



METAL-FACH



AGRICULTURAL TRAILER
T963
INSTRUCTIONS MANUAL
TRANSLATION OF THE ORIGINAL USER MANUAL
REVISION 1
17/08/2023



UE



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 (trading name of the manufacturer)	Metal-Fach
1.2.	Type:	T963
1.2.1.	Variant:	T963/2 / T963/3
1.2.2.	Version:	
1.2.3.	Trade name(s) (if any):	T963/2 / T963/3
1.3.	Category, subcategory and vehicle speed indicator	R1a
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)	
1.5.1.	Location of the manufacturer's rating plate	On the front side of the chassis frame stringer on the right-hand side
1.5.2.	Method used to fix the manufacturer's rating plate:	Bonded/riveted
1.6.1.	Location of the vehicle identification number on the chassis	On the front side of the chassis frame stringer on the right-hand side
2.	Machine identification number:	
3.	Function	Carriage of bulk materials
referred to in this declaration, meets the requirements of: Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery (Official Journal EU L157 of 09/06/2006, pp.24-86), the Regulation of the Minister of Economy of 21 October 2008 on essential requirements for machinery (Journal of Laws No. 199, item 1228) and Regulation (EU) No 167/2013 of the European Parliament and of the Council of 5 February 2013 on the approval and market surveillance of agricultural and forestry vehicles. The following harmonised standards were applied in order to assess compliance. PN-EN ISO 1853+AC:2019-07, PN-EN ISO 4254-1:2016-02, PN-EN ISO 13857:2020-03 and standards and regulations: ISO 3600:2022, PN-EN ISO 12100:2012, PN-ISO 11684:1998 Safety test report No. LBC/31/23 The person responsible for making the technical documentation of the machine available is the Head of the Design and Technology Department, Metal-Fach sp. z o.o., ul. Kresowa 62, 16-100 Sokółka, Poland This EC Declaration of Conformity shall become null and void if the machine is modified or reconstructed without the manufacturer's consent.		

Sokółka, Poland
(Place)

13/07/2023
(Date)

Jacek Kucharewicz
(Signature)

President of the Board
(position)

Machine data

Machine type: Agricultural Trailer

Type designation: T963

Serial number ⁽¹⁾/VIN:

Machine manufacturer: METAL-FACH Sp. z o.o.
16-100 Sokółka
ul. Kresowa 62
Tel: (0-85) 711 98 40
Fax: (0-85) 711 90 65

Seller: _____

Address: _____

Phone/Fax.: _____

Delivery date: _____

Owner or user: Surname: _____

Address: _____

Phone/Fax.: _____

¹ The data is located on the machine rating plate located on the front part of the machine main frame

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Background

The information included in the user manual is valid as of the date it was drawn 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 specifications 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 user manual and to comply with its recommendations. This will ensure the safe operation and reliable performance of the machine.

The machine has been designed in accordance with the standards and legal provisions contained in the Declaration of Conformity. This user manual defines the basic safety and operation principles regarding the agricultural trailer manufactured by Metal-Fach.

The essential obligations of the manufacturer are shown in the Warranty Certificate, which includes the complete and currently prevailing regulations on commercial warranty services.

If you do not understand the information in the instruction manual, consult the original reseller of this machine or the manufacturer directly.

The spare-parts catalogue functions is a separate list, and is attached in the form of a CD as part of the machine purchase, and also is available on the Manufacturer's web site: www.metalfach.com.pl.

Pursuant to the Act of 4 February 1994 on copyrights and related Laws (Journal of Laws of 2017, item 880), this Instruction Manual is protected by copyright. It is prohibited to copy and distribute the contents and figures herein without the consent of the copyright owner.

Manufacturer address:

Metal-Fach Sp. z o.o.
ul. Kresowa 62
16-100 Sokółka

Contact:

Tel: (0-85) 711 98 40
Fax: (0-85) 711 90 65

The symbols used in these instructions:



DANGER

A hazard warning symbol: indicates a severe hazard that, if not avoided, may result in death or serious injury. This symbol warns against the most dangerous situations.



NOTE

Symbol indicating especially important information and recommendations. Non-compliance with the described recommendations threatens with a serious damage of the machine due to its incorrect operation.



WARNING

The symbol indicating the possibility of the occurrence of a hazard, which if not avoided may result in death or serious injury. This symbol indicates a lower level of risk of injury than the DANGER symbol.



The symbol indicating useful information.



This symbol indicates maintenance activities that should be performed periodically.

1. Basic information

1.1. 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 with a speed limit of 20 km/h. The trailer has safety tests and European approval.

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.

1.2 Identification of the trailer

Identify the trailer based on the rating plate and VIN number. Nameplate located on the front of the chassis frame stringer on the right-hand side. The VIN number is on the side of the front cross member of the chassis frame, as well as on the rating plate, (Figures 1 and 2).

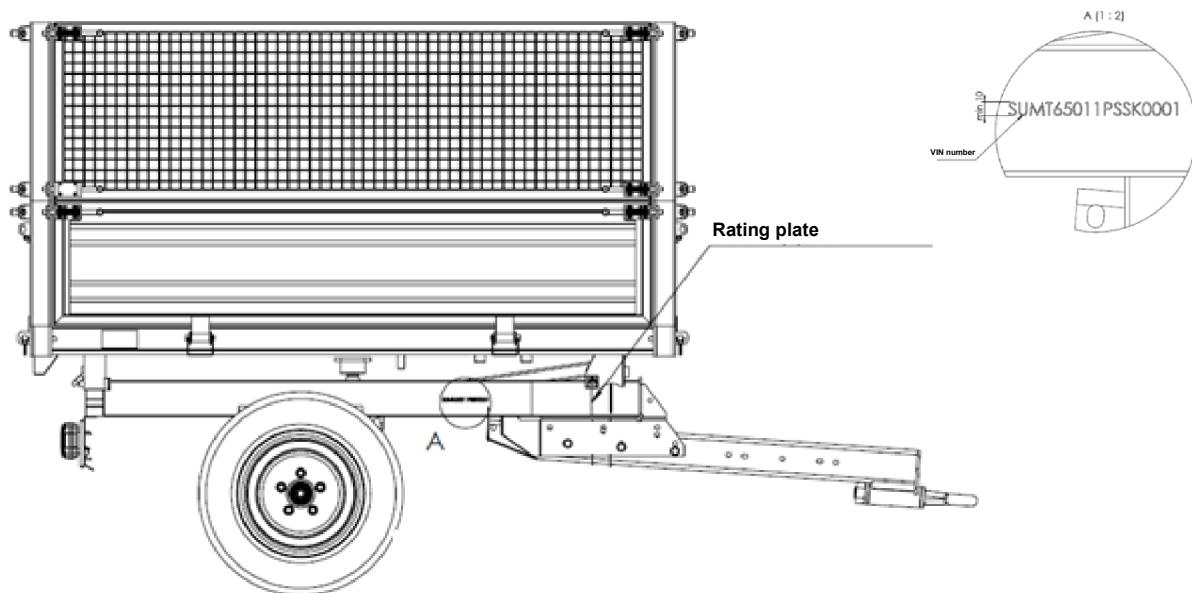


Figure 1. Location of VIN and rating plate



WARNING

WARNING!

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

Please read the Instruction Manual carefully!

