METAL-FACH

BALE WRAPPER
Z593

INSTRUCTIONS MANUAL PART I

TRANSLATION OF THE ORIGINAL INSTRUCTIONS MANUAL

REV. II

OCTOBER 2018

Instructions Manual No. Z593-02-167/2013

EC DECLARATION OF CONFORMITY

The undersigned,	Jacek Kucharewicz, President of the Board,	
hereby declares, with full responsibility, that the complete machine:		
Bale Wrapper		
1.1.	Brand (the trading name of the manufacturer)	Metal-Fach
1.2.	Type	Z334
1.2.1.	Variant	
1.2.2.	Version	
1.2.3.	Trade name(s) (if any)	Z593
1.3.	Category, Subcategory and Vehicle-Speed Indicator	S1a
1.4.	Company name and manufacturer's address	Metal-Fach sp. z o.o. ul. Kresowa 62 16-100 Sokółka, Poland
1.4.2.	Name and address of the authorised representative of the manufacturer (if applicable)	N/A
1.5.1.	Location of the rating plate of the manufacturer	On the front part of the main frame of the machine
1.5.2.	The method used to fix the rating plate of the manufacturer	Bonded
1.6.1.	The location of the vehicle-identification number on the chassis	
2.	Machine-identification number	

Complies with all the appropriate regulations of Directive 2006/42/EC and the Regulation of the Minister of the Economy dated 21 October 2008 on the principal requirements for machines (Journal of Laws of 2008, No. 199, item 1228, as amended)

The following harmonised standards were applied to assess the compliance.

PN-EN ISO 4254-1: 2016-02, PN-EN ISO 13857: 2010, PN-EN ISO 12100: 2012

and the standards PN-ISO 3600:1998, PN-ISO 11684:1998 and Regulation of the Minister of Infrastructure dated 31 December 2002, on technical conditions of vehicles and the range of their necessary equipment (Journal of Laws of 2003, No. 32, item 262, as amended).

Safety Testing Report No. MF/5/2010

This EC Declaration of Conformity shall become null and void if the machine is modified or reconstructed without the Manufacturer's consent.

Sokółka
(Place)

27/11/2010
(Date)

Jacek Kucharewicz
(Signature)

Chairman of the Board
(Position)

Machine data

Type of machine		Bale Wrapper
Trade name		_____
Serial number/ VIN ([1])		_____
Machine manufacturer		METAL-FACH Sp. z o.o. 16-100 Sokółka ul. Kresowa 62 Phone (0-85) 711 98 40 Fax (0-85) 711 90 65
Seller		_____
	Address	_____
		_____
	Phone/Fax	_____
		_____
Delivery date		_____
Owner or user:	Name:	_____
	Address	_____
		_____
	Phone/Fax	_____

([1])The data is located on the machine's rating plate located on the front part of the machine's main frame

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PART II

INTRODUCTION

The information included in the Instructions Manual is valid as on the date of its drawing up. The manufacturer reserves its right to make design changes to machines, and due to this fact some values or illustrations might not correspond to the actual state of the machine supplied to the user. The manufacturer reserves its right to make design changes without amending these instructions. The Instructions Manual is part of the basic equipment of the machine. The User is obliged to read the contents of this Instructions Manual and comply with the recommendations included in it, before using the machine. It will ensure safe operation and trouble-free machine operation.

The machine has been built in compliance with the standards in force and the current legal provisions. The Manual describes the principal safety and operation rules for the Metal-Fach Bale Wrapper.

The main obligations of the manufacturer are presented in the guarantee card, which includes the complete and currently-in-force regulations on the guarantee coverage.

If the information included in the Instructions Manual proves to be incomprehensible, you should address the seller from whom the machine was purchased, or the manufacturer directly, for assistance.

The spare-parts catalogue functions as a separate list, and is attached in the form of a CD as part of the machine purchase, and also is available on the Manufacturer's web site: www.metalfach.com.pl

The Guarantee Certificate, together with the warranty terms, is attached to this instructions Manual as a separate document.

Manufacturer's address

Metal-Fach sp. z o.o.

ul. Kresowa 62

16-100 Sokółka

Telephone

Phone (0-85) 711 98 40

Fax (0-85) 711 90 65

The symbols used in these instructions.

DANGER

Hazard-warning symbol. It indicates the occurrence of a serious-hazard condition, which, if not avoided, can result in death or serious injury. This symbol warns against the most-dangerous situations.

CAUTION

This symbol points to especially important information and recommendations. Non-compliance with the described recommendations risks serious damage to the machine due to its incorrect operation.

WARNING

This symbol indicates the possibility of the occurrence of a hazard, which, if not avoided can result in death or serious injury. This symbol indicates a lower level of risk of injury than the symbol including the word “DANGER”.

This symbol indicates useful information.

This symbol indicates maintenance activities which should be performed periodically.

1. General description

1.1 Introduction

THE INSTRUCTIONS MANUAL IS PROVIDED WITH THE BASIC EQUIPMENT OF THE BALE WRAPPER

To operate the Bale Wrapper in a safe manner, read and adhere to all the INSTRUCTIONS set out in this Instructions Manual. Abiding by the guidelines provided in the Instructions Manual ensures safe operation for the User, and also prolongs the service life of the machine.

1.2 Identification, Bale Wrapper

Identify the wrapping machine on the basis of the rating plate permanently fixed to the wrapper main frame.

The data printed on the rating plate is shown in the figure below.

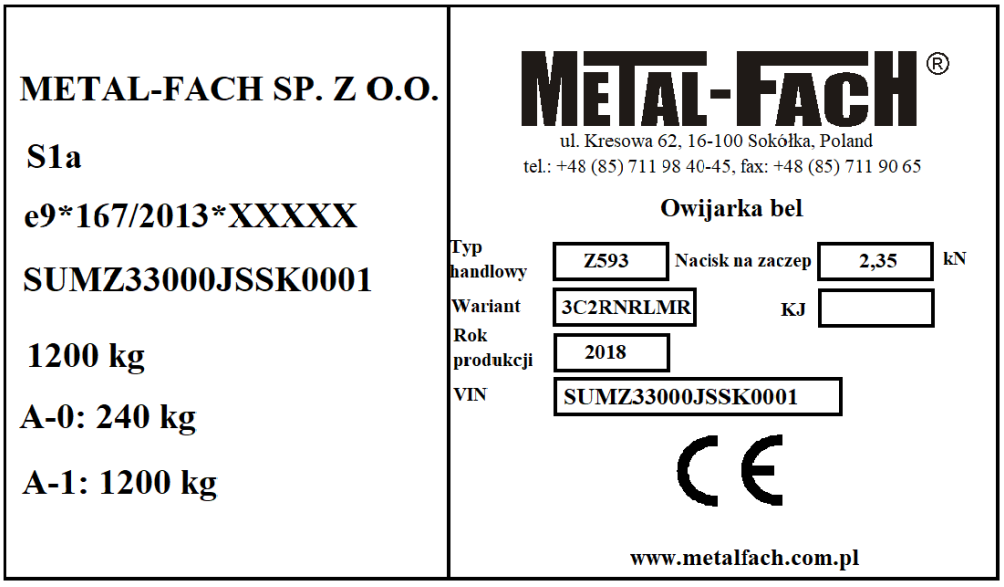

Figure 1. Example of a rating plate

CAUTION

CAUTION!

Operating the Bale Wrapper on public roads without the rating plate, or with an illegible rating plate, is prohibited.

When purchasing, make sure that the factory/VIN number printed on the machine's rating plate and the number provided in the Instructions Manual and Guarantee Certificate are the same. This is crucial for recognising the guarantee.

When contacting technical service, the seller, or the Manufacturer, the User is obliged to provide the information included on the machine's rating plate.

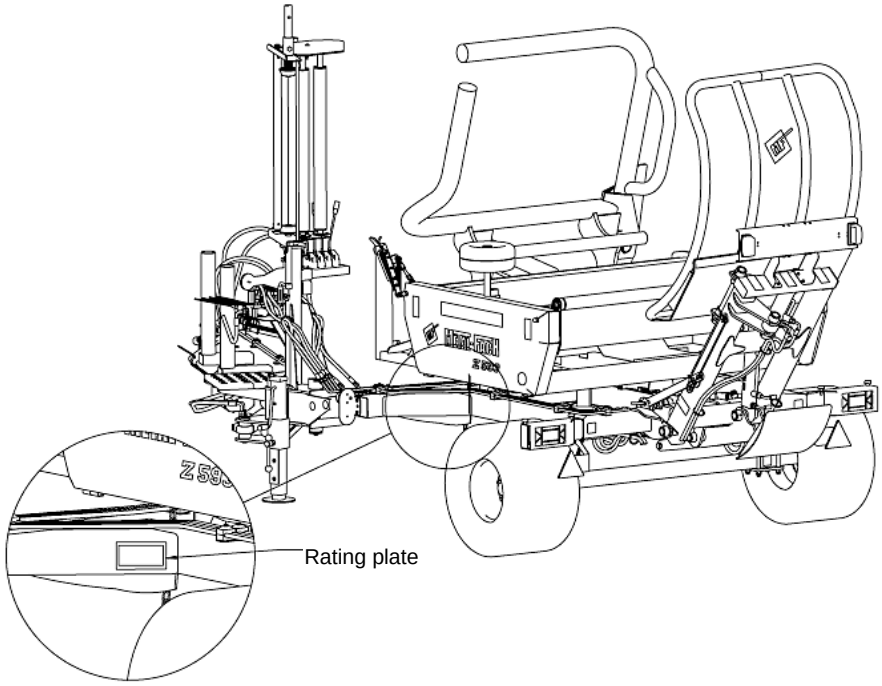

Figure 2. The location of the nameplate on the machine

Ensure the VIN matches the number entered in the GUARANTEE CERTIFICATE, sale documents, and INSTRUCTIONS MANUAL, before you purchase the Bale Wrapper.

It is often necessary to provide the VIN of the machine to identify the Bale Wrapper unambiguously when ordering spare parts, or if any other problems arise, so it is advisable to write this number down below.

Bale Wrapper's VIN

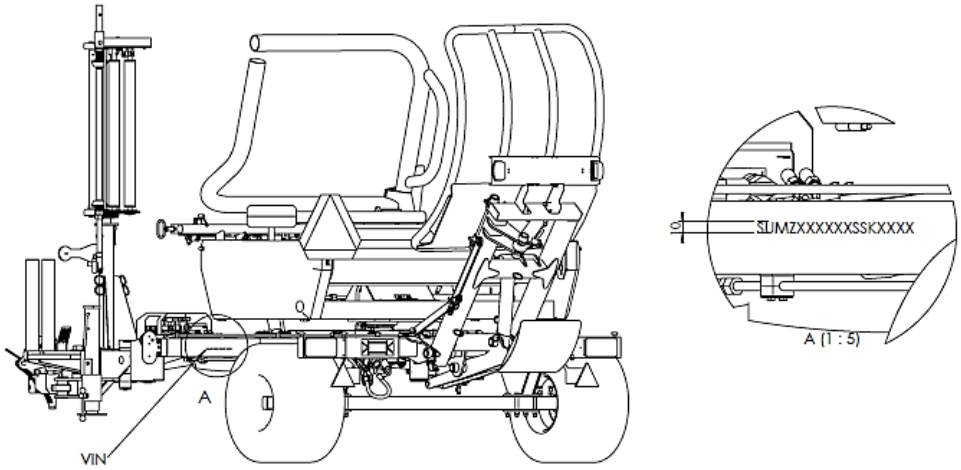

Figure 3. The location of the VIN on the machine

The Instructions Manual is part of the basic equipment of the Z593 Bale Wrapper.

In the event of selling the machine to another user, it is obligatory to provide the Instructions Manual. It is recommended for the Bale Wrapper's supplier to archive the Instructions Manual confirmation of receipt by the purchaser, submitted with the machine to the new user.

Please read the Instructions Manual carefully!

If you follow its recommendations, it will be possible to operate the machine efficiently and productively, avoid hazards, and maintain the warranty for the duration granted by the Manufacturer. Detailed explanation regarding the design, functioning, operating principles, and any other matters related to the machine, can be provided by dealers/manufacturer of the Bale Wrapper.

CAUTION

CAUTION!

It is prohibited for persons who have not read this Instructions Manual to use the Bale Wrapper.

1.3 Intended use

The Bale Wrapper Z593 is a tractor-towed machine, working in a tilted position, on the right-hand side of the tractor, designed for lifting compressed bales of grass, hay, and other non-lignified plants from the ground, by means of a loading arm, and loading bales onto a rotary servicing table. Then the machine wraps with film the loaded bale intended for silage, which is fed onto the film feeder, on the machine frame. After finishing wrapping the film is

gripped and cut by the film cutter. The last stage is the depositing of the wrapped bale onto the ground.

All the working actions must be carried out by one person - the operator who is in the tractor's seat. The Bale Wrapper is fitted with manual control levers which are installed on the tractor for the period of the operation.

No cargo, goods, people, or animals may be transported by the wrapper. It is prohibited to transport bale on the wrapping machine on public roads.

The wrapping machine may not be used for wrapping or catching/lifting other materials than plant-material bales.

Foils or other materials intended by the manufacturer for applications other than wrapping up bales from plant materials may not be used for wrapping with the wrapper.

Adhere to Bale Wrapper's intended use, which involves coupling it with farm tractor with a power of over 30 kW and a min. pull class of 0.9, which meet the combination-stability requirements.

During operations, the operator of the Bale Wrapper is not exposed to noise which can cause loss of hearing, since the noise level of the running machine does not exceed 70 dB (A), and the operating position is located inside the tractor's cab.

During operations, the operator of the Bale Wrapper is not exposed to vibrations, since the level of vibrations on the upper limbs of the operator does not exceed 2.5 m/s2, while the vibrations on the body are below 0.5 m/s2, and the operating position is located inside the tractor's cabin.

