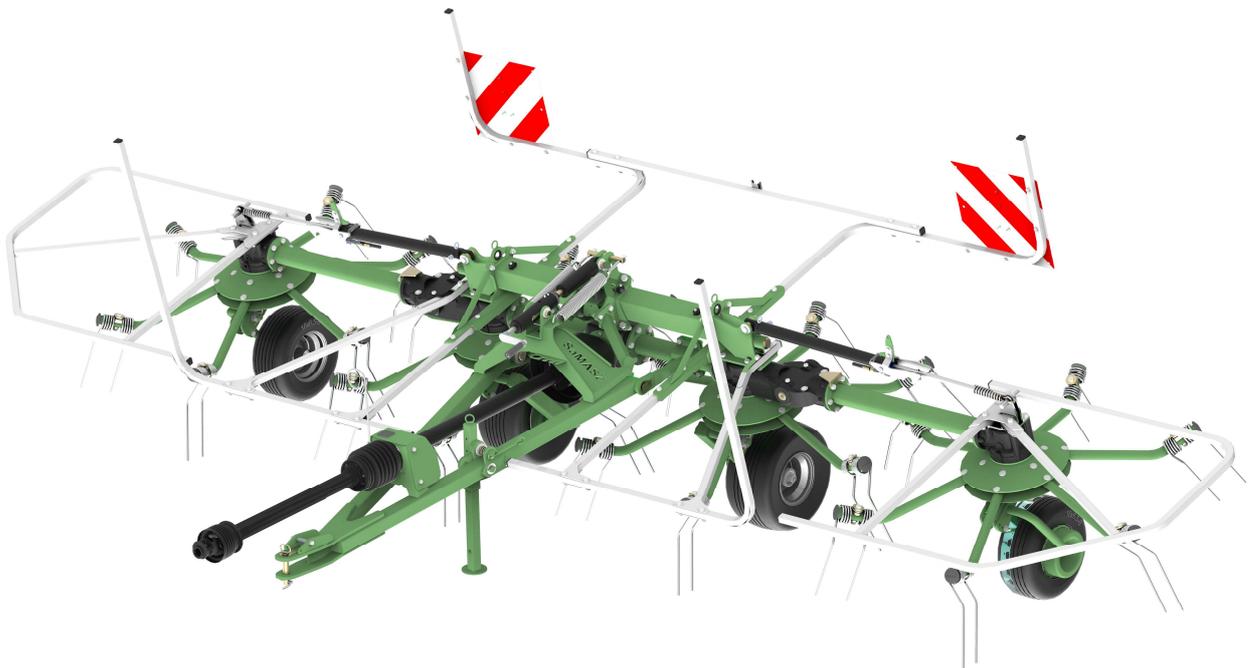




OPERATOR'S MANUAL



TRAILED TEDDER

P4-471 C – 4 rotors

P4-531 C – 4 rotors

P6-771 C – 6 rotors

Serial No.

IN0684USA001
2017.03.15
EDITION No 1



WARNING!

Do not start the tedder drive before moving the machine into working position.



WARNING!

Do not lift the tedder before the working units have come to a complete standstill.



WARNING!

Do not operate if any person remains within the danger area of 170' / 50 m from the machine.

NOTE:

Company SaMASZ is working constantly on development of all types and models. Thus there any possible change of form, equipment and technology of the delivered products is likely. Any claims arising from data, drawings and descriptions included in this operator's manual and spare parts list shall not be considered.

NOTE:

The manufacturer reserves the right to introduce changes in the construction.

NOTE:

Components of the tedder bent after running into an obstacle or a stone are repaired at the user's expense.

NOTE:

Keep this manual for future use.

Well-proven design with thousands of machines in regular use in many countries and quality materials ensure high durability and reliability of SaMASZ tedders.

We congratulate you on the purchase of your new SaMASZ tedder and wish you much pleasure and the very best work results through the years to come.

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1. IDENTIFYING THE MACHINE

Data plate is attached on the tedder's main frame as shown below in **Fig. 1**.

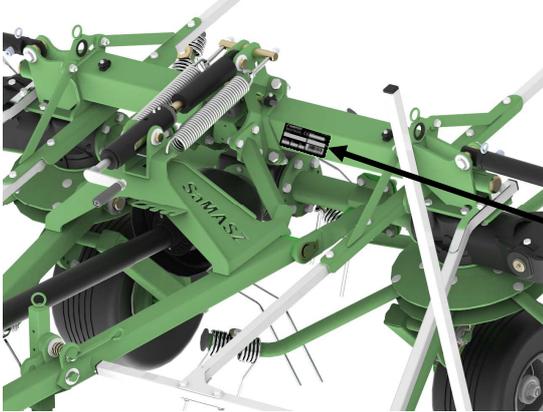


Fig. 1. Data plate location



Fig. 2. Data plate

Data plate includes:

- name and address of the manufacturer,
- CE marking means, that the produce conforms to 2006/42/EC Directive and harmonized standards,
- machine symbol,
- date of manufacture,
- model year,
- version number,
- machine weight,
- id number,
- barcode.

NOTE:

Should the contents of the herein manual be unclear, ask the manufacturer or your dealer for more detailed information on the machine.

2. INTRODUCTION

- ❑ This operator's manual is essential for safe and proper use of this tedder and should be read before anyone operates this tedder. It should be kept near the tedder for future use. If the tedder is used by another operator, it should be in working condition and include this operator's manual and all other basic equipment.
- ❑ Operator's manual is attached to every machine in order that the operator can familiarize himself with design, working principles, service and adjustment of the tedder. The operator should be familiar with common safety rules and procedures.
- ❑ The tedder is manufactured according to international safety rules.
- ❑ Compliance with the safety precautions in this operator's manual will help to enable safe operation.
- ❑ Please contact your dealer if you have any queries relating to the operation and service of the tedder.



GENERAL PRECAUTION

When operating the machine always respect warnings and safety rules marked with this sign.



WARNING!

Operating the tedder without reading the contents of the manual, and by unauthorized personnel, children in particular, is strictly forbidden.

3. PROPER AND INTENDED USE

Rotary tedder is designer to tedding cut forage and dry hay in order to make their drying process.



WARNING!

Do not use the tedder for purposes other than those listed in this manual. Otherwise it will be classified as misuse and could release the manufacturer from responsibility for any damages. The tedder should be used, serviced and repaired only by personnel familiar with its characteristics and with safety regulations. Tampering with the tedder may release the manufacturer from responsibility for any resulting malfunctions or damages.

3.1. Technical data

Tab. 1. General specification

Type of tedder:	P4-471 C	P4-531 C	P6-771 C
Working width [ft in / m]	15' 5" / 4.70	17' 5" / 5.30	25' 3" / 7.70
Transport width [ft in / m]	9' 8" / 2.95	9' 8" / 2.95	9' 8" / 2.95
Transport height [ft in / m]	9' / 2.75	9' / 2.75	9' / 2.75
RPM [rpm]	540		
Tractor's power [HP]	30	40	60
Number of rotors [pcs]	4	4	6
Number of arms [pcs]	6	6	6
Max. working speed [mph/ kph]	10 / 16	10 / 16	10 / 16
Admissible transport speed [mph / kph]	25		
Tires	16x6.5-8 – 1.8 bar	16x6.5-8 – 1.8 bar	16x6.5-8 – 1.8 bar
Recommended pressure	18x8.5-8 – 1.8 bar	215/65/8 – 2.2 bar	260/75/15.3 – 2.0 bar
Weight [lbs / kg]	1499 / 680	1532 / 695	1609 / 730

3.2. Design and working principle

3.2.1. Trailed 4 -rotary tedder

Overview of 4-rotary tedder is provided in **Fig. 3**. Carrying frame (4) with drawbar (9) enables mounting of the tedder to the tractor's hitch bar. Drive from tractor's spline shaft is transmitted by PTO shaft (10) and intersectional gears onto rotors. Tedder comprises three drive units: left and right and main one, onto which rotors comprising arms (1) and tines (8) are set. Safety guards (2, 5, 7) are mounted on linkage and lateral drive units. For transport the two outer units with rotors are folded by hydraulics to vertical position and locked with a locking pawl (3).

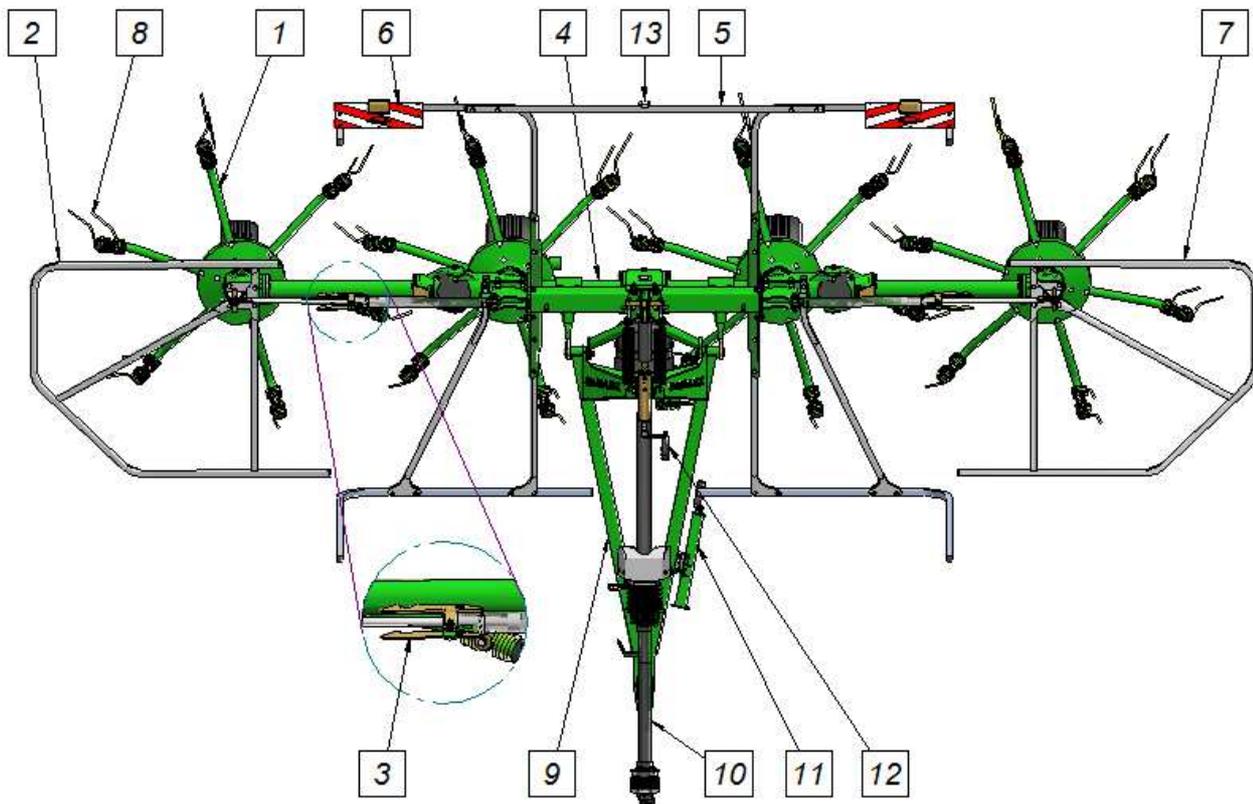


Fig. 3. Parts of SaMASZ rotary tedder (for: P4-471 C, P4 – 531 C)

- | | |
|---|---|
| 1 – Rotor arm | 7 – Left safety guard |
| 2 – Left safety guard | 8 – Operating finger |
| 3 – Lock | 9 – Tiller |
| 4 – Linkage | 10 – Driveshaft |
| 5 – Rear safety guard | 11 – Tiller support |
| 6 – Plate with luminous and reflecting elements | 12 – Cylinder with angle adjustment mechanism |
| | 13 - Holder for a warning triangle for a slow driving vehicle |

When transported, the machine is trailed behind the tractor on two middle rotor wheels. To prevent tines on middle rotors from being damaged, cylinder (12), placed in between the tiller (9) and main frame, retracts the tedder to vertical position. Such setting of the machine provides sufficient distance between working units and the ground during transport. When driving on public roads the tedder should be equipped with a plate with luminous and reflecting elements (6), and a warning triangle for a slow driving vehicle mounted on the holder (13).

3.2.2. Trailed 6 -rotary tedder

Overview of trailed 6-rotary tedder is shown in **Fig. 4**. Carrying frame (1) with hitch (2) enables coupling of the tedder with tractor's lower links. Drive from tractor rpm is transmitted through rotary gear with shaft and intersecting axis gears onto rotors. The tedder includes three drive units: left, right and main drive unit with rotors comprising arms (6) and tines (7). Safety guards (3) are mounted on the frame and lateral drive units. For transport the outer units with rotors are folded by hydraulics to vertical position and locked with a locking pawl (9) and rear drive wheels (5) are lowered to transport position. At the same time, in order to avoid damaging tines (7) of middle rotors, rear drive wheels (5) are lowered causing the frame (1) to lift, which provides a sufficient distance of working units from the ground during transport. When driving on public roads the tedder should be equipped with a plate with luminous and reflecting elements (10) and a warning triangle for a slow-driving vehicle mounted on the holder (11).

