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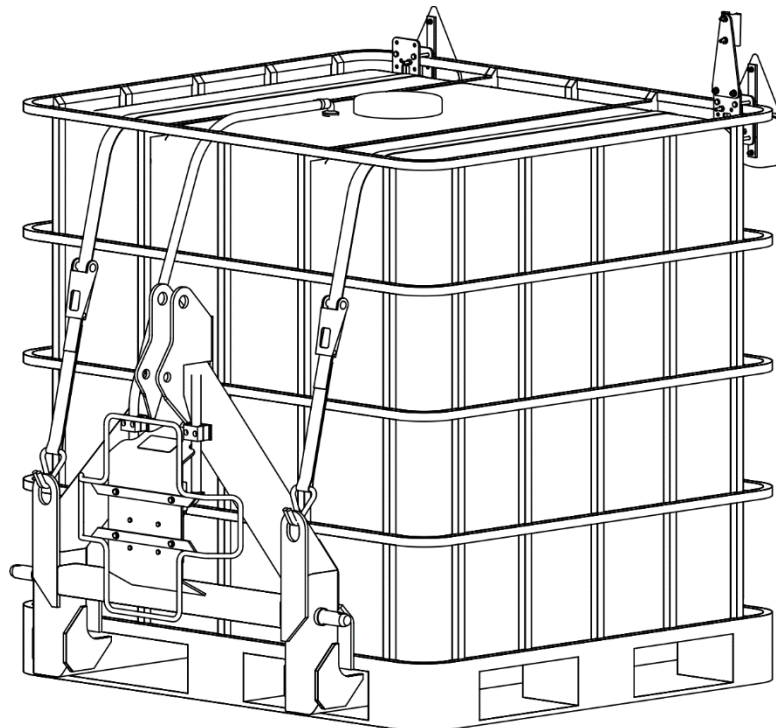
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OPERATOR`S MANUAL

WATER TANK

PRONAR R1000

TRANSLATION OF THE ORIGINAL COPY OF THE MANUAL



EDITION 2A-06-2013

PUBLICATION NO 292N-0000000-UM



WATER TANK

PRONAR R1000

MACHINE IDENTIFICATION

TYPE: *R1000*

SERIAL NUMBER:

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INTRODUCTION

Information contained herein is current at date of publication. As a result of improvements, some numerical values and illustrations contained in this publication may not correspond to the factual specification of the machine supplied to the user. The manufacturer reserves the right to introduce design changes in machines produced that facilitate operation and improve the quality of their work, without making minor amendments to this Operator's Manual.

This Operator's Manual is an integral part of the machine's documentation. Before using the machine, the user must carefully read this Operator's Manual and observe all recommendations. This guarantees safe operation and ensures failure-free work of the machine. The machine is designed to meet obligatory standards, documents and legal regulations currently in force.

The Operator's Manual describes the basic safety rules and operation of the machine. If the information stated in the Operator's Manual needs clarification then the user should refer for assistance to the sale point where the machine was purchased or to the Manufacturer.

MANUFACTURER'S ADDRESS:

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SYMBOLS APPEARING IN THIS OPERATOR'S MANUAL

Information, descriptions of danger and precautions and also recommendations and prohibitions associated with user safety instructions are marked:



and also preceded by the word "**DANGER**". Failure to observe the instructions may endanger the machine operator's or other person's health or life.

Particularly important information and instructions, the observance of which is essential, are distinguished in the text by the sign:



and also preceded by the word "**ATTENTION**". Failure to observe the instructions may lead to damage to the machine as a result of improper operation, adjustment or use.

In order to focus the user's attention on the need to perform maintenance, the relevant section of the Operator's Manual is marked with the pictogram:



Additional tips and advice for machine operation are marked with the sign:



and also preceded by the word "**TIP**".

DIRECTIONS USED IN THIS OPERATOR'S MANUAL

Left side – side to the left hand of the operator facing in the direction of machine's forward travel.

Right side – side to the right hand of the operator facing in the direction of machine's forward travel.



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EC DECLARATION OF CONFORMITY OF THE MACHINERY

PRONAR Sp. z o.o. declares with full responsibility, that the machine:

Description and identification of the machinery	
Generic denomination and function:	Water tank
Type:	R1000
Model:	—
Serial number:	
Commercial name:	Water tank PRONAR R1000

to which this declaration relates, fulfills all the relevant provisions of the Directive **2006/42/EC** of The European Parliament and of The Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (Official Journal of the EU, L 157/24 of 09.06.2006).

The person authorized to compile the technical file is the Head of Research and Development Department at PRONAR Sp. z o.o., 17-210 Narew, ul. Mickiewicza 101A, Poland.

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

Narew, the 2011 -03- 24

Place and date

Z-CIA DYREKTORA
d/s technicznych
członek zarządu

Roman Gociniuk

*Full name of the empowered person
position, signature*

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SECTION

1

BASIC INFORMATION

1.1 IDENTIFICATION

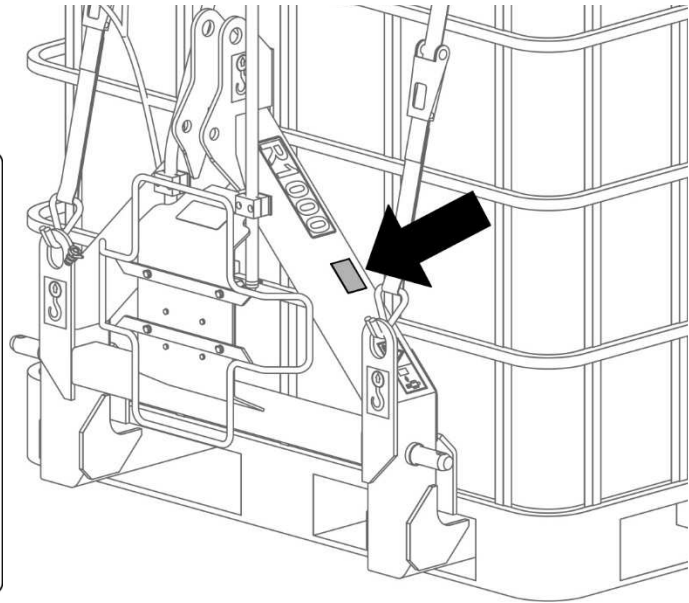
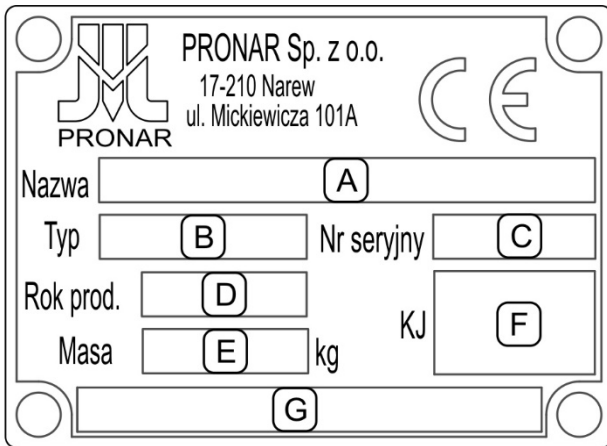


FIGURE 1.1 Location of the data plate

Meaning of data plate items (FIGURE 1.1):

- A - machine name
- B – type
- C – serial number
- D – year of manufacture
- E – machine tare weight [kg]
- F – Quality Control stamp
- G – Unfilled box or extension of name (box A)

The factory number is stamped into the data plate and on the frame beside the data plate. Data plate is located in the front part of the support frame (FIGURE 1.1). When buying the machine check that the serial number on the machine agrees with the number written in the *WARRANTY BOOK*, in the sales documents and in the *OPERATOR'S MANUAL*.

1.2 PROPER USE

PRONAR R1000 tank is used as a clean water tank for supplying municipal devices (e.g. sign washing head), as an additional tank for machines with a sprinkler system (e.g. sweepers) or as a tank for watering plants in urban areas. It is designed for mounting on the front or rear three-point linkage of the carrying vehicle which meets the requirements set out in Table 1.1. R1000 tank should not be used as a tank for potable water or water for sanitary purposes.

Using it as intended also involves all actions connected with the safe and proper operation and maintenance of the machine. Due to the above, the user is obliged to:

- carefully read the *OPERATOR'S MANUAL* and comply with its recommendations,
- understand the machine's operating principle and how to operate it safely and correctly,
- comply with general safety regulations while working,
- prevent accidents,
- comply with road traffic regulations.

The machine may only be used by persons, who:

- are familiar with the contents of this publication and with the contents of the tractor Operator's Manual,
- have been trained in machine operation and safe working conditions,
- have the required authorisation to drive the vehicle and are familiar with the road traffic regulations and transport regulations.

ATTENTION



The machine must not be used for purposes other than those for which it is intended, in particular for:

- as a tank for potable water or water for sanitary purposes,
- as a tank for liquids other than clean water
- for transporting people and animals,

TABLE 1.1 Requirements for agricultural tractor (carrying vehicle)

	UNIT	REQUIREMENTS
Linkage three point linkage	-	category II according to ISO 730-1 standard, front or rear
Electrical system Lighting system socket Electrical system voltage	- V	7-pole socket compliant with ISO 1724 12

1.3 EQUIPMENT

The equipment of the machine includes:

- The Operator's Manual;
- Warranty Book

Additional equipment:

- Lighting system (*the system is installed at the rear on the tank frame and it consists of cables, lamps and brackets*) – part number 292N-87000000-01
- Bracket for the warning sign (*installed at the rear of the tank and used together with the lighting system*) - part number 292N-55000000
- Longer outlet conduit (length to be agreed, used instead of standard 4m long conduit)
- Outlet conduit holder – part number 292N-05001000

1.4 WARRANTY TERMS

PRONAR Sp. z o.o., Narew guarantees the reliable operation of the machine when it is used according to its intended purpose as described in the *OPERATOR'S MANUAL*. Defects discovered during the warranty period will be removed by the Warranty Service. The repair period is specified in the *WARRANTY BOOK*.

The warranty does not cover those parts and sub-assemblies of the machine which are subject to wear in normal usage conditions, regardless of the warranty period. Consumables include the following parts/sub-assemblies:

- filter,
- bulbs,

The warranty service only applies to such cases as: mechanical damage which is not the user's fault, factory defects of parts, etc.

In the event of damage arising from:

- mechanical damage which is the user's fault,
- caused by road accidents,
- inappropriate use, adjustment or maintenance, use of the machine for purposes other than those for which it is intended,
- use of damaged or malfunctioning machine,
- repairs carried out by unauthorised persons, repairs carried out improperly,
- making unauthorised alterations to machine design,

the user will lose the right to warranty service.



TIP

Demand that the seller carefully and precisely fills out the *WARRANTY BOOK* and warranty repair coupons. A missing date of purchase or sale point stamp may make the user ineligible for any warranty repair or refund.

The user is obliged to report immediately on noticing any wear in the paint coating or traces of corrosion, and to have the faults rectified whether they are covered by the warranty or not. For detailed Terms & Conditions of Warranty, please refer to the *WARRANTY BOOK* attached to each newly purchased machine.

Modifications of the machine without the written consent of the Manufacturer are prohibited. In particular, do NOT weld, drill holes in, cut or heat the main structural elements, which have a direct impact on the machine operation safety.

1.5 TRANSPORT

The machine is prepared for sale completely assembled and does not require packing. Packing is only required for the machine operator's manual.

Delivery is either by transport on a vehicle or independently, after being attached to a tractor. Transport of the machine connected to tractor is permissible provided that the driver familiarises himself with the Operator's Manual and particularly with safety information and principles of connection and transport on public roads.

During road transport the machine should be secured on the carrier platform by certified straps or chains fitted with pulley.

When loading and unloading the machine, comply with the general principles of workplace health and safety for reloading work. Persons operating reloading equipment must have the qualifications required to operate these machines.

