



Operating manual

No. 766-2 GB

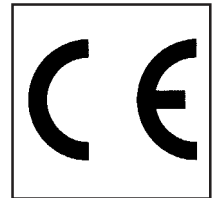
Round Baler
Vario Pack 1510
Vario Pack 1810

(from machine no. 541 290)





EC Declaration of Conformity
corresponding to EC directive 89/392/EEC



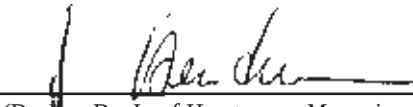
We **Maschinenfabriken Bernard Krone GmbH**
Heinrich-Krone-Str. 10, D-48480 Spelle

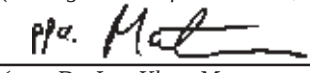
declare in our sole responsibility that the product

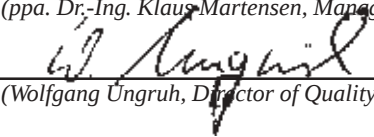
Krone Round Baler
Models: Vario Pack 1510; Vario Pack 1810

to which this declaration refers, corresponds to the relevant basic health and safety requirements of EC Directive 89/392/EEC; 3. amending directive of 22.7.93.

Spelle, 01.10.2002


(Dr.-Ing. Dr. Josef Horstmann, Managing Director)


(ppa. Dr.-Ing. Klaus Martensen, Manager of the engineering and design dep.)


(Wolfgang Ungruh, Director of Quality Control)

Dear customer,

You have now received an operating manual for the KRONE product which you have purchased.

This operating manual contains important information for the proper use and safe operation of the machine.

If this operating manual should for any reason become wholly or partially unusable, you can obtain a replacement operating manual for your machine by stating the number given on the other side.

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1 General Information

This operating manual contains basic instructions to follow for assembly, operation and maintenance. For this reason, these operating instructions must be read by operating personnel before commissioning and use, and need to be available for easy reference.

Follow both the general safety instructions contained in the section on safety and the specific safety instructions contained in the other sections.

1.1 Intended Operation

The Vario Pack 1510 and Vario Pack 1810 round balers are composite balers with variable bale chambers. They compact agricultural baling materials such as hay, straw or wilted silage into round bales. The variable bale chambers of the Vario Pack 1510 make it possible to produce round bales with a diameter of approximately 1.00 - 1.50 m; the Vario Pack 1810 produces bales approximately 1.00 - 1.80 m in diameter. The width of the round bales is 1.20 m. The round balers are equipped with a double twine and / or a net wrapping device.

1.2 Technical Data

1.2.1 General Information

This operating manual is valid for the Vario Pack 1510 and Vario Pack 1810 round balers starting with serial number 541 290.

1.2.2 Manufacturer's Address

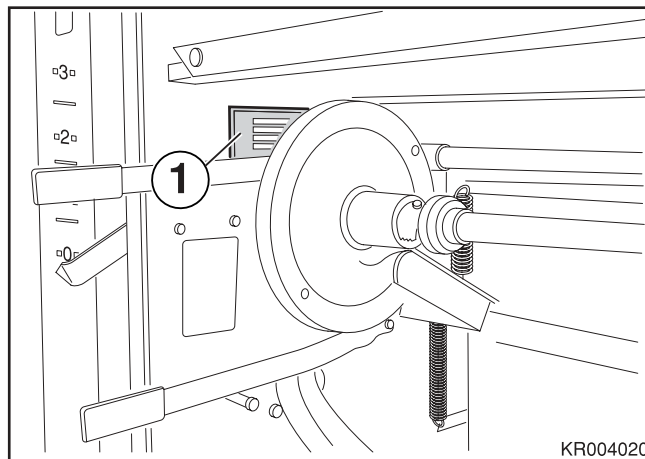
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E-mail: info.ldm@krone.de

1.2.3 Certification

Declaration of Conformity (The requirements of EC Machine Directive 89/392/EEC; 3. amending directive from 22.7.93 have been fulfilled.)
See reverse side of title page

1.2.4 Identification

The machine data are listed on an identification plate (1). This is located on the right-hand side of the machine under the twine box.



Type

Vehicle
ID No.

Year



The entire identification plate represents a legal document and should not be altered or rendered illegible!

1.2.5 Data Required for Questions and Orders

When making questions concerning the machine or ordering replacement parts, be sure to provide type designation, vehicle ID number and year of manufacture.



Genuine replacement parts and accessories authorized by the manufacturer help ensure safety. Use of other parts may void liability for damage which results.

1.2.6 Operation in Accordance with Intended Use

The Vario Pack 1510 and Vario Pack 1810 round balers are designed for use only for standard use in agricultural work (operation in accordance with intended use).

Any use of the machine for other purposes is deemed **not** to be in accordance with intended use. The manufacturer shall not be held liable for any damage which resulting from improper use, which is undertaken at the operator's own risk.

Operation in accordance with intended use also includes observing the operating, maintenance and service instructions specified by the manufacturer.

Permissible baling material:
grass fodder such as hay, straw and silage.



The collection and baling of other materials is permitted only with the prior approval of the manufacturer. The basic requirements in any case are swath form loading of the baling material and automatic lifting by the pick-up.

1.2.7 General Technical Data

- Road driving is permitted only when the bale chamber is empty and closed.
- Permissible top speed: 40 km/h / 30 km/h
- For machines which have no brakes, the pulling tractor's tare weight must correspond with the permitted operating specifications, or at least have a weight which corresponds with the baler's tare weight.
- For machines which have an operating permit, follow the conditions contained therein!
- When operating the baler in the field, a supporting load of 600 kg (on the ring hitch) should not be exceeded.
- Switch off the electrical operating control when driving on roads!



The tailgate must only be operated if the baler is attached correctly to the tractor. If this is not respected there is a risk of tipping to the rear.

1.2.8 Technical Data Vario Pack 1510 / Vario Pack 1810

Typ	Vario Pack 1510	Vario Pack 1810
Width approx. 11.5/80-15	2570	2570
15.0/55-17	2570	2570
19.0/45-17	2670	2670
Permissible weights	see information listed on the identification plate	
Track width	2150	2150
Tyres	11.5/80-15.3/8 PR 15.0/55-17/10 PR 19.0/45-17/10 PR	
Length approx.	4370	4760
with bale ejector	5140	5140
Height approx.	2570	2850
Pick-up width (DIN)	1950	
Bale dimensions diameter approx.	1000 - 1500	1000 - 1800
width approx.	1200	
Power requirement approx.	36 kW (50 PS)	40 kW (55 PS)
Drive speed (PTO shaft)	540 U/min	
Max. permissible operating pressure of the hydraulic system	200 bar	
Electrical supply	Lighting	12 Volt - 7poliger Stecker
	Control System	12 Volt - 3poliger Stecker (DIN 9680)
Twine		
Open air storage	synthetic twine 400 - 600 m / kg	
Indoor storage	sisal twine 150 - 300 m / kg	
Net		
Width	1250 ± 5mm	
Sleeve length	1250 - 1270 mm	
Sleeve diameter	ø 75 - 80 mm	
Roll diameter	max. 310 mm (3000 m Rolle)	
Overload protection (PTO shaft)		
Friction clutch	1200 Nm	



2 Safety

2.1 Identifying Safety Instructions in the Operating Manual

The safety instructions contained in this manual which could result in personal injury if not followed are identified by the general danger sign:



safety sign in accordance with DIN 4844 - W9

General function instructions are indicated as follows:



Instructions which are attached to the machine need to be followed and kept fully legible.

2.2 Safety Instructions and Accident Prevent Regulations

2.2.1 Personnel Qualification and Training

Persons who use, service or repair the round baler must be trained in its use and instructed as to the risks connected with its operation. The operator must define spheres of responsibility and monitoring of personnel. Should personnel lack the required knowledge they must receive the required training and instruction. The operator must ensure that the contents of this operating manual have been fully understood by personnel.

Repair work not described in this operating manual should be completed by authorised service centres only.

2.2.2 Failure to Follow the Safety Instructions

Failure to follow the safety instructions could result in personal injury and environmental hazards as well as damage to the machine. Failure to follow the safety instructions could result in the forfeiture of any claims for damages.

Failure to follow the safety instructions could result, **for example**, in the following hazards:

- risk to persons by failure to secure the working area
- breakdown of important machine functions
- failure of prescribed methods for repair and maintenance
- risk to persons due to mechanical and chemical effects
- damage to the environment due to leaking hydraulic oil

2.2.3 Working in a Safety Conscious Manner

Follow the safety instructions included in this operating manual, existing accident prevention rules and any internal work, operating and safety rules set out by the operator.

The safety and accident prevention regulations of the responsible professional associations are binding.

The safety instructions provided by the vehicle manufacturer should also be observed.

Observe the applicable traffic laws when using public roads (for example, in Germany, the Road Traffic Type Approval Law and Road Traffic Law).

2.2.4 Safety Instructions and Accident Prevention Regulations

1. Please follow all generally applicable safety and accident prevention regulations in addition to the safety instructions contained in this manual!
2. The attached warning and safety signs provide important information for safe operation. Pay attention to these for your own safety!
3. When using public roads, make sure to observe the applicable traffic regulations!
4. Make sure that you are familiar with all equipment and controls as well as their functions before you begin working with the machine. It is too late to learn this when you are operating the machine!
5. The user should wear tight fitting clothes. Avoid wearing loose or baggy clothing.
6. Keep the machine clean to prevent the danger of fire!
7. Before starting or moving the machine, make certain that nobody is in the vicinity of the machine! (Watch for children!) Make sure that you have a clear view!
8. Carrying passengers during operation and transport on the working implement is not permitted.
9. Attach implements correctly! Attach and secure implements to specified devices only!
10. When attaching or removing implements, place the supporting devices in the correct positions!
11. Use extreme caution when attaching or detaching implements onto or from the tractor!
12. Always attach ballast weights properly to the fixing points provided!
13. Observe permitted axle loads, gross weight and transport dimensions!
14. Check and attach transport equipment such as lighting, warning devices and any protective equipment!
15. Actuating mechanisms (cables, chains, linkages etc.) for remote controlled devices must be positioned in such a way that no movements are unintentionally triggered at any transport or working positions.
16. Ensure that implements are in the prescribed condition for on-road travel and lock them in place according to the manufacturer's instructions!
17. Never leave the driver's seat when the vehicle is moving!
18. Always drive at the correct speed for the prevailing driving conditions! Avoid sudden changes in direction when traveling uphill or downhill or across a gradient!
19. Attached implements and ballast weights effect the driving, steering and braking response of the machine. Make sure that you are able to brake and steer the machine as required!
20. Take into account the extension radius and/or inertia of an implement when turning corners!
21. Start up implements only when all protective devices have been attached and set in the required position!
22. Keep clear of the working range of the machine at all times!
23. Do not stand within the turning and slewing range of the implement!
24. Never operate the hydraulic folding frames if anyone is inside the slewing range!
25. Parts operated by external power (e.g. hydraulics) can cause crushing and shearing injuries!
26. Before leaving the tractor, lower the implement onto the ground, switch off the engine and remove the ignition key!
27. No one should stand between the tractor and the implement unless the vehicle has been secured against rolling by the handbrake and/or wheel chocks!

2.2.5 Trailer Implements

1. Secure implements against rolling.
2. Observe the maximum supported load on the trailer coupling, swing drawbar or hitch!
3. If a drawbar coupling is used, make certain that there is enough play at the coupling point.

2.2.6 Power Take-Off Operation

1. Use only PTO shafts specified by the manufacturer!
2. The guard tube and guard cone of the PTO and the PTO guard must be attached and in good working condition (on the implement side, too)!
3. Make sure that the required tube covers are in place for PTO shafts in transport and working position!
4. Before installing or removing PTO shafts, disengage the PTO, switch off the engine and remove the ignition key!
5. When using PTO shafts with an overload safety or free-running coupling which are not shielded by the guard on the tractor, mount the overload safety or free-running coupling on the implement side!
6. Always make sure that the PTO shaft is properly installed and secured!
7. Attach chains to prevent the PTO shaft guard from rotating with the shaft!
8. Before engaging the PTO shaft, make sure that the selected PTO shaft speed of the tractor matches the permissible implement speed!
9. Before engaging the PTO shaft, make sure that no one is in the hazard area around the implement!
10. Never engage the PTO shaft if the engine is switched off!
11. No one should be in the vicinity of the rotating PTO shaft when it is in use.
12. Always switch off PTO shaft when the angle is too large or the PTO shaft is not required!

13. **Caution!** The flywheel will continue to rotate for some time even after the PTO shaft has been disengaged! Keep clear of the implement during this time. Do not do any work on the implement until the machine has come to a complete standstill and the flywheel has been secured using the hand brake.
14. Disengage the PTO shaft, stop the engine and remove the ignition key before cleaning, lubricating and adjusting the PTO shaft driven implements or the PTO shaft! Secure the flywheel with the hand brake.
15. Place the disconnected PTO shaft onto the bracket provided!
16. After removing the PTO shaft, attach the protective cover to the PTO shaft end!
17. If damage occurs, correct this immediately before using the implement!

2.2.7 Hydraulic System

1. The hydraulic system is pressurized!
2. When connecting hydraulic cylinders and engines, make sure that the hydraulic hoses are connected correctly!
3. When connecting the hydraulic hoses to the tractor hydraulics, make sure that the hydraulics of both the tractor and the implement have been depressurized!
4. In the case of hydraulic connections between tractor and implement, the coupling sleeves and plugs should be marked to ensure a proper connection! If the connections are reversed, the function will be reversed (e.g. raise/lower) - **risk of accidents!**
5. Check the hydraulic hose lines at regular intervals and replace them if damaged or worn! The new hoses must fulfill the technical requirements set by the manufacturer of the implement!
6. When searching for leaks, use suitable aids to avoid the risk of injuries!

7. Liquids escaping under high pressure (hydraulic oil) can penetrate the skin and cause serious injury! Seek medical help immediately should injuries occur! Risk of infection!
8. Before working on the hydraulic system, lower the implement, depressurize the system and switch off the engine!

2.2.8 Tyres

1. When working on the tyres, make sure that the implement has safely lowered and secured against rolling (wheel chocks).
2. Installing wheels and tyres requires adequate knowledge and suitable tools!
3. Repair work on the tyres and wheels should be done by specially trained personnel using appropriate installation tools only!
4. Check tyre pressure regularly! Inflate the tyres to the recommended pressures!

2.2.9 Maintenance

1. Always make certain that the drive and the engine are switched off before doing any repairs, maintenance or cleaning!
- Remove the ignition key! Secure the flywheel with the hand brake.
2. Regularly check that nuts and bolts are properly seated and tighten if necessary!
3. When doing maintenance work to a raised implement, always use suitable means to secure it against falling.
4. When replacing working tools with cutting edges, use suitable tools and gloves!
5. **Dispose of oils, greases and filters according to regulations!**
6. Always disconnect the power supply before working on the electrical system!

7. If protective devices and guards are subject to wear, check them regularly and replace them in good time!
8. When doing electrical welding on the tractor and attached implements, disconnect the alternator and battery cables!
9. Replacement parts must at least comply with the technical requirements set by the manufacturer of the implements!
This is ensured by using genuine KRONE replacement parts!
10. Only use nitrogen for filling pneumatic accumulators - **Risk of explosion!**

2.2.10 Unauthorized Modification and Manufacture of Replacement Parts

Modifications to the machine is permitted only with the prior approval of the manufacturer. Genuine replacement parts and accessories authorized by the manufacturer ensure safe use. Use of other parts may void liability for damage which results.

2.2.11 Prohibited Modes of Operation

The operational safety of the machine is guaranteed only if it is used for its intended purpose in accordance with the General Information chapter of the operating manual. The limit values listed in the data charts should not be exceeded under any circumstances.

2.3 Introduction

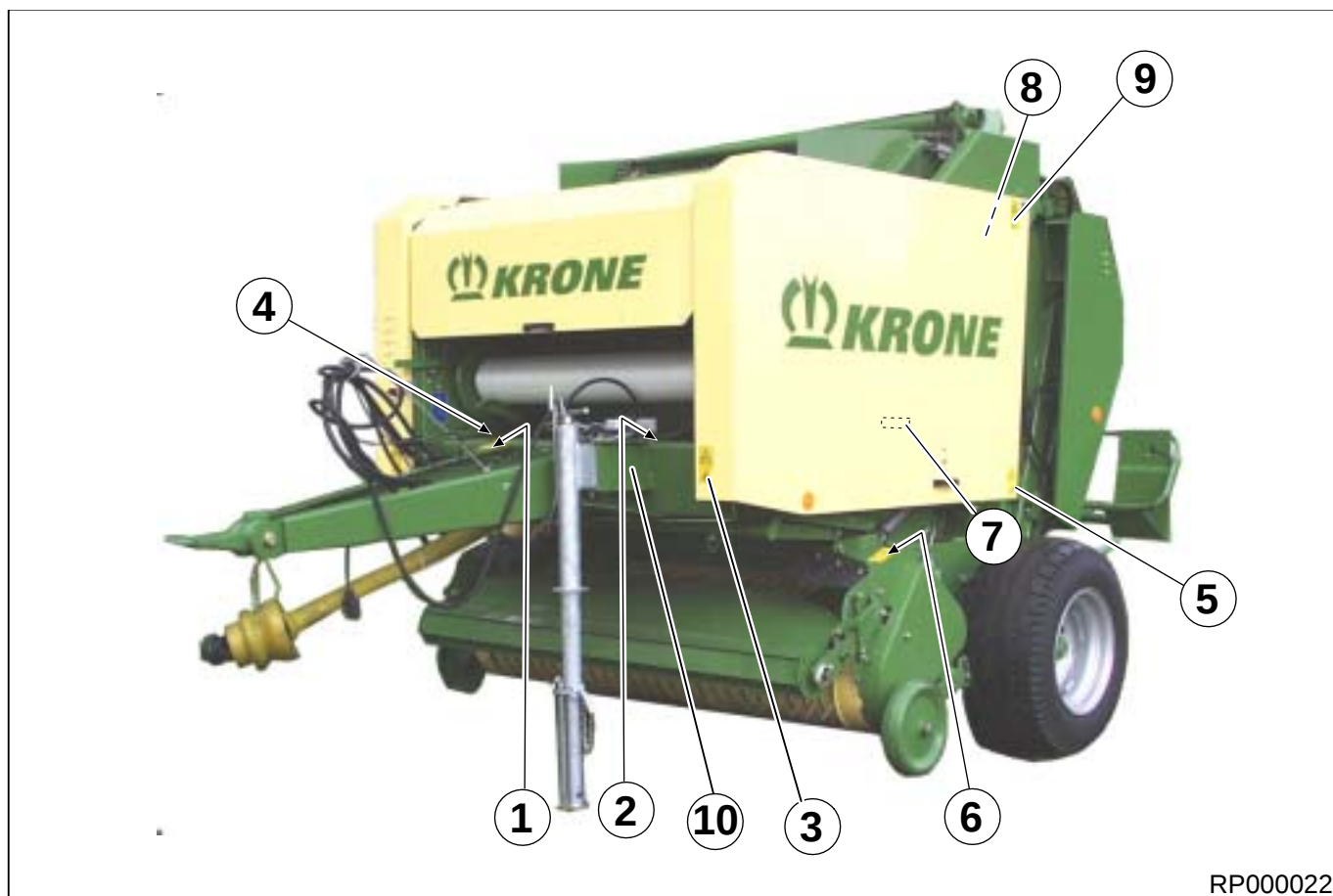
The KRONE round baler is equipped with all required safety devices (protective equipment). However, it is not possible to eliminate all potential hazards on this machine as this would impair its full functional capability. Corresponding danger notices attached to the machine warn against any dangers.

The safety instructions are provided in the form of so-called warning pictograms. Important information on the location of these safety signs and what they mean is given below!



Familiarise yourself with the meaning of these warning signs. The text printed next to the danger sign and its location on the machine indicate where specific hazards are located on the machine.

2.3.1 Location of Safety Decals on the Machine



left side of the machine



right side of the machine

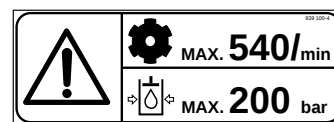
①

Before putting the machine into operation read and observe the operating instructions and notes on safety.

Order No. 939 471-1 (1x)



②



Order No. 939 100-4 (1x)

The PTO shaft speed may not exceed ! The hydraulic system operating pressure may not exceed 200 bar!

③

Never reach into the pick-up area when the tractor engine is running and the PTO shaft is connected.

Order No. 939 407-1 (2x)



④

Do not reach into the danger area under the wrapping and binding mechanism. Danger from sharp blades! Observe the operating notes!

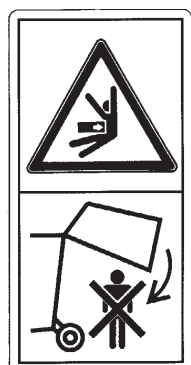
Order No. 939 125-1 (1x)



⑤

Do not step under the raised tailgate. Before carrying out any maintenance work close the shut-off tap on the cylinder.

Order No. 939 521-1 (2x)



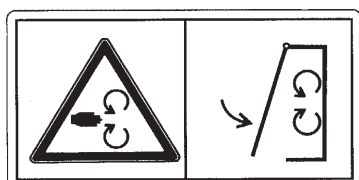
⑥

Danger from rotating auger.

Order No. 939 520-1 (2x)



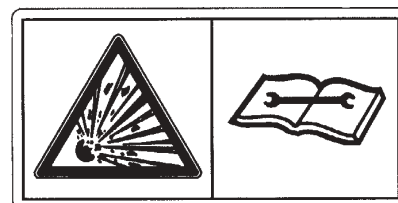
⑦



Close the guard before putting into operation.

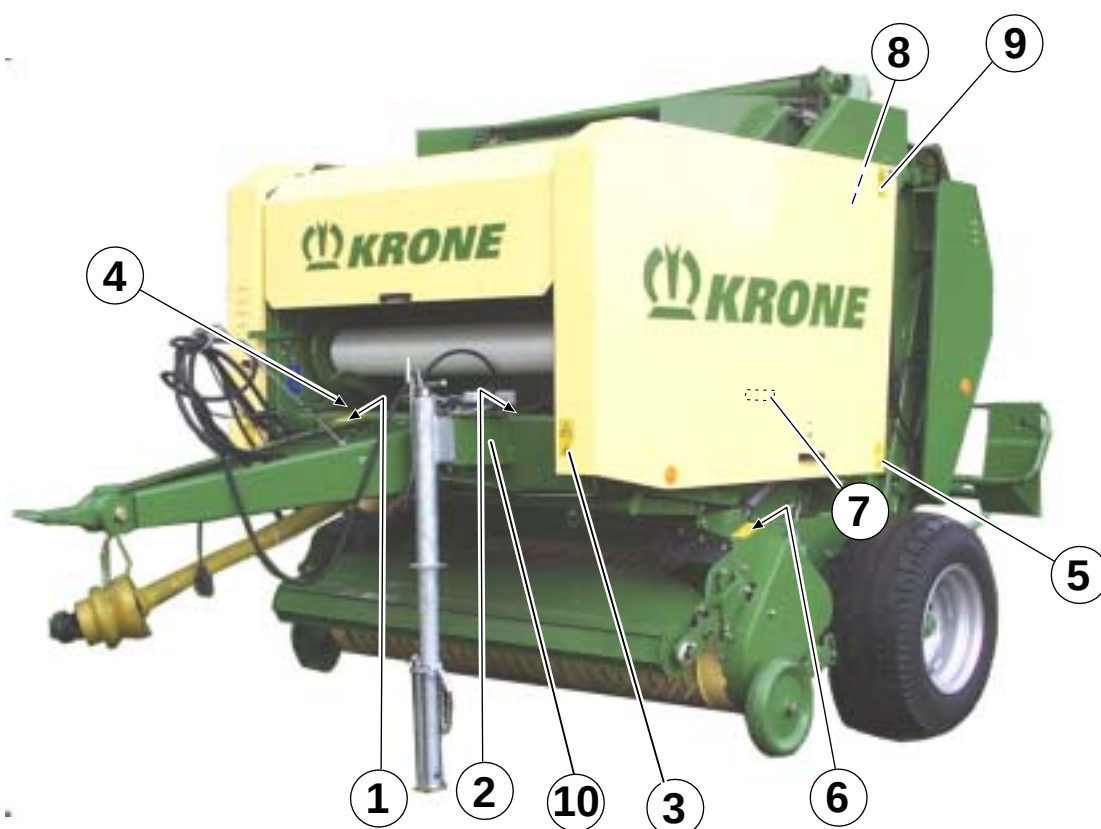
Order No. 942 002-4 (2x)

⑧



Accumulator is under gas and oil pressure. Repairs can be carried out only in connection with replacement of the complete unit.

Order No. 939 529-0 (2x)



RP000022

left side of the machine



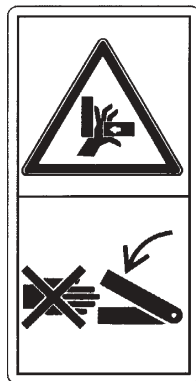
RP000019

right side of the machine

9

While parts are moving,
never reach into areas
where there is a risk of
being crushed.

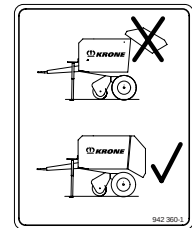
Order No. 942 196-1 (2x)



10

The tailgate must only
be operated if the baler
is attached correctly to
the tractor.

Order No. 942 360-1 (1x)



2.3.2 Location of General Information Labels on the Machine



RP200023

left side of the machine



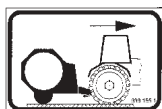
RP000024

right side of the machine

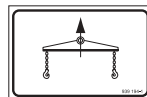
The information labels indicate special features of the machine which must be observed in order to ensure troublefree function.



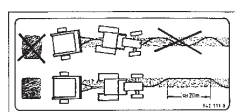
① 939 147-2 (1x)



② 939 155-2 (1x)



③ 939 194-1 (2x)



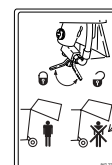
⑤ 942 111-0 (1x)



⑥ 441 071-2 3,0 bar
441 072-2 3,5 bar
441 074-2 4,5 bar



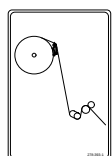
⑦ 942 132-0 (1x)



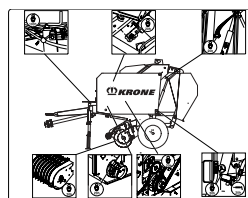
⑧ 942 274-0 (2x)



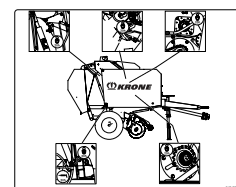
⑨ 939 428-2 (1x)



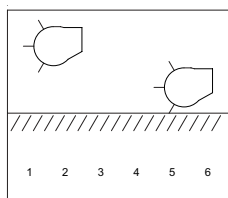
⑩ 278 393-1 (1x)



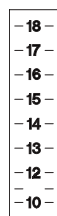
⑪ 942 356-2 (1x)



⑫ 942 357-1 (1x)



⑬ 279 985-1 (1x)



⑭ 279 120-0 (1x)



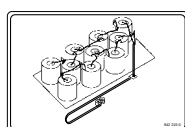
⑮ 924 573-0 (2x)



⑯ 924 574-0 (2x)



⑰ 939 145-1 (1x)



⑱ 942 215-0 (1x)

3 Before and After Use

3.1 Commissioning

Before commissioning the round baler needs to be fully assembled and matched to the towing vehicle (refer to Appendix A "Commissioning").

If a different towing vehicle is used later, the following needs to be checked and adjusted if necessary:

- drawbar height (see Appendix A "Commissioning")
- PTO shaft length (see Appendix A "Commissioning")

Special Safety Instructions

In addition to the general safety instructions, other special safety instructions apply for round baler operation.



- The following general rules apply to all maintenance, assembly, repair and adjustment work: Bring the machine to a complete standstill. Switch off the engine, remove the ignition key. Secure the tractor and round baler against rolling.
- Maintain an adequate safety distance to all moving parts of the round baler during operation. This applies especially to the baling material pick-up equipment. Remove clogs only when the PTO has been switched off and the engine is at a standstill.
- Never stand in the slewing range of the tailgate or underneath the tailgate when it is unlocked. During maintenance, assembly or repair work inside the bale chamber or to the tailgate always secure it against falling using the shut-off tap. Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Should dangerous situations develop, switch off the PTO immediately and bring the round baler to a standstill.
- Never let the round baler run if no operating personnel are on the tractor.
- The round baler can only be operated at a PTO speed of 540 r.p.m.
- When working on slopes, always deposit round bales in such a way that they do not move. Should the bales start to move, they could cause serious accidents due to their weight and cylindrical form.

3.2 Hitching



Observe the maximum permissible support and hitching loads for the tractor!

Hitch and secure the round baler to the tractor hitch in accordance with specifications.



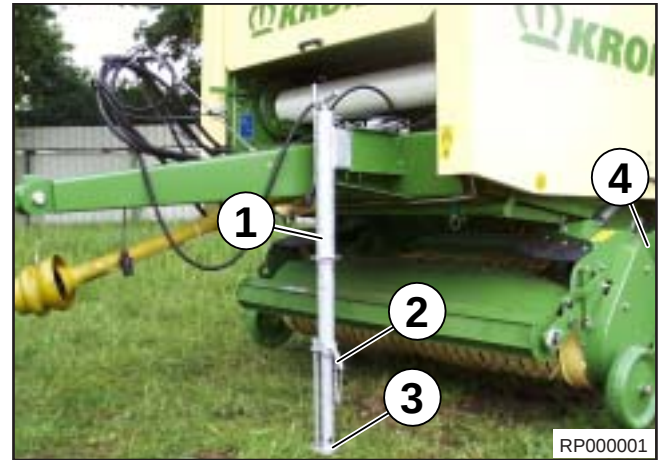
Risk of hands and feet being pinched when the jack stand is actuated!

Set the jack stand in the transport position:

- Crank the support plate (3) upwards until pressure is relieved on the jack stand (1).
- Remove stake bolt (2) and slide lower support pipe upwards, securing it with the stake bolt (2).
- Turn the jack stand (1) to the upper position.
- Bring support chocks (4) into transport position.
- Turn support plate (3) in such a way that the flat side faces the pick-up.

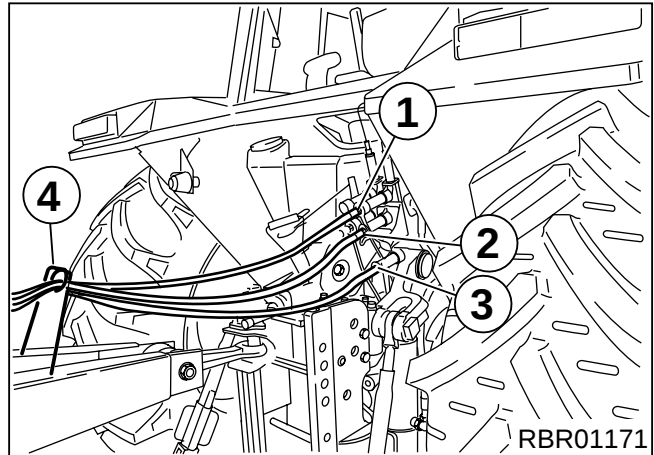


When connecting the hydraulic hoses, make sure that the tractor and machine hydraulics have been depressurized.



- Clean the hydraulic hose plugs (1) and (2) before connecting them.
- Draw the hydraulic hoses through the hose bracket (3).
- Connect the hydraulic hoses (1) and (2) to the tractor hydraulics according to colour.

1. **connection:** tailgate operation **red** protective cap.
2. **connection:** pick-up operation **yellow** protective cap.
3. **connection:** free return **blue** protective cap.



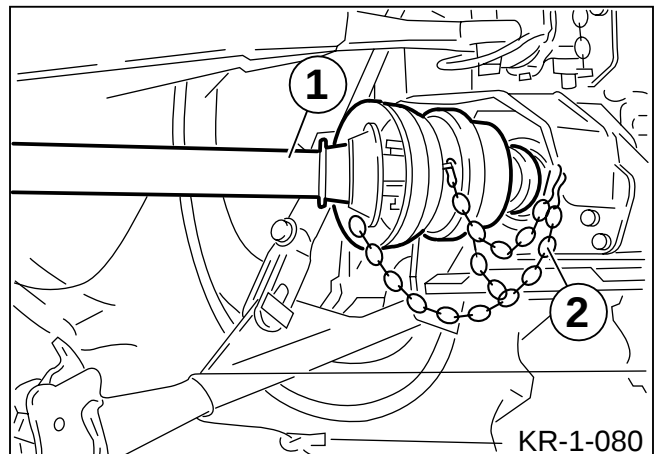
PTO Shaft

- Push the PTO shaft (1) onto the tractor PTO shaft.



The safety mechanism must engage (see the operating instructions provided by the PTO shaft manufacturer).

- Secure the PTO shaft guard retaining chains (2).

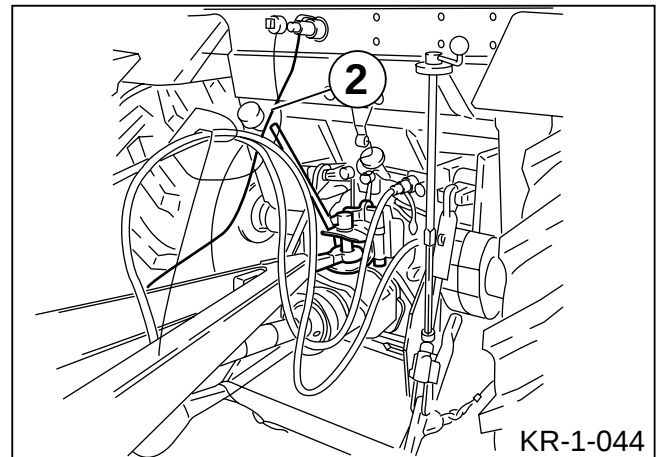


Electrical Supply

- Connect the lighting equipment connection cable (2) to the 7-pin tractor electrical system plug-in connector.
- Position the cable so that it will not come in contact with the wheels.
- Install the control console so that it is easily visible to the driver.
- Connect the power supply cable (DIN 9680) to the 3-pin power supply plug.

