

INTRODUCTION

The information contained in the publication is current at the date of publication. As a result of improvement, some sizes and illustrations contained in this publication may not correspond to the actual state of the machine delivered to the user. The manufacturer reserves the right to introduce constructional changes in the manufactured machines to facilitate operation and improve the quality of their work, without making any current changes to this publication.

The operating instruction is the basic equipment of the machine. Before using the machine, the user must read the contents of this manual and observe all recommendations contained therein. This will guarantee safe and trouble-free operation of the machine. The machine was constructed in accordance with applicable standards, documents and current legal regulations. The User Manual describes the basic principles of safe use and operation of the Pronar Z245/1 front-mounted wrapping machine.

If the information contained in the operating instructions does not turn out to be comprehensible, please contact the sales office where the machine was purchased or directly to the Manufacturer.

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SYMBOLS USED IN THE USER MANUAL

Information, descriptions of hazards and precautions as well as instructions and orders related to safe use in the manual are marked with:



and preceded by the word **DANGER**. Failure to comply with these recommendations may endanger the health or life of persons operating the machine or unauthorized bystanders.

Particularly important information and recommendations, the observance of which is absolutely necessary, are highlighted in the text with a sign:



and preceded by the word **CAUTION**. Failure to comply with these recommendations creates the risk of damage to the machine due to improper handling, adjustment or use.

In order to draw the user's attention to the necessity to perform periodic maintenance, the content of the manual is marked with the following sign:



and preceded by the word **OVERVIEW**

Additional instructions contained in the manual describe useful information on operating the machine and are marked with a sign:



and preceded by the word **ADVICE**.

DESIGNATION OF DIRECTIONS IN THE MANUAL

Left side – the left hand side of the observer facing the machine in the forward direction.

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

THE SCOPE OF SERVICE ACTIVITIES

The maintenance activities described in the manual are marked with the sign: ➡

The result of the maintenance / adjustment activity or remarks concerning the performed activities is marked with the sign: ⇨

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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:	Bale wrapper
Type:	Z245/1
Model:	—
Serial number:	
Commercial name:	Bale wrapper PRONAR Z245/1

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 11 CZE. 2013*Place and date*

Z-Ca DYREKTORA
d/s technicznych
członk. zarządu

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*Full name of the empowered person
position, signature*

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Chapter 1

GENERAL

1.1 IDENTIFICATION

1.1.1 WRAPPING MACHINE IDENTIFICATION

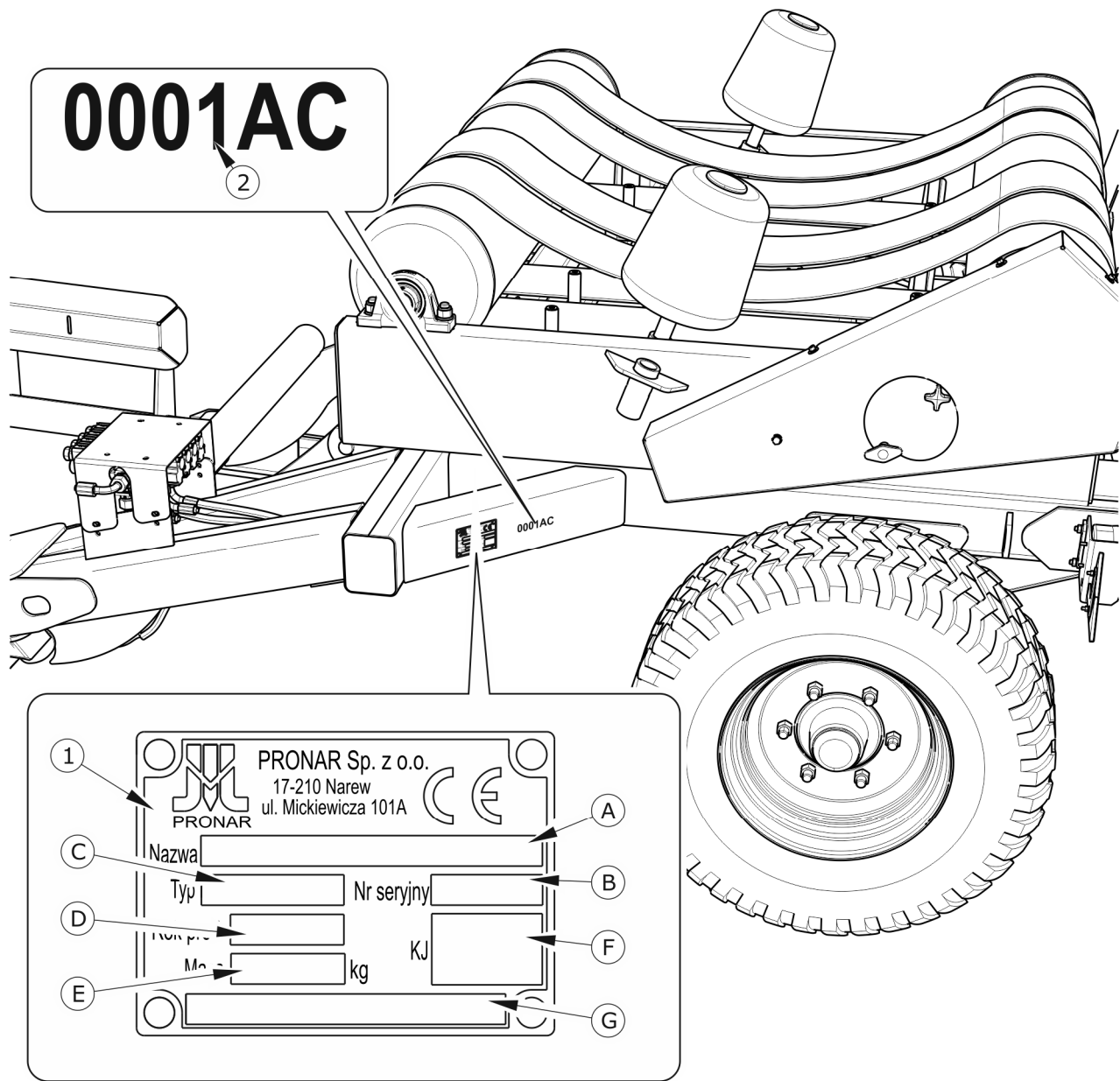


FIGURE 1.1 Location of nameplate and serial number

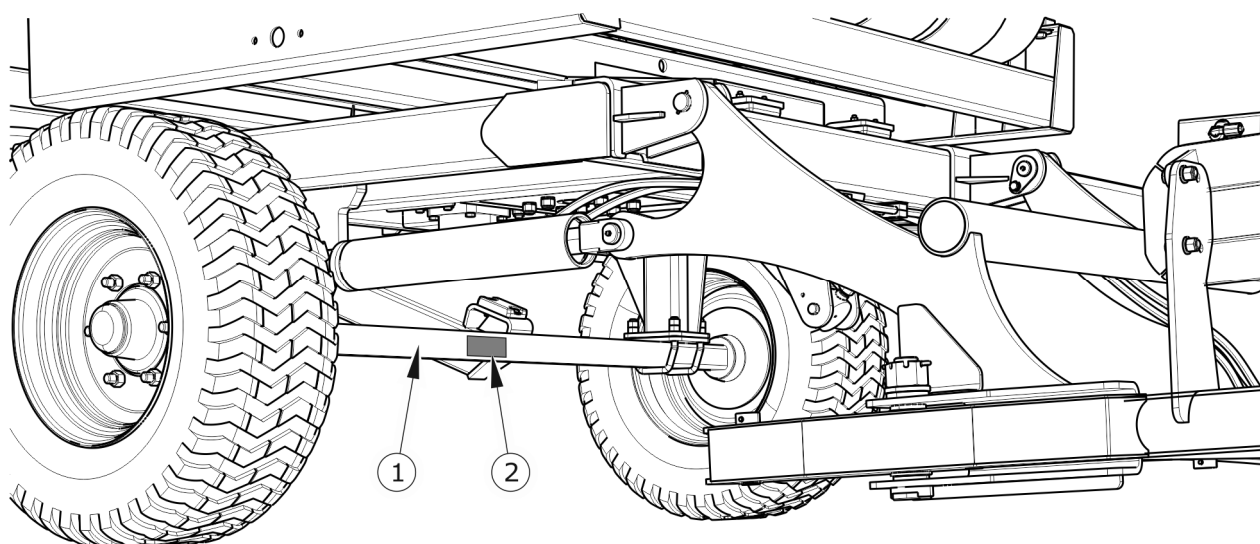
(1) nameplate (2) example of serial number

The Pronar Z245/1 wrapping machine was marked with a nameplate (1) and the serial a name (2) placed on a rectangular field painted in gold. The serial number and the nameplate are located on the left frame profile - figure (1.1). When buying machines, check the compatibility of serial numbers placed on the machine with the number entered in the "WARRANTY CARD" and in the sales documents. The meaning of the individual fields on the nameplate is shown in the table below.

TABLE 1.1 Nameplate markings

Item	MEANING
A	Name of the machine
B	Type
C	Serial number
D	Year of production
E	The machine's karb weight
F	Quality Control mark
G	Blank field or the continuation of the name (field A)

1.1.2 DRIVING AXLE IDENTIFICATION

**FIGURE 1.2** Location of the nameplate of driving axle

(1) nameplate, (2) driving axle

The serial number of the driving axle and its type are stamped on the nameplate (1) attached to the driving axle beam (2) - figure (1.2).

1.1.3 LIST OF SERIAL NUMBERS



ADVICE

If you need to order spare parts or if you have problems with it, it is very often necessary to provide the serial numbers of the part or a name, so it is recommended to write these numbers in the fields below.

WRAPPING MACHINE SERIAL NUMBER

				A	C
--	--	--	--	---	---

AXES SERIAL NUMBER

--	--	--	--	--	--	--	--	--	--	--	--	--	--

1.2 INTENDED USE

CAUTION



The wrapping machine may not be used for purposes other than those for which it was intended.

The hydraulic engine is equipped with a system protecting the drive of the wrapping machine against overload. It is forbidden to adjust the factory settings of the engine.

The wrapping machine is designed to wrap round forage bales with a 500 or 750 mm wide stretch film. The bales of the plant material formed in the shape of a cylinder with the use of round presses may not exceed the width of 1,250 mm, and the bale diameter may not exceed 1,500 mm. The permissible total weight of the bale is 1,000 kilograms

The machine is adapted to work with farm tractors equipped with an external hydraulic system with a free outflow of hydraulic oil to the tank without throttling the flow.

The wrapping machine has been constructed in accordance with the applicable safety requirements and machine standards. The permissible speed of the wrapper moving on public roads is 30 km/h. During work (wrapping), the maximum speed of the set may not exceed 5 km/h, provided that the drive takes place on flat, levelled ground.

Intended use also includes all activities related to the correct and safe operation and maintenance of the machine. Therefore, the user is obliged to:

- Read the content of wrapping machine's *USER MANUAL* and with *WARRANTY CARD* and comply with the guidelines contained in these documents,
- understanding of the principle of machine operation and the safe and proper operation of the wrapping machine,
- work in compliance with established maintenance and adjustment plans,
- work in compliance with general safety regulations,
- accident prevention,
- comply with road traffic regulations in force in the country in which the wrapping machine is used,
- get acquainted with the contents of the farm tractor instruction manual and comply with its recommendations,
- couple the machine only with such an agricultural tractor that meets all the requirements set by the wrapping machine Manufacturer.

The wrapping machine may only be used by persons who:

- become familiar with the contents of publications and documents attached to the machine and the contents of manual of agricultural tractor,
- have been trained in the wrapping machine operation and work safety,
- have the required driving license.

TABLE 1.2 *Agricultural tractor requirements*

Content	Unit	REQUIREMENTS
The hydraulic system		
Hydraulic oil	-	L HL 32 Lotos
Nominal pressure of the system	bar / MPa	150 / 15
Oil demand	l	5.6
Hydraulic sockets	-	in accordance with ISO - 7421-1 return socket with free oil drain (so-called "free sink")
Electrical system		
Electrical system voltage	V	12
Connection socket	-	7 poles in accordance with ISO 1724

Content	Unit	REQUIREMENTS
Tractor hitch required Type	-	Hitch for single axle trailers Upper transport hitch
Other requirements Minimum power	kW / KM	35 / 48

1.3 EQUIPEMENT

TABLE 1.3 *Equipment*

EQUIPEMENT	1	2	3
User manual	✓		
Warranty Card	✓		
Electronic counter of wrappings + user manual for the counter	✓		
Plate for slow-moving vehicles		✓	
Roller chain with a connecting link - 85 links	✓		
Chain wheel Z28	✓		
Mounting bracket (to be mounted in the tractor cabin)	✓		

(1) standard, (2) additional, (3) optional

ADVICE



Tire information is provided at the end of the publication in APPENDIX A.

The wrapping machine is factory-adjusted to work with a foil of a width of 500 mm, a Z45 gear wheel and a chain with 94 links and a connecting link are installed.

1.4 TERMS OF WARRANTY



ADVICE

You should require the seller to carefully fill out the Warranty Card and complaint coupons. The lack of e.g. date of sale or point of sale stamp exposes the user to not accept any complaints.

PRONAR Sp. z o.o. in Narew guarantees easy operation of the machine when it is used in accordance with the technical and operational conditions described in the USER MANUAL. Deadline for completion of repairs is specified in the WARRANTY CARD.

The warranty does not apply to parts and sub-assemblies of the machine, which are subject to wear in normal operating conditions, regardless of the warranty period. The group of these elements includes min. the following parts/components:

- drawbar hitch eye,
- tires,
- bulbs,
- gaskets,
- bearings.

The warranty services only apply to such cases as: mechanical damage not caused by the fault of the user, factory defects of parts, etc.

In the event that damage occurs as a result of:

- mechanical damage caused by the user's fault, road accident,
- from improper operation, adjustment and maintenance, using the wrapping machine contrary to its purpose,
- use of a damaged machine,
- repairs carried out by unauthorized persons, improper repairs,
- execution of user changes in machine design,
- the user loses the warranty.

The user is obliged to immediately report all noticed defects in the paint coatings or traces of corrosion, and order removal of defects regardless of whether the damage is covered by the

warranty or not. Detailed warranty conditions are given in the *WARRANTY CARD* attached to the newly purchased machine.

Modifications to the wrapping machine without the written consent of the Manufacturer are prohibited. In particular, welding, reaming, cutting and heating of the main machine components that directly affect safety during use are not permitted.

1.5 TRANSPORT

The wrapping machine is ready for sale completely assembled and does not require packing. Packing is only required for the machine's technical and operational documentation, and any additional and standard equipment. Delivery to the user is carried out by road or independent transport (towing wrapping machine with an agricultural tractor).

1.5.1 TRUCKING

Loading and unloading of a wrapping machine from a car should be carried out using a loading ramp using a farm tractor, lever of lift. During work act in compliance with the general principles of workplace health and safety for reloading work. Persons operating reloading equipment must have the required permissions to use these devices.

The wrapping machine should be attached firmly to the platform of the vehicle using straps, chains, lashings or other fastening devices equipped with a tensioning mechanism. The fastening elements should be attached to the transport eyelets designed for this purpose (1) - figure (1.3), marked with stickers (2) or until to the fixed structural elements of the wrapping machine (stringers, crossbars, etc.). Transport handles are welded to the frame side member, one piece on each side of the machine.



CAUTION

During road transport, the wrapping machine must be mounted on the platform of the vehicle in accordance with safety requirements and regulations.

While driving, the car driver should exercise extreme caution. This is due to the vehicle's centre of gravity shifting upwards with the machine loaded.

Use only approved and technically reliable securing measures. Read the operating instructions of the securing measures manufacturer.

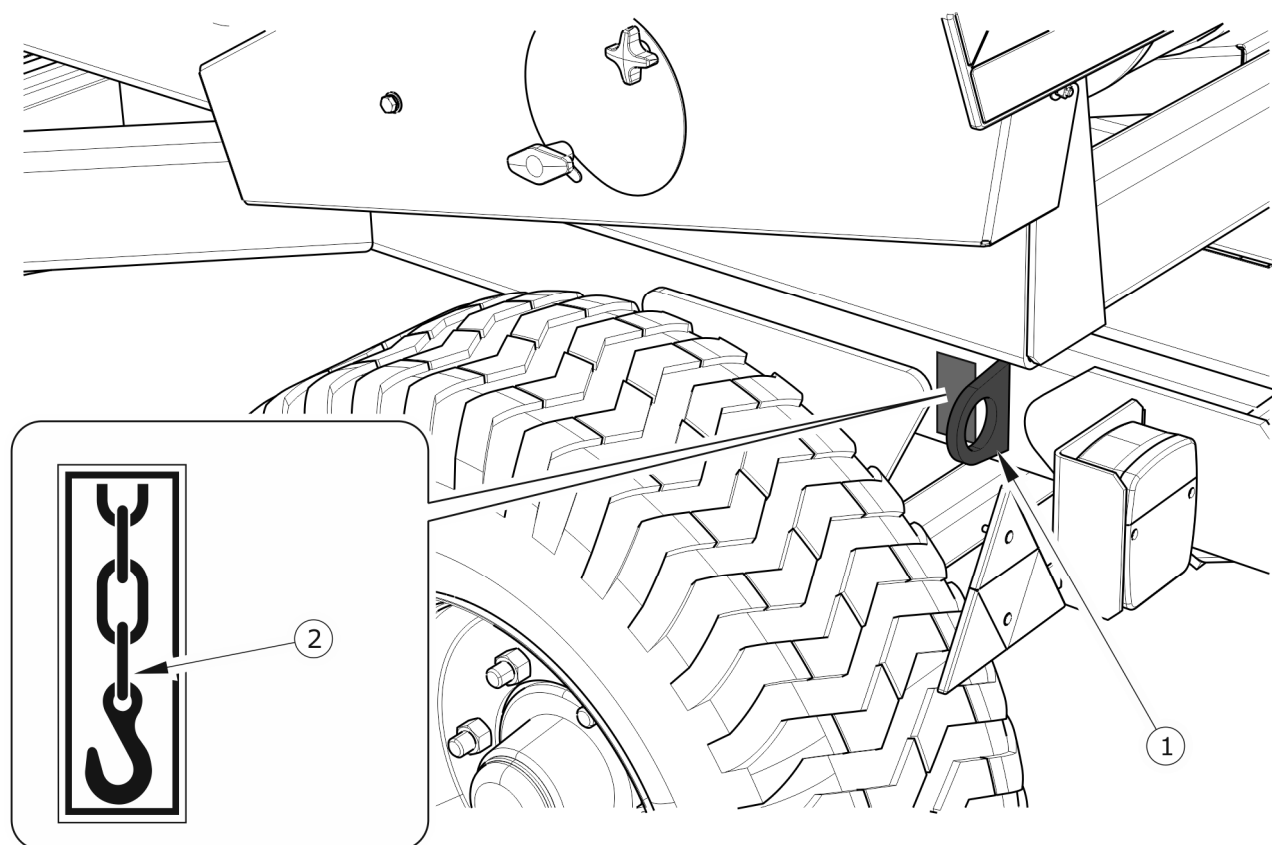


FIGURE 1.3 Arrangement of transport handles

(1) transport handle, (2) information sticker

Use certified and technically reliable securing measures. Wiping belts, cracked fasteners, bent or corroded hooks or other damage may disqualify the product from being used. Please refer to the instructions in the operating instructions of the manufacturer of the securing material used. Chocks, wooden beams or other elements without sharp edges should be placed under the wrapping machine wheels, protecting the machine against rolling. wheel blocks must be nailed to the load platform planks of the car or secured in another way preventing their movement. The number of fastening elements (ropes, belts, chains, lashings, etc.) and the force needed for their tension depends, among others, on the weight of the trailer, the construction of the car carrying the wrapping machine, the speed of travel and other conditions. Therefore, it is not possible to specify the fastening plan in detail. A properly attached machine will not change its position relative to the transporting vehicle. The fastening means must be selected according to the manufacturer's instructions. In case of doubt, a larger number of attachment and securing points for the wrapping machine should be used. If necessary, protect the sharp edges of the machine, thus securing the fixing elements against damage during transport.

**DANGER**

Incorrect use of securing measures can cause an accident.

During reloading work, particular attention should be paid so as not to damage the machine equipment components and the paint coating. The weight of the wrapping machine is given in table (3.1).

1.5.2 USERS'S TRANSPORT

In case of independent transport by the user, read the USER'S MANUAL and follow its recommendations. Independent transport involves towing a machine with own agricultural tractor to its destination. While driving, adjust the speed to the prevailing road conditions, but it must not be greater than the maximum design speed.

**CAUTION**

When transporting independently, the tractor operator should read the instructions and follow the recommendations contained therein.

1.6 THREAT TO THE ENVIRONMENT

A hydraulic oil leak constitutes a direct threat to the natural environment owing to the limited biodegradability of the substance. The negligible solubility of hydraulic oil in water does not cause acute toxicity of organisms living in the aquatic environment. The formed layer of oil on the water may cause direct physical impact on organisms, it may cause changes in the oxygen content in water due to the lack of direct contact of air with water. An oil leak into water reservoirs can, however, lead to a reduction in oxygen content.

**DANGER**

Used hydraulic oil or collected residues mixed with absorbent material should be stored in a precisely marked container. Do not use food packaging for this purpose.

When carrying out maintenance and repair work where there is a risk of leakage, this work should be carried out in rooms with an oil resistant surface. In the event of oil leaking into the

environment, first of all contain the source of the leak, and then collect the leaked oil using available means. Collect oil residue with sorbents or mix the oil with sand, sawdust or other absorbent materials. Collected oil contaminants should be stored in an airtight and marked container, resistant to hydrocarbons. The container should be kept away from heat sources, flammable materials and food.

Oil which has been used up or is unsuitable for further use due to the loss of its properties is recommended to be stored in its original packaging in the same conditions as described previously. Oil waste should be taken to an oil disposal or regeneration point. Waste Code: 13 01 10. Detailed information on hydraulic oil can be found in the product safety data sheet.

**ADVICE**

The wrapping machine's hydraulic system is filled with L-HL 32 Lotos oil.

**CAUTION**

Oil waste can only be delivered to a point dealing with the utilization or regeneration of oils. It is prohibited to throw or pour oil into the sewage system or water reservoirs.

1.7 WITHDRAWAL FROM USE

If the user decides to withdraw the wrapping machine from use, comply with the provisions in force in the given country regarding withdrawal from use and recycling of machines withdrawn from use. Before proceeding to dismantle, the oil must be completely removed from the hydraulic system.

**DANGER**

During dismantling, use appropriate tools and equipment (overhead cranes, elevators, lifts, etc.) and use personal protective equipment, i.e. protective clothing, footwear, gloves, glasses, etc.

Worn or damaged elements that cannot be regenerated or repaired should be taken to a collection point for recyclable materials. Hydraulic oil should be taken to the appropriate facility dealing with the utilization of this type of waste.

**DANGER**

Avoid oil contact with skin. Do not allow hydraulic oil to leak.

Chapter 2

SAFETY OF USE

2. TECHNICAL SAFETY INFORMATION

2.1.1 BASIC SAFETY RULES

- Before using the wrapping machine, the user should carefully read the contents of this User Manual and the manual attached to the electronic rev counter. During their operation, all recommendations contained therein must be observed. It is forbidden to start the wrapping machine without knowing its functions.
- The user is obliged to become familiar with the construction, operation and principles of safe machine operation.
- Before each start of the wrapping machine, check if it is properly prepared for work, especially in terms of safety.
- If the information contained in the User'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.
- Entering the wrapping machine is possible only when the machine is absolutely motionless, the tractor engine is turned off and the ignition key is removed.
- Careless and improper use and operation of the wrapping machine, as well as non-compliance with the instructions contained in the User Manual, can pose the health and life of bystanders and / or the machine operator.
- The wrapping machine may only be used when all the covers and other protective elements are functional and properly fastened in right place.
- Be aware of the existence of a residual risk of hazards, therefore the basic principle of using the wrapping machine should be the application of the principles of safe use and reasonable behaviour.
- The wrapping machine must not be used by persons who are not authorized to drive agricultural tractors, including children and people under the influence of alcohol or other drugs.
- The wrapping machine may not be used for purposes other than those for which it was intended. Everyone who uses the machine in a manner contrary to its intended use, thus takes full responsibility for all consequences arising from its use. Using of the

machine for purposes other than envisaged by the Manufacturer is inconsistent with the purpose of the machine and may void the warranty.

- Any modification of the wrapping machine is prohibited and exempts Pronar from liability for any damage or injury.
- Before using the machine, always check its technical condition, in particular: the technical condition of the drawbar, hydraulic system, safety guards and air pressure in the tires.
- The wrapping machine's maximum carrying capacity must not be exceeded.
- It is forbidden to exceed the maximum revolutions of the turntable.
- It is forbidden to transport bales and any load on the wrapping machine during a transport journey.
- It is forbidden to exceed the permissible transport speed of the set.

2.1.2 CONNECTING AND DISCONNECTING OF THE TRAILER

- Take special care when connecting the machine.
- When connecting the wrapping machine to the tractor, use the appropriate hitch of the tractor. After coupling the machines, check the hitch safety device. Read the tractor operating instructions. If the tractor is equipped with an automatic hitch, make sure that the coupling operation has been completed.
- Nobody may stay between the wrapping machine and the tractor during coupling.
- It is forbidden to connect the wrapping machine to the tractor, if it does not meet the requirements set by the Manufacturer. Before connecting the wrapping machine, make sure that the oil in the external hydraulic system of the tractor may be mixed with the hydraulic oil of the machine.
- When connecting the hydraulic conduits to the tractor, make sure that the tractor hydraulic system and wrapping machine are not under pressure. If necessary, reduce the residual pressure of the system.
- Before coupling the wrapping machine, make sure that both machines are technically sound.

- The machine uncoupled from the tractor must stand on level ground and be supported with a support. The ends of hydraulic and electric conduits should be protected against contamination.
- When moving the disconnected wrapping machine, there is a risk that the support wheel may fold. Take special care.

2.1.3 THE HYDRAULIC SYSTEM

- The hydraulic system of the wrapping machine is under high pressure during operation.
- Regularly check the condition of connections and hydraulic lines. No hydraulic oil leaks are allowed.
- In the event of failure of the hydraulic system, the wrapping machine must be decommissioned until the failure is remedied.
- Before commencing maintenance and repair work, make sure that the hydraulic system is not under pressure.
- Rubber hydraulic conduits must be replaced every 4 years regardless of their technical condition.
- Use hydraulic oil recommended by the manufacturer.
- After changing the hydraulic oil, the used oil must be disposed. Used oil or oil which has lost its properties should be stored in original containers or replacement packaging resistant to hydrocarbons. Replacement containers must be accurately described and properly stored.
- It is forbidden to store hydraulic oil in packaging intended for food storage.

2.1.4 MAINTENANCE

- It is forbidden to perform maintenance or repair work with the hydraulic motor drive turned on. Before starting work, switch off the tractor engine and remove the ignition key. If necessary, protect the wrapping machine against rolling by placing chocks under the wheels.
- Regularly check the condition of the screw connections.
- During the warranty period, any repairs may only be carried out by a Warranty Service authorized by the manufacturer. After the end of the warranty period, it is recommended that any repairs to the wrapping machine be carried out by specialized workshops.

- During maintenance work, use appropriate, close-fitting protective clothing, gloves, shoes, glasses and the right tools.
- In the event of any faults or damage, the machine should be decommissioned until repaired.
- Perform maintenance and repair activities applying general principles of health and safety at work. In the event of a cut, the wound should be immediately washed and disinfected. In case of serious injuries consult a physician.
- Inspect the wrapping machine according to the frequency specified in this manual.
- Before starting work requiring the turntable to be raised, it must be unloaded. The table should be secured against falling with a folding support. At this time, the wrapping machine must be hitched to the tractor and secured with wedges.
- Before welding or electrical work, the wrapping machine should be disconnected from the power supply. The paint coating should be cleaned. The fumes of burning paint are poisonous to humans and animals. Welding work should be carried out in a well-lit and ventilated room.
- During welding work pay attention to flammable or fusible elements (elements of electrical and hydraulic installations, elements made of plastic and rubber). If there is a risk of ignition or damage, they must be removed or covered with non-flammable material before welding. Before starting work, it is recommended to prepare a CO₂ or foam extinguisher.
- In the event of work requiring the wrapping 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. It is forbidden to work under a wrapping machine raised only with a lift.
- It is forbidden to support the wrapping with fragile elements (bricks, hollow bricks, concrete blocks).
- After completing work associated with lubrication, remove excess grease or oil. The wrapping machine should be kept clean.
- Be especially careful when entering the wrapping machine. The machine must be secured against rolling with wedges.

- It is forbidden to perform independent repairs of hydraulic valves, manifold and actuators. In case of damage to these elements, the repair should be entrusted to authorized repair centres or replace the elements with new ones.
- The drawbar must not be repaired (straightening, surfacing, welding). A damaged drawbar must be replaced with a new one.
- It is forbidden to install additional devices or accessories that do not comply with the specification specified by the Manufacturer.
- It is allowed to tow the wrapper only when the running gear and lighting system are operational.
- Check the condition of protective elements, their technical condition, correct fastening.
- If it is necessary to replace 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 at risk, and also damage the machine.
- In the event of injuries being caused by pressurized hydraulic oil, contact a doctor immediately. Hydraulic oil can penetrate the skin and cause infection. In the event of contact of oil with eye, rinse with large quantity of water and in the event of the occurrence of irritation consult a doctor. In the event of contact of oil with skin, wash the area of contact with water and soap. Do not use organic solvents (petrol, kerosene).

2.1.5 RULES TO MOVE ON PUBLIC ROADS

- During a transport trip, the driving speed should be adapted to the environmental conditions. If possible, avoid driving over uneven terrain and unexpected turns.
- When driving on public roads, the driver should comply with the road traffic regulations.
- Do not exceed the maximum speed resulting from restrictions on road conditions and project restrictions.
- In the period of insufficient visibility, a red light and a red reflector should be placed on the rearmost edge of the wrapping machine.
- After preparing the wrapping machine for travel, place a triangular plate distinguishing slow-moving vehicles on the cutting unit guard - figure (2.1).
- Reckless driving and excessive speed can cause an accident.

- Before driving, make sure that the wrapping machine is correctly connected to the tractor (in particular check the safety of the hitch pin).

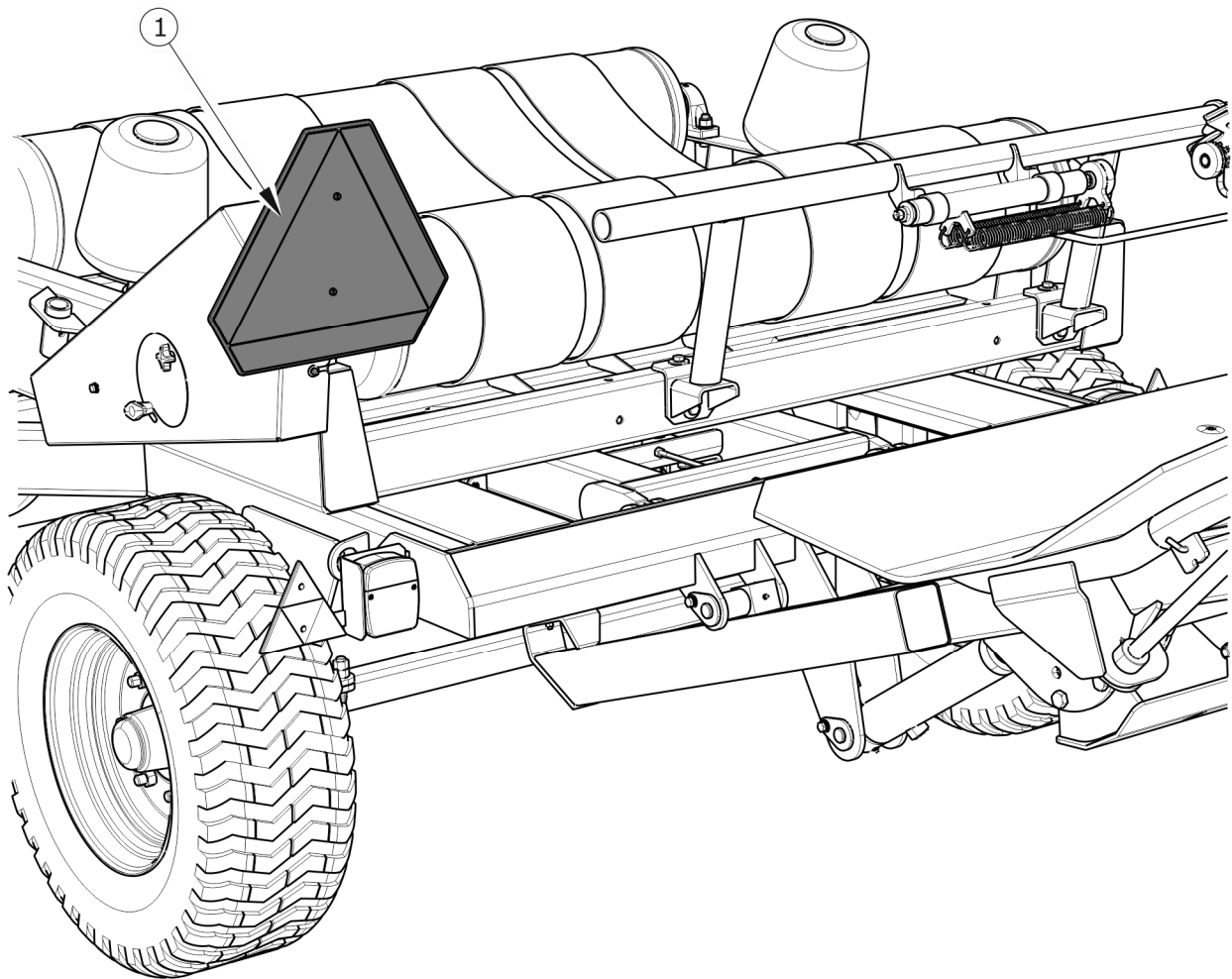


FIGURE 2.1. *Mounting location for the slow moving vehicle sign*

(1) distinguishing sign

- Vertical load carried by the wrapping machine drawbar eye affects the steering of the agricultural tractor.
- It is forbidden to get on the wrapping machine while driving.
- Parking the wrapping machine on a decline is prohibited.
- It is forbidden to leave the machine unsecured. The wrapping machine disconnected from the tractor must be secured against rolling with wedges or other elements without sharp edges placed under the vehicle wheels. The loading arm must be lowered.

2.1.6 TIRES

- When working with tires, the wrapping machine should be secured against rolling by placing chocks under the wheels. The wheel can be dismantled only when the wrapping machine is not loaded.
- Repair work on wheels or tires should be carried out by persons trained and authorized to do so. These works should be carried out using appropriately selected tools.
- Checking the tightness of the nuts should be carried out after the first use of the wrapping machine, after the first journey with a load and then every 6 months of use or every 25,000 kilometres, whichever occurs first. In the event of intensive work, check the nut tightening at least every 10,000 kilometres. Each time, the inspection activities should be repeated if the wrapping machine wheel has been disassembled.
- Avoid damaged road surfaces, sudden and variable manoeuvres, and high speeds when turning.
- Check tire pressure regularly. Tire pressure should also be checked during all-day intensive work. It should be taken into account that an increase in tire temperature can increase the pressure by up to 1 bar. With such a rise in temperature and pressure, reduce the load or speed. Never reduce pressure by venting if it increases due to temperature.
- Tire valves should be protected with suitable caps to avoid penetration of dirt.

2.1.7 LOADING, UNLOADING, WRAPPING

- Before starting loading, make sure that the loading arm lock is removed.
- The wrapping machine's maximum carrying capacity must not be exceeded.
- It is forbidden to wrap bales with dimensions other than those specified in this manual.
- Before starting work, ensure proper visibility of the wrapping machine and the danger zone.
- Before you start wrapping a bale, make sure that there are no bystanders or obstacles preventing the correct operation of the machine near the table rotation area. Lower the load arm.
- During operation, the wrapping machine should stand firmly on a horizontal surface. Operation of the machine on slopes is not allowed.

- Loading of a bale on the turntable may only take place when the wrapping machine has been stopped.
- It is allowed to wrap the bale while driving only if the journey takes place on flat and levelled terrain. Do not exceed the permissible driving speed during operation.
- Adjust the rotational speed of the turntable to the size and weight of the wrapped bales. Do not exceed the permissible rotational speed of the table.
- During unloading, particular care should be taken to ensure that the rolling bale does not crush the bystanders.
- The wrapping machine may be unloaded and loaded only when the machine is positioned on level and hard ground and connected to the tractor. Tractor and wrapping machine must be placed straight-ahead driving.
- During loading and unloading of the wrapping machine and during bale wrapping, the drawbar eye and the tractor hitch are subjected to high vertical load.
- Driving with the turntable raised is prohibited.

2.2 DESCRIPTION OF RESIDUAL RISK

Pronar Sp. z o. o. in Narew made every effort to eliminate the risk of an accident. However, there is some residual risk that can lead to an accident and is primarily associated with the following activities:

- using the wrapping machine for purposes other than described in the manual,
- being between the tractor and the wrapping machine when the engine is running and when connecting the machine,
- being on the machine during engine work,
- operation of the wrapping machine with the covers removed or inoperative,
- failure to keep a safe distance during the operation of the wrapping machine,
- failure to maintain a safe distance during loading and unloading works
- operation of the wrapping machine by unauthorized persons or persons under the influence of alcohol
- cleaning, maintenance and technical inspection of the wrapping machine

- machine operation on unstable and sloping ground
- introducing design changes without the consent of the Manufacturer,
- presence of persons or animals in areas invisible from the operator's position.

