Original operating instructions

Round baler

Fortima F 1250 (MC)
Fortima F 1600 (MC)
Fortima V 1500 (MC)
Fortima V 1800 (MC)

(from serial no.: 848 920)

Order no.: 150 000 135 05 en



14.05.2014

EC Declaration of Conformity

We **Maschinenfabrik Bernard Krone GmbH**

Heinrich-Krone-Str. 10, D-48480 Spelle

hereby declare as manufacturer of the product named below, on our sole responsibility, that the

Machine: **Krone Round Baler**

Typ / Types: **Fortima F 1250 / Fortima F 1250 MultiCut**
Fortima F 1600 / Fortima F 1600 MultiCut
Fortima V 1500 / Fortima V 1500 MultiCut
Fortima V 1800 / Fortima V 1800 MultiCut

to which this declaration refers is in compliance with the relevant provisions of

EG-directive 2006/42/EG (machines) and EG directive 2004/108/EG (EMV).

The signing Managing Director is authorised to compile the technical documents.

Spelle, 08.05.2014

Dr.-Ing. Josef Horstmann
(Managing Director, Design and Development)

Year of manufacture:	**Machine No.:**

1 Foreword

Dear Customer!

By purchasing the round baler, you have acquired a quality product from KRONE.

We are grateful for the confidence you have invested in us in buying this machine.

It is important to read the operating instructions very carefully before you start operating the machine to allow you to use the round baler to its full capacity.

The contents of this manual are laid out in such a way that you should be able to perform any task by following the instructions step by step. It contains extensive notes and information about maintenance, how to use the machine safely, secure working methods, special precautionary measures and available accessories. This information and these instructions are essential, important and useful for the operational safety, reliability and durability of the round baler.



Note

In the operating instructions which follow, the round baler will also be referred to as the "machine".

Please note:

The operating instructions are part of your machine.

Only operate this machine after you have been trained to do so and according to these instructions.

It is essential to observe the safety instructions!

It is also necessary to observe the relevant accident prevention regulations and other generally recognised regulations concerning safety, occupational health and road traffic.

All information, illustrations and technical data in these operating instructions correspond to the latest state at the time of publication.

We reserve the right to make design changes at any time and without notification of reasons. Should you for any reason not be able to use these operating instructions either wholly or partially, you can receive a replacement set of operating instructions for your machine by quoting the number supplied overleaf.

We hope that you will be satisfied with your KRONE machine.

Maschinenfabrik Bernard Krone GmbH

Spelle

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3 Introduction

These operating instructions contain fundamental instructions. These must be observed in operation and maintenance. For this reason, these operating instructions must be read by operating personnel before commissioning and use, and must 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.

3.1 Purpose of Use

Round balers Fortima F 1250 (MC)/F 1600 (MC) and Fortima V 1500 (MC)/V 1800 (MC) are pick-up balers. They compact agricultural material such as hay, straw or grass silage into round bales.
The round balers Fortima F 1250 (MC)/F 1600 (MC) are equipped with a fix bale chamber. The fix bale chamber of Fortima F 1250 (MC) enables baling of round bales with a diameter of approx. 1.25 m; whereas the bale chamber of Fortima F 1600 (MC) enables baling with a diameter of approx. 1.55 m.
The round balers Fortima V 1500 (MC) and V 1800 (MC) are equipped with a variable bale chamber.
The variable bale chamber of Fortima V 1500 (MC) enables baling of round bales with a diameter of approx. 1.00 - 1.50 m; the variable bale chamber of Fortima V 1800 (MC) enables baling with a diameter of approx. 1.00 - 1.80 m.
The width of the round bales amounts to 1.20 m. The round balers are equipped with quadruple twine tying (with magnetic coupling) and/or net wrapping systems.



WARNING! – Intake and baling of pressing material not mentioned!

Effect: Damage to the machine

Collecting and baling materials that are not cited here is permitted only in agreement with the manufacturer. The basic requirements in any case are swath form loading of the crops and automatic intake by the Pick-up as it passes over them.

3.1.1 Contact

Maschinenfabrik Bernard Krone GmbH
Heinrich-Krone-Strasse 10
D-48480 Spelle (Germany)

Telephone: + 49 (0) 59 77/935-0 (Head Office)
Fax.: + 49 (0) 59 77/935-339 (Head Office)
Fax.: + 49 (0) 59 77/935-239 (Spare parts - domestic)
Fax.: + 49 (0) 59 77/935-359 (Spare parts - export)
Email: info.ldm@krone.de

3.2 Identification Plate

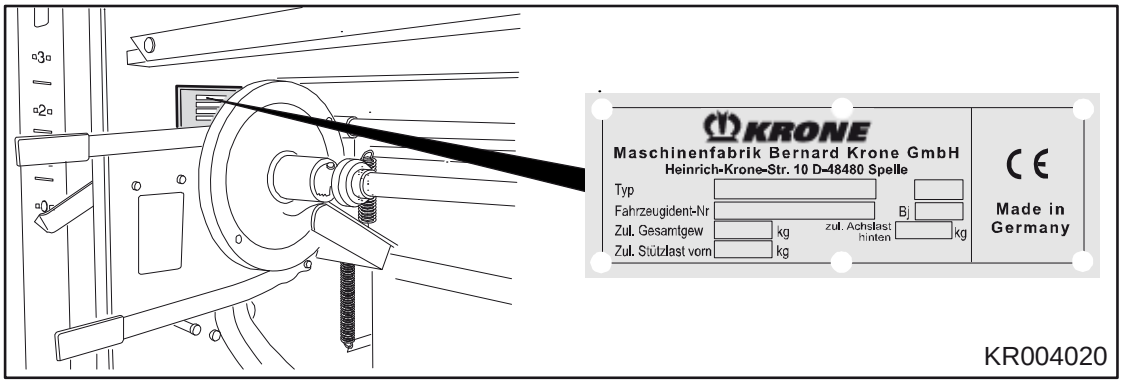


Fig. 1

The machine data are located on the type plate (1), which is located on the right-hand side of the machine below the twine box.

3.3 Information Required for Questions and Orders

Type	
Year of manufacture	
Vehicle ID number	

Note

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

When asking questions concerning the machine or ordering spare parts, be sure to provide type designation, vehicle ID number and the year of manufacture : To ensure that these data are always available, we recommend that you enter them in the fields above.

Note

Authentic KRONE spare parts and accessories authorised by the manufacturer help to ensure safety. The use of spare parts, accessories and other devices which are not manufactured, tested or approved by KRONE will result in the revoking of the liability for damages resulting thereof.

3.4 Intended use

The round baler is built exclusively for customary use in agricultural work (intended use).

Unauthorised modifications to the machine may have a negative effect on the machine characteristics or safe and reliable use of the machine or may interfere with proper operation. Unauthorised modifications shall therefore release the manufacturer of any liability for consequential damage.

3.5 Technical data

All information, illustrations and technical data in these operating instructions correspond to the latest state at the time of publication. We reserve the right to make design changes at any time and without notification of reasons.

		Fortima F 1250 / Fortima F 1250 MC	
Axle		Single axle	Tandem axle
Pick-up (width)		2050 mm	2050 mm
Width approx.	11.5/80-15	2460 mm	2740 mm
	15.0/55-17	2535 mm	2815 mm
	19.0/45-17	2605 mm	2885 mm
	500/50-17	2650 mm	--
Permissible weights		see information listed on identification plate	
Track width		2150 mm	2430 mm
Tyres		11.5/80-15.3/10 PR 15.0/55-17/10 PR 19.0/45-17/10 PR	
		500/50-17/10 PR	--
Length approx.		4100 mm	
Height at 500/50-17 approx.		2465 mm	
Bale dimensions	Diameter approx.	1250 mm	
	Width approx.	1200 mm	
Power requirement approx.		36 kW (50 HP)	
Drive speed (PTO shaft)		540 rpm	
Max. permissible operating pressure of hydraulic system		200 bar	
Minimum oil quality		Oil ISO VG 46	
Max. oil temperature		80°C	
Delivery capacity hydraulics		min. 30 l/min max. 60 l/min	
Electrical connections	Lighting	12 volts – 7-pin plug	
	Operation	12 volts – 3-pin plug	
Twine	Open air storage	Synthetic twine 400 - 1000 m/kg	
	Indoor storage	Sisal twine 150 - 300 m/kg	
Net	Width	1250 ± 5 mm	
	Sleeve length	1250 - 1270 mm	
	Sleeve diameter	75 - 80 mm	
	Roll diameter	max. 310 mm (3000 m roll)	
Overload protection (universal shaft) Cam-type clutch 540 rpm		1300 Nm (Fortima F 1250) 1500 Nm (Fortima F 1250 MC)	
Overload protection (universal shaft) Friction clutch 540 rpm		1300 Nm (Fortima F 1250)	
Hydraulic connections	Open the tailgate	1 x single-action control unit	
	Raise pick-up or blade base (MC)	1 x single-action control unit	

		Fortima F 1600 / Fortima F 1600 MC	
Axle		Single axle	Tandem axle
Pick-up (width)		2050 mm	2050 mm
Width approx.	11.5/80-15	2460 mm	2740 mm
	15.0/55-17	2535 mm	2815 mm
	19.0/45-17	2605 mm	2885 mm
	500/50-17	2650 mm	--
Permissible weights		see information listed on identification plate	
Track width		2150 mm	2430 mm
Tyres		11.5/80-15.3/10 PR 15.0/55-17/10 PR 19.0/45-17/10 PR	
		500/50-17/10 PR	--
Length approx.		4300 mm	
Height (500/50-17) approx.		2600 mm	
Bale dimensions	Diameter approx.	1550 mm	
	Width approx.	1200 mm	
Power requirement approx.		40 kW (55 HP)	
Drive speed (PTO shaft)		540 rpm	
Max. permissible operating pressure of hydraulic system		200 bar	
Minimum oil quality		Oil ISO VG 46	
Max. oil temperature		80 °C	
Delivery capacity hydraulics		min. 30 l/min max. 60 l/min	
Electrical connections	Lighting	12 V – 7-pin plug	
	Operation	12 V – 3-pin plug	
Twine	Open air storage	Synthetic twine 400 - 1000 m/kg	
	Indoor storage	Sisal twine 150 - 300 m/kg	
Net	Width	1250 ± 5 mm	
	Sleeve length	1250 - 1270 mm	
	Sleeve diameter	75 - 80 mm	
	Roll diameter	max. 310 mm (3000 m roll)	
Overload protection (universal shaft) Cam-type clutch 540 rpm		1300 Nm (Fortima F 1600) 1500 Nm (Fortima F 1600 MC)	
Overload protection (universal shaft) Friction clutch 540 rpm		1300 Nm (Fortima F 1600)	
Hydraulic connections	Open tailgate	1 x single-action control unit	
	Raise pick-up or blade base (MC)	1 x single-action control unit	

		Fortima V 1500 /Fortima V 1500 MC	
Axle		Single axle	Tandem axle
Pick-up (width)		2050 mm	2050 mm
Width approx.	11.5/80-15	2460 mm	2740 mm
	15.0/55-17	2535 mm	2815 mm
	19.0/45-17	2605 mm	2885 mm
	500/50-17	2650 mm	--
Permissible weights		see information listed on identification plate	
Track width		2150 mm	2430 mm
Tyres		11.5/80-15.3/10 PR 15.0/55-17/10 PR 19.0/45-17/14 PR	
		500/50-17/10 PR	--
Length without bale ejector approx.		3810 mm	
Length with bale ejector approx.		4400 mm	
Height at 500/50-17 approx.		2620 mm	
Bale dimensions	Diameter approx.	1000 - 1500 mm	
	Width approx.	1200 mm	
Power requirement approx.		36 kW (50 HP)	
Drive speed (PTO shaft)		540 rpm	
Max. permissible operating pressure of hydraulic system		200 bar	
Minimum oil quality		Oil ISO VG 46	
Max. oil temperature		80°C	
Delivery capacity hydraulics		min. 30 l/min max. 60 l/min	
Electrical connections	Lighting	12 volts – 7-pin plug	
	Operation	12 volts – 3-pin plug	
Twine	Open air storage	Synthetic twine 400 - 600 m/kg	
	Indoor storage	Sisal twine 150 - 300 m/kg	
Net	Width	1250 ± 5 mm	
	Sleeve length	1250 - 1270 mm	
	Sleeve diameter	75 - 80 mm	
	Roll diameter	max. 310 mm (3000 m roll)	
Overload protection (universal shaft) Cam-type clutch 540 rpm		1300 Nm (Fortima V 1500) 1500 Nm (Fortima V 1500 (MC))	
Hydraulic connections	Open the tailgate	1 x single-action control unit 1 x depressurised return	
	Raise pick-up or blade base (MC)	1 x single-action control unit	

		Fortima V 1800 / Fortima V 1800 MC	
Axle		Single axle	Tandem axle
Pick-up (width)		2050 mm	2050 mm
Width approx.	11.5/80-15	2460 mm	2740 mm
	15.0/55-17	2535 mm	2815 mm
	19.0/45-17	2605 mm	2885 mm
	500/50-17	2650 mm	--
Permissible weights		see information listed on identification plate	
Track width		2150 mm	2430 mm
Tyres		11.5/80-15.3/10 PR 15.0/55-17/10 PR 19.0/45-17/14 PR	
		500/50-17/10 PR	--
Length without bale ejector approx.		4480 mm	
Length with bale ejector approx.		5000 mm	
Height at 500/50-17 approx.		2620 mm	
Bale dimensions	Diameter approx.	1000 - 1800 mm	
	Width approx.	1200 mm	
Power requirement approx.		40 kW (55 HP)	
Drive speed (PTO shaft)		540 rpm	
Max. permissible operating pressure of hydraulic system		200 bar	
Minimum oil quality		Oil ISO VG 46	
Max. oil temperature		80°C	
Delivery capacity hydraulics		min. 30 l/min max. 60 l/min	
Electrical connections	Lighting	12 volts – 7-pin plug	
	Operation	12 volts – 3-pin plug	
Twine	Open air storage	Synthetic twine 400 - 1000 m/kg	
	Indoor storage	Sisal twine 150 - 300 m/kg	
Net	Width	1250 ± 5 mm	
	Sleeve length	1250 - 1270 mm	
	Sleeve diameter	75 - 80 mm	
	Roll diameter	max. 310 mm (3000 m roll)	
Overload protection (universal shaft) Cam-type clutch 540 rpm		1300 Nm (Fortima V 1800) 1500 Nm (Fortima V 1800 MC)	
Hydraulic connections	Open the tailgate	1 x single-action control unit 1 x depressurised return	
	Raise pick-up or blade base (MC)	1 x single-action control unit	

4 Safety

4.1 Identifying Symbols in the Operating Instructions

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

4.2 Identification of the hazard warnings

Danger!



DANGER! - Type and source of the hazard!
Effect: Danger to life or serious injuries.
- Measures for hazard prevention

Warning !



WARNING! - Type and source of the hazard!
Effect: Injuries, serious material damage.
- Measures for hazard prevention

Caution!



CAUTION! - Type and source of the hazard!
Effect: Property damage
- Measures for risk prevention.

General function instructions are indicated as follows:
Note!



Note - Type and source of the note
Effect: Economic advantage of the machine
- Actions to be taken

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

4.2.1 Personnel Qualification and Training

The machine may be used, maintained and repaired only by persons who are familiar with it and have been instructed about the dangers connected with it. The operator must define areas 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 these operating instructions have been fully understood by personnel.

Repair work not described in these operating instructions should only be performed by authorised service centres.

4.2.2 Dangers in Case of Non-compliance with the Safety Instructions

Failure to follow the safety instructions could result in personal injury and environmental hazards as well as damage to the machine. If the safety instructions are not respected, this could result in the forfeiture of any claims for damages.

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

- Endangering of persons due to not protected working areas.
- Breakdown of important machine functions
- Failure of prescribed methods for repair and maintenance
- Endangering of persons due to mechanical and chemical effects
- Damage to the environment due to leaking hydraulic oil

4.2.3 Safety-conscious work practices

Always observe the safety instructions set out in these operating instructions, all existing accident prevention rules and any internal work, operating and safety rules issued 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.

Be prepared for emergencies. Keep the fire extinguisher and first aid box within reach. Keep emergency numbers for doctors and fire brigade close to the telephone.

To reduce the risk of fire, regularly check the machine for crop or dirt deposits and clean as required.

In very dry operating conditions, when crop or dust is being swirled up, the accumulation of grass, crop and other deposits may increase. To ensure that the machine functions perfectly and to reduce the risk of fire, all accumulations must be removed.

- Check and clean the machine every day before using it for the first time.
- Regularly check and clean the machine during the working day.

4.3 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 these operating instructions!

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 with their functions before you begin working with the machine. It is too late to learn this when you are using the machine for work!

5 The user should wear close 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 Couple implements correctly! Attach and secure implements to specified devices only!

10 When attaching or detaching implements, place the supporting devices in the correct positions!

11 Use extreme caution when attaching or detaching implements onto or from the tractor!

12 Observe permitted axle loads, gross weight and transport dimensions!

13 Check and attach transport equipment, such as lighting, warning devices and protective equipment!

14 Actuating mechanisms (cables, chains, linkages etc.) for remote controlled devices must be positioned in such a way that no movements are unintentionally triggered in any transport or working positions.

15 Ensure that implements are in the prescribed condition for on-road travel and lock them in place in accordance with the manufacturer's instructions!

16 Never leave the driver's seat when the vehicle is moving!

17 Always drive at the correct speed for the prevailing driving conditions! Avoid sudden changes in direction when travelling uphill or downhill or across a gradient!

18 Hitched implements affect the driving, steering and braking response of the machine. Make sure that you are able to brake and steer the machine as required!

19 Take into account the extension radius and/or inertia of an implement when turning corners!

20 Start up implements only when all safety devices have been attached and set in the required position!

21 Keep safety equipment in good condition. Replace missing or damaged parts.

22 Keep clear of the working range of the machine at all times!

23 Do not stand within the turning and swivel range of the implement!

24 Never operate the hydraulic folding frames if anyone is inside the swivel range!

25 Parts operated by external power (e.g. hydraulically) can cause crushing and shearing injuries!

26 Before leaving the tractor, actuate the parking brake, switch off the engine, remove the ignition key and carry it with you.

4.4 Hitched 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.

4.5 PTO operation

1 Use only universal shafts specified by the manufacturer!
2 The guard tube and guard cone of the universal shaft and the PTO guard must be attached and in good working condition – even on the implement side!
3 Ensure that the required tube covers are in transport and working position for universal shafts!
4 Before installing or detaching universal shafts, switch off the PTO shaft, turn off the engine and remove the ignition key!
5 When using universal shafts with an overload clutch or free-wheel clutch which are not shielded by the safety device on the tractor, mount the overload clutch or free-wheel clutch on the implement side!
6 Always ensure that the universal shaft is properly installed and secured!
7 Attach chains to prevent the universal shaft guard from rotating with the shaft!
8 Before switching on the PTO shaft, ensure that the selected PTO speed of the tractor matches the permissible speed of the implement!
9 Before switching on the PTO shaft, ensure that there is nobody in the danger zone of the implement!
10 Never switch on the PTO shaft if the engine is switched off!
11 There must be nobody in the vicinity of the rotating PTO shaft or universal shaft when the PTO shaft is in use.
12 Always switch off the PTO shaft when the angle is too large or the PTO shaft is not required!
13 Caution! After switching off the PTO shaft, danger due to machine components running on! Do not approach the implement during this time. Ensure that the machine has come to a complete stop before starting any maintenance work.
14 Cleaning, lubricating or adjusting PTO driven implements or the universal shaft only when PTO shaft switched off, engine turned off and ignition key removed!
15 Place the disconnected universal shaft onto the support provided!
16 After detaching the universal shaft, attach the protective cover to the PTO shaft end!
17 If damage occurs, correct this immediately before using the implement!

Note

The instructions of the manufacturer must be observed with regard to the PTO shaft. (separate operating instructions)

4.6 Hydraulic system

1 The hydraulic system is pressurised!
2 When connecting hydraulic cylinders and motors, make sure the hydraulic hoses are connected as specified!
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 machine, the coupling sleeves and plugs should be marked to ensure a proper connection! If the connectors are interchanged, the function will be reversed (e. g. raising/lowering) - Risk of accident!
5 When searching for leaks, use suitable aids to avoid the risk of injury!
6 Liquids escaping under high pressure (hydraulic oil) can penetrate the skin and cause serious injury! Seek medical help immediately should injuries occur! Danger of infection!
7 Before working on the hydraulic system, depressurise the system and switch off the engine!
8 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!

4.7 Tyres

1 When working on the tyres, make sure that the implement is 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!
5 Check the wheel nuts periodically! Missing wheel nuts can result in a wheel falling off and the machine tipping over.

4.8 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 and carry it along with you.
   - Remove universal shaft on tractor side.

2 Observe the safety clearance behind the machine! In normal operation, the safety distance is 5m!
Observe the safety clearance laterally to the machine! It is 3 m in normal operation!

3 Regularly check that nuts and screws are properly seated and tighten if necessary!

4 When performing maintenance work on the raised machine or on raised machine parts, always use suitable parking supports.

5 Oils, greases and filters must be disposed of correctly!

6 Always disconnect the power supply before working on the electrical system!

7 Protective equipments must be checked regularly and they must be replaced at the right time if they are subject to wear!

8 When carrying out electrical welding work on vehicle and mounted devices, separate power supply via main battery switch or disconnect the cable on generator and battery! Separate the plugs on the job computer.

7 Spare parts must at least comply with the technical requirements determined by the manufacturer of the implements! This is ensured by KRONE original spare parts!

9 Only use nitrogen for filling pneumatic accumulators - **Risk of explosion!**

10 When replacing working tools with cutting edges, use suitable tools and gloves!

4.9 Working in the vicinity of power transmission lines

1 Always take great care when working under or in the vicinity of power transmission lines.

2 When operating the machine, ensure that the opening tailgate can reach a total height of up to 5 m.

3 If it is necessary to travel under overhead lines, the operator must request information on the rated voltage and the minimum height of the overhead lines from the overhead line operator.

4 Never drop below the safety distances listed in the table.

Rated voltage kV	Safe distance from overhead lines m
To 1	1
Above 1 to 110	2
Above 101 to 220	3
Above 220 to 380	4

4.10 Unauthorised Conversion/Modification and Spare Parts Production

Conversions or modifications of the machine are permitted only with prior consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer help to ensure safety. Use of other parts may void liability for resulting damage.

4.11 Inadmissible Modes of Operation

The operating safety of the delivered machine is guaranteed only when it is used as intended in compliance with the introductory section "Intended use" of the operating instructions. The limit values listed in the data charts should not be exceeded under any circumstances.

4.12 Safety Instructions on the Machine

The safety instructions on the machine warn of residual risks associated with the machine. They consist of warning pictograms and a work safety symbol. All safety instructions must be followed. Always keep the safety instructions clean and in clearly legible condition! If any safety instructions are damaged or missing, request them from your dealer and then put them in the places provided for them. Where these safety instructions are and what they mean will be described in the following chapters.

4.13 Introduction

The KRONE round baler is equipped with all safety devices (protective devices). However, it is not possible to eliminate all potential hazards on this machine as this would impair its full functional capability. Hazard warnings are attached to the machine in the relevant areas to warn against any dangers. The safety instructions are provided in the form of so-called warning pictograms. Important information on the position of these safety signs and what they mean is given below!



Danger! - Danger zone of the machine

Effect: Danger to life or serious injuries.

- Immediately replace damaged or illegible adhesive labels.
- Following repair work, always attach appropriate adhesive safety stickers to all the replaced, modified or repaired components.
- Never clean areas carrying an adhesive safety label using a high-pressure cleaner.
- Familiarise yourself with the statement of the warning pictograms. The adjacent text and the selected location on the machine provide information on the special danger spots on the machine.

