Operation manual EN

RF121 R / RF125 R / RF125-OC14

1665 7716. EN_05_2006

CE

EC Declaration of Conformity
as defined by the EC directives

- Machines 98 / 37 / EEC (22.06.1998)

The machine

product	: round baler				
type	: MP 121 R	/	MP 125 R	/	MP 125 OC14
	: RF 121 R	/	RF 125 R	/	RF 125 OC14
identity no.	: 6838	/	6833	/	6837
serial no.	: 6838 501 -	/	6833 1001 -	/	6837 501
year of construction	: 2006				

was solely developed, designed and manufactured, in accordance with the aforementioned EC directives, by

Kverneland Group Gottmadingen GmbH & Co. KG
Hauptstraße 99
D-78244 Gottmadingen
Germany.

The following harmonised norms were applied:

- DIN EN 292/1 and EN 292/2, safety of machines, equipment and systems
- DIN EN 294, safety clearances to danger areas
- DIN EN 982, safety requirements of fluid technology systems and components
- DIN EN 704 safety of agricultural machines - balers -
  DIN EN ISO 14982: electromagnetic compatibility of agricultural and forestry machines

Complete technical documentation is available.
The machine´s operating instructions are available

- in the original version : German
- in the languages : English, French, Dutch, Spanish, Italian, Swedish, Danish, Norwegian

Gottmadingen, 08.09.2005

Casper Böhme
General Manager

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Foreword

Dear Customer,

We would like to thank you for the trust you are showing in our company in purchasing this Kverneland fixed chamber round baler.

The following operating instructions provide detailed information on starting up and maintaining your new round baler. They also contain safety instructions to ensure risk-free operation. In addition to the equipment and variants that can be supplied, the operating instructions describe all additional equipment not contained in the usual supply schedule. With these operating instructions, we aim to help you get the most out of your Kverneland round baler.

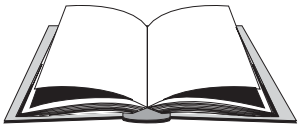
The machine´s performance depends to a large extent on it being properly used and carefully maintained. For this reason, the operating instructions should be read through with care before starting up for the first time and should be kept to hand thereafter. By doing this, you will prevent accidents, have the manufacturer´s guarantee, and always have a reliable machine that is ready for use.

All information and illustrations in these operating instructions are state-of-the-art at the point in time of publication. Kverneland constantly strives to improve its products. It reserves the right to make all changes and improvements that it considers to be necessary. This does not, however, oblige the company to later modify machines supplied.

If, after reading the operating instructions, you should have further questions, please contact your retailer.

We hope you have a good harvest using your round baler!

Please read and take note of operating instructions and safety regulations prior to start-up.



Kverneland Group Gottmadingen GmbH & Co KG
Hauptstraße 99
78244 Gottmadingen
Germany
Tel.: 07311-788-0

Fill in your machine details here:

Machine type :.....

Serial number :.....

Initial start-up on :.....

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1 Safety

1.1 Your personal safety

The retailer will have explained to you about operation and maintenance when handing over the machine. Read these operating instructions before using the machine for the first time and be sure to note the safety instructions. Areas of particular importance are marked with a pictograph.

You will find this sign beside all important safety instructions in these operating instructions. Take particular note of these and take extra care when carrying out the operations to which they apply.

The round baler is equipped with protective equipment and its safety and the accident protection it provides have been checked by the *Landwirtschaftliche Berufsgenossenschaft* [Agricultural Professional Association]. However, in the case of maloperation or misuse, a danger is posed to the following:

- the life and limbs of operators, third parties and animals near the machine,
- the machine and other material assets belonging to the operator and third parties,
- the efficient operation of the machine.

All persons concerned with the mounting, start-up, operation and maintenance of the machine must carefully read and take note of the following instructions.

After all, it is your safety that is at issue.

1.2 Safety instructions in this manual

How safety instructions are denoted:

Danger!
This word denotes danger to life or limb. If you see this word in the operating instructions, please take all necessary safety precautions.

Attention!
This word indicates the risk of material damage as well as financial detriment and disadvantage under criminal law (e.g. loss of guarantee rights, liability cases etc.).

Note:
This indicates instructions, application tips and practical information.

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1.3 Type plate

The type plate specifying the machine type and number is located on the left-hand side of the machine, underneath the front hood on the vehicle frame.

Note:
Enter the data on the type plate into the box provided for this purpose on the second page.

1.4 Intended use

The round baler is exclusively constructed for ordinary use in agricultural work and intended for and suited to gathering mown crops lying in swaths on the ground, compressing this into round bales and binding it with plastic twine or wrapping it with netting.

It is not intended for any other use. The manufacturer shall not be liable for damage resulting therefrom. The user shall bear all responsibility.

Intended use also comprises adhering to the operating, maintenance and servicing directions prescribed by the manufacturer. The machine may only be used, maintained and repaired by persons who are familiar with the work and who have been informed of the dangers.

The relevant accident prevention regulations and other generally recognised regulations concerning safety, industrial medicine and road traffic are to be observed.

Attention!
Unauthorised changes to the machine remove all liability on the manufacturer´s part for damage arising therefrom.

1.5 Liability

All persons who work on and with this machine must read and note these operating instructions. Furthermore, this machine may only be deployed for its intended use (see Section 1.4).

1. Work on this machine must be carried out in accordance with the instructions contained in the current documentation.

   This documentation can be made up of the following:

   - mounting instructions
   - operating instructions
   - supplementary sheets

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2. The following rules and regulations must be observed:
   - the locally applicable, relevant accident prevention regulations,
   - the recognised road traffic, safety and industrial medicine regulations,
   - the functional limits and safety regulations listed in the technical instructions.

3. Only suitable and perfectly functioning tools and equipment may be used in carrying out work on the machine.
4. Only parts (replacement parts, additional equipment, lubricants etc.) may be used that at least correspond to the requirements laid down by the machine manufacturer, and these parts must be used in accordance with the regulations (including the starting torques mentioned).

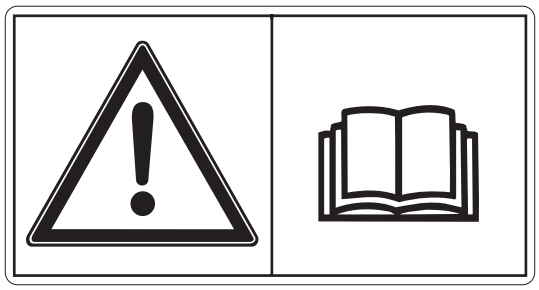
   A part corresponds to requirements when it is an original part or if it has been expressly approved by the machine manufacturer.
5. Unauthorised changes to the machine remove all liability from the manufacturer for damage arising therefrom.

Attention!
Any person not observing the above regulations shall be deemed to be acting in a grossly negligent manner. The manufacturer shall bear no liability for damages arising therefrom. The risk shall be borne entirely by the user.

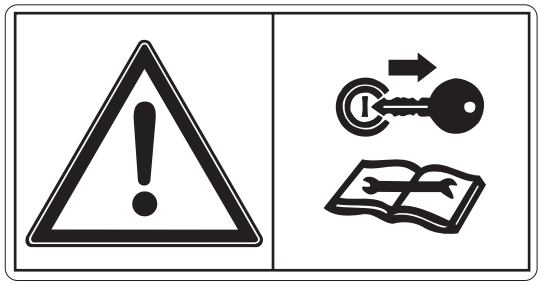
1.6 Safety stickers and warning signs

Attention!
Real safety means being familiar with all safety stickers. This concerns the type and place of danger and, in particular, the safety measures to be taken. Remain constantly vigilant and be aware of the dangers.

Warning signs are provided on this machine (safety stickers). The stickers together with their explanations are listed in the following and shown on the overall diagram:

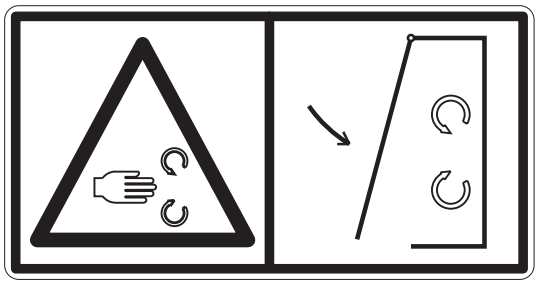


1. Before putting the machine into operation, read and understand the operator's manual and the safety precautions and follow all instructions given.



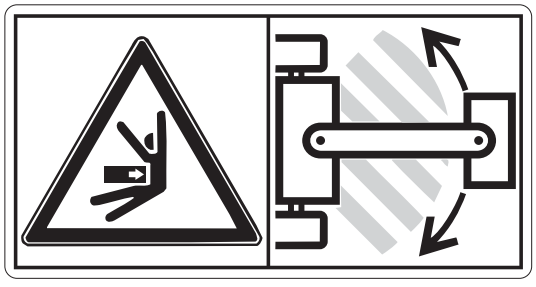
2. Before performing any service and repair work, stop the engine and remove the ignition key.

3. Never open or remove protective devices when the engine is running.



4. Close all protective devices before putting the machine into operation.

5. During operation stand clear of the danger area of the tailgate.



6. During operation stand clear of the danger area.

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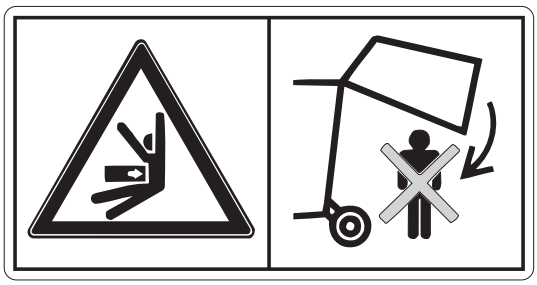
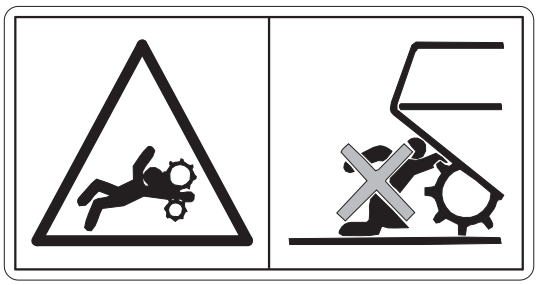
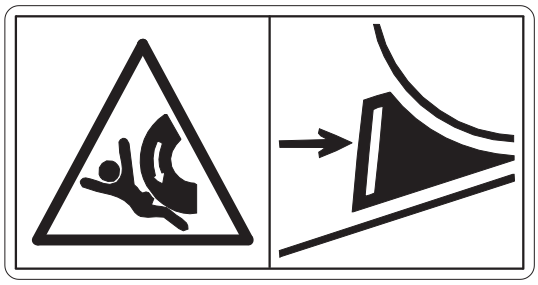


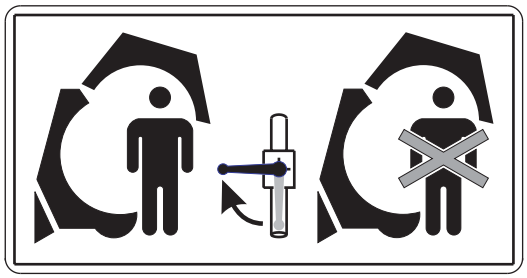
7. Stand clear of the raised tailgate if same is not locked against lowering.



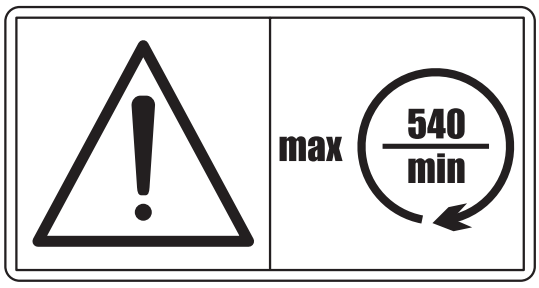
8. Keep hands clear of the pick-up area when the tractor engine is running and the pto shaft is connected.



9. Secure the machine by wheel chocks to ensure it cannot move away when uncoupled or stored.



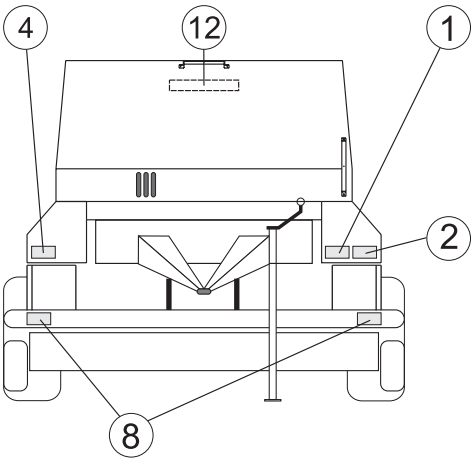
10. Before performing any work under the tailgate or in the bale chamber, close the hydraulic shut-off tap to lock the tailgate.
(the hydraulic stop-cock is on the right at the front on the machine, behind the hydraulic block).

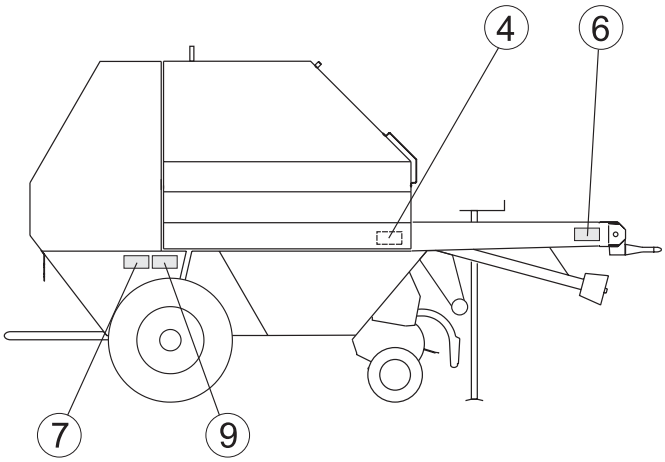


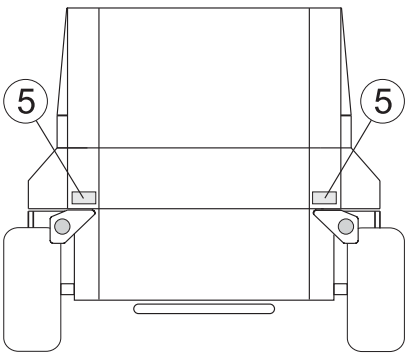
11. Never exceed the prescribed pto speed n_{max} = 540 rpm.

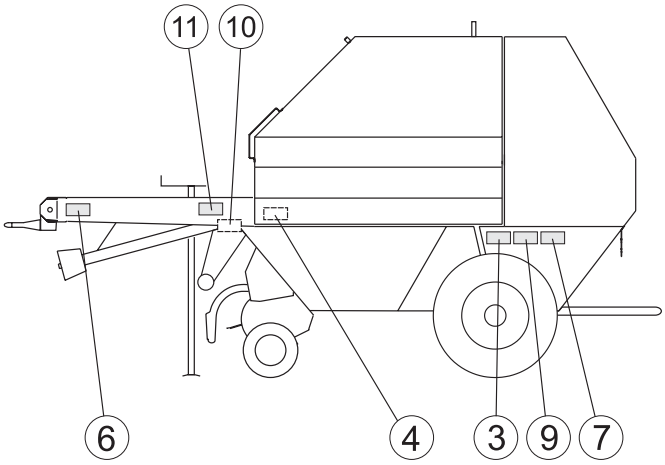
12.