Residual risk can be reduced to a minimum by following these recommendations:


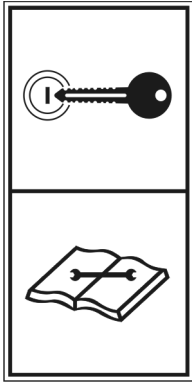

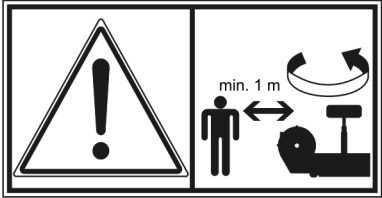

- prudent and leisurely machine operation,
- maintaining a safe distance from prohibited or dangerous places during unloading, loading and coupling the wrapping machine,
- sensible application of the remarks and recommendations contained in the operating instructions,
- carrying out repair and maintenance work in accordance with the operating safety rules, carrying out repair and maintenance work by trained persons,
- the use of close-fitting protective clothing and appropriate tools,
- securing the machine against access by unauthorized persons, especially children,
- keeping a safe distance from prohibited and dangerous places,
- a ban on being on the machine while driving, loading, unloading, wrapping


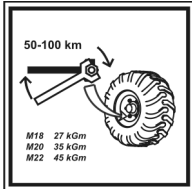


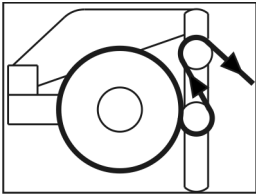

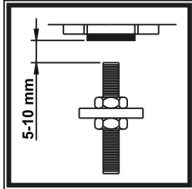

2.3 INFORMATION AND WARNING STICKERS

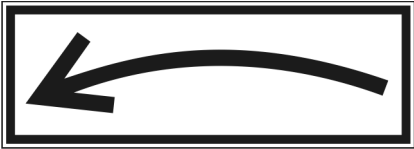

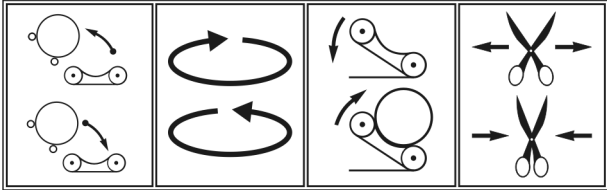

Wrapping machine is marked with information and warning stickers mentioned in table (2.1). The arrangement of symbols is presented in figures (2.3) and (2.4). The machine user is obliged to ensure that the inscriptions, warning and information symbols placed on wrapping machine are legible throughout the entire period of use. In the event of their destruction, they must be replaced.

FIGURE 2.1. *INFORMATION AND WARNING Stickers*

Item	STICKER	DESCRIPTION
1	<i>PRONAR Z245/1</i>	Wrapping machine type 382N-00000001

Item	STICKER	DESCRIPTION
2		<p>Caution.</p> <p>Before starting work, read the User's Manual.</p> <p>70RPN-00.00.00.04</p>
3		<p>Before starting any servicing or repair work, switch off the tractor engine and remove the ignition key. Secure the tractor cab against unauthorized access.</p> <p>70RPN-00.00.00.05</p>
4		<p>Danger of crushing of the limbs.</p> <p>Do not reach into the area of the cutting knives.</p> <p>119RPN-00.00.00.06</p>
5		<p>Caution.</p> <p>Keep a distance of at least 1 meter from the wrapping machine while the table is rotating.</p> <p>119RPN-00.00.00.05</p>
6		<p>Danger of being crushed.</p> <p>124RPN-00.00.00.07</p>

Item	STICKER	DESCRIPTION
7		Do not stay near the raised load arm or the raised unloader frame. 124RPN-00.00.00.08
8		Regularly check the tightness of wheel nuts and other bolted connections. 104RPN-00.00.00.06
9		Lubricate the wrapping machine according to the schedule outlined in the User's Manual. 104RPN-00.00.00.04
10		Marking of the lubrication points. 70RPN-00.00.00.22
11		The method of the wrapping foil installation. 119RPN-00.00.00.08
12		Distinguishing sticker. Contour marking. 119RPN-00.00.00.10
13		Sensor adjustment information. 119RPN-00.00.00.12
14		Marking of transport handles. 58RPN-00.00.019

Item	STICKER	DESCRIPTION
15		Table rotation direction. 119RPN-00.00.00.07
16		Direction of hydraulic oil flow in the connection conduit. 70RPN-00.00.00.21
17		Information sticker for the functions of the hydraulic distributor. 124RPN-00.00.00.05
18		Control of the speed of lowering the unloading mechanism. 124RPN-00.00.00.09

Labels with inscriptions and symbols are available from the Manufacturer or in the place where the machine was purchased. The catalogue numbers of the information stickers can be found under the pictogram description in the table (2.1) and in the SPARE PARTS CATALOG. New assemblies replaced during repair must be marked again with the appropriate safety signs. When cleaning the wrapping machine, do not use solvents that may damage the label coating and do not direct a strong stream of water.

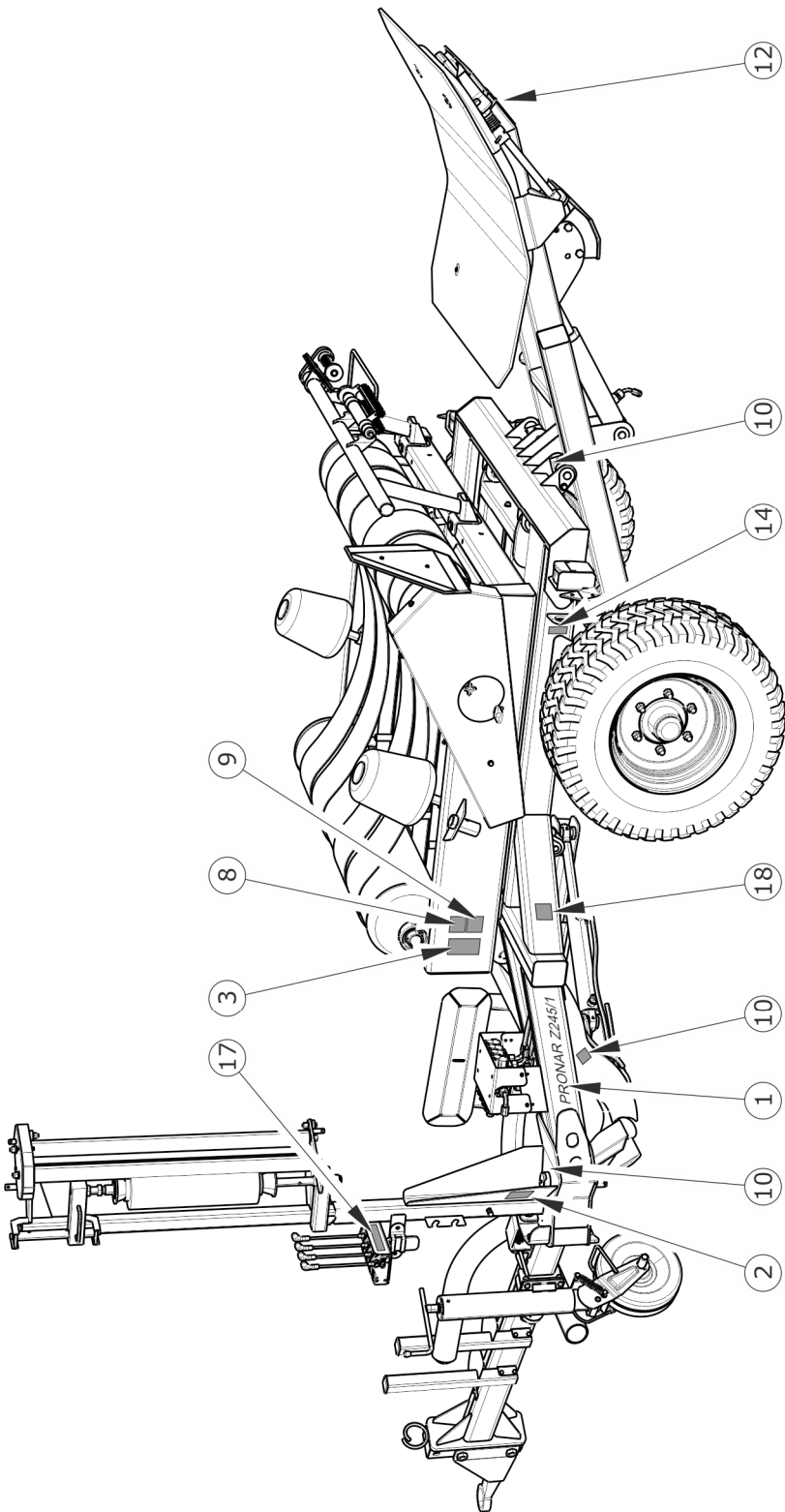


FIGURE 2.2. *Arrangement of information and warning stickers, part 1*

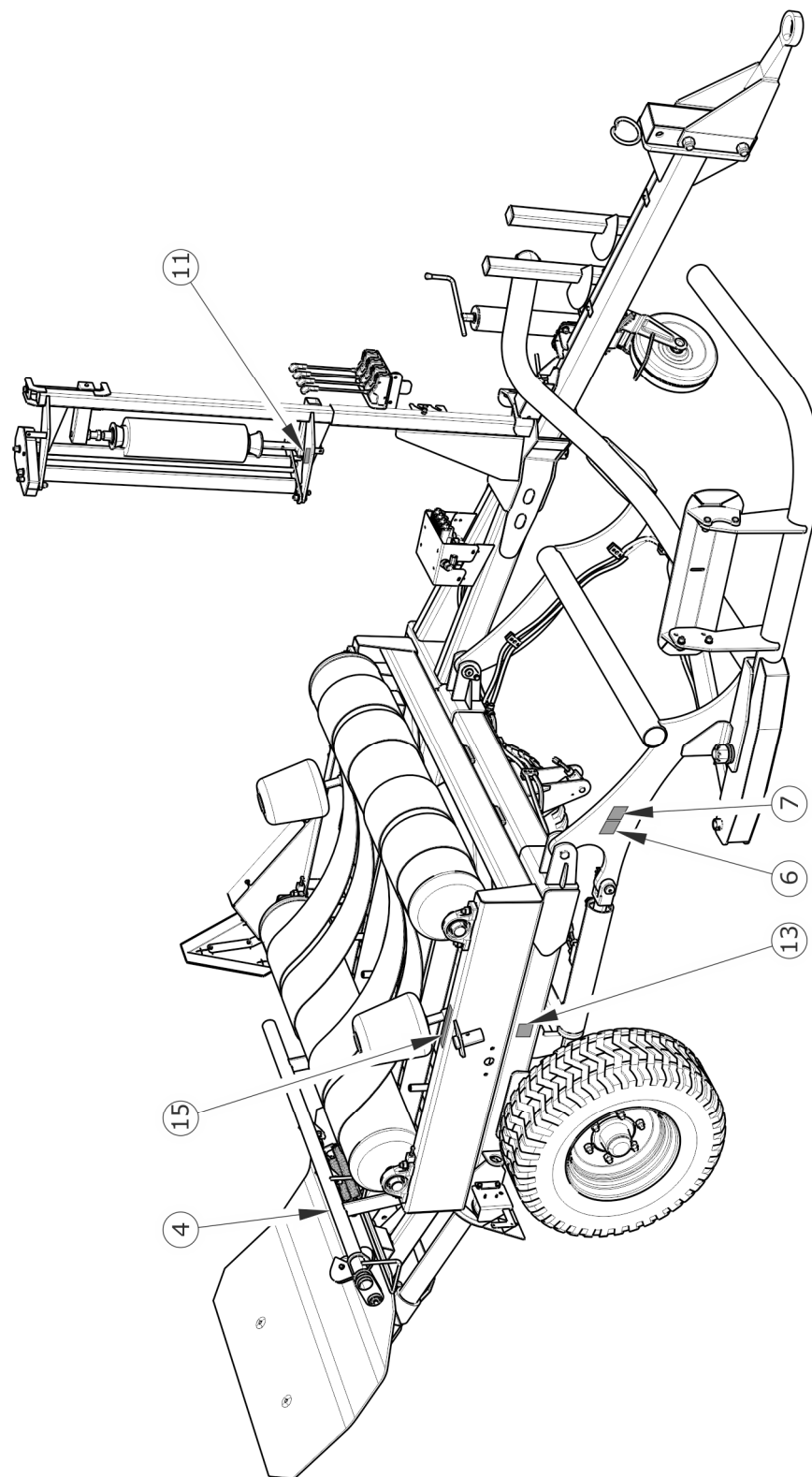


FIGURE 2.3. *Arrangement of information and warning stickers, part 2*

Chapter 3

CONSTRUCTION AND OPERATION

3.1 TECHNICAL CHARACTERISTICS

TABLE 3.1. *Basic technical data as standard equipment*

Content	Unit	Z245/1
Wrapping machine dimensions		
Length (transport / working)	mm / mm	5,890 / 6,100
Maximum width (transport / working)	mm / mm	2,220 / 3,370
Maximum height (transport / working)	mm / mm	2,570 / 2,570
Weight and load capacity		
Karb weight	kg	1,650
Capacity	kg	1000
Bale parameters		
Bale diameter (final / maximum)	mm	1,200 / 1,500
Bale width (maximum)	mm	1,250
Permissible bale weight	kg	1000
Drive system		
Allowable speed of the turntable	rev ⁻¹	25
Hydraulic motor oil flow	l/min	appx. 30
Other information		
The width of the film	mm / mm	500 / 750
Noise level	dB	below 70
Min. tractor power	KM/ kW	35 / 48
Permissible design speed	km/h	30

3.2 CONSTRUCTION OF THE WRAPPING MACHINE

The lower frame (1) of the wrapping machine is a welded structure made of steel sections. In the rear part of the frame, there is a wheel axle (7), unbraked, connected with U bolts. The turntable (2) is mounted to the lower frame with the tipping pins. On the side wall of the turntable there is a cutting unit that enables automatic cutting of the film without leaving the tractor operator's cabin. In the front part of the wrapper there is a film feeder (3), adapted to

unwind 500 and 750 mm film. In the front part of the frame, there is the loading mechanism arm (4), which is hydraulically controlled by a distributor. The unloading mechanism (6) is installed in the rear part of the frame.

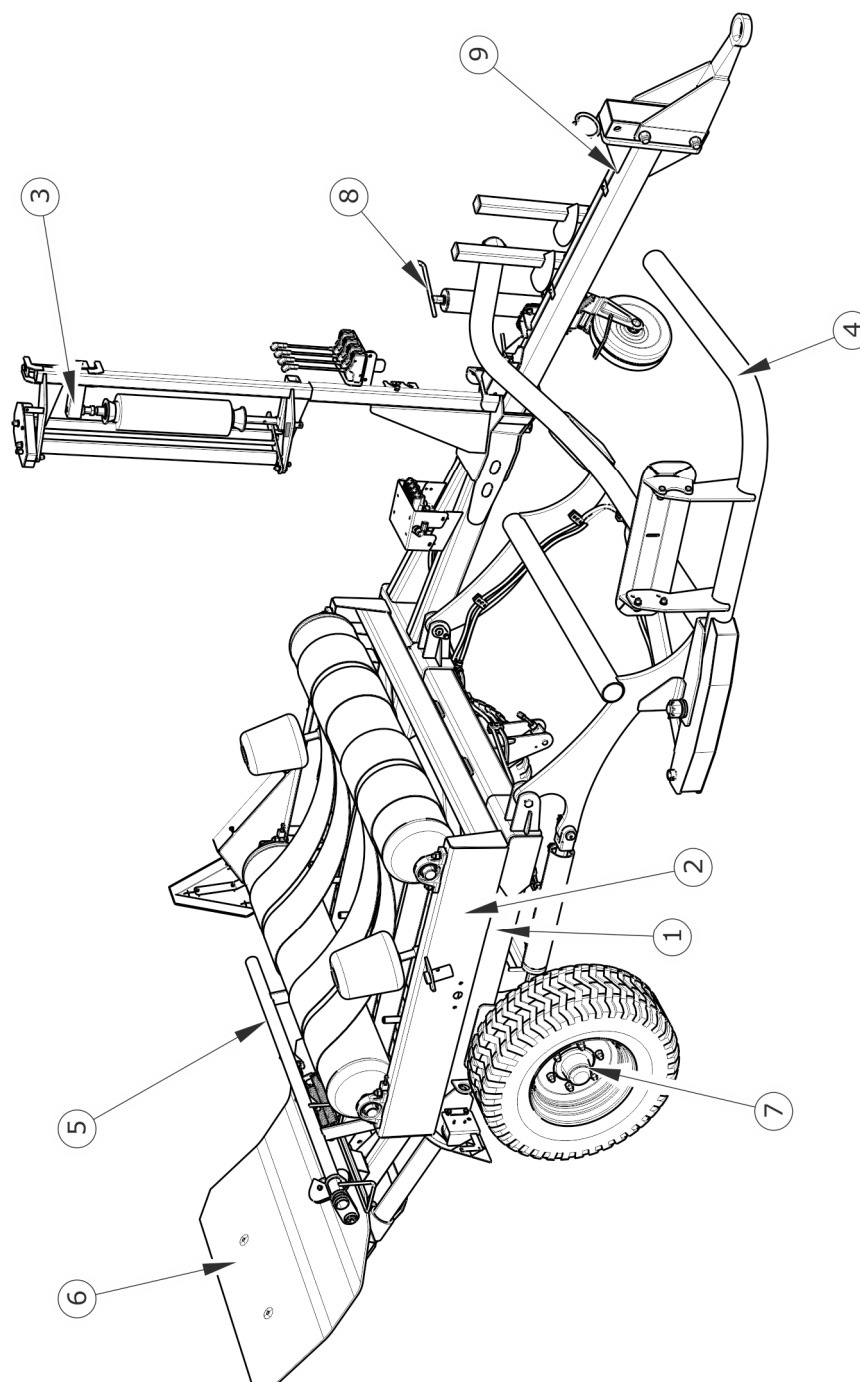
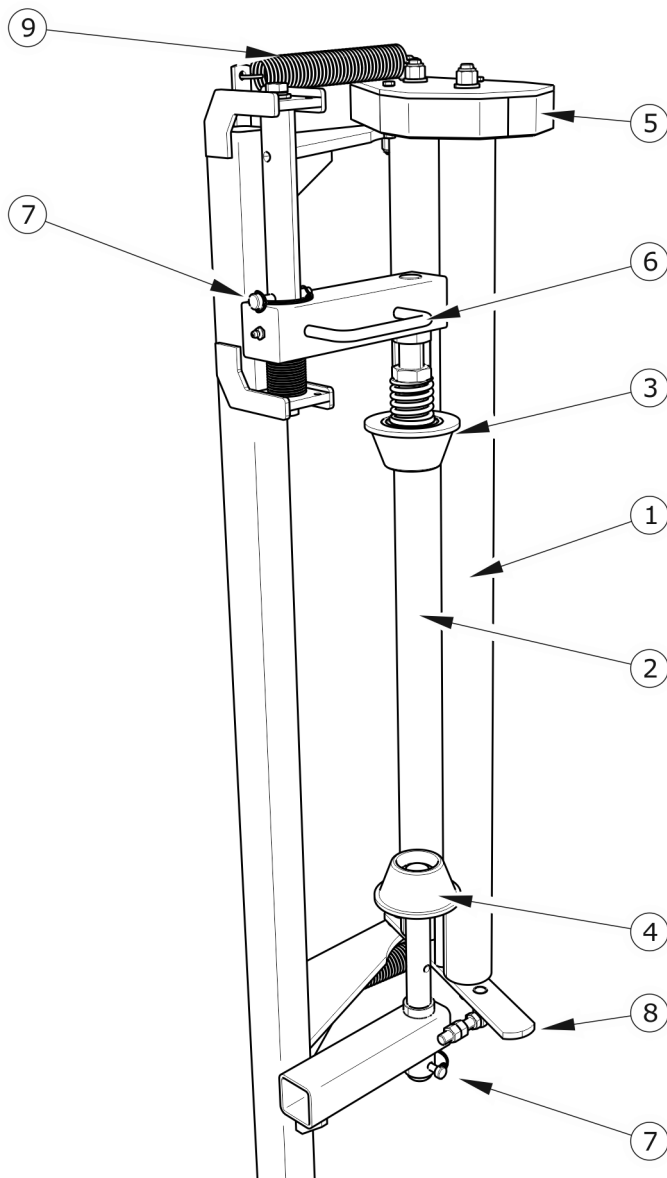


FIGURE 3.1. *Construction of the wrapper Z245/1*

(1) lower frame, (2) turntable, (3) film feeder, (4) loading arm, (5) cutting unit, (6) unloading mechanism, (7) wheel axle, (8) support, (9) shaft

3.2.1 FILM FEEDER



The film feeder is mounted on the wrapping machine feeder mast. The mechanism is designed and adapted to unwind film from a roll with a height of 500 or 750 mm. The film is attached between the conical supporting rollers (3) and (4). The film strip is threaded through the vertical, knurled stretching rollers (1) and (2). In the upper part of the feeder, there is a gear, the task of which is to change the rotational speed of the roller (1), as a result of which the strip of film wound on the bale is properly stretched. The film tension can also be adjusted by the position of the upper supporting roller (3).

FIGURE 3.2. Construction of the film feeder

(1) roller I, (2) roller II, (3) upper supporting roller, (4) lower supporting roller, (5) gear housing, (6) clamp, (7) pin, (8) frame lever, (9) the spring

3.2.2 TILTING FRAME, TURNTABLE

The structure of the turntable is shown in figures (3.3) and (3.4). Table tilting frame (1) - figure (3.3), is attached to the rear beam of the wrapping machine with the use of pins. The frame is tilted by means of a telescopic cylinder (4) in order to unload the wrapped bale. In the lower part of the tilting frame, a hydraulic motor (6) is bolted, which transmits the drive to the active roller of the table through two chain gears and angular gear transmission. A support (5) is mounted to the left longitudinal member of the swing frame, which is designed to protect the turntable against falling during maintenance or repair work.

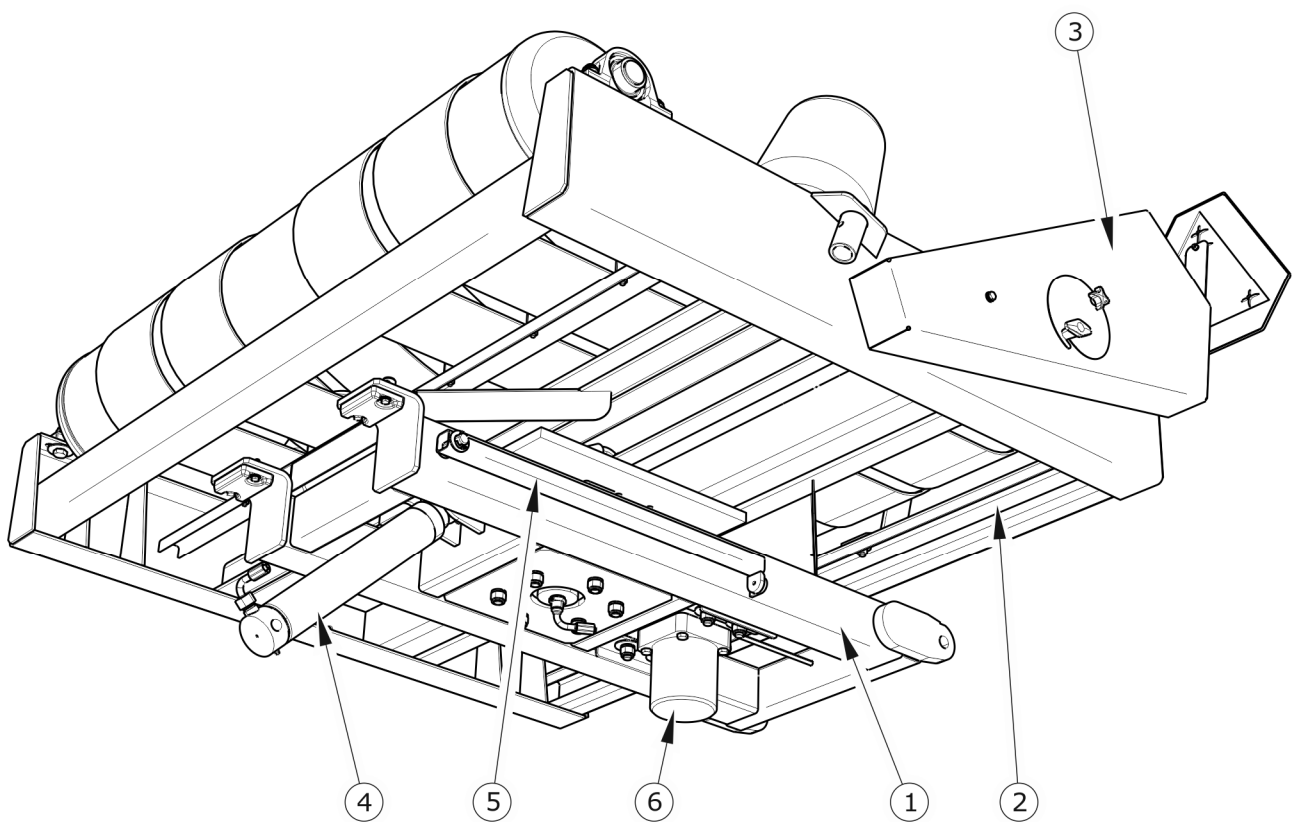


FIGURE 3.3. *Tilting frame with turntable, bottom view*

(1) table tilting frame, (2) turntable, (3) gear cover, (4) hydraulic tipping cylinder, (5) support, (6) hydraulic motor

The wrapped bale rests on reinforced belts (4) - figure (3.4), and is secured against shifting by means of support rollers (6). The figure shows the setting of the rollers for wrapping a bale with a width of up to 1,200 mm.

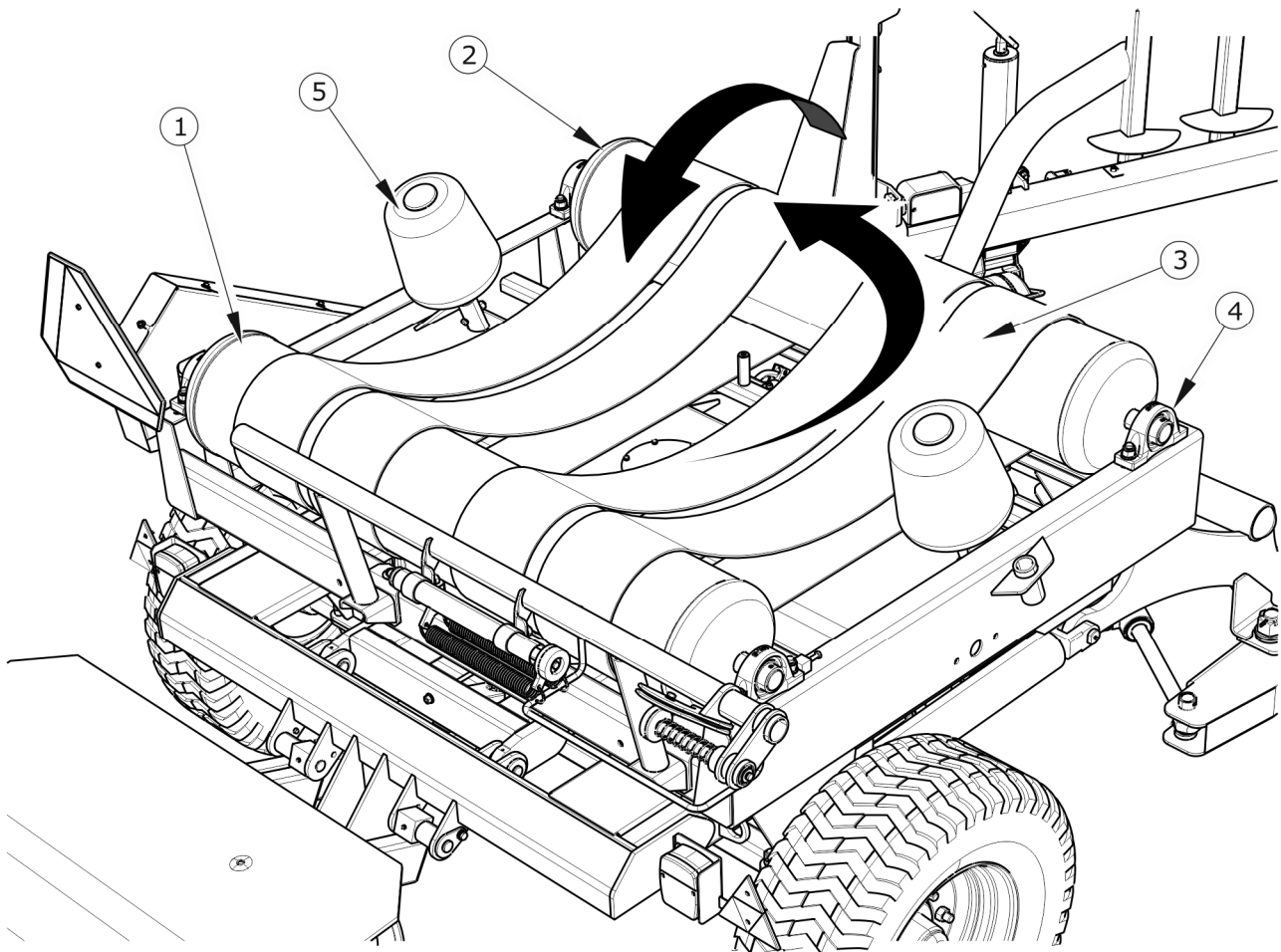


FIGURE 3.4. *Construction of the turntable, top view*

(1) active roller, (2) idler roller, (3) belt, (4) bearing unit, (5) support roller

When the hydraulic motor is started, the turntable starts to rotate with the bale around its vertical axis. At the same time, the bale is driven by the active roller (2) rotating around the horizontal axis.

3.2.3 UNLOADING MECHANISM

The unloading mechanism is designed to unload the bale and place it in one of two possible positions. The structure of the system is shown in figure (3.5).

The frame of the mechanism (1) is attached to the beam of the rear wrapping machine with the use of pins. On the tilting frame there is an unloading table onto which wrapped bales are unloaded.

The side tipping support (3), located on the right side of the unloading mechanism, can be set in two positions - in figure (3.5) the support is in the rear bale discharge position. In this case, after unloading, the bale will roll from the mechanism table behind the wrapper. If the support

is raised, when the arm is lowered, the mechanism table will rest on the support slide (11) and rotate in relation to the axis of the table pin (10). The bale will be placed on the left side of the wrapping machine.

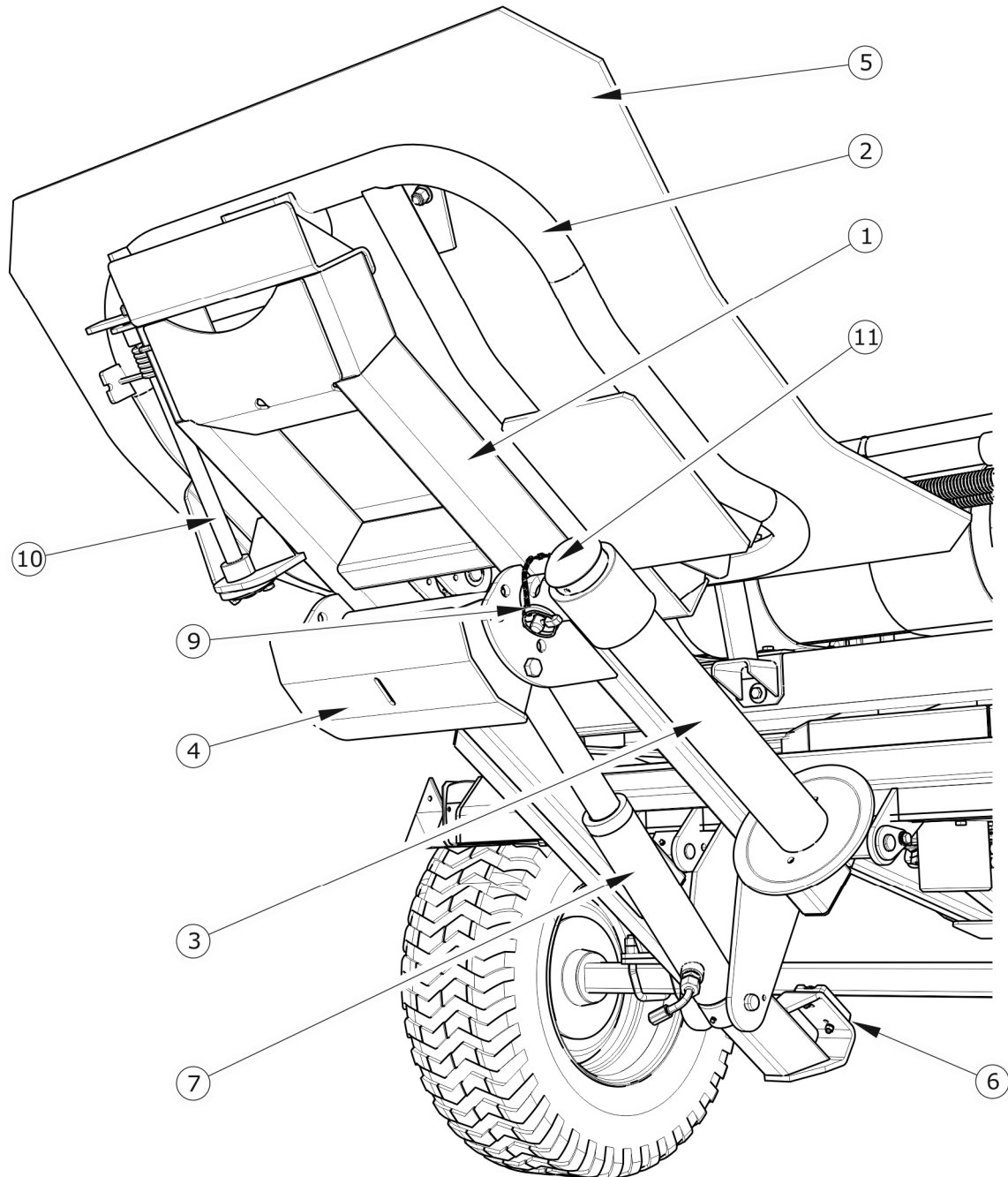


FIGURE 3.5. *Bale unloading mechanism*

(1) mechanism frame, (2) table frame, (3) side tipping support, (4) skid, (5) table rubber, (6) bumper, (7) tipping mechanism actuator, (8) bumper, (9) support foot pin, (10) table pin, (11) support slide

3.2.4 CUTTING UNIT

The cutting unit is placed on the longitudinal member of the turntable frame. The unit's task is to cut and hold the film until it starts wrapping the next bale. The film is cut from the tractor driver's workplace by extending the hydraulic cylinder (2), controlled by the distributor.

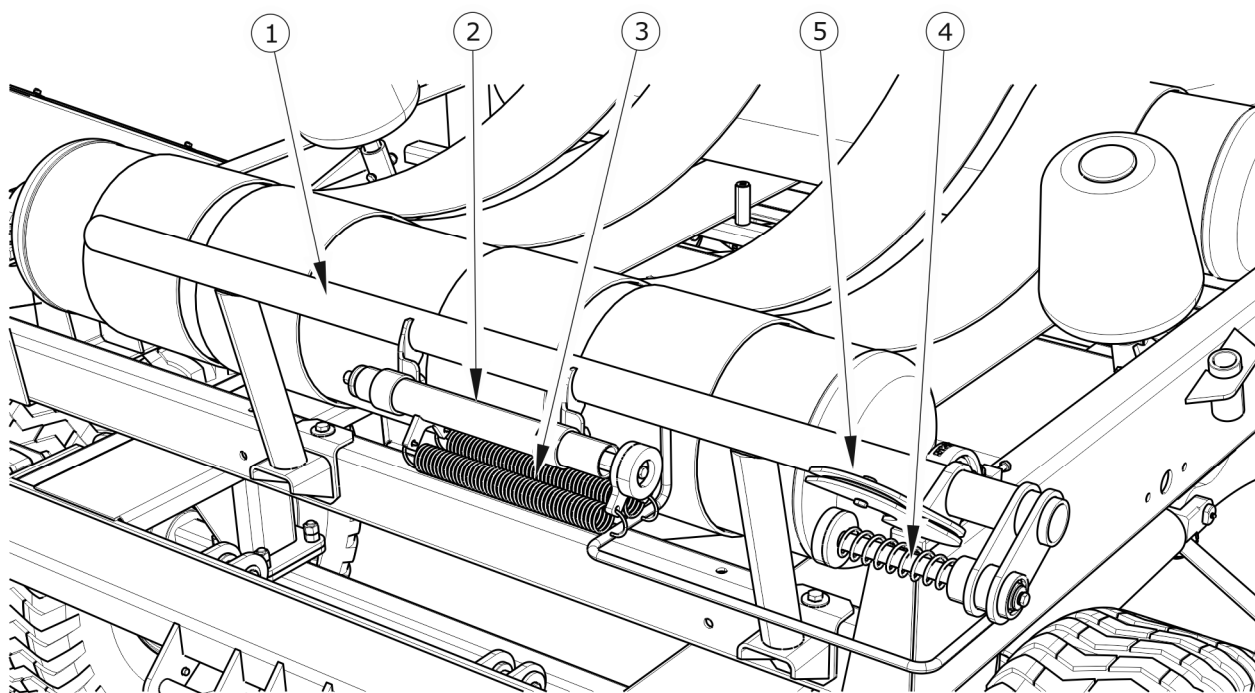


FIGURE 3.6. *Cutting mechanism*

(1) set frame, (2) hydraulic cylinder, (3) extension springs, (4) film clamp, (5) cutting knives

3.2.5 ELECTRICAL SYSTEM, WARNING ELEMENTS

The wrapping machine's electrical installation is adapted to be supplied from a 12 V DC source. Connecting the wrapping machine's electrical installation to the tractor should be made with a suitable spiral connection cable with a seven-pin socket. The electric installation of the wrapping counter is a separate circuit with its own battery supply if you have an L01 counter (standard equipment) or a separate power cord if you have an L02 counter (optional equipment). The connection cable of the L02 counter should be connected to the appropriate power socket on the tractor. The wrapping machine wiring diagram is shown in figure (3.9).

