METAL-FACH

FARMING TRUCK TRAILER
T703A/1, T703A/2
OPERATING INSTRUCTIONS
TRANSLATION OF THE ORIGINAL OPERATING INSTRUCTIONS
REVISION IV
JUNE 2022

Instruction Manual No. T703A/1_2-04-3600/2015

EC DECLARATION OF CONFORMITY

The undersigned,	Jacek Kucharewicz, President of the Board,	
hereby declares, with full responsibility, that the complete machine:		
FARMING TRUCK TRAILER		
1.1.	Brand (the trading name of the manufacturer)	Metal-Fach
1.2.	Type:	T703A
1.2.1.	Variant:	
1.2.2.	Version:	
1.2.3.	Trade name(s) (if any):	
1.3.	Category, subcategory, and vehicle speed indicator	R3a
1.4.	Company name and manufacturer's address:	Metal-Fach Sp. z o.o. ul. Kresowa 62 16-100 Sokółka, Poland
1.4.2.	Name and address of the manufacturer's authorised representative (if applicable)	N/A
1.5.1.	The location of the manufacturer's rating plate	Right-hand side of the front crossmember on the Trailer body
1.5.2.	The method used to fix the rating plate of the manufacturer:	Bonded
1.6.1.	The location of the vehicle-identification number on the chassis	The right-hand side of the front cross member of the chassis frame
2.	Machine-identification number:	

Complies with all the appropriate regulations of Directive 2006/42/EC and the Regulation of the Minister of the Economy dated 21 October 2008 on the principal requirements for machines (Journal of Laws of 2008, No. 199, item 1228, as amended)

The following harmonised standards were applied to assess the compliance.

PN-EN ISO 4254-1:2016-02, PN-EN ISO 1853:2019-07, PN-EN ISO 12100: 2012, PN-EN ISO 13857:2020-03 and standards PN-ISO 3600:1998, PN-ISO 11684:1998 and the Notice of the Minister of Infrastructure, Construction of 15 December 2016 on the publication of the uniform text of the Regulation of the Minister of Infrastructure on the technical conditions and obligatory equipment of vehicles (Journal of Laws of 15 December 2016, item 2022).

Safety Testing Report No.: LBC/103/20

This EC Declaration of Conformity shall become null and void if the machine is modified or reconstructed without the Manufacturer's consent.

Sokółka
(Place)

2020-07-27
(Date)

Jacek Kucharewicz
(Signature)

President of the Board,
(Position)

Machine data

Type of machine		Farming Truck Trailer
Trade name		T703A/1 / T703A/2*
Serial number/ VIN [1]		_____
Machine manufacturer:		METAL-FACH Sp. z o.o. 16-100 Sokółka ul. Kresowa 62 Phone: (0-85) 711 98 40 Fax: (0-85) 711 90 65
Seller:		_____
	Address:	_____
		_____
	Phone/Fax.:	_____
		_____
Delivery date:		_____
Owner or user:	Last Name:	_____
	Address:	_____
		_____
	Phone/Fax.:	_____

*delete as appropriate

[1] The data is located on the machine's rating plate located on the front part of the machine's main frame

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INTRODUCTION

The information included in the Instruction Manual is valid as of the date of its drawing up. The manufacturer reserves its right to make design changes to machines, and due to this, some values or illustrations might not correspond to the actual state of the machine supplied to the user. The manufacturer reserves its right to make design changes without amending these instructions. The Instruction Manual is part of the basic equipment of the machine. Before using the machine, the User is obliged to read the contents of this Instruction Manual and to comply with its recommendations. It will ensure a safe operation and a trouble-free machine operation.

The machine has been designed in accordance with the standards and legal provisions contained in the declaration of conformity. The Instruction Manual describes the principal safety and operation rules for the Trailer manufactured by Metal-Fach.

The significant obligations of the Manufacturer are shown in the Guarantee Certificate, which includes the complete regulations currently in force regarding guarantee services.

If the information included in the Instruction Manual proves to be incomprehensible, you should ask for assistance at the point of sale where the machine was purchased, or the manufacturer directly.

The spare parts catalogue constitutes a separate list and is attached in the form of a CD when the machine is purchased. It is also available on the Manufacturer's website: www.metalfach.com.pl.

The Warranty Card, including the terms and conditions of warranty, is attached to this Instruction Manual as a separate document.

Manufacturer's address:

Metal-Fach Sp. z o.o.

ul. Kresowa 62

16-100 Sokółka

Contact:

Phone: (0-85) 711 98 40

Fax: (0-85) 711 90 65

The symbols used in these Instructions:

DANGER

Hazard-warning symbol. This indicates the occurrence of a serious hazard condition, which, if not avoided, can result in death or serious injury. This symbol warns against the most-dangerous situations.

CAUTION

This symbol highlights very important information and recommendations. Non-compliance with the described recommendations can lead to serious damage to the machine, resulting from its incorrect operation.

NOTE

This symbol indicates the possibility of the occurrence of a hazard, which, if not avoided, can result in death or serious injury. This symbol indicates a lower level of risk of injury than the symbol including the word “DANGER”.

This symbol indicates useful information.

This symbol indicates maintenance activities that should be performed periodically.

1. General description

Introduction

THE INSTRUCTION MANUAL IS PROVIDED WITH THE TRAILER'S BASIC EQUIPMENT

The Trailer is intended for transporting agricultural produce and other bulk and loose materials, within the farm area and on public roads.

1.1 To operate the Trailer in a safe manner, read and adhere to all the instructions set out in this Instruction Manual. Abiding by the guidelines provided in the Instruction Manual ensures safe operation for the User, and also prolongs the machine's service.

Machine identification

Identify the Trailer based on the rating plate and VIN number. The rating plate is fixed on the right-hand side of the front crossmember of the Trailer's body frame. The VIN number is stamped on the right-hand side of the front crossmember on the Trailer's chassis frame, and on the rating plate (see Fig. 1).

1.2

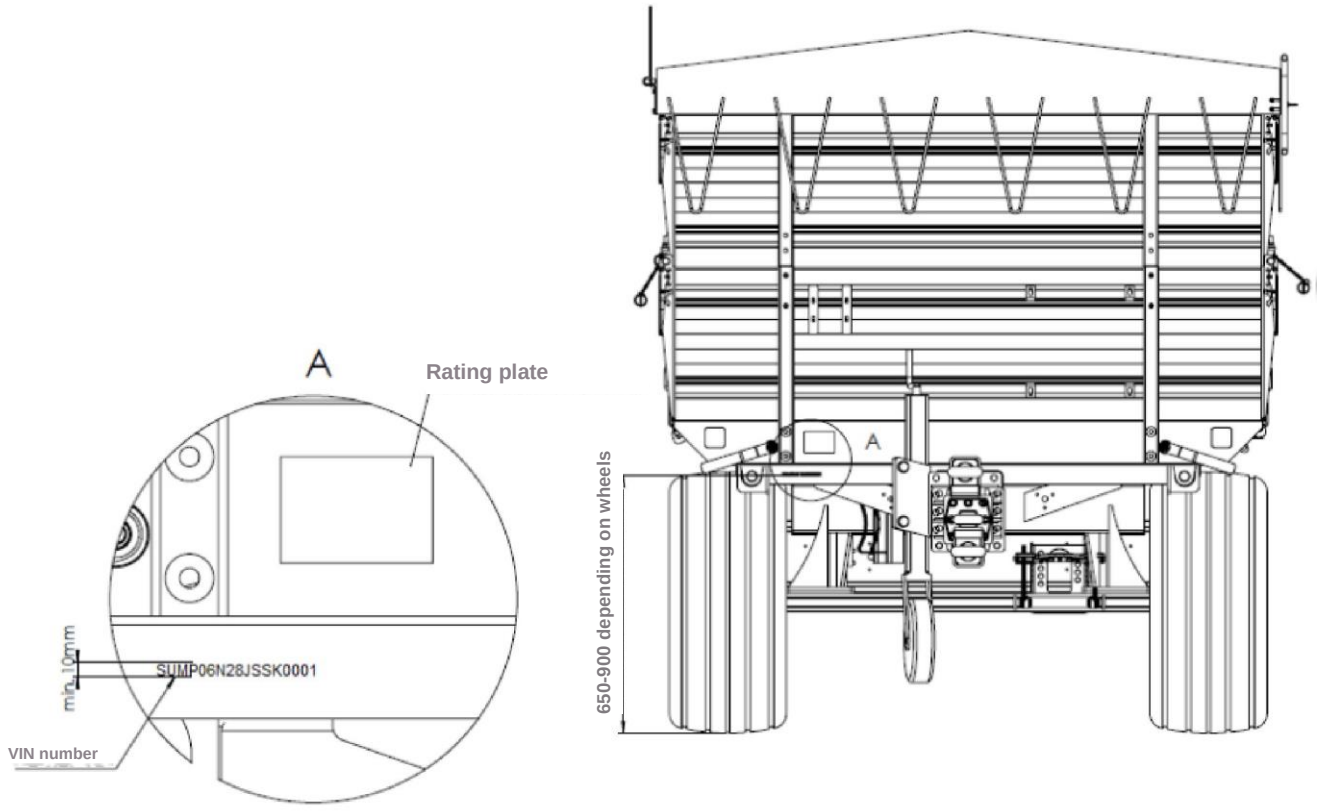


Figure 1. Location of the rating plate

CAUTION

CAUTION!

Entering public roads without a rating plate or with an illegible rating plate is prohibited.

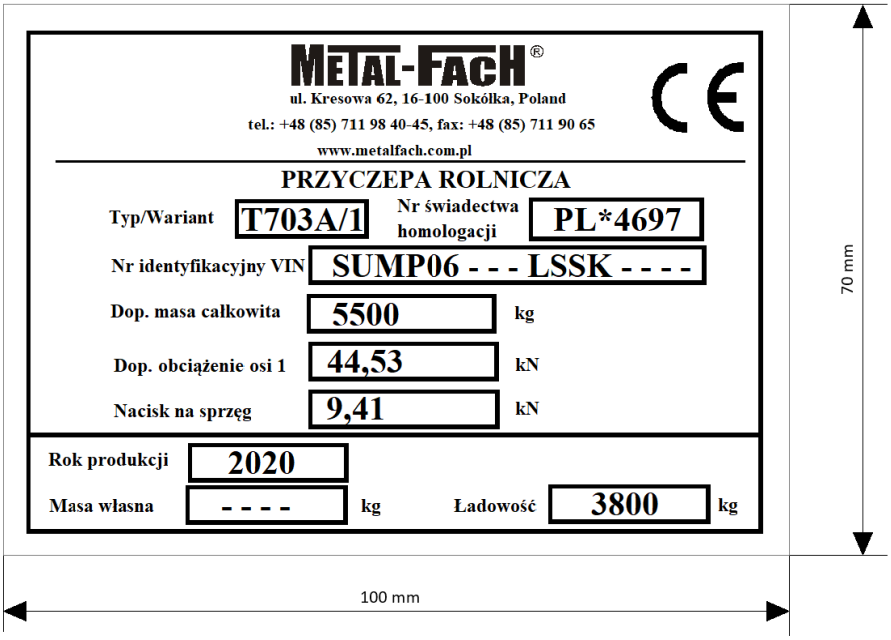


Figure 2. Sample rating plate

Please read the Instruction Manual carefully!

Upon purchase, check the compliance of the serial/VIN number located on the machine's rating plate with the number specified in the Instruction Manual and the Warranty Card.

It is often necessary to provide the Trailer's VIN number to identify the Trailer unambiguously when ordering spare parts, or if any other problems arise, so it is advisable to write this number down below.

VIN number of the Trailer:

S	**U**	**M**								**S**	**S**	**K**				

CAUTION

CAUTION!

The use of the Trailer by those who have not read this Instruction Manual is forbidden. The Trailer should only be operated by trained operators.

The intended use of the Trailer

1.3

The Trailer is intended for transporting agricultural produce and other bulk and loose materials, or for carrying loads on box pallets or Euro pallets, within the farm area and on public roads. It is also possible to use it to transport building materials, mineral fertilisers, and other loads, provided that the appropriate requirements defined in Section 4.3 have been met. Loading the Trailer's body.

The Trailer can be unloaded either manually or by tilting the body to the rear or to the sides. The Trailer is designed to work with agricultural tractors equipped with an external hydraulic system, sockets for the signal and warning system and the braking system, and a transporting hitch.

The Trailer must not be used for the transportation of fuel, gas cylinders, or similar loads, as it would be required to comply with the additional technical conditions regarding the carriage of dangerous goods. The Trailer must not be used for the transportation of toxic materials, which could cause environmental contamination. The manufacturer is not responsible for the resulting damage – this risk is borne by the owner.

The Trailer cannot be used to carry people, animals, or goods classified as hazardous materials.

The Trailer may only be used by those who have read the Instruction Manual, have been trained in the scope of the hazards it can create, and are capable in providing first aid assistance to accident victims.

In order to use the Trailer in accordance with its intended use, you must also perform all the operations associated with the correct and safe operation and maintenance of the machine. Therefore, the user must:

1) Read and follow the guidelines contained in the Instruction Manual.
2) Observe the instructions for maintenance and routine adjustments,
3) Follow the safety principles.
4) Comply with the road traffic regulations within the particular country where the Trailer is being used.

DANGER

DANGER!

The Trailer must not be used contrary to its intended purpose, in particular to carry

- People and animals.
- Unsecured toxic materials, when there is a possibility of causing environmental pollution.
- Machinery and equipment where the location of their centre of gravity can have an adverse effect on the Trailer's stability.
- Loads that cause non-uniform loading of and overloading of the axles.
- Unsecured loads that can change their position on the load-carrying body while driving.

Basic components

1.4 The basic components of each Trailer include the following:

- Operating instructions.
- Warranty Certificate with warranty terms and conditions.
- A bracket for fixing a slow vehicle marking plate
- Brake system.
- A parking brake.
- Lights.

If requested by the client (subject to an additional fee), the manufacturer can equip the Trailer with a slow vehicle marking plate, a reflective warning triangle, overrun drawbar and an extension net. The Trailer can be also equipped with a tarpaulin cover as an option. The tarpaulin is used as required for the protection of the Trailer against weather conditions and against spilling loose loads during transportation. Make sure that no precipitation accumulates on the tarpaulin, as this can cause deformation. The tarpaulin cover is not suitable for use in freezing temperatures. Low temperatures cause the tarpaulin material to deteriorate visible as cracks.

