METAL-FACH

AGRICULTURAL TRAILER
T735A

USER MANUAL

TRANSLATION OF THE ORIGINAL INSTRUCTION MANUAL

ISSUE 3

17/08/2023

Instruction Manual No. T735A-03-3600/2015

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 (trading name of the manufacturer)	Metal-Fach
1.2.	Type:	T735A
1.2.1.	Variant:	
1.2.2.	Version:	
1.2.3.	Trade name(s) (if any):	
1.3.	Category, subcategory and vehicle speed indicator	R2a
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 right side of the front crossmember on the load body,
1.5.2.	Method used to fix the manufacturer's rating plate:	Bonded
1.6.1.	Location of the vehicle identification number on the chassis	At the front right-hand side of the chassis frame
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 199, item 1228) and the Announcement of the Minister of Infrastructure and Construction of 27 October 2016 on the announcement of the consolidated text of the Regulation of the Minister of Infrastructure on the technical conditions of vehicles and the scope of their necessary equipment (Polish Journal of Laws 2016, item 2022)

The following harmonised standards were applied in order to assess 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 and regulations:

ISO 3600:2015, PN-ISO 11684:1998

Safety test report No. LBC/105/20

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)

2020-07-27
(Date)

Jacek Kucharewicz
(Signature)

President of the Board
(position)

Machine data

Machine type:		Agricultural Trailer
Type designation:		T735A
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:	_____
		_____
	Tel/Fax:	_____
		_____
Delivery date:		_____
Owner or user:	Surname:	_____
	Address:	_____
		_____
	Tel/Fax:	_____

[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 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 user 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 as a separate list, and is attached in the form of a CD as part of the machine's purchase, and it is also available on the manufacturer’s website: www.metalfach.com.pl

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:

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.

DANGER

The symbol indicating particularly important information and recommendations. Non-compliance can lead to serious damage to the machine, as a result of its incorrect operation.

ATTENTION!

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 DANGER symbol.

symbol indicating useful information.

This symbol indicates maintenance activities that should be performed periodically.

1. General Description

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.

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. The rating plate is fixed on the right-hand side of the front crossmember of the load body. The VIN number is stamped on the right-hand side of the Trailer's chassis frame, and on the rating plate (see Fig. 1 and 2).

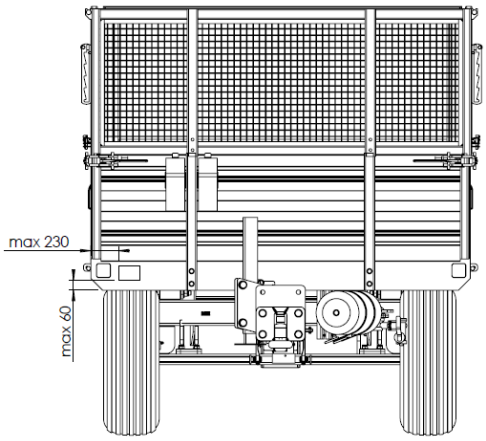


Figure 1. Location of the nameplate

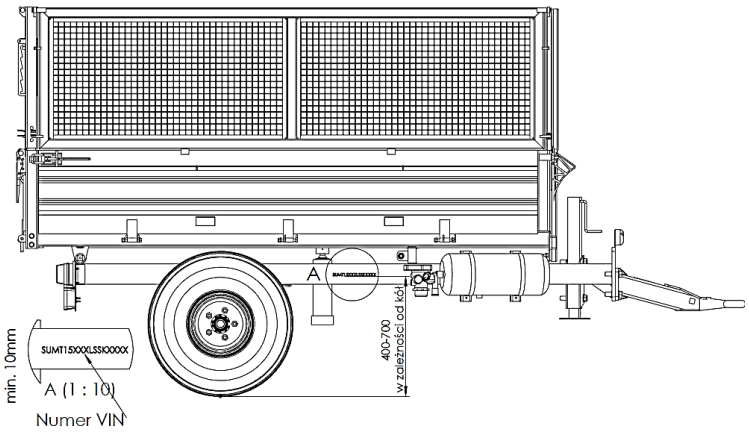


Figure 2. Location of the VIN number

WARNING!

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

ATTENTION!

ATTENTION!
T735A/1 and T735A/2 trailers have a speed limit of 40 km/h.

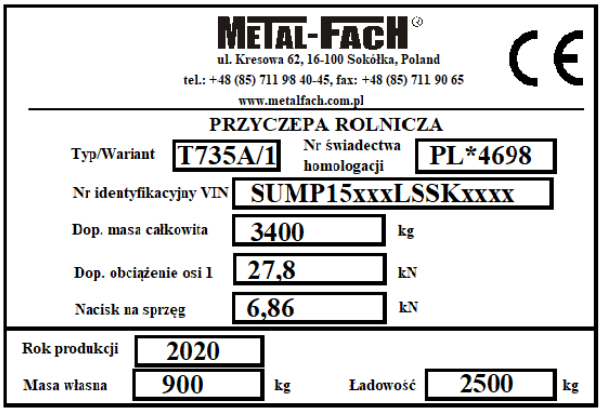


Figure 3. Sample rating plate on the Trailer

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

ATTENTION!

ATTENTION!
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 The intended use of the Trailer

The Trailers are intended for transporting agricultural produce and other bulk and loose materials, within the farm area and on 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 trailers are unloaded either manually or by tilting the load body backwards or sideways (depending on the trailer version ordered – backward tipping or three-way tipping option). The Trailer is designed to work with agricultural tractors equipped with external hydraulic systems - signal-, warning-, and brake-system sockets - and a transporting 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 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 a particular country where the trailer is used.

1.3.1 Incorrect and prohibited uses

ATTENTION!

ATTENTION!
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, since there is a possibility of causing environmental pollution;
- Machinery and equipment, in which 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.

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.

1.4 Standard 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;
- brake system (single-line pneumatic brake);
- a parking brake;
- lighting system (LED side position lights are optional).

On request (at an extra cost), the manufacturer can equip the trailer with the following accessories: plate indicating slow-moving vehicles, net extensions (700 mm) and change of the brake to hydraulic, dual-line pneumatic or inertia brake.

1.5 Storage, sale, and transport

1.5.1 Storage

The Trailer should be protected against direct exposure to weather conditions (e.g. sunlight and rain), positioned on its ground wheels on a paved surface, with support chocks placed under the wheels (reduce pressure in the tyres and protect them, if exposed 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 Sale

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 serial 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 it is loaded onto a low-loading platform, couple it to the tractor's hitch and connect the brake-system's lines. Drive the trailer onto the low-bed trailer using ramps. With the trailer on the low-bed platform, chock the wheels.

Next, disconnect the brake system 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, remove the chocks from under the wheels of the trailer. Next, you can proceed to drive the trailer off the low-bed platform.

 ATTENTION!	ATTENTION! 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.
 ATTENTION!	ATTENTION! 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.

 ATTENTION!	ATTENTION! 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.

Wash down the trailer with clean water or water with detergent. When using different types of detergents read their specifications to assess whether they can 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, hydraulic, or pneumatic 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.

ATTENTION!

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

1.7 Storage

The Trailer must be stored in roofed areas (preferably on a level and hard surface) and in such a way as to prevent any 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.

2. Safety of use

2.1 Obligation to provide information

ATTENTION!

ATTENTION!

When handing over the trailer between users, the Operation Manual must also be handed over and the person taking over the trailer must undergo training as indicated in the Manual.