<p>METAL-FACH SP. Z O.O.</p> <p>R1a</p> <p>e20*167/2013*XXXX</p> <p>SUMT65001PSSK0001</p> <p>1500 kg</p> <p>A-0: 150 kg</p> <p>A-1: 1500 kg</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td></td> <td>T-1</td> <td>T-2</td> <td>T-3</td> </tr> <tr> <td>B-1</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>B-2</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>B-3</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>B-4</td> <td>-</td> <td>-</td> <td>-</td> </tr> </table>		T-1	T-2	T-3	B-1	-	-	-	B-2	-	-	-	B-3	-	-	-	B-4	-	-	-
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METAL-FACH <small>ul. Kresowa 62, 16-100 Sokółka, Poland tel.: +48 (85) 711 98 40-45, fax: +48 (85) 711 90 65 www.metalfach.com.pl</small>			
TRAILER			
Type	T963	Commercial name	T963/2
VIN	SUMT65001PSSK0001		
Technically permissible maximum mass	1650	kg	
Load on the axle	14,7	kN	
Load on the coupling point	1,47	kN	
Year of production	2023		
Unladen mass	310	kg	Payload 1340 kg

Figure 2. Example of rating plates of the T963/2 trailer



Upon trailer 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/serial 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								P					
----------	----------	----------	--	--	--	--	--	--	--	----------	--	--	--	--	--

Place 10 in the VIN number indicates the year of manufacture (according to the table below):

Table 1. Year of manufacture

Code	Year	Code	Year
P	2023	T	2026
R	2024	V	2027
S	2025	W	2028



NOTE

NOTE!

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.

1.3 Intended Use of the trailer

The trailer is intended for the transport of agricultural produce and other bulk and loose materials on farms and public roads. The transportation of building materials, mineral fertilisers, and other loads is also permitted, provided the appropriate requirements described in Section 4.3 Loading the trailer body, have been met.

The Trailer is unloaded either manually or by tilting the load body to the rear or to the

sides. The Trailer is designed to work with agricultural tractors equipped with external hydraulic, signal, warning systems, and the hitch.

The Trailers must not be used for transporting fuel, gas cylinders, or toxic materials, as it will be required to comply with additional technical requirements regarding the carrying of hazardous loads. Transporting such materials can cause contamination of the environment. The manufacturer is not responsible for the resulting damage – this risk is borne by the owner. The trailer must also not be used to transport materials on pallets without securing them against movement (possibility of using strap retainers).

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, trained in the scope of the hazards it can create, and are capable in providing first aid assistance to victims of accidents.

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.

1.3.1 Incorrect and prohibited uses

The following uses are incorrect and prohibited:

- aggregation of the machine with tractors which do not meet the requirements specified in the manual (characteristics shown in Table 2);
- checking the technical condition and cleaning the machine while the tractor engine is running;
- using faulty hydraulic hoses;
- operation of the machine while under the influence of alcohol or drugs;
- working with a defective machine;
- leaving the machine unsecured on slopes;
- working on sloping terrain;
- entering the area between the tractor and the machine with the engine running;
- any other use of the machine not in compliance with its intended purpose.



DANGER

DANGER!

Use of the machine other than for its intended purpose is prohibited. It may result in damage to the machine, loss of health or life of the machine's operator and/or of bystanders and loss of warranty.



NOTE

NOTE!

The Trailer must not be used contrary to its intended purpose. It is especially forbidden to transport the following:

- 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.

1.4 Basic equipment

The basic components of each Trailer include the following:

- the Instruction Manual;
- guarantee certificate and warranty conditions;
- a bracket for fixing a slow-vehicle marking plate;
- lighting system;
- side – 350 mm
- wheel chocks.

At the customer's request (at an extra cost), the manufacturer can equip the trailer with the following additional equipment: marking plate – slow-moving vehicles, reflective warning triangle, customised board heights (please contact the manufacturer for this), mesh extensions (500 mm, 700 mm).

1.5 Storage, resale 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 only permitted inside shelters.

If the trailer is exposed to weather conditions, inspect it from time to time to make sure that no rainwater has accumulated inside it. Inspect the paint coating for damage. Clean and degrease every damaged area of the paint coat and recoat with the same colour and to the same coating film thickness.

1.5.2 Resale

The buyer shall collect the trailer from the manufacturer or the dealership or coordinate for other delivery conditions.

The Trailer is sold as fully assembled, ready for operation, with the basic accessories, as specified in Section 1.4 of this Manual. Optional equipment can be purchased for an extra fee.

The dealership team is required to introduce the buyer into the structure and operation of the trailer, its safety requirements, and the warranty terms and conditions.

The buyer shall verify the following:

- The trailer is complete, undamaged, and provided with its essential equipment components;
- The data on the rating plate and the VIN number stamped are compliant with the data entered in the warranty.

1.5.3 Transport to the user

The trailer must be transported on its wheels, coupled with a tractor, or on a low-loading platform from the point of sale or from the manufacturer. Before loading onto the low loader trailer, it must be connected to the tractor's transport hitch. Drive the trailer onto the low-bed trailer using ramps. With the trailer on the low-bed platform, chock the wheels.

Once this is done, unhitch 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. Then drive the tractor up and connect the trailer. Finally, remove the chocks from under the wheels of the trailer. Next, you can proceed to drive the trailer off the low-bed platform.



NOTE

NOTE!

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.



NOTE

NOTE!

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 Self-transport by the user

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



NOTE

NOTE!

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



NOTE

NOTE!

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.

Wash down the trailer with clean water or water with detergent. When using different types of detergents, please read their application specifications and assess whether they may be used to clean 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 any component of the electric or hydraulic systems, i.e. hoses, valves, cylinders, plugs, electrical connections, etc., or at the lubricating points on the trailer, information and warning signs or its rating plates.

The Trailer comes with plastic parts that are recommended to be washed with clean water or water with a special detergent dedicated for this type of surface.

Surfaces contaminated with oil or grease must be cleaned with agents intended for this type of contamination. Other degreasing agents designed for cleaning this type of contamination may be used. Before cleaning, 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.

When using various types of detergents and organic agents, remember that they can affect the machine's components, especially seals and flexible hoses. Some substances can accelerate the ageing of the material. Only use professional cleaning and maintenance products dedicated to the particular types of surfaces. Always read and follow the information provided with the cleaning and maintenance products.



NOTE

NOTE!

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 (rain, sun etc.). 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.

2. Safety of use

2.1 Information obligation



NOTE

NOTE!

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.

2.2 General safety regulations for use

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. Observe all safety symbols, warnings, and information inscriptions on the trailer that provide important guidelines for safe operating.
3. Operate the trailer only if all the required equipment are connected and secured against unintentional detachment, uncoupling or opening (e.g. the hitch, the drawbar, and the couplings).
4. Before operating, understand all the controls and their functions. It will be too late to do this while working!
5. This trailer shall never be used by any personnel under the influence of alcohol or other stimulants, and/or untrained, and/or without the correct license for the operation of motor vehicles.
6. It is prohibited to exceed the manufacturer's speed limit: T963 – 20 km/h.

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 Operational safety

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, as well as failure to observe the recommendations contained in this Instruction Manual pose a risk to health.
4. Please note that there are residual risks, so exercising the safety rules must be a priority when operating the trailer.
5. Provide all safety-relevant information to all users of this trailer.
6. Before operating the machine, inspect the direct vicinity (for any children and bystanders). Extreme attention is required if visibility is poor.
7. Never stand on the trailer while it is being towed, coupled/uncoupled to/from a tractor, or being loaded/unloaded.
8. When unloading is complete, lower the load body all the way down. Never leave the trailer unattended with the load body raised/tipped back.

