METAL-FACH

REPAIR AND MAINTENANCE BOOK

ROLLER AND CHAIN BALER

Z602

MAY 2020

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The information included in this Repair and Maintenance Book is valid as of the date of its drawing up. The manufacturer reserves its right to make design changes to machines, and due to this, 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 this Repair and Maintenance Book.

CAUTION

CAUTION

When repairing and maintaining the machine, use the Repair and Maintenance Book and the Instruction Manual written for this machine model.

1 Baler Identification

The identification data is located on the rating plate located on the front part of the frame. The rating plate shows data used to identify the machine, i.e. a code, serial number, manufacture year and pressure on the hitch.

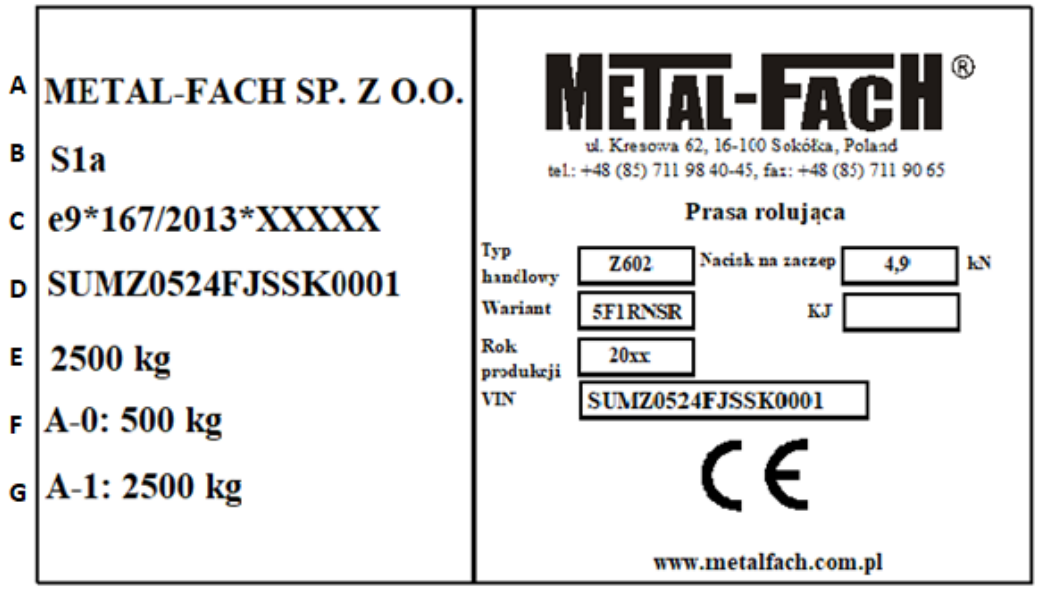

Figure 1. Rating plate

Explanation of fields:

A – Manufacturer's name;
B – Category, Subcategory, and Vehicle-Speed Indicator;
C – EU-Type Approval Number;
D – VIN;
E – Permissible total design weight of the vehicle;
F – Vertical load at coupling point;
G – Permissible design weight per front axle.

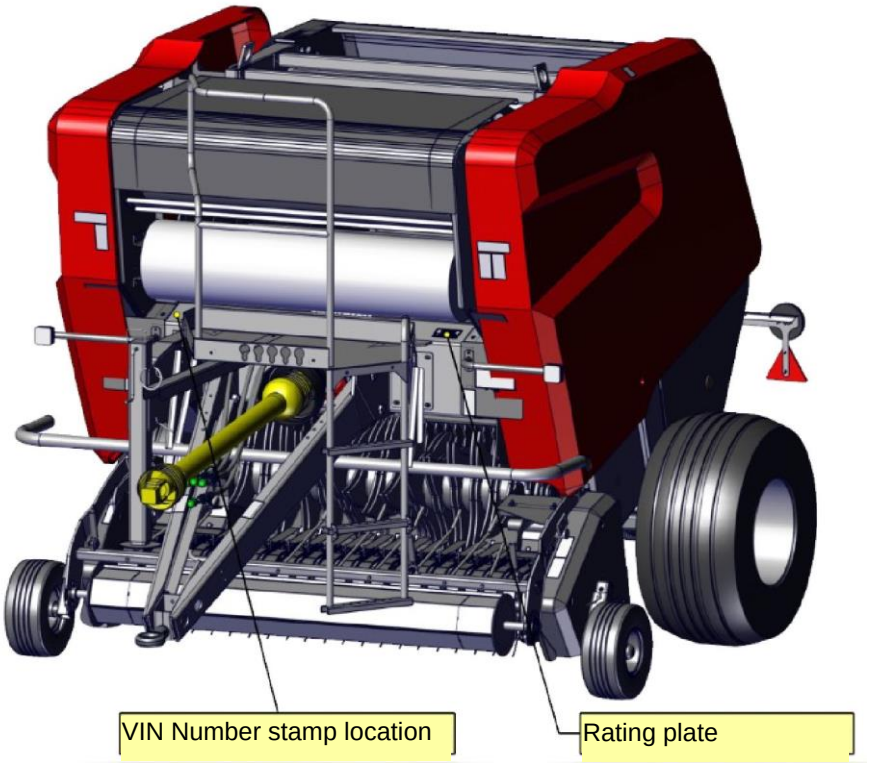

Figure 2. The location of the nameplate and the VIN on the machine

2 Baler cleaning

WARNING

WARNING!

Before you clean the baler, ensure that the baler, PTO drive and tractor engine are all disabled (the ignition key removed). Disconnect the supply, lighting and control panel cords.

After each day of work, remove dust, accumulated harvest residue, etc. using a brush.

We do not recommend cleaning the baler with high pressure water stream. Directing the stream of water at the hydraulic, electrical and bearing components is forbidden.

Prior to a longer stop, dust the baler and remove the harvest residue by means of compressed air. Directing the stream of compressed air at the hydraulic and electrical components is forbidden.

After water cleaning and prior to a long stop, it is recommended to lubricate all the lubrication points and applying a suitable protective agent on all drive chains.

3 Storage

Store the baler control panel in a dry room protecting the terminals against dirt and humidity using the provided guard covers.

Wind the connection cable and store it in a dry room protecting the terminals against dirt and humidity.

Store the baler on a flat, level and paved surface.

It is recommended to store the machine in a dry area, protected against UV rays and other harmful factors.

Protect the baler stored outside with no roofing with a water proof tarpaulin or film.

After the season is over, clean the baler and check the condition of the protective layers. Repair damaged coating as required.

CAUTION

CAUTION!

Check the condition and legibility of the rating plate. In case it is destroyed report it at the service.

Check the condition and legibility of the pictograms. In the case they are damaged replace them with new ones.

4 Dismantling and Disposal

Dismantling and disposal should be performed by specialised service centres that are familiar with the design and operation of the baler. Only specialised service centres have the full and up-to-date knowledge on the applied materials and risk associated with the hazards of improper storage and transport. The authorized services offer both counselling and performance of the complete services concerning disposal of the machine.

Proper tools and auxiliary equipment (hoist, wheel puller) must be used for dismantling.

Store the used oil in air-tight containers. Take it to a petrol station that collects used oil immediately.

Dismantle the machine. Sort the dismantled parts. Send them to relevant companies that collect such materials.

During dismantling of the baler, use proper protective clothes and protective boots.

5 Coupling to a tractor

Couple the baler with agricultural tractors with a power output of not lower than 60 kW and a drawbar pull of not lower than 1.4 t, fitted with the output coupling of the power hydraulics and the 1 3/8'' Z6 rear PTO with a rated rotational speed of 540 rpm.

Connect the baler to the tractor lower transport hitch, which enables the transmission of a vertical load of 5.1 kN.

5.1 Connecting with the lower tractor transport hitch

Make sure that in the area of baler coupling with the tractor and in the near vicinity there are no bystanders present, children in particular.

Prior to the coupling activity, align the tractor centre line with the machine axis on an even and level ground. Stop the tractor's engine, take the key from the ignition, and engage the tractor's parking brake.

First, unlock the protective chain running through the hitch eye and remove it. Then, set the correct height of the baler hitch by choosing a correct adjustment eye of the hitch, as shown in Fig. 3.

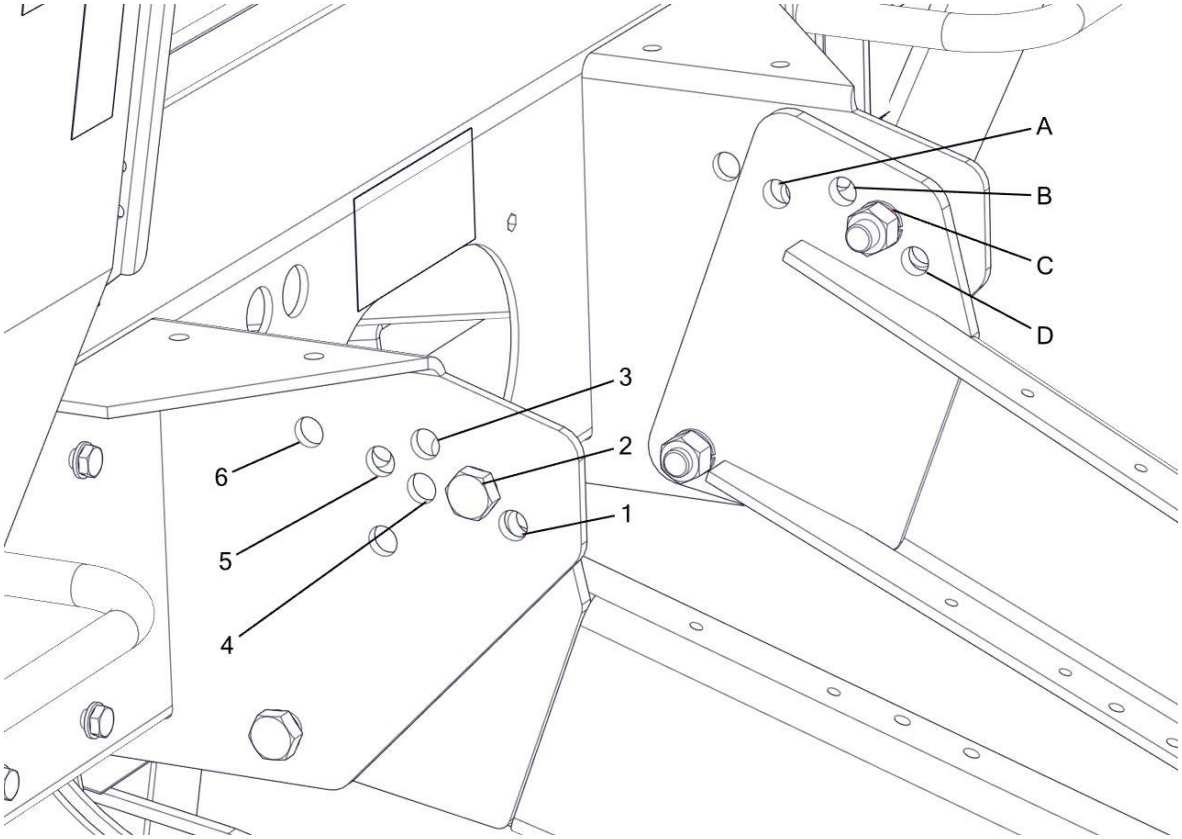

Figure 3. Setting the drawbar height

The table below gives the height of the drawbar eye against the ground.

Table 1. Height of the drawbar eye against the ground

No. of the drawbar hole	A	B	C	D
1	-	-	45	65
2	-	47	67	88
3	-	70	91	-
4	37	-	-	-
5	58	-	-	-
6	95	-	-	-

Perform the levelling of the hitch eye. Couple the drawbar eye with the tractor transport hitch and check the connection for correctness, and the protections for accidental disconnection.

Only tractors with a weight equal to at least the weight of the baler to be coupled are allowed.

Then, you can continue connecting the devices to the baler:

- Connect the PTO shaft,
- Connect the hydraulic system,
- Connect the lighting,
- Connect the control system.

5.2 Coupling the baler with the rear PTOff shaft

Before you connect the PTO shaft, check the direction and rotational speed of the PTOff.

Stop the tractor's engine, take the key from the ignition, and engage the tractor's parking brake.

Using the PTO shafts with specifications other than those indicated by the manufacturer is forbidden.

The PTO shaft is a CE labelled drive transmission component.