Detailed explanations regarding the design, functioning, operating principles, and any other matters related to the machine, can be provided by authorised dealers/manufacturer of the Bale Wrapper.

The machine is intended for use exclusively for agricultural purposes as described in these instructions. Any other utilisation of the wrapping machine is considered to be non-compliant with its intended use, and releases the manufacturer and distributor from their responsibility for any damage arising as a result of incorrect utilisation.

CAUTION

Unauthorised construction changes, working with the wrapper non-compliantly with its intended use, and disregarding the safety principles, release the manufacturer from responsibility for any resulting hazards and damages

1.4 Design, Bale Wrapper

The Z593 Bale Wrapper is composed of the following units (Fig. 4):

1. Complete axle with ground wheels
2. Lower frame
3. Rotary frame
4. Loading arm

5. Unloading unit
6. Drawbar
7. Film feeder
8. Support foot
9. Cutting unit
10. Wheel chock
11. Side wheel
12. Hydraulic manifold
13. Control levers
14. L-02 Wrap counter

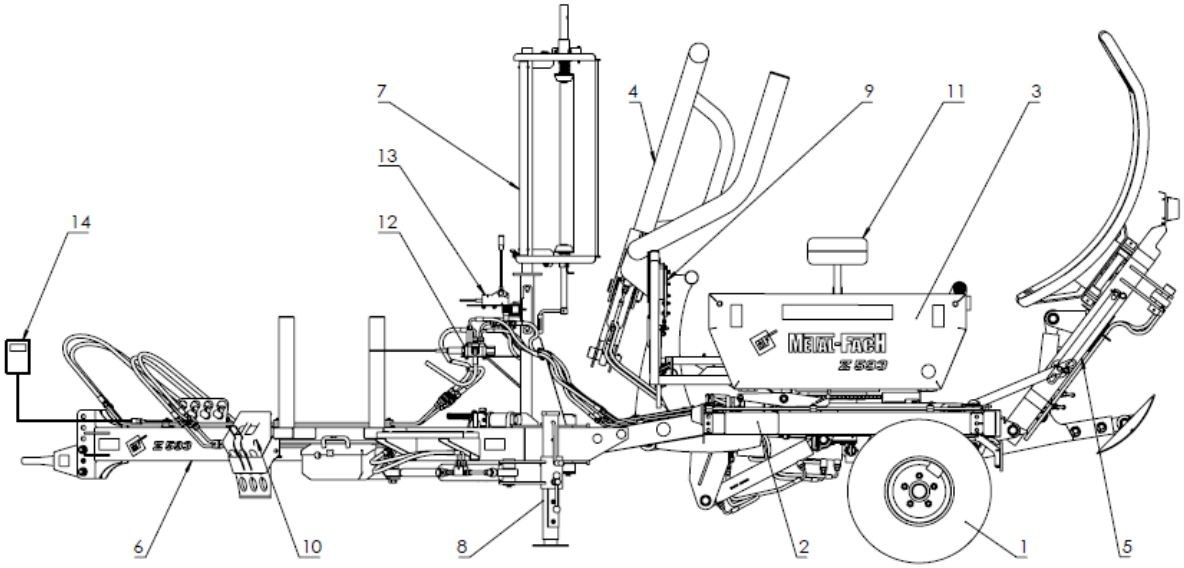

Figure 4. Design, Bale Wrapper

The hitch drawbar (6) is fixed in a rotary position to the lower frame (2), and is fitted with an adjustable hitch used for coupling the Bale Wrapper with the farm tractor, and its levelling in both the working and transport positions.

The lower frame (2) is fitted with the rotary frame (3) by means of an articulated joint. The bale-loading arm (4) and unloading unit (5) are fixed to the lower frame (2) by means of an articulated joint. The lower frame (2) is fitted with a film feeder (7) and an adjustable support foot (8). The rotary frame (3) is supplied with a cutting unit (9), and side wheels (11) which prevent bales from sliding down. The drawbar (6) comes with a wheel chock (10). The control components include a hydraulic manifold (12) linked with the control levers (13) by means of ropes. The L-02 counter (14) is used for monitoring the work status, and is ultimately put in the tractor's cab.

1.5 Wrapper characteristics

Table 1. Wrapper characteristics

No.	Detailed list	
1.	Type of vehicle	Bale Wrapper
2.	Manufacturer	METAL-FACH Sp. z o.o., 16-100 Sokółka, ul. Kresowa 62
3.	Type	Z334
4.	Trade name	Z593
5.	The location of the rating plate	The front part of the main frame of the machine
6.	Chassis type	Single axle
7.	The way of connecting with the tractor	Towed
8.	Connected with the tractor by	Hitch
9.	Length, mm	min. 5,250; max.: 5350
10.	Width, mm	min. 2350; max.: 2450
11.	Height, mm	min. 2450; max.: 2650
12.	No. of axes:	2 axle shafts
13.	Distance between the coupling point and the first axle, mm -	min. 4040; max.: 4100
14.	Wheel track, mm	min. 1700; max.: 2000
15.	Drawbar-eye diameter, mm	44
16.	Maximum tractor-hitch pressure, kN	2.5
17.	Machine weight, kg	1250
18.	Maximum bale weight, kg	800
19.	Bale length, mm	1200
20.	Bale diameter, mm	1,000-1,200
21.	Tyres	26.5/14.00-12
22.	Tyre pressure, bar	1.7
23.	Maximum service speed, km/h	10
24.	Maximum transport speed, km/h	40
25.	Tractor's-pull class	0.9
26.	Minimum tractor power, kW	30
27.	Required pressure in the tractor's hydraulic actuator system, MPa	14
28.	Recommended capacity of the tractor's pump, l/min	25
29.	Wrapper drive	Hydraulic from the tractor's power hydraulics
30.	Rotary-frame drive	Hydraulic motor
31.	Max. rotary-frame speed, rpm	35
32.	Bale-loading method	Self-loading arm

33.	Bale-unloading method	Self-unloading unit
34.	Film cutting	Post-wrapping, automatic
35.	Film width, mm	500; 750
36.	Bale-wrapping time, min.	~2
37.	Number of operators	1 (tractor operator)
38.	Counter, wrapping	Electronic, type L-02
39.	Electrical-system voltage, V	12

CAUTION

CAUTION!

The maximum transport speed of the Bale Wrapper is restricted by the speed index of the tyres fitted (Tab. 2) and shall not be higher than 40 km/h.

Table 2. Index indicated on tyres

Tyre marking	Max. allowed speed
A1	5 km/h
A2	10 km/h
A3	15 km/h
A4	20 km/h
A5	25 km/h
A6	30 km/h
A7	35 km/h
A8	40 km/h

1.6 Wrapper dimensions

Overall Bale-Wrapper dimensions in the transporting position are shown in the drawings

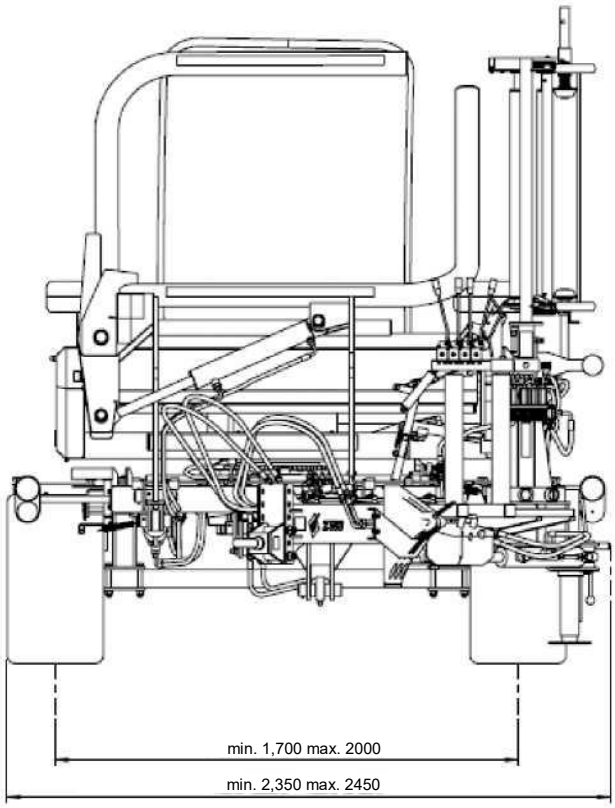

Figure 5. Wrapper dimensions - front

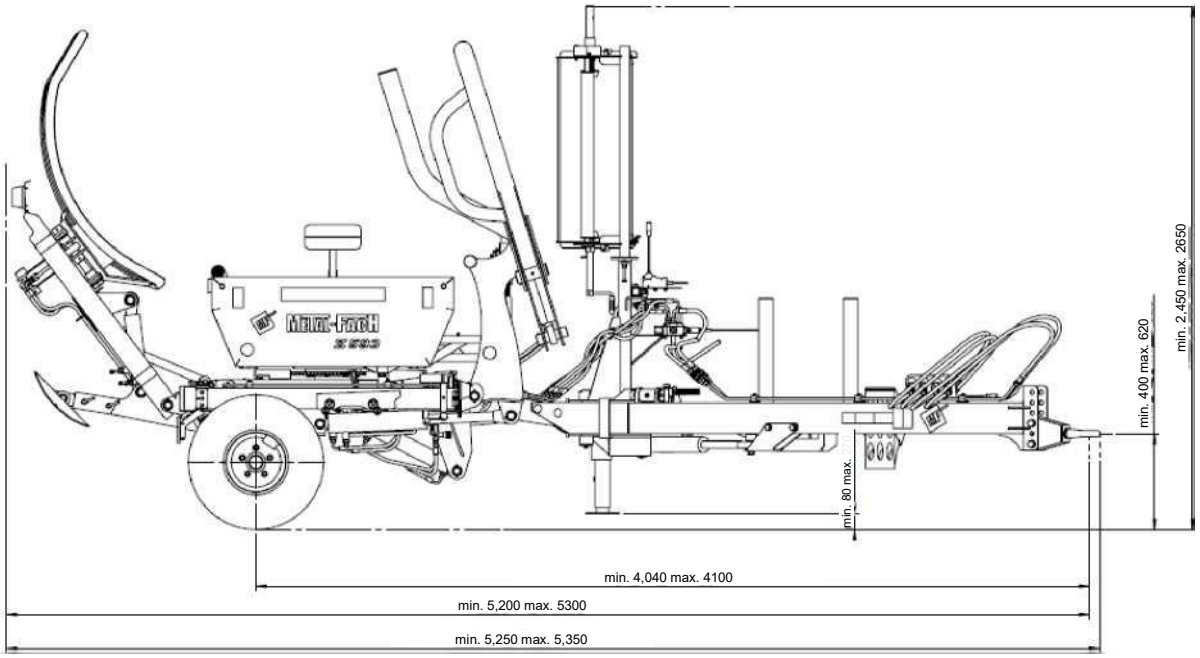

Figure 6. Wrapper dimensions - side

1.7 The location of pictograms

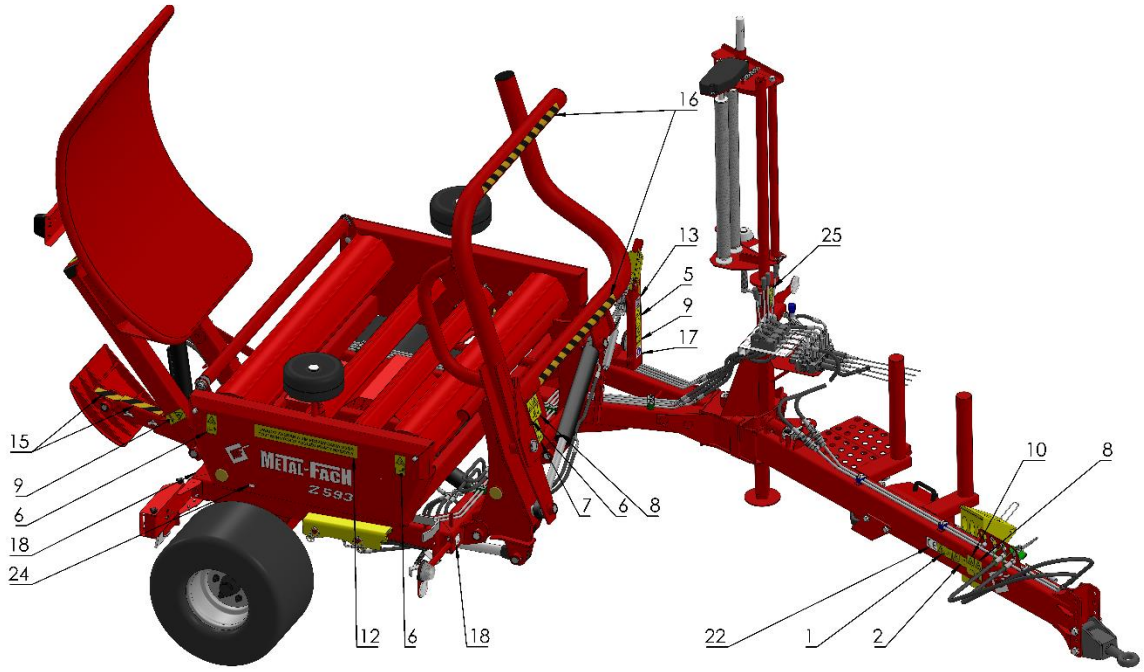

Figure 7. The arrangement of pictograms - left-hand side

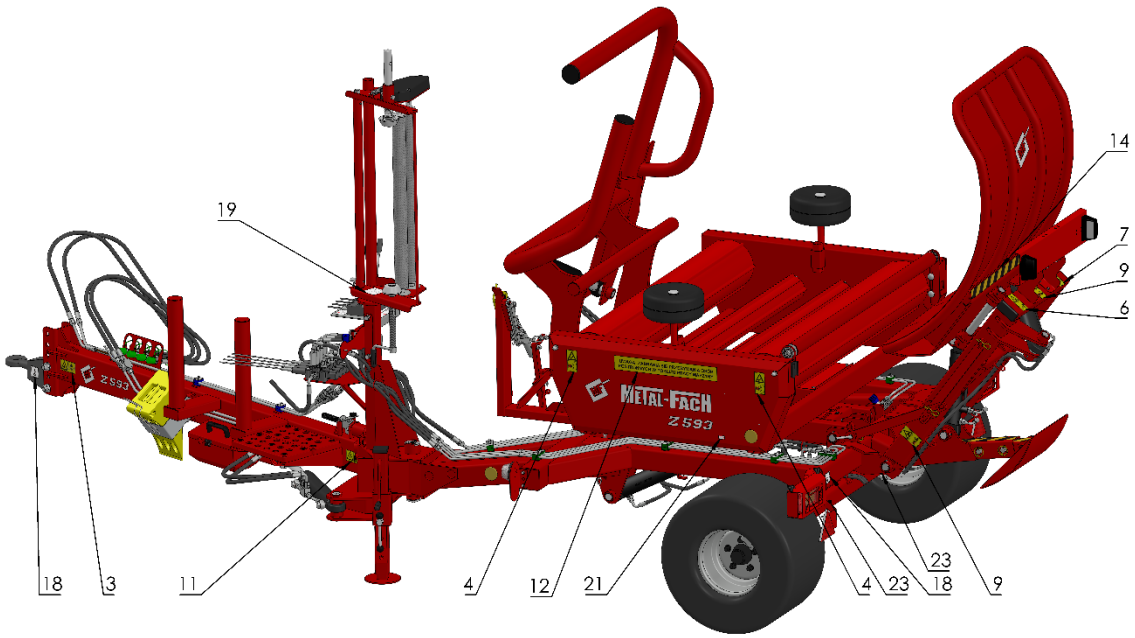

Figure 8. The arrangement of pictograms - right-hand side

1.8 Hazard-warning symbols

The warning pictograms located on the machine (Section 1.7) inform the operator of hazards and risks which can occur during operation of the machine. Ensure that the symbols are clean and legible.