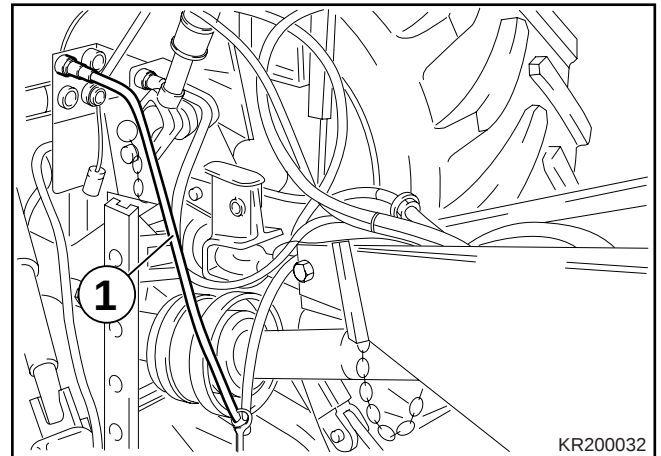


**If the tractor is not equipped with this connection – order the socket and connecting cable from the Replacement Parts Service.
(Part no. 0302-068-0)**



Hydraulic Brake (Export)

Certain export models are provided with a hydraulic brake. These models require ein Bremsventil am Schlepper benötigt. The corresponding hydraulic hose (1) is connected to the Bremsventil on the tractor. The brake is activated by actuating the Bremspedal.



Hydraulic Brake (Hilfsbremse)

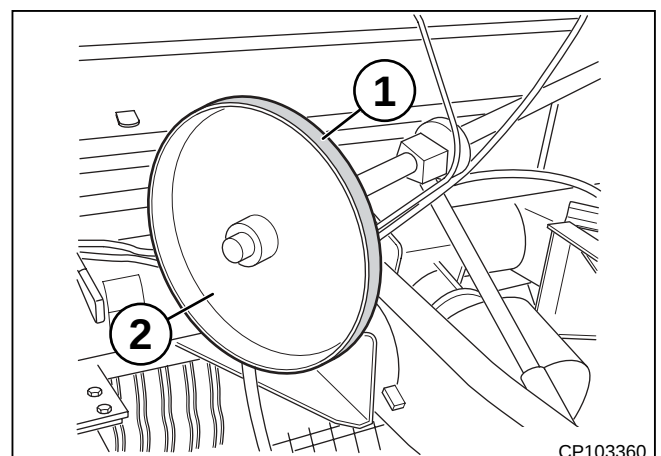
Für bestimmte Einsatzverhältnisse können Maschinen, die sonst für den Straßentransport keine eigene Bremse benötigen mit einer hydraulischen Hilfsbremse ausgerüstet werden. Bei dieser Version wird ein zusätzliches einfachwirkendes Steuerventil und ein zusätzlicher freier Rücklauf benötigt. Durch Betätigen des Steuerventils wird die Bremse aktiviert.

Am Druckbegrenzungsventil an der Presse kann der Druck reguliert werden. Das Druckbegrenzungsventil ist auf ca. 50 bar eingestellt.

Net brake



When starting-up for the first time, completely remove the protective tape from the brake surface (1) of the net brake disk (2).



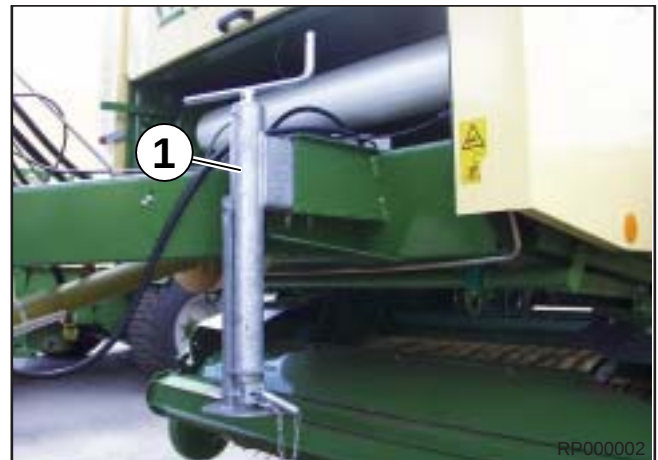
3.3 Road Driving



- Driving on public roads is permitted only if the bale chamber is empty and locked.
- If the round baler is not equipped with brakes, the weight of the tractor must be at least equal to the empty weight of the baler.
The empty weight of the baler is listed under "Technical Data".
- Permissible top speed: 40 km/h / 30 km/h.
- Carrying passengers on the round baler is not permitted.
- Check the road safety of the round baler before driving on public roads. In particular, check the lighting equipment and tyres, make sure that the protective plates have been secured, the pick-up is secured in the raised position and that the bale chamber is locked.
- Before starting, ensure that you have perfect visibility on and around the tractor and the round baler.

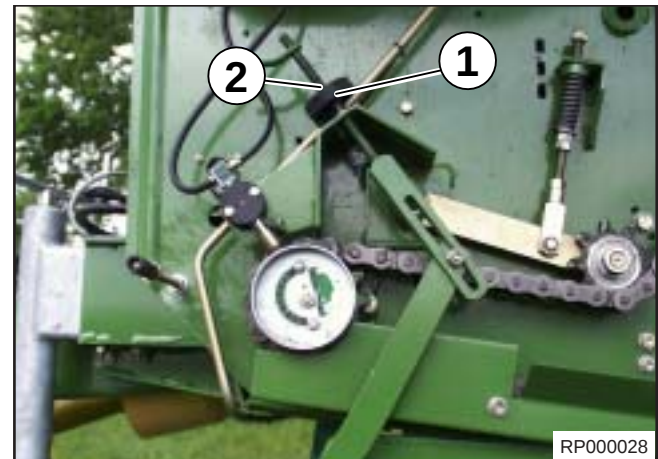
Jack stand

- Shut off voltage supply to comfort controls
- Check that the jack stand (1) is in transport position.



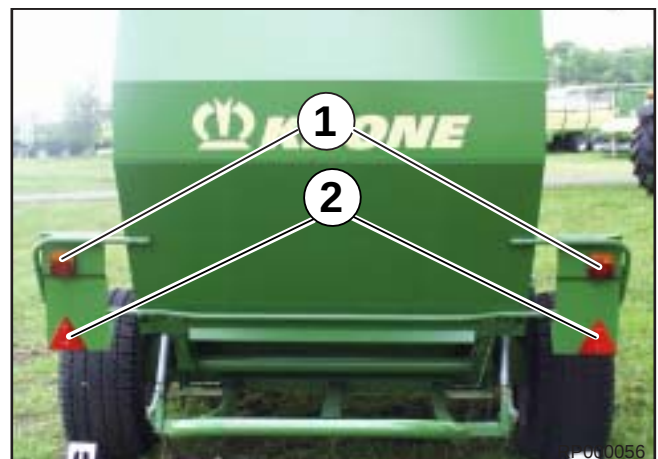
Pick-up

- Check that the pick-up has been secured in the raised position.
- Secure pick-up, if necessary.
- Switch off the Controls.
- Slacken the nut (2).
- Lock the pick-up using hand wheel (1).
- Tighten nut (2).



Lighting Equipment

- Connect the lighting unit to the tractor electrical system.
- Check and clean the tail lights (1) and rear reflectors (2).
- Check and clean the lateral reflectors.



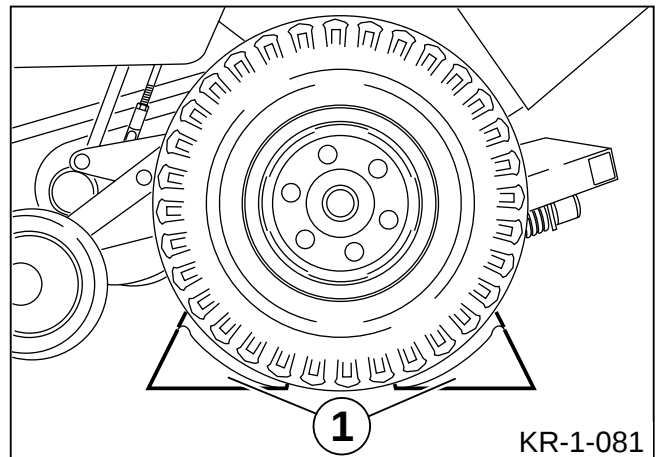
3.4 Unhitching



- Always park the round baler on firm, level ground.
- If the baler must be parked on soft ground, increase the supporting surface of the jack stand.
- Before unhitching, place wheel chocks under the wheels to prevent the round baler from rolling.
- The tailgate must only be operated if the baler is attached correctly to the tractor. If this is not respected there is a risk of tipping to the rear.
- Be careful when lowering the jack stand.
Risk of crushing!
- Depressurize the hydraulic system before disconnecting the hydraulic hoses.
- Remove the PTO shaft only if the motor is switched off.
Remove the ignition key.

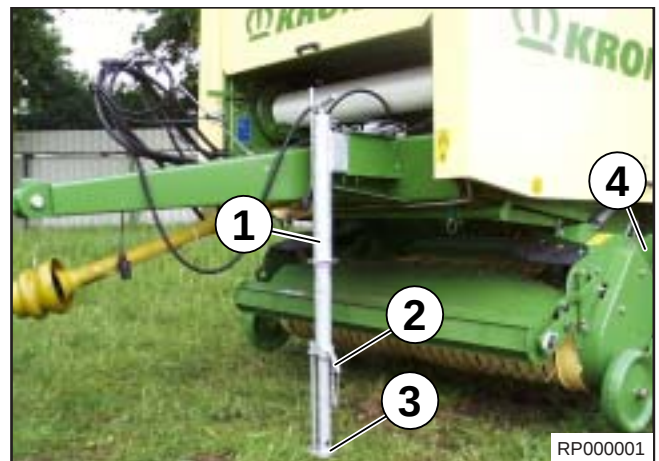
Park the round baler on firm, level ground.

Place two wheel chocks (1) under the wheels to prevent the baler from rolling.
The wheel chocks are located on both sides of the machine.

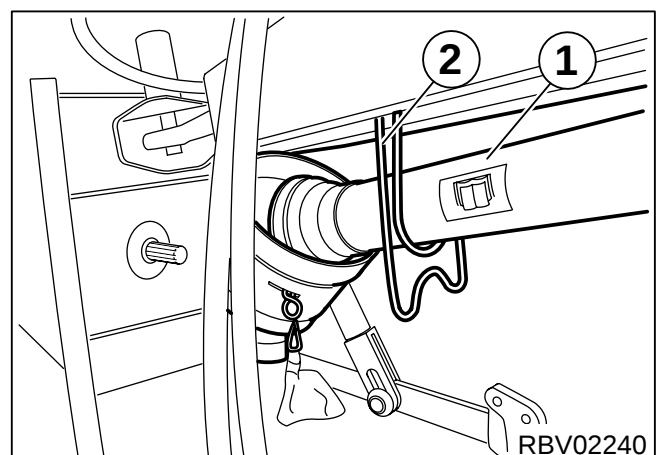


Set the jack stand in the support position

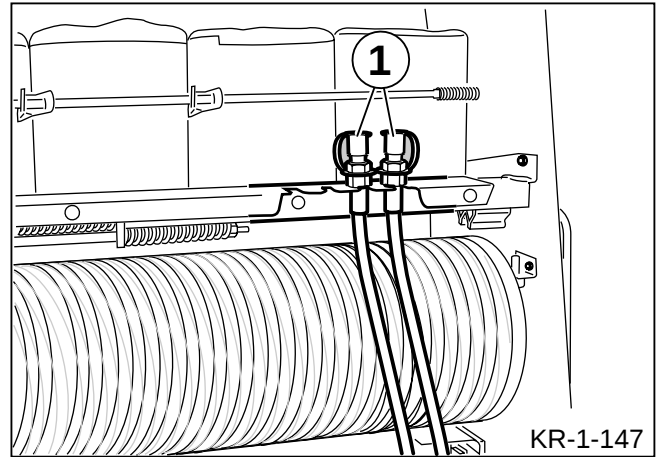
- Remove stake bolt (2), bring the support pipe out of the jack stand (1) and then secure again with the stake bolt (2).
- Crank the support plate (3) tightly onto the ground until pressure on the the drawbar has been relieved.



- Disconnect the PTO shaft (1) from the tractor.
- Place the PTO shaft (1) inside the PTO shaft bracket (2).



- Disconnect the hydraulic hoses (1) and electrical connecting cable.
- Store these properly in the corresponding receptacle on the twine box.
- Disengage the trailer coupling or pull the pin.
- Drive the tractor away slowly.



4 Operation

Special Safety Instructions

In addition to the general safety instructions, other special safety instructions apply for round baler operation.



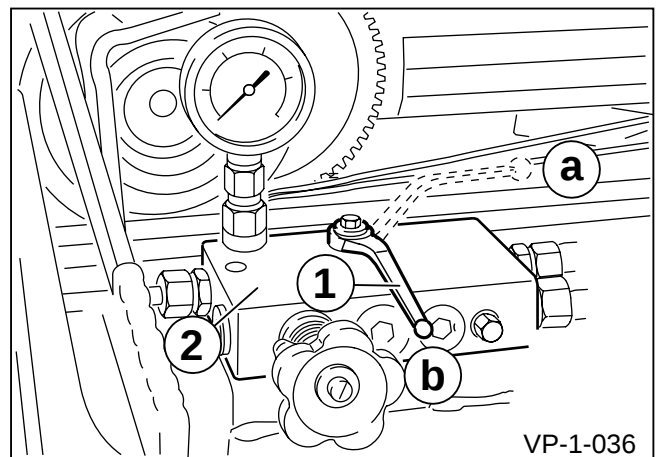
- The following general rules apply to all maintenance, assembly, repair and adjustment work: Bring the machine to a complete standstill.
Switch off the engine.
Remove the ignition key.
Secure the tractor and round baler against rolling.
- Maintain an adequate safety distance to all moving parts of the round baler during operation. This applies especially to the baling material pick-up equipment.
Remove clogs only when the PTO has been switched off and the engine is at a standstill.
- Never stand in the slewing range of the tailgate or underneath the tailgate when it is unlocked.
During maintenance, assembly or repair work inside the bale chamber or to the tailgate always secure it against falling using the shut-off tap.
Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Should hazardous situations develop, switch off the PTO immediately and bring the round baler to a standstill.
- Never let the round baler run if no operating personnel are on the tractor.
- The round baler can only be operated at a PTO speed of 540 r.p.m.
- When working on slopes, always deposit round bales in such a way that they do not move. Should the bales start to move, they could cause serious accidents due to their weight and cylindrical form.

4.1 Adjustments Before Starting Work

Before starting work, complete or check the following:

- Stretch the bale chamber floor conveyor.
Rotate the shut-off tap (1) of the control valve (2) from position "a" to position "b". Lift tailgate.
- Check the pick-up's working height.
- Check the position of the baffle plate.
- Use of the bale ejector.
- Select baling pressure
- Use of additional feed slats.
- Select twin or net wrapping.
- Insert twine or net.
- Check functioning of the chain lubrication device.
- Reset bale counters.

The required procedures are described in Chapter 5 (Basic Settings and Operation).



Short, crumbly straw:

- reduce the number of cutter blades or switchoff the cutting system or remove blades
The blades can be stowed on the right hand side of the machine.

Small, flat windrows:

- reduce PTO speed
or
- increase forward speed

Straw varies greatly in structure. It is not always possible to work at the highest possible pressure. Additional feed bars can be installed in this case (see section 5.7).
Adapt the round baler setting to prevailing conditions.

4.2 Forward Speed and PTO Speed

The forward speed during use depends on the following factors:

- type of baling material
 - moisture content of the baling material
 - height of windrows
 - ground conditions
- Match forward speed to prevailing conditions.
 - Do not overload the round baler.
 - Maintain a forward speed between 5 - 12 km/h
 - When baling a round bale, reduce speed at the start and finish of the baling process.

4.3 Filling the Bale Chamber

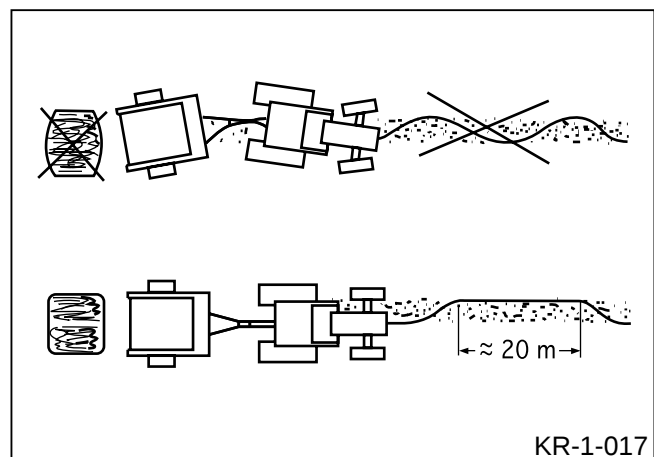
To attain a consistent bale density inside a round bale, the bale chamber should be filled evenly. The swath width is an important factor here.

The swath width is optimal if the swath has exactly the same width as the bale chamber.

If the swath is wider than this, distortion of the round bales may result. The round bale will be frayed on the sides and difficult to eject from the bale chamber.

If the swath is narrow, the bale chamber can be filled evenly only by driving onto the swath from alternate sides (left/right). Do not zigzag: drive long distances on the left and right side of the swath as shown in the illustration. Too frequent changes and uneven filling of the bale chamber will produce barrel-shaped round bales and uneven bale density.

It can be seen at the density indicators when the preset bale diameter is reached. Besides an audible warning will sound and the indicator lights of the electric starting device will go out.



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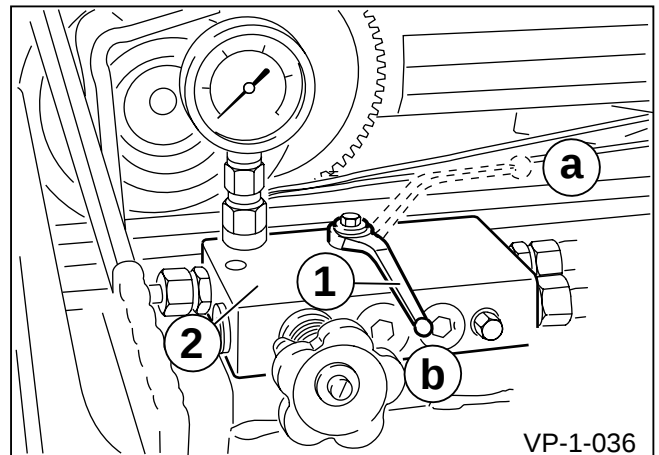
Barrel-shaped round bales can cause damage to the floor conveyor. Distorted and thick round bales are detrimental to proper silage production.

4.4 Wrapping and Depositing Bales

- Start tying / wrapping procedure (see Chapter 6) , continue baling material pick-up until tying or wrapping material is pushed into the bale chamber by the baling material and picked up by the round bale, **maintain the nominal speed of 540 rpm when doing this, until the wrapping process is complete.**
- Stop the towing vehicle until the tying or wrapping procedure has been completed.
- Eject the round bale from the bale chamber.
Always fully open the rear flap as the cylinders must be fully extended to generate the pressure for the floor conveyor tension.
- Always close the bale chamber and start the next baling process.

4.5 After Baling

Slacken the bale chamber floor conveyor.
After baling work has been completed, the front and rear floor conveyors must be slackened.
Rotate the shut-off tap (1) of the control valve (2) from position “b” to position “a”.
The floor conveyor pressure cylinders are pressureless.



Drive chain for pick-up with cam-type cut-out clutch

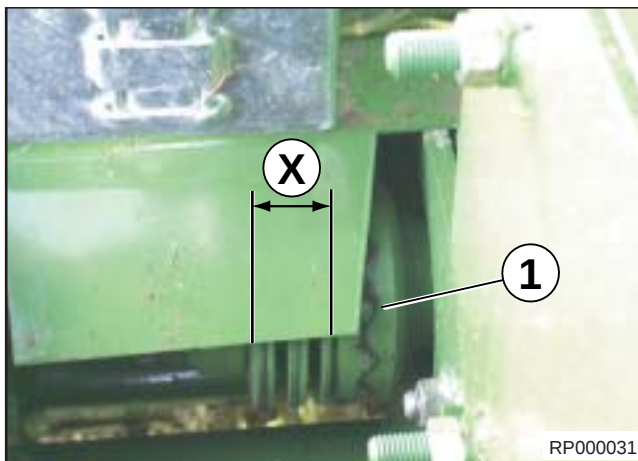
The drive systems of pick-up, packer and feed augers are protected against overload by a cam-type cut-out clutch (1). This clutch has been adjusted by the factory and its setting should not be changed without previous contact with the KRONE Service Department.



Basic Setting: X = 29 mm

Any modification to the cam-type cut-out clutch will involve the loss of your warranty rights.

The use of genuine KRONE spare parts is indispensable



5 Basic Settings and Operation

5.1 Pick-Up

Special Safety Instructions



- The following general rules apply to all maintenance, assembly, repair and adjustment work:
- Bring the round baler to a complete standstill.
 - Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
 - Secure the tractor and round baler against rolling.
 - Risk of pinching when making adjustments to the pick-up. Secure the pick-up to prevent it from being lowered unintentionally. (for example low limiter)

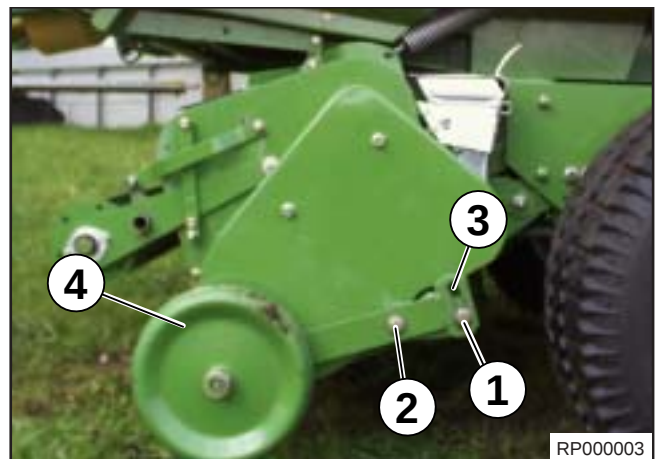
Adjust the pick-up working height to correspond to the prevailing ground conditions.

The pick-up can be adjusted only after the baler has been set to the correct height (see A 1.2).

Basic Setting:

the gap between the tines and the ground should be approximately 20 – 30 mm.

- Raise the pick-up hydraulically.
- Slacken the nuts (1) and (2).
- Adjust the height of feeler wheel (4) by moving it in the slotted hole (3).
- Tighten nuts (1) and (2)
- Always adjust both sides.

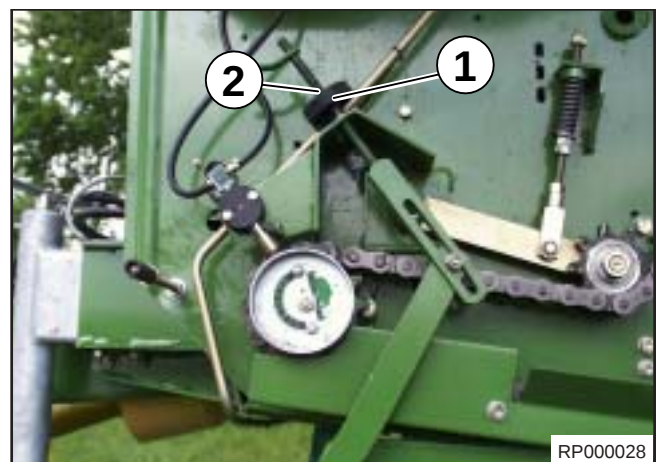


For extreme ground conditions, regulate the working depth using the low limiter:

- Raise the pick-up hydraulically.
- Push the feeler wheels upwards.
- Slacken the nuts (2).
- Setting the depth control
- Tighten nuts (2).
- Always adjust both sides.



For usage with straw, the pick-up should be set as high above the ground as possible. Use the depth control to do this and set the pick-up feeder wheels so that they are not in contact with the ground.



5.2 Baffle Plate

Adjust the height and supporting pressure of the baffle plate (1) to crop conditions.

Basic Setting:

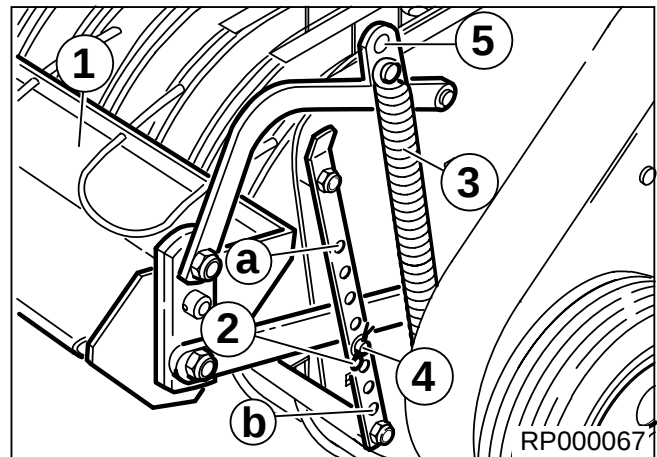
high swaths = position "a"
low swaths = position "b"

Baffle Plate Height

- Remove the linch pin (2).
- Insert the pin (4) into the desired bore hole from the inside.
- Secure in place using the linch pin (2).

Supporting Pressure

- Hook the spring (3) into the desired bore hole (5).
- Always adjust both sides.
- In cases of extremely short harvest material, unhook the spring (3) entirely.



5.3 Roll-type crop guard (Special Equipment)

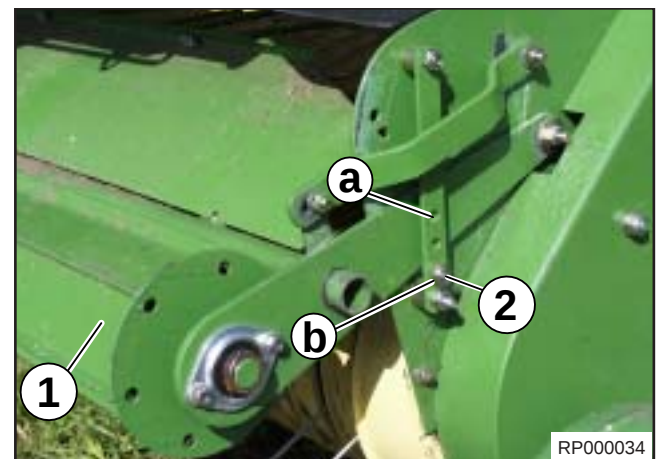
Adjust the height of roll-type crop guard (1) to crop conditions.

Basic Setting:

high swaths = position "a"
low swaths = position "b"

Height of the roll-type crop guard

- Remove the nut.
- Insert the pin (2) into the desired bore hole from the inside.
- Secure in place using the nut.



5.4 Select baling pressure

After each use you must bleed the air from the floor conveyor pressure cylinders.

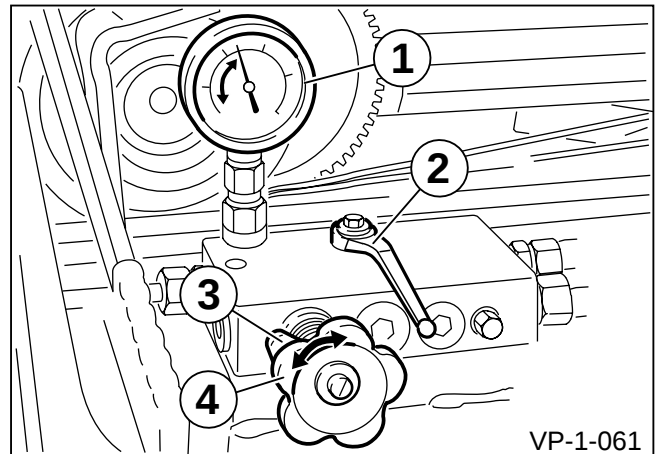
To adjust the baling pressure, the shut-off tap (2) is placed in the position shown.

A pressure range between **50 -160 bar** is intended for adjustment of the baling pressure.

The following steps should be followed when adjusting the baling pressure:

- Release the rotation lock (3).
- Turn the hand wheel (4) as far as possible in the clockwise direction.
- Open the round baler tailgate fully. (This pressurises the round baler's hydraulic system. The pressure gauge indicator (1) should remain stationary at the maximum pressure of 160 bar.)
- Close the tailgate.
(towing hydraulics set to "lower")
- Slowly rotate the hand wheel counterclockwise until the pressure gauge indicator points to the desired baling pressure.
- Reset the rotation lock.

baling material	pressure range [bar]
hay	low
straw	medium / high
silage	high



5.5 Adjusting baling diameter

Medium

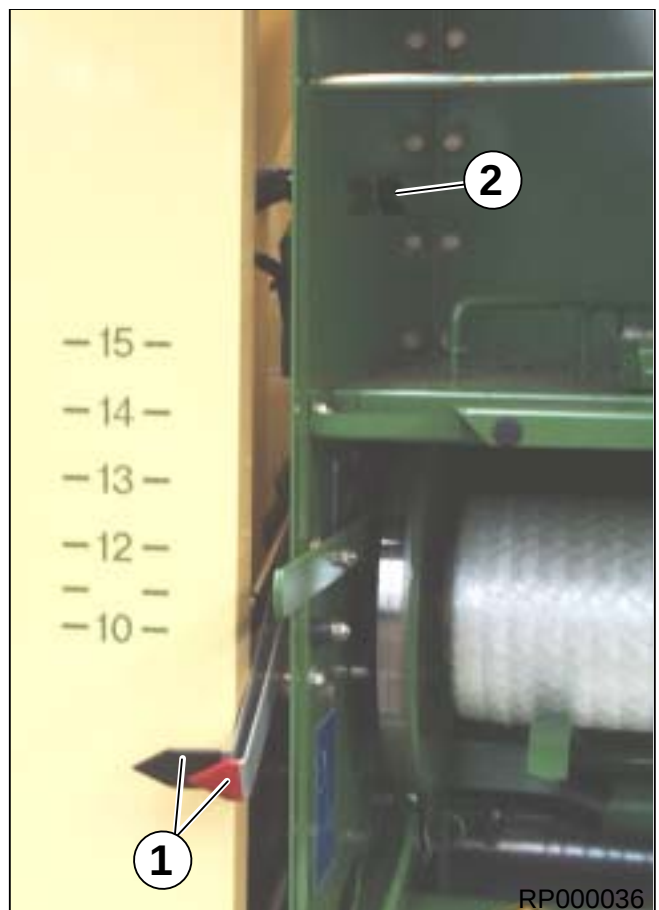
Baling diameter is preselected using the adjusting segment located behind the front right guard and is set from inside the twine box via the wing nut (2) on the righthand side.

Baling diameter preset:

- Switch on the electric starter using the ON/OFF switch
- Manually raise the baling pressure indicators (1) to the desired position.
- Loosen the wing nut (2) in the twine box and move the bolt with wing nut in the slot. When the preset bale diameter is reached the indicator lights go out and the horn of the electric starter sounds.
- Tighten the fly nut inside the twine box.



Do not preselect the baling diameter in automatic mode.



5.6 Attaching and Detaching the Bale Ejector

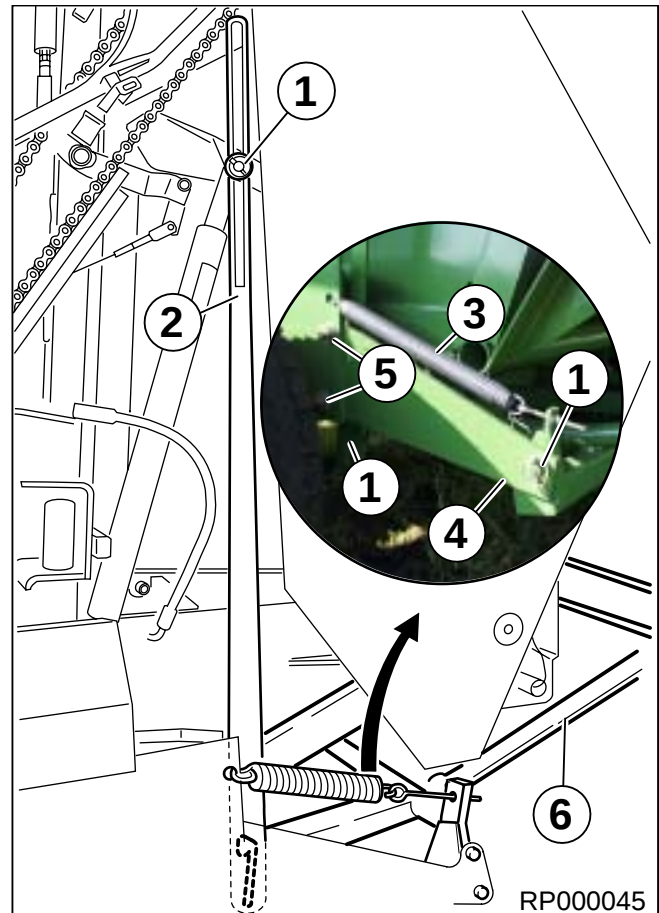


- Do installation work only when the machine is at a standstill.
- Switch off the motor. Remove the ignition key.
- The tailgate must be open in order to work on the straw trap. Make sure that the shut-off tap on the left-hand tailgate cylinder is set in the closed position.
- The straw trap weighs approximately 40 kg. For this reason, be careful to avoid any pinch points during installation or adjustment.

Under certain operating conditions, e.g. slopes, it may be advisable to detach the bale ejector (6).

- Detach the roll pins (1) on both sides of the brace (2) and mounting (4) of the bale ejector.
- Detach spring (3) and bolts (5) on both sides.
- Detach the bale ejector by pulling backwards.

Attach the bale ejector in reverse order.



