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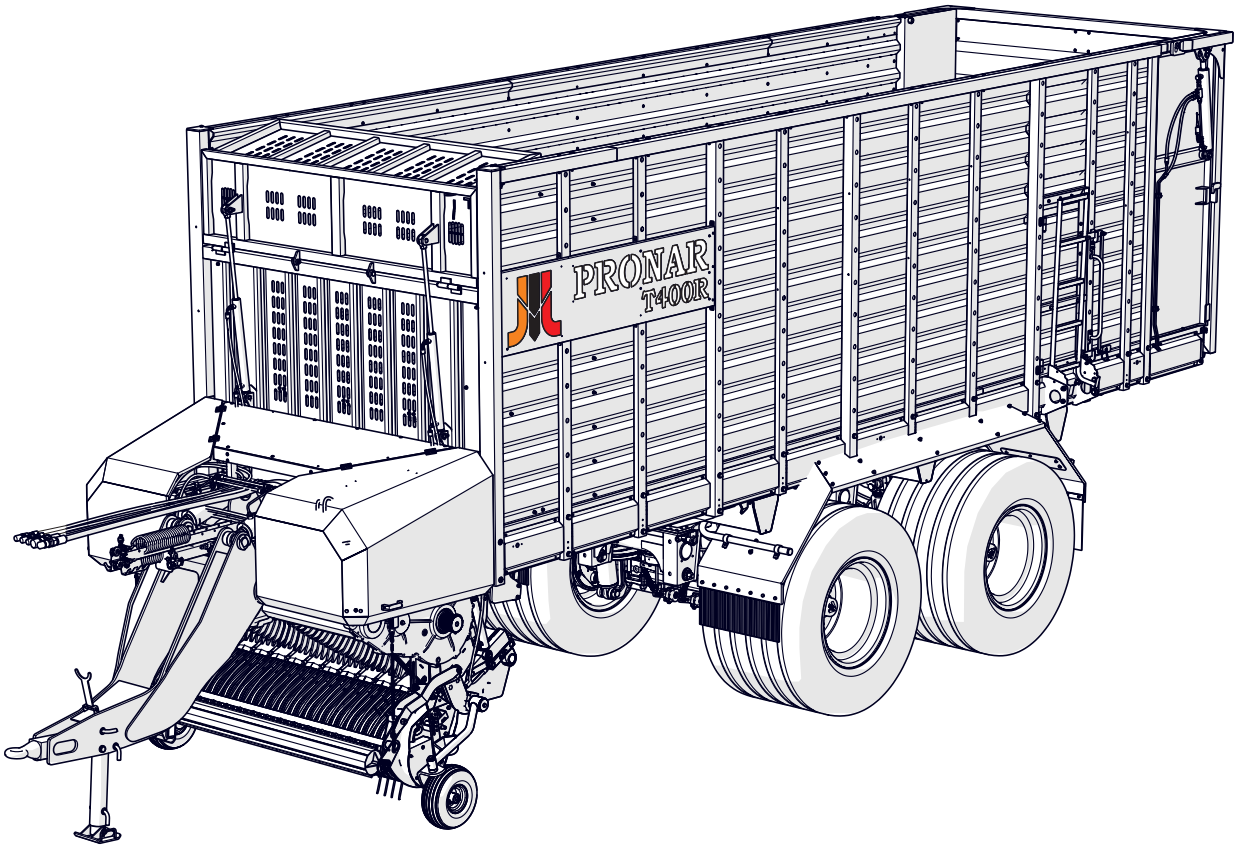
OPERATOR'S MANUAL

TRAILER

PRONAR T400R

TRANSLATION OF THE ORIGINAL DOCUMENT



ISSUE: 1A-04-2018

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OPERATION AND MAINTENANCE MANUAL

EN

INTRODUCTION

INTRODUCTION

Information contained herein is current at date of publication. As a result of improvements, some numerical values and illustrations contained in this publication may not correspond to the factual specification of the machine supplied to the user. The manufacturer reserves the right to introduce design changes in machines produced that facilitate operation and improve the quality of their work, without making minor amendments to this Operator's Manual.

This Operator's Manual is an integral part of the machine's documentation. Before using the machine, the user must carefully read this Operator's Manual and observe all recommendations. This guarantees safe operation and ensures failure-free work of the machine. The machine is designed to meet obligatory standards, documents and legal regulations currently in force.

If the information contained in the Operator's Manual needs clarification then the user should refer for assistance to the sale point where the machine was purchased or to the Manufacturer.

It is recommended that the serial number of the machine is inscribed in the spaces below after purchase of the machine.

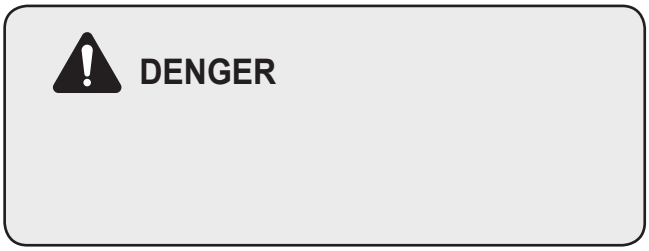
Machine serial number

U.01.1.PL

SYMBOLS APPEARING IN THIS OPERATOR'S MANUAL

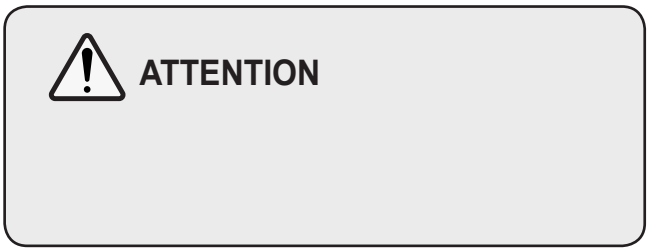
DANGER

Information, descriptions of danger and precautions as well as recommendations and prohibitions associated with the safety of use are marked in the text with the sign DANGER. Failure to observe the instructions may endanger the machine operator's or other person's health or life.



ATENTION

Particularly important information and instructions, the observance of which is essential, are distinguished in the text by the sign ATTENTION. Failure to observe the instructions may lead to damage to the machine as a result of improper operation, adjustment or use.



TIP

Additional tips included in the Operator's Manual describe useful advice for the machine operation and are marked with the sign TIP.

U.21.1.PL

DIRECTIONS USED IN THIS OPERATOR'S MANUAL

Left side – side to the left hand of the operator facing in the direction of machine's forward travel.

Right side – side to the right hand of the operator facing in the direction of machine's forward travel.

Rotation to the right – clockwise rotation of a mechanism (the operator is facing the mechanism).

Rotation to the left – counterclockwise rotation of a mechanism (the operator is facing the mechanism).

U.03.1.PL

CHECKING THE TRAILER AFTER DELIVERY

The manufacturer ensures that the trailer is operational, has been inspected in accordance with the inspection procedures and has been released to service. However, this does not lead to an exemption of the user from the obligation to check the vehicle after delivery and before the first use. The machine is delivered to the user completely assembled.

SCOPE OF INSPECTION OPERATIONS

- Check whether the equipment of the delivered machine matches with your order.
- Check the condition of the paint coat.
- Inspect the trailer components for mechanical damage resulting from, for example, incorrect transport of the machine.
- Check the condition of the road wheels tires and tire pressure.
- Check the technical condition of flexible hydraulic and pneumatic lines.
- Make sure that there are no leaks of hydraulic oil.
- Inspect the trailer lighting lamps.

TIP

Hand-over of the trailer to the buyer involves a detailed visual inspection and verification of the trailer operation, as well as instructing the buyer on the basic usage rules. The trailer is operated for the first time in the presence of the Seller.

U.11.1.PL

FIRST USE OF THE TRAILER

- Familiarize yourself with the contents of this manual and follow the instructions contained therein.
- Adjust the height of the drawbar to the tractor coupling.
- Perform an everyday inspection of trailers in accordance with the guidelines included in the schedule.
- Connect the machine to the tractor.
- When starting individual lights, check the correctness of the electrical installation.
- Perform a test drive. While driving, check the braking performance of the trailer.
- Stop the tractor and turn off the engine, immobilize the tractor and trailer with the parking brake.

If during the test start-up disturbing symptoms occur, like:

ATTENTION

During the first use, the trailer is checked in the presence of the Seller. The Seller is obliged to conduct the training in safe and correct operation of the trailer. The user trained by the seller is not released from the obligation to carefully read this Operator's Manual and adhere to the recommendations contained in it.

- excessive noise and unnatural noises from friction of moving parts,
- leak of the brake system,
- incorrect operation of brake cylinders,
- other defects,
- stop using the trailer until the failure is removed. If the defect cannot be removed or its removal threatens to void the warranty, please contact the point of sale to clarify the problem or to report the repair service.

U.12.1.PL

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EC DECLARATION OF CONFORMITY OF THE MACHINERY

PRONAR Sp. z o.o. declares with full responsibility, that the machine:

Description and identification of the machinery	
Generic denomination and function:	**AGRICULTURAL TRAILER**
Type:	**T400R**
Model:	- - - - -
Serial number:	
Commercial name:	**AGRICULTURAL TRAILER PRONAR T400R**

to which this declaration relates, fulfills all the relevant provisions of the Directive **2006/42/EC** of The European Parliament and of The Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (Official Journal of the EU, L 157/24 of 09.06.2006).

The person authorized to compile the technical file is the Head of Research and Development Department at PRONAR Sp. z o.o., 17-210 Narew, ul. Mickiewicza 101A, Poland.

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

Z-CA DYREKTORA
d/s technicznych
członek zarządu
Roman Dmelianiuk

Narew, the 2018-04-23

Place and date

Full name of the empowered person position, signature

TABLE OF CONTENTS

CHAPTER 1

BASIC INFORMATION

1.1 IDENTIFICATION

The trailer is marked with the type plate (1) placed on the front beam of the frame and a serial number (2) stamped above the type plate. The meaning of individual fields on the type plate is shown in Table (1.1).

Table 1.1. Type plate markings

No.	Meaning
A	General descriptoin and function
B	Trailer symbol / type
C	Year of production
D	VIN number
E	Approval certificate number
F	Unladen weight
G	Permissible laden mass
H	Load capacity
I	Permissible load on the coupling
J	Permissible axle load 1
K	Permissible axle load 2

When purchasing the machine, check the conformity of serial numbers on the machine with the number written in the Warranty Card, the sales documents and the User Manual.

The serial number of the driving axle and its type are stamped on the type plate (2) attached to the driving axle beam (1). After purchasing the trailer,

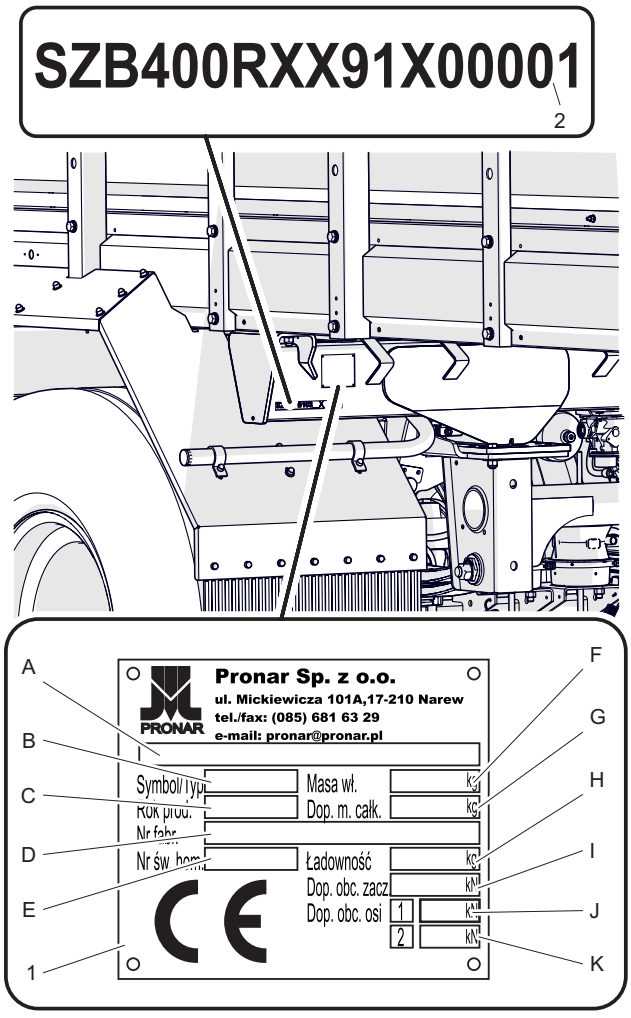

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Figure 1.1 Location of the type plate

(1) type plate *(2) serial number*

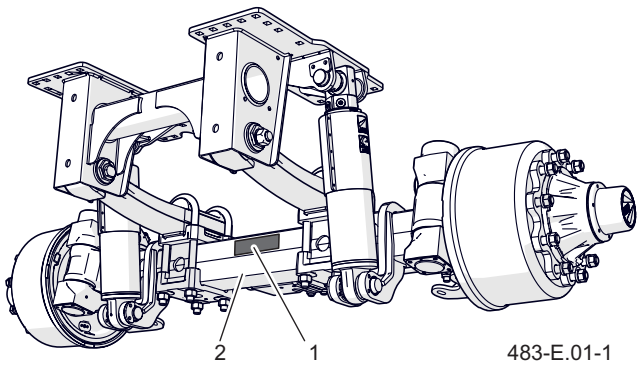

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Figure 1.2 Location of the type plate

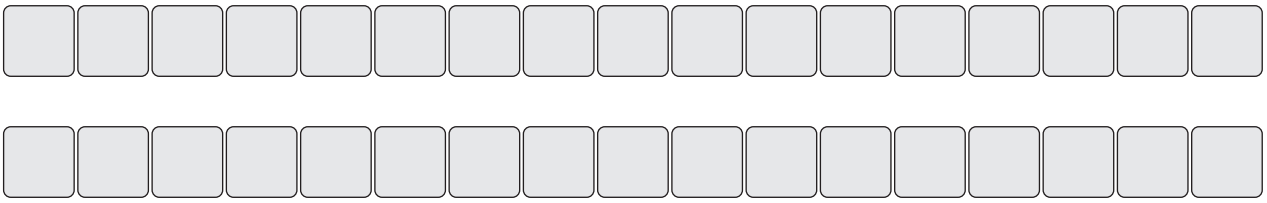
(1)type plate *(2) driving axle beam*

we recommend to enter the individual factory numbers of the axles in the fields below.

HINT

Contacting the service department requires entering the factory number of the trailer and often the driving axles numbers, which is why we recommend that you enter these numbers in the manual and have access to them.

The data given on the type plate (2) - Fig. Identification of driving axle are exemplary and do not have to correspond to the actual state.



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1.2 INTENDED USE

ATTENTION

The machine must not be used for purposes other than its intended purpose.

The agricultural trailer is adapted for automatic harvesting of hay and straw. It is also allowed to transport voluminous agricultural products, among others green fodder, mulches, fodder, hay, straw, leaves, chaff, silage. When loading other than using the own trailer mechanism, it is required to use self-propelled harvesters, forage harvesters, loaders, tractor loaders or conveyors.

The trailer can also be used in corn harvesting technology using self-propelled forage harvester. The trailer is used to collect chopped maize from the forage harvester and transport it to the place of ensiling forage. The machine can be used as an accompanying trailer for self-propelled harvesters adapted for harvesting green swaths or biomass. The trailer can only be aggregated with agricultural tractors that meet all the requirements specified in table (1.2) Tractor requirements.

The braking system and the lighting and signaling system meet the requirements of the road traffic regulations. The permissible speed of the set must not be exceeded (the speed limit results from the road traffic law and depends on the country in which the trailer is used). However, the speed of the trailer may not be greater than the allowable construction speed - Table (3.1)

Intended use also includes all activities related to the correct and safe operation and maintenance of the machine. Therefore, the user is required to:

- read the contents of this User Manual and the Warranty Card and follow the recommendations contained in these documents,
- understand of the principles of machine operation and safe and correct operation,
- comply with established maintenance and adjustment plans,
- comply with general safety regulations during work,
- prevent accidents,
- adhere to traffic regulations and transport regulations in force in the country where the machine is used,
- familiarize with the contents of the tractor's operating instructions and follow recommendations,
- aggregate the vehicle only with such an agricultural tractor that meets all the requirements set by the trailer manufacturer.

The machine may only be used by people who:

- became acquainted with the content of publications and documents accompanying the machine and with the contents of the tractor's operating instructions,
- have been trained in the use of the trailer and work safety,
- have the required permissions to guide and become acquainted with traffic regulations and transport regulations.

Table 1.2. Trailer requirements

Content	JM	Requirements
Pneumatic 2-wire braking system with hydraulic ALB		
Connections	-	PN-ISO 1728:2007
Nominal installation pressure	bar	6.5
Hydraulic installations		
Connector	-	ISO 7241-A
Maximum hydraulic installation pressure	MPa	20
Maximum oil pump flow	l./min	130
Electrical connection	-	3-pin, 12V
Electrical lighting installation		
Connector	-	7-pin, ISO 1724
Rated voltage	V	12
Other requirements		
Minimum trailer power demand	kW/KM	133.8 / 182
PTO rotation	rpm	1 000

DANGER

During disassembly, use appropriate tools, devices (overhead cranes, cranes, lifts, etc.), use personal protective equipment, i.e. protective clothing, footwear, gloves, glasses etc..

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1.3 EQUIPMENT

STANDARD EQUIPMENT

- Warranty Card,
- User Manual,
- Electrical connection cable,
- Telescopic PTO shaft 601640.

ADDITIONAL AND OPTIONAL EQUIPMENT

- Warning plate,
- Reflective warning triangle,
- Spare wheel (bulk).

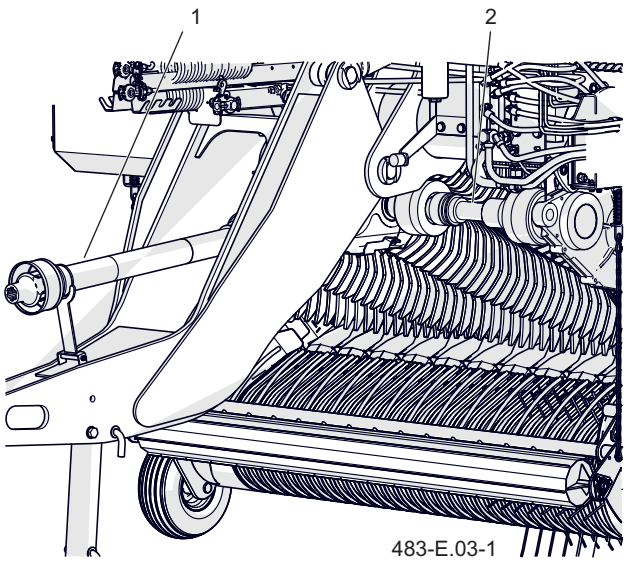

Figure 1.3 Drive shaft

(1) PTO shaft *(2) shaft of gear unit*

Table 1.3.Trailer drive shaft - Fig. 1.3

No.	Name	Marking	Manufacturer
1	Telescopic PTO shaft	601640	Walterscheid
2	Shaft of gear unit	606190	Walterscheid

E.3.7.483.03.1.PL

1.4 WARRANTY CONDITIONS

HINT

You should ask the seller to fill in the Warranty card and warranty coupons carefully. Lack of e.g. the date of sale or stamp of the point of sale exposes the user to not accept any complaints.

PRONAR Sp. z o.o. in Narwia guarantees efficient operation of the machine while using it in accordance with the technical and operational conditions described in the User Manual. The repair period is specified in the Warranty Card.

The guarantee does not cover parts and sub-assemblies of the machine, which are subject to wear under normal operating conditions regardless of the warranty period. The group of these elements includes i.e. the following parts / sub-assemblies:

- Tendon drawbar,
- Drive chains,
- Decoiler teeth,
- Springs,
- Filters on pneumatic system connectors,
- Tires,
- Seals,
- Bearings,
- Bulbs and LED lamps,
- Brake shoes.

Warranty services apply only to such cases as: mechanical damage not resulting from user's fault, factory defects of parts, etc.

In the event that damages arise as a result of:

- mechanical damage caused by user's fault, road accident,
- improper operation, adjustment and main tenance, use contrary to the intended use,
- use of a damaged machine,
- performing repairs by unauthorized persons, improper repairs,
- making arbitrary changes in the machine structure,

The user loses warranty services. The user is obliged to immediately report all noticed losses of paint coatings or traces of corrosion, and to order removal of defects regardless of whether the damage is covered by warranty or not. Detailed warranty conditions are given in the Warranty Card enclosed to the newly purchased machine.

Modifications to the machine without written consent of the manufacturer are prohibited. In particular, it is unacceptable to welding, reaming, cutting and heating the main structural elements of the machine, which directly affect the safety during use

DANGER

Improper use of fasteners may cause an accident..

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1.5 TRANSPORT

The machine is ready for sale completely assembled and does not require packaging. Only the technical and operating documentation of the machine and possibly some accessories are subject to packing. The delivery to the user takes place by car transport or independent transport (towing the trailer with the help of an agricultural tractor).

DANGER

During road transport, the trailer must be mounted on the platform of the means of transport in accordance with safety requirements and regulations.
The driver should exercise extreme caution when driving. This is due to the fact that the center of gravity of the vehicle with the machine loaded is shifted up.
Use only certified and technically efficient fastening agents. Familiarize yourself with the manufacturer's instructions for fasteners.

CAR TRANSPORT

The loading and unloading of the trailer from the car should be carried out from the loading dock using an agricultural tractor. During work, follow the general rules of health and safety at reloading work. Persons handling transhipment equipment must have the required authorization to use these devices. The trailer must be correctly connected to the tractor in accordance with the requirements contained in this manual. The trailer brake must be started and checked before leaving or entering the ramp.

The trailer should be securely fastened on the platform of the means of transport by means of belts, chains, lashings or other fastening means equipped with a clamping mechanism. Fasten the fasteners in transport brackets designed for this purpose. Transport handles are welded to the lower frame side members.

Use certified and technically efficient fastening means. Abrasion of belts, cracked fasteners, broken or corroded hooks or other damage may disqualify the product for use. Familiarize yourself with the information contained in the operating instructions of the manufacturer of fixing agent used.

Place wedges or other elements without sharp edges under the trailer wheels, protecting the machine against rolling away. The trailer wheel lock must be secured to the load platform of the car in a way that prevents it from sliding. The number of fasteners (ropes, belts, chains, stays, etc.) and the force required for their tension depend, among other things, on the weight of the trailer, the structure of the car transporting the trailer, the speed of travel and other conditions. A correctly mounted trailer will not change its position relative to the transporting vehicle. The fastening means must be selected in accordance with the manufacturer's instructions for these elements. In case of doubt, a larger number of attachment points and securing the trailer should be used. If necessary, sharp edges of the trailer should be protected, thus protecting the fixing means against damage during transport.

During reloading work, special care should be taken not to damage machine components and the paint coating. The weight of the trailer in running order is shown in the table (3.1).

INDEPENDENT TRANSPORT

In the case of self-transport by the user after purchasing the trailer, familiarize yourself with the content of the Trailer Service Manual and follow its recommendations. Self-transport consists in towing the trailer with its own farm tractor to its destination. When driving, adjust the driving speed to the prevailing road conditions, but it must not be greater than the permissible construction speed.

ATTENTION

It is forbidden to fasten the slings and all kinds of load securing elements to hydraulic, electrical and slender parts of the machine (e.g. covers, cables)

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1.6 ENVIRONMENTAL RISKS

DANGER

Do not store oil waste in food containers.
Store the used oil in hydrocarbon-resistant containers.

The leakage of hydraulic oil poses a direct threat to the natural environment due to the limited biodegradability of the substance. When carrying out maintenance and repair work, where there is a risk of oil leakage, these works should be carried out in rooms with oil resistant surface. In the event of oil leaking into the environment, first of all the source of the leak should be secured, and then the spilled oil should be collected using available means. Collect residual oil with sorbents or mix oil with sand, sawdust or other absorbent materials. Collected oil contaminants should be stored in a sealed container, resistant to hydrocarbons and then transferred to a waste oil disposal company. Keep the container away from heat, flammable materials and food.

Oil that has been used up or cannot be used again due to the loss of its properties should be stored in original packaging in the same conditions as described above. Waste code 13 01 10 (hydraulic oil). Detailed information on oils can be found in the product safety sheets.

ATTENTION

Oil wastes may only be transferred to a waste disposal company or regeneration of oils. It is forbidden to throw or pour oil into drains or water tanks.

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1.7 SCRAPPING

If the user decides to withdraw the machine, comply with the regulations in force in the given country regarding scrapping and recycling of machinery removed from use.

Before dismantling the machine, the oil from the hydraulic system must be completely removed.

In case of replacement of parts, worn or damaged elements should be transferred to the point of purchase of secondary raw materials. Used oil as well as rubber or plastic elements should be transferred to waste disposal companies, specialized in this type of waste.

DANGER

During disassembly, use appropriate tools, devices (overhead cranes, cranes, lifts, etc.), and personal protective equipment, i.e. protective clothing, footwear, gloves, glasses, etc..

E.3.1.526.07.1.PL

SAFETY OF USE

CHAPTER 2

2.1 BASIC SAFETY RULES

- It is forbidden to use the trailer contrary to its designed use. In the event that you use the machine against its designed use, you assume full responsibility for all consequences arising hereof. The use of trailer that does not comply with the manufacturer's instructions may void the warranty.
- Before using the trailer, you are required to read the contents of this manual and the Warranty card. During use, you must follow all recommendations contained in these documents.
- The use and operation of the trailer may only be performed by persons authorized to drive agricultural tractors with a trailer.
- Before starting work, familiarize yourself with all the controls on the machine. It will be too late in use. Do not use the machine without knowing its function.
- Familiarize yourself with the construction, operation and principles of safe machine operation.
- Before each start-up of the trailer, check that it is properly prepared for operation, especially in terms of safety.
- If the information contained in the manual is difficult to understand, contact a seller who runs an authorized technical service on behalf of the manufacturer or directly with the manufacturer.
- Entering the trailer is possible only when the machine is absolutely still. Stop the tractor, remove the ignition key of the tractor, and secure the trailer and tractor against rolling by placing wedges. The trailer and tractor should be immobilized with the parking brake. Use platforms or ladders having appropriate height and strength to enter.
- Careless and improper use and operation of the trailer, as well as non-compliance with the instructions contained in this manual pose a threat to health and life of unauthorized persons and / or operators of the machine.
- The trailer may only be used if all covers and other protective parts are in working order and correctly fitted.
- Pronar sp. z o.o. warns about the existence of a residual risk, therefore the application of the principles of safe and reasonable use should be the basic principle of using a trailer. Remember that the most important is your safety.
- Do not allow any unauthorized persons unable to use the machine to operate the trailer, in particular children, people under the influence of alcohol, people under the influence of drugs or other, etc..
- Any modifications to the trailer are prohibited and exempt Pronar from liability for damage or injury.

F.3.1.526.01.1.PL

2.2 SAFETY WHEN AGGREGATING THE MACHINE

- Use extreme caution when connecting the machine.
- No one may stand between the trailer and the tractor during connection.
- Do not aggregate the trailer if the tractor does not meet the minimum requirements set by the Manufacturer.
- Before connecting the trailer, make sure that the oil in the external hydraulic system of the tractor can be mixed with the hydraulic oil of the trailer.
- Before connecting the trailer, make sure that both machines are technically functional.
- When coupling the trailer, use the appropriate tractor hitch. After coupling of the machines has been completed, check that the latch is secure. If necessary, read the operating instructions of the tractor.
- If the tractor is equipped with an automatic clamp, make sure that the coupling operation has been completed.
- Aggregation and disconnection of the trailer may take place only when the machine is immobilized with the parking brake.

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2.3 SAFETY PRINCIPLES FOR HYDRAULIC AND PNEUMATIC SYSTEM OPERATION

- Hydraulic and pneumatic systems are under high pressure during operation.
- Regularly check the technical condition of connections, as well as hydraulic and pneumatic hoses. Operation of the trailer with a leaky system is not permitted.
- In the event of a hydraulic or pneumatic system malfunction, the trailer should be decommissioned until the failure is removed.
- When connecting hydraulic hoses to the tractor, make sure that the hydraulic system of the tractor and trailer is not under pressure. If necessary, reduce the residual pressure of the installation.
- In case of injuries caused by a strong hydraulic oil jet, consult a physician immediately. Hydraulic oil can penetrate the skin and cause infection. If oil gets in your eyes, rinse with plenty of water and if irritation develops, contact your doctor.
- In the event of contact of oil with skin, wash the area of contamination with soap and water. Do not use organic solvents (petrol, kerosene).
- Use hydraulic oil recommended by the Manufacturer
- Used oil shall be disposed. Used oil or oil that has lost its properties shall be stored in original containers or in hydrocarbon-resistant replacement packaging. Replacement containers must be accurately described and stored appropriately
- It is forbidden to store hydraulic oil in packaging intended for storing food
- Hydraulic rubber hoses must be replaced every 4 years regardless of their technical condition.

F.3.1.526.03.1.PL

2.4 PRINCIPLES OF SAFE TECHNICAL OPERATION

- During the warranty period, all repairs may only be carried out by the Warranty Service authorized by the Manufacturer. After the end of the warranty period, we recommend that any trailer repairs are made by specialized workshops.
- In the event of any malfunction or damage, the trailer should be taken out of service until it is repaired.
- During maintenance work, use appropriate, close fitting protective clothing, gloves, glasses, and the right tools.
- Any modifications to the trailer release the trailer manufacturer from liability for damage or injury.
- Regularly check the technical condition of safety devices and correct tightening of screw connections (in particular the drawbar and wheels). The tightening of nuts is described in chapter Technical service.
- Inspect the trailer in accordance with the frequency specified in this manual.
- Before starting repair work of hydraulic or pneumatic systems, reduce oil or air pressure.
- Perform maintenance and repair work respecting general principles of occupational health and safety. In the event of injury, immediately clean and disinfect the wound. In case of serious injuries, seek medical advice.
- Repair, maintenance and cleaning work.
- Should only be carried out with the tractor engine switched off and the ignition key removed. The tractor and trailer must be secured with the parking brake and wedges placed under the trailer wheel. Close the tractor cab and secure it against unauthorized access.
- During maintenance or repair work, the trailer may be disconnected from the tractor, but must be secured with wedges and parking brake.
- If it is necessary to replace individual elements, use only parts recommended by the Manufacturer. Failure to comply with these requirements may pose a threat to the health or life of unauthorized persons or persons operating the trailer, may damage the machine and provides the basis to invalidate the guarantee.
- Before welding or electrical work, the trailer should be disconnected from constant power supply. Clean the painting coat. The fumes of burning paint are poisonous for humans and animals. Welding work should be carried out in a well-lit and ventilated room.
- During welding work, pay attention to flammable or low-melting elements (elements of pneumatic, electric and hydraulic installations, plastic parts). If there is a risk of ignition or damage, dismantle them or cover with non-combustible material before welding. Before starting work, prepare a CO2 fire or foam extinguisher.
- In case of work requiring the trailer to be raised, use properly certified hydraulic or mechanical lifts. After lifting the machine, use stable and robust supports. It is forbidden to

perform work under a trailer raised only with a hoist.

- It is forbidden to support the trailer with fragile elements (bricks, hollow bricks, concrete blocks).
- The hoist used should have adequate load capacity and should be technically sound. The lifter must be placed on an even, hard surface preventing from sinking or slipping during work. If necessary, use appropriately selected sleepers to reduce the unit pressure of the jack base to the ground in order to prevent sinking into the ground.
- After completing the lubrication work, remove excess grease or oil. Keep the trailer clean.
- It is forbidden to perform self-repairs of hydraulic or pneumatic system elements, i.e. control valves, actuators and regulators. In the event of damage to these elements, repair should be entrusted to authorized repair points or being replaced.
- It is forbidden to install additional devices or accessories that do not comply with the specifications of the Manufacturer.
- Towing of the trailer is permitted only if the chassis, lighting and brake systems are in working order.
- Drawbar and tendon repairs (welding, padding, straightening, etc.) are prohibited and require to be replaced.

F.3.1.526.04.1.PL

2.5 PRINCIPLES OF SAFE DRIVING

- When driving on public roads, observe the road traffic regulations and transport regulations in force in the country in which the trailer is used.
- When driving, adjust the driving speed to the prevailing road conditions and restrictions imposed by the road traffic regulations. Excessive speed may result in loss of control of the set, damage to the trailer and / or tractor, and reduced braking efficiency of the set.
- It is forbidden to leave an unsecured machine. The disconnected trailer must absolutely be secured against rolling with the parking brake and wedges placed under the vehicle wheel. Wedges should be placed on one axis, at the front and rear of the wheel.
- Before driving, make sure that the machine is correctly connected to the tractor.
- Before each drive, make sure that the trailer is technically sound.
- Before driving, make sure that the parking brake has been released.
- Long-term movement on sloping terrain poses a risk of loss of braking efficiency.
- When driving on public roads, the tractor operator must ensure that the tractor and trailer is equipped with an approved or homologated warning reflective triangle.
- Reckless driving and excessive speed are the most common causes of accidents.
- Load protruding beyond the trailer outline should be marked in accordance with traffic regulations. It is forbidden to transport charges not authorized by the manufacturer.
- If possible, avoid trips on uneven terrain and unexpected turns.
- It is forbidden to climb onto the trailer while driving.
- On the rear flap, mount a triangular plate marking slow moving vehicles. The warning plate (1) should be placed in a specially prepared holder for the purpose.

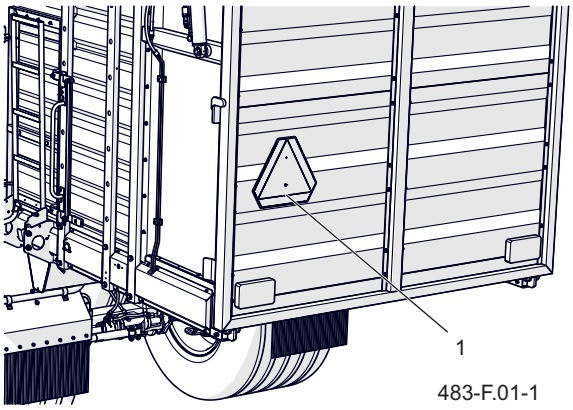

Figure 2.1 Location of waning plate

(1) Warning plate

- Do not exceed the permissible load capacity of the trailer, as this may result in damage to the machine, loss of stability while driving, scattering of cargo and danger during driving.
- The machine's braking system has been adapted to the total weight of the trailer, which if exceeded will drastically reduce the operation of the service brake.
- When reversing (especially in case of limited visibility), it is recommended to use the help of another person. When maneuvering, the helper must keep a safe distance from the danger zones and be visible all the time for the tractor operator.
- Exercise extreme caution when driving and

lifting the tailgate near overhead power lines.

- It is forbidden to drive the trailer on public roads with the tailgate raised.
- Before starting to drive, make sure that the side door is closed and properly secured. The side door ladder must be folded and secured during drive and operation.
- After finishing work, raise the pick-up unit and turn off the drive of the collecting mechanism. It is forbidden to drive with the pick-up lowered and the collecting mechanism activated.
- After aggregation, make sure that the drawbar support is raised and secured. Driving with the extended support results in serious machine failure and the possibility of a road accident.
- Bearing in mind the heavy load on the tractor hitch, take care of appropriate weight (ballast weight) of the tractor front axle, which should amount to a minimum of 20% of vehicle weight on the front axle.

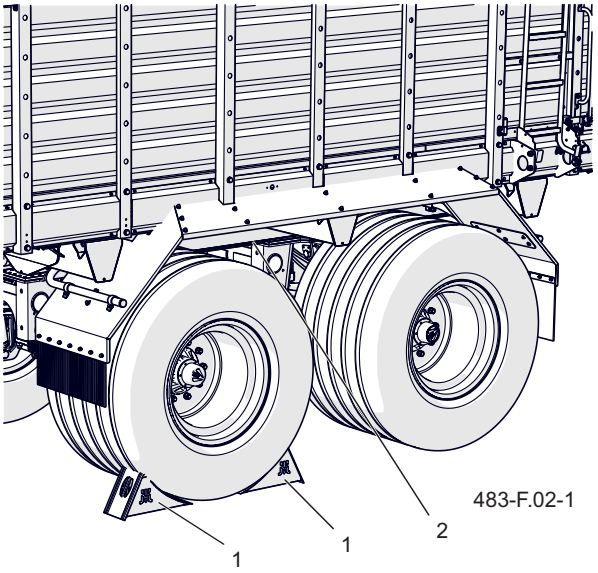

Figure 2.2 Setting of wedges to wheels

(1) wedges (2) longeon

Inadequate axle load results in a difficult running of the set and a significant reduction in braking force.

- Pay attention to the trailer height when traveling under low flyovers, bridges, etc..
- When driving at high speed on roads, lock the steering axle. Driving on dirt roads also requires the steering axle to be locked.

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2.6 LOADING AND UNLOADING OF TRAILER

- The trailer is not intended for transporting people, animals or hazardous materials.
- Loading and unloading should be carried out by a person with experience in this type of work.
- Load must be arranged so that it does not cause the trailer stability to be lost and does not hinder driving the set.
- The arrangement of load must not cause overloading of the chassis.
- Incorrect load distribution and overloading of the machine may cause the trailer to tip over or damage its components.
- Make sure that the tractor PTO shaft speed is set to the required 1000 rpm.
- Adjust driving speed to harvest conditions (type, width and density of the swath, unevenness and slope, etc.).
- Do not stay in the load box during loading and unloading.
- Unloading and loading of the trailer can only be carried out when the machine is connected to the tractor.
- When loading fresh silage or short fodder material, lower the dosing roller to position „B” - Fig. (2.3).
- When loading dry fodder collected from a swath or with a large swath of fresh fodder material, raise the dosing roll to the „A” position.

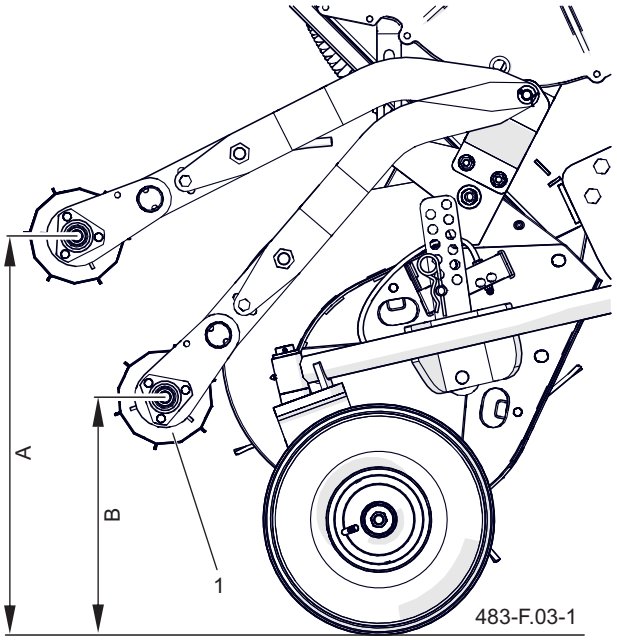

Figure 2.3 Setting the dozing roller
(1) dozing roller *(A) high position*
(B) low position

- Reduce driving speed when turning. In tight corners, additionally pick up the landing net and switch off the PTO drive.
- Make sure that there are no bystanders in the unloading / loading area.
- Be careful when opening and closing the tailgate due to the risk of cutting.
- Be careful when loading with self-propelled forage harvester and control the loading level of the load box. Lower the front hinged wall.

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2.7 WORKING WITH THE POWER TAKE-OFF (PTO)

- Before starting work, read the operating instructions for the drive shaft supplied by the shaft manufacturer and follow the instructions contained therein.
- The trailer may be connected to the tractor only with the aid of a properly selected telescopic PTO shaft recommended by the Manufacturer.
- The drive shaft must be fitted with covers. It is forbidden to use the shaft with damaged safety elements or lack thereof.
- The parts of the PTO shaft (especially the coupling) can get very hot. Do not touch!.
- After installing the shaft, make sure that it is correctly and securely connected to the tractor and trailer.
- It is forbidden to wear loose clothing, loose straps or anything that could get caught into the rotating shaft. Contact with the telescopic PTO shaft can cause serious injury.
- Before disconnecting the shaft, turn off the tractor engine and remove the key from the ignition.
- During operation in low visibility conditions, the telescopic PTO shaft and its surroundings should be illuminated with tractor operating lights.
- During the transport, the shaft must be stored horizontally, in order to avoid damage to the covers and other safety devices.
- When using the shaft and trailer, do not use the PTO speed other than 1,000 rpm. It is forbidden to overload the shaft and machine and to engage the clutch violently. Before starting the telescopic PTO shaft, make sure that the PTO rotation direction is correct.
- It is forbidden to move over and under the shaft and stand on it both during operation and while the trailer is standing.
- The telescopic PTO shaft has markings on the housing, indicating which end of the shaft should be connected to the tractor.
- Never use a damaged telescoping PTO shaft, as it may cause accidents. A damaged shaft must be repaired or replaced.
- Do not use PTO shaft extension / adapters. • Disconnect the drive shaft each time when driving the machine is not needed or when the tractor and trailer are at an adverse angular position in relation to each other.
- The chain protecting the shaft cover should be protected against rotating while the shaft is operating, it should be attached to a permanent structural element of the trailer.
- It is prohibited to use chains with safety devices to support the shaft when parking or transporting the trailer.