2.2 General principles regarding user safety

Before each commissioning, the trailer must be checked for safe operation, i.e:

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 devices are connected and protected against unintentional uncoupling or opening (e.g. hitch and drawbar, couplings).
4. Before you start work, learn the functions of and the ways of operating all the devices and controls. 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: T735A – 40 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 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 authorized technical service on behalf of the Manufacturer or contact the Manufacturer directly.
3. Careless and improper use of the trailer, as well as failure to comply with the safety instructions in this manual, poses a risk to the health and life of operators and bystanders.
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 starting up, check if the immediate vicinity is free of children and/or 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. It is only possible to enter the trailer if it is in complete standstill and with the tractor's engine switched off.
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 the transport equipment by inspecting the connections and operation of the light and brake systems, the Slow Vehicle warning plate, and other protective devices and equipment.
16. Before driving, check the correct functioning of the lights and brakes, and prepare the Trailer following the instructions provided in the "Driving on public roads" section.
17. Take account of changes in vehicle behaviour, steering and braking performance resulting from the Trailer coupled and its load.
18. When driving a Trailer, the distribution of the load and/or inertia forces should be taken into account, especially if the load is asymmetrical.
19. Do not stay within the range of the load to be discharged.
20. The hydraulic lifting (tilting) of the load 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.
21. 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.
22. 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.
23. Be careful to avoid crushing fingers and hands when opening and closing the sides of the load body.
24. Mind the crush and shear hazard points when operating the trailer. There is a risk of injury when coupling and uncoupling the trailer to and 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 or its parking brake.

25. No one may stand between the tractor and the trailer unless the vehicle is protected against rolling by the parking brake or wheel chocks.
26. When stationary, secure the trailer and tractor against rolling – apply the handbrake and use the chocks.
27. Never drive with a tipped load body.
28. Keep a safe distance from overhead power lines when tipping the load body. The front wall of the Trailer features Pictogram 3 (Table 2) according to PN-ISO 11684:1998 warning against power lines.
29. The driving speed must always be adapted to the ambient conditions and must not exceed the speed set by the manufacturer: T735A – 40 km/h. Avoid sudden up or downhill turns on sloping terrain.
30. Maintain a sufficient safety clearance within the turning area of the unit.
31. When reversing, ensure that you have sufficient visibility (if possible, have someone to assist you with guidance).
32. When cornering, consider the inertia of the trailer.
33. Observe a minimum turning radius of approx. 7 m when turning and reversing.
34. 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.
35. Remove any functional faults of the attached devices only when the engine is switched off and the ignition key removed.
36. Should any failure occur in the hydraulic or pneumatic system, remove the trailer from service until the failure has been rectified.
37. Before carrying out repair work on the hydraulic or pneumatic systems, the oil or air pressure must be reduced.
38. 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.
39. Use the hydraulic oil recommended by the Manufacturer. Never mix two different types of oil.
40. Entering the loading area is only permitted when the drive and the engine are switched off. Remove the ignition key.
41. Switch off the engine and remove the ignition key before leaving the tractor. Then, engage the parking brake and secure the trailer with chocks.
42. When driving on public roads, do not exceed the maximum permissible axle load exerted by the trailer as stated on the rating plate.
43. The maximum allowable pressure in the double-line pneumatic system is 650-800 kPa, while it is 580-630 kPa in the single-line system. The maximum permissible pressure in a single-line hydraulic system is 18,000 kPa.
44. The Manufacturer delivers the trailer fully assembled.
45. 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.
46. Hydraulic lines must be replaced every 5 years.
47. Noise – the equivalent A-weighted emission sound pressure level (LpA) is not above 70 dB.
48. Keep the trailer clean.
49. 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!

Always observe fire regulations and immediately eliminate any hazards occurring during machine operation or when stopped. There should be a fire extinguisher on the tractor.

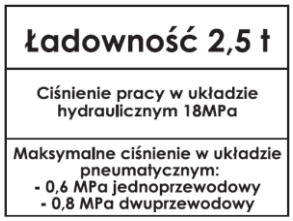
2.4 Warning and information pictograms

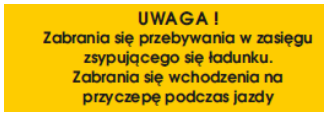
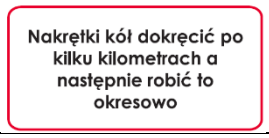
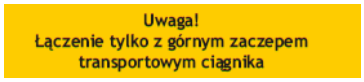
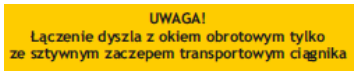
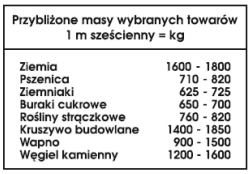
2.4.1 Hazard warning symbols

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 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.		Note. Before you start operating the machine, read the Instruction Manual.
2.		Note. Before carrying out any maintenance or repair work, switch off the tractor’s engine and remove the keys.
3.		Note. Risk of electric shock. Keep a safe distance from overhead power lines.

4.		Note. Finger crushing hazard. Do not reach into the crushing area, if elements are moving.
5.		Note. Danger of crushing. It is forbidden to carry out maintenance or repair work if the load-carrying body is unsupported.
6.		Note. 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.
7.		Note. Body crushing hazard. Keep a safe distance from the machine.
8.		Note. A fall from height. Do not ride on platforms or ladders.
9.		Note. Torso crushing hazard. Do not stand near the motion zone of the articulated coupling joints when the engine is running.
10.		Note. Tilting the load body on an inclined surface is prohibited. Bodily injury can occur as a result of the machine tipping over and crushing.
11.		Sling attachment/Lifting point.
12.		Informational pictogram.

13.		Informational pictogram.
14.		Informational pictogram.
15.		Informational pictogram.
16.		Informational pictogram.
17.		Informational pictogram.
18.		Informational pictogram.
19.		Informational pictogram.
20.		Informational pictogram.

WARNING!

ATTENTION!
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 pictograms on the machine