4.14 Position of the Adhesive Safety Stickers on the Machine

Fortima F 1250 (MC) / F 1600 (MC)

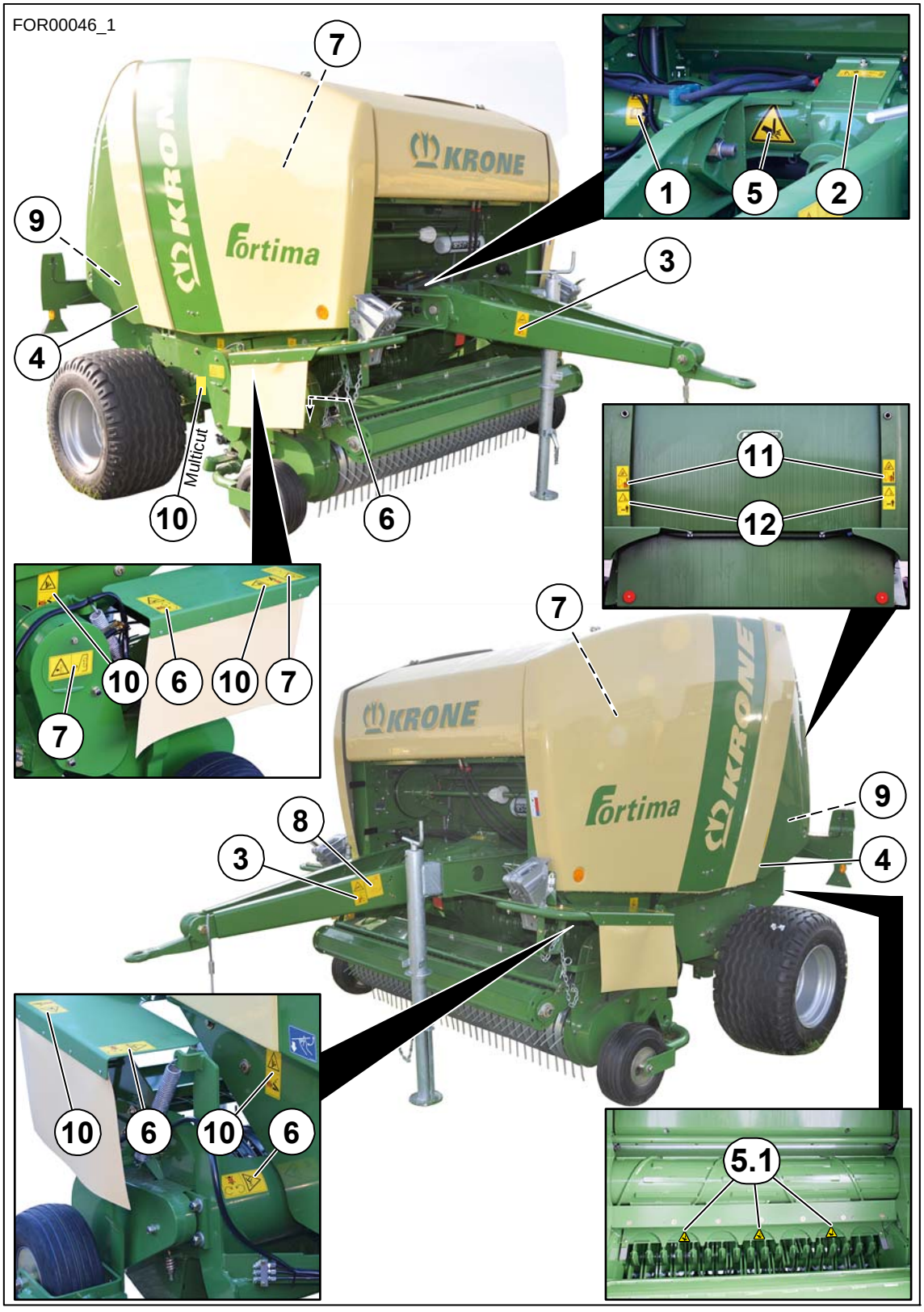
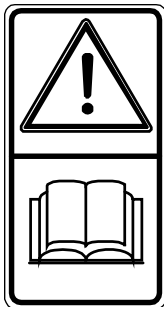


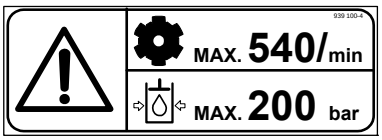
Fig. 2

1)
Before starting the machine, read and observe the operating instructions and safety instructions.



(1x) 939 471 1

2)
The P.T.O. speeds must not exceed 540 rpm!
The operating pressure of the hydraulic system must not exceed 200 bar!



(1x) 939 100 4

3)
Never reach into the working area of the pick-up as long as the machine is running.



(2x) 939 407 1

4)
Do not step under the raised tailgate. Before carrying out any maintenance work in this area, close the shut-off valve on the cylinder.



(2x) 270 143 710

5)
Do not reach into the danger area under the wrapping and binding mechanism. Danger from sharp cutters!
Consider operating instructions!



H = Height = 100 mm

(1x) 939 125 1

5.1)
Do not reach into the danger area under the wrapping and binding mechanism. Danger from sharp cutters!
Consider operating instructions!



H = Height = 30 mm

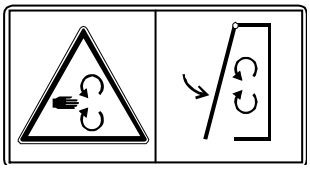
(3x) 270 145 910

6)
Danger from rotating auger.



(4x) 939 520 1

7)
Before start-up, close the protective equipment!



(4x) 942 002 4

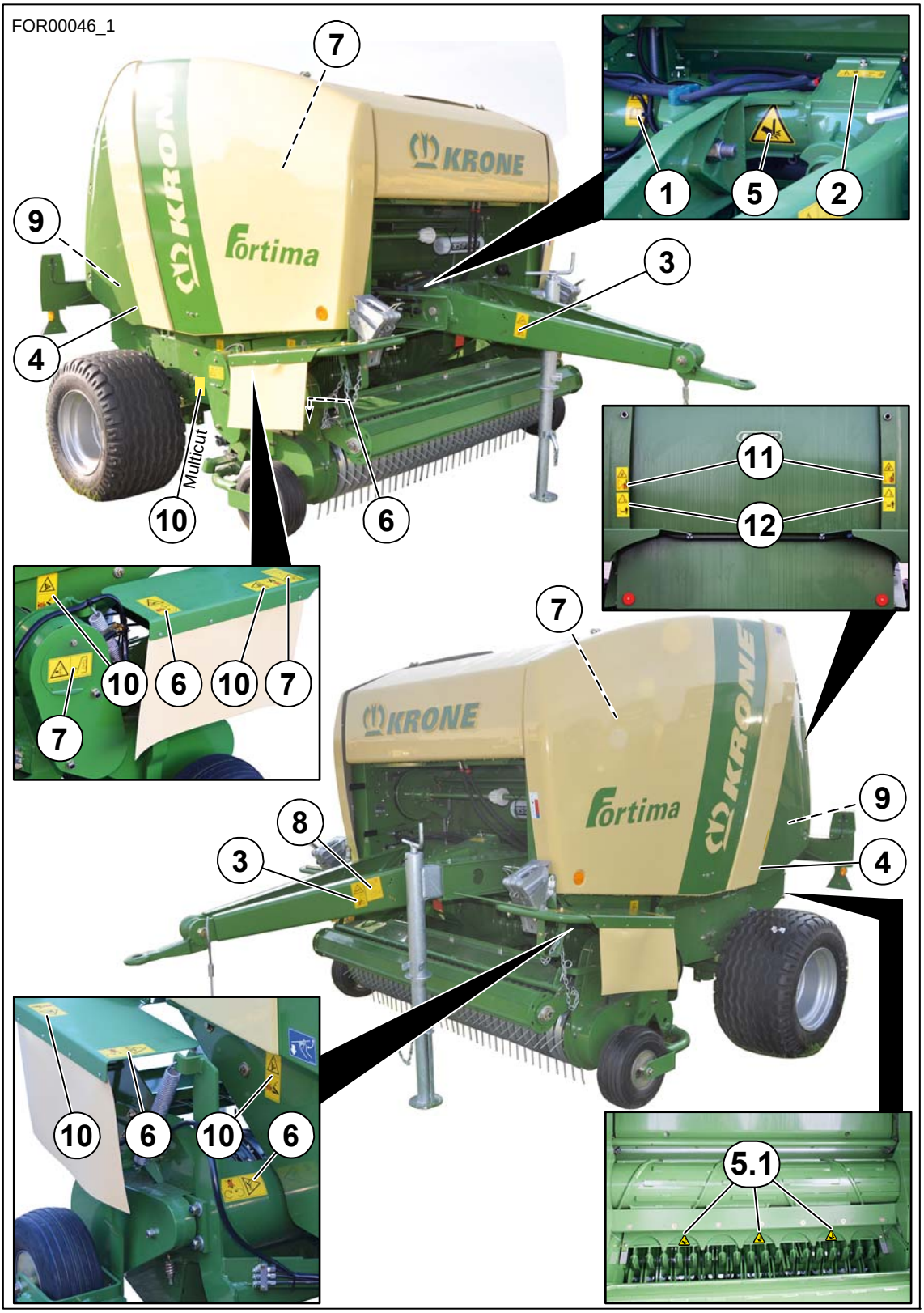
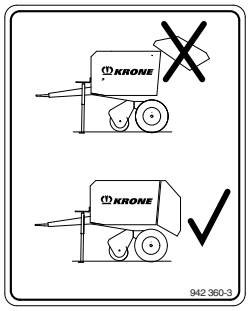

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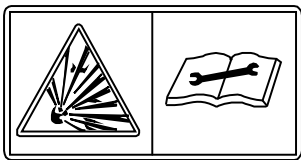
Fig. 3

8)
The tailgate must only be operated if the baler is attached correctly to the tractor.

(1x) 942 360 3



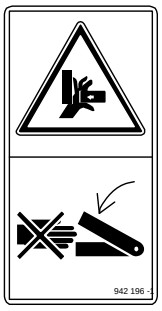
9)
The accumulator is under gas and oil pressure.
Disassembly and repair in strict accordance with the instructions in the technical handbook.



(2x) 939 529 0

10)
While parts are moving, never reach into areas where there is a risk of being crushed.

(4x + 1x MC) 942 196 1



11)
Do not step between tailgate and fixed obstacle. Before carrying out any maintenance work, close the stop cock on the cylinder.

(2x) 939 412 2



12)
Risk of injury due to rolling bales. Make certain no one remains in the danger zone.

(2x) 270 134 220



Fortima V 1500 (MC) / V 1800 (MC)

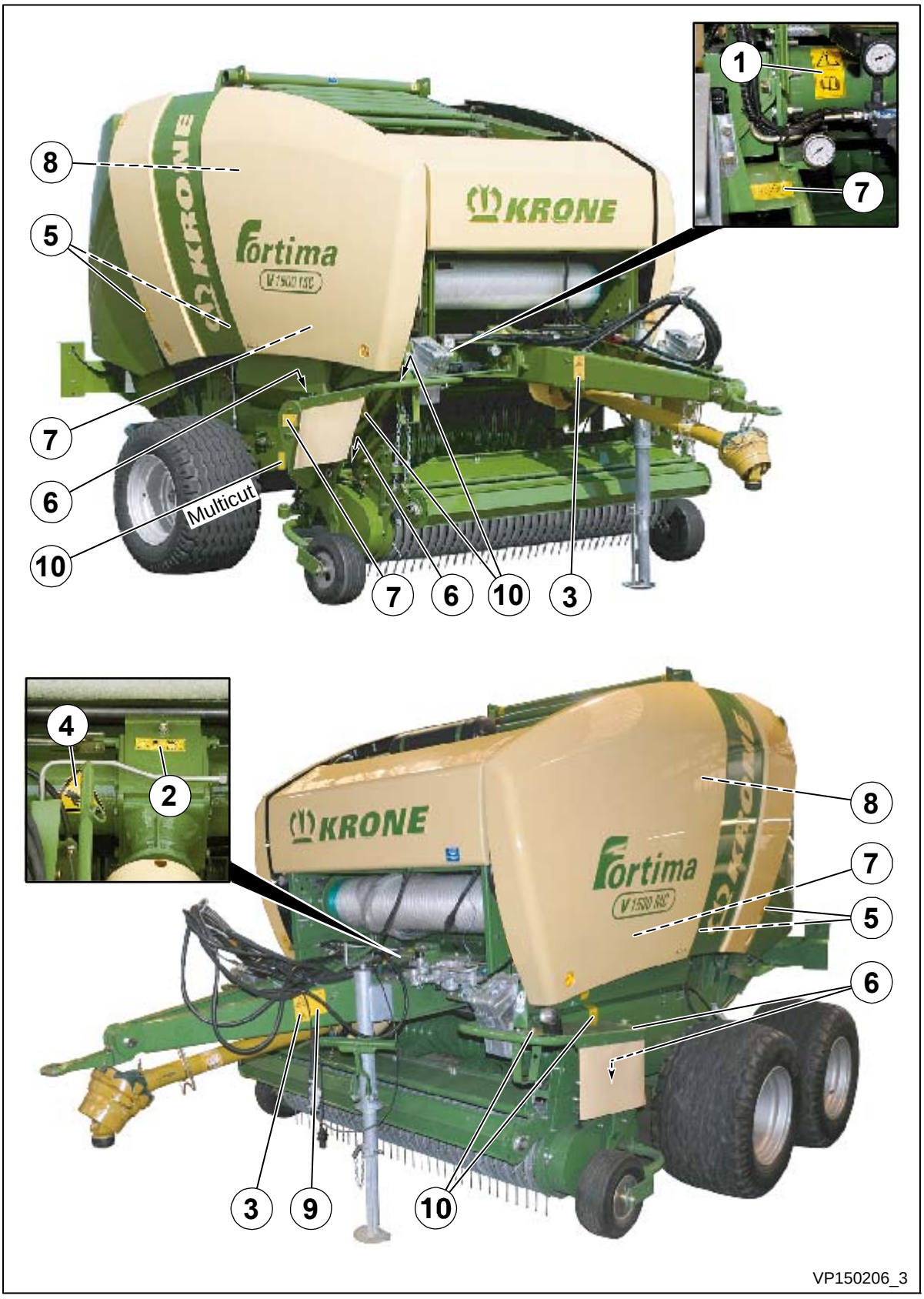
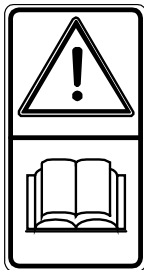


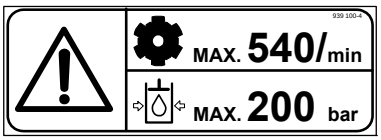
Fig. 4

1)
Before starting the machine, read and observe the operating instructions and safety instructions.



(1x) 939 471 1

2)
The P.T.O. speeds must not exceed 540 rpm!
The operating pressure of the hydraulic system must not exceed 200 bar!



(1x) 939 100 4

3)
Never reach into the working area of the pick-up as long as the machine is running.



(2x) 939 407 1

4)
Do not reach into the danger area under the wrapping and binding mechanism. Danger from sharp cutters!
Consider operating instructions!



(1x) 939 125 1

5)
Do not step under the raised tailgate. Before carrying out any maintenance work close the shut-off tap on the cylinder.



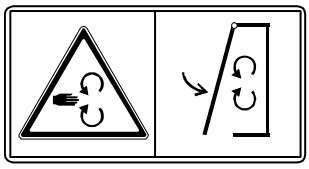
(4x) 939 521 1

6)
Danger from rotating auger.



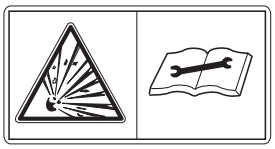
(4x) 939 520 1

7)
Before start-up close the protective equipment!



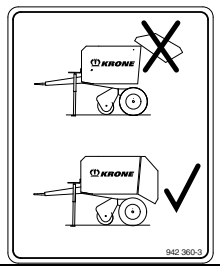
(4x) 942 002 4

8)
The accumulator is subject to gas and oil pressure. Disassemble and repair in strict accordance with the instructions in the technical handbook.



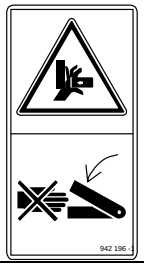
(2x) 939 529 0

9)
The tailgate must only be operated if the baler is attached correctly to the tractor.



(1x) 942 360 3

10)
While parts are moving, never reach into areas where there is a risk of being crushed.



(4x) +(1x MultiCut) 942 196 1



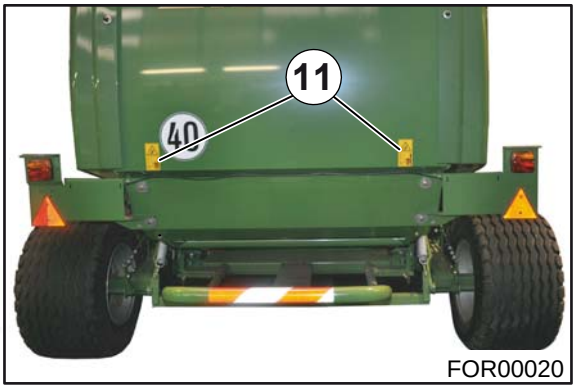
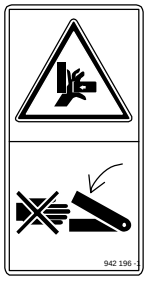


Abb. 5

10) While parts are moving, never reach into areas where there is a risk of being crushed. (2x) 942 196 1			11) Do not step between tailgate and a fixed obstacle. Before carrying out any maintenance work close the shut-off tap on the cylinder. (2x) 939 412 2 (2x)	

4.14.1 Re-Ordering the Adhesive Safety and Information Labels

Note
Every adhesive safety and information label is assigned an order number and can be ordered directly from the manufacturer or from an authorized dealer (see Section "Contact").

4.14.2 Affixing the Adhesive Safety and Information Labels

Note - Affixing an adhesive label
Effect: Adhesion of the label
- The surface for affixing the adhesive label must be clean and free of dirt, oil and grease.

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5 Commissioning



DANGER! - Unintentional starting, moving machine components and / or unexpected machine movement!

Effect: Risk of death, injuries or damage to the machine.

- Special caution is required when hitching and unhitching the machine on the tractor. No one may be standing between the tractor and machine. After hitching, turn off the engine and remove the ignition key and take it with you.
- For care, maintenance, adjustment and repair work on the machine, always turn off the PTO shaft, turn off the engine, remove the ignition key and take it with you.
- Only start the machine if all safety devices are fitted and in protection position.
- The machine can be operated with a maximum PTO shaft speed of 540 rpm.
- Only the universal shaft specified by the manufacture should be used, with an appropriate overload coupling.
- The universal shaft may only be fitted and removed when the PTO shaft is turned off, the engine is turned off and the ignition key is removed.
- Install hoses and connection cables so that they will not be under tension or come into contact with the tractor wheels when cornering.
- Check hydraulic hoses regularly and replace if there are any signs of damage or ageing.
- When connecting and removing the hydraulic hoses on the tractor hydraulics, make sure that the hydraulic system on both the tractor and the machine is depressurised.
- If any hazardous situations arise, immediately turn off the PTO shaft and stop the machine.
- Never leave the machine running with no operating personnel on the tractor.

5.1 Before initial start-up

For reasons related to transport, the machine is delivered without the PTO shaft and bale ejector. Before initial start-up, the machine must be completely assembled and adjusted to the tractor type.

The following parts are included loose with delivery in some cases.

Fortima F 1250 (MC)/Fortima F 1600 (MC)

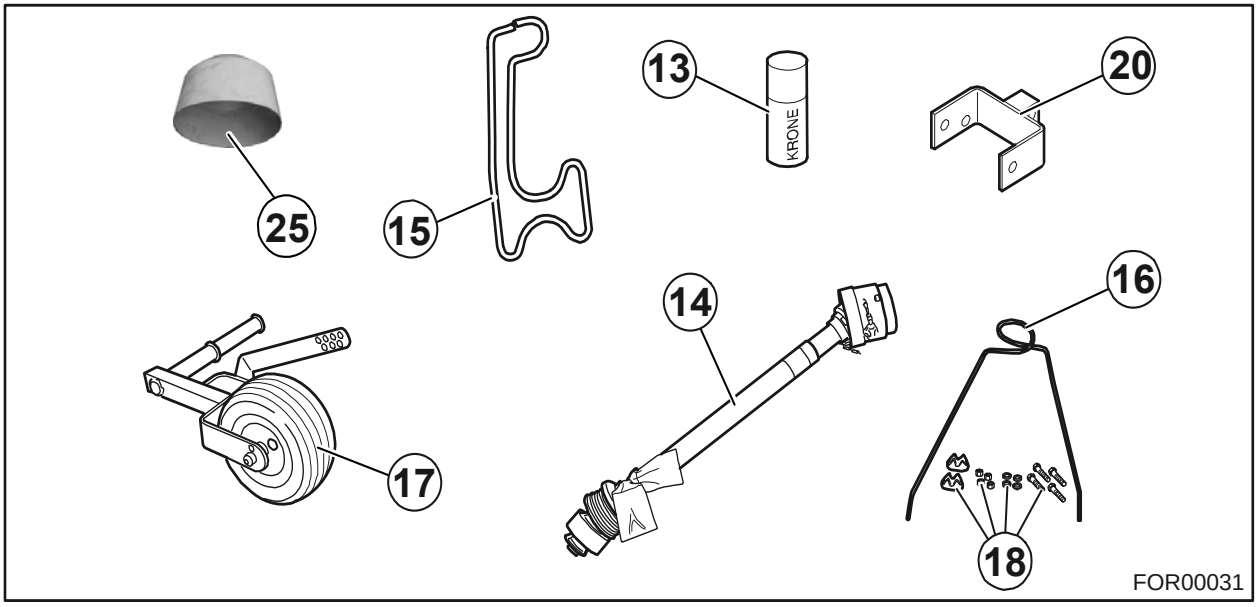


Fig. 6

Fortima V 1500 (MC)/Fortima V 1800 (MC)

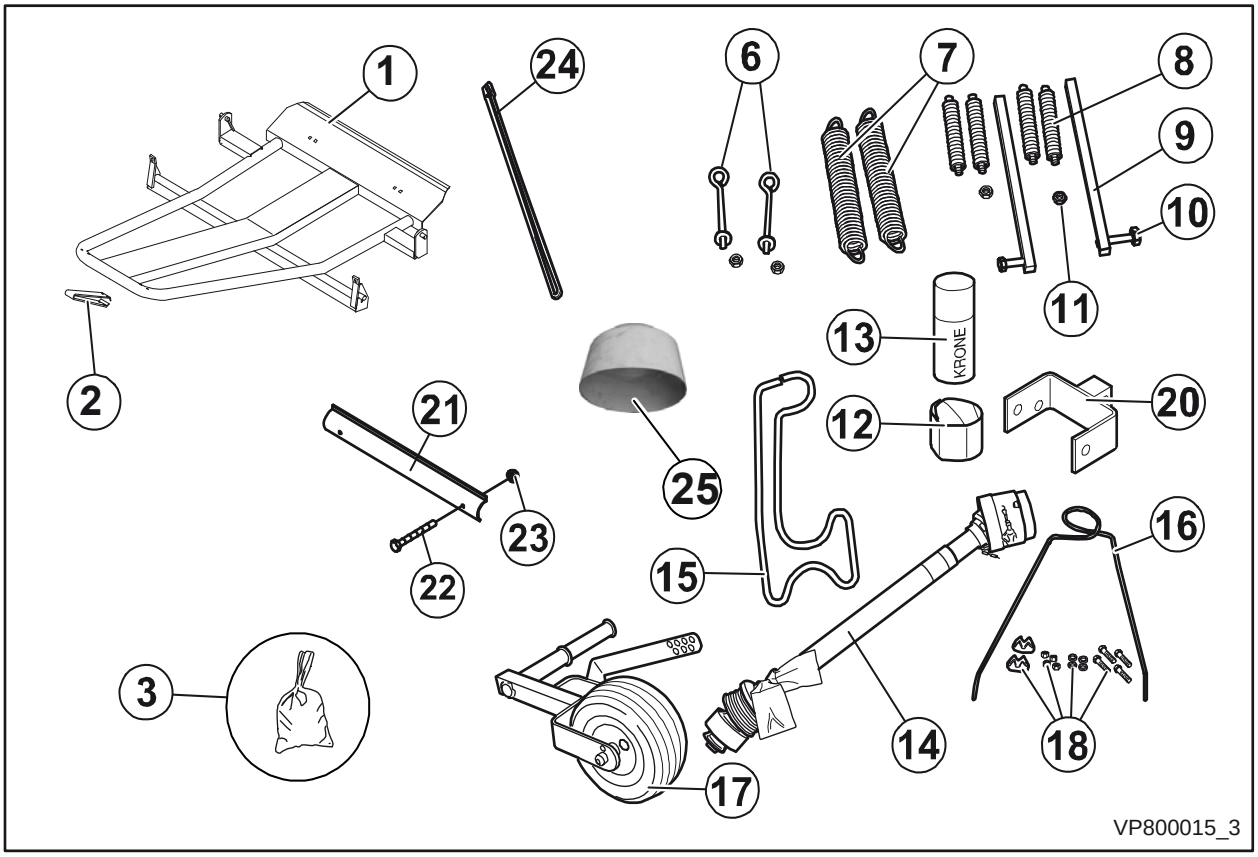


Fig. 7

1 Bale ejector (pallet)
2 Spacer (twine box)
3 Small parts (twine box)
4 Nuts (twine box)
5 Linkage (twine box)
6 Eye screws
7 Springs (twine box)
8 Springs with clamping screws (twine box)
9 Strip (twine box)
10 Screws (twine box)
11 Nuts (twine box)
12 Safety foil (twine box)
13 Can of spray paint (twine box)
14 Universal shaft (bale chamber)
15 PTO shaft support (twine box)
16 Hose holder and cable holder (bale chamber)
17 Guide wheels (bale chamber)
18 Fastening material (twine box)
19 Screw (twine box)
20 PTO shaft support (twine box)
21 Tappet strip (twine box)
22/23 Fastening material (twine box)
24 Linkage (twine box)
25 Guard cup (twine box)

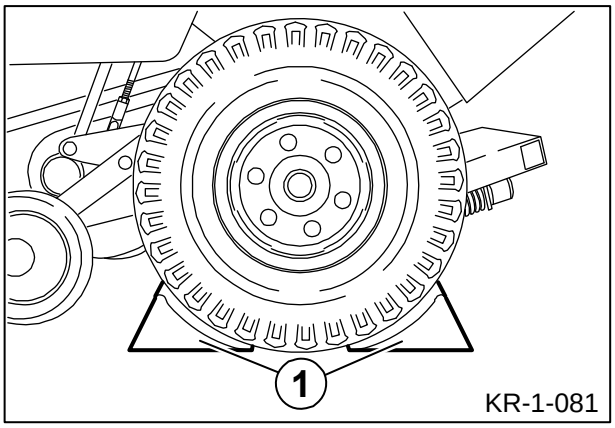


Fig. 8

- Park the machine on firm, level ground.
- Place two wheel chocks (1) under the wheels to prevent the machine from rolling away.