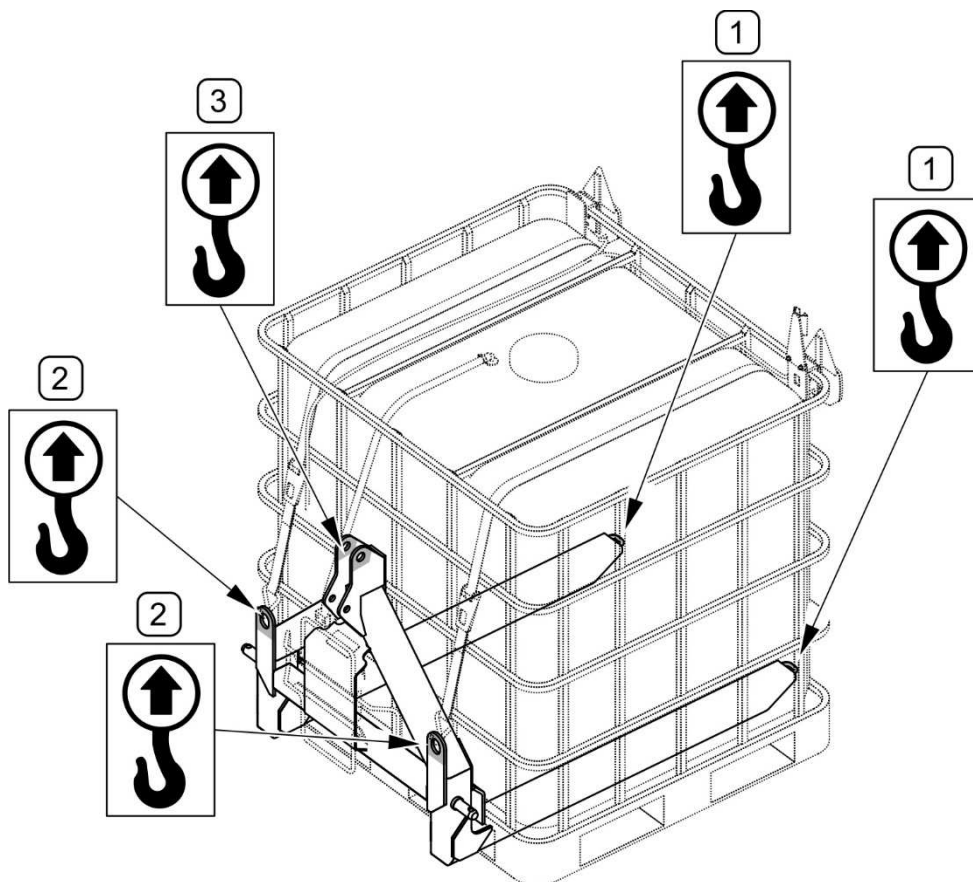


FIGURE 1.2 Transport lugs

The machine should be attached to lifting equipment in places specially designed for this

purpose, (FIGURE 1.2) i.e. by the ends of the lower beams (1) of the frame, by the lugs (2) next to the pins of lower links and by the bracket (3) of the central link. Suspension points are identified with information decals. When lifting the machine take particular care due to the possibility of tipping over the machine and the risk of injuries from protruding parts. To keep lifted machine in the correct direction it is recommended to apply additional guy cables. During reloading work, particular care should be taken not to damage the electrical system components (if present).



ATTENTION

Do NOT secure lifting slings or any types of securing elements to the tank frame, belts securing the tank and electrical system components.

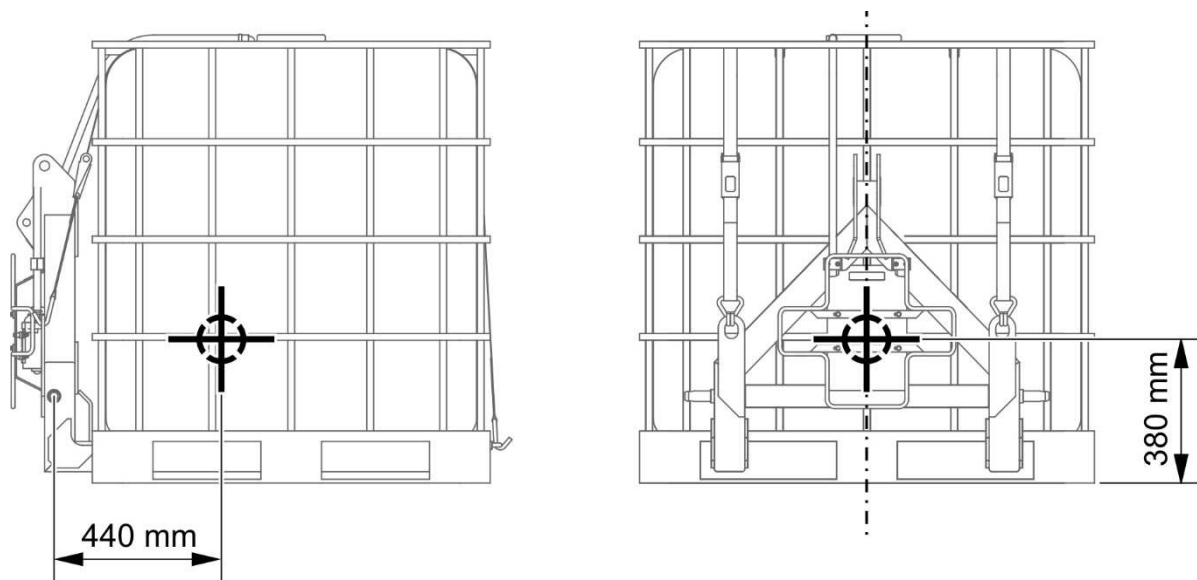


FIGURE 1.3 Location of centre of gravity (empty tank)



ATTENTION

Depending on the machine equipment, location of centre of gravity varies in the range of ± 30 mm.

DANGER

When transporting independently, the user must carefully read this Operator's Manual and observe all recommendations. When being transported on a motor vehicle the machine must be mounted on the vehicle's platform in accordance with the transport safety requirements. The driver of the vehicle should take particular care while transporting the machine. This is due to the vehicle's centre of gravity shifting upwards when loaded with the machine.

1.6 ENVIRONMENTAL HAZARDS

The machine does not pose any threat to the natural environment.

1.7 WITHDRAWAL FROM USE

In the event of decision by the user to withdraw the machine from use, comply with the regulations in force in the given country concerning withdrawal from use and recycling of machines withdrawn from use.

When spare parts are changed, worn out or damaged parts should be taken to a collection point for recyclable raw materials. Rubber and plastic components as well as electrical system components should be taken to the appropriate facilities dealing with the recycling of this type of waste.

ATTENTION

During dismantling, personal protection equipment shall be used i.e. protective clothing, boots, gloves and protective goggles etc.

SECTION

2

SAFETY ADVICE

2.1 BASIC SAFETY RULES

2.1.1 USE OF MACHINE

- Before using the machine, the user must carefully read this Operator's Manual and the *WARRANTY BOOK*. When operating the machine, the operator must comply with all recommendations contained in the Operator's Manual.
- The machine may only be used and operated by persons qualified to drive agricultural tractors and agricultural machines and trained in the use of the machine.
- If the information contained in the Operator's Manual is difficult to understand, contact the seller who runs the authorised technical service on behalf of the Manufacturer, or contact the Manufacturer directly.
- Be aware of the residual risk. Use caution when operating this machine and apply all relevant safety principles.
- The machine must never be used by persons who are not authorised to drive agricultural tractors, including children and people under the influence of alcohol, drugs or other abusive substances.
- Non-compliance with the safety rules of this Operator's Manual can be dangerous to the health and life of the operator and others.
- The machine must not be used for purposes other than those for which it is intended. Anyone who uses the machine other than the way intended takes full responsibility for himself for any consequences of this use. Use of the machine for purposes other than those for which it is intended by the Manufacturer may invalidate the guarantee.
- The machine may only be used when all the protective elements (i.e. safety guards) are technically sound and correctly positioned. In the event of loss or destruction of the protective elements, they must be replaced with new ones.
- Before using the machine always check its technical condition, especially in terms of safety. In particular, check the technical condition of the hitch system and the elements fixing the tank.

2.1.2 HITCHING AND UNHITCHING THE MACHINE

- Carefully read the tractor (carrying vehicle) Operator's Manual.
- Do NOT hitch the machine to a carrying vehicle, if the linkage system of the machine is not compatible with the category of the linkage system of the carrying vehicle.
- To hitch the machine to the carrying vehicle use only linking elements recommended by the Manufacturer.
- The carrying vehicle to which the machine will be hitched must be technically reliable and must fulfil the requirements specified by the machine Manufacturer.
- Be especially careful when hitching and unhitching the machine.
- When hitching, there must be nobody between the machine and the carrying vehicle.
- After completion of hitching the machine, check the safeguards.
- Machine unhitched from the carrying vehicle must be placed on level, sufficiently hard surface in such a manner as to ensure that it is possible to connect it again.

2.1.3 TRANSPORTING THE MACHINE

- When driving on public roads, comply with the road traffic regulations in force in the country, in which the machine is used.
- The machine hitched to the rear of the carrying vehicle and used on public roads must be equipped with additional lights (option) and slow-moving vehicle warning plate.
- Do not exceed the permitted speed arising from road conditions and design limitations. Adjust travel speed to the existing road conditions and other limitations arising from road traffic regulations.
- Do NOT leave machine raised and unsecured while the tractor is parked. When parked, the machine should be lowered to the ground.
- People must not be carried on the machine
- During transport, the tractor three-point linkage should be locked in the up position to prevent its accidental lowering.
- Reckless driving and excessive speed may cause accidents.

2.1.4 MAINTENANCE

- During the warranty period, any repairs may only be carried out by warranty service authorised by the Manufacturer. It is recommended that necessary repairs to machine should be undertaken by specialised workshops.
- In the event of any fault or damage, do not use the machine until the fault has been corrected.
- During work, use the proper, close-fitting protective clothing, gloves and appropriate tools.
- Any modification to the machine frees PRONAR from any responsibility for damage or detriment to health which may arise as a result.
- Regularly check the technical condition of the safety devices and correct tightening of bolt connections.
- Regularly perform service inspections of machine as recommended by the Manufacturer.
- Do NOT perform maintenance or repair work under raised and unsupported machine.
- Servicing and repair work should be carried out in line with the general principles of workplace health and safety. In the event of injury, the wound must be immediately cleaned and disinfected. In the event of more serious injuries, seek a doctor's advice.
- Repair, maintenance and cleaning work should be carried out with the tractor (carrying vehicle) engine turned off and the ignition key removed. Immobilise the carrying vehicle with parking brake. Ensure that unauthorised persons do not have access to the vehicle.
- Should it be necessary to change individual parts, use only original parts. Non-adherence to these requirements may put the user and other people's health and life at risk, and also damage the machine and invalidate the warranty.
- Do NOT weld, drill holes in, cut or heat the main structural elements, which have a direct impact on the machine operation safety.
- In the event of work requiring the machine to be raised, use properly certified hydraulic or mechanical lifts for this purpose. After lifting the machine, stable and

durable supports must also be used. Do NOT carry out work under the machine, which has been raised only with the carrying vehicle's three point linkage.

- The machine must not be supported using fragile elements (bricks or concrete blocks).
- In order to reduce the danger of fire the machine must be kept in a clean condition.

2.1.5 MACHINE OPERATION

- Before lifting or lowering the machine mounted on the carrying vehicle, make sure that there are no bystanders near the machine.
- The machine operator is obliged to ensure proper visibility of the machine and the working area.
- During machine operation do not occupy a different position than that of the operator in the vehicle's cab. Do NOT leave the cab, when the machine is in operation.
- Person must not stand in the machine operation area and also between the carrying vehicle and the machine.
- When filling the tank, the machine should be lowered to the ground and the tractor engine should be switched off.
- The tank should be filled only with clean water.

2.2 RESIDUAL RISK

Pronar Sp. z o.o. in Narew has made every effort to eliminate the risk of accidents. There is, however, a certain residual risk, which could lead to an accident, and this is connected mainly with the actions described below:

- using the machine for purposes other than those for which it is intended,
- being between the tractor and the machine while the engine is running and when the machine is being hitched,
- being on the machine while the engine is running,
- operating the machine with removed or faulty safety guards,

- not maintaining safe distance from the danger zone or being within the zones while the machine is operating,
- operation of the machine by persons under the influence of alcohol,
- cleaning, maintenance and technical checks when tractor is connected and engine is running;

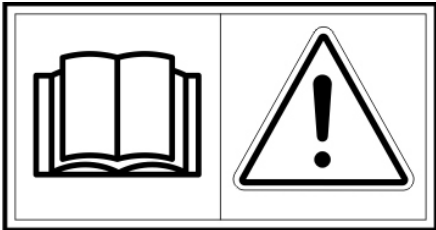
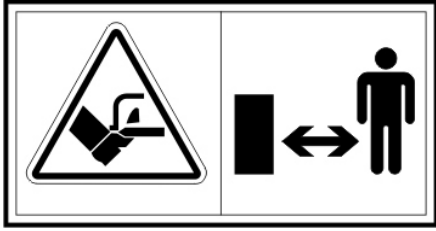


The residual risk may be kept to a minimum by following the recommendations below:




- operate the machine in prudent and unhurried manner,
- reasonably apply all the remarks and recommendations stated in the Operator's Manual,
- carry out repairs and maintenance work in line with operating safety rules,
- repair and maintenance work should be carried out by persons trained to do so,
- use close fitting protective clothing,
- ensure unauthorised persons have no access to the machine, especially children,
- maintain a safe distance from forbidden or dangerous places
- do not climb on the machine when it is operating

2.3 INFORMATION AND WARNING DECALS

All signs should always be legible and clean, visible to the operator and also to persons possibly being in the vicinity of the machine in operation. If any safety sign is lost or illegible, it should be replaced with a new one. All elements having safety signs replaced during repairs should be affixed with these signs. Safety signs and decals may be purchased from the Manufacturer or the Seller.

