125	4
27	PRZ10043	Actuator coupling pin	1
28	PRZ10044	Single joint cover	1
29	BM101535	Bolt M10x35 8.8 DIN 933	2
30	LW10	Spring washer M10 DIN 7980	2
31	FW10	Plain washer M10 DIN 125	2
32	PRZ10044	Single joint support	1
33	PRZ10046	Pivot pin	2
34	GN081S	Grease nipple M8*1 DIN 71412-A	2
35	PRZ10026	Spring pin 7x40 DIN 1481	2
36	FW30	Plain washer M30 DIN 125	4
37	PRZ10028	Crown nut - low M30x1.5 DIN 937	4

9.9. Right end frame set



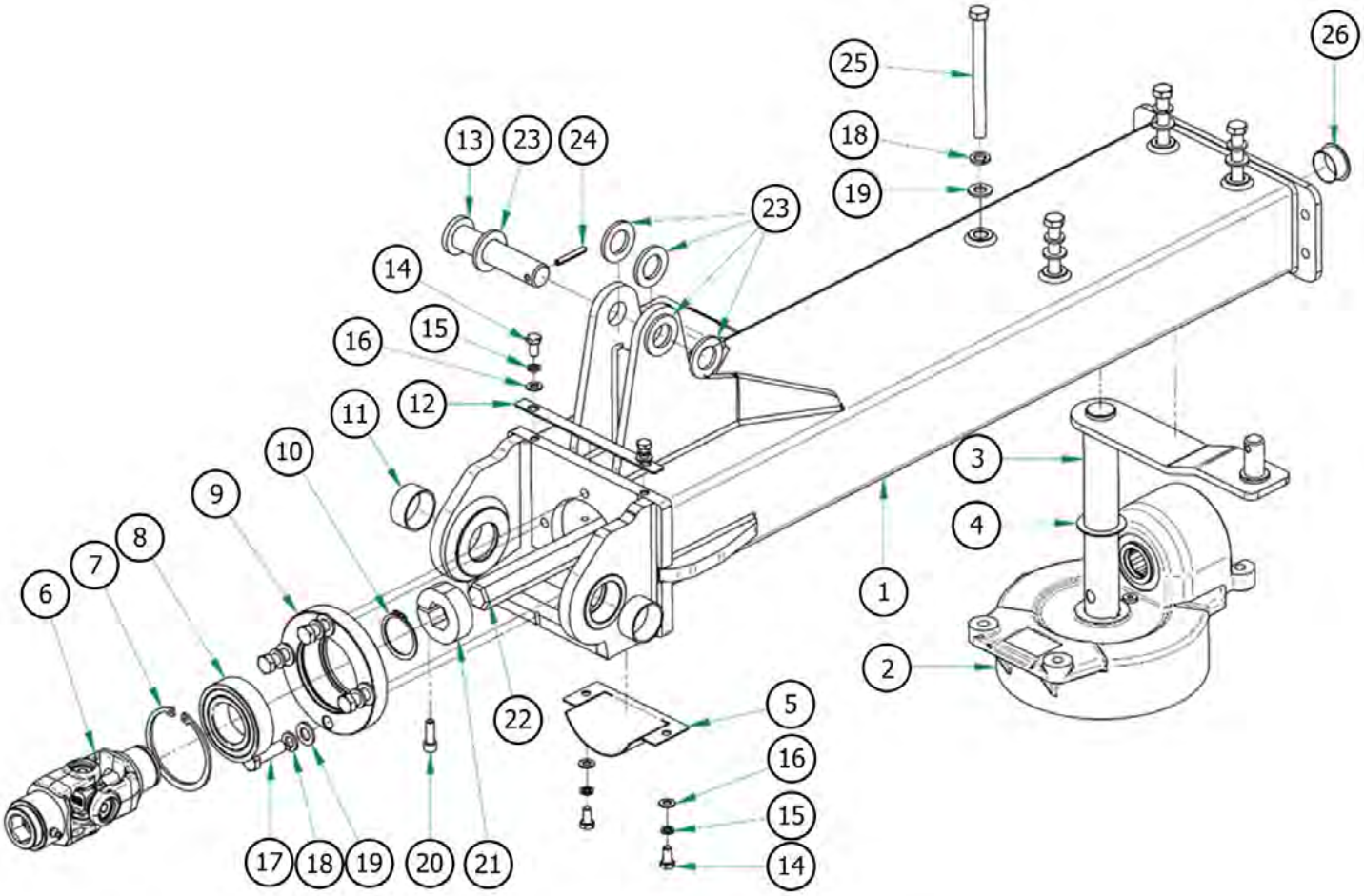
Item	Part #	Description	Qty.
1	Section 9.11.	Right end frame	1
2	Section 9. 13.	Left working set	1
3	Section 9.18.	Extreme right-hand running gear	1
4	PRZ10053	End rail - right	1
5	PRZ10050	Bracing plate for the actuator	2
6	PR-T505	Barrier fastening	1
7	BM1217540	Bolt M12x40 8.8 DIN 933	4
8	FW12	Plain washer M12 DIN 125	8
9	LNM12175	Self locking nut M12 DIN 985	4
10	PR-T314	Cable ties M10*35 TYPE B	2
11	FW10	Plain washer M10 DIN 125	4
12	LNM1015	Self locking nut M10 DIN 985	4

9.10. Left end frame set



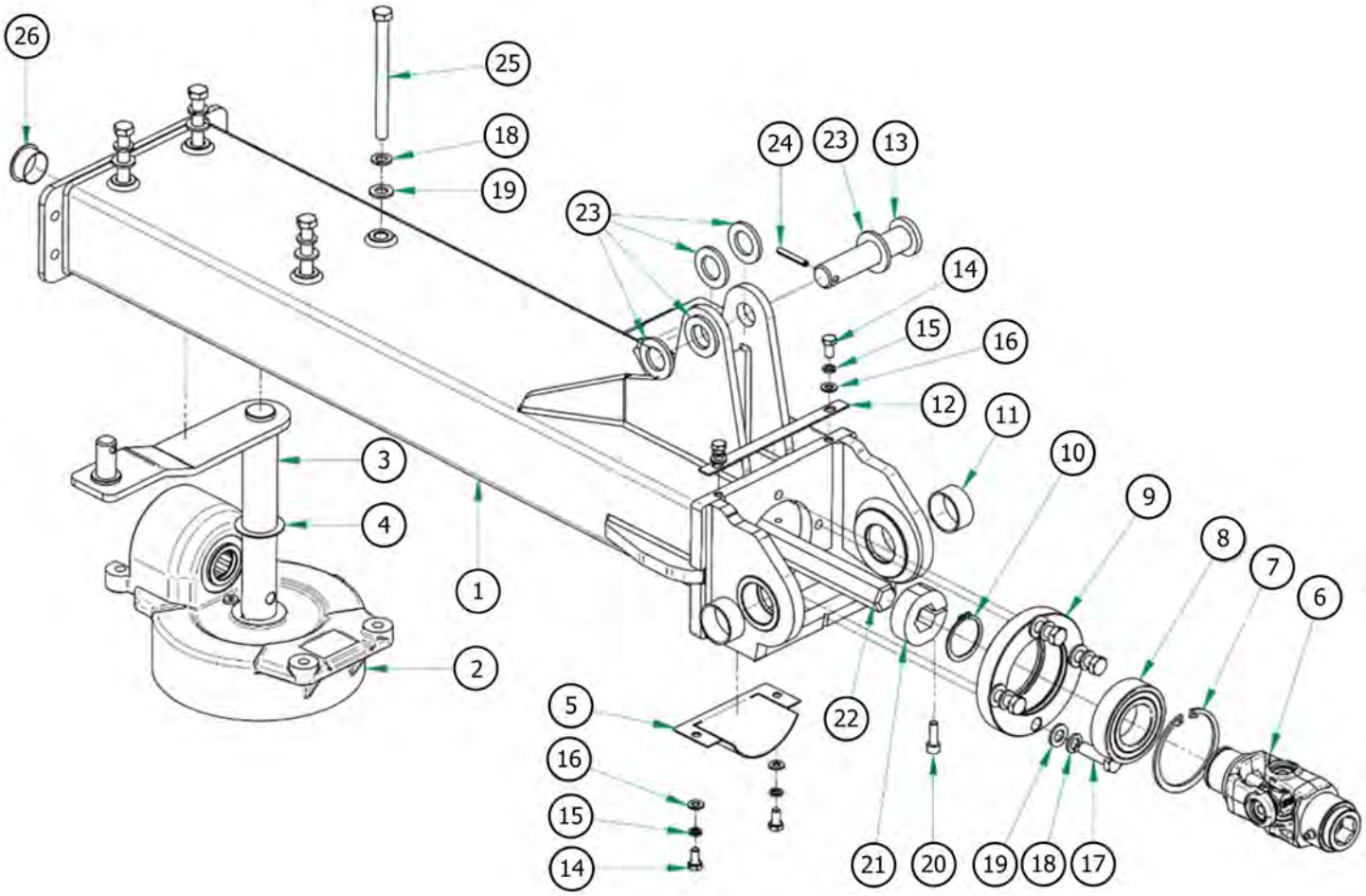
Item	Part #	Description	Qty.
1	Section 9.12.	Left end frame	1
2	Section 9.14.	Right working set	1
3	Section 9.17.	Extreme left-hand running gear	1
4	PRZ10054	End rail - left	1
5	PRZ10050	Bracing plate for the actuator	2
6	PR-T505	Barrier fastening	1
7	BM1217540	Bolt M12x40 8.8 DIN 933	4
8	FW12	Plain washer M12 DIN 125	8
9	LNM12175	Self locking nut M12 DIN 985	4
10	PR-T314	Cable ties M10*35 TYPE B	2
11	FW10	Plain washer M10 DIN 125	4
12	LNM1015	Self locking nut M10 DIN 985	4

