METAL-FACH

REPAIR AND MAINTENANCE BOOK

BELT BALER

Z514

MAY 2020

Table of Contents

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

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.

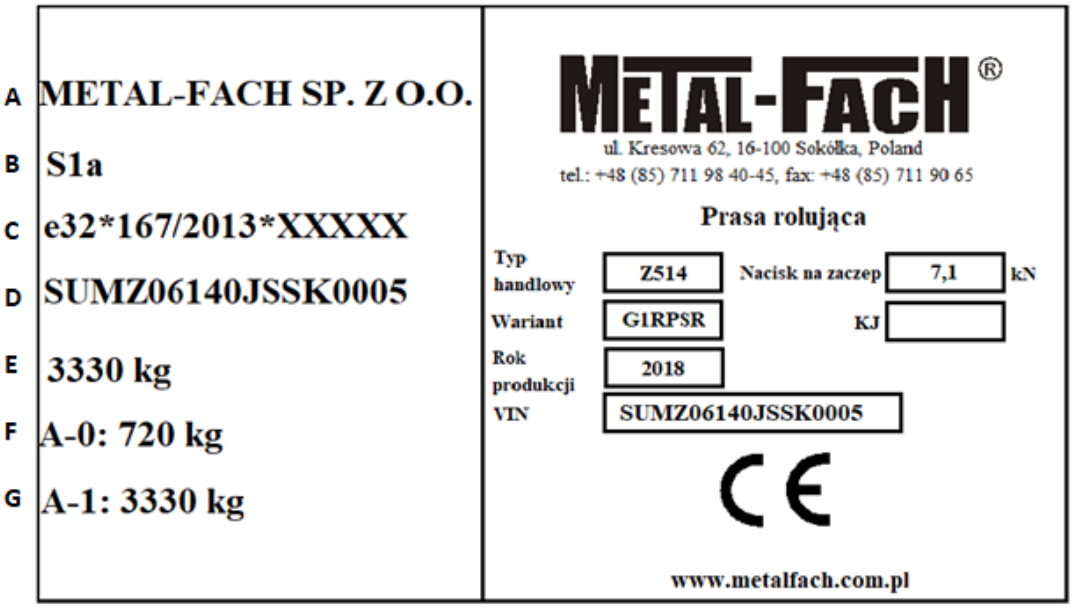


Figure 1. Rating plate

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.

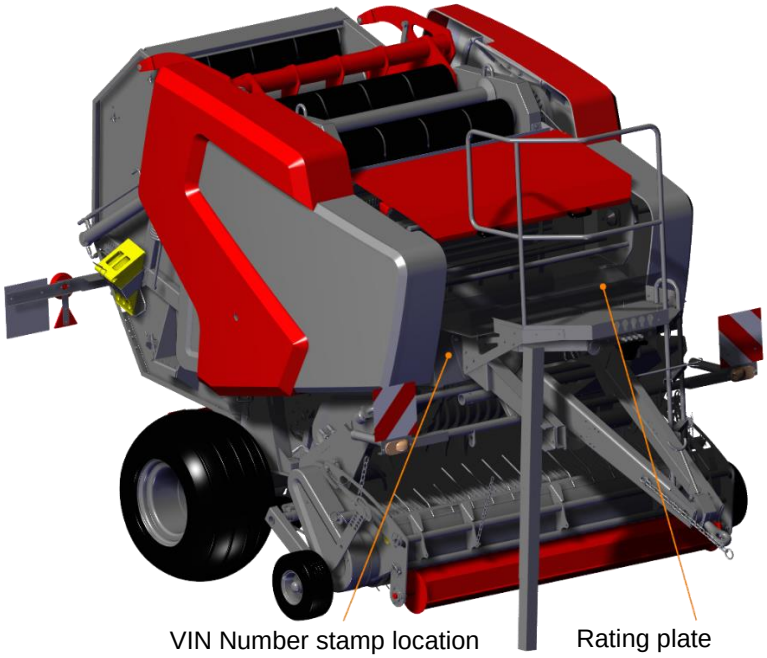


Figure 2. The location of the nameplate and the VIN on the machine

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.

WARNING

WARNING!

Clean with caution, especially next to the moving parts and blades of the machine.

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

We do not recommend cleaning the baler with a 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 the 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 59 kW, 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 or upper transport hitch, whichever enables the transmission of a vertical load of 7.1 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 the correct adjustment eye of the hitch, as shown in Fig. 3.

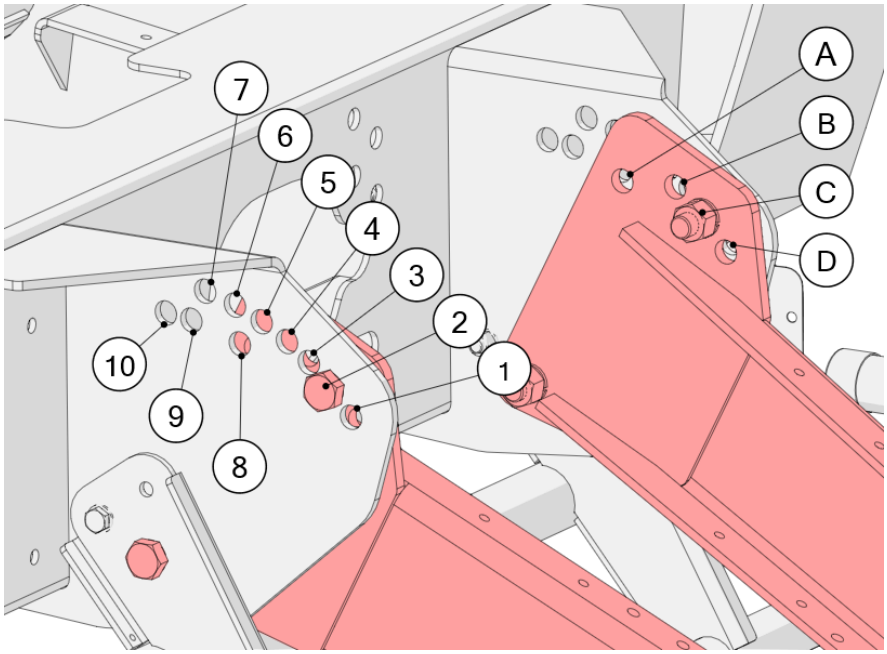


Figure 3. Setting the drawbar height

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.

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 / No. of the beam hole	A	B	C	D
	Height of the drawbar eye from the ground [cm]			
1	-	28	46	65
2	-	43	62	82
3	-	58	78	99
4	-	73	94	115
5	-	90	111	-
6	-	106		-
7	-	125	-	-
8	69	-	-	-
9	102	-	-	-
10	120	-	-	-

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 its 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 below is not exceeded. The minimum distance is 4 cm.

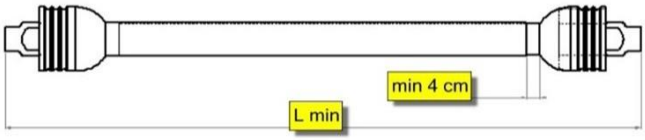


Figure 4. PTO length

Adjust the length of the PTO shaft as shown in Fig. 4 and 5. At the shaft longest span, the shaft tubes must overlap by at least 1/3 of their length.

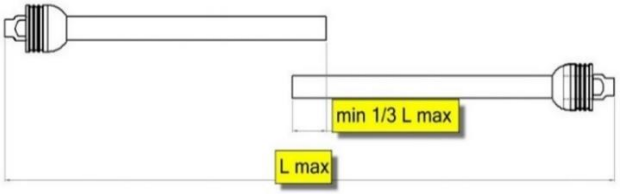


Figure 5. PTO housing length

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 with the cut-off valve to the unidirectional manifold.
- Connect the hoses controlling the floor 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.

