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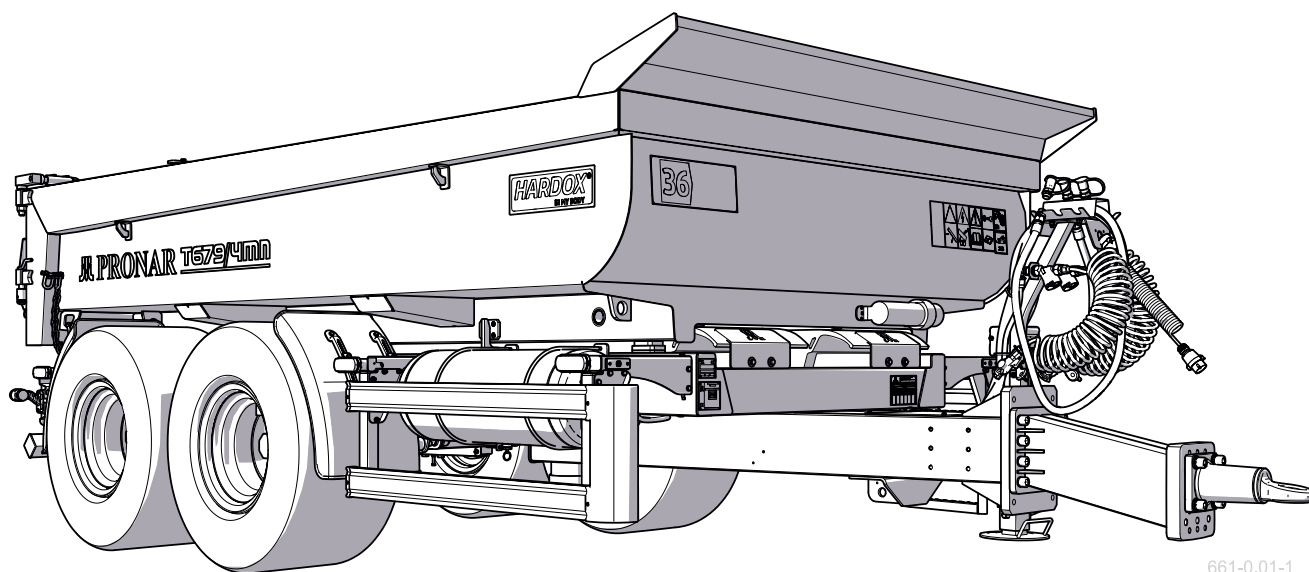
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OPERATOR MANUAL

AGRICULTURAL TRAILER

PRONAR T679/4MN

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.

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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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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
Type:	TT02
Model:	T679/4MN
VIN number:	
Commercial name:	PRONAR T679/4MN or T679/4MN or agricultural trailer PRONAR T679/4MN or trailer PRONAR T679/4MN

referred to in this declaration meets the requirements of the Directive **2006/42/EC** of The European Parliament and of The Council of 17 May 2006 on machinery.

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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d/s technicznych
członek zarządu
Roman Ometianuk

Narew, on 2024-03-15
Date and place issued

Full name of the authorised person,
position, signature

Chapter 1

Introduction

PRONAR T679/4MN

1.1 DEAR USER

The User Manual is intended for the end user. For this reason, some of the required maintenance activities are listed in the maintenance tables but the procedure is not described in this publication. An authorised manufacturer's service centre should be called in to carry them out.

Before you start up the machine yourself, you will be introduced to its construction, purpose, principle of operation, available equipment and handling and, above all, safety rules. The operator and qualified personnel should be trained during final acceptance. Remember!!! You may only start up the machine if you have read and understood the contents of this "*Operating instructions*", have been trained and are able to operate it safely. If in doubt, contact your dealer to clarify the problem.

The most important thing during operation is your safety, so no matter what, follow all the instructions in the '*User Manual*' and act sensibly. Remember that correct operation, following the manufacturer's recommendations, minimises the risk of an accident and makes the machine more efficient and less prone to breakdown.

When purchasing the machine, check that the serial numbers on the machine match the number entered in the *WARRANTY CARD*, in the sales documents. For information on machine identification, see "*Basic information*". We recommend that you enter the machine's serial number in the box below.

Machine serial number:

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Axle number

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Axle number

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

WST.3.9-001.21.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

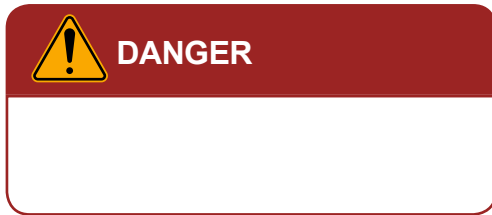
Who is an unauthorized user?

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.

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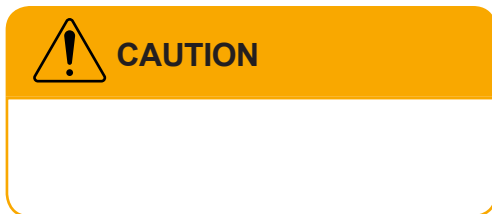
1.4 SYMBOLS AND TAGS USED IN THE MANUAL

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

Bulleter list

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

Example of using a bulleted list

-
- 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.
-

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.

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 **page 9.4**

WST.3.B-004.02.EN

1.5 GLOSSARY

agricultural tractor

A motor vehicle constructed for use in conjunction with equipment for agricultural, forestry or horticultural work; such a tractor may also be adapted for pulling trailers and for earthworks.

truck tractor

A motor vehicle designed exclusively for towing a trailer; the term includes a semi-trailer tractor and a ballast tractor.

Load capacity

A motor vehicle made in a special way so that it not only pulls the tools but also carries them on itself, it can work with attachable or hanging tools at the rear or front of the vehicle.

Final acceptance

The set of activities involved in the preparation and actual handover of the finished product for use. The final acceptance includes the handover of documentation, basic training, acceptance under transport and the first commissioning of the machine.

bystander

see - unauthorised user

qualified person

A person who is authorised to carry out certain maintenance, repair or adjustment work within the scope defined by the manufacturer of the machine and who has acquired the relevant technical training in the specified profession and confirmed by a relevant document, has completed training provided

by authorised personnel of the manufacturer or the dealer, and is able to recognise and prevent risks.

truck

A motor vehicle designed for the carriage of goods; the term also includes a lorry designed for the carriage of goods and passengers between 4 and 9 including the driver.

Danger zone

A danger zone is a designated area around a machine in which people are at risk of losing their health or life.

TPL

TPL - Three-point linkage - a lever system used on agricultural tractors for the aggregation of machinery and equipment suspended from a hydraulic linkage.

end user

Otherwise known as the user, authorised user or operator is the person permitted to operate the machine.

Unauthorised user

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

PTO

PTO - Power take-off - the shaft that transmits drive from the vehicle to the machine being moved.

ALB

Automatic load-dependent brake force regulator, or ALB. (Automatischer Lastabhängiger Bremskraftregler).

1.6 DESIGNATION OF DIRECTIONS IN THE MANUAL

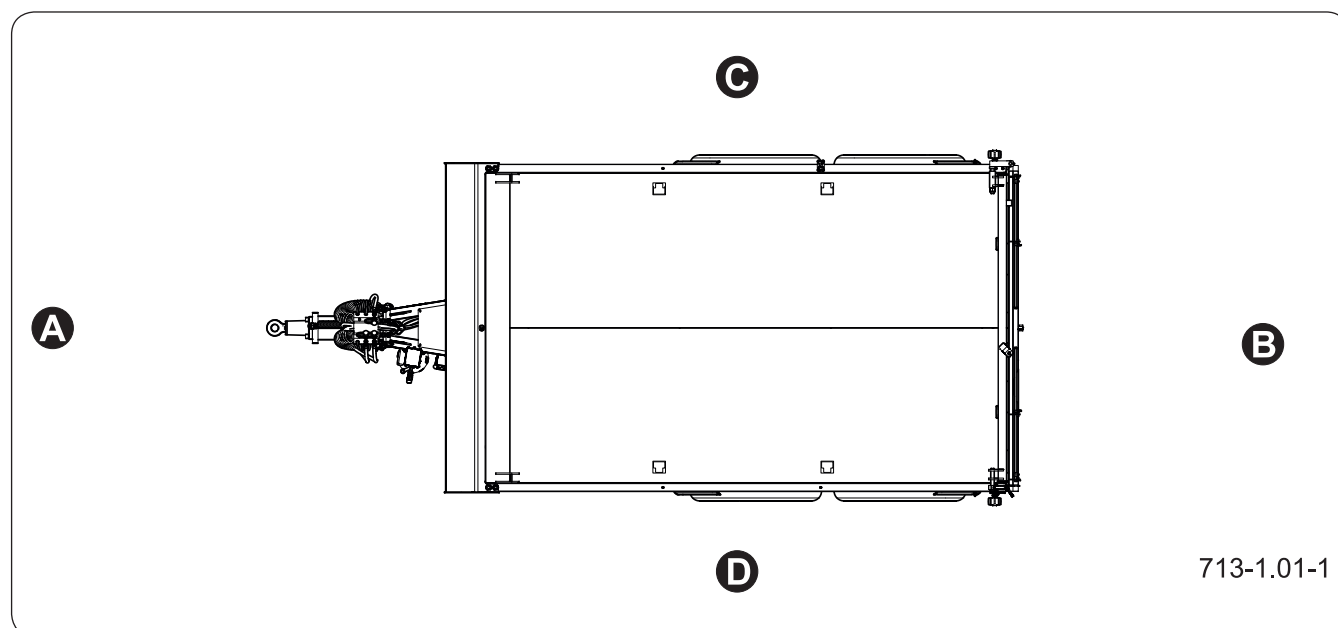


Figure 1.1 Determination of directions on the machine

(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).

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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.

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Chapter 2

Basic information

PRONAR T679/4MN

2.1 IDENTIFICATION

2.1.1 Machine identification

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.

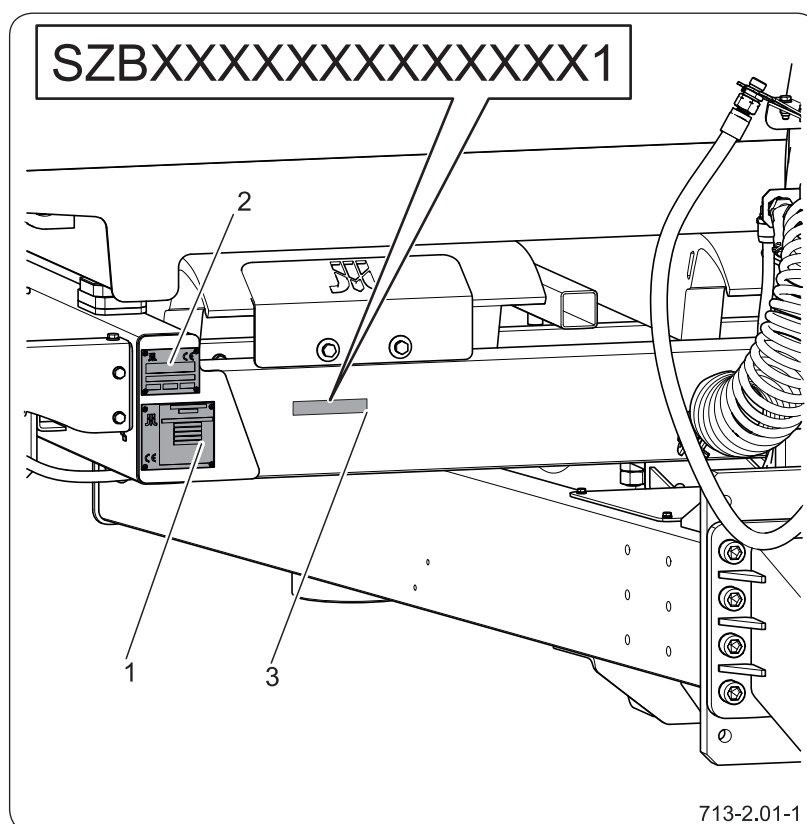


Figure 2.1 Identification of the trailer

(1) nameplate

(2) CE plate

(3) location of trailer VIN number

The trailer was marked with a nameplate (1), and a factory number (3) located on a highlighted rectangular field on the trailer frame. The factory number and nameplates are located as shown in figure (2.1). When purchasing the trailer, check the conformity of the factory numbers on the machine with the number entered on the *Warranty Card*, on the sales documents and in the *Operating Instructions*. The meaning of the individual fields on the nameplate is shown in the table.

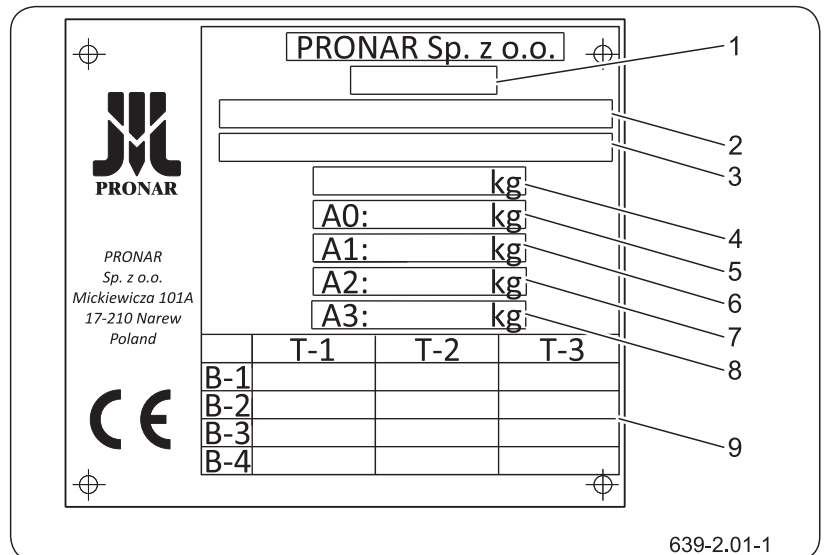


Figure 2.2 EU Nameplate

Table 2.1 EU nameplate markings

ITEM	Meaning
1	Category, subcategory and vehicle speed rating
2	EU type-approval certificate number
3	Product VIN number
4	Permissible total weight
5	Drawbar eye load
6	Maximum permissible mass per axle 1
7	Maximum permissible mass per axle 2
8	Maximum permissible mass per axle 3
9	Technically permissible towable masses

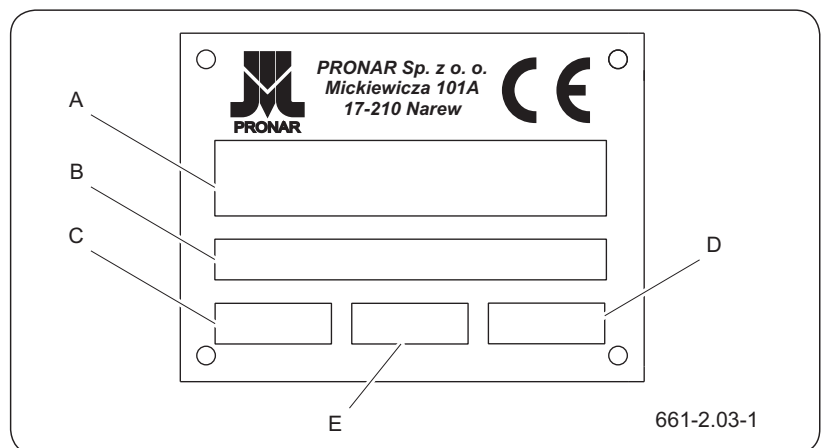


Figure 2.3 CE Nameplate

Table 2.2 CE nameplate markings

ITEM	Meaning
A	Product trade name or generic designation and function
B	Product VIN number
C	Product type (granted in the EU type-approval process)
D	Year of production
E	Product model

2.1.2 Identification of the driving axle

The factory number of the travel axle and its type are stamped on the rating plate (2) attached to the travel axle profile - figure Identification of the axle.

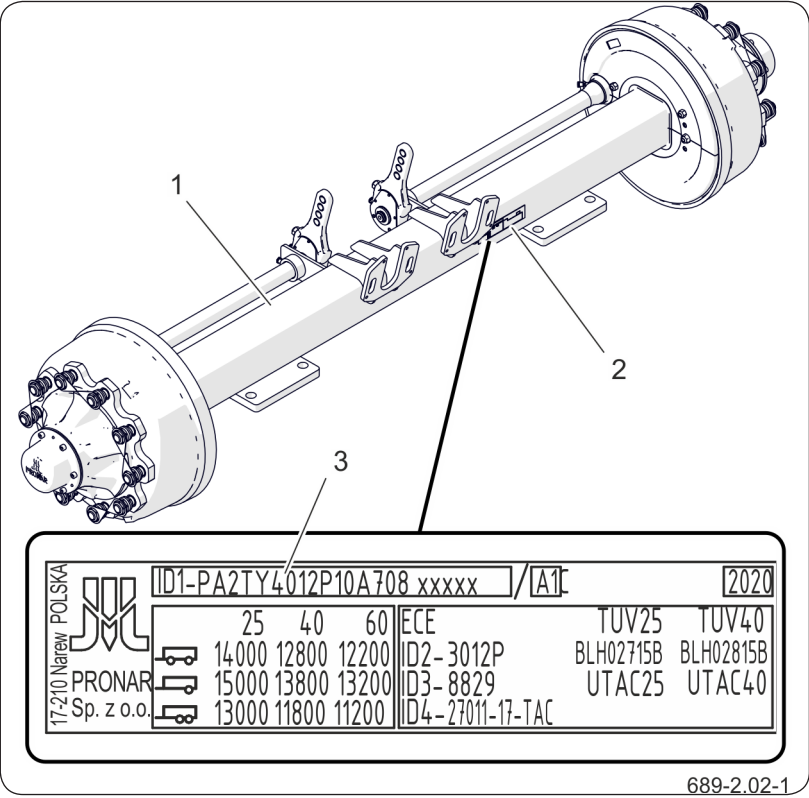


Figure 2.4 Identification of axes
(1) running axle (2) rating plate
(3) axle serial number

INF.3.K-001.11.EN

2.2 INTENDED USE OF THE MACHINE

2.2.1 Intended use



DANGER

The machine must not be used improperly.

The trailer is designed for:

- the transport and unloading of crops and agricultural products;
- transport and unloading of heavy materials such as rubble, stones, ballast, gravel used in construction, earthworks,
- Transport of agricultural and construction machinery within the farm and on public roads.

Failure to comply with the recommendations for the transport and loading of goods specified by the manufacturer and with the road transport regulations in force in the country in which the trailer is being used will invalidate the warranty benefits and is considered as misuse of the machine.

The trailer is not adapted and designed 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 of the road traffic regulations.

In the countries in which the trailer is operated, the restrictions of the country's traffic laws must be observed.

The speed of the trailer must not exceed the permitted design speed.

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 "*Operating instructions*" of the trailer and the "*Warranty card*" and follow the instructions in these documents,
- Understand how the machine works and how to operate the trailer safely and correctly,
- work in compliance with established

- maintenance and adjustment plans,
- work in compliance with general safety regulations,
- accident prevention,
- to comply with the traffic and transport rules in force in the country in which the trailer is being used,
- to acquaint themselves with the contents of the instruction manual of the agricultural tractor and to follow its recommendations,
- to aggregate the vehicle only with an agricultural tractor that meets all the requirements of the trailer manufacturer.

The trailer may only be used by persons who:

- familiarise themselves with the contents of the publications and documents accompanying the trailer and with the contents of the instruction manual for the agricultural tractor,
- have been trained in trailer operation and work safety,
- have the required driving licence and are familiar with road traffic and transport regulations.

2.2.2 Anticipated inappropriate use

Anticipated inappropriate use of the machine primarily involves the transport of materials that do not comply with the manufacturer's recommendations, for example:

- transporting people, animals,
- hazardous materials, loads that have an aggressive chemical reaction on the trailer's structural components (corrosive to steel, damaging to paint, dissolving plastic parts, damaging rubber parts, etc.),
- carrying an improperly secured load that could pollute the road and the environment during the journey,

- carrying an incorrectly secured load, which could change its position in the load compartment while the vehicle is moving,
- carrying a load whose position of centre of gravity adversely affects the stability of the trailer,
- carrying a load that causes not-balanced loading and/or overloading of the driving axles and suspension components.

An employee who has not been trained in operation and safety, is not qualified and has the required skills must not be allowed to operate the machine.

When operating the machine, it is strictly prohibited to:

- stay in the danger zone,
- climb on the machine while it is running,
- make arbitrary structural changes,
- repair and servicing by unauthorized and unqualified personnel.

INF.3.2-002.01.EN

2.3 AGRICULTURAL TRACTOR REQUIREMENTS

Table 2.3 Agricultural tractor requirements

Content	JM	Requirements
Braking installation - sockets		
Pneumatic	-	ISO 7421-1 compliant
Maximum pressure of the installation		
Pneumatic	bar/MPa	10/1
Hydraulic tipping system		
Hydraulic oil	-	L HL 32 Lotus ⁽¹⁾ .
Maximum pressure of the installation	bar/MPa	200 / 20
Oil demand	l	40
Electrical system		
Electrical system voltage	V	12
Lighting socket	-	7 poles according to ISO 1724
Tractor hitch required		
Type of hitch	-	Top or bottom transport hitch
Minimum vertical load capacity of the hitch	kg	2,000
Rear power take-off (PTO)		
Type	-	-
Speed	rpm	-
Number of splines on the shaft	pcs	-
Direction of rotation	-	-
Other requirements		
Minimum tractor power requirement	kW/hpm	46 / 62.6

(1) - it is permissible to use a different oil, provided that it can be mixed with the oil poured into the trailer. Please refer to the product information sheet for details.

2.3.1 Minimum tractor front axle load



CAUTION

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



DANGER

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

The front axle of an agricultural tractor must always be loaded by at least 20% of the tractor's empty weight.

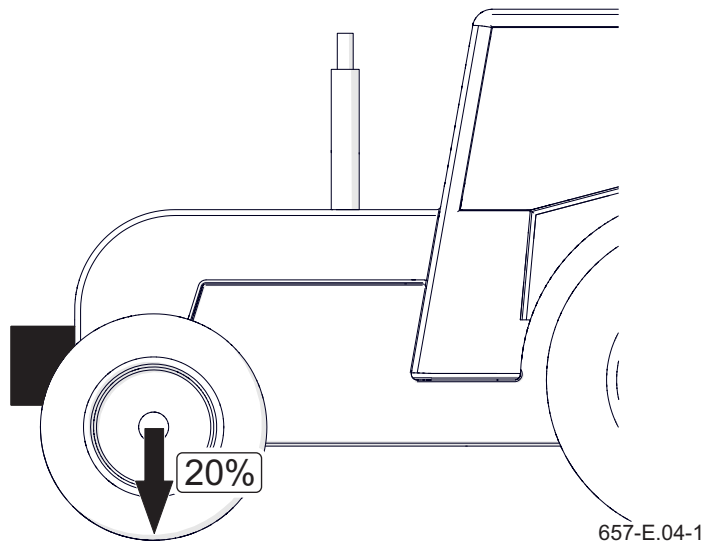


Figure 2.5 Minimum tractor front axle load

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2.4 TRAILER EQUIPMENT

Table 2.4 Trailer equipment

Content	STANDARD	ADDITIONAL	OPTIONAL
User Manual	•		
Warranty Card	•		
Electrical connection cable	•		
Electrical system	•		
Hydraulic flap system	•		
Hand brake	•		
Lighting bar	•		
Tailgate	•		
Pneumatic braking system II wire ALB	•		
Hydraulic tipping system	•		
Bumper	•		
Load box	•		
Box support	•		
Mudguards	•		
Ramps	•		
Platform	•		
Ladder	•		
Mechanical support	•		
Tie rod fi 50 - rotatable	•		
Distinguishing triangle for slow-moving vehicles		•	
Front mudguards		•	
Canopy		•	
Tilt & turn flap		•	
Set of extensions 800		•	
Underride guards		•	

Content	STANDARD	ADDITIONAL	OPTIONAL
Toolbox		•	
Document tube		•	
Air brake system II ALB line (Premium)			•
Hardox tailgate			•
Hardox cargo box			•
K80 ball-and-socket cable			•
Rigid cable fi50			•
Hydraulic scissor support			•

⁽¹⁾ - Some items of standard equipment, which are listed in the table, may not be present in the trailer supplied. This is due to the possibility of ordering a new machine with a different set - optional equipment, replacing standard equipment.

Information on tyres is included at the end of the publication in ANNEX A.

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2.5 TRANSPORT

The machine is prepared for sale fully assembled and requires no packaging. Only the machine's technical and operating documentation and possibly some accessories are packaged. Delivery to the user is by truck or self-transport (towing a trailer with an agricultural tractor).

2.5.1 Trucking



DANGER

During road transport, the trailer must be secured on the platform of the means of transport in accordance with safety requirements and regulations.

When driving, the driver of the car should exercise extreme caution. This is due to the fact that the centre of gravity of the vehicle with the loaded machine has been shifted upwards.

Use only approved and technically reliable securing measures. Familiarise yourself with the contents of the attachment manufacturer's Operating Instructions.

Improper use of restraints can cause an accident.

Load and unload the trailer from the vehicle using the loading ramp with the help of an agricultural tractor. Follow the general health and safety rules for handling work when working. Persons operating handling equipment must have the required authorisation to use the equipment. The machine must be correctly connected to the tractor in accordance with the requirements in this manual. The trailer braking system must be applied and checked before driving down or up the ramp.

The machine should be attached firmly to the platform of the vehicle using straps, chains, lashings or other fastening devices equipped with a tensioning mechanism. Secure the fastening elements in the

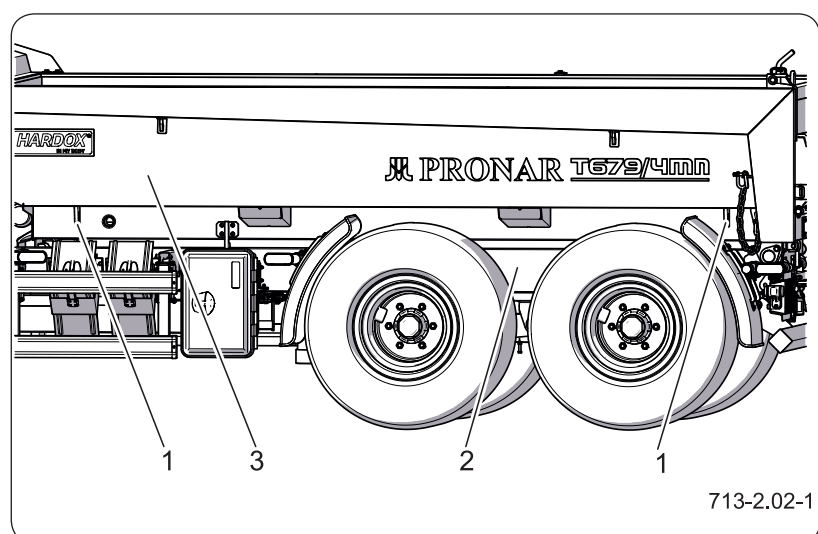


Figure 2.6 Fixing points

(1) handle

(2) bottom frame

(3) load box

**CAUTION**

It is forbidden to attach slings and fastenings of any kind to hydraulic, electrical or flaccid machine components (e.g. guards, cables).

transport fixtures (1) intended for this purpose.

Place chocks or other items without sharp edges under the wheels of the trailer, protecting the machine from rolling. Wheel locks must be fixed to the vehicle's load platform in such a way that they cannot move.

Use approved and technically sound means of fastening. Wear on the straps, cracked fixing lugs, bent or corroded hooks or other damage may disqualify a measure for use. Refer to the manufacturer's instructions for the fixing agent used. The number of fastening elements (ropes, belts, chains, lashings, etc.) and the force needed for their tension depends, among others, on the weight of the trailer, the construction of the car carrying the machine, the speed of travel and other conditions. For this reason, it is not possible to define the attachment plan in detail.