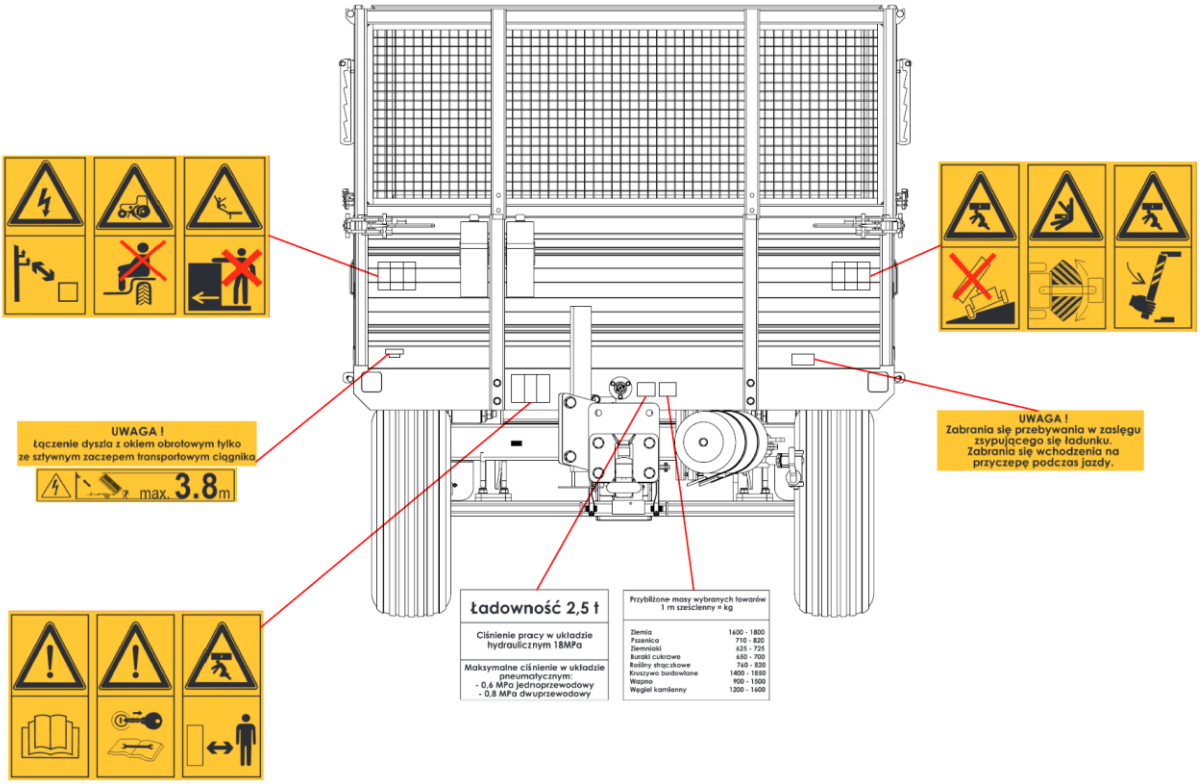


Figure 4. The arrangement of the pictograms on the boards of the trailer – front

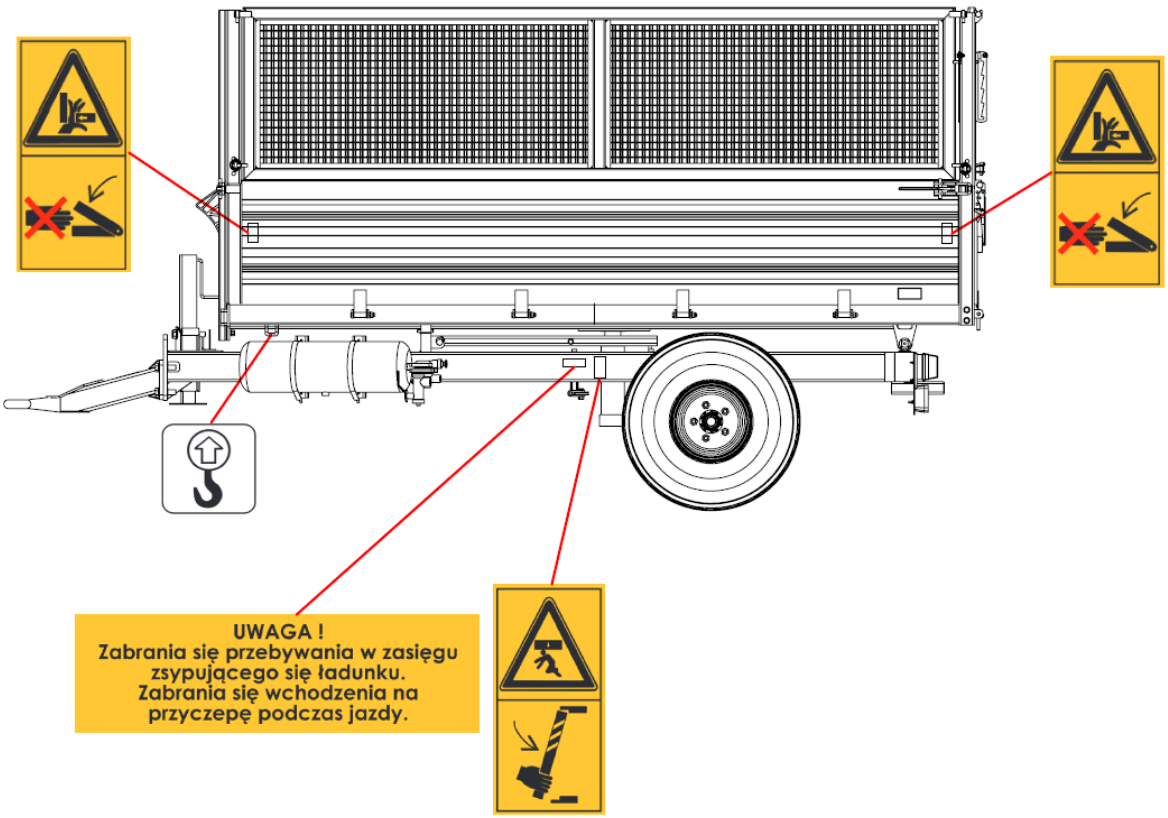


Figure 5. The arrangement of the pictograms on the boards of the Trailer – right and left side symmetrically