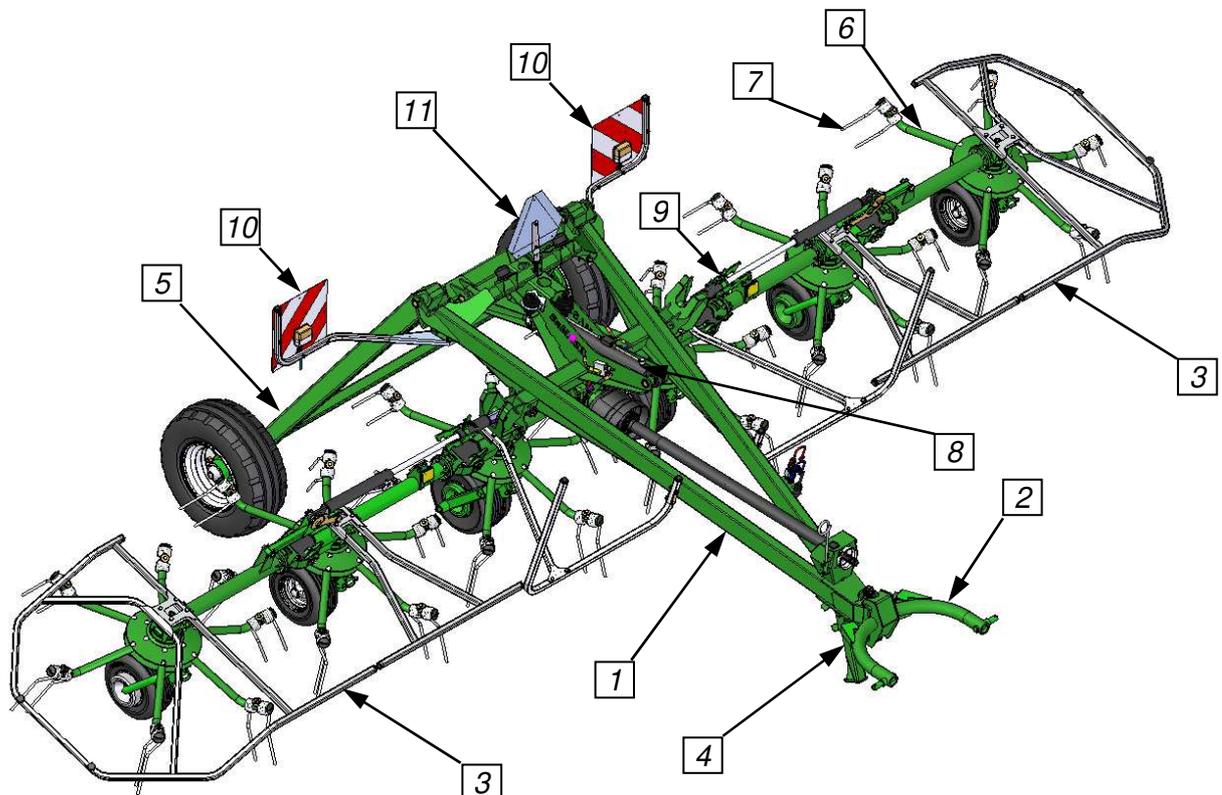


Fig. 4. Parts of trailed rotary tedder (for: P6 – 771 C)

- | | |
|---------------------------------|--|
| 1 – Carrying frame | 7 – Tine |
| 2 – Hitch | 8 – Cylinder for lifting and lowering of rear transport wheels |
| 3 – Safety guards | 9 – Locking pawl |
| 4 – Carrying frame support foot | 10 – Plate with luminous and reflecting elements |
| 5 – Rear drive wheels | 11 – Holder for a warning triangle for a slow driving vehicle |
| 6 – Rotor arm | |

3.4. Equipment and spare parts

The tedders are sold with the following standard equipment:

- warranty card,
- operator's manual with spare parts list and Declaration of Conformity,
- PTO shaft with friction clutch,
- warning plate,
- spray paint (150 ml).

Tab. 2. Recommended PTO shafts for rotary tedders

Model	Power	Length	Torque	Symbol	Manufacturer	Notes
	HP	in / mm	Nm			
P4-471 C P4-531 C	35	2' 10"-3' 11" / 860-1200	460	7G4N086CE00707HA	Bondioli & Pavesi	
P6-771 C	55	2' 12"-4' 2" / 910-1258	716	7G7R091CE007WR7A	Bondioli & Pavesi	

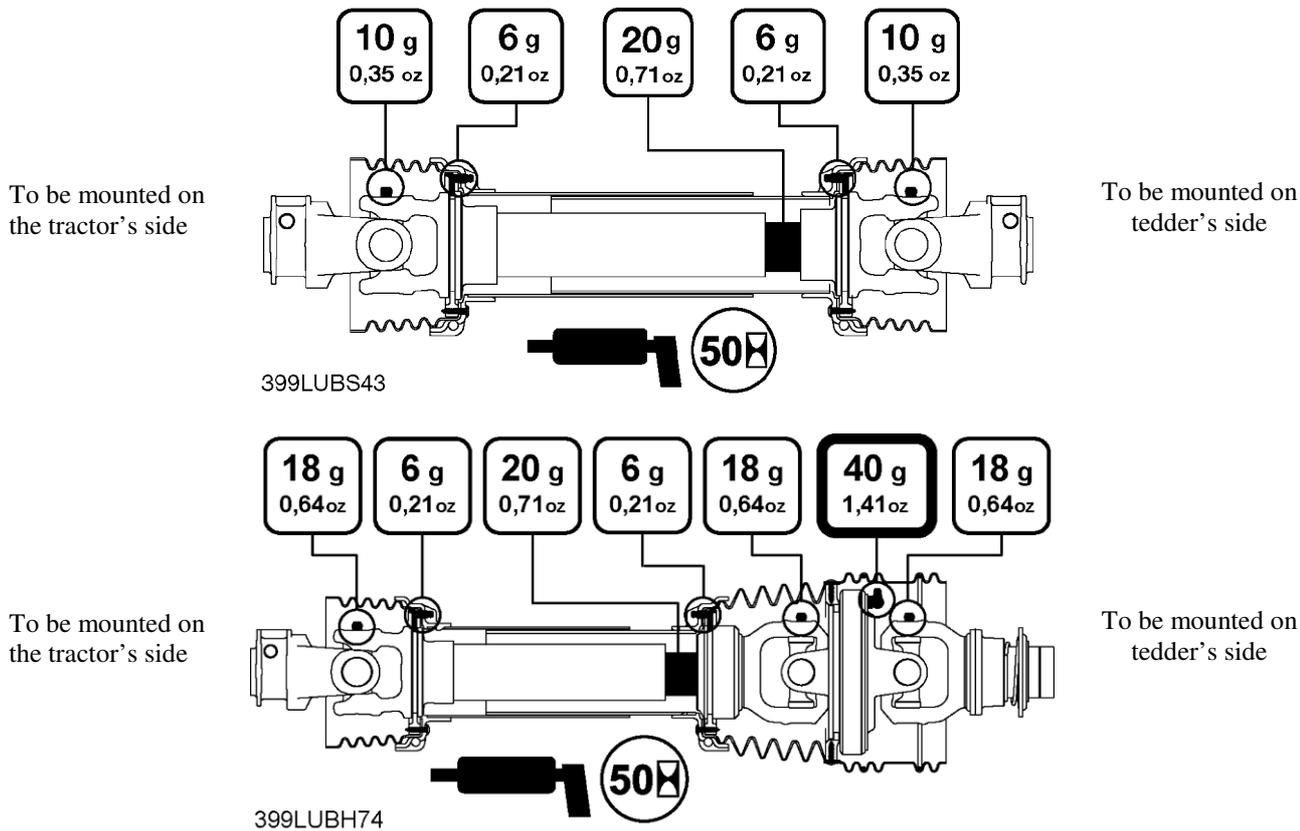


Fig. 5. PTO shaft lubrication points

NOTE:

Make sure to follow the PTO shaft lubrication frequency. Lubrication points marked in **Fig. 5** should be lubricated every 50 hours. Always lubricate the PTO shaft before and after a period of longer idleness.

PTO shafts of other brands with equivalent technical parameters may be used on the SaMASZ permission.

4. SAFETY PRECAUTIONS

 **WARNING** The following precautions are for your safety. They must be read carefully and followed by every person who operates or maintains the machine. Failure to follow these safety precautions could result in serious injury or death to the operator, maintenance person or bystanders and property damage to the machine and surrounding property.

4.1. Safety rules and regulations

- ❑ Front axis of the tractor should be balanced to enable its steering. If necessary, use front wheel weights.
- ❑ In order to keep steering conditions, make sure that impact on the front axis is at least 20% of the complete impact on the tractor.
- ❑ Any operation with the hydraulic lift lever should be done from the operator's seat; never operate the lever from outside of the tractor.
- ❑ For tractors equipped with EHR, control with hydraulic lift is done with a button located outside the tractor's cabin. When operating, please exercise particular caution.
- ❑ When mounting the tedder on a tractor, risk of wounding is likely. It is recommended that operator wears protective gloves.
- ❑ Do not operate without safety guards. Neither operation with damaged nor raised guard is allowed (risk of stones, etc. being thrown out). Damaged safety curtain should be replaced.
- ❑ Please make sure that no unauthorized personnel remains within the danger area of at least 170 ft (50m). Keep particular caution when operating near roads and in stony areas.

IMPORTANT: Maintenance and adjustment should **ONLY** be done after the following has occurred:

- ❑ tractor's engine has been stopped and ignition key has been taken out,
- ❑ all rotating parts have come to complete standstill (NOTE: arms will rotate for several minutes after engine is turned off).
- ❑ Before starting work and periodically thereafter, replace any damaged, missing and/or worn tines.
- ❑ Perform any maintenance and adjustment work only when the drive is disconnected and rotor has stopped completely.
- ❑ When driving on public roads always comply with local traffic regulations, especially on the warning lights.



CAUTION!

Make sure to perform any service and repair operations with the tractor drive shut off and after all rotating parts have stopped completely.



WARNING!

Keep children away from the tedder when operating and idle.

- ❑ Check bolts and other fasteners regularly. Do not operate with damaged or worn fasteners.
- ❑ Locking pawl line should be mounted with relevant tolerance in the tractor cabin.
- ❑ Do not leave a running tractor without supervision. Before leaving the tractor turn off the engine and remove the ignition key
- ❑ If any break in the machine operation occurs, turn off the drive
- ❑ Tractor cooperating with the tedder should be equipped with a driver's cabin
- ❑ Tedder should not be operated when the tractor-tedder aggregate is not well balanced

- ❑ Never start the tedder if any people or animals are around the tedder
- ❑ Never start the tedder when it is lifted.
- ❑ Always follow safety labels describing hazards, and warning signs placed on the machine
- ❑ Before starting the tractor make sure that each drive is disconnected and control levers for hydraulics are in neutral position
- ❑ Do not drive the tedder backwards when operating
- ❑ Never get onto the tedder
- ❑ Never stand between the tractor and the tedder, unless the tractor-tedder aggregate is protected against moving with the tractor's parking brake
- ❑ Any inspections and adjustments may be conducted only when the tedder is disconnected from the tractor and on the ground
- ❑ For repairs or adjustments to be done under the tedder make sure to secure it against falling using a proper support
- ❑ If any part of the tedder needs to be replaced, use only original spare parts according to spare part list
- ❑ Pay particular attention to PTO shaft guards and tedder and tractor spline shaft guards. Never operate with damaged guards.
- ❑ Hydraulic hoses are potentially very dangerous. Do the following to minimize any hazards:
 - ❑ Hydraulic hoses should be periodically checked and if any damage to the hoses have occurred or if they have been used more than 5 years, replace with new ones.
 - ❑ Never use scotch tape to repair hydraulic hoses.
 - ❑ When connecting hydraulic hoses to tractor's hydraulic connectors, make sure that the tractor's or tedder's hydraulic system is not under pressure.
 - ❑ When servicing hydraulic unit, always wear protective gloves and eyewear. Hydraulic oil leaking under pressure (16MPa) may permeate through the skin and cause its infection thereafter. If this is the case, immediately visit a doctor.
- ❑ The tedder should be stored under a roof and in such way so as to effectively prevent animals and people from being injured
- ❑ Before starting the tedder, make sure there are no animals underneath the guard
- ❑ Before operating the tedder, make sure all safety devices are in place and working. If not working or damaged have them replaced
- ❑ Before any maintenance, assembly, disassembly works and when parking position the machine on a solid ground and secure it against accidental movements.
- ❑ When cleaning the machine, use personal protective equipment for health protection.
- ❑ Do not leave agricultural machinery on slopes or other descents without providing protection against free runaway.
- ❑ When operating on a stony field or nearby roads there is a risk of throwing out stones or other objects which may pose a danger for passing-by vehicles on the road or for passers-by. Therefore keep the safe distance.
- ❑ If any break in the equipment operation occurs, turn off the drive. Before leaving the tractor turn off the engine and remove the ignition key, leave the cabin and make sure there are no unauthorized personnel in the cabin and close the door.
- ❑ The operator is not allowed to leave the tractor while driving.
- ❑ In case of a major failure, stop the machine's drive, turn off the tractor's engine and remove the ignition key. Next, please contact technical service, and if accident (i.e.: road accident) occurs, respect first aid rules and call appropriate authorities.
- ❑ Keep the tedder clean, so as to avoid a risk of fire.
- ❑ Rotating spring tines and other rotary elements present a danger to health and life of persons present nearby the machine. Do not touch any moving machine parts
- ❑ Check pressure in the machine wheels regularly.
- ❑ In the event of any break in the equipment operation, turn off the drive.