9. Enter the trailer only when it is stationary and the engine of the coupled tractor is stopped.
10. Always operate the load body tipping and lowering from the tractor operator's seat.
11. Couple the trailer according to prevailing regulations of law, connect it only to the recommended equipment, and secure the drawbar eye to the tractor's transport (pick-up) hitch.
12. Extreme caution is required when coupling/decoupling the trailer.
13. When installing and removing any support and safety devices and ladders, always place them in a position that ensures safe operation.
14. Do not exceed the maximum axle load, the gross weight, and the transport clearances.
15. Check for transport equipment: connection and check of lights, fitting of distinguishing sign and other protective devices.
16. Take account of changes in vehicle behaviour, steering and braking performance resulting from the trailer coupled and its load.
17. When driving a Trailer, the distribution of the load and/or inertia forces should be taken into account, especially if the load is asymmetrical.
18. Do not stay within the range of the load to be discharged.
19. 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.
20. If you need to unload the trailer from the rear down a slope, the tractor and trailer should be parked uphill. Please note that you cannot unload the trailer forward.
21. For all work with the load body lifted (necessarily unloaded, it is forbidden to lift the loaded load body), the body must be secured against falling by using the support legs provided with the trailer. Turn off the tractor's engine and remove the key from the ignition switch.
22. Be careful to avoid crushing fingers and hands when opening and closing the sides of the load-carrying body.
23. Mind the crush and shear hazard points when starting the trailer. There is a risk of injury when coupling with and uncoupling the trailer from the tractor. Do not enter between the trailer and the tractor when coupling and uncoupling and do not stand behind the trailer if it is not secured with wheel chocks.
24. No one may stand between the tractor and the trailer unless the vehicle is protected against rolling by wheel chocks.
25. Never drive with a tipped load body.
26. For repair and maintenance work that requires the body to be lifted, empty it and apply a mechanical support to secure it against unintentional drop.
27. The driving speed must always be adapted to the ambient conditions. Avoid sudden up or downhill turns on sloping terrain.
28. Maintain a sufficient safe distance when turning with the coupled trailer.
29. When reversing, ensure that you have sufficient visibility (if possible, have someone assist you with guidance).

30. When cornering, consider the inertia of the trailer.
31. Observe a minimum turning radius of approx. 4 m when turning and reversing.
32. Before installing any additional protection on the load to be carried with the trailer, e.g. chains, tarpaulins, plastic sheet, nets etc., turn off the tractor engine and remove the ignition key.
33. Remove any functional faults of the attached devices only when the engine is switched off and the ignition key removed.
34. Should any failure occur in the hydraulic system, remove the trailer from service until the failure has been rectified.
35. It is forbidden to carry out maintenance or repair work with a load-bearing or raised, unsupported load-carrying body.
36. Before carrying out repair work on the hydraulic or system, the oil or air pressure must be reduced.
37. 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.
38. Use the hydraulic oil recommended by the manufacturer. Never mix two different types of oil.
39. Do not enter the load body without turning off the power take-off and the engine first. Remove the ignition key.
40. Switch off the engine and remove the ignition key before leaving the tractor. Engage the parking brake of the tractor and secure the trailer with chocks.
41. When driving on public roads, do not exceed the maximum permissible axle load exerted by the trailer as stated on the rating plate.
42. The Manufacturer delivers the trailer fully assembled.
43. When preparing the trailer for operation, such as connecting the hydraulic hoses, switch the tractor engine off and remove the ignition key.
44. Hydraulic lines must be replaced every 5 years.
45. Noise – the equivalent A-weighted emission sound pressure level (LpA) is not above 70 dB.
46. Keep the trailer clean.
47. Before reversing, bystanders must be warned by means of an audible signal or by the assisting person.



WARNING

WARNING!

There is a risk of a lightning strike when working with the trailer during a storm.



WARNING

WARNING!

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



WARNING

WARNING!




Risk of forces exerted on the drawbar upward or downward when coupling or uncoupling the trailer.








2.4 Warning and information pictograms



2.4.1 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 notice sticker is damaged or removed, reorder a duplicate. You can purchase the warning and notice stickers from service points or the trailer's manufacturer.

Table 2. Safety signs

No.	Pictogram	Meaning
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. 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.																
5.		Caution. Torso crushing hazard. Do not stand near the motion zone of the articulated coupling joints when the engine is running.																
6.		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.																
7.		Caution. Finger crushing hazard. Do not reach into the crushing area, if elements are moving.																
8.		Caution. Danger of crushing. It is forbidden to carry out maintenance or repair work if the load-carrying body is unsupported.																
9.		Sling attachment/Lifting point.																
10.		Informational pictogram.																
11.	<div>Load capacity 1.1 ↑ Hydraulic system operating pressure 18 MPa</div>	Informational pictogram.																
12.	<div>Approximate weights of selected materials 1 cubic metre = kg</div> <table><tr><td>Soil</td><td>1600 - 1800</td></tr><tr><td>Wheat</td><td>710 - 820</td></tr><tr><td>Potatoes</td><td>625 - 725</td></tr><tr><td>White beet</td><td>650 - 700</td></tr><tr><td>Legumes</td><td>760 - 820</td></tr><tr><td>Construction aggregates</td><td>1400 - 1850</td></tr><tr><td>Lime</td><td>900 - 1500</td></tr><tr><td>Hard coal</td><td>1200 - 1600</td></tr></table>	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	Informational pictogram.
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																	
13.	<div>NOTE! Do not attempt any inspection or servicing under the load body if loaded or tipped without a safety support.</div>	Informational pictogram.																
14.	<div>NOTE! Keep clear of the discharged load It is forbidden to climb onto the trailer while it is being driven.</div>	Informational pictogram.																

15.	Caution! Couple the trailer with the tractor's top hitch only.	Informational pictogram.
16.	NOTE! Connecting the drawbar with the swivel eye only to the tractor's rigid transport hitch.	Informational pictogram.
17.		Informational pictogram.
18.	Tighten the wheel nuts after a few kilometres and retighten them periodically.	Informational pictogram.
19.		Speed limit pictogram.



NOTE!

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.