Illegible symbols should be replaced with new ones; available for purchase from the manufacturer.

Table 3. Pictogram list

No.	Warning symbol (sign)	Meaning
1.		Attention. Before you start operating the machine, read the Instructions Manual.
2.		Attention. Before starting work or repairs, stop the tractor's engine, and take the key from the ignition switch.
3.		Attention. Keep away from the links of the Bale Wrapper at work.
4.		Attention. Do not open and remove the protective guards during machine operation.
5.		Attention. Do not touch the revolving components of the machine at work.
6.		Attention. Keep away from the machine during operation Risk of being crushed by a bale

7.		Attention. Keep a safe distance from the raised arms. Danger of crushing
8.		Attention. Danger zone Before starting operation, fit the support
9.		Attention. Crushing hazard.
10.		Attention. Avoid contact with liquid under pressure.
11.		Attention. Do not travel on platforms or ladders.
12.	UWAGA! ZABRANIA SIĘ PRZEBYWANIA OSÓB POSTRONNYCH W POBLIŻU PRACY MASZYNY	Warning inscription Caution! Bystanders' standing within the machine's operation range is prohibited.
13.	UWAGA! OSTRY NÓŻ	Warning inscription Caution! Sharp blade.
14.		Dimensions of the board: 40x950.
15.		Dimensions of the board: 50x300.
16.		Dimensions of the board: 40x800.

17.		Wearing safety gloves to operate the machine is mandatory.
18.		Pictogram informing of Sling attachment/Lifting point.
19.		Pictogram informing of Film-loading procedure.
20.		Information pictogram. The proper attachment of the bale counter sensor under a magnet.
21.		Recommended tyre pressures for the Bale Wrapper.
22.		Pictogram informing of CE marking the manufacturer's conformity declaration on the complying of the machine with European Union Directives.
23.		Jack-attachment point.
24.		Lubrication point

2. Safety of use

2.1 Obligation to provide information

CAUTION

CAUTION!

When being sold to another user, the Bale Wrapper must be handed over together with the Instructions Manual, and the person purchasing the machine must undergo training, according to the guidelines provided herein.

2.2 General safety principles

1. As well as the information included in the Instructions Manual, all the principles and local legal regulations related to safety of work and machine disposal must be met.
2. The Bale Wrapper may only be operated by an adult with a valid licence for driving farm tractors, and proper knowledge of the health-and-safety regulations with regard to agricultural-equipment operation, provided that they have read and understood this Instructions Manual.
3. Read and thoroughly understand this Instructions Manual, and observe its recommendations, paying close attention to the instructions concerning the safe operation of the Bale Wrapper.
4. The instructions indicate the machine elements constituting potential hazards. Dangerous places are marked on the machine with yellow labels with warning pictograms. Special attention should be paid to the dangerous places, and recommendations should be strictly adhered to.
5. You should learn the meanings of the pictograms you come across.
6. Operating the Bale Wrapper without protective guards in place is strictly prohibited.
7. Prior to each starting of the wrapper, check the machine's condition, completeness, and the mounting of the guards.
8. Prior to each departure, start-up, or ride on public roads, check the correctness of the machine's connection with the tractor's wheel tightenings, and the correct drawbar and tractor's connections.
9. Riding the Bale Wrapper on public roads is allowed only in the transporting position, having locked the bale tipper.
10. All adjustment, repair and servicing works should be carried out with the tractor's engine off, making sure beforehand that it is protected in the correct way against accidental starting up.
11. Prior to commencement and during the loading of bales make sure that there are no by-standers, especially children.
12. During the operation of the wrapper clear free space in the zone of the rotating parts. During the switching of the machine to the operating or transporting positions, and the wrapping of the bales, there can be no people or animals in the zone of the rotating parts.
13. Never leave the machine unattended during operations.
14. Take special care during operations on inclined area. Pay special attention to the possibility of bale rolling down.
15. It is strictly forbidden to operate the wrapper under raised machine units.

16. It is strictly forbidden for any person to stay between the tractor and the wrapper during tractor-engine's operations.
17. Take particular care when connecting and disconnecting the wrapper from the tractor. The machine must be connected to a tractor equipped with an agricultural hitch bearing a higher vertical load than the vertical load on the Bale-Wrapper drawbar (Section 1.5).
18. During operations, wear the appropriate work clothing, and footwear with non-slip soles.
19. Bale-wrapping film should be loaded with the tractor's engine switched off and protected against its accidental staring up (key removed from the ignition and parking brake engaged).
20. It is forbidden to use damaged power-hydraulics hoses. Immediately replace damaged hoses with new ones. Impermeable protective clothing and gloves must be worn, and the environment must be protected from oil contamination while replacing hoses.
21. Control the power-hydraulics installation from the tractor operator's cockpit only.
22. Traffic Law and the manufacturer's recommendations must be observed while transporting on roads (Section 7.1).
23. Prior to entry onto public roads, ensure visual control of the transported machine.
24. It is forbidden to climb onto the Bale Wrapper during its transporting and operation.
25. It is forbidden to climb onto the components of the wrapper while parking, transporting, or operating .
26. While transporting on the public roads, it is forbidden to ride on the Wrapper's swathes or hay-silage bales.
27. While driving the wrapper on public roads, the user must use road the lighting installed on the wrapper in compliance with the local regulations in force.
28. It is forbidden to work with the wrapper while under the influence of alcohol.
29. It is forbidden for persons under the influence of narcotics, or medicines with a narcotic reaction, to operate the wrapper
30. It is forbidden for the machine to be operated by persons under the influence of medicines with a negative influence on the ability to drive vehicles and general psychophysical efficiency, and medicines causing disturbances of concentration or delays to reaction time.
31. It is forbidden to operate the wrapper in a state of exhaustion which can cause interruptions to concentration and delays to reaction time.
32. It is forbidden to drive the wrapper near sources of open fire.
33. The firefighting regulations must be strictly obeyed and the hazards arising during operation or stoppage of the wrapping machine must be eliminated immediately.
34. The sources of fires must be liquidated using a dry-powder fire extinguisher.
35. During the operation of the wrapper do not approach it with open fire and do not smoke near the machine.
36. Before each ride to work, check that the tractor is equipped with a dry-powder fire extinguisher. If there is not one available provide the tractor with one.
37. When failure occurs or a malfunction is discovered on the machine, switch the tractor's hydraulic system off. Stop the tractor's engine, take the key from the ignition, and engage the auxiliary brake. Locate the reason for the breakdown or failure and have an authorised service centre remedy it.

CAUTION

CAUTION!

A risk of lightning strike during the Bale Wrapper's operation.

The Bale Wrapper comes with a securing chain, padlock, and two sets of keys.

CAUTION

CAUTION!

It is not allowed to leave the farming equipment on slopes or other inclines without securing the vehicle against accidental rolling away.

CAUTION

CAUTION!

It is not allowed to leave the farming equipment on slopes or other inclines without securing the vehicle against accidental rolling away.

CAUTION

CAUTION!

Rotating action is not allowed when

- the loading arm is its raised position
- the bale-tipper unit is raised
- the service table's frame is in its upper position

CAUTION

CAUTION!

Never raise the loading-arm or bale tipper unit the service table is in its locked position and the bale tipper arm is lowered.

CAUTION

CAUTION!

Never move the bale tipper’s arm when the tipper unit is raised.

2.3 Use with a tractor

Prior to the commencement of connecting the Bale Wrapper to the tractor make sure that it fulfils all the requirements specified in the machine characteristics (Section 1.5) Combine the Bale Wrapper Z593 with a farm tractor with power of at least 30 kW and a pull class of at least 0.9.

The tractor must be provided with at least two power-hydraulics quick-release sockets (acc. to ISO 7241-1, type A, size 12.5), affording pressure supply and the free return of oil from the wrapper distributor to the tractor's oil tank. The tractor's hydraulic installation must allow the switching off of the hydraulic supply of the working sections from the tractor's operator's seat in the tractor's cockpit.

The tractor must be fitted with a 12V power socket with a 10A fuse (lighter socket).

Connect the Wrapper to the lower tractor's hitch, which facilitates the transmission of a vertical load of 2.5 kN.

Prior to connecting the Wrapper with the tractor the operator must make sure that the Wrapper is complete and all the bolts are tightened correctly (see Section 5.4 for the table of bolt-tightening torques).

Make sure that the points marked for lubrication are actually greased. If it is not the case, have them lubricated. (Section 5.6.)

DANGER

DANGER!

The machine's working area is considered a danger zone. Prior to starting up the machine, make sure that there are neither people nor animals around in the near proximity of the machine. If anyone appears near the machine, the Wrapper must be stopped immediately, and you must require all unauthorised persons to leave the zone. Never stop in the close proximity of, or under terraces or balconies, in front of open rooms, or any kinds of platform, where persons or animals can stay. The Bale Wrapper's operator is responsible for all damage inflicted by the machine during operations.

CAUTION

CAUTION!

Make sure that in the area of connecting the wrapper with the tractor, and in the near vicinity, there are no third parties present, especially children.

WARNING

WARNING!

Wear well-fitting clothes which cannot be caught by movable elements, and boots with non-slippery soles. In case of the hazard of an item ejection, wear a protective helmet with eye protection.

CAUTION

CAUTION!

Make sure the power hydraulic system is tight. In order to check that there are no leaks from the hoses use blotting paper or other paper.

CAUTION

CAUTION!

Standing near the machine during operating the Bale Wrapper poses the threat of impact or crushing. Exercise special caution while coupling and uncoupling the machine's hitch.

2.3.1 Connecting with the drive

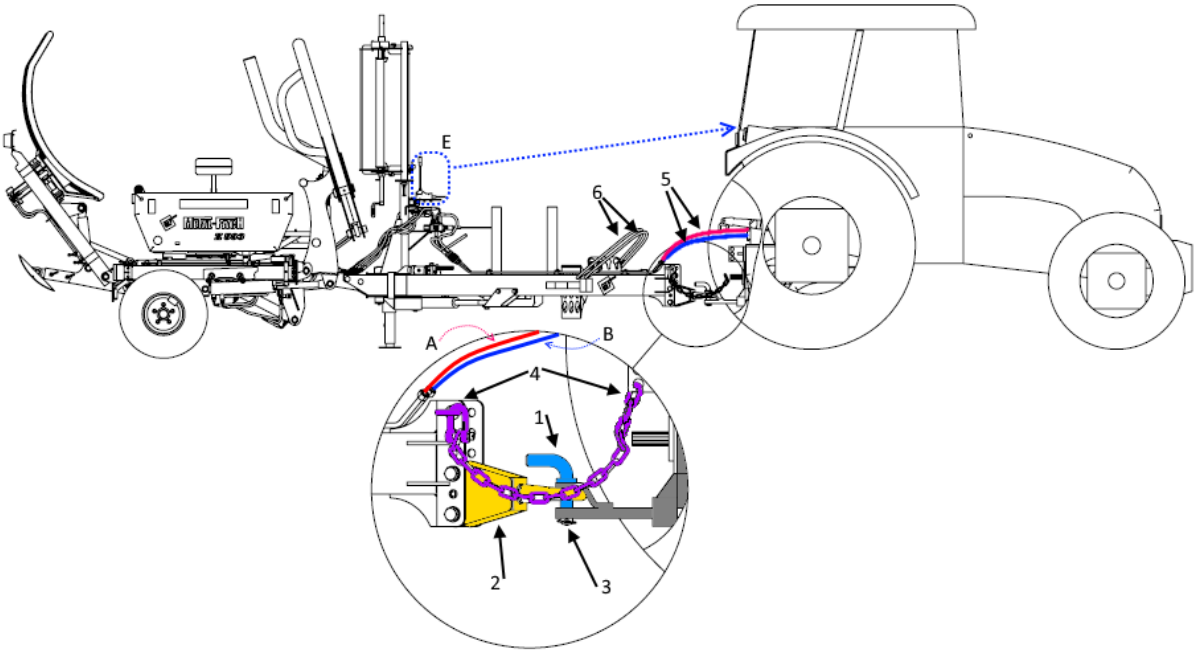

Figure 9. Connecting the hitch and drive of the Bale Wrapper

- Connect the Bale Wrapper to the lower tractor's hitch, which allows the transmission of a vertical load of 2.5 kN. Check stability and manoeuvrability with the tractor connected (Section 7.2).
- Make sure that in the area of connecting the Wrapper to the tractor, and in the near vicinity, there are no third parties present, especially children.
- While connecting the tractor, position the machine along the tractor's axis, on paved, even, and level ground. Stop the tractor's engine, take the key from the ignition, and engage the tractor's auxiliary brake.
- Level the Bale Wrapper by means of the adjustable support foot, and by setting a suitable hitch height as an appropriate adjustment eye (Section 3.5).
- Remove the padlocked chain, which protects the machine against unauthorised use, from the hitch eye (Section 2.4 – 1).

