PRONAR Sp. z o.o.

17-210 NAREW, UL. MICKIEWICZA 101A, WOJ. PODLASKIE, POLAND

Phone.:	+48 085 681 63 29	+48 085 681 64 29
	+48 085 681 63 81	+48 085 681 63 82
Fax:	+48 085 681 63 83	+48 085 682 71 10

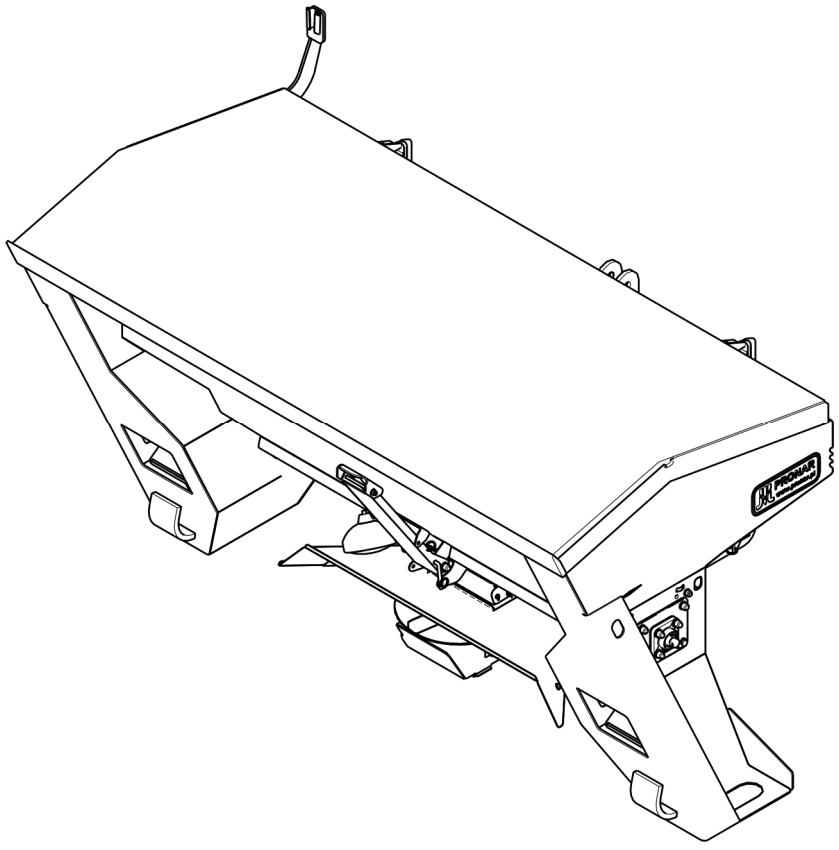
www.pronar.pl

OPERATOR'S MANUAL

SELF-LOADING SPREADER

PRONAR HZS10

TRANSLATION OF THE ORIGINAL DOCUMENT



ISSUE 1C-11-2013

PUBLICATION NO. 334N-00000000-UM

EN

SELF-LOADING SPREADER

PRONAR HZS10

MACHINE IDENTIFICATION

TYPE: ……

SERIAL NUMBER:

INTRODUCTION

Information contained herein is current as of the date of its 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 delivered to the user. The manufacturer reserves the right to introduce design changes in manufactured machines that facilitate operation and improve the quality of their work, without making amendments to this Operator's Manual.

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

This manual describes the basic safety and operation rules of the spreader. If the information contained in the Operator's Manual needs clarification, the user should refer for assistance to the sale point where the machine was purchased or to the manufacturer.

MANUFACTURER'S ADDRESS

PRONAR Sp. z o.o.
ul. Mickiewicza 101A
17-210 Narew, Poland

PHONE NUMBERS

+48 085 681 63 29 *+48 085 681 64 29*
+48 085 681 63 81 *+48 085 681 63 82*

SYMBOLS USED IN THIS MANUAL

Information, descriptions of danger, precautions, recommendations and orders associated with user safety instructions are indicated as follows:

and 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 indicated with the sign:

and 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 periodical maintenance, the relevant section of the Operator's Manual is indicated with the sign:

Additional tips contained in this document refer to helpful information on the machine operation and are indicated as follows:

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

DETERMINING THE DIRECTIONS FOR THE MANUAL'S NEEDS

Left side — a left hand side of the person facing the machine's forward travel direction.
Right side — a right hand side of the person facing the machine's forward travel direction.

PRONAR Sp. z o.o.
ul. Mickiewicza 101 A
17-210 Narew, Polska
tel./fax (+48 85) 681 63 29, 681 63 81, 681 63 82,
681 63 84, 681 64 29
fax (+48 85) 681 63 83
http://www.pronar.pl
e-mail: pronar@pronar.pl

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:	**Self-loading spreader**
Type:	**HZS10**
Model:	–
Serial number:	
Commercial name:	**Self-loading spreader PRONAR HZS10**

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 21 CZE. 2012

Place and date

Z-CA DYREKTORA
d/s technicznych
członek zarządu
Roman Omelianiuk

Full name of the empowered person position, signature

TABLE OF CONTENTS

CHAPTER

1

GENERAL INFORMATION

1.1 IDENTIFICATION

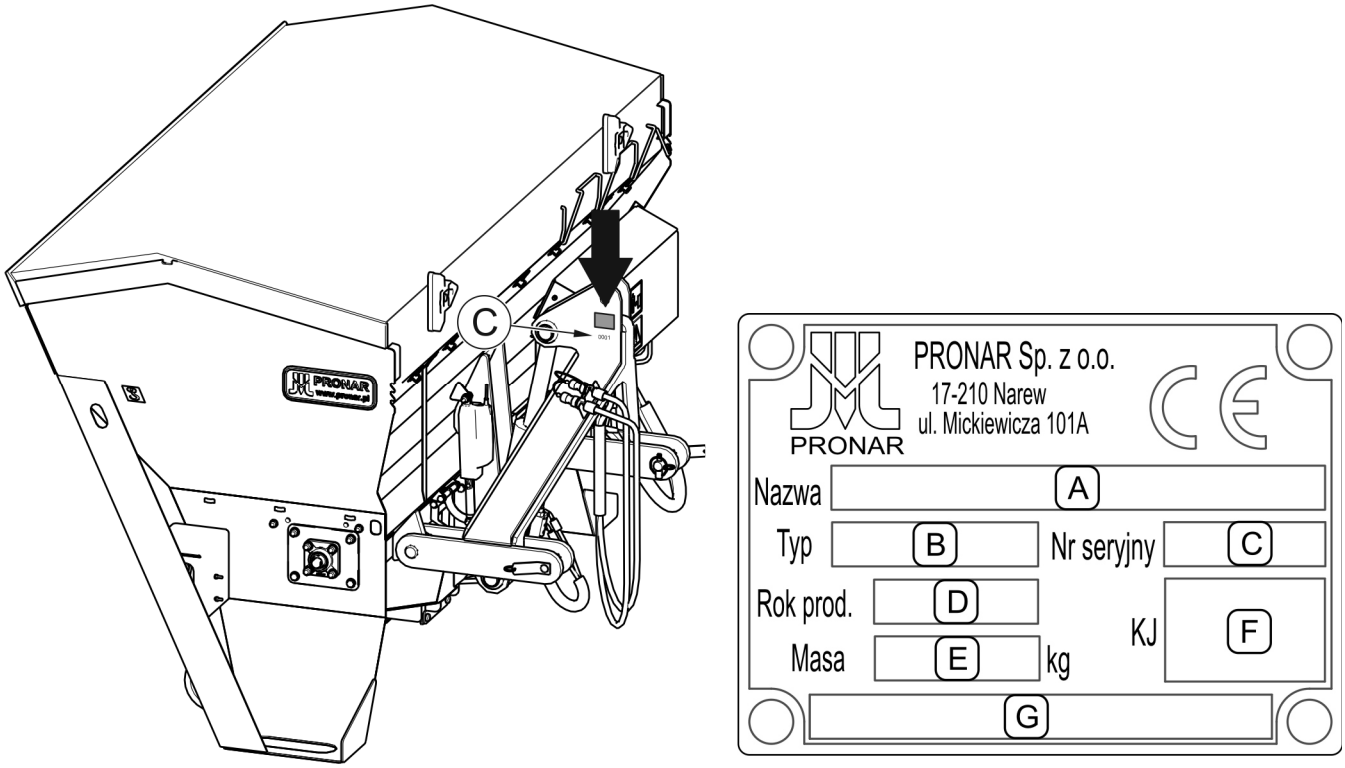


FIGURE 1.1 Location of the rating plate

(C) - location of the stamped serial number

The meaning of particular fields of the rating plate (FIGURE 1.1):

A – Machine name,

B – Type,

C – Serial number,

D – Year of manufacture,

E – Empty weight [kg],

F – Quality Control sign,

G – Machine name, continued.

The serial number is stamped on the rating plate. The rating plate is located on the three-point hitch of the bucket (FIGURE 1.1). When buying the machine, check that the serial number on the equipment agree with the number written in the *WARRANTY BOOK*, in the sales documents and the *OPERATOR'S MANUAL*.

1.2 APPLICATION

PRONAR HZS10 self-loading spreader is used for surface spreading of sand, salt and mixtures of sand and salt on streets, alleys and pavements. For the purpose of this manual sand is a specially prepared abrasive material meeting the requirements of Regulation the General Directorate for National Roads and Motorways ("Guidelines for winter road maintenance" Annex to Regulation No. 18 of the General Directorate for National Roads and Motorways of 30 June 2006, paragraph 6.2 Materials for preventing slippery surfaces during winter – abrasive materials). Use for other purposes should be regarded as improper. Sand spreaders may be mounted on agricultural tractors that meet the requirements set out in Table 1.1

Proper use of the machine includes all activities relating to its proper and safe operation and maintenance. The user is thus required to:

- become familiar with the contents of the OPERATOR'S MANUAL and follow its recommendations,
- understand the principle of operation of the machine and its safe and proper use,
- follow general safety regulations,
- prevent accidents,
- follow the traffic regulations.

The machine can only be operated by persons which:

- became familiar with the contents of this manual, as well as the tractor operator's manual,
- have undergone a training in terms of the machine's operation and safety,
- have all the permits required to drive a vehicle in question and became familiar with the traffic and transport regulations.

ATTENTION

The machine must not be used contrary to its intended application, especially for:

- **spreading the manure and liquid materials,**
- **transporting of persons, animals and objects.**

TABLE 1.1 Requirements on the tractor

	UNIT	REQUIREMENTS
Rear 3-point hitch	–	according to ISO 730-1, cat. II, ball spacing – 870 mm
Power range (PTO)	kW (HP)	92 (125)
Hydraulic system nominal pressure	MPa	16
Nominal efficiency of the hydraulic system	l/min	40
Type of oil	–	hydraulic, HL32
Hydraulic sockets	–	2 sockets of one section
Electrical system	–	3-pin and 7-pin socket 12 V

1.3 EQUIPMENT

The self-loading spreader HZS10 equipment includes:

- the Operator's Manual,
- the Warranty Book.

1.4 WARRANTY TERMS

PRONAR Sp. z o.o. Narew guarantees the reliable operation of the machine when it is used according to technical and operation conditions described in the *OPERATOR'S MANUAL*. Defects discovered during warranty period will be removed by the Servicing Center. The repair dates are provided in the WARRANTY BOOK.

The guarantee does not apply to those parts and components of the machine which are subject to wear in normal usage conditions, regardless of the warranty period (for example: the shoulder, scatter shield, worm, bearings, lamps, electrical plugs).

The warranty service applies only 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 caused by the user or an accident,
- inappropriate use, adjustment or maintenance, use of the machine for purposes other than those for which it is intended,
- use of a damaged or malfunctioning machine,
- repairs carried out by unauthorized persons and repairs which were carried out in an improper manner,
- making unauthorized 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 guarantee repair coupons. A missing date of purchase or sale point stamp may make the user ineligible for any warranty claims.

