

CynkoMet Sp. z o.o.
ul. Fabryczna 7 W
16-020 Czarna Białostocka
tel. (085) 710 24 56

AGRICULTURAL TRAILER

T-617

INSTRUCTIONS FOR USE AND OPERATION

Identification of the machine

Symbol/Type T-617/....

Serial number:.....

The serial number is stamped on the rating plate and on the right side-member of the lower frame of the trailer. The rating plate is riveted to the front wall of the load box.

When buying the trailer, check the conformity of the serial number stamped on the trailer with the serial number given in the warranty card, in the sales documents and in the instruction manual.

CAUTION!

The manufacturer reserves the right to introduce, in the manufactured machines, structural alterations facilitating servicing and improving the quality of their work. The information on significant design changes are communicated to the user by means of enclosed information (annexes).

Comments and observations about the design and operation of the machine should be sent to the manufacturer. This information will allow objective evaluation of the machine, and serve as guidelines in their further modernization.

Before the operation, the user should be familiar with this manual and follow all recommendations. This will ensure safe maintenance and trouble-free operation of the machine.

According to the Regulation of the Minister of Infrastructure of 31 December 2002 on the technical conditions of vehicles and obligatory equipment, the Manufacturer announces that the agricultural tractors and low-speed vehicles, and trailers designed to connect with these vehicles should be marked with a plate distinguishing slow-moving vehicles. The plates are not required when the vehicle is included in the kit and is the last vehicle in the set.

In accordance with the above Regulation, the Manufacturer has equipped the trailer with a handle for fixing the board.

The T-617 trailer complies with the requirements of regulations regarding moving on public roads by machines with a speed of up to 40 km/h. The manufacturer also claims that the supplied spreader cannot be moved faster on public roads than the above-indicated speed.

If the information contained in the manual will prove to be not fully understood, seek help at the sales point and ask where the machine was purchased or go directly to the manufacturer

Manufacturer's Address:

CynkoMet Sp. z o.o.
ul. Fabryczna 7 W
16-020 Czarna Białostocka
tel. . (085) 710 24 56

INSTRUCTIONS FOR USE AND SERVICE CONSTITUTES BASIC EQUIPMENT
OF THE MACHINE!

The machine is designed in accordance with the applicable standards, documents and legal regulations currently in force.

DETERMINATION OF DIRECTIONS IN THE MANUAL

Left side - side to the left hand of the observer facing in the direction of travel of the machine forward.

Right side - the right-hand side of the observer facing in the direction of travel of the machine forward.

DECLARATION OF CONFORMITY

CynkoMet sp z o.o.

16-020 Czarna Białostocka ul. Fabryczna 7 W Polska

acting as the producer

declare with full responsibility that the machine:

AGRICULTURAL TRAILER

TYPE / MODEL: T-617

YEAR OF PRODUCTION:

SERIAL NUMBER:

BRIEF DESCRIPTION OF THE MACHINE AND ITS FUNCTIONS:

Double-axle agricultural trailer. The trailer's chassis consists of the following assemblies: the lower frame, drawbar and turner frame are welded constructions made from steel sections and sheets. The basic carrying elements are two stringers connected to each other via crossbars. The trailer is designed to transport crops and other loose and volume materials within the limit of a farm and on public roads.

To which this declaration relates complies with the requirements:

- Directive 2006/42/EC of the European Parliament and the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (OJ L157 of 09.06.2006, pages 24-86)
- Regulation of the Minister of Economy of 21 October 2008 on essential requirements for machines (Journal of Laws of 2008, No. 199, item 1228)

For the conformity evaluation, the following harmonized standards have been used:

- PN-EN ISO 4254-1 Agricultural machinery – Safety – Part 1: General requirements of 2014.
- PN-EN 1853+A1 Agricultural Machinery – Trailers with tipping body – Safety of 2009.
- PN-ISO 11684:1998P Tractors, machinery for agriculture and forestry, powered lawn and garden equipment – Safety signs and hazard pictorials – General principles of 1998
- PN-EN ISO 12100-1:2012 Safety of machinery – General principles for design – Risk assessment and risk reduction of 2012.
- PN-EN ISO 13857:2010 Safety of machinery – Safety distances to prevent hazard zones being reached

Person authorized to prepare technical documentation: Head of Constructors and Technologists
Address: Fabryczna 7 W, 16-020 Czarna Białostocka, Poland

THE DECLARATION LOSES ITS VALIDITY, IF THE MACHINE IS CHANGED OR REBUILT WITHOUT CONSENT OF THE PRODUCER.

Czarna Białostocka
Place and date of declaration

The identity and signature of the person
authorized to make declarations

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1. Introduction

This manual describes the basic principles of safe use and operation of agricultural trailers, tippers.

 CAUTION!	<p>CAUTION! Before using a trailer you should carefully read the contents of the manual.</p> <p>CAUTION! Before running a trailer, you must test it for safe exploitation.</p>
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If the information contained herein will prove to be not fully understood, ask the manufacturer or the sales point where it was purchased for help.

Particularly important information and recommendations, the observance of which is absolutely necessary in the text are highlighted in bold or preceded by the word „ **CAUTION!**“.

Information, descriptions of danger and precautions as well as commands and orders "related to the safety of use are highlighted in the manual with a sign  and also mentioned in the chapter "SAFETY OF USE".

1.1 Identification of the machine

The trailer is marked with the plate (1) and a serial number (2). The rating plate is found on the front beam of the upper frame, and the serial number is stamped on the right side-member of the lower frame – figure 1.

When buying the trailer, check the compatibility of serial numbers on the machine with the number written in the WARRANTY CARD, in the sales documents and in the INSTRUCTIONS FOR USE.

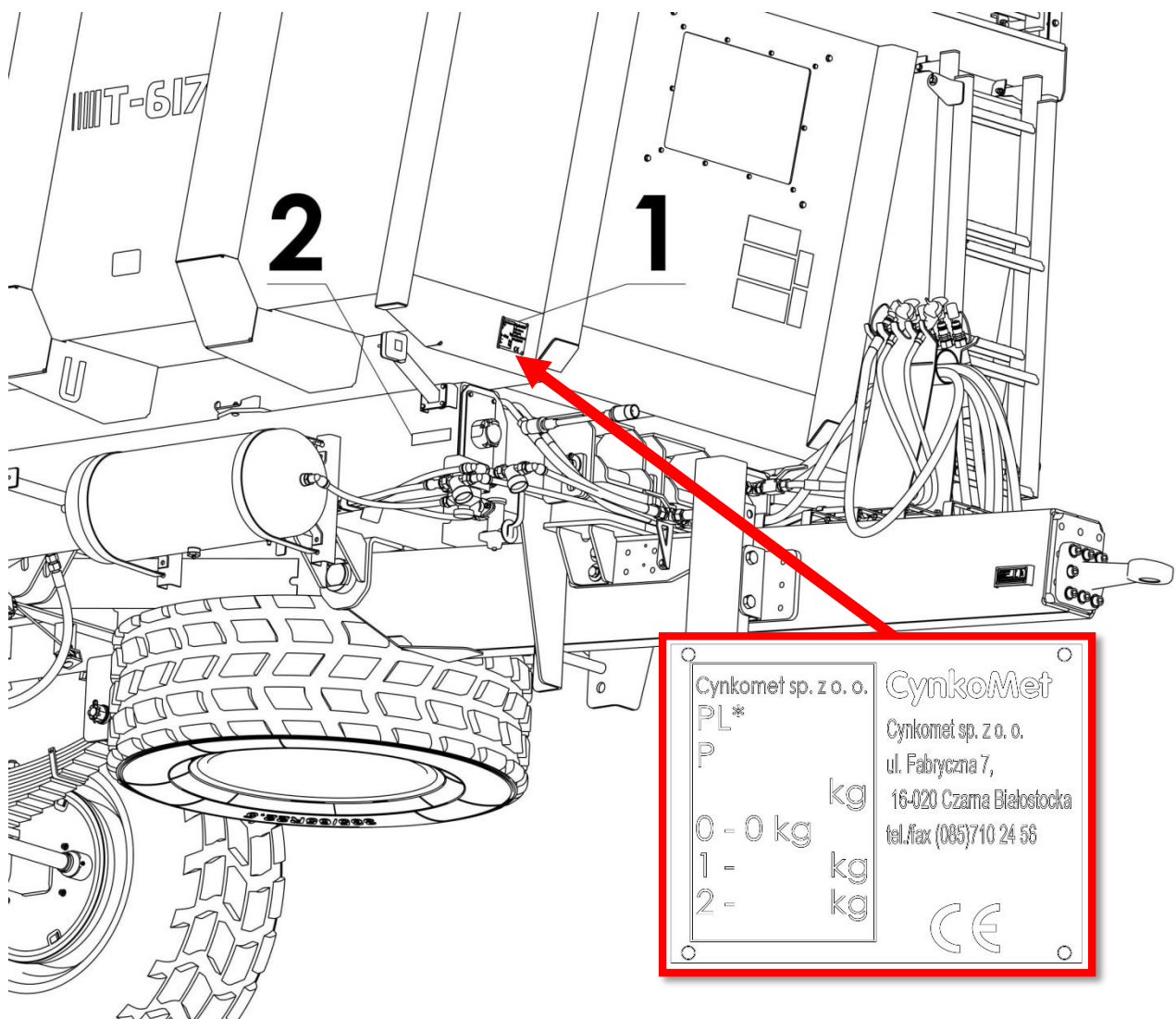


Figure 1. Location of the nameplate and issue of the serial number
1 - nameplate, 2 - serial number


2. Purpose of the trailer

The trailer is designed to transport crops and other loose and volume materials within the limit of a farm and on public roads.

The braking, lighting and signaling systems comply with the regulations resulting from the Act of 20 June 1997 the Law on road traffic.

The trailer is adapted to cooperation with agricultural tractors fitted with an external hydraulic system. The rear trailer hitch is only used to connect the trailer biaxial. Failure to follow the transport and loading of goods specifications described by the Manufacturer and the rules on road transport in force in the country in which the trailer is utilized, will void the warranty service and is regarded as misuse of the machine.

The trailer IS NOT ADAPTED and cannot be used to transport people and/or animals.

 CAUTION!	<p>CAUTION!</p> <p>The trailer must not be used contrary to its purpose, and in particular:</p> <ul style="list-style-type: none"> • for transporting people and animals, • for transporting bulk hazardous toxic materials when there is a possibility of causing environmental contamination, • to transport machinery and equipment, whose center of gravity affects the stability of the trailer, • to carry loads, machines, etc. that affect the unequal load or overload of axles and suspension components, • to carry loads not secured, which - while driving - can change its position on the loading platform.
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Use in accordance with the product's destination also includes all activities related to correct and safe operation and maintenance of the machine. Therefore, the user is obliged to:

- read the content of the MANUAL of the trailer and the WARRANTY CARD and adhere to the recommendations contained in these elaborations,
- comply with the established maintenance plans and regulations,
- comply with general safety regulations while working
- Prevent accidents,
- comply with the road traffic regulations and transport regulations in force in the country in which the trailer is operated,
- read the instructions for operating the tractor and comply with its recommendations,


The trailer may only be used by persons who:

- are familiar with the contents of publications and documents attached to the trailer and the contents of the agricultural tractor manual,
- have the required authorization to drive and are familiar with the road traffic regulations and transport regulations.

3. Safety in use

3.1 General safety and accident prevention regulations

- Before using a trailer, user should carefully read the instructions completely. During operation, observe all instructions contained in the manual.
- Before each start, the trailer should be checked in terms of operational safety (completeness of all trailer components, wheel and tire condition, tightening of all bolts (Table 10), cracks or visible damage on the structure).
- Entering onto the trailer is only possible with absolute machine immobilisation, with the tractor engine switched off and the keys removed from the ignition.
- The trailer should be combined with tractors recommended by the manufacturer (Table 2).
- Pay attention to the warnings in places of crushing and shearing when starting the machine.
- During transport, check the condition of preheat of the tires, brake drums and wheel bearings. In the case of detecting an excessively heating element, stop the machine from operating until determining the cause and rectifying the fault.
- The speed of driving must always be adapted to the environmental conditions. Please undertake special care when overcoming unevenness and avoid sudden turns.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Before driving with a trailer in a place where there are flammable materials you should imperatively check the status of the heating elements of the trailer, especially the brake drums and wheel bearings, due to the risk of fire.</p>
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- When switching and disconnecting the machine from the tractor, you must be careful.
- Exceeding the permissible load can cause accidents on the road and damage to the machine.
- When cornering, you should take into account the inertia of the machine.
- Before you start, check if the trailer has any loose parts
- Within additional elements which are force operated (e.g. by hand), there are places of crushing and shearing.
- Malfunctioning of the trailer should be removed only when the engine of the tractor is off and the ignition key is pulled out
- No one can stay one between the tractor and the trailer before the vehicle is not be protected against self-running off through the parking brake (hand brake) and wedges under the wheels.
- It is forbidden to transport people or animals on the trailer
- It is forbidden to enter the cargo box with an unsecured trailer.
- The machine is designed to work on slopes up to 8 °.
- Tipping of the load box can only be done on a level and stable surface.
- When lifting the caret, keep a safe distance from overhead power lines.
- Disconnection of the trailer from the tractor is not allowed with the load crate lifted with the telescope cylinder.
- Modifications can be made only with the permission of the manufacturer. The basic condition for safety are original spare parts and components. Using other parts may result in exclusion of liability of the manufacturer for resulting consequences.
- Careless operation and maintenance of the trailer can injure the operator or third parties and damage the tractor-trailer.
- It is forbidden to use the machine by persons not qualified to drive

agricultural tractors, including children and persons under the influence of alcohol.

- It is forbidden to use the trailer contrary to its purposes. The staff operating the machine should strictly observe basic health and safety regulations.
- Prior to each trailer's use check its technical condition, especially the condition of the coupling system, drive system, brakes and signaling lights.
- The machine is marked with information and warning inscriptions in the form of stickers as specified in Table 1. The user is obliged to constantly take care of the readability of signs and warning symbols on the machine. In the event of damage or destruction replace them with new ones.
- Labels with inscriptions and symbols are available from the manufacturer.

3.2 Attaching and detaching the machine to the tractor

- Before attaching a trailer, make sure that the tractor and trailer are technically efficient.
- While connecting the trailer, use only the tractor hitch for single-axle trailers. After completion of the machine coupling, check the security of the hitch. Read the whole manual for the tractor's use. If the tractor is equipped with an automatic hitch, make sure the coupling operation has been completed correctly.
- Be very careful when you connect the machine.
- When connecting, nobody may stay between the trailer and the tractor.
- Disconnecting the trailer from the tractor is prohibited if the load crate is raised.
- Coupling and uncoupling the trailer may only take place when the machine is immobilized with the parking brake.

3.3 Attaching and detaching the second trailer

- Before connecting the machine, make sure that the oil in both trailers may be mixed.
- Only two-axle trailers can be connected to the trailer.

- Before attaching a trailer, make sure that both machines are technically efficient.
- Be very careful when you connect the machine.
- In the course of coupling no one is allowed to stand between trailers. The person who helps to aggregate the machine should stand in such a place (outside the danger zone) to be visible all the time to the operator of the tractor.
- After completion of the coupling of the trailer, check the safety of the hitch.
- Disconnecting the second trailer is prohibited if the load crate is raised

3.4 Road wheels

- When working with the wheels, secure the spreader, in case of self-launching of movement, using the parking brake and planting chocks under the wheels.
- Repair work on the tires and wheels should be performed by using appropriate tools.
- After each installation of a wheel, tighten the nuts after the first 10 working hours, then every 50 working hours to check their tightening (according to Table 6).
- The air pressure is to be checked regularly. Observe the recommended air pressure.
- Dismantling the wheels can be carried out only in the case when the trailer is not loaded.
- Avoid damaged road surface, quick and variable maneuvers and high speed during turns.
- Tire valves are to be protected with caps to prevent penetration of impurities.

3.5 The pneumatic and hydraulic system

- The hydraulic and pneumatic installations during operation are under high pressure.
- Regularly check the technical condition of the connections and the hydraulic and pneumatic systems. Oil leaks and air leaks are unacceptable.

- In case of failure of the hydraulic or pneumatic installation, the trailer should be out of operation until failure removal.
- When connecting the hydraulic hoses to the tractor, pay attention that the hydraulic system of the tractor and the trailer are not under pressure. If necessary, reduce the residual pressure system.
- In the case of injury with a strong jet of hydraulic oil should, immediately consult a doctor. The hydraulic oil can penetrate the skin and cause an infection. If the oil gets into your eyes, rinse with plenty of water and consult a doctor.
- In the event of contact of oil with skin, wash the dirty spot with soap and water. Do not use organic solvents (petrol, kerosene).
- Use the hydraulic oil recommended by the Manufacturer.
- After replacing the hydraulic oil, the used oil must be disposed of Used oil or one that has lost its properties should be stored in its original containers or in substitute packages which are hydrocarbon-resistant. Replacement containers must be carefully described and stored properly.
- It is forbidden to store hydraulic oil in packaging designed for food storage.
- Rubber hydraulic couplings must be replaced every 4 years regardless of their technical condition. Hose replacement must comply with the technical requirements of the manufacturer.

3.6 Maintenance.

- Repair, maintenance and cleaning jobs and the removal of function faults is to be performed with the engine of the tractor stopped and the ignition key taken out.
- During maintenance of the raised loading crate, it is advisable to protect it before falling with the help of the service support.
- During maintenance and repair jobs use appropriate tools and protective clothing.
- Oils and lubricants are to be carefully removed. The used oil and grease is to be disposed of.
- Before electrical, welding and working works on the electrical system,

separate the continuous supply of power to the electrical system of the tractor.

- Use the spare parts according to the catalog of spare parts.
- Modifications can be made only with the permission of the manufacturer. The basic condition for safety are original spare parts and components. Using other parts may result in exclusion of liability of the manufacturer for resulting consequences.
- It is forbidden to weld galvanized elements because of the harmful vapors.

3.7 The principles of movement on public roads.

- When driving on public roads you must adapt to the traffic regulations and transport regulations in force in the country in which the trailer is operated.
- Do not exceed the speed limit.
- Adapt the speed to the prevailing road conditions and the degree of loading of the trailer.
- While driving on public roads the trailer should be equipped with a certified or approved warning triangle. A triangular plate should be placed on the rear wall for slow-moving vehicles (1) as shown below (Fig. 2).

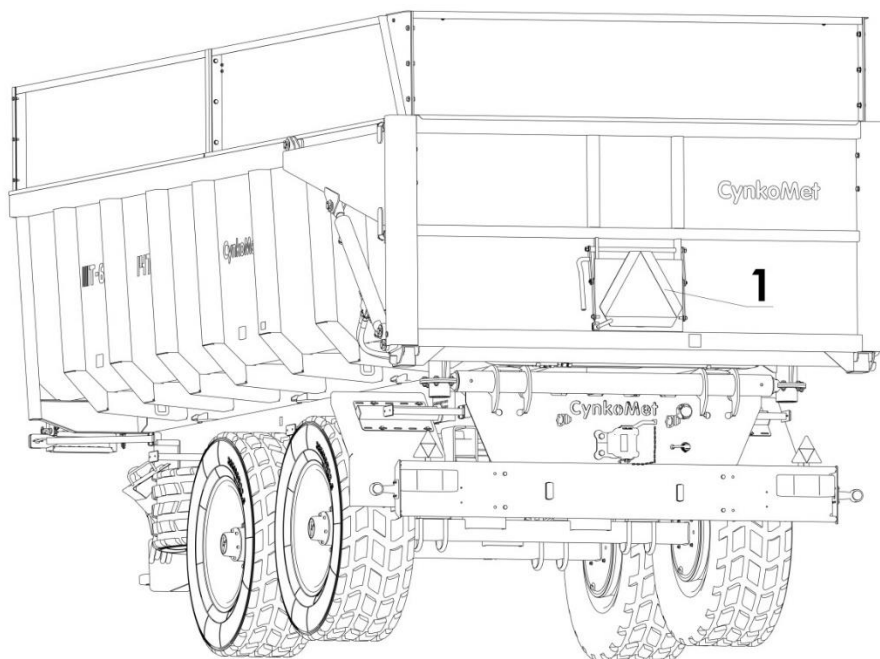


Figure 2. The location of the placement of the plate distinguishing slow-moving vehicles.

- The presence and transport of people in the trailer load crate is prohibited.
- Before driving, make sure that the trailer is properly connected to the tractor (in particular, check the safety pin hook).
- It is forbidden to park on the slopes with a loaded and unsecured machine. Securing is based on stopping with the service brake, parking brake and planting chocks under the wheels. The chocks (1) should be planted only under one wheel (2) (one front wheel and one on the back - Fig. 3).

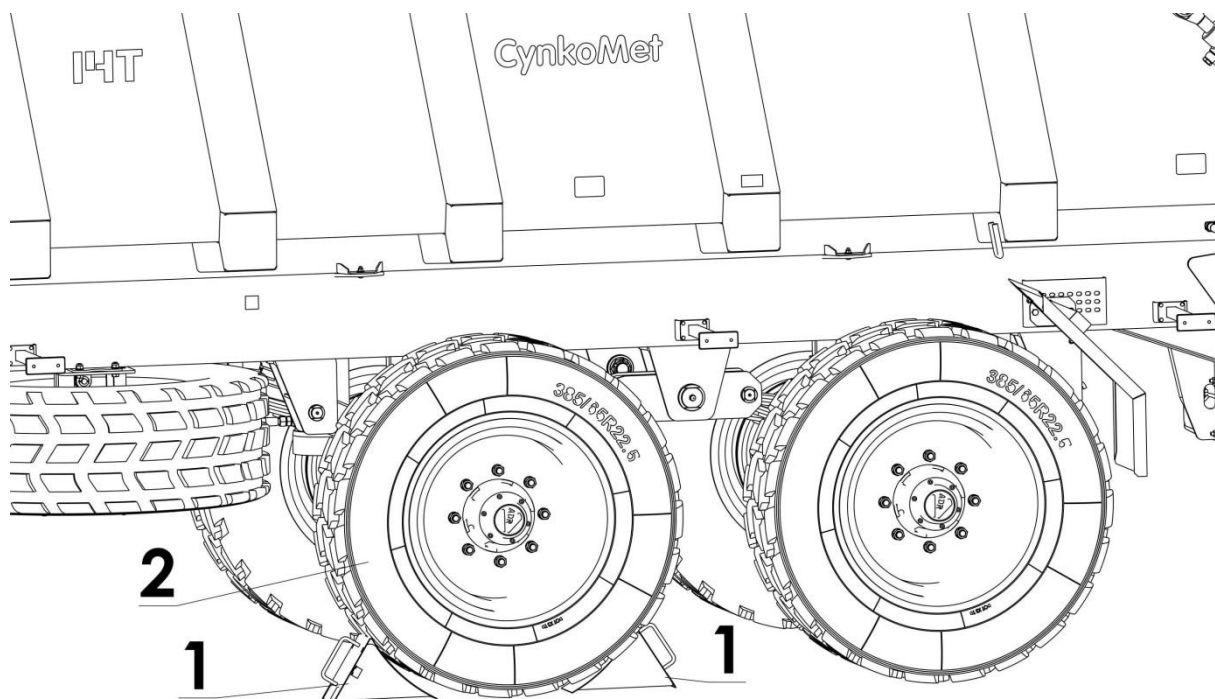



Figure 3. The way of placing the chocks.

- Before driving the trailer, check if the bolt of the rear wall has been secured.
- Prior to each trailer's use, check its technical condition, especially in terms of safety. In particular, check the technical condition of the coupling system, drive system, brakes and signaling lights and hydraulic, pneumatic and electrical connection elements.
- Before driving, check that the parking brake is released and the braking force regulator is set to the correct position (concerns pneumatic systems with a manual, three-position regulation).
- The trailer is adapted for driving on slopes up to 8°. Moving the trailer through grounds with steeper slopes may cause the trailer to tip over as a result of loss of stability.

- Each time, after finished work, drain the air reservoir in the pneumatic installation. During frosts, freezing water may cause damage to pneumatic system components.
- The cargo protruding beyond the outline of the trailer should be marked in accordance with the rules of the traffic.
- It is prohibited to exceed the admissible trailer load. Exceeding the carrying capacity may lead to equipment damage, loss of stability while driving, scattering of the load and cause a hazard to third parties. The brake system of the machine has been adapted to the total weight of the trailer, which if exceeded will result in a drastic reduction in the effectiveness of the brake.
- The load on the trailer should be distributed evenly and must not impede driving the set. The load must be secured so as not to have the ability to move or fall over.
- When reversing, it is recommended to use the assistance of another person. During maneuvering, the person helping must keep a safe distance from the danger zones and at all times be visible to the operator of the tractor.
- If during reversing we are not using the help of a second person, before commencing the maneuver, make sure that nobody is in the danger zone. Before the start of the maneuver, use a sound signal.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Before each maneuver of reversing and start of dumping the material loaded on the load box, use of the beep signal 2 times is recommended in the tractor in order to inform bystanders about the threat.</p>
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3.8 Description of residual risk.

Although the "CYNKOMET" Czarna Białostocka company takes responsibility for the design and construction in order to eliminate the danger, and made every effort to eliminate the risk of an accident, some elements of risk during operation of the trailer are unavoidable. The residual risk stems from the wrong behavior of the machine operator.

The greatest danger occurs when you do the following:

- use the trailer for purposes other than those described in the manual,
- stay between the trailer and the tractor when the engine is running,
- operating the machine by unauthorized persons, under aged persons or under the influence of alcohol or other drugs,
- stay on the machine during operation,
- clean the machine during operation,
- not maintaining a safe distance during the operation of the machine including (reversing, driving, loading or unloading the trailer,
- introduce structural changes without the consent of the manufacturer,
- clean, carry out maintenance and technical checks of the trailer,
- the presence of people or animals in areas invisible from the driver's position.


When presenting the residual risk, the spreader is treated as a machine, which until the start of production was designed and manufactured according to the current "state of the art".

3.9 Residual risk assessment.

When observing such recommendations as:

- carefully reading the user manual.
- prohibition of placing your hands in inaccessible and forbidden places,
- prohibition on being on the machine during operation,
- maintenance and repair of the machine according to instructions,
- to work with the components and elements with sharp edges you must use suitable protective clothing (gloves, boots, etc.)
- securing the machine against the access of children,
- use of the observations and recommendations contained in the operating instructions,
- keeping a safe distance from forbidden or dangerous places during unloading, loading and coupling trailers,
- performing maintenance and repair jobs in accordance with the security service rules,
- prohibition of remaining on the machine during driving, loading or unloading, residual risk during the machine's use can be eliminated without



risk to humans and the environment.




 CAUTION!	CAUTION! There is residual risk in the event of failure to comply with the set-out recommendations and guidelines.
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3.10 Information and warning stickers.

The trailer is marked with information and warning labels listed in table 1. The user of the machine is obliged to take care of the readability of the subtitles, warning symbols and information placed on the trailer throughout the whole period of its use. In the case of destruction, replace them with new ones. Labels with inscriptions and symbols are available from the manufacturer or the place where the machine was purchased. New units replaced during repairs must be re-marked with the appropriate safety signs. When cleaning the trailer, do not use solvents that can damage the coating of labels and do not direct a strong stream of water.

Table 1. Information and warning stickers.

No.	The symbol (sign) of safety or the content of the inscription	Meaning of the symbol (sign)	The placement on the machine
1.		Caution Before starting work, please read the User's Manual.	Front wall
2.		Caution Turn off the engine and remove the key before starting maintenance or repair	Front wall
3.	The inscription "Do not make service and repair work under loaded or raised and unsupported loading crate."		Front wall

4	The inscription "Do not:" <ul style="list-style-type: none"> • stay under a loaded, raised and unsupported load box • within the reach of dumped load 		Front wall
5	"1" – applies to hydraulic tipping system I of the trailer	The position of the valve controlling the operation of the hydraulic installation (trailer 1 or 2).	Shut-off valve
6	"2" – applies to hydraulic tipping system II of the trailer	The position of the valve controlling the operation of the hydraulic installation (trailer 1 or 2).	Shut-off valve
7	550 kPa	Pressure in the tires ⁽¹⁾	On the side walls above the wheels
8		Do not reach into the area of crushing, if the elements may be moving.	On the side walls, near the rear wall and at the dump window.
9		Load box support	On the side-members of the lower frame
10	Max. capacity: 14 000 kg	Maximum capacity	Front wall
11			The right side wall, left side wall and rear wall
12			The right-side wall, left side wall
13			The right-side wall, left side wall

(1) – pressure dependent on the used tire

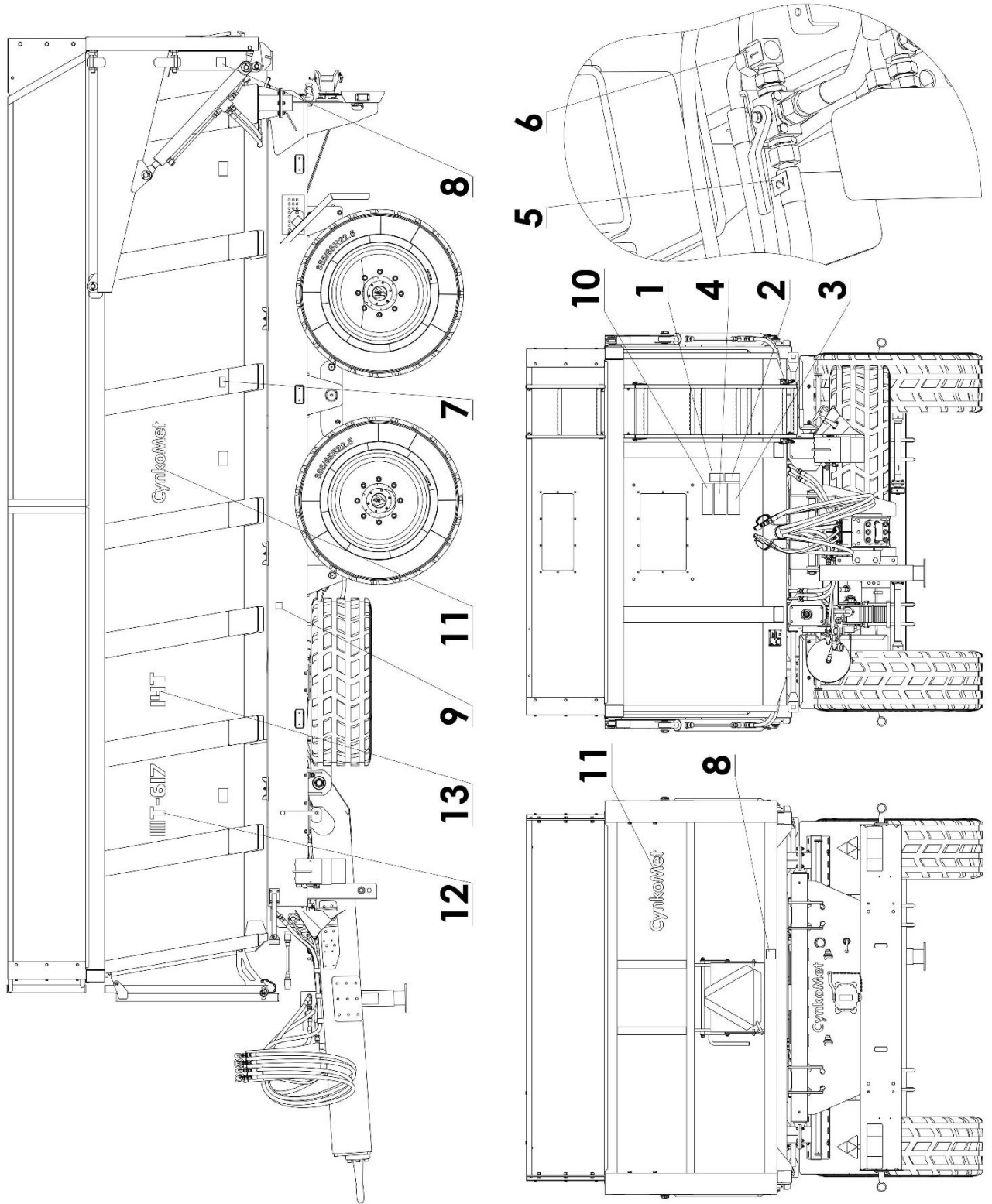


Figure 4. Distribution of stickers.