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2.8 TRAILER LOAD

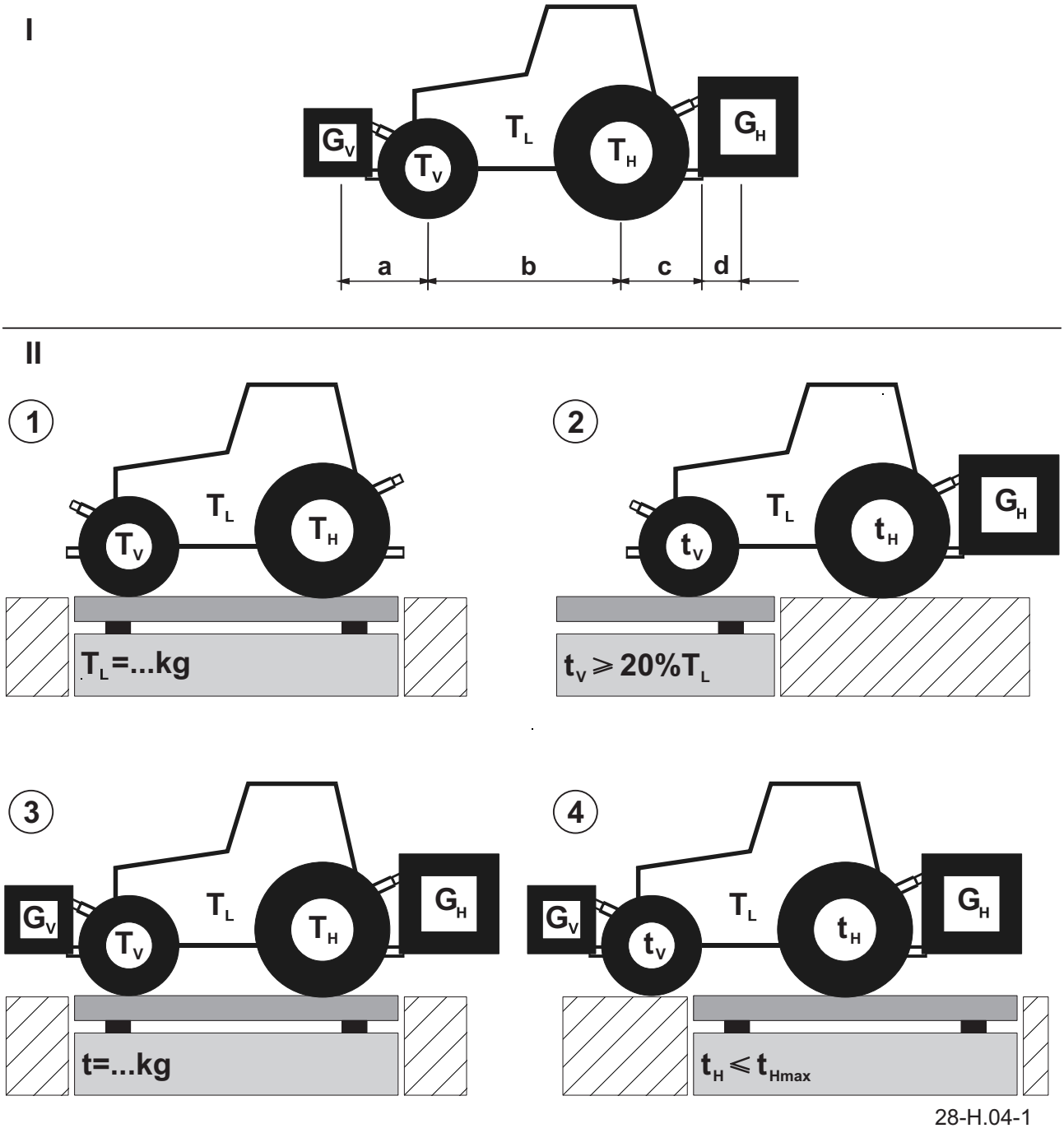

Figure 2.4 Load of the front axle of tool carrier (tractor).

Before starting work with the trailer, check the load on the front axle of the tractor. Connecting the trailer to the tractor hitch must not exceed the permissible total weight, the permissible axle load and the load capacity of the tractor tires. The front axle of the tractor must always be loaded by at least 20% of the tractor's unladen mass. To ensure that these conditions are met, perform the following calculations:

ATTENTION

The load on the front axle of the carrier (tractor) must be at least 20% of its unladen mass.j.

Calculation of the minimum front ballast G_{Vmin}

$$G_{Vmin} = \frac{G_H \bullet (c+d) - T_V \bullet b + 0{,}2T_L \bullet b}{a+b}$$

Calculation of the minimum rear ballast G_{Hmin}

$$G_{Hmin} = \frac{G_V \bullet a - T_H \bullet b \bullet 0{,}45T_L \bullet b}{b+c+d}$$

Calculation of the required minimum front and rear ballast requires that all parameters to be known. If the parameters are not known and cannot be determined, measurements should be made using the balance - Fig. (2.4).

Measurement of permissible tractor axle loads using a balance.

- Measure the tractor unladen mass (T_L).
- Connect the trailer to the tractor and measure the front axle (t_V) load. If the load is less than 20% of weight of the tractor itself (T_L), add weights so that the minimum value is exceeded ($t_V \geq 20\% T_L$).
- Measure the total weight (t) of the tractor with the machine and weights. Check the tractor's operating instructions to see if the measured value is less than the permissible unladen mass of tractor.
- Measure the rear axle load (t_H) and check in the tractor operating instructions if the measured value is less than the permissible maximum pressure on the rear axle of the tractor (t_{Hmax}).

Table 2.1. Tool carrier load (tractor)

Symbol / dimension (FIG. 4.2)	J.M	Description
T_L	kg	Unladen mass of tractor
T_V	kg	Front axle load of tractor without machine
T_H	kg	Rear axle load of tractor without machine
t	kg	Axle load of tractor with machine
t_V	kg	Front axle load of tractor with machine
t_H	kg	Rear axle load of tractor with machine
G_H	kg	Total mass attached at machine rear
G_V	kg	Total mass attached to the front of the head weight
a	m	Distance between the center of gravity of the load at the front and the center of the front axle
b	m	Tractor reference wheelbase
c	m	Distance from the rear axle center to the center of the tractor lower tendons
d	m	Distance from the lower tendons center to the center of gravity of the machine attached at the rear

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2.9 TIRES

- When conducting works on tires, the trailer should be secured against over-rolling by placing chocks or other objects without sharp edges under the wheels. The wheel disassembly can only be carried out when the trailer is not loaded.
- Repair work on wheels or tires should be carried out by persons trained and authorized hereto. These works should be carried out using carefully selected tools.
- Check the tightening correctness of wheel nuts in accordance with the assumed schedule.
- Avoid damaged surfaces with sudden and variable maneuvers and excessive speed when turning,
- Regularly check the heating pressure. Tire pressure should also be checked during all-day intense work. It should be taken into account that a temperature increase of tires can increase the pressure inside the tire. With such a rise in temperature and pressure, the load or speed should be reduced. Never reduce pressure by venting in the event of an increase due to temperature.
- Tire valves should be secured with suitable caps to avoid penetration of contaminants

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2.10 RESIDUE RISK

Pronar Sp. z o.o. in Narew made every effort to eliminate the risk of an unfortunate accident. However, there is some residual risk that can lead to an accident and is primarily associated with the activities described below:

- using the trailer contrary to its intended purpose,
- standing between the tractor and the trailer during engine operation and during machine connection,
- being on the machine while the engine is running,
- working with a machine with removed or defective covers,
- failure to keep a safe distance from hazardous areas or taking up space in these zones while the machine is in operation,
- handling the trailer by persons not entitled or under the influence of alcohol,
- cleaning, maintenance and control
- cleaning, maintenance and technical inspection of the machine,
- operation of the machine on an unstable and sloping ground,
- introducing construction changes without the consent of the Manufacturer,
- presence of people, animals or obstacles in the zones not visible from the operator's position.
- The residual risk can be reduced to a minimum using the following recommendations:
- prudent machine operation without being in hurry.

The residual risk can be reduced to a minimum using the following recommendations:

- thoughtful and unhurried service of the trailer,
- reasonable application of notes and recommendations included in the instruction manual,
- performing maintenance and repair work in accordance with the principles of operational safety,
- performing maintenance and repair work by trained persons,
- using appropriate, tailored protective clothing,
- securing the machine against the access of unauthorized persons to service, especially children,
- maintaining a safe distance from forbidden and dangerous places,
- prohibition of being on the machine while it is working.

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2.11 INFORMATION AND WARNING STICKERS

The machine was labeled with information and warning decals listed in the Information and warning stickers table. As a user, you are obliged the entire period of use to look after for the legibility of subtitles, warning and information symbols on the shredder. If damaged, they must be replaced. Stickers with inscriptions and symbols are available from the Manufacturer or the place where the machine was purchased.

The catalog numbers of the stickers can be found in the table. New components replaced during repairs must be re-marked with the appropriate safety signs. When cleaning the shredder, do not use solvents that can damage the label coating and do not direct a strong water jet.

Table 2.2. **I**nformation and warning stickers

No.	Description	Numer katalogowy
1	Attention! Before starting work, read the User manual.	70RPN-00.00.00.04
2	Before starting service or repair work, turn off the shredder motor and remove the ignition key.	70RPN-00.00.00.05
3	Control the condition of screw connections of axes	104RPN-00.00.00.06
4	Lubricate the shredder according to the schedule included in the User manual.	104RPN-00.00.00.04
5	Danger of crushing the entire body. Keep a safe distance from the tailgate.	58RPN-00.00.013
6	Attention! Do not stand on conveyors.	70RPN-00.00.00.08
7	Danger of crushing. Keep your limbs away from the danger zone.	123RPN-00.00.00.04
8	Danger of crushing limbs. Exercise caution near rotating machine components.	129RPN-00.00.00.03
9	Before entering the loading surface, switch off the tractor engine and remove the ignition key.	29RPN-00.00.030
10	Danger of crushing. Keep your limbs away from the danger zone. Exercise caution near rotating machine components..	70RPN-00.00.00.10
11	Information label.	187N-00000016P
12	Allowed construction speed.	204N-00000008

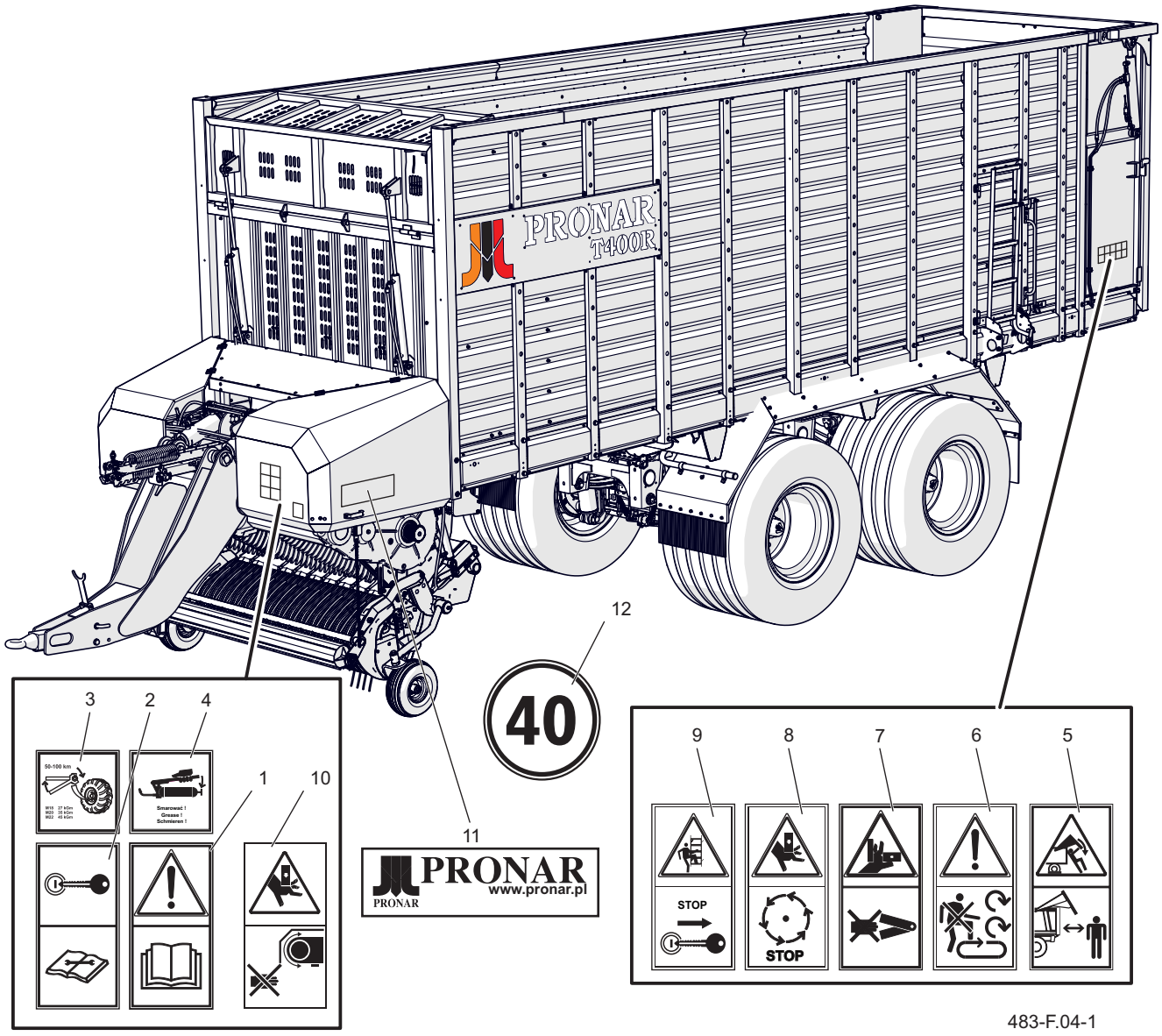

Figure 2.5 Location of information and warning stickers

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CHAPTER 3

STRUCTURE AND PRINCIPLES OF OPERATION

3.1 TECHNICAL FEATURES

Table 3.1. Basic technical data of the trailer in standard equipment

Content	J.M.	T400R
Dimensions		
Overall length (with drawbar)	mm	10 750
Overall width	mm	2 850
Maximum height	mm	3 990
Wheel track	mm	2 150
Wheel base	mm	1 810
Inner load platform length	mm	7 840
Inner load platform length	mm	2 300
Height of load platform walls	mm	2 280
Platform height above ground	mm	1 700
Pick-up width	mm	2 000
Rotor diameter	mm	800
Performance parameters		
Load capacity	m^3	41
Allowed (design) laden mass	kg	28 000
Allowed design load capacity	kg	12 500
Trailer unladen mass	kg	11 500
Bearing mass at the drawbar eye	kg	4 000
Number of pick-up fingers	szt	240
Number of rotor knives	szt	45
Minimum tractor power demand	kW / KM	133.8 / 182
Hydraulic installation		
Maximum hydraulic system pressure	bar / MPa	200 / 20
Maximum output of tractor’s hydraulic pump	l / min.	130
Hydraulic oil	-	LHL32 Lotos
Other requirements		
PTO rotation of the tractor	rpm	1 000
Direction of PTO rotation	-	clockwise
Allowed design speed	km / h	40
Electric system voltage	V	12

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3.2 GENERAL STRUCTURE

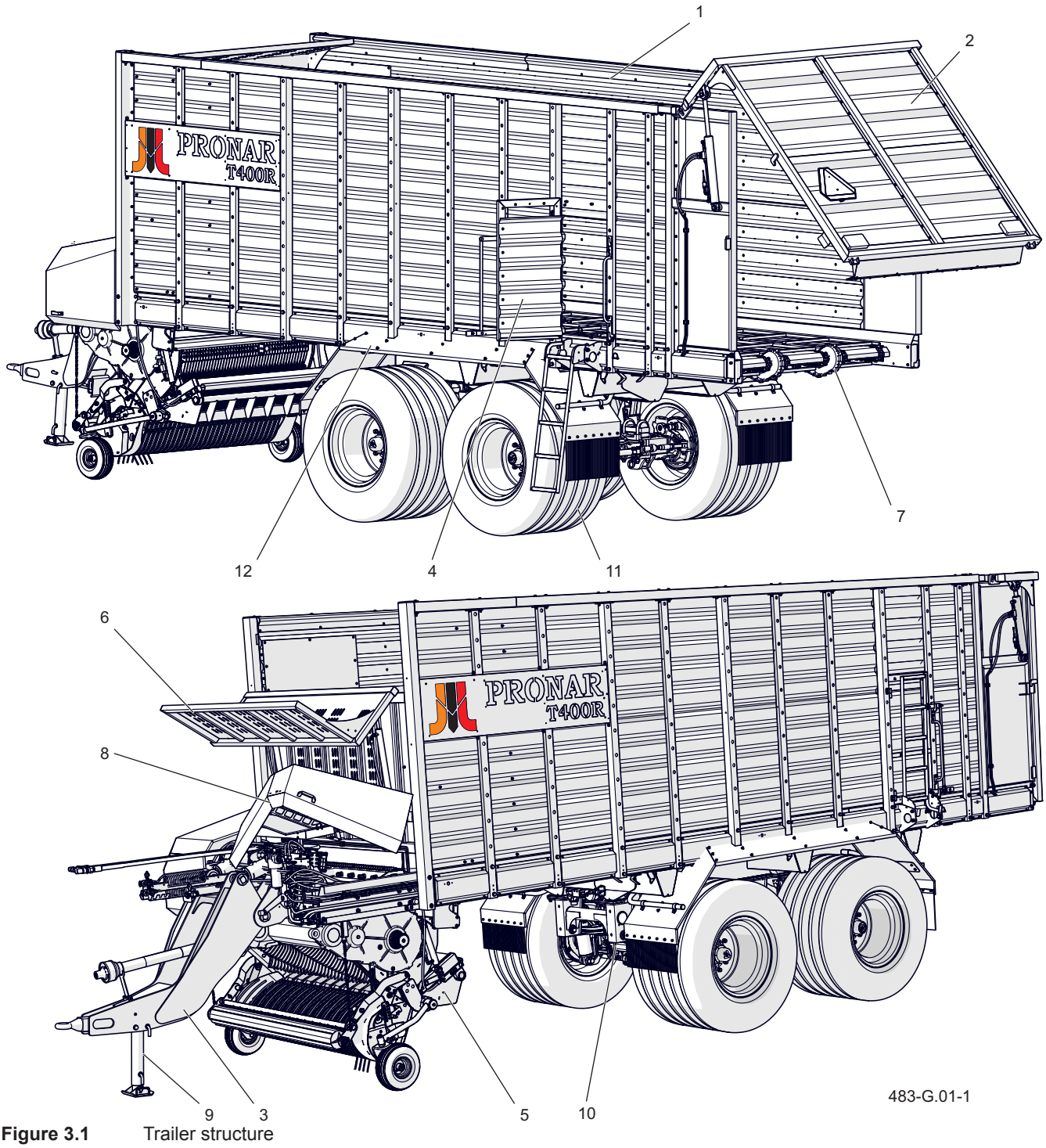

Figure 3.1 Trailer structure

(1) Load platform *(2) tailgate* *(3) drawbar*
(4) hatch with ladder *(5) collecting mechanism* *(6) tilting front wall*
(7) floor conveyor *(8) shield* *(9) support*
(10) carriage *(11) driving wheels* *(12) fenders*

The carriage (10) made of welded steel profiles is equipped with screwed hydraulic suspension with driving axles and wheels (11) mounted on axle. pivots. The load platform base (1) is screwed to the carriage (10). The load platform is made of steel elements connected with screws, the

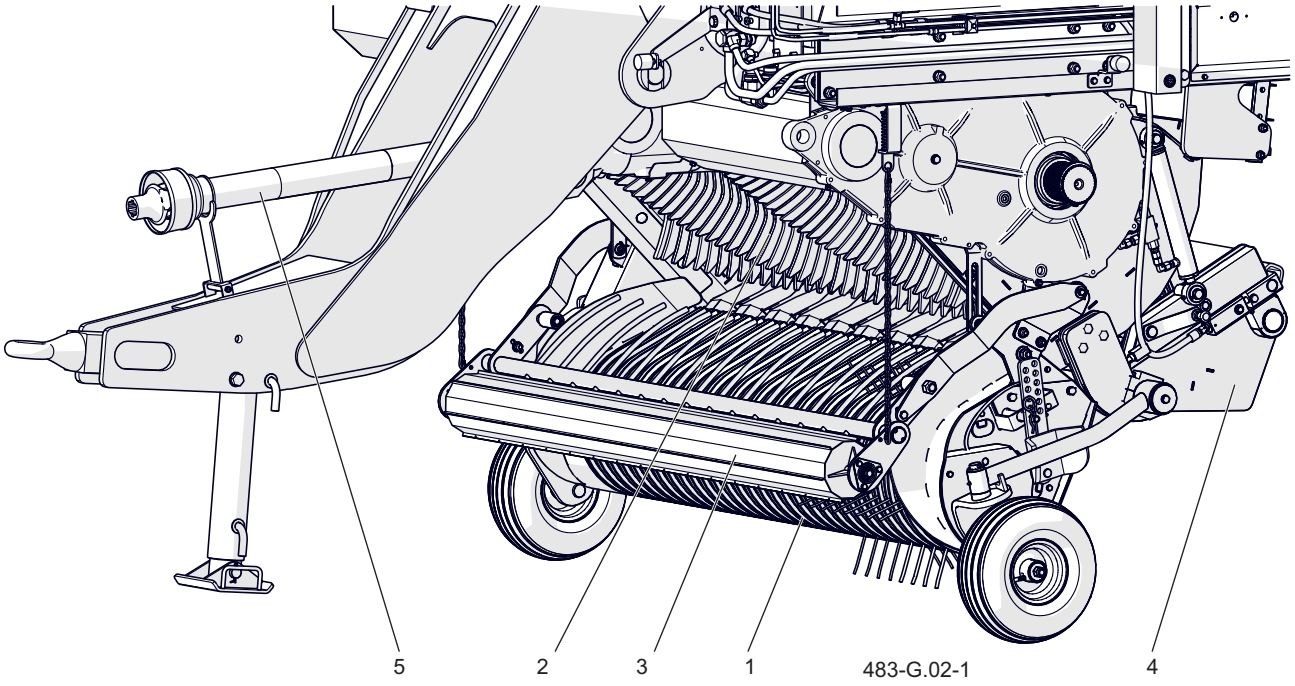

Figure 3.2 Construction of the collecting and crumbling unit

(1)Pick-up *(2) rotor* *(3) dosing drum*

(4) knife beam *(5) drive shaft*

platform hull is made of throughed sheet. The rear part of the load platform is limited by the tailgate (2) and the front part by the tilting front wall (6). In the back of the platform there is a hatch with ladder (4). The floor of the platform is made of wooden boards, over which floor conveyor beams (7) slide on guides.

The front section is equipped with the collecting and crumbling unit (5). A damped drawbar (3) is mounted directly above; the drawbar front section is equipped with a mechanical support (9). The front section of the trailer, behind shields (8), is equipped with electro-hydraulic elements responsible for trailer control.

The collected swath is passed by means of a pick-up (1) - Fig. (3.2) onto the rotor shaft (2) where it is pressed with possible crumbling of collected material and passed further onto the floor mechanism (7).

The floor mechanism transfers the material to the back of the load platform while compacting it.

If the material is harvested from a combine harvester or self-propelled forage harvester, lower the front wall (6) and raise and turn off the collecting mechanism (5), if necessary. Lower rotor cover located inside the load platform - see Chapter 4.6.

Familiarization with the construction and operation of the trailer is the responsibility of each user. Due to the high degree of complexity of individual systems, it is recommended that learning to operate the machine takes place at the trailer.

Very good knowledge of the construction and operation of the trailer will enable its efficient use, proper adjustment and maintenance as well as safe use.

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3.3 PICK-UP

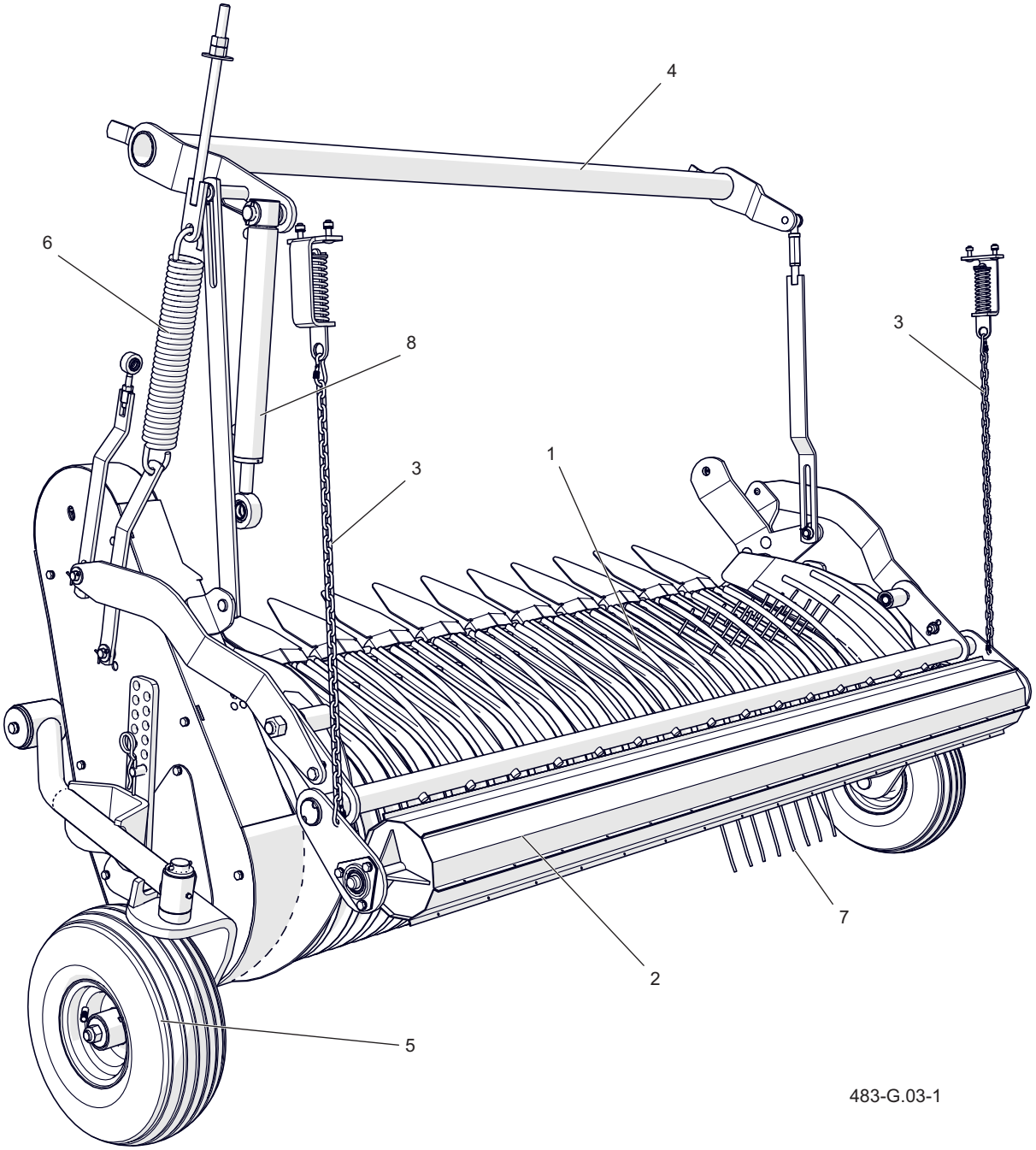

Figure 3.3 Pick-up

(1) decoiler *(2) dosing drum* *(3) lashing*
(4) girder *(5) pick-up wheel* *(6) buffer spring*
(7)Decoiler finger *(8) hydraulic cylinder*

The construction of the pick-up is shown in figure (3.3). The system is mounted in the lower front part of the trailer. The front part of the pick-up is equipped with decoilers (1), which by means of elastic teeth (7) transport the picked-up material. The swath accumulated on the pick-up is moved to the inside of the system and then transported to the cutting system. In front of the decoiler there is a dosing drum (2), its oscillating position depends on the collected swath type. The roller position

setting is realized by means of lashings (3). The decoiler drive is transmitted via a gear train to the pick-up chain drive. The dosing roller rotates under the pressure of the collected material.

The pick-up is mounted in oscillating manner using a girder (4) on the front beam of the trailer frame. Raising and lowering the pick-up is carried out by means of a hydraulic cylinder (8). The support wheels (5) are mounted on both sides of the pick-up. During normal operation of the trailer, the pick-up touches the ground via support wheels, which raise the mechanism when driving on uneven terrain (copying the terrain), thus enabling constant spacing between decoiler teeth and the ground.

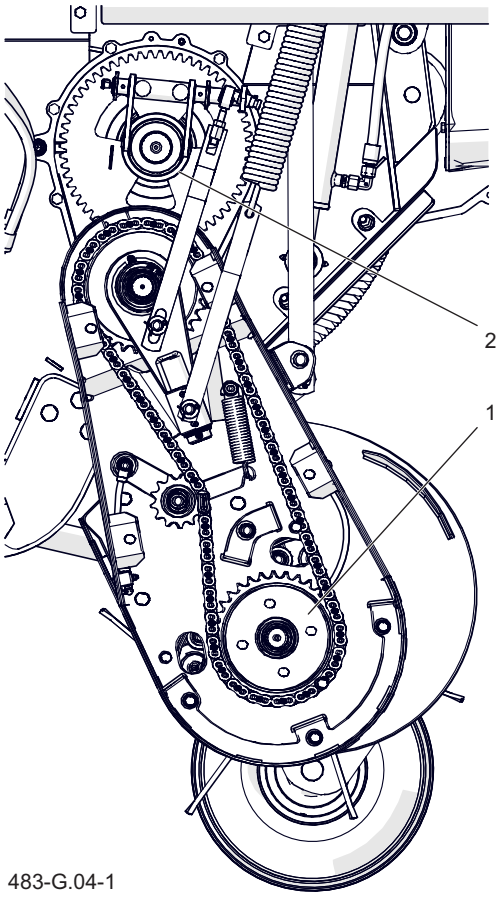

Figure 3.4 Pick-up drive

(1) Chain drive *(2) gear train*

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3.4 CUTTING UNIT

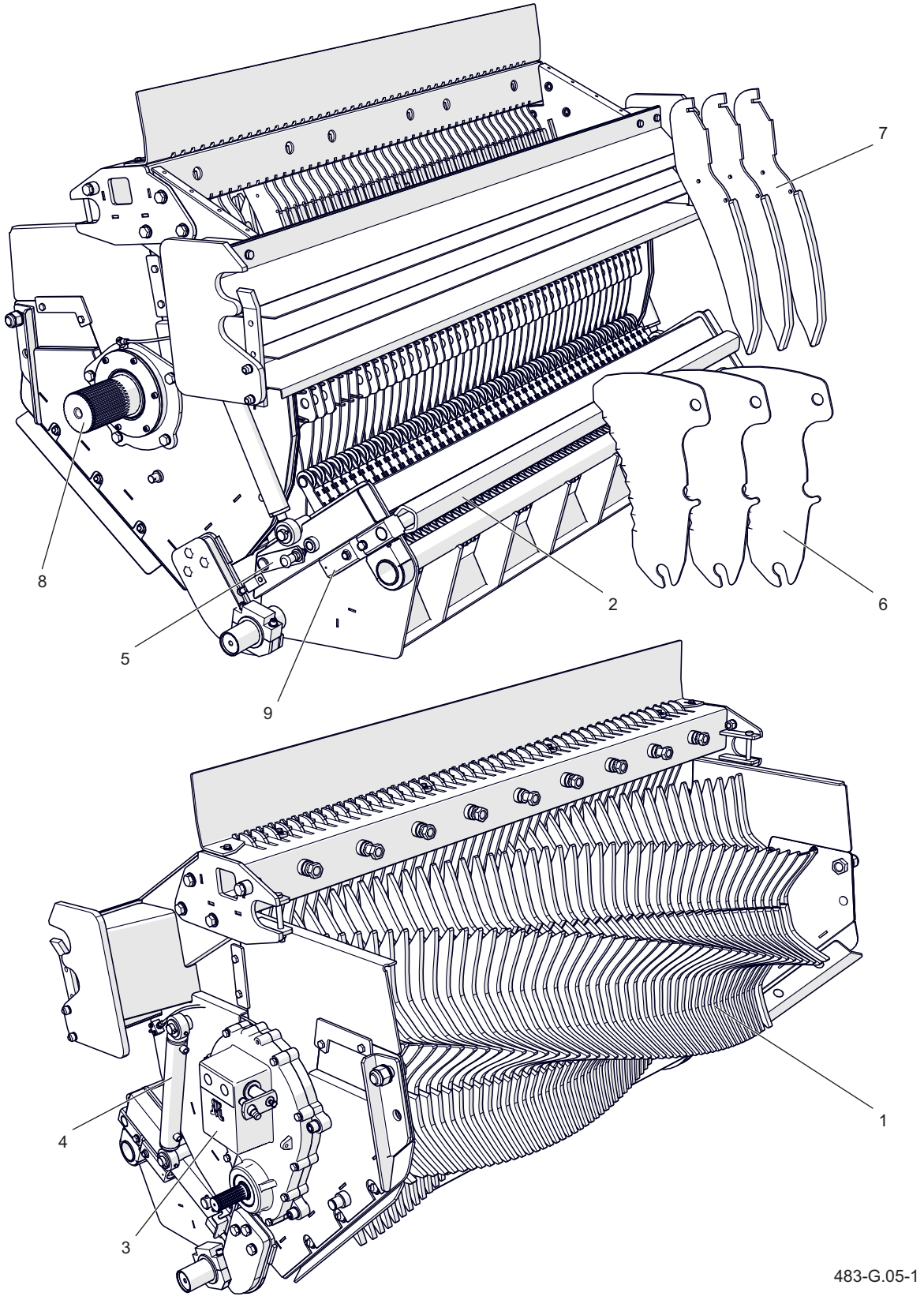

Figure 3.5 Cutting unit

(1) rotor *(2) cutting beam* *(3) pick-up gear*

(4) hydraulic cylinder *(5) cutting blades lock* *(6) cutting blades*

(7) scraper *(8) shaft end* *(9) tensioning cylinder*

The cutting system is designed to receive the swath from the pick-up, crumble it and transport to the inside of the load platform. The structure of the system is shown in Fig. (3.5).

The picked-up swath hits the fingers of the rotor (1). In the event that the cutting blades (6) are extended, the swath is shredded and moved further to the load area. When the cutting blades are hidden, only the compaction of the collected material takes place. The cutting blades (6) can be dismantled (mounted) only after releasing the mechanical lock (5). Each blade has a damping (shock lock) and is mounted independently in the cutting beam body (2). The hydraulic cylinders (4) perform are responsible for tilting the cutting beam (2); lowering the beam downwards results in moving the blades away from the rotor's fingers and stops cutting the collected material. For maintenance or sharpening the blades, lower the cutting beam. Rotor fingers rotate between the disassembled scrapers (7), they are designed to clean the fingers of the rotor from the remains of transported material, which can cause blockage and failure of the cutting system.

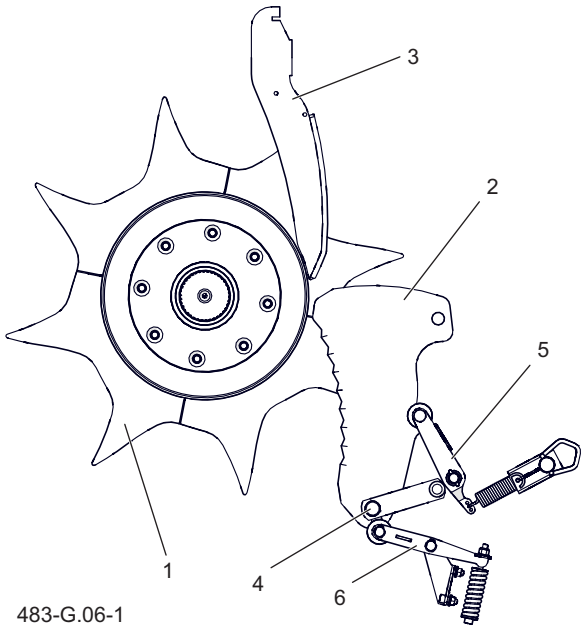

Figure 3.6 Pick-up drive

(1)rotor *(2) cutting blade*
(3) scraper *(4) cutting blade lock*
(5) shock lock *(6) blade dampers*

The cutting system is driven by the trailer gear. The rotor shaft (8) is equipped with a gear (3) driving the pick-up unit.

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3.5 TRANSMISSION OF POWER

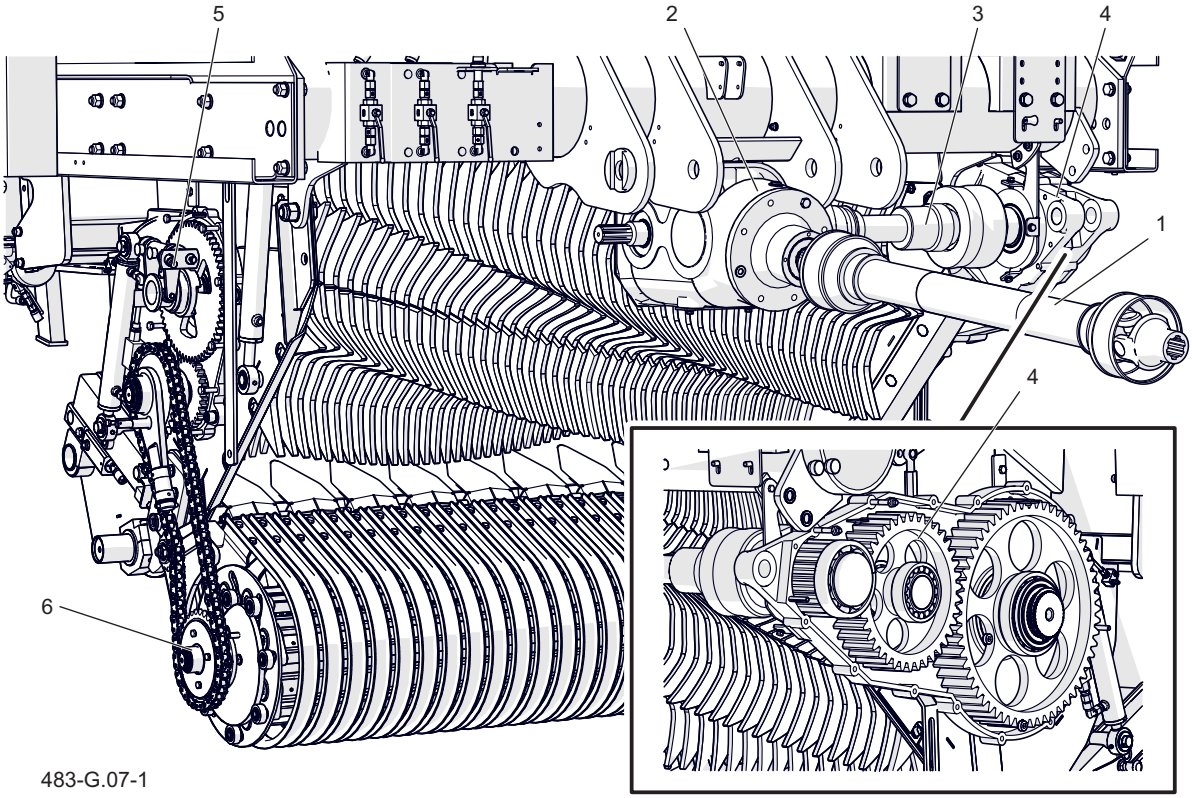

Figure 3.7 Transmission of power

(1) telescopic PTO shaft *(2) angular transmission* *(3) drive shaft*
(4) rotor transmission *(5) transmission with clutch* *(6) pick-up transmission*

The trailer is adapted to work with a PTO speed of 1,000 rpm.

The individual module drives are shown in Fig. (3.7). The machine is connected with the tractor by means of a telescopic PTO shaft (1), which drives the angular transmission (2). The drive from the transmission is transmitted by a shaft (3) to the reducer (4), which drives the rotor. On the opposite side of the rotor shaft, another transmission (5) is mounted, equipped with a clutch driving the pick-up chain gear (6).