NOTE

2.4 Arrangement of pictograms on the machine

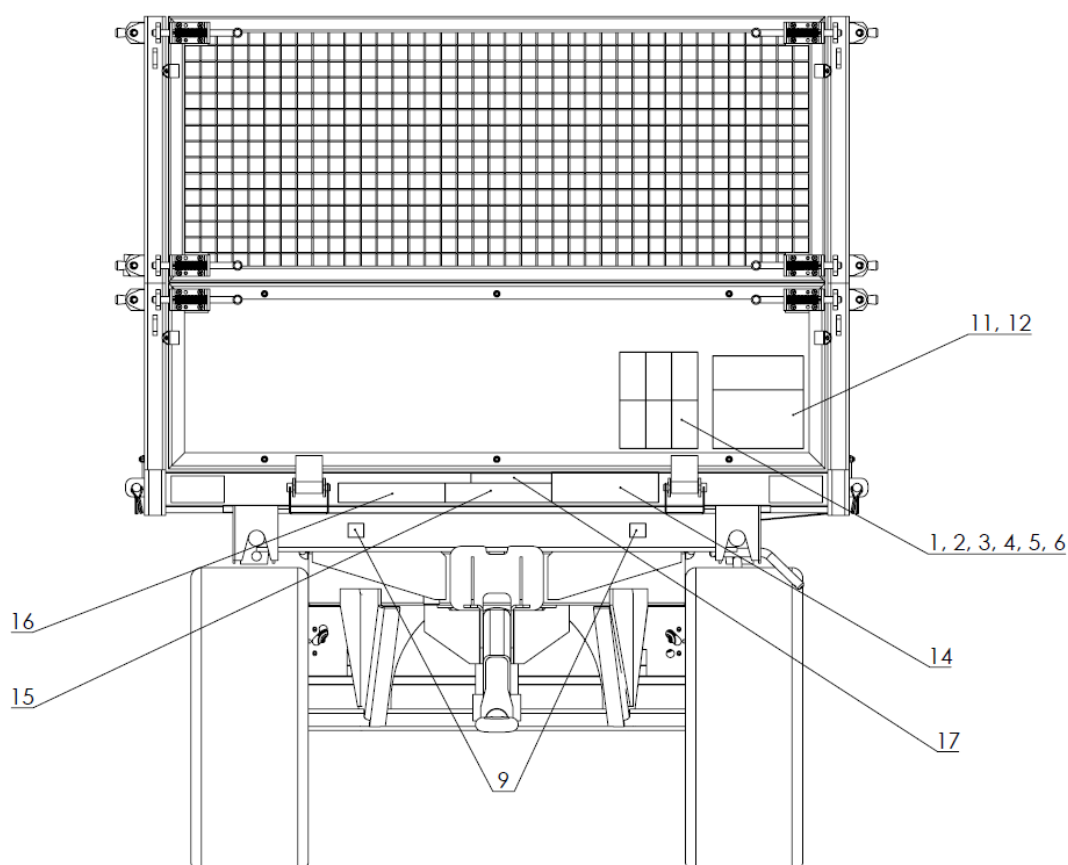


Figure 3. The arrangement of the pictograms on the boards of the trailer – front

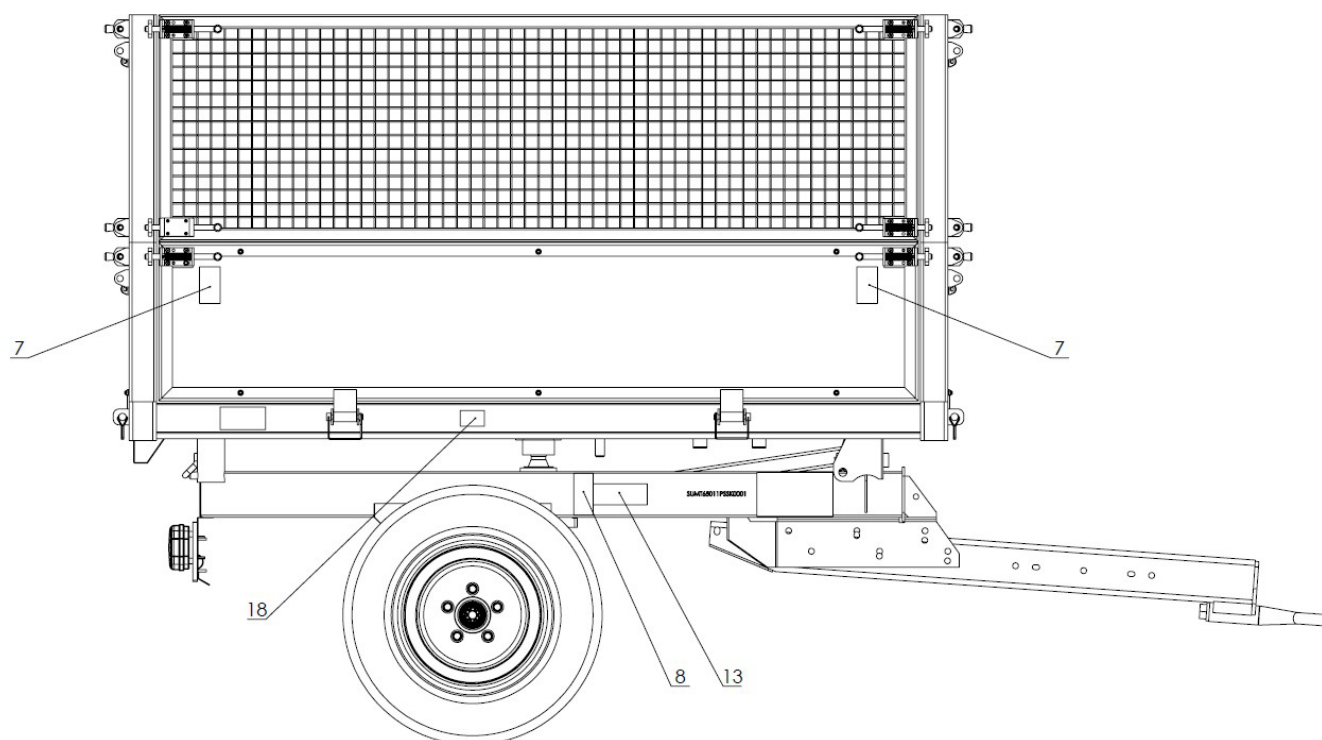


Figure 4. The arrangement of the pictograms on the boards of the trailer – side view

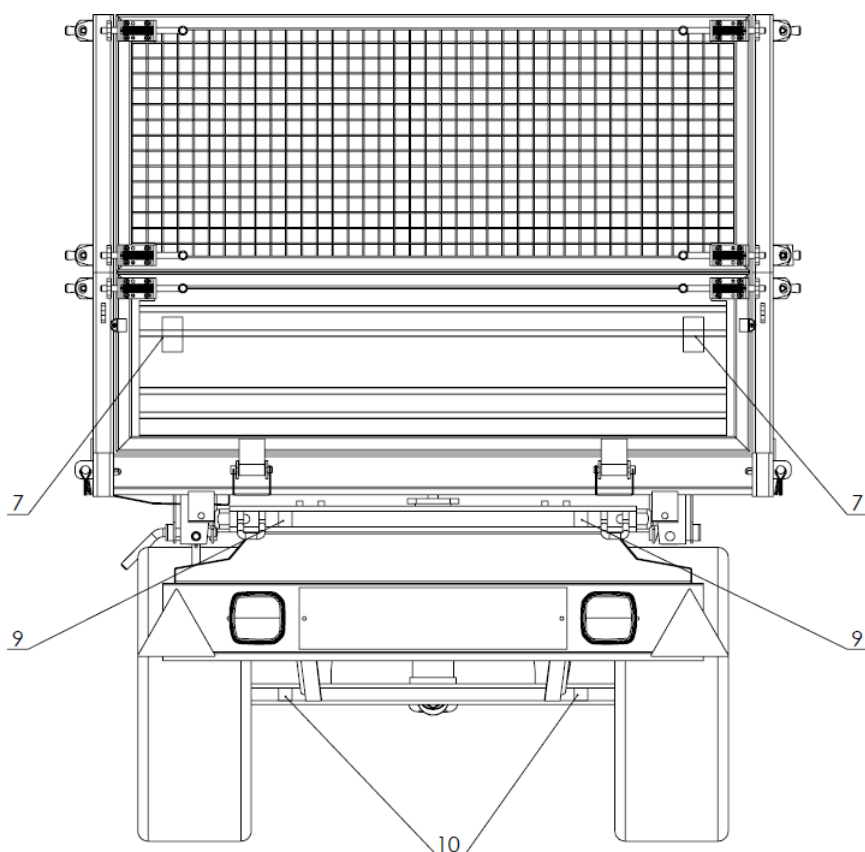


Figure 5. The arrangement of the pictograms on the boards of the trailer – rear

3. Technical data

3.1 Main technical data

Table 3. Trailer specification

No.	General data		
1.	Vehicle type	Agricultural Trailer	
2.	Manufacturer	METAL-FACH Sp. z o.o., 16-100 Sokółka, Poland, ul. Kresowa 62	
3.	Type (Model)	T963	
4.	Variant	T963/2	T963/3
5.	Body type	Box	
6.	Rating plate location	On the front side of the chassis frame stringer on the right-hand side	
7.	Number stamp location	On the front side of the chassis frame stringer on the right-hand side	
Dimensions and weights			
8.	Length, mm	2320–2710	3120–3510
9.	Width, mm	1360–1420	
10.	Height (with net extension, depending on tyres), mm	max 2280	
11.	Number of axles, pcs.	1	
12.	Wheel base, mm	Not applicable	
13.	Wheel track, mm	850–950	
14.	Dimensions of the cargo space:		
	- length, mm	max 1780	max 2580
	- width, mm	max 1300	
	- height (with extension), mm	max 2280	
15.	Load surface lift, mm	Dependent on the tyres in use	
16.	Diameter of the drawbar eye, mm	35mm	
17.	Vehicle kerb weight, kg	max 500	
18.	Gross vehicle weight rating, kg:	1650	
19.	- axle, kg	1500	
20.	- on the hitch, kg	150	
21.	Maximum axle load, kN	14.7	

22.	Maximum load on the hitch [kN]	1.47
23.	Vehicle maximum load capacity, kg	1400-1150
Suspension		
24.	Suspension type	Rigid, dependent, unsprung
Wheels and tyres		
25.	Tyre size, ply rating, load index, wheel disc size (see the parenthesis), and tyre pressure (see the square brackets – [bar])	23 × 8.50-12 min 110 A4 (12 × 7) [5.4] 185R14C min 104 N (5.5 J × 14 H2) [6]
Braking system		
26.	Service brake	No
27.	Parking brake	No
Electrical installation		
28.	Rated voltage, V	12, supplied by the coupled tractor
Operating data		
29.	Maximum driving speed, km/h	20
30.	Working speed	20 km/h
Additional information		
31.	Tractor coupled to the trailer	at least 15 kW
32.	Three way	tipping

3.2 Dimensions of trailers

The overall dimensions of the Trailers in the transporting position are shown in the figures below.