For optimum attachment of the trailer to the load platform, support the drawbar with a wooden block underneath. A correctly secured trailer will not change its position in relation to the carrying vehicle. The fixing means must be selected according to the guidelines of the manufacturer of these components. If in doubt, use more attachment points and secure the trailer. If necessary, protect the sharp edges of the trailer, thus protecting the lashing means from damage during transport.

When handling, take special care not to damage the machine's fittings and paintwork.

2.5.2 Own transport



CAUTION

When transporting yourself as an operator, read and follow the contents of this Operating Manual.

If you decide to transport the trailer yourself after you have purchased it, read the *"Operating Instructions"* of the trailer and follow its recommendations. Self-transport involves towing the trailer with its own agricultural tractor to its destination. When driving, adapt your speed to the prevailing road conditions, but do not exceed the permitted design speed.

INF.3.B-005.51.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.

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2.8 WITHDRAWAL FROM USE



DANGER

Reduce the residual pressure in the hydraulic system before dismantling.



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.

If the user decides to withdraw the machine from use, follow the disposal and recycling regulations of the end-of-life machines in your country.

Reduce the residual pressure in the hydraulic system before dismantling, completely remove the oil.

In the event of parts being replaced, worn or damaged sent them to a recycling centre. Used oil as well as rubber or plastic elements send to plants dealing with the utilization of this type of waste.

Table 2.5 The codes for the waste arising from disassembly machines

Item	Code	Meaning
1	07 02 13	Plastic waste
2	13 01 10	Other hydraulic oils
3	13 02 04*	Mineral engine, transmission and lubricating oils containing organochlorines
4	13 02 06*	Synthetic engine, transmission and lubricating oils
5	13 02 08*	Other engine, transmission and lubricating oils
6	13 05 02*	Sludges from oil drainage in separators
7	13 05 08*	A mixture of wastes from sandblasting and oil drainage in separators
8	15 01 10*	Packaging containing or contaminated with residues of dangerous substances
9	15 02 02*	Sorbents, filter materials and protective clothing contaminated with hazardous substances
10	16 01 03	Worn tires
11	16 01 17	Ferrous metals
12	16 01 22	Other items not listed

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Chapter 3

Safety of use

PRONAR T679/4MN

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.

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3.2 SAFETY WHEN THE MACHINE AGGREGATING

- Do not connect the trailer to the tractor, if it does not meet the requirements set by the Manufacturer (minimum power demand of the tractor, inadequate connections, etc.) - see the section "*Tractor requirements*".
- Before connecting the trailer, make sure that the oil in the tractor's external hydraulic system can be mixed with the trailer's hydraulic oil.
- Before coupling the trailer, make sure that both machines are technically sound.
- When coupling of the trailer use the appropriate tractor hitch. After coupling the machines, check the the hitch safety device. Read the tractor operating instructions. If the tractor is equipped with an automatic hitch, make sure that the coupling operation is completed.

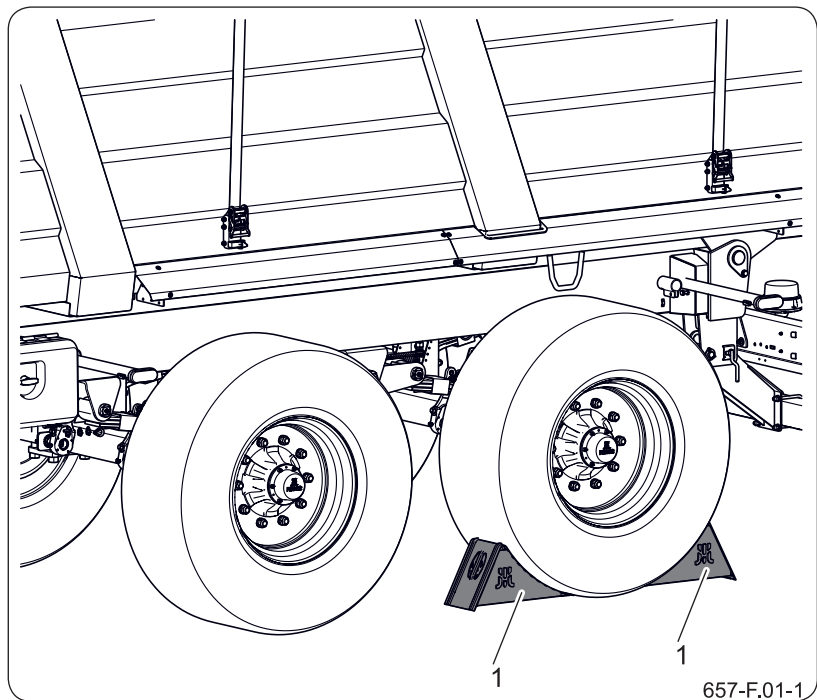


Figure 3.1 Arrangement of locking wedges
(1) support wedge

**CAUTION**

Place the wedges only under the wheels of the rigid axle.

- Take special care when connecting the machine.
- When connecting, nobody may be between the trailer and the tractor.
- Hitching and unhitching of the trailer may only take place when the machine is blocked with the parking brake. If the trailer stands on a slope, it must be additionally secured against rolling by placing wedges or other elements without sharp edges under the wheels. Make sure that the trailer is equipped with wedges.
- Do not move the trailer when the support is extended and rests on the ground. While the machine is in motion, there is a risk of the support damage.

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3.3 SAFETY WHEN OPERATING THE HYDRAULIC SYSTEM



DANGER

The hydraulic system is under high pressure during operation of the machine.

- Regularly check the condition of connections and hydraulic hoses. Operation of the trailer with a leaking system is not permitted.
- In the event of failure of the hydraulic system, the trailer must be decommissioned until the failure is remedied.
- When connecting the hydraulic lines to the tractor, ensure that the tractor and trailer hydraulic system is not under pressure. If necessary, reduce the residual pressure in the system. See section "*Hydraulic system operation...*".
- Use hydraulic oil recommended by the manufacturer.
- After changing the hydraulic oil, the used oil must be disposed. Used oil or oil that has lost its properties. Store it in the original containers or in hydrocarbon-resistant replacement packaging. Replacement containers must be accurately described and properly stored.
- Do not store hydraulic oil in food storage containers.
- Replace the hydraulic hoses every 4 years regardless of their condition.

Handling of accidents

- 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).

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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 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 CO₂ 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.

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3.5 DESCRIPTION OF RESIDUAL RISK

Pronar Sp. z 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.

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3.6 RULES OF TRAVELING ON PUBLIC ROADS

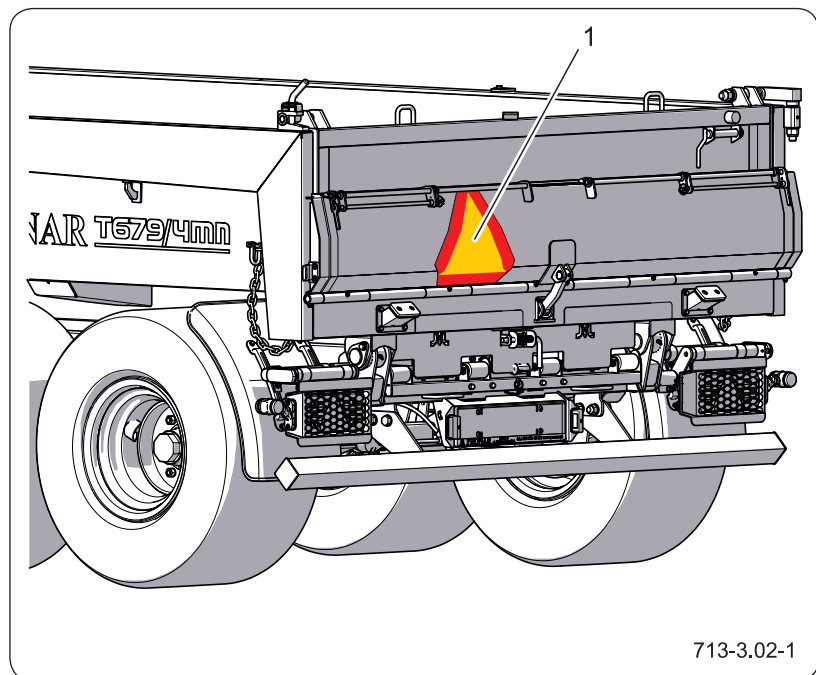


Figure 3.2 Warning triangle
(1) Plate for slow-moving vehicles

- When driving on public roads, the tractor operator must ensure that the trailer and tractor are equipped with an approved or homologated warning reflective triangle.
- A triangular plate for *slow moving vehicles* should be placed on the rear wall, if the trailer is the last vehicle in the set - Figure (2.2).
- Before driving on the road, remove the tail light covers.
- When driving on public roads, comply with traffic regulations and transport regulations in force in the country where the trailer is used.
- Do not exceed the maximum design speed - 40 km/h. The travel speed must be adapted to the ambient conditions and the load. If possible avoid driving over uneven terrain and unexpected turns.
- Never leave the machine unsecured. The trailer disconnected from the tractor must be

blocked with the parking brake and secured against rolling with wedges or other elements without sharp edges placed under the vehicle wheels.

- Before driving, make sure that the trailer is correctly connected to the tractor, especially that the hitch pins are secured.
- Vertical load carried by the trailer drawbar eye affects the steering of the agricultural tractor.
- 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 running gear, the braking system and traffic lights as well as the connecting elements of the hydraulic, pneumatic and electrical systems.
- Before driving, check that the parking brake is released and the braking force regulator is in the correct position (applies to pneumatic systems with a manual three-position regulator).
- The trailer is adapted for driving on slopes up to a maximum of 8°. Moving the trailer over slopes may cause the trailer to overturn as a result of loss of stability.
- Periodically drain air tanks in the pneumatic system. During frosts, freezing water may cause damage to pneumatic system components.
- Reckless driving and excessive speed can cause an accident.
- Load protruding beyond the outline of the trailer should be marked in accordance with traffic regulations. It is forbidden to transport loads not allowed by the manufacturer.
- Do not exceed the maximum trailer capacity. Exceeding the carrying capacity may lead to

damage to the machine, loss of stability and cause a hazard while driving. The braking system of the machine has been adapted to the total weight of the trailer, exceeding of which will drastically reduce the operation of the service brake.

- Prolonged driving on sloping ground creates a risk of loss of braking efficiency.
- Use the help of another person while reversing. During manoeuvres, the helping person must keep a safe distance from danger zones and be visible to the tractor operator at all times.
- It is forbidden to get on the trailer while driving.
- Parking the trailer on a decline is prohibited.
- If the trailer has a hydraulic suspension, you may start driving only when it is fully raised. You cannot move the trailer if the suspension is even slightly lowered.

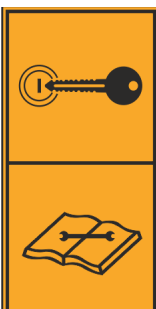
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3.7 INFORMATION AND WARNING STICKERS

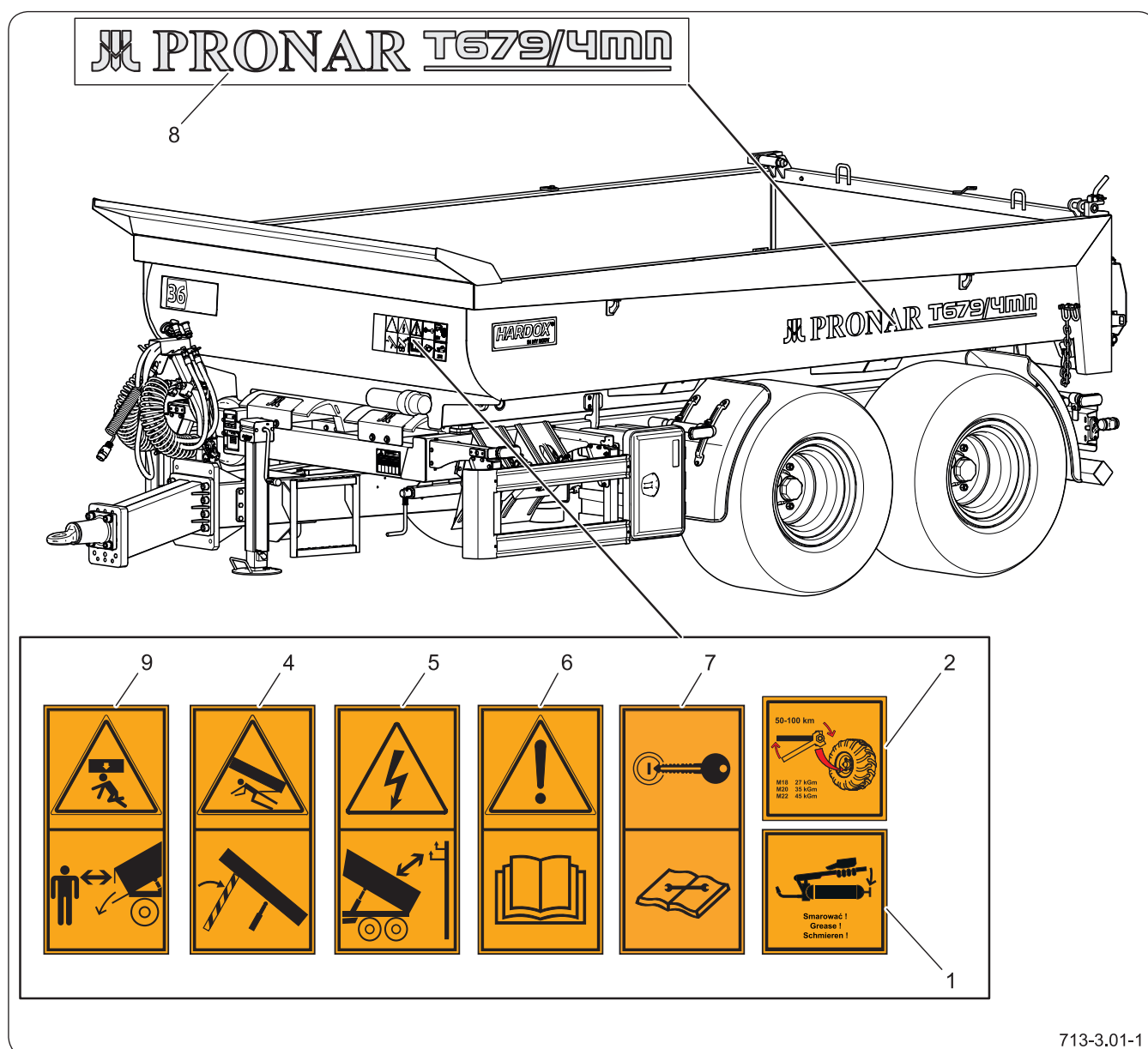
- The trailer is marked with the information and warning stickers listed in table (3.1).
- The layout of the symbols is shown in Figure (3.3). The user is obliged to take care of the legibility of inscriptions, warning and information symbols placed on the trailer during the entire period of use.
- If they are damaged, they should be replaced with new ones. Information and warning stickers can be purchased directly from the Manufacturer or from the place where the machine was purchased.
- The part numbers of the stickers can be found in table (3.1) and in the Spare Parts Catalogue. New assemblies replaced during repair must be marked again with the appropriate safety signs. When cleaning the trailer, do not use solvents that may damage the label coating and do not direct a strong jet of water at it.

Table 3.1 Information and warning stickers

ITEM	Sticker	Meaning
1		Regularly check the tightness of the running wheel nuts and other bolted connections. 104N-00000006
2		Lubricate the machine according to the schedule in the USER MANUAL. 104N-00000004

ITEM	Sticker	Meaning
4		Risk of crushing. It is forbidden to carry out repair or maintenance work under a loaded and/or unsupported load carrier. 58N-0000012
5		Caution. Risk of electric shock. Keep a safe distance from overhead power lines when unloading the trailer. 58N-0000020
6		Read the contents of the operating instructions before use. 70N-00000004
7		Before carrying out any maintenance or repair work, switch off the tractor engine and remove the keys from the ignition. 70N-00000005
8		Trailer type T679/4MN. 713N-00000101

ITEM	Sticker	Meaning
9		Before carrying out any maintenance or repair work, switch off the tractor engine and remove the keys from the ignition. 96N-00000006



713-3.01-1

Figure 3.3 Positioning of information and warning stickers

Chapter 4

Design and operation

PRONAR T679/4MN

4.1 TECHNICAL SPECIFICATIONS

Table 4.1 Basic technical data

Content	Unit	T679/4MN
Dimensions		
Overall length	mm	5,400
Overall width	mm	2,400
Overall height	mm	1,620
Load box parameters		
Length inside (bottom/top)	mm	3540/3700
Internal width	mm	2210
Inside height	mm	550
Floor/wall thickness	mm	4 / 4
Tipping system	-	single-sided, telescopic cylinder
Tipping angle (reverse)	°	50
Performance parameters		
Permissible total weight	kg	9,000
Payload	kg	8,320
Curb weight	kg	2,680
Loading capacity (without extensions)	m ³	4.5
Load capacity (extensions 800mm)	m ³	6.54
Platform height from the ground	mm	980
The hydraulic system		
Cylinder stroke	mm	1,850
Oil demand	L	16
Installation pressure	bar	200
Hydraulic oil	-	L-HL32 Lotus
Other information		
Construction speed	km/h	40
Wheel base	mm	1,960
Drawbar eye load	kg	2,000
Power demand	hpm/ kW	62.6 / 46
Electrical system voltage	V	12
Noise level emitted	dB	less than 70
Ramps		
Load capacity per two ramps	kg	6,700-9,850 **)
Length of ramps	mm	3,500
Width of the ramps	mm	465

*- depending on the legal restrictions in the country of sale and on the completion of the trailer, the above data may differ.

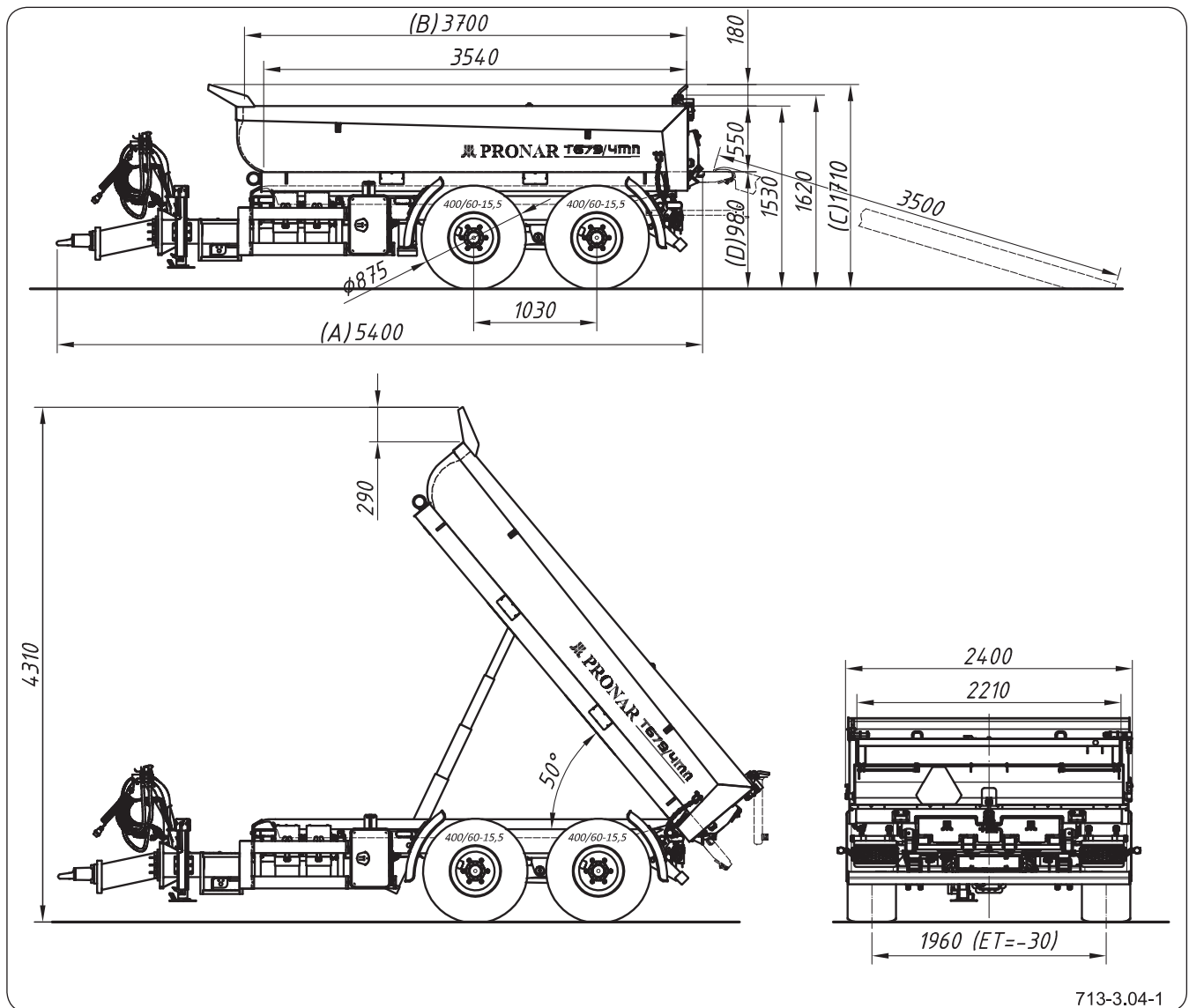


Figure 4.1 Basic trailer dimensions

Table 4.2 Main dimensions of the trailer

Content	Unit	T679/4MN
Overall length A	mm	5,400
Length of load body B	mm	3,700
Overall height C	mm	1,710
Platform height from the ground D	mm	980

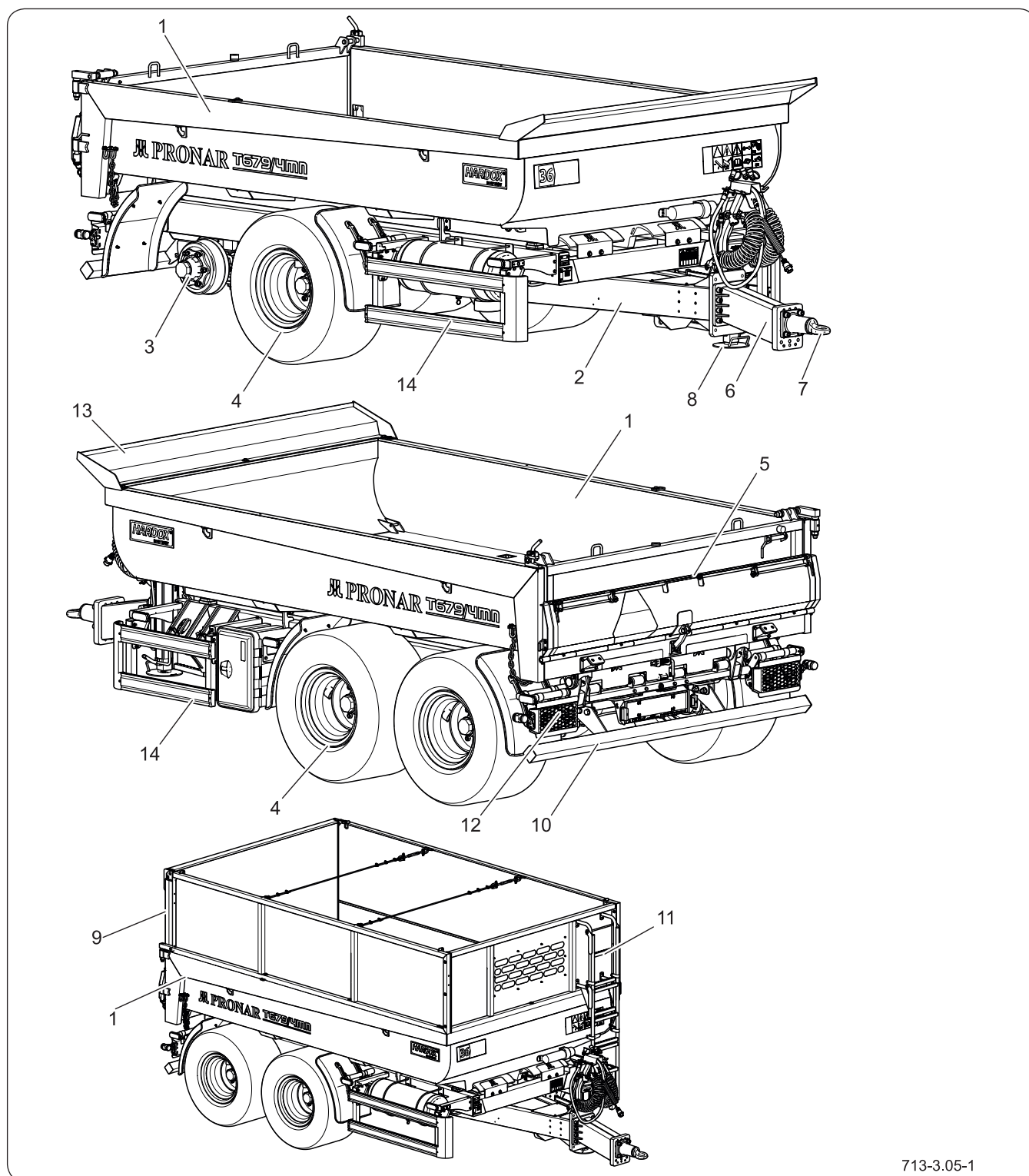


CAUTION

Depending on the trailer's accessories, some technical parameters may change.