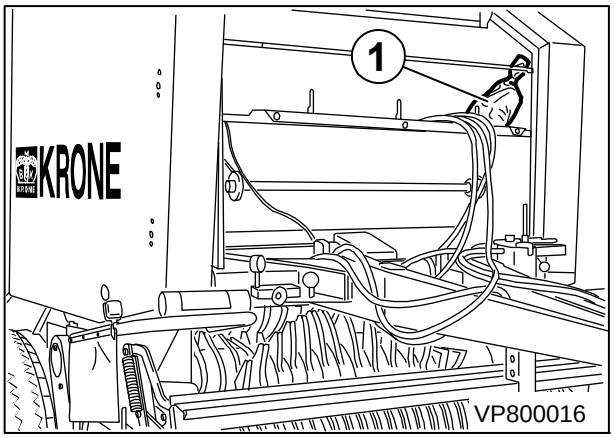


Fig. 9

- Take the bag with the small parts (1) out of the twine box.

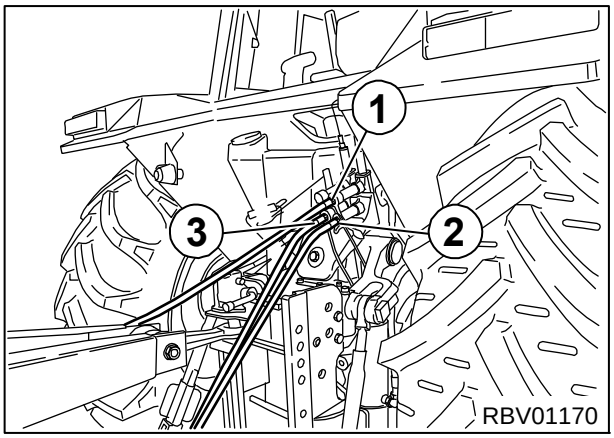


Fig. 10

- Relieve all pressure from the tractor hydraulics.
- Connect the hydraulic hoses (1), (2) and (3) to the tractor hydraulics according to colour coding.

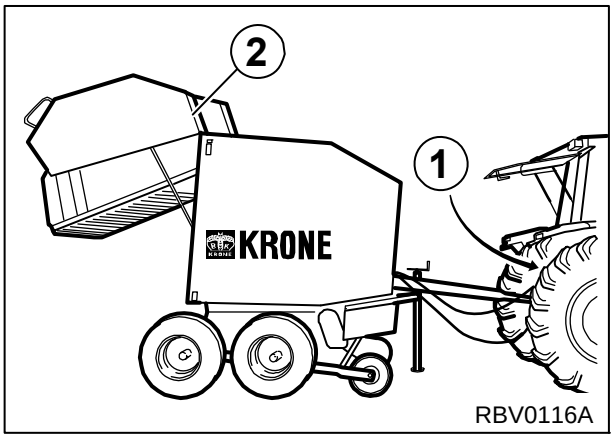


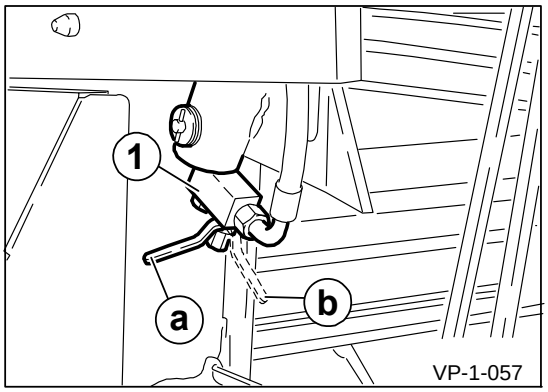
Fig. 11

- Set the control valve (1) for "Open tailgate (2)" to "Raise".

DANGER! – Unintentional closing of tailgate!
Effect: severe injuries.

- Secure the open tailgate against unintentional shutting.

Fortima V1500 (MC)/V1800 (MC)



Fortima F1250 (MC)/F1600 (MC)

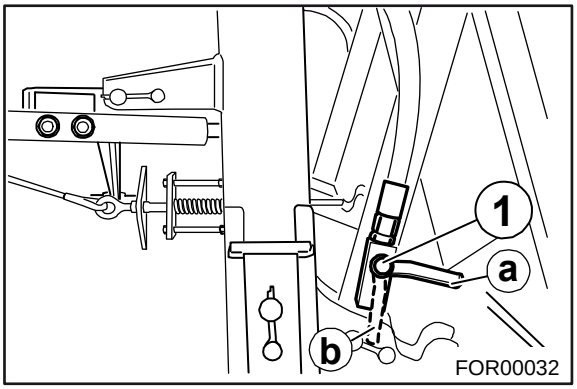


Fig. 12

- Swivel shut-off valve (1) in the return of the left lifting cylinder from position (b) to position (a), the tailgate is locked hydraulically.

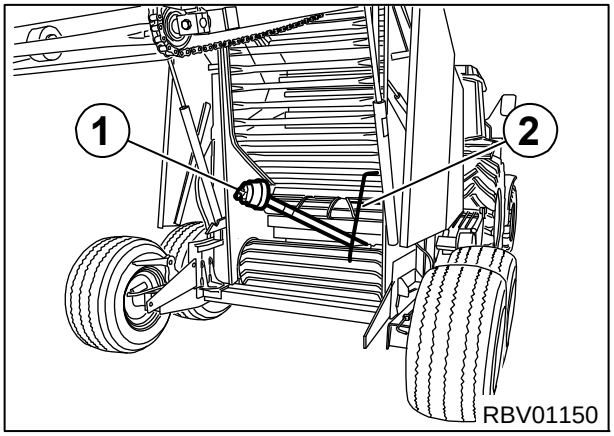


Fig. 13

- Take the additional components (1) and (2) out of the bale chamber.

Close the tailgate:

- Swing the shut-off valve (1) in the return of the left lifting cylinder from position (a) to position (b).
- Activate the tractor hydraulics.
- Set the control valve for „Closing the Tailgate“on “Lowering".

5.2 Assembling the bale ejector

Optional for Fortima V1500 (MC)/V1800 (MC)

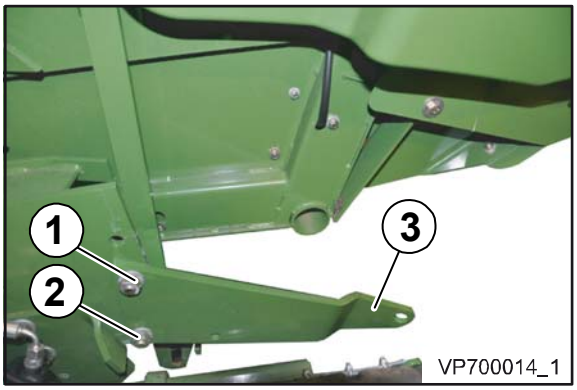


Fig. 14

- Loosen, but do not remove, the screw connections (1, 2) in the mounting plates (3) on the right and left of the bale chamber.
- Push both mounting plates (3) outwards.

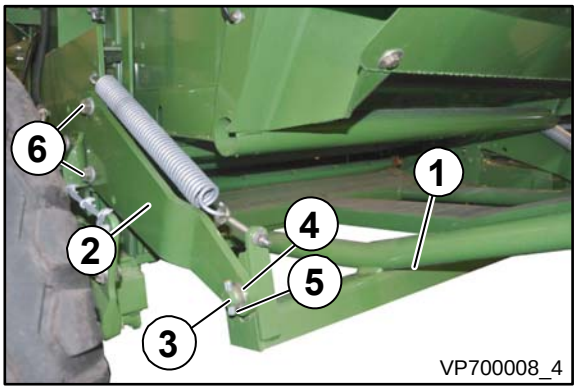


Fig. 15

- Slide the bale ejector (1) between the mounting plates (2), inserting the bolts (3) on the bale ejector into the lower bores in the right and left mounting plates.
- Secure the bolts on the bale ejector on the right and left using a washer (4) and clamping sleeve (5).
- Securely tighten the screw connections (6) in the mounting plates on the right and left.

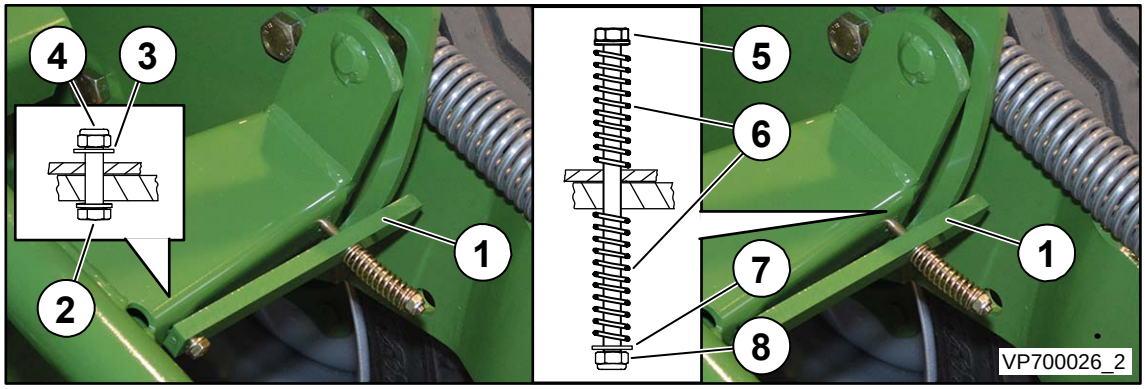


Fig. 16

- Fitting the strip (1) on the right and left of the bale ejector:
  Secure with a screw (2), washer (3) and locknut (4).
  Secure with a screw (5), springs (6), washer (7) and locknut (8).

Note
The screw (2) may not be securely tightened, but must be flush with the locknut (4).

- Place the bale ejector on the machine.

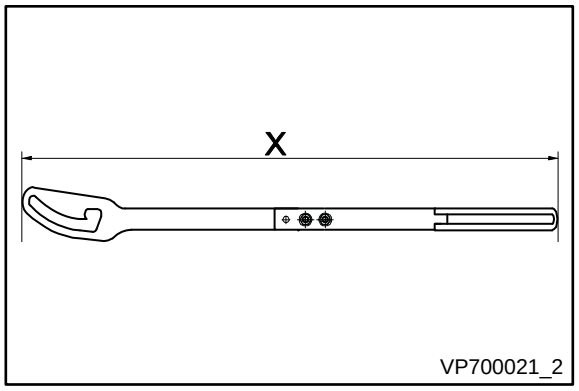


Fig. 17

Note
The length of the linkage depends on the machine type.

Fortima V 1500 (MC) = linkage X = 1991 mm
Fortima V 1800 (MC) = linkage X = 2266 mm



Fig. 18

- Push the linkage (1) on the right and left onto the stud bolts (2) on the frame and secure with a washer (3) and clamping sleeve (4).
- Push the linkage (1) on the right and left onto the stud bolts (5) on the tailgate and secure with a washer (6) and clamping sleeve (7).

DANGER! - Damage to the hydraulic hoses when closing the side guards!

Effect: Injuries or damage to the machine.

- Fastening hydraulic hose lines with cable ties.
- Check hydraulic hose lines for damage regularly.

DANGER! - Damage to the hydraulic hoses when closing the side guards!

Effect: Injuries or damage to the machine.

- Fasten hydraulic hose lines with cable ties in that way, that no contact exists to the hydraulic lines when the tailgate is opened and closed.

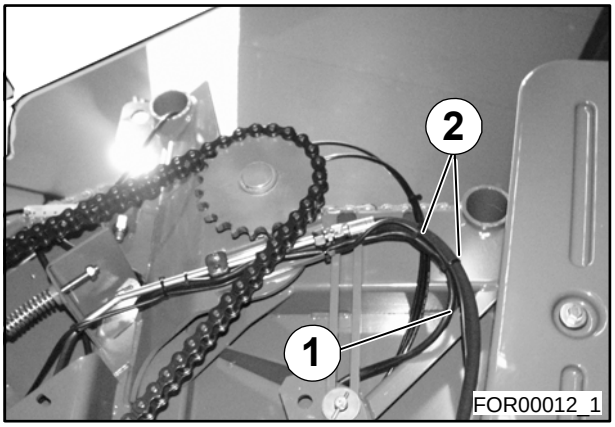


Fig. 19

- Fasten hydraulic hose lines (1) on both sides of the machine with cable ties (2) so that the hydraulic hose lines cannot be damaged when closing tailgate and side guards.

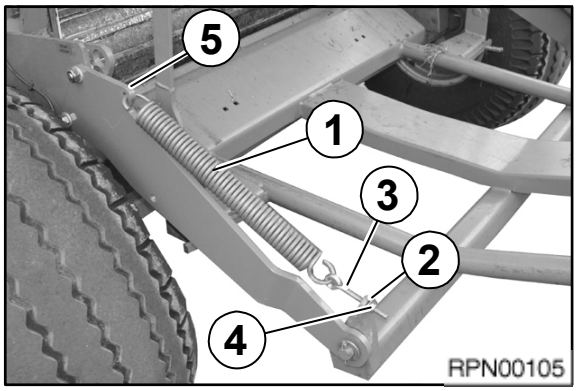


Fig.20

- Hook the tension spring (1) into the link (5) on the holding plate.
- Hook the eye bolt (3) into the tension spring (1) and guide it through the bore hole (2).
- Secure with disc and nut (4).
- Tighten the nut (4) until the bale ejector swings safely into the basic setting after depositing the bale.

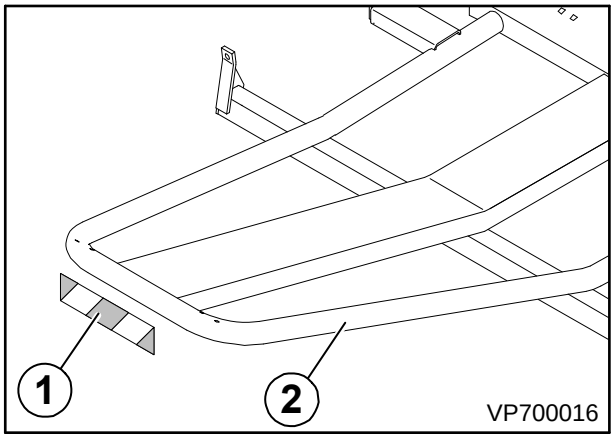


Fig.21

- Attach the safety sheet (1) in the middle on the rear cross bar of the bale ejector (2).

Assemble spacers (Fortima V 1800 (MC))

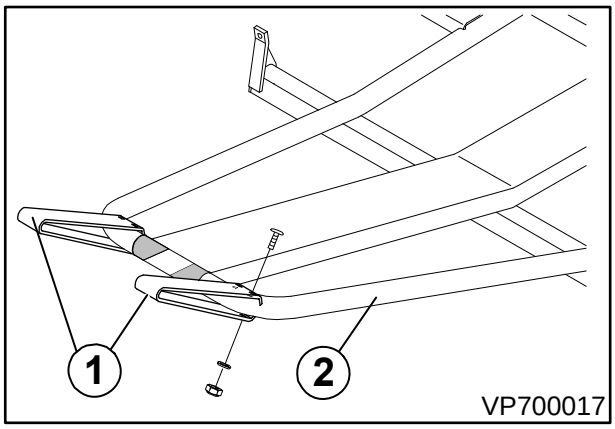


Fig. 22

Tyres: **11.5/80-15.3; 15.0/55-17**
19.0/45-17; 500/50-17

- Install spacers (1) with coach bolts, discs and nuts to the bale ejector (2).

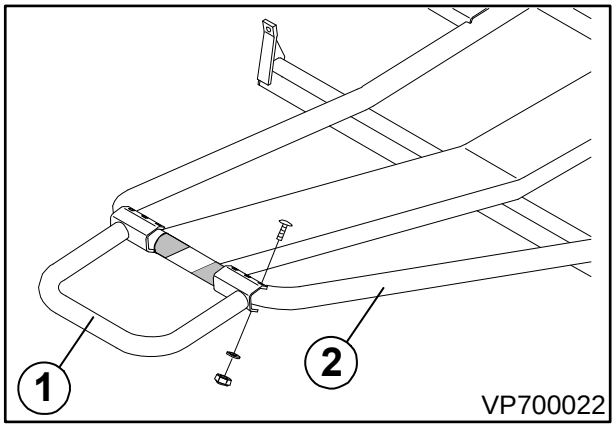


Fig. 23

Tyres: **600/50 -22,5**

- Install spacers (1) with coach bolts, discs and nuts to the bale ejector (2).

5.3 Adjusting the drawbar height

Note

Before aligning the machine and adapting the height of the drawbar, the tyre pressure must be checked and adapted to the value for the existing tyre type which is recommended in the tyre air pressure table (refer to chapter entitled “Maintenance”), if necessary.

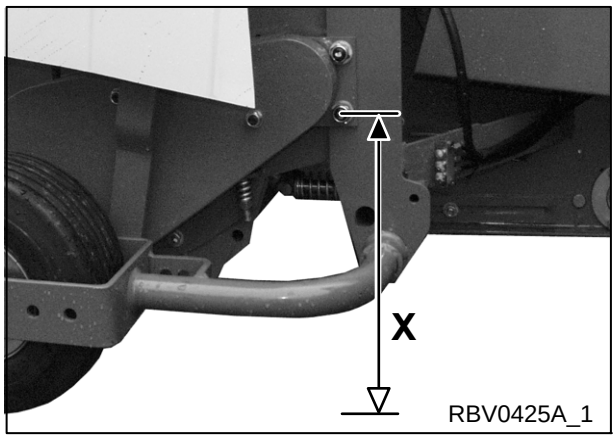


Fig. 24

Note

To guarantee optimum working, the machine has to be hitched in a way that the dimension **X** is approx. 530 mm. The dimension **X** is measured from the ground up to the middle of the lower head of the screw and has to be adjusted to the respective harvesting conditions as well as the tyre size.

Adapting the height of the towing eye to the height of the tractor hitch (perform setting on both sides):

Note

Before starting the adjustment, set the machine on the parking support and uncouple the tractor.

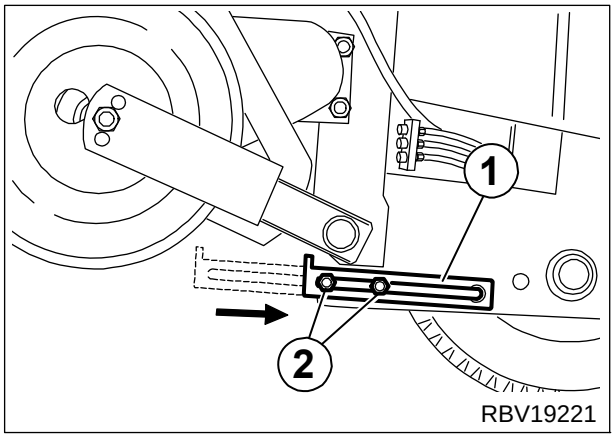


Fig. 25

1. Reset Pick-up transport-fuse
   - Raise Pick-up (tractor hydraulics).
   - Release nuts (2).
   - Push height restriction (1) back.
   - Tighten nuts (2).
2. Activate control valve for “lower pick up”

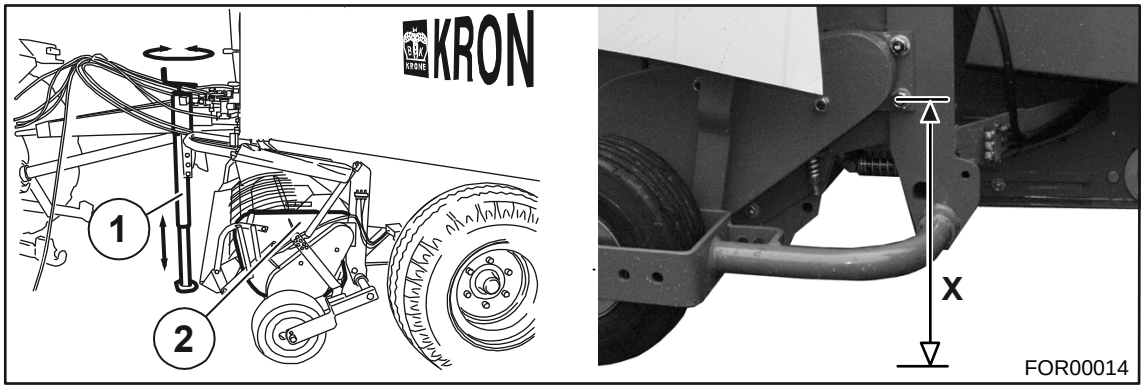


Fig. 26

3. Adjusting position of the Pick-up
   - Wind parking support (1) up or down until dimension X = approx. 530 mm is reached.

   (from the ground to the middle of the lower screw head)

DANGER! - Unexpected movements of the machine!

Effect: Danger to life, injuries or damage to the machine.

- Secure the machine against rolling away with wheel chocks and by applying the parking brake
- Use suitable supporting blocks for supporting the machine
- There is a risk of crushing one's feet when cranking down the parking support

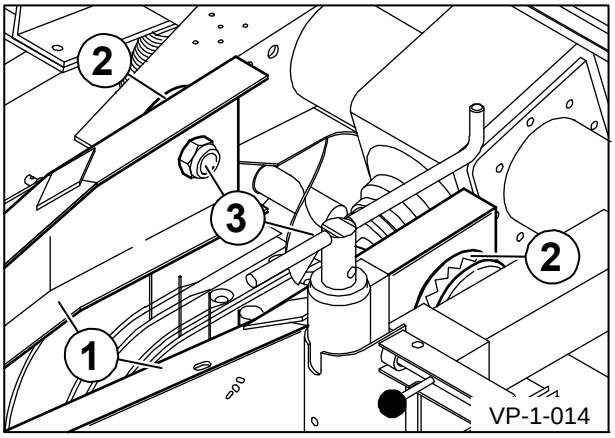


Fig. 27

4. Unscrew the locknuts (3) until the drawbar (1) in the lock washer connection (2) turns.
5. Adapt the drawbar (1) to the height of the tractor hitch.

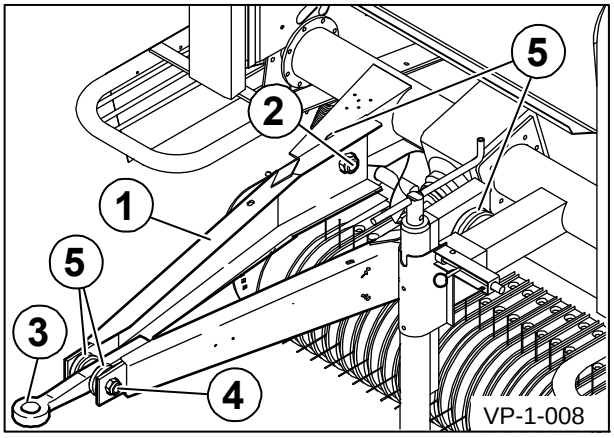


Fig. 28

6. Unscrew the screw connection (4).
7. Align the towing eye (3) parallel to the ground.
8. Tighten the screw connections (2) and (4) with an appropriate torque.

Note

Serrated washers (5) must mesh.
Tighten screw joints after 10 operating hours!

Note

Mind the tightening torques (refer to chapter Maintenance “Tightening torques”).