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3.6 HYDRAULIC SYSTEM

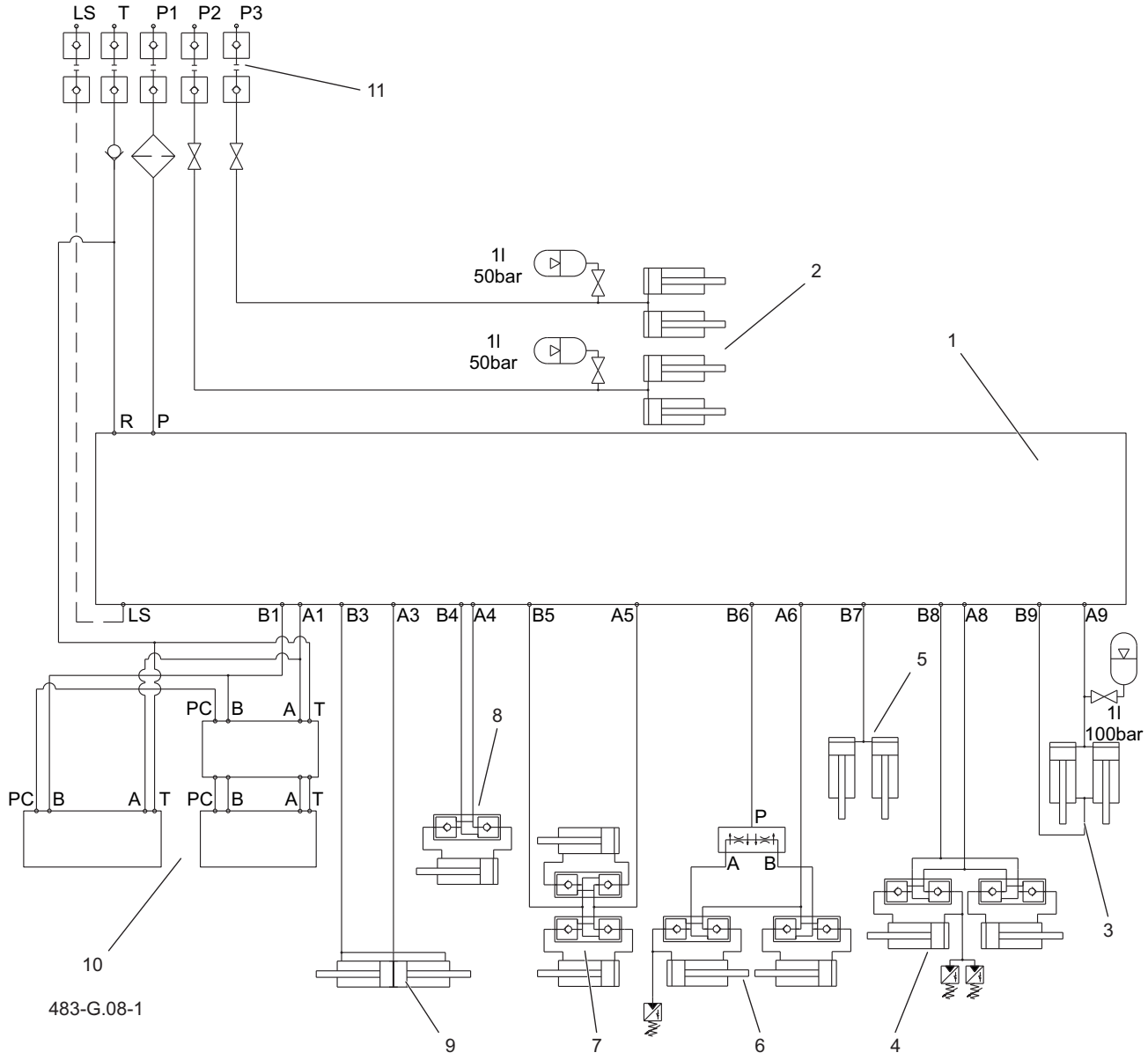

Figure 3.8 Diagram of the hydraulic system

(1) distributor
(2) suspension hydraulic system
(3) drawbar hydraulic system
(4) front flap hydraulic system
(5) blade lock hydraulic system
(6) tailgate hydraulic system
(7) cutting beam hydraulic system
(8) pick-up hydraulic system
(9) steering axle hydraulic system
(10) conveyor hydraulic system
(11) hydraulic hoses

The diagram of the hydraulic system is shown in Fig. (3.8).

The hydraulic system of the machine can work in an open, closed and LS (Load Sensing) system. The distributor (1) is set by factory default to work in an open system. To change the operating parameters, turn the knob (1) clockwise, as indicated on the knob - Fig. (3.9).

The hydraulic system consists of two systems, the first of which provides services to the hydraulic suspension (2), the second to all other elements of the trailer.

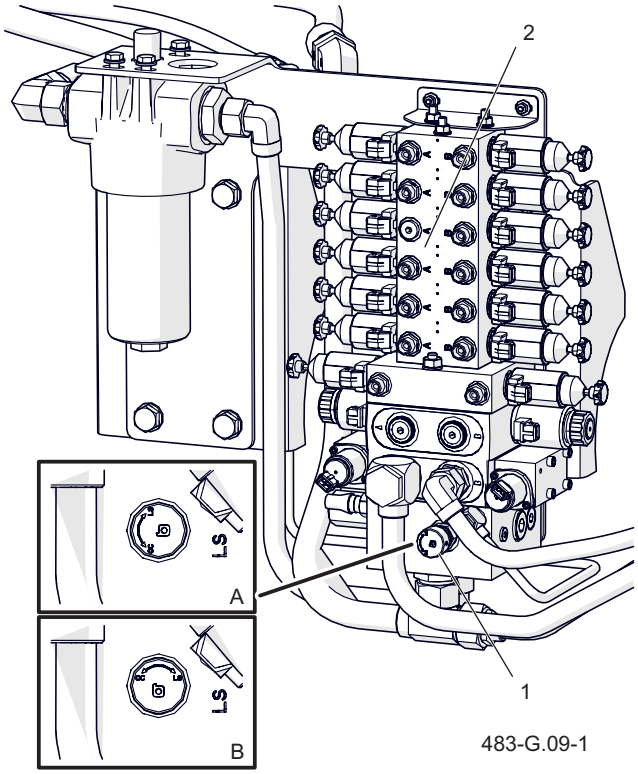

Figure 3.9 FLoad Sensing knob (LS)

(1)knob *(2) distributor*

(A)open system *(B) closed system, LS*

In the first circuit, the hydraulic hoses are connected directly to the external hydraulic control valve of the tractor.

In the second case, all remaining trailer systems are operated by means of the hydraulic distributor (1): drawbar suspension (3), operating the front flap (4) and tailgate (6), blades lock (5), cutting beam (7), lifting and lowering the pick-up (8), operation of steering axle (9) and the floor conveyor system (10).

Hydraulic system operation is controlled by means of a control panel. Check the tractor hydraulic pump flow before connecting the trailer.

HYDRAULIC INSTALLATION OF FLOOR CONVEYORS

Hydraulic hoses (3) supply (P) and return (R) are connected to the tractor's external hydraulic control valve. A high-pressure filter (2) was installed on the supply hose (P) - Fig. (3.10). Depending on the tractor assembly, it is possible to use the LS cable on the power supply - see Fig. (3.9). The distributor (1) directs the hydraulic oil to the motors (5), which through reducers (6) drive the mechanism (7).

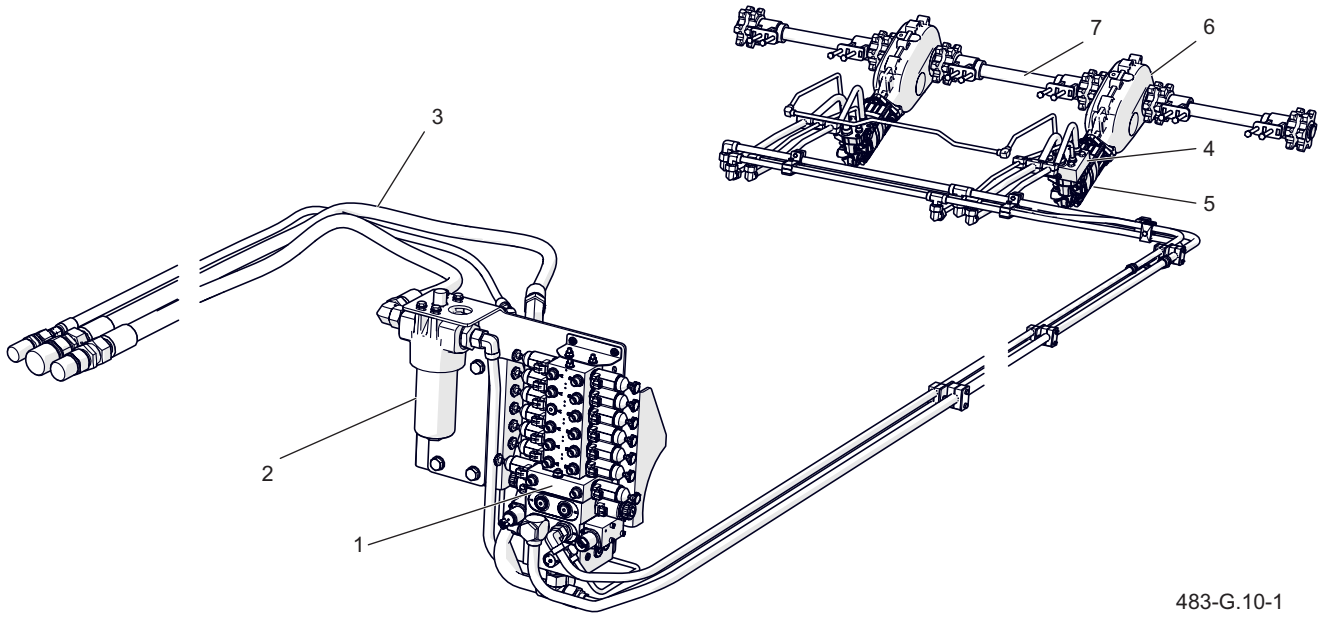

Figure 3.10 Hydraulic system of floor conveyors

(1) distributor *(2) filter* *(3) hydraulic hoses*

(4) control valve *(5) hydraulic motor* *(6) transmission*

(7) drive mechanism

The control valve (4) switches the gears (fast - slow) of the transmission but only in direction of the conveyor's movement during unloading. In the opposite direction, the floor conveyor moves only with one constant speed. The direction of rotation, speed and gearing are realized from the trailer control panel.

ICUTTING UNIT HYDRAULIC SYSTEM

Hydraulic cylinders (2) are responsible for lifting and lowering the cutting beam, provides it with hydraulic locks (5) prevents accidental falling of the beam in the event of unsealing the installation.

The next cylinder pair (3) provides tension of cutting blades. Each cylinder pair is fed from a separate distributor section (1). On the right side of the collecting system, there is a cylinder (4) responsible for lifting and lowering the pick-up to working position and back. The cylinders are connected to the distributor (1) by means of flexible hydraulic hoses. The individual cylinders are controlled via a control panel from the operator's cab.

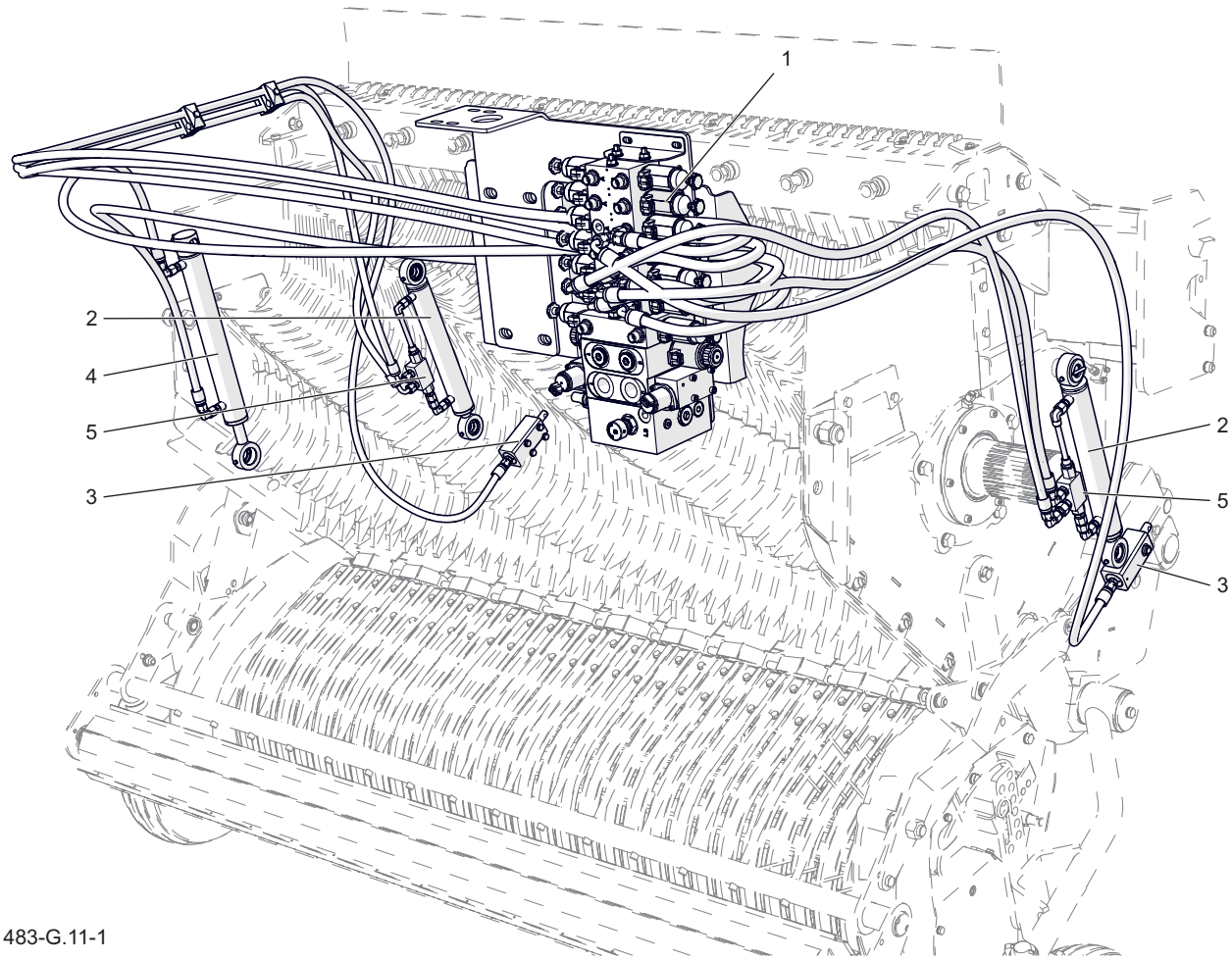

Figure 3.11 Cutting unit hydraulic system

(1)distributor *(2) cutting beam cylinders* *(3) blade tension cylinder*

(4) pick-up cylinder *(5) hydraulic lock*

STEERING AXLE HYDRAULIC SYSTEM

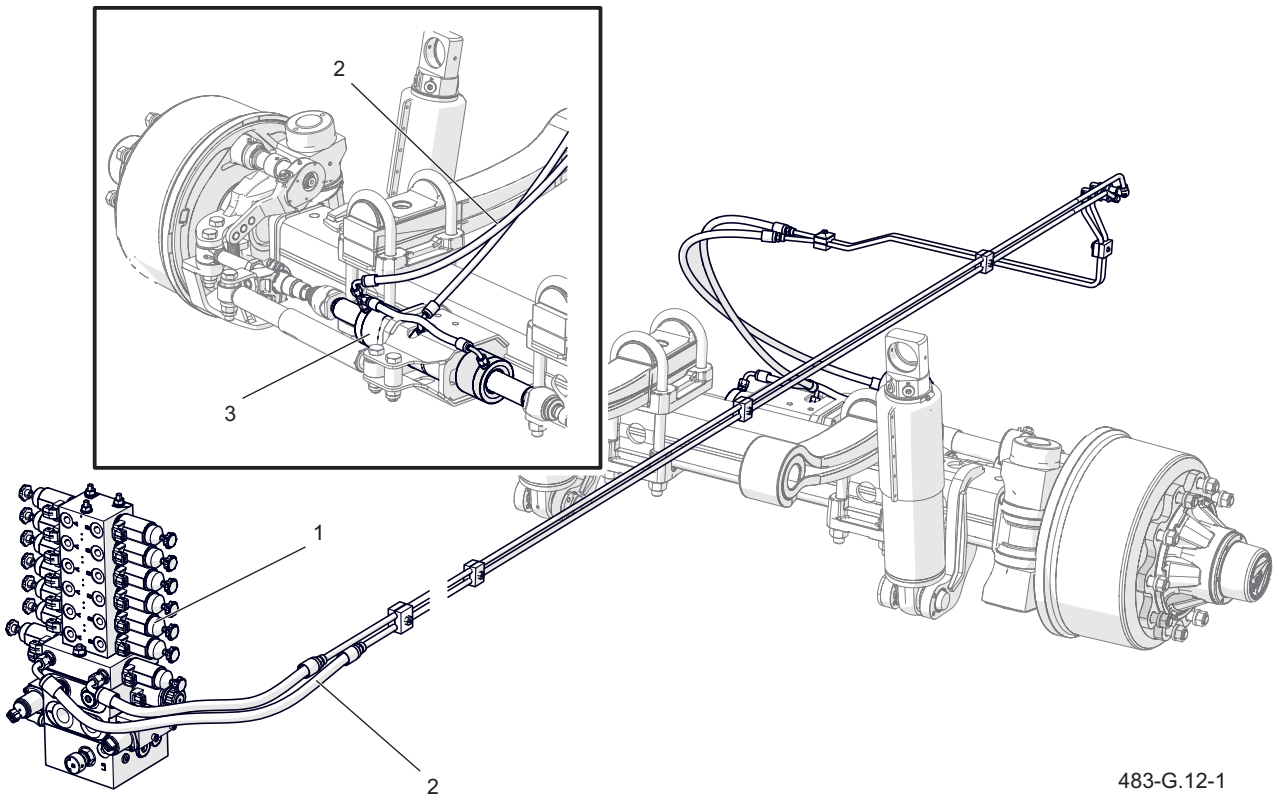

Figure 3.12 Steering axle hydraulic system
(1) distributor *(2) hydraulic hoses*

The trailer is equipped with a rear steering axle, passively controlled. The design of the axles makes it easier to overcome corners and maneuvering on slippery terrain, thus reducing wear of the machine tires. In reversing, the axle hubs must be locked, otherwise the trailer will tend to run uncontrollably. Axis locking is enabled by the hydraulic system shown in figure (3.12). Before starting to reverse, extend poles of the turn lock hydraulic cylinder (3). The axle turn lock control is provided via the control panel.

ALB SUSPENSION HYDRAULIC SYSTEM

A separate system of the trailer is the ALB hydraulic installation - Fig. (3.13), which is part of the machine's braking system.

The jacks (1) are connected to the tractor's external hydraulic distributor. Further, there are ball valves (2) enabling shutting off the installation. Lifting or lowering the suspension to the desired height is provided via the tractor operator's cabin by tilting the appropriate lever of the external hydraulic distributor of the tractor. The individual wires connect to the hydraulic suspension cylinders. At the end of the installation, there are hydraulic batteries (4) designed to cushion the suspension.

The ball valves (2) are located just in front of the batteries, allowing turning off the suspension or

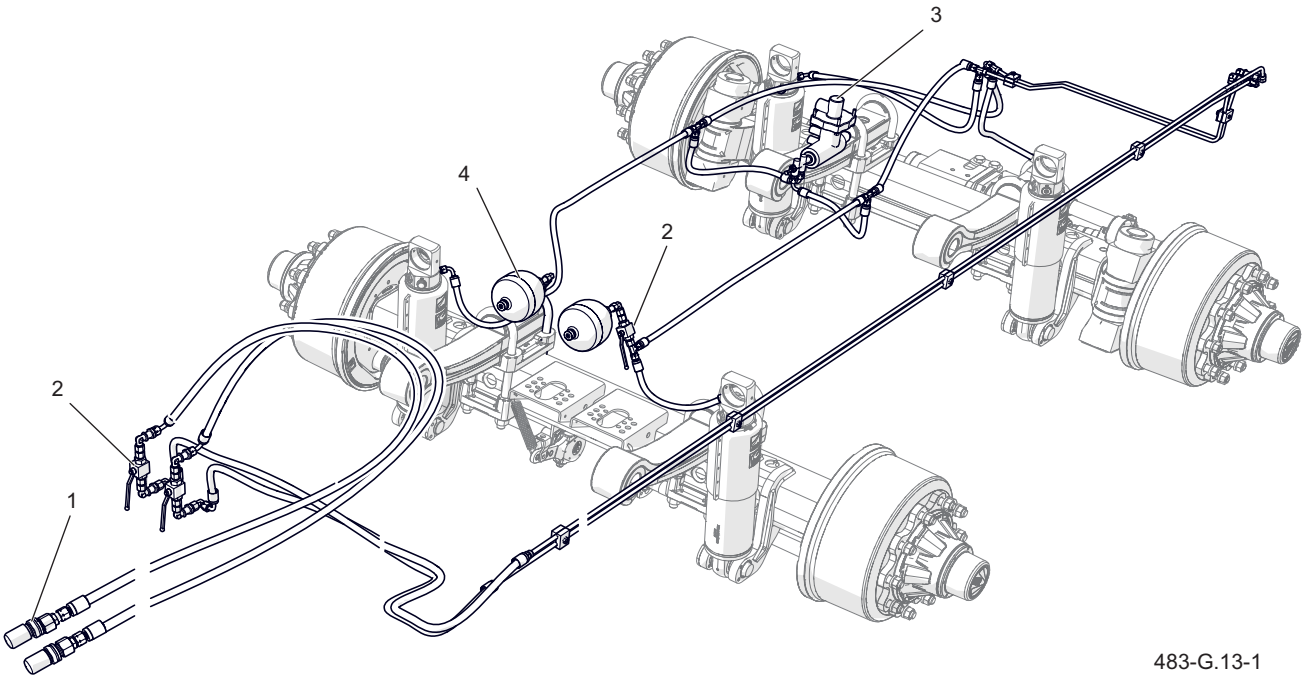

Figure 3.13 ALB suspension hydraulic system
(1)hydraulic jack *(2) ball valve* *(3) brake valve*
(4) hydraulic battery

disabling the batteries for repair or replacement.

The system is equipped with a hydraulic braking force regulator ALB (3), which adjusts the braking force depending on the load of the trailer. The regulator is part of the pneumatic two-wire brake system of the machine.

DRAWBAR SUSPENSION HYDRAULIC SYSTEM

The trailer drawbar is mounted in pendulating way, which allows changing height of the front trailer section. Drawbar tilting is provided by means of two hydraulic cylinders (2) supplied from the trailer's distributor (1) - Fig. (3.14). In addition, the system is equipped with a hydraulic shock absorber, damping vibrations during driving. The ball valve (4) is located before the shock absorber (3), which allows to disable the battery and cut off the drawbar shock absorber.

Control of drawbar tilting is possible by means of the trailer control panel.

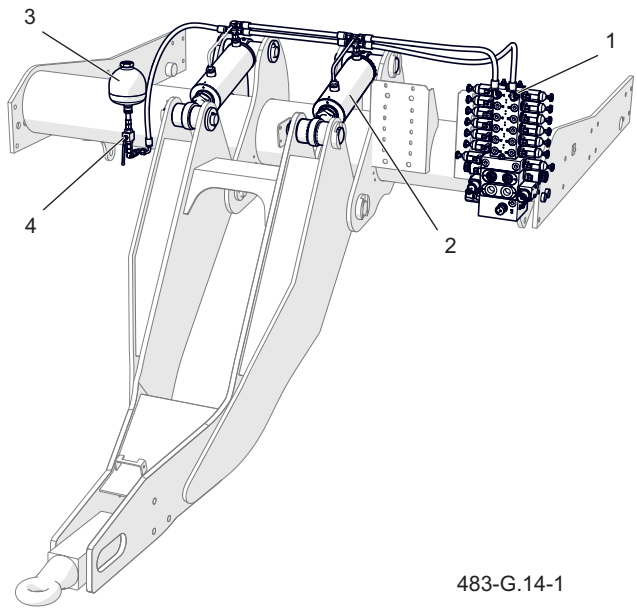

Figure 3.14 Drawbar damping hydraulic system
(1)distributor *(2) cylinder*
(3) shock-absorber *(4) valve*

When driving on public roads with enabled drawbar damping, make sure that the cylinders (2) are not completely folded.

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3.7 SERVICE BRAKE

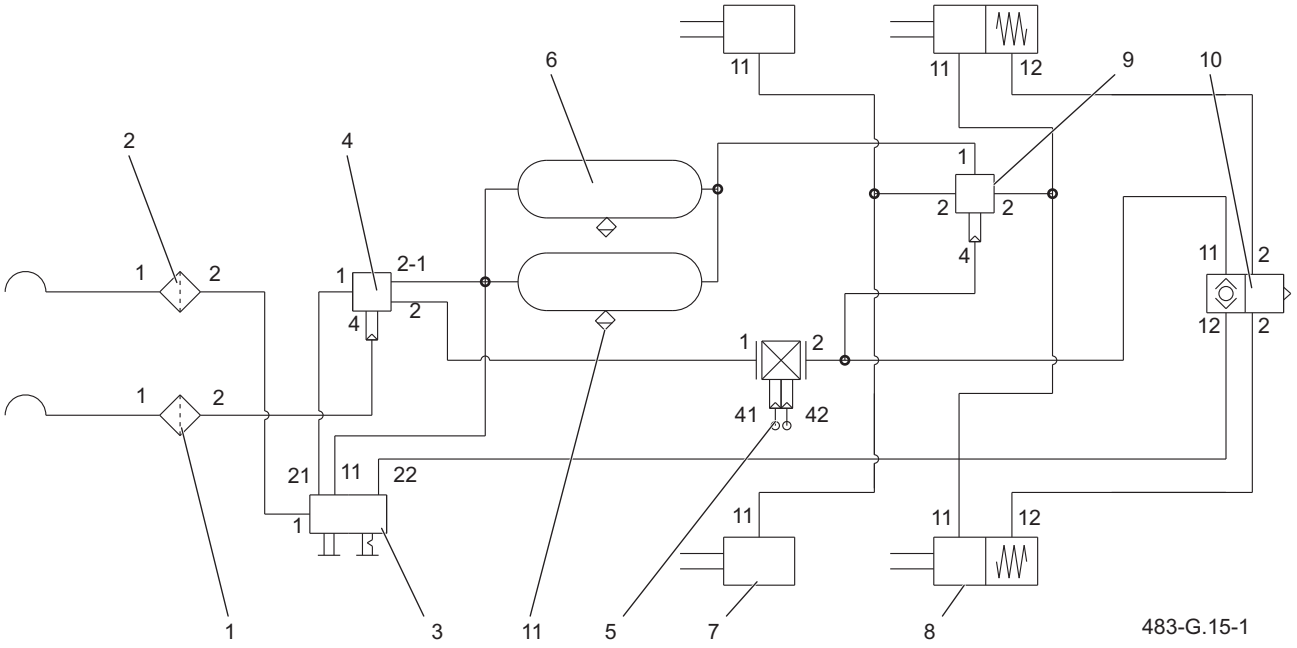

Figure 3.15 Diagram of pneumatic installation with automatic hydraulic braking force regulator

1) control connector (yellow), (2) supply connector (red), (3) tension-relieving and parking valve, (4) brake valve, (5) hydraulic ALB regulator, (6) air tank, (7) membrane cylinder, (8) pneumatic cylinder with spring membrane (9) relay valve, (10) two-way valve (11) drainage valve

The pneumatic service brake is activated from the driver's cabin by pressing the tractor's brake pedal. The purpose of the control valve (4) is to actuate the trailer's brakes simultaneously with the tractor's brake. In addition, in the event of an unforeseen disconnection of the wire between the trailer and the tractor, the control valve automatically activates the machine brake. The automatic brake force regulator (5) adjusts the braking force depending on the load of the trailer.

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3.8 PARKING BRAKE

The parking brake is used to immobilize the trailer during parking. The brake is activated by a tension-relieving and parking valve - Fig. (3.16). Two buttons (black and red) provided on the valve enable setting the trailer in appropriate operating mode. The black button (1) controls the release valve when the braking system conduits are not connected to the tractor. Pressing the black button releases the brake, pulling it blocks the trailer brakes. Maneuvering with the black button is only possible with disconnected trailer brake pipes.

The red button (2) controls the operation of the valve when the tractor brake pipes are connected to the trailer. The machine's wheels are braked by pulling the button, release and driving are possible by pressing the red button (2).

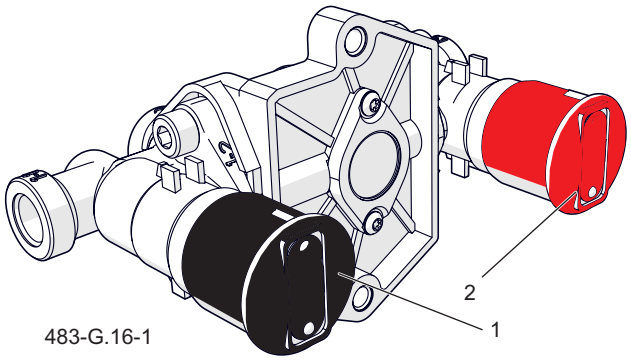

Figure 3.16 Tension-relieving and parking valve
(1) black button *(2) red button*

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3.9 ELECTRIC LIGHTING INSTALLATION

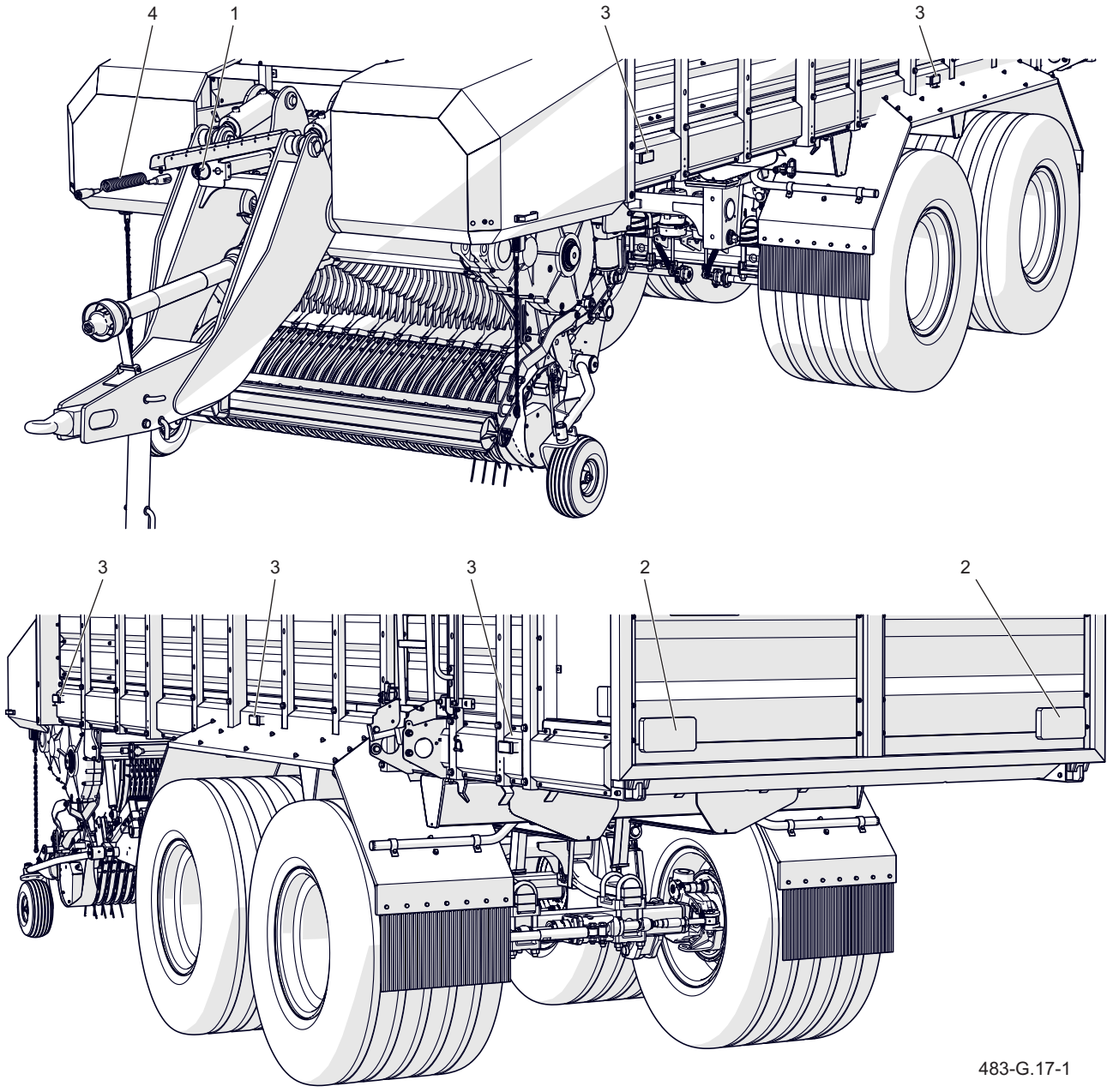

Figure 3.17 Arrangement of electrical installation elements

(1) 7pin-junction boxes *(2) rear light* *(3) side clearance lamp*

(4) 7pin- connection

The trailer's electrical system is designed to be powered from a 12V DC source. To connect the machine to the tractor, use the connection cable which is supplied as standard equipment.

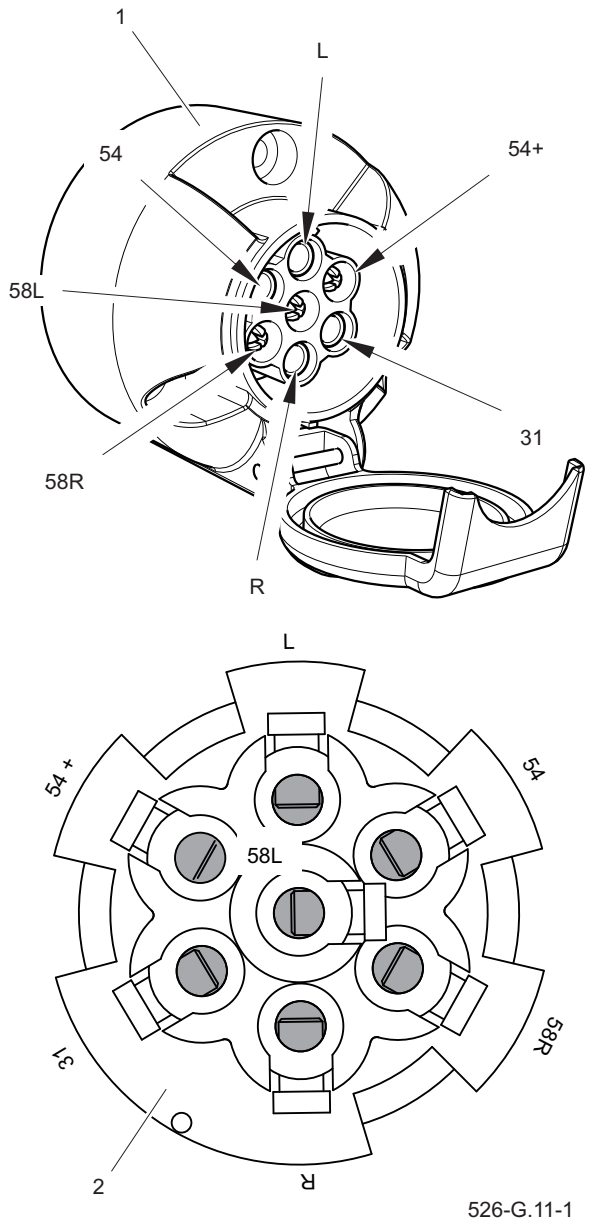

Figure 3.18 Junction box

(1) Junction box *(2) view from the beam*

Table 3.2. Designation of junction box connections

Designation	Function
31	Mass
54+	Pin not used
L	Left-turn signal
R	Right-turn signal
54	STOP
58L	Left rear position lamp
58R	Right rear position lamp

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3.10 DISTRIBUTOR ELECTRIC SYSTEM

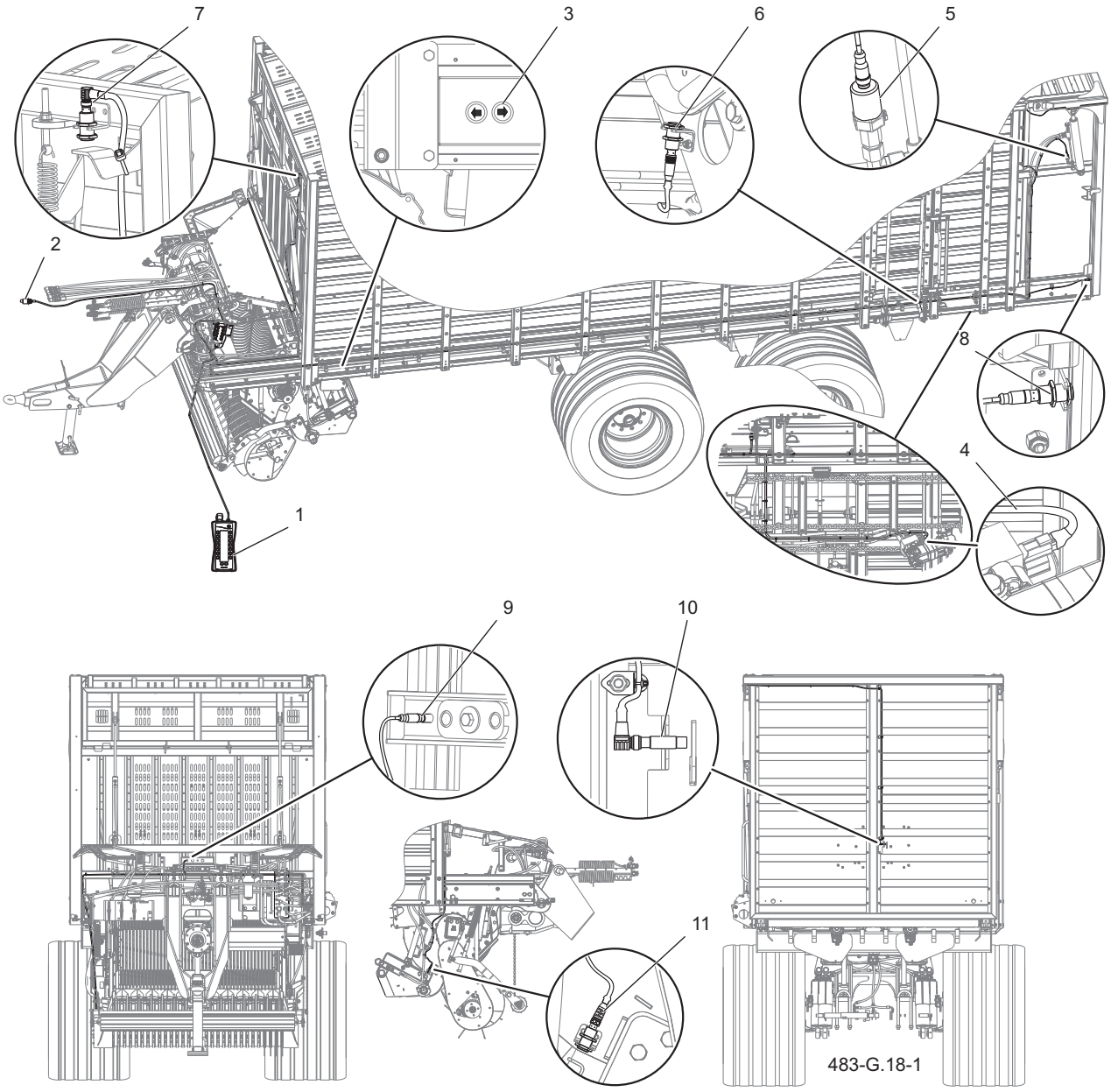


Figure 3.19 Elements of the distributor's electric system

1) remote control *(2) 3pin connector* *(3) cutting beam buttons*
(4) hydraulic motor beam *(5) closing pressure sensor* *(6) ladder sensor*
(7) front wall upper sensor *(8) tailgate sensor* *(9) front wall bottom sensor*
(10) fill-level sensor of load platform *(11) cutting beam position sensor*

The electric system of the distributor is supplied with 12 V DC using a 3pin cable (2) connected to the tractor - Fig. (3.19). Individual functions of the trailer are carried via remote control (1), the description of which is included in further section of this Chapter.