******- depending on the wheelbase of the vehicle being carried

4.2 CONSTRUCTION OF THE TRAILER



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Figure 4.2 Construction of the trailer

- | | | |
|---------------------|----------------------|--------------------|
| (1) load carrier | (2) base frame | (3) running axle |
| (4) wheel | (5) tailgate | (6) drawbar |
| (7) drawbar linkage | (8) parking support | (9) extension legs |
| (10) bumper | (11) ladder | (12) light bar |
| (13) canopy | (14) underride guard | |

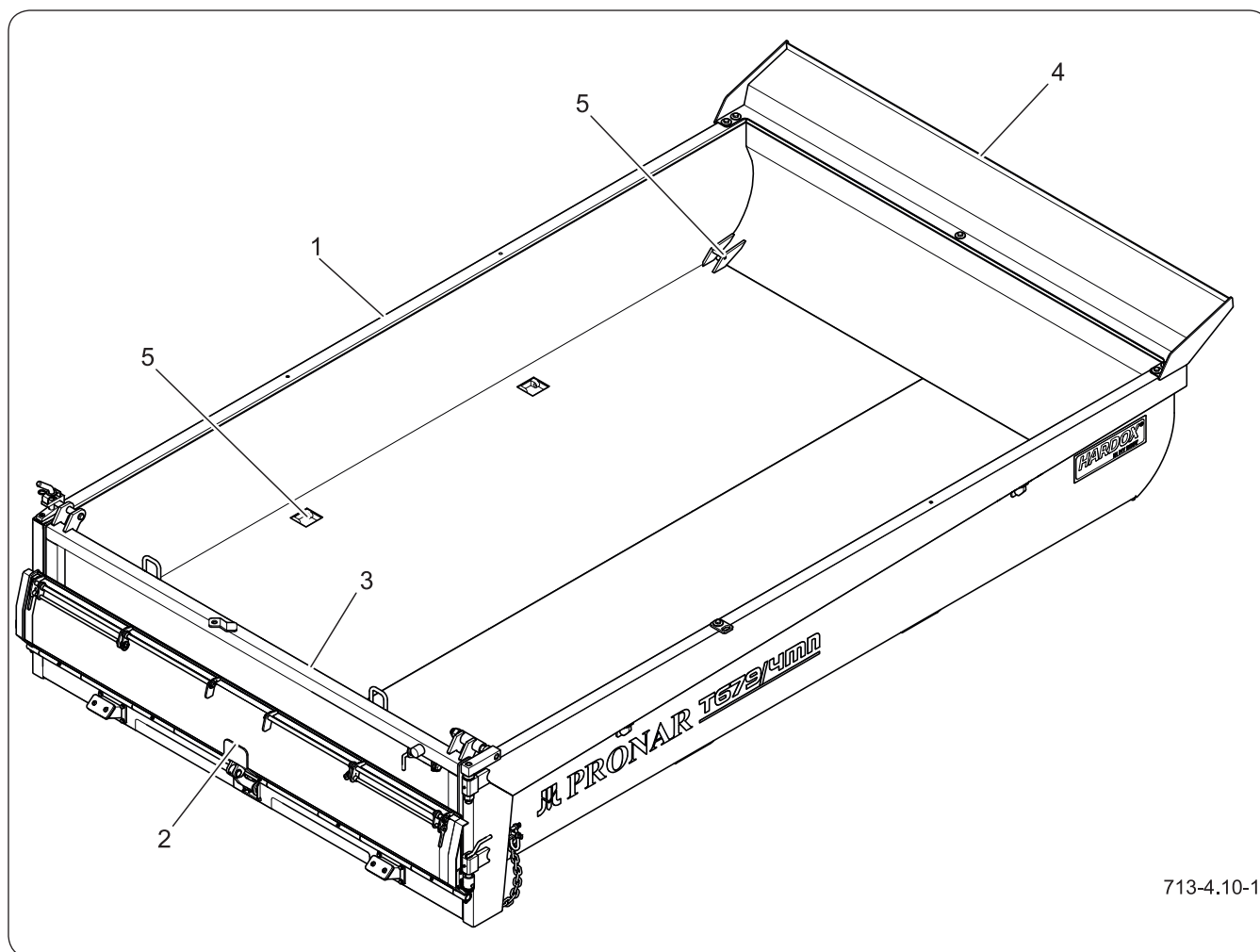
The machine's running gear is formed by wheels (4) mounted on axles (3), which in turn are attached to the suspension system. The running gear was attached to the downframe. A cargo box (1), which has the option of tipping backwards, is articulated on the frame (2). The hydraulically opening tailgate (5) facilitates the unloading of transported materials. Tailgates can be attached to allow vehicles to be transported in the cargo area of the trailer.

Optionally, the load box can be fitted with extensions (9) .

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4.3 LOAD BOX

The trailer load box (1) has a shell construction. It is made of sheet metal and steel sections - drawing *Cargo box*. The load carrier has 8 load hooks on the inside (4 on the floor of the load carrier, 2 on the walls in the rear part and 2 on the front part of the load carrier). There is a tailgate (2) at the rear of the box, which is opened by a hydraulic cylinder. The hatch opens downwards, allowing easy unloading of bulk materials and loading and unloading of construction vehicles. The trailer is additionally equipped with a tilt hatch (3), which increases the loading capacity for bulk materials. The hatch can be swung open during



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Figure 4.3 Turnable load box

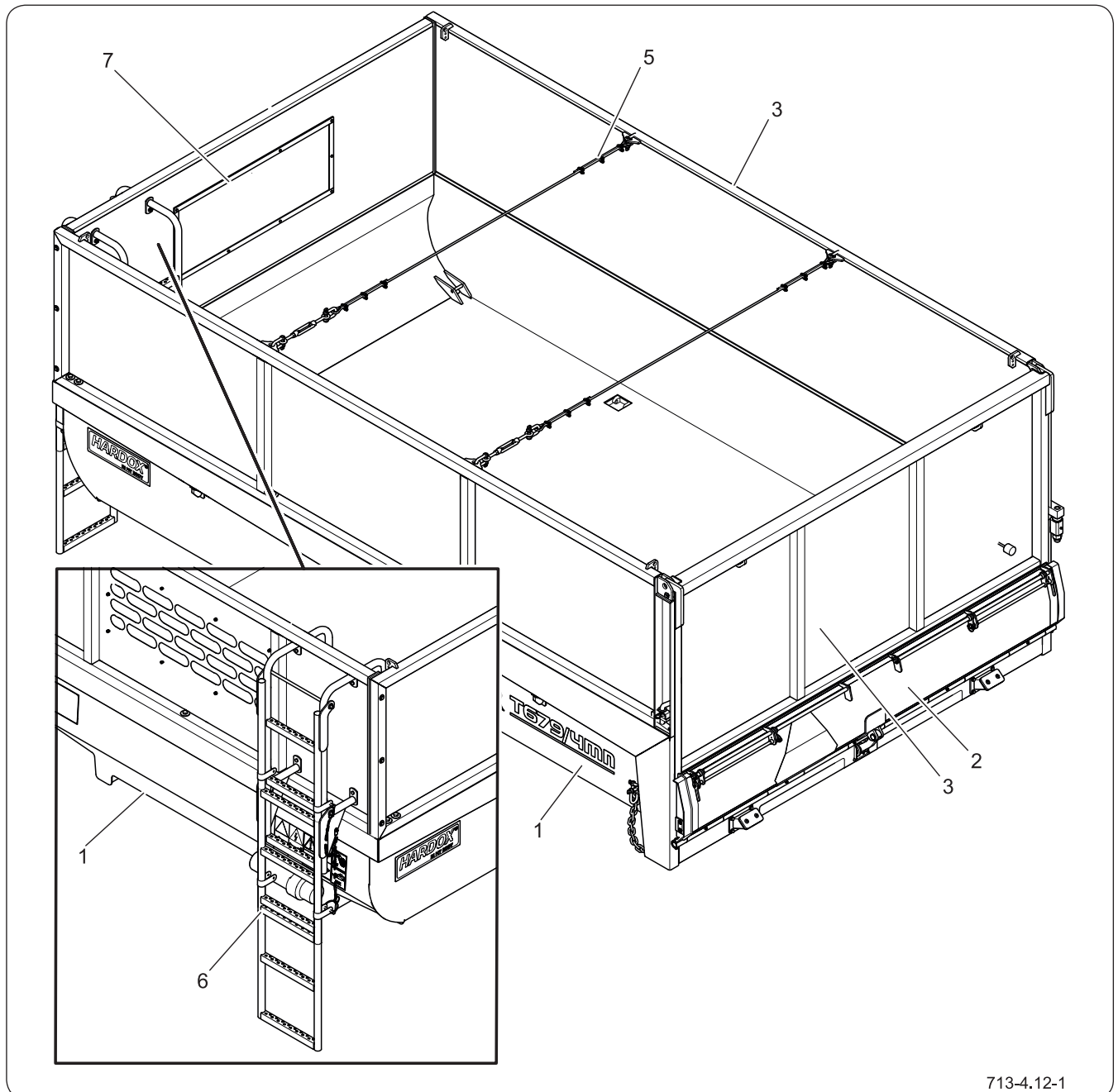
(1) load compartment

(2) hydraulic flap

(3) swing flap

(4) canopy

(5) load carrier



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Figure 4.4 Cargo box with extensions

(1) load body

(2) hydraulic flap

(3) 800mm header

(4) header flap

(5) tie rope

(6) ladder

(7) front window

unloading or opened manually to the right side of the body for quick access to the trailer load compartment. A canopy (4) was fitted to the front of the box to serve as a protective element.

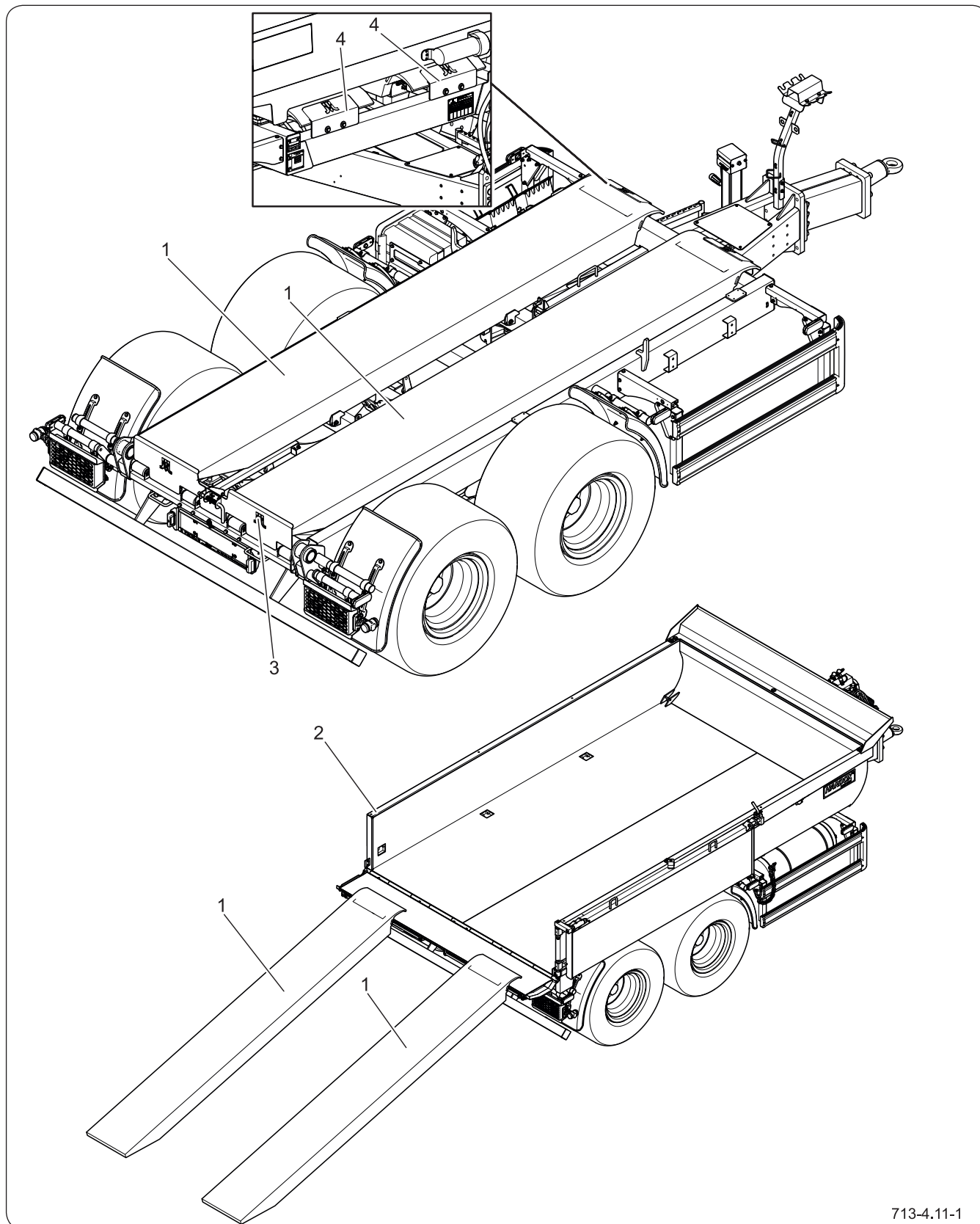
In order to meet customer expectations, PRONAR offers to manufacture the loading body and tailgate from two different grades and thicknesses of steel.

As an accessory for the body (1) with the swing lip

option (2), there are load compartment extensions with a height of 800 mm - drawing *Load compartment with extensions*. In this configuration, there are additionally tie ropes (5) connecting the side settings (3). The front extension features a window (7) and a ladder (6) to facilitate access to the trailer's load compartment.

BIZ.3.2-022.01.EN

4.4 RAMPS



713-4.11-1

Figure 4.5 Construction of the trailer

(1) overrun platforms

(2) loading body

(3) ramps closure flap

(4) Ramps platform stop

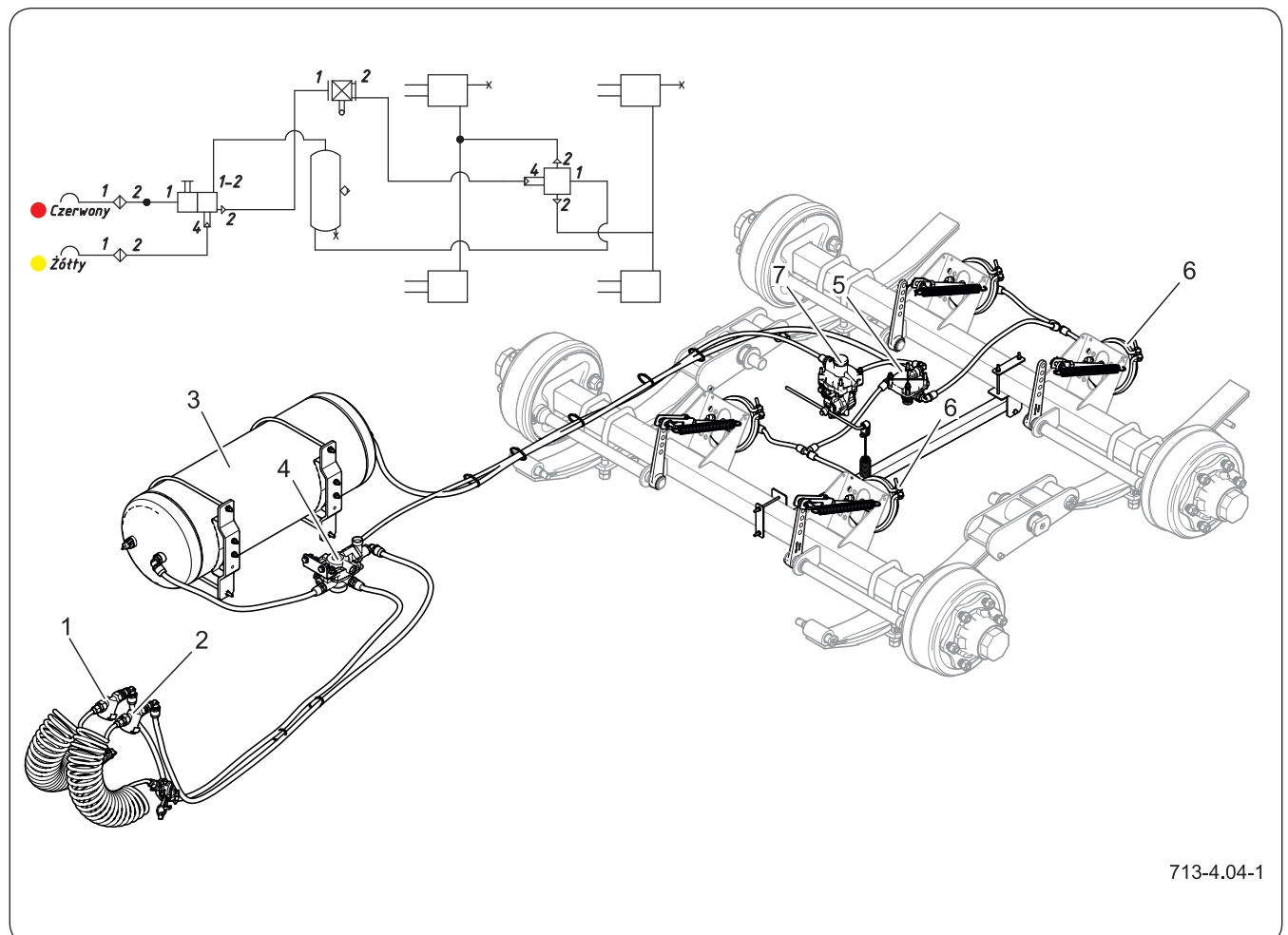
The trailer is equipped with ramps (1). When not in use, the invasions are located under the load carrier (2) in the transport holders. The overrun platforms rest on rollers for easy loading and unloading. The telescopic cover (3) is secured against uncontrolled extension.

BIZ.3.2-023.01.EN

4.5 PNEUMATIC BRAKING SYSTEM

The working brake is activated from the tractor operator's workplace by pressing the tractor brake pedal. The control valve actuates the trailer's brakes simultaneously with the tractor's brake. Moreover, in the event of an unexpected disconnection of the conduit between the trailer and the tractor, the control valve automatically activates the trailer's brake. After connecting the conduit to the tractor's connector, the system automatically moves to a position enabling normal operation of the brakes.

The two-line braking system with an automatic



713-4.04-1

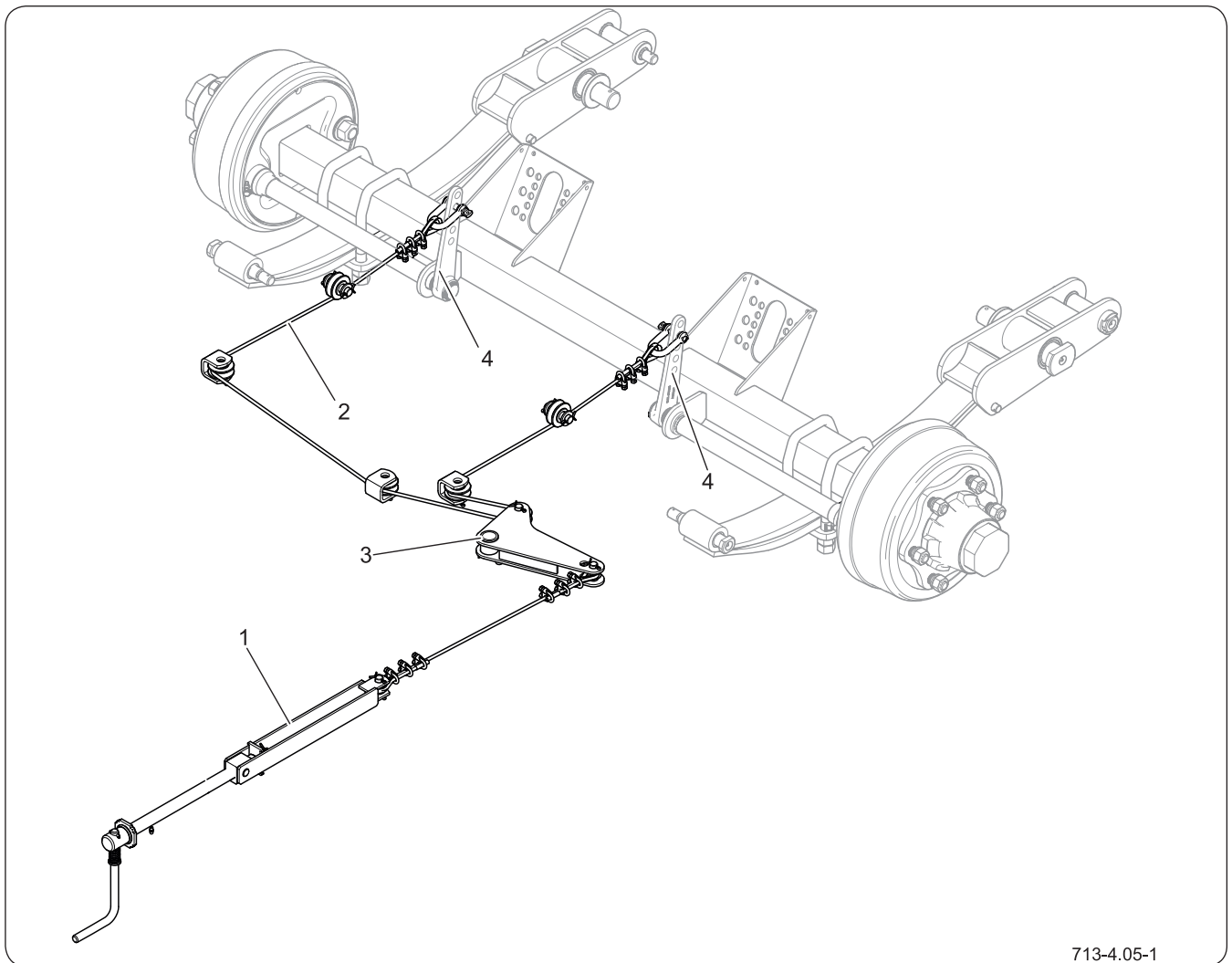
Figure 4.6 Scheme of the LSV pneumatic braking system

- | | | |
|---------------------------|--------------------------------|------------------------|
| (1) power connector (red) | (2) control connector (yellow) | (3) air tank |
| (4) main valve | (5) relay valve | (6) diaphragm actuator |
| (7) LSV regulator | | |

regulator is equipped with a mechanical brake force regulator. It adjusts the braking force depending on the current degree of loading and during normal operation it does not require the operator of the trailer.

BIZ.3.2-004.01.EN

4.6 PARKING BRAKE



713-4.05-1

Figure 4.7 Construction of the parking brake

(1) brake mechanism

(2) cable

(3) lever

(4) spreader lever



CAUTION

Make sure the parking brake is unlocked before starting to drive.

The parking brake is used to immobilise the trailer when stationary. The brake crank mechanism (1), is connected by steel cables (2) to the spreader levers (4) of the driving axles. By turning the mechanism crank handle (1) clockwise, the steel cable tightens, causing the brake spreader levers to pivot, which, by spreading the brake shoes, immobilise the trailer. Release the parking brake before driving - the steel cable must hang loosely.

BIZ.3.2-005.01.EN

4.7 HYDRAULIC TIPPING SYSTEM

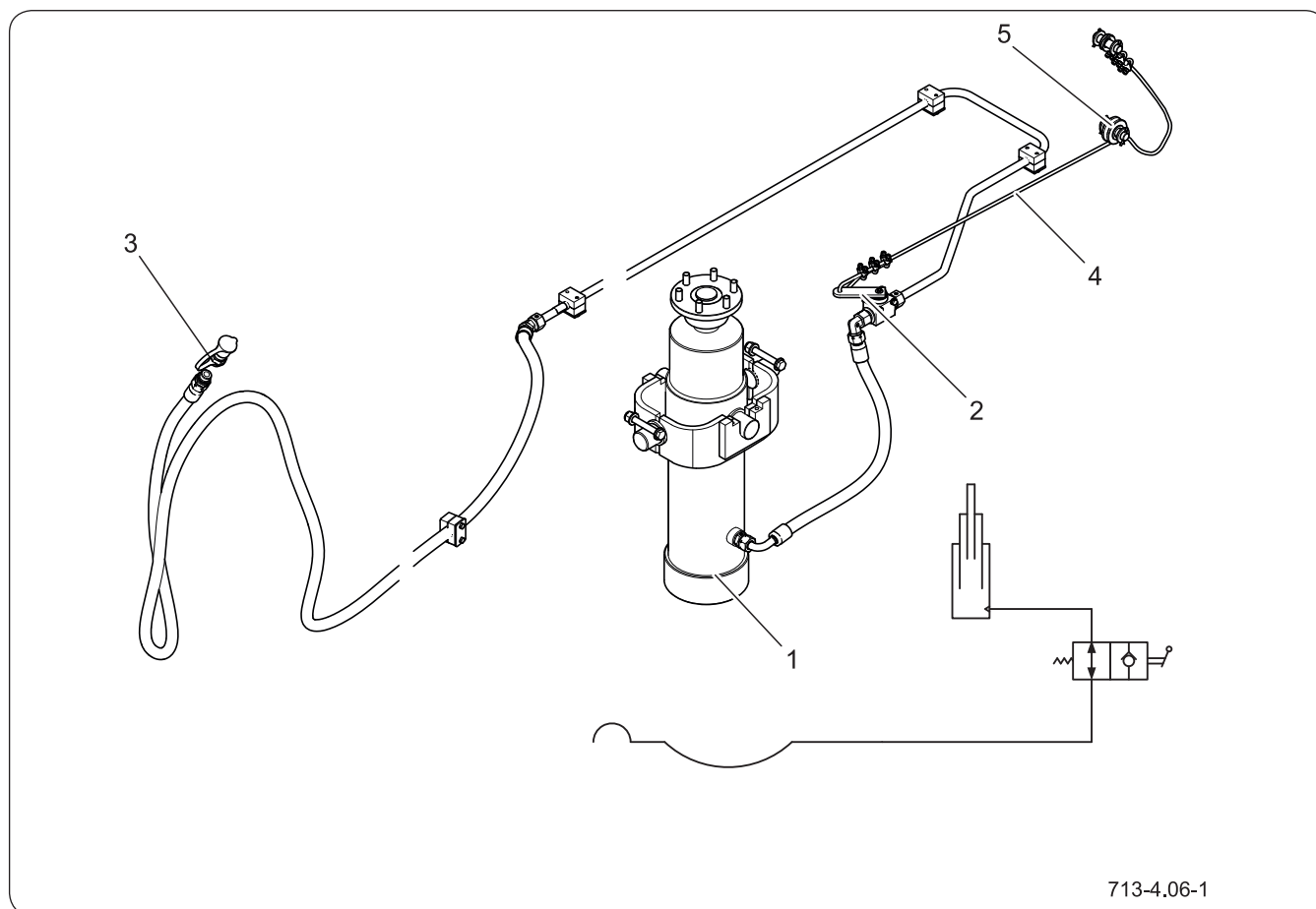


Figure 4.8 Structure and diagram of the hydraulic tipping system

(1) *Tipping cylinder*

(2) *Shut-off valve*

(3) *Plug*

(4) *Control cable*

(5) *Roller*

(6) *Tipping-limiting cable*

The hydraulic tipping system is used to unload the trailer automatically by tilting the load bed. The tipping angle of the box is limited for safety reasons by a shut-off valve (2) and cables (6).

BIZ.3.2-006.01.EN

4.8 HYDRAULIC TAILGATE SYSTEM

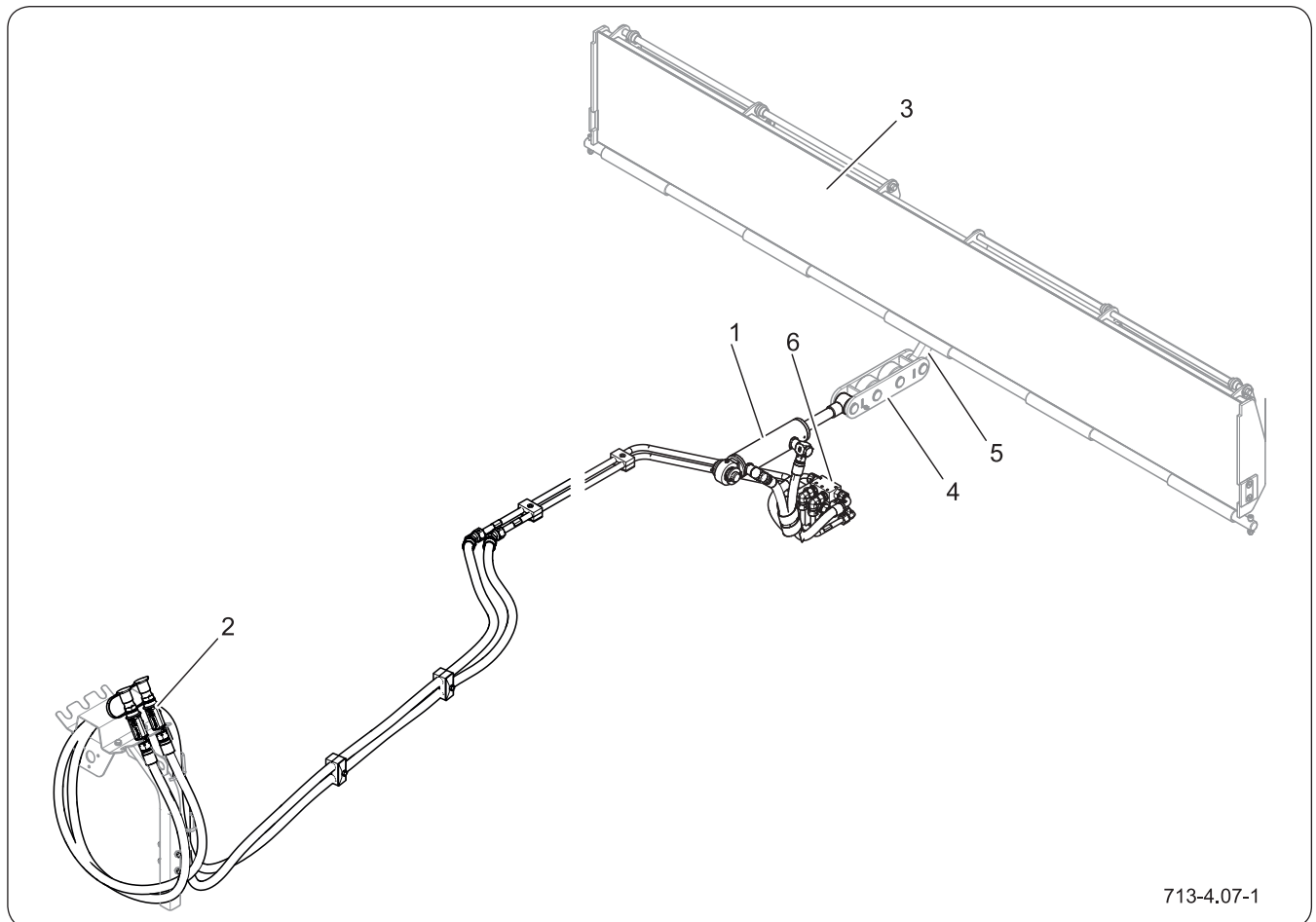


Figure 4.9 Construction of the tailgate hydraulic system

- | | | |
|------------------------|-----------------------|----------------------|
| (1) hydraulic cylinder | (2) quick coupling | (3) tailgate |
| (4) slide | (5) clamping pressure | (6) non-return valve |

ADVICE

The hydraulic system was filled with L-HL32 hydraulic oil.