(D) Achtung, Lebensgefahr! Jegliche Tätigkeit an der Bindung nur bei abgestellter Maschine.	(NL) Let Operation levensgevaarlijk Bij handeling aan de binding machine stop zetten!	(I) Attenzione! Pericolo di vita! Prima di effetuare lavori sul meccanismo di legatura arrestare la macchina.
(GB) Warning! Danger to life! Stop the machine before carrying out any work on the binding mechanism.	(F) Attention! Danger de mort! N`effectuer des travaux sur le mécanisme de liage qu`-après avoir arrèté la machine.	(E) ¡Cuidado! ¡Peligro de muerte! Parar la máquina antes de realizar trabajos en el macanismo de atado.









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1.7 Authorised users

Youths under 16 years of age may not operate the round baler.

The owner of the machine must make the operating instructions available to the user and ensure that the latter has read and understood same. Only then may the user operate the machine.

The delegation of responsibility for various machine duties must be clearly established and adhered to. There must be no doubt regarding the user´s competence as this could put the user at risk.

The owner must ensure that only authorised persons work on the machine. He is responsible for third parties for the area in which the round baler is being used.

1.8 General safety and accident prevention regulations

Basic rule:

Check that the device and tractor are road worthy and operationally safe before each start-up. Note the generally applicable safety and accident prevention regulations as well as the instructions in these operating instructions.

1.8.1 General

1. The warning and notice signs posted provide important information for risk-free operation. Please note these instructions for your own safety.
2. Make yourself familiar with all equipment, operating elements and their functions prior to commencing work. Ensure that all protective devices are properly attached.
3. The user´s clothing must fit closely. Do not wear baggy clothes. Wear sturdy shoes.
4. Keep the machine clean. Be aware of the risk of fire.
5. When using public thoroughfares, please observe the following:
   - the statutory road traffic regulations,
   - the permissible axle loads and total weights,
   - the permissible transport dimensions.
   - Never leave the operator´s platform while travelling.
6. The equipment must be in the condition prescribed for road transport and be locked according to the manufacturer´s instructions.

   Always ensure that the equipment is connected and disconnected while standing on a flat, solid and even surface!! This prevents the vehicle from tilting or sinking in soft soil or mud. Use chocks.
7. Check and secure transport equipment and the lighting, warning and protective equipment.
8. Operating devices (ropes, chains and linkage) of remote controlled equipment must be installed in such a way that they can not trigger unintentional movements in any transport and working position.

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9. Couple equipment according to regulations, and attach and secure to the prescribed devices. Particular care should be taken when coupling and decoupling equipment to or from the tractor.
10. When attaching or detaching, bring the support devices into the position necessary. Be conscious of its stability.
11. Never run the engine in an enclosed area.
12. Check the surrounding area (children) before driving away and starting up. Ensure that you have adequate visibility.
13. Passengers may not be carried on the equipment while on a transport journey. No work may be carried out on the device while in operation.
14. Always adjust travelling speed to suit weather and terrain conditions. Avoid taking sudden curves on inclines and declines and transverse travel on an incline.
15. Attached equipment influences road performance as well as steering and braking. Ensure that you can steer and brake adequately.
16. When taking curves, bear in mind the overhang width and the centrifugal mass of the device.
17. Only operate the device if all protective equipment is in place and in protection position.
18. It is forbidden to remain in the working and danger area.
19. Do not remain in the rotating and swinging range of the device.
20. There are crushing and cutting areas at power-driven parts (e.g. hydraulic parts).
21. Secure equipment before leaving the tractor. Lower the attached implement fully. Switch off the engine and remove the ignition key.
22. No one may remain in the area between the tractor and device if the vehicle is not secured against rolling away by a wheel chock.
23. Note the permissible axle load and total weight as well as the permissible transport dimensions.

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1.8.2 Attached devices

1. Secure the device so that it cannot roll away.
2. Take note of the maximum permissible support load of the drawbar coupling, the pending attachment or hitch.
3. Ensure that the drawbar trailer has sufficient mobility at the point of attachment.

1.8.3 Power take-off operation

Applies only to PTO driven equipment.

1. Use only universal drive shafts prescribed by the manufacturer.

   Ensure that the universal drive shaft is correctly mounted and secured.

   The protective tube and guard cone of the universal drive shaft must be properly attached and be in perfect condition.

   Protect guard cone of universal drive shaft from being turned by attaching the chain.

   Ensure that the prescribed pipe overlaps are in transport and working position for the universal drive shafts.
2. No one may enter the area of the turning universal drive shaft when working with the universal drive shaft.
3. When using universal drive shafts with an excess load or free-running couplings, overload or free-running couplings are to be attached to the equipment.
4. The universal drive shaft is only to be attached or detached when the PTO shaft and engine have been switched off and the ignition key has been removed.

   Place the uncoupled universal drive shaft on the appropriate mount or hang in the chain provided.

   After detaching the universal drive shaft, place the protective cover on the PTO shaft end.
5. The PTO guard must be properly attached and be in perfect condition.

   Before switching on the PTO shaft, ensure that the rpm selected and rotational direction of the tractor PTO shaft corresponds with the permissible rpm and rotational direction of the device.

   Before switching on the PTO shaft, ensure that no one is in the machine´s danger area.
6. Never switch the PTO shaft on while the machine is switched off.
7. Always switch off the PTO shaft if the angles of operation are too large or if you do not need it.
8. Only clean, lubricate or set the PTO driven equipment or universal drive shaft when the PTO shaft and engine are switched off and the ignition key has been removed.
9. Any damage is to be repaired before using the machine.

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1.8.4 Hydraulic system

1. Warning: The hydraulic system is under high pressure.
2. Check the hydraulic hose pipes regularly and replace them when they are damaged, at the latest, however, every 6 years! The replacement hose pipes must correspond to the technical requirements of the equipment manufacturer. Only use genuine parts!
3. Lower equipment and units before commencing work on the hydraulic system. First depressurize the system and then switch off the engine (Pressure gauge display, 0 bar).
4. Use appropriate aids when searching for leaks. Be aware of the risk of injury.
5. The prescribed connection of hydraulic hoses is to observed when connecting hydraulic cylinders.

   When connecting the hydraulic hoses to the tractor hydraulic system, ensure that the hydraulic system is depressurized both at the tractor and at the equipment. Only connect up compatible hydraulic fittings!
6. Mark the coupling sleeves and plugs at hydraulic function connections between the tractor and equipment to avoid misconnections.

   If the connections are mixed up, the functions of the components are reversed (e.g. raising, lowering). Be aware of the risk of accidents.

   - red = open,
   - yellow = close,
   - not marked = pick up
7. Liquids escaping under high pressure (hydraulic oil) can penetrate the skin and cause serious injury. In the case of injury, medical advice is to be sought immediately. Risk of infection.
8. After closing the tailgate and then allowing pressure to build up (control by the pressure gauge on the hydraulic block), the tractor control valve is to be returned to the neutral position.

1.8.5 Tyres and brakes

1. When carrying out work on the tyres, ensure that the machine is safely parked and secured against rolling away. Use the wheel chocks.
2. The mounting of tyres and wheels calls for a sufficient level of knowledge and mounting tools conforming to specifications.
3. Repair work on and the mounting of tyres and wheels may only be carried out by skilled persons using tools suited to the purpose.
4. Check air pressure regularly. Adhere to prescribed air pressure.
5. The wheel nuts are to be tightened after the first 10 operating hours. The torque moment is 325 Nm (M18 x 1.5).
6. Check that the brakes are in proper working order before each journey.
7. The brake system is to be checked on a regular basis.
8. Adjustment and repair work on the brake system may only be carried out by a specialist workshop or a recognised brake service.

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1.9 Safety when not in use and in storage

1. Store the device in a safe place.
2. Never allow children to play on or around the device.
3. Never couple or decouple the device on anything but firm, dry and level ground. This reduces the risk of overturning or sinking into soft ground or mud.
4. Lay down the decoupled universal drive shaft on the mount provided.

1.10 Maintenance

Direction signs ('to the right', 'to the left', 'to the front', 'to the back') apply to the direction of travel.

The direction of rotation is defined as follows:

- direction of rotation right = clockwise,
- direction of rotation left = anti-clockwise,
- rotation about a perpendicular axis, viewed from top to bottom,
- rotation about a horizontal axis, at right angles to the direction of travel, viewed from left to right,
- rotation of bolts, nuts and similar, always viewed from the operating side.

1. Repair, maintenance and cleaning work and the elimination of malfunctions may only ever be carried out when the drive mechanism is switched off and the engine is at a standstill. Remove ignition key.
2. Check nuts and bolts regularly to ensure that they are tight and re-tighten if necessary. Keep to the torques given. (See Appendix A.1 for torques for bolt connections).
3. When carrying out maintenance work on the raised device/unit, always secure with suitable supports.
4. When interchanging work tools, use suitable tools and wear gloves.
5. Dispose of oils, grease and filters properly.
6. Always disconnect the current supply before carrying out work on the electrical system.
7. If protective equipment is subject to wear and tear, it is to be checked regularly and replaced in good time.
8. Disconnect cable to generator and battery when carrying out electrical welding work on the tractor and attached devices.
9. Do not use cleansing agents containing chloride to clean the machine.

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1.11 Safety instructions for round balers

1. This documentation and the *UVV* [Decree concerning Accident Prevention] VSG 1.1 vom 01.01.2002 of the *Landwirtschaftliche Berufsgenossenschaft* [Agricultural Professional Association] contains general safety instructions.
2. The round baler is to be attached to the tractor before start-up. (Risk of overturning when the tailgate is opened).
3. Never operate the round baler without a protective device.
4. Protect guard tube of universal drive shaft and protecting pot from being turned. Fit the safety chain!
5. Wait for all moving parts to come to a standstill before carrying out any work on the press.
6. Blockages are only to be removed and malfunctions are only to be eliminated when the PTO shaft is switched off and the engine is at a standstill. Remove the ignition key. There is a risk of getting caught in moving parts.
7. Never try to introduce the crop by machine or to remove blockages as long as the press is in operation.
8. Only insert binding material (twine and netting) when the tractor engine is switched off and the ignition key has been removed. There is a risk of getting caught in moving parts.
9. Only thread twine and netting and eliminate malfunctions when the tractor engine is switched off and the ignition key has been removed.
10. When moving the support device, beware of crushing and cutting areas.
11. No one may be in front of the pick-up while the press is running. There is a risk of getting caught in moving parts.
12. No one may be behind the machine while bales are being ejected.
13. While in operation, keep at a sufficient safety distance from the feed elements such as the pick-up, intake auger etc.: due to their function, the feed elements cannot be fully covered.
14. Only eliminate malfunctions of feed elements such as the pick-up, intake auger, conveying roller etc. when the tractor engine has been switched off and the ignition key has been removed.
15. The permissible speed limit is to observed when transporting on roads.
16. Repairs to prestressed energy accumulators (springs etc.) call for sufficient knowledge and mounting tools that conform to specifications and may only be carried out in specialist workshops. Hydraulic accumulators may not be repaired!
17. To avoid the risk of fire, it is recommended to carry a 12 kg fire extinguisher.
18. When working on hilly terrain, lay round bales face down on the slope incline so that they can not roll away.
19. Do not try to stop a round bale rolling down a slope. Be aware of the risk of injury.
20. Take particular care when opening and closing the tailgate. Persons may not enter the swinging range of the gate.
21. Before entering the bale chamber, the tailgate supports must be brought into safety position and the shut-off tap in the hydraulic supply tube must be shut.
22. Whenever work is being carried out on or around the beating arm/net wrapping, the cutting device must not be live.

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2 Technical data

2.1 General

Typ	121 R	125 R	125 OC14
Dimensions, weight			
length / mm	4430		
width /mm	2350 - 2637		
height / mm	2280 - 2320		
weight / kg	2380 - 2480		
Operating / lighting			
Necessary control units on the tractor side	1 single/ 1 double-acting control unit		
control box (Kabel 6,5m)	Control box cable 8 m (optional)		
	power supply cable with three pin socket (optional)		
lighting:	seven-pin, in accordance with STVZO (Federal Motor Vehicle Safety Standards)		
Hitching			
ring hitch	40 mm		
ring hitch rotatable	40 mm		
Towing eye, variable height adjustment.	40 mm		
hitch eye: fixed	52 mm		
hitch	33 mm		
Drive mechanism			
central gear	540 min^{-1}		
univ. drive shaft/WWE	pin clutch 1500 Nm		
Roll chamber	front, series driven at the back		
Rotor reversal	mechanical		
Pick Up			
working width / in mm	1850	2100	
Number of tine rows	4		
Lift	hydraulic		
suspension	adjustable 4 ways		
Active wheels	Plate wheels, 2 x 6-fold adjustable; feeler wheels, pneumatic tyres (optional)		
Baffle plate	optional		
Overload protection feature	-	clutch	
OptiCut cutting system			
Number of cutting points	-		14
Knife distance - in mm	-		70
Blade filling plates	-		14 st.(optional)

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Typ	121 R	125 R	125 OC14
Rolling chamber			
bale diameterr / mm	1250		
Rolling chamber width - mm	1220		
Number of ripped rollers	14		
Roller diameter - mm	290		
Rolling chamber lock	hydraulic		
Bale density adjustment	hydraulic		
Chain lubrication	automatic (optional)		
Bale ramp	optional		
Binding			
Activation	manual / automatic		
Twine binding	optional		
Net wrapping	optional		
Twine + Net	optional		
Binding material supply			
Twine binding	6 rolls of twine		
Net wrapping	1 roll of netting		
Twine binding + Net wrapping	1 roll of netting + 6 rolls of twine or 2 rolls of netting or 6 + 6 rolls of twine		
Axles			
Wheel axle	25 km/h		
Wheel axle with parking brake	-	25 km/h	
Brake axle pneumatic	-	40 km/h	
Brake axle hydraulic	-	25 km/h	

2.2 Measuring noise

The emission sound pressure level was measured in accordance with EN 11 201 and EN 11 204.

A-weighted equivalent sound pressure level

	Tractor	Tractor and baler
Cabin window open	76,7 dB(A)	83,7 dB(A)
Cabin window closed	74,2 dB(A)	75,2dB(A)

Acoustic capacity level and acoustic capacity

	Tractor	Tractor and baler
Acoustic capacity level	106,1 dB(A)	115,2 dB(A)
Acoustic capacity	40,3 mW	371 mW

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3 General description

3.1 How the round baler functions

The functions of the roll-baler are controlled via the control box (installed in the tractor cab), machine box (on the right-hand side of the machine), and a single- and double-acting controller.