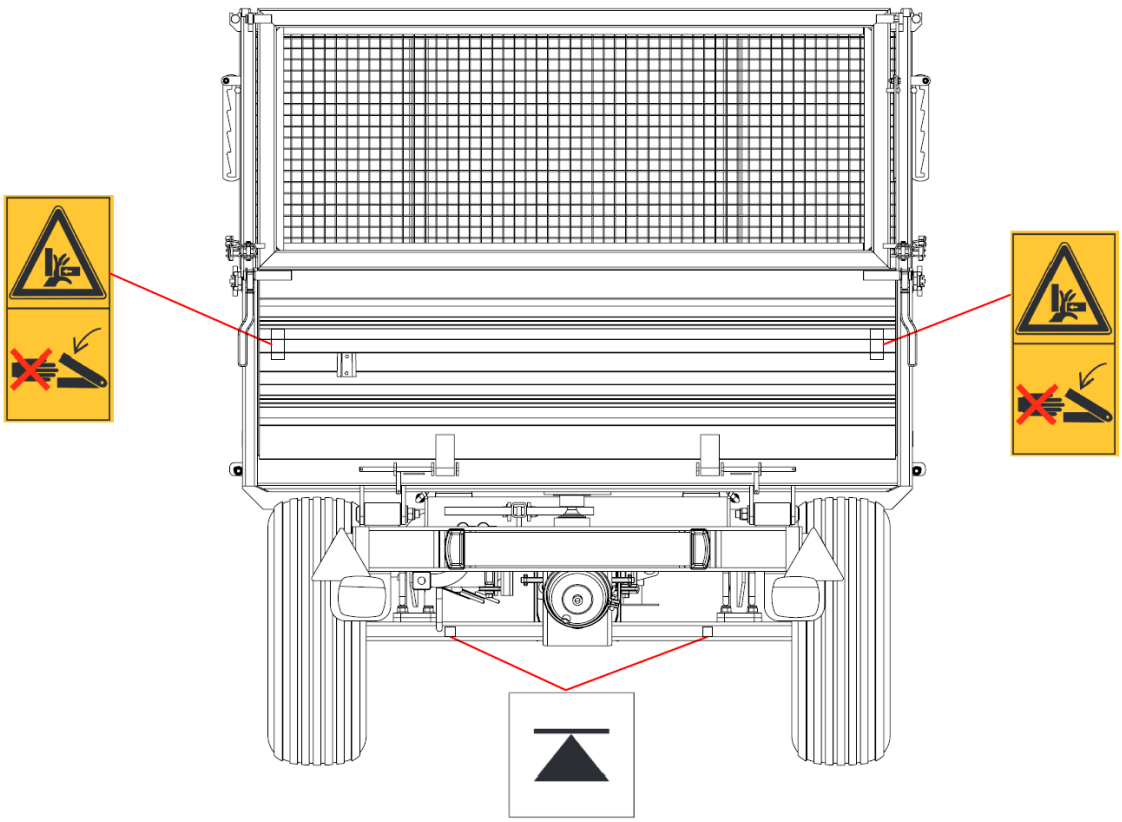


Figure 6. The arrangement of the pictograms on the boards of the Trailer – rear

3. Specification

3.1 Basic technical data

Table 3. Trailer specification

o.	General information	T735A	
1.	Vehicle type	Agricultural Trailer	
2.	Manufacturer	METAL-FACH Sp. z o.o., 16-100 Sokółka, Poland, ul. Kresowa 62	
3.	Type	T735A	
4	Variant (model)	T735A/1	T735A/2
4.	Body type	Box	
5.	Rating plate location	on the right side of the front crossmember on the load body	
6	Number stamp location	on the rating plate and on the right-hand side of the lateral crossmember of the chassis frame	
Dimensions and weights			
7.	Length, mm	at least 3900 max 4350	min. 4100 max 4350
8	Width, mm	at least 1790 max 1950	
9	Height (with net extension, depending on tyres), mm	max 2070	
10	Number of axles, pcs.	1	
11.	Wheel base, mm	Not applicable	
12.	Wheel track, mm	1350–1450	
13.	Elevation of load area, mm	max 840 *Dependent on the tyres in use*	
14.	Opening diameter Drawbar-eye diameter, mm	40.	
15.	Kerb weight of the vehicle, kg*	max 1000	max 1100
16	Gross vehicle weight rating, kg:	3400	3500.
	- on the axle, kg	2850	2950.
	- on the hitch, kg	550	550.
17.	Maximum axle load, kN	27.93	28.91
	Maximum load on the hitch [kN]	8.04	8.04
18	Acceptable load capacity of the vehicle, kg*	2400-2650	2400-2750
Suspension			
19.	Suspension type	Rigid, dependent	

Wheels and tyres			
20.	Number of wheels, pcs.	2	
21.	Tyre size, PR number, load index, wheel disc size, pressure	See section 5.2	
Braking system			
22.	Brake working		
	- type	mechanical drum brake	inertia
	- control	Double-line pneumatic system single-wire (optional two-wire system) or hydraulic single-wire system	inertia control
	- acts on (number of wheels)	2 wheels	2 wheels
23	Brake Parking brake		
	- type	mechanical drum brake	inertia
	- control	manual, by means of a helical gearbox, or by means of a ratchet lever	Manual, with an overrun brake
	- braked wheels	2 wheels	2 wheels
Electrical installation			
24.	Voltage V	12 V, from coupled tractor	
Operating data			
25.	Minimum turning diameter	Depending on the coupled tractor	
26	Maximum working speed [km/h]	40.	
27.	Maximum transport speed [km/h]	40.	
Additional information			
28.	- coupling to the tractor's hitch	to the tractor's upper or lower transporting hitch	
29	– cooperating tractor	at least 25kW	
30.	Oil purity class	not less than 8, acc. to NAS 1638 (category 20/18/15, acc. to ISO 4406-1998)	

*Depending on the specification

3.2 Dimensions of Trailers

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

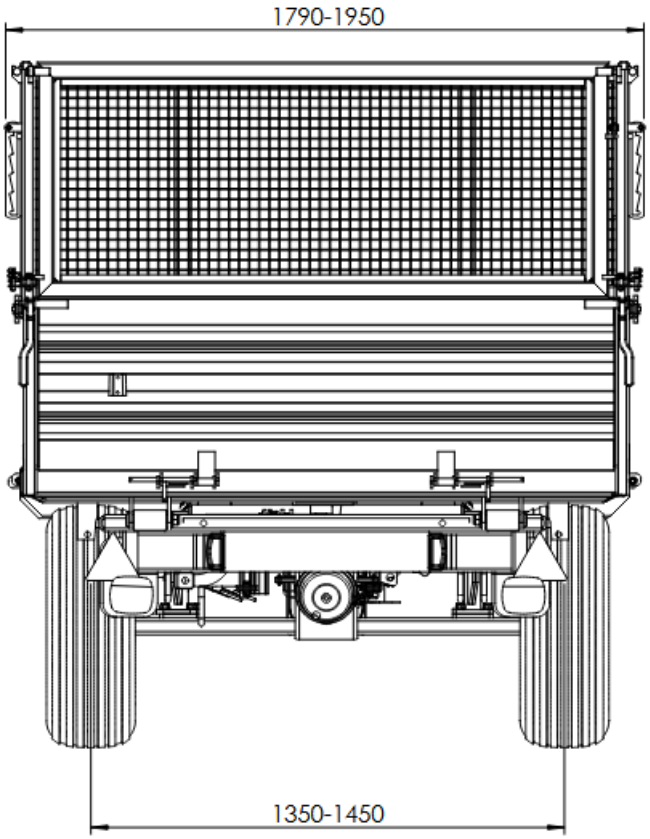


Figure 7. Dimensions of the Trailer – rear view

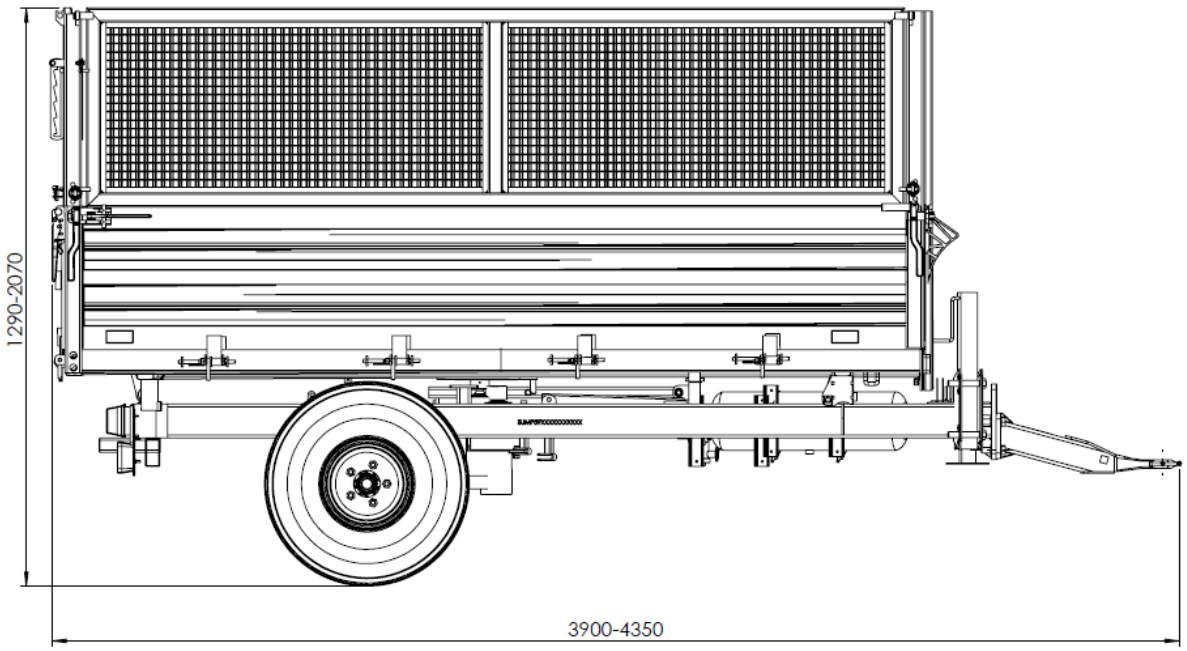


Figure 8. Dimensions of the trailer with a pneumatic or hydraulic brake – side view