- ❑ In the event of a fatal failure, please call for technical service, and if an accident (in this case: road accident) occurs, respect first aid rules and contact responsible services.

4.2. Qualifications of operator

To provide safe machine operation each person being the machine operator must meet the following requirements:

- ❑ Operator should hold driving license, have ability to drive vehicles safely and know road traffic rules.
- ❑ Operator must be in proper physical condition to be able to operate the machine.
- ❑ Operator must not be under the influence of alcohol, drugs and medicines, which all have influence on vehicle driving and machine operation.
- ❑ Operator should be familiarized with this manual and follow its provisions.
- ❑ Operator should be familiar with working principles of both the tractor and the machine, and be able to recognize and avoid hazards resulting from operation of the aggregate.

4.3. Conditions of mounting machine on tractor

- ❑ Before attaching, check whether hitch categories of the tractor and the mounted machine are compatible, and make sure that load capacity of the tractor's hitch is not lower than weight of the machine to be mounted.
- ❑ When mounting the machine examine the technical condition of hitch assembly on both the machine and the tractor's 3-point linkage.
- ❑ To mount the machine to the tractor use original pins and protection only.

4.4. Transport

The lifting, handling and transporting operations can be very dangerous unless they are carried out with the utmost caution. Have all persons not involved in the actual work move away from the area and limit the zone where the operations are to be carried out. Also make sure that the area in which the operations take place is clear and that there is a sufficient escape route, i.e. a free, safe zone to which the operators can quickly move if the load should fall.

The safety hooks and ropes used to lift the machine must be of an adequate carrying capacity.

To minimize the risk of serious injury or death, do the following:

- ❑ When the machine is converted from the transport position to the work position and vice versa, you could be pinched or crushed by some of its parts. Take extra care when carrying out these maneuvers and have all persons keep well clear of the danger zone.
- ❑ Do not change position of the tedder until there are no people or animals around (pay particular attention to children).
- ❑ Before transporting the tedder make sure that the locking pawls are properly latched in the transport position.
- ❑ While transporting the tedder, put a warning plate with combined lights and reflectors and warning triangle on the tedder.
- ❑ During transport, always put the tedder in its proper and safe transport position. See section 5.2.
- ❑ Before putting the tedder in transport position, make sure that the tractor's PTO is turned off and all rotating parts have come to a complete stop.
- ❑ Do not drive over 25 km/h (15 mph). Drive slower if road conditions are poor, especially on irregular surfaces or steep slopes.

- ❑ The behavior of the tractor on the road, such as its turning and braking capacities, are affected by the implements mounted.
- ❑ When driving on the road after work, check to make sure that the tires and soil working tools are clean to prevent the road surface from becoming dirty.
- ❑ Make sure that the machine is not damaged during transport.

4.4.1. Putting the machine onto another vehicle for transport

The driver and the carrier are responsible for tedder's transport safety. Equipment and parts must be secured during transport.

To put the tedder onto another vehicle in a safe way, please obey the following rules:

- ❑ seize the tedder by any lifting devices only in the places indicated by the hook sign,
- ❑ for tedder lifting use only lifting devices with hoisting capacity bigger than tedder's weight shown in data plate. It also concerns ropes and chains used for lifting,
- ❑ transport belts, belt suspensions, ropes cannot be damaged. Whenever damages to these parts are spotted replace these with new ones,
- ❑ when mounting slings, chains, handles etc. always pay attention to setting the machine's center of gravity properly,
- ❑ to catch machines, pick ropes of adequate length, so that the angle between them is no greater than 120° , and the angle between the strand and the vertical is no greater than 60° ,
- ❑ collapsible parts should be blocked in transport position,
- ❑ during putting the tedder onto another vehicle it is forbidden for anybody to remain in transport area,
- ❑ on the vehicle's trailer the machine should be secured against moving.

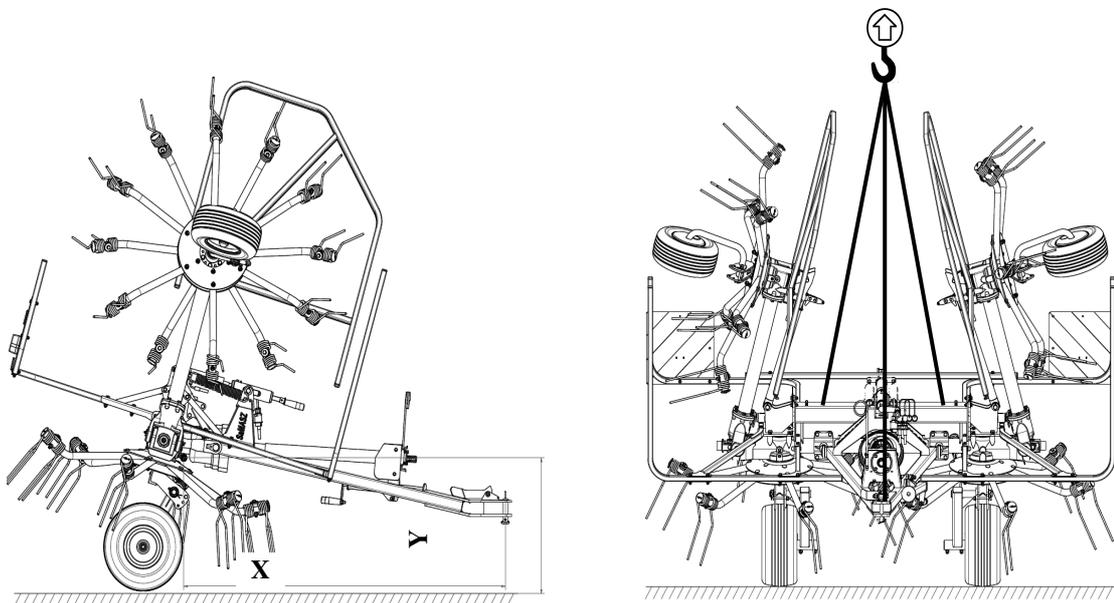


Fig. 6. Location of center of gravity, tedder's catching points (for: P4-471C, P6-531C)

Tab. 3. Location of center of gravity

Dimension	P4-470C	P4-531C
X [mm]	1750	1900
Y [mm]	990	710

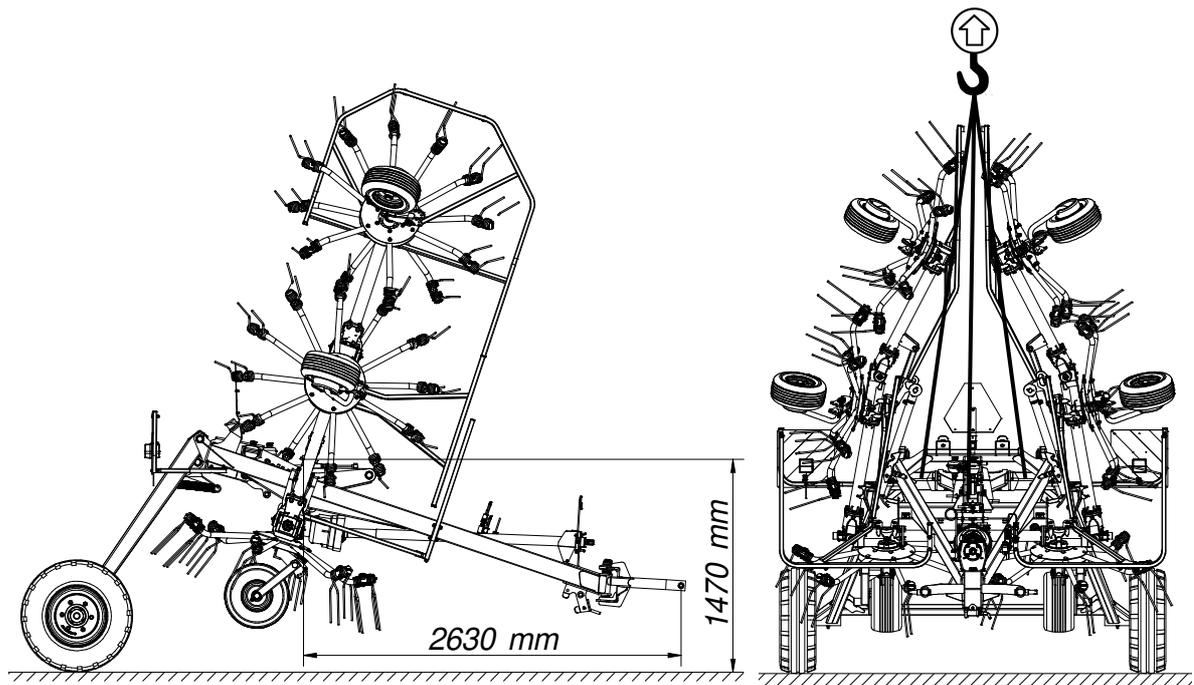


Fig. 7. Location of center of gravity, tedder's catching points (for: P6-771C)



WARNING!

Securing the maneuver area and providing safety for operation performed is the responsibility of the person in charge of moving of the machine.

4.5. Working parts

- ❑ Before operating the tedder check rotors' and tines' condition.
- ❑ Worn or damaged tines should be immediately replaced with new ones.



WARNING!

During replacement of working parts, it should be used personal protective gloves.

4.6. PTO shaft

- ❑ Before operating, read bar manufacturer's manual placed on the bar. Follow all safety precautions in that manual.
- ❑ Use only PTO shafts recommended by tedder's manufacturer with guards in good condition.
- ❑ In order to operate safely, use only undamaged PTO shafts and shields. Damaged PTO shafts and shields must be repaired or replaced with new ones before use.
- ❑ Before any operation make sure whether PTO rpm have proper rotational direction.

4.7. Hydraulic assembly

- ❑ Note! Hydraulic assembly is under pressure! Hydraulic oil under pressure may permeate through skin and cause serious injury, therefore skin and eyes should be protected in particular. In case of injuries caused by liquid under pressure, call a doctor immediately.
- ❑ Hydraulic hoses can be connected to tractor's hydraulics, provided that both the tractor's and the tedder's hydraulic assemblies are not under pressure. To remove the pressure from the hoses just simply restart the tractor's hydraulic valves several times, once the tractor is off.

- ❑ When dismantling the machine from the tractor, set the equipment aside, deflate the pressure from hydraulics and turn tractor's engine off.
- ❑ When inspecting hydraulic assembly's malfunction and looking for oil leaks, it is forbidden to touch any potential leaks until the entire assembly is under pressure.
- ❑ It is recommended that the hydraulic oil used should not exceed 10 oil purity class in accordance with NAS 1638.

When using hydraulic hoses:

- ❑ Avoid stretching the hoses when operating.
- ❑ Do not allow hydraulic hoses to get deflected.
- ❑ Do not expose hydraulic hoses to contact with any sharp edges.
- ❑ If damaged or worn, replace the hoses.
- ❑ Service life for hydraulic hoses is 5 years from their production date.

4.8. Residual risk

Despite the fact, that SaMASZ Sp. z o.o. company – the manufacturer of the tedder takes the responsibility for the tedder design and manufacturing, in order to eliminate hazard, certain risk when operating the tedder is unavoidable.

Major source of risk results from the following operations:

- ❑ operation of tedder by minors,
- ❑ operation by individuals who have not read the operator's manual and safety labels,
- ❑ operation of tedder by persons under influence of alcohol or other substances,
- ❑ not being cautious during transportation and moving tedder during operation,
- ❑ transport of persons who are on the machine,
- ❑ presence of persons and animals within the tedder operation range,
- ❑ performing servicing and machine adjustments with the engine on.