TABLE 2.1 Information and warning decals

ITEM	SYMBOL	DESCRIPTION
1		Before starting work, carefully read the Operator's Manual.
2		Risk of injury to foot or leg. Keep a safe distance.
3		Do NOT use for potable water
4		Do NOT use for water for sanitary purposes

ITEM	SYMBOL	DESCRIPTION
5		<p>Lifting equipment attachment points for loading the machine</p> <p>Attachment points for water tank belts.</p>
6		<p>Machine model</p>
7		

Numbers in the Item column correspond to decals (FIGURE 2.1)

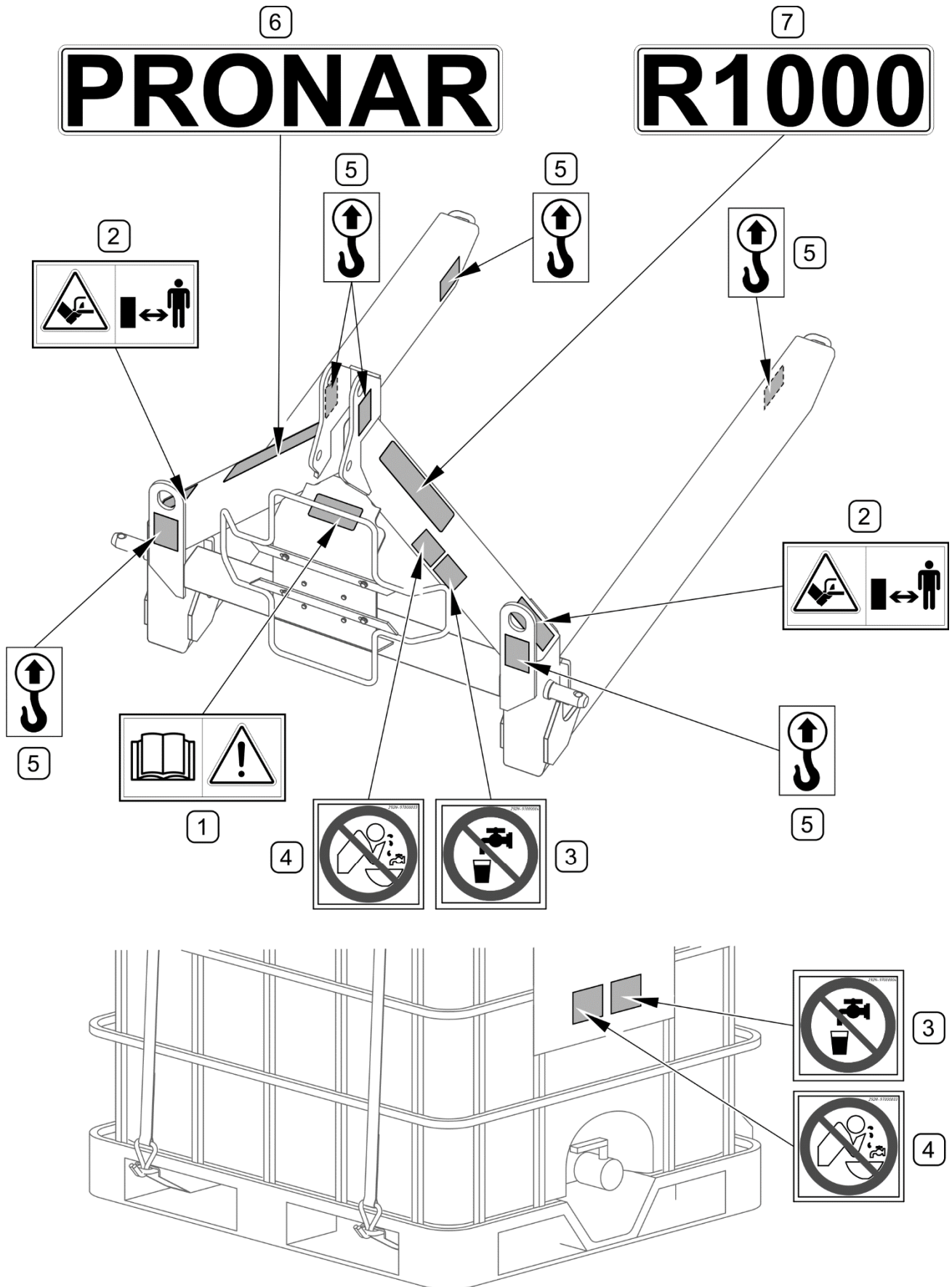


FIGURE 2.1 Locations of information and warning decals

Meaning of symbols (TABLE 2.1)

SECTION

3

**DESIGN AND
OPERATION**

3.1 TECHNICAL SPECIFICATION

TABLE 3.1 BASIC TECHNICAL DATA

	Unit	
Machine model	-	R1000
Mounting method	-	Front or rear three-point linkage of category II according to ISO 730-1
Width	mm	1 200
Height	mm	1 270
Length	mm	1 350
Water tank	-	„MAUZER” type on its own pallet and with frame
Tank capacity	dm ³	1 000
Water pump capacity	l/min	10
Pump power supply	-	12V from 7-pole electric socket compliant with ISO 1724
Control	-	switch on the supply line
Internal diameter of water pump conduit	mm	12
Pump conduit coupling type	-	Rectus, series 26, DN 7,2 mm
Weight *	kg	120 *
Maximum transport speed	km/h	max. 20
Other information	-	single person operation

* - without water, with lighting system

Level of noise emitted by machine does not exceed 70 dB(A)

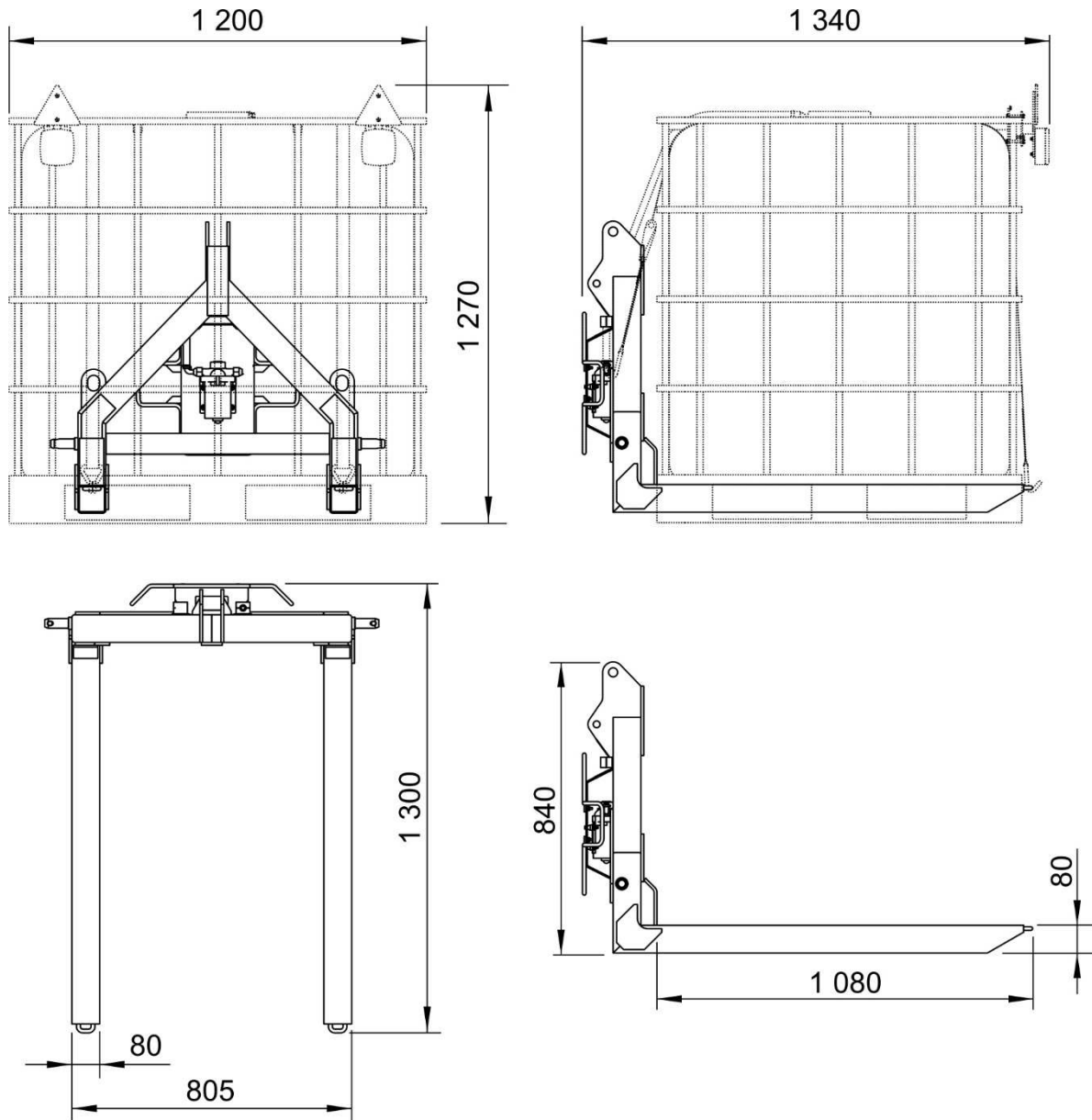


FIGURE 3.1 External dimensions

Dimensions on the drawing are given in millimetres [mm]

3.2 GENERAL DESIGN

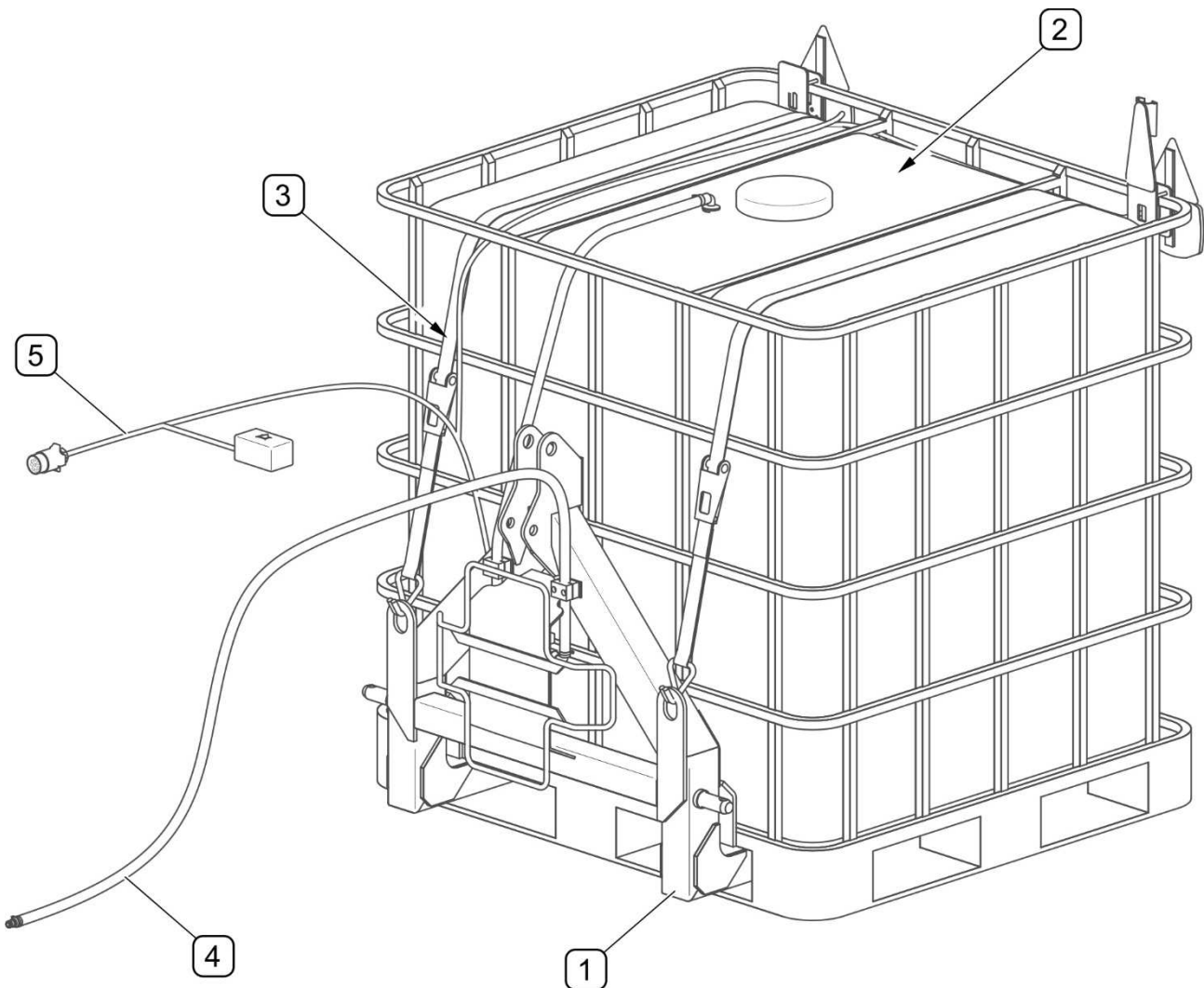


FIGURE 3.2 General design

(1) - frame; (2) - tank with frame; (3) - fixing belts; (4) - water supply system; (5) - electrical system

PRONAR R1000 tank consists of a light frame (1) designed for mounting a Mauser-type IBC pallet container (2) with capacity of 1 000 dm³ (container on its own pallet with frame), secured with belts (3). The pump of water supply system (4) is attached to the frame. The pump is powered using electrical system (5) from the carrying vehicle's electrical system. The tank is hitched to a carrying vehicle equipped with a three-point linkage.