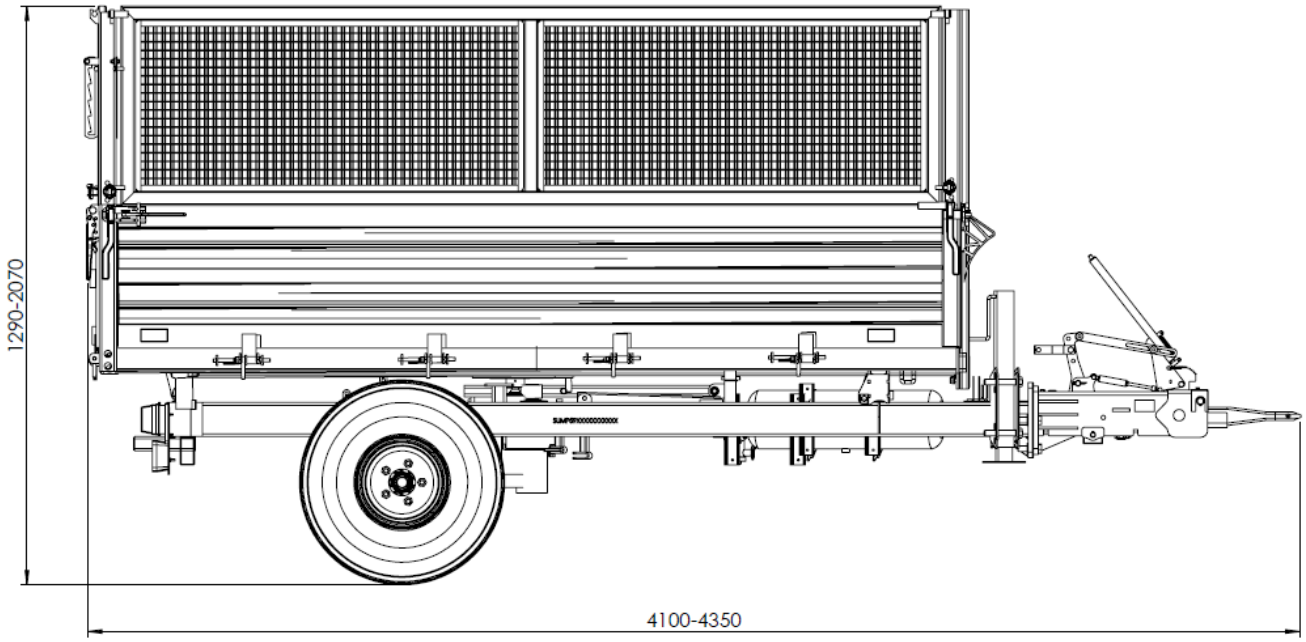


Figure 9. Dimensions of the trailer with an overrun brake – side view

3.3 General design and principles of operation

The type T735A trailer is a steel construction with an open load area with a backward tilting function or with a three-way tipping function. Trailers are equipped with a pneumatic or hydraulic service brake (overrun brake is optional equipment) and a parking brake manually operated with a helical gear acting on the friction elements of the axle service brake.

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.

3.3.1 Chassis

The trailer chassis consists of the following units: upper and lower frame, drawbar

(the type of a drawbar depends on the trailer assembly), wheel sets. The bottom frame is made as a welded construction of steel sheets and sections.

The design of the bottom frame depends on the type of brake and drawbar used.

The axle consists of square bars with spigots at the ends, which house hubs of the ground wheel set on tapered roller bearings. These are single wheels equipped with drum brakes, the jaws of which are controlled by mechanical cam expanders. If the trailer is equipped with an overrun brake, an overrun type axle is fitted, which has a mechanism to prevent the vehicle's wheels from locking while driving.

3.3.2 Load area

The load space 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.

3.3.3 Hydraulic tilting mechanism of the load body

The body-tilting hydraulic mechanism is used for the automatic unloading of the trailer by tilting the load body backwards or using a three-way tilting function. The hydraulic system of the tilting mechanism is supplied with oil from the tractor's hydraulic system.

The hydraulic system includes: hydraulic lines, single-acting hydraulic cylinder.

A valve block in the tractor's hydraulic system is used to control the raising and lowering of the load body. A valve block in the tractor's hydraulic system is used to control the raising and lowering of the load body.

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

ATTENTION!

ATTENTION!
The shut-off valve (the valve is only mounted in the three-way tipping version) is adjusted by the trailer manufacturer

and it is forbidden for the user to change the settings.

NOTE!

NOTE!
It is forbidden to carry out maintenance and repair work if the load body is not secured with a support!

ATTENTION!

ATTENTION!
Exercise particular caution when entering the load body.

3.3.4 Lighting system

The Trailer's electrical system is designed for a 12 VDC power supply. Use a suitable connecting cable to connect the trailer's electrical system to the tractor. There are two lights options to choose from – diagrams below.

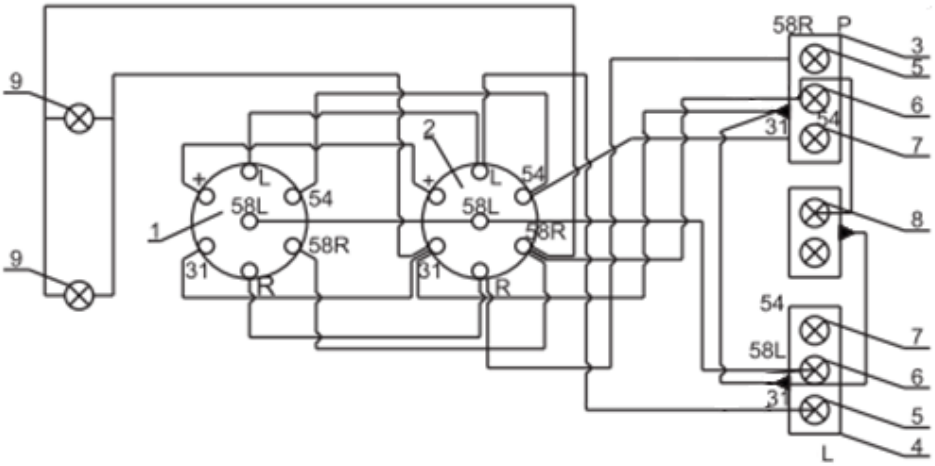


Figure 10. Trailer wiring diagram (basic version – without side lights): 1 – 7-pole plug, 2 – 7-pole socket, 3 – rear lamp cluster, right, 4 – rear lamp cluster, left, 5 – light bulbs for direction indicators, 6 – rear position-lamp bulbs, 7 – braking lights "STOP" bulbs, 8 – number plate lamp bulbs, 9 – front position lamp

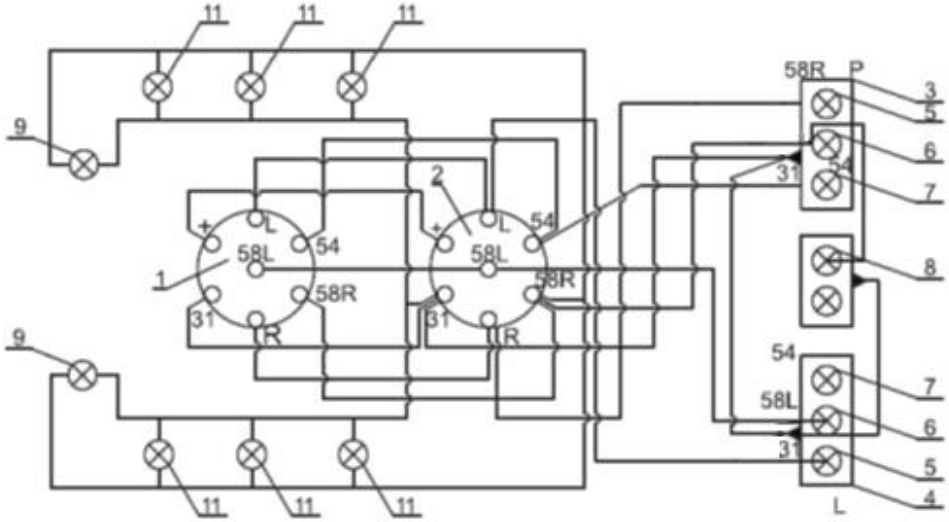


Figure 11. A diagram of lighting system with side position lights: 1 – 7-pole plug, 2 – 7-pole socket, 3 – rear light cluster, right, 4 – rear light cluster, left, 5 – light bulbs, direction indicators, 6 – rear position-light bulbs, 7 – brake "STOP" bulbs, 8 – number-plate-light bulbs, 9 – front running light, 10 – marker light, 11 – side position light