1.5

Storage, sale, and transport

1.5.1 Storage

The Trailer must be protected from direct exposure to weather conditions (e.g. sun and rain), parked on solid ground on its ground wheels, secured with chocks under the wheels (reduce tyre pressure and cover the tyres, if there is a likelihood of exposure to sunlight). Long-term storage is permitted only in enclosed areas.

If the Trailer is exposed to weather conditions, inspect it from time to time to make sure that no rainwater has accumulated inside it. Make sure the paint coating is intact. These areas should be cleaned, degreased, and then covered with paint, to maintain a uniform colour and even thickness of the protective coating.

If the Trailer is equipped with a tarpaulin, regularly check to ensure that no water has accumulated on its surface. Too much water accumulating on the surface of the tarpaulin may damage both the cover and its supporting frame.

1.5.2 Sale

The buyer shall collect the Trailer from the manufacturer or from the point of sale or agrees on the terms of delivery with the manufacturer.

The Trailer is sold as ready for operation and with the basic accessories, as specified in Section 1.4 of this manual. Additional equipment may be purchased for an additional fee. Personnel at the point of sale are obliged to make sure that the buyer is acquainted with the principles of design and operation of the Trailer, safety requirements and warranty conditions.

The Buyer is obliged to check whether:

- The Trailer is complete, undamaged, and equipped with all the basic components.
- The data on the rating plate and the VIN number stamped on the chassis frame are compliant with the data entered in the warranty.

1.5.3 Transporting to the User

The Trailer must be transported on its wheels, coupled to a tractor, or on a low-loading platform, from the point of sale or from the manufacturer. Before it is loaded onto a low-loading platform, couple it to the Tractor's hitch and connect the brake-system's lines. Use unfolded ramps to drive the Trailer onto the low-loading platform. Once on the low-loading platform, secure the Trailer wheels with chocks.

Having done this, uncouple the brake lines and uncouple the Trailer from the tractor. Then, secure the Trailer with special straps designed for securing loads when transporting (transport belts, ropes, chains, guy ropes, etc.). Make a visual check to ensure the fastening items are fully functional, i.e. they are not broken, worn, or the hooks are unbent. Install the wheel chocks in such a way as to prevent the Trailer from moving. Secure the Trailer in such a way as to prevent its movement during transportation.

Before unloading the Trailer, unfold the ramps, and then unlock the straps that secured the Trailer against possible sliding down during transit. Next, drive the tractor close enough to connect the brake lines. Finally, pull out the chocks from under the wheels of the Trailer. When all of the above steps have been completed, proceed with driving the Trailer down from the platform.

CAUTION

CAUTION!

General health and safety regulations must be observed when loading and unloading the Trailer. Those operating the loading and unloading equipment must have the required authorisation to use it.

CAUTION

CAUTION!

Pay particular attention to the angle of inclination of the ramps on the low loader. It may not exceed 10°. Excessive inclination of the ramps can lead to damage to both the agricultural trailer and the transportation trailer.

1.5.4 Transporting the Trailer by the User

The User may transport the Trailer by towing it to its destination with their own agricultural tractor.

Before transporting the Trailer by yourself, it is absolutely essential to read this Instruction Manual and to follow the guidelines in it.

CAUTION

CAUTION!

The operator of the tractor must read this Instruction Manual and adhere to the guidelines in it.

CAUTION

CAUTION!

When driving a trailer-towing vehicle, particular caution must be exercised as the vehicle's centre of gravity shifts upwards.

Use only technically sound and certified fastening accessories. Before selecting the fastening accessories, read the operating instructions provided by the manufacturer of the particular accessory.

DANGER

DANGER!

Check the components that the tractor and Trailer are coupled with, as their improper use can cause an accident.

1.6

Cleaning the Trailer

After finishing work, thoroughly clean the Trailer and wash it with a jet of water.

Clean the machine before each long period of non-use, after carrying loads that can cause corrosion and whenever necessary. Clean the Trailer according to the following guidelines.

The machine can only be cleaned in designated areas, when the ambient temperature is above zero.

First, before you start the cleaning, open the sideboards and extensions of the Trailer to remove any residual material that has been carried there. Once that has been completed, start cleaning the Trailer.

It is forbidden to use any kind of organic solvents or other substances, which could damage varnished surfaces, or rubber and plastic components.

A pressure washer may be used to clean the Trailer. Before using a washer, read its Instruction Manual. When using a pressure washer, keep a safe distance between the device's nozzle and the surface of the Trailer. The minimum distance is 50 cm. When washing the Trailer using a pressure washer, never point the water jet directly at the hydraulic and pneumatic system components, i.e. hoses, valves, cylinders, plugs, electrical connections etc., or at the Trailer's lubricating points, information and warning signs, and the rating plate.

Surfaces contaminated with oil or grease must be cleaned with agents intended for this type of contamination. It is acceptable to use other degreasing agents designed for cleaning this type of contamination. Before using them, it is recommended that you read the information on how to use them to clean a particular surface. After degreasing a contaminated surface, wash it with water and a detergent that is intended for this purpose.

Wash down the Trailer with clean water or water with detergent. When using various types of detergents and organic agents, remember that they can affect the machine's components, especially the seals and flexible hoses. Some substances can accelerate the ageing of the material. Only use special cleaning and maintenance products designed for surfaces. Always read and follow the information provided with the cleaning and maintenance products.

The spray-suppression skirts must be cleaned on a regular basis.

CAUTION

CAUTION!

After cleaning and drying the machine, grease all the lubrication points.

1.7 Storage

The Trailer should be stored in roofed areas (preferably on a level and hard surface) and in such a way as to prevent injury to people and animals.

If the Trailer is not to be used for a long period of time, ensure the machine is protected from the harmful effects of the weather. Preparing the Trailer for long-term non-use involves, among other things, the thorough cleaning and drying of all machine components, including tyres and rims, in accordance with the instructions in Section 1.6. Cleaning the Trailer.

Ensure that there are no corrosive environments. To do this, apply a primer coat and topcoat on the susceptible places, after having prepared them properly. Follow the recommendations of the paint manufacturers.

When preparing the Trailer for long periods of non-use, lubricate the machine parts, regardless of the date of the last lubrication.

Check the tyre pressure from time to time during long-term non-use of the machine. If the pressures are too low, re-inflate the tyres.

Changing the position of the wheel is recommended every 14 days so that the contact area between the tyre and the ground is varied during extended periods of non-use.

Wash the tarpaulin cover and dry it before you store it for a long period of time. Ensure the tarpaulin is stored either in the unfolded or rolled-up position so as not to cause folds in the material.

CAUTION

CAUTION!

In order to achieve the correct tensioning of the tarpaulin cover, its reel must be fastened to the knob of the locking mechanism of the lever that releases the rope clamp on both sides of the Trailer. If the reel of the tarpaulin cover is supported by the knob, it prevents the tarpaulin cover from stretching properly.

Poor tensioning of the tarpaulin cover causes water to accumulate on its surface, etc. As a result, the tarpaulin cover will deform and fail to fulfil its purpose.

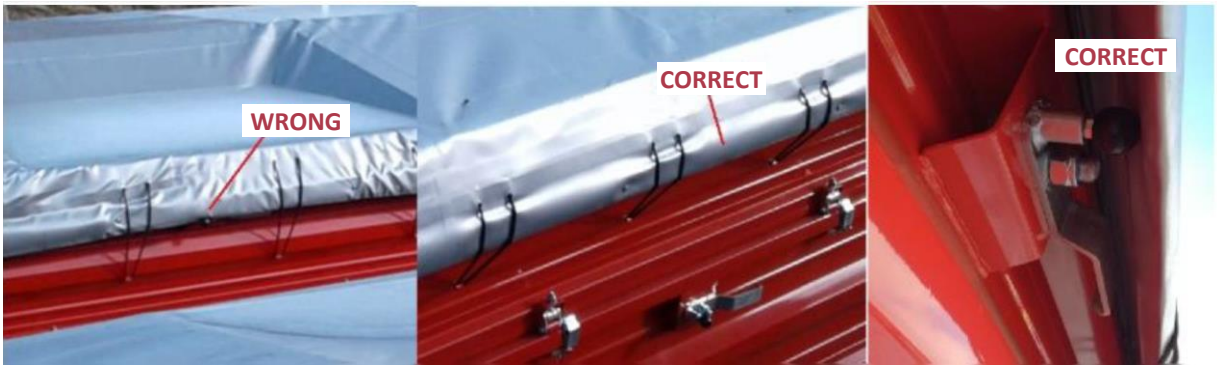


Figure 3. Correct tensioning of the tarpaulin cover

2. Safety of use

Obligation to provide information

2.

CAUTION

CAUTION!

When the Trailer is sold on to further users, attach the Instruction Manual with it. The buyer of the Trailer must undergo training as indicated in the Manual.

General principles regarding user safety

2.2 Each time before using the Trailer, conduct a pre-operational safety check in the following ways:

1. Observe the generally applicable safety and accident prevention regulations, in addition to the information provided in this Instruction Manual.
2. The attached symbols, and warning and informational inscriptions, provide important guidelines for safe operation – complying with them helps you stay safe.
3. Operate the Trailer only if all the required devices are connected and protected against unintentional uncoupling or opening (e.g. hitch and drawbar, couplings).
4. Before starting work, get yourself familiar with all control equipment and elements, and their functions. It will be too late to do this during the operation.
5. It is forbidden for people who are under the influence of alcohol or other stimulants, who are untrained, or do not have the proper authorisation to drive motor vehicles to operate the Trailer.

The improper use of the machine will result in the risk of voiding the warranty. The user who fails to operate the Trailer, according to its intended use, assumes full responsibility for all the consequences resulting from such use.

2.3

Safety of operation

1. Before using the machine, the user must read and understand the content of this Instruction Manual. Observe all instructions in this Manual during operation.
2. If the information contained in this Manual is unclear, please contact the distributor running an authorised technical service on behalf of the Manufacturer or contact the Manufacturer directly.
3. Careless and improper operation of the Trailer, and failure to observe the guidelines contained in this Instruction Manual, crates hazards to health.
4. Failure to observe the safety rules poses a threat to the health and life of the operators, and third parties.
5. Be advised that there are residual risks, which makes complying with the safety rules a priority, when operating the Trailer.
6. All safety-related information must also be passed on to all other Trailer users.
7. Before starting, check the immediate vicinity (for the presence of children or bystanders). Pay particular attention if visibility is reduced.

8. It is forbidden to stand on the Trailer while it is being towed, when coupling the Trailer to the tractor, and during loading and unloading.
9. When unloading is completed, the load-carrying body must be fully lowered. Never leave the Trailer unattended with the load-carrying body raised.
10. It is only possible to enter the Trailer if it is at a complete standstill and with the tractor's engine switched off.
11. The raising and lowering of the load-carrying body should always be controlled from the driver's seat.
12. Couple the Trailer as prescribed and only connect it to the recommended equipment and secure the drawbar eye with the tractor's transporting hitch.
13. Special care must be taken when coupling and uncoupling the Trailer to and from the tractor.
14. When installing and removing, any support and safety devices, and ladders should always be placed in a position that ensures safe operation.
15. Adhere to the acceptable axle loads, total weight, and transporting dimensions.
16. Check the transporting equipment, such as the brakes and lights, the marking plate, and other protective devices, for their connecting and functioning.
17. Before driving, check the function of the lights and brakes and prepare the Trailer in accordance with the instructions provided in section "Driving on public roads".
18. Observe the changes in the vehicle's behaviour, its steering, and braking performance resulting from the coupled Trailer and its load.
19. When driving with a Trailer, take into account the distribution of its load or inertia forces, especially if the load is asymmetrical.
20. Do not stay within the range of the load to be discharged.
21. The hydraulic lifting (tilting) of the load-carrying body may only be started if:
    - the Trailer is coupled to the tractor,
    - it is standing on a hard and flat surface,
    - there is no one in the unloading area,
    - the tractor is aligned with the axle of the Trailer,
    - keeping a safe distance from the power lines,
    - there are no strong gusts of wind.
22. If you need to unload a carried load backwards on an incline, the tractor and Trailer should be positioned in the uphill direction. With side unloading on a slope, the load-carrying body should be tilted to the side opposite of the Trailer's inclination. Please note that you cannot unload the Trailer forward.
23. The Trailer's body must be secured against falling down, by means of the Trailer's support, when carrying out any work with the body raised. Switch off the tractor's engine and remove the key from the ignition switch.
24. Be careful to avoid crushing fingers and hands when opening and closing the sides of the load-carrying body.
25. Observe the warnings against crushing and shear points when starting the Trailer. There is a risk of injury when coupling and uncoupling the Trailer to the tractor. For this reason, do not step between the Trailer and the tractor, when coupling and uncoupling the Trailer, and do not stand behind the Trailer, if it is not secured with the wheel chocks or its parking brake.
26. No one may stand between the tractor and the Trailer unless the vehicle is protected against rolling by the parking brake or wheel chocks.
27. Secure the Trailer and the tractor against rolling when stationary.
28. It is forbidden to drive with the load-carrying body raised.

29. Keep a safe distance from electrical lines when lifting the load-carrying body. There is a pictogram warning about electrical cables (pictogram No. 8 in Table 1), according to PN-ISO 11684:1998, located on the front board of the Trailer.
30. When carrying out repairs and maintenance work, which requires lifting the load-carrying body, it must be empty and secured against unintentional lowering, by a mechanical support.
31. The driving speed must always be adapted to the ambient conditions. Avoid sudden up or downhill turns on sloping terrain.
32. Maintain a sufficient safety clearance within the turning area of the unit.
33. When reversing, ensure that you have sufficient visibility (if possible, have another person to assist you).
34. When cornering, take into account the inertia of the Trailer.
35. Observe a minimum turning radius of approx. 6 m when turning and reversing.
36. Before you fit any additional protection on the load to be carried on the Trailer, like chains, tarpaulins, films, nets etc., switch the tractor engine off and remove the ignition key.
37. Remove any functional faults of the attached devices only when the engine is switched off and the ignition key removed.
38. Should any failure occur in the hydraulic or pneumatic system, remove the Trailer from service until the failure has been rectified.
39. It is forbidden to carry out maintenance or repair work with a load bearing or raised, unsupported load-carrying body.
40. Before carrying out repair work on the hydraulic or pneumatic systems, the oil or air pressure must be reduced.
41. In the event of an injury sustained from a strong hydraulic oil jet, consult a physician immediately. Hydraulic oil can penetrate under the skin or into the eye, and cause infections.
42. Use the hydraulic oil recommended by the Manufacturer. Never mix two different types of oil.
43. Entering the loading area is only permitted when the drive and the engine are switched off. Remove the key from the ignition.
44. Switch off the engine and remove the ignition key before leaving the tractor. Engage the parking brake and secure the Trailer with chocks.
45. When driving on public roads, do not exceed the maximum permissible axle load exerted by the Trailer as stated on the rating plate.
46. The maximum allowable pressure in a single-line pneumatic system is 580-630 kPa, in a dual-line system 650-800 kPa, in a single-line hydraulic system 1,400 kPa.
47. The Manufacturer provides a fully assembled Trailer.
48. When preparing the Trailer for operation, such as connecting the hydraulic and air hoses etc., switch the tractor engine off and remove the ignition key.
49. Hydraulic lines must be replaced every 5 years.
50. Noise – the equivalent A-weighted emission sound pressure level (LpA) is not above 70 dB.
51. Keep the Trailer clean.