5.4 PTO shaft

5.4.1 Attaching the guard cup for universal shaft

DANGER! - Danger of entrainment at P.T.O. shaft.
Effect: Risk of injury when drawing in open long hair, jewellery or baggy clothes.
- The machine may only be operated with an attached guard cup.

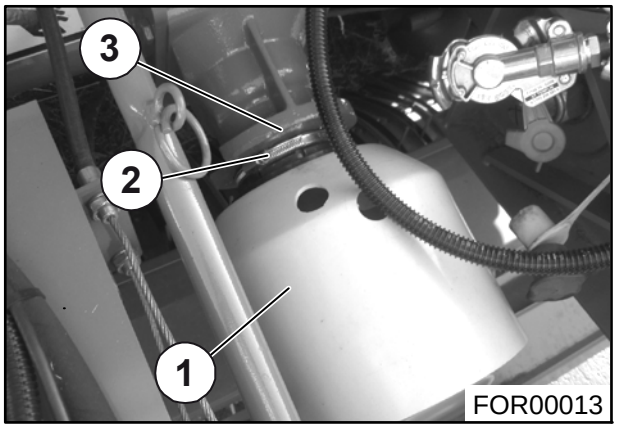


Fig. 29

- Remove guard cup (1) out of the twine box.
- Push guard cup (1) above the P.T.O. shaft at transfer gearbox (3) and install it with its hose clamp (2) at the transfer gearbox (3) in that way, that the great bore hole is all the way up around the circumference of the guard cup (1).

5.4.2 Mounting the PTO shaft on the machine side

Danger! - Rotating PTO shaft

Effect: Danger to life or serious injuries

- Install or detach the PTO shaft only with the engine switched off and the ignition key removed.
- Secure the tractor against rolling.
- Make sure that the PTO shaft is coupled properly (the lock of the PTO shaft must have snapped in).
- Make sure that the protective devices are attached properly.
- Never use a PTO shaft, the protective devices of which have not been attached.
- Replace damaged protective devices immediately
- Attach the safety chain of the PTO shaft so that the guard tube does not rotate simultaneously with the PTO shaft.

Danger! - Observe drive speed

Effect: Danger to life or serious injuries

- This machine is driven at a maximum PTO speed of 540 rpm.

Note

When mounting the universal shaft, make sure that the overload protection system will be installed on the side of the machine.

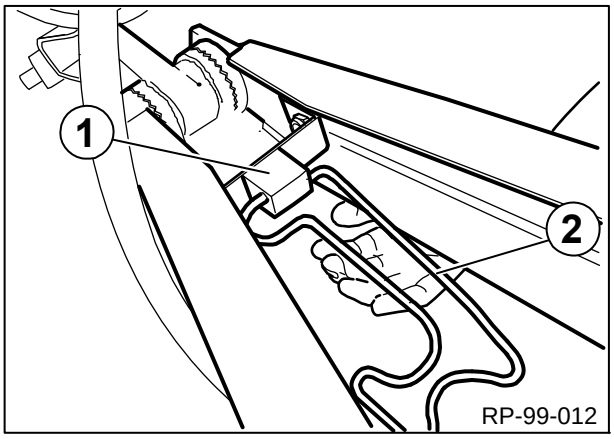


Fig. 30

- Switch off the engine and remove the ignition key.
- Assemble the PTO shaft bracket (1) and secure the PTO shaft support (2).

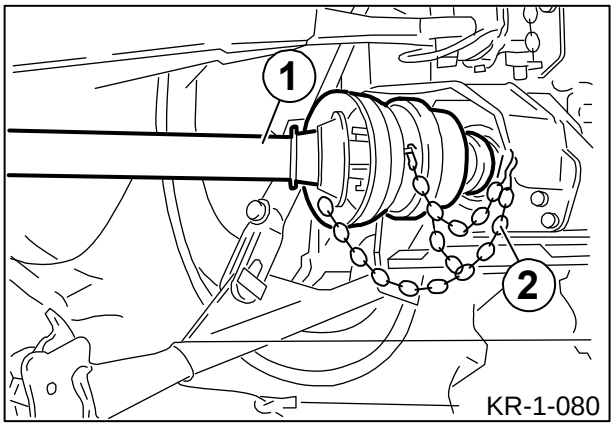


Fig. 31

- Push on the PTO shaft (1) with overload protection on the machine side until the protection mechanism locks into place or the PTO shaft can be screwed together (see PTO shaft manufacturer's operating instructions).
- Secure the PTO shaft guard retaining chains (2) on the machine side.

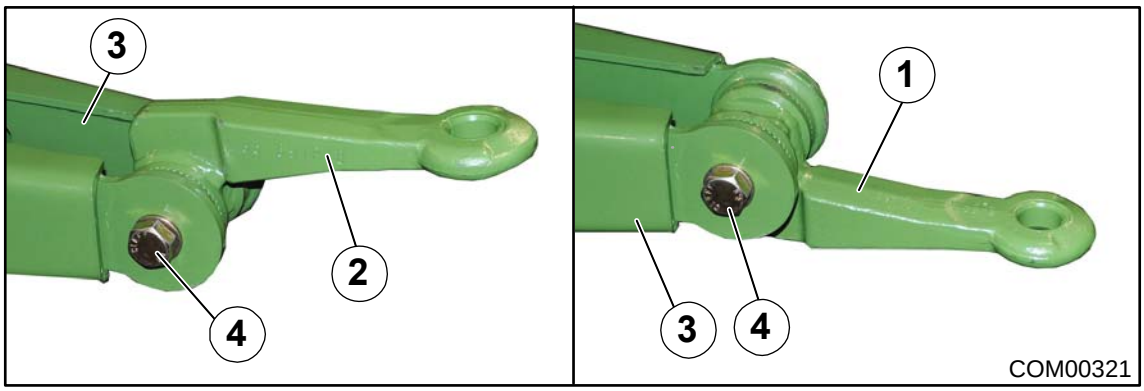


Fig. 32

Note

To achieve greater PTO shaft freedom, the towing ring can be mounted in position (1) or (2) on the drawbar (3).

- Use a suitable tool to loosen the screw connection (4).
- Rotate the towing ring to the desired position and use the screw connection (4) to mount it on the drawbar (3).

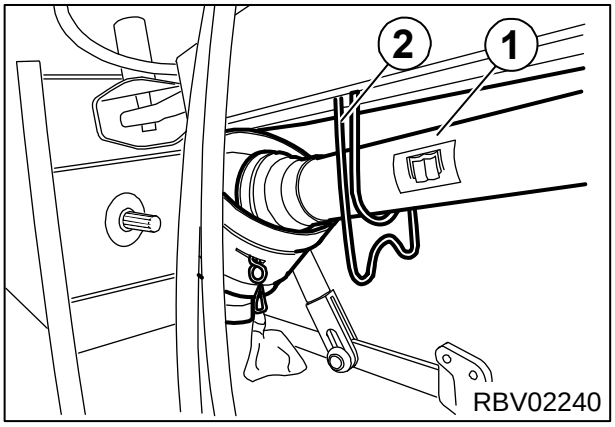


Fig. 33

- Place the PTO shaft (1) inside the PTO shaft support (2).

5.4.3 Length adjustment

DANGER! - Rotating universal shaft!
Effect: Risk of death or serious injuries
- Before pushing the universal shaft onto the tractor PTO shaft, turn off the PTO shaft, turn off the engine, pull out the ignition key and take it with you.
- Secure the tractor and machine against unintentional rolling away.
- No one may be standing between the machine and the tractor during the cornering that is required to adjust the length of the universal shaft.

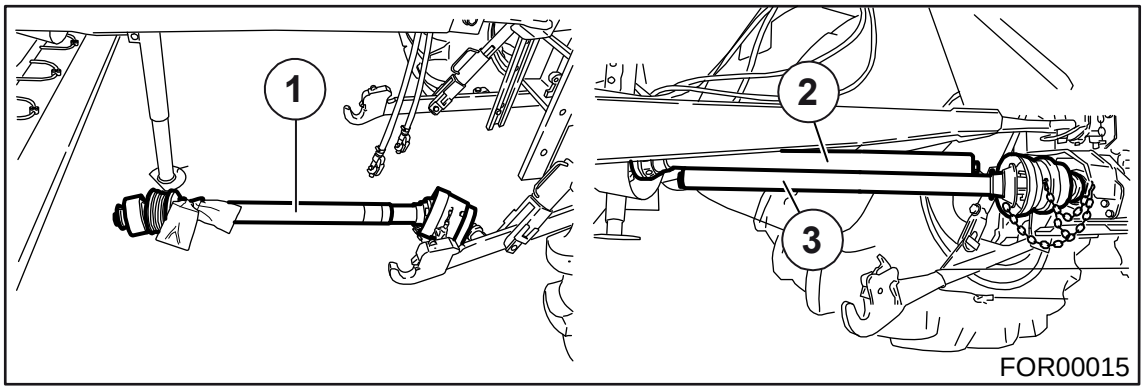


Fig. 34

To adapt the length of the universal shaft, hitch the machine onto the tractor. The shortest position of the universal shaft is reached in close cornering.

The length of the PTO shaft (1) must be adjusted.
- Disassemble the PTO shaft.
- Install each half (1) and (2) on the tractor and machine side respectively.
- Check the special section tubes and guard tubes.
- Shorten special section tubes and guard tubes to an extent that the PTO shaft can move freely in the shortest operating position.
- For additional operating instructions refer to the operating instructions of the PTO shaft manufacturer.

5.5 Hose holder assembly

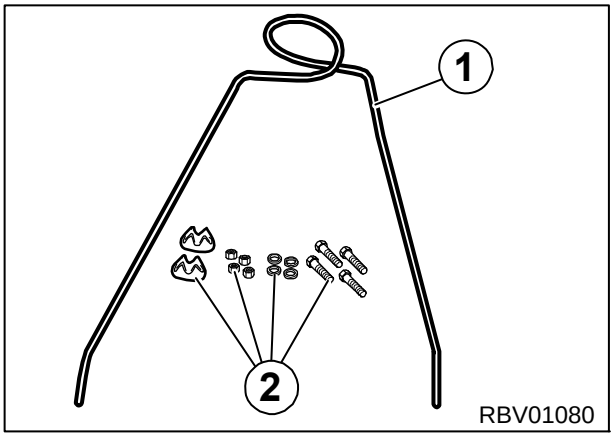


Fig. 35

- The hose holder (1) is mounted on the drawbar with the fastening materials (2).

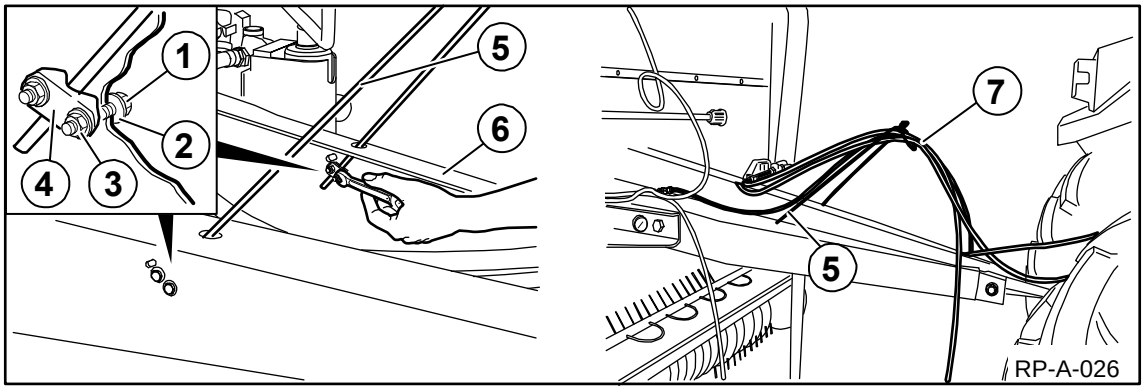


Fig. 36

- Guide the hose holder (5) through the oblong holes on the drawbar (6).
- Fasten the hose holder onto the drawbar with clamps (4), screws (1), washers (2) and self-locking nuts (3).
- Guide the hoses (7) through the eye of the hose holder (5).

5.5.1 Net brake

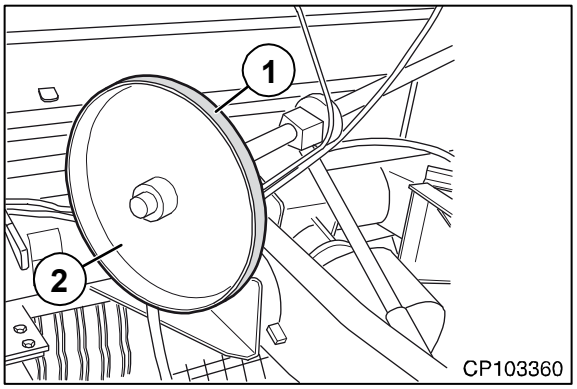


Fig. 37

Before starting up for the first time, neatly remove the protective tape from the brake surface (1) of the net brake disc (2).

5.6 Attaching the Triangle Spotlights

Fortima V 1500 (MC)/Fortima V 1800 (MC)

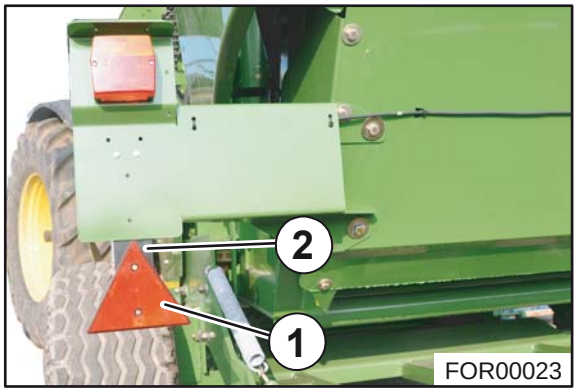


Fig. 38

Note

When using a registration plate as well as the wheels 600/50-22,5, the triangle spotlights (1) right/left on the provided pendulum (2) must be assembled.

To do this:

- Remove the triangle spotlight (1) from the rear lamp support of the machine
- Take the pendulums (2) out of the small parts bag and install them by using the provided screws on the rear lamps support
- Install the triangle spotlight (1) on the pendulum (2)
- Check the functionality of the triangle spotlights (1)

6 KRONE operation terminal Beta

Caution! - Protect Control Unit.

Effect: Damage to the control unit

- The control unit must be protected against water.
- If the machine is not used for an extended period of time (for example during the winter), the control unit must be stored in a dry place.
- For mounting and repair jobs, especially for welding jobs on the machine, disconnect the power supply to the control unit. Overvoltage can damage the control unit.

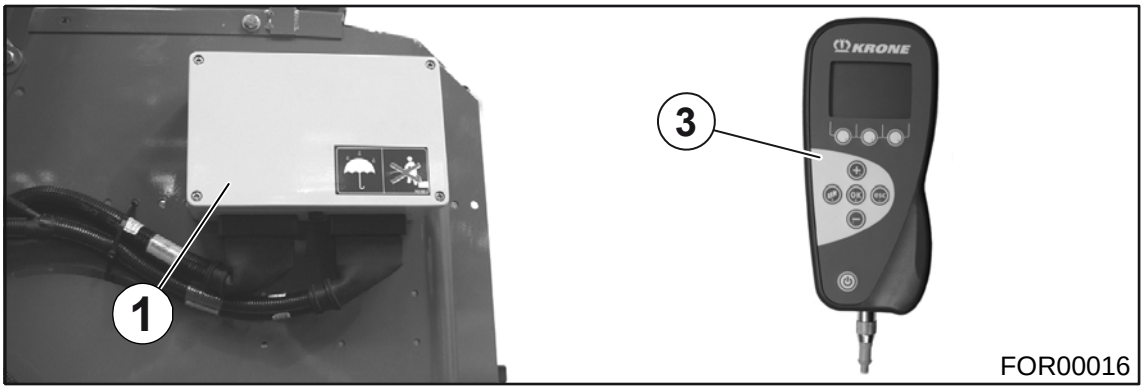


Fig. 39

The electronic equipment of the machine consists essentially of the job computer (1), the control unit (3) and the control and function elements.

The job computer (1) is located on the front right of the machine under the side hood.

Its functions are:

- Bale counter
- Control of the actuators installed on the machine
- Transfer of alarm messages
- Sensor/actuator diagnostics

The control unit (3) communicates information to the driver and performs settings to operate the machine. This information is received and further processed by the job computer.

6.1 Attachment of control unit

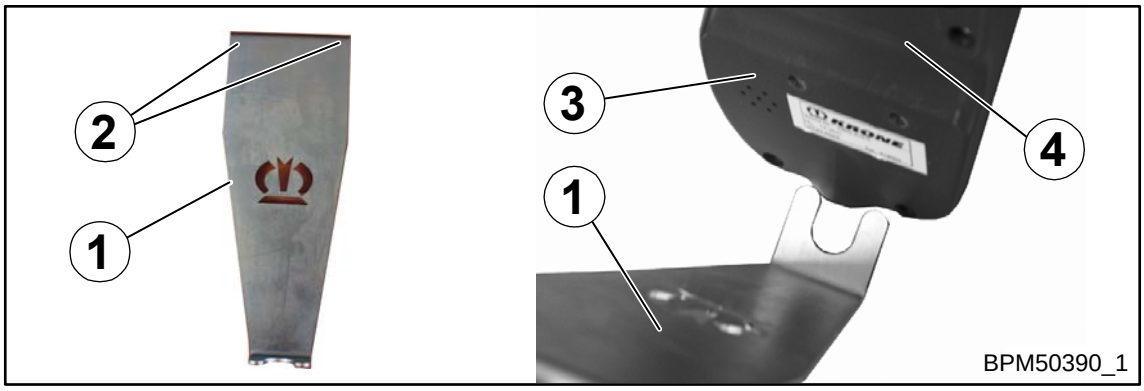


Fig. 40

Mount the control unit with its support (1) where it can be seen by the driver.

Direct fastening

- Fasten the support (1) using the drill holes (2) already present.

The control unit (3) is fixed by the magnetic plate (4) on the support (1).

6.1.1 Connecting Control Unit

Danger! - Failure of control unit

Effect: Danger to life, injuries or damage to the machine.

Make sure during assembly that the connection cables are not tight and that they do not come in contact with the tractor wheels.

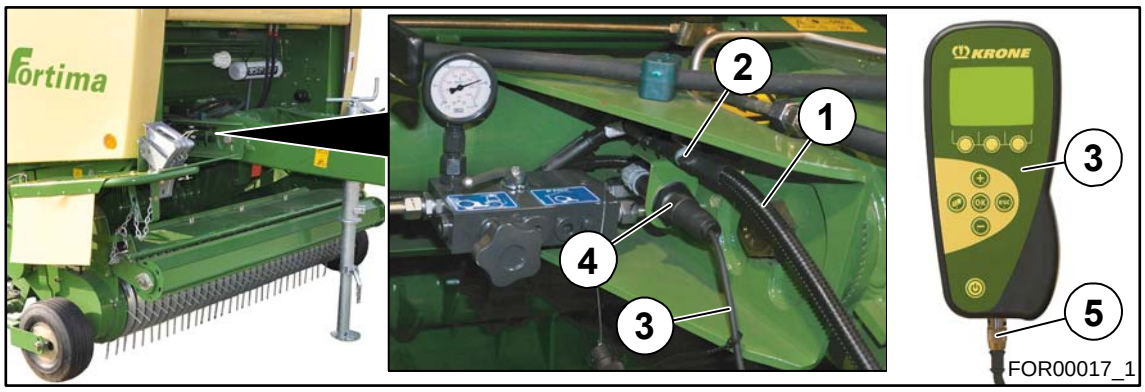


Fig. 41

- Connect power supply cable (1) on tractor side to the 3-pin power supply socket (DIN 9680) and connect it on machine side with Delphi plug (2).
- Connect cable (3) on machine side to bushing (4) as well as to bushing of control unit (5).

Note

An extension cable for the control panel can be ordered under the following spare parts numbers:

- 303 174 0 (2500 mm length)
- 302 959 0 (5000 mm length)

.

6.2 Description of the keys

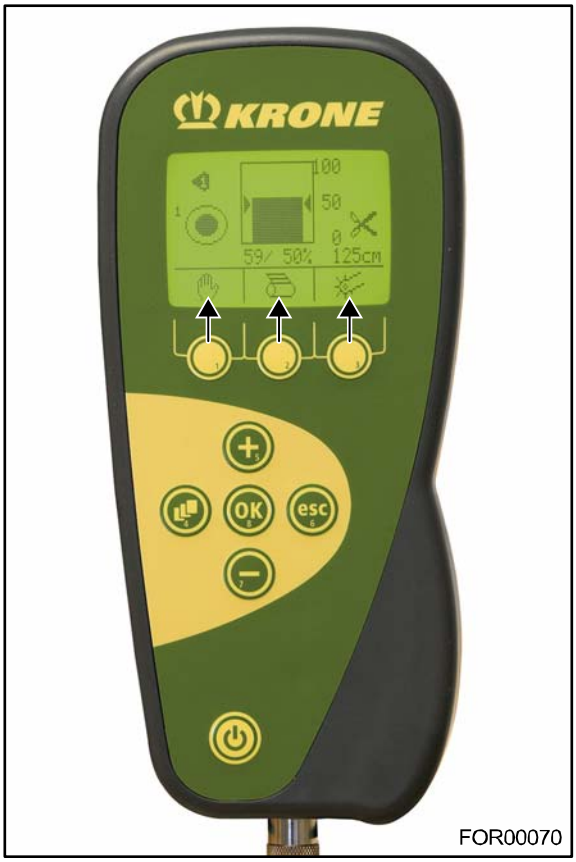


Fig. 42

Key	Description
1	The functions shown in the bottom line of the display are operated by pressing the keys. The key is without function if there is no symbol above the key.
2	
3	
4	Menu level is called by pressing the key.
5	Pressing these keys causes settings to be changed. Furthermore, they can be used to select the desired menu in the menu level.
7	
esc 6	Press this key to return to the previous screen or the previous menu level. Pressing the key and holding it down brings up the basic screen.
OK 8	Settings are saved or a selected menu is called in the menu level by pressing this key.
	The control unit is switched on or off by pressing this key.

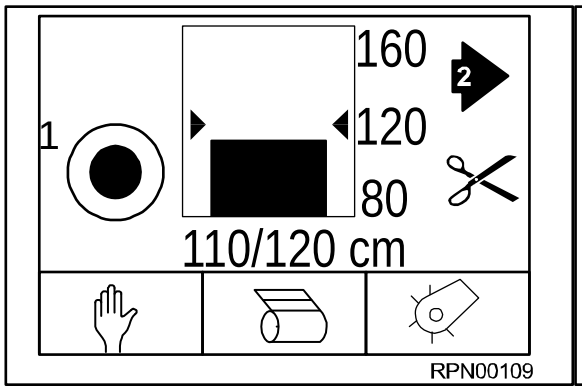
Note

Press OK 8 key to go to menu 2-1 “Customer Counter”.

6.3 Operational Readiness

Switching on

- Press the key .



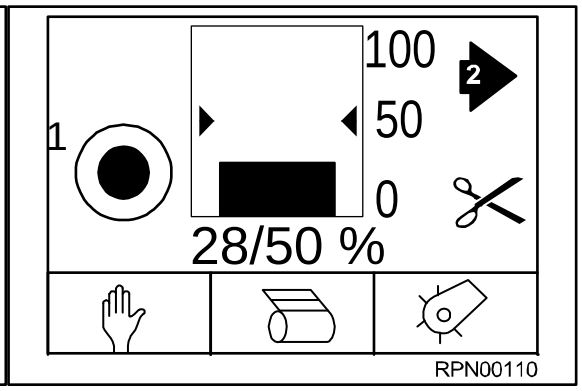


Fig. 43

Basic screen Fortima V — Basic screen Fortima F

When the connection is made, the home screen appears in the display after a short time.

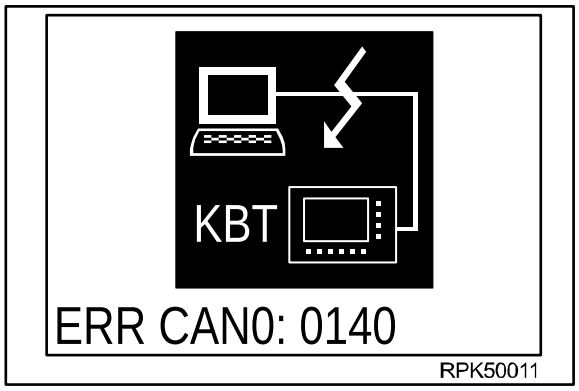


Fig. 44 Error message

If no connection is made, the above error message appears in the display.
In this case, check the cable between the control unit and the job computer.

6.4 Basic Screen

Note
Graphics and symbols that are available depend on the equipment of the machine. The displayed graphics and symbols are not shown permanently.