The functions lift/lower pick-up and swivel cutting knives in/out (only featured on 125 OC) are preselected by way of a hydraulic multi-way valve plus pull rope in the tractor cab. The tying options are selected with the control and machine box. The roll-baler compresses the swathed green feed, hay and straw into round bales. A pick-up reel lifts the swathed crop and feeds by way of a baffle plate pressure (optional) to the conveying channel. The conveying augers mounted on the outside of the conveying drum narrow down broad swaths to the width of the compressing chamber. The conveying drum is fitted with double tines in a spiral arrangement (transport tines on 121 R / 125 R) to ensure that the compressing chamber is continuously and uniformly filled.

When equipped with the high-performance „OptiCut 14“ cutting assembly and swivelled-in cutting knives, the crop is passed over up to 14 knives and cut. Each knife is individual protected by a foreign-object guard which automatically moves the knife back into the cutting position when encountering a foreign object. The roll chamber compresses the crop into firm and stable bales.

The compressing pressure can be selected according to the prevailing harvest conditions and the requirements expected of bale density. Tying can be started automatically or manually. Twine or netting can be used for tying, depending upon the given configuration. The rear gate is opened by the driver when tying has been completed, and the bale rolls out of the compressing chamber.

The bale can be gently deposited outside the rear gate area by an optionally available bale roller chute.

The rear gate is then closed again and a new baling operation can commence.

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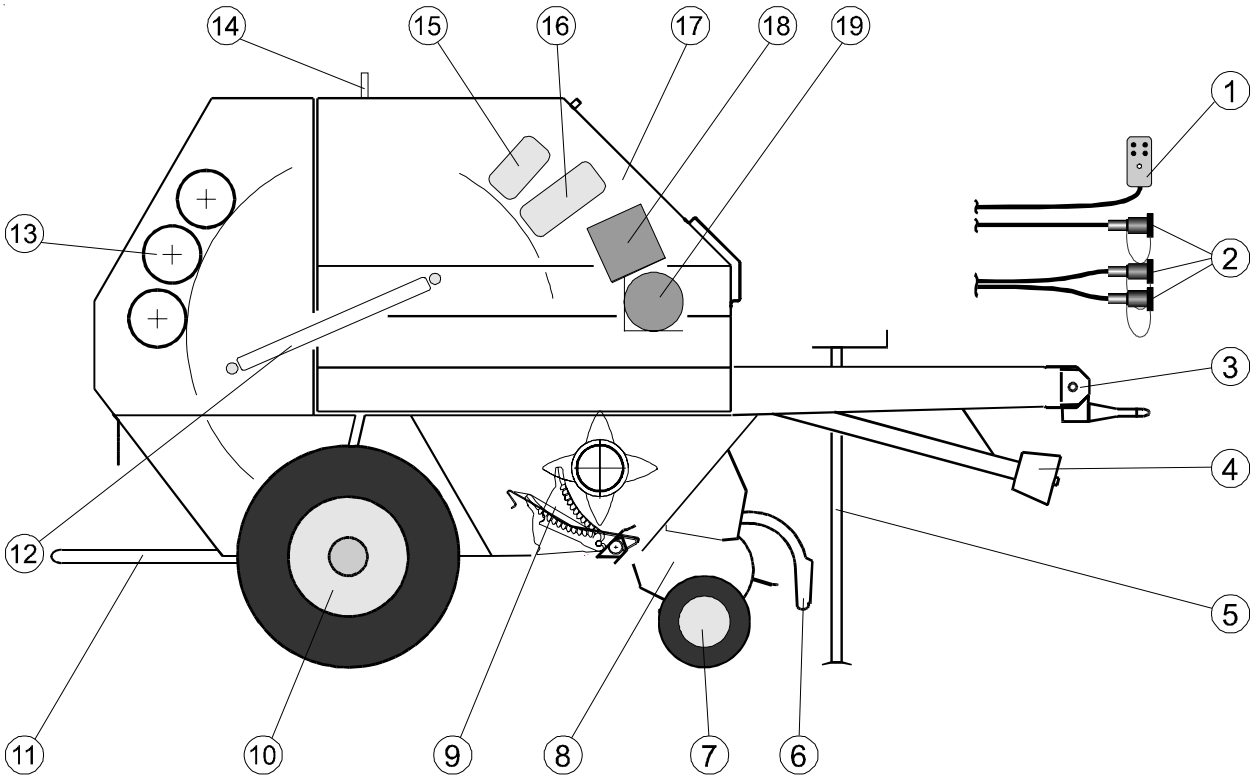
3.2 Important components of the round baler

1 Control box
2 Hydraulic cables - 1 single-acting control unit - 1 double-acting control unit
3 Drawbar with ring hitch, precisely adjustable
4 WWE wide-angle universal drive shaft with wedge clutch (on device) / shear bolt
5 Stand, pivoted with adjustable crank
6 baffle plate
7 Pick-up - feeler wheel, height adjustable 2 x 5 ways
8 Pick-up
9 OptiCut device (only MP/RF 122/124 OC)
10 Wheel, brake depending on equipment
11 Bale ramp, optional
12 Tailgate - hydraulic cylinder
13 Ripped bale forming roller
14 Lift eyes
15 Twine binding device
16 Net binding device
17 Front hood
18 Box for twine / second net roll
19 Box for net roll



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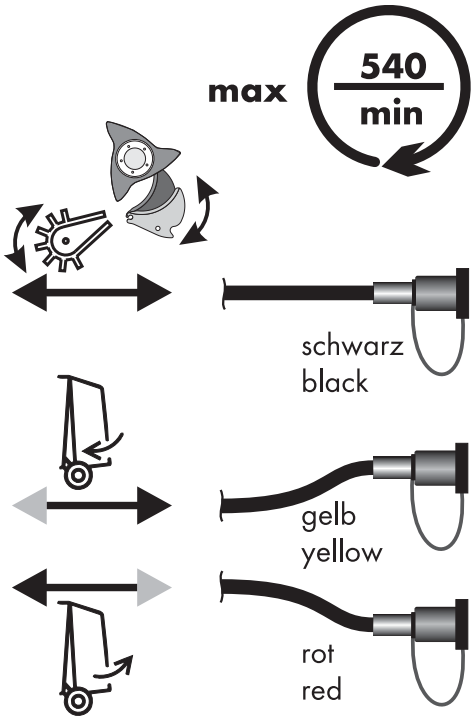
4 Installation and adjustments

Danger!
Adjusting, maintenance and repair work is only to be carried out when the motor is switched off and the machine is at a standstill. Remove ignition key.



4.1 Tractor equipment necessary

The necessary PTO shaft speed to operate the round baler is 540 rpm.

The PTO shaft must guarantee operation independent of the tractor coupling.

To control the hydraulic functions, the round baler requires:

- a single-acting control unit (one remote connection)
- a double-acting control unit (two remote connections)

A three-pin socket that meets the DIN 9680 specifications must be provided on the tractor for current supply to the "machine-box". The current supply for lighting is drawn from a seven-pin plug.

When using the optionally available pneumatic/ hydraulic 40 km/h brake axles, the appropriate tractor connections are necessary.

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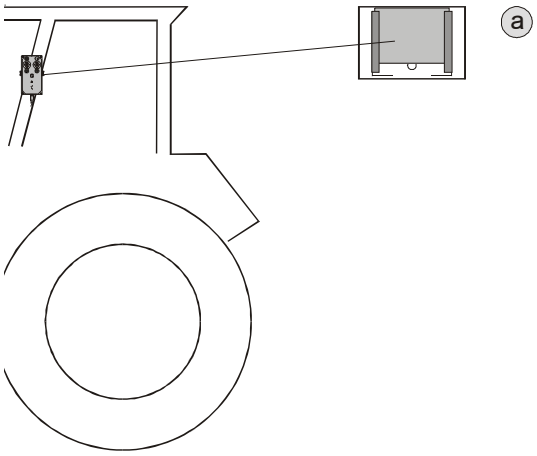
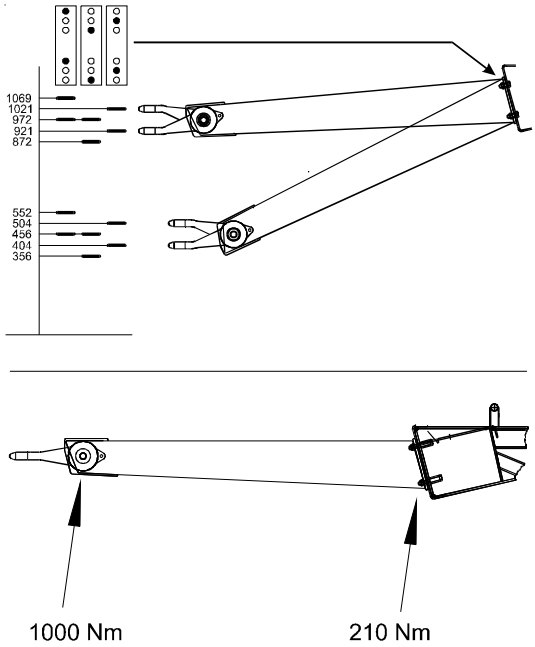


4.2. Mounting the control box

To mount the control box, the clamp clip (a) is mounted in a clearly visible position on the safety frame/roll bar or on the centre bar of the tractor cab.

If not in use the control box can be attached to a special support on the left hand drawbar side, next to the front panel.

Note:
The control box must be protected against damp!



4.3 Adapting the drawbar

The drawbar must be adjusted in such a manner that the hitched baling press stands in a horizontal position.

The drawbar height is roughly adjusted by turning the drawbar cross-ties or moving them up/down.

For fine adjustment, turn the trailer coupling ring and adjust with the tooth-lock washers. The hitching height is variable between 356 mm minimum and 1069 mm maximum.

Danger!
When adjusting the drawbar, prevent the baler from rolling away by placing chocks in front of it.

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4.4 Universal drive shaft, coupling

The Roundbaler is supplied with a WWE wide-angle cardan shaft with integrated shear-bolt coupling. Shearing-bolt breakage in the event of baling press overload instantly switches the driving torque to „zero", thereby interrupting power transmission and stopping the machine.

Coupling takes place automatically at a PTO speed of under 200 rpm.

Torques of 1500 Nm ± 10% (for a PTO speed of 540 rpm) are preset by the universal drive shaft manufacturer.

Interference of any kind to the coupling mechanism shall nullify all guarantees for damage caused by such interference.

The protecting pot (on the device) has mounting openings so that the universal drive shaft can be pushed onto the central-gear drive shaft and clamped down. The torque moment of the bolts is 85 Nm. Both mounting openings are then to be properly closed with the covers.

It is sometimes necessary to correct the length of the universal drive shaft due to the different hitching possibilities and various tractor types.

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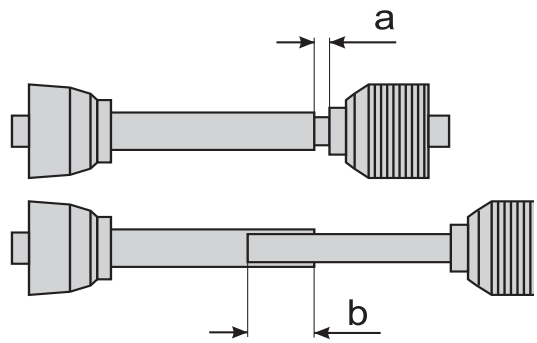

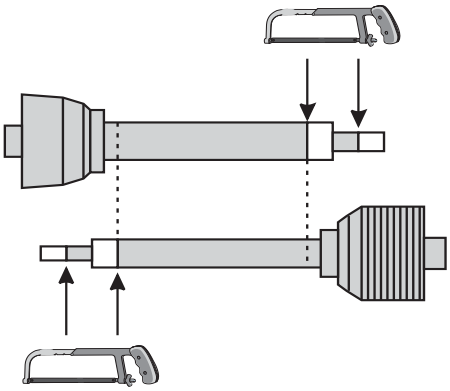

To check and correct the length, proceed as follows:

- hitch the round baler to the tractor,
- drawbar must be set as described in Section 4.3,
- pull apart the universal drive shaft and mount the halves to the tractor and machine,
- hold the universal drive shaft halves under each other,
- when taking all curves and when driving straight, ensure that:
  - a minimum overlap of b = 200 mm is guaranteed,
  - the universal drive shaft is not sitting on the block, minimum distance a = 20 mm,
  - there is sufficient clearance between the drawbar and the universal drive shaft.
- if it is necessary to shorten the length, saw the same amount off both the sliding and protective tubes.
- carefully burr the pipe ends, remove shavings and grease sliding points well.

4.5 Adjusting the bale density

The density of the round bales depends on the crop conditions and the preselected baling pressure.

The following adjustments can be made:

1. Tailgate sensor
2. Hydraulic pressure acting on the tailgate cylinders

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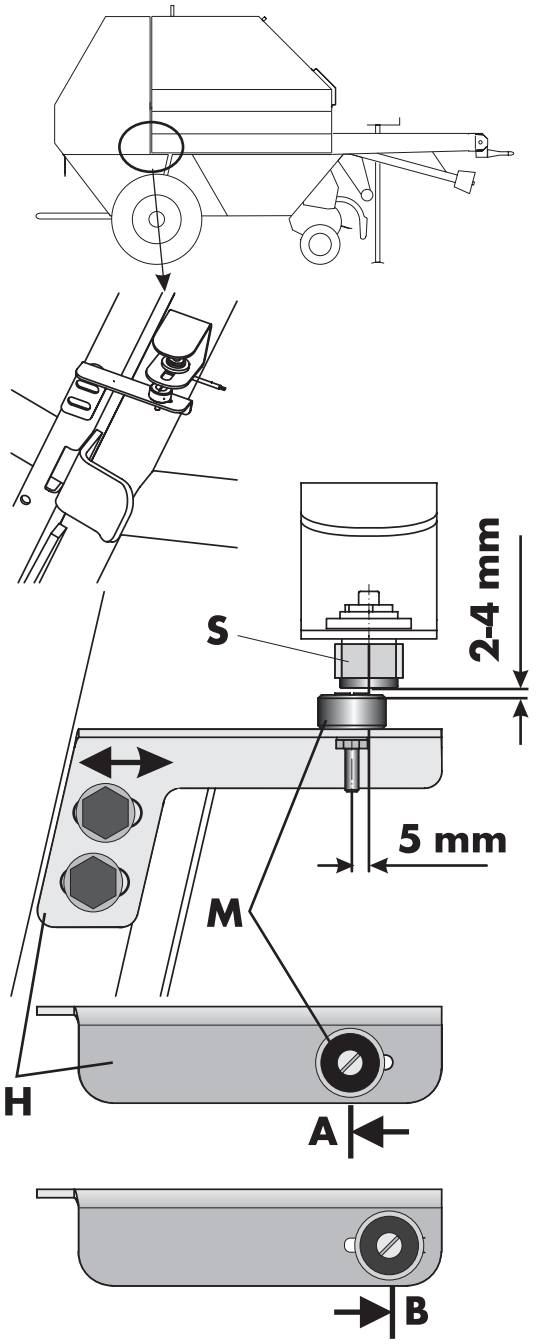


4.5.1 Adjusting the tailgate sensor

The tailgate sensor is located on the right hand side of the machine above the locking hook of the tailgate.