The user is obliged to report immediately on any noticed wear of the paint coating or traces of corrosion, and to have the faults rectified whether they are covered by the guarantee or not. Detailed guarantee regulations are contained in the WARRANTY BOOK attached to a new machine.

Modification of the machine without the written consent of the manufacturer is prohibited. In particular, do not weld, drill holes, cut or apply heat to the main structural elements of the machine which directly affect the machine operation safety.

1.5 TRANSPORT

The machines are sold completely assembled and do not require packing. Only the operator's manual and technical documentation are packed.

The machine can be delivered to the user either by transport on vehicle or independently. Transport of the machine is permissible after connecting it to a carrying vehicle, provided that the vehicle's driver is familiar with Operator's Manual, particularly with information concerning safety and principles of machine connections and transport of machine on public roads.

When the machine is transported on vehicle, it should secured on carrier platform by means of certified belts or chains equipped with tightening mechanism.

When loading and unloading of the machine, adhere to the general OSH regulations applicable to reloading works. Persons operating a reloading equipment must have the qualifications required to operate them.

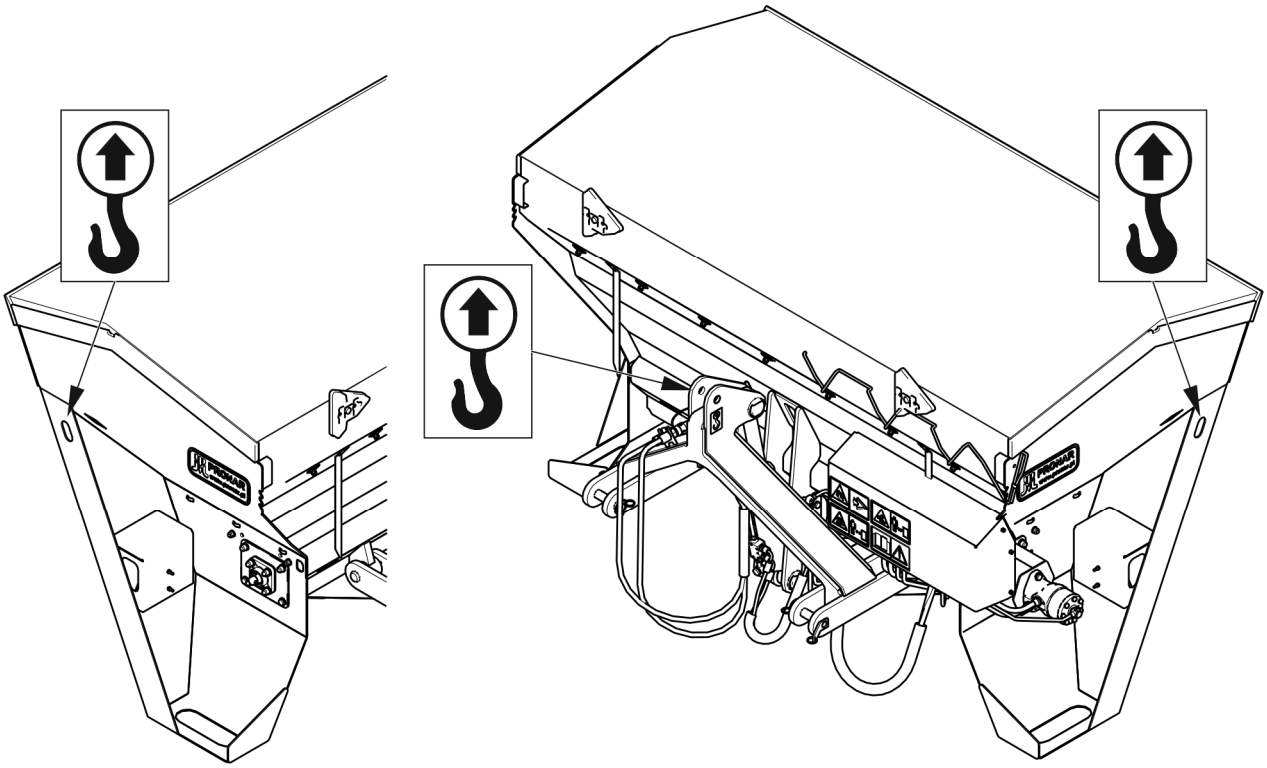


FIGURE 1.2 Transport lugs

The machine should be attached to lifting equipment in places specially designed for this purpose (FIGURE 1.2), i.e. by means of holes on the left and the right side of blades and pin of the 3-point hitch (central linkage).

Lifting points are identified by means of information decals. When lifting the machine, take particular care due to the risk of tipping the machine over and injuries from protruding parts. To keep lifted machine in correct direction, is is recommended to apply additional guy ropes. During reloading works, take particular care not to damage the lacquer coating.

DANGER

In the event of independent transport, the user must read this Operator's Manual and adhere to the recommendations contained therein. If the machine is transported on a vehicle, it must be secured on the transport vehicle's platform according to relevant safety requirements. Driver of the transport vehicle should be particularly careful when transporting the machine, because the vehicle's center of gravity is shifted upwards when loaded with the machine.

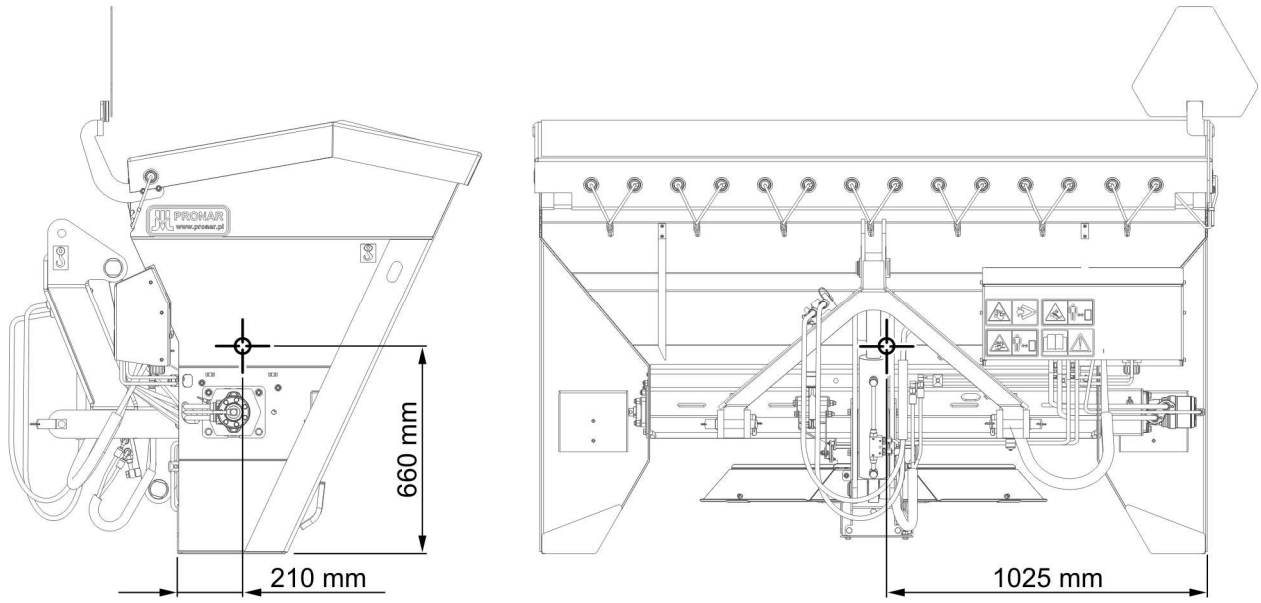


FIGURE 1.3 Position of center of gravity

ATTENTION

Do not attach slings and any kind of cargo fasteners to hydraulic system and electrical system components.

1.6 ENVIRONMENTAL HAZARD

A oil leak constitutes a direct threat to the natural environment owing to its limited biodegradability. While carrying out maintenance and repair work which involve the risk of oil leak, this work should be executed on an oil resistant surface. In the event of oil leak into the environment, first of all secure the source of the leak, and then collect the spilled oil using available means. The remaining oil should be collected by mean of sorbents, or by mixing the oil with sand, sawdust or other absorbent materials. The oil spills, once gathered up, should

be kept in a sealed, marked, hydrocarbon resistant container, and then directed to appropriate oil waste management plant. The container should be kept away from heat sources, flammable materials and food.

Used up oil or oil unsuitable for further use owing to a loss of its properties should be stored in its original packaging in the same conditions as described above.

1.7 WITHDRAWAL FROM USE

When withdrawing the machine from use, comply with the regulations being in force in the given country concerning withdrawal and recycling of machines.

Before dismantling the machine, remove all oil from the hydraulic system.

When parts are replaced, worn or damaged parts should be taken to a raw materials collection point. Waste oil and rubber or plastic elements should be handed to an appropriate waste management plant.

ATTENTION

Use appropriate tools for disassembly and relevant personal protection equipment such as protective clothing, shoes, gloves, goggles etc.

Avoid contact with oil. Do not allow used oil to spill.

CHAPTER

2

SAFETY OF OPERATION

2.1 GENERAL SAFETY RULES

2.1.1 USE OF THE MACHINE

- Before using the machine, carefully read this Operator's Manual and the *WARRANTY BOOK*. When operating the machine, the operator must comply with the recommendations stated in these documents.
- The machine may only be used and operated by persons qualified to drive agricultural tractors (carrying vehicles) and trained in use of the machine.
- If the information contained in the Operator's Manual is difficult to understand, contact a seller who runs an authorized technical service on behalf of the manufacturer or contact the manufacturer directly.
- Careless and improper use and operation of the machine and non-compliance with the recommendations given in the Operator's Manual poses danger to health.
- Be aware of the existence of a residual risk. For this reason the fundamental basis for using this machine should be the application of safety rules and reasonable behavior.
- The machine must never be used by persons who are not authorized to drive agricultural tractors (carrying vehicles), including children and people under the influence of alcohol or drugs.
- Non-compliance with the safety rules can endanger the health and the life of an operator and other persons.
- The machine must not be used for purposes other than those intended. Anyone who misuses the machine takes full responsibility for any consequences of this potentially improper use. Use of the machine for purposes other than those for which it is foreseen by the manufacturer may invalidate the guarantee.
- Machine may only be used when all protective elements (i.e. guards, pins, cotter pins) are in good technical condition and correctly positioned. In case of loss or destruction of safety elements, they shall be replaced with new ones.

2.1.2 COUPLING AND UNCOUPLING THE MACHINE

- Do not attach the machine to a carrying vehicle if hydraulic oils applied are of different types or if the machine's linkage system is not compatible with category of the hitching system of a carrying machine.
- When the attaching process is completed, check if the hitch is properly secured. Carefully read the Operator's Manual of a carrying machine.
- To attach the machine on a carrying vehicle use only genuine pins and securing elements.
- The agricultural tractor (up to 125hp), to which the machine will be attached should be technically reliable and must fulfill the requirements of the machine's manufacturer.
- Be especially careful when hitching the machine to a tractor.
- When hitching, no persons must be present between the machine and a carrying vehicle.
- Pay particular caution when disconnecting the machine from a carrying vehicle.
- Machine disconnected from a carrying vehicle should rest on a parking support and be placed on a flat and hard surface, so that a recoupling of the machine is possible.

2.1.3 HYDRAULIC SYSTEM

- The hydraulic system is under high pressure during operation.
- Regularly check the technical condition of connections, as well as the hydraulic lines. Oil leaks must not be present.
- In the event of malfunction of the hydraulic system, do not use the machine until the malfunction is corrected.
- When connecting the hydraulic lines to a carrying vehicle, make sure that the hydraulic system is depressurized. If necessary, reduce residual pressure in the system.
- In the event of injuries being caused by pressurized hydraulic oil, contact a doctor immediately. Hydraulic oil may penetrate the skin and cause infections. In the event of contact of oil with eye, rinse with large quantity of water and if irritation

occurs, consult a doctor. In the event of contact of oil with skin, wash the area of contact with water and soap. Do not apply organic solvents (petrol, kerosene).