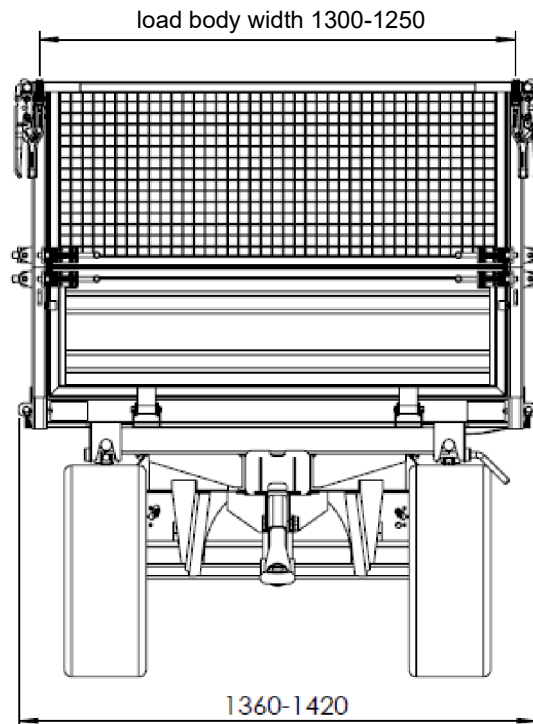


Figure 6. Dimensions of T932/2 trailer – front view

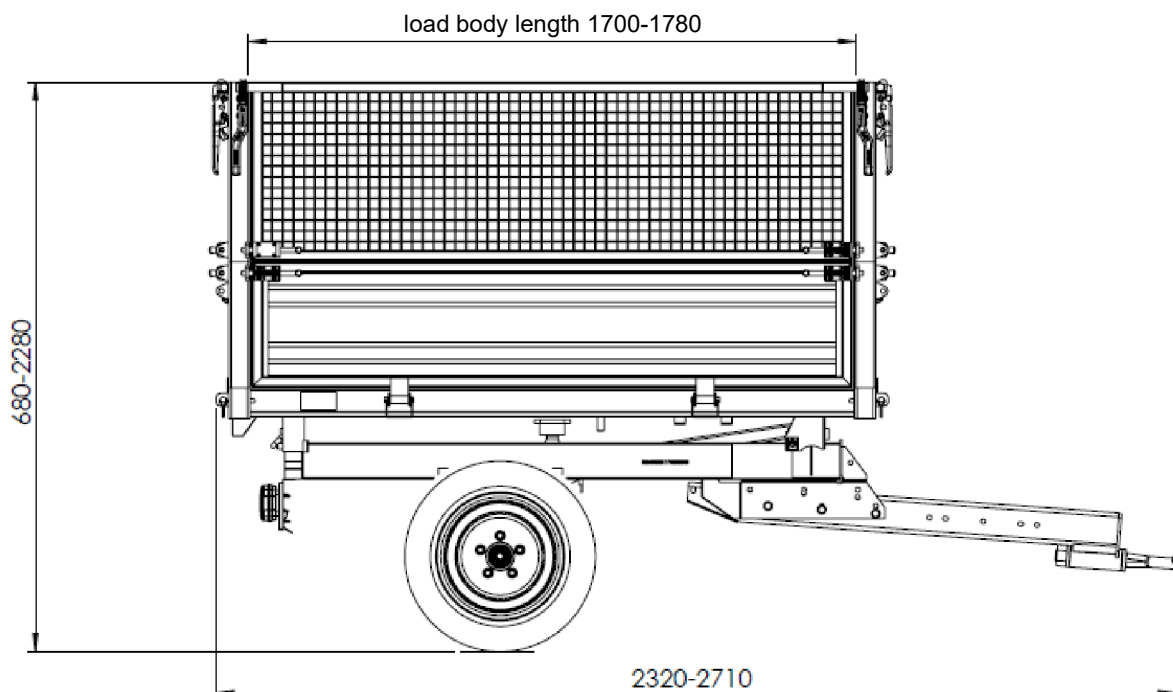


Figure 7. Dimensions of the T963/2 trailer – side view

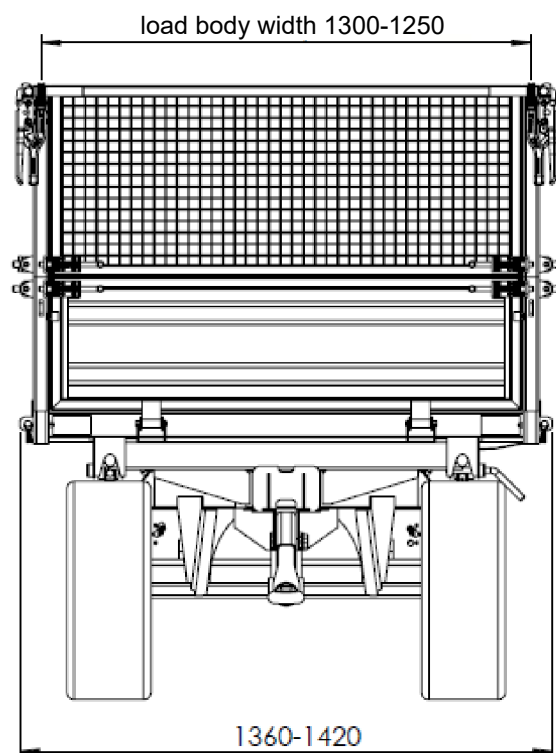


Figure 8. Dimensions of T963/3 trailer – front view

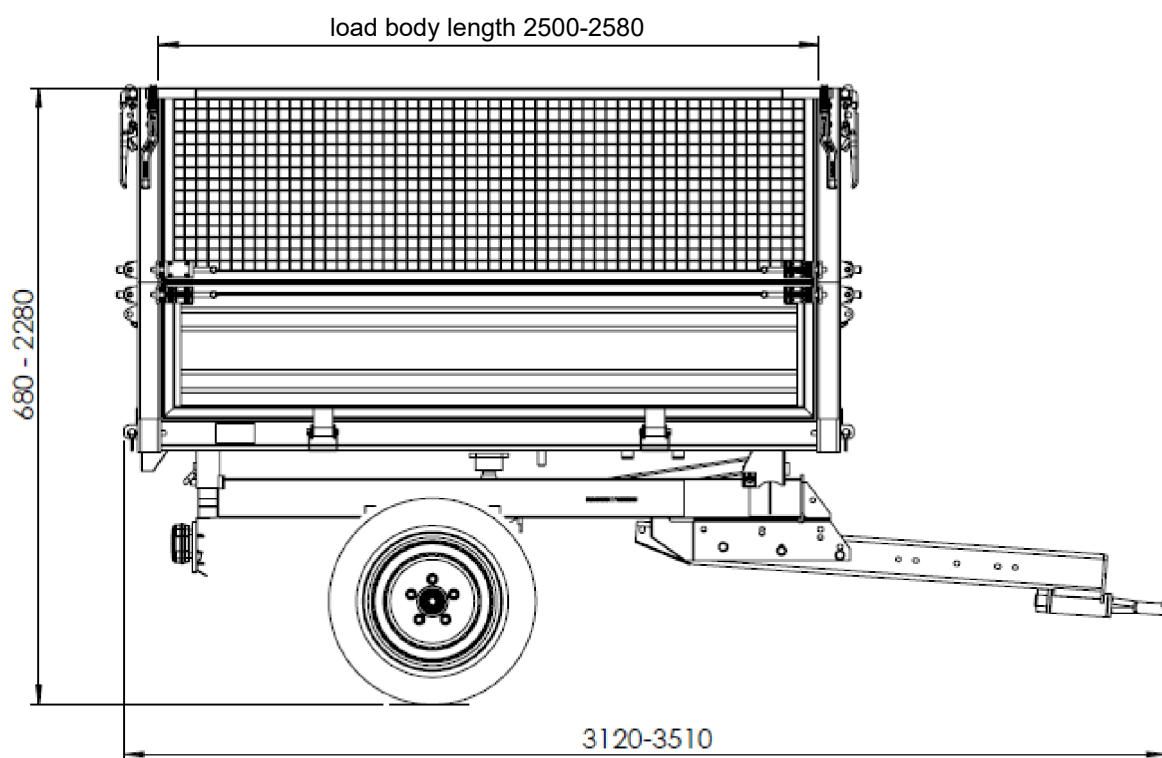
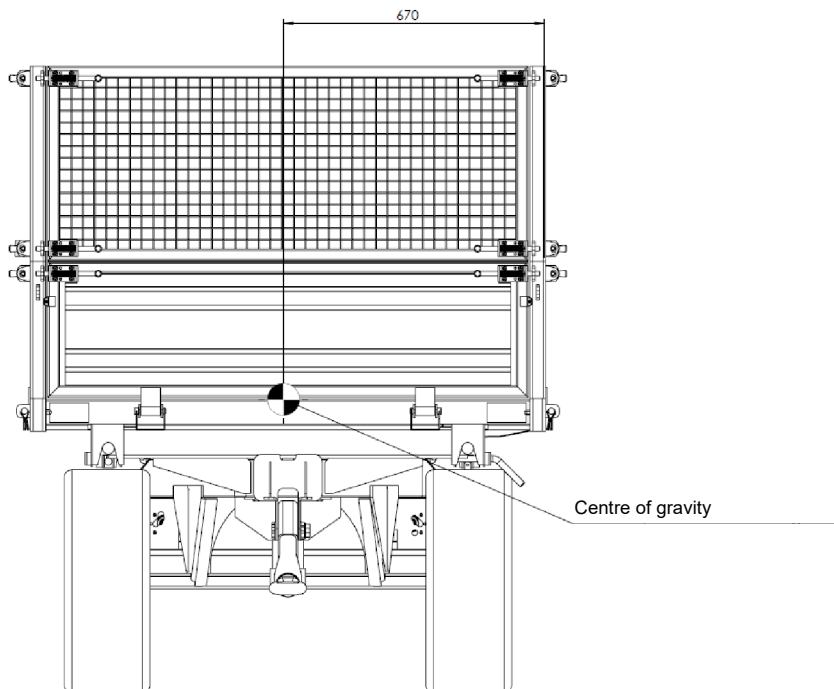
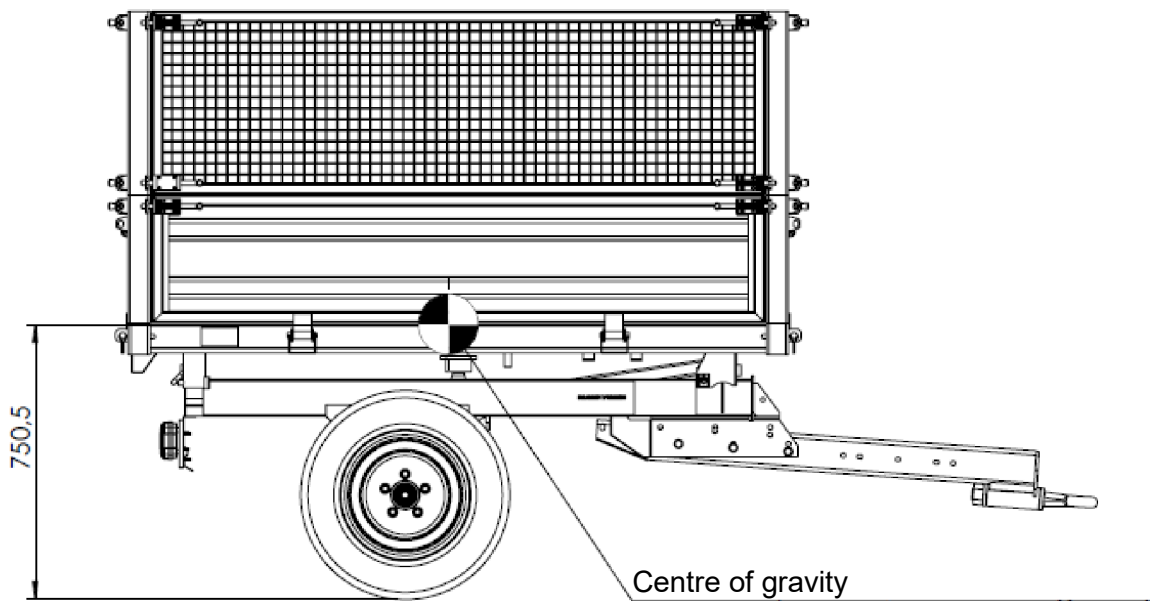


Figure 9. Dimensions of the T963/3 trailer – side view

3.3 Position of the centre of gravity



3.4 General design and principles of operation

The T963 Trailer consists of a backward and side-tilt steel structure with an open cargo space.

The Trailer has a complete signalling and warning system (electrical installation 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.

3.4.1 Undercarriage

The Trailer chassis consists of the following units: top and bottom frame, drawbar, wheel sets. The bottom frame and the drawbar are made as a welded construction of steel sheets and sections.

The trailer wheel sets consist of the following components: a single axle, running wheels in a choice of two sizes.

The axles consist of square bars with spigots at the ends, which house hubs of the ground wheels set on tapered roller bearings.

3.4.2 Load area

The load area of the Trailers is formed by:

- The upper frame (frame of the load-carrying body), which 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 net extensions are individual elements; each of the elements features a separate set of locks, which allows the closing and opening of individual parts of the boards and top extensions, independently of each other and in any order; this design increases the functionality of the trailer and facilitates its operation;
- The sideboard and extension locks, which are protected against unauthorised opening.

3.4.3 Hydraulic tipping mechanism of the load body

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

The hydraulic system comprises: connector valve plug, hydraulic lines, single-acting hydraulic cylinder.

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.



NOTE

NOTE!

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

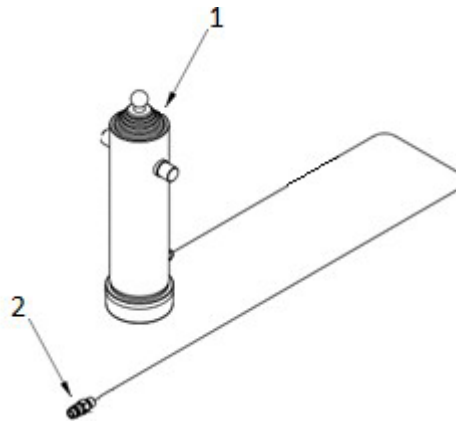


Figure 10. The diagram of the hydraulic system in the tilting mechanism of the trailer's body:
1 – telescopic cylinder, 2 – quick connector – plug



NOTE

NOTE!

Exercise particular caution when entering the load-carrying body.

3.4.4 Lighting system

The Trailer's electrical system is designed for a 12 V DC power supply. Use a suitable connecting cable to connect the trailer's electrical system to the tractor.