4. Information regarding use

4.1 Technical characteristics.

Table 2. Basic technical specifications of the trailer.

NO.	Content	J.m.	T-617/4
1.	Total length	mm	7500
2.	Total width	mm	2550
3.	Total height (with 500 mm extensions / without extensions)	mm	2900/2400
4.	Track of wheels	mm	1900
5.	Wheelbase	mm	1320
6.	Dimensions of the load box (internal): <ul style="list-style-type: none"> • length (bottom/top) • width • height (with 500 mm extensions / without extensions) 	mm	5700/5850 2195 1500/1000
7.	Cargo capacity (with 500 mm extensions / without extensions)	m ³	18.8
8.	Loading surface	m ²	12.5
9.	Height of the loading surface	mm	1400
10.	The ground clearance of the vehicle	mm	480
11.	Vehicle weight	kg	5000
12.	Allowed payload of the vehicle	kg	14000
13.	Drawbar load	kg	2500
14.	The angle of inclination of the box:	°	50
15.	Tire size		385/65 R22.5
15.1	Tires Speed Index		F (80km/h)
15.2	Tires Load Index		160 (4500kg)
15.3	The maximum tire pressure	bar/kPa	9/900
16.	Rated voltage	V	12
17.	Permissible design speed	km/h	40 ⁽¹⁾
18.	Power requirement	kW/KM	74/100
19.	The level emitted of noise	dB	Below 70

⁽¹⁾ – The permitted speed limit of the trailer moving on public roads in Poland is 30 km/h (according to the Law dated 20 June 1997, "the Road Traffic Law", art. 20). In countries where the trailer is operated, observe the restrictions associated with the relevant national law on road traffic.

4.2 Description of construction and operation.

4.2.1 Chassis

The chassis of the trailer consists of the following parts shown in fig. 5.

The lower frame (1) consists of welded steel sections and plates. The basic carrying elements are two stringers connected to each other via crossbars. The middle part of the frame has sockets (2) for the installation of the hydraulic cylinder, and the rear part has a rear beam with pins (3) to install the load box. To the front of the tipping cylinder sockets (2), there is a load box support (4). In the rear part of the lower frame, there are brackets for installation of lighting protection (5) and a rear plate to which the rear hitch (6) can be fastened to aggregate the second (double axle) trailer.

Trailer suspension consists of two driving axles (7) in a tandem arrangement and leaf springs (8) connected with a rocker (9). The axles are fastened to the springs with U-bolts. Driving axles are made of square bars ending with pins on which, on the tapered roller bearings, wheel hubs are mounted. The trailer has single wheels. The axles are equipped with shoe brakes channeled with mechanical cam expanders.

Wheels (10) are fastened to axle hubs.

In the front part of the chassis, there is a drawbar (11) to which a hydraulic support (12) or mechanical support is fastened. The drawbar anchorage (13) is fastened to the front plate. The drawbar is protected against vibration by rubber shock absorbers (14).

In the front left part of the chassis, chock pockets (15) are fastened to the lower frame (1). A spare wheel (10) hanger (16) can also be mounted under the lower frame (1).

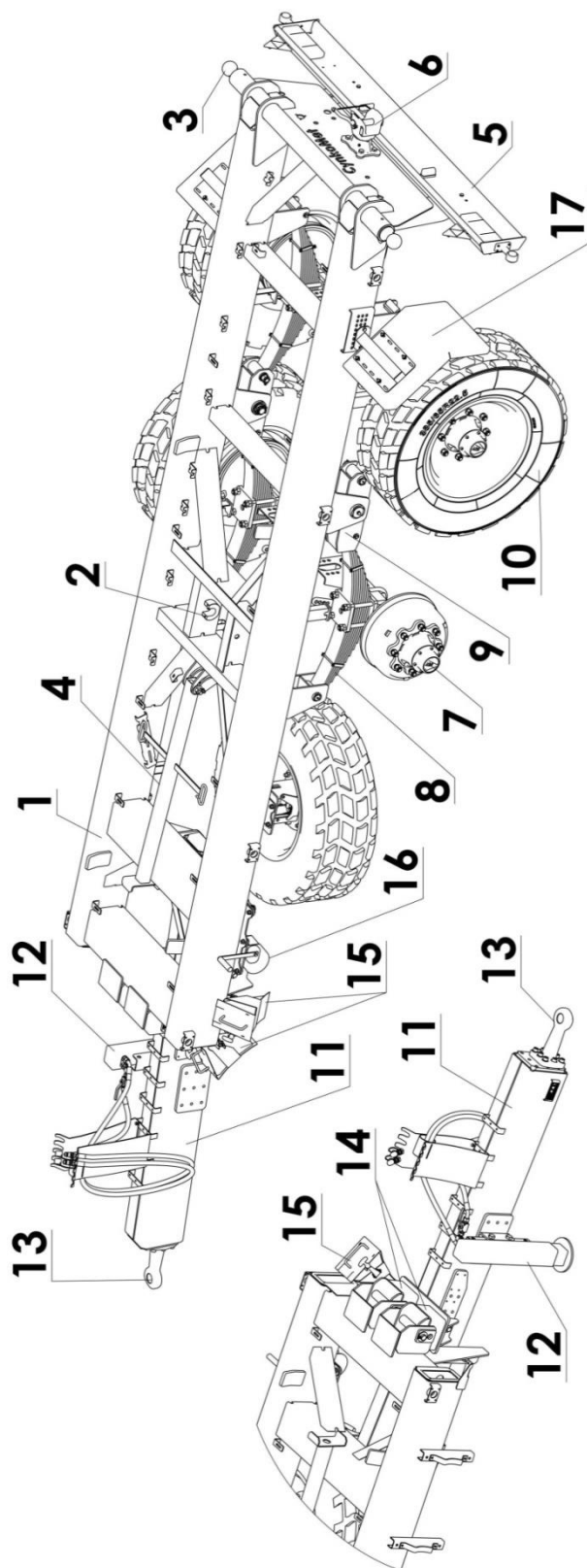


Figure 5. Trailer chassis.

1 – lower frame; 2 – hydraulic cylinder suspension socket; 3 – pin; 4 – load box support; 5 – lighting beam; 6 – rear hitch; 7 – driving axle; 8 - spring; 9 – rocker; 10 – wheel; 11 – drawbar; 12 - hydraulic support; 13 – drawbar anchorage; 14 – drawbar shock absorber; 15 – chock; 16 – spare wheel hanger; 17 – wheel fender.

4.2.2 Loading crate

Trailer T-617 has a shell load box (1) (fig. 6) welded from plates and steel sections. The load box is mounted on the pins of the lower frame (fig. 5), which are the pivoting points during load box tipping. The load box is equipped with extensions (with a height of 500 mm) (2) on standard.

Entrance ladders (3) and (4) are fixed to the walls and the front extension. On the inside of the load box, opposite to the ladders, there are additional steps (5) to facilitate going into / out of the load box.

The front wall of the load box and the front extension have windows (6) and (7) to make it easier to determine the amount of trailer cargo.

The rear part of the load box has a rear door (8) opened and closed with hydraulic cylinders (9). The bottom eyes of the cylinders are fixed to hooks (10) that automatically lock the rear door upon closing. The rear door is fixed to the load box using brackets (11).

In addition, the trailer T-617 can be fitted with tarpaulin and a platform.

In order to allow a more precise unloading of materials in powder form, a dump window is provided in the rear wall (12) (fig. 7).

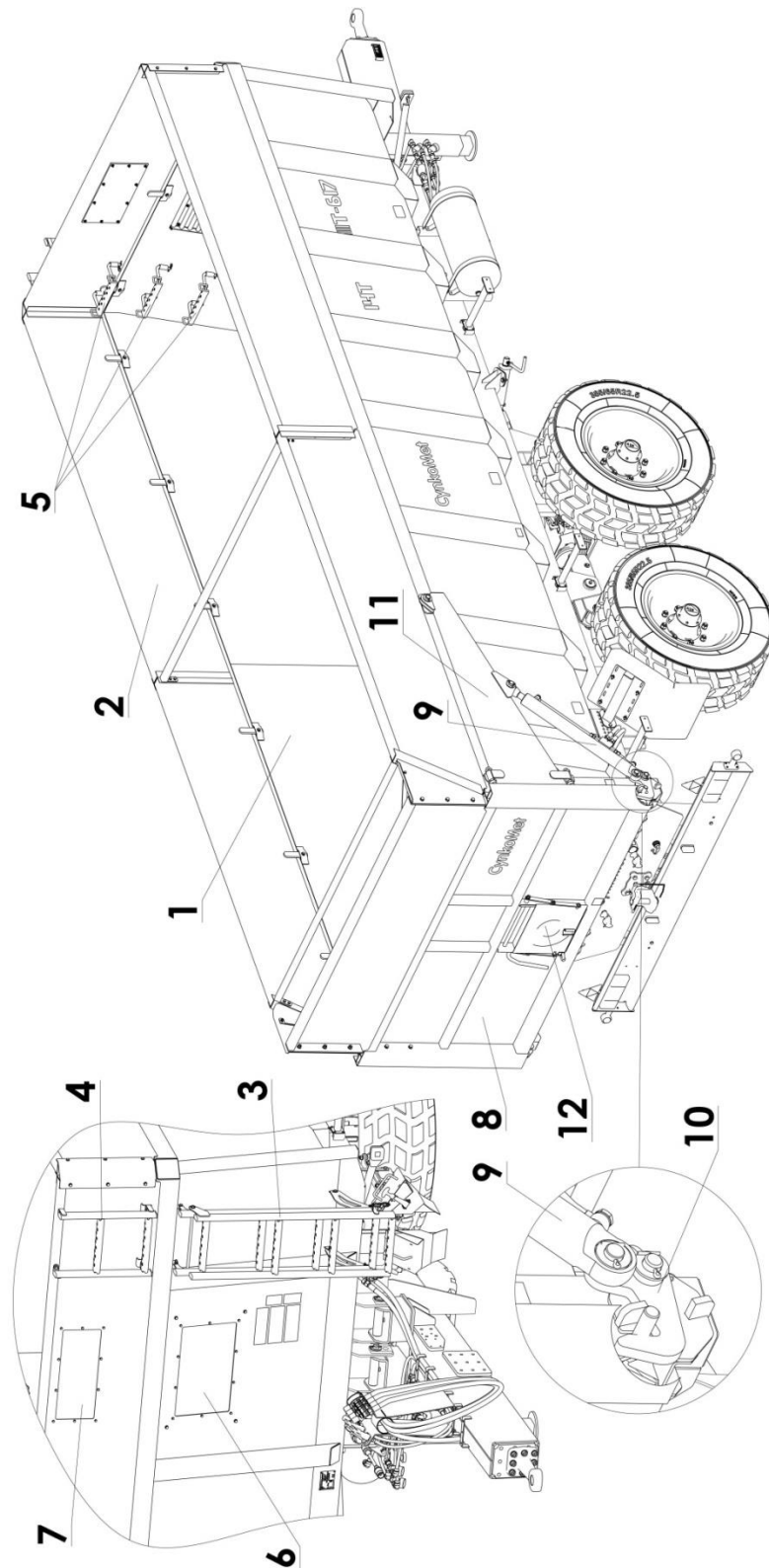


Figure 6. Load box.

1 – load box; 2 – load box extensions; 3 – load box ladder; 4 – extension ladder; 5 – internal steps; 6 – load box windows; 7 – extension window; 8 – rear wall; 9 – hydraulic cylinder; 10 - hook; 11 – rear door bracket; 12 – dump window.

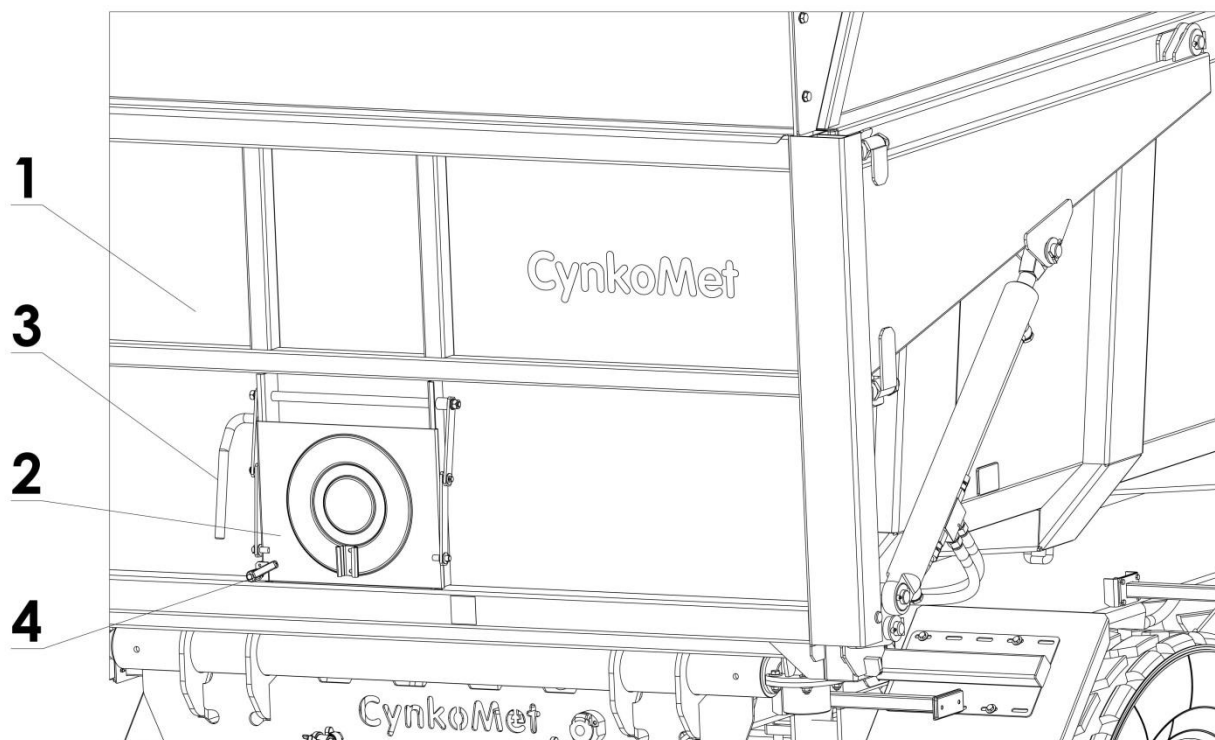


Figure 7. Dump window.

1 - rear wall, 2 - window dump, 3 - lever, 4 - locking screw

4.2.3 The hydraulic installation of the lift

Hydraulic tipping mechanism (fig. 8) is designed for automated unloading of the trailer through tilting the load box. The hydraulic system of the dumping mechanism is supplied with oil from the tractor's hydraulic system. To control the lifting of the loading crate, the oil distributor of the external hydraulic tractor is used

The hydraulic system consists of two independent circuits, namely:

- Circuit I - used to power the telescoping cylinder that raises the cargo box;
- Circuit II - is used to power the hydraulic system of the second trailer, in the case of a merger of two tractor trailers simultaneously.

To turn these circuits, a three-way valve (2) is used. The lever of this valve can occupy the following positions:

- position "1" - open circuit of the trailer tipping
- location "2" - open circuit of the second trailer tipping

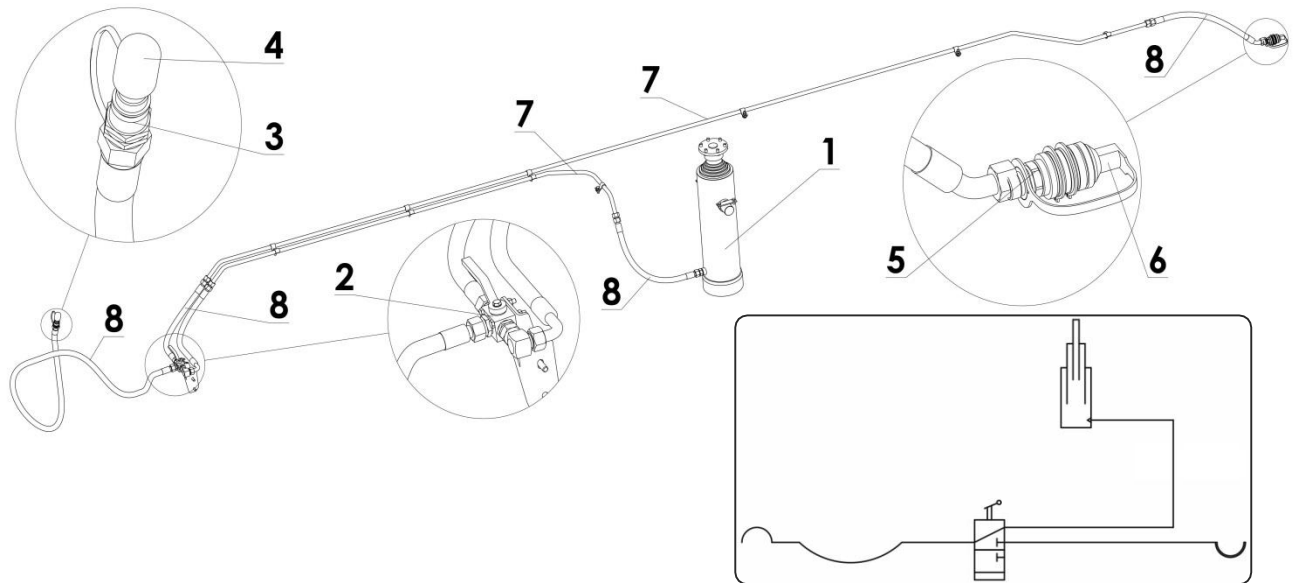



Figure 8. Construction and diagram of the hydraulic tipping installation
 1 – hydraulic cylinder; 2 – three-way valve; 3 – connector valve plug; 4 – plug cover; 5 - socket of the connector valve of second trailer; 6 – socket cover; 7 – flexible hydraulic hoses; 8 – rigid hydraulic hoses.

 CAUTION!	<p>CAUTION!</p> <p>Factory-made, the hydraulic system of the trailer is filled with Agrol U oil.</p>
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4.2.4 Hydraulic system of the rear door

The hydraulic system of the rear door (fig. 9) is supplied with oil from the oil system of the tractor, and it is used to open and close the rear door of the load box (fig. 6) using hydraulic cylinders (1). To control the lifting of the load box, the oil distributor of the external hydraulic tractor is used. The bottom eyes of the cylinders are fixed to hooks that automatically lock the rear door upon closing.

Next to the hydraulic cylinders, there are hydraulic locks (2) to prevent the rear door from accidental opening or closing, even if the hydraulic hoses between the locks and the tractor are damaged. This directly contributes to the safety of use of the trailer.

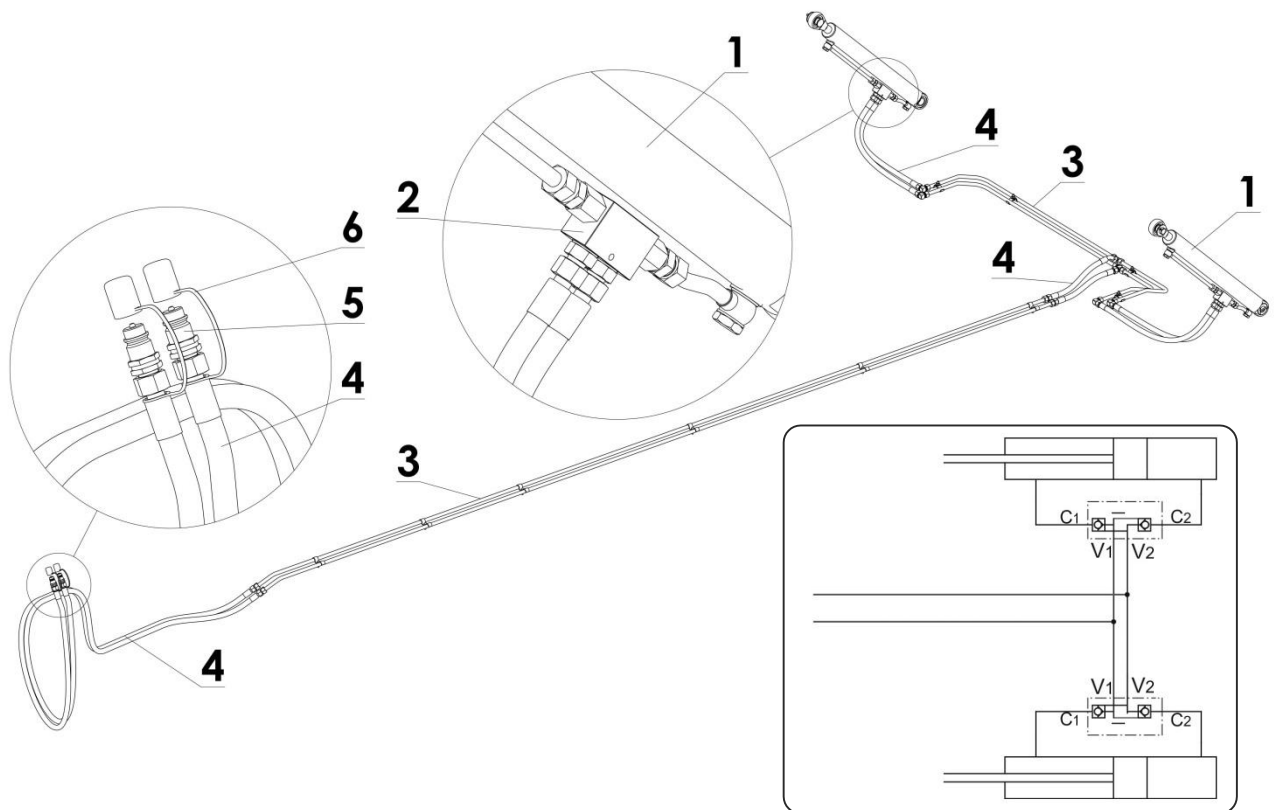





Figure 9. Design and diagram of the hydraulic system of the rear door.
 1 – hydraulic cylinder; 2 – hydraulic lock; 3 – rigid hydraulic hoses; 4 – flexible hydraulic hoses; 5 – connector valve plug; 6 – plug cover.

 CAUTION!	CAUTION! Factory-made, the hydraulic system of the trailer is filled with Agrol U oil.
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4.2.5 Hydraulic support system

The hydraulic system (fig. 10) is used to adjust the height of drawbar support (1) in order to support the trailer when it is detached from the tractor. The hydraulic support system can be used to achieve suitable drawbar height during disconnection and connection of the trailer to the tractor. The shut-off valve (2) should be closed after the trailer is supported on the hydraulic support (1) and before the hydraulic hoses (3) are disconnected from the tractor.

 CAUTION!	<p>CAUTION!</p> <p>Factory-made, the hydraulic system of the trailer is filled with Agrol U oil.</p>
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 CAUTION!	<p>CAUTION!</p> <p>Before using the hydraulic support, make sure that the shut-off valve is open.</p> <p>Do not close or open the shut-off valve when the hydraulic hoses are not connected to the tractor.</p> <p>If the shut-off valve is opened when the trailer is detached from the tractor and supported on the hydraulic support, pressurized oil from the hydraulic support cylinder may get into the hydraulic hoses, which may make it difficult to connect them to the tractor.</p>
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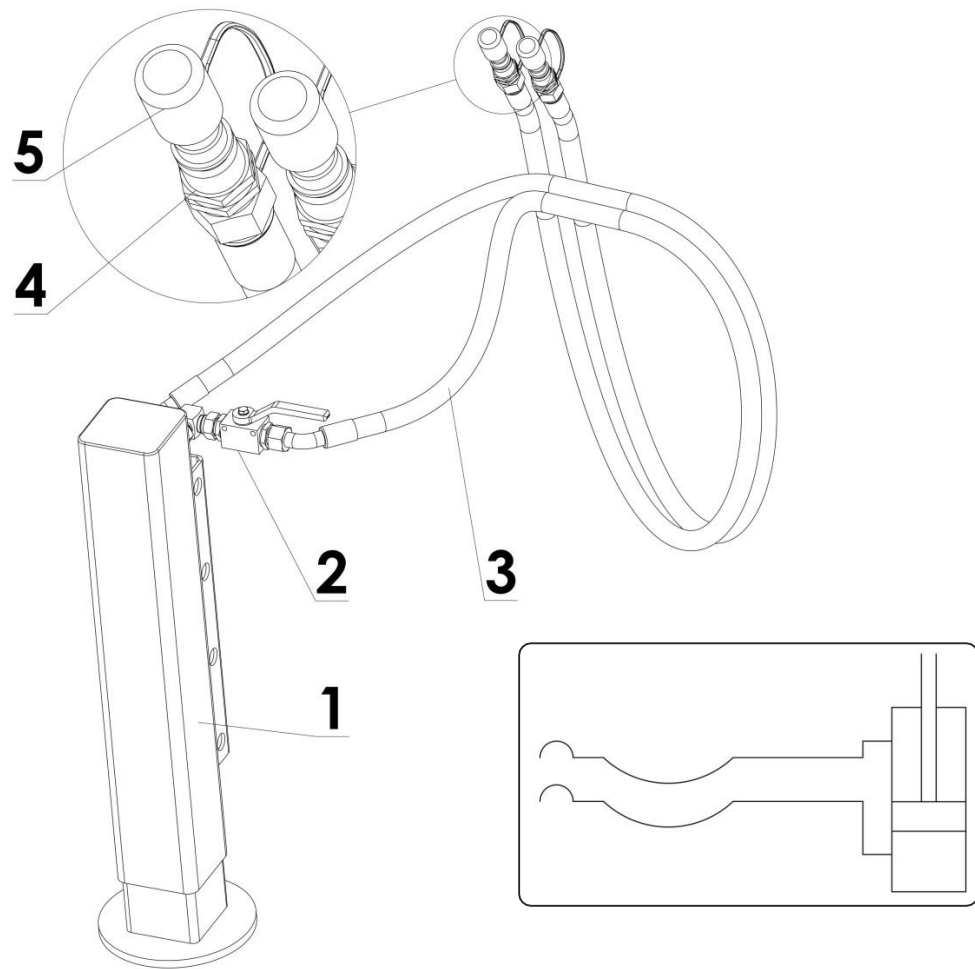


Figure 10. Design and diagram of the hydraulic drawbar support system.
1 – hydraulic support; 2 – shut-off valve; 3 – flexible hydraulic hoses; 4 – connector valve plug; 5 – plug cover.

Table 3. Characteristics of the Agrol U oil

No.	Requirements	Research method based on	Unit	Value
1.	kinematic viscosity in 100°C	ASTM D 445	mm ² /s	10.0-11.5
2.	flow temperature	ASTM D 97	°C	< - 24
3.	flash point	ASTM D 92	°C	>230
4.	base number	ASTM D 2896	mgKOH/g	9.9
5.	viscosity index	ASTM D 2270		>95
6.	CCS structural viscosity in - 18°C	ASTM D 5293	mPa*s	<9000

Specifications, qualifications of the Agrol U oil:

- API GL-4
- DIN HLP
- ISO VG 100
- John Deere J20C
- MF CMS M1145
- Volvo WB101
- ZF TE-ML-03E, ZF TE-ML-05F

4.2.6 Brake system

The trailer is equipped with a braking system comprising of:

- a pneumatically or hydraulically controlled service brake, acting on four wheels of both axles,
- a parking brake actuated manually by means of a crank mechanism on the side of the trailer, acting on the wheels of the first axle.

The pneumatic or hydraulic service brake is activated from the workplace of the tractor driver by pressing the brake pedal of the tractor. The construction of this system provides automatic inhibition of the four road wheels of the trailer with an unexpected disconnection of the pneumatic installation of the trailer and tractor.

The brake of the pneumatic installation has a system slowing down the brake used in the case when the trailer is disconnected from the tractor.

The braking force regulator 3 (fig. 11, fig. 12) (fig. 13) located in the

suspension system is controlled manually. Depending on the load of the trailer with cargo, the control lever must be set in one of three positions:

- position "0" - for an unladen trailer,
- position "1/2" - for the trailer partially loaded,
- Position "1" - for the trailer fully loaded.