WARNING

WARNING!

There is a risk of the machine tipping over when driving on sloping or uneven ground.

CAUTION

CAUTION!

The operating pressure of the hydraulic system is 18 MPa.

Lower pressure may not be sufficient to ensure adequate lifting of the load body and may therefore prevent the load from sliding off the trailer.

Warning and information pictograms

2.4 2.4.1 Hazard-warning symbols

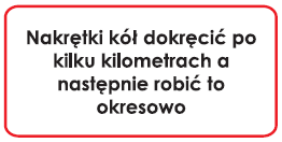
Do not remove any warning signs or inscriptions located on the Trailer. They are intended for the safe handling of the Trailer. If an information sticker has been damaged or removed, it must be reordered. Stickers with phrases and symbols can be purchased at service points or from the Trailer's manufacturer.

Table 1. Safety signs

No.	Safety symbol (sign)	Meaning of the sign (mark) or content of the inscription
1.		Caution. Before you start operating the machine, read the Instruction Manual.
2.		Caution. Before carrying out any maintenance or repair work, switch off the tractor’s engine and remove the keys.

3.		Caution. Body crushing hazard. Keep a safe distance from the machine.
4.		Caution. Finger crushing hazard. Do not reach into the crushing area, if elements are moving.
5.		Caution. Tilting the trailer's body on an inclined surface is prohibited. Bodily injury can occur as a result of the machine tipping over and crushing.
6.		Caution. Torso crushing hazard. Do not stand near the motion zone of the articulated coupling joints when the engine is running.
7.		Caution. Danger of crushing. It is forbidden to carry out maintenance or repair work if the load-carrying body is unsupported.
8.		Caution. Risk of electric shock. Keep a safe distance from overhead power lines.

9.		Caution. Danger of being run over. Travelling on the machine is only permitted on the passenger seat, provided that the driver's visibility is not obstructed.
10.		Caution. A fall from height. Do not ride on platforms or ladders.
11.		Sling attachment/Lifting point.
12.		Lift placement points.
13.	Ładowność 3,8 t	Information pictogram (T703A/1). Load capacity 3.5t – T703A/2
14.	Ciśnienie pracy w układzie hydraulicznym 18MPa	Information pictogram.
14.	Maksymalne ciśnienie w układzie hydraulicznym 16 MPa	Information pictogram (for T703A/1 only).
15.	Maksymalne ciśnienie w układzie pneumatycznym: - 0,6 MPa jednoprzewodowy - 0,8 MPa dwuprzewodowy	Information pictogram (for T703A/1 only).
16.	Przybliżone masy wybranych towarów 1 m sześcienny = kg Ziemia 1600 - 1800 Pszenica 710 - 820 Ziemniaki 625 - 725 Buraki cukrowe 650 - 700 Rośliny strączkowe 760 - 820 Kruszywo budowlane 1400 - 1850 Wapno 900 - 1500 Węgiel kamienny 1200 - 1600	Information pictogram.

17.		Information pictogram.
18.		Information pictogram.
19.		Information pictogram.
20.		Information pictogram.
21.		Information pictogram.
22.		Pictogram indicating the total maximum height after lifting the load-carrying body.

WARNING

CAUTION!

The Trailer's user must make sure that all warning inscriptions and signs affixed to the Trailer remain legible for the entire life of the Trailer. If they are damaged or destroyed, replace them with new ones.

2.4.2 The arrangement of the pictograms on the machine

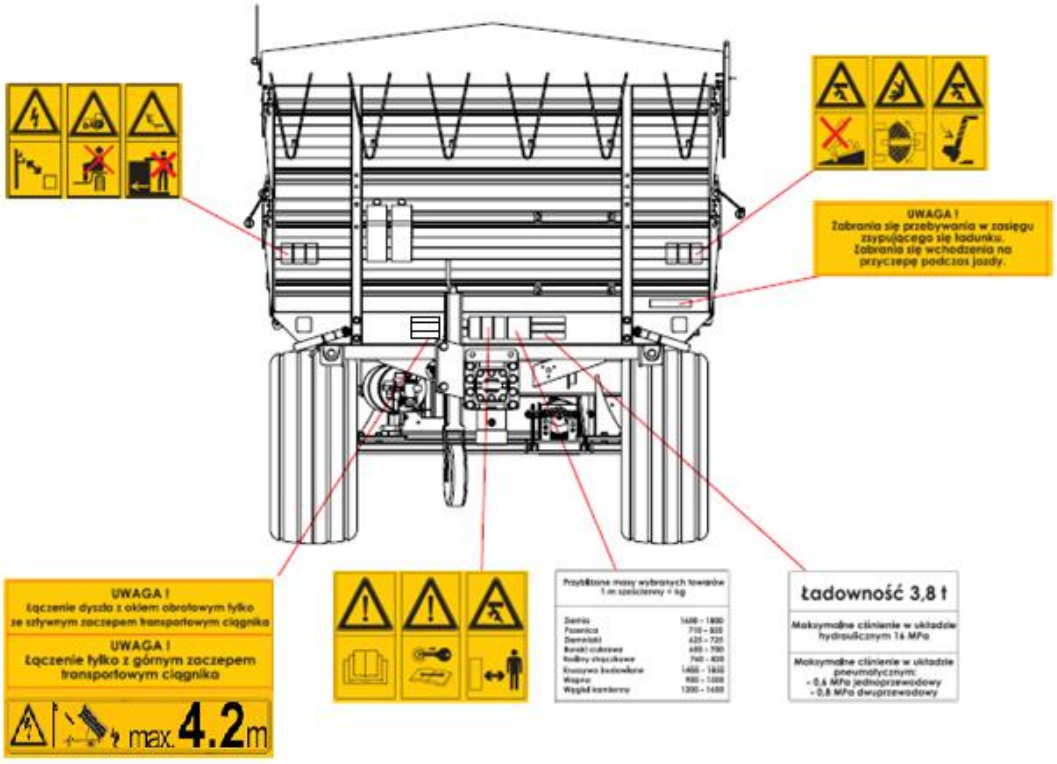


Figure 4. The arrangement of the pictograms on the boards of the trailer – front

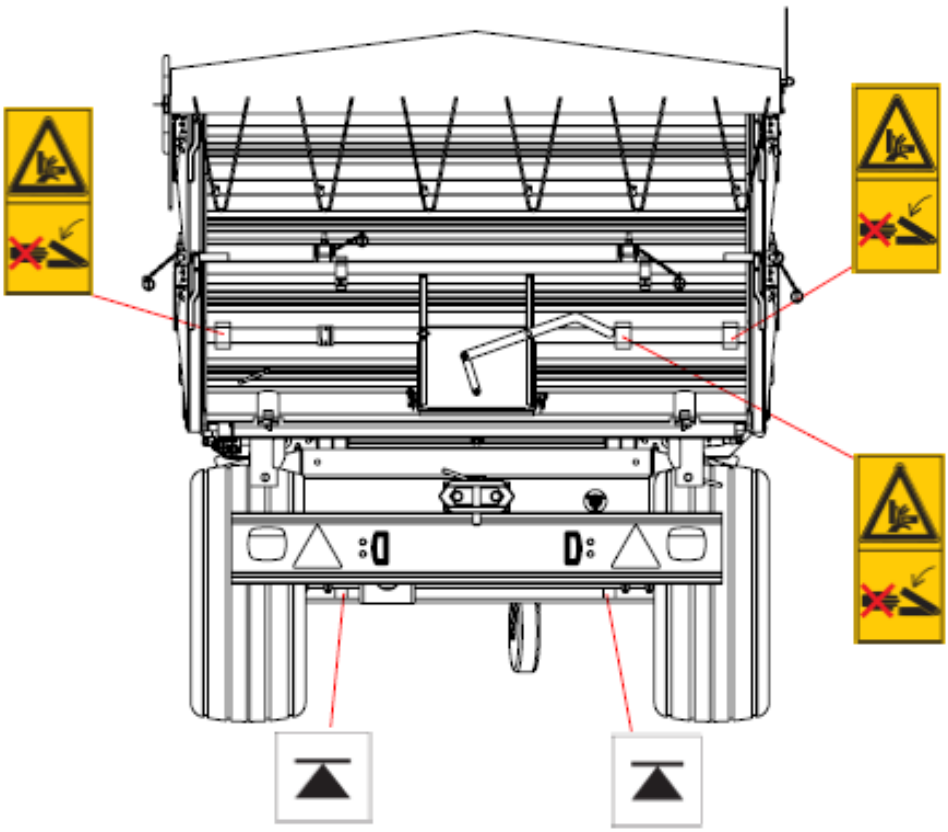


Figure 5. The arrangement of the pictograms on the boards of the Trailer - rear

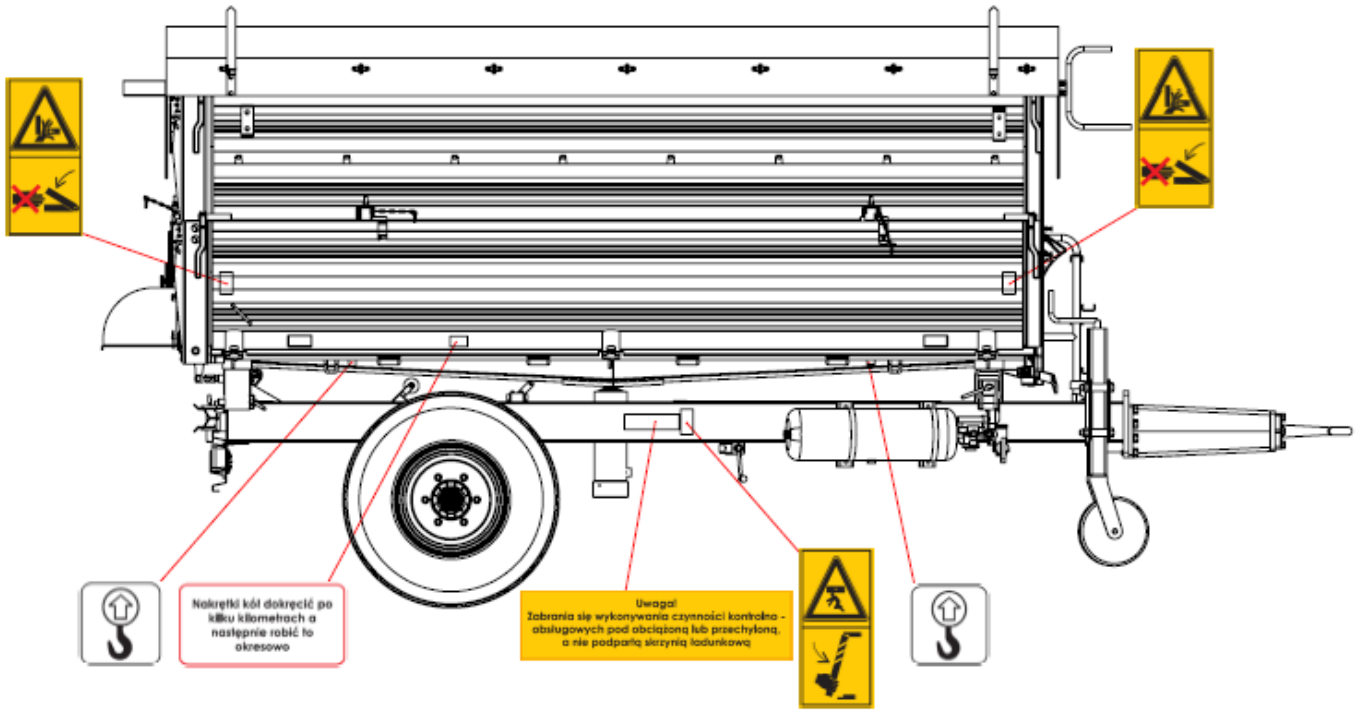


Figure 6. The arrangement of the pictograms on the boards of the Trailer – right side

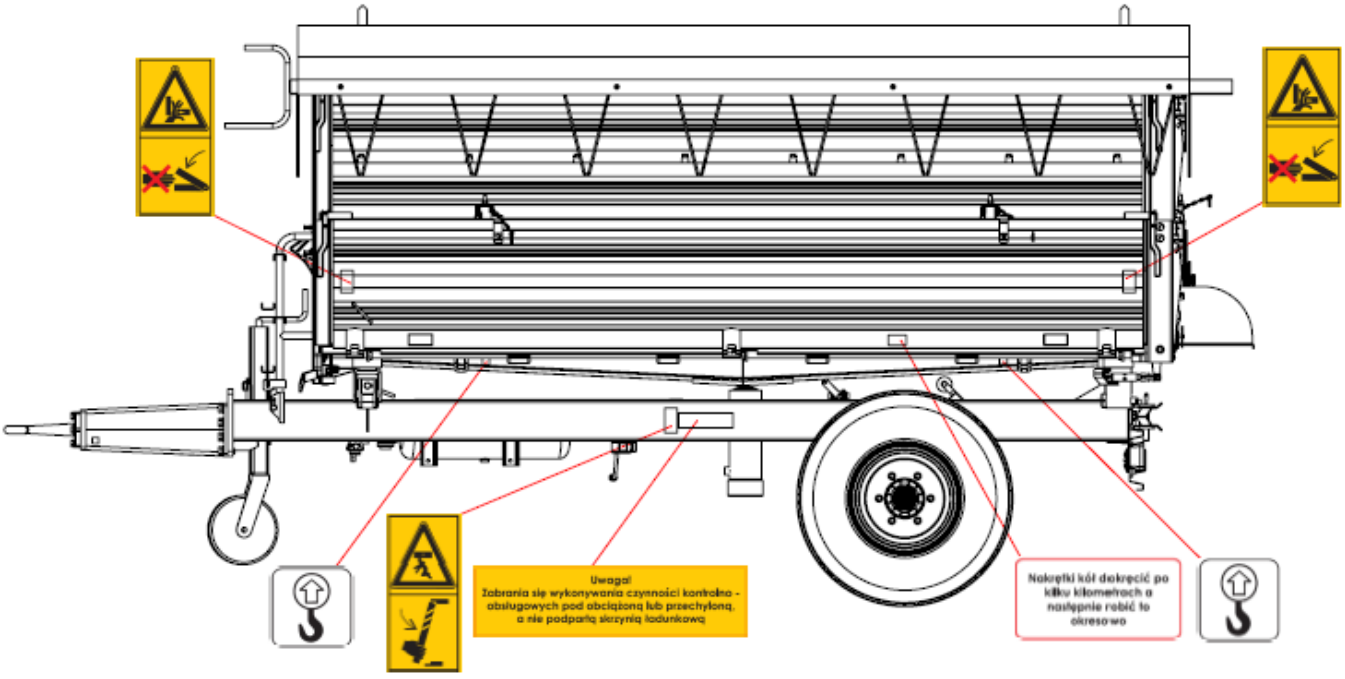


Figure 7. The arrangement of the pictograms on the boards of the Trailer – left side

