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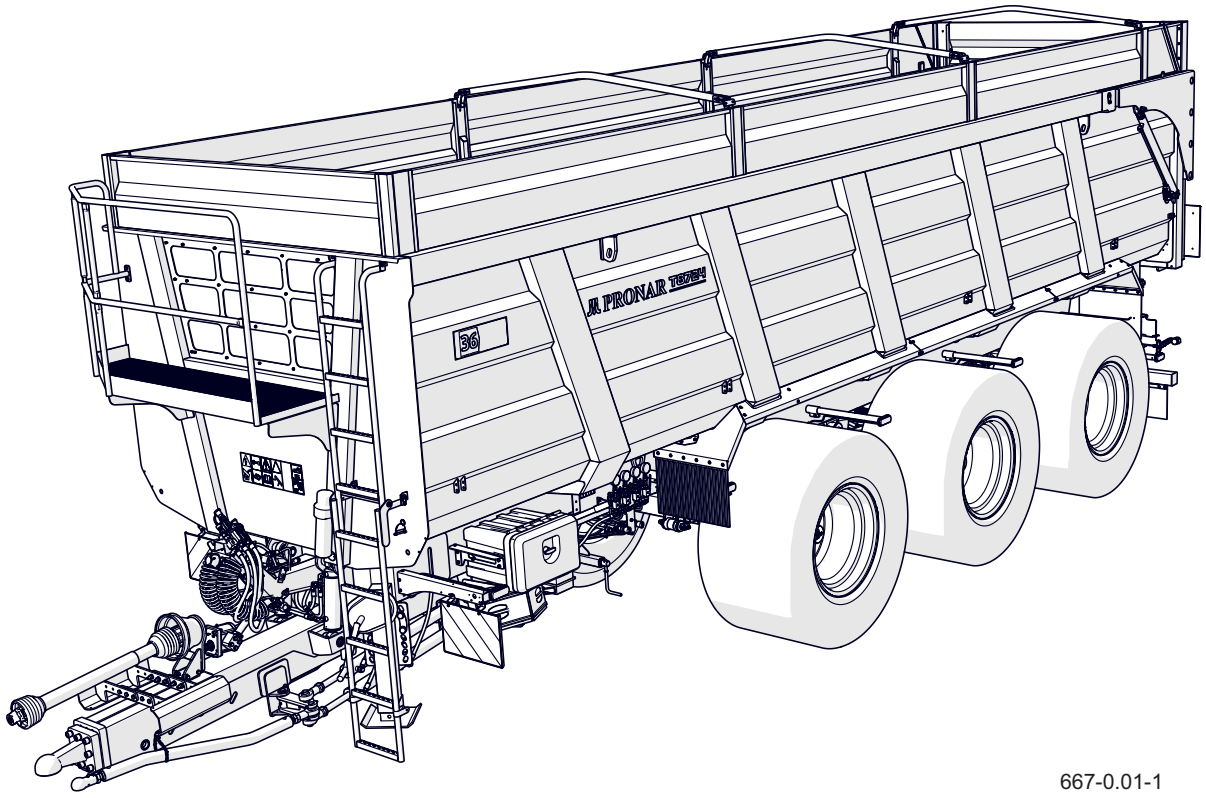
OPERATOR MANUAL

AGRICULTURAL TRAILER

PRONAR T8724

PRONAR T8724/1

TRANSLATION OF THE ORIGINAL COPY OF THE MANUAL



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This Operator Manual contains important safety and operating instructions for the machine. The Operator Manual should be kept near the machine so that it is accessible to authorized operators.

Keep this manual for future reference. If the Operator Manual is lost or damaged, contact the seller or the manufacturer for a copy.

Thank you for purchasing our trailer. In the interests of your safety and care for the reliability and durability of the machine, we ask that you familiarise yourself with the content of this manual.

Remember!!!

Before using the trailer for the first time, check if the wheels are properly tightened!!! Regularly check the technical condition of the machine in accordance with the attached schedule.

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CE

EC Declaration of Conformity

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

Machine description and identification data		
General description and purpose:	**Agricultural trailer PRONAR**	
Type:	-	
Model:	**T8724**	**T8724/1**
Serial number:		
Commercial name:	**Agricultural trailer PRONAR T8724** **Agricultural trailer PRONAR T8724/1**	

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).

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The machine has been designed for and meets the requirements of the following standards:

PN-EN ISO 12100, PN-EN 1853

This declaration applies exclusively to the machine in the condition, in which it was sold and does not include components or parts added or subsequent modifications made by the final user.

The operator's manual is an integral part of the machine.

The Implementation Department Manager of PRONAR Sp. z o.o., 17-210 Narew, ul. Mickiewicza 101A is authorised to provide the technical documentation.

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Z-CA DYREKTORA
d/s technicznych
członek zarządu

Narew, on 2023-09-18
Date and place issued

Roman Omelianiuk
Full name of the authorised person, position, signature

Chapter 1

Introduction

PRONAR T8724 T8724/1

1.1 DEAR USER

The manual instruction is intended for the end user. For this reason, some required maintenance is listed in the inspection tables but the procedure is not described in this publication. To perform them, call the manufacturer's authorized service center.

Before starting the machine, you will be familiarized with its construction, principle of operation, available equipment and operation, and above all safety rules. The operator and qualified personnel should be trained during final reception.

Remember!!! You can run the machine only when you have read the content of this "User Manual", you have been trained and you can handle it safely. In case of any doubts, contact the seller to clarify the problem.

The most important thing during operation is your safety, therefore, regardless of everything, all recommendations contained in the "User's Manual" should be observed and guided by reasonable procedure. Remember that the correct service, in accordance with the manufacturer's instructions, reduces the risk of an accident to a minimum, and working with the machine is more efficient and less emergency.

When buying machines, check the compatibility of serial numbers placed on the machine with the number entered in the "Warranty card" and in the sales documents. For information on identifying the machine, see "Basic information" chapter. We recommend that you have the most important serial numbers entered the field below.

Machine serial number:

WST.3.B-001.01.EN

1.2 RULES FOR USING THE USER'S MANUAL

The information contained in the publication is current as at the date of publication. As a result of improvement, some sizes and illustrations contained in this publication may not correspond to the actual state of the machine delivered to the user.

The drawings contained in this publication are aimed at clarifying the principle of machine operation and may differ from the facts. This can not be a reason for any claims for this. The manufacturer reserves the right to introduce constructional changes in the manufactured machines to facilitate operation and improve the quality of their work, without making any current changes to this publication.

The operating instruction is the basic equipment of the machine. If the information contained in this study prove not fully understandable to ask for aid to the point of sale in which the machine has been purchased or directly to the manufacturer.

The machine was constructed in accordance with applicable standards, documents and current legal regulations.

Separate studies can be attached to this manual that can be found in the chapter "*Attachments and additional materials*".

WST.3.B-002.01.EN

1.3 TARGET GROUP

The User Manual is intended for staff operating the machine called end users, and qualified persons (electrician, mechanic, plumber). Detailed information on the competences and liability of end users and qualified personnel can be found later in this chapter.

1.3.1 End user (User, Authorized User, Operator)

Who is the end user?

An end user, otherwise known as the user or operator, call the person authorized to operate the machine. The user can be authorized to handle the machine if the following conditions have been met.

- The user has familiarized with the content of the "User's Manual".
- He gets acquainted with the contents of the farm tractor instruction manual and observes its recommendations.
- He has been trained in terms of compliance with established maintenance and regulation plans.
- He has authorizations to drive vehicles (vehicle assemblies) required in the country of use.

Responsibilities and permissions

The user acquired by the user allows for safe handling of the machine. In unforeseen cases, the user should follow a reasonable procedure and take care of their safety, people located near a working machine and other traffic users.

The knowledge and skills are entitled to the end user to handle the machine, carry out maintenance and repair or adjustment procedures in the scope specified by the manufacturer. The activities that can be performed by the operator are marked with the pictogram:

1.3.2 Qualified person (qualified personnel)

Who is a qualified person?

We call a qualified person any person admitted to perform some maintenance, repair or regulatory work in the scope specified by the machine manufacturer and who gained appropriate technical education in a specific profession and confirmed by the relevant document, completed the training carried out by the authorized manufacturer's or seller staff, can see threats and counteract them. Professional experience and professional skills entitle a qualified person to carry out some repairs of the machine and perform basic maintenance procedures in the scope provided by the manufacturer. A qualified person in addition to the necessary knowledge has the skills to use the specialized accessories necessary to perform the obligations. The following persons include qualified persons:

- qualified mechanic,
- qualified electrician,
- qualified plumber.

Activities that can be performed by a qualified mechanic are marked with a pictogram:

Activities that can be performed by a qualified electrician are marked with a pictogram:

Activities that can be performed by a qualified plumber are marked with a pictogram:

1.3.3 Service personnel

Who is the service personnel?

Service personnel, otherwise known as the manufacturer's service or service, is a person or a group of qualified persons who have a much greater experience and knowledge to perform certain corrective and maintenance activities than qualified personnel. It has the right tools necessary to carry out work. The manufacturer's service has the required permissions and is a representative of a machine manufacturer or other equipment.

1.3.4 Unauthorized user

Who is an unauthorized user?

An unauthorized user also known as a bystander is a person who has not been trained by the manufacturer or an authorized seller, has not been familiarized with the basic issues of security, knowledge of the machine, did not familiarize with the entire content of the operating instructions, and therefore there are no authorizations to operate the machine. A bystander can not be admitted to work with the machine.

WST.3.C-002.02.EN

1.4 SYMBOLS AND TAGS USED IN THE MANUAL

1.4.1 Danger

Information, descriptions of hazards and precautions as well as instructions and orders related to the safety of use in the content of the manual are marked with a frame with the word **DANGER**. Failure to comply with these recommendations may endanger the health or life of persons operating the machine or bystanders.

1.4.2 Caution

Particularly important information and recommendations, the observance of which is absolutely necessary, are highlighted in the text with a frame and word **CAUTION.** Failure to comply with these recommendations creates the risk of damage to the machine due to improper handling, adjustment or use.

1.4.3 Advice

Additional instructions contained in the manual describe useful information on operating the machine and are marked with a frame with the word **ADVICE.**

1.4.4 Personal protective equipment pictograms

	Work shoes
	reflective vest
	industrial helmet
	working clothes
	respiratory protection
	safety goggles
	protective gloves
	hearing protectors

1.4.5 Qualification pictograms

	operator
	qualified mechanic
	qualified plumber
	qualified electrician

1.4.6 Typography of the User Manual

Bulleted list

The bulleted list presents actions to perform whose order is not relevant.

Example of using a bulleted list

Comment on the text

Comment is most often a supplement and additional explanation to order a specific activity. Additional information can also be included in the comment.

- ....
- Check the condition of connections and hydraulic and pneumatic hoses. Hydraulic oil leaks and air defects from a leaky installation are unacceptable.
- In the event of a hydraulic or pneumatic installation failure, the trailer should be turned off from operation until the failure is removed.
- .....

An example of a comment

The required air pressure is described on the sticker placed on the machine frame, over the wheel.

Defined list

List shows the to-do, which execution order is important.

Example of using a defined list

1. .....
2. Unscrew the handles (2) securing the crank (1).
3. Insert the crank into a square shaft of the gear and turning the clock clockwise on the direction of the clock.
4. ....

References to pages

Reference to chapter (place in the manual) related thematically

An example of a reference application

WST.3.B-004.02.EN

📖 ***page 9.4***

1.5 GLOSSARY OF TERMS

agricultural tractor

A motor vehicle designed for use in combination with implements for agricultural, forestry and horticultural work; the agricultural tractor can be also adapted for towing a trailer and for earthwork.

tractor unit

A motor vehicle designed exclusively for towing a trailer; this term refers to semi-trailer truck and ballast tractor.

carrier vehicle

A motor vehicle made in a special way so that it not only pulls tools but also carries them on itself, and can work with implements attached or suspended from the rear or front of the vehicle.

final acceptance

A number of activities related to getting the finished product ready for delivery and actual delivery of the product. The final acceptance includes delivery of documentation, basic training, acceptance for transport and first start of the machine.

bystander

see - unauthorized user

qualified person

A qualified person is a person authorized to perform certain maintenance, repair or adjustment work to the extent specified by the machine manufacturer and has acquired suitable technical training in a specific profession which is confirmed by an appropriate document, completed training conducted by authorized manufacturer or seller and is able to perceive and counteract hazards.

lorry

A motor vehicle designed for transporting goods; this term also refers to goods and passenger carrier vehicles that are designed for carrying goods and

people (from 4 to 9 persons including a driver).

danger zone

A danger zone is an area around the machine where people's health or life is endangered.

THREE-POINT LINKAGE

Three-point linkage - a lever system used in agricultural tractors to hitch machines and implements suspended on a hydraulic linkage.

end user

Otherwise referred to as the user, authorized user or operator — a person authorized to operate the machine.

unauthorized user

Also referred to as a bystander — a person who has not been trained and has not been allowed to operate the machine.

PTO

PTO - Power Take-Off Shaft - a shaft transmitting drive from the vehicle to the machine being moved.

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1.6 DESIGNATION OF DIRECTIONS IN THE MANUAL

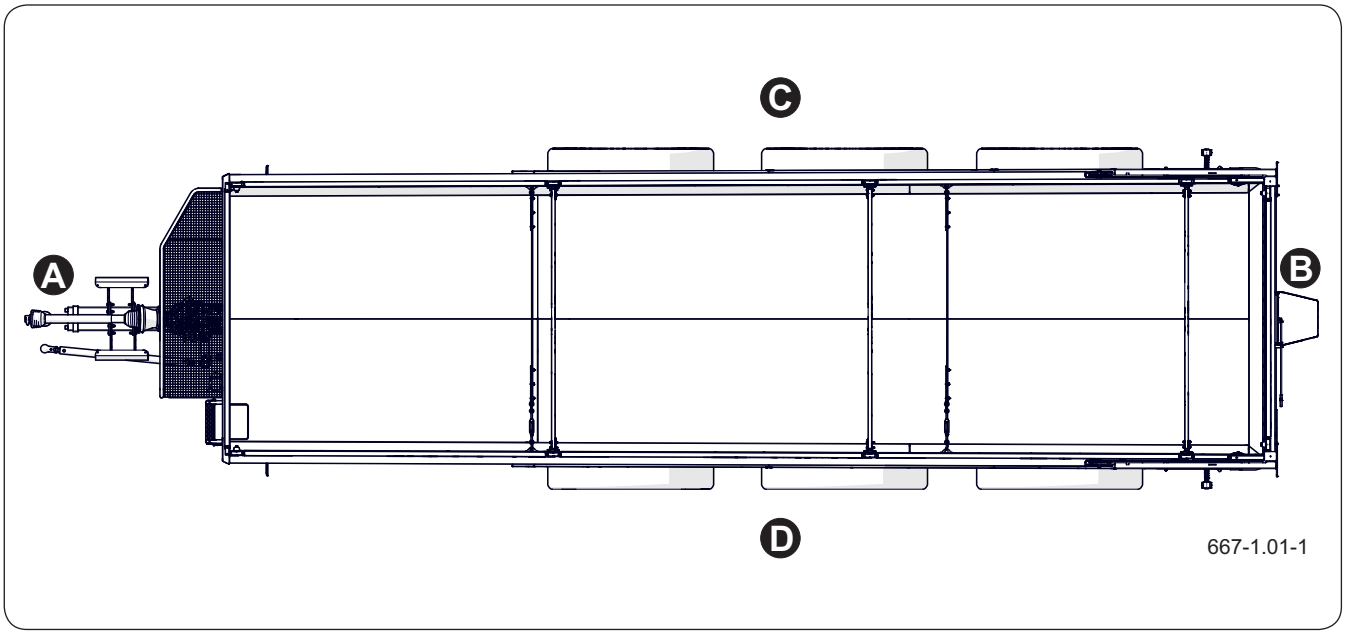


Figure 1.1 Determination of directions on the machine
(A) front *(B) rear* *(C) right side*
(D) left side

Left side – the left hand side of the observer facing the machine in the forward direction.
Right side - the right hand side of the observer facing the machine in the forward direction.
Turn right – turn the mechanism clockwise (operator facing the mechanism).
Turn *left* – turn the mechanism counterclockwise (operator facing the mechanism).

WST.3.B-006.61.EN

1.7 FINAL ACCEPTANCE

1.7.1 Preliminary information

Final acceptance takes place after the machine has been delivered. The acceptance covers the following issues:

- providing the required documents, including the “User Manual", “Warranty Card" and others,
- information from the seller about the method of use, hazards resulting from using the machine contrary to its intended use and about aggregating the machine with a tractor and working with it.
- checking the machine after delivery,
- first start-up of the machine and discussion of machine operation.

1.7.2 Checking the machine after delivery

The scope of control

- Check the completion of the machine in accordance with the order.
- Check technical condition of guards.
- Check the condition of the paint coating, check for any signs of corrosion.
- Check the machine for missing parts or damage resulting from incorrect transport of the machine to its destination point (dents, punctures, bends or broken parts, etc.).
- Check the condition of the tires on the road wheels and the air pressure in the tires. Check the correct tightening of the wheels.
- Check the technical condition of flexible conduits of the hydraulic and pneumatic systems. Make sure the layouts are tight.
- Inspect the hydraulic and/or pneumatic

cylinders for leaks and leaks.

1.7.3 The first start of the machine

The start-up must be preceded by training conducted by the Seller or authorized employees of the Seller.

The scope of activities for the first start-up

- Make sure that the pneumatic, hydraulic and electrical connections on the agricultural tractor comply with the manufacturer's requirements.
- Check all lubrication points, re lubricate if necessary.
- Drain the air reservoir the brake system.

If the condition of the machine does not raise any objections, go to the test drive:

- Connect the machine to the tractor hitch.
- Connect the pneumatic, hydraulic and electrical conduits.
- By activating the individual lights, check the correct operation of the electrical system.
- Control the correct operation of the hydraulic system by controlling the appropriate circuits of the tractor's hydraulic distributor.

  Optionally, start the PTO and check the operation of the hydraulic system of the machine driven by the tractor's PTO shaft.
- Apply the brake.
- While moving off, check the operation of the main brake system.
- Release the tractor parking brake.

If during the test run, alarming symptoms appear, such as:

- Noise and unnatural sounds coming from the rubbing of moving parts against the machine structure,
- Leaking braking system,
- hydraulic oil leaks,

- Incorrect operation of hydraulic and/or pneumatic actuators,

or other faults, diagnose the problem. If the fault cannot be repaired or repairing it may void the warranty, contact the point of sale to explain the problem or make repairs.

After completing the test run, check the tightness of the wheel nuts.

WST.3.B-007.01.EN

1.8 ENVIRONMENTAL HAZARD

DANGER

Used oil or collected residues mixed with absorbent material should be stored in an accurately marked container. Do not use food packaging for this purpose.

CAUTION

Oil waste may only be delivered to a point dealing with the utilization or regeneration of oils. Under no circumstances should oils be poured into drains or water bodies.

A leakage of hydraulic, lubricating or diesel oil is a direct threat to the natural environment due to the limited biodegradability of the substance.

When carrying out maintenance and repair works where there is a risk of leakage, perform these works in rooms with an oil-resistant surface. In the event of a substance leak into the environment, first secure the source of the leak, and then collect the spilled substance using available means. Collect the remaining oil with sorbents or mix with sand, sawdust or other absorbent materials. The collected contaminants should be stored in a sealed and marked container, resistant to hydrocarbons, and then transferred to a disposal point. The container should be kept away from heat sources, flammable materials and food.

Used oils or oils that cannot be reused due to the loss of their properties are recommended to be stored in their original packaging in the same conditions as described above.

WST.3.B-008.01.EN

1.9 PERSONAL PROTECTIVE EQUIPMENT

1.9.1 General

CAUTION

Personal protective equipment should be used in accordance with the recommendations of the security manufacturer.

Follow local regulations regarding personal protective equipment.

The personal protective equipment listed below is a minimum protection for the operator against the effects of unfavourable external factors and is only a recommendation for use.

We recommend carrying out a risk assessment at the machine's workplace and adjusting the personal protective equipment of operator depending on the actual working conditions.

1.9.2 Work clothing

Work clothing should fit the operator's body correctly. The material from which the clothing is made should be characterized by high tear strength. Clothing must not have any protruding elements that may be accidentally caught by the mechanisms of the machine.

1.9.3 Hearing protectors

It is recommended to use of ear muffs for use with a protective industrial helmet for hearing protection. The selection of the damping value should be selected individually depending on the noise level at the location of the machine, which is the result of various sources (e.g. tractor, loader, belt conveyors, etc.).

Remember to properly store and maintain your hearing protectors. Poorly stored and maintained hearing protectors lose their protective properties over time. Periodically replace the soundproofing cushions according to the manufacturer's recommendations.

1.9.4 Work shoes

Work shoes should have the following properties:

- non-slip sole,
- sole material made of a material resistant to oils, gasoline and other organic solvents.
- toe cap resistant to impact with an energy of 200 J,
- insert securing the foot against piercing of the sole.

The above properties correspond to the S3 shoe category according to PN-EN ISO 20345.

1.9.5 Warning vest

The warning (reflective) vest is designed to increase the operator's visibility to other users. Instead of a reflective vest, you may wear work clothes that meet the requirements of EN471. It is recommended that the warning vest (or work clothing) be class 2.

1.9.6 Protective gloves

Protective gloves should be selected depending on the currently performed work.

Strong protective gloves

Strong protective gloves for hand protection are used for protection during heavy work such as cleaning the machine, removing clogs and the like, where there is a risk of damaging the hands. Protective gloves should protect the hands from cuts, scratches, abrasions, punctures and similar injuries to the skin and

against light burns in contact with hot surfaces.

Light protective gloves

For light work (general operation, minor maintenance etc.), we recommend using light protective gloves for work in a dry or slightly oily environment. The working surface of the gloves (internal part should be covered with an impermeable material, e.g. nitrile.

Nitrile gloves

Nitrile gloves designed for working with urea, fuel or lubricants. They are designed for light work where there is a risk of skin contact with lubricants, fuel, urea, gear oil and hydraulic oil.

1.9.7 Safety glasses with side shields

Safety glasses to protect the eyes against contact with hazardous substances, splashing liquids or dust and airborne of the machine dust. Safety glasses with

side shields increase the level of protection.

1.9.8 Industrial protective helmet

The industrial safety helmet is designed to protect the head against injuries related to the fall of thrown objects, parts or materials. The design of the helmet

should be in accordance with the EN397 standard. During normal machine operation, wearing lightweight industrial helmets will not protect the user from injury and is therefore not recommended.

The protective helmet must fit correctly to the anatomical shape of the skull. There are adjustment straps for this purpose. The helmet has a limited shelf life.,

CAUTION

Remember that personal protective equipment should be regularly maintained and used in accordance with the recommendations of the product manufacturer. Following these guidelines will ensure safe use and the best protection.

After this date, the material from which it was made loses its properties and does not fulfil the assumed task. The helmet must be replaced.

1.9.9 Anti-dust respirator

Dust can become airborne when operating the machine. It is recommended to use disposable respirators with an exhalation valve to protect the respiratory tract.
The size of the mask should match the operator's face. The mask should fit snugly against the skin. The nasal part should be adjusted using the adjustment plate. Remember that facial hair can make it difficult to seal the face mask.
Minimum half mask recommendations:

- type FFP1, in accordance with EN-149: 2001 + A1: 2009, protection against non-toxic liquid or solid aerosols,
- P1 class.

WST.3.C-004.01.EN

Chapter 2

Basic information

PRONAR T8724 T8724/1

2.1 IDENTIFICATION

2.1.1 Machine identification

TIP

Demand that the seller carefully and accurately fills out the Warranty Book and warranty repair coupons. A missing date of purchase or sale point stamp, may make the user ineligible for any warranty repair or refund.

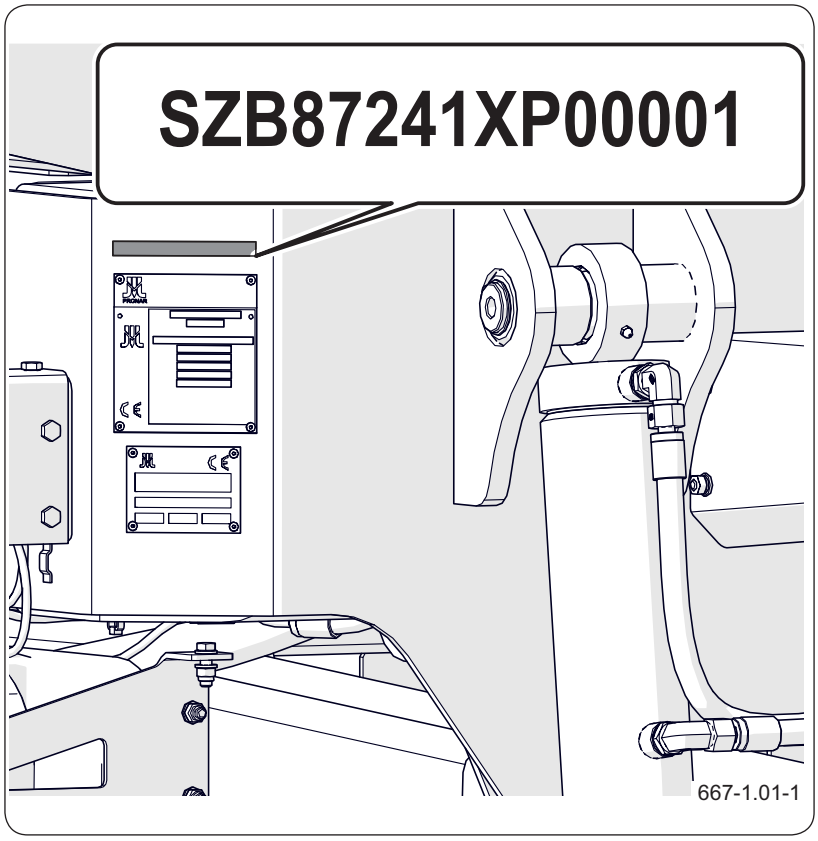


Figure 2.1 Trailer identification
(1) nameplate *(2) CE plate*
(3) trailer VIN location

The trailer is marked with the nameplate (1) and the factory number (2) located on a distinguished rectangular field on the trailer frame. The serial number and nameplate are shown on figure (2.1).
When buying the trailer check that the serial numbers on the machine agree with the number written in the *Warranty Book*, in the sales documents and in the *Operator Manual*. The meaning of the individual items found on the nameplate are presented in table.
Write down the serial number of the trailer in the upper box.

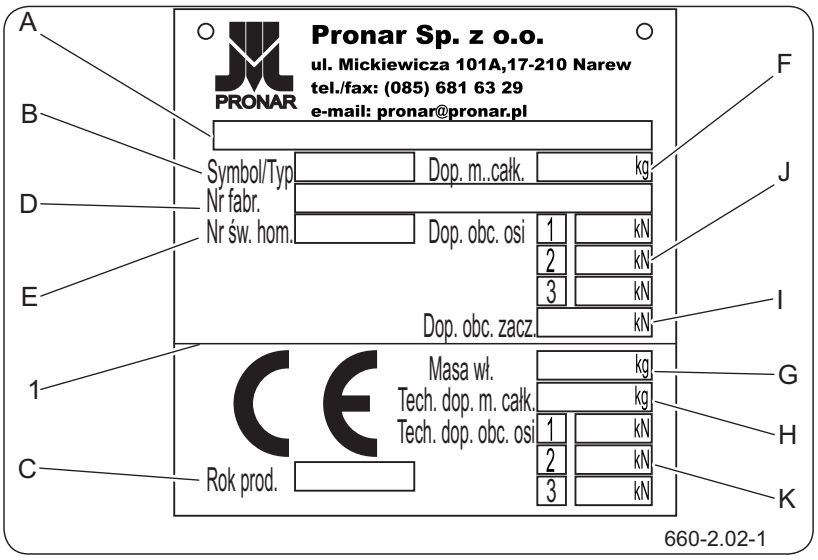


Figure 2.2 Name plate

Table 2.1 Markings on nameplate

Item	Meaning
A	General description and purpose
B	Symbol / type of trailer
C	Year of manufacture
D	VIN
E	Official certificate number
F	Maximum gross weight
G	Tare weight
H	Technically permissible weight
I	Permissible hitch load
J	Permissible load for individual axles
K	Technically permissible individual axle load

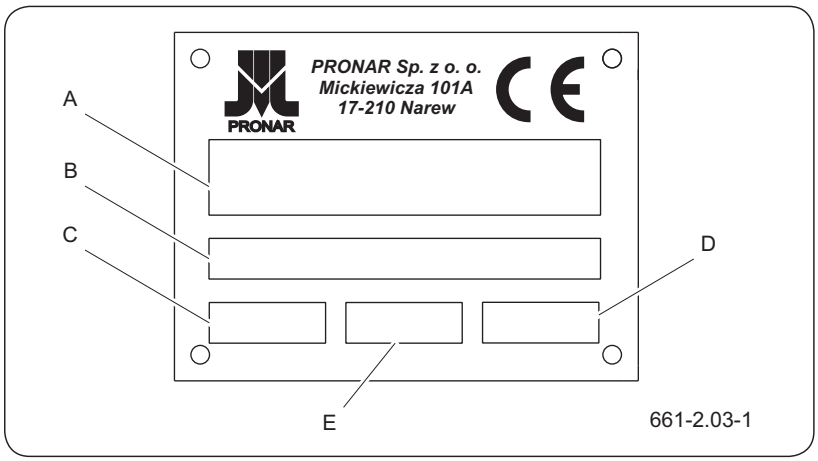


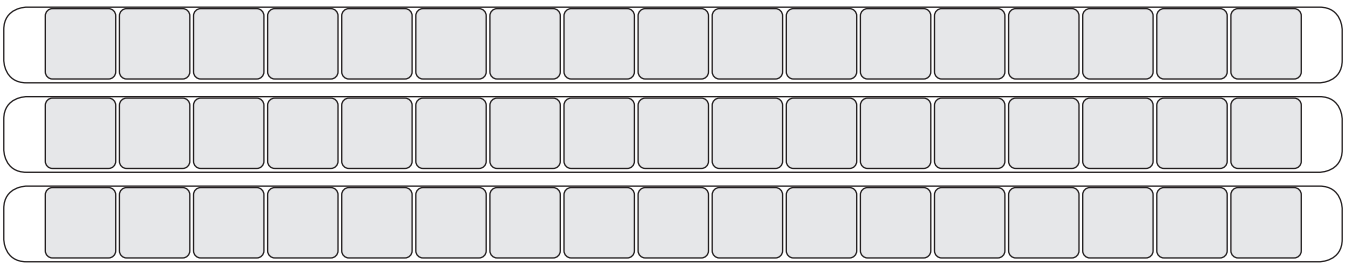
Figure 2.3 nameplate CE

Table 2.2 Markings on nameplate CE

Item	Meaning
A	Trade name of the product or general description and function
B	Machine VIN
C	Product type (assigned in the EU approval process)
D	Machine's year of manufacture
E	Product model

2.1.2 Axle identification

The serial number of the driving axles and axle type are stamped on the rating plate (2) attached to the axle profile - figure Axle identification. After purchasing the trailer, it is recommended that individual serial numbers be entered in the boxes below.



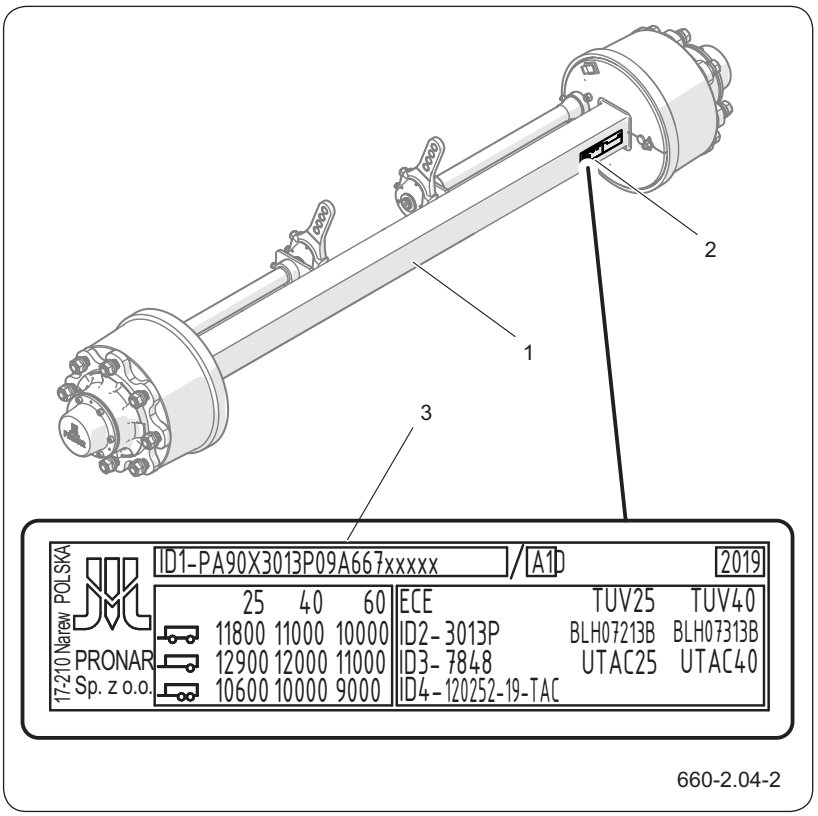


Figure 2.4 Axle identification

(1) wheel axle *(2) nameplate*

(3) axle serial number

INF.3.H-001.11.EN

2.2 INTENDED USE OF THE MACHINE

2.2.1 Use for the intended purpose

DANGER

The machine may not be used for purposes other than those for which it is intended.

The trailer is designed for transporting crops and agricultural products (loose, volumetric, long, etc.) within the farm and on public roads. It is allowed to transport construction materials, mineral fertilizers and other loads, provided that the requirements specified in the further part of the study, in particular the recommendations for securing loads, are met. Non-compliance with the recommendations of carriage and loading specified by the Manufacturer and road transport regulations in force in the country in which the trailer is used will void the warranty services and is treated as using the machine for purposes other than those intended.

The trailer is not adapted and intended for the transport of people, animals and goods classified as hazardous materials.

The braking system as well as the lighting and signalling system meet the requirements arising from traffic regulations.

In the countries where the trailer is used, restrictions related to the road traffic laws in force in a given country must be observed.

The trailer speed must not be greater than the maximum design speed 40 km/h.

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

- read the content of trailer's *USER MANUAL* and with *WARRANTY CARD* and to the guidelines contained in these documents,
- understand the principle of machine operation and the safe and proper operation of the trailer,
- work in compliance with established maintenance and adjustment plans,

- work in compliance with general safety regulations,
- accident prevention,
- comply with road traffic regulations and transport regulations in force in the country in which the trailer is used,
- get acquainted with the contents of the farm tractor instruction manual and comply with its recommendations,
- couple the vehicle only with such an agricultural tractor that meets all the requirements set by the trailer Manufacturer.

The trailer may only be used by persons who:

- Become familiar with the contents of publications and documents attached to the trailer and the contents of manual agricultural tractor,
- have been trained in trailer operation and work safety,
- have the required authorization to drive and are familiar with the traffic rules and transport regulations.

2.2.2 Expected misuse

The expected improper use of the machine is related primarily to the transport of materials that do not comply with the manufacturer's recommendations, for example:

- transport of people, animals,
- dangerous materials, loads that react aggressively as a result of chemical reactions to structural elements of the trailer (causing steel corrosion, destroying paint coatings, dissolving plastic elements, destroying rubber elements, etc.),
- transport of improperly secured cargo that could cause road and environmental pollution while driving,

- transport of incorrectly secured cargo, which could change its position in the load box during driving,
- transport of cargo that location of the centre of gravity adversely affects the stability of the trailer,
- carry loads that affect uneven loading and/ or overloading of the axles and suspension components.

An employee who has not been trained in the field of operation and safety at work, does not have appropriate qualifications and the required skills cannot be allowed to operate the machine.

When operating the machine, it is strictly forbidden to:

- stay in the danger zone,
- climb onto the machine while it is working,
- make any unauthorized design changes,
- repairs and service by unauthorized and unqualified personnel.

INF.3.B-002.01.EN

2.3 REQUIREMENTS FOR AGRICULTURAL TRACTOR

Table 2.3 Requirements for agricultural tractor

Contents	Unit	Requirements
		T8724 / T8724/1
Brake system - sockets		
Pneumatic	-	according to ISO 1728
Hydraulic system	-	according to ISO 7421-1
Hydraulic system		
Hydraulic oil	-	L HL 32 Lotos (1)
Electrical system		
Electrical system voltage	V	12
Lighting socket	-	7-pole compliant with ISO 1724
Wired controller power supply socket		3-pole
Required tractor hitch		
Type of hitch	-	lower ball transport hitch K80
Minimum vertical load capacity of hitch	kg	4 000
Rear power take-off shaft (PTO)		
Type	-	Type 1 (1 3/4”) acc. to ISO 730-1
Rotation speed	rpm	1 000
Number of splines on PTO shaft	pc.	20
Rotation direction	-	clockwise
Other requirements		
Minimum tractor power demand	HP	250 - 300

(1) – use of other oil is permitted on condition that it may be mixed with the oil in the trailer. Detailed information can be found on the product information card.

2.3.1 Minimum tractor front axle load

ATTENTION

The front axle load of the tractor must be at least 20% of its own weight - this also applies to towing the loaded trailer. If this condition is not met, the front axle must be additionally loaded.

DANGER

Inadequate load on the front axle of the tractor may result in damage, insufficient stability and insufficient steering and braking ability of the tractor.

The tractor's front axle must be always loaded with at least 20% of the tractor's weight.

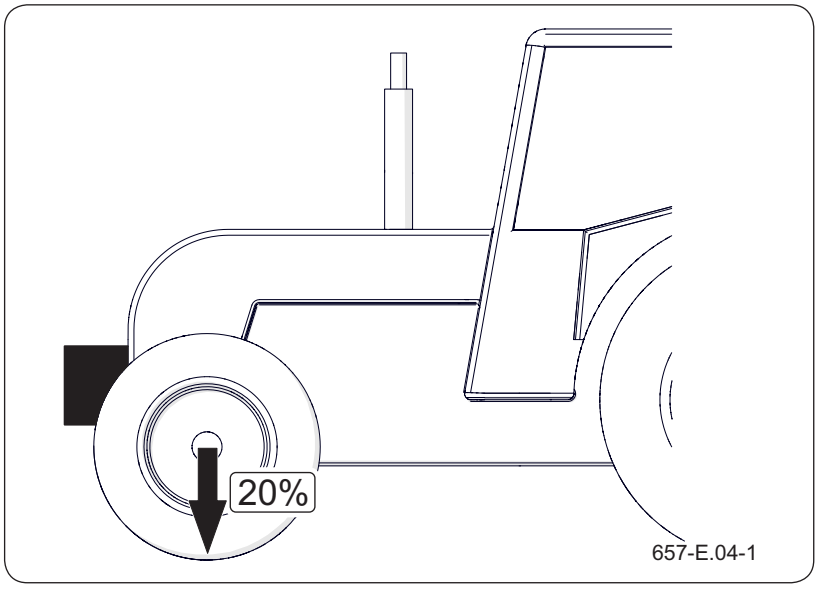


Figure 2.5 Minimum tractor front axle load

INF.3.H-003.01.EN

2.4 TRAILER'S EQUIPMENT

Table 2.4 Trailer's equipment

Contents	Standard	Additional	Optional
Operator Manual	●		
Warranty Book	●		
Connection wire for the electrical system	●		
Electrical lighting system	●		
Installation of solenoid valves with wired controller			
Wheel chocks	●		
Ladder	●		
Drawbar mechanical support	●		
Drawbar hydraulic support			●
Hydraulic drawbar	●		
Load box support	●		
Load box fenced platform		●	
Pneumatic parking brake	●		
Mechanical parking brake			●
Safety brake		●	
Mechanical suspension	●		
Hydraulic suspension			●
Hydraulic opened tailgate	●		
Hydraulic tipper system	●		
Passive axle hydraulic steering system	●		
Active axle hydraulic steering system			●
Pneumatic brake system	●		
Hydraulic brake system			●
Load box deflectors	●		

Contents	Standard	Additional	Optional
Hydraulic system with oil tank			●
Load box wall extensions 400mm		●	
Load box wall extensions 800mm		●	
Tarpaulin cover		●	
Toolbox	●		
Warning plates		●	
Rear apron		●	

(1) Some standard equipment components, which are listed in the table, may not be present in the delivered trailer. This allows the possibility of ordering new machines with a different set of optional equipment, replacing standard equipment.
Information on tyres is provided at the end of this publication in ANNEX A.

INF.3.E-002.01.EN

2.5 TRANSPORT

The machine is prepared for sale completely assembled and does not require packing. Packing is only required for the machine's technical documentation and possibly some elements of additional equipment. The trailer is delivered to the user either transported on a vehicle or, after being attached to a tractor, independently (trailer towed with a tractor).

2.5.1 Shipping by road

DANGER

When shipped by road on a motor vehicle the machine must be mounted on the vehicle's platform in accordance with the safety requirements and regulations.

Vehicle driver should be especially careful when driving. This is due to the vehicle's centre of gravity shifting upwards when the machine is loaded.

Use only certified and technically reliable securing measures. Carefully read the information contained in the Operator Manuals for the given securing measures.

Incorrect use of securing measures may cause an accident.

Loading and unloading of trailer from vehicle shall be conducted using loading ramp with the aid of an agricultural tractor. During work, adhere to the general principles of occupational health and safety (OHS) applicable to reloading work. Persons operating reloading equipment must have the qualifications required to operate these machines. The machine must be properly hitched to the tractor according to the requirements specified in this Operator's Manual. The trailer brake system must be started and checked before driving off or onto ramp.