6.4.1 Functions of Keys 1 - 3

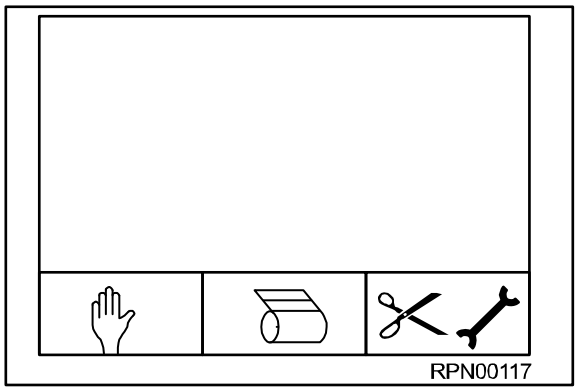


Fig. 45

Key	Symbol	Function	
1		Manual mode	
		Automatic mode	
2		Feeding twine	Depending on the equipment of the machine and the type of tying that is set.
		Feeding net	
3		Selecting pick-up	
		Selecting blade base	

6.5 Selecting manual or automatic mode

After switching on control terminal, operating mode “Manual mode” is set by default.

Press 1 key to change between “Manual mode” and “Automatic mode”.

The symbol above the 1 key indicates the set operating mode:

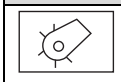
Symbol	Function
	**Manual mode** – The tying process must be triggered manually by pressing 2 key.
	**Automatic mode** – The tying process is triggered automatically when the target filling is reached. – The start of tying process can be decelerated by an adjustable amount of time, refer to chapter 1-9 “Tying Start Deceleration”. – Tying process starts immediately after 2 key is pressed in automatic mode - independently of the set tying start deceleration.

6.5.1 Selecting Pick-up or Blade Base

The valve for pick-up is selected as standard after switching on the control terminal.

Press 3 key to change between pick-up valve and blade base valve.

The symbol above the 3 key displays the set valve:

Symbol	Function
	**Pick-up** The control unit can be operated to lift and lower the pick-up.
	**Blade base** The control unit can be operated to lift and lower the blade drawer.

6.5.2 Displays in the Main Window

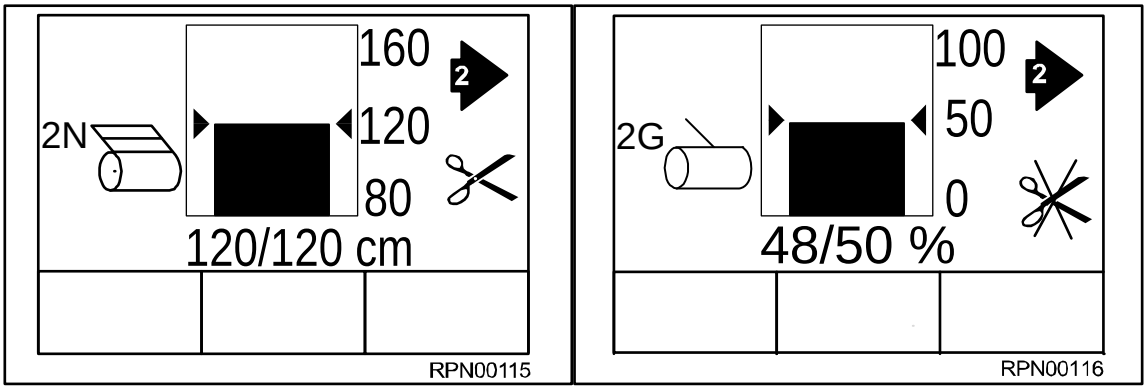


Fig. 46

Symbol	Meaning	Information
	Correcting direction of travel to the left	Due to uneven filling, the bale is thicker on one side. The size of the arrow and the number (1-3) signalize to what extent the direction of travel must be corrected.
	Correcting direction of travel to the right	

	Setpoint value bale diameter reached (Fortima F) Setpoint value bale firmness reached (Fortima V)	flashing

	Net is fed	Net tying
	Tying has not been tied	
	Tying process is active	
	Tying process has been stopped	
	Tying has been cut off	
	Tying has not been cut off	
	Tying completed	
	Twine is fed	Twine tying
	Tying has not been tied	
	Tying process is active	
	Tying process has been stopped	
	Tying has been cut off	
	Tying has not been cut off	
	Tying completed	
	Blades are swivelled in	With Multicut
	Blades are not swivelled in	

120/120 cm	Actual value and setpoint value bale diameter in cm	Fortima V
48/50 %	Actual value and setpoint value bale firmness as percentage	Fortima F

6.5.3 Messages

Information message

The information message will appear only, if the main operation display has been set. The message will disappear automatically, when the cause for the information message has been removed.

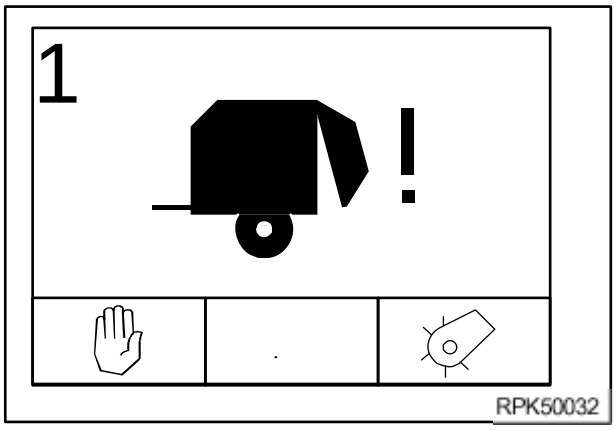


Fig. 47

Message Bale chamber not been closed

The softkeys in the lower line continue to be active whilst the information message is displayed.

6.5.4 Setting Bale Firmness

Fortima F

Pressing the key twice brings up the basic screen.

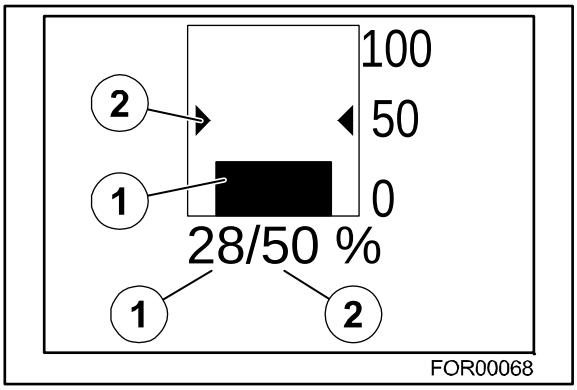


Fig. 48

The value (1) and the height of the bar (1) show the current actual bale firmness as a percentage.
The value (2) and the arrows in the bar display (2) show the set target bale firmness as a percentage.

- Press or key to change setpoint value.

6.5.5 Setting Bale Diameter

Fortima V

Pressing the key twice brings up the basic screen.

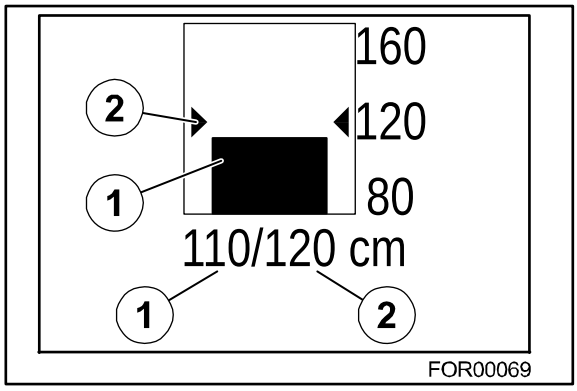


Fig. 49

The value (1) and the height of the bar (1) show the current actual bale diameter in cm.
The value (2) and the arrows in the bar display (2) show the set target bale diameter in cm.

- Press or key to change setpoint value.

6.6 Menu Level

6.6.1 Short overview

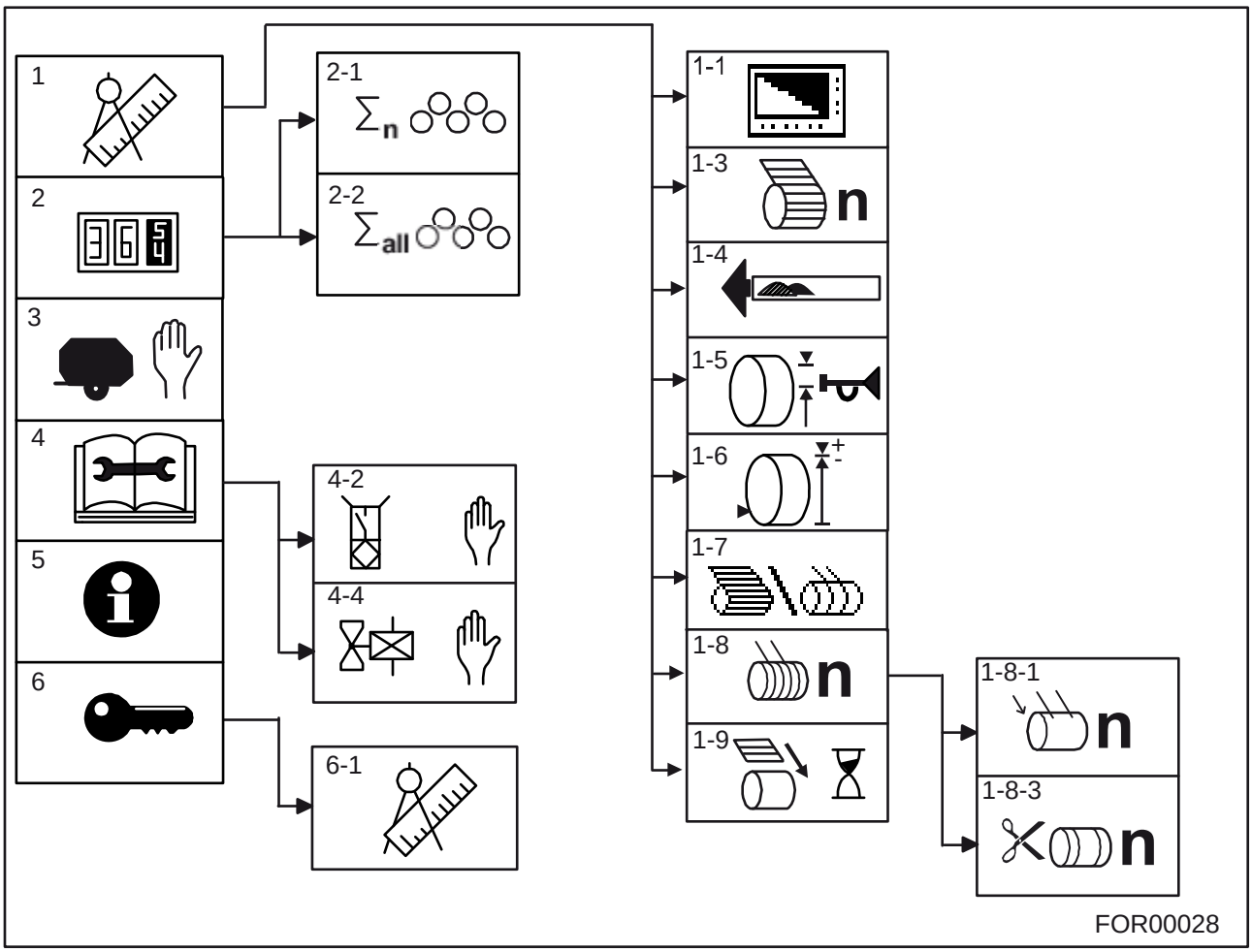


Fig. 50:

1	**Settings**	1-8	Number of twine wraps (only for twine tying with magnetic transmission)	**3**	**Manual operation**
1-1	Contrast	1-8-1	Insert twine wraps	**4**	**Service**
1-3	Number of net winds	1-8-3	Cut off twine wraps	4-2	Manual sensor test
1-4	Sensitivity of direction display	**1-9**	**Tying start delay**	4-4	Manual actuator test
1-5	Pre-signalling	**2**	**Counter**	**5**	**Info**
1-6	Filling correction	2-1	Customer counter	**6**	**Technician**
1-7	Select type of tying	2-2	Total counter	6-1	Settings

6.6.2 Bringing up a Menu Level

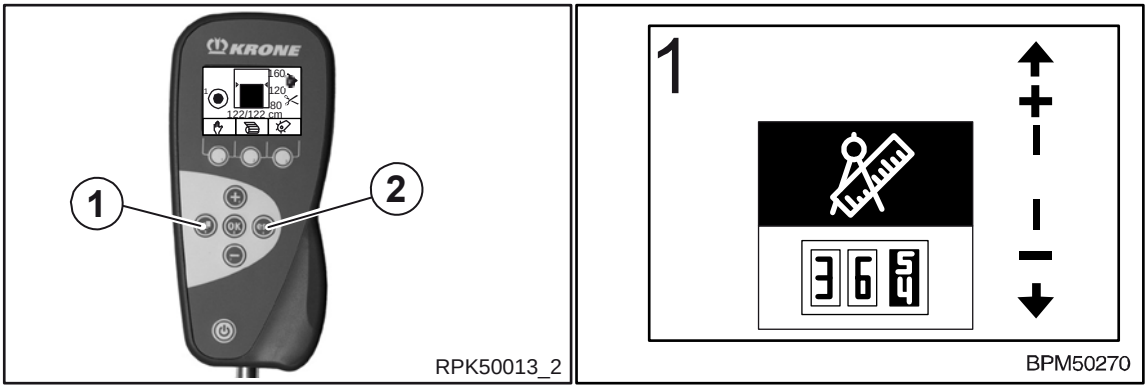
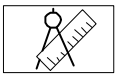


Fig. 51

Press the key (1).
The menu level is shown in the display.

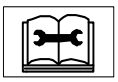
You can exit the menu level again with the key (2).

The menu level is divided into six main menus:

 = main menu 1 "Settings"

 = main menu 2 "Counters"

 = main menu 3 "Manual operation"

 = main menu 4 "Service"

 = main menu 5 "Info"

 = main menu 6 “Fitter"

- You can use the keys and to select the main menus. The selected icon is shown in reverse colours.
- Pressing the key brings up the menu level of the main menu that is selected.
- Use the key to close the menu currently displayed.

6.7 Main menu 1 "Settings"

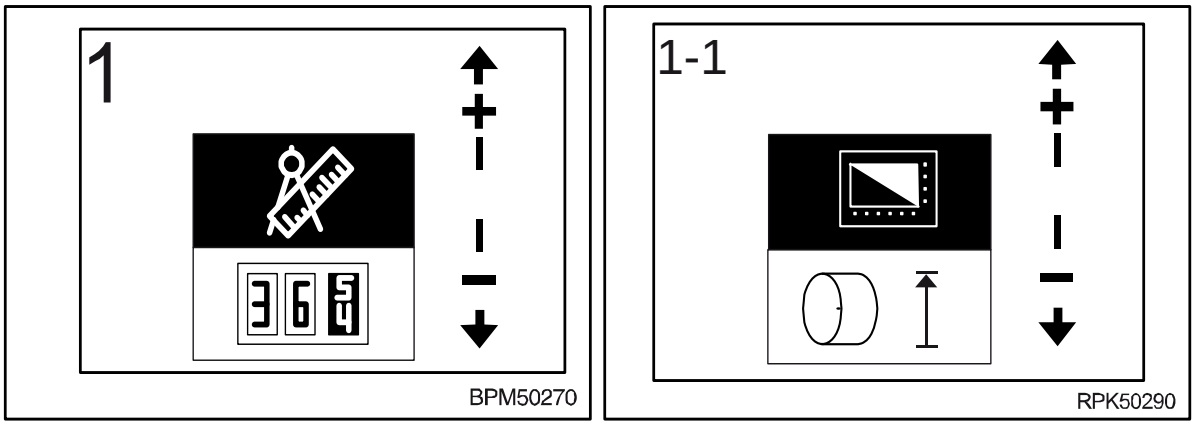
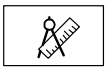


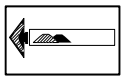
Fig. 52

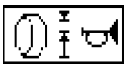
- Use (E) to call the menu level.
- Use the keys (+5) or (−7) to select main menu 1  . The icon is shown inversed.
- Press key (OK 8).

The display shows menu level 1 "Settings". Menu level 1 "Settings" is divided into 8 menus, depending on how the machine is equipped:

 =Menu 1-1 "Contrast"

 = Menu 1-3 "Number of net winds"

 = Menu 1-4 "Sensitivity of direction display"

 = Menu 1-5 "Pre-signalling"

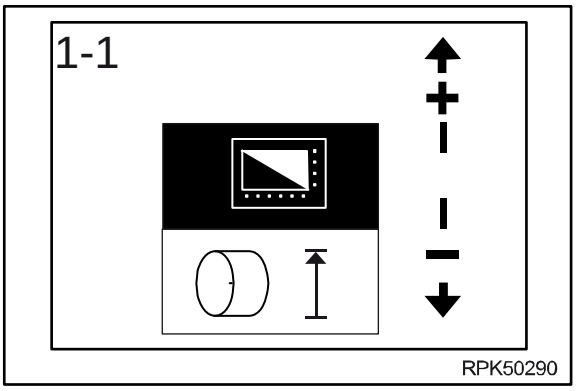
 = Menu 1-6 "Filling correction"

 = Menu 1-7 "Select type of tying"

 = Menu 1-8 "Number of twine wraps"

 = Menu 1-9 "Tying start delay"

6.7.1 Menu 1-1 "Contrast"



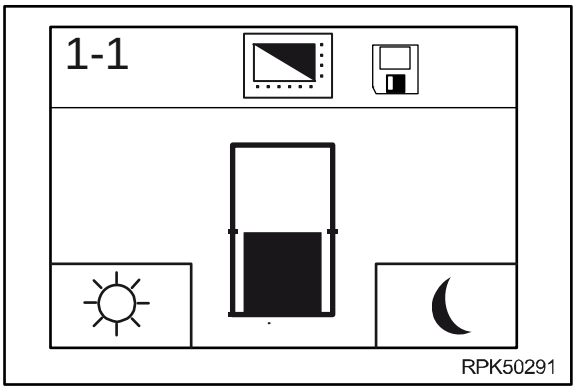


Fig. 53

The display contrast can be set in the menu.

Displaying the menu

Main menu 1 "Settings" appears:

- You can select menu 1-1 with the or keys. The icon is shown in reverse colours.
- Press the key.

The display shows menu 1-1 "Contrast".

The progress bar indicates the contrast value set. The icon in the upper line indicates that the displayed value is saved.

Setting and saving the contrast

The higher the bar, the stronger the contrast in the display.

- You can use the or key to adjust the contrast. The icon in the top line goes out.
- Press the key. The set contrast value is saved and the icon appears in the upper line.

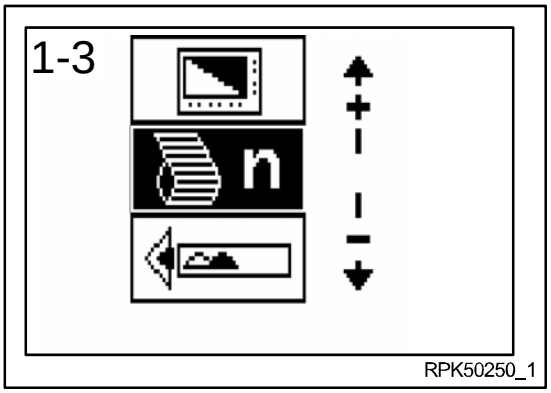
Note

In the “Contrast” menu, the brightness of the display can be adapted to lighting conditions. In case of strong sunlight, it is recommended to set a high contrast value.

- The button closes the open menu.

Pressing the button and holding it down brings up the home screen.

6.7.2 Menu 1-3 "Number of Net Winds"



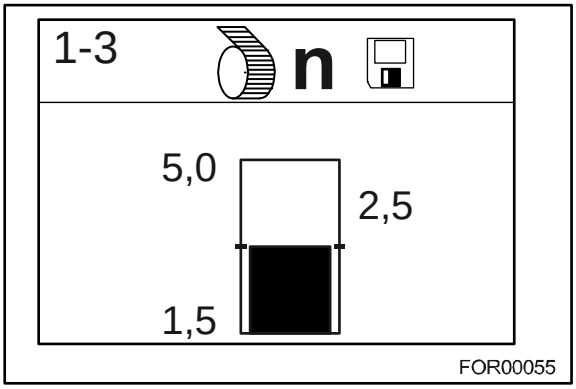


Fig. 54

Displaying the menu

Main menu 1 "Settings" appears:

- You can select menu 1-3 n with the + or − keys. The icon is shown in reverse colours.
- Press the OK key.

The display shows menu 1-3 "Number of Net Winds".

The icon in the upper line indicates that the displayed value is saved.

Setting the Number of Net Winds

The number of net winds is indicated in revolutions.

- You can use the + or − key to adjust the desired number of net winds. The icon in the top line goes out.
- Press the OK key. The number of net winds set is saved and the icon appears in the upper line.

Note

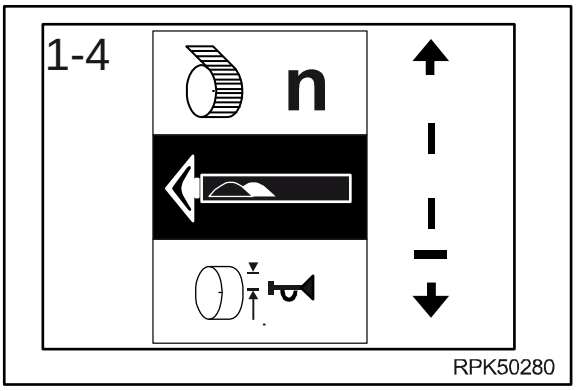
The higher the number of wrappings, the more stable the bale is wrapped. The value must be adapted to the conditions on the field.

For silage, approx. two wrappings are recommended. For straw, approx. three wrappings are recommended.

- The ESC button closes the open menu.

Pressing the ESC button and holding it down brings up the home screen.

6.7.3 Menu 1-4 „Sensitivity of Direction Display“



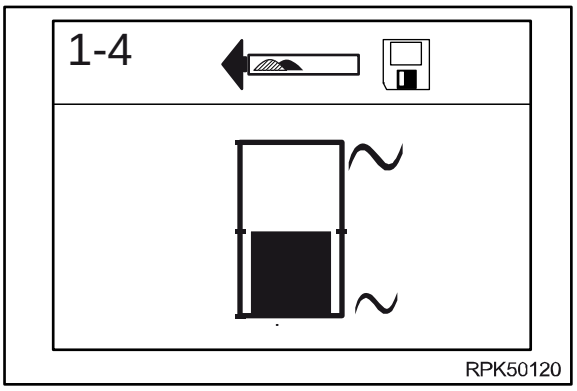


Fig. 55

Calling the menu

Main menu 1 “Settings” is called.

- Select menu 1-4 by using or keys, the symbol is shown in reverse colours.
- Press the key.

The display shows menu 1-4 “Sensitivity of direction display”.

The bar display shows the set sensitivity. The higher the bar, the greater the sensitivity of the direction display. The symbol in the upper line indicates that the displayed value is saved.

Setting and saving the sensitivity of the direction display

- Set the sensitivity by using or keys, the symbol in the upper line will disappear.
- Press key, the set sensitivity is saved, the symbol appears in the upper line.
- The button closes the open menu.

Pressing the button and holding it down brings up the home screen.

Note

An even filling of the bale chamber ensures optimally shaped bales and additionally protects the floor conveyor chains of the machine. Therefore it is recommended to set the sensitivity of direction display.

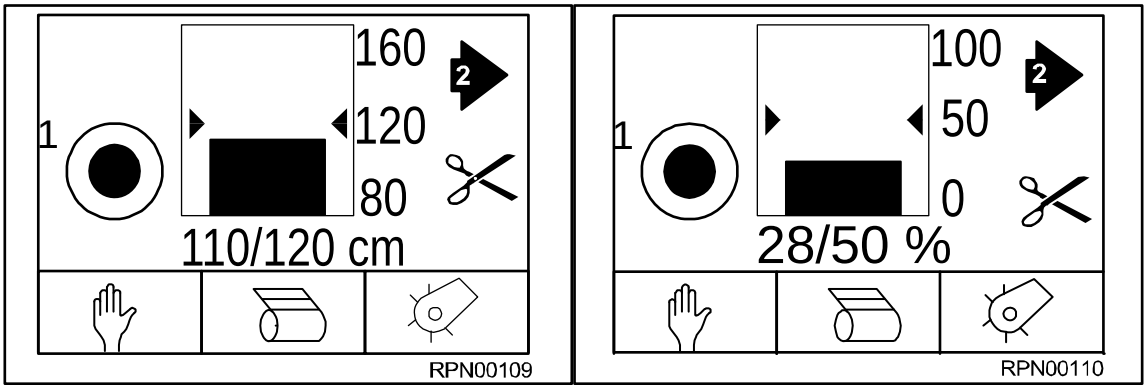


Fig. 56

Basic screen Fortima V

Basic screen Fortima F

Direction of Travel Indicator 2

Arrows left/right top in the display.