3.3.5 Trailer's braking system

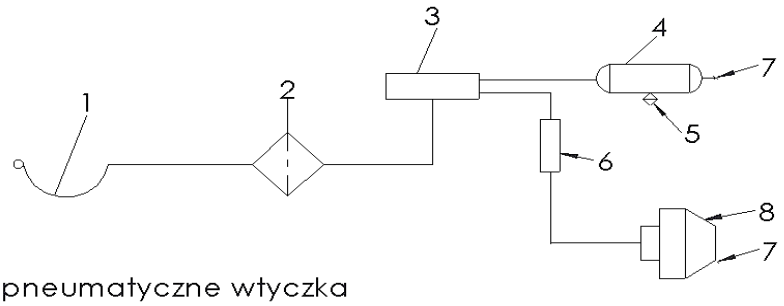
3.3.5.1 T735A/1 pneumatic and hydraulic brakes

The T735A/1 trailer features the following brake systems:

- A service brake – pneumatically controlled, double-line (optionally single-line), operated from the driver's seat by pressing the tractor's brake pedal, or hydraulically controlled;
- A parking brake – mechanically controlled by hand via a crank mechanism and a helical gear located on the left side of the Trailer, acting on the wheels of the axle.

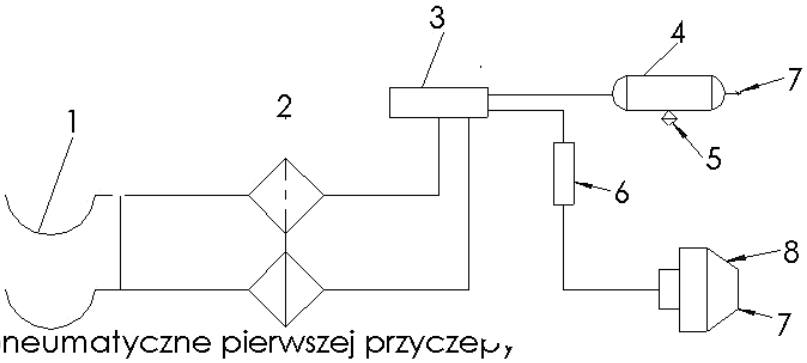
The design of the service brake ensures automatic braking of the Trailer running wheels in the event of unforeseen disconnection of the Trailer's and tractor's pneumatic system.

See the drawings on the following pages of this manual for diagrams of the braking system.



1- złącze pneumatyczne wtyczka
2 - filtr powietrza
3 - zawór sterujący
4 - zbiornik powietrza
5 - zawór odwadniający
6 - ręczny regulator siły hamowania
7- złącze kontrolne
8 - siłownik pneumatyczny membrabowy

Figure 12. A diagram of the T735A single-line pneumatic system.



1- złącze pneumatyczne pierwszej przyczepy
2 - filtr powietrza
3 - zawór sterujący
4 - zbiornik powietrza
5 - zawór odwadniający
6 - ręczny regulator siły hamowania
7- złącze kontrolne
8 - siłownik pneumatyczny membrabowy

Figure 13. A diagram of the T735A double-line pneumatic system.

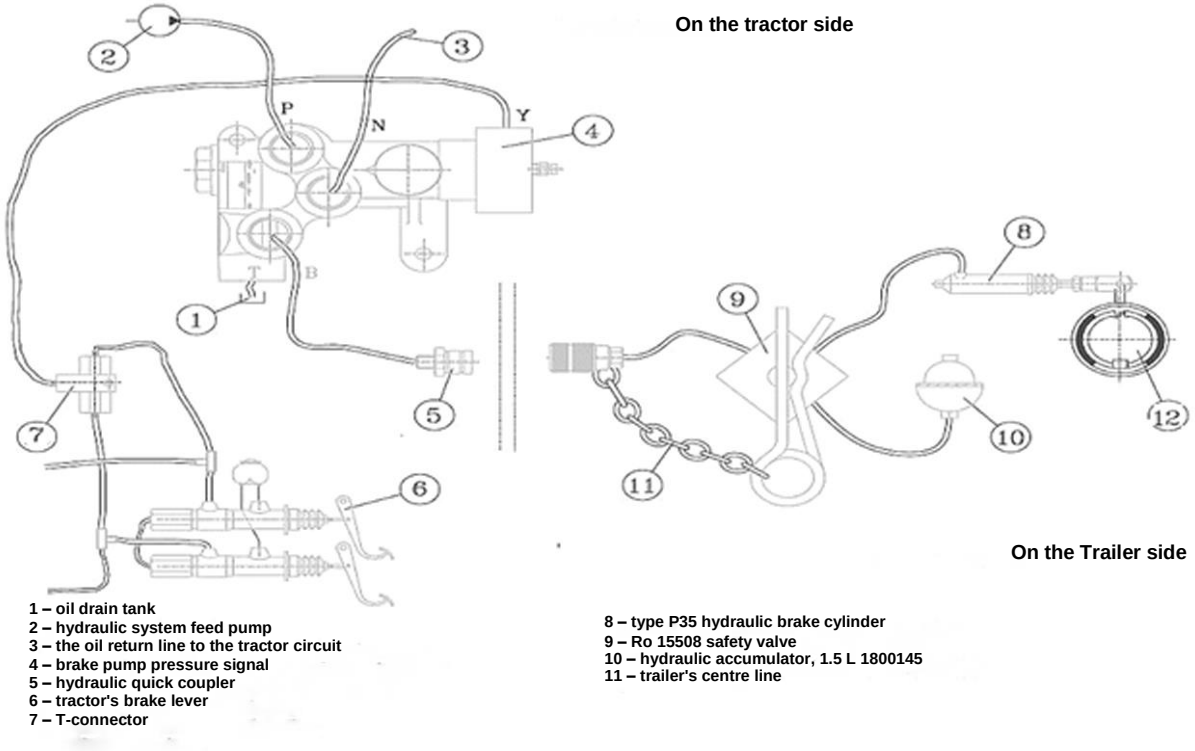


Figure 14. A diagram of the T735A single-line hydraulic system.