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

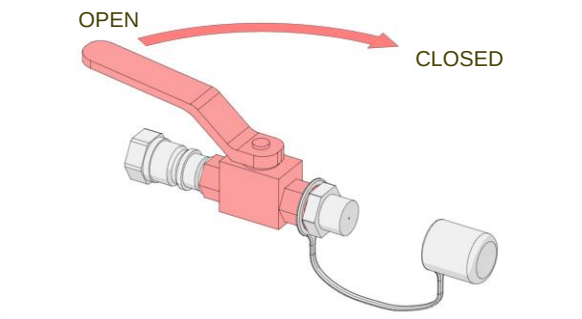


Figure 6. Cut-off valve

Before starting baling, check that the cut-off valve of the baling chamber is open. This valve should be closed during maintenance work (Section 7.3.1).

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

5.4 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.

5.5 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 in the tractor cab in such a way that it is visible and accessible for the operator
- Plug the power supply cable in the tractor's socket
- Connect the signal cable to the control panel
- 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.

5.6 Connecting the braking system

DANGER

DANGER!
It is forbidden to drive the baler on public roads with a defective or disconnected brake system. The defective or disconnected brake system can lead to a collision or accident. It may cause an injury or death of the driver or other road users.

CAUTION

CAUTION!
Remember to inspect the brake system each time before you start the machine. Repairs of the brake system may be executed only by persons trained for this purpose. Unauthorised repairs of the brake system is forbidden.

To connect the brake system, follow the below procedure.

- Empty the air tank (Section 7.2);
- Check that the sealing washers of the tractor and press coupling heads are clean
- Connect the air lines
    - The hose with a red cap for the air connector, marked red, on the tractor
    - The hose with a yellow cap for the air connector, marked yellow, on the tractor
- Wait for pressure in the brake system to reach the correct level after you start the tractor Check the correct functioning of the brakes

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

To remove the material accumulated, do the following:

- Pull up but do not switch off the engine
- Switch off the PTO shaft
- Open the dual-direction valve to lower the rotor floor
- Reduce the engine speed and engage the PTO The accumulated material should be transferred to the baling chamber If it is still jammed, switch off the PTO, and then reduce the engine speed again and switch on the PTO Repeating these steps several times will help remove the accumulated material
- Raise the rotor floor
- Continue working

6.1.1 Manual removal of the accumulated material

When the removal of accumulated material by lowering the rotor floor will not work, it should be removed manually. To do so, follow the procedure below:

- Switch off the PTO shaft
- Depressurise the hydraulic system
- Switch off the tractor's engine and remove the key from the ignition switch
- Disconnect the electrical system
- Wait until all moving parts of the machine have come to a complete standstill
- Disconnect the drive shaft
- Raise the rollers and secure their position with the chain
- Remove the accumulated material from the pick-up with a clog remover;
- Lower the rollers to the working position
- Connect the power supply
- Connect the PTO shaft
- Switch the tractor's engine on
- Start the baler
- Remove the accumulated material by lowering the rotor floor (using the electrovalve).

7 Maintenance and adjusting

Before carrying out any maintenance work, observe safety rules at work

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.

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.

Hydraulic lines must be replaced every 6 years.

7.1 Operation of the support foot

The support foot can be lowered/lifted quickly or slowly.

To move the support foot quickly, pull the crank out as far as possible:

- Lifting – turn it clockwise
- Lowering – turn it counter-clockwise

To move the support foot slowly, the crank must be pushed in as far as possible:

- Lifting – turn it counter-clockwise
- Lowering – turn it clockwise

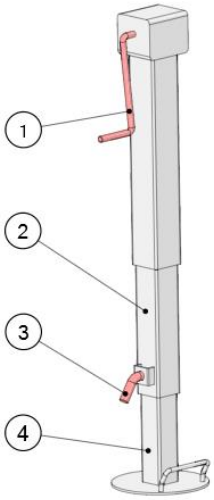


Figure 7. Support foot

Fitting the support foot (Figure 7):

- Make sure that the machine is on level ground, the parking brake is on and the wheels are locked with chocks
- Remove the spindle (3)
- Pull the support foot (4) out of its casing (2) to the desired height
- Lock the position with the pin (3)
- Turn the crank (1) until the support foot (4) rests on the ground

Dismantling the support foot (Figure 7)

- Turn the crank (1) to push in the casing until it stops (2)
- Remove the pin (3)
- Move the foot (4) into the casing (2);
- Lock the position with the pin (3)

7.2 Bleeding the brake system air tank

CAUTION

CAUTION!
The air tank of the brake system must be bled daily.

To bleed the air tank of the brake system:

- Open the right-hand side guard
- Pull the pin of the tank drain valve (Figure 8)
- Hold the pin until all water is removed;
- Using the tractor's air system, supply air to the tank (minimum 5 bar).

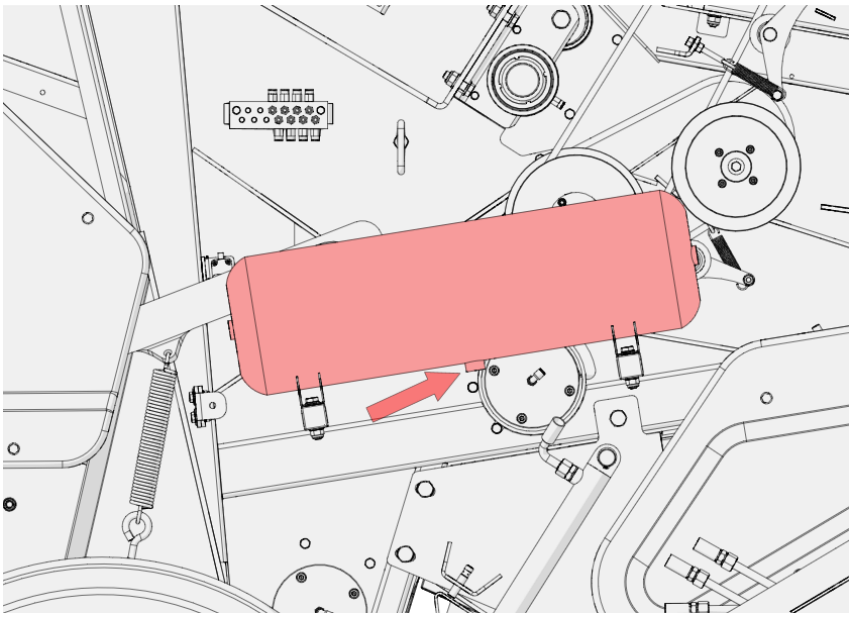


Figure 8. Emptying the brake system tank

7.3 Safety systems

7.3.1 Protection device for the tailgate

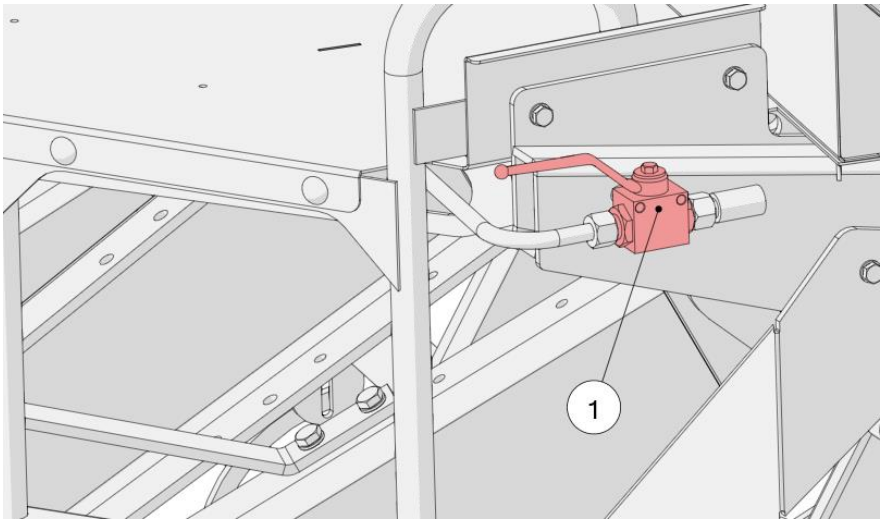


Figure 9. Tailgate cut-off valve

A hydraulic cut-off valve (1) is used to protect the tailgate against unwanted lowering (Figure 9). To do this, open the tailgate and then turn the cut-off valve (1) to the closed position. To unlock the rear chamber, turn the valve to the working position and close the chamber.