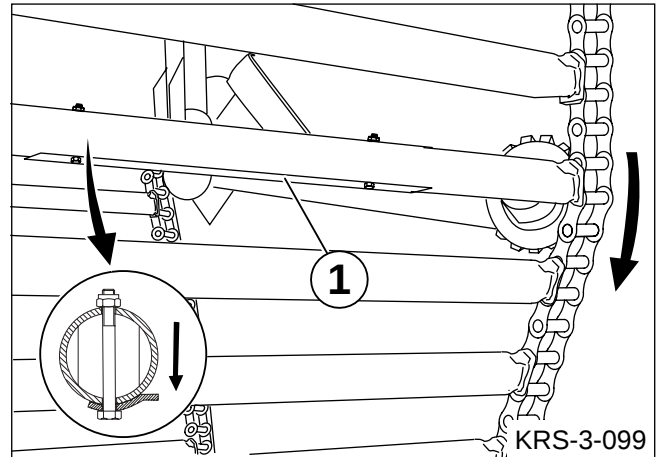
5.7 Floor Conveyor Chain

- Do work only when the machine is at a standstill.
- Switch off the motor. Remove the ignition key.
- The tailgate must be open to do work on the round baler chain.
- Make sure that the shut-off tap on the lefthand tailgate cylinder is set in the closed position.

To bale extremely dry, smooth crops the front floor conveyor chain can be equipped with 6 additional feed slats.

Note the direction in which the floor conveyor chains move!

- Attach the 6 feed slats to the predrilled rods on the floor conveyor chain.



5.8 TwineWrapping / Twine and Net Wrapping

5.8.1 Special Safety Instructions



The following general rules apply to all maintenance, assembly, repair and adjustment work:

- Bring the round baler to a complete standstill.
- Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.

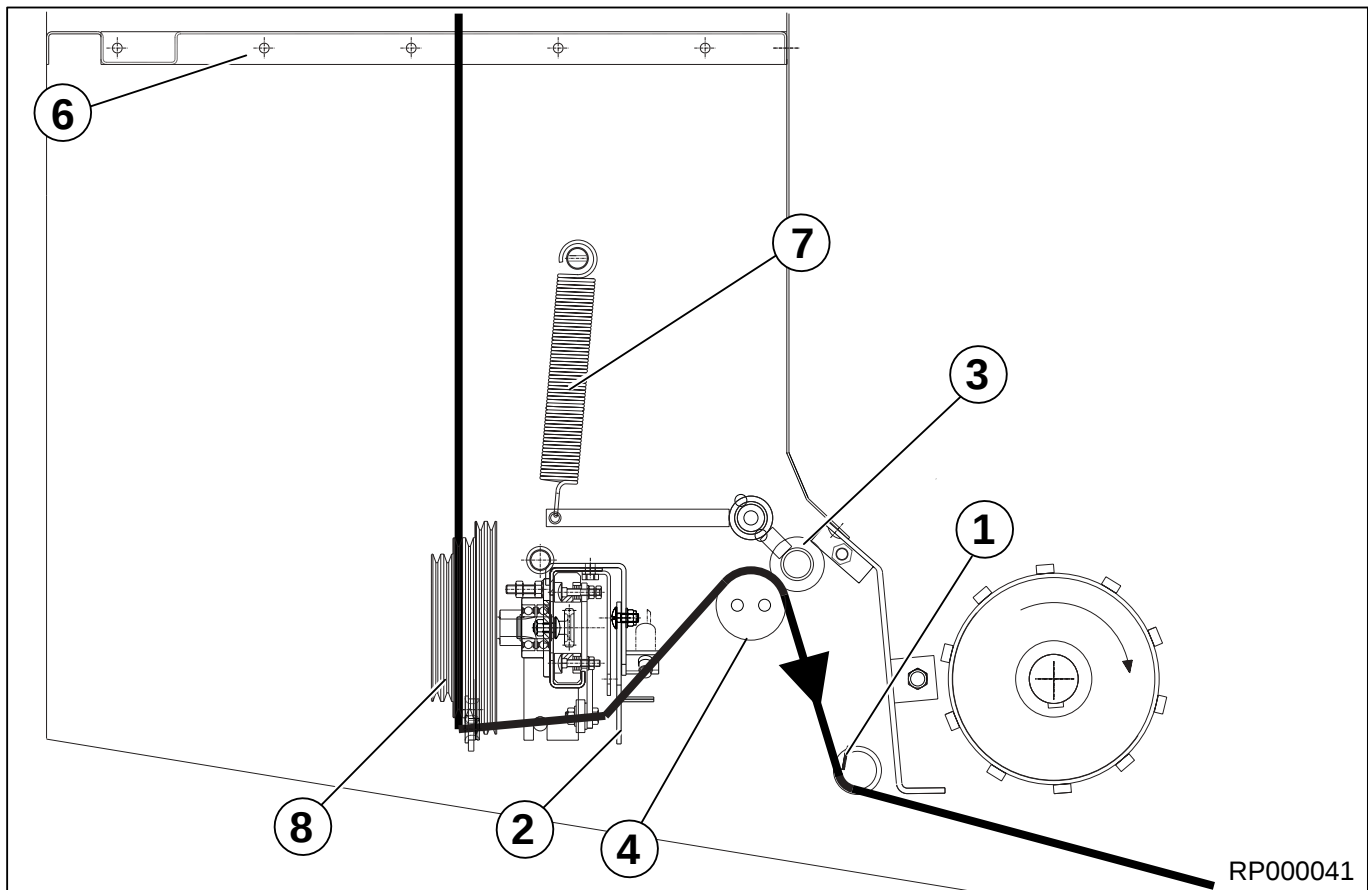
Selecting Binding and Wrapping Material



The selection of binding material is important to ensure troublefree use of the round baler and storage. High quality binding material also ensures safe handling of round bales during transport.

5.8.2 Components

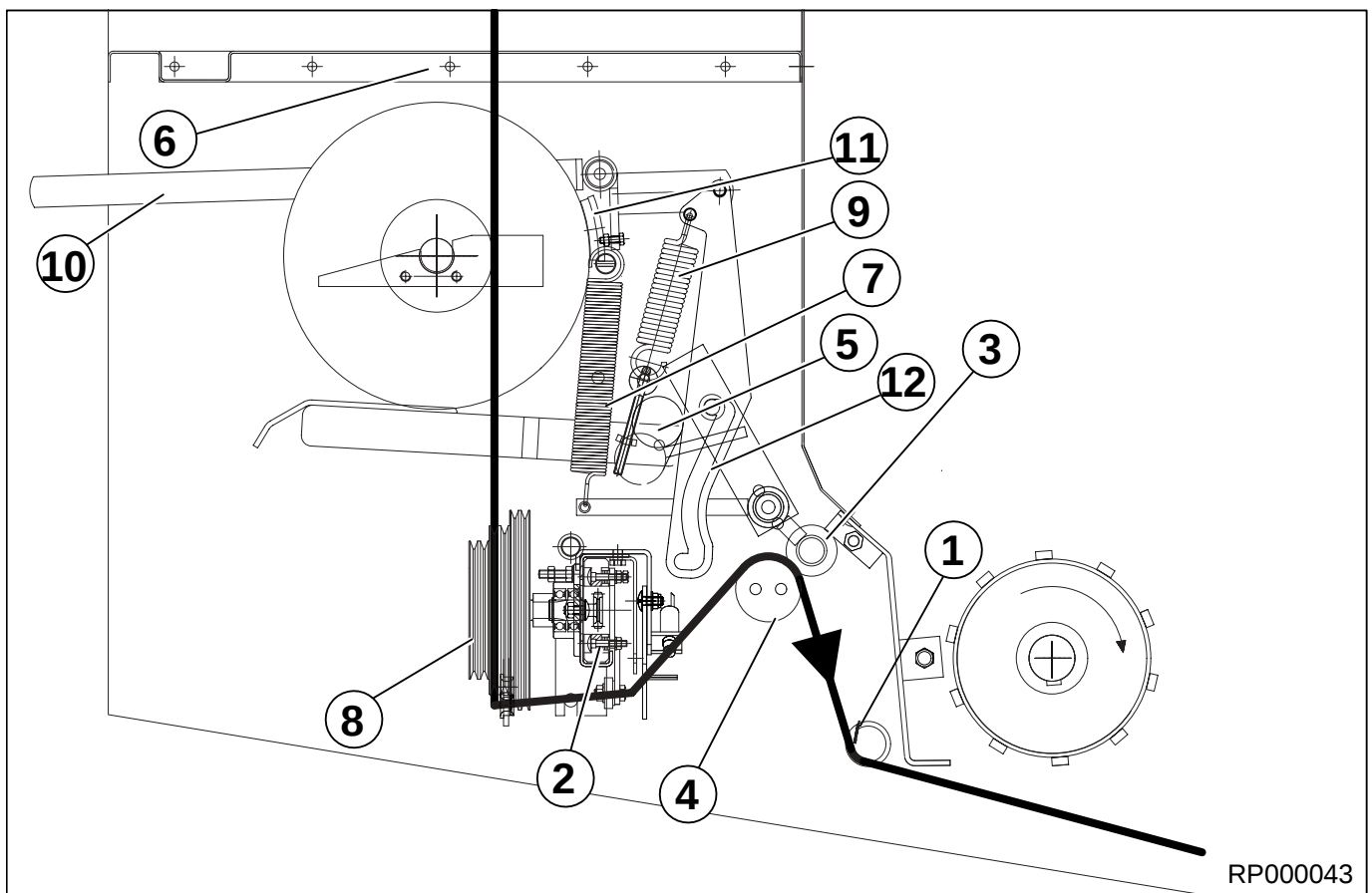
5.8.2.1 Components Twine Wrapping



- 1 knife bar and guide
- 2 twine wrapping mechanism
- 3 pressure roller
- 4 rubber roller

- 6 twine box
- 7 pressure roller tension spring
- 8 stepped roller

5.8.2.2 Components Twine and Net Wrapping (with twine)



- | | |
|----------------------------|----------------------------------|
| 1 knife bar and guide | 6 twine box |
| 2 twine wrapping mechanism | 7 pressure roller tension spring |
| 3 pressure roller | 8 stepped roller |
| 4 rubber roller | 9 net brake spring |
| 5 net stretcher bar | 10 brake lever |
| | 11 net brake |
| | 12 connecting link guide |

5.8.3 General Information

The twine is threaded from the twine box over the twine eyelet and the twine brake to the stepped roller (8). From there it is threaded via the twine wrapping mechanism (2) between the rubber-coated roller (4) and the pressure roller (3) and into the area around the knife bar (1). When the wrapping process begins, the rubber-coated roller (4) is actuated and feeds the twine into the rotating round bale. The twine is picked up by the round bale.

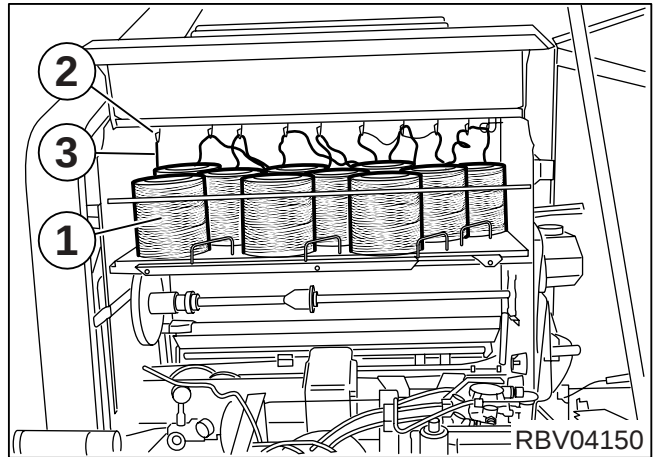
The twine wrapping mechanism (2) feeds the two twine threads over the round bale from inside to outside and back again. A sensor on the twine wrapping mechanism signals the final stage of the wrapping process. The twine is then cut and the wrapping process is ended.

5.8.4 Inserting Twine

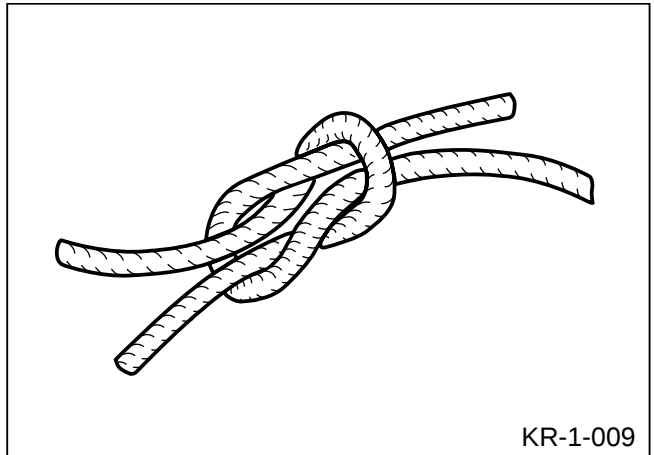
The twine box can hold up to 10 rolls of twine (1).

Threading the twine

Before knotting the roll of twine (1), thread the twine (3) through the corresponding twine guide (2).

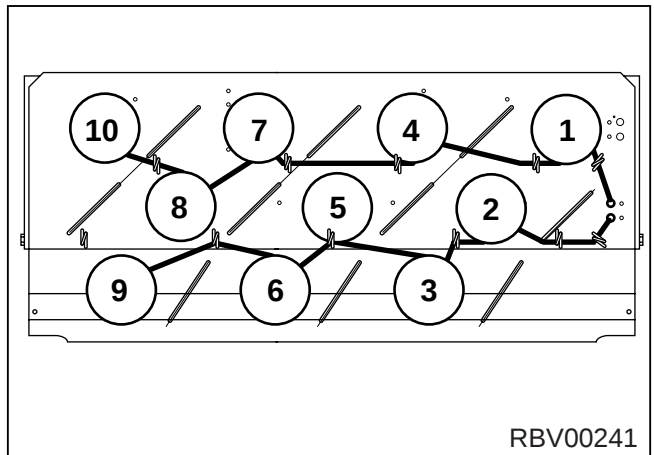


Knot the twine as shown in this example.

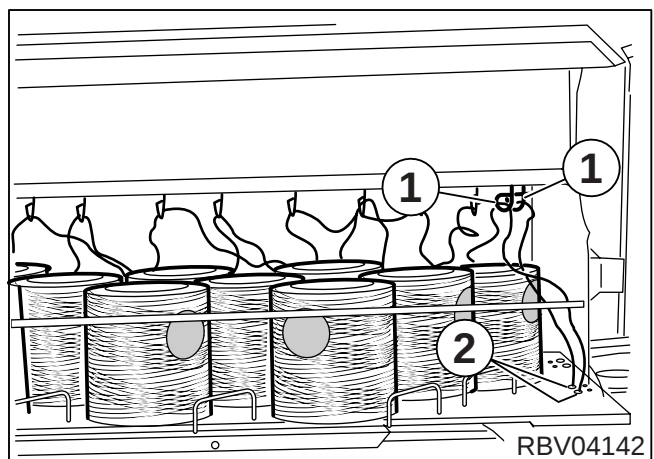


The rolls of twine are connected as follows:

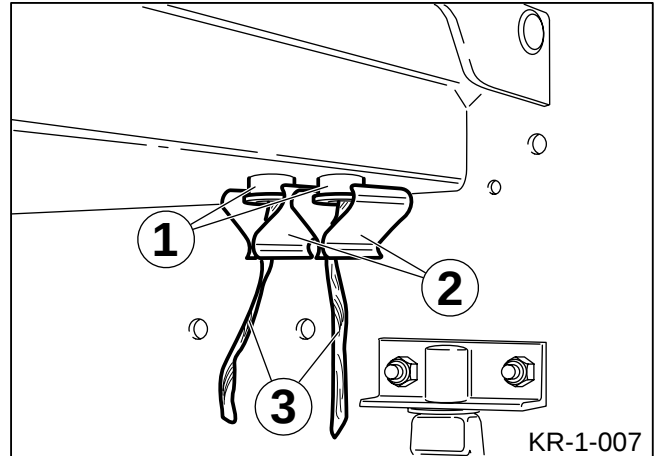
	end of roll	with start of roll
thread 1 (back)	1	4
	4	7
	7	8
	8	10
thread 2 (front)	2	3
	3	5
	5	6
	6	9



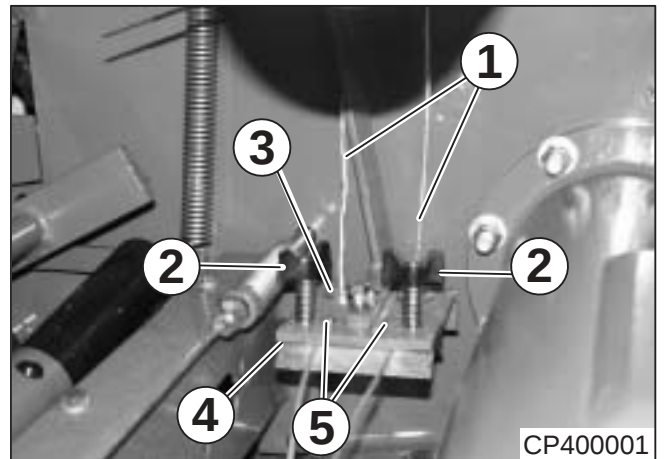
- Thread the twine downwards through the twine guides (1) and the front bore holes (2) inside the twine box.
- Thread 1 through the back bore hole.
- Thread 2 through the front bore hole.



- Thread the twine from the eyelets (1) through the twine retainers (2).

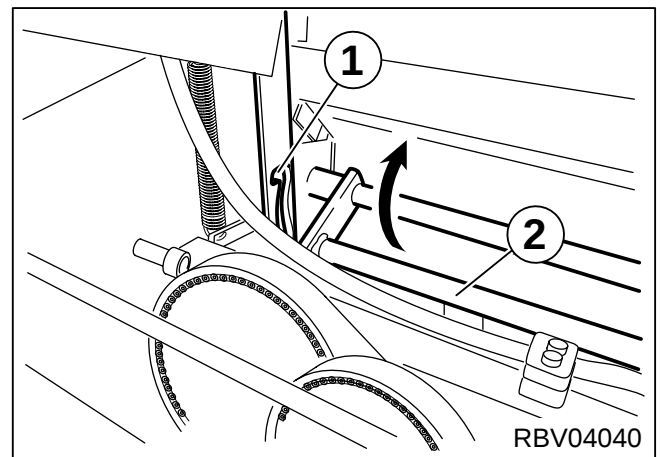


- Thread the twine (1) through the twine brake (4) eyelets (3).
- Thread the twine through the space between the spring tensioners (2) and the screws (5).



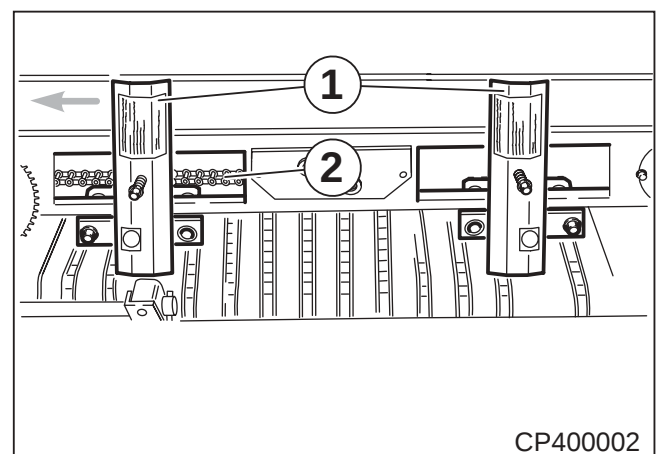
For twine wrapping, the net stretcher bar (2) - if a net wrap system is installed - is rotated into the upper position.

The connecting link inside the guide rod (1) holds the net stretcher bar (2) in position.



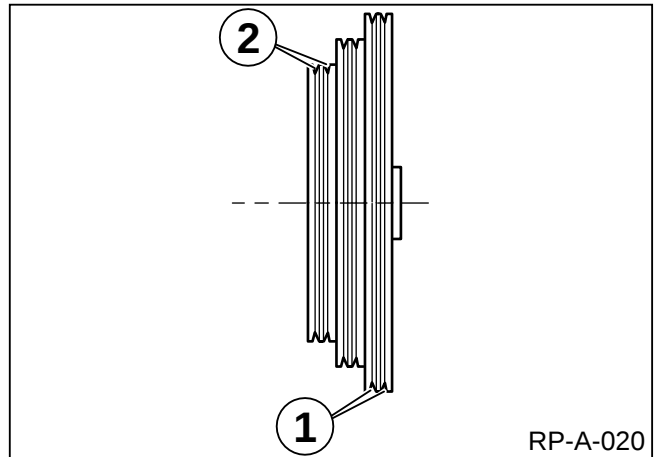
- Open the twine cleaning flaps (1).
- Rotate the twine manually at the stepped roller in the working direction (see arrow).
- Remove dirt in area (2).
- Shut the cleaning flaps (1).
- Rotate the stepped roller in the direction of the arrow until the twine holders (3) move from the outside to the centre starting position.

The twine holders (3) must move to the centre when the stepped roller is rotated. Otherwise continue to rotate the stepped roller in the direction of the arrow until the starting position (see illustration) has been reached.



The spacing between individual twine wraps on the bale can be changed by inserting the baler twine into different grooves of the stepped roller.

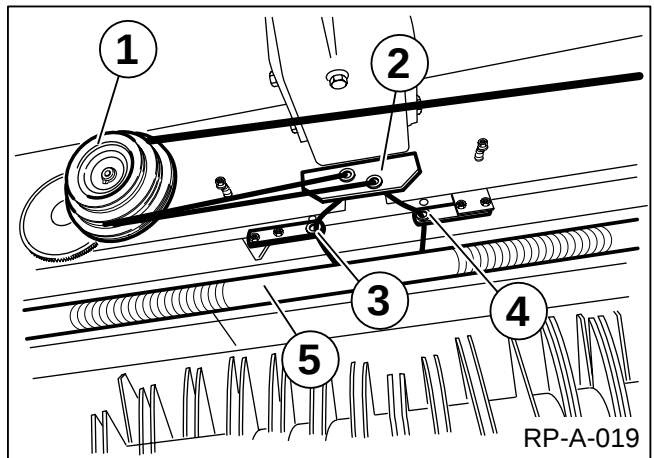
length of baling material	choose diameter with stepped roller	wrap spacing
short	large (1)	narrow
medium	medium	medium
long	small (2)	wide



- Thread the twine from the twine brake around the stepped roller (1) to the distributor eyelets (2).
- Then thread it through the twine guides (3) and (4) to the rubber-coated roller (5).



The twine should extend at least 20 cm from the rubber-coated roller.



5.8.5 Setting the Twine Limiter

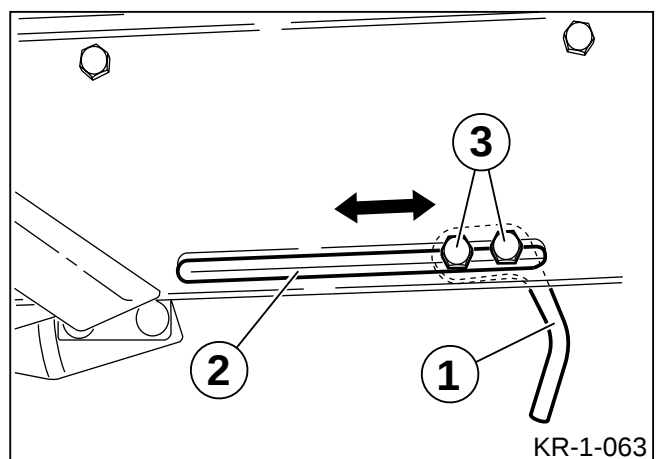
The position of the twine limiter determines the spacing between the outermost wrap and the outer edge of the bale.

The setting depends on the length and type of baling material to prevent the thread from slipping off the round bale.

length of baling material	distance between the two twine limiters
long	wide
medium	medium
short	narrow

Adjustment:

- Fold the wrapping mechanism forward.
- Undo the bolts (3).
- Slide the twine limiter (1) into the desired position.
- Tighten the bolts (3).
- Always adjust both sides.



5.8.6 Setting the Twine Brake

The twine brake (4) tautens the baler twine (1).

The setting depends on the type and quality of the baler twine.

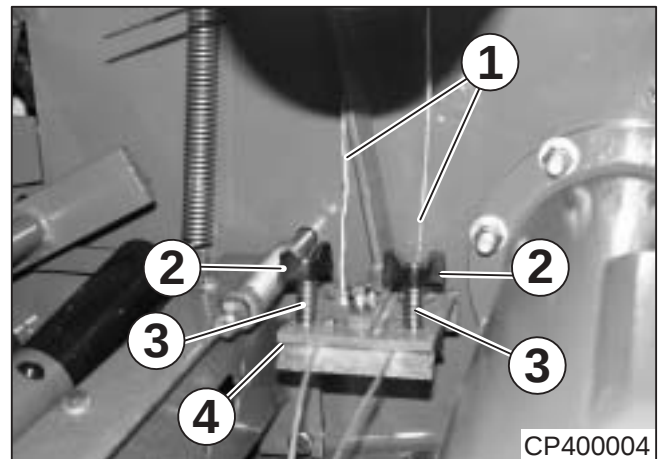
Adjustment:

- Rotate wing nuts (2) clockwise (increased pretension, increased brake force).
- Rotate wing nuts (2) counterclockwise (reduced pretension, reduced brake force).
- Always adjust both sides.

The baler twine should be kept under tension at all times to ensure that the blades cut correctly.



Be careful not to tighten the brake so much that the rubber-coated roller is unable to transport the thread at the start.

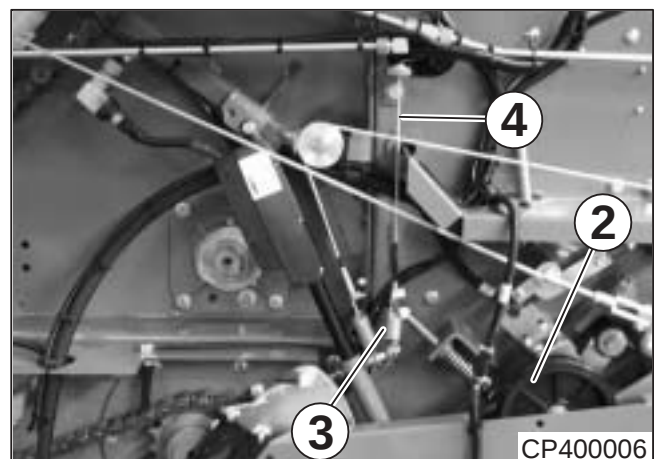


Twine brake release setting

Move tensioning arm (2) from lower to central position.

In this position:

- tension spring (3) must not be under tension,
- wire rope (4) must be slightly released.

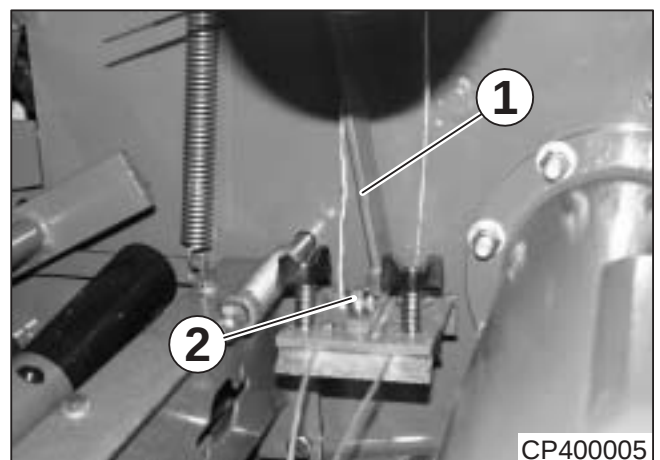


Adjusting lever (1) will release the brake at the start of the binding cycle.

Adjustment depends on twine thickness.

Adjusting procedure:

- Turn screw (5) cw when using thick twine.
- Turn screw (5) ccw when using thin twine.



5.8.7 Adjusting the Pressure Roller

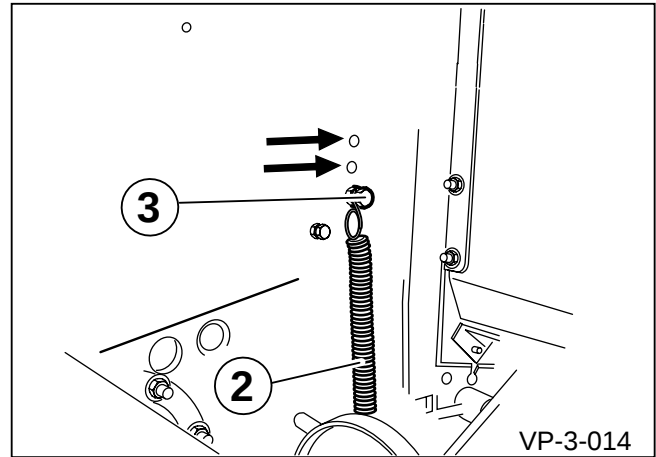
If the baler twine does not feed correctly at the start, pressure roller tension can be increased by adjusting the spring (2).

Right side:

- Detach spring (2).
- Detach bolt (3) and screw into one of the upper bore holes.
- Reattach spring (2).

Left side:

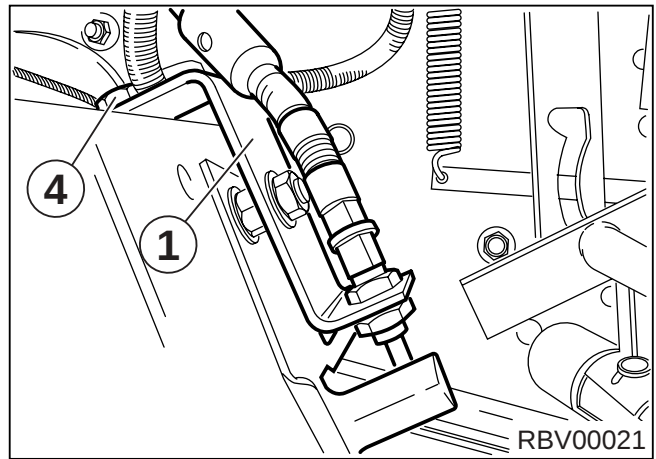
- Pressure is increased by attaching the springs in the bore holes.



5.8.8 Adjusting the Sensor

To ensure that the baler twine does not always start and cut at the same position, the sensor bracket (1) can be moved to the left or the right.

- Undo bolt (4).
- Move sensor bracket (1).
- Tighten bolt.



5.8.9 Selecting Wrapping Mode

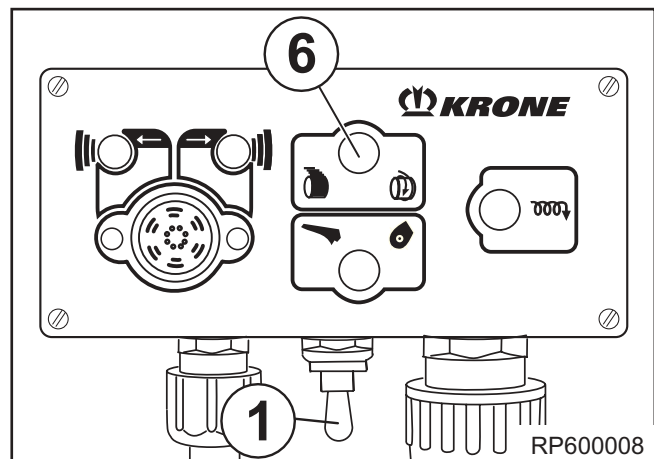
Control unit Medium

- Actuate the ON/OFF switch (1).

Twine wrapping is selected using switch (6).

 = Twine wrapping

 = Net wrapping



5.9 Net Wrapping / Net and Twine Wrapping

5.9.1 Special Safety Instructions

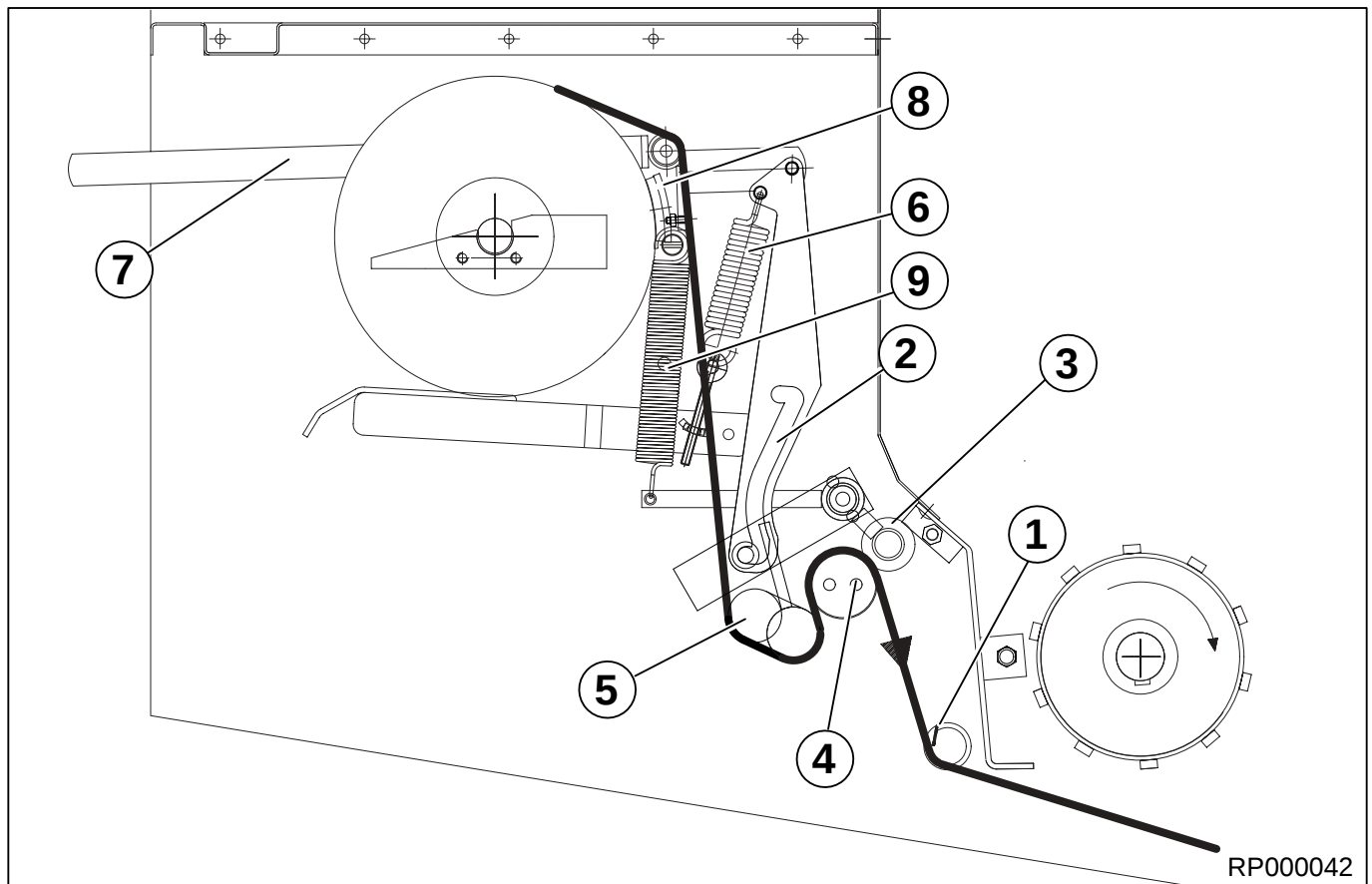


The following general rules apply to all maintenance, assembly, repair and adjustment work:

- Bring the round baler to a complete standstill.
- Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.