The hydraulic tailgate system is used to open and close the tailgate (3), the tailgate can be stopped in any position by using the distributor lever of the tractor's external hydraulic system. The hydraulic cylinder (1) is connected by

hydraulic hoses ended by quick-couplings (2). Insert the plugs (2) into the appropriate sockets on the hydraulic distributor of the agricultural tractor.

The system is supplied with oil from the tractor's hydraulic system. The oil distributor of the tractor's external installation is used to control the position of the tailgate.

BIZ.3.2-007.01.EN

4.9 ELECTRICAL INSTALLATION OF THE LIGHTING

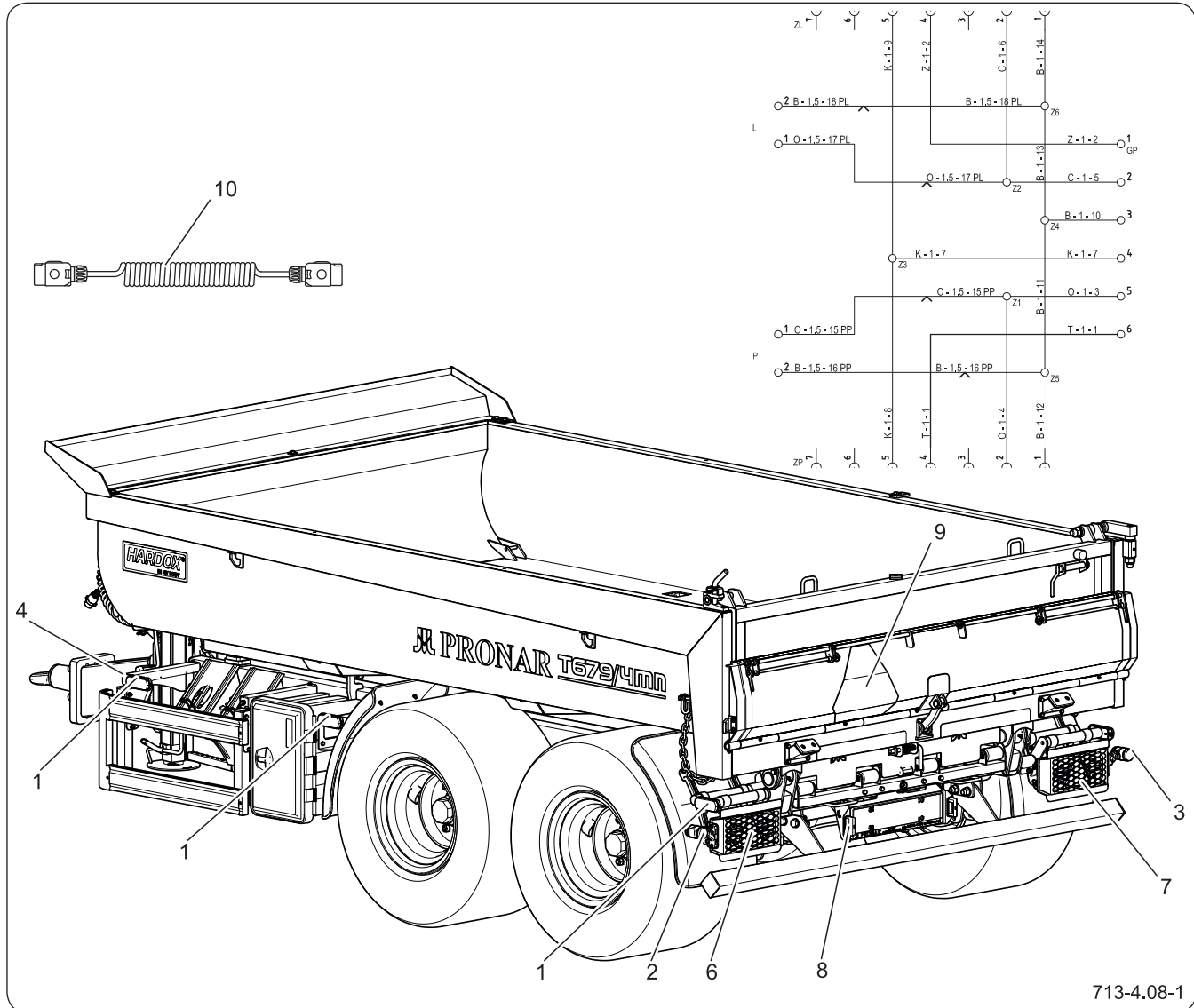


Figure 4.10 Arrangement of electrical components

- (1) Side-marker lamp (2) Left rear-marker lamp (3) Rear right side-marker lamp
 (4) Front left side-marker lamp (5) right front end-outline marker lamp
 (6) left rear combination lamp (7) right rear combination lamp (8) number plate lamp
 (9) Reflective rear triangle (10) Electrical connection cable



CAUTION

Check the operation and completeness of the electrical system before driving.

It is forbidden to operate the trailer with a defective lighting system.

The trailer's electrical lighting system is designed to be powered from a 12V DC source.

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

PP - right front position lamp EN -
 left front position lamp
 ZP - right rear combination lamp
 ZL - left rear combination lamp
 OT - plate light lamp
 TOP - combined front/rear end
 and right side position lamp
 TOL - combined front/rear end and
 left side position lamp
 OBP - Right side marker lamp
 OBL - left side marker lamp
 GP - front 7-pin socket
 GT - 7-pin rear socket
 W - 7-pin socket connector

b - white
 c - black
 f - violet
 k - black
 l - azurite
 n - blue
 o - brown
 p - orange
 r - pink
 s - grey
 t - green
 z - yellow

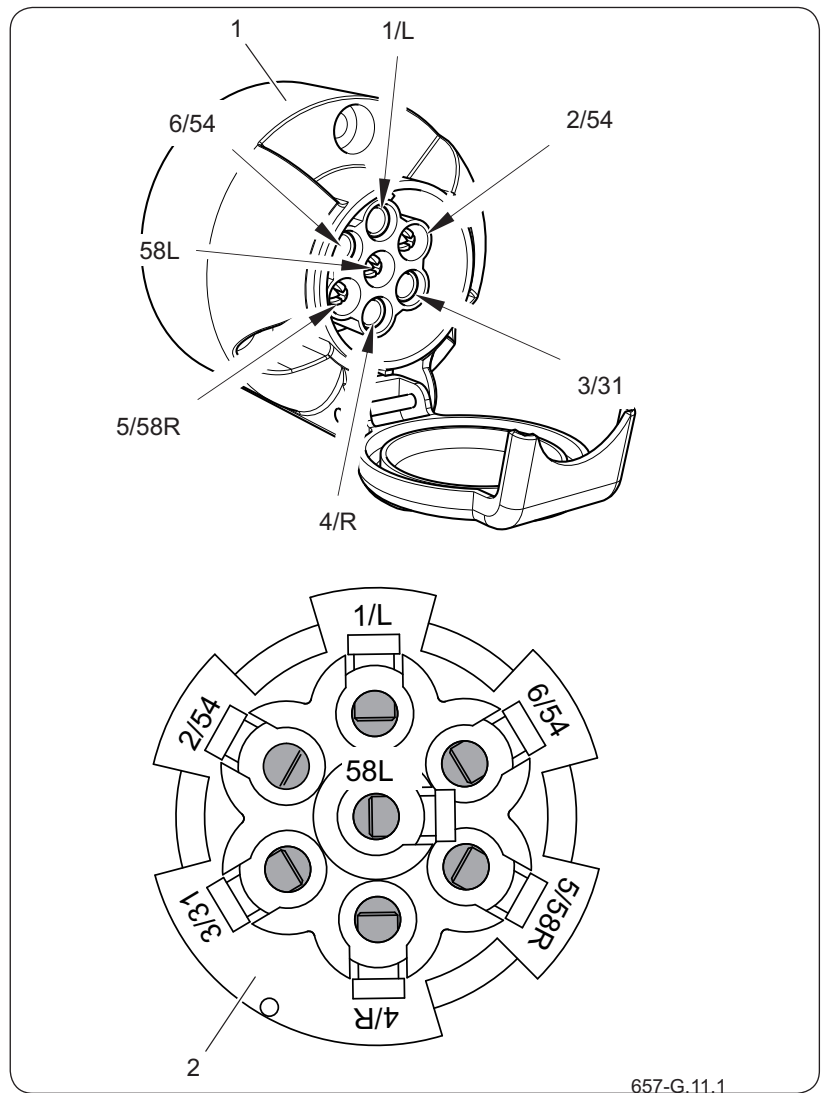


Figure 4.11 7 pin socket

(1) socket

(2) view from the harness side

Table 4.3 Connector socket connection markings

Designation	Function (cable colour)
1/L	Left indicator (yellow)
2/54	Not used
3/31	Mass (white)
4/R	Right indicator (green)
5/58R	Rear position light, right (brown)
6/54	STOP light (red)
58L	Rear position lamp left (black)

Chapter 5

Correct use

PRONAR T679/4MN

5.1 ADJUSTMENT OF DRAWBAR ATTACHMENT



DANGER

Use extreme caution when making adjustments due to the possibility of crushing limbs.



CAUTION

Pay attention to the condition of the drawbar, drawbar linkage and their bolted connections. Lubricate the recommended lubrication points.

ADVICE

Due to the heavy weight of the platform, use the assistance of a second person during handling operations.

The drawbar weight is 50kg (without drawbar).

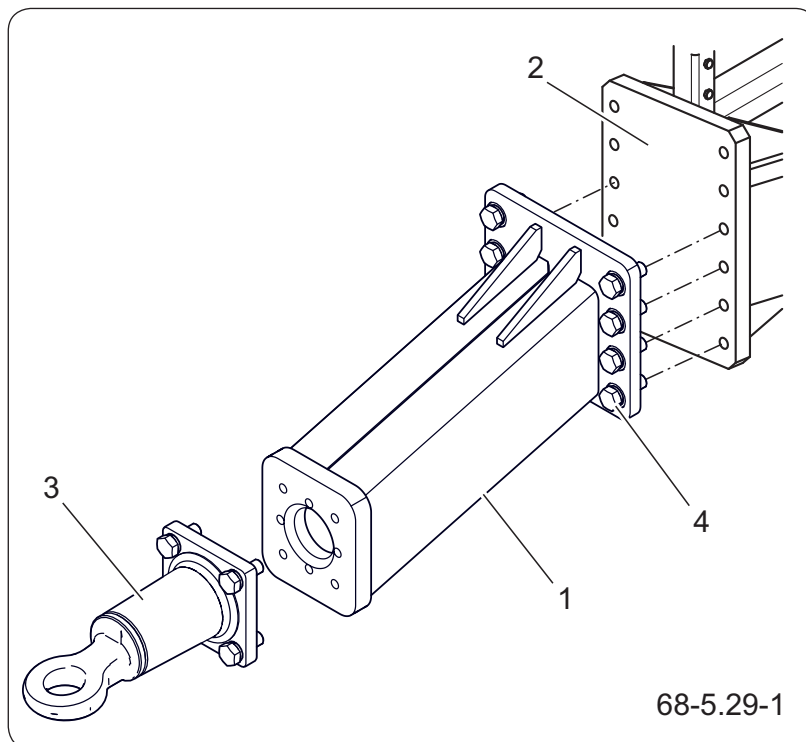


Figure 5.1 Height adjustment of the drawbar

(1) drawbar

(2) frame faceplate

(3) drawbar linkage

(4) bolt

Select the position of the drawbar individually according to the size of the trailer tyres and the type and height of the hitch of the agricultural tractor with which the machine will be coupled. Adjust the height

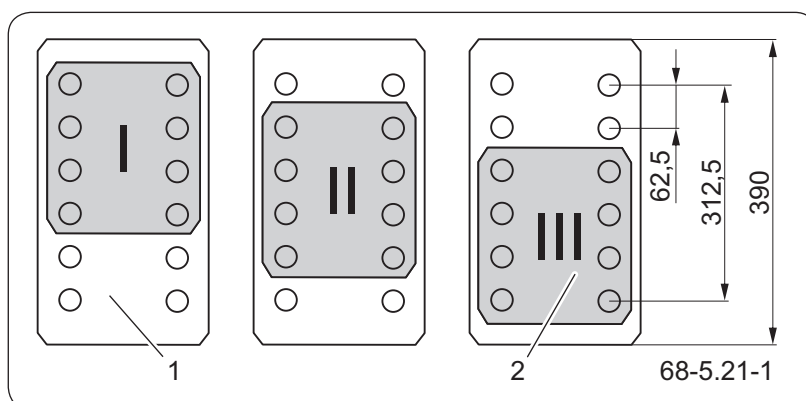


Figure 5.2 Frame faceplate dimensions

(1) faceplate

(2) drawbar

**DANGER**

It is forbidden to make adjustments when the trailer is loaded. Risk of accident.

so that the trailer is level when coupled to the tractor, which ensures that the weight of the machine is evenly distributed over the running axles.

Preparations

1. Secure the trailer against rolling.
2. Place the trailer support in the parked position.

Adjusting the drawbar height

1. Loosen the screw (4).
2. Remove the drawbar (1)
3. Adjust the drawbar to the correct position relative to the faceplate. If necessary, rotate the drawbar 180°.
4. Tighten the fixing screws to the correct torque.

The design of the drawbar - faceplate connection allows for three combinations of element settings (I), (II) and (III).

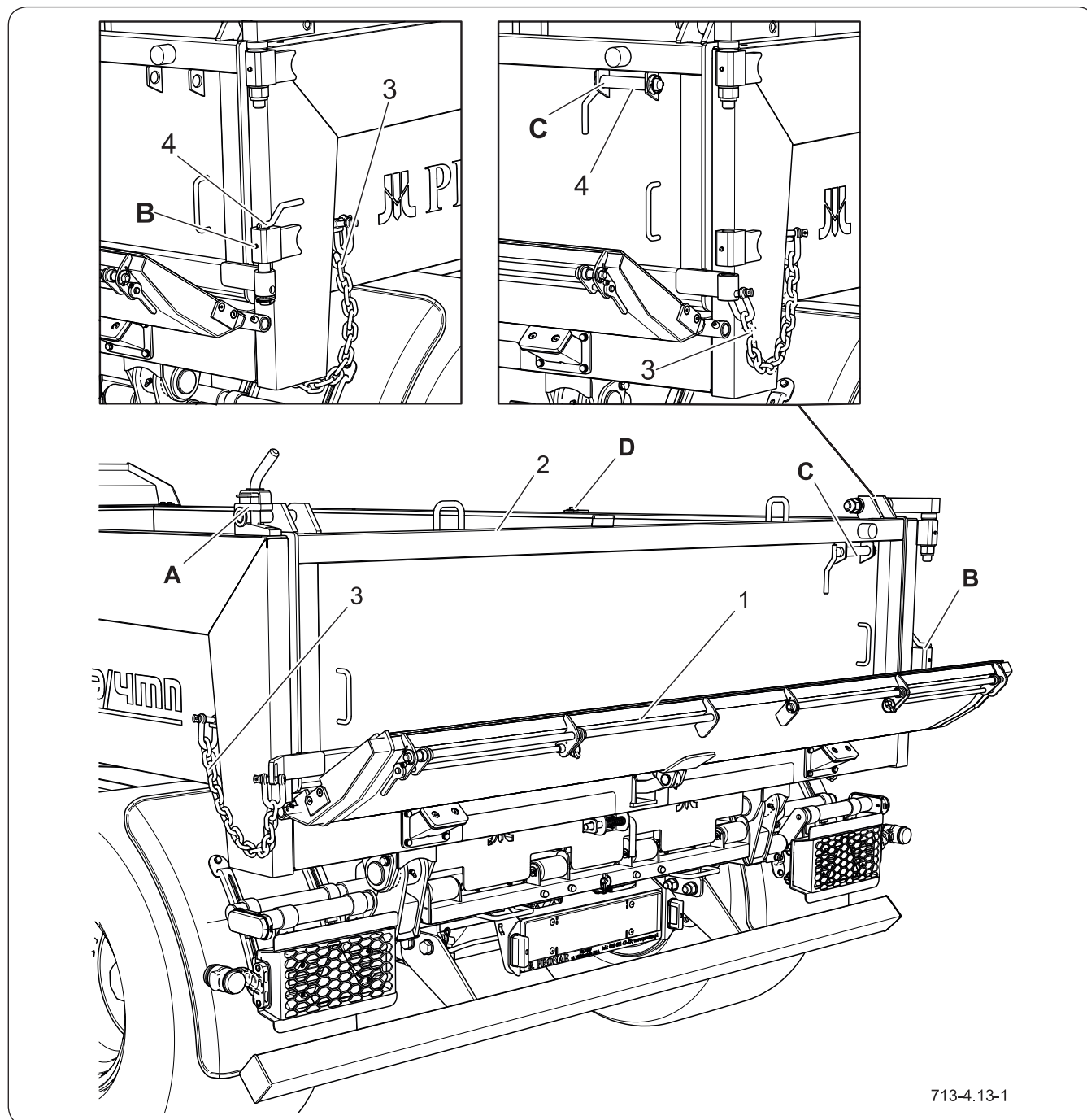
5. Fit the drawbar linkage.
6. Check the screw connections of the drawbar and drawbar linkage.

OBS.3.C-001.11.EN

5.2 TILT-AND-TURN TAILGATE



5.2.1 Function of flap tilting



713-4.13-1

Figure 5.3 Flap hatch components

(1) hydraulically opened flap

(3) dump stop chain

(A) closed hatch seat

(D) slot for open flap

(B) hinge seat

(2) hinged flap

(4) hinge pin

(C) repositioning seat

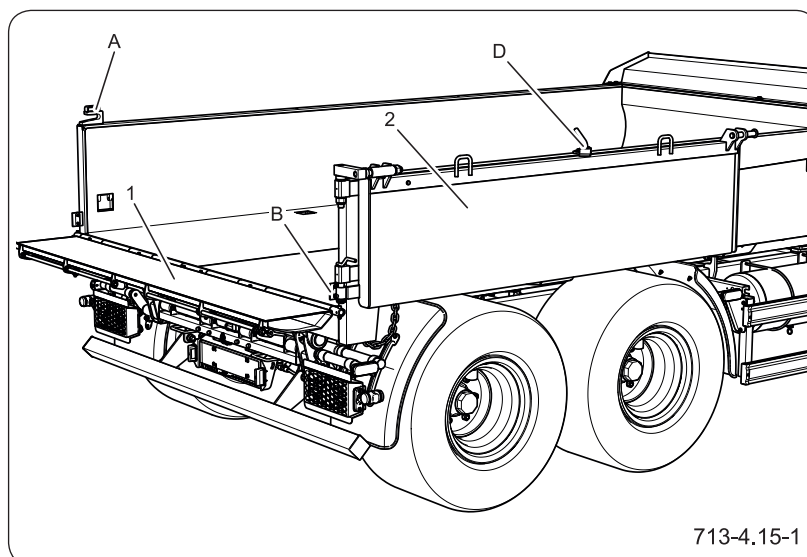


Figure 5.4 Operation of the swing flap
 (1) hydraulically opened flap (2) hinged flap
 (3) dump stop chain (4) hinge pin
 (A) closed flap seat (B) hinge seat
 (C) deposit socket (D) open flap socket

Requirements

1. Connect the machine to the carrier.
2. Secure the machine against rolling.
3. Switch off the carrier engine. Secure the carrier with the parking brake.

Maintenance operations

1. Reposition the pin (4) from the hinge seat (B) into the put-off seat (C).
 2. Install spill containment chains (2) and (3)
- Properly fitted chains do not interfere with the hydraulic flap (1) during operation.

5.2.2 Flap opening function

Requirements

- Connect the machine to the carrier.
- Secure the machine against rolling.
- Open the hydraulic tailgate
- Switch off the carrier engine. Secure the carrier with the parking brake.

Maintenance operations

1. Remove the pin from the socket (A).
2. Open the flap to place it on the side wall
3. Secure the flap against closing by inserting the pin into the socket (D).

OBS.3.2-001.01.EN

5.3 RAMP HANDLING



Requirements



DANGER

Be particularly careful when working due to the possibility of crushing limbs.

ADVICE

Due to the heavy weight of the platform, use the assistance of a second person during handling operations.

The weight of the platform is 54kg.



DANGER

When loading/unloading with ramps, the trailer box should be fully lowered.



DANGER

The trailer must be aggregated with the tractor when driving on the ramps. No access to a free-standing trailer is permitted.



DANGER

Vehicles may only be driven over the trailer if the ramp is in place and secured to the hatch. No driving on ramps is allowed when they are not secured against sliding.

- Secure the machine against rolling.
- Connect the machine to the carrier.
- Open the hydraulic tailgate
- Open tilt-and-turn flap (if present)
- Switch off the carrier engine. Secure the carrier with the parking brake.

Connection

1. Unclog the ramp plate.
2. Remove the pin from the locking bar.
3. Slide out the locking bar.
4. Extend overrun platforms
5. Remove the overrun bolts located on the hydraulic flap.
6. Rest the invasions on the flap

Adjust the track width of the overruns to the track width of the vehicle being transported.

7. Secure invasions with bolts, install bolt pins
- The platforms should rest on the ground at a similar level to the wheels of the trailer.

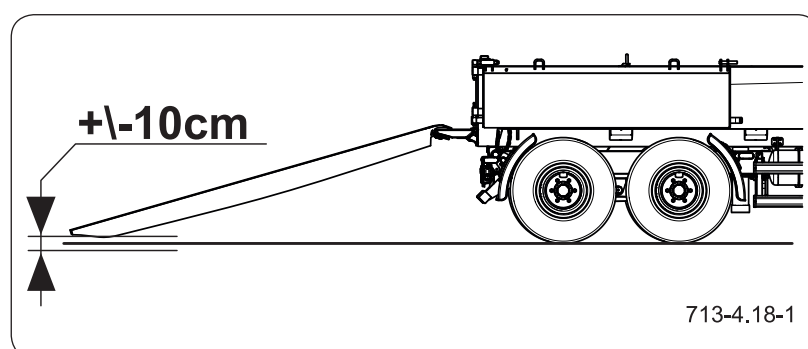


Figure 5.5 The correct height range for the use of ramps

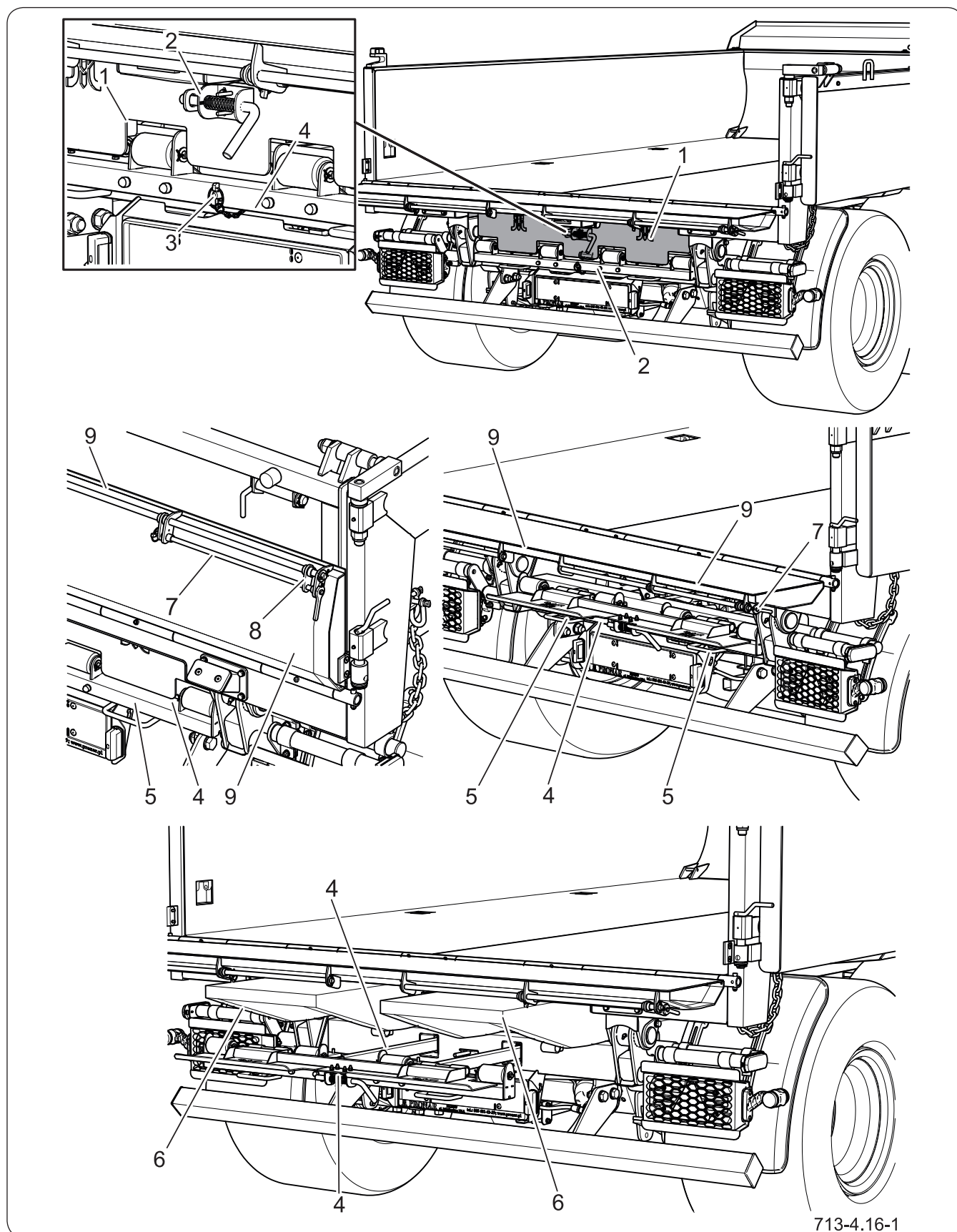


Figure 5.6 Extension of ramps

- | | | |
|-------------------|--------------------|--------------------|
| (1) Locking plate | (2) Plate bolt | (3) Beam pin |
| (4) Locking beam | (5) Beam brackets | (6) Ramp platform |
| (7) Overrun bolt | (8) Fixing bracket | (9) Hydraulic flap |

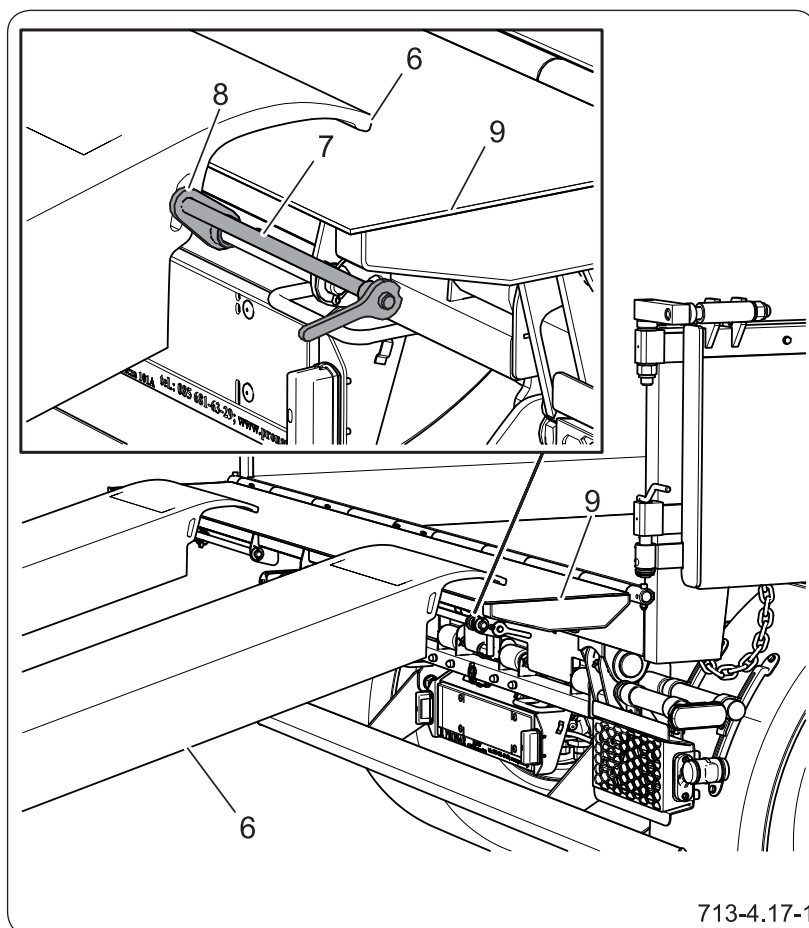


Figure 5.7 Locking of ramps

- (6) Ramp platform (7) Ramp stake
(8) Fixing bracket (9) Hydraulic flap



DANGER

Driving with a trailer is only possible when the ramps are in place and the flap is closed. It is not allowed to drive with non-blocked ramps - possibility of ramps falling off

Disconnection

1. Remove the overrun bolts
2. Remove the overrun platforms from the tailgate and clean them of any dirt.
3. Place the ramps in the correct tracks.
4. Insert ramps and closure bar.
5. Close and lock the ramp flap
6. Secure the locking bar with a pin.
7. Close tilt-and-turn flap (if present)
8. Close the hydraulic tailgate

OBS.3.2-002.01.EN

5.4 RAMPS



DANGER

Do not exceed the load capacity of the trailer.