Each shaft comes with an instruction manual. You must read the instruction manual for the PTO shaft, adhere to the safety rules and follow the guidelines contained in the manual.

Install the PTO shaft, delivered with the machine, between the tractor shaft and coupling box in the machine.

The method of connecting the shaft with the tractor is shown on the shaft.

Check if in curves (at shaft shortest span), the minimum distance shown in the figure opposite is not exceeded.

The minimum distance is 4 cm.

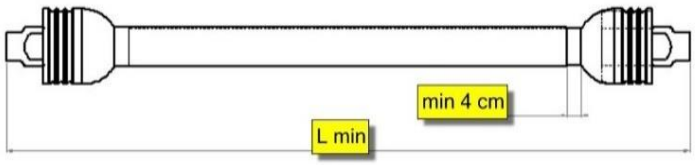

Figure 4. PTO length

Make sure that the shaft length is correct. At the shaft longest span, the shaft tubes must overlap by at least 1/3 of their length.

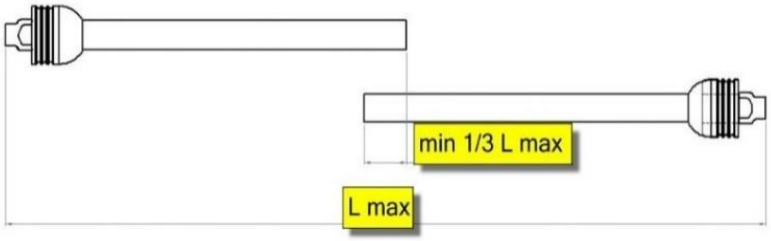

Figure 5. PTO housing length

Make sure that the components protecting the PTO shaft from sliding off are located in their correct positions. Check if the tubes can rotate freely against the shaft and lubricate as required.

Install the chain securing the tubes.

Read the manual of the shaft to find detailed information on the use of the PTO shaft.

WARNING

WARNING!

It is strictly forbidden to operate the PTO shaft with its tube damaged or not in place, or without additional canopy guards on the tractor PTOff side and the machine PTOn side.

5.3 Hydraulic system installation

Connect hydraulic hoses:

- Connect the hose used to lift the pick-up with the cut-off valve to the unidirectional manifold.
- Connect the supply hose for the chamber to the unidirectional manifold.
- Connect the hoses controlling the cutter to the dual-direction manifold.

Before lifting the pick-up:

- Set the lever of the cut-off valve in the “OPEN” position, and then, lift the pick-up (transport position).
- After you have lifted the lever set it in the “CLOSED” position to lock the system. The pick-up should remain in the upper position.

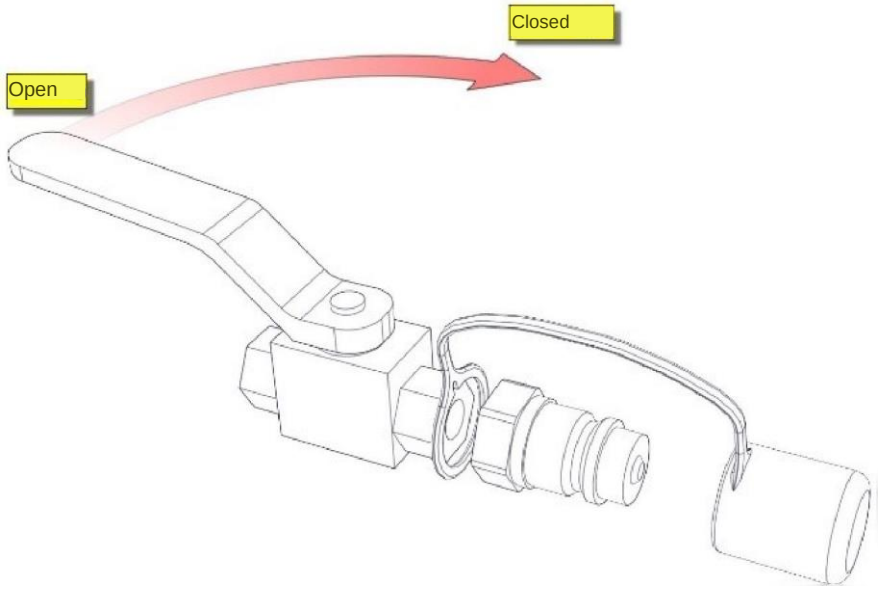

Figure 6. Cut-off valve

Connect the hydraulic hoses in pairs to one control section; the pairs of hoses in one hydraulic section are marked with the same colour.

Do not move the machine with the lowered pick-up, with the wheels on the ground.

5.3.1 Lighting connection

Connect the lighting system and check if all control lamps and lights work correctly.

Always use proper fuses, do not replace the cords, plugs or sockets with ones that do not match the original ones.

Put the caps for protecting the electrical pins during operation in the tractor cab. After completing the work, re-install the caps on the pins.

5.4 Connecting the control system

The baler electrical system requires a power supply of 12 V. Procedure of connecting the control system:

- Install the control panel (SS) in the tractor cab in such a way that it is visible and accessible for the operator
- Connect the power supply cord (PZ);
- Connect the data transmission cable (PS);
- Check if the control cabinet is enabled after pressing the switch. If the cords are connected correctly, the control panel lights up and starts loading data.

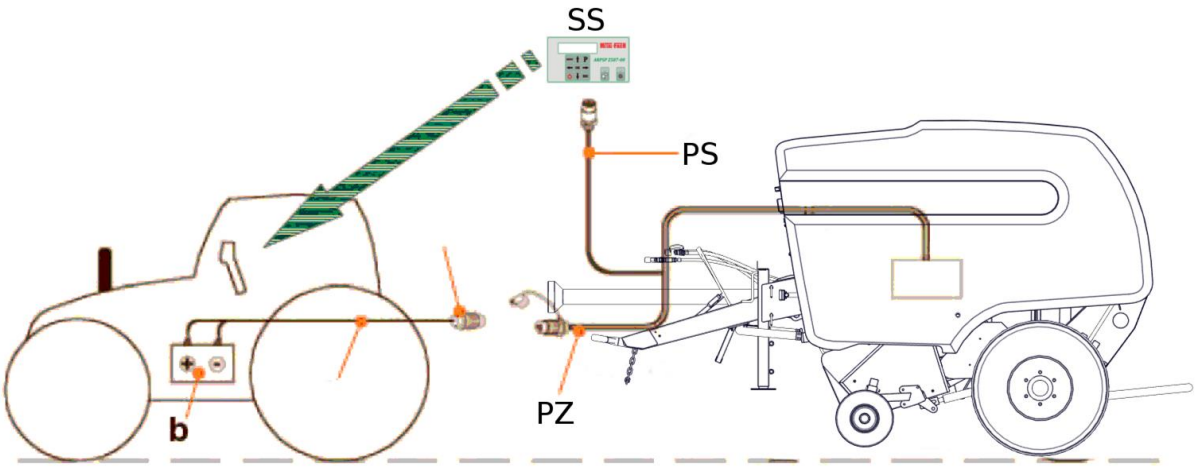

Figure 7. Connecting the control system

5.5 Drive disconnection

Make sure that no bystanders, especially children, are present in the baler storage area and immediate vicinity. Procedure:

- Position the baler on its storage place on an even and level ground. Stop the tractor engine, take the key from the ignition and engage the tractor parking brake.
- Disconnect the electrical supply system.
- Disengage the power hydraulics.
- Lower the support foot. Disconnect the drawbar eye from the tractor hitch. Make sure that there is no hazard of accidental machine displacement. Draw the protecting chain through the hitch eye and lock it.
- Disable and dismantle the PTO shaft. Put the dismantled shaft on the support designed to store it. Protect the terminations of PTOff and PTOn with covers.
- Install the hydraulic and electric connection caps.

6 Removing the accumulated material

During the material pick-up, it is possible that it will accumulate on the pick-up and rotor. Clogging is the result of improper adjusting of the speed to the harvest condition and improperly formed windrow.

DANGER!

DANGER!

Removing the accumulated material during the machine operation is forbidden.

DANGER!

DANGER!

Use special care during the removal of the accumulated material, as the rotor zone is dangerous due to sharp blades.

6.1 Removing the accumulated material

Do the following activities before you remove the material accumulated on the pick-up:

- Switch off the control panel;
- Stop the tractor, remove the ignition keys and wait until all the moving components of the machine come to a complete stop.

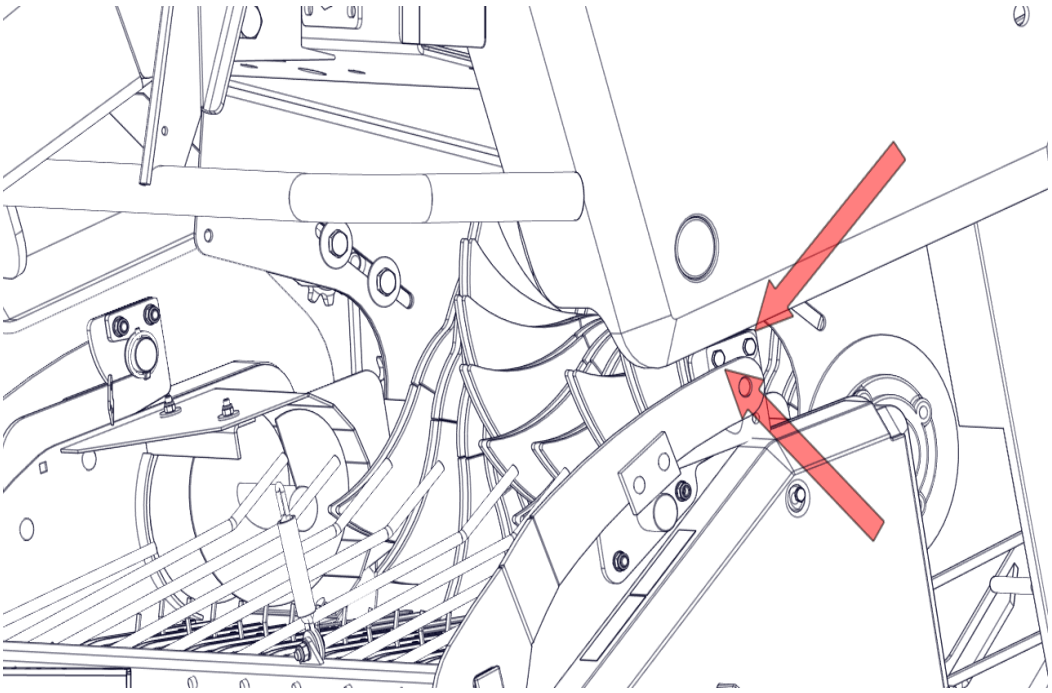

Figure 8. Windrow clamp dismantling

Procedure:

- Remove the windrow clamp to remove the material in the front section. To do so, loosen the bolts that lock the windrow clamp and remove the chain (Fig. 8);
- Manually remove the accumulated material;
- Reinstall the windrow clamp.

6.2 Removing the accumulated material on the rotor

To remove the material accumulated on the rotor, do the following:

- Stop the tractor, remove the ignition keys and wait until all the moving components of the machine come to a complete stop;
- Check the bolt protections on the rotor, as per Section 7.8;
- Lower the rotor floor by means of the control panel of the solenoid valve;
- If there is a heavy jam of the accumulated material, remove the first part of it manually.
- Start the tractor, enable the PTOff in neutral gear and from the operator's cab watch the removing of the accumulated material;
- After removing the blockage, use the solenoid valve to lift the floor.

7 Maintenance and adjusting

If the baler is connected to the tractor, apply the manual brake, disable the engine and remove the ignition key. Remember to switch off the control panel too.

During maintenance work, when the chamber is open, use locks to secure the cylinders.

DANGER!

DANGER!

All activities related to maintenance and adjusting must be executed during machine stoppage and when all the moving parts of the machine have stopped.