5.9.2 Components

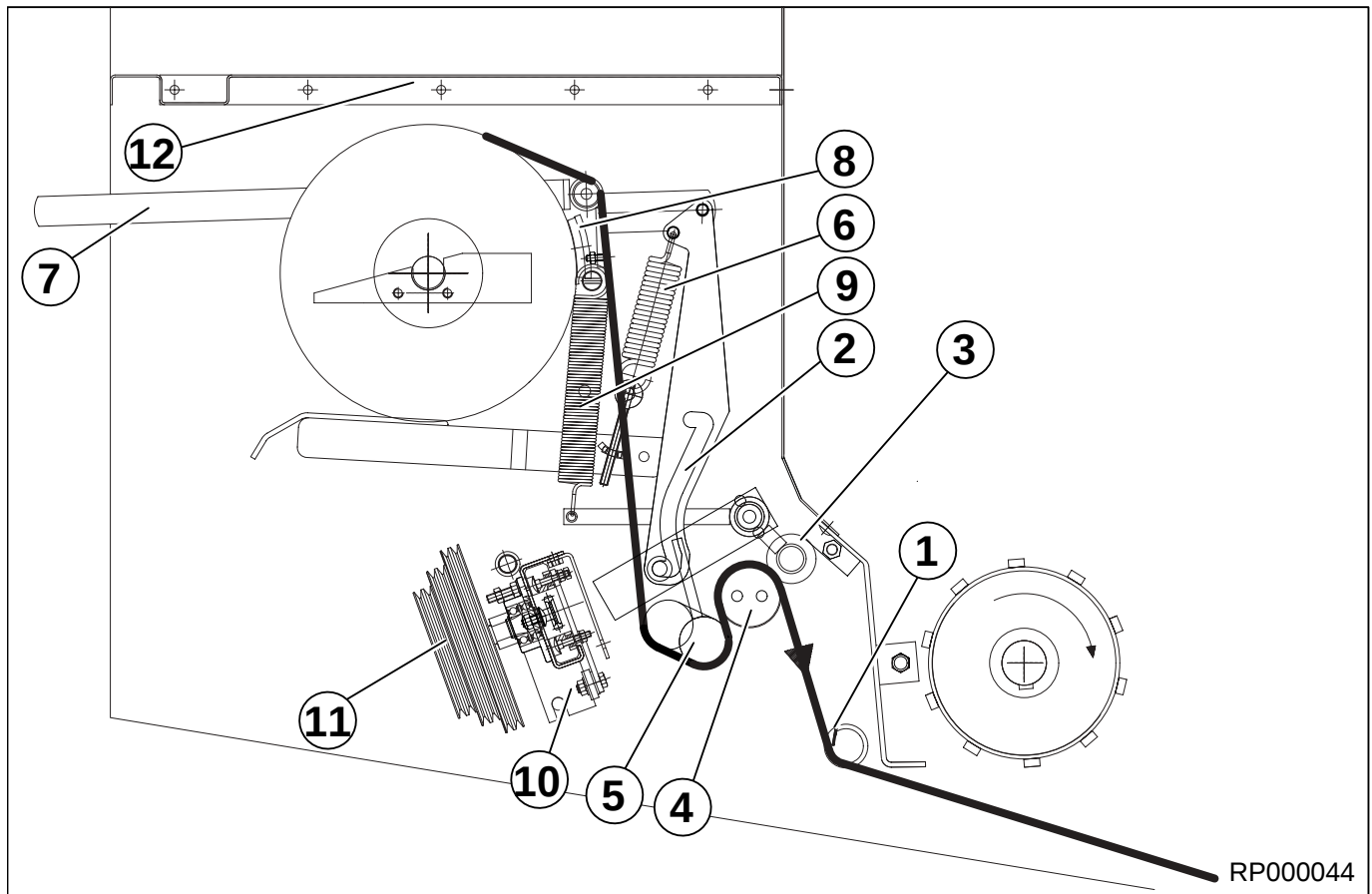
5.9.2.1 Components Net wrapping



- 1 knife bar and guide
- 2 connecting link guide
- 3 pressure roller
- 4 rubber-coated roller
- 5 net stretcher bar

- 6 net brake spring
- 7 brake lever
- 8 net brake
- 9 pressure roller spring

5.9.2.2 Components Net and twine wrapping (with net)



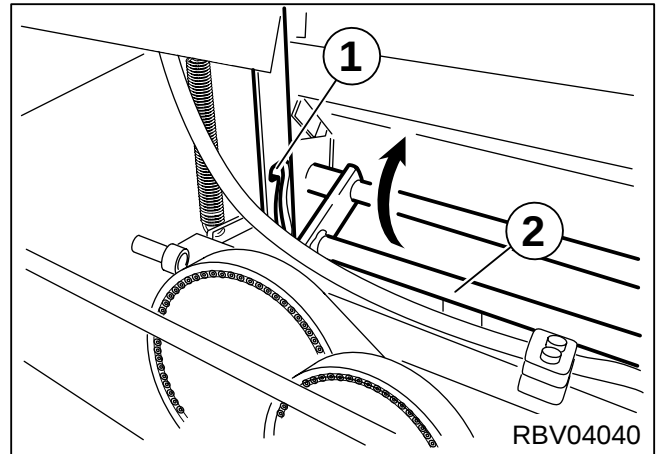
- | | |
|-------------------------|-----------------------------|
| 1 knife bar and guide | 6 net brake spring |
| 2 connecting link guide | 7 brake lever |
| 3 pressure roller | 8 net brake |
| 4 rubber-coated roller | 9 pressure roller spring |
| 5 net stretcher bar | 10 twine wrapping mechanism |
| | 11 stepped roller |
| | 12 twine box |

5.9.3 General Information

The netting is threaded from the net roll over the guide shaft to the net stretcher bar (5); from there it is threaded between the rubber-coated roller (4) and the pressure roller (3) into the knife bar area (1). When the wrapping process begins, the rubber-coated roller (4) feeds the net into the rotating round bale. The net is picked up by the round bale. The round bale pulls the net from the net roll over the rubber-coated roller (4) and the net stretcher bar (5) by self-rotation. The net is kept taut by the net brake (8) throughout the wrapping process. Following the wrapping process, the knife bar (1) is slewed into the net path and cuts the net.

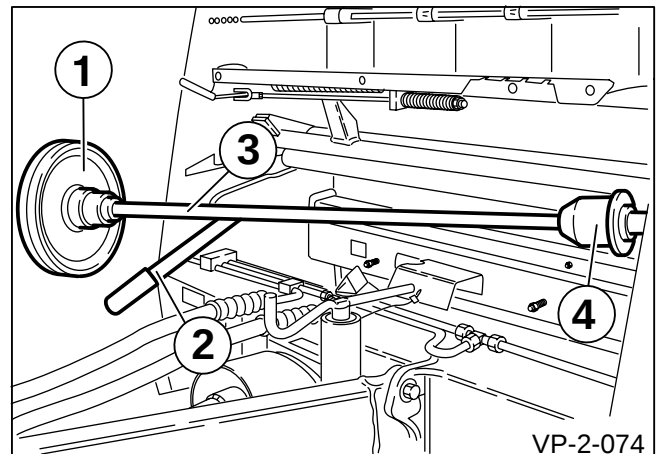
5.9.4 Inserting the Netting Roll

- Pull the flat iron (1) forward.
- Pull the net stretcher bar (2) upwards and lock into the upper connecting link.

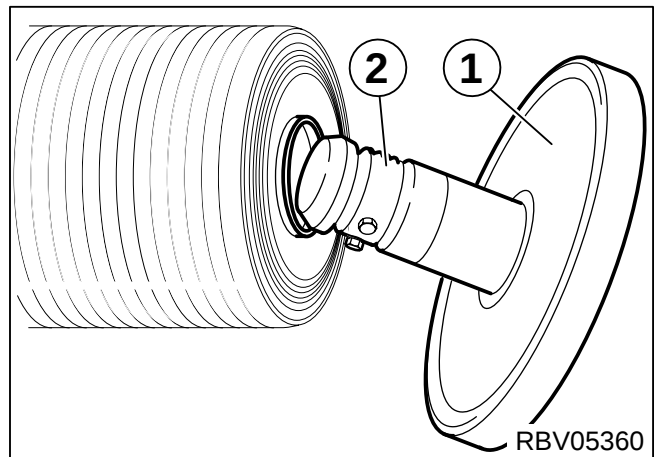


The starting end of the netting roll should point towards the machine and be drawn from the top down.

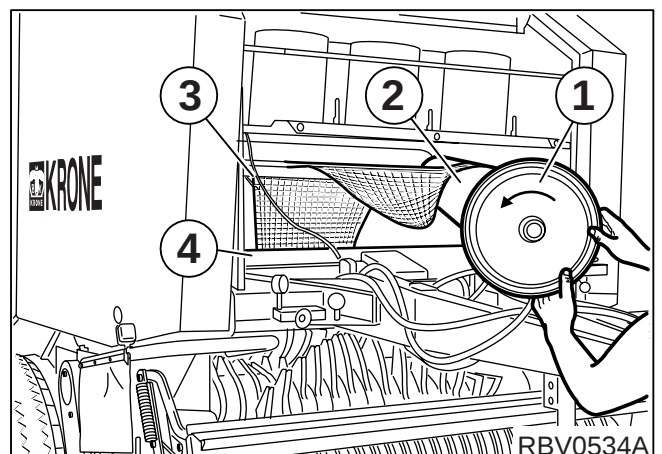
- Raise the lever (2).
- Swing the brake disc (1) and the netting roll mounting (3) forwards.
- Detach the brake disc (1).
- Slide the netting roll onto the netting roll mounting shaft (3) and the retainer (4).



- Slide the brake disc (1) and cardboard tube clamp (2) counterclockwise into the cardboard tube and then onto the netting roll mounting shaft as far as possible.



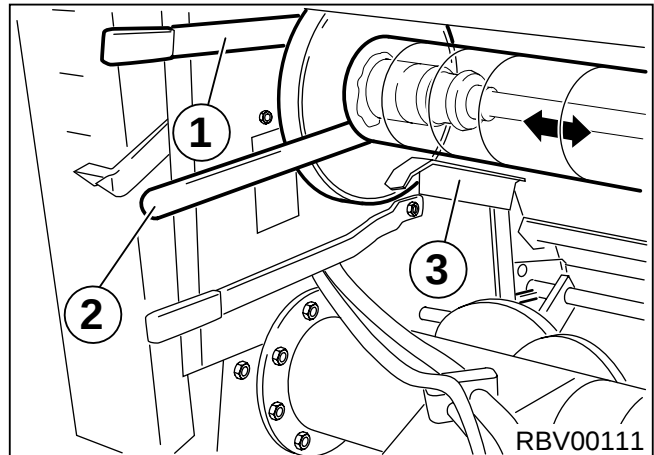
- Thread the netting (2) over the guide shaft (3) to the net stretcher bar (4).
- Swing the netting roll mounting back into its support.



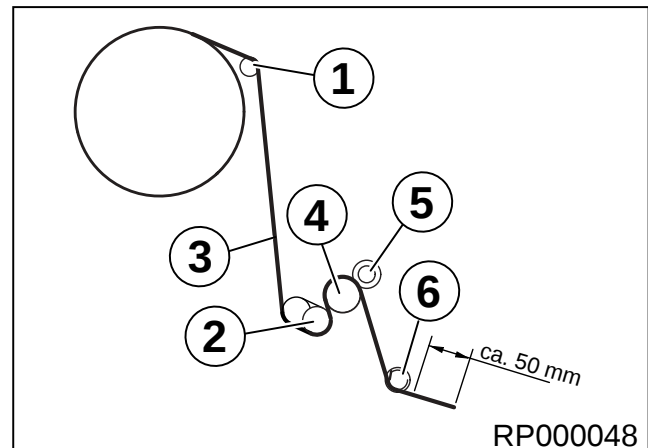
Once installed, the netting roll can be aligned to the right and left in the centre to the machine using the mounting lever (2).

To pull the netting, release the brake. To do this press lever (1) downwards.

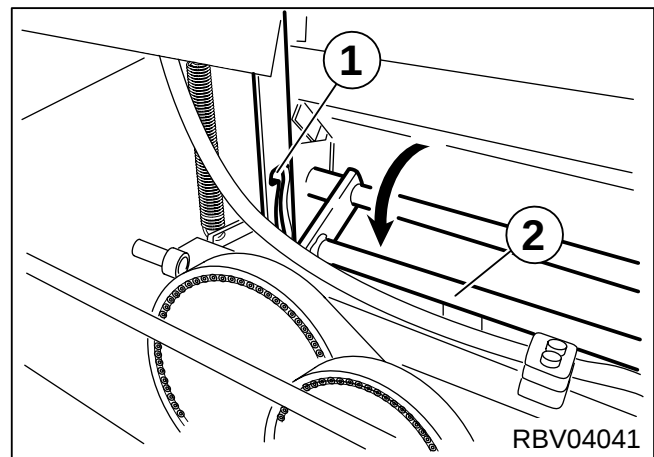
Place the net brake callipers (3) below the netting roll.



Insert the net (3) over the guide shaft (1) below the net stretcher bar (2) between the rubber-coated roller (4) and the pressure roller (5). The net should project abt. 50 mm from the knife bar.



- Pull the flat iron (1) forward.
- Fold the net stretcher bar (2) downwards and engage.



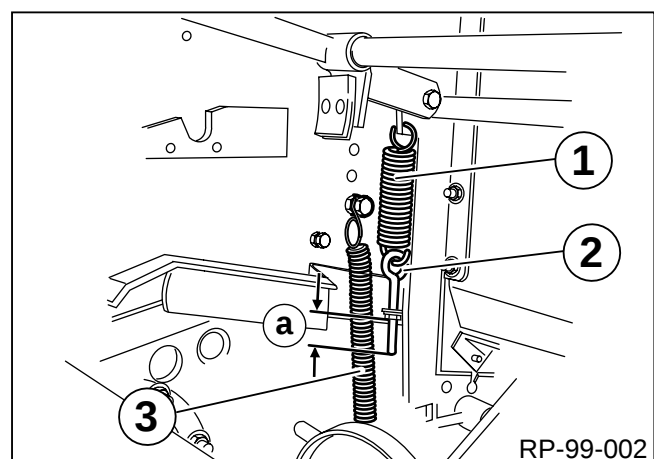
5.9.5 Setting the Net Brake

In the basic setting, the tensioning bolt dimension should be $a = 5 \text{ mm}$.



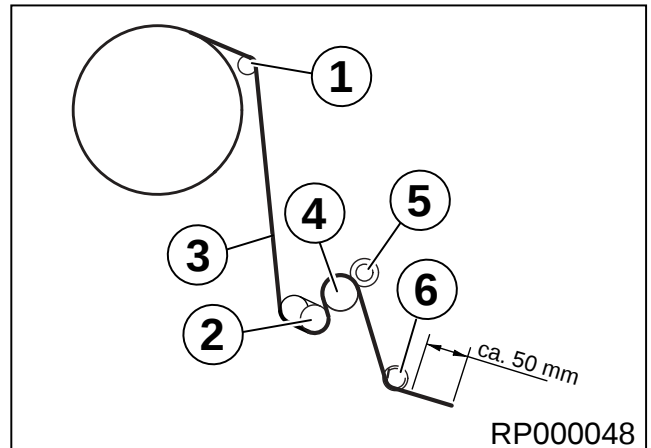
If the net gets caught up during baling, then tension must be increased on the spring (1) of the net brake.

The brake spring (1) can be tightened at the eye bolt (2). If the net does not feed correctly at the start, pressure roller tension can be increased by adjusting the spring (3).



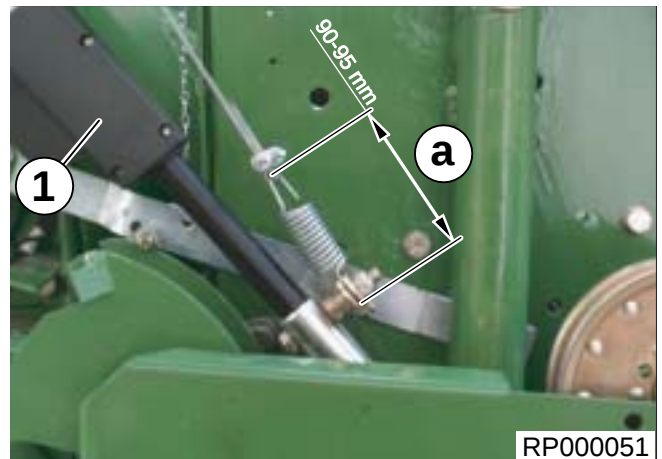


The net brake setting depends on the type of net being used. The net brake should be set so that the net inside the channel projects abt. 50 mm from the knife bar, after the binding process is complete. Always use a speed of 540 rpm for wrapping (use the normal operating speed).



Adjusting the net brake releasing position

With linear motor (1) totally run towards the bottom, dimension **a** should be equal to a value between **90** and **95 mm**.



5.9.6 Net Stretcher Bar

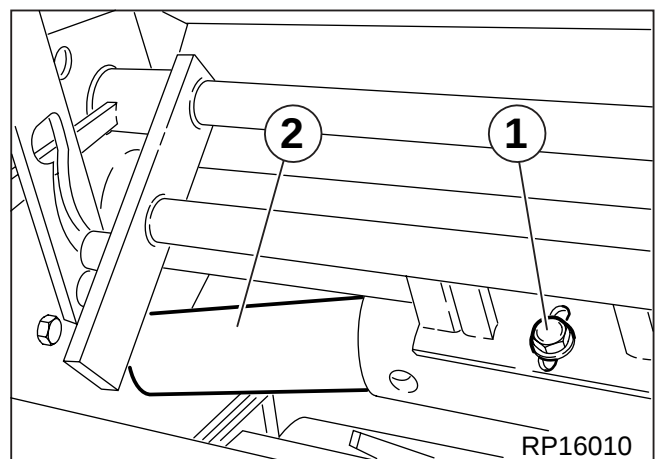
The net stretcher bar (2) can be rotated to optimise use of the net width.

- Undo bolt (1) on the right and left side.

turn tube backwards = netting is spread **extremely wide**

turn tube forwards = netting is spread **less wide**
(for net varieties which are not so wide)

- Tighten bolt (1) on the right and left side.

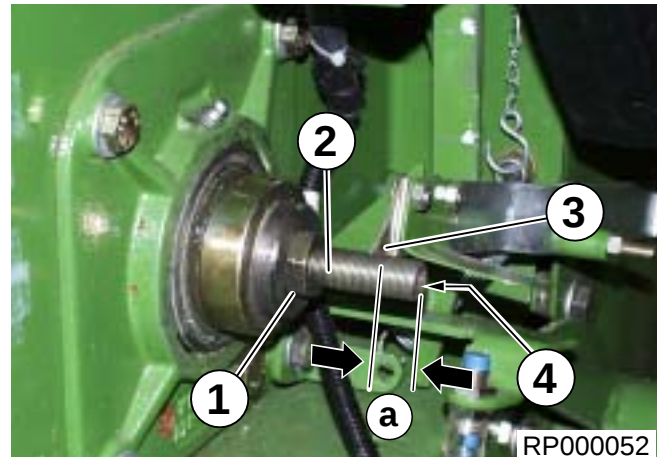


5.9.7 Selecting the number of bale wraps



The adjusting screw (2) for setting the number of bale wraps has a left-handed thread!

The number of times the bales are wrapped can be set on the right-hand side of the machine on the adjusting screw (2). The point (3) of the spring bar should not be positioned on the adjusting screw. Insert an Allen key into position (4) on the adjusting screw and unfasten the counter nut (1) (please note - left-handed thread). The adjusting screw can be turned by using the Allen key. The further the screw is turned, the more often the round bales are wrapped. Retighten the counter nut securely after adjustment.



Distance "a" mm	Number of wraps
8	1
15	2
22	3

The measurement "a" = distance from the insertion point of the spring bar tip to the end of the adjusting screw.

Check the values on a finished bale and correct them if necessary.

5.9.8 Selecting Wrapping Mode

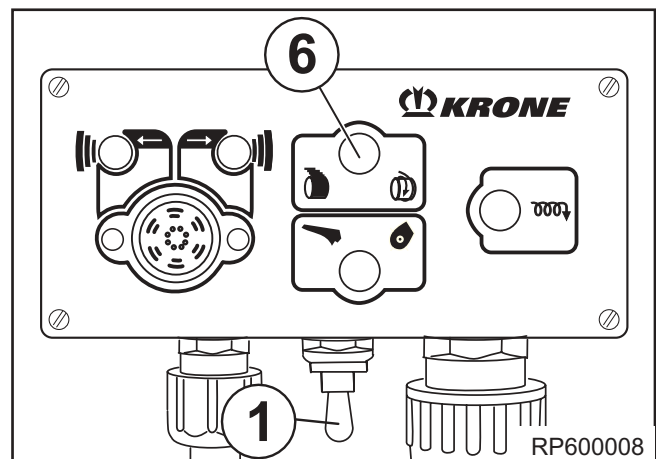
Control unit Medium

- Actuate the ON/OFF switch (1).

Net wrapping is selected using switch (6).

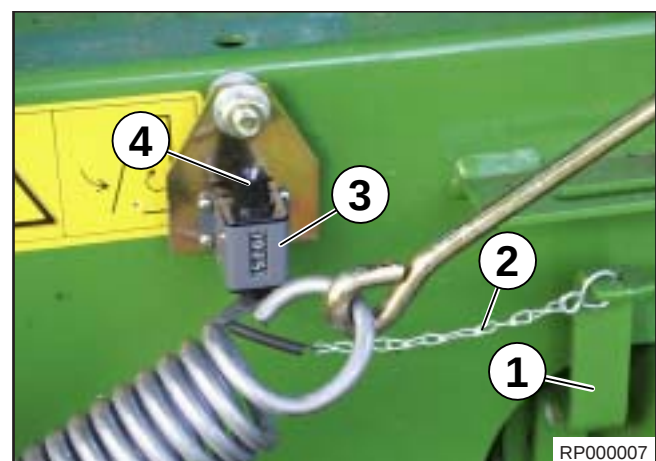
 = Net wrapping

 = Twine wrapping



5.10 Bale Counter

The bale counter (1) is mounted on the left hand side of the machine behind the rear side guard plate. The bale counter is activated by a chain (2) every time the tail gate is opened. The bale counter can be set back using the knurled screw (3).



5.11 Central Chain Lubrication Device

The central chain lubrication device is attached to the left side of the machine behind the front guard.

Each time the drive shaft makes a rotation, oil is forced out of the tank (1) via the pump (2) and the lubrication strips attached to the left and right of the machine, and onto the brushes on the drive chains.

The delivery rate can be adjusted by means of the eccentric (3) on the drive roller.

Different nozzles are built into the lubrication strips for each lubrication point.

- Depending on consumption, check the oil supply in the container and top up if necessary.



It must absolutely be ensured that no water or dust can enter the tank.

If the lubricant container is empty, the central chain lubrication device needs to be bled:

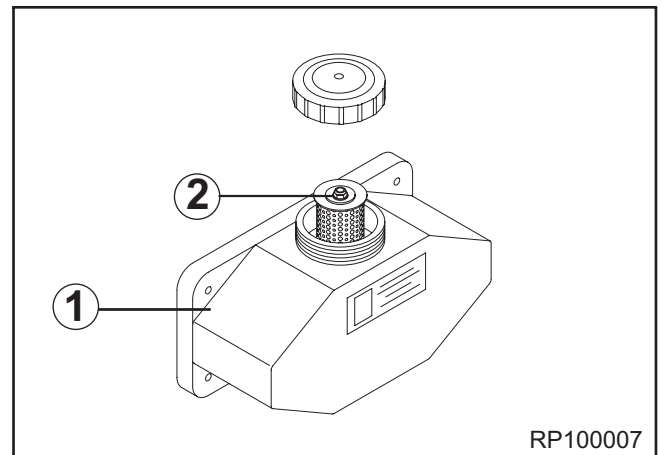
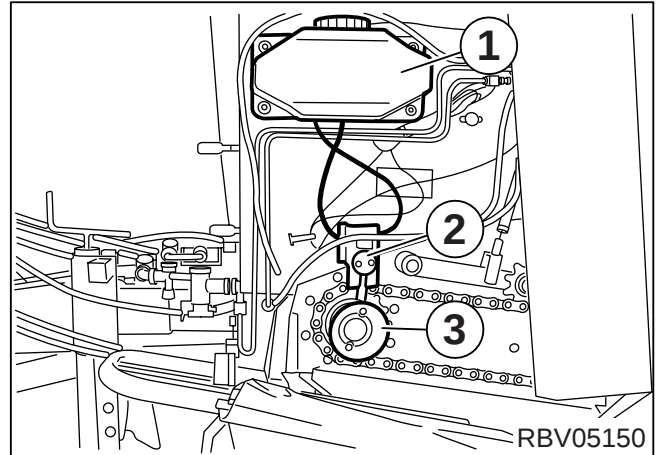
- fill the container hose with oil before connecting it to the pump.
- The pump must be completely free of air before being connected to the system.
Actuate the pump manually until oil appears.



Replace filter (2) once a year.
First remove, empty and then thoroughly clean the tank (1).
Only then replace filter (2).
Do not remove filter (2) if oil is present in the filter.
It must absolutely be ensured that no water or dust can enter tank (1).



Use recommended lubricants only!
Different types of oil can be used.
Viscosity similar to 15W40
Use biodegradable, non-toxic oil only.
(e. g. Fuchs Plantogear 100 - N Mineral Oil or Castrol Optimol Optileb GT 100)
Do not use adhesive oils for chains since these would get stuck inside the system.

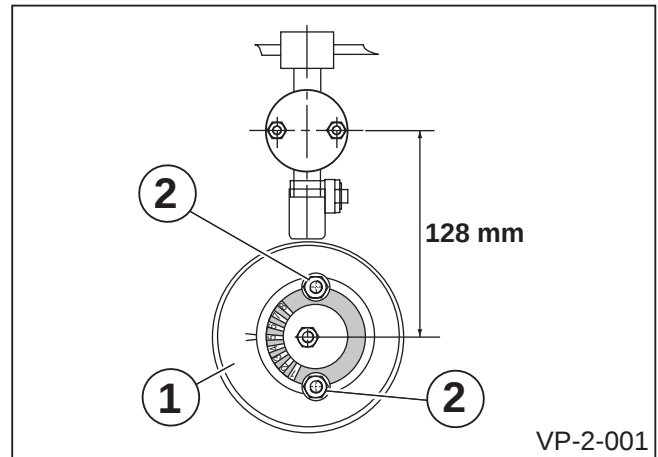


Oil Flow Rate Setting (Cam Pump)

The cam pump is located at the front left on the gearbox drive shaft.

Adjust oil flow rate / oil pressure:

- Undo bolts (2).
- Rotate the eccentric disc (1).
- Tighten bolts (2).

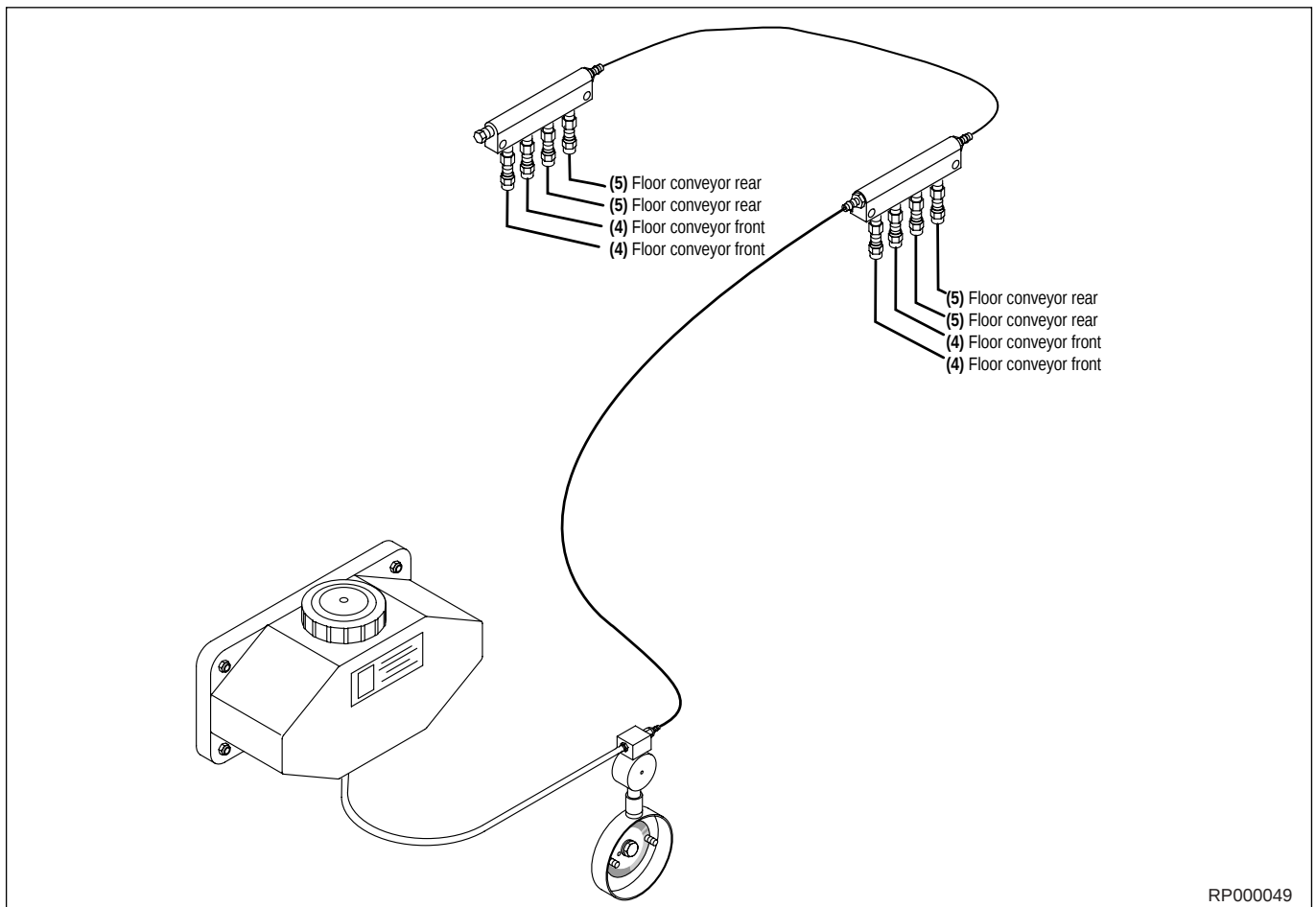


"Central chain lubrication" diagram

The numbers in brackets indicate the size of the nozzles for the individual lubrication points.



When replacing the nozzles, it is essential to ensure that the correct sizes are used. Each difference in size will double the oil supply (example: MM4 will supply twice as much oil as MM3).



5.12 Adjustment of the density indicators

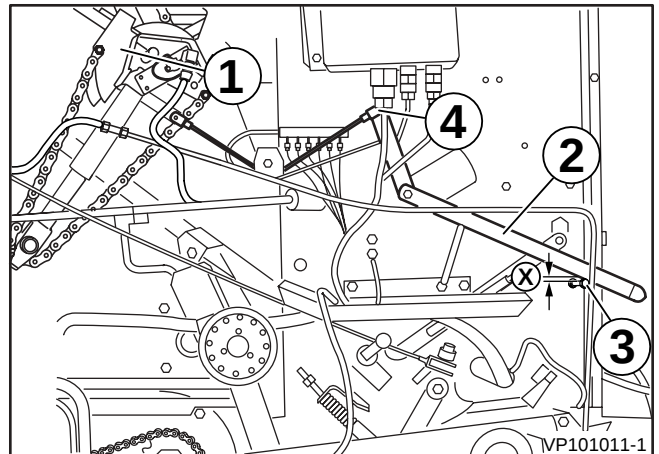
Particular safety instructions



- The following adjustment may only be carried out with the machine at a complete stop. Stop the engine, remove the ignition key and detach the 12 V supply lead.
- Secure the round baler and the tractor against unintentional movements.
- After finishing adjustment work re-install all guards and safety devices in the correct position.
- Observe all other safety instructions to prevent injury and accidents.

Basic adjustment

- The tensioning arms (1) must rest against both side walls of the machine.
- The distance between the density indicators (2) and bolt (3) must be $x = 5 \text{ mm}$.
- Adjust at clevis (4) if necessary.

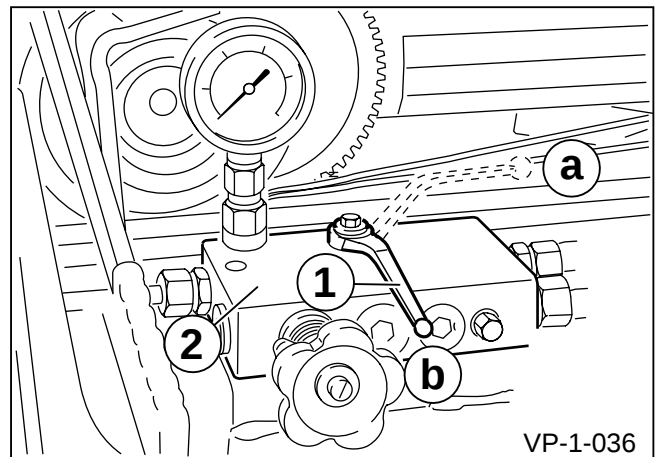


- Lift the tailgate.