9.11. Right end frame



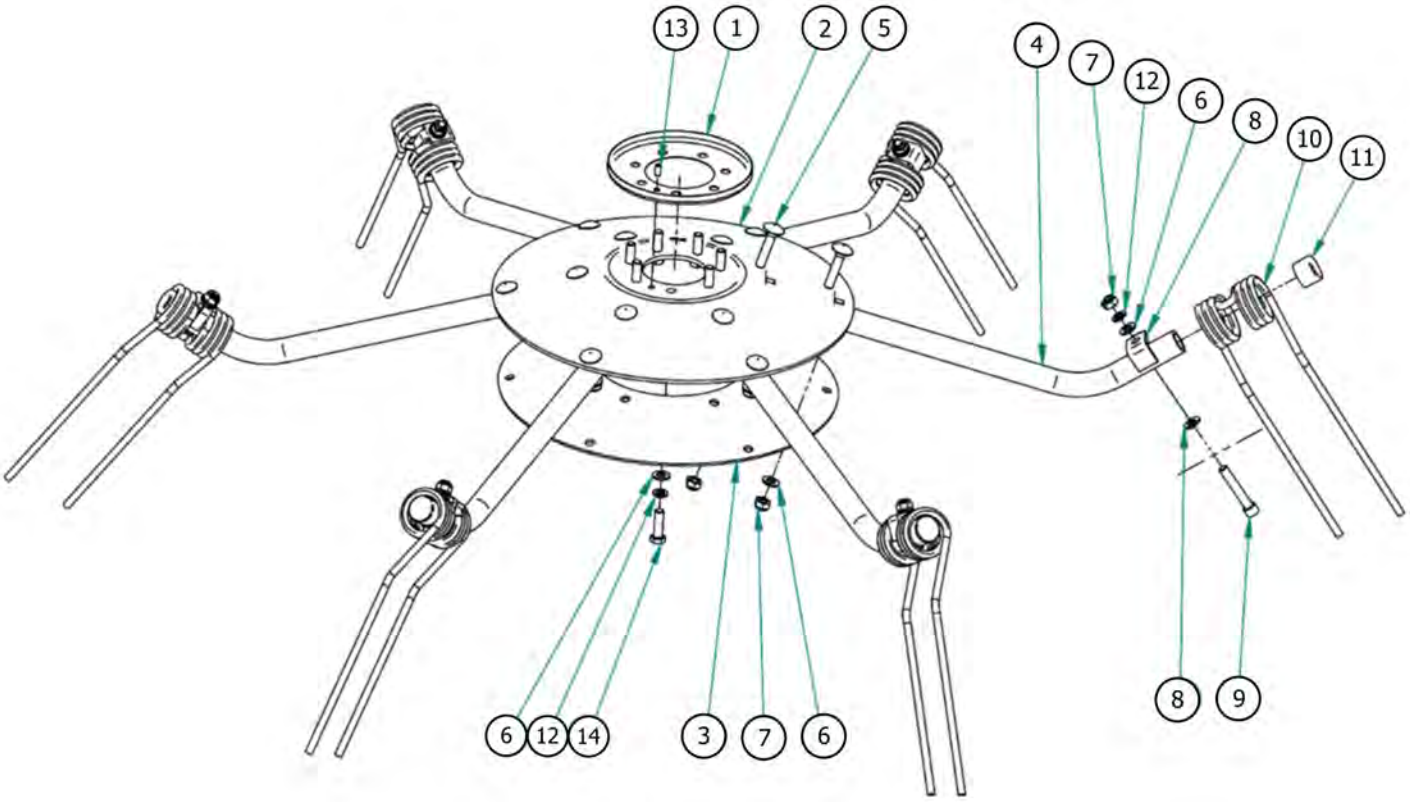
Item	Part #	Description	Qty.
1	PRZ10051	Right end frame	1
2	PR-T216	2:1 side gearbox	1
3	PRZ10023	Wheel alignment pin	1
4	PRZ10020	Sliding washer 50x35x1.5	1
5	PRZ10021	Transmission guard	1
6	PRZ10055	Single joint	1
7	SRE-85	Sealing ring 85W	1
8	B22092RS	Bearing 2209 2RS	1
9	PRZ10056	Single joint bearing support	1
10	SRE-45	Snap ring 45Z	1
11	PR-T415	Slip bushing PAP4020-P20	2
12	PR-T220	Joint guard rubber fastening	1
13	PRZ10043	Actuator coupling pin	1
14	BM0812516	Bolt M8x16 8.8 DIN 933	4
15	LW08	Spring washer M8 DIN 7980	4
16	FW08	Plain washer M8 DIN 125	4
17	BM12175140 PT	Bolt M12x140 8.8 DIN 933	4
18	LW12	Spring washer M12 DIN 7980	8
19	FW12	Plain washer M12 DIN 125	8
20	BM0812525	Bolt M8x30 10.9 DIN 912	1
21	PR-T223	Drive shaft distance	1
22	PRZ10057	Drive shaft - extreme	1
23	FW25	Plain washer M24 DIN 125	5
24	PRZ10034	Spring pin 6x40 DIN 1481 galv.	1
25	BM12175140 PT	Bolt M12x140 8.8 DIN 933	4
26	PRZ10058	End cap ZOR 40	1

9.12. Left end frame



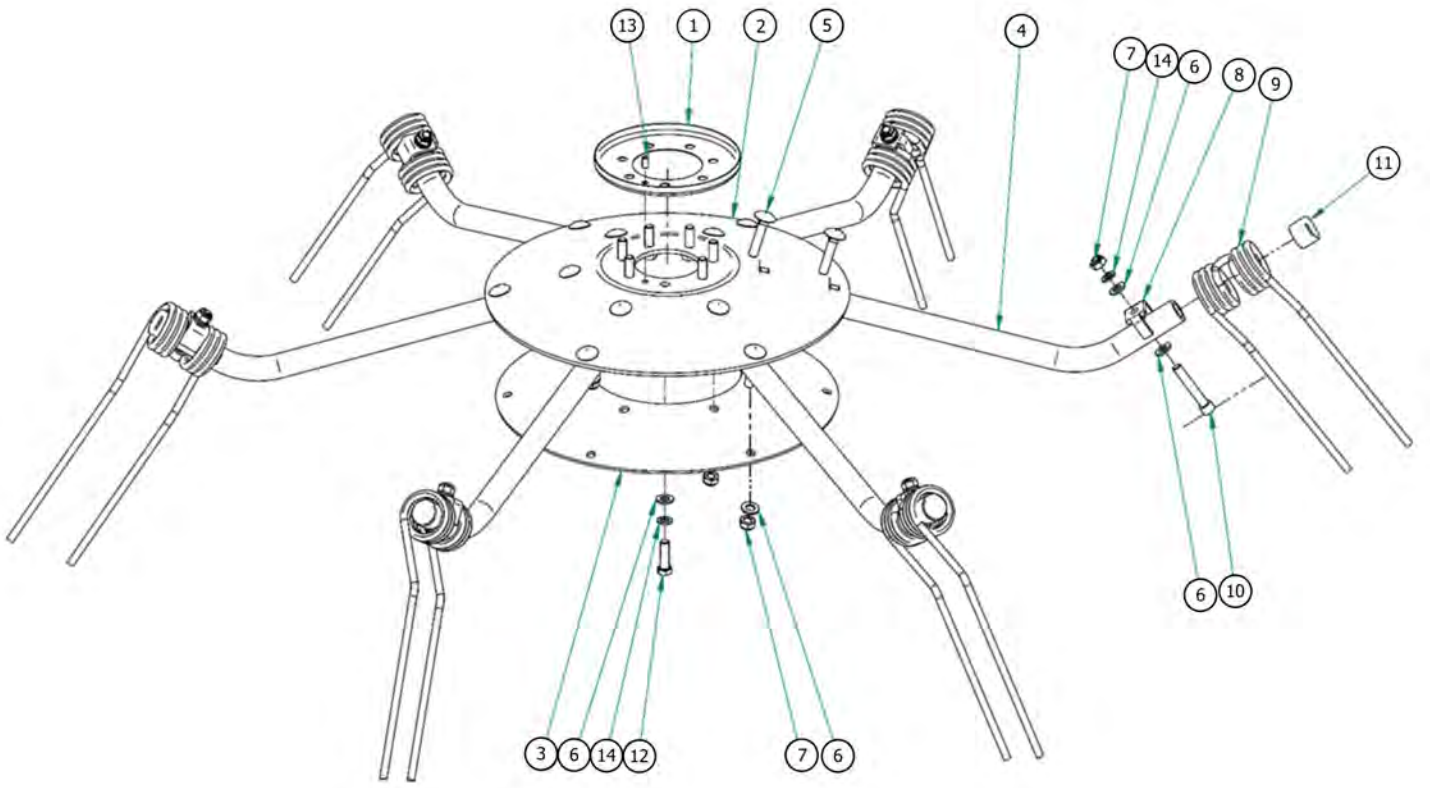
Item	Part #	Description	Qty.
1	PRZ10052	Left end frame	1
2	PR-T216	2:1 side gearbox	1
3	PRZ10023	Wheel alignment pin	1
4	PRZ10040	Sliding washer 50x35x1.5	1
5	PRZ10021	Transmission guard	1
6	PRZ10055	Single joint	1
7	SRE-85	Sealing ring 85W	1
8	B22092RS	Bearing 2209 2RS	1
9	PRZ10056	Single joint bearing support	1
10	SRE-45	Snap ring 45Z	1
11	PR-T415	Slip bushing PAP4020-P20	2
12	PR-T220	Joint guard rubber fastening	1
13	PRZ10043	Actuator coupling pin	1
14	BM0812516	Bolt M8x16 8.8 DIN 933	4
15	LW08	Spring washer M8 DIN 7980	4
16	FW08	Plain washer M8 DIN 125	4
17	BM12175140 PT	Bolt M12x140 8.8 DIN 933	4
18	LW12	Spring washer M12 DIN 7980	8
19	FW12	Plain washer M12 DIN 125	8
20	BM0812525	Bolt M8x30 10.9 DIN 912	1
21	PR-T223	Drive shaft distance	1
22	PRZ10057	Drive shaft - extreme	1
23	FW25	Plain washer M24 DIN 125	5
24	PRZ10034	Spring pin 6x40 DIN 1481 galv.	1
25	BM12175140 PT	Bolt M12x140 8.8 DIN 933	4
26	PRZ10058	End cap ZOR 40	1