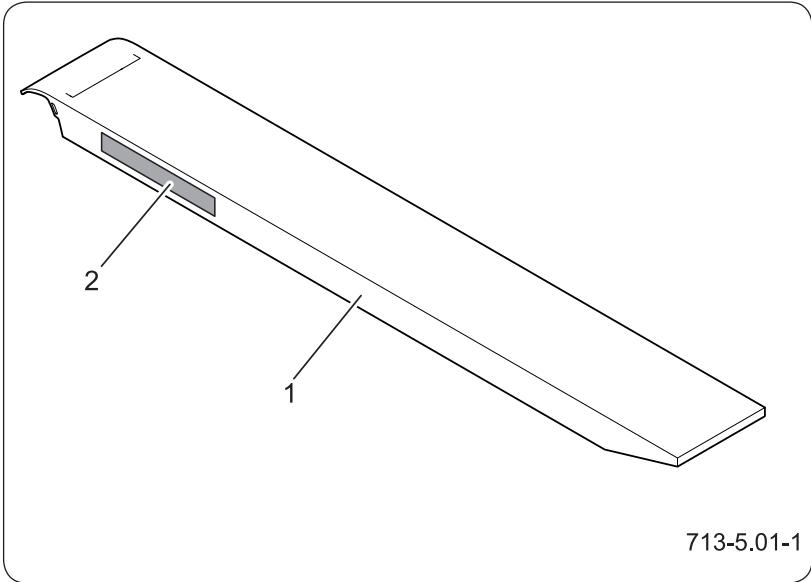


Figure 5.8 Location of the table of the type and extent of use of the overrun decks
(1) Ramp platform (2) Platform characteristics table

Ramps have been labelled with a table indicating their scope of use and load characteristics. It is imperative that the arrangements set out in the table are adhered to.

OBS.3.2-011.01.EN

5.5 OPERATION OF THE MECHANICAL PARKING SUPPORT



CAUTION

It is forbidden to start or drive with the support lowered.

Make sure the support is raised to the maximum before starting to drive. Absolutely secure the support foot with a safety pin.

It is not permissible to leave the loaded machine supported only by the parking stand.



DANGER

Exercise extreme caution when operating the support - also applies to bystanders or helpers, danger of crushing limbs.

1. Secure the machine against rolling.
2. Position the tractor so that the hitch of the tractor is opposite the drawbar of the trailer.
3. Switch off the tractor engine.
4. Apply the tractor's parking brake.

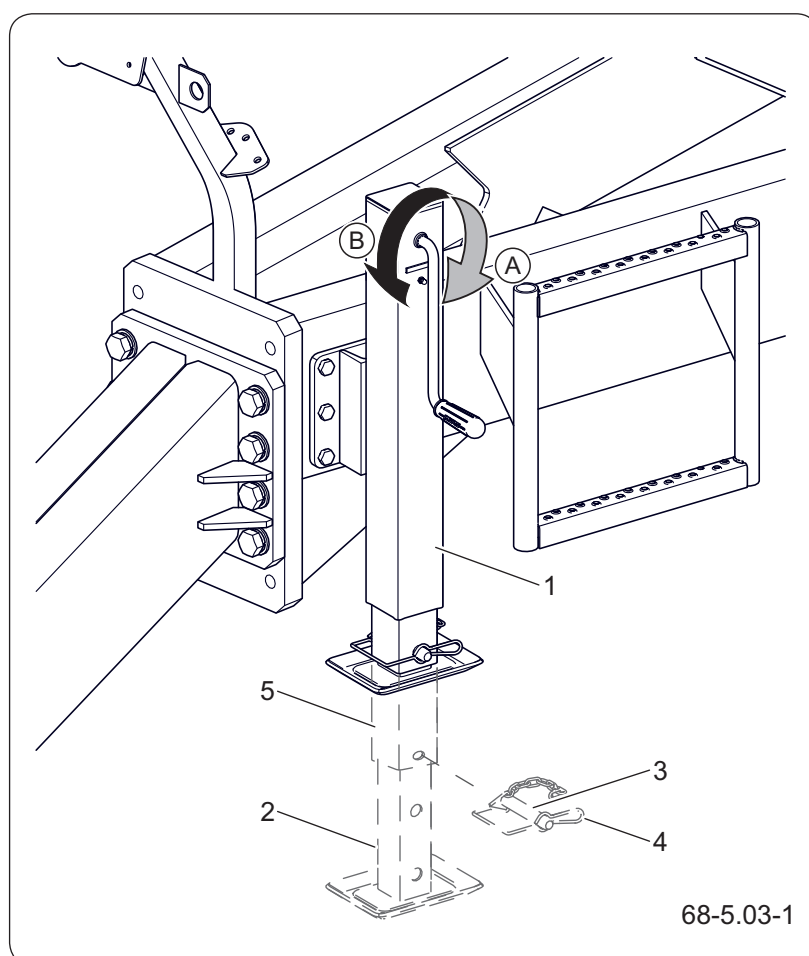


Figure 5.9 Mechanical support

- | | |
|-------------|------------------|
| (1) body | (2) support foot |
| (3) pin | (4) cotter pin |
| (5) leg | |
| (A) lifting | (B) lowering |

Support lift

1. Remove the pins (4)
2. Remove the pin (3).
3. Lift the foot (2).

4. Fit the cotter pin (3) and secure it with the pin (4).
5. Turn the crank to the left (B) to lift the support leg (5) upwards.

Lowering the support

1. Unlock and remove the pin (3).
2. Extend the foot (2).
3. Fit the cotter pin (3) and secure it with the pin (4).
4. By turning the crank clockwise (A), lower the leg (5) to the ground.
5. Adjust the height of the linkage in relation to the hitch (if the machine is to be coupled to a tractor).

OBS.3.C-006.01.EN

5.6 CONNECTING THE TRAILER TO THE TRACTOR



DANGER

No bystanders are allowed between the trailer and the tractor during coupling. The operator of the agricultural tractor, when coupling the machine, should ensure that no bystanders are in the danger zone during coupling.

Take extra care when connecting the trailer.

Ensure adequate visibility when coupling.

Once the coupling is complete, check the pin hitch protection.



CAUTION

After connecting the trailer but before driving, carry out a daily inspection of the machine.

An external inspection of the machine without connecting it to the tractor will not make it possible to verify its technical condition.

Please refer to the "Inspection and Maintenance" section for details on inspections.

You can connect the trailer to an agricultural tractor if all the connections (electrical, pneumatic, hydraulic) on the tractor comply with the machine manufacturer's requirements as indicated in table *"Agricultural tractor requirements"*.

Connection

Hitching a trailer is a set of actions aimed at correctly and safely coupling a trailer to a tractor.

1. Dismantle the linkage protection.
2. Secure the trailer against rolling.
3. Adapt the position of the drawbar to your tractor hitch.
4. Connect the drawbar linkage.
5. Connect the lines of the brake system.
6. Connect the hoses of the hydraulic system.
7. Connect the electrical wiring.
8. When coupling is complete, secure the hoses of the hydraulic, brake and electrical systems so that they do not become entangled in moving parts of the agricultural tractor while driving and are not liable to kink or cut when turning.
9. Raise the parking support to the transport position.
10. Carry out a daily inspection of the trailer according to the schedule.

OBS.3.C-003.01.EN

5.7 UNCOUPLING THE TRAILER FROM THE TRACTOR



DANGER

Take extra care when uncoupling the trailer from the tractor.

Ensure good visibility. Ensure that no one is between the trailer and the tractor.

Before disconnecting the cables and drawbar linkage, close the tractor cab and secure it against unauthorised access. Switch off the tractor engine.



CAUTION

Always secure the uncoupled machine against unauthorised use by attaching a linkage protection device.

Uncoupling the trailer is a set of operations aimed at correctly and safely disconnecting the machine from the tractor.

1. Place the machine on a hard and flat surface.
2. Secure the trailer against rolling using the parking brake and support wedges.
3. Lower the support to the parking position.
4. Disconnect the pneumatic system hoses.
5. Disconnect the hydraulic system hoses.
6. Disconnect the wiring of the electrical system.
7. Secure the cables with suitable plugs and place them in the bracket.
8. Disconnect the drawbar linkage from the tractor hitch.
9. Start the tractor and drive it away.
10. Fit the drawbar linkage protection.

OBS.3.C-018.01.EN

5.8 CONNECTING AND DISCONNECTING THE AIR BRAKE SYSTEM



Requirements

1. Trailer linkage connected to tractor hitch.
2. Trailer and tractor secured to prevent rolling.
3. Turn off the tractor engine.

5.8.1 Two-line brake system



DANGER

Driving with a faulty or defective brake system is prohibited.



CAUTION

If the trailer is parked for a long time, the air pressure in the air brake system may not be sufficient to release the brake shoes. In this case, after starting the tractor and air compressor, wait until the air in the air system tank has been replenished.



CAUTION

Observe the correct order when connecting and disconnecting brake system lines.

Connection of the installation

1. Connect the plug marked yellow to the yellow socket on the tractor.

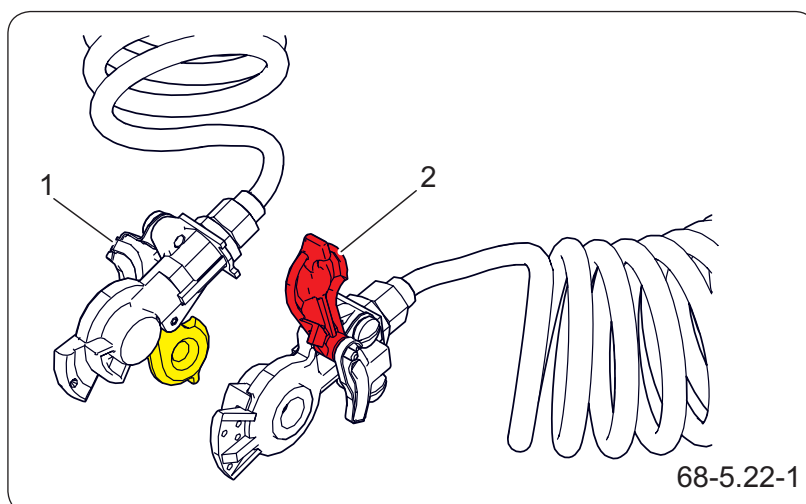


Figure 5.10 Two-line brake system

(1) yellow plug

(2) red plug

2. Connect the plug marked red to the red socket on the tractor.

The brake release system will switch to normal operation (trailer de-braked).

Disconnection of the installation

1. Disconnect the red coloured plug from the red coloured socket on the tractor.
2. Disconnect the plug marked yellow from the yellow socket on the tractor.

If the brake lines are disconnected or



DANGER

The use of an inoperative trailer is prohibited.

interrupted, the machine's control valve automatically moves to the position that activates the machine's brakes.

3. Secure the cable connectors with covers.
4. Place the cables on the cable support.

OBS.3.C-019.01.EN

5.9 CONNECTING AND DISCONNECTING OF THE HYDRAULIC SYSTEM



Requirements

1. Trailer secured against rolling.
2. Trailer linkage connected to tractor hitch.
3. Turn off the tractor engine.

Connecting of the system

1. Check the condition and cleanliness of the hose plugs and the tractor's hydraulic distributor.
2. Connect the hydraulic system plugs (1) to the corresponding sockets on the carrier's external hydraulic manifold.

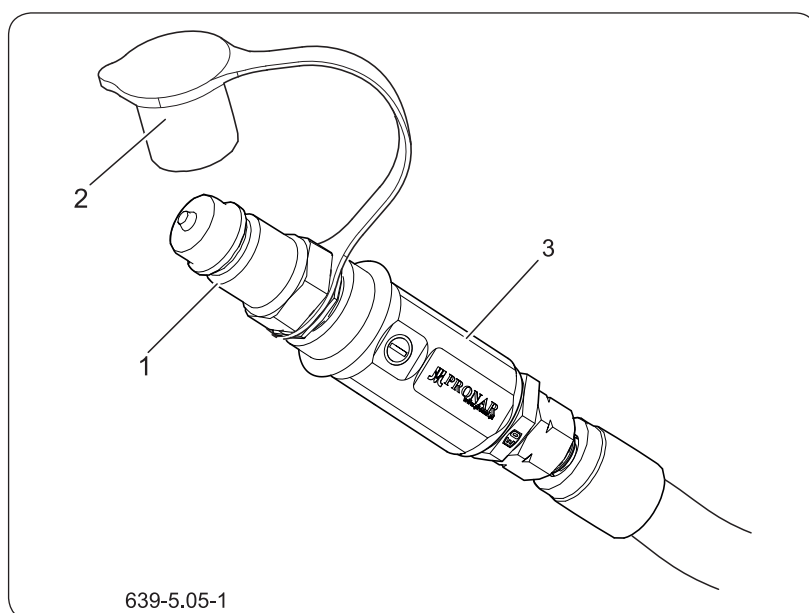


Figure 5.11 Plumbing connection

- (1) hydraulic plug (2) dyed plug
(3) dyed straight connector (Kennfixx)

The hydraulic lines of the individual circuits are marked with their respective colours. (For plug designations, see "Hydraulic plugs - colour designations".)



DANGER

The use of an inoperative trailer is prohibited.

Take special care, the hydraulic system may be under high pressure.



CAUTION

Secure the disconnected cables with plugs and place them on the cable support.

Disconnection of the system

1. Reduce the residual pressure of the trailer's hydraulic system using the tractor's hydraulic system.

Due to the variety of hydraulic systems on agricultural tractors, it is not possible for the trailer manufacturer to specify a universal method of reducing the pressure in the hydraulic system. Familiarise yourself with the operator's manual of the agricultural tractor.

2. Disconnect the plugs of the hydraulic lines (1) from the sockets of the tractor distributor.
3. Place the cable plugs (1) on the cable support.

Residual pressure reduction

The hydraulic brake system is designed in such a way that, when the trailer is operated correctly, there is no residual pressure. During the use of the machine, situations may arise where pressure appears in the hydraulic system. If this is the case, you can try pushing in the quick-connect plug or gently loosening the hydraulic coupling.

OBS.3.2-008.01.EN

5.10 HYDRAULIC PLUGS - COLOUR CODING



DANGER

Take special care, the hydraulic system may be under high pressure.

The hydraulic lines of the individual circuits are marked with the corresponding plug colours.

Kenfixx plugs (colour coding):

blue "+" - hydraulic tailgate opening

blue "-" - hydraulic tailgate closure

red "+" - tipping of the box

OBS.3.2-009.01.EN

5.11 CONNECTING AND DISCONNECTING THE ELECTRICAL SYSTEM



Requirements



CAUTION

Check the operation and completeness of the electrical system before driving.

It is forbidden to operate the trailer with a defective lighting system.



CAUTION

The rear combination lamps are fitted with grilles to protect them from damage. When driving on public roads, the grilles must be removed.

1. Protect the trailer before rolling.
2. Connect the trailer hitch to the tractor hitch.
3. Switch off the tractor engine.

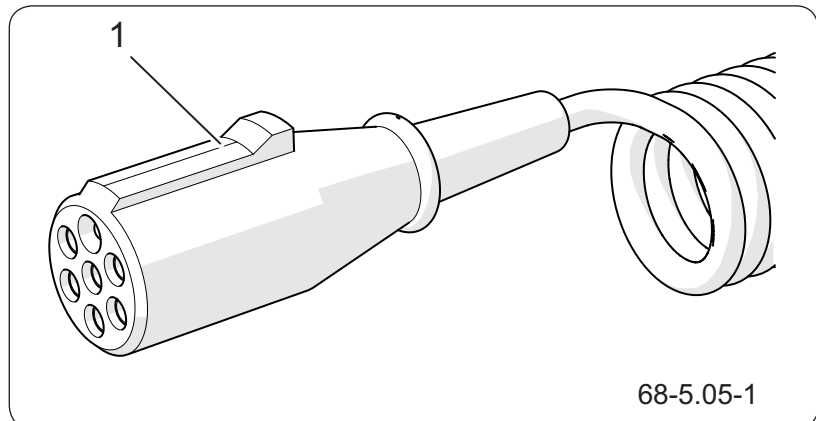


Figure 5.12 Electrical connection
(1) 7-pin cable

Connection

1. Connect the main cable (1) supplying the lighting wiring (7-pin).
2. If the tractor does not have suitable sockets or if the sockets are of a different type, have them fitted by qualified persons.

Disconnection

1. Disconnect the power cord.
2. Secure the tractor and trailer sockets with lids.

OBS.3.C-013.01.EN

5.12 WEIGHT OF MATERIALS TO BE TRANSPORTED



DANGER

Overloading the trailer, inadequate loading and securing of the load are the most common causes of accidents during transport.

The load must be distributed in such a way that it does not jeopardise the stability of the trailer or impede the driving of the combination.

The approximate specific gravity of the selected materials is shown in the table below. Special care must be taken not to overload the trailer.

Table 5.1 Approximate volumetric weights of selected loads

Type of material	Volumetric weight [kg/m ³]
Building materials:	
cement	1,200-1,300
dry sand	1,350-1,650
wet sand	1,700-2,050
solid bricks	1,500-2,100
bricks hollow blocks	1,000-1,200
stone	1,500-2,200
softwood	300-450
hardwood lumber	500-600
impregnated lumber	600-800
steel structures	700-7,000
ground quicklime	700-800
slag	650-750
gravel	1,600-1,800
debris	1,050-1,200
Root crops:	
raw potatoes	700-820
steamed squashed potatoes	850-950
dried potatoes	130-150
sugar beet - roots	560-720
fodder beet - roots	500-700
Mineral fertilisers:	
ammonium sulphate	800-850
potassium salt	1,100-1,200

Type of material	Volumetric weight [kg/m ³]
superphosphate	850-1,440
tomassin	2,000-2,300
potassium sulphate	1,200-1,300
ground fertiliser lime	1,250-1,300
Concentrated feeds and compound feeds:	
chaff stored	200-225
oilcake	880-1,000
ground dried	170-185
compound feeds	450-650
mineral mixtures	1,100-1,300
oat middlings	380-410
wet beet pomace	830-1,000
pressed beet pomace	750-800
dry beet pomace	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
silage hay (tower silo)	550-750
Seeds:	
broad beans	750-850
mustard	600-700
peas	650-750
lentils	750-860
beans	780-870
barley	600-750
clover	700-800
grasses	360-500
maize	700-850
wheat	720-830
rapeseed	600-750
flax	640-750
lupin	700-800
oats	400-530
alfalfa	760-800
rye	640-760
Litter and roughage:	
dry meadow hay on swaths	10-18

Type of material	Volumetric weight [kg/m ³]
wilted hay on a swath	15-25
hay in a collecting trailer (dry)	50-80
wilted cut hay	60-70
compressed dry hay	120-150
pressed hay	200-290
dry hay stored	50-90
cut hay stored	90-150
clover (lucerne) wilted by swathing	20-25
wilted clover (lucerne) cut on a trailer	110-160
clover (alfalfa) wilted on a collecting trailer	60-100
dry clover stored	40-60
dry stored cut clover	80-140
dry straw in rolls	8-15
wet straw in rolls	15-20
damp chopped straw on a volume trailer	50-80
dry cut straw on a bulk trailer	20-40
dry straw on a collecting trailer	50-90
dry straw cut in a straw heap	40-100
baled straw (low compaction)	80-90
baled straw (high compaction)	110-150
cut cereal mass on a bulk trailer	35-75
grain mass on a collection trailer	60-100
green swath	28-35
cut green fodder on a volume trailer	150-400
green fodder on a collecting trailer	120-270
fresh beetroot leaves	140-160
fresh cut beetroot leaves	350-400
beet leaves on a collecting trailer	180-250
Other:	
dry soil	1,300-1,400
wet soil	1,900-2,100
fresh peat	700-850
horticultural soil	250-350

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

OBS.3.B-004.01.EN

5.13 LOADING



DANGER

It is forbidden to transport people or animals.



CAUTION

It is forbidden to exceed the permissible trailer load as this compromises driving safety and may cause damage to the machine.



CAUTION

The load in the trailer bed must be distributed evenly and must not impede the driving of the combination. Handling work should be carried out by a person experienced in this type of work.

Load the trailer when the trailer is connected to the tractor and on level ground. Try to aim for an even distribution of the load in the load carrier. This will ensure that the trailer has the correct stability when driving, the correct pressure on the running axles, and the drawbar linkage.

Check that the tailgates are closed before you start loading. Check the cargo box for unnecessary items. The trailer is designed for the transport and unloading of heavy materials such as rubble, stones, ballast, gravel, used in construction, earthmoving and demolition work. Transport can take place within the farm as well as on public roads.

Avoid dropping loads from a great height that could damage the structural components of the trailer. The use of loads other than those stipulated by the manufacturer is prohibited.

Due to the varying densities of materials, using the total capacity of the load bed may result in the trailer's load capacity being exceeded.

Bulk cargo

Loading of bulk materials is generally carried out using loaders or conveyors, or alternatively by hand loading. Bulk materials must not protrude beyond the outline of the trailer walls. When loading is complete, spread the load layer evenly over the entire load bed surface. Loading should be carried out by a person who is experienced in this type of work and has the appropriate equipment licence (if required). Secure loads of this type by covering the load bed using a tarpaulin. Covering the load prevents it from spilling during the journey, from being blown away by the



DANGER

The load on the trailer must be prevented from shifting and contaminating the road during transit. If it is not possible to secure the load correctly, it is prohibited to transport this type of material.

**DANGER**

When the trailer is loaded, the drawbar linkage and hitch of the tractor are subjected to high vertical loads.

ADVICE

Damage to the paintwork inside the load bed caused by normal use of the trailer is normal and cannot be claimed.

**DANGER**

If you need to transport authorised hazardous materials, familiarise yourself in detail with the regulations on the transport of hazardous materials in force in your country and the ADR agreement.

**DANGER**

Familiarise yourself with the contents of the cargo manufacturer's information leaflets, follow the transport and handling recommendations. Ensure that additional personal protective equipment (masks, rubber gloves, etc.) is required during loading work.

wind and also protects the load from moisture. This is particularly dangerous in the case of loose materials, which can absorb water significantly, so that the weight of the load can increase during travel.

Clean horizontal trailer components such as the drawbar, the edges of the walls of any accidental material (aggregate) before driving on public roads. Check the correct closure of the tailgate protection before starting to drive.

Piece or lump loads

Piece or lump loads are generally hard materials with much larger dimensions than bulk loads (stones, coal, bricks, aggregate). Carry out loading of these materials from a low height. The load must not fall with great force onto the load carrier floor.

Dangerous goods

According to the European ADR agreement on the international carriage of dangerous goods by road, the carriage of this type of load (specifically defined by this agreement) is prohibited using agricultural trailers. The only exceptions to this are plant protection products and fertilisers, which may be transported by agricultural trailer provided they are transported in the correct packaging and in the quantities provided for in the ADR agreement.

Packaged loads

Stack loads transported in packaging (crates, bags) closely together starting from the front wall. If several layers are required, apply the individual batches alternately (in a block system). The load must be placed tightly and over the entire surface of the trailer floor. Otherwise, there will be a shift in the load during the journey. The load must not protrude beyond the outline of the load carrier.



DANGER

If there is a danger of the load shifting in the packages, it is forbidden to transport this type of material. A sliding load poses a serious driving hazard to the tractor operator and other road users.



DANGER

Ensure that there are no bystanders in the unloading/loading area. Before unloading the crate, ensure that you have adequate visibility and that there are no bystanders in the vicinity.



DANGER

It is not allowed to carry a load over people.

It is not permitted to be in the path of the load during loading.

Fastening can only take place when the load is resting freely on the platform.



CAUTION

The maximum tensile strength of the load carrier handles is 25kN.

It is essential to secure the load in crates or pallets against shifting by means of straps, chains, webbing or other approved securing devices with a tensioning mechanism.

Materials that may cause corrosion of steel, chemical damage or otherwise react adversely to the structural materials of the trailer will only be transported if the load is properly prepared. Materials must be tightly packed (in plastic bags, plastic containers, etc.).

During transport, the contents of the packaging must not leak into the load carrier, so ensure that the containers are properly sealed.

Due to the variety of materials, tools, cargo securing and lashing methods, it is not possible to describe all loading methods. Use common sense and your own experience when working. The trailer user is obliged to familiarise himself with the road transport regulations and to comply with their recommendations.

OBS.3.2-003.01.EN

5.14 UNLOADING BY TIPPING



DANGER

It is forbidden to unload the trailer on unstable ground.

Ensure that no one is in the vicinity of the tilted box and the spilled load when unloading.

Use extreme caution when closing the tailgate, as injury could cause serious damage to your health.



CAUTION

When lifting the load box, pay attention to overhead power lines.