- Use the oil recommended by the manufacturer. It is prohibited to mix two oils of different types.
- Used oil or oil which has lost its properties should be stored in original containers or replacement hydrocarbon resistant containers. Replacement containers must be clearly marked and appropriately stored.
- Do not store hydraulic oil in containers designed for storing food.
- Rubber hydraulic hoses must be replaced every 4 years regardless of their technical condition.
- Repair and replacement of hydraulic system elements should be executed by appropriately qualified personnel.

2.1.4 TRANSPORT RUN

- During travel on public roads comply with the road traffic regulations of the country in which the machine is used.
- Do not exceed the permitted speed arising from road conditions and design limitations. Adjust the travel speed to the prevailing road conditions and road traffic regulations limits.
- Do not leave machine raised and unsecured while a carrying vehicle is parked. When parked, the machine should be lowered.
- It is prohibited to transport persons or materials on the machine.
- Each time before using the machine always check its technical condition, especially in terms of safety. In particular, check the technical condition of the linkage system and connections of the hydraulic system.
- During transport, the three point hitch of a carrying vehicle should be locked in the upper position to prevent accidental lowering.
- Reckless driving and excessive speed may cause accidents.

2.1.5 MAINTENANCE

- During the warranty period, any repairs may only be carried out by Servicing Center authorized by the manufacturer. It is recommended that repairs to the machine are performed by specialized workshops.
- In the event of any fault or damage, do not use the machine until the fault is fixed.
- During maintenance works on the machine use the proper, tight protective clothing, gloves, and appropriate tools. When working on hydraulic systems, it is recommended to use oil resistant gloves and protective goggles.
- Any modification to the machine renders the manufacturer free from any responsibility for damage or health risk.
- Before undertaking any work on the machine, turn off the engine of a carrying vehicle.
- Regularly check the technical condition and tightening of bolted joints.
- Regularly perform machine inspections as recommended by the manufacturer.
- Do not perform service or repair works under raised and unsecured machine.
- Before beginning work on hydraulic system, reduce the oil pressure.
- Service and repair works should be carried out according to the general principles of occupational health and safety rules. 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's engine switched off and the ignition key removed. A carrying vehicle should be immobilized by means of the parking brake. Ensure that unauthorized persons do not have access to the vehicle's cab.
- Should it be necessary to change individual parts, use only genuine parts. Non adherence to these requirements may put the user and other people's health and life at risk, damage the machine and invalidate the guarantee.
- Do not weld, drill holes, cut or apply heat to the main structural elements of the machine which directly affect the machine operation safety.
- Inspect technical condition and proper mounting of safety elements.

- If the machine must be raised, use only proper and approved hydraulic or mechanical jacks for this purpose. After lifting the machine, use stable and durable supports. Do not carry out work under the machine which has been raised by means carrying vehicle's three-point hitch only.
- The machine must not be supported by means of brittle objects (bricks or concrete blocks).
- After completing works associated with lubrication, remove excess grease.
- In order to reduce the danger of fire, the machine must be kept in clean condition.

2.1.6 MACHINE OPERATION

- Before raising or lowering the machine mounted on a carrying vehicle, make sure there are no bystanders near the machine.
- Do not scoop from heap or spread lumpy or frozen materials.
- Before starting a carrying vehicle with a machine attached, make sure that the external hydraulic circuit is not switched on. Otherwise, uncontrolled starting of the machine may occur.
- Before starting the machine, make sure there are no bystanders (especially children) or animals in the danger zone. Machine operator is obliged to ensure proper visibility of the machine and working area.
- During machine operation do not occupy position different than intended in the vehicle's cab. Do not leave the cab when the machine is in operation.
- Do not stand within the machine's working area, as well as between the vehicle and machine.
- It is prohibited to stand near the spreading disk until all rotating elements are stopped.
- When working on pavements or public roads there is a risk that thrown out particles of sand, salt etc. may pose a threat to bystanders. The material must be properly prepared (stones are not acceptable).

2.2 RESIDUAL RISK ASSESSMENT

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

- using the machine for purposes other than those for which it is intended,
- standing between the tractor and the machine while engine is working and when machine is being attached,
- being on the machine during engine operation,
- operating the machine with removed or damaged safety guards,
- not maintaining a safe distance from danger zones or standing within these zones during machine operation,
- operation of the machine by unauthorized persons or persons under the influence of alcohol,
- cleaning, maintenance and technical inspections of the machine when a tractor is attached and its engine is running,

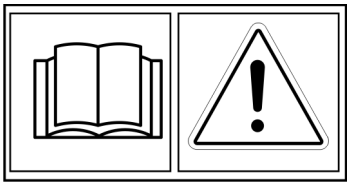
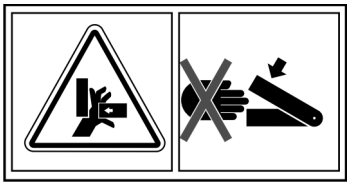
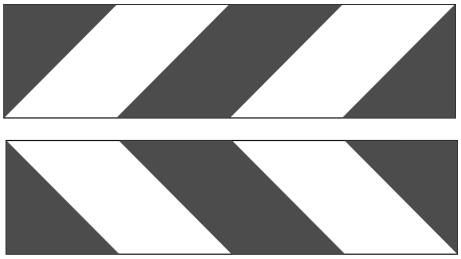
The residual risk may be reduced to a minimum by following the recommendations below:

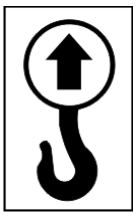
- cautious and unhurried operation of the machine,
- sensible application of the remarks and recommendations contained in the Operator's Manual,
- carrying out repair and maintenance works according to the operating safety rules,
- carrying out repair and maintenance works by trained persons,
- using tight fitting protective clothing,
- ensuring that unauthorized persons have no access to the machine – especially children,
- maintaining safe distance from prohibited or dangerous places,
- not standing on the machine its operation.

2.3 INFORMATION AND WARNING DECALS

All signs should be always legible, clean and visible to the user and persons being in the proximity of the machine in operation. If any safety sign is lost or damaged, it should be replaced with new one. All elements having safety signs replaced during repairs should be re-equipped with these signs. Safety signs can be purchased from the manufacturer or dealer.

TABLE 2.1 Information and warning decals

ITEM	SYMBOL	DESCRIPTION
1		Before starting work, carefully read the Operator's Manual
2		Do not reach into the crushing area because elements may move. Danger of crushing hands or fingers.
3		Flying objects, risk of injury for whole body. Keep a safe distance from the machine in operation.
4		Pressurized liquid. Keep a safe distance.
5		Outline marking
6	PRONAR www.pronar.pl	Manufacturer

ITEM	SYMBOL	DESCRIPTION
7		Machine model
8		Lifting points (for loading)

Numbers in the "ITEM" column correspond to labels in figure (FIGURE 2.1)

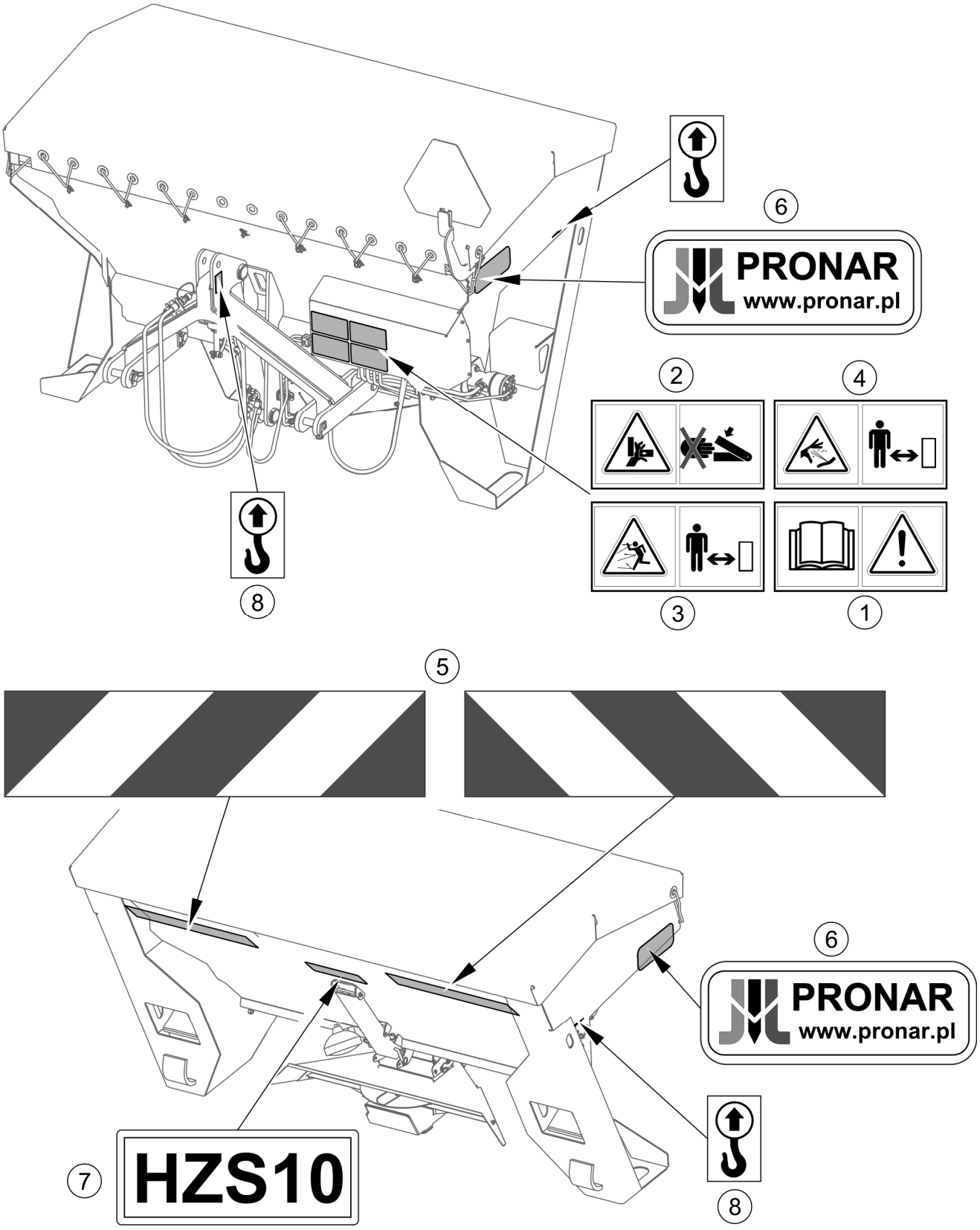


FIGURE 2.1 Locations of information and warning decals

Description of symbols (TABLE 2.1)

CHAPTER

3

DESIGN AND OPERATION

3.1 TECHNICAL SPECIFICATION

TABLE 3.1 BASIC TECHNICAL DATA

	Unit	
Attaching method	–	Three-point hitch cat. II according to ISO 730-1
Spreading width: – minimum – maximum	 m m	 2,5 6
Amount of material spread: – salt – sand	 g/m^2 g/m^2	 5 – 40 50 – 150
Container capacity	m^3	1
Load capacity (max)	kg	1 700
Number of spreading discs	pcs	1
Number of disc blades	pcs	4
Drive	–	External hydraulic system of a carrying vehicle
Control system	–	Control panel inside the cab
Operating speed	km/h	5 – 40
Electrical power supply	V	12
Length	mm	1 385
Width *(bucket)*	mm	2 160
Height	mm	1 375
Weight of a machine ready for operation	kg	530
Other information	-	Single person operation