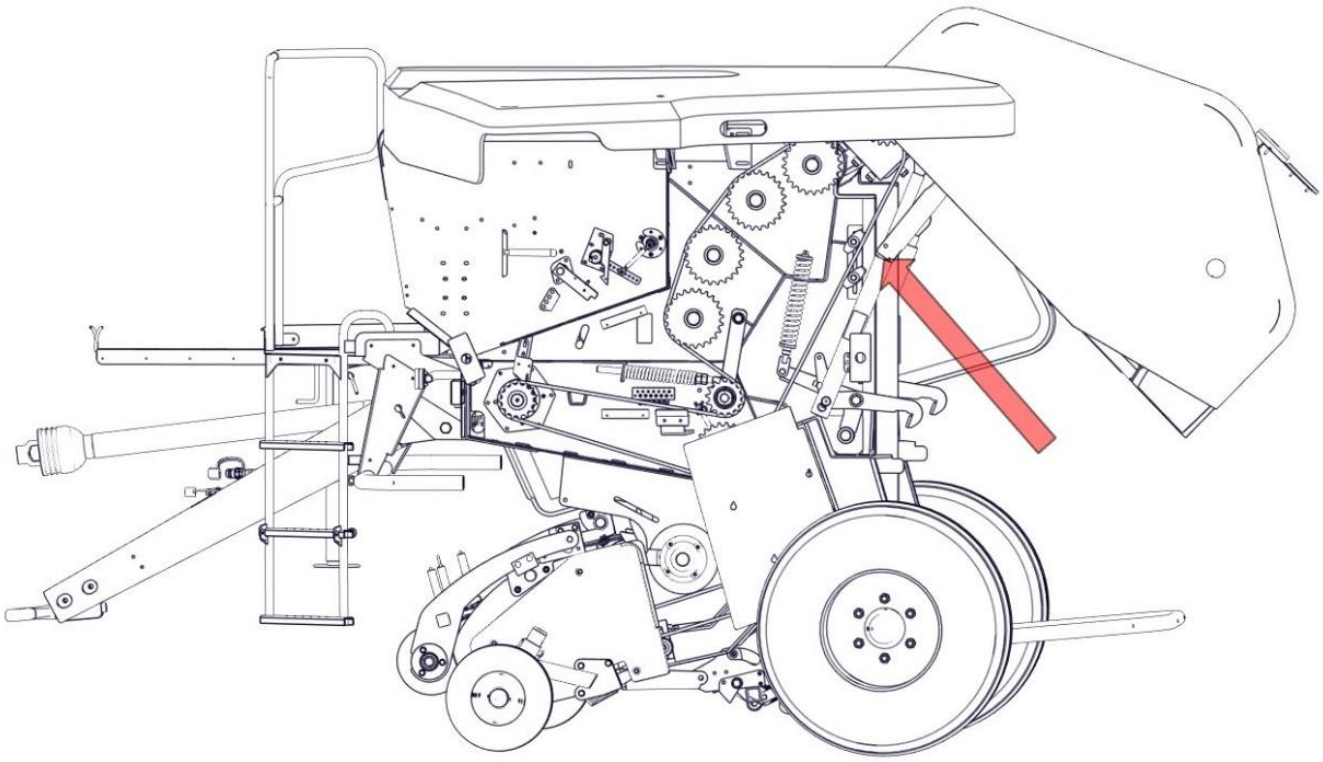

Figure 9. Locks for securing the cylinders

CAUTION!

CAUTION!

Use original spare parts only.

Original spare parts by Metal Fach are made to match the specific needs of the devices produced by Metal Fach.

Parts from other manufacturers are not inspected or approved by Metal Fach. To avoid risk, use the original spare parts by Metal Fach only.

7.1 Pick-up wheels adjustment

The working position of the pick-up can be adjusted. To do so, follow the procedure below:

- Set the proper height of the pick-up operation by changing the support wheel setting,
- Use a cotter pin to lock the setting.

> The manufacturer recommends setting the tines of the pick-up at the height of 2-3 cm above the surface.

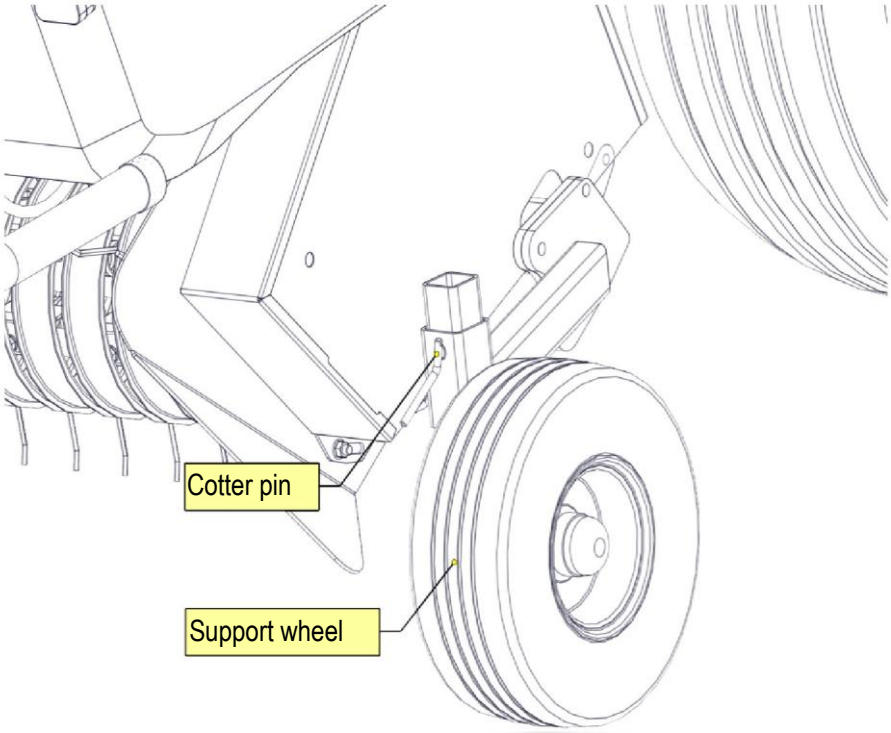

Figure 10. Adjusting working height of the pick-up

7.2 Windrow clamp adjustment

The height of roller clamp position should suit the thickness of the windrow. When the windrow size is large, raise the windrow roller clamp, and for small windrow sizes, lower it.

The procedure of adjusting the roller clamp height:

- Disable the PTOff and tractor engine, remove the ignition key;
- Disconnect the chain (1);
- Holding the roller clamp at a required height, fix the right chain link at the place indicated with the arrow;

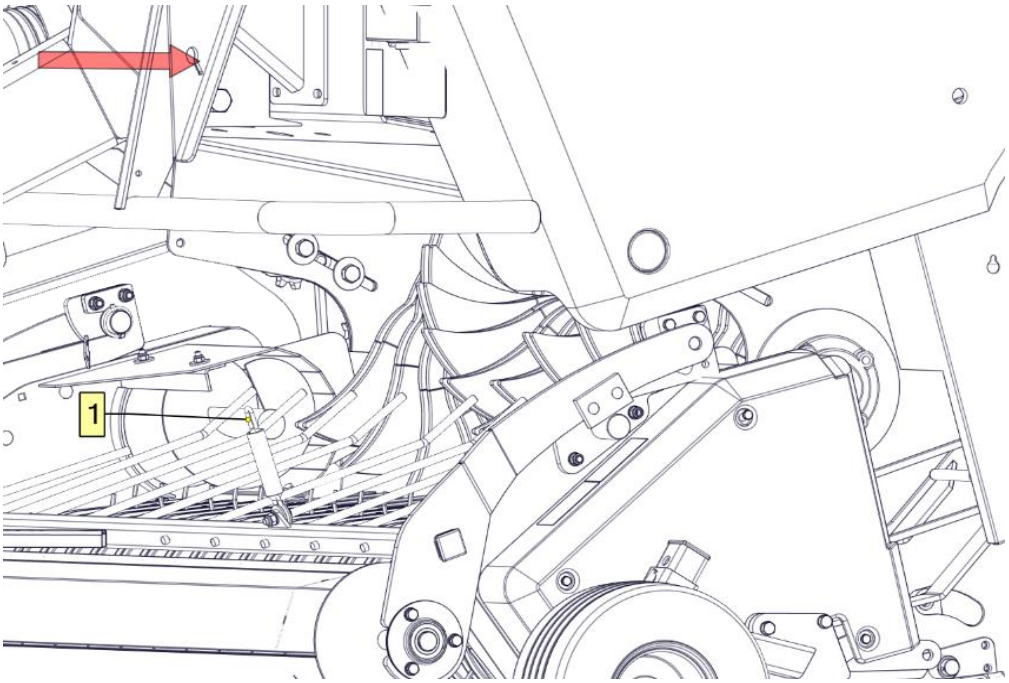

Figure 11. Windrow clamp adjustment

7.3 Adjusting the drive chain tensioning (every 10 hrs of work)

Check the chain tension and the functioning of automatic tensioners, if present, at regular intervals.

The tension value of the chain “F” must be within 3-5 mm. It can also be determined using the following formula:

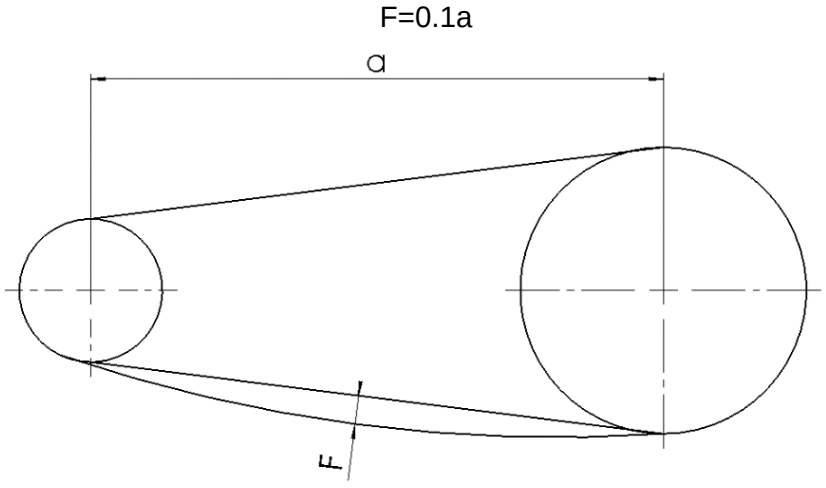

Figure 12. Chain tension

7.4 Adjusting the automatic tensioners

The machine chains are tensioned automatically by spring tensioners. Check the chain tension at regular intervals and adjust as required.

The procedure of checking and adjusting the chain tension (Fig. 13):

- Open the left-hand side guard:
- Loosen the nuts (1) and (2),
- Use the nut (1) to adjust the chain tension,
- Tighten the jam nut to secure the adjustment (2),
- Close the left-hand side guard

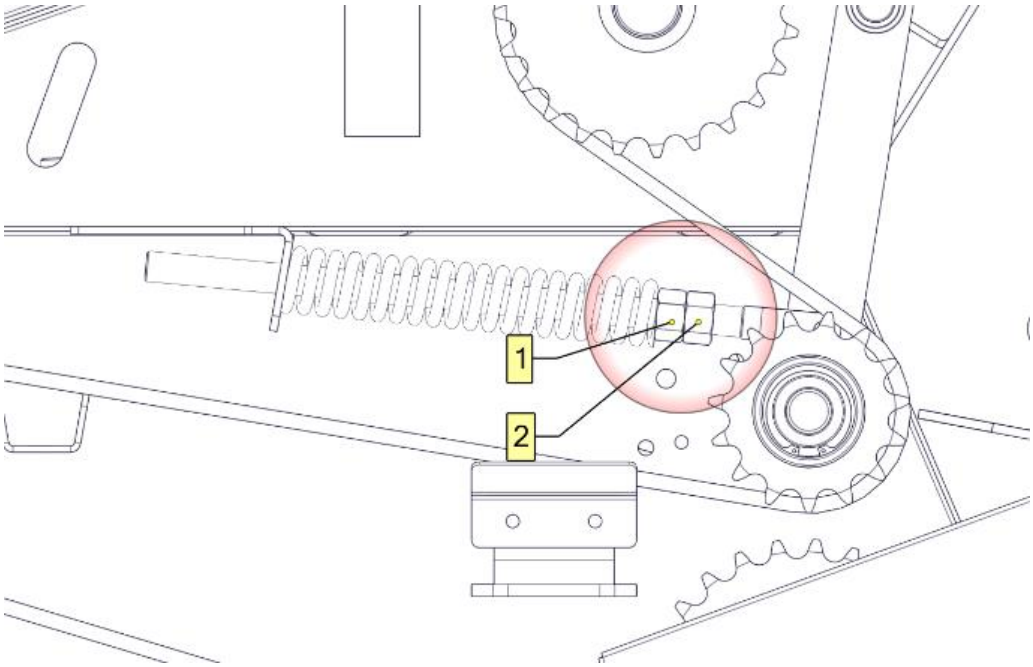

Figure 13. Adjusting the automatic chain tensioners

7.5 Adjusting the manual tensioners

Most of the pin chains in the machine requires the manual adjustment of tension. Check the tension at regular intervals and adjust as required.