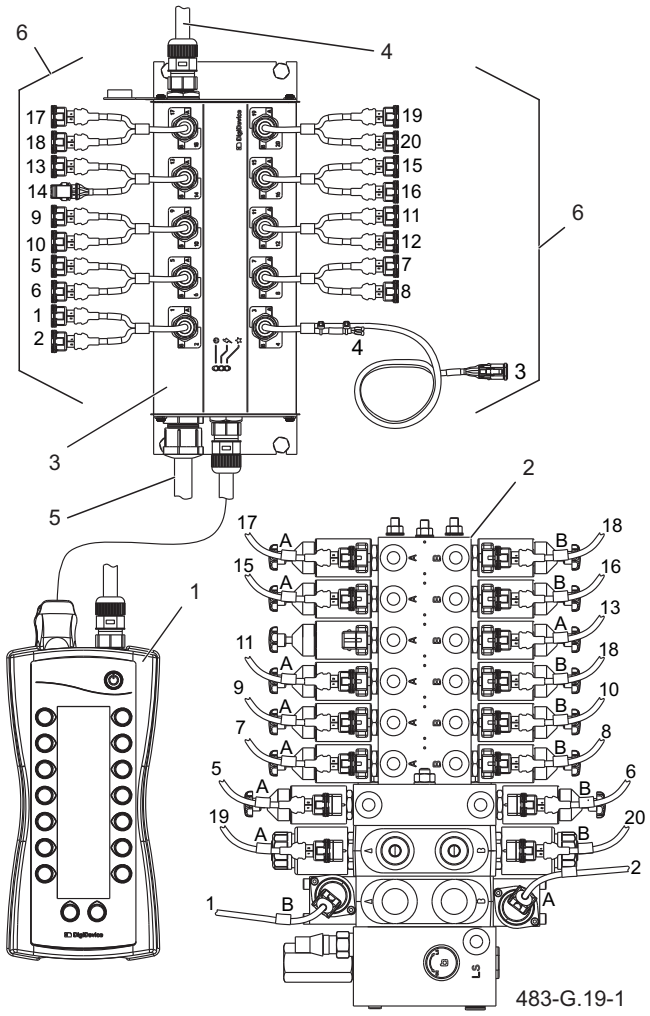


Figure 3.20 Control system

(1) remote control *(2) distributor*
(3) controller *(4) sensor signal*
(5)Controller supply *(6) executive signals*

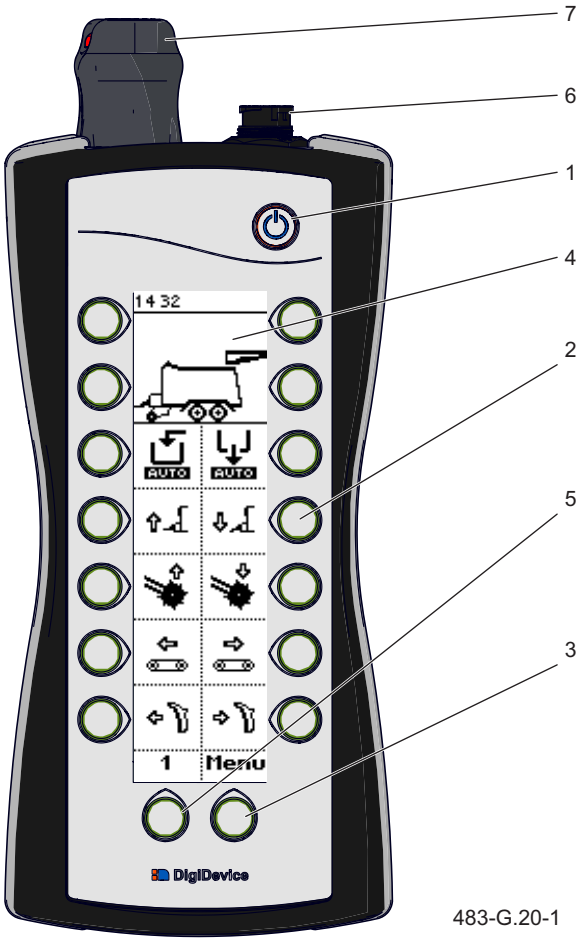


Figure 3.21 Remote control

(1) supply button *(2) function selector*
(3) MENU button *(4) display*
(5) function scroll button
(6) remote – controller interface (7)STOP button

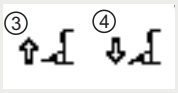
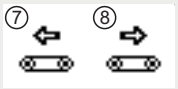
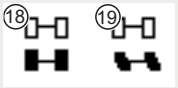
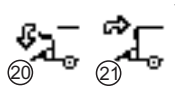
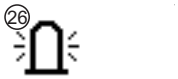
- Release the STOP button (7) if pressed – next to the communication cable.
- Turn on power of remote control (1) - Fig. (3.21).
- Start the trailer.
- Depending on the selected option, press the corresponding control button.

  See Table (3.3) or more detailed description in Chapter 4 PRINCIPLES OF USE.

- Observe machine operation and, in particular, the controlled system.
- In case of danger, press STOP.

Remember, the STOP button is a safety switch, abuse of which may cause damage to the machine.

Table 3.3. Control panel symbols

Symbol	Description
	Load platform empty / loaded.
	1 – automatic loading 2- automatic discharge
	3- drawbar up 4- drawbar down
	5- pick-up up 6- pick-up down
	7- floor conveyor forward 8- floor conveyor backward
	9- cutting beam up (enabled) 10- cutting beam down (disabled)
	11- individual screens of remote control 12 – MENU button
	13- tailgate up 14- tailgate down
	15- floor conveyor speed settings (only tutyle speed setting)
	16- turtle speed; slow speed of the floor conveyor (speed regulation) 17- hare; fast speed of the floor conveyor (no regulation)
	18-steering axle hydraulic lock 19-Release of steering axle hydraulic lock
	20- front hatch down 21- front hatch up
	22- Cutting blade lock 23- Release of cutting blade lock
	26- warning flashing light (option)
	27- additional front lighting (option) 28- additional rear lighting (option)

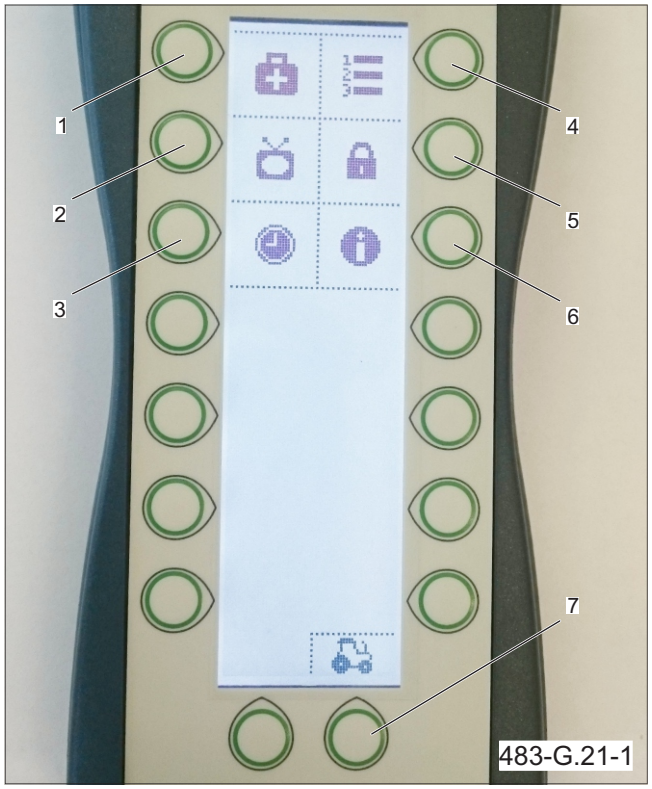


Figure 3.22 Remote control function menu

(1) sensor preview *(2) remote control settings*

(3) setting time and date

(4) setting trailer operation parameters

(5) service settings *(6) information screen*

(7) back to trailer menu

Pressing the proper button allows you to enter the menu category - Fig. (3.22). Return to trailer work menu is possible by pressing button (7). Button (5) Service settings is not available to the user is password protected. Modification of settings is possible after providing the appropriate password

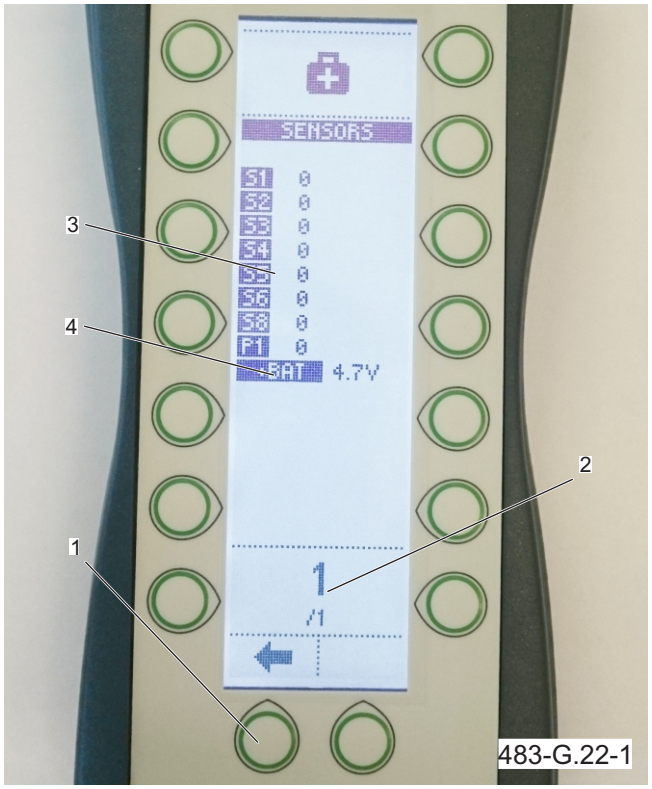


Figure 3.23 Sensor preview screen

(1) Back to menu *(2) 1/1 screen*

(3) Sensor condition *(4) power supply voltage*

Table 3.4. Sensors

Design.	Function
S1	Talgate (close)
S2	Open hatch (pressure sensor)
S3	Front hatch up (filling)
S4	Service cover, ladder
S5	Cutting beam (enabled)
S6	Tailgate (filling)
S8	Front wall (filling)
P1	Cutting beam buttons

The individual rows determine the state of the sensors. Status 0 means an inactive sensor. Value 1 indicates sensor activity - Fig. (3.23). The positioning of sensors and their setting distance are given in section 5.18 Checking the Sensor Settings.

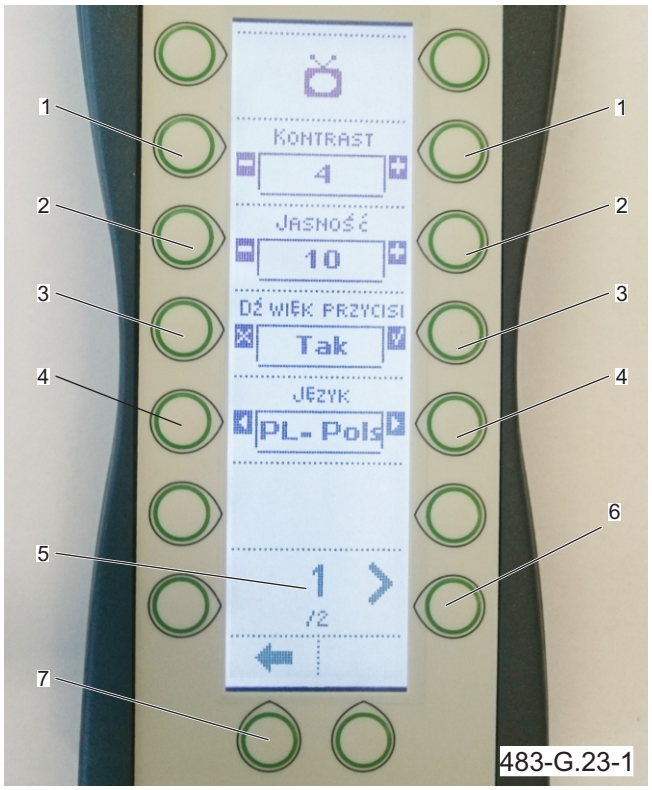


Figure 3.24 Remote control settings - screen 1/2

(1) display contrast *(2) display brightness*
(3) button sounds *(4) language selection*
(5) displayed page *(6) next page*
(7) back to menu

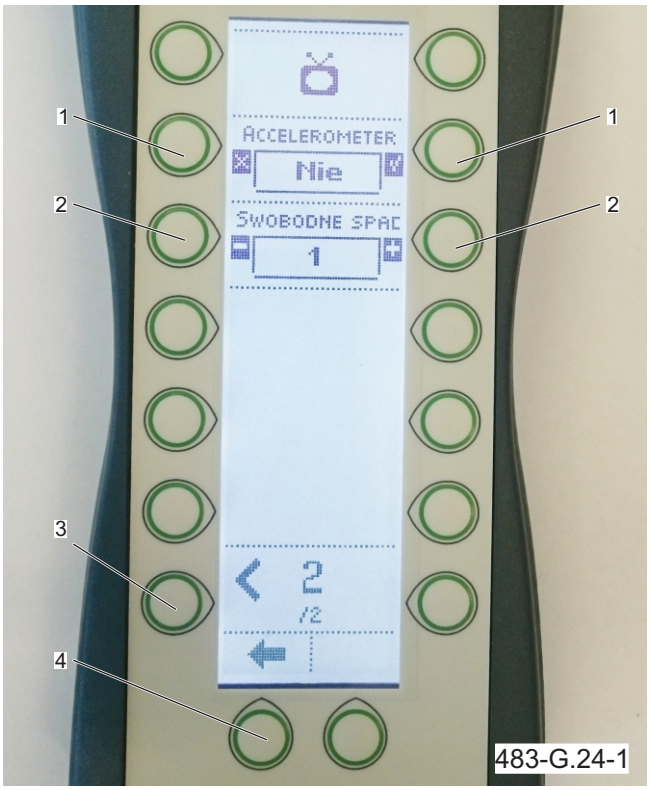


Figure 3.25 Remote control settings - screen 2/2

(1) accelerometer *(2) free falling*
(3) previous page *(4) back to menu*

On screen 1/2, the user can set the selected remote control functions - Fig. (3.24). Screen 2/2 - Fig. (3.25) is not active and does not change any remote control settings. These are optional settings that can be used in further modification of the remote control.

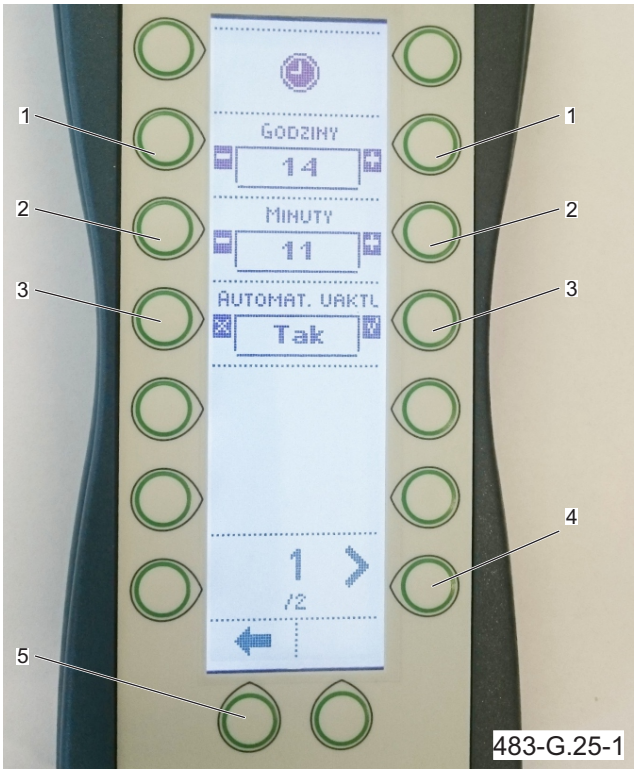


Figure 3.26 Setting time and date 1/2

(1) setting hour *(2) setting minutes*

(3) time update *(4) next page*

(5) back to menu

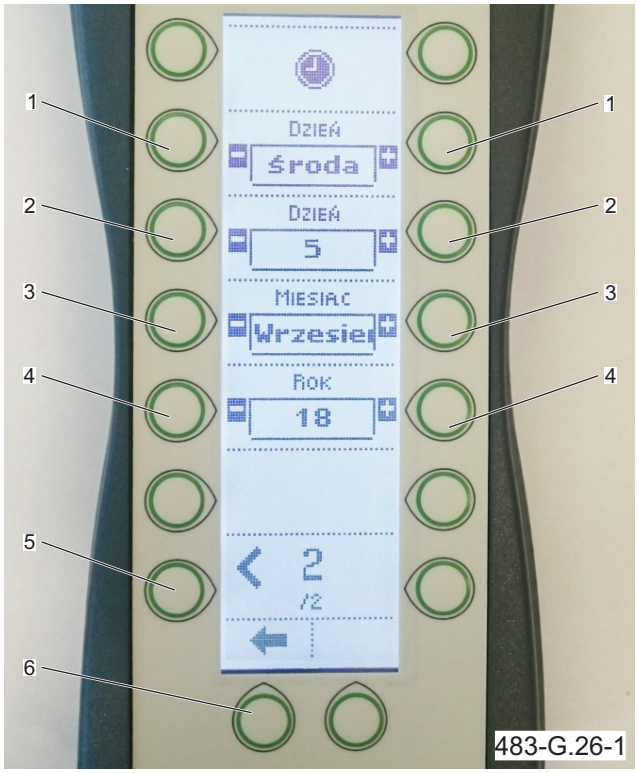


Figure 3.27 Setting time and date 2/2

(1) day of week *(2) date*

(3) month *(4) year*

(5) next page *(6) back to menu*

Figure 3.28 Information screen 1/2

(1) information screen (software version)

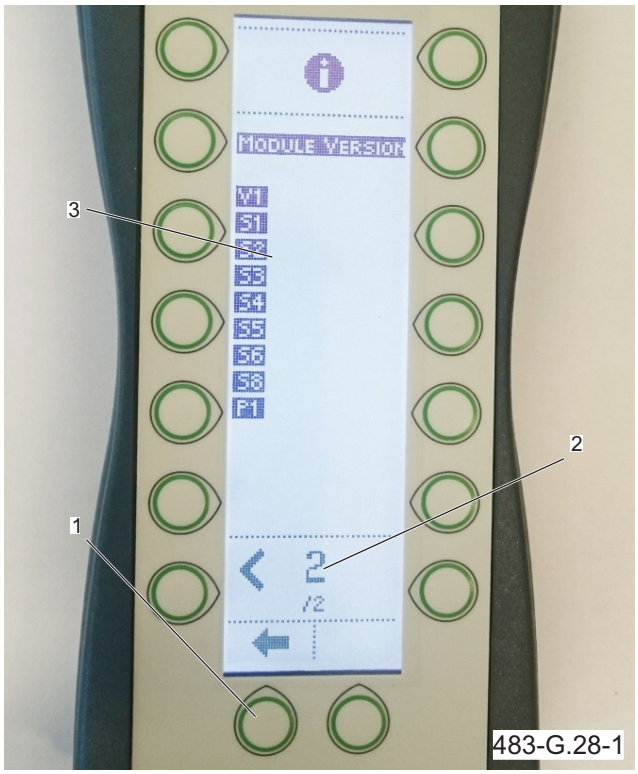


Figure 3.29 Information screen/2

(1) back to menu *(2) screen 2/2*

(3) sensor condition

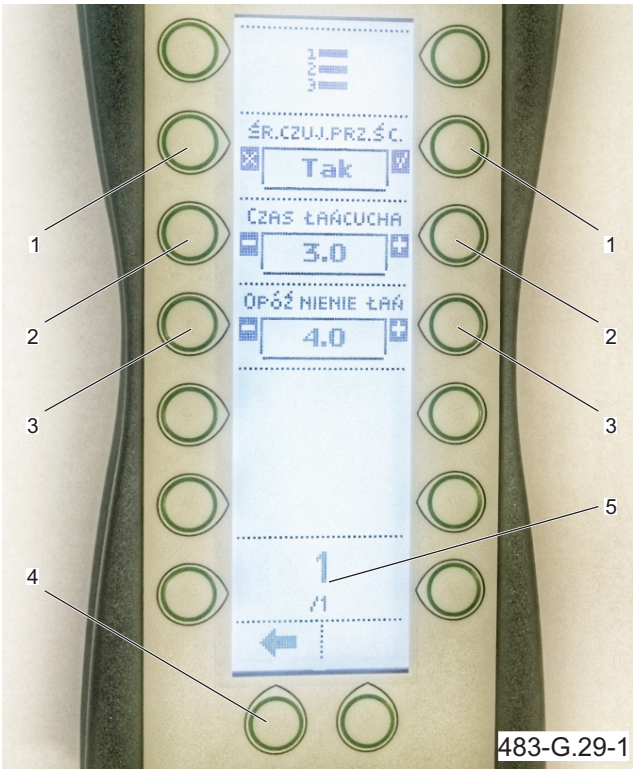


Figure 3.30 Sensor operation parameters

(1) front wall sensor on/off

(2) conveyor travel time (3) conveyor pause time

(4) back to menu

(5) page 1/1

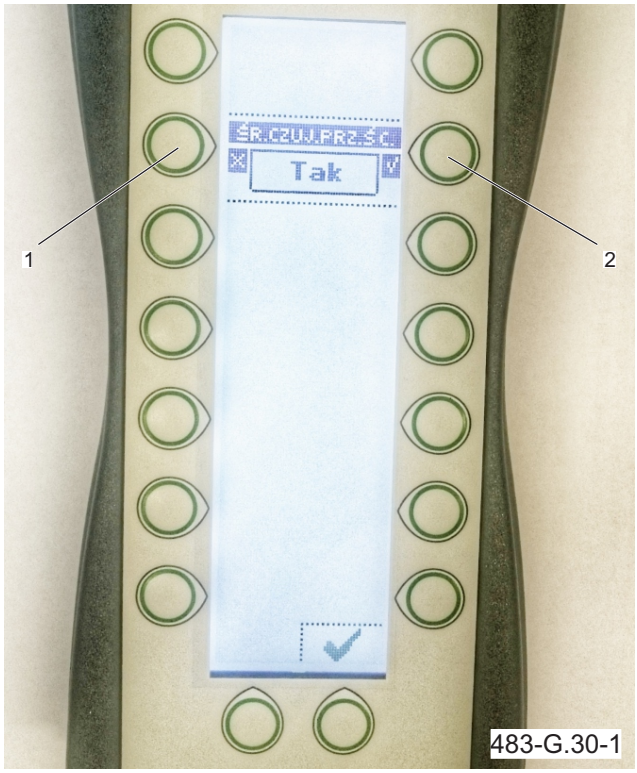


Figure 3.31 Front wall sensor on/off screen (S8)

(1) enable sensor *(2) disable sensor*

Due to the possibility of collecting various types of materials, the trailer has the option of switching on or off the front wall sensor (S8). The sensor readiness status can be checked on the information screen - Fig. (3.29). By pressing the button (1) - Fig. (3.30) you move to the next screen (3.31).

In addition, it is possible to modify the working time of chain conveyors. Pressing the button (2) you switch to screen as in Fig. (3.32). The conveyor travel time can be changed by using buttons (1- reduce time) and (2 - increase time), time adjustment range from 0.1s to 60s. The button (3) - Fig. (3.30) is used to change the pause time of chain feeders. Pressing button (3) you switch to screen as in Fig. (3.33). Time adjustment range from 0.1s to 40s.

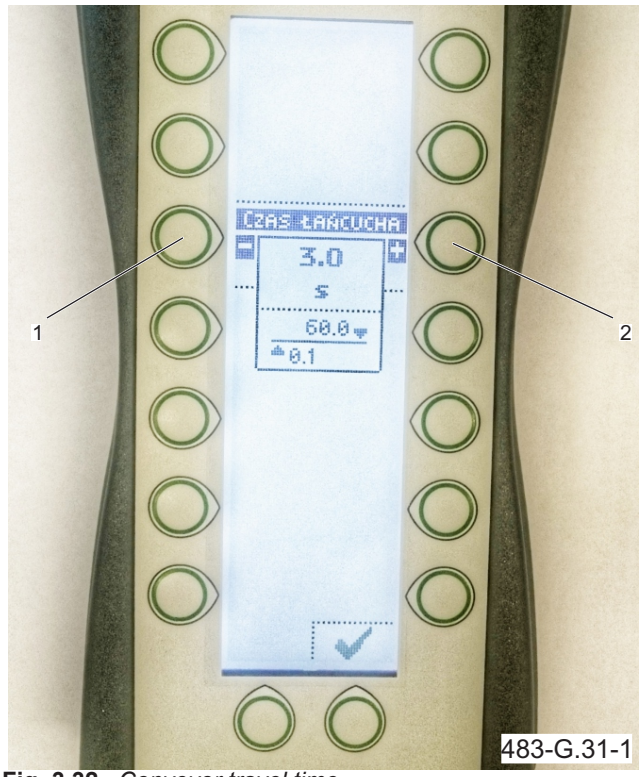


Fig. 3.32 *Conveyor travel time*

(1) Reduce travel time

(2) Increase travel time

The operating time settings of chain conveyors are only valid when the trailer is in automatic loading mode.

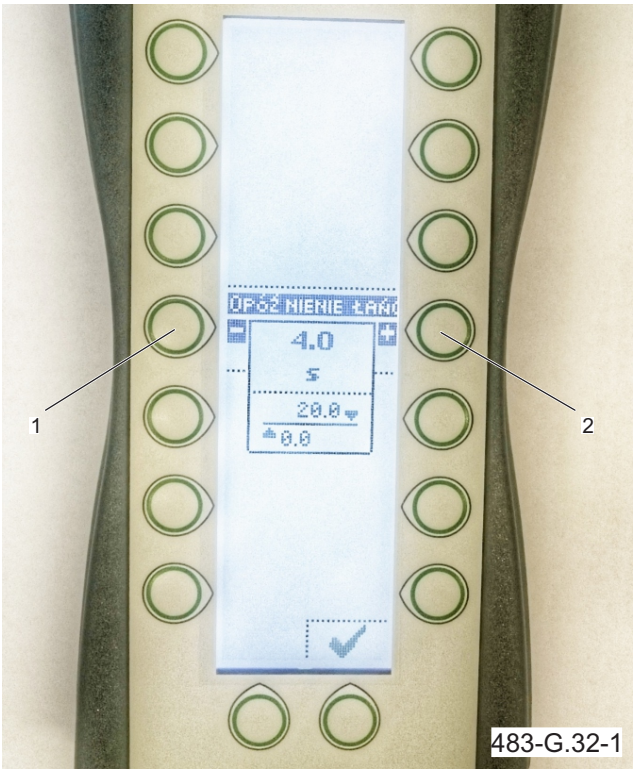


Figure 3.32 Conveyor pause time

(1) Reduce conveyor pause time

(2) Increase conveyor pause time

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PRINCIPLES OF USE

CHAPTER 4

4.1 OPERATION OF LOAD PLATFORM

In order to get into the loading area, the ladder should be folded out (1) and the inspection door opened (2).

- Unlock and pull out both locking pins (3).
- Unfold the ladder (1).
- Release the dead bolt (4) and open the door (1).

DANGER

When entering the load platform, immobilize the tractor and trailer using the parking brake, remove the ignition key and secure the cabin against access by unauthorized persons. It is forbidden to get inside the load platform with the tractor connected and running.
Operating floor mechanism can cause serious accidents.
During the folding of the ladder, it is possible to hit and crush your fingers. Take special care.
Use a handrail to climb the ladder, pay attention, there is a risk of falling.

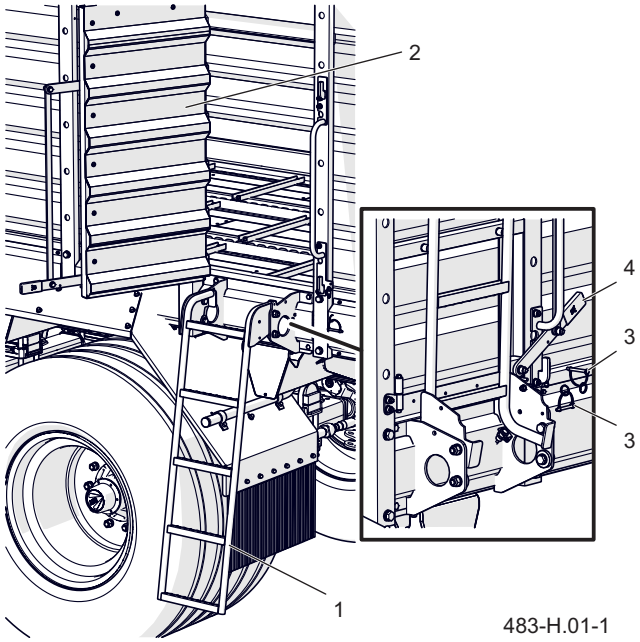

Figure 4.1 Load platform ladder

(1) ladder *(2) doors*

(3) safety pin *(4) lock*

ATTENTION

When the ladder is lowered, the ladder sensor is active and relevant information is displayed on the remote control. In this situation, for safety reasons, all functions of the trailer are inactive.

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4.2 OPERATION OF STEERING AXLE

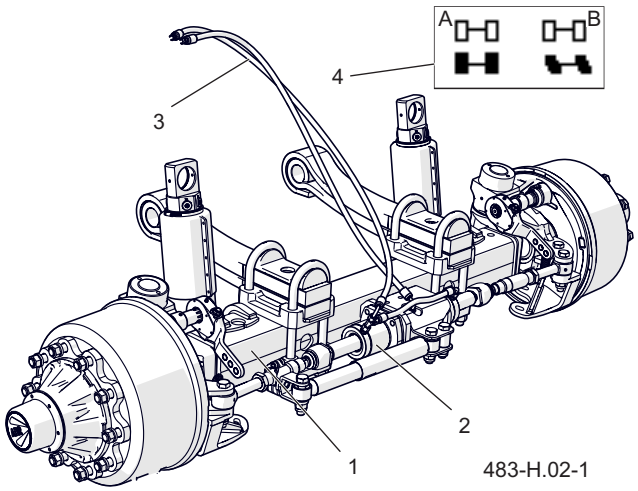

Figure 4.2 Axle with hydraulic lock

(1) steering axle *(2) hydraulic cylinder*

(3) hydraulic hoses *(4) pictogram*

Easier maneuvering of the trailer in the field and less tire wear can be achieved thanks to a released steering axle.

Depending on your needs, select the appropriate steer lock button from the remote control - Fig. (4.2).

- button A – steering axle lock,
- button B- release of the steering axle lock.

DANGER

Loaded trailer moving at high speed must have a locked steering axle.
When driving backwards, lock the steering axle.

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4.3 OPERATION OF HYDRAULIC SUSPENSION

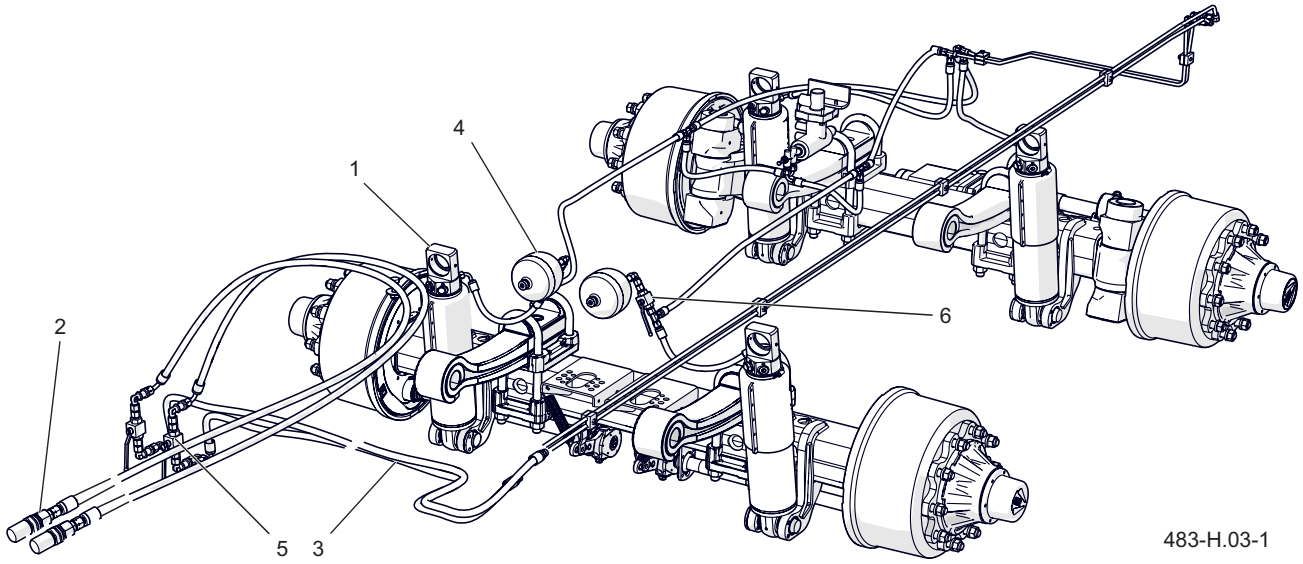

Figure 4.3 Hydraulic suspension

(1) suspension cylinder *(2) hydraulic plug* *(3) hydraulic hoses*

(4) shock absorber *(5) shut-off valve* *(6) damper valve*

The hydraulic damping system is an independent element of the trailer's hydraulics fed directly from the tractor's external hydraulic distributor through hydraulic plugs (2).

- Connect the plugs (2) to the appropriate section of the external tractor hydraulic distributor.
- Open the shut-off valves (5).
- Use the hydraulic distributor lever to raise or lower the hydraulic suspension.
- Close the shut-off valves (5).

ATTENTION

Shock absorbers (4) - Fig. 4.3 dampen the suspension vibration to ensure correct system operation. Regularly check the technical condition of the shock absorbers.

DANGER

It is forbidden to use the trailer with faulty hydraulic suspension system.
The hydraulic suspension system is under high pressure, be careful.
Damaged, leaky hydraulic suspension cylinders (1) disqualify the trailer from further use.

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4.4 DRAWBAR OPERATION

The hydraulic drawbar has the ability to change the position smoothly and thus to raise the trailer (driving) or lowering (operation).

- On the remote control, select lifting direction (A) or lowering (B) as required.

  Always check the position and protection of the support before driving or working and before disconnecting the tractor (5).

- The hydraulic valve (4) cuts off the shock absorber (3) and the damping function is switched off.

  It is recommended to transport the trailer with enabled drawbar damping.

- When disconnecting the trailer, pay attention to the ground on which the support will rest.

  If necessary, in case of slick or uneven surface, use suitable underlays for the support foot.

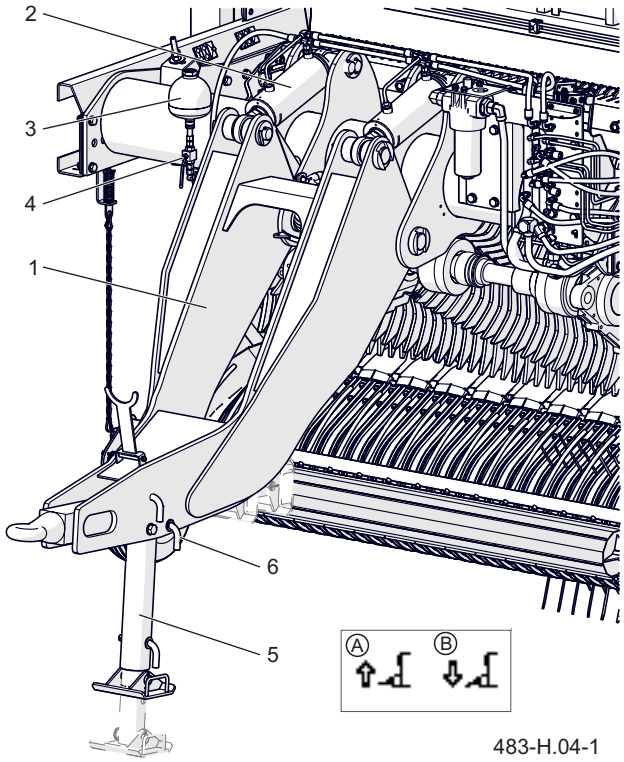

Figure 4.4 Regulated drawbar

(1) drawbar *(2) drawbar cylinder*
(3) damper *(4) shut-off valve*
(5) support *(6) locking pin*
(A) lifting *(B) lowering*

DANGER

Before starting, check the correctness of the coupling, make sure that the drawbar support is raised, folded and secured. Driving with a spread support may cause serious accidents.
It is forbidden to operate the trailer with a faulty drawbar hydraulic system.
Always use a parking brake to disconnect the trailer, put support wedges under the trailer wheel.

ATTENTION

When driving with high-speed, use the drawbar gauge to open the shut-off valve (4) - Fig. (4.4). A transport passage with inserted cylinders (2) leads to their damage. When in transport passage, pull out the cylinder rods to 1-3 cm.

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4.5 PICK-UP OPERATION

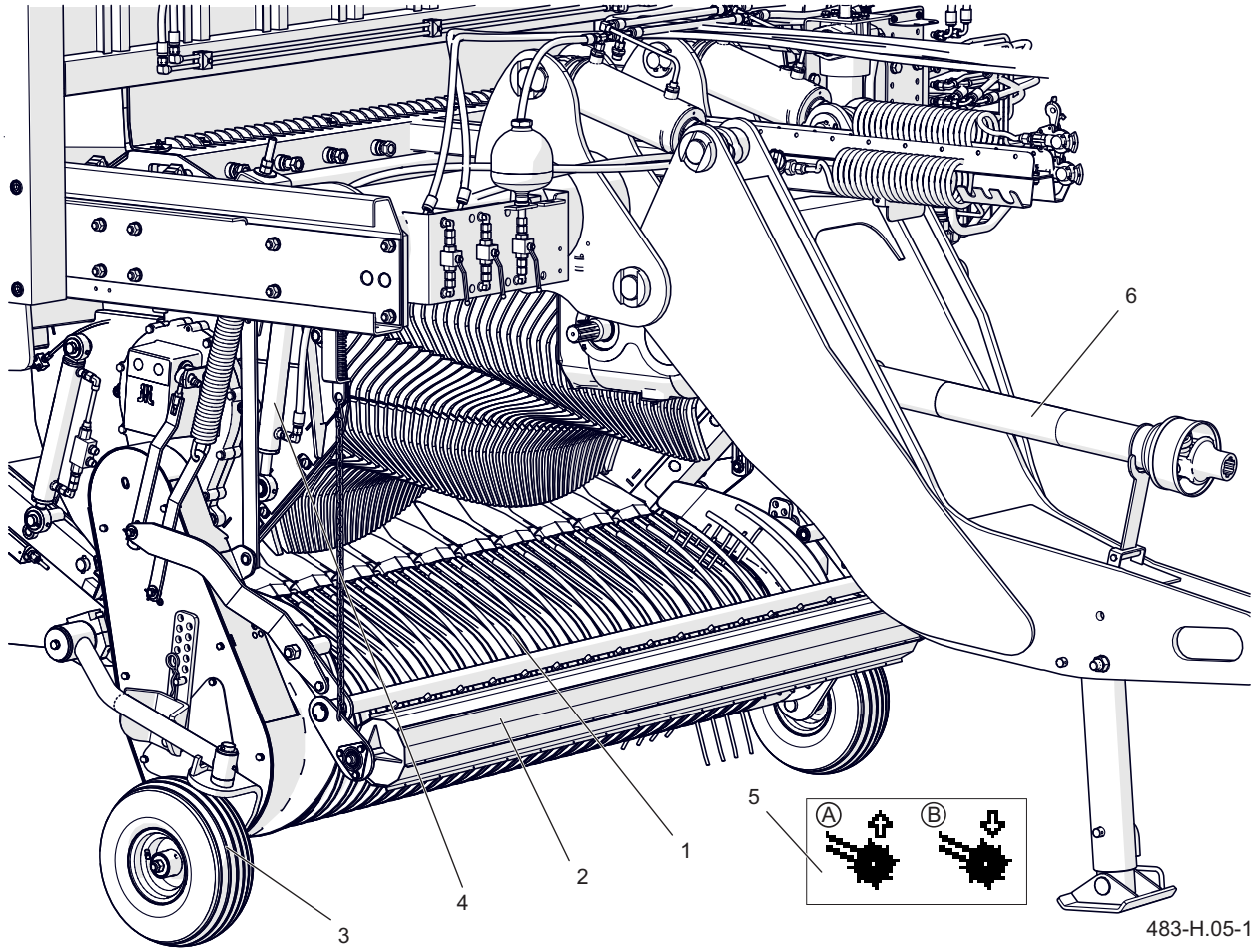

Figure 4.5 Pick-up

(1) decoiler *(2) roller* *(3) support wheel*

(4) hydraulic cylinder *(5) pictogram* *(6) PTO shaft*

DANGER

Before switching on the PTO drive, make sure that there are no unauthorized persons or objects in the vicinity of the machine. Do not approach rotating elements. Keep a safe distance from the working machine.
Take care of appropriate condition and completeness of the covers. It is not permitted to operate the PTO without covers.

The pick-up collects the swath and feeds it further onto the rotor shaft. Lifting or lowering the pick-up is carried out by means of a cylinder (4).