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

3.2 GENERAL DESIGN

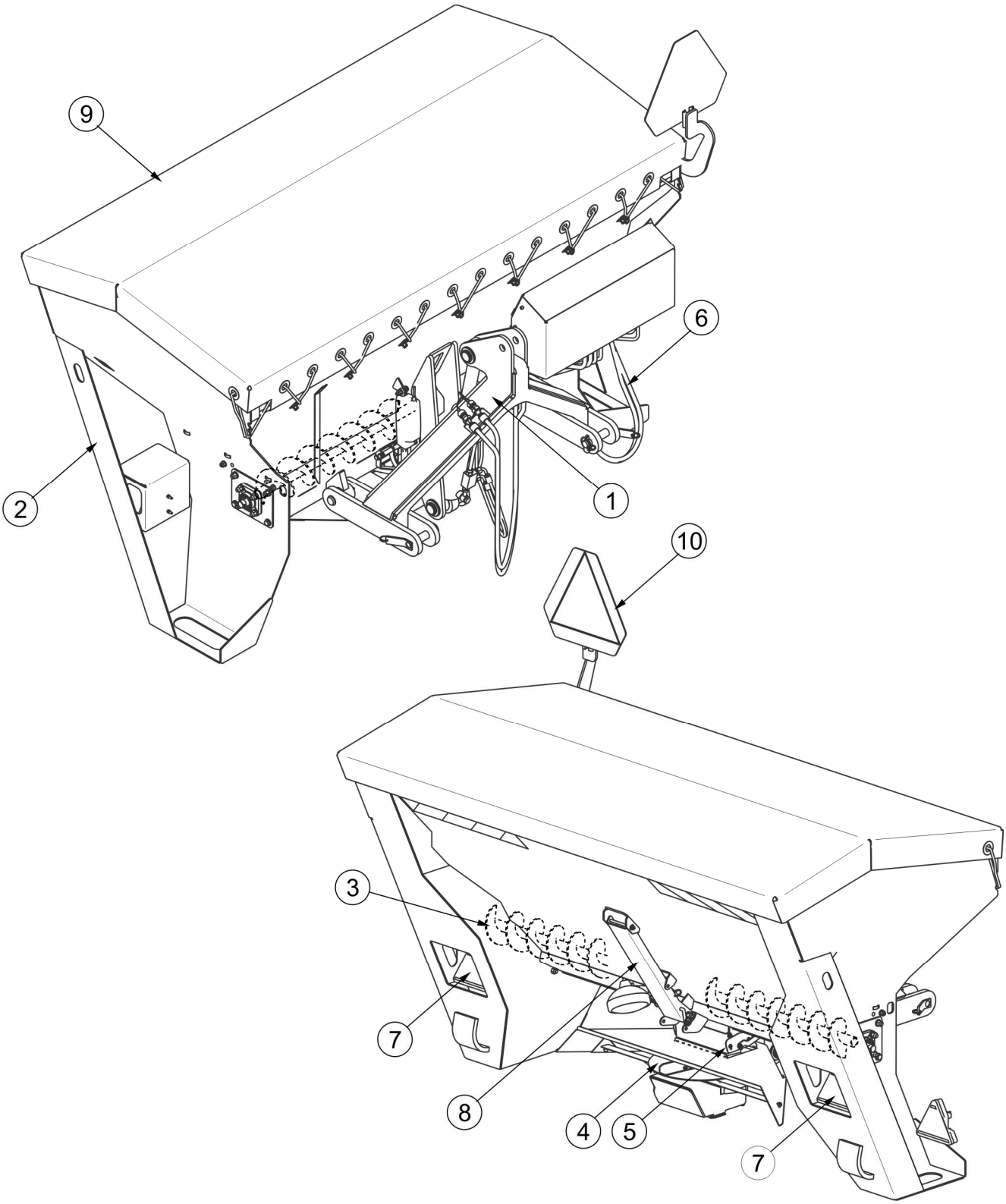


FIGURE 3.1 General design

(1)- three-point hitch; (2)- bucket; (3)- screw feeder; (4)- spreading disc; (5)- spreading guides; (6)-hydraulic system; (7)- lamp assembly; (8)- support foot; (9)- canvas cover; (10)- warning plate,

HZS10 self-loading spreader is equipped with a rigid three-point hitch (1) to which the bucket container (2) is pivotally attached. A screw feeder (3) transporting material to the spreading system is located inside the container. Material is spread by means of a spreading disc (4) driven by hydraulic motor which is powered by hydraulic system of a carrying vehicle.The spreader functions can be controlled by means of control panel located in the operator's cab. Screens placed on the bottom of the bucket protects auger (3) from damage during scooping the material. Sand spreader enables smooth adjustment of spreading dose and of spreading direction. The machine is equipped with rear lights (7) (parking, stop and turn signals), tarpaulin cover (9) and the support leg (8) retracted for loading and operation.

3.3 HYDRAULIC SYSTEM

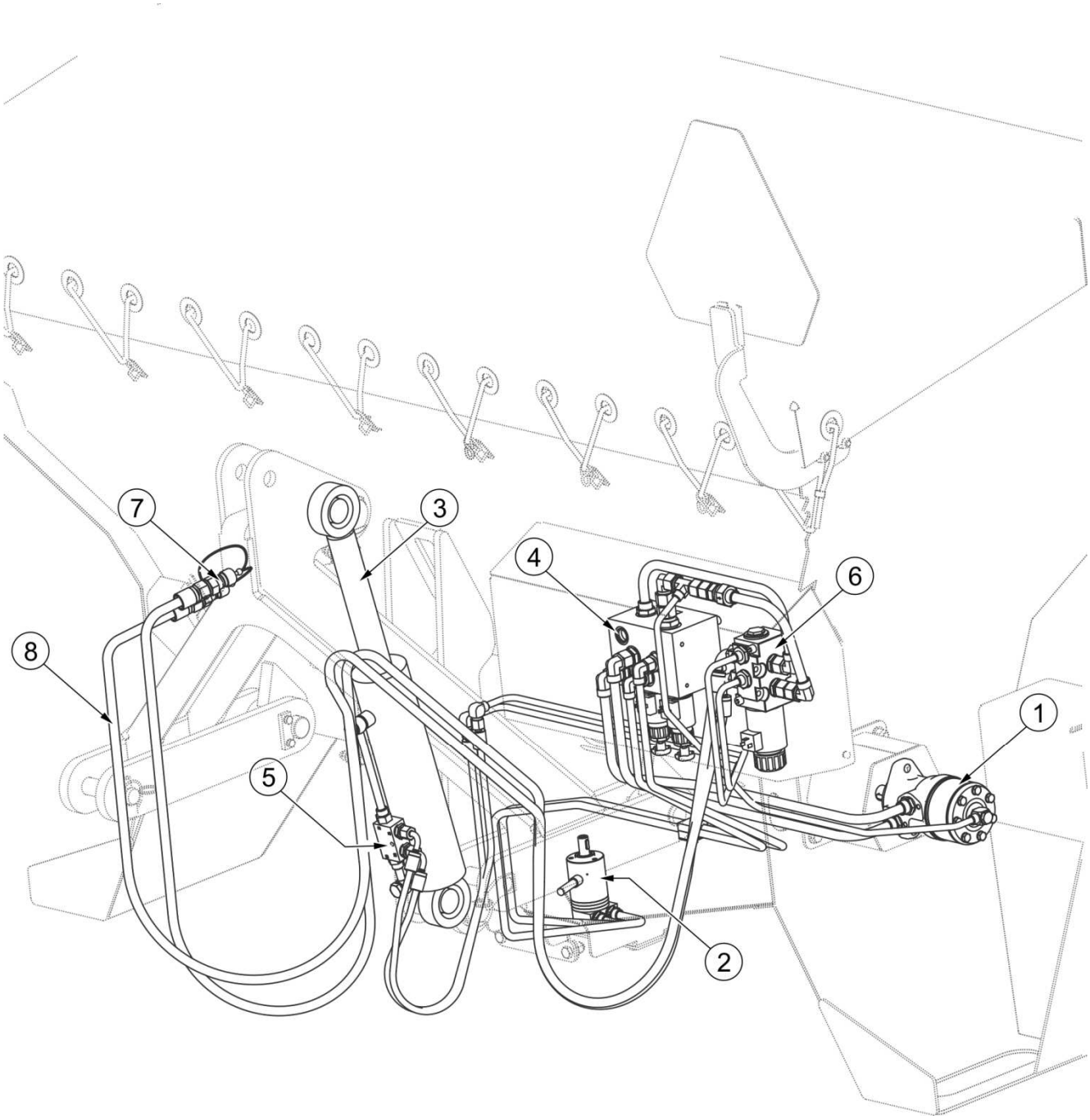


FIGURE 3.2 Design of the hydraulic system

(1)- hydraulic motor driving the screw feeder; (2)- hydraulic motor driving the spreading disc; (3)- hydraulic cylinder; (4) - hydraulic block; (5) - hydraulic locking device; (6) - solenoid valve; (7) - plugs of hydraulic connections; (8)- hydraulic lines

The spreading disc and the dosing system of the hydraulic-driven self-loading spreader HZS10 are driven by hydraulic motors *(1),(2)* to which oil from external hydraulics of tractor is

supplied. Hydraulic systems of spreader and tractor are connected by means of hydraulic lines (8) ended with quick-couplings *(7).* Container is rotated by means of hydraulic cylinder (3). This movement allows lowering and self-loading the container with material.

3.4 ELECTRICAL SYSTEM

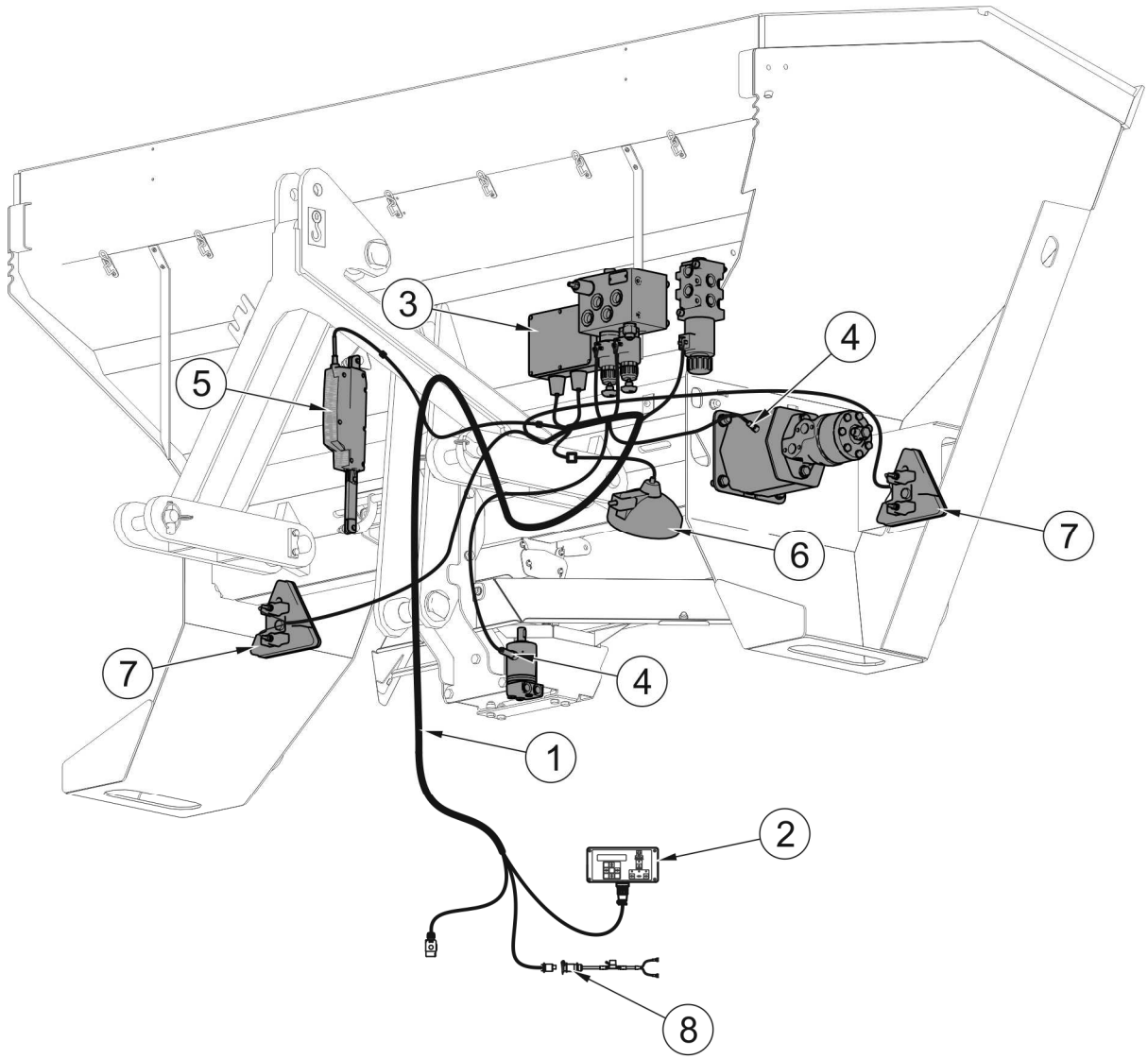


FIGURE 3.3 Design of the electrical system

(1)- power supply cluster; (2)- control panel; (3)- run-time module; (4)- induction sensors; (5)- electric actuator; (6)- working lamp; (7)- combination lamps; (8)- power supply cable with a 3-pin socket

The electrical installation (FIGURE 3.3) of the self-loading spreader HZS10 is made of the control panel (2), through which spreader functions can be controlled. The control panel (2) is connected via the power supply cluster (1) with the electric instrumentation of the spreader

and the 3-pin socket of the tractor. In Pronar tractors, there is an additional coupling to which a power supply cable with a 3-pin socket can be connected.