Adjusting the pick-up chain tension (left-hand side)

The procedure of adjusting the pick-up chain tension (left-hand side):

- Loosen the bolts and remove the side guard from the left side of the pick-up.
- Loosen the bolt (1) and adjust the chain tension by gently hitting the tensioner with a hammer to move it downwards.
- After you obtain a proper chain tension, re-tighten the bolt (1).
- Then, loosen the bolt (2) and turn the eccentric tensioner to adjust the tension of the other chain.
- After you obtain a proper chain tension, re-tighten the bolt (2).
- Replace the guard and secure it with the screws.

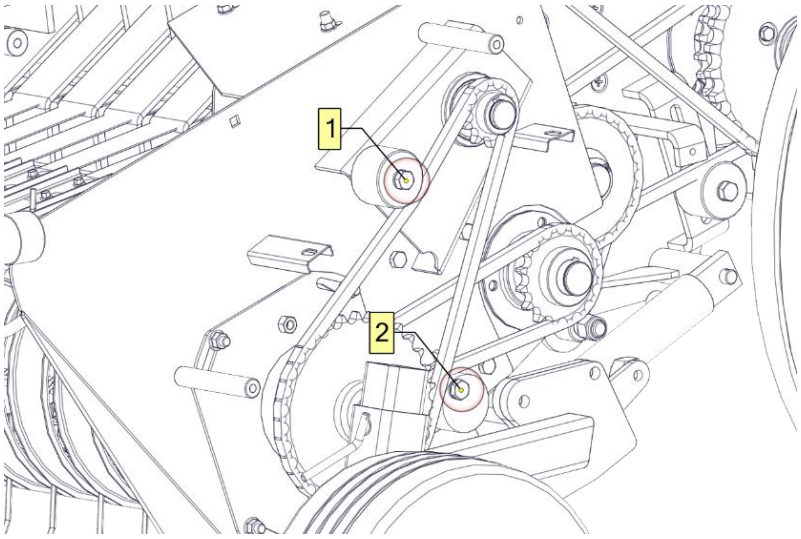

Figure 14. Adjusting the tension of the pick-up chains

To tension the right-hand side pick-up chain, follow the steps for the left-hand side one in a similar manner.

Adjusting the chain tension on the left-hand side of the baler

The steps of adjusting the chain tension on the left-hand side of the baler:

- Remove the lower guard on the left-hand side of the baler;
- Loosen the bolt (1) or (2), depending on a chain to tension;
- Adjust the chain tension by gently hitting the tensioner with a hammer to move it downwards;
- After you obtain the proper chain tension, re-tighten the bolt;
- Replace the guard and secure it with the screws.

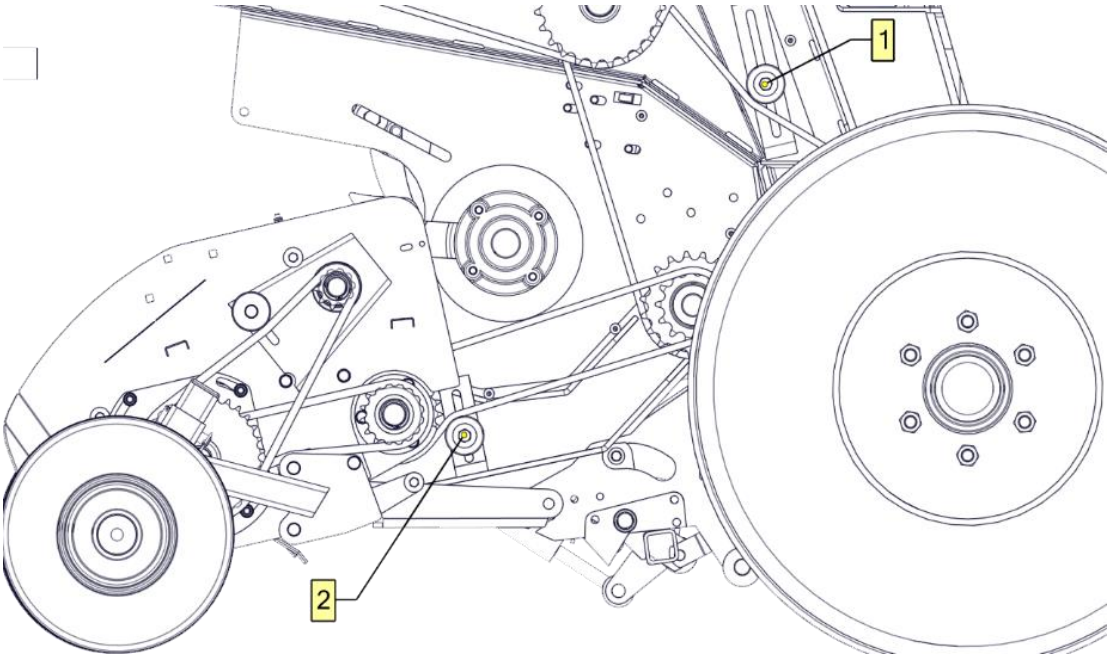

Figure 15. Adjusting the chain tension on the left-hand side of the baler

To guide the chain, the tensioners have been fitted with special slides. The steps for adjusting the chain guiding performance:

- Open the left-hand side guard;
- Loosen the bolt (1) or (2), as required;
- Move or turn the tensioner;
- Re-tighten the bolt;
- Close the baler guard.

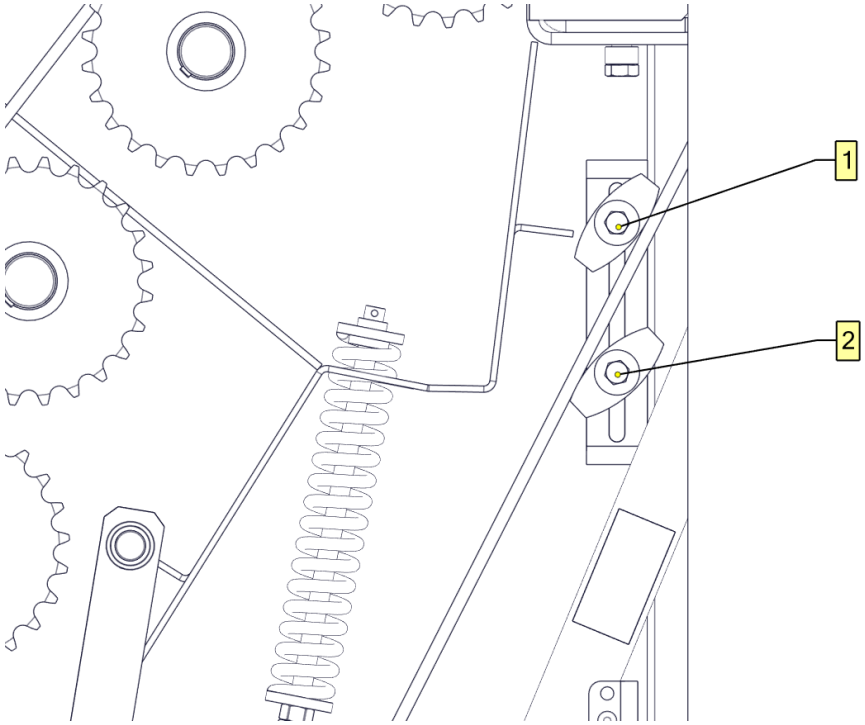

Figure 16. Adjusting the chain guiding performance on the left-hand side of the baler

Adjusting the chain tension on the right-hand side of the baler

The steps for adjusting the chain tension on the right-hand side of the baler:

- Open the guard on the right-hand side of the baler;
- Loosen the bolt (1);
- Adjust the chain tension by gently hitting the tensioner with a hammer to move it downwards;
- After you obtain the proper chain tension, re-tighten the bolt;
- Close the baler guard.

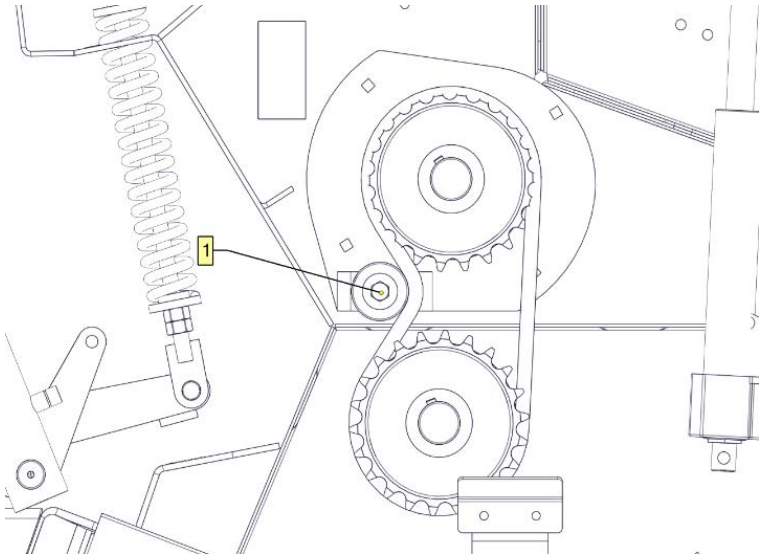

Figure 17. Adjusting the chain tension on the right-hand side of the baler

Adjusting the tension of the rotor chain

The procedure of adjusting the rotor chain tension:

- Open the guard on the right-hand side of the baler;
- Remove the rotor guard;
- Loosen the bolts (1);
- Loosen the nut (2) and (3),
- Tighten or loosen the bolt (4) to adjust the chain tension;
- Re-tighten the nuts (2) and (3);
- Re-tighten the bolts (1);
- Replace the rotor guard and secure it with the screws;
- Close the right-hand side cover.

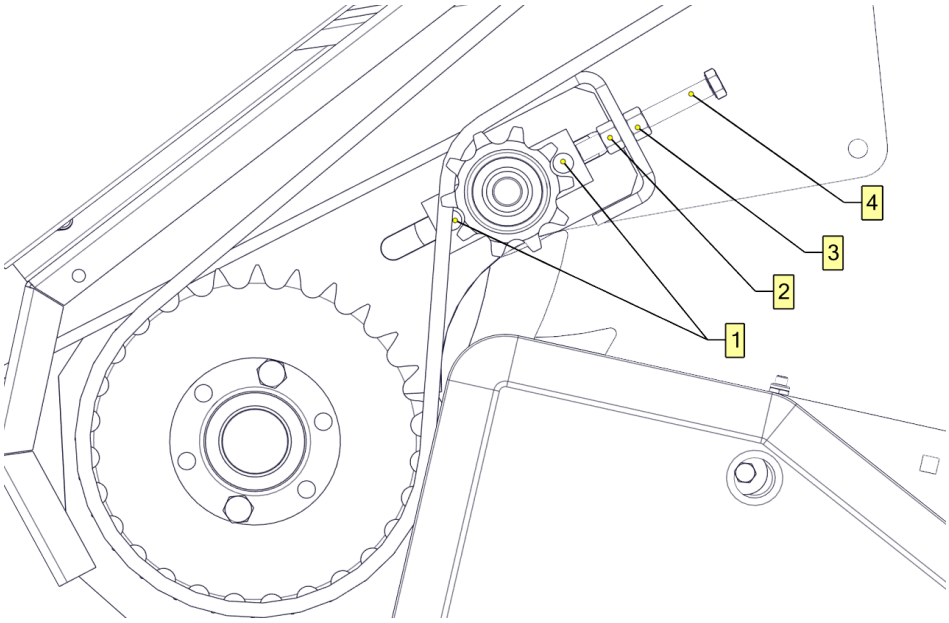

Figure 18. Adjusting the tension of the rotor chain

Adjusting the tension of the chain and rod conveyor set

Adjust the tension of the chain and rod conveyor set by loosening the jam nut (3) and then tightening or loosening the nut (2). After you obtain the required tension, re-tighten the jam nut (3). The spring length should be 100 mm, as shown in Fig. 19; Repeat the procedure in a likewise manner on the other side, so that the spring length is equal on both left- and right-hand side.

CAUTION

CAUTION!
The degree of spring tension must be equal on both left- and right-hand sides.

