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ORIGINAL USER MANUAL

SPARE PARTS CATALOGUE

WARRANTY

4-rotor tedder TORNADO 550

Edition 05 Borzytuchom 2022

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CAUTION!

Before using the machine, please read thoroughly this User Manual and observe the safety instructions contained herein.

The instruction manual constitutes an inherent part of the machine!

Keep the instruction manual in a safe place, where it should be accessible to the machine operator during an entire lifespan of the machine.

In the event of its loss or damage, the user must acquire a new copy from the machine dealer or manufacturer.

In the event the machine is sold or made available to another user, the instruction manual must be attached with the declaration of conformity for the machine.

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TALEX guarantees the efficient operation of the machine, providing it is being used in accordance with the technical and operating conditions specified in this USER MANUAL.
Any faults revealed during the warranty period will be repaired by the Warranty Service.
Expiration date of the warranty period is specified in the WARRANTY CARD.

Machine parts and components, which are subject to wear in normal operating conditions, are not covered by the warranty, regardless of the warranty period.
Warranty Service covers only instances such as: mechanical damages not caused by a fault of the user, production defects, etc.
The group of elements includes, among others, the following parts/components:

- rotor spring tines.

In the event of damages resulting from:

- mechanical destruction caused by a fault of the user or a traffic accident,
- improper use, adjustment and maintenance, use of the machine for a purpose other than intended,
- use of a machine, that was damaged,
- repairs conducted by unauthorized persons, improper repairs,
- arbitrary changes and modifications of a machine structure,

the user's rights to Warranty Service may become invalid.
The user is obliged to immediately report any noticed damages of paint coat or spots of corrosion, and order repairs regardless whether or not the damages are covered by the Warranty. Warranty conditions are specified in detail in the WARRANTY CARD attached to the purchased machine.

ATTENTION!
You must demand from the dealer to properly fill out the Warranty Card. For example, if the date of sale or the stamp of a dealer are missing, you risk that your complains will not be considered valid.

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Contents

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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-compliance with 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 maintenance operations to be performed.

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

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.

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2. Machine identification

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

Fig. 1 Rating plate

Manufacturer's rating plate includes:

- full name of manufacturer,
- symbol of tedder,
- weight,
- date of manufacture.
- serial number of tedder,
- CE marking,
- quality control mark,

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3. Rules of safe operation

3.1. User safety

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

- In addition to this instruction manual, also observe the general rules of health and safety at work.
- Observe warning symbols placed on the machine.
- It is strictly forbidden, to operate the machine by persons under the influence of alcohol or other intoxicants.
- Never allow the vehicle towing the tedder to be driven by a person other than the shredder 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.). While using the equipment, 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 carry persons or objects on the machine.
- It is forbidden that the machine should be operated by persons who are not familiarized with the instruction manual.
- 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 (14-18cm).
- 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 and warning signs - may be included as an option..

- Adjust the transport speed to the condition of the road. The speed should not exceed 50km/h.
- Do not leave the vehicle with the machine on a hillside or other sloping surfaces, without securing the vehicle from rolling down. 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. For a stable setting of the tedder, use the main support foot and the additional foot in the case of the version with a trailed hitch.
- Exercise caution during the mounting and dismounting of the tedder, and pay particular attention to the structural elements through which the cutter is connected with the vehicle.
- Before using you must check the condition of machine and of the vehicle it is attached to. The vehicle and the tedder unit must be in good technical condition. 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 instruction manual should be kept on the machine. When letting the machine to other user, you must ensure that it is in good mechanical condition, and that the instruction manual is also handed over.
- 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 . 8 Operation and maintenance" and „6.6.5 Tedder tines operation".
- 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, do not place your fingers and limbs between the structural elements 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.
- Operator of the vehicle working with a tedder, must ensure that no person is approaching the machine during its operation.
- 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.
- When turning, reversing or manoeuvring with the machine, you must ensure, that your visibility is adequate, or get 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 avoid the danger coming from the thrown out stones and other objects.
- 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 covers on moving parts.
- The jointed-telescopic shaft has marks indicating, which end must be connected to the tractor, before work please make sure that the direction of rotation of the shaft is correct.

- Never leave the vehicle unattended with the engine 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 unbuttoned, hanging pieces of work clothes during the operation, assembly, disassembly or adjustment. You should keep elements of your clothing away from any machine parts, that are likely to catch them.
- After work it is recommended to clean and wash the machine in the wash fitted with a sewage treatment plant or a settler to neutralize the resulting waste water.
- 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 cabin.

Failure to follow the above rules may be dangerous for the operator and bystanders and can cause damage to the tedder The user is responsible for any damages caused by the non-compliance to the above principles.

When lifting the drawbar hitch, make sure that the additional support foot is always unfolded. Note: There is a risk of the machine tipping backwards if the foot is not folded out.

3.2. Residual risk assessment

Talex company 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.

Due to the nature of work being done by the tedder and, for example, the inability to completely cover the machine's working unit, certain risk factors may occur.

No.	*Hazard*	*Hazard source (cause)*	*Hazard protection 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 footwear, levelled terrain, paying attention, maintaining order, familiarization with the instruction manual
3	Hitting stationary, protruding parts of the machine	Machine and its surroundings	Proper positioning of a machine, safe space to move around, proper organization of work, paying attention, familiarization with the instruction 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 structure elements of the machine, use of hand tools	Personal protective equipment – protective gloves, buttoned up work clothes, paying special attention
6	Transmissions	Power take-off shaft, no guards of movable parts	Elimination of moving around, approaching and regulating machine, which is running, paying special attention, familiarization with the User Manual
7	Weight of the standing machine	Improper mounting, aggregating, wrong setting of the machine, improper operation	Paying special attention, use of personal protective equipment - safety footwear, protective gloves, secure setting of the machine, help of another person, use of lifting jacks, davits, familiarization with the instruction manual
8	Micro climate - variable weather conditions	Work carried out in different weather conditions	Suitable working clothes, beverages, creams with sun screens, proper rest, familiarization with the instruction manual
9	Noise	Too high rotational speed of the machine, damaged, loose, vibrating parts	Work only with the machine in good mechanical condition, regular inspections, proper rotational speed, familiarization with the instruction manual

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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 instruction manual Observe the warnings on the machine

Table 1 Residual risk assessment

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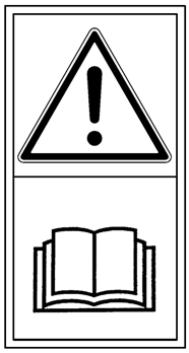
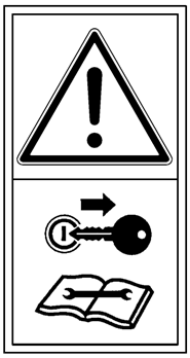
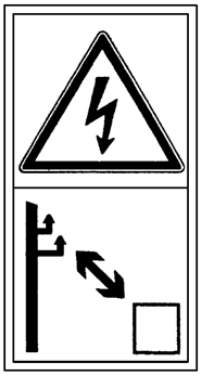
3.3. Safety signs on the machine

 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 - Caution: Danger of seizing by the rotating rotor	 1.6 Do not touch machine elements until all its assemblies stop
 1.7 - Keep a safe distance from power lines	 1.8 - Do not stay in the zone of the area taken up by the folding side arm	 1.9 - Avoid impact of liquids flowing under pressure. Read the User Manual and learn about the operation procedures

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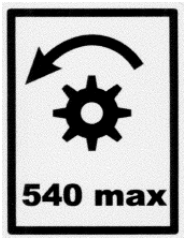
 1.10 - Pulling elements	 1.11 - Before entering the hazard zone, turn on the safety block	 1.12 - Place of machine seizing during transport
 1.13 Do not exceed the maximum rpm	 1.14 - Maximum tyre pressure symbol	 1.15 - Grease nipple symbol denoting the solid lubrication point
 1.16 – Warning message about pressure in the hydraulic system	 1.17 – Use protective suit	 1.18 – Use protective gloves
 1.19 – Use protective suit	 1.20 – Use hearing protectors	 1.21 – Use protection goggles

Table 2 Safety signs on the machine

4. Intended use of the machine

The 4-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 has 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 rules of safety and hygiene, as well as traffic regulations must always be observed.

Unauthorised 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 –2pc.,

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

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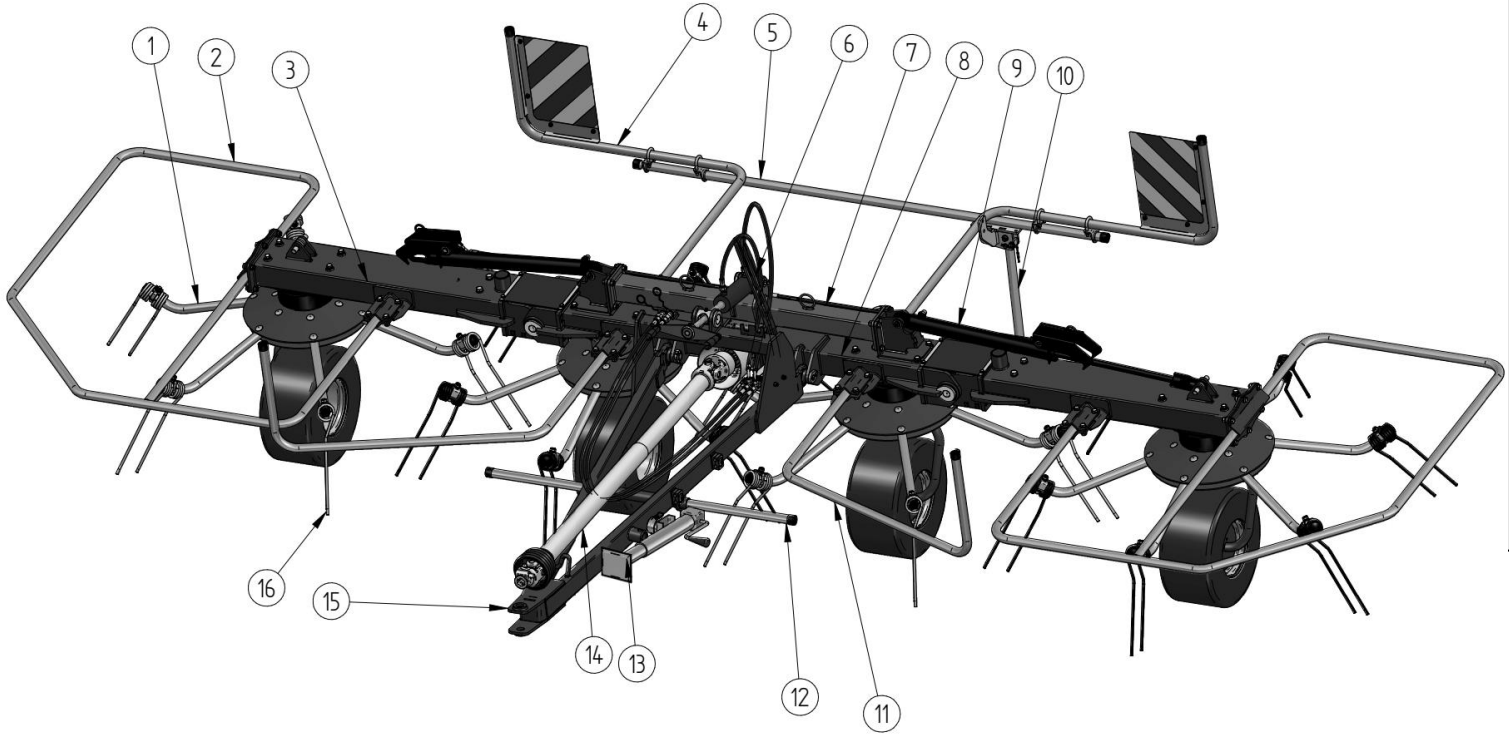
5.2. Technical specification

The general construction of the trailed version tedder is shown in the figure below.



1 – Main working unit
2 - Side rail
3 - Side frame
4 - Rear barrier
5 - Rear rails connector
6 - Hitch actuator
7 – Beam joint
8 - Center frame
9 - Side frame cylinder
10 - Additional support foot
11 - Front barrier
12 - Straight barrier
13 - Main support foot
14 - PTO shaft
15 – Hitch
16 - Spring tine

Fig. 2. General structure of the tedder

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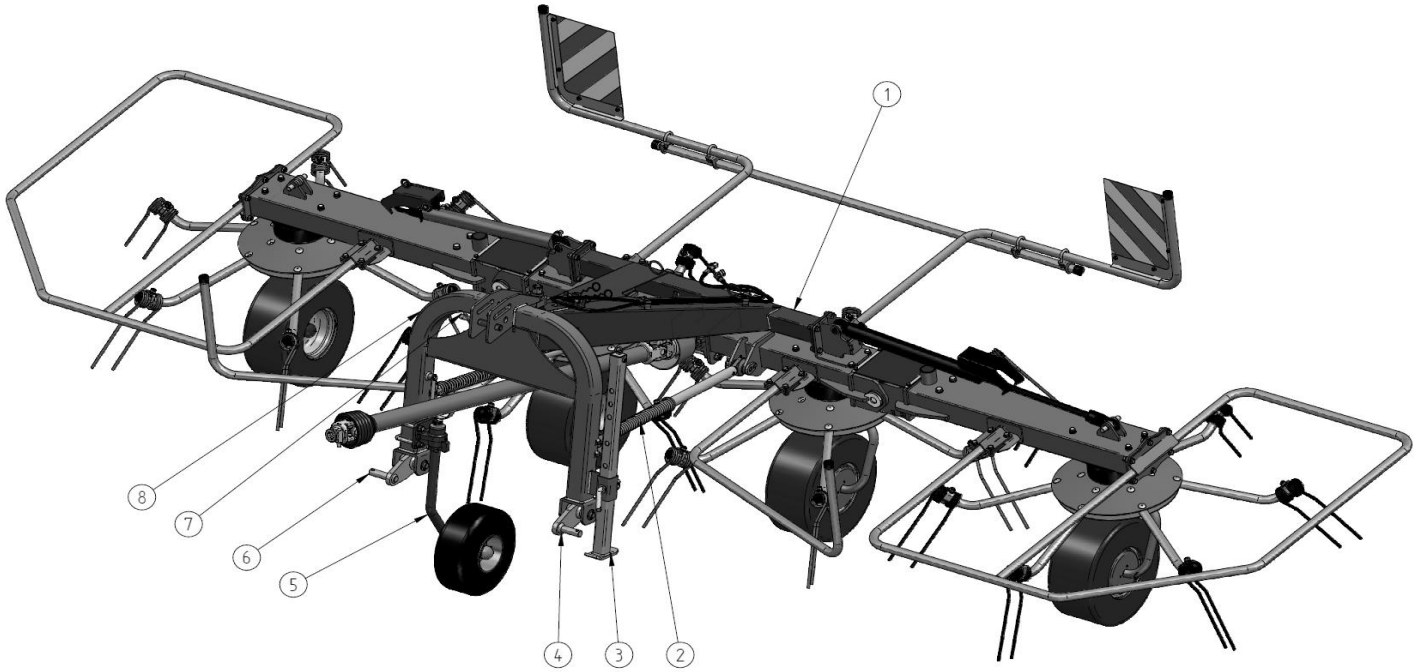
The general construction of the mounted version tedder is shown in the figure below.



1 – Hitch
2 – Control link arm
3 – Support foot
4 – Lower left link
5 – Support wheel
6 – Lower right link
7 – Upper suspension pin
8 – Main hitch

Fig. 3 General stricter of the tedder, mounted version

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Technical-operational data are provided in Table 32763.

No	Description	Unit of Measure	Version	
			trailed	mounted
1	Overall length in transport position	[mm]	3200	~ 2650
2	Overall length in working position	[mm]	3160	~ 2650
3	Transport width	[mm]	max. 3000	
4	Working width	[mm]	5900	
5	Rotors working width	[mm]	5500	
6	Height in transport position	[mm]	2860	~ 3100
7	Power demand	[HP]	min. 35	min. 50
8	PTO shaft speed	[RPM]	540	
9	Rotor speed	[RPM]	150	
10	Hitch category – trailed	-	Standard agri hook	
	Three-point linkage category		Cat. II	
11	Weight	[kg]	723	800
12	Number of rotors	[pcs]	4	
13	Number of rotor arms	[pcs]	6	
14	Working efficiency	[ha/h]	5,5	
15	Working speed	[km/h]	10	
16	Oil type in main gearbox	-	SAE.90EP	
17	Grease type in side gearboxes	-	SHELL ALVANIA EP NLGI 0	
18	Oil volume in main gearbox	[dm^3]	1,2	
19	Grease volume in side gearboxes	[kg]	0,2	
20	Required hydraulic sockets in the tractor	[pcs]	2	
21	Nominal pressure of the hydraulic system	[MPa]	16	
22	Noise level	[dB]	<75	
23	Number of wheels	[pcs]	4	
24	Tire size	-	18x8.50-8	
25	Tire pressure	[bar]	2,8	
26	Power Take-Off shaft	-	460Nm L-1600 with M34 ratchet clutch	

Table 3 Tedder technical and operation data

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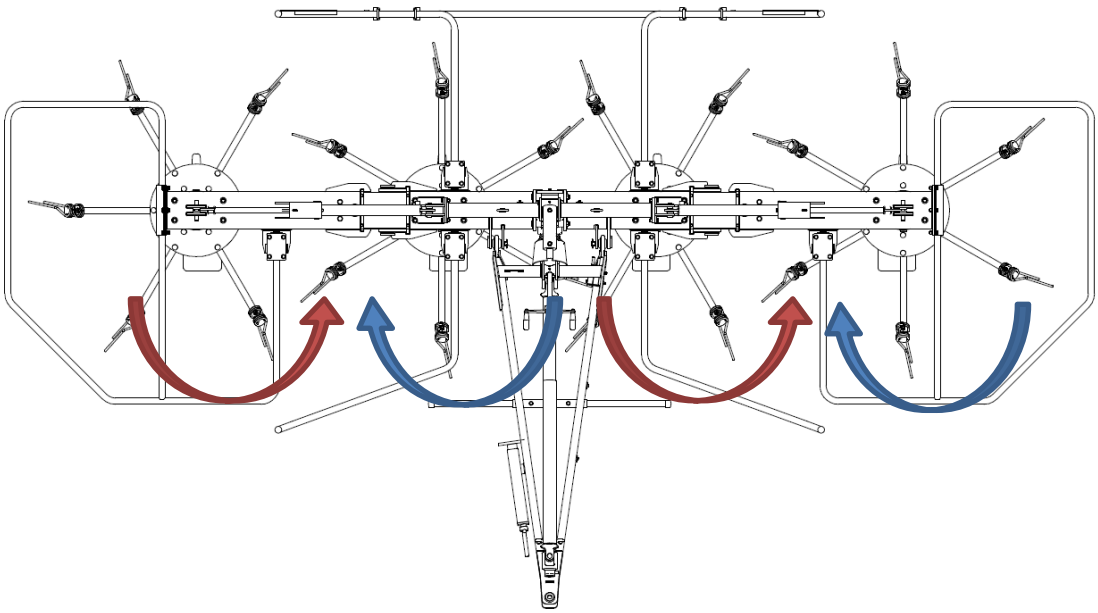
5.3. Principle of operation

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 help of the power take-off shaft. Next, the drive is transferred onto the side gears (4pcs.), which ensure rotational movement of the rotors. The rotor equipped with spring tines constitute a machine working assembly. Furthermore, the machine is equipped with protective barriers and two warning plates.

The folding of side arms for transport is done through the operation of 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.



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6. Using the machine

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 tight,
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 the section " 0Machine 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.

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6.1. Tedder assembly

If the machine has been delivered to the customer in the transport box, as shown on picture no 4, the user should mount it acc. to the assembly instruction.