1. Danger of machine entanglement

This risk occurs when (1) changing position of a tedder, (2) operating near rotating parts, and (3) working without safety guards. During operation, maintenance and adjustment, always wear protective gloves, shoes and clothes without loose parts, belts and so on. Always comply with safety labels placed on the tedder.

2. Danger of cutting injury, abrasion and damage of skin

This risk occurs during replacement of working parts with sharp edges, cleaning the machine and removal of any clogging and seizure. During any maintenance work, always use safety gloves.

3. Danger of injury from liquid ejection out of hydraulic system

During connection of hydraulic hoses to hydraulic connectors, be sure that tractor's or tedder's hydraulic system is not under pressure. Regularly check hydraulic hoses for leaks.

NOTE:

Residual risk always results from incorrect behavior of tedder's operator.

4. Forbidden actions

During tedder's operation, do not do the following:

- ❑ never unblock the tedder, make any regulations or repairs of the tedder while it is in motion,
- ❑ never change order of operation and maintenance activities described in operator's manual,

- ❑ never operate the tedder when it is not in working order or has damaged safety guards,
- ❑ never get your hands and legs close to rotating parts of the tedder,
- ❑ during repair and maintenance of the tedder, always comply with descriptions included in operator's manual. Always do these activities when the tractor's drive is off,
- ❑ never operate the tedder under influence of alcohol, drugs, or strong medicine that impair your attention,
- ❑ do not wear clothes or jewelry that are too loose or too tight. Too loose clothing or jewelry may be pulled in by the rotating parts of the tedder,
- ❑ the tedder should not be operated by children or by handicapped people,

When describing residual risk, the tedder complies with the state of the art in technology on the date it was manufactured.



WARNING!

Despite following the specified instructions and prohibitions, residual risk is still present.

4.8.1. Residual risk evaluation

When keeping such recommendations as:

- ❑ thorough familiarizing with operator's manual,
- ❑ no persons remaining on the machine when operating and during drives,
- ❑ no persons remaining within the tedder operation range,
- ❑ adjustment, maintenance and lubrication of the machine with engine off,
- ❑ performing repairs of the machine only by skilled persons,
- ❑ operation of the machine by persons, which are familiarized with operator's manual,
- ❑ the machine protection against children and unauthorized personnel residual risk when operating the tedder may be limited to necessary minimum.

When the risk of being exposed to noise cannot be avoided or eliminated by any group protective means or organization of work, employer (operator) must:

- 1) provide the operator with individual means of noise protection, if the noise level in work place exceeds 80 dB.
- 2) provide the operator with individual means of noise protection and supervise its proper use, if the noise level in work place reaches or exceeds 85 dB.



4.9. Safety labels and their meaning

Safety labels are critical to safe use of this tedder. They must be read, understood and followed.

Also, be sure that:

- ❑ All warning decals are clean and legible,
- ❑ All lost or damaged decals are replaced by ordering new decals from your dealer or supplier,
- ❑ All persons using this tedder have read the section of this manual explaining the meanings of these labels,
- ❑ All spare part used for repair of the tedder should have all safety labels provided by the manufacturer.



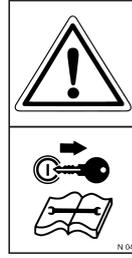
N-01

Exercise particular caution when PTO shaft is rotating



N-03

Read the operator's manual before use



N-04

Before any service or repair disconnect the power supply



N-06

Warning: pulling-in parts



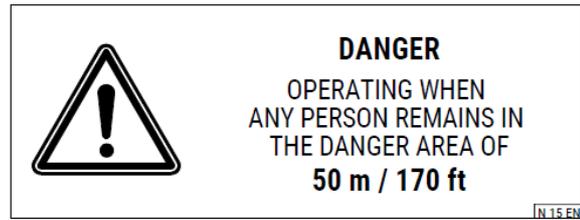
N-07

Do not operate the if any personnel remains within 164 ft (50m) from the machine



N-11

Points of lubrication

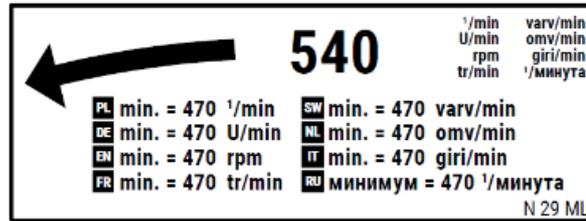


N-15



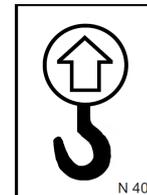
N-23

Caution: power lines



N-29

PTO rotation direction



N-40

Transport holder for machine handling



N-49

Do not get too close to the hoist of the tractor during operation of the hoist

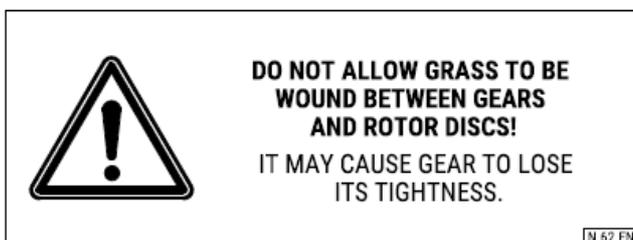


N-50

Do not remain in the machine swinging area



N-55



N-62



N-117

Avoid contact with liquid coming out under pressur



N-167

Do not remain on the machine while driving



IT IS FORBIDDEN
 TO DRIVE ON PUBLIC ROADS IF
 THE TRANSPORT WIDTH
 EXCEEDS 3 M
 OR THE TRANSPORT HEIGHT
 EXCEEDS 4 M.

N 162 EN

N-162



N-168

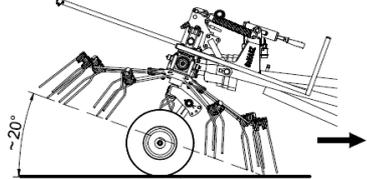
Do not touch the machine before the rotating parts have not come to a complete stop



N-183

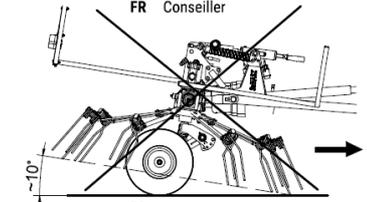
Caution: danger of pulling in of legs

PL Ustawienie robocze przetrząsacza
 EN Tedder operating setting
 DE Arbeitseinstellung des Kreiselwenders
 RU Рабочее положение ворошилки
 FR Position de travail du rateau



~20°

PL Zalecane
 EN Recommended
 DE Empfohlen
 RU Рекомендуется
 FR Conseiller



~10°

PL Niezalecane
 EN Not recommended
 DE Nicht empfohlen
 RU Не рекомендуется
 FR Deconseiller

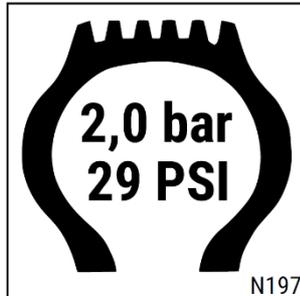
N 172

N-172



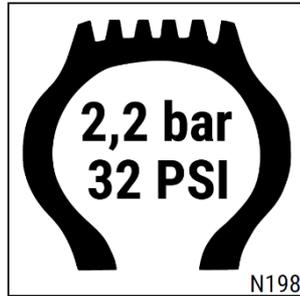
N-196

Recommended tire pressure (P4-471C, P4-531C, P6-771C)



N-197

Recommended tire pressure (P6-771C)



N-198

Recommended tire pressure (P4-531C)



N-202

Admissible transport speed



N-204



N-205

Use the required Personal Protective



N-206

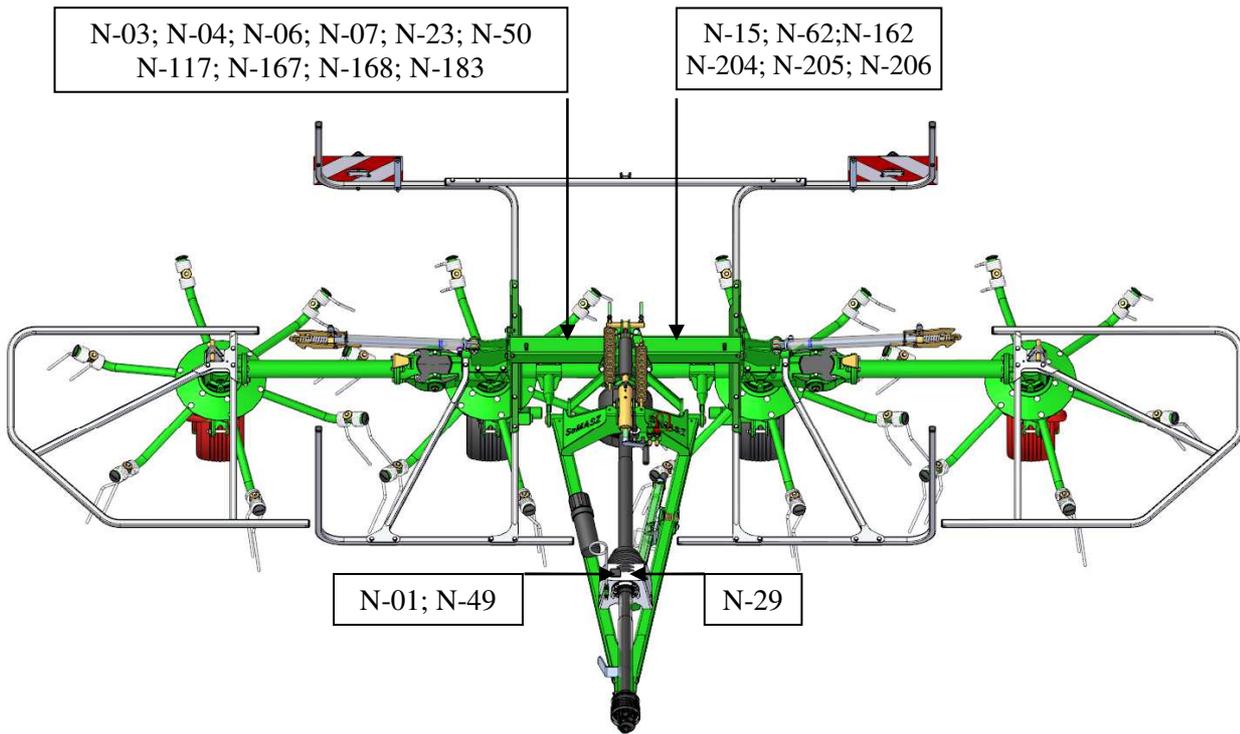


Fig. 8. Locations of safety labels on the tedder

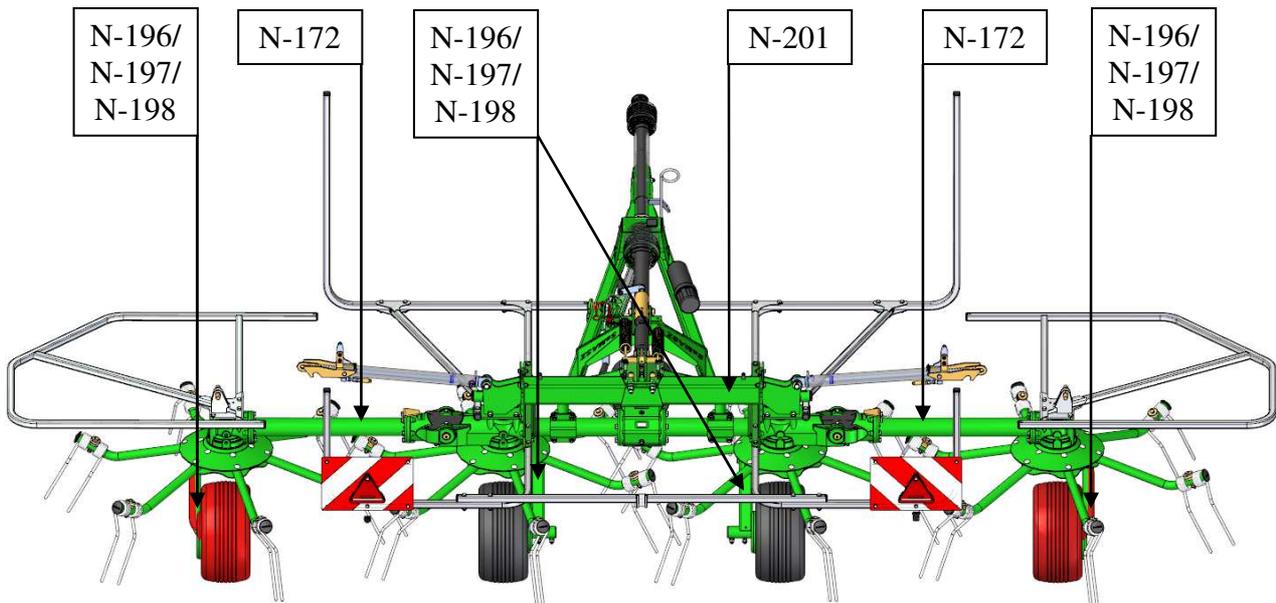


Fig. 9. Locations of safety labels placed on the tedder

5. OPERATION



WARNING!