The machine should be attached firmly to the platform

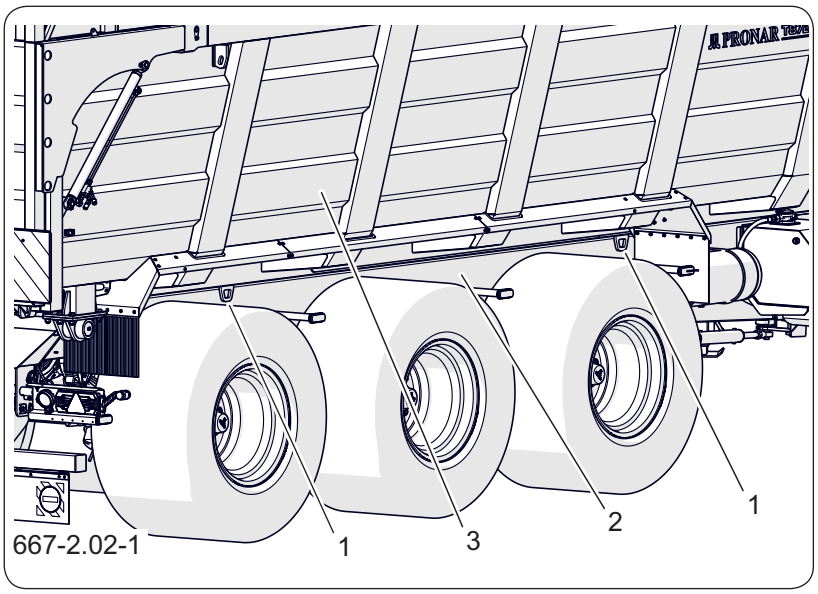


Figure 2.6 Attachment points

(1) bracket *(2) lower frame*

(3) load box

ATTENTION

Do NOT secure lifting slings or any types of securing elements to hydraulic and electrical system components and fragile elements of the machine (e.g. shields, lines)

of the vehicle using straps or chains fitted with a tightening mechanism. Securing elements should be attached to the transport catches designed for this purpose (1)

Chocks or other objects without sharp edges should be placed under the wheels of the trailer to prevent it from rolling. Wheel blocks must be secured to the load box of the vehicle in a manner preventing their movement.

Use only certified and technically reliable securing measures. Worn straps, cracked securing catches, bent or corroded hooks as well as elements damaged in a different way may be unsuitable for use. Carefully read the information in the Operator Manual for the given securing measure. The number of securing elements (cables, straps, chains, stays etc.) and the force necessary for their tensioning depend on a number of factors, including weight of the machine, carrying vehicle design, ground speed and other conditions. For this reason it is impossible to define the securing plan precisely.

To secure the trailer optimally on the load box, support the drawbar with a wooden block. A correctly secured trailer does not change its position with regard to the transport vehicle. The securing elements must be selected according to the guidelines of the Manufacturer of these elements. In case of doubt apply a greater number of securing straps in order to secure the load.

If necessary, cover the sharp edges of the machine in order to protect the securing elements from tearing or breaking during transport.

During reloading work, take special care not to damage any accessories or paint finish.

2.5.2 Transport by the user

In the event of independent transport by the user, after purchasing the trailer, the user should read the

ATTENTION

When transporting independently, the user must carefully read this Operator Manual and observe all its instructions.

trailer *Operator Manual* and adhere to its instructions. Independent transport involves towing the trailer with own agricultural tractor to destination. During shipping adjust ground speed to the prevailing road conditions, but do not exceed the maximum design speed.

INF.3.B-005.31.EN

2.6 TERMS OF WARRANTY

ADVICE

You should require the seller to carefully fill out the Warranty Card and complaint coupons. The lack of e.g. date of sale or point of sale stamp exposes the user to not accept any complaints.

PRONAR Sp. z o.o. in Narew guarantees smooth operation of the machine when it is used in accordance with the technical and operational conditions described in the*USER MANUAL*. Deadline for completion of repairs is specified in the *Warranty Card*.

The warranty does not apply to parts and sub-assemblies of the machine, which are subject to wear in normal operating conditions, regardless of the warranty period.

The warranty services only apply to such cases as: mechanical damage not caused by the fault of the user, factory defects of parts, etc.

In the event that damage occurs as a result of:

- mechanical damage caused by the user's fault, road accident,
- from improper operation, adjustment and maintenance, using the machine contrary to its purpose,
- use of a damaged machine,
- repairs carried out by unauthorized persons, improper repairs,
- execution of user changes in machine design,

the user loses the warranty.

Modifications to the machine without the written consent of the Manufacturer are prohibited. In particular, welding, reaming, cutting and heating of major structural components of the machine that directly affect safety during use is not permitted.

Detailed warranty conditions are given in the *WARRANTY CARD* attached to the newly purchased machine.

INF.3.B-006.02.EN

2.7 ENVIRONMENTAL RISK

DANGER

Do not store oil waste in containers for food.

Store used oil in hydrocarbon-resistant containers.

ATTENTION

Waste oil should only be taken to the appropriate facility dealing with the re-use of this type of waste. Do NOT dispose of or pour oil into sewerage drains or water reservoirs.

A hydraulic oil leak constitutes a direct threat to the natural environment owing to its limited biodegradability. Maintenance and repair work which involves the risk of an oil leak should be performed in the rooms with oil resistant surface. In the event of oil leaking into the environment, first of all contain the source of the leak, and then collect the leaked oil using available means. Remaining oil should be collected using sorbents, or by mixing the oil with sand, sawdust or other absorbent materials. The oil contaminations, once gathered up, should be kept in a sealed, marked, hydrocarbon resistant container, and then passed on to the appropriate oil waste recycling centre. The container should be kept away from heat sources, flammable materials and food.

Oil which has been used up or is unsuitable for further use owing to loss of its properties should be stored in its original packaging in the conditions described above. Detailed information on hydraulic oils can be found in the Material Safety Data Sheets.

INF.3.B-007.02.EN

2.8 WITHDRAWAL

DANGER

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

Avoid oil contact with skin. Do not allow oil to leak.

DANGER

Before commencing dismantling, reduce residual pressure in pneumatic and hydraulic systems.

In the event of decision by the user to withdraw the machine from use, comply with the regulations on withdrawal from use and recycling of machines withdrawn from use in force in a given country.

Before proceeding to dismantling, reduce the residual pressure in the hydraulic system, drain the oil completely. Remove all air from the pneumatic system of the machine by draining the air reservoir.

In the event of replacement of parts, take the worn or damaged elements to a collection point for recyclable materials. Take used oil as well as rubber or plastic elements to plants dealing with the utilization of this type of waste.

Table 2.5 Codes of waste generated by dismantling of the machine

Item	Code	Meaning
1	07 02 13	Plastic waste
2	13 01 10	Other hydraulic oils
3	13 02 04*	Mineral engine, gear and lubricating oils containing halogenated organic compounds
4	13 02 06*	Synthetic engine, gear and lubricating oils
5	13 02 08*	Other engine, gear and lubricating oils
6	13 05 02*	Sludges from oil dewatering in separators
7	13 05 08*	A mixture of sand trap waste and oil dewatering in separators
8	15 01 10*	Packaging containing residues of or contaminated by hazardous substances
9	15 02 02*	Sorbents, filter materials and protective clothing contaminated with hazardous substances
10	16 01 03	Worn tires
11	17 04 05	Iron and steel
12	17 04 11	Cables other than those mentioned in 17 04 10

INF.3.B-008.01.EN

Chapter 3

Safety of use

PRONAR T8724 T8724/1

3.1 BASIC SAFETY RULES

CAUTION

The trailer may only be used and operated by **persons qualified** to drive agricultural tractors with a trailer.

- Before using the trailer, carefully read the content of this publication and the „*Warranty Card*". During operation, follow all recommendations.
- The user manual should be available to the operator for all the time. Protect the manual from damage.
- If the information contained in the User's Manual is difficult to understand, contact a seller who runs an authorized technical service on behalf of the manufacturer, or contact the manufacturer directly.
- If you ignore the recommendations contained in these document, you create a threat to the health and life of bystanders and/or the machine operator.
- Use and operate the trailer carefully! By a careless work, you create a threat to the health and life of bystanders and/or the machine operator.
- You are obliged to familiarize yourself with the construction, operation principles and safe operation of the trailer.
- Familiarize yourself with all machine controls before starting work. Do not use the machine without knowing its function.
- Before each start-up of the trailer, check that it is properly prepared for work, first of all in terms of safety.
- There is a residual risk of threats, therefore the basic principle of using the trailer should be the application of the principles of safe use and sensible behaviour. Remember that your safety is the most important thing.
- It is forbidden to use the machine by persons

who are not authorized to drive tractors, including children, people under the influence of alcohol, drugs or other intoxicating substances, etc.

- The trailer may not be used for purposes other than those for which it was intended. Everyone who uses the trailer in a manner contrary to its intended use, thus takes full responsibility for all consequences arising from its use.
- Use of the machine for purposes other than envisaged by the Manufacturer is inconsistent with the intended use and may void the warranty.

BHP.3.B-001.01.EN

3.2 SAFETY WHEN HITCHING THE MACHINE

- Do not connect the trailer to a tractor if it does not meet the requirements set by the Manufacturer (minimum tractor power requirement, inappropriate connections, etc.) - see section *"Tractor requirements".*
- Before hitching the trailer, make certain that oil in external hydraulic system of the tractor is allowed to be mixed with hydraulic oil in the trailer.
- Before hitching the trailer check that both machines are in good technical condition.

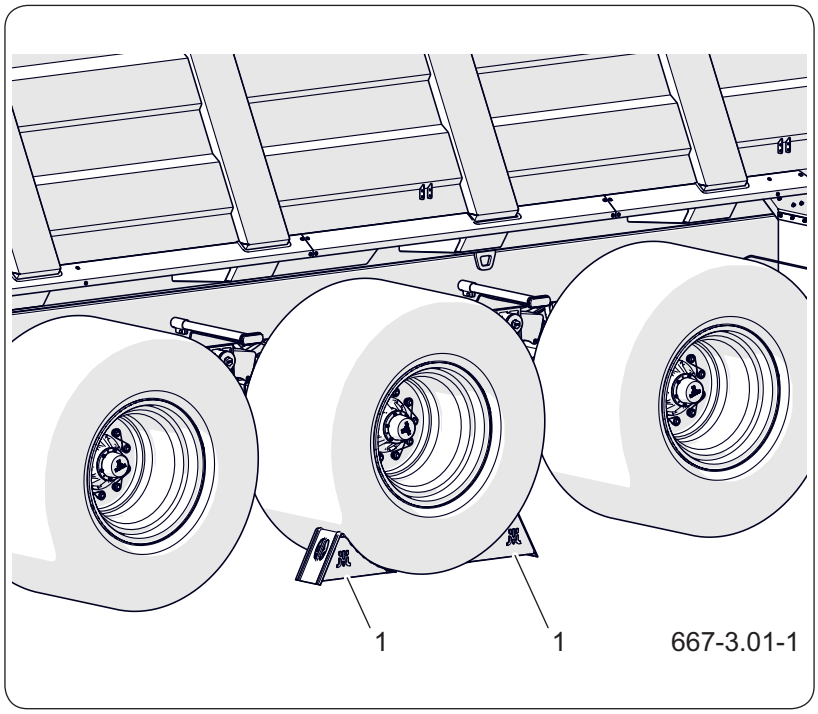


Figure 3.1 Arrangement of chocks
(1) wheel chock

- While connecting the trailer to the tractor, use the appropriate hitch. After completed hitching of the machines check that the hitch is properly secured. Carefully read the tractor Operator Manual. If the tractor is equipped with an automatic hitch, make certain that the hitching is completed.

ATTENTION

Place chocks only under the wheels of the rigid axle.

- Be especially careful when hitching the machine.
- When hitching, there must be nobody between the trailer and the tractor.
- Hitching and unhitching the trailer may only take place when the machine is immobilised by use of the parking brake. If the trailer is positioned on a slope or elevation it shall be additionally secured against moving by placing chocks or other objects without sharp edges under the trailer wheels. Make sure that chocks are included in the trailer equipment.
- The trailer must not be moved when the parking stand is extended and rests on the ground. If moved there is a risk of damage to the parking stand.

BHP.3.B-002.11.EN

3.3 SAFETY WHEN OPERATING THE HYDRAULIC AND PNEUMATIC SYSTEMS

DANGER

The hydraulic and pneumatic systems are under high pressure during operation.

- Regularly check the technical condition of the connections and the hydraulic and pneumatic lines. Machine operation with a leaking system is forbidden.
- In the event of a hydraulic or pneumatic installation failure, the trailer should be turned off from operation until the failure is removed.
- When connecting the hydraulic conduits to the tractor, make sure that the tractor and machine hydraulic systems are not under pressure. If necessary, reduce the residual pressure in the installation. See chapter „*Hydraulic system handling...*”.
- Use hydraulic oil recommended by the manufacturer.
- After changing the hydraulic oil, the used oil must be disposed of. Used oil or oil which has lost its properties should be stored in original containers or replacement packaging resistant to hydrocarbons. Replacement containers must be accurately described and properly stored.
- It is forbidden to store oil in packaging intended for food storage.
- Rubber hydraulic hoses should be replaced every 4 years regardless of their technical condition.

Procedure in the event of an accident

- In the event of injuries being caused by pressurized hydraulic oil, contact a doctor immediately. Hydraulic oil can penetrate the skin and cause infection.
- If the oil gets into the eyes, rinse with plenty of

water and if irritation occurs, contact a doctor.

- In the event of contact of oil with skin wash the area of contact with water and soap. Do not use organic solvents (petrol, kerosene).

BHP.3.G-003.01.EN

3.4 RULES OF SAFE TECHNICAL SERVICE

- The trailer should be kept clean.
- The load must be evenly distributed.
- You cannot transport people or animals on the trailer.
- Keep a safe distance during loading and unloading. Keep bystanders away from the work area of machine.
- During the warranty period, any repairs should only be carried out by a Warranty Service authorized by the manufacturer. After the end of the warranty period, it is recommended that any repairs to the be carried out by specialized workshops.
- In the event of any faults or damages on trailer, it shouldn’t be in use until repair.
- During maintenance work, use appropriate, close-fitting protective clothing, gloves, shoes, glasses and the right tools.
- Any modification of the trailer releases PRONAR Narew from any liability for damage or injury.
- You can enter the trailer only when the trailer is absolutely stationary and the tractor engine is switched off. Secure the set with the parking brake. Secure the tractor cab against unauthorized access.
- Regularly check the technical condition of the safety devices and the correct tightening of bolt connections (in particular the drawbar eyes and wheels).
- Inspect the trailer according to the frequency specified in this manual.
- Before starting repair work on hydraulic or pneumatic systems, the residual oil or air pressure must be completely reduced. For

the procedure see section: „*Hydraulic system operation*" , „*Pneumatic system operation*"

- Repair, maintenance and cleaning work should only be carried out with the tractor engine switched off and the ignition key removed. Tractor and trailer should be secured with parking brake and wedges should be placed under trailer wheels. Secure the tractor cab against unauthorized access.
- Before commencing maintenance or repair work, secure the trailer with wedges and parking brake. Only a stationary trailer may be disconnected from the tractor.
- If it is necessary to replace individual parts, use only parts recommended by the manufacturer. Failure to comply with these requirements may endanger the health or life of bystanders or persons operating the trailer, cause damage to the machine and constitute the basis for withdrawing the warranty.
- Before welding or electrical work, disconnect the trailer from the power supply. Clean the paint coating. The fumes of burning paint are poisonous to humans and animals. Perform welding work in a well-lit and ventilated room.
- During welding work pay attention to flammable or fusible elements (elements of pneumatic, electric and hydraulic systems, elements made of plastic). If there is a risk of ignition or damage, they must be or covered with non-flammable material before welding. Before starting work, it is recommended to prepare a CO_2 or foam extinguisher.
- In the event of work requiring the trailer to be raised, use properly certified hydraulic or mechanical lifts for this purpose. After lifting the machine, be sure to use additional, stable and

durable supports. You cannot perform any work under the trailer, which has only been lifted with the jack.

- It is forbidden to support the trailer with fragile elements (bricks, hollow bricks, concrete blocks).
- After completing work associated with lubrication, remove excess grease. The trailer should be kept clean.
- It is forbidden to carry out independent repairs of elements of the hydraulic or pneumatic system, i.e. control valves, actuators and regulators. In case of damage to these elements, the repair should be entrusted to authorized repair centres or replace the elements with new ones.
- You may not install additional devices or accessories that do not comply with the specifications defined by the Manufacturer.
- You may tow the trailer only when the axle, lighting and braking systems are functional.

Procedure in the event of an accident

- Perform maintenance and repair activities applying the general principles of health and safety at work.
- In case of injury, wash and disinfect the wound immediately.
- In case of serious injuries consult a physician.

BHP.3.B-004.01.EN

3.5 DESCRIPTION OF RESIDUAL RISK

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

- using the trailer for purposes other than described in the manual,
- being between the tractor and the trailer when the engine is running and when connecting the machine,
- operation of trailer made by unauthorized persons under the influence of alcohol or drugs,
- operation of the trailer by unauthorized persons,
- being on the machine during work,
- trailer cleaning, maintenance and technical inspection.

Residual risk can be reduced to a minimum by following these recommendations:

- prudent and leisurely machine operation,
- reasonable use of the notes contained in the User Manual,
- keeping a safe distance from prohibited and dangerous places,
- a ban on being on the machine while it is operating.
- carrying out maintenance and repair work by trained persons,
- using appropriate protective clothing,
- securing the machine against access by unauthorized persons, especially children.

BHP.3.B-006.01.EN

3.6 DRIVING ON PUBLIC ROADS

- While driving on public roads the trailer must be fitted with a certified or authorised reflective warning triangle.
- If the trailer is the last vehicle in the line of vehicles, a slow-moving vehicle warning sign should be placed on the trailer rear load box wall.

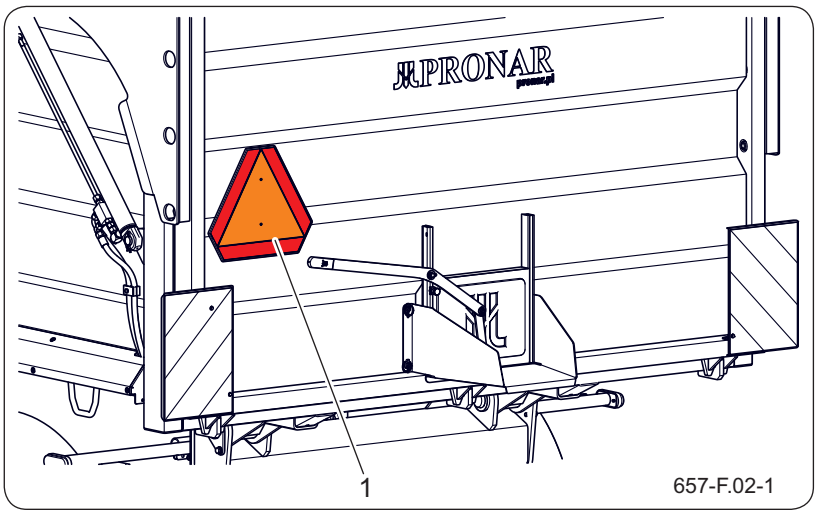


Figure 3.2 Warning triangle
(1) slow-moving vehicle warning sign

- Before driving on the roads, remove the rear lamp guards.
- When driving on public roads, observe all road traffic regulations in force in the country, in which the machine is used.
- Do NOT exceed the maximum design speed of 30 km/h. Ground speed must be adapted to environmental conditions and load. If possible avoid travelling on uneven terrain and unexpected corners.
- Do not leave the machine unsecured. When not connected to the tractor, the trailer must be immobilised with parking brake and protected against rolling with chocks or other objects without sharp edges placed under the wheels.

- Before driving make sure that the trailer is properly hitched to the tractor, especially if coupling bolts are secure.
- The vertical load carried by the drawbar eye of the machine affects the steering of the tractor unit.
- Before using the trailer always check its technical condition, especially in terms of safety. In particular, check the technical condition of the hitch system, the axle system, the brake system, indicator lights and the connective elements of the hydraulic, pneumatic and electrical systems.
- Before driving off check that the parking brake is released, the braking force regulator is positioned in the proper position (applies to pneumatic systems with a manual three position regulator).
- The trailer is designed for driving on slopes up to a maximum of 8°. Driving the trailer on steeper slopes may cause the trailer to tip over as a result of loss of stability.
- Periodically drain water from the air tank in the pneumatic system. During frosts, freezing water may cause damage to pneumatic system components.
- Reckless driving and excessive speed may cause accidents.
- A load protruding beyond the edge of the trailer should be marked according to the road traffic regulations. Do NOT transport loads declared incompatible by the Manufacturer.
- Do not exceed the permissible load of the trailer. Exceeding the carrying capacity may lead to damage to the machine, loss of stability and danger while driving. The brake system is adjusted to the gross weight of the trailer,

exceeding the weight limit causes drastic reduction of basic braking effectiveness.

- Prolonged driving across steep ground may lead to loss of braking efficiency.
- During reversing one should use the assistance of another person. During manoeuvring the assistant must stay at a safe distance from the danger zone and be visible all the time to the tractor driver.
- Do NOT attempt to climb on the trailer while driving.
- Do NOT park the trailer on a slope.
- If the trailer has hydraulic suspension, you can only start driving when the trailer is completely raised. You cannot move the trailer if the suspension is even slightly lowered.

BHP.3.E-002.01.EN

3.7 WORKING WITH THE MACHINE WITH THE POWER TAKE-OFF (PTO)

CAUTION

Before starting work, read the operator's manual of the drive shaft provided by the shaft's manufacturer.

- Before starting work, familiarize yourself with the propeller shaft operating instructions provided by the shaft manufacturer and follow the recommendations contained therein.
- if necessary, adjust the length of the articulated-telescopic shaft to the cooperating tractor in accordance with the shaft's instruction manual.
- The trailer may only be connected to the tractor with the use of a properly selected articulated telescopic shaft, recommended by the Manufacturer.
- The drive shaft must be equipped with covers. It is forbidden to use the shaft with damaged or missing safety elements.
- Some parts of the PTO shaft (especially the clutch) can become very hot. Do not touch hot parts.
- 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 belts or anything that could get caught in the rotating shaft. Contact with rotating PTO shaft may cause serious injury.
- Before disconnecting the shaft, turn off the tractor engine and remove the key from the ignition switch.
- When working in poor visibility, illuminate the articulated telescopic shaft and its surroundings using the tractor's working lights.
- During transport, the shaft should be stored in a horizontal position to avoid damage to guards and other safety devices.
- When using the shaft and trailer, do not use

PTO shaft speed other than 540 rpm. Do not overload the shaft and the machine, do not engage the clutch suddenly. Before starting PTO shaft make sure that the PTO rotation direction is correct.

- It is forbidden to walk over and under the shaft and stand on it both during work and when the trailer is at a standstill.
- The PTO shaft has markings on the housing indicating which end of the shaft should be connected to the tractor.
- Never use a damaged PTO shaft as it may cause an accident. A damaged shaft should be repaired or replaced for new one.
- do not use drive shaft extensions/adapters.
- Disconnect the shaft drive each time when there is no need to drive the machine, or when the tractor and trailer are in an unfavourable angular position with respect to each other.
- Protect chain securing the shaft cover against turning while the shaft is working, attach it to a fixed structural element of the trailer.
- It is forbidden to use safety chains to support the shaft during standstill or transporting the trailer.

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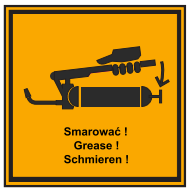
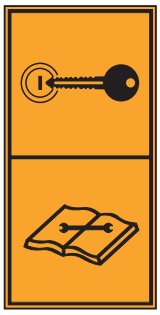
3.8 INFORMATION AND WARNING DECALS

- The trailer is labelled with the information and warning decals listed in table (3.1).
- The arrangement of symbols is shown in figure (3.3). Throughout the machine use, you must ensure that any warning messages and information decals located on the machine are clear and legible.
- If any are destroyed or damaged, they must be replaced with new. Information and warning decals may be purchased directly from the Manufacturer or your PRONAR dealer.
- Part numbers of information decals are given in table (3.1) and in Spare Parts List. New assemblies, changed during repair, must be labelled once again with the appropriate safety signs. During machine cleaning do not use solvents, which may damage the coating of information decals and do not subject them to strong water jets.

Table 3.1 Information and warning decals

Item	Decal	Meaning
1		Grease the machine according to the lubrication schedule in the Operator Manual. **104N-00000004**
2		Regularly check if the nuts and bolts fixing the wheels and other components are properly tightened. **104N-00000006**

Item	Decal	Meaning
3		Before starting work, carefully read the Operator Manual. **70N-00000004**
4		Before maintenance or repairs, turn off the tractor unit's engine and remove keys from ignition. **70N-00000005**
5		Danger of crushing Do NOT perform any maintenance or repairs on the load box that is loaded, raised or not supported. **58N-0000012**
6		Danger of crushing Maintain a safe distance when opening and closing the tailgate. **58N-0000013**
7		Note Danger of electric shock. Keep a safe distance from overhead electric power lines during unloading. **58N-0000020**
8	pronar.pl	Company branding. **566N-97000003-03**

Item	Decal	Meaning
9	PRONAR T8724	Type of trailer T8724. **667N-00000201**
10	PRONAR T8724/1	Type of trailer T8724/1. **667N-00000202**
13		Warning decal left. (282x423)
14		Warning decal left. (282x423)

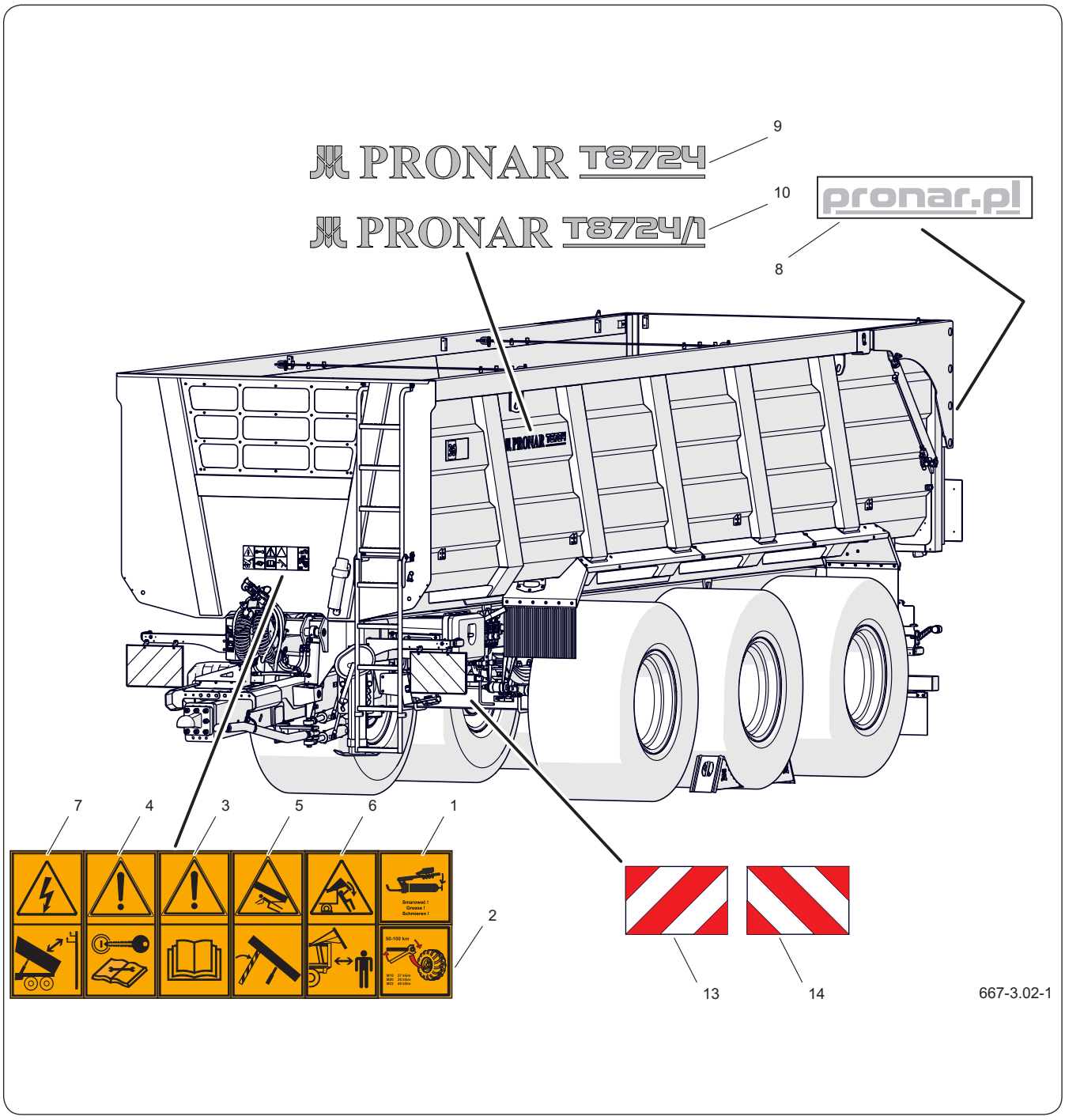


Figure 3.3 Locations of information and warning decals

BHP.3.E-001.01.EN

Chapter 4

Design and operation

PRONAR T8724 T8724/1

4.1 TECHNICAL SPECIFICATION

Table 4.1 Basic technical specification

Contents	Unit	T7824	
Dimensions			
Total length	mm	10 510	
Total width	mm	2 550	
Total height	mm	3 020	
Load box dimensions			
Length inside	mm	8 700	
Width inside	mm	2 240 / 2 300	
Height inside	mm	1 500	
Wall/floor thickness:	mm	5 / 4	
Tipping System	-	one-sided, telescopic cylinder	
Tipping angle (backward)	o	55	
Technical specification			
Maximum gross weight	kg	33 000	
Carrying capacity	kg	23 750	
Tare weight	kg	9 250	
Cargo capacity (no wall extensions)	m^3	29	
Cargo capacity (400 mm wall extensions)	m^3	37	
Cargo capacity (800 mm wall extensions)	m^3	45	
Platform height from the ground	mm	1 500	
Hydraulic system			
Cylinder stroke	mm	3 260	
Oil demand:	L	75	
Pressure in the system	bar	200	
Hydraulic oil	-	L-HL32 Lotos	
Other information			
Design speed	km/h	40	
Wheel track	mm	2 000	
Drawbar eye load	kg	4 000	
Tractor power demand	HP/kW	200	147.1
Electrical system voltage	V	12	
Noise emission level	dB	below 70	

**- depending on the trailer version and legal limitations in a country of sale, the actual technical specification may differ from the above specification.*

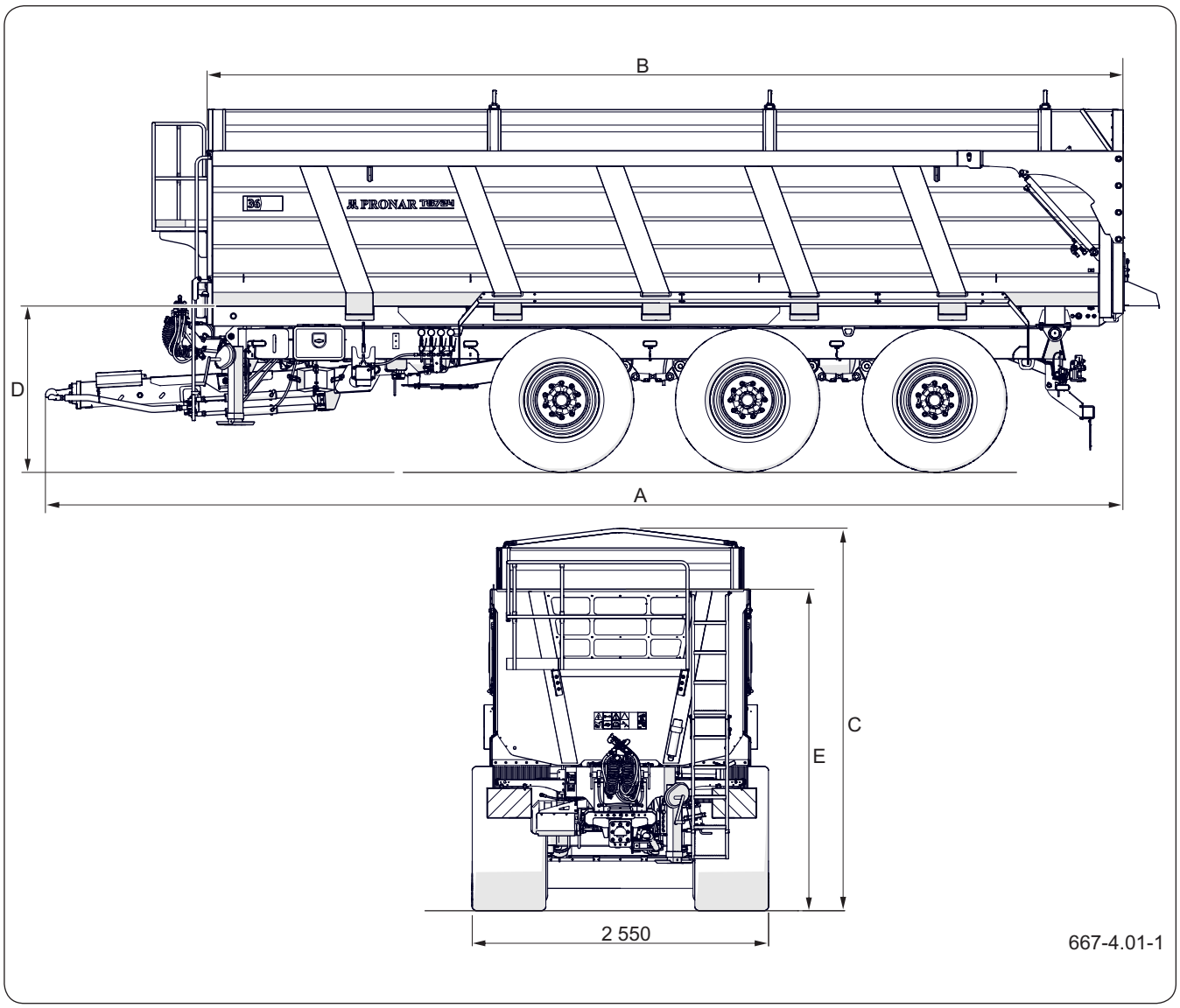


Figure 4.1 Basic dimensions of the trailer

Table 4.2 Main dimensions of the trailer

Contents	Unit	T8724
Total length A	mm	10 510
Load box length B	mm	8 700
Total height C	mm	3 610
Platform height from the ground D	mm	1 500
Height without wall extension E	mm	3 020

ATTENTION

Some technical parameters may vary depending on additional equipment of the trailer.

BIZ.3.E-001.01.EN

4.2 TRAILER CONSTRUCTION

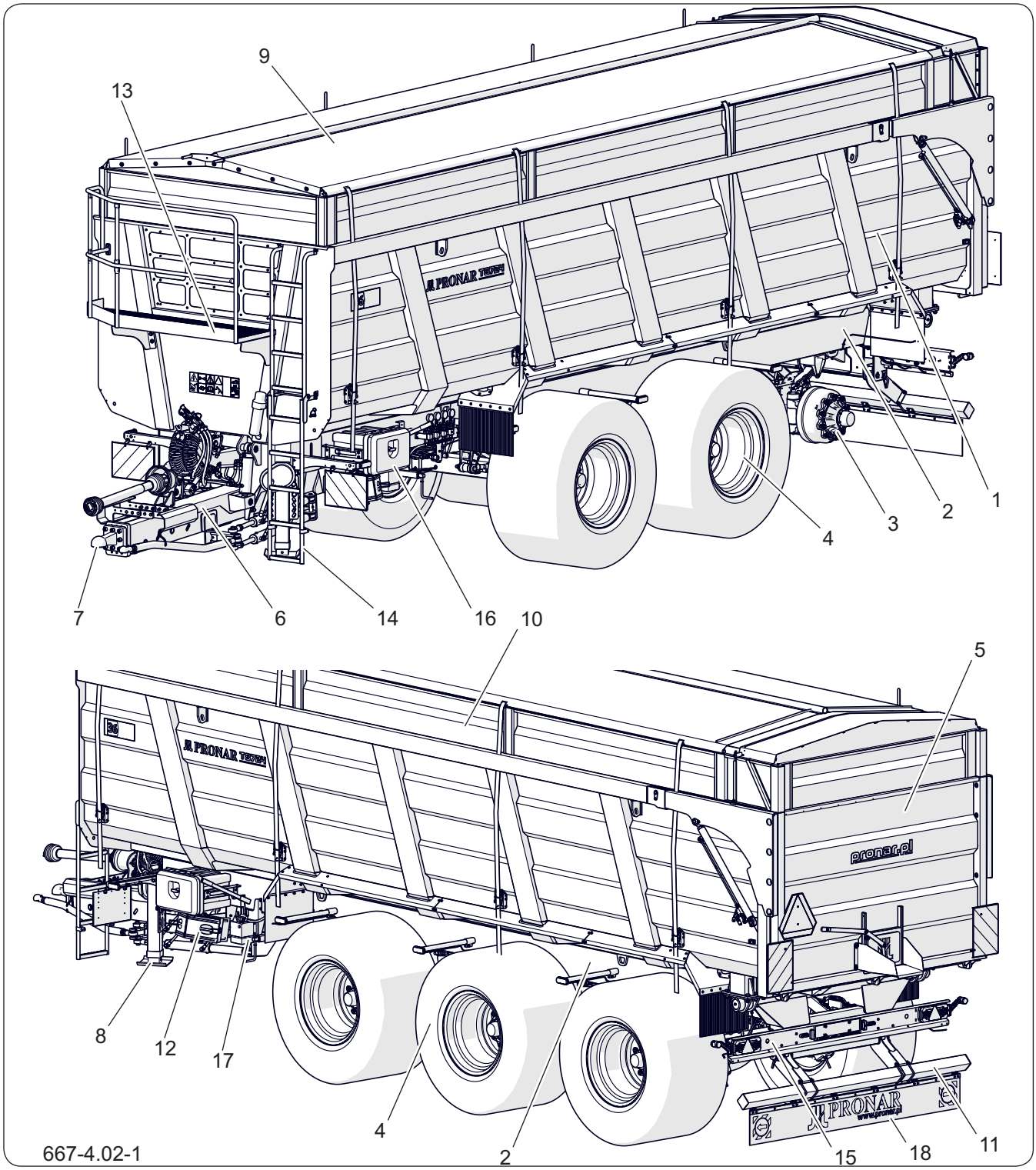


Figure 4.2 Trailer construction

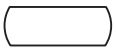
(1) load box *(2) lower frame* *(3) wheel axle*
(4) wheel *(5) tailgate* *(6) drawbar*
(7) drawbar hitching eye *(8) parking stand* *(9) frame with tarpaulin cover*
(10) extension *(11) bumper* *(12) wheel chocks*
(13) fenced platform *(14) ladder* *(15) lights support beam*
(16) toolbox *(17) turning steering system* *(18) apron*

The machine's axle system consists of wheels (4) mounted on axles (3), which in turn are attached to the suspension system. The axle system is attached to the bottom frame (2). The load box (1) is mounted on the frame (2) and can be tipped backwards. The hydraulically opened tailgate (5) equipped with a grain chute facilitates loading and unloading of transported materials. Optionally, the load box can be equipped with extensions (10) and a rolled tarpaulin (9).

BIZ.3.E-002.01.EN

4.3 PNEUMATIC BRAKE SYSTEM

Table 4.3 List of symbols used on the diagrams

Symbol	Description
	Pneumatic connection, plug
	Pneumatic connection, socket
	Drain valve
	Main control valve
	Relay valve
	Automatic regulator of braking force
	Manual regulator of braking force
	Line connection
	Air tank
	Brake cylinder
	Valve - control connection
	Air filter
	Three-way valve

Depending on the version, the machine may have one of two types of pneumatic main brake:

- 2-wire pneumatic system with automatic pneumatic brake force regulator,
- 2-wire pneumatic system with automatic hydraulic brake force regulator (for versions with hydraulic suspension),

The main pneumatic brake is activated from the tractor driver's cab by pressing on the brake pedal.