7.3.2 Protection device for the blade for cutting the net

WARNING

WARNING!

When carrying out any work next to the net cutting blade, it must be locked.

To lock the net cutting blade, open the top cover, engage the chain hook (2) with the pin (1) as shown in Figure 10.

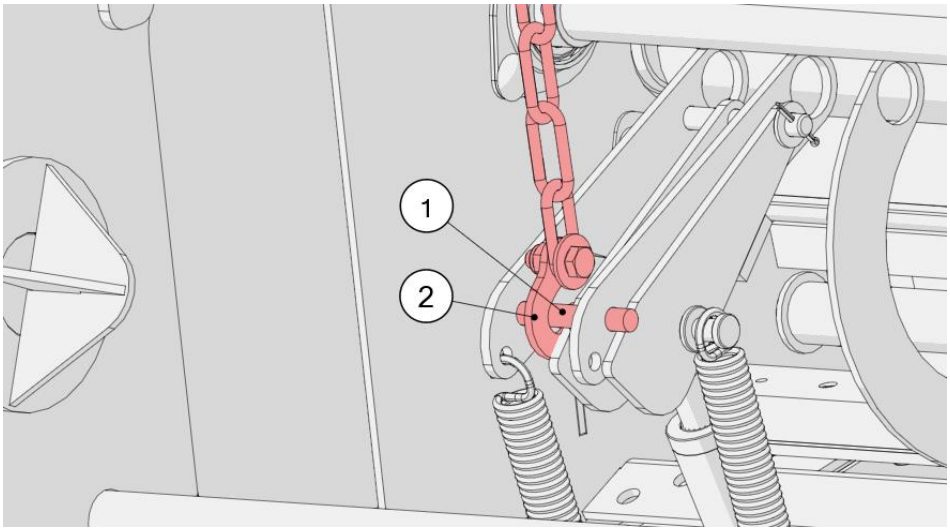


Figure 10. Protection device for the blade for cutting the net

7.3.3 Protection device for the pick-up

To prevent the pick-up from dropping due to a pressure drop in the hydraulic system while driving, engage the chain (1) with the hook (2). The pick-up should always be secured when the machine is carried.

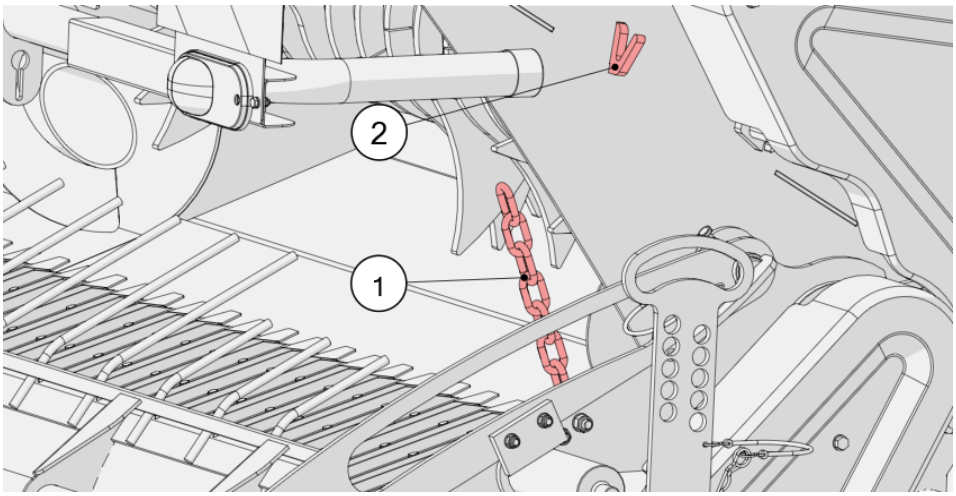


Figure 11. Protection device for the pick-up

7.4 Baler maintenance schedule

Table 2. Baler maintenance schedule

Time	Activity
After the first hour of operation	• Tighten the bolts on the ground wheels (Section 7.11) • Tension the chains (Section 7.5)
Every 10 working hours	• Check the oil level in the automatic chain lubrication tank (Section 8.2) • Check the condition of the hydraulic hoses for damage (Section 7.12). • Check the tyre pressure.
Every 500 bales (when working on sandy ground – twice a day)	• Grease the baler's components according to Section 8 • check the tightening of bolts of the drawbar in accordance with the table in Section 10
After 3,000 bales	• Grease the baler's components according to Section 8
After 6 weeks of not using the baler	• Grease the baler's components according to Section 8
Post-seasonally	• Tension the chains (Section 5.3) • Grease the baler's components according to Section 8
Pre-seasonally	• Adjust the net wrapper brake (Section 7.7) • Check the tightening of bolts on the wheels (Section 7.11)
After 6 years	• Replace the hydraulic lines.

7.5 Adjusting the tension of the chains

Check the chain tension at regular intervals. Adjust the chains according to the schedule (Section 7.4).

The procedure of adjusting the chains in the Baler:

- Shut down the machine
- Move the pick-up wheels to the transport position
- Open the left-hand side guard of the Baler
- As shown in Figure 12, remove the left pick-up cover (1) by loosening the bolts (2)
- As shown in Figure 13, remove the left rotor cover (1) by loosening the bolts (2)

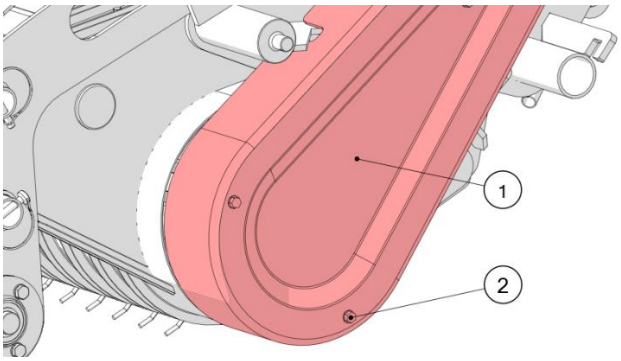


Figure 12. Left pick-up cover

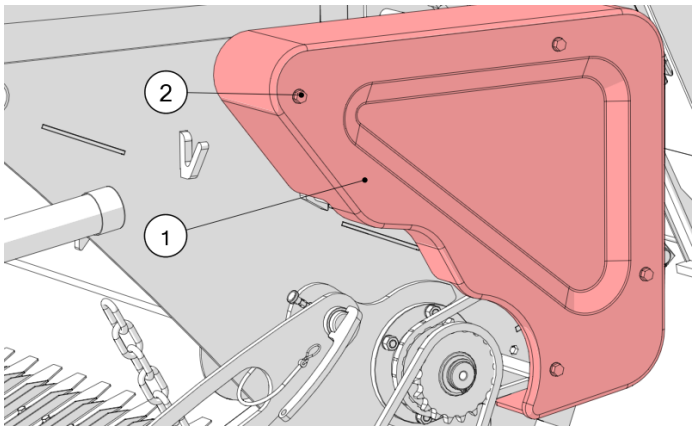


Figure 13. Remove the rotor guard

- To tension the pick-up chain (3), loosen the tensioner bolts (2) and slide it upwards so that the chain is tight (Figure 14)
- Lock the position of the tensioner by tightening the bolts
- The drive chain (1) is tensioned via an automatic tensioner (4) Read the value on the indicator (7) as shown in Figure 14 The indicator should be between the bars marked 5 and 6. If the indicator is outside this range, please:
    - Loosen the tensioner bolt
    - Keep turning the automatic tensioner so that the indicator is between the lines marked 5 and 6
    - Tighten the automatic tensioner bolt