Before beginning to use this machine, do the following:

- Read manual, especially safety precautions in section 4.
- Make sure you are familiar with all controls and functions.
- Make sure all safety devices are in place and working. Fix or replace if not working or damaged.
- Replace protective cover if damaged.

5.1. Mounting tedder on tractor

5.1.1. Trailed 4 -rotary tedder



WARNING!

- Only hitch and unhitch machine on a flat surface with compact dirt.
 - Keep everyone away from area between tedder and tractor.
 - Be careful near link road zone of tractor's rear power lift. Contains sharp parts.
- Mount the tedder on a tractor by means of tiller (3) and 3-point linkage beam (1) (Fig. 10), being part of each tractor's standard equipment.
 - Secure the tiller and the beam with pin (2) and protect it with cotter.
 - Lift support leg up and secure it with split cotter,
 - Hydraulic hoses (4) for folding side arms and tiller's cylinder respectively should be connected to two tractor's single-section hydraulic outlets.
 - Connect the machine's lighting cables to the tractor and check the lights for operation.
 - Connect telescopic articulated shaft. If need be shorten the shaft as per item 5.4.

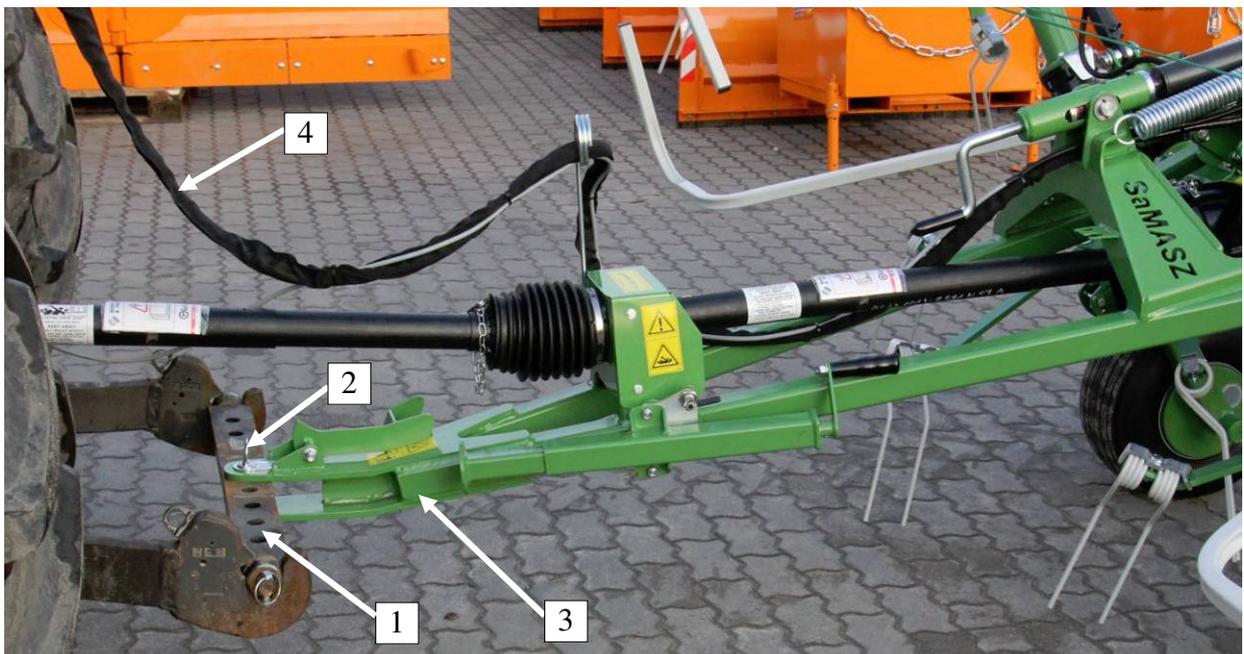


Fig. 10. Connecting the tedder to the tractor (for: P4-471C, P4-531C, P6-651C)

5.1.2. Trailed 6 -rotary tedder



WARNING!

- Only hitch and unhitch machine on a flat surface with compact dirt.
- Keep everyone away from area between tedder and tractor.
- Be careful near link road zone of tractor's rear power lift. Contains sharp parts.

- ❑ The tedder should be mounted on the tractor using hitch (3) (Fig. 11).
- ❑ Once the tedder is mounted turn the support leg backwards.
- ❑ Hydraulic hoses (4) for folding of side arms and moving of rear drive wheels should be connected to one tractor's double-section hydraulic connector.
- ❑ Connect the machine's lighting cables to the tractor and check the lights for operation.
- ❑ Connect PTO shaft. If needed shorten the shaft as given in 5.4. - Mounting PTO shaft.

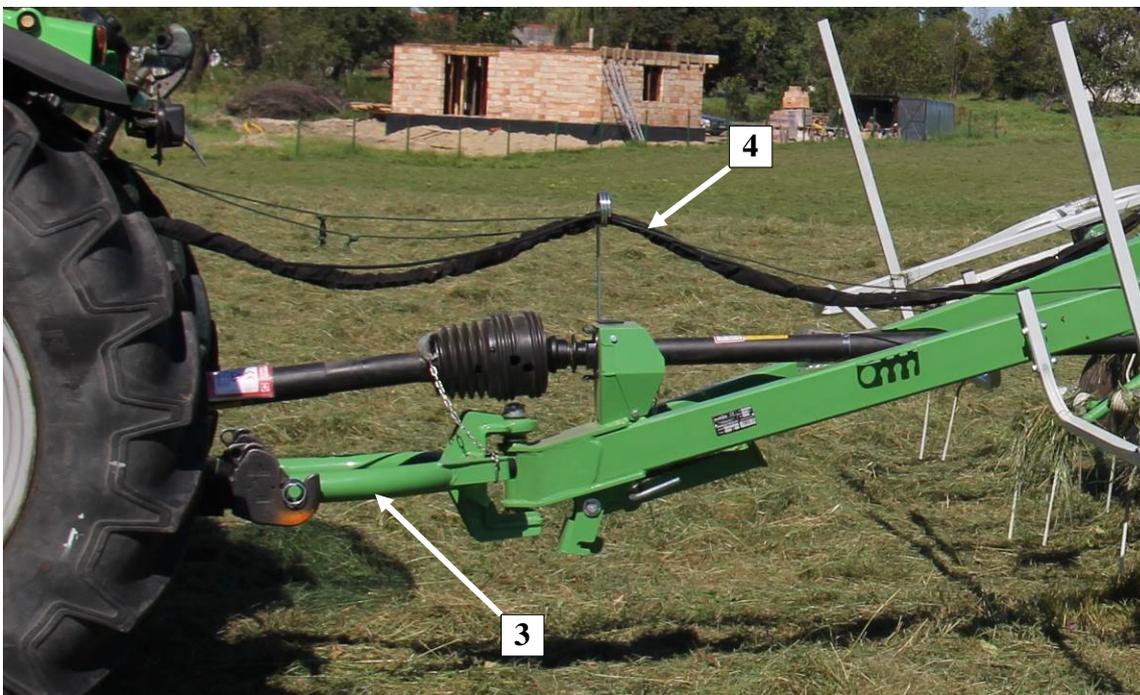


Fig. 11. Tedder mounted on tractor (for: P6-771C)

5.2. Preparing the tedder for transport



WARNING!

Switching the machine from working to transport position, and the other way round can only be done on an even and stable ground. Prior to starting any works make sure that nearby the machine there are no unauthorized persons exposed to being crushed.

In order to prepare the trailed tedder for transport and - drive on a road-:

- ❑ turn spline shaft drive on and wait until rotors are stopped completely,
- ❑ if need be, dismantle PTO shaft, as when lifting the arms up, the tedder's drive shafts should be rotating freely,


WARNING!

Before folding tedder to transport position for tractor with PTO shaft automatic lock, the PTO shaft shall be disconnected from tractor. Keeping the shaft connected may cause damage to drive shafts.

- for: **P4-471C, P4-531C** - with use of two hydraulic cylinders lift up the two outer tedder rotors, so as to snap locking pawls **Z** (**Fig. 12**).

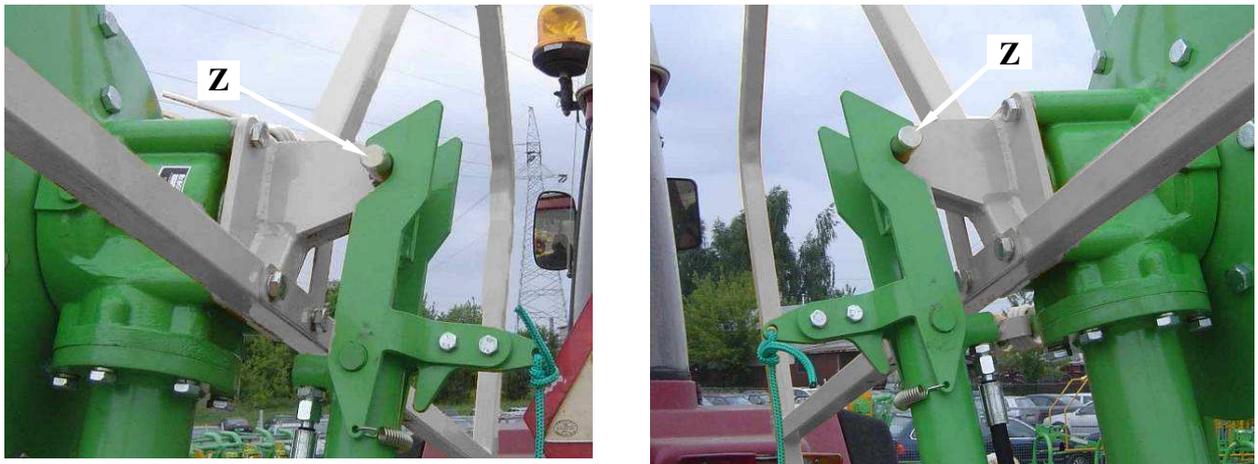


Fig. 12. Locks in transport position

- for: **P4-471C, P4-531C** - switch the tedder to vertical position, so as to lift the tines up (**Fig. 13**). If need be, lift the 3-point linkage beam (up / down marking on **Fig. 13**) with use of movable arms of 3-point linkage, so as to obtain sufficient distance between the tines and the ground level **h**.
- for: **P6-771C** using cylinders lift outer rotors, engage pawls and lower outer rear wheels (**Fig. 15**).

NOTE:

Once the machine is set to transport position, check whether mechanical locking pawls are properly locked on pins.

- fold support leg (**Fig. 13 and Fig. 15**),

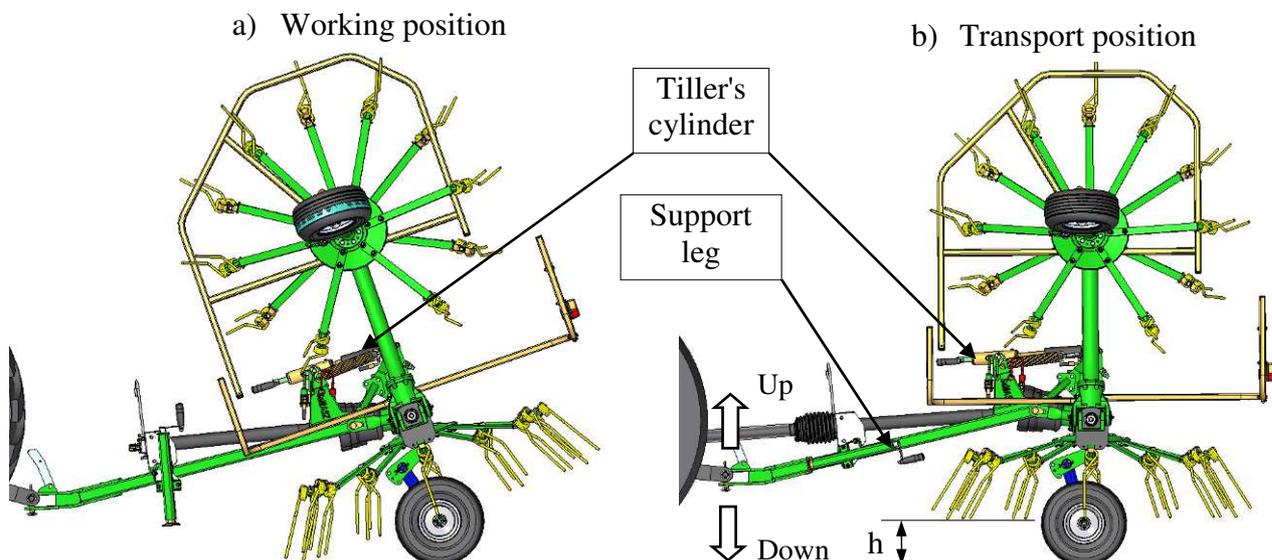


Fig. 13. Switching tedder to transport position (for: P4-471C, P4-531C)