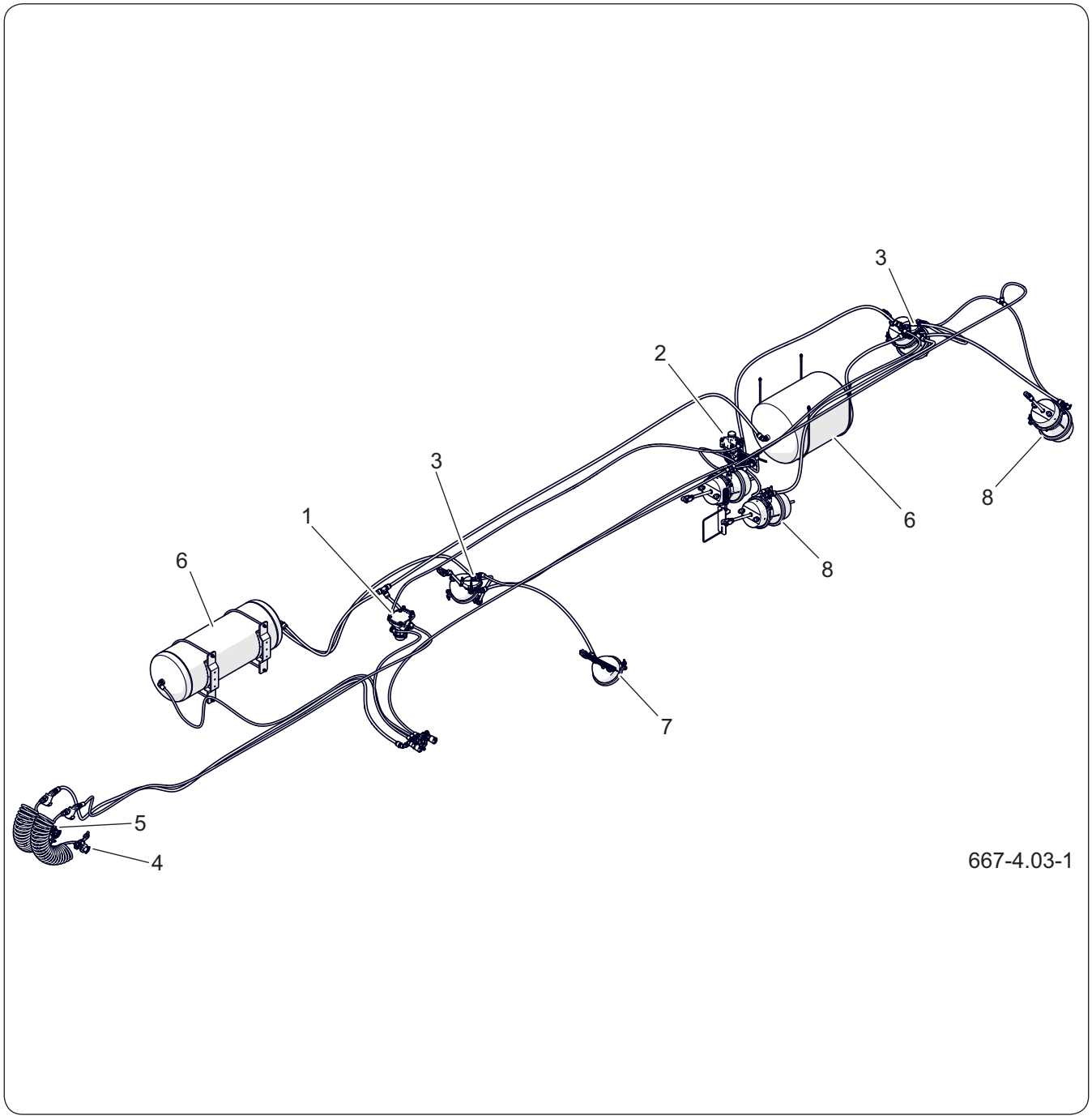


Figure 4.3 Scheme and design of a pneumatic braking system with an automatic braking force regulator

(1) brake valve *(2) automatic regulator* *(3) relay valve*
(4) "yellow" connector *(5) "red" connector* *(6) air tank*
(7) diaphragm cylinder *(8) diaphragm-spring actuator*

If a brake line between the machine and the tractor gets disconnected inadvertently, the control valve (1) will automatically activate the machine brakes.

BIZ.3.E-003.01.EN

4.4 HYDRAULIC BRAKE SYSTEM

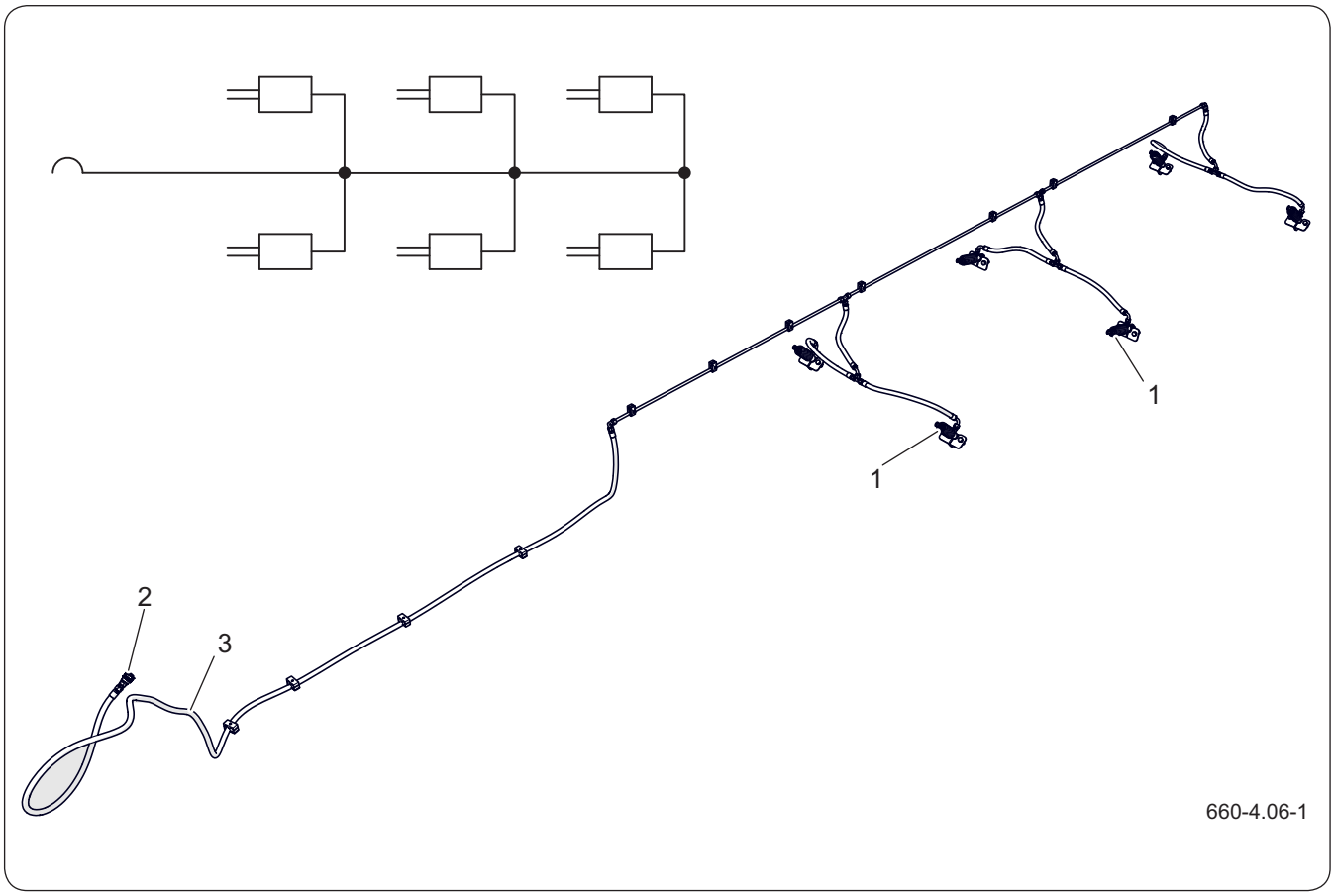


Figure 4.4 Design and diagram of hydraulic brake system

(1) hydraulic cylinder *(2) quick coupler socket* *(3) connection wire*

TIP

The hydraulic brake system of the machine is filled with L-HL32 Lotos hydraulic oil.

The main hydraulic brake is activated from the tractor driver's cab by depressing the brake pedal.

BIZ.3.H-004.01.EN

4.5 PNEUMATIC PARKING BRAKE

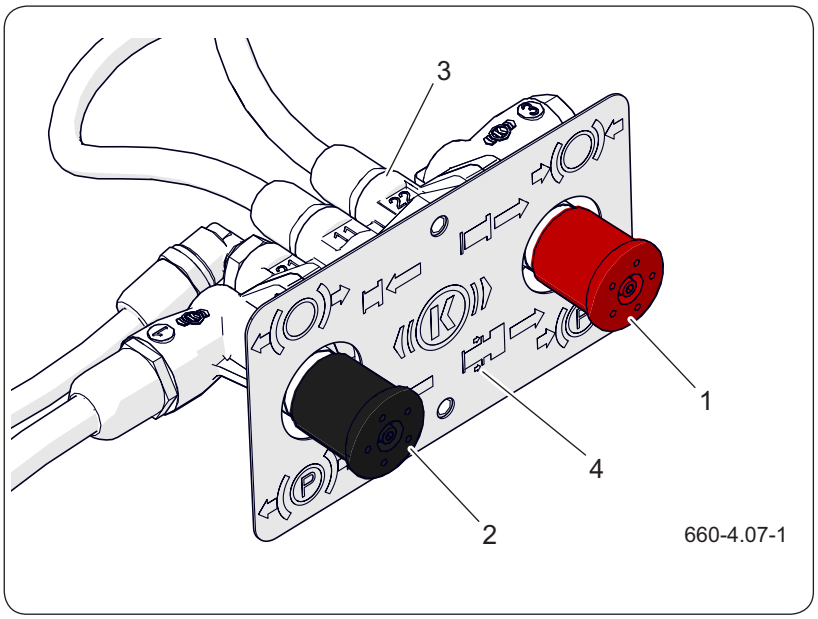


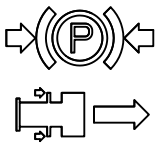
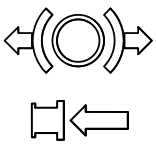
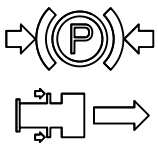
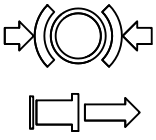
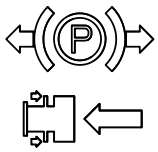
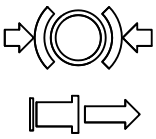
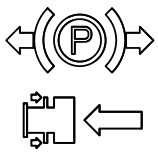
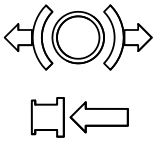
Figure 4.5 Parking break release valve
(1) red button *(2) black button*
(3) valve *(4) nameplate*

The parking brake is used to immobilise the trailer while parking. The parking brake is activated by parking break release valve (3). Black button (2) controls the loosening valve, that is designed for releasing or engaging the brake if the trailer is unhitched from the tractor. There is no possibility of pressing this button if pneumatic connections are connected to tractor.

Red button (1) controls operation of parking valve. In the trailer that is correctly hitched to the tractor by means of connections (red and yellow), the black button of the loosening valve should be pulled out. Braking of the trailer wheels is carried out by pulling out the red button (3).

The parking break release valve is equipped with the emergency brake function which is activated in the event of pressure drop in the supply conduit (as a result of conduit disconnection or damage).

Table 4.4 Working modes of the loosening-parking valve

Option	Button Red	Button Black	Description
A	RELEASED 	DEPRESSED 	The machine is braked with parking brake. If the red button is released, the trailer is immobilized with parking brake regardless of the black button position.
B	RELEASED 	RELEASED 	
C	DEPRESSED 	RELEASED 	Machine is prepared for travel. Pneumatic lines are connected to the trailer. Black button cannot be depressed. Machine is braked Pneumatic lines are not connected. If the black button is depressed, the brake will be released.
D	DEPRESSED 	DEPRESSED 	Parking brake is released, manoeuvre position The trailer brake is completely released. Pneumatic lines are not connected.

BIZ.3.H-005.01.EN

4.6 PARKING BRAKE

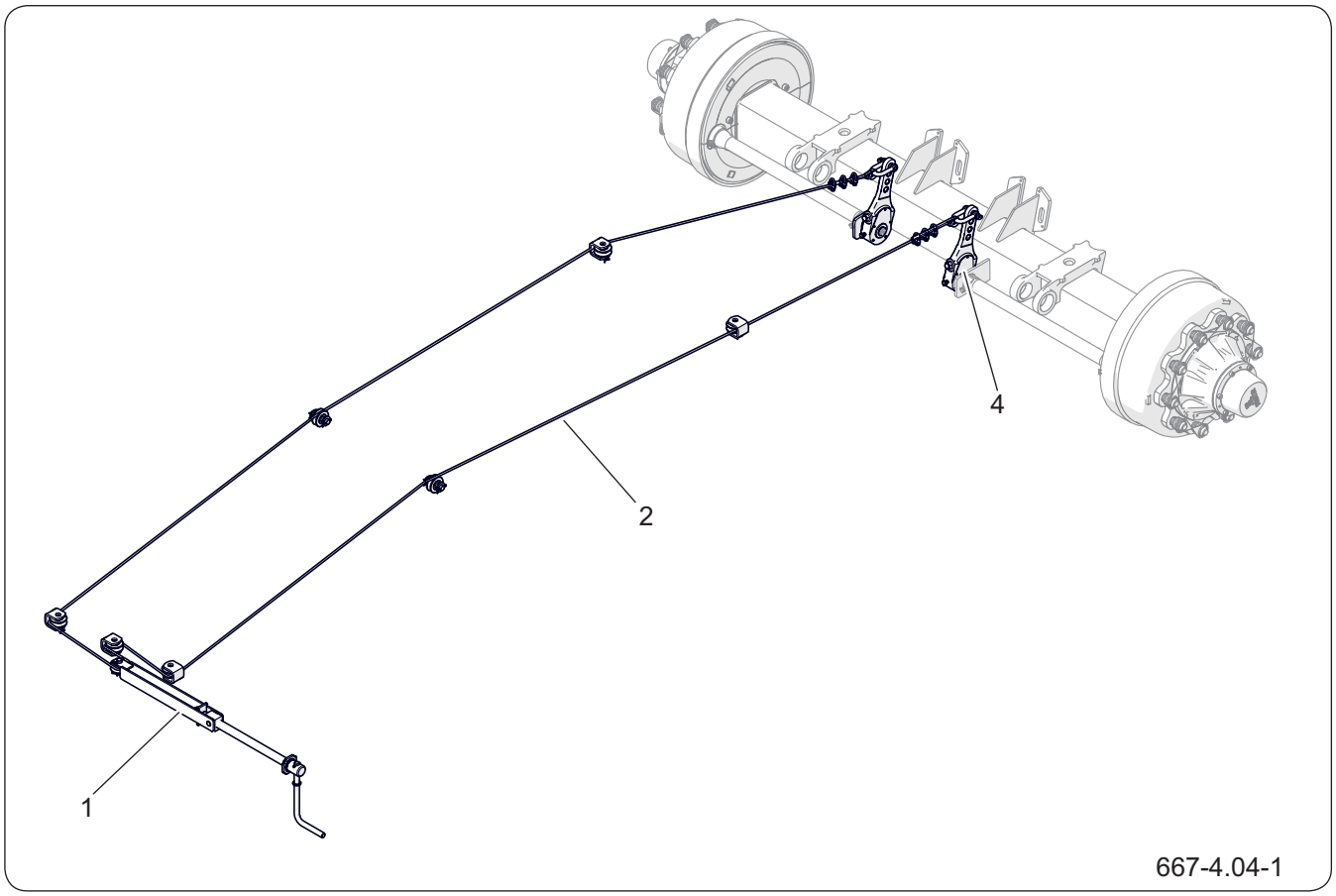


Figure 4.6 Parking brake design

(1) brake mechanism *(2) cable* *(3) lever*
(4) expander lever

ATTENTION

Before driving off, make sure that the parking brake is released.

The parking brake is used to immobilise the trailer while parking. The brake crank mechanism (1) is connected with steel cables to the spreader levers (4) of the axles. By turning the crank of the mechanism (1) (clockwise), the steel cable becomes tense causing the brake expander lever to deflect, which, by spreading the brake shoes, immobilize the trailer. Prior to moving off, handbrake must be released - steel cable must hang loose.

BIZ.3.8-005.41.EN

4.7 SAFETY BRAKE

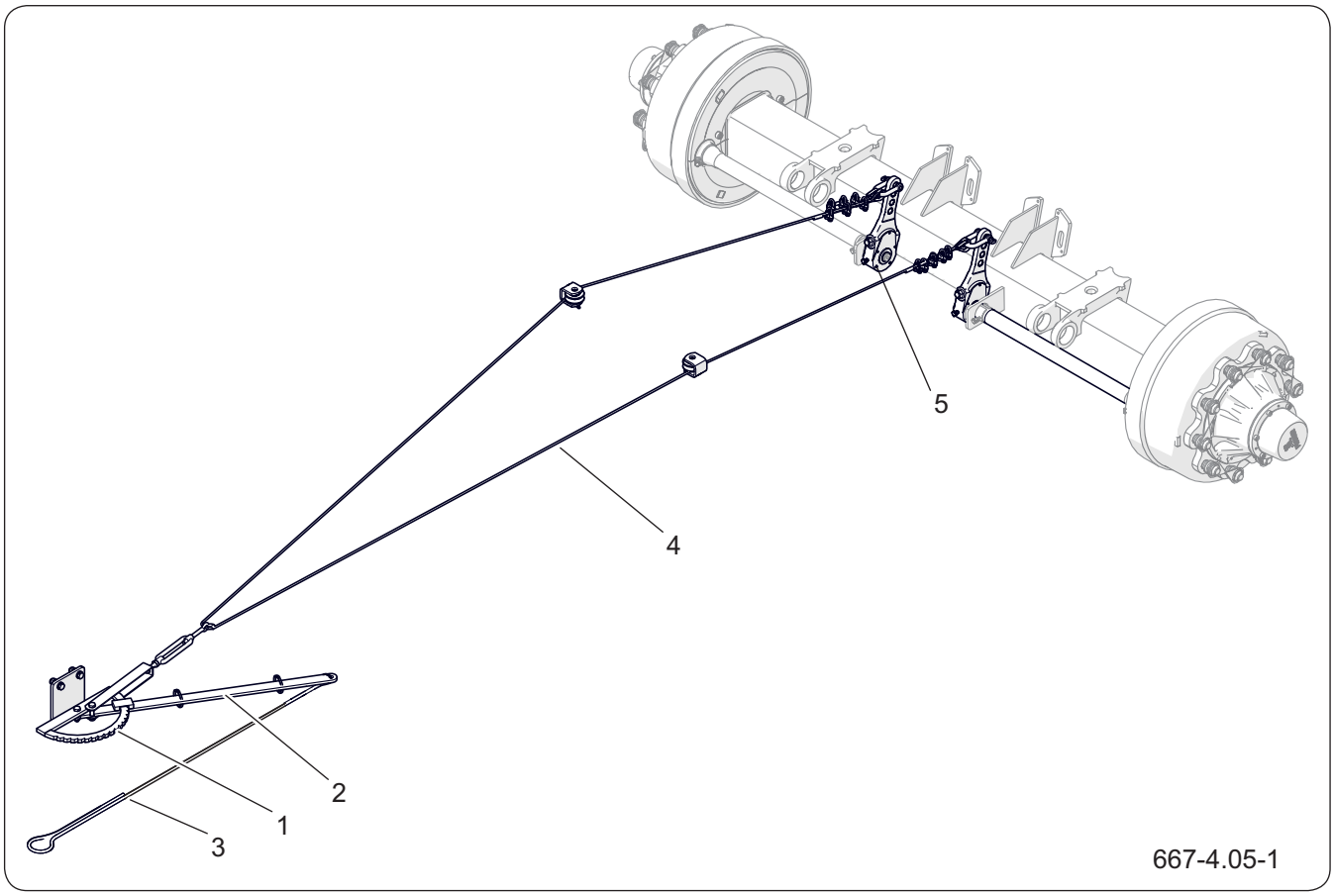


Figure 4.7 Safety bBrake design

(1) ratchet mechanism *(2) mechanism lever* *(3) safety cable*
(4) braking cable *(5) expander lever*

ATTENTION

Before driving, make sure that the safety brake is unlocked and the safety cable is correctly positioned and securely attached to the tractor structure.

The safety brake is used to stop the trailer when the coupling is disconnected while the tractor and trailer is moving.

The cable (3) is connected at one end to the tractor element and at the other end to the lever (2) of the ratchet mechanism (1). The ratchet mechanism (1) is connected with a steel cable (4) with the expander levers (5) of the driving axles.

While the trailer is moving, when the coupling is disconnected, the safety cable (3) will act on the mechanism lever (1), which will cause the brake expander levers to tilt, which, by opening the brake shoes, immobilizes the trailer. Before driving, check the safety brake - the steel cable and safety cable

must hang loosely and the ratchet mechanism must be in the unlocked position.

BIZ.3.B-005.11.EN

4.8 LOAD BOX

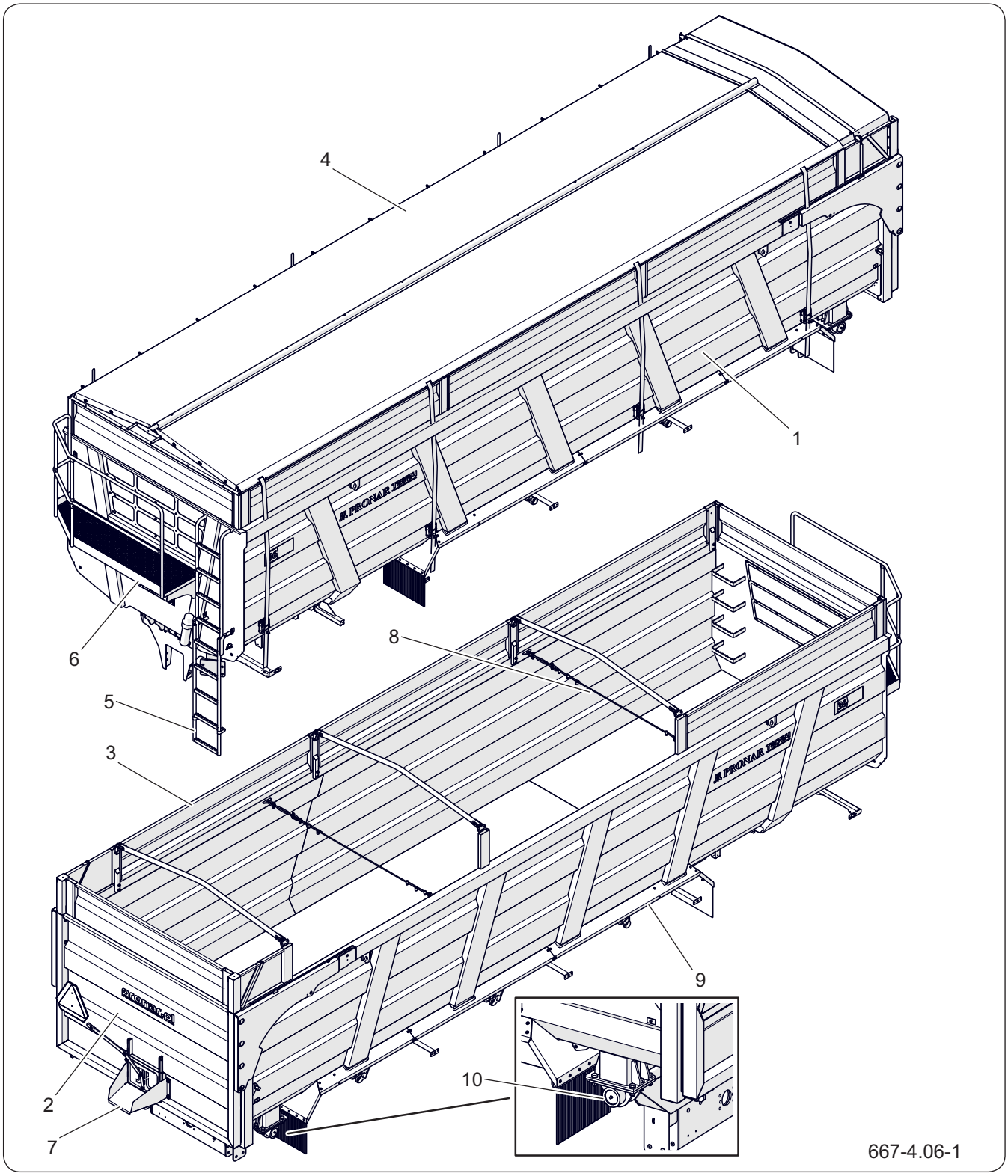


Figure 4.8 Load box

(1) load box *(2) tailgate* *(3) extension*
(4) tarpaulin cover *(5) ladder* *(6) fenced platform*
(7) chute *(8) linking cable* *(9) deflectors*
(10) tipping hinge

The load box is mounted floating on the lower frame using two tipping hinges (10). The load box can only tip backwards. Hydraulically opening tailgate (2) is located in the rear section of the load box. On the upper part of the load box is installed a wall extension set (3) with canvas cover (4). On the front wall of the load box is placed the platform (6) and folding ladder (5). The side walls are connected with fastening cables (8).

BIZ.3.E-004.01.EN

4.9 DISTRIBUTOR HYDRAULIC SYSTEM

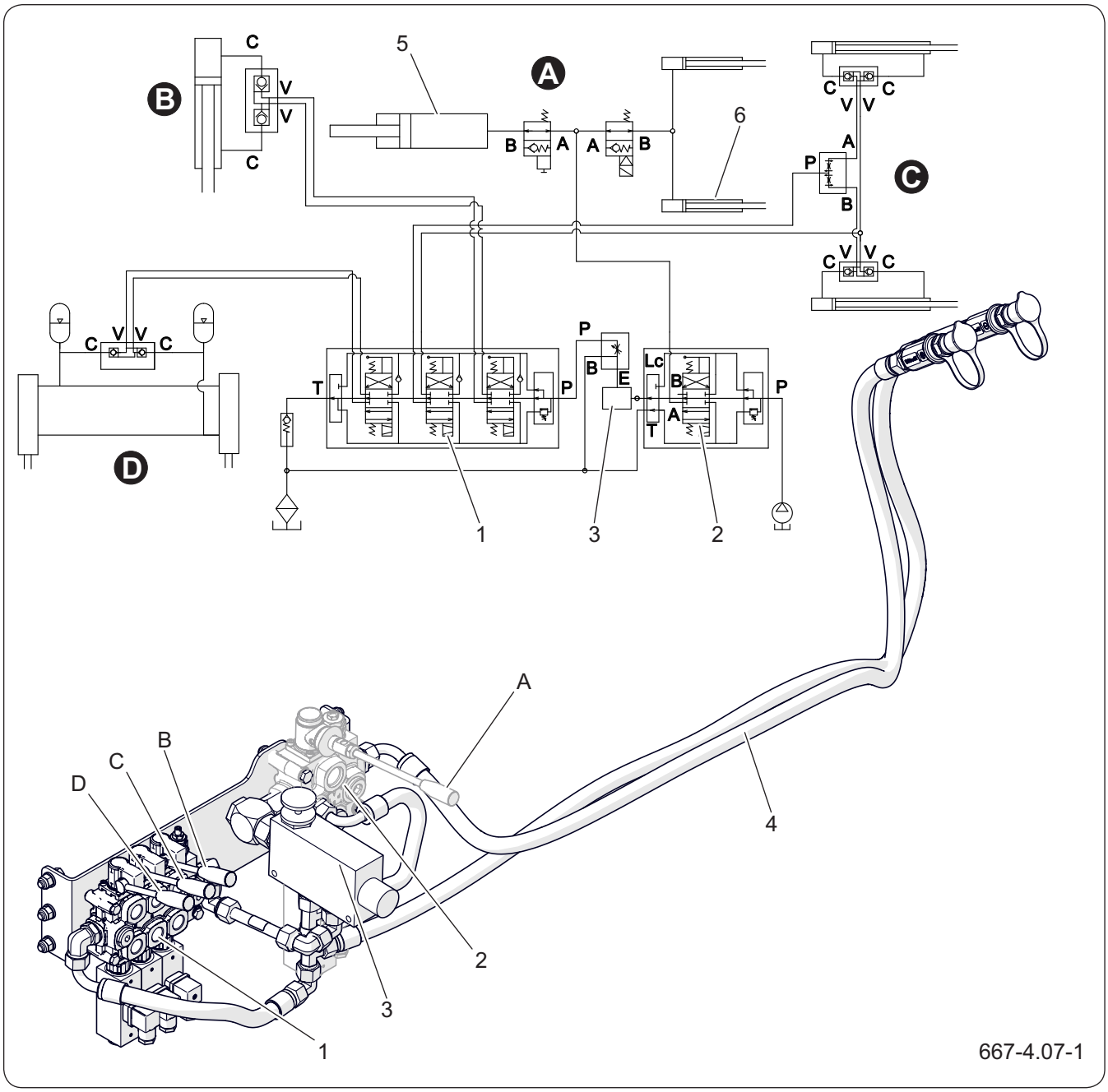


Figure 4.9 Distributor hydraulic system design and diagram

(1) Three-section distributor *(2) Single-section distributor* *(3) flow regulator*
(5) tipping cylinder *(6) suspension interlock cylinder* *(4) hydraulic lines*
(A) tipping the load box *(B) hydraulic support* *(C) tailgate*
(D) hydraulic drawbar

The conduits (4) power the distributor's hydraulic system. The appropriate trailer systems are powered through individual distributors.

BIZ.3.E-006.01.EN

4.10 HYDRAULIC TIPPER SYSTEM

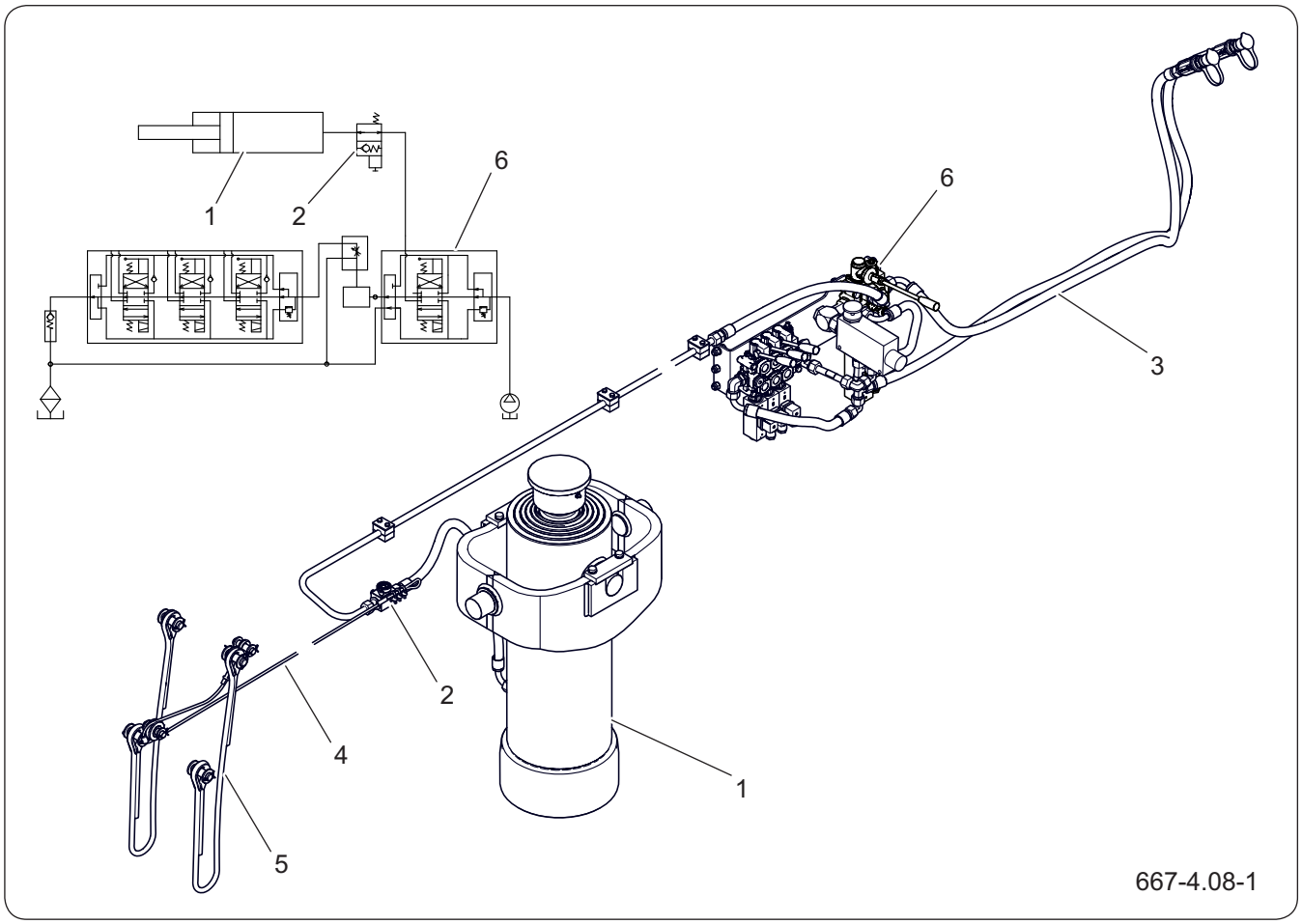


Figure 4.10 Hydraulic tipping system design and diagram

(1) tipping cylinder *(2) cut-off valve* *(3) hydraulic lines*
(4) control cable *(5) Tipping limiting cable* *(6) manifold*

Hydraulic tipping system ensures automatic unloading of trailer by tipping the load box. The load box is tipped using a distributor (6) controlled by a lever or a wired controller. The tipping angle of the load box is limited for safety reasons by a cut-off valve (2) with a cable (4) and limiting cables (5).

BIZ.3.E-007.01.EN

4.11 TAILGATE HYDRAULIC SYSTEM

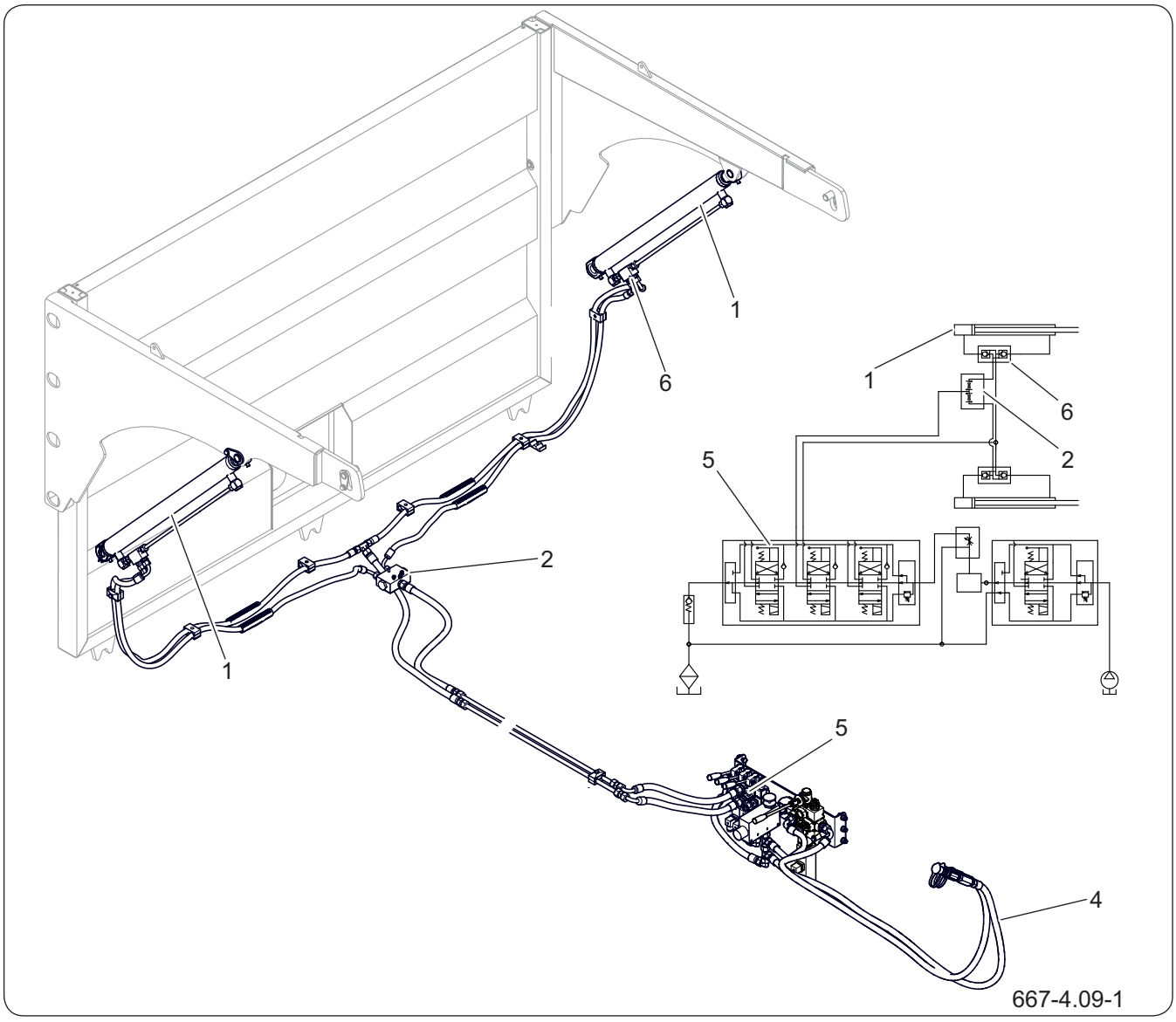


Figure 4.11 Design and diagram of the tailgate hydraulic system

(1) hydraulic cylinder *(2) flow divider* *(4) hydraulic lines*
(5) manifold *(6) hydraulic lock*

The hydraulically lowered and raised tailgate facilitates loading and unloading of transported materials. The tailgate is raised and lowered using two actuators (1) with hydraulic locks (4) on them, the task of which is to prevent the tailgate from lowering automatically in the event of a leak in the hydraulic system.

BIZ.3.E-009.01.EN

4.12 HYDRAULIC SYSTEM OF THE DRAWBAR

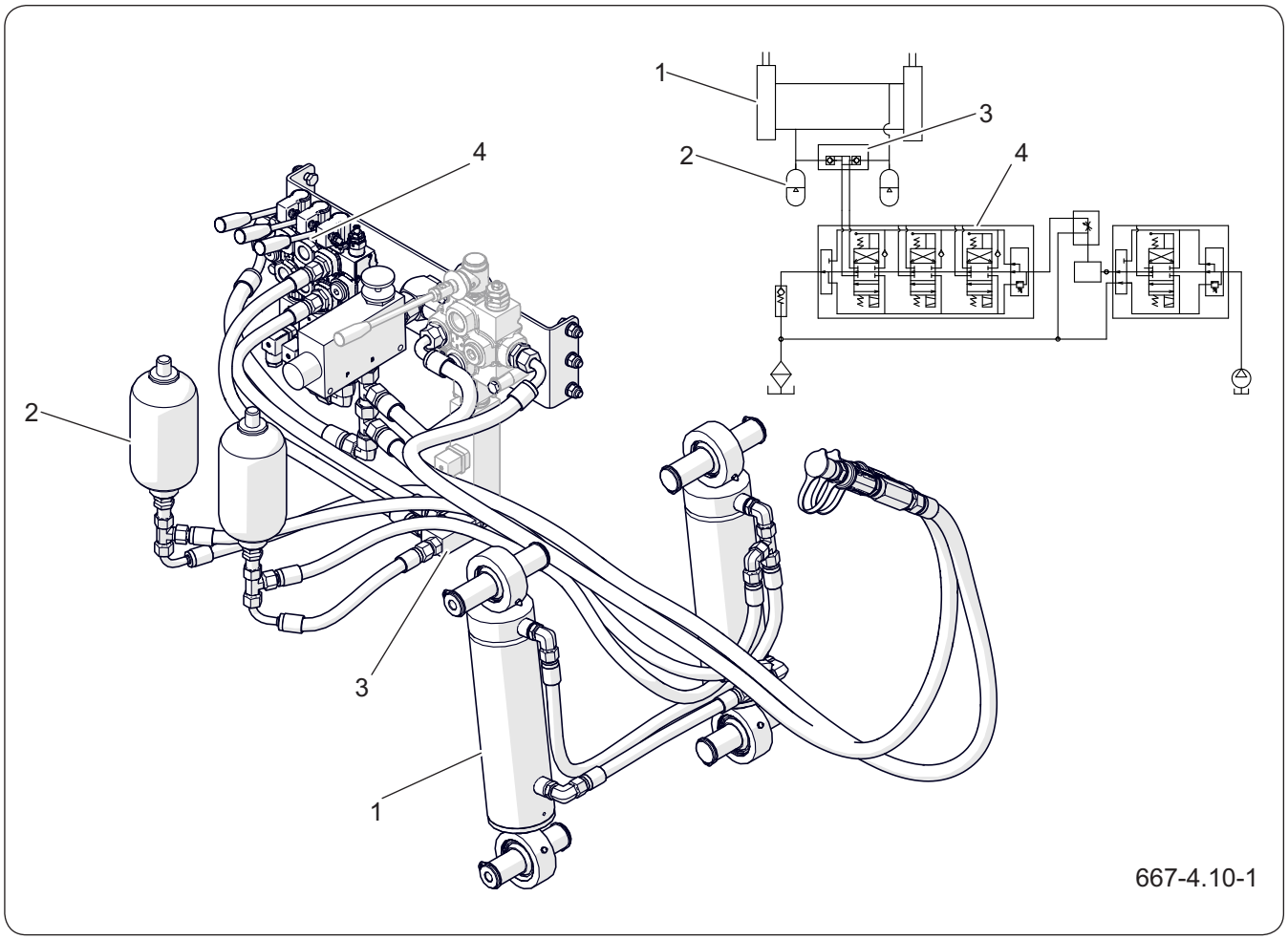


Figure 4.12 Design and diagram of the drawbar's hydraulic system
(1) hydraulic cylinder (2) hydraulic accumulator (3) check valve
(4) hydraulic selective control valve

The hydraulic system for adjusting the height and amortization of the drawbar is composed of two hydraulic cylinders (1) connected to hydraulic batteries (2). The hydraulic lines of the system are connected to the non-return valve (3).