The basic adjustment of the sensor (factory adjustment for straw) has to be checked as follows:

1. Close the tailgate.
2. Stop the tractor engine and remove the ignition key.
3. Loosen magnet (M) of the tailgate, move it to the rear limit stop of the slotted hole (position A) and re-tighten.
4. Loosen magnet support (H).
5. The centre of the magnet must be 5 mm behind the centre of switch (S) (see the figure). There must be a 2 - 4 mm clearance between the switch and the magnet.
6. Re-tighten support (H).

For the use of the machine in silage it's only necessary to move magnet (M) from A to B (towards the front limit stop of the slotted hole).

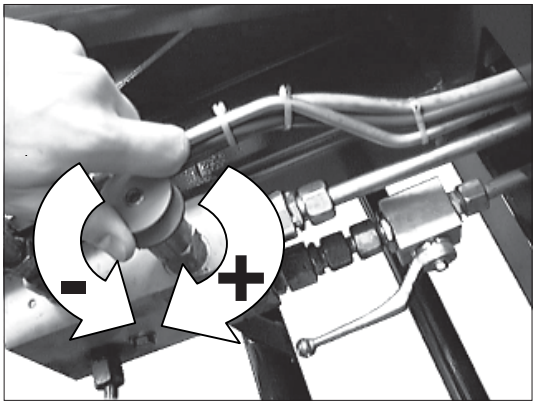
4.5.2 Adjusting the hydraulic baling pressure

Hydraulic density control is automatic. To increase the baling pressure, turn the adjusting wheel of the control valve cw. To reduce the baling pressure, turn the adjusting wheel ccw.

Pressure adjusting range = 80 - 170 bar. The actual pressure can be seen from the manometer when the hydraulic control unit is used to close the tailgate.

Basic adjustment has to be performed as follows:

1. Before starting work, unscrew the adjusting wheel totally with the hydraulic circuit depressurized (minimum pressure).
2. Close the tailgate.
3. Turn the adjusting wheel until the desired baling pressure is reached.



Note:
Be sure the hydraulic circuit is not under pressure before unscrewing the adjusting wheel.

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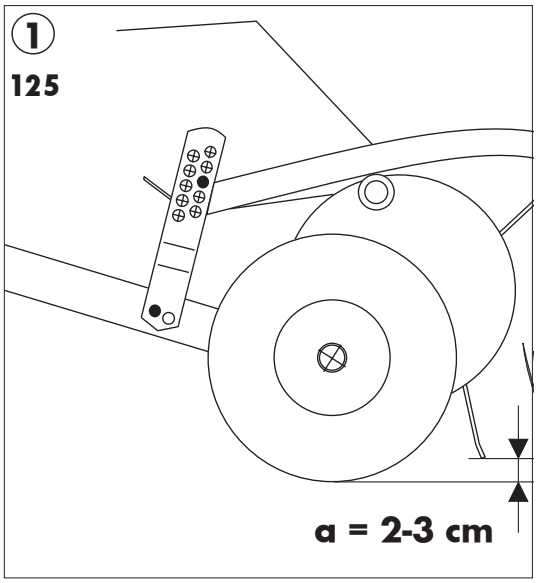

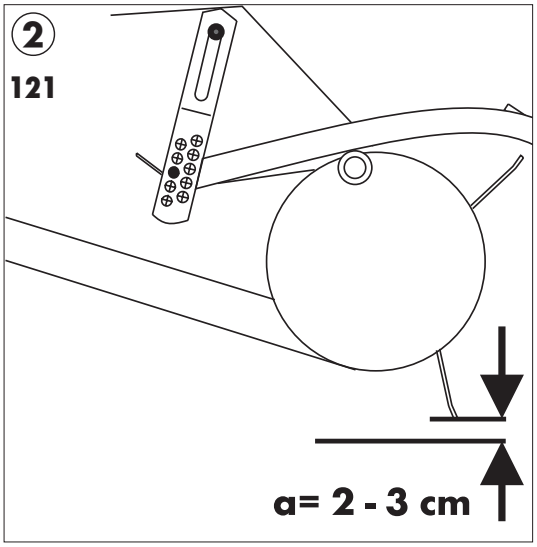

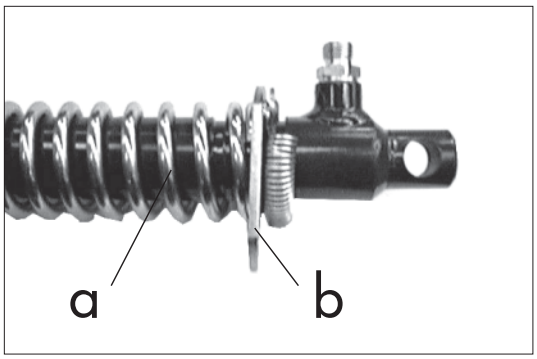

4.6 Setting pick-up

4.6.1 Setting pick-up height

The pick-up is raised and lowered hydraulically using the tractor control unit.

The pick-up height is adjustable unsing the two gauge wheels.

The height at which material is lifted up cleanly is to be set in accordance with the ground conditions and the quality of the baling material.

The distance between the tine tips at their lowest position and the ground is the decisive factor. A standard value of a = 2-3 cm can be taken for this distance. The tines should not come into contact with the ground to prevent the baling material becoming dirty and above-average wear of the tines.

The distance from the tine tips to the ground can be adjusted using the 2x6 holes of the gauge wheel control arm (125 fig. 1) or the 2x6 holes of the perforated strip (121, fig. 2)

Ensure that the setting at the right and left feeler wheels is the same.

4.6.2 Setting pick-up unload

The ground pressure of the pick-up above the feeler wheels can be set using the right and left compensation spring (a). The springs are pushed by the hydraulic cylinder of the pick-up lift. Unload can be preset by selectively inserting the sliding clips (b) into one of the four positions.

Stronger unloading (foremost groove in direction of travel) for soft ground or gentler unloading (furthest groove back in direction of travel) for hard ground and 'jump' for pick-up when the ground is not level.

To insert the sliding clips into different grooves, the pick-up must be raised to the limit.

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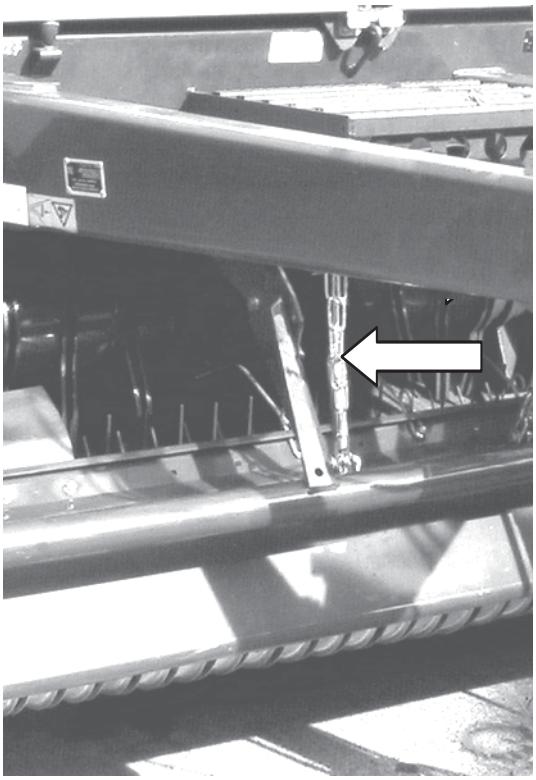


4.6.3 Adjusting the pick up baffle plate

To ensure the best possible flow of product, a stop plate are available as options. The predominant pressing conditions should be taken into account. These items can also be retro-fitted.

This baffle plate can be adjusted for height by means of two chains.

4.6.4 Pick-up overload clutch (125)

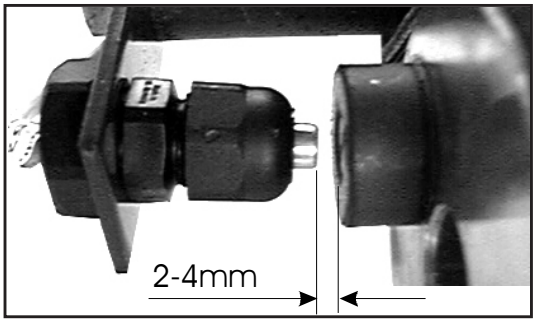
The pick-up drive system is fitted with a torque limiter to prevent damage to the machine. In case of overload, power transmission is interrupted by a radial pin clutch which causes the pick-up to stop rotating.

Danger!
Before clearing an obstruction in the area of the pick-up, stop the tractor engine and remove the ignition key. Then use the reversing lever to engage the radial pin clutch to prevent any unintentional engagement of the clutch.

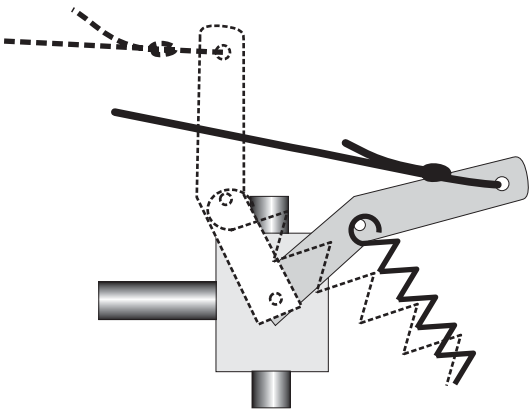
4.7 Setting scrapers (Only for twine binding)

To prevent twine from emerging between the ridged rollers in the area extending from the twine feed into the chamber to the material feed opening, plastic scrapers are mounted on the machine. They are set in such a way that the revolving rollers lightly touch the entire width or project a maximum of 1 mm into the roller orbit. Adjustment is possible by loosening the bolt connections on the side walls and re-positioning the scraper edges. Finally, all bolt connections must be re-tightened.

4.8 Sensors



Please pay special attention during installation work or after components have been replaced to ensuring the exact adjustment of the sensors. The same setting applies to all sensors - rear trap, yarn and net binding: 2 to 4 mm between magnet and sensor.



5 Operation

The hydraulic functions "pick-up" (a) and "cutting mechanism" (b) are preselected by using the single acting control unit. To preselect the desired function, pull the Bowden cable acting on the diverter valve located on the left hand front side of the machine.

Use the double acting control unit to open or close the tailgate.

Note:
After the tailgate has been closed, keep operating the control unit for abt. three seconds. This will allow the hydraulic circuit of the round baler to be filled uniformly.

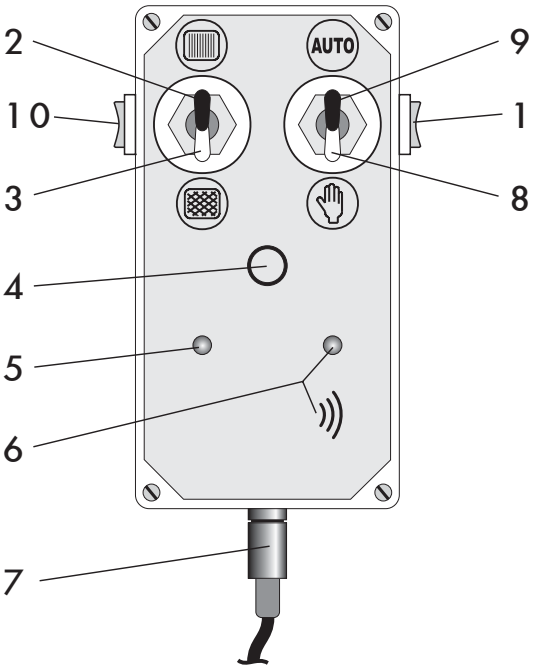
5.1 Tying control

5.1.1 Control box

The control box must be installed in the tractor cab as described in chapter 4.2.

Attention!
Always protect the control box from moisture and mechanical damage.

A beep signal is generated, and the LED lights up, when the control box is switched on.



Description of the functions:

1 Switch O = OFF
I = ON
II = EMERGENCY MODE

2 Preselect twine tying

3 Preselect net tying

4 Keypad for manual tying start

5 LED control box functional

6 audible / visual signal

7 Cable

8 Preselect manual tying start

9 Preselect automatic tying start

10 Rocker switch for emergency tying (net or twine) - By-passes the electronic control in conjunction with the machine box.

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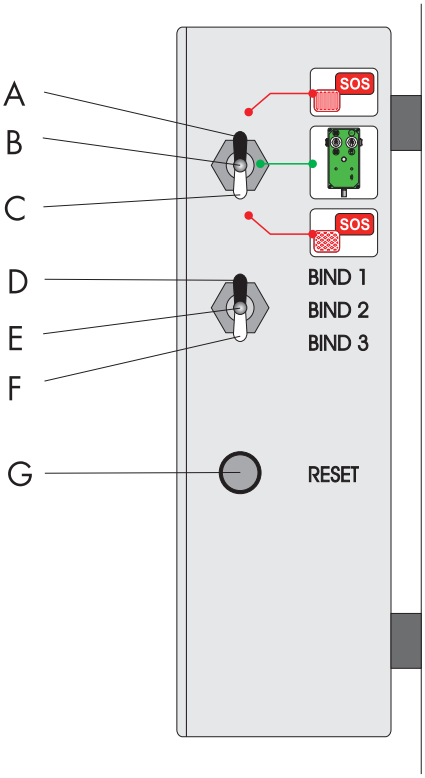


5.1.2 Machine box

The machine box is located under the hood at the front of the machine on the right-hand side. The box houses the electronic control for twine and net tying.

Description of the functions:

A Activation of emergency mode for twine tying

B normal operating condition, system activated electrically.

C Activation of emergency mode for net tying

D Setting the number of wraps for twine or netting - Stage 1

E Ditto - Stage 2

F Ditto - Stage 3

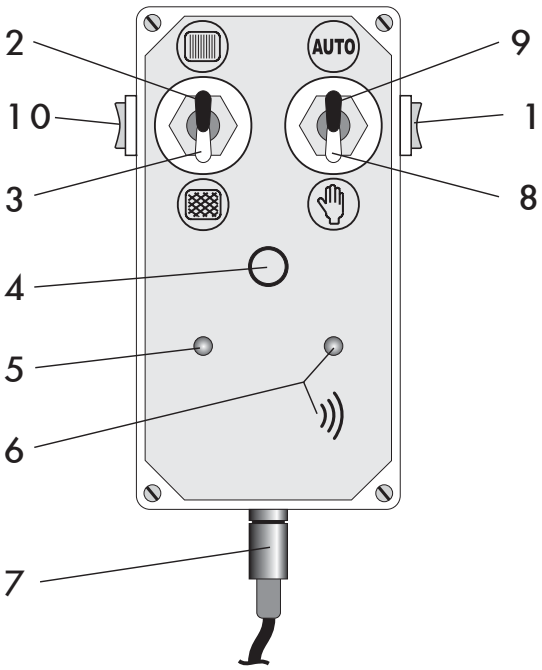
G RESET

5.1.3 Setting the tying system

Setting the number of twine/netting wraps:

The number of twine or netting wraps is adjusted with the toggle switches (positions D/E/F) on the machine box.