Stability of spreading parameters (rotation speed) is controlled by two induction sensors (4) located on hydraulic engines. The first one feeds material through the helical conveyor: sand, salt or a mix of those two, the second one spreads the material at a suitable width using a blade disk. In addition, it is possible to adjust the spreading direction using the electric actuator (5) controlled by the panel (2). The self-loading spreader HZS10 is provided with a working lamp (6) directed onto the plate, which increases visibility of the work field for the operator, and combination lamps (7): side lamps, stop lamps, indicators and hazard lights.

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 improper 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 agricultural tractors (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 tractor, machine operator must verify the machine's 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 sand spreader linkage with the tractor's linkage,
- make sure that electrical wiring and hydraulic system outlets are compatible,
- Check control panel operation,
- 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 all the lubrication points, lubricate the machine as needed according to recommendations provided in section 5,
- check technical condition of the hydraulic and electrical system;
- check technical condition of spreading disc,
- check the technical condition of the linkage components and safety guards.

ATTENTION!

Non-adherence to the recommendations stated in the Operator's Manual or improper 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 the machine to tractor (see "*HITCHING TO TRACTOR"*)
- After connection of hydraulic system lines and electrical system wiring, the correct operation of individual systems should be checked with inspection of systems with regard to seals and tightness.
- check rotation direction of spreading disc.

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

ATTENTION!

Before using the machine always check its technical condition. In particular, check the technical condition of the hitch and hydraulic system.

4.2 CHECKING TECHNICAL CONDITION

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

TAB. 4.1 TECHNICAL INSPECTION SCHEDULE

DESCRIPTION	SERVICE OPERATION	FREQUENCY
Technical condition of safety guards	Check technical condition of safety guards, if complete and correctly mounted.	Before beginning work
Technical condition of spreading disc	Check technical condition, if complete and correctly mounted.	
Technical condition of the hydraulic system.	Visually inspect the technical condition	
Technical condition of components electrical control	Visually inspect the technical condition	
Control panel operation	Service individual control panel features	
Tightening of all main nut and bolt connections	Torque values should be according to table (*5.7*)	Once a week
Lubrication	Lubricate elements according to table *LUBRICATION*.	According to table (*5.3*)

ATTENTION!

The machine must not be used when not in working order.

4.3 HITCHING TO TRACTOR

The HZS10 sand spreader may only be mounted on a tractor fulfilling the requirements contained in Table 1.1 *"TRACTOR REQUIREMENTS*".

ATTENTION!

Before hitching the sand spreader to tractor, the user must carefully read the tractor operator's manual.

DANGER

When hitching, there must be nobody between the machine and the tractor.

Exercise caution when hitching the machine to tractor.

4.3.1 HITCHING TO THE THREE POINT LINKAGE

Before hitching the sand spreader to tractor's three-point linkage, make sure that the category of the tractor linkage is compatible with that of the machine.

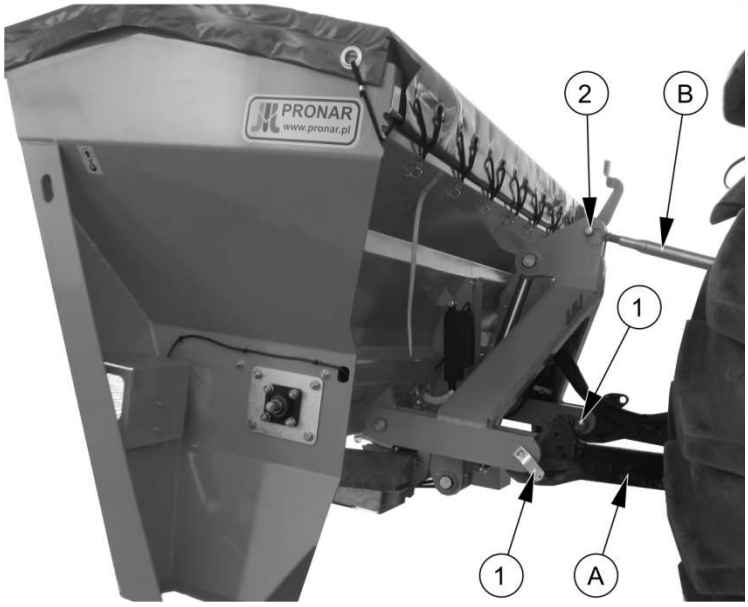


FIG. 4.1 Hitching to tractor

(A)- lower three point linkage arms; (B)- top link; (1)- linkage lower pin; (2)- top link mounting pin

When hitching the sand spreader to tractor's three-point linkage do the following:

- move the lower rod of tractor's three-point linkage (A) to the lower linking points of the sand spreader; set lower rods at an appropriate height,
- switch off tractor's engine and prevent it from moving,
- connect the lower pins of the sand spreader linkage with tractor's three-point linkage and secure with cotter pins,
- in the case of the hook linkage, place balls on sand spreader linkage pins, secure with cotter pins and lift the pins until balls lock in hooks,
- connect tractor upper link (B) (central connector) to the upper attachment point of the sand spreader's linkage using a pin (2) and secure with cotter pin,
- eliminate lateral movements of sand spreader by appropriate adjustment of the lower arm stabilisers; both lower links of the three-point linkage are recommended to be set at the same height,
- lift machine using tractor three point linkage.

DANGER

To mount machine on tractor use only genuine pins and safeguard cotter pins.

4.3.2 CONNECTING HYDRAULIC AND ELECTRICAL SYSTEM

In the HZS10 self-loading spreader plug the hydraulic lines (1) in the socket one section of the tractor external hydraulics. After powering up the spreading disc should rotate counter-clockwise (Figure 5.1).

Plug the connector (2) to 3-pin (3) socket, the 7-pin socket (4) and the HSZ10 control panel (5), which should be placed in the driver's cab in an accessible location. Arrange electrical wires so as to prevent their damage during operation.

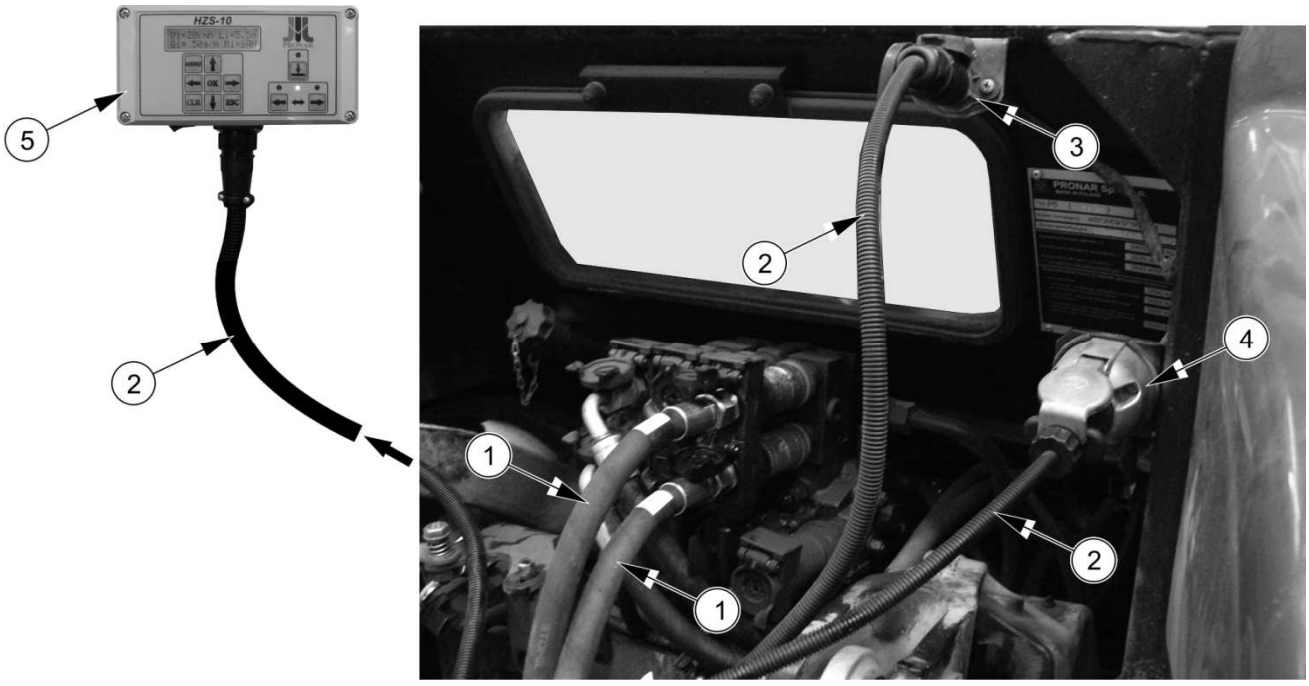


FIG. 4.2 Connecting hydraulic and electrical system to tractor

(1)- hydraulic lines, (2)- power cord, (3)- 3-pin socket, (4)- 7-pin socket, (5)- HZS10 control panel

DANGER

Prior to connecting individual system lines the user must carefully read the tractor operator's manual and observe all Manufacturer's recommendations.

DANGER

When connecting the hydraulic lines, make sure that the hydraulic system of the tractor is not under pressure.

ATTENTION!

During operation, the connecting cables should be routed so that they do not get entangled in moving machine parts.

4.3.3 PARKING AND TRANSPORTATION OF THE SPREADER

When parked, the self-loading spreader hitched to the tractor should rest on the ground (Figure 4.3 A). When transporting or operating the spreader you must retract the support leg (1) and secure it with the bolt (2) and cotter pin (3) (Figure 4.3 B). Raise the carrier three-point linkage, so that the disc is positioned about 400 mm from the ground.