3.3 DESIGN OF THE WATER SUPPLY SYSTEM

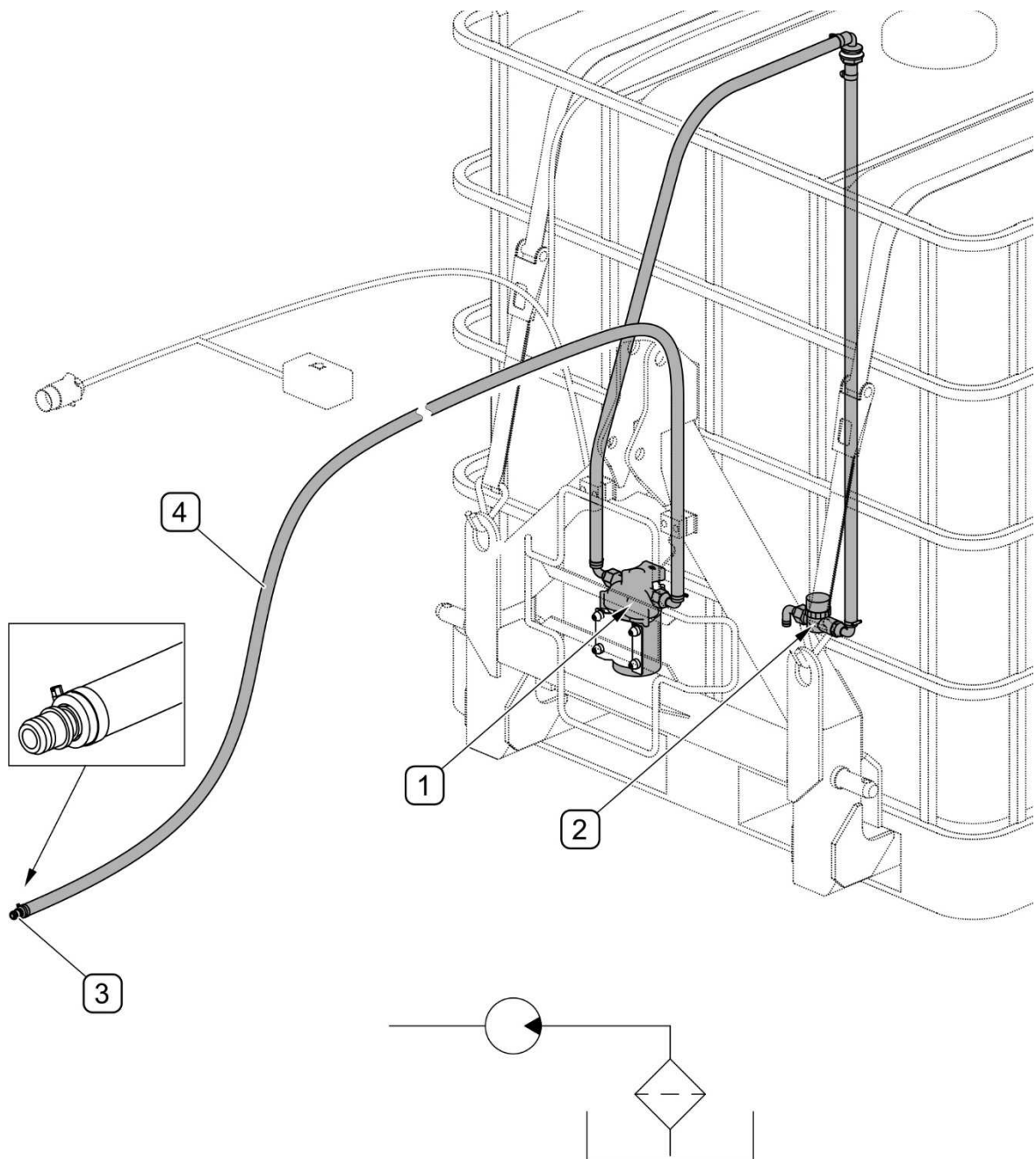


FIGURE 3.3 Design of the water supply system

(1) - water pump; (2) - filter; (3) - connection; (4) - conduit

Electrical pump (1) attached to the frame is the main component of the water supply system. The pump is equipped with outlet conduit (4) ended with Rectus type connection (3), series 26, DN 7.2 mm Filter (2) is installed on the suction conduit inside the water tank. The pump is powered from the carrying vehicle's electrical system.

3.4 ELECTRICAL SYSTEM COMPONENTS

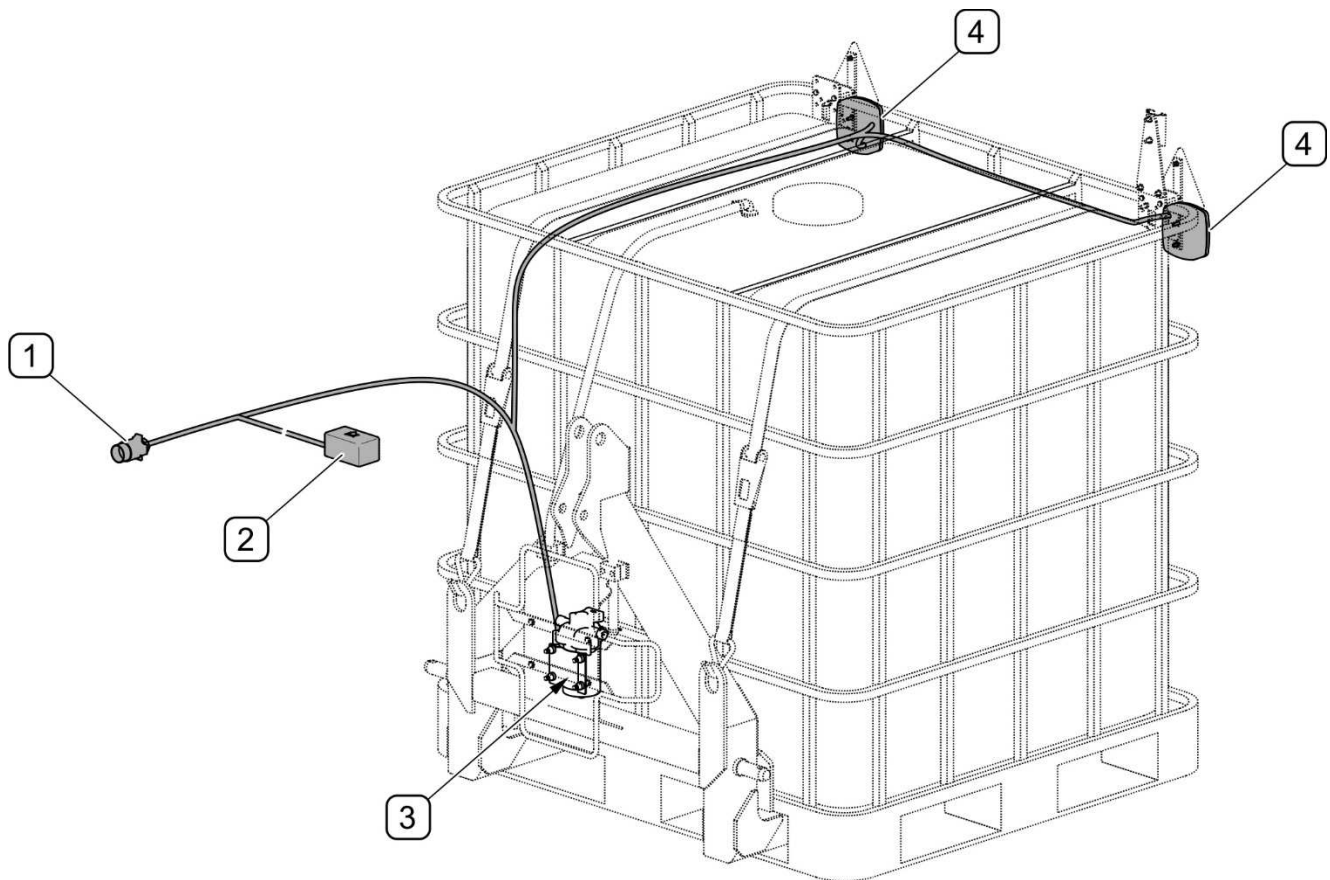


FIGURE 3.4 Electrical system components

(1) - 7-pole connector; (2) - water pump switch; (3) - electrical pump; (4) - rear lamp assembly

Electrical system is used for supplying water pump (3) and rear lamps (4) (option). Power lead is connected to 12V electrical system of the tractor (carrying vehicle) using 7-pole connector (1). Voltage is supplied to the electrical system when the parking lights of the tractor (carrying vehicle) are turned on. Water pump (3) is turned on/off using switch (2) on the power lead.

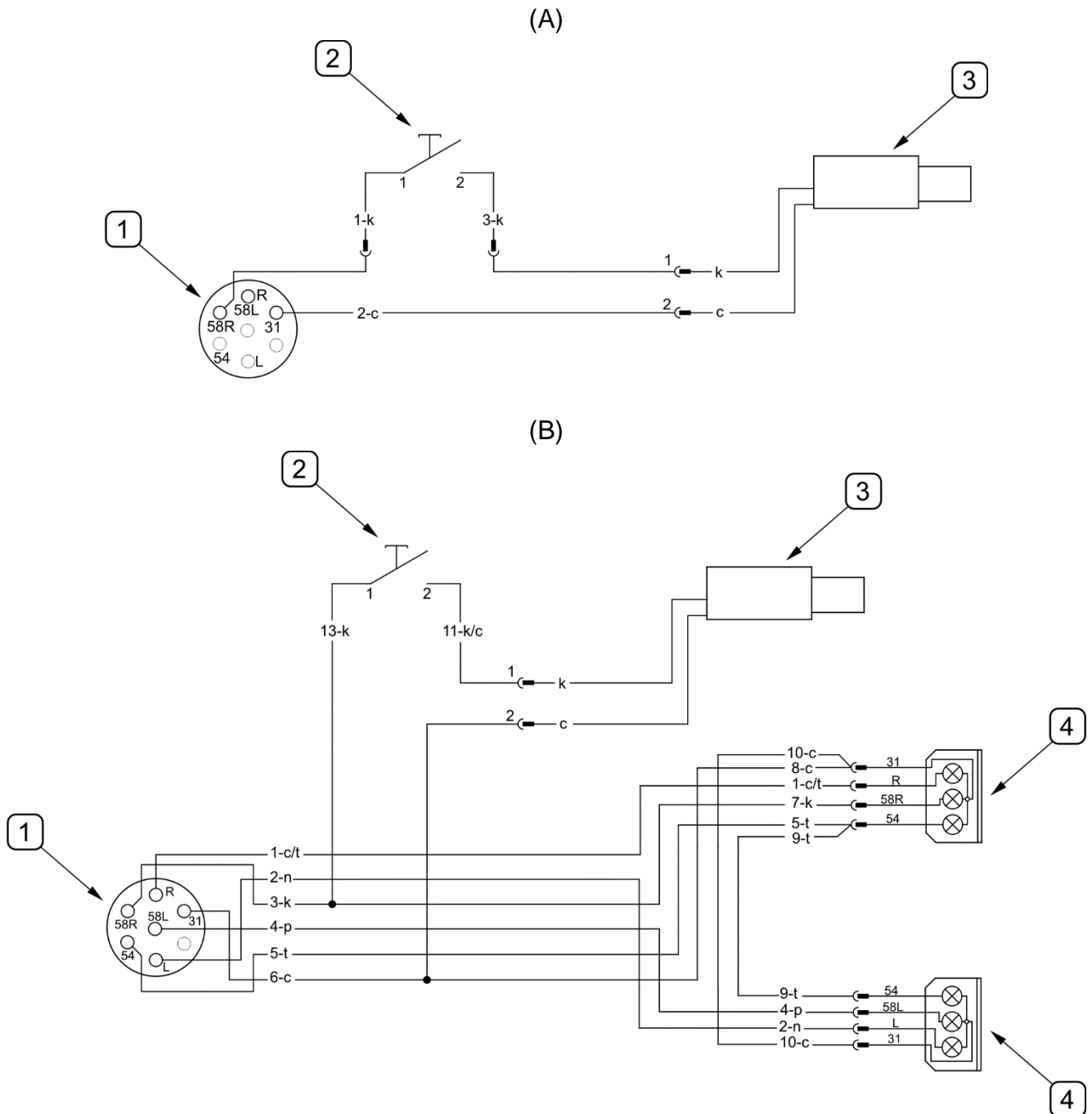


FIGURE 3.5 Electrical system concept diagram

(A) - electrical system; (B) - electrical system with lights (option); (1) - 7-pole connector; (2) - water pump switch; (3) - electrical water pump; (4) - rear lamp assembly (option)