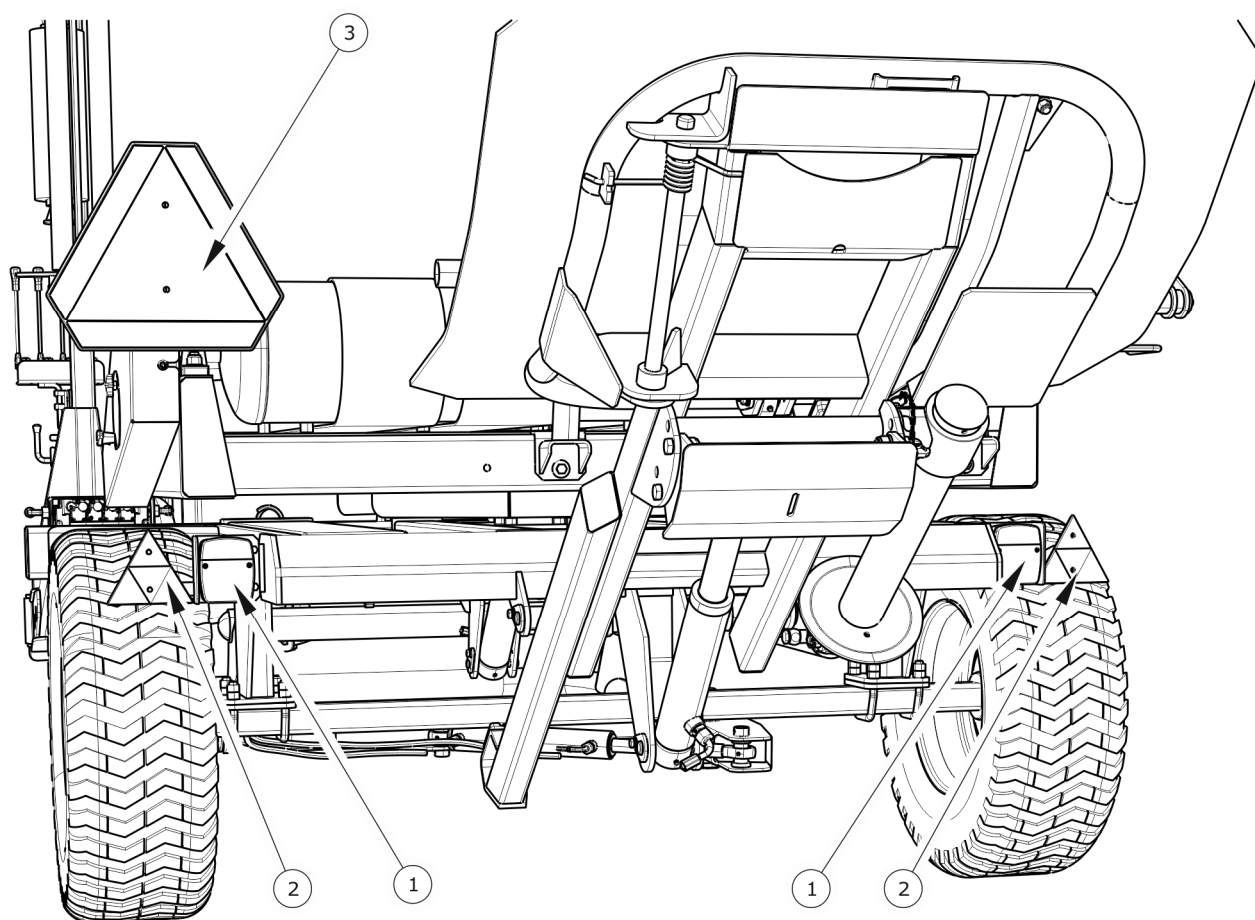


FIGURE 3.7. Arrangement of electric and reflective elements

(1) rear multifunction lamp, (2) reflective triangle, (3) marking plate

TABLE 3.2. Markings of the 7-pin connection socket

MARKING	Function
31	Weight
+	+ 12V power supply (not used)
L	Left direction indicator
54	STOP light
58L	Rear left position light
58R	Rear right position light
R	Right direction indicator

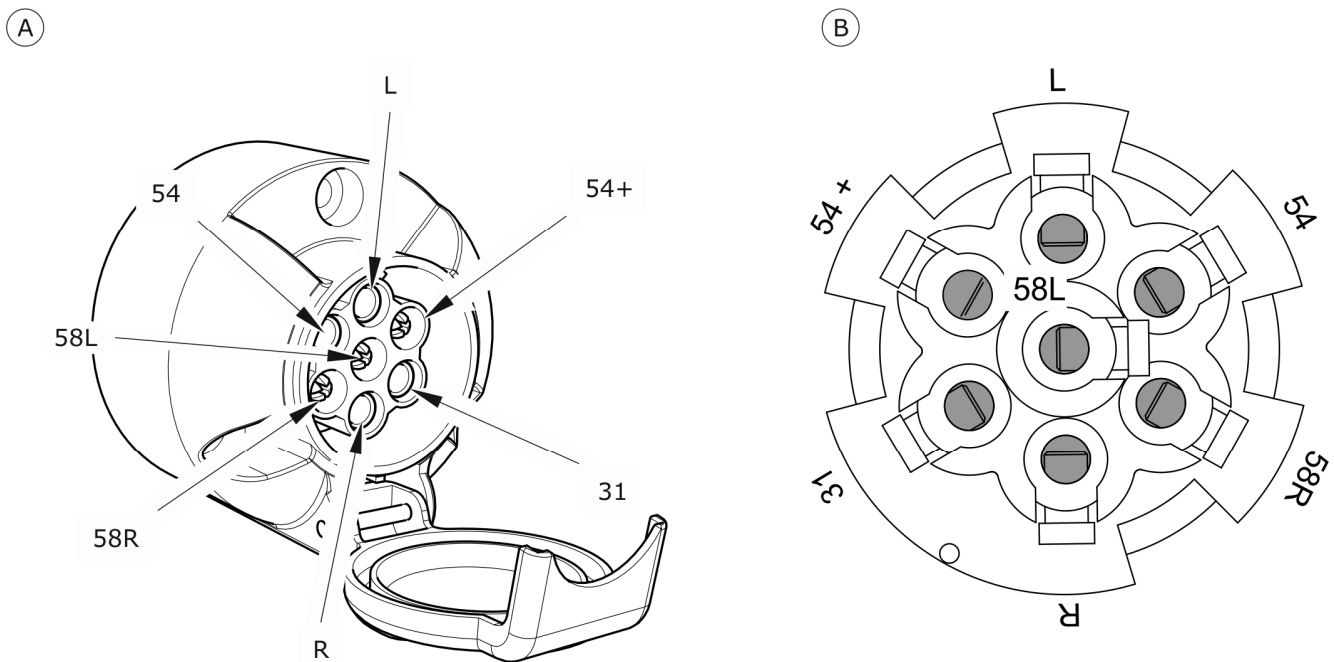


FIGURE 3.8. *Connection socket*

(A) socket view, (B) socket view from the wiring harness attachment side

The counter is an electronic device designed to count the wraps of the bale. The set of the device consists of a programmable counter placed in a plastic housing and a rotation sensor connected by a cable and a multi-contact connector. The sensor mounted on the fixed part of the wrapping machine structure cooperates with a permanent magnet placed on the turntable and transmits electrical signals to the counter system. Each complete turn of the wrapped bale is counted and shown on the counter display. After counting the number of wrappings previously programmed by the user, the counter signals the end of wrapping by blinking. The counter can be programmed for 16 or 24 wrappings, depending on the film used (applies to the L01 counter provided as standard equipment), or from 10 to 49 (in the case of the L02 counter in the optional equipment). The L01 counter is powered by batteries, while the L02 counter has a separate connection cable, which should be connected to the appropriate socket on the tractor.

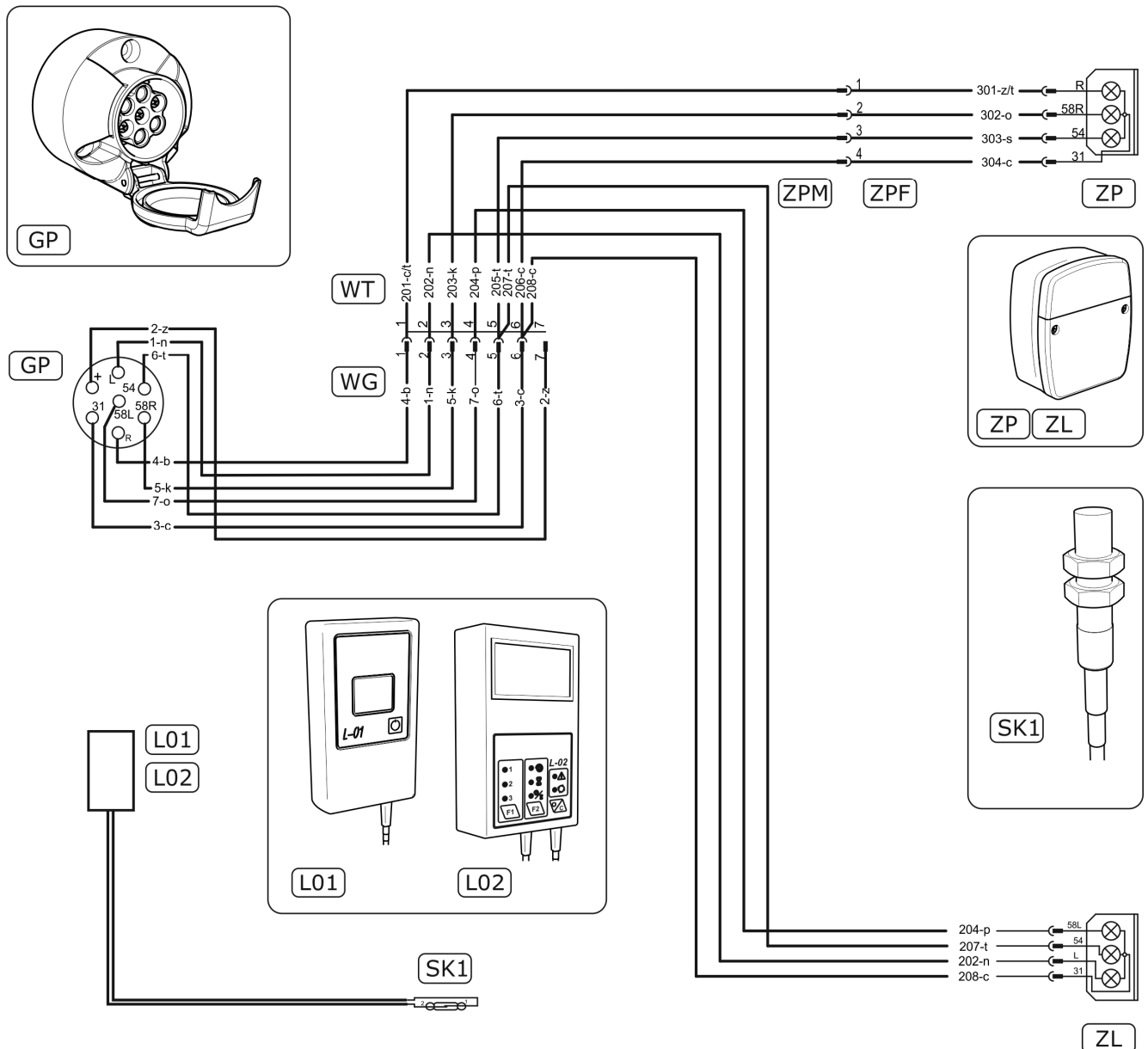


FIGURE 3.9. Electrical system diagram

(ZL) rear left multifunctional lamp, (ZP) rear right multifunctional lamp, (GP) 7--pin connection socket, (L01), (L02) wrapping counter, (SK1) rotation sensor

3.2.6 THE HYDRAULIC SYSTEM

The hydraulic system of the wrapping machine is designed to control the operation of individual systems with the use of a hydraulic distributor. The hydraulic system diagram is shown in figure (3.10).

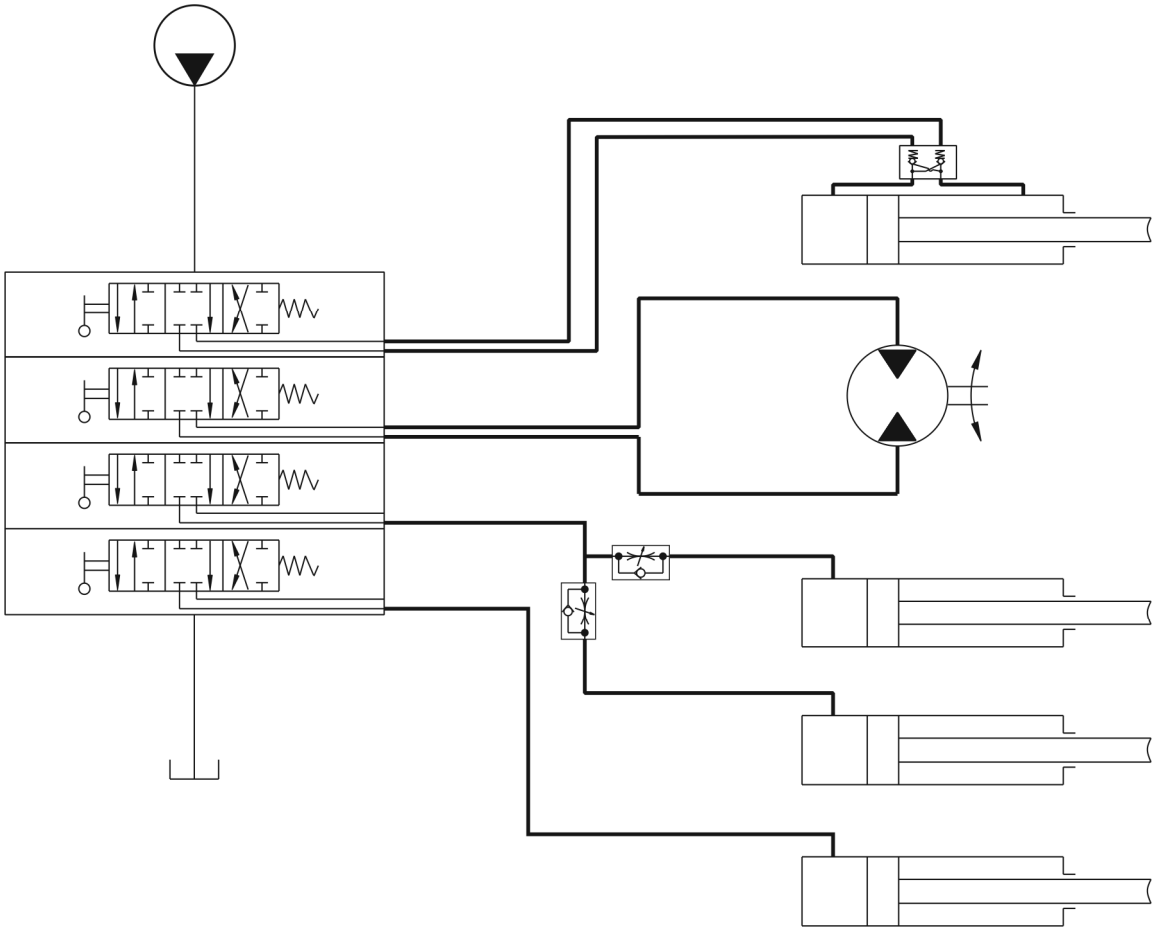
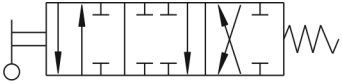
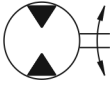
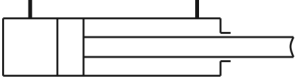
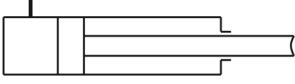
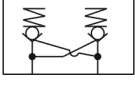
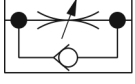


FIGURE 3.10. *Diagram of the hydraulic system*

TABLE 3.3. *Meaning of symbols*

Symbol	Meaning
	Hydraulic distributor section.
	Hydraulic engine.
	Double acting hydraulic cylinder.
	Single-acting hydraulic cylinder.
	Hydraulic lock.
	Hydraulic oil flow regulator.

The wrapping machine is equipped with a hydraulic distributor controlled by tension members - figure (3.11). The meaning of individual distributor sections is shown on the information sticker (1) placed on the bracket.

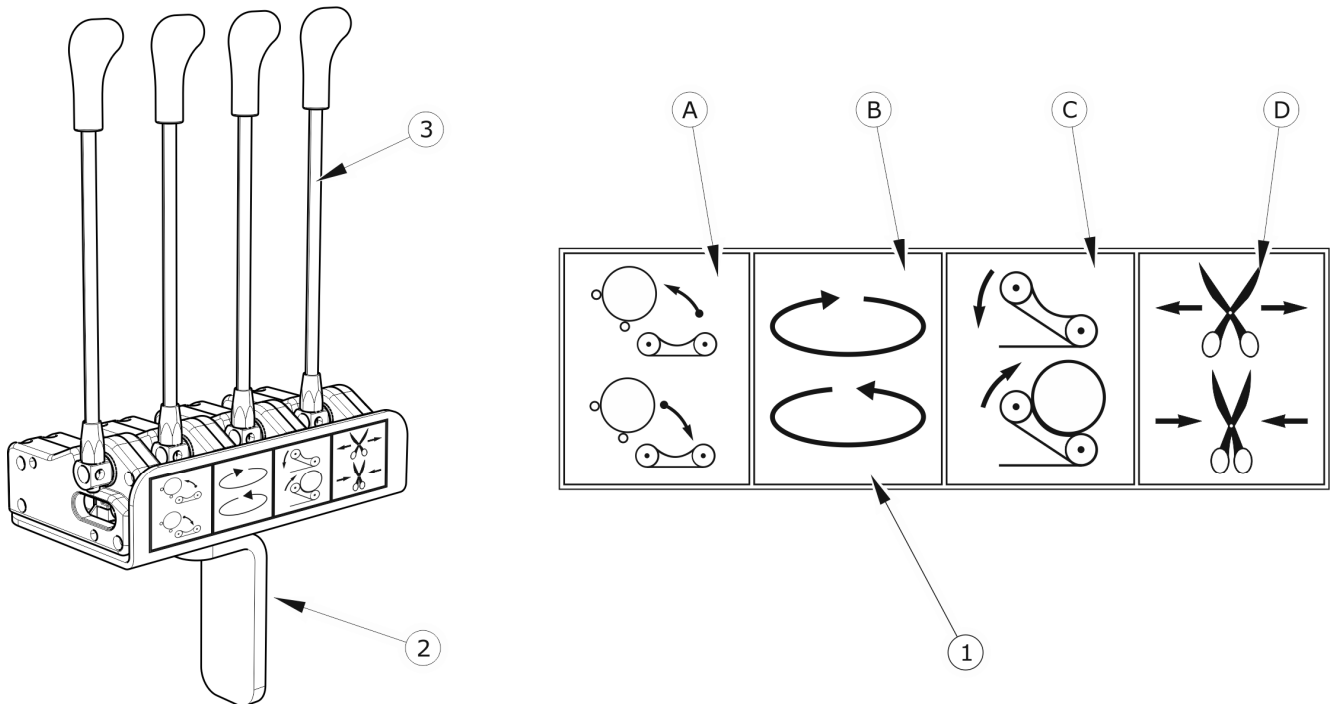


FIGURE 3.11. Control levers

(1) information sticker, (2) bracket, (3) lever, (A) loading arm control, (B) turntable rotation, (C) lifting and lowering control of the turntable and unloading arm, (D) control of the cutting system cylinder

The connecting cables are also marked with information stickers (16) - table (2.1). Labels indicate the correct direction of hydraulic oil flow.

ADVICE



The hydraulic system of the wrapping machine has been filled with L-HL32 Lotos hydraulic oil.

An additional bracket for mounting the bracket is included in the standard equipment of the machine and is intended for mounting in the tractor operator's cabin.

Chapter 4

RULES OF USE

4.1 PREPARATION OF WRAPPING MACHINE TO WORK

4.1.1 PRELIMINARY INFORMATION

The manufacturer ensures that the wrapping machine is fully functional, has been checked in accordance with control procedures and is approved for use. However, this does not release the user from the obligation to check the machine after delivery and before first use. The wrapping machine is delivered to the user completely assembled. The wrapping counter with the wire, the holder for the control levers bracket, the electric installation connection cable, the Z28 gear wheel and the chain (85 links) are packed separately.

4.1.2 CONTROL OF THE WRAPPING MACHINE AFTER DELIVERY

CAUTION



The seller is obliged to start the wrapping machine for the first time in the presence of the user.

Training by the seller does not release the user from the obligation to become familiar with the contents of this manual.

After delivery of the machine to the recipient, the user is obliged to check the technical condition of the trailer - (one-time inspection). During the purchase, the user must be informed by the seller about the method of use of the machine, the dangers arising from improper use, how to connect the machine with and the principle of operation and construction. Detailed information on the transfer can be found in the **WARRANTY CARD**.

- Check the completion of the machine in accordance with the order.
- Check technical condition of guards.
- Check the condition of the paint coating, check for any signs of corrosion.
- Check the machine for missing parts or damage resulting from incorrect transport of the machine to its destination point (dents, punctures, bends or broken parts, etc.).
- Check the air pressure in the tires and the correct tightening of the nuts of the road wheels.
- Check the technical condition of the drawbar eye and its attachment.

In case of detected irregularities, do not aggregate and start the wrapping machine. In case of any irregularities found, report them directly to the seller to remove any defects.

4.1.3 PREPARING FOR THE FIRST USE, TEST RUNNING OF THE WRAPPING MACHINE



ADVICE

All maintenance activities related to the wrapping machine are described in detail in the further part of the manual.

PREPARATION FOR TEST START-UP

- Familiarize yourself with the contents of this USER'S MANUAL and follow the recommendations contained in it.
- Carry out a visual inspection of the machine in accordance with the guidelines contained in the section PREPARING OF THE WRAPPING MACHINE FOR DAILY WORK.
- Check all lubrication points of the wrapping machine, lubricate the machine if necessary, according to recommendations provided in CHAPTER 5.
- Check if the road wheel nuts are properly tightened.
- Dismantle the protection of the cutting knives, clean the knives from residues of preservative grease.
- Adjust the drive of the turntable rollers, the position of the cutting system, the drawbar and the film feeder.
- Make sure that the hydraulic and electric connections in the agricultural tractor comply with the requirements, otherwise the wrapping machine should not be connected.
- Put the battery into the wrapping counter, program the counter.
- Check the technical condition of the rubber belts of the turntable.
- Install the holder for fastening the panel with control levers in the tractor operator's cabin.

TEST RUNNING

If all the above activities have been performed and the technical condition of the wrapping machine does not raise any objections, connect the machine to the tractor. Start the tractor, check individual systems and test the wrapping machine as well as perform a test drive

without a load. It is recommended that visual inspection be carried out by two people, one of them should be permanently in the tractor's cab. The test run must be carried out in the order shown below.

- Attach the wrapping machine to appropriate hitch on agricultural tractor.
- Connect the electric and hydraulic system conduits.
- Check the correct operation of the electrical system, by activating individual lights.
- By controlling the wrapping machine distributor, start the turntable drive for 1 minute (without a loaded bale), check the wrapping counter indications for correctness.
- Stop the wrapping machine, set the table to the bale unloading position. By controlling the distributor lever, check the proper operation of the unloading mechanism.
- Check other circuits of the hydraulic system (loading arm and cutting system cylinder).
- Perform a test drive.
- Turn off the tractor engine, immobilize the tractor with parking brake, check the hydraulic system for tightness.

**ADVICE**

All service activities related to the wrapping machine are described in detail further in this manual.

The turntable and rollers should turn smoothly, without jams and excessive noise. The correct direction of the table rotation is indicated on the information decals - table (2.1). The electronic counter should increase the value of the indication by 1 in the case of full rotation of the table, and after the programmed number of turns, the counter indicator should blink (information on the L02 counter indications - optional equipment - are described later in this chapter). In the event of a fault, locate the fault. If it cannot be removed or its removal may void the warranty, please contact your dealer for an explanation of the problem.

DANGER



Careless and improper use and operation of the wrapping machine, and non-compliance with the recommendations given in this operator's manual is dangerous to your health.

It is forbidden to use the wrapping machine by persons who are not authorized to drive agricultural tractors, including children and people under the influence of alcohol.

Non-compliance with the rules of safe use poses a threat to the health of the operating and bystanders.

4.1.4 PREPARING OF THE WRAPPING MACHINE FOR DAILY WORK

The scope of control activities

- ➔ Visually check if the road wheels are properly inflated. If in doubt, check the air pressure carefully.
- ➔ Check technical condition of drawbar eye.
- ➔ Check that the electrical system is working properly.
- ➔ Check the technical condition and completeness of protective covers.
- ➔ Install a triangular sign for low-speed vehicles - if the wrapping machine will be moving on public roads.

4.2 CONNECTING AND DISCONNECTING OF THE WRAPPING MACHINE FROM THE TRACTOR

The wrapping machine may be connected to an agricultural tractor, if all the connections (electric, hydraulic) and the hitch on the agricultural tractor comply with the requirements of the machine manufacturer. In order to connect the wrapping machine with the tractor, follow the steps below in the sequence described.

CONNECTING

- ➔ Position the agricultural tractor directly in front of the wrapping machine drawbar eye.
- ➔ Set the drawbar eye at such a height that it is possible to hitch the machines, using the support.

- ➡ Reverse tractor, connect the wrapping machine to appropriate hitch on tractor, check hitch lock protecting machine against accidental disconnection.
- ➡ If an automatic coupling is used in the agricultural tractor, make sure that the aggregation operation is completed and the drawbar eye is secured.

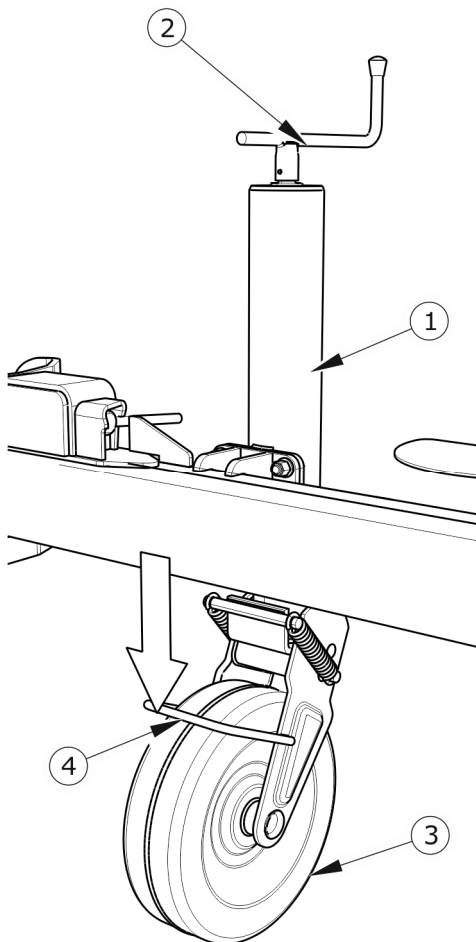


FIGURE 4.1. *Wrapping machine support*

(1) support, (2) crank, (3) wheel, (4) pedal

- ➡ Switch off the tractor engine. Close the tractor cabin and secure it against unauthorized access.
- ➡ Connect hydraulic system hoses.
- ➡ Supply conduit (1) and return conduit (2) figure (4.2), are marked with information stickers. The return conduit should be connected to the socket "free drainage" (socket with free drainage of oil to the tank).
- ➡ Connect the main power supply cable for the lighting installation.
- ➡ Turn crank (2) - figure (4.1) to raise support wheel.
- ➡ Press the support pedal (4) and, by holding the wheel (3) with your hand, fold it to the driving position.
- ➡ Place the wraps counter in a visible place in the tractor cabin. The cable connecting the wrapping counter with the rotation sensor should be connected only before starting work.

- ➡ After completing connecting, secure the hydraulic and electrical system conduits in such way that, they do not become entangled in the agricultural tractor's moving parts while driving and are not exposed to breakage or cutting during turning.

CAUTION



The wrapping machine may only be coupled with an agricultural tractor that has an appropriate hitch and the required connection sockets for the hydraulic and electrical systems.

Pay attention to the compatibility of the oils in the tractor hydraulic system and the hydraulic tipping system of the trailer.

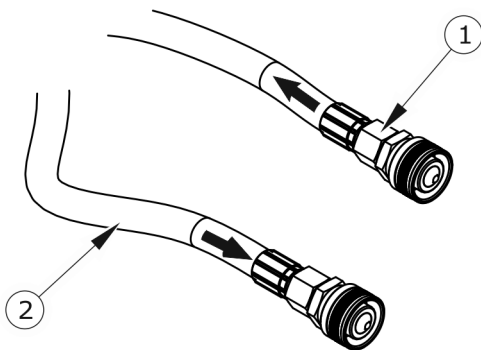


FIGURE 4.2. Identification of hydraulic lines

(1) power line, (2) return line

Before starting work with the counter, the rotation sensor should be connected to it. The sensor is connected to the counter by means of a set of plug and socket pre-installed on the counter and sensor cables. When leading the cable to the counter, make sure that it is not exposed to accidental mechanical damage. A frequent accident is the tractor wheel runs over the cable, which causes its tearing out of the sensor housing and permanent destruction. You should also be

careful that the cable pulled by the tractor wheel (or by other means) does not cause the counter to fall out of the tractor onto the ground.

DANGER



During coupling, there must be no bystanders between the wrapping machine and the tractor. When connecting the machine, the agricultural tractor operator should take particular care and make sure that unauthorized persons are not in the danger zone during coupling.

When connecting the hydraulic conduits to the tractor, make sure that the tractor hydraulic system and the wrapping machine are not under pressure.

Ensure good visibility during coupling.

Be especially careful when folding the support, danger of severing the limbs.

After completing the coupling, check the safety of the pin hitch.



CAUTION

Even a drop of the counter from a small height can permanently damage it.

DISCONNECTING OF THE WRAPPING MACHINE

In order to disconnect the wrapping machine from the tractor, follow the steps below in the presented sequence.

- ➔ If necessary, lower the turntable, the unloading arm and the loading arm.
- ➔ Immobilize tractor with parking brake, turn off tractor engine
- ➔ Disconnect the wraps sensor cable from the wraps counter.
- ➔ Close the tractor cabin and secure it against unauthorized access.
- ➔ Turn the support wheel to the parking position.
- ➔ By turning the crank, set the drawbar eye at such a height that it is possible to unlock the drawbar and disconnect the wrapping machine.
- ➔ Disconnect hydraulic system conduits from tractor.
- ➔ Secure the cable ends with covers. Place the cable plugs in the appropriate sockets or protect them with caps.
- ➔ Disconnect the electric wire.
- ➔ Remove the panel with control levers from the tractor and place it on the wrapping machine support.
- ➔ Unlock tractor hitch, disconnect wrapping machine drawbar from tractor hitch.

DANGER



Be especially careful when disconnecting the wrapping machine from the tractor. Ensure good visibility. Unless it is necessary, do not go between tractor and wrapping machine.

Before disconnecting wires and drawbar eye, close tractor cab and secure it against unauthorized access. The tractor engine must be turned off.

CAUTION



The turntable and the unloading mechanism must be lowered before disconnecting the wrapping machine. The loading arm should be secured with a lock.

4.3 FILM INSTALLATION

The design of the feeder allows the installation of two types of polyethylene film with a width of 500 mm and 750 mm.

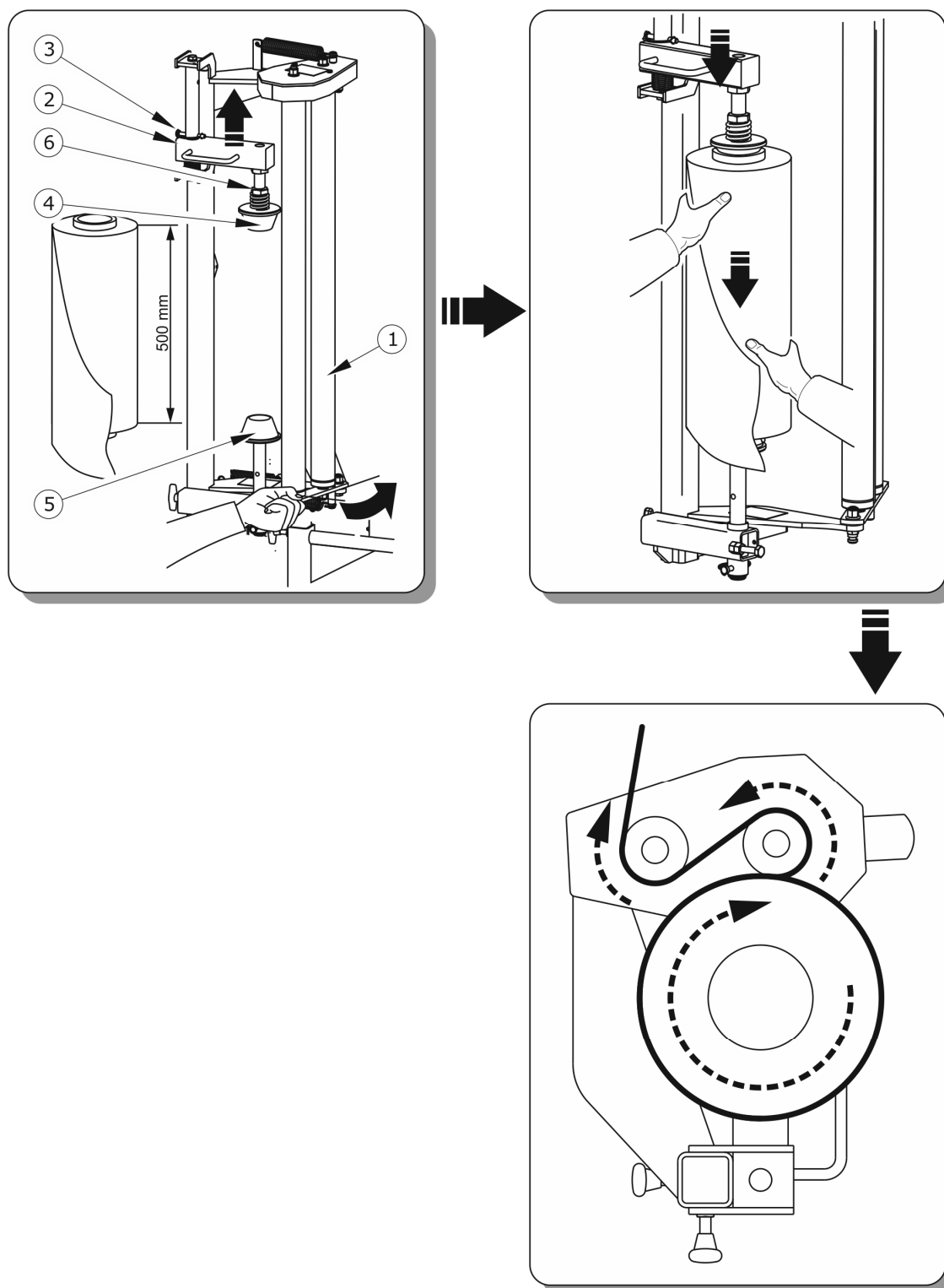


FIGURE 4.3. *Installation of 500 mm wide film.*

(1) tilting frame, (2) clamp, (3) cotter pin, (4) upper pressure roller, (5) lower pressure roller, (6) nut

Figure (4.3) shows how to install a 500 mm wide film. To install the roll, follow the instructions below, observing the sequence of assembly.

- ➔ Clean guide rollers from adhesive residues and other contaminants.
 - ⇒ Clean guide rollers from adhesive residues and other contaminants.
- ➔ Tilt the titling frame (1) anticlockwise to its extreme position.
- ➔ Unlock and remove the upper cotter pin (3).
- ➔ Move clamp (2) upwards.
- ➔ Place a film with a width of 500 mm on the lower pressure roller (5).
 - ⇒ The roll must be installed in such a way that the adhesive layer must be on the inside, i.e., it must adhere to the wrapped bale.
- ➔ Move the clamp (2) downwards and secure it with the cotter pin (3),
- ➔ Unlock the end of the film (or remove the roll packaging), unwrap a piece of film.
- ➔ Swivel the swivel frame to its starting position.
- ➔ Put the pulled out piece of film through the feeder rolls according to the diagram on the feeder sticker.

ADVICE



Installation of a film with a width of 750 mm requires the adaptation of the film feeder to this type of rolls. The use of a wider film makes it necessary to change the gear ratio of the turntable. Detailed information on this topic can be found in chapter 5.

Due to the possibility of using different film widths and wrapping bales of different diameters, it is required to set the film feeder at the appropriate height. The optimal position of the feeder is such that the center of the installed film roll must be at the same height as the center of the wrapped bale. In order to adapt the feeder to the current operating conditions, loosen the screws (2) - figure (4.4), move the feeder to the optimal position and tighten the screws (2). Secure the feeder with the clamp (4).

DANGER



Before starting the installation of the film, turn off the tractor engine and remove the key from the ignition switch.

After installing the film, carefully check the method of fixing the roller, tightening the screw connections and whether the securing pins are properly installed.