9.13. Left working set



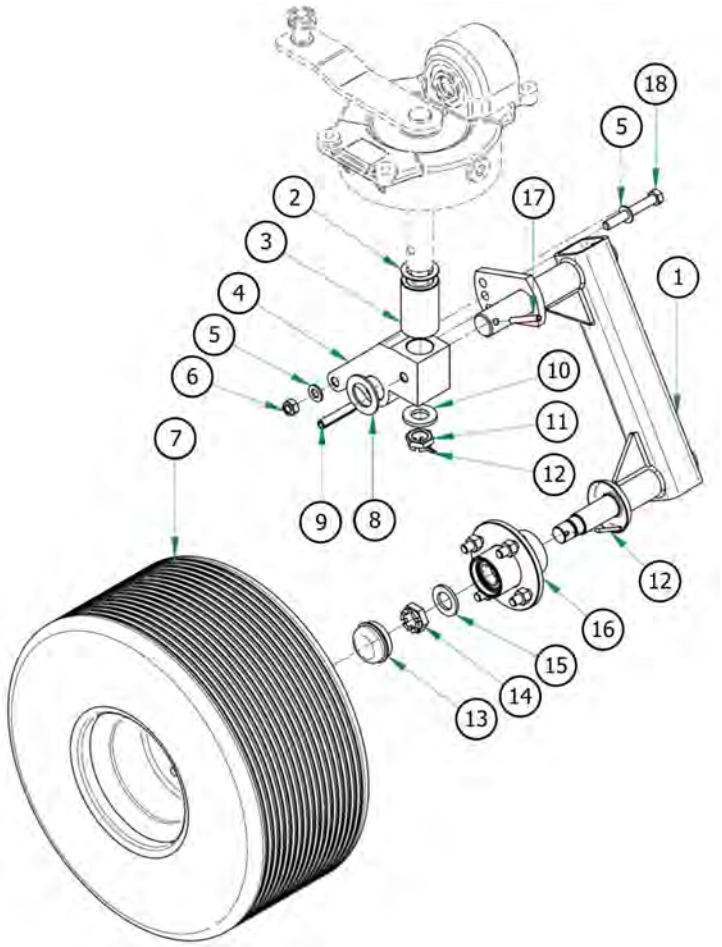
Item	Part #	Description	Qty.
1	PR-T701	Transmission stopper	1
2	PR-T702	Rotor upper plate	1
3	PR-T703	Rotor bottom plate	1
4	PR-T704	Spring tine bow	6
5	CBM1217560	Bolt M12x60 8.8 DIN 603	12
6	FW12	Plain washer M12 DIN 125	31
7	LNM12175	Self locking nut M12 DIN 985	18
8	PR-T708	Working tine fastening	6
9	ABM1217570	Bolt M12x70 12.9 DIN 912	6
10	PR-T710	Spring tine, left	6
11	PR-T309	Pipe cover 1"	6
12	LW12	Spring washer M12 DIN 7980	13
13	PR-T713	Hardened fixing pin h6 8x16	1
14	BM1217540	Bolt M12x40 8.8 DIN 933	7

9.14. Right working set



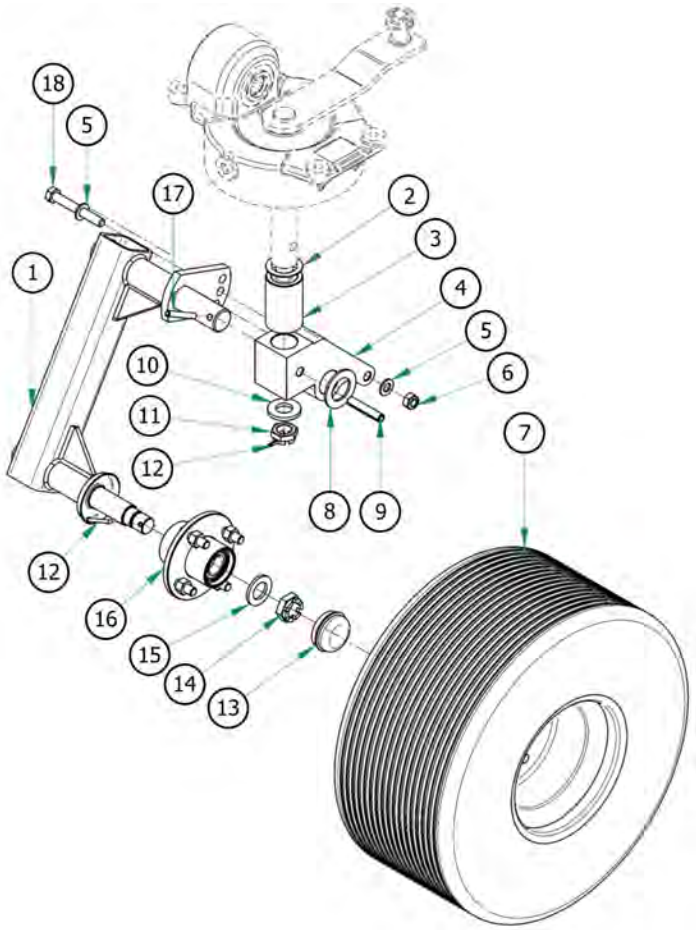
Item	Part #	Description	Qty.
1	PR-T701	Transmission stopper	1
2	PR-T702	Rotor upper plate	1
3	PR-T703	Rotor bottom plate	1
4	PR-T704	Spring tine bow	6
5	CBM1217560	Bolt M12x60 8.8 DIN 603	12
6	FW12	Plain washer M12 DIN 125	31
7	LNM12175	Self locking nut M12 DIN 985	18
8	PR-T708	Working tine fastening	6
9	PR-T809	Spring tine, right (yellow)	6
10	ABM1217570	Bolt M12x70 12.9 DIN 912	6
11	PR-T309	Pipe cover 1"	6
12	BM1217540	Bolt M12x40 8.8 DIN 933	7
13	PR-T713	Hardened fixing pin h6 8x16	1
14	LW12	Spring washer M12 DIN 7980	13

9.15. Left wheelset



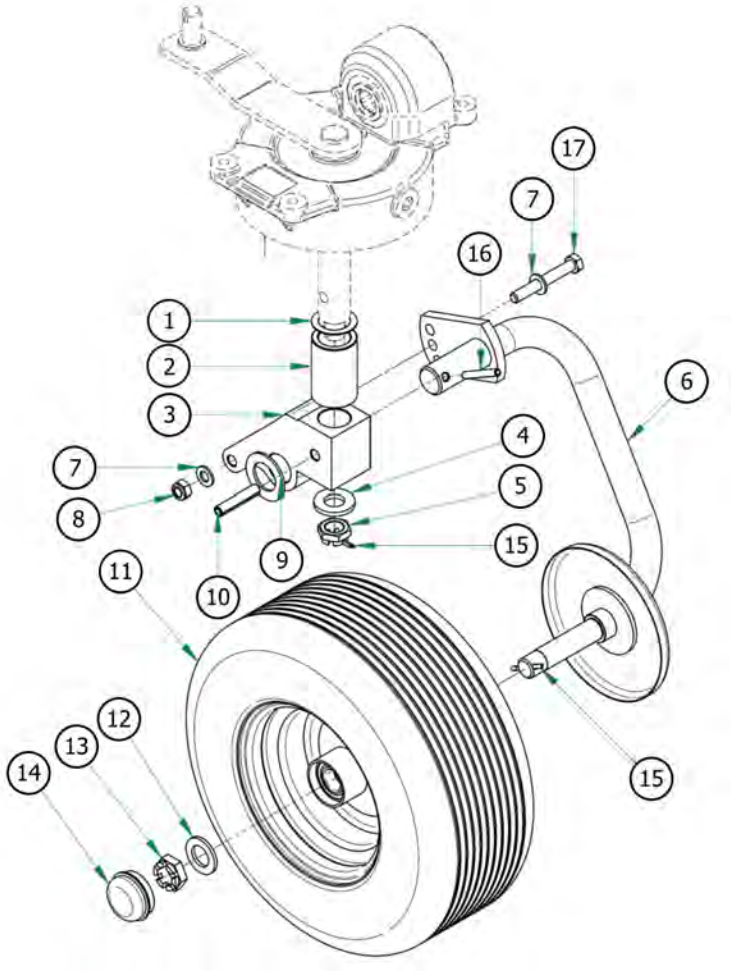
Item	Part #	Description	Qty.
1	PRZ10059	Wheel chock - left	1
2	PRZ10020	Sliding washer 50x35x1.5	1
3	PRZ10061	Wheel arch spacer	1
4	PRZ10062	Wheel bow fastening	1
5	FW12	Plain washer M12 DIN 125	2
6	LNM12175	Self locking nut M12 DIN 985	1
7	PRZ10063	Wheel 18.5x8.50-8	1
8	PRZ10064	Wheel axle spacer washer	1
9	PR-T908	Spring pin 12x60 DIN 1481 galv.	1
10	PR-T903	Wheel bolt washer	1
11	CNM2215	Crown nut - low M22x1.5 DIN 937	1
12	CP5x40	Linchpin 5*40 GALV DIN 94	2
13	PR-T920	Wheel end cap 52 mm	1
14	CNM2415	Crown nut - low M24x1.5 DIN 937	1
15	FW25	Plain washer M24 DIN 125	1
16	PR-T1021	Wheel hub 4/100/130	1
17	PR-T909	Spring pin 8x60 DIN 1481 galv.	1
18	BM1217590	Bolt M12x90 8.8 DIN 931	1

9.16. Right wheelset



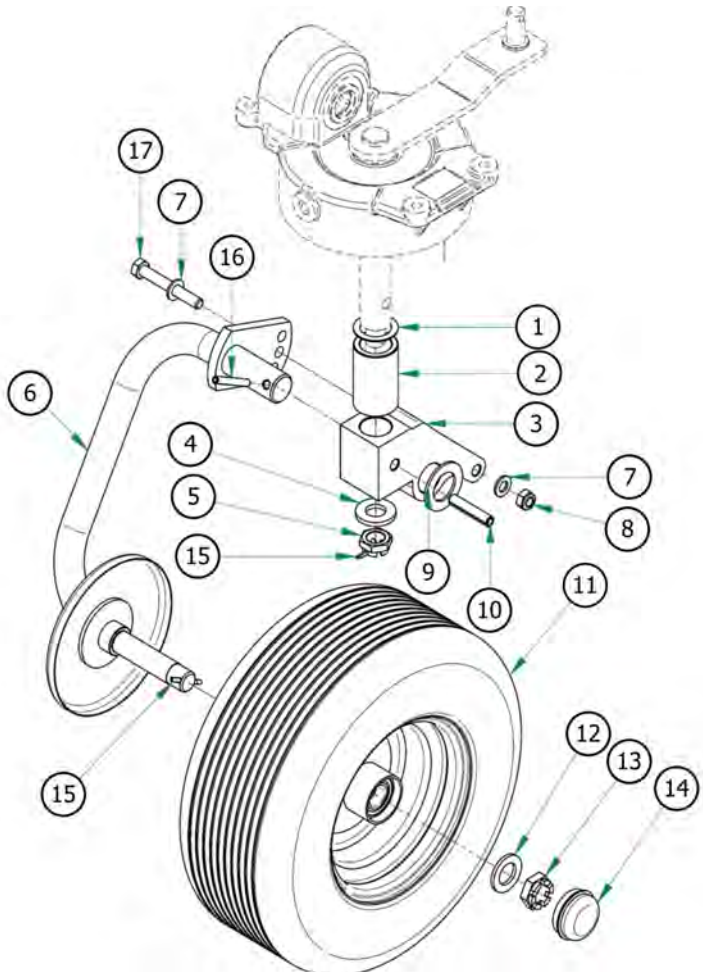
Item	Part #	Description	Qty.
1	PRZ10060	Wheel chock - right	1
2	PRZ10020	Sliding washer 50x35x1.5	1
3	PRZ10061	Wheel arch spacer	1
4	PRZ10062	Wheel bow fastening	1
5	FW12	Plain washer M12 DIN 125	2
6	LNM12175	Self locking nut M12 DIN 985	1
7	PRZ10063	Wheel 18.5x8.50-8	1
8	PRZ10064	Wheel axle spacer washer	1
9	PR-T908	Spring pin 12x60 DIN 1481 galv.	1
10	PR-T903	Wheel bolt washer	1
11	CNM2215	Crown nut - low M22x1.5 DIN 937	1
12	CP5x40	Linchpin 5*40 GALV DIN 94	2
13	PR-T920	Wheel end cap 52 mm	1
14	CNM2415	Crown nut - low M24x1.5 DIN 937	1
15	FW25	Plain washer M24 DIN 125	1
16	PR-T1021	Wheel hub 4/100/130	1
17	PR-T909	Spring pin 8x60 DIN 1481 galv.	1
18	BM1217590	Bolt M12x90 8.8 DIN 931	1