It is forbidden to lift the load carrier during strong gusts of wind.

The length of the control cable for the load compartment angle limiting valve is set by the manufacturer and must not be adjusted by the user.

Do not jerk the trailer forward if a voluminous or hard-to-slide load has not been unloaded.

It is forbidden to start or drive with the load carrier raised.

Unload the trailer by performing the following steps:

- Set the tractor and trailer to drive straight ahead on flat, stable and firm ground.
- Brake the tractor, and the trailer using the parking brake.
- Open the tailgate of the trailer.

When feeding the flap opening system from the tractor's hydraulic system, adjust the appropriate lever on the tractor's hydraulic distributor.

- Activate the tipping of the load bed.

When feeding the tipping system from the tractor's hydraulic system, adjust the appropriate lever on the tractor's hydraulic distributor.

- After unloading, lower the load bed and clean the edges of the floor. Then close the tailgate.

A properly closed tailgate should sit flush with the edges of the side walls.

- Make sure the tailgate is properly locked before moving off.
- Clean the trailer of load residue.

During unloading, the lifting of the load carrier must take place slowly and smoothly. Rapid lifting of the load bed will result in very high pressures on the rear of the load bed

as a result of load shifting and may jeopardise the stability of the machine.

OBS.3.2-005.01.EN

5.15 UNLOADING OF PACKAGED GOODS



DANGER

It is forbidden to unload the trailer on unstable ground.

Use extreme caution when closing the tailgate, as injury could cause serious damage to your health.



DANGER

It is not permitted to carry a load over people.

It is not permitted to be in the path of the load during unloading.

Unload the trailer by performing the following steps:

- Set the tractor and trailer to drive straight ahead on flat, stable and firm ground.
- Brake the tractor, and the trailer using the parking brake.
- Open the rear hydraulic trailer hatch.

When feeding the flap opening system from the tractor's hydraulic system, adjust the appropriate lever on the tractor's hydraulic distributor.

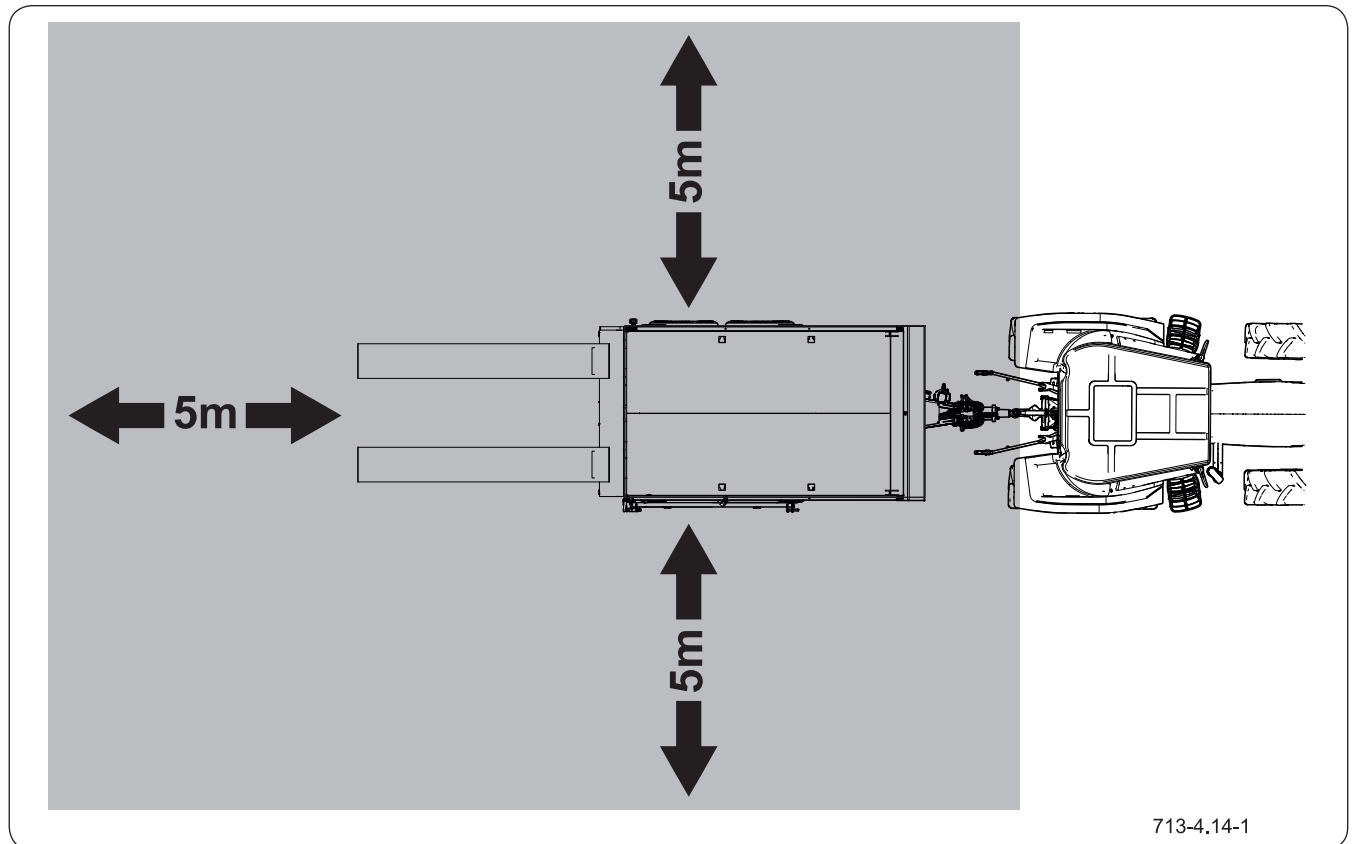
- Open the tilt-and-turn flap - if there is one.
- ***Secure the flap against self-closing.***
- Remove transport restraints such as straps, chains, etc.
- Remove the load using appropriate machinery or tools.
- Clean the box after unloading. Then close the tailgates.

A properly closed tailgate should fit to the edges of the side walls.

- Make sure the tailgate is properly locked before moving off.
- Clean the trailer of any cargo residue.

OBS.3.2-006.01.EN

5.16 LOADING WITH THE RAMPS



713-4.14-1

Figure 5.13 Danger zone during trailer loading



DANGER

It is forbidden to transport people or animals.



CAUTION

It is forbidden to exceed the permissible trailer load as this compromises driving safety and may cause damage to the machine.

The load in the trailer bed must be distributed evenly and must not impede the driving of the combination.

You can only carry out loading if the trailer is aggregated with the tractor.

Note that the height of the trailer with the load carried must not exceed the maximum height specified in local road traffic regulations

Handling work should be carried out by a person experienced in this type of work.

Load the trailer by performing the following steps:

1. Set the tractor and trailer to drive straight ahead on flat, stable and firm ground.
2. Brake the tractor, and the trailer using the parking brake.
3. Open the rear hydraulic trailer hatch.

When feeding the flap opening system from the tractor's hydraulic system, adjust the



DANGER

The load on the trailer must be secured to prevent movement during transit. If it is not possible to secure the load correctly, the transport of this type of material is prohibited.



DANGER

When the trailer is loaded, the drawbar linkage and hitch of the tractor are subjected to high vertical loads.



DANGER

Ensure adequate visibility before loading.

No members of the public are allowed in the unloading and loading area.



DANGER

Due to poor visibility when manoeuvring a transported vehicle, assistance from others should be used.

Do not drive over the side edge of the ramp - possibility of tyre damage, possibility of uncontrolled sliding off the platform.



DANGER

No one may be on the trailer while the machine being transported is being loaded.

When loading, the person assisting the operator should be at least 5m from the trailer with the ramps extended.

appropriate lever on the tractor's hydraulic distributor.

4. Open the tilt-and-turn flap - if present.

Secure the flap against self-closing.

5. Slide out and fit the overrun platforms onto the flap and secure them against movement.

Adjust the track width of the overruns to the track width of the vehicle being transported.

6. Carefully feed the machine into the load bed.
7. Apply the parking brake of the machine being carried (if present).
8. Put in place transport restraints for the vehicle being transported, such as straps, chains, chocks, etc.
9. Dismantle the overrun platforms and place them in the designated beds, secure them against slipping out during transport.
10. Close the tailgates.

A properly closed tailgate should sit flush with the edges of the side walls.

11. Ensure that the tailgate and the overrun hatch are properly locked before moving off.

If there is a vehicle being transported on the trailer, you may not, under any circumstances, use the hydraulic system for lifting the body!

OBS.3.2-004.01.EN

5.17 UNLOADING WITH RAMPS



DANGER

It is forbidden to unload the trailer on unstable ground.

Use extreme caution when closing, opening the tailgate, as injury could cause serious damage to your health.



DANGER

Due to poor visibility when manoeuvring a transported vehicle, assistance from others should be used.

Do not drive over the side edge of the ramp -possibility of tyre damage, possibility of uncontrolled driving off the platform.



DANGER

No one may be on the trailer when unloading the transported machine.

When unloading, the person assisting the operator should be at least 5 m from the trailer with the ramps extended.

You can only unload box if the trailer is aggregated with the tractor.

Unload the trailer by performing the following steps:

- Set the tractor and trailer to drive straight ahead on flat, stable and firm ground.
- Brake the tractor, and the trailer using the parking brake.
- Open the rear hydraulic trailer hatch.

When feeding the flap opening system from the tractor's hydraulic system, adjust the appropriate lever on the tractor's hydraulic distributor.

- Open the tilt-and-turn flap - if there is one.
- ***Secure the flap against self-closing.***
- Slide out and fit the overrun platforms on the flap, secure against displacement.
- Remove the transport restraints of the vehicle being transported such as belts, chains, etc.
- Release the parking brake of the machine being transported (if applicable)
- Carefully bring the machine down from the load bed.
- Clean the box after unloading,
- Dismantle the overrun platforms and place them in the designated beds, secure them against slipping out during transport.
- Close the tailgates.

A properly closed tailgate should sit flush with the edges of the side walls.

- Ensure that the tailgate and the overrun hatch are properly locked before moving off.

OBS.3.2-007.01.EN

5.18 TRANSPORT



When driving on public roads, comply with traffic regulations, use caution and sensible behaviour. The following are the most important tips for driving a tractor with an attached trailer.

- Before moving off, make sure that there are no bystanders, especially children, near the trailer and the tractor. Ensure adequate visibility.
- Ensure that the trailer is properly connected to the tractor and that the tractor hitch is properly secured.
- The vertical load transmitted by the drawbar linkage of the trailer affects the steering of the agricultural tractor.
- Do not overload the trailer. The load must be distributed evenly in such a way that it does not exceed the permissible pressures on the trailer running gear. Exceeding the permissible vehicle load is prohibited and may cause damage to the machine. Overloading is a hazard when driving on the road for the tractor and trailer operator or other road users.
- Do not exceed the permitted design speed and the speed limit imposed by traffic law restrictions. Adjust your speed according to the prevailing road conditions, the load condition of the trailer, the type of load being carried and other considerations.



CAUTION

Leaving a trailer unsecured is prohibited.

In the event of a machine breakdown, stop at the side of the road without endangering other road users and mark the stopping point according to traffic regulations.

- If you disconnect the trailer from the tractor, you must secure it by locking it with the parking brake and putting chocks under the wheel.
- The tractor operator must equip the trailer with an approved or homologated reflective warning triangle.
- When driving on public roads, mark the trailer with a slow-moving vehicle distinguishing sign, place the sign on the rear of the load bed.
- While driving, obey the rules of the road, signal the change of direction by means of direction indicators, keep clean and take care of the technical condition of the lighting and signalling installation.
- Repair or replace damaged or lost lighting and signalling components immediately.
- Avoid ruts, depressions, ditches, or driving along roadside slopes. Driving over such obstacles can cause the trailer and tractor to tilt violently. This is particularly important as the centre of gravity of a laden trailer (and especially a volumetric load), adversely affects driving safety. Passing near the edge of ditches or canals is dangerous due to the risk of landslides under the wheels of the trailer or tractor.
- Reduce speed before approaching bends, when driving on uneven or sloping terrain.
- When driving, avoid sharp turns, especially on slopes.
- Remember that the braking distance of a kit increases significantly as the weight of the load being carried increases and the speed increases.
- Control the behaviour of the trailer when driving over rough terrain. Adapt your speed to the terrain and road conditions.

**CAUTION**

Driving with a volumetric load over ruts, ditches, slopes, etc. poses a high risk of the trailer tipping over. Be especially careful.

- The trailer is suitable for gradients of up to 8°. Moving the trailer over terrain with steeper slopes may cause the trailer to tip over due to loss of stability. Prolonged driving on sloping terrain poses the risk of losing braking effectiveness.

OBS.3.2-010.01.EN

5.19 STABILISATION OF THE TRAILER



CAUTION

Inadequate parking brake performance can be caused by excessive wear on the brake shoe linings.

ADVICE

The support wedges are located in the brackets on the left side of the subframe. The handles have spring protection to prevent the wedges from falling out during travel.

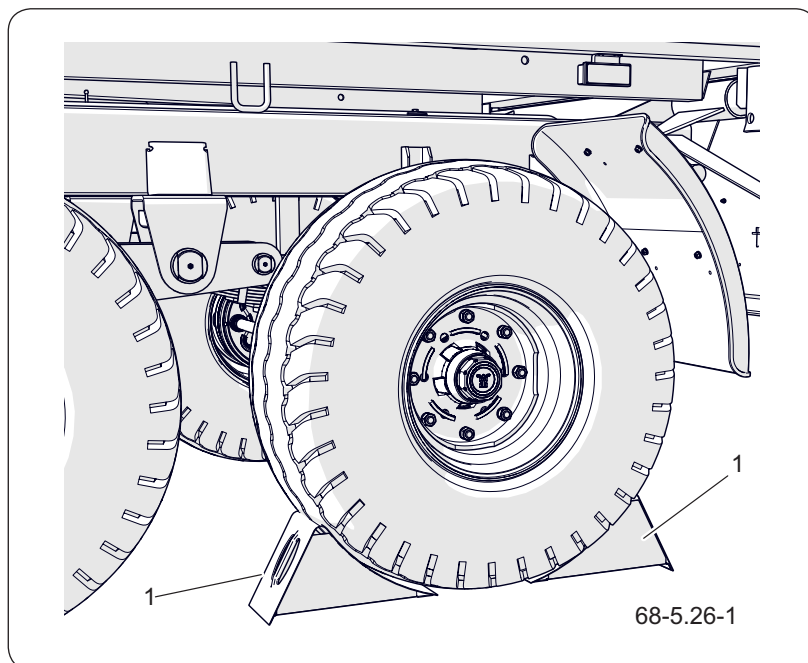


Figure 5.15 Location of wedges

(1) wedge

Protect a trailer that has been uncoupled from the tractor each time before rolling using the support wedges and parking brake.

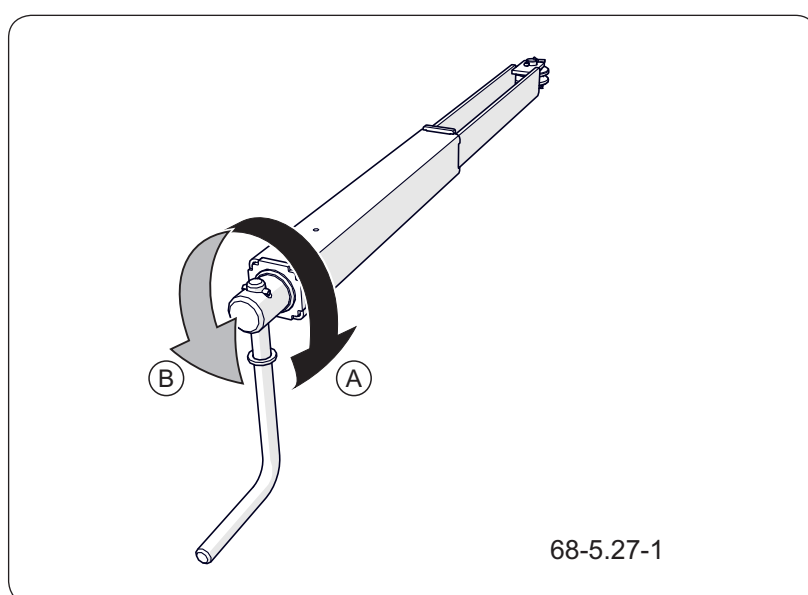


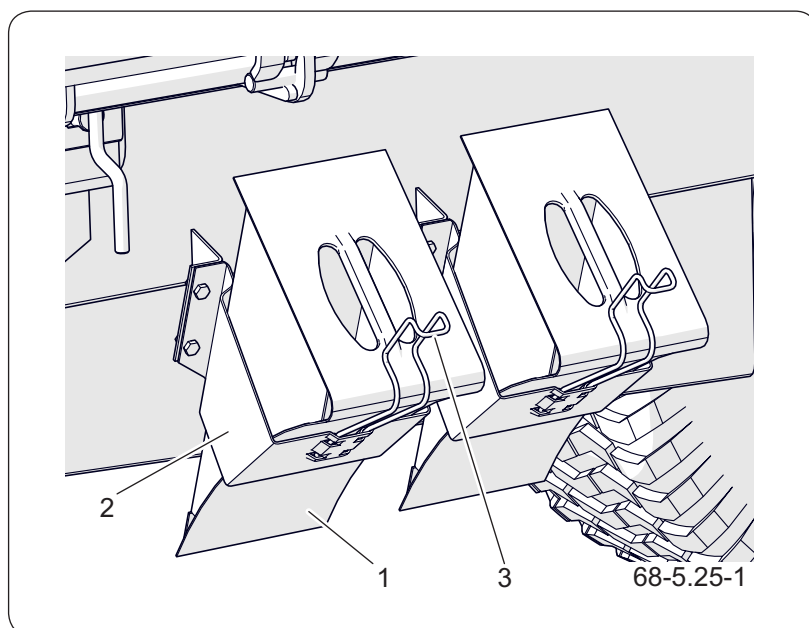
Figure 5.14 Parking brake

(A) braking direction

(B) deceleration direction

Rollover protection

1. Place the machine on a hard and flat surface.
2. Turn the brake mechanism to the right (A).
3. Place chocks under the running wheel of the trailer - drawing "*Location of chocks*".

Release of the trailer**Figure 5.16** Location of wedges

- (1) *support wedge* (2) *wedge holder*
 (3) *spring protection*

1. Turn the brake mechanism to the left (B).
2. Remove the wedges.
3. Put the wedges back in the holders, check the security of the wedges.

OBS.3.C-009.01.EN

5.20 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

5.21 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°C.

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 °C.

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

OBS.3.8-011.01.EN

5.22 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 T679/4MN

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 MAINTENANCE AND INSPECTION SCHEDULE

Table 6.1 Review categories

Category	Description	Responsible	Frequency
A	Daily review	Operator	Every day before first start-up or every 10 hours of continuous shift work.
B	Maintenance	Operator	In case of emergency.
C1	Maintenance one-off	Operator	Before using the trailer for the first time.
C2	Maintenance one-off	Operator	After the first run with the load.
C3	Maintenance one-off	Operator	After the first 100 km of loaded driving or after the first 200 km of unloaded driving.
C4	Maintenance one-off	Operator	Check after 3 months of use or after 3,000 km, whichever is sooner
D1	Maintenance	Operator	Every 30 hours of operation.
D2	Maintenance	Operator	Inspection performed periodically every 1,000 kilometres travelled or every month of trailer operation, depending on which comes first. A daily inspection should be carried out each time prior to this inspection.
D3	Maintenance	Operator	Review performed periodically every 3 months. A daily inspection must be carried out each time before this inspection is carried out and a review every 1 month of use of the trailer.
D4	Maintenance	Operator	Review performed periodically every 6 months. A daily inspection, an inspection every 1 month of trailer use and an inspection every 3 months must be carried out each time before this inspection is carried out.
D5	Maintenance	Operator	Review performed periodically every 12 months. A daily inspection, an inspection every 1 month of trailer use and an inspection every 3 months must be carried out each time before this inspection is carried out.
E	Maintenance	Service ⁽¹⁾ .	Inspection every 4 years of trailer use

⁽¹⁾ - post-warranty service

Table 6.2 Technical inspection schedule

Description of activities	A	B	C1	C2	C3	C4	D1	D2	D3	D4	D5	E	Page
Checking the machine before starting work	•												6.18
Inspection of shields	•												6.9
Chassis and brake system													
Dehydration of the air tank	•												6.11
Inspection of connector plugs and sockets	•												6.14
Checking the tightness of the running wheel nuts		•			•	•	•			•			6.29
Track axle bearing play check			•	•						• ⁽²⁾			6.21
Mechanical brake inspection		•							•				6.23
Brake adjustment		•											6.23
Air pressure measurement, tyre and wheel inspection								•					6.16
Checking of the shoe lining wear									• ⁽¹⁾				6.19
Cleaning of air filters									•				6.12
Cleaning the drainage valve										•			6.13
Parking brake cable tension check											•		6.25
Suspension control *.	See table: Suspension check schedule												6.38
Other													
Inspection of the hydraulic system											•		6.27
Tightening torques of screw connections *	See chapter: <i>Tightening torques of screw connections</i>												6.31

Description of activities	A	B	C1	C2	C3	C4	D1	D2	D3	D4	D5	E	Page
Lubrication	See table: <i>Trailer lubrication schedule</i>												6.38
Replacement of hydraulic hoses *												•	6.33

⁽¹⁾ - additional control before intensive use.

⁽²⁾ - check every 6 months or every 6,000 km depending on which comes first.

* - To be carried out by the machine operator

Table 6.3 Control parameters and settings

Description	Value	Notes
Braking system		
Piston rod stroke in pneumatic systems	25 - 45 mm	
Piston rod stroke in hydraulic systems	25 - 45 mm	
Minimum brake lining thickness	5 mm	
Angle between spreader axle and fork for rigid axles	90°.	With the brake applied
Angle between spreader axle and fork for torsion axle	80°.	With the brake applied
Parking brake		
Permissible parking brake cable play	20 mm	

SER.3.2-002.01.EN

6.3 PREPARING OF THE TRAILER



DANGER

Secure the tractor cab against unauthorised access.

When working with the lift, read the instructions for this equipment and follow the manufacturer's recommendations. The jack must stand firmly against the ground and trailer components.

Before carrying out maintenance and repair work on a raised trailer, make sure it is properly secured and will not roll during operation.

- Connect the trailer to the tractor.
- Place the tractor and trailer on firm, level ground. Set the tractor to drive straight ahead.
- Apply the tractor's parking brake.
- Turn off the tractor engine and remove the ignition key from the ignition switch. Close the tractor cab, thus securing the tractor against unauthorised access.
- Place locking chocks under the trailer wheel.

Make sure the trailer does not roll away during the inspection.

- If the wheel needs to be lifted during inspection, place the locking chocks under the wheel of the rigid axle on the opposite side. Place the jack at the locations indicated by the arrow on the figure (6.1).

For spring suspension, the recommended place to support the trailer is the spring plate between the bail bolts.

- The jack must rest on a firm and stable surface.
- The lift must be matched to the empty weight of the trailer.
- In exceptional cases, release the parking brake on the trailer, e.g. when measuring the play of the running axle bearings. In this case, take special care.

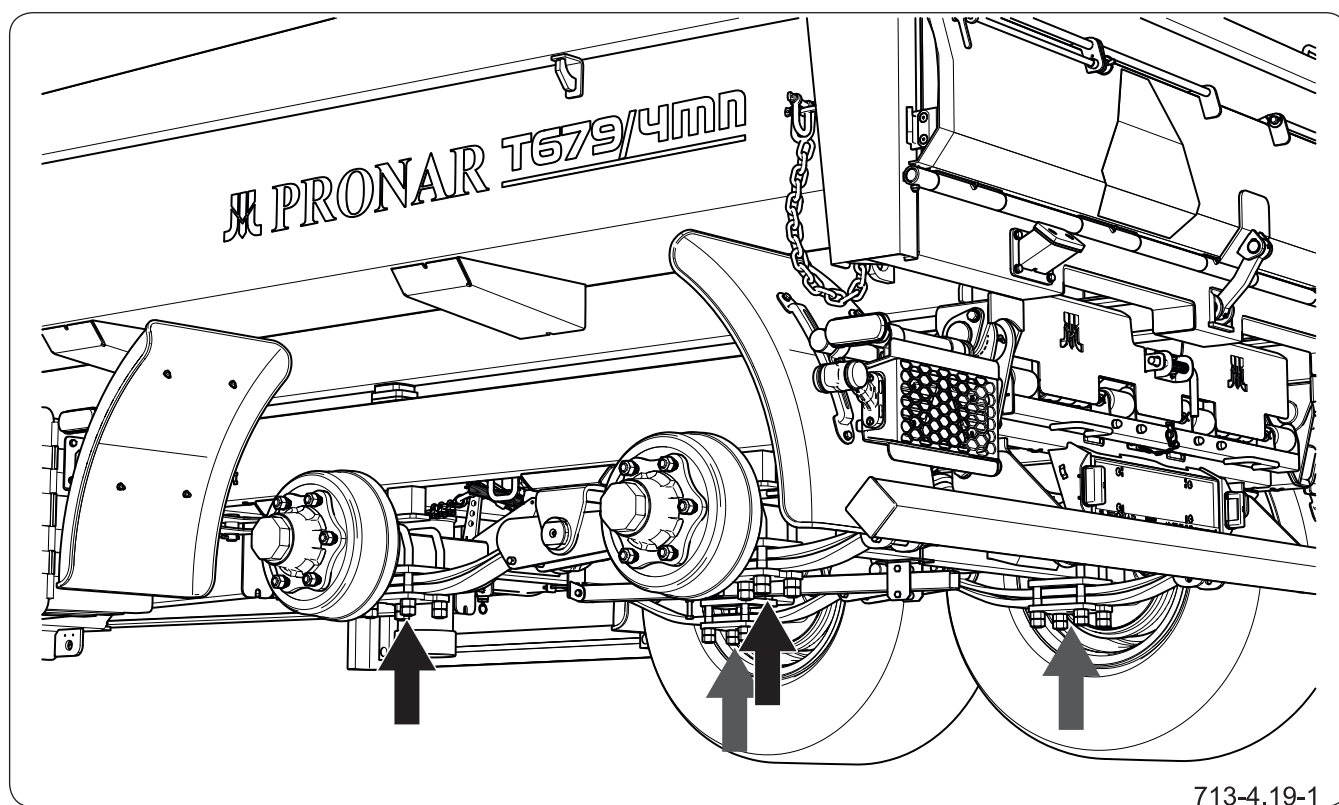


Figure 6.1 Recommended trailer support points

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6.4 INSPECTION OF SHIELDS

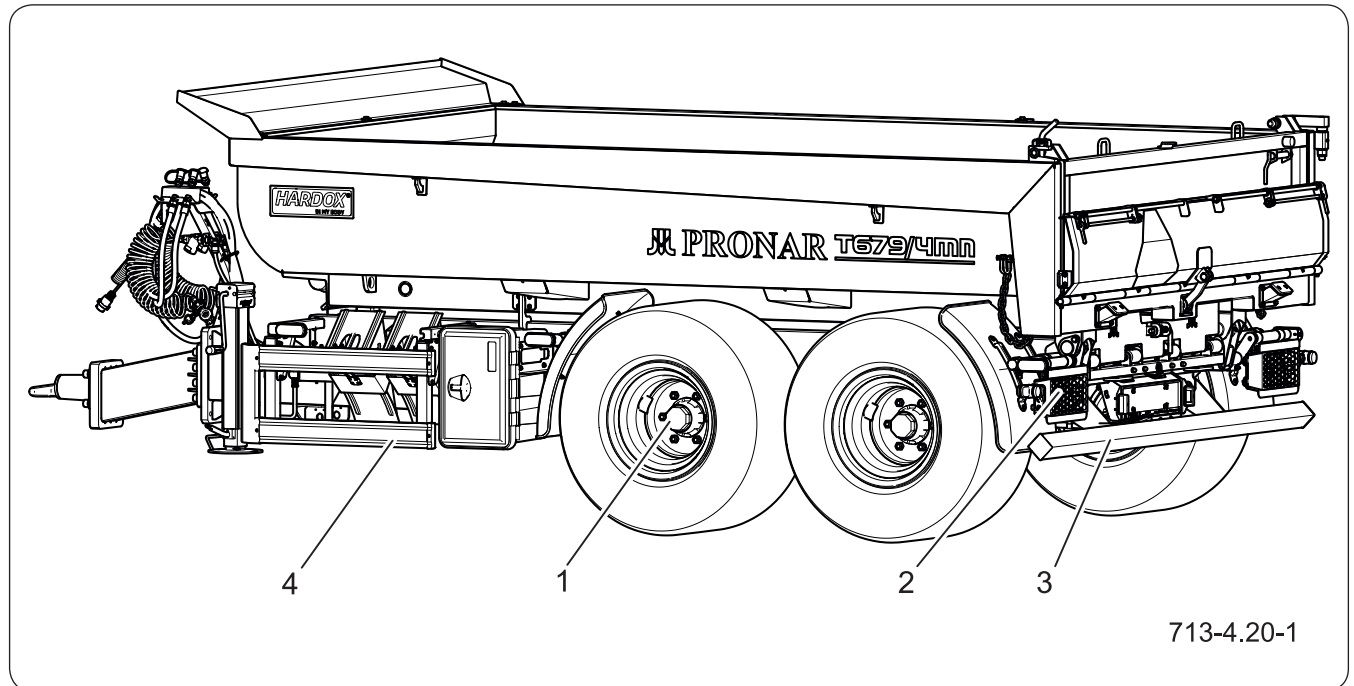


Figure 6.2 Trailer covers

(1) axle cap

(2) lamp cover

(3) bumper

(4) overrun protection



DANGER

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

Shields protect the user of the trailer from loss of health or life, and are a protective element for machine components. For this reason, their technical condition must be checked before starting work. Damaged or lost components must be repaired or replaced with new ones.