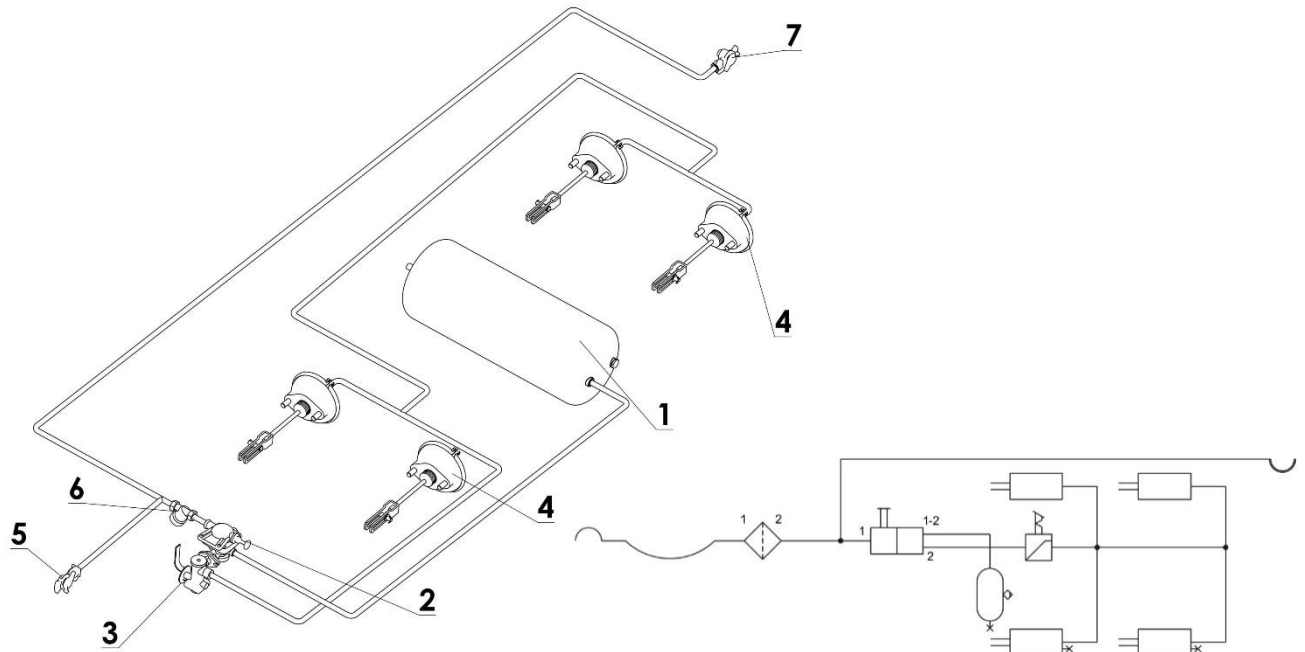


Figure 11. Diagram of the pneumatic single-line braking system.

1 – air tank; 2 – control valve; 3 – brake force regulator; 4 - pneumatic cylinder; 5 - hose connector (black); 6 – air filter; 7 – socket (black).

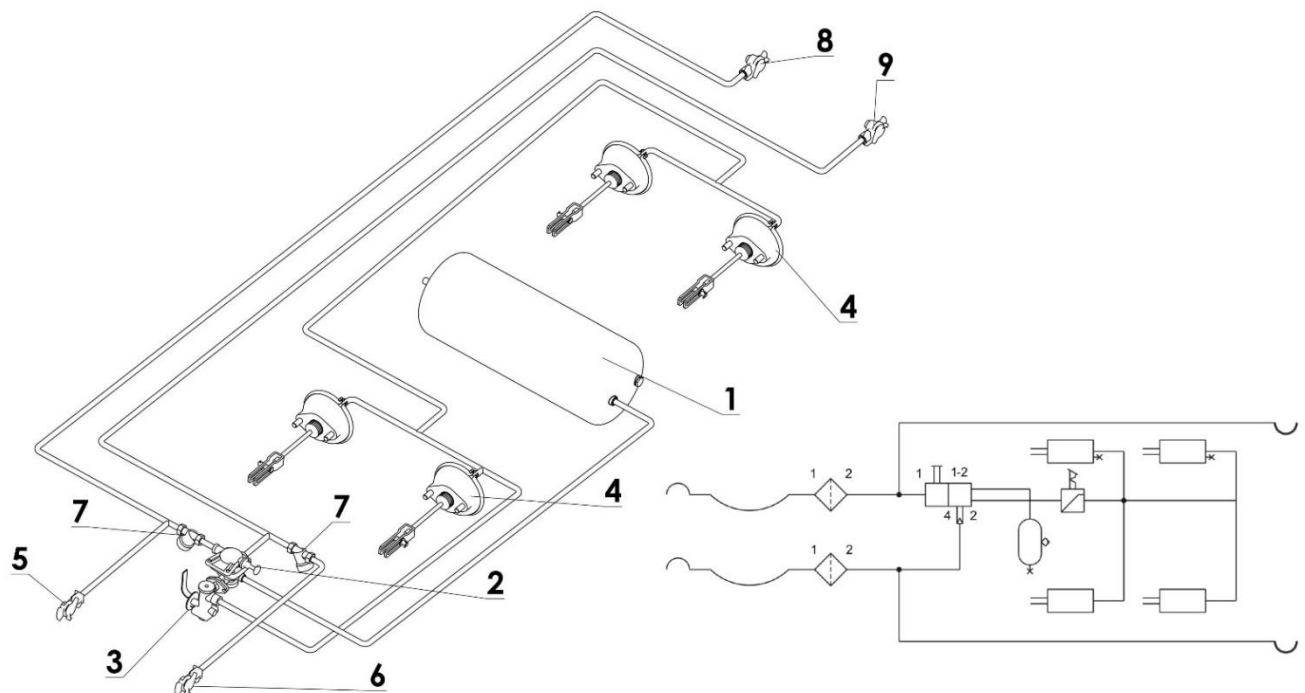


Figure 12. A diagram of the pneumatic two-wire braking installation

1 – air tank; 2 – control valve; 3 – braking force regulator; 4 - pneumatic cylinder; 5 - hose connector (red); 6 – hose connector (yellow); 7 – air filter; 8 – socket (red); 9 – socket (yellow).

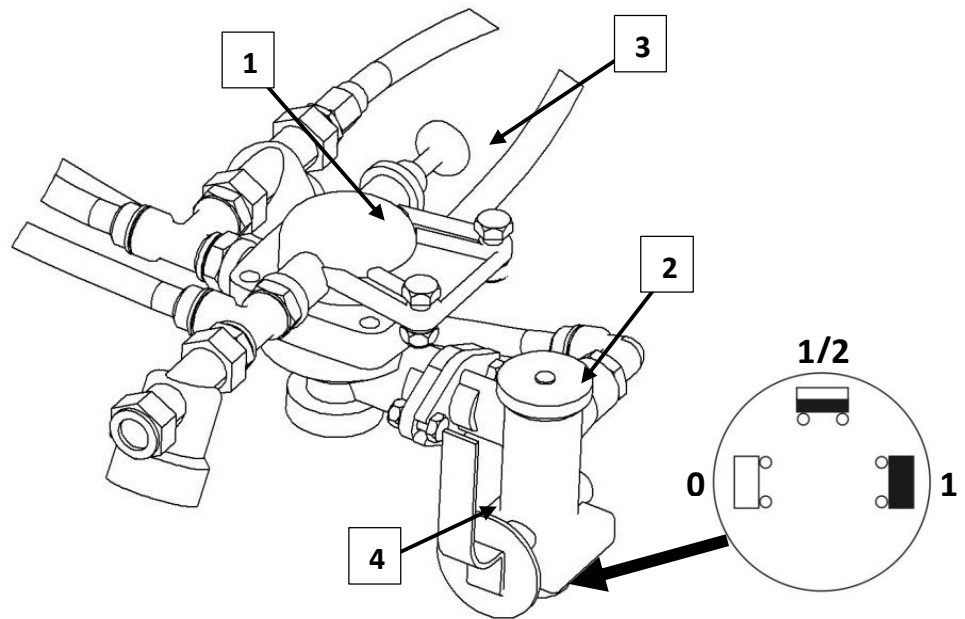


Figure 13. Pneumatic braking force regulator.

1 – control valve, 2 - braking force regulator, 3 - a button releasing the brake of the trailer at standstill, 4 - the lever of the regulator's work selection, 0 - „UNLADEN” position, 1/2 - „HALF LOADED” position , 1 - „FULL LOAD” position

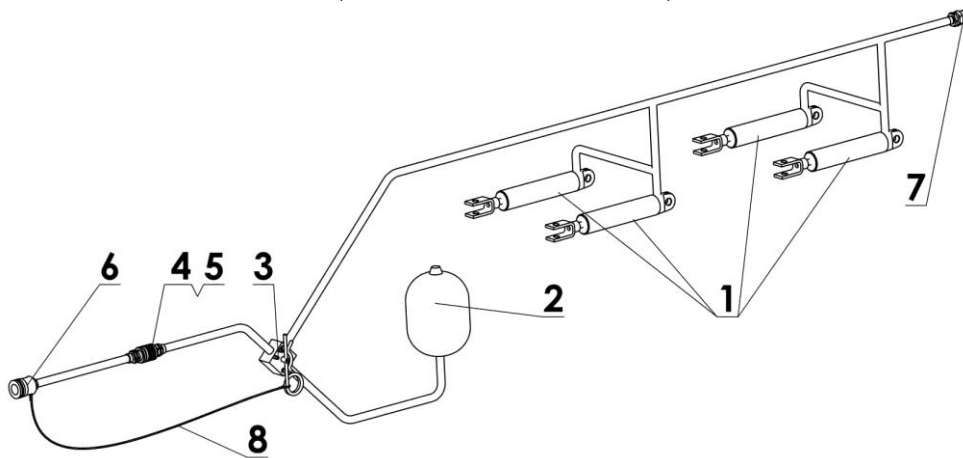


Figure 14a. Diagram of a hydraulic brake system.

1 – hydraulic cylinder; 2 – battery; 3 – emergency valve; 4, 5 – quick-coupler set; 6 - quick-coupler (for connection with the tractor); 7 – quick-coupler (for connection with the second trailer); 8 - cord.

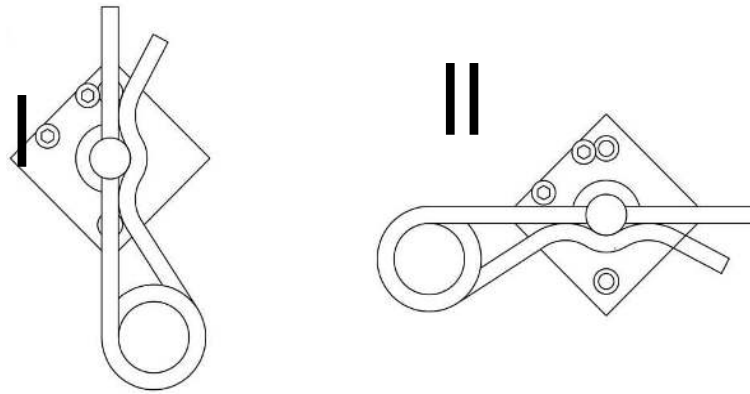


Figure 14b. Emergency valve of the hydraulic brake system
 I - Emergency brake disabled (trailer brakes connected to the tractor), II - Emergency brake on (trailer brakes connected to the battery)

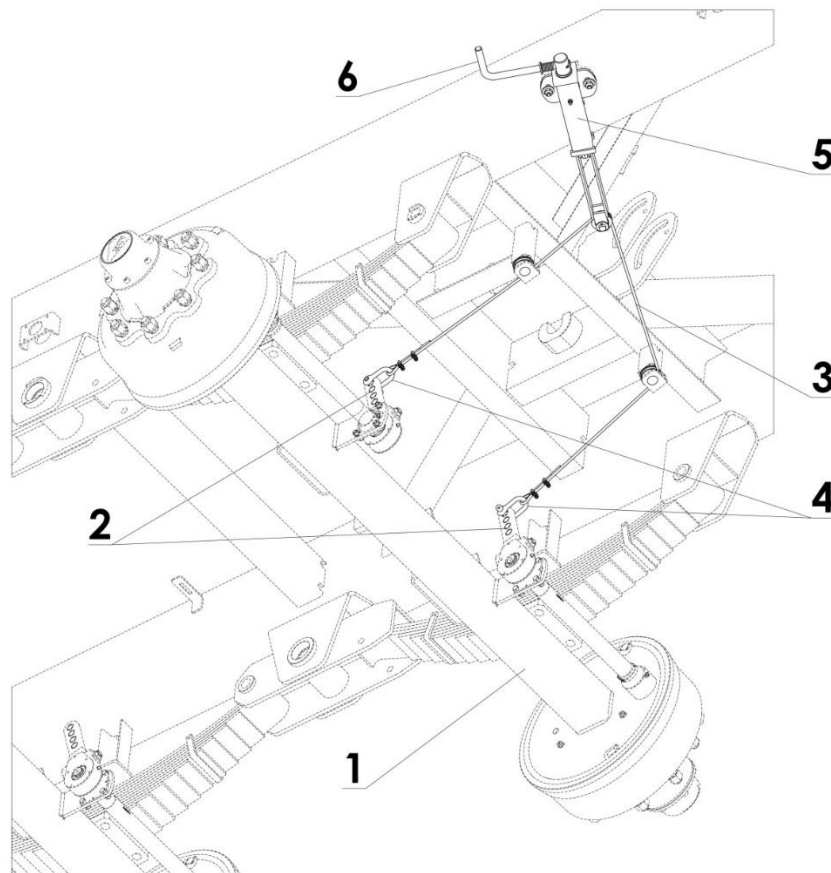


Figure 15. Parking brake

1 – driving axle; 2 – expander arm; 3 – cord; 4 – shackle; 5 – hand brake mechanism; 6 – crank.

The parking brake (fig. 15) is used to immobilize the trailer when stationary. The brake crank mechanism (5), welded to the right side-member of the lower frame. The cord (3) connects the crank mechanism (5) to the expander arms (2) of the first driving axle (1). Tightening the cord (rotation of crank (6) mechanism clockwise) causes a shift of the arms of expanders (2) that, when parting the brake linkage, immobilize the trailer.

4.2.7 Electrical installation, lighting and signaling

The electrical system of the trailer (figs. 16–17) is designed to be powered from a DC voltage source of 12 V. Joining the electrical installation of the trailer of the tractor should be made with a suitable connecting line.

The socket (11) of the connector (fig. 17) is used to connect the electrical system of the second trailer.

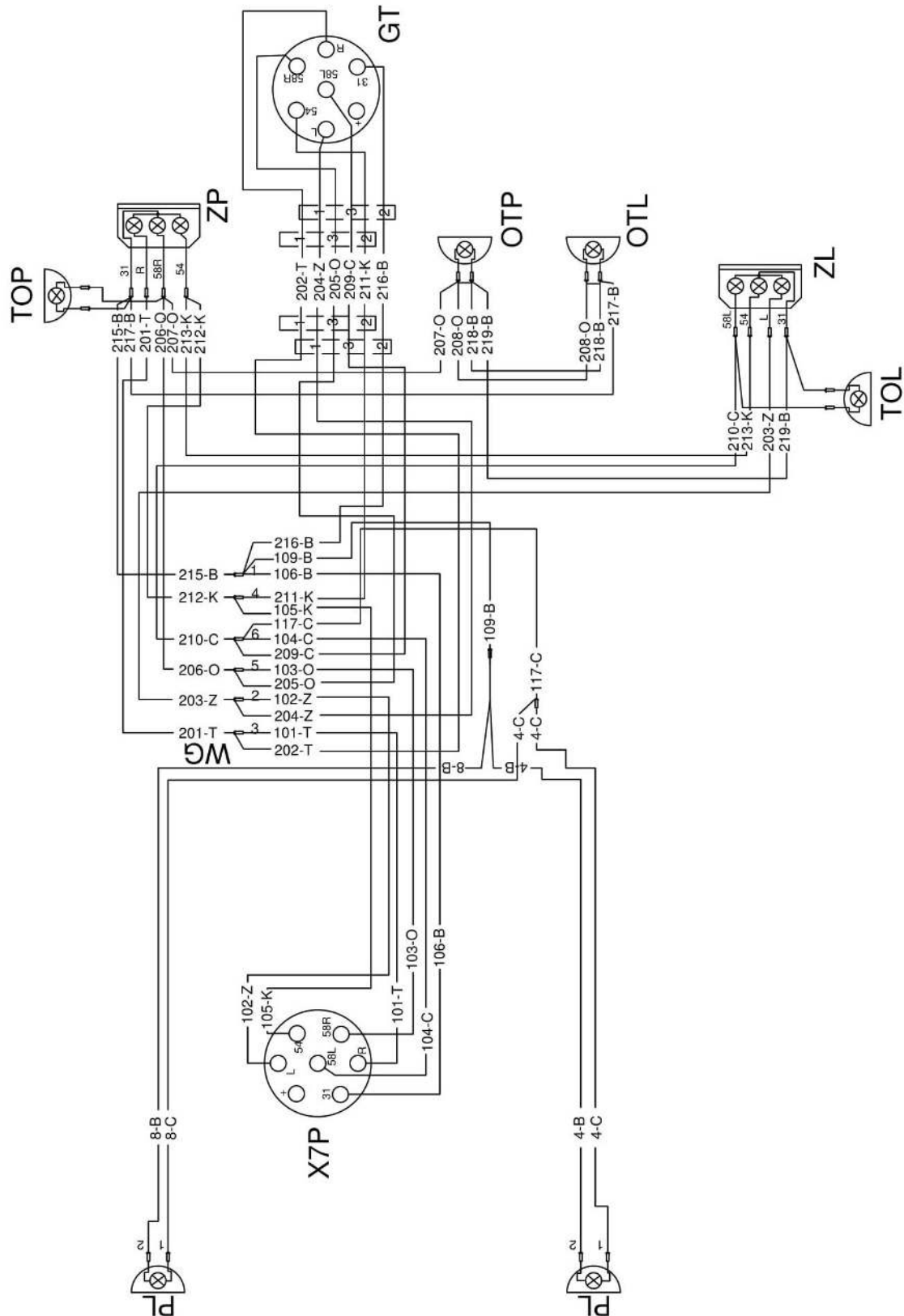


Figure 16. Wiring diagram of the trailer.

(PL) front clearance lamp, (X7P) front seven-pin socket, (GT) rear seven-pin socket, (OTP, OTL) license plate lighting lamp, (ZP) rear right cluster lamp, (ZL) rear left cluster lamp, (TOP) rear right clearance lamp, (TOL) rear left clearance lamp.

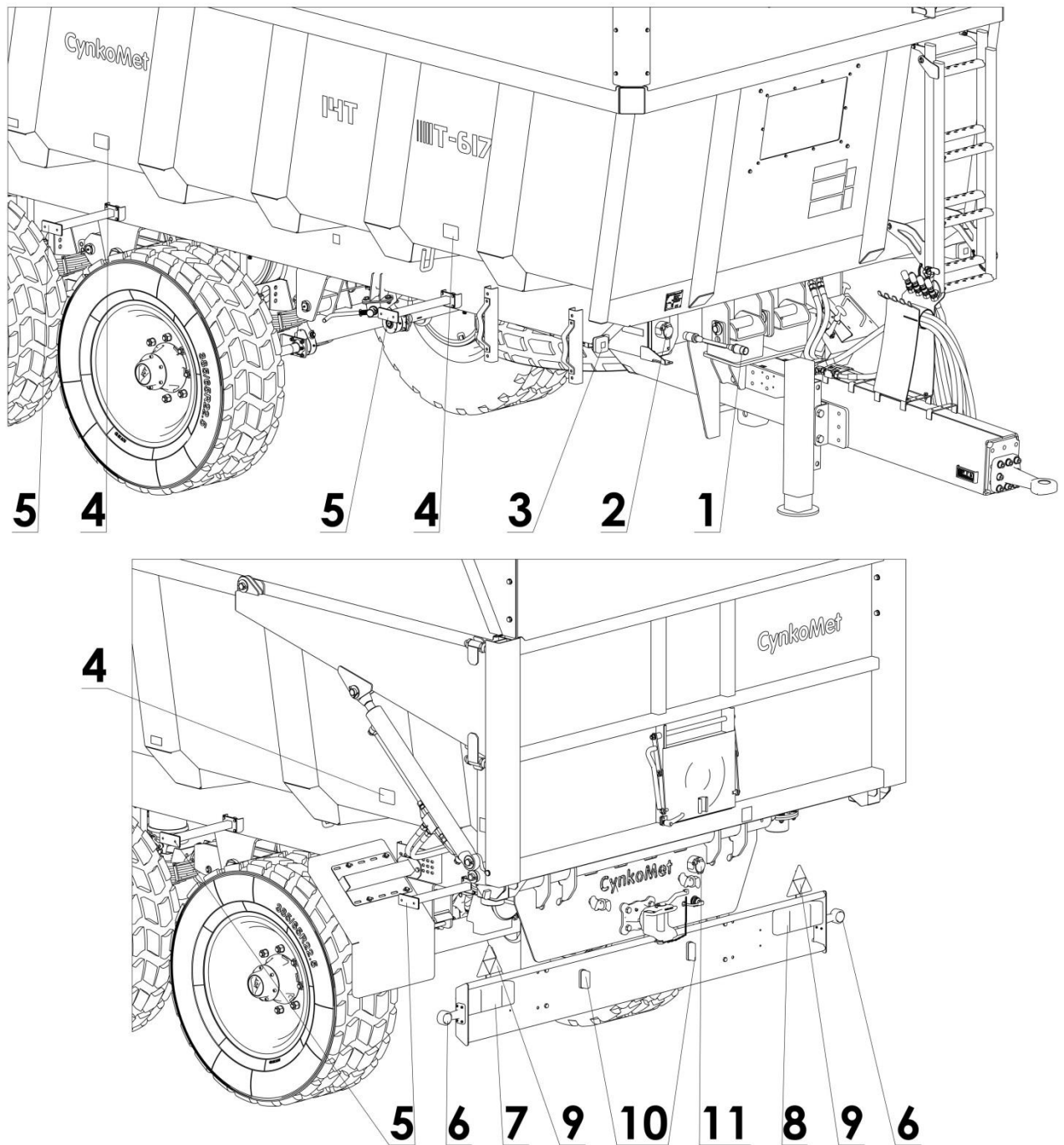


Figure 17. Lighting and signaling diagram

1 – connecting cable; 2 – connector socket; 3 – front position lamp with a reflector; 4 – reflective yellow device; 5 – side position lamp with a reflector (optional); 6 - rear cluster lamp; 7 – rear left cluster lamp; 8 – rear right cluster lamp; 9 - red triangle reflective device; 10 – license plate lighting lamp; 11 - connector socket for connection of the second trailer


4.3 Rules of proper use of trailers.

4.3.1 Preparation before running for the first time.

4.3.1.1 Control of the trailer after delivery

The manufacturer guarantees that the trailer is fully operational and complete and has been checked according to quality control procedures and is approved for use. However, this does not relieve the user from the obligation of checking the vehicle after delivery and before first use.

Before starting work, the operator of the trailer must inspect the technical condition of the trailer and prepare it for the first run. Please refer to this manual attached to the trailer and follow the recommendations contained in it, take a look at the design and understand the principle of operation of the machine.

 CAUTION!	CAUTION! Before connecting and before starting the trailer, read this manual and follow the instructions contained therein.
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Visual inspection:

- Check the completion of the machine (standard and optional equipment).
- Check the condition of the anti-corrosion coatings.
- Perform a visual inspection of the individual components of the trailer for mechanical damage resulting inter alia due to improper transport of machines (dents, piercing, bending or broken components).
- Check the condition of tires of the driving wheels and the air pressure in the tires.
- Inspect the technical state of the flexible hydraulic hoses.
- Check the technical condition of pneumatic cables.
- Make sure that there are no leaks of hydraulic oil.
- Check the electric lamps of lighting.
- Control the markings on the machine (according to Table 1)

4.3.1.2 Preparation of the trailer for the first connection.

Preparation

- Check all lubrication points of the trailer, if necessary, lubricate the machine.
- Check for proper tightening of nuts fixing the driving wheels.
- Dehydrate the air tank in the brake installation.
- Make sure that the pneumatic, hydraulic and electrical connections in the agricultural tractor comply with the requirements, otherwise do not connect the trailer.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Before each maneuver of reversing and unloading the material loaded on the loading crate, it is recommended to use the beep signal 2 times in the tractor in order to inform bystanders about the threat.</p>
 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Presence of third parties between machines is absolutely prohibited at the time of aggregation of the trailer to the tractor. Failure to follow these instructions and performing the maneuver incorrectly can lead, in extreme cases, to death of the person who is between the spreader and the tractor</p>
 <p>CAUTION!</p>	<p>CAUTION!</p> <p>It is absolutely forbidden to leave the tractor with the engine running and the key inserted in the ignition.</p>

Trial passage

If all the above steps have been performed and the technical condition of the trailer does not raise any objections connect the machine to the tractor. Start the tractor, inspect the individual systems and carry out a test run of the trailer and make a road test with no load (no loaded create). It is recommended to carry out an inspection by two people, one of them should


reside in the operator's cab of the tractor. The test run should be carried out in the order shown below.

- Connect the trailer to an appropriate hitch in the agricultural tractor.
- Connect the wires of the braking, electrical and hydraulic systems.
- Running individual lights, check the correct operation of the electrical system.
- Switch the hydraulic installation tipping valve to position 1. Perform a test tipping of the load box.
- Moving from place, check the brake operation.
- Perform a test drive.

If during the test drive, you experience disturbing symptoms such as:

- noise and unnatural noises coming from moving parts rubbing against the trailer construction,
- leakage of hydraulic oil,
- pressure drop in the brake system,
- incorrect operation of hydraulic and/or pneumatic cylinders, or other failures, diagnose the problem. If a fault cannot be removed or removing it will invalidate the warranty, please contact your dealer to resolve the problem or repair.

After completion of the test drive, check the tightness of the driving wheel nuts.

 CAUTION!	<p>CAUTION!</p> <p>Careless and improper use and operation of the trailer, and non-compliance with the recommendations contained in this manual is dangerous to your health.</p> <p>It is forbidden to use the trailer by persons not qualified to drive agricultural tractors, including children and drunken persons.</p> <p>Failure to observe the rules of safe use poses a threat to the health of the operator or bystanders.</p>
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4.3.2 Preparation for work.

In preparation for work, the following should be checked:

- the wear of the tires and driving wheels,
- Air pressure in the tires,
- springs condition, and in particular the completeness of the feathers
- tightening the nuts fixing the discs of the driving wheels to wheel hubs and the condition of other screw connections.

In addition, after combining the machine with the tractor check:

- the efficiency of the electrical system and lighting system and trailer signaling,
- the effectiveness of the brake system,
- correct operation of hydraulic systems.



4.3.3 Connecting and disconnecting with the tractor.

The trailer can be connected to the agricultural tractor, if all connections (electrical, pneumatic, hydraulic), and the hook in the agricultural tractor comply with the requirements of the Manufacturer of the trailer and the Manufacturer of the tractor.

In order to connect the trailer to the tractor, perform the following steps:

- Prior to coupling with tractor, check if the trailer is braked with the parking brake.
- Set the drawbar hitch anchorage on the height of the corresponding tractor hitch (this can be achieved by using the hydraulic support of the drawbar – after first connecting the hydraulic hoses of the hydraulic support to the tractor – or using the mechanical support of the drawbar).
- Reversing the tractor, connect the drawbar end with the corresponding hitch of the tractor (if an automatic coupler is used in the agricultural tractor, ensure that the aggregate operation has been completed correctly and the drawbar anchorage is secured).
- Stop the tractor engine.
- Install and secure the pivot pin from falling out or check the automatic hitch.
- Connect the lines of the electrical system, brake system and hydraulic systems with the tractor.
- Release the parking brake of the machine.


When connecting the braking system (two-wire pneumatic), the correct sequence of connecting cables is important. Be the first to connect the plug marked yellow to a yellow socket in the tractor, and then the plug marked in red to the red socket in the tractor. When you connect the second cable, the brake release system will switch to the normal mode of operation (disconnection or interruption of the air duct causes the trailer control valve to automatically switch to the position of actuating the brakes of the machine). The cables are marked with colored protective caps that identify the correct cable installation.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>At the time of the coupling, unauthorized people cannot be between the trailer and the tractor. The operator of the tractor, when connecting the machine should be particularly careful when working and make sure that in the course of coupling, other people are not in the danger zone.</p> <p>When connecting the hydraulic hoses to the tractor, pay attention that the hydraulic system of the tractor and the trailer are not under pressure.</p> <p>When coupling ensure adequate visibility.</p> <p>After completion of the machine coupling, check the security of the hitch.</p>
 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Pay attention to the compatibility of oils in the tractor hydraulic system and the hydraulic system of the trailer tipping.</p>

In order to disconnect the trailer from the tractor, perform the following steps:


- Stop the trailer, turn off the engine and remove the keys from the ignition.
- Stop the trailer with a manual parking brake.
- If a trailer with cargo is located on a steep slope or an elevation, it should be protected additionally against rolling by planting chocks under rear wheels.

- Lower the mechanical or hydraulic support of the drawbar.
- Stop the tractor engine and close the cab of the tractor, protecting it from unauthorized access.
- Disconnect hydraulic hoses from the tractor and protect the ends with caps.
- Disconnect electrical cables from the tractor.
- Disconnect the brake lines of the trailer from the tractor (for two-line pneumatic brake systems – disconnect the red line first).
- When removing the pin, disconnect the drawbar from the tractor transport hitch and drive the tractor away.
- Place the plugs of the lines in suitable sockets on the line bracket.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Do not disconnect the trailer from the tractor when the loading crate is raised.</p> <p>When disconnecting the trailer from the tractor, keep caution. Provide yourself a good visibility.</p> <p>Before disconnecting the hoses and rods, the cabin of the tractor must be closed to prevent it from unauthorized access. The tractor engine must be turned off.</p>
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4.3.4 Connecting and disconnecting the second trailer.