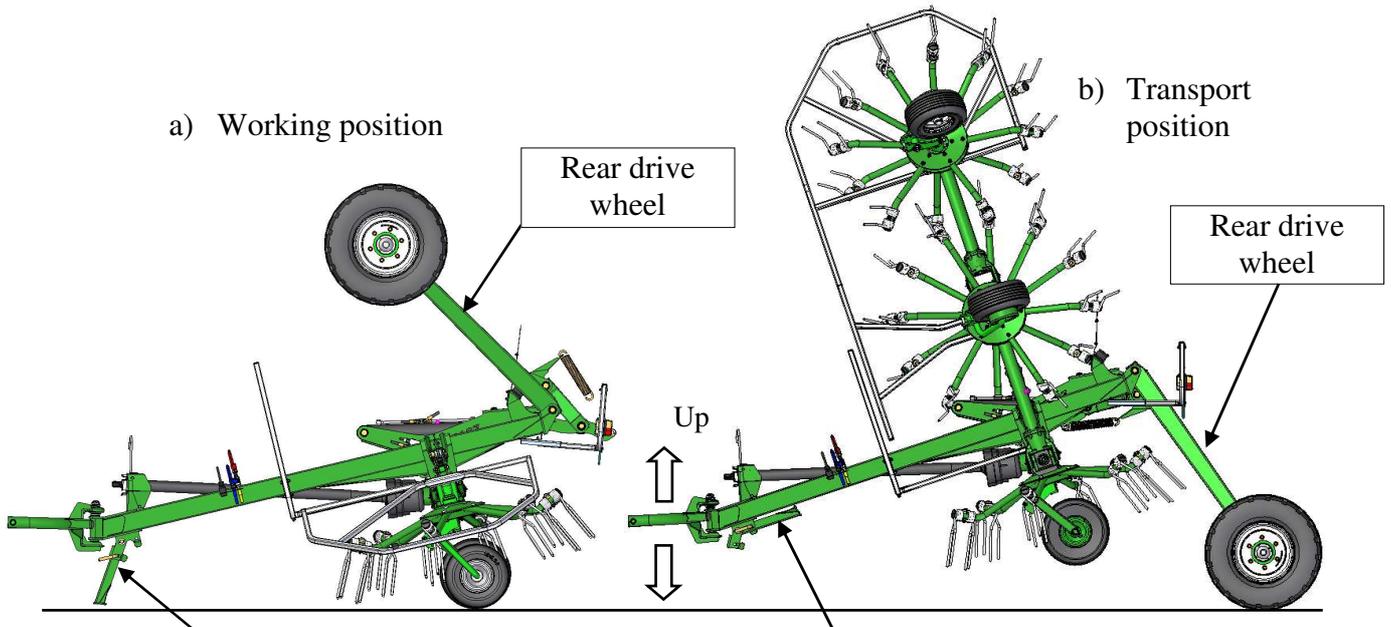


Fig. 14. Switching tedder to transport position (for: P6-771C)



WARNING!

Failing to switch the tedder to its vertical transport position may cause damage to the tines and the entire machine (for: P4-471C, P4-531C).

To meet safety precautions concerning transport on the public roads the tedder should be equipped with the following devices (**Fig. 15**):

- warning plate with luminous and reflecting elements (1),
- warning triangle for slow driving vehicles (2).

NOTE:

The warning devices can be ordered from the tedder manufacturer.

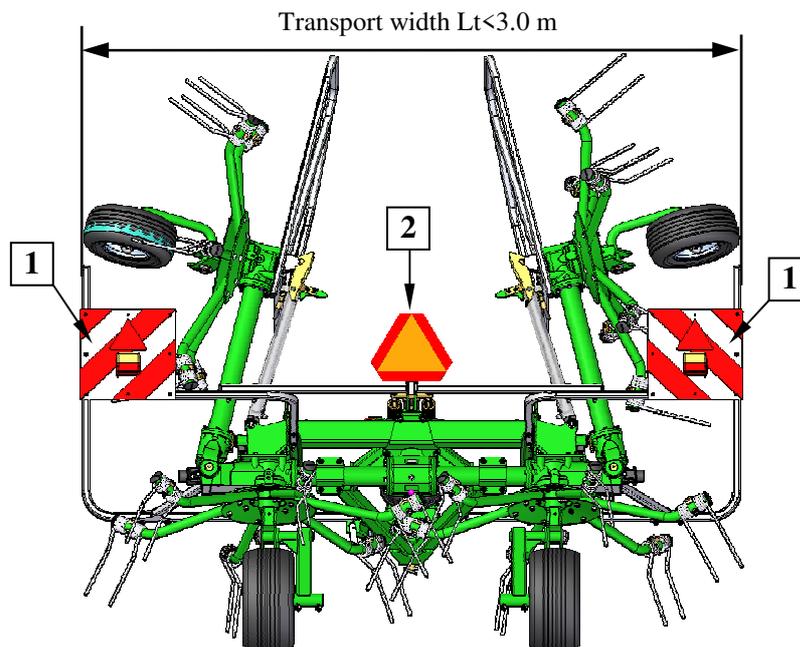


Fig. 15. The tedder transport width change

When driving on public roads the machine's width should not exceed 10' (3 m) (**Fig. 15**).

5.3. Mounting PTO shaft

PTO shaft's end with friction clutch should be mounted on tedder's side.

The PTO shaft plastic guards have to be secured by fastening their small chains to immovable parts of tractor and tedder.

Prior to commencing operation, examine and adjust length of PTO shaft, which is designed to mount machine on tractor. In some cases it is possible, that the shaft is too long and therefore needs to be shortened, so that there is adequate tolerance for the shortest possible distance between tractor's shaft and machine's shaft.

Shaft's length should be adjusted individually for the tractor, on which the machine is mounted.

NOTE:

If necessary, shorten the PTO shaft according to its operator's manual given by the shaft's manufacturer (**Fig. 16**).

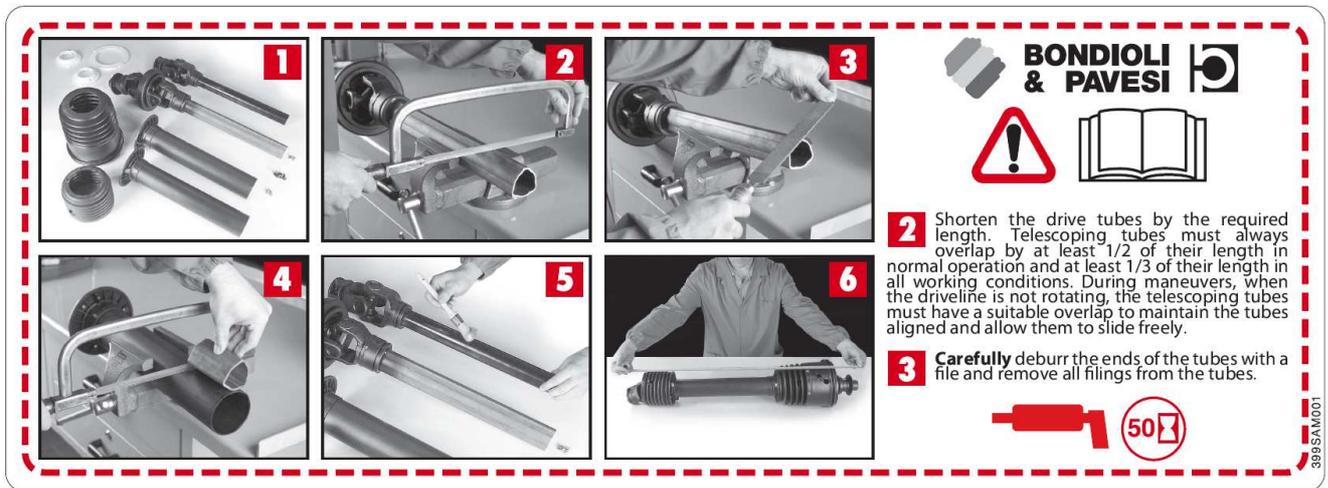


Fig. 16. Instruction of PTO shaft shortening



CAUTION!

The articulated telescopic shaft should remain connected only during tedder operation. During transport or any servicing operations the shaft should be disconnected from the PTO of the tractor.



CAUTION!

Use machines with correspondingly designed driving PTO shafts. Before work, safety guards should be inspected whether they (in the tractor, the tedder and the PTO shaft) are placed correctly and are not damaged. Damaged or missing parts must be replaced. Make sure that the PTO shaft is mounted properly. Approaching the rotating parts is strictly forbidden, as it may cause serious injuries or even death. For any service and repair works on the shaft and the tedder, makes sure that the tractor's engine and its drive is turned off. Before operation, read the operator's manuals of both the machine and the PTO shaft.



NOTE

PTO shaft's end with friction clutch should be mounted at the tedder's side.

5.4. Switching from transport to working position



WARNING!

Moving the tedder to and from operating position from the transport position should only take place on even and stable ground. Prior to making the moves make sure whether there are no unauthorized persons exposed to any hazardous moving parts.

- ❑ make sure there is nobody around in the place where you are going to lower the tedder,
- ❑ by means of cord **L** unlatch the locks **Z** (Fig. 17) at the same time pulling down the hydraulic cylinders,
- ❑ by means of hydraulic cylinder lower the rotors until they are on the ground in a possibly slow way.

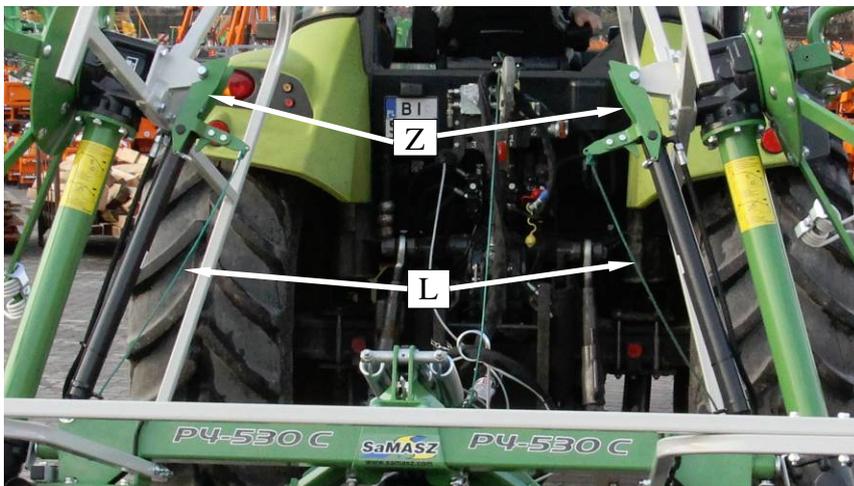


Fig. 17. Unlatching the lock by means of a cord

SaMASZ tedders are equipped with repellent mechanism for mobile tedder arms. Thanks to it, arms can be folded with no need of leaving the tractor cabin. It may however be limited by the slope, on which the machine is being folded. Presumably, the mechanism shall operate well on slopes of up to 4° (Fig. 18).

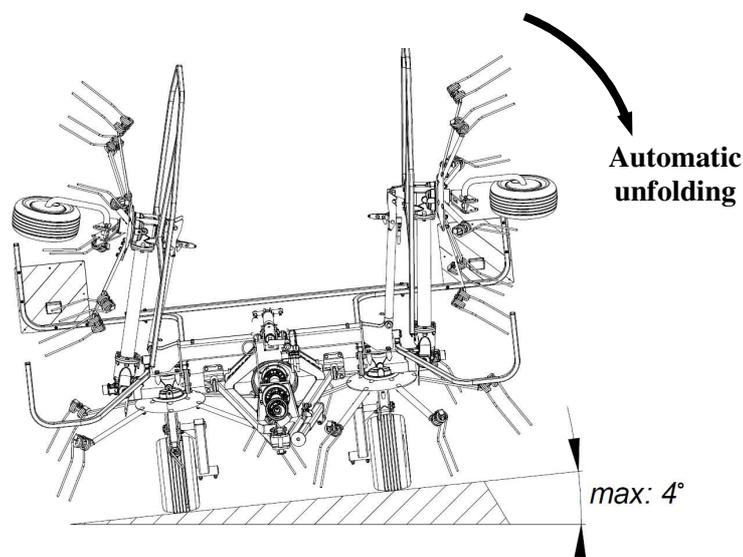


Fig. 18. Tedder folding mechanism limitation

5.5. Preparations to operation and operating tedder

NOTE:

As long as the machines are stored at SaMASZ the cylinders are protected by special grease in order to secure them against weather which may cause their premature wear. Before starting the operation excess grease should be removed from the cylinders.