BIZ.3.H-009.11.EN

4.13 HYDRAULIC ACTIVE STEERING INSTALLATION

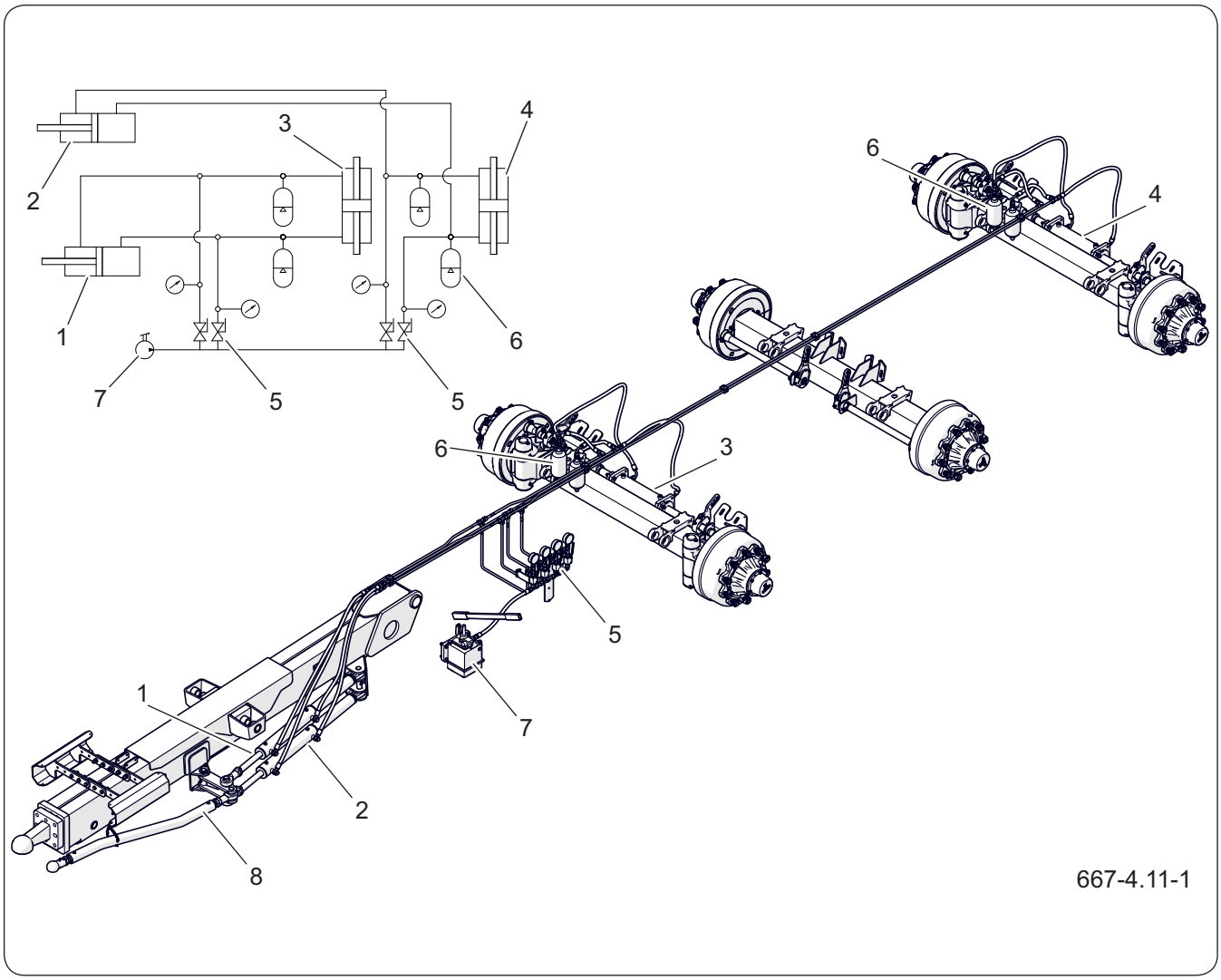


Figure 4.13 Hydraulic steering system design and diagram

(1) front axle steering cylinder, (2) rear axle steering cylinder, (3) front axle cylinder
(4) rear axle cylinder (5) hydraulic valves (6) hydraulic accumulator
(7) hand-pump (8) string

The trailer is equipped with hydraulic steering system for controlling the wheels of the first axle and the third axle of the trailer.

Steering axles are equipped with cylinders (3) and (4) and connected to double-acting cylinders (1) and (2) located on the right side of the drawbar by means of hydraulic lines and pipes creating a closed-circuit. The drawbar's cylinders are connected with the string (8) by means of a lever. The strings' ball-shaped ends (8) are connected with the tractor hitch which meets

the requirements of ISO 26402 standard.
The system is filled with oil in the amount of approximately 8 litres. During movement of rods of cylinders (2) and (1), oil in the system flows to steering cylinders (3) and (4) on the external axles and causes turning the trailer wheels. Rods of cylinders (1) and (2) move when the trailer drawbar changes its angular position with regard to tractor hitch when manoeuvring.
Hydraulic accumulators (6) are used in order to eliminate minimal clearance of axle steering cylinders and reduce load applied to the system when manoeuvring (7). Under the load box, on the left side, there is a hydraulic hand pump (7) for filling and setting the pressure in the steering system.

BIZ.3.8-006.31.EN

4.14 STEERING LOCK HYDRAULIC SYSTEM

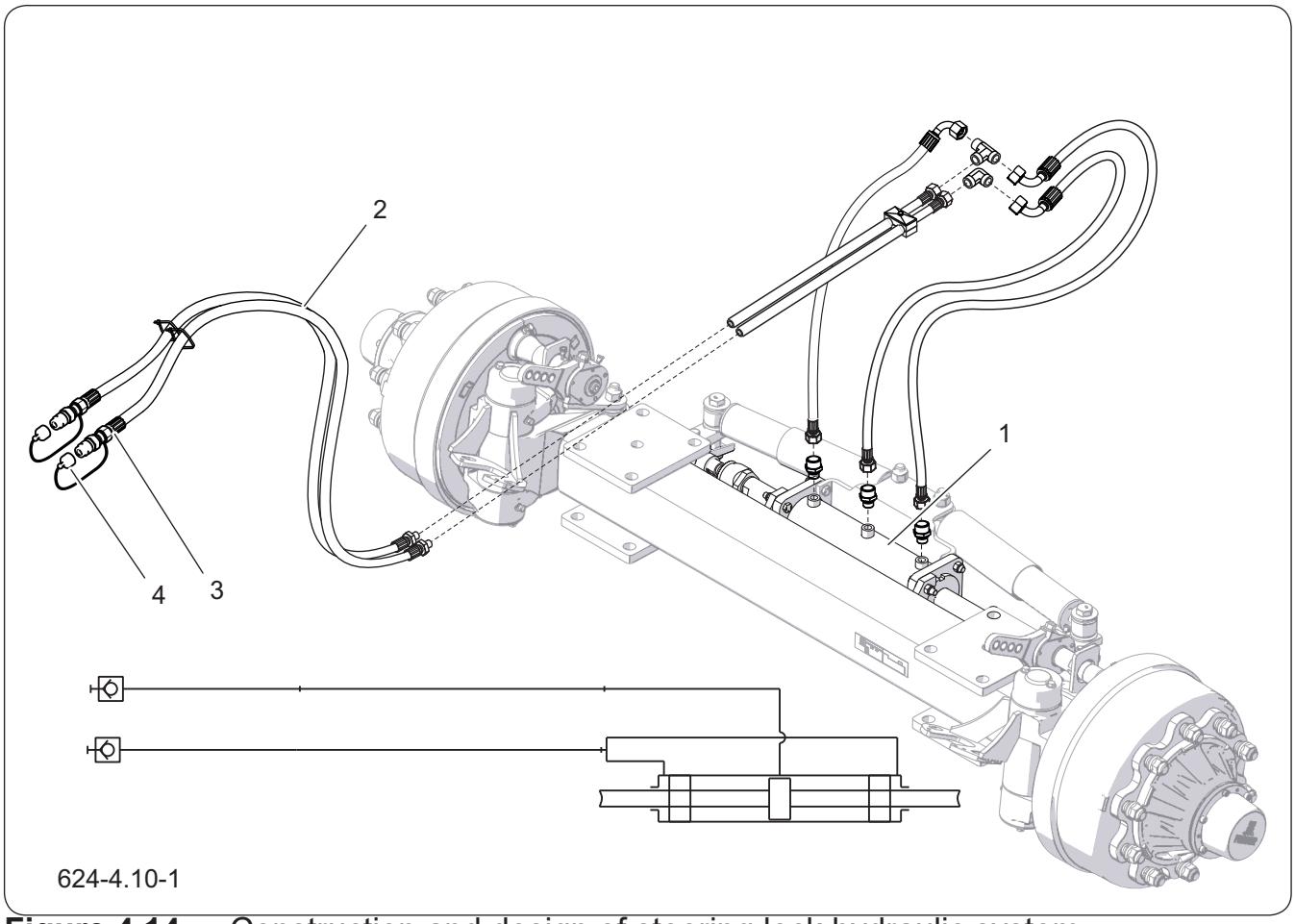


Figure 4.14 Construction and design of steering lock hydraulic system

(1) hydraulic cylinder *(2) conduit* *(3) quick coupler - plug*
(4) plug cap

TIP

The steering lock hydraulic system was filled with L-HL32 Lotos hydraulic oil.

ATTENTION

When moving a loaded trailer at high speed, you must block the steering axle.

When driving backwards, lock the steering axle.

Easier manoeuvring of the trailer in the field and less tire wear is achieved thanks to the free steering axle. The steering arms must be locked when reversing, otherwise the trailer will tend to turn uncontrollably to the left or right when reversing.

BIZ.3.B-011.01.EN

4.15 HYDRAULIC SUPPORT SYSTEM

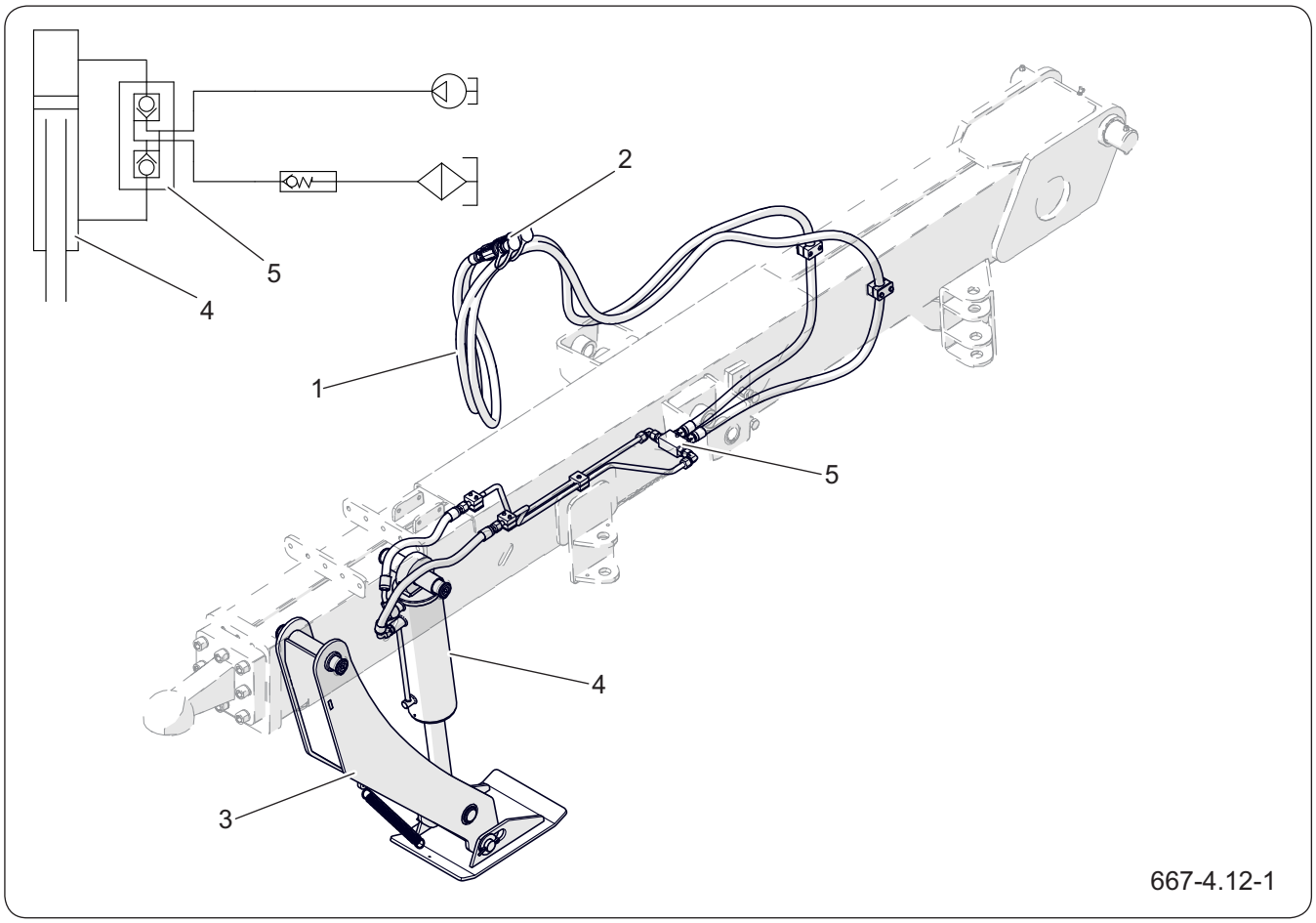


Figure 4.15 Design and diagram of the shear type support hydraulic system

(1) hydraulic line *(2) hydraulic plug* *(3) shear type support*
(4) hydraulic cylinder *(5) hydraulic lock*

Secure the machine when parked using the parking brake, chocks and hydraulic support. When aggregating the machine, set the drawbar link at the appropriate height using the support. Before driving, raise and fold the support to the transport position.

BIZ.3.C-006.11.EN

4.16 HYDRAULIC SYSTEM WITH OIL TANK

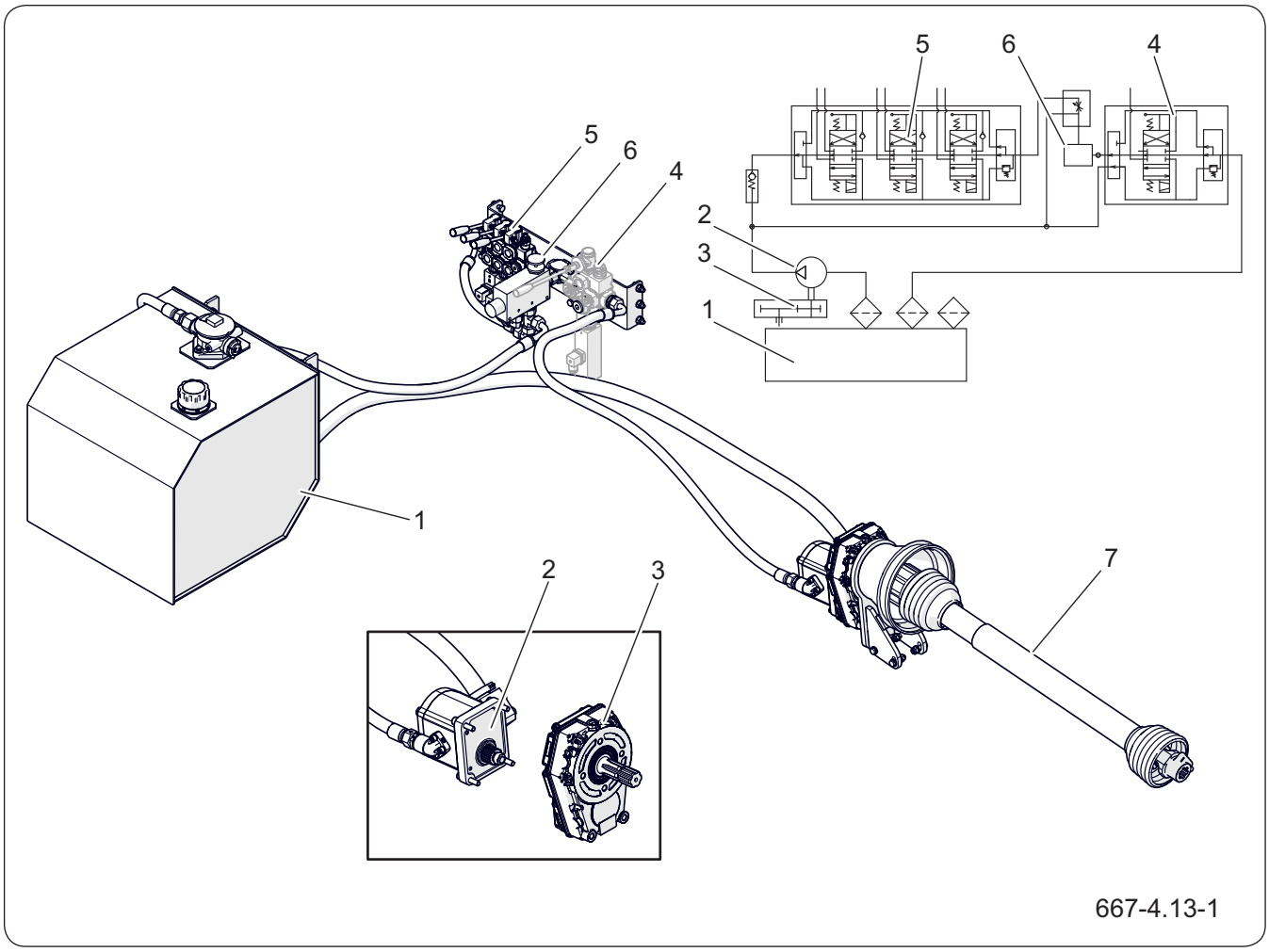


Figure 4.16 Design and diagram of hydraulic system with oil tank

(1) oil tank *(2) oil pump* *(3) gear*
(4) 1-section manifold *(5) 3-section manifold* *(6) flow regulator*
(7) power take-off shaft

The trailer can be equipped with its own hydraulic system driven by the PTO shaft of an agricultural tractor.

The PTO shaft (7) drives the hydraulic pump (2) via the gearbox (3), which is powered by the oil tank (1). Hydraulic oil from the pump (2) goes to hydraulic distributors (4) and (5), from where it is directed via the hydraulic sections of the distributors to the appropriate hydraulic circuits.

Table 4.5 Rear power take-off shaft PTO

Parameter	Unit	Requirements
Type	-	Type 1 (1 3/8”) acc. to ISO 730-1
Rotation speed	rpm	540
Number of splines on PTO shaft	pc.	6
Rotation direction	-	clockwise

BIZ.3.E-011.01.EN

4.17 HYDRAULIC SUSPENSION

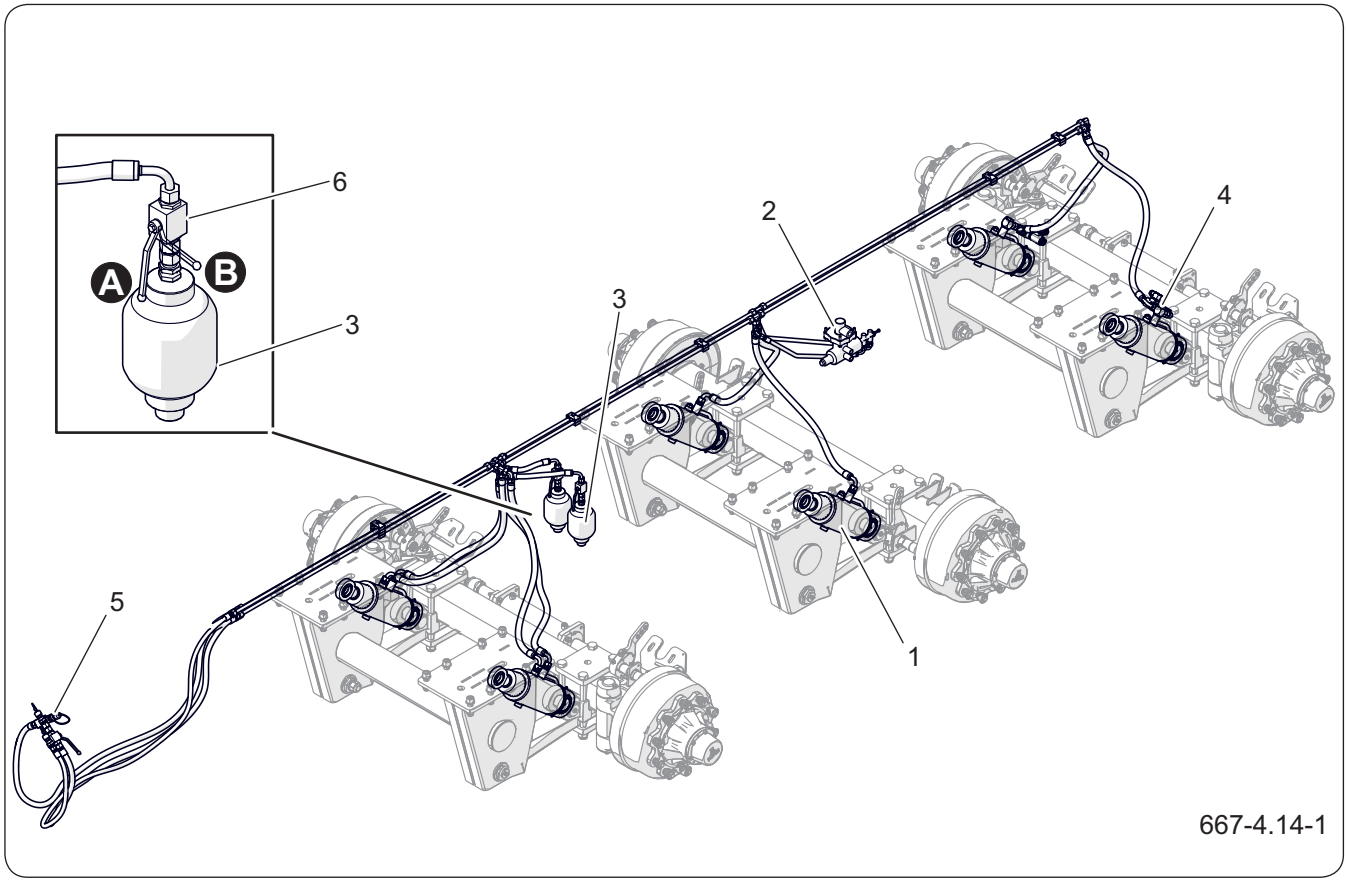


Figure 4.17 Design of the suspension hydraulic system

(1) hydraulic cylinder *(2) braking force regulator* *(3) hydraulic accumulator*
(4) solenoid valve *(5) connecting lines* *(6) valve*
(A) opened position *(B) closed position*

The suspension hydraulic system consists of six hydraulic cylinders (1), which act as spring elements. The hydraulic cylinders are connected together by means of hydraulic lines. Two hydraulic accumulators (3) are installed in the system circuits, whose task is to dampen the suspension vibrations. The connection lines (5) are terminated with quick connectors with black plugs. Valves (6) and connection lines are used for setting and adjusting the trailer suspension. The connection line without hydraulic valve (6) is used to lift the front axle.

BIZ.3.E-012.01.EN

4.18 INSTALLATION OF SOLENOID VALVES

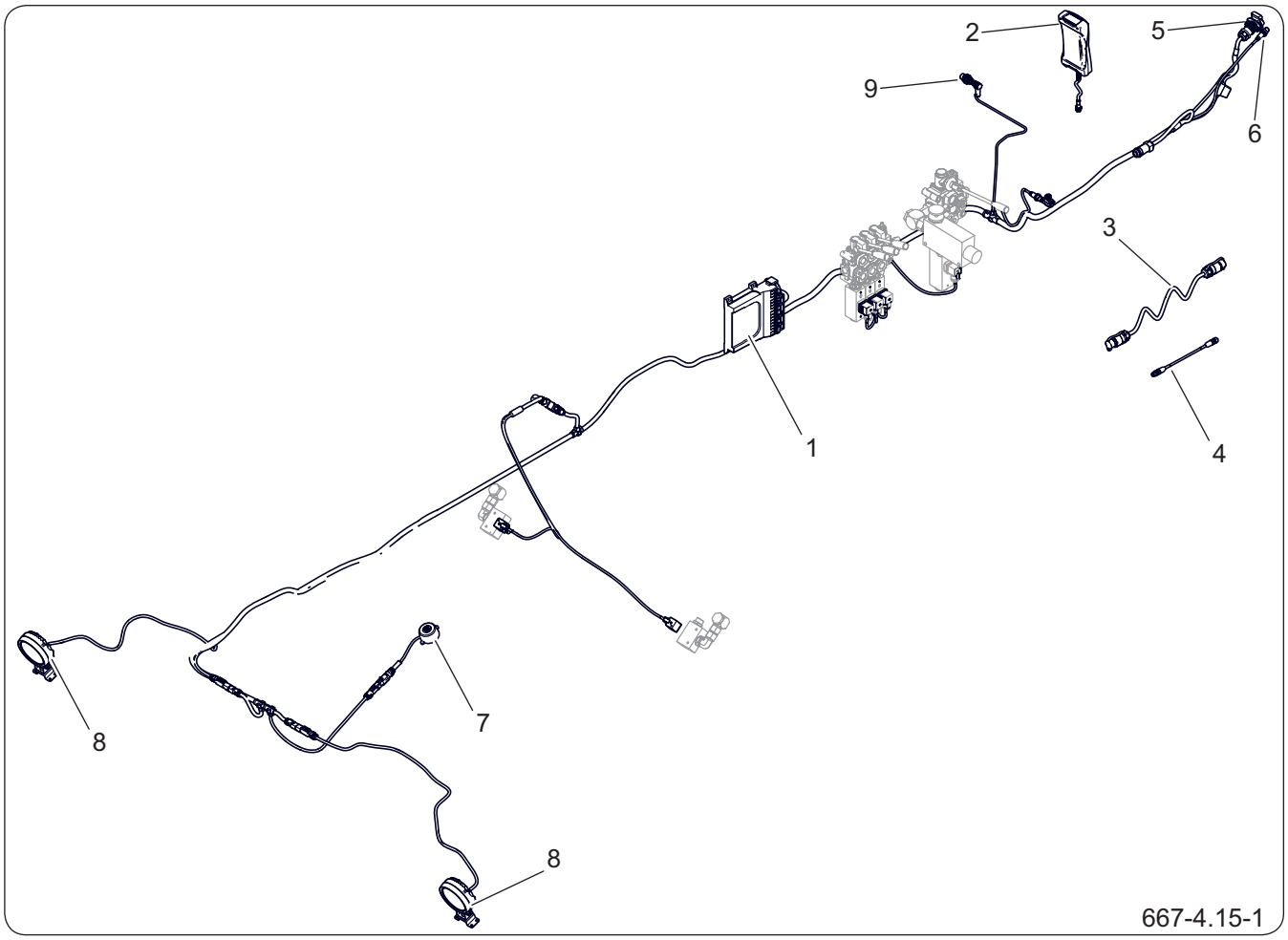


Figure 4.18 Design of solenoid valves electrical system

(1) ECU module *(2) wired control* *(3) 3-pin cable*
(4) wired controller wire *(5) 3-pin wire socket* *(6) wired controller socket*
(7) reversing alarm *(8) work lamp* *(9) sensor*

The wired controller (2) is connected to the control module (1) via a cable (4). The appropriate control outputs of the module are connected to the electro -hydraulic distributor coils responsible for performing specific trailer functions. The system is powered by cable (3).

BIZ.3.E-013.01.EN

4.19 ELECTRICAL LIGHTING SYSTEM

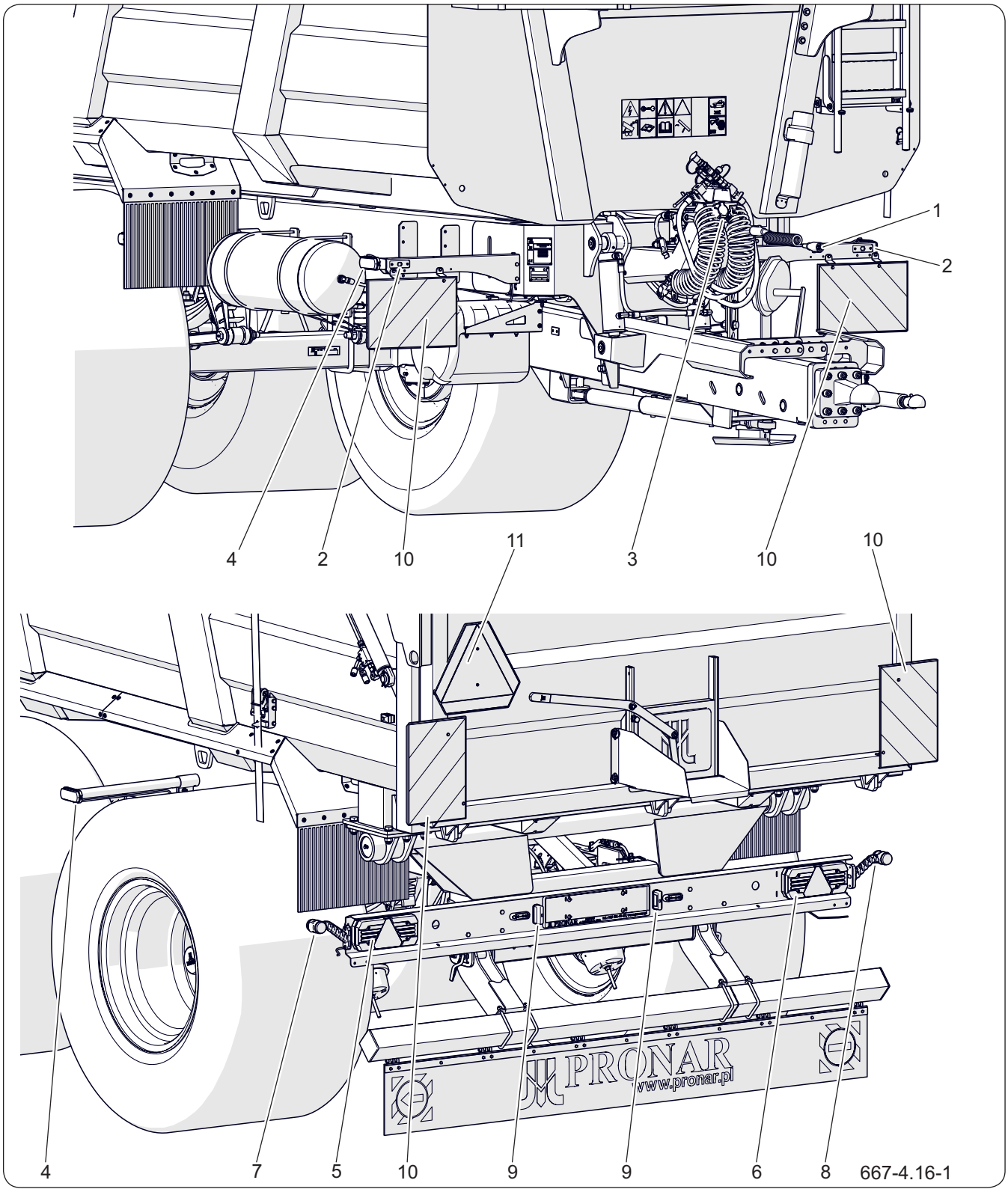


Figure 4.19 Positioning of electrical system components and reflective elements

(1) 7 pin electrical wire
(2) front parking light
(3) 7-pin socket
(4) side clearance lamp
(5) rear left lamp
(6) rear right lamp
(7) left clearance lamp
(8) right clearance lamp
(9) licence plate light
(10) warning board
(11) warning sign

ATTENTION

Before driving, check the operation and completeness of the electrical system.

Do NOT drive if the lighting system is unreliable.

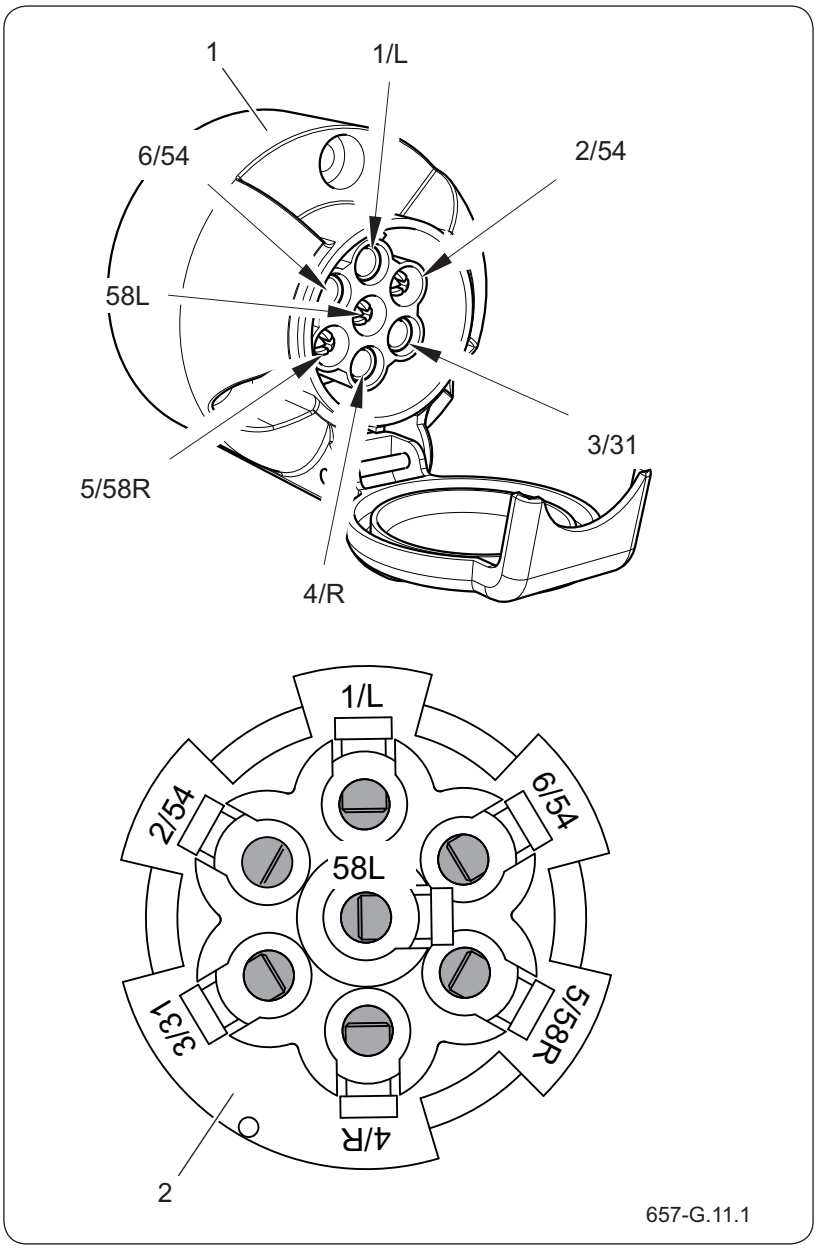


Figure 4.20 7-pin socket

(1) socket *(2) view from the wiring harness side*

The trailer electrical lighting system is designed for 12 V DC supply.

Connect the electrical system of the machine to the tractor using the connection cable (1) attached to the trailer.

Table 4.6 Markings of connection socket's connections

Marking	Function (lead colour)
1/L	Left indicator (yellow)
2/54	unused
3/31	Ground (white)
4/R	Right indicator (green)
5/58R	Rear right parking light (brown)
6/54	STOP light (red)
58L	Rear left parking light (black)

BIZ.3.E-014.01.EN

Chapter 5

Correct use

PRONAR T8724 T8724/1

5.1 ADJUSTMENT OF DRAWBAR HEIGHT

DANGER

Exercise due caution during the adjustment to avoid the risk of crushing of limbs.

ATTENTION

Regularly check the condition of the hitch pins and their securing devices. Pay attention to the technical condition of the drawbar hitching eye and its screw connections. Lubricate the recommended lubrication points.

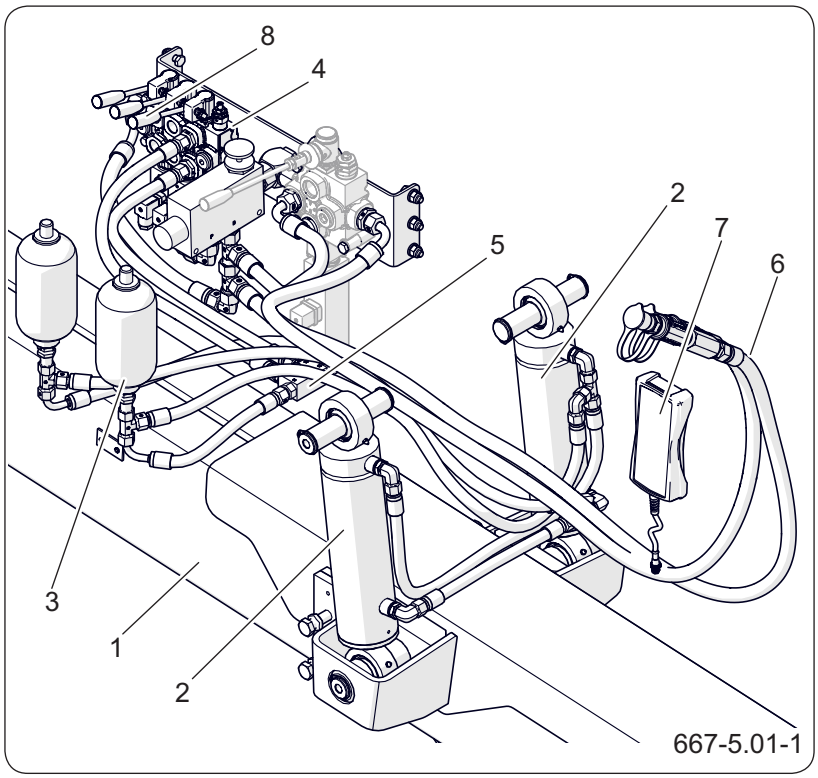


Figure 5.1 Adjustment of drawbar height

(1) drawbar *(2) cylinder*
(3) hydraulic accumulator *(4) manifold*
(5) hydraulic lock *(6) conduits*
(7) wired controller *(8) manifold lever*

Select the drawbar position individually depending on the size of the trailer tires and the type and height of the agricultural tractor hitch with which the machine will be coupled. Set the height so that when connected to the tractor, the trailer is level, which will ensure even distribution of the machine's weight on the steering axles.

Before making adjustments, block the trailer with the parking brake and place support chocks under the rigid axle wheel. Support the front part of the machine frame so that the machine stands stably. Fold the parking stand to the transport position.

TIP

Remember that the hydro batterie is filled with nitrogen. This gas reacts to temperature changes, which is why the pressure gauge readings may change as the operating temperature decreases or increases.

Adjusting the drawbar height

1. Connect the lines (6) to the appropriate section of the tractor's external hydraulics distributor.
2. Connect the wires of the wired controller (7).
3. Start the tractor, apply hydraulic oil to the appropriate section of the tractor distributor.
4. Turn on the wired controller and use the appropriate buttons to set the appropriate drawbar height.
5. Use the lever (8) of the distributor (4) or the wired controller (7) to set the appropriate drawbar height.

OBS.3.E-001.01.EN

5.2 OPERATION OF MECHANICAL PARKING STAND

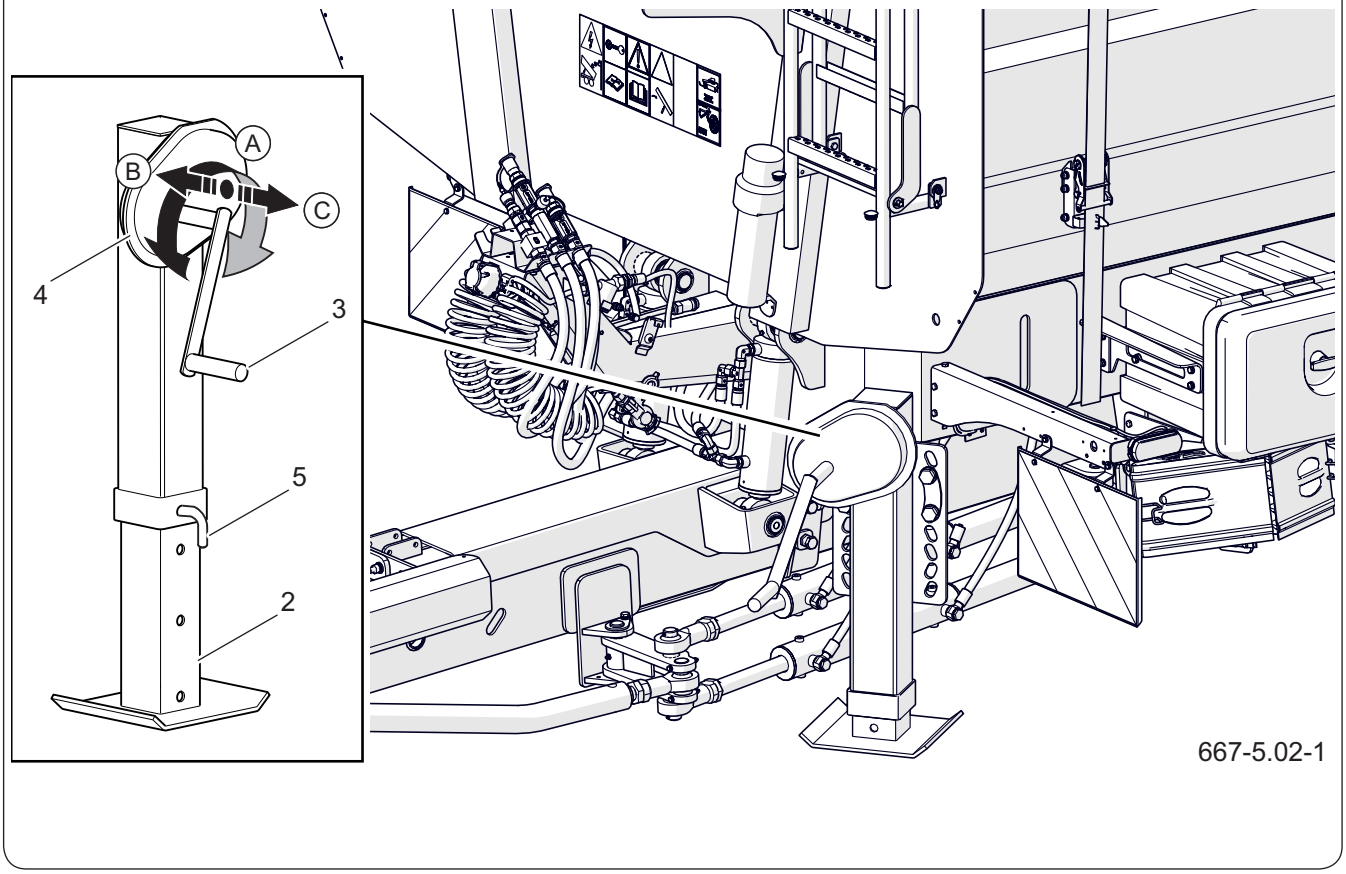


Figure 5.2 Telescopic support

(1) support *(2) foot* *(3) crank*
(4) gear *(5) safety pin* *(A) neutral position*
(B) 1st gear (slow) *(C) 2nd gear (fast)*

DANGER

Be especially careful when operating the support – this refers also to bystanders or helpers.