The second trailer can be connected only if it is a machine built on a 2-axle chassis. Aggregating the second trailer with a kit requires experience in driving an agricultural tractor with a trailer. It is recommended to use the help of another person when coupling the second trailer, who will inform the operator of the tractor about the operation.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>During linking, no one can stand between the trailers. The person who helps to aggregate the machine should stand outside the danger zone in the place where he will be visible all the time by the operator of the tractor.</p>
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Connecting the second trailer

- Tractor with the attached trailer first is to be set directly in front of the drawbar of another trailer.
- Immobilize the second trailer with a parking brake.
- Remove the hook pin in the first trailer.
- Adjust the height of the drawbar of the second trailer in such a way as to allow to couple the machines.
- Reversing the tractor, drive the rear hook of the first trailer on the drawbar of the second trailer.
- Insert and secure the hook pin.
- Connect the pneumatic, hydraulic and electric hoses
Disconnect the second trailer
- Immobilize the tractor and trailer with a parking brake.
- Stop the tractor engine. Close the cab of the tractor protecting it from unauthorized access.
- Disconnect the pneumatic, hydraulic and electrical lines of the second trailer.
- Unlock the hook pin in the first trailer. Remove the pin and drive the tractor away with the first trailer.

4.3.5 Loading the crate.

 CAUTION!	CAUTION! Loading of the box can take place only when the trailer is connected to the tractor, set on level ground, and braked.
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You should aim for even load distribution in the loading crate. When loading, it is recommended to use a crane, loader or conveyor. Before loading, check that the rear wall and the dump window in the rear wall are closed. If the trailer is equipped with tarpaulin, then before loading from "above" you should remove the tarpaulin and / or disassemble its frame.

 CAUTION!	CAUTION! The locking hook has to be fully engaged after lowering the rear wall, and it has to fully lock the rear wall.
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When transporting materials exerting point pressure on the floor of the

loading crate (e.g. large stones). before loading you should plant thick boards, thick plywood, etc. This will enable to achieve an even surface of the floor load and protect it from damage.

Lightweight, volumetric materials may be loaded above loading crate extensions, but no more than 5cm above them, paying particular attention to the stability of the trailer and cargo, and protection against road littering.

Regardless of the type of the load carried, the user is required to secure it in such a way that the load is not able to move freely and cause contamination of the road. If this is not possible, it is prohibited to transport such cargo.

Due to the varied density of the materials, the use of the total capacity of the container may result in exceeding the permissible load of the trailer.

The approximate bulk weights of selected materials are given in table 4.

Table 4

No.	Material type	Volume weight [kg / m ³]
1	Root:	
2	raw potatoes	700 - 820
3	steamed mashed potatoes	850 - 950
4	dried potatoes	130 - 150
5	sugar beet - roots	560 - 720
6	fodder beet - roots	500 - 700
7	Organic fertilizers:	
8	Old manure	700 - 800
9	Long laying manure	800 - 900
10	Fresh manure	700 - 750

11	compost	950 – 1 100
12	dry peat	500 - 600
13	Mineral fertilizers:	
14	ammonium sulfate	800 - 850
15	potassium salt	1 100 – 1 200
16	superphosphate	850 – 1 440
17	basic phosphate	2 000 – 2 300
18	potassium sulphate	1 200 – 1 300
19	kainite	1 050 – 1 440
20	lime-rich ground fertilizer	1 250 - 1 300

Table 4, continued

21	Building Materials:	
22	cement	1 200 – 1 300
23	dry sand	1 350 – 1 650
24	wet sand	1 700 – 2 050
25	Full bricks	1 500 – 2 100
26	hollow bricks	1 000 – 1 200
27	stone	1 500 – 2 200
28	Soft wood	300 - 450
29	Hard timber	500 - 600
30	impregnated timber	600 - 800
31	steel structures	700 – 7 000


32	roasted ground lime	700 - 800
33	Slag	650 - 750
34	Gravel	1 600 – 1 800
35	plant litter and roughage:	
36	dry meadow hay for swath	10 - 18
37	hay wilted for swath	15 - 25
38	hay in a collective trailer (dry withered)	50 - 80
39	cut wilted hay	60 - 70
40	compressed dry hay	120 - 150
41	pressed wilted hay	200 - 290
42	stored dry hay	50 - 90
43	stored cut hay	90 - 150
44	clover (Lucerne), wilted for swath	20 - 25
45	clover (Lucerne), wilted cut on the trailer	110 - 160
46	clover (Lucerne), wilted on the collective trailer	60 - 100
47	stored dry clover	40 - 60
48	cut stored dry clover	80 - 140
49	dry straw in rolls	8 - 15
50	moist straw in rolls	15 - 20
51	damp straw cut on a volumetric trailer	50 - 80
52	dry straw cut on a volumetric trailer	20 - 40
53	dry straw on a collective trailer	50 - 90


54	Dry straw cut in a haystack	40 - 100
55	compressed straw (low degree of deformation)	80 - 90
56	compressed straw (high degree of deformation)	110 - 150
57	grain mass in rolls	20 - 25
58	grain mass cut on a volumetric trailer	35 - 75
59	grain mass on a collective trailer	60 - 100
60	green forage for swath	28 - 35
61	green forage cut on a volumetric trailer	150 - 400
62	green forage on a collective trailer	120 - 270
63	Fresh beet leaves	140 - 160
64	Freshly cut beet leaves	350 - 400
65	beet leaves on a collective trailer	180 - 250
66	Concentrated feed and compound feed:	
67	stored husks	200 - 225
68	oilcake	880 - 1 000
69	Ground fascine	170 - 185
70	Compound feed	450 - 650
71	Mineral feedingstuffs	1 100 - 1 300
72	Oat middling	380 - 410
73	wet beet skins	830 - 1 000
74	Extruded beet skins	750 - 800
75	Dry beet skins	350 - 400


76	bran	320 - 600
77	bone meal	700 - 1 000
78	Fodder salt	1 100 - 1 200
79	molasses	1 350 - 1 450
80	Silage (lower silo)	650 - 1 050
81	hay silage (tower silo)	550 - 750
82	Seeds:	
83	Vicia faba	750 - 850
84	charlock	600 - 700
85	pea	650 - 750
86	lentil	750 - 860
87	bean	780 - 870
88	barley	600 - 750
89	clover	700 - 800
90	grass	360 - 500
91	corn	700 - 850
92	wheat	720 - 830
93	rape	600 - 750
94	flax	640 - 750
95	lupine	700 - 800
96	oat	400 - 530
97	Lucerne	760 - 800

98	rye	640 - 760
99	Other:	
100	dry soil	1 300 – 1 400
101	Wet soil	1 900 – 2 100
102	fresh peat	700 - 850
103	Gardening soil	250 - 350


Source: "The technology of machine works in agriculture", PWN, Warsaw 1985

 CAUTION!	<p>CAUTION!</p> <p>It is advised to aim at an even distribution of the load in the loading crate.</p>
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 CAUTION!	<p>CAUTION!</p> <p>It is prohibited to exceed the admissible trailer load, because it threatens the safety of road traffic and causes damage to the machine.</p> <p>Before driving with the trailer, check that the rear wall and the dump window in the rear wall are closed and prevented from accidental opening.</p> <p>The rope fastening the tarpaulin is installed correctly on all hooks and sufficiently tight.</p>
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 CAUTION!	<p>CAUTION!</p> <p>It is strictly forbidden to drive with a lifted load crate and transport people on the trailer.</p>
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 CAUTION!	<p>CAUTION!</p> <p>Maximum loading height: 5 cm above walls.</p>
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 CAUTION!	<p>CAUTION!</p> <p>Overloading the trailer, incompetent loading and securing the load is the most common cause of accidents during transport.</p> <p>The load must be arranged so as not to threaten the stability of the trailer and not obstruct driving the set.</p> <p>Observe that there are no bystanders in the zone of unloading / loading or the lifted loading crate Before tipping the crate, ensure that there is visibility and make sure that there are no bystanders nearby.</p> <p>The distribution of load may not cause an overload of the chassis, and the trailer hook system.</p>
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4.3.6 Load transport

When driving on roads (public and private) you must adapt to the traffic regulations, be guided by prudence and reasonable conduct. Below are the most important tips to steer the tractor with an attached trailer.

- Before starting, make sure that in the vicinity of the trailer and the tractor there are no bystanders, especially children. Ensure sufficient visibility.
- Make sure that the trailer is properly connected to the tractor, and the tractor hitch is properly secured, as well as the ring hitch is not carved out.
- The trailer must not be overloaded, the load must be uniformly distributed so as not to exceed the permitted pressure on the trailer axle chassis. Exceeding the maximum load capacity of the vehicle is prohibited and may cause damage to the machine, as well as pose a risk when traveling on the road for the operator of the tractor and trailer or other road users.
- Do not exceed the maximum construction speed and speed limitations resulting from road traffic law. The travel speed must be adapted to the prevailing road conditions, trailer load, type of cargo and other conditions.

 CAUTION!	<p>CAUTION!</p> <p>Before driving, make sure that:</p> <ul style="list-style-type: none"> • the trailer braking system is connected to the tractor and works properly • the trailer hydraulic system is connected to the tractor and works properly • the trailer electric installation is connected to the tractor and works properly
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- The trailer can be towed on slopes of up to 8° , and unloading must be carried out only on hard, level ground. Moving the trailer through the

grounds of the steeper slopes may cause the trailer to tip over as a result of loss of stability. Prolonged moving on an incline poses a risk of loss of braking efficiency.

- The trailer disconnected from the tractor must be secured by immobilizing it with a parking brake and planting chocks under wheels. Leaving the trailer unsecured is prohibited. In case of failure of the machine, stop on the roadside, without endangering other road users and mark the spot in accordance with the rules of the road.
- During travel on public roads, the trailer must be marked with a plate distinguishing slow-moving vehicles, attached to the rear wall of the loading crate if the trailer is the last vehicle in the group.
- The tractor operator is obliged to equip the trailer with a certified or approved plate distinguishing slowly-moving vehicles (according to the regulations of the country in which the trailer is used).
- When driving, observe the traffic rules, signal the change of direction with indicators, keep clean and take care of the technical condition of the lighting and signaling installation.
- Damaged or lost lighting and signaling elements are to be immediately repaired or replaced with new ones.
- Avoid ruts, depressions, ditches or driving on slopes of the road. Driving through such obstacles can cause sudden tilting of the trailer and tractor. This is particularly important because the center of gravity of the loaded trailer (especially with a volumetric load), adversely affects safety. Driving near the edge of ditches or channels is dangerous because of the risk of landslides under the wheels of the trailer or tractor.
- The driving speed must be reduced early enough before driving to the corners, when driving on uneven or sloping terrain.
- When driving avoid sharp corners, especially on slopes.
- Please note that the braking system increases significantly with increasing mass of the traffic load and increase in speed.
- Control the behavior of the trailer while driving on uneven terrain, and adjust the speed to local conditions and traffic.


4.3.6 Crate unloading

The trailer is equipped with a hydraulic tipping system, and a proper frame and load box construction allowing tipping of the box.

Tipping the load box is controlled with the help of a distributor of the external tractor hydraulic system.

Automated unloading should be done by doing the following while maintaining their order:

- Set the trailer and the tractor on a flat and hard surface for driving straight ahead.
- Brake the tractor and trailer with a parking brake.
- Open the rear wall of the trailer using hydraulic cylinders (controlled using the distributor of the external hydraulic system of the tractor).
- Cause tilting of the load crate by raising it with a telescopic cylinder. Previously, you should position the lever of the shut-off valve of the hydraulic system, which is at the front of the trailer to position "1".

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Before tipping the load box, check whether the wall or dump window of the trailer are open.</p> <p>Tilting the load box with a closed wall or dump window may damage the trailer!</p>
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After unloading:

- Lower the load box.
- Clean the edges of the floor and wall.
- Close the rear wall by controlling the relevant hydraulic circuit from the tractor or close the dump window. Closing of rear wall should be done until it is locked by the locking hooks.
- Before driving away, make sure that the rear wall is properly closed.

In the case when the second trailer is connected, its unloading should be performed only when the loading crate of the first trailer has been

lowered and the valve controlling the tipping hydraulic has been moved in position 2 – second trailer tipping.


The rear wall of the load box is equipped with a dump window, which can be opened to give a gap of varying sizes. This allows you to adjust the stream of bulk materials discharged from the trailer, such as grain or mineral fertilizers.




Opening the sliders of the dump window requires prior loosening of the nut of the locking clamp. If you use the dump window, do not open the rear wall.

To realize the unloading of bulk materials through the dump window, you should:

- open the slider of the dump window
- at the moment of a visible reduction in the flow of discharged materials, gently lift the loading crate until obtaining the desired stream

Lifting the load box too high may result in the material advancing on the rear wall and will damage it!!!


 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Controlling lifting or lowering the load crate can take place only from the seat of the driver of a vehicle towing the trailer and controlled by a valve (hydraulic valve) mounted on the towing vehicle, and the control device of the valve should require support.</p>
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 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Be extremely careful when opening and closing the wall and dump window because of the risk of crushing the fingers or hands.</p>
 <p>CAUTION!</p>	<p>CAUTION!</p> <ul style="list-style-type: none">• Observe that during unloading no one is in the surroundings of the tilted loading crate and the load being dumped.• It is forbidden to move off and drive with a lifted load crate.• It is forbidden to jerk the trailer if the volumetric or harsh-dumping material has not been discharged.
 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Unloading the trailer load crate is possible only:</p> <ul style="list-style-type: none">• when the trailer is connected to the tractor• on a flat and stable surface• without people in the unloading area• when there are no strong transverse gusts of wind

5. Equipment and accessories

Table 5 Trailer Equipment

Equipment	Standard	Option
User manual	•	
Warranty Card	•	
Connecting cable of the electrical system	•	
Chocks under wheels	•	
Two-line pneumatic brake system	•	
Single-line pneumatic brake system		•
Hydraulic brake installation		•
Rear hitch		•
Load box extensions (full, height: 500 mm)	•	
Spare wheels with a hanger		•
Tarpaulin with a rack		•
Front platform		•
Chute gutter		•
Electrical installation with LED lamps		•

 CAUTION!	<p>CAUTION!</p> <ul style="list-style-type: none"> • Assembly and disassembly of extensions, frame and tarpaulin should be performed with the use of appropriate platforms, ladders or a ramp. These jobs should be carried out by two people at the same time with keeping caution and protecting workers from falling. • Spare wheels may be fitted under the lower frame of the trailer in the front left part. Before replacing the wheel, brake the trailer with a parking brake and prevent it from rolling away (e.g. by planting wheel chocks). The loading crate in such a case cannot be raised.
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6. Technical Support

When using the trailer, constant monitoring of the technical condition and the execution of maintenance procedures is required to keep the vehicle in good technical condition. Therefore, the user of the trailer is obliged to perform all maintenance and regulatory tasks specified by the Manufacturer.

In order to function properly and to avoid serious failure of the trailer, it must be kept in good condition, repaired on time and reasonably operated (operation within the technical parameters of the trailer).

An important element of the operation is the daily maintenance of the trailer (before work), it foresees:

- control of tightening of the screw connections (Table 10) and securing them against unauthorized untightening,
- checking the tightness of the hydraulic system
- checking the tightness of the pneumatic system,
- check the correct operation of the mechanisms,
- check the functioning of the brake system,
- check the functioning of the electrical system,
- checking and performance of lubrication, as indicated by the instructions,
- checking the tire pressure.

Any faults detected should be removed on a regular basis, use of the trailer, even with a slight failure could have serious consequences.

If, for maintenance tasks, raising the box is necessary, it should be prevented from reclining using the support of the load box (1) (fig. 16).

To protect the box (5) with the support (1), raise the box using the hydraulic dipping system and then – paying particular attention to safety – raise the box support and, slowly lowering the load box, guide the support (1) so that the crossbar of the load box (3) nearest to the hydraulic cylinder (4) is between the arms of the channel of the support (2).

The loading crate cannot be loaded. The trailer must be connected to the tractor and secured with chocks and locked with a parking brake.

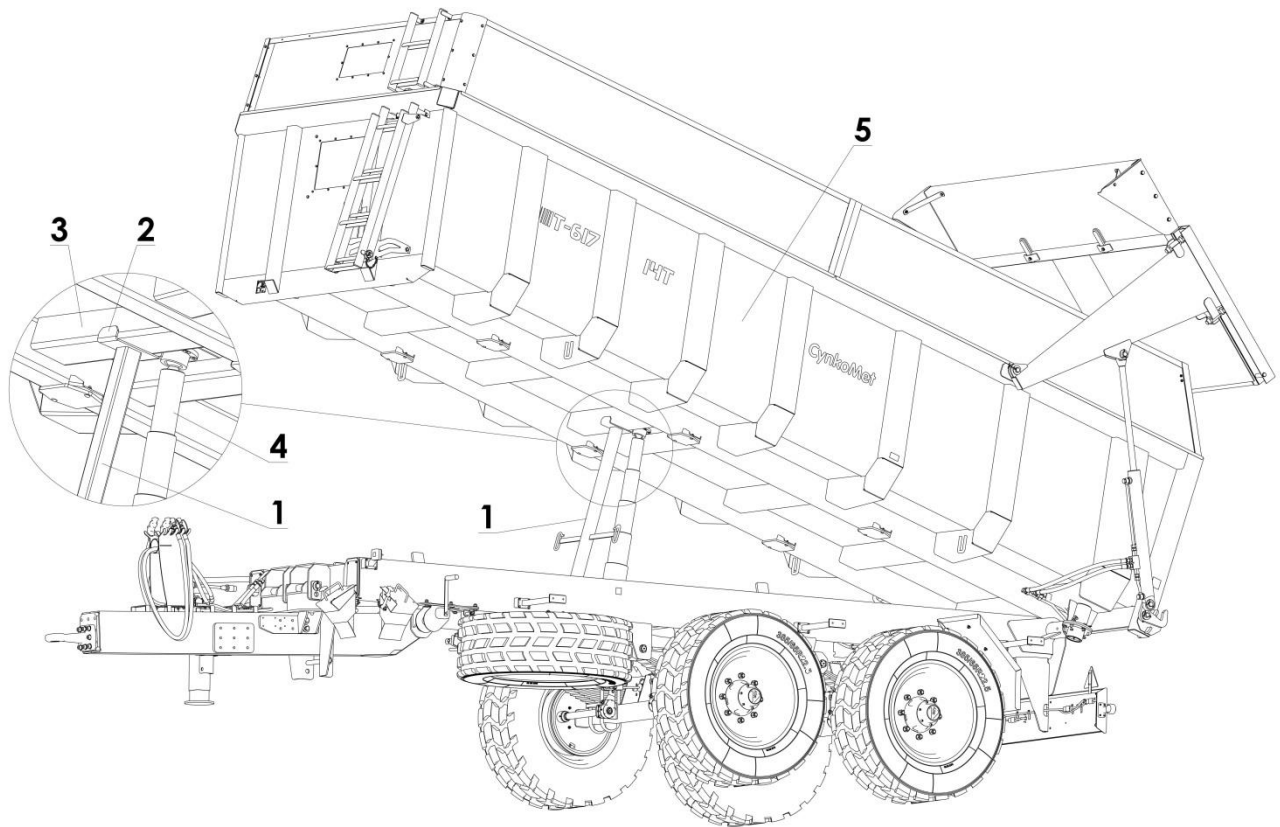


Figure 18. Way of supporting the loading crate


1 – box support; 2 – support channel; 3 – load box crossbar; 4 – hydraulic cylinder; 5 – load box



CAUTION!

CAUTION!

- In the case of noting any irregularities in the operation or damage to systems or assemblies of the trailer, the machine must be taken out of use until repair and removal of the defect.
- It is forbidden to carry out service and repair work under a loaded or raised and unsupported loading crate.
- All maintenance and repair tasks should be performed with the general principles of health and safety. In the case of injury, the wound should immediately be washed and disinfected. In case of serious injuries, seek medical advice
- If it is necessary to perform maintenance and repair work under the lifted load box (e.g. replacement of the telescopic cylinder), the load box should absolutely be secured with a service support (1) (fig. 18).

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>If you need to lift the wheels of the trailer, observe the following rules:</p> <ul style="list-style-type: none">• Set the trailer attached to the tractor in the direction for driving straight ahead on a flat, stable ground and then brake the tractor.• Plant securing chocks under the wheel that will not be raised.• Place a lift under the axle close to the lifted wheel and raise the axle so that the wheel does not touch the ground.• Secure the trailer before falling placing a stand of appropriate height under the axle.
---	--

6.1 Regulation of driving wheel bearings backlash.

In a newly purchased machine, after the first 100 km, while during further use - after driving another 1500- 2000 km - check and if necessary adjust the backlash of the wheel bearings. To do this you need to:

- Connect the trailer to the tractor, set such a set on a hard surface in the direction of driving straight ahead.
- Brake the trailer.
- Place locking chocks under the trailer wheels.
- Raise the wheel of the trailer so that it does not touch the ground and prevent it from lowering.
- Check the backlash:
 - By turning the wheel slowly in both directions, check that movement is smooth, and if the wheel rotates without excessive resistance and jams
 - Spinning the wheel so that rotates very quickly, check that the bearings do not make unnatural sounds.
 - Moving the wheel, try to feel the backlash.
 - Repeat for each wheel individually, remembering that the lift must be on the opposite side of the trailer as the chocks.
- If the wheel shows excessive backlash, a regulation should be carried out:

- Remove the cover of the hub (1) (fig. 19).
- Pull out the clip pin (2) of the castellated nut (3).
- Turning the wheel, tighten the castellated nut until the wheel turns with slight resistance.
- Unscrew the nut by 1/6 -1/3 turn, until covering the next groove on the pin with a hole in the pivot. The wheel should turn without excessive resistance, the nut cannot be tightened too much. It is not recommended to use too strong pressure due to the deterioration of the working conditions of bearings.
- Lock the nut with a new clip pin and mount the hub cap.

The mentioned steps should be repeated checking the remaining wheels.

The wheel, after correct adjustment of the bearings should turn smoothly without stops and perceptible resistance.

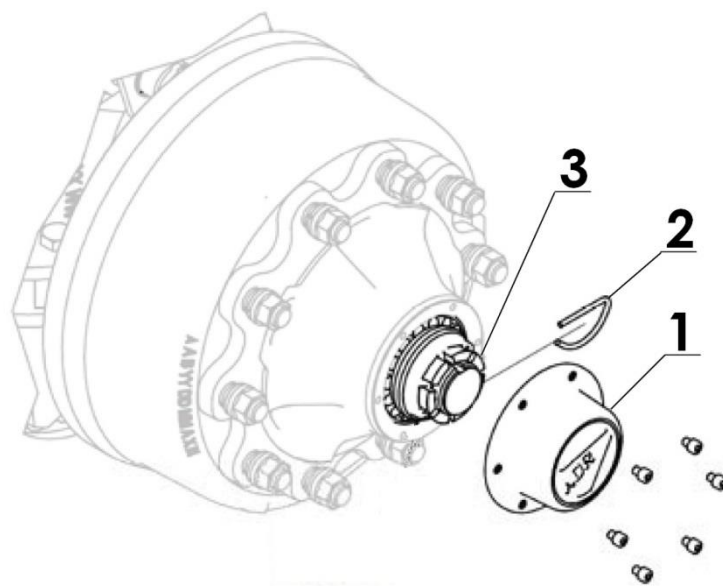


Figure 19. Wheel bearing play adjustment

1 – hub cover; 2 – clip pin; 3 – castellated nut.

The soundness of bearings backlash has to be finally checked after driving a few kilometers with the trailer controlling the degree of the hubs heat by hand.


The cause of the occurrence of significant resistance when turning the wheel, and strong heating of the hubs apart from improper adjustment of the bearings backlash can be contaminants in the lubricant or bearing damage.

The above symptoms require dismantling the wheel hub and removing the fault (replacement of grease or bearings).

6.2 Mounting and removal of the wheel and inspection of nut tightening.

In order to remove the wheel, perform the following steps:

- Immobilize the trailer with a parking brake.
- Place locking chocks on the side of the trailer opposite to the wheel to be removed (fig. 3).
- Make sure that the trailer has been correctly immobilized and that there is no risk of rolling during wheel removal.
- Loosen the nut of the wheel to be removed.
- Place a jack under the axle near the wheel to be dismantled and raise the trailer to the height required in order for the wheel to turn freely.

 CAUTION!	CAUTION! The jack must: <ul style="list-style-type: none"> • Have suitable capacity. • Be operable. • Be set on a hard, level surface.
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- Loosen the wheel nuts.
- Remove the wheel.

Follow these steps to mount the wheel:

- Clean the pins and nuts and check their condition. If necessary, replace them with new ones. **DO NOT USE** lubricants on wheel nuts and pins.
- Mount the wheel on the hub and tighten the nuts so that the rim tightly adheres to the hub.
- Lower the trailer.
- Tighten the nuts using suitable torque.

 CAUTION!	CAUTION! Wheel nuts should be tightened with a torque of 350–380 Nm
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CAUTION!	(M20x1.5 nuts).
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Wheel nuts should be tightened gradually and diagonally until suitable torque is reached. Use a torque wrench to tighten the wheel nuts.

If you do not have a torque wrench, use a regular wrench with a suitable adapter. Table 6 indicates the approximate weight to be applied at the end of the adapter depending on its length to achieve suitable torque. This method is not as accurate as using the torque wrench.

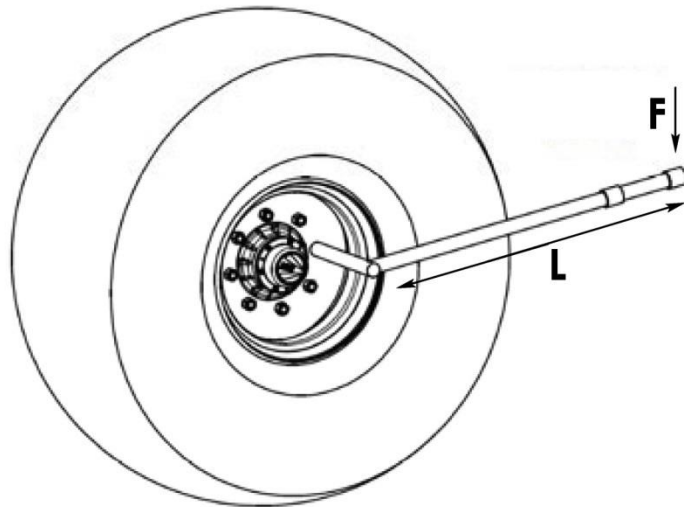




Figure 20. Wheel nut tightening.

Table 6

Nut tightening torque	Wrench adapter length	Weight at the end of the adapter
[Nm]	[mm]	[kg]
360	600	60
	510	70
	350	80
	400	90
	360	100

 CAUTION!	<p>CAUTION!</p> <p>Wheel nuts cannot be tightened with an impact wrench because this could result in exceeding the permissible torque and damage the nut and/or pin.</p>
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 CAUTION!	<p>CAUTION!</p> <p>Check wheel nut tightening in the following situations:</p> <ol style="list-style-type: none"> 1. After purchasing the trailer 2. After the test drive 3. After first 5 km of driving with a loaded trailer 4. After every 50 hours of trailer driving or once a week. <p>Repeat items 2–3 every time the wheel is removed and mounted.</p>
--	---

6.3 Brake inspection after trailer purchase.

After purchasing the trailer, the user has to conduct a general inspection of trailer brakes.

Assistance of a second person will be required to conduct the inspection in order to activate the trailer brake:

- Connect the trailer to the tractor and place chocks under the wheels (fig. 3).
- Check if the driving axles are complete. In particular, check the visible brake components (clip pins in the castellated nuts, expansion rings, etc.).
- Check the brake cylinders for leaks.
- Check the method of installation of brake cylinders.
- Engage and release the service brake and the parking brake. The expander arm (3) (fig. 21) should move and return without any significant resistance and jamming.

 CAUTION!	CAUTION! Do not use the trailer with an inoperable brake system.
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6.4 Inspection of brake shoe lining wear.

Inspection of brake shoe lining wear is done in windows (1) (fig. 21).

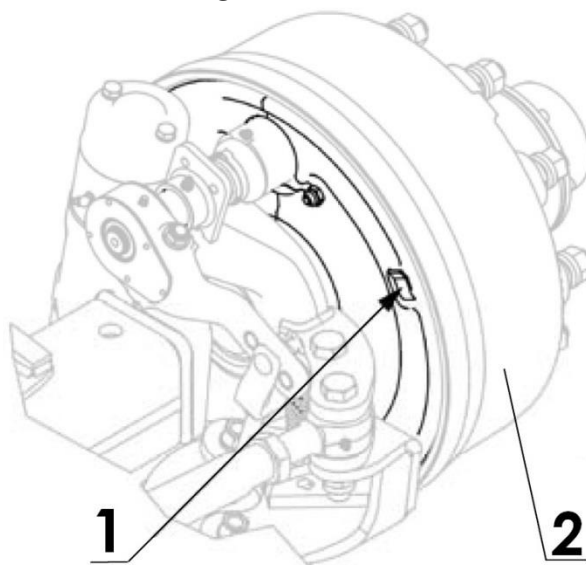





Figure 21. Inspection of brake lining
1 – inspection window; 2 – brake drum.

The brake shoes in the trailer should be replaced when lining thickness is below the minimum value.

 CAUTION!	CAUTION! The minimum thickness of brake shoe lining is 2 mm.
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 CAUTION!	CAUTION! Inspect brake shoe lining wear in the following situations: <ul style="list-style-type: none"> • After every 400 hours of operation or every 5000 kilometers driven. • If the brakes overheat. • When the stroke of the brake cylinder piston is significantly extended. • When unnatural sounds can be heard from the region of the brake drum.
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6.5 Brake adjustment.