Make sure that there are no bystanders or objects in the pick-up area that could damage the picking mechanism. Check the direction of rotation and the speed of rotation of the PTO shaft.

- Switch on the PTO drive of the tractor.
- Select the direction of lifting (A) or lowering (B) on the remote control, as required.

Lower the pick-up until the supporting wheels (3) rest against the ground.

- If it is necessary to lower the hydraulic drawbar - see Chapter (4.4).

Set the pick-up support wheels (1) - Fig. (4.6) depending on the material collected and the unevenness of the ground.

- Raise the pick-up.
- Switch off the tractor engine, secure trailer and tractor with the parking brake.
- Unlock the support wheel arm.
- Loosen the screw (6).
- High swath and uneven collection area - lift support wheels.
- Low swath and an even picking area - lower the support wheels.

Set the dosing roller (2) in proper position, depending on the material collected. When harvesting fresh silage or short fodder material, lower the roller, while collecting dry fodder from the swath or large swath of fresh fodder material, set the roller in a high position - Fig. (4.6).

- Unlock the chain shackle (4) and raise / lower the dosing roller (2).
- Shorten/ extend the chain to appropriate length, secure its end with a shackle.
- Repeat for the other chain.
- If the contact pressure of the pick-up is not adequate, there is the possibility of adjustment.
- The pick-up is too close to the ground, increase dimension A by reducing the spring tension (3) - Fig. (4.6).
- The pick-up is too close to the ground, reduce dimension A by increasing the spring tension (3).

After adjustment, tighten the spring adjustment nuts.

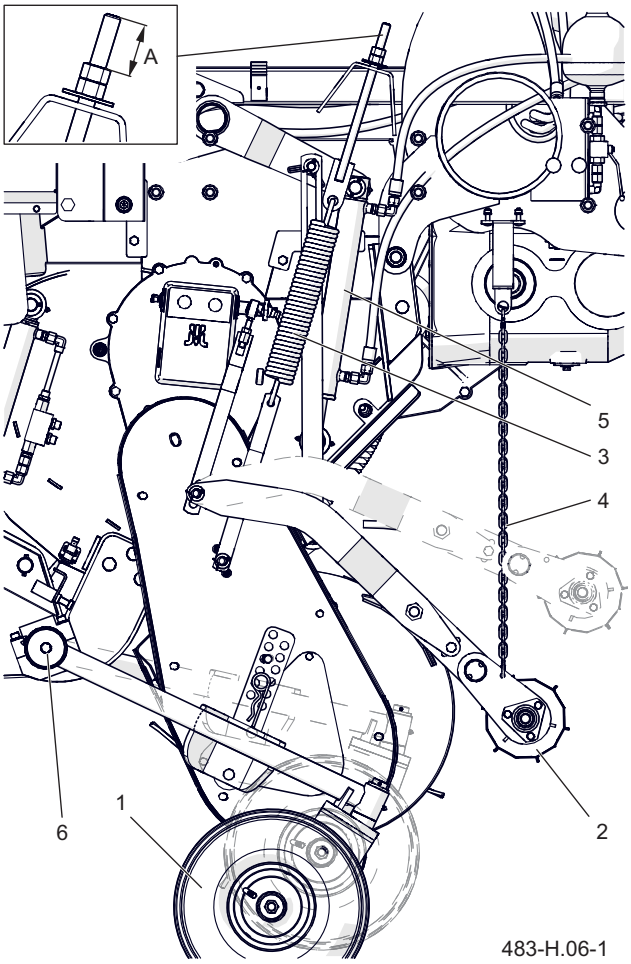

Figure 4.6 Pick-up elements

(1) support wheel *(2) dosing roller*
(3) spring *(4) chain*
(5)cylinder *(6) screw*

DANGER

When changing the height of the dosing roller and the pick-up wheels, be especially careful because of possibility of crushing the limbs.

ATTENTION

For proper operation of the pick-up, the support chains of the dosing roller must have the same suspension length. Support wheels must be set to the same height.

During operation, it comes to a natural wear or damage to the decoiler fingers. To replace them, proceed as below:

- Raise the pick-up.
- Remove proper finger guard (3).
- Unscrew and replace the finger (2). Set up the cover.

DANGER

Be especially careful when replacing the decoiler teeth, as there is a risk of injury.

The pick-up is supplied via the rotor shaft by means of a chain transmission - Fig. (4.7). The operation of transmission is limited to chain tension control and lubrication. Details on lubrication are included in further part of the manual.

- Disassemble the transmission cover.
- Check the technical condition of gears and chain.
- Check the chain tension and technical condition of the tensioner.

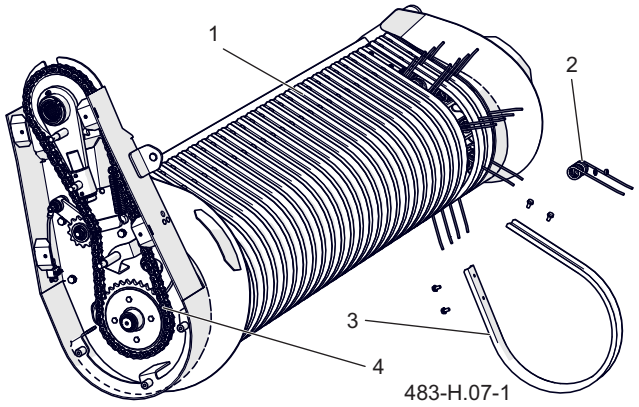

Figure 4.7 Trailer feeder unit.
(1) decoiler *(2) decoiler finger*
(3) guard *(4) transmission chain*

HINT

Check the gearbox once a year before the start of the harvesting season.

ATTENTION

When assembling the decoiler teeth, pay attention to the correct direction of assembly

ATTENTION

When working with the machine with switched on and lowered pick-up overcoming sharp turns or turning back, it is absolutely necessary to raise the collecting mechanism. Maneuvers with a lowered collecting mechanism threaten to damage the support wheels and decoiler teeth.

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4.6 CUTTING BEAM OPERATION

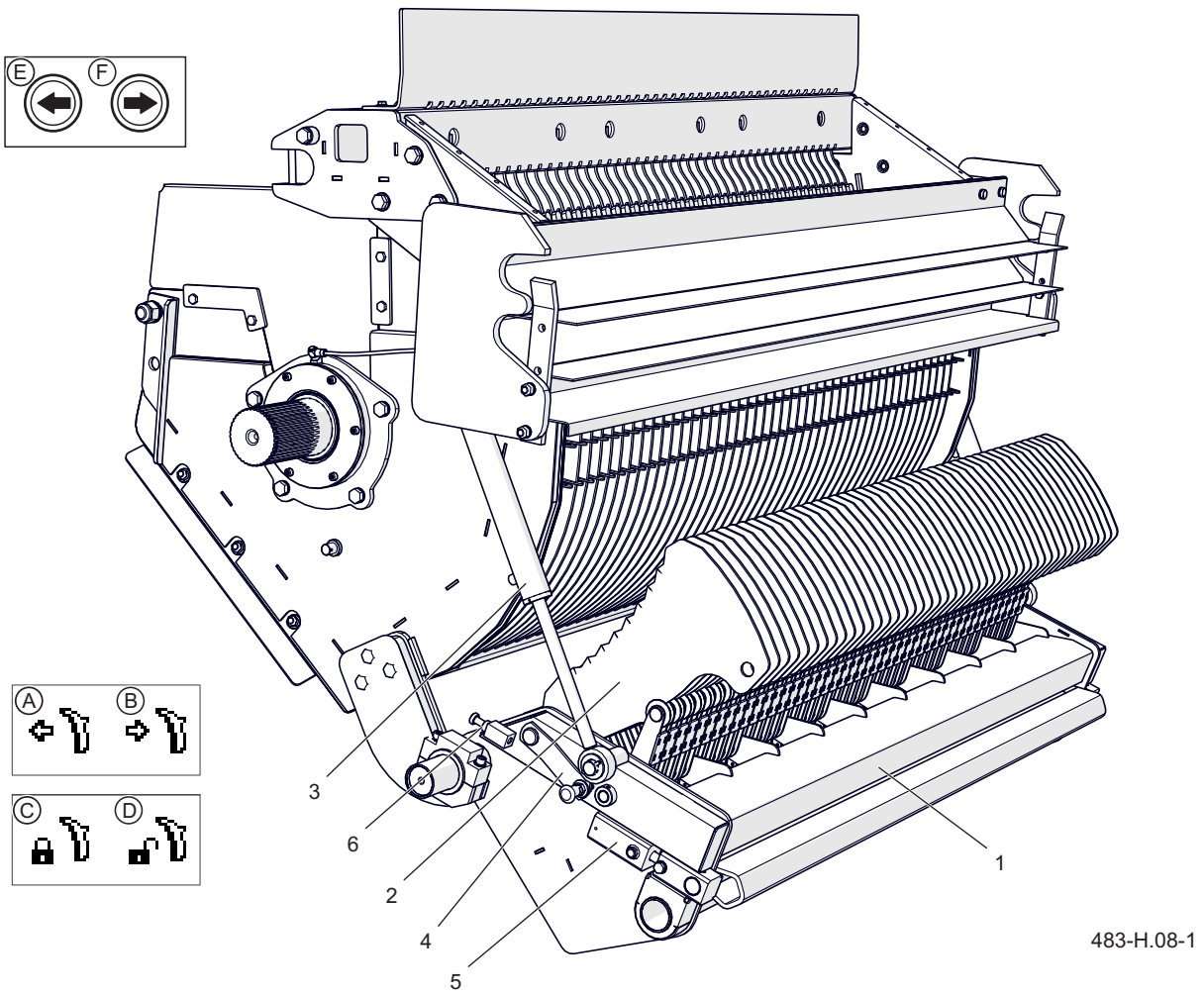

Figure 4.8 Cutting mechanism

(1) cutting beam *(2) blade* *(3) hydraulic cylinder*
(4) lock lever *(5) hydraulic cylinder of the lock* *(6) bumper*
(A) rising the cutting beam *(B) lowering cutting beam* *(C) locked cutting blades*
(D) unlocked cutting blades *(E) beam lowering button* *(F) beam raising button*

ATTENTION

Check the cutter beam before starting work.

DANGER

When operating the cutter beam, there is a risk of injury and crushing of the limbs. Be especially careful.

Each time before starting the trailer operation, check the cutting beam.

- Connect the hydraulic hoses of the trailer, start the appropriate section of the hydraulic system feeding the trailer hydraulic distributor.
- Secure the tractor and trailer with the parking brake.
- Close the tractor cab.
- Lowet the cutting beam (1).

On the remote control, select the position (B) or press button (F) on the left side of the trailer longeron - Fig. (4.8).

- Check setting and sharpening of the cutting blades (2).
- Check the operation of the hydraulic blade lock.

  On the remote control, select position (D).

- Check the function and correct positioning of the cutting blade lock lever (4).
- Clean the cutting beam from impurities.

CUTTING BLADE OPERATION

The correct operation of the cutting mechanism depends on proper setting and sharpening of the cutting blades.

- Lower the cutting beam.
- Unlock the hydraulic lock of the blades.
- Release the lock lever (1) - Fig. (4.9).

  Pull the spindle and turn it by 90°. Then turn the lever (1).

- Check the setting and sharpening of the cutting blades (2). Make sure that the impact protection is free from damage, check the technical condition of the springs.
- Lock the cutting blades and raise the beam to working position.
- Visually inspect the distance of the blades (2) from the rotor shaft (1) - Fig. (4.10).

  The recommended distance between cutting blades and the rotor shaft should be 20-30 mm.

- Assess the distance of the scrapers (3) from the rotor shaft (1).

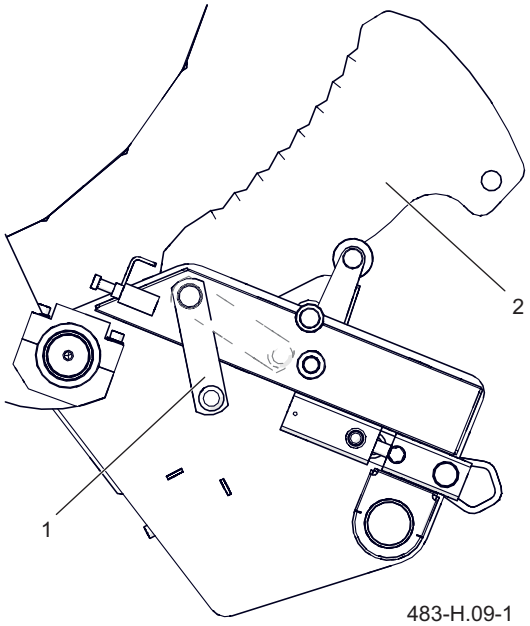

Figure 4.9 Releasing the cutting blade lock.
(1) lock lever *(2) cutting blade*

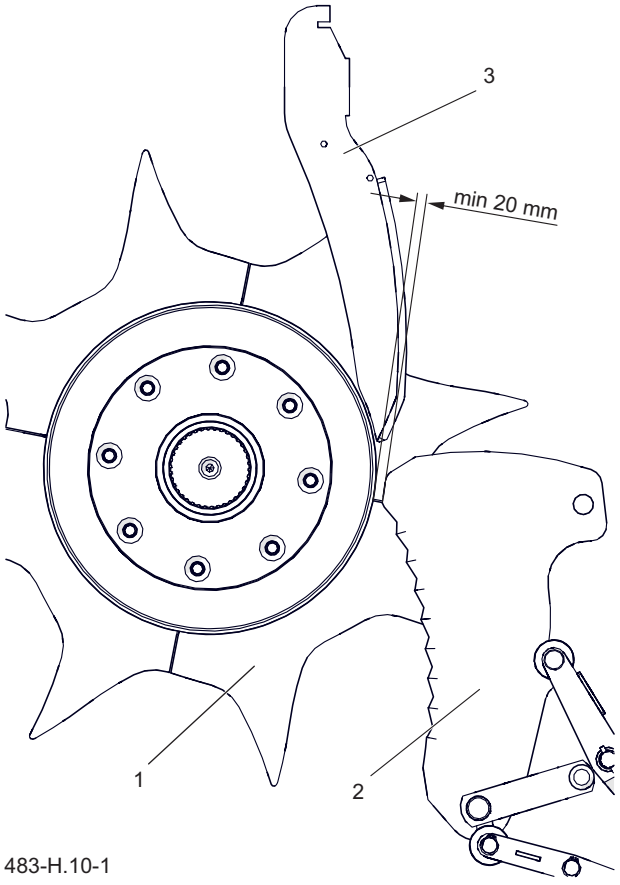

Figure 4.10 Distance of blades and scrapers.
(1) rotor *(2) cutting blade*
(3) scraper

The distance of cutting blades and scrapers from the rotor shaft is set as below:

- Place the cutter beam (1) in working position (raised) - Fig. (4.11).
- Review visually the distance of the cutting blades and scrapers from the rotor shaft (2) - see Fig. (4.10).
- If the distance requires correction, lower the beam.
- Loosen the lock nut (4), if the cutting blades are too close to the rotor; unscrew the screw (3). If the distance between the knives and the rotor is too large, tighten the screw (3).
- Repeat the adjustment for the second screw

  Keep the same distances for both adjustment screws (4).
- Raise the cutter beam and check the position of cutting blades and scrapers.
- When the beam is correctly positioned, install the nuts (4).

If there is a need to dismantle cutting knives - Fig. (4.12).

- Lower the cutting beam (1).
- Unlock the hydraulic lock of blades.
- Release the locking lever (3).
- Move the blade forward until it rests against the locking shaft (4).
- Remove the cutting knife (2) by pulling it up the cutter bar.
- Perform assembly in reverse order.

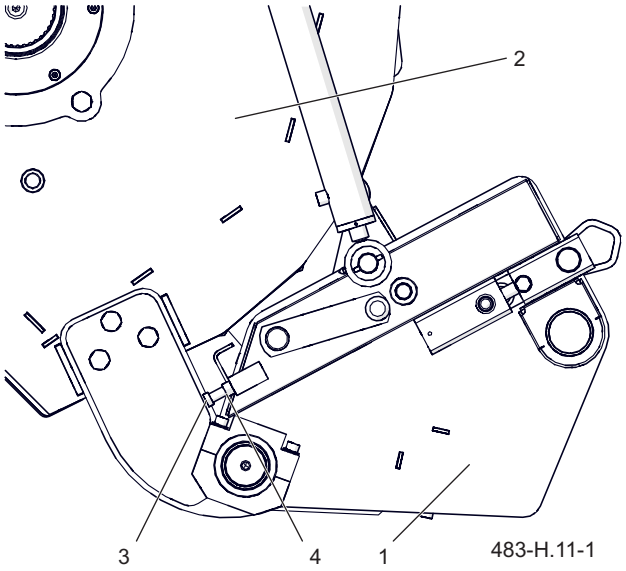

Figure 4.11 Adjusting the distance of the cutting blades

(1) cutting beam *(2) rotor*

(3) screw *(4) nut*

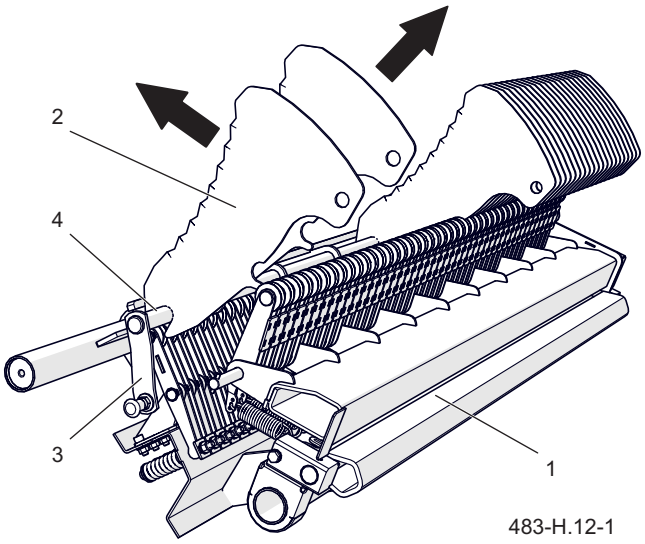

Figure 4.12 Cutting blade operation.

(1) cutting beam *(2) cutting blade*

(3) Lock lever *(4) locking roller*

DANGER

Do not catch the cutting knife by the blade. When handling cutting knives, use protective gloves, as there is a risk of injury. Take special care.

ATTENTION

Damaged cutting blades should be replaced immediately. It is forbidden to use the cutting mechanism with damaged cutting knives.

Use only original spare parts recommended by the trailer manufacturer.

Figure (4.13) shows the dimension to which the spring tensioning screw should be set if it is replaced.

ATTENTION

Each time after loading with use of cutting blades, lower the cutter beam and clean it of residual material. Before the winter period, clean the harvesting and cutting units thoroughly.

DANGER

It is forbidden to carry out maintenance and repair works with the tractor engine running.

SCRAPER OPERATION

The correct condition of the scrapers (1) must be observed for the correct operation of the cutting mechanism. Disassembly should be carried out according to following guidelines.

- Open and lift the front covers.
- Loosen the lock nuts (4).
- Loosen the clamping screws (3).

  The clamping bar will be released to remove the scrapers (1)
- Lift the rotor lid (2).
- Remove the scraper from the side of the trailer's load platform.

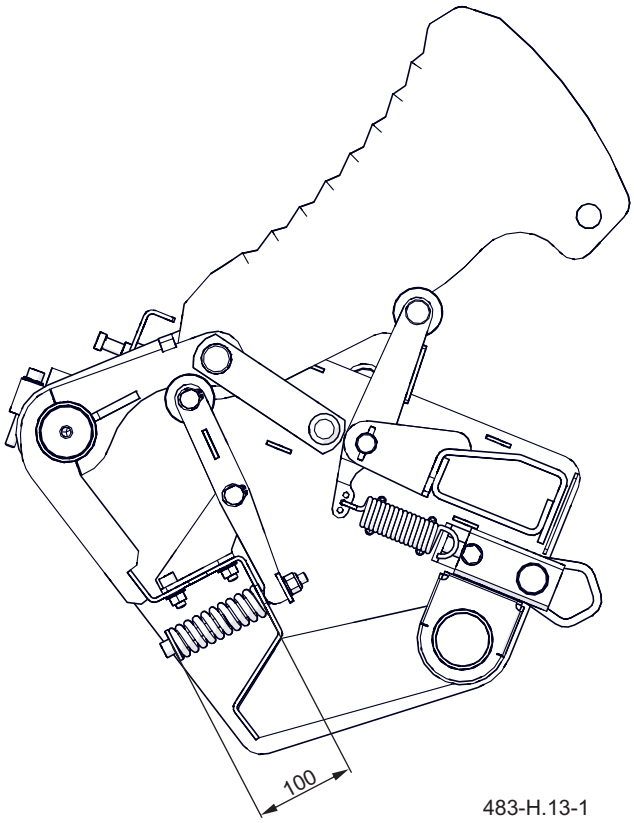

Figure 4.14 Setting the knife release force

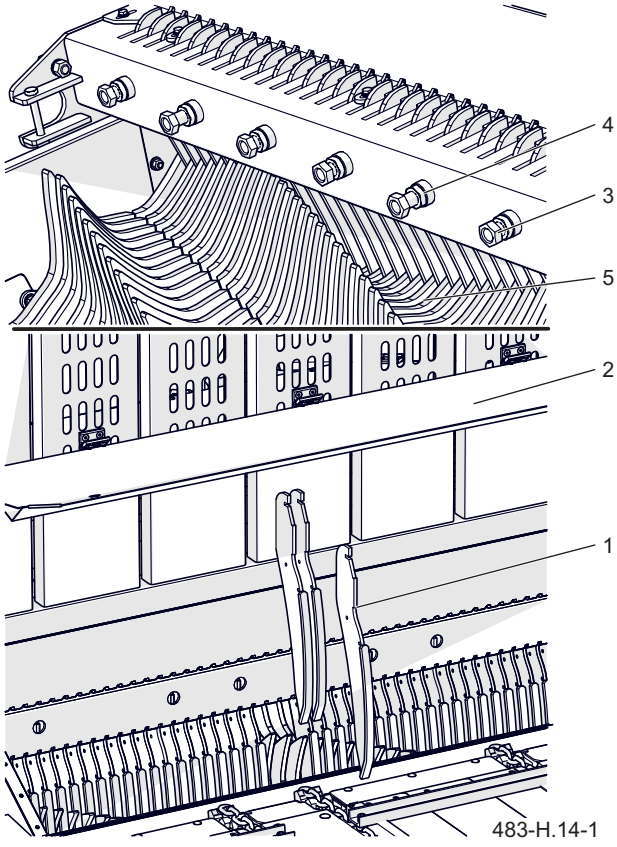

Figure 4.13 Scrapers

(1) scraper *(2) cover*

(3) nut *(4) screw*

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4.7 TAILGATE OPERATION

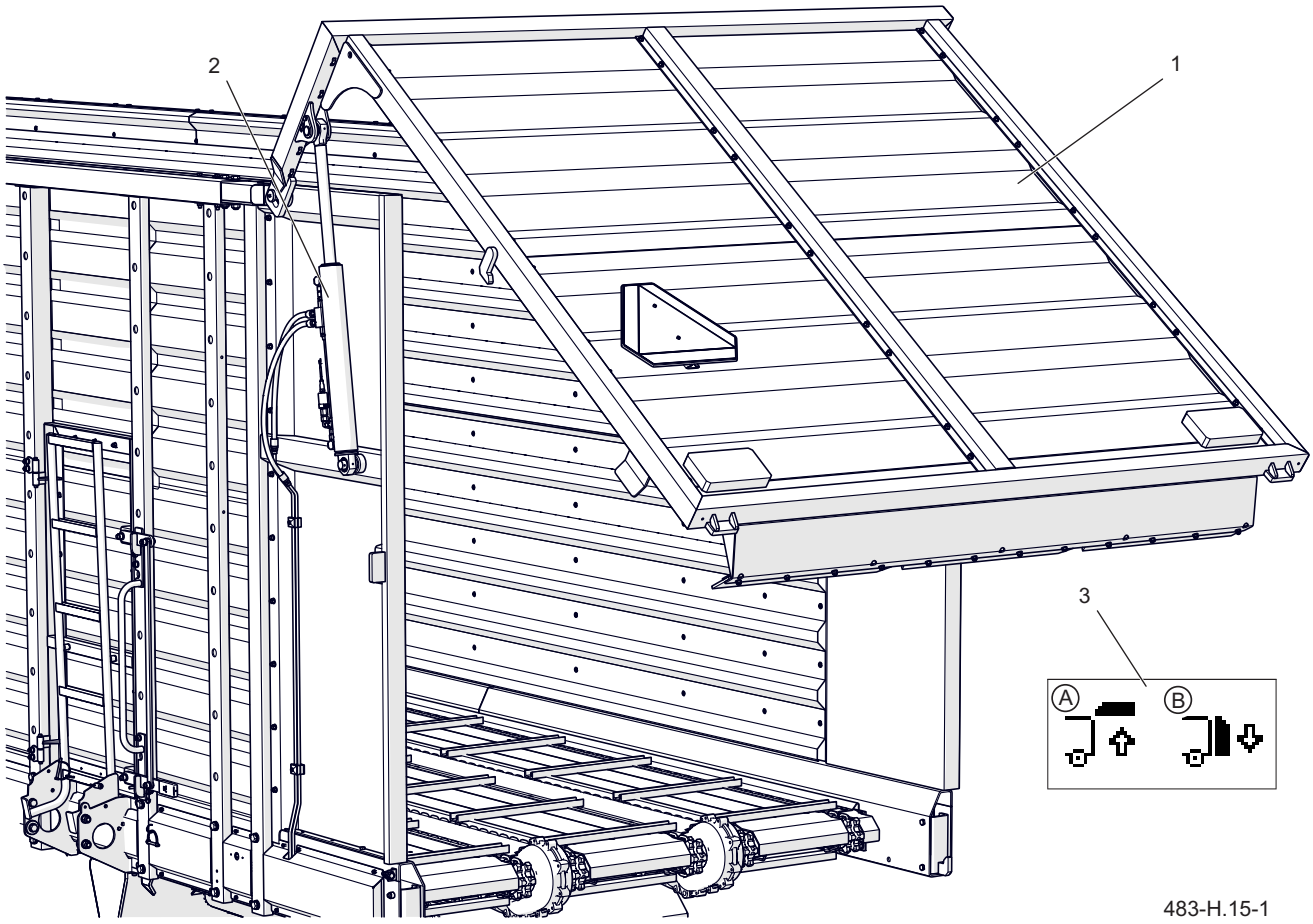

Figure 4.15 Tailgate

(1) tailgate *(2) hydraulic cylinder* *(3) pictogram*

(A) raising the tailgate *(B) lowering the tailgate*

The opening of the tailgate (1) is realized by means of two hydraulic cylinders (2).

- Select the appropriate position on the remote control.

  Position (A) for raising the tailgate.

  Position (B) for lowering the tailgate.

The tailgate movement also occurs when loading and unloading the trailer in automatic mode. In this case, the damper control does not require operator intervention. The hydraulic system of the tailgate is equipped with a pressure sensor. The increase of system pressure stops lifting the tailgate. In addition, the damper has a closing sensor and a sensor of load platform filling.

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4.8 FRONT HATCH OPERATION

The front hinged hatch (1) is opened by means of hydraulic cylinders (2).

- Select the appropriate position on the remote control.

  Position (A) for lowering the hatch.
  Position (B) for raising the hatch.

The machine can be used as a volume trailer. After lowering the front hatch, the loading can be carried out from the front using harvesters or self-propelled chaff cutters.

The front hatch is equipped with a load platform filling sensor, used in automatic loading process..

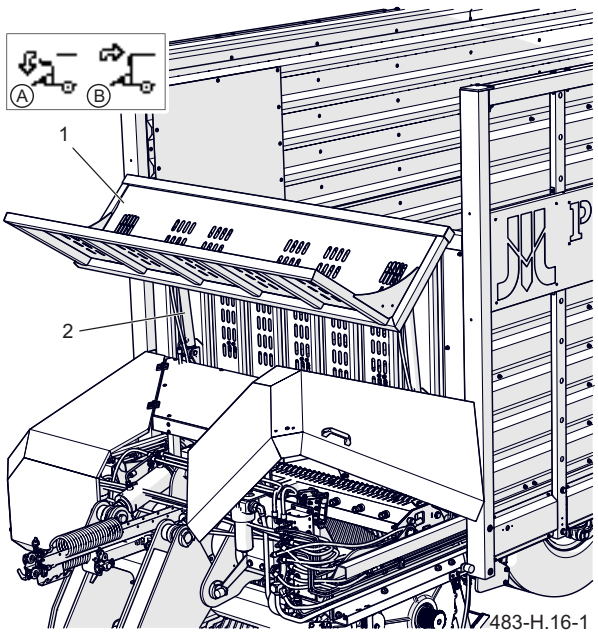

Figure 4.16 Front hatch

(1) Front hatch *(2) hydraulic cylinder*
(A)Lowering the hatch *(B) raising the hatch*

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4.9 FLOOR MECHANISM OPERATION

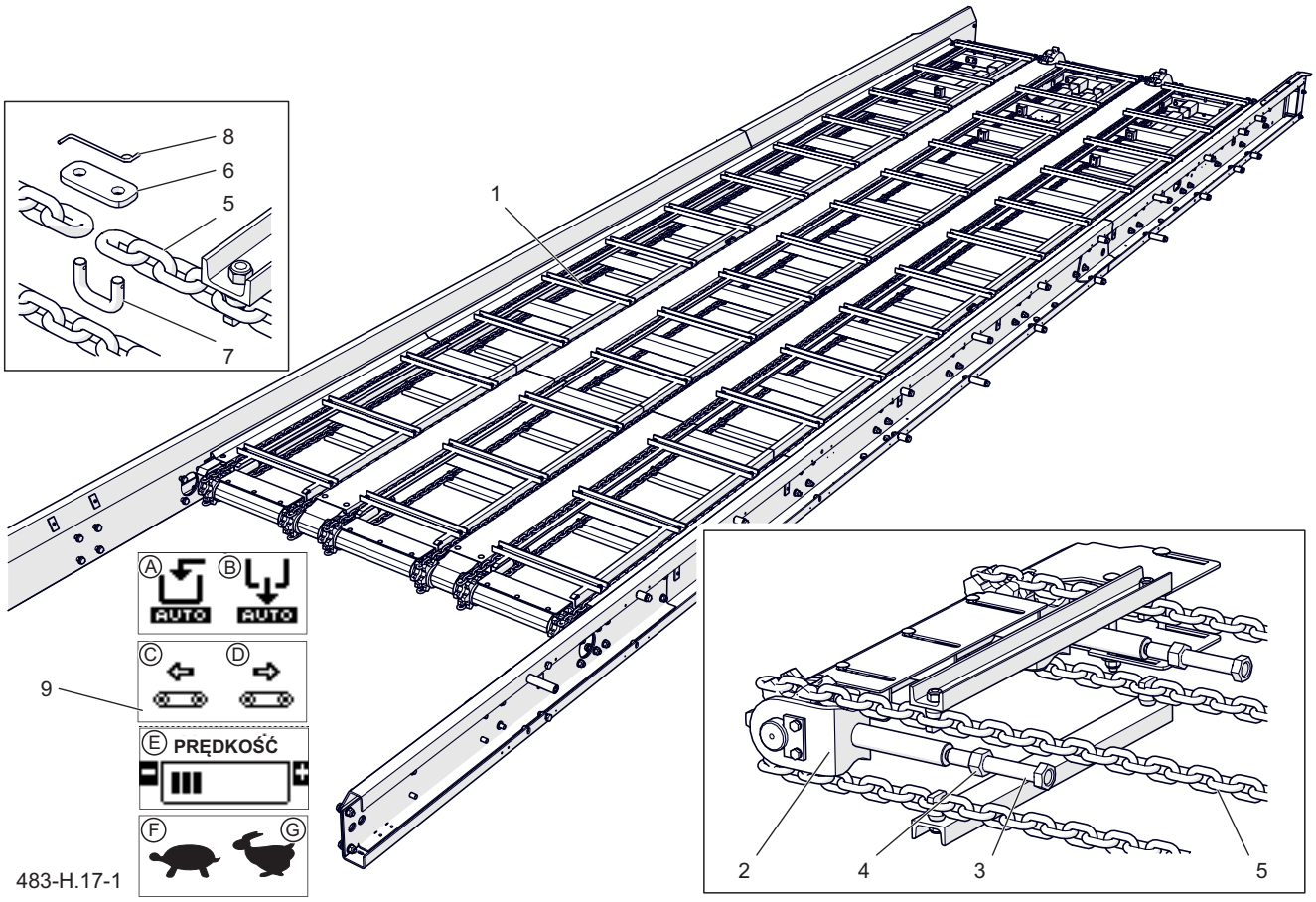

Figure 4.17 Floor feeding mechanism

(1) chain conveyor *(2) tensioner* *(3) tensioning screw*
(4) nut *(5) chain* *(6) plate*
(7) closing link *(8) stud* *(9) pictograms*
(A) automatic loading *(B) automatic unloading* *(C) conveyor forward*
(D) conveyor backwards *(E) conveyor speed* *(F) low speed - turtle*
(G) high speed - hare

The floor conveyor is used to transport the collected material, properly positioning it in the load platform and unloading. The conveyor drive is carried out by means of hydraulic motors with adjustable speed.

The conveyor's operation can be automatic (loading and unloading), as well as manually, controlled by the user.

.

Automatic mode.

- Select the appropriate position on the remote control.

  Position (A) automatic loading. Position (B) automatic unloading.

- If necessary, in the final stage of unloading, select the position (G).

  Position (G) fast movement of floor conveyor without possibility of setting the speed.

- More on the automatic trailer operation in the further part of the study.

Manual mode.

- Select the appropriate position on the remote control.

  Position (C) conveyor movement forward.

  Position (D) conveyor movement backwards.

- For both positions above, if necessary, select (E).

  Position (E) change speed of floor conveyor.

  In manual mode, the fast conveyor speed is not available - position (G) hare.

The handling of the floor conveyor consists in controlling the technical condition, tension of the conveyor chains and gear lubrication. If the tension is insufficient, proceed as follows.

- Loosen the lock nuts (4) for the respective conveyor - Fig. (4.17).
- Tighten the tensioning screws (3).

DANGER

Never turn on the floor conveyor if someone is inside the load platform.
It is forbidden to transport people and animals.
Use properly fitted protective clothing, as there is a risk of pulling loose clothing elements into rotating parts.
When shortening the chain (cutting), watch out for the possibility of fire of dry residues of the collected material.
Assure completeness of warning and information covers and stickers.

ATTENTION

Overly tensioning the conveyor chains can damage the machine's gears.
Stretching the drive chains is a natural process of operating the trailer.

Both screws of the same conveyor must be screwed to the same distance

Check the chain tension (5). Proceed in same way for other conveyors.

Stretching the feeder chains is a normal process and is not subject to any claims from the user. If the chain tension is still incorrect and the adjusting screws are screwed in as far as possible, the chain must be shortened.

- Move the feeder in such a way as to get easy access to the closing link (7).
- Turn off the tractor engine, secure the tractor and trailer with parking brake.
- Loosen the lock nuts (4), and remove the adjustment screws (3).
- Unhook the chain, remove the plate (6) and cotter pin (8).
- Shorten the chain by two links.

  Always shorten the chain by an even number of links.

- Re-tie the chain.

  It is recommended to insert a new pin (8).

- Tension the feeder chains.
- Check the operation of the feed mechanism.

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4.10 CONNECTING THE TRAILER

DANGER

During coupling, no unauthorized persons should be between the trailer and the tractor. When connecting the machine, the tractor operator should take special care during proceeding and make sure that unauthorized persons are not in the danger zone during coupling.
When connecting hydraulic or pneumatic lines to the tractor, make sure that the tractor and trailer installations are not under pressure.
During coupling, ensure adequate visibility..

CONNECTION OF TRAILER TO TRACTOR HITCH

- Make sure that the trailer is immobilized with the parking brake.

  Pull out the black button of the releasing-parking valve. Make sure that blocking wedges are placed under one wheel of the trailer.

- Place the tractor straight ahead of the drawbar tendon.
- Reverse the tractor; connect the trailer to the appropriate hitch.
- Check the coupling protection to protect the machine from accidental disconnection.
- If the tractor uses automatic coupling, make sure that the aggregation operation is com pleted and the drawbar tendon is secured.

CONNECTING THE BRAKING SYSTEM

- Turn off the tractor engine and remove the ignition key. Secure the tractor with the parking brake.
- Connect the brake system connections to the appropriate tractor socketsj.

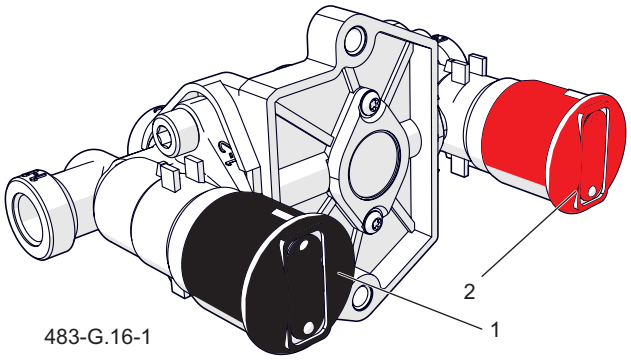

Figure 4.18 Parking brake

(1) black button *(2) red button*

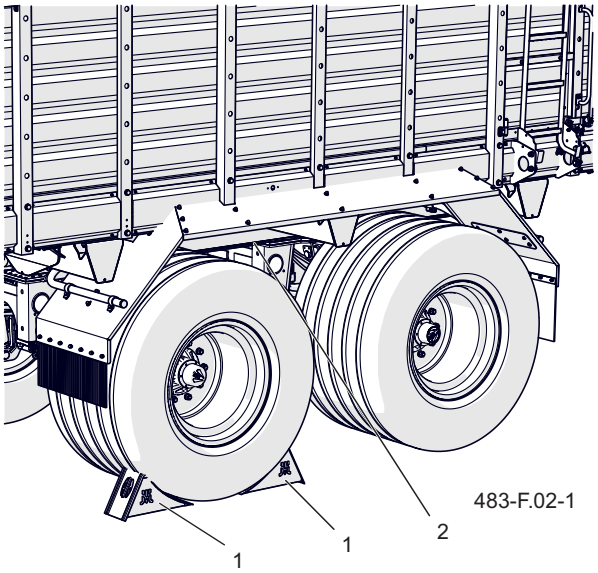

Figure 4.19 Wedges

(1) Supporting wedge *(2) longeron*

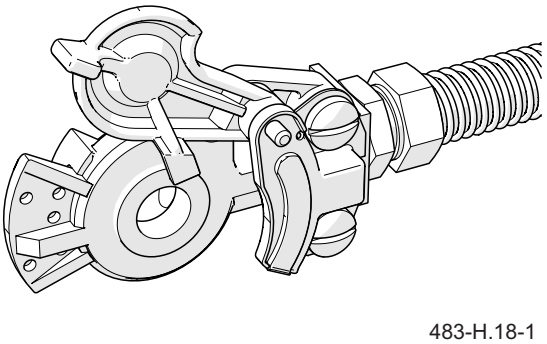

Figure 4.20 Braking connector

ATTENTION

When connecting the pneumatic conduits of a two-wire system, first connect the wire marked yellow and only then the wire marked in red..

CONNECTING HYDRAULIC SYSTEM

- Turn off the tractor engine and remove the key from the ignition. Secure the tractor with the parking brake.
- Connect the suspension hydraulic hoses to the appropriate section of the tractor's hydraulic distributor.

  In additional option, connect the Load Sensing hydraulic line to the LS connection of the tractor. Turn the trailer distributor knob to LS - see Chapter 3.6.
- Connect the 3-pin power cable to the trailer control.

CONNECTION OF ELECTRICAL LIGHTING SYSTEM

- Connect the electrical connection cable to the 7-pin socket on the trailer and to the 7-pin socket on the tractor.

ADDITIONAL INFORMATION

- After completing the connection of all cables, make sure that they are not entangled in moving parts of the tractor or trailer during operation. If necessary, secure the wires.

DANGER

The use of an inoperative trailer is forbidden

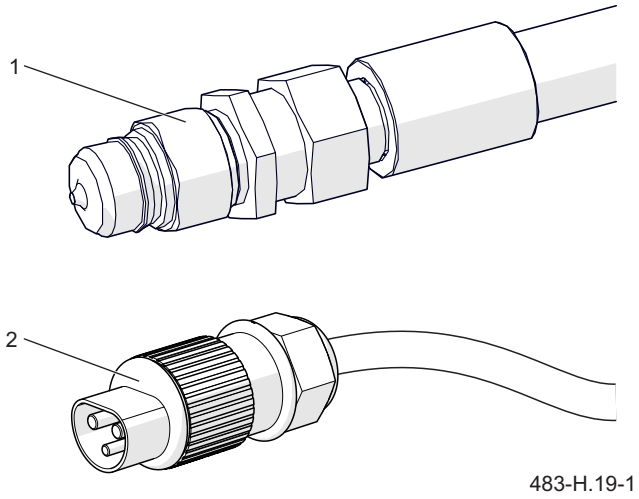

Figure 4.21 Hydraulic connectors
(1) hydraulical plug *(2) electrical plug*

DANGER

Before connecting the hydraulic connectors, reduce the pressure in the system.