3. Technical data

Basic technical data

Table 2. Trailer specification

No.	General data	T703A/1	T703A/2
3.1 1.	Type of vehicle	Agricultural Trailer	
2.	Manufacturer	METAL-FACH Sp. z o.o. 16-100 Sokółka, ul. Kresowa 62	
3.	Trade name	T703A/1	T703A/2
4.	Type of bodywork	Platform body, tipper	
5.	The mounting point of the rating plate	Right-hand side of the front crossmember on the Trailer body	
6.	Number stamp location	The right-hand side of the front crossmember of the chassis frame and on the rating plate	
Dimensions and weights			
7.	Length, mm	min. 4570 Max 4770	
8.	Width, mm	Max 2150	
9.	Height (with a top extension), mm	min. 1380 Max 2450 *Depending on the tyres and extensions in use*	
10.	No. of axles	1	
11.	Wheelbase, mm	not applicable	
12.	Wheel track, mm	1550	
13.	Dimensions of the cargo space		
	- length, mm	3340	
	- width, mm	Max 1880	
	- height (with a top extension), mm	500, 1000 or 1250 *Depending on the sideboards/extensions in use*	
14.	Lift of the loading surface, mm	min. 930 Max 1050 *Depending on the tyres in use*	
15.	Elevation of the drawbar's swinging axles, mm	min. 400 Max 740	
16.	Diameter of the drawbar eye, mm	min. 40 Max 50	
17.	Vehicle ground clearance, mm	min. 320 Max 360	
18.	Vehicle kerb weight, kg	min. 1000 Max 1700 *Depending on the specification*	min. 1200 Max 1500 *Depending on the specification*
19.	Permissible total weight of the vehicle, kg	5500	5000

	- on the axle, kg	Max 4540	4000
	- on the drawbar, kg	Max 960	1000
20.	Maximum load, kN		
	- on the axle, kN	44.53	39.24
	- on the drawbar, daN	9.41	9.80
21.	Load capacity, kg	3800-4500	3500-3800
Suspension			
22.	Type of suspension	Rigid, dependent, unsprung	
Wheels and tyres			
23.	Number of wheels, pcs.	2	
24.	Tyre size, PR number, wheel disc size (see the parenthesis), and tyre pressure (see the square brackets – [bar])	10/75-15.3 PR 14-18 (9.00 x 15.3) [7.1] 400/60-15.5 PR 14 (13.00 x 15.5) [3.5-3.6]	
Braking system			
25.	Service brake		
	- type	mechanical, drum brake	
	- control system	pneumatic, overpressure, dual-line installation (single-line option on request) or hydraulic control	Inertia (overrun) brake
	- acts on (number of wheels)	2 wheels	
26.	Parking brake		
	- type	mechanical, drum brake	
	- control system	manual, by means of a helical gearbox, or by means of a ratchet lever	
	- acts on (number of wheels)	2 wheels	
Electrical system.			
27.	Rated voltage, V	12 V, from the coupled tractor	
Unloading mechanism			
28.	Type of mechanism	hydraulic	
29.	Number of cylinders / number of elements, pcs.	1/3	
30.	Maximum tilting angle of the box, sideways/reverse °	35-40	
31.	Maximum pressure in the system, MPa	16	
32.	Type of hydraulic couplers	ZSR-6-13/200 or as per ISO 5675:2008	

Operating data			
33.	Maximum driving speed, km/h	40	
34.	Minimum diameter when turning left/right, mm	12300	
Rear coupling			
35.	COUPLING TYPE	mechanical	not allowed
36.	Coupling name	T710-SPR (optional)	not allowed
Additional information			
37.	Tractor coupled to the Trailer	min. 35 kW	
38.	Coupling to the tractor's hitch	upper or lower transporting hitch	
39.	Oil purity class	not less than 8, acc. to NAS 1638 (category 20/18/15, acc. to ISO 4406-1998)	

Dimensions of the Trailer

3.2 The drawings below demonstrate overall dimensions of Trailers in their transporting position.

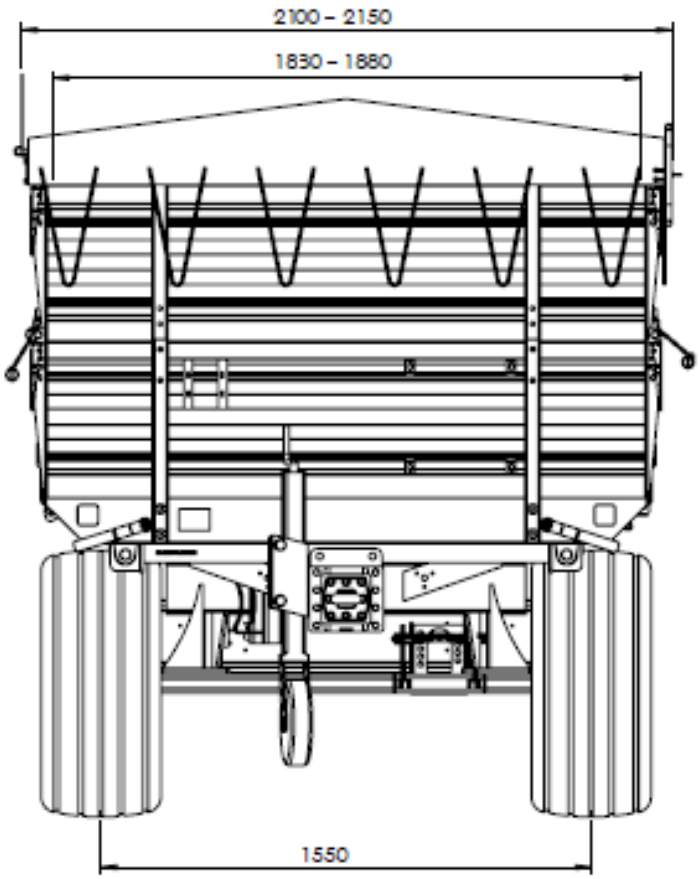


Figure 8. Dimensions of the Trailer – front view

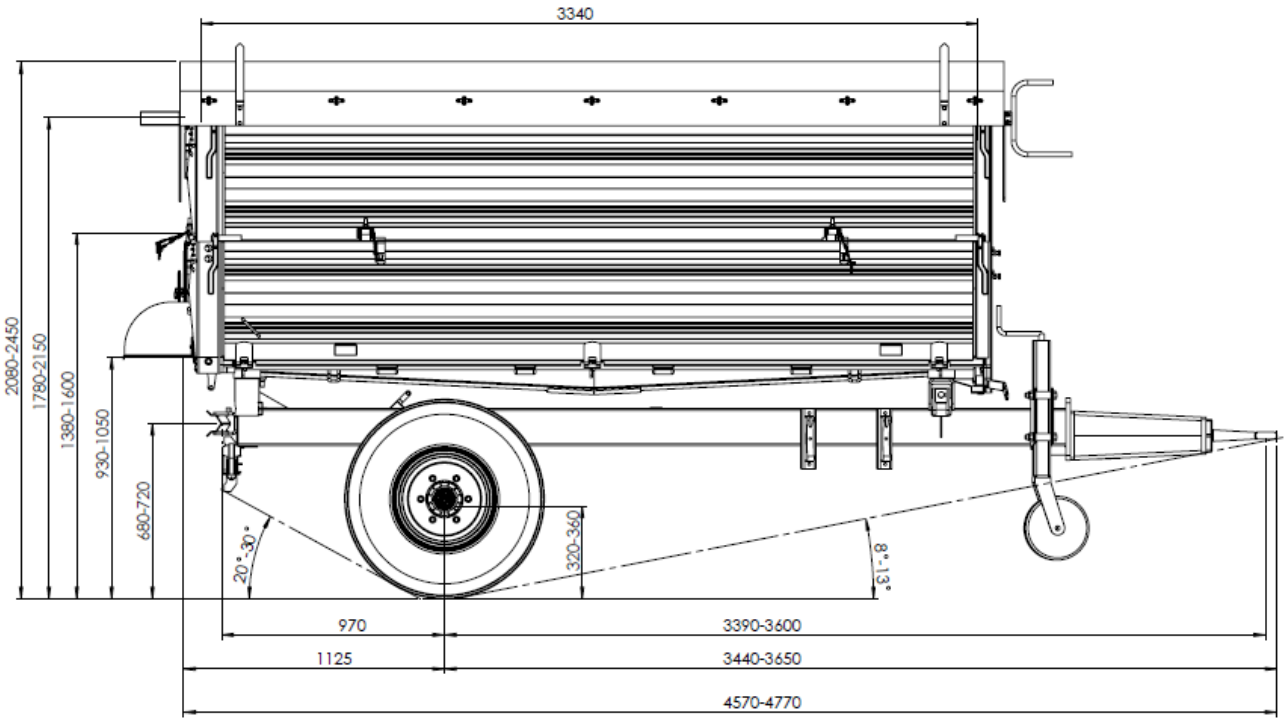


Figure 9. Dimensions of the Trailer – side view

3.3 General design and principles of operation

The T703A Trailer is a metal structure with a load-carrying body tilting sideways and backwards. The Trailer is equipped with a brake system (see Table 2).

The Trailer features a complete signalling and warning system (electric system and reflectors).

The Trailer can also be used for transporting on public roads.

The Trailer is manufactured in compliance with Directive 2006/42/EC and the standards specified in the EC Declaration of Conformity.

3.3.1 Chassis

The Trailer's chassis consists of the following units: a bottom frame, a hitch adapter/overrun drawbar, parking stand, wheel set, and fastening elements. The bottom frame and the drawbar are made as a welded construction of steel sheets and sections.

The Trailer’s wheel set consist of the following elements: a single axle, running wheels, and brakes of the running wheels.

The axles are made of a square bar ended with pivots holding the hubs of the running wheels installed on tapered roller bearings. These are single wheels equipped with drum brakes with jaws operated by mechanical cam spreaders.

3.3.2 Load area

The load area of the Trailers is formed by:

- The upper frame (frame of the load-carrying body) is mounted on the lower frame (chassis frame), in articulated sockets secured with pins, which operate as the pivot points when tilting the upper frame (the load-carrying body);
- The side boards and side extensions are individual elements; Each of the elements has a separate set of locks, which make it possible to close and open individual parts of the boards and extensions, independently of each other, and in any sequence; This structural solution increases the functionality of the Trailer and makes it easier to operate;
- Both the sideboard and extension locks are protected against unauthorised opening.

3.3.3 Coupling adapter/overrun brake

The Trailer drawbar is supplied with a straight hitch adapter for versions with a pneumatic or hydraulic brake system. There are threaded holes in the mounting plate for adjusting the height of the adapter depending on the setting. In the overrun brake Trailer variant, an overrun device has the same function and is fixed in the same way as the hitch adapter.

3.3.4 Hydraulic tilting mechanism of the load-carrying body

The hydraulic mechanism is used for automatic unloading of the Trailer by tilting the load-carrying body backwards or to the sides. The hydraulic system of the tilting mechanism is supplied with oil from the tractor's hydraulic system.

Check that the oil in the Trailer's hydraulic system and the oil in the tractor's external hydraulic system are of the same type and grade. The use of different oil grades is not permitted.

The hydraulic system contains the following:

- A plug of the connecting valve,
- Hydraulic hoses,
- Single-acting hydraulic cylinder,
- Cut-off valve,
- Connectors and fasteners.

See Fig. 10 for a diagram of the hydraulic system installed in the Trailer’s body-tilting mechanism. A valve block in the tractor's hydraulic system is used to control the raising and lowering of the Trailer's body.

The bottom frame of the Trailer is fitted with a structure protecting the load-carrying body against dropping, when carrying out maintenance and repair work.

It is essential to use the support structure, as it protects the user against injuries.

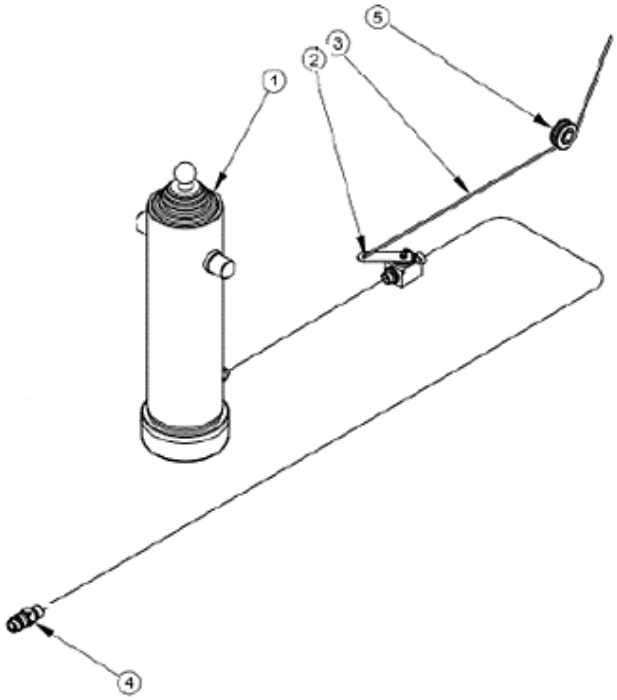


Figure 10. The diagram of the hydraulic system in the tilting mechanism of the Trailer's body:
1 - telescopic cylinder, 2 - shut-off valve, 3 - steel cable, 4 - quick-connector / plug, 5 - roller

The hydraulic system of the Trailer must be completely leak-proof. The tightness of the hydraulic system must be checked with several-seconds of overloading the system by tilting the load-carrying platform to the rear. Tighten the couplings if there is an oil leak in the hydraulic hose lines. If this does not remove the fault, the line or coupling elements must be replaced with new ones.