CAUTION

CAUTION!

Couple the drawbar eye with the tractor's agricultural hitch only, and check the connection for correctness, and the protections against accidental disconnection.

- Start the tractor and drive it towards the Bale Wrapper so that the opening in the hitch eye of the tractor aligns with the opening in the hitch eye of the Bale Wrapper. The opening diameter in the hitch eye is 45 mm.
- Stop the tractor's engine, take the key from the ignition, and engage the parking brake.

- Attach the Bale Wrapper's hitch eye (2) by means of a suitable hitch pin (1), and secure the pin against spontaneous detachment (3).
- Use a chain (4) to provide additional security against detachment of the combination by fastening it between the Bale Wrapper hitch and the tractor. It will ensure residual controllability of the Bale Wrapper if the machines are suddenly uncoupled.
- Put the panel with the control levers (E) in the tractor's cab.
- Connect the hydraulic supply system (5) by placing the supply-hose plug (A) and the return hose (B) in the supply sockets of the tractor.
- If the Bale Wrapper is supplied with a hydraulic drawbar-adjusting set, connect its wires (6) to the next hydraulic section of the tractor.
- Adjust the support foot and set it to the transporting position.
- Before you start working or enter public roads, ensure the ground-wheel bolts are tightened correctly.
- Before you enter public roads, connect the wrapper lighting system (Section 2.5) to the socket in the tractor. Check the road lighting for correctness. Check the drawbar for the locking-in position.
- Start the tractor, switch on the control panel, and check the correct operation of the power hydraulic systems, without the bale and without film in the feeder (Section 4.5).

CAUTION

CAUTION!

While connecting with the tractor, position the machine along the tractor's axis, on paved, even, and level ground. Stop the tractor's engine, take the key from the ignition, and engage the tractor's auxiliary brake.

Set the proper level of the hitch by selecting the appropriate adjustment eye to level the Bale Wrapper.

2.3.2 Drive disconnection

The procedure for uncoupling the Bale Wrapper from the tractor.

- Make sure that in the area of connecting the Wrapper to the tractor, and in the near vicinity, there are no third parties present, especially children.
- If it is possible, set the wrapper components in the transporting position.
- If the Bale Wrapper is to be idle for a longer time, lower the loading arm, or fit a lock to the same.
- Position the wrapper in its storage place on even and level ground.
- Stop the tractor's engine, take the key from the ignition, and engage the tractor's auxiliary brake.
- Disconnect both the power-supply and lighting systems, wind the wires up. and put them away in a container in the Bale Wrapper's drawer (**Fig. 10** – 4).
- Disconnect the power hydraulics system and protect the hydraulic hoses in their clamps on the Bale Wrapper's drawbar (**Fig. 10** – 8).
- Put the panel with the control levers of the Bale Wrapper in the holder on the pole of the machine's film feeder.
- Lower the support foot from its the transporting position to the working position.
- Make sure that there is no risk of accidental machine displacement, and insert a wheel chock if necessary (**Fig. 10** – 3).
- Disconnect the drawbar eye from the transport hitch of the tractor. Detach the additional chain which links the hitch to the tractor.
- Fit the drawbar eye with the protection against unauthorised use (**Fig. 10** – 1).

CAUTION

CAUTION!

Hydraulic connections must be always kept clean. After use replace the plastic cover supplied with the machine purchase.

CAUTION

CAUTION!

After disconnecting the wrapper from the tractor, its control panel should be stored in a dry, safe, place, away from the reach of unauthorised persons, especially children.

CAUTION

CAUTION!

After disconnecting the wrapper from the tractor, its power- supply wires and the communication cable of the control panel should be stored in the box for the electric bundle mounted on the wrapper drawbar.

2.4 Drawbar components

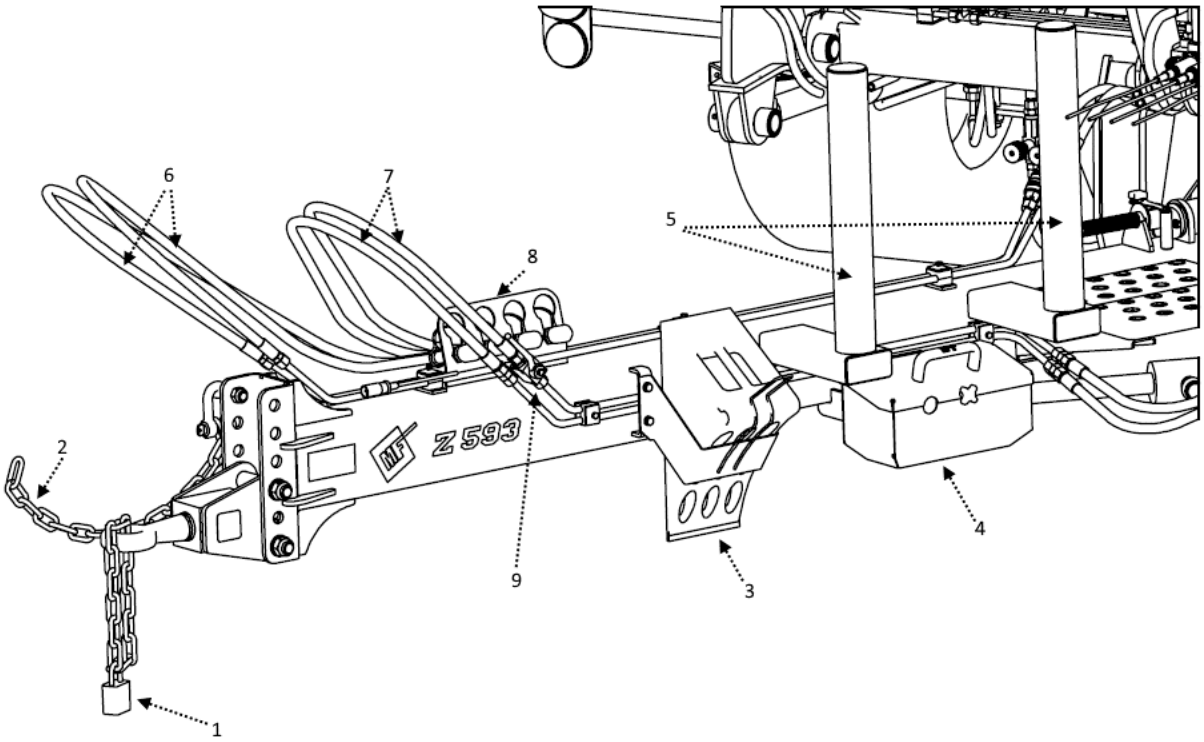

Figure 10. Drawbar components

Key for the Z593 Bale Wrapper's drawbar components (Fig. 10)

1. Chain with a padlock and key set (protection against unauthorised use of the machine)
2. Chain with a connecting shackle (additional protection against combination detachment)
3. Wheel chock
4. Box container for electric wires/film residue
5. Storage bins for 2 spare film rolls
6. Supply wires for the hydraulic manifold of the Bale Wrapper
7. Supply wires for the hydraulic cylinder of the drawbar (optional)
8. Holder for the plugs of the hydraulic hoses; the plugs fitted with protective plastic caps.
9. Locking valve for the hydraulic drawbar (optional)

2.5 Lighting system

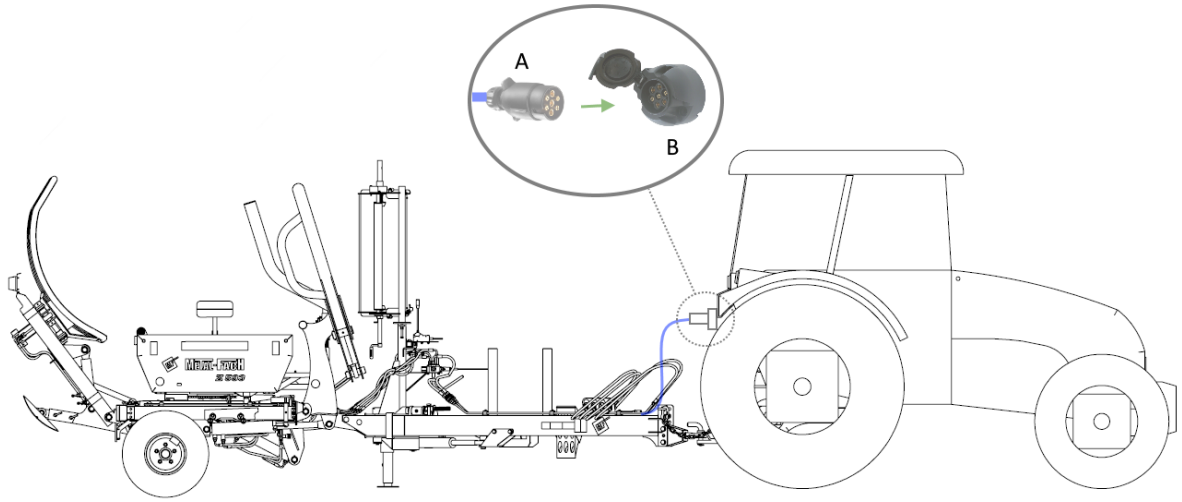

Figure 11. System wiring diagram

The Bale Wrapper is equipped with a 12V road-lighting system connected to the tractor's system by means of a 7-pin plug, ISO 1724 Type N (Fig. 11 A). The tractor must be fitted with a socket which is suitable for the plug (Fig. 11 B).

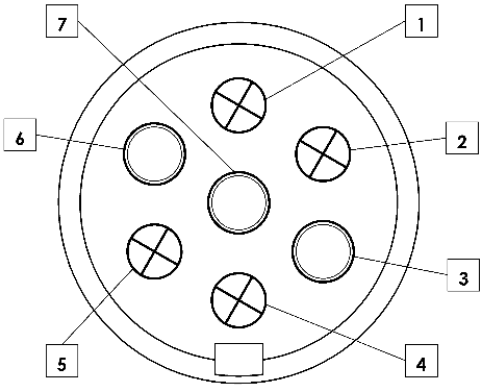

Figure 12. Wrapper-lighting plug (socket side view)

Table 4. Description of the plug lighting wires (Fig. 12)

No. of pin	Designation	Circuit description
1	L	Left indicator
2	54G	Fog lights
3	31	Earth
4	R	Right indicator
5	58R	Right position lamps
6	54	STOP
7	58L	Left position lamps

2.6 Hydraulic system

The Wrapper's hydraulic installation is supplied from the tractor's power hydraulics system. Connecting to the power hydraulic system is achieved with connecting hoses supplying the hydraulic distributor and, further on, the hydraulic motor and hydraulic servos (cylinders). The individual hydraulic components are connected to one another with flexible and metal hydraulic hoses.

The Z593 Bale Wrapper features a power hydraulic system (Fig. 13), consisting of the following parts.

1 Cylinder for raising and lowering the loading arm of the bale tipper, 2 Hydraulic manifold, 3 Cylinder for locking the service table, 4 throttle/non-return valves, 5 Hydraulic motor for the rotary service table, 6 Cylinder for raising and lowering the baletipper's cradle, 7 Cylinder for raising and lowering the bale grapple, 8 Cylinder for opening and closing the bale grapple, 9 Cylinder for raising and lowering the service table

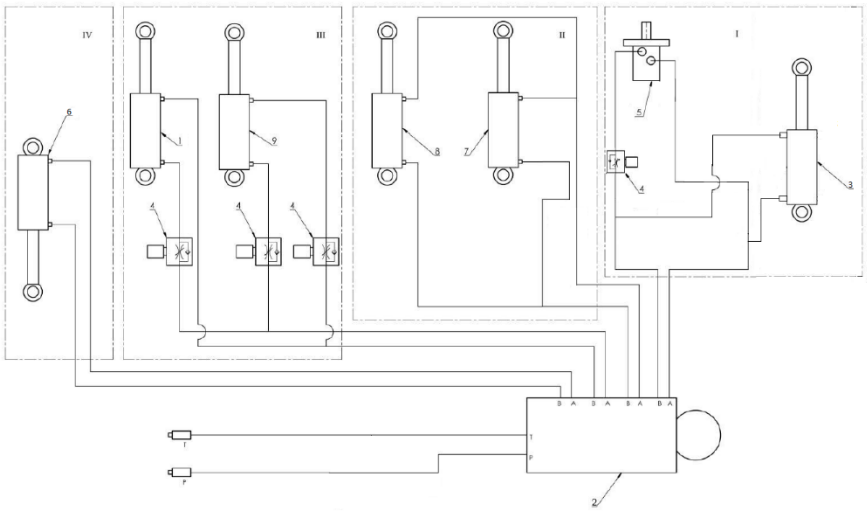

Figure 13. The Z593 Bale Wrapper's hydraulic system

Description of the operation sections

Section I Rotating the service table, locking the service-table's position

Section II Operating movements of the loading arm

Section III Raising and lowering the loading arm of the bale tipper

Section IV Tilting and lowering the bale tipper's cradle

The control of the hydraulic receivers is carried out via the control lever panel, which is put in the tractor operator's cab during the time of operation. The control levers are joined with the valves in the hydraulic manifold by means of Bowden cables (two-way action links).