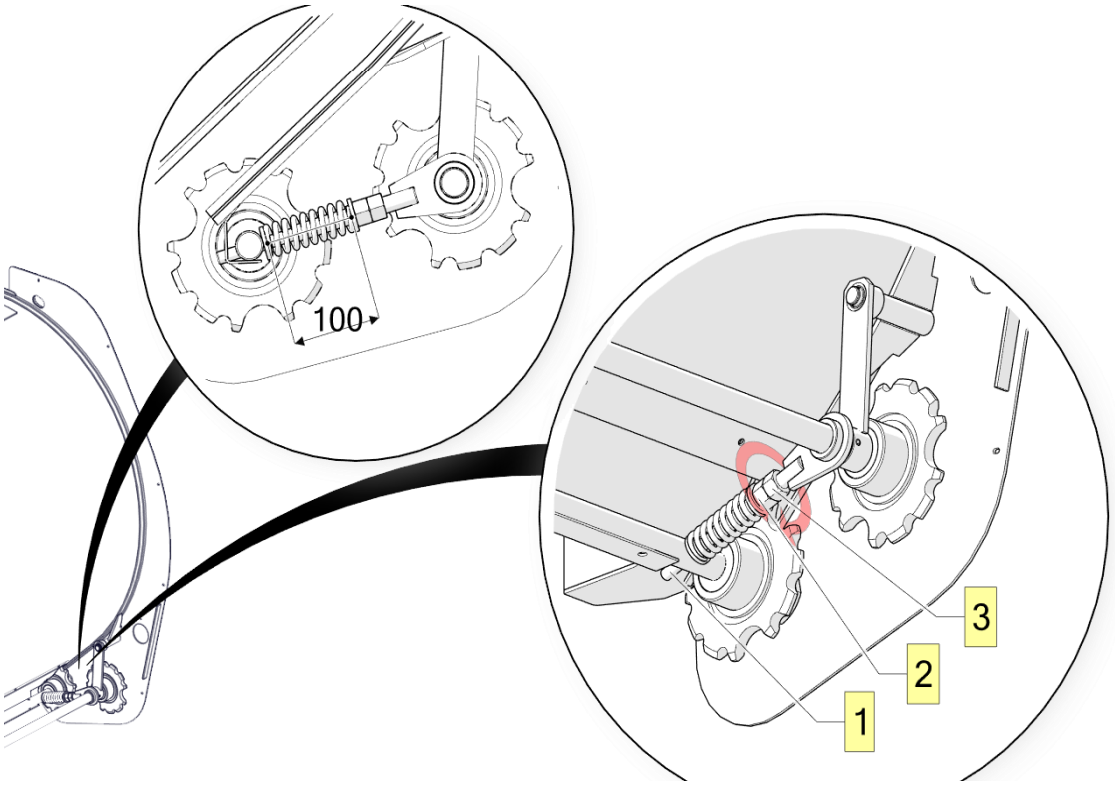

Figure 19. Adjusting the tension of the chain and rod conveyor set

7.6 Pick-up cam adjustment

Depending on the type of collected material and working conditions, adjust the cam so, that it does not pull the material. To do so, follow the procedure below:

- Loosen the bolts and remove the guard from the left side of the pick-up;
- Loosen 4 nuts that hold the cam;

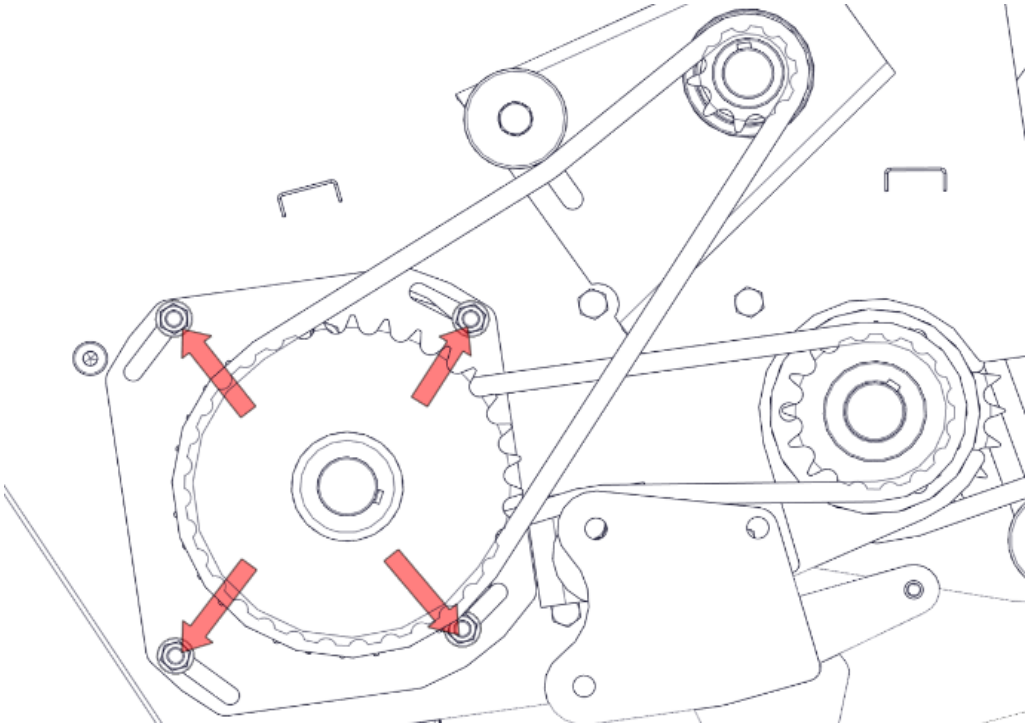

Figure 20. Pick-up cam adjustment

- Adjust the cam position; turn it to move the pick-up tine closer to or farther from the transmission device. Rotate the cam:
  - In direction “A” – to move the pick-up tine farther from the pick-up unit,
  - In direction “B” – to move the pick-up tine closer to the pick-up unit.

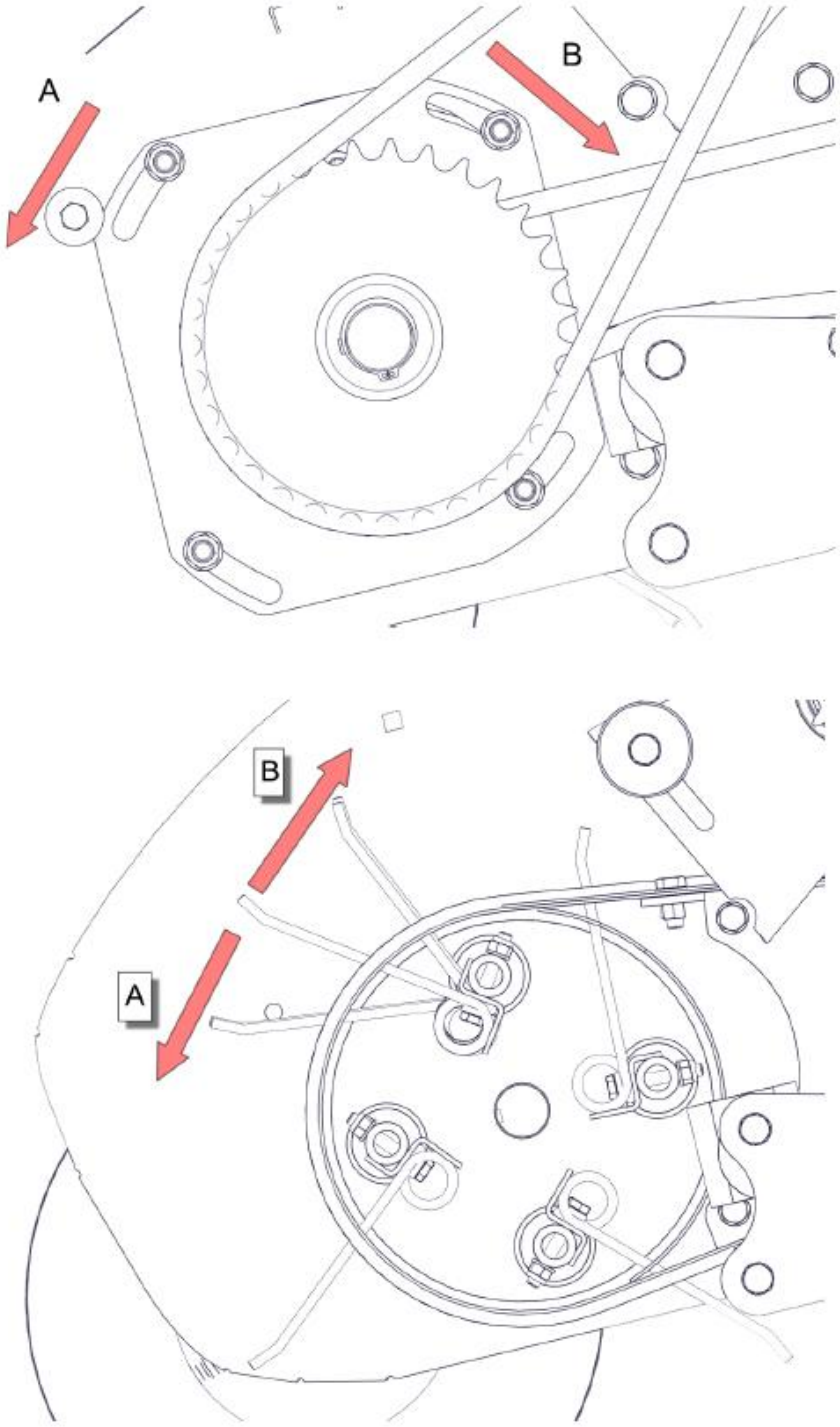

Figure 21. Pick-up cam adjustment

7.7 Replacing the locking bolt in the pick-up

If the locking bolt is cut in the pick-up protective device, replace it with a bolt of the same specification: **Allen head bolt M6 x 40-10.9 PN-EN ISO 4762** (without zinc plate, with partial thread).

To do so, follow the procedure below:

- Remove the guard on the left-hand side of the baler;
- Remove the cut locking bolt and make sure no parts of the damaged bolt are between the drive components;
- Turn the worm feeder to set the holes of the protective device, insert a new locking bolt and tighten it;
- Re-install the protective guard.

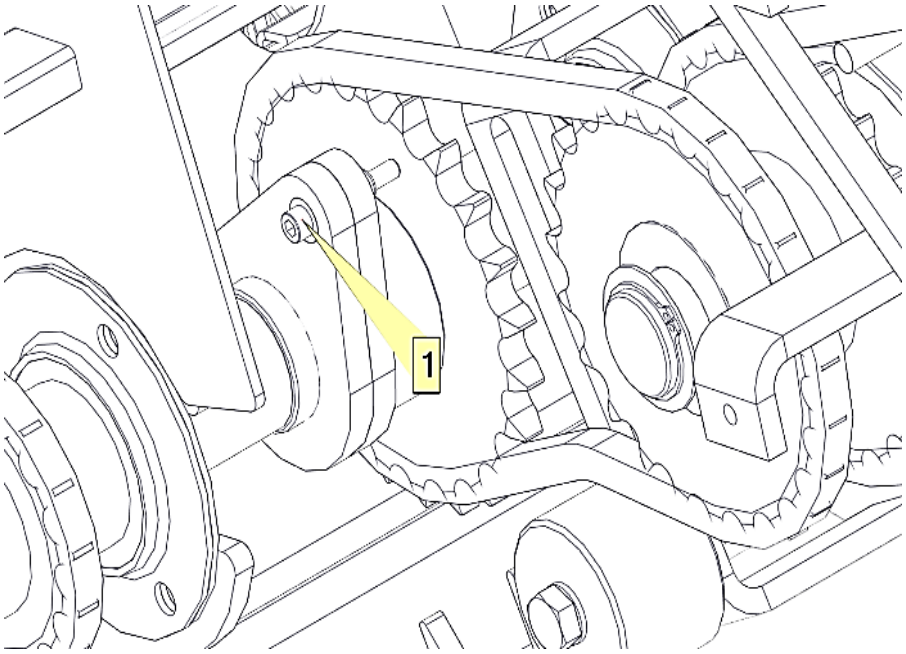

Figure 22. Replacing the locking bolt

CAUTION

CAUTION!
Only use manufacturer's bolts for repairing the overload protections. Using improper bolts as locking bolts increases the risk of damaging the machine.

DANGER

DANGER!
Carry out the repairs when the engine is disabled, the ignition key removed and the machine protected from unauthorised movement.