 CAUTION!	CAUTION! Inspect and/or adjust the brakes: <ul style="list-style-type: none"> • After every 400 hours of operation or every 5000 kilometers driven. • When the brakes of both wheels brake unevenly and/or non-simultaneously. • When unnatural sounds can be heard from the region of the brake drum. • A repair of the brake system was carried out.
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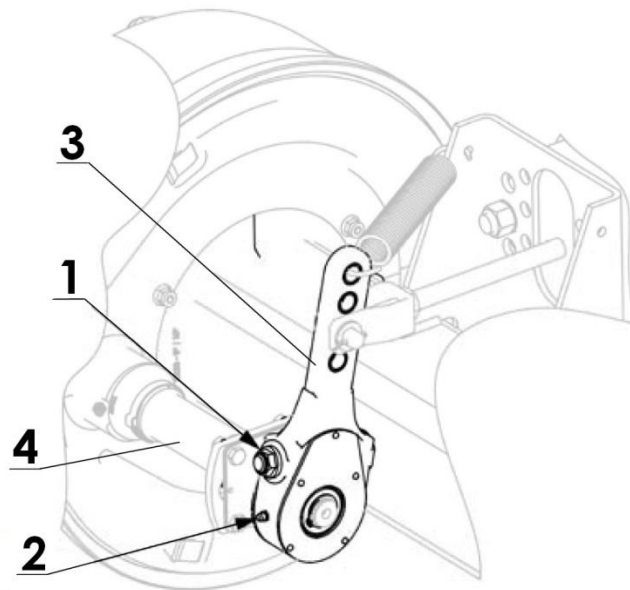


Figure 22. Brakes regulation

1 – adjusting screw; 2 – lubricating point; 3 – expander arm.

With properly adjusted brakes, complete braking of both wheels should take place at the same time.

Brake adjustment involves changing the position of expander arm (3) (fig. 22) with respect to the expander roller (4). To do so, turn the adjusting screw (1) until you hear two clicks in the adjusting mechanism.

The adjustment should be conducted separately for each trailer wheel. After proper brake adjustment, at full braking, the expander arms should form an angle of 90° with the piston rod of the actuator, and the spring should be about half the length of the spring of the total piston rod. After releasing the brake, the expander arms may not be based on any structural elements, because too little withdrawal of the piston rod can cause friction of the jaws against the drum and result in overheating of the trailer brakes. When removing, the actuator fork you must remember or mark the original setting of the swivel of the actuator fork. The mounting position is chosen by the manufacturer and cannot be changed.


6.6 Handling the break system.

As part of routine maintenance, check the tightness of the pneumatic system (pay most attention to places of all connections). If the conduits, seals

or other components are damaged, compressed air will penetrate outside with a typical hiss. The damaged seals or conduits causing leaks should be replaced.

Periodically, remove the condensate gathering in the water from the air tank. For this purpose, pull the mandrel of the drain valve (2) at the bottom of the tank (1) to the side (fig. 23). The compressed air in the tank will push the water out. After releasing the mandrel, the valve should automatically close and stop the airflow from the tank.

Once a year, before the winter, unscrew the drain valve and clean off the accumulated dirt.

 CAUTION!	CAUTION! Before dismantling the drain valve, reduce the pressure in the air tank.
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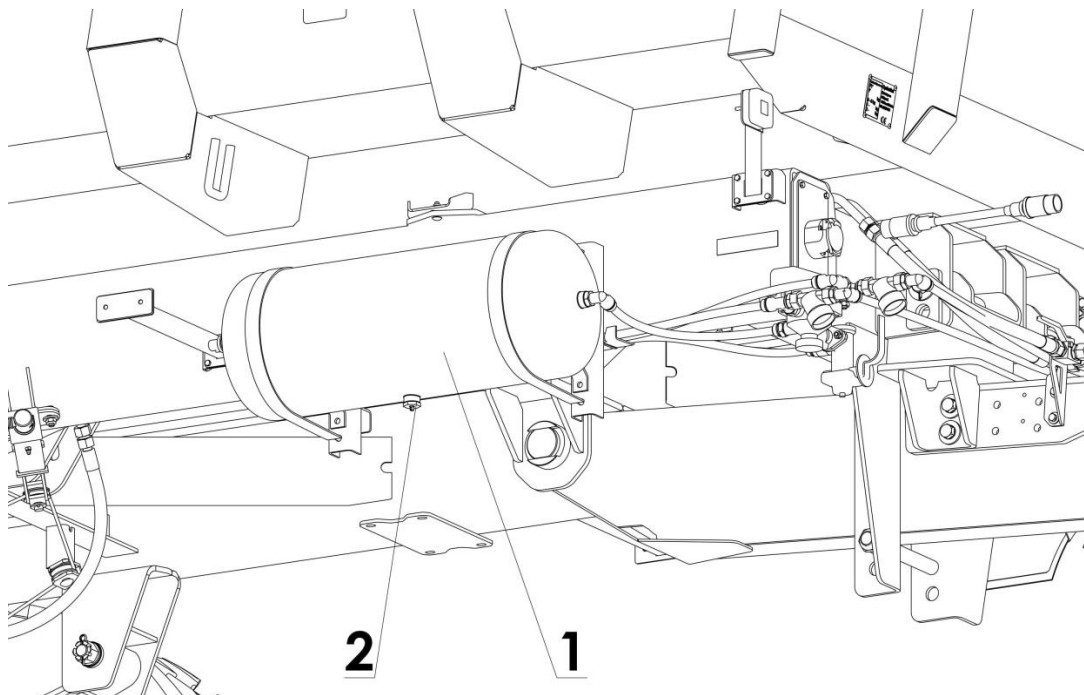


Figure 23. Draining the air tank

1 - air tank, 2 drain valve

Depending on the operating conditions of the trailer, but not less frequently than once every three months, remove and clean the air filter inserts (fig. 24), which are located on the pneumatic system connection lines.

The inserts are reusable and cannot be replaced unless they are damaged by mechanical means.

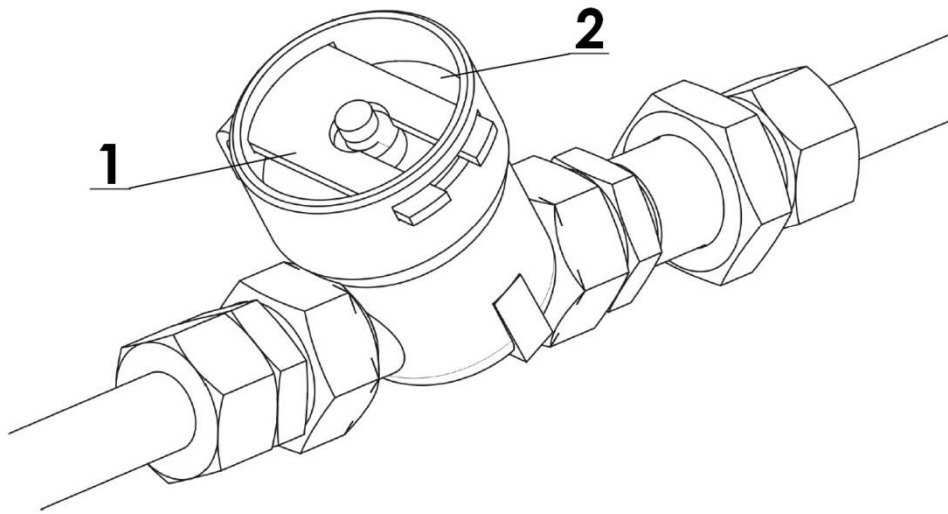


Figure 24. Wired air filter

1 - filter cover protection, 2 - filter lid



CAUTION!

CAUTION!

Before demounting the air filters, reduce the pressure in the brake system.

6.7 Hydraulic installation maintenance.

Always follow the principle that the oil in the trailer hydraulic system and the oil in the external hydraulic system of the tractor or in the hydraulic system of the second trailer are to be of the same type. The use of different types of oil is not permitted.


The hydraulic system of the trailer should be absolutely tight. Checking tightness of the hydraulic system consists of connecting the trailer to the tractor, engaging the hydraulic cylinder and holding it in the position of maximum extension for 30 seconds.

In the case of noticing oil leaks on connections of hydraulic conduits, you must tighten the connector, if this does not rectify the fault, replace the conduit or the connector with a new one. If the oil leak occurs beyond the connection, the leaking conduit system should be replaced. Exchange of a

component to a new one is also required for any damage of mechanical nature.


Hydraulic hoses should be replaced at least every four to six years from their date of manufacture, unless previously found to be damaged and replaced.

In the case of noting oiling on the body of the hydraulic cylinder, check the nature of the leak. When fully taking out the cylinder actuator, check all sealing places. Minor leaks with symptoms of "sweating" are acceptable, but if you see a leak of a "drip" type, you must stop the operation and repair the failure.

 CAUTION!	<p>CAUTION!</p> <p>Operation of the trailer with a leaking tilting hydraulic system is unacceptable Using a trailer with a leaking hydraulic system is unacceptable .</p>
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6.8 Handling the spring leaf system.

Operation of the spring leaf is based on controlling the current state of spring leaves. It should not be allowed to accumulate a thick layer of dried mud on the springs.


 CAUTION!	<p>CAUTION!</p> <p>In the case of noticing a crack of a spring leaf in any of the springs, the trailer should be out of operation until the fault has been rectified.</p>
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6.9 Handling electrical equipment.

The work connected with the repair, replacement or regeneration of electrical components should be entrusted to specialized workshops, which have the appropriate technology and qualifications for this type of work.

The duties of the user include only:


- technical inspection of electrical installations and reflectors,
- replacing light bulbs.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Driving with a faulty lighting system is prohibited. Damaged shades, and burned-out bulbs must be replaced immediately before driving.</p> <p>Lost or damaged reflective lights must be replaced with new ones.</p>
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6.10 Lubrication.

Lubrication of the trailer should be carried out in the points and with intervals specified in figure 25 and listed in table 7. Additionally, the lubricating points of the trailer should be lubricated every time the trailer is washed with water under high pressure.

Before commencing the lubrication of the grease fitting, the greased surfaces and places nearby lubrication points must be thoroughly cleaned of mud and dust. The grease should be injected in the grease fitting until release of fresh grease in the gaps between the mating parts.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>During trailer operation, the user has to comply with the lubrication schedule (table 7).</p>
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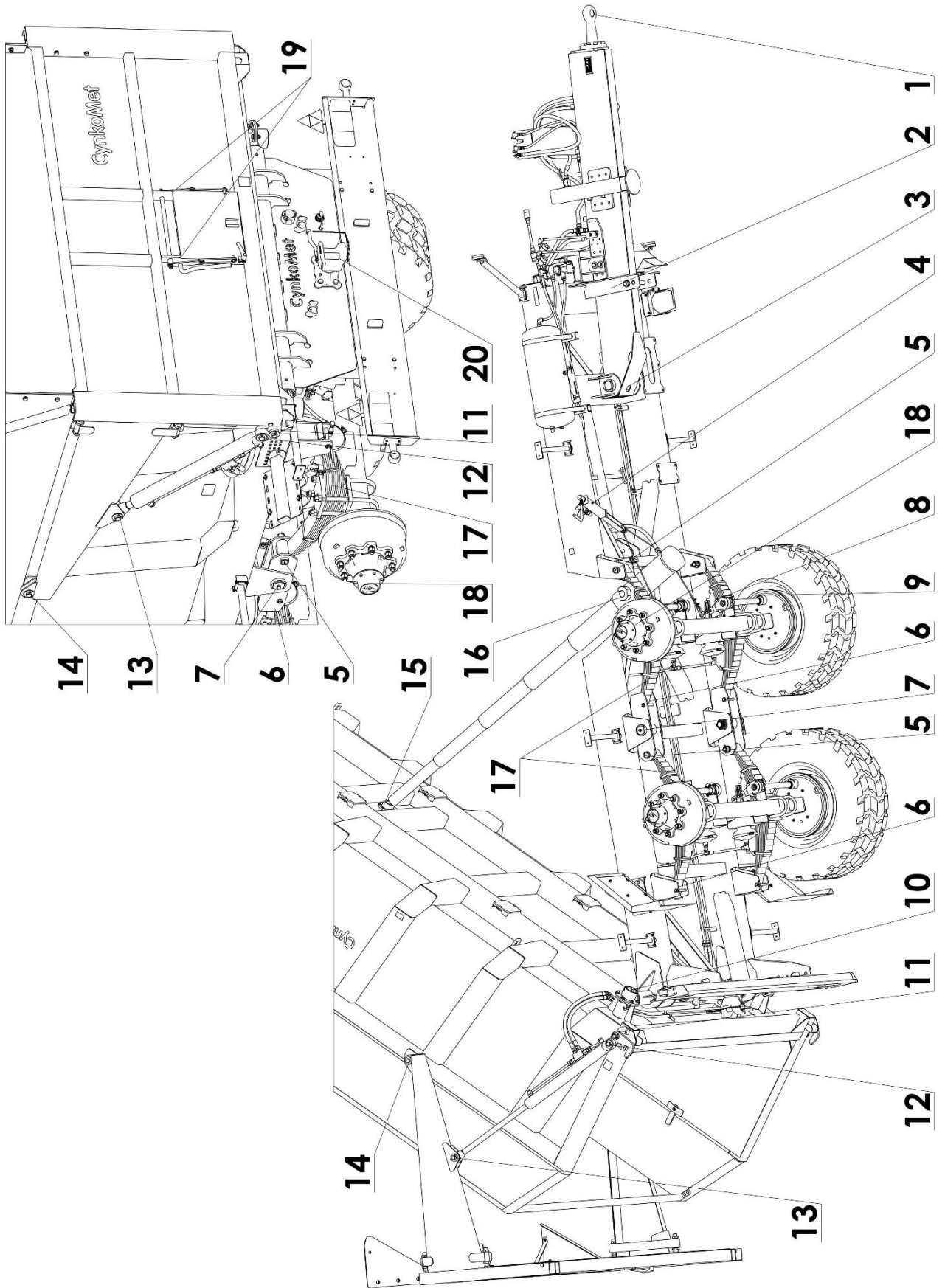


Figure 25. Lubrication diagram.

Table 7. The frequency and method of lubrication of the trailer mechanisms

No. in fig. 25	Place of lubrication	Number of lubrication points	Grease type	Lubrication frequency
1	Ring hitch	1	II	Every 2 weeks
2	Sliding surfaces of the drawbar	2	I	Every 3 months
3	Drawbar pin	1	I	Every 3 months
4	Handbrake mechanism	1	I	Every 3 months
5	Spring leaves swivels	4	I	Every 3 months
6	Leaf spring sliders	4	II	Every 3 months
7	Rocker pins	2	I	Every 3 months
8	Brake expander arm	4	I	Every 3 months
9	Brake expander axle	4	I	Every 3 months
10	Sockets of the loading crate planting	2	II	Every 2 months
11	Locking hook pin	2	I	Every 3 months
12	Bottom eye of the door cylinder	2	I	Every 3 months
13	Top eye of the door cylinder	2	I	Every 3 months
14	Rear door bracket pin	2	I	Every 3 months
15	Ball bearing of the tipping cylinder	1	II	Every 6 months
16	Tipping cylinder sockets	2	II	Every month
17	Spring feathers	4	III	Every 6 months

18	Axle hub bearings	4	I	Every 12 months
19	Guides of dump windows	2	I	Every 3 months
20	Rear hitch	1	I	Every 3 months

Table 8. Lubricants

Symbol from table 7	Description
I	General-purpose grease
II	Grease for heavy-duty components
III	Anti-corrosion spray

6.11 Storage and maintenance.

After ending operation, the trailer must be carefully cleaned and washed with a stream of water, and then left it in a dry and ventilated area. In the event of failure of these actions on the zinc coating, dark and light gray areas (spots) may occur, which do not constitute grounds for complaint if the zinc coating still has the required minimum thickness (PN-EN ISO 1461: 2000). In the case of damage of the external corrosion protection coating, the damaged areas must be cleaned of rust and dust, degreased, and painted, retaining the same color and uniform thickness of the protective coating. Until painting, the damaged areas should be covered with a thin layer of grease or anticorrosion preparation.

During a long break in the use of the trailer, it is desirable to place it indoors or in a covered, ventilated place. It is also advisable that the metal parts not coated with paint are secured with an anti-corrosion preparation of temporary protection or a layer of grease. During a long break in the use of the trailer it cannot be loaded.

6.12 Troubleshooting.

Table 8. Faults and remedies


Fault	Reason	Way of removal
Problems with moving	Unconnected hoses of the brake system	Connect the brake hoses
	Parking brake engaged	Release the parking brake.
	Damaged connection cables of the pneumatic system	Replace.
	Connections leakage	Tighten, replace washers or seal sets, replace the cables.
	Damaged control valve or brake force regulator	Check the valve, repair or replace it.
Noise in the hub of the driving axle	Excessive clearance on the bearings	Check clearance and adjust if necessary
	defective bearings	replace bearings
	damaged items	Replace
Low efficiency of the braking system Excessive heating of the driving axle hub	Pressure too low in the pneumatic system	Check the pressure gauge on the tractor, wait till the compressor fills the tank to the required pressure.
	Improperly adjusted essential or parking brake	Adjust the position of the spreader arms
	Worn out brake linings	Replace the brake shoes
	Installation leakage.	Check the installation for leaks.
	Damaged air compressor in the tractor.	Repair or replace.
	Damaged brake valve in the tractor.	Repair or replace.

Table 8, continued Faults and remedies

Fault	Reason	Way of removal
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Improper operation of the hydraulic system	Improper hydraulic oil viscosity	Check the quality of oil, make sure that the oil in both machines is of the same type. If necessary, replace the oil in the tractor and / or trailer
	Insufficient efficiency of the tractor hydraulic pump, damaged tractor hydraulic pump.	Check the hydraulic pump on the tractor.
	Damaged or contaminated actuator	Check the cylinder piston (bending, corrosion), check the cylinder for tightness (piston rod sealing), if necessary, repair or replace the actuator.
	Too much actuator load	Check and, if necessary, reduce the load on the actuator
	Damaged hoses	Check to make sure that the hydraulic hoses are tight, not refracted and properly looped. If necessary, replace or tighten.

6.13 Mounting and dismounting of extensions.

 <p>CAUTION!</p>	<p>CAUTION!</p> <p>Assembly and disassembly of extensions should be performed with the use of platforms, ladders or a ramp of the appropriate height. The condition of this equipment must protect workers from falling. Work is to be performed by at least two people.</p> <p>Exercise special caution.</p>
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On the inside of the walls of the load box and rear doors, there are extension pockets (A) (fig. 26), and the extensions have brackets (B) that should be inserted into the pockets during installation.

Follow these steps to mount extensions:

1. mount the front extension (1),
2. mount the first side extensions (2) and (3),
3. mount the second side extensions (4) and (5),
4. screw the side extensions together – (2) with (4) and (3) with (5),
5. mount the triangles (9) and (10) and brackets (11) to the rear extension (6),
6. mount the rear extension on the rear door,
7. mount the extension caps (7),
8. mount the crossbars (8),
9. mount the ladder (13) and the step (12),
10. check all bolted connections.

Dismounting of extensions is to be performed in reverse sequence to the one described above.

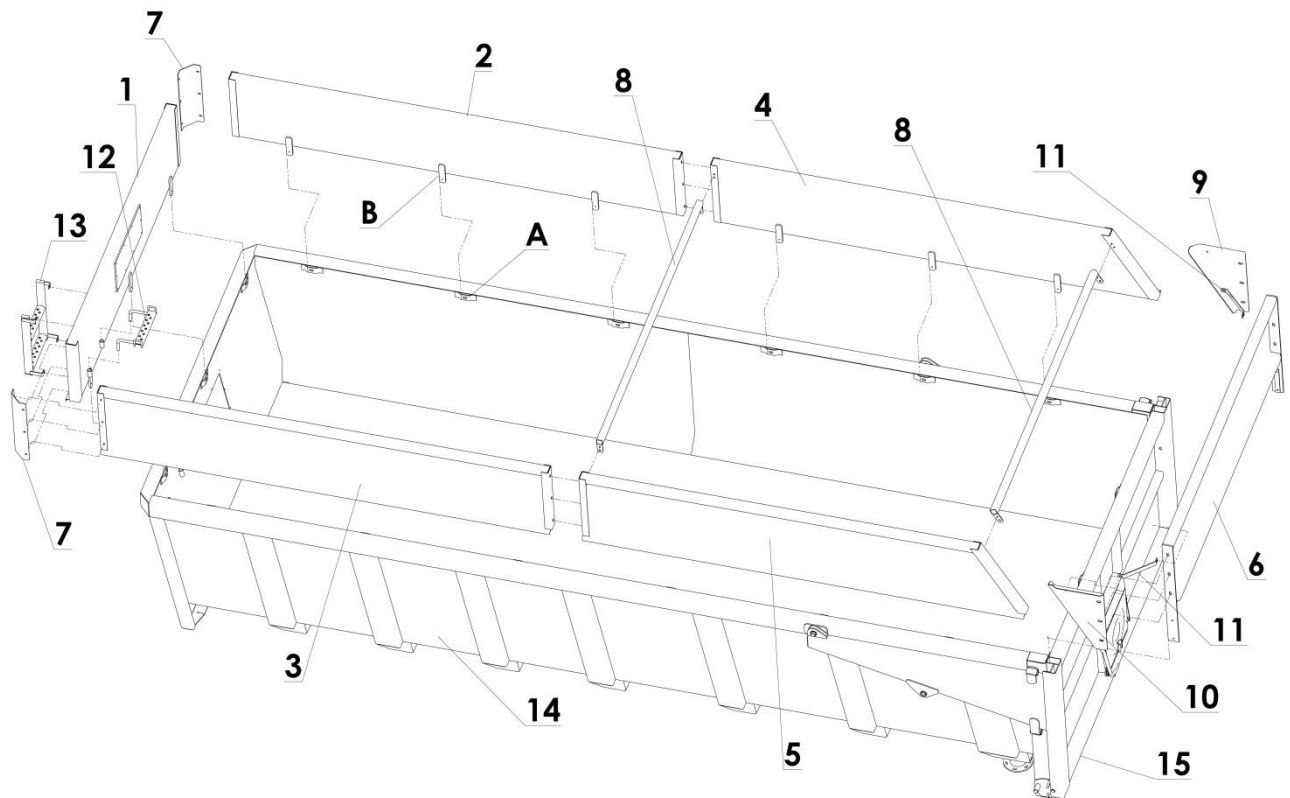


Figure 26. Extensions of the loading crate

A – extension pocket; B – bracket; 1 – front extension; 2 – first right extension; 3 – first left extension; 4 – second right extension; 5 – second left extension; 6 – rear extension; 7 – extension cap; 8 – crossbar; 9 – right triangle; 10 – left triangle; 11 – bracket; 12 – step; 13 – ladder; 14 – load box; 15 – rear wheel.

6.14 Tightening torques for screws.

For corrective maintenance work, use the proper tightening torques for the screw connections. The recommended tightening torques of the most commonly used screw connections are shown in the table below. The provided values refer to non-lubricated steel bolts.

Table 10. Tightening torques for screws.

Metric thread	Screw class		
	5.8	8.8	10.9
	Nm		
M6	5	7	11
M8	12	18	26
M10	23	35	52
M12	40	60	89
M14	64	98	144
M16	95	145	213
M18	133	209	297
M20	186	292	416
M22	247	389	553
M24	320	502	715
M27	464	729	1039
M30	634	997	1420

7. Transport

The trailer is prepared for sale in a fully assembled state and does not require packing. Only the instruction manual of machine handling and the connecting cable of the electrical system undergo packaging.

The delivery of the trailer to the user is carried out by means of separate transport, after combination with a tractor or by truck.

Loading and unloading a trailer from a car should be carried out using the loading ramp with a tractor or using a crane or lever. During operation, observe the general safety rules with handling operations. Persons operating the reloading equipment must have the required permissions to use these devices.

When loading / unloading using the tractor, the trailer must be properly connected with the tractor according to the requirements contained in this manual. The trailer braking system must be running and tested before running off or driving on the ramp.

When loading / unloading the trailer by crane or lever to lift, lift it with the help of approved fasteners designed to carry the load with sufficient capacity. The belts must be in good condition, they cannot show any signs of damage.

The belts should be placed under the lower frame of the trailer in such places that when lifting the trailer the belts do not have the possibility of moving, and the trailer when moving is not tilting. If there is a possibility of damage or frayed belts against components of the trailer, put washers in sensitive areas.

In order to avoid compression of the walls inside the trailer, when loading using a crane, use a special traverse, in which the places of hooking the belts are spaced wider than the total width of the trailer.

The trailer should be attached firmly to the platform of the transport mean with belts, chains, lashing or other fastening means fitted with a tightening mechanism. The fasteners should be hooked in the designated transportation eyebolts (fig. 27) or permanent structural elements of the trailer (side-members, crossbars, etc.). Transportation eyebolts are welded to the crossbars of the upper frame, one pair on each side of the trailer. Use certified and technically efficient fastening means. Frayed belts, cracked mounting brackets, opened or corroded hooks or other damage may disqualify the given mean for use.

Under the wheels of the trailer chocks, it is advisable to put wooden beams or other elements without sharp edges, preventing the machine from rolling. Trailer wheels chocks must be attached to the loading platform of the car so as to prevent their shifting.

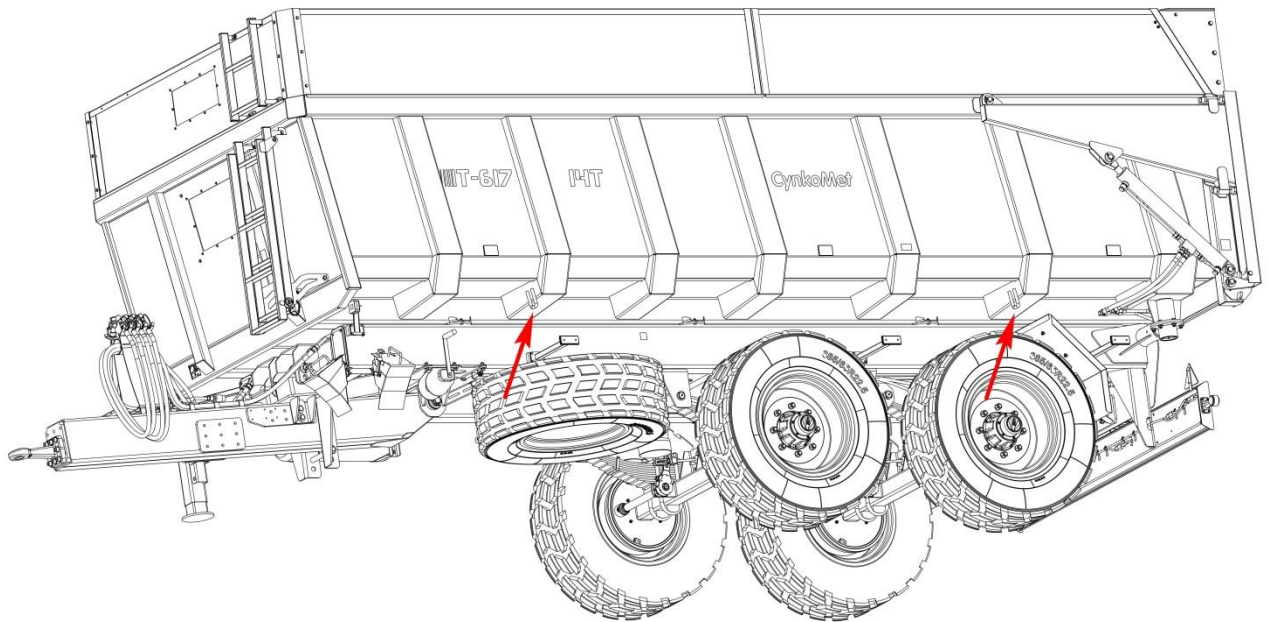


Figure 27. Transport handles

**CAUTION!**

During independent transport, the trailer operator should be familiar with the contents of this manual and follow the recommendations contained in it. During road transport, the trailer is mounted on a platform of the transport mean in accordance with the manufacturer's technology. The driver of the car, while transporting the machine, should take extra caution. This is due to the upward movement of the vehicle's center of gravity with a loaded machine.

**CAUTION!****CAUTION!**

During car transport, the parking brake should be used in the trailer (parking brake action is described in chapter 4.2.6).

8. Trailer cassation

When scrapping the machine, the user should comply with the legislation applicable to scrapping and recycling of decommissioned machinery in the particular country.

The dismantled parts remaining after repair must be submitted to the collection point of recyclable materials.

Hydraulic oil, lubricants and oil and lubricant packaging should be transferred to a company that disposes of such waste.

9. Guarantee

"CYNKOMET" Sp. z o.o. in Czarna Białostocka ensures the smooth operation of the machine according to the technical-operational terms described in the operating manual. The condition of accepting a complaint is to follow all the recommendations contained in the operating and use manuals.


TERMS OF THE WARRANTY:

The guarantee will be respected after the presentation by the customer of a clearly and correctly filled warranty card of the machine undergoing reclamation.

- 1) Failures detected during the warranty period will be removed by warranty service no later than 14 working days from the date of delivery by the repair station or any other agreed period.
- 2) In a written notification claim (mail, fax, e-mail, etc.) you must give the data and contact of the owner of the machine, its name, serial number, purchase date and a description of the complaint.
- 3) Parts subject to wear during exploitation are not covered by the warranty e.g. tires, brake linings, lighting, damage caused by external causes, such as: mechanical injuries, improper handling, as well as the operation incompatible with the intended purpose.
- 4) This manual does not allow you to make changes, alterations,

modifications to the discretion of the Customer without consulting with the manufacturer.

Detailed warranty conditions are mentioned in the warranty card attached to each newly purchased machine.

 CAUTION!	CAUTION! It is advisable to require from the seller to fill in the warranty card and reclamation coupons. Lack of e.g. the date of sale or point of sale stamp exposes the user to non-recognition of any complaints.
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10. Environmental hazard

Hydraulic oil leakage is a direct threat to the environment because of the limited biodegradability of the substance.


The created layer of oil on the water can a result of direct physical action on organisms, can cause change in the oxygen content in the water due to absence of direct contact of the air with water.