The hydraulic block is protected against too-high pressure in the tractor's power hydraulic system with a pressure valve set by default at 200 bar. The maximum hydraulic oil pressure at which the Bale Wrapper can work is 160 bar.

If the tractor's pump volume of consumption is above 30 l/min, use the tractor's valve to reduce it to 25l/min. If the tractor is not supplied with a flow regulator, have one fitted.

The hydraulic system of the wrapper was factory filled up with L-HL 46 oil type. The tractor's hydraulic system working with the Bale Wrapper must be filled with the same type of oil. Filling up of the hydraulic system with oil of another type should be consulted on with the manufacturer of the machine.

CAUTION

CAUTION!

Filling the Bale Wrapper with a different volume of oil consumption from that recommended might result in a too-abrupt action of the parts of the machine, fast oil overheating, and eventually damage to parts of the machine. Use-flow regulators.

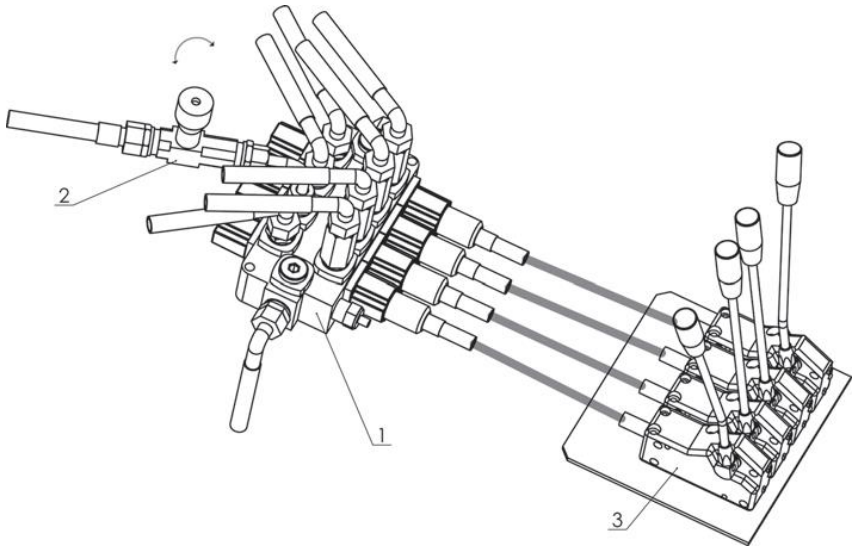

Figure 14. Hydraulic system
1 4-section manifold, 2 valve, 3 control levers

2.7 Start-up

The start-up of the newly-purchased Bale Wrapper is carried out by the distributor's technical department.

CAUTION

CAUTION!

Prior to the start-up of the Bale Wrapper, read this Manual carefully, paying close attention to the sections concerning the safety of the operator and bystanders.

In the event of any uncertainties regarding safety, contact the dealer/manufacturer.

CAUTION

CAUTION!

Before you start operating the machine, read this instructions Manual and adhere to the guidance herein.

Couple the Bale Wrapper with the tractor in good working condition only, and ensure its agricultural hitch, and the hydraulic, 12V electrical and signalling/warning systems are fully operational.

CAUTION

WARNING!

Use special care during the first start-up.

Any bystanders in the working area of the machine compromise safety.

CAUTION

CAUTION!

Each time before starting the Bale Wrapper, install the control levers in the tractor's cab.

During the start-up, an employee of the dealer's or manufacturer's licensed service, accompanied by the user (buyer), is to perform the following.

1. Inspect the accessories and functioning of the wrapper:
   - Check the machine for completeness and condition,
   - Check the lighting system and horn,
   - Check the electrical system
     - connect the communication cable with the counter
     - connect the supply conductor to the tractor's socket
     - start up the counter (Section 2.7.1).
   - Check the hydraulic system
     - connect the hydraulic hoses to the tractor, determine the correct direction of the oil flow
     - remove the transport protections of the Bale tipper, reset the machine in the servicing position
     - make trial actions of the Bale Wrapper's service parts, check the functioning of the sensor counting the service-table's revolutions
     - set the machine in the transporting position
2. Train the user on the correct wrapper operation
   - Discuss the rules of the Wrapper's operation
   - Film installation
   - Discuss the design and functioning of the control-lever panel
   - Discuss the risks which can arise from improper wrapper operation
   - The Wrapper's adjustable components
     - adjusting the hitch height
     - the method of resetting the drawbar of the Bale Wrapper to the transporting and servicing positions
     - adjusting the height and angle of the film feeder's rotation
     - adjusting the film feeder for 500 mm and 750 mm film
     - adjusting the chain tension on chain drives of the film feeder, the service table, and the service table's roller
     - adjusting the film cutting/grabbing device
     - adjusting the throttle/non-return valve for the service table's locking device
     - adjusting the throttle/non-return valve for the raising unit of the bale tipper
     - adjusting the throttle/non-return valve for the lowering unit of the bale tipper
   - Discuss the method of lubrication and ongoing wrapper maintenance,
   - Perform a full cycle of the bale film wrapping by the user (buyer) assisted by the service technician
   - Perform the procedure of resetting the Bale Wrapper in the servicing and transporting positions, including the machine preparation for riding on public roads

2.7.1 Counter start-up

Install the wrapping counter in the tractor's cab. Connect it to the revolution sensor, and use a power cord to connect it to the power supply.

A red light will flash on the counter display to confirm the correct connection.

Press and hold the "ON" button (symbol C)

Each time the counter is switched on, the display and power supply are tested. The display will show 8888, all decimal dots and LED's will be lit, and the device will generate a sound. Then, the display will show the counter's supply voltage, e.g. U12.7, which stands for 12.7V.

Any other figure shown by the counter means that it is faulty.

Next, the display will show a manufacture date for the counter, e.g. 2011, and a yellow LED (1) will be lit. Use the F2 button to enter the manufacture year for your Bale Wrapper (from 2000 to 2099).

Use the F1 button to move to the serial-number setting for the Bale Wrapper. The serial number setting mode is confirmed by lit LED (2). Enter the serial number by pressing and holding the F2 button (from 0000 to 9999).

Verify the data entered are correct by pressing F1. The Bale Wrapper's manufacture year and serial number should be displayed alternately.

Press and hold the "ON" button C for around 10 seconds to confirm the data are correctly entered. The red LED will flash and the sound will be generated alternately to confirm that the data have been entered successfully.

You can enter the manufacture date and serial number only once. Once confirmed, no longer you cannot enter any more data.

To stop entering data, unplug the counter from the power-supply voltage. The wrap counters cannot delete or make changes to data.

3. The continuous control and adjustment components

CAUTION

CAUTION!

Before you start the operation and adjustment works, ensure you switch off the tractor's hydraulic system, stop the engine, take the key from the ignition, and engage the tractor's auxiliary brake.

3.1 The arrangement of the adjustment controls

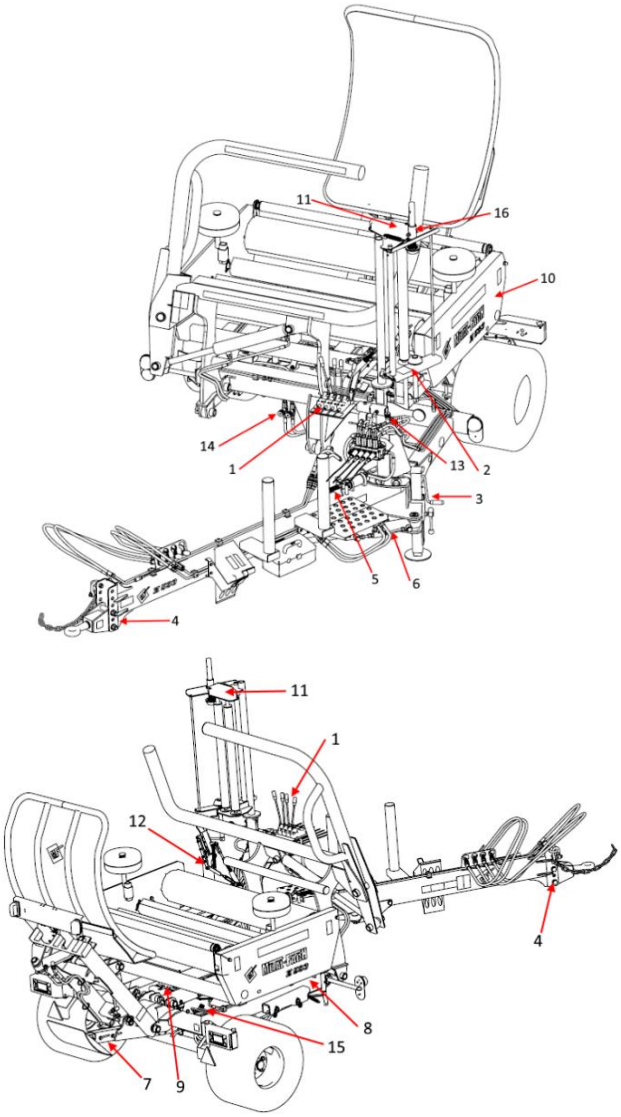

Figure 15. The continuous adjustment components
1 control levers, 2 film feeder, 3 support foot, 4 hitch-height adjustment, 5 mechanical drawbar lock, hydraulic drawbar adjusting set, 7 baletipper support, 8 revolution-counting sensor, 9 service table's chain drive, 10 roller-chain drive, 11 film-feeder chain drive, 12 film cutter, 13 valve for locking the service table, 14 valves for the cylinder of the moving frame, 15 valve of the bale tipper unit, 16 film-roll adjustment

3.2 Control levers

CAUTION

CAUTION!

Each time before starting the Bale Wrapper, install the control levers in the tractor's cab.

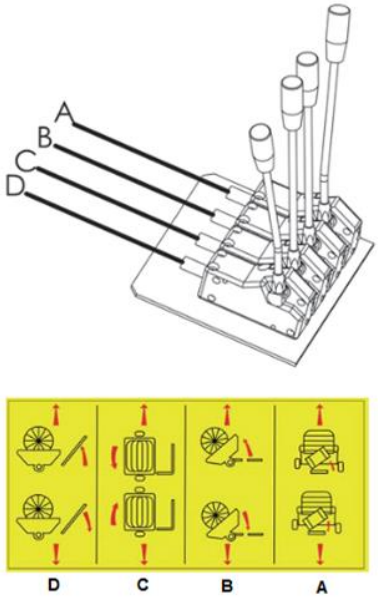

Figure 16. The pictograms on the control-lever panel.
A Raising and lowering the bale tipper cradle
B Raising and lowering the turntable C Table revolution D Raising and lowering the loading arm

CAUTION

CAUTION!

When controlling the Bale Wrapper, follow the principles below to move the levers: try to begin and finish the movements of the machine's working parts smoothly. Sudden and reckless movements can result in machine damage.

The control lever panel is fitted with a clamp for securing it to the tractor's cab. Fix the lever panel firmly so that it does not hamper driving the tractor or make use of the control levers during operation difficult.

CAUTION

CAUTION!

Take time! If you are a beginner at Bale Wrapper operation, always check the pictogram if the lever matches the action you want to activate.

3.3 Film feeder

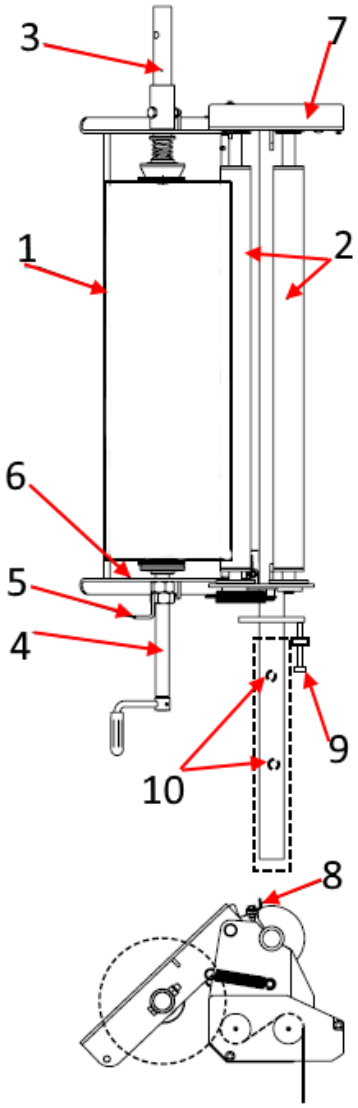

Figure 17. Film feeder

1 film roll, 2 pre-stretchers, 3 upper clamp, 4 lower clamp, 5 jam nut, 6 film-flow sticker, 7 pre-stretcher gear, 8 hook securing a bracket, 9 height-adjustment bolt, 10 setting screws for feeder angle

The film feeder is a device which feeds a band of film to be wrapped around a bale which is being rotated on the turntable. A 500 or 750 mm film roll is placed in a rotary position, contained in a feeder frame, between the upper and lower clamps. The band of film is unwound between the pre-stretchers, which stretch the film from the beginning of the wrapping process. The ratio on the chain drive between the roller near the roll and the outer roller is 1.75.

The film should be pre-stretched at 70-80% but it can vary due to different types and properties of films.