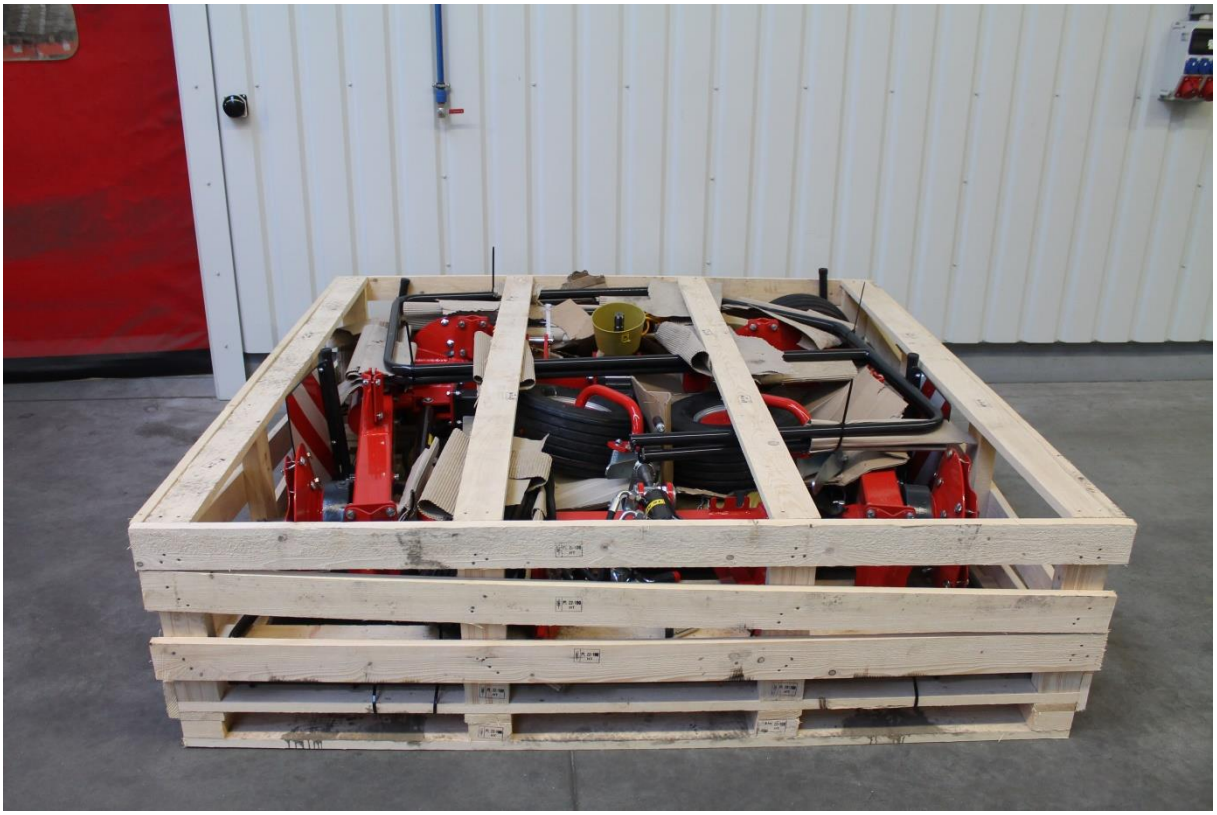

Fig. 5 Tedder in the transportation box

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6.2. Connecting the tedder to a tractor

The tedder can be aggregated with the tractor of power not higher than 35hpm, 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 attach the tedder:

A) TRAILED VERSION

- drive up to the tedder,
- on the reverse gear, slowly reverse to the drawbar hitch paying particular attention that nobody is present between the machine and the tractor and in the area surrounding the machine,
- when reversing, approach the tedder hitch as close as possible to the tractor hitch,
- stop the tractor and secure against self-movement,
- connect the machine hitch to the tractor hitch with help of the pivot pin and secure with a cotter pin,
- lift the support foot and secure it in the right position (along the hitch profiles),
- connect the PTO shaft to the tractor – make sure to connect it to the tractor with the right side (see the detailed instruction attached to the shaft),
- connect hydraulic lines of the machine to tractor hydraulic sockets,
- raise the additional support foot and secure it in the correct position.

Fig. 6 Tedder connected to the tractor

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B) MOUNTED VERSION (3 point linkage)

Before attempting to link the tedder it is necessary to read the user manual. Additionally, take extra precautions and pay special attention to maintaining safety while attaching the tedder to a tractor.

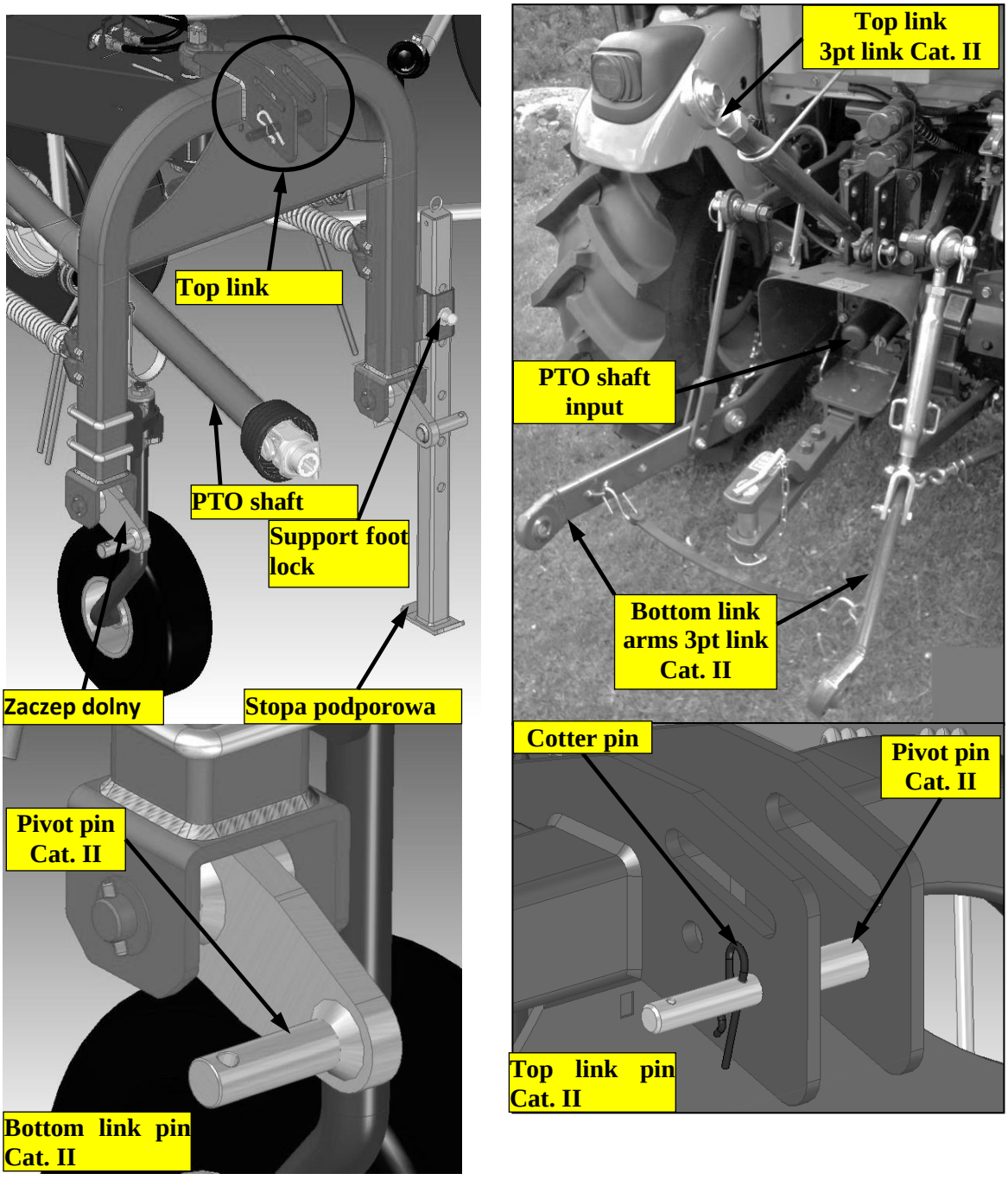

Fig. 7 Connecting the tedder to the tractor

Hitching the tedder with the tractor should be carried out on hardened, stable and even surface.

Before proceeding to hitch the tedder, read the manual carefully. Additionally, always pay special attention to maintaining safety when hitching the machine with a tractor!

Steps to be carried out to link the mounted version tedder:

- drive up to the tedder,
- on the reverse gear, slowly reverse to the drawbar hitch paying particular attention that nobody is present between the machine and the tractor and in the area surrounding the machine,
- when reversing, approach the lower link arms of the tractor as close as possible to the lower hooks of the tedder (make sure that the links are at the same height, if not, adjust them)
- adjust the tractor link arms at the required height, corresponding to the height of the lower hitch pins in the tedder,

Some tractors are equipped with link arm adjustment buttons, usually on one of the fenders. They are used to control the height of the arms. When using them, be especially careful while being in the area of hitching of the machine!

- stop the tractor and secure against self-movement,
- fasten the pins of the bottom tedder hooks into the corresponding place in the tractor's link arms, then secure the pins of the bottom hooks with cotter pins,
- unlock the central link from the transport holder on the tractor and connect it with the upper link pin. **IMPORTANT** – FOR TRANSPORT, THE UPPER HITCH PIN SHOULD BE PLACED IN ONE OF THE TWO TRANSPORT HOLES. It is forbidden to transport the machine with a pin inserted in the hole responsible for working position (oblong hole),
- connect the PTO shaft to the tractor – make sure to connect it to the tractor with the right side (see the detailed instruction attached to the shaft),

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

- raise the support foot and secure it in the correct position with the bolt,
- go to the tractor and raise the machine on the arms to the transport position.

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6.3.Transport position

In the transport position the tedder side frames should be lifted, blocked with a mechanical lock - Fig. A. Hitch operation cylinder is in the extracted position.

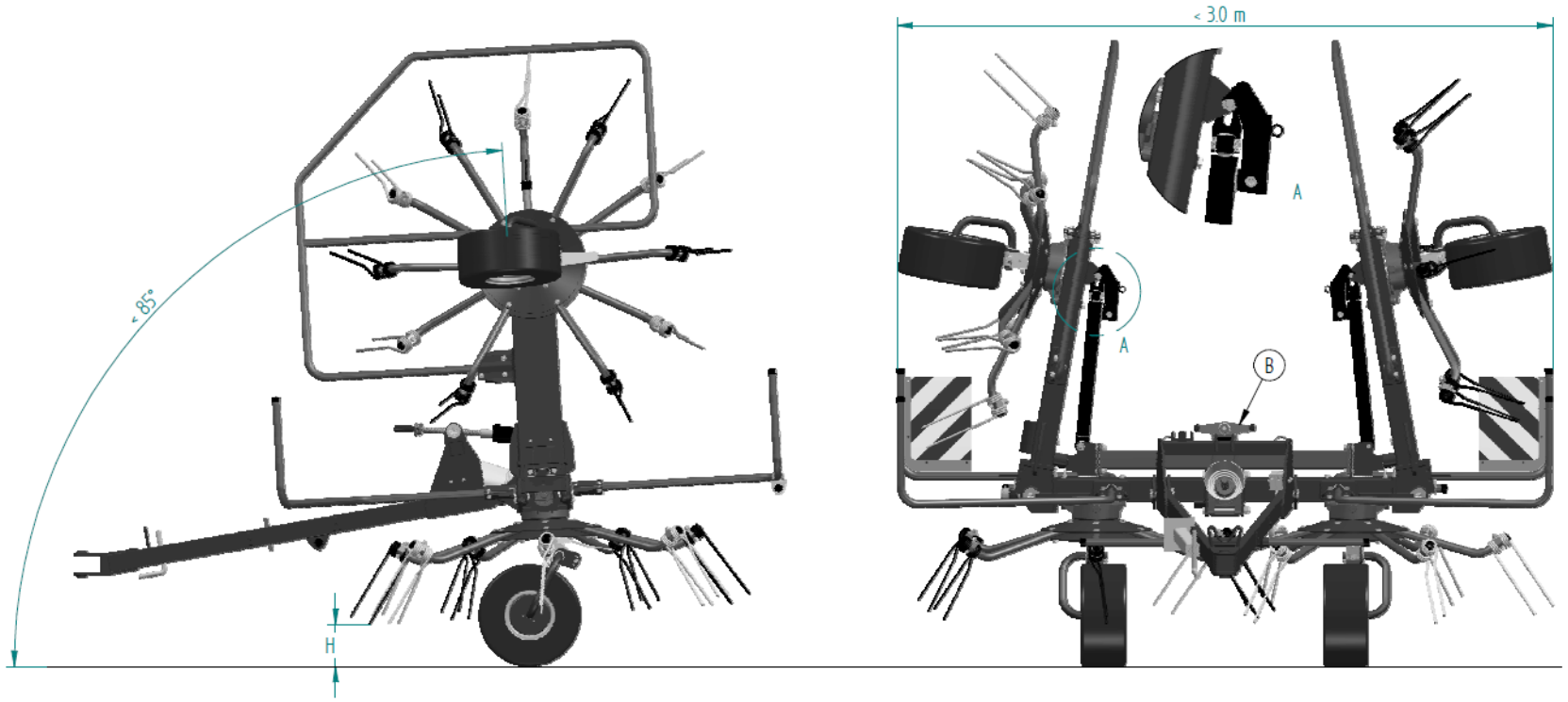

Fig. 8 Tedder transport position (trailed version): A - actuator mechanical lock, B - knob

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In the case of the mounted version, locking the arms is performed in the same way as in the trailed version. Pay attention to the position of the link pin.

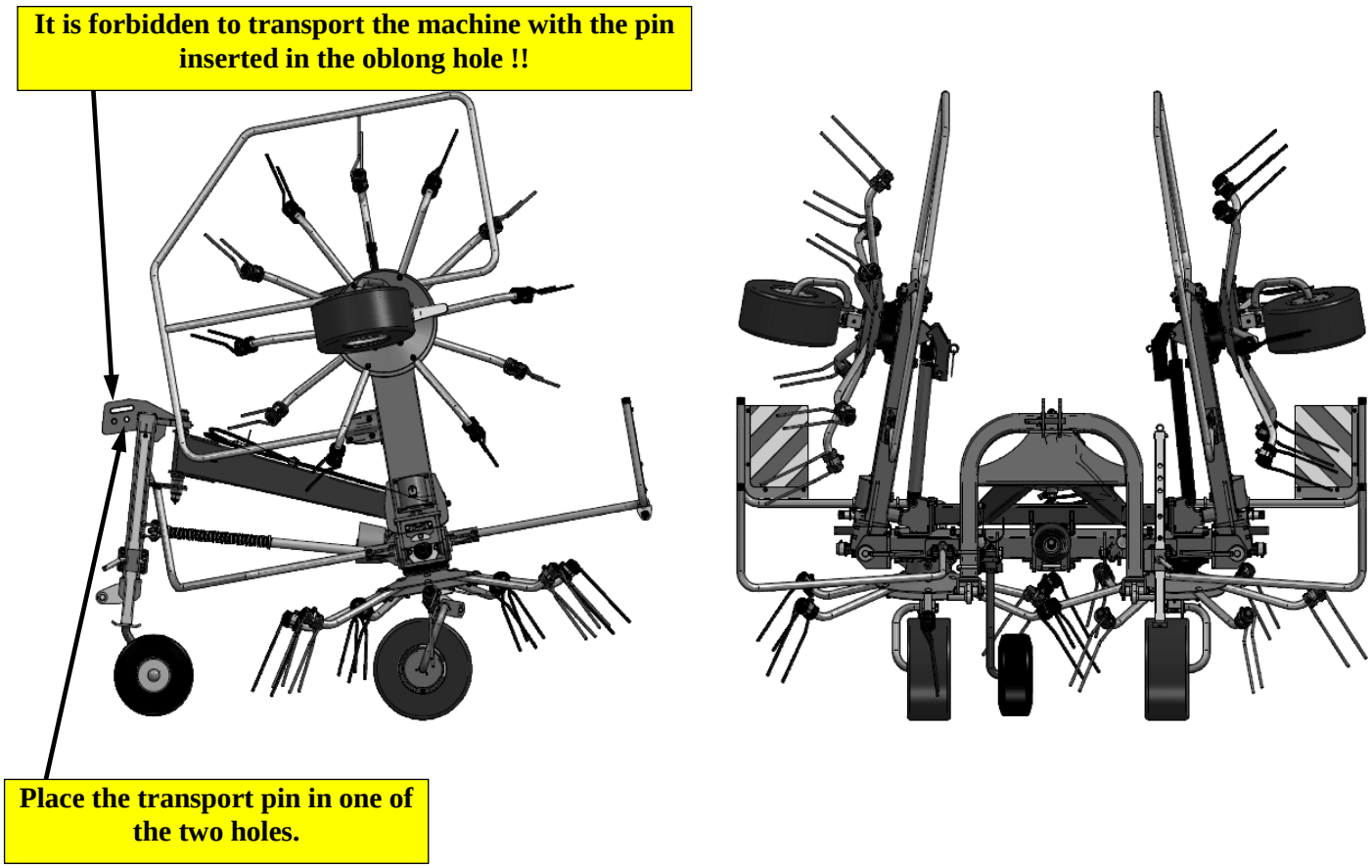

Fig. 2 Transport positon – mounted version

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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.

The distance of tedder tines from the ground should be 14-18 cm (Fig. 8 - H). Remember that the machine should be tilted towards the tractor (Fig. 8) - this enables stability during transport. If the distance of tines from the ground (Fig. 8 - H) is too small, the hitch actuator should be stranded with help of the knob (Fig. 8 - B) in order to obtain the required height, remembering, that the actuator knob be left in horizontal position, as shown on Figure 8 - remember to perform all procedures with caution.

Mounted version:

Start the tractor and use the links to lift the machine up. When lifting the machine, the main pin connecting the frame with the hitch moves in the slot as far as it will go, while the steering shock absorbers twist, permanently stiffening the machine during transport. While lifting the tedder, the area between the tractor and the machine must be monitored all the time so that the upper hitch and barriers cannot collide with the driver's cab. Remember to put the support foot in a safe position, fastening it higher than in the resting position, then secure it with a pivot and cotter pin.

DO NOT TURN ON THE MACHINE DRIVE IN THE TRANSPORT POSITION!!!
TURN ON THE MACHINE DRIVE ONLY IN THE WORKING POSITION!!!

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6.4.Working position

6.4.1. Design and working principle of the hydraulic system

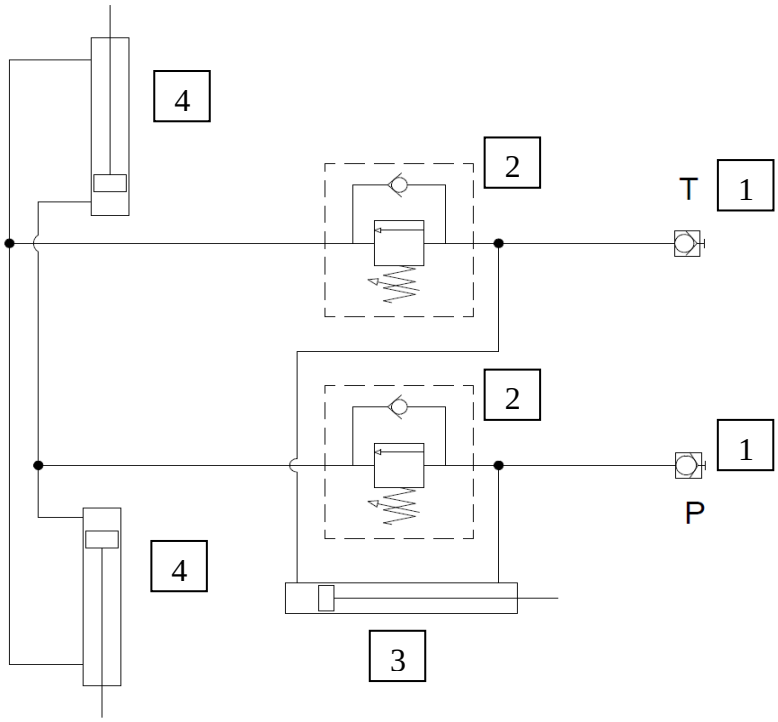

Fig. 10 Tedder hydraulic system diagram: 1 - hydraulic quick release coupling, 2 - quick release coupling, 3 - hydraulic hitch actuator, 4 - hydraulic side frame actuator

The machine is equipped with 2 sequential valves. The valves allow to power all three actuators of the 2-sided operation in the tractor without the need of switching the hydraulic conduits.

The hydraulic system is designed in the following way:

- First, the hitch actuator will be shifted,
- then, the side arms actuators will be shifted.

SEQUENCE I

Starting position - transportation position.

Transferring the pressure in the hydraulic system from the 1st hydraulic output, the hitch actuator will be activated, tilting the machine towards the tractor, and then, the side arms actuators, making the arms drop on the ground.

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SEQUENCE II

Starting position - working position.

Feeding pressure in the hydraulic system from the 2nd hydraulic output, the hitch actuator will be activated, tilting the machine backwards to the vertical position. By stopping the pressure feed, we obtain the clearance allowing to manoeuvre on the grassland without the need of lifting the side arms. Then, feeding pressure in the hydraulic system from he 1st hydraulic output will result in returning the machine to the working position.

SEQUENCE III

Starting position - working position.

Feeding pressure in the hydraulic system from the 2nd hydraulic output, the hitch actuator will be activated, tilting the machine backwards to vertical position, and then, the side arms actuators make the side arms lift to the transportation position. The actuator locks should activate automatically.

SEQUENCE IV

Starting position - transportation position.

By feeding pressure in the hydraulic system from the 1st hydraulic output, the hitch actuator will be activated, tilting the machine towards the tractor - obtaining the rest position of the machine.

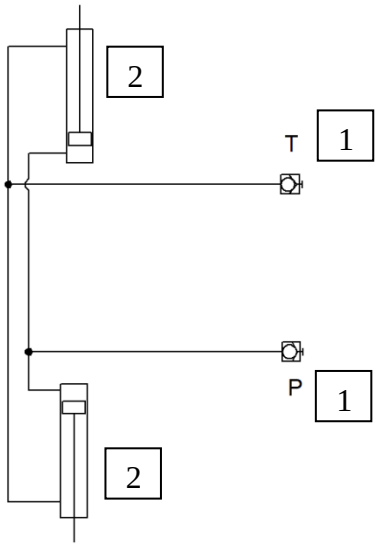

Fig. 11 Diagram of the hydraulic system of the tedder - mounted version: 1 - hydraulic quick coupler, 2 - hydraulic cylinder of the side frame.

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6.4.2. Working position

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

- make sure, paying particular attention that nobody is staying between the machine and the tractor and in the immediate surrounding of the machine,

DO NOT TURN ON THE MACHINE DRIVE IN THE TRANSPORT POSITION!!!
TURN ON THE MACHINE DRIVE ONLY IN THE WORKING POSITION!!!