If there is an oil leak outside the coupling, replace the leaking components in the hydraulic system. Any mechanical damage to the component necessitates its replacement with a new one. The condition of the hydraulic system should be monitored on an ongoing basis while the Trailer is in use. When connecting the Trailer's and tractor's hydraulic systems, observe the required cleanness of the connectors.

CAUTION

CAUTION!

It is forbidden to carry out maintenance and repair work if the Trailer's body is not secured with a support!

CAUTION

CAUTION!

The shut-off valve limits the tilting angle of the load-carrying body when tilting it sideways. This valve is adjusted by the Trailer's manufacturer. It is forbidden for the user to change the settings. Improper adjustment may cause the Trailer to tip over.

CAUTION

CAUTION!

Exercise particular caution when entering the load-carrying body. Use the ladder or the platform located on the front board of the Trailer to climb on top. It is forbidden to climb on top of the Trailer using other components not intended for this purpose.

3.3.5 Electrical system (signalling and warning)

The Trailer's electric system is adapted to supply power from a 12 V power source, i.e. from the electric system of the coupled tractor.

The connection between the Trailer's electric system and the tractor's electric system is carried out by means of a suitable connecting cable. A diagram of the electric system and the arrangement of the Trailer's lights are shown in Figures 11 and 12.

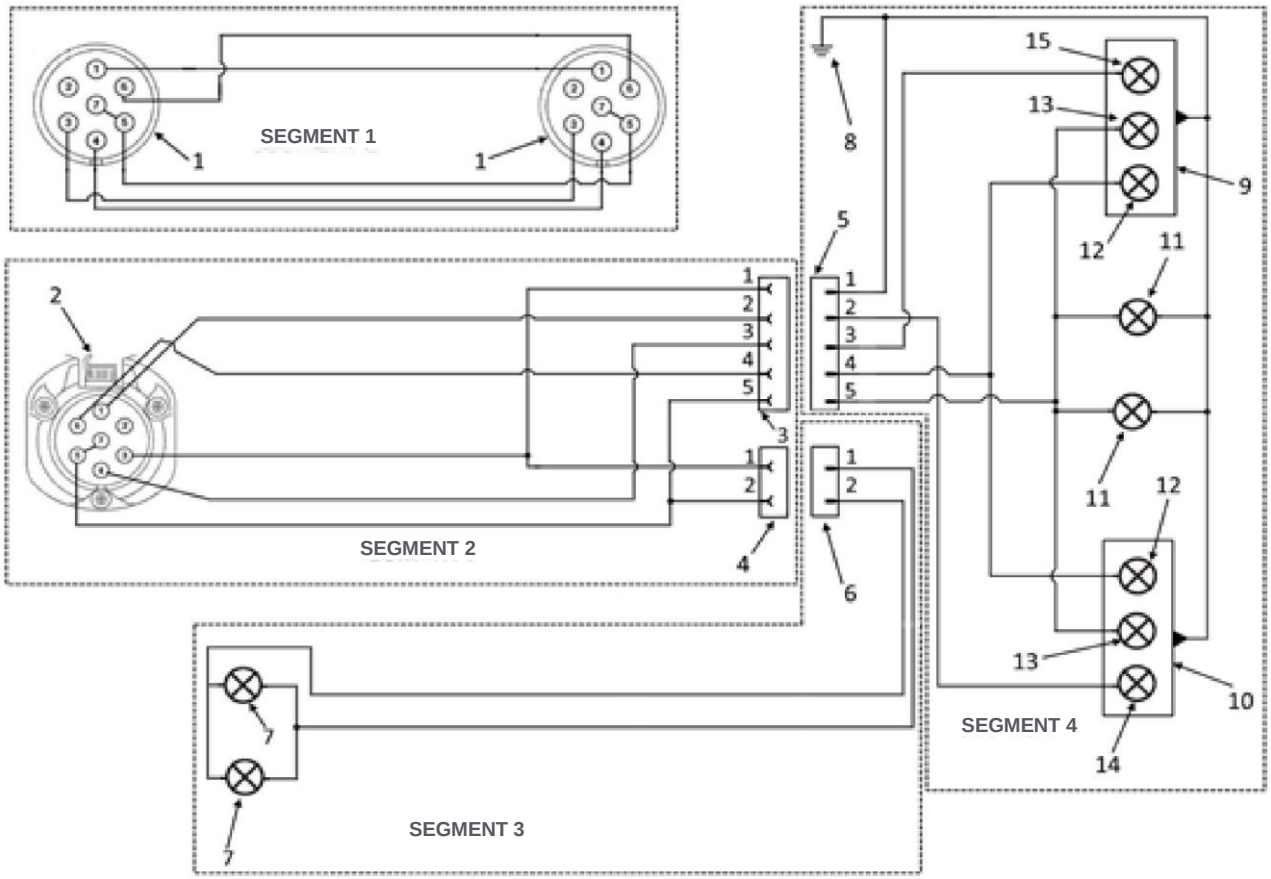


Figure 11. A diagram of the Trailer's electric system (basic version): 1 - 7-pole plug, 2 - 7-pole socket, 3 - 5-PIN superseal female plug, 4 - 2-PIN superseal female plug, 5 - 5-PIN superseal male plug, 6 - 2-PIN superseal male plug, 7 - front position light bulb, 8 - ground, 9 - 3-way right rear lamp, 10 - 3-way left rear lamp, 11 - registration plate lamp bulb, 12 - STOP lamp bulb, 13 - rear position lamp bulb, 14 - left direction indicator lamp bulb, 15 - right direction indicator lamp bulb

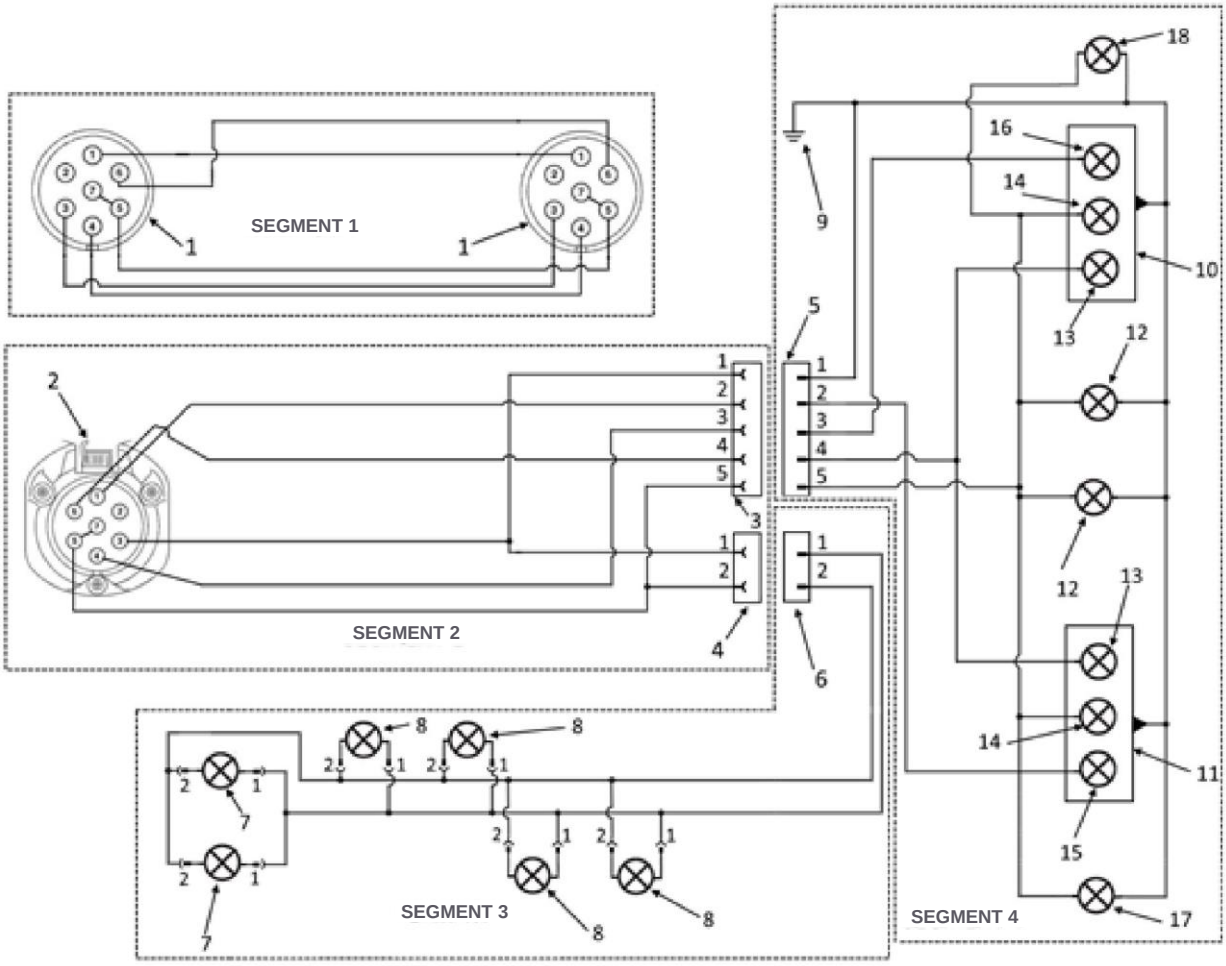


Figure 12. A diagram of the Trailer's electric system (version with side position lamps):
1 - 7-pole plug, 2 - 7-pole socket, 3 - 5-PIN superseal female plug, 4 - 2-PIN superseal female plug, 5 - 5-PIN superseal male plug, 6 - 2-PIN superseal male plug, 7 - front position light bulb, 8 - side position lamp bulb, 9 - ground, 10 - 3-way right rear lamp, 11 - 3-way left rear lamp, 12 - registration plate lamp bulb, 13 - STOP lamp bulb, 14 - rear position lamp bulb, 15 - left direction indicator lamp bulb, 16 - right direction indicator lamp bulb, 17 - left marker light bulb, 18 - right marker lamp bulb

CAUTION

CAUTION!

If the Trailer is operated during a storm, there is a risk of a lightning strike.

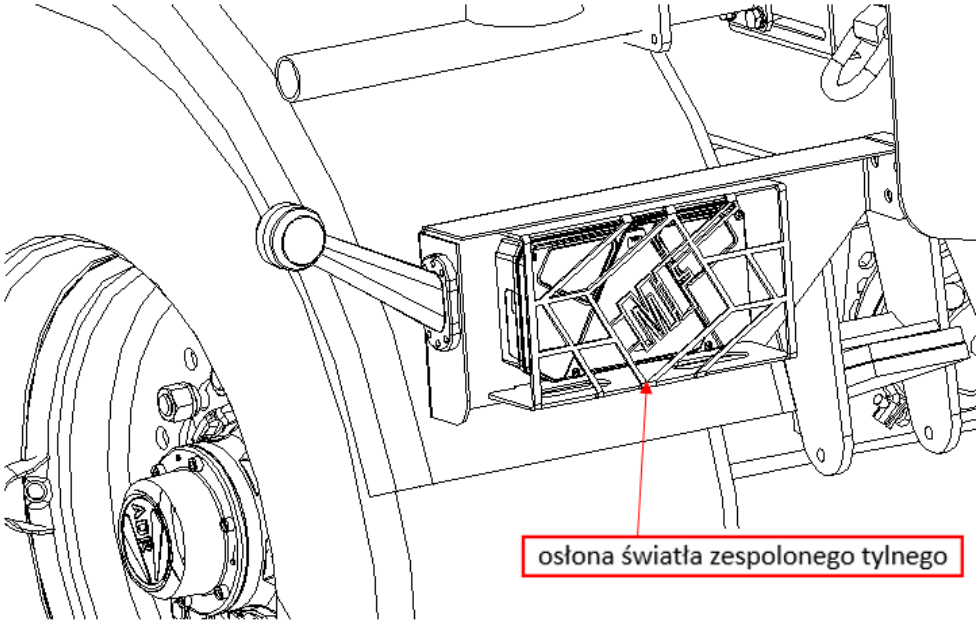


Figure 13. Position of the rear combination light guard

UWAGA

CAUTION!
The trailer is fitted with rear combination light guards.
The guards must be removed before driving on public roads!

3.3.6 Support foot

The T703A Trailer is equipped with a mechanically controlled support foot. Its job is to support the Trailer's drawbar when it is not coupled with the tractor. The foot is installed in the yoke of the drawbar beams.

CAUTION

CAUTION!
It is prohibited to support a loaded Trailer on the support foot.

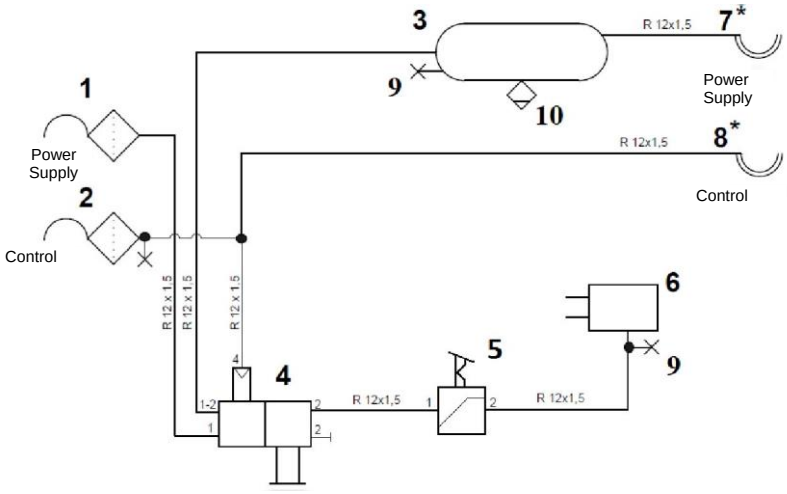
3.3.7 Braking system

The T703A Trailer can be equipped with the brake systems shown below.

- A service brake – pneumatically or hydraulically controlled, double-line or single-line acting on the wheels of the axle, engaged from the driver's seat, by pressing the tractor's brake pedal, or an overrun brake (T703A/2);

- A parking brake - manually controlled via a crank mechanism and a helical gear, located on the right side of the Trailer, and acting on the wheels of the axle.
- The design of the service brake ensures the automatic braking of the Trailer's running wheels, in the event of an accidental disconnecting of the Trailer's and tractor's pneumatic systems.