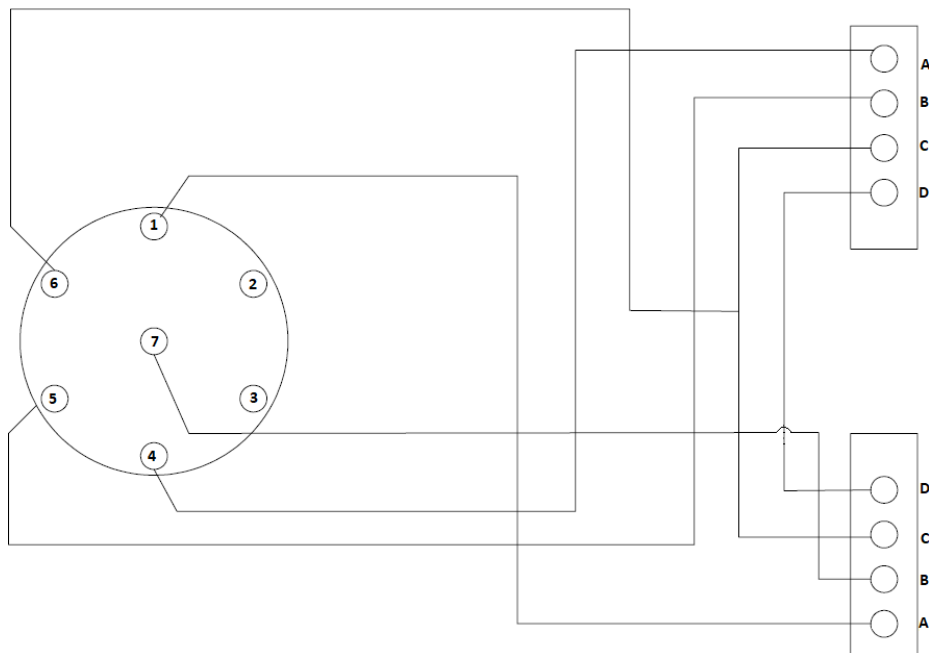


Figure 11. Wiring diagram of the trailer A – indicator, B – Brake/STOP light, C- rear running lights, D – license plate lights

4. Information on use

4.1 Working with the tractor

4.1.1 Coupling the trailer with the tractor

The T963 Trailer can only be used with fully operational tractors with a minimum power of 15 kW, equipped with two external hydraulic system sockets and a hitch (the upper 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.



NOTE

NOTE!

Exercise particular caution when coupling the trailer. It is forbidden for anyone to be present between the trailer and the tractor during the coupling process.

To connect the tractor with the T963 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 and electrical systems to the respective receptacles on the tractor.



NOTE

NOTE!

The maximum angle between the longitudinal axis of the tractor and the longitudinal axis of the aggregated trailer must not exceed 45°.

The Trailer is equipped with a mechanically support foot. Its job is to support the trailer's drawbar when it is not coupled with the tractor.



NOTE

NOTE!

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

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;
- place wheel chocks;
- disconnect the electrical and hydraulic system wiring harnesses from the tractor;
- Unlock and remove the pin of the hitch to uncouple the drawbar from the hitch; then, drive the tractor away and insert the pin into the hitch.



NOTE

NOTE!

Do not uncouple the trailer from the tractor:

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

4.2 Getting started for the first time



NOTE

NOTE!

Use a tractor in good working order only, i.e. which is fitted with a functional transporting hitch, and functional brake, hydraulic and signalling-warning systems.

Before operating the trailer, follow the procedure below.

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

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

4.3 Loading the box

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 side wall and top extension locks are engaged.

Load the trailer by spreading the load evenly over the entire load body floor. 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 the load body top extensions, and when transporting materials that reach beyond the load body envelope, follow the applicable traffic laws to use safety warning markings that are legal.


When the cargo being transported has very small grains (e.g. rapeseed) or is pulverised material, transportation by trailer should take place provided that the load body is thoroughly sealed at gaps smaller than the grain of the material being transported. Rubber gaskets, foil, silicone sealant, PVC rope or canvas or other materials that are used for tarpaulins can be used.



NOTE!

The trailer must also not be used to transport materials on pallets without provision for movement.

NOTE



NOTE!

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.

NOTE

Table 4. Approximate weights of selected materials

Approximate weights of selected materials per 1 m ³ , 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

4.4 Unloading the load body

The load body contents can be unloaded by hand (tools), with power machines, or by operating the hydraulic tilting system.

Unloading the trailer by tilting the load body shall follow this procedure, exactly in the order of steps as listed:

- Align the tractor with the trailer's centreline.
- Engage the tractor's parking brake.
- open the rear sideboard locks;
- 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. After the load has been unloaded from the trailer, it is necessary to:
- lower the load-carrying body and remove any residual material,
- close the rear wall locks,
- lock the wall(s) and prevent it/them from opening automatically.

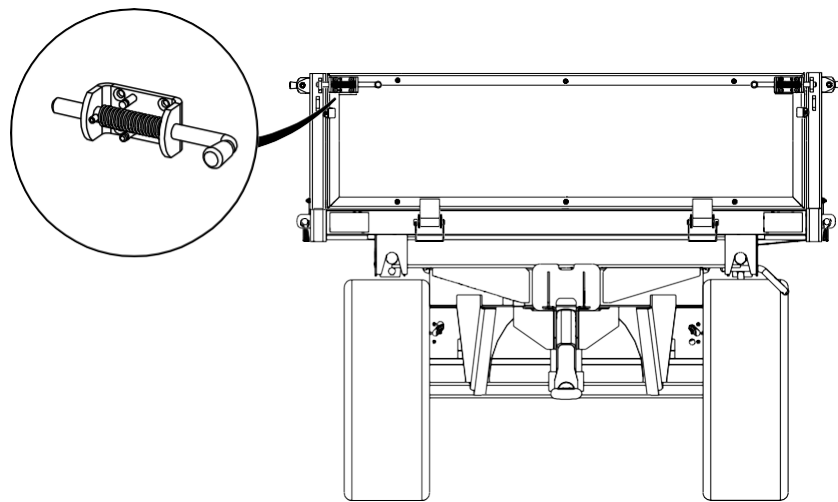


Figure 12. Sideboard locks



NOTE

NOTE!

- 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 one 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 starting to unload the trailer by tilting the load body, it is essential to check that the rear locks are open.
- It is forbidden to transport people on the trailer.
- When tilting the load-carrying body make sure it is stable.

4.5 Driving on public roads

Before starting to drive, check the correct functioning of the lighting, and make sure it 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 20 km/h.
3. The trailer is suitable for working on a surface with an inclination that does not exceed 8.5°.
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 load body (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. This is secured by placing wheel chocks and strapping down the load.
6. Transporting speed max. 20 km/h.



NOTE

NOTE!

The vertical load transferred from the trailer to the tractor can affect the handling of the vehicle.

4.6 Hydraulic system

4.6.1 Servicing the hydraulic tipping system of the load body

The body-tilting hydraulic mechanism is used for the automatic unloading of the trailer by tilting the load body backwards and 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, 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.



NOTE

NOTE!

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.



NOTE

NOTE!

Hydraulic oil can heat up to high temperatures during operation. Care must be taken to ensure that the hydraulic system is leak proof. There is a risk of injury if a hydraulic system hose breaks.

The hydraulic system of the trailer must be completely leak-free. Test the hydraulic system for leaks by overloading it with pressure for several seconds, by forcing the load body tilt once it meets the tilt stop. Retighten the couplings if there is an oil leak from the hydraulic hose lines. If the problem persists, replace the entire affected line or its failed coupling components with new parts. If the fluid leak is not from a coupling, replace the leaking component of the hydraulic system. Any mechanical damage to any hydraulic component means it must immediately be replaced with a new counterpart.

Routinely monitor the condition of the hydraulic system when operating the trailer. When connecting the trailer's and the tractor's hydraulic systems, keep all couplings clean.



NOTE

NOTE!

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



NOTE

NOTE!

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.



NOTE

NOTE!

The operating pressure of the hydraulic system is 18 MPa.

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

5. Elements requiring adjustments

For proper operation, the T963 Trailer requires the following adjustments:

- The adjustment of the wheel bearing play;
- Tyre maintenance;
- Hydraulic system maintenance.

5.1 Wheels – bearing play adjustment

If the purchased trailer is brand new, at the start of its operation (approximately after 100 km of usage) and periodically afterwards (every next 1500-2000 km), inspect and readjust the wheel bearing play.