The arrows (1) have three different sizes, numbered with 1-3. They show the driver to which side he must correct the direction and how far when driving over a swath, to ensure the bale chamber is filled evenly.

Note

When achieving a constant filling, all signals disappear

6.7.4 Menu 1-5 „Pre-Signalling"

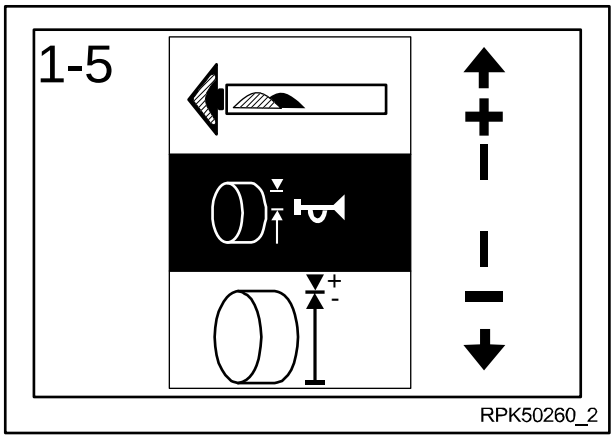


Fig. 57

Note

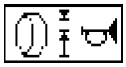
Pre-signalling indicates how far in advance it is signaled that the setpoint value

– of bale diameter (Fortima V) or
– of bale firmness (Fortima F)

will be reached shortly.

Calling the menu

Main menu 1 “Settings” is called.

- Select menu 1-5  by using + 5 or − 7 key, the symbol is shown in reverse colours.
- Press OK 8 key.

The display shows menu 1-5 “Pre-Signalling”.

The symbol  in the upper line indicates that the displayed value is saved.

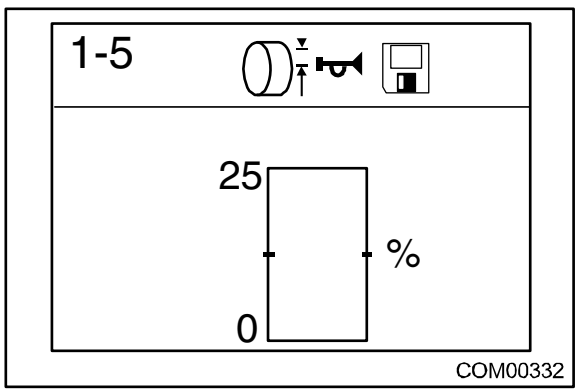
Setting pre-signalling:

Fortima F

The value is displayed as percentage.

Fortima V

The value is displayed in cm.



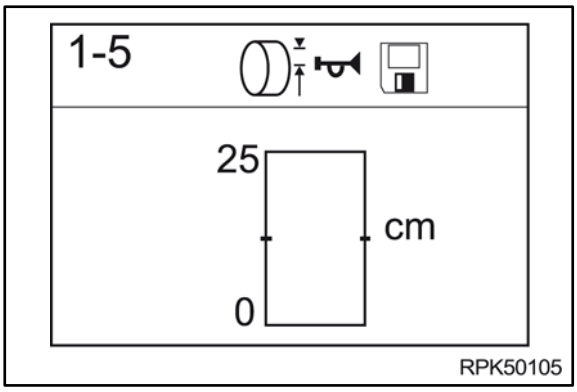


Fig. 58

- Use (+5) or (−7) key to set the desired deceleration, the symbol in the upper line goes out.
- Press (OK 8) key, the set deceleration is saved, the symbol appears in the upper line.

Example

Set target value of bale diameter: 1.50 m

Set value of pre-signalling: 25 cm

The audio signal sound can be heard if the actual value of the bale diameter is 1.25 m.

- The (ESC 6) button closes the open menu.

Pressing the (ESC 6) button and holding it down brings up the home screen.

6.7.5 Menu 1-6 „Correction Filling"

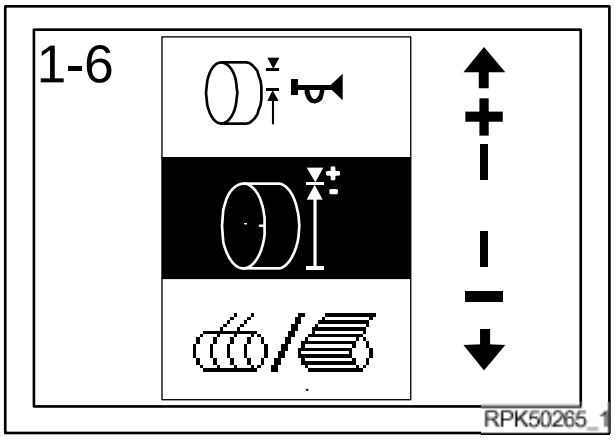


Fig. 59

If bale diameter or bale firmness is not reached or if it is too high, bale diameter or bale firmness can be corrected in a predefined range via menu 1-6 “Correction Filling”.

Calling the menu

Main menu 1 “Settings” is called.

- Select menu 1-6  by using  or  key, the symbol is shown in reverse colours.
- Press the  key.

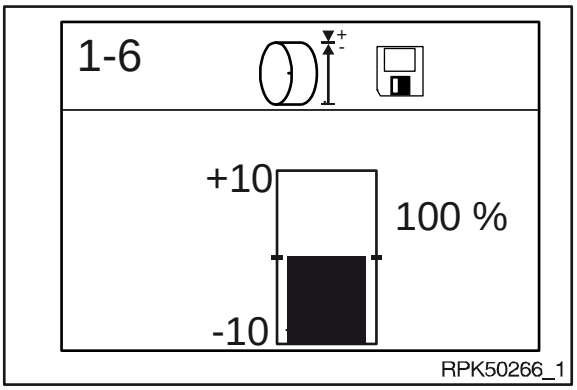
The display shows menu 1-6 “Correction Filling”.

The symbol  in the upper line indicates that the displayed value is saved.

Correcting filling

Fortima F

Bale firmness: -10 % to +10 %



Fortima V

Bale diameter: -10 cm to +10 cm

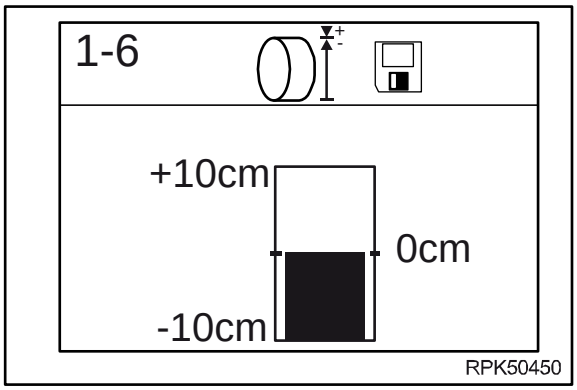


Fig. 60

- Increase or reduce the desired value by using + or − key, the symbol goes out in the upper line.
- Press OK key, the set position is saved, the symbol appears in the upper line.
- The ESC button closes the open menu.

Pressing the ESC button and holding it down brings up the home screen.

6.7.6 Menu 1-7 "Select type of tying"

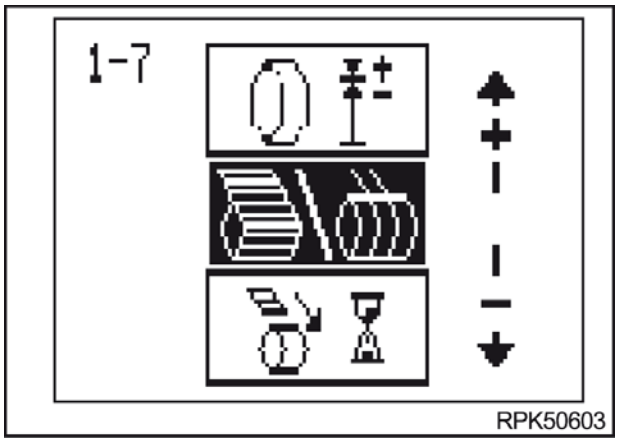


Fig. 61

Displaying the menu

Main menu 1 "Settings" appears:

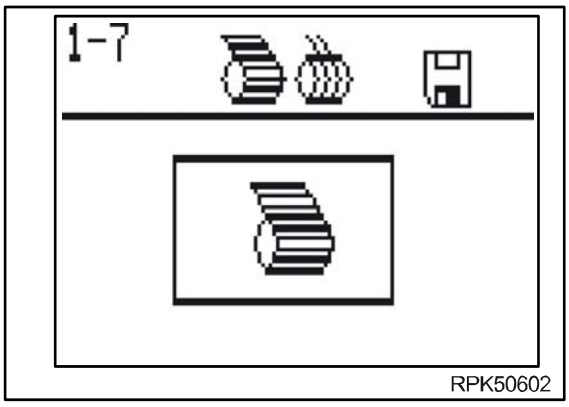
- You can select menu 1-7  with the  or  keys. The icon is shown in reverse colours.
- Press the  key.

The display shows menu 1-7 "Type of tying".

The  icon in the upper line indicates that the displayed value is saved.

Setting the type of tying

Net Wrapping **Twine tying**



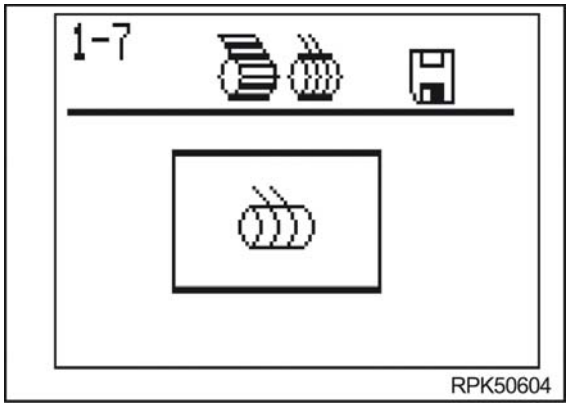
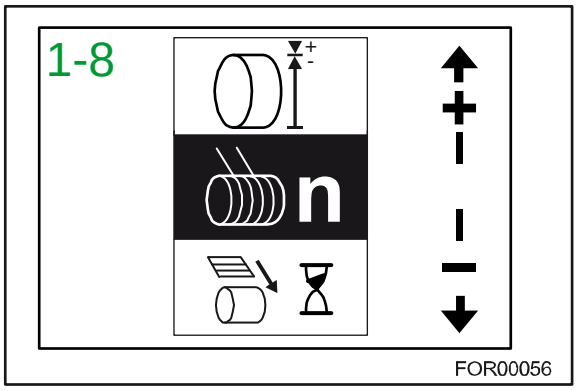


Fig. 62

- You can use the + or − key to adjust the type of tying. The icon in the top line goes out.
- Press the OK key. The set type of tying is saved and the icon appears in the upper line.
- The ESC button closes the open menu.

Pressing the ESC button and holding it down brings up the home screen.

6.7.7 Menu 1-8 "Number of twine wraps (only for twine tying with magnetic transmission)"



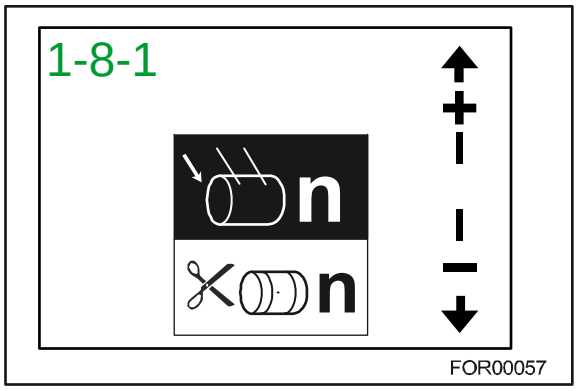


Fig. 63

Use menu 1-8 "Number of twine wraps" to enter the number of twine wraps (only for twine tying with magnetic transmission).

Calling the menu

Main menu 1 "Settings" appears.

- Use the keys (5) or (7) to select menu 1-8  . The icon is shown inverted.
- Press key (8).

The display shows menu 1-8 "Number of twine wraps". The menu is divided into the following sub-menus:



Menu 1-8-1 "Insert twine wraps"



Menu 1-8-3 "Cut off twine wraps"

6.7.8 Menu 1-8-1 „Inserting Twine Wraps"

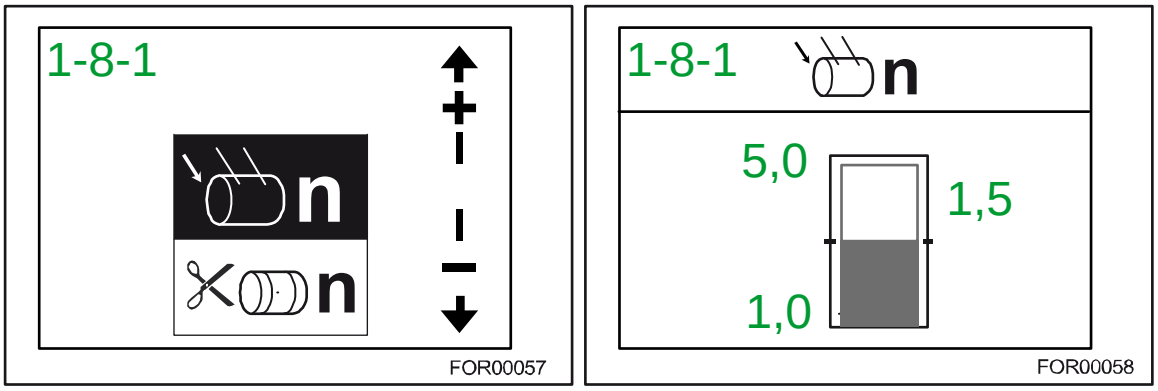


Fig. 64

Calling the Menu

Main menu 8-1 “Number of Twine Wraps” is active.

- Select menu 1-8-1  by using the + or − key, the symbol is shown in reverse colours.
- Press OK key.

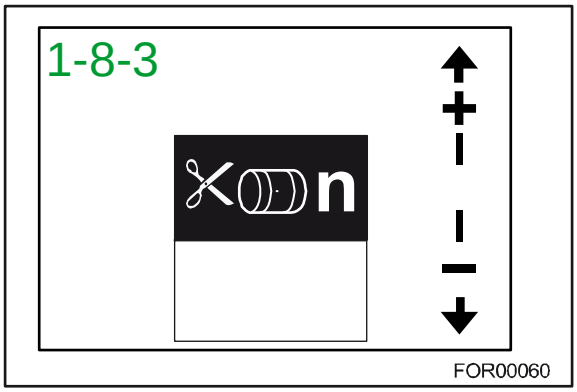
The display shows menu 1-8-1 “Inserting Twine Wraps".

Setting

- Set the standstill of the twine slide after inserting the twine in twine wraps by using the + or − key. The setting can be made between 1.0 and 5.0 twine wraps.
- Press OK key, the set value is saved, the symbol appears in the upper line.
- The ESC button closes the open menu.

Pressing the ESC button and holding it down brings up the home screen.

6.7.9 Menu 1-8-3 „Cutting Off Twine Wraps "



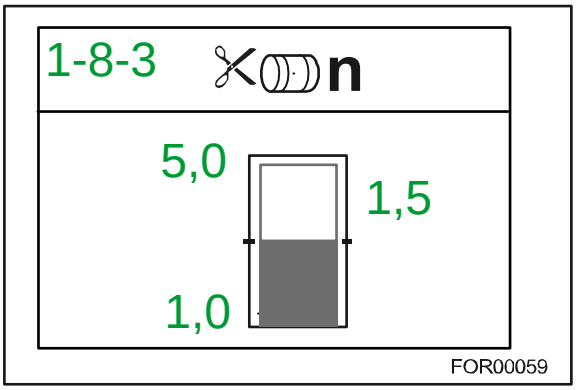


Fig. 65

Calling the Menu

Main menu 8-1 “Number of Twine Wraps” is active.

- Select menu 1-8-3 n with the + or − key, the symbol is shown in reverse colours.
- Press OK key.

The display shows menu 1-8-3 “Cutting Off Twine Wraps”.

Setting

- Set the standstill of the twine slide before cutting off the twine in twine wraps by using the + or − key. The setting can be made between 1.0 and 5.0 twine wraps.
- Press OK key, the set value is saved, the symbol appears in the upper line.
- The ESC button closes the open menu.

Pressing the ESC button and holding it down brings up the home screen.

6.7.10 Menu 1-9 „Tying Start Delay"

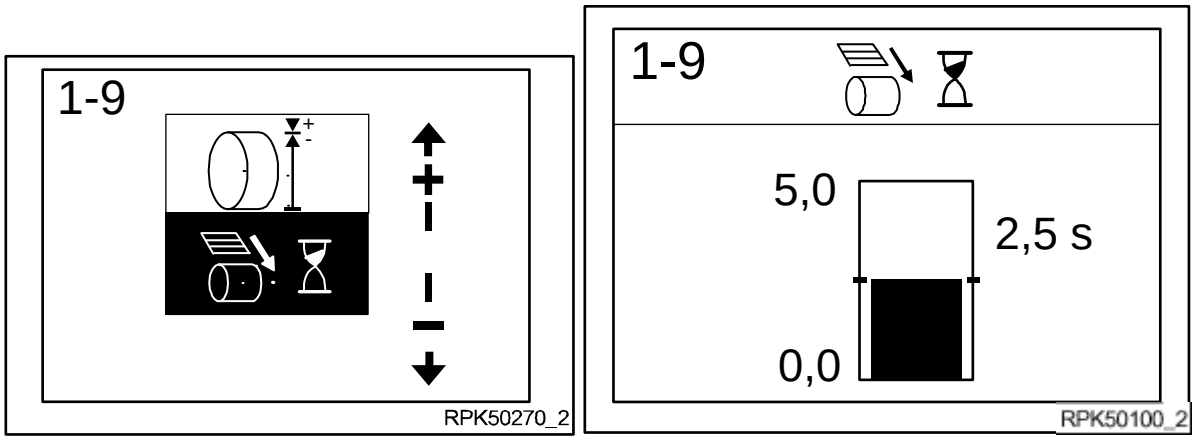


Fig. 66

Calling the menu

Main menu 1 “Settings” is called.

- Select menu 1-9 by using or key, the symbol is shown in reverse colours.
- Press key.

The display shows menu 1-9 “Tying Start Delay”.

The symbol in the upper line indicates that the displayed value is saved.

Setting the tying start delay

The time delay is displayed in seconds.

Note

Tying start delay indicates how much time there is between

– “Setpoint value of bale diameter reached” (Fortima V) or

– “Setpoint value of bale firmness reached” (Fortima F)

and “Triggering tying process” (in automatic mode).

Due to this function, the driver gets sufficient time to move tractor and machine to a complete standstill before tying process starts automatically.

- Set the desired time delay by using or key, the symbol in the upper line goes out.
- Press key, the set time delay is saved, the symbol appears in the upper line.
- The button closes the open menu.

Pressing the button and holding it down brings up the home screen.

6.8 Main menu 2 "Counters"

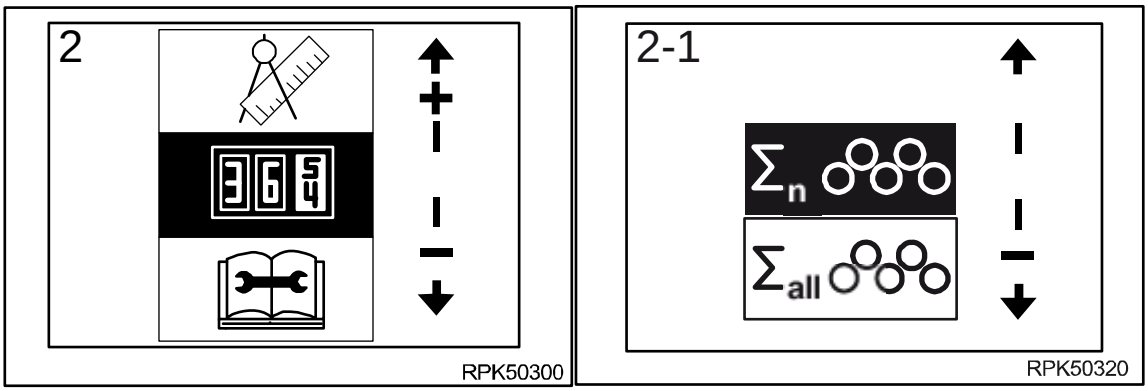


Fig. 67

Calling the main menu

- Call the main menu with the key.
- You can select main menu 2 with the or keys. The icon is shown in reverse colours.
- Press the key.

The display shows menu level 2 "Counters".

Menu level 2 "Counters" is divided into two menus:

= Menu 2-1 "Customer counters"

= Menu 2-2 "Total counters"

6.8.1 Menu 2-1 "Customer counters"

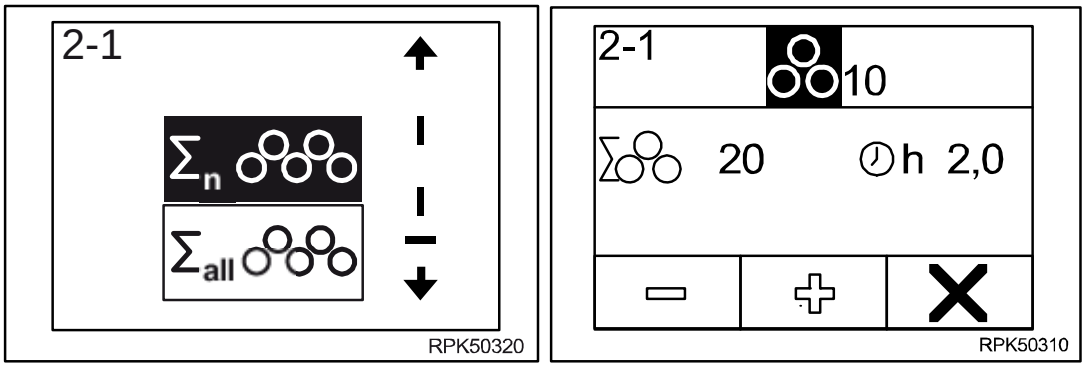


Fig. 68

Opening the menu

Main menu 2 "Counter" appears.

- Use the + and − buttons to select the menu 2-1 Σn; the symbol is shown inverted.
- Press the OK button.

The display shows menu 2-1 "Customer counter".

Meaning of the symbols:

10 = Active customer counter (1 - 20)

Σ = Total number of bales

h = Operating hours counter (only counts when the control unit is turned on)

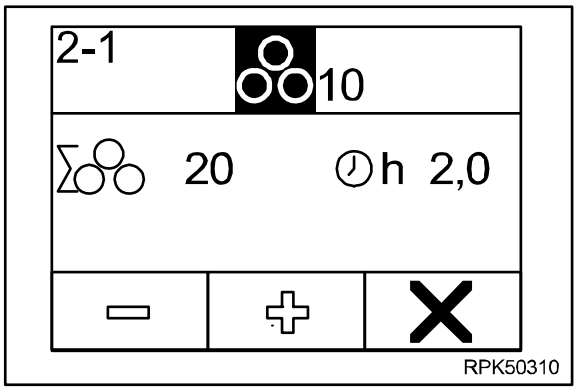


Fig. 69

Activating customer counter

- You can use the + or − keys to bring up the desired customer counter. It appears in the top line.
- Press the OK key.

The desired customer counter 10 (in this case customer counter 10) is shown in reverse colours.

Changing the number of bales

- Press the 1 key for softkey − to reduce the number of bales.
- Press the 2 key for softkey + to increase the number of bales.

Deleting the customer counter

- You can use the + or − keys to bring up the desired customer counter. It appears in the top line.
- Press the 3 key for softkey X.

The selected customer counter is set to zero.

- The ESC button closes the open menu.

Pressing the ESC button and holding it down brings up the home screen.

6.8.2 Menu 2-2 "Total bale counter"

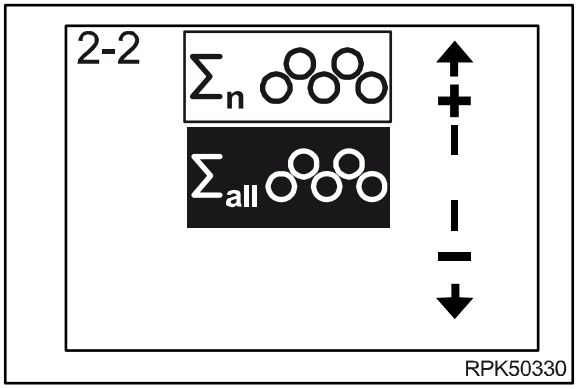


Fig. 70

Displaying the menu

Main menu 2 "Counters" is displayed.

- You can select menu 2-2 with the + or − keys. The icon is shown in reverse colours.
- Press the OK key.