9.17. Extreme left-hand running gear



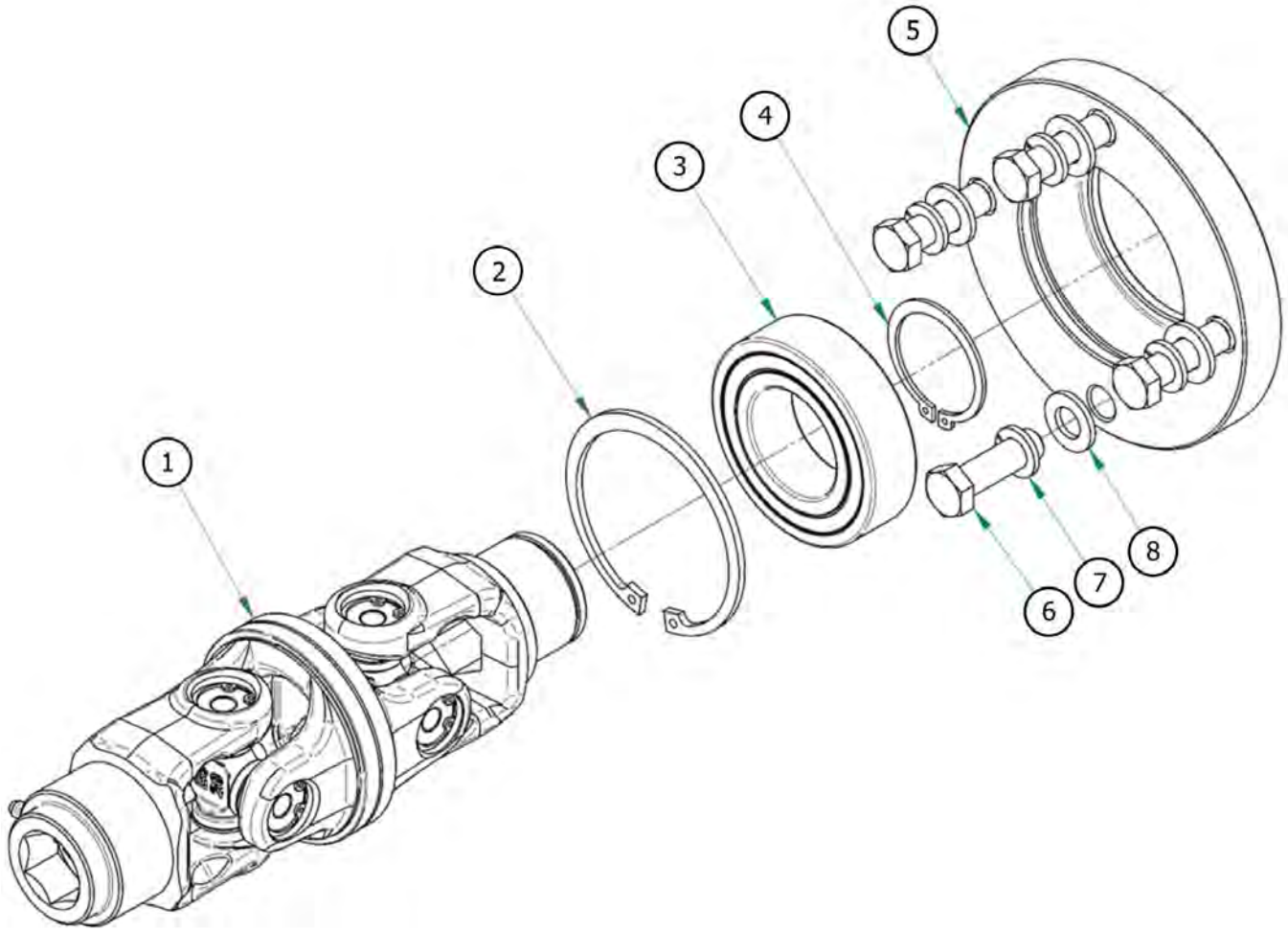
Item	Part #	Description	Qty.
1	PRZ10020	Sliding washer 50x35x1.5	1
2	PRZ10061	Wheel arch spacer	1
3	PRZ10062	Wheel bow fastening	1
4	PR-T903	Wheel bolt washer	1
5	CNM2215	Crown nut - low M22x1.5 DIN 937	1
6	PRZ10065	Wheel side bow - left	1
7	FW12	Plain washer M12 DIN 125	2
8	LNM12175	Self locking nut M12 DIN 985	1
9	PRZ10064	Wheel axle spacer washer	1
10	PR-T908	Spring pin 12x60 DIN 1481 galv.	1
11	PRZ10067	Wheel 16x6.50-8	1
12	FW25	Plain washer M24 DIN 125	1
13	CNM2415	Crown nut - low M24x1.5 DIN 937	1
14	PR-T920	Wheel end cap 52 mm	1
15	CP5x40	Linchpin 5*40 GALV DIN 94	2
16	PR-T909	Spring pin 8x60 DIN 1481 galv.	1
17	BM1217590	Bolt M12x90 8.8 DIN 931	1

9.18. Extreme right-handed running gear



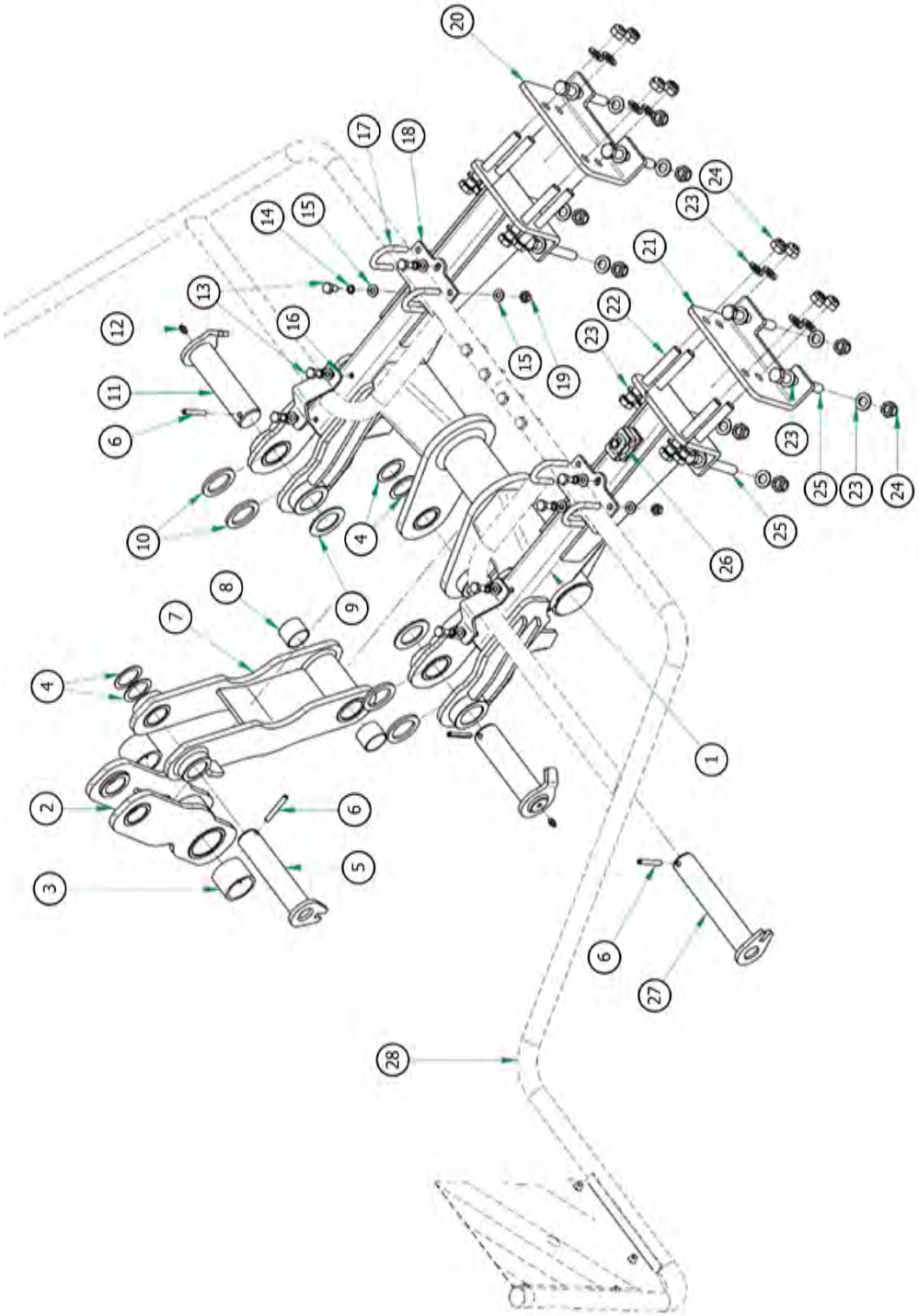
Item	Part #	Description	Qty.
1	PRZ10020	Sliding washer 50x35x1.5	1
2	PRZ10061	Wheel arch spacer	1
3	PRZ10062	Wheel bow fastening	1
4	PR-T903	Wheel bolt washer	1
5	CNM2215	Crown nut - low M22x1.5 DIN 937	1
6	PRZ10066	Right side wheel centre	1
7	FW12	Plain washer M12 DIN 125	2
8	LNM12175	Self locking nut M12 DIN 985	1
9	PRZ10064	Wheel axle spacer washer	1
10	PR-T908	Spring pin 12x60 DIN 1481 galv.	1
11	PRZ10067	Wheel 16x6.50-8	1
12	FW25	Plain washer M24 DIN 125	1
13	CNM2415	Crown nut - low M24x1.5 DIN 937	1
14	PR-T920	Wheel end cap 52 mm	1
15	CP5x40	Linchpin 5*40 GALV DIN 94	2
16	PR-T909	Spring pin 8x60 DIN 1481 galv.	1
17	BM1217590	Bolt M12x90 8.8 DIN 931	1