7.8 Replacing the locking bolt in the supplying unit

If the locking bolts are cut in the rotor protective device, replace them with bolts of the same specification: **M12 x 50 galv. 8.8 PN-EN ISO 4017.**

To do so, follow the procedure below:

- Open the right-hand side guard;
- Unscrew the lower rotor guard;
- Remove the cut locking bolts (1) and make sure no parts of the damaged bolts are between the drive components;
- Use the wrench to turn the rotor, set the holes of the protective device in such a position to be able to insert new locking bolts (1) and tighten them;
- Re-install the protective guard;
- Close the side cover.

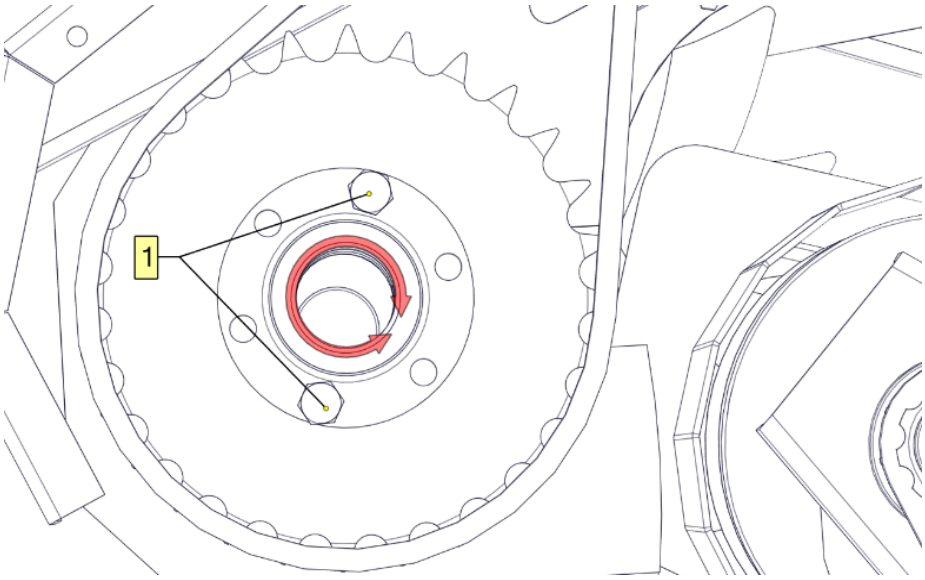

Figure 23. Feeding roller protection - for balers with a feeding roller

7.9 Net binding device adjustment

The procedure of adjusting the bale net bind counter:

- Open the left-hand side guard;
- Select a hole on the arm (A) that corresponds the number of binding turns that you require (Fig. 24 indicates the number of net binding turns for each hole);
- Secure the rod in the selected hole;
- Close the side cover.

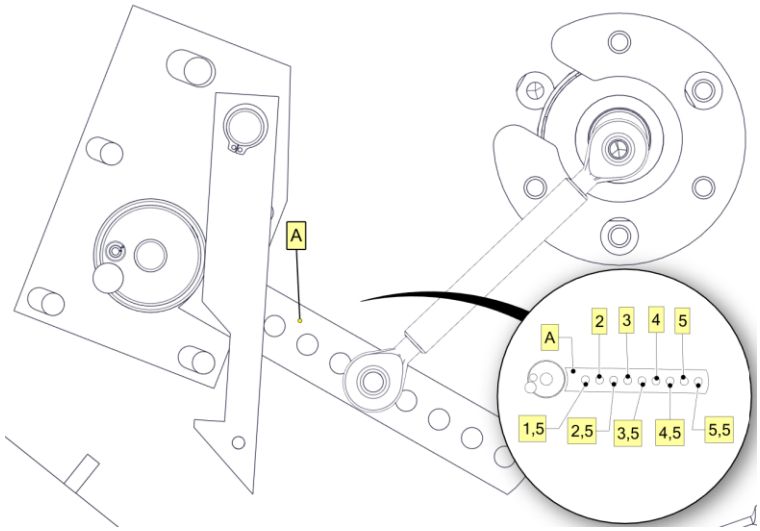

Figure 24. Net binding device adjustment

7.10 Adjusting the degree of compaction

Adjust the degree of compaction on the right-hand side of the machine. To change the compaction degree setting, loosen the nut (1) as shown in Fig. 25, and then use the lever (2) to set the proper compaction degree. Move the lever (2) up to decrease the compaction degree; move it down to increase the compaction degree. After the adjustment has completed, tighten the nut (1).

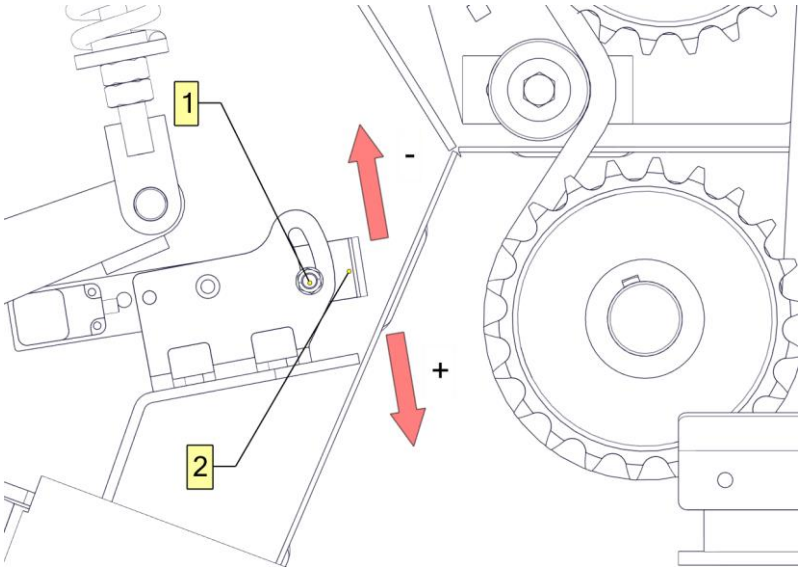

Figure 25. Adjusting the degree of compaction

CAUTION

CAUTION!
Operation with too high compaction degree may cause damage to the machine. Adjust the compaction degree to the harvest conditions.

DANGER

DANGER!
Switch off the engine and remove the key from the ignition before adjusting the degree of compaction.

7.11 Transmission oil exchange (once a year)

Oil draining:

- Prepare a container for used oil;
- Unscrew and remove the plug located on the bottom of the transmission box; you can access it through the hole in the bottom part of the front bar, over the pick-up;
- Drain oil to the previously prepared container;
- After emptying the box, replace the cap.

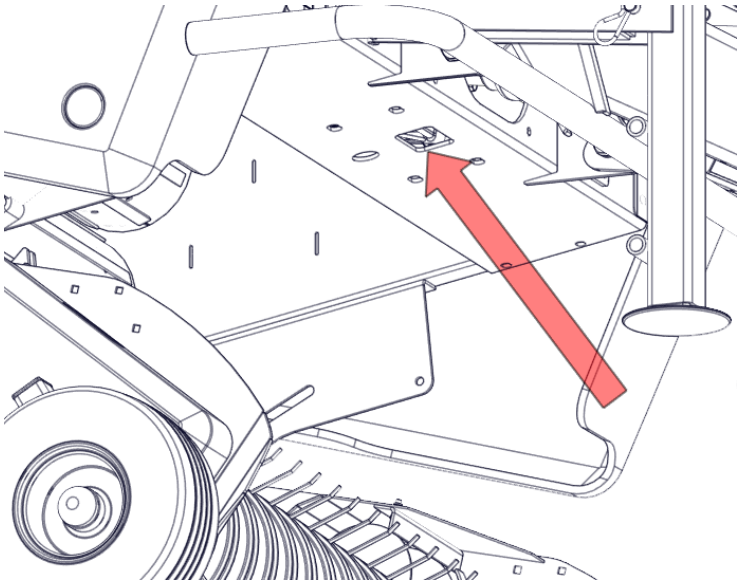

Figure 26. Drain cap

The oil in the transmission box should be exchanged after the first 50 hours of operation and then in the beginning of each season.

CAUTION

CAUTION!
Do not overfill the gearbox with oil. It may result in overheating or oil leakage. The oil should be exchanged while it is still warm (e.g. immediately after using the machine).

Refilling oil (required oil quantity in the box is 3 l):

- Unscrew and remove the cap in the top section of the transmission box;
- Replenish the oil;
- After refilling oil, clean and replace the cap.

Important: Use the transmission oil type 80W90.

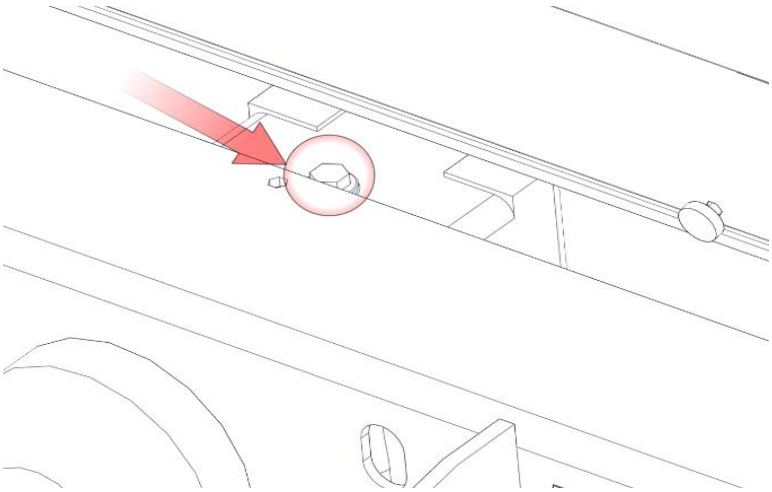

Figure 27. Oil level in the gearbox

7.12 Tyres inspection (every 30 days of work)

CAUTION

CAUTION!
Important: Wheel and tyre repairs may only be performed by skilled staff using sufficient equipment.

Schedule regular checks of the tyre pressure and ensure it is suitable for the respective tyre.

CAUTION

CAUTION!
Important: Check the tightening of the wheel bolts regularly. The tightening torque should be in accordance with Table 3.

8 Lubrication

CAUTION

CAUTION!
All the items listed below must be lubricated at the beginning and at the end of each season.

Lubricate the drive chains with transmission oil after each 5 hours of baler use or after baling 50 bales. Lubricate the places marked with a pictogram (Fig. 28) each time you use the Baler.