Colour designations on electrical diagram:

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

SECTION

4

CORRECT USE

4.1 PREPARING FOR WORK

DANGER



Before using the machine, the user must carefully read this Operator's Manual

Careless and incorrect use and operation of the machine, and non-compliance with the recommendations given in this Operator's Manual is dangerous to your health.

The machine must never be used by persons, who are not authorised to drive carrying vehicles, including children and people under the influence of alcohol or other drugs.

Non-compliance with the safety rules of this Operator's Manual can be dangerous to the health and life of the operator and others.

Before starting the machine, make sure that there are no bystanders in the danger zone.

The manufacturer guarantees that the machine is fully operational and has been checked according to quality control procedures and is ready for use. This does not release the user from an obligation to check the machine's condition after delivery and before first use. The machine is delivered to the user completely assembled. Prior to connecting to the carrying vehicle, machine operator must verify the machine technical condition. In order to do this:

- the user must carefully read this Operator's Manual and observe all recommendations, understand the design and the principle of machine operation
- check the compatibility of the snow blower's linkage with the carrying vehicle's linkage,
- check the compatibility of hydraulic system connections,
- check technical condition and completeness of the tank,
- check the condition of protective paint coat,
- inspect machine's individual components for mechanical damage resulting from incorrect transport (dents, piercing, bent or broken components),
- check technical condition of the water supply system,
- check technical condition of the linkage components,

ATTENTION



Non-adherence to the recommendations contained in the Operator's Manual or incorrect use may cause damage to the machine.

The technical condition before starting the machine must be no cause for concern.

If all the above checks have been performed and there is no doubt as to the machine's good technical condition, it can be connected to carrying vehicle, started and all its individual systems checked. In order to do this:

- hitch machine to carrying vehicle (see "HITCHING TO CARRYING VEHICLE"),
- after connection of electrical system, confirm correctness of operation and check tightness of the system,

In the event of a disruption in the operation of the machine immediately discontinue its use, find and remove the fault. If a fault cannot be rectified or the repair could void the guarantee, please contact the Manufacturer for additional clarifications.



ATTENTION

Before using the machine always check its technical condition.

4.2 TECHNICAL INSPECTION



ATTENTION

Do not use a malfunctioning or deficient machine.

When preparing the machine for normal use, check individual elements according to guidelines presented in table (4.1)

TABLE 4.1 TECHNICAL INSPECTION SCHEDULE

DESCRIPTION	MAINTENANCE ACTIVITIES	FREQUENCY
Technical condition of the tank and fixing elements (belts, tensioners)	Visually inspect the technical condition, if complete and correctly mounted.	Before starting work
Technical condition of linkage components	Check the technical condition, if complete and correctly mounted.	
Technical condition of water supply system and lighting system (option)	Visually inspect technical condition and confirm correctness of operation	
Tightening of bolt and nut connections	Tightening torque values should be according to table 5.4	Once a week

4.3 HITCHING TO VEHICLE

PRONAR tank may only be hitched to a tractor (carrying vehicle) fulfilling the requirements contained in table 1.1 „REQUIREMENTS FOR CARRYING VEHICLE“.



DANGER

Exercise caution when hitching the machine to carrying vehicle.

Do NOT hitch the machine to the carrying vehicle when the vehicle's engine is running.



ATTENTION

Before hitching the machine to carrying vehicle, the user must carefully read the operator's manual of the tractor (carrying vehicle).

In order to hitch the machine to the tractor (FIGURE 4.1)

- Reverse the tractor so as to move the lower links of the tractor's three-point linkage to the pins (1) of the machine linkage (FIGURE 4.1).
- Set the lower links of the tractor's three-point linkage at appropriate height.
- Switch off tractor's engine and prevent tractor from unintentional moving.
- Connect lower pins (1) of the machine linkage with lower links of the tractor's three-point linkage and secure.
- Using a pin, connect top link (so-called central connector) of the tractor's three-point linkage with attachment point (2) or (3) of the machine linkage and secure. Adjust stabilizers (tensioners) of the tractor linkage lower links so as to reduce lateral movement of the machine.
- Connect electric lead to 7-pole 12V socket in the carrying vehicle, place the switch in the cab in an easily accessible place.
- Lift the machine using tractor's three point linkage.

It is recommended to set both tractor lower linkage arms at the same height.



ATTENTION

Electric lead should be routed so that it does not get entangled in the machine and carrying vehicle parts.

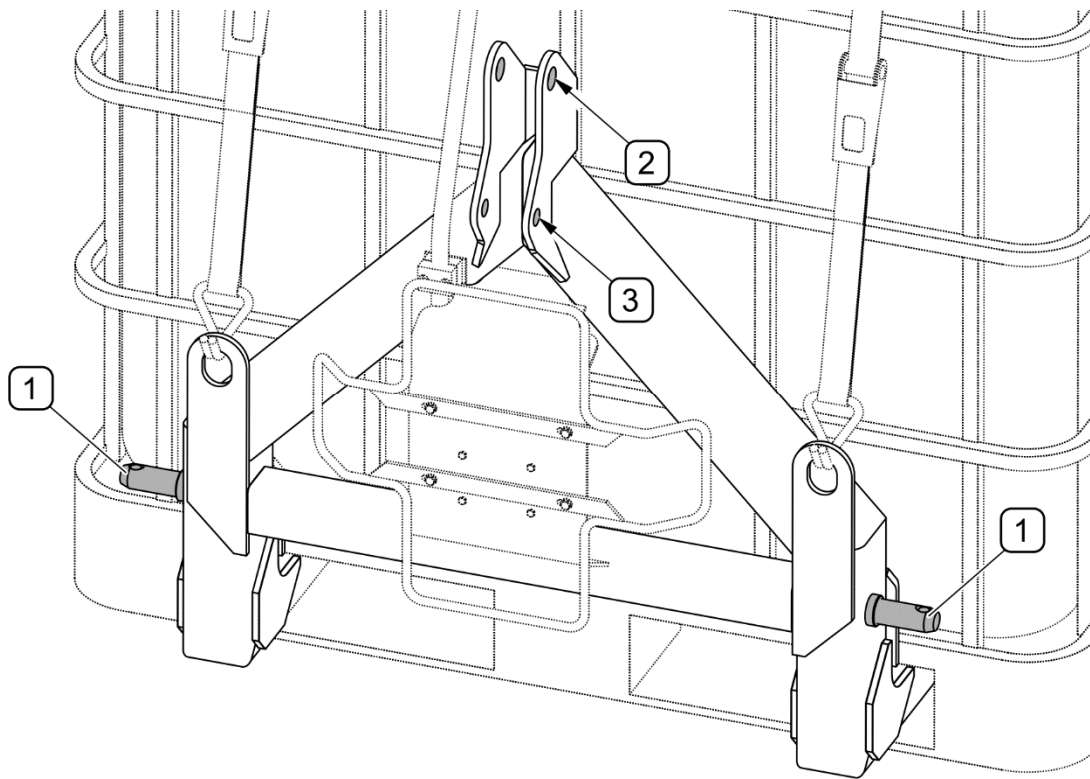


FIGURE 4.1 Hitching to tractor

(1) - attaching points for lower links of tractor; (2) - attaching points for top link (hole diameter $d=26$ mm); (3) - attaching points for top link (hole diameter $d=19.5$ mm)



DANGER

To hitch the machine to the carrying vehicle use only linking elements recommended by the Manufacturer.

4.4 MACHINE OPERATION

4.4.1 FILLING THE WATER TANK



DANGER

Filling of the tank may be performed only when the carrying vehicle's engine is stopped and the machine is lowered.

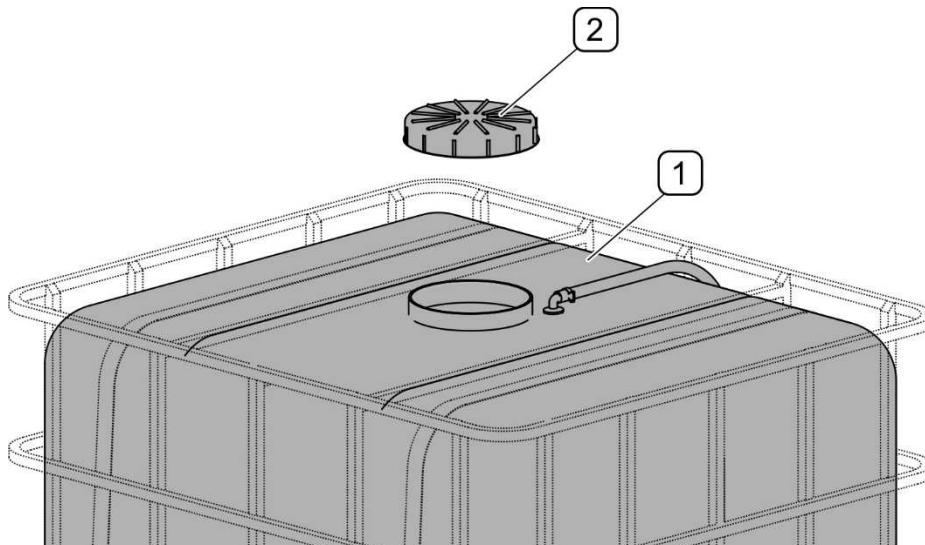


FIGURE 4.2 Filling the tank

(1) - water tank, (2) - filler plug;



ATTENTION

R1000 tank should not be used as a tank for potable water or water for sanitary purposes.

PRONAR R1000 tank is designed for filling with clean water. Fill the tank (1) through the filler opening secured with a cap (2) (FIGURE 4.2). Before filling the tank, make sure that the drain valve is closed and there are no contaminations and other objects inside the tank. The tank capacity is 1 000 litres [L]. Depending on version, the tank can be equipped with a scale graduated in litres [L] placed on one of the walls in order to facilitate dispensing fluids.

Drain valve is located at the bottom, on one of the tank walls (FIGURE 4.3). Location of the valve depends on type of tank. In order to open the drain valve, set the valve lever along the outlet opening.