3.3.5.2 T735A/2 trailer overrun brake

T735A /2 trailers are equipped with the following braking system:

- a service brake – it is activated from the driver's seat by pressing the brake pedal of the tractor;
- parking brake – mechanically controlled by hand with a lever mechanism on the overrun drawbar

A diagram of the brake system is shown in the following figure

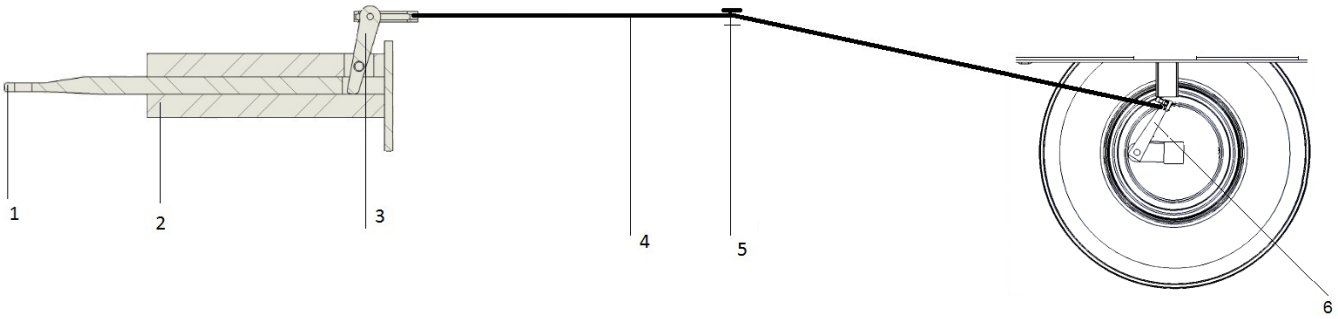


Figure 15. Diagram of an overrun braking system:

1 – coupling, 2 – body, 3 – cable tensioning lever, 4 – steel cable, 5 – roller, 6 – lever for axle brake expander

Inertia braking starts as a result of the tractor braking and is caused by the trailer running over the tractor. As a consequence, the lever connected to the axle initiates the 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.

3.4 Trailer's 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. Replace the lines as required by the manufacturer's specifications. 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 load 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.

4. Information on use

4.1 Use with a tractor

4.1.1 Coupling the trailer with the tractor

The trailers can only be used with fully operational tractors with a minimum power of 25 kW – T735A 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.

ATTENTION!

ATTENTION!
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 T735A 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;
- T735A/1 – engage the tractor’s parking brake,
  T735A/2 – pull the parking brake lever until resistance is felt;
- connect the pneumatic, hydraulic and electrical systems

with the corresponding sockets on the tractor; in the case of the overrun brake (T735A/2), only the hydraulic system and the electrical system need to be connected).

ATTENTION!

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

The trailer is equipped with a mechanical parking jack. Its job is to support the trailer’s drawbar when it is not coupled with the tractor.

ATTENTION!

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

ncoupling 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;
- T735A/1 – engage the tractor’s parking brake,
  T735A/2 – pull the parking brake lever until resistance is felt;
- If the trailer is standing on uneven or sloping ground, use wheel chocks to additionally secure it against rolling away;
- disconnect the electrical, hydraulic and, in the T735A/1 trailer, the pneumatic or hydraulic brake lines 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.

ATTENTION!

ATTENTION!
Do not uncouple the trailer from the tractor:
- if the load body is raised;
- if the Trailer is not secured from rolling;
- if the trailer is loaded.

4.2 Starting up the trailer for the first time

CAUTION!

CAUTION!
Use only a fully operational tractor (with its transport hitch, and pneumatic, hydraulic, signalling and warning systems fully operational).

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 pneumatic, hydraulic, and electrical systems of both the trailer and the tractor. On the T735A/2 trailer, check the overrun brake cable tension.
5. Check all the devices, their connections, and protection against undesired disconnection or displacement.
6. Disengage the trailer's parking brake.

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

4.3 Loading the trailer body

The Trailer's body can only be loaded when the Trailer is coupled to a tractor, positioned on horizontal ground, with its drawbar in the straight-ahead position.

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

Before loading the Trailer, make sure that the locks on all boards and top extensions are locked.

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.

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.

Table 4. 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

4.4 Unloading the Trailer's 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 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.

Figure 16. Sideboard locks.

ATTENTION!

ATTENTION!

- 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 forward and sideways (only if it is not equipped with a a three-way tipping function).
- 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 load body is raised.
- It is forbidden to transport people on the trailer.
- When tilting the load 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 40 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 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 includes engaging the parking brake, placing wheel chocks, and fastening the transported load with transporting belts.

ATTENTION!

ATTENTION!
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.

4.6 Hydraulic system

4.6.1 Servicing the hydraulic tipping system of the load body

A hydraulic mechanism is used to unload the trailer automatically by tilting the load body backwards or with the three-way tipping function (depending on the bottom frame chosen by the customer). The hydraulic system of the tilting mechanism is supplied with oil from the tractor's hydraulic system.

The hydraulic system of a rearward-only tipping trailer includes: connector valve plug, hydraulic lines, single-acting hydraulic cylinder, fittings and fasteners. In the case of three-way tipping function, a shut-off valve is also used. A valve block in the tractor's hydraulic system is used to control the raising and lowering of the load body.

ATTENTION!

ATTENTION!
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. Never use different fluid grades.

ATTENTION!

ATTENTION!
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.

ATTENTION!

ATTENTION!
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.

ATTENTION!

ATTENTION!
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.

4.6.2 Adjustment of the hydraulic load body tipping mechanism – three-way tipping version

The hydraulic system features a safety cable (which is the load body tilt angle limit) and a hydraulic fluid stop valve upstream of the hydraulic tilt actuator, which isolates the pressure at a predetermined tilt angle. For safety reasons, unauthorised personnel shall never attempt to adjust the components or remove the limits.

The purpose of the stop valve is to isolate the pressurised fluid supply from the hydraulic cylinder before the maximum (permitted) tilt angle of the load body is achieved. Modifying the length or breaking of the safety cable that connects the load body frame to the stop valve may cause damage and result in overturning of the trailer.

ATTENTION!

ATTENTION!
It is forbidden to remove or disconnect the cord that limits the tilting of the load body.
It is forbidden for those who are unauthorised to adjust the shut-off valve.

5. Elements requiring adjustments

For proper operation, the T735A trailers require the following adjustments:

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

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 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;
- 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.

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. 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.

CAUTION!

CAUTION!
Follow these principles for jacking a trailer wheel:

- Couple the Trailer to the tractor, position them on a flat surface, and engage the parking brake in the tractor;
- Chock the wheel that is not to be jacked.
- Place a jack under the axle, close to the wheel to be jacked, and jack until the wheel

  is clear off the ground.
- Secure the wheel with a jackstand or a support tall enough to be placed under the same side under the axle.

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.

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

Changing the wheel is only permitted if the load 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.

CAUTION!

CAUTION!
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 x 1.5 = 270 Nm,
- M20 x 1.5 = 350 Nm,
- M22 x 1.5 = 475 Nm.

ATTENTION!

ATTENTION!
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.

ATTENTION!

ATTENTION!
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.

Table 5. Tyre characteristics of the T735A/1 trailer

Size, number of cords	Speed and load index	Rims	Internal pressure, [bar]
10.0/75-15.3 PR 10	122A8	9.00 × 15.3	4.0
10.0/75-15.3 PR 12	125A8	9.00 × 15.3	4.75
10.0/75-15.3 PR 12	126A8	9.00 × 15.3	6.4
10.0/75-15.3 PR 10	123A8	9.00 × 15.3	5.2
10.0/75 – 15.3 PR18	143 A8	9.00 × 15.3	6.0
10.0/75 – 15.3 PR18	135 A8	9.00 × 15.3	7.1
10.0/80–12 PR 10	121A8	9.00 × 12.0	5.4

Table 6. Tyre characteristics of the T735A/2 trailer

Size, number of cords	Speed and load index	Rims	Internal pressure, [bar]
10.0/75-15.3 PR 10	122A8	9.00 × 15.3	4.0
10.0/75-15.3 PR 12	125A8	9.00 × 15.3	4.75
10.0/75-15.3 PR 12	126A8	9.00 × 15.3	6.4
10.0/75-15.3 PR 10	123A8	9.00 × 15.3	5.2
10.0/75 – 15.3 PR18	143 A8	9.00 × 15.3	6.0
10.0/75 – 15.3 PR18	135 A8	9.00 × 15.3	7.1

5.3 Brakes

5.3.1 Servicing the pneumatic brake system

When servicing the trailer, check for leaks and the condition of the brake system components and connections, and periodically drain the water condensate from the air tank.