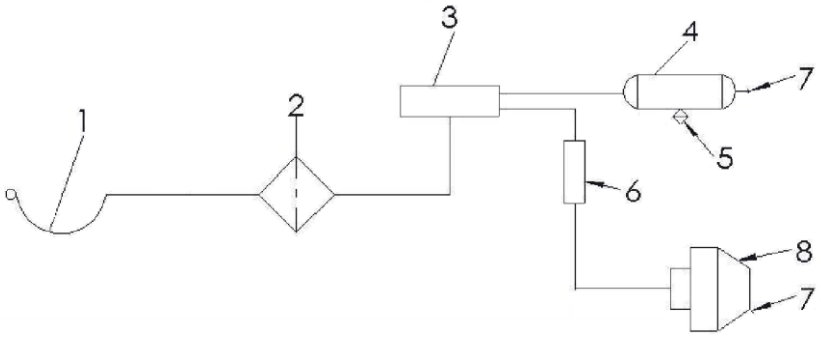
Diagrams of the braking system are shown below.



No.	The name of the part
1	Hose coupling with a filter, supply
2	Hose coupling with a filter, control
3	Air tank
4	Brake valve with brake release
5	Manual braking-force regulator
6	Brake cylinder
7*	Rear hose coupling with valve, supply
8*	Rear hose coupling with valve, control
9	Check valve
10	Dehumidifier

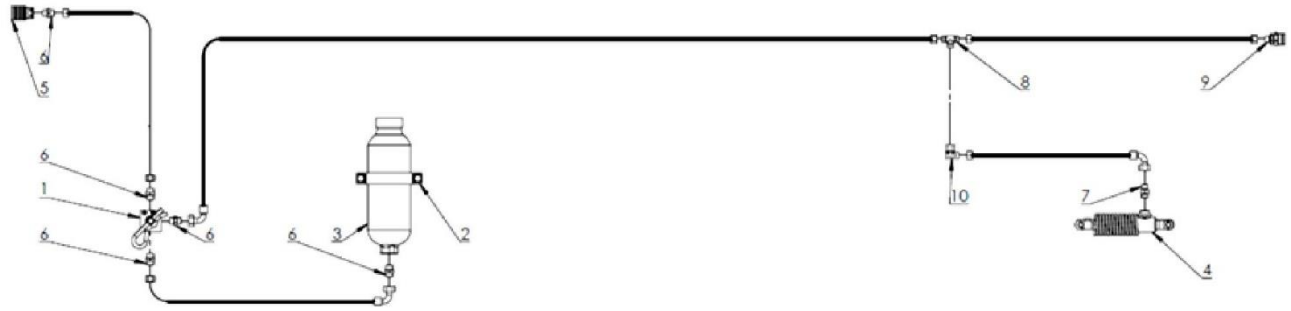
* Optional

Figure 14. A diagram of a dual-line pneumatic braking system



1. - pneumatic connector, plug
2. - air filter
3. - control valve
4. - air tank
5. - drain valve
6. - manual braking-force regulator
7. - inspection coupling
8. - membrane pneumatic cylinder

Figure 15. A diagram of a single-line pneumatic braking system



No.	DESCRIPTION	QUANTIT
10	T-connector	1
9	Brakes-quick coupling	1
8	Asymmetric tee	1
7	Connector	1
6	Connector	5
5	Quick coupling	1
4	Membrane	1
3	Brakes - hydraulic battery	1
2	Brakes - battery clamping	1
1	Brakes - emergency valve	1

Figure 16. Diagram of a hydraulic braking system:
1 – brake connector, 2 – safety valve, 3 – safety valve chain, 4 – hydraulic accumulator, 5 - hydraulic brake cylinder, 6 - brake drum.

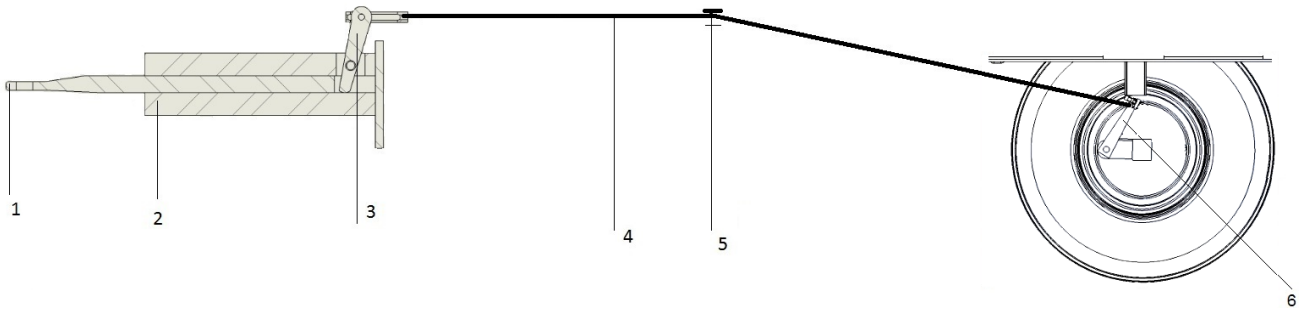


Figure 17. Diagram of an overrun braking system:
1 – coupling, 2 – body, 3 – cable tensioning lever, 4 – steel cable, 5 – roller, 6 – lever for axle brake expander

When the brake is applied, the coupling (1), pressed by inertia force, is pushed into the body (2) of the overrun brake, where the lever (3) is moved to tension the cable (4) connected to the expander lever on the axle (6).

Pneumatic and hydraulic systems

The pneumatic system is under high pressure. When connecting the pneumatic lines to the tractor's pneumatic system, make sure that the valves on the side of the tractor and the Trailer are not pressurised. Check the pneumatic connection on a regular basis and replace damaged components and ageing parts. Check the tightness of the hoses. An air leak is not permitted. The replacement of lines must comply with the manufacturer's technical requirements. Replace flexible lines every five years, unless damage has been found earlier.

Before starting repair work, de-pressurise the air system and switch off the tractor’s engine. Only an authorised representative of the Trailer’s manufacturer can make repairs to the pneumatic system.

The Trailer’s hydraulic system is also under high pressure. Check the condition of the hydraulic lines on a regular basis. Oil leaks are not permitted. There is a shut-off valve in the hydraulic system, which limits the tilting angle of the Trailer's body. The user is not permitted to adjust the length of the control rope.

When connecting the hydraulic hoses to the tractor, make sure that the tractor's and Trailer's hydraulic systems are not under pressure. If necessary, reduce the residual pressure of the system.

3.4.1 Inertia braking (overrun drawbar)

The inertia (overrun) braking results from the Trailer’s running over the tractor when the tractor brakes are applied.

As a result, the levers acting on the axles start braking (service brake). The inertia brake is supplied with an emergency brake. A special cord triggers the emergency brake should the Trailer and tractor uncouple.

The parking brake is applied using a lever on the overrun device.

4. Information on use

Use with a tractor

4.1.1 Coupling the Trailer with the tractor

The T703A/1 and T703A/2 Trailers may only be used with fully operational tractors with a minimum power of 35 kW, equipped with two external hydraulic system sockets and a hitch (the 4.1 upper or lower transporting hitch). Before coupling the Trailer, make sure that oil in the tractor's external hydraulic system can be mixed with the hydraulic oil used in the Trailer.

If the tractor is equipped with an automatic rear hitch, make sure that the coupling operation has been completed and that both machines are coupled safely.

CAUTION

CAUTION!

Exercise particular caution when coupling the Trailer.

It is forbidden for any one to be present between the Trailer and the tractor during the coupling process.

To connect the tractor with the T703A/1 or T703A/2 farming truck Trailer, proceed as follows.

- Set the drawbar eye of the Trailer at the height of the tractor's hitch.
- Couple the drawbar eye with the tractor’s hitch.
- Secure the hitch pin against falling out.
- Switch off the tractor's engine.
- Engage the tractor’s parking brake.
- Connect the pneumatic, hydraulic, and electric systems to the corresponding system sockets in the tractor.

CAUTION

CAUTION!

The maximum angle between the longitudinal axis of the tractor and the longitudinal axis of the coupled Trailer must not exceed 45° degrees.

4.1.2 Uncoupling the Trailer from the tractor

Carry out the following steps to uncouple the Trailer from the tractor:

- Stop the tractor and the Trailer at the location where the Trailer is to be uncoupled, and engage the tractor's parking brake;
- Engage the parking brake of the Trailer.
- If the Trailer is parked on uneven or sloping ground, put a chock under its wheels to secure it from rolling.
- Disconnect the electrical, hydraulic and pneumatic lines from the tractor.

- Unlock and remove the pin of the drawbar, thereby uncoupling the drawbar from the hitch, drive the tractor away and insert the pin into the drawbar.

CAUTION

CAUTION!

Do not uncouple the Trailer from the tractor:

- if the load-carrying body is raised;
- if the Trailer is not secured against rolling away;
- if the Trailer is loaded.

CAUTION

CAUTION!

If resting on the hydraulic foot only, the Trailer can change its position.

Start-up

4.2

CAUTION

CAUTION!

Use only a technically efficient tractor with a functioning pneumatic, hydraulic, and signalling and warning systems, and an efficient transporting hitch of sufficient strength.

Before starting-up the Trailer, follow the procedure below.

1. Refer to the Instruction Manual.
2. Learn the names and locations of the individual units / components of the Trailer,
3. Check pressure in the tyres of the Trailer.
4. Connect the Trailer to the tractor (see Section 4.1.1).
5. Check the operation and tightness of the pneumatic, hydraulic, and electrical systems of the Trailer and tractor.
6. Check all the devices, their connections, and protection against undesired disconnection or displacement.

4.37. Disengage the Trailer's parking brake.

The operations listed under items 3, 4, 5, 6, 7 shall be carried out each time the Trailer is operated.

Loading the Trailer body

The load-carrying body may only be loaded when the Trailer is coupled with a tractor, positioned on horizontal ground, and with the drawbar in the straight-ahead position.

Preferably use mechanical loading devices like cranes, loaders, conveyors etc. for loading.

Before loading, check that both sideboard and extension locks are closed.

When loading the Trailer, distribute the load evenly over the entire surface of the Trailer's body.

When transporting materials exerting point pressure on the floor of the body (concentrated loads, e.g. large stones), place thick boards on the floor before loading. This will mean a smaller surface load on the floor and protection against damage.

When transporting bulk materials, use board extensions on the Trailer body, and when transporting materials protruding beyond the contour planes of the Trailer, observe road-traffic regulations and mark the protruding load accordingly.

CAUTION

CAUTION!

It is forbidden to exceed the permissible load capacity of the Trailer and the permissible axle loads, as this threatens road safety and can cause damage to the Trailer.

The load to be carried must be protected against displacement, the generation of excessive noise, and road spillage.

CAUTION

CAUTION!

It is forbidden to transport people and animals on the Trailer.

Table 3. Approximate weights of selected materials

Approximate weights of selected materials per 1 m³, in kg	
Soil	1600 – 1800
Wheat	710 – 820
Potatoes	625 – 725
White beet	650 - 700
Legumes	760 – 820
Construction aggregates	1400 – 1850
Lime	900 – 1500
Hard coal	1200 – 1600

Unloading the Trailer's body

Unloading the body may be done manually, mechanically, or by means of the hydraulic tilting mechanism of the body.

Unloading the Trailer by tilting the load-carrying body must be performed in the following order:

4.4

- Align the tractor and Trailer on the longitudinal axis.
- engage the tractor's parking brake.
- remove the pin connecting the load-carrying body to the chassis frame:
  a) when unloading backwards, switch it to the back.
  b) when unloading to the left side, remove the pin from the right side and put it on the left side.
  c) when unloading to the right side, remove the pin from the left side and put it on the right side.
- check that the pins on the unloading side of the Trailer are correctly fitted.
- check that the tipping pin is in good working order and that the spring pin, which prevents it from extending, is securely fastened;
- open the locks on the board of the Trailer's body at the side intended for unloading.
- tilt the load-carrying body using the cylinder of the hydraulic system.
- after the load has slid off, lower the body and close the sideboard(s) using the locks.

CAUTION

CAUTION!

- If it is necessary to unload the Trailer on sloping terrain, it is permissible to tilt the load-carrying body upwards (tractor with the Trailer facing upwards).
- It is forbidden to unload the Trailer to the front.
- No person is allowed to be present in the vicinity of the tilting load-carrying body, or within the range of the load being dumped.
- Do not uncouple the Trailer from the tractor, when the Trailer's body is raised.
- Before unloading the Trailer by tilting its body, ensure that the bolts on the correct side of the Trailer's body have been removed. Failure to remove the pins can damage the Trailer.
- It is forbidden to transport people on the Trailer.
- When tilting the load-carrying body make sure it is stable.

To open the top lock of the body sideboard, move the handle upwards and simultaneously press the button located under the handle. Opening the lower locks on any board requires moving the central lever:

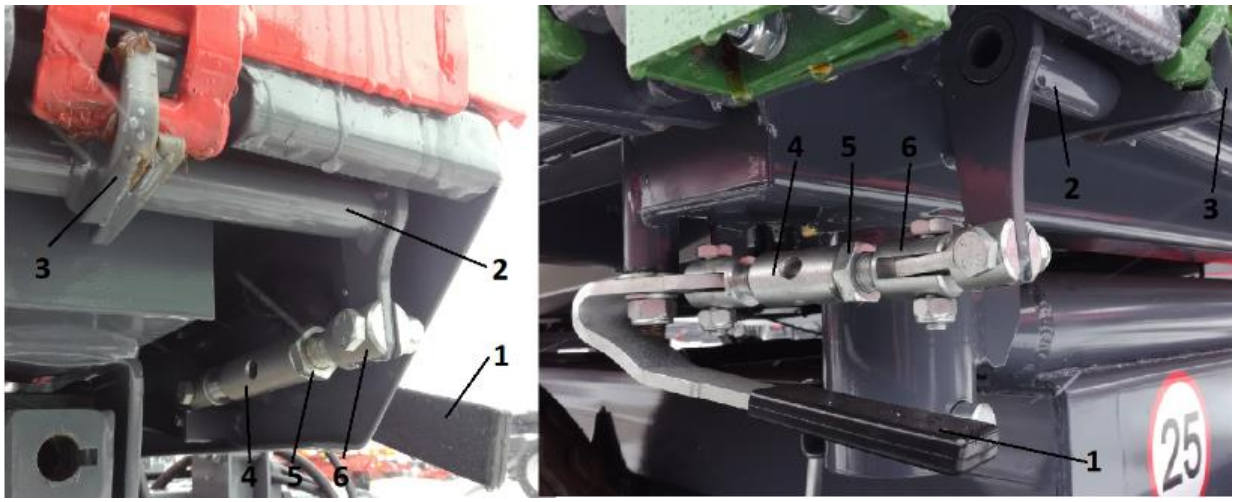


Figure 18. The locks on the sideboards of the load-carrying body:
1 - lever of the bottom locks, 2 - central roller of the locks, 3 - locks, 4 - turnbuckle, 5 - counter-nut, 6 - threaded connector

After the load has been unloaded from the Trailer, it is necessary to:

- lower the load-carrying body and remove any residual material,
- fit and secure the pins connecting the load-carrying body with the chassis frame,
- lock the board(s) and prevent it/them from opening automatically.