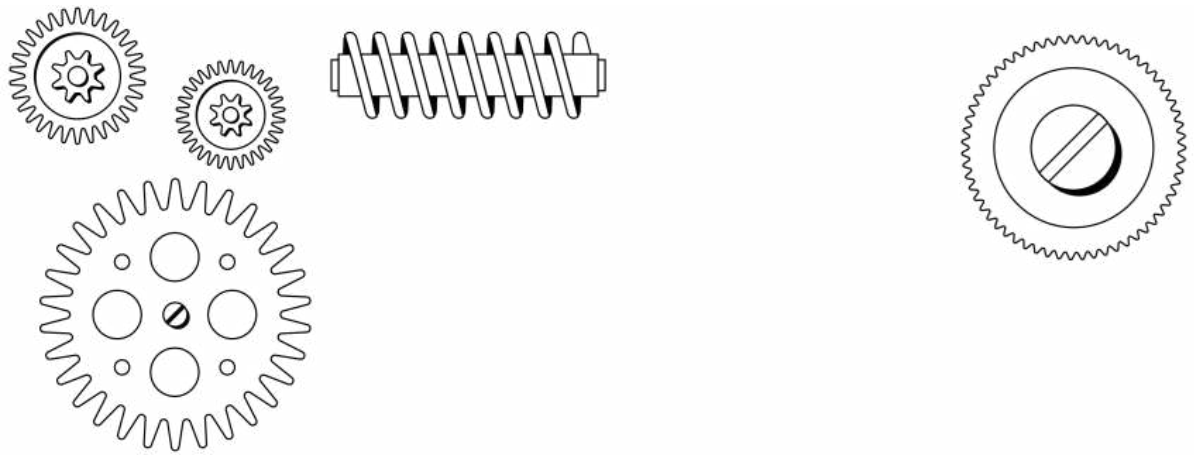
Maintenance - repair work at the time of which there is a risk of leakage should be performed in rooms with oil resistant surface.

In the event of an oil spill, you must first secure the source of the leak, and then collect the spilled oil using available means. Collect the oil residues using sorbents, or mix the oil with sand, sawdust or other absorbent materials. The collected oil waste should be kept in a sealed and marked container, resistant to hydrocarbons. The container should be kept away from heat sources, flammable materials and food.

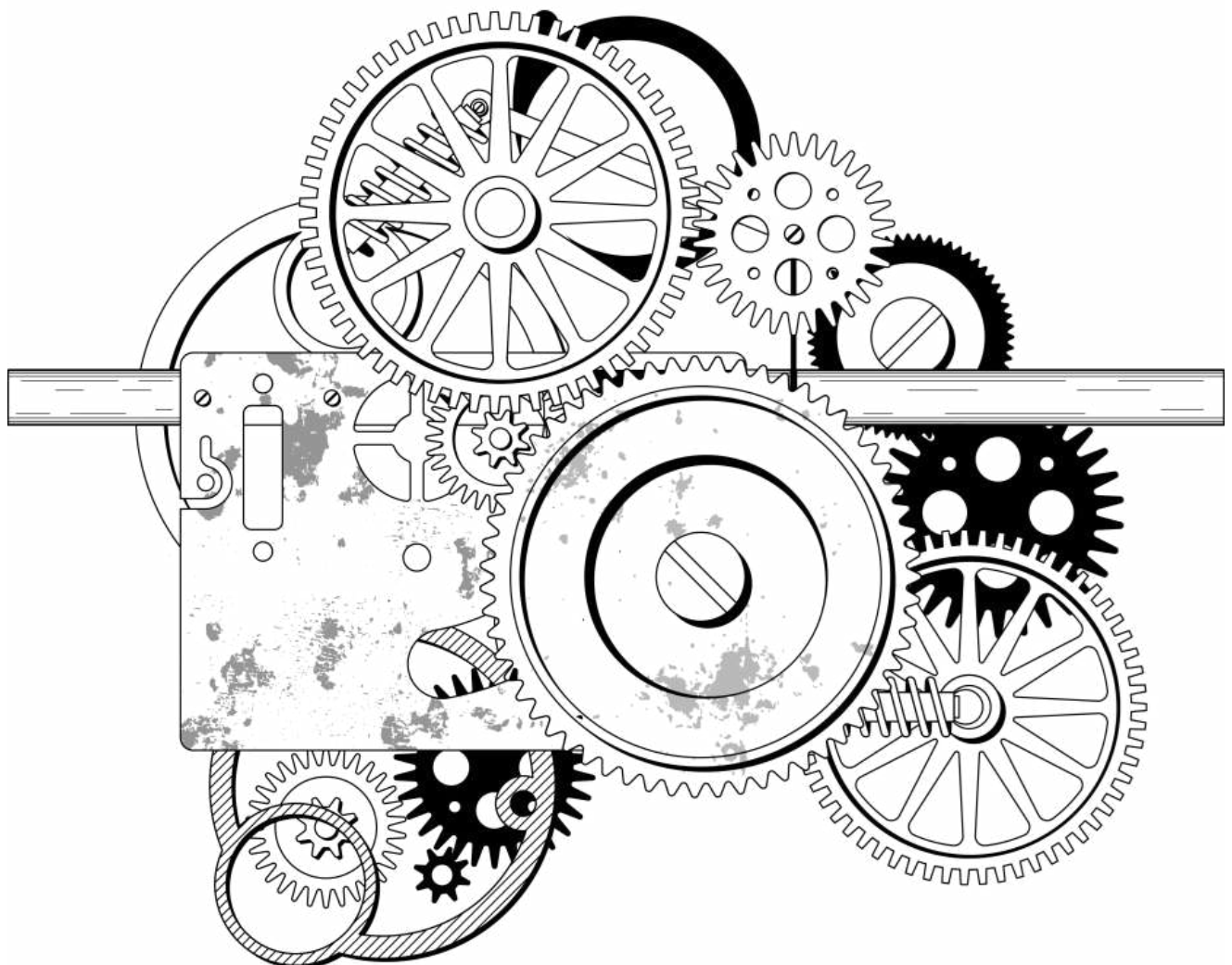
 CAUTION!	CAUTION! Used hydraulic oil or gathered remains mixed with absorbent material should be stored in a carefully marked container. For this purpose, do not use food containers.
---	--

Used oil or unsuitable for reuse due to the loss of its properties should be stored in its original packaging in the same conditions as previously described. Oil waste must be transferred to a point taking care of recycling or oils regeneration. Waste code: 13 01 10. Detailed information concerning hydraulic oil can be found in the safety data sheet.

 CAUTION!	CAUTION! Oil waste can be delivered only to the point taking care of disposal or oils regeneration. It is forbidden to throw or pour oil into drains or water.
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SPARE PARTS CATALOGUE



11. SPARE PARTS CATALOGUE

11.1 Introduction.

The "Spare parts catalog" is next to the "Operating Instructions" the basic technical-motor document designed for trailer users

The catalogue includes:

- drawings of all assemblies and mechanisms of the trailer;
- lists of parts of individual units and mechanisms.

11.2 How to use the catalogue.

For each drawing, there is a text table added, containing the list of parts of the unit or the mechanism.

In order to obtain the part number, select an assembly or mechanism drawing, which includes the part from the catalogue, read the number of its position, and then on the appropriate plate, find the appropriate position under this name and part symbol

When ordering please specify:

- the exact address of the contracting authority (recipient of the parts);
- part name compatible with the catalog;
- part number compatible with the catalog;
- the number of pieces of the ordered parts;
- year of production and serial number of the machine.

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Chassis

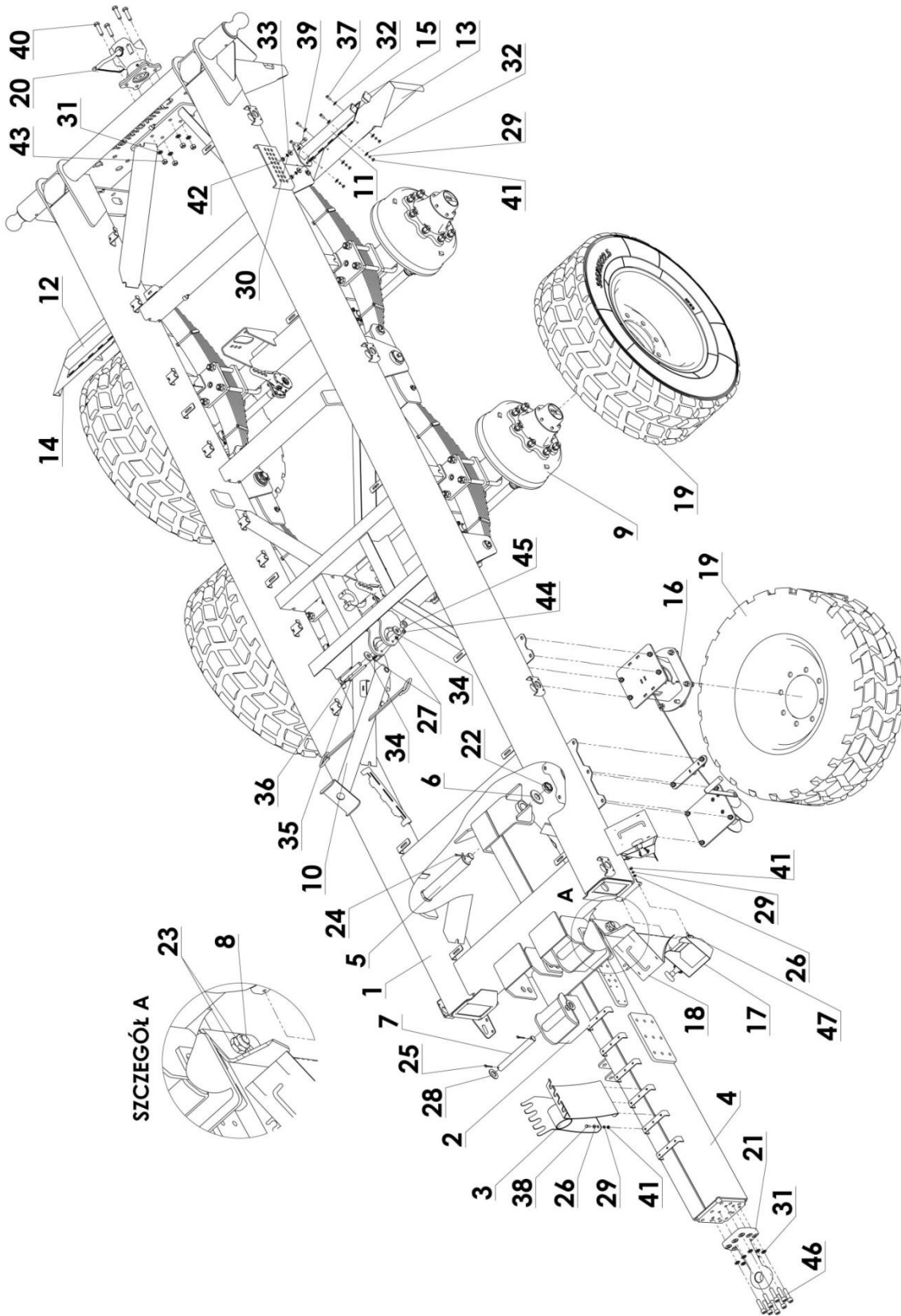


Table 11 Chassis.

No.	Part name	Number	Amount
1	Bottom frame	7617/01.00.000/3	1
2	Shock absorber set	7617/00.01.000/1	2
3	Hose bracket	7617/00.18.000	1
4	Drawbar set	7617/03.00.000/4	1
5	Drawbar pin	7617/00.00.005	1
6	Special washer	7617/00.00.006	1
7	Pin	7617/00.00.007/1	2
8	Pin	7617/00.00.008	1
9	Braked driving axle	7617/25.00.000/1	2
10	Crate bracket	7617/00.00.200/1	1
11	Left fender bracket	7617/00.00.300/4	1
12	Right fender bracket	7617/00.00.400/4	1
13	Left mudguard	7104/00.00.014/1	1
14	Right mudguard	7104/00.00.015/1	1
15	Post cap	7104/00.00.007	2
16	Spare wheel hanger	7149/60.00.000/1	1
17	Pocket with a hook	7076/00.09.000	2
18	Wedge set.	2219/00.00.400	2
19	Wheel set	385/65-22.5	4+1
20	Orlandi rear hitch	MH 31 H-4	1
21	TMW drawbar eye	D50-C.B8.T45	1
22	Castellated nut	2213/15.00.006/7	1
23	M27x2 thin nut, right	2213/16.11.003	4
24	S-ZN 6,3X63 Pin	PN-76/M-82001	1
25	S-Zn 5x45 clip pin	PN-76/M-82001	4
26	Round washer 8,4	PN-59/M-82005	8
27	Washer 10	PN-78/M-82005	2
28	Washer 31	PN-78/M-82005	4
29	Spring washer 8.2	PN-77/M-82008	16
30	Spring washer 10.2	PN-77/M-82008	4
31	Spring washer 16.3	PN-77/M-82008	12
32	Round washer 8,5	PN-59/M-82030	16
33	Round washer 10,5	PN-78/M-82030	4

34	Washer 21	PN-78/M-82030	2
35	M10x120 8.8 screw	PN-85/M-82101	1
36	M20x140 screw	PN-86/M-82101	1
37	M8x20-8,8-B Screw	PN-85/M-82105	8

Chassis

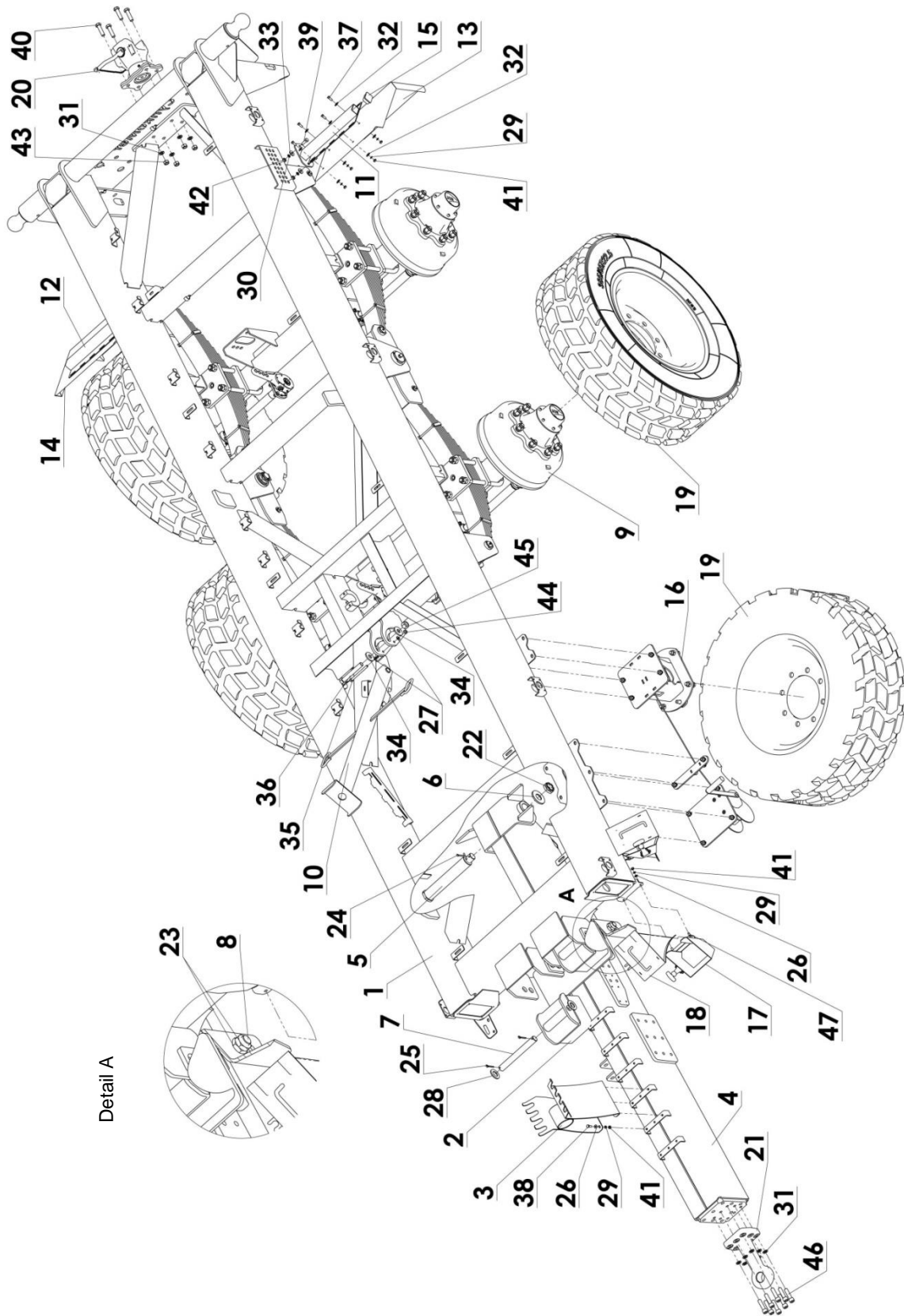


Table 6, continued Chassis

No.	Part name	Number	Amount
38	M8x25 8.8 screw	PN-85/M-82105	4
39	M10x30 8.8 Screw	PN-85/M-82105	4
40	M16x60 10.9 Screw	PN85/M-82105	4
41	M8 nut	PN-86/M-82144	16
42	M10 nut	PN-86/M-82144	4
43	M16 10.9 nut	PN-86/M-82144	4
44	M10 Self-locking nut	PN-85/M-82175	1
45	M20 Self-locking nut	PN-85/M-82175	1
46	IM M16x60 screw	PN-M/82302	8
47	M8x25 screw	PN-73/M-82406	4

Drawbar set

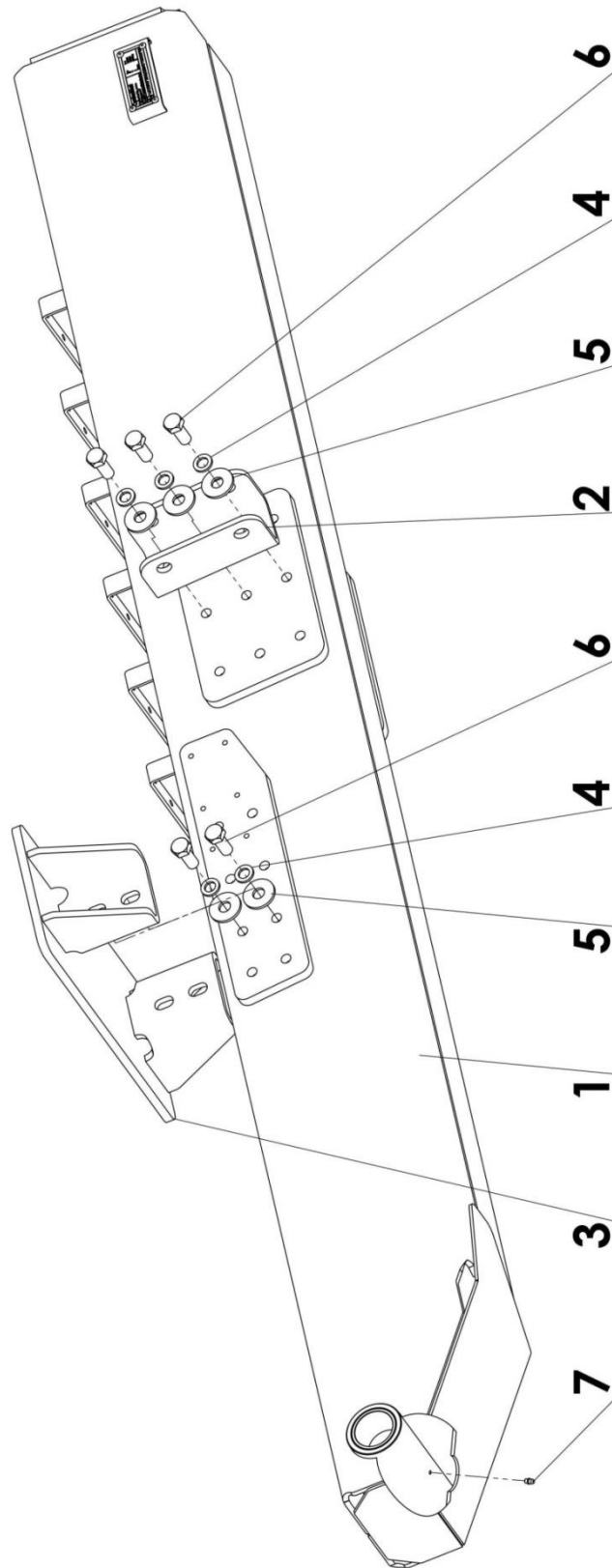
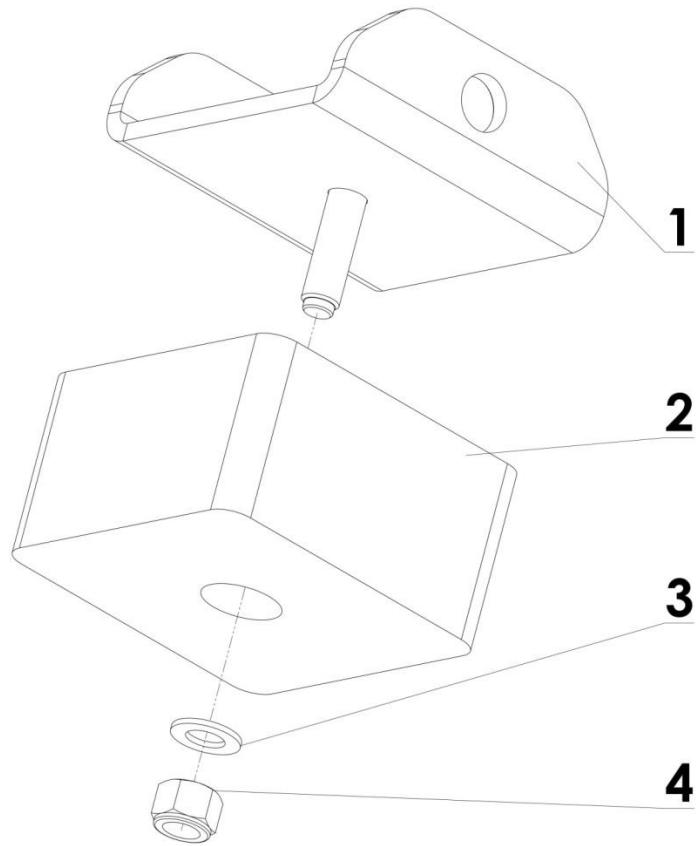


Table 12. Drawbar set

No.	Part name	Number	Amount
1	Drawbar	7617/03.01.000	1
2	Support bracket	7617/03.00.018	1
3	Thrust plate set	7617/03.02.000	1
4	Spring washer 16.3	PN-77/M-82008	7
5	Enlarged washer 17	PN-78/M-82030	7
6	M16x45 screw	PN-85/M-82105	7
7	M6 grease fitting	PN-76/M-86002	1

Shock absorber set



Pocket with a catch 7076/00.09.000

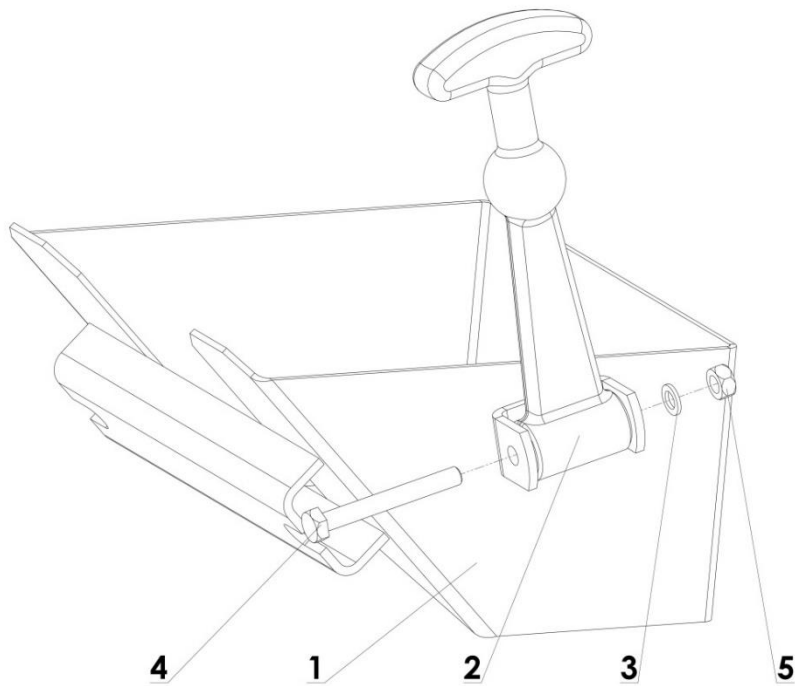


Table 13. Shock absorber set

No.	Part name	Number	Amount
1	Handle	7617/00.01.100/1	1
2	Rubber bump stop	7617/00.00.023	1
3	Washer 21	PN-78/M-82005	1
4	M20 Self-locking nut	PN-85/M-82175	1

Table 14. Pocket with a catch 7076/00.09.000.

No.	Part name	Number	Amount
1	Pocket set	7076/00.09.100	1
2	Rubber catch	M-11073	1
3	Spring washer 6.1	PN-77/M-82008	1
4	M6x50 screw	PN-85/M-82101	1
5	M6 nut	PN-86/M-82144	1

Tandem spring suspension

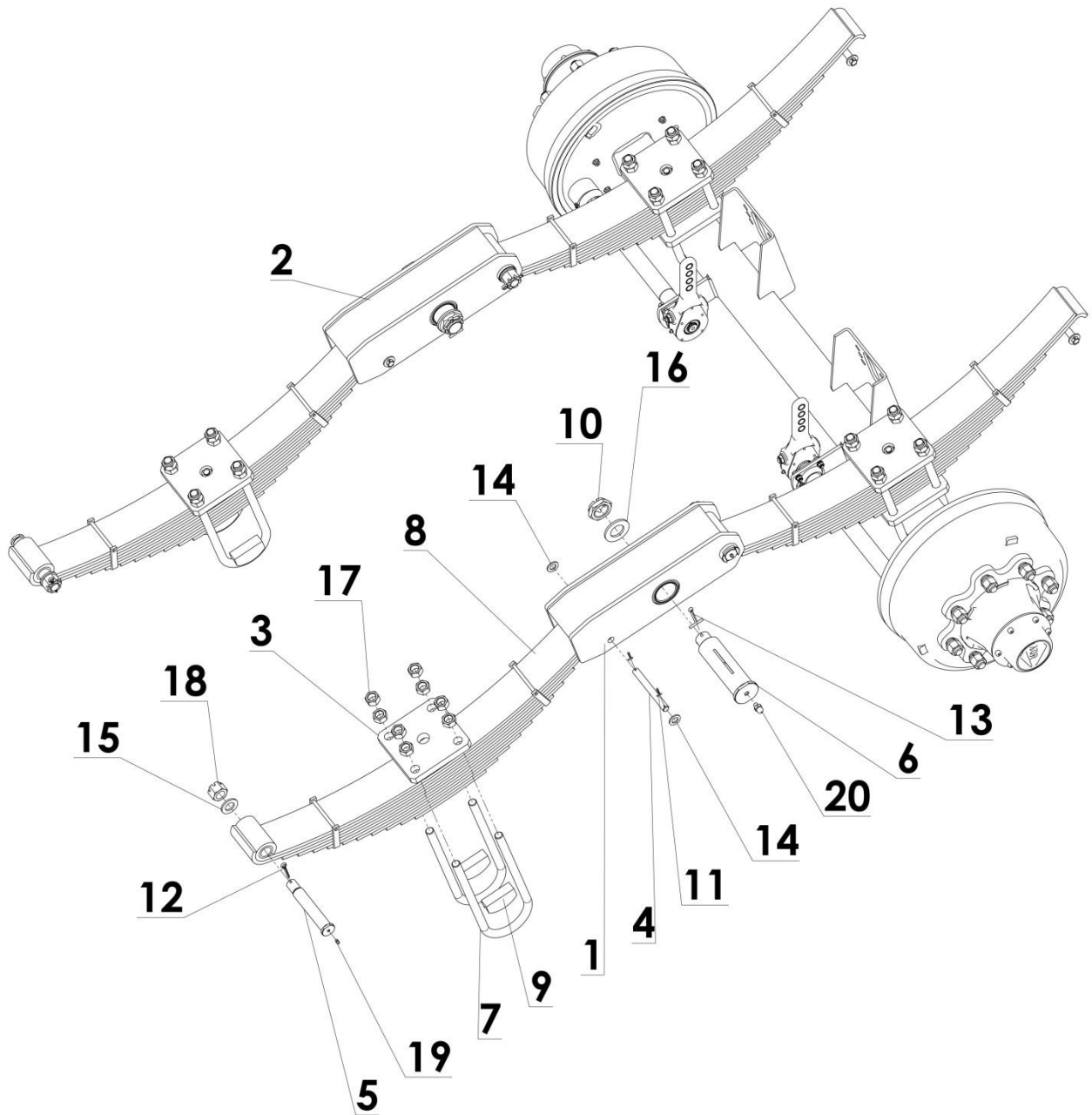


Table 15. Rear spring suspension.