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

- pull the line releasing the actuator lock (Fig. 12 - B),
- lower the side arms on the ground with use of hydraulic actuators, bearing in mind that the hitch actuator will be activated firstly, and then, the machine alone will be tilted towards the tractor (in the trailed version).

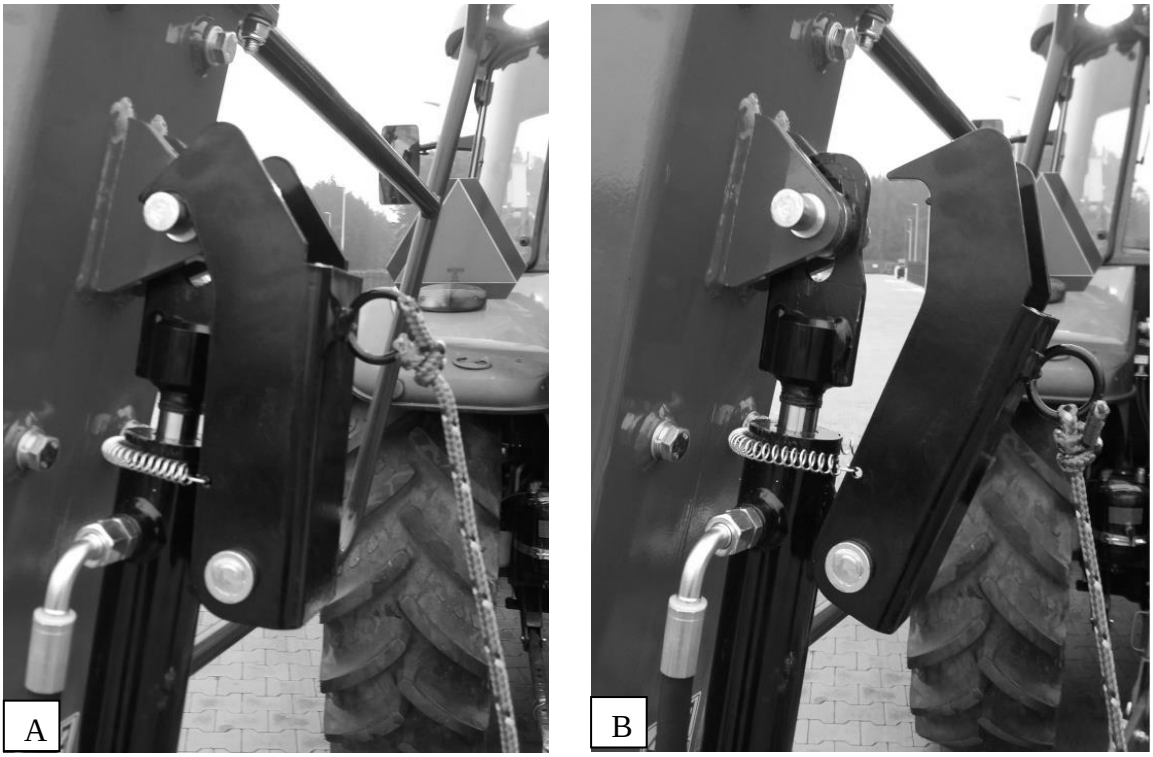

Fig.12 Actuator lock 1 - closed, 2 - open

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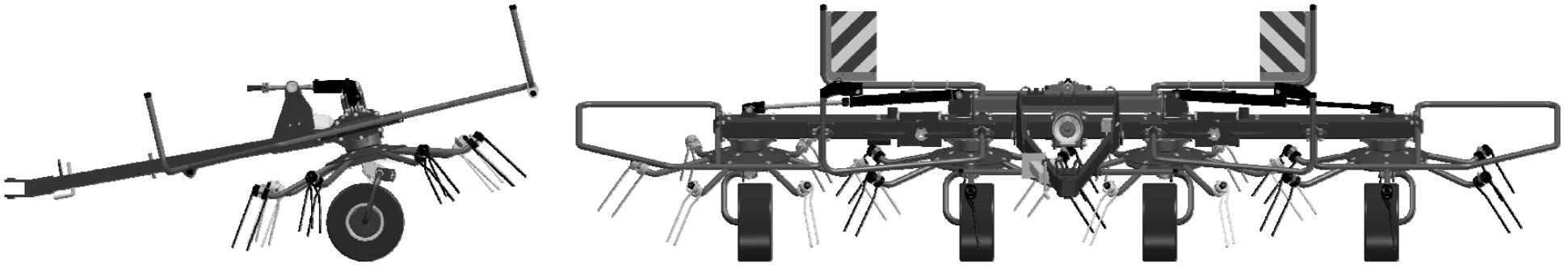

Fig. 3 Tedder working position – trailed version

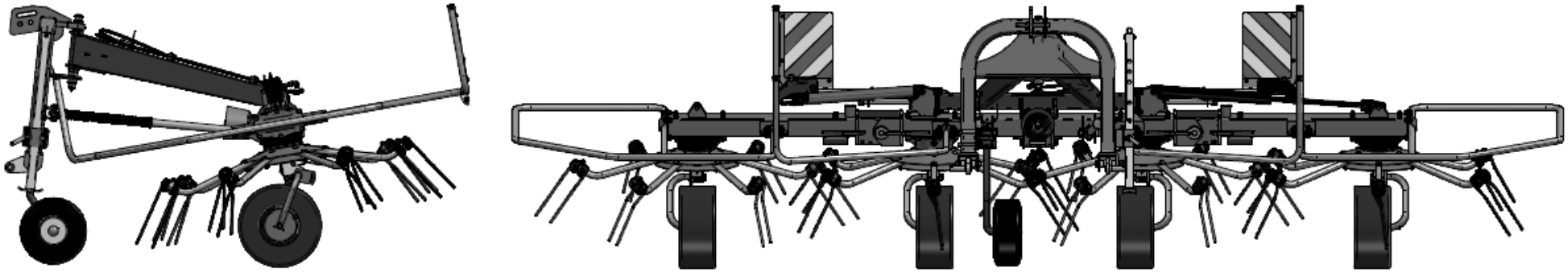

Fig. 4 Tedder working position – mounted version

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6.5. Rest position

The tedder may be stored in two different positions:

A. arms laid as in the transportation position, the machine tilted forwards

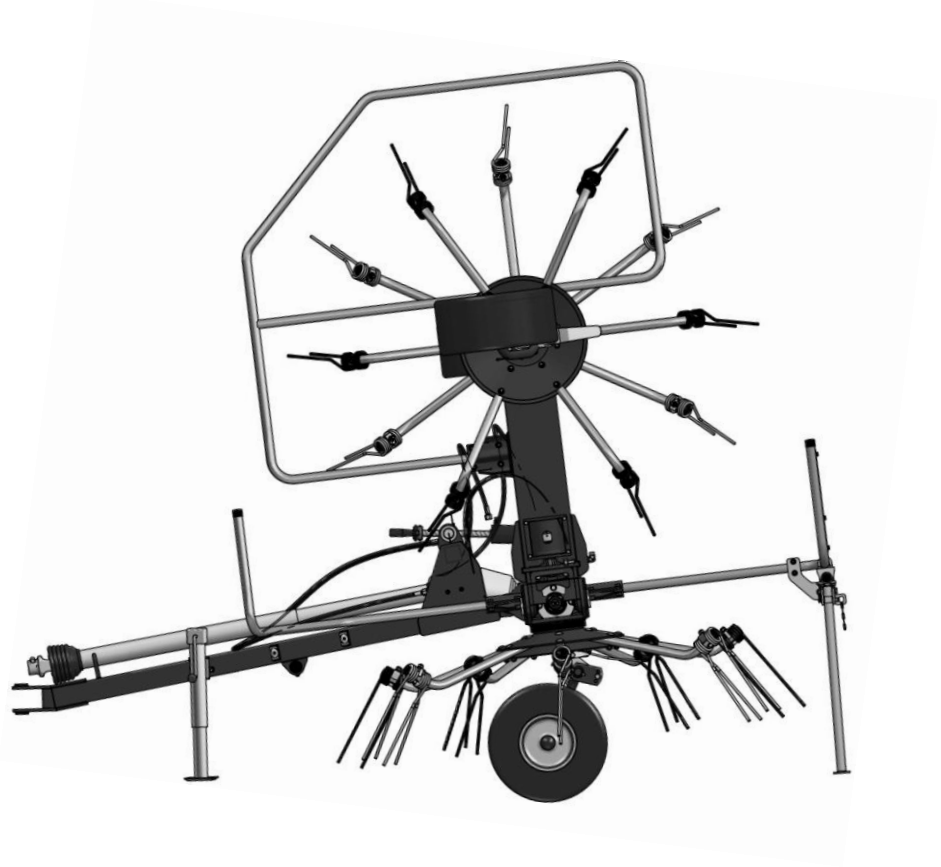

Fig. 15 Rest position A

This position ensures compact dimensions of the machine when stored.
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.
In the case of long time of idleness, the machine should be slightly moved in order to change the tyre position, so that it not be deformed and the air pressure in tyres should be checked. This procedure should be carried out once a year on average.
You should remember about the use of support foot which helps to increase the machine storage stability.

B. in the working position.

You should remember about the use of support foot which helps to increase the machine storage stability. In case of long time of idleness, the machine should be slightly moved in order to change the tyre position, so that it is not deformed and the air pressure in tyres should be checked. This procedure should be carried out once a year on average. You should remember about the use of support foot which helps to increase the machine storage stability

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6.6. Operation

6.6.1. Correct working position

Before commencing work, make sure that the machine position is appropriate. The tedder in the working position is presented on Fig. 16

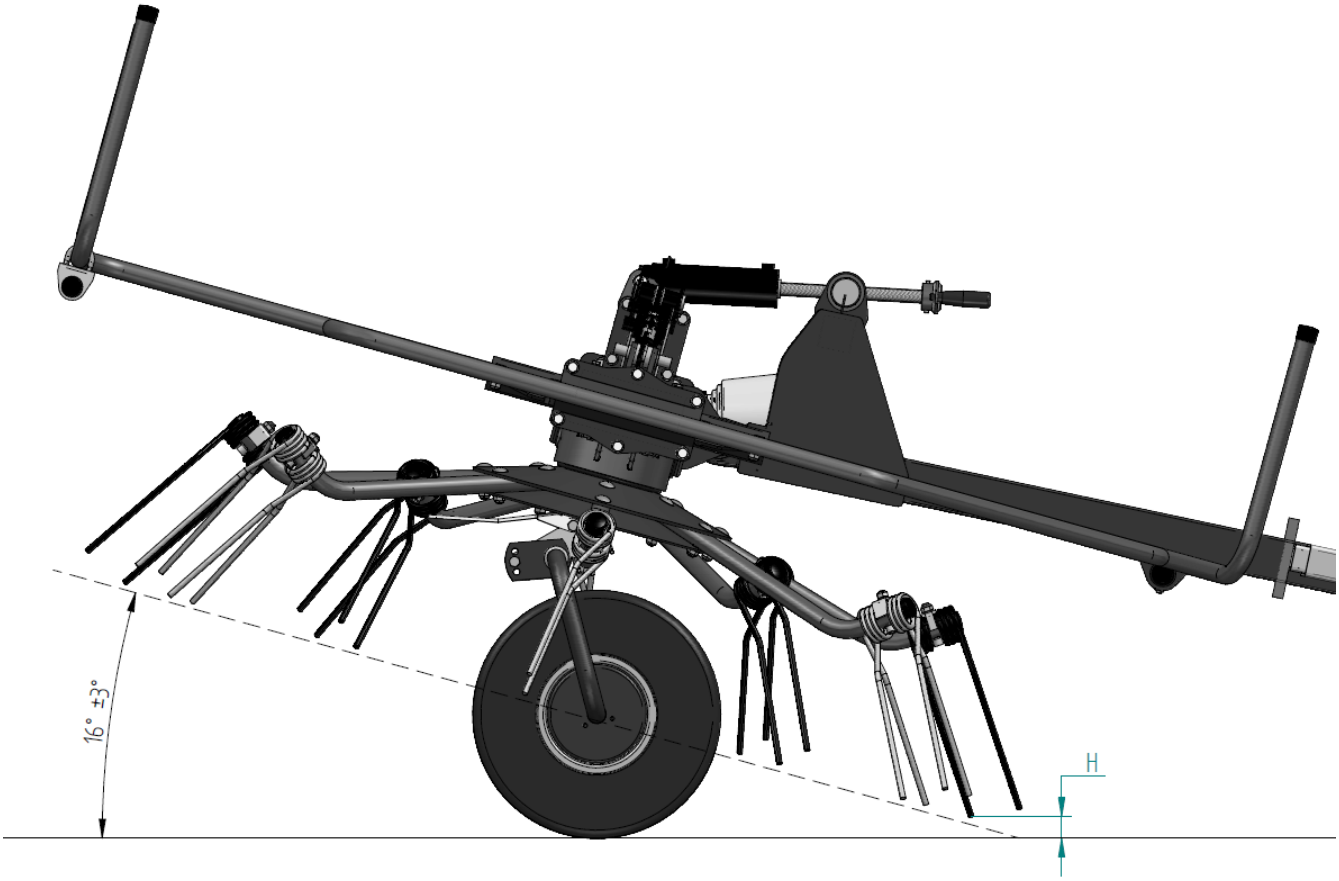

Fig. 16 Appropriate tedder working position.

The distance of tedder tines from the ground should be between 0.5-4 cm depending of the type of ground and type of material being tedded (Fig. , H-value).

Before starting work, perform the trail run of the machine, making sure that all sub-assemblies work properly.

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6.6.2. Tedder tines assembly

The direction of rotor rotation is shown on Fig 17. The proper assembly of tedder tines is also shown on the figure.

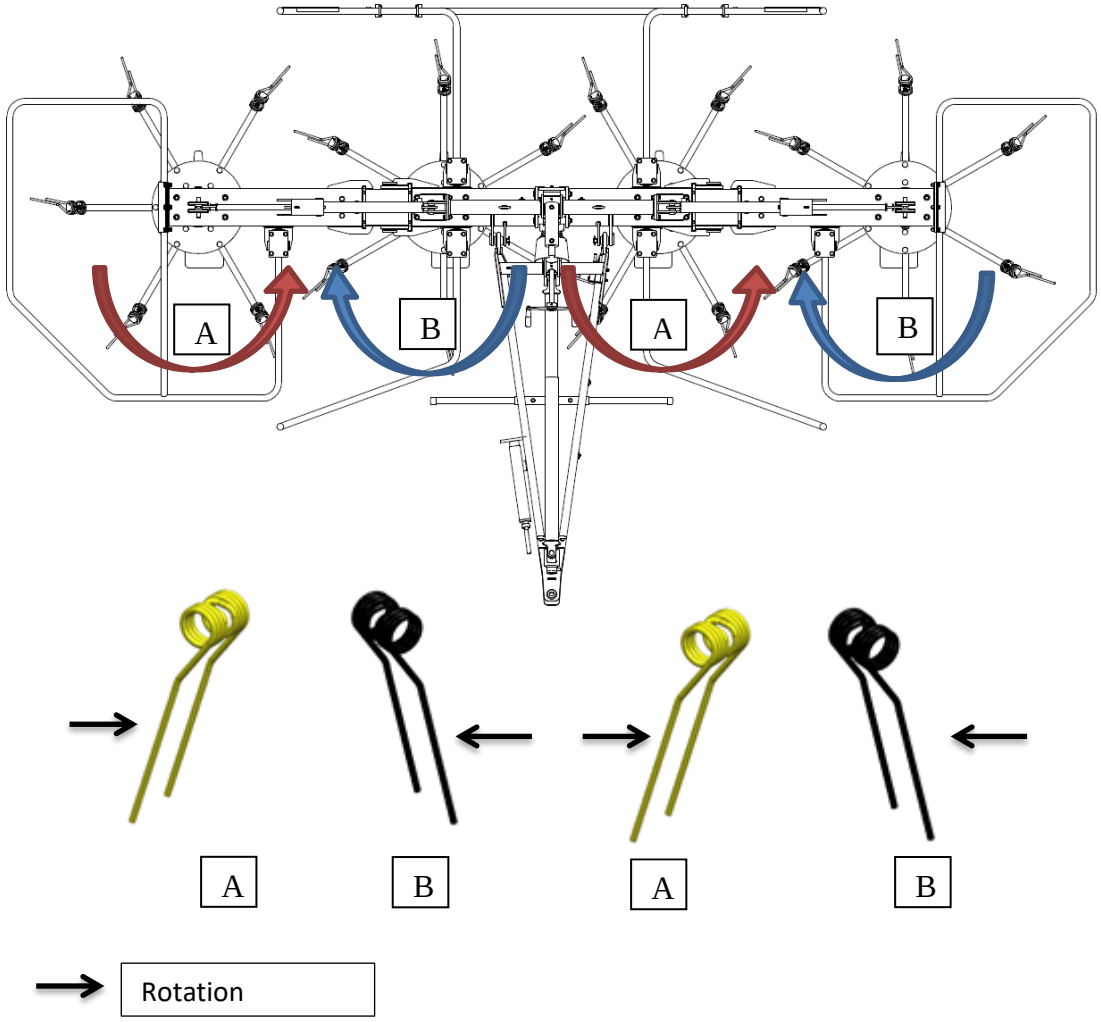

Fig. 17 Appropriate tedder tines assembly

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

A. Yellow - left tedder tine
B. Black - right tedder tine.

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6.6.3. Edge tedding

The machine is equipped with 4 independent driving wheels.
Swath tedding from grassland edges towards the centre is ensured through the possibility of turning the tedder right (Fig. 13 A) or left (Fig. 13 B).

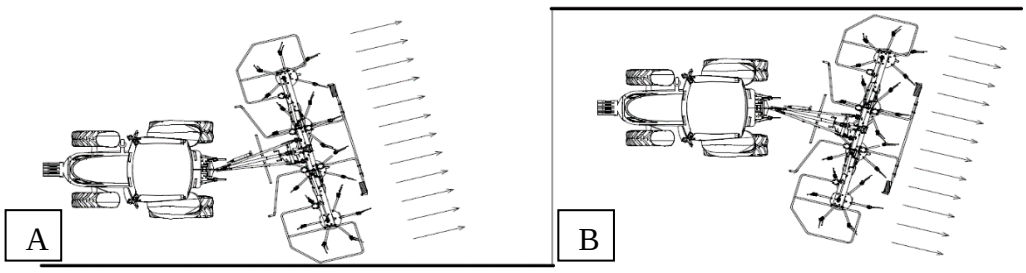

Fig. 18 Swath tedding from edges

In order to turn the tedder in the working position, the user should set each wheel in the right or left position.
To this end, the press the wheel handle, and next:

a) turn left - tedding to the right (Fig. A),
b) turn left - tedding to the left (Fig. B),

placing the handle block in the steel hole of the locking sleeve.

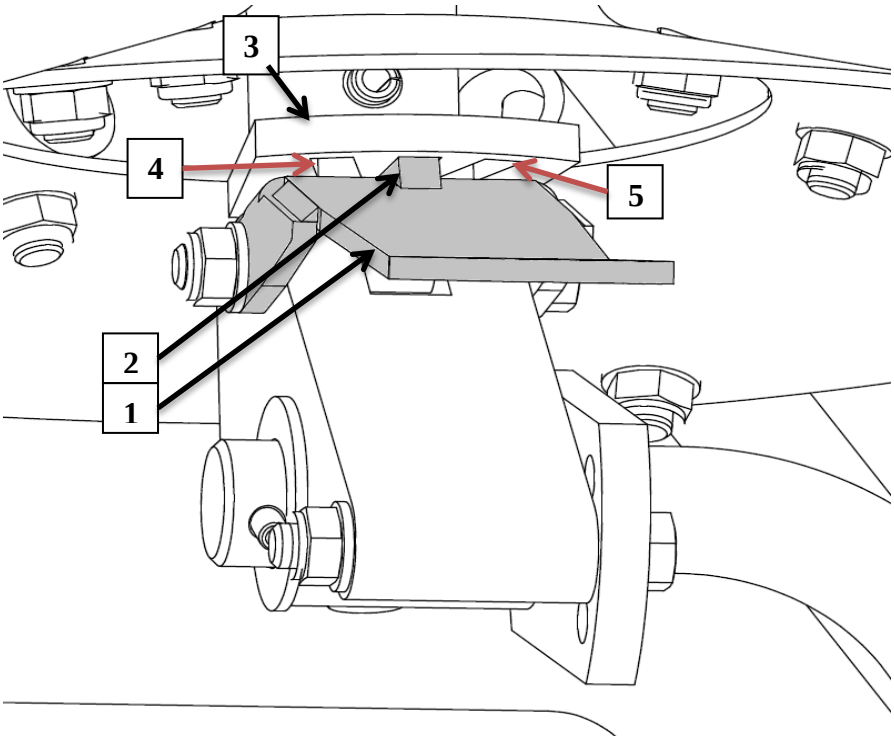

Fig. 19 - Tedder wheel handle: 1 - wheel rotation handle, 2 - wheel rotation handle block, 3 - locking sleeve sheet, 4 - left fastening hole, 5 right fastening hole.

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.

You should always determine the same driving direction for each wheel!!!
The handle block must always be in the locking sleeve hole!!!
Free wheel operation - FORBIDDEN!!!

6.6.4. Additional angle operation 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 (Fig. 15 1st pos.) or lower (Fig. 15 pos. 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.