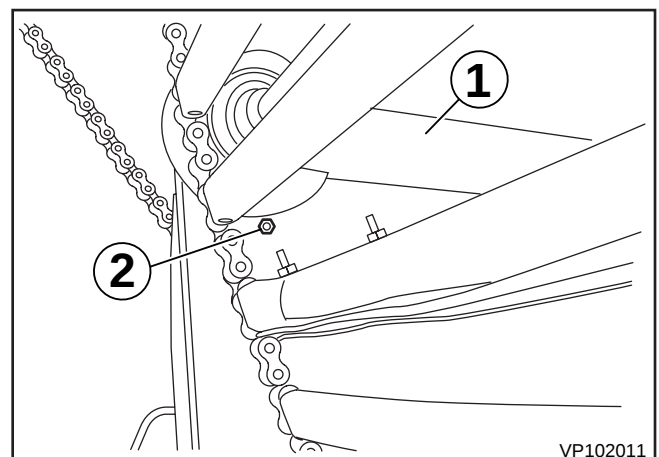


Secure the opened tailgate against unintentional lowering (see section 8.6.2 General).

- Release tension from the chain elevator inside the baling chamber. Move shut-off tap (1) of control valve (2) from position "b" to position "a". Pressure is now released from the tensioning cylinders of the chain elevator.



- Raise tensioning arm (1) at the front part, install bolt M 10 (2) with nut and position tensioning arm (1) onto bolt (2).
- Align the density indicators in this position: the top density indicator must be adapted to the bottom one using the adjusting rope.
- Remove bolt (2) again.

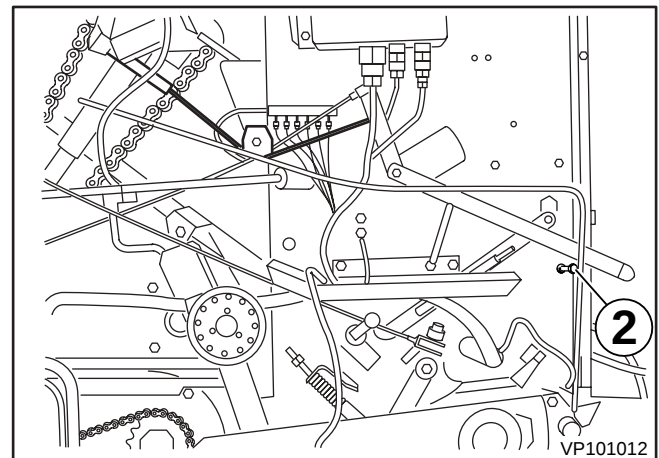
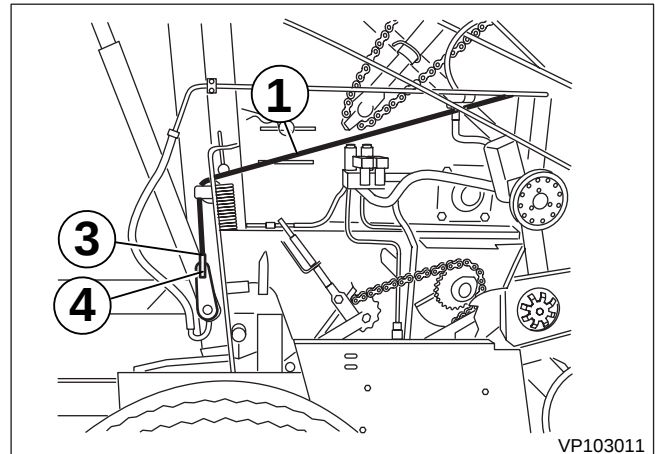


Setting the rope for the „locked baling chamber“ indicator

Rope (1) (at either machine side) is connected to the density indicators (located on the right hand machine side) which show the driver whether or not the tailgate is duly closed. If the latches are not fully locked into engagement, the density indicators should be lifted clear of bolt (2).

Adjustment:

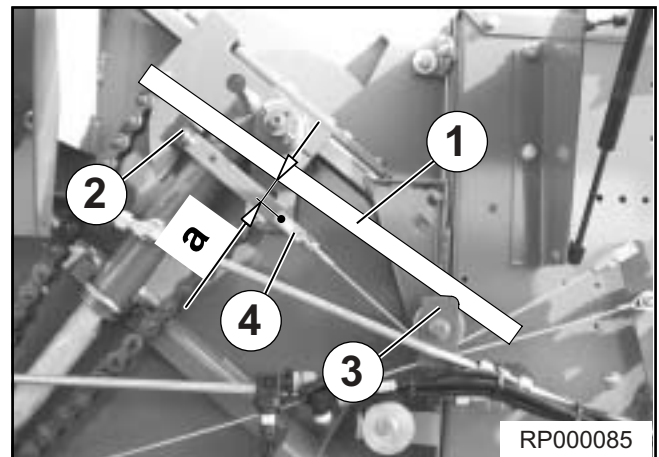
- Release nut (3).
- Release clevis (4) and adjust as required.
- Tighten the nut again



To obtain uniformly shaped bales, it is essential that both baling pressure indicators are set to the same setting value.

Adjustment:

- Place rail (1) onto tensioning arm (2) and guide roller (3).
- Distance (a) between rail (1) and cable (4) should be equal to „a“ = **abt. 32 mm at either side** of the machine.



6 Control unit Basis (Electric twine starter)

Special Safety Instructions



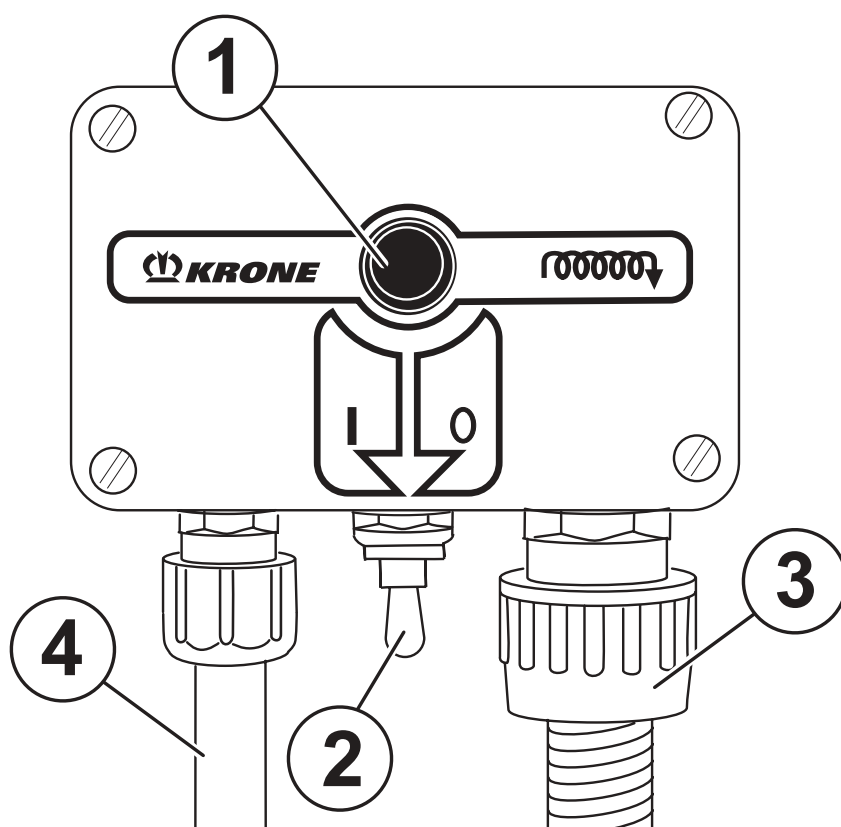
- When doing any assembly work on the round baler, always disconnect the voltage feed to the control unit.
- Repair work on the hydraulic system should be carried out by trained specialists only!
- When assembling the control unit make certain that the connecting cables to the round baler do not tense during turning or come into contact with the tractor wheels.



When doing welding work on the round baler or tractor with attached round baler, overvoltage could cause damage to the electric components of these control unit. For this reason, detach the control unit from the tractor and disconnect the cable connections.

6.1 General Information

Control unit Basis



RP600003

1. wrapping start button
2. ON/OFF switch
3. control line to baler
4. power supply



6.2 Preparing for Use

Attach the control unit on the tractor in a place where it is clearly visible to the driver.

Connect the power supply (12V).



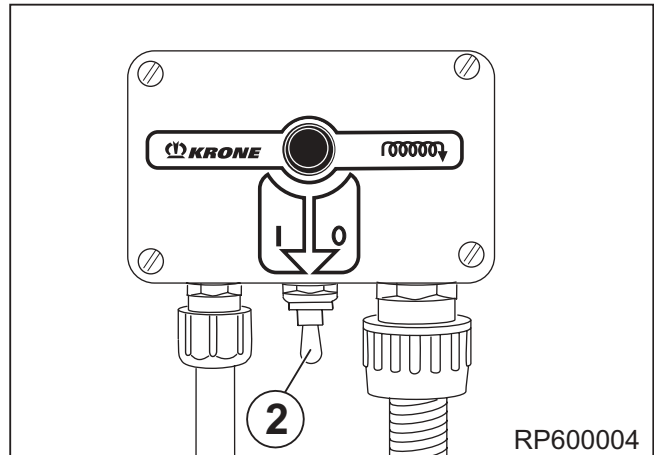
Check for correct polarity!

Switch on the control unit using the ON/OFF switch (2).

The motor should run in basic setting.

If this is not the case:

1. Check the power supply.



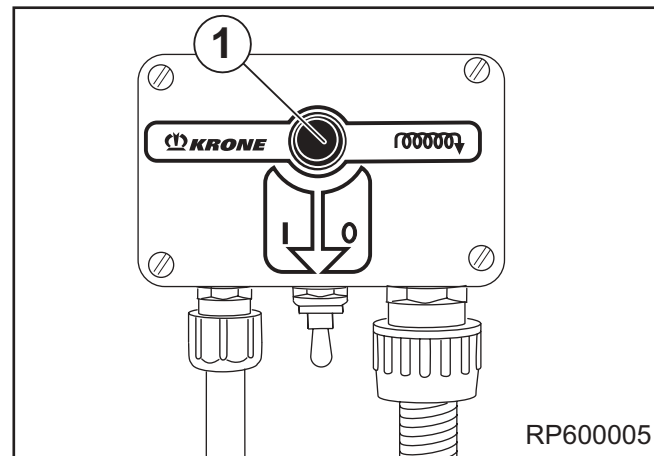
6.3 Operation

6.3.1 Actuating the Wrapping

When the desired baling pressure is reached, the wrapping process should be started.

- Actuate switch (1), and keep it depressed until the bale has caught the twine and pulls it.

The twine wrapping or wrapping process runs automatically.



7 Control unit Medium (Electro-Hydraulic)

Special Safety Instructions



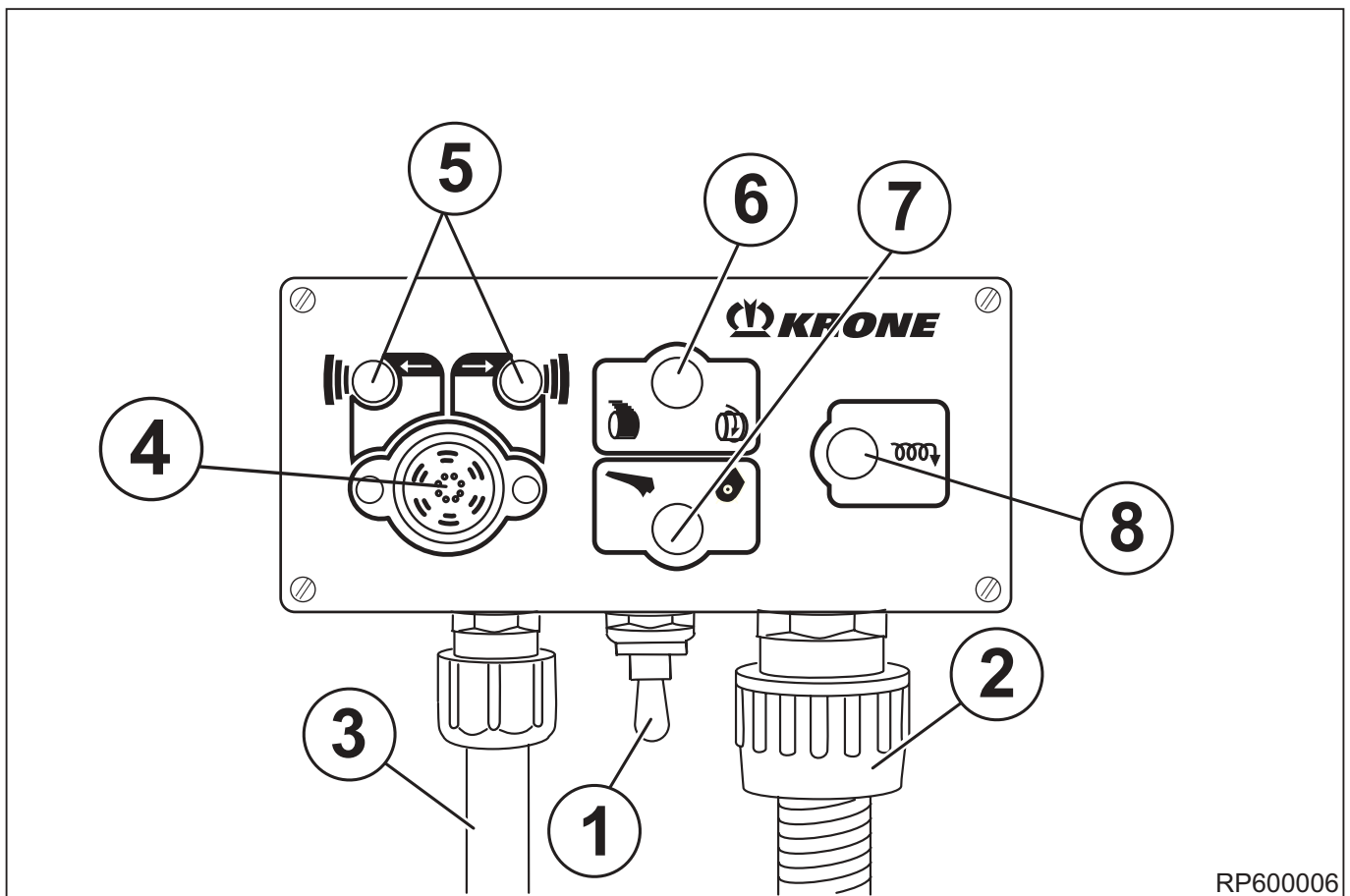
- When doing any assembly work on the round baler, always disconnect the voltage feed to the control unit.
- Repair work on the hydraulic system should be carried out by trained specialists only!
- When assembling the control unit make certain that the connecting cables to the round baler do not tense during turning or come into contact with the tractor wheels.



When doing welding work on the round baler or tractor with attached round baler, overvoltage could cause damage to the electronic components of these controls. For this reason, detach the controls from the tractor and disconnect the cable connections.

7.1 General Information

Control unit Medium



RP600006

1. ON/OFF switch
2. Control line to baler
3. Power supply
4. Horn

5. Indicator light for left/right side baling pressure
6. Wrapping mode switch net / twine
7. without function
8. Wrapping start button



7.2 Preparing for Use

Attach the control unit on the tractor in a place where it is clearly visible to the driver.

Connect the power supply (12V).



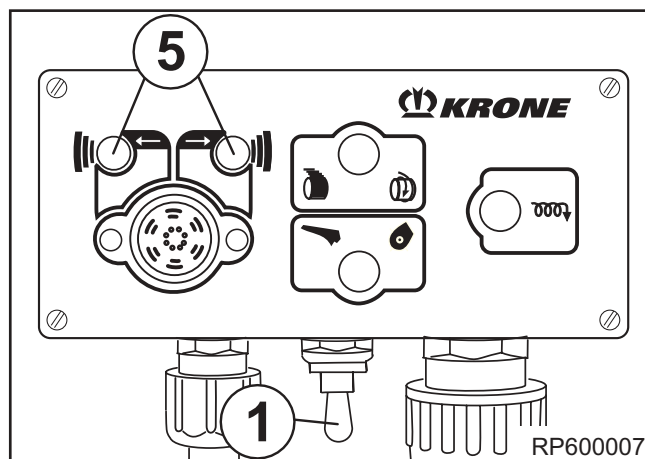
Check for correct polarity!

Switch on the control unit using the ON/OFF switch (1).

The indicator lights (5) should light up and the motor should run in basic setting.

If this is not the case:

1. Check the power supply.
2. Check the setting on the baling pressure gauge (set to the 0 position).



7.3 Operation

7.3.1 Selecting Wrapping Mode

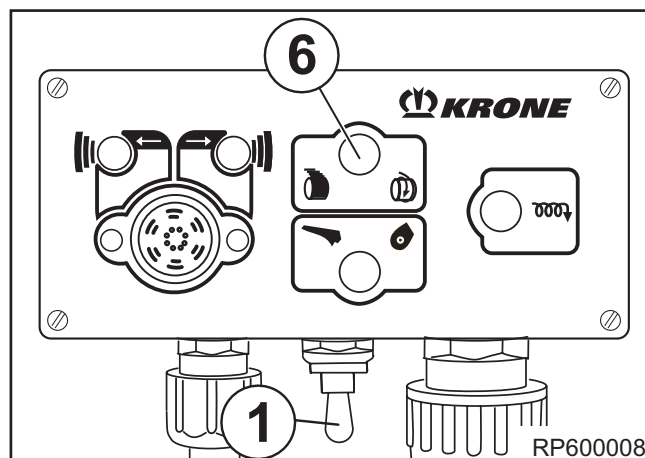
- Actuate the ON/OFF switch (1).

Select twine or net wrapping

Use switch (6) to select the tying mode.

 = Net wrapping

 = Twine wrapping



Setting the number of net wraps is on the right hand side of the machine (see "Selecting the number of bale wraps" chapter).

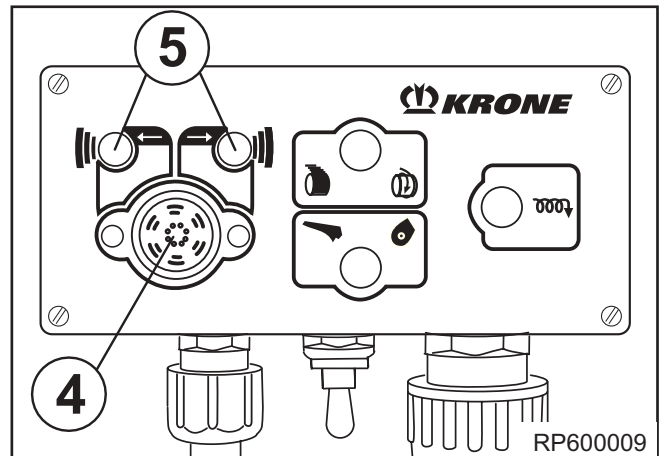
If "twine" is selected, the number of wraps must be set on the step drive pulley (see "Twine Wrapping" Chapter)

7.3.2 Adjusting baling size

Adjustment is done on the machine (Chapter "Adjusting Baling diameter").

The desired baling diameter has been reached:

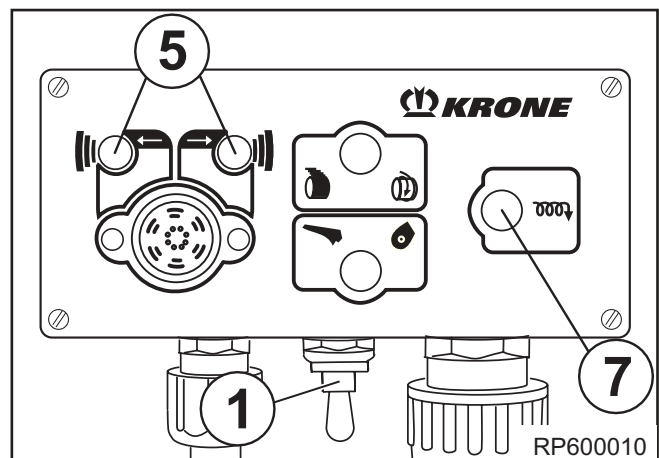
- Is indicated by the indicator on the machine.
- Indicator lamps (5) go out and the horn (4) sounds.



7.3.3 Actuating the Wrapping (Manual Operation)

As soon as the bale has reached the pre-selected bale diameter shown on the pre-selected pressure gauge, a horn signal sounds and the two indicator lamps (5) are extinguished. The bale can then be wrapped.

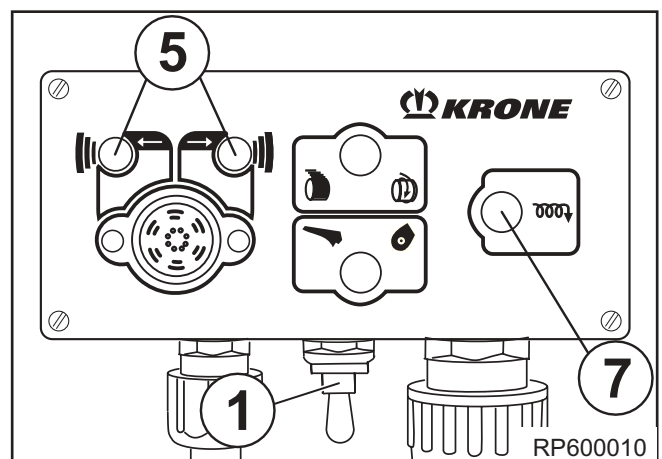
- Operate switch (7) and keep it pressed until the binding material (net or twine) is caught and fed by the rotating bale.
- The twine wrapping or wrapping process runs automatically.
Following the end of the twine or net wrapping process open the tailgate using the second control valve on the tractor.
- Eject the bale.



7.3.4 Actuating the Wrapping (Automatic Mode)

To activate the **automatic mode** proceed as follows:

- Activate switch (7) and keep it pressed. Switch on the control unit using switch (1). A short beep will sound.
- Once the control unit is switched on, keep switch (7) pressed for abt. 5 seconds (this will determine the duration of the extension stroke of the linear motor - in this case 5 seconds). Release switch (7) (another beep will sound). In addition to the manual mode, the system will now work in the automatic mode, too.



That means that the binding process will automatically be started if the preset bale density is reached (the linear motor runs out).

Switching off the control unit (switch 1) will cause the automatic mode to be deactivated.



The binding process can at any time be started manually.

7.4 Sensor Test

The control unit require data acquired via the sensors to ensure trouble-free functioning.

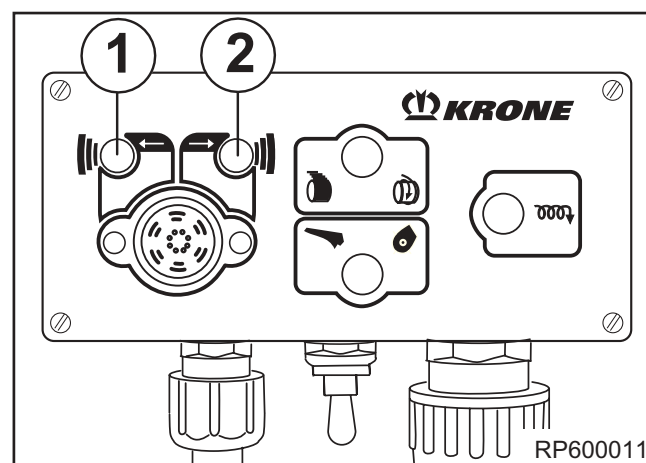
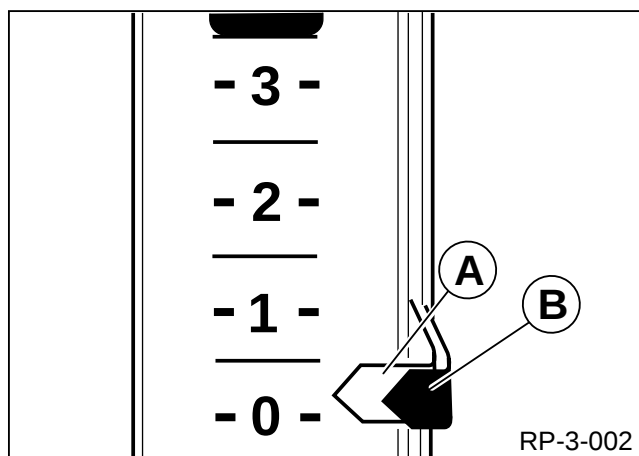
The mounting positions and required settings are described in Chapter "Maintenance".

Sensor bale diameter right

Sensor bale diameter left

The bale diameter gauge is located at the front end of the round baler.

When the right-hand indicator (A) rises within the set diameter range, the lamp (2) should go out.
When the left-hand indicator (B) rises within the set diameter range, the lamp (1) should go out.



8 Maintenance

8.1 Adjustments

8.1.1 Special Safety Instructions



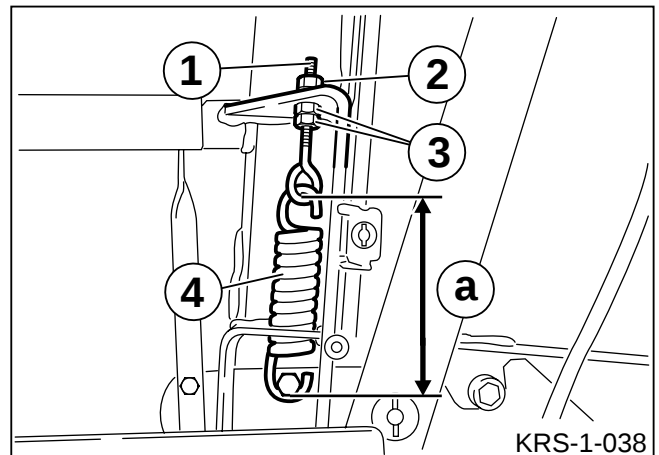
- The adjustments listed below should be done only when the machine is at a complete standstill. Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.
- After completing maintenance work, reattach all protective plates and protective devices properly.
- Follow all further safety instructions, to avoid accidents and injuries.

8.1.2 Adjusting the Tailgate Lock

The spring tension at the tailgate lock should be $a = 350 \text{ mm}$.

Reset the tension of the spring (4) if needed.

- Loosen lock nut (3).
- Rotate the nut (2) until distance $a = 350 \text{ mm}$.
- Always adjust both sides.



8.1.3 Net Wrapping System

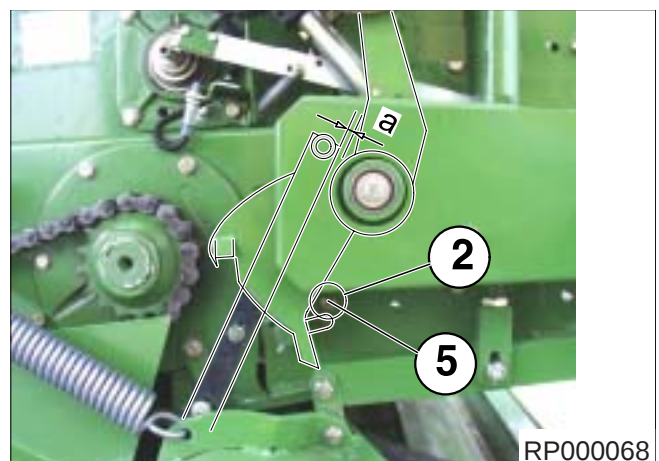


- Unintentional actuation of the net wrapping system must be prevented.
- The cutter blade on the net wrapping system is extremely sharp.
Extreme risk of injury!

Adjusting the cutter blades

Adjustment:

- Undo bolt (5).
- Turn eccentric (2) until dimension "a" is at least 2 mm (the eccentric is located outside the machine).
- Tighten the bolt (5).



8.2 Adjusting the automatic floor conveyor shut-off

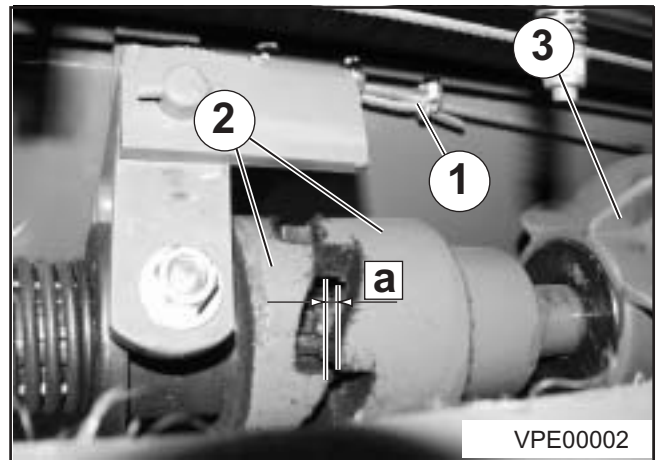
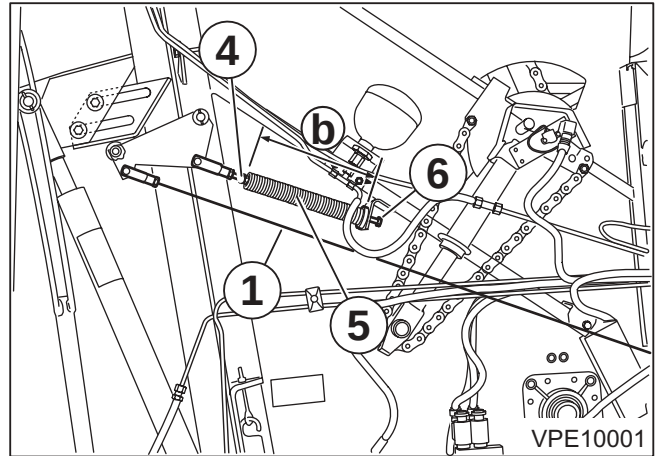
When the tailgate is opened the claw coupling (2) on the main gears (3) is activated via the bracing cable (1) and the roll conveyors are switched off.

The thrust of the actuating cable springs (5) can be adjusted by means of the nuts (4). When the tailgate is closed, the distance should equal **b = approx. 250 mm**.

For a proper function of claw coupling (3) there must be a distance of **a = approx. 5 mm** between both coupling sections when the tailgate is opened and the coupling is disengaged.

Adjust as follows:

- With the tailgate opened, dimension (a) can be increased by slacking nut (6). Tighten nut (6) until **a = 5 mm**.



8.2.1 Adjusting the moment at which the floor conveyor is switched off

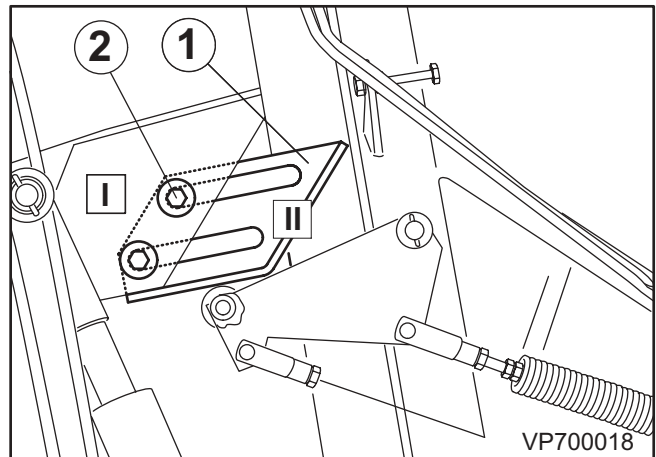
The moment at which the floor conveyor is switched off, is preadjusted at the factory, but can be varied by moving limit stop (1) in the slotted hole, if particular operating conditions should require it.

To do this:

- Release countersunk head screws (2).
- Move limit stop (1) in the slotted hole until the desired moment is reached.

Position I: the floor conveyor is switched off at a later moment.

Position II: the floor conveyor is switched off at an earlier moment.



8.3 Adjusting the Sensors



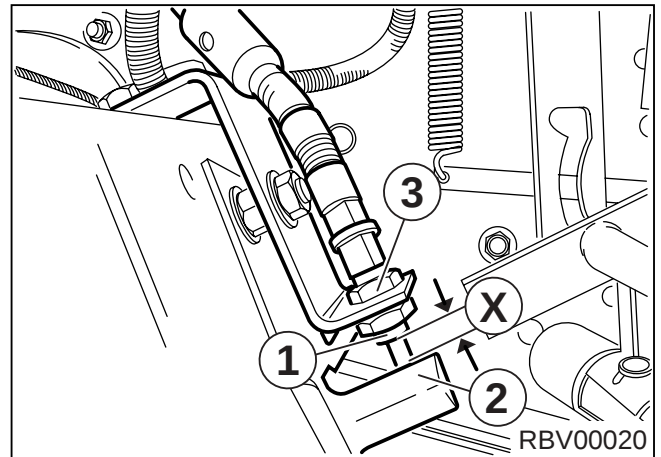
The tightening torque of all sensors must not exceed **10 Nm**.

8.3.1 Twine Mechanism Sensor

The twine mechanism sensor (1) is located in the centre behind the twine mechanism. The gap (x) between the sensor and the switch rocker (2) must equal **approximately 1 - 2 mm**.

Adjustment:

- Undo the lock nut (3).
- Adjust the sensor (1) until gap $x = 1 - 2 \text{ mm}$ when the switch rocker (2) is in the raised position.
- Tighten the lock nut (3).

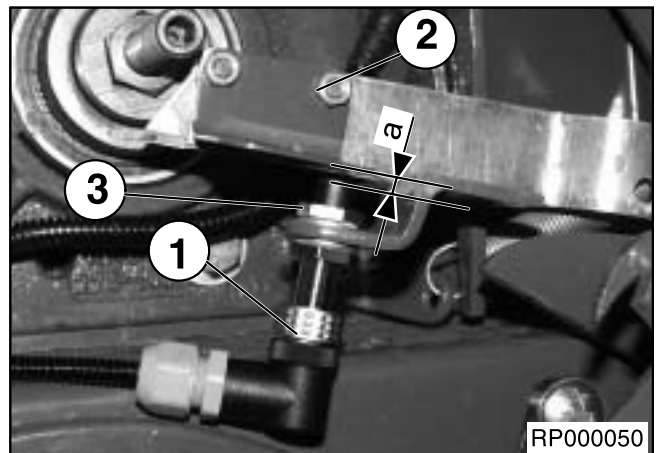


8.3.2 Net Wrapping Mechanism Sensors

Sensor (1) of the net wrapping device is located on the right hand side of the machine under the front guard. Distance (a) between sensor and spring rail (2) should be **2 mm**.