Proper height of drawbar eye in relation to tractor hitch can be set using the telescopic support with mechanical gear.

Use position (C) to quickly lower and raise the support leg. Position (B) is used to lower and raise the drawbar of the unloaded machine. In position (B), the support leg (2) moves slowly and a large force is not required to raise the machine.

Raising the support

1. Secure the machine against rolling away.
2. Position the tractor in such a way that the

ATTENTION

Do not move and drive with lowered support.

Before moving off, check that the support is maximally raised, and the crank is set in neutral position (A). Be sure to secure the support leg with a securing pin.

tractor's hitch is in front of the trailer drawbar eye.

3. Turn off tractor engine.
4. Engage tractor parking brake.
5. Remove the pin (5).
6. Move support crank (3) from neutral position (A) to position (B) slowly.
7. Turn the crank anticlockwise to raise support foot (2) maximally.
8. Place safety pin (5) in position, and set crank in neutral position (A).

Lowering the support

1. Secure the machine against rolling away.
2. Position the tractor in such a way that the tractor's hitch is in front of the trailer drawbar eye.
3. Turn off tractor engine.
4. Engage tractor parking brake.
5. Remove the pin (5).
6. Move support crank (3) from neutral position (A) to position (B) slowly or (C) quickly.
7. Turn crank clockwise to lower support to the ground, adjust drawbar height in relation to hitch (if machine shall be hitched to tractor).
8. Place safety pin (5) in position, and set crank in neutral position (A).

OBS.3.E-002.01.EN

5.3 OPERATION OF HYDRAULIC PARKING STAND

DANGER

Be especially careful when operating the support – this refers also to bystanders or helpers.

It is unacceptable to leave a loaded trailer supported only by a parking stand.

TIP

The system is filled with 1L L-HL 32 oil.

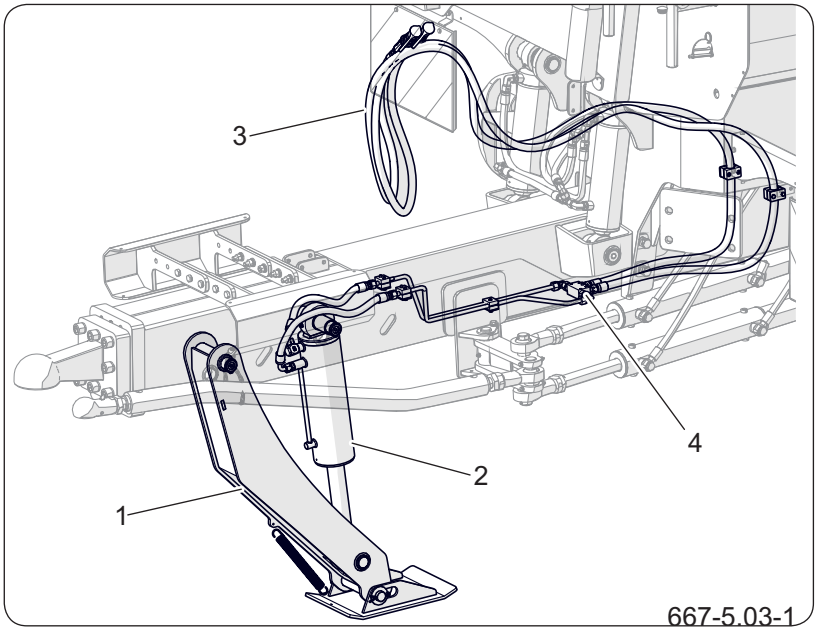


Figure 5.3 Hydraulic support

(1) support *(2) actuator*

(3) hydraulic lines *(4) hydraulic lock*

Proper height of drawbar eye in relation to tractor hitch can be set using a hydraulic shear type support.

Raising the support

1. Secure the machine against rolling away.
2. Position the tractor in such a way that the tractor's hitch is in front of the trailer drawbar eye.
3. Turn off tractor engine.
4. Engage tractor parking brake.
5. Connect the hydraulic lines (3) of the support to the appropriate section of the tractor's external hydraulics distributor.
6. Turn on tractor engine.
7. Use the tractor's distributor lever to set the appropriate height of the drawbar hitching eye.

Lowering the support

1. Secure the machine against rolling away.
2. Position the tractor in such a way that the

ATTENTION

Do not move and drive with lowered support.

Before driving, make sure that the support is fully raised to the transport position.

Lubricate the recommended lubrication points.

tractor's hitch is in front of the trailer drawbar eye.

3. Use the tractor's distributor lever to set the appropriate height of the drawbar hitching eye.
4. Turn off tractor engine.
5. Engage tractor parking brake.
6. Set the hydraulic section in the tractor, to which the support is connected, to "floating" position in order to reduce pressure in hydraulic lines.
7. Disconnect the hydraulic lines and place the plugs on the line hanger.

OBS.3.E-003.01.EN

5.4 HITCHING AND UNHITCHING THE MACHINE

5.4.1 Hitching the trailer

ATTENTION

Perform daily inspection of the machine after hitching it to the tractor but prior to moving off.

Technical condition of the trailer cannot be verified by visual inspection if the trailer is not hitched to the tractor.

Detailed information on inspections can be found further in the manual.

The machine may be hitched to an agricultural tractor if all connections (electrical, pneumatic, hydraulic) in the tractor comply with the requirements of the machine manufacturer given in the table "Requirements of agricultural tractor"

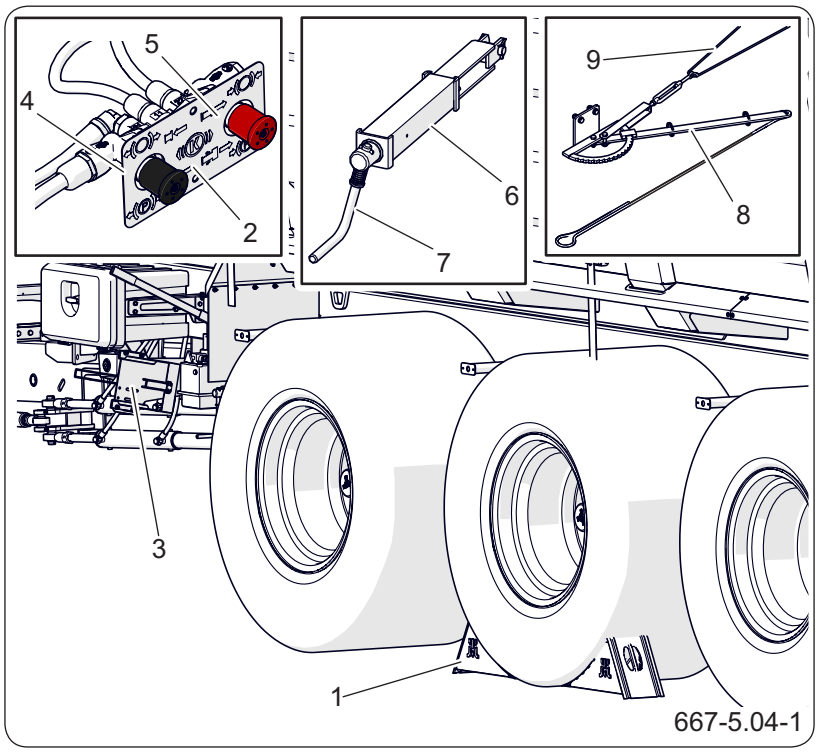


Figure 5.4 Parking brake

(1) wheel chocks
(2) parking brake
(3) chock bracket
(4) black button
(5) red button
(6) mechanism
(7) crank
(8) safety brake
(9) cable

Preparation

- Make sure that the machine is immobilised with parking brake.

  For pneumatic parking brake; red button (5) pulled out. Black button (4) pressed.

  For mechanical parking brake; the brake cable is tight.

  For the safety brake, the brake cable is tight.

DANGER

When hitching, there must be nobody between the machine and the tractor. When hitching the machine, tractor driver must make sure that nobody is present in the hazard zone.

Be especially careful when un-hitching the machine.

Ensure sufficient visibility during hitching.

After completion of hitching check the security of the hit-ching pin.

- Make certain that chocks are placed under trailer wheel (1).
- Position agricultural tractor directly in front of drawbar eye.

Adjustment of trailer's drawbar height

- Using the parking support, set the appropriate height of the drawbar hitching eye in relation to the hitch of the aggregated agricultural tractor.
- Set the appropriate drawbar position using the drawbar hydraulic system.

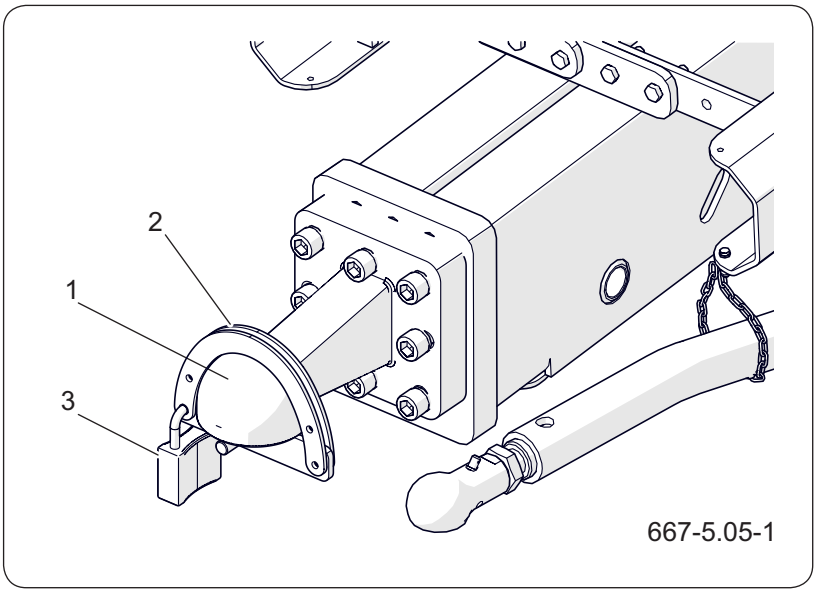


Figure 5.5 Drawbar eye protection
(1) ball drawbar *(2) lock*
(3) padlock

ATTENTION

In the event of an extended idle period, the air pressure in the pneumatic brake system may be insufficient to release the brake shoes. In such a case, start the tractor engine and air compressor and add air in the pneumatic system tank.

Hitching the machine to the tractor hitch

- Remove the drawbar protection.
  Unfasten the padlock (3) and remove the security (2).
- Reverse the tractor, hitch the machine to the appropriate hitch.
- Check the hitch lock protecting the trailer against accidental unhitching.
- If the tractor is equipped with an automatic

ATTENTION

When connecting pneumatic lines of a 2-line system, first connect the line marked yellow, and then the line marked red.

DANGER

DO NOT drive with a faulty or damaged hydraulic system.

Be especially careful, the hydraulic system may be under high pressure.

coupler, ensure that the hitching operation is completed and that drawbar eye is secured.

- Set the parking stand in transport position.
- Turn off the engine and remove key from ignition. Immobilise tractor unit with parking brake. Ensure that unauthorised persons do not have access to the tractor cab.

Connect the brake system

- Connect the pneumatic braking system lines.

First connect the yellow connector to yellow socket in the tractor and only then connect the red connector to the red socket in the tractor. Once the 2nd conduit is connected, the brake release system will switch to normal mode of operation (disconnection

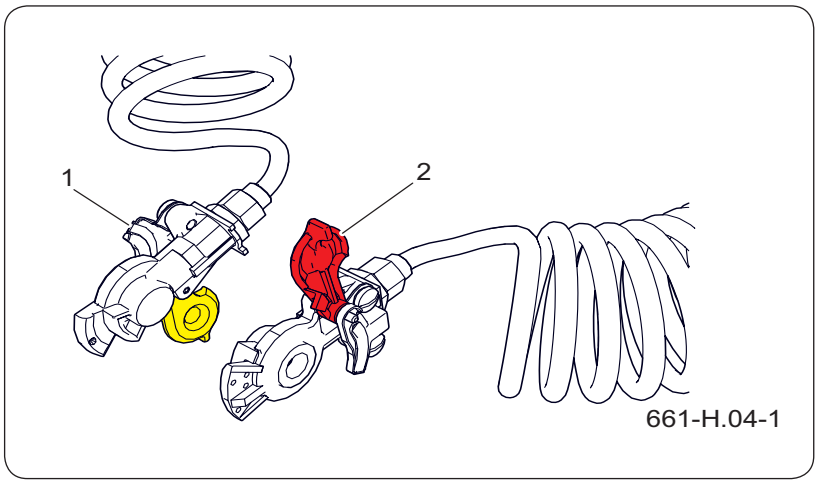


Figure 5.6 Diagram of pneumatic brake system
(1) yellow plug *(2) red plug*

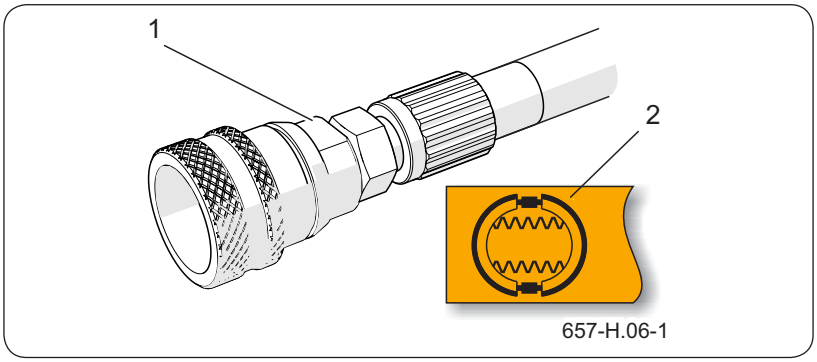


Figure 5.7 Diagram of hydraulic brake system
(1) socket *(2) decal*

DANGER

Do NOT use out of order machine.

or interruption of the air lines causes the machine braking system control valve to automatically apply brakes).

- If the brakes do not react after connecting the lines, pressure in the tank may be too low. For the system to start working, you need to fill the air in the tank to the appropriate pressure.
- Connect the hydraulic braking system conduit.

Connecting the hydraulic system

- Reduce residual pressure in the hydraulic system of the trailer and tractor.

Connect PTO shaft

- Connect the previously fitted shaft to the PTO shaft of the agricultural tractor.
- Check the shaft covers and the condition of

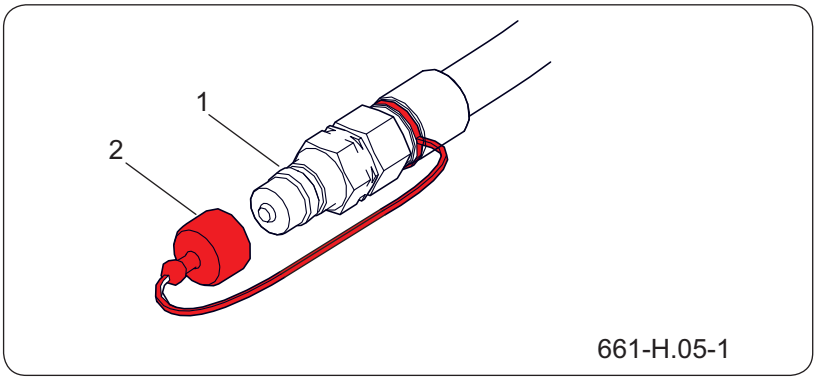


Figure 5.8 Hydraulic system connection
(1) hydraulic plug *(2) plug*

the mounting chains.

Set the PTO speed of the agricultural tractor to 1,000 rpm

ATTENTION

The PTO shaft is supplied with the original operating manual of the shaft manufacturer, which describes all maintenance activities related to the delivered product.

Connect electrical lighting system

- Connect main wire (1) supplying electrical lighting system (7-pin).
- Connect the power supply (2) and communication cables (3) of the wired controller.
- If the tractor is not equipped with such sockets

ATTENTION

When hitching is completed, secure the electrical leads and hydraulic and braking system lines in such a way that they do not become entangled in tractor moving parts and are not at the risk of breaking or being severed when making turns.

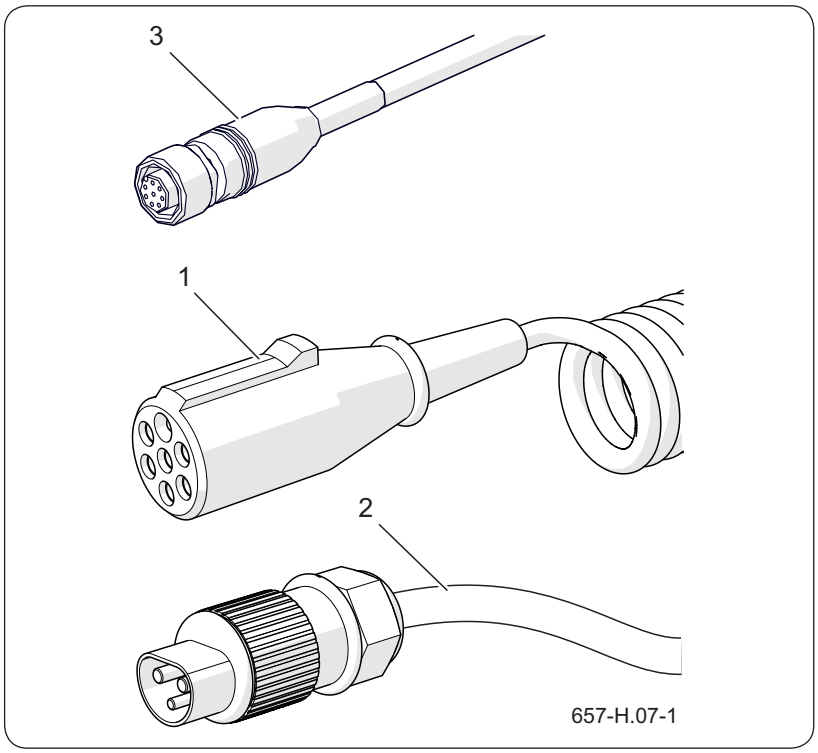


Figure 5.9 Electrical system connection
(1) 7-pin wire *(2) 3-pin wire*
(3) wired controller wire

or is equipped with a different type of sockets, entrust the socket installation to qualified personnel according to the recommendations of the tractor manufacturer.

ATTENTION

When disconnecting the pneumatic lines of the double line system, first disconnect the red line and only then disconnect the yellow line.

Additional information

- Check whether the connected cables will not become entangled in moving parts of the tractor or machine during operation. If necessary, secure the lines.
- Conduct daily inspection of the machine.
- If the machine is fully operational, one may commence work.
- Immediately before driving remove wheel chocks and release the parking brake.

The red button pressed. Black button pulled out.

5.4.2 Unhitch the trailer

ATTENTION

Always protect the disconnected machine against unauthorized use by installing a cable lock.

DANGER

Exercise caution when unhitching the trailer from the tractor.

Ensure good visibility. There must be nobody between the trailer and the tractor.

Before disconnecting the lines, shaft and drawbar hitching eye, close the tractor cabin and secure it against unauthorized access. Turn off tractor engine.

- Park the machine on hard and level ground.
- Turn off tractor engine and remove key from ignition, immobilise the tractor with parking brake.
- Lower the support to parking position.
- Immobilise machine with parking brake.
- Place chocks under one wheel on machine rigid axle, one chock in front of the wheel, the other behind the wheel.
- Disconnect all lines one by one, securing the ends by placing the plug caps on the hydraulic connections.
- Place the lines on the cable support.
- Disconnect power take-off shaft
- Unlock the hitch, start the tractor and drive tractor away from the trailer.
- Install the drawbar hitching eye protection.

OBS.3.E-004.01.EN

5.5 NOTES

DANGER

Do not carry people or animals.

ATTENTION

Do NOT exceed the permissible load weight of trailer because this may cause danger to road traffic and cause damage to the machine.

ATTENTION

Load must be uniformly distributed in the load box and it must not hinder driving. Loading and unloading work should be carried out by someone experienced in this type of work.

ATTENTION

While loading harvested silage or grain on the go, maintain a constant distance between machines and adjust the speed of tractor with trailer to the speed of combine.

DANGER

The load on the trailer must be secured against slipping and contaminating the road during travel. If it is not possible to properly secure the load, do not transport it.

Load box can be loaded only when the trailer is connected to the tractor and positioned horizontally. Always aim at distributing the load uniformly in the load box. This will ensure trailer stability when travelling and correct wheel axle and drawbar loads.
Before loading, check that the tailgate and chute slide gate are closed. Confirm that there are no objects in the load box.
The trailer is also designed for transport of harvested crops and agricultural products (volumetric or loose). It is permissible to transport other loads (building materials, packed loads), on the condition of securing the load box against damage (abrasion of paint covering, corrosion etc.).

Avoid throwing material into the load box from a great height because the structural elements of the trailer may be damaged. Loading of materials other than those recommended by the Manufacturer is forbidden. Due to the various density of materials, using the total load box capacity may lead to exceeding permissible carrying capacity of the trailer.

Bulk materials

Loading bulk materials is normally conducted with the use of loaders or conveyors and possibly loading manually. Do not load bulk materials to a height greater than that of side walls or extensions. On completion of loading, the load should be evenly spread over the whole surface of the load box. Loading should be carried out by a person experienced in this type of work and having appropriate authorisation for operating equipment (if required). Secure this type of load by covering the load box, using a roll-up tarpaulin available as an additional accessory for the trailer.

DANGER

When loading the trailer, the drawbar eye and the tractor hitch are subjected to high vertical loads.

It protects the load against spilling during travel, being blown away by the wind and also protects load against moisture. This is particularly dangerous in the case of bulk materials that can significantly absorb water, which may increase the weight of the load while driving.

Loads of pieces or solid lumps

Loads of pieces or solid lumps are generally hard materials of significantly greater dimensions than bulk loads (stones, coal, bricks and ballast). Load these materials from a low height. The load must not fall with great force on the floor of the load box.

TIP

Damage to the paint coating inside the load box caused by normal use of the trailer is a normal phenomenon and is not covered by warranty.

Hazardous loads

According to the European ADR agreement concerning the international road transport of hazardous materials, the transport of this type of load (defined in detailed by this agreement) is forbidden with the use of agricultural trailers. The only exception are plant protection chemicals and artificial fertilisers, which may be transported on agricultural trailers on the condition that they are transported in the appropriate packaging and in quantities envisaged by the ADR agreement.

DANGER

If it is necessary to carry permitted hazardous materials, acquaint yourself with the regulations concerning transport of hazardous materials in force in the given country and also the regulations of the ADR agreement.

DANGER

Carefully read the information leaflets provided by the load manufacturer and observe the instructions for transporting and handling the load. Ensure whether during loading work it is necessary to apply additional personal protective equipment (masks, rubber gloves etc.)

Loads in packaging

Loads transported in packaging (boxes, sacks) must be laid closely side-by-side beginning from the front side of the trailer. If it is essential to lay several layers, particular groups should be stacked alternately (in block system). The load must be laid tightly together and on the whole surface of the trailer floor. Otherwise, the load will move during travel. Due to the trailer design (no load anchorages), packaged materials can be only arranged below the load box wall height.

DANGER

If there is a danger of load packaging moving, do NOT transport this type of material. A moving load constitutes a serious hazard during travel for the tractor driver and other road users.

DANGER

Ensure that there are no bystanders in the unloading/ loading zone. Before unloading the load box ensure proper visibility and make certain that there are no bystanders near the trailer.

Materials that may cause steel corrosion, chemical damage or otherwise adversely react with the trailer structure may only be transported if the load is properly prepared. Materials must be tightly packed (in plastic foil sacks, plastic containers etc.).

During transport, packaging contents may not come into contact with load box. Therefore, ensure the appropriate tightness of containers.

It is impossible to describe all methods of loading due to the diversity of materials, tools, means of fixing and securing a load. While working be guided by caution and own experience. The trailer user must carefully read the regulations concerning road transport and comply with them.

OBS.3.B-005.01.EN

5.6 WEIGHT OF THE TRANSPORTED MATERIALS

DANGER

Trailer overloading, inefficient loading and securing of loads are the most common causes of accidents during transport.

The load must be arranged in such a way that it does not threaten the stability of the trailer and does not hinder driving.

Approximate specific weight of selected materials is presented in Table below. Therefore, pay special attention not to overload the trailer.

Table 5.1 Approximate volumetric weights of selected loads

Type of material	Weight [kg/m^3]
Root Crops:	
raw potatoes	700 – 820
steamed mashed potatoes	850 – 950
dried potatoes	130 – 150
sugar beets - roots	560 – 720
fodder beets - roots	500 – 700
Mineral fertilizers:	
ammonium sulphate	800 – 850
potassium salt	1,100 – 1,200
super phosphate	850 – 1,440
basic slag	2,000 – 2,300
potassium sulphate	1,200 – 1,300
ground lime fertilizer	1,250 – 1,300
Concentrated feed and compound feed:	
stored chaff	200 – 225
oil cake	880 – 1,000
dried mince	170 – 185
compound feed	450 – 650
mineral mixtures	1,100 – 1,300
oat middlings	380 – 410
wet beet pulp	830 – 1,000
expeller pressed beet	750 – 800
dry beet pulp	350 – 400
bran	320 – 600
bone meal	700 – 1,000
fodder salt	1,100 – 1,200
molasses	1,350 – 1,450
silage (underground silo)	650 – 1,050

Type of material	Weight [kg/m^3]
silage (tower silo)	550 – 750
Seeds:	
broad bean	750 – 850
mustard	600 – 700
pea	650 – 750
lentil	750 – 860
bean	780 – 870
barley	600 – 750
Shamrock	700 – 800
grass	360 – 500
maize	700 – 850
wheat	720 – 830
rape	600 – 750
flax	640 – 750
lupine	700 – 800
oat	400 – 530
Lucerne	760 – 800
rye	640 – 760
Plant litter and roughage:	
dry meadow hay on the swath	10 - 18
hay wilted on the swath	15 - 25
hay in a collecting trailer (dry)	50 - 80
hay wilted, cut	60 - 70
dry pressed hay	120 - 150
wilted pressed hay	200 - 290
dry stored hay	50 - 90
cut stored hay	90 - 150
clover (alfalfa) wilted on the swath	20 - 25
clover (alfalfa) withered cut on a trailer	110 - 160
clover (alfalfa) wilted on a collecting trailer	60 - 100
dry stored clover	40 - 60
dry chopped stored clover	80 - 140
dry straw in rollers	8 - 15
wet straw in rollers	15 - 20
wet straw cut on a volume trailer	50 - 80
Dry straw cut on a volume trailer	20 - 40
dry straw cut on a collecting trailer	50 - 90
dry straw cut in a haystack	40 - 100
pressed straw (low compaction)	80 - 90
pressed straw (high compaction)	110 - 150
cereal mass cut on a volume trailer	35 - 75
cereal mass cut on a collecting trailer	60 - 100

Type of material	Weight [kg/m^3]
forage	28 - 35
forage cut on a volume trailer	150 - 400
forage on a collecting trailer	120 - 270
fresh beet leaves	140 - 160
fresh cut beet leaves	350 - 400
beet leaves on a harvesting trailer	180 - 250
Other:	
dry soil	1,300 – 1,400
wet soil	1,900 – 2,100
fresh peat	700 – 850
compost soil	250 – 350

Source: „Technologia prac maszynowych w rolnictwie”, PWN, Warsaw 1985

OBS.3.8-005.01.EN

5.7 STORAGE

After finishing work, carefully clean and wash the machine.

In the event of damage to the paint coating, damaged areas must be cleaned of rust and dust, degreased, and then painted with paint while maintaining a uniform colour and uniform thickness of the protective coating. Until painting, damaged areas shall be covered with a thin layer of grease, anti-corrosive agent or primer.

It is recommended that the machine be stored indoors or under a roof.

For long-term storage outside the room, it must be protected against the effects of weather conditions, especially factors causing corrosion of steel and accelerating the aging of tires.

In the event of a longer stop, it is necessary to lubricate all points regardless of the period of the last treatment.

Wash and dry the rims and tires. During longer storage, it is recommended to move the machine once every 2-3 weeks so that the place of contact of the tire with the ground is in a different position. The tires will not deform and will maintain proper geometry. You should also check your tire pressure from time to time, and if necessary inflate the wheels to the correct value.

Store the articulated telescopic shaft for connecting to the tractor in a horizontal position.

OBS.3.8-008.01.EN

5.8 BACKWORDS UNLOADING

DANGER

DO NOT unload the trailer on unstable surface.

Ensure that during unloading nobody is near tipped load box or load material pouring out.

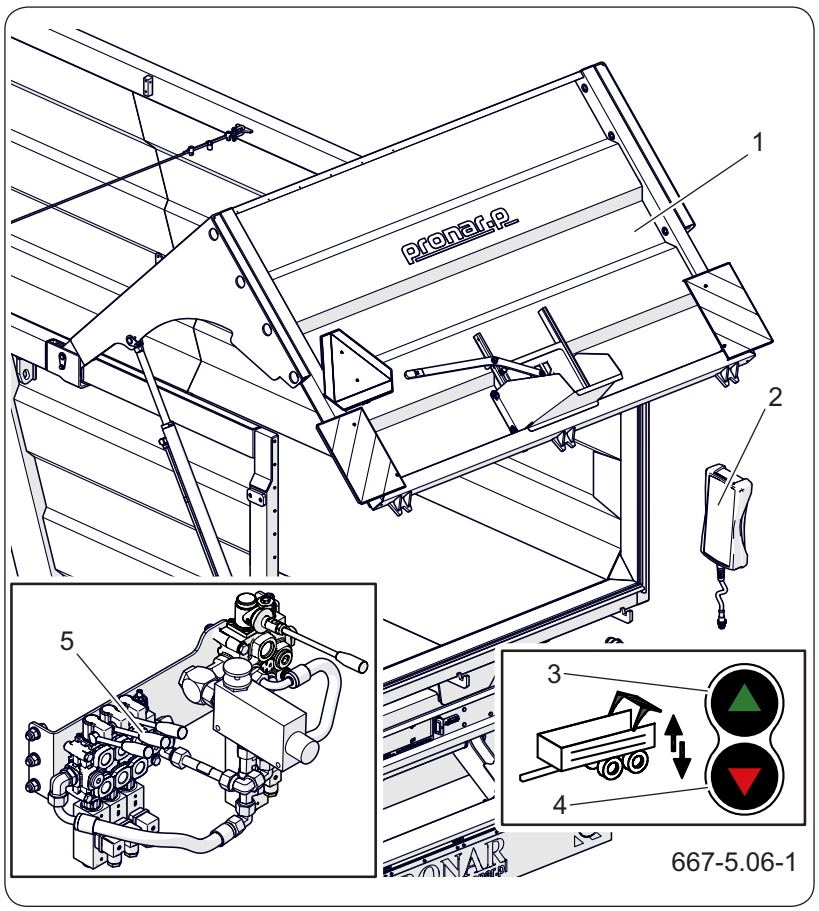
When closing the tailgate, use extreme caution as there is a risk of sustaining a serious injury.

Before starting the PTO drive, make sure that there are no people or objects near the shaft that could get caught in the rotating mechanism.

Unload the trailer by performing the following steps:

1. place tractor and trailer to drive forward on flat, stable and hard ground,
2. immobilise tractor and trailer with parking brake,
3. Open the tailgate of the trailer.

When powering the trailer's hydraulic system from the tractor's hydraulic distributor, activate the appropriate section of the tractor's hydraulic distributor. Turn on the wired controller and press the tailgate opening button (3) on the wired controller (2). The tailgate can be lowered and raised using the distributor lever (5).



Tailgate

(1) tailgate
(2) wired controller
(3) raising button
(4) lowering button
(5) manifold lever

ATTENTION

When opening the tailgate or lifting the load box, be aware of overhead power lines.

Do NOT tip load box in strong gusty winds conditions.

The length of the cable controlling the valve limiting the tilt angle of the load box is set by the Manufacturer and the User must NOT adjust it.

Do NOT jerk the trailer forward if load is bulky or reluctant to pour and does not unload.

Do NOT move off or drive when load box is raised.

When powering the trailer's hydraulic system from its own hydraulic system, start the PTO drive at 540 rpm. Turn on the wired controller and press the tailgate opening button (3) on the wired controller (2). The tailgate can be lowered and raised using the distributor lever (5).

4. Start tipping of the load box

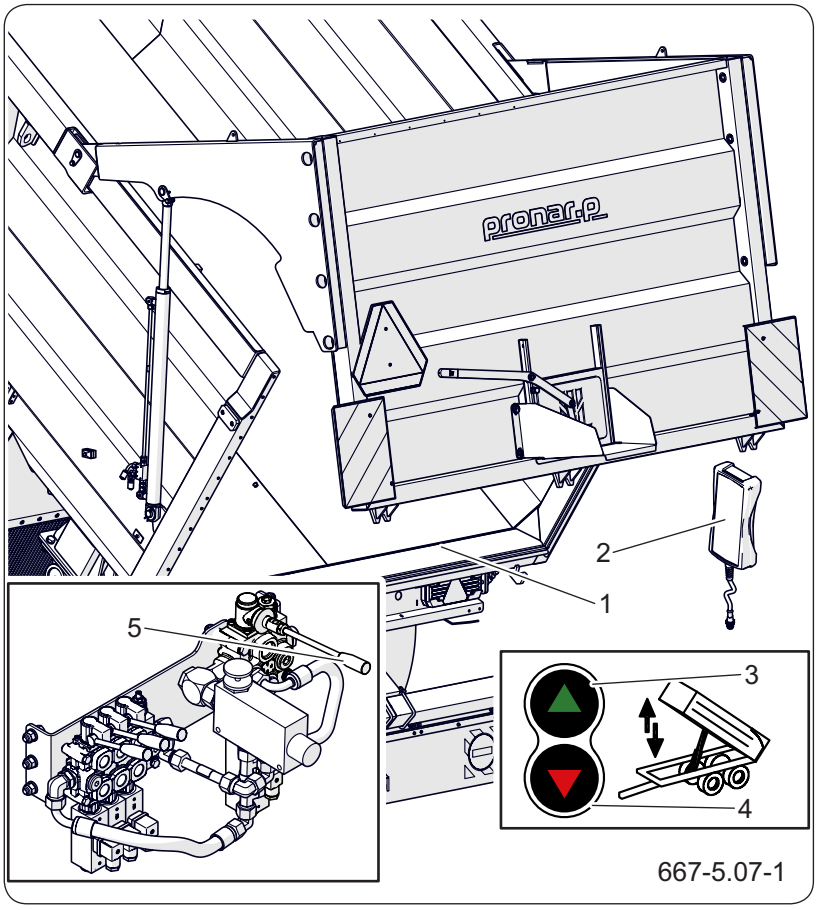


Figure 5.10 Tipping the load box

(1) load box *(2) wired controller*
(3) raising button *(4) lowering button*
(5) manifold lever

When powering the trailer's hydraulic system from the tractor's hydraulic distributor, activate the appropriate section of the tractor's hydraulic distributor. Turn on the wired controller and press the load box raising button (3) on the wired controller

(2). The load box can be lowered and raised using the distributor lever (5).

When powering the trailer's hydraulic system from its own hydraulic system, start the PTO drive at 540 rpm. Turn on the wired controller, press the load box raising button (3) on the wired controller (2). The load box can be lowered and raised using the distributor lever (5).

5. After unloading, lower the load box and clean the floor edges, Then close the tailgate as appropriate depending on the hydraulic system used in the machine.

   When lowering tailgate, a warning beep sounds. A properly closed tailgate should be locked in the load box hooks.

6. Before setting off, make sure the load box has been lowered properly and the tailgate is properly locked.
7. Remove remains of load from the trailer.

OBS.3.E-005.01.EN

1.5 OPERATE THE CHUTE

DANGER

Be especially careful, fingers may be crushed.

Avoid suddenly lifting the load box, as the load sliding and pressing against the rear wall may cause the machine to lose stability.

As standard, the tailgate of the load box is equipped with a chute slide gate (1) and additionally it can be equipped with a chute (2) for unloading bulk materials. Chute design allows very accurate dosing of the material to packaging (sacks, boxes etc.). The opening gap can be controlled using lever (3). To do this, loosen the bolt locking the slide gate (4), open the slide gate at the desired height and secure it again with the bolt.

During unloading through chute, load box must be raised slowly and smoothly.

OBS.3.B-007.01.EN

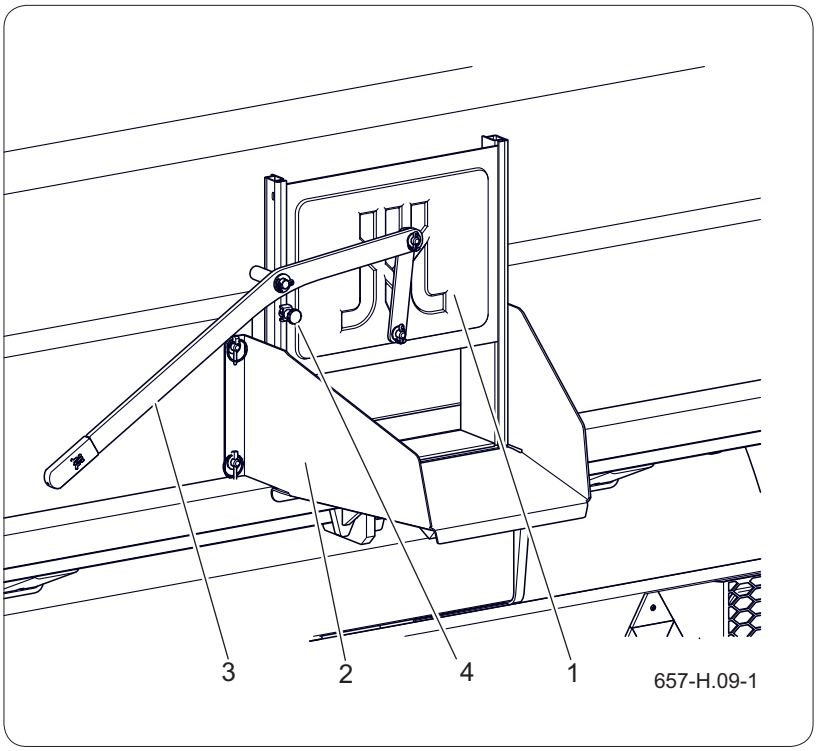


Figure 5.11 Tailgate

(1) damper *(2) chute*

(3) lever *(4) locking bolt*

5.9 USE TARPAULIN COVER

ATTENTION

Rolling up and unfolding the tarpaulin should be done while standing on the fenced platform.

When driving with an unfolded tarpaulin, do NOT transport a load that protrudes beyond the outline of the walls.

To protect the load from falling out and to protect it from adverse weather conditions, the trailer can be equipped with a tarpaulin cover and a securing frame.

UNROLL THE TARPAULIN COVER

- Climb onto the fenced platform (4) using the ladder (6).
- Use the crank (1) to unfold the tarpaulin (2).
- Unroll the tarpaulin cover slowly to ensure its is evenly unfolded.
- Fasten the belts (3) and tighten the tarpaulin using the tensioners (7).

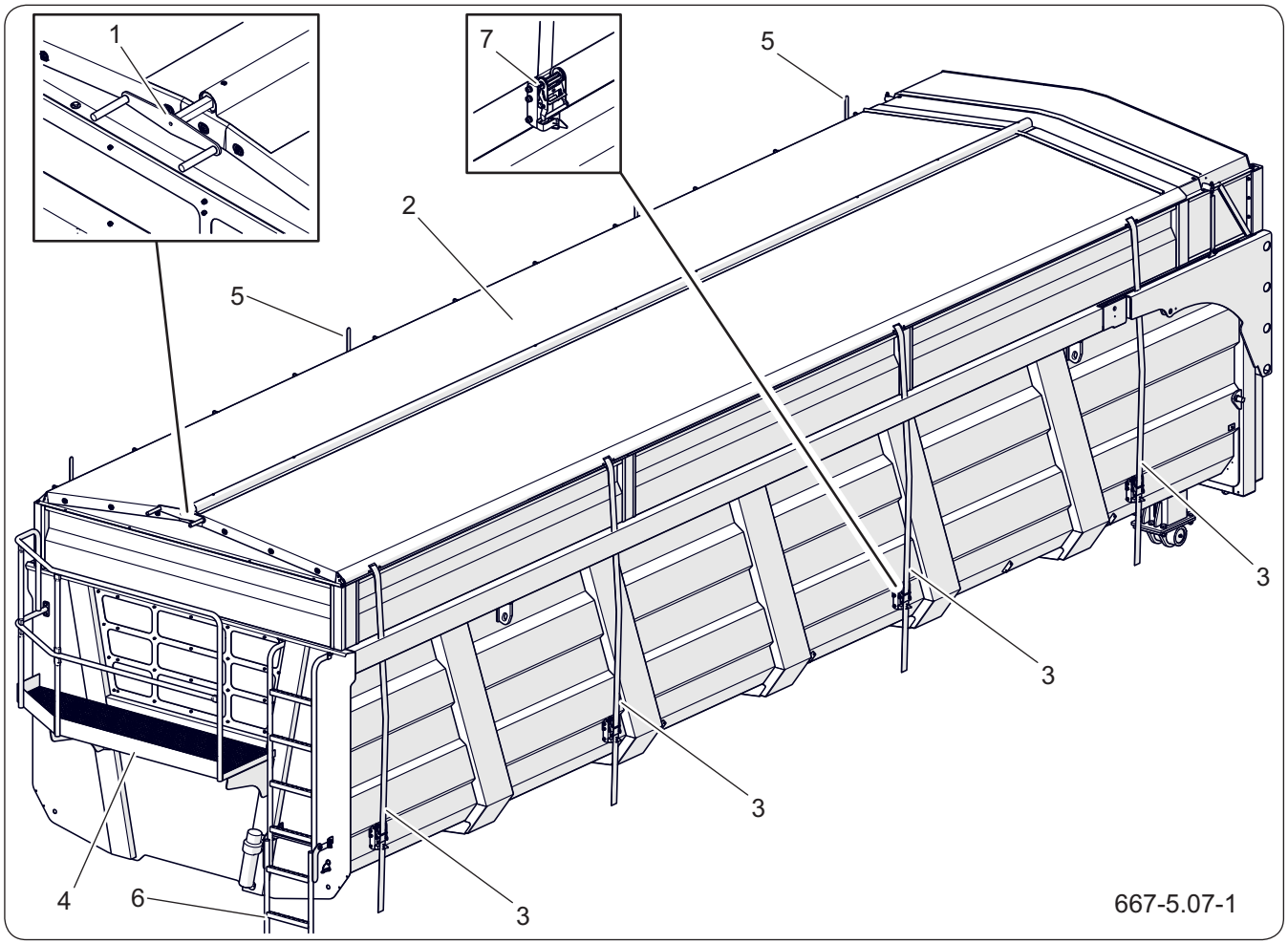


Figure 5.12 Rolling tarpaulin operation

(1) crank *(2) tarpaulin cover* *(3) belt*
(4) fenced platform *(5) limiter* *(6) ladder*
(7) tensioner

Water will collect on the incorrectly stretched tarpaulin. As a consequence, the tarpaulin may be deformed and fail to serve its purpose.