No.	Part name	Number	Amount
1	Left rocker	7110/00.04.000	1
2	Right rocker	7110/00.05.000	1
3	Spring disc	7110/71.00.001	4
4	Blocking pin of the leaf spring	7105/00.00.007	4
5	Spring pin	7105/00.00.008	4
6	Rocker pin	7105/00.00.009	2
7	U-bolt	7617/00.00.010/2	8
8	Suspension spring	7617/00.02.000	4
9	Bolt washer	7149/00.00.006/1	8
10	Castellated nut	2213/15.00.006/7	2
11	S-Zn 4x32 Pin	PN-76/M-82001	8
12	S-Zn 5x45 clip pin	PN-76/M-82001	4
13	S-ZN 6,3X63 Pin	PN-76/M-82001	2
14	Washer 17	PN-85/M-82005	8
15	Round washer 25	PN-78/M-82005	4
16	Round washer 37	PN-59/M-82005	2
17	M20x1,5 Nut	PN-86/M-82144	32
18	ZM24 Castellated nut	PN-86/M-82148	4
19	M6 grease fitting	PN-76/M-86002	4
20	M10 grease fitting	PN-76/M-86002	2

Load box set

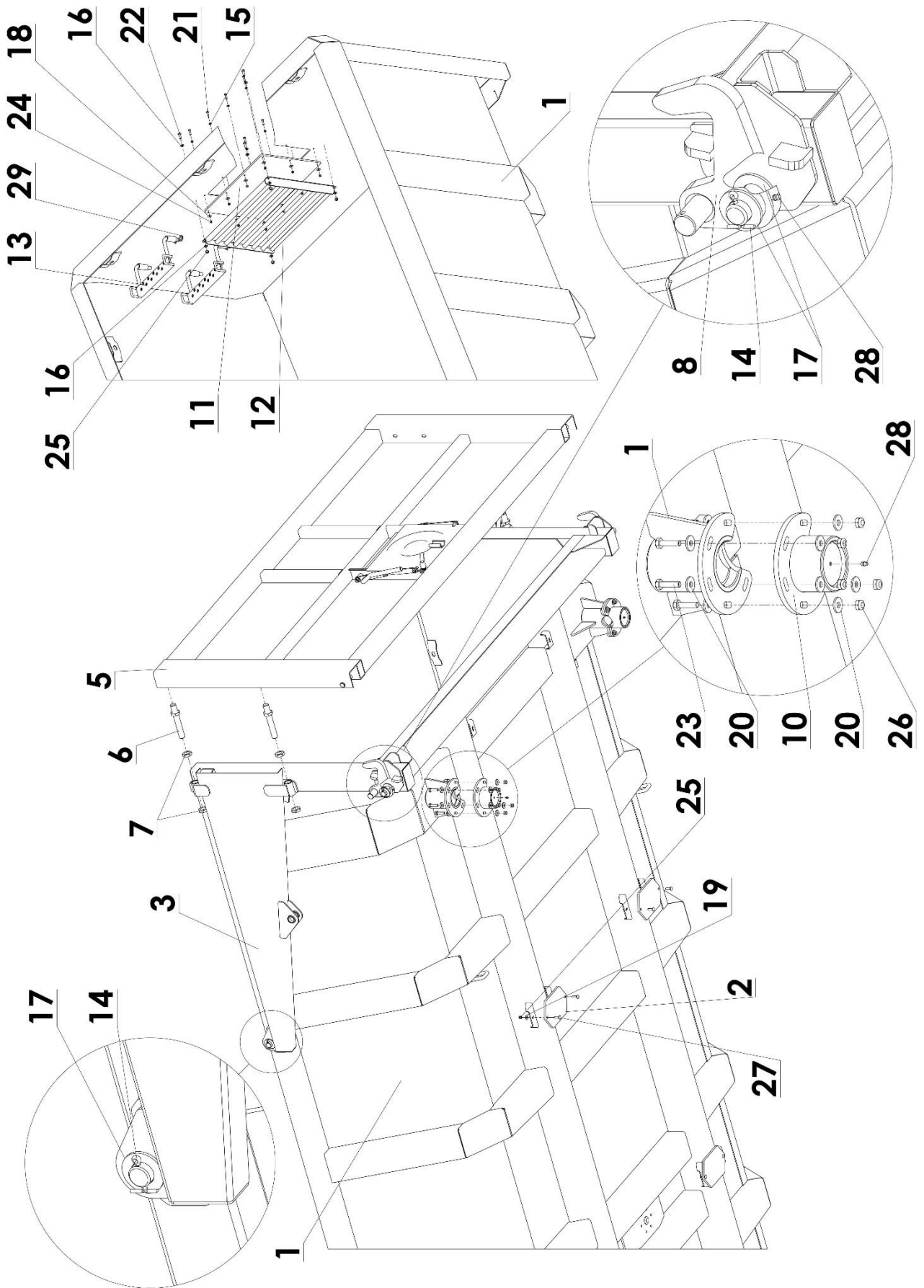


Table 16. Load box set

No.	Part name	Number	Amount
1	Load box	7617/48.00.000/2	1
2	Rubber pad	7617/00.00.025	6
3	Left bracket	7617/40.00.000	1
4	Right bracket *	7617/41.00.000 *	1
5	Rear wall set	7617/49.00.000	1
6	Bolt set	7110/00.00.100	4
7	M27x2 thin nut	2213/16.11.003	8
8	Left hook	7643/00.01.000	1
9	Right hook *	7643/00.02.000 *	1
10	Tipping sleeve cap	7617/00.00.600	2
11	Window	7617/00.14.001/1	1
12	Window cover	7617/59.00.110	1
13	Foot	7104/00.15.000	2
14	S-ZN 6,3X63 Pin	PN-76/M-82001	4
15	Washer 6.4	PN-77/M-82005	10
16	Washer 8.4	PN-59/M-82005	8
17	Washer 31	PN-78/M-82005	6
18	Enlarged washer 6.4	PN-77/M-82030	10
19	Enlarged washer 8.5	PN-59/M-82030	12
20	Enlarged washer 10.5	PN-78/M-82030	20
21	M6x25 8.8 screw	PN-85/M-82105	10
22	M8x25 8.8 screw	PN-85/M-82105	4
23	M10x40 8.8 screw	PN-85/M-82105	10
24	M6 Self-locking nut	PN-85/M-82175	10
25	M8 Self-locking nut	PN-85/M-82175	16
26	M10 Self-locking nut	PN-85/M-82175	10
27	M8X30 screw	PN-87/M-82406	12
28	M6 grease fitting	PN-76/M-86002	4
29	Pin 4mm double-coil DIN 11024	Zawlecza rol 4P	2

* – not shown in the drawing.

Complete ladder 7617-00.15.000-1

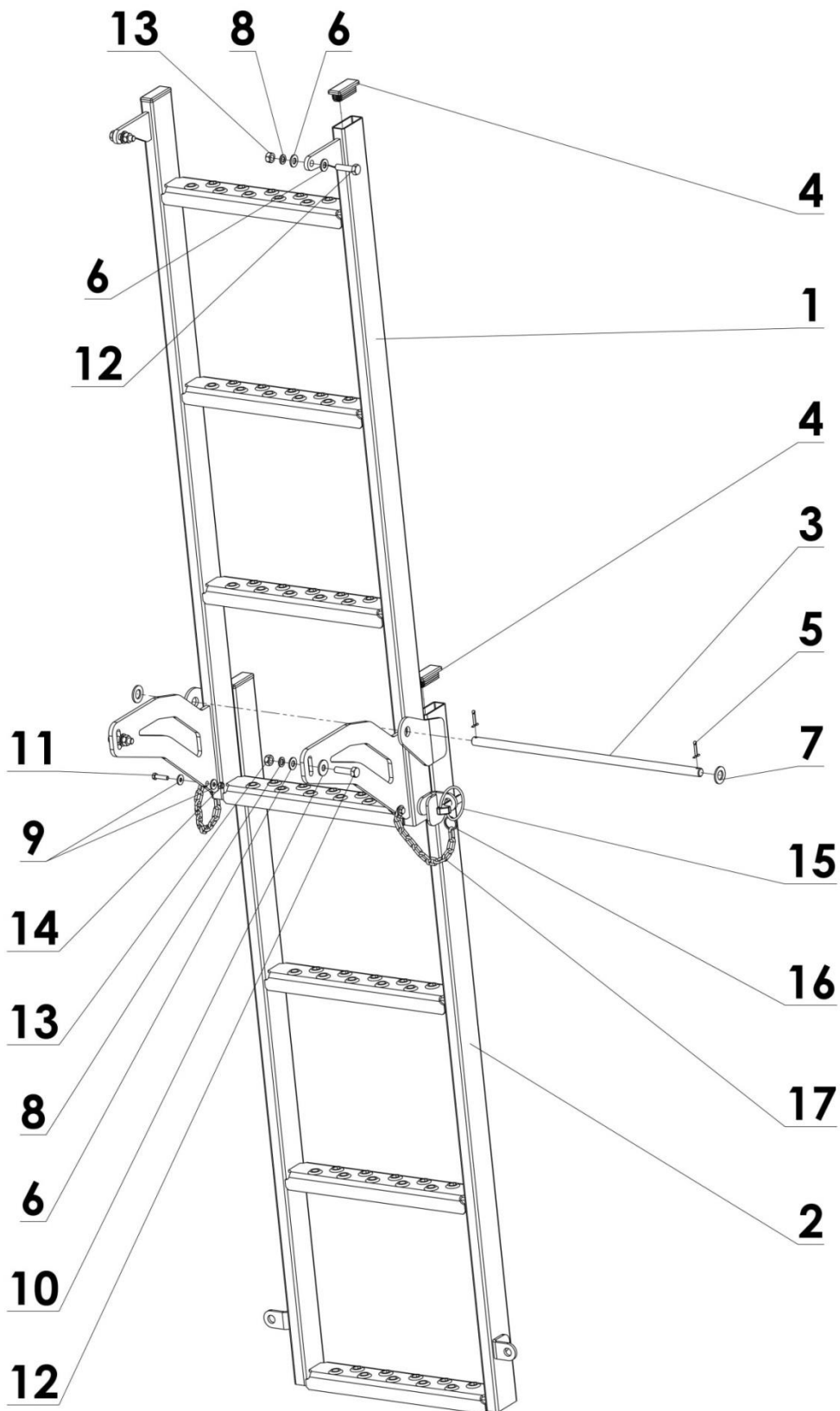


Table 17. Complete ladder 7617-00.15.000-1.

No.	Part name	Number	Amount
1	Ladder, part I	7617/00.15.100	1
2	Ladder, part II	7617/00.15.200	1
3	Rod	7617/00.15.001	1
4	Inside cap 50x20	111363	4
5	S-Zn 3.2x25 clip pin	PN-78/M-82001	2
6	Washer 8.4	PN-59/M-82005	6
7	Washer 13	PN-78/M-82005	2
8	Spring washer 8.2	PN-77/M-82008	4
9	Enlarged washer 5.5	PN-59/M-82030	4
10	Enlarged washer 8.5	PN-59/M-82030	2
11	M5x20 8.8 B screw	PN-85/M-82105	2
12	M8x30 screw	PN-85/M-82105	4
13	M8 nut	PN-86/M-82144	4
14	M5 Self-locking nut	PN-85/M-82175	2
15	Pin A11x45	BN-81/1802-31	2
16	Ø20 ring		2
17	Ø3 well chain		2

Complete rear door 7617-49.00.000

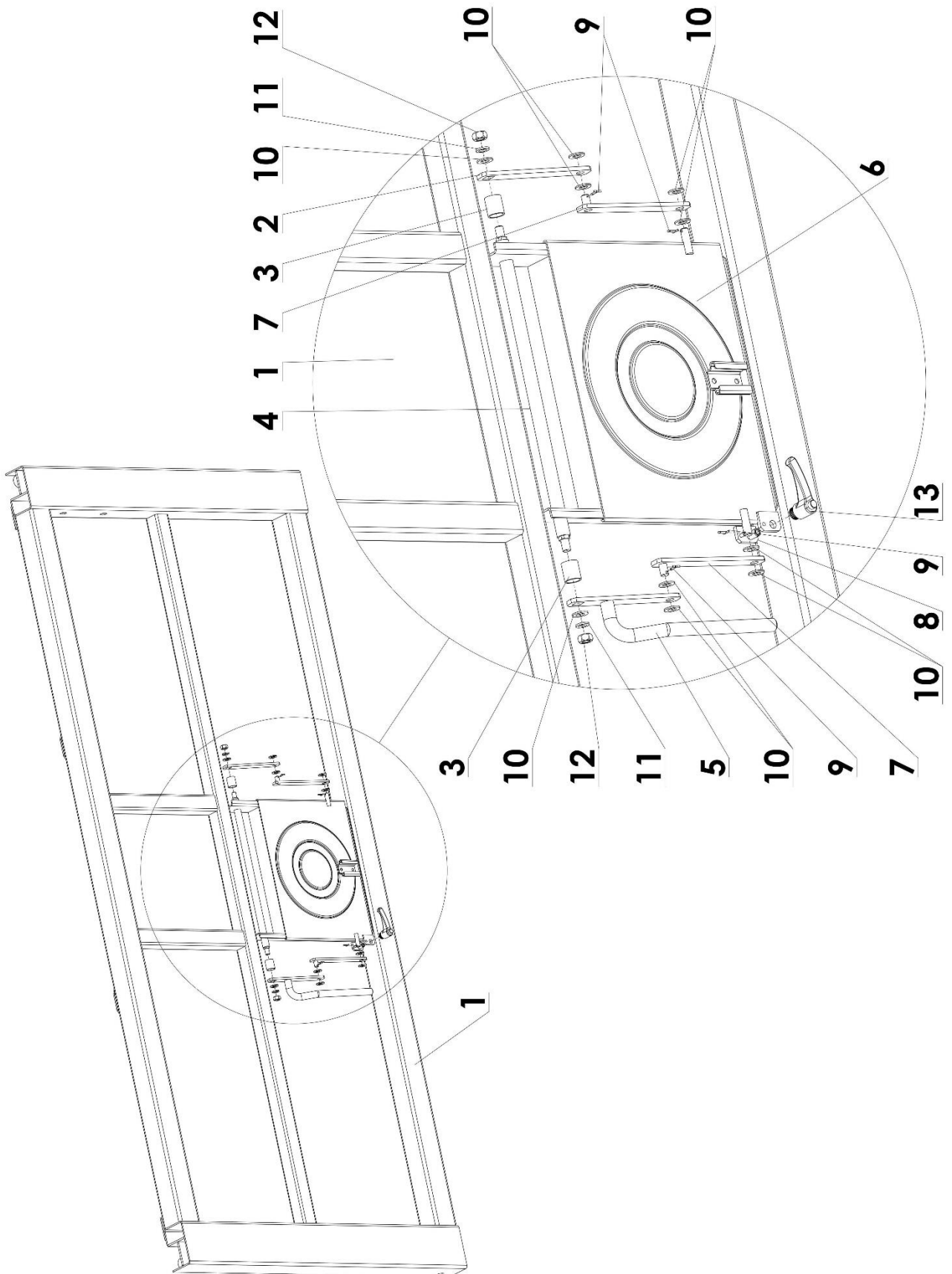


Table 18. Rear wall set 7617-49.00.000

No.	Part name	Number	Amount
1	Rear door	7617/49.01.000	1
2	Arm	7104/05.00.003	1
3	Sleeve	7104/05.00.004	2
4	Connector	7104/05.00.005	1
5	Lever set	7104/05.02.000	1
6	Slider set	7104/05.03.000	1
7	Flexible connector	7104/05.04.000	2
8	Plate set	7104/05.05.000	1
9	S-Zn 3.2x18 clip pin	PN-76/M-82001	4
10	Washer 13	PN-78/M-82005	10
11	Spring washer 12.2	PN-77/M-82008	2
12	M12 nut	PN-86/M-82144	2
13	Adjustable handle	ERX.78 B-M12-C1 (233161-C1)	1

"500" extension set 7617/50.00.000

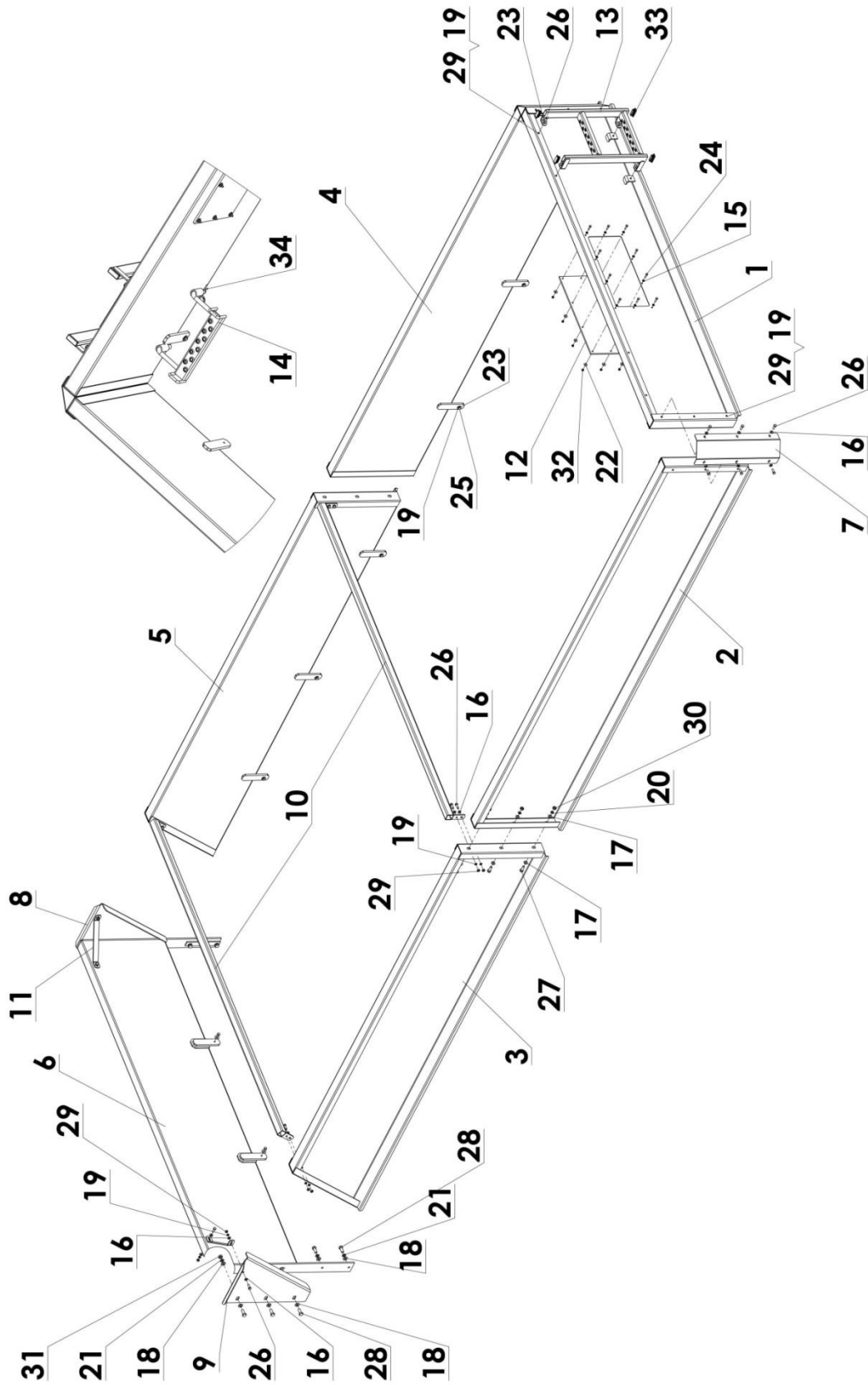


Table 19. "500" extension set 7617/50.00.000

No.	Part name	Number	Amount
1	Front extension	7617/08.01.000/1	1
2	Right extension I	7617/08.02.000	1
3	Right extension II	7617/50.02.000	1
4	Left extension I	7617/08.03.000	1
5	Left extension II	7617/50.01.000	1
6	Rear extension	7643/08.06.000	1
7	Extension cap	7617/08.00.001	2
8	Rear left triangle	7617/50.00.001	1
9	Rear right triangle	7617/50.00.002	1
10	Crossbar set	7617/50.03.000	2
11	Brace	7617/50.00.003	2
12	Window	7617/50.00.004	1
13	Ladder II	7617/00.16.000	1
14	Foot	7104/00.15.000	1
15	Washer 6.4	PN-77/M-82005	10
16	Washer 8.4	PN-59/M-82005	28
17	Washer 10.5	PN-78/M-82005	12
18	Washer 13	PN-78/M-82005	16
19	Spring washer 8.2	PN-77/M-82008	46
20	Spring washer 10.2	PN-77/M-82008	6
21	Spring Washer 12,2	PN-77/M-82008	10
22	Enlarged washer 6.4	PN-77/M-82030	10
23	Enlarged washer 8.5	PN-59/M-82030	22
24	M6x25 8.8 screw	PN-85/M-82105	10
25	M8x16 8.8 screw	PN-85/M-82105	18
26	M8x25 8.8 screw	PN-85/M-82105	28
27	M10x30 8.8 Screw	PN-85/M-82105	6
28	M12x30 8.8 B screw	PN-85/M-82105	10
29	M8 nut	PN-86/M-82144	28
30	M10 nut	PN-86/M-82144	6
31	M12 nut	PN-86/M-82144	6
32	M6 Self-locking nut	PN-85/M-82175	10
33	Inside cap 50x20	111363	4
34	Pin 4mm double-coil DIN 11024	4P agricultural clip pin	1

Hydraulic support

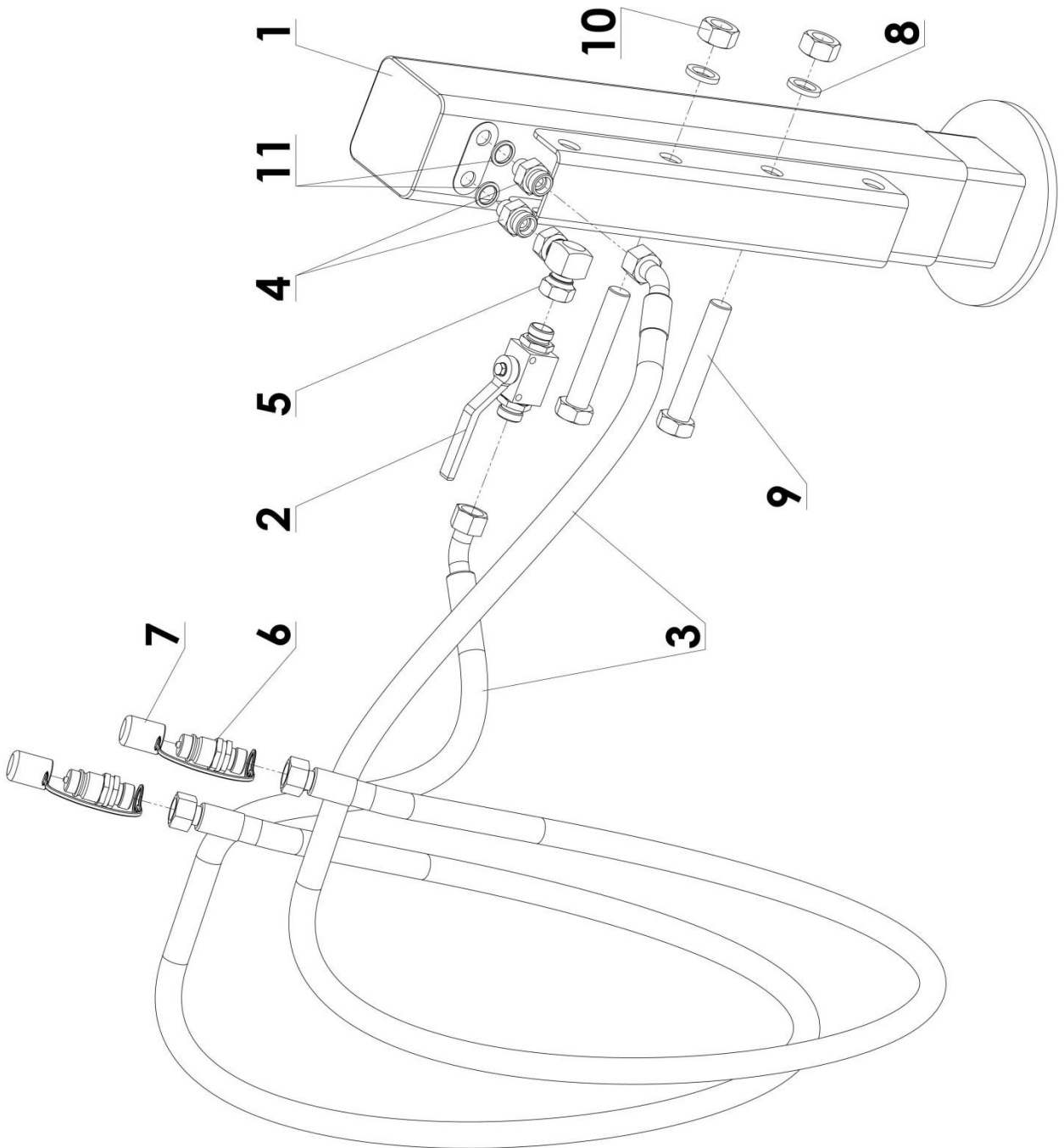


Table 20. Hydraulic support.

No.	Part name	Number	Amount
1	Support foot	2264/18.01.000	1
2	Two-way valve	BKH-15L-131.113	1
3	Hydraulic hose AA-2000 135°	BN-81/1903-01	2
4	Straight connector	GM 3/4 - 22x1,5	2
5	AA 22x1.5 male elbow coupling	AA M22x1,5 15L	1
6	ISO-12,5 (16L) Plug cover	ISO 7241-A	2
7	ISO-12.5 plug cover (red)	ISO 7241-B	2
8	Spring washer 20.5	PN-77/M-82008	2
9	M20x110 screw	PN-86/M-82101	2
10	M20 nut	PN-86/M-82144	2
11	3/8 metal-rubber seal		2

Hydraulic tipping system

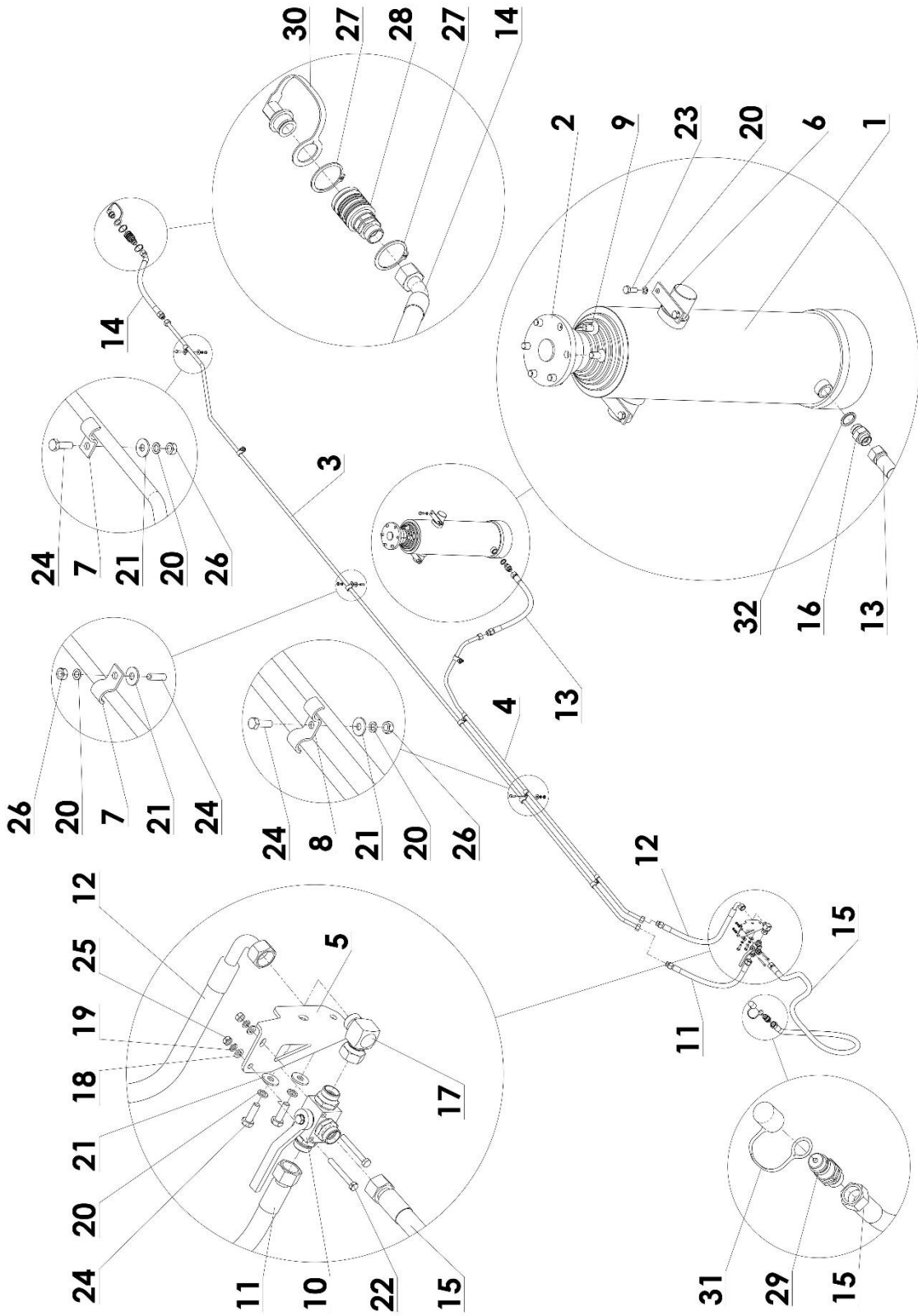


Table 21. Hydraulic tipping system.