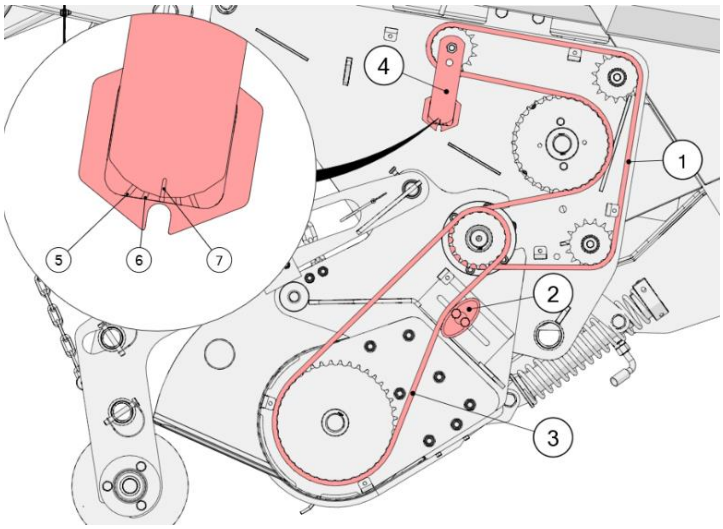


Figure 14. Tensioning the chain of the pick-up

- Fit the pick-up and rotor guards by tightening the bolts
- Remove the guards (1) and (2) by loosening the bolts (3) (Figure 15)

Figure 15. Left guards

- To adjust the chains in the baling chamber (1) and (2), as shown in Figure 16, turn the tensioner nuts (3) and (4) and adjust the distances to the values below:
  - A = 175 mm
  - B = 175 mm

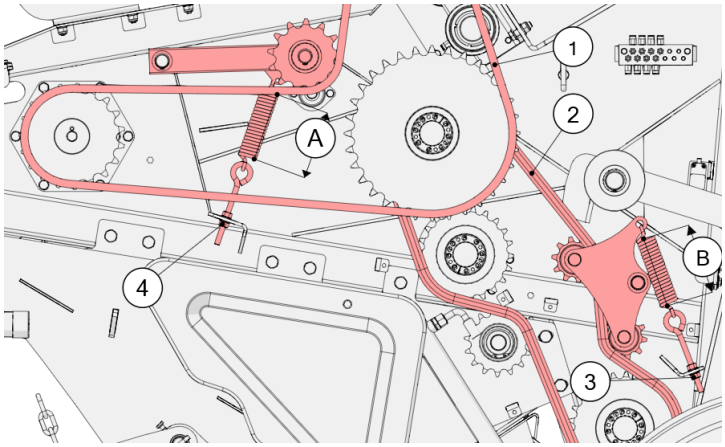


Figure 16. Chain tensioning

- Mount the guards
- Close the side guard
- Similarly to the left side, adjust the pick-up chain on the right side of the machine
- Open the right-hand side guard
- Remove the right-hand side rotor guard (1) by loosening the bolts (2) as shown in Figure 17
- To tension the rotor chain (1), as shown in Figure 18, turn the tensioner nuts (2) so that the distance C = 95 mm

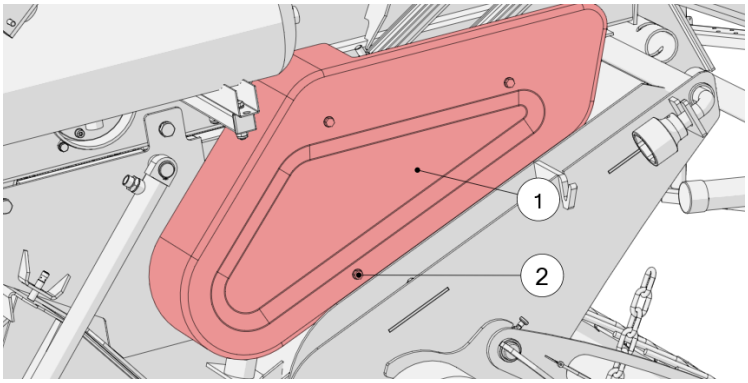


Figure 17. Right rotor guard

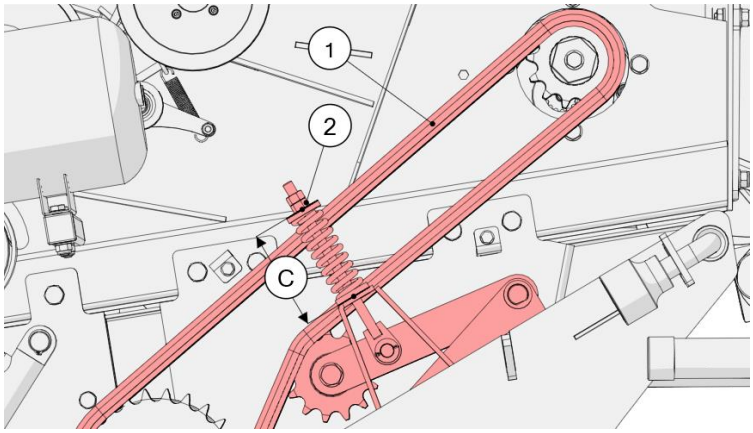


Figure 18. Tensioning the rotor chain

7.6 Lock adjustment

To adjust the lock, follow the procedure below.

- Open the side guard
- Remove the lock guard (1) by loosening the bolts (2) as shown in Figure 19
- As shown in Figure 20, adjust the lock (1) by turning the nut (2) so that the distance D = 300 mm
- Repeat these steps on the other side of the machine

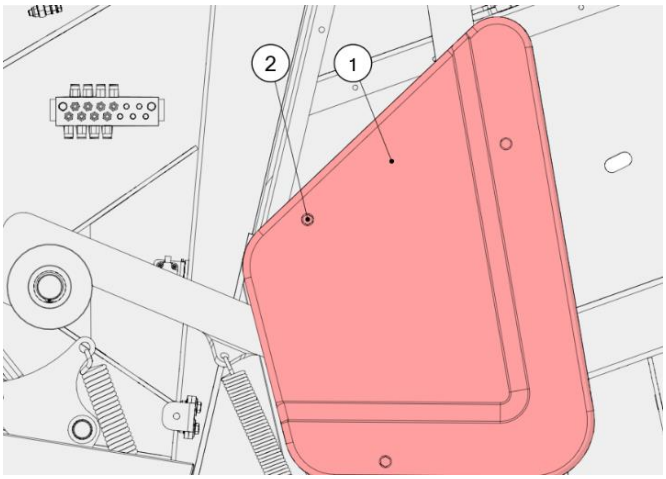


Figure 19. Lock guard

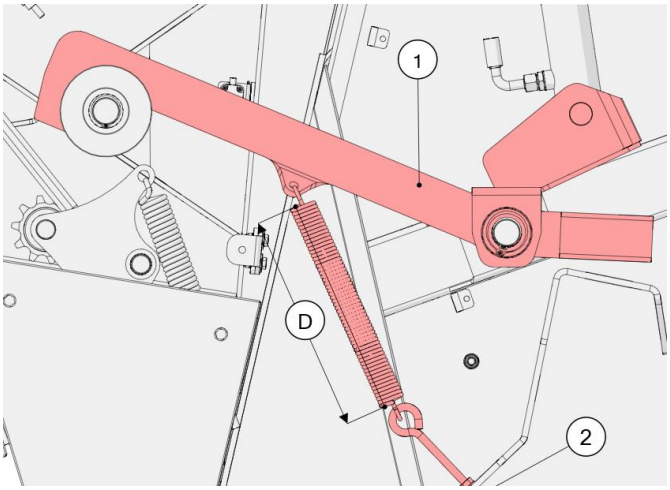


Figure 20. Lock adjustment

7.7 Adjusting the disc brake for the net wrapper

The net wrapper brake should be adjusted so that it is not possible to rotate the brake disc manually when the lever (1) (Figure 21) is set. To adjust the brake, follow the procedure below.