HINT

The tractor should be equipped with a hydraulic pump with capacity of 90l / min. Maximum working pressure 200bar.

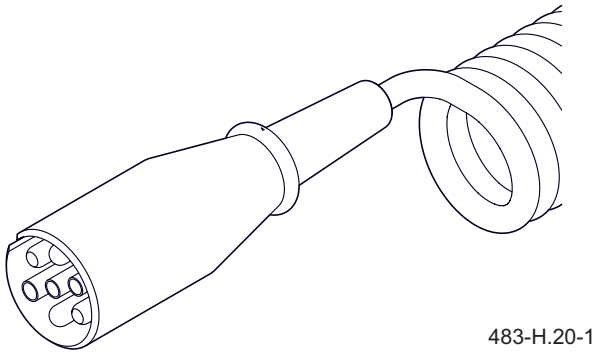

Figure 4.22 Electrical connection cable

- Carry out a daily inspection of the trailer.
- If the trailer is operational, you can proceed to work.
- Immediately before driving, remove the wedges from under the wheels and release the parking brake of the machine.

Move the parking brake valve to DRIVING position - press the red button.

ATTENTION

The machine can be connected to a tractor, if all connections (electric, hydraulic and pneumatic), and the hitch of the tractor are in accordance with the requirements of the machine manufacturer.

ATTENTION

In the event of a longer standstill of the trailer, it may occur that the air pressure in the pneumatic braking system is insufficient to release the brake shoes. In this case, after starting the tractor and air compressor, wait until the air in the pneumatic tank has been replenished

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4.11 DISCONNECTING

- Set the trailer on a hard and flat surface.
- Unfold and secure the support foot.
- Lower the trailer using the hydraulic drawbar.
- Switch off the tractor engine and remove the ignition key; secure the tractor with the parking brake.
- Immobilize the trailer with the parking brake.
- Place block wedges under the trailer wheel, one at the rear and the other at the front of the wheel. Position wedges under the wheel of the rigid axis.
- Disconnect all cables in sequence and secure the plugs against dirt by placing them in specially prepared sockets.
- Unhook the towing eye, start the tractor and drive away.

DANGER

Take special care when disconnecting the trailer from the tractor. Ensure good visibility. If this is not necessary, do not stand between the trailer and the tractor.
Before disconnecting the hoses and drawbar eye, switch off the tractor engine and remove the ignition key. immobilize the tractor with the parking brake.

ATTENTION

When disconnecting the pneumatic conduits of the two-conduit system, first disconnect the wire marked in red and then the wire marked in yellow.
It is forbidden to disconnect and leave a parked loaded trailer.

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4.12 LOADING AND UNLOADING

The trailer can be loaded in manual or automatic mode.

AUTOMATIC LOADING

- Check the technical condition of the trailer, in particular the PTO shaft, pick-up and cutting beam.
- Switch on the PTO drive, start the hydraulic installation of the trailer.
- Run the remote control.
- Lower the pick-up.
- Press the automatic loading button

  Switching the automatic loading on and off is possible only when the rear wall is closed.
- Start driving and loading.
- Observe the filling of the load platform and the display of the steering remote control.
- When the load platform is full, a message will appear on the display. The automatic loading will be stopped.
- The maximum filling of the load platform is indicated by the sensor located in the tailgate of the trailer

MANUAL LOADING

- Check the technical condition of the trailer, in particular the PTO shaft, pick-up and cutting beam.
- Switch on the PTO drive, start the hydraulic installation of the trailer.
- Run the remote control.
- Lower the pick-up.
- Start driving and loading.
- Observe filling of the load platform and the remote control display
- If the collected material fills the front of the trailer, select on the remote control the option of moving the floor backwards.

  Follow the instructions above until the load platform is filled.
- When the load platform is full, a message will appear on the display.
- The maximum filling of the load platform is indicated by the sensor located in the tailgate of the trailer.
- Raise the pick-up and switch off the PTO drive.

BULK LOADING FROM AN EXTERNAL DEVICE

The machine can be used as a typical bulk trailer adapted to the material harvested by an external device (harvester, chaff cutter etc.).

- When loading from an external device, open the front wall by selecting the appropriate button from the remote control.
- Observe the filling of the load platform and the display of the steering remote control.
- If necessary, move the collected material inside the load platform using the floor conveyor.
- When the load platform is full, a message will appear on the display.
- The maximum filling of the load platform is indicated by the sensor located in the tailgate of the trailer

AUTOMATIC UNLOADING

- Check whether there are no people in the unloading zone.

- Make sure there is enough space at the back of the trailer to open the tailgate and unload the material.
- Start the trailer hydraulic system.
- Turn on the remote control.
- Press the automatic unload button.

  The floor conveyor will momentarily move the material to the front of the trailer, reducing its pressure on the tailgate.

  The tailgate opens; the floor conveyor starts to unload the material from the trailer.
- Check if the inside of the load platform is empty.
- After finished unloading the material, press the automatic unload button.

  The floor conveyor will be stopped and the tailgate will close.

MANUAL UNLOADING

- Check whether there are no people in the unloading zone
- Make sure there is enough space at the back of the trailer to open the tailgate and unload the material
- Start the trailer hydraulic system.
- Turn on the remote control.
- Press the floor conveyor button, gently moving the collected material to the front of the trailer, thereby reducing the load pressure on the tailgate.

DANGER

It is prohibited to stay near the trailer while the machine is in operation.
When opening the tailgate, pay attention to the overhead electric traction wires.
Be especially careful when unloading, extreme weight and volume of load can cause serious accidents.
It is forbidden to get inside the load platform while the trailer is in operation.

- Press the tailgate opening button.
- After opening the hatch, press the floor conveyor button in reverse direction (unloading).

  In manual and automatic mode, the user has the possibility to change the conveyor speed - the speed control button. In order to quicken the emptying of the load platform in the last phase of unloading, you can use the „hare" button – a fast conveyor travel.
- Check if the inside of the load platform is empty.
- Stop the floor conveyor and close the tailgate.

ATTENTION

It is forbidden to exceed the permissible load capacity of the trailer.

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4.13 TRANSPORT OF LOAD

During driving, adjust to traffic regulations, use caution and reasonable conduct.

- Before driving, make sure that the trailer is in good working order. Driving the trailer with damaged traffic lights, brakes, inoperative drawbar or running gear is forbidden.
- Before driving, make sure that there are no bystanders, especially children, near the trailer and the tractor. Make sure you have adequate visibility.
- Make sure that the trailer is correctly connected to the tractor and the tractor hitch is properly secured.
- The trailer must not be overloaded; the weight must be evenly distributed in such a way that it does not exceed the permissible loads on the trailer's running gear. Exceeding the permissible load capacity of the vehicle is forbidden and may cause damage to the machine, as well as may pose a threat when driving on the road for the tractor operator and trailer or other road users.
- The permissible construction speed and speed resulting from the restrictions of the traffic law must not be exceeded. The driving speed should be adapted to prevailing road conditions, the load condition of the trailer, the type of transported cargo and other conditions.
- The trailer disconnected from the tractor must be secured by immobilizing it with the parking brake and placing it under the wheel of wedges. Leaving an unsecured trailer is forbidden. In the event of a machine failure, stop at the roadside, without posing a threat to other road users and mark the parking place according to traffic regulations.
- When driving on public roads, the trailer must be marked with a slow moving vehicle identification plate on the rear wall of the load platform, if the trailer is the last vehicle in the assembly.
- The tractor operator is required to equip the trailer with an attested or homologated warning reflective triangle.
- When driving, obey traffic regulations, indicate with direction indicators a change of direction, keep clean and take care of the technical condition of the lighting and signaling installation. Damaged or lost lighting and signaling components should be repaired or replaced immediately.
- Avoid ruts, depressions, ditches or driving on the side of the road. Driving through this type of obstacles may cause a sudden tilting of the trailer and tractor. This is particularly important because the center of gravity of the loaded trailer adversely affects driving safety. Traveling near the edge of ditches or channels is dangerous due to the risk of landslides under the wheels of the trailer or tractor.

DANGER

Overloading the trailer, improper loading and securing of the load is the most common cause of accidents during transport. Uneven distribution of the load may cause overloading of the trailer's traction system.
It is forbidden to transport people and animals.

- The travel speed must be reduced early enough before accessing turns, when driving on uneven or sloping terrain.
- Avoid sharp turns when driving, especially on slopes.
- When driving on public roads, the tailgate must be folded.
- Control the behavior of the trailer when driving on uneven terrain.
- Long-lasting movement on sloping ground poses a risk of losing braking efficiency.
- Remember that the braking distance of the set increases considerably as the weight of the transported cargo increases and the speed increases.

ATTENTION

Overloading the trailer, improper loading and securing of the load is the most common cause of accidents during transport. Uneven distribution of the load may cause overloading of the trailer's traction system.
It is forbidden to transport people and animals.

- When driving in loaded state, use caution when driving under power lines, bridges, viaducts, etc.
- For high-speed crossings on public roads, enable the hydraulic axle lock.

H.3.7.483.13.1.PL

4.14 PRINCIPLES OF USE TIRES

- When working on tires, secure the trailer against rolling by placing wedges under the wheels. The disassembly of the wheel can only be carried out when the trailer is not loaded.
- Repair work on wheels or tires should be carried out by trained and authorized persons. These works should be carried out using carefully selected tools.
- Regularly check the correctness of tightening the wheel nuts.
- Regularly check and maintain the correct tire pressure in accordance with the instructions (especially after a longer period of non-use of the trailer).
- Tire pressure should also be checked during all-day intensive work. It should be taken into account that an increase in temperature of the tires can increase the pressure by up to 1 bar. With such a rise in temperature and pressure, the load or speed should be reduced.
- Never reduce pressure by venting if the increase is due to temperature.
- Secure tire valves with suitable caps to avoid contamination.
- Do not exceed the permissible trailer speed.
- Make a one hour break at noon during the all-day work cycle.
- Observe the breaks while driving to cool the tires.
- Avoid damaged surfaces, sudden and variable maneuvers and high speed when turning.

H.3.1.526.09.1.PL

CHAPTER 5

SCHEDULE OF TECHNICAL INSPECTIONS

5.1 BASIC INFORMATION

This chapter describes all activities related to the performance of periodic inspections, which as a user you are obliged to carry out according to the assumed schedule. Constant inspection of technical condition and performing maintenance operations are necessary to keep the machine in good technical condition. Maintenance activities that the user can perform on their own are described in the Technical Service chapter.

Repair of the machine during the warranty period may only be performed by Authorized Sales and Service Points (APSiO). In the event of unauthorized repairs, changes to factory settings or activities that have not been taken into account as possible by the trailer operator (not described in this manual), the user loses the guarantee.

The warranty review of the trailer is performed only by an authorized service.

ATTENTION

It is forbidden to use a damaged trailer. It is allowed to tow the trailer only when the braking system, lighting, drawbar and chassis are operational.
Repairs during the warranty period may only be carried out by authorized service points.

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5.2 PERIODICAL INSPECTIONS OF THE TRAILER

Table 5.1. Inspection categories

Category	Description	Realized by	Frequency
A	Daily inspections	Operator	Every day before the first start-up or every 10 hours of continuous operation in shift mode.
B	Maintenance	Operator	Inspection carried out periodically every 1000 kilometers or every month of trailer operation, whichever occurs first. Every time before performing this review, a daily inspection should be performed.
C	Maintenance	Operator	Inspection carried out periodically every 3 months. Each time before carrying out this inspection, a daily inspection and the inspection every 1 month of trailer operation should be performed.
D	Maintenance	Operator	Inspection carried out periodically every 6 months. Each time before carrying out this inspection, a daily inspection should be carried out, the inspection every 1 month of trailer operation and the inspection every 3 months shall be performed.
E	Maintenance	Operator	Inspection carried out periodically every 12 months. Each time before carrying out this inspection, a daily inspection should be carried out, the inspection every 1 month of trailer operation and the inspection every 3 months shall be performed.
F	Maintenance	Service (1)	Inspection performed every 4 years of trailer operation

(1) - post-warranty service

Table 5.2. Inspection schedule

Description of activity	A	B	C	D	E	F	Page
Air pressure control	•						5.8
Drainage of air tanks	•						5.9
Checking plugs and connections	•						5.10
Inspection of guards	•						5.11
Checking the fed mechanism and cutting beam	•						5.12
Checking the trailer before driving	•						5.13
Measurement of air pressure, checking tires and rims		•					5.14
Checking air filters			•				5.15
Checking oil level in transmissions				•			5.16
Checking the brake lining wear				•			5.18
Checking axle bearings clearance				•			5.19
Checking mechanical brakes				•			5.20
Cleaning the drain valve				•			5.21
Checking the pick-up chain transmission				•			5.22
Checking sensor settings				•			5.23
Checking the hydraulic system					•		5.25
Checking the pneumatic system					•		5.26
Lubrication	See Table: Trailer lubrication schedule						5.27
Checking screw connections	See Table: Tightening schedule for important screw connections						5.32
Replacement of hydraulic hoses						•	5.36

Table 5.3. Regulation parameters and settings

Description	Value	Comments
Braking system		
Piston stroke in pneumatic systems	25 - 45 mm	
Piston stroke in hydraulic systems	25 - 45 mm	
Piston stroke in pneumatic-hydraulic systems	25 - 45 mm	
Minimum thickness of the brake lining	5 mm	
Angle between the expander axis and the fork	90^{O}	With enabled brake
Collection and cutting system		
Distance of the knife from the rotor	20 mm	With folded cutting beam
Distance of the scraper from the rotor	10 mm	
Tension cutting blades safety springs	100 mm	
Proximity sensors		
Cutting beam sensor	4-6mm	
Lower sensor of front wall	12mm	
Upper sensor of front wall	8-10mm	
Ladder sensor	4-6mm	
Tailgate closing sensor	4-6mm	
Load platform filling sensor	6-8mm	

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5.3 PREPARING THE TRAILER

DANGER

Secure the tractor cab against access by unauthorized persons.
When working with the lift, read the instructions for this device and follow the manufacturer's instructions. The lift must be stable, based on the ground and elements of the trailer. Before carrying out maintenance and repair work with the trailer raised, make sure that it is properly secured and will not roll during operation.

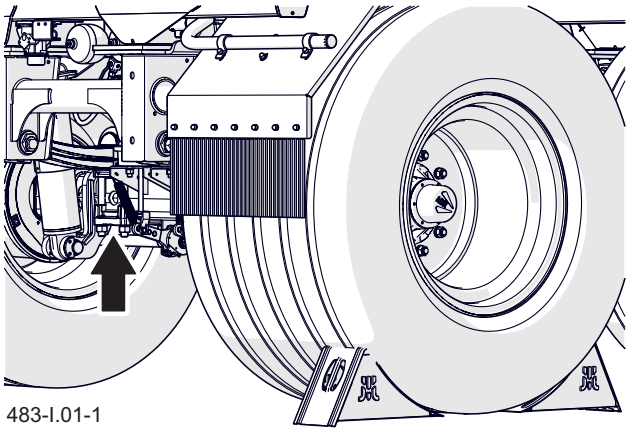

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Figure 5.1 Recommended points of placing the lift

- Connect the trailer to the tractor.
- Place the tractor and trailer on a hard and level surface. Position the tractor straight ahead.
- Apply the tractor parking brake.
- Switch off the tractor engine and remove the ignition key. Close the tractor cab, thus protecting the tractor against unauthorized access.
- Place locking wedges under the trailer wheel. Make sure that the trailer will not roll during the inspection.
- In the event that the wheel is raised during the inspection, place the locking wedges under the wheel on the opposite side. Place the lift in the places marked with an arrow. Remember that the lift must rest on a hard and stable ground.
- The lift must be adapted to the weight of the trailer.
- In exceptional cases you will have to release the trailer parking brake, e.g. when measuring the looseness of the axle bearings. Special care must be taken.

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5.4 AIR PRESSURE CONTROL

ATTENTION

The use of a trailer in which the tires are not properly inflated can lead to permanent damage to the tire as a result of material delamination.
Incorrect tire pressure is also a cause of faster tire wear.

- Review the degree of inflation of the road wheels visually.
- If you think that the wheel is inflated not enough, check the air pressure using a manometer. If necessary, pump the wheel to the required pressure.

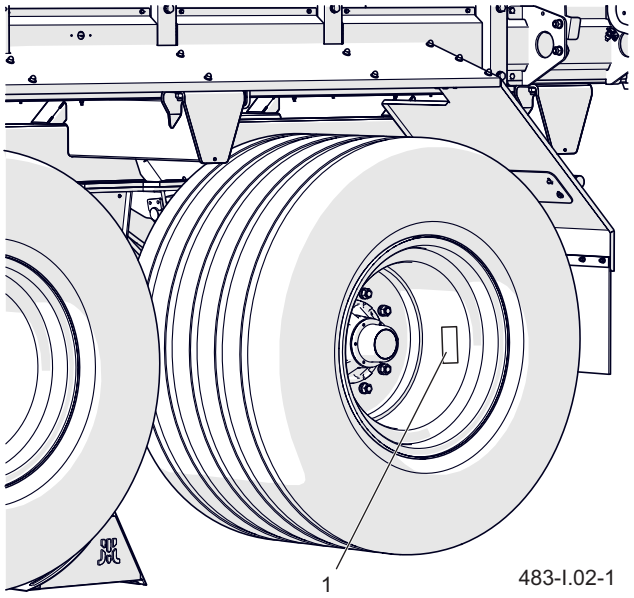

Figure 5.2 Trailer wheel

(1) Information sticker

HINT

The air pressure value of the tire is on the information sticker placed on the rim.

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5.5 DRAINAGE OF AIR TANKS

DANGER

Regularly drain air tanks, especially when the operating temperature drops below zero. Driving with an inoperative brake installation is unacceptable and leads to serious accidents.

- Push the drain valve stem (1) in the bottom of the tank (2).

  The compressed air in the tank will remove water.

- After releasing the stem, the valve should close automatically and interrupt the air flow from the reservoir.
- If the valve stem does not want to return to its position, wait until the reservoir is empty

Then unscrew and clean, or replace the valve with a new one.

- Repeat for the second tank.

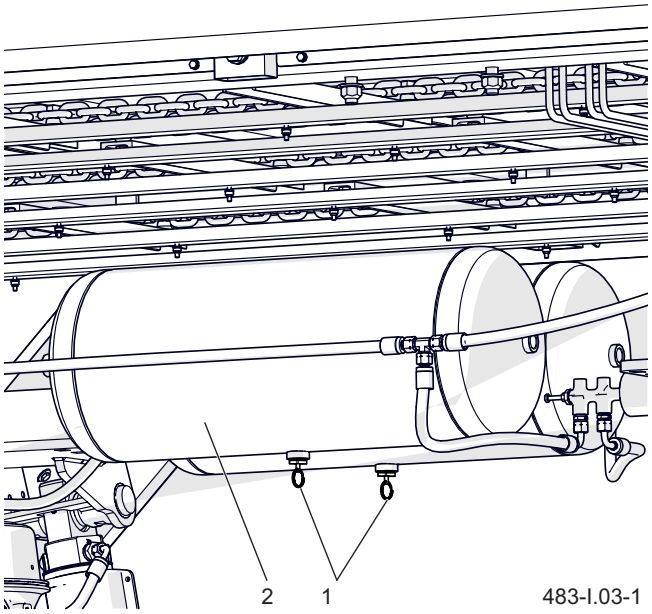

Figure 5.3 Air tank

(1) Drainage valve *(2) air tank*

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5.6 CHECKING PLUGS AND CONNECTIONS

A damaged pneumatic connector body requires replacement. In case of damage of cover or gasket, these elements should be replaced with functional ones. Contact of pneumatic connection gaskets with oils, grease, petrol etc. may contribute to their damage and accelerate the aging process.

If the trailer is disconnected from the tractor, the connections must be protected with covers or placed in designated sockets. Before the winter period, it is recommended to preserve the gasket using preparations designed for this purpose (e.g. silicone greases for elements made of rubber). Each time before connecting the machine, it is necessary to check the technical condition and cleanliness of tractor connections as well as the sockets.

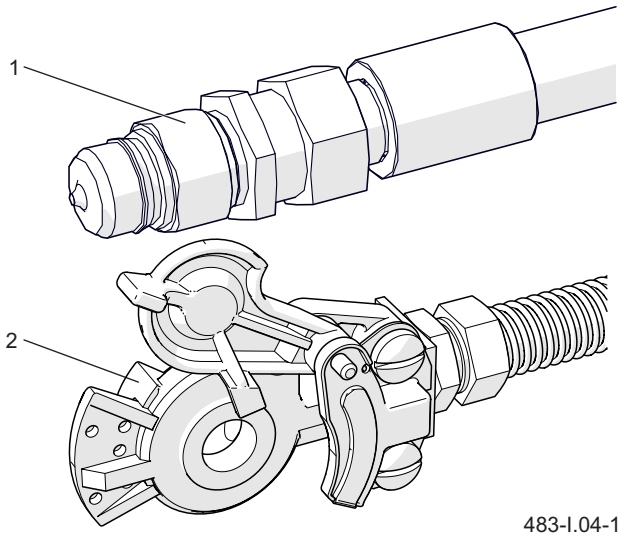

Figure 5.4 Trailer connections

(1) hydraulic plug *(2) pneumatic plug*

If necessary, clean or repair the tractor seats

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5.7 INSPECTION OF GUARDS

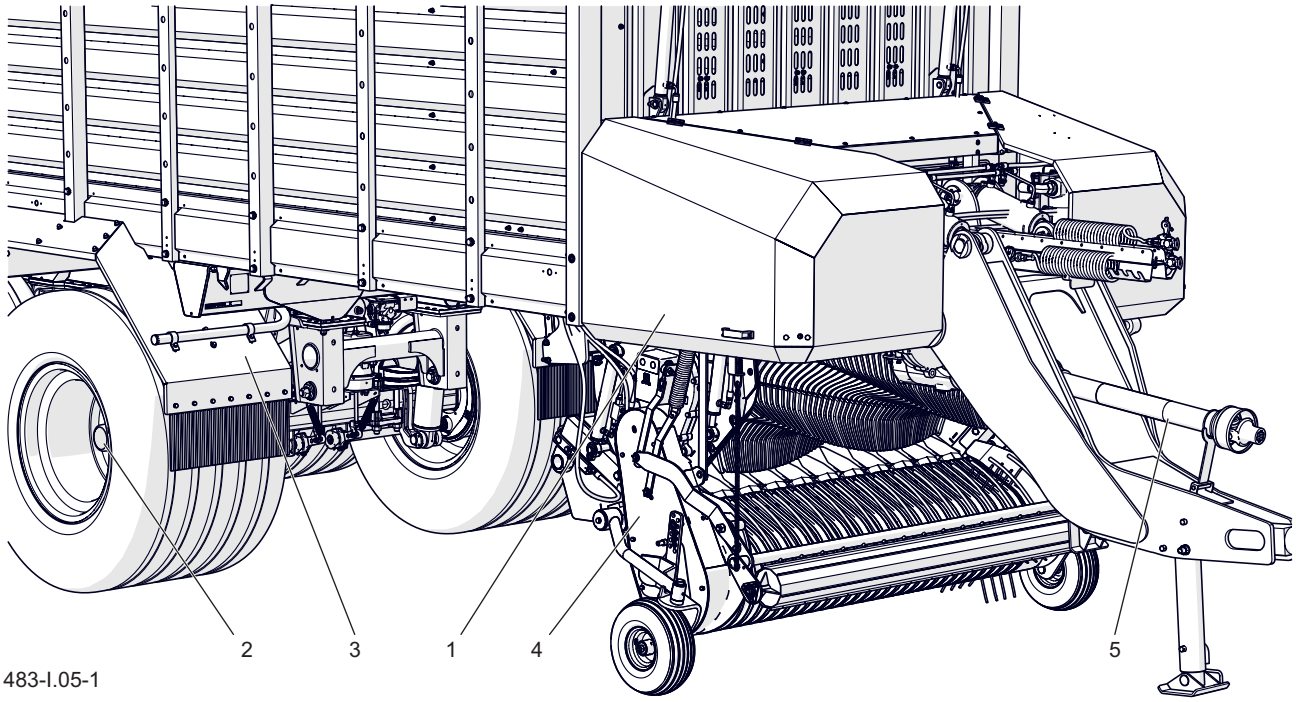


Figure 5.5 Trailer guards

(1) front guard *(2) driving axle hubcaps* *(3) mudguard with mudflap*

(4) pick-up guard *(5) PTO shaft*

Guards protect the trailer user against loss of health or life, constitute a protective element of the machine components. For this reason, their technical condition must be checked before starting work. Damaged or lost items should be repaired or replaced with new ones.

SCOPE OF TASKS

- Check the completeness of safety guards.
- Check that the guards are correctly mounted. Check that the pick-up chain gear guard is correctly fitted, assess the condition of mudguards and mud flaps.
- Check the completeness of hubcaps.
- Check the integrity of the PTO shaft guards.
- If necessary, tighten the bolts to fasten the guards.

DANGER

It is forbidden to use the trailer with damaged or incomplete guards.

I.3.7.483.03.1.PL

5.8 CHECKING THE FED MECHANISM AND CUTTING BEAM

The correct operation of the trailer depends on correct setting and technical condition of the feed mechanism and the cutting beam. Therefore, checking these elements before starting work is a very important issue.

SCOPE OF TASKS

- Connect the trailer to the tractor; immobilize the tractor and trailer with parking brake. Switch off the tractor engine and secure the cab against unauthorized access.
- Inspect the pick-up. Check the completeness and technical condition of the decoiler fingers.
- Make sure that the supporting wheels are inflated and set to the same height. Check that the wheels rotate freely around their axis and don't jam.
- Check that the pick-up gear cover is correctly fitted.
- When turning the dosing roller, check the smoothness of its movement, possible looseness. Inspect the condition of the support chains.
- Lower the cutting beam. Release the hydraulic knife lock. Clear the beam from remains of collected material.
- Check cutting blades, check the condition of their sharpening.
- Check the blade cushioning mechanism, tension springs and cushioning springs.
- Check voltage and technical condition of the compression spring.

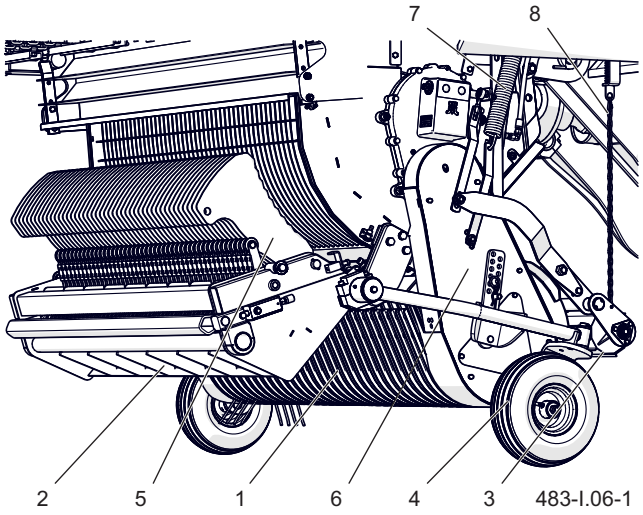


Figure 5.6 *Knife beam* and cutting mechanism

(1) decoiler *(2) knife beam*
(3) dosing drum *(4) pick-up wheel*
(5) cutting blades *(6) guard*
(7) buffer spring *(8) chain*

- Pay attention to scrapers, its distance from rotor fingers. Clean scrapers from residues of collected material.
- If the inspection as above does not raise any objections, start and check the operation of the hydraulic system of the feeding and cutting mechanism.
- Start the PTO drive. Check the pick-up and rotor.

DANGER

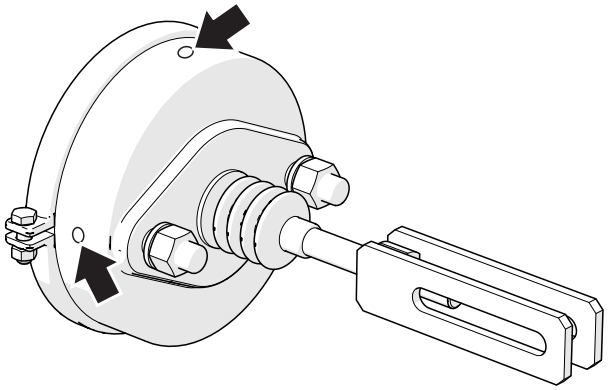
Damage to the collecting or cutting mechanism excludes the machine from use. Operation of an inoperative trailer is prohibited.
Be especially careful near rotating machine parts.

I.3.7.483.04.1.PL

5.9 CHECKING THE TRAILER BEFORE DRIVING

- Before connecting the trailer to the tractor, make sure that the electric lines, hydraulic and pneumatic hoses are not damaged.
- Check the completeness, technical condition and correct operation of the trailer lighting.
- Check the cleanliness of all electric lamps and reflective lights.
- Check the correctness of mounting the triangular plate holder of slow moving vehicles and the board itself.
- Make sure that the warning triangle is included in the tractor's equipment.
- Check that the cylinder ventilation holes are not clogged with dirt and that there is no water or ice inside. Check the correctness of the cylinder mounting

  Clean the cylinder, if necessary. In winter, it may be necessary to thaw the actuator and remove the accumulated water through cleared ventilation openings. If any damage is found, replace the cylinder. When mounting the cylinder, keep its original position relative to the bracket.
- When starting to drive, check the operation of the service brake system. Remember that for proper operation of the pneumatic system an appropriate air pressure level in the trailer's air tank is required.
- While operating the trailer check the correct functioning of other systems on a regular basis.



526-I.05-1

Figure 5.7 Brake cylinder

DANGER

Driving with inoperable lighting or brake installations is forbidden.
In the event of damage to the trailer, discontinue use until it is repaired.

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5.10 MEASURING AIR PRESSURE, CHECKING TIRES AND RIMS

The trailer must be unloaded when measuring the pressure. The check should be carried out before driving, when the tires are not warmed up, or after the trailer has been parked for a long time.

SCOPE OF TASKS

- Connect a pressure gauge to the valve.
- Check air pressure.
- If necessary, pump the wheel to the required pressure.

  The required air pressure is described on a sticker (1) placed on the rim of the wheel.
- Check the tire tread.
- Check the tire sidewall.
- Check the tire for cavities, cuts, deformations, bumps indicating mechanical damage of tire.
- Check the correctness of tire seating on the rim.
- Check tire age.

When checking pressure, pay attention to the technical condition of rims and tires. Look at the tire sidewalls, check the condition of the tread. In the event of mechanical damage, consult your nearest tire service center and make sure if the tire defect qualifies it for replacement. Rims

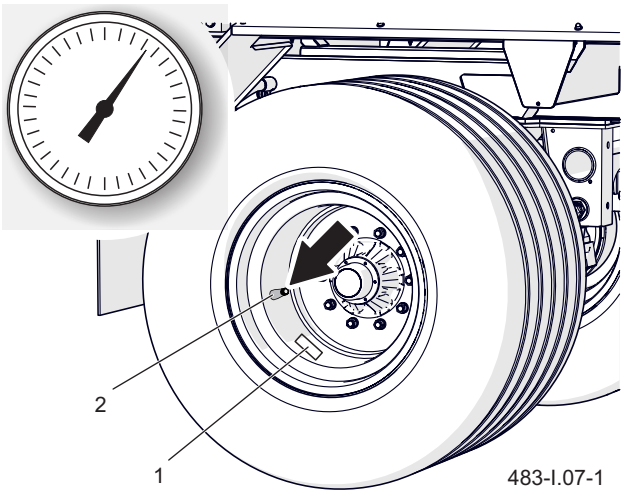

Figure 5.8 Trailer wheel

(1) sticker *(2) valve*

should be inspected for deformation, material cracks, weld seams, corrosion, especially in the area of welds and in the place of contact with the tire.

HINT

In case of intensive use of the trailer, we recommend more frequent pressure checks.

ATTENTION

Using the trailer in which the tires are not properly inflated can lead to permanent damage to the tire as a result of material delamination.
Incorrect tire pressure is also a cause of faster tire wear.

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5.11 CLEANING AIR FILTERS

SCOPE OF TASKS

- Reduce the pressure in the supply line.

  You can reduce the pressure in the pipe by pressing the pneumatic connection plug as far as possible.

- Pull out the locking bolt (1).
- Hold the filter cover (2).
- Hold the filter cover (2) with the other hand. After removing the bolt, the cover will be pushed out by a spring in the filter housing.
- Rinse the cartridge and the filter body. thoroughly with water and blow out with compressed air. Installation should be carried out in reverse order.

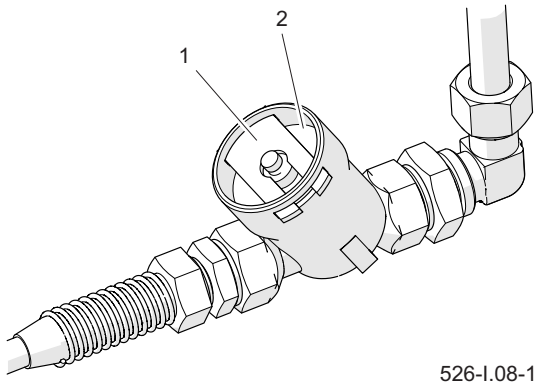

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Figure 5.9 Air filter

(1) filter bolt *(2) cover*

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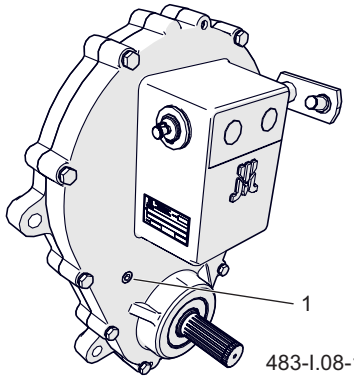
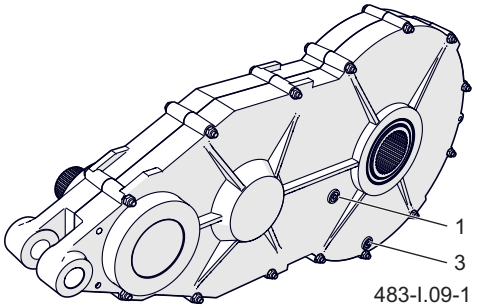
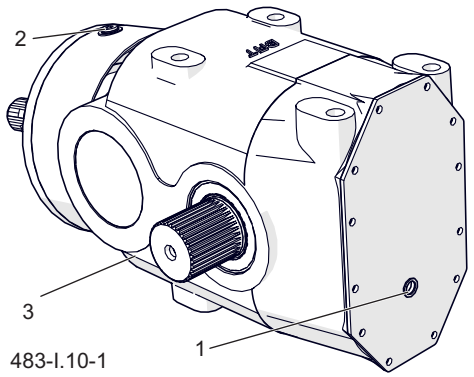
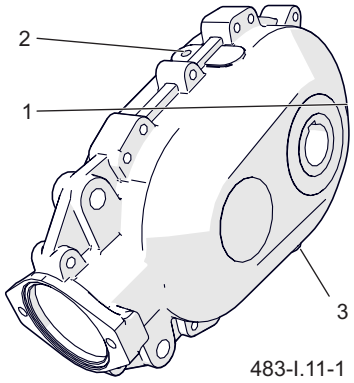
5.12 CHECKING TRANSMISSION

Table 5.4. Schedule of transmission inspections

Transmission	Frequency	Amount and class of oil	Fig.
Pick-up transmission	Once a year before harvest season. The transmission does not require changing oil, only refilling.	1 liter MOBILPLEX 44	 483-I.08-1
Rotor transmission	Once a year before harvest season.	6 liters HEP SAE 140	 483-I.09-1
Main transmission	Once a year before harvest season.	5 liters SAE 90	 483-I.10-1
Floor conveyor transmission	Once a year before harvest season.	2,5 liters SAE 90	 483-I.11-1

The trailer transmissions are subjected to heavy loads, therefore, the technical condition and oil level should be checked regularly.

SCOPE OF TASKSI

- Unscrew the oil filler cap (2).
- Unscrew the transmission control screw (1).
- Pour the oil into the transmission until it appears in the inspection hole.

JIf the transmission oil is changed, first drain the used oil through the drain plug (3). After screwing the drain plug, proceed as above.

DANGER

Hydraulic oil can penetrate the skin and cause infection. If oil gets into your eyes, rinse with plenty of water and if irritation develops - contact your doctor.
In the event of contact of oil with skin, rinse the infected area with soap and water. Do not use organic solvents (petrol, kerosene).

ATTENTION

Use hydraulic oils recommended by the Manufacturer.
After changing the hydraulic oil, the used oil must be disposed of. Used oil or oil that has lost its properties must be stored in original containers or in hydrocarbon-resistant replacement packaging. Replacement containers must be accurately described and stored appropriately.

I.3.7.483.05.1.PL

5.13 CHECKING THE BRAKE LINING WEAR

- Locate the inspection hatch (depending on the variant of the axle design, the inspection hatch may be located in a different place than showed. But it will always located on the brake cover disc).
- Remove the top and bottom caps and check the thickness of the liner.
- Replace brake shoes, if the thickness of the brake lining is less than 5 mm.
- Check the remaining cladding for lining wear.

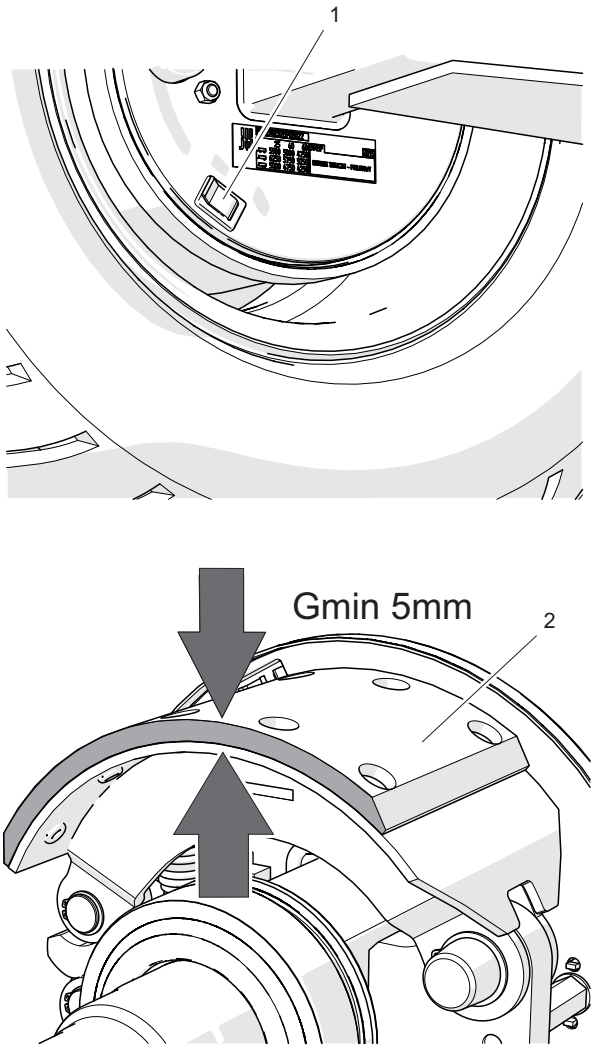


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Figure 5.10 Checking the brake lining thickness

(1) plug *(2) brake lining*

I.3.1.526.11.1.PL

5.14 CHECKING THE STEERING AXLE CLEARANCE

- Raise the wheel with a hoist.
- Turn the wheel slowly in two directions. Check that the movement is smooth and the wheel rotates without excessive resistance and jams.
- Unscrew the wheel so that it rotates very quickly, check that the bearing does not make any unusual sounds.
- While moving the wheel, try to feel the clearance.
- Repeat steps for each wheel separately, remembering that the lift must be on the opposite side of the wedges.
- If the clearance is felt, adjust the bearings. Unusual sounds coming from the bearing may be symptoms of excessive wear, impurities or damage. In this case, the bearing, together with the sealing rings, should be replaced, or cleaned and re-greased. When inspecting the bearings, make sure that any noticeable clearance comes from the bearings and not from the suspension system (e.g. clearance on spring bolts, etc.)
- Check the technical condition of the hub cover, replace if necessary.

526-I.10-1

Figure 5.11 Checking clearance

HINT

Damaged hub cover or lack of it will cause dirt and moisture to penetrate into the hub, which will result in significantly faster wear of bearings and hub seals.
The service life of the bearings depends on the trailer's working conditions, load, vehicle speed and lubrication conditions.