Adjustment:

- Undo the lock nut (3).
- Adjust the sensor (1) until gap $a = 2 \text{ mm}$ - (with spring rail (2) in lower position)
- Tighten the lock nut (3).

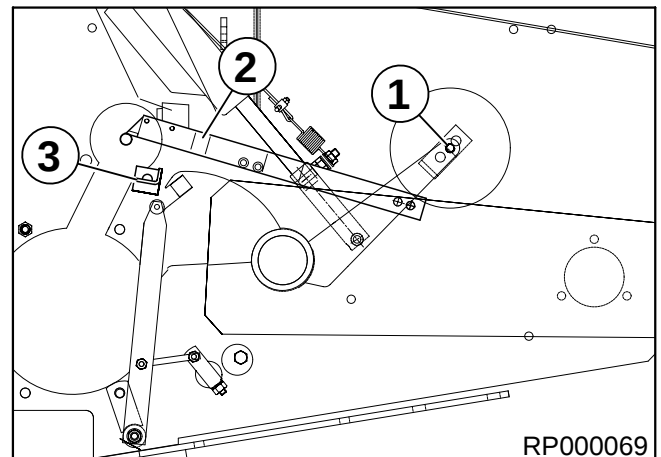


8.3.3 Central position of linear motor sensor

Sensor (1) is located on the right hand side of the machine. Adjust sensor (1) in such a way that switch rocker (2) can freely fall onto limit stop (3).

Adjustment:

- Undo the lock nut.
- Adjust the sensor (1)
- Tighten the lock nut

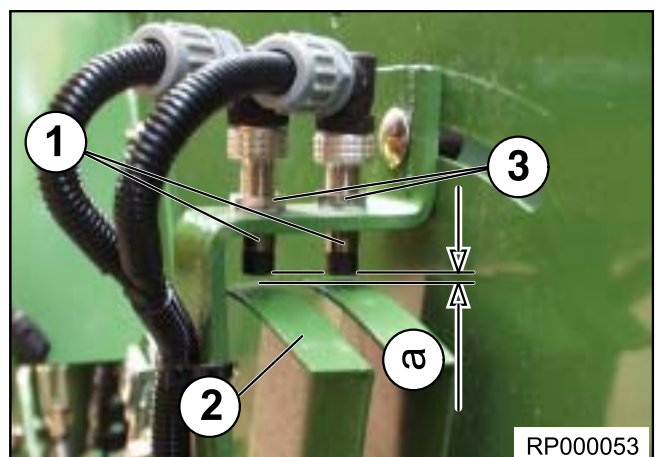


8.3.4 Bale size sensor

Bale size sensor (1) is located on the right hand side of the machine under the front guard. Distance (a) between sensor and segment (2) should be **2 mm**.

Adjustment:

- Undo the lock nut (3).
- Adjust the sensor (1) until gap $a = 2 \text{ mm}$ - (with spring rail (2) in lower position)
- Tighten the lock nut (3).



8.4 Maintenance Tasks

8.4.1 Special Safety Instructions



- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill. Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.
- If the tailgate is open, secure it at the shut-off tap to prevent it from falling.
- After completing maintenance work reattach all protective plates and protective devices properly.
- Avoid skin contact with oil and grease.
- In case of injuries caused by oils, seek immediate medical assistance.
- Follow all further safety instructions to avoid accidents and injuries.

8.4.2 General Information



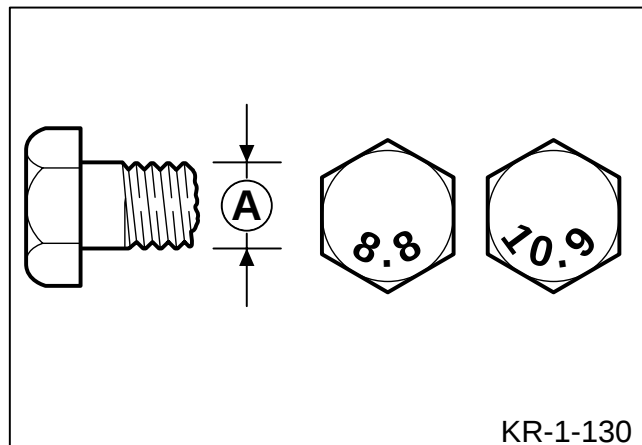
To ensure trouble-free operation of the round baler and to minimize wear, maintenance should be carried out at specific intervals. This includes the cleaning, greasing, lubrication and oiling of assemblies and components.

Torque moment M_A (unless otherwise specified)

A Ø	5.6	6.8	8.8	10.9	12.9
	M_A (Nm)				
M 4		2,2	3,0	4,4	5,1
M 5		4,5	5,9	8,7	10
M 6		7,6	10	15	18
M 8		18	25	36	43
M 10	29	37	49	72	84
M12	42	64	85	125	145
M14		100	135	200	235
M14x1,5			145	215	255
M 16		160	210	310	365
M16x1,5			225	330	390
M 20			425	610	710
M 24			730	1050	1220
M 24x1,5	350				
M 24x2			800	1150	1350
M 27			1100	1550	1800
M 27x2			1150	1650	1950
M30			1450	2100	2450

A = thread size

(resistance class is visible on the head of the bolt)



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Max. tightening torque of the sensors: 10 Nm



Check nuts and bolts regularly (approximately every 50 hours) for tightness and tighten if necessary!

Maintenance at specified intervals

Intervals component	Machine	oil change	check	adjust	bleed	tighten
after initial 8 operating hours and after every wheel change	wheels, wheel nuts					x
after extended downtimes	PTO shaft slip clutch (friction clutch only)				x	
after first time use then after every 100 bales	chain tension: floor conveyor drive pick-up drive		x x	x x		
at the beginning of the season (after approx. 5 bales)	chain tension: floor conveyor drive pick-up drive		x x	x x		
	chain tension: roller drive pick-up drive		x x	x x		
after first time use (approx. 30 - 50 operating hours) then annually after every season	gearbox	x				

8.4.3 Tyres

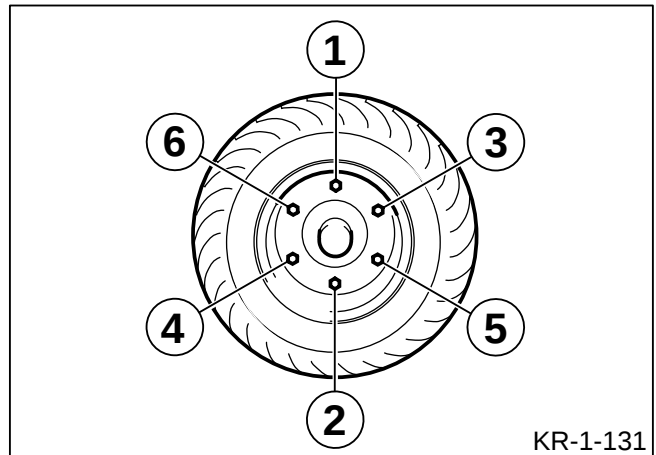


- Repairs to the tyres should be carried out by trained personnel only using the right tools.
- Park the round baler on firm, level ground. Place wheel chocks under the tyres to prevent unintended rolling.
- Regularly check that wheel nuts are properly seated and tighten if necessary!
- Do not stand in front of the tyre when inflating it with compressed air. The tyre could burst if too much pressure builds up inside. Risk of injury!
- Check the tyre pressure at regular intervals.

Always slacken and tighten the wheel nuts in the sequence shown in the diagram at right.

Check the wheel nuts 10 operating hours after mounting and tighten if necessary.
After this, check that the wheel nuts are properly seated every 50 operating hours.

exterior thread wheel nuts mm	spanner size mm	number of bolts per hub mm	max. torque moment Nm	
			black	galvan.
M 10 x 1.0	17	4/5	93	93
M 12 x 1.5	19	4/5	93	93
M 14 x 1.5	22	5	137	137
M 18 x 1.5	24	6	265	245
M 20 x 1.5	27	8	343	294
M 22 x 1.5	32	10	441	343
M 22 x 2.0	32	10	422	324



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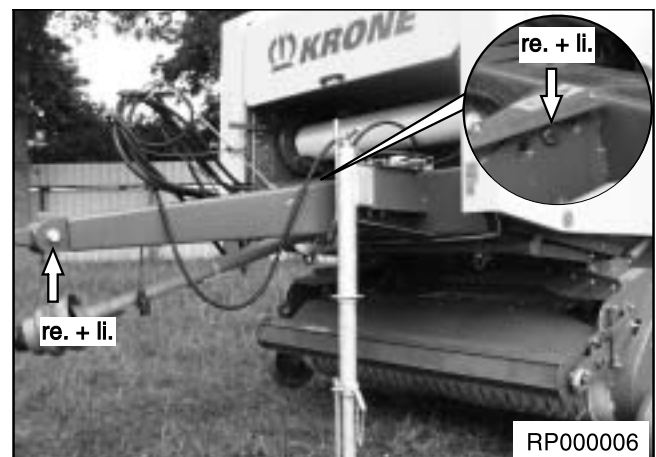
Check the tyre pressure at regular intervals and reinflate if necessary.

Tyre pressure depends on the size of the tyre.
The required values are listed in the table at right.

type of tyre	tyre pressure [bar]
11.5/80-15.3/10 PR	4.5
15.0/55-17/10 PR	3.5
19.0/45-17/10 PR	3.0
15 x 6.00-6/4 PR	2.5

8.4.4 Drawbar

- Tighten the bolts after the first 10 operating hours.
- Check the bolts every 50 operating hours.
- For torque moments refer to Chapter 8.4.2 General Information.



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8.4.5 Main Drive Gear Box

The main drive gearbox (1) is located inside the front cross carrier of the round baler. When changing the oil or checking the oil level, bring the round baler into a horizontal position.

Checking the Oil Level

Check the oil level before initial use.
Check the oil in the gearbox after every 500 round bales.
Unscrew the oil check screw (2).
The oil level should reach up to the check hole.

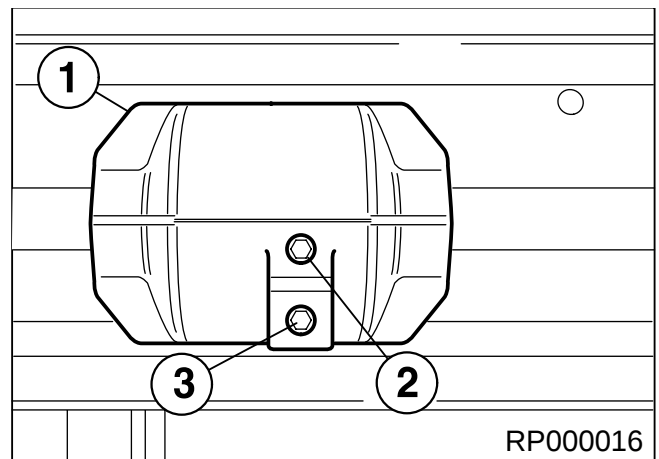
Changing the Gearbox Oil

Gearbox oil should be changed after initial use (approximately 30 - 50 hours) and at the end of each season.

- Unscrew the oil level and oil drain screws.
- Catch the gearbox oil (approximately 1.0 litres) in a suitable container as it drains off.
- Screw in the oil drain screw.
- Fill the gearbox oil (approximately 1.0 litres SAE90 API-GL-4) through the check hole until it starts to overflow.
- Screw in the oil check screw.



Dispose of used oil properly!



8.5 Drive Chains

8.5.1 Special Safety Instructions



The drive chains are equipped with protective devices. Always reattach or close the protective devices after completing work on the chains.

8.5.2 General Information

Central lubrication only (Special Equipment)

The chain lubrication device supplies oil to all drive chains except for the drive chain on the twin twine guide. As the lubricating oil lines are not subjected to high pressure, clogging may occur. For this reason, the lubricating oil lines should be checked before each use to ensure proper function. How the central chain lubrication device operates is explained in the “**Basic Settings and Operation**” section of this booklet.

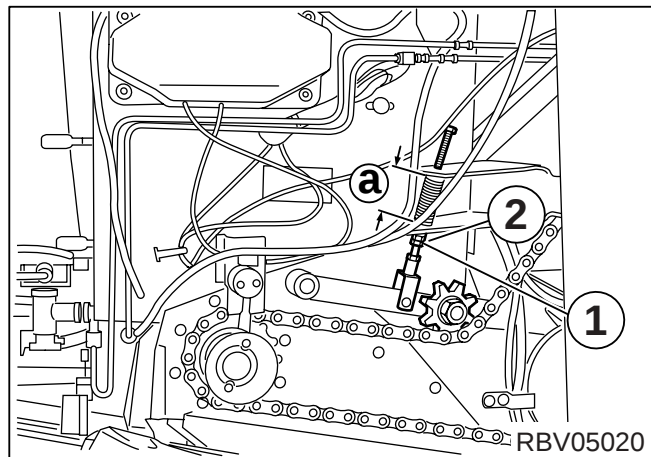
8.5.3 Setting Drive Chain Tension

Front Floor Conveyor Drive

The front floor conveyor drive is located on the left-hand side of the machine.

length of stretched spring **a** = 80 - 90 mm.

- Slacken lock nut (1).
- Rotate the nut (2) until **a** = 80 - 90 mm.
- Tighten lock nut (1).

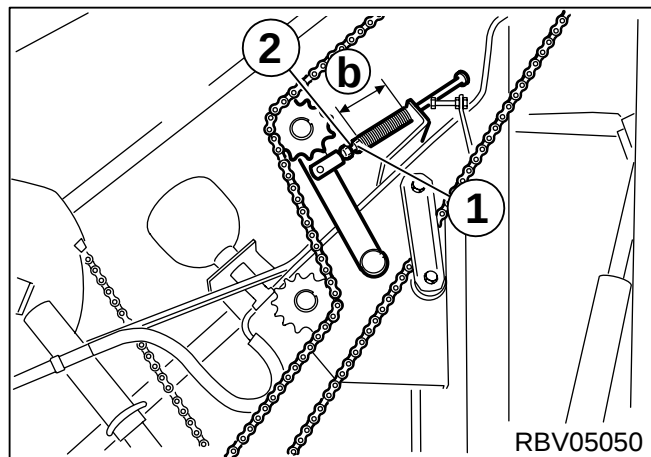


Rear Floor Conveyor Drive

The rear floor conveyor drive is located on the lefthand side of the machine.

length of stretched spring **b** = 90 mm.

- Loosen lock nut (1).
- Rotate the nut (2) until **b** = 90 mm.
- Tighten lock nut (1).



Pick-Up



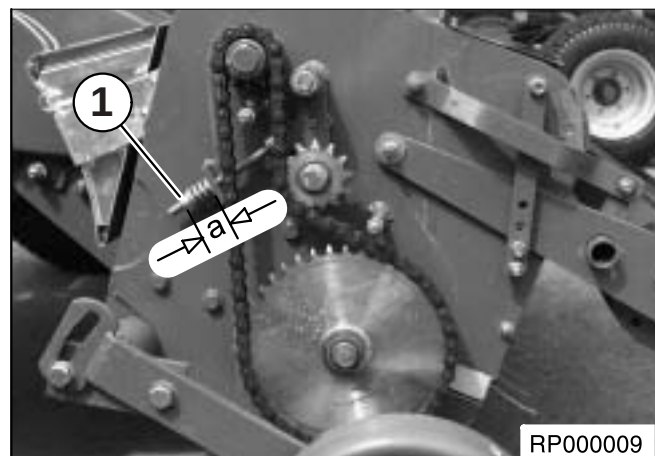
Be careful! Risk of pinching!
Lower the pick-up onto the ground.

Filling Auger Drive

The filling auger drive is located on the pick-up on the right-hand side of the machine.

length of stretched spring **a** = 30 mm.

- Rotate the nut (1) until **a** = 30 mm.



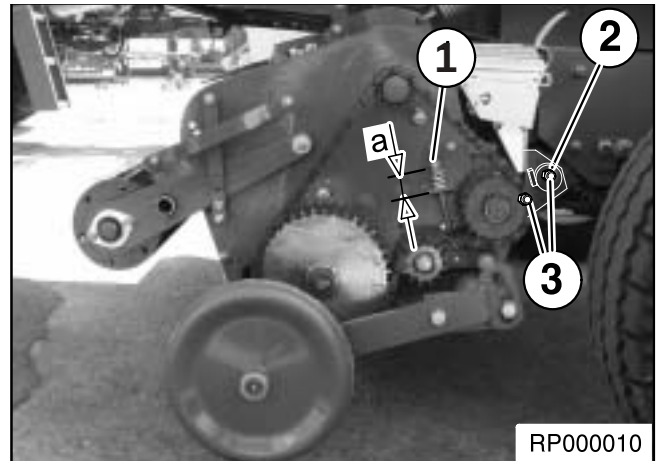
Pick-Up / Packer Main Drive

The Pick-up / Packer main drive is located on the pick-up on the left-hand side of the machine.
length of stretched spring **a = 30 mm**.

- Rotate the nut (1) until **a = 30 mm**.

Packer drive

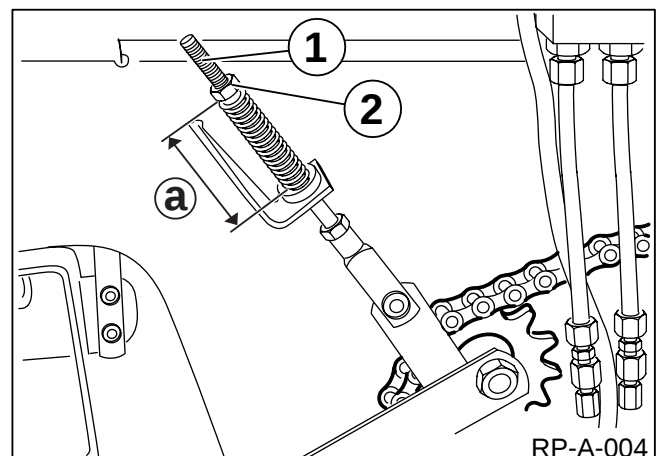
- Slacken the screw (3).
- Turn the eccentric (2).
- Tighten the screw (3).



Roller Drive

The roller drive is located on the right-hand side of the machine.
length of stretched spring **a = 90 mm**.

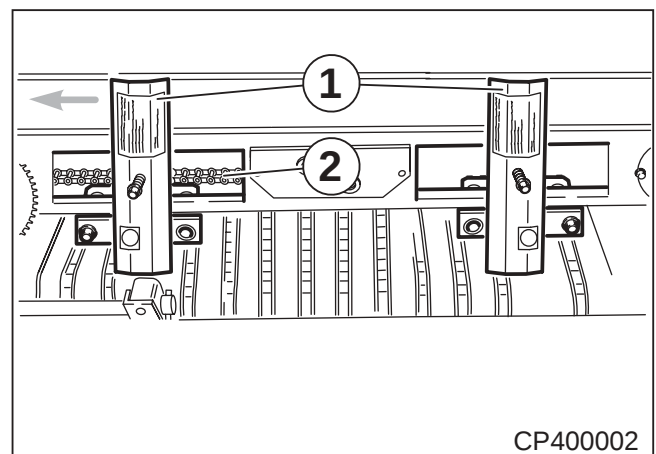
- Rotate the nut (2) until **a = 90 mm**.



Twin Twine Guide Drive

The drive chain (2) for the twin twine guide is located inside the wrapping mechanism. It can be accessed from the front by opening the flaps (1).

It is not necessary to tighten the tension on this drive chain thanks to the automatic chain tensioner.



8.6 Hydraulic System

8.6.1 Special Safety Instructions



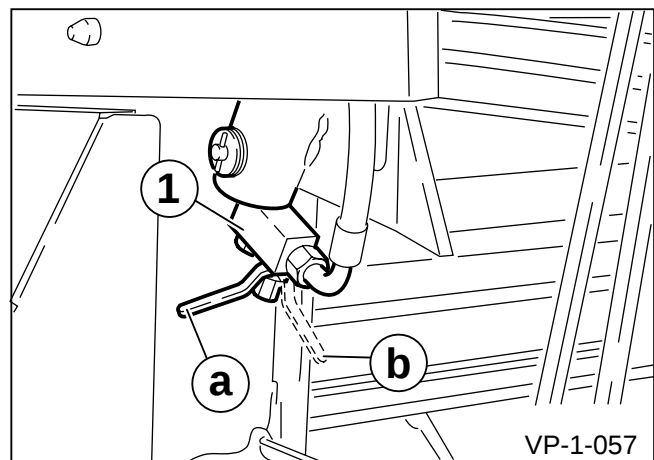
- Depressurize the hydraulic system before doing any work on the hydraulics. Hydraulic fluids escaping at high pressure can cause serious injuries. Seek medical help immediately should injuries occur.
- Work on the hydraulic system, especially on the accumulators, should be done by specially trained personnel only!
- Fill accumulators with the specified gas only.

8.6.2 General Information

The tractor supplies the pressure for the round baler hydraulic system via pressure hoses. Of the various components, the shut-off tap (1) on the left hydraulic cylinder deserves special mention. It is designed as a safety device to prevent the tailgate from shutting unintentionally.

Position “**a**” The hydraulic cylinder return is blocked. The tailgate cannot shut. When working inside the bale chamber when the tailgate is open, always set the shut-off tap in position “**a**”.

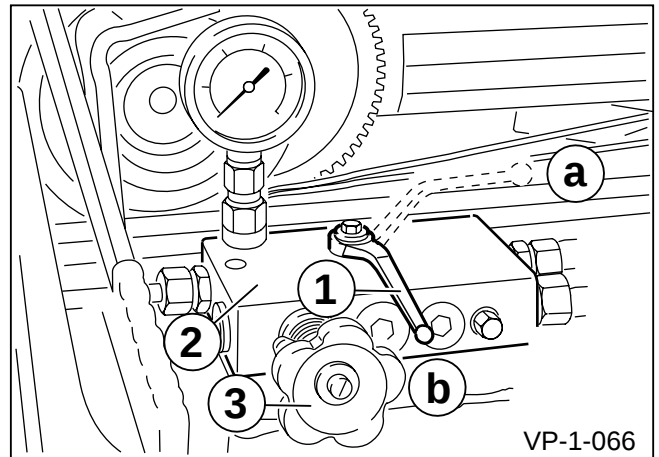
Position “**b**” The hydraulic cylinder return is open. The tailgate can be shut. Always make certain to return the shut-off tap to position “**b**” after finishing work inside the bale chamber or on the tailgate so that the tailgate can shut.



8.6.3 Control Block (right front)

The control block (2) is located at the front right of the machine. The baling pressure is adjusted using the hand wheel (3) before work begins. The shut-off tap (1) serves to relieve the floor conveyor pressure cylinder.

- Position “a” = park position – bleed air from the pressure cylinders.
 Position “b” = working position

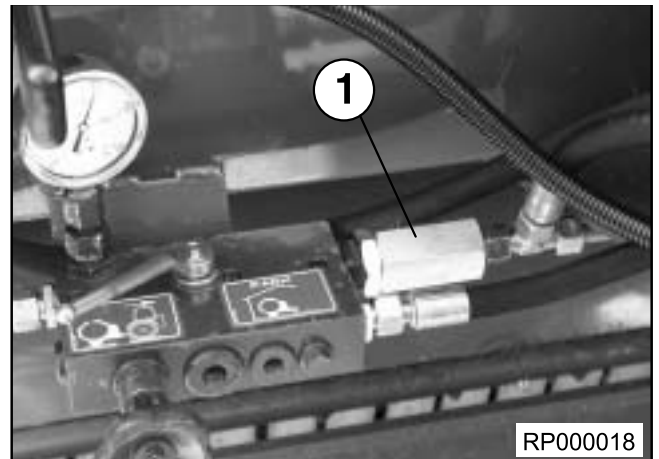


8.6.4 Replacing the Hydraulic Oil Filter

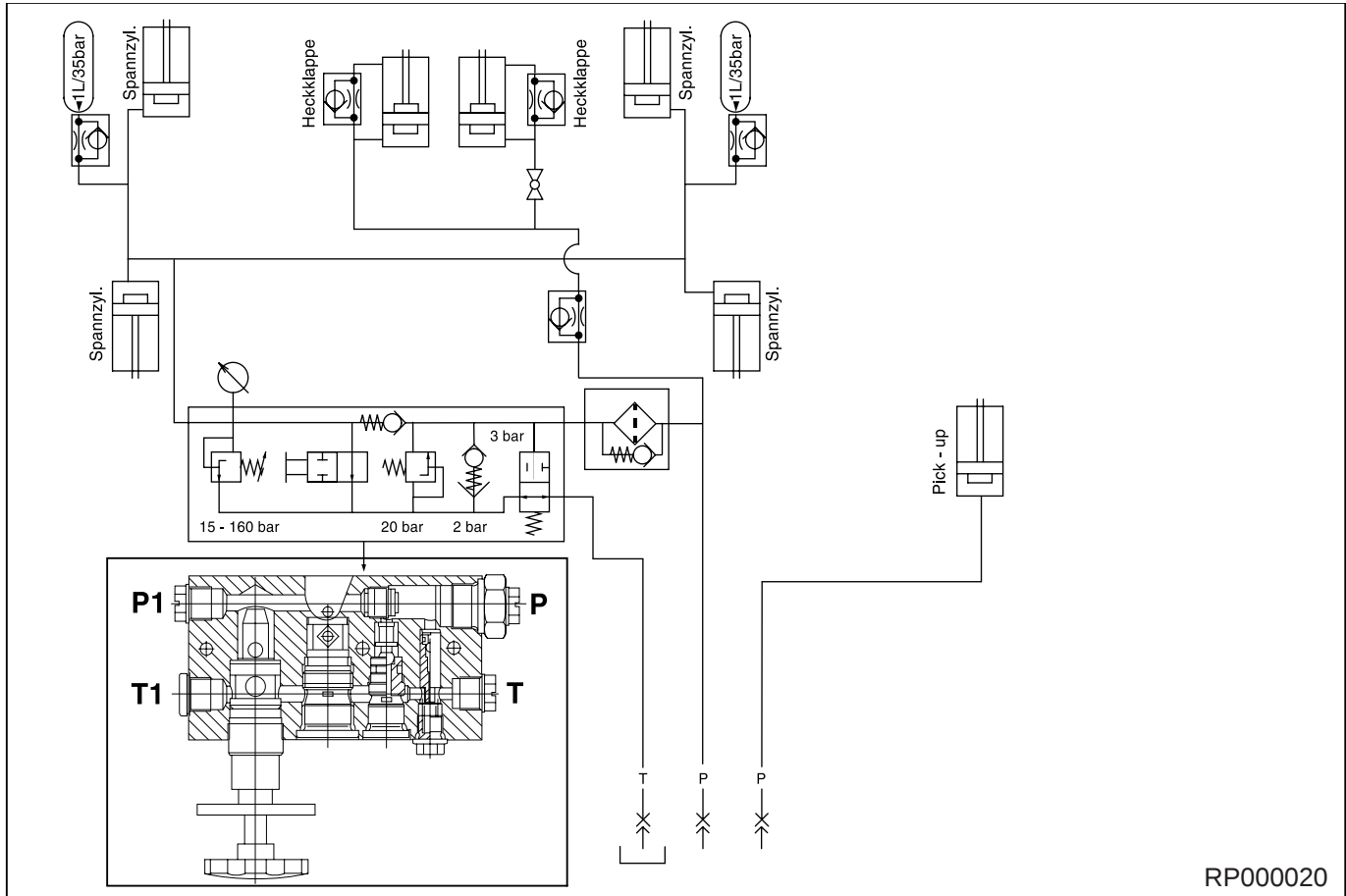
In order to protect the control valves against dirt a hydraulic oil filter (3) is installed at the righthand side of the front cross pipe. The filter element needs to be replaced once a year.

Replacing the filter element

- Detach filter (1).
- Replace filter element.
- Insert and tighten filter (1).
- Check for leakage.



8.6.6 Round Baler Hydraulic Circuit Diagram

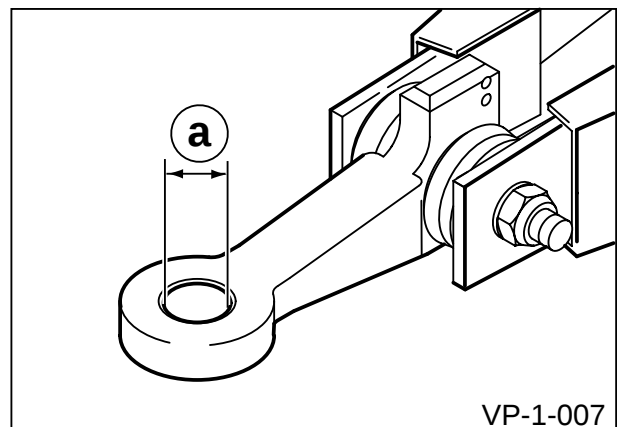


8.7 Drawbar Ring Hitch



If the wear limit of the bushing inside the ring hitch has been reached, the bushing should be replaced.

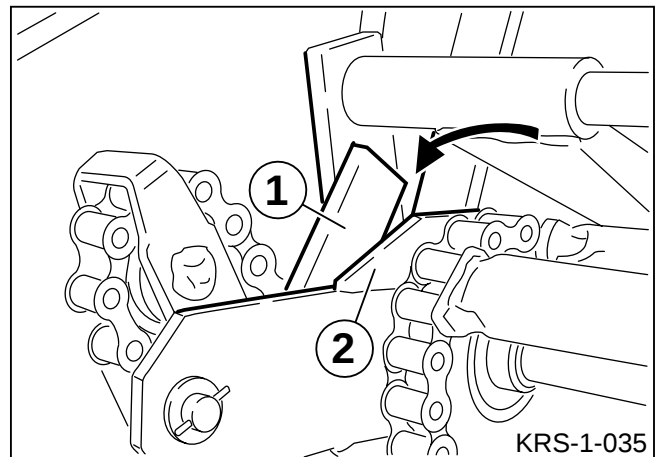
The wear limit of the bushing inside the ring hitch (1) is **a = 43 mm**. If this value is exceeded, the bushing needs to be replaced. To minimise wear, clean and grease the bushing and ring hitch daily.



8.8 Cleaning Tensioning Arm at floor conveyor rear

Straw and other materials may collect in the space (marked by the arrow) between the metal braces (1) and (2). The floor conveyor chain tensioner cannot work as well as it should. The tension is reduced.

- Clean the space.



8.9 Shortening the floor conveyor chains

8.9.1 Shortening the rear floor conveyor chain



Before chain length can be checked, the rear tensioning arms must be cleaned. (see Section 8.8)

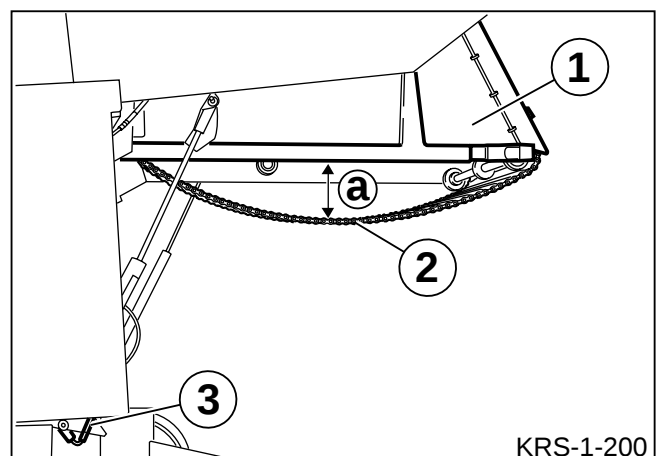
- Open the tailgate (1) fully.
- Secure the tailgate using the shut-off tap (3). (see also Section 8.6.2)

If the distance “a” between the tailgate (1) and the roller chain is greater than 220 mm, the roller chain needs to be shortened.

- Slacken the floor conveyor (Section 8.6.3).
- Shorten the chain as described below.

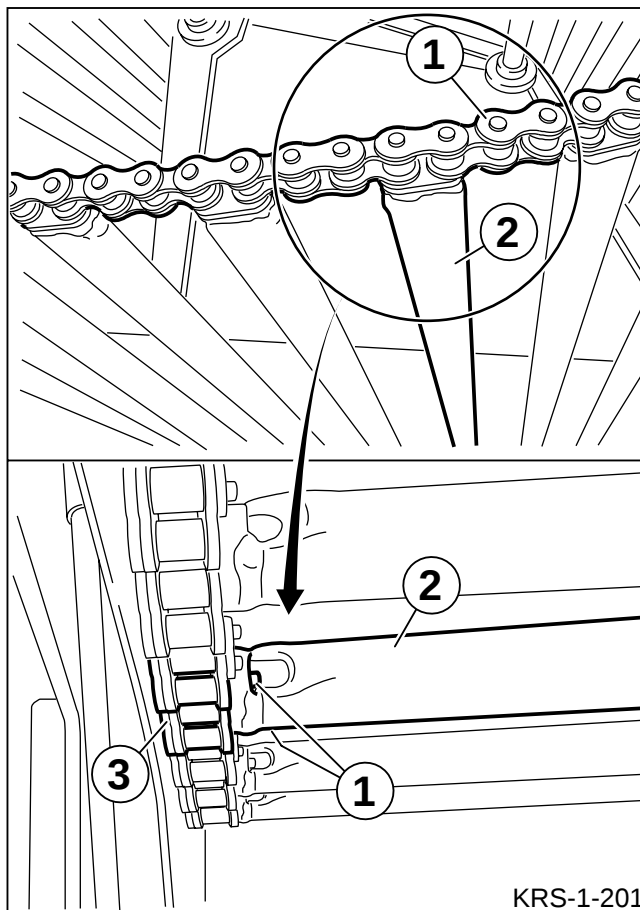


The shut-off tap on the lefthand cylinder must be closed.