- Check that the Baler is off
- Open the right-hand side guard
- Loosen the screw (3) as shown in Figure 21
- Tighten the threaded bushing (2) so that the brake pads (4) sit fully on the brake disc

If the brake pads (4) are worn on one side, follow the procedure (Figure 21):

- Loosen the nut (5)
- Screw in the bolt (6) lightly so that the pads are parallel
- Tighten the nut (5)

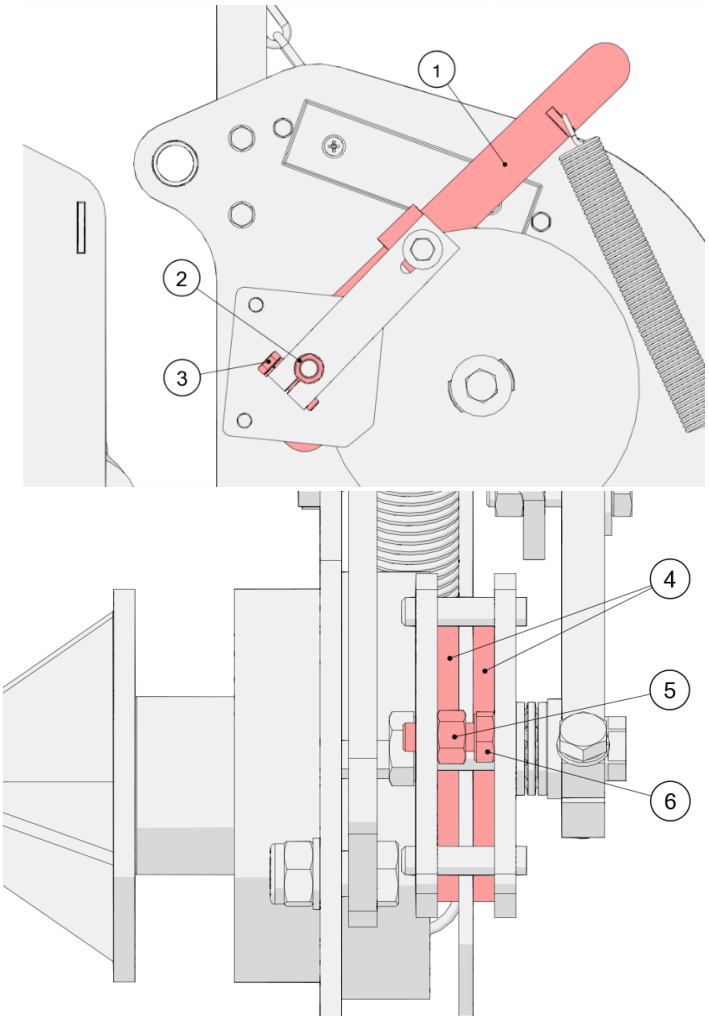


Figure 21. Adjusting the brake of the net wrapper

7.8 Replacing the blade for cutting the net

To replace the net cutting blade, you have to:

- Check that the Baler is off
- Secure the net cutting blade according to section 7.3.2
- Loosen the screws on the blade attachment strip
- Replace the net cutting blade
- Retighten the bolts

7.9 Replacing the locking bolts in the pick-up

If the locking bolts are cut in the pick-up, replace them with bolts of the same specification: M8 x 35 8.8 hex bolt **PN-EN ISO** 4017 (galvanized, with a thread across the length). To do so, follow the procedure below:

- Remove the guard (1) by loosening the bolts (2) as shown in Figure 22
- Remove the cut locking bolts (1) and make sure no parts of the damaged bolts are between the drive components (Figure 22)
- Use the wrench to turn the rotor, set the holes of the protective device in a position to be able to insert new locking bolts (1) and tighten them
- Install the protective guard.

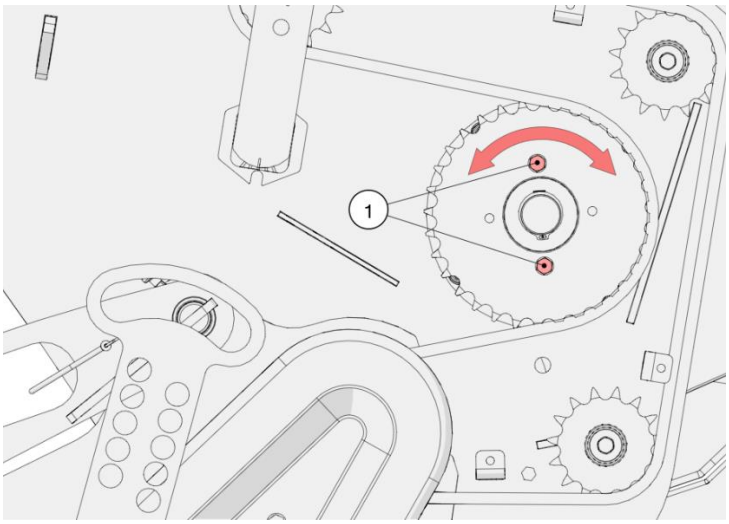


Figure 22. Replacing the locking bolts

7.10 Changing oil in the transmission box

The oil in the transmission box should be changed after the first 50 hours of operation

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).

7.10.1 Oil draining

To drain the oil from the transmission box:

- Prepare a container for used oil
- Unscrew and remove the cap located on the bottom of the transmission box (Figure 23) 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.

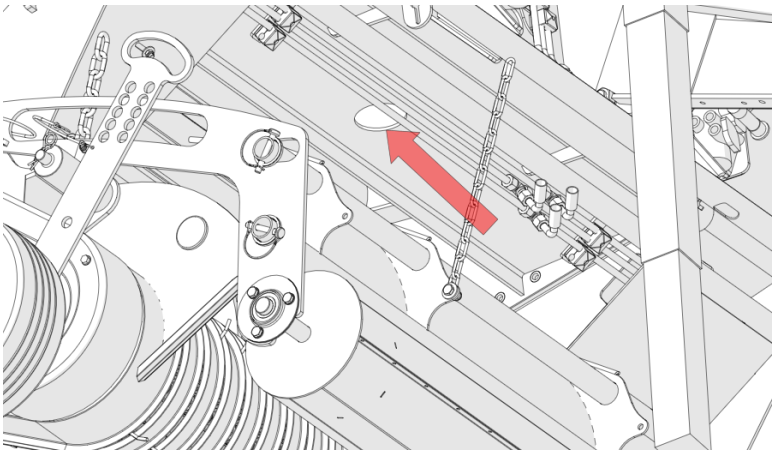


Figure 23. Drain cap

7.10.2 Oil topping-up

Important: Use the transmission oil type 80W90.