9.19. Double joint set



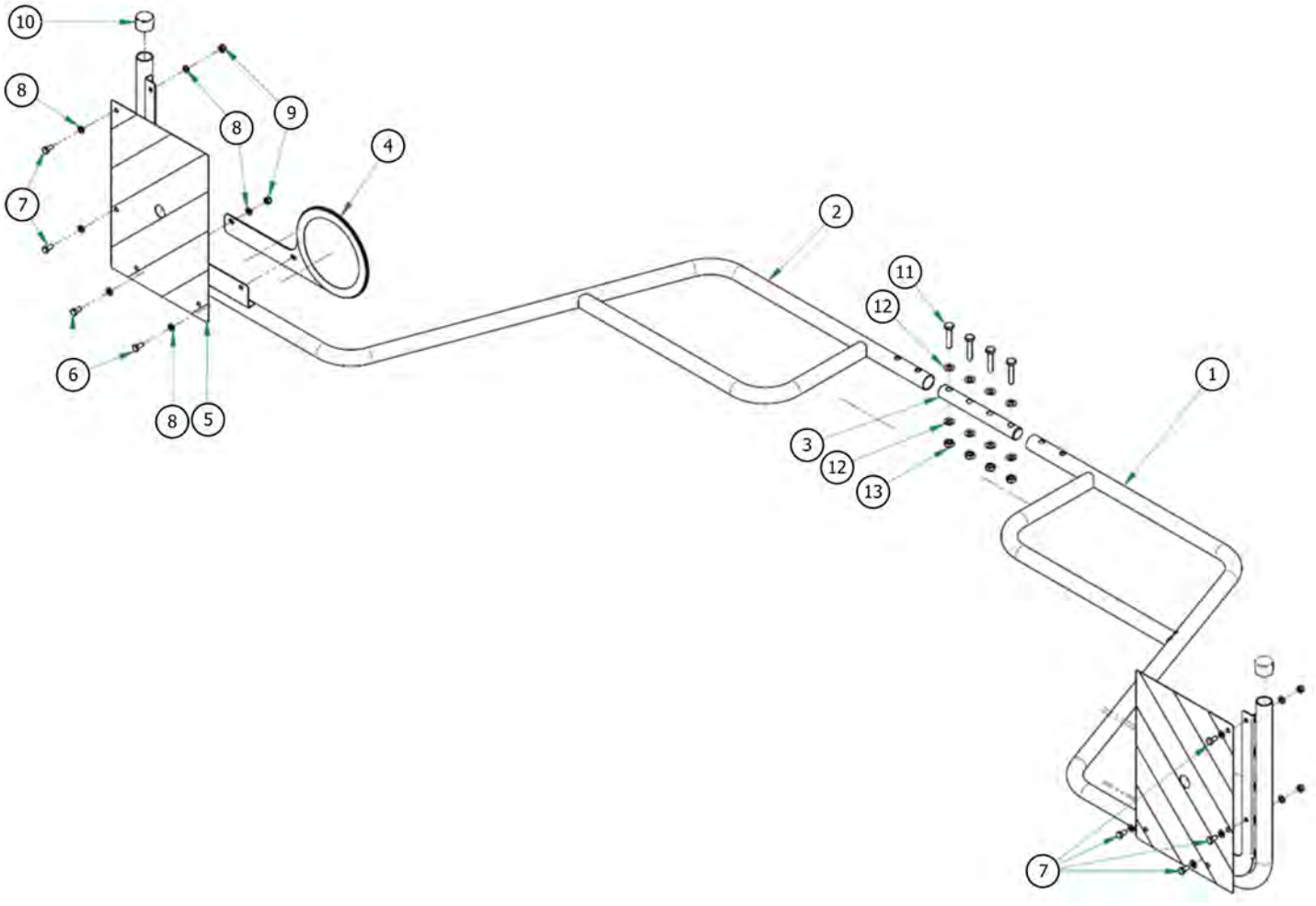
Item	Part #	Description	Qty.
1	PR-T405	Double joint	1
2	SRE-85	Sealing ring 85W	1
3	B22092RS	Bearing 2209 2RS	1
4	SRE-45	Snap ring 45Z	1
5	PR-T403	Joint support	1
6	BM1217540	Bolt M12x40 8.8 DIN 933	4
7	LW12	Spring washer M12 DIN 7980	4
8	FW12	Plain washer M12 DIN 125	4

9.20. Connecting frame for transport axle set



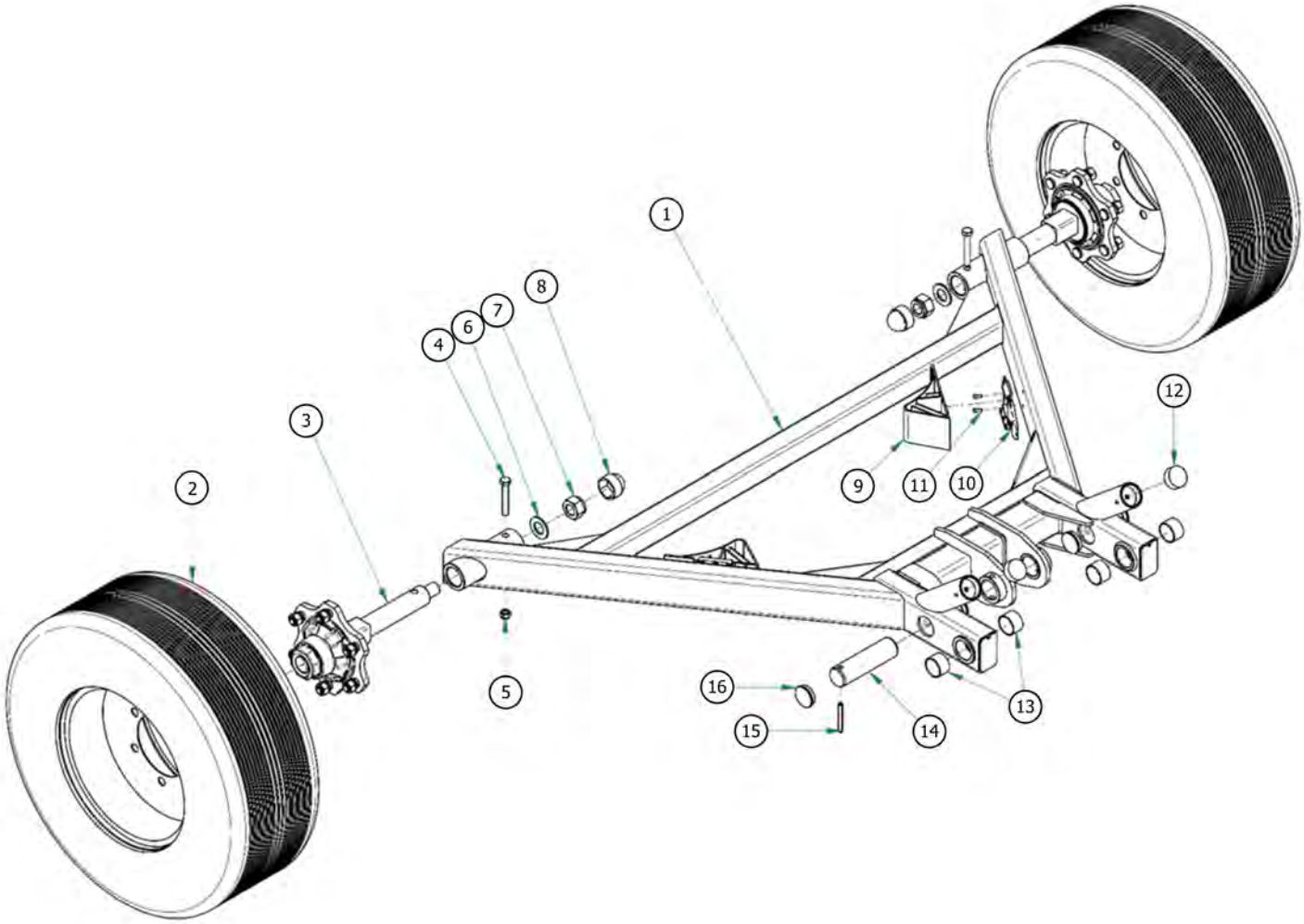
Item	Part #	Description	Qty.
1	PRZ10068	Connecting frame for transport axle	1
2	PRZ10069	Transport axle pivot link - narrower	1
3	PRZ10070	Hardened steel bushing	2
4	PR-T413	Joint bolt washer	4
5	PRZ10072	Axle-cylinder connection pin	1
6	PR-T909	Spring pin 8x60 DIN 1481 galv.	4
7	PRZ10073	Transport axle pivot link - wider	1
8	PRZ10074	Slip bushing PAP4030 P10	2
9	PRZ10075	Washer 70x45x3	2
10	PRZ10076	Washer 65x45x5	4
11	PRZ10077	Transport axle pin	2
12	GN081S	Grease nipple M8*1 DIN 71412-A	4
13	BM101520	Bolt M10x20 8.8 DIN 933	8
14	LW10	Spring washer M10 DIN 7980	8
15	FW10	Plain washer M10 DIN 125	8
16	PRZ10078	Rear rail clamp	2
17	PR-T314	Cable ties M10*35 TYPE B	4
18	PRZ10165	Rear rail fastening clips	2
19	LNM1015	Self locking nut M10 DIN 985	8
20	PRZ10079	Frame mounting plate - left	1
21	PRZ10080	Frame fastening plate - right	1
22	BM1620130	Bolt M16x130 8.8 DIN 931	8
23	LNM1620	Plain washer M16 DIN 125	32
24	PR-T428	Self locking nut M16 DIN 985	16
25	BM1620140	Bolt M16x140 8.8 DIN 931	8
26	PR-T443	Clamp 2x15 mm set	1
27	PRZ10081	Wider axle link pin	1
28		Rear barrier set	1