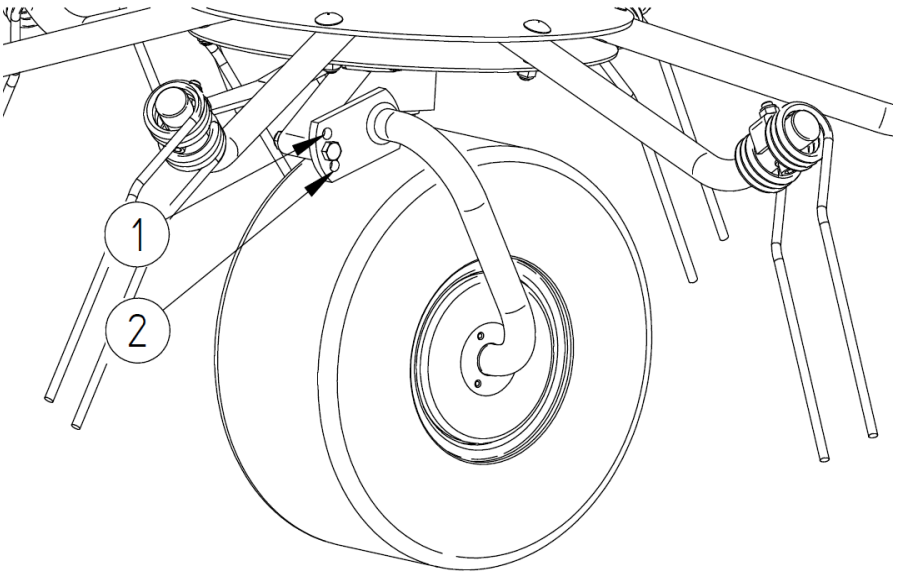

Fig.20 Additional operation angle adjustment

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6.6.5. Tedder tines 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. Replace the tine, if it is found to be damaged. The repair of a damaged tine is forbidden.

Caution!!!

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

Fig. 21 Tedder tines operation

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6.6.6. Usage of additional support foot (for trailed version)

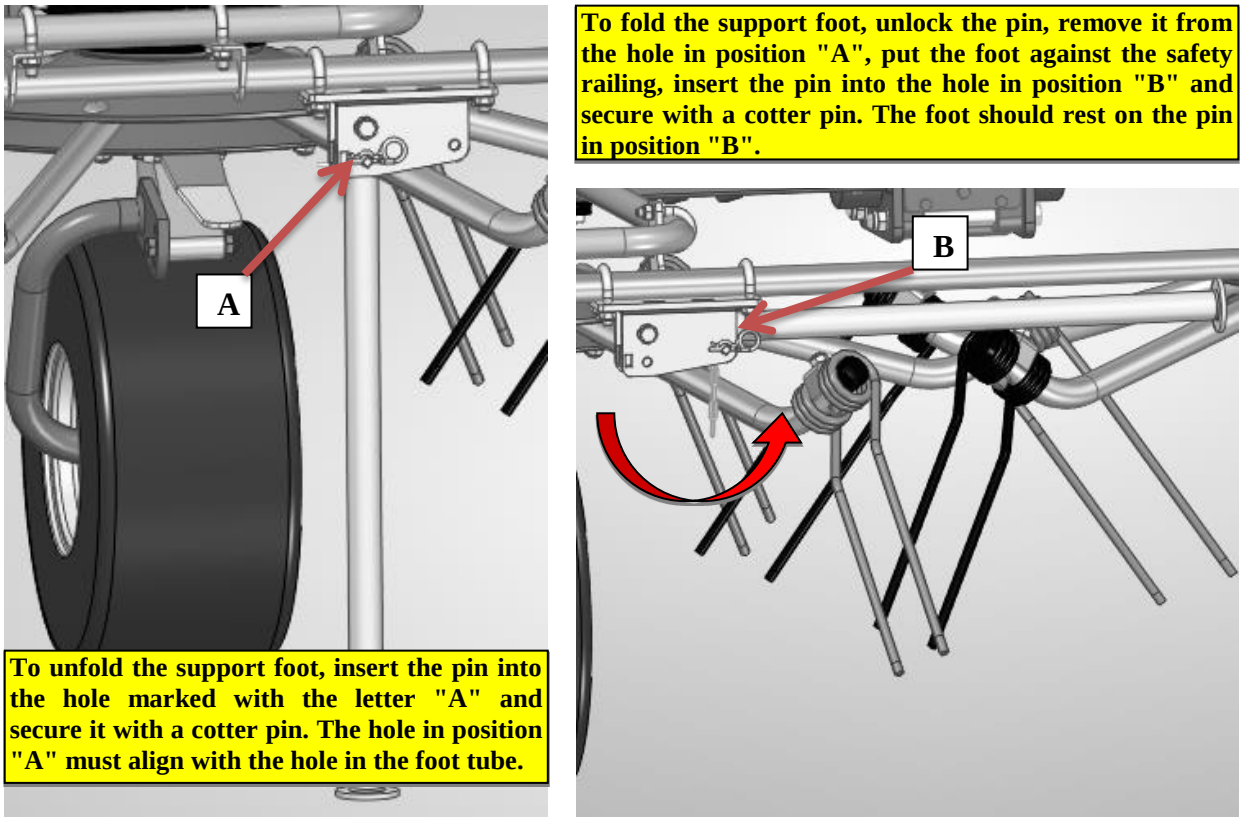

Fig. 22 Usage of additional support foot

When lifting the drawbar, make sure that the additional support foot is always unfolded. **Note: There is a risk of the machine tipping over backwards if the foot is not folded out.**

7. Terrain copying

In the mounted version, the tedder is equipped with several pivoting joints. The articulated joints connection with the possibility of limited movement compensates for any unevenness resulting from the terrain topography. Thanks to this solution, the operation of the machine runs smoothly and undisturbed. The figure below shows the possibilities of movements of individual components, such as:

- floating pin of the central link,
- pivoting lower hitch pins,
- torsion hitch additionally equipped with a floating coupling pin with the main frame,
- control rods.

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The control rods act as shock absorbers - they improve the guidance of the tedder. Additionally, when lifting the machine for transport and during transport, thanks to the possibility of free change of length, they block the main frame of the machine against the main hitch. Thanks to this, the machine is stiff during transport and there is no risk of dangerous movement of the machine to the left or right.

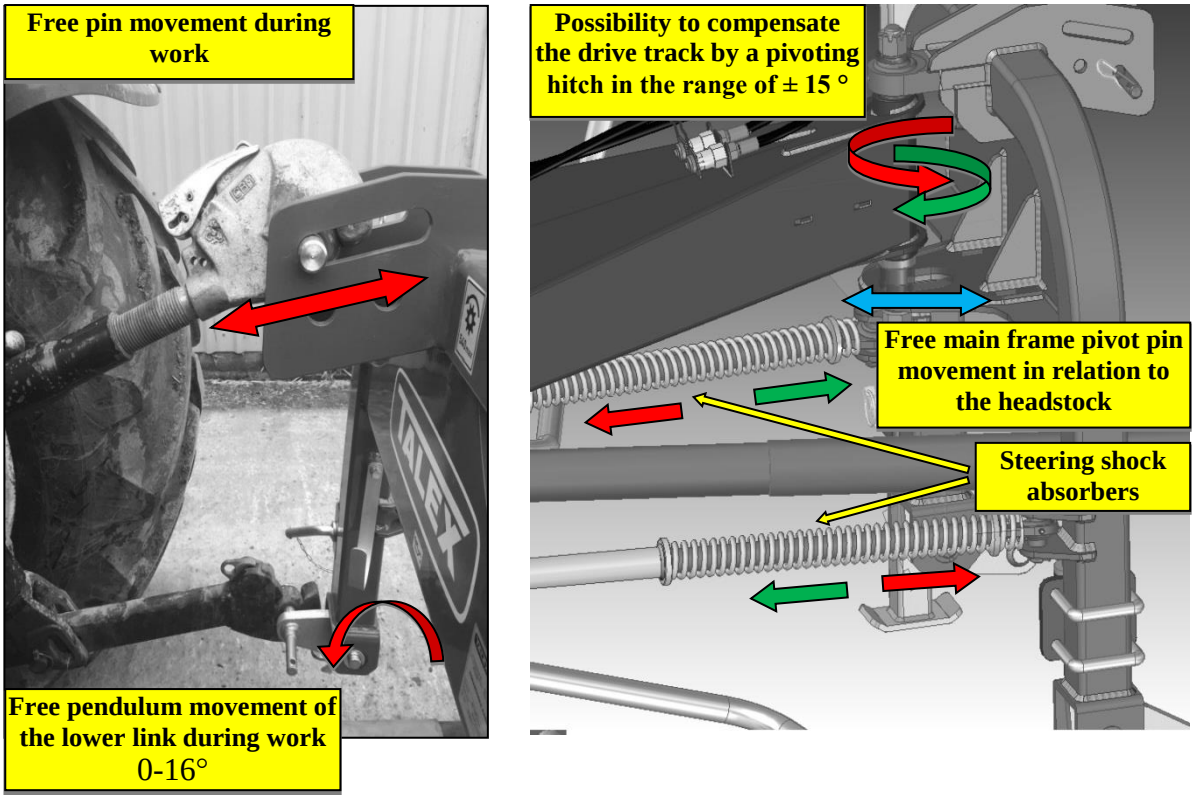

Fig. 23 Range of movement of various elements

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8. Operation and maintenance

8.1 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 4.

Attention:
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 4 Tightening torque values for screws and nuts.

Lubricate the mower according to the instruction –0 Machine lubrication .
All safety signs placed on the machine should be kept clean.

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8.2 Machine lubrication

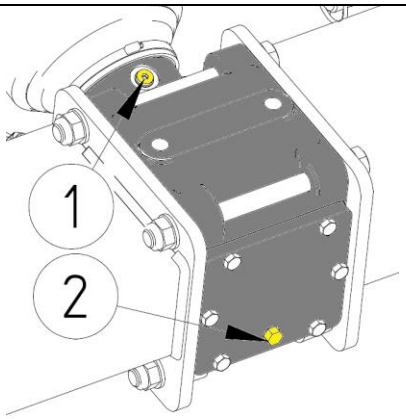
Appropriate periodical maintenance works considerably decrease the wear and tear of mating components and additionally protect against corrosion.

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 greaser should be checked with regard to damage. Replace the greaser, if it is found to be damaged. After the lubrication has been performed, excessive grease should be removed in order to limit dirt adherence.

All maintenance and servicing 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!
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.

No.	Lubrication point	Description	Greasing frequency	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

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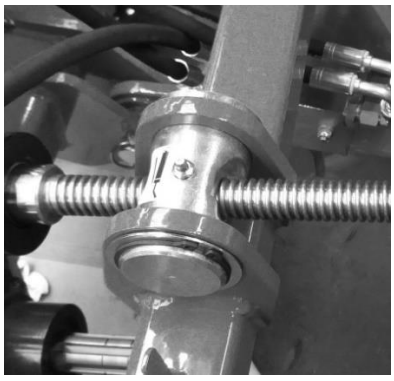
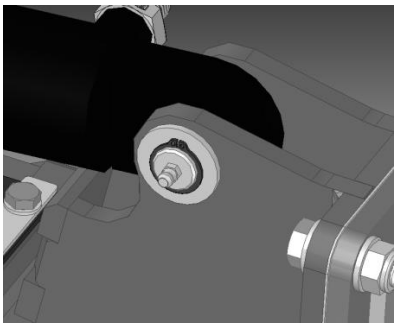
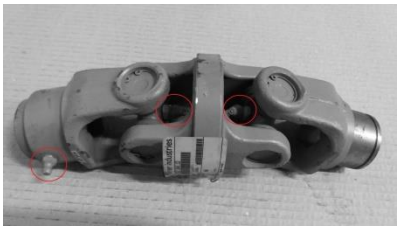
2		Side gear	400h or at least once a year	NLGI 2 SHELL Gadus S2 V220 - 0.2kg
3		Hitch actuator	50h	Grease
4		Fastening of the hitch actuator	50h	Grease
5		Side frame actuator	50h	Grease
6		Double joint	After each start-up, every 5h of continuous operation	Grease

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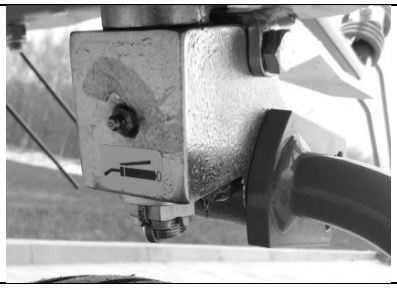
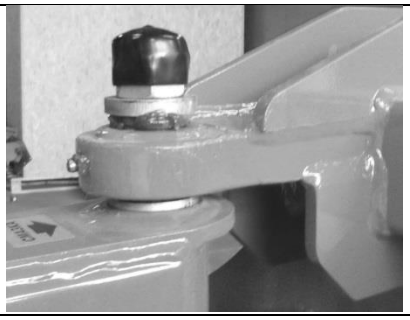
7		Wheel bow fastening	50h	Grease
8		Bearing support of the side drive shaft	50h	Grease
9		Power take-off shaft	Acc. to the instruction enclosed to power take-off shaft	Grease
10		Hitch point	10h	Grease
11		Main pivot pin bushing	10h	Grease
12		Control link – hitch system joint	10h	Grease

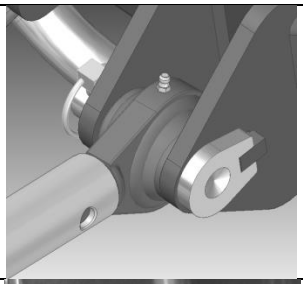
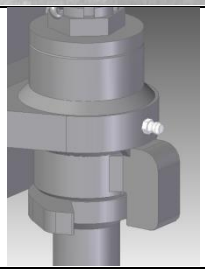
13		Control link – main frame joint	10h	Grease
14		Lower hitch	10h	Grease
15		Support wheel	20h	Grease

Table 5 Lubrication schedule

8.3 Storage

Includes all the tasks listed in the paragraph 0 Maintenance after work. It is recommended that the machine be kept in a closed and roofed room 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 case of long time of idleness, the machine should be slightly moved in order to change the tyre position, so that it is not deformed and the air pressure in tyres should be checked. This procedure should be carried out once a year on average.

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9. 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 based on the applied materials. 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 (and 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 (utilization) points.

When filling up or replacing the oil, avoid its spillage. Store the waste oil in sealed containers, and periodically deliver it to the special collection (utilization) points.

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

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10. Additional equipment – support wheel

In order to ensure greater stability of the machine during operation, the TORNADO 550 tedder in the version with a suspended hitch is equipped with a front support wheel.

Attention

Always perform the adjustment with the vehicle turned off and the machine drive on a level surface !!!

Attention

You should be particularly careful.
There is a possibility of the machine tilting if the support wheel is not secured properly!

To make the adjustment, loosen the connection x4 (marked in the picture), then adjust the wheel to the desired height. After alignment, tighten the connection.

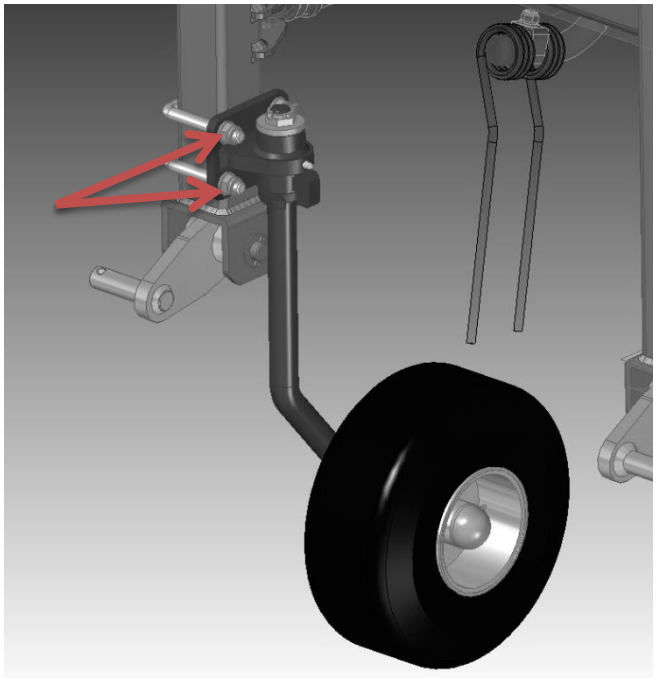

Fig. 5 Support wheel

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11. Spare Parts Catalog

11.1 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. The use of not original spare parts or parts, which have been repaired, will void the warranty.

The manufacturer reserves its right to make changes in the construction of parts presented on the particular assembly drawings in this spare parts catalogue. Such changes may not always be updated in the User Manual and in the spare parts catalogue. Individual drawings may differ from the actual look of the parts.

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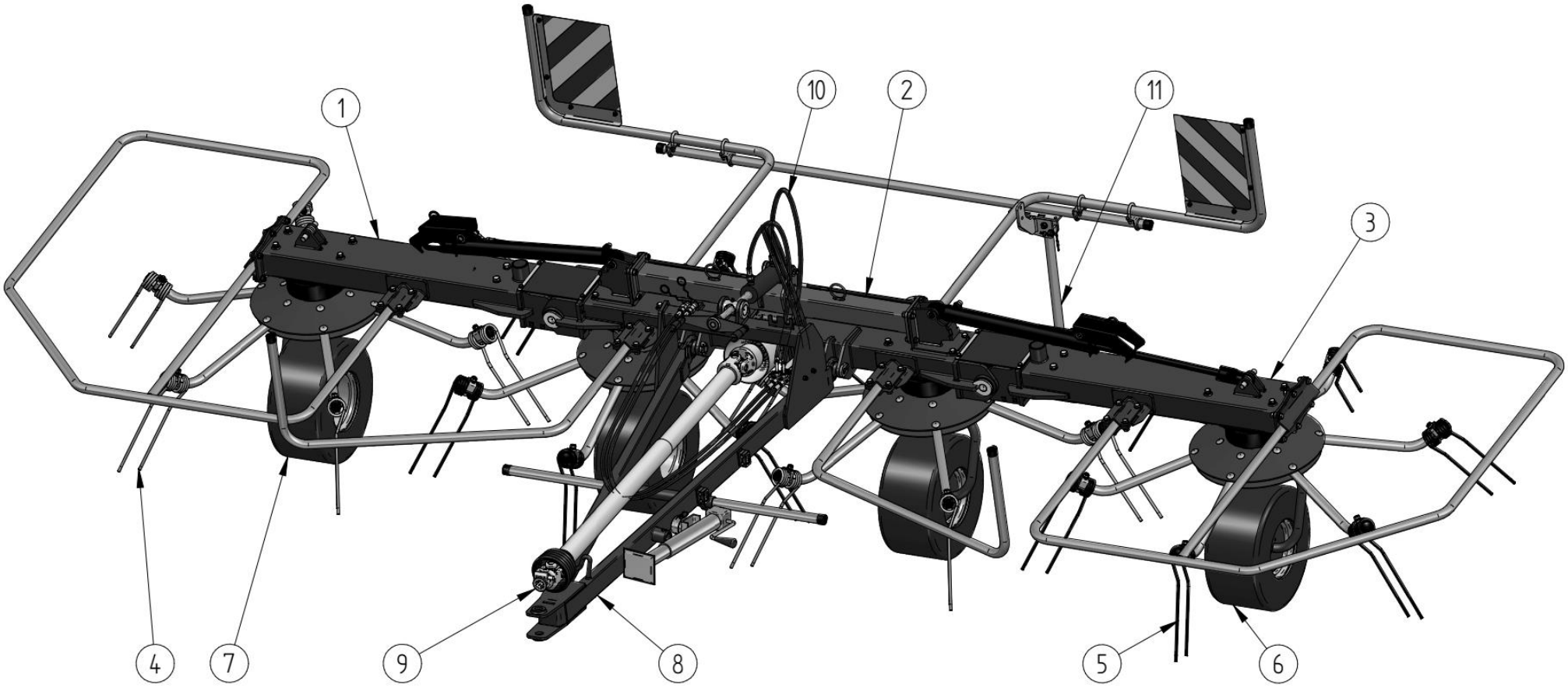
11.2 General design



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General design				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index/Section no.**
1	Right side frame set	Right side frame set	1	**11.3** 11.3 Right side frame set
2	Main frame set	Main frame set	1	**11.5**Main frame set
3	Left side frame set	Left side frame set	1	**11.7** Left side frame set
4	Left working set	Left working set	2	**11.9** Left working
5	Right working set	Right working set	2	**11.10** Right working
6	Left wheelset	Left wheelset	2	**11.11** Left wheelset
7	Right wheelset	Right wheelset	2	**11.12** Right wheelset
8	Hitch	Hitch	1	**11.13** Hitch
9	Power take-off shaft 460NM L-1600 with M34 ratchet coupling	Power take-off shaft 460NM L-1600 with M34 ratchet clutch	1	T000906
10	Hydraulic system	Hydraulic system	1	**11.14** Hydraulic system
11	Additional support foot for the trailed version	Additional support foot for the trailed version		**11.16** Additional support foot for the trailed version