ROLL THE TARPAULIN COVER

- Loosen the belt tensioners (7) and unfasten the belts (3) securing the tarpaulin.
- Climb onto the fenced platform (4) using the ladder.
- Roll up the tarpaulin by turning the crank (1) so that the tarpaulin rests on the limiters (5).

OBS.3.B-008.21.EN

5.10 USE OF TIRES

- When working with tires, the machine should be secured against rolling by placing chocks under the wheels. Wheels can be taken off the trailer only when the trailer is not loaded.
- Repair work on wheels or tires should be carried out by persons trained and authorized to do so. These works should be carried out using appropriately selected tools.
- Checking the tightening of the wheel nuts carry out after the first use of the trailer, every 2- 3 hours during the first month of using the machine and then every 30 hours of driving. Always repeat all operations if the wheel was disassembled. Wheel nuts should be tightened in accordance with the recommendations contained in the *Inspections and technical service*chapter.
- Regularly check and maintain proper tire pressure as recommended in the instructions (especially after a long break in the trailer use).
- Tire pressure should also be checked during all-day intensive work. Take into account that an increase in tire temperature can increase the pressure by up to 1 bar. With this increase in temperature and pressure, reduce the load or speed of the trailer.
- Never reduce the pressure by venting if it increases due to temperature.
- Valves must be secured with appropriate caps to avoid soiling.
- Do not exceed the maximum trailer speed.
- During the whole day cycle, take a minimum of one hour break at noon.

- Observe 30 minutes breaks for cooling the tires after driving 75 km or after 150 minutes of continuous driving, whichever comes first.
- Avoid damaged surfaces, sudden and variable manoeuvres, and high speeds when turning.

OBS.3.8-010.01.EN

5.11 CLEANING

DANGER

Refer to the instructions for using cleaning detergents and preservatives.

When washing with detergents, wear suitable protective clothing and eye protection.

When cleaning the machine and staying on the cargo box, the tractor engine must be turned off, the articulated telescopic shaft must be disconnected.

Every day, after finishing, thoroughly clean the trailer of the remains of the transported material. If you use a pressure washer, learn about the principle of operation and recommendations for safe operation of this device.

Guidelines for cleaning the trailer

- Stop the tractor and trailer on a flat, even surface.
- Turn off the tractor engine and remove the ignition key.
- Secure the trailer and tractor with the parking brake, place wedges under the manure spreader wheel.
- Secure the tractor against unauthorized persons.
- Clean and wash the trailer with a strong stream of water and allow to dry in a dry and ventilated place.

The use of pressure washers increases the effectiveness of washing, but be careful when work. During washing, the nozzle of the cleaning aggregate must not be closer than 50 cm from the surface being cleaned. The water temperature should not exceed 55^0C.

Paint damage may occur when washing with excessive pressure.

Do not direct the water jet directly at the system components and trailer equipment, i.e. the control valve, brake cylinders, pneumatic, electric and hydraulic plugs, lights, electrical connectors, information and warning decals, data plate, conduit connections, lubrication points, etc. high water pressure may cause mechanical damage to these components.

CAUTION

Each time the work with trailer is finished, clean the trailer of the remains of the transported material.

After washing, wait for the machine to dry and then apply grease to all lubrication points as recommended. Wipe off excess grease or oil with a dry cloth.

During work, use appropriate, close-fitting protective clothing, gloves and the right tools.

- For cleaning and maintenance of plastic surfaces, use clean water or specialized preparations intended for this purpose.
- Do not use organic solvents, preparations of unknown origin or other substances that may damage the lacquered, rubber or plastic surface. Perform test on an invisible surface in case of doubt.
- Surfaces oily or greasy should be cleaned with petrol or degreasing agents, and then washed with clean water and detergent. Follow the cleaning agent manufacturer's instructions.
- Detergents intended for washing should be stored in their original containers, or alternatively, but marked exactly. The preparations cannot be stored in containers intended for storing food and beverages.
- Observe environmental protection principles, wash trailer in designated places.
- Washing and drying the trailer must take place at temperatures above $0\ ^{0}C$.

In winter, frozen water can cause damage to the paint coat or machine components.

OBS.3.8-011.01.EN

5.12 STORAGE

After finishing work, carefully clean and wash the machine.

In the event of damage to the paint coating, damaged areas must be cleaned of rust and dust, degreased, and then painted with paint while maintaining a uniform colour and uniform thickness of the protective coating. Until painting, damaged areas shall be covered with a thin layer of grease, anti-corrosive agent or primer.

It is recommended that the machine be stored indoors or under a roof.

For long-term storage outside the room, it must be protected against the effects of weather conditions, especially factors causing corrosion of steel and accelerating the aging of tires.

In the event of a longer stop, it is necessary to lubricate all points regardless of the period of the last treatment.

Wash and dry the rims and tires. During longer storage, it is recommended to move the machine once every 2-3 weeks so that the place of contact of the tire with the ground is in a different position. The tires will not deform and will maintain proper geometry. You should also check your tire pressure from time to time, and if necessary inflate the wheels to the correct value.

Store the articulated telescopic shaft for connecting to the tractor in a horizontal position.

OBS.3.8-012.01.EN

Chapter 6

Periodic inspections and the technical support

PRONAR T8724 T8724/1

6.1 GENERAL

CAUTION

It is forbidden to use a damaged machine.

Repairs during the warranty period may only be carried out by authorized service centres.

When using the trailer, it is necessary to constantly check the technical condition and perform maintenance procedures that will allow the machine to be kept in good technical condition. Mandatory perform all maintenance and regulatory activities specified by the manufacturer in accordance with the assumed schedule.

Repair of the during the warranty period may only be carried out by Authorized Sales and Service Points (APSiO). The machine's warranty inspection is only carried out by authorized service centres.

In the event of unauthorized repairs, changes to factory settings or activities that have not been considered as being possible by the trailer operator (not described in this manual), the user loses the warranty.

Detailed information on the review schedule can be found in chapter entitled “*Maintenance and inspection schedule*".

After the warranty expires, it is recommended that inspections be carried out by specialized repair workshops.

During work, use protective clothing and protective equipment suitable for requirements.

SER.3.B-001.01.EN

6.2 PREPARING THE TRAILER

DANGER

Ensure that unauthorised persons do not have access to the tractor cab.

Before using the lifting jack, read the Operator Manual of the jack and follow the manufacturer's recommendations. The lifting jack must be stably supported on the ground and trailer components.

Before performing maintenance work and repairs on raised trailer, make certain that the trailer is properly secured and will not move during work.

1. Hitch trailer to tractor.
2. Park tractor and trailer on hard level ground.
3. Tractor must be placed to drive forward.
4. Engage the tractor parking brake.
5. Turn off the tractor engine and remove key from ignition.
6. Close the tractor cab to ensure that unauthorised persons do not have access to the tractor cab.
7. Place securing chocks under one trailer wheel.

   Ensure that the trailer does not roll during inspection.
8. If it is necessary to raise a trailer wheel during inspection, place chocks on the opposite side.
9. Base lift in places marked with an arrow in the drawing. Recommended trailer support points.

   For absorber suspension (A) and hydraulic suspension (B), the recommended place

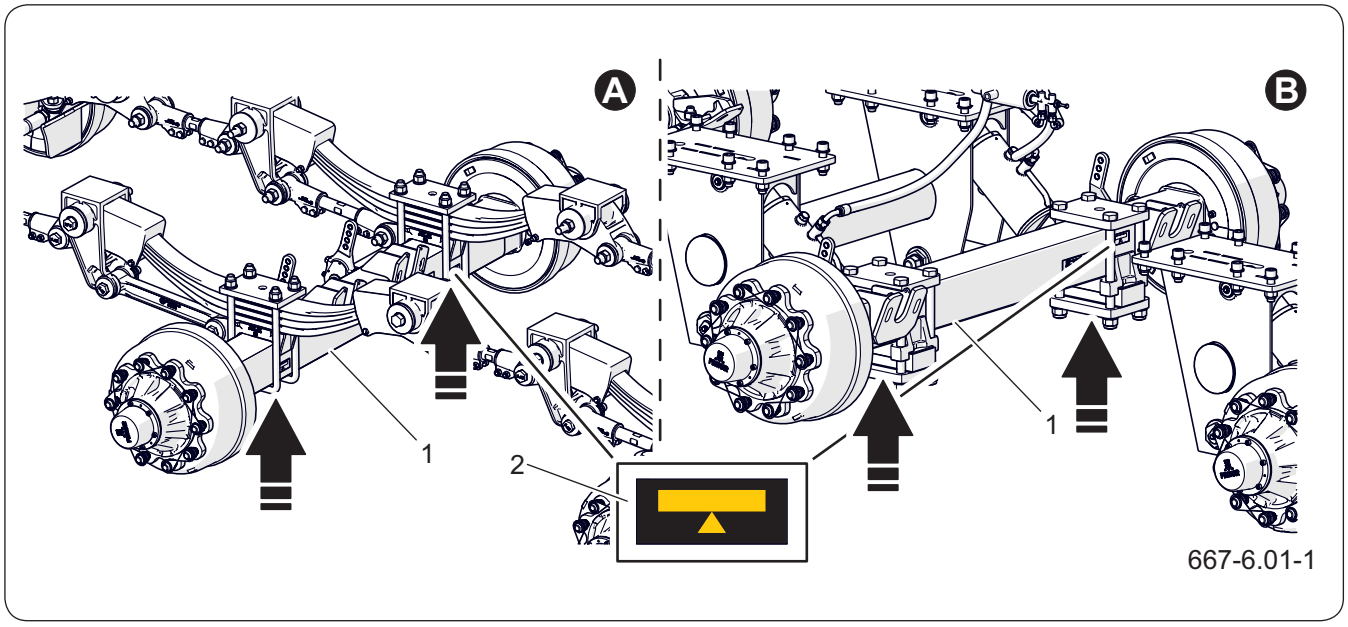


Figure 6.1 Recommended trailer supporting points

(1) wheel axle *(2) decal*

(A) spring suspension *(B) hydraulic suspension system*

to support the trailer is the spring plate between the U-bolts.

10. Lifting jack must be supported on hard and stable ground.
11. Lifting jack must be suitable for the weight of trailer.
12. In exceptional cases, release the machine parking brake, for example when measuring half axle bearing slackness. Be especially careful in that case.

SER.3.E-002.01.EN

6.3 INSPECT COVERS

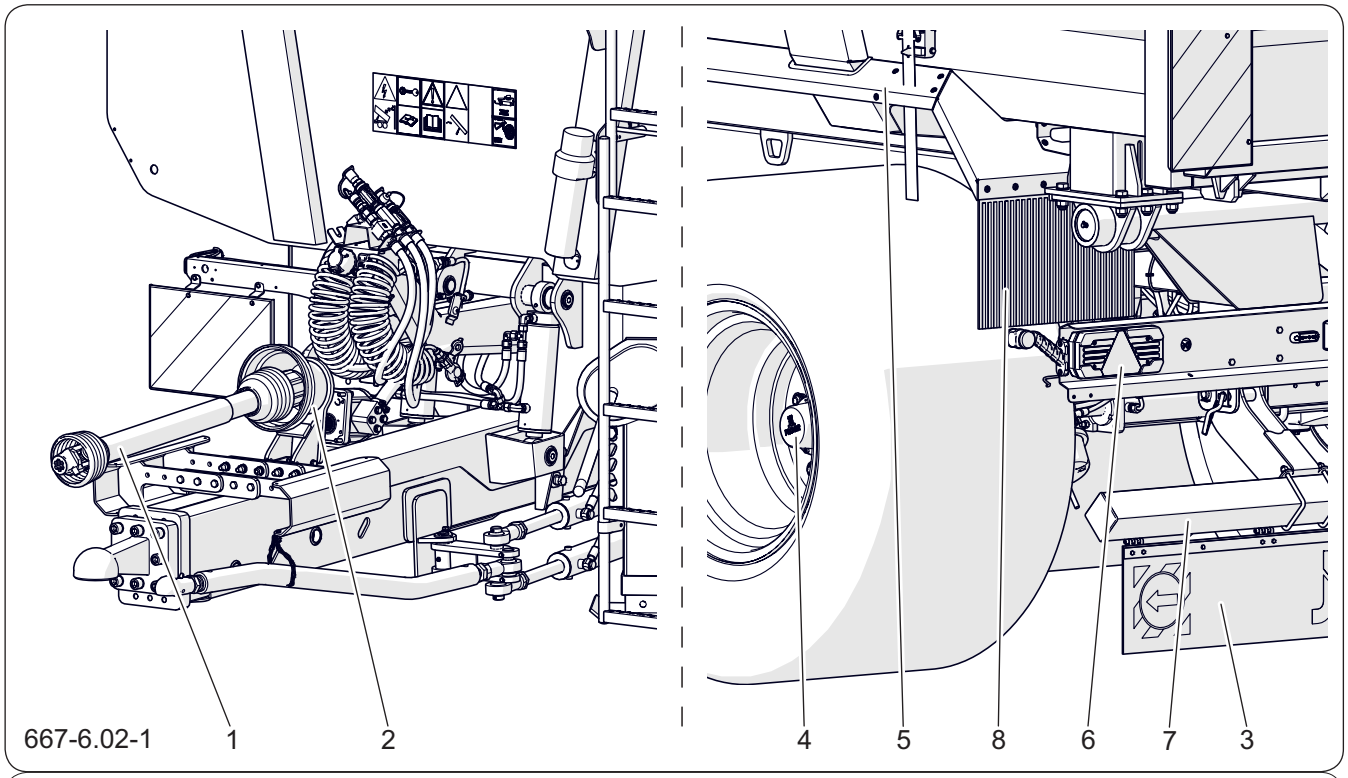


Figure 6.2 Trailer shields

(1) PTO shaft covers *(2) bevel gear shaft casing* *(3) apron*
(4) axle covers *(5) mudguard* *(6) lamp shield*
(7) bumper *(8) mud flap*

DANGER

Do NOT use the trailer with damaged or incomplete covers.

Covers protect the trailer user's health and life and the machine subassemblies against damage. Therefore, their technical condition must be checked before using the trailer. Any damaged or lost components must be repaired or replaced.

Procedure

1. Check completeness of protective covers.
2. Check whether the covers are properly installed, assess the condition of the bumper (7) and the attachment of the lamp covers (6).
3. Check the correct mounting and technical condition of the mudguards (5).

4. Check that the wheel covers (4) are secure and complete.
5. Check the integrity of the PTO shaft covers (1).
6. Check the gear shaft cover (2) for correct attachment.
7. Check the technical condition and correct attachment of the rear apron (3) and mud flaps (8).
8. If necessary, tighten the bolt connections fixing the shields.

SER.3.E-003.01.EN

6.4 CHECKING PLUGS AND CONNECTION SOCKETS

A damaged body of the hydraulic or pneumatic hose connector or socket qualifies them for replacement. In the event of damage to the cover or gasket, replace these elements with new, functional ones. Contact of pneumatic connection seals with oils, grease, gasoline etc. may damage them and accelerate the aging process.

If the trailer is disconnected from the tractor,

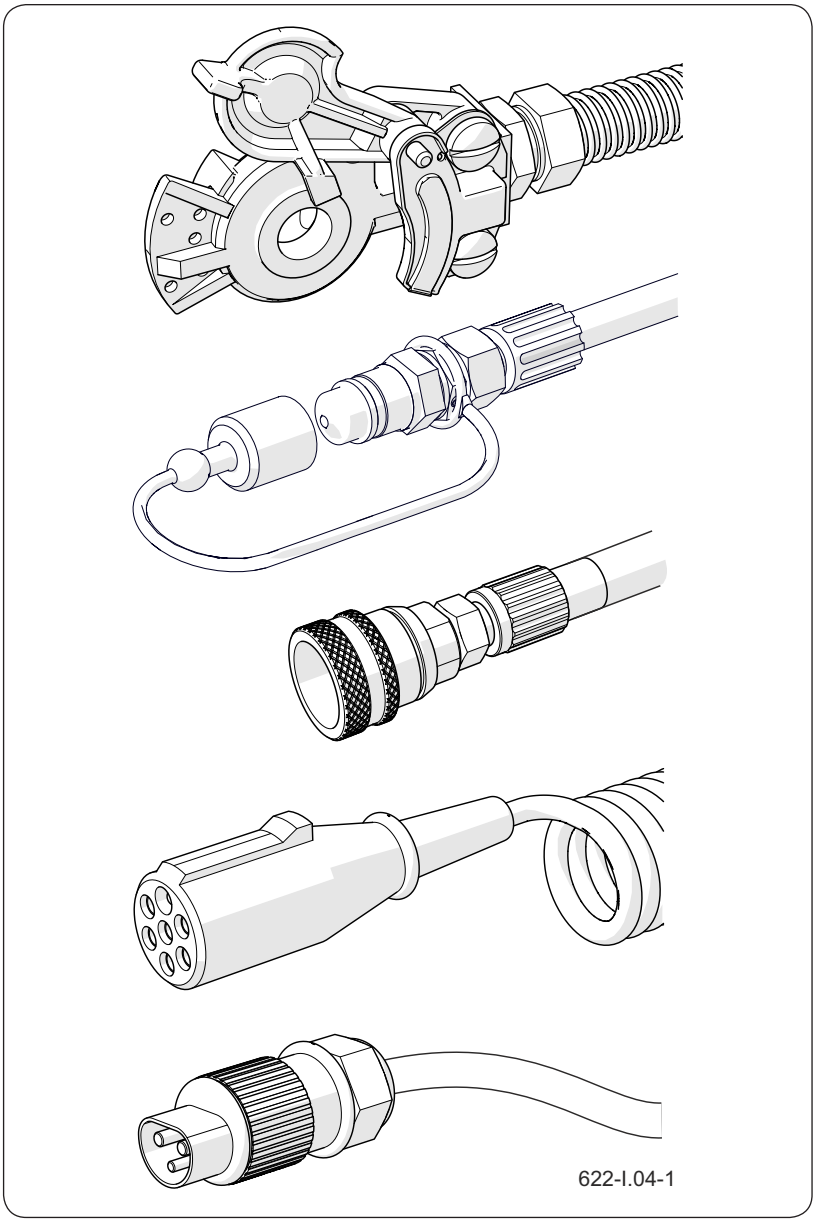


Figure 6.3 Checking the trailer connections

connections should be protected with covers or placed in their designated sockets. Before the winter period, it is recommended to preserve the seal with preparations intended for this purpose (e.g. silicone lubricants for rubber elements).
Each time before connecting the machine, check the technical condition and degree of cleanliness of connections and sockets on the agricultural tractor. If necessary clean or repair tractor sockets.

SER.3.8-005.01.EN

6.5 INSPECT THE MACHINE BEFORE DRIVING OFF

DANGER

Do NOT use the trailer with out of order lighting system or brake system.

In the event of damage to the machine, do not use it until it is repaired.

Before hitching the trailer to tractor, make certain that electric cables and hydraulic and pneumatic lines are not damaged.

Check completeness and technical condition of machine lights.

Check if all lights and reflectors are clean.

Before driving on the public roads, remove the rear light shields and place them in the designated place.

Check correct mounting of the slow-moving vehicle warning sign holder and the sign itself.

Make certain that the tractor is equipped with a warning reflective triangle.

Check if the brake cylinder vent holes are not blocked with impurities and that there is no water or ice inside the brake cylinder. Check if the brake cylinder is correctly installed.

Clean the cylinder, if needed. In winter, it may be necessary to defrost the cylinder and drain water through unblocked vent holes. Replace damaged cylinder with a new one. When installing the brake cylinder, maintain its original position with regard to

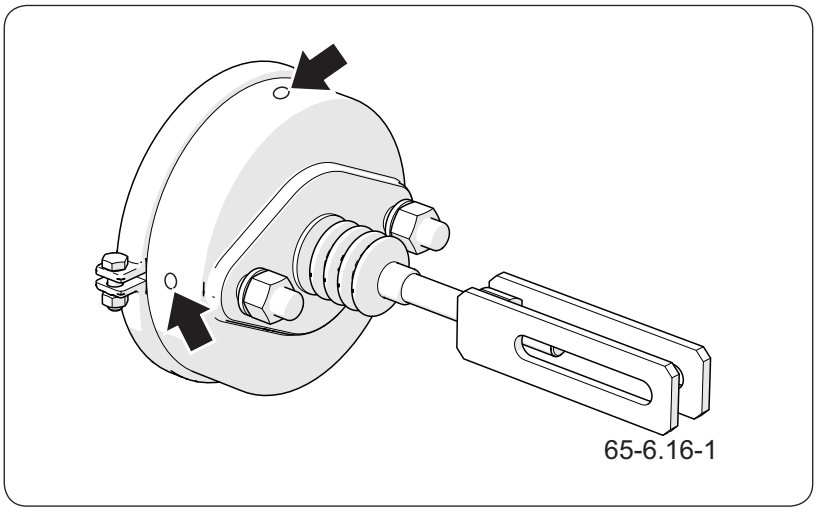


Figure 6.4 Brake cylinder

bracket.

Check the condition of the safety brake cable, any abrasions and damage require replacement. Check the position of the brake lever; the brake must be in the disengaged position before moving off. Make sure that the brake cable is securely attached to the tractor structure.

When moving off check if the main brake system operates correctly. Please note that to ensure proper operation of the pneumatic system the correct air pressure level in the machine air tank is required.

Correct operation of other systems should be checked regularly during operation of the machine.

SER.3.E-004.01.EN

6.6 AIR PRESSURE MEASUREMENT, INSPECTION OF TYRES AND WHEELS

TIP

If the trailer is used intensively, check air pressure in tyres more frequently.

ATTENTION

Wrong air pressure in the trailer tyres may lead to permanent damage of tyres resulting from tyre material delamination.

Wrong air pressure in tyres also accelerates the wear of tyres.

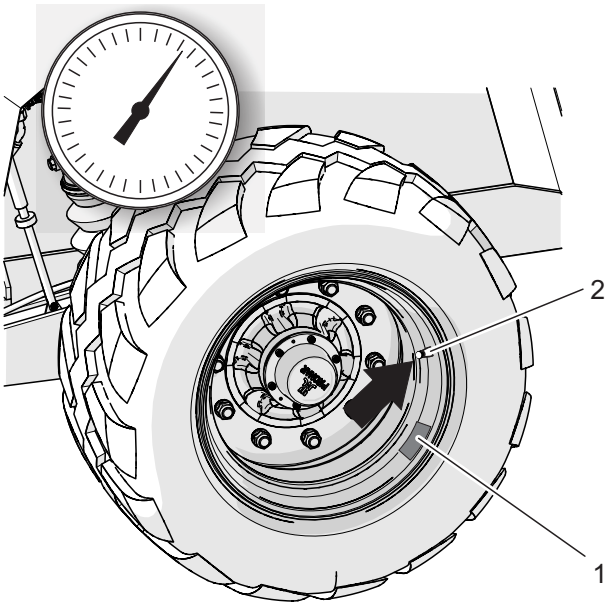


Figure 6.5 Trailer wheel
(1) decal *(2) valve*

During air pressure measurement the trailer must be unloaded. Check tyres before you drive off when tyres are still cold, or after the machine has been parked for an extended period.

Procedure

1. Connect a manometer to tyre valve.
2. Check air pressure.
3. If necessary, inflate the tyre up to the recommended pressure.
4. Required tyre pressure values are specified on the information decal (1) placed on the wheel rim.
5. Check tyre tread depth.
6. Check tyre side wall.

7. Check tyre for mechanical defects such as loss, cut, deformation or bulging.
8. Check that tyre is correctly installed on rim.
9. Check tyre age.

While checking pressure, pay attention to technical condition of wheels and tyres. In case of mechanical damage consult the nearest tyre service and check whether the tyre defect requires tyre replacement. Wheels should be inspected with regard to distortion, breaking of material, breaking of welds, corrosion, especially in the area of welds and contact with tyre.

SER.3.E-005.01.EN

6.7 AIR TANK DRAINAGE

- Press the stem of the drain valve (1) located at the bottom of the tank (2).
- The compressed air in the tank will remove water outside.
- After releasing the stem, the valve should close automatically and stop the outflow of air from the tank.
- If the valve stem does not want to return to its position, wait until the tank empties. Then unscrew and clean or replace the valve with a new one.
- If it is necessary to clean the drain valve, follow the chapter "*Cleaning the drain valve"*.

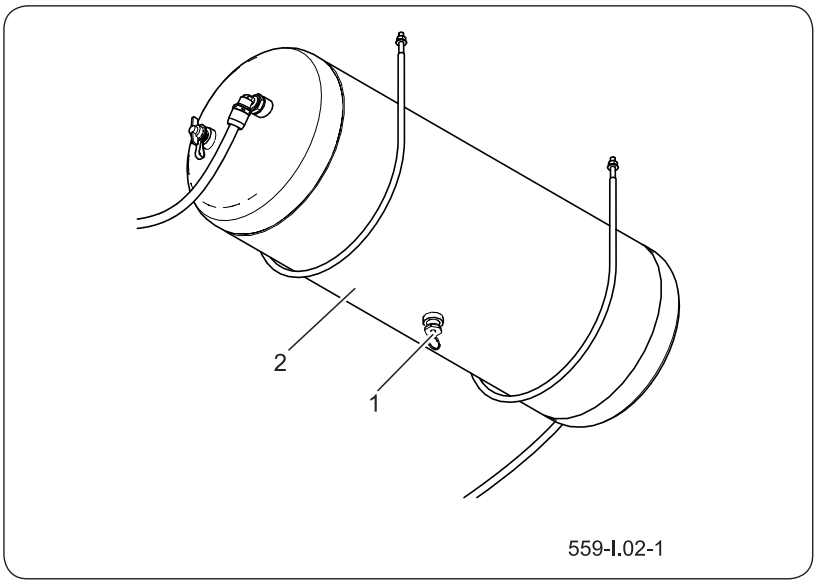


Figure 6.6 Air tank
(1) drain valve *(2) air tank*

SER.3.8-004.01.EN

6.8 CLEAN THE AIR FILTERS

Procedure

1. Reduce pressure in supply line.
2. Pressure in line can be reduced by pressing the head of the pneumatic connection until resistance is felt.
3. Slide out the filter gate (1).
4. Hold the filter cover (2) with the other hand. After removing slide lock, the cover is pushed out by the spring located in the filter housing.
5. The filter element and the filter body should be carefully cleaned and blown through with compressed air.
6. Assembly should be done in reverse order.

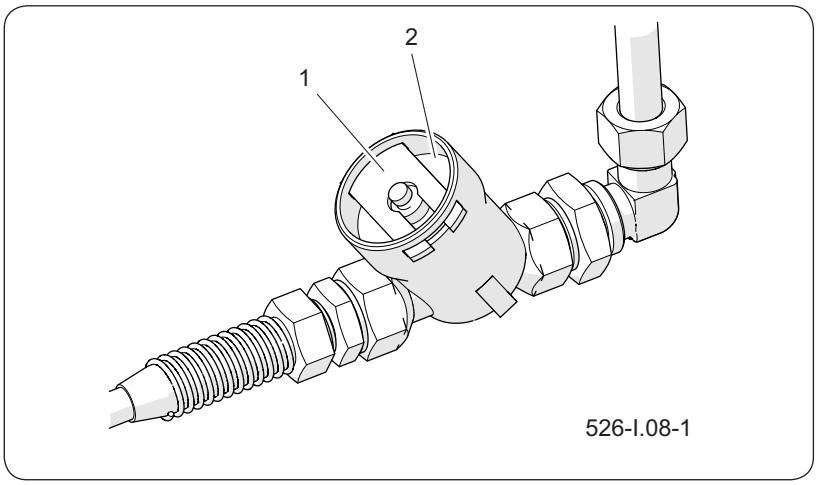


Figure 6.7 Air filter
(1) filter slide gate *(2) cover*

SER.3.E-006.01.EN

6.9 CLEANING THE DRAIN VALVE

DANGER

Release air from the air tank before dismantling drain valve.

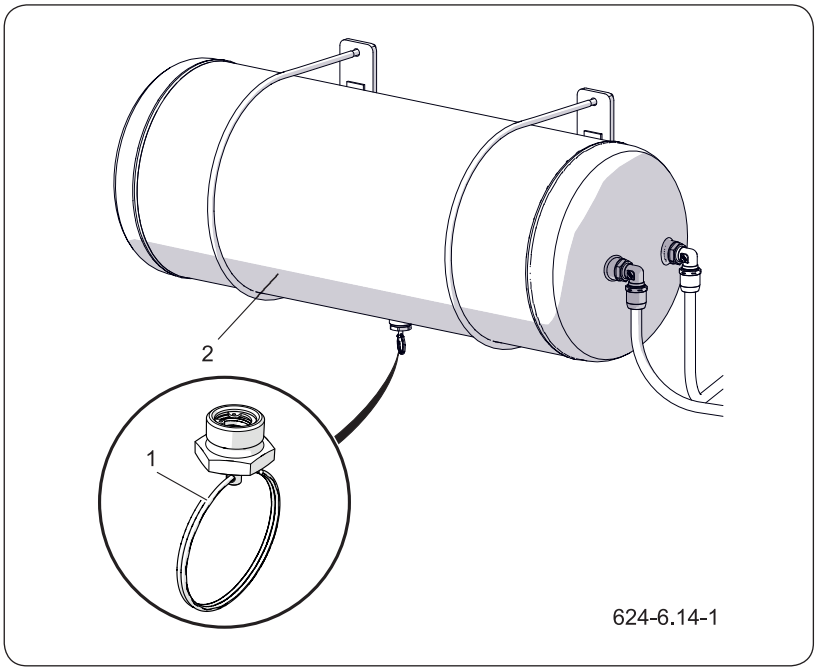


Figure 6.8 Air tank

(1) drain valve *(2) tank*

Procedure

1. Completely reduce pressure in air tank (2).
2. Reduction of pressure in tank is achieved by tilting the drain valve stem.
3. Undo nut (1).
4. Clean the valve, blow it with compressed air.
5. Replace the seal.
6. Screw in valve, fill tank with air and check tank tightness.

SER.3.E-007.01.EN

6.10 CHECKING BRAKE SHOE LININGS FOR WEAR

TIP

Check brake shoe linings for wear:

- according to the inspection schedule,
- if brakes overheat,
- if brake cylinder piston stroke is significantly longer,
- if there are unusual noises from the drum of wheel axle.

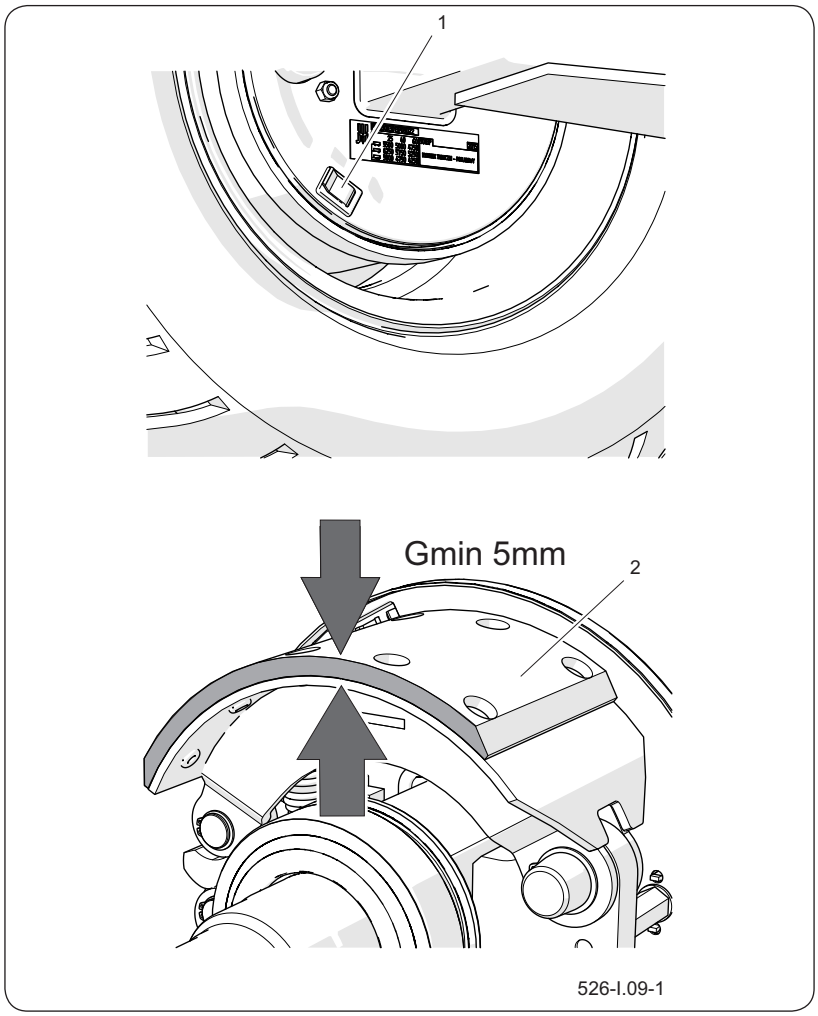


Figure 6.9 Checking thickness of brake shoe linings

(1) plug *(2) brake shoe lining*

1. Find the inspection opening.

   Depending on the axle version, the inspection opening may be located elsewhere than in the place indicated in the figure; however, it is always located on the brake shield disc.
2. Remove the upper plug and lower plug and check the brake shoe lining thickness.
3. Brake shoes must be replaced when the lining

thickness is less than 5 mm.

4. Check other brake shoe linings for wear.

SER.3.E-009.01.EN

6.11 CHECKING WHEEL AXLE BEARINGS FOR SLACKNESS

TIP

If hub cover is damaged or missing, contamination and dampness enter the hub, which causes significantly faster wear of bearings and hub seals.

The bearing service life depends on the operating conditions, load, vehicle speed and lubrication conditions.

DANGER

Before starting work, carefully read the jack operating manual.

Make sure that the machine does not roll when checking the wheel axle bearings slackness.

Inspect the bearing slackness only when the trailer is hitched to tractor and the load box is empty and not raised.

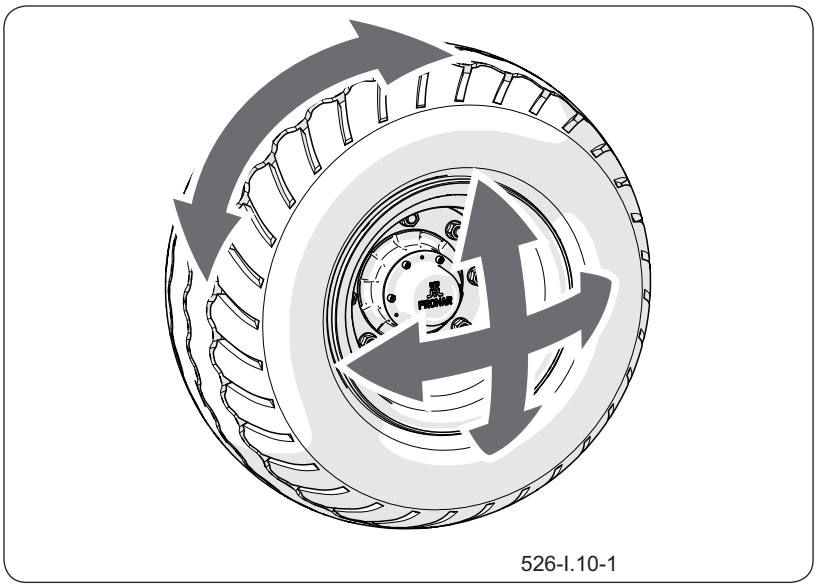


Figure 6.10 Check slackness

1. Raise the wheel using a lifting jack.
2. Turn the wheel slowly in both directions. Check that movement is smooth and that the wheel rotates without excessive resistance and jamming.
3. Turn the wheel so that it rotates very quickly, check that the bearing does not make any unusual sounds.
4. Moving the wheel try to detect slackness.
5. Repeat the steps for each wheel separately.

   Remember that the jack must be on the opposite side of the chocks!
6. If you feel any play, adjust the bearings. Unusual noise made by the bearing may be a symptom of excessive wear, dirt or damage. In such an event the bearing, together with sealing ring, should be replaced with new parts, or cleaned and greased again.
7. During inspection of bearings, ensure that

possibly detected slackness comes from the bearing and not from the suspension system (e.g. slackness of leaf spring pins etc.).

8. Check technical condition of hub cover, if necessary replace it with a new one.

SER.3.E-010.01.EN

6.12 ADJUST THE PLAY OF THE AXLE BEARINGS

ATTENTION

Adjustment of bearing slackness may only be conducted when the trailer is hitched to tractor and the load box is empty.

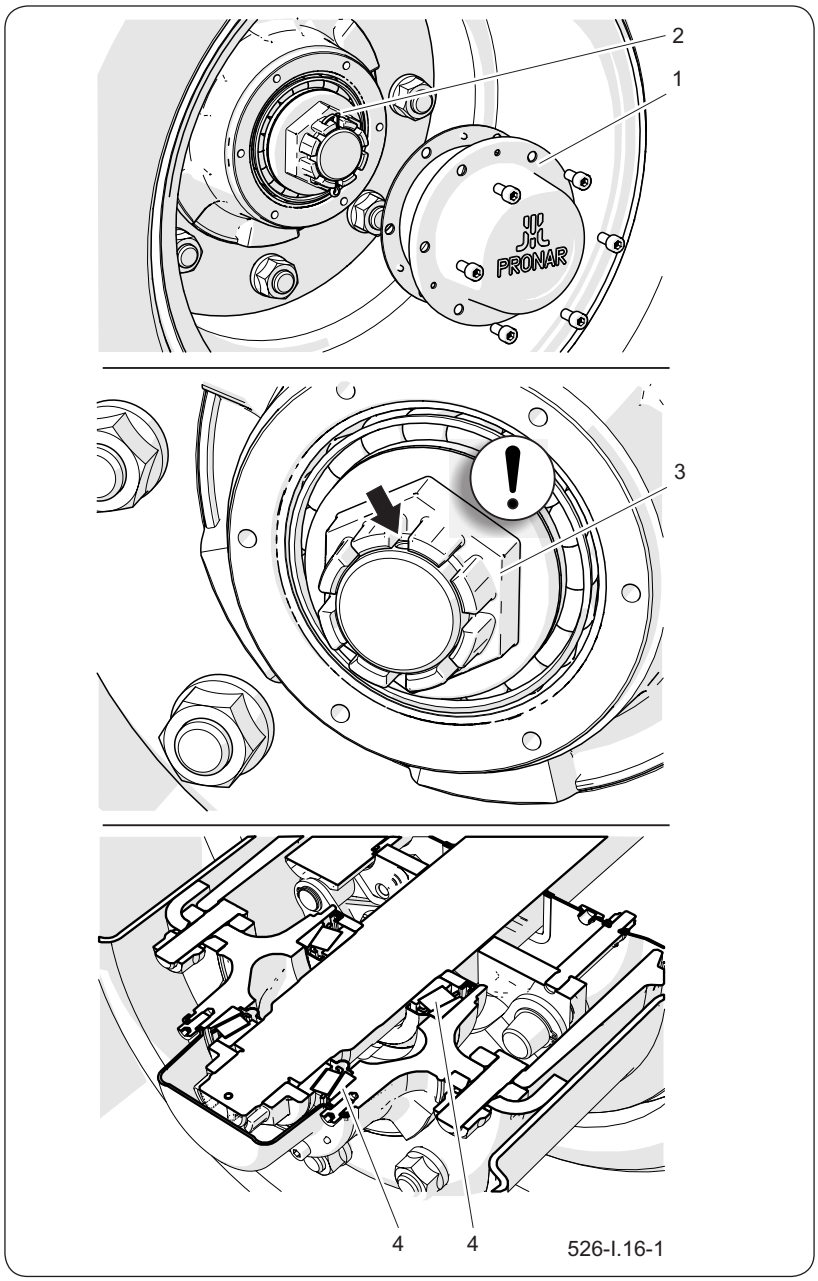


Figure 6.11 Bearing slackness adjustment principle

(1) hub cover *(2) cotter pin;*
(3)nut *(4) taper bearing*

Procedure

Prepare tractor and machine for adjustment procedures according to description in section ”Prepare the machine”.

1. Dismantle hub cover (1).
2. Take out cotter pin (2) securing castellated nut (3)
3. Tighten castellated nut in order to eliminate looseness.

   Wheel should rotate with insignificant resistance.
4. Undo nut (3) (not less than ⅓ of a turn) to align the nearest thread groove with the opening in wheel axle pin (cotter pin opening is indicated by black arrow in the figure). Wheel should rotate without excessive resistance.