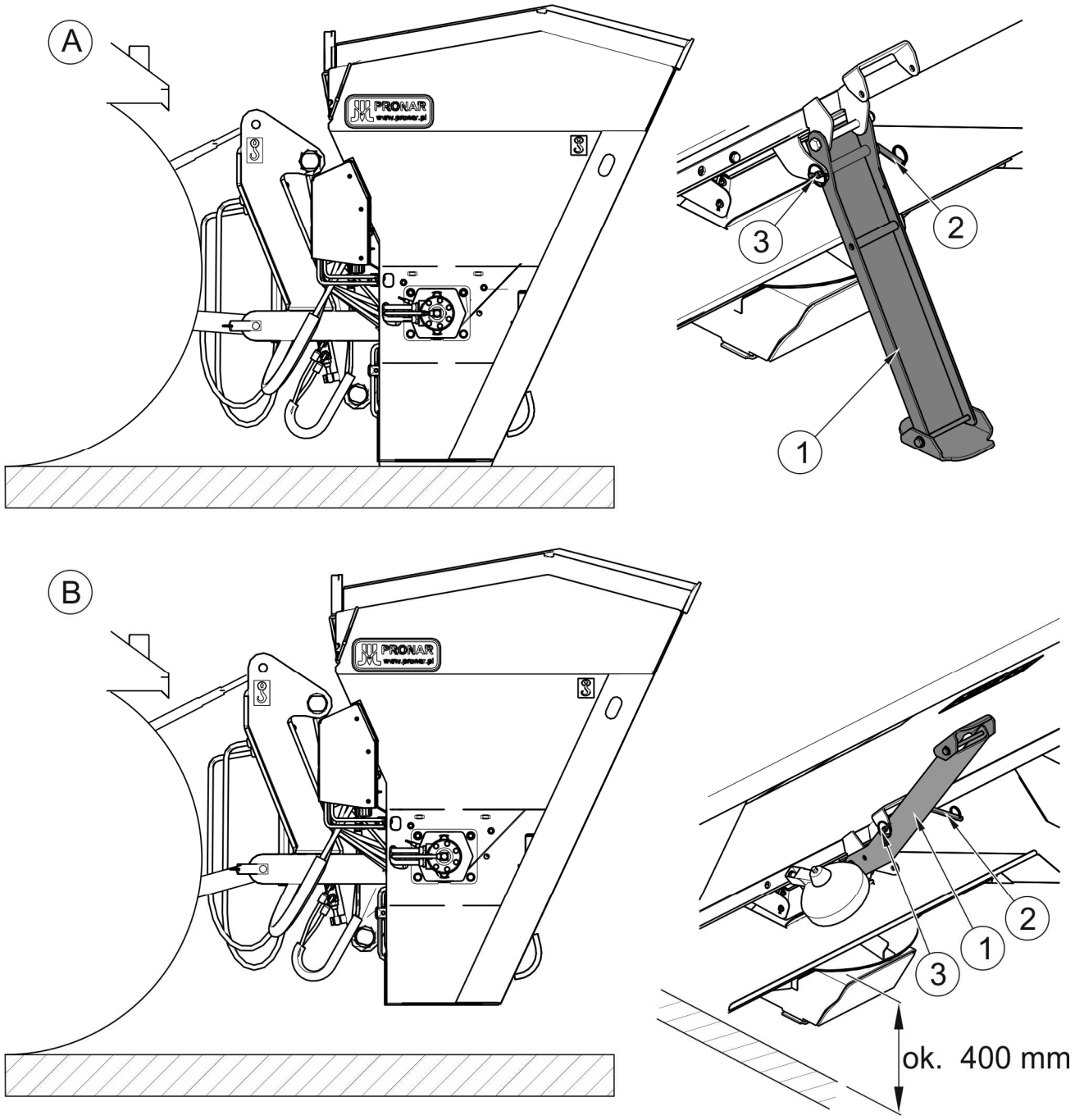


FIG. 4.3 Parking and transportation of the spreader

(A)- parking position; (B)- operating and transport position; (1)- support leg, (2)- support leg locking pin, (3)- cotter pin

4.4 SAND SPREADER OPERATION

4.4.1 LOADING

DANGER

Be especially careful when loading the machine.

The PRONAR HZS10 spreader can be quickly self-loaded thanks to pivoting bucket that can be tilted down with a hydraulic cylinder (1) and three-point linkage (3). After rolling up the tarpaulin cover (2), the operator can fill the hydraulically tilted bucket from a heap without leaving the cab. Tilt down the bucket back and drive the into the heaps of the loose material with maximum speed of 5 km/h, lift the bucket to vertical position and them replace the tarpaulin cover (2). Be especially careful during loading not to damage the machine. Press the button on the control panel to switch the machine from loading to spreading mode or vice versa.

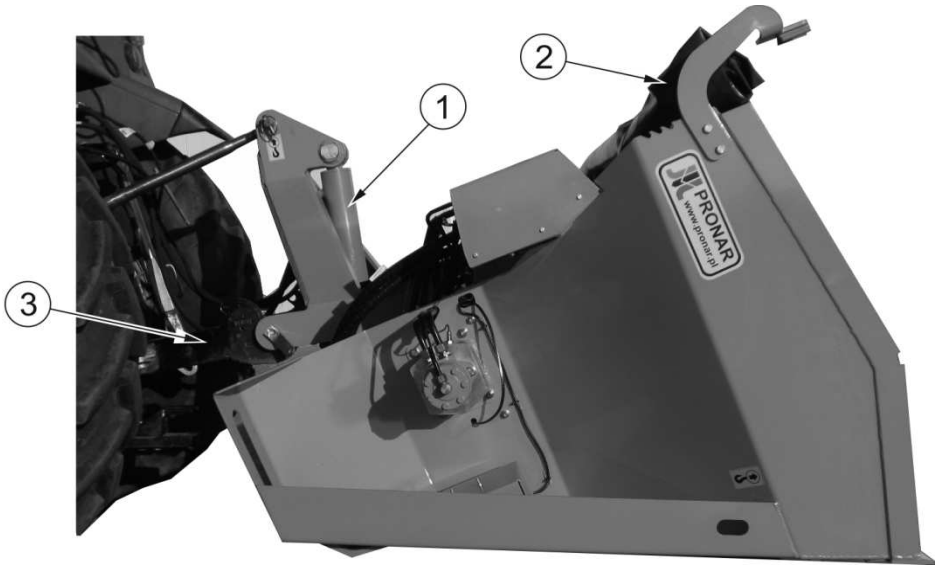


FIG. 4.4 Loading sand or salt

(1)- hydraulic cylinder, (2)- tarpaulin cover, (3)- three-point linkage

4.4.2 CONTROL PANEL

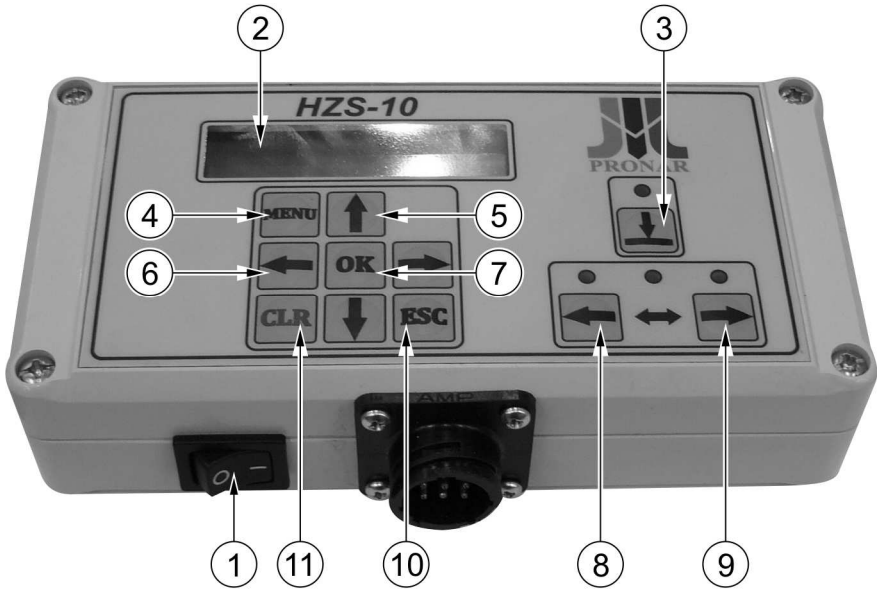


FIG. 4.5 Control panel

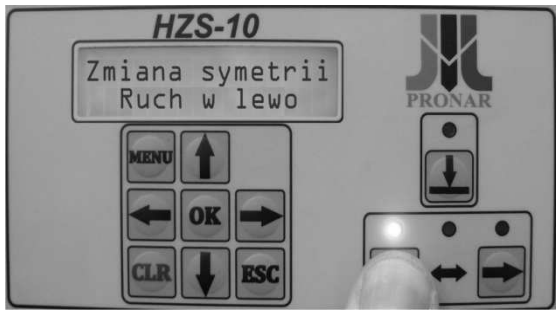
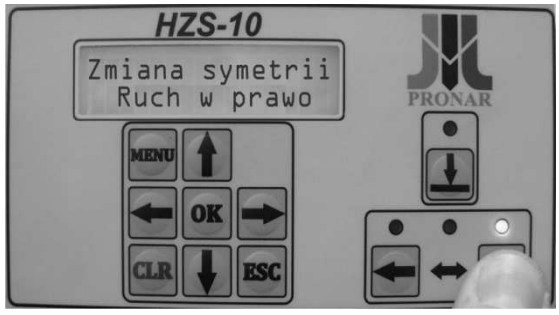
(1)- main switch, (2)- display, (3)- loading mode switch (4)- the MENU button (5)- the "UP" and "DOWN" selection, (6)- the "LEFT" and "RIGHT" selection, (7)- "OK" button (8) (9)- the asymmetry buttons (10)- CANCEL button, (11)- "CLR" spreading on/off button

TAB. 4.2 The control panel functions and the operation procedure

ITEM	DESCRIPTION	VIEW ON DISPLAY
1	Before working with the control panel you must first start the tractor engine and then turn on the main power switch (1). Performing these actions in reverse order may cause an error in the control panel. If this happens, restart the control panel by turning off the main power switch and then on again while the tractor engine is running.	  

ITEM	DESCRIPTION	VIEW ON DISPLAY
2	Press the MENU button (4). Using the buttons (5) select the SETTINGS MENU and confirm by pressing "OK" (7).	 
3	Use the buttons (6) to select the parameter to change, as indicated by underline, and then using the buttons (5) set the desired value according to the spreading parameters in Tables 4.3 ÷ 4.4. In the SETUP MENU you can set the following parameters: - Tractor speed (Vi) - Spreading width (Li), - Material (sand, salt, mix) - Weight (Gi).	      

ITEM	DESCRIPTION	VIEW ON DISPLAY
		
4	Press OK (7) to confirm.	
5	Once confirmed, all parameters set are shown. Press ESC (10) to go level up (the underline disappears).	
6	If you set the parameters out of range (see Tables 4.3 ÷ 4.4), the message "Error! REDUCE" or "Error! INCREASE" will be shown, which suggests that you increase or decrease a parameter. Use the buttons (6) to select the parameter to change, as indicated by underline, and then using the buttons (5) set the correct value according to the spreading parameters in Tables 4.3 ÷ 4.4. The "OK" message confirms the correct spreading parameters.	    
7	Turn on the hydraulic system using the lever on the tractor and press the "ESC" key to enter the operation mode. Then press the "CLR" button to start spreading. "Spreading ON" message will be shown on the display.	

ITEM	DESCRIPTION	VIEW ON DISPLAY
	Press "CLR" again to stop the machine.	
8	To adjust the spreading direction press the button (8) to "Adjust symmetry - Left".	
9	Press button (9) to "Adjust symmetry - Right."	
10	To access the service settings, press the MENU button (4) button, and then use buttons (5) to select "SERVICE MENU" and confirm by pressing OK (7).	
11	Select "Language" and confirm by pressing OK (7). Then select English or Polish.	  

ITEM	DESCRIPTION	VIEW ON DISPLAY
12	The SERVICE MENU allows you to set the following parameters: - Weight / RPM Sand - Weight / Mix RPM - Weight / Salt RPM - Disc RPM	
13	You can adjust spreading intensity by adjusting the material dose (sand, mix or salt) fed by the auger. This will cause other parameters in the tables (4.3 ÷ 4.4) to change.	       