The display shows menu 2-2 "Total bale counter". The total number of bales is the sum of all bales pressed. They are not assigned to any customer counter.

Meaning of the icons:

Bale counters (cannot be deleted)

Operating hours counter (cannot be deleted)

Season counter 1 (can be deleted)

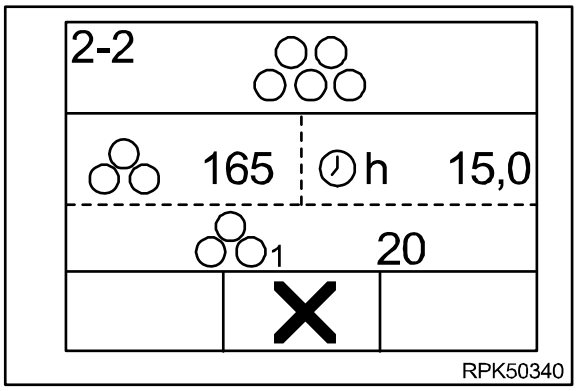


Fig. 71

Delete season counter 1

- Press the key for softkey .

Season counter 1 is set to zero.

- The button closes the open menu.

Pressing the button and holding it down brings up the home screen.

6.9 Main menu 3 „Manual operation“

Note
The "Manual operation" menu can be used to manually retract and extend the motor for adjustment, maintenance or repair work.

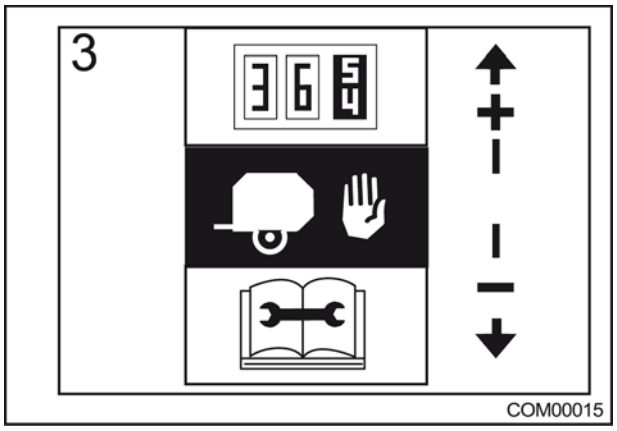


Fig. 72

- Call the menu level with the key .
- You can select main menu 3 with the keys or . The icon is shown in reverse colours.
- Press the key .

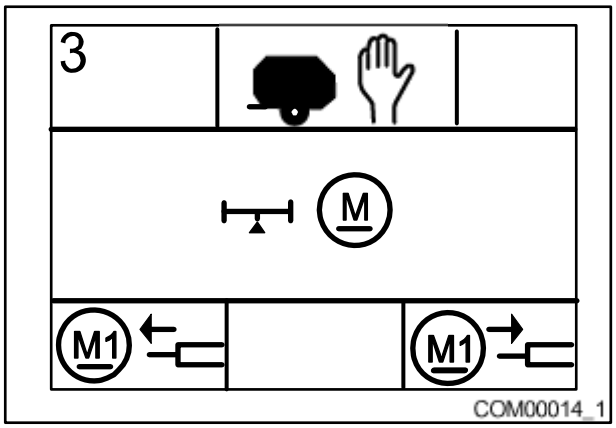
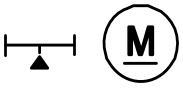


Fig. 73

- The display shows menu level 3  "Manual operation".

The following current states of the machine are shown in the display (depending on how the machine is equipped):

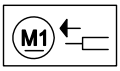
 Motor in centre position

 Positions not defined

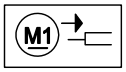


WARNING! – Crush hazard due to moving motor!
Personal injury.
- To prevent injury, do not stand in the area of the extending or retracting motor.

Move out motor

Press the key  ; the icon  appears in reverse colours; the motor moves out.

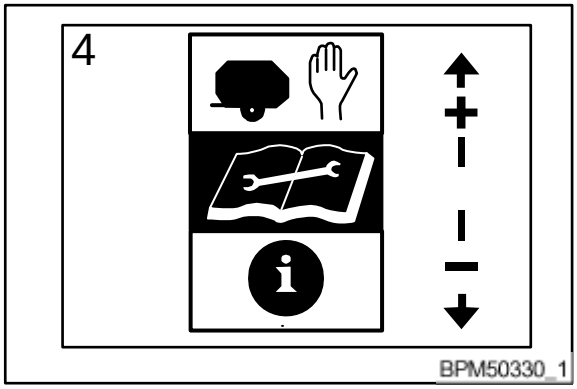
Move in motor

Press the key  ; the icon  appears in reverse colours; the motor moves in.

- The  button closes the open menu.

Pressing the  button and holding it down brings up the home screen.

6.10 Main menu 4 "Service"



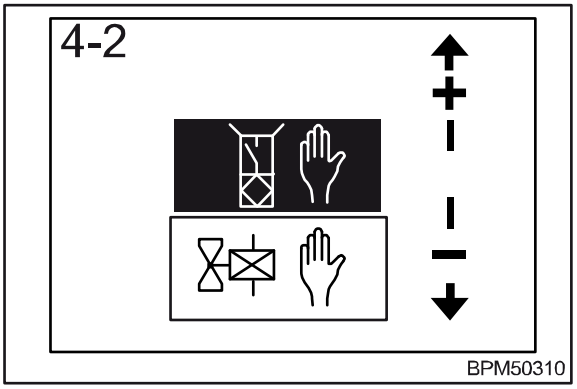


Fig. 74

Calling the main menu

- Call the main menu with the key.
- You can select main menu 4 with the or keys. The icon is shown in reverse colours.
- Press the key.

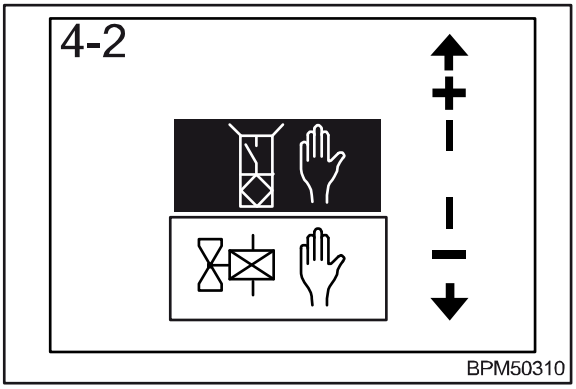
The display shows menu level 4 "Service".

Menu level 4 "Service" is divided into three menus:

= Menu 4-2 "Manual Sensor Test"

= Menu 4-4 "Manual Actuator Test"

6.10.1 Menu 4-2 "Manual Sensor Test"



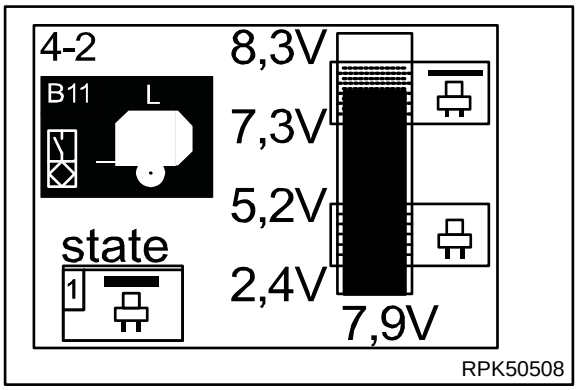


Fig. 75

In the manual sensor test, the sensors installed on the machine are checked for faults. In addition, the sensors can be adjusted correctly. There is no guarantee the machine is working correctly until after the sensors have been adjusted.

Caution!
Make sure that the PTO shaft does not turn during the sensor test.

Calling the menu
Main menu 4 “Service” is called.

- Select menu 4-2 with + or − keys, the symbol is shown in reverse colours.
- Press OK key.

The display shows menu 4-2 “Manual Sensor Test”.

Selecting the sensor

- Select the sensor with + or − keys.

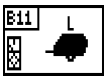
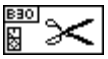
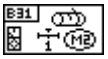
The selected sensor is displayed inversely and is tested.

Setting values:
The minimum and maximum setting values with the sensor alive (metal in front of the sensor) are shown in the upper part of the bar display. The current setting value (actual value) is displayed under the bar display.
The distance from the sensor to the metal must be adjusted so that in the alive state the bar is in the upper mark. Next check whether the bar is in non-alive state in the lower marked area.

To adjust the sensors, refer to chapter Maintenance “Setting the Sensors”.

Diagnostics – Namur sensors

Possible sensors (depending on how the machine is equipped)

No.	Sensor symbol	Description
B11		Bale chamber closed left
B12		Bale chamber closed right (Fortima V)
B30		Blade monitoring
B31		Engine tying centre
B32		Tying runs
B33		Twine stop

State:

1  Alive (iron)

2  Not alive (no iron)

3  Broken cable

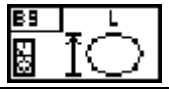
4  Short circuit

For information on the position of the sensors, please refer to chapter Maintenance “Position of Sensors”.

Diagnostics – analogue sensors

Setting values:

The bar must be inside the marked area of the bar display.

No.	Sensor symbol	Description
B9		Bale diameter left (Fortima V) Bale firmness left (Fortima F)
B10		Bale diameter right (Fortima V) Bale firmness right (Fortima F)

State:

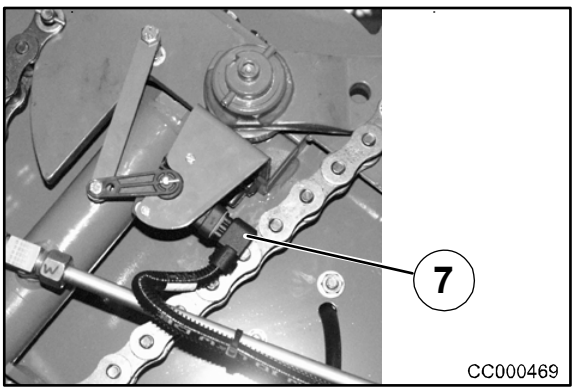
 Broken cable or short circuit

 Defect in the sensor or job computer

For information on the position of the sensors, please refer to chapter Maintenance “Position of Sensors”.

Fortima V

Sensor B9/B10 Adjusting the bale diameter:



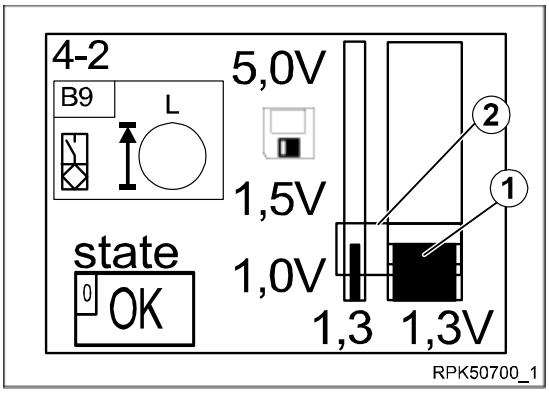


Fig. 76

Caution!
The bale chamber must be closed and empty.

If the bar (1) is not inside the rectangle (2) when the bale chamber is closed and emptied, the corresponding sensor (7) must be adjusted mechanically.

To do this:

- Loosen the sensor (7) and turn it in the oblong hole until the bar (1) is positioned inside the rectangle (2) in the bar display.

Note
An audio signal sounds if the bar (1) is inside the rectangle (2).

- Tighten the sensor (7).

Note
Saving is only possible if the bar (1) is inside the rectangle (2) in the bar display.

Storing a value:

- Press function key **OK**

The icon in the upper line indicates that the displayed value has been saved.

Fortima F

Setting sensor B9/B10 bale firmness

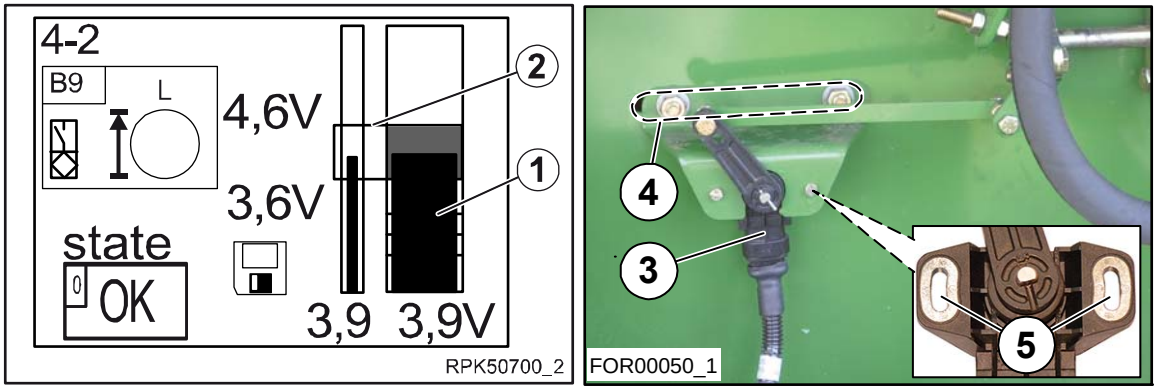


Fig. 77

Caution!
The bale chamber must be open and empty.

The respective sensor (3) must be set mechanically if the bar (1) is not inside the rectangle (2) when the bale chamber is open and empty.
To do this:

- Loosen the sensor and move it in the oblong hole (4) until the bar (1) in the display is inside the rectangle (2).
- If necessary, move sensor additionally in the oblong holes (5).

Note
An audio signal will be heard if the bar (1) in the display is inside the rectangle (2).

- Tighten the screw connections of sensor (3).

Note
Setting is only possible if the bar (1) in the display is inside the rectangle (2).

Saving value:

- Press function key **OK**

The symbol in the upper line indicates that the displayed value is saved.

Diagnostics – power supply voltages

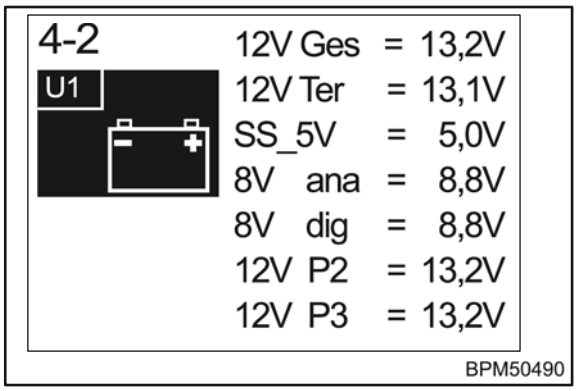


Fig. 78

Calling the menu

Main menu 4 “Service” is called.

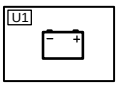
- Select menu 4-2  with  or  keys, the symbol is shown in reverse colours.
- Press  key.

The display shows menu 4-2 “Manual Sensor Test”.

Selecting the sensor

- Select sensor with  or  keys.

The selected sensor is displayed inversely and is tested.

No.	Sensor icon	Description
U1		**Supply voltage**

Nominal voltages:

- 12 V tot.: 12 - 14.5 V
- 12 V term: 12 - 14.5 V
- SS_5V: 4.5 - 5.5 V
- 8 V ana: 8.5 - 9.1 V
- 8 V dig: 8.5 - 9.1 V
- 12 V Pow2: 12 - 14.5 V
- 12 V Pow3: 12 - 14.5 V

- You can use the  key to close the menu that is currently displayed.

The display shows menu level 4 "Service".

- Pressing the  key and holding it down brings up the basic screen.

Danger! - Unexpected actions on the machine.
Effect: Danger to life or serious injuries.
- Only persons familiar with the machine are permitted to perform the actuator test
- The person performing the test must know which machine parts are moved by actuating the actuators. If necessary, secure the actuated machine components against unintentional lowering
- The actuator test must only be performed from a safe position outside the area that is affected by machine parts moved by the actuators
- Make certain there are no persons, animals or objects in the danger zone

6.10.2 Menu 4-4 "Manual Actuator Test"

The actuator test is used to test the actuators installed on the machine. An actuator can only be tested if power is flowing through it. In the manual actuator test the actuator must therefore be controlled manually for a short time to be able to determine if there are any errors in the actuator system.

CAUTION!
Unexpected actions on the machine.
The PTO must not be turning during the actuator test. The tractor hydraulics must be deactivated.

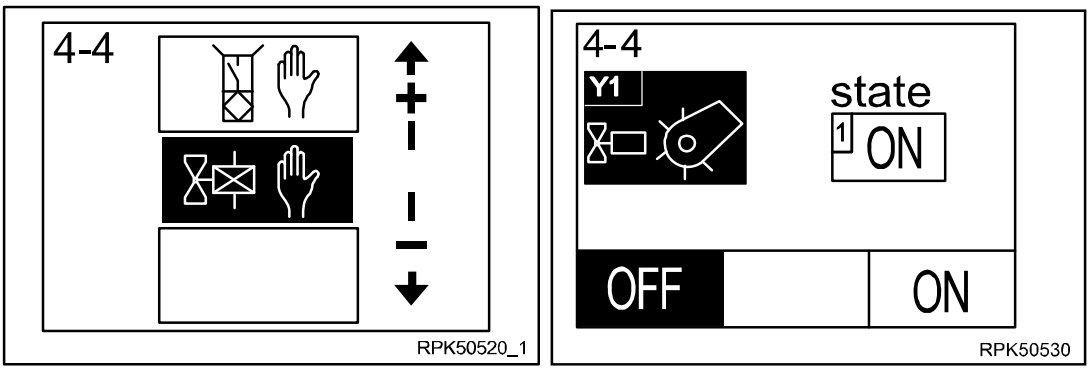


Fig. 79

Displaying the menu
Main menu 4 "Service" is called.
- You can select menu 4-4 with the + or − keys. The icon is shown in reverse colours.
- Press the OK key.

The display shows menu 4-4 "Manual actuator test".

Selecting the actuator
- Select the actuator with the + or − keys.

The selected actuator is displayed in reverse colours.

Diagnostics – digital actuators

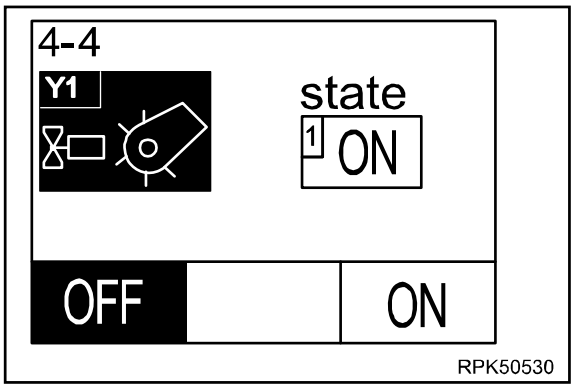
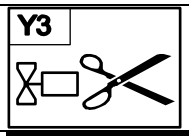
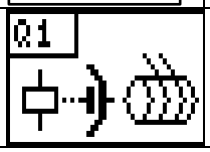


Fig. 80

Errors are only displayed if the actuator is turned on and a test is possible for the actuator (see the table called "Possible digital actuators"). If necessary, the LED on the plug right on the actuator can be used for monitoring.

- Press the key for softkey **ON**.
- Press the key for softkey **OFF**.

Possible digital actuators (depending on how the machine is equipped)

No.	Actuator symbol	Description
Y1		Valve pick-up
Y3		Valve blade
Q1		Coupling (twine tying)

State:

① ON Actuator on

② OFF Actuator off

③ General actuator error

④ FUSE No power supply; fuse is probably defective

Possible motors (depending on how the machine is equipped)

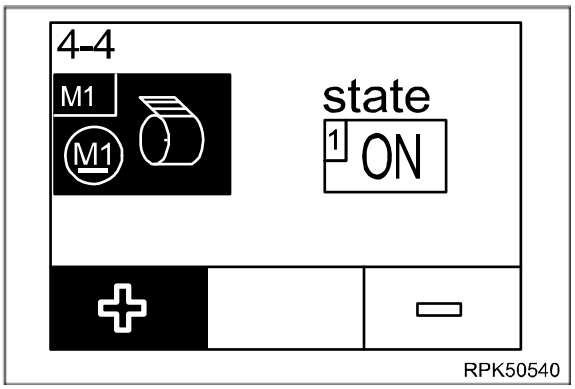


Fig. 81

- Press key 1 key for ✚ (extending engine). The function is only momentary-action.
- Press key 2 key for ▭ (retracting engine). The function is only momentary-action.

No.	Actuator symbol	Description
M1		Setting motor net tying / twine tying

State:

① ON Actuator on

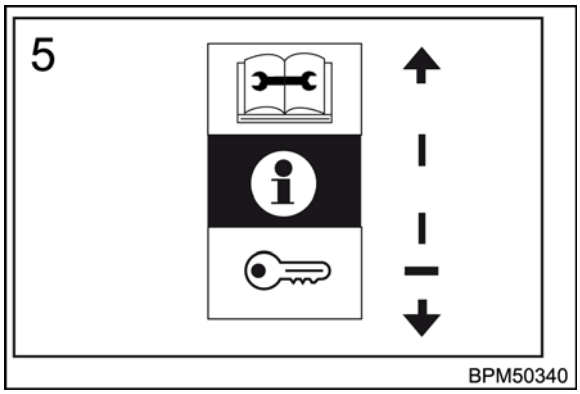
② OFF Actuator off

③ -/↯ General actuator error

- The esc button closes the open menu.

Pressing the esc button and holding it down brings up the home screen.

6.11 Main menu 5 "Info"



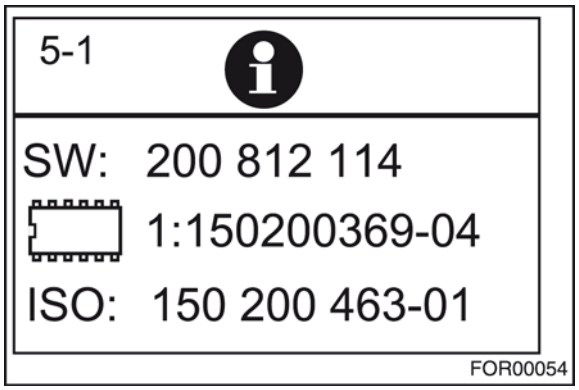


Fig. 82

Calling the main menu

- Use key to call the menu level.
- Use the keys or to select main menu 5 . The icon is shown inverted.
- Press key .

The display shows menu 5 "Info".

- SW = Complete software version of the machine
- = Version of the job computer
- ISO = ISO software version of the job computer

- Use key to close the currently displayed menu.

The display shows main menu 5 "Info".

- Press key to call the basic screen.

6.12 Main Menu 6 „Technician“

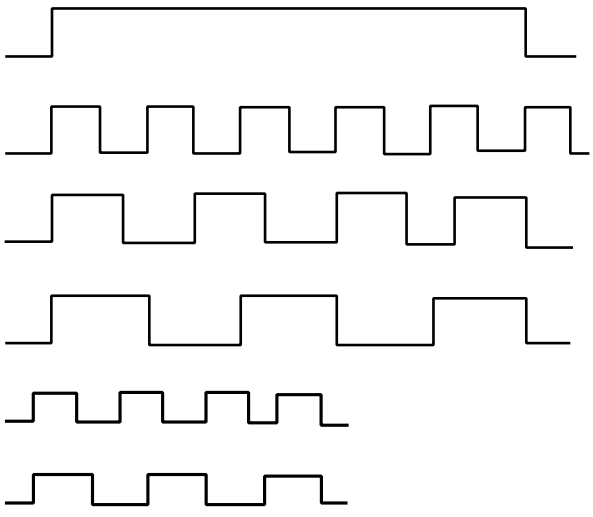
Calling the main menu

- Call the main menu with the key.
- You can select main menu 6 with the or keys. The icon is shown in reverse colours.
- Press the key.

Main menu 6 "Technician" is password-protected.
The display shows the password query.