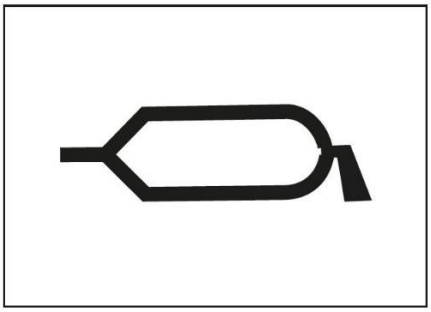

Figure 28. Marking of the main baler lubrication places

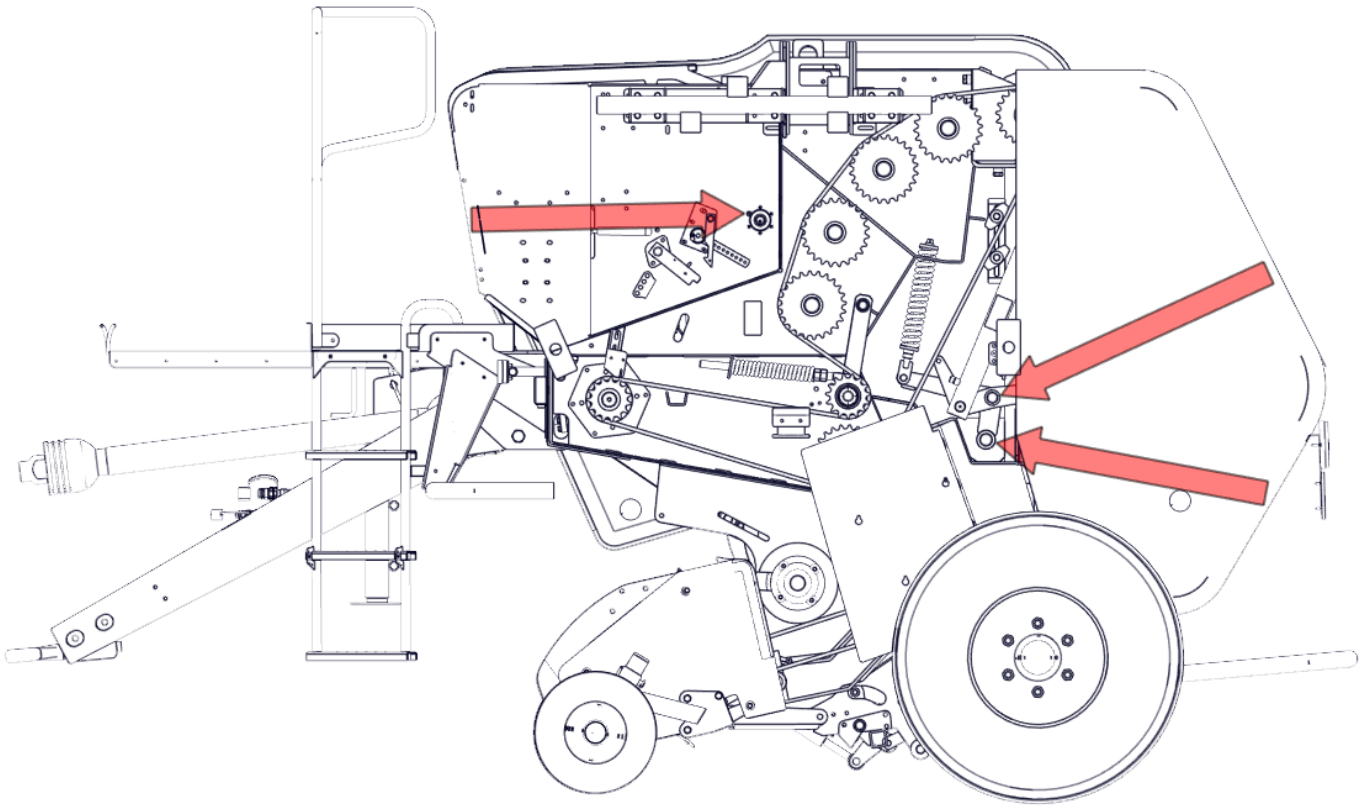

Figure 29. Lubrication points (left side)

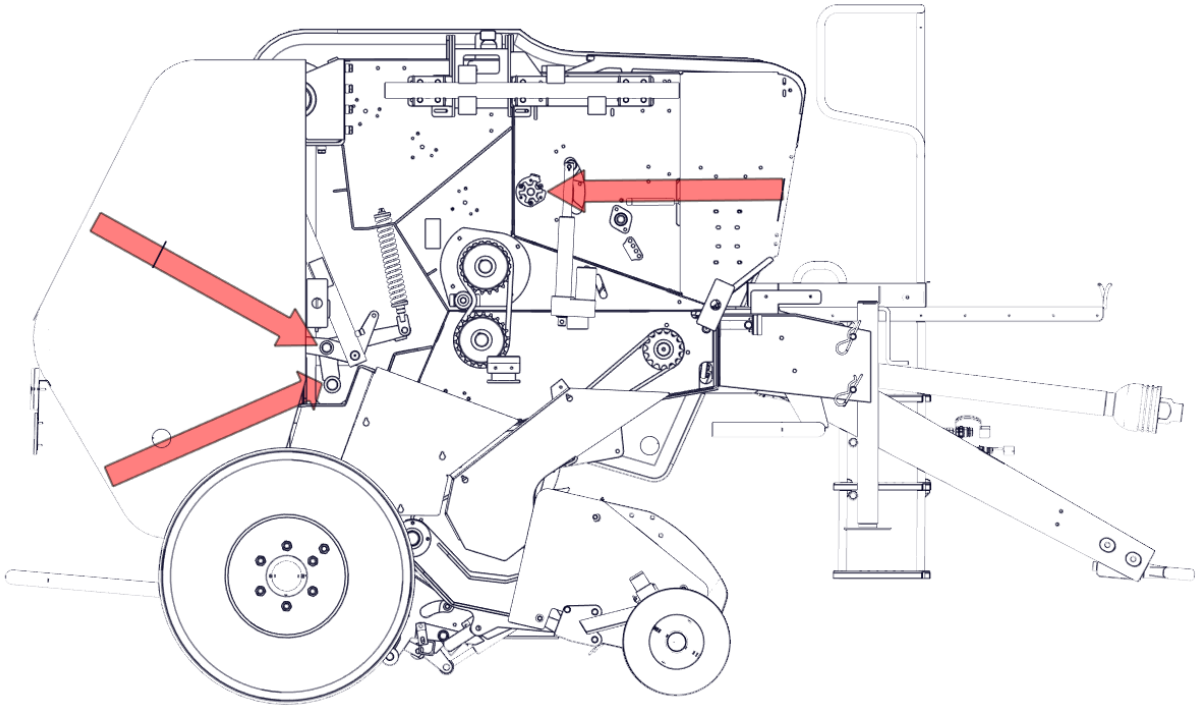

Figure 30. Lubrication points (right side)

Manual chain lubrication (every 10 hrs of work)

If no automatic chain lubrication system is present, carry out this activity manually by using special greases for chain maintenance and lubrication.

8.1 The automatic lubrication system for chains

The Z602 baler is fitted with the integrated chain lubrication system. The pump (P) provides a stepless adjustment of the amount of oil. To adjust the amount of oil, loosen the nuts (N) on the cam (K) and turn a part of the cam so that the arrow (W) indicates the required number from 1 to 8, where 1 means the lowest oil amount, and 8 the highest.

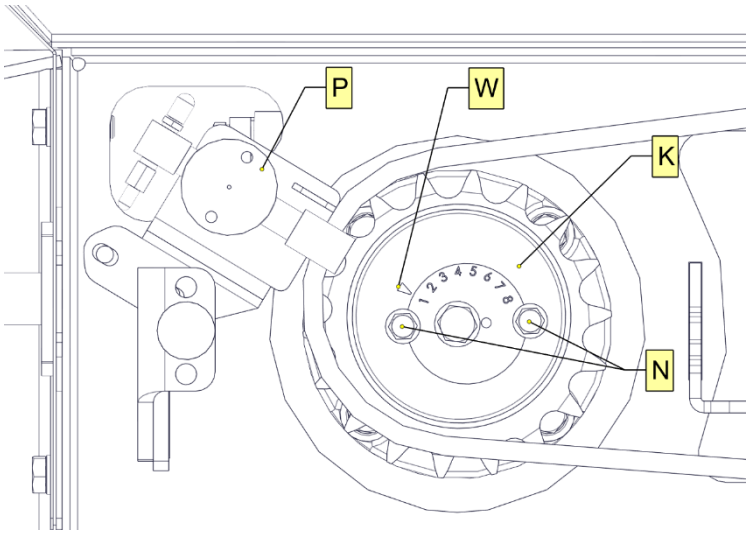

Figure 31. Adjusting the oil amount in the automatic lubrication system

Tank

Carry out routine checks and refill the oil in the tank of the automatic chain lubrication system. To do so, follow the procedure below:

- Open the left-hand side protective guard:
- Unscrew the cap, refill oil and re-tighten the cap.

The tank volume is 3 litres.

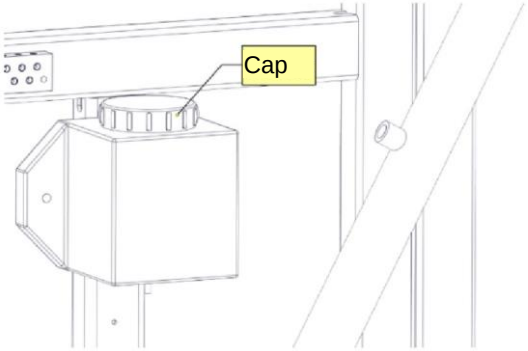

Figure 32. Oil tank of the automatic chain lubrication system

Filter replacement (once a year)

The filter is in the oil tank. It is recommended to replace it once a year. Procedure:

- Open the left-hand side guard;
- Drain the tank
- Open the automatic lubrication oil tank
- Replace the filter
- Refill oil in the tank
- Close the oil tank
- Close the cover.

8.2 Lubrication of bearings

The Z602 baler is fitted with the integrated bearing lubrication system. The strips (1) with grease nipples (2) enable the lubrication of machine bearings. The strips are located on the left- and right-hand side of the baler.

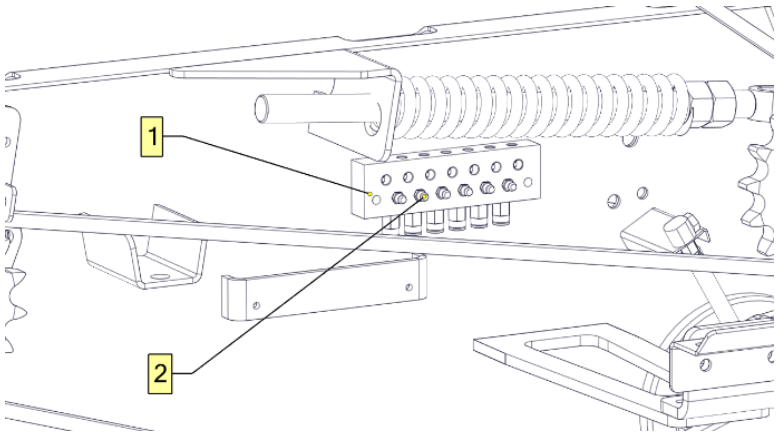

Figure 33. Central lubrication of bearings on the left-hand side of the baler

9 Hydraulic system

WARNING

WARNING!

Ensure full working order of the hydraulic system. The oil that works under high pressure heats up to the temperature that pose a threat for health.

CAUTION

CAUTION!

Ensure the oil purity in the tractor power hydraulic system. The purity of oil must be compliant with condition 20/18/15 of ISO 4406-1996.

CAUTION

CAUTION!

Worn or defective hoses of the power hydraulics must be replaced with new ones.

CAUTION

CAUTION!

For replacements it is recommended to use original spare parts that will assure maintaining the baler in full efficiency for a long time.

The baling press hydraulic system is supplied from the hydraulic system of the tractor, which must be fitted with a 3-section hydraulic manifold. Connect a rear chamber assembly to the first section, the pick-up unit to the second one, and the rotor floor and blades assembly to the third one. Connect the opening/closing of the rear cover and raising/lowering of the pick-up to the tractor power hydraulic system by means of a connection line supplying the chamber opening cylinders and the pick-up cylinders, as shown in Fig. 34 and 35.

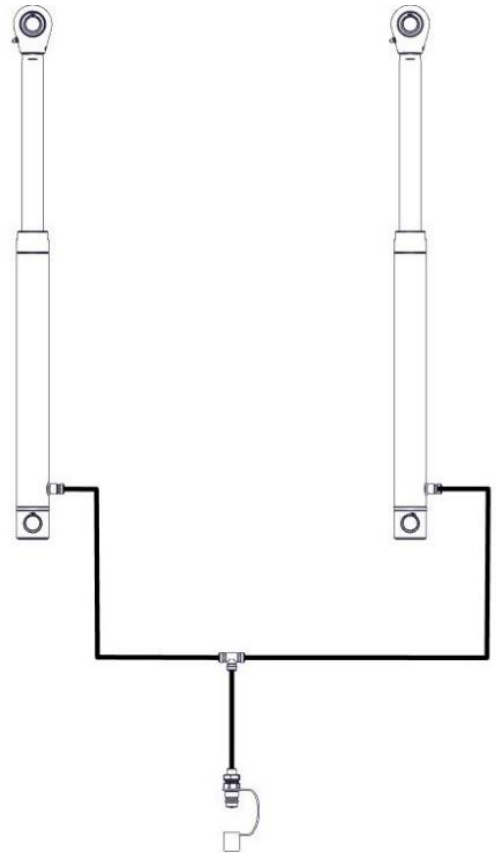

Figure 34. Diagram of the hydraulic system – rear chamber

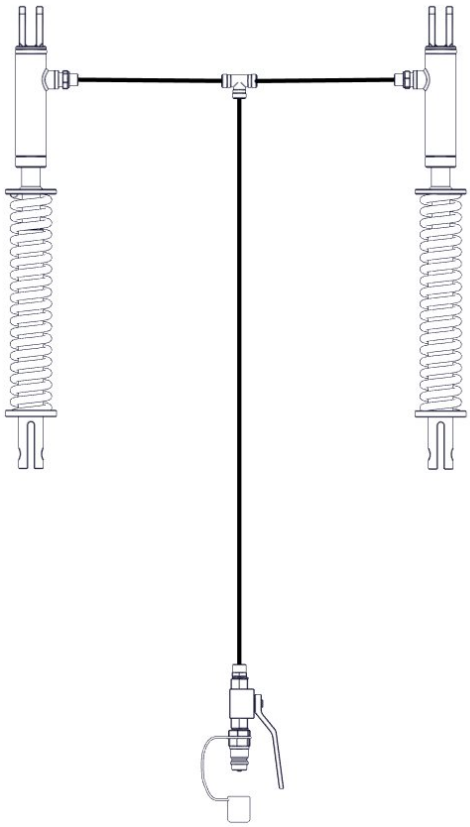

Figure 35. Diagram of the hydraulic system – pick-up

Connect the raising/lowering of the rotor floor and blades to the tractor power hydraulic system by means of a connection line supplying the rotor floor and blades cylinders, as shown in Fig. 36. Switch over between the rotor floor and blades on the control panel using the solenoid valve.