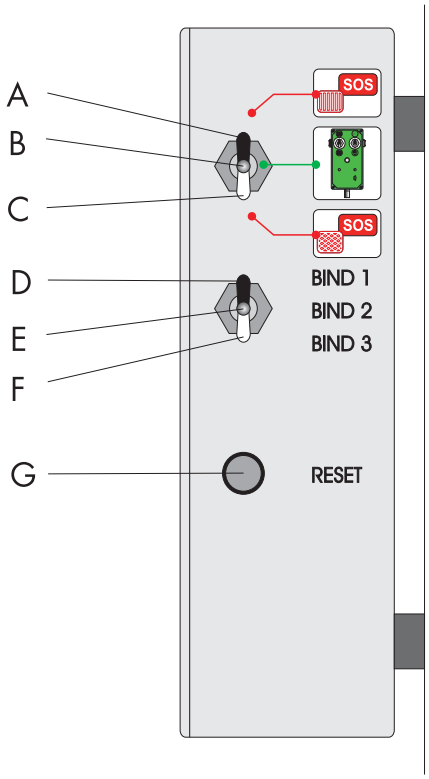
- Twine: BIND 1 = 18 wraps,
  BIND 2 = 22 wrap,
  BIND 3 = 26 wraps
- Netting: BIND 1 = 2 wraps
  BIND 2 = 3 wraps
  BIND 3 = 4 wraps



Note:
The given number of wraps for 'BIND 1', 'BIND 2' and 'BIND 3' refers to the nominal speed of 540 rpm. At a lower speed, the number of wraps drops correspondingly.

5.1.4 Automatic / manual tying start

Automatic or manual start of tying is selected with the toggle switches (positions 8/9) on the control box. In automatic mode, tying is automatically started when a preadjusted compressing density is reached. Start of binding is indicated by a horn sounding and a signal light coming on at the control box three times at fixed intervals.In manual operation, a sustained horn signal indicates that the pressing density has been reached. After that, binding can be started manually by pressing the button (4), and this will also switch off the horn signal.



Note:
In the automatic tying mode and with the control box switched on, the tying process starts running as soon as the rear door is opened. In the net wrapping mode, there is an alarm message. Than switch off/on the control box.

5.1.5 Reset

In the event of a tying malfunction, the reset function enables the verification of all zero settings and calibrations. For this purpose just briefly press down the key (position F) on the machine box.

Depending on whether the twine tying option or the net tying option (pos.2 or pos. 3) has been preselected on the operating unit, the corresponding new position is set.

Malfunctions can occur during elongation or replacement of the drive belt on the net binding, or if the binding slide has to be repositioned. The new measurements are then registered and the motor setting is changed. The machine must be stopped, otherwise the net will be fed in!

DANGER!
The net cutting knife is tensioned during the reset cycle. Do not reach into the net tying area! Danger of injury!

5.1.6 Tying - Emergency mode

In the event of tying malfunctions it is possible to by-pass the electronic control and to activate tying (net or twine) manually.

Danger!
Danger of injury! All safety guards must be kept closed also during emergency operation.

Attention!
Tying continues as long as the toggle switch (10) on the control box is kept depressed!
This function is not designed for continuous operation. It should only be maintained for tying the bale that is currently in the machine! Afterwards remedy the fault immediately!

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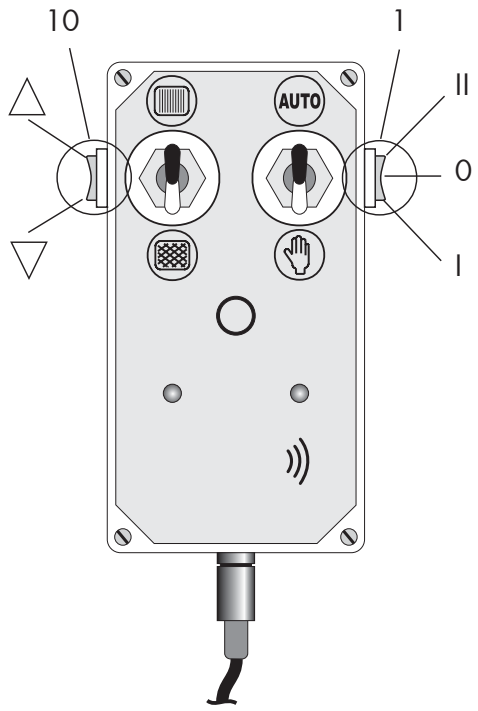
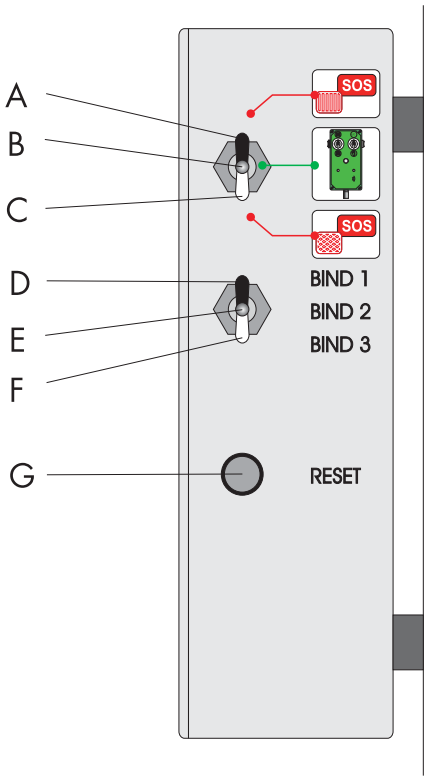


Net tying:

- Adjust the switch on the machine box from the zero position to the net setting (position C).
- Adjust the switch (1) on the control box to the emergency mode (II) setting.
- Flick the toggle switch (10) on the control box to ∇to activate net feed-in.
- Release the toggle switch when net feed-in starts (the operation can be monitored through the sight slits in the front hood).
- After a running period of approx. 4 s, flick the toggle switch to Δ until the net is separated (net reel stands still!).
- Finally, flick the toggle switch for approx. 1 s to ∇(zero setting); return the switch on the machine box to zero position when tying has been completed (pos. 3 to pos. 2).



Twine tying:

- Adjust the switch on the machine box from zero position to the twine setting (position A).
- Adjust the switch (1) on the control box to the emergency mode (II) setting. Flick the toggle switch (10) on the control box for approx. 15 s to activate the twine slide.
- Flick the toggle switch to Δ until the twine has been cut off, and then keep in this position for another 3 s. The process can be monitored through the twine observation window on the left at the top of the machine.
- Return the switch on the machine box to the zero position when tying has been completed.

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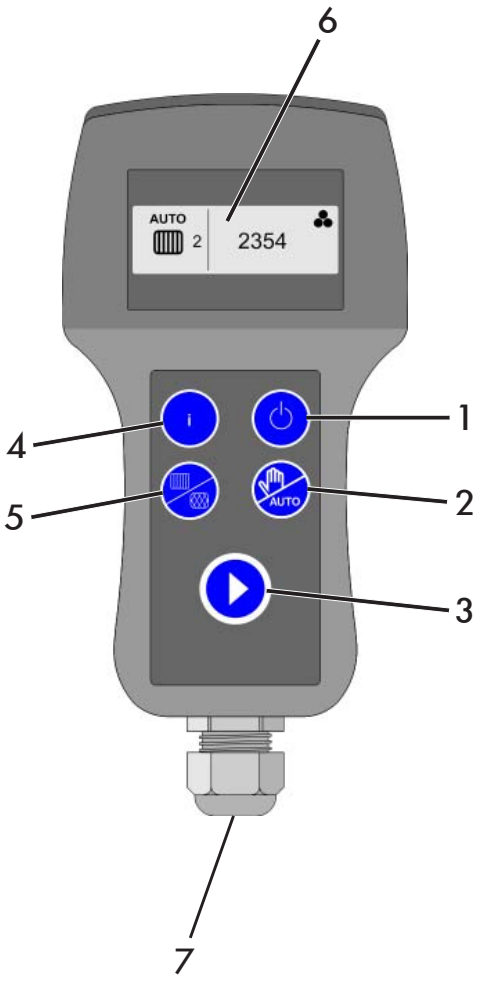

5.2 Autoplus

5.2.1 Controller

The control box is mounted on the tractor. It contains the controller for the twine binding and net wrapping.

Description of the functions:

1. Switches the controller on and off
2. Selector switch for manual and automatic mode.
   - Automatic mode: Binding starts automatically when the maximum baling pressure is reached (100%)
3. Start of manual binding cycle

- Clear error

4. Info key
   - Daily bale counter
   - Total bale counter
5. Selection of twine or netting program
6. Display
7. Cable

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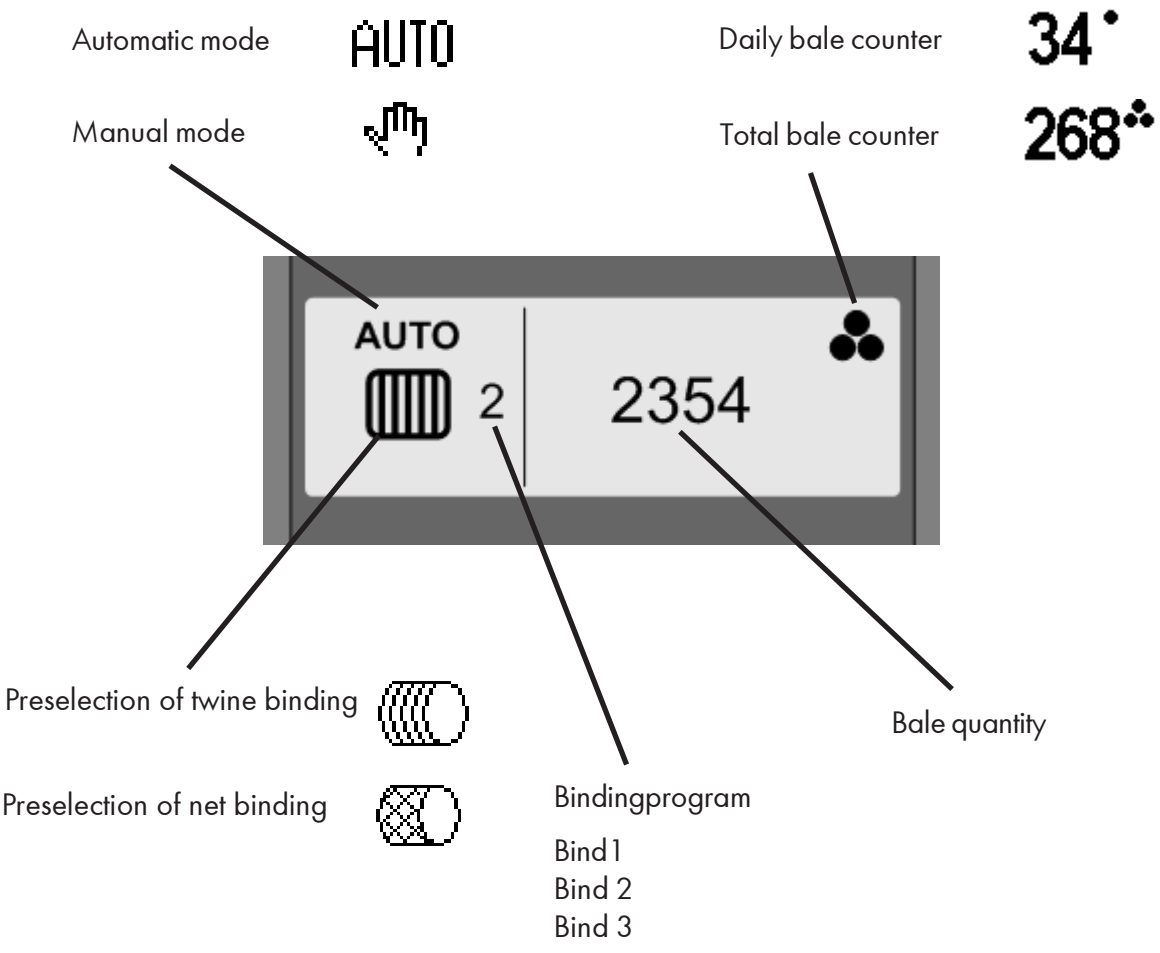
The „AutoPlus“ must be installed in the tractor cab as described in chapter 4.2. The hydraulic functions for the pick-up and cutter assembly are actuated by the single-acting controller (double-acting on 0C23). Only one function can be preselected on the AutoPlus at a time.

The tailgate is not actuated via the „AutoPlus“, but directly via the double-acting controller. After switching on „AutoPlus“, an internal monitoring program is initiated. After successful completion of the monitoring program the daily bale counter appears, with the binding display on the right.

5.2.2 Displays during the operating cycle

a.) Overview



5.2.3 Setting the binding system

Setting the number of twine/netting wraps:

The number of twine/netting wraps is set with the pushbutton.

- **Net:**

  By pressing key (5) repeatedly, the number of netting wraps is displayed in numbers 1 to 3 on the display.

- **Twine:**

  By pressing key (5) repeatedly, the number of twine wraps is displayed in numbers 1 to 3 on the display.

	Bind	Wrap
Twine 	1 2 3	18 22 26
Net 	1 2 3	2 3 4

Note:
The given number of wraps for ‚BIND 1', ‚BIND 2' and ‚BIND 3' refers to the nominal speed of 540 rpm. At a lower speed, the number of wraps drops correspondingly.

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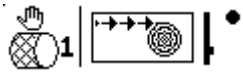
5.2.4 Automatic / manual binding start

Automatic or manual binding start is selected with the pushbutton on the control box.

Automatic mode

In automatic mode, binding is automatically started when a preadjusted baling density is reached. (Signal sounds and indication on the display) Stop tractor immediately!



The start of binding is indicated by a symbol on the display.

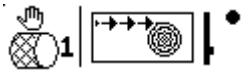
At the end of the binding process a symbol appears for opening the tailgate and discharging the bale.

Then close the tailgate again.

Manual mode

In manual mode a signal sounds when the baling density is reached. The 100% signal also appears on the display.

Then press the start key to initiate binding. The signal then stops.



A symbol appears on the display during the binding process.

At the end of the binding process a symbol appears for opening the tailgate and discharging the bale.

Then close the tailgate again.

Note:
In automatic binding mode and when the control box is switched on, the binding process starts running as soon as the tailgate is opened!In net binding mode, an alarm is shown - „Switch control box on and off".

5.2.5 Bale counter

By pressing the Info key you can switch between the daily counter display and the total bale counter display.

If the daily counter display is selected and the Info key is pressed for longer than 4 seconds, the counter is reset to 0.

The total number of bales cannot be changed.

5.2.6 Reset

Malfunctions can occur during elongation or replacement of the drive belt on the net binding, or if the binding slide has to be repositioned. During a reset the new dimensions are registered and the motor setting is changed.

Depending on whether the twine binding option or the net binding option has been preselected on the operating unit, the corresponding new position is set.

In the event of a binding malfunction, the reset function enables the verification of all zero settings and calibrations.

Switch the control box off and then on again for this purpose. The following appears on the display during the first 3 seconds after switching on.

Keep the start key pressed during this time.

If a net binding program was previously selected in the controller, the net binding motor is reset to the zero position.

If the twine program was preselected, the twine binding is reset to the zero position.