3.4 Support foot

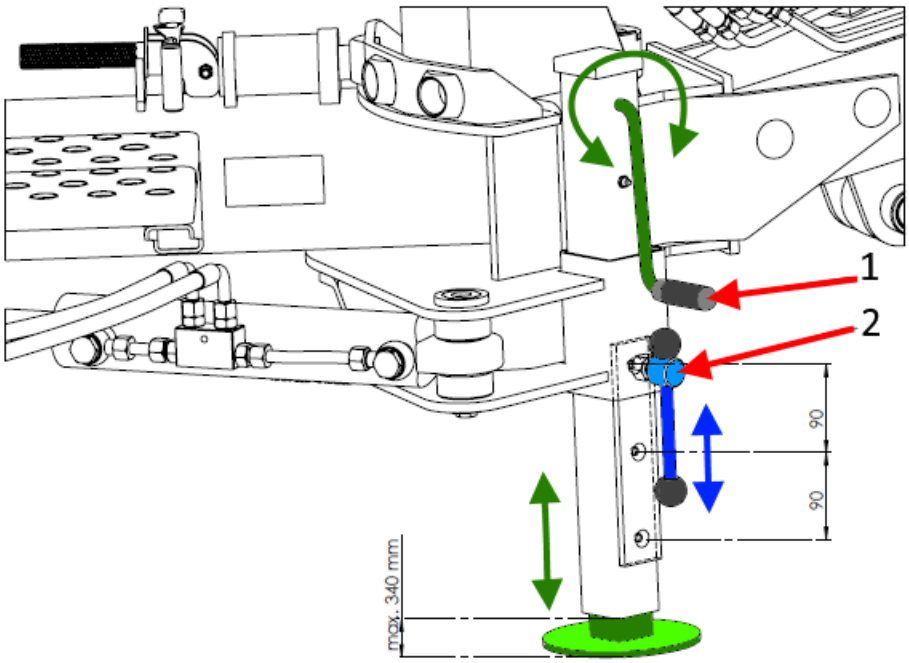

Figure 18. Support foot of the Bale Wrapper

The support foot features two adjustment levels (Fig. 18): 1 a non-step adjustment of the level of support within 340 mm changed with a handwheel (crank), and 2 a three 90-mm step adjustment, set with a handwheel.

CAUTION

CAUTION!

Use the step adjustment of the support foot only when the Bale Wrapper is connected to the tractor's hitch.

Loosening the setting handwheel when the drawbar is not supported can result in crushing.

When the machine is not coupled with the tractor, the support foot is used to prop the machine firmly. Use it to level the Bale Wrapper when coupling the machine with the tractor.

Once coupled with the tractor, unfold the support foot to lighten the pin which secures the Bale Wrapper position in place, which will allow you to unlock the drawbar catch manually and change its position.

3.5 Adjusting the hitch height

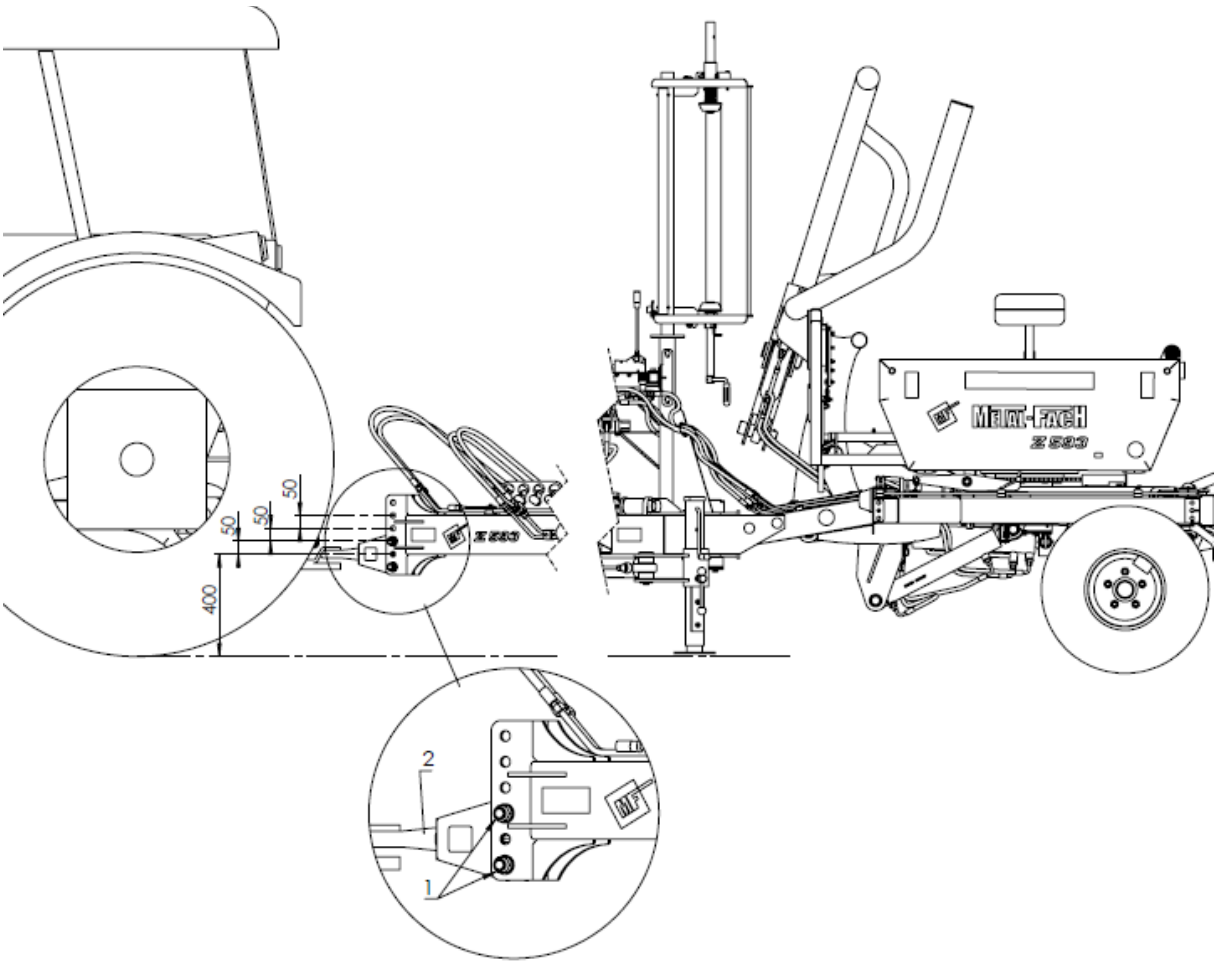

Figure 19. Adjusting the hitch height

The Bale Wrapper hitch is supplied with four height settings: 400, 450, 500, and 550 mm above the ground.

Follow the adjustment procedure (Fig. 19).

- Position the tractor as close as possible to the hitch eye of the Bale Wrapper (2).
- Level the Bale Wrapper with the ground using the support foot.
- Loosen the M20 nuts and remove the bolts (1) which lock the hitch.
- Fit the hitch eye in the drawbar bracket into one of the four possible settings in such a way that the Bale Wrapper hitch eye is at the height of the tractor's hitch socket.
- Use the M20 nuts and bolts to reconnect the hitch with the Bale Wrapper's drawbar. Tighten the nuts to a torque of 400 Nm.

3.6 Changing the drawbar position

3.6.1 Unlocking the drawbar position

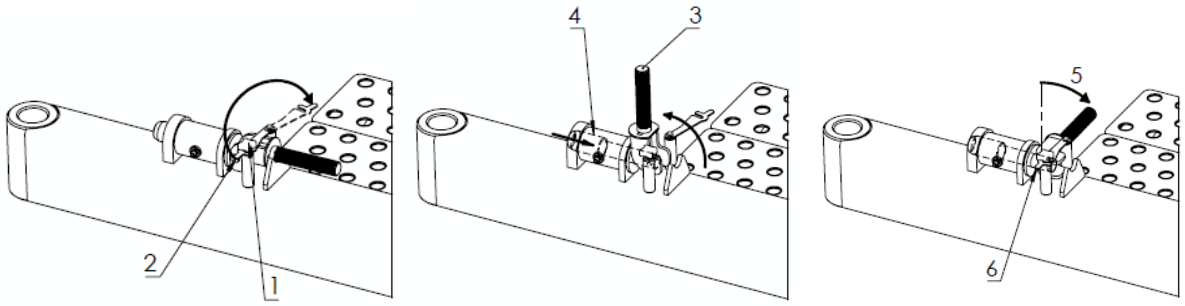

Figure 20. Unlocking the drawbar position

Release the mechanical lock of the hitch position (Fig. 20)

- Loosen the knob (1) which presses the locking hook (2) and turn the hook to the open position
- Lift the lock handle (3), which will cause the locking pin (4) to move towards its body
- Turn the lock lever sideways to position (5)
- Return the lock hook to position (6) and lock it by tightening the knob

3.6.2 Locking the drawbar position

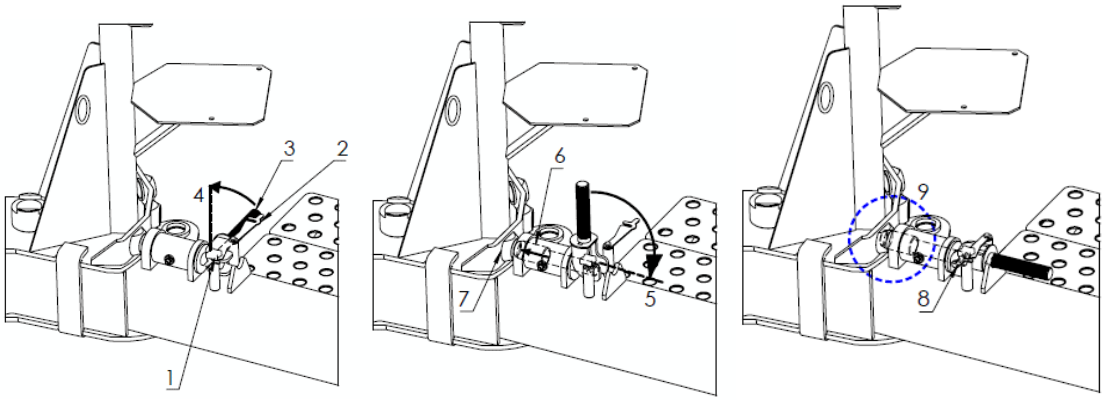

Figure 21. Locking the drawbar position

Mount the mechanical lock of the hitch position (Fig. 21)

- Loosen the knob (1) which presses the locking hook (2) and turn the hook to the open position
- Set the lock handle (3) in the vertical position (4)
- Shift the lock handle (5) in such a way that the locking pin (6) slots into the locking socket (7)
- Replace the lock hook in position (8) and lock it by tightening the knob
- Verify the lock for the correctness of functioning(9)

3.6.3 Drawbar-transporting position

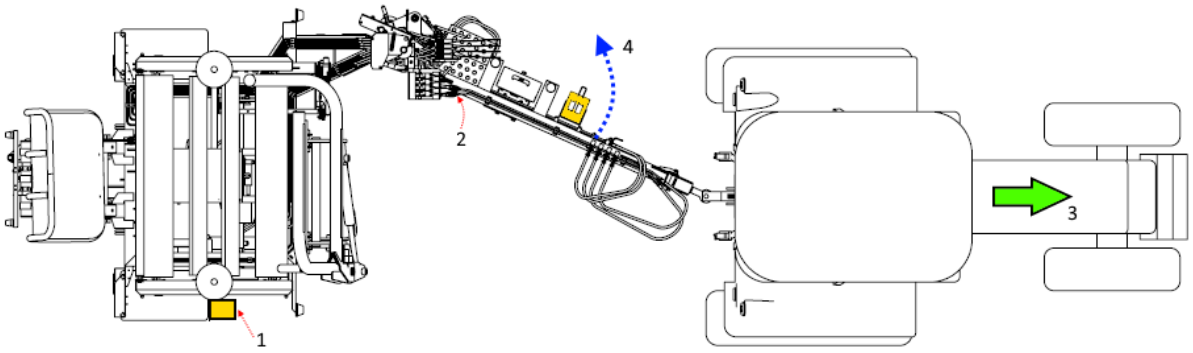

Figure 22. Shifting the drawbar from the transporting to the working position

If the Bale Wrapper is supplied with a hydraulic-drawbar adjusting set, see Section 3.7

Shift the drawbar to the working position (Fig. 22)

- Put a wedge (1), which is supplied in the drawbar holder, under the right wheel of the Bale Wrapper
- Release the drawbar-position lock.
- Move the tractor slowly forward (3) until the drawbar reaches its extreme position (4).
- Set the lock of the drawbar position again (Fig. 21)

3.6.4 The servicing position of the drawbar

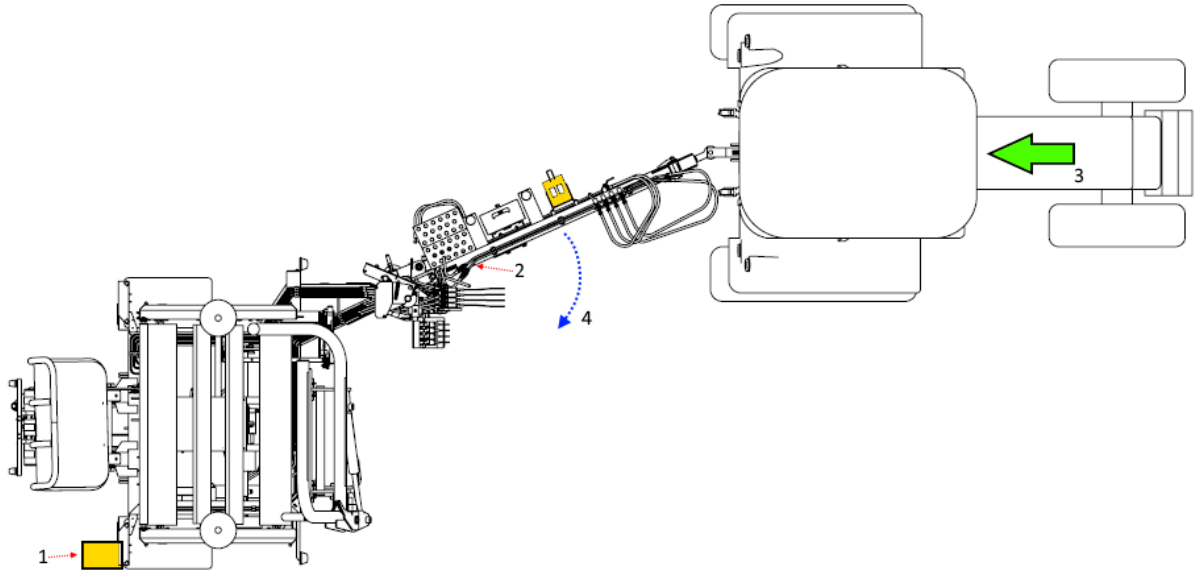

Figure 23. Shifting the drawbar from the working to the transporting position

If the Bale Wrapper is supplied with the hydraulic drawbar adjusting set, see Section 3.7

Shift the drawbar to the transporting position(Fig. 23)

- Put a wedge (1), which is supplied in the drawbar holder, under the right wheel of the Bale Wrapper
- Release the drawbar-position lock.
- Move the tractor slowly backward (3) until the drawbar reaches its extreme position (4).-
- Fit the lock of the hitch position again (Section 3.6.2)

CAUTION

CAUTION!