To refill oil in the transmission box:

- Unscrew and remove the cap in the top section of the transmission box
- Replenish the oil
- Clean and replace the cap

7.11 Ground wheels

7.11.1 Checking the tyres condition

CAUTION

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

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

CAUTION

CAUTION!
Check the tightness of the bolts on the wheels according to the maintenance schedule (Section 7.4). The tightening torque should be in accordance with the table in Section 10.

7.11.2 Changing the ground wheel

DANGER!

DANGER!

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

WARNING

WARNING!

When doing maintenance works on public roads follow the traffic law regulations and recommendations of the manufacturer.

CAUTION

CAUTION!

The jack must be placed on the Baler axis only. The jacking points are shown in Fig. 24. Do not place the jack in other places, as you can damage the machine.

CAUTION

CAUTION!

Retighten the nuts after one hour of driving. The tightening torque must be in accordance with Table in Section 10.

CAUTION

CAUTION!

Tyre size to use is: 500/50 – 17 149 A8, and tyre pressure should be 2.5 bar.

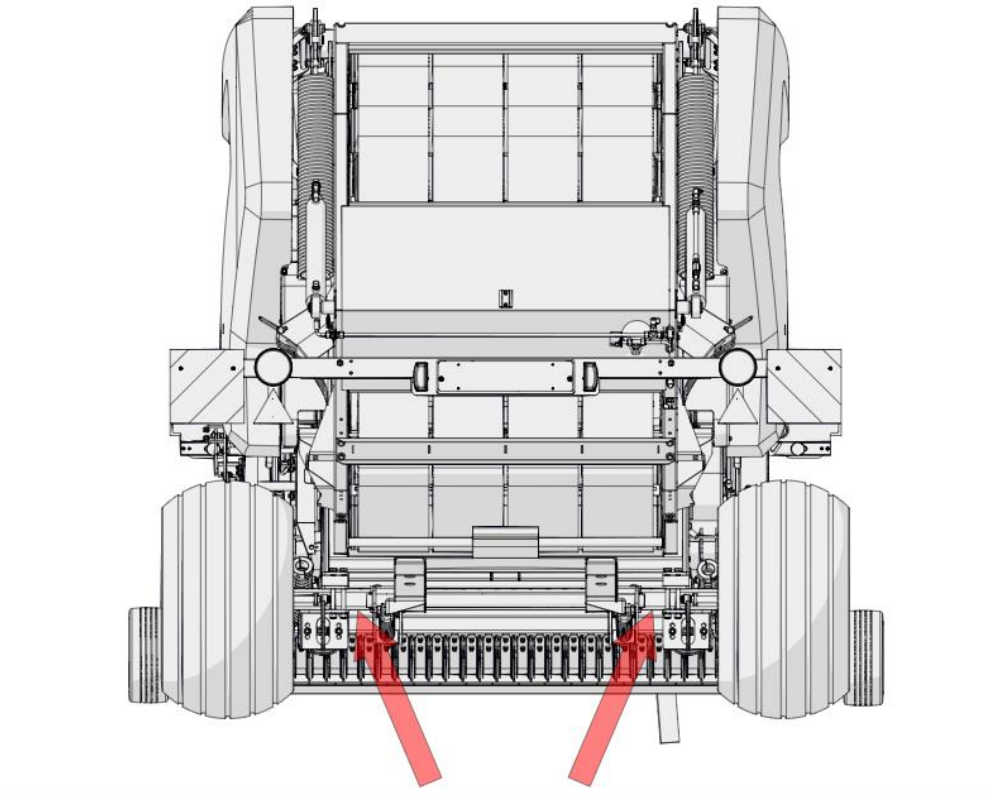


Figure 24. Jacking points

If the ground wheel has to be replaced, it is necessary to:

- Check that the machine is correctly connected to the tractor
- Check that it is on level ground
- Make sure that the PTO drive is disconnected, the tractor engine is stopped and the ignition key is removed
- Engage the parking brake
- Place wheel chocks
- Place the jack at the point shown in Figure 24 The lifting capacity of the jack must suit the machine's weight
- Loosen the wheel nuts
- Use the jack to lift the machine so that the wheel to be replaced is off the ground
- Loosen the nuts
- Take off the wheel
- Mount a new wheel
- Fasten the wheel by hand by tightening the nuts
- Lower the jack
- Use a calibrated torque wrench to tighten the alternate nuts, ensuring that the tightening torque corresponds to the values in the table in Section 10)
- Check the tyre pressure (required level is 2.5 bar)
- Retighten the wheel nuts after an hour of driving. The tightening torque must be in accordance with the table in Section 10.

7.12 Checking the hydraulic lines

WARNING

WARNING!

It is prohibited to check the hydraulic hose lines for leaks with your hand or other parts of the body. If hydraulic fluid comes into contact with the skin, clean it and see a doctor if necessary.

Check the condition of the hydraulic hose lines according to the maintenance schedule (Section 7.4). To do so, follow the procedure below:

- Turn off the Baler
- Check hoses visually from a safe distance for tightness and damage
- If you suspect a hose leak, use tissue paper or paper to find the damaged spot
- Replace hydraulic lines immediately if they are damaged or leaking. Have such hydraulic lines replaced by certified staff.

7.13 Maintenance of the accumulator

All work on the accumulator should only be carried out by appropriately qualified service staff.

It is prohibited to modify the accumulator by machining, welding or other means.

8 Lubrication

CAUTION

CAUTION!

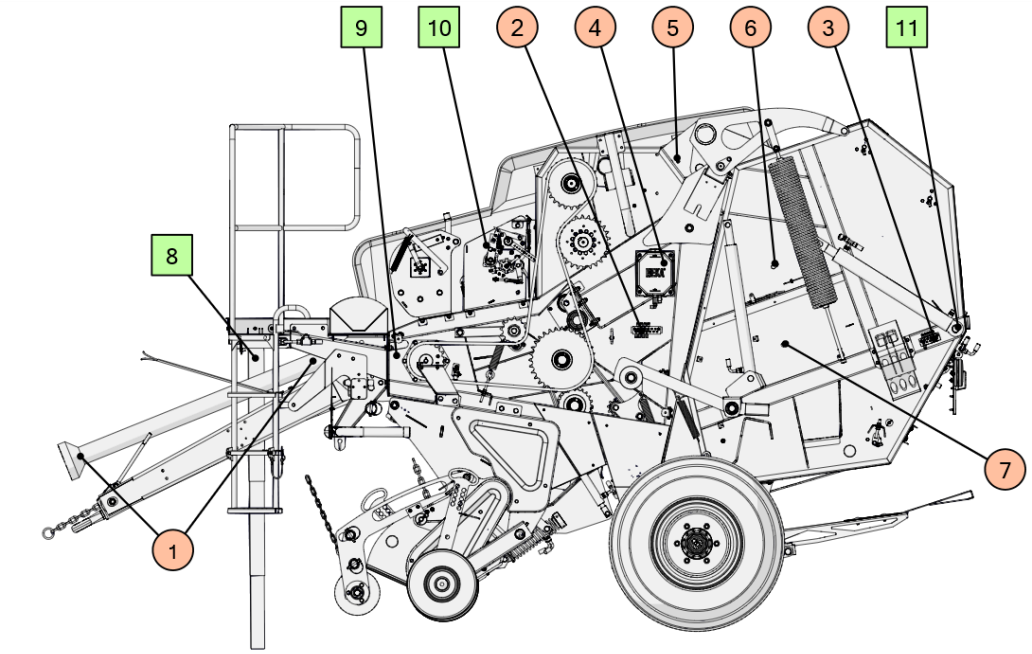
All lubrication points should be greased according to **Table 3 and Figure 25.**

The lubrication points are marked on the machine with the pictogram shown in the figure below.