To shorten the chain (1) a rail (2) is detached as follows.

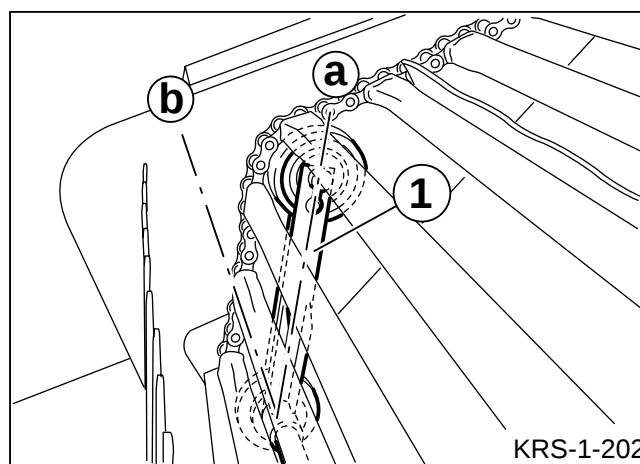
- Remove the wire pins (1) on both sides.
- Detach the rail (2).
- Remove two chain links (3).
- Connect the roller chain with a chain-connect link.



8.9.2 Shortening the front floor conveyor chain

If the chain tensioning lever is in Position “b”, the roller chain must be shortened as described above.

The chain tensioning lever must be in Position “a” after the roller chain has been shortened.



8.10 Lubrication

8.10.1 Special Safety Instructions



- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill. Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.
- If the tailgate is open, secure it at the shut-off tap to prevent it from falling.
- After completing maintenance work reattach all protective plates and protective devices properly.
- Avoid skin contact with oil and grease.
- In case of injuries caused by oils, seek immediate medical assistance.

Definition of Terms:

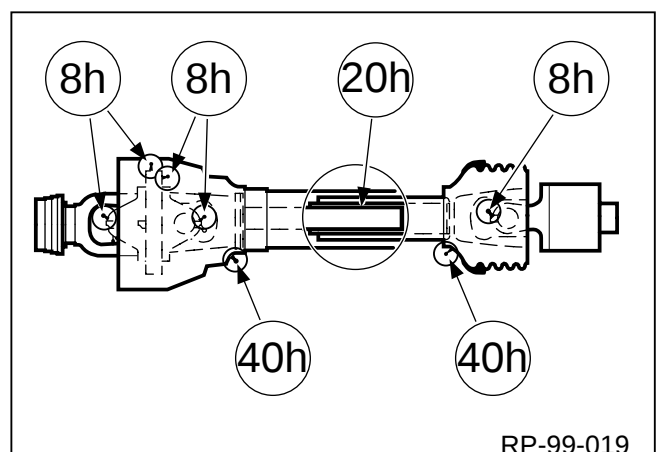
Term	Lubricant	Location/Amount	Special Notes
grease	all-purpose grease	lubrication nipple / approx. two strokes from grease gun	remove excess grease lubrication nipple
lubricate	use vegetable lubricants unless otherwise specified	slide face / apply thinly with brush	remove any old and excess oil
oil	use vegetable oils unless otherwise specified	chains e. g. double connection	spread onto chain evenly

The maintenance intervals listed are based on an average work load for the round baler. Under increased work loads and extreme operating conditions the intervals should be shortened.

PTO Shaft

The lubrication intervals for the PTO shaft are shown in the diagram at right. For additional information refer to the operating instructions provided by the PTO shaft manufacturer.

Alle Intervallangaben = Betriebsstunden





Lubricating Points

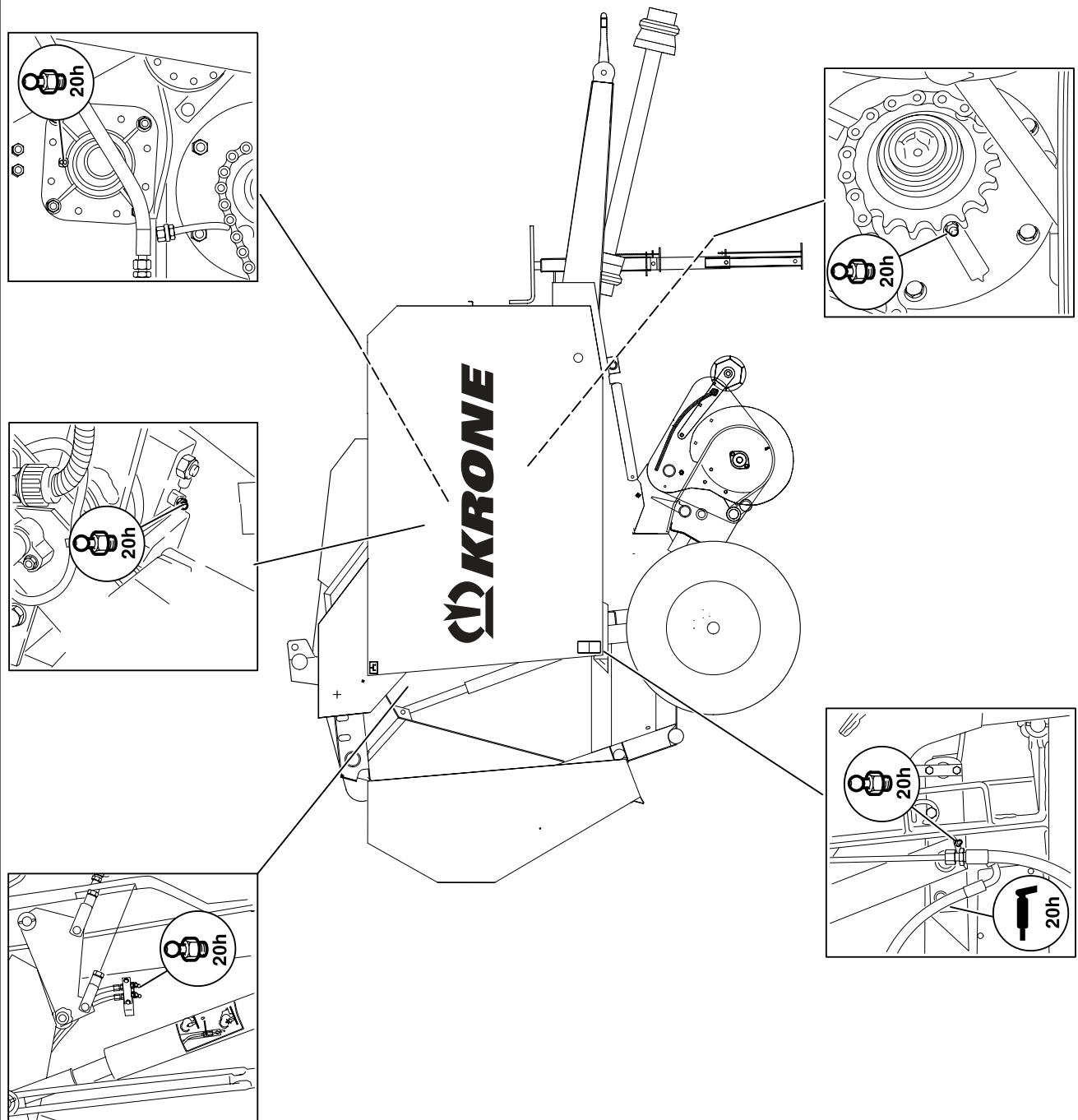
The following chart lists the lubrication points on the round baler and the number of lubrication nipples.

Lubrication points	Number of lubrication nipples
pick-up cam track (left)	1
support	1
drive shaft and bearing support from rear floor conveyor (right + left)	5
guide shaft front top on the tensioning device (right + left)	2
tailgate cylinders (right + left)	2
bearing for floor conveyor shaft (right)	1
bearing for spiral roller (right)	1
floor conveyor drive (left)	1
bearing for spiral roller (left)	1
chain drives	
floor conveyor drive left central lubrication *	
pick-up drive right and left	central lubrication *
roller drive right	central lubrication *
floor conveyor chain left and right	central lubrication

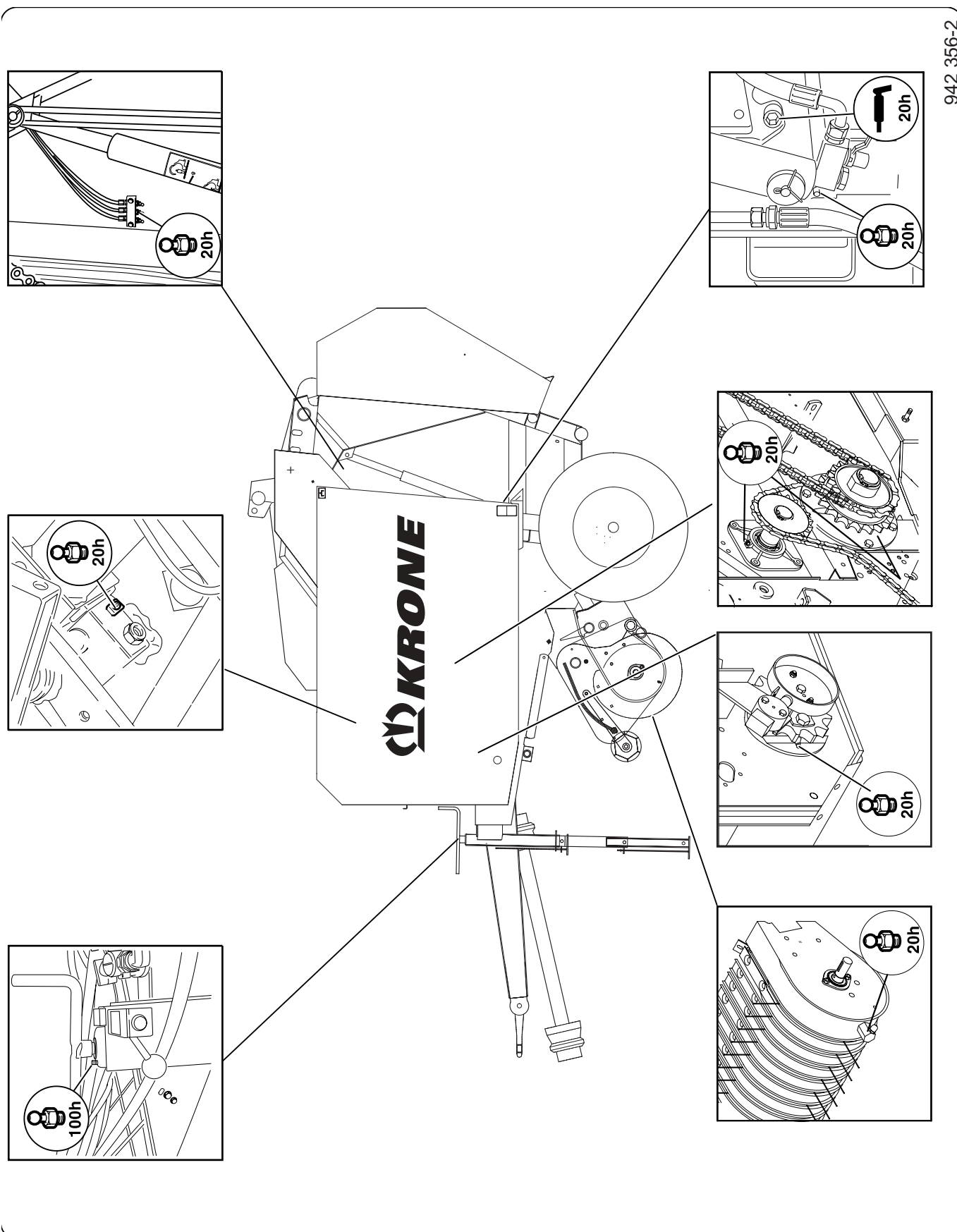
* Special Equipment

8.10.2 Lubrication Points on the Round Baler (right-hand side)

942 357-1



8.10.3 Lubrication Points on the Round Baler (left-hand side)



942 356-2

9 Winter Storage

Special Safety Instructions



- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill. Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.
- If the tailgate is open, secure it at the shut-off tap to prevent it from falling.
- After completing maintenance work reattach all protective plates and protective devices properly.
- Avoid skin contact with oil, grease, cleaning agents and solvents.
- In case of injuries or burns caused by oils, cleaning agents or solvents, seek immediate medical attention.
- Follow all further safety instructions, to avoid accidents and injuries.

9.1 General Information

Clean the round baler thoroughly inside and outside before putting it in winter storage. If a high-pressure cleaner is used, do not aim the water jet directly at the bearing points. Grease all lubricating points after cleaning. Do **not** wipe away any grease which oozes out of the bearings. This grease ring provides additional protection against moisture.

Remove the drive chains and wash them in petroleum (do not use any other solvent). At the same time, check for wear to the chains and chain wheels. Lubricate the chains after cleaning, attach and tighten.

Check that all moving parts (such as deflection rollers, joints, tension rollers, etc.) move easily. If necessary, remove, clean and remount after regreasing. Replace if necessary. Use **original KRONE spare parts** only.

Take apart the PTO shaft. Grease the inner tubes and protecting tubes. Apply grease to the lubrication nipple on the universal joint and to the bearing rings on the protecting tubes.

Park the round baler in a dry place away from artificial fertilisers or animal stalls.

Touch up damaged paintwork, thoroughly coat unpainted parts with anti-corrosion agent.



Use only a suitable vehicle jack to jack up the round baler. Make sure that the machine is in a secure position when jacked up.

Jack up the round baler to prevent damage to the tyres (tyre damage may occur when the round baler is left standing in the same position for extended periods). Protect the tyres against outside influences such as oil, grease, direct sunshine, etc.

Complete the required repair work immediately following the harvest season. Prepare a list of all required spare parts. This makes it easier for your KRONE dealer to process orders and you can be certain that your machine will be available for use in top condition at the start of the next season.



10 Return to Service

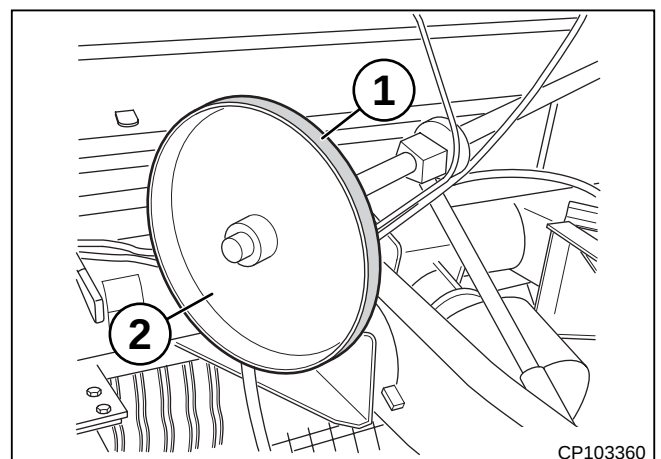
Special Safety Instructions



- The following general rules apply to all maintenance, assembly, repair and adjustment work: Bring the machine to a complete standstill. Switch off the engine, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.
- If the tailgate is open, secure it at the shut-off tap to prevent it from falling.
- Avoid skin contact with oil, grease, cleaning agents and solvents.
- In case of injuries or burns caused by oils, cleaning agents or solvents, seek immediate medical attention.
- After completing maintenance work reattach all protective plates and protective devices properly.
- Please observe all other specific safety instructions.

10.1 General Information

- Before returning to service, start the binding or net wrapping mechanism manually and turn the mechanism by hand.
Check the starter systems of the twine or net wrapping mechanism.
- Grease all lubrication points and lubricate the chains. Wipe away any grease which oozes out of the bearings.
- Check the oil level in the main drive gear box and top up according to specification if necessary.
- Check hydraulic hoses and lines for leaks; replace if necessary.
- Check tyre pressure and add air if necessary.
- Check that all bolts are fastened tightly and tighten if necessary!
- Check all electrical connection cables and the lighting; repair or replace if necessary.
- Check all settings on the round baler and correct if necessary.
- Clean the brake disk (2) of any rust on the bearing surface (1).

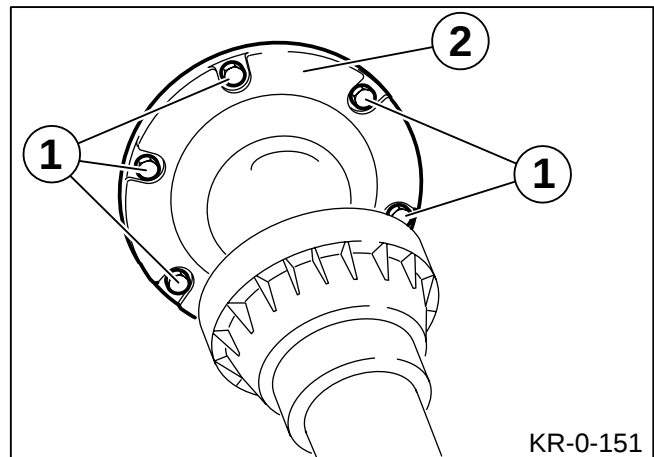


10.2 Vent Overload Coupling on the PTO Shaft

(friction clutch only)

Following extended downtimes, overload coupling surfaces (2) may stick to the contact surfaces. Vent the overload coupling before use.

- Undo the bolts (1) crosswise.
- Turn the PTO shaft manually.
- Tighten the bolts crosswise.



11 Faults – Causes and Remedy

Special Safety Instructions



- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill. Switch off the motor, remove the ignition key and disconnect the 12 V supply voltage.
- Secure the tractor and round baler against rolling.
- If the tailgate is open, secure it at the shut-off tap to prevent it from falling.
- After completing repairs and maintenance work reattach all protective plates and protective devices properly.
- Avoid skin contact with oil and grease.
- In case of injuries caused by oils, seek immediate medical assistance.

11.1 General Faults, Causes and Remedy

Fault	Possible Cause	Remedy
Cannot lower pick-up .	Hydraulic hose not connected.	Insert hydraulic hose into the corresponding linkage.
Clogs in the intake area. If clogging occurs, stop the vehicle immediately and switch off the PTO as otherwise damage to the floor conveyor guides could result. Remove clogs.	Swathes uneven or too large.	Separate swathes.
	Forward speed too fast.	Reduce forward speed. Drive slower when starting the baling process until the acquired crop is rotating inside the bale chamber.
	Machine is not level.	Check the drawbar setting and adjust if necessary.
	Baffle plate set too low.	Raise the baffle plate.

Fault	Possible Cause	Remedy
Wrapping material used for barrel-shaped bales rips open in the middle.	Bale chamber is filled unevenly.	Drive onto the swath from altern. directions.
	Number of wraps is too low.	Increase the number of wraps.
	Net brake too tight.	Release the net brake.
	Net stretcher bar too tight.	Adjust the stretcher.
	The floor conveyor is switched off too late.	Adjust the moment at which the floor conveyor is switched off (section 8.2.1).
Bale is shaped like a cone.	Bale chamber is being filled on one side only.	Check that the bale chamber fills evenly during baling, drive slower especially at the end of the baling process.
	Driving too fast at the end of the baling process.	Drive slower at the end of the baling process.
	Twine or wrapping material ripped.	Use only twine or wrapping material which meets the specified quality.
	Insufficient number of wraps. Twine / wrapping material separates.	Reduce spacing between ties on twine wrapping system / for wrapping material, increase number of wraps.
Twine slips off bale edges.	Crop is extremely dry or crumbly.	Set the twine limiters on the twine mechanism further inwards.
Twine holder for double tying is not pulled in.	Double tying chain is too slack.	Defective chain tensioner.
Netting is not transported at the start.	Netting has incorrect dimensions.	Use only netting rolls which have the specified dimensions.
	The idler is not being pressed against the V-belt or the free-running end inside the actuating wheel jamming.	Check servo-motor or put the free-running end in gear
	Netting roles have not been inserted correctly into the pick-up system and / or the roller brake mechanism is set incorrectly.	Insert the netting roll in accordance with the operating manual, adjust the roller brake.
	Netting has not been inserted properly into the wrapping mechanism.	Pull the netting out of the wrapping mechanism, reinsert in accordance with the operating manual.
	Dirt in front of and on the starter cylinders can cause slipping.	Following extended use of the twine wrapping mechanism, remove dirt which has accumulated inside the wrapping mechanism.
	The idler pulley of the V-belt cannot move far enough to the bottom.	Remove crop residues between the guard holder and the flat iron of the idler pulley.

Fault	Possible Cause	Remedy
Netting rips apart immediately after the start or during wrapping.	Cutter bar drops again immediately after starting.	Repeat start procedure.
	Roller brake is set too tightly.	Check the brake setting.
	Cutter bar too low.	Check cutter bar setting.
Netting roll wraps around the rubber roller	Net not hanging far enough downwards. Net sticking to the rubber roller after a prolonged shut-down period.	Release the net brake. Operate with medium revs when binding. Reinsert the net after a prolonged shut-down period.
Netting is not being cut neatly.	Cutter bar does not drop down fully.	Remove dirt.
	Dull blades	Replace blades
Netting does not extend to the outer edges of the bale.	Netting is not being braked properly during wrapping.	Check the brake setting.
	Netting has caught on the cutter blades.	Check the setting of the cutter blades.
	Wrapping mechanism starter cylinders are bent.	Check wrapping mechanism, replace if necessary.
	Net stretcher bar not functioning.	Rotate net stretcher bar.
Cannot open tailgate properly.	Hydraulic hose not connected.	Insert hydraulic hose into the corresponding linkage.
The bale does not roll out of the bale chamber or exits slowly.	Sides are too full or baling pressure is too high.	Do not drive so much to the side.
Twine is not being cut.	Net stretcher bar has been folded downwards.	Fold the net stretcher bar upwards.
Net is fed during the baling process.	The net is hanging too wide downwards.	Increase the tension of the net brake spring. Do not change the rpm for the wrapping process.

11.2 Faults, Causes and Remedy in the Central Chain Lubrication Device

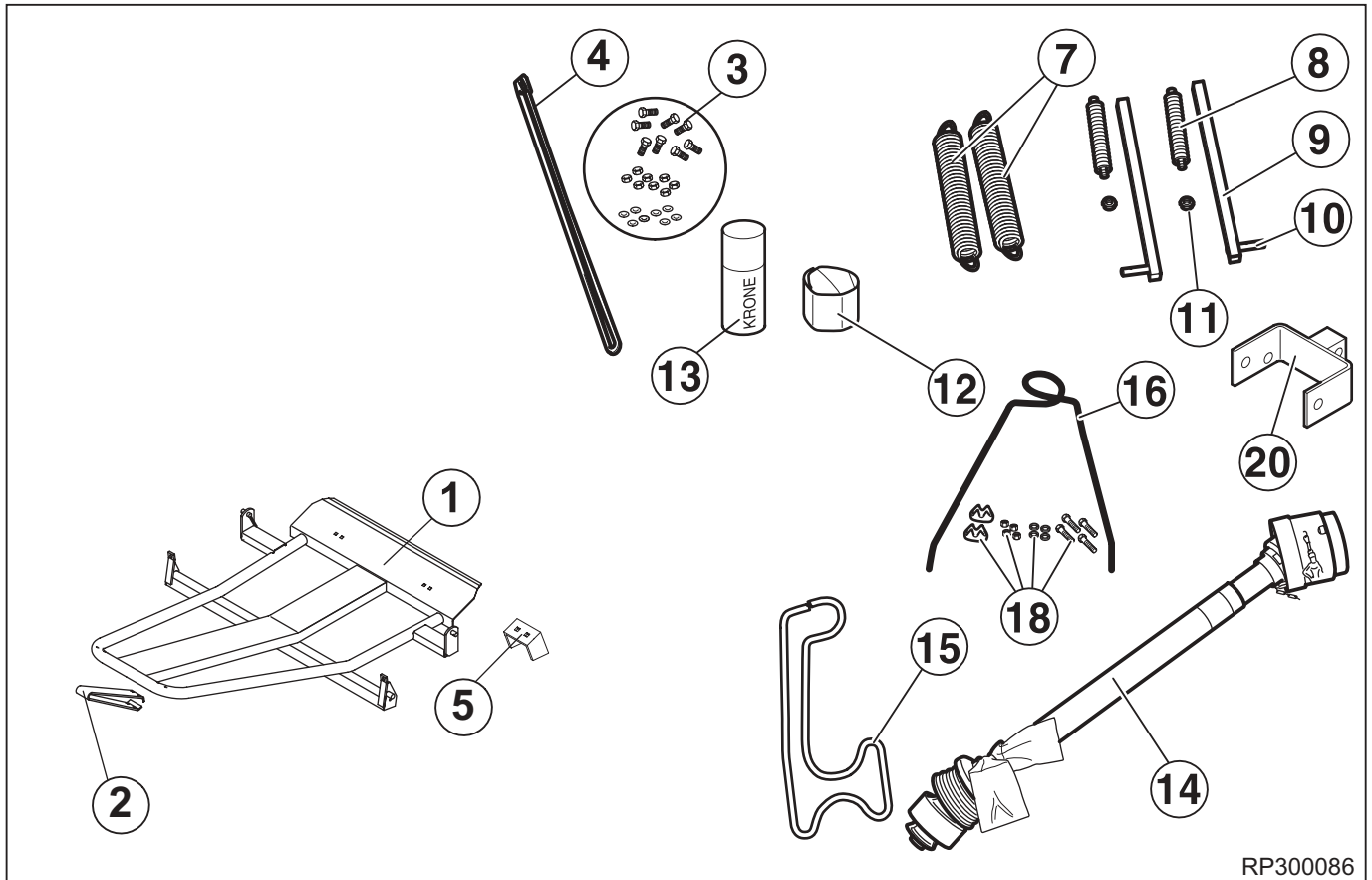
Fault	Possible Cause	Remedy
Low oil consumption	Low pressure	Pump working excessively Dirt in the pump area → Clean Pump is not being pressed at full stroke → Adjust in accordance with the operating manual Pump valve closing incorrectly → Detach; clean or replace
	Oil is too thick	→ Replace with recommended oil
	System is dirty	→ Clean or replace all measuring valves
Excessive oil consumption	Main pipe is torn	→ Repair or replace
	Oil too dilute	→ Drive with thicker oil → Reduce pump lift
Machine is dry	No pressure	Pump does not run → Repair, adjust or replace Main pipe is torn → Repair or replace No oil in the system → Bleed system (see “Central Chain Lubrication Device”)
	System is clogged	Dirt Clean system and clean or replace all measuring valves. Pipe jammed Repair or replace

A1 Commissioning

A1.1 Preparing for Commissioning

Due to transport considerations, the PTO shaft and bale ejector (Special Equipment) do not come attached to the round baler at delivery. The round baler needs to be fully assembled prior to commissioning and adjusted to the type of tractor used.

The following parts are packed separately at delivery. The words in parentheses indicate the storage location on the machine during transport.

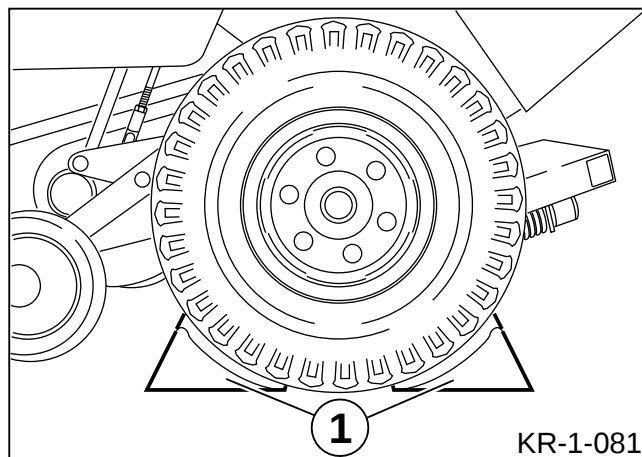


RP300086

1 bale ejector	(pallet)	11 nuts	(twine box)
2 Spacer (Vario Pack 1810)	(twine box)	12 safety foil	(twine box)
3 small parts	(twine box)	13 spray paint can	(twine box)
4 linkage	(pick-up)	14 PTO shaft	(bale chamber)
5 U-bracket	(twine box)	15 PTO shaft support bracket	(twine box)
7 springs	(pick-up)	16 hose and cable retainer	(bale chamber)
8 springs with clamp bolts	(twine box)	18 fasteners	(twine box)
9 rail	(twine box)	20 PTO shaft holder	(twine box)
10 clamping sleeve	(twine box)		

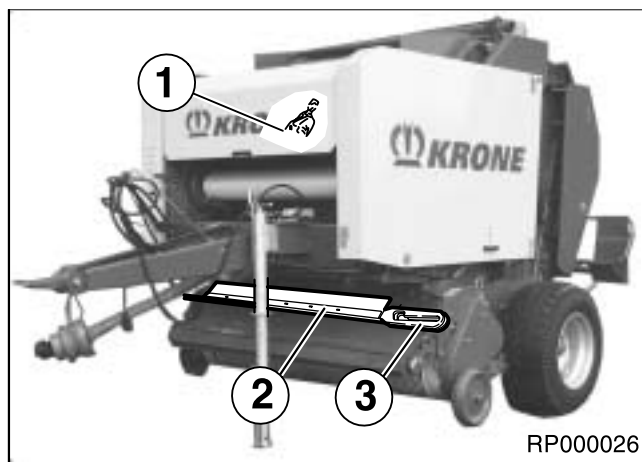
Park the round baler on firm, level ground.

Place two wheel chocks under the wheels to prevent the baler from rolling.



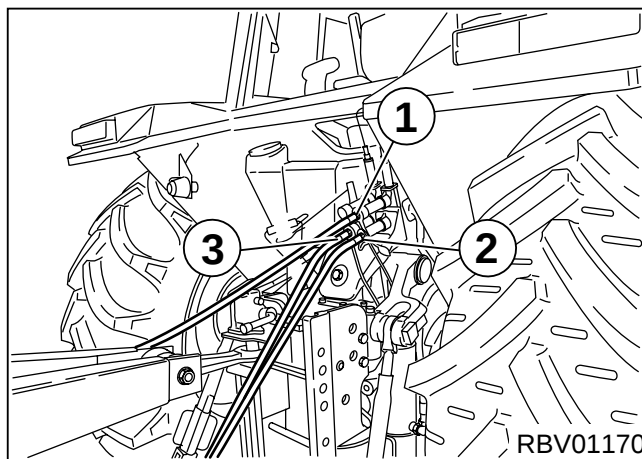
Take parts (1) out of the twine box.

Remove mounting parts (2) + (3) from the bale chamber.

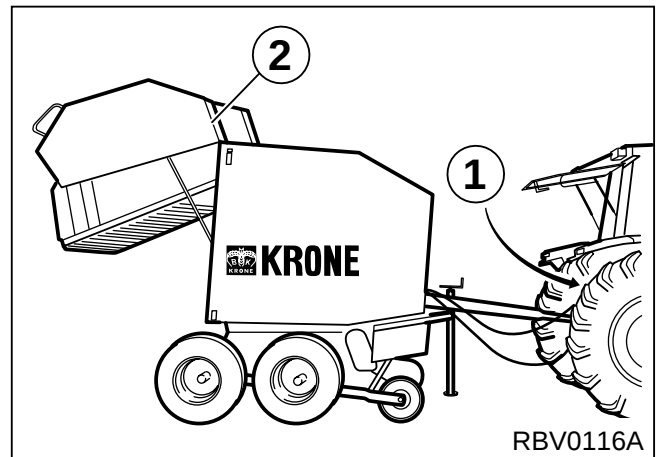


Depressurise the tractor hydraulics.

Connect hydraulic hoses (1), (2) and (3) to the tractor hydraulics according to colour.



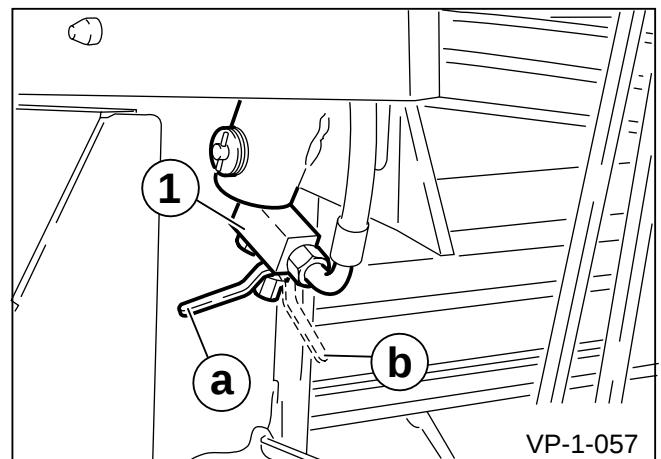
Set the control valve for “open tailgate” to “raise”.



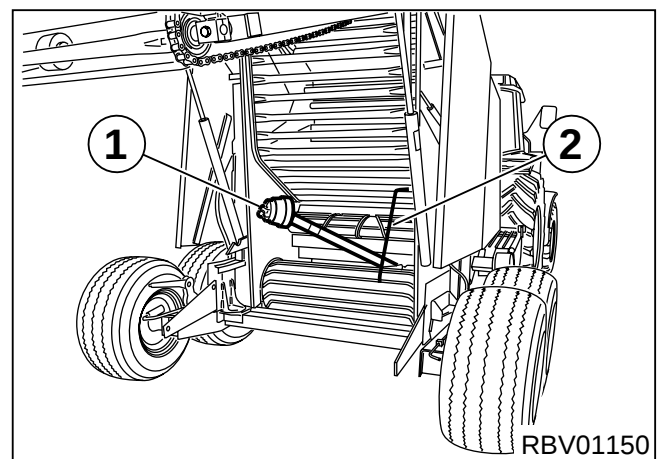
Risk of accidents!

Secure the open tailgate to prevent it from closing unintentionally.

- Rotate the shut-off tap (1) in the return of the left-hand lifting cylinder into position (a).