Exercise extreme caution when shifting the drawbar position. Ensure there are no bystanders around and there is enough space left for manoeuvring the tractor and Bale Wrapper.

CAUTION

CAUTION!

Each time you release or set the drawbar lock, ensure the hook which locks the lever position prevents any spontaneous fastening or unfastening of the lock.

3.7 The drawbar-shift hydraulic unit

The Bale Wrapper can be fitted with an additional set as an option which is used to shift the drawbar hydraulically to the transporting and servicing positions.

Follow the procedure below to shift the drawbar position using the hydraulic cylinder.

- Release the mechanical lock of the hitch position (Section 3.6.1)
- Open the lock valve fitted on the steel hydraulic hose which supplies the drawbar cylinder (Section 2.4 9).
- Connect the plugs which supply the cylinder to the tractor’s power hydraulic section.
- Start the tractor and use the tractor’s manifold lever to set the Bale Wrapper drawbar slowly to either the transporting or servicing position.
- Set the manifold lever in the neutral position, switch off the tractor’s engine, and apply the auxiliary brake.
- Turn off the locking valve.
- Secure the drawbar position using the mechanical lock (Section 3.6.2).

3.8 Adjusting the bale tipper support

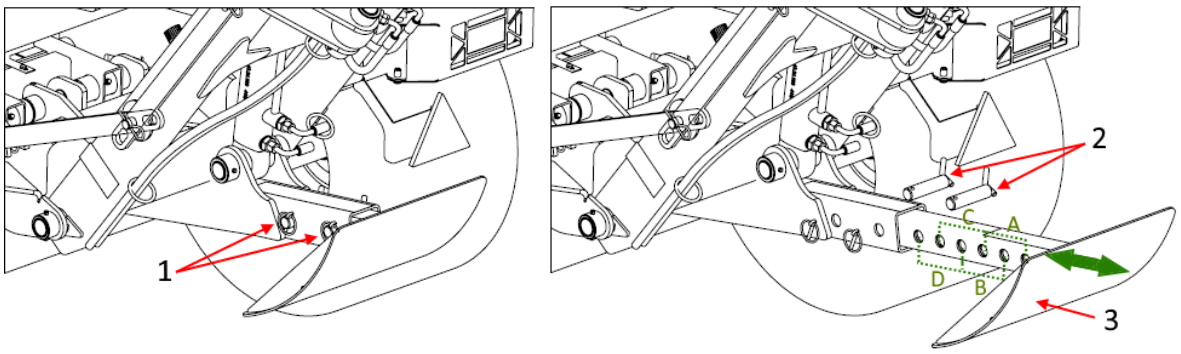

Figure 24. Adjusting the bale tipper support

Move the tipper-support foot to adjust the height from which the bale is to be dropped from the tipper's cradle to the ground (Fig. 24).

- Remove the locking pins (1) which secure the foot pins.
- Move out the safety pins (2) and move the foot in or out (3).
- Set the foot position to one of the 4 pairs of set holes **A**, **B**, **C** or **D**.
- When you move the foot in, the bale drop height is reduced.
- When you move the foot out, the bale drop height is increased.
- Secure the set position with the pins (2).
- Replace the locking pins.

3.9 Adjusting the height of the revolution-counter sensor

Follow the sensor-adjustment procedure.

- Loosen the bolts which lock the sensor and put its setting to the lowest-level possible.
- Start the tractor, and position the service table so that the activating magnet is over the sensor.
- Switch off the tractor's engine, set the hydraulic manifold levers to neutral, and apply the auxiliary brake.
- Turn the power supply on for the L-02 counter, turn the counter on. and set it to the rev-counter mode.
- Set the sensor at such a distance to the magnet as to allow pulse counting; usually it is 10-15 mm. Each pulse is signalled by a short sound from the counter.
- Fit the sensor in a correct position using the sensor's nuts.
- Put the counter panel in the tractor, start the tractor, and turn the table to check whether the revolutions are being counted on the L-02 counter.

3.10 Adjusting the tension of the chains

Two chain drives are designed in the Bale Wrapper to drive the service table and rollers, and one chain drive for the correct ratio of the pre-stretchers in the foil feeder.

A routine check on the chain tension must be performed after wrapping 120 bales.

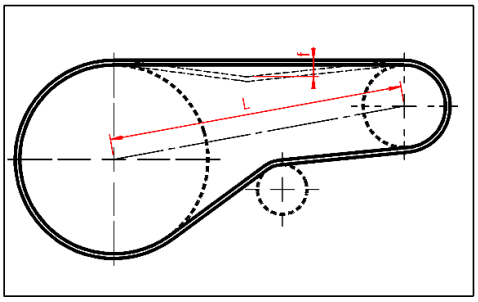

Figure 25. The chain-tension adjustment determining a chain bend:
f chain-bend value, L distance between the sprocket centre lines

$$f = 0.1 \times L$$

3.10.1 Adjusting the drive-chain tension for the service table

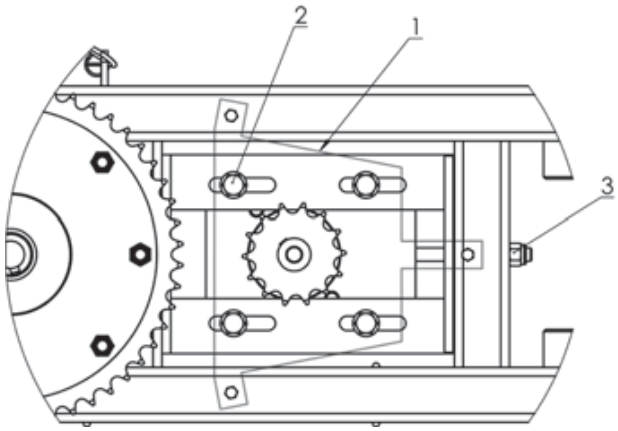

Figure 26. Drive-chain adjustment
1 chain guard, 2 M12 nuts, 3 chain-tensioner bolt

Two chain drives are used for the Bale Wrapper's turntable and rollers. Tension the drive chains after wrapping the first 10 bales (Fig. 26).

- Dismount the chain guard (1)
- Loosen the 4 M12 nuts (2)
- Tighten the M12 bolt for the chain tensioner (3) so that it results in a 20-mm bend of the chain
- Tighten the 4 M12 nuts (2)
- Install the chain guard

3.10.2 Adjusting the drive chain for the rollers of the service table

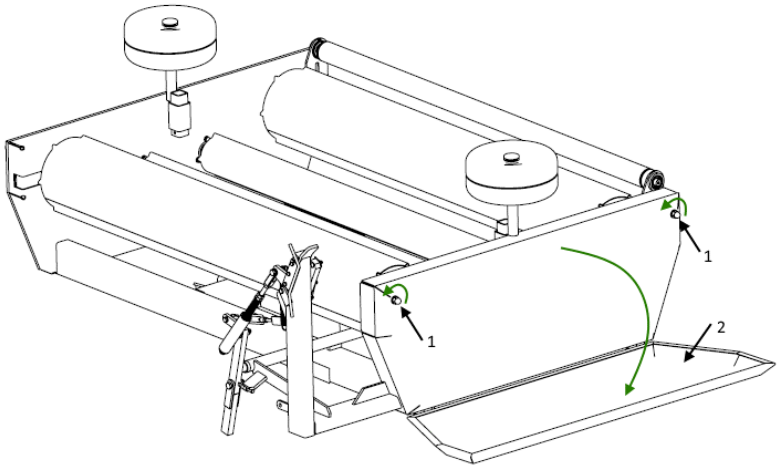

Figure 27. Dismount the guard of the roller-drive chain

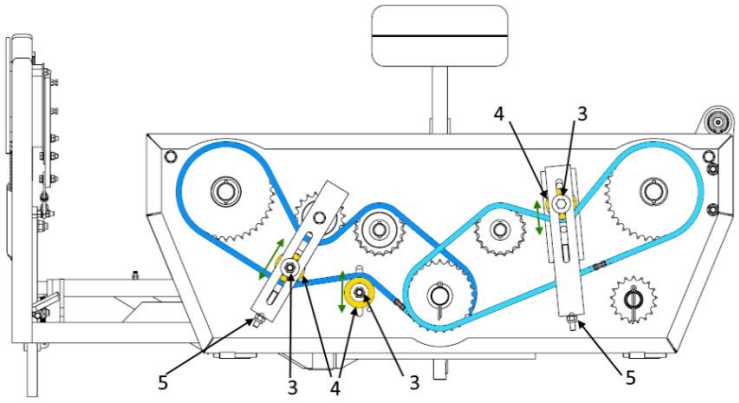

Figure 28. Adjust the tension of the roller-drive chain

Follow the procedure below to adjust the chain tension in the drive of the service table's rollers (Fig. 27, Fig. 28).

- Loosen the M12 nuts (1) which lock the guard (2), and open it.
- Loosen the M12 nuts (3) which lock into place the sliding bushings of the tensioners.
- Use the adjustment nuts (5) to set the correct tension of the drive chains.
- The correct tension is characteristic of a chain bend of 10–15 mm.
- Once the chain tension is set, tighten the locking nuts (3).
- Replace the guard (2) and secure it by tightening its nuts (1).

3.10.3 Adjusting the film-feeder chain drive

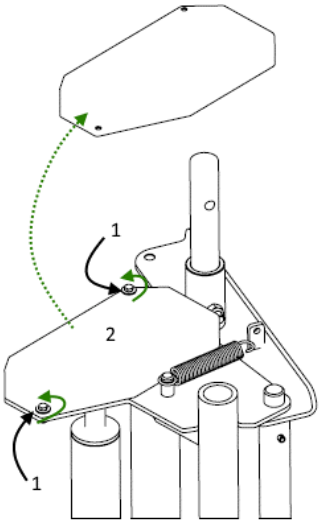

Figure 29. Dismount the guard of the feeder chain drive

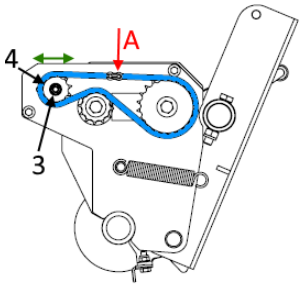

Figure 30. Adjust the tension of the feeder drive chain

Follow the procedure below to adjust the chain tension in the drive of the service table's rollers (Fig. 29, Fig. 30).

- Loosen the M8 bolts (1) which lock into place the drive guard (2), and open it.
- Loosen the M12 nut (3) which locks the tensioner (4)
- Shift the tensioner left so that the chain bend at point (A) is 5-10 mm
- Once the chain tension is set, tighten the locking nut (3).
- Replace the guard (2) and secure it by tightening its bolts (1).

A correctly tensioned chain of the drive will allow the smooth rotation of the film pre-stretchers. If the rotation of the rollers is obstructed or blocked, it can be caused by excessive tension of the drive chain.

3.11 Adapting the wrapping for 500-mm film

The Wrapper is factory set to wrap with film of 750-mm width. For wrapping with 500-mm film, change the sprocket of the roller drive (Fig. 31) and adapt the film feeder for 500-mm film (Section 3.11.2).

3.11.1 Adapting the service table's chain drive for 500-mm film

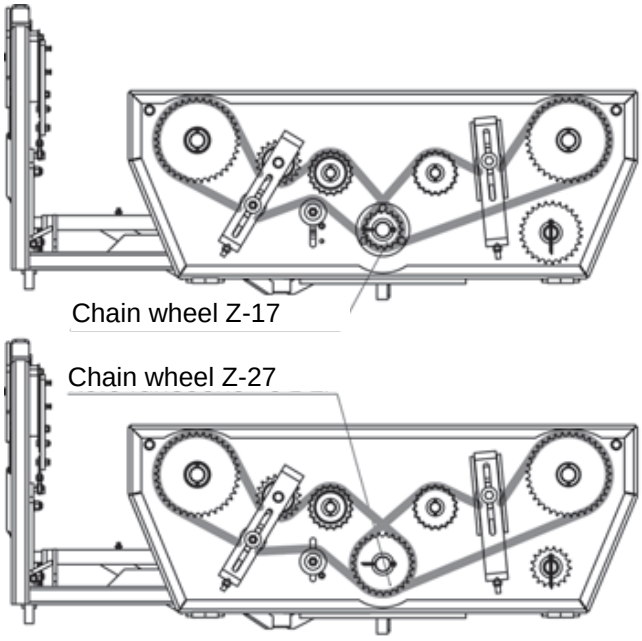

Figure 31. The sprockets of the roller-drive chains

- Loosen the 4 M12 cap nuts, remove the side guard of the rotary frame (at the drive-chain side)
- Loosen the M12 bolts of the chain tensioners
- Remove both chains from the Z-27 sprocket installed on the main shaft and remove the pin which locks this sprocket in place
- Dismount the Z-27 sprocket from the shaft using the correct extractor
- Dismount the Z-17 sprocket from the spare sprocket bar, replace it with the Z-27 sprocket, and secure it with the pin.
- Mount the Z-17 sprocket on the drive shaft
- Secure the Z-17 with the pin, mount the chains, and adjust their tension.
- Fit the side cover.