Figure 25. Lubrication places marked on the Baler

Table 3. Lubrication schedule

Graphic label	Machine part	Grease product	Notes
Every 500 bales (or every day)			
1	PTO shaft	Multi-purpose grease	
2	Strip	Multi-purpose grease	Apply on both sides of the machine
3	Strip	Multi-purpose grease	
4	Automatic lubrication for chains	Grease product compliant with ISO VG 68 – ISO VG 220 (non-thickening)	Check oil level every day
5	Swing arm shaft	Multi-purpose grease	Apply on both sides of the machine Use a ladder to access the lubrication points
6	Swing arm shaft	Multi-purpose grease	Apply on both sides of the machine
7	Swing arm shaft	Multi-purpose grease	
Post-seasonally (when working in special conditions – once a week)			
8	Support foot	Multi-purpose grease	
9	Gear	80W90 gear oil	Change oil after the first 50 hours of operation For oil change procedure go to Section 7.10
10	Movable parts of the net wrapper	Machine oil	
11	Membrane	Multi-purpose grease	Apply on both sides of the machine



Grease every 500 bales (or every day)

Grease once post-seasonally (when working in special conditions – once a week)

Figure 26. Lubrication points

8.1 Lubricating the tailgate and tension arm shafts

Follow the procedure below to lubricate the tailgate and swing arm.

- Check that the bale chamber is empty
- Switch off the tractor's engine and remove the key from the ignition switch
- Lock the swing arm by engaging the cable (1) behind the hook (2), as shown in Figure 27
- Open the rear chamber
- Switch off the tractor's engine and remove the key from the ignition switch
- Lower the tailgate so it is open to ¼ of its movement range
- Secure the tailgate according to section 7.3.1
- Grease the shafts according to the lubrication schedule **(Table 3)**
- Release the tailgate using the hydraulic shut-off valve
- Latch the swing arm open
- Switch the tractor's engine on
- Open the tailgate
- Close the tailgate

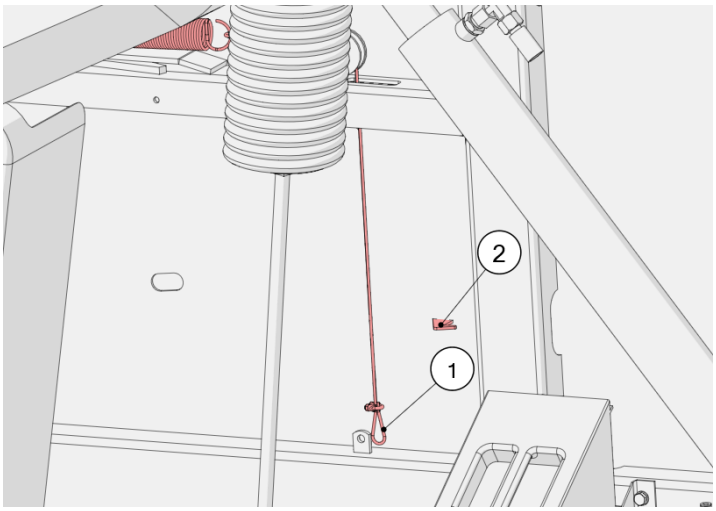


Figure 27. Lock the swing arm

8.2 The automatic lubrication system for chains

8.2.1 Check oil level in the tank

The automatic lubrication system for chains conveys oil from the tank to the machine chains.

Before checking the oil level in the tank, make sure that the PTO drive and the tractor engine are off, and the key is removed from the ignition.

The oil level should be above the minimum, as indicated on the tank.

Check the oil level each time before starting work. Refill if necessary.

CAUTION

CAUTION!

Using the mechanical pump without oil is prohibited. Operating the “dry” mechanical pump risks damaging it.

CAUTION

CAUTION!

The oil flow rates are pre-set by the service staff during the start-up. Do not change them. If adjustment is necessary, have it done by the service staff.

Always use clean oils. You must use grease products that are compliant with ISO VG 68 – ISO VG 220 (non-thickening).

8.2.2 Refilling the oil tank

Follow the procedure below to refill the oil tank.

- Make sure that the PTO drive is disconnected, the tractor engine is stopped and the ignition key is removed
- Open the left-hand side guard
- Clean off any dirt around the machine tank (2) to prevent it from getting inside (Figure 28)
- Twist the cap open (1)
- Check that the filter is clean, and if it is dirty, remove it, clean with benzine or oil and install in the tank
- Pour clean oil through the filter, until the maximum level indicated on the tank is reached
- Replace the plug (1)

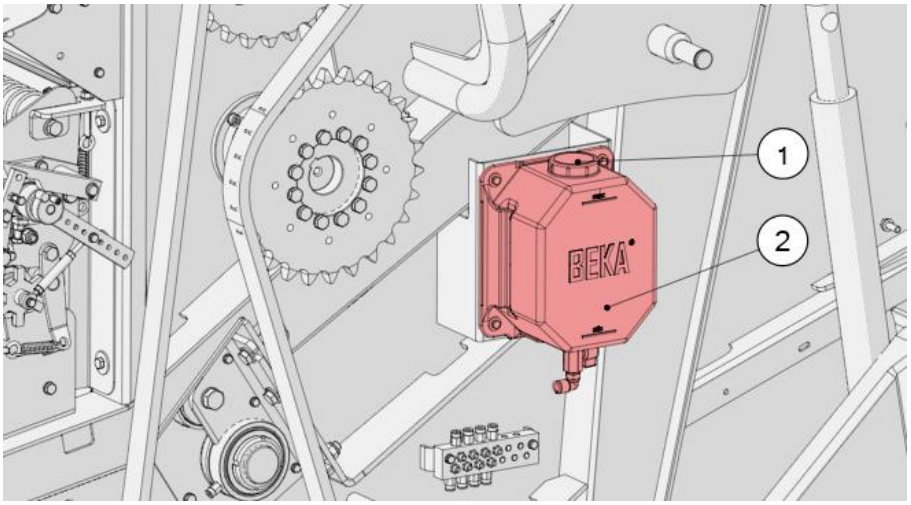


Figure 28. Automatic lubrication for chains

8.2.3 Bleeding the lubrication system pump

The pump for automatic chain lubrication must be bled before the machine is started for the first time and each time oil is drained from and refilled in the tank.

Follow the below procedure to bleed the pump.

- Make sure that the PTO drive is disconnected, the tractor engine is switched off, the ignition key is removed and the tractor hand brake is applied
- Open the left-hand side guard
- Disconnect all lines from the pump (1) (Figure 29)
- Place a container for oil under the pump (1)
- Start the tractor engine and engage the PTO drive
- Wait 20 seconds for air bubbles to escape from the pump
- Switch off the PTO drive, the tractor's engine, and remove the key from the ignition switch
- Connect the hoses to the pump Check that the connection is tight
- Check the oil level in the tank and refill, if necessary