Danger!
The net cutting knife is tensioned during the reset cycle. Do not reach into the net binding area!
The machine must be stopped, otherwise the net will be fed in!

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5.2.7 Fault indications (Error):

During operation the essential functions are monitored and any occurring faults are indicated by a message on the display. A horn signal also sounds.

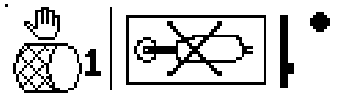
The indication flashes on the display until the fault has been eliminated.

Net not running

Cause:	Net roll empty Net incorrectly fed
Remedial measures:	Check net feed Initiate binding again with Start

Motor malfunction, Twine binding

Cause:	Twine binding not in initial position Twine binding motor does not run
Remedial measures:	Reset Twine binding (See chapter.5.2.6) Check twine motor



Malfunction net binding linear motor

Cause:	Linear motor not in initial position Linear motor does not start
Remedial measures:	Reset Net binding (See chapter.5.26) Check linear motor

o delete the display, eliminate the error and clear the error message on the display with the start key.

5.3 Pick-up

The pick-up is set as described in Section 4.6. During use, the pick-up is to be positioned at the preset height above the feeler wheels on the ground, and the control unit set to floating position. Optimal and careful crop pick-up is ensured by following the lie of the ground.

When turning and when picking up extremely large volumes of crop the travelling speed is to be adjusted according.

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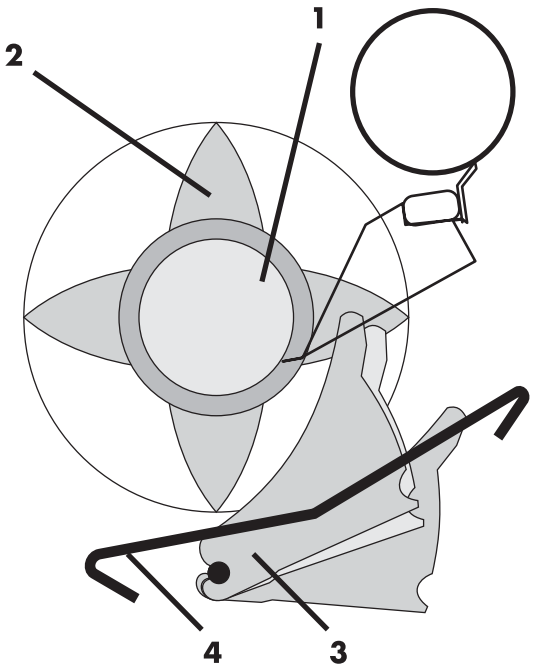

5.4 'Opticut' cutting system (only 125 OC14)

5.4.1 General

The conveying drum (1) with its double conveying tines configured in a spiral (2) ensure that the cutting blades (3) cut in an even and drawn manner.

With the Opticut cutting system, you have the option to cut the crop at a theoretical cutting length of 70 mm at a maximum of 14 cutting points. The blades can be moved out of the conveying channel by the hydraulics alone. The number of blades can be selected freely so that the cutting lengths can be altered accordingly. The complete swivel function is therefore always retained.

Each blade has foreign body protection and is spring-loaded. When a foreign body passes over, the blade recedes into the floor of the cutting unit (4) and then returns to the cutting position automatically.

The blades can be fixed in two different positions, giving cutting system operation in 'normal cutting' and 'precision cutting' modes.

The knives can be installed in two different positions:

- „Special" cut with knives en flat position (factory adjustment)
- „Standard" cut with knives en steep position

Note:
When there is a danger of blockages due to large quantities of crop, it is advisable to move out the cutting system out hydraulically for a short time to allow the crop to pass through more easily.

When moving out the cutting system at the end of the baling process, a final layer of uncut crop is laid around the bales which can minimise losses of broken crop and increase bale stability.

The hydraulic shut-off tap on the left-hand side of the machine is to be closed when the cutting system is used for an extended period in the moved-out position.

As soon as the protection plates, supplied on request, are used, the slotted blades no longer clog.

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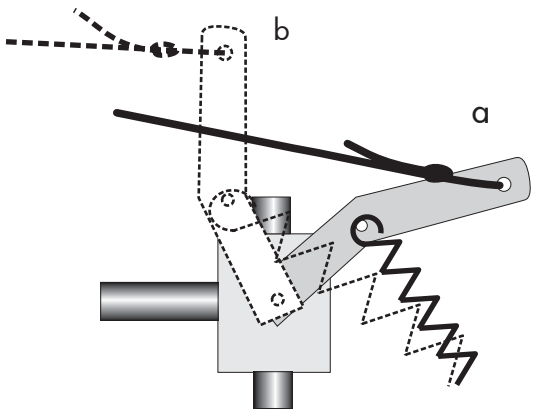
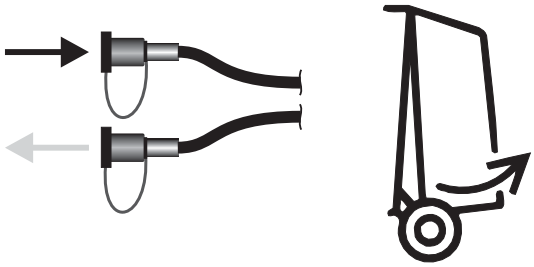
5.4.2 Changing the blades

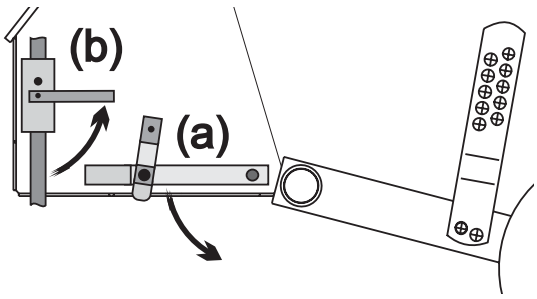


Danger!
During all work on the cutting system, switch off the engine and wait for the machine to come to a complete standstill. Close the cutting system hydraulics with the shut-off tap. Always wear protective gloves when working with the blades and never touch the blades on the cutting edge.

- Swivel out the cutting assembly hydraulically. Change the 3-way ball valve to the cutting assembly position.



- Open the tailgate hydraulically,
- Secure the tailgate - close the hydraulic tap (see Section 1.6, Point 10),



- Close the hydraulic tap (b) for the cutting system located on the right-hand side of the machine,
- Switch off the tractor engine,
- Turn the blade shaft, lower the lever (a),
- Grip the blade at the end and pull out upwards, alter the position of the conveying tines by turning the conveying drum, if necessary,
- Sharpen the blades (only when disassembled),
- Mount the blades in the reverse order.

Note:
Always keep the blades sharp. The power consumption can be reduced considerably by doing this.

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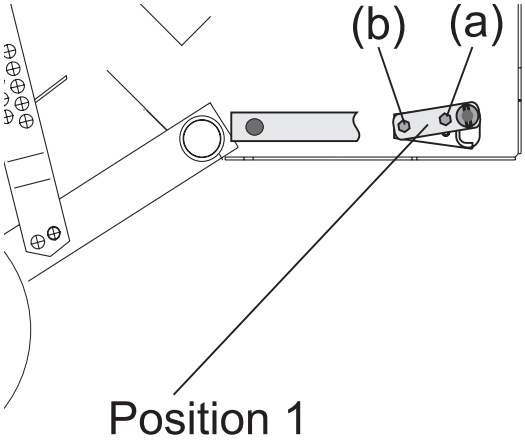
5.4.3 Adjusting the cutting angle

- Blade shaft, pos. 1

  - steep cutting angle for 'precision cutting'

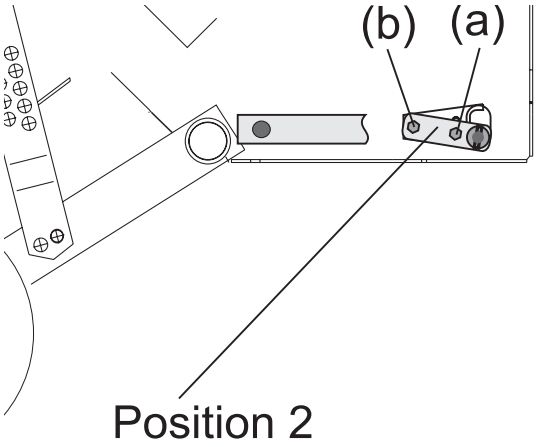
- Blade shaft, pos. 2

  - obtuse cutting angle for 'normal cutting' (approx. 20% lower power consumption)



Adjusting the cutting angle from 'normal cutting' to 'precision cutting':

- Move out the cutting system hydraulically, switch off the tractor engine
- Unscrew fixing bolt M10 (a) on the left and right-hand sides,
- Undo the hinge screw M10 (b) on the left and right-hand sides,
- Move in the cutting system hydraulically, switch off the tractor engine,
- Assemble fixing screws (a) in the upper position,
- Tighten the fixing and hinge screws (a, b) at the left and right.



Adjusting the cutting angle from 'precision cutting' to 'normal cutting':

- Move in the cutting system hydraulically, switch off the tractor engine,
- Unscrew fixing bolt M10 (a) on the left and right-hand sides,
- Undo the hinge screw M10 (b) on the left and right-hand sides,
- Move out the cutting system hydraulically, switch off the tractor engine,
- Assemble fixing screws (a) in the lower position,
- Tighten the fixing and hinge screws (a, b) on the left and right-hand sides.

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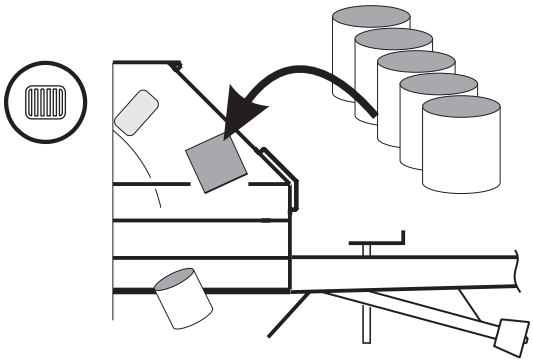

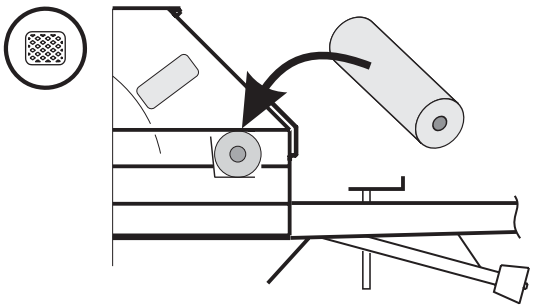

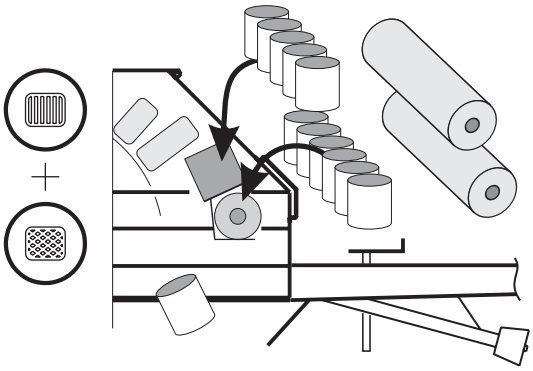

5.5 Binding

5.5.1 General

Both a net wrapping and twine binding system are available for the round baler. The baler can be fitted with either one or both binding processes. If necessary, the crop can be wrapped using both binding processes one after the other. It is also possible to retrofit either system.

Only use good quality net to reach best wrapping results. The outer diameter of the roll should not exceed 320 mm and its width should not be inferior to 1230 mm. Maximum core length should be 1300 mm.

Machines with standard equipment can be fitted with net and twine spools as shown in the table alongside.

The standard version allows for the variant net and twine reel configurations shown alongside.

Recommended net roll manufacturers:

RKW AG
Rheinische Kunststoffwerke
Rossbacher Weg 5
D-64720 Michelstadt
www.rkw-ag.com

Twine quality:

- Plastic twine with a running length of 400 to 700 m/kg
- Sisal twine with a running length of 200 to 330 m/kg

5.5.2 Twine binding

If the round baler is fitted with a twin-threaded twine binding mechanism, the crop can be bound into bales which are stable in shape with a preselected number of crosswise twine bindings.

Twine tying can be activated automatically or manually via the control box. The number of twine wraps (18/22/26) is set on the machine box (see chapter 5.1.3).

The twine container is located in front of the tying mechanism and holds 6 twine reels (125) / 4 twine (121). An accessory container to hold 5 extra twine reels can be mounted on the machine for exclusive twine tying. The net reel container can also be used to hold 6 twine reels when the machine is used for both twine and net tying.

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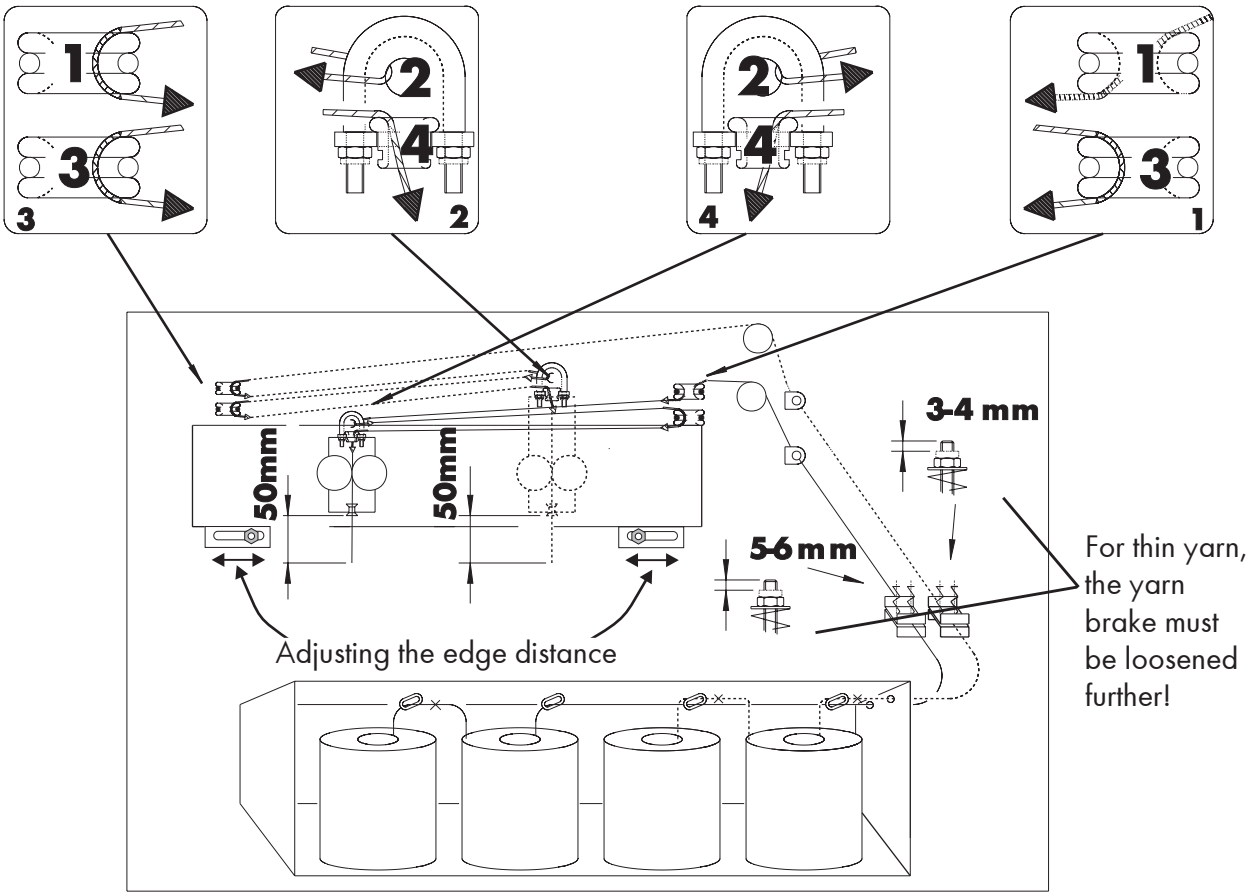
Danger!
When inserting new twine rolls and when threading the twine, switch off the tractor engine and wait for the machine to come to a standstill. Remove the ignition key.