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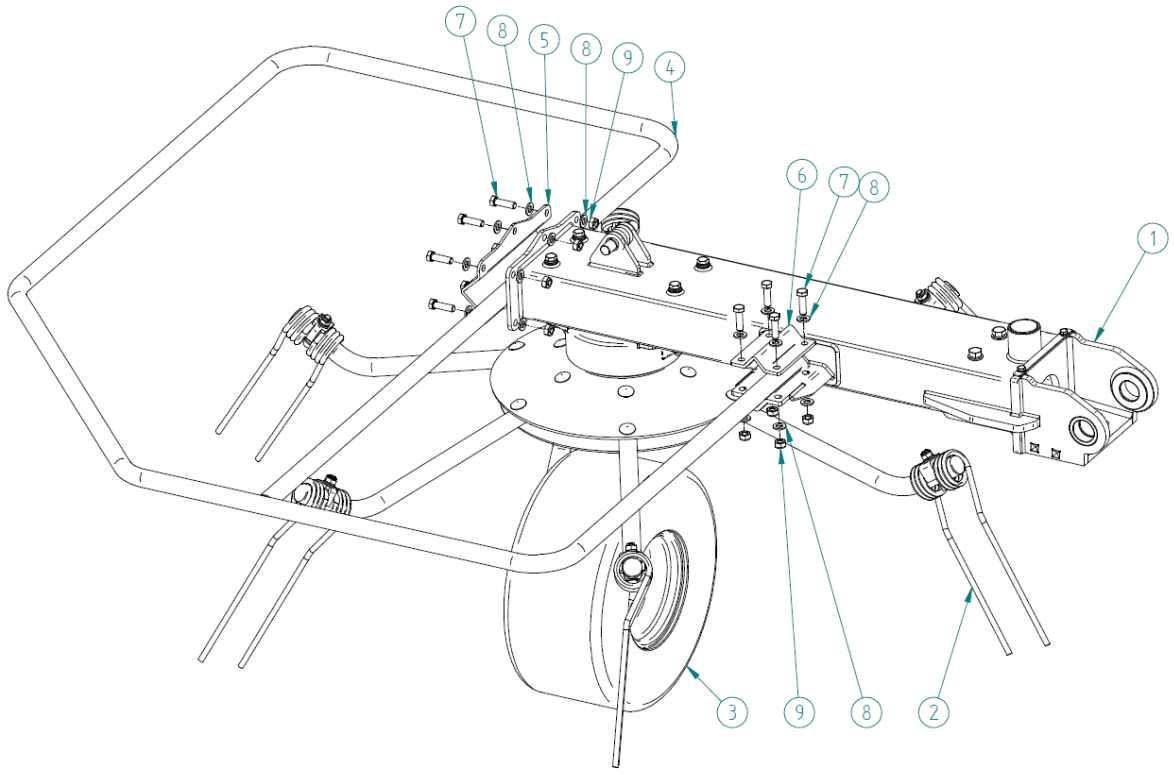
11.3 Right side frame set



RIGHT SIDE FRAME SET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index/Section no.**
1	Right side frame	Right side frame	1	Błąd! Nie ożna odnaleźć źródła odwołania. **Błąd! Nie ożna odnaleźć źródła odwołania.**
2	Left working set	Left working set	1	**11.9** Left working
3	Right wheelset	Right wheelset	1	**11.12** Right wheelset
4	PK 09.01.00.00_reb.	Side barrier	1	P580216

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5	PK 09.00.00.01	Side barrier fastening	1	P580219
6	PK 09.00.00.02	Barrier fastening	1	P580168
7	Hex. bolt M12x40-8.8 galv.	Hex. bolt M12x40-8.8 galv.	10	T000757
8	Flat washer M12 galv.	Flat washer M12 galv.	20	T000458
9	Self-stop hex nut M12-8 galv.	Self-stop hex nut M12-8 galv.	10	T000291

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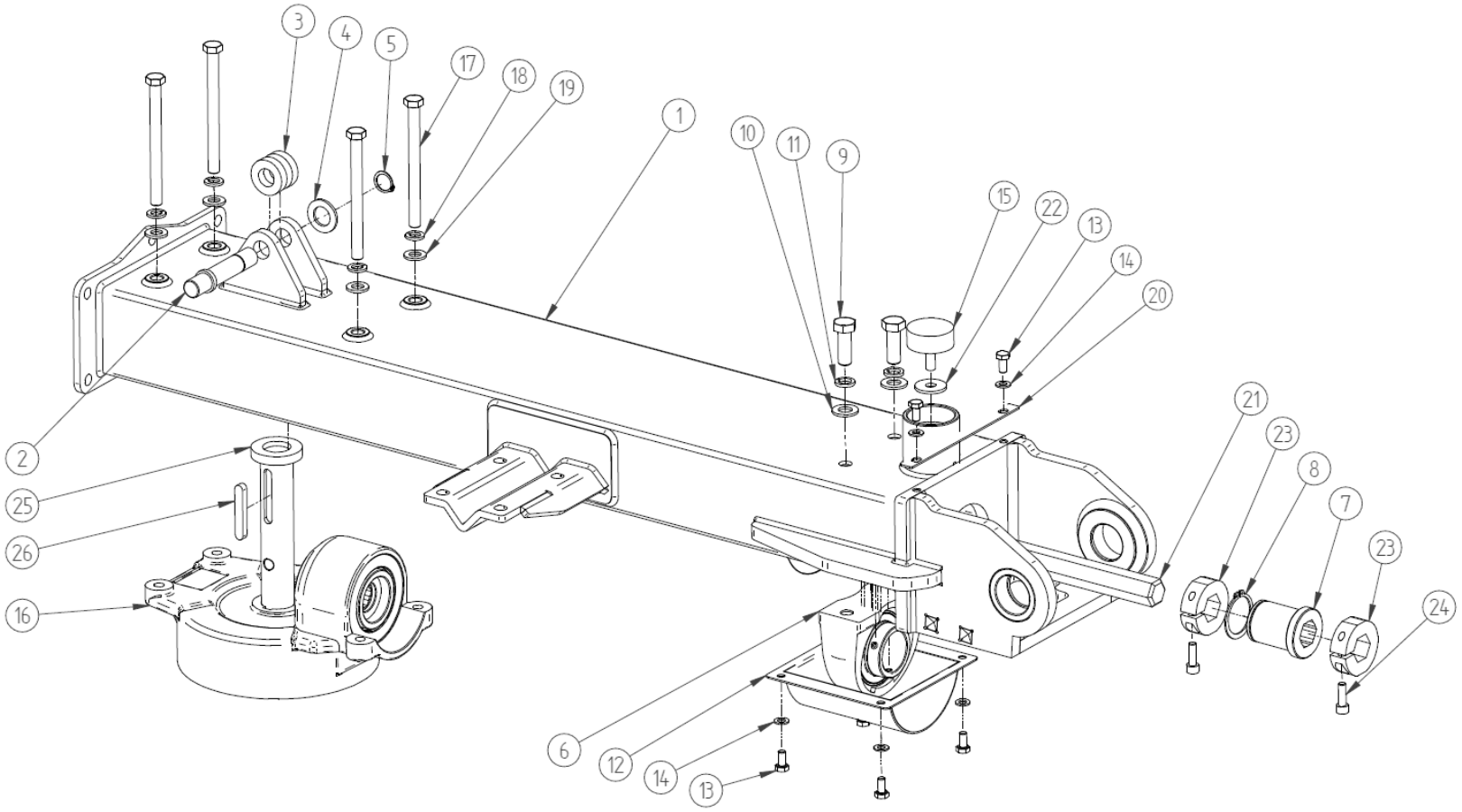
11.4 Right side frame



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RIGHT SIDE FRAME				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 02.00.00.00	Side frame	1	P580070
2	PK 00.00.04.00	Side frame closure bolt	1	P580464
3	PK 00.00.00.02	Actuator closure bolt sleeve	2	P580465
4	Flat washer M20-GAL	Flat washer fi20- GAL	1	T000462
5	Snap ring Z20	Snap ring Z20	1	T000409
6	Self-adjusting bearing ucpa209	Self-adjusting bearing ucpa209	1	T001012
7	PK 07.00.00.04	Shaft support sleeve	1	P580366
8	Snap ring Z45	Snap ring Z45	1	T000414
9	Hex. screw M14x40-8.8-GAL	Hex. screw M14x40-8.8-GAL	2	T000767
10	Flat washer M14-GAL	Flat washer fi14- GAL	2	T000459
11	Spring washer M14-GAL	Spring washer fi14-GAL	2	T000452
12	PK 00.00.11.00	Bearing guard	1	P580241
13	Bolt 6-cat M8x16-8.8-GAL	Bolt 6-cat M8x16-8.8-GAL	6	T000803
14	Flat washer.M8-GAL	Flat washer fi8- GAL	6	T000471
15	Rubber rebound fi50x20	Rubber rebound fi50x20	1	T000011
16	4350-9.319.800	Side gearbox TB-319 J	1	T001237
17	Hex. screw M12x140x30-8.8-GAL.	Hex. screw M12x140x30-8.8-GAL.	4	T000753
18	Spring washer M12-GAL	Spring washer fi12-GAL	4	T000451
19	Flat washer.M12-GAL	Flat washer fi12- GAL	4	T000458
20	PK 00.00.00.01	Joint guard rubber fastening	1	P580253
21	PK 07.00.00.02	Side drive shaft	1	P580365
22	Enlarged flat washer M10-GAL	Enlarged flat washer M10-GAL	1	T000457
23	PK 07.00.00.05	Shaft distance collar	2	P580367
24	Hex. socket cap screw M8x25-8.8-GAL	Hex. socket cap screw M8x25-8.8-GAL.	2	T002089
25	PK 06.03.00.00	Wheel pin	1	P580312
26	Prismatic inlet 10x8x63	Prismatic inlet 10x8x63	1	T000948

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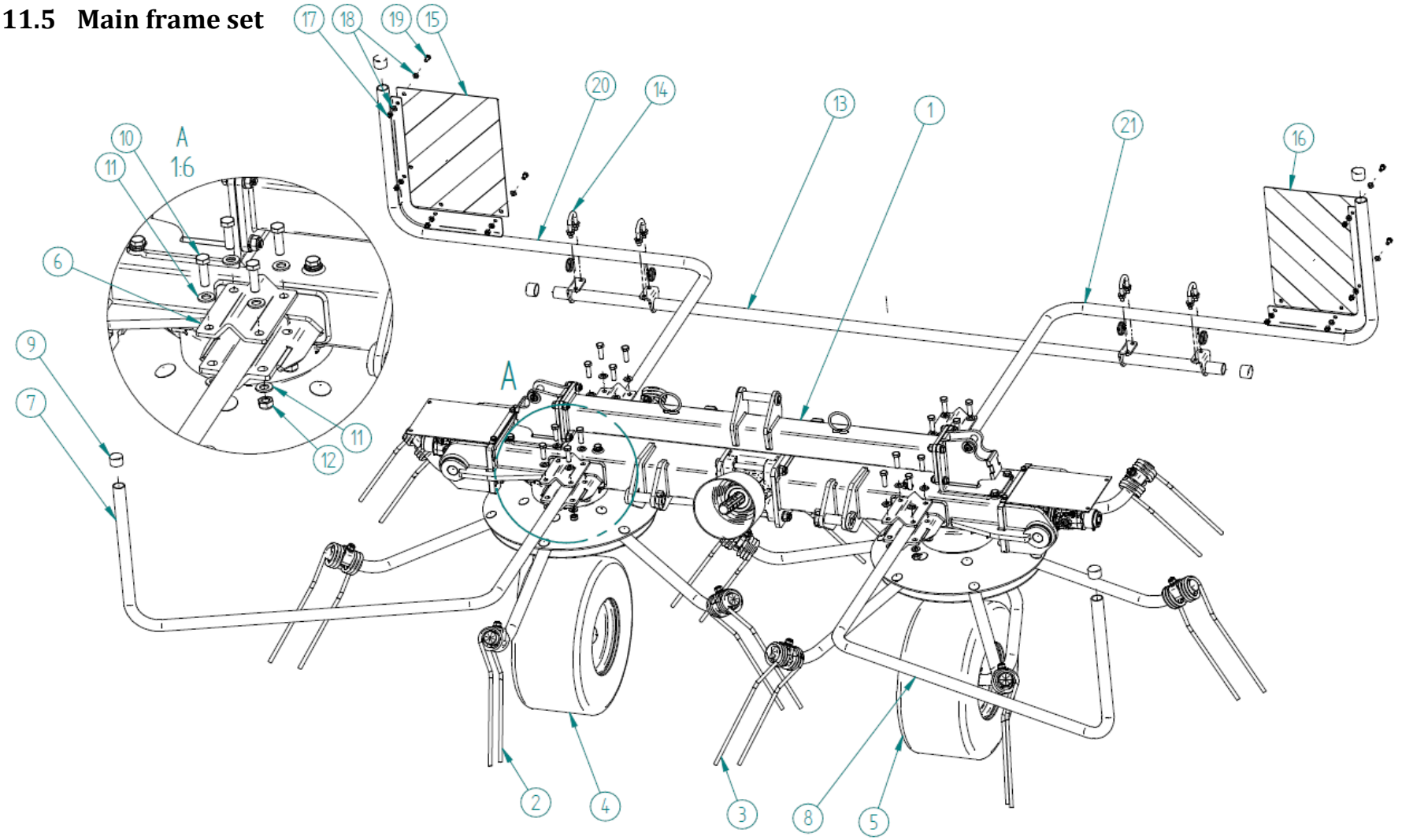
11.5 Main frame set



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MAIN FRAME SET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index/Section no.**
1	Middle frame set	Middle frame set	1	**11.6** Middle frame set
2	Right working set	Right working set	1	**11.10** Right working
3	Left working set	Left working set	1	**11.9** Left working
4	Right wheelset	Right wheelset	1	**11.12** Right wheelset
5	Left wheelset	Left wheelset	1	**11.11** Left wheelset
6	PK 09.00.00.02	Barrier fastening	4	P580168
7	PK 09.02.00.00	Right front barrier	1	P580198
8	PK 09.02.00.00_reb.	Left front barrier	1	P580207
9	Pipe stopper 33.4x24.8	Stopper 1”	6	T000485
10	Hex. screw M12x40-8.8-GAL.	Hex. screw M12x40-8.8-GAL.	16	T000757
11	Flat washer.M12-GAL	Flat washer fi12- GAL	32	T000458
12	Hex. nut M12-8-GAL-self-cl.	Hex. nut M12-8-GAL-self-cl.	16	T000291
13	PK 09.04.00.00	Rear barriers connector	1	P580192
14	Pipe clamp M10x35	Pipe clamp M10x35	4	T000026
15	Warning plate	Reflective plate, two sided 300x400	1	T000831
16	Warning plate_reb.1	Reflective plate, two sided 300x400	1	T000831
17	Hex. nut iso_7040-m8-8-self-cl.	Hex. nut iso_7040-m8-8-self-cl.	8	T000256
18	Flat washer.M8-GAL	Flat washer fi8- GAL	16	T000471
19	Bolt 6-cat M8x16-8.8-GAL	Bolt 6-cat M8x16-8.8-GAL	8	T000803
20	PK 09.03.00.00	Right rear barrier	1	P580164
21	PK 09.03.00.00_reb.	Left rear barrier	1	P580178

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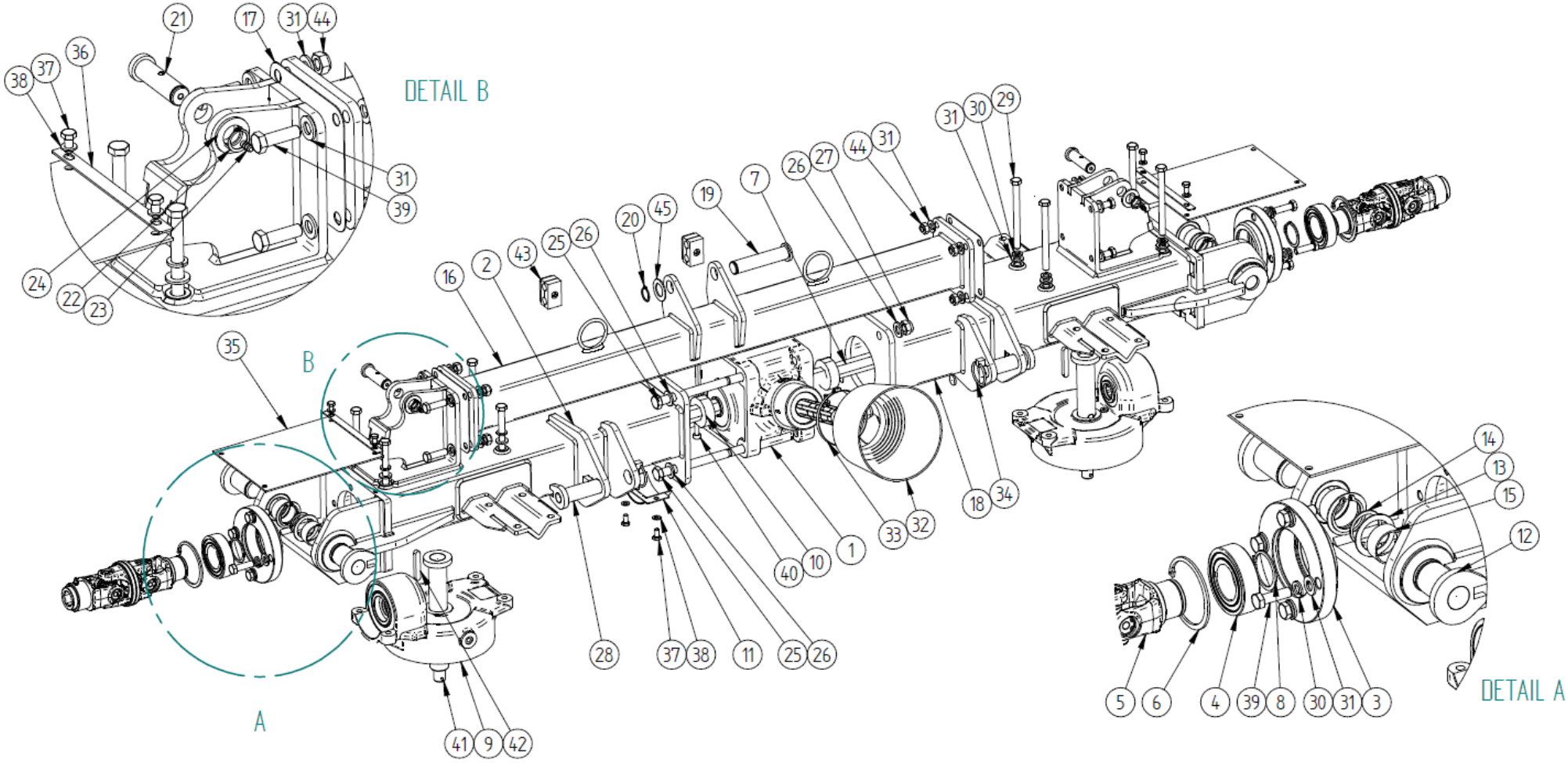
11.6 Middle frame set



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MIDDLE FRAME SET					
Item	**Part no. / Description**	**Title**	**Quantity**		**Index**
			Trailed version	**3pt link version**	
1	4350-9.318.802	Central gear TB-318 J	1		T001236
2	PK 01.00.00.00	Centre frame RIGHT	1		P580029
3	PK 07.00.00.03	Joint support	2		P580369
4	Ball bearing 2209 - 2rs	Ball bearing 2209 - 2rs	2		T000200
5	4300-121.002.044	Double joint SH20.000000	2		T000500
6	Snap ring W85	Snap ring W85	2		T000422
7	PK 07.00.00.01	Middle drive shaft	1		T000422
8	Snap ring Z45	Snap ring Z45	2		T000414
9	4350-9.319.800	Side transmission TB-319 J	2		T001237
10	PK 07.00.00.05	Shaft distance collar	2		P580367
11	PK 00.00.12.00	Transmission guard	2		P580247
12	PK 00.00.01.00	Joint bolt set	4		P580095
13	PD 40,5x50	Joint bolt washer	4		P580098
14	Snap ring Z40	Snap ring Z40	4		T000413
15	Sliding sleeve 40x44x20	Sliding sleeve PAP4020-P10	4		T001476
16	PK 03.00.00.00	Connecting beam	1		P580055
17	PK 00.00.00.04	Fastening sheet	2		P580061/P580062
18	PK 01.00.00.00_reb.1	Centre frame LEFT	1		P580003
19	PK 00.00.03.00	Hitch actuator pin	1		P580413
20	Snap ring Z25	Snap ring Z25	1		T000424
21	PK 00.00.05.00	Arm actuator bolt set	2		P580457
22	Snap ring Z20	Snap ring Z20	2		T000409
23	Grease nipple M6x1	Straight grease nipple M6x1	2		T000645
24	Flat washer M20-GAL	Flat washer fi20- GAL	2		T000462
25	Hex. screw DIN 931 M16x**200** galv. Hex. screw DIN 931 M16x**230** galv.	Hex. screw **M16x200** Hex. screw **M16x230**	4 0	2 2	T000778 T002409
26	Flat washer M16-GAL	Flat washer fi16- GAL	8		T000460
27	Hex. nut.M16-8-GAL-self-cl.	Hex. nut M16-8-GAL-self-cl.	4		T000294
28	PK 00.00.02.00	Hitch bolt	2		P580157
29	Hex. screw M12x140x30-8.8-GAL.	Hex. screw. M12x140x30 -8.8-GAL.	8		T000753
30	Spring washer M12-GAL	Spring washer fi12-GAL	16		T000451
31	Flat washer.M12-GAL	Flat washer fi12- GAL	32		T000458
32	Shaft shield	Cone shield 18/101	1		T000365
33	Band clip	Band clip 80*100	1		T000338
34	With_prot._10.5x45	Universal cotter	2		T000981
35	PK 00.00.00.03	Joint shield	2		T000063