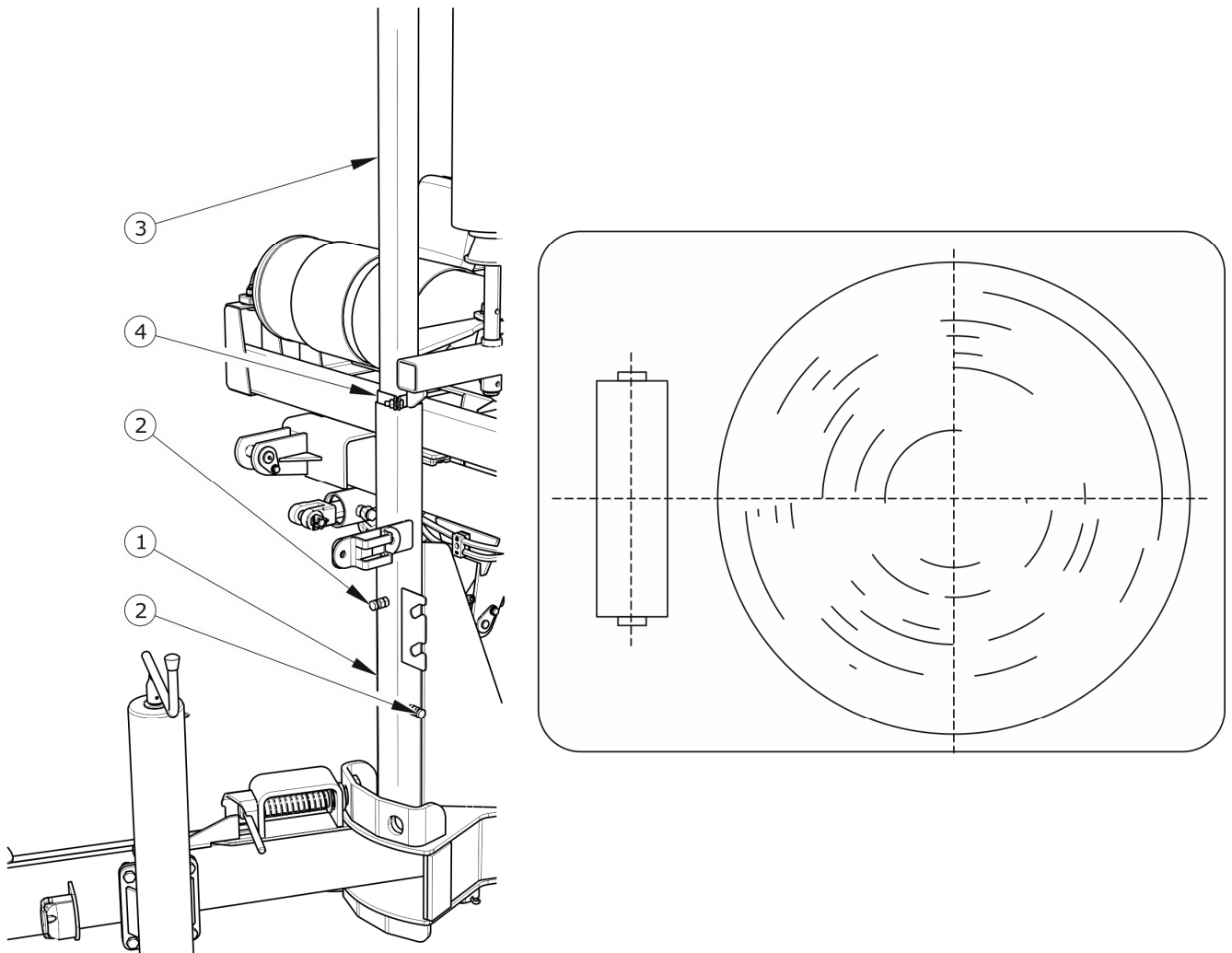


FIGURE 4.4. *Adjusting the height of the film feeder*

(1) bottom profile, (2) locking screws, (3) frame profile of the film feeder, (4) clamp

4.4 FOLDING AND UNFOLDING OF THE DRAWBAR

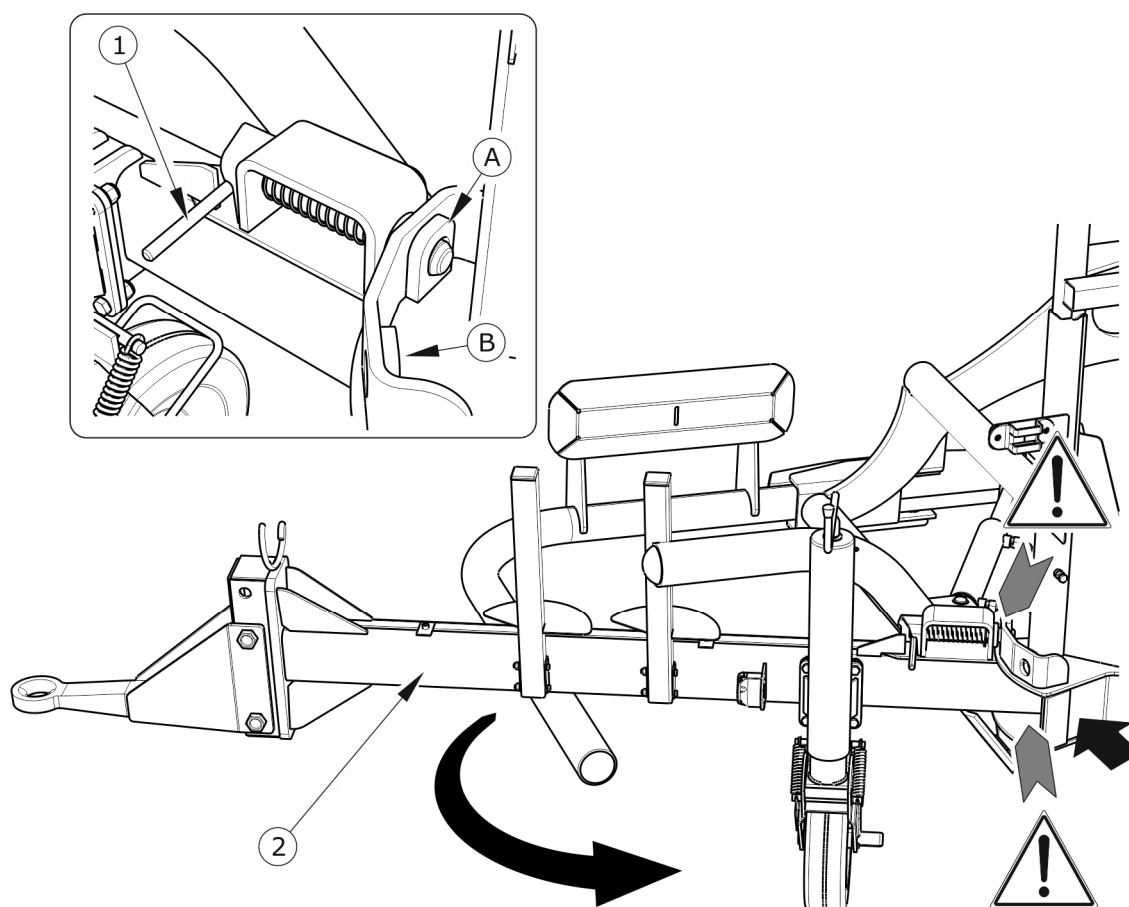


FIGURE 4.5. *Setting the drawbar in the WORK position*

(1) locking pin, (2) drawbar, (A), (B) locking pin positions

After reaching the field, before starting wrapping, set the drawbar of the machine to the WORK position. To do this:

- ➡ Secure tractor with parking brake.
- ➡ Pull back locking pin (1) and leave it in unlocked position.
 - ⇒ The pin handle rests on the sliding plate in vertical position.
- ➡ Push wrapping frame and fold the drawbar to the WORK position.
- ➡ If the drawbar does not move, place a wedge under the wheel and slowly start the tractor and then set the drawbar manually.
- ➡ Secure the locking pin by lowering the lever to the horizontal position.
 - ⇒ The pin should be placed in the hole (B).

The drawbar is folded to the DRIVING position in the reverse order.



DANGER

*The support wheel must be in the transport position, i.e., it must be fully raised.
Danger of crushing fingers. Do not put your hands in the places marked in the figure (4.5) with the CAUTION sign.*

4.5 LOADING

Before starting to load the bale, make sure that the wrapping machine is correctly attached to the tractor.

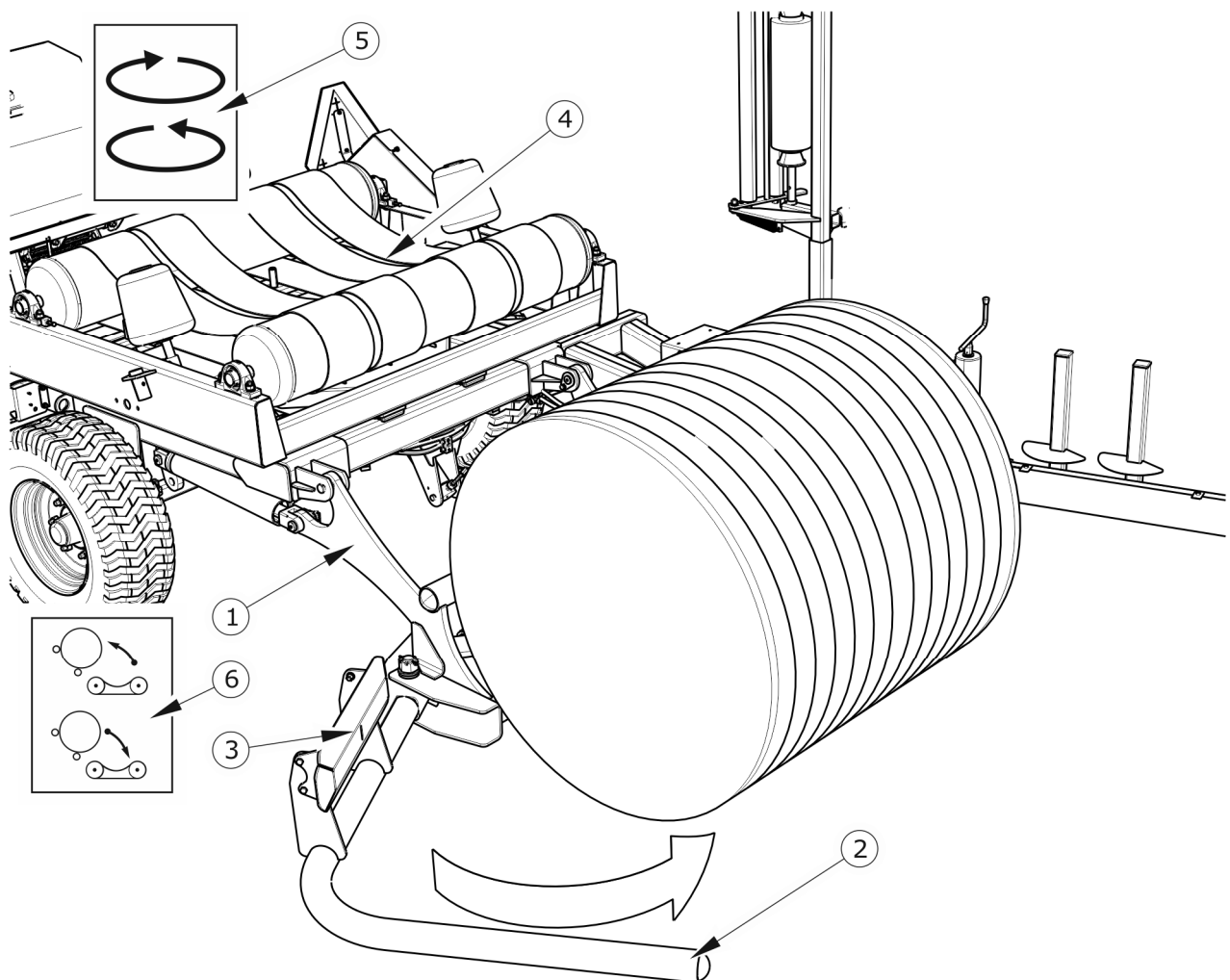


FIGURE 4.6. Bale loading, stage 1.

(1) loading arm, (2) gripper arm, (3) pusher, (4) rotary table, (5), (6) information sticker

SCOPE OF ACTIVITIES

- ➔ Set the wrapping machine drawbar to working position (if it has not been done earlier).

- ➔ Remove the triangular warning sign.
- ➔ Turn the turntable (4) to the position enabling bale loading. The cutting system should be located at the rear of the wrapping machine.
 - ⇒ To rotate the table, use the manifold lever marked with a sticker (5).
- ➔ Lower loading arm (1) to the ground. The loading arm and the grapple arm (2) are connected to one hydraulic system. Keep the lowering lever pressed until the gripper arm (2) opens completely.
 - ⇒ The arm is controlled by means of a lever marked with an information sticker (6).
- ➔ Drive the tractor towards the bale in such a way that the bale is as close as possible to the left side of the loading arm.
- ➔ Lift the bale using the loading arm control lever.
 - ⇒ First, the gripper arm will close and only then the bale will be lifted by the loading arm.
- ➔ Load the bale on the wrapping machine turntable.
 - ⇒ In the final phase of loading, the bale will automatically move to the wrapping machine's turntable.
- ➔ Lower the loading arm to such a height at which it will be possible to wrap the bale without collision.

**DANGER**

While loading the bale, it is forbidden for any outsiders to stay within the wrapping machine's work area, in particular, in the vicinity of the working range of the loading arm and the turntable

**CAUTION**

Loading a bale on the turntable may only take place when the wrapping machine has been stopped.

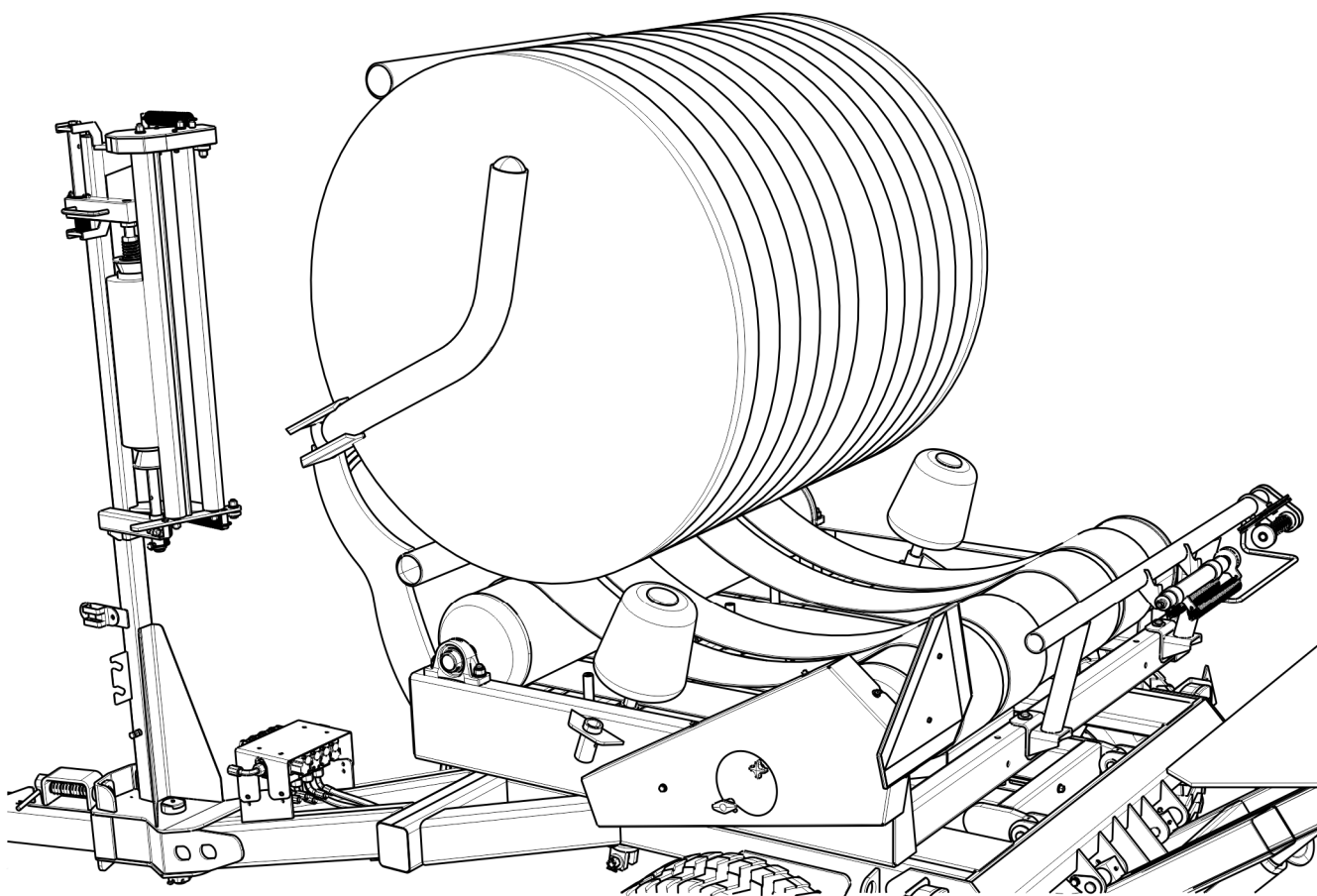


FIGURE 4.7. *Bale loading, stage 2.*

4.5.1 WRAPPING

The wrapping film is fed automatically from the feeder and there is no need to leave the tractor cab in order to prepare it for wrapping. The exception is when starting work or when the film is broken. You should then manually unwind the film from the feeder and thread its end through the string of the pressed bale.

While wrapping a bale, you should try to maintain a constant rotation speed of the table. The number of wraps depends on the intended use of the bale and the feed production technology. It is recommended that the bale be wrapped in at least 4 layers, but depending on the material being wrapped, a larger amount may be required. The number of table revolutions depends on the bale size.



DANGER

Before you start wrapping a bale, make sure that there are no bystanders or obstacles preventing the correct operation of the machine near the table rotation area.

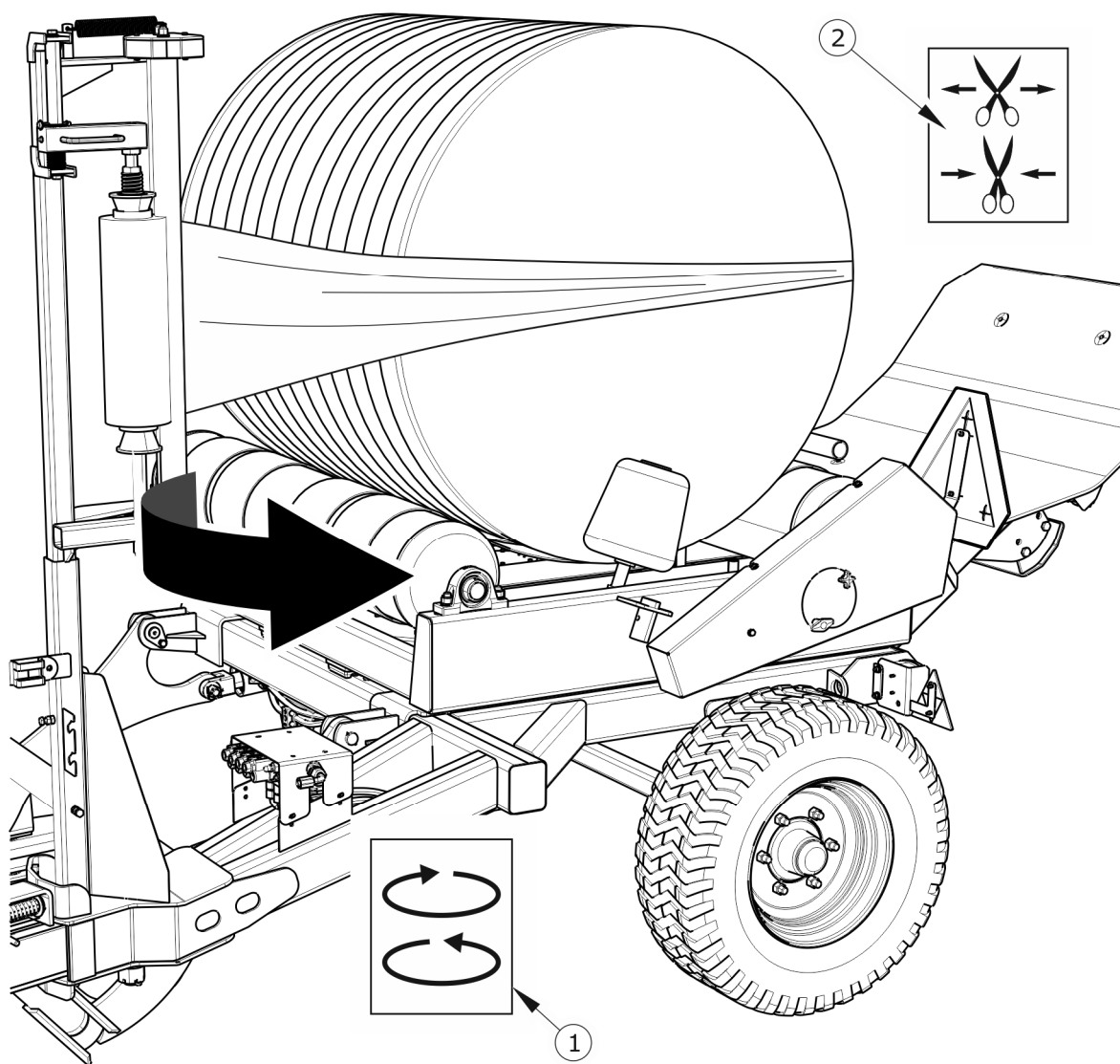


FIGURE 4.8. *Preparation for the first bale wrapping*

(1), (2) information stickers

BALE WRAPPING

- ➡ After loading the first bale, unwind a piece of film from the feeder and thread its end through the bale string. In the event that another bale is wrapped, the end of the cut wrapping film is held by the cutting system cylinder until the bale is loaded. At this point, return the cutting system cylinder to the rest position.
 - ⇒ The cutting system pressure cylinder is controlled by means of a lever marked with an information sticker (2).
- ➡ Start the table drive in the direction of rotation indicated by the arrow.
 - ⇒ The table movement is controlled by means of a lever marked with a sticker (1).

- ➔ Wrap the bale the required number of times.
- ➔ The number of wrappings is shown by the revolution counter (a detailed description of the operation can be found later in this chapter).
- ➔ During wrapping, check the film tension, if necessary, adjust the feeder.

CAUTION



It is forbidden to wrap bales with dimensions other than those specified in this manual.

The wrapping machine's maximum load capacity must not be exceeded.

The machine must not be operated on slopes.

Adjust the rotational speed of the turntable to the size and weight of the wrapped bales.

CALCULATION OF THE REQUIRED NUMBER OF WRAPS

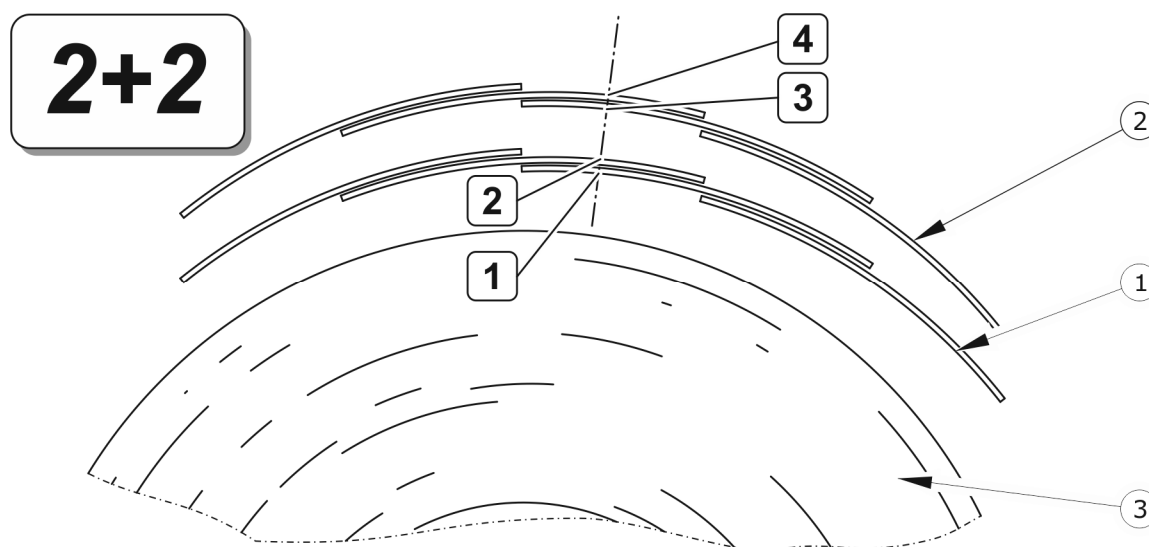


FIGURE 4.9. Wrapping a bale in the 2 + 2 system

(1) a layer of film after the first complete wrapping, (2) a layer of film after the second complete wrapping, (3) a bale

CAUTION

It is forbidden to use wrapping film not adapted to work with the machine.

It is forbidden to exceed the permissible rotational speed of the turntable (25 rpm).

It is allowed to wrap the bale while driving only when the journey takes place on flat and leveled terrain. Do not exceed the permissible driving speed during operation. When driving and wrapping at the same time, the load arm must not be lowered completely to the ground. They should be raised to such a height that possible collision-free wrapping of the bale and that the ground unevenness does not interfere with the machine's movement.

The correct determination of the number of bale wraps has a significant impact on the quality of the silage. Film producers recommend using the 2 + 2 system during wrapping (subsequent layers must overlap at least half the width of the previous strip - 50% of the film setting). The use of this method of wrapping is the most optimal and will result in the bale being wrapped 4 times in each place. The bale cover will be tight and durable. Depending on the wrapped material, the number of film layers can be increased to ensure adequate strength and tightness of the cover and obtain satisfactory ensiling results.

ADVICE

Wrapping during rainfall is not recommended due to the deterioration of the quality of the adhesive applied to the film, which reduces the strength and tightness of the coating.

When wrapping bales of a different size, the minimum number of revolutions needed to wrap the bale must be recalculated.

When wrapping the first bale, count the number of table revolutions needed to completely wrap the bale. The number of turns should be multiplied by 2 (for 4 layers) and the result increased by 1. The final result is the required number of table turns to wrap the bale in 4 layers (2 + 2 system).

The number of layers should be increased in the case of:

- badly formed or poorly pressed bales,
- the bale material is too dry,
- the material of the bale contains a large number of hard fibers.

4.6 BALE UNLOADING

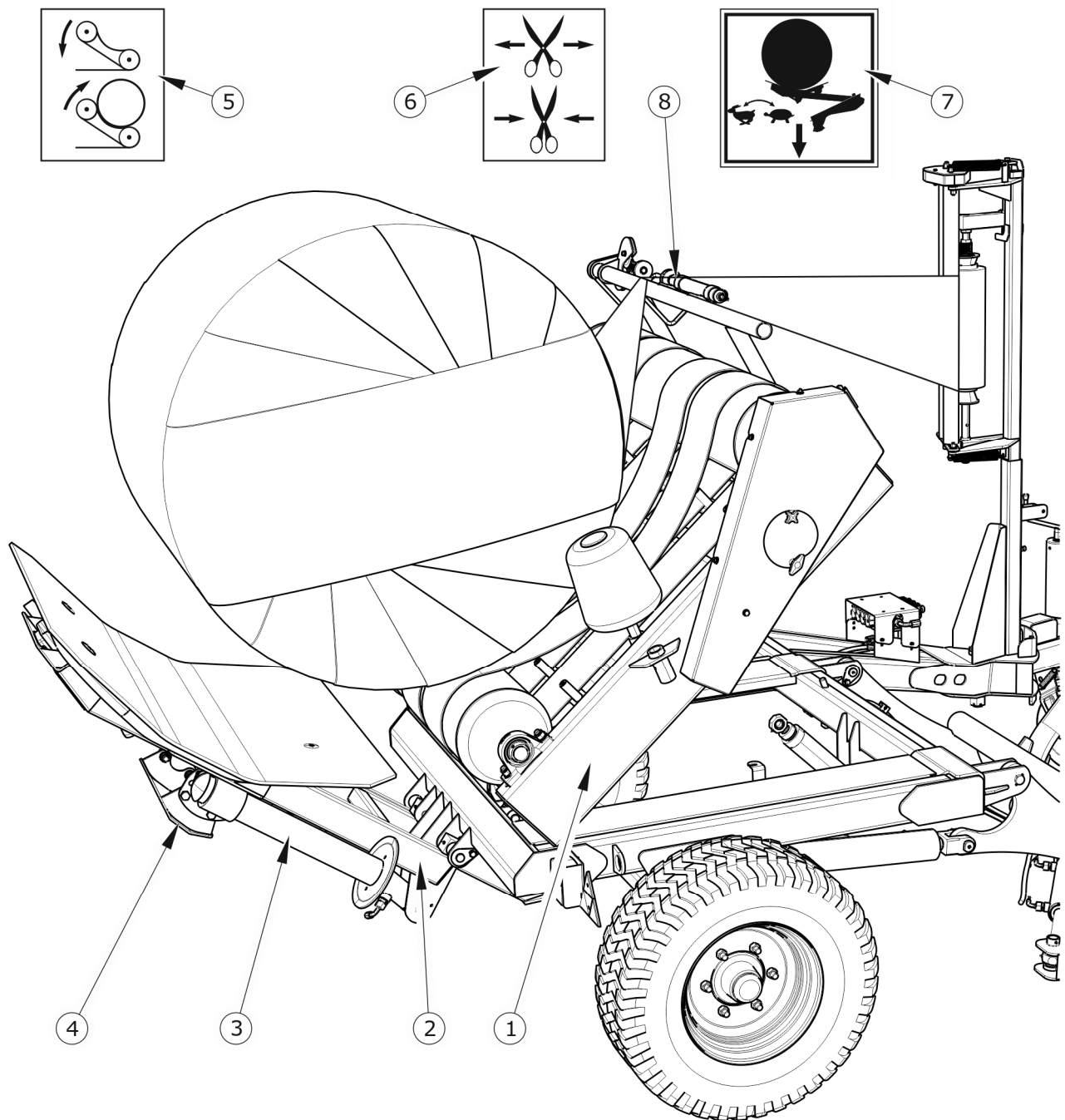


FIGURE 4.10. *Correct setting of the wrapping machine for unloading*

(1) turntable with a tilting frame, (2) unloading arm, (3) side tipper, (4) skid, (5) (6) (7) information stickers, (8) cutting system

➔ Set the unloading mechanism to the selected unloading mode.

⇒ In figure (4.10) the side tipping arm (3) is set in the rear bale unloading position.

➔ Make sure that there are no bystanders in the unloading area.

- ➔ Set the turntable in such a way that the cutting system is in front of the wrapping machine and the table rollers are perpendicular to the stringers of the wrapping machine frame.
- ➔ Start the table tipping.
 - ⇒ The tipping operation is performed using the lever marked with a decal (5).
- ➔ First, the unloading arm of the unloading mechanism is raised, only in the second stage the lifting of the turntable begins. The film will be stretched and will settle between the pressure elements of the cutting system (8).
- ➔ After maximum lifting of the turntable, activate the pressure cylinder of the cutting system (the film will be cut), and hold the film until wrapping the next bale starts.
- ➔ The bale will automatically roll onto the unloading table when the turntable is raised.
- ➔ Lower the turntable.
 - ⇒ The unloading arm will drop earlier than the turntable.
- ➔ Set the turntable to a position that allows for a bale loading.

DANGER

The wrapped bale can be unloaded only when there are no bystanders near the wrapping machine. Incorrect use of securing measures can cause an accident.

Exercise particular caution during unloading, ensure proper visibility of the workplace.

Working at night or in poor visibility increases the risk of an accident.

During bale unloading, the drawbar eye and the tractor hitch are subjected to high vertical load.

The frame of the tipping mechanism should automatically lower under the influence of the weight of the wrapped bale. The rate of descent should be set with the flow regulator in such a way that the downward movement is smooth. The unloading arm must not drop at high speed due to the possibility of damage. The principle of regulation is shown in the figure (4.11).

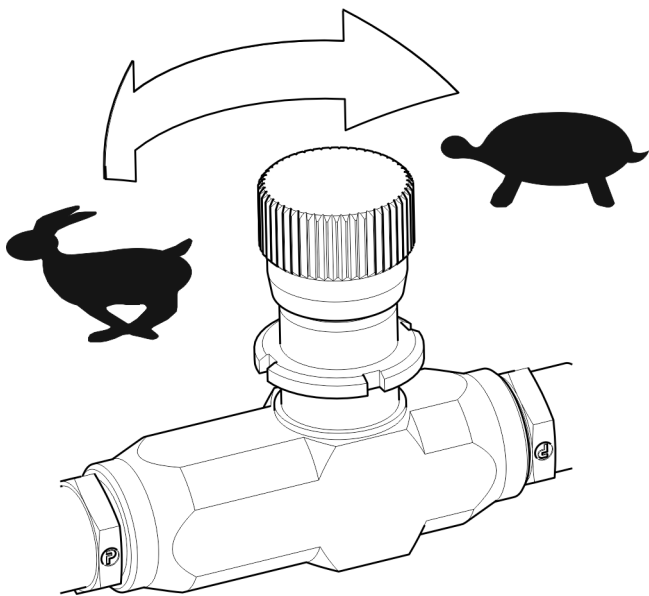


FIGURE 4.11. *Flow regulator*

In case where the wrapped bale is relatively light, it may happen that the turntable starts to drop earlier than the arm of the unloading mechanism. Then, the speed of the table descending should be adjusted using the second hydraulic oil flow regulator. Normally, the regulator should be fully open (the regulator knob fully unscrewed). Correctly set oil flow will cause the frame of the unloading mechanism to drop first, and then the turntable.

When unloading a bale to the side, the side tipping leg is directed vertically. While driving, there is a risk that the system's foot will touch the ground, so in such a situation it is required to slightly raise the frame of the tipping mechanism to a position where the mentioned element will not catch on the ground and the whole mechanism will not prevent wrapping the bale.



CAUTION

The bale can be unloaded only when the wrapping machine is stopped.

4.7 DRIVING ON PUBLIC ROADS

In order to prepare the wrapping machine for travel on public roads:

- Raise the loading arm (1) - figure (4.12).
- Raise the unloading mechanism frame (2).
- Install a slow-moving vehicle sign (3).
- Fold the drawbar (4) into the DRIVE position.
- Make sure that the parking stand (5) is raised to the maximum.
- Check the correct connection of the tendon and the connecting cable of the electrical system.

- Disconnect and secure the wrapping counter cable.
- Put the bracket with control levers (6) to the holder on the wrapping machine mast.

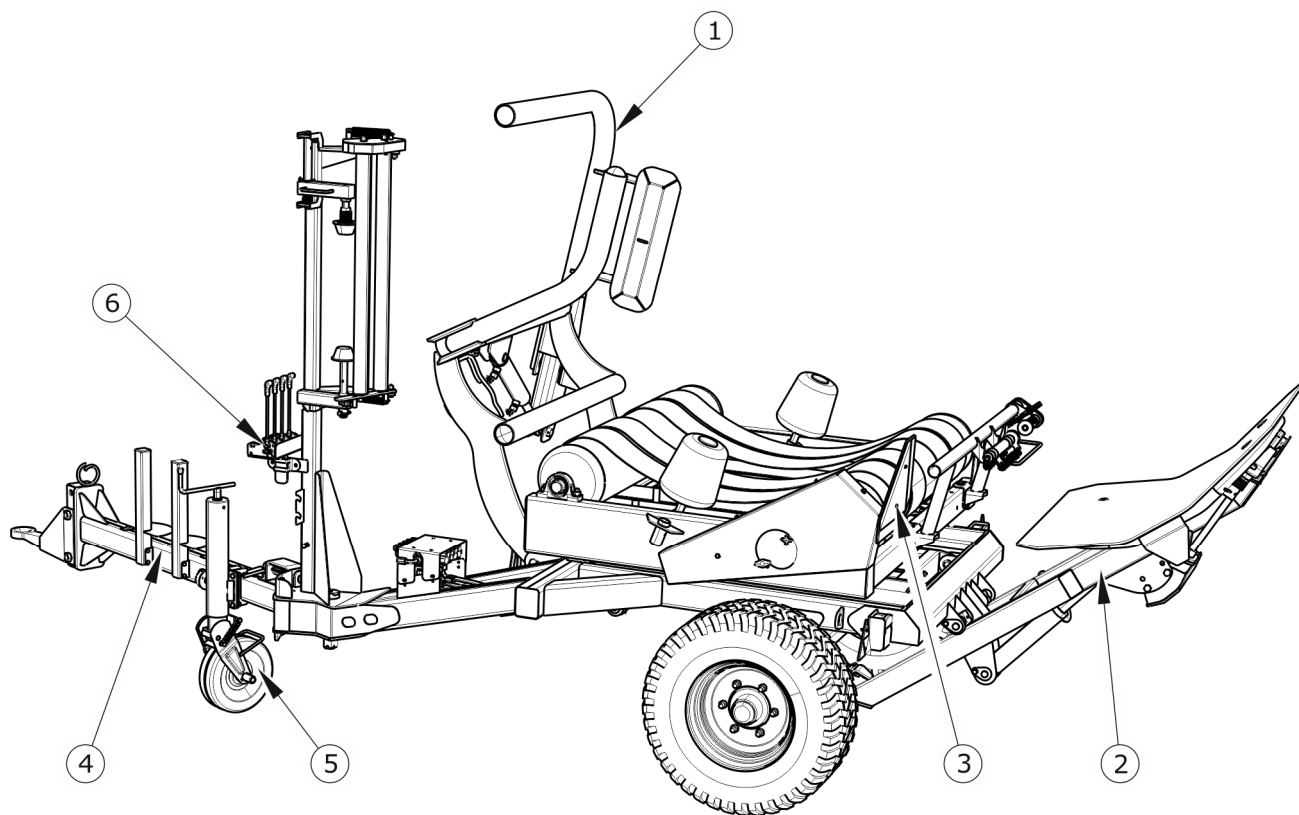


FIGURE 4.12. *Preparation of the wrapping machine for travel on public roads*

(1) loading arm, (2) unloading mechanism frame, (3) slow-moving vehicle sign, (4) drawbar, (5) parking stand, (6) bracket with control levers

While driving, comply with the road traffic regulations, be cautious and reasonable. The most important guidelines for driving a tractor with a connected wrapping machine are presented below.