Threading twine:

- Guide the ends of the threads from the yarn rolls out of the yarn container(s) through the breakthroughs shown in the illustration
- Guide the ends of the threads through the yarn brakes (caution: different spring tension for one or two threads)
- Guide each thread through a porcelain eyelet
- Place each thread over a plastic guide roller with a 90° loop
- Guide them through the porcelain eyelet on the frame in such a way that (front or rear) the eyelets will pass through following the sequence of the ascending numbes. Observe the numbers of the eyelets given on the stickers of the binding device
- Guide through the drive wheel and pressing roller (turn the pressing roller and thread in the thread); porcelain eyelet forwards and after drive wheel/pressing roller
- Thread length at the exit point: 50 mm

Danger!
Keep hands clear of the danger area of the twine cutting knives.



Adjusting the edge distance

The edge distance of the twine on the bale is mecanically adjusted by 2 screws below the binding device.

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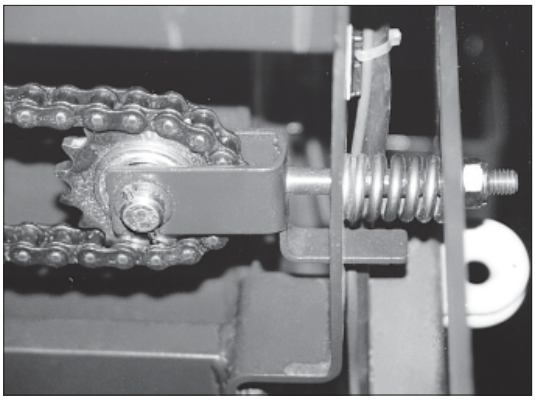


The twine wrapping system does not require any maintenance.

Correct length of the twine carriage tensioning chain: 44 mm. Chain has to tensioned if lengthening occurs.

Note:
In automatic mode, it is advisable to continue on past the stop signal for several meters depending on the swath size. This especially applies to the 121 R where picking up the swath binds the yarn reliably and tightly into the bale at start of the binding process.

5.5.3 Net wrapping

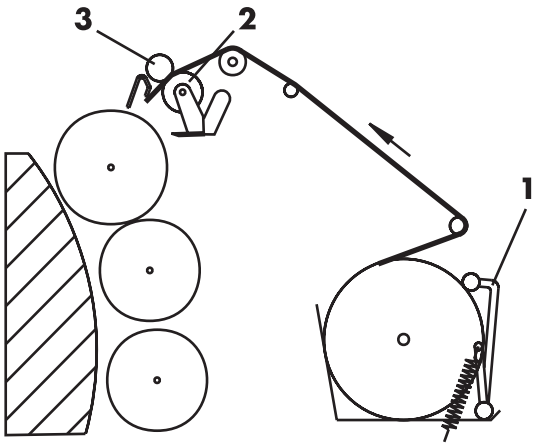
When the round baler is equipped with a net wrapping system, the crop can be bound into bales with a stable shape with a preselected number of net wraps.

Net tying can be activated automatically or manually via the control box. The number of net wraps (2/3/4) is set on the machine box (see chapter 5.1.3).

A second container holding another net reel is available as an optional extra for exclusive net tying. If the machine has also been fitted out for twine tying, then the mounted container for twine reels can also be used to hold a second net reel.

Danger!
Turn off the tractor engine and withdraw the ignition key. Wait until the machine is standing still before loading a new net reel and threading the net. Do not reach into the area of net feed-in! Danger of injury by the separating knife!

Note:
The binding process must run when the nominal r.p.m. has been set, as otherwise the net cannot be struck off.



Loading a new net reel; threading the net:

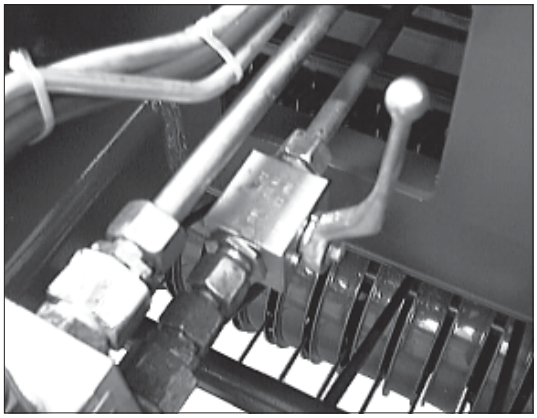
- Fold back the tensioning lever (1).

  WARNING! The lever is spring loaded!
- Place the net reel in the net box; observe the wrapping direction!
- Place the net over the guiding pipes; see fig.
- Gather together the beginning of the net to half its width and press between the rubber roller (2) and the aluminium roller (3). Turn the rollers slightly until the net is securely caught.
- Return the tensioning lever (1) to its original position against the net reel.

Note:
take note of the running direction of the net when laying the roller in on the net brake.

5.6 Tailgate

Danger!
Take care when opening and closing the tailgate. Shut the hydraulic shut-off tap before entering the bale chamber. No persons may remain in the swinging range of the gate.



The tailgate is activated directly from the double-acting control unit. The tailgate is opened fully using the 'Raise' function on the control unit. The tailgate is closed with 'Lower' on the control unit. When binding ends, a horn signal will sound for 3 seconds followed by a series of shorter signals until the rear trap is closed again. Finally, the signal changes for 2 seconds into shorter signals. The control unit should be held in the "Lower" position until the signal finally ceases. (Build-up of pressure!).

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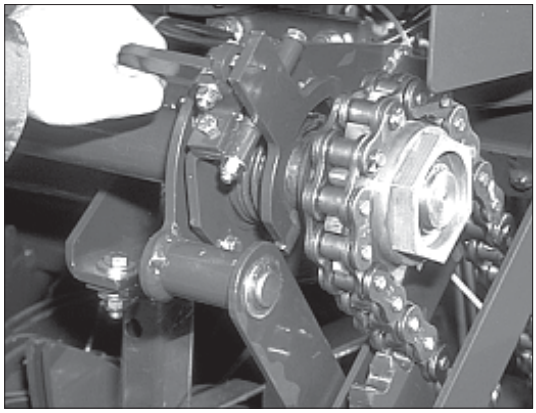
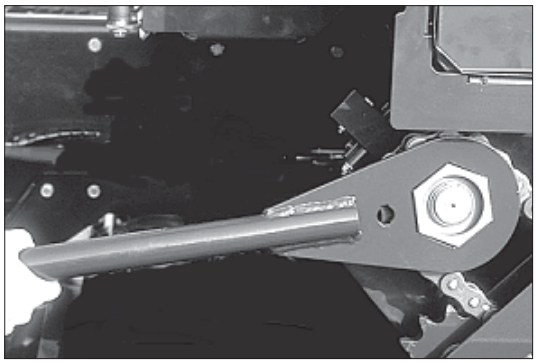
5.7 Rotor coupling

When the conveying roller / cutting system is blocked, the wedge clutch switches the torque to 'zero'. If the blockage can not be cleared by restarting the PTO shaft at a speed less than 200 rpm, the conveying channel is to be freed of blocked crop by reversing the conveying roller.

Note:
Experience shows that when the bales are nearly finished, the system can become obstructed or the cam coupling can be triggered.
It is possible to bind these bales without having to eliminate the obstruction in the vicinity of the cutting rotor. To do so, disengage the cutting rotor by reverse coupling, engage the propeller shaft at low speed, bind the bale and eject. Then stop the propeller shaft, engage the rotor again and eliminate the obstruction at a low PTO shaft speed.





Proceed as follows to reverse:

- Switch off the PTO shaft, switch off the tractor engine, remove the ignition key,
- Disconnect the coupling claw via the lever,
- Place the reversing lever onto the hexagon,
- To reverse, turn anti-clockwise and convey the crop out of the conveying channel by turning the conveying roller back,
- Fit lever to its support on the drawbar and re-engage the claw clutch.

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5.8 Hitching to the tractor and road travel

- Hitch the round baler to the tractor, see Section 4.3 for drawbar adjustment,
- Mount the universal drive shaft, see Section 4.4, prevent from turning incorrectly by using the retaining chain,
- Connect up all hydraulic hoses and power supply cables,
- Turn prop stand up to the limit stop, remove safety pin, fold up prop stand, fit safety pin at the bottom and secure by R-clip.
- Before driving off, raise the pick-up hydraulically as far as it will go.
- When driving around tight corners, make sure that deviation is no greater than 80° on the wide-angle of the universal drive shaft (on the tractor). Otherwise there is a danger of breakage during operation or when at a standstill.
- It is not allowed to transport a bale inside the chamber! When leaving the field the last bale has to be kicked out.

5.9 Operation in the field

Extensive protection against possible accidents is provided by the round baler. However, sufficient care and caution should be taken when working with the machine. Checks should be made each time the machine is used to see that all protective devices are mounted and intact.

Danger!
Never repair functional errors during operation. Particular care should be taken when opening and closing the tailgate. No persons may remain in the tailgate swinging range. Shut the hydraulic shut-off tap before entering the bale chamber.

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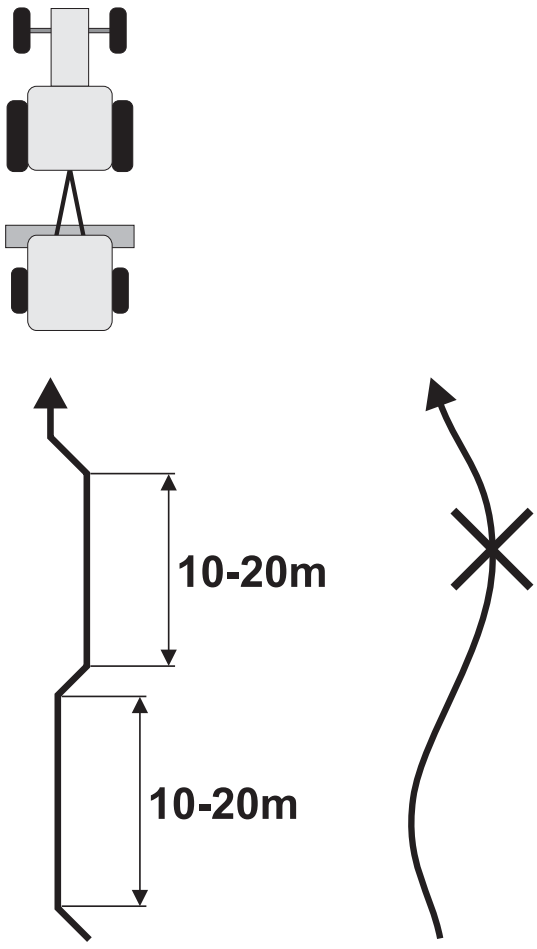
Before staring work:

- Insert twine, net, and thread
- Adjust the height of pick-up feeler wheels
- Adjust the pick-up spring suspension
- Pre-select the bale density
- Reset the daily bale counter to zero
- Select the binding option
- Cutting system on/off
- PTO shaft speed 540 rpm/1000 rpm



Driving:

Make sure that the bale chamber is filled with crop optimally to make the most of the round baler's capabilities. The chamber is filled evenly by driving in a suitable way, i.e. driving alternately on the left and right-hand sides of the swath when the swaths are middle-sized or small.

When hitching using a pending attachment, be aware of the tendency for heaps to form due to crop becoming caught up.

When turning sharp corners, e.g. when turning round, make sure that no deviation is greater than 80° on the wide-angle of the universal drive shaft (on the tractor). Otherwise there is a danger of breakage during operation or when at a standstill.

To ensure that the pick-up closely follows the contours of the land adjust the pick-up to the float setting.

Note:
A reduction of the travelling speed just before a bale is completed will result in better shaped bales of a higher density!

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Tips for practical use:

- Number of hoops:

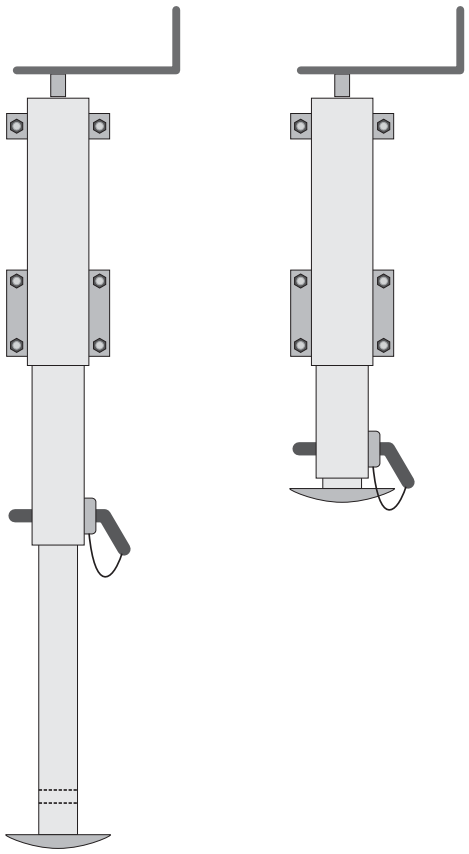
  for optimum bale consistency, it is advisable to have more hoops for straw than for green products.

- Pressing density:

  as a general rule, more pressing pressure for moist/ wet products, less for dryer products.

- Pressing pressure:

  for very dry, brittle straw, reduce the pressing density or swivel out the blades to prevent a standstill of the bales.



5.10 Storing the Round Baler

Before unhitching the Round Baler, remove the pto drive shaft, disconnect the electric cable and the hydraulic couplers from the tractor (Release pressure in the system first - briefly open the tailgate, then return to zero setting) and lower the prop stand as follows:

- Raise the supporting foot with the crank.
- Pull out the retention bolt and insert the lower section of the supporting foot.
- Re-insert the retention bolt in the lower hold and secure.
- Place chock blocks under the wheels before unhitching the Round Baler.

Danger!
Store machine on a level area only and place chock blocks under the wheels to ensure the machine will not move away.

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5.11 Winter storage

- Clean the baler of crop remains and dirt,
- Check the round baler for wear and damage and have it repaired,
- Position the control box at the envisaged point under the front hood.
- Release the net separating knife.