At the workplace and after setting the tedder, in the operating position must be:

- ❑ connect PTO shaft extension onto tractor's spline shaft (unless only one extension was taken out) or connect the complete PTO shaft,
- ❑ by means of tiller's cylinder switch the tedder to working position (for: **P4-471C, P4-531C**),
- ❑ if need be, by means of tractor's lower links lower or lift the 3-point linkage beam or hitch (for: **P6-771C**), set it, so that the distance between tines and the ground is between 0.39' 1 and 1.6' (4 cm) (**Fig. 19**).

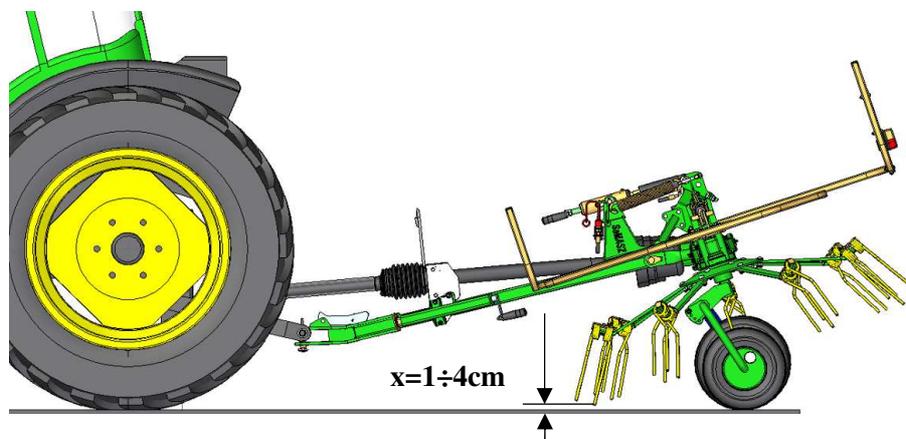


Fig. 19. Trailed tedder in working position



WARNING!

It is forbidden to lower raking arms below the level of 1 cm above the ground, for this may cause damages to the machine such as: bending the raking arms, breaking the linkage, etc., faster wearing of raking tines, damaging sward and contamination of the feed.

- ❑ slowly engage the tedder's drive until rotors reach their nominal PTO rotating speed of 540 rpm. Rears should be considerably lower, so that tractor's fuel consumption can be reduced,
- ❑ engage proper tractor's gear and drive into a windrow. When operating on even meadows, tedding can be performed at any driving speed, however as unevenness occurs the speed should be reduced. When operating do not allow the grass to be wound up (**Fig. 22**).

SaMASZ tedders feature adjustable tedding angle, which is possible owing to adjusting drive wheels position option. To set the tedder's rotors side wheels, first lift the latter up to transport position. Switching transport wheels under two middle rotors is possible upon previously lifting the machine up by means of a lifting device as well as ropes or chains with load greater than the tedder's total weight provided on its data plate.

To set the required tedding angle during machine's operation, for each wheel:

- ❑ loosen and take out bolt (1) (**Fig. 20**) from a hole,
- ❑ set leg (2) in adequate position between range **I** and **II** and adjust it with previously unscrewed bolt.

The bolt in position **I** is for the maximum angle of grass tedding, while the closer the position **II** the smaller the angle of grass tedding.

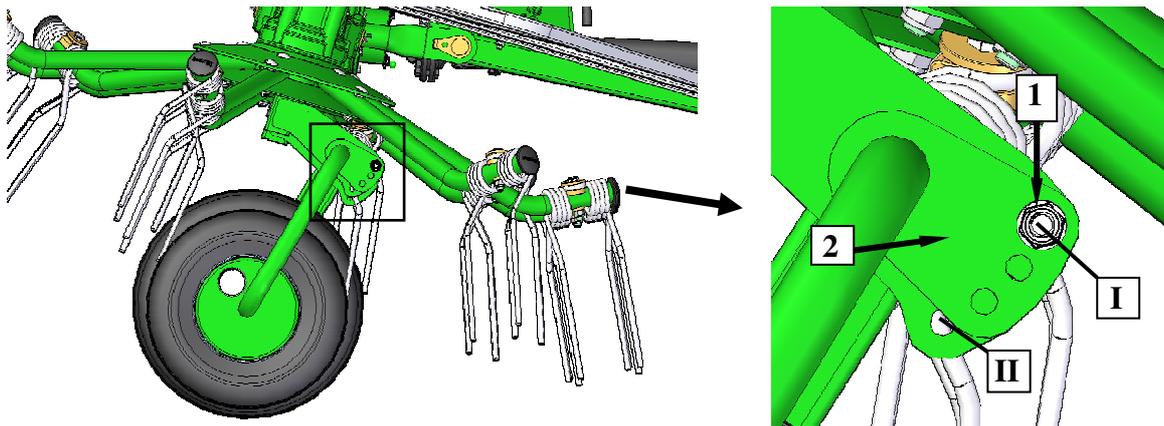


Fig. 20. Adjusting tedding angle with wheel position adjustment



IMPORTANT:

In order to switch transport positions of trailed tedder's (middle) drive wheels lift the machine up by means of a lifting device as well as ropes or chains with load greater than the tedder's total weight provided on its data plate.



WARNING!

When performing adjustment works under the lifted machine, it must be protected against falling, if ropes, chains are torn or the lifting device is damaged.

In Fig. 21 recommended (a) and not recommended (b) working positions are provided. Setting drive wheel axis closer to the tine being near the ground (Fig. 21a) results in better ground following and prevents it from being driven into the ground. Too far a setting of wheel axis from the tine in operating position shall cause less effective following of any ground unevenness (Fig. 21b) though results in reducing transport position.

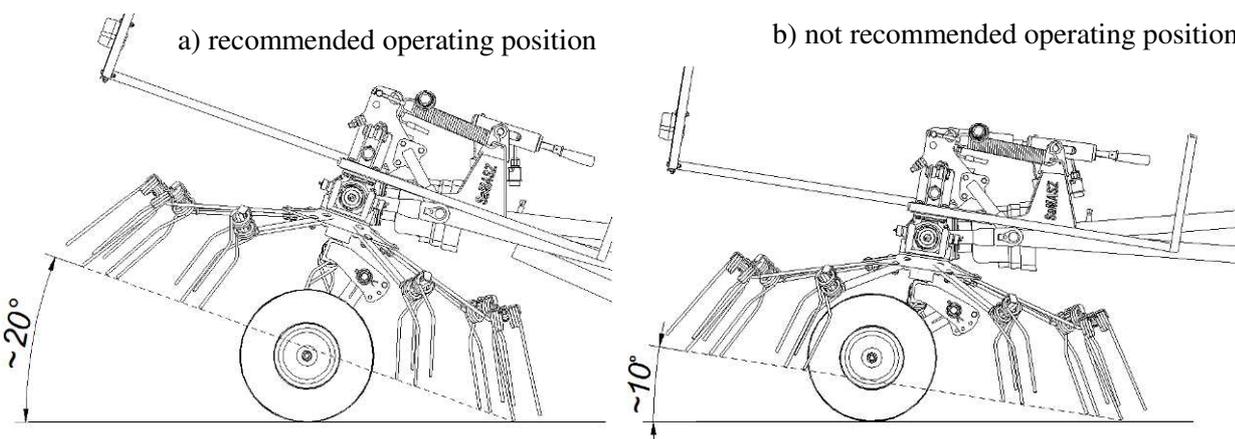


Fig. 21. Tedder in operating position

5.6. Tedder clogging and jams

When operating the tedder pay attention to variable conditions on field, which may influence the tedder clogging and jams, such as: terrain unevenness, height and density of grass as well as other objects in the grass (stones, branches, piles of soil). In order to avoid clogging and jams, operating speed should be adjusted to the mentioned conditions.

**WARNING!**

Removing clogs and jams while the tedder is in operation can lead to the accident!

In case of machine blockage caused by wrapped material, set the machine on a flat surface, remove excess material using sharp tool. After clearing the machine check if nothing has been damaged.

To remove any clogging it is obligatory to disconnect the drive and the motor, take out the ignition key. When eliminating any clogging on the machine, use also safety means for operator, so protective gloves and tight wear.

**WARNING!**

Do not let the grass wind around the rotor's shield of the tedder! During work, if the block-up occur, remove it!



Fig. 22. Wrapped grass under the gearbox

5.7. Dismounting tedder

**CAUTION:**

When dismantling, make sure there is no person in between the tedder and the tractor.

In order to dismount tedder from tractor perform the following:

- ❑ turn tractor's engine off and take ignition key off,
- ❑ support tedder with support leg on an even and stable ground,
- ❑ dismount PTO shaft from tractor and place it on support,
- ❑ disconnect hydraulic hoses;
- ❑ dismount tiller from tractor's beam by taking pin out.

6. MOUNTING AND ADJUSTMENTS

6.1. Mounting of the tines

The tines should be mounted according to the scheme shown in **Fig. 23** and **Fig. 24**.

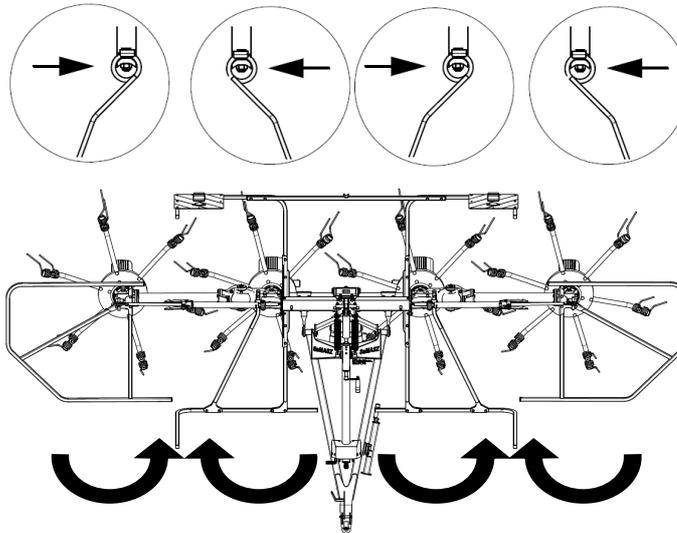


Fig. 23. Mounting of the tines P4-471C and P4-531 C

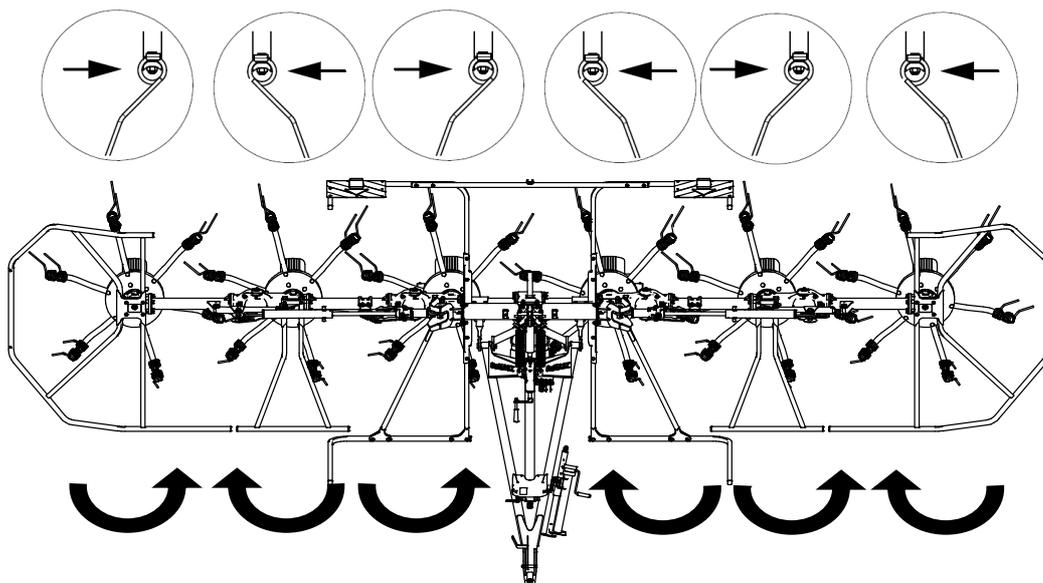


Fig. 24. Mounting of the tines P6-771 C

NOTE:

Use only the tines recommended by the manufacturer.

NOTE:

Due to various rotor rotation directions, prior to mounting tines, check rotation directions of each rotor (**Fig. 23** and **Fig. 24**).

6.2. Daily maintenance

Everyday after work please carry out the following maintenance:

- check all visible units and parts and their connections; tighten all loose bolts and nuts and replace all damaged and/or worn parts with new genuine ones,
- clean the tedder each day after working,
- remove grass and mud,
- check the rotors,
- grease PTO shaft tubes with STP grease,
- if necessary, lubricate the parts and units according to lubrication instructions (chapter 7).