- Before moving off, make sure that there are no bystanders, especially children, near the wrapping machine or the tractor. Ensure proper visibility.
- Vertical load borne by the wrapping machine drawbar eye affects the agility of the agricultural tractor.
- When driving on public roads, it is forbidden to transport any load on the wrapping machine, including people and bales. The wrapping machine is not adapted to transport.

- Before going on a public road, the wrapping machine must be cleaned of any contamination caused by min. from the operation of the device, such as fragments of film, hay, straw, etc. which may contaminate the road.
- The maximum design speed (30 km/h) and the road traffic law limitations must not be exceeded. The speed of travel should be adjusted to the prevailing road conditions and other conditions.
- In the event of a breakdown of the machine or the tractor, stop on the roadside, do not pose a threat to other road users and mark the place of parking in accordance with the road traffic regulations.
- When traveling on public roads, the wrapping machine must be marked with a slow-moving vehicle sign, placed in the cutting unit holder.
- The tractor operator is required to equip the trailer with an approved or approved warning reflective triangle.
- While driving, follow the road traffic regulations, signal the change of direction with the use of direction indicators, keep clean and take care of the technical condition of lighting and signaling installations. Damaged or lost lighting and signaling components must be repaired or replaced immediately.
- Avoid ruts, depressions, ditches, or driving along roadside slopes. Przejazd przez tego typu przeszkody może być przyczyną gwałtownego przechylenia się owijarki i ciągnika. Driving near the edges of ditches or canals is dangerous due to the risk of landslides under the wheels of vehicles.
- Travel speed should be reduced in good time before cornering or when driving on uneven or sloping ground.
- When driving, avoid sharp turns, especially on slopes.
- Remember that the braking distance of the set increases significantly with increasing speed.
- In case of large unevenness of the ground, slightly lower the unloading arm while driving so that the end of the frame does not hit the ground.
- Control the behavior of the wrapping machine while driving on uneven terrain and adjust the speed to the terrain and road conditions.

4.8 TIRE USE RULES

- When working with tires, the wrapping machine should be secured against rolling by placing wedges or other elements without sharp edges under the wheels. Dismantling the wheel can be performed only when the wrapping machine is not loaded.
- Repair work on wheels or tires should be carried out by persons trained and authorized to do so. These works should be carried out using appropriately selected tools.
- Checking the tightness of the nuts should be carried out after the first use of the wrapping machine, after the first day of work and then every 6 months of use or after traveling 25,000 km, whichever comes first. In the event of intensive use, checking the tightening should be done at least every 10,000 kilometers. Each time the control activities should be repeated, if the wrapping machine wheel was dismantled.
- Regularly check and maintain the correct pressure in the tires in accordance with the instructions (especially after a longer period of non-use).
- Tire pressure should also be checked during all-day intensive work. It should be taken into account that an increase in tire temperature can increase the pressure by up to 1 bar.
- Never reduce pressure by venting if it increases due to temperature.
- Tire valves should be protected with the appropriate caps to avoid their contamination.
- Do not exceed the wrapping machine's maximum speed.
- During the whole day cycle, take a minimum of one hour break at noon.
- Observe 30 minutes breaks for cooling the tires after driving 75 km or after 150 minutes of continuous driving, whichever comes first.
- Avoid damaged road surfaces, sudden and variable maneuvers and high speed when turning.

4.9 WRAP COUNTER (L01, L02)

4.9.1 DESIGN AND PRINCIPLE OF WRAP COUNTER WORKS

The counter is an electronic device designed to count the wraps of the bale. The set of the device consists of a programmable counter placed in a plastic housing and a rotation sensor connected by a cable and a multi-contact connector. The sensor mounted on the fixed part of

the wrapping machine structure cooperates with a permanent magnet placed on the rotating table and transmits electrical signals to the counter system. Each one complete revolution of the wrapped bale is counted and shown on the counter display. After counting the number of wrappings previously programmed by the user, the counter signals the end of wrapping by blinking and a sound signal (only in case of the L02 counter).

The standard equipment of the wrapping machine is the L01 counter, which can be programmed for 16 or 24 wrappings. The L02 counter (optional equipment, interchangeable with the L01 counter) can be programmed in the range from 10 to 49 wrappings.

The L01 counter is powered by connecting a 9V battery. The L02 counter is powered with 12V through the attached cable, connected to the cigarette lighter socket.

4.9.2 COUNTER USE

The counter can be installed in the tractor in any position to ensure good visibility of the display. The counter's working place should guarantee its safe use, first of all, it should protect against excessive shocks, hits against the tractor structure, and in particular against the counter falling onto a hard ground, which may cause its permanent damage. Please note that the counter housing is not waterproof.

CAUTION



The counter should be protected against moisture, chemicals, direct precipitation, frost, high temperature and strong sunlight.

Press the button only with your fingertip. Do not press the button with your fingernail or with any hard objects, as they will damage the flexible diaphragm.

4.10 COUNTER L01 OPERATION

4.10.1 SWITCHING ON AND OFF AND PROGRAMMING OF THE COUNTER

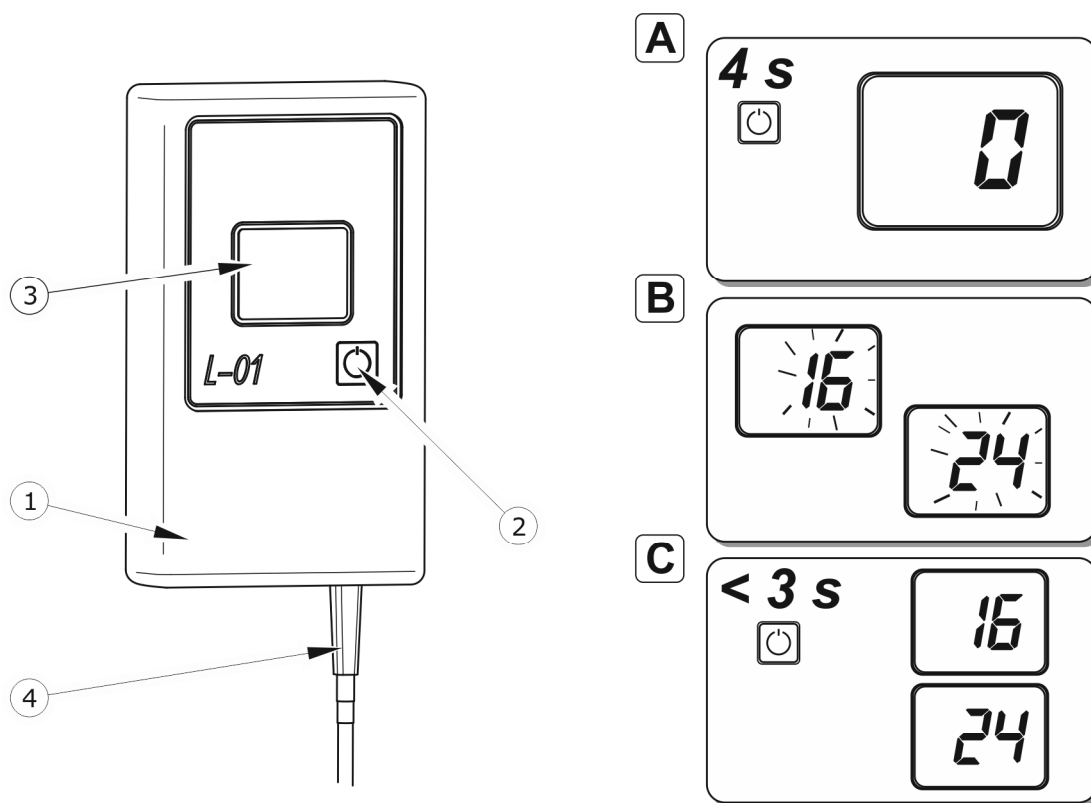


FIGURE 4.13. *Programming the wraps counter*

(1) L01 counter, (2) button, (3) display, (4) connecting lead, (A), (B), (C) sequences of the counter's work

- ➔ Press the button (1) for a moment - figure (4.13).
 - ⇒ After approx. 4 seconds, the number 0 will appear on the counter display - sequence (A).
- ➔ Press the button again and hold it until the display shows the digit 16 or 24 - the last programmed setting of the counter, sequence (B).
- ➔ Release the button, the display will stop blinking.
- ➔ Press the button again to obtain the selected counter setting.
 - ⇒ Each time you press the button, the setting changes alternately. Only 2 work positions are available: 16 and 24 wraps. The time between successive presses should not be longer than 3 seconds.

- ➔ In order to remember the selected number of wrappings, set the required value and wait until the display shows the digit 0. The counter is ready for operation.

The programmed number of wrappings is remembered by the counter until the counter is reprogrammed or until the battery is removed from the counter. Switching off the counter does not change the programmed number of wrappings. The counter turns off automatically after about 6 minutes of not using it, i.e., when there are no pulses from the sensor and no button is pressed.

4.10.2 WORKING WITH COUNTER IN COUNTING MODE




The counter in the counting mode shows the currently counted number of wrappings on the display. The counter can be reset at any time by pressing the button. With each rotation of the bale, the counter increases the reading by one. After counting the programmed number of wrappings, the counter display starts blinking, which also signals that the bale wrapping has been completed. Reset the counter before wrapping the next bale. To do this, press the button until the display shows 0, and then release the button. Holding the button down longer will switch the counter to the programming mode.






The counter remembers the number of wrappings until it is reset even after the counter is turned off automatically. When turned on again, the display shows the last value of the number of wraps on the bale.

4.11 COUNTER L02 OPERATION

4.11.1 SWITCHING ON AND OFF AND PROGRAMMING OF THE L02 COUNTER

TABLE 4.1. *The meaning of the pictograms of the L02 counter*

PICTOGRAM	NAME	DESCRIPTION
	Function button F1	Choice of field (meadow).
	Function button F2	Selection of counter indications.
	CLEAR function button	Turning the counter on/off. Confirming programming.
1 2 3	FIELD	Information about the selected field (meadow)

PICTOGRAM	NAME	DESCRIPTION
	BALE	Information on the number of wrapped bales.
	TIME	Information on the total wrapping time.
	PERFORMANCE	Wrapping performance information (number of wrapped bales per hour)
	CAUTION	Warnings and alarms
	WRAPPING	Information on the programmed and current number of wrappings.

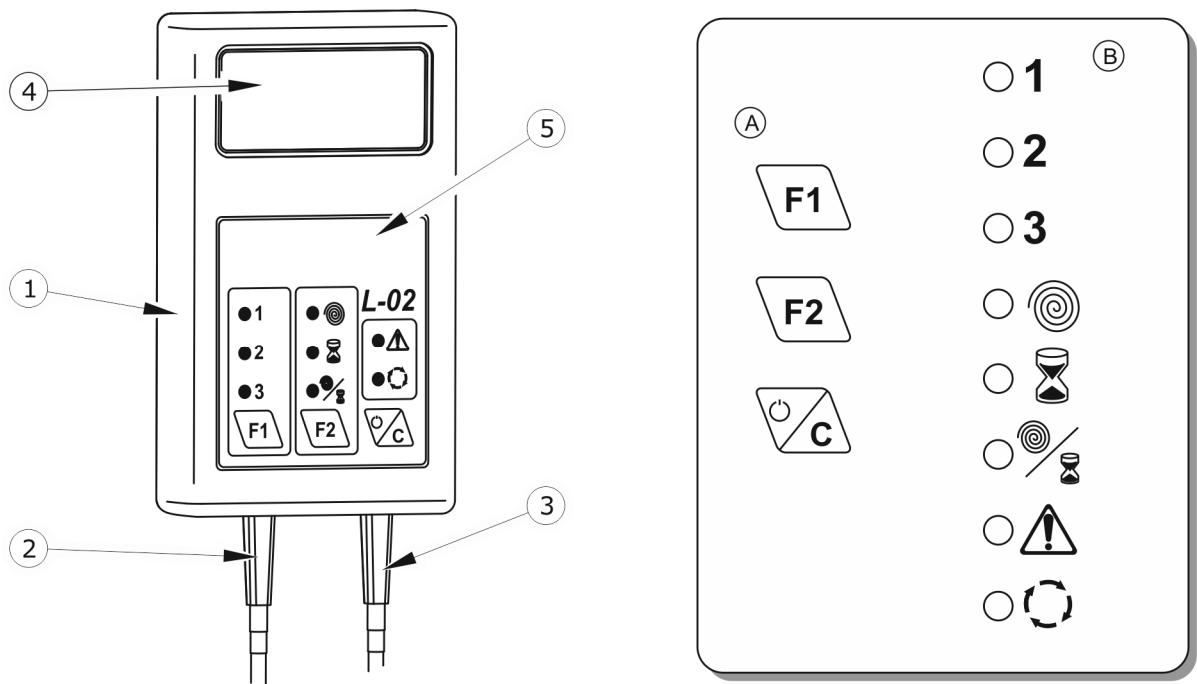


FIGURE 4.14. Construction of the L02 counter

(1) L02 counter, (2) power supply cable, (3) rotation sensor cable, (4) display, (A) function buttons, (B) signaling LEDs

4.11.2 SWITCHING ON AND OFF

SWITCHING ON OF THE COUNTER

- ➔ Connect the power plug to the cigarette lighter socket.
 - ⇒ Correct connection is indicated by the blinking red diode on the counter display.
- ➔ Connect the cable of the rotation sensor.
- ➔ Turn on the counter by holding down the CLEAR button - figure (4.14).

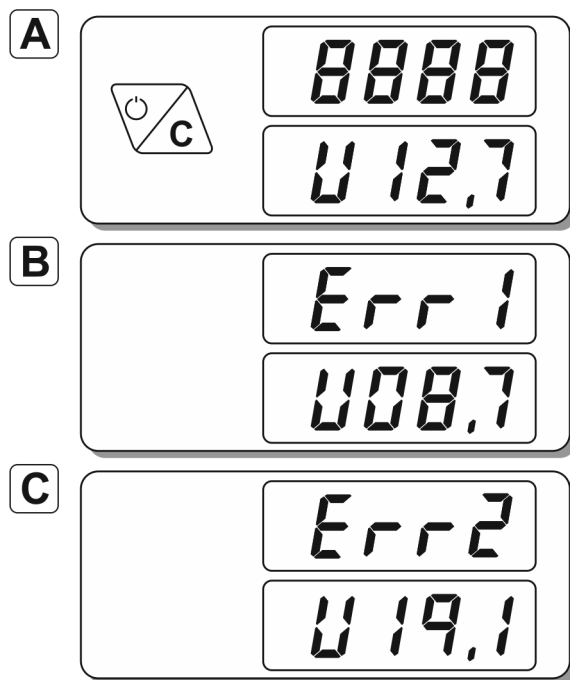


FIGURE 4.15. *Display indications in the switching mode*

(A) the counter is in working order, ready to work, (B) error, supply voltage too low, (C) error, supply voltage too high

- ➔ Check the display indications.

⇒ Each time the counter is turned on, the counter performs a display test and checks the supply voltage, the counter display will show 8888 and all decimal points and LEDs will light up, and an acoustic signal will sound. Then the counter's supply voltage will be displayed, example U12.7 (means 12.7V). Any other condition means that the counter is damaged.

Too low supply voltage is signaled by displaying Err1 alternately with the voltage value, e.g., U08.7 (voltage 8.7 V), it is also signaled by an intermittent acoustic signal and by flashing of the red LED diode (attention).

Too high supply voltage is signaled by the display of Err2 alternately with the voltage value, e.g., U19.1 (voltage 19.1 V), it is also signaled by an intermittent sound signal and by flashing of the red LED diode (attention).

After a positive test, the counter is ready to work and its settings are the same as during the previous shutdown.

SWITCHING OFF OF THE COUNTER

- ➔ Press the CLEAR button for approximately 3 seconds.
 - ⇒ A flashing red dot will appear on the display.
- ➔ Disconnect the power CABLE.
- ➔ Disconnect the sensor cable.

4.11.3 NUMBER OF WRAPS PROGRAMMING

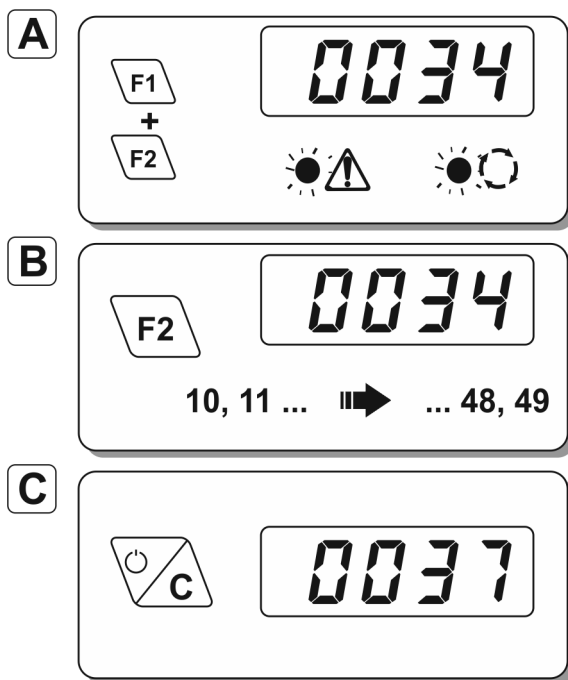
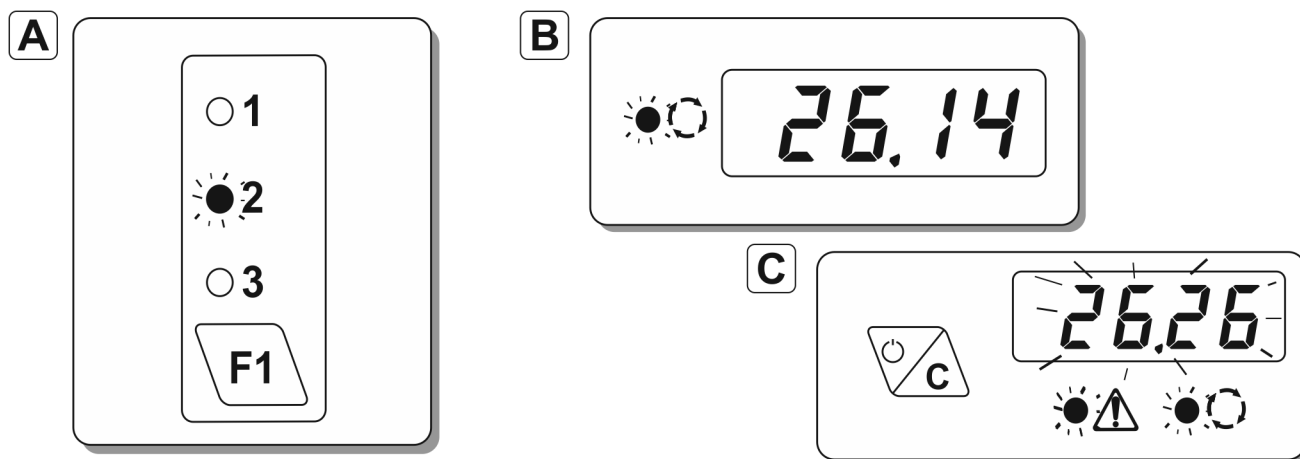


FIGURE 4.16. Counter programming sequences

(A) start of the counter programming, (B) set a new number of wrappings, (C) store a new number of wrappings

PROGRAMMING

- ➔ Press simultaneously F1 and F2 buttons - item (A), figure (4.16).
- ➔ The display will show the last setting, the mode of changing the number of wrappings is signaled by the simultaneous lighting of the red diode NOTE and the green diode WRAPPING.
- ➔ Press F2 to change the number of wrappings (range 10 - 49) - item (B).
- ➔ Confirm the new setting by pressing the CLEAR button, item (C).
- ➔ The counter switches to the operating mode with the new setting.

BALE WRAPPING**FIGURE 4.17.** *Bale wrapping*

(A) field selection, (B) counter display during wrapping, (C) end of wrapping

ACTIVITIES DESCRIPTION

- ➔ Select the field/meadow (1, 2 or 3) where the bale is wrapped. Select the field by pressing F1 - item (A), figure (4.17).
- ➔ Program the number of wrappings (if necessary).
- ➔ Start to wrap the bale.
 - ⇒ Counter will automatically switch to the wrapping display option after receiving an impulse from the wrapping machine sensor. An example of the counter reading is shown in item (B) in the figure. The first segment means that 26 wrappings have been programmed, the second segment means that the bale has been wrapped 14 times at a given moment.
- ➔ After wrapping the bale (exceeding the set number of wrappings), the counter display starts blinking alternately with the CAUTION diode, the wrapping is also signaled by an intermittent sound signal (C).
- ➔ After unloading the bale, reset the counter in order to prepare it for wrapping the next bale. To do this, press the CLEAR button and hold it down until the display shows the number of bales - the BALE diode is on, the CAUTION diode will be turned off.
 - ⇒ The counter is now ready to count the wraps of the next bale.

4.11.4 SELECTION OF INDICATION

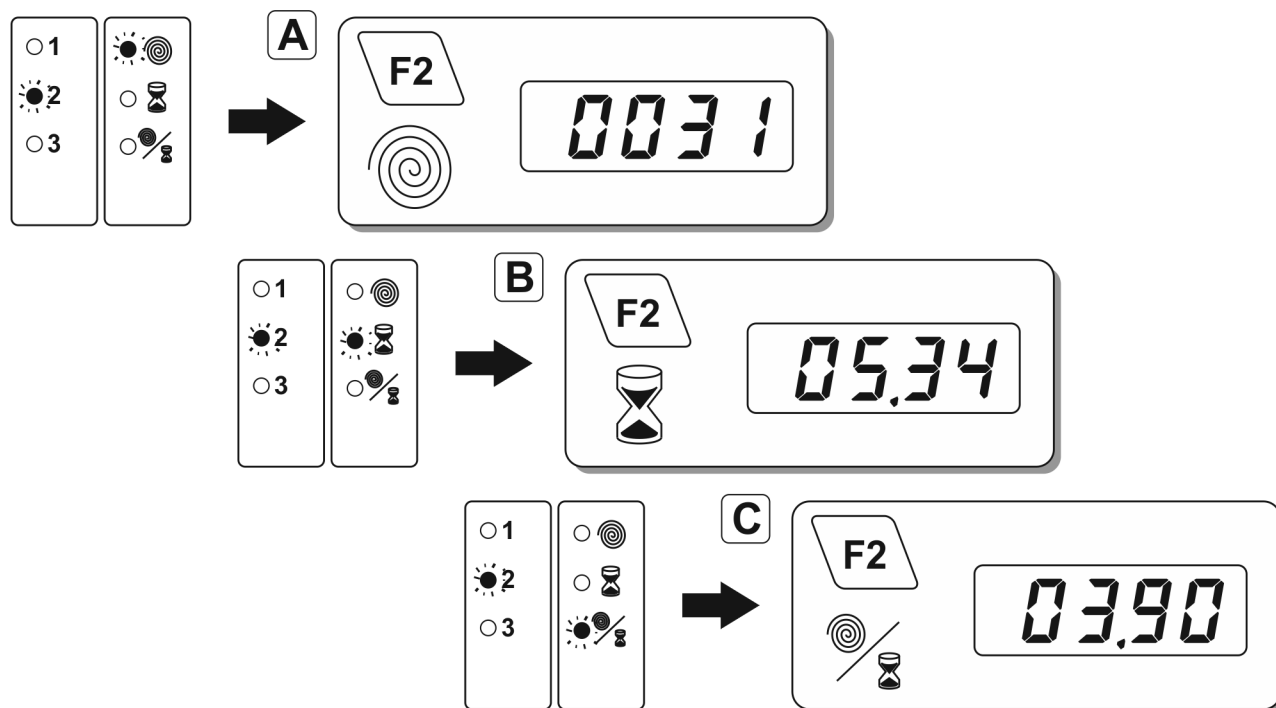


FIGURE 4.18. *Parameters reading*

(A) reading the number of wrapped bales, (B) reading the average working time, (C) reading the capacity

PARAMETERS READING

- ➔ Press F1 to select the field (meadow) for which you want to read the working parameters of the wrapping machine.
- ➔ Press F2 to select the counter display.
 - ⇒ Reading of the number of bales - position (A) - figure (4.15), informs that 31 bales were wrapped in field 2.
 - ⇒ Reading of the working time - position (B), informs that in field 2 wrapping lasted 5 hours and 34 minutes.
 - ⇒ Performance reading - position (C), shows that in field 2 an average of 3.9 bales were wrapped per hour

4.11.5 A COUNTER RESETTING

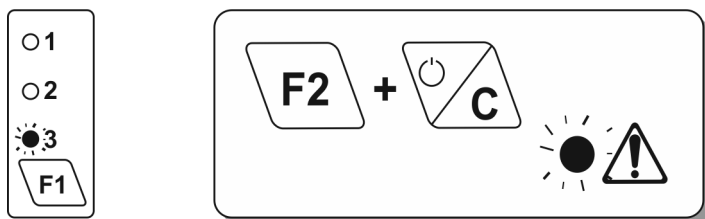


FIGURE 4.19. *Sequence of counter resetting*

COUNTER RESETTING

- ➡ Press F1 to select the field for which you want to reset the parameters (saved displays).
- ➡ Press and hold the F2 and CLEAR buttons simultaneously.

⇒ Deletion is signaled by the CAUTION diode lighting up and a continuous audible signal.

- ➡ After the signal sounds, release both buttons.

Chapter 5

TECHNICAL SUPPORT

5.1 PRELIMINARY INFORMATION

When using the wrapping machine, it is necessary to constantly check the technical condition and perform maintenance procedures that will allow the machine to be kept in good technical condition. Therefore, the wrapping machine user is obliged to perform all maintenance and adjustment activities specified by the Manufacturer.

Repairs during the warranty period may only be carried out by authorized service centres.

This chapter describes in detail the procedures and scope of activities that the user can perform on his own. In the event of unauthorized repairs, changes to factory settings or activities that have not been considered possible by the wrapping machine operator, the user loses the warranty.

5.2 DRIVING AXLE SERVICE

5.2.1 PRELIMINARY INFORMATION

Work related to the repair, replacement or regeneration of driving axle elements should be entrusted to specialized workshops that have the appropriate technologies and qualifications to perform this type of work.

User responsibilities include only:

- checking and adjusting the clearance of the axle bearings,
- wheel assembly and disassembly, checking wheel tightness,
- air pressure control and maintenance, assessment of the technical condition of wheels and tires.

Activities related to:

- grease replacement in axle bearings axle,
- replacement of bearings, hub seals,

can be performed by specialized workshops.

5.2.2 CHECKING OF THE CLEARANCE OF THE AXLE BEARINGS

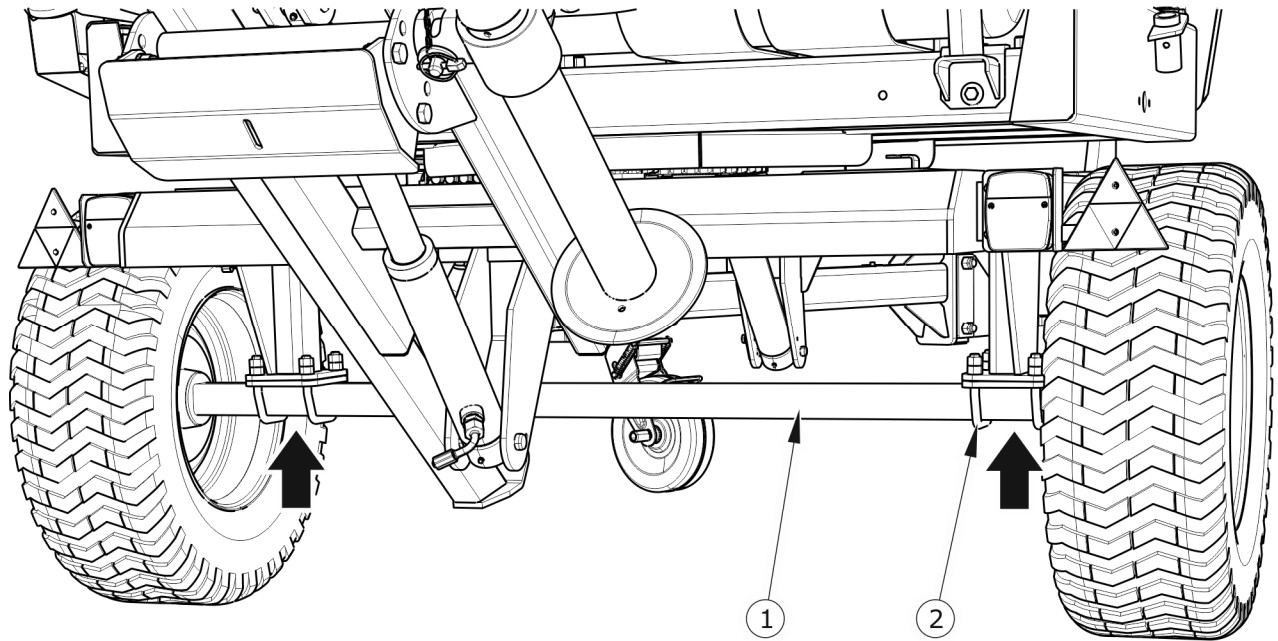


FIGURE 5.1. *Hoist support point*

(1) driving axle, (2) U-bolt

PREPARATORY ACTIVITIES

- ➔ Hitch wrapping machine to tractor, immobilize tractor with parking brake.
- ➔ Place the tractor and wrapping machine on firm and level ground.
- ➔ Position the tractor for straight-ahead travel.
- ➔ Place safety wedges under the wrapping machine wheel. Ensure that the machine will not roll during inspection.
- ➔ Raise the wheel (located on the opposite side of the placed wedges).
 - ⇒ The jack should be placed between the U bolts (2) - figure (5.1) securing the axle (1) to the lower frame. The recommended support point is marked with an arrow. The jack must be suited to the wrapping machine weight.

CHECKING THE CLEARANCE OF THE AXLE BEARINGS

- ➔ Turn the wheel slowly in two directions to check if the movement is smooth and the wheel rotates without excessive resistance and jams.
- ➔ Turn the wheel so that it rotates very quickly, check that the bearing does not make any unusual sounds.

- ➔ Loading a bale on the turntable may only take place when the wrapping machine has been stopped
- ⇒ You can use the lever under the wheel, resting the other end on the ground.
- ➔ Repeat the control activities for the other wheel.

ADVICE

Damaged hub cover or lack thereof will cause the penetration of dirt and moisture into the hub, which will result in much faster wear of bearings and hub seals.

Bearing life depends on wrapping machine operating conditions, load, vehicle speed and lubrication conditions.

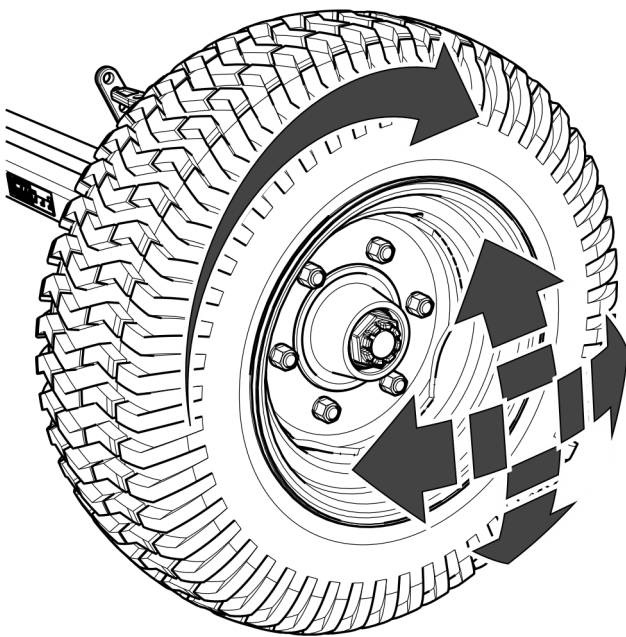


FIGURE 5.2. Clearance inspection

If looseness is felt, adjust the bearings. Unnatural sounds coming from the bearing may be symptoms of excessive wear, dirt or damage. In this case, the bearing together with the sealing rings should be replaced or cleaned and regreased.

Check the technical condition of the hub cover, replace if necessary. Control of bearing looseness may be performed only when the wrapping machine is connected to the tractor. The machine cannot be loaded.

DANGER

Before starting work, read the instructions for the lift and follow the manufacturer's instructions.

The lift must stand firmly against the ground and the axle.

Ensure that the wrapping machine will not roll when checking the looseness of the axle bearings.

INSPECTION

Checking the clearance of the axle bearings:



- after the first use,
- after the first trip with a load,
- every 6 months of use, or every 25,000 kilometres,
- before intensive use of the wrapping machine,

If the wrapping machine will be used intensively, check the tightening at least once every 10,000 kilometres.

5.2.3 ADJUSTING THE CELARANCE OF THE AXLE BEARINGS

THE SCOPE OF SERVICE ACTIVITIES

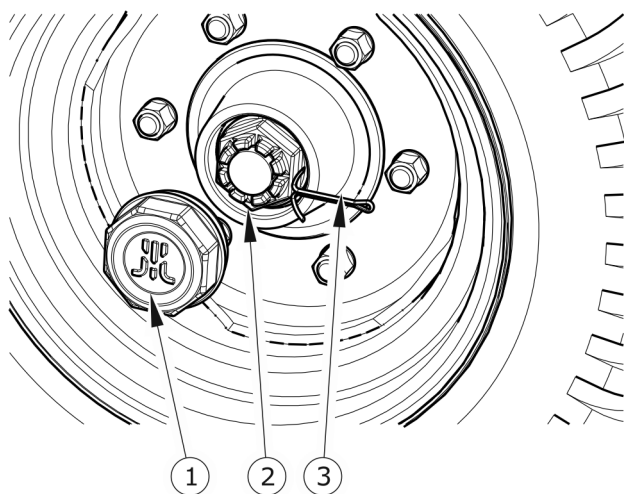


FIGURE 5.3. *Adjustment of axle bearings*

(1) hub cover, (2) crown nut, (3) cotter pin

- ➡ Prepare the tractor and wrapping machine for adjustment as described in chapter 5.2. 2..
- ➡ Remove the hub cover (1) – figure (5.3).
- ➡ Remove the cotter pin (3) securing the castellated nut (2).
- ➡ Tighten the castellated nut to remove slack.
 - ⇒ The wheel should rotate with slight resistance.

- ➡ Unscrew the nut (not less than 1/3 turn) to cover the nearest nut groove with a hole in the axle pin. The wheel should rotate without excessive resistance

⇒ The nut must not be too tight. It is not recommended to apply too much pressure due to deterioration of bearing operating conditions.

- ➡ Secure the castellated nut with a cotter pin and mount the hub cover.
- ➡ Gently tap the hub with a rubber or wooden hammer.

The wheel should rotate smoothly, without any jams or noticeable resistance. Adjusting of the bearing looseness can only be carried out when the wrapping machine is connected to the tractor and the machine is empty.

**ADVICE**

If the wheel is removed, the bearing clearance is easier to check and adjust.

5.2.4 WHEEL ASSEMBLY AND DISASSEMBLY, CHECKING NUT TIGHTNESS

WHEEL DISASSEMBLY

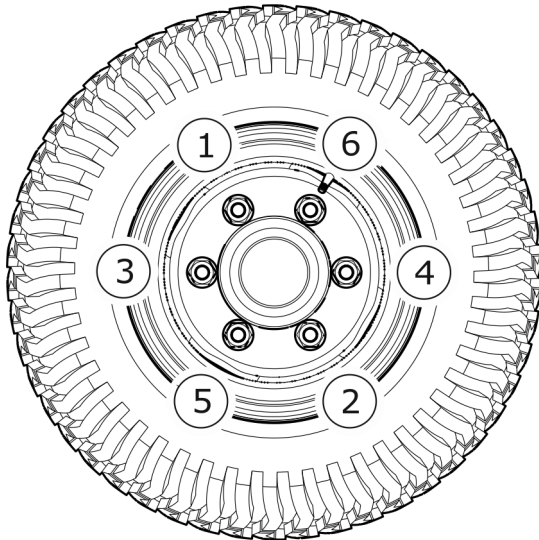


FIGURE 5.4. *The order of the nuts unscrewing and tightening*

- ➔ Place blocking chocks under the wheel that will not be removed.
- ➔ Ensure that the wrapping machine is properly secured and will not move during wheel dismantling.
- ➔ Loosen the wheel nuts according to the order given in figure (5.4).
- ➔ Place the jack and raise the wrapping machine.
- ➔ Remove the wheel.

WHEEL ATTACHMENT

- ➔ Clean the axle pins and nuts from contamination.
- ➔ Do not lubricate the threads of the nut and stud.
- ➔ Check the condition of the pins and nuts, replace if necessary.
- ➔ Mount the wheel on the hub, tighten the nuts so that the rim fits snugly to the hub.
- ➔ Lower the wrapping machine, tighten the nuts according to the recommended torque and the given order.

TIGHTENING OF THE NUTS

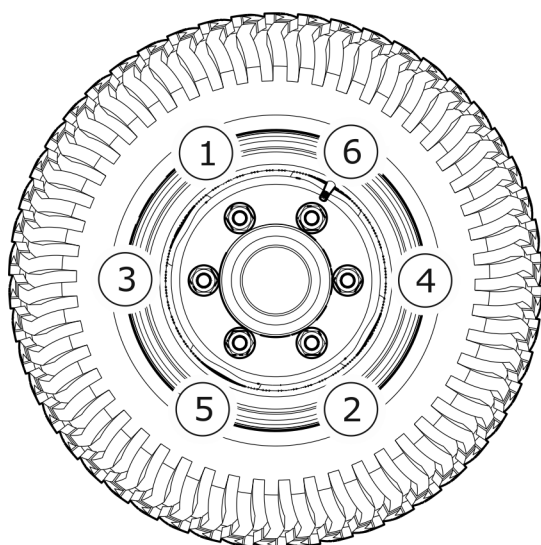


FIGURE 5.5. *Wheel tightening method*

(L) wrench length, (F) user weight

sure that the correct torque value is set.