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5.15 CHECKING MECHANICAL BRAKES

In a correctly adjusted brake, the piston stroke of the cylnder should be within the range given in table (5.3) and depends on the type of cylinder used. When fully braked, the optimal angle between the expander lever and the piston rod should be approx. 90°. With this setting, the braking force is optimal. The brake check consists in measuring this angle and the stroke of the piston rod in each wheel.

SCOPE OF TASKS

- Measure the distance X with the tractor brake pedal released.
- Measure the distance Y with the brake pedal pressed in the tractor.
- Calculate the difference of distances.
- Check the angle between the axis of the cylinder's piston rod and the expander lever.
- If the angle of the expander arm (2) and stroke of the piston rod exceeds the range given in table (5.3), the brake should be adjusted.

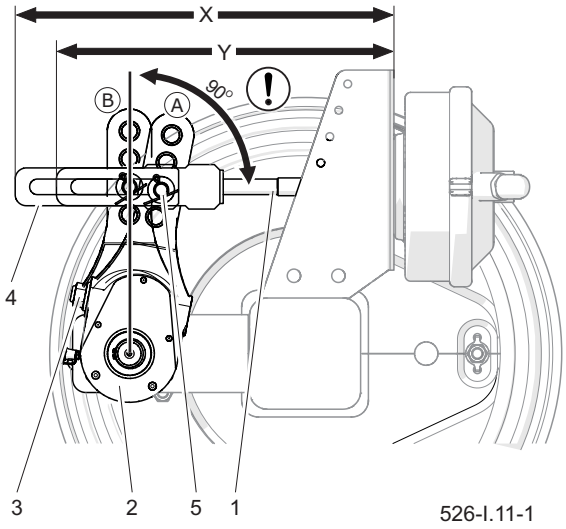

Figure 5.12 Checking brakes

(1) cylinder piston
(2) expander lever
(3) adjusting screw
(4) cylinder fork
(5) pin position
(A) arm position with released brake
(B) arm position with enabled brake

I.3.1.526.13.1.PL

5.16 CLEANING OF DRAIN VALVE

SCOPE OF SERVICE TASKS

- Reduce pressure in the air reservoir completely (2).

  Pressure reduction in the tank can be done by tilting the valve pin of the drainage valve.

- Unscrew the valve (1).
- Clean the valve, blow out with compressed air.
- Replace the gasket.
- Screw in the valve, fill the tank with air, check the tightness of the tank.

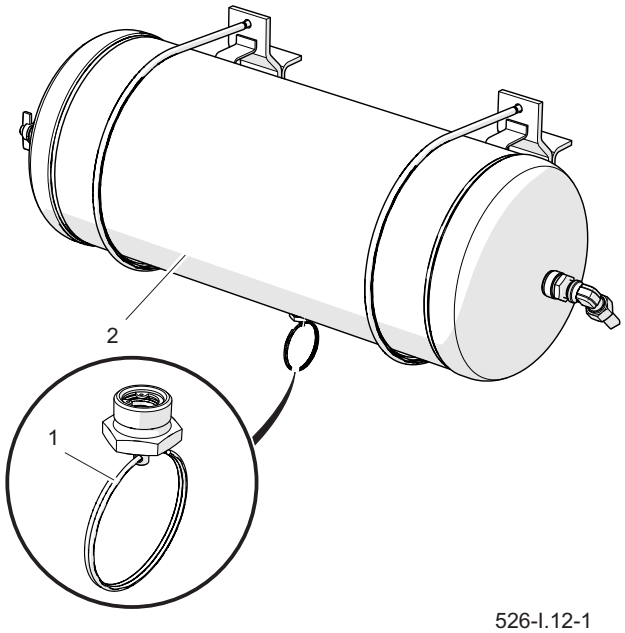

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Figure 5.13 Air tank

(1) Drain valve *(2) Tank*

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5.17 CHECKING THE PICK-UP CHAIN TRANSMISSION

The pick-up chain transmission is tensioned with a spring and does not require servicing outside periodic oiling and lubrication of the chain. It is recommended to check the condition of transmission, chain and tensioning spring before harvest season.

- Disassemble the transmission guard.
- Check the tension of the drive chain.
- Check the operation of the tensioner, check the condition of the tension spring.
- Check wear of gears of the transmission and tensioner.
- Remove used grease, lubricate the chain.

DANGER

Checking the pick-up always with the tractor engine switched off.
Operating the pick-up without gearbox guard is not permitted.

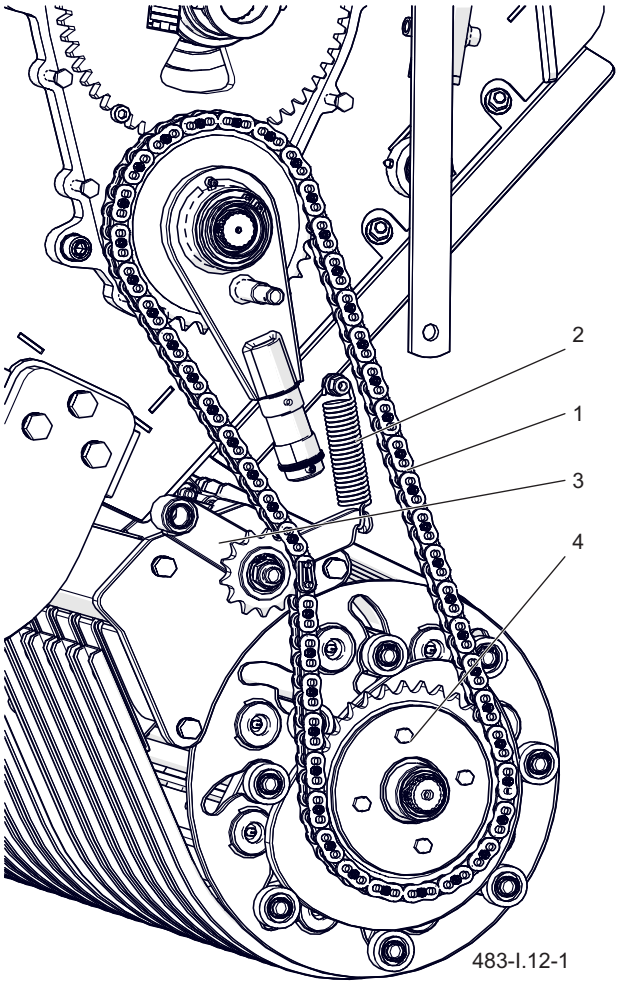

Figure 5.14 Pick-up transmission
(1) chain *(2) spring*
(3) tensioner *(4) gear*

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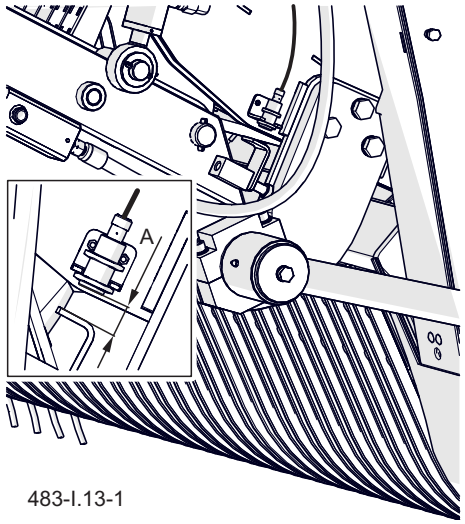
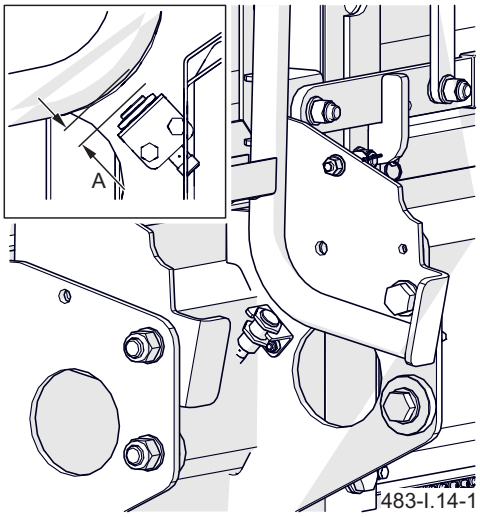
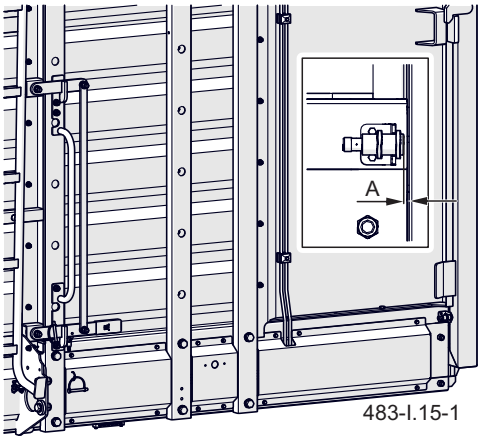
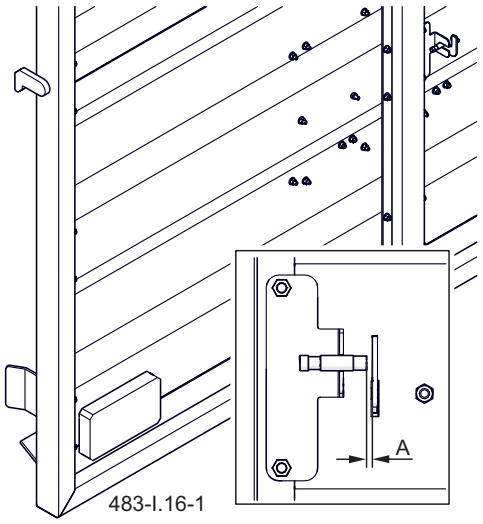
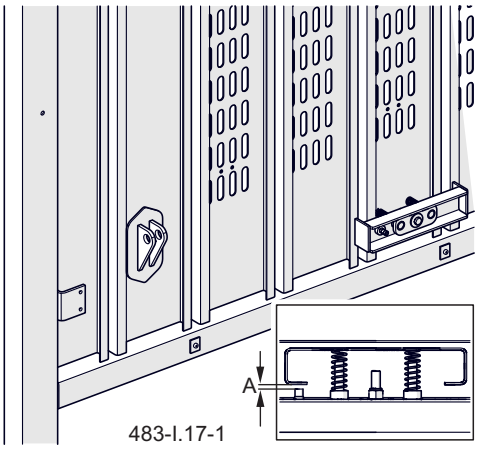
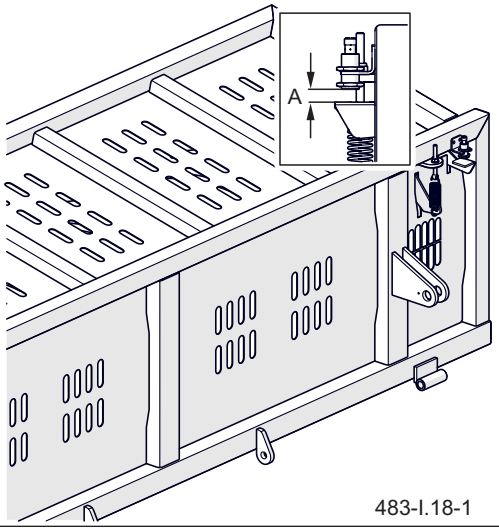
5.18 CHECKING THE SENSOR SETTINGS

Table 5.5. Schedule of sensor checking's

Sensor	Setting	Location	Fig.
Cutting beam sensor (S5)	A=4-6mm	Right side of cutting beam	 483-I.13-1
Ladder sensor (S4)	A=4-6mm	Ladder support.	 483-I.14-1
Tailgate sensor (S1)	A=4-6mm	Left longeron of the load platform.	 483-I.15-1

Sensor	Setting	Location	Fig.
Sensor of load platform filling - tailgate (S6)	A=6-8mm	Tailgate wall	 483-I.16-1
Sensor of load platform filling – front wall bottom (S8)	A=12mm	Bottom part of the front wall. Access to the sensor after opening the front guards.	 483-I.17-1
Sensor of load platform filling – tilted wall (S3)	A=8-10mm	Left side of tilted front wall.	 483-I.18-1

The correct setting of the sensors is a condition for the correct operation of the machine.

The pressure sensor of the tailgate cylinders is set to 170 bar.

I.3.7.483.07.1.PL

5.19 CHECKING THE HYDRAULIC SYSTEM

SCOPE OF TASKS

- Connect the trailer to the tractor.
- Secure the tractor and trailer with the parking brake.
- Clean wiring connections, hydraulic cylinders, transmissions, hydraulic motors and couplings.
- Connect and run the trailer's hydraulic system. Check the operation of all systems.
- Turn off the tractor engine.
- Inspect all hydraulic systems for leaks.
- Pay particular attention to leaks in the hydraulic distributor and cylinders.
- Check the tightness and condition of hydraulic motors driving the floor conveyor.

REMOVING LEAKAGES

If visible moisture appears on the wire connections, tighten the connector with the specified torque and retest. If the problem persists, replace the leaking element.

If oil is found on the hydraulic cylinder body, check the nature of the leak. With full extension of the cylinder, check the sealing positions. Minimum leaks are allowed with symptoms of „sweating", but if you notice a droplet type of leakage, stop using the trailer until the fault has been rectified. It is forbidden to operate the trailer with a damaged system until the fault is removed.

DANGER

Operating with faulty hydraulic system is forbidden.

I.3.7.483.08.1.PL

5.20 CHECKING THE PNEUMATIC SYSTEM

SCOPE OF TASKS

- Start the tractor to top up the air in the trailer's braking system tank.
- Turn off the tractor engine.
- Check the operation of the parking and release valve in STOP and DRIVING position with connected and disconnected pneumatic conduits.
- Check the system components with the brake pedal released in the tractor.
- Pay particular attention to the wiring connections and brake cylinders.
- Repeat the system check with the brake pedal pressed in the tractor.

REMOVAL OF LEAKAGES

In the event of a leak, compressed air will leak outside at the damaged areas with a characteristic hiss. You can detect a leak in the system by coating the checked elements with washing liquid or with a foaming agent that will not aggressively affect the components of the system. Damaged elements must be replaced or submitted for repair. If a leak occurs near the connections, tighten the connector. If the air still flows out, replace the joint or seal elements.

I.3.7.483.09.1.PL

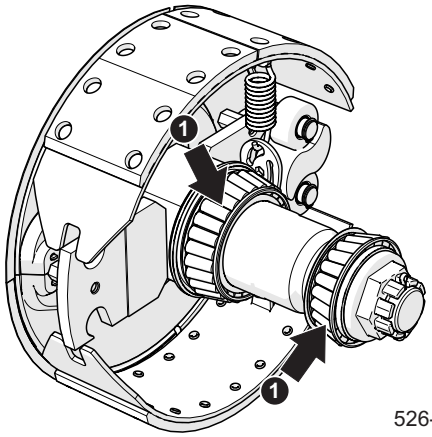
5.21 LUBRICATION

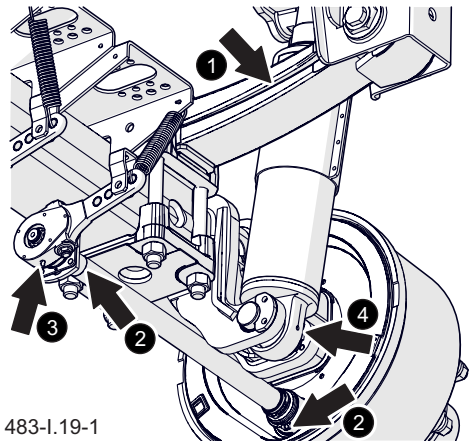
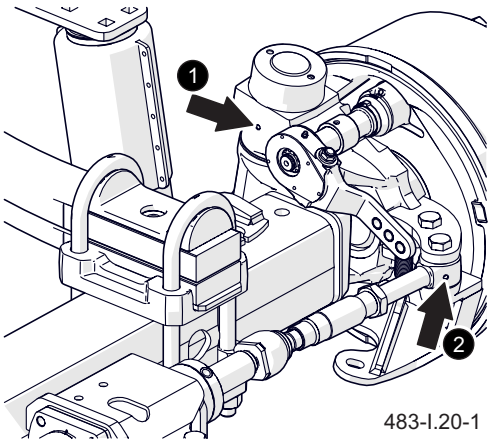
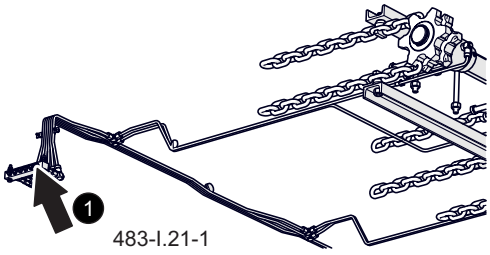
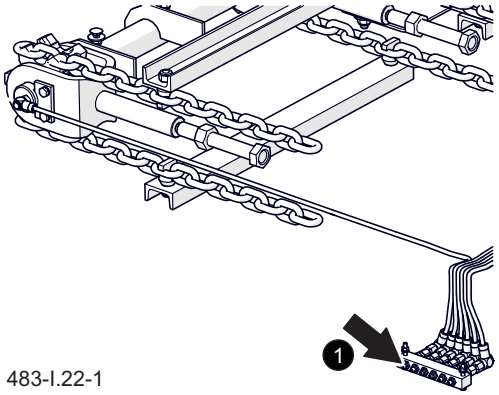
- Lubrication of the trailer should be done by means of a manual or foot operated grease gun, filled with the recommended lubricant. Before starting work, old grease and other impurities must be removed as far as possible. Wipe off excess grease after finishing work.
- Parts that should be lubricated using machine oil should be wiped with a dry clean cloth. Apply oil to the surface with a brush or oil can. Wipe off excess oil.
- Change of grease in axle hub bearings should be entrusted to specialized service points equipped with appropriate tools. Remove the entire hub, remove the bearings and the individual sealing rings. After thorough cleaning and inspection, install lubricated parts. If necessary, replace bearings and seals.
- Dispose of empty grease or oil packaging as recommended by the lubricant manufacturer.

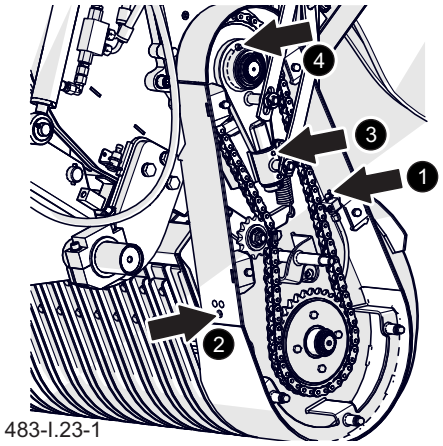
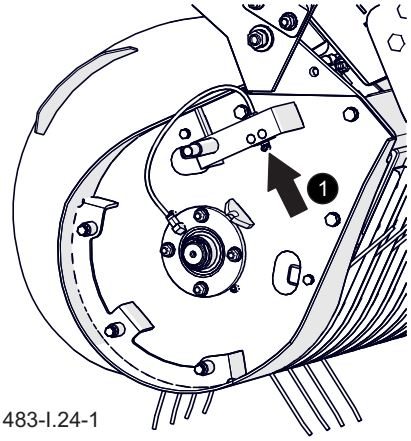
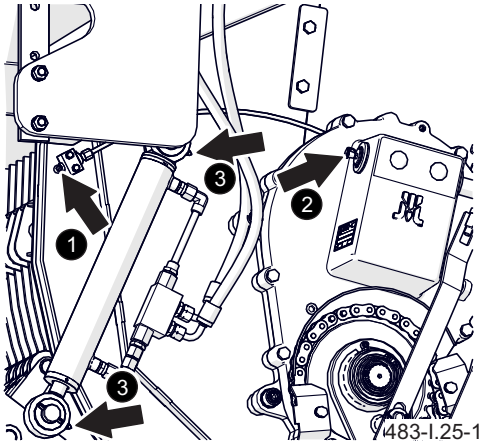
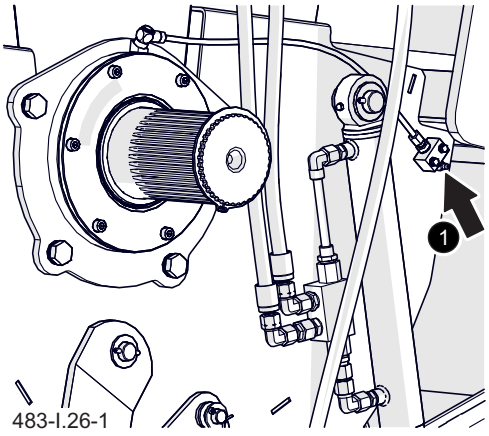
HINT

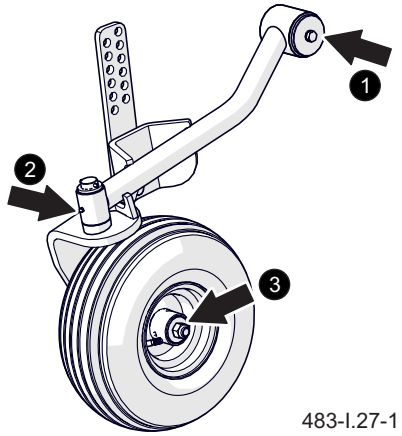
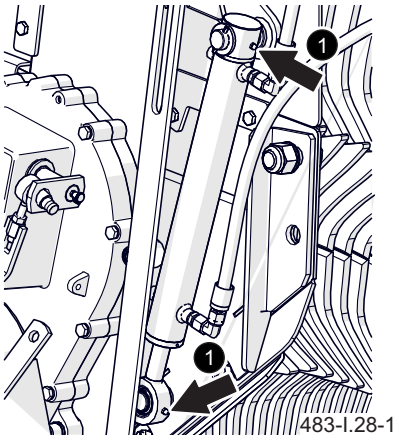
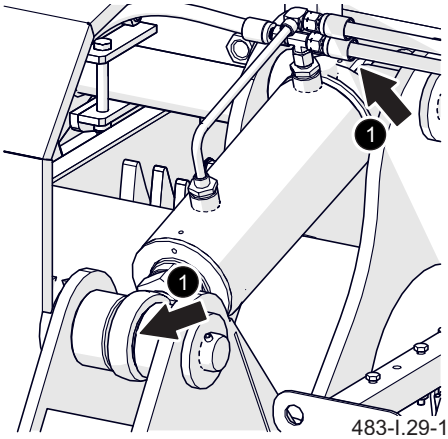
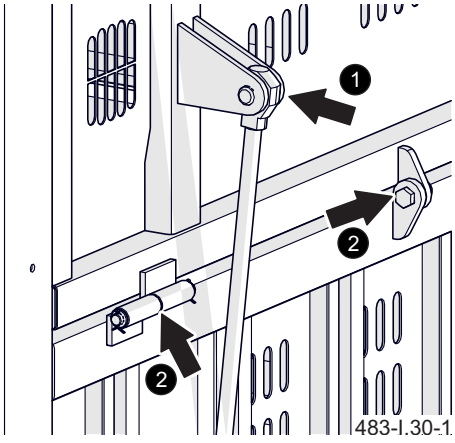
Lubrication intervals (Table trailer lubrication schedule):
D - working day (8 hours of trailer work), M - month

Table 5.6. Trailer lubrication schedule

Name	Number of points	Type of lubricant	Frequency	
Hub bearings (1) (2 pieces in each hub)	8	A	24M	 526-I.19-1

Spring sliding surface (1)	4	A	3M	 483-I.19-1
Expander shaft bushings (2)	8	A	3M	
Expander arm (3)	4	A	3M	
Suspension cylinder bracket (4)	8	B	6M	
Axle pivot pin (1)	2	B	3M	 483-I.20-1
Turn lock cylinder eyelet (2)	2	A	3M	
Central lubrication of rear floor mechanism (drive) (1)	6	B	6M	 483-I.21-1
Central lubrication of front floor mechanism (tensioner) (1)	6	B	6M	 483-I.22-1

Pick-up shaft pin (right side) (1)	2	B	1M	 483-I.23-1
Chain tensioner (2)	1	A	3M	
Support (3)	2	A	3M	
Rotor shaft pin (4)	2	B	1M	
Pick-up shaft pin (left side) (1)	1	B	1M	 483-I.24-1
Rotor shaft pin (right side) (1)	1	B	1M	 483-I.25-1
Rotor transmission (2)	2	A	6M	
Cutting beam cylinder eyelet (3)	4	A	12M	
Roto shaft pin (left side) (1)	1	B	1M	 483-I.26-1

Horizontal axis of rotation of the arm (1)	2	A	12M	
Vertical axis of rotation of the arm (2)	2	A	12M	
Support wheel axle (3)	2	A	24M	
Pick-up cylinder eyelet (1)	2	A	12M	
Drawbar cylinder eyelet (1)	4	A	6M	
Front hatch cylinder eyelet (1)	4	A	12M	
Front hatch hinges (2)	4	C	12M	

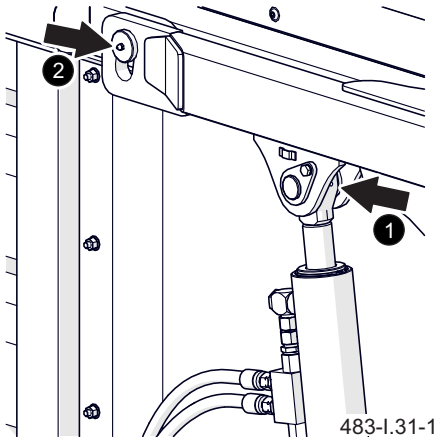
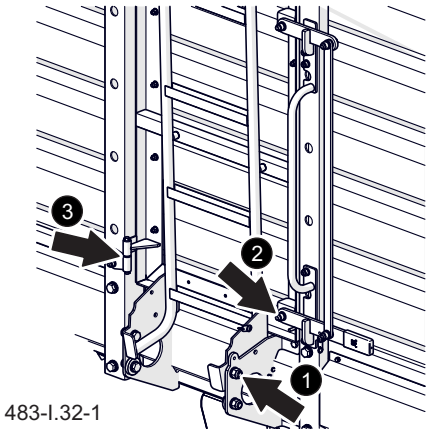
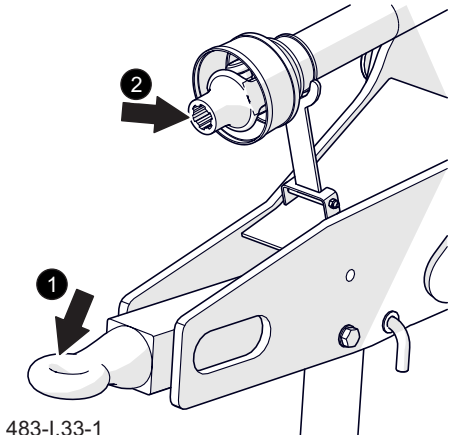
Tailgate cylinder eyelet (1)	4	A	12M	
Tailgate pin (2)	2	A	6M	
Hinge for lowering the ladder (1)	2	C	12M	
Locking mechanism (2)	4	C	12M	
Hinge for opening the ladder (3)	2	C	12M	
Drawbar eyelet (1)	1	B	14D	
Telescopic PTO shaft (2)	*	*	*	

Table 5.7. Lubricants

No.	Symbol	Description
1	A	general purpose machine grease (lithium, calcium),
2	B	permanent grease for heavily loaded elements with addition of MoS_2 or graphite
3	C	anti-corrosive spray
4	D	ordinary machine oil, silicon spray lubricant

**- follow the recommendations of the manufacturer of the PTO shaft (the manufacturer's instructions for the shaft are attached to the machine)*

I.3.7.483.10.1.PL

5.22 CHECKING BOLT CONNECTIONS

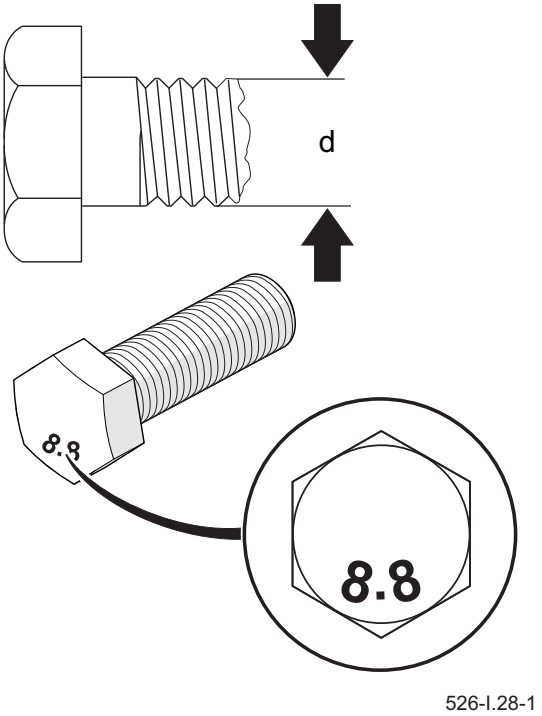


Figure 5.15 Screw with metric thread

Table 5.8. Tightening torque

Thread	Tightening torque		
	5.8	**8.8**	**10.9**
M8	18	25	36
M10	37	49	72
M12	64	85	125
M14	100	135	200
M16	160	210	310
M20	300	425	610
M24	530	730	1 050
M27	820	1 150	1 650
M30	1 050	1 450	2 100

TIGHTENING TORQUE OF BOLT CONNECTIONS

During maintenance and repair work, appropriate tightening torques for screw connections must be applied, unless other tightening parameters are specified. The recommended tightening torques for the most commonly used bolt connections are shown in Table (5.8). The values given apply to non-lubricated steel screws.

Hydraulic hoses should be tightened with a torque of 50-70 Nm.

The tightening test must be carried out using a torque wrench. During a daily trailer inspection, pay attention to loose connections and tighten the joint if necessary. Replace lost elements.

The wheel nuts should be tightened gradually diagonally (in several stages, until the required tightening torque is reached), using a torque wrench. The recommended order of tightening the nuts and the tightening torque are shown in the figure *Nut tightening sequence*.

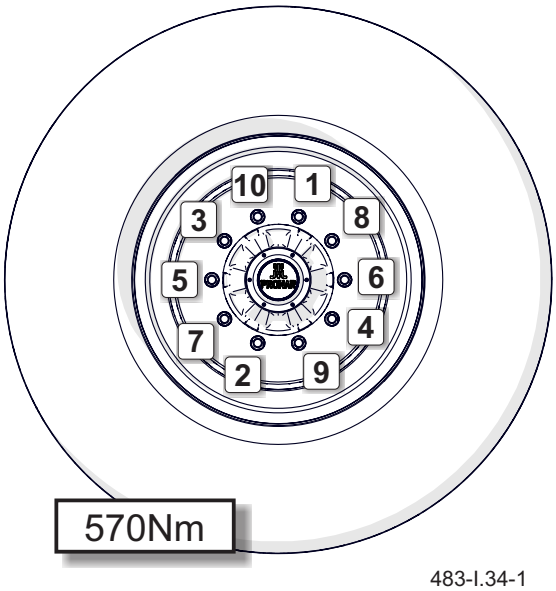


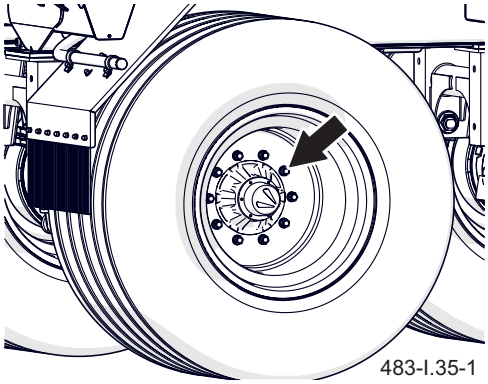
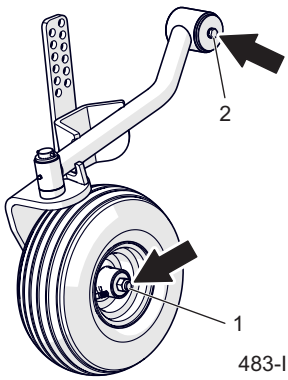
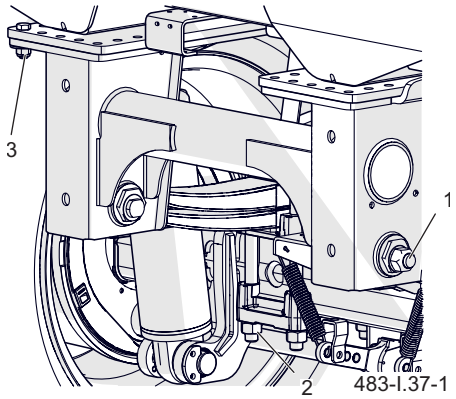
Figure 5.16 Nut tightening sequence

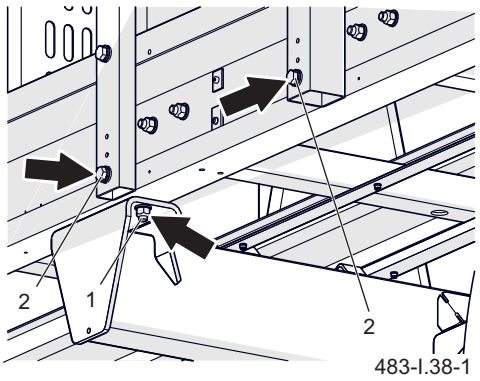
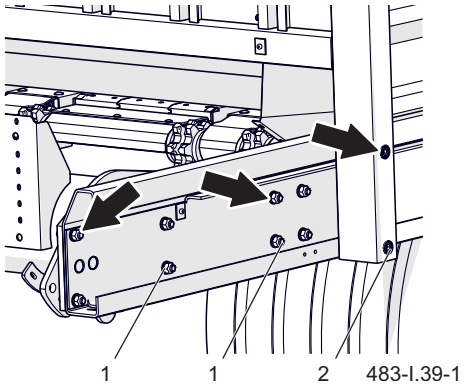
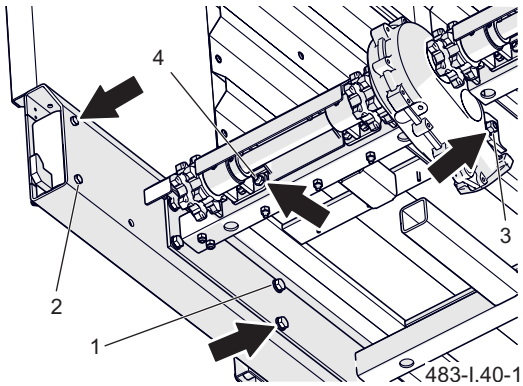
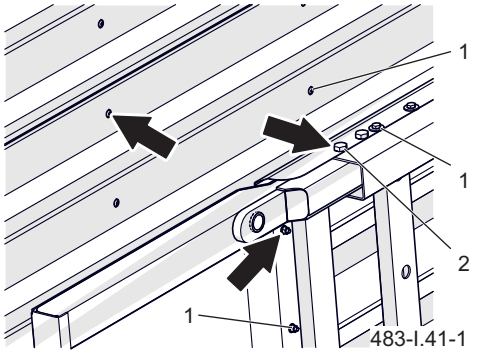
Wheel nuts must not be tightened with impact wrenches due to the danger of exceeding the permissible tightening torque, which may result in breaking the connection thread or breaking off the

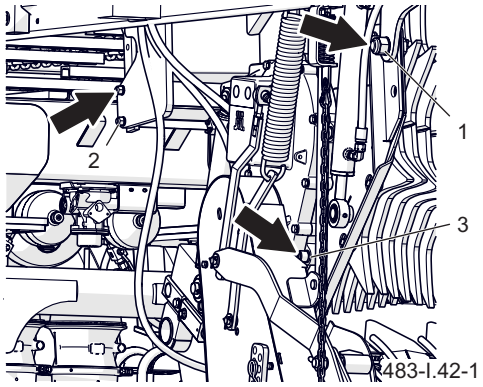
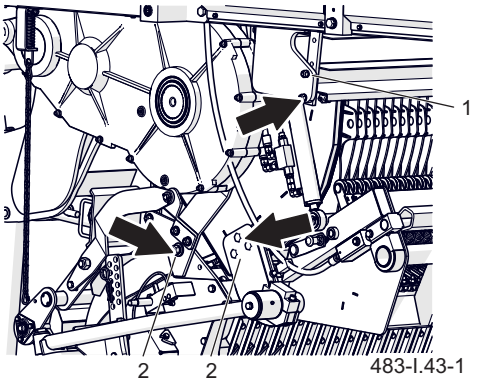
- after the first use of the trailer (one-time inspection),
- every 2-3 hours of driving during the first month of use,
- every 30 hours of driving.

If the wheel was dismantled, the above tasks should be repeated.

Table 5.9. Schedule of checking the tightening of significant bolt connections

System / part name	Frequency	
Wheel nuts (1)	acc to chapter Tightening wheels	 483-I.35-1
Supporting wheel nuts (1) Support wheel arm bolts (2)	6M	 483-I.36-1
Spring mounting screws (1) U bolt nuts (2) Suspension mounting bolts for the trailer frame (3)	6M	 483-I.37-1

System / part name	Frequency	
Screws securing the load platform to the chassis (1) Bolts for fastening the load platform cross-members to chassis longerons (2)	12M	
Drawbar beam bolts (1) Front wall mounting bolts (2)	12M	
Floor cross-beam bolts (1) Hatch lock bolts (2) Mounting bolts for hydraulic motors (3) Screws fastening the drive mechanism (4)	12M	
Cover mounting bolts (1) Tailgate bolts (2)	12M	

System / part name	Frequency	
Screws fixing the rotor to the frame (1) Rotor locking screws (2) Fasteners of the collecting and cutting mechanism (3)	6M	
Rotor locking screws (1) Fastening and cutting mechanism fasteners (2)	6M	

I.3.7.483.11.1.PL

5.23 RELPACING HYDRAULIC HOSES

Hydraulic rubber hoses should be replaced every 4 years, regardless of their technical condition.

This activity should be entrusted to specialized workshops.

I.3.1.526.20.1.PL

TECHNICAL SERVICE

CHAPTER 6

6.1 MOUNTING AND DISMOUNTING THE WHEEL

DISMOUNTING THE WHEEL

- Before lifting the wheel that will be removed, loosen the wheel nuts according to the sequence given in the figure.
- Place the jack under the axle underlay, between U bolts.
- Raise the trailer to such a height that the replaced wheel does not rest on the ground.
- The jack used should have adequate load capacity and should be technically efficient.
- The jack must be placed on an even, hard surface that will prevent from sinking or slipping while working.
- If necessary, use appropriate primers to reduce the unit pressure of the jack base to the ground in order to prevent sinking into the ground.
- Dismount the wheel.

WHEEL MOUNTING

- Clean the axle pins and dirt caps with a wire brush. If necessary, degrease thread.

  Do not lubricate the nut and pin threads.

- Check the technical condition of pins and nuts, replace if necessary.
- Fit the wheel on the hub, tighten the nuts so that the rim sticks precisely to the hub.
- Lower the trailer, tighten the nuts according to the recommended torque and the order given.

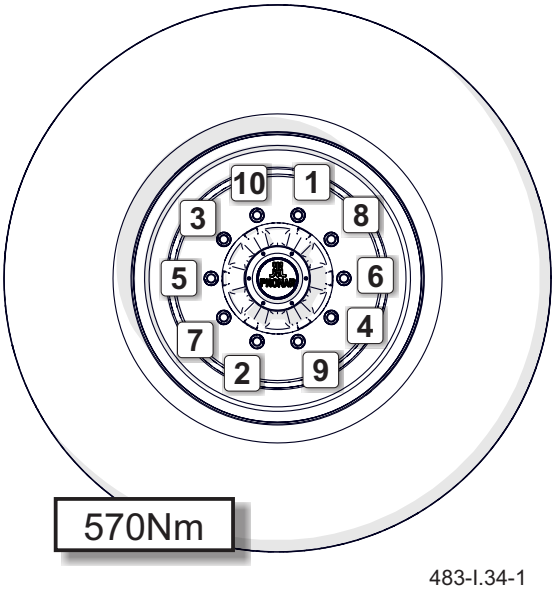


Figure 6.1 Screw tightening sequence

DANGER

Before starting work, read the instructions for the jack and follow the manufacturer's instructions.
The jack must be stable, based on the ground and the spring plate.
Make sure that the trailer will not roll when disassembling the wheels.

J.3.1.526.01.1.PL

6.2 ADJUSTMENT OF AXLE BEARING CLEARANCE

- Remove the hub cover (1).
- Remove the pin (2) securing the castellated nut (3).
- Tighten the castellated nut to remove the clearance.

  The wheel should rotate with a slight resistance.
- Unscrew the nut (3) (not less than 1/3 of the turn) to cover the nearest groove of the nut with the hole in the axle stub shaft (the hole of the pin is marked with a black arrow in the figure). The wheel should rotate without excessive resistance.

  Do not overtighten the nut. Too much pressure is not recommended due to the deterioration of bearing operating conditions.
- Secure the crown nut with a pin and fit the hubcap (1).
- Gently rub the hub with a rubber or wooden mallet.