3.11.2 Adapting the feeder for 500-mm film

- Loosen the M12 nut on the bolt which locks the upper clamp spindle, and remove the locking bolt.
- Lower the upper spindle so that its adjustment hole is aligned with the locking hole in the locking bushing.
- Lock it in place again by fitting a locking bolt and lock it in place by tightening the M12 nut onto it.
- Tighten the lower clamp shaft using the crank provided at the height which enables the mounting of the 500-mm film roll.

3.12 Adjustment valves

The hydraulic system of the Bale Wrapper is supplied with throttle/non-return valves, used for setting the speed of the cylinder action. These valves have factory settings, but as the Bale Wrapper continues to be operated, readjusting might be necessary.

Before adjusting, switch off the tractor's engine, apply the auxiliary brake, and take the key from the ignition.

Before adjusting the throttle/non-return valve, turn it off and count the number of handwheel turns while doing so. This will ensure the factory setting. It is advisable to take note of the values to return to the factory settings easily.

While adjusting, turn the valve handwheel on and off by half a turn compared to the factory setting, depending on whether you want to slow down or accelerate the cylinder action.

CAUTION

CAUTION!
Never adjust the valves while the tractor's engine and power hydraulic system are running.

Once the valve is set, check the functioning of a selected section, and, if the result is not satisfactory, turn the valve handwheel on or off by another half a turn.

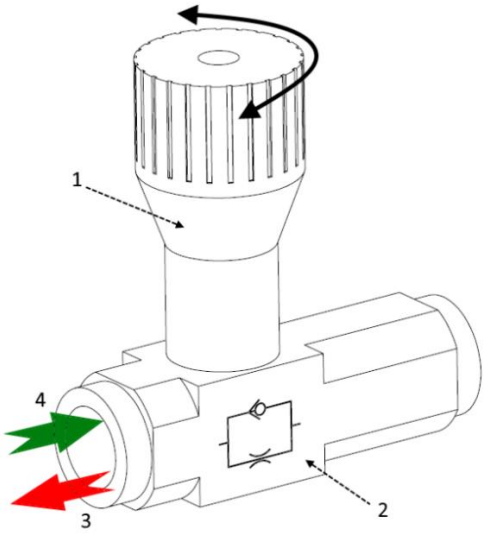

Figure 32. The throttle/non-return valve
1 valve handwheel, 2 valve shell marked for the throttling direction, 3 throttled flow direction, 4 free-flow direction

The valve design facilitates the throttling of the oil flow to be set in one direction, marked on the valve shell. Throttling does not apply in the opposite direction.

3.12.1 The adjustment valve for the turntable lock

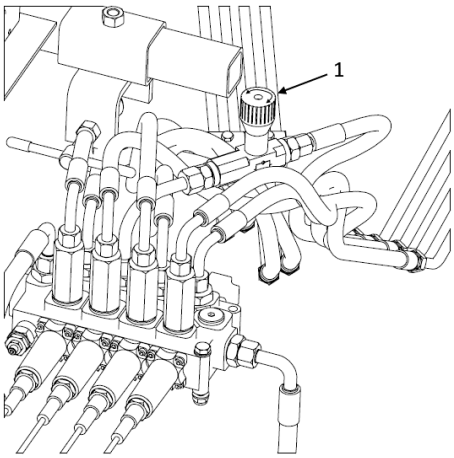

Figure 33. The location of the adjustment valve for the service table's lock

The locking pin of the service table should move out during the reverse table revolutions, which is opposite to the wrapping direction. Locking the table is described in Section 4.5.2.

If the locking pin fails to move out, turn the valve handwheel (Fig. 33 1) by half a turn and check the locking action. Repeat if necessary.

If the locking pin moves out too quickly, or it falls after the control lever is released, turn the valve handwheel by half a turn, and check the locking action. Repeat if necessary.

CAUTION

CAUTION!
When locking the service table, move the control levers smoothly and avoid sudden movements with the control lever. Locking the service table too abruptly can damage the locking unit.

3.12.2 The adjustment valves for the unloading unit

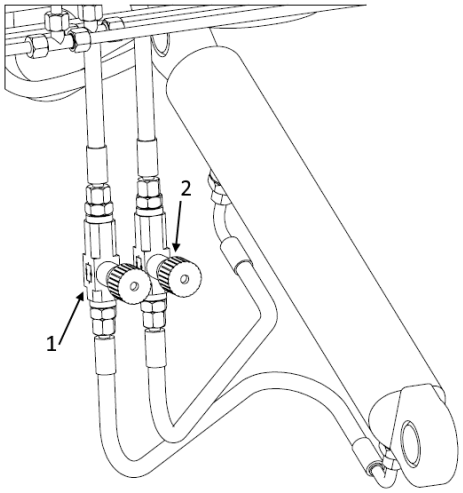

Figure 34. The throttle/non-return valves for the tilt-frame cylinder of the service table

The throttle/non-return valves for the moving frame are next to the cylinder attachment, in the front section of the main frame.

Use the Valve 1 (Fig. 34 – 1) to release the lifting movement of the service table's moving frame. If the valve is set correctly during the unloading action without a bale on the table, the bale tipper unit will rise first and then the service table's frame will rise.

Use the Valve 2 (Fig. 34 – 2) to release the lowering movement of the service table's moving frame. Once the frame of the service table and the bale tipper is raised to its maximum height, set the control lever to the opposite side, so that both the tipper unit and service table start to lower. If the valve is set correctly, the bale tipper's frame will lower quicker than the service table, and it will reach its lowest position before the service table does.

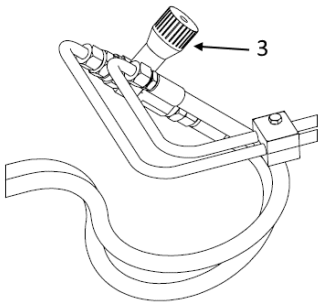

Figure 35. Bale-tipper's throttle/ non-return valve

The bale tipper's throttle/ non-return valve 3 (Fig. 35 – 3) is at the back of the main frame, on the right-hand side of the machine.

Set the valve knob so that during the lowering of the tipper unit it lowers to its final position before the table frame levers it to that level. Use the valve for slowing down the lowering of the tipper when working with heavy bales, which will reduce the risk of a bale rolling out of the cradle.

3.13 Adjusting the film cutter

The correct method of cutter operation is described in Section 4.5.4. Film cutting

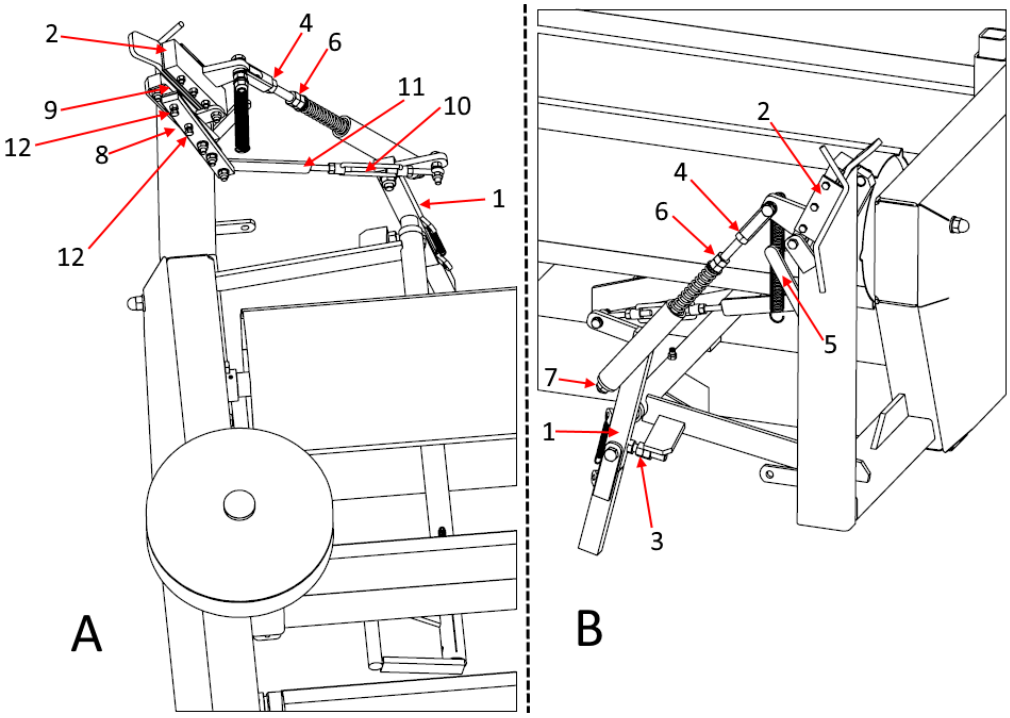

Figure 36. Enclosed film cutter
A back view, B front view

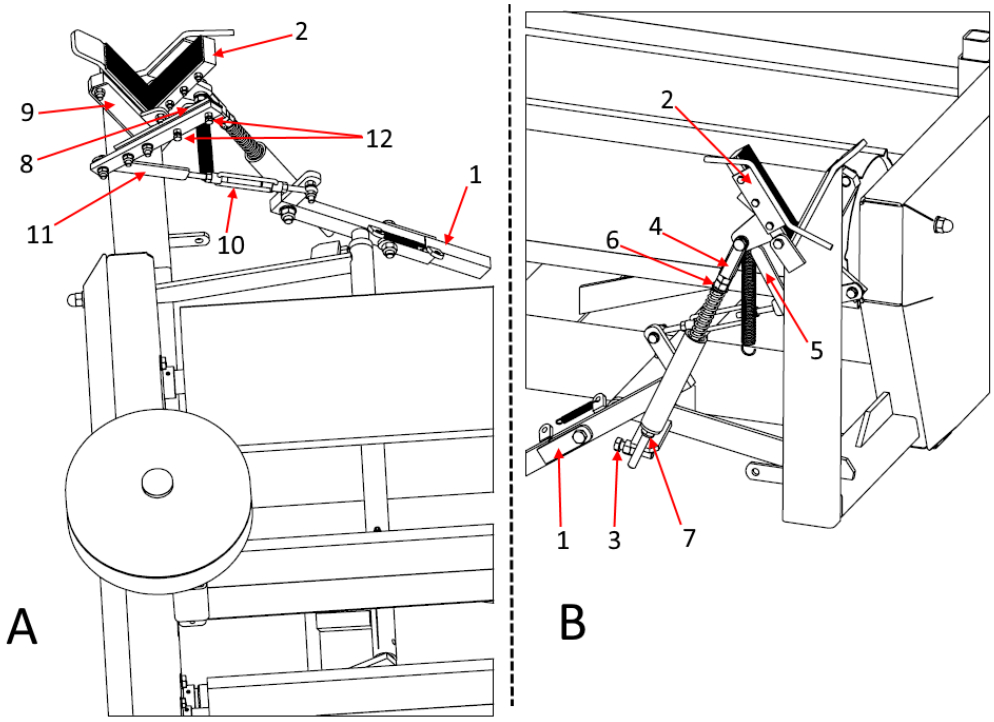

Figure 37. Open film cutter
A back view, B front view

Adjusting the position of the film cutter's arm (Fig. 36, 37)

- The film cutter's arm (1) in its closed position must be set so that it retains the clamping position (2), and when the service table revolves, the lower part of the arm is able to hit the film cutter's buffer (Fig. 50 – 8).
- Adjust the arm position by tightening or loosening the bolt of the end stop (3).
- The open position of the film cutter is defined by its clamping-link length (4).

Adjusting the film cutter's clamping force (Fig. 36, 37)

- The clamping surfaces (2) in the closed position must be flush with each other.
- The ear of the clamping device in the open position, which connects the clamping device (2) with the link (4), must rest on the end stop (5).
- The clamping force is to be adjusted by using nuts (6) to tension the spring on the link.
- The clamping position is to be adjusted by using a nut (7) to change the link length.

Adjusting the cutting blade (Figs. 36, 37)

- The edge of the moving blade (8) in the closed position must be set in parallel to the edge of the fixed blade (9).
- In the open position, the angle between the blade edges must be bigger than the angle of the clamping area, so that the film band is not damaged too easily when it is pulled to the clamping device.
- Use the handwheel (10) on the blade link (11) to adjust the angle between the fixed and moving blades.
- Use the set screws (12) to set the clamping force of the fixed and moving blades.

DANGER

DANGER!

Exercise particular caution when adjusting the blade. The blade is very sharp. Risk of hand injury.

INDEX OF NAMES AND ABBREVIATIONS

A – Ampere, electric-current unit

Bar, pressure unit (1 bar = 0.1 MPa)

OS&H – occupational safety and health

dB (A) decibel A, sound-pressure unit

Drawbar pull class a value characteristic for the drawbar pull of a tractor; class 0.9 corresponds to a drawbar pull of 9 Kn. The Ursus C 355 and 4011 tractor have this pull class.

kg – kilogram, weight unit

Km/h kilometre per hour, linear-speed unit

kW kilowatt, power unit

M metre, length unit

Mm millimetre, an auxiliary length unit equal to 0.001m

Min minute, an additional time unit corresponding to 60 seconds

Rev. revolution, a type of movement

Rpm revolutions per minute, rotation speed unit

Pictogram a notice plate

Fig. X a figure with a number “X”

Fig. X, Y figures with numbers “X” and “Y”

Fig. X-Y a figure with a number “X”, item in the figure “Y”

tab. Tab. X – a Table with a number “X”

Rating plate a manufacturer’s plate unambiguously identifying the machine

UV ultraviolet radiation, invisible electromagnetic, invisible electromagnetic radiation with a negative effect on human health; UV radiation also has a negative effect on rubber parts

V – Volt, a voltage unit

Hitch, upper transport hitch components of a farm tractor (see the tractor’s Instructions Manual)

ALPHABETICAL INDEX

PART II

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