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MIDDLE FRAME SET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
36	PK 00.00.00.01	Joint guard rubber fastening	2	P580253
37	Bolt 6-cat M8x16-8.8-GAL	Bolt 6-cat M8x16-8.8-GAL	8	T000803
38	Flat washer.M8-GAL	Flat washer fi8- GAL	8	T000471
39	Hex. screw M12x40-8.8-GAL.	Hex. screw M12x40-8.8-GAL.	16	T000757
40	Hex. socket cap screw M8x25-8.8-GAL	Hex. socket cap screw M8x25-8.8-GAL.	2	T002089
41	PK 06.03.00.00	Wheel pin	2	P580312
42	Prismatic inlet 10x8x63	Prismatic inlet 10x8x63	2	T000948
43	Hose fastening DN8	Hose fastening DN8	2	T000319
44	Hex. nut M12-8-GAL-self-cl.	Hex. nut M12-8-GAL-self-cl.	8	T000291
45	Flat washer fi25-GAL	Flat washer fi25- GAL	1	T000464

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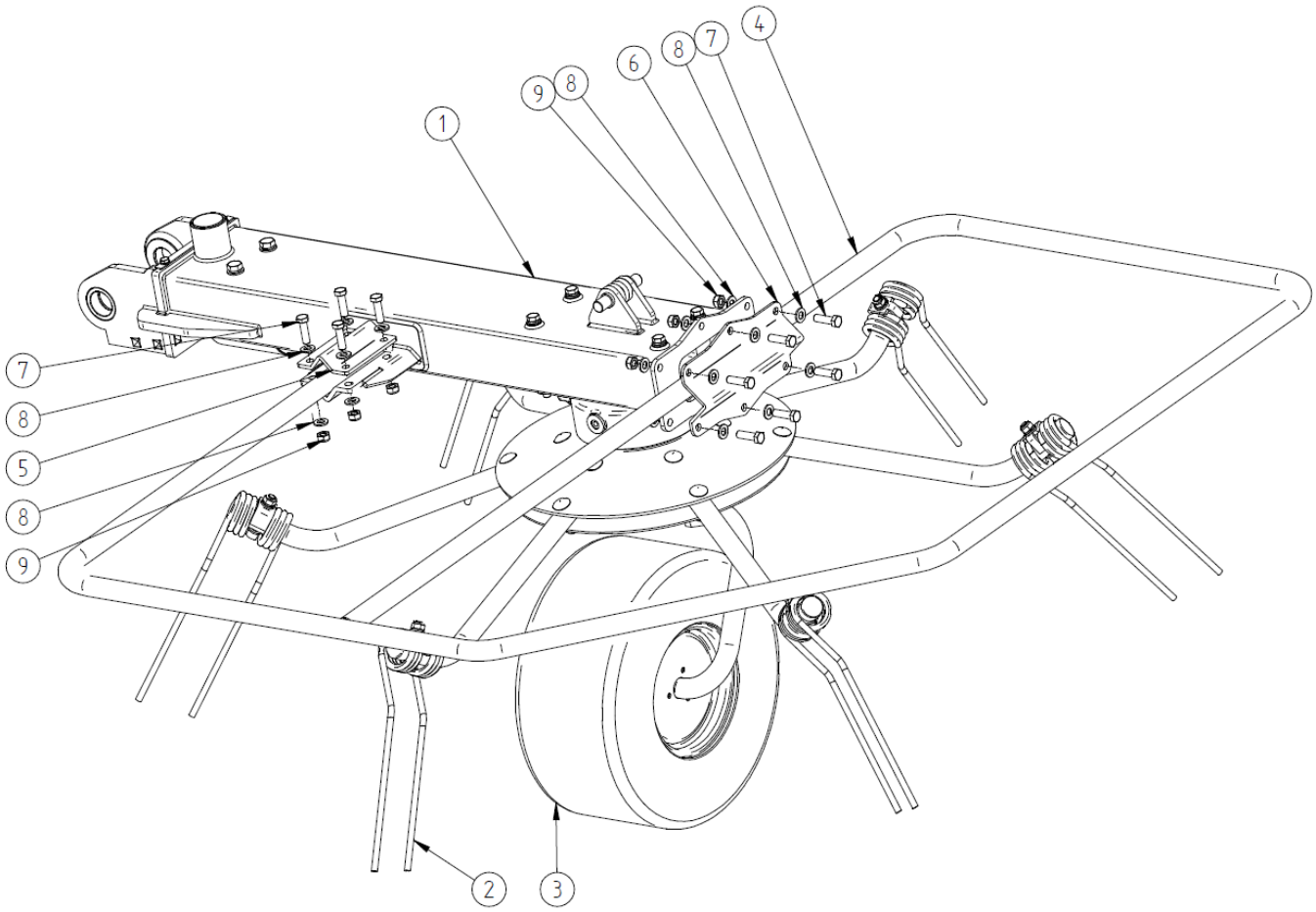
11.7 Left side frame set



LEFT SIDE FRAME SET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index/Section no.**
1	Left side frame	Left side frame	1	**11.8** Left side frame
2	Right working set	Right working set	1	**11.10** Right working
3	Left wheelset	Left wheelset	1	**11.11** Left wheelset
4	PK 09.01.00.00	Side barrier	1	P580225
5	PK 09.00.00.02	Barrier fastening	1	P580168
6	PK 09.00.00.01	Side barrier fastening	1	P580219
7	Hex. screw M12x40-8.8-GAL.	Hex. screw M12x40-8.8-GAL.	10	T000757
8	Flat washer.M12-GAL	Flat washer fi12- GAL	20	T000458
9	Hex. nut M12-8-GAL-self-cl.	Hex. nut M12-8-GAL-self-cl.	10	T000291

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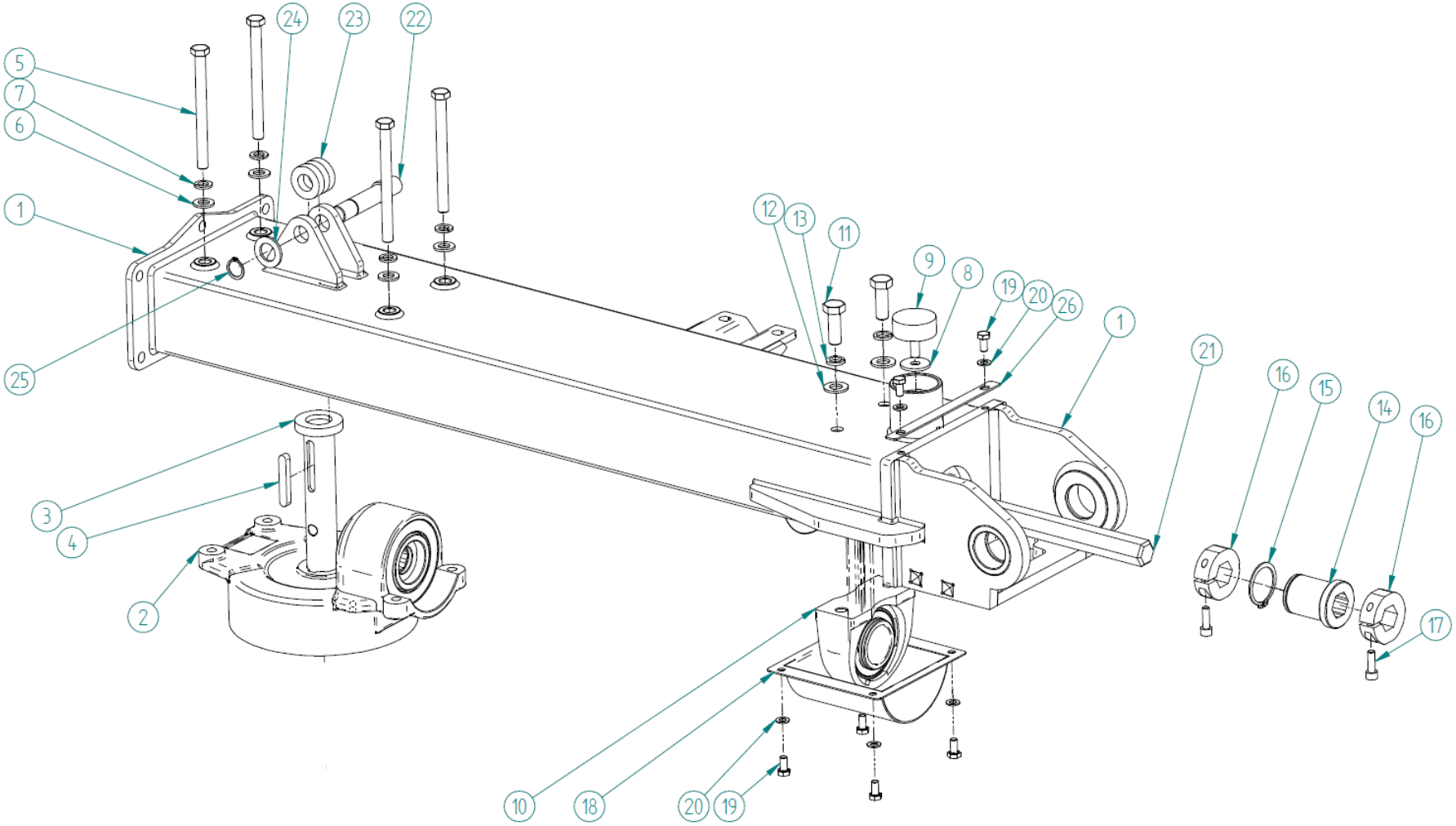
11.8 Left side frame



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LEFT SIDE FRAME				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 02.00.00.00_reb.	Left side frame	1	P580104
2	4350-9.319.800	Side gear TB-319 J	1	T001237
3	PK 06.03.00.00	Wheel pin	1	P580312
4	Prismatic inlet 10x8x63	Prismatic inlet 10x8x63	1	T000948
5	Hex. screw M12x140x30-8.8-GAL.	Hex. screw M12x140x30-8.8-GAL.	4	T000753
6	Flat washer.M12-GAL	Flat washer fi12- GAL	4	T000458
7	Spring washer M12-GAL	Spring washer fi12-GAL	4	T000451
8	Enlarged flat washer M10-GAL	Enlarged flat washer M10-GAL	1	T000457
9	Rubber rebound fi50x20	Rubber rebound fi50x20	1	T000011
10	Self-adjusting bearing ucpa209	Self-adjusting bearing ucpa209	1	T001012
11	Hex. screw M14x40-8.8-GAL	Hex. screw M14x40-8.8-GAL	2	T000767
12	Flat washer M14-GAL	Flat washer fi14- GAL	2	T000459
13	Spring washer M14-GAL	Spring washer fi14-GAL	2	T000452
14	PK 07.00.00.04	Shaft support sleeve	1	P580366
15	Snap ring Z45	Snap ring Z45	1	T000414
16	PK 07.00.00.05	Shaft distance collar	2	P580367
17	Hex. socket cap screw M8x25-8.8-GAL	Hex. socket cap screw M8x25-8.8-GAL.	2	T002089
18	PK 00.00.11.00	Bearing guard	1	P580241
19	Bolt 6-cat M8x16-8.8-GAL	Bolt 6-cat M8x16-8.8-GAL	6	T000803
20	Flat washer.M8-GAL	Flat washer fi8- GAL	6	T000471
21	PK 07.00.00.02	Side drive shaft	1	P580365
22	PK 00.00.04.00	Side frame closure bolt	1	P580464
23	PK 00.00.00.02	Actuator closure bolt sleeve	2	P580465
24	Flat washer M20-GAL	Flat washer fi20- GAL	1	T000462
25	Snap ring Z20	Snap ring Z20	1	T000409
26	PK 00.00.00.01	Joint guard rubber fastening	1	P580253

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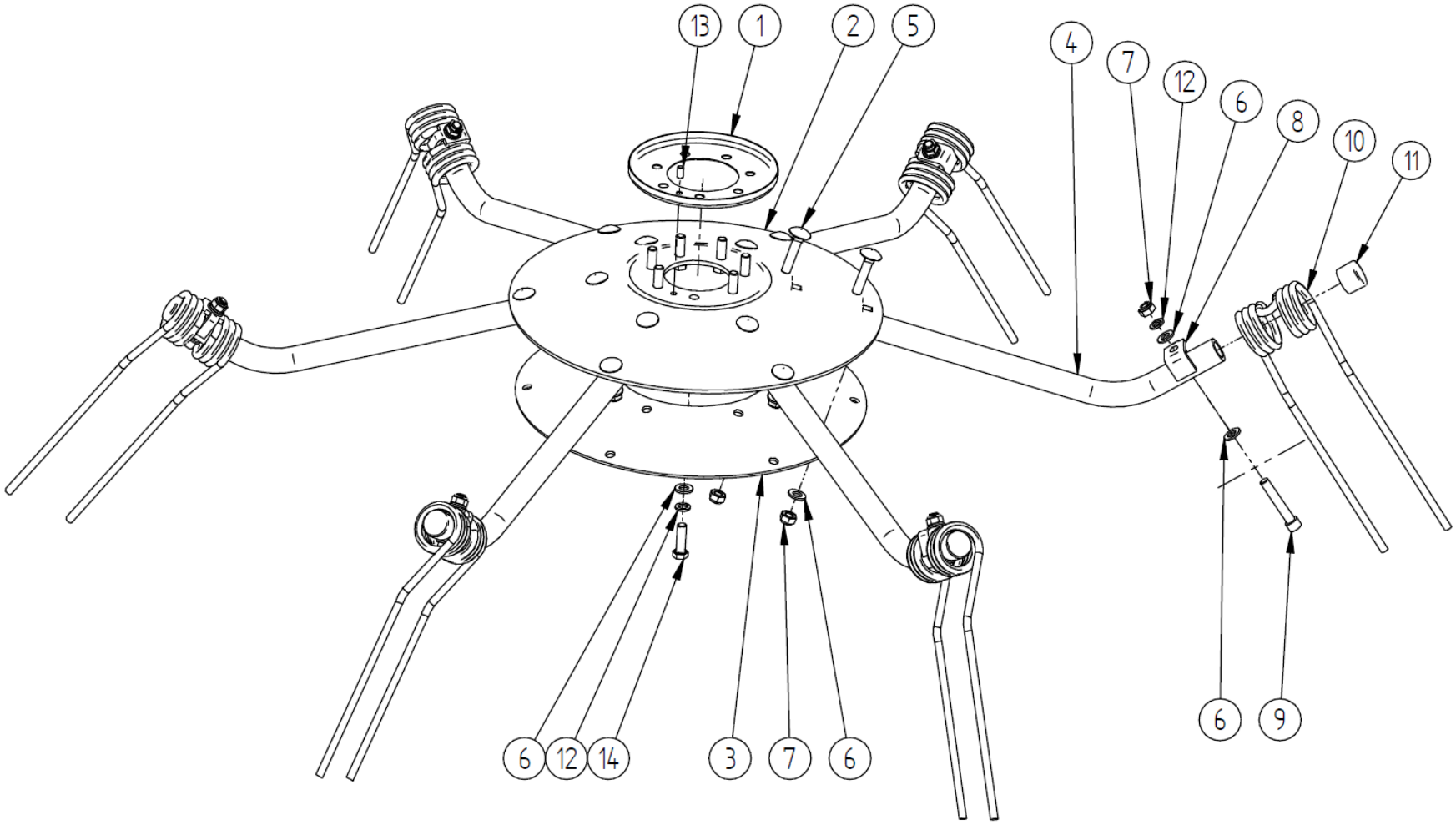
11.9 Left working unit



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LEFT WORKING SET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 05.00.00.01	Transmission stopper	1	P580259
2	PK 05.00.00.02	Rotor upper plate	1	T001372
3	PK 05.00.00.03	Rotor bottom plate	1	T001371
4	PK 05.00.00.04	Spring tine bow	6	P580263
5	Saucer head screw raised M12x60-8.8-GAL	Saucer head screw raised M12x60-8.8-GAL	12	T000829
6	Flat washer.M12-GAL	Round washer fi12-GAL	31	T000458
7	Hex. nut M12-8-GAL-self-cl.	Hex. nut.M12-8-GAL-self-cl.	18	T000291
8	PK 05.00.00.05	Working tine fastening	6	P580264
9	Hex. socket cap screw M12x70 gal.	Hex. socket cap screw M12x70 gal.	6	T000736
10	Spring tine, left	Spring tine, left	6	T000657
11	Pipe stopper 33.4x24.8	Stopper 1”	6	T000485
12	Spring washer M12-GAL	Spring washer fi12-GAL	13	T000451
13	Straight pin, hardened 8x16	Dowel pin, hardened h6 8x16	1	T000088
14	Hex. screw M12x40-8.8-GAL.	Hex. screw M12x40-8.8-GAL.	7	T000757

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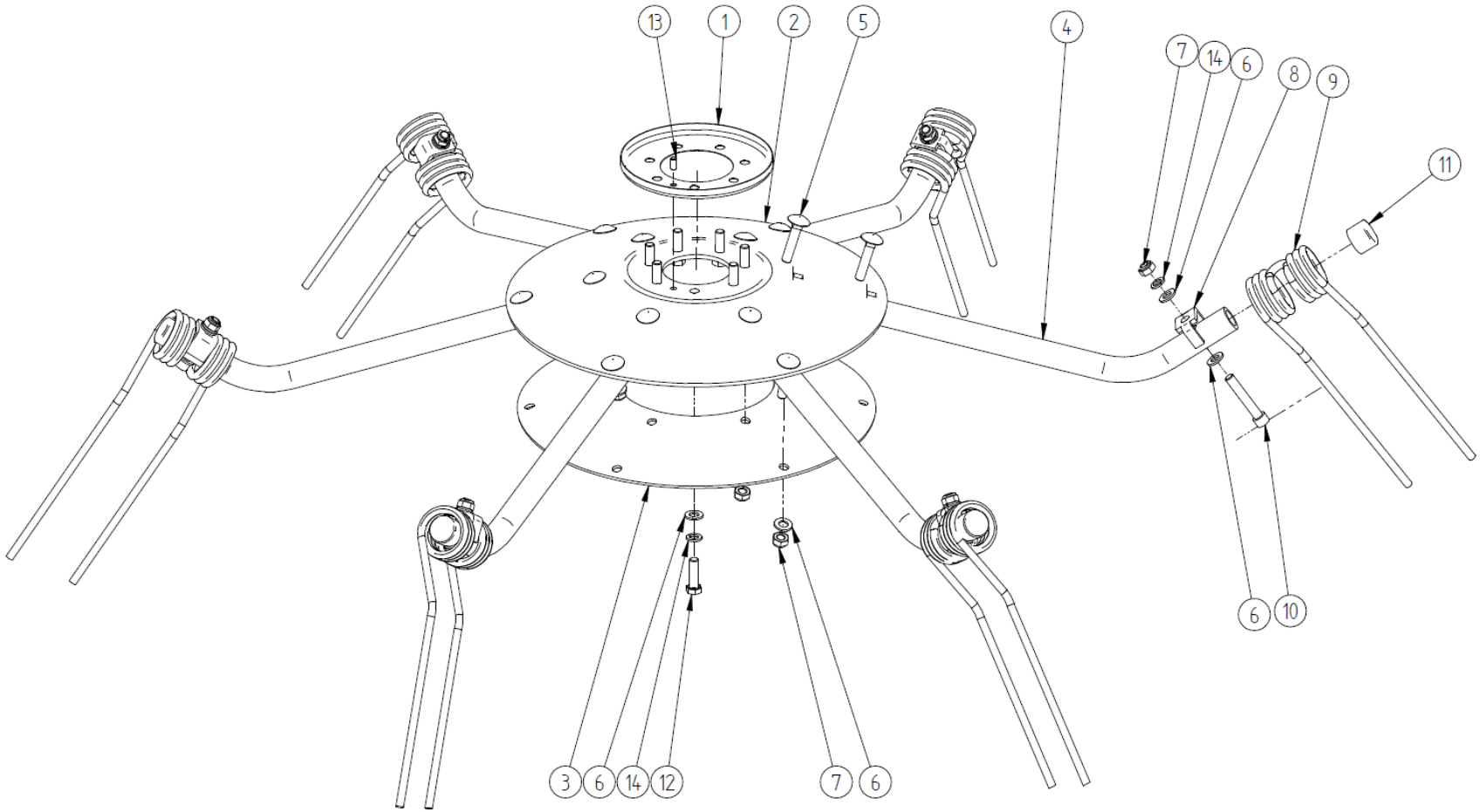
11.10 Right working unit



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RIGHT WORKING SET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 05.00.00.01	Transmission stopper	1	P580259
2	PK 05.00.00.02	Rotor upper plate	1	T001372
3	PK 05.00.00.03	Rotor bottom plate	1	T001371
4	PK 05.00.00.04	Spring tine bow	6	P580263
5	Saucer head bolt raised M12x60-8.8-GAL	Saucer head screw raised M12x60 -8.8-GAL	12	T000829
6	Flat washer.M12-GAL	Flat washer fi12- GAL	31	T000458
7	Hex. nut M12-8-GAL-self-cl.	Hex. nut M12-8-GAL-self-cl.	18	T000291
8	PK 05.00.00.05	Working tine fastening	6	P580264
9	Spring tine, right	Spring tine, right	6	T000658
10	Hex. socket cap screw M12x70 gal.	Hex. socket cap screw M12x70 gal.	6	T000736
11	Pipe stopper 33.4x24.8	Stopper 1”	6	T000485
12	Hex. screw M12x40-8.8-GAL.	Hex. screw M12x40-8.8-GAL.	7	T000757
13	Straight pin, hardened 8x16	Dowel pin, hardened h6 8x16	1	T000088
14	Spring washer M12-GAL	Spring washer fi12-GAL	13	T000451