4.5 Driving on public roads

Before starting to drive on public roads, check the correct functioning of the lights and the braking system, and make sure the Trailer has all the necessary signs.

Adhere to traffic regulations when driving on public roads.

1. Exceeding the Trailer's permissible load capacity can cause damage to the Trailer and pose danger to road safety.
2. Do not exceed the permissible speed of 40 km/h.
3. The Trailer is suitable for working on a surface with an inclination that does not exceed 10°.
4. When driving on public roads, the Trailer must be equipped with a reflective warning triangle, and a plate indicating slow-moving vehicles must be installed in the bracket located on the rear board of the Trailer (the plate is an accessory of the tractor).
5. It is forbidden to leave the loaded Trailer on a slope or unsecured against unintentional movement. The protection consists of engaging the parking brake, placing wheel chocks, and fastening the transported load with transporting belts.
6. Transporting speed max. 40 km/h.

CAUTION

CAUTION!

Observe the applicable road traffic regulations.

During the first few hours of operation of the brakes, the drum shoes accommodate to work with the brake drums. The total braking effect is achieved after the elements reach the friction phase.

Hydraulic system

4.6.1 Using the hydraulic system tilting the load-carrying body

4.6

The hydraulic mechanism is used for automatic unloading of the Trailer by tilting the load-carrying body backwards or to the sides. The hydraulic system of the tilting mechanism is supplied with oil from the tractor's hydraulic system.

The hydraulic system consists of a plug for the coupling valve, hydraulic hoses, a single-acting hydraulic cylinder, and a shut-off valve, as well as fastening and fixing components. A valve block in the tractor's hydraulic system is used to control the raising and lowering of the Trailer's body.

CAUTION

CAUTION!

Check that the oil in the Trailer's hydraulic system and the oil in the tractor's external hydraulic system are of the same type and grade. The use of different oil grades is not permitted.

CAUTION

CAUTION!

Hydraulic oil can heat up to high temperatures during operation.

The hydraulic system of the Trailer must be completely leak-proof. The tightness of the hydraulic system must be checked with several-seconds of overloading the system by tilting the load-carrying platform to the rear. Tighten the couplings if there is an oil leak in the hydraulic hose lines. If this does not remove the fault, the line or coupling elements must be replaced with new ones. If there is an oil leak outside the coupling, replace the leaking components in the hydraulic system. Any mechanical damage to the component necessitates its replacement with a new one.

The condition of the hydraulic system should be monitored on an ongoing basis while the Trailer is in use. When connecting the Trailer's and tractor's hydraulic systems, observe the required cleanness of the connectors.

CAUTION

CAUTION!

Inspect the hydraulic system on a regular basis, every 6 months.

Check the condition of the hydraulic lines.

Replace the hydraulic hoses every 5 years, even if undamaged.

CAUTION

CAUTION!

It is forbidden to unload the Trailer to the front.

CAUTION

CAUTION!

The operating pressure of the hydraulic system is 18 MPa.

Lower pressure may not be sufficient to ensure adequate lifting of the load body and may therefore prevent the load from sliding off the trailer.

4.6.2 Adjusting the hydraulic mechanism tilting the load-carrying body

The hydraulic system is equipped with a safety cord (the load-carrying body tilt angle limiter) and an oil shut-off valve to the hydraulic cylinder when tilting the load-carrying body. For safety reasons, it is forbidden for those who are not authorized to make adjustments or to remove the limiters.

The purpose of the shut-off valve is to cut off the oil supply to the cylinder before reaching the maximum (permissible) tilt angle of the load-carrying body. Changing the length of the cable connecting the body frame to the shut-off valve, or breaking it, can cause damage to, and tip the Trailer over.

CAUTION

CAUTION!

It is forbidden to remove or disconnect the cord that limits the tilting of the load-carrying body.

It is forbidden for those who are unauthorised to adjust the shut-off valve.

5. Elements requiring ongoing adjustments

For proper operation, the T703A Trailer requires the following adjustments:

- The adjustment of the wheel bearing play.
- Tyre maintenance.
- Hydraulic system maintenance.
- Adjustment of the brake system components.

Wheels – bearing play adjustment

In the case of a newly purchased Trailer, check the play on the wheel bearings, first after driving approx. 100 km, and then throughout the course of operation, after driving 1,500-2,000 km – if necessary, adjust the play.

5.1

To do so, follow the procedure below:

- Couple the Trailer with the tractor and engage the parking brake of the tractor.
- Lift one side of the Trailer, so that the wheel does not touch the ground, and secure it from dropping.
- If the wheel shows excessive play, remove the hub cap and the securing pin, to prevent the castellated nut from unintentional unscrewing.
- Turn the wheel while simultaneously tightening the castellated nut, until the wheel has stopped completely.
- Loosen the nut by 1/6÷1/3 of a turn, until the nearest pin groove overlaps with the hole on the hub spigot.
- Secure the nut with a new pin, replace, and fasten the hub cover.

If the bearing play is adjusted correctly, the wheel should rotate smoothly, without stopping or apparent resistance (other than friction of the brake shoes against the drum). Slight friction of the shoes against the drum, particularly in a new Trailer, or after their replacement, is a typical occurrence. Drive a few kilometres to finally check the correctness of the bearing-play adjustment, by checking by hand the degree to which the wheel hubs have heated up. In addition to the improper adjustment of the bearing play, considerable resistance to wheel rotation and hub heating can be caused by impurities in the lubricant or bearing damage. The above symptoms require the dismantling of the wheel hub and the removal of the malfunction

CAUTION

CAUTION!

Observe the following when lifting the wheel of the Trailer:

- Couple the Trailer to the tractor, position them on a flat surface, and engage the parking brake in the tractor;
- Place the safety chocks underneath the wheel that is not intended for lifting;
- Place a jack under the axle close to the wheel to be raised and lift the wheel so that it does not touch the ground;
- Secure the wheel against lowering by placing a stand of appropriate height under the axle.

CAUTION

CAUTION!

It is essential to check the play and condition of the running axle bearings, after the first month of use, and then regularly, at least every 6 months.

Wheels – tyres

Servicing the tyres consists of checking the condition by visual inspection and checking the internal pressures. It is also important that the tyres do not have visible cracks that expose or damage their carcass, and that the hubs, wheel discs, and their attachment are in a good condition.

5.2

Secure the machine with the parking brake and the wheels with chocks, when maintaining the tyres.

Changing the wheel is only permitted if the Trailer's body has been emptied. Use suitable tools for repairing the wheels. Due to the risks associated with the maintenance and repair works of tyres, the repairer should be trained for this purpose. It is advisable to check the tightening of the nuts after the first use, after the first laden drive, and then after each intensive use of the machine, or every 100 kilometres. Repeat these checks each time after you dismantle the wheels. The tyre valves must be secured with suitable caps to prevent the penetration of dirt.

With the Trailer parked for a long time, it is necessary to protect the tyres against sunlight. When cornering, avoid damaged road surfaces, sudden and alternating manoeuvres, and high speed.

Regularly check the tyre pressures. Tyre pressures can change during a day's operation. Adjust your speed and load capacity to suit your tyre pressures.

CAUTION

CAUTION!

Regularly check tyre pressures.

Tyre over-inflation can cause a blow-out.

After the first journey with a load and every 100 km, check the tightness of the wheel nuts and tighten, if necessary.

Check tyre pressures.

CAUTION

CAUTION!

Check the wheel nuts regularly (check their condition and tighten them before each use of the Trailer) and tighten if necessary.

Tightening torque of threaded nuts:

M18 x 1.5 = 270 Nm,

M20 x 1.5 = 350 Nm,

M22 x 1.5 = 475 Nm.

CAUTION

CAUTION!

When driving along a bend and reversing, the angle between the longitudinal axle of the tractor and the longitudinal axle of the Trailer must not exceed 45°. Failure to observe this may result in damage to the wheels and axles.

CAUTION

CAUTION!

When operating the tyres, it is essential that the Trailer is secured against unintentional displacement by means of the parking brake and wheel chocks. The wheels can only be dismantled when the Trailer is not loaded.

5.3 Brakes

5.3.1 Maintaining the pneumatic system of the brakes

When operating the Trailer, check for leaks and the condition of the brake system components and connections, and periodically remove water condensate from the air tank.

Check the air-tightness of the system for the rated air pressure of 580-630 kPa, if using a single-line system, and 650-800 kPa, if using a double-line system. In places where compressed air will penetrate to the outside, a characteristic hissing is heard, or air bubbles will appear when flooded with soapy water, indicating a leak. If a leak is caused by a defective seal, hose, or other components (e.g. valves, cylinders, etc.), change the defective parts.

To drain water from the tank, use its pressure in the tank when tilting the drain valve stem to the side; in addition, once a year before the winter period, remove the drain valve and clean off any accumulated dirt.

5.3.2 Adjustment of the brake system components

When operating the Trailer, check the condition of the brake system components and connections, and lubricate the controls periodically.

Adjust the brakes, when:

- there is excessive play between the brake lining and drum, due to wearing out of the brake shoes, which affects the efficiency of braking;
- the wheel brakes' action is not simultaneous and not equal.

If the brakes are adjusted correctly, the braking force (the sum of the braking forces along the periphery of the braked wheels) should be equal to (min. 30% of the Trailer's permissible total weight), when braking with the service brake, and the braking force (the sum of the braking forces along the periphery of the braked wheels) should be equal to (min. 18% of the Trailer's permissible total weight), when braking with the parking brake. Both wheels on the same axle must stop uniformly, and the difference in the braking force between the left and right side of the Trailer must not exceed 30%, taking into account that 100% corresponds to the greater force.

The brakes are adjusted by changing the position of the spreader arm relative to the expander roller. To do this, lift the wheel and turn it to determine the position of the lever on the expander roller, and make sure you sense a slight friction of the brake shoes against the drum.

If the friction parts are adjusted correctly, the wheel should rotate freely, without stopping or evident resistance caused by the friction of the brake shoes against the drum. Slight friction of the shoes against the drum, particularly in a new Trailer, or after their replacement, is a typical occurrence.

Braking force adjustment - the pressure in the pneumatic brake system is controlled by a three-component regulator, which features three lever positions: empty, half-full, and full.

Having made the adjustment as specified above, check and adjust the parking brake as required. Adjust the parking brake by adjusting the length of the cord connecting the expander cam roller lever with the activating device. The required sum of the braking forces must be obtained at the maximum force of 40 daN applied on the crank handle of the device (maintaining the right angle between the cord and the lever of the expander roller).

CAUTION

CAUTION!

Check the braking system on a regular basis, and before starting to drive, in terms of:

- its operation,
- airtightness,
- play.

If necessary, adjust or repair.

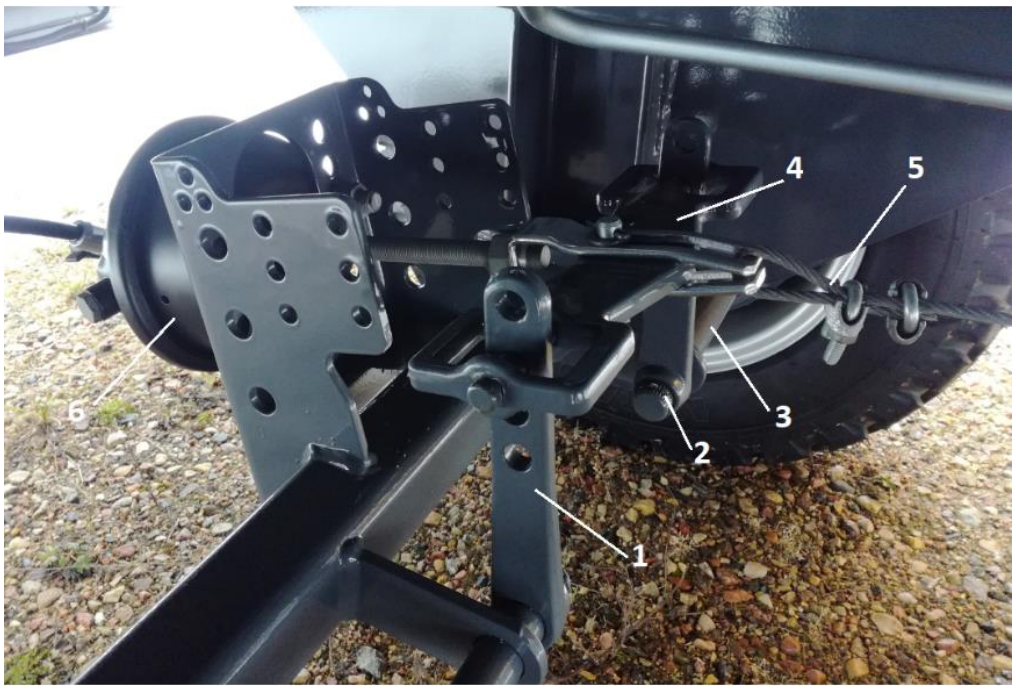


Figure 19. The components of the brake system:
1 - expander roller lever, 2 - adjusting nut, 3 - expander roller, 4 - brake equalising bar, 5 - parking brake cable, 6 - cylinder

CAUTION

CAUTION!

Observe the following when lifting the wheel of the Trailer:

- Couple the Trailer to the tractor, position them on a flat surface, and engage the parking brake in the tractor;
- Place the safety chocks underneath the wheel that is not intended for lifting;
- Place a jack under the axle close to the wheel to be raised and lift the wheel so that it does not touch the ground;
- Secure the wheel against lowering by placing a stand of appropriate height under the axle.

Check the brake shoes at least once a year, and replace worn linings with new ones.

If friction elements have been replaced, they need to be run in (by driving with frequent braking) and adjusted, in order to achieve the required efficiency of their operation.

6. Scheduled inspections

Technical maintenance

The transporting capacity and the long service life of agricultural trailers can only be achieved, if they are used correctly and in a reasonable manner (i.e. observing the limits of the structural and functional parameters).