The nuts should be tightened gradually diagonally (in several stages until the required tightening torque is achieved), using a torque wrench. In the absence of a torque wrench, you can use a regular wrench. The wrench arm (L), figure (5.5), should be selected according to the weight of the person (F) tightening the nut. It should be remembered that this method of tightening is not as accurate as when using a torque wrench. The highest tightening accuracy is obtained with a torque wrench. Before starting work, make

CAUTION



Wheel nuts must not be tightened with impact wrenches, due to the danger of exceeding the permissible tightening torque, which may result in breaking the connection thread or breaking the hub pin.



ADVICE

Wheel nuts should be tightened to 270 Nm - M18x1.5 nuts.

TABLE 5.1. *Key arm selection*

WHEEL TIGHTENING TORQUE	BODY WEIGHT (F)	ARM LENGTH (L)
[Nm]	[kg]	[m]
270	90	0.30
	77	0.35
	67	0.40
	60	0.45

INSPECTION

Checking the clearance of the axle bearings:



- *after the first use,*
- *after the first trip with a load,*
- *every 6 months of use, or every 25,000 kilometres,*
- *before intensive use of the wrapping machine,*

If the wrapping machine will be used intensively, check the tightening at least once every 10,000 kilometres. Perform all steps again if

5.2.5 AIR PRESSURE CHECK, EVALUATION OF TECHNICAL CONDITION OF TIRES AND STEEL RIMS

The tire pressure should be checked after each wheel change and at least once a month. In the event of intensive use, it is recommended to check the air pressure more often. The wrapping machine must be unloaded at this time. Checking should be carried out before driving, when the tires are not warm, or after a long standstill of the machine.

**ADVICE**

The value of the tire pressure is specified on the information sticker, placed on the rim or upper frame, above the wrapping machine wheel.

**DANGER**

Damaged tires or wheels can be the cause of a serious accident.

When checking pressure, pay attention to the technical condition of rims and tires. Look carefully at the side surfaces of the tires and check the tread condition. In the event of mechanical damage, consult your nearest tire service centre and ensure that your tire defect is eligible for replacement. Rims should be checked for deformation, material cracks, weld cracks, corrosion, especially around welds and contact with the tire. Technical condition and appropriate maintenance of wheels significantly extends the life of these elements and ensures an appropriate level of safety for wrapping machine users.

INSPECTION

Pressure control and visual inspection of steel wheels:

- • every 1 month of use,
- • every week in case of intensive use,
- • in case of emergency.

5.3 HYDRAULIC SYSTEM OPERATION

5.3.1 PRELIMINARY INFORMATION

Work related to the repair, replacement or regeneration of hydraulic system components (cylinder, valves, etc.) should be entrusted to specialized workshops that have the appropriate technologies and qualifications to perform this type of work.

The user's obligations related to the operation of the hydraulic system include only:

- checking system tightness and visual inspection of the system,
- checking the technical condition of the hydraulic connectors.

**DANGER**

It is forbidden to use the wrapping machine with inefficient braking system.

5.3.2 CHECKING THE TIGHTNESS OF THE HYDRAULIC SYSTEM

THE SCOPE OF SERVICE ACTIVITIES

- ➔ Hitch the wrapping machine to tractor.
- ➔ Connect hydraulic system hoses according to the instructions in the manual.
- ➔ Clean connectors and hydraulic cylinders.
- ➔ Activate all the hydraulic systems one after the other.
- ➔ Check hydraulic cylinders and hydraulic lines for leaks.

In the event of oiling on the hydraulic cylinder body, the nature of the leakage must be checked. When the cylinder is fully extended, check the seal locations. Slight leaks are permissible with symptoms of "sweating", however in the event of noticing leaks in the form

of "droplets" stop using the wrapping machine until the fault is remedied. If there is leakage at the connections, try to tighten the connection.

INSPECTION



Checking for leaks:

- *after the first week of use,*
- *every 12 month of use.*

5.3.3 CHECKING THE TECHNICAL CONDITION OF THE HYDRAULIC CONNECTORS

Hydraulic couplings are technically efficient and kept clean. Each time before connecting, make sure that the sockets in the tractor are maintained in good condition. The tractor's and wrapping machine's hydraulic systems are sensitive to the presence of solid impurities that can cause damage to precise components of the installation (impurities can cause stuck hydraulic valves, scratch the surface of cylinders, etc.)

INSPECTION



Checking the hydraulic plugs and sockets:

- *Each time before connecting, make sure that the sockets in the tractor are kept in good condition.*

5.3.4 REPLACEMENT OF HYDRAULIC HOSES

Rubber hydraulic hoses should be replaced every 4 years regardless of their technical condition. This operation should be entrusted to specialized workshops.

INSPECTION



Replacement of hydraulic hoses:

- *Every 4 years.*

5.4 ELECTRICAL SYSTEM SERVICE AND WARNING ELEMENTS

5.4.1 PRELIMINARY INFORMATION

Work related to the repair, replacement or regeneration of electrical installation components should be entrusted to specialized workshops that have appropriate technologies and qualifications to perform this type of work.

User responsibilities include only:

- technical inspection of the electrical installation and reflectors,
- replacement of bulbs.



CAUTION

Driving with defective lighting installations is prohibited. Damaged lampshades and burned out bulbs should be replaced immediately before driving off. Lost or damaged reflectors should be replaced with new ones.

THE SCOPE OF SERVICE ACTIVITIES

- ➔ Connect the wrapping machine to the tractor with a suitable connection lead.
 - ⇒ Make sure the connection cable is OK. Check the connection sockets on the tractor and on the wrapping machine.
- ➔ Check the completeness, technical condition and correct functioning of the wrapping machine lighting.
- ➔ Check the completeness of all reflectors.
- ➔ Check the correct installation of the triangular plate holder for slow moving vehicles.
- ➔ Before travelling on a public road, make sure that the tractor has a reflective warning triangle.

**INSPECTION**

*Electrical system check:
each time when connecting the wrapping machine.*

**ADVICE**

Before travelling, make sure that all lamps and reflectors are clean.

5.4.2 REPLACEMENT OF BULBS

The bulbs are presented in table (5.2). All lamp shades of lighting lamps are mounted with screws and there is no need to disassemble the entire lamp or wrapping machine components.

TABLE 5.2. *List of bulbs*

LAMP	TYPE OF LAMP	BULB / QUANTITY IN 1 LAMP	NUMBER OF LAMPS
Left rear lamp assembly	W 18U	P21W / 2 pcs R10W / 1 pc	1
Right rear lamp assembly	W 18U	P21W / 2 pcs R10W / 1 pc	1

5.5 ADJUSTING THE TENSION OF THE TURNTABLE DRIVE CHAIN

PREPARATION OF THE WRAPPING MACHINE

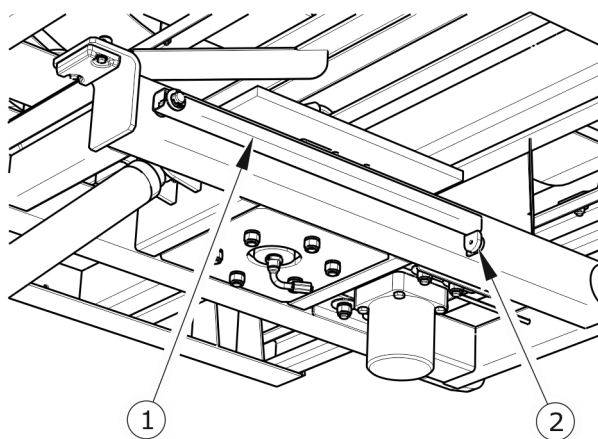


FIGURE 5.6. *Turntable service support*

(1) service support, (2) fixing bolt

tractor with parking brake.

➡ Secure the tractor cabin against access by unauthorized persons.

- ➡ Hitch the wrapping machine to tractor.
- ➡ Connect hydraulic system hoses.
- ➡ Lower the load arm.
- ➡ Turn the turntable to the unloading position.
- ➡ Raise the turntable, unscrew the screw (2) securing the support in the resting position. Support the turntable with the support (1).
- ➡ Turn off tractor engine, immobilize

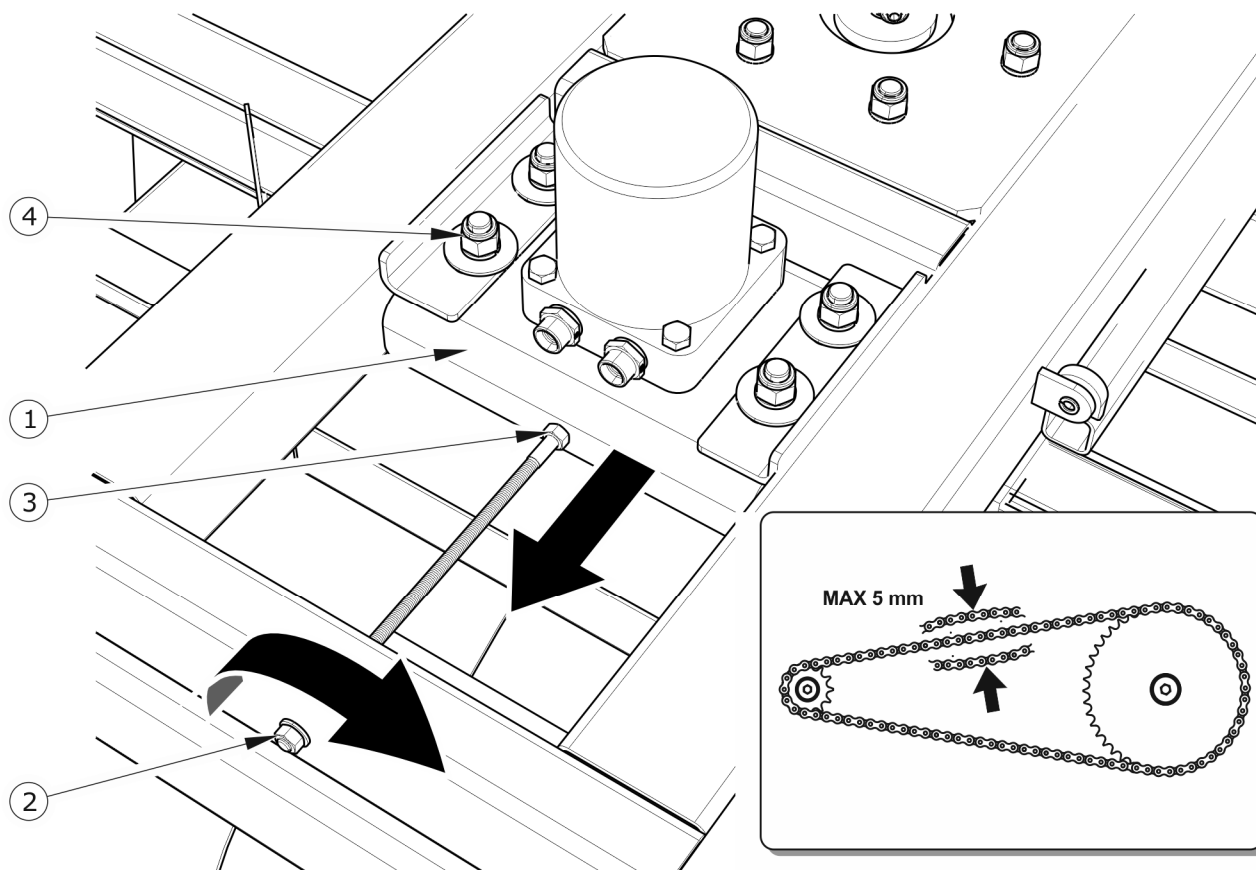


FIGURE 5.7. *Turntable drive chain adjustment.*

(1) motor U-profile, (2) tightening bolt, (3) lock nut, (4) motor U-profile fastening nut

THE SCOPE OF SERVICE ACTIVITIES

- ➔ Loosen 4 nuts (4) securing the motor U-profile (1) - figure (5.7).
- ➔ Loosen and unscrew the counter nut (3).
- ➔ Adjust chain tension with tensioning screw (2).
 - ⇒ Turning of the screw clockwise increases the tension on the drive chain and the motor channel (1) moves in the direction of the arrow.
- ➔ Check chain tension.
- ➔ The clearance in the chain, measured in the middle of the length, should be about 5 mm.
- ➔ Screw on U-profile of the motor with nuts (4), and tighten the counter nut (3).
- ➔ Fold the support, lower the turntable.
- ➔ Perform a trial run by starting the table drive.

The turntable should move smoothly, without jams and large unnatural noise of the gear operation. If the symptoms described above occur, check if the chain tension is correct and check the fixing of the C-profile of the hydraulic motor.

INSPECTION



In the newly purchased wrapping machine, adjustment should be made after wrapping the first 15 to 20 bales, and then adjust each time every 150 wrapped bales.

Chain tension check and/or adjustment should be performed each time the chain transmission is noisy.

Noisy operation of the chain transmission can cause high wear (stretching) of the drive chain, which is normal in this type of drive. In such a case, further adjustment does not bring the desired result, the chain should be replaced with a new one.



CAUTION

Verification of the correctness of the performed adjustment must be performed without load, i.e. when the turntable is not loaded.

5.6 ADJUSTING THE TENSION OF THE ROLLER DRIVE CHAIN

THE SCOPE OF SERVICE ACTIVITIES

- ➔ Hitch wrapping machine to tractor, connect hydraulic system conduits.
- ➔ Turn the table in such a way to enable easy access to active roller bearings - figure (5.8).
- ➔ Turn off tractor engine, immobilize tractor with parking brake. Secure the tractor cab against unauthorized access.
- ➔ Dismantle chain cover (6).
- ➔ Check the chain tension in the middle of its length.
 - If the deflection of the chain is more than 10 mm, it must be adjusted.

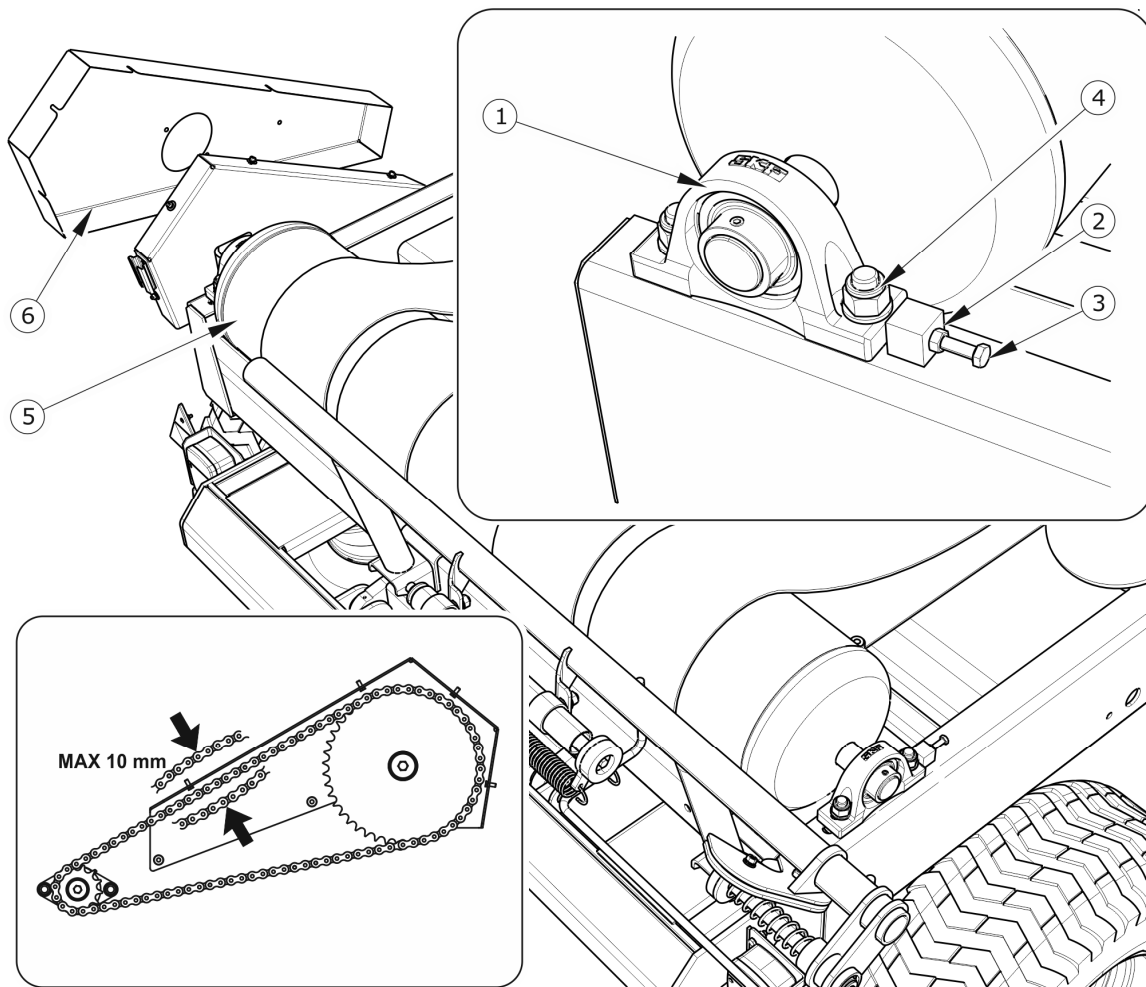


FIGURE 5.8. Adjustment and control of the tension of the roller drive chain

(1) bearing unit, (2) lock nut, (3) adjusting screw, (4) bearing unit mounting nut, (5) active table roller, (6) gear cover

- ➔ Loosen 4 nuts (4) securing 2 bearing units (1) of the active roller.
- ➔ Loosen 2 lock nuts (2) of adjustment screws (3).
- ➔ By tightening the bolt (3), move the bearing units aside until the required chain tension is obtained.
 - ⇒ Turn each bolt (3) the same number of times to ensure the required symmetry and parallelism of the rollers.
- ➔ After obtaining the correct tension on the chain, tighten the bearing unit on the side of the gear wheel, check the position of the roller once more and screw the rear bearing unit.
- ➔ Tighten counter nuts and install chain cover.
- ➔ Check the tension of rubber belts, adjust if necessary.



INSPECTION

The control of the tension of the turntable roller drive chain should be performed at the same time as the control of the drive chain tension is carried out, as well as each time the roller bearings are replaced or the idler pulley gear is replaced..

5.7 ADJUSTMENT OF THE WRAPPING MACHINE TO THE FILM 750

5.7.1 CHANGING THE GEAR POSITION

The use of a film with a width of 750 mm requires the replacement of a wheel (1) - figure (5.9) with the number of teeth 45, with a wheel with the number of teeth 28.

TABLE 5.3. Selection of gear wheels and drive chains depending on the film width

FILM WIDTH [mm]	NUMBER OF CHAIN LINKS	NUMBER OF TEETH OF WHEEL
500	94	45
750	85	28

Due to the different width of the film, a different rotational speed of the turntable rollers is required. When replacing a 28-tooth sprocket, an 85-tooth drive chain is required. When a

45-tooth sprocket is used, a longer chain of 94 is required. Both chains are of equal width and have a connecting link.

ADJUSTMENT OF THE GEAR TO THE 750 MM FILM

- ➔ Hitch wrapping machine to tractor, connect hydraulic system conduits.
- ➔ Turn the table in such a way to enable easy access to the roller drive chain gear - figure (5.9).
- ➔ Turn off tractor engine, immobilize tractor with parking brake. Secure the tractor cab against unauthorized access.
- ➔ Dismantle chain guard (2).
- ➔ Remove the drive chain.
 - ⇒ Chain is equipped with linkage.
- ➔ Loosen the nuts of fastening the roller bearings, locknuts and bearing adjustment bolts - compare figure (5.8).
- ➔ Unscrew the fastening screw (3). Remove the pinion (45 teeth).
 - ⇒ Use a suitable size bearing puller to remove the wheel. Do not hit the pinion with a hammer or other tools.
- ➔ Install the chain wheel with the number of teeth 28, tighten the wheel.
- ➔ Install the drive chain (85 links).
- ➔ Perform chain tension adjustments.
- ➔ Put on the gearbox cover.

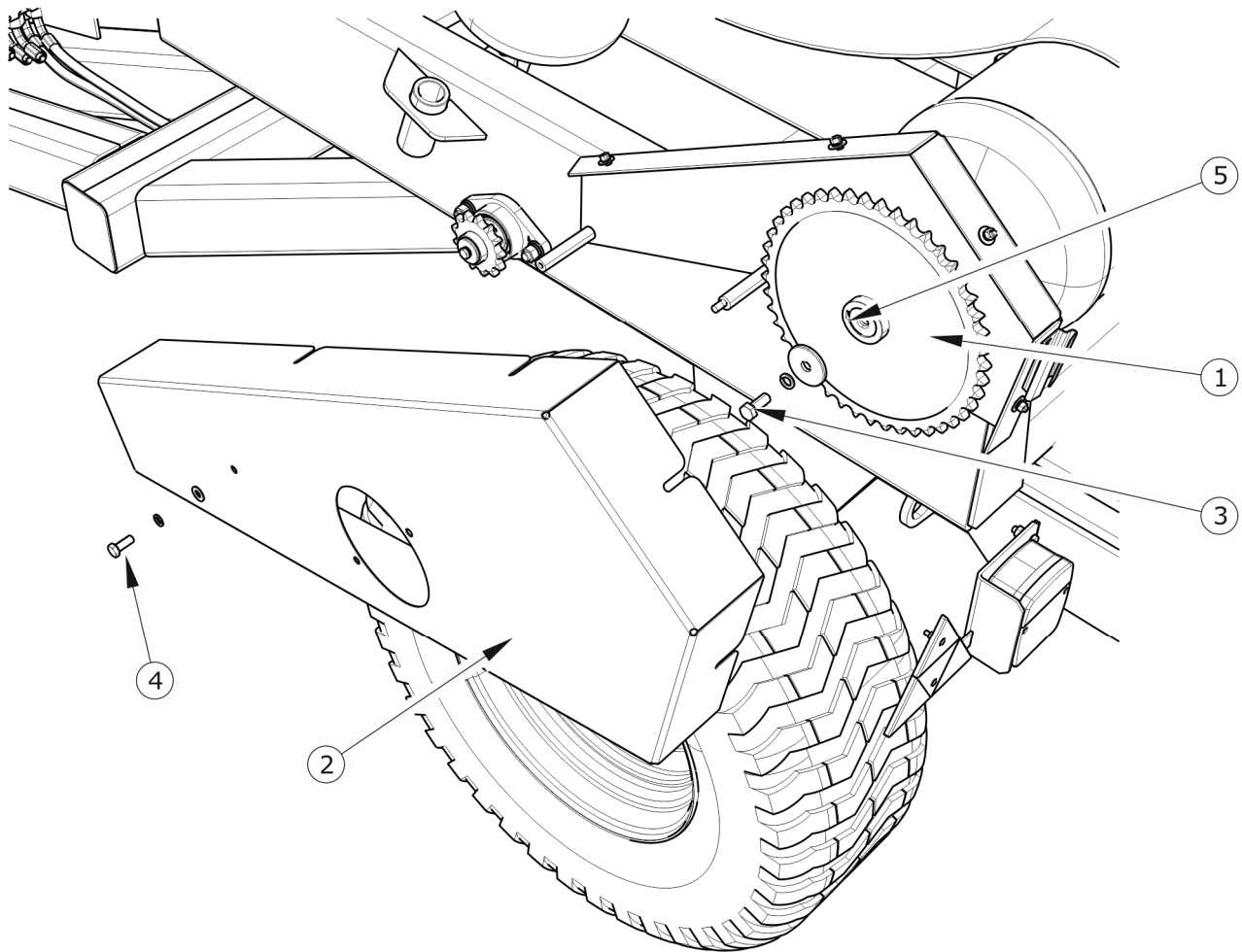


FIGURE 5.9. *Dismantle of the roller drive wheel*

(1) gear wheel, (2) gear cover, (3) gear fixing elements, (4) cover fixing elements, (5) prismatic key

ADJUSTMENT OF THE FEEDER TO FILM WITH THE WIDTH OF 750

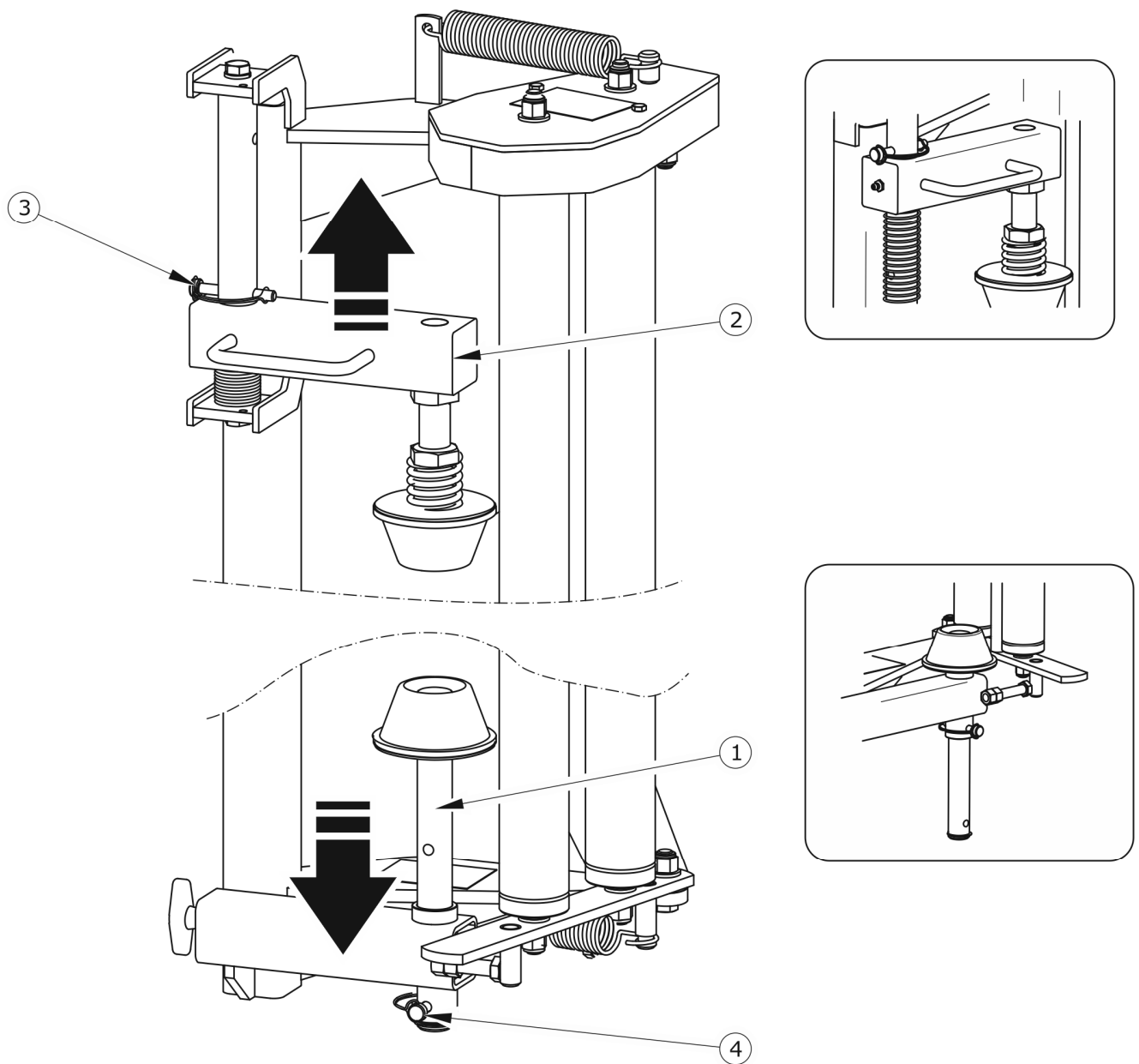


FIGURE 5.10. *Film feeder*

(1) bottom supporting roller, (2) film clamp, (3) clamp pin, (4) lower roll pin

- ➔ Immobilize tractor with parking brake. Secure the cabin against unauthorized access.
- ➔ Disassemble cotter pin (4) - figure (5.10).
- ➔ Put down the lower supporting roller and secure it with a cotter pin (4).
- ➔ Dismantle cotter pin (3).
- ➔ Move film clamp up and secure it with a cotter pin (3).

5.8 ADJUSTMENT OF THE LOADING ARM BUMPER

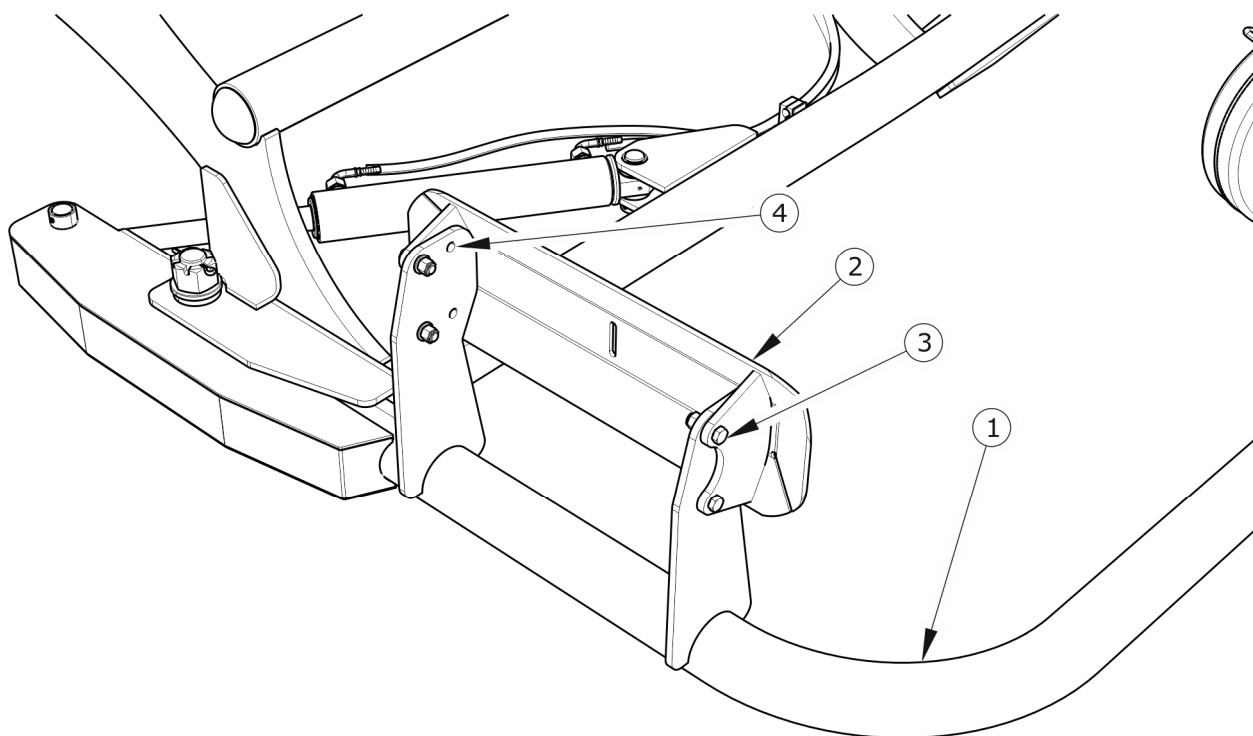


FIGURE 5.11. *Adjustment of the loading arm bumper*

(1) grabbing arm, (2) bale bumper, (3) bolted connection, (4) adjustment holes

The loading mechanism arm must be adapted to the dimensions of the pressed bales. Appropriate setting of the bumper (2) will enable proper bale loading on the turntable. After loading a bale, it must be approximately in the middle of the table length.

THE SCOPE OF SERVICE ACTIVITIES

- ➡ Hitch wrapping machine to tractor, connect hydraulic conduits.
- ➡ Lower the loading arm to the ground.
- ➡ Turn off tractor engine, secure the cabin against unauthorized access.
- ➡ Undo screw connections (3).
- ➡ Set the bumper to the desired position.
- ➡ Install bolts and tighten nuts..

5.9 CHANGING OF THE BALE UNLOADING METHOD

The wrapping machine can unload the bale in two ways:

- rolling the bale behind the wrapping machine,
- tipping the bale to the side, on the left side of the wrapping machine.

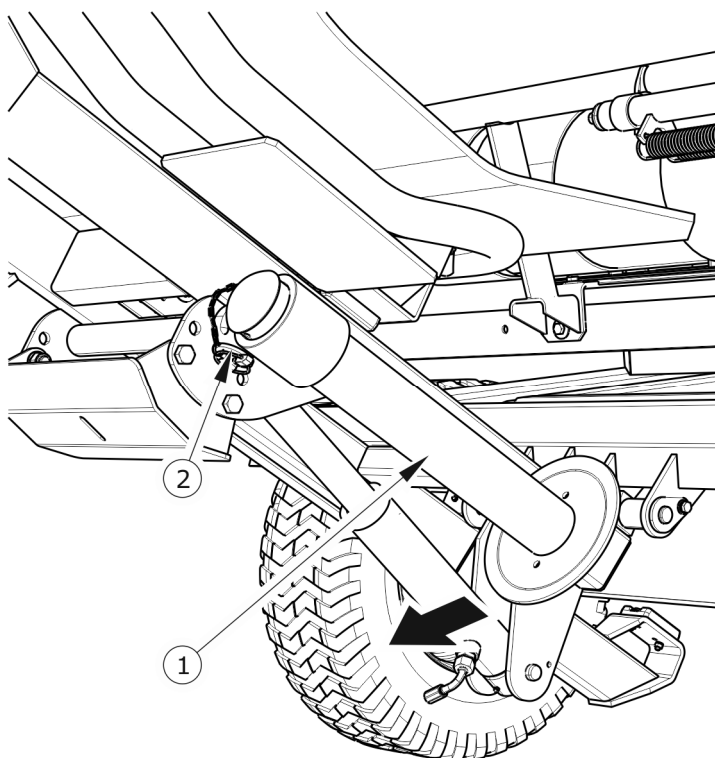


FIGURE 5.12. *Changing the position of the side tipping arm*

(1) side tipping arm, (2) securing pin

The method of unloading the bale depends on the position of the side tipping arm. In case of the position shown in figure (5.12), the unloaded bale will roll behind the wrapping machine. If the side tipping arm is turned to vertical position, the table of the unloading mechanism will rest against the tipping arm's slider (1) during the descent, thanks to which it will turn to the left side of the wrapping machine, thus causing the bale to be unloaded to the side.

In order to change this setting, the frame of the unloading table should be raised using a hydraulic cylinder. Then, after disassembling the securing cotter pin (2), set the arm

(1) to the vertical position. Install the cotter pin and lower the table frame.

5.10 ADJUSTMENT OF ROTATION SENSOR POSITION

The counter rotation sensor (1) is placed on the bracket (2) of the right frame side member - figure (5.13). Adjustment of the position should be performed when the reading of the number of turns on the counter does not correspond to the real values. One of the reasons for the lack of readings may be the wrong position of the sensor in relation to the magnet attached to the turntable frame.

**ADVICE**

Easier access to the rotation sensor is after lifting the turntable. Before starting the adjustment, support the turntable and turn off the tractor engine.

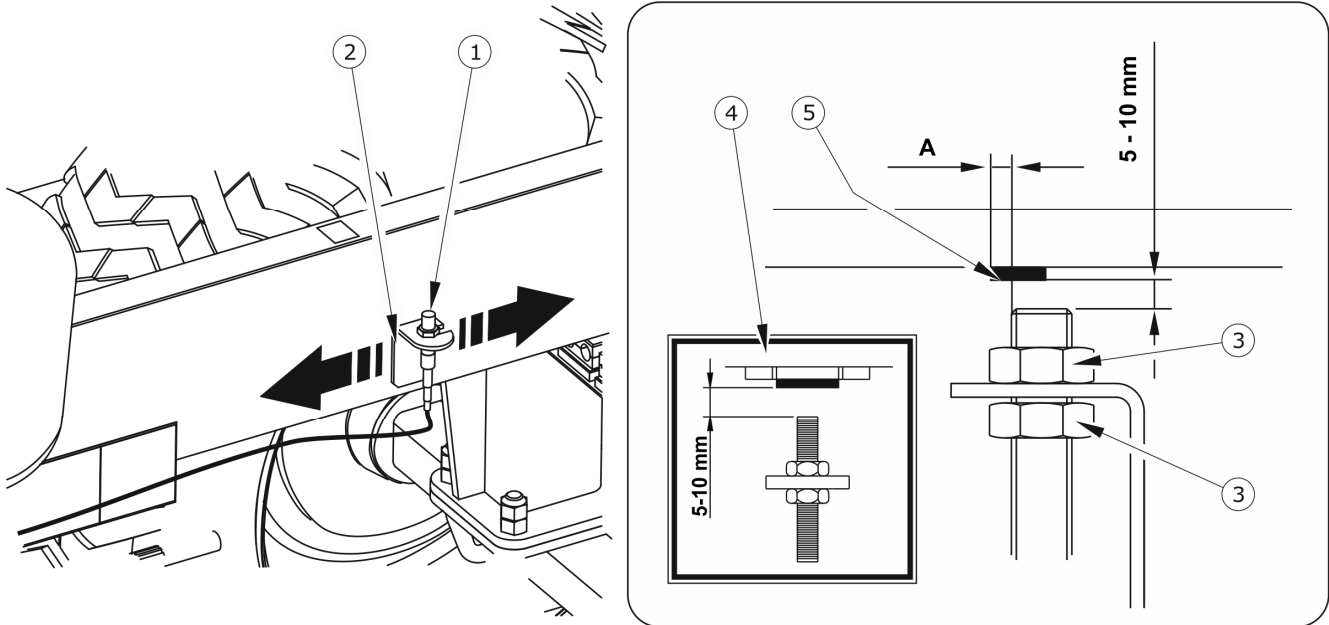


FIGURE 5.13. *The principle of regulation of the rotation sensor*

(1) rotation sensor, (2) bracket, (3) nut, (4) information sticker, (5) permanent magnet, (A) measuring distance

THE SCOPE OF SERVICE ACTIVITIES

- ➔ Hitch wrapping machine to tractor, connect hydraulic system conduits.
- ➔ Immobilize agricultural tractor with parking brake.
- ➔ Set the turntable in such a way that the magnet attached to the table frame is as close to the sensor as possible. Turn off the tractor engine and secure the cabin against unauthorized access.
- ➔ Measure the vertical distance between the magnet and the sensor.
- ➔ Measure the distance along the cut line on the bracket (dimension A).
- ➔ Loosen nuts (3), set the correct height of the sensor by adjusting the position of the upper nut.
 - ⇒ The distance should be 5 to 10 mm, as stated on the sticker (4).
- ➔ Move the sensor along the notch to centre the sensor in relation to the magnet.