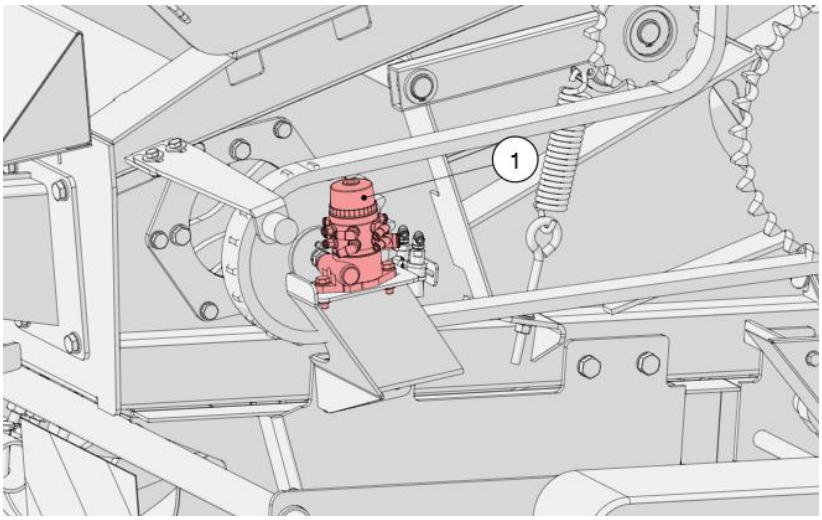


Figure 29. The pump of the automatic lubrication system for chains

8.3 Lubrication of bearings

The Z514 baler is fitted with the integrated bearing lubrication system. The strips (1) with grease nipples (2) enable the lubrication of machine bearings (Figure 30). The strips are located on the left- and right-hand side of the Baler. Grease them according to the lubrication schedule **(Table 3).**

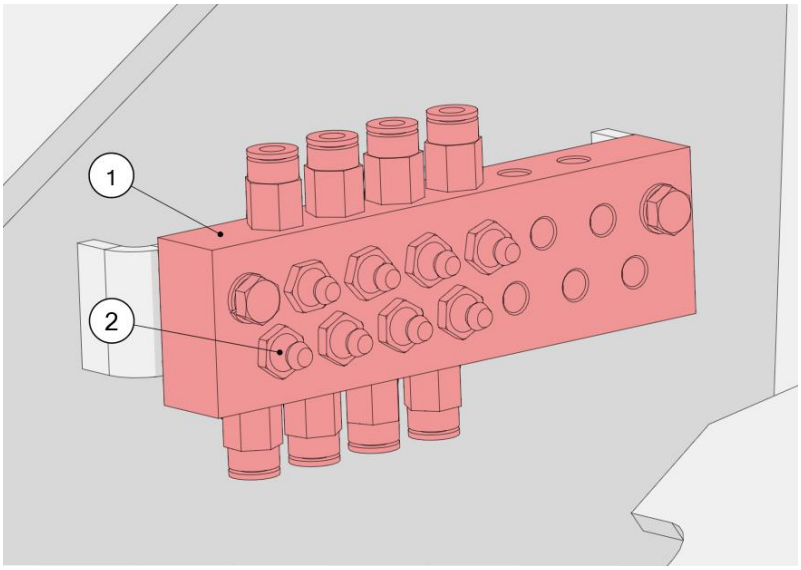


Figure 30. Central lubrication system for the bearings

9 Electrical system

WARNING

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

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 31.

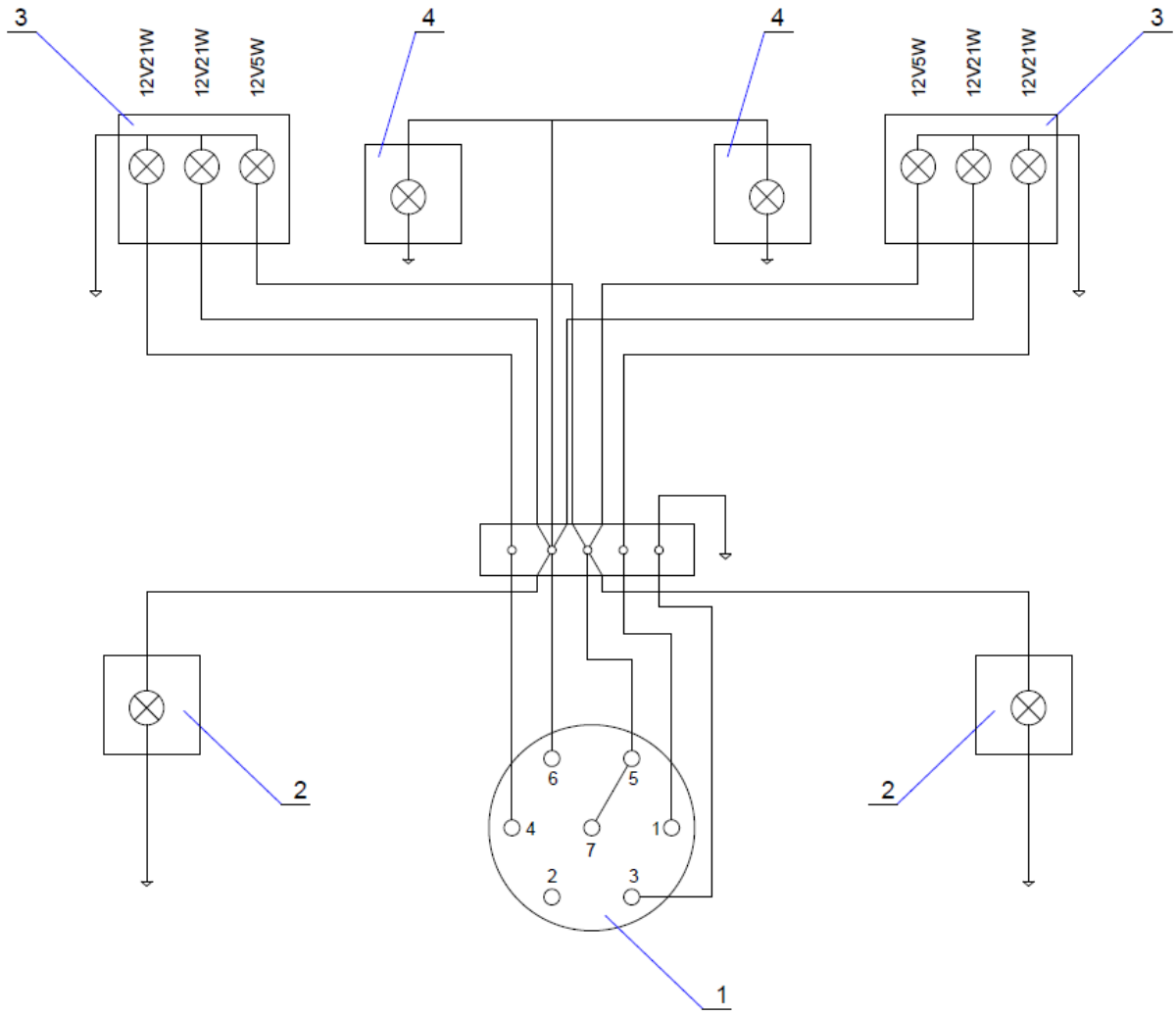


Figure 31. Wiring Diagram
1 – connection plug, 2 – head light, 3 – tail light,
4 – licence plate light

10 Table with values for bolt tightening torques

Table 4. 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	

11 Possible faults

Table 5. 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.	Check 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.	Chains loose or not lubricated.	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.
	Net brake adjusted incorrectly.	Adjust the net brake.

PTO shaft

Problem	Possible cause	Solution
Clutch for the PTO creaks.	Too big bale diameter or weight.	Decrease the bale diameter or weight.
	Feed unit blocked.	Remove any accumulated material.

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, carefully seal 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 “ERROR” and acoustic signal.	Maximum bale diameter exceeded.	Stop, wrap the bale in a net. Ensure the maximum bale diameter is not exceeded.
	No wrapping material (net).	Replenish the net cartridges.
	The sensor distance to the bolt adjusted incorrectly.	Position the sensor at 2-3 mm from the bolt.
Despite the chamber being closed, a message is displayed on the panel to close the chamber.	The sensor distance to the lever adjusted incorrectly.	The sensor should be at 2-3 mm from the lever.

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