6.1 Minor negligence in the operation of the Trailer can have serious consequences. If detected in time, defects can be eliminated at minimum cost and effort, but with maximum efficiency. Trailer defects can be discovered quickly only if you maintain its periodical cleaning and careful checks. Therefore, wash the Trailer frequently to spot any possible defects and malfunctions.

The Trailer shall also be subject to periodic technical inspections. Lubricate the Trailer, in accordance with the lubrication instructions.

It is advisable to store the Trailer in a roofed area, in order to protect the Trailer from rain, hail and other adverse weather conditions.

For the proper functioning of the Trailer, it must be maintained, repaired on time, and monitored with great care during operation.

The daily maintenance (before starting work) of the Trailer requires a minimum of work to be done, such as:

- check the tightness of the bolted parts and protect them against undesired loosening;
- control play of mechanisms and articulated connections;
- check the tightness of the hydraulic system and remove any leaks;
- check the tightness of the pneumatic or hydraulic system;
- check the proper operation of mechanisms;
- check and perform lubrication as specified in the instructions;
- check tyre pressures;
- check the locks on the boards for correct locking and safety;
- when working with board extensions - check if they work properly and ensure the safety of road traffic and the operator;
- check the functioning of the brake system, signalling, and the warning system.

6. 

CAUTION

CAUTION!

It is forbidden to carry out maintenance and repair work if the Trailer's body is not secured with a support!

Periodic maintenance

1. Carry out any repair, maintenance and cleaning work, as well as eliminate any functional defects, when both the tractor’s drive and engine are switched off. Remove the key from the ignition.
2. Check nuts and bolts on a regular basis at their fixed positions, and tighten. Replace regular screws only with screws of the same quality and strength as the original ones (see item 6.5).

3. When performing service works under the raised and tilted but unloaded Trailer's body, always secure the body against dropping using the support that is included as an accessory with the Trailer.
4. When replacing parts, use suitable tools and protective gloves.
5. Clean the Trailer thoroughly after you finish work, and do not leave any residual load carried on the Trailer's body.
6. Disconnect the continuous power supply before welding and working on the electrical system.
7. Protective equipment is subject to wear and tear. Therefore, it should be adjusted, inspected, and replaced in good time, on a regular basis.
8. The spray-suppression skirts must be cleaned on a regular basis.
9. Only use the spare parts recommended by “METAL-FACH” Sp. z o.o. in Sokółka.
10. The Trailer should be stored in roofed areas (preferably on a level and hard surface) and in such a way as to prevent injury to people and animals.
11. Used parts must be handed over to the appropriate recycling centres subject to the environmental requirements.

Repair instructions

6.3 When carrying out minor repairs caused by accidental defects, maintain the proper cleanness and ensure all parts are correctly mounted in their places, when making the required adjustments necessary for the proper functioning of the Trailer.

Minor repairs during operation (in the field) must be carried out on site by the operator.

Store parts dismantled during repair and protect them against dust and other contaminants. Special attention must be paid to the protection and cleanness of the bearings.

During any field repairs, maintain the proper cleanness of the parts to be fitted, especially any parts that you drop to the ground, which should be washed or at least cleaned of any dirt to a degree that ensures proper functioning.

Observe the series of technical rules corresponding to the dismantling and assembly of parts and components, when carrying out on-going repairs and overhauls, thus ensuring the quality and efficiency of work.

After each repair of the Trailer's sub-assemblies, check that they are working properly.

When carrying out maintenance and repair work, wear suitable protective clothing, including gloves, footwear and goggles. It is essential to use the appropriate tools. Observe the generally accepted rules of work health and safety when working. In the event of injury, rinse, and disinfect any wound, and, in the case of serious injuries, seek medical advice.

When carrying out repair work that involves welding, pay special attention to the flammable or fusible components. If they are susceptible to ignition or damage, they must be dismantled or covered with non-combustible material before starting welding. Before you start the work, it is advisable that you make ready a CO_2 or foam extinguisher.

Lubrication

Proper lubrication is one of the most-important factors that determine the efficient operation of individual Trailer assemblies and mechanisms.

Complying with the lubrication recommendations of the Manufacturer will significantly reduce the possibility of damage or premature wear and tear to individual parts.

6.4 The following rules must be observed for lubrication:

- The grease must be cleaned before being pumped into the grease nipple;
- The grease should be pumped until fresh grease appears in the slots (through which the used grease is squeezed out during pumping);
- After lubricating, leave some grease on the grease nipple head;
- Threaded connections, lever connections, and similar elements of the Trailer, should be lubricated with oil;
- Check the lubrication of the wheel hub bearings, and replenish or change the bearing grease.
- When changing the grease, dismantle the hub, remove the used grease, evaluate the condition of the bearings (if necessary, change them).

Only use high quality bearing grease.

Never drive without the hub cover, as the penetrating dirt (sand, etc.) will damage the wheel bearings.

Table 4. Location, frequency of lubrication, and grease grade

Lubrication point	**Lubricant grade**	**Lubrication interval**
Wheel hub bearings	LT 43	Every 6 months
Hydraulic cylinder's head socket	Graphite grease	Every 6 months
Components of the Trailer's body-tilting system	LT 43	Every 6 months
Elements of the support foot	LT 43	Every 6 months
Ring hitch	LT 43	Every 6 months

Other components that require routine lubrication.

- The moving parts of locks, hinges and articulated joints on a regular basis;
- To press the grease into the cleaned grease nipples;
- The mobile components of brakes: levers and pins (regularly);
- The bearings of the axle of the brake shoes (if necessary, use a very limited amount of grease);
- The bolting system on the boards and hinges (regularly).

When carrying out lubrication work, ensure that no excess grease or oil remains on the machine. Remove any excess lubricant.

Metric-bolt-tightening torques

Optimised torque values for bolts or screws and nuts [Nm] are shown in Table 5.

Table 5. Tightening-torque values for metric bolts

Bolt-tightening torques – metric bolts in Nm							
Size ∅ mm	Pitch mm	Bolt version – strength classes					Wheel nuts, wheel screws
		4.8	5.8	8.8	10.9	12.9	
6,5							
3	0.50	0.9	1.1	1.8	2.6	3.0	
4	0.70	1.6	2.0	3.1	4.5	5.3	
5	0.80	3.2	4.0	6.1	8.9	10.4	
6	1.00	5.5	6.8	10.4	15.3	17.9	
7	1.00	9.3	11.5	17.2	25	30	
8	1.25	13.6	16.8	25	37	44	
8	1.00	14.5	18	27	40	47	
10	1.50	26.6	33	50	73	86	45
10	1.25	28	35	53	78	91	
12	1.75	46	56	86	127	148	
12	1.50						80
12	1.25	50	62	95	139	163	
14	2.00	73	90	137	201	235	
14	1.50	79	96	150	220	257	140
16	2.00	113	141	214	314	369	
16	1.50	121	150	229	336	393	220
18	2.50	157	194	306	435	509	
18	1.50	178	220	345	491	575	300
20	2.50	222	275	432	615	719	
20	1.50	248	307	482	687	804	400
22	2.50	305	376	502	843	987	
22	2.00						450
22	1.50	337	416	654	932	1090	500
24	3.00	383	474	744	1080	1240	
24	2.00	420	519	814	1160	1360	
24	1.50						550
27	3.00	568	703	100	1570	1840	
27	2.00	615	760	1200	1700	1990	
30	3.50	772	995	1500	2130	2500	
30	2.00	850	1060	1670	2370	2380	

7. Defects and troubleshooting

Table 6. Defects and troubleshooting

No.	Type of defect	Cause	Method of rectification
1.	Excessive heating of brake drums.	Brake shoes are not adjusted correctly.	Adjust according to Section 5.3.2.
2.	Excessive heating of the wheel hub.	Too little play on bearings. Dirty bearing grease.	Adjust, according to Section 5.1. Remove the hub, replace the grease, and adjust the bearings as above.
3.	Lubricant flows out onto the brake shoes.	Hub seal worn, damaged or incorrectly installed.	Remove the hub, replace the worn or damaged seal and install a new one correctly. Remove grease from the shoes and drum, wash the friction elements using benzine, install the hub, and adjust the bearings as above.
4.	The wheels brake unevenly.	Shoe linings or brake shoes are dirty, worn or incorrectly adjusted.	Check the condition of the brake shoe linings, remove any dirt, replace worn-out parts, and adjust according to Section 5.3.2.
5.	Insufficient braking performance of the wheels.	Incorrect adjustment of the brake shoes and brake controls.	Adjust the brake shoes and control, according to Section 5.3.2.
6.	Oil leak onto hydraulic line joints.	Insufficient tightening on the joints or damage to the seals on the joints.	Tighten, and, if necessary, replace the line elements.
7.	Oil Leak from the shut-off valve or cylinder.	Worn or damaged seals or mechanical damage to these devices.	Replace seals or complete units (assemblies).
8.	The locking pin of the body does not enter the socket.	Bent pin or dirt between pin and housing.	Straighten the pin and clean the pin and housing, apply a thin layer of grease on the pin, then insert it into the socket and secure.
9.	The seat of the load-bearing platform support does not fit the spigot of the chassis frame.	Bent chassis frame, bent body frame, or mechanical damage to connecting parts.	Disconnect the frame of the load-carrying body from the chassis frame, inspect it, and measure the support points. Repair damaged elements. Fold and secure. Contact the manufacturer to replace the damaged components.

8. Authorised service

Guarantee service

The manufacturer provides a guarantee for the machine on the terms and conditions stipulated on the Guarantee Certificate. In the warranty period, the repairs must be performed by the authorised service centres of the dealers, or the manufacturer.

8.1

Routine service

After the warranty period, periodic inspections, adjustments, and repairs to the machine are carried out by the authorised dealer service centres.

8.2

Ordering spare parts

8.3 Spare parts must be purchased from the authorised dealers or ordered from the manufacturer. When ordering, provide the following: your name and surname, or the company name, and the address of the ordering party. When ordering, please also include the following: name, symbol, serial number, year of manufacture, part name, part number, drawing or standard number in the catalogue, and the number of ordered pieces. Then specify the payment terms.

9. Disassembly, disposal, and environment protection

If the product is going to be repaired, deliver the worn parts to a scrap yard. Adhere to the requirements of OH&S while doing all repair and replacement work performed on worn-out components. If the entire product is to be disposed of, deliver it to a buy-back recycle centre.

Any malfunction of the hydraulic system, i.e. oil leaks, must be remedied without delay and without causing environmental pollution. When changing the oil, make sure it does not spill on the ground. Used oil must be stored in sealed containers (e.g. after fresh oil) and periodically delivered to a petrol station.

CAUTION

CAUTION!

The dismantling of the machine must be carried out by those familiar with its design and operation. When dismantling (repairing), the general safety precautions for workshop work on agricultural equipment must be observed. Due to the high component weight (over 20 kg), use lifting equipment during dismantling.

Do not leave any worn-out or damaged parts collected during repairing or dismantling in the field or within the farmyard area. They must be stored in a separate place (with limited access for people and animals), and periodically delivered to a scrap yard.

It is better to have the machine disposed of by a professional centre which operates in the dismantling of equipment and machines. When disposing of the machine on your own, segregate the parts according to the type of material: rubber elements, ferrous, and non-ferrous metals. Hand over the rubber parts for re-use (re-processing or disposal).

10. Residual risk

Residual-risk description

Although “METAL-FACH” Sp. z o.o. in Sokółka takes responsibility for the design and structure of the machine, in order to eliminate hazards, some risks are unavoidable when the Trailer is in operation.

10.1 The residual risk is due to the incorrect behaviour of the Trailer's operator, e.g. due to carelessness, ignorance, or improper behaviour. The following prohibited actions cause the highest level of risk:

1. Operation of the Trailer by minors and those who are not authorised to drive a tractor, as well as those who are not familiar with the Instruction Manual;
2. Operation of the Trailer by those who are sick, under the influence of alcohol or other intoxicating substances;
3. Using the Trailer for purposes other than those described in the Instruction Manual;
4. Standing between the tractor and the Trailer while the tractor's engine is running.
5. Bystanders, children in particular, standing close to the running Trailer;
6. Cleaning the Trailer during operation;
7. Tampering with the tractor's drive train and the Trailer's moving parts, when it is in operation.
8. Checking the technical condition of the Trailer during operation.

When specifying the residual risks, the Trailer is interpreted as a machine that was designed and made in accordance with the state of the art in the year of its manufacture.

10.2

Evaluation of the residual risk

By observing the following instructions:

- Adhere to the safety rules described in the Instruction Manual;
- Read the Instruction Manual carefully;
- It is prohibited to reach into dangerous locations or places where such reaching is forbidden;
- It is prohibited to operate the Trailer in the presence of bystanders, children in particular;
- The Trailer can only be maintained and repaired by properly trained personnel;
- The Trailer can only be operated by those, who have undergone training and know the Instruction Manual;
- Protect the Trailer against the access of children;

it is possible to eliminate the residual risk associated with the Trailer's operation without putting people and the environment in danger.

CAUTION

CAUTION!

Failure to comply with the aforementioned guidelines can result in the occurrence of residual risks.

INDEX OF NAMES AND ABBREVIATIONS

bar – unit of pressure;

kg – kilogram, weight unit;

km/h – kilometre per hour, linear speed unit;

kPa – kilopascal, pressure unit;

kW – kilowatt, power unit;

m – metre, length unit;

min - minute, an auxiliary unit of time equal to 60 seconds;

mm – millimetre, an auxiliary length unit equal to 0.001 m;

Nm, newton metre – a unit of moment of force in the SI system;

Pictogram – a notice plate;

T – tonne – a unit of weight

Rating plate – a manufacturer's plate unambiguously identifying the machine;

UV - Ultraviolet radiation; It is an invisible electromagnetic radiation with a negative impact on human health; UV radiation has a negative effect on rubber parts;

V – Volt – a voltage unit

VIN (Vehicle Identification Number) – the vehicle identification number assigned and placed by the manufacturer;

Hitch, lower transporting hitch – hitch components of a farm tractor (see the tractor's instruction manual).

ALPHABETICAL INDEX

NOTES

Metal-Fach Sp. z o.o. is constantly improving its products and adjusting its package to the needs of its customers, so it reserves the right to make changes to its product range without notice. Therefore, before making your purchase decision, please contact an authorised dealer or sales representative of Metal-Fach Sp. z o.o. Metal-Fach Sp. z o.o. will not accept any complaints regarding the data and pictures contained in the catalogue, as the presented range of products does not constitute an offer within the meaning of the provisions of the Civil Code.

The pictures do not necessarily show standard accessories.

Original spare parts are available from authorised dealers, both in Poland and abroad, and also at the Metal-Fach retail outlet.

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