   The nut must not be excessively tightened. Otherwise, operating conditions of the bearings will deteriorate.
5. Secure castellated nut with cotter pin and mount hub cover (1).
6. Delicately tap hub cap with rubber or wooden hammer.

SER.3.E-016.01.EN

6.13 INSPECTION OF MECHANICAL BRAKES

TIP

Check technical condition of brakes:

- according to the inspection schedule,
- before the period of intensive use,
- after repair of braking system.
- in case of uneven trailer wheels braking..

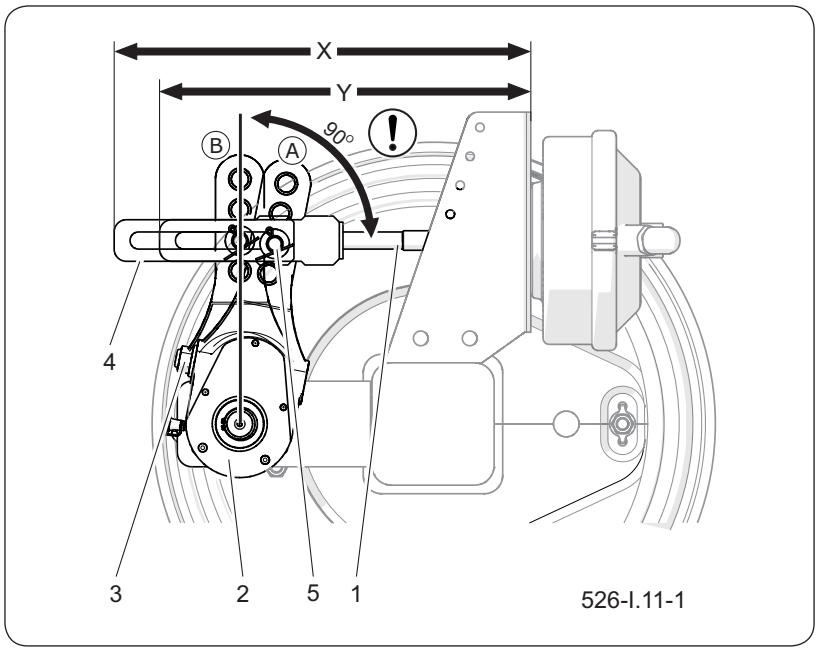


Figure 6.12 Inspection of brake

(1) cylinder piston rod *(2) expander arm*
(3) adjusting bolt *(4) cylinder fork*
(5) pin position
(A) position of arm at brake release position
(B) position of arm at braking position

If the brake is correctly adjusted, the brake cylinder rod stroke should be within the range specified in Table and it depends on the cylinder type. When the wheel is fully braked, the optimal angle between the expander lever and the piston rod should be approx. 90°C. This setting ensures the best possible braking force. Check the brakes by measuring this angle and the stroke of the piston rod for each wheel.

Procedure

1. Measure the X distance when the tractor brake pedal is released.
2. Measure the Y distance when the tractor brake pedal is depressed.

3. Calculate the difference between the distances (X-Y) (cylinder rod stroke).
4. Check the angle between the cylinder rod axis and the expander lever.
5. If the expander arm angle (2) and the cylinder rod stroke are outside the range specified in Table “Adjustment parameters and settings”, adjust the brake.

SER.3.E-011.01.EN

6.14 INSPECTION OF PARKING BRAKE CABLE TENSION

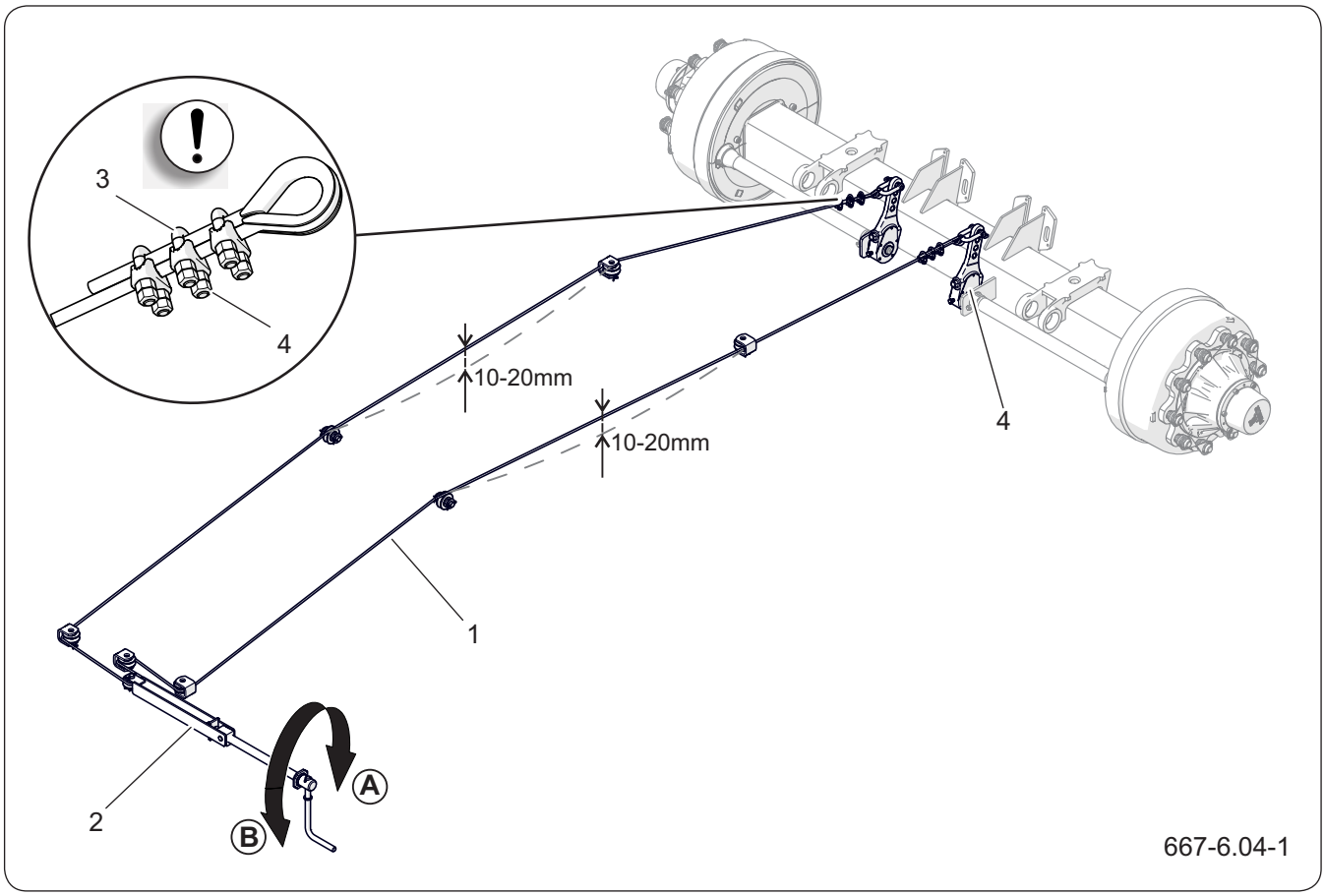


Figure 6.13 Inspection of cable tension

(1) cable (2) brake mechanism (3) U-shaped clamp (4) clamp nut

DANGER

Do NOT use the machine if the brake system is unreliable.

Inspect the tension

Parking brake should be checked after checking the mechanical brake of the axle.

1. Hitch trailer to tractor. Park the machine and tractor on level surface.
2. Place securing chocks under one trailer wheel of the rigig axle.
3. Turn the brake mechanism crank (2) in direction (A) to engage the parking brake.
4. Check tension of the cable (1).
5. When the brake mechanism bolt is maximally unscrewed, the cable should be loose and hanging by approximately 10 to 20 mm.

Adjust cable tension

1. Unscrew the brake mechanism bolt maximally (2) by turning the crank in direction (B).
2. Loosen nuts (4) of U-bolt clamps (3) on hand-brake cable (1).
3. Tighten cable (1) and tighten nuts (4) of the clamps
4. Engage the parking brake and release it.
5. Check (approximate) cable slackness.

   When the working brake and parking brake are fully released, the cable should be loose and hanging by approximately 10-20 mm. The axle expander levers should be in their rest position.

SER.3.E-012.01.EN

6.15 INSPECT THE HYDRAULIC SYSTEM

ATTENTION

Do NOT use the machine if the hydraulic system is unreliable.

Check hydraulic system tightness,

1. Hitch trailer to tractor.
2. Connect all hydraulic system lines according to maintenance instructions.
3. Clean conduit connections, hydraulic cylinders and connectors.
4. Start all hydraulic systems in turn by extending and withdrawing the cylinder piston rods. Repeat the above actions 3-4 times.
5. Leave the hydraulic cylinders in the maximally extended position.
6. Check all hydraulic circuits for tightness.
7. After completed inspection, fold all cylinders to their rest position.

If oil is found on hydraulic cylinder body, check origin of leak.

Inspect seals when hydraulic cylinder is completely extended. Minor leaks with symptoms of "sweating" are acceptable. If you notice drip leaks, do not use the machine until the fault is repaired. If the failure occurs in the brake cylinders or other components of the braking system, you cannot drive the trailer until the failure is repaired.

If leaks appear at conduit connections then tighten the connections using the specified torque and re-check the connections. If the problem still exists, re-place the leaky component.

Inspect the technical condition of hydraulic connectors

Hydraulic connections for connecting the trailer to tractor must be technically reliable and kept clean. Each time before connecting, check if sockets in tractor are maintained in good working condition.

Tractor and trailer hydraulic systems are sensitive to the presence of permanent contamination, which may cause damage to precision system components (jamming of hydraulic valves, scratching of cylinder surfaces etc.)

SER.3.E-013.01.EN

6.16 CHECKING AND REPLENISHING OIL IN THE HYDRAULIC SYSTEM WITH OIL TANK

TIP

At the factory, the gearbox is filled with SAE 90 EP gear oil (API GL-5 SAE 80W/90).

ATTENTION

Check oil level in the system before each start of the machine.

Check the oil level with the machine turned off. The oil should have cooled down.

Do not pour excessive amounts of oil into the gearbox. Excessive amount of oil can cause the temperature of the gear to rise too high.

If you notice an oil leak, carefully inspect seals, hydraulic lines, and connectors; check the oil level.

Operating the transmission with insufficient amount of oil or without oil may cause permanent damage.

DANGER

When checking oil level and adding oil, use appropriate personal protection equipment i.e. protective clothing, safety shoes, gloves, safety goggles. Avoid contact of skin with oil.

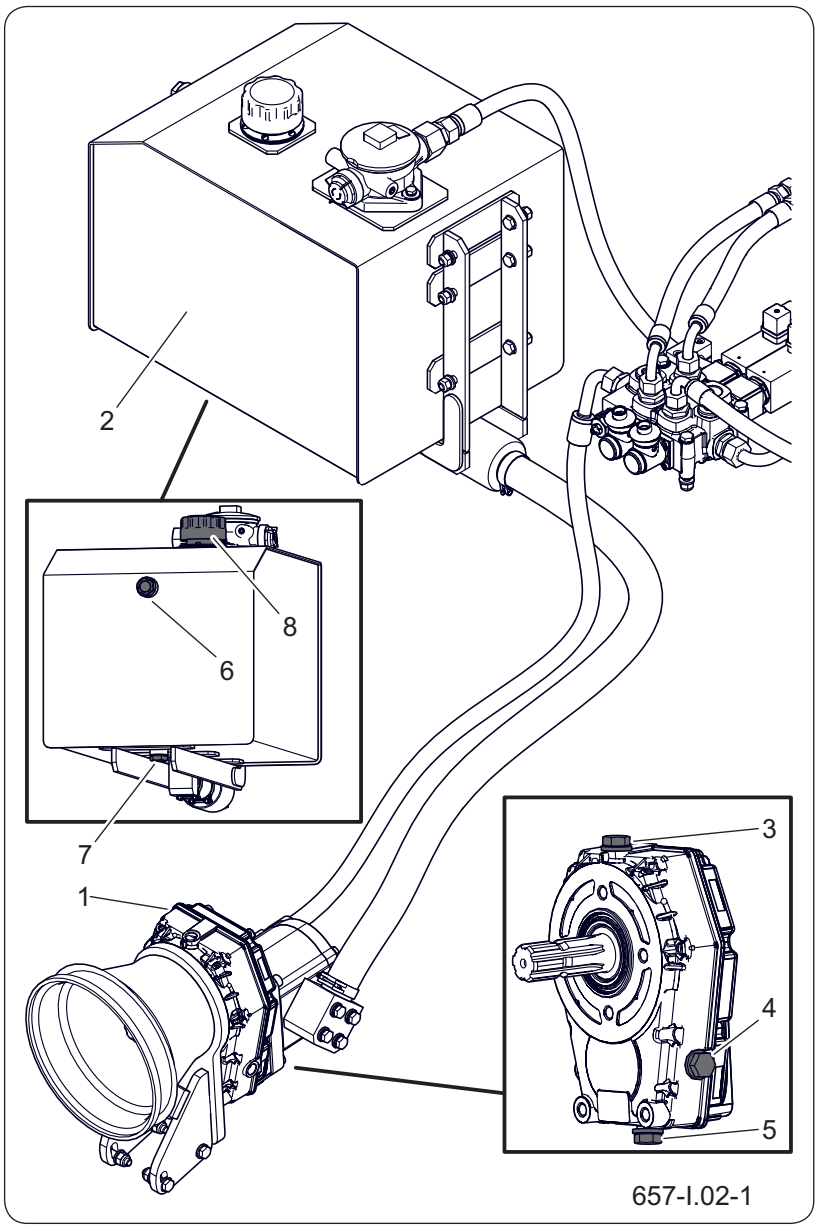


Figure 6.14 Check oil level in the gear

(1) gear
(2) oil tank
(3) filler plug
(4) level plug
(5) drain plug
(6) sight glass
(7) drain plug
(8) oil filler

TIP

The hydraulic system with oil tank is filled with L-HL32 Lotos hydraulic oil.

Check oil level in the gear

1. Place the machine horizontally and block it with the parking brake and chocks,
2. Unscrew the plug (4) and check the oil level (1).
3. If necessary unscrew filler plug (3) and add oil to the required level.

   The oil level should be at the lower edge of the inspection hole.
4. Tighten the cap (4).

Checking the oil level of the hydraulic system with the oil tank

1. Place the machine horizontally and block it with the parking brake and chocks,
2. Check the oil level in the tank (2) through the transparent oil sight glass (6).
3. If necessary unscrew filler plug (8) and add oil to the required level. Tighten the filler plug.

   The oil level should be halfway up the sight glass scale.

SER.3.E-008.01.EN

6.17 INSPECTION OF PNEUMATIC BRAKE SYSTEM

DANGER

Do NOT use the machine if the brake system is unreliable.

DANGER

Repair, exchange or regeneration of pneumatic system components may only be performed in a specialised workshop.

Procedure

1. Hitch the machine to tractor.
2. Immobilise tractor and machine with parking brake. Additionally, place chocks under the machine's rigid axle wheel.
3. Start tractor in order to add air in machine brake system tank.
4. Turn off tractor engine.
5. Check system components by releasing brake pedal in tractor unit.
6. Pay special attention to line connections and brake cylinders.
7. Repeat system check with depressed tractor unit brake pedal.

In the event of the appearance of leaks, compressed air will escape at the places of damage, with a characteristic hiss. Lack of system tightness may be detected by covering elements to be checked with washing fluid or other foaming preparations, which will not react aggressively with the system components. Damaged components should be replaced or repaired. If leaks appear at connections then tighten the connections. If air continues to escape, replace connection components or seals with new ones.

During tightness inspection, pay attention to technical condition and degree of cleanliness of the system components. Contact of pneumatic lines, seals etc. with oil, grease, petrol etc. may cause damage and accelerate the ageing process. Bent, permanently deformed, cut or worn lines should be replaced.

SER.3.E-014.01.EN

6.18 TIGHTENING TORQUES FOR SCREW CONNECTIONS

During maintenance and repair work, apply appropriate tightening torques to screw connections, unless other tightening parameters are given. Recommended tightening torques for the most commonly used bolted connections are shown in the Table. The given values apply to non-lubricated steel bolts.

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

Check the tightness using a torque wrench. During daily inspection of the manure spreader pay attention to loose connections and tighten the connector if necessary. Replace lost items with new ones.

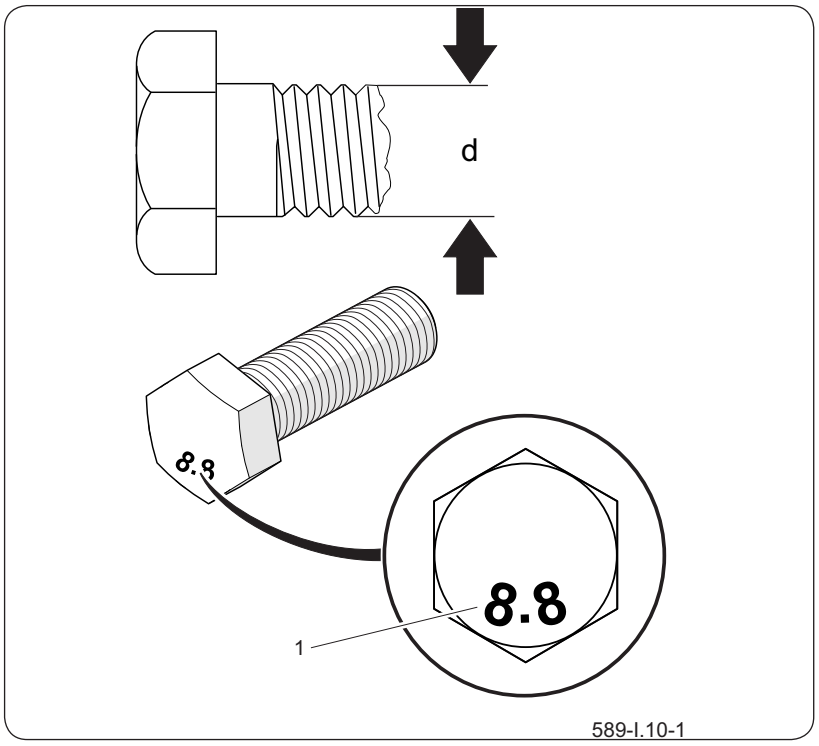


Figure 6.15 Metric thread screw

(1) strength class *(d) thread diameter*

Table 6.1 Tightening torques for screw connections

Metric thread		
	8.8(*)	**10.9**(*)
M8	25	36
M10	49	72
M12	85	125
M14	135	200
M16	210	310
M20	425	610
M24	730	1,050
M27	1,150	1,650
M30	1,450	2,100

(*) - strength class according to DIN ISO 898

Table 6.2 Tightening torques of hydraulic elements

Thread of nuts	**Wire diameter DN (inch)**	**Tightening torques [Nm]**
M10x1 | M12x1.5 | M14x1.5	6 (1/4”)	30÷ 50
M16x1.5 | M18x1.5	8 (5/16”)	30÷ 50
M18x1.5 | M20x1.5 | M22x1.5	10 (3/8”)	50÷ 70
M22x1 | M24x1.5 | M26x1.5	13 (1/2”)	50÷ 70
M26x1.5 | M27x1.5 | M27x2	16 (5/8”)	70÷ 100
M30x1.5 | M30x2 | M33x1.5	20 (3/4”)	70÷ 100
M38x1.5 | M36x2	25 (1”)	100÷ 150
M45x1.5	32 (1.1/4”)	150÷ 200

SER.3.8-017.01.EN

6.19 TIGHTENING ROAD WHEELS

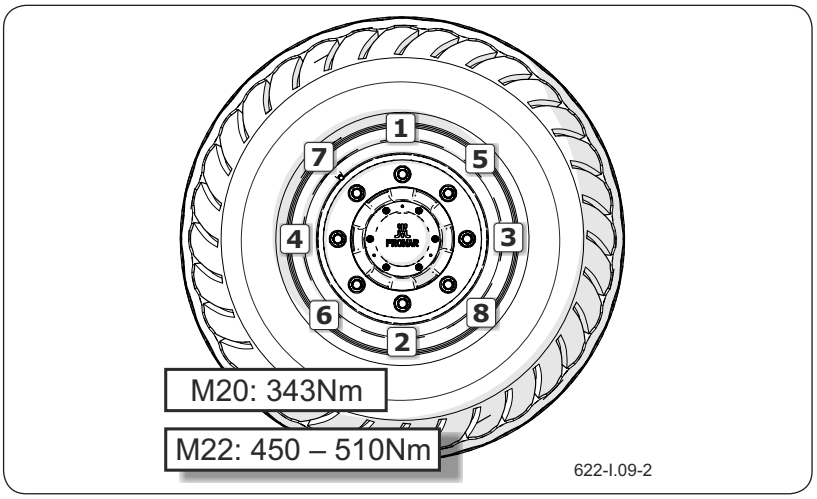


Figure 6.17 The order of the nuts tightening (8 pcs)

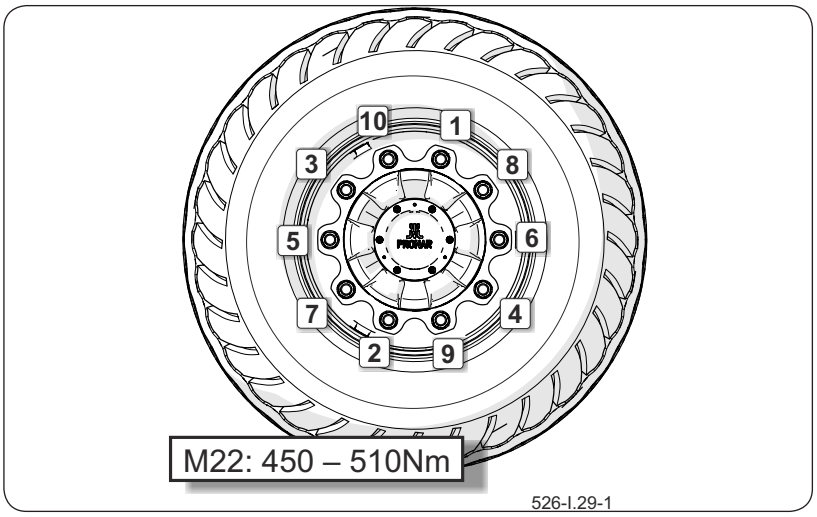


Figure 6.16 The order of the nuts tightening (10 pcs)

The wheel nuts be tightened gradually diagonally (in several stages until the required tightening torque is achieved), using a torque wrench. The recommended order of tightening of the nuts and the tightening torque is shown on the figures.

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 the hub pin.

The wheels should be tightened according to the following scheme:

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

If the wheel was disassembled, the above steps should be repeated.

SER.3.8-018.01.EN

6.20 REPLACEMENT OF HYDRAULIC HOSES

Rubber hydraulic hoses should be replaced every 4 years regardless of their technical condition. This operation should be entrusted to specialized workshops.

SER.3.8-020.01.EN

6.21 INSPECTION OF TRIDEM SUSPENSION SYSTEM

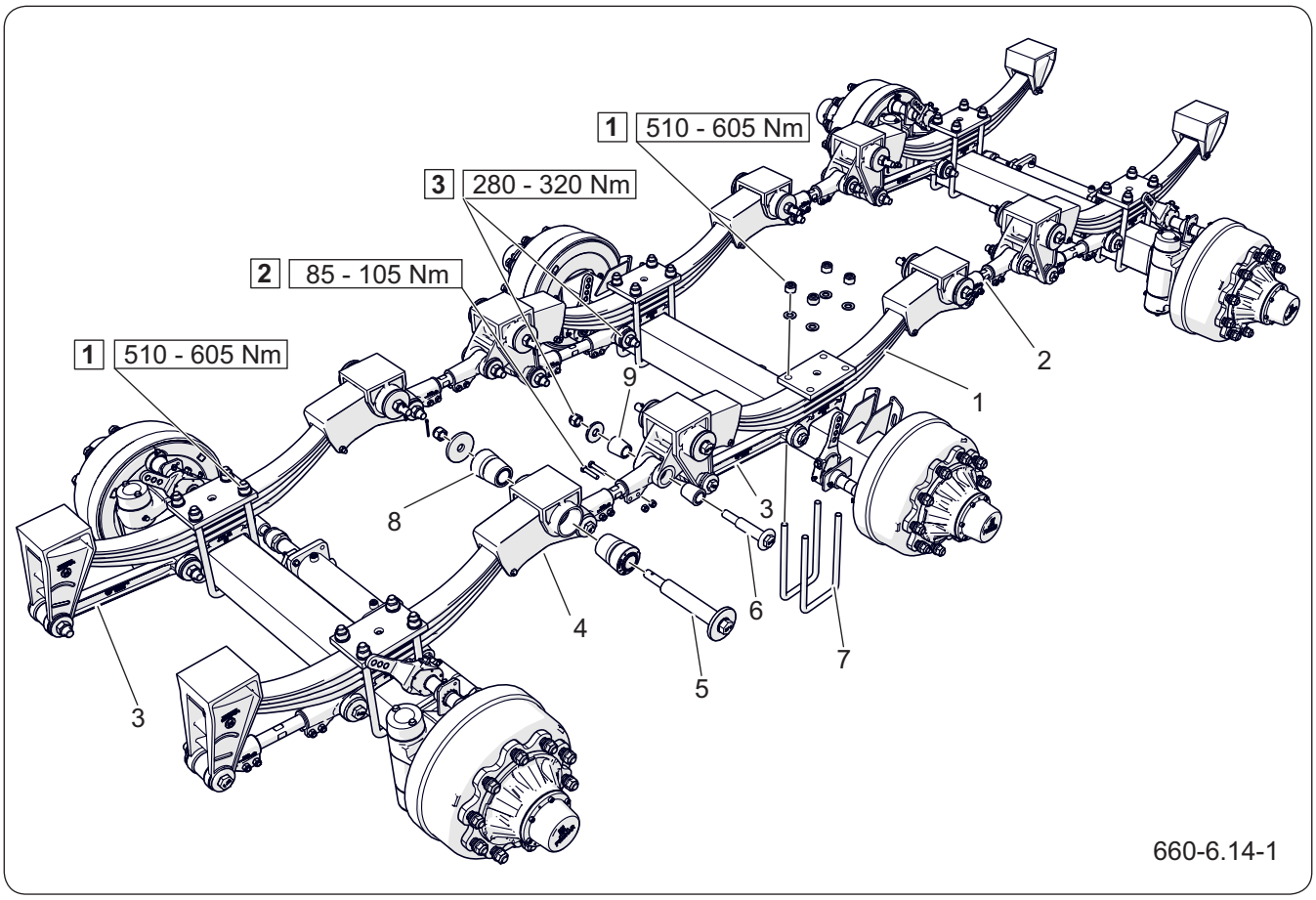


Figure 6.18 Maintenance od tridem mechanical suspension system, axle mounted under the spring

(1) spring, (2) adjustable link, (3) rigid link, (4) swing arm, (5) suspension pin,

(6) spring leaf mounting, (7) axle mounting U-bolt, (8) (9) metal-rubber sleeve

Table 6.3 Suspension system inspection schedule

Item	Maintenance activities	Frequency
1	Checking the tightening of the nuts of U-bolts on the axle should be performed using a torque wrench with a torque of 510 - 605 Nm (M22x1.5), the first after driving 50 km with a load or after 500 hours of operation, the next after 5,000 km or after 1,500 hours of operation, then once a year.	first after travelling the 50 km with a load or after 500 hours of operation, next after travelling 5000 km or after 1500 hours of operation, then once a year

Item	Maintenance activities	Frequency
2	Checking the tightening of the nuts of adjustable control rods should be performed using a torque wrench with a torque of 85 - 105 Nm, the first after driving 50 km with a load or after 500 hours of operation, the next after 5,000 km or after 1,500 hours of operation, then once a year.	first after travelling the 50 km with a load or after 500 hours of operation, next after travelling 5000 km or after 1500 hours of operation, then once a year
3	Checking the tightening of the pin nuts should be performed using a torque wrench with a torque set to 280 - 320 Nm. The inspection applies to the rocker arms pins and control rods pins. In the case of the rocker arms pins, check the condition of the securing pin. If any are destroyed or damaged, they must be replaced with new.	first after driving 50 km with a load or after 500 hours of operation, another one after 5,000 km or after 1,500 hours of operation, then once a year
4	Inspection of the spring support consists in checking whether there is grease at the point of contact between the spring and the bracket or rocker arm. Use lithium grease with EP additive for lubrication.	after receiving the trailer, then once a year
5	Inspection of metal-rubber bushings: visual assessment of the condition of the bushings. The pressure washers should not come into contact with the bracket, if they do, replace the rubber conical bushings.	once a year
6	Check the condition of the suspension springs (1), carefully clean and brush the sides of the suspension springs in order to confirm that there are no cracks.	once a year

TIP

If the trailer is operated in severe conditions or is operated intensively, the maintenance activities should be performed more frequently.

ATTENTION

Bolt and nut connections of suspension system should be tightened under load.

SER.3.H-005.01.EN

6.22 TRIDEM HYDRAULIC SUSPENSION INSPECTION

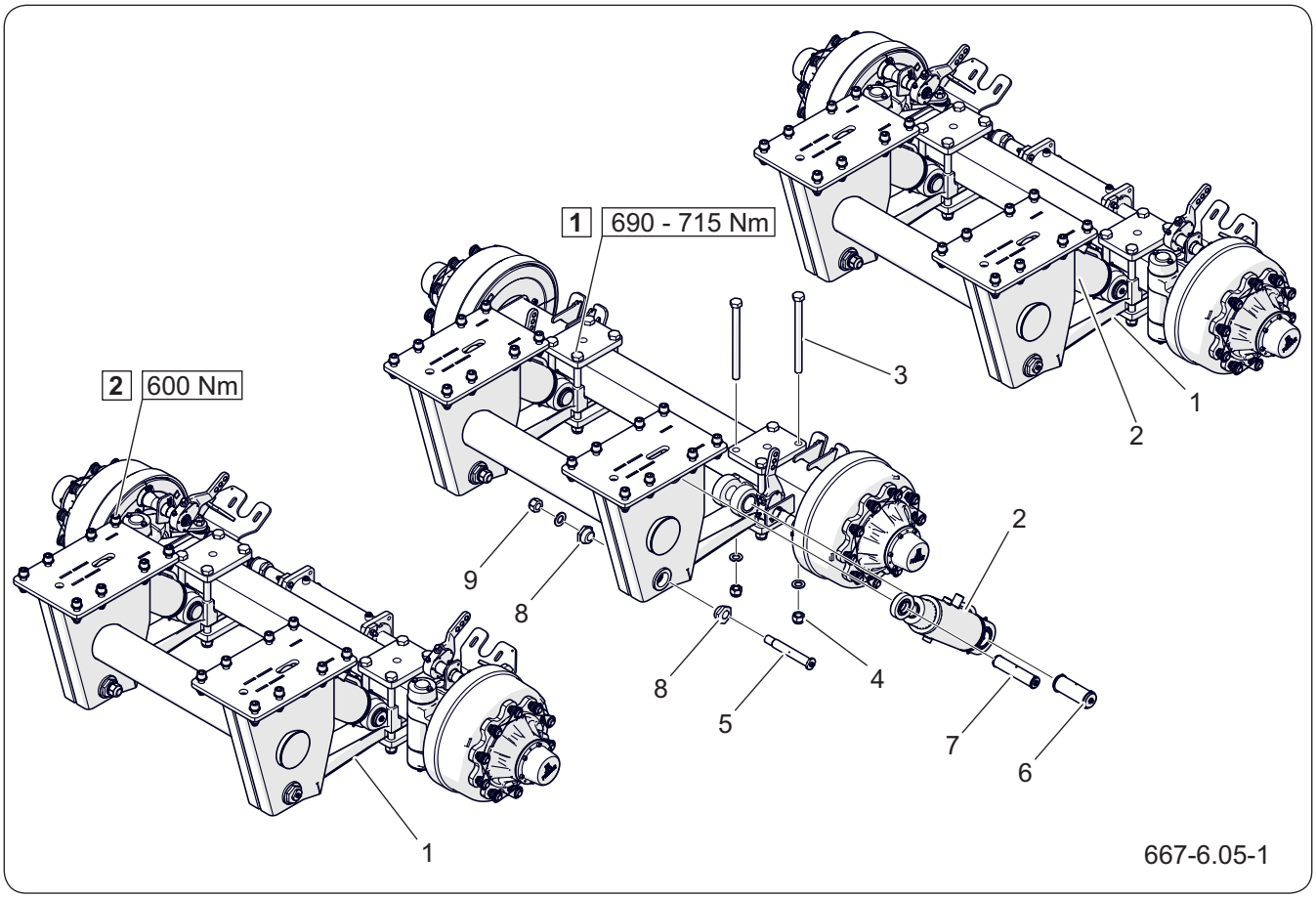


Figure 6.19 Operation of tridem hydraulic suspension system

(1) leaf spring, (2) suspension cylinder, (3) axle mounting screw, (4) nut, (5) leaf spring pin, (6) upper pin of the cylinder (7) lower pin of the cylinder, (8) eccentric sleeve, (9) nut

Table 6.4 Suspension system inspection schedule

Item	Maintenance activities	Frequency
1	Checking the tightening of the nuts of bolts (3) on the axle should be performed using a torque wrench with a torque of 690 - 715 Nm (M22x1.5), the first after driving 50 km with a load or after 500 hours of operation, the next after 5,000 km or after 1,500 hours of operation, then once a year.	first after travelling the 50 km with a load or after 500 hours of operation, next after travelling 5000 km or after 1500 hours of operation, then once a year

Item	Maintenance activities	Frequency
2	Checking the tightening of the nuts of bolts fixing the linkage should be performed using a torque wrench with a torque of 600 Nm, the first after driving 50 km with a load or after 500 hours of operation, the next after 5,000 km or after 1,500 hours of operation, then once a year.	first after travelling the 50 km with a load or after 500 hours of operation, next after travelling 5000 km or after 1500 hours of operation, then once a year
3	Inspection of the spring support consists in checking whether there is grease at the point of contact between the spring and the bracket. Use lithium grease with EP additive for lubrication.	after receiving the trailer, then once a year
4	Inspection of the hydraulic cylinder pins involves checking whether all pins are lubricated. Use lithium grease with EP additive for lubrication.	after receiving the trailer, then once a year
5	Check the condition of the suspension springs (item 1): carefully clean and brush the sides of the suspension springs in order to confirm that there are no cracks.	once a year

TIP

If the trailer is operated in severe conditions or is operated intensively, the maintenance activities should be performed more frequently.

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6.23 BRAKE ADJUSTMENT

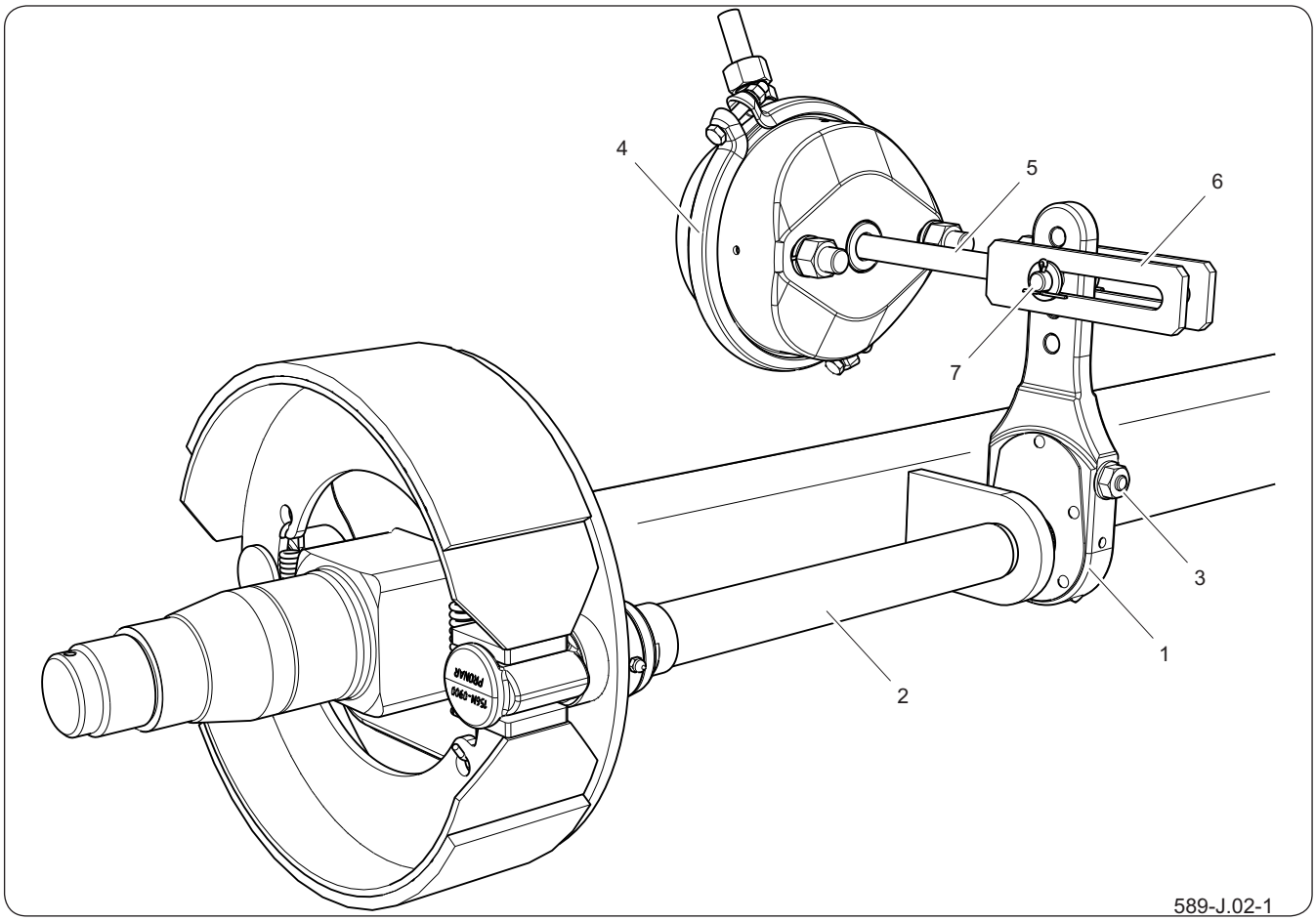


Figure 6.20 Design of pneumatic wheel axle brake

(1) expander arm, *(2) expander shaft,* *(3) adjusting bolt,*
(4) pneumatic cylinder, *(5) cylinder piston rod,* *(6) cylinder fork,*
(7) actuator pin

TIP

The correct stroke of the piston rod should be in the range of 25–45 mm.

Considerable wear of brake shoe linings results in increased brake cylinder rod stroke and worse braking efficiency.

During braking, the brake cylinder piston stroke should be within the specified operating range and the angle between brake cylinder piston (1) and expander arm (3) should be about 90°. Machine wheels must brake simultaneously.

Braking force decreases also when the operating angle of the brake cylinder rod (5) in relation to the

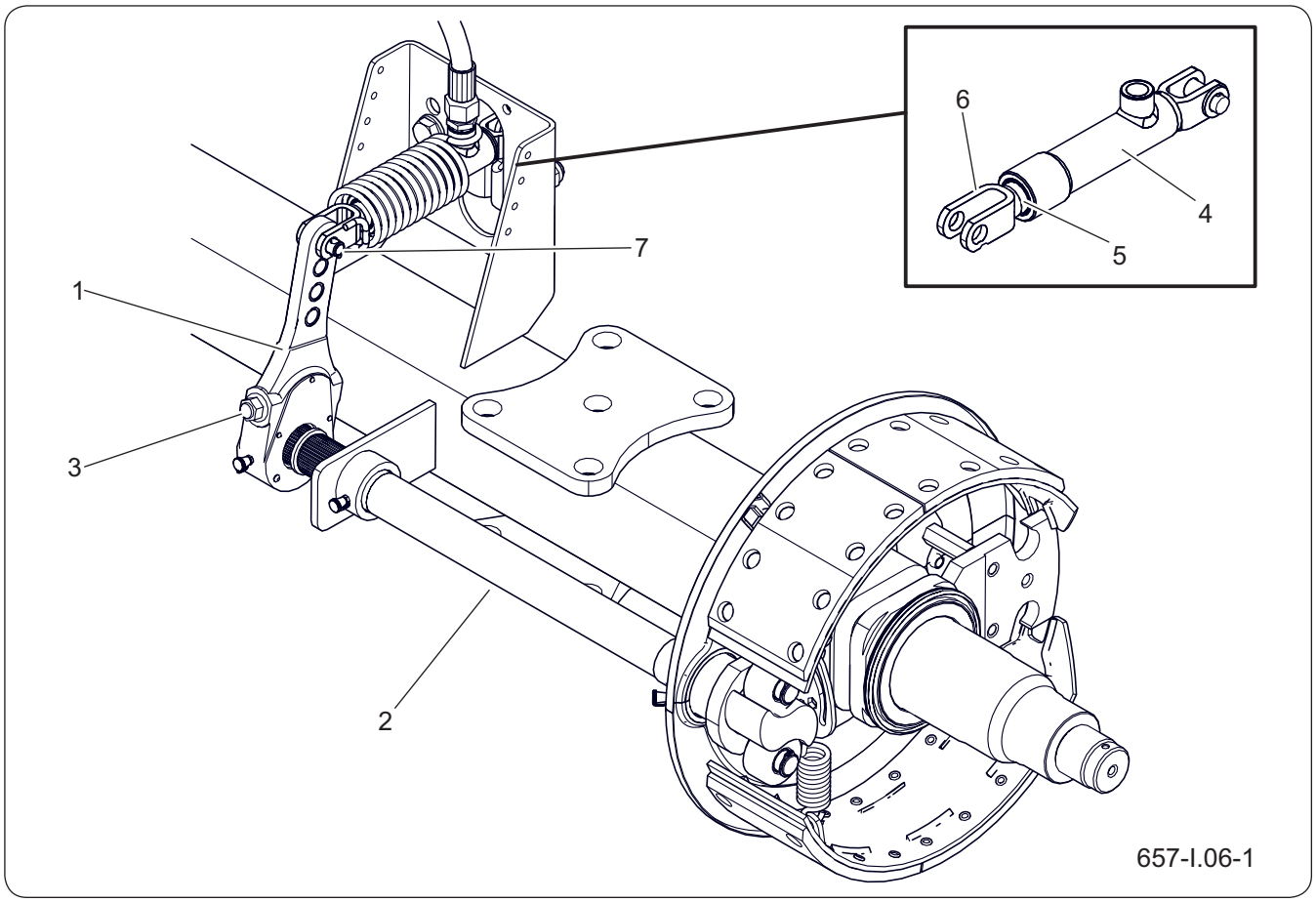


Figure 6.21 Design of hydraulic wheel axle brake

(1) expander arm, (2) expander shaft, (3) adjusting bolt, (4) hydraulic cylinder, (5) cylinder piston rod, (6) cylinder fork, (7) actuator pin

ATTENTION

Incorrectly adjusted brake may cause rubbing of brake shoes against brake drums, which may lead to faster wear of brake linings and/or brake overheating.

expander arm (1) is wrong. In order to obtain the optimal mechanical operating angle, the cylinder piston fork (6) must be installed on the expander arm (1) as to ensure that the operating angle at full braking is about 90°.