9.21. Rear barrier set



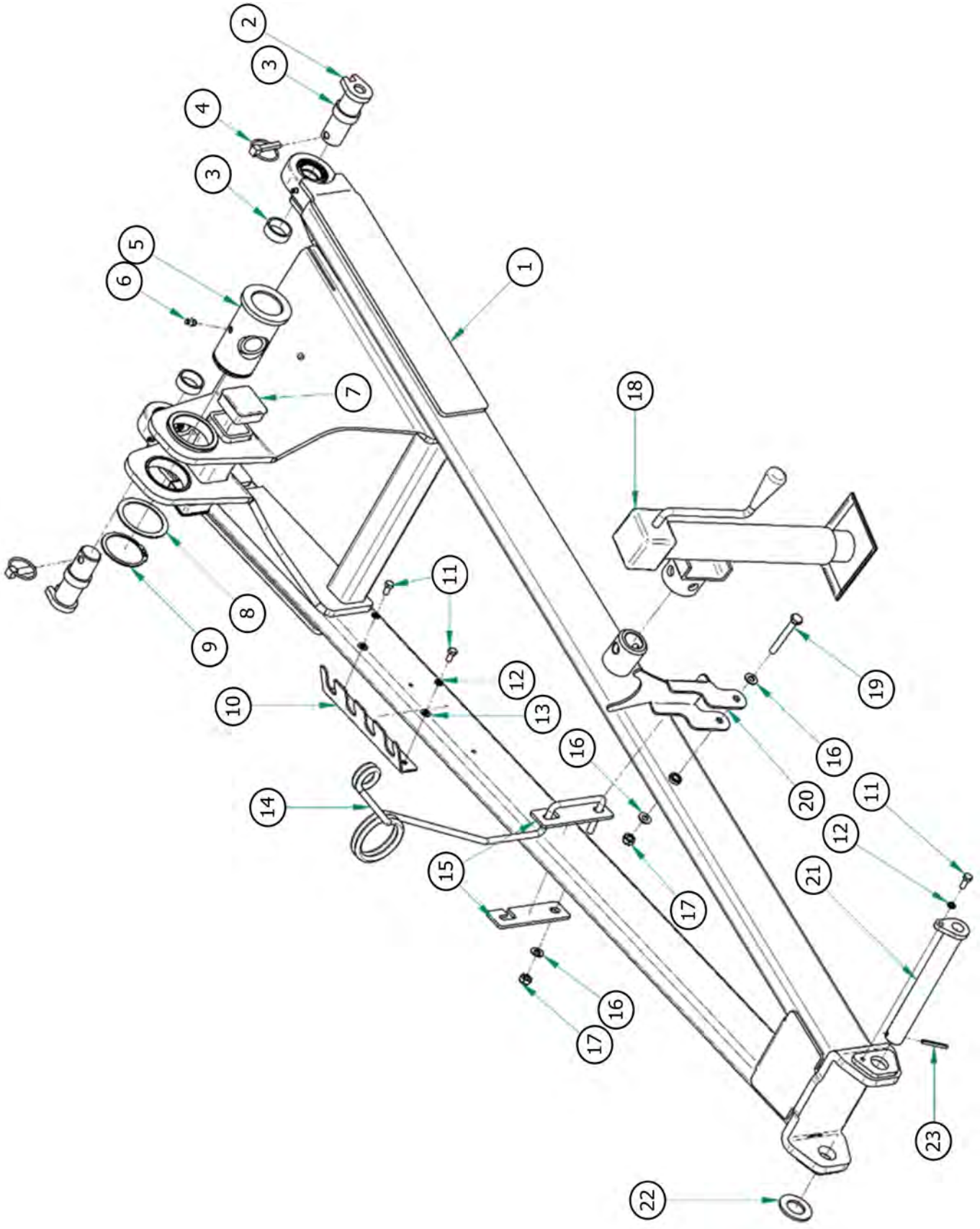
Item	Part #	Description	Qty.
1	PRZ10082	Right rear barrier	1
2	PRZ10083	Left rear barrier	1
3	PRZ10084	Connecting rod for rear railings	1
4	PRZ10085	Restriction sign fixing	1
5	PRZ10086	White/red board 282X423 double-sided DIN 30710	2
6	BM0812525	Bolt M8x25 8.8 DIN 933	2
7	BM0812516	Bolt M8x16 8.8 DIN 933	6
8	FW08	Plain washer M8 DIN 125	16
9	LNM08125	Self locking nut M8 DIN 985	8
10	PR-T309	Pipe cover 1"	2
11	BM101550PT	Bolt M10x50 8.8 DIN 931	4
12	FW10	Plain washer M10 DIN 125	8
13	LNM1015	Self locking nut M10 DIN 985	4

9.22. Transport axle set



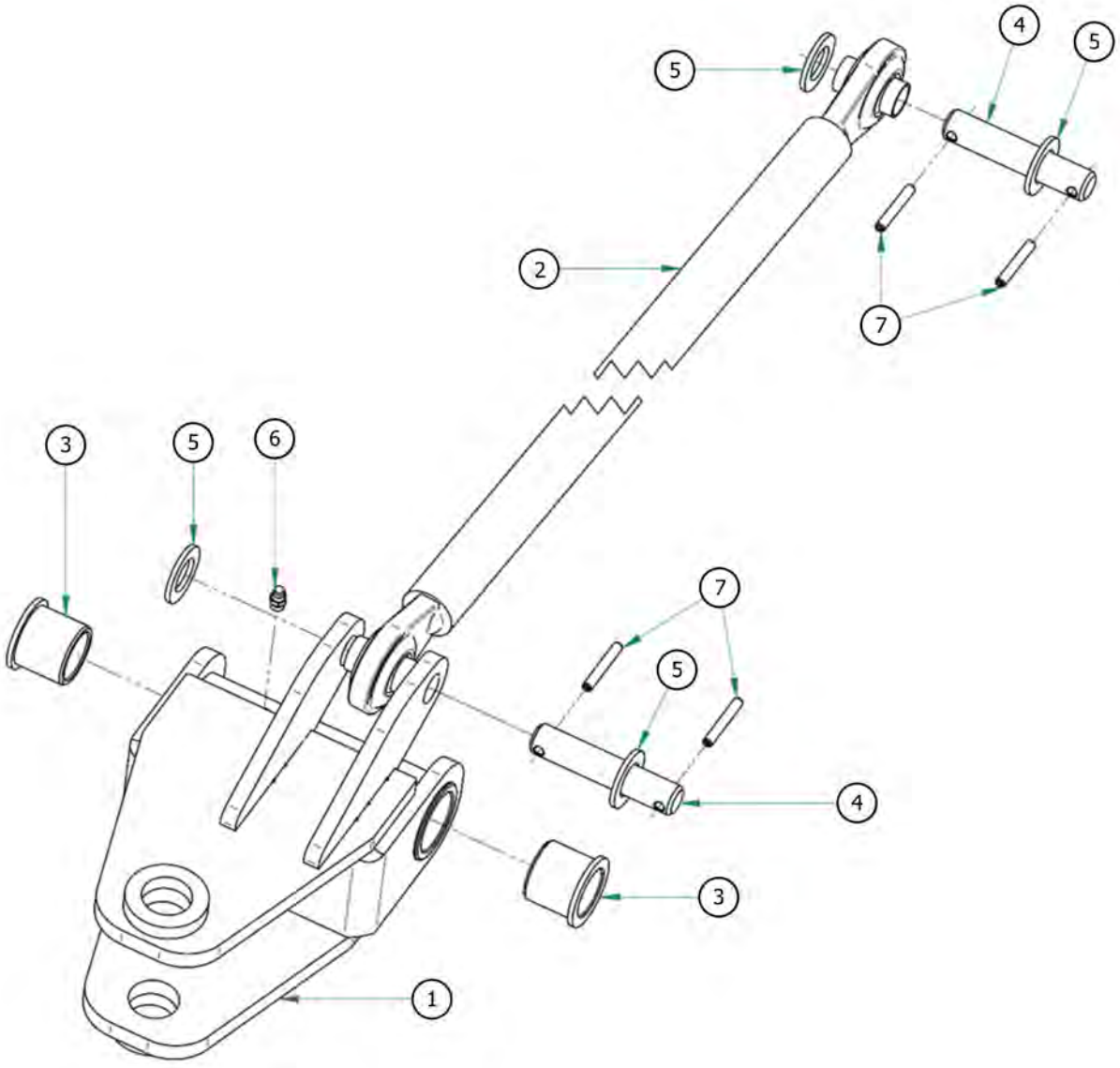
Item	Part #	Description	Qty.
1	PRZ10087	Transport axle	1
2	PRZ10088	Complete wheel 260/75-15.3 (10PR)	2
3	PRZ10089	Transport wheel half-shaft	2
4	BM142090	BOLT M14x90 10.9 DIN 931	2
5	LNM1420	Self locking nut M14 DIN 985	2
6	FW30	Plain washer M30 DIN 125	2
7	LNM302	Self locking nut M30x2 DIN 985	2
8	PRZ10090	Nut cover M30	2
9	PRZ10091	Brake wedge	2
10	PRZ10092	Braking wedge handle	2
11	PRZ10093	Bolt M6x12 8.8 ISO 7380	4
12	PR-T215	Rubber bumper	2
13	PRZ10094	Slip bushing PAP4530 P10	4
14	PRZ10095	Transport axle link pin	1
15	PRZ10096	Spring pin 10x80 DIN 1481 galv.	1
16	PRZ10097	Lens cap 55	4