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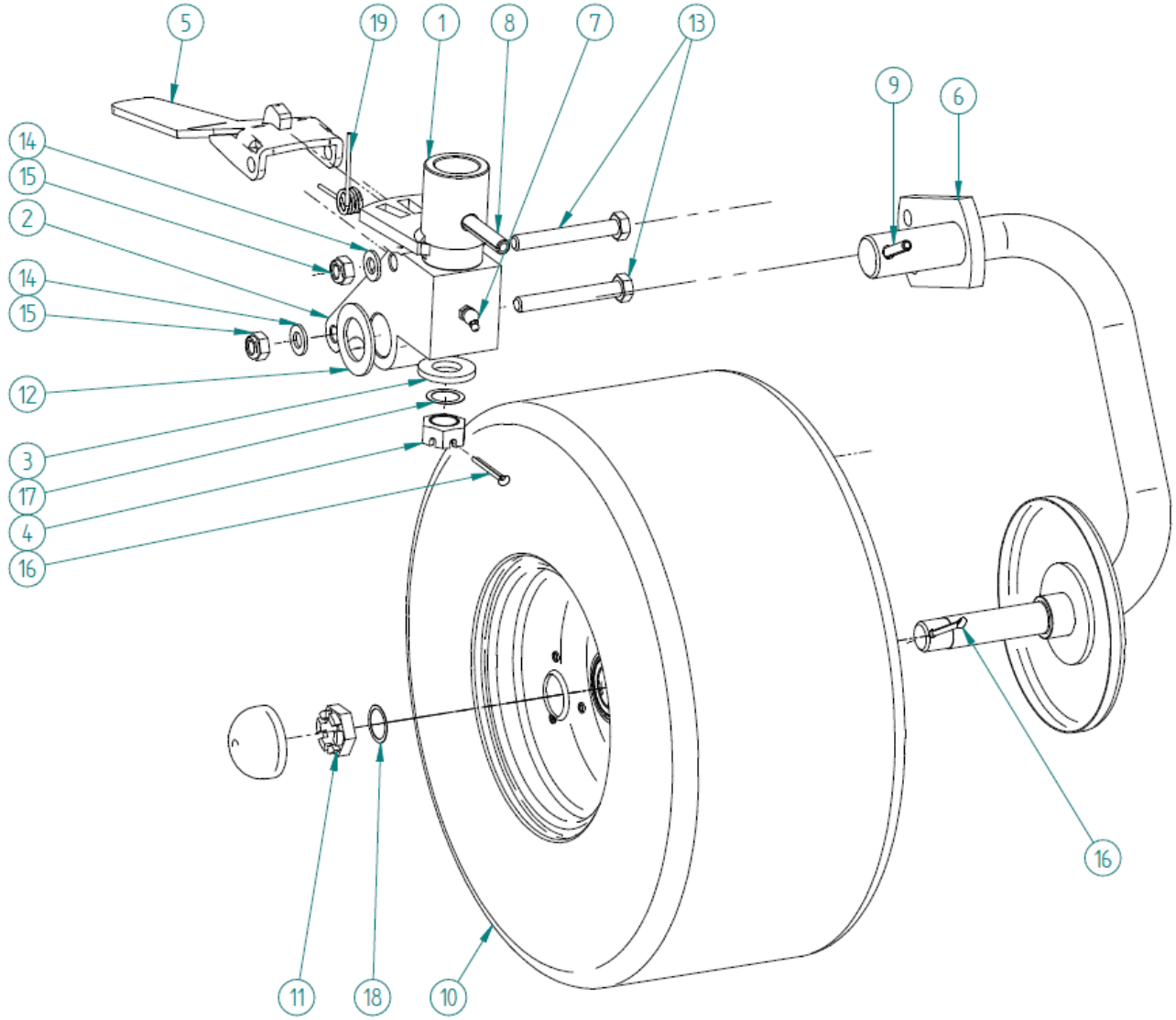
11.11 Left wheelset



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LEFT WHEELSET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 06.01.00.00	Alignment bushing	1	P580303
2	PK 06.00.00.01	Wheel bow fastening	1	P580309
3	PK 06.00.00.02	Wheel bolt washer	1	P580310
4	Crown washer din979-m22x1_5 GAL	Hex. crown nut low M22x1_5 GAL	1	T000275
5	PK 06.02.00.00	Handle	1	P580306
6	PK 06.04.00.00_reb.	Wheel bow set	1	P580331
7	Angle grease nipple M10x1	Angle grease nipple M10x1	1	T000644
8	Spring-type straight pin fi12x60	Spring-type straight pin fi12x60	1	T000079
9	Spring-type straight pin fi8x60	Spring-type straight pin fi8x60	1	T000078
10	18x8.50-8	Wheel AB 18x8,5-8 81B STARCO HIT TR13	1	T000093
11	Hex. crown nut low M24x1.5 GAL	Hex. crown nut low M24x1.5 GAL	1	T000280
12	PK 06.00.00.03	Wheel bow washer	1	P580311
13	Hex. screw.M12x90x30-8.8-GAL	Hex. screw.M12x90x30-8.8-GAL	1	T000763
14	Flat washer.M12-OC	Flat washer fi12- OC	2	T000458
15	Hex. nut M12-8-GAL-self-cl.	Hex. nut M12-8-GAL-self-cl.	2	T000291
16	Split linchpin 5x40	Cotter pin 5x40	2	T000985
17	Adjusting washer fi22	Adjusting washer fi22 #0.3 #0.5	1, as required	T000447; T000448
18	Adjusting washer fi24	Adjusting washer fi25	1 or 2, as required	T000444
19	Spring fi3 TO2040L	Handle spring	1	T001702

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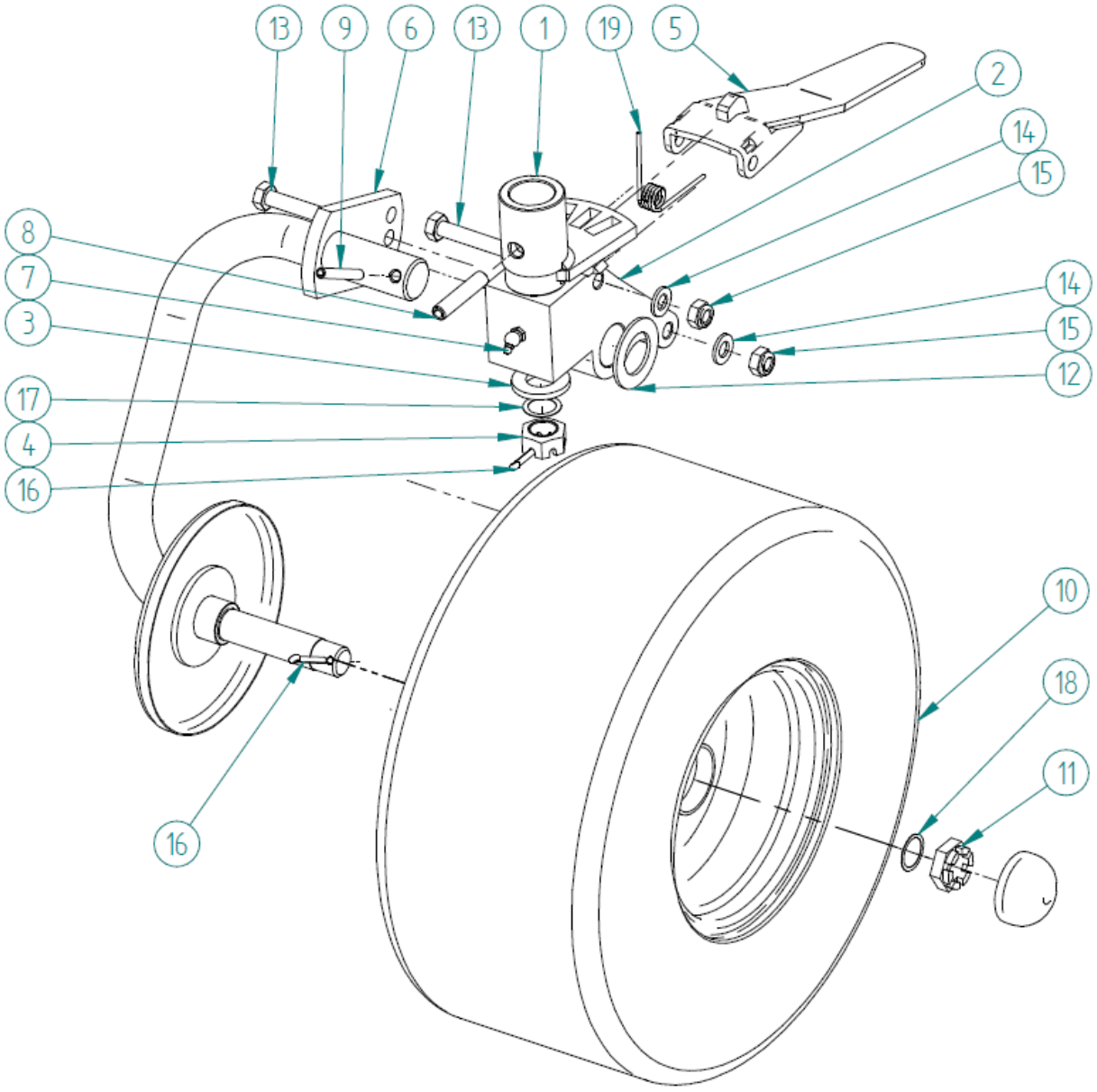
11.12 Right wheelset



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RIGHT WHEELSET				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 06.01.00.00	Alignment bushing	1	P580303
2	PK 06.00.00.01	Wheel bow fastening	1	P580309
3	PK 06.00.00.02	Wheel bolt washer	1	P580310
4	Crown washer din979-m22x1_5 GAL	Hex. crown nut low M22x1_5 GAL	1	T000275
5	PK 06.02.00.00	Handle	1	P580306
6	PK 06.04.00.00	Wheel bow set	1	P580298
7	Angle grease nipple M10x1	Angle grease nipple M10x1	1	T000644
8	Spring-type straight pin fi12x60	Spring-type straight pin fi12x60	1	T000079
9	Spring-type straight pin fi8x60	Spring-type straight pin fi8x60	1	T000078
10	18x8.50-8	Wheel AB 18x8,5-8 81B STARCO HIT TR13	1	T000093
11	Hex. crown nut low M24x1.5 GAL	Hex. crown nut low M24x1.5 GAL	1	T000280
12	PK 06.00.00.03	Wheel bow washer	1	P580311
13	Hex. screw M12x90x30-8.8-GAL	Hex. screw M12x90x30 - 8.8-GAL	2	T000763
14	Flat washer.M12-OC	Flat washer fi12- GAL	2	T000458
15	Hex. nut M12-8-GAL-self-cl.	Hex. nut M12-8-GAL-self-cl.	2	T000291
16	Split linchpin 5x40	Cotter pin 5x40	2	T000985
17	Adjusting washer fi22	Adjusting washer fi22 # 0.3#0.5	1, as required	T000447; T000448
18	Adjusting washer fi24	Adjusting washer fi25	1 or 2, as required	T000444
19	Spring fi3 TO2040L	Handle spring	1	T001702

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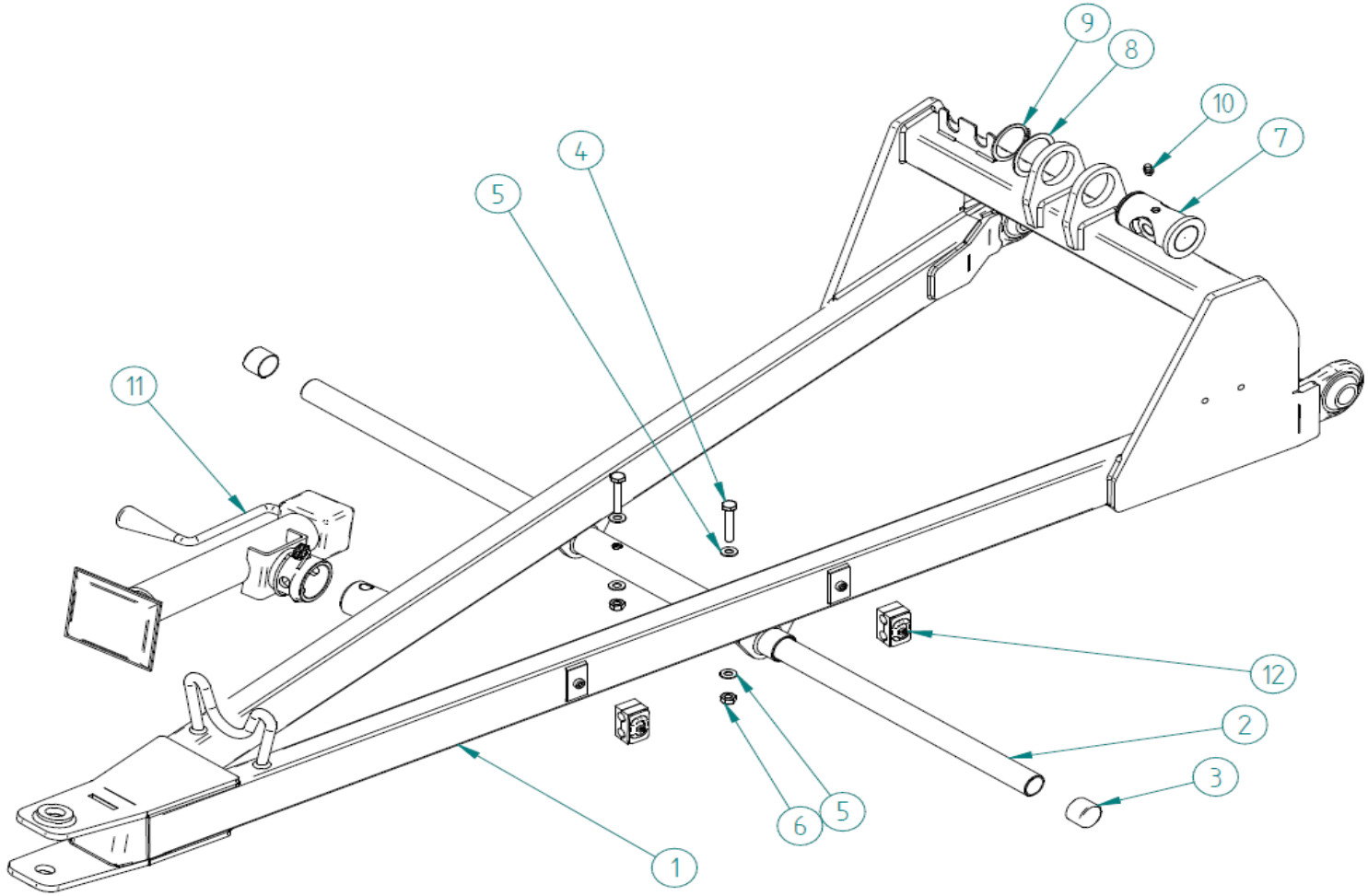
11.13 Hitch – drawbar version



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HITCH				
Item	**Part no. / Description**	**Title**	**Quantity**	**Index**
1	PK 04.00.00.00	Hitch Am. ver.	1	P580138
2	PK 09.00.00.03	Straight barrier	1	P580234
3	Pipe stopper 33.4x24.8	Stopper 1”	2	T000485
4	Hex. screw M10x60-8.8-GAL	Hex. screw M10x60-8.8-GAL	2	T000747
5	Flat washer M10-OC	Flat washer fi10- GAL	4	T000456
6	Hex. nut.M10-8-GAL self-cl.	Hex. nut.M10-8-GAL-self-cl.	2	T000292
7	PK 08.03.00.00	Hitch actuator f	1	P580403
8	PD 55.5x70	Sleeve washer of hitch actuator fastening	1	P580408
9	Snap ring Z55	Snap ring Z55	1	T000417
10	Grease nipple M10x1	Straight grease nipple M10x1	1	T000643
11	Support foot	Support foot LT2103 50x430 SIMOL	1	T000304
12	Hose fastening DN8	Hose fastening DN8	2	T000319

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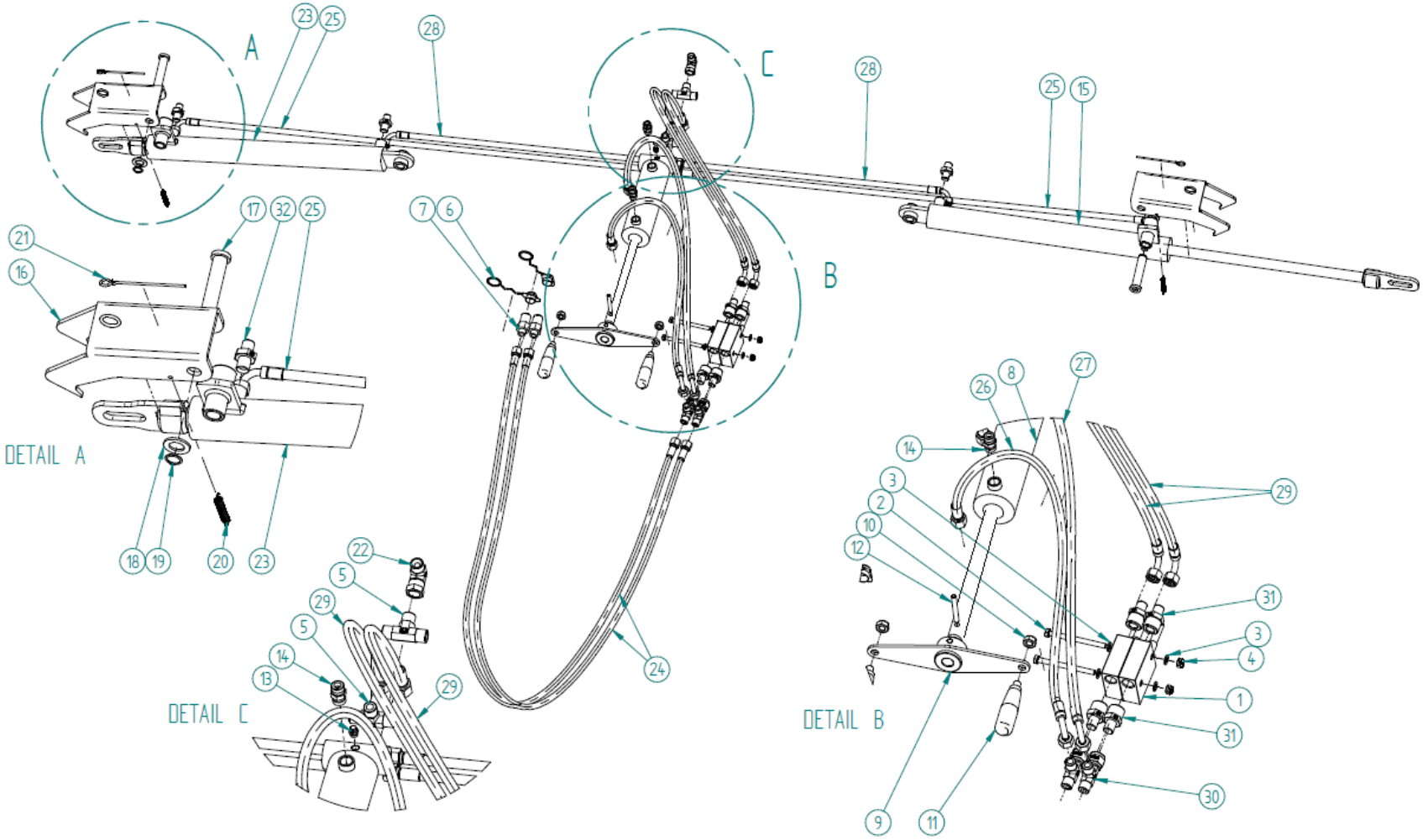
11.14 Hydraulic system