ATTENTION

The adjustment of the bearing clearance can only be carried out when the trailer (without load) is connected to the tractor.

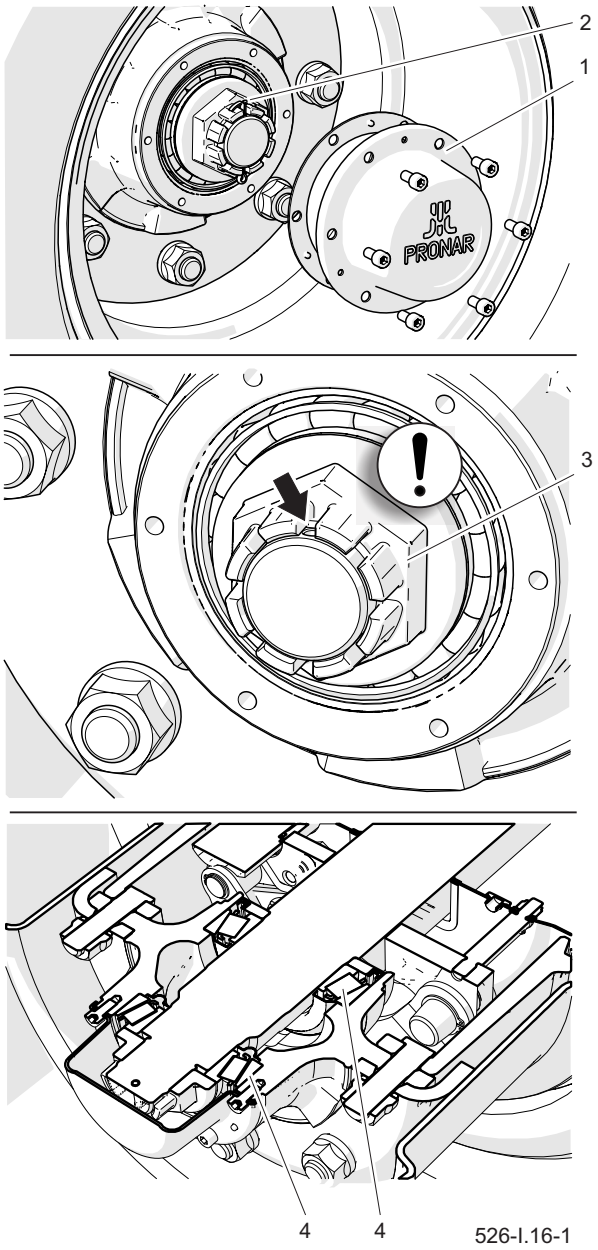


Figure 6.2 Principle of regulation of bearing clearance

(1) hubcap *(2) pin*

(3) nut *(4) roller bearing*

J.3.1.526.03.1.PL

6.3 BRAKE ADJUSTMENT

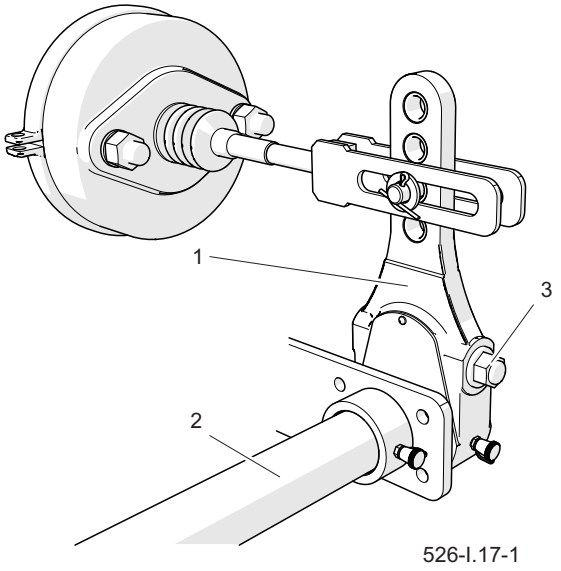


Figure 6.4 Adjustment

(1) expander lever *(2) camshaft*

(3) Adjusting screw

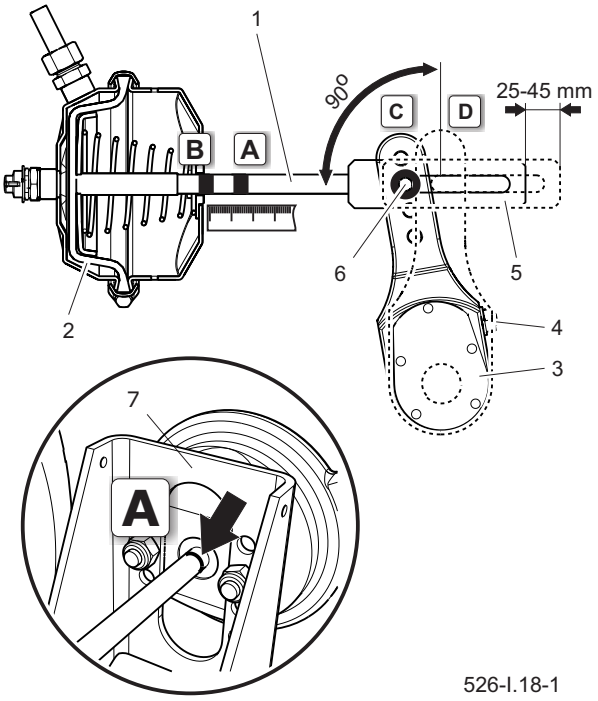


Figure 6.3 Principle of brake adjustment

(1) piston rod *(2) membrane*

(3) camshaft lever *(4) adjustment screw*

(5) cylinder fork *(6) pin position*

(7) cylinder support

(A) marking on the piston rod with released brake

(B) marking on the piston rod with enabled brake

(C) position of the arm with released brake

(D) position of the arm with fully enabled brake

- Secure the trailer with additional wedges.
- Release the trailer parking brake.
- Remove the cylinder fork pin.
- On the cylinder piston (1) - Fig. (6.3) mark the position of maximum withdrawal of piston rod (A) with a dash.
- Press the brake pedal in the tractor, mark with the line the position of the maximum extension of the piston rod (B).
- Measure the distance between the dashes (A) and (B). If the stroke of the piston rod is not within the correct operating range - table (5.3), the camshaft lever should be adjusted.
- Note or mark the original pin position (6) - Fig. (6.3) in the hole of the camshaft lever (3).
- Check that the cylinder piston moves freely and in full nominal range.
- Check the correctness of the cylinder mounting.
- Check that the cylinder ventilation holes are not clogged with dirt and that there is no water or ice inside.
- Clean the cylinder, if necessary, defrost and remove water through the vented ventilation openings. If any damage is found, replace the cylinder. When mounting the actuator, keep its original position relative to the bracket (7).
- Turn the adjusting screw (4) so that the marked opening of the camshaft arm coincides with the cylinder fork hole.

During adjustment, the diaphragm

(2) must rest on the rear wall of the actuator.

- Mount the rod forks of the piston rod, washers and secure the pin with a pin.
- Turn the adjusting screw (4) to the right to get one or two clicks in the adjusting mechanism of the spreader arm.
- Repeat the adjustment steps on the remaining cylinders.
- Start the brake.
- Wipe the previous markings, and measure again the stroke of the piston rod.
- If the piston stroke is not in the correct operating range, repeat adjusting.

CHECKING OPERATIONS

- Carry out a test drive after the adjustment.
- Perform several braking operations. Stop the trailer and check the temperature of the brake drums.
- If any drum is too hot you must adjust the brake adjustment and re-run the test drive.

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6.4 EMERGENCY RELEASE OF THE MEMBRANE SPRING CYLINDER

Damage to the pneumatic system or a longer standstill of the machine can cause the brake system to be de-aerated, including brake cylinders, which results in braking the machine. The emergency release of these actuators consists in tensioning the spring with a tensioning bolt. During normal operation, it is placed in the handle (5) of the actuator.

EMERGENCY RELEASE OF CYLINDER

- Secure the machine by placing wedges under the wheel.
- Remove the plug from the rear cylinder opening.
- Insert the tensioning screw (2) into the hole of the membrane cylinder (1).
- Turn the screw by 90°.
- Insert the washer (4) and tighten the nut (3).
- Screw in the nut until the brake is released.
- Repeat the above steps for the second cylinder.

Returning to the normal operating mode of the cylinder consists in unscrewing the nut (3) and removing the tightening bolt (2) from the cylinder. After completing the operation, place the screw with the remaining elements in the cylinder handle (5) and secure the rear hole with a plastic plug.

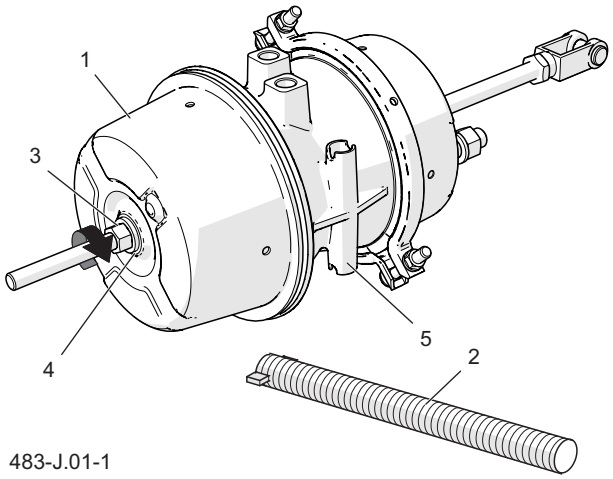

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Figure 6.5 Membrane-spring cylinder

(1) cylinder *(2) tensioning screw*
(3) nut *(4) washer*
(5) tensioning screw holder

ATTENTION

Be especially careful when working. When the spring of the cylinder is tightened, the machine is not braked with the parking brake, therefore it is necessary to put wedges under the machine's wheels, preventing it from rolling.

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6.5 MOUNTING AND DISMOUNTING OF CUTTING BLADES

Cutting blades during operation are subject to natural wear and damage and therefore there is a need to control their technical condition.

DISMOUNTING CUTTING BLADES

- Start the tractor, put hydraulic oil on the hydraulic distributor of the trailer.
- Lower the cutting beam.

  Use the buttons on the left side of the trailer's load platform or the corresponding buttons on the remote control.
- Release the hydraulic blocking of the knives.
- Turn off the tractor engine, secure it with the parking brake. Close the tractor cab.
- Lock the trailer with the parking brake. Place wedges under the trailer wheel..
- Unlock the cutting blade lock lever (3). .

  Pull the pin and turn it 90O. Then turn the lever (4)..
- Tilt the blade (2) forward until it rests against the beam.
- Pull the blade up.
- Check the setting and sharpening of the cutting blades (2). Any cracks or cavities will disqualify the blade from further use. Please note if the shock protection is free from damage, check the technical condition of springs - Fig. (6.9).
- Clean the cutter bar from dirt.

MOUNTING CUTTING BLADES

- Insert the blade (2) onto the locking roller (4).
- Move the blade to the back of the cutter beam (1).
- Lock the cutting blades of the lock lever (3).

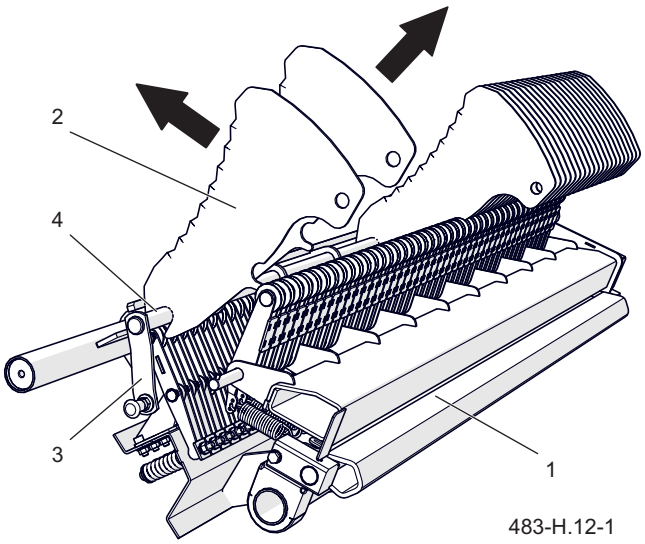

Figure 6.6 Cutting mechanism.
(1) cutting beam *(2) cutting blade*
(3) lock lever *(4) locking roller*

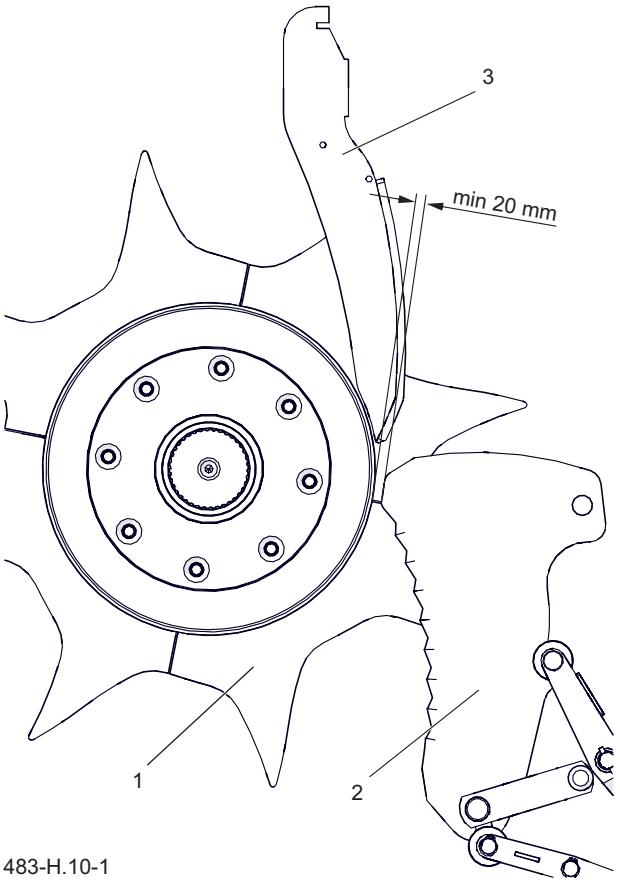

Figure 6.7 Distance of blades and scrapers.
(1) rotor *(2) cutting blade*
(3) scraper

- Start the tractor, switch on the trailer's hydraulic system.
- Raise the beam (1) to working position.
- Visually inspect the distance of the blades Fig. 6.8.

The recommended distance between the cutting blades and the rotor shaft should be 20-30 mm.

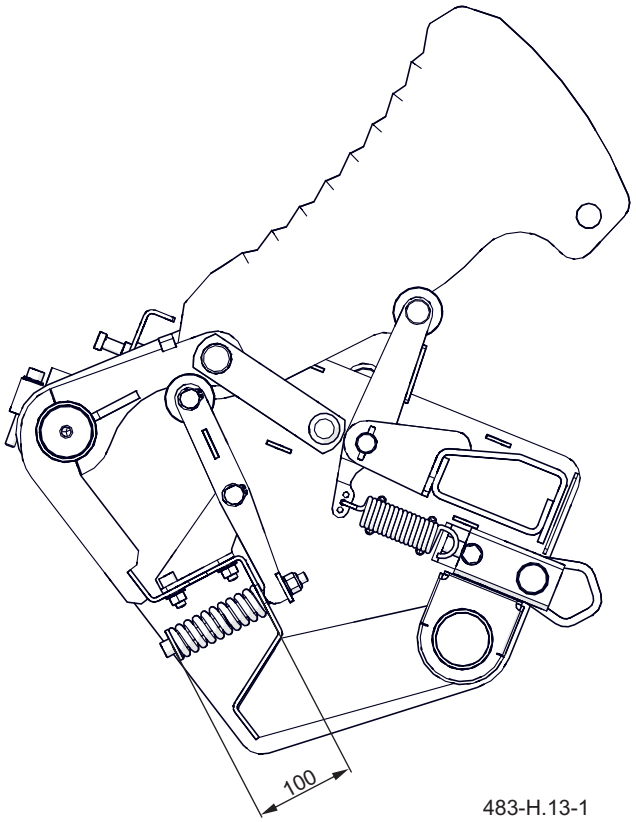

Figure 6.8 Setting the knife release force

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6.6 MOUNTING AND DISMOUNTING SCRAPERS

The correct operation of the cutting mechanism depends on the correct setting and technical condition of the scrapers.

DISMOUNTING SCRAPERS

- Open and lift the front covers.
- Loosen the lock nuts (4).
- Loosen the clamping screws (3).

  The clamping bar will be released to remove the scrapers (1).
- Lift the rotor lid (2).
- Check the seating and technical condition of the scrapers (1).
- Remove the scraper from the side of the load platform of the trailer.
- Clean the rotor table of dirt.

MOUNTING SCRAPERS

- Lift the rotor cover (2).
- Insert the scraper into the rotor table.
- Tighten the screws (4) and fasten them with the nut (3).
- Visually inspect the distance of the scrapers (3) from the rotor shaft (1) – Fig. (6.9).

  The recommended distance between scrapers and the rotor shaft should be at least 10 mm.

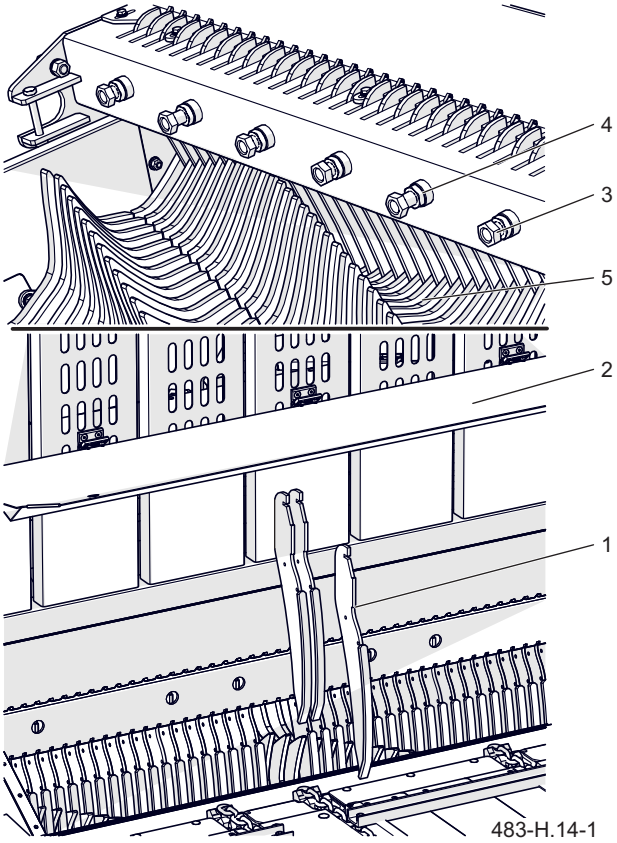

Figure 6.9 Scrapers

(1) scraper *(2) cover*
(3) nut *(4) screw*
(5) rotor

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6.7 ADJUSTING THE HEIGHT OF THE DOSING ROLLER

The dosing roller (1), depending on the material collected, is to be set in the right position. When harvesting fresh silage or short fodder material, lower the roll (position B), while picking up dry fodder from the swath or a large swath of fresh fodder material, set the roll high (position A) - Fig. (6.10).

ADJUSTING TASKS

- Unlock the chain shackle (4) and raise / lower the dosing roller (2) - Fig. (6.11).
- Shorten / extend the chain to the appropriate length, secure its end with a shackle.
- Repeat for the other chain.

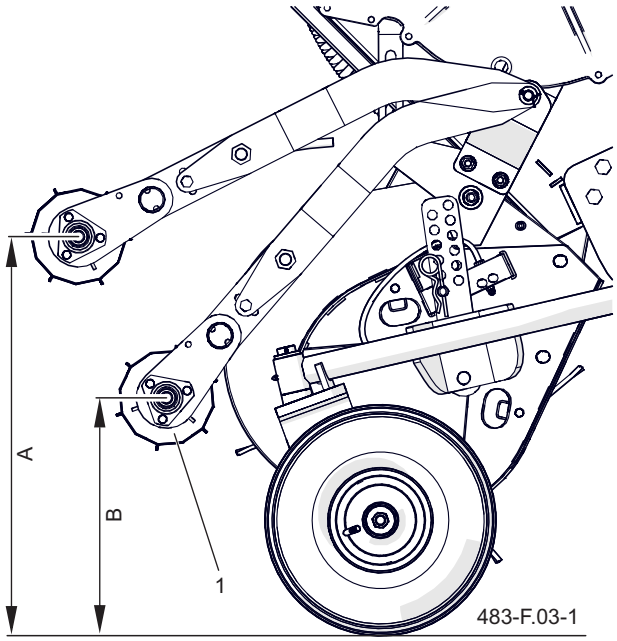

Figure 6.10 Setting the dosing roller

(1) dosing roller *(A) high position*

(B) low position

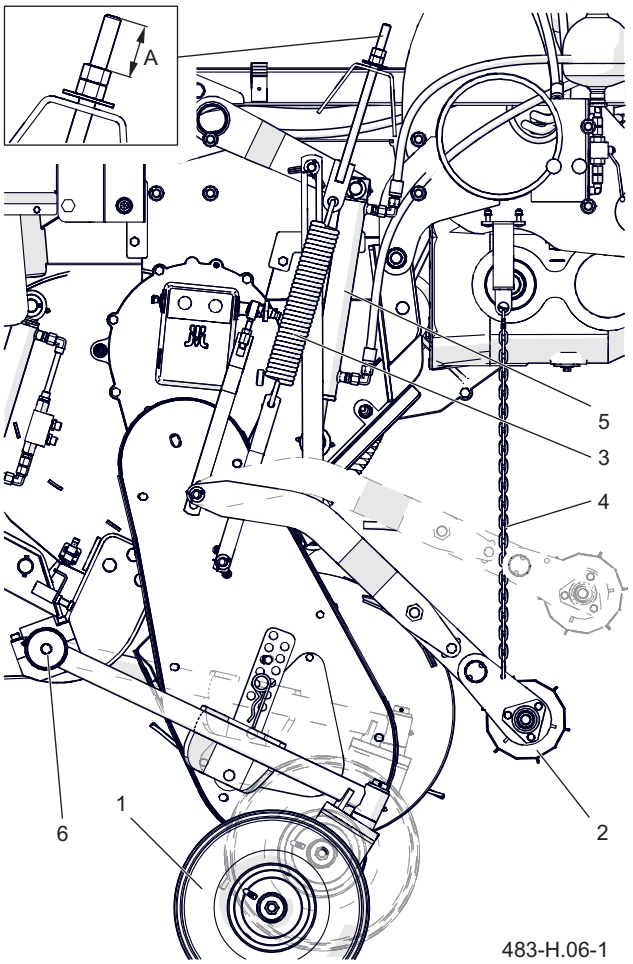

Figure 6.11 Pick-up elements

(1) support wheel *(2) dosing roller*

(3) spring *(4) chain*

(5) cylinder

HINT

When adjusting the height of the metering roller, get help of a second person.

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6.8 SETTING THE SUPPORT WHEELS

The support wheels are mounted on both sides of the pick-up (Fig. 6.12). When the trailer is in operation, the pick-up touches the ground with support wheels, which lift the mechanism when driving on uneven terrain (copying the terrain), thus allowing constant spacing of the decoiler teeth from the ground.

Support wheels of the pick-up (1) - Fig. (4.6) shall be set depending on the material collected and the terrain unevenness. For high-lying swaths and uneven collection areas - lift support wheels. When the swath is low and the area is evenly picked up - lower the support wheels.

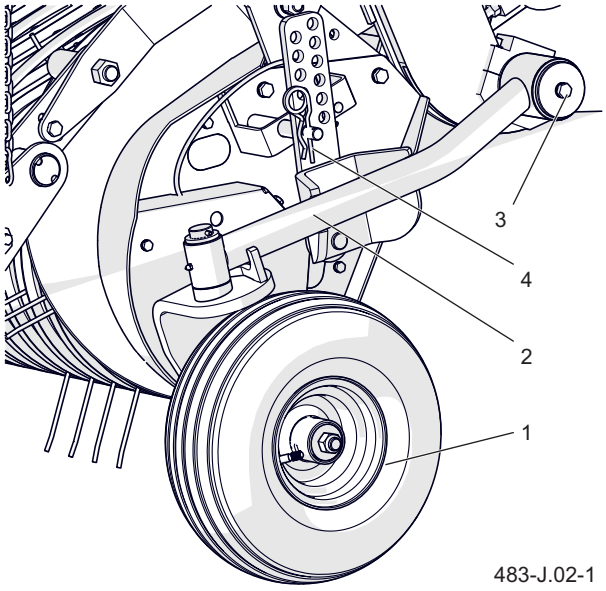

Figure 6.12 Support wheel

(1) wheel *(2) arm*

(3) screw *(4) pin*

ADJUSTING HEIGHT

- Pick up a landing net.
- Switch off the tractor engine, trailer and tractor with the parking brake, place chocks under the wheels.
- Loosen the screw (3).
- Unlock the support arm (2), remove the cotter pin (4).
- • Move the arm to the correct position.
- Secure the wheel arm with a cotter pin.
- Tighten the screw (3).
- Make adjustments for the other wheel. Take care of the equal height of both support wheels.

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6.9 SETTING THE PICK-UP PRESSURE FORCE

If the pick-up is not properly laying on the ground during operation (it jumps or is pressed into the ground), its ground pressure must be adjusted.

SCOPE OF ACTIVITIES

- Raise the pick-up into transport position.
- Raise the right front guard.
- Loosen the lock nut (2).
- Depending on the need, screw in or remove the second nut (2) increasing or decreasing the dimension (A) - Fig. (6.13).

  The pick-up adheres too much to the ground - increase dimension (A) by reducing the spring tension (1).

  The pick-up adheres not enough to the ground -reduce the dimension (A) by increasing the spring tension (1).
- Tighten the nut.
- Close the guard.

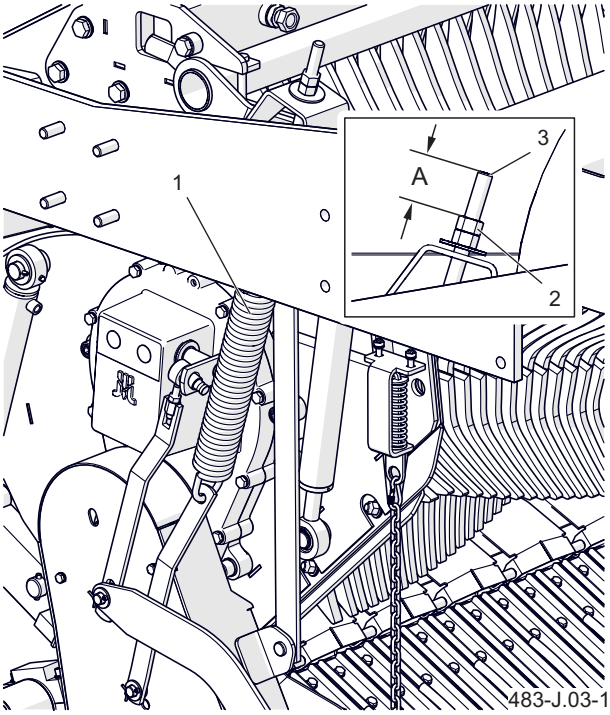

Figure 6.13 Pick-up pressure force

(1) spring *(2) nut*

(3) adjusting screw *(A) adjustment screw height*

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6.10 REPLACING DECOILER FINGERS

DISMOUNTING AND MOUNTING DECOILER FINGERS

- Raise the pick-up into transport position.
- Lift the dosing roller.
- Unscrew the screws securing the guard (3).
- Unscrew and replace the decoiler finger (2).
- Install in reverse order.

HINT

Incomplete or over-used decoiler fingers significantly reduce the efficiency of swath collection..

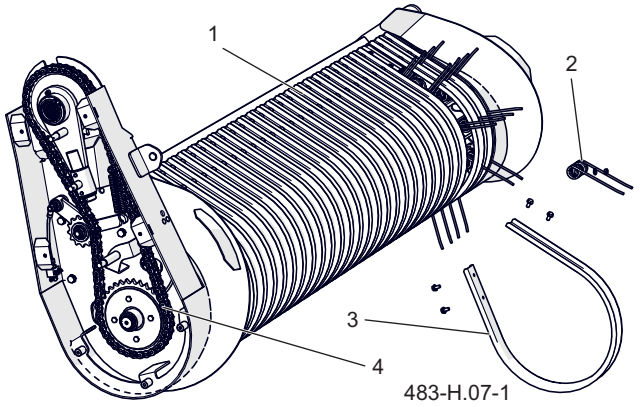

Figure 6.14 Trailer feeding unit.

(1) decoiler *(2) decoiler finger*

(3) guard *(4) transmission chain*

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6.11 OPERATING CONVEYOR CHAINS

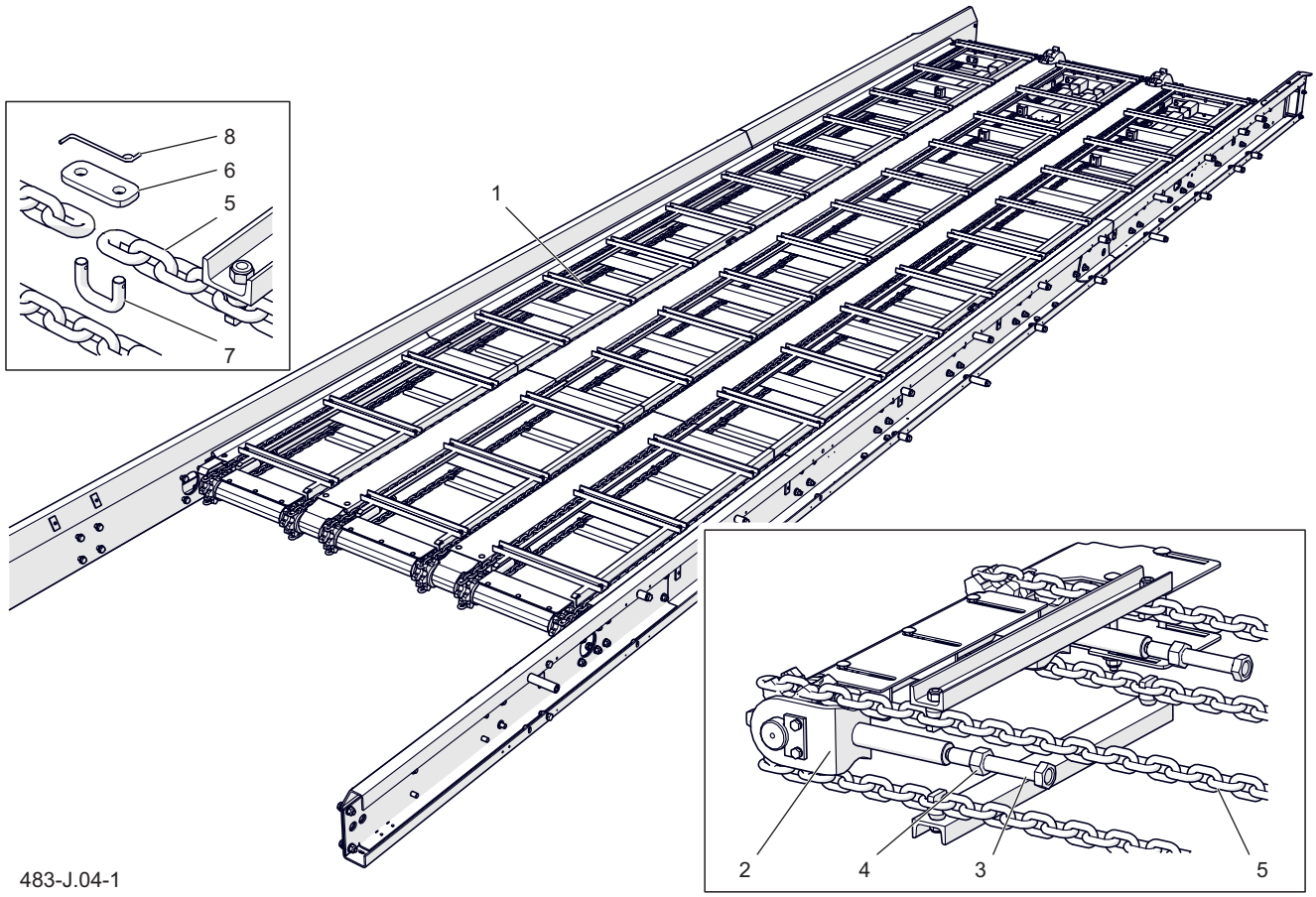

Figure 6.15 Feeding floor mechanism

(1) chain conveyor *(2) tensioner* *(3) tensioning screw*
(4) nut *(5) chain* *(6) plate*
(7) closing link *(8) joining link*

OPERATING TASKS

- Evaluate the tension of the conveyor chains.
- If the chain is too long, tension it.
- Start the conveyor, check that the conveyor runs smoothly without jams and disturbing noises.
- Check the technical condition of hydraulic motors and transmission gears for the conveyor. All leaks and failures should be removed immediately.
- Check the oil level in the transmissions.
- Check the technical condition of drive gears and tensioners
- If possible, locate and view the closing links of individual chains.
- Check technical condition and completeness of conveyor mechanism guards.

TENSIONING CONVEYOR CHAINS

- Unscrew the nuts (4).
- Tension chains (5) using screws (3).

Always make the adjustment for a pair of chains of one conveyor. Both screws for the same conveyor shall be screwed at the same distance.

- Tighten the lock nuts (4).
- Check the tension of the chains.

SHORTENING CHAINS

- Move the feeder in such a way as to get easy access to the closing link (7).
- Turn off the tractor engine; secure the tractor and trailer with parking brake.
- Loosen the lock nuts (4) and remove the adjustment screws (3).
- Unhook the chain; remove the plate (6) and cotter pin (8).
- Shorten the chain by two links.

  Always shorten the chain by an even number of links.

- Re-tie the chain

  It is recommended to insert a new pin (8).

- Tension the feeder chains.
- Check the operation of the feed mechanism.

ATTENTION

Overly tensioning the conveyor chains can damage the machine's gears.
Stretching of drive chains is a natural process during trailer operation.

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6.12 CONSUMABLES

HYDRAULIC OIL

It is essential to comply with the principle that the oil in the trailer's hydraulic system and in the tractor's hydraulic system should be of same type. When using different types of oil, make sure that both hydraulic agents can be mixed together. The use of different types of oil may cause damage to the trailer or tractor. In a new machine, the system is filled with hydraulic oil L HL32 Lotos.

If it is necessary to change the hydraulic oil with oil of another type, read the oil manufacturer's instructions very carefully. If it is recommended to flush the system with a suitable preparation, adapt to these recommendations. In doing so, make sure that the chemicals used for this purpose do not act aggressively on the materials of the hydraulic system. During normal trailer use, no hydraulic oil change is necessary, but if necessary, this operation should be entrusted to specialist service points.

The oil used, due to its composition, is not classified as a dangerous substance, however, long-term exposure to the skin or eyes may cause irritation. In case of oil contact with the skin, the place of contact should be washed with soap and water. Do not use organic solvents (petrol, kerosene). Contaminated clothing should be removed to prevent oil from entering the skin. If the oil gets in contact with eyes, rinse with plenty of water and seek medical attention if irritation occurs. Hydraulic oil is not harmful to the respiratory tract under normal conditions. Hazard occurs only when the oil is strongly sprayed (oil mist), or in case of fire, during which toxic compounds can be released. The oil should be extinguished with carbon dioxide, foam or steam. Water can not be used to extinguish a fire.

LUBRICANTS

For heavily loaded parts it is recommended to use lithium lubricants with the addition of molybdenum disulphide (MOS_2) or graphite

In case of less loaded sub-assemblies, it is recommended to use general purpose machine greases that contain anti-corrosive additives and are highly resistant to water washing. Similar properties should be characteristic of aerosol preparations (silicone greases, anti-corrosive agents).

Before using lubricants, read the information leaflet for the selected product. In particular, the

Table 6.1. Characteristics of L-HL 32 oil

No.	Name	Unit	
1	Viscosity classification according to ISO 3448VG	-	32
2	Kinematic viscosity at 400C	mm^2/s	28.8 – 35.2
3	Quality classification according to ISO 6743/99	-	HL
4	Quality classification according to DIN 51502	-	HL
5	Flash-point	C	230

safety rules and the handling of a given lubricant and the method of waste utilization (used containers, contaminated rags, etc.) are important. The information leaflet (product sheet) should be kept together with the grease.

HINT

Lubrication frequency (table Trailer lubrication schedule):
D - working day (8 hours of trailer operation), M - month.

Table 6.2. Lubricants

No..	Symbol	Description
1	A	general purpose machine grease (lithium, calcium),
2	B	permanent grease for heavily loaded elements with the addition of MoS_2 or graphite
3	C	anti-corrosive spray
4	D	ordinary machine oil, silicon spray lubricant

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6.13 FAILURES AND METHODS OF THEIR REMOVAL

Table 6.3. Failures and methods of removal

FAILURE	CAUSE	METHOD OF REMOVAL
Problem with starting	Brake installation hoses not connected	Connect the brake hoses (applies to pneumatic systems)
	Activated parking brake	Release the parking brake
	Damaged connecting lines of the pneumatic systemj	Replace.
	Connection leaks	Tighten, replace washers or sets sealing, replace wires.
	Damaged control valve or brake force regulator	Check valve, repair or replace..
Noise in the axle hub	Excessive clearing on bearings	Check clearance and adjust if necessary
	Damaged bearings	Replace the bearings
	Damaged hub components	Replace
Low efficiency of the braking system	The system pressure is too low	Check he pressure on the manometer in the tractor, wait for the compressor to fill the tank to the required pressure. Damaged air compressor in the tractor. Repair or replace. Damage valve in the tractor damaged. Repair or replace. Installation leaks. Check the installation for tightness.
Excessive heating of the wheel axle hub	Incorrectly adjusted service brake or parking brake	Adjust the position of the spreader arms
	Worn brake linings	Replace brake shoes
Incorrect hydraulic system operation	Incorrect viscosity of hydraulic oil	Check the oil quality, make sure that the oils in both machines are of the same type. If necessary, change the oil in the tractor and / or the trailer.

Incorrect hydraulic system operation	Insufficient tractor hydraulic pump capacity, defective tractor hydraulic pump.	Check the hydraulic pump in the tractor.
	Damaged or contaminated cylinder.	Check the cylinder piston (bending, corrosion), check the cylinder for tightness (piston rod seal), repair or replace the cylinder if necessary.
	Excessive load on the cylinder.	Check and, if necessary, reduce the load on the cylinder.
	Damaged hydraulic hoses.	Check and make sure that the hydraulic hoses are tight, not bent and properly tightened. Replace or tighten if necessary.
Excessive bilateral wear of the left and right shoulder of the tire.	Air pressure too low. Too fast speed at turns with loaded trailer. Too fast loss of air due to damaged rim, valve, puncture, etc	Check the air pressure. Regularly check the correctness of inflating road wheels. Excessive load of trailer. Do not exceed the permissible total weight of the machine. Reduce the speed of travel when cornering on a paved surface. Check the rim and valve. Replace damaged items.
Excessive tire wear in the middle section.	Too high air pressure.	Check the air pressure. Regularly check the correctness of inflating the road wheels.
Excessive one-sided wear of the left or right shoulder	Incorrect convergence. Incorrectly positioned axles.	Damaged spring blade on one side of the suspension. Replace the springs.
Tread wear	Damaged suspension system, cracked spring. Damaged brake system, brake locking, incorrectly adjusted braking system. Too frequent and sudden braking.	Check clearance of the suspension system, check the leaf springs. Replace damaged or worn parts. Check the braking system for malfunction. Adjust the spreader levers.

Side cracks.	Long-lasting use of tire with low air pressure. Trailer excessively loaded.	Check the air pressure regularly. Control the mass of the load during charging.
Tearing on the lateral outer edge of the tire.	Too frequent passing of sharp, high obstacles (e.g. curbs).	Control the driving technique.
Rim damage (hardening and cracking around the rim), tire crumbling.	Incorrect braking technique. Too often sudden braking. Damaged brake system	Check the brake system. Control the braking technique. The damage is caused by excessive heating of the hub and as a result of the wheel rims.
Incorrect operation of the steering remote control	Damaged electrical wires.	Replace wires.
	Electric wires not connected.	Connect wires
	Defective remote control.	Replace remote control
	Incorrect power supply voltage system.	Check voltage in the power socket of the tractor. Repair the socket or circuit of the tractor
Noise from the chain transmission	Loose chain.	Excessive stretching of the drive chain. Replace the chain with the gears..
	Damaged or contaminated bearings.	Check the bearings, clean and lubricate or replace if worn.
	Damaged chain tensioner.	Repair or replace the tensioner.
Incorrect cutting bar operation	Clogging of cutter beam.	Check the seating, completeness and sharpening of the cutting blades. Clean the cutting beam. Check and adjust the distance of the cutting blades from the rotor shaft. Check and adjust the distance between scrapers and the rotor shaft.
	No cutting of swath.	Raise the cutter beam into work position. Lock the blades.