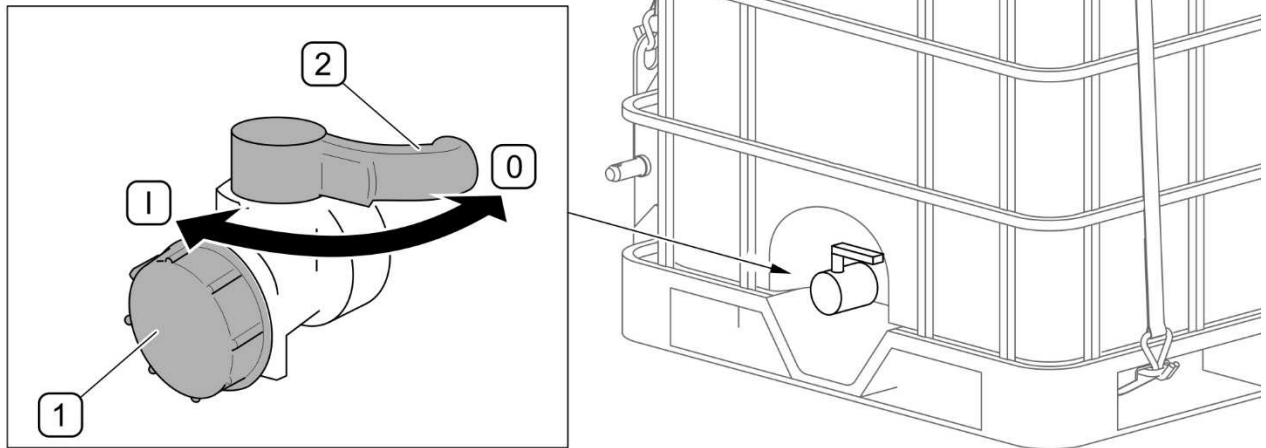


FIGURE 4.3 Drain valve in the tank

(1) - protective plug; (2) - drain valve lever; (1) - open valve; (0) - closed valve



ATTENTION

If there is a risk that temperatures drop below 0°C, drain water from the tank, start the pump for a short time to remove water from conduits.

4.4.2 CONTROLLING THE WATER SUPPLY SYSTEM

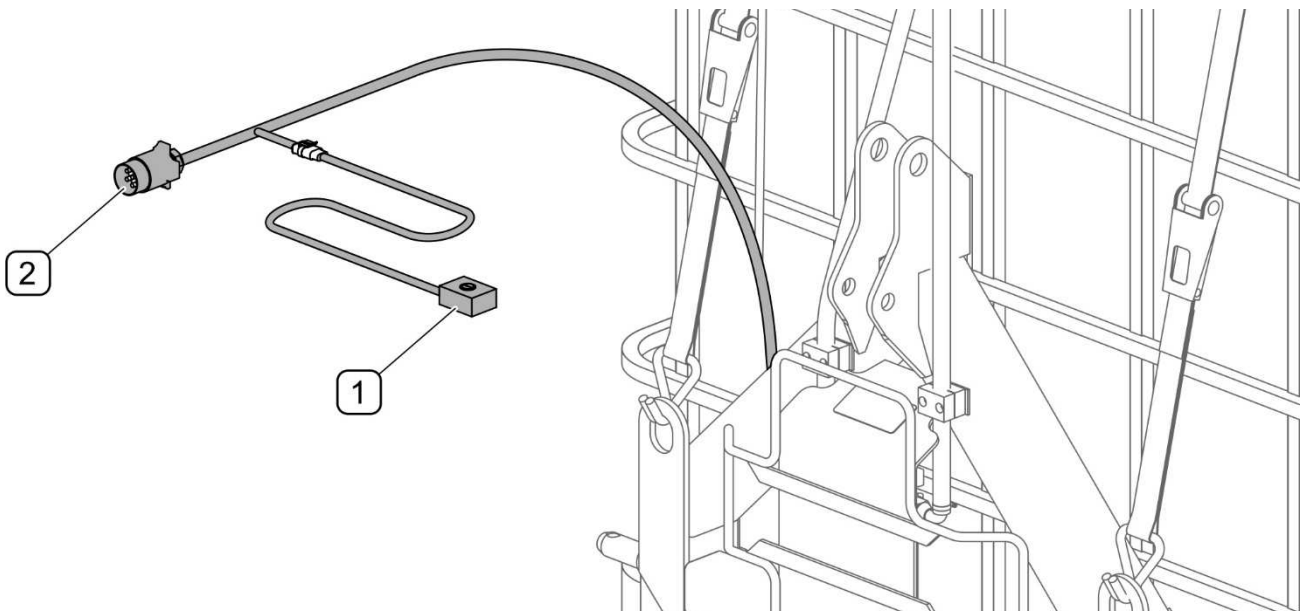


FIGURE 4.4 Controlling the water supply system

(1) - water pump switch, (1) - 12V 7-pole socket plug

Connect electrical system plug (2) to 12V 7-pole socket in the tractor (carrying vehicle). Voltage is supplied to the water supply system when the parking lights of the tractor are turned on. The water pump is switched on and off using switch (1) located on the power lead (FIGURE 4.4)

Switch (1) has two positions:

- „ON” („I”) - water pump is ON;
- „OFF” („0”) - water pump is OFF

Place the switch in the operator cab in an easily accessible place.

When there is no water in the tank, turn off the switch (1) and fill the tank with water.

4.5 TRANSPORTING THE MACHINE

When driving on public roads, respect the road traffic regulations, exercise caution and prudence. Listed below are the key guidelines.

- Make sure that the machine is correctly attached to the tractor, and linkage is properly secured.
- Permissible transport speed and maximum speed allowed by road traffic law must not be exceeded. Speed of travel should be adjusted to prevailing road conditions, pavement condition and other conditions.
- When driving with raised fertilizer spreader on public roads, set it so as not to restrict the visibility of the operator.
- The machine mounted on the rear three-point linkage must be equipped with additional lights (FIGURE 4.5) installed at the rear on the tank frame (option).
- If the machine obscures the slow-moving vehicle warning sign attached to the back of the tractor, the warning sign must be mounted on a dedicated bracket (FIGURE 4.5) in the rear section of the tank (option).

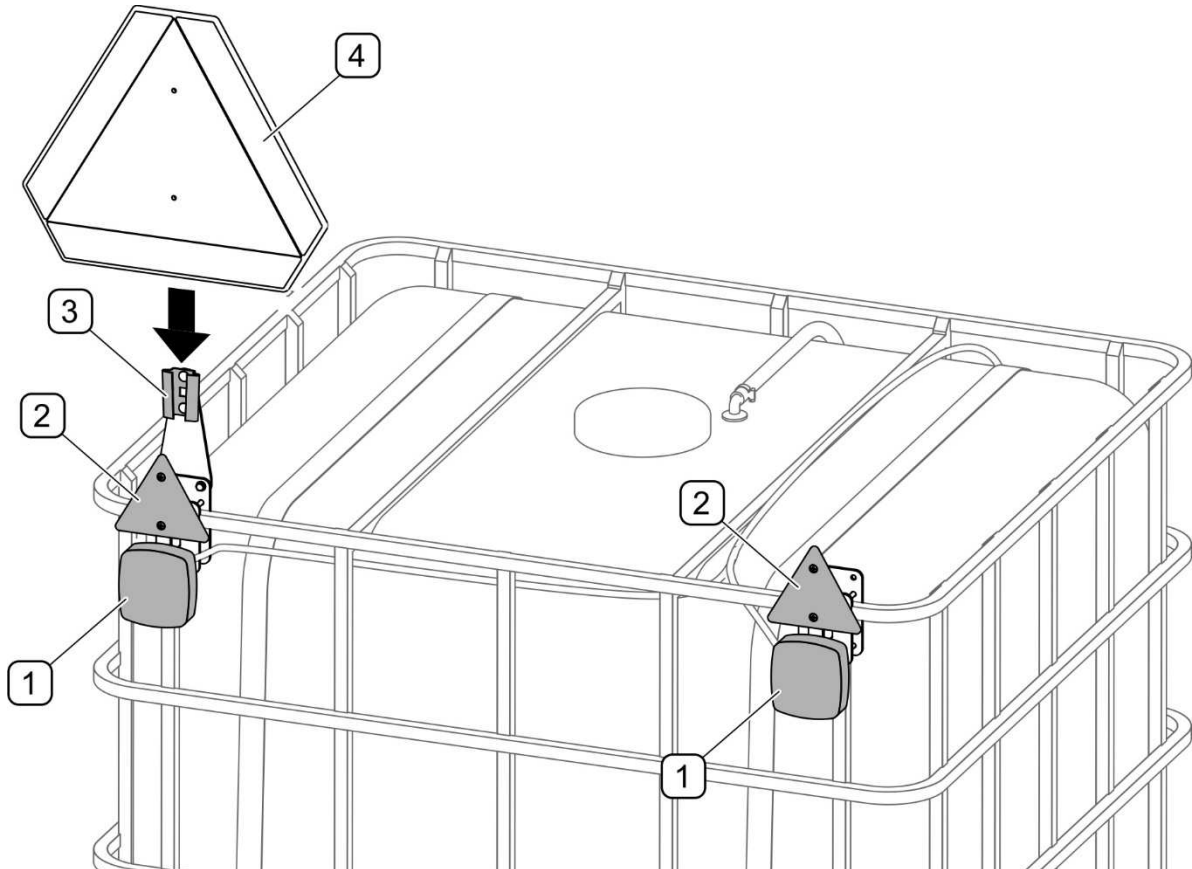


FIGURE 4.5 Additional lights and bracket for the warning sign (option)

(1) - lamp assembly; (2) - reflective warning triangle; (3) - bracket; (4) - slow-moving vehicle warning sign (not included in the machine equipment)

- Avoid ruts, depressions, ditches or driving on roadside slopes. Driving across such obstacles could cause the machine or the tractor to suddenly tilt. Driving near ditches or canals is dangerous as there is a risk of the slope collapsing.
- When driving with filled tank, braking distance is increased, therefore be particularly careful when travelling on gradients or slippery surfaces.
- Speed must be sufficiently reduced before making a turn or driving on an uneven road or a slope.
- When driving on uneven terrain with the machine raised, reduce speed due to dynamic loads and the risk of damaging the machine or carrying vehicle.
- When driving with raised implement, secure the tractor (carrying vehicle) linkage against falling or accidental dropping.
- When driving over lateral ground irregularities, remember that the tank pallet may hit ground irregularities if it is insufficiently raised.

- Counterweight should be used to improve stability of the carrying vehicle with the machine mounted.

4.6 UNHITCHING THE MACHINE FROM THE CARRYING VEHICLE



DANGER

Before unhitching the machine, turn off the carrying vehicle engine, engage the parking brake and protect the cab against access of unauthorized persons.

Be especially careful when disconnecting machine.

To unhitch the machine from the carrying vehicle:

- turn off the pump of the water supply system,
- lower the machine until it fully rests on the ground,
- turn off the engine in the tractor (carrying vehicle), engage the parking brake,
- disconnect the electrical system plug,
- disconnect upper link (central connector) and lower links of the tractor's three point linkage and drive tractor away from the machine.

Machine unhitched from the carrying vehicle must be placed on level, sufficiently hard surface in such a manner as to ensure that it is possible to connect it again.



ATTENTION

After unhitching the machine from the carrying vehicle, protect the 7-pole plug against damage or contamination by attaching it to the tank frame.

4.7 INSTALLATION OF ADDITIONAL EQUIPMENT

PRONAR R1000 tank can be additionally equipped with lighting mounted symmetrically on the frame at the rear of the tank (FIGURE 4.6). The additional lighting consists of two plates (1), brackets (2), lamps (3), reflective warning triangles (4) and fasteners. Additional bracket (5) and holder (6) for the slow-moving vehicle warning sign are attached to the left bracket of the lamp. Electrical wiring harness (7) ended with a 7-pole socket plug should be connected to the right lamp and the left lamp and to the electric water pump.