- ➔ Tighten the lower nut (3).
- ➔ Connect the cable of the rotation sensor to the counter, check the correctness of the counter indications. If necessary, readjust the position of the sensor.

5.11 ADJUSTMENT OF THE BELT TENSION

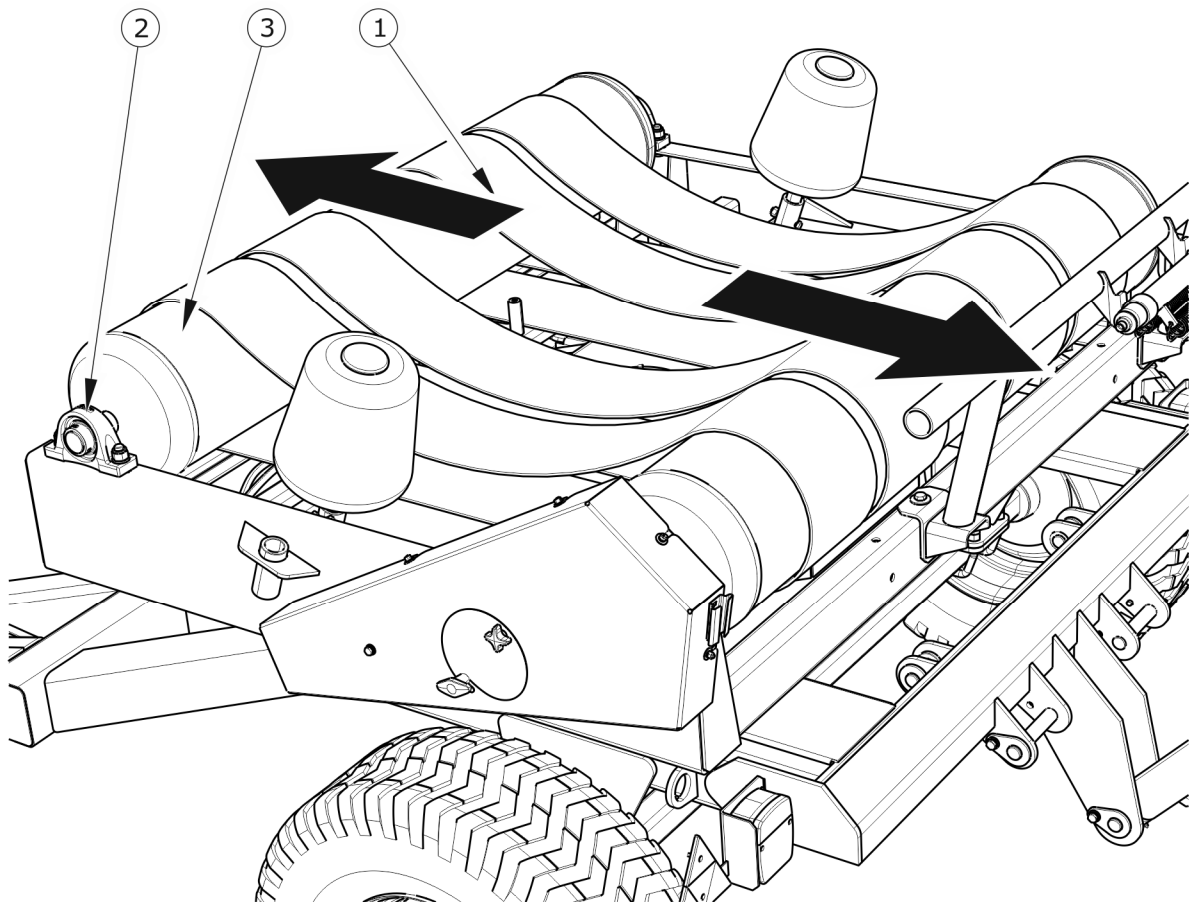


FIGURE 5.14. *Belt tension adjustment*

(1) belt, (2) bearing unit, (3) idler pulley

During the operation of the wrapping machine, the belts (1) - figure (5.14), become stretched. In the event that they begin to rub against the table structure, the tension should be adjusted.

BELT TENSIONING

- ➔ Hitch wrapping machine to tractor, immobilize tractor with parking brake.
- ➔ Turn off the tractor engine and secure the tractor cab against access by unauthorized persons.
- ➔ Dismantle chain gear cover.
- ➔ Loosen nuts of bearing units (2) of idle roller (3) (not driven).

- ➡ Move the bearing units to the outside of the table.
- ➡ Tighten the nuts of the bearing units.
- ➡ Check the distance of the idle roller axis from the idle roller axis. Check the distance of the idler roller axis from the longitudinal member of the turntable frame.
- ➡ If the measurement results are identical, it means that the rollers are set parallel to the table side member and to each other. Otherwise, first correct the position of the active roller and then the idle roller.
- ➡ If the belts are pulled out so far that adjustment cannot be made, replace them with new ones.

5.12 WRAPPING MACHINE LUBRICATION

The wrapping machine should be lubricated with a hand or foot grease gun, filled with the recommended lubricant. If possible, remove old grease and other contaminants before starting work. After finishing work, wipe off excess grease. Chains should be cleaned before lubrication with kerosene or preparations intended for washing chains. The chains should be lubricated after the detergent has dried completely.

Parts that should be lubricated using machine oil should be wiped with a dry clean cloth and then applied to the lubricated surfaces with a small amount of oil (oiler or brush). Wipe off excess oil.

The replacement of grease in wheel hub bearings should be entrusted to specialized service points equipped with the appropriate tools. According to the axle manufacturer's recommendations, the entire hub must be disassembled, the bearings and individual sealing rings removed. After thorough cleaning and inspection, install lubricated components. If necessary, bearings and seals should be replaced. Lubrication of axle bearings should be carried out at least once every 2 years or after covering 50,000 km. In the event of intensive use, this should be done more often.

Empty containers of grease or oil should be disposed of in accordance with the lubricant manufacturer's instructions.

TABLE 5.4. *Wrapping machine lubrication schedule*

Item	Lubrication point	NUMBER of lubrication points	Type of grease	Frequency
1	Hub bearings	2	A	24M
2	Support bolt	1	A	6M
3	Draw bar hitch eye	1	B	80R
4	Rotary drawbar	1	B	80R
5	Loading arm pins	2	A	20R
6	Gripping arm pin	1	A	20R
7	Radial bearings of the load arm cylinder	2	A	40R
8	Radial bearings of the gripping arm cylinder	2	A	40R
9	Radial bearings of the tipping cylinder	2	A	40R
10	Unloading arm pins	2	A	20R
11	Radial bearings of the unloading arm cylinder	2	A	40R
12	Table rotation pins	2	A	20R
13	Cutting knife	2	C	P
14	Back pressure guides	1	A	P
15	The toothed gear of the film feeder	1	A	12R
16	Pressure guide	2	A	40R
17	Turntable bevel gear	2	A	80R
18	Drive chains	2	B	40R
19	Drawbar bolt	1	B	20R
20	Roller drive chain	1	B	80R
21	Cable operated distributor (option)	4	A	12M

(1) – if it is included in the machine completion,

lubrication periods - M month, R- man-hour, P - after completion of work

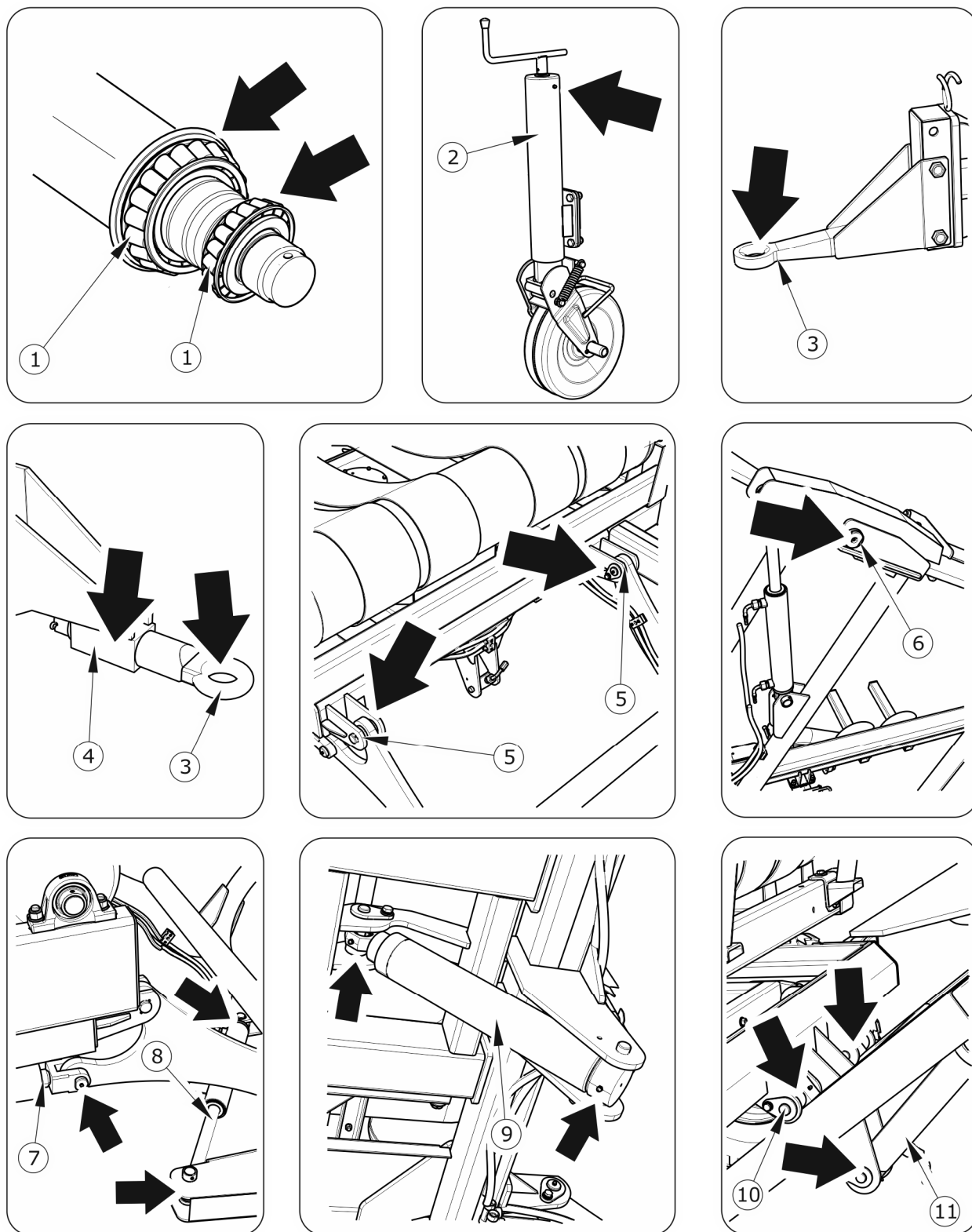


FIGURE 5.15. *Wrapping machine lubrication points, part 1*

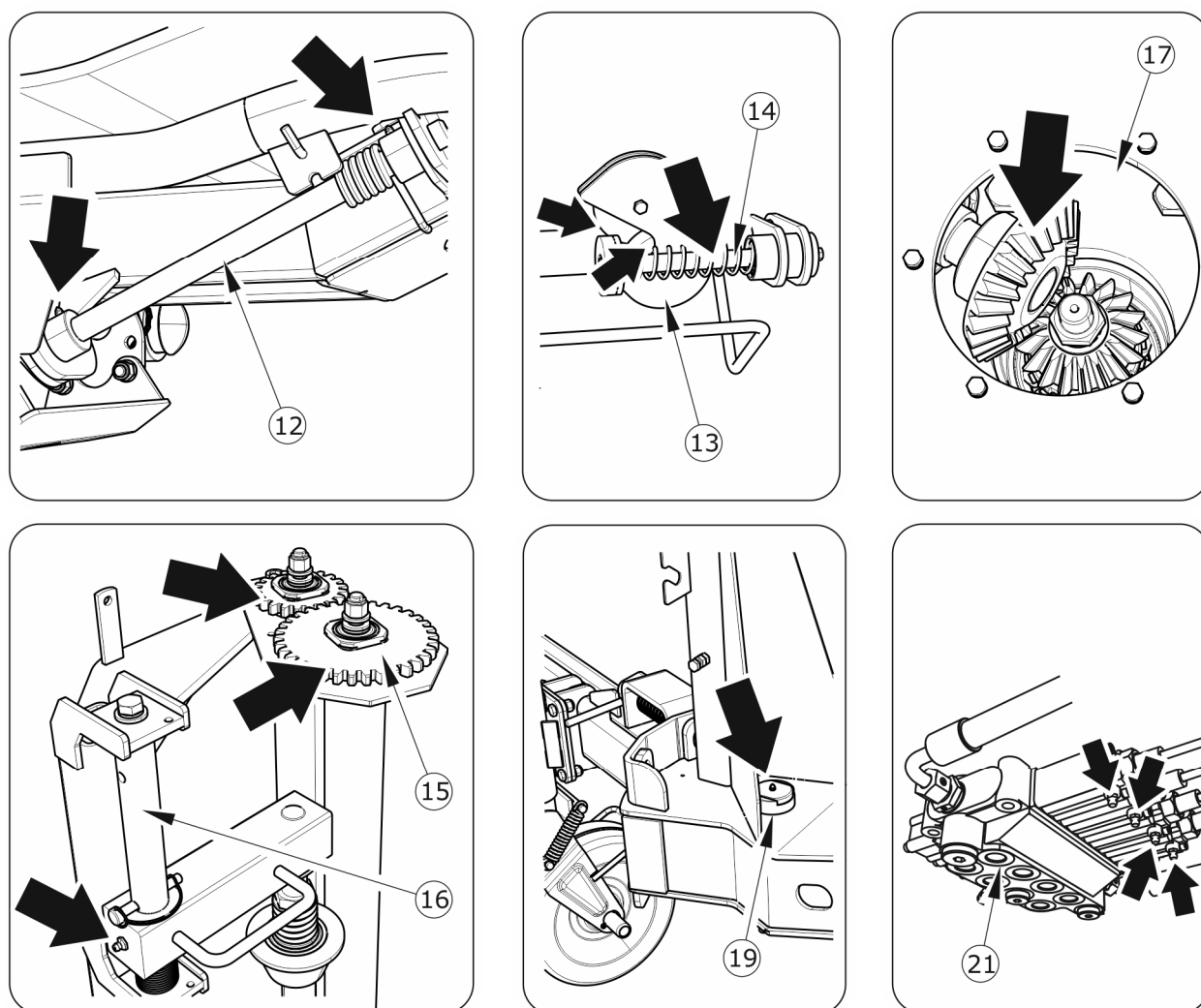


FIGURE 5.16. *Wrapping machine lubrication points, part 2*

TABLE 5.5. *Recommended lubricants*

MARKING FROM TAB. (5.4)	DESCRIPTION
A	general purpose machine grease (lithium, calcium),
B	solid lubricant for heavily loaded elements with the addition of MoS2 or graphite
C	plain machine oil, silicone spray grease



INSPECTION

When using the wrapping machine, the user is obliged to follow the lubrication instructions in accordance with the lubrication schedule.

5.13 CONSUMABLES

5.13.1 HYDRAULIC OIL

It is absolutely necessary to observe that the oil in the wrapping machine's hydraulic system and the tractor's hydraulic system must be of the same type. If different types of oil are used, make sure that both hydraulic means can be mixed together. The use of different types of oil may cause damage to the wrapping machine or agricultural tractor. The new machine is filled with L HL32 Lotos hydraulic oil.

Table 5.6 Characteristics of hydraulic oil L-HL 32 Lotos

Item	NAME	Unit	Value
1	Viscosity classification according to ISO 3448VG	-	32
2	Kinematic viscosity at 400C	mm ² /s	28.8 – 35.2
3	Qualitative classification according to ISO 6743/99		HL
4	Quality classification according to DIN 51502		HL
5	Flash-point	C	230

If you need to change the hydraulic oil for another oil, read the oil manufacturer's instructions carefully. If he recommends flushing the system with an appropriate preparation, follow these recommendations. It must be ensured that the chemicals used for this purpose do not act aggressively on the materials of the hydraulic system. During normal operation of the wrapping machine, it is not necessary to change the hydraulic oil, however, if necessary, this operation should be entrusted to specialist service centres.

The oil used, due to its composition, is not classified as a dangerous substance, however long-term effects on the skin or eyes may cause irritation. In the event of contact of oil with skin, wash the area of contact with water and soap. Do not use organic solvents (petrol, kerosene). Soiled clothing should be removed to prevent oil from getting on your skin. If the oil gets into your eyes, flush them with plenty of water and in case of irritation contact your doctor. Hydraulic oil under normal conditions is not harmful to the respiratory tract. The hazard only occurs when the oil is strongly atomized (oil mist), or in the event of a fire during which toxic compounds may be released. Oil should be quenched with carbon dioxide, foam or extinguishing steam. Do not use water to extinguish a fire.

5.13.2 LUBRICANTS

For heavily loaded parts, it is recommended to use lithium grease with the addition of molybdenum disulphide (MOS₂) or graphite. For less loaded components, it is recommended to use general-purpose machine greases that contain anti-corrosive additives and are highly resistant to water washout. Aerosol preparations (silicone greases, anti-corrosive lubricants) should have similar properties.

Before using lubricants, read the information leaflet for the selected product. Particularly important are safety rules and how to handle a given lubricant and how to dispose of waste (used containers, contaminated rags, etc.). The information leaflet (product card) should be kept together with the grease.

5.14 WRAPPING MACHINE CLEANING

The wrapping machine should be cleaned depending on demand and before a longer standstill (e.g. before winter). The use of a pressure washer obliges the user to become familiar with the principle of operation and recommendations for the safe operation of this device.

Guidelines for cleaning the wrapping machine

- Before washing the wrapping machine, thoroughly clean the machine of grass and film remnants.
- For cleaning, use only clean running water or water with a cleaning detergent additive with a neutral pH.
- The use of pressure washers increases the effectiveness of washing, but be careful when working. During washing, the nozzle of the cleaning aggregate must not be closer than 50 cm from the surface being cleaned.
- The water temperature should not exceed 55 °C.
- Do not direct the water stream directly at the system elements and wrapping machine equipment, i.e. hydraulic cylinders, hydraulic plugs, lights, electrical connectors, information and warning stickers, data plate, conduit connections, wrapping machine lubrication points, etc. High pressure of the water stream may cause mechanical damage to these elements or ingress of water into the interior.

- For cleaning and maintenance of plastic surfaces, it is recommended to use clean water or specialized preparations intended for this purpose.
- Do not use organic solvents, preparations of unknown origin or other substances that may damage the lacquered, rubber or plastic surface. It is recommended to make a test on an invisible surface in case of doubt.
- Surfaces oily or greasy by grease should be cleaned with petrol or degreasing agents, and then washed with clean water and detergent. Follow the cleaning agent manufacturer's instructions.

DANGER

Refer to the instructions for using cleaning detergents and preservatives.

When washing with detergents, wear suitable protective clothing and eye protection.

- Detergents intended for washing should be stored in their original containers, or alternatively, but marked exactly. The preparations cannot be stored in containers intended for storing food and beverages.
- Keep the hoses and gaskets clean. The materials from which these elements are made may be susceptible to organic substances and some detergents. As a result of long-term effects of various substances, the aging process is accelerated and the risk of damage increases. Elements made of rubber are recommended to be maintained with the help of specialized preparations after thorough washing.
- Observe environmental protection principles, wash the wrapping machine in designated places.
- Washing and drying the wrapping machine must take place at an ambient temperature above 0 °C.
- After washing and drying the wrapping machine, lubricate all control points, regardless of the period of the last treatment. Wipe off excess grease or oil with a dry cloth.
- Wash the rollers of the film feeder to remove adhesive residue with the help of benzine.

5.15 STORAGE

- It is recommended that the wrapping machine be stored in a closed or roofed room.

- If the machine will not be used for a long period of time, it must be protected against the effects of weather conditions, especially those that cause corrosion of steel and accelerate the aging of tires. The bale wrapping machine should be very carefully washed and dried.
- Corroded areas should be cleaned of rust, degreased and protected with a primer paint, and then painted with a topcoat according to the colour scheme.
- In the event of a longer stop, it is necessary to lubricate all components regardless of the period of the last treatment.
- During longer standstill of the wrapping machine, it is recommended to disassemble the drive chains, wash them in kerosene and protect them with a preservative or general purpose grease.
- Rims and tires should be carefully washed and dried. During longer storage of an unused wrapping machine, it is recommended to move the machine every 2-3 weeks in such a way that the place of contact of the tire with the ground would be in a different position. The tires will not deform and will maintain proper geometry. You should also check your tire pressure from time to time, and if necessary inflate the wheels to the correct value.
- The electronic counter must be kept at home. In the event of longer standstill of the machine, remove the battery from the counter.

5.16 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

TABLE 5.7. *Tightening torques for screw connections*

METRIC THREAD	5,8(1)	8,8(1)	10,9(1)
	Md [Nm]		
M10	37	49	72
M12	64	85	125
M14	100	135	200
M16	160	210	310
M20	300	425	610

M24	530	730	1050
M27	820	1150	1650
M30	1050	1450	2100

(1) - strength class according to DIN ISO 898

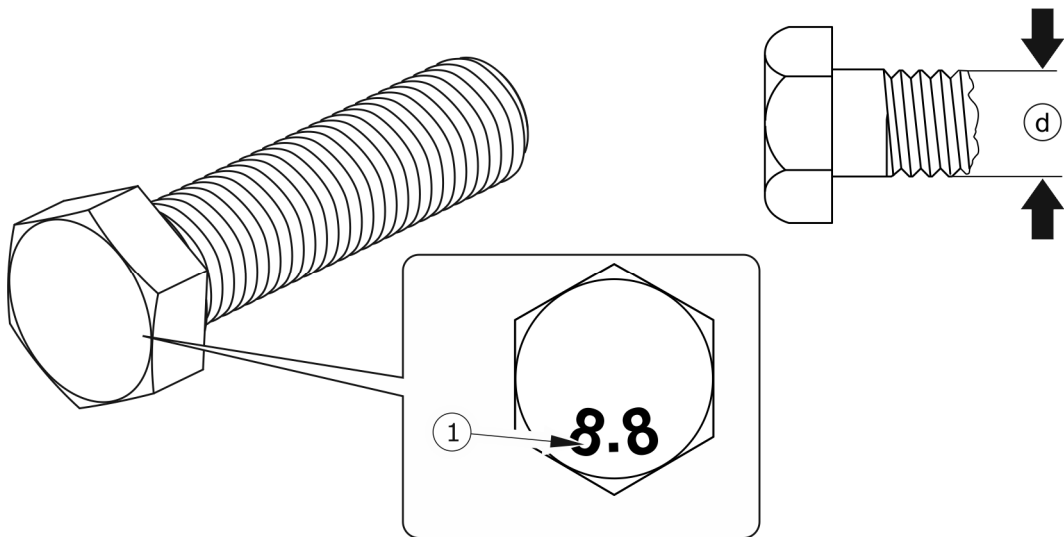


FIGURE 5.17. *Metric thread screw*

(1) strength class, (d) thread diameter

During maintenance and repair work, apply appropriate tightening torques to screw connections, unless other tightening parameters are given. Recommended tightening torques for the most commonly used bolted connections are shown in the Table (5.6). The given values apply to non-lubricated steel bolts.



ADVICE

The hydraulic hoses should be tightened with a torque of 50 - 70 Nm.

5.17 ADJUSTING THE POSITION OF THE DRAWBAR

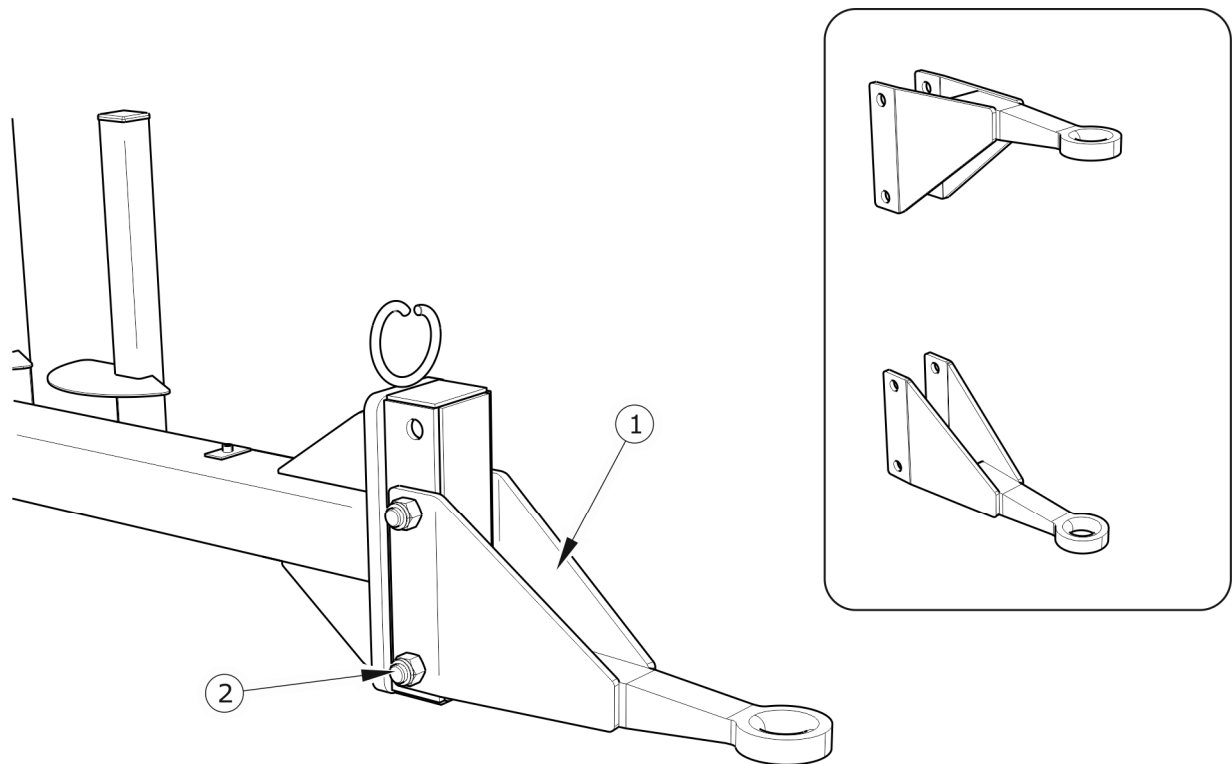


FIGURE 5.18. *Adjusting the position of the drawbar*

(1) drawbar with fixed drawbar eye, (2) bolted connection

THE SCOPE OF ACTIVITIES

- ➡ Place wedges or elements without sharp edges under the wrapping machine wheels.
- ➡ Unscrew the drawbar from the frame.
- ➡ Set the drawbar in a new position and tighten it with the appropriate torque.
- ➡ The frame structure allows for 4 combinations of drawbar positioning, compare figure (5.18).
- ➡ Check degree of drawbar tightening after the first travel with load.

5.18 ADJUSTMENT OF FILM TENSION

The degree of film tension has a decisive influence on the quality of the produced silage. Optimum conditions for the formation of fodder are then obtained thanks to the close adhesion of the individual layers of the film. Too much tension will cause the next layer to be covered (the film must overlap at least half of its width during wrapping).

CONTROL OF FILM TENSION – METHOD 1

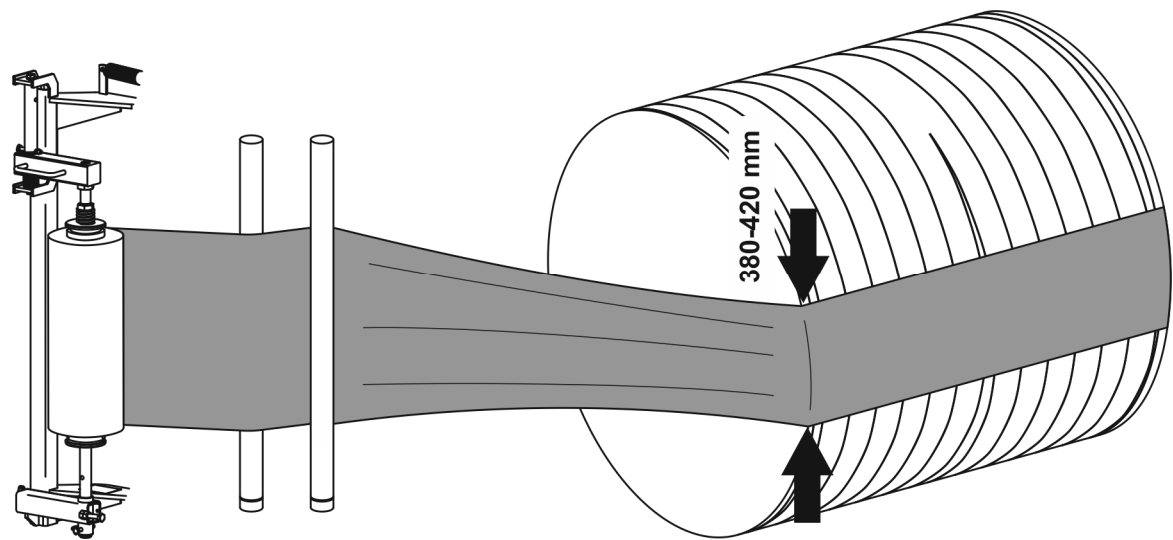


FIGURE 5.19. *Control of film tension – method 1*

Determining the degree of film tension in method 1 consists in measuring the width of the film layer on the edge of the wrapped bale - compare figure (5.19). The measured value of the film shown in the diagram applies to rolls of 500 mm.

TABLE 5.8. *Film dimensions at 55 - 70% pre-tension*

ROLL SIZE [mm]	WIDTH OF THE FILM LAYER [mm]	
	55%	70%
500	380	420
750	580	620

The width of the film measured at the edge of the bale should have the values given in table (5.7).

ADVICE



The given dimensions of the film are approximate and have been developed on the basis of films with a stretch ratio of 70%. Before starting work with the wrapping machine, carefully read the operating manual of the film manufacturer and the recommendations concerning the setting of the initial tension.

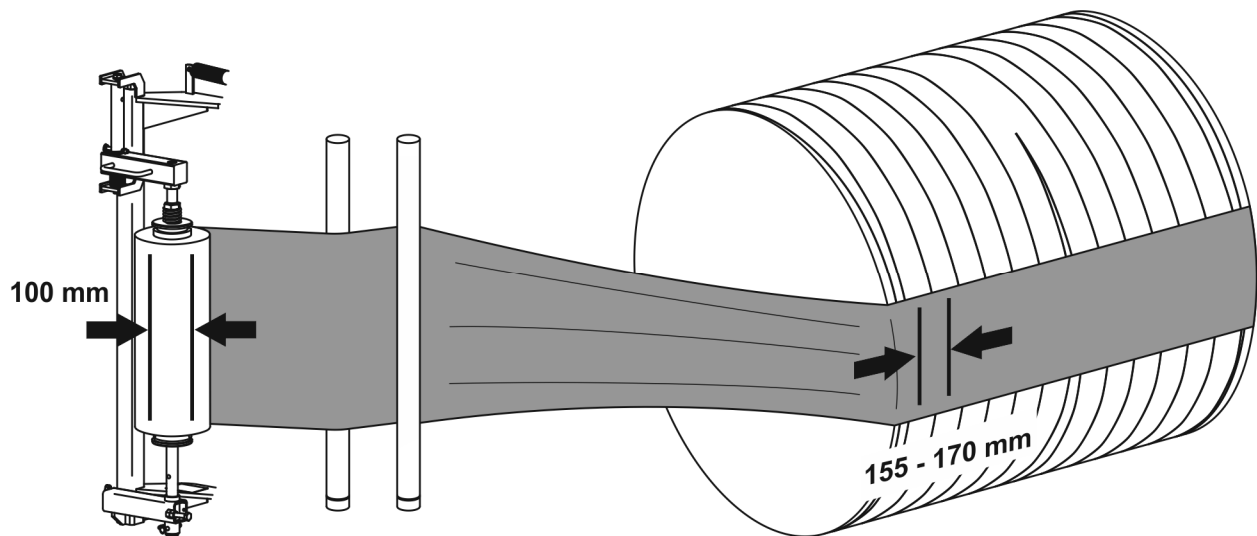
CONTROL OF FILM TENSION – METHOD 2

FIGURE 5.20. *Control of film tension – method 2*

Determining the degree of film tension in method 2 consists in drawing 2 parallel lines on the roll placed in the feeder. The distance between the marks must be 100 mm. As the film layer stretches, the distance between the lines drawn will increase. The correct distance of the lines with a film tension of 55 - 70% should be between 155 and 170 mm.

THE SCOPE OF SERVICE ACTIVITIES

- ➔ Determine the actual degree of film tension using one of the selected methods.
- ➔ Turn off tractor engine, secure the cabin against unauthorized access. Immobilize tractor with parking brake.
- ➔ Loosen the counter nut (1).
- ➔ Set the new position of the upper pin.
 - ⇒ If the film was too tight, the pin should be screwed in (the upper supporting roller will move up).
 - ⇒ If the film was too weakly tensioned, the pin should be unscrewed (the upper supporting roller will move downwards).
- ➔ Tighten the counter nut.
- ➔ Check if the film tension is correct, repeat the operation if necessary.

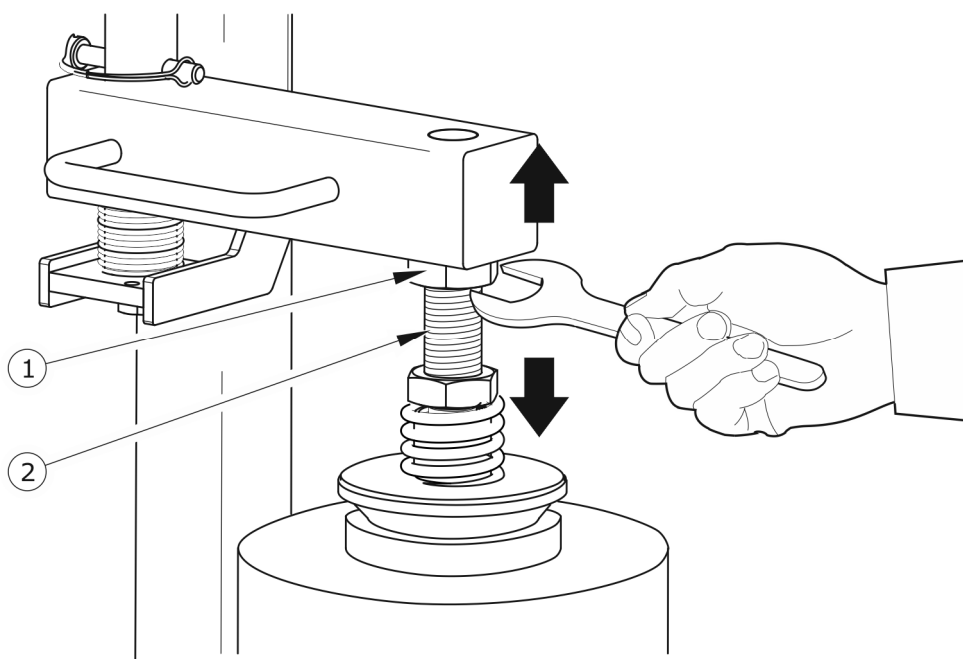


FIGURE 5.21. *Tension adjustment*

(1) lock nut, (2) upper bolt

5.19 REPLACEMENT AND ADJUSTMENT OF CUTTING BLADES

During the operation of the wrapping machine, the cutting knives are subject to wear, which is a normal symptom, as a result of which the film may not be cut properly. In this case, you can turn the knives to a position where the edge is still sharp. If the knives are completely damaged, replace them with new ones.



DANGER

Be especially careful during work due to the risk of injury.

THE SCOPE OF SERVICE ACTIVITIES

- ➡ Hitch wrapping machine to tractor, connect hydraulic system conduits.
 - ➡ Set the turntable in such a position that allows easy access to the cutting assembly.
 - ➡ Unscrew the nuts, take out the bolts fastening the knives.
 - ➡ Dismantle knife guard (2) and knives (1).
 - ➡ Insert a new set of knives.
- ⇒ The knives must touch each other with a flat surface - compare figure (5.22).

⇒ Make sure that the spacers are correctly fitted during assembly.

➔ Tighten nuts with appropriate torque.