ITEM	DESCRIPTION	VIEW ON DISPLAY
14	You can adjust the spreading width by adjusting spreading disc RPM respectively for each width (2.5 ÷ 6 m). This will cause other parameters in the tables (4.3 ÷ 4.4) to change.	
	Press OK (7) to confirm.	 
15	Press the button (3) to enter the loading mode.	
16	Press the button (3) again to enter the operation mode.	

Numbering in the "Description" column is consistent with Figure 4.5

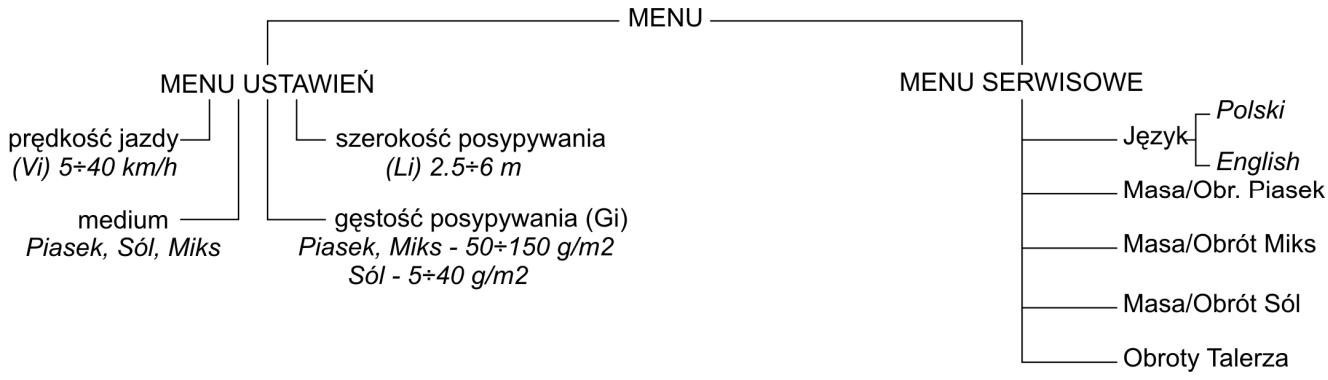


FIG. 4.6 MENU structure

MENU structure (Figure 4.6):

A) SETUP MENU

- Tractor speed (Vi),
- Spread width (Li),
- Material (Sand, Salt, Mix),
- Weight (Gi).

B) SERVICE MENU

- Language (Polish, English),
- Weight/Rotat (Sand, Salt, Mix),
- Disc rpm.

TAB. 4.3 For sand or mix spreading setting- see table. 4.2 (items 6, 13, 14)

Operating range for sand or mix spreading is 50 to 150 g/m².

- out of spreading range
- in spreading range (≥40l/min)

When the dose is set in SERVICE MENU - Sand 3530g

Sand		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	50
3530	5									50
3530	10									50
3530	15									50
3530	20									50
3530	25									50
3530	30									50
3530	35									50
3530	40									50

Sand		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	60
3530	5									60
3530	10									60
3530	15									60
3530	20									60
3530	25									60
3530	30									60
3530	35									60
3530	40									60

Sand		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	70
3530	5									70
3530	10									70
3530	15									70
3530	20									70
3530	25									70
3530	30									70
3530	35									70
3530	40									70

Sand		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	80
3530	5									80
3530	10									80
3530	15									80
3530	20									80
3530	25									80
3530	30									80
3530	35									80
3530	40									80

Sand		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	90
3530	5									90
3530	10									90
3530	15									90
3530	20									90
3530	25									90
3530	30									90
3530	40									90

Sand		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	100
3530	5									100
3530	10									100
3530	15									100
3530	20									100
3530	25									100
3530	30									100
3530	35									100
3530	40									100

Sand		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	110
3530	5									110
3530	10									110
3530	15									110
3530	20									110
3530	25									110
3530	30									110
3530	35									110
3530	40									110

Sand		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	120
3530	5									120
3530	10									120
3530	15									120
3530	20									120
3530	25									120
3530	30									120
3530	35									120
3530	40									120

Sand		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	130
3530	5									130
3530	10									130
3530	15									130
3530	20									130
3530	25									130
3530	30									130
3530	35									130
3530	40									130

Sand		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	140
3530	5									140
3530	10									140
3530	15									140
3530	20									140
3530	25									140
3530	30									140
3530	35									140
3530	40									140

Sand		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	150
3530	5									150
3530	10									150
3530	15									150
3530	20									150
3530	25									150
3530	30									150
3530	35									150
3530	40									150

TAB. 4.4 For salt spreading setting- see table. 4.2 (items 6, 13, 14)

Operating range for salt spreading is 5 to 40 g/m².

- out of spreading range
- in spreading range (≥40l/min)

When the dose is set in SERVICE MENU - Salt 3200g

Salt		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	5
3200	5									5
3200	10									5
3200	15									5
3200	20									5
3200	25									5
3200	30									5
3200	35									5
3200	40									5

Salt		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	10
3200	5									10
3200	10									10
3200	15									10
3200	20									10
3200	25									10
3200	30									10
3200	35									10
3200	40									10

Salt		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	15
3200	5									15
3200	10									15
3200	15									15
3200	20									15
3200	25									15
3200	30									15
3200	35									15
3200	40									15

Salt		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	20
3200	5									20
3200	10									20
3200	15									20
3200	20									20
3200	25									20
3200	30									20
3200	35									20
3200	40									20

Salt		Li - spreading width								Gi [g/m²]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	25
3200	5									25
3200	10									25
3200	15									25
3200	20									25
3200	25									25
3200	30									25
3200	40									25

Salt		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	30
3200	5									30
3200	10									30
3200	15									30
3200	20									30
3200	25									30
3200	30									30
3200	35									30
3200	40									30

Salt		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	35
3200	5									35
3200	10									35
3200	15									35
3200	20									35
3200	25									35
3200	30									35
3200	35									35
3200	40									35

Salt		Li - spreading width								Gi [g/m^2]
mi [g]	Vi[km/h]	2,5[m]	3[m]	3,5[m]	4[m]	4,5[m]	5[m]	5,5[m]	6[m]	40
3200	5									40
3200	10									40
3200	15									40
3200	20									40
3200	25									40
3200	30									40
3200	35									40
3200	40									40

4.5 DRIVING ON PUBLIC ROADS

When driving on public roads, respect the road traffic regulations, exercise caution and prudence. If the sand spreader is operated on pavements special attention should be paid to the bystanders likely to be near the working machine. Listed below are the key guidelines.

- Before moving off make sure that there are no bystanders, especially children, near the machine or the tractor. Take care that the driver has sufficient visibility.
- Make sure that the sand spreader is correctly attached to the tractor, and linkage is properly secured.
- The maximum working speed and the maximum speed allowed by road traffic regulations must not be exceeded. Speed of travel should be adjusted to prevailing road conditions, pavement condition and other conditions.
- While operating the machine, turn on the orange beacon light in the tractor.
- While driving on public roads, the machine should be marked with slow-moving vehicle warning sign (2) placed on the rear of the machine ()
- Avoid ruts, depressions, ditches or driving on roadside slopes. Driving across such obstacles could cause the trailer or the tractor to suddenly tilt. Driving near ditches or canals is dangerous as there is a risk of the slope collapsing.
- 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 implement raised reduce speed due to dynamic loads and the risk of damaging the machine or carrying vehicle.
- When driving with raised machine set it so as not to restrict visibility from the operator seat.
- When driving with raised implement, secure the tractor (carrying vehicle) linkage against falling or accidental dropping.

4.6 DISCONNECTING FROM TRACTOR

DANGER

Before disconnecting the machine from the tractor, turn off the tractor engine, engage the parking brake and secure cab against access of third persons.

DANGER

Reduce pressure prior to disconnecting the hydraulic system.

In order to disconnect the sand spreader from the tractor, proceed as follows:

- Empty the tank by tilting the bucket down by a hydraulic cylinder.
- Set the machine in a parking position (Figure 4.3).
- Switch off engine, remove key from ignition and engage parking brake.
- Reduce residual pressure in the hydraulic system by movements of appropriate lever controlling the tractor's hydraulic circuit.
- Disconnect the tractor hydraulic system connectors from, secure with caps and put in a special bracket on the rear three-point linkage frame.
- Extend the support leg (in position A) (Figure 4.3).
- Disconnect top link, dismount lower links from pins and drive tractor away from the machine

CHAPTER

5

MAINTENANCE

5.1 MAINTENANCE OF THE HYDRAULIC SYSTEM

The user is obliged to perform following maintenance works on the hydraulic system:

- inspection of hydraulic connections tightness,
- inspection of technical condition of hydraulic hoses and quick-couplings.

DANGER

Do not repair the hydraulic system on your own. These repairs should be performed only by properly qualified personnel.

NOTE

Before beginning, visually check elements of the hydraulic system.

The hydraulic system of e new machine is factory-filled with HL32 hydraulic oil. Due to composition of this kind of oil, it is not classified as dangerous substance, however long-term exposition may cause irritation of skin and eyes. In the event of contact of oil with skin, wash the area of contact with water and soap. Do not apply organic solvents (petrol, kerosene). Contaminated clothing should be changed to prevent access of oil to skin. In the event of contact of oil with eye, rinse with large quantity of water and if irritation occurs, consult a doctor. Hydraulic oil in normal condition is not harmful to the respiratory tract. A hazard only occurs when oil is strongly atomized (oil mist) or in case of fire which can cause releasing of toxic compounds.

DANGER

Oil fires should be extinguished by means of carbon dioxide (CO_2), extinguishing steam or foam. Do not use water!

TABLE 5.1 HL32 HYDRAULIC OIL SPECIFICATION

ITEM	NAME	VALUE
1	Viscosity classification according to ISO 3448VG	32
2	Kinematic viscosity at 40^0C	28,8–35,2 mm^2/s
3	Quality classification according to ISO 6743/99	HL
4	Quality classification according to DIN 51502	HL
5	Ignition temperature, ^{0}C	above 210
6	Maximum operating temperature, ^{0}C	80

Spilled oil should be immediately collected and placed in marked and sealed container. Waste oil should be taken to an appropriate facility recycling or regenerating this type of waste.

The hydraulic system should be completely tight sealed. Minimum leaks (symptoms of "sweating") are permissible, but if leaks in form of "droplets" are detected, stop using machine until fault is removed.

The hydraulic system is automatically vented during machine operation.

Technical condition of the hydraulic system should be regularly inspected while using the machine.

DANGER

Reduce residual pressure before attempting any works on the hydraulic system.

DANGER

When working on the hydraulic system, use relevant personal protection equipment such as protective clothing, shoes, gloves, goggles etc. Avoid contact with oil.

5.2 REPLACEMENT OF SPREADING DISC BLADES

Technical condition of the spreading disc blades should be regularly checked against mechanical damage, excessive wear and completeness of mounting elements.

DANGER

Inspection and replacement of the spreading disc blades can be performed only if the machine is not attached to a tractor.

To gain better access to the bladed spreading disc bolted connections it is recommended to remove the top cover plate. Please do the following:

- unscrew plugs (3),
- remove bolts *(2), (6)* and washers *(4),*
- remove the cover (5), and then replace the blades (1).

In order to replace the spreading disc blade:

- remove nuts *(3),*
- remove screws *(2)* and washers *(4),*
- replace blades *(1)* with new ones; check condition of screws and nuts and replace them, if required (see TABLE 5.2),
- assembly should be done in a reverse sequence.