The scope of activities

- Check the completeness of the safety shields.
- Check that the covers are fitted correctly, assess the condition of the bumper (3) and the fixing of the lamp shade covers (2).
- Check that the apron (4) is securely fastened and in good condition.

- Check the security and completeness of the caps (1).
- Check fairings (5) for correct fit.
- If necessary, tighten the screw connections of the casing mountings.

SER.3.2-004.01.EN

6.5 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*".

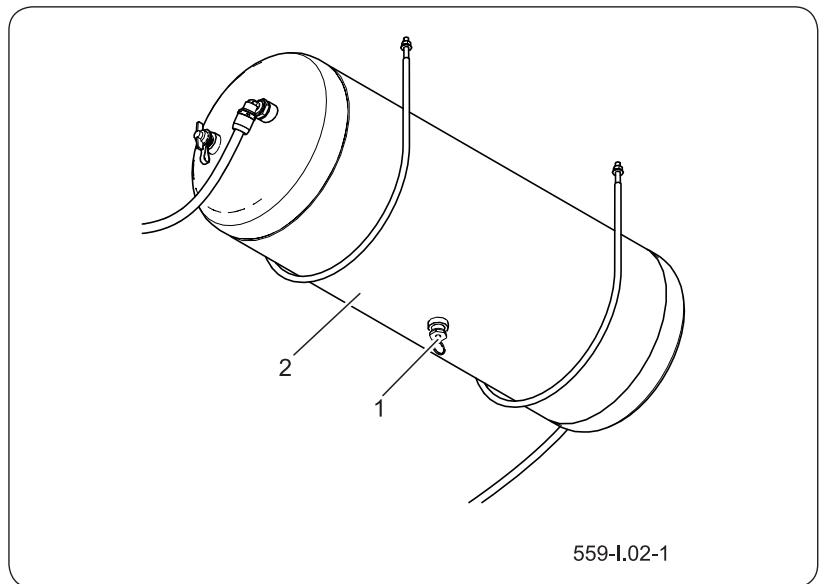


Figure 6.3 Air tank

(1) drain valve

(2) air tank

SER.3.8-004.01.EN

6.6 CLEANING THE AIR FILTERS



The scope of activities

- Reduce pressure in the supply line.
- The pressure in the pipe can be reduced by pushing the plug of the pneumatic connection as far as it will go.
- Slide out the filter lock (1).
- Hold the filter cover (2) with your other hand. After removing the slide, the cover will be pushed out by the spring located in the filter housing.
- The cartridge and the filter body should be thoroughly washed and blown out with compressed air. Installation should be made in reverse order.

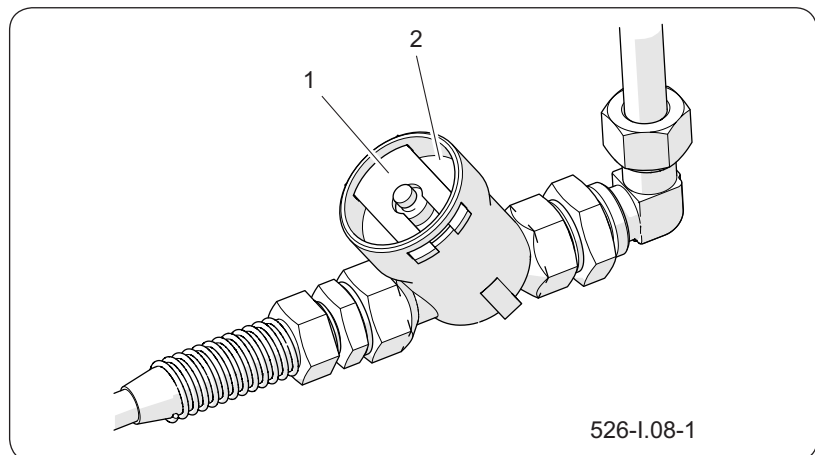


Figure 6.4 Air filter

(1) filter

(2) cover

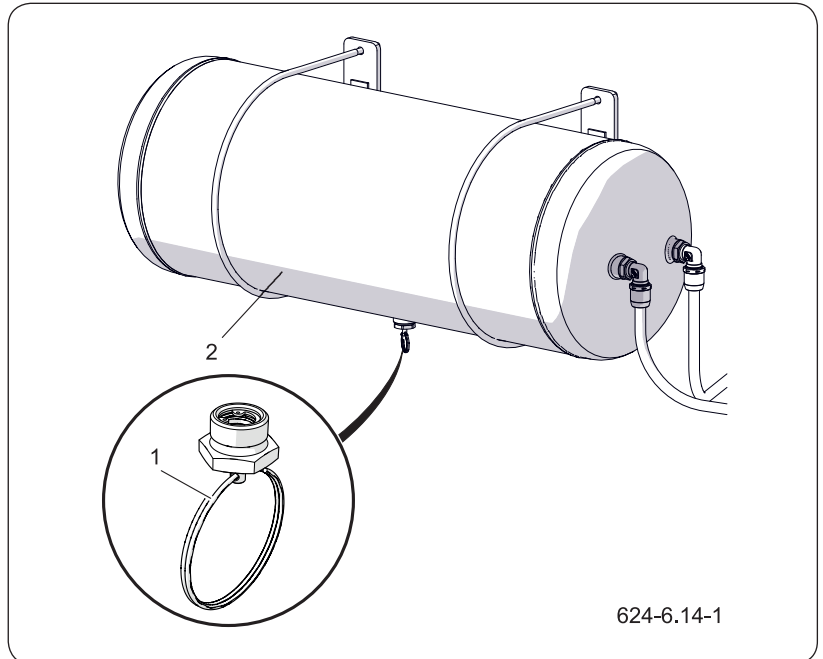
SER.3.8-008.01.EN

6.7 CLEANING THE DRAINAGE VALVE



DANGER

Bleed the air tank before removing the drain valve.



624-6.14-1

Figure 6.5 Air tank

(1) drain valve

(2) tank

The scope of activities

- Fully reduce the pressure in the air reservoir (2).
- The pressure in the tank can be reduced by swinging the drain valve stem.
- Unscrew the valve (1).
- Clean the valve, blow with compressed air.
- Replace the gasket.
- Screw in the valve, fill the tank with air, check the tank for leaks.

SER.3.8-012.01.EN

6.8 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,

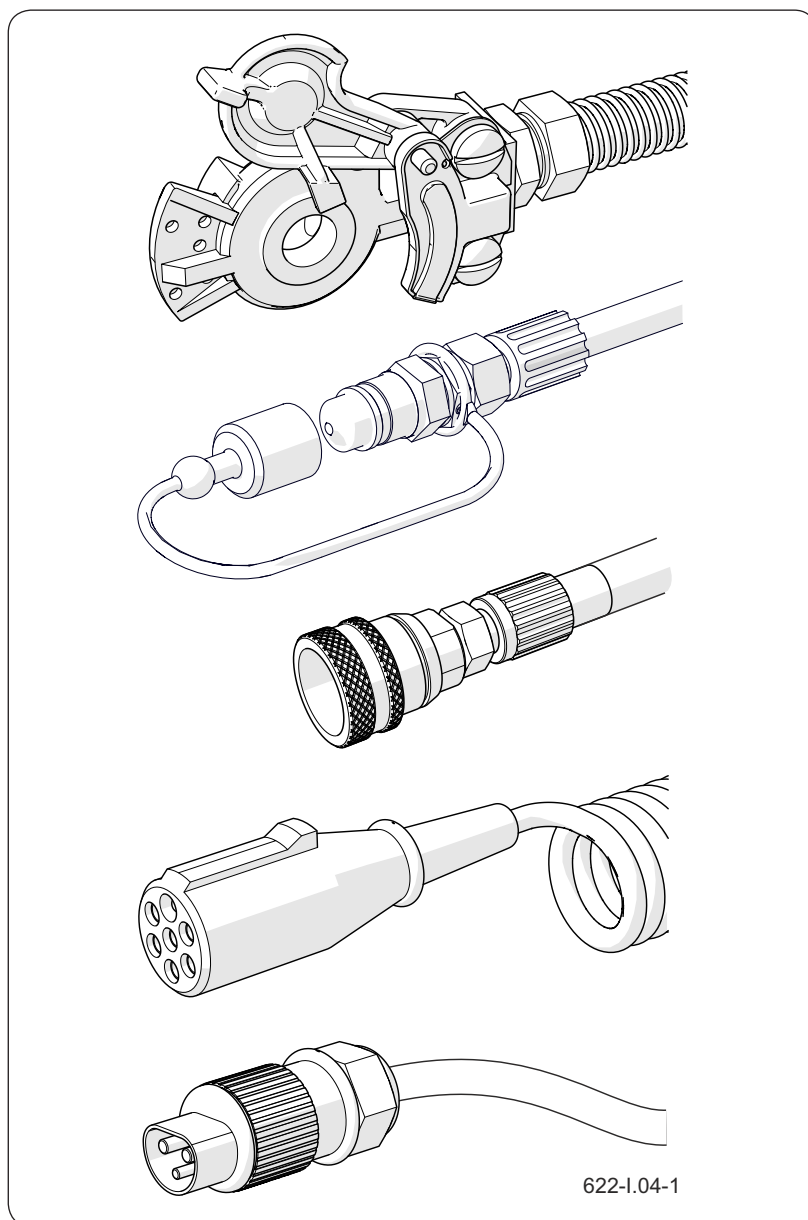


Figure 6.6 Checking the trailer connections

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

6.9 MEASUREMENT OF AIR PRESSURE, CHECK TIRES AND WHEELS

ADVICE

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



CAUTION

Using the trailer in which tires are not properly inflated may lead to permanent damage to the tire as a result of delamination of the material.

Incorrect tire pressure also causes faster tire wear.

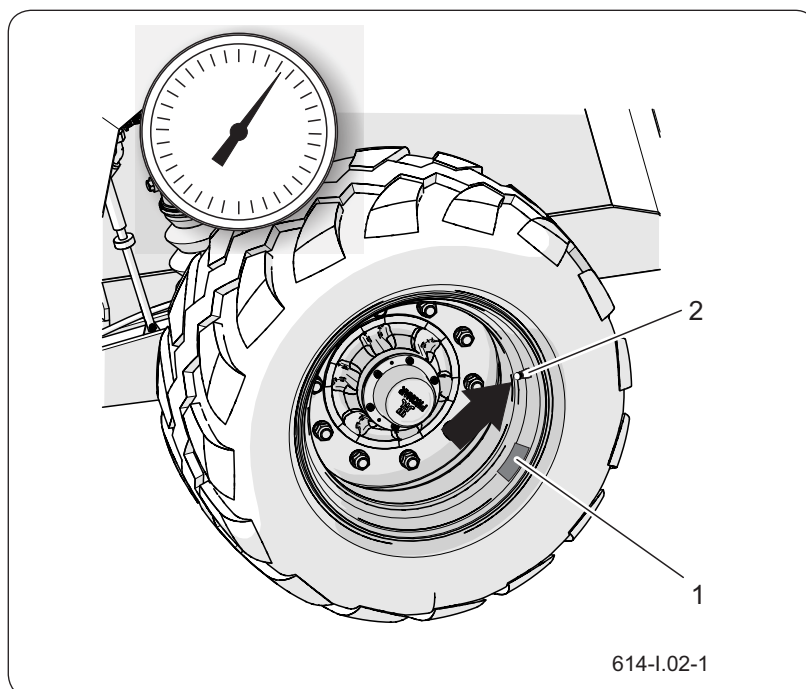


Figure 6.7 Trailer wheel

(1) sticker

(2) valve

During pressure measurement the trailer must be unloaded. Checking should be carried out before driving, when the tires are not warm, or after a long standstill of the trailer.

The scope of activities

- Connect the pressure gauge to the valve.
- Check the air pressure.
- If necessary, inflate the wheel to the required pressure.
- The required air pressure is described on a sticker (1) on the rim.
- Check the tread depth.
- Check the side wall of the tire.
- Inspect the tire for defects, cuts, deformations, bumps indicating mechanical damage to the tire.
- Check that the tire is correctly positioned on the rim.
- Check the tire age.

When checking pressure, pay attention to the technical condition of rims and tires. In the event of mechanical damage, consult your nearest tire service centre and ensure that your tire defect is eligible for replacement. Rims should be checked for deformation, material cracks, weld cracks, corrosion, especially around welds and in the place contact with the tire.

SER.3.8-007.01.EN

6.10 TRAILER CHECK BEFORE DRIVING



DANGER

Driving with a faulty lighting or brake system is prohibited.

If the trailer is damaged, abandon its use until it is repaired.

Ensure that the electrical, hydraulic and pneumatic hoses are not damaged before connecting the trailer to the tractor.

Check the completeness, technical condition and correct operation of the trailer lighting.

Check the cleanliness of all electric lamps and reflectors.

Before driving on a public road, remove the tail lamp covers and place them in the space provided.

Check the correct installation of the slow-moving vehicle triangle plate holder and the plate itself.

Ensure that a warning reflective triangle is fitted to the tractor.

Check the condition of the emergency brake cable; any abrasion or damage qualifies the cable for replacement. Check the position of the brake lever; the brake must be in the off position before starting. Make sure the brake cable is securely fastened to the structure of the agricultural tractor.

When starting from a standstill, check the function of the service brake system.

Check the correct functioning of the other systems on an ongoing basis during the operation of the trailer.

SER.3.B-004.01.EN

6.11 CHECKING OF THE SHOE LINING WEAR



DANGER

It is forbidden to use the trailer with a faulty brake system.

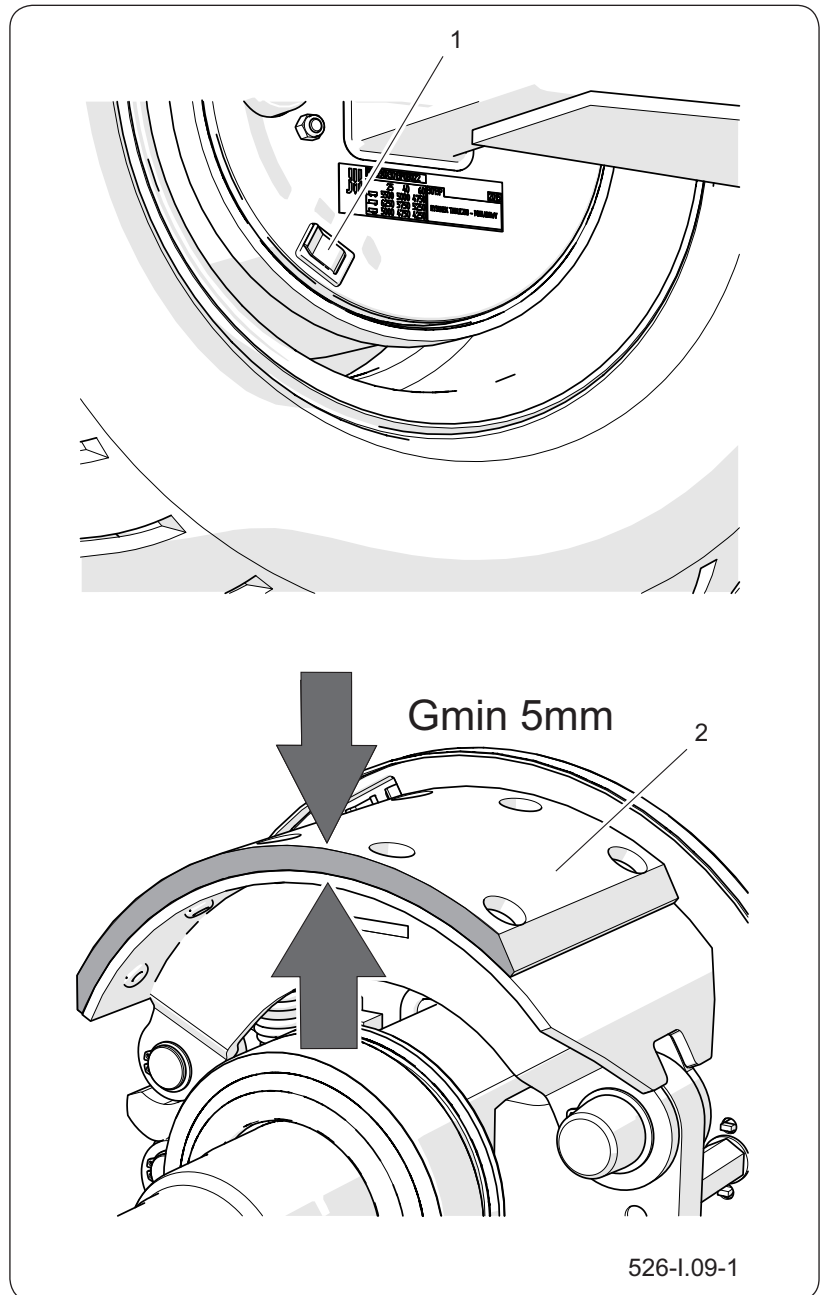


Figure 6.8 Brake lining thickness check

(1) plug

(2) brake lining

1. Locate the inspection hole.

Depending on the design variant of the running axle, the inspection hole may be in a different location than shown in the drawing, but will always be located on the

brake guard disc.

2. Remove the top and bottom caps and then inspect the thickness of the cladding.
3. The brake shoes must be replaced if the brake lining thickness is less than 5 mm.
4. Inspect the remaining cladding for wear and tear.

SER.3.C-008.02.EN

6.12 CHECKING THE CLEARANCE OF THE AXLE BEARINGS

ADVICE

Damaged hub cover or lack thereof will cause the penetration of dirt and moisture into the hub, which will result in much faster wear of bearings and hub seals.

Bearing life depends on trailer operating conditions, load, vehicle speed and lubrication conditions.



DANGER

Before starting work, read the jack User's Manual.

Ensure that the machine will not roll when checking the looseness of the axle bearings.

Perform a clearance control of the bearings only and only when the machine is connected to the tractor, and the load box is empty and is not raised.



Figure 6.9 Clearance inspection

- Raise the wheel with a jack.
- Turn the wheel slowly in two directions. Check that the movement is smooth and the wheel rotates without excessive resistance and jamming.
- Turn the wheel so that it rotates very quickly, check that the bearing does not make any unusual sounds.
- Try to feel looseness by moving the wheel.
- Repeat steps separately for each wheel.

Remember that the lift must be on the opposite side of the wedges!

- If looseness is felt, adjust the bearings. Unnatural sounds coming from the bearing may be symptoms of excessive wear, dirt or damage. In this case, the bearing together with the sealing rings should be replaced or cleaned and re greased. When checking bearings, make sure that any noticeable looseness comes from the bearings, not the suspension system (e.g. looseness on the spring pins, etc.).

- Check the the technical condition of the hub cover, replace if necessary.

SER.3.8-010.01.EN

6.13 MECHANICAL BRAKE INSPECTION



In a correctly adjusted brake, the travel of the brake actuator piston rod should be within the range indicated in table "*Adjustment parameters and settings*" and is dependent on the type of actuator used. When the wheel is fully braked, the optimum angle between the spreader lever and the piston rod should be approximately 90° . With this setting, the braking force is optimal. Checking the brakes involves measuring this angle and the piston rod stroke.

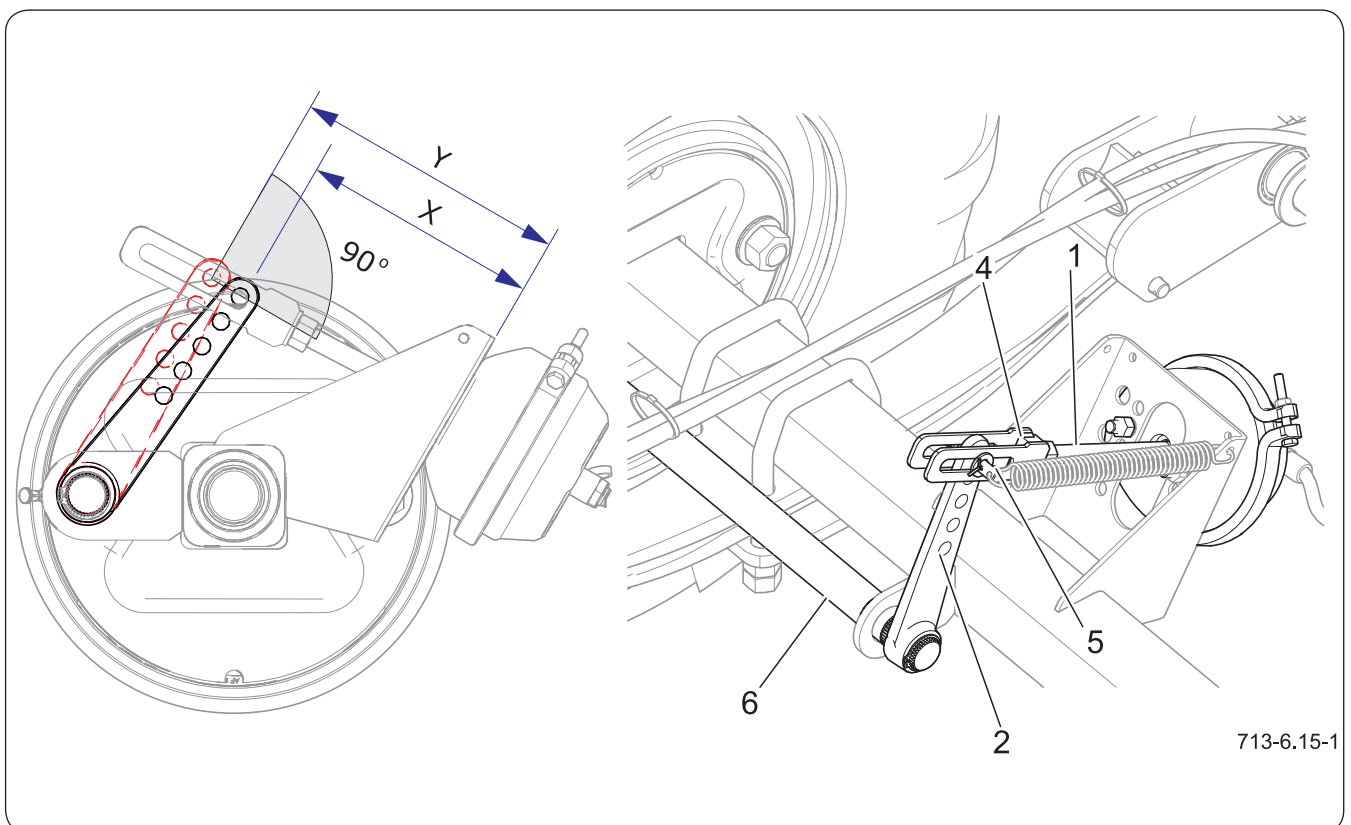


Figure 6.10 Brake control

(1) actuator piston rod (2) spreader lever

(4) actuator fork

(5) pin (6) spreader shaft

(X) arm position in deceleration position

(Y) position of arm in braking position

Scope of control activities

1. Measure distance X with the tractor brake pedal released.
2. Measure distance Y with the tractor brake pedal depressed.
3. Calculate the difference in the X-Y distance (turning stroke).
4. Check the angle between the piston rod axis (1) of the actuator and the spreader lever (2).
5. If the angle of the release lever and the piston rod travel exceeds the range shown in table "*Adjustment parameters and settings*", the brake must be adjusted.

Adjustment

1. Remove the pin (5) connecting the fork (4) to the spreader lever (2).
2. Mark the position of the spreader lever (2) relative to the spreader shaft (6).
3. Remove the spreader lever (2) and reposition by one notch.
4. Repeat the steps for the other arm.
5. Fit the pin (5) connecting the fork (4) to the spreader lever (2).

If the actuator range is still incorrect, readjust.

When the brakes are properly adjusted, the spreader levers should form an angle of approximately 90° with the piston rod of the actuator when fully braked. The piston rod stroke should be approximately half of the total stroke. When the brake is released, the spreader levers should not rest on any structural components, as too little retraction of the cylinder piston rod can cause the shoes to rub against the brake drum and result in overheating of the brakes.