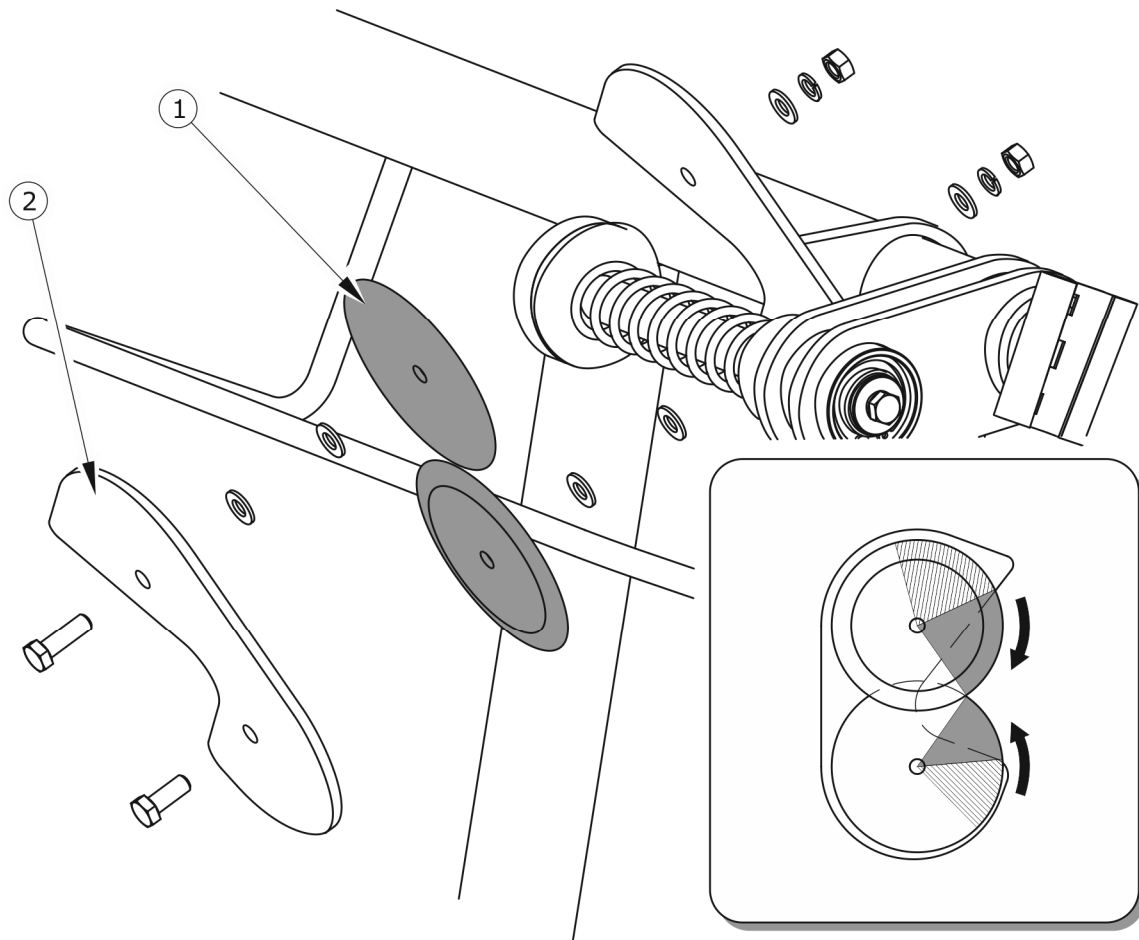


FIGURE 5.22. *Cutting knives replacement*

(1) cutting knife, (2) knife guard



ADVICE

If the knives will not be replaced, but only turned to the new position, there is no need to disassemble the guard. In this case, it is enough to loosen the mounting nuts.

5.20 STORAGE, MAINTENANCE AND REPAIRS OF WRAP COUNTER

5.20.1 STORAGE AND CLEANING OF THE COUNTER

An unused counter should be stored in room conditions, protected against moisture, chemicals, direct precipitation, frost and strong sunlight. After disconnecting the sensor cable, roll up the sensor's plug contacts and protect them against dirt and moisture, which may cause corrosion and loss of electrical contact, and consequently malfunction of the counter. The counter does not require periodic maintenance, except for the replacement of the used battery with a new one (applies to the L01 counter only). During longer periods of non-use of the counter, and especially after the end of the field work season, remove the battery from the housing to avoid leakage of electrolyte from the battery, which may permanently destroy the counter electronics. If the counter housing is dirty, it can be cleaned with a slightly damp cloth with detergents. Do not use any other organic solvents (acetone, gasoline, nitro solvent, etc.) for this, as they may dissolve the counter housing. If the counter is damaged, it must be repaired to the manufacturer's service centre. Any attempt to repair the counter by yourself will void the warranty.

5.20.2 BATTERY REPLACEMENT (L01 COUNTER)

Always replace the battery with a new one before the beginning of a new season of field work and when it is exhausted. Battery failure is manifested by abnormal operation of the counter: accidental blanking of the display, low contrast of the displayed digits, etc. After the end of the field work season, the counter should be stored in a dry and warm room with the battery removed.

To replace the battery, remove the cover of the battery compartment. Take the battery out of the compartment and disconnect the power cord. Attach the new battery paying attention to the polarity of the power supply (the battery latch only fits in one direction), insert the battery into the compartment and close the cover. Check the operation of the counter by switching it on. For power supply, use batteries with a voltage of 9V, standard type 6F22 or alkaline type 6LR61 (recommended). Alkaline batteries have a longer service life without the need to replace them.

5.21 TROUBLESHOOTING

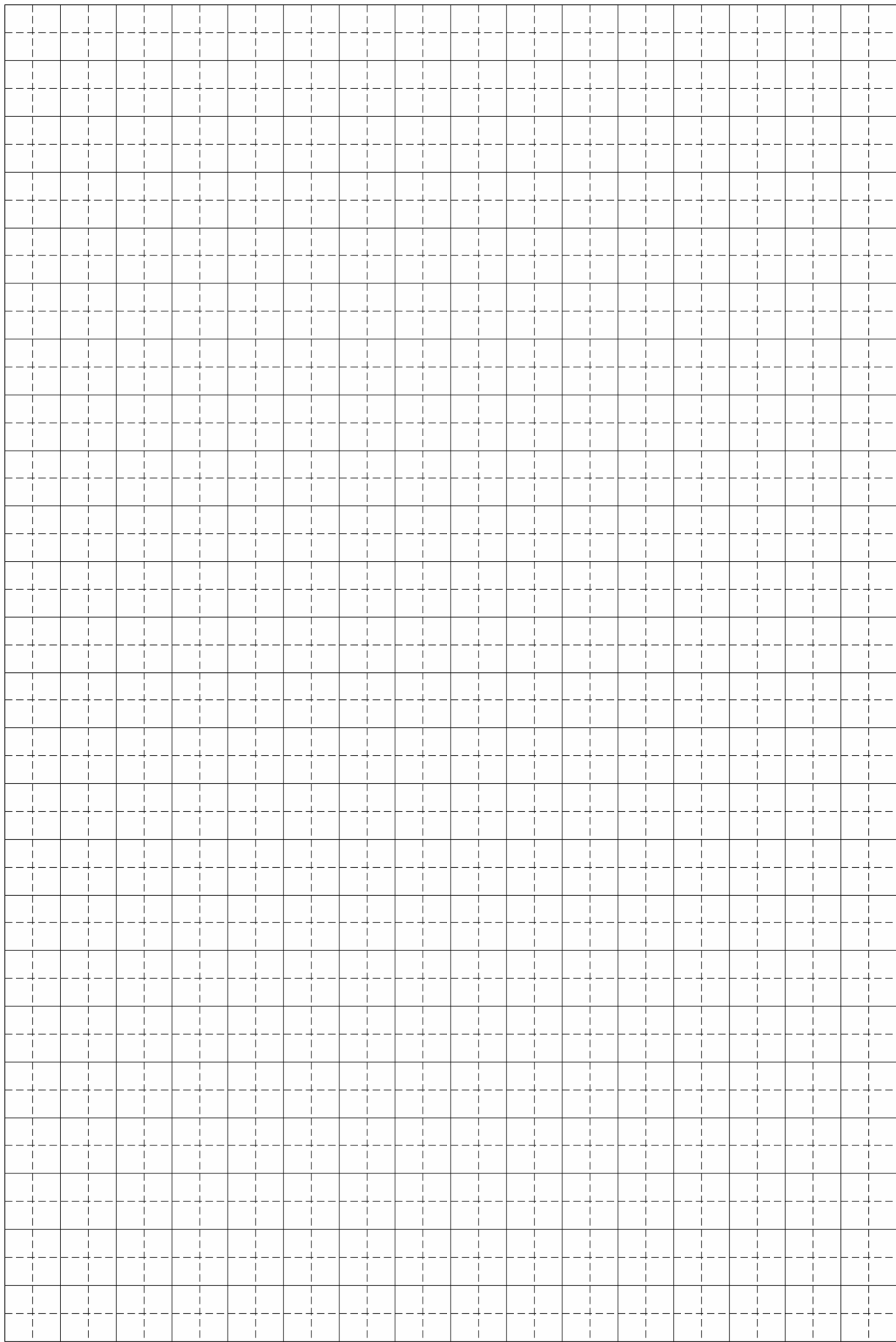
TABLE 5.9. *Faults and how to remove them*

FAULT	CAUSE	REMOVAL METHOD
Noise in the hub of the axle	Excessive bearing looseness	Check the clearance and adjust if necessary
	Damaged bearings	Replace bearings
	Damaged hub components	Replace
Incorrect hydraulic system operation	Incorrect hydraulic oil viscosity	Check the oil quality, make sure that the oils in both machines are of the same grade. If necessary, change the oil in the tractor and/or in the wrapping machine
	Insufficient tractor hydraulic pump performance, tractor hydraulic pump defective.	Check the hydraulic pump on the tractor.
	Damaged or dirty actuator	Check the cylinder piston rod (bending, corrosion), check the cylinder for leaks (piston rod seal), repair or replace the cylinder if necessary.
	Damaged hydraulic lines	Check and make sure that the hydraulic hoses are tight, not kinked and properly tightened. Replace or tighten as necessary.
Incorrect readings of the counter	Defective sensor cable or sensor	Replace the cable or the rotation sensor.
	Sensor position incorrectly adjusted	Check and adjust.
	No magnet attached to the turntable	Glue the new magnet to the turntable socket.
Low contrast of displayed digits, display malfunction	Low battery (L01)	Replace battery.
	Defective display	Repair or replace the counter.

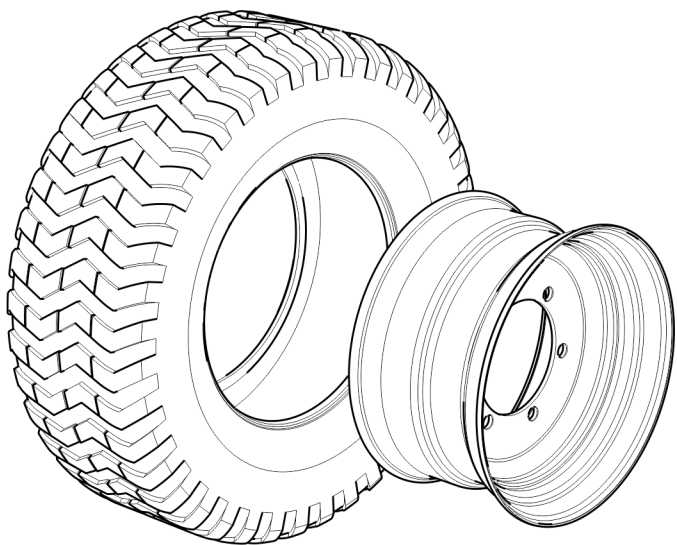
	Incorrect supply voltage (L02)	Check the voltage at the cigarette lighter socket (12V). Repair the power circuit.
Err1 or Err2 error message is displayed	Incorrect supply voltage (L02)	Check the voltage at the cigarette lighter socket (12V). Repair the power circuit.
The L02 counter does not start	Blown fuse	Check the fuse (8A) in the power plug.
Unloading table descends too quickly	Incorrect viscosity of the hydraulic oil	Check viscosity, change tractor oil.
	Incorrect flow regulator setting	Check setting, adjust.
	Flow regulator defective	Replace.
Noise from chain gears	Loose chain	Adjust the chain tension.
	Drive chain is too stretched.	Replace the chain and sprockets.
	Damaged or contaminated bearings	Check the bearings, replace if excessively worn.
The film is too loose	Height of upper support roller not adjusted properly	Adjust the film pressure.
	The film slides on the rolls of the film feeder	Clean the knurled surfaces with kerosene and a copper brush.
Tearing off the film	Too much pressure on the roll with the film	Reduce film pressure by adjusting the height of the top support roller.
	Damaged film	Check film and replace if necessary.
	Blocked or bent feeder tension rollers	Replace the rollers.
	Damaged feeder gear	Repair the gear.
	Irregular bale shape	Reduce the speed while wrapping. Make sure the bale is properly formed.
	Table rotation speed too high	Reduce the speed while wrapping.

Asymmetrical wrapping of the bale	Incorrect feeder height	Adjust the height of the film feeder to the bale size.
	Incorrect selection of the drive ratio of the rollers in relation to the film	Adjust the wrapping machine to the width of the film
The bale falls off the table	Irregular bale shape	Reduce the speed while wrapping. Make sure the bale is properly formed.
	Table rotation speed too high.	Reduce the speed while wrapping.
The film does not cut off	Damaged or blunt knives	Replace or change the setting of the knives.

NOTES



APPENDIX A



TIRE ASSEMBLY

ITEM	TIRE	RIM
1	350/50-16 133A8	11,00x16 ET=0
2	340/55-16 133A8	11,00x16 ET=0
3	340/55-16 140A8	11,00x16 ET=0

ATTACHMENT B

B.1 CONNECTING THE CONTROL SYSTEM

The control system consists of a module that is mounted on the bale wrapper, cables, a set of sensors and a control panel.

- Connect the bale wrapper according to the recommendations contained in the Operator's Manual.
- Connect the control panel to the module mounted on the bale wrapper using a communication cable.
- Connect the module's feeder cable to the tractor.
- Make sure that the electrical cables will not be damaged by moving parts of the bale wrapper and the tractor during operation. If necessary, secure the cables in a proper manner.

B.2 CONTROL PANEL

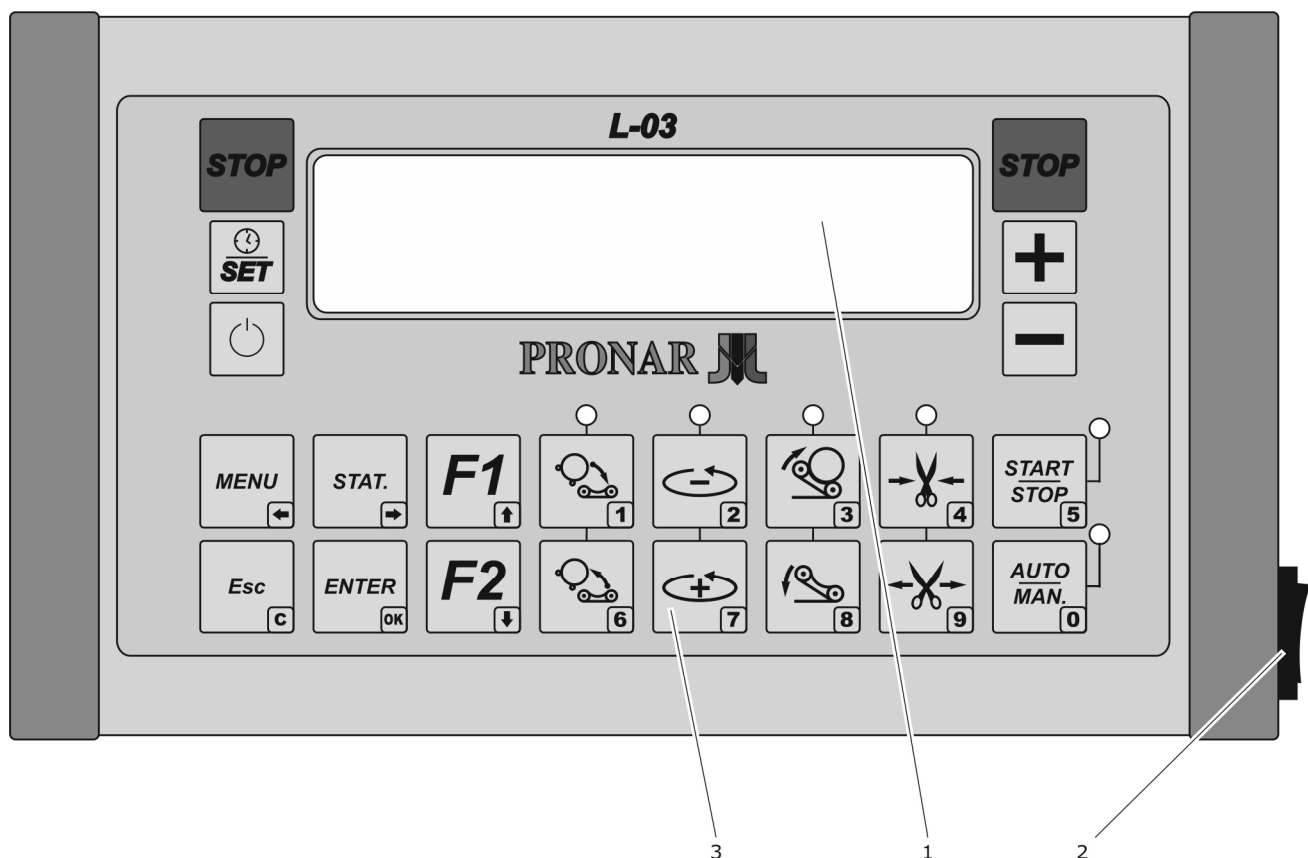























FIG. 1.1 View of the control panel

(1) display (2) switch (3) control keys

TAB. B.1 *Description of the functions of the control panel keys*

ITEM	KEY	DESCRIPTION
1		Emergency stopping of the bale wrapper operation.
2		Viewing a currently set date and time
3		Switching on and off the control panel.
4		Increasing the value
5		Decreasing the value
6		Entering the menu. Moving the cursor to the left (date and time menu)
7		Cancelling the selection, exiting to the main menu level.
8		Viewing the statistical data. Moving the cursor to the right (date and time menu)
9		Confirming the selection.
10		Controlling the items upwards in Menu mode. Unlocking after an emergency stop. Resetting the counter.

ITEM	KEY	DESCRIPTION
11		Controlling the items downwards in Menu mode. Unlocking after an emergency stop. Entering the bale wrapper's operation mode menu.
12		Rising of the loading arm
13		Lowering of the loading arm
14		Short pressing of the key: setting the turntable in loading or unloading position. Holding the key down: bale wrapping until the key is released.
15		Short pressing of the key: bale wrapping according to a programmed number of wrappings.
16		Tipping the turntable – bale unloading.
17		Lowering the turntable
18		Holding the film
19		Releasing the film
20		Starting the bale wrapper's systems
21		Switching between manual mode and semi-automatic mode


B.3 OPERATION OF THE CONTROL PANEL



TIP

Markings of the keys used in the text refer to table DESCRIPTION OF THE FUNCTIONS OF THE CONTROL PANEL KEYS.

B.3.1 STARTING THE CONTROL PANEL

- Switch the control panel on using the switch located on the right side of the control panel.
- If the diode located next to the switch starts blinking, press key (3). 
- When key (3) is pressed, the diode should stop blinking and the starting sequence of the control system should appear on the display.



PRONAR BALE
WRAPPER Z-245

Machine identification



SOFTWARE
VER. 1.0 02-15

Software version. The software version defines the currently installed program and may vary depending on later updates.



INITIALIZATION
>>

Establishing communication between the control panel and the bale wrapper.



INITIALIZATION
>>> OK <<<

Confirmation of readiness for operation.



CONNECTION ERROR
SERVICE !!!

Communication error.

After successful completion of the starting sequence, one of the following messages should appear:



BALES L-01: 12
WRAPS: 24>0



TRANSPORT
POSITION

The message appearing after starting the control panel depends on the working mode in which the controller was switched off. The working mode parameter is stored when the control panel is being switched off

If the message “Transport position” is displayed, press button **F2** and then use button **+** or **-** to select AUTO semi-automatic operation mode or AUTO automatic operation mode.

ATTENTION



If LED does not start blinking after switching on the control panel, check the module's feeder cable and the control panel's communication cable. Contact the seller if the connections are correct and both cables are not damaged.


ATTENTION



If COMMUNICATION ERROR message appears, check the communication cable connecting the control panel with the module. Contact the seller if the connection is correct and the cable is not damaged.

B.3.2 SWITCHING THE CONTROL PANEL OFF

- Set the bale wrapper in transport position or in working position (the loading arm is lowered).
- If the bale wrapper is to be transported, switch the control panel to *TRANSPORT POSITION MODE*.

- Press key (3). 
- Switch the control panel off using the switch on the right side of the control panel housing.

ATTENTION



After completed operation, always switch the control panel off using key (3) first and then using the switch located on the right side of the control panel (set the switch to "0" position). If the control panel is switched off in reverse order, working time data will be partially lost each time (maximally 2 minutes).

In standby mode (the green LED next to "Start/Stop" switch is blinking), the control panel absorbs power from the battery and may completely discharge it.

The following message appears before the control panel is switched off:



B.3.3 EMERGENCY STOPPING OF THE BALE WRAPPER

The control panel is equipped with two emergency stop keys **STOP** – (1). If one of these keys is pressed, the bale wrapper is immediately stopped. 3 red LEDs located next to keys (14), (16) and (18) start blinking, audio signal is activated and the following message appears on the display:



EMERGENCY STOP
WORK => F1+F2

In order to restart the bale wrapper, press simultaneously **F1** key – (10) and **F2** - key (11).



ATTENTION

Emergency stopping of the bale wrapper may be performed only if health and life of people is at risk. Unnecessary use of this stopping mode contributes to overloading the bale wrapper's drive system.

B.3.4 OPERATION IN MANUAL MODE



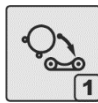
Press F2 key.

AUTO MODE
SEMI-AUTOMATIC

Using + key or – key, choose the following option:

AUTO WORKING MODE

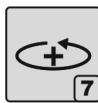
SEMI-AUTOMATIC



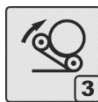
Load a bale onto the turntable – key (12). Keep the key held down while raising the loading arm.



Lower the loading arm – key (13). Keep the key held down while lowering the loading arm.



Press key (15). If the key is pressed for a short time, a previously programmed number of wrappings is made on a bale and the turntable is stopped in unloading position. Wrapping can be stopped at any time by pressing **START | STOP** key.



Raise the turntable using key (16). Keep the key held down while raising the turntable.



Using key (18), extend the cylinder rod in order to grip the film. Keep the key held down while extending the cylinder rod.



Lower the turntable using key (17). Keep the key held down while lowering the turntable.



Press and release key (14). Set the turntable in loading position.

After a completed wrapping cycle, the message containing statistical data is shown on the display. Quantity of wrapped bales is increased by 1 and the number of wrappings is zeroed.





BALES L-05: 25
WRAPES: 24>0

If bale wrapping is interrupted, the current counter of wrappings can be reset by pressing **F1**key.



DELETE NUMBER
OF WRAPS?

Resetting is confirmed by pressing **ENTER**  key. If **ESC**  key is pressed, the previous status is restored and the counter is not reset.

TIP

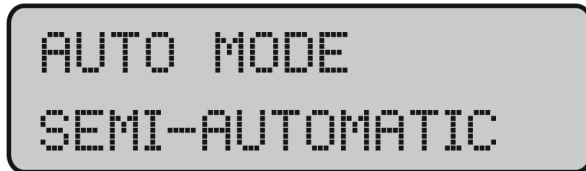
If wrapping is interrupted by pressing START | STOP key, it is possible to continue wrapping after pressing key (15). When the key is pressed, wrapping will be continued until a programmed number of wrappings is made. Instead of pressing key (15), it is possible to press and hold down key (14). In this case, wrapping will be continued until the key is released.

Should it be necessary to set the turntable in one of the working positions (loading or unloading), press key (14) without holding it down. This happens most frequently in case of emergency stop or if the machine is stopped by pressing **START** | **STOP** key.

B.3.5 OPERATION IN SEMI-AUTOMATIC MODE.



Press F2 key.



Using + key or – key, choose the following option:

AUTO MODE

SEMI-AUTOMATIC



Press **AUTO | MAN** key. Start of semi-automatic mode is signalled by lighting up the green diode.



After start of semi-automatic mode, the following message is displayed:

AUTO LOADING

PRESS START



When **START | STOP** key is pressed, loading will be carried out and confirmed by the following message:

AUTOMATIC BALE LOADING.

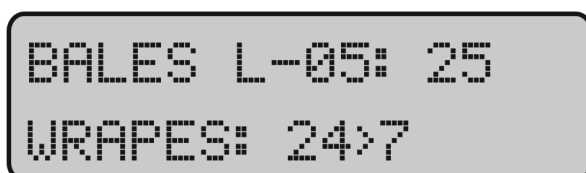
After completed loading, the following message will appear:

AUTO WRAPPING

PRESS START



When **START | STOP** key is pressed, wrapping will start. During wrapping, the message indicating the number of unloaded bales and current number of wrappings for a given working field is displayed.





AUT. UNLOADING
PRESS START

After completed wrapping, the turntable will be positioned for unloading. The following message will be displayed:

AUTO UNLOADING

PRESS START



END BALE
WRAPPING CYCLE

When **START** | **STOP** is pressed, the turntable will be raised and a bale will be unloaded. Status of the counter of ready bales will be increased by 1 and the number of wrappings will be reset. After lowering, the turntable will be positioned for loading a next bale.

Semi-automatic mode is divided into three stages: auto loading, auto wrapping and auto unloading. Individual stages of semi-automatic mode are activated by pressing **START** | **STOP** key (green LED next to **START** | **STOP** key lights up). The activity to be performed after pressing the key is indicated by a proper message on the display:

B.3.6 STOPPING AND RESTARTING IN SEMI-AUTOMATIC MODE

STOPPING

Each activity can be interrupted by pressing **START | STOP** key or **AUTO | MAN** key. If any of the keys is pressed, the bale wrapper operation will be stopped and manual operation mode will be activated (LED located next to **AUTO | MAN** key will go out). Also, if the bale wrapper is stopped because of the film breaking, the corresponding message will be displayed and manual mode will be activated.

STARTING

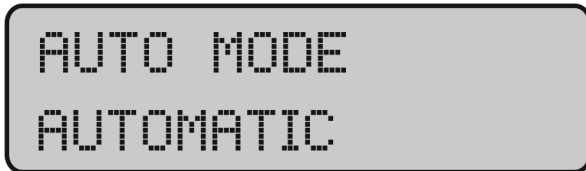
Manual mode is activated in case of a forced stop of the bale wrapper operation. In order to continue operation in semi-automatic mode, press **AUTO | MAN** key. Next, press F1 key and, using **+** key and **-** key, choose the operation that has to be restarted. If **ESC** key is pressed before **ENTER** key, the previous setting is activated.

The manual mode keys are not active while an activity is being performed in automatic mode.

B.3.7 OPERATION IN AUTOMATIC MODE.



Press F2 key.



Using + key or – key, choose the following option:

AUTO MODE

AUTOMATIC



Press **AUTO** | **MAN** key. Start of automatic mode is signalled by lighting up the green diode.



After start of automatic mode, the following message is displayed:

AUT. LOADING

PRESS START



When **START** | **STOP** key is pressed, loading will be carried out and confirmed by the following message:

AUTOMATIC BALE LOADING.



When **START** | **STOP** key is pressed, wrapping will start. During wrapping, the message indicating the number of unloaded bales and current number of wrappings for a given working field is displayed.



AUT. UNLOADING
PRESS START

After completed wrapping, the turntable will be positioned for unloading. The following message will be displayed:

AUT. UNLOADING

PRESS START



END BALE
WRAPPING CYCLE

When **START** | **STOP** is pressed, the turntable will be raised and a bale will be unloaded. Status of the counter of ready bales will be increased by 1 and the number of wrappings will be reset. After lowering, the turntable will be positioned for loading a next bale.

The automatic mode is divided into two stages: auto loading and auto unloading. The individual stages of the automatic mode are activated by the **START** | **STOP** button (green LED at the **START** | **STOP** button is lit). The action to be taken after pressing the button is displayed in the corresponding message on the display.

B.3.8 MESSAGES INDICATING COLLISION CONDITIONS

The controller protects the bale wrapper against mechanical damage that may result from collisions of the wrapper's moving parts. A collision condition is indicated by a proper message and inability to perform an activity which may lead to a collision.



SET THE TABLE
FOR LOADING

In order to perform the activity, set the turntable in loading position.



SET THE TABLE
FOR UNLOADING

In order to perform the activity, set the turntable in unloading position.

TO START
LOWER THE ARM!!

In order to perform the activity, lower the loading arm.

TO START
LOWER THE TABLE

In order to perform the activity, lower the turntable.

B.4 SETTING THE BALE WRAPPER'S OPERATING PARAMETERS

CHOOSING A MENU ITEM



Press **AUTO | MAN** key. Set the bale wrapper in **MANUAL** mode. Operating parameters of the bale wrapper can be modified only in manual mode.



Press **MENU** key.



Press **F1** key or **F2** key in order to select a proper item in the menu.



Confirm the selection using **ENTER** key.

RESETTING THE BALE COUNTER



MENU: DELETE
BALE COUNTER



DELETE COUNTER
L-XX?? yyy



Using **F1** key or **F2** key, choose the following:

MENU:

RESETTING THE BALE COUNTER

Press **ENTER** key

When the following message is displayed:

RESET THE COUNTER

L-XX?? YYY

confirm the selection using **ENTER** key or cancel the selection using **ESC** key.

xx – number of the counter to be reset (working field)

yyy – quantity of bales

Confirm the selection, the counter will be reset. Working time on a given working field is reset simultaneously with the quantity of bales. Exit the menu.

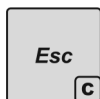
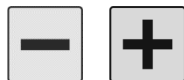
Cancel the selection, the counter will not be reset. Back to the menu.

SELECTING THE BALE COUNTER (WORKING FIELD)

MENU: SELECT
BALE COUNTER



SELECT DAILY
COUNTER L-xx



Using **F1** key or **F2** key, choose the following:

MENU:

SELECTING THE BALE COUNTER

Press **ENTER** key

After confirmation, the following message will be displayed:

CHOOSE DAILY COUNTER I-XX

xx – number of a currently selected counter (working field).

Counter number (working field number) should be changed using + key or – key. 16 counters are available (1-16).

Confirm the selection, the selected counter will be set. Exit the menu.

Cancel the selection, the counter will not be selected. Back to the menu.

SETTING THE QUANTITY OF WRAPPINGS



MENU: SET
NUMBER OF WRAPS



Using **F1** key or **F2** key, choose the following:

MENU:

SET THE QUANTITY OF wrappings

Press **ENTER** key

After confirmation, the following message will be displayed:



CHANGE NUMBER
OF WRAPS: XX

*CHANGING THE QUANTITY OF
WRAPPINGS: XX.*

Available range: 10-99 wrappings.

xx – current quantity of wrappings



Quantity of wrappings should be changed using + key or – key. Available range: 10-99 wrappings.



Confirm the selection. New value will be stored. Exit the menu.



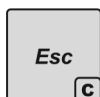
Cancel the selection. New value will not be stored. Back to the menu.

RESETTING THE DATA OF ALL COUNTERS (WORKING FIELDS)

MENU: DELETE
MEMORY



DELETE
ALL DATA?



TASK
COMPLETED

Using **F1** key or **F2** key, choose the following:

MENU:

RESETTING THE COMPLETE MEMORY

Press **ENTER** key

After confirmation, the following message will be displayed:

RESET ALL DATA?

When this activity is performed, quantities of bales and working times of all counters (working fields) will be reset.

Confirm the selection. The memory will be reset. Exit the menu.

Cancel the selection. The memory will not be reset. Back to the menu.

If the selection is confirmed using **ENTER** key, the following message will be displayed:

THE COMMAND WAS COMPLETED

Exit the menu.

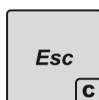
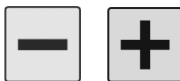
SETTING THE CLOCK



MENU: SET
TIME AND DATE



TIME: GG:MM:SS
DATE: DD/MM/RRRR



CLOCK
SET

Using **F1** key or **F2** key, choose the following:

MENU:

SET TIME AND DATE

Press **ENTER** key

After confirmation, the message showing currently set time and date will be displayed.

Choose the value to be changed using **MENU** key or **STAT** key. Selected value is underlined

The required value is changed using **+** key and **-**key

Confirm the selection. Date and hour will be set. Exit the menu.

Cancel the selection. Date and hour will not be set. Back to the menu.

If the selection is confirmed using **ENTER** key, the following message will be displayed:

CLOCK IS SET

Exit the menu.

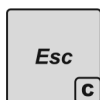
SETTING THE SPEEDS OF MOVEMENTS



MENU: SET
SPEED MOVEMENT




SPEED MOVEMENT
Vx=yyy%



Using **F1** key or **F2** key, choose the following:

MENU:

SET THE SPEED OF MOVEMENTS

Press **ENTER** key

After confirmation, the following message will be displayed:

SPEED OF MOVEMENT

VX=YYY%

Vx – V1...V7 – speed of element to be changed

yyy% - value of speed of movement expressed in percentage within the range of 20-100%

Speed of element V1...V7 is selected using **F1** key and **F2**key

Speed value is changed using **+** key and **-** key

Confirm the selection. The memory will be reset. Exit the menu.

Cancel the selection. The memory will not be reset. Back to the menu.



If the selection is confirmed using **ENTER** key, the following message will be displayed:

SPEEDS OF MOVEMENTS ARE SET

Exit the menu.

V1 - loading arm rising speed

V2 - loading arm lowering speed

V3 - turntable rising speed

V4 - turntable lowering speed

V5 - closing speed of the film gripping device (cutting)

V6 - not assigned speed

V7 – rotational speed of the table

**TIP**

Speeds of individual actuators can be changed within the range from 20 to 100%, every 5%.

**ATTENTION**

In case when the rotational speed of the V7 table has been set to 90% or higher, this value is changed to default speed of 80% after restarting the controller for user's safety. Lower speeds are not changed.

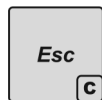
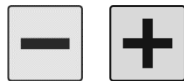
ACTIVATING THE FILM BREAKING OR FILM END SENSOR



MENU: ACTIVATION
FILM SENSOR !!!




FILM SENSOR
XXXXXXXXXXXXXX




FILM
BROKEN OFF !!!

Using **F1** key or **F2** key, choose the following:

MENU: ACTIVATING THE FILM SENSOR

Press **ENTER** key

After confirmation, the following message will be displayed: *FILM SENSOR*

XXXXXXXXXXXX

Where XXXXXXXXXXXX can be active or inactive

The settings are changed using **+** key and **-** key.

Confirm the selection. New value will be stored. Exit the menu.

Cancel the selection. Settings will not be changed. Back to the menu.

After activation of the sensor, the following message is displayed if the film is broken:

FILM BREAKING!!!

Wrapping process will be stopped. If any of the keys is pressed, the message will be cancelled.

SELECTING THE CONTROL PANEL LANGUAGE



MENU: SET
LANGUAGE



Using **F1** key or **F2** key, choose the following:

MENU: LANGUAGE SELECTION

Press **ENTER** key

After confirmation, the following message will be displayed:



LANGUAGE
XXXXXXXXXXXX

LANGUAGE

XXXXXXXXXXXX

Where *XXXXXXXXXXXX* is the currently set language of the display. Three languages of the menu are available: Polish, English and German.



The settings are changed using **+** key and **-** key.



Confirm the selection. A new language will be set. Exit the menu.



Cancel the selection. Language will not be changed. Back to the menu.

B.4.1 STATISTICAL DATA



Press **STAT** key

When the key is pressed, the message containing data on operation of a currently set counter (working field) is displayed.

XX – working field number

YYYY - quantity of wrapped bales for a given counter (working field)

ZZ.Z - capacity defined as quantity of bales wrapped on a given field within one hour

AA - number of working hours for a given field

BB - number of working minutes for a given field

If **STAT** key or **ESC** key is pressed, the main menu will be displayed again

A rectangular LCD display showing two lines of text in a monospaced font. The first line is "BALES L-XX: YYYY" and the second line is "W=ZZ.Z T=AAgBBm".

BALES L-XX: YYYY
W=ZZ.Z T=AAgBBm

A rectangular LCD display showing two lines of text in a monospaced font. The first line is "BALES L-03: 3325" and the second line is "W=35.3 T=95g43m".

BALES L-03: 3325
W=35.3 T=95g43m

Example

B.4.2 INDICATION OF CURRENT TIME AND DATE



Press **SET** key

TIME: GG:MM:SS
DATE: DD/MM/RRRR

When the key is pressed, the message showing current date and time will be displayed. This is the real time indication. The clock is not stopped when the control panel is disconnected from power supply.



If **SET** key or **ESC** is pressed, the main menu will be displayed again.

TIME: 14:35:12
DATE: 09/06/2014

Example

TIP



Working time is counted when the control panel is active. Working time is not counted in transport mode and when the control panel is switched off using ON/OFF key on the control panel or the switch located on the right side of the control panel (the switch is set in "0" position).

B.5 SETTING THE BALE WRAPPER FOR TRANSPORT, TRANSPORT MODE



After bale unloading, set the turntable in transport position. Press and hold down **ENTER** key (9) and key (16) for turntable rising.



Raise the loading arm using key (12).

Raise the unloading table to transport position – see the Operator's Manual.



Press **F2** key (11).

TRANSPORT
POSITION

Press **+** key or **–** key in order to choose Transport position option from the menu.