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HYDRAULIC SYSTEM					
Item	**Part no. / Description**	**Title**	**Quantity**		**Index**
			Trailed version	**3pt link version**	
1	VS2C 1 2 sequence valve	VS2C 1 2 sequence valve	2	-	T001003
2	Hex bolt M8x100 galv.	Hex bolt M8x100 galv.	2	-	T001714
3	M8 Flat washer	M8 Flat washer	4	-	T000471
4	Hex nut M8-8 self-stop	Hex nut M8-8 self-stop	2	-	T000256
5	Tee M18x1,5	Tee M18x1,5	2		T001045
6	End cap of Euro plug	End cap of Euro plug	2	-	T000488
7	Hydr. Quick coupler Euro plug	Hydr. Quick coupler Euro plug	2	-	T000995
8	PK 08.01.00.00	Hitch cylinder	1	-	T000632
9	PK 08.02.00.00	Hitch cylinder knob	1	-	P580395
10	Hex nut M12-8 self-stop	Hex nut M12-8 self-stop	2	-	T000291
11	JCL-885	Rotary knob	2	-	T000223
12	Roll pin fi8x60	Roll pin fi8x60	1	-	T000078
13	Grease nipple M10x1	Grease nipple M10x1	1	-	T000643
14	Straight connector body M18x1,5	Straight connector body M18x1,5 12L/12L	2	-	T001039
15	PK 08.04.00.00	Left frame hyd. Cylinder set	1		P580282
16	PK 08.05.00.00	Cylinder lock	2		P580444
17	PK 00.00.06.00	Cylinder lock pin	2		P580448
18	Fi20 flat washer	Fi20 flat washer	2		T000462
19	Retainting ring Z20	Retainting ring Z20	2		T000409
20	Spring fi1,5x12x75 OC	Cylinder lock spring	2		T000665
21	Cable fi8 4,5m	Cable fi8 4,5m.par	2		T000162
22	Female elbow joint AB M18x1,5	Female elbow joint AB M18x1,5 12L/12L	1	-	T001032
23	PK 08.04.00.00 right set	Right frame hyd. Cylinder set	1		P580490
24	Power line L3000	Hose P51/P51 M18x1,5 1SC DN8 L-3000	2	-	T000537
25	Power line L1300	Hose P51/P52 M18x1,5 1SC DN8 L-1300	2		T000554
26	Power line L570	Hose P52/P52 M18x1,5 1SC DN8 L-570	1	-	T001244
27	Power line L630	Hose P52/P52 M18x1,5 1SC DN8 L-630	1	-	T000555
28	Power line L750	Hose P51/P52 M18x1,5 1SC DN8 L-750	2		T001245
29	Power line L950	Hose P51/P52 M18x1,5 1SC DN8 L-950	2	-	T000556
30	Female tee nipple BBA M18x1,5	Tee BBA M18x1,5	2	-	T000845
31	Connector 1/2 M18x1,5	Connector 1/2 M18x1,5	4	-	T000578
32	Connector 3/8 M18x1,5	Connector 3/8 M18x1,5	4		T000582

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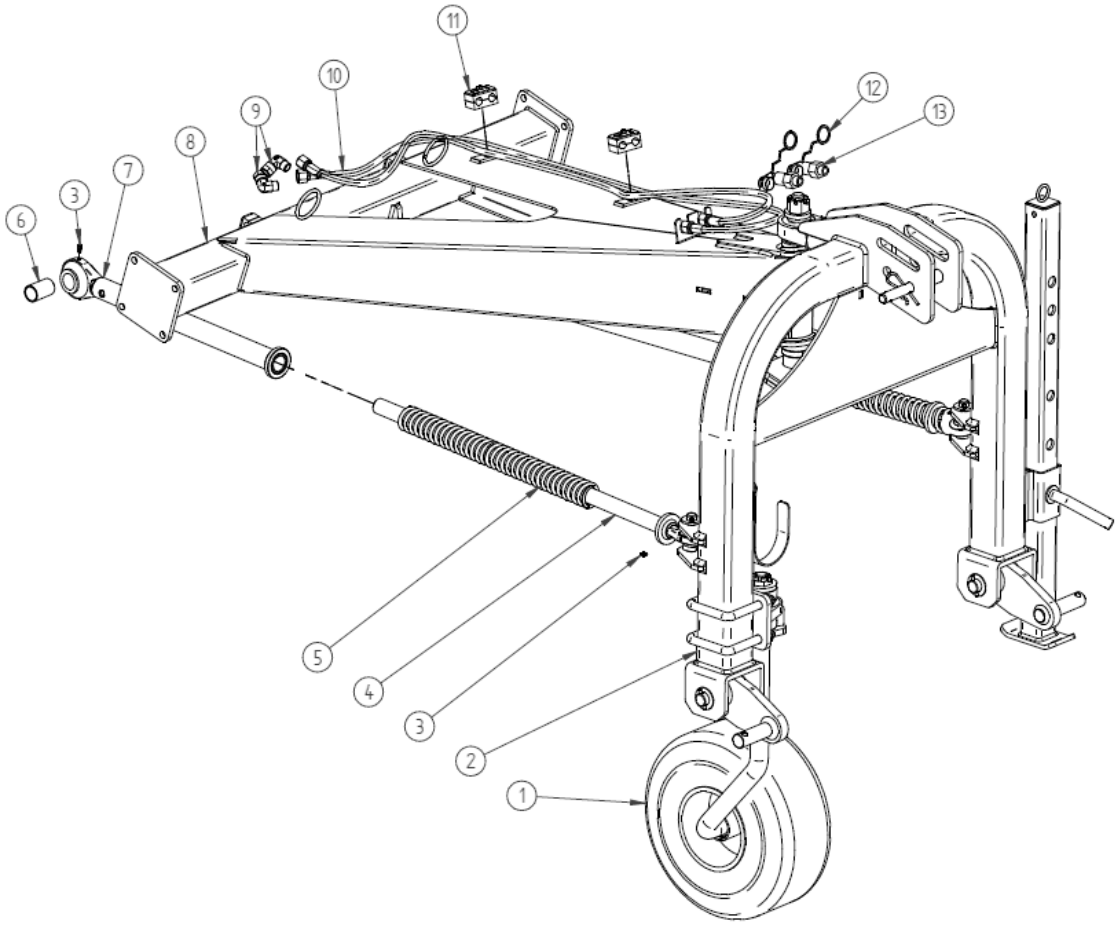
11.15 Hitch – 3 point linkage version



HITCH			
Item	**Part no. / Description**	**Quantity**	**Index**
1	Support wheel	1	P001093/ **11.17** Support wheel
2	Main hitch	1	**11.16** Main hitch
3	M6x1 galv. Grease nipple	4	T000645
4	Inner control link	2	P001078
5	550x50x7x15 compression spring	2	T001473
6	Hitch pin reduction bush	2	P001087
7	Outer control link	2	P001074
8	Hitch	1	P001068
9	ab m18x1,5 12l/12l elbow connector	2	T001032
10	Hose p51/p51 m18*1,5 1sc dn8 l-3000	2	T000537
11	Clamp 2x15mm set b250-2.15/15k	4	T000319
12	Plug cover IS0 12,5	2	T000488
13	Quick couple ISO12,5 m18x1,5- euro plug	2	T000995

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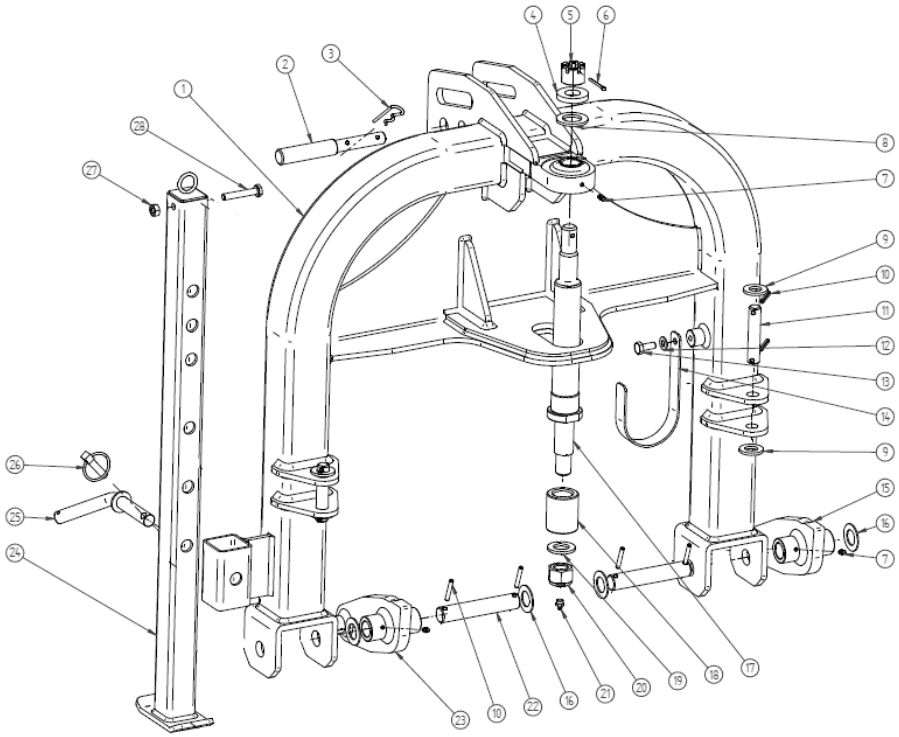
11.16 Main hitch



MAIN HITCH			
Item	**Part no. / Description**	**Quantity**	**Index**
1	Hitch frame	1	P540003
2	Upper hitch pin, category II galv.	1	P540024
3	Securing pin ß Ø4x100	1	T000987
4	Washer for the M24x1.5 crown nut	1	P540029
5	M24 crown nut	1	T000263
6	Split pin 5x40	1	T000985
7	Straight grease nipple M6x1 oc	3	T000645
8	Washer for main hitch pin	1	P540028
9	M20 Plain washer	4	T000462
10	Roll pin Ø6x40 ISO 8752	8	T000087
11	Control link pin	2	P540285
12	M10 plain washer	1	T000456
13	M10x25-8.8 bolt	1	T000740
14	PTO shaft mounting	1	P540019
15	Bottom right link pin	1	P001084
16	44/22.5 washer	4	P540042
17	Main hitch pin	1	P540027
18	Main pin bushing	1	P540030
19	M25 flat washer	1	T000464
20	M24 ISO 7040 -8-B self-stop nut	1	T000290
21	M10x1 Straight grease nipple	1	T000643
22	Lower suspension pin	2	P540043
23	Bottom left link pin	1	P001086
24	Support stand	1	P540059
25	Support stand bolt	1	P540067
26	Ø10 galv. Safety pin	3	T000981
27	M10 ISO 7040-8-B galv. Self-stop nut	1	T000292
28	M10x60 8.8 galv. Incomplete thread bolt	1	T000747

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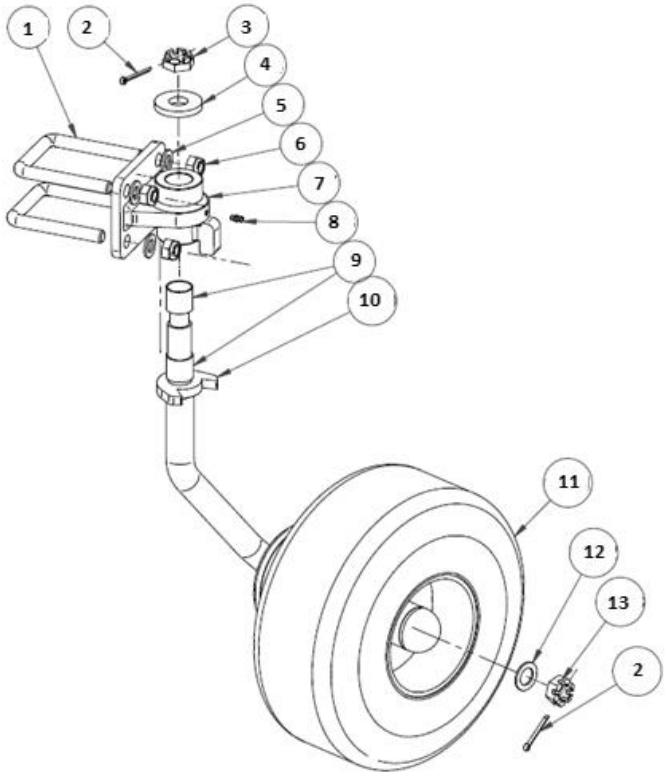
11.17 Support wheel



SUPPORT WHEEL			
Pozycja	**Part no. / Description**	**Quantity**	**Index**
1	Bracket M16 16x82x135	2	T001474
2	Cotter pin 5x40	2	T000985
3	Low lock nut M24x1,5	1	T000280
4	Washer for wheel arm mounting nut	1	P550043
5	M16 Washer	4	T000460
6	M16-8 self-stop nut	4	T000294
7	Wheel arm mounting	1	P550048
8	Grease nipple M6x1	1	T000645
9	Sliding bushing PAP 3030-P10	2	T000218
10	Wheel arm	1	P001082
11	Wheel 15x6.00-6 6 PR MALZ 12591506066	1	T000091
12	M22 Washer	1	T000463
13	Low lock nut M22x1,5	1	T000275

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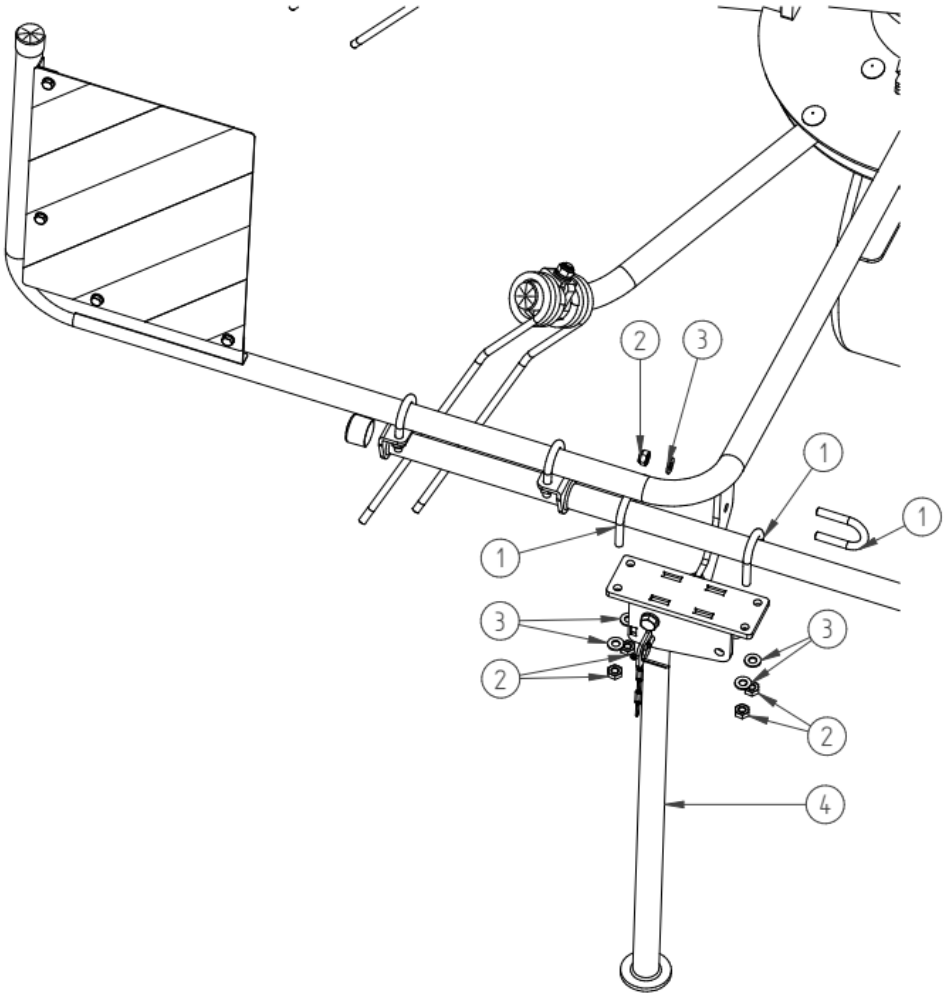
11.18 Additional support stand



ADDITIONAL SUPPORT STAND			
Item	**Part no. / Description**	**Quantity**	**Index**
1	M10x35 U-Bolt	3	T000026
2	M10 galv. Self-stop nut	6	T000292
3	M10 plain washer	6	T000456
4	Additional support stand	1	**11.19** Additional support foot - components

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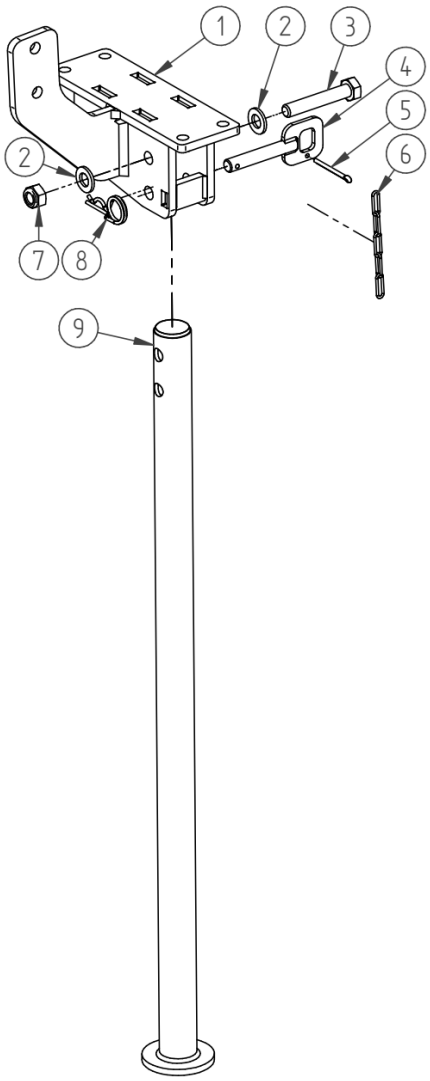
11.19 Additional support stand – elements



Additional support foot - components			
Item	**Part no. / Description**	**Quantity**	**Index**
1	PK-12.01.00.00	1	P002153
2	M12 plain washer	2	T000458
3	M12x70-8.8 galv. Full thread bolt	1	T001365
4	PK-12.03.00.00	1	P002155
5	4x50 pin	1	T000984
6	2,0 galv. chain	0,2m	T000168
7	M12 galv. Self-stop nut	1	T000291
8	Pin 3x67 galv.	1	T000982
9	PK-12.02.00.00	1	P002154

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12. Warranty

WARRANTY CARD

Factory no.	……	Type	……
Year of manufacture	……	Quality Control (KJ)	……

Under the warranty, the manufacturer undertakes to repair, free of charge, any physical defects revealed during the warranty period, i.e. 12 months from the date of sale.
The manufacturer will be exempt from liability under the warranty in case of:

- Mechanical damage of the machine, which occurred after it was delivered to the user;
- Improper use, maintenance, storage of the machine, in particular if not compliant with the instruction manual;
- Execution of any repairs by unauthorized persons and without the consent of the manufacturer;
- Implementation of any design modifications without the consent of the manufacturer.

Warranty card is valid if it has the signature of the seller, and the date of sale confirmed by the official stamp of the dealer. It must not contain deletions and amendments by unauthorized persons.
A duplicate of the warranty card may be issued upon a written request after presentation by the user of the proof of purchase.
In the case of an unjustified service call to warranty repair, the related costs will be borne by the user. Any complaints the user must report immediately after the damage, directly to the dealer or to the manufacturer.
The manufacturer will carry out warranty repairs within 14 days from the date of the complaint. The guarantee will be extended by the repair time counted from the date of the complaint until to the date of completion of the service if the defect prevents the use of the machine.
The warranty does not cover any normal wear of parts such as: bearings, tarpaulins, fasteners, etc.

Date of sale: _____ _____

(Day, month, year) *(Signature and stamp of a dealer)*

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13. Records of warranty repairs

Filled in by the manufacturer

Date of complaint claim: _____

The scope of repair and parts used: _____

_____

_____

_____

Date of complaint processing: _____

Warranty extended until: _____

_____

(signature and stamp of the service)

Date of complaint claim: _____

The scope of repair and parts used: _____

_____

_____

_____

Date of complaint processing:

_____

Warranty extended until: _____

_____

(signature and stamp of the service)

Date of complaint claim: _____

The scope of repair and parts used: _____

_____

_____

_____

Date of complaint processing: _____

Warranty extended until: _____

_____

(signature and stamp of the service)

Date of complaint claim: _____

The scope of repair and parts used: _____

_____

_____

_____

Date of complaint processing: _____

Warranty extended until: _____

_____

(signature and stamp of the service)

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14. Warranty form

WARRANTY FORM NO. ……

Full name:….....

Address:.....

Postal code :…….....

City :…….....

Telephone No:….....

Email address :…….....

Means of complaint claim:……..……..

Name of the subject of complaint:.....

Name of the dealer:…….....

Proof of purchase - VAT invoice no. .....dated .....20……..

Description of fault /damage:…….....

.....

The agreed date for the complaint resolution:….....

Means and time of the complaint resolution:……..

……...

Date the fault occurred / was discovered: .....20.....

.....

Date, full name

TALEX Sp. z o.o.
ul. Dworcowa 9c
77-141 Borzytuchom
tel.:+48 59 821 13 40
e-mail.: biuro@talex-sj.pl
www.talex-sj.pl

15. Declaration of Conformity

Manufacturer:

TALEX Spółka z ograniczona odpowiedzialnością

Spółka komandytowa

ul. Dworcowa 9c

77-141 Borzytuchom

Hereby declares that the machine:

Machine type: **4-rotar tedder**

Machine name: TORNADO 550

Serial number: ……..

to which the declaration refers, meets the requirements of:

DIRECTIVES:

- machinery directive 2006/42/WE from 17/05/2006 (Dz.U.L 157 z 9.06.2006 page 24) and its change 2009/127/WE from 21.10.2009 (Dz.U. L 310 z 25.11.2009 page 29)

NORMALISED STANDARDS:

- PN-EN ISO 4254-1_2016-02E; PN-EN15811/2009; PN-EN 953/2009; PN-EN 12300/2010; PN-ISO 11684/1998; PN-ISO 4413;2005

This declaration of conformity shall cease to be valid, if the machine is modified in any way without the consent of the Talex Sp. z o.o.

Conformity with the requirements of the directives and standards has been ascertained based on the tests conducted by:

„FITMECH" Fundacja Inżynierów i Techników Mechaników Polskich w Słupsku.

The tests were carried out by: mgr inż. Zbigniew Myszka – expert of the Association of Polish Mechanical Engineers & Technicians No. 9763/11

Borzytuchom, 19.03.2016 — Karol Jaworski

place, date, full name — *Name and last name of the authorised person*