The procedure:

- couple the trailer to the tractor on a flat surface and apply the tractor's parking brake;
- chock the wheel that is not to be jacked;
- place the jack under the axle near the wheel to be lifted;
- Secure the wheel with a jackstand or a support tall enough to be placed under the same side under the axle.
- 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;
- while turning the wheel, simultaneously tighten the castellated nut, until the wheel has stopped completely;
- release the castellated nut by 1/6 to 1/3 of a turn, until the nearest safety pin groove is aligned with the hole on the hub pivot;
- Secure the nut with a new pin, replace, and fasten the hub cover.

When the bearing play has been correctly adjusted, the wheel should turn smoothly, without jamming or perceptible resistance. After driving for a few kilometres observe how the wheel hubs heat up, to check finally if the bearing-play adjustment is correct. Significant resistance during wheel rotation and excessive heating of the hubs may result from incorrect adjustment of the bearing play, contaminated grease or bearing damage. These symptoms require the removal of the wheel hub and troubleshooting.

5.2 Wheels – tyres

Servicing of the tyres includes visual inspection of their condition and checking the inflation pressure. It is critical that the tyres do not show any cracks that expose or compromise the carcass, and that the wheel hubs, wheel rims, and their fastening is in good repair.

When working on the tyres, the machine must be restrained – secure them with chocks.

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 dirt penetration.

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.

Check the tyre pressure regularly, over-inflation can lead to explosions. Tyre pressures can change during a day's operation. Adjust your speed and load capacity to suit your tyre pressures.



NOTE

NOTE!

Check the wheel nuts on a regular basis for their condition and tightness, before each use of the trailer. Tighten them, if necessary.

Tightening torque of wheel nuts per thread size:

- $M18 \times 1.5 = 270 \text{ Nm}$,
- $M20 \times 1.5 = 350 \text{ Nm}$,
- $M22 \times 1.5 = 475 \text{ Nm}$.



NOTE

NOTE!

When driving in curves and reversing, the angle between the longitudinal axle of the tractor and the longitudinal axle of the trailer must not exceed 45 degrees. Failure to observe this may result in damage to the wheels and axles.

6. Periodic inspection

6.1 Maintenance

The transport capacity as well as the long service life of agricultural trailers can only be achieved, if it is handled properly and used rationally, within the limits of structural and functional parameters.

Even minor negligence in the operation of the trailer can have serious consequences. A defect found in due time can be easily eliminated with minimum effort and costs, while providing the maximum benefit. Trailer defects can only be found quickly if the machine is routinely and consistently cleaned and carefully inspected. Therefore, wash the trailer often to spot possible damages and malfunctions.

Have the trailer undergo periodic technical/safety inspection. 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.

To keep the trailer performance optimum, the trailer requires timely maintenance and repairs, and careful monitoring in operation.

The daily servicing of the trailer (before each day's work) requires a minimum range of tasks that are specified below:

- Check the tightness of the thread-fastened parts and protect them against accidental release;
- Check the play of mechanisms and articulated joints;
- Test and inspect the hydraulic system for leaks and remove if present;
- Test the mechanisms for proper operation;
- Check the lubrication and lubricate as specified in the Manual;
- Check the tyre pressure;
- Check the load body wall locks for proper engagement and safety;
- If using top extensions, test their performance and inspect for the safety of the operator and road traffic;
- checking the functioning of the signalling and warning system.



NOTE

NOTE!

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

6.2 Periodic maintenance

1. Carry out any repair, maintenance, and cleaning work, as well as eliminate any functional faults with both the tractor's drive and engine 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 operating underneath a raised and tilted, but unloaded load-carrying body, always secure the body against dropping with the support provided 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. Only use the spare parts recommended by "METAL-FACH" Sp. z o.o. in Sokółka.
9. 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.
10. Used parts must be handed over to the appropriate recycling centres subject to the environmental requirements.

6.3 Repair instructions

When carrying out minor repairs caused by accidental defects, maintain the proper cleanness and ensure all parts are correctly mounted, 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.

A series of technical rules for the dismantling and assembly of parts and sub-assemblies must be observed during current and comprehensive repairs, 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 CO₂ or foam extinguisher.

6.4 Lubrication

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

Compliance with the lubrication requirements of the Manufacturer will significantly reduce the risk of damage or premature wear and tear of individual parts.

Follow the guidelines for lubrication listed below.

- Clean each grease nipple before injecting grease.
- Pump in the grease until fresh grease starts coming out from the slots (through which the used grease is squeezed out when changing the grease).
- After lubricating, leave a dab of grease on the grease nipple head.
- Use oil to lubricate threaded fasteners, lever joints, pivots, and similar parts of the trailer.
- Check the lubrication of the wheel hub bearings and replenish or replace the bearing grease each year.
- When replacing the grease, remove the hub, remove any used grease, evaluate the condition of the bearings (replace if necessary), and after applying fresh grease and reassembling the hub, adjust the bearing play.



NOTE

NOTE!

Use high quality bearing grease only.

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

Table 5. Lubrication points

Lubrication point	Lubricant grade	Lubrication interval
Wheel hub bearings	LT 43	Every 6 months
Head socket of the hydraulic cylinder	Graphite grease	every 6 months
Components of the trailer's body-tilting system	LT 43	Every 6 months

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

6.5 Metric screw tightening torques

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

Tabela 6. Tightening torque values for metric bolts

Bolt-tightening torques – metric bolts in Nm							
Size Ø mm	Pitch mm	Bolt version – strength class					Wheel nuts/wheel bolts
		4.8	5.8	8.8	10.9	12.9	
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

If faults or failures occur, they must be reported to Metal-Fach's service.

The most frequent faults and problems that may occur during the operation of the machine are presented in the table below. After any repair work has been carried out, restart the machine and check that the proposed solution to the problem has corrected the fault. If the suggested solutions fail to bring the required result, contact the distributor or Metal-Fach's service centre.

Table 7. Defects and troubleshooting

No.	Type of defect	Cause	Remedy
1.	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.
2.	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.
3.	The locking pin of the body does not enter the socket.	A bent pin or dirt between the pin and the housing.	Replace or clean the pin and the housing, apply a thin layer of solid grease to the pin, insert it into the socket and secure.
4.	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.	Contact the manufacturer to replace the damaged components.

8. Authorised service

8.1 Post-warranty service

The manufacturer provides a commercial warranty for this machine, on the terms and conditions specified in the warranty certificate. During the warranty period, all repairs shall be performed by the authorised service centres at official dealerships or the Manufacturer's technical service.

8.2 Day-to-day service

After the warranty period, periodic inspections, adjustments, and repairs of the machine can be provided by an authorised dealership service.

8.3 Ordering spare parts

Purchase the spare parts from the official dealerships or order them from the manufacturer. When ordering, provide the following: your name and surname, or your company name, and your ordering address. When ordering, please also provide the following: the name, code, serial number, year of manufacture, part name, part number, and the drawing or standard number in the catalogue, and the number of ordered pieces. Specify the terms of payment for the order.

9. Disassembly, decommissioning 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. kept after fresh oil) and periodically delivered to a petrol station or a waste processing facility.



NOTE

NOTE!

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 or a waste processing facility.

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 risks

10.1 Description of residual risks

Although METAL-FACH Sp. z o.o. in Sokółka is liable for the design and structure of the machine to eliminate its hazards, some risks are unavoidable when the trailer is in operation.

These residual risks can be a result of human error by the trailer's operator, caused by carelessness, ignorance or improper behaviour. The following prohibited actions cause the highest level of danger:

1. Operation of the trailer by minors or persons who are not authorised to drive a tractor, as well as persons 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 Instructions Manual.
4. Standing between the tractor and the trailer while the tractor 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 power unit and the mobile parts of the trailer, during operation.
8. Checking the technical condition of the trailer during operation.

In the specification of residual risks, the trailer is interpreted as a machine that has been designed and manufactured in accordance with the state of the art in the year of its production.

10.2 Residual risk assessment

Compliance with 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 forbidden to operate the unit 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 persons who underwent 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.



NOTE

NOTE!

Failure to comply with the instructions and guidance above 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 – auxiliary unit of length equal to 0.001 m

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

Pictogram – an information plate

T – tonne – a unit of weight

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

UV – ultraviolet radiation; 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).

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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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