The manifold is pre-configured to blade control.

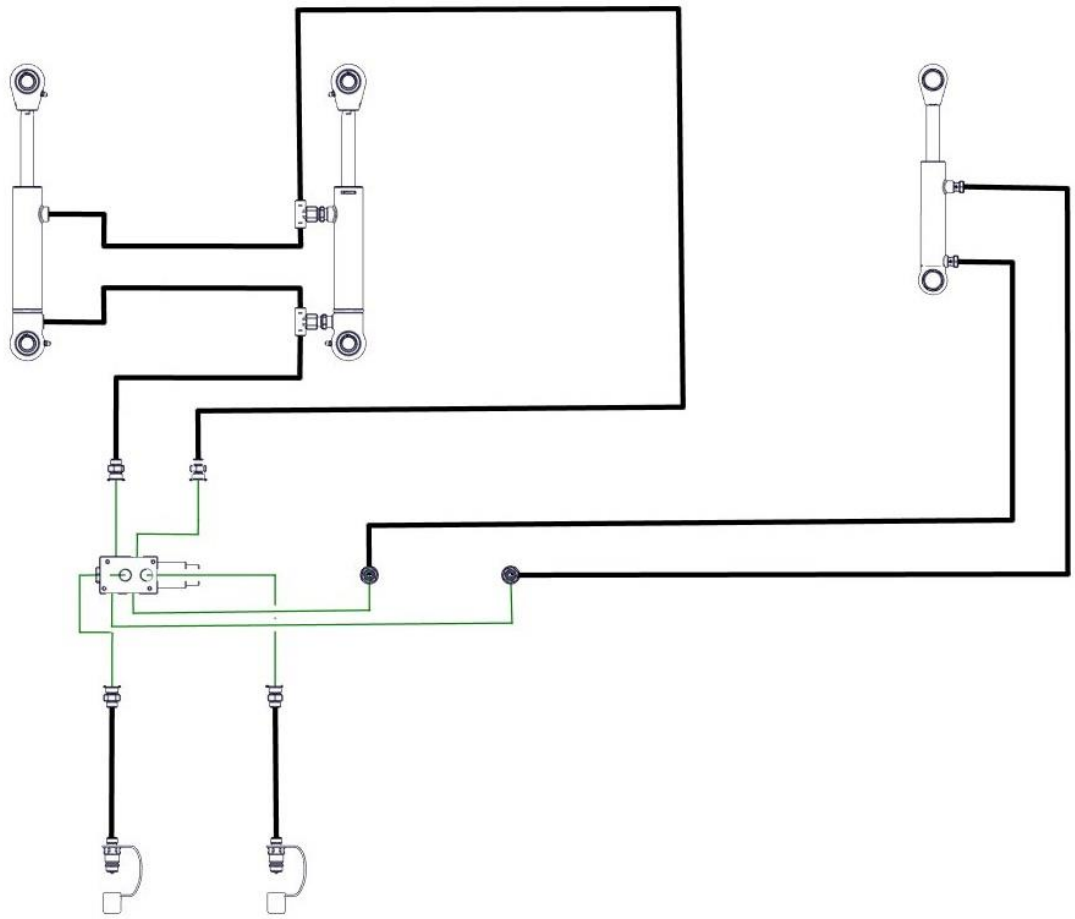

Figure 36. Diagram of the hydraulic system – rotor floor and blades

10 Electrical system

The baling press electrical system is supplied from the electrical system of the tractor. Connect the baler to the tractor electrical system circuit by means of the 7-pin connection cord, as shown in Figure 37.

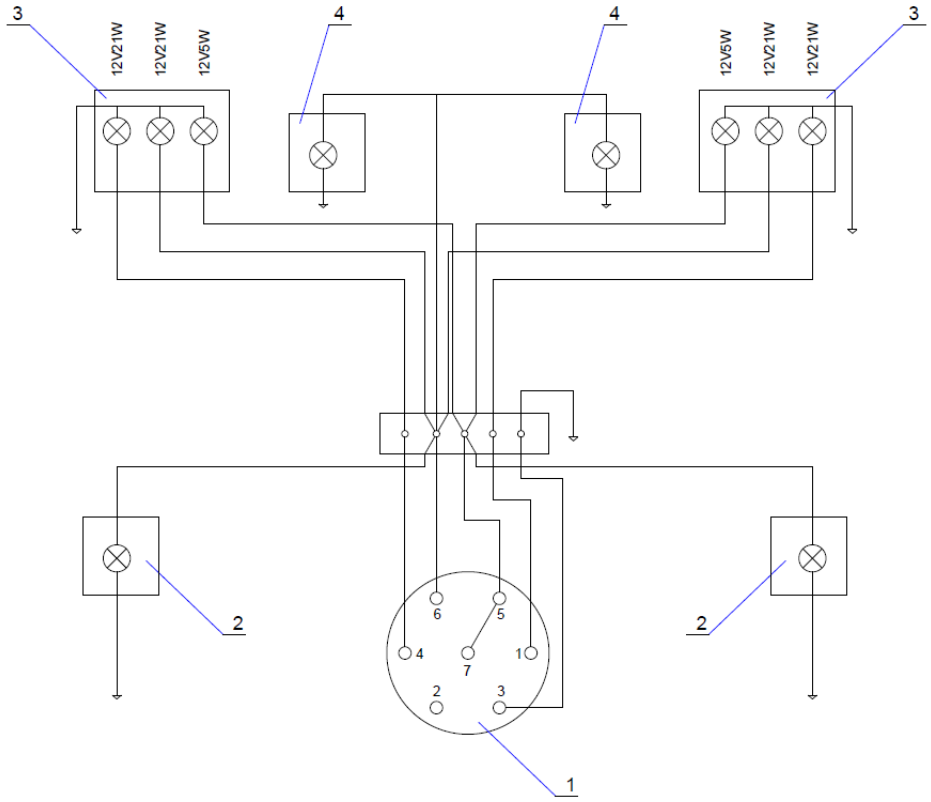

Figure 37. Wiring Diagram
(1 – connection plug, 2 – head light, 3 – tail light, 4 – licence plate light)

WARNING

WARNING!
Check the function of the electrical system and lighting each time you drive the baler on public roads.

11 Tightening torque values for bolts

Table 2. Tightening torque values for bolts

Bolt-tightening torques – metric bolts in Nm							
Size ∅ mm	**Pitch mm**	**Bolt version – strength classes**					**Wheel nuts, wheel screws**
		4.8	**5.8**	**8.8**	**10.9**	**12.9**	
3	0.50	0.9	1.1	1.8	2.6	3.0	
4	0.70	1.6	2.0	3.1	4.5	5.3	
5	0.80	3.2	4.0	6.1	8.9	10.4	
6	1.00	5.5	6.8	10.4	15.3	17.9	
7	1.00	9.3	11.5	17.2	25	30	
8	1.25	13.6	16.8	25	37	44	
8	1.00	14.5	18	27	40	47	
10	1.50	26.6	33	50	73	86	45
10	1.25	28	35	53	78	91	
12	1.75	46	56	86	127	148	
12	1.50						80
12	1.25	50	62	95	139	163	
14	2.00	73	90	137	201	235	
14	1.50	79	96	150	220	257	140
16	2.00	113	141	214	314	369	
16	1.50	121	150	229	336	393	220
18	2.50	157	194	306	435	509	
18	1.50	178	220	345	491	575	300
20	2.50	222	275	432	615	719	
20	1.50	248	307	482	687	804	400
22	2.50	305	376	502	843	987	
22	2.00						450
22	1.50	337	416	654	932	1090	500
24	3.00	383	474	744	1080	1240	
24	2.00	420	519	814	1160	1360	
24	1.50						550
27	3.00	568	703	100	1570	1840	
27	2.00	615	760	1200	1700	1990	
30	3.50	772	995	1500	2130	2500	
30	2.00	850	1060	1670	2370	2380	

12 Possible faults

Table 3. Possible faults

Pick-up		
Problem	**Possible cause**	**Solution**
Clogging the inlet of the chamber.	Too large and/or irregular windrows or too high working speed.	Form the windrows of the right size and/or work with lower pick-up speed.
	Excessive picking up the windrow on one of the sides of the pick-up.	Drive the baler equally from one side to the other.
	Too low rotational speed (rpm).	Work with a rotational speed of 540 rpm.
No lifting or lowering action of the pick-up unit.	Ball valve closed.	Follow item 3.2.3 to check the setting of the valve.
Pick-up tines tear the material	Too high rotational speed of the pick-up compared to the working speed.	Increase the working speed.
		Decrease the PTOff rpm
The pick-up tines leave out parts of the windrow.	Too low rotational speed of the pick-up compared to the working speed.	Decrease the working speed.
		Increase the PTOff rpm.
The pick-up does not collect all the windrow.	Too large windrow width.	Form a new, narrower windrow.
The pick-up does not collect windrow from a level ground.	The pick-up set too high.	Lower the pick-up position.
		Set the pick-up wheels correctly.
The pick-up lets the material pass and stops.	The protection component is defective.	Halve the volume of the windrow.
		Adjust the wheel position to lift the pick-up.
		Remove the accumulated plant material and replace the protective component.
Insufficient windrow pick-up.	The pick-up tines were lost or damaged.	Replace the pick-up tines.
Forming bales		
Problem	**Possible cause**	**Solution**
Too noisy transmission.	Loose or not lubricated chains.	Lubricate the chains or adjust their tensioners.
A bale is formed incorrectly or has a conical shape.	Picking up the windrow mainly on one side of the pick-up.	Drive the baler equally from one side to the other.
The chain skips the teeth of the toothed wheels.	Worn out toothed wheels or chain.	Replace the toothed wheels or chain.
	Loose chain.	Tension the loose chains.

Net binding		
Problem	**Possible cause**	**Solution**
Net is not distributed well on a bale.	Too large mesh of the net.	Use standard net.
	Incorrect path of net flow.	Check if the net is installed correctly.
PTO shaft		
Problem	**Possible cause**	**Solution**
Defective locking bolt.	Too big bale diameter or weight.	Decrease the bale diameter or weight.
Hydraulic system		
Problem	**Possible cause**	**Solution**
Rear cover will not close.	Closing of the rear cover blocked by a bale.	Remove the bale.
	The hydraulic hose disconnected from the tractor.	Check the connection and connect the hoses if necessary.
Hydraulic system does not work.	No power supply to the hydraulic outputs.	Enable the hydraulic outputs from the tractor.
	The hydraulic hoses are not connected correctly to the external sockets of the tractor hydraulic circuit.	Check and, if necessary, seal carefully the quick fit coupling of the external sockets of the tractor hydraulic circuit.
	Insufficient oil supply.	Check and, if necessary, refill oil in the relevant tank of the tractor hydraulic system.
	The pump worn out or damaged (low pressure).	Repair or replace the hydraulic pump.
	Dirt inside the hydraulic circuit.	Blow and, if needed, clean the hydraulic filters.
	Oil leak in cylinders (oil goes past the piston).	Replace the seals at the cylinders.
	Oil leaks from the hydraulic system.	Check the hoses of the hydraulic circuit and seal connections, if necessary.
Control panel		
Problem	**Possible cause**	**Solution**
Message “Binding error” and acoustic signal.	No binding material (net)	Replenish the net cartridges
	The sensor distance to the bolt adjusted incorrectly.	Set the sensor 2-3 mm from the bolt.
Despite the closed chamber, the panel displays “Open chamber”.	The sensor distance to the lever adjusted incorrectly.	The sensor should be 2-3 mm from the lever.

NOTES

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