9.23. Hitching frame set



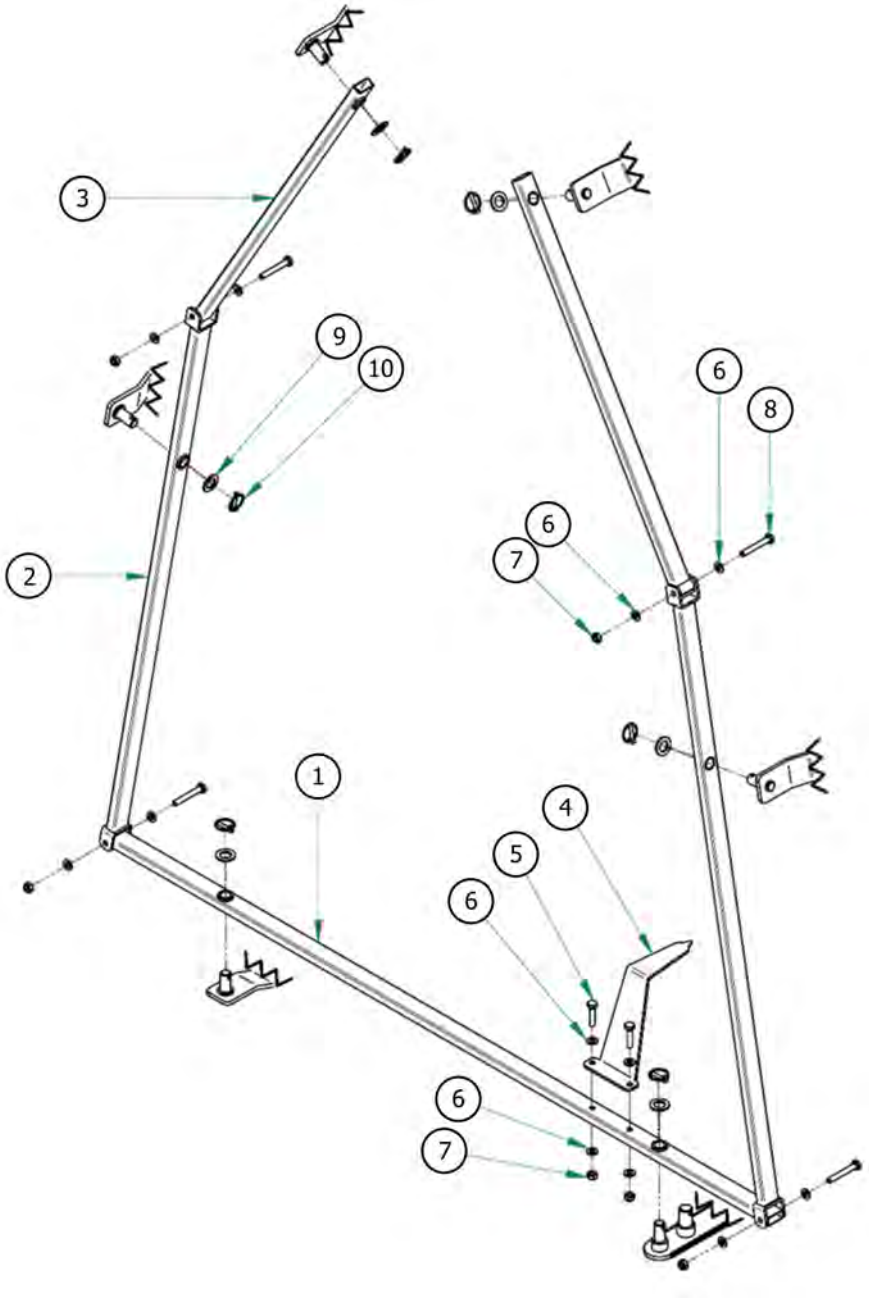
Item	Part #	Description	Qty.
1	PRZ10098	Hitching frame	1
2	PRZ10099	Hitching frame pin	2
3	PRZ10100	Hitch pin spacer	4
4	PR-T435	LP10KR universal plug	2
5	PRZ10101	Hitch actuator f	1
6	GN101S	Grease nipple M10x1 DIN 71412-A	1
7	PRZ10102	Cap 60x60	2
8	PRZ10103	Washer 88x70x2	1
9	PRZ10104	Snap ring 70Z	1
10	PRZ10105	Fastening the cables	1
11	BM0812516	Bolt M8x16 8.8 DIN 933	3
12	LW08	Spring washer M8 DIN 7980	3
13	FW08	Plain washer M8 DIN 125	2
14	PRZ10106	Cable grommet	1
15	PRZ10107	Cable grommet attachment	2
16	FW10	Plain washer M10 DIN 125	3
17	LNM1015	Self locking nut M10 DIN 985	2
18	PRZ10108	Support foot LT-3153	1
19	PRZ10109	Bolt M10x80 8.8 DIN 931	1
20	PRZ10110	PTO shaft support	1
21	PRZ10111	Hitch bolt	1
22	FW30	Plain washer M30 DIN 125	1
23	TW18166	Spring pin 6x45 DIN 1481	1

9.24. Hitch, complete



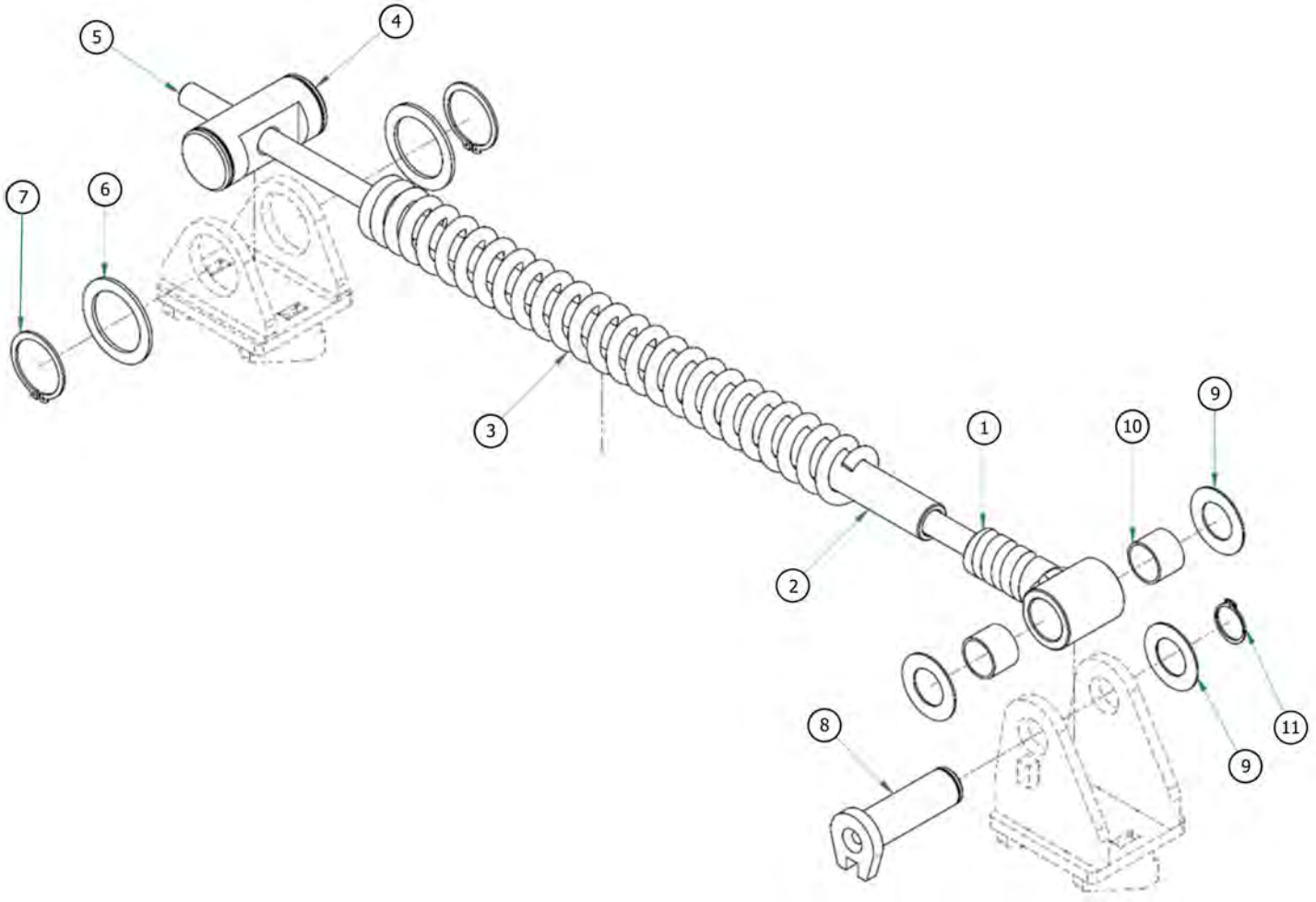
Item	Part #	Description	Qty.
1	PRZ10113	Hitch	1
2	PRZ10114	Hitch adjustment switch	1
3	PRZ10115	Brass joint bushing	2
4	PRZ10116	Control arm pin	2
5	FW20	Plain washer M20 DIN 125	4
6	GN081S	Grease nipple M8*1 DIN 71412-A	1
7	RP-06x40	Spring pin 6x40 DIN 1481 galv.	4

9.25. Wheel control arms set



Item	Part #	Description	Qty.
1	PRZ10117	Wheel control arm - centre	1
2	PRZ10118	Wheel control arm - lateral	1
3	PRZ10119	Wheel control arm - extreme	1
4	PRZ10120	Wheel position sheet	1
5	BM101540	Bolt M10x40 8.8 DIN 931	2
6	FW10	Plain washer M10 DIN 125	12
7	LNM1015	Self locking nut M10 DIN 985	6
8	BM101570PT	Bolt M10x70 8.8 DIN 931	4
9	FW20	Plain washer M20 DIN 125	6
10	CP6x32	Cotter pin 6x32	6

9.26. Side spring

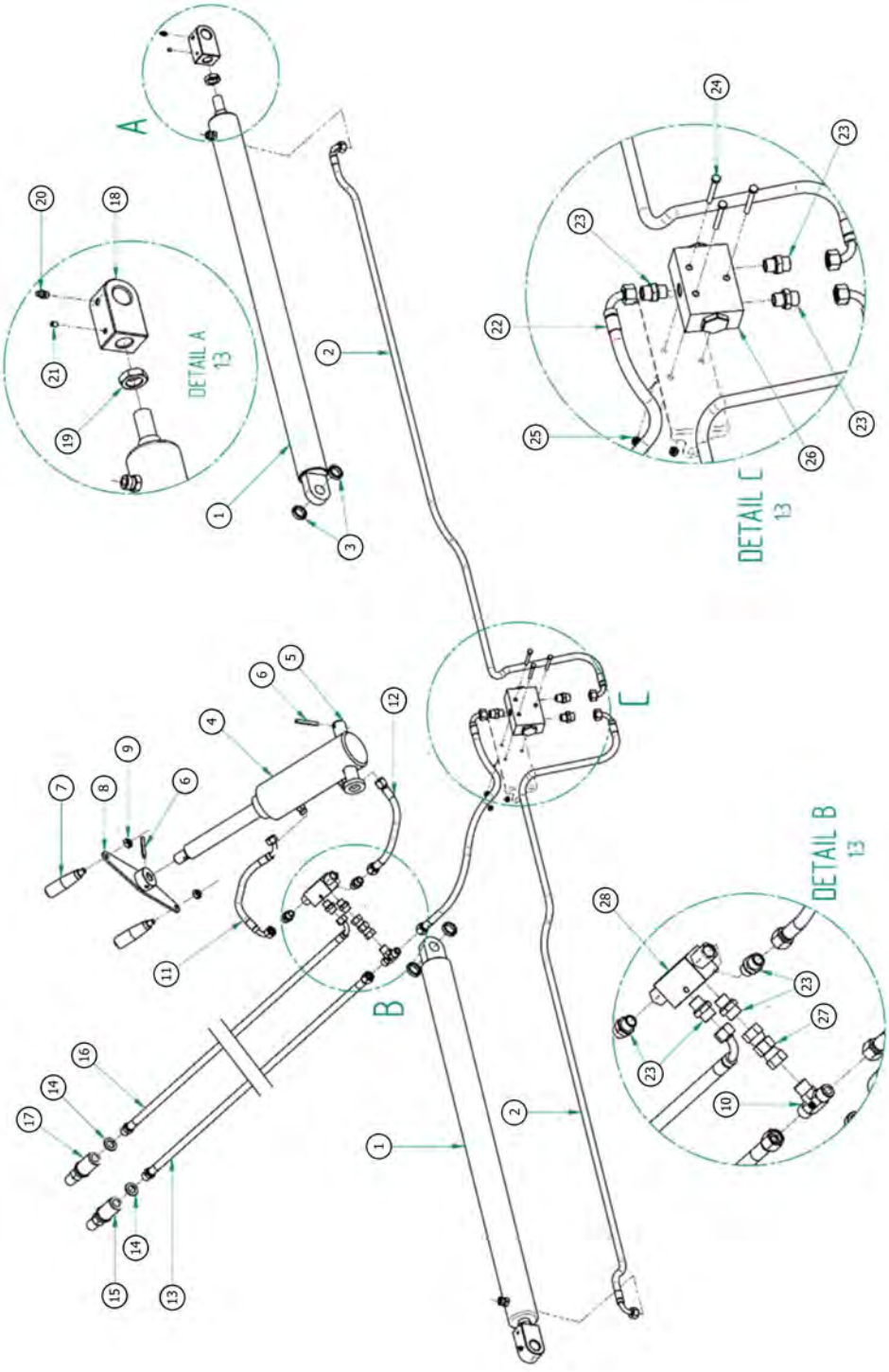


Item	Part #	Description	Qty.
1	PRZ10121	Arm spring attachment	1
2	PRZ10122	Spring inner sleeve	1
3	PRZ10123	Compression spring GALV.	1
4	PRZ10124	Spring rod guide pin	1
5	PRZ10125	Spring guide rod	1
6	PRZ10126	Washer 70x50x3	2
7	PRZ10127	Snap ring 50Z	2
8	PRZ10128	Spring link pin	1
9	PRZ10129	Washer 55x31x1.5	3*
10	PRZ10130	Slip bushing PAP 3025 P10	2
11	SRE-30	Snap ring 30Z	1