SER.3.2-009.01.EN

6.14 CHECKING OF PARKING BRAKE CABLE TENSION

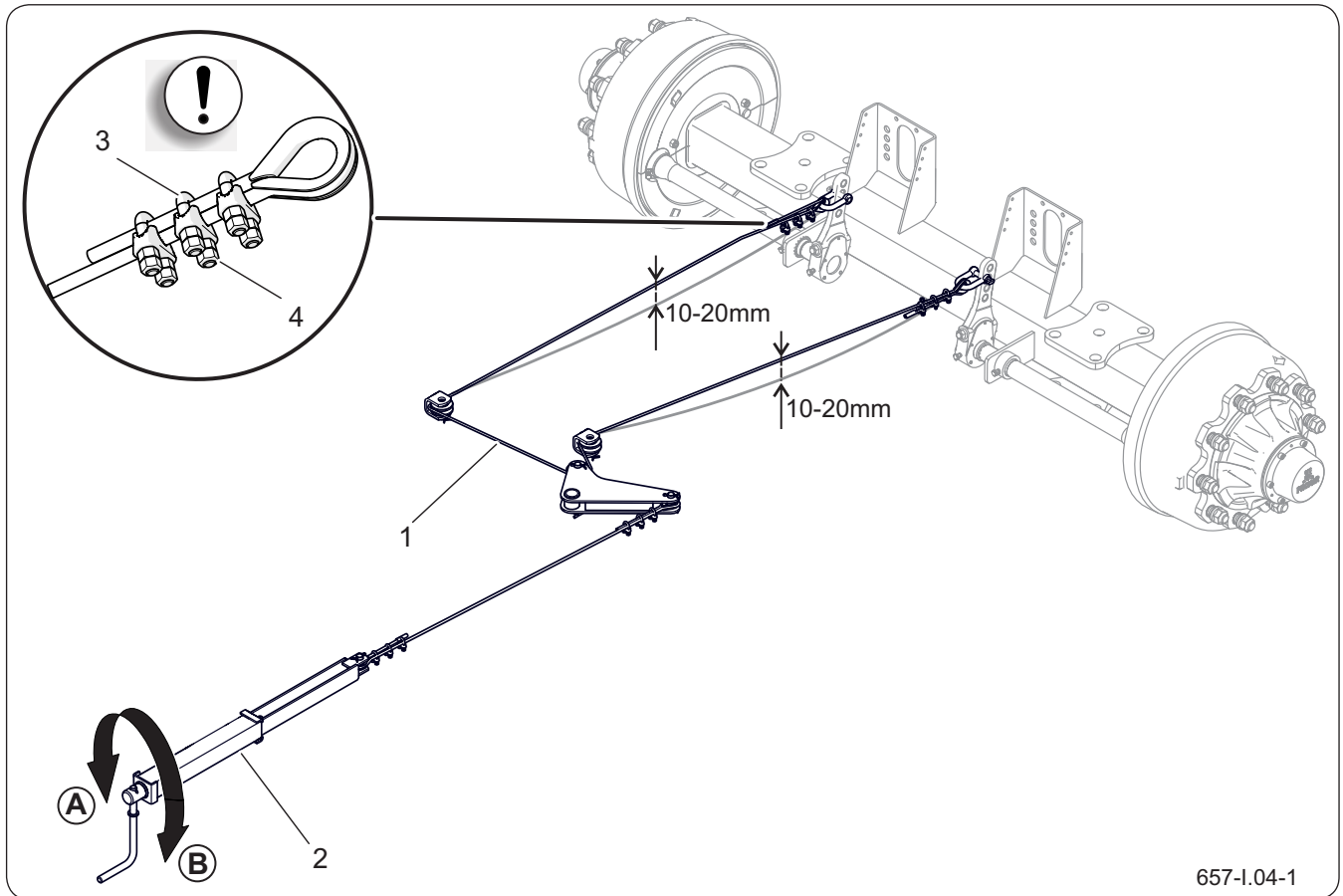


Figure 6.11 Checking of cable tension (example)

(1) cable, (2) brake mechanism, (3) bow clamp,
(4) clamp nut



DANGER

It is forbidden to use the machine with inefficient braking system.

Tension control

Check the parking brake after checking the mechanical brake of the axle.

- Connect the trailer to tractor. Place the machine and tractor on level ground.
- Under one wheel of the rigid axis put the wedges;
- Turn the parking brake crank (2) towards (B) and apply the parking brake.
- Check the cable tension (1).
- When the mechanism screw is completely removed, the cable should hang about 10 to 20 mm.

Cable tension adjustment

- Unscrew the brake mechanism screw (2) as far as possible by turning the crank in the direction (A).
- Loosen the the nuts (4) of the bow clamps (3) on the handbrake cable (1).
- Tighten the cable (1) and tighten the the nuts (4) of the clamps.
- Apply the parking brake and release it again. Check (approximately) cable slack. When the service and parking brakes are completely released, the cable should hang about 10-20 mm. The axle trailer levers should be in the rest position.

SER.3.8-013.11.EN

6.15 HYDRAULIC SYSTEM CHECKING



UWAGA

It is forbidden to use the machine with a faulty hydraulic installation.

Checking the tightness of the hydraulic system

- Connect the trailer to tractor.
- Connect all hydraulic system hoses according to the instructions in the manual.
- Clean the hose connections, hydraulic cylinders and couplings.
- Activate all hydraulic systems in turn, extending and retracting the piston rods of the cylinders. Repeat all operations 3-4 times.
- Leave the hydraulic cylinders fully extended. Check the all hydraulic circuits for leaks.
- After completing the inspection, put all cylinders to the rest position.

In the event of oiling on the hydraulic cylinder body, the nature of the leakage must be check.

When the cylinder is fully extended, check the the seal locations. Small leaks with symptoms of "sweating" are permissible. When you notice "droplets" type leaks do not use the machine until the fault is removed. If malfunctions appeared in brake cylinders or other brake installation elements, you can not move with the trailer until the fault is removed.

If visible moisture appears on the cable connectors tighten the connector with a specified torque and carry out the test again. If the problem persists replace the leaking element.

Control of the technical condition of hydraulic connectors

Hydraulic couplings for connecting to the tractor must be technically sound and kept clean. Each time before connecting, make sure that the sockets in the tractor are maintained in good condition. The tractor's and trailer's hydraulic systems are sensitive to the

presence of solid impurities that can cause damage to precise components of the installation (scratch the surface of cylinders, etc.)

SER.3.8-015.01.EN

6.16 TIGHTENING OF RUNNING WHEELS



CAUTION

Trailer wheels can have loose nut indicators to monitor the tightness status of the wheels and quickly see when the nuts on the wheel are loose.

Indicators are mounted informatively. If they are moved, the running wheel nuts must be tightened off-schedule.



CAUTION

The running wheel nuts must not be tightened with impact spanners as there is a risk of exceeding the permitted tightening torque, which could result in the threads of the connection being torn off or the hub-pin breaking off.

ADVICE

By placing the loose nut indicators in a recognisable configuration, such as point-to-point, any movement of the nut is clearly visible.

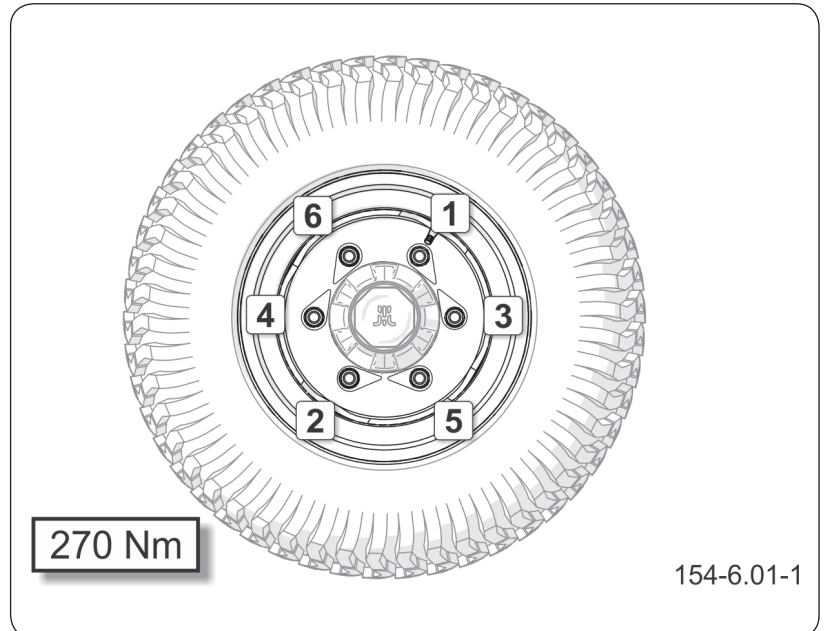


Figure 6.12 Tightening sequence of nuts

The scope of activities

1. Secure the machine against rolling.
2. Remove the loose nut indicators (if included in the kit).
3. Tighten all nuts with a torque spanner.

The recommended nut tightening sequence and torque is shown in figure.

Tighten the running wheel nuts progressively diagonally (in several stages, until the required tightening torque is achieved).



DANGER

The use of indicators can prevent serious and costly damage to the trailer or even a dangerous accident.

4. Once all nuts have been tightened to the recommended torque, attach the indicators.

The method of mounting the indicators is shown in the figure. With the proposed indicator setting, the loosening of the nut is immediately apparent.

Tighten the wheels according to the table "Maintenance schedule":. If the wheel has been dismantled, the steps in the schedule must be repeated.

SER.3.K-011.11.EN

6.17 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.

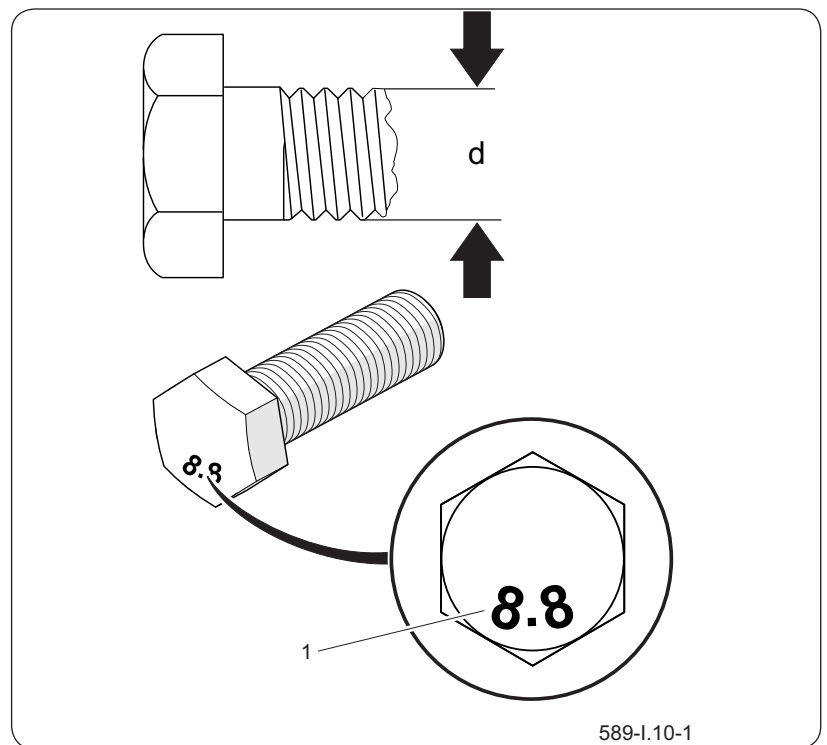


Figure 6.13 Metric thread screw

(1) strength class

(d) thread diameter

Table 6.4 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 6.5 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

6.18 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

6.19 TANDEM SUSPENSION CONTROL

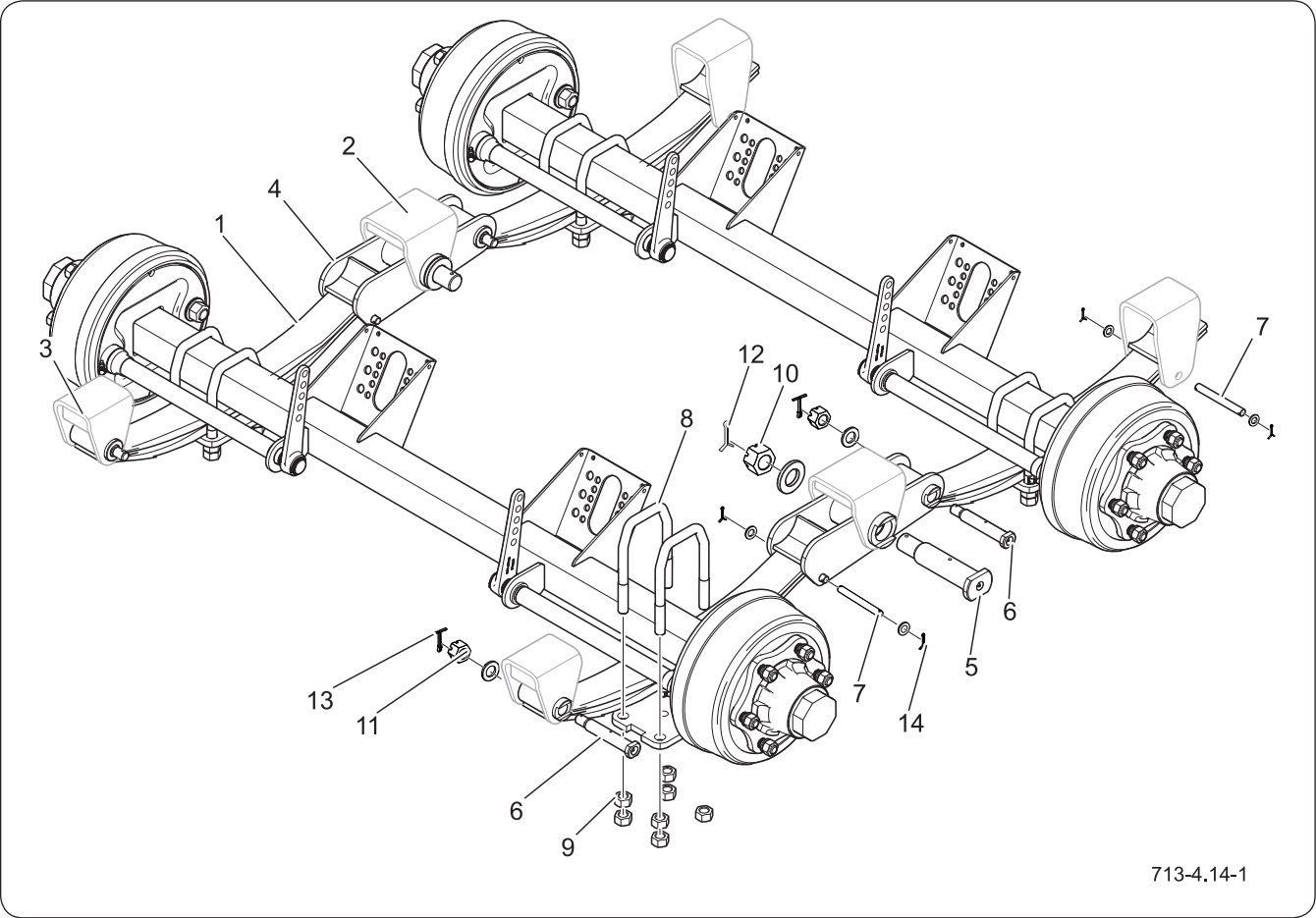


Figure 6.14 Mechanical suspension operation

- (1) spring,
- (2) wishbone support,
- (3) spring support,
- (4) rocker arm,
- (5) rocker arm pin,
- (6) spring pin I,
- (7) spring pin II
- (8) axle housing bolt,
- (9) cable bolt nut,
- (10) rocker arm crown nut
- (11) spring bolt crown nut
- (12)- (14) safety pin

Table 6.6 Suspension check schedule

No.	Maintenance operations	Frequency
1	Check the tightness of the nuts (9) of the shackle bolts (8) of the running axles with a torque of 425-450 Nm using a torque spanner. Course of control: - unscrew the lock nuts, - tighten nuts to the specified torque diagonally. - screw on the lock nuts and tighten to the specified torque diagonally.	After driving the first 50 km with a load, or after 500 hours of operation. After 5,000 km or after 1,500 hours of operation, then once a year.

No.	Maintenance operations	Frequency
2	Checking the pin bracket (3) and control arm (2) seats. The inspection consists of a visual assessment of the wear of the locking sockets in the bushings welded into the brackets (1) of the spring welded to the subframe. Seat wear (deformation and imprints) is indicative of inadequate lubrication of the pins. If this is the case, dismantle the control arm pin and the rocker arm, assess the wear on the pin and the sliding sleeves, replace them with new ones if necessary, and recondition the pin socket.	Every 5,000 km or quarterly.
3	Checking the security of the crown nuts (10), (11) of the control arm pins (5) and the spring pins (6) and (7). The inspection consists of a visual check of the completeness and condition of the safety pins (12) - (14).	Once a year
4	Check the condition of the springs (1) clean thoroughly and brush the sides of the springs to check for cracks.	Once a year

ADVICE

In case of heavy use or intensive operation, maintenance should be performed more frequently.

**CAUTION**

Tighten suspension screw connections under load.

The use of pneumatic spanners is not permitted during tightening. Tighten bolted connections using a torque spanner.

SER.3.2-008.01.EN

6.20 ADJUSTING THE PLAY OF THE RUNNING-AXLE BEARINGS



1. Prepare the machine for inspection.
2. Release the trailer parking brake.
3. Remove the hub cover (1).

Depending on the running axle model, the covers can be press-on or screw-on. The screw-on version has a gasket under the cover.

4. Unbend the ends of the pin (2), remove the pin.
5. Tighten the crown nut (3) by hand as far as it will go to remove the play so that the hub turns

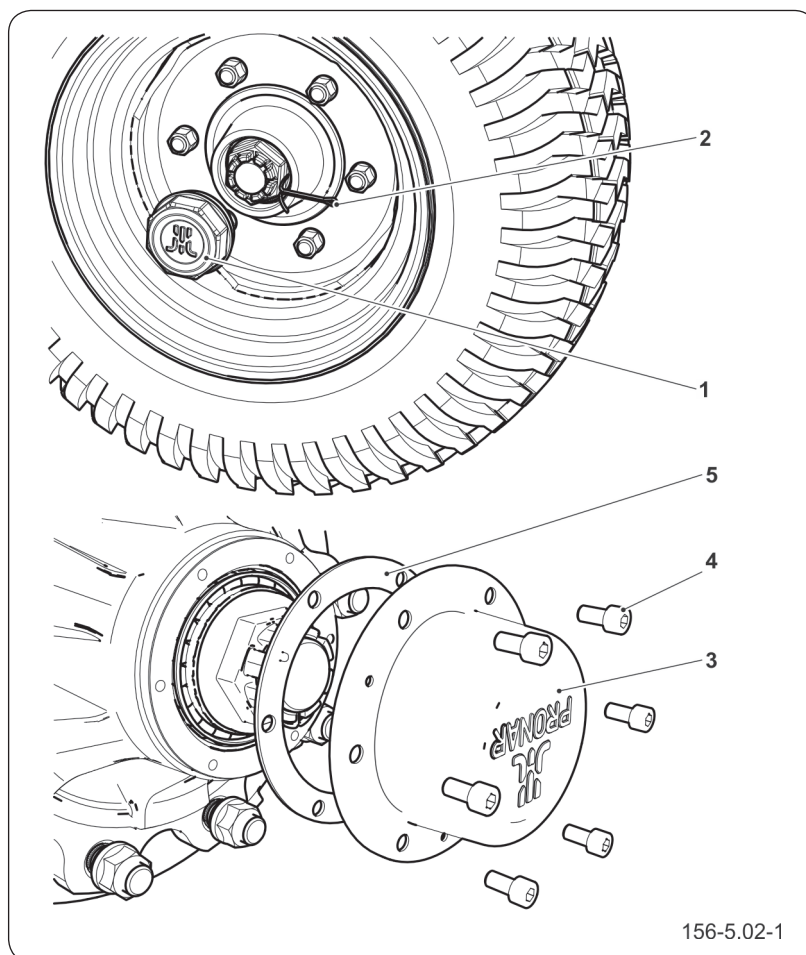


Figure 6.15 Removing the cover and the pin

- (1) hub cover pressed in (2) pin
(3) Screw-on hub cover (4) Screw
(5) seal

with resistance.

6. Unscrew the nut (3) (no less than 1/2 turn) to remove the hub bearing tension.
7. Tighten the crown nut (3) using a torque spanner according to table "*Tightening torque of crown nut*", taking into account the thread size of the nut.
8. Unscrew the nut to overlap the nut groove closest to the hole in the running axle journal.

The hub should turn without excessive resistance

9. Once the preset torque has been reached, only the unscrewing of the hub nut is permitted.
10. Secure the crown nut with a new pin (2).
11. Fit a new gasket (5) if the cover is a screw-on version.
12. Replace the cover (1).

For the screw-on version, screw the cover on with the screws (4).

Table 6.7 Crown nut tightening torques

Thread	Nut tightening torque
	M [Nm]
M20x1.5	70
M27x1.5	80
M39x1.5	100
M48x1.5	120
M70x2	150

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6.21 LUBRICATION



ADVICE

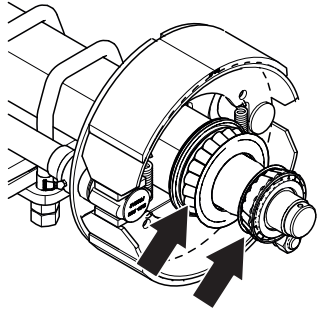
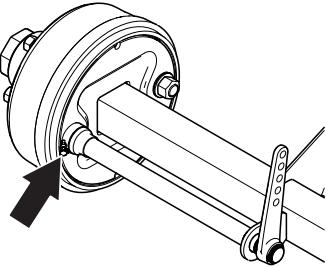
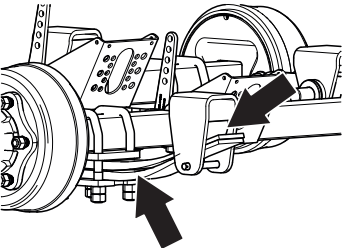
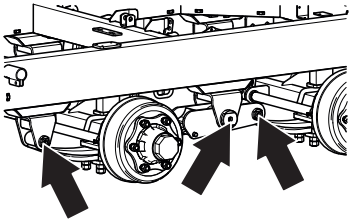
Lubrication frequency (table Trailer lubrication schedule):
D - working day (8 hours of trailer operation),
M - month

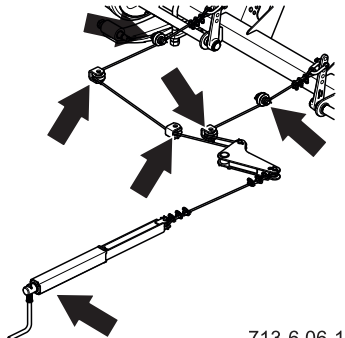
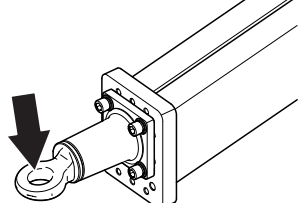
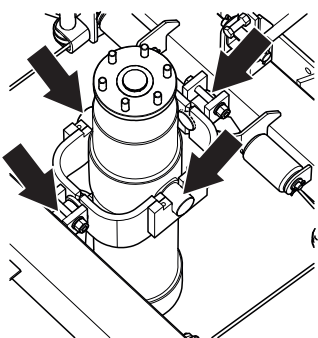
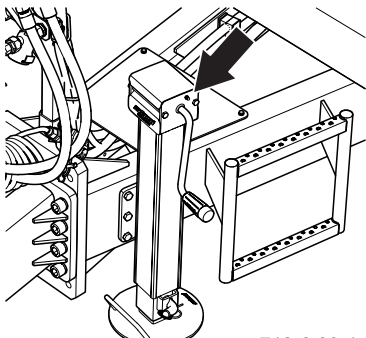
- Lubricate the trailer using a hand or foot lubricator filled with the recommended lubricant. Remove old grease and other contaminants before starting work. Wipe off excess grease when finished.
- Wipe parts that should be lubricated with machine oil with a dry and clean cloth. Apply the oil to the surface with a brush or oiler. Wipe off excess oil.
- Have the grease in the bearings of the driving axle hubs replaced by a specialised service centre with the appropriate tools. Dismantle the entire hub, remove the bearings and individual sealing rings. After thorough washing and visual inspection, install the lubricated components. Replace bearings and seals if necessary.
- Dispose of empty grease or oil containers in accordance with the lubricant manufacturer's recommendations.

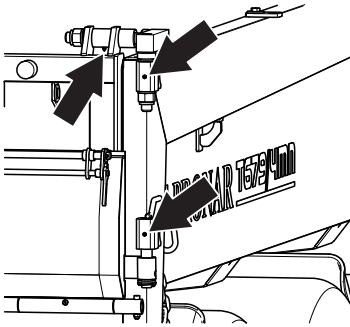
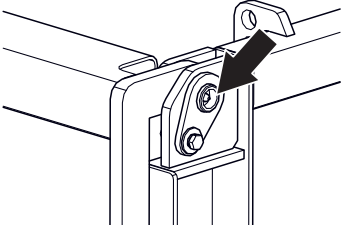
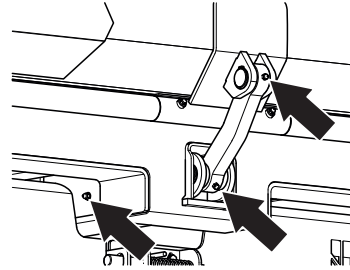
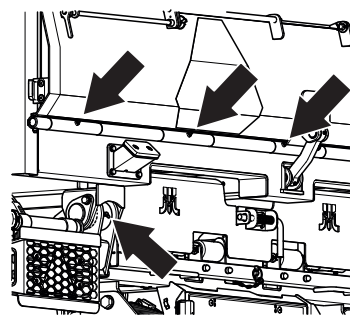
Table 6.8 Lubricants

ITEM	Sym- bol	Description
1	A	general purpose solid lubricant (lithium, calcium),
2	B	solid lubricant for heavily loaded parts with MoS ₂ or graphite additives
3	C	anti-corrosion spray
4	D	ordinary machine oil, silicone spray lubricant

Table 6.9 Trailer lubrication schedule

Item	Name	Number of lubrication points	Type of grease	Frequency	
1	Hub bearing (2 in each hub)	4	A	24M	 713-6.02-1
2	Spreader shaft sleeve	8	A	3M	 713-6.03-1
3	Sliding surface of the springs	8	A	1M	 713-6.05-1
	Spring feathers	4	C	3M	
4	Rocker arm pin (1)	2	A	3M	 713-6.04-1
	Spring pin (2)	4	A	3M	

Item	Name	Number of lubrication points	Type of grease	Frequency	
5	Parking brake mechanism (1)	1	A	6M	 713-6.06-1
	Parking brake guide roller pins (2)	2	A	6M	
6	Drawbar linkage	1	B	14D	 713-6.07-1
7	Tipping cylinder seats and cylinder slinger	4	B	1M	 713-6.07-1
8	Telescopic support	1	A	6M	 713-6.09-1

Item	Name	Number of lubrication points	Type of grease	Frequency	
16	Tilt flap inner hinge	2	A	12M	 713-6.13-1
	External hinges of the tilt flap	2	D	1M	
17	Extension bolt	2	A	12M	 713-6.10-1
18	Flap actuator carriage	1	A	6M	 713-6.11-1
	Tailgate opening arm	2	A	6M	
	Tailgate axle	6	A	6M	 713-6.12-1
	Tipping pin	2	B	6M	

SER.3.2-007.01.EN

6.22 CONSUMABLES

6.22.1 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 6.10 Characteristics of oil L-HL 32

Item	Name	Unit	
1	Viscosity classification according to ISO 3448VG	-	32
2	Kinematic viscosity at 400C	mm²/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

6.22.2 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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6.23 TROUBLESHOOTING

Table 6.11 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

Attachments and additional materials

PRONAR T679/4MN

7.1 TYRES

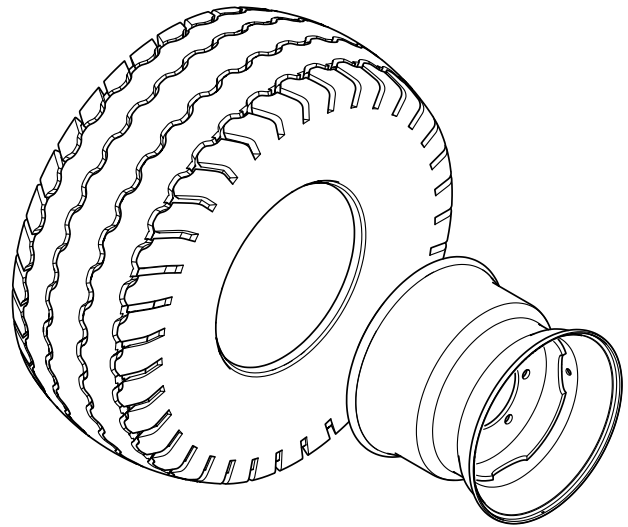


Tabelle 7.1 Machine tyres

ITEM	Tyre size	Disc wheel size
1	400/60-15.5 14PR 145A8	13x15.5 ET=-30
2	19.0/45-17 148A8	16.00x17 ET-15
3	500/50-17 14PR 149A8	16.00x17 ET=-30
4	500/50R17 149D	16.00x17 ET=-35

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