6.3. After season maintenance and storing

It is recommended for the operator to wear protective gloves when performing maintenance works.

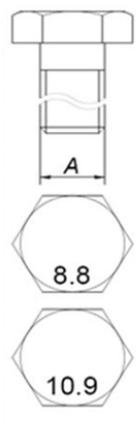
At the end of the season the tedder should be cleaned, washed and dried. Carefully grease unpainted surfaces and 3-point linkage pins. After that the following work should be carried out:

- ❑ remove any traces of rust and paint the area affected,
- ❑ check lubrication of intersecting axis gears (chapter. 7). If leaks occur, remove them immediately,
- ❑ periodically check the tedder and secure the moving parts with grease to prevent the tedder from rust, which affects the proper functioning of the machine,
- ❑ regularly check hydraulic hoses. In case of damage or expiry replace with new ones. Expiry period should not exceed 5 years,
- ❑ lubricate points provided in item 7 herein.

The detached machine should be stored in standstill position, so it is supported onto a protected support leg. It is recommended to store the set on paved ground, preferably in roofed places, inaccessible to unauthorized personnel. Machine should be stored in dry place, in the event if it is exposed to precipitations, apply lubrication regularly.

Tab. 4. Torque values for bolts

A	6.8		8.8		10.9		12.9	
	Maximum torque							
	Ib-ft	Nm	Ib-ft	Nm	Ib-ft	Nm	Ib-ft	Nm
M4	1.5	2.2	2	3.0	3	4.4	4	5.1
M5	3.5	4.5	4.5	5.9	6.5	8.7	7.5	10
M6	5.5	7.6	7.5	10	11	15	13	18
M8	13	18	18	25	26	36	33	43
M10	27	37	37	49	55	72	63	84
M12	47	64	63	85	97	125	111	145
M14	74	100	103	135	151	200	177	235
M16	118	160	159	210	232	310	273	365
M18	162	220	225	300	321	430	376	500
M20	229	310	321	425	457	610	535	710
M22	314	425	435	580	620	820	726	960
M24	395	535	553	730	789	1050	926	1220



In the absence of specific torque values, the following chart can be used as a guide to the maximum safe torque for a particular size and grade of fastener. There is no torque difference for fine or coarse threads. Torque values are based on clean, dry threads. Reduce value by 10% if threads are oiled before assembly.

7. LUBRICATION

7.1. Intersecting axis gears

On daily basis prior to work commencement check the oil level and, if need be, refill once removing the vent **B** (Fig. 25) in upper section of the gear. The oil level can be checked by opening check plug **A** at the back of the intersecting gear. If the oil level is too low, refill the oil (**Gearbox oil SAE 80W/90, API GL-4**) until it is visible in the check opening **A**. Oil volume in the gear **1**: approx. 1.1 l. Oil volume in gears **2** and **3**: approx. 0.5 l. Plug **C** is used to drain the oil from the gear.

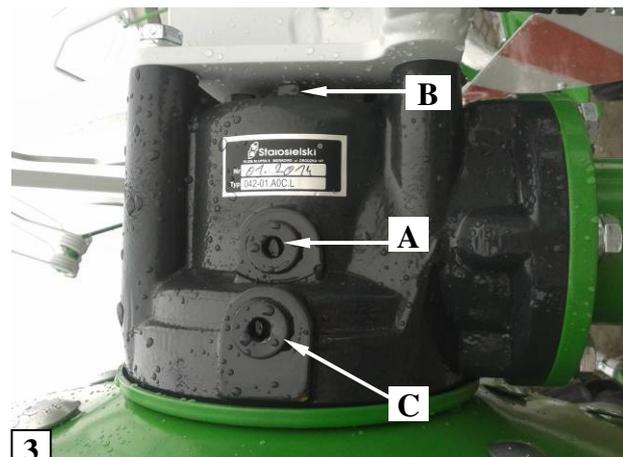
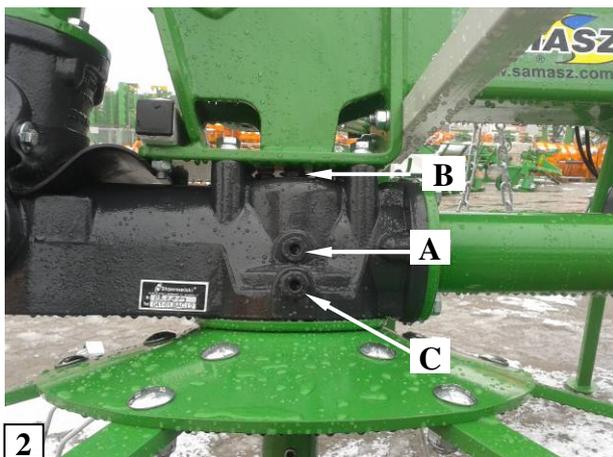
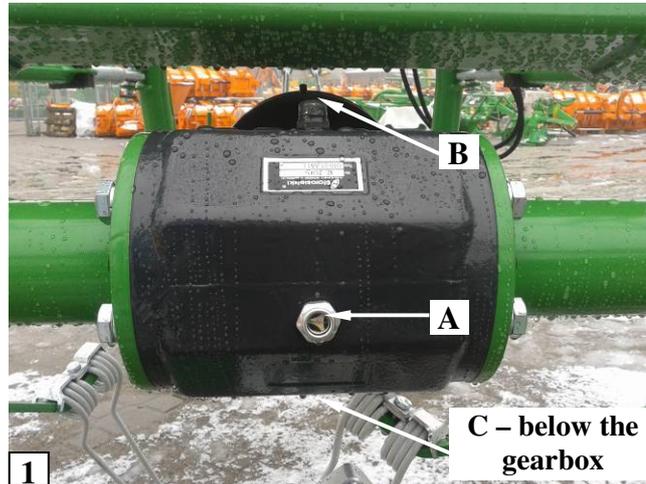


Fig. 25. Intersecting axis gears oil inlets and outlets

To replace oil in gears:

- ❑ Prepare an adequate tank for the used oil to be disposed,
- ❑ Open fuel cap **B** and drain plug **C** (Fig. 25),
- ❑ Drain oil from the gear,
- ❑ Close drain plug **C**,
- ❑ Refill the oil level until it is visible in the check opening **A**,
- ❑ Close fuel cap **B**.

7.2. Joints



Fig. 26. Lubrication points of the joints

7.3. Risks present when lubricating

- If risk of splashing is present, make sure to wear protective eyewear with side guards.
- When lubricating protect eyes and skin against contact with the substance. Therefore use adequate protective wear with long sleeves and protective footwear. Also use protective gloves. In case of a contact with skin, immediately wash the infected area with plenty of water with soap.
- Do not allow the product to contaminate water outlets, water courses and soils.
- In case of an unintentional release to the environment plug the leak, limit the spillage, and then collect the oil with non-flammable absorbent material (e.g. sand).
- The product is flammable. In case of fire, use adequate fire-extinguishing means (e.g. foam, water mist, extinguishing powders). Do not use water jets.
- Disposal of the used product must be made according to official regulations. Improper disposal of the used oil poses danger to the environment.

8. DEFECTS AND THEIR REPAIRS

Defect	Reason	Repair
The tedder does not lift/lower hydraulically	Damaged or dirty components of hydraulics	Replace or clean connecting components of the hydraulics
	Damaged hydraulic unit of the tractor	Check condition of hydraulic unit of the tractor
Leaking cylinder	Dirty oil in hydraulic unit of the tractor	Replace oil in hydraulic unit of the tractor (recommended class of cleanliness of oil according to NAS 1638 is minimum 9-10). Purchase repair kit of the cylinder and replace damaged sealings
Excessive vibration during work	Damaged PTO shaft	Check the condition of PTO shaft and if need be replace
Oil leak in gear	Not tight assembly	Examine tightness and check oil level.

9. REPAIR AND WITHDRAWAL FROM USE

9.1. Repair



REMEMBER:

Before repair works make sure the tedder is disconnected from the tractor.

Before repairing or assessing whether the tedder is still serviceable, it should be carefully cleaned of dirt, mud and plant remains.

After checking nuts and bolts, proper slack in joints and gears we can assess if the machine is still serviceable. Worn out bolts, pegs, pins, discs, tines, etc. should be replaced.

Once the tedder is repaired perform the following:

- make sure that all elements are installed properly,
- install the removed guards,
- check whether screws and nuts are tightened,
- check proper slack in joints and in gears,
- once all the guards are installed, perform a warm-up start to make sure the repaired machine operates properly.

9.1.1. Restarting the machine after repairs or longer storing periods

- Make sure that all nuts and screws are tightened with correct torque.
- Make sure that all guards are installed in place.
- As the storing period is over lubricate the whole machine.
- Check pressure in tires.
- Pay attention not to allow the machine lose its stability and therefore protect it with supports.

9.2. Disassembly and withdrawal from use

If the tedder cannot be repaired anymore, it should be withdrawn from use. Therefore oil from the frame gearbox should be drained and thoroughly clean any excess oil with cleaning agent, take parts made of plastic off. They should be used further on or delivered to a proper waste treatment company. Upon completing the required activities the tedder should be sold to breaker's yard.



IMPORTANT:

When dismantling the machine pay particular attention to and additional dangers, as crushing, cutting, wounding, concussion and abrasion. Use proper tools and personal protective equipment: protective gloves, clothing and footwear, eye wear, etc. Pay attention so that the machine works efficiently, and thus it is required to secure the machine with supports.

10. WARRANTY CARD

TRAILED TEDDER

Serial number
 Manufacture date
 Warrantor's stamp
 Controller's signature

Date of sale
 Seller's stamp
 Seller's signature

The product quality has been checked and meets the required standards and regulations and is permitted for use.

NOTE: A warranty card without the required information or with corrected or illegible information – **is invalid.**

11. WARRANTY TERMS

11.1. Warranty claims procedures

1. The manufacturer warrants good quality and defect-free operation of the tedder under this warranty if the tedder is operated in accordance with the operator's manual
2. Faults or damages to the machine found within 24-month period from the date of purchase shall be removed free of charge at the purchaser's or the manufacturer's.
3. Faults or damages should be submitted personally, in writing or by telephone. Repairs shall be carried out within 14 days. Any repairs under the warranty should be carried out by authorized SaMASZ service facilities.
4. Warranty claims regarding the product replacement or repayment are considered within 14 days by the manufacturer.
5. The following conditions are not covered by warranty:
 - a) **wear and tear of parts such as: tine holders, tines, intersecting axis gears and parts inside the gearboxes, bushings and sliding elements, joints, arms with tines, rubber-metal fenders, tires, connective elements, etc. These repairs may be carried out only at the purchaser cost.**
 - b) **use of the machine for any purpose other than described in the operator's manual,**

- c) **working on stony fields and consequences,**
- d) **running into any obstacle,**
- e) **too fast lowering of the machine onto the ground,**
- f) **setting tines lower than 25/64 in / 1 cm above the ground,**
- g) **random events or other occurrences, for which the Manufacturer cannot be held responsible.**

**WARNING!**

Tedder's components bent after coming across an obstacle or stones are done as paid repairs.

- 6. The Purchaser bears the costs of technical evaluation – if the Manufacturer finds that a claimed product is free of defects and this is confirmed by technical report.
- 7. The Manufacturer has the right to cancel the warranty in the following cases:
 - a) **hampering with the tedder, modifications to its mechanical design or intentional damages.**
 - b) **vast damage caused by random events or others, for which the Manufacturer does not bear any responsibility,**
 - c) **lack of required records in the warranty card or filling in the warranty card independently,**
 - d) **use of the tedder for any purpose other than described in the operator's manual.**
- 8. The Manufacturer can break the service agreement with immediate effect when the user does not pay the invoice according to that agreement in a timely manner and the delay in payment is longer than 30 days from maturity date. Breaking the service agreement by the Contractor due to causes dependent on the user shall lead to termination of the warranty given for the particular machine.
- 9. The Manufacturer shall not bear any compensation responsibility for the loss caused by the machine breakdown during its operation.

NOTES:

Please ask your dealer to complete and return the warranty card, otherwise you may lose your warranty rights.

The warranty card is valid only when it contains the following information: address, date and place of purchase, tedder type and invoice number.

When the warranty expires, repairs can be done for a payment by the entitled repair shops pointed by the dealer. The dealer is obliged to indicate them.

The manufacturer reserves the right to introduce changes in construction.

Company SaMASZ is working constantly on development of all types and models. That is why, there is always a possible change of form, equipment and technology of delivered products. Any claims arising from data, drawings and descriptions included in this operator's manual and spare parts list cannot be laid.

The SaMASZ is not responsible for printing errors.

11.2. Warranty repairs record

Repair scope and spare parts replaced:

Date, stamp and signature of repair shop.

Date, stamp and signature of repair shop.

Date, stamp and signature of repair shop.