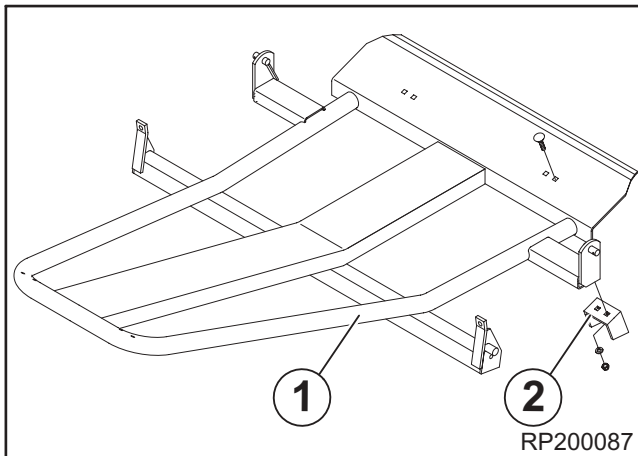


Remove mounting parts (1) + (2) from the bale chamber.

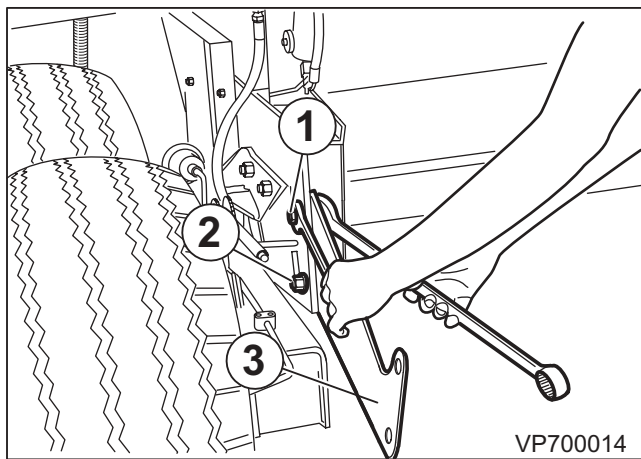


A1.2 Assembling the Bale Ejector

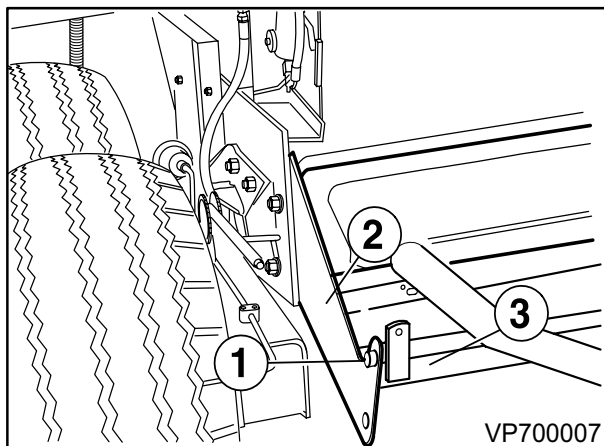
- Pre-mount the bale ejector (1) with U-spacer (2).



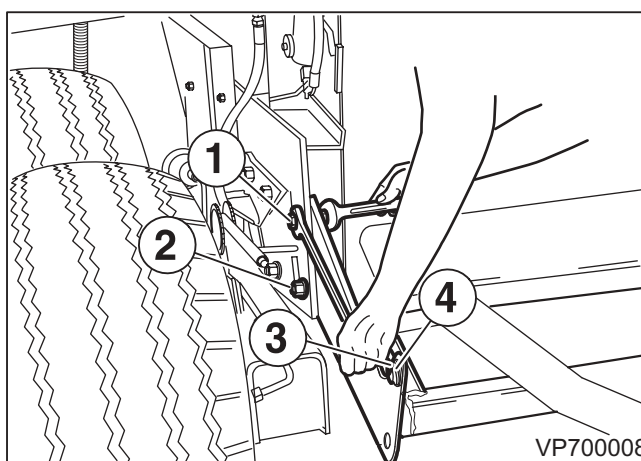
- Loosen the screw connections (1) + (2) on the holding plates to the left and right of the bale chamber.
- Press the holding plates outwards.



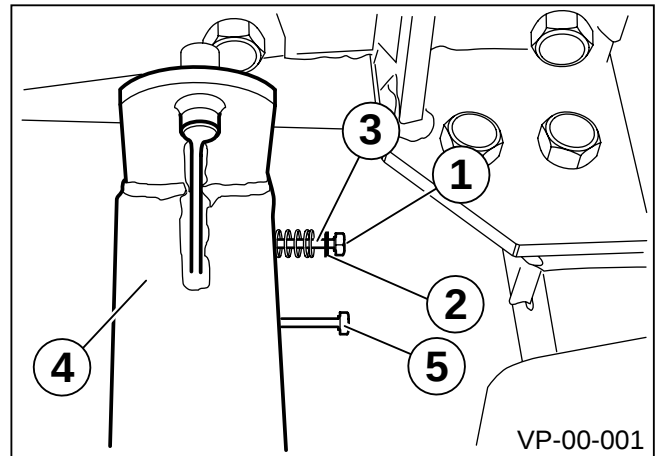
- Place the bale ejector (3) between the holding plates (2).
- Set the pins in the top bore hole (1) on the holding plates (2).



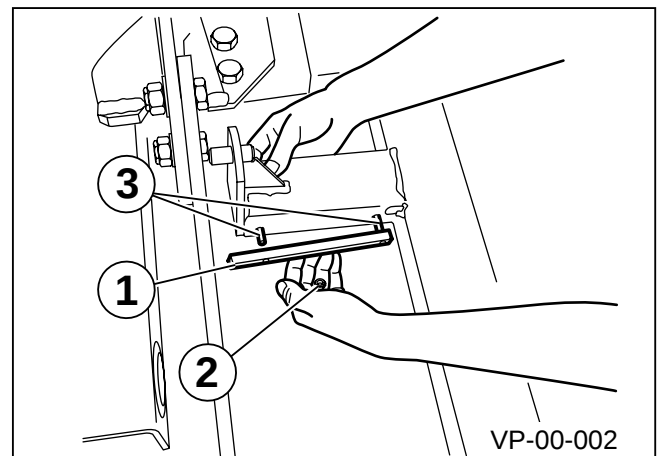
- Secure the pins using the washer (3) and roll pin (4).
- Tighten the screw connections (1) + (2) on the holding plate.



- Insert the screw (1) with washer (2) and spring (3) into the bale ejector bore hole (4).
- Insert the M8x120 screw (5) in bale ejector bore hole.

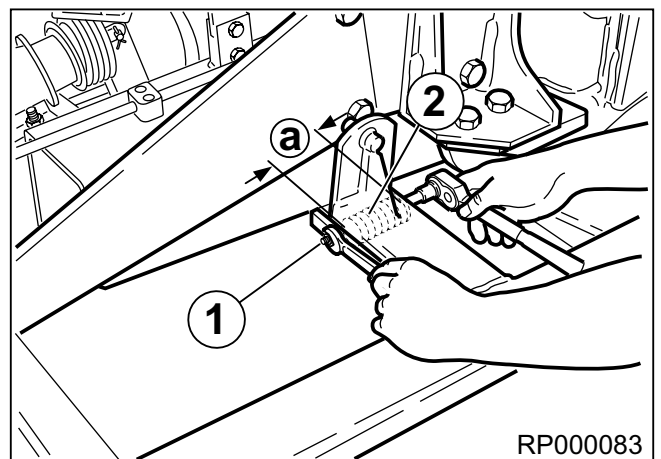


- Slide on the rail (4).
- and fasten using nut (2) and bolt (3).

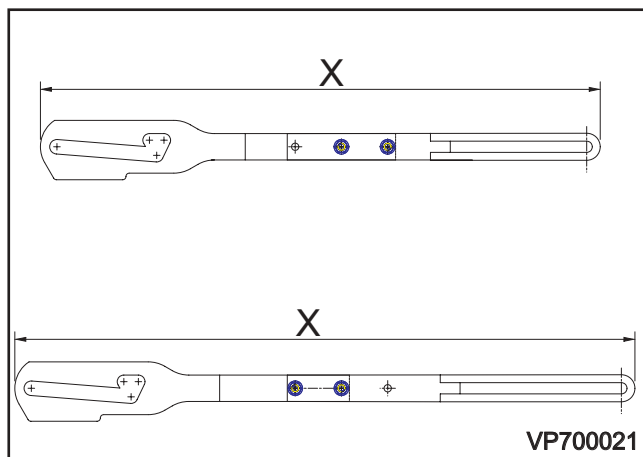


- Tighten the nut (1) until $a = 65 \text{ mm}$
- Do not tighten the screw.

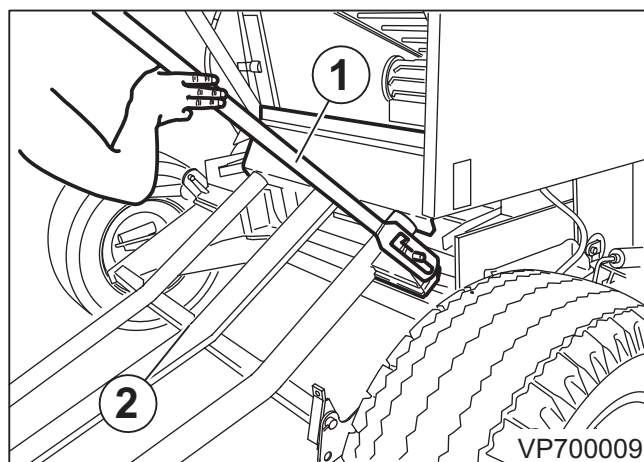
Repeat this procedure on the righthand side.



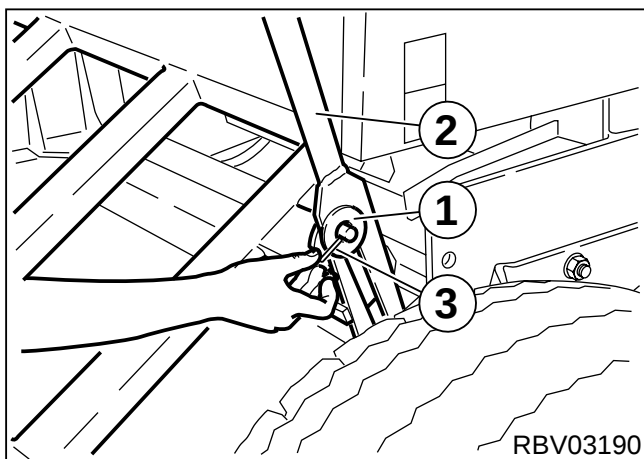
- VP 1510 = linkage (1) X = 1921 mm
- VP 1810 = linkage (1) X = 2196 mm



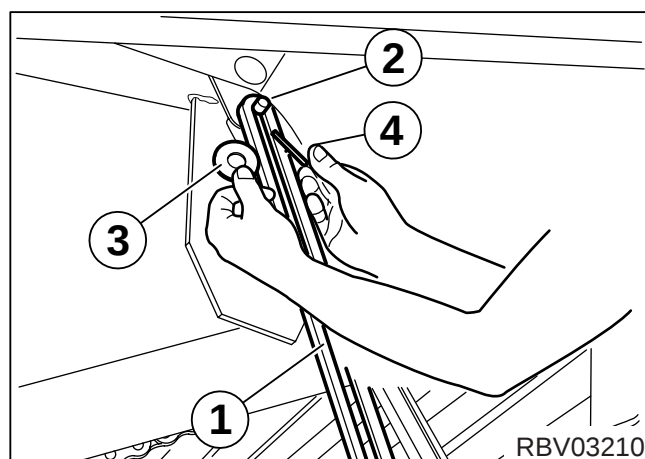
- Slide linkage (1) onto the studs on the righthand and lefthand sides of the frame (2).



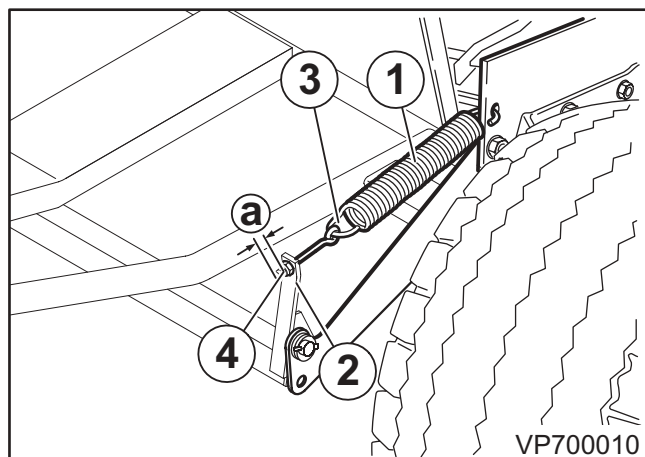
- Secure the linkage (2) using the washer (1) and roll pin (3).



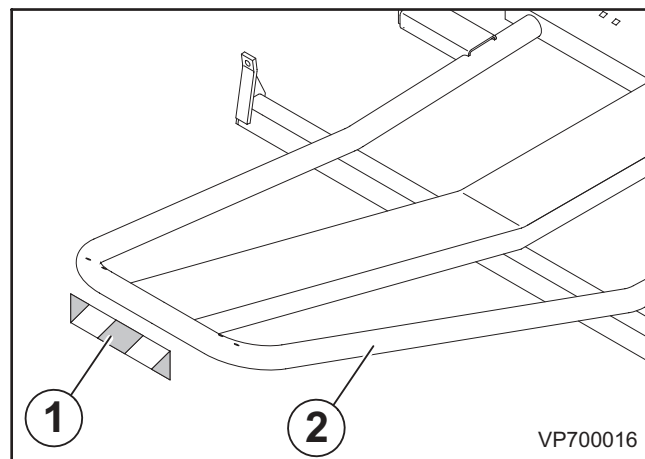
- Slide linkage (1) onto the tailgate studs (2)
- and secure the pins using the washer (3) and roll pin (4).



- Hook the extension spring (1) to the round baler frame.
- Hook the eye bolt (3) to the extension spring (1) and insert it into the bore hole (2).
- Secure in place using the washer and linch pin (4).
- Tighten the nut (4) until the bale ejector swings after the placing of the bale reliably into the basic position.

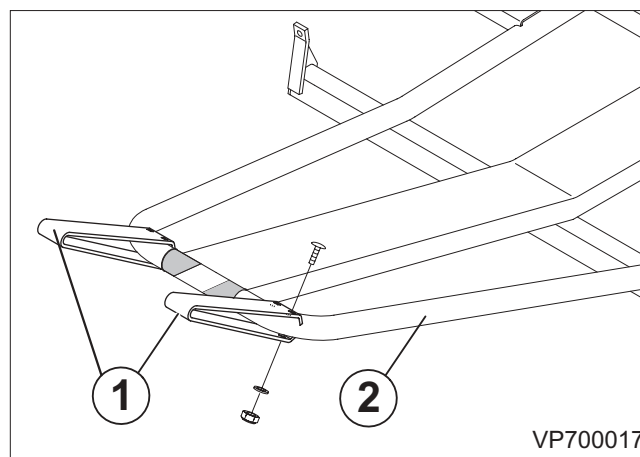


- Attach safety foil (1) at the middle of the rear transverse spar of the bale ejector (2).



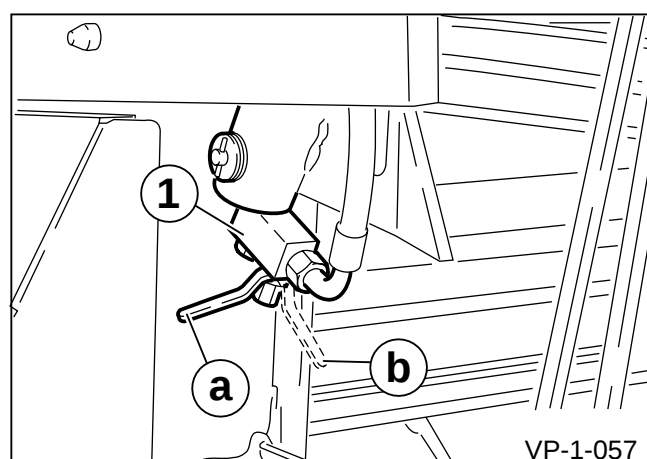
Vario Pack 1810

- Install the spacer (1) with flat round bolt, washers and nuts at the bale ejector (2).



Shut the tailgate.

- Rotate the shut-off tap (1) in the return of the lefthand lifting cylinder into position (b).
- Switch on the tractor hydraulics.
- Set the control valve for "shut tailgate" to "lower".



A1.3 Adjusting Drawbar Height

To ensure optimum pick-up of baling material, the drawbar height must be adapted to the type of tractor being used.

In working position the lateral front guard (1) should be rather horizontal to the ground. The height of the ring hitch should then be matched to the height of the tractor hitch.

The use of other tyres can require a slightly different adjustment.

To do this:

switch the pick-up into transport position

- Raise the pick-up (tractor hydraulics)
- Slacken wing nut (2).
- Turn the hand wheel (1).
- Tighten wing nut (2).

- Actuate the "raise pick-up" control valve.

Adjust drawbar height.

- Undo screw (2).
- Dismantle screw (3) on the left and right side
- Adjust the drawbar (1).
- Attach and tighten screw (3) with the required torque.
- Tighten screw (2) with the required torque.

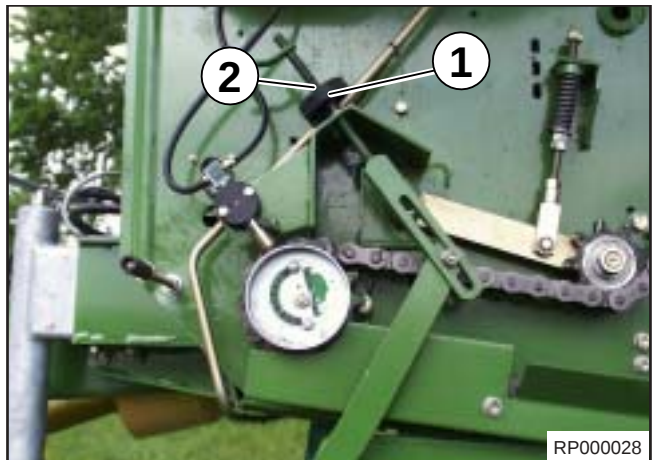
- Undo screw connection (4).
- Align the ring hitch (3) horizontally (parallel to the ground).
- Tighten screw connections (4) with the required torque.



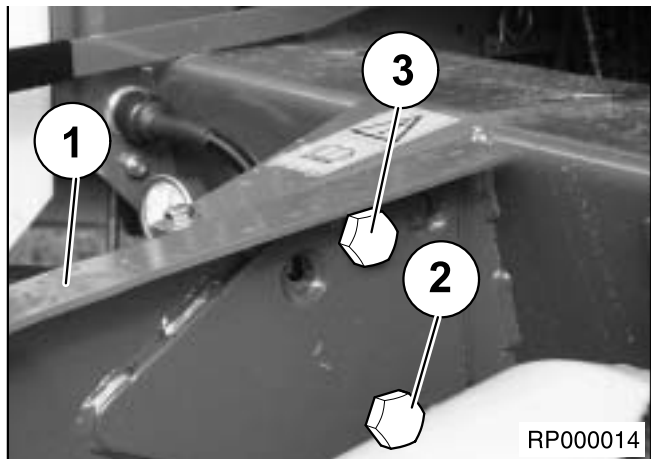
The toothed disks (5) must mesh. Tighten the screw connections again after 10 operating hours!



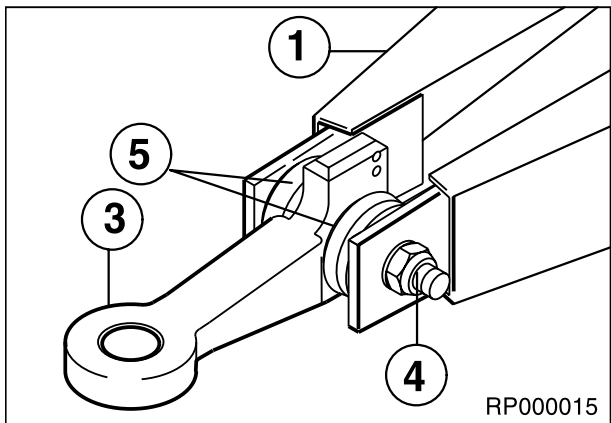
RP000033



RP000028



RP000014



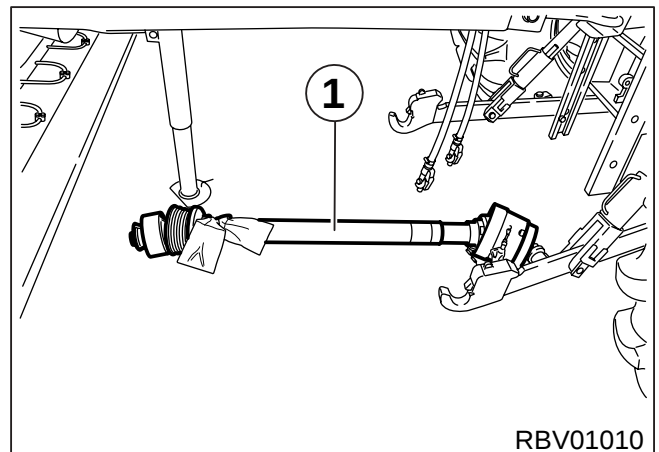
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A1.4 Attaching the PTO Shaft

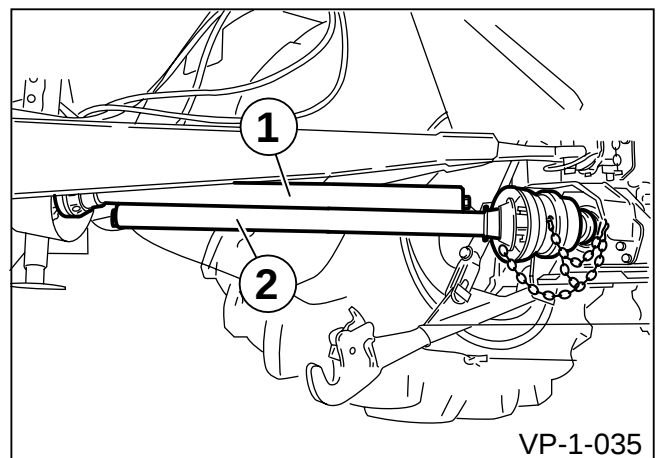
A1.4.1 Length Adjustment

The length of the PTO shaft (1) needs to be adjusted. The shortest operating position will be used in sharp curves.

- Hitch the round baler to the tractor.
- Take up the shortest operating position for the PTO shaft.

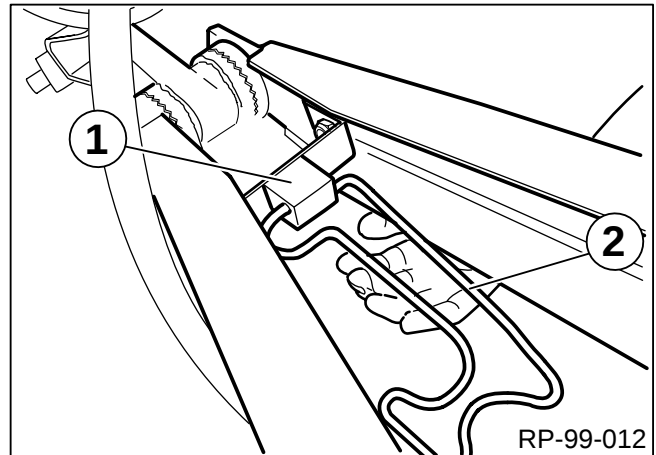


- Pull apart the PTO shaft.
- Slide the PTO shaft (1) onto the tractor PTO shaft.
- Slide the PTO shaft with the overload protection feature (2) onto the machine shaft.
- Measure the overlap.
- Complete length adjustment in accordance with the operating instructions provided by the manufacturer of the PTO shaft.

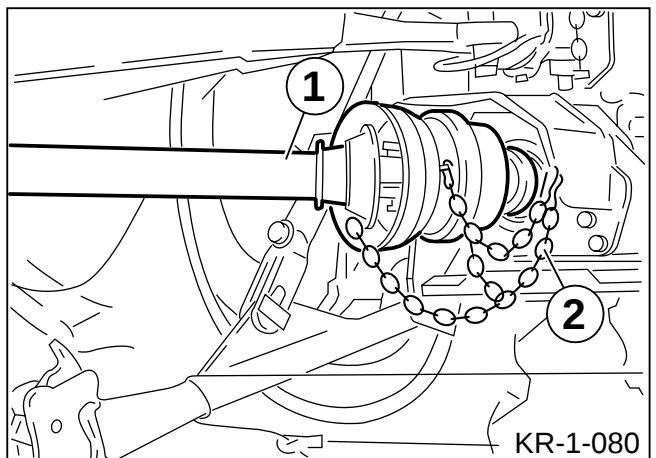


A1.4.2 Installing the PTO Shaft

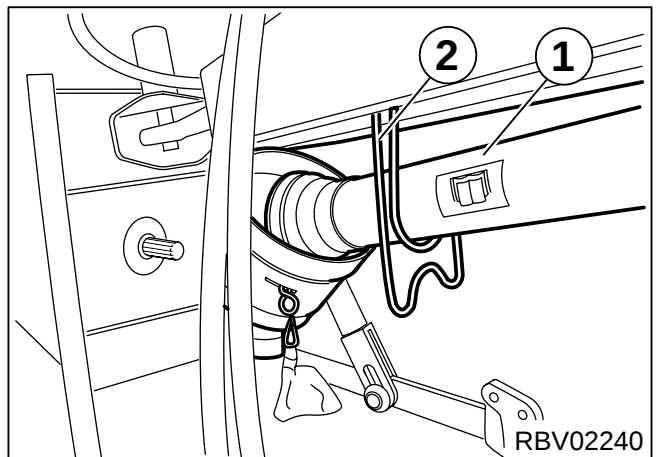
- Hook the PTO shaft support bracket (2) to the PTO shaft holder (1).



- Slide the PTO shaft (1) with overload protection feature onto the machine shaft until the safety mechanism engages or the PTO shaft can be fastened (refer to the operating instructions provided by the manufacturer if the PTO shaft).

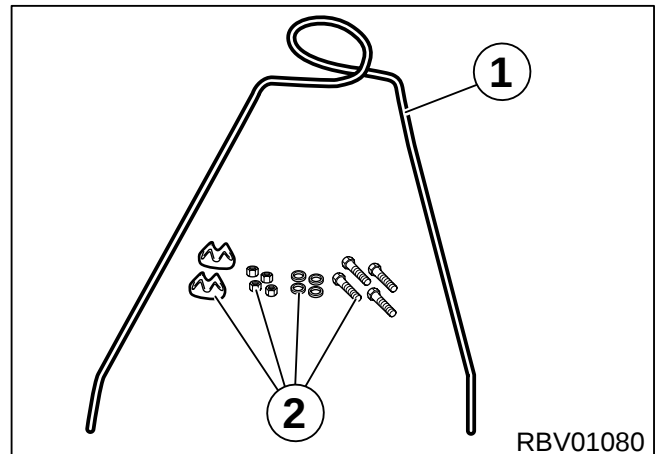


- Secure the PTO shaft guard retaining chains (2).
- Place the PTO shaft (1) inside the PTO shaft bracket (2).

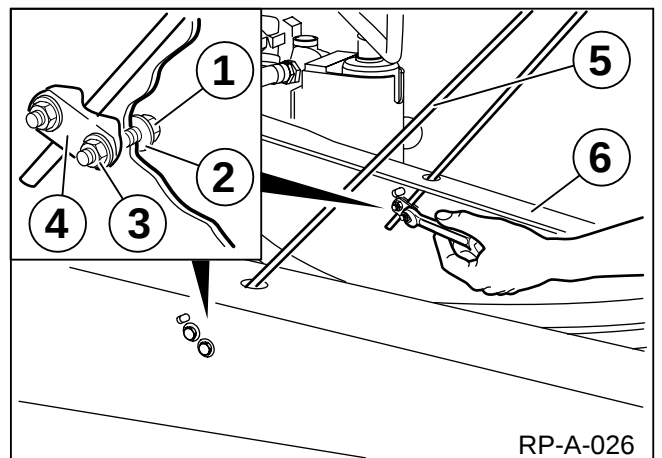


A1.5 Attaching the Hose Bracket

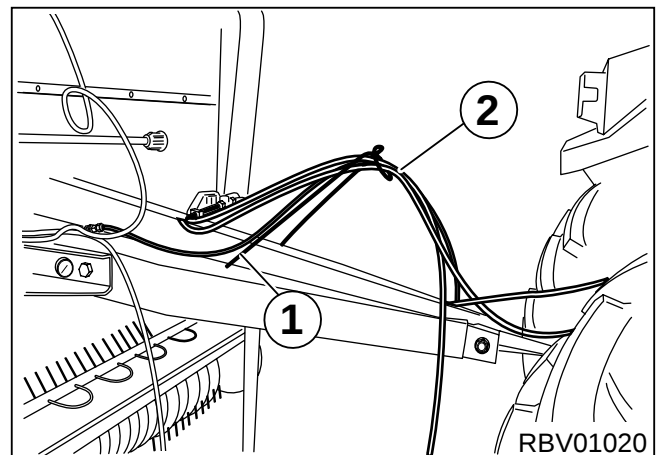
Attach the hose bracket (1) to the drawbar using the fastener (2).



- Slide the hose bracket (5) through the slots on the drawbar (6).
- Fasten the hose bracket to the drawbar using clamps (4), screws (1), washers (2) and self-locking nuts (3).

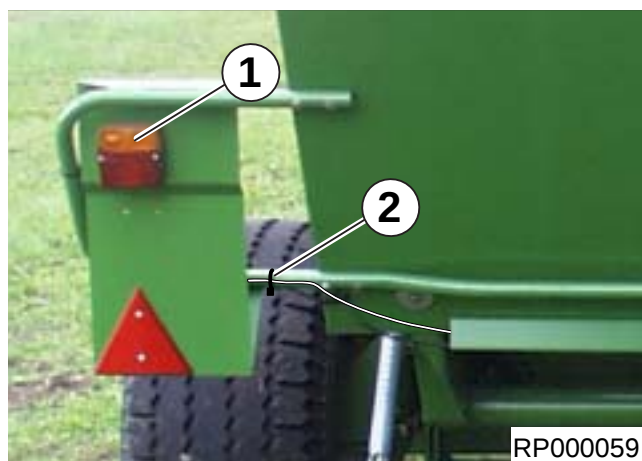


- Draw the hydraulic hoses (2) through the hose bracket eyelet (1).



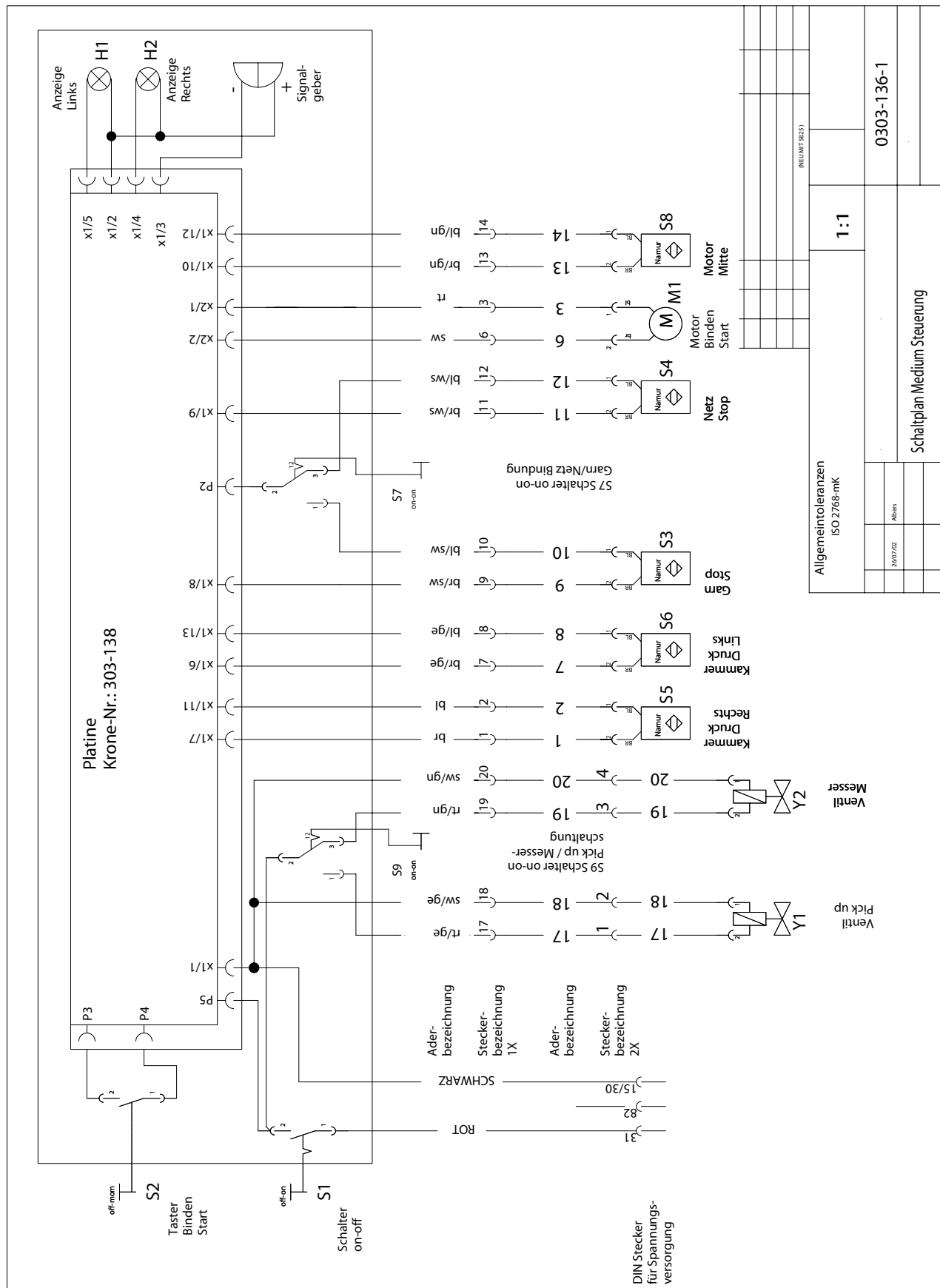
A1.6 Lighting System

Install the three-unit lamps (1) on the right and left rear of the round baler with the lamp facing backwards and secure the cable with the cable band (2).



A2 Electrical Circuit Diagram

A2.1 Electrical Circuit Diagram - Medium







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