The tightness of the system should be checked at a nominal system air pressure of 650-800 kPa for a two-wire system, and 580-630 kPa for a single-wire system. Leaks of compressed air are evident by specific hissing or bubbling in a soapy water test. If failed seals, hoses or other components, e.g. valves, actuators, etc. cause a leak, replace these 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 whenever:

- there is excessive play between the brake lining and the drum, and the braking efficiency is reduced, resulting from wearing of the brake shoes;
- The brake performance is uneven and not synchronised between the wheels.

If the brakes are adjusted correctly, the braking force (the sum of the braking forces on the circumference of the braked wheels) shall be at least 30% of the trailer's permissible total weight when braking with the service brake, and the braking force (sum of braking forces at the periphery of the braked wheels) when braking with the parking brake should be a min. 16% of the trailer GVWR. Both wheels on the same axle must be braked even, and the braking force difference in between the left and right side of the trailer must not exceed 30% (where 100% is the higher of the two braking forces).

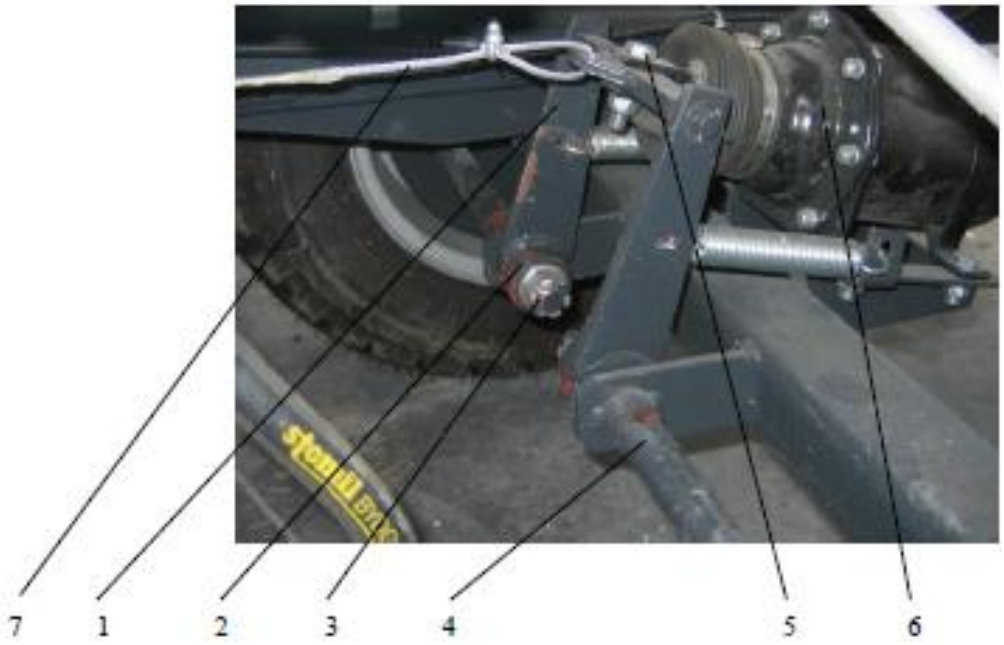


Figure 17. The components of the brake system: 1 – expander roller lever (arm), 2 – locating comb, 3 – adjusting screw for fixing the lever (arm) to the comb on the expander roller,

4 – shoe expander roller, 5 – linkage (pusher) connecting the piston rod of the pneumatic cylinder with the spreader arm, 6 – pneumatic cylinder, 7 – parking brake cable

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 adjustment of the friction parts is correct, the wheel should rotate smoothly, without hesitation or evident resistance (other than the friction of the brake shoes against the drum). Slight friction of the shoes against the drum, particularly in a new trailer, or after replacement of these parts, is normal.

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 lever of the expander roller with the activating mechanism. The required sum of the braking forces must be obtained by exerting the maximum force on the manual crank of the device equal to 40 daN (while maintaining the right angle between the cord and the lever of the expander roller).

CAUTION!
CAUTION!

CAUTION!

CAUTION!
Test and inspect the brake system for the following each time before driving:

- its operation,
- air-tightness,
- play.

If necessary, adjust or repair.

Check the brake shoes at least once a year, and change worn linings for 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.

5.4 Overrun brake cable adjustment

If there is a delay in the braking of the trailer in relation to the tractor, the user should check the cable tension and the correct adjustment of the expander position.

To do so, follow the procedure below:

- Check the position of the expanders and adjust if necessary
- Check the functioning of the overrun brake
- If there is still a delay in braking, loosen the tensioner lock nut and then tighten the cable using the tensioner; if the cable tension is too high, the brake linings will wear faster, which may even lead to sudden braking

  and locking of the trailer wheels
- Then tighten the nut

Brake repairs may only be carried out at authorised service centres of the manufacturer. Any unauthorised repairs and/or modifications by the user will void the warranty.

6. Periodic inspection

6.1 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, observing the limits of the structural and functional parameters.

Minor negligence in the operation of the Trailer can have serious consequences. If detected on time, defects can be eliminated effortlessly, 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 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;
- check the tightness of the pneumatic or hydraulic system;
- 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;
- check the functioning of the brake system, signalling, and the warning system.

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 must be stored in roofed areas (preferably on a level and hard surface) and in such a way as to prevent any 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 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.

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 starting any work, it is advisable to have a CO_2 or foam extinguisher ready at hand.

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.

ATTENTION!

ATTENTION!
Use high quality bearing grease only.
Never drive without the hub cover, otherwise penetrating dirt (sand) will damage the wheel bearings.

Table 7. 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
Elements of the support foot	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);

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

6.5 Metric bolt tightening torques

Optimised torque values for bolts or screws and nuts [Nm] are shown in Table 8.

Table 8. Tightening torque values for metric bolts

Bolt-tightening torques – metric bolts in Nm							
Size, ∅ 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 9. Defects and troubleshooting

No.	Type of defect	Cause	Remedy
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, change the worn or damaged seal, and install the new one correctly. Remove the grease from the shoes and the drum, wash the friction elements using extraction naphtha, re-install the hub, and adjust the bearings as above.
4	The wheels brake unevenly.	Dirty, worn-out shoe linings, or incorrectly adjusted brake shoes.	Check the condition of the brake shoes, remove any dirt, replace and adjust the worn brake shoes, according to section 5.3.2.
5	Insufficient braking performance of the wheels.	Incorrect adjustment of the brake shoes and brake controls.	Adjust brake shoes and controls 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.	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.
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.	Contact the manufacturer to replace the damaged components.

8. Authorised service

8.1 Guarantee 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 Routine 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

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

ATTENTION!

ATTENTION!
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 Residual risk description

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.

ATTENTION!

ATTENTION!
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, 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; 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. continuously improves its products and adapts the offer to th customers' needs, therefore it reserves the right to introduce changes to the product without prior notice. Before making a purchase decision, please contact a authorised Metal-Fach Sp. z o.o dealer or retailer.

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 Polish 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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