TABLE 5.2 LIST OF WORKING ELEMENTS OF THE SPREADING DISC

Marking FIGURE 5.1	**Name/catalog no.**	**Quantity** [pcs]
1	Blade / 19RPN-03.00.03	4
2	Screw / M8x20-A2-70 PN-EN ISO 4017	8
3	Self-locking nut / M8-A4-70 PN-EN ISO 7040	8
4	Washer / 8-200HV-A2 PN-EN ISO 7089	8
5	Top cover plate / 334N-06000002	1
6	Screw / M8x16-A2-70 PN-EN ISO 4017	2

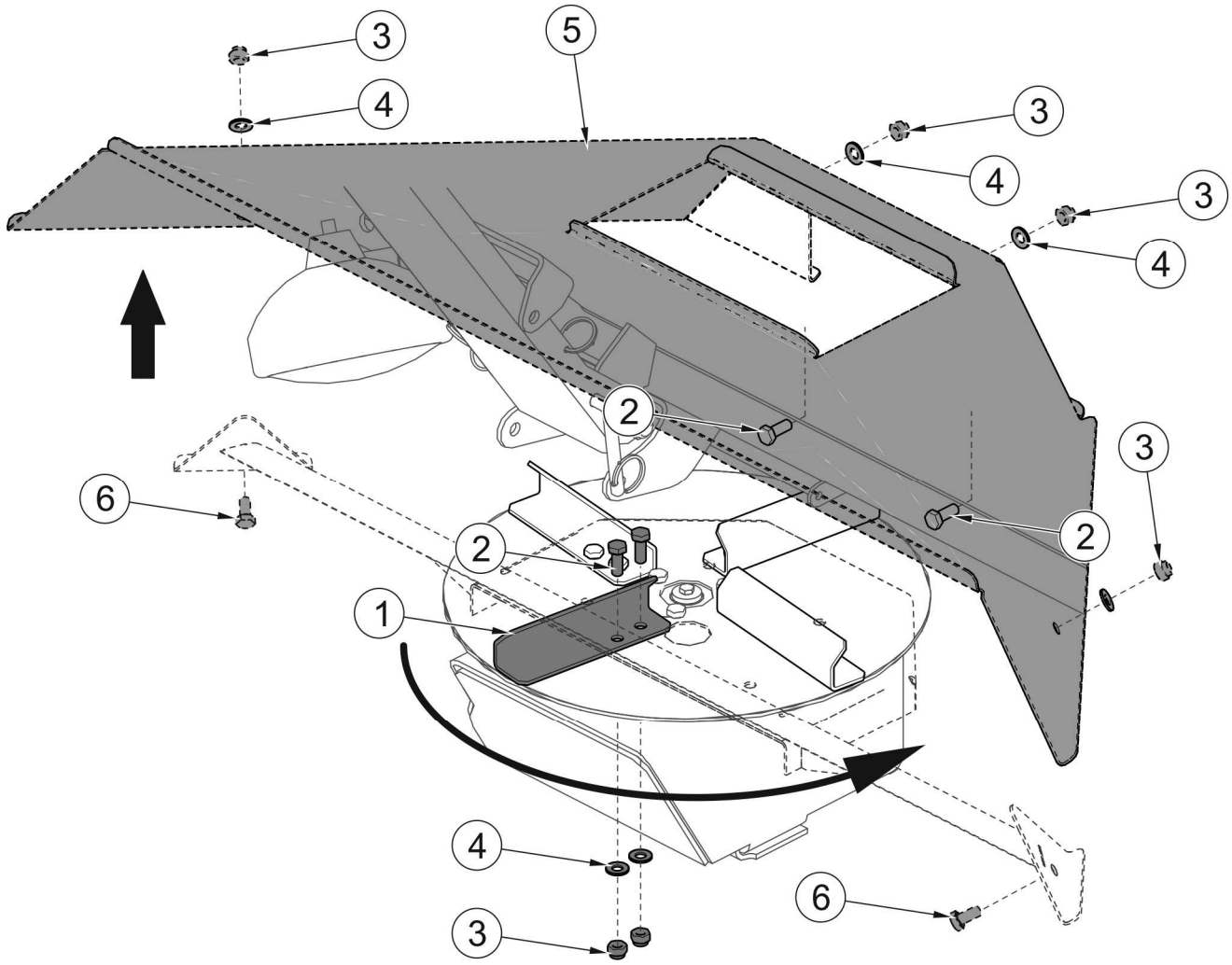


FIGURE 5.1 Replacement of spreading disc blades

(1)- blade; (2)- screw; (3)- nut; (4)- washer, (5)- top cover plate, (6)- screw

5.3 LUBRICATION

Before lubrication, remove old grease and other contamination as far as possible. Excessive grease should be wiped off. ŁT-43-PN/C-96134 grease is recommended for lubrication.

DANGER

Lubrication can only be performed when the machine is not attached to a tractor.

When the machine is used, the user is obliged to observe lubrication instructions and recommended schedule. Excessive grease can cause deposition of additional contaminants in areas requiring lubrication, therefore it is essential to keep individual parts of the machine clean.

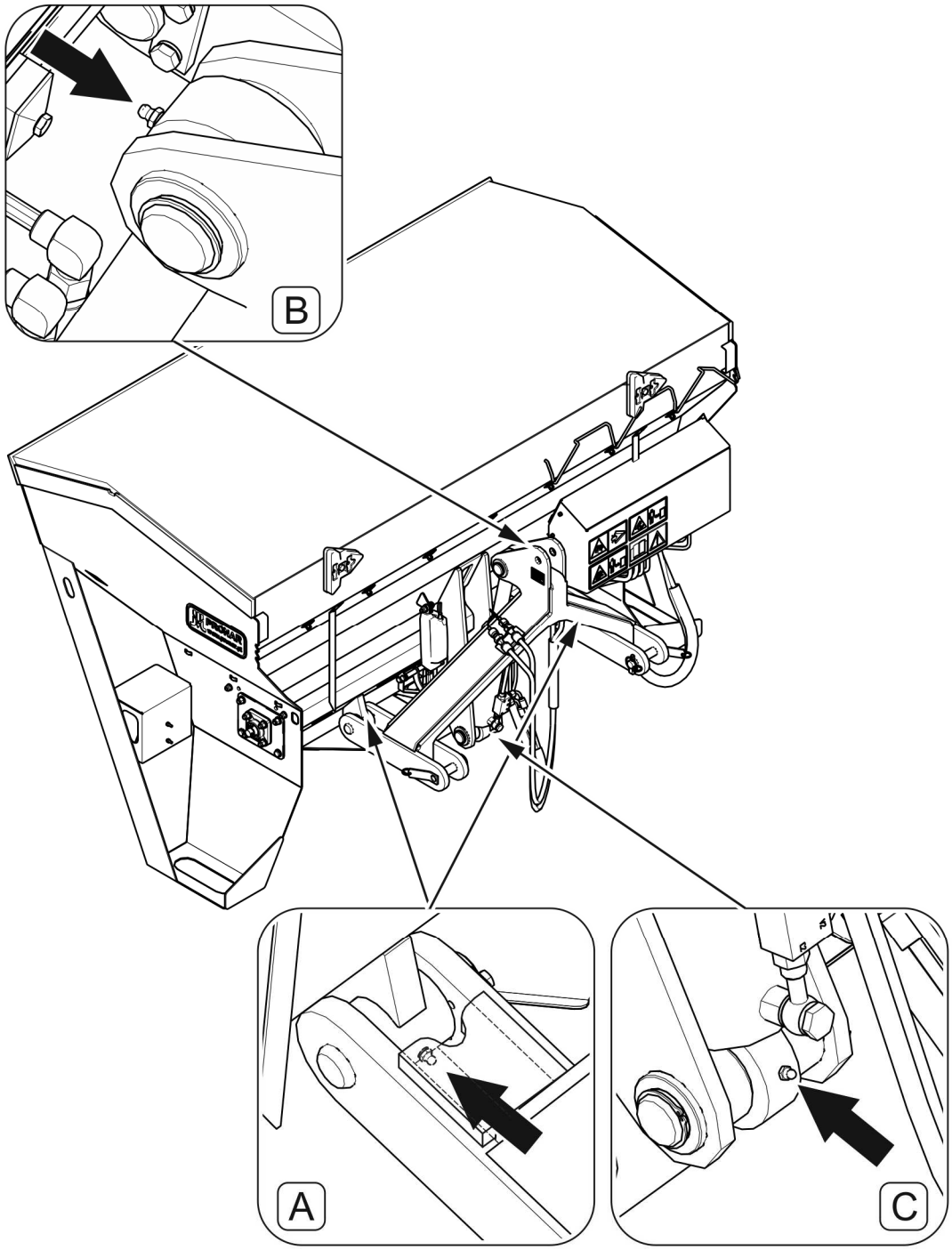


FIGURE 5.2 Lubrication points

Lubrication points are described in table 5.3.

TABLE 5.3 LUBRICATION POINTS AND FREQUENCY

ITEM	NAME	NUMBER OF LUBRICATION POINTS	TYPE OF GREASE	LUBRICATION FREQUENCY
A	Pivot pin of the hitch	2	solid grease	20 hours
B	Upper bearing of the hydraulic cylinder	1	solid grease	20 hours
C	Lower bearing of the hydraulic cylinder	1	solid grease	20 hours

Description of marks in „ITEM" column (TABLE 5.3) is in accordance with marks (FIGURE 5.2)

5.4 STORAGE

When operation of the machine is finished, it should be emptied, carefully cleaned and washed with water stream. When washing, do not direct the stream of water or steam on information and warning decals and hydraulic hoses. Nozzle of pressure or steam washer should be kept at least 30 cm from cleaned surface.

When cleaning is finished, inspect the whole machine and check the technical condition of each element. Worn or damaged elements should be repaired or replaced with new ones.

In case of damage to the paint coating clean rust and dust from damaged area, degrease, and paint with primer. After drying, paint with surface paint retaining uniform color and thickness of protective coating. If damaged places will not be painted immediately, cover them with thin layer of grease or anticorrosion agent. It is recommended to store the trailer in a closed or roofed storage.

If the machine is not used for long period, protect it from the influence of atmospheric conditions. Lubricate the machine according to recommendations. If the machine is not moved for a long time, lubricate all elements regardless of the time of their previous lubrication. In addition, before winter season lubricate all pins of the hitch.

Spreader container should be emptied and dose regulation lever should be set in fully open position. Mount a cover on the container (if exist).

NOTE

Residues of salt material can cause rapid corrosion of metal elements.

5.5 TORQUE VALUES FOR BOLTED JOINTS

During maintenance and repairs use appropriate torque values for bolted joints (unless other specified). Recommended torque values apply to steel non-greased bolts (0).

NOTE

Should it be necessary to change individual parts, use only genuine parts or parts recommended by the Manufacturer. Non-adherence to this requirement may put user and bystanders health and life at risk as well as damage to the machine.

TABLE 5.4 TORQUE VALUES FOR BOLTED JOINTS

THREAD DIAMETER [mm]	**5.8**	**8.8**	**10.9**
	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
M24	530	730	1 050

5.6 TROUBLESHOOTING

TABLE 5.5 TROUBLESHOOTING

TYPE OF FAULT	CAUSE	REMEDY
Control panel is not working	Main switch of control panel is off	Turn on the main switch (power supply).
	Control panel power cord disconnected	Connect the power supply to control panel.
	Damaged 3-pin socket or short circuit in the electrical system	Check the electrical system of the carrier and the machine.
Spreading disc does not rotate	The hydraulic system is not connected	Connect quick couplers to tractor system.
	Damaged hydraulic quick couplers	Check for damage, refer repair to service, if necessary
	Tractor hydraulic system unreliable switched off	Check the tractor hydraulic system
	Incorrect oil flow direction	Swap quick coupling plugs or change flow direction using selective control valve in the tractor
Incorrect spreading	Incorrect machine settings	Adjust settings in the SERVICE MENU (Table 4.2- item 13). Adjust the dispensed material weight [g] after one turn of the auger, for example by running a test for a given material (weighing material after one turn).
	Machine is incorrectly mounted on the tractor	Check and adjust according to operator's manual (Fig. 4.3).
	Incorrect spreading width	The speed sensor is set incorrectly or damaged. Adjust settings in the SERVICE MENU (Table 4.2- item 14). Adjust the spreading width by varying the speed of the spreading disc.
	Contaminated, excessively worn spreading disc blades	Clean, replace if necessary.
Spreader does not spread the material	Sticking of the material, incorrect humidity	Use the correct material.

NOTES