The inspection involves measuring the extension length of each brake cylinder piston rod while braking at parking. If the piston rod stroke exceeds the maximum value (45mm), the system should be adjusted. During dismantling of cylinder fork (6), remember or mark the original position of cylinder fork pin (7) Mounting position depends on the type of the braking system and size of the machine tires. It is selected by the manufacturer and cannot be changed.

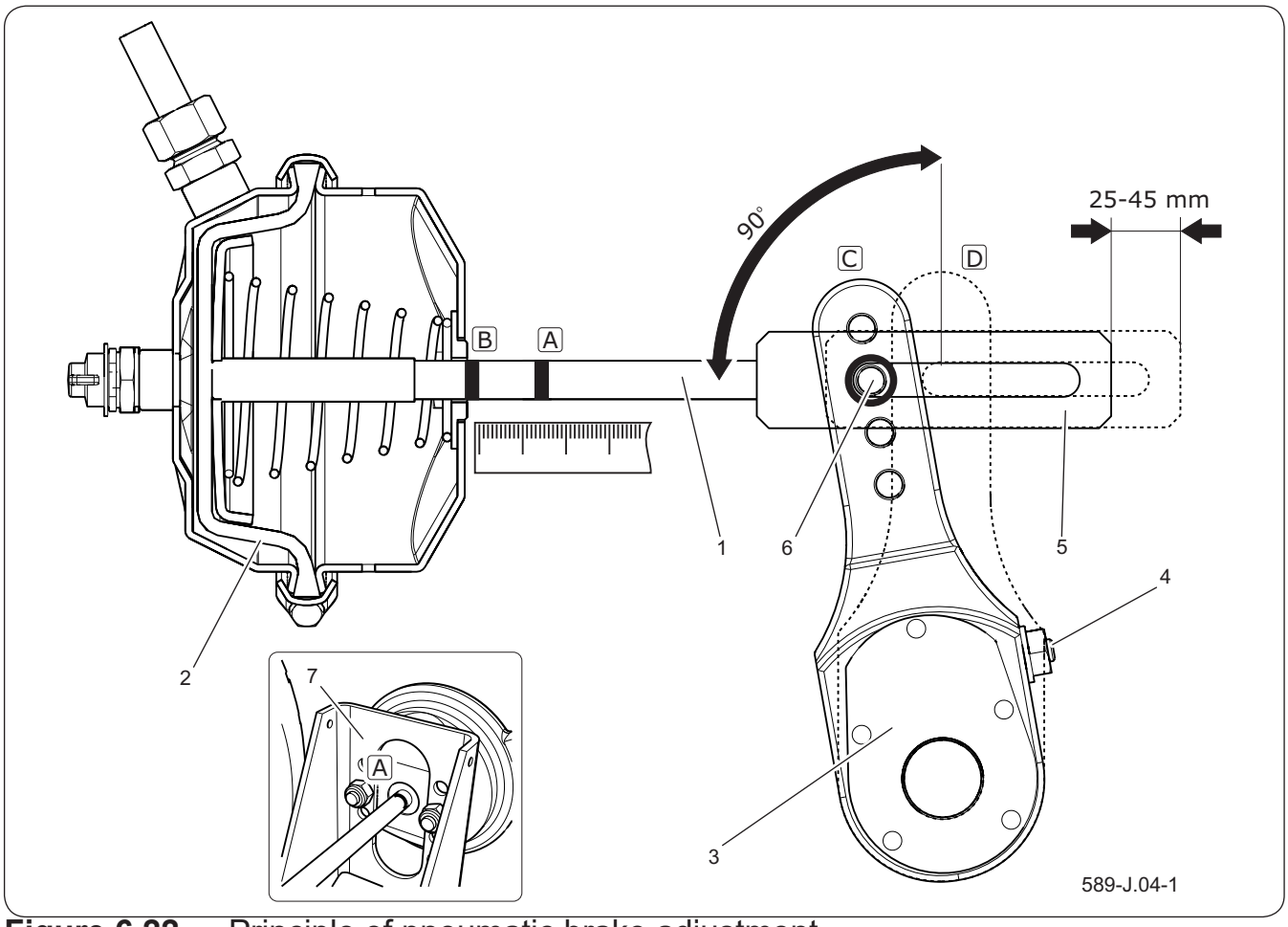


Figure 6.22 Principle of pneumatic brake adjustment

(1) cylinder piston rod, (2) brake cylinder membrane, (3) expander arm, (4) adjusting bolt, (5) cylinder fork, (6) fork pin, (7) cylinder bracket, (A) mark on the piston rod at brake release position, (B) mark on the cylinder piston rod at full braking position, (C) position of arm at brake release position, (D) position of arm at full braking position

Procedure

ATTENTION

The positions for fixing the brake cylinder in the bracket openings and the brake cylinder pin in the expander arm are determined by the Manufacturer and must not be changed.

Each time when dismantling the pin or brake cylinder, the original fixing position should be marked.

1. Hitch the machine to tractor.
2. Turn off the engine and remove key from ignition.
3. Immobilise the tractor with parking brake.
4. Make sure that the machine brakes are not engaged.
5. Secure the machine against moving by placing wheel chocks.
6. Make a line (A) on the brake cylinder piston (1) to indicate the position of the maximum withdrawal of the brake cylinder piston rod when the trailer brakes are released.

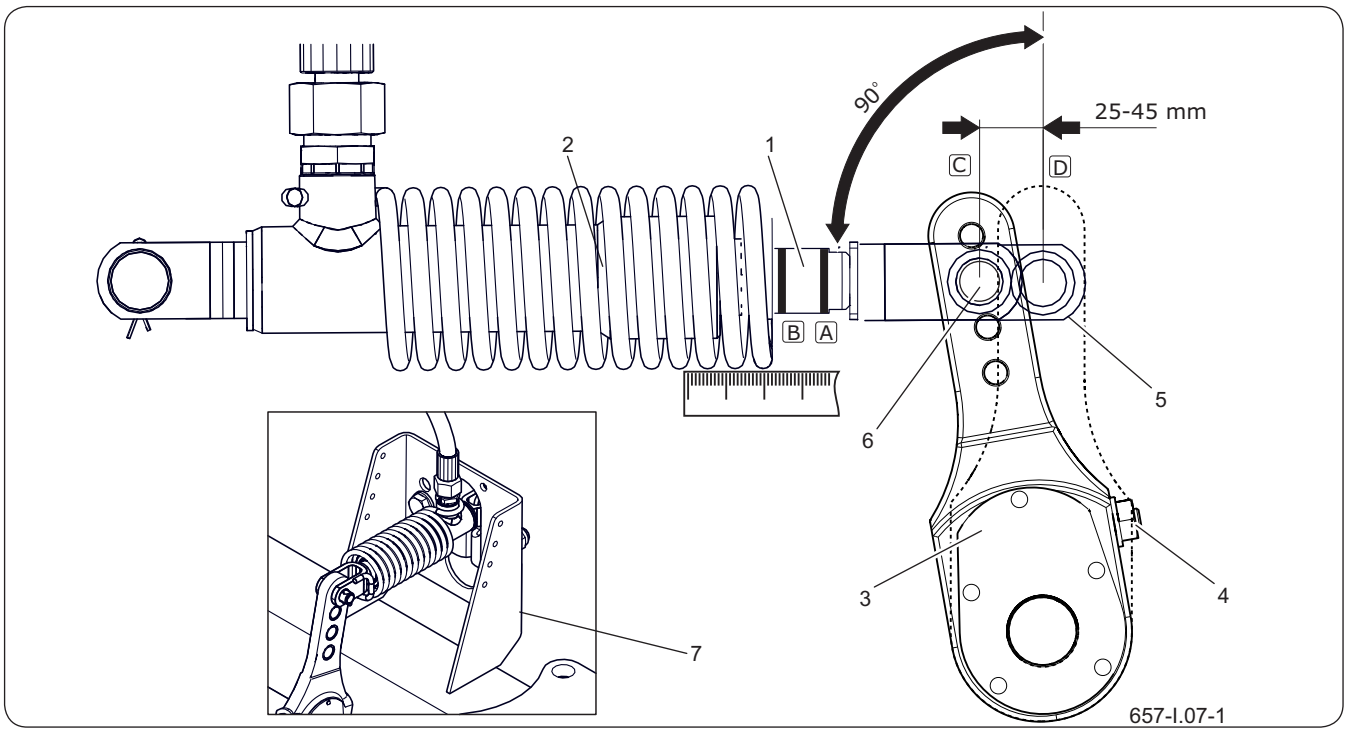


Figure 6.23 Principle of hydraulic brake adjustment

(1) cylinder piston rod, (2) cylinder housing, (3) expander arm, (4) adjusting bolt, (5) cylinder fork, (6) fork pin, (7) cylinder bracket, (A) mark on the piston rod at brake release position, (B) mark on the cylinder piston rod at full braking position, (C) position of arm at brake release position, (D) position of arm at full braking position

7. Press the tractor brake pedal and mark the position of the maximum extension of the brake cylinder piston rod with a line (B).
8. Measure the distance between lines (A) and (B). If the stroke of the brake cylinder piston rod is outside the proper operating range (25 – 45 mm), adjust the expander arm.
9. Dismantle brake cylinder fork pin (6)
10. Remember or mark the original position of pin (6) in expander arm opening (3).
11. Check if the brake cylinder piston rod moves freely and within the whole nominal range.
12. Check if the brake cylinder vent holes are not blocked with impurities and that there is no water or ice inside the brake cylinder (pneumatic cylinder). Check if the brake cylinder is

correctly installed.

13. Clean the brake cylinder. If necessary, defrost the brake cylinder and drain water through the unblocked vent holes (pneumatic cylinder). Replace damaged brake cylinder with a new one. When installing the brake cylinder, maintain its original position with regard to bracket (7).
14. Rotate adjustment bolt (4) to align the marked expander arm opening with the brake cylinder fork opening.
15. During the adjustment, membrane (2) must rest on the rear wall of the brake cylinder (pneumatic cylinder).
16. Install the brake cylinder fork pin and washers and secure the pin with cotter pins.
17. Rotate adjustment bolt (4) to the right until one or two clicking sounds are heard in the expander arm regulating mechanism.
18. Repeat adjustment activities for the other brake cylinder on the same axle.
19. Engage the brake.
20. Remove previous marks and measure the brake cylinder piston rod stroke again.
21. If the brake cylinder piston rod stroke is outside the proper operating range, repeat the adjustment.

Checking the brake operation

- After completed adjustment, perform a trial run.
- Engage the brake several times. Stop the machine and check the temperature of the brake drums.
- If any of the drums is too hot, correct the brake adjustment and perform a trial run again.

SER.3.E-017.01.EN

6.24 EMERGENCY RELEASE OF DIAPHRAGM ACTUATOR

ATTENTION

Be especially careful while working. During putting the actuator spring under tension, the trailer is not immobilised with parking brake. That is why chocks must be placed under the trailer wheels in order to secure the trailer against rolling.

The actuator may be repaired only in an authorised service centre.

Do NOT travel with unreliable brake system.

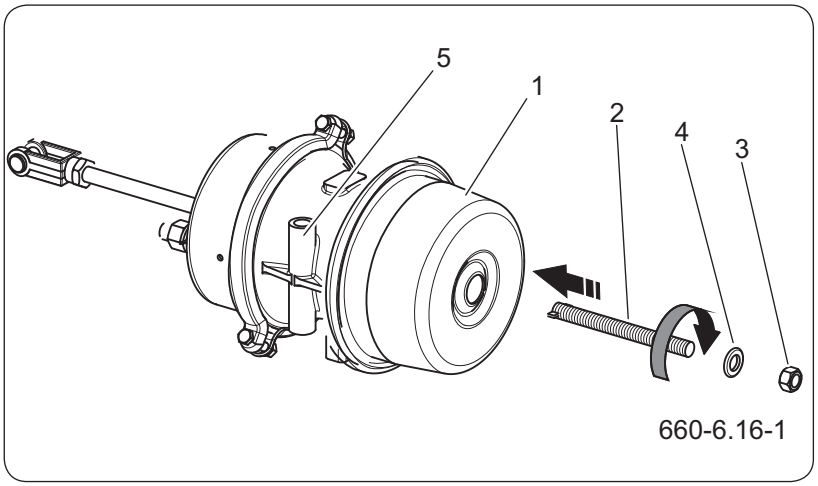


Figure 6.24 Emergency release of braking actuator

(1) actuator *(2) tensioning bolt*
(3) nut *(4) washer*
(5) tensioning bolt holder

Damage to the pneumatic system, which results in air leaking from the brake cylinders, results in braking of the trailer. Emergency release of these actuators involves putting a spring under tension by means of a tensioning bolt. During normal operation, the bolt is located in the actuator holder (5).

Emergency release of diaphragm-spring actuator

1. Block the trailer from rolling by placing wheel chocks under the wheels,
2. Insert tensioning bolt (2) into rear opening of the diaphragm actuator (1),
3. Turn the bolt 90°,
4. Install washer (4) and screw nut (3) on.
5. Tighten the nut until resistance is felt,
6. Repeat the above steps for other actuators.

In order to return to actuator normal operation mode, undo nut (3) and take tensioning bolt (2) out of the

actuator. After completion of the activities, place the bolt together with other elements in the actuator holder (5). Secure the opening in the actuator body with a plastic nut.

SER.3.E-018.01.EN

6.25 LUBRICATION

TIP

Lubrication frequency (see table: Trailer lubrication schedule):

D - working day (8 hours of trailer use)

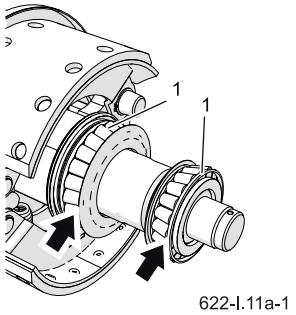
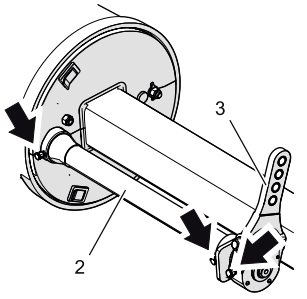
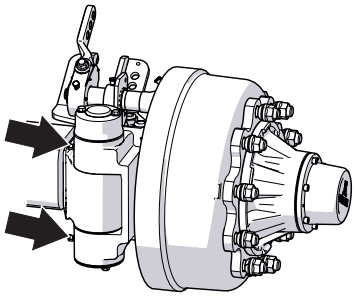
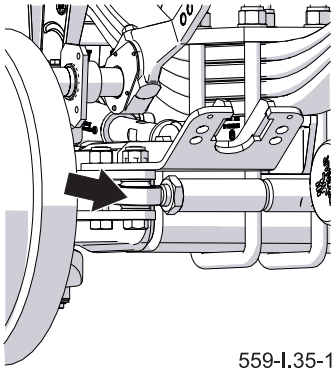
M - month

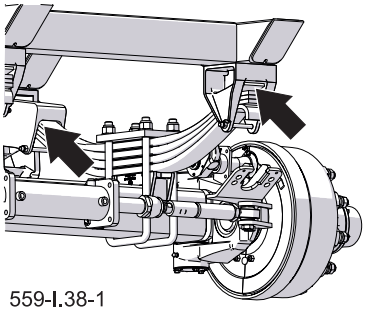
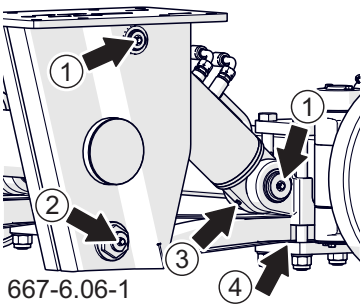
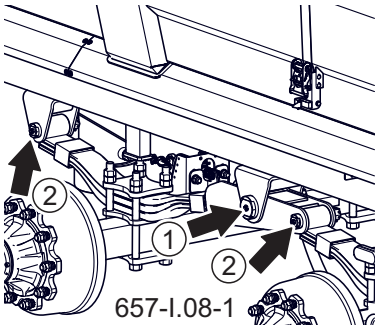
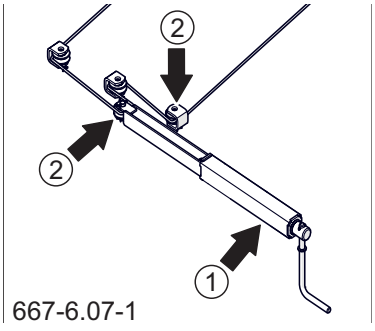
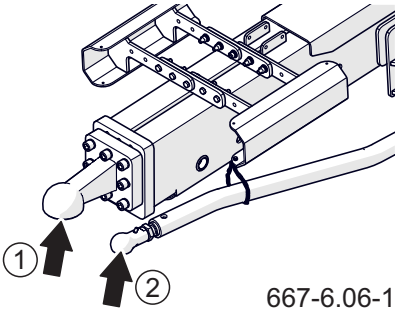
- Trailer lubrication should be performed with the aid of a manually or foot operated grease gun, filled with recommended grease. Before starting lubrication, remove old grease and other contamination. After completed lubrication, wipe off excess grease.
- Parts to be lubricated with machine oil should be wiped with dry clean cloth. Apply oil to their surfaces using a brush or oil can. Wipe off excess oil.
- Change of grease in hub bearings should be entrusted to specialised service points, equipped with the appropriate tools. In order to conduct this lubrication, the complete hub should be disassembled as well as bearings and individual sealing rings should be removed. After careful washing and inspection, mount lubricated elements. If necessary, bearing and seals should be replaced with new ones.
- Empty grease or oil containers should be disposed of according to the recommendations of the lubricant Manufacturer.

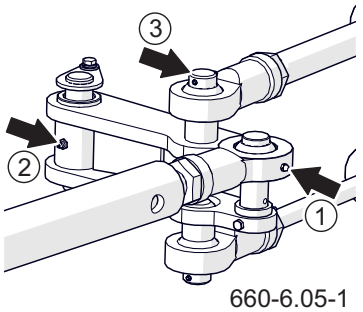
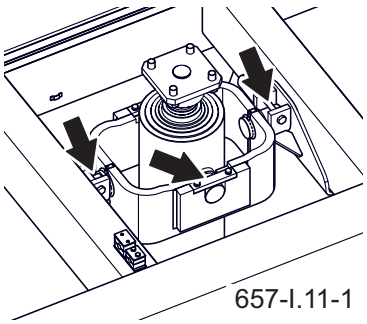
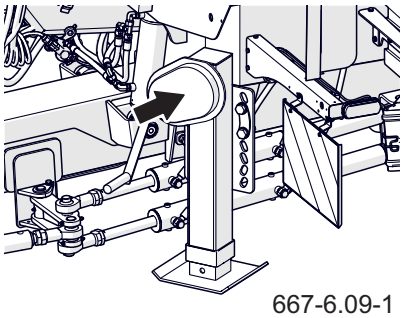
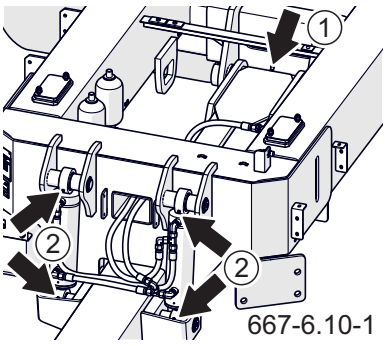
Table 6.5 Lubricants

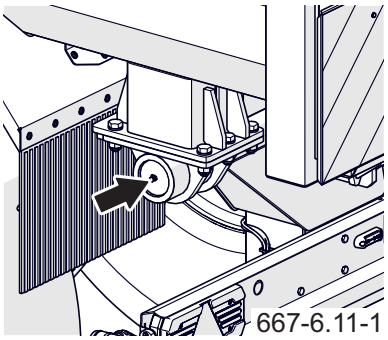
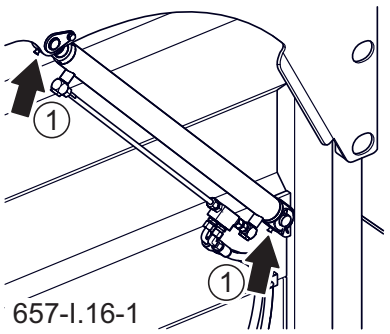
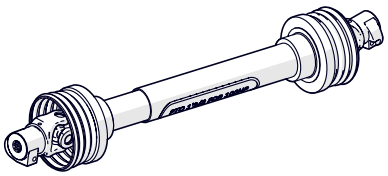
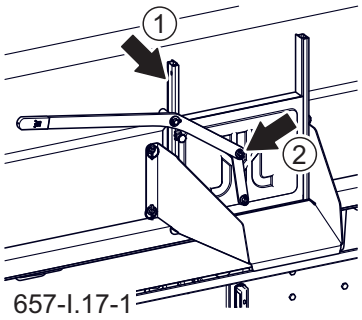
Item	Symbol	Description
1	A	machine general-purpose grease (lithium, alkaline),
2	B	Grease for heavily loaded elements with addition of MoS_2 or graphite
3	C	anticorrosion preparation in aerosol
4	D	ordinary machine oil, silicon grease in aerosol

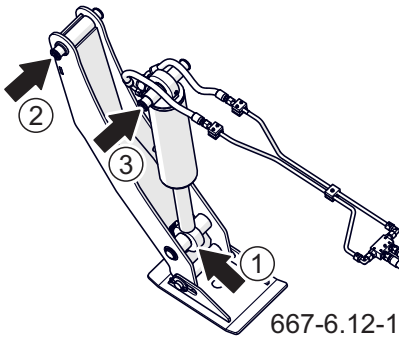
Table 6.6 Trailer lubrication schedule

Item	Name	Number of lubrication points	Type of grease	Frequency	
1	Hub bearings (2 bearings in each hub)	4	A	24M	 622-I.11a-1
2	Expander shaft sleeve	8	A	3M	 622-I.11b-1
	Expander arm	4	A	3M	
3	Stub axle pin	4	A	3M	 559-I.34-1
4	Steering axle actuator bearings	2	A	3M	 559-I.35-1

Item	Name	Number of lubrication points	Type of grease	Frequency	
5	Leaf spring absorber sliding surface	8	A	3M	 559-I.38-1
	Leaf springs	4	C	12M	
6	Cylinder pin (1)	12	B	3M	 667-6.06-1
	Leaf spring pin (2)	6	B	3M	
	Cylinder eye (3)	12	B	3M	
	Leaf spring (4)	6	C	12M	
7	Rocker arm pin (1)	2	A	3M	 657-I.08-1
	Leaf spring pin (2)	4	A	3M	
8	Parking brake mechanism (1)	1	A	6M	 667-6.07-1
	Parking brake guide roller pins (2)	8	A	6M	
9	Drawbar hitching eye (1)	2	B	14D	 667-6.06-1
	Steering cable (2)				

Item	Name	Number of lubrication points	Type of grease	Frequency	
10	Steering cable (1)				 660-6.05-1
	Steering pin (2)				
	Steering cylinder pin (3)				
11	Tipping cylinder sockets and cylinder sling	4	B	1M	 657-I.11-1
12	Parking stand		A	6M	 667-6.09-1
13	Drawbar pin (1)	1	B	3M	 667-6.10-1
	Cylinder eye (2)	1	B	3M	

Item	Name	Number of lubrication points	Type of grease	Frequency	
14	Hinge for tipping the load box backwards	2	B	6M	 667-6.11-1
15	Tailgate cylinder bearings	4	B	3M	 657-I.16-1
16	PTO shaft ** lubrication schedule according to the shaft instruction manual attached to the trailer*	-	-	-	 660-6.17-1
17	Chute guides (1)	2	D	1M	 657-I.17-1
	Chute link pins (2)	2	D	1M	

Item	Name	Number of lubrication points	Type of grease	Frequency	
17	Support cylinder socket (1)	3	A	6M	 667-6.12-1
	Support pin (2)				
	Support cylinder pin (3)				

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6.26 ELECTRICAL SYSTEM SERVICE AND WARNING ELEMENTS

CAUTION

Driving with defective lighting installations is prohibited. Damaged lamps should be replaced immediately before driving off. Lost or damaged reflectors should be replaced with new ones.

Before travelling, make sure that all lamps and reflectors are clean.

ADVICE

The light source in the lamps are LEDs and in case of damage are only replaced as a complete lamp without the possibility of repair or regeneration.

Work related to the repair, replacement or regeneration of electrical installation components should be entrusted to specialized workshops that have appropriate technologies and qualifications to perform this type of work.

The user's duties include only technical inspection of the electrical installation and reflectors.

The scope of activities

- Connect the the trailer to the tractor with a suitable connection lead.
- Make sure the connection cable is OK. Check the connection sockets on the tractor and on the trailer.
- Check the completeness, technical condition and correct functioning of the trailer lighting.

  Check the wiring harness for damage (rubbed insulation, wire break, etc.). Check the completeness of lamps and all reflectors.
- Check the correct installation of the triangular plate holder for slow moving vehicles.
- Before travelling on a public road, make sure that the tractor has a reflective warning triangle.

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6.27 CONSUMABLES

6.27.1 Hydraulic oil

ADVICE

In the hydraulic system of the trailer, L-HL 32 LOTOS oil was used.

It is absolutely necessary to observe that the oil in the machine's hydraulic system and the tractor's hydraulic system is of the same type. If different types of oil are used, make sure that both hydraulic means can be mixed together. The use of different types of oil may cause damage to the trailer or agricultural tractor. The new machine is filled with L-HL32 Lotos hydraulic oil.

If you need to change the hydraulic oil for another, read the oil manufacturer's instructions carefully. If he recommends flushing the system with an appropriate preparation, follow these recommendations. It ensured that the chemicals used for this purpose do not act aggressively on the materials of the hydraulic system. During normal operation of the trailer, it is not necessary to change the hydraulic oil, however, if necessary, this operation should be entrusted to specialist service centres.

The oil used, due to its composition, is not classified as a dangerous substance, however long-term effects on the skin or eyes may cause irritation. In the event of contact of oil with skin wash the area of contact with water and soap. Do not use organic solvents (petrol, kerosene). Soiled clothing should be removed to prevent oil from getting on your skin. If

Table 6.7 Characteristics of oil L-HL 32

Item	Name	Unit	
1	Viscosity classification according to ISO 3448VG	-	32
2	Kinematic viscosity at 400C	mm^2/s	28.8 – 35.2
3	Qualitative classification according to ISO 6743/99	-	HL
4	Quality classification according to DIN 51502	-	HL
5	Flash-point	C	230

DANGER

Do not use water to extinguish a fire of oil!

the oil gets into your eyes, flush them with plenty of water and in case of irritation contact your doctor.
Hydraulic oil under normal conditions is not harmful to the respiratory tract. The hazard only occurs when the oil is strongly atomized (oil mist), or in the event of a fire during which toxic compounds may be released.
In the event of fire, the oil must be extinguished with carbon dioxide, foam or extinguishing steam

6.27.2 Lubricants

ADVICE

Lubrication frequency (Table Trailer lubrication schedule).

For heavily loaded parts, it is recommended to use lithium grease with the addition of molybdenum disulphide (MOS2) or graphite. For less loaded components, it is recommended to use general-purpose machine greases that contain anti-corrosive additives and are highly resistant to water washout. Aerosol preparations (silicone greases, anti-corrosive lubricants) should have similar properties.
Before using lubricants, read the information leaflet for the selected product. Particularly important are safety rules and how to handle a given lubricant and how to dispose of waste (used containers, contaminated rags, etc.). The information leaflet (product card) store together with the grease.

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6.28 TYRES

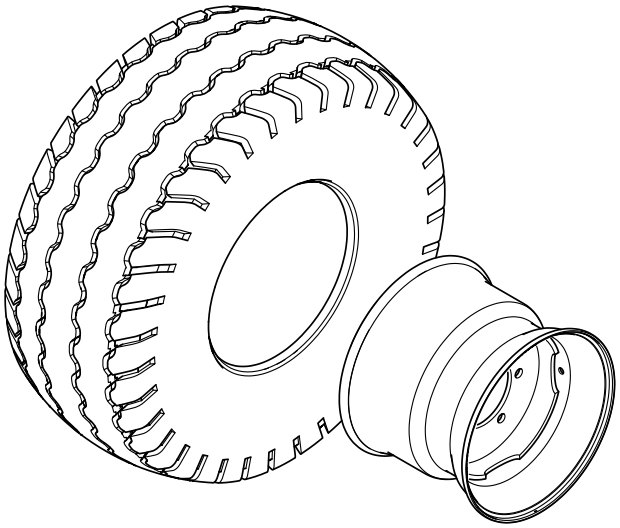

Table 6.8 Machine tyres

Item	Tyre dimensions	Wheel rim size
1	560/60- R22,5 161D 172A8	16.00X22,5 ; ET=10
2	600/50- R22,5 159D 170A8	20.00x22,5 ; ET=-40
3	600/55- R22,5 162E 175A8	20.00x22,5 ; ET=-40
4	600/55- R26,5 16PR 170A8	20.00x26,5 ; ET=-50
5	700/50- R26,5 16PR 174A8	24.00x26,5 ; ET=-80
6	710/45- R26,5 169A8	24.00x26,5 ; ET=-80
7	710/50- R26,5 170D 181A8	24.00x26,5 ; ET=-80

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6.29 TROUBLESHOOTING

Table 6.9 Troubleshooting

Fault	Possible cause	Remedy
Problem with moving off.	Emergency brake engaged.	Release emergency brake.
	Applied parking brake.	Release parking brake.
	Leaking connections	Tighten, replace washers or seal sets, replace lines.
Noise in wheel axle hub.	Excessive bearing slackness.	Check slackness and adjust if needed
	Damaged bearings	Replace bearings.
	Damaged hub parts.	Replace it.
Overheating of axle hubs.	Incorrect main or parking brake adjustment.	Regulate setting of expander arms.
	Worn brake linings.	Change brake shoes.
Incorrect hydraulic system operation.	Improper hydraulic oil viscosity.	Check oil quality, make sure that the oil in both machines is of the same type. If necessary change oil in tractor or in trailer.
Incorrect hydraulic system operation.	Insufficient tractor hydraulic pump output, damaged tractor hydraulic pump.	Check tractor hydraulic pump.
	Damaged or contaminated cylinder	Check cylinder piston rod (bending, corrosion), check cylinder for tightness (cylinder piston rod seal), if necessary, repair or replace the cylinder.
	Excessive cylinder loading	Check and reduce cylinder load, if necessary.
	Damaged hydraulic lines	Check and make certain that hydraulic lines are tight, not fractured and properly tightened. If necessary, replace or tighten.

Damaged PTO shaft	Excessive angular deviation during operation.	Use a wide-angle PTO shaft or disconnect the PTO when cornering.
	PTO shaft is too short or too long	Replace PTO shaft with a different one. Adjust the PTO shaft according to its Operator Manual.
Excessive wear of left and right tyre shoulders on both sides.	Too low air pressure in tyres. Excessive ground speed of loaded trailer on turns. Too fast loss of air due to damaged wheel, valve, puncture, etc.	Check air pressure. Regularly check correctness of air pressure in tyres. Excessive loading of the trailer. Do not exceed the permissible gross weight of the trailer. Reduce ground speed while driving on turns on hardened surface. Check wheel and valve. Replace damaged part
Excessive wear of central part of tyre.	Excessive air pressure in tyres.	Check air pressure. Regularly check correctness of air pressure in tyres.
Excessive wear of left or right tyre shoulder, on one side.	Incorrect toe-in. Incorrectly positioned wheel axles.	Damaged leaf spring on one side of the suspension system. Replace leaf springs.
Worn tyre tread.	Damaged suspension system, broken leaf spring. Damaged brake system, blocking of brakes, incorrectly adjusted brake system. Too frequent and violent braking.	Check suspension system for looseness, check leaf springs. Replace damaged or worn elements. Check brake system for malfunctions. Adjust expander lever.
Damaged rim (hardening and cracking near rim), brittleness of tyre.	Incorrect braking technique. Too frequent violent braking. Damaged brake system.	Check brake system. Control braking technique. Damage occurs due to excessive heating of hub which leads to heating of wheel.

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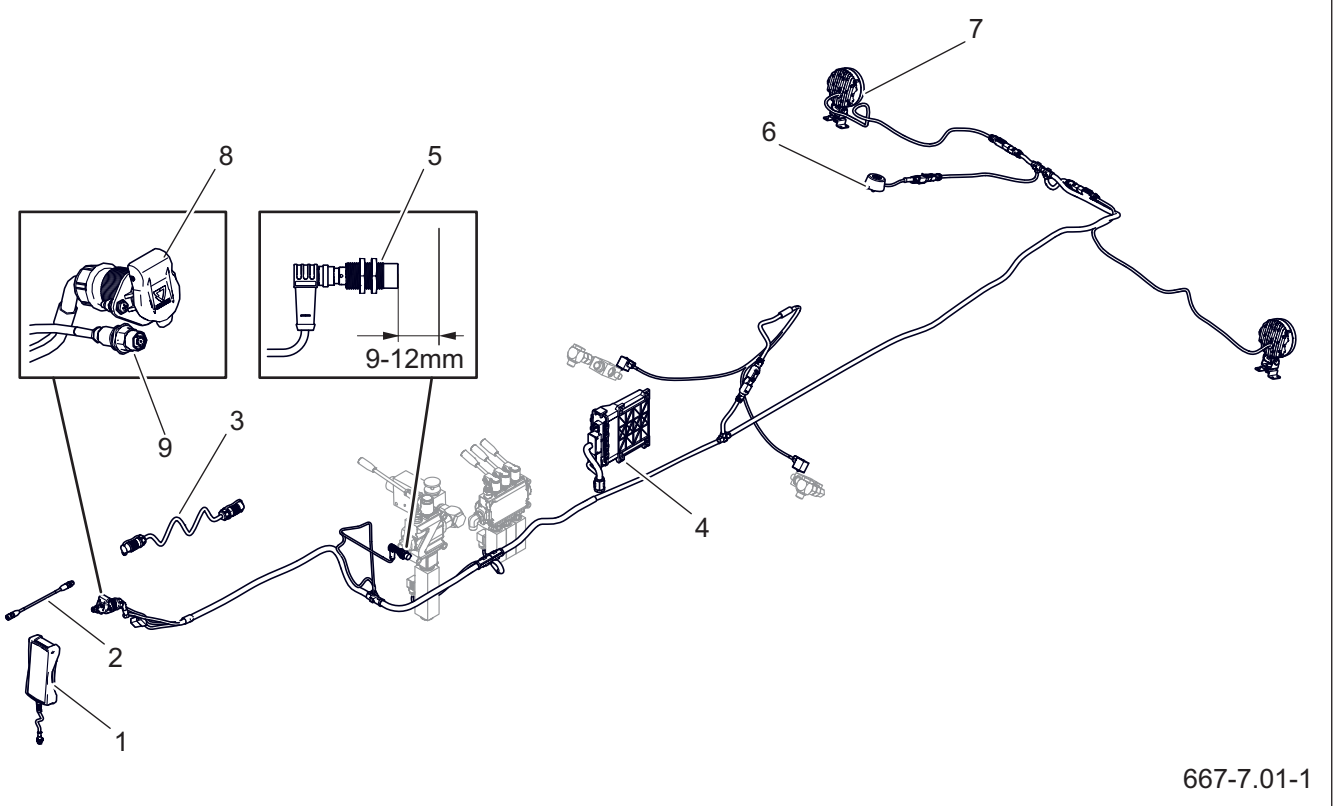
Chapter 7

Control panel

PRONAR T8724 T8724/1

7.1 WIRED CONTROL



Rysunek 7.1 Electrical control system components

(1) wired controller *(2) control line* *(3) supply line*
(4) control module *(5) tipping sensor (option)* *(6) reversing alarm*
(7 rear lighting *(8) power socket* *(9) control socket*
(10) suspension actuator coils (option)

ATTENTION

Attach the control and power cables to the wired controller so that they do not become entangled in the axle and suspension system while driving and operating the PTO shaft.

Pay attention to the possibility of cutting or crushing the electrical harness where the cable enters the cabin elements.

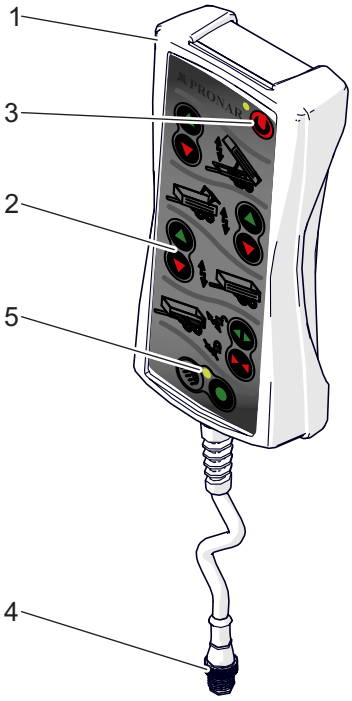
The wired controller (1) is powered by the tractor's electrical installation via a three-pin 12V cable (3). Before turning on the wired control, first connect the communication cable (2), then the power cable (3). Place the wired controller in the tractor operator's cabin.

When activating a particular trailer function, a signal is sent to the control module (4), which activates the appropriate electro-hydraulic distributor coils.

If the trailer is equipped with hydraulic suspension (option), the sensor (5) reads the position of the load

TIP

Trailer function buttons have a momentary effect - pressing the button performs a given function. Releasing the button stops operation.



Rysunek 7.2 Construction of a wired control

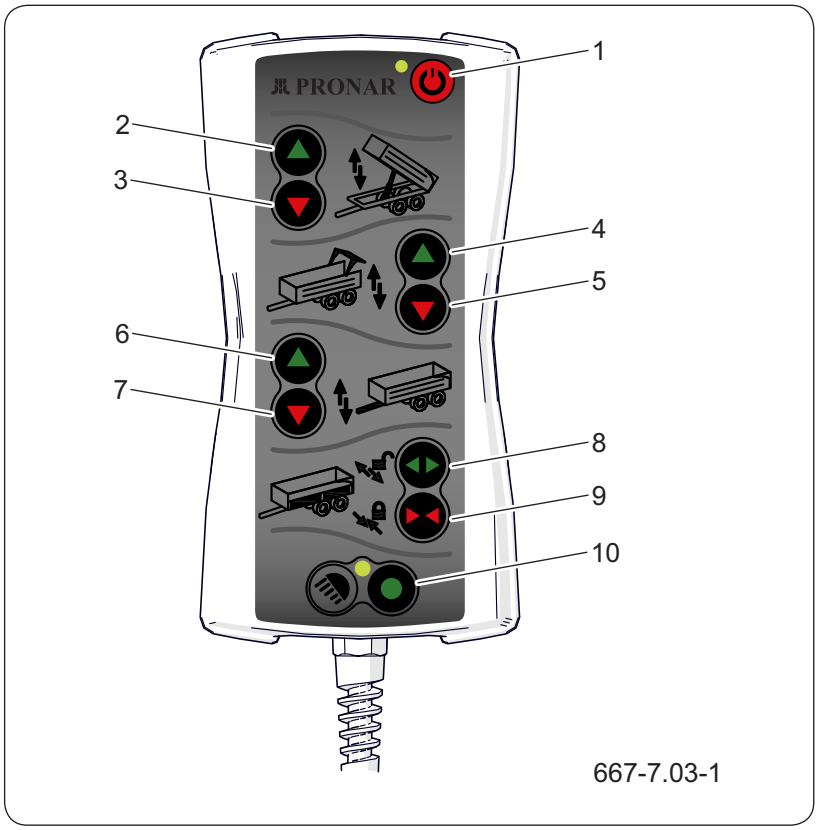
(1) housing *(2) selection buttons*
(3) ON/OFF button *(4) communication connection*
(5) signalling diode

box (raised / lowered). When raising the load box, the sensor (5) will send a signal to the module (4), which will apply voltage to the coils of the middle hydraulic suspension cylinders, blocking them. Locking the suspension increases the trailer's stability when the load box tipped.

When lowering the tailgate, an acoustic signal is activated automatically.

In the front part of the housing (1) there are individual selection buttons (normally open buttons) - when the button is pressed, a given function is performed. The panel power is turned on by pressing the ON \ OFF button (3). Turning on or off requires holding the button for 2 seconds. Activation of the button is signalled by the lighting of the diode (5). There is a communication

cable (4) at the bottom.



Rysunek 7.3 Buttons on the wired control

Description in Table

Tabela 7.1 Buttons on the wired control

Button no	Description
1	turn on / off (hold 2s)
2	raise the load box
3	lower the load box
4	open the tailgate
5	close the tailgate
6	rise hitch system
7	lower hitch system
8	open the side walls
9	close the side walls
10	turn on/off rear additional lighting

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ATTACHMENTS AND ADDITIONAL MATERIALS

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