No.	Part name	Number	Amount
1	Actuator	CT-S226-16-75/5/2400	1
2	Bearing	ŁS-55-2	1
3	Tube set	7617/12.00.100	1
4	Tube set II	7617/12.00.200	1
5	Valve bracket	7617/12.00.003	1
6	Protection of the actuator	7104/11.00.004	2
7	Clamp II	7074/04.00.006	4
8	Clamp	7076/32.00.002	3
9	M12x25 Socket screw with a conical head	DIN 7991	6
10	Three-way valve	BK3-15L 131.123	1
11	AB-550 Hydraulic cord	BN-81/1903-01	1
12	Hydraulic hose AB-550 90°	BN-81/1903-01	1
13	AB-700 Hydraulic cord	BN-81/1903-01	1
14	Hydraulic hose AB-700 135°	BN-81/1903-01	1
15	AA-2000 Hydraulic cord	BN-81/1903-01	1
16	16-16/13 Simple connection body	PN-66/M-73144	1
17	AB 22x1.5 male elbow coupling	AB90 M22x1,5 15L	1
18	Washer 6.4	PN-77/M-82005	2
19	Spring washer 6.1	PN-77/M-82008	2
20	Spring washer 8.2	PN-77/M-82008	13
21	Enlarged washer 8.5	PN-59/M-82030	9
22	M6x50 8.8 screw	PN-85/M-82101	2
23	M8x20 8.8 screw	PN-85/M-82105	4
24	M8x25 8.8 screw	PN-85/M-82105	9
25	M6 Nut	PN-86/M-82144	2
26	M8 nut	PN-86/M-82144	7
27	Z40 retaining circlip ring	PN-81/M-85111	2
28	ISO-12.5 (16L) quick-coupler socket	ISO 7241-A	1
29	ISO-12,5 (16L) Plug cover	ISO 7241-A	1
30	ISO-12,5 Socket cover	ISO 7241-B	1
31	ISO-12.5 plug cover (red)	ISO 7241-B	1
32	22 metal-rubber seal		1

Hydraulic system of the rear door

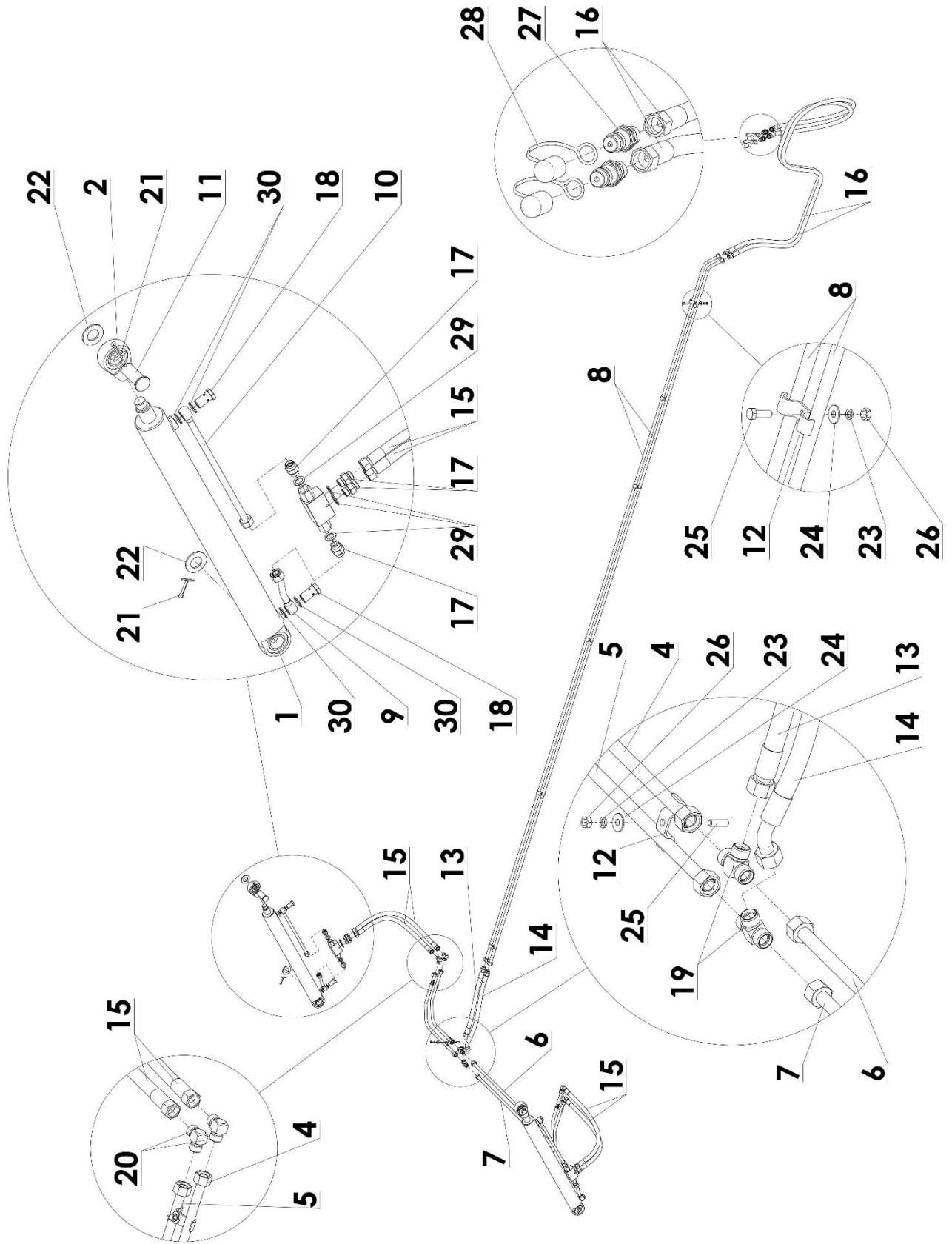


Table 22. Hydraulic system of the rear door.

No.	Part name	Number	Amount
1	Cylinder	CJ2E-16-63/36/630z	2
2	Cylinder eye	UE2-63w	2
3	Hydraulic lock	1849-00799285	2
4	Tube I set	7617/13.00.100	1
5	Tube II set	7617/13.00.200	1
6	Tube III set	7617/13.00.300	1
7	Tube IV set	7617/13.00.400	1
8	Tube V set	7617/13.00.500	2
9	Cylinder tube I set	7617/13.01.000	2
10	Cylinder tube II set	7617/13.02.000	2
11	Pin	7617/13.00.006	2
12	Clamp	7076/32.00.002	10
13	AB-550 Hydraulic cord	BN-81/1903-01	1
14	Hydraulic hose AB-600 45°	BN-81/1903-01	1
15	AA-900 Hydraulic cord	BN-81/1903-01	4
16	AB-3000 Hydraulic cord	BN-81/1903-01	2
17	Straight connector	GM 1/2 - 22x1,5	8
18	M22x1.5 oil feed bolt	SP01 M22x1,5 22 L38	4
19	BBB-M22x1.5 T-piece coupling	PN-147 16-13 15L	2
20	BB-M22x1.5 elbow coupling	PN-143 16-13 15L	4
21	S-ZN 6,3X63 Pin	PN-76/M-82001	4
22	Washer 31	PN-78/M-82005	4
23	Spring washer 8.2	PN-77/M-82008	10
24	Enlarged washer 8.5	PN-59/M-82030	10
25	M8x25 8.8 screw	PN-85/M-82105	10
26	M8 nut	PN-86/M-82144	10
27	ISO-12,5 (16L) Plug cover	ISO 7241-A	2
28	ISO-12,5 Plug cover	ISO 7241-B	2
29	1/2 metal-rubber seal	U c1/2	8
30	22 metal-rubber seal		8

Table 23. Electrical installation.

No.	Part name	Number	Amount
1	Right cap	7617/20.00.001	1
2	Left cap	7617/20.00.002	1
3	Position lamp bracket	7617/20.01.000	2
4	Clearance lamp bracket	7617/20.02.000	6
5	Lighting hanger	7617/20.04.000/1	1
6	Central bundle	7617/20.10.001	1
7	Front beam	7617/20.10.002	1
8	Side lights beam	7617/20.10.004	2
9	Front clearance lamp	7617/20.10.005	2
10	Side outline lamp	7617/20.10.006	6
11	Socket	2235-04.10.004	2
12	Connecting cable	7104/57.10.004	1
13	Reflective yellow device	UP-40R-ŻÓŁTE	6
14	Spring washer 4.1	PN-77/M-82008	12
15	Spring washer 6.1	PN-77/M-82008	40
16	M6x16 8.8 Screw	PN-85/M-82101	40
17	Nut M4	PN-86/M-82144	12
18	M6 nut	PN-86/M-82144	32
19	M4x16 screw	DIN 7985	12

Lighting hanger (cover) 7617/20.04.000/1

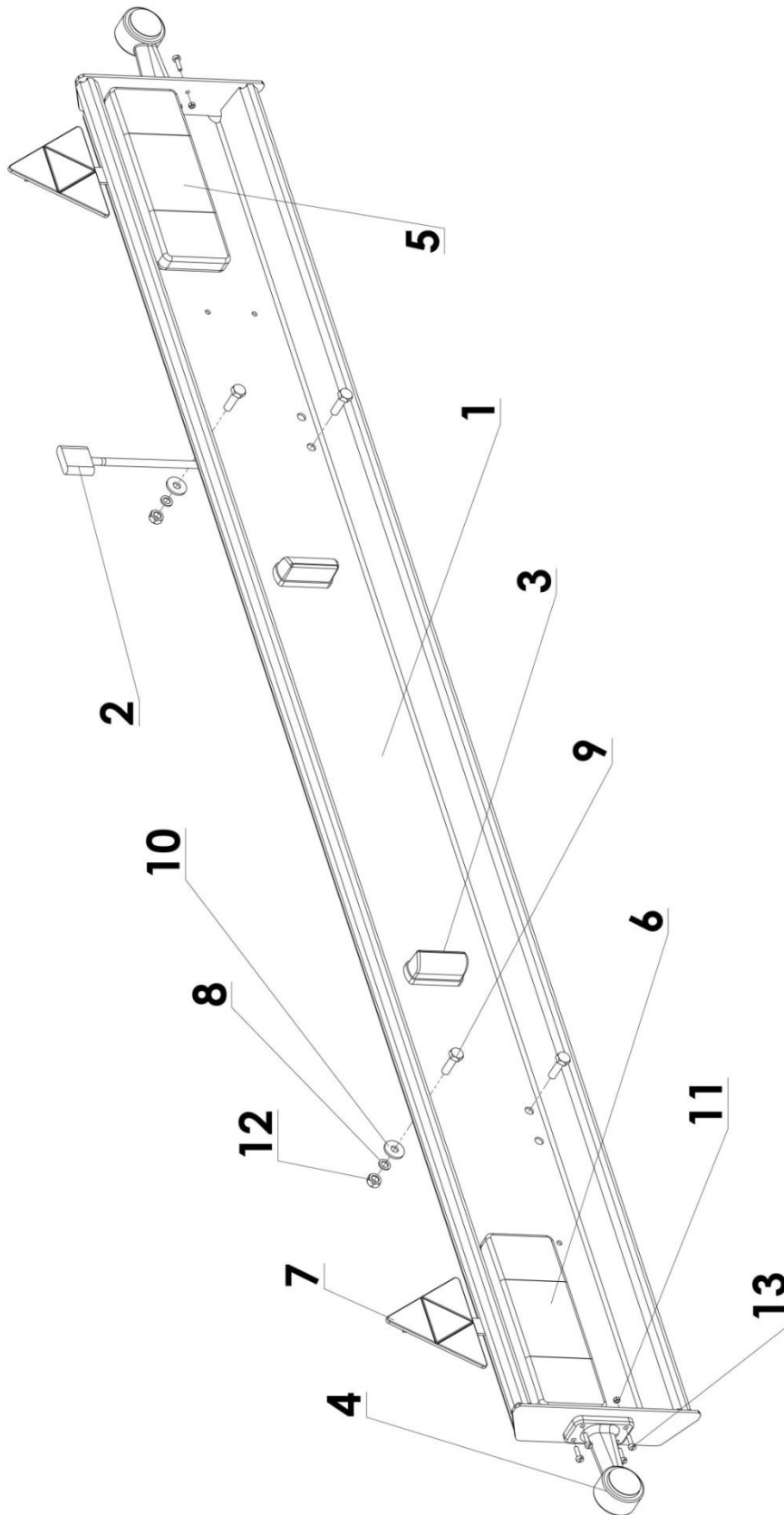


Table 24. Lighting hanger (cover) 7617/20.04.000/1.

No.	Part name	Number	Amount
1	Light protection set	7149/20.01.100/2	1
2	Rear bundle	7149/20.10.003	1
3	Lighting lamp of the registration plate	7149/20.10.004	2
4	Rear clearance lamp	7149/20.10.006	2
5	Rear right cluster lamp	7149/20.10.007	1
6	Rear left assembly lamp	7149/20.10.008	1
7	Reflective triangular red device UT-150S	PN-90/S-73100	2
8	Spring washer 10.2	PN-77/M-82008	4
9	M10x35 8.8 Nut	PN-85/M-82105	4
10	Enlarged washer 10.5	PN-78/M-82030	4
11	M5 nut	PN-86/M-82144	8
12	M10 nut	PN-86/M-82144	4
13	M5x18 screw	PN-85/M-82215	8

Hand brake

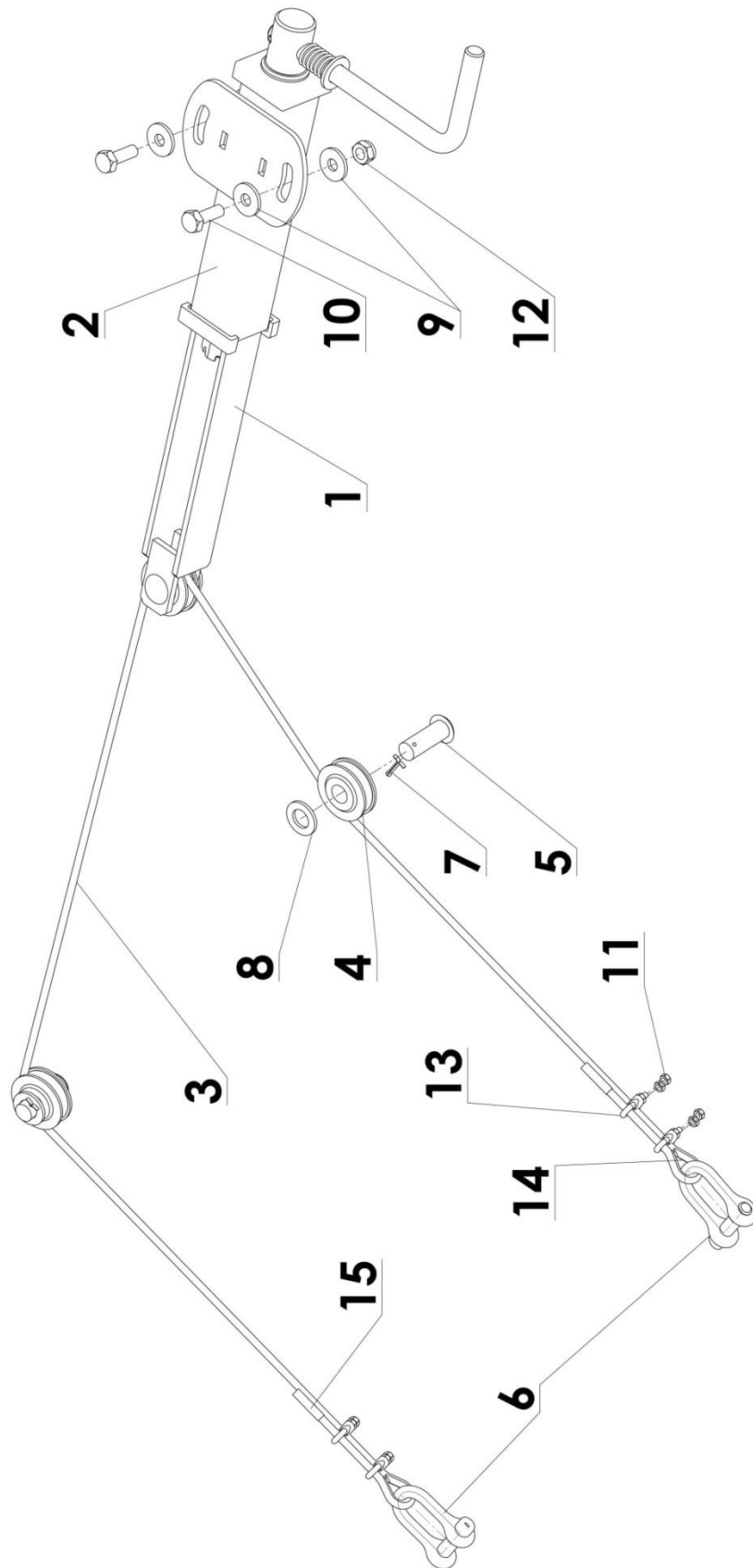


Table 25. Hand brake.

No.	Part name	Number	Amount
1	Handbrake mechanism	7149/24.10.000	1
2	Screw-on tube	7617/16.01.000	1
3	Cord L = 1985 mm	7617/16.02.001	1
4	Hand brake wheel	7110/16.00.001	3
5	Special rivet	2213/03.00.011/1	3
6	M12 shackle	DIN 82101-A	2
7	S-Zn 3.2x25 clip pin	PN-78/M-82001	3
8	Washer 17	PN-85/M-82005	3
9	Enlarged washer 10.5	PN-78/M-82030	4
10	M10x30 8.8 screw	PN-85/M-82105	2
11	M5 nut	PN-86/M-82144	8
12	M10 Self-locking nut	PN-85/M-82175	2
13	Terminal clip 6,5	PN-73/M-80241	4
14	A6 OC thimble	PN-66/M-80247	2
15	9.4/4.8 heat-shrink sleeve		2

Hand brake mechanism 7149/24.10.000

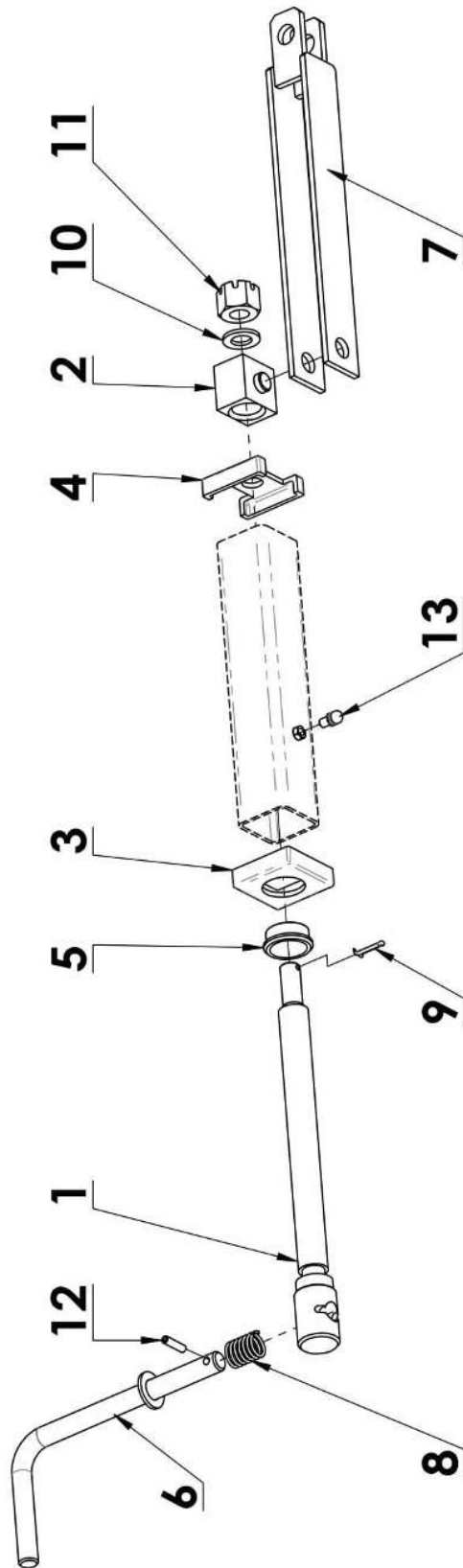


Table 26. Hand brake mechanism 7149/24.00.000.

No.	Part name	Number	Amount
1	Tr24x5 screw	7149/24.10.001/1	1
2	(Tr24X5) Nut	7149/24.10.002/1	1
3	Washer I	7149/24.10.003/1	1
4	Cap II	7149/24.10.004/1	1
5	Sleeve	7149/24.10.005	1
6	Crank set	7149/24.10.200	1
7	Glider set	7149/24.10.400/1	1
8	Spring	2219/02.04.114	1
9	S-Zn 4x32 Pin	PN-76/M-82001	1
10	Washer 17	PN-85/M-82005	1
11	ZM-16 Castellated nut	PN-86/M-82148	1
12	Dowel pin 6x24	PN-89/M-85023	1
13	M6 grease fitting	PN-76/M-86002	1

Two-line pneumatic brake system

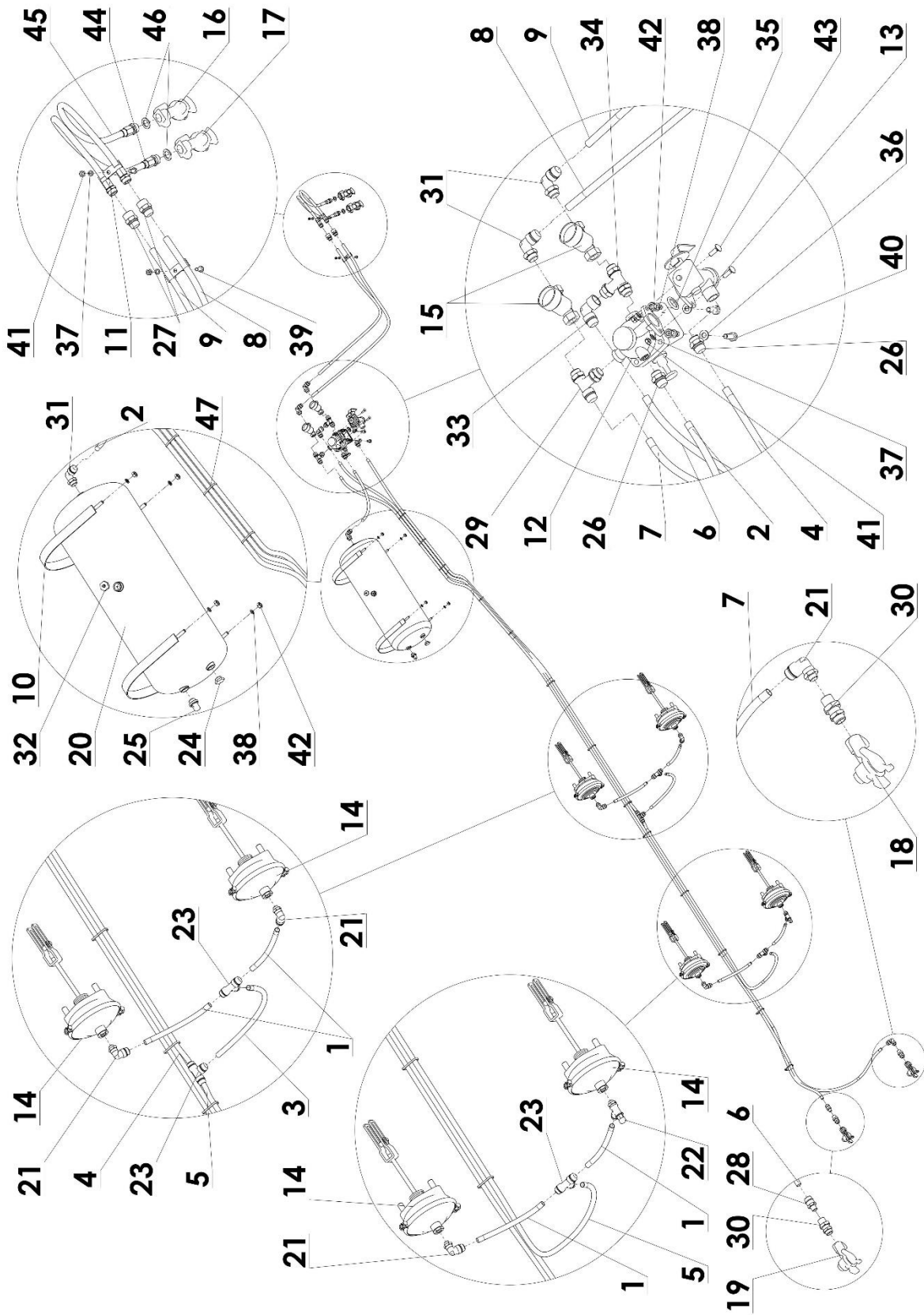


Table 27. Two-line pneumatic brake system.

No.	Part name	Number	Amount
1	Tekalan hose L=260	7617/17.00.001	4
2	Tekalan hose L=400	7617/17.00.002	1
3	Tekalan hose L=550	7617/17.00.003	1
4	Tekalan hose L=2880	7617/17.00.004	1
5	Tekalan hose L=1850	7617/17.00.005	1
6	Tekalan hose L=5380	7617/17.00.006	1
7	Tekalan hose L=5800	7617/17.00.007	1
8	Tekalan hose L=1300	7617/17.00.008	1
9	Tekalan hose L=1100	7617/17.00.009	1
10	Tank clamp	7076/28.00.100	2
11	Clamp	7076/32.00.002	2
12	HZS-4 Control valve	44.12.010.0	1
13	Braking force regulator	61.11.013.0	1
14	24" Diaphragm actuator	74.50.017.0	4
15	Inline filter	81.10.010.0	2
16	A1 hose connector	87.10.020.0	1
17	A2 hose connector	87.10.030.0	1
18	B1 hose connector	87.15.020.0	1
19	B2 hose connector	87.15.030.0	1
20	40L Air tank	393.404.0	1
21	L-shaped connector 15/M16	S1110015350000	4
22	Three-way connector with a control valve HPM16/15/M16	S1113301153500	1
23	15/15/15 Three-way connector	S1110015151500	3

Two-line pneumatic brake system

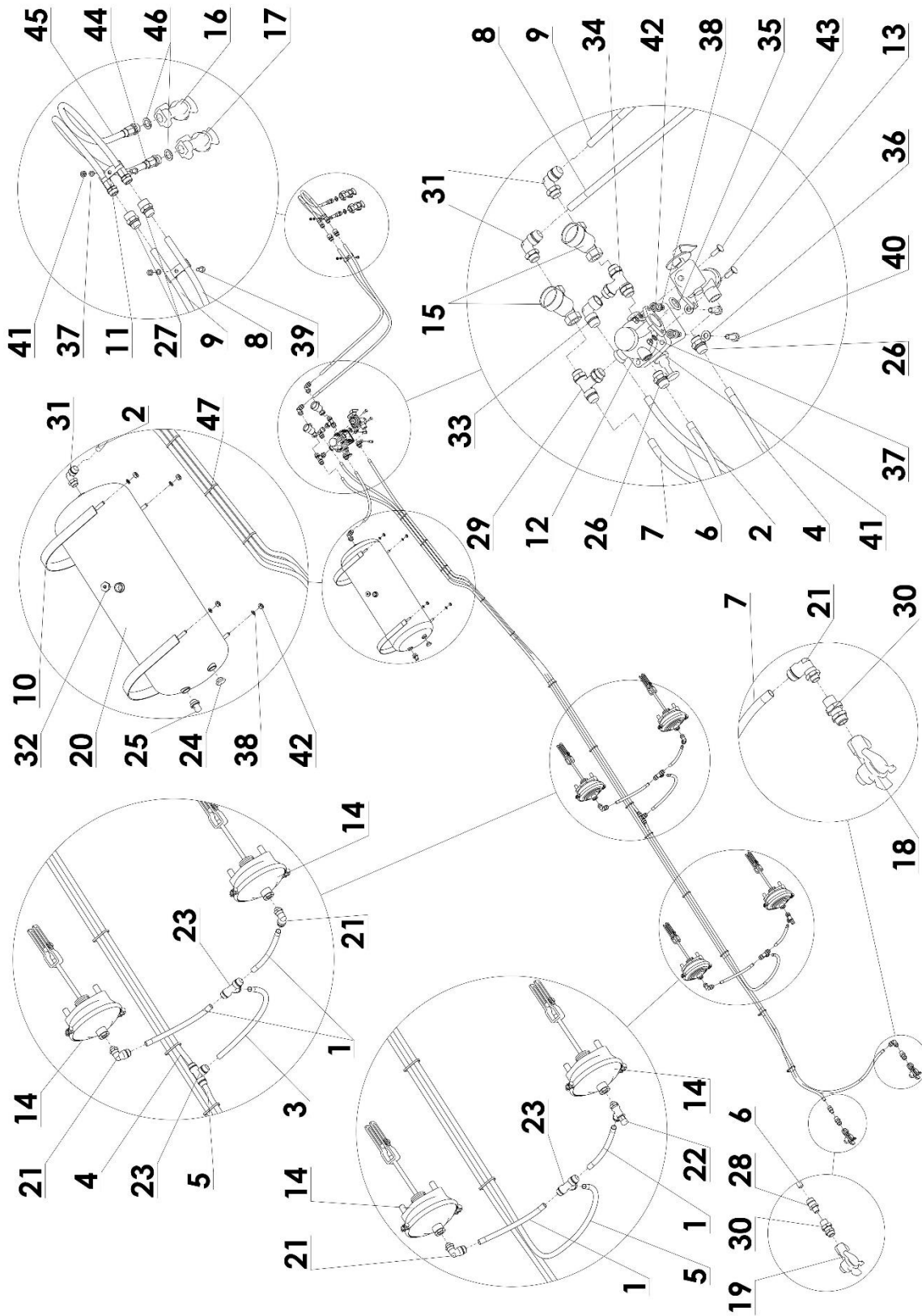


Table 27, continued Two-line pneumatic brake system.

No.	Part name	Number	Amount
24	M22 plug	S1110038000000	1
25	ZŁW-HPM16/M22 Control connector	S1113301380000	1
26	15/M22 Simple connector	S1110015003800	2
27	15/M22w Simple connector	S1110015006800	2
28	M16-15 straight connector	S1110015003500	1
29	15/M22/M22 Three-way connector	S1110015383800	1
30	M22/M22d/M16w straight connector	S1116538004800	2
31	L-shaped connector 15/M22	S1110015380000	3
32	ZS/M22 draining valve	S1110002003800	1
33	L-shaped connector 15/M22w	15/M22w-kol	1
34	M22No three-way connector	M22No/M22No/M22No	1
35	22x5 sealing ring	PN-64/M-73093	1
36	Washer 10	PN-78/M-82005	2
37	Spring washer 8.2	PN-77/M-82008	4
38	Spring washer 10.2	PN-77/M-82008	6
39	M8x20 8.8 Screw	PN-85/M-82105	2
40	M10x30 8.8 Screw	PN-85/M-82105	2
41	M8 nut	PN-86/M-82144	4
42	M10 nut	PN-86/M-82144	6
43	M8x25 screw	PN-73/M-82406	2
44	Spiral red cable	L=5000	1
45	Yellow spiral cable	L=5000ż	1
46	1/2 metal-rubber seal	U c1/2	2
47	250x4.8 clamp		13

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