WARNING!
Do not reach into the area of the net separating knife. Danger of injury!

- Clean all roll chains thoroughly and re-oil,
- Lightly oil the Opticut cutting blades,
- Lubricate machine according to lubrication schedule,
- Change the gear oil,
- Position the baler so that it is stable and prevent from rolling away using wheel chocks,
- Never allow children to play on or near the machine.

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6 Service and maintenance

Danger!
Never carry out adjustment or repair work, or service and maintenance work, on the machine when in operation. Switch off the tractor engine, remove the ignition key and wait for the machine to come to a standstill before working on moving machine parts. Shut the hydraulic shut-off tap before entering the bale chamber. Take care when opening and closing the tailgate. No persons may remain in the swinging range.

To ensure the efficient running of the round baler and to avoid premature repairs, make sure that the machine is well looked-after and that repairs are carried out in time.

6.1 Re-tightening screws

All screws and nuts should be re-tightened after 20 operating hours according to the given torques, see Section A.1.

Special attention should be paid to checking the tightening torque on the drawbar bolts and the bolts in the vicinity of the rear trap hinges.

Retaining screws and locking nuts should be tightened by an additional 10%.

6.2 Checking wheels

Check that the wheel nuts and wheel caps are secure. The air pressure in the tyres should be 1.5 bar. Re-tighten the wheel nuts after the first few operating hours. The torque moment for wheel nuts M18 x 1.5 is 325 Nm.

6.3 Chain tightener

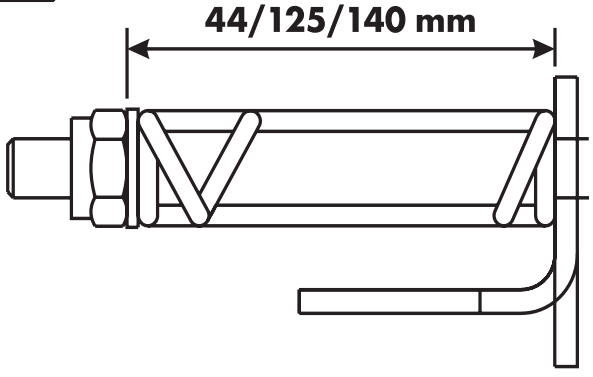
All drive chains are tightened elastically by spring-loaded chain tighteners. The chain tighteners are to be assembled in the chain row so that they can move freely with no torsion and that the wear on chains and chain wheels is reduced to a minimum.

The given spring lengths of the chain tightener are to be checked regularly and re-adjusted if necessary.

Chain tightener spring lengths:

- Cutting system drive
  - 140 mm
- roller drive, total
  - 125 mm
- Roller drive on front machine
  - 125 mm
- Roller drive on tailgate
  - 125 mm
- twine binding drive: 44mm

Attention!
Do not tighten the stop pipes on a block!



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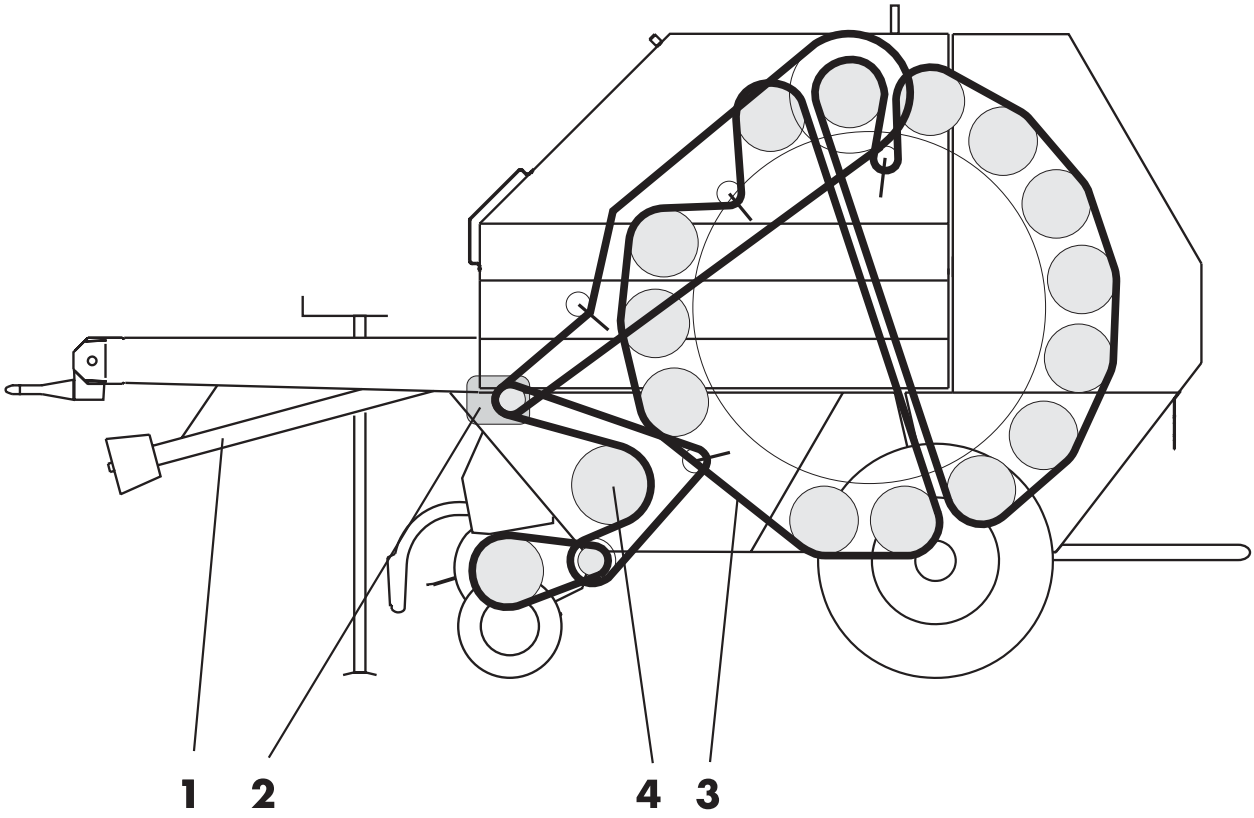
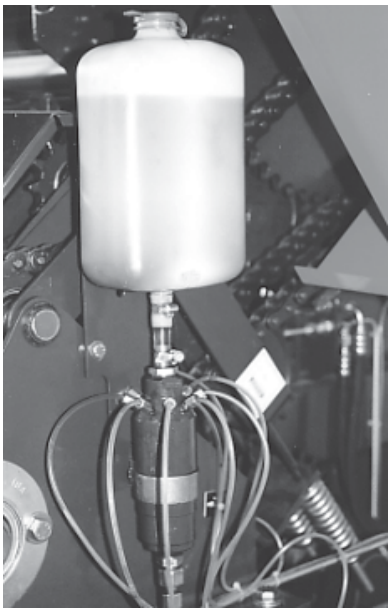
6.4 Lubrication

1	PTO shaft	- lubricate all bearings (grease nipples) regularly / as required, and grease the sliding parts.
2	Gearbox	- 1.3 litres gear oil SAE 90, only in case of repair
3	chains	- central lubrication system (optional), keep the plastic tank fullfilled - check daily
4	opticut rotor	- 2 x bearings after cleaning the baler by high pressure cleaning equipment and before winter



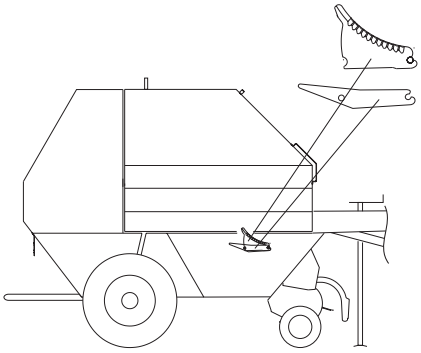
7 Accessories



7.1 Central chain lubrication device

To reduce the amount of maintenance needed for the drive chains, an automatic chain central lubrication device is provided as optional equipment. The oil level in the lubricant container is to be checked daily. If necessary, the adhesive oil for the chain (biological chain oil) should be topped up.

The distribution pump is connected to the tailgate hydraulic system and is activated by the pressure pulse when opening the tailgate. A given amount of lubricant is pumped from the oil container into the supply pipes and applied to the chains using brushes. The brushes should be adjusted so that they are just touching the chains.



7.2 Filler plates (125 OC14)

When the cutting device is not mounted or if the cutting system is being used with less than 10/14 blades, the slits in the floor of the cutting unit are to be closed using filler plates. The filler plates keep the blade slits clean and ensure that the flow of material around the floor of the cutting unit remains even.

7.3 Bale ramp

When using the bale ramp, the bales are deposited gently onto the ground and roll out of the tailgate area so that, under normal working conditions, it is not necessary to drive forward again to close the tailgate.

Attention!
Only open the tailgate when the machine is running to make sure that the bale is ejected. On sloping ground, the bales should be deposited face down on the slope. There is a risk of injury if the bales roll away.

7.4 Additional twine / net boxes

If only one tying system is installed, the twine or net capacity can be increased by installing additional spare boxes: the twine box of the twine binding unit can be used for the stowage of a second net roll and in the net box of the net wrapping system can be installed 4/6 further twine spools.

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8 Trouble shooting

Danger!
Before any elimination of malfunctions stop the pto and the tractor engine. Remove the ignition key and wait for all movable components to be at a complete stop. Never try to eliminate a problem while the machine is running.

Fault	Possible cause	Remedy
General	A good supply voltage must be guaranteed. For this, please use the delivered supply cable without fail and connect directly to the battery.	
Net does not run	Net roll empty	Install new roll
	Net roll incorrectly installed	Install roll as indicated on sticker
	Side net roll guide (distance piece) too tight	Observe maximum net roll width (see Chap. 5.4.1)
	V-belt slipping on V-belt pulley	V-belt has become lengthened; perform a 'Reset' to store elongation in the electronics (Chap. 5.1.5)
	Linear motor does not move from its home position	Switch on electronics and perform a 'Reset'
	Contamination between rubber and aluminium rollers	Eliminate the soiling
	Net becomes coiled around the rubber or aluminium roller	Check surface for damage; adjust stripper
	Net knife was not tensioned	Net knife must be tensioned before wrapping. The net knife is tensioned each time the tail gate is opened to eject the bale
Net is not cut off and continues to run	Linear motor does not unlock the pawl of the net knife	Check adjustment of net sensor and magnet (Chap. 4.8)
	Net knife blocked by dirt	Clean area
Net feed begins before compacting pressure achieved	Net fringes caught by rotating bale	Check sharpness of net knife
		Check ease of running of net knife holder
		Cut off net at a cardan shaft speed of 540 rpm
		Use recommended net quality (Chap. 5.4.1)
	After a new net is threaded, the net has been caught too early by following bale	With second bale, fault no longer occurs
Net knife not tensioned	A 'Reset' was carried out and the knife was not tensioned again	Retension net knife after a 'Reset', either manually or by opening the tail gate
	Tension rod which tensions the net knife via the tail gate is incorrectly adjusted	Adjust tension rod length such that on opening the tail gate, the net knife will be tensioned and locked
	Net wrapping has already been initiated	A second net wrapping is only possible when, prior to that and with machine shut down, the knife is manually tensioned
	Linear motor is not in the correct position and is preventing the locking of the knife	Perform net wrapping 'Reset' (Chap. 5.1.5)
	Locking nib worn	Replace worn part

Permanent tail gate open signal	Tail gate not completely closed	Close tail gate
	Dirt build-up between tail gate and machine frame	Remove build-up and clean area
	Tail gate sensor faulty	Check LED in machine box or consult specialist workshop
	Magnet in area of tail gate sensor missing	Replace magnet
	Magnet incorrectly installed	Consult specialist workshop
Twine wrapping does not work	Outside blockage	Correct the positioning of the twine-end sensor. Start and end points are identical and are determined by the positioning of the twine-end sensor. Incorrect adjustment can cause the twine slide to stop outside
	Incorrectly-threaded twine	Thread twine as specified on sticker
	Over-tightened twine brakes prevent movement on return path	Slacken off twine brakes
		Use recommended twine quality
	Star wheel wobbles and does not catch all indents, recognisable via the sensor LED. Each indent must cause the LED to light up	Tighten star wheel so that it does not wobble and adjust sensor so that each indent is captured Distance approx. 1mm
	Faulty star wheel sensor	Consult specialist workshop
	Mechanical blockage	Remedy dirt build-up or other possible blockage
	Brief current interruption	Install current supply per instructions via cable provided
	Twine motor polarity reversal after motor exchange	Interchange pole connections or check whether the twine carriage moves to its home position on performing a 'Reset'
	Motor faulty	Check whether motor operates via emergency operating switch and replace if necessary or consult specialist workshop

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A Appendix

A.1 Torque values for international metric thread joints

All bolted joints must be torqued in accordance with the values given in this table unless otherwise indicated. On this machine „8.8" is both the standard and minimum quality used.

Attention!
When lock bolts or lock nuts are used the given value must be increased by 10%.

Thread	Torque value for material quality codes in acc. with DIN ISO 898 (dry)						size of jaw		Remarks
	8.8		10.9		12.9				
	Nm	lbf-ft*	Nm	lbf-ft*	Nm	lbf-ft*	mm	inch	
M3	1,9	(11,5)	1,8	(16,0)	2,1	(18,6)	6	1/4	
M4	2,9	(25,5)	4,1	(36,5)	4,9	(43,5)	8	5/16	
M5	5,7	(50,5)	8,1	(71,5)	9,7	(86,0)	9	23/64	
M6	9,9	7,3	14	10,3	17	12,5	10	13/32	
M8	24	17,7	34	25,0	41	30,3	14	9/16	
M10	48	35,4	68	50,2	81	59,8	17	11/16	
M12	85	62,7	120	88,6	145	107	19	3/4	
M14	135	99,6	190	140	225	166	22	7/8	*value in bracket-s =lbf-in.
M16	210	155	290	214	350	258	24	121/128	
M18	290	214	400	295	480	354	27	1 9/128	
M20	400	295	570	421	680	502	30	1 3/16	
M20x1,5			640	473			30	1 3/16	
M22	550	406	770	568	920	679	32	1 17/64	
M24	700	517	980	723	1180	871	36	1 27/64	
M27	1040	767	1460	1077	1750	1291	41	1 79/128	
M30	1410	1041	1980	1461	2350	1734	46	1 13/16	
M33	1910	1410	2700	1996	3200	2362	50	1 31/32	
M36	2450	1808	3450	2546	4150	3063	55	2 11/64	
M39	3200	2362	4500	3321	5400	3985	60	2 3/8	
Tensile strength	8.8		10.9		12.9				
	≤ M16	≥ M16							
N/mm2	808	830	1040		1220				
lbf/sq.in.	117,222	120,414	150,880		176,994				

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Kverneland Group Gottmadingen
GmbH & Co. KG
Hauptstraße 99
78244 Gottmadingen
Germany

Tel. +49 7731 788 0
Fax +49 7731 788 353

effective from ident. nr. (PIN)

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