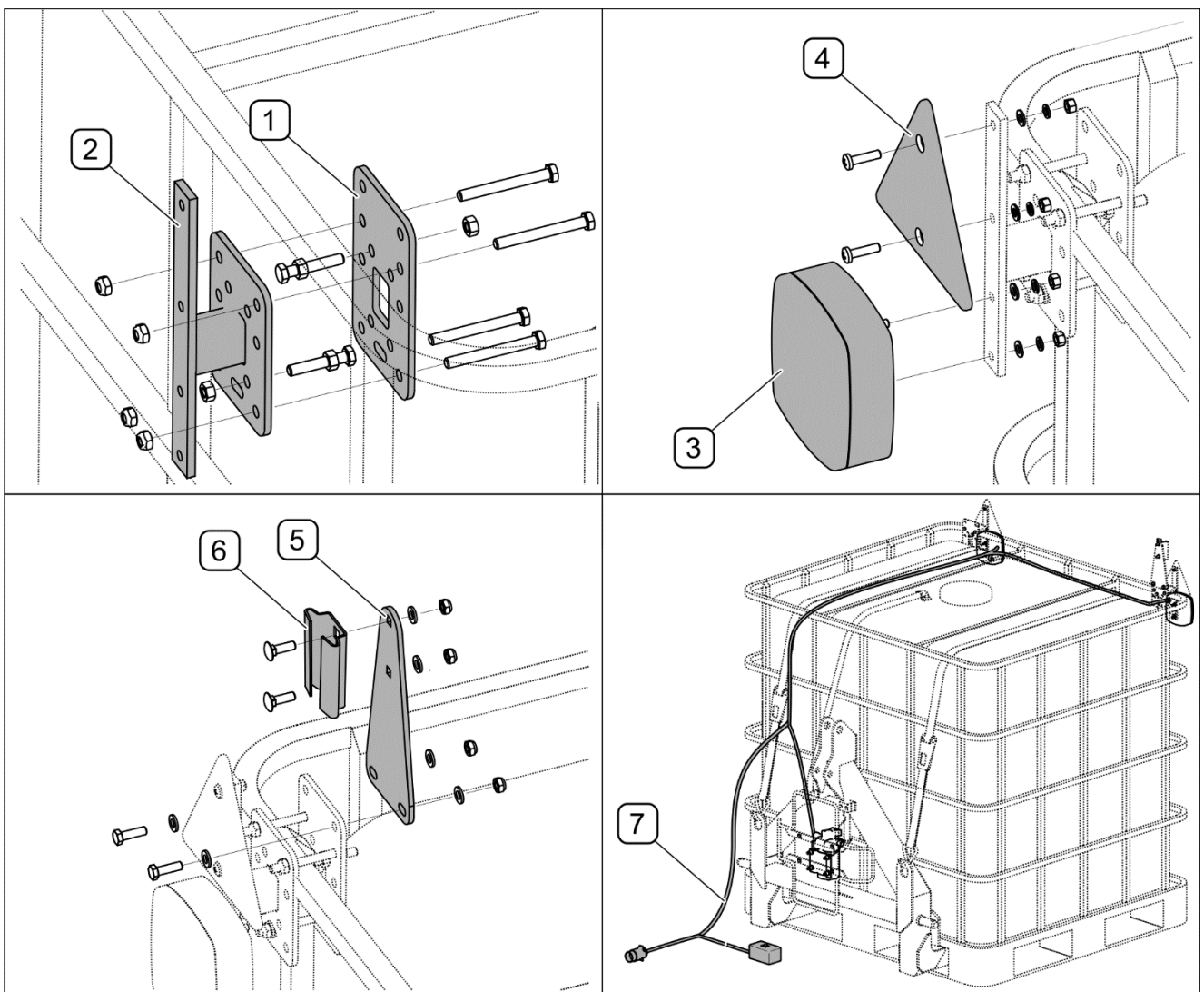


FIGURE 4.6 Installation of additional lighting

(1) - plate, (2) - lamp bracket, (1) - lamp assembly, (4) - reflective warning triangle;
 (5) - bracket; (6) - warning sign bracket; (7) - electric lead

The length of the standard outlet hose (1) of the water pump is 4 m (FIGURE 4.7). A hose of any length can be used in the place of the existing hose (FIGURE 4.7) To replace the hose, disconnect clamping ring (3), loosen the band clip (2) and remove the hose from the pump stub pipe. Next, put the band clip (2) on a new hose and mount the hose again on the pump stub pipe. Remove connector (4) and install the band clip (2) at the end of replaced hose.

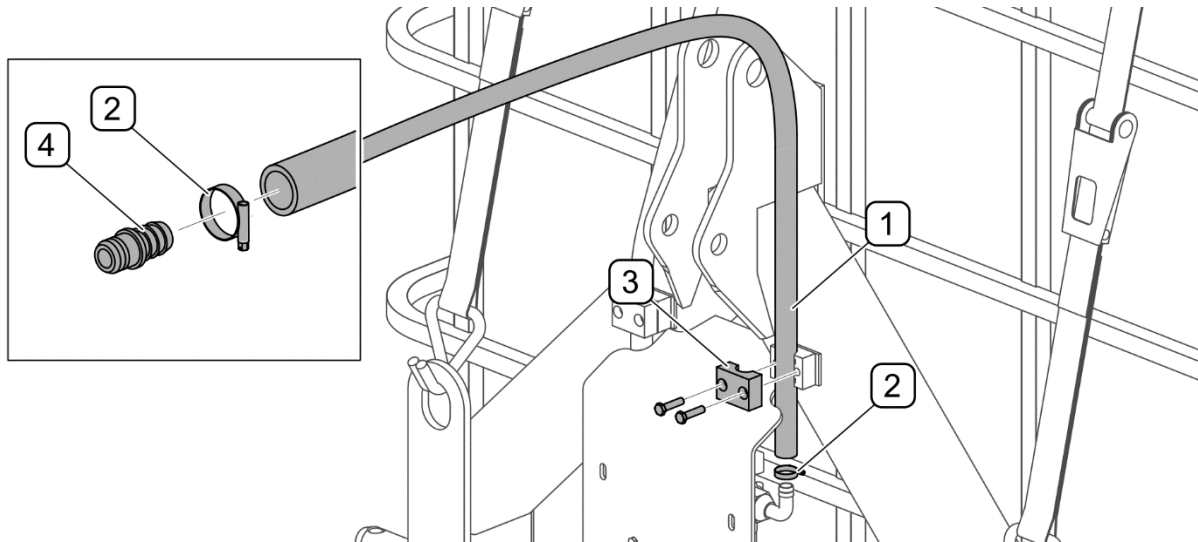


FIGURE 4.7 Hose replacement

(1) - outlet hose; (2) - band clip; (3) - hose clamping ring; (4) - connector

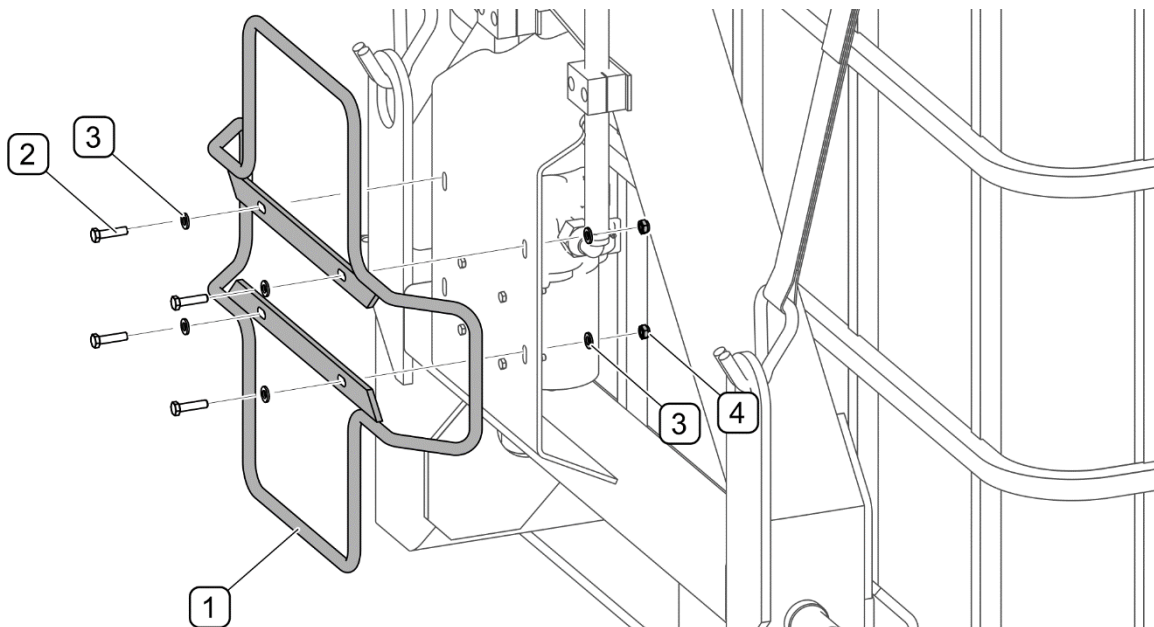


FIGURE 4.8 Installing the outlet hose holder

(1) - hose holder; (2) - M6x25 bolt; (3) - 6-100HV washer; (4) - M6 nut

Outlet hose winding holder (1) can be optionally mounted at the front on the support frame (FIGURE 4.8).

SECTION

5

MAINTENANCE

5.1 MAINTENANCE OF THE WATER SUPPLY SYSTEM

Maintenance of the water supply system involves periodic inspection of the water system and cleaning of the filter (FIGURE 5.1). If the water supply system fails, first check water level in the tank and if filters are clean and the correct connection of the control cable with the switch and water pump power cable.



Water filter is recommended to be cleaned at least once a year. Frequency of filter cleaning depends on amount and size of water contamination.

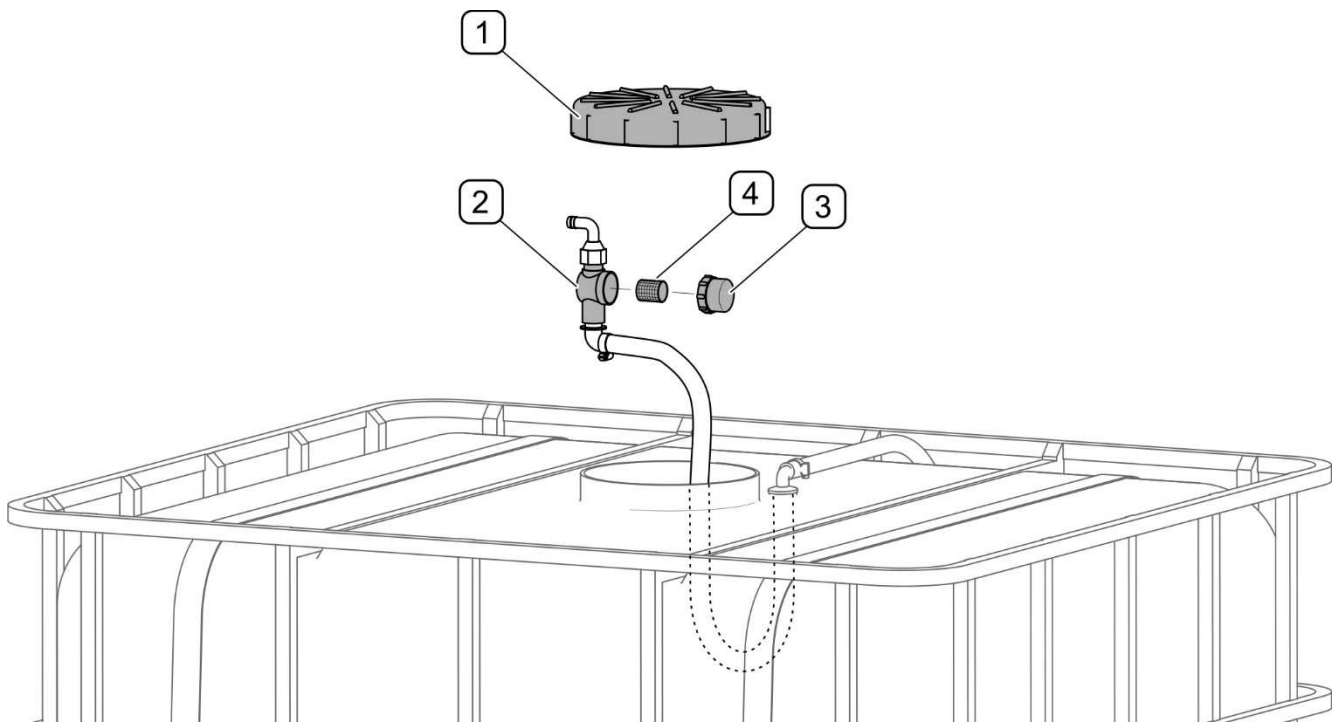


FIGURE 5.1 Water filters

(1) - filler plug; (2) - filter housing; (3) - filter cover; (4) - mesh cartridge;

In the water supply system there is a filter installed in the tank at the end of the suction hose, which catches mechanical contaminants (FIGURE 5.1). To clean the filter, unscrew filler plug (1) and remove the suction hose together with the filter from the tank. In order to clean the filter, unscrew cover (3) and take out mesh cartridge (4) and wash it with water under pressure or clean with compressed air. Install cartridge (4), tighten cover (3), start the pump and check tightness of the connection. The system is vented automatically during machine operation.

5.2 ELECTRICAL SYSTEM MAINTENANCE



DANGER

Do not independently repair electrical system, except items described in chapter ELECTRICAL SYSTEM MAINTENANCE. Electrical system repairs must be performed only by suitably qualified personnel.