* - As required

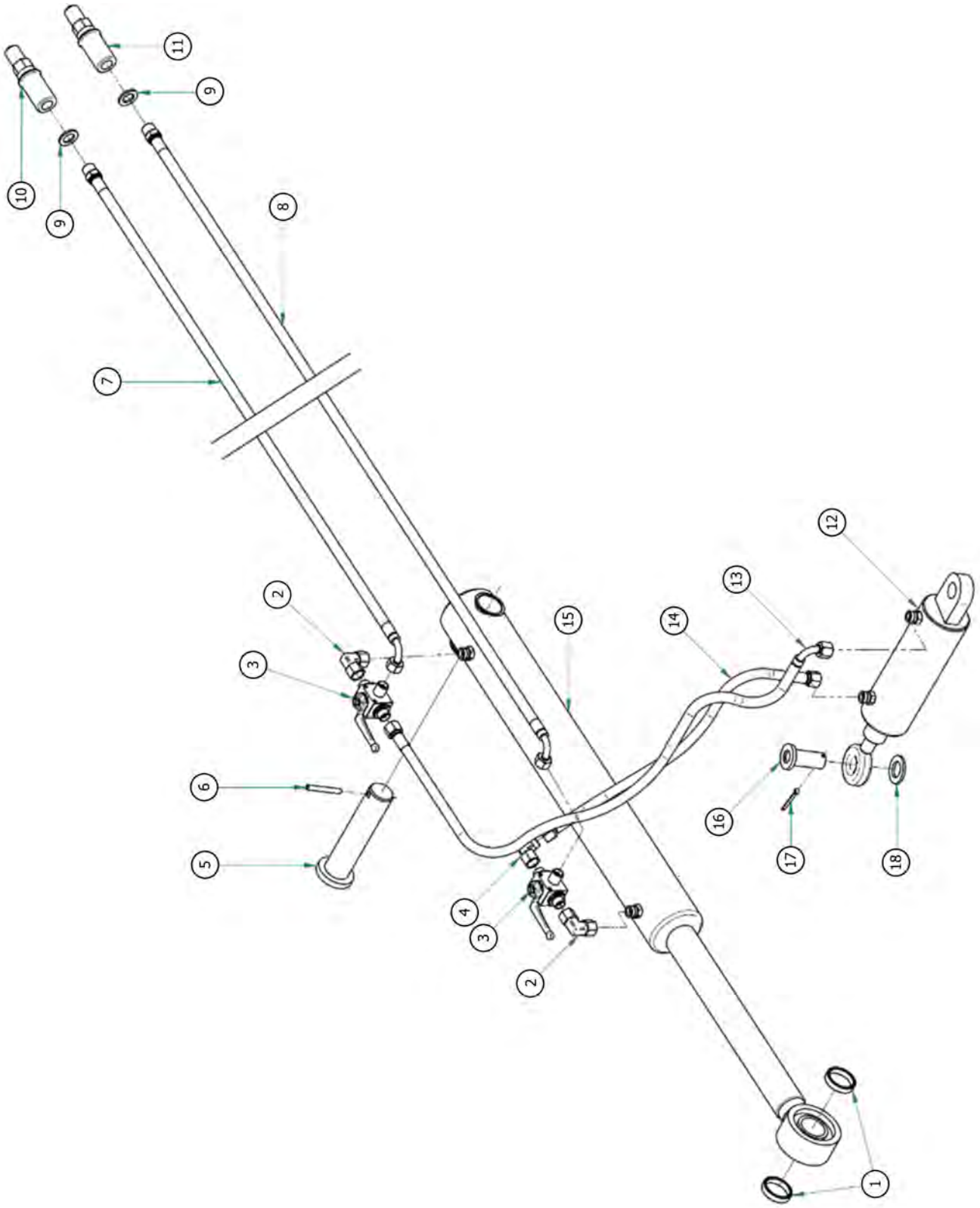
9.27. Hydraulic system set

9.27.1 Section I



Item	Part #	Description	Qty.
1	PRZ10131	Arms actuator	2
2	PRZ10132	Cable P52/P52 M18x1,5 2SN DN8 L-1830	2
3	PRZ10133	Cylinder spacer	4
4	PRZ10134	Hitch actuator	1
5	PRZ10135	Hitch actuator pin	1
6	PR-T909	Spring pin 8x60 DIN 1481 galv.	2
7	PR-T1211	Plastic handle M10	2
8	PRZ10136	Hitch actuator knob	1
9	LNM1015	Self locking nut M10 DIN 985	2
10	PR-T1205	Tee fitting B PN-147 M 18*1.5	1
11	PRZ10137	Cable P52/P52 M18*1.5 1SN DN8 L-360	1
12	PRZ10138	Cable P51/P51 M18*1.5 2SN DN8 L-300	1
13	PRZ10139	Cable C21 ½” /P51 M18x1.5 2SN DN10 L-2700	1
14	PRZ10140	Metal-rubber washer ½"	2
15	PRZ10141	“Minus” handle with plug - red ½"	1
16	PRZ10142	Cable C21 ½” /P52 M18x1.5 2SN DN10 L-2700	1
17	PRZ10143	"Plus" handle with plug - red ½"	1
18	PRZ10144	Arm actuator eye	2
19	PRZ10145	Nut M22x1.5 OC low DIN 439	2
20	GN081S	Grease nipple M8*1 DIN 71412-A	2
21	PRZ10146	Set screw M6x8 DIN 913	2
22	PRZ10147	Cable P52/P51 M18*1.5 1SN DN8 l-725	1
23	PR-T1232	Straight connection M18*1.5 3/8”	7
24	BM061050	Bolt M6x50 8.8 DIN 933	3
25	LNM0610	Self locking nut M6 DIN 985	3
26	PRZ10148	Stream divider	1
27	PRZ10149	Straight coupling, AA M18*1.5	1
28	PRZ10150	Check valve - controlled by VBPDE " 3/8”	1

9.27.2 Section II



Item	Part #	Description	Qty.
1	PRZ10151	Axle cylinder spacer	2
2	PRZ10152	Elbow connector AA M18*1.5	2
3	PRZ10153	Ball valve 3/2 M18*1.5	2
4	PR-T1222	Elbow connector AB M18*1.5	1
5	PRZ10154	Transport axle actuator pin	1
6	PR-T909	Spring pin 8 x 60 DIN 1481 galv.	1
7	PRZ10155	Cable C21 ½” /P52 M18x1.5 2SN DN10 L-2900	1
8	PRZ10156	Cable C21 ½” /P52 M18x1.5 2SN DN10 L-3300	1
9	PRZ10140	Metal-rubber washer ½"	1
10	PRZ10157	Minus handle with plug - blue ½"	1
11	PRZ10158	Handle "plus" with plug - blue ½"	1
12	PRZ10159	Torsion actuator	1
13	PRZ10160	Cable P51/P52 M18*1.5 1SN DN8 L-875	1
14	PRZ10161	Cable P51/P51 M18*1.5 1SN DN8 L-590	1
15	PRZ10162	Transport axle cylinder	1
16	PRZ10163	Actuator bottom pin	1
17	CP5x40	Linchpin 5*40 GALV DIN 94	1
18	FW25	Plain washer M24 DIN 125	1

LIMITED WARRANTY

Belco Resources Equipment warrants to the original purchaser of any new piece of machinery from Belco Resources Equipment, purchased from an authorized Belco Resources Equipment dealer, that the equipment be free from defects in material and workmanship for a period of one (1) year for non-commercial, state, and municipalities' use, ninety (90) days for commercial use from date of retail sale. Warranty for rental purposes is thirty (30) days. The obligation of Belco Resources Equipment to the purchaser under this warranty is limited to the repair or replacement of defective parts.

Replacement or repair parts installed in the equipment covered by this limited warranty are warranted for ninety (90) days from the date of purchase of such part or to the expiration of the applicable new equipment warranty period, whichever occurs later. Warranted parts shall be provided at no cost to the user at an authorized Belco Resources Equipment dealer during regular working hours. Belco Resources Equipment reserves the right to inspect any equipment or parts, which are claimed to have been defective in material or workmanship.

This limited warranty does not apply to and excludes wear items such as shear pins, tires, tubes knives, blades or other wear items. Oil or grease is not covered by this warranty.

All obligations of Belco Resources Equipment under this limited warranty shall be terminated if:

Proper service is not performed on the machine.
The machine is modified or altered in any way.
The machine is being used or has been used for purposes other than those for which the machine was intended.

DISCLAIMER OF IMPLIED WARRANTIES & CONSEQUENTIAL DAMAGES

Belco Resources Equipment obligation under this limited warranty, to the extent allowed by law, is in lieu of all warranties, implied or expressed, including implied warranties of merchantability and fitness for a particular purpose and any liability for incidental and consequential damages with respect to the sale or use of the items warranted. Such incidental and consequential damages shall include but not be limited to: transportation charges other than normal freight charges; cost of installation other than cost approved by Belco Resources Equipment; duty; taxes; charges for normal service or adjustment; loss of crops or any other loss of income; rental of substitute equipment, expenses due to loss, damage, detention or delay in the delivery.

REGISTRATION

The online Warranty Registration must be completed in order to qualify for coverage on this Limited Warranty. Visit br-equipment.com, click on "Warranty Registration" and completely fill out the form to register the new piece of equipment.

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