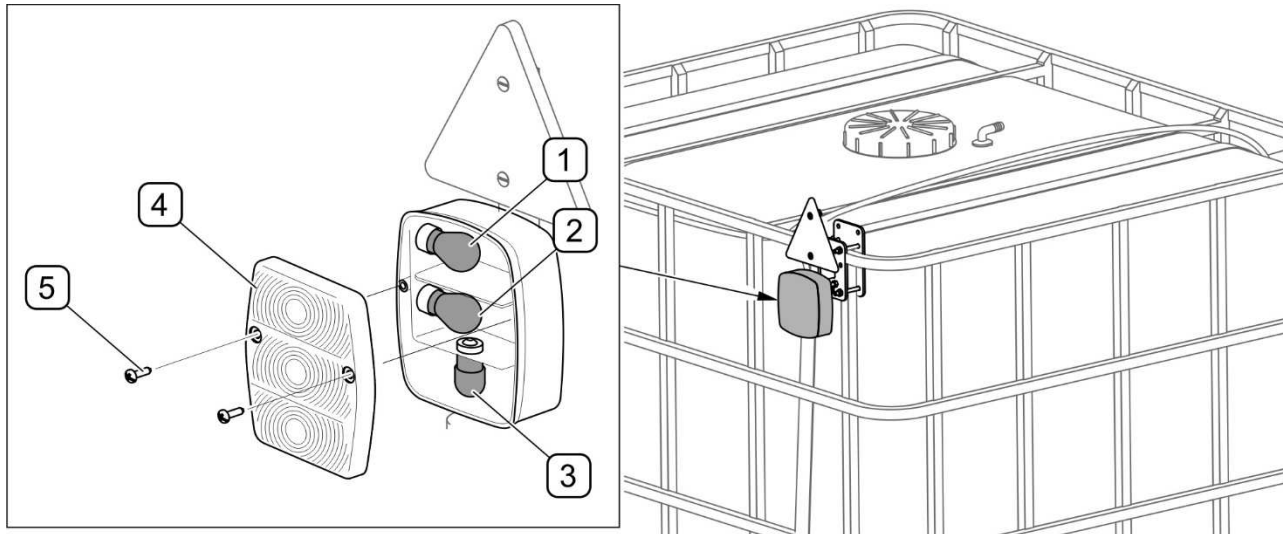


FIGURE 5.2 Replacement of bulbs

(1) - indicator light bulb; (2) - brake light bulb; (3) - parking lights bulb; (4) - lamp assembly lens; (5) - screws

Electrical system maintenance involves periodical checking the operation of the lighting system (option) and water pump power supply. After connecting to 7-pole socket on the tractor (carrying vehicle), check operation of the lights. In case of bulb burnout in lamp (FIGURE 5.2) , unscrew screws (5) that secure lamp lens (4) and replace appropriate bulb. List of bulbs is shown in TABLE 5.1

TABLE 5.1 List of bulbs

DESIGNATION (FIGURE 5.2)	TYPE OF LIGHT	BULB
1	indicator light	P21W
2	brake light	P21W
3	parking light	R10W

5.3 DISASSEMBLY AND INSTALLATION OF WATER TANK

DANGER



During disassembly and installation of the tank, the machine should be supported on the ground. If the machine is hitched to the carrying vehicle, turn off the carrying vehicle's engine and remove the key from the ignition.

Do NOT perform any work under raised and unsupported machine. Be particularly careful when installing and disassembling the tank.

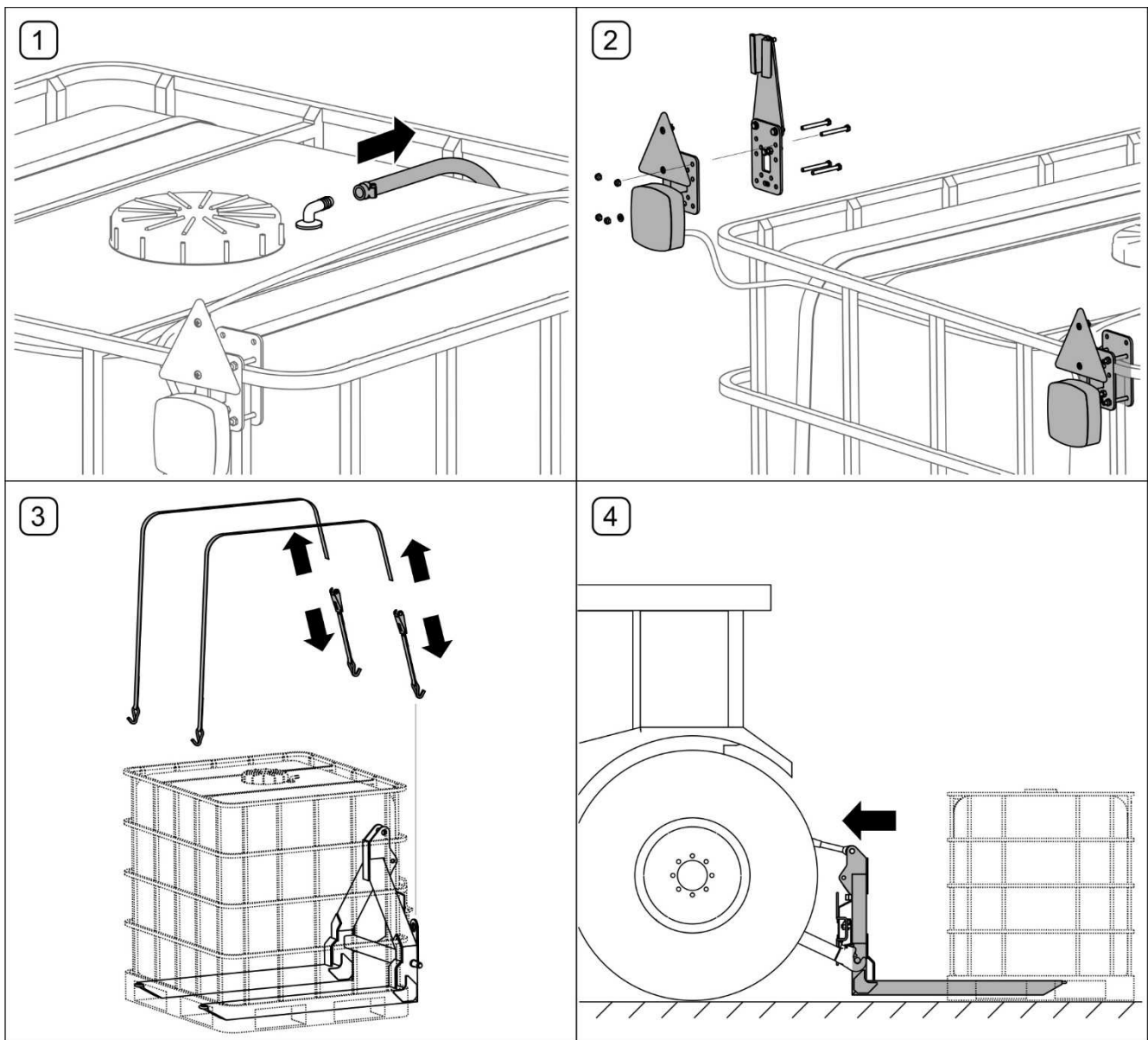


FIGURE 5.3 Disassembling the tank

- (1) - disconnecting the suction hose;
- (2) - disassembling the additional lights (option);
- (3) - removing transport belts;
- (4) - driving the tractor away from the tank

In order to disassemble (FIGURE 5.3) the tank:

1. Loosen the band and disconnect the suction hose from the tank,
2. If the machine is equipped with additional rear lights (option), unscrew the lights together with brackets from the tank frame,
3. Unlock and loosen the belt tightening mechanism and take the belt hooks off the frame catches,
4. Using the carrying vehicle's three point linkage, raise the support frame minimally and drive the carrying vehicle away from the tank.

Installation of the tank on the frame should be performed in reverse order.



DANGER

Do NOT transport the tank on the machine's support frame without transport belts installed.



Technical condition of the transport belts and correctness of their fixing should be inspected regularly while using the machine. In case of such defects as:

- ruptures, cuts of belt fibres occurring in the area exceeding 10% of the belt cross section,
- damaged connecting seams,
- belt deformations,
- deformation or corrosion of metal elements
- malfunction of tightening mechanism,

belt should be replaced.



TIP

The tank is fixed to the support frame using two 35 mm-wide belts, 2t, L = 3 m with a tightening mechanism.

5.4 STORAGE

After finishing work, the machine should be thoroughly cleaned and washed with a water jet. While washing, do not direct a strong water or steam jet at information and warning decals and electrical system components. Nozzle of pressure or steam washer should be kept at a

distance of not less than 30 cm from cleaned surface.

After cleaning, inspect the whole machine, inspect technical condition of individual elements. Used or damaged elements should be repaired or replaced.

In the event of damage to the paint coat, clean rust and dust from damaged area, degrease and then paint with undercoat and after it is dry paint with surface coat paint retaining colour uniformity and even thickness of protective coating. Until the time of touch-up painting, the damaged place may be covered with a thin layer of grease or anticorrosion preparation. Machine should be kept in closed or roofed building. The machine should be kept away from heat sources and flammable materials.

If the machine shall not be used for a long period of time, protect it against adverse weather conditions.

If there is a risk that temperatures drop below 0°C, empty the water tank (FIGURE 5.4) and then start the pump for a short time to remove remaining water from the system.

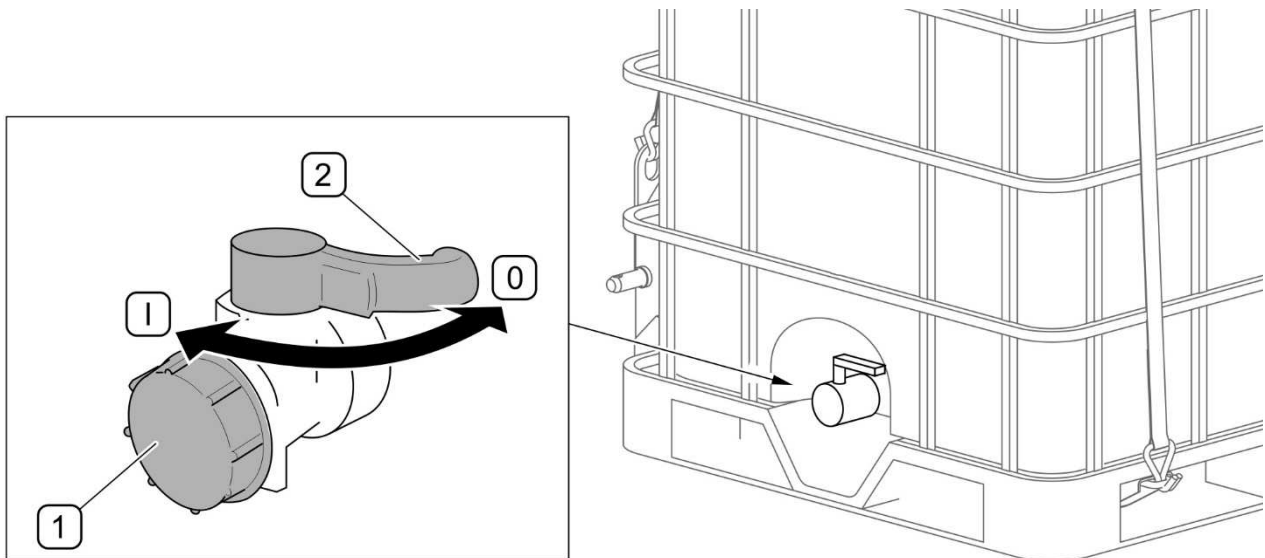


FIGURE 5.4 Draining water from the tank

(1) - protective plug; (2) - drain valve lever; (I) - open valve; (0) - closed valve

On the side wall in the lower part of the tank, there is a drain valve (FIGURE 5.4) protected with plug (1). In order to open the drain valve, set the valve lever (2) along the outlet opening to position (I) "open".

5.5 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

During maintenance and repairs use appropriate torque for bolt connections (unless other is specified for a particular connection). Recommended tightening torque values for non-greased steel bolts are given in TABLE 5.2



ATTENTION

Should it be necessary to change individual parts, use only original parts or those indicated by the Manufacturer. Non-adherence to these requirements may put the user and other people's health and life at risk, and also cause damage to the machine.

TABLE 5.2 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

THREAD DIAMETER [mm]	5.8	8.8	10.9
	TIGHTENING TORQUE [Nm]		
M6	8	10	15
M8	18	25	36
M10	37	49	72
M12	64	85	125
M14	100	135	200
M16	160	210	310
M20	300	425	610

5.6 TROUBLESHOOTING

TABLE 5.3 TROUBLESHOOTING

TYPE OF FAULT	CAUSE	REMEDY
Water supply system does not work	Power lead of electrical system is not connected	Connect the plug to the 7-pole socket in the carrying vehicle
	System is off	Turn on the switch on the power lead
	No water in the tank	Add water to appropriate level
	Clogged filter on the suction conduit in the tank	Check and clean if necessary
	Defective electrical system or water pump	Repair at an authorised service point
Lighting system does not work	Power lead of electrical system is not connected	Connect the plug to the 7-pole socket in the carrying vehicle
	Burned-out bulb in lamp	Check and replace if necessary

NOTES

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