6.13 Alarm messages

Audio signals



Continuous tone

Short interval

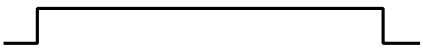
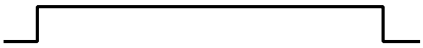
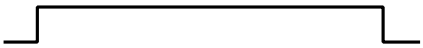
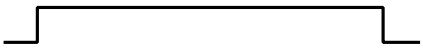
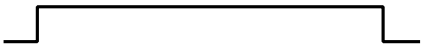
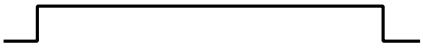
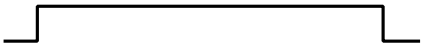
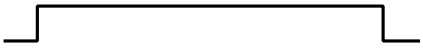
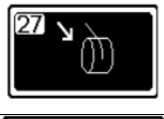
Medium interval

Long interval

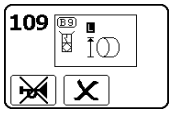
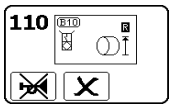
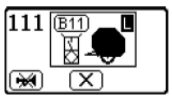
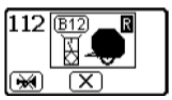
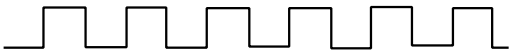
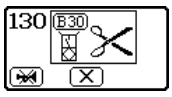
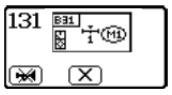
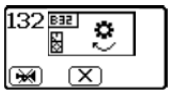
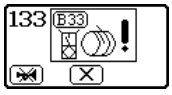
Wrapping is triggered

Filling reached, pre-signal reached, wrapping complete, bale chamber closed

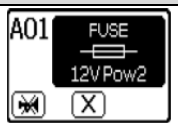
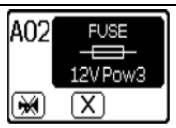
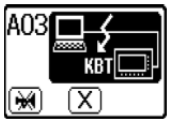
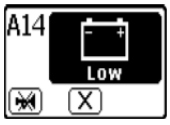
6.13.1 Note and messages

No.	Screen	Acoustic signal	Description
2			Maximum filling has been reached
5			Net has not been tied
6			Net stopped
7			Net is running
9			The net was not separated
10			Bale chamber not closed
14			Blade down
23			Twine has not been tied
24			Filling problem – left too small
25			Filling problem – right too small
26			Twine is not tied
27			Twine is running
29			Twine is not cut.

6.13.2 Physical messages

No.	Figure	Acoustic signal	Description
109			Sensor for “bale diameter left” defective (Fortima V) Sensor for “bale firmness left” defective (Fortima F)
110			Sensor for “bale diameter right” defective (Fortima V) Sensor for “bale firmness right” defective (Fortima F)
111			Sensor for “bale chamber closed” left defective
112			Sensor for “bale chamber closed” right defective (Fortima V)
130			Sensor for “blade monitoring” defective
131			Sensor for “Engine tying (centre)” defective
132			Sensor for “Tying process active” defective
133			Sensor for “Twine stop” defective

6.13.3 General Messages

No.	Figure	Acoustic signal	Description
A01		– Fuse in job computer is defective. – Short circuit at voltage outputs +12V2FU_L.	– Check the connection for short circuit and replace the fuse.
A02		– Fuse in job computer is defective. – Short circuit at voltage outputs +12V3FU_L.	– Check the connection for short circuit. – The fuse regenerates itself after cooling.
A03		CAN ERROR – The CAN connection between the control unit and the machine was interrupted. – Loose contact in the connection to the control unit.	– Check the CAN connection to the control unit.
A04		EEPROM error – Job computer defective.	– Replace job computer.
A14		Undervoltage – Tractor battery is defective. – Tractor dynamo is too weak. – The 12V supply on the tractor side is too weak or is not correctly connected to the tractor battery.	– Connect the KRONE connecting cable directly to the tractor battery. – Check the battery voltage. – Check the tractor dynamo.
A15		Overvoltage – Tractor dynamo is defective.	– Check the tractor dynamo.
A16		Access to protected memory slot 0. – Defect in job computer.	– Restart job computer (disconnect power supply from tractor to machine). – Replace job computer.
A17		Access to protected memory slots 0-6. – Defect in job computer.	– Restart job computer (disconnect power supply from tractor to machine). – Replace job computer.

7 KRONE ISOBUS Terminal

Note

In the operating instructions which follow, the terminal will also be referred to as the "control unit".

Caution! - Protect Control Unit.

Effect: Damage to the control unit

- The control unit must be protected against water.
- If the machine is not used for an extended period of time (for example during the winter), the control unit must be stored in a dry place.
- For mounting and repair jobs, especially for welding jobs on the machine, disconnect the power supply to the control unit. Overvoltage can damage the control unit.

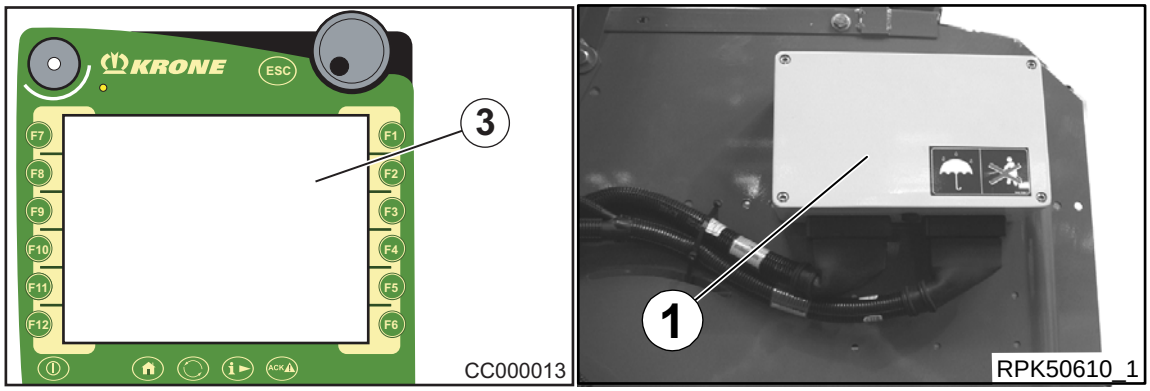


Fig.83

The electronic equipment of the machine consists essentially of the job computer (1), the terminal (3) and the control and function elements.

The job computer (1) is located on the front right of the machine under the side hood.

Its functions are:

- Control of the actuators installed on the machine
- Sensor system/actuator diagnostics
- Bale counter
- Transfer of alarm messages

The control unit (3) communicates information to the driver and performs settings to operate the machine. This information is received and further processed by the job computer.

7.1 Installing the terminal into cabin

Note

Please mind the terminal operating instructions included with delivery for the installation of the terminal into the tractor cabin.

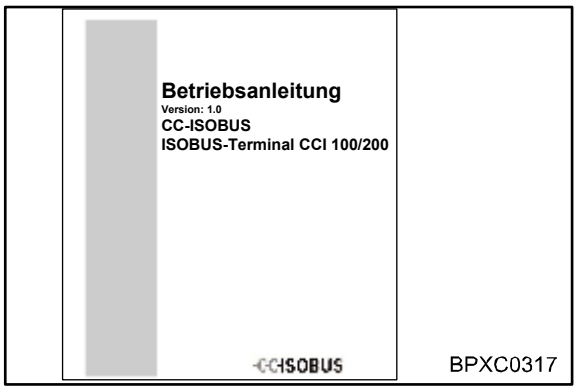


Fig. 84

7.2 ISOBUS Short Cut Button

DANGER! – risk of injury by running machine!

Your machine supports the ISOBUS short cut button.

- By actuation of the ISOBUS short cut button (1) the machine functions are switched off in order to be able to initiate a secure condition of the machine in hazardous situations. Process oriented procedures perform to the end. Therefore, machine parts continue to run after actuating the ISOBUS short cut button. This can lead to injuries
- The ISOBUS short cut button does in no case interfere with tractor functions, i.e. neither universal shaft functions nor hydraulic functions will be affected in any way! Therefore, the machine can continue to run after actuating the ISOBUS short cut button. This can lead to injuries

When actuating the ISOBUS short cut button (1) of the terminal which is of the pushbutton design, a stop command is sent to the ISOBUS. This command will be evaluated by your connected ISOBUS- machine in order to initiate the accordant automatic measures in hazardous situations, if necessary.

If the ISOBUS short cut button is actuated, the accordant alarm mask will be shown in the display:

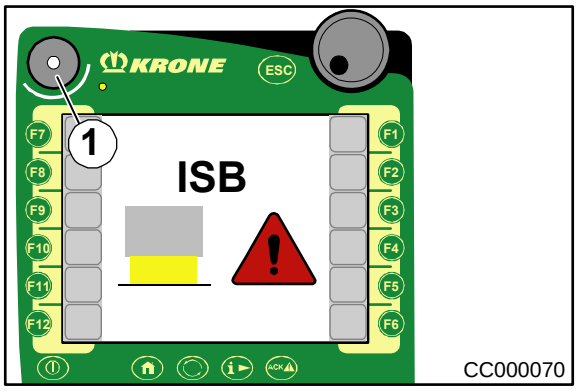


Fig. 85

The functions listed in the following are blocked by the job computer on machine side.

- Net tying / twine tying
- Valves, pick-up, cutter base

If the ISOBUS short cut button is deactivated again, the following message will appear in the display:

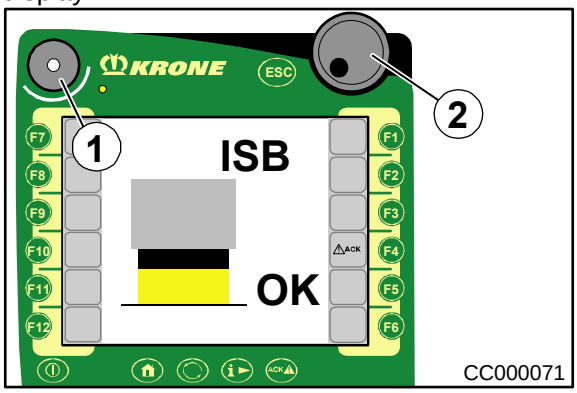


Fig. 86

The alarm mask is exited by actuating the function key 

. It is only now that all functions of the machine are available again.

7.2.1 Display / Touchscreen

The terminal is equipped with a high quality touchscreen for menu navigation and entering data and text easily. Functions can be activated directly and values can be changed by touching the screen.

Note

Use the scroll wheel (2) to execute the same functions as via the touchscreen.

The following input mask appears after touching the touchscreen:

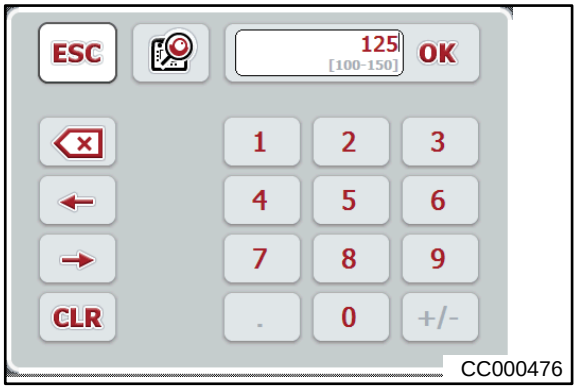


Fig. 87

- Enter the desired value and press **OK** to confirm.
- Press **ESC** to exit the input mask.

- Press function key **ESC** to close the currently displayed menu
- Press function key **ESC** a little longer to call the basic screen

7.2.2 Connecting the Terminal (on tractors with integrated ISOBUS system)

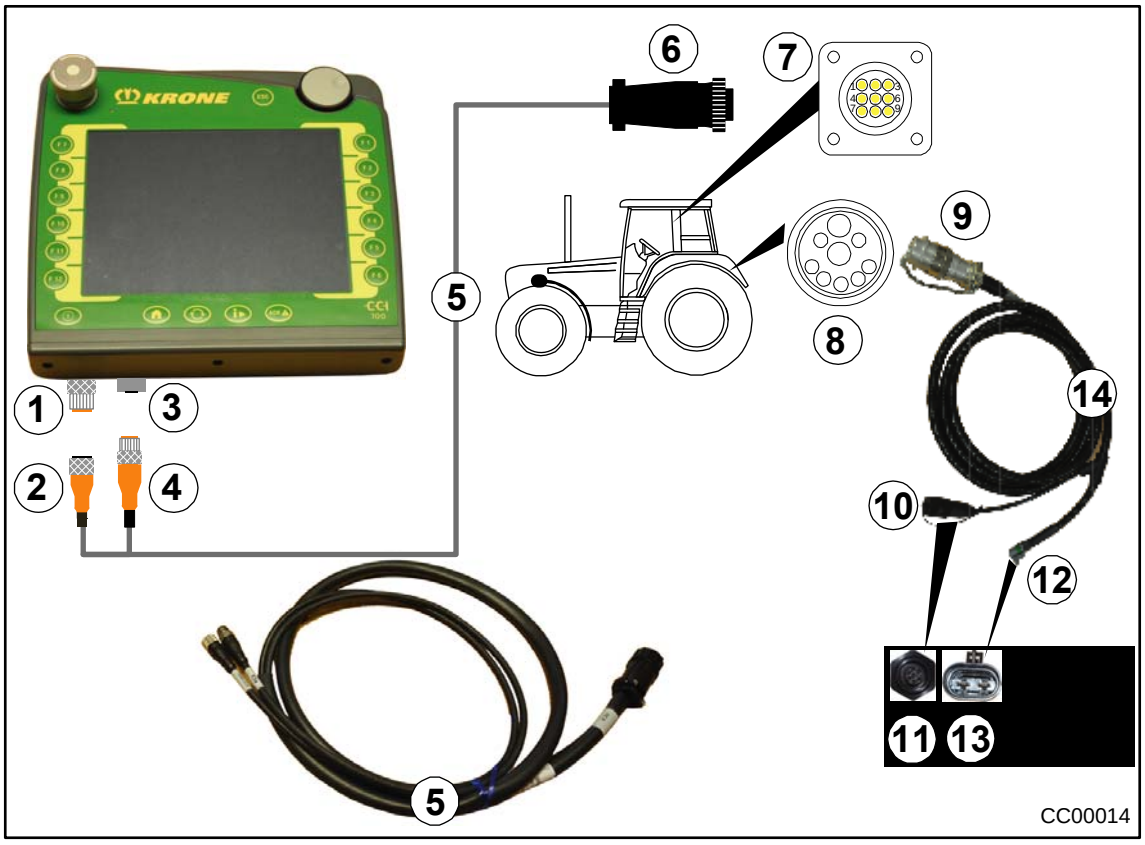


Fig. 88

Connection terminal to tractor

Note

The terminal is connected to the tractor via a special cable set (5) which can be ordered by stating the KRONE article no. 20 081 223 0.

- Connect plug (2) of cable set (5) with socket (1) (CAN1-IN) of the terminal.
- Connect plug (4) of cable set (5) with socket (3) (CAN1-out) of the terminal.
- Connect ISO plug (6) (9-pole) of cable set (5) with the ISO socket (7) (9-pole) located in the tractor cabin.

Connection tractor to machine

Note

The tractor is connected to the machine via cable set (14) which can be ordered by stating KRONE article no. 20 080 384 0.

- Connect ISO-plug (9) (9-pole) of cable set (14) with the outer ISO socket (8) (9-pole) on tractor side.
- Connect plug (10) (7-pole) of cable set (14) with socket (11) (7-pole) of the machine.
- Connect plug (12) (2-pole) of cable set (14) with socket (13) (2-pole) of the machine.

7.2.3 Connecting the terminal (on tractors without ISOBUS system)

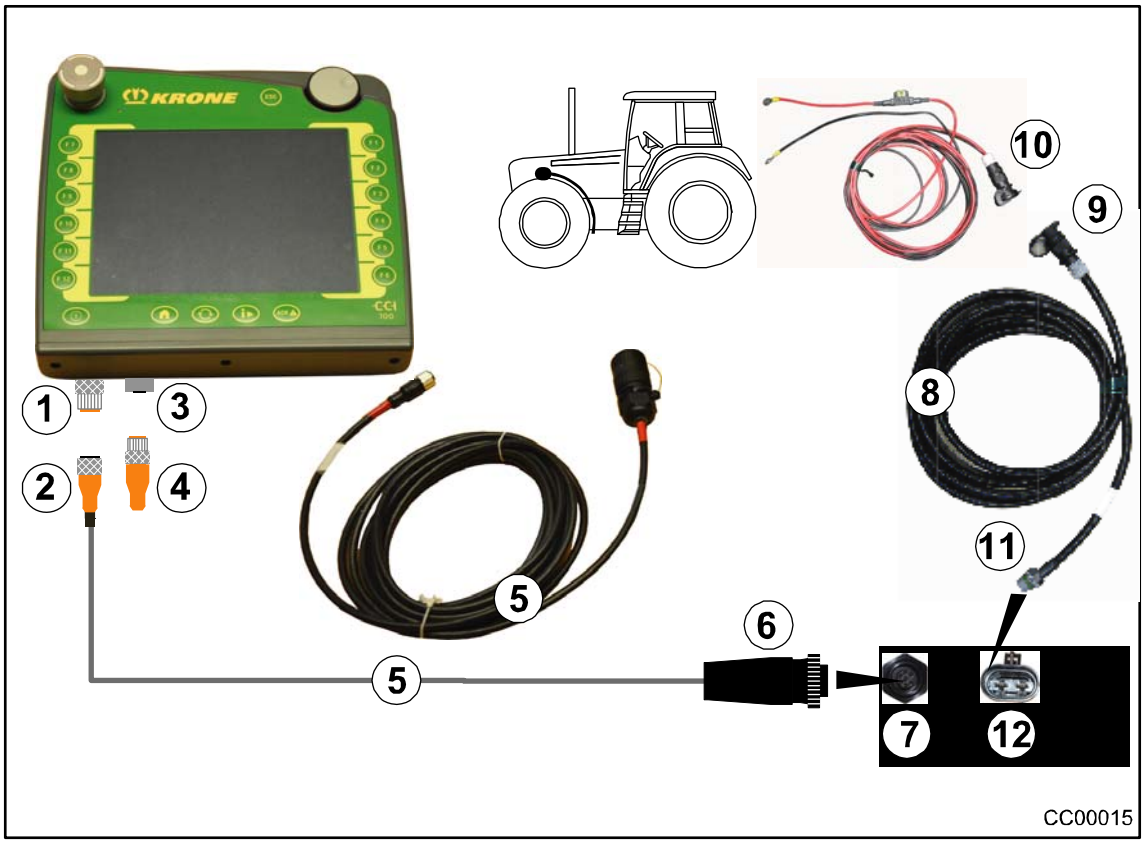


Fig. 89

Connection terminal to machine

Note

The connection of terminal to machine takes place via a provided cable set (5) (article no. 20 081 224 0).

- Connect plug (2) of cable set (5) with socket (1) (CAN1-IN) of the terminal
- Connect plug (6) (7-pole) of cable set (5) with socket (7) (7-pole) of the machine
- Connect connector plug (4) (article no. 00 302 300 0 included in scope of delivery) with socket (3) (CAN1-OUT) of the terminal

Connection tractor to machine

Note

The connection of tractor to machine takes place via a provided power cable (8) (article no. 20 080 601 0).

- Connect plug (9) of power cable (8) with continuous current socket (10) of the tractor
- Connect plug (11) (2-pole) of power cable (8) with socket (12) (2-pole) of the machine

7.2.4 Switching the terminal on / off when the machine is not connected



Fig. 90

Note

Before switching the terminal on for the first time make sure that the connections on the device are fastened right and securely.

By pressing and holding (for approx. 2 sec.) the key (1) (ON/OFF) the terminal will be switched on or off.

Note

For further information on the functioning of the ISOBUS terminal CCI refer to the terminal operating instructions included with delivery.

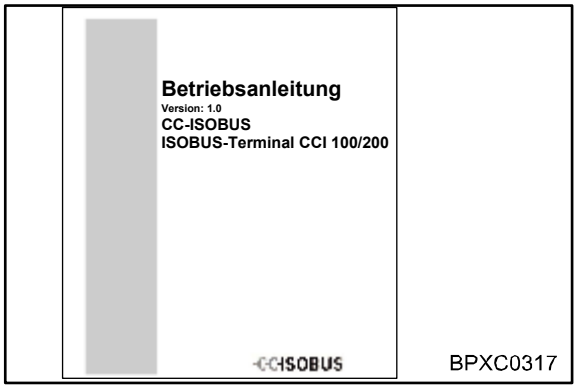


Fig. 91

7.2.5 Switching the terminal on / off when the machine is connected

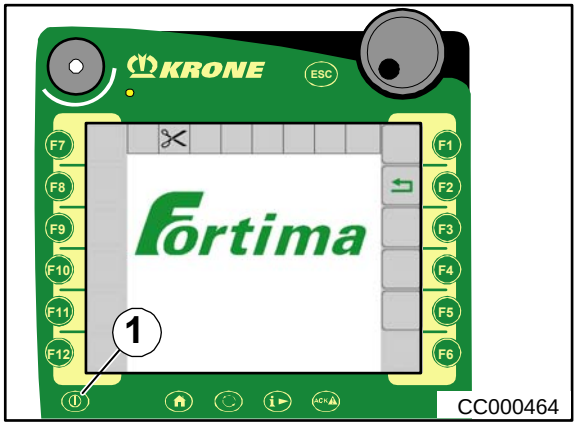


Fig. 92

Note
Before switching the terminal on for the first time make sure that the connections on the device are fastened right and securely.

By pressing and holding (for approx. 2 sec.) the key (1) (ON/OFF) the terminal will be switched on or off.

Note - Prior to first use
When switching on for the first time the configuration of the specific menu of the machine is uploaded into the terminal. The loading may take a few minutes. The configuration will be saved on the memory of the terminal.

Note
For further information on the functioning of the ISOBUS terminal CCI refer to the terminal operating instructions included with delivery.

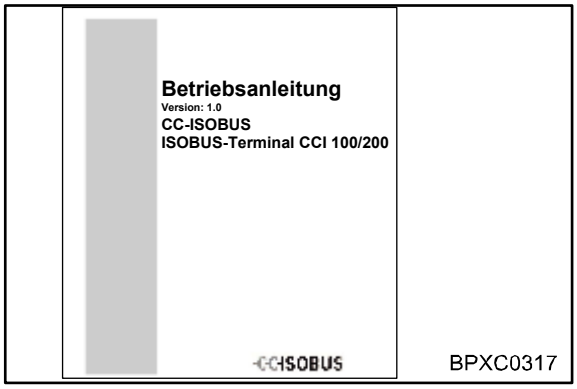


Fig. 93

- The “start-up screen” is shown in the display after the loading process

The terminal is now ready for operation.

- By pressing the function key the basic screen appears.

7.3 Basic Screen

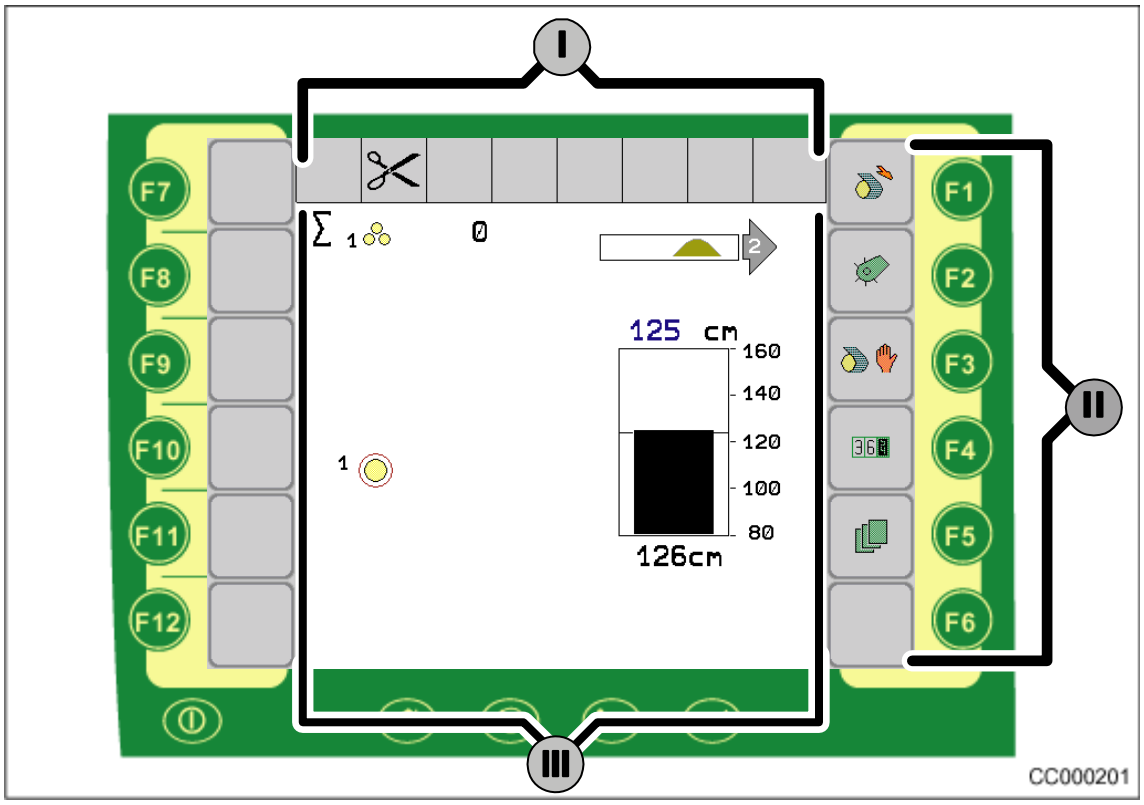


Fig.94

Status line (I)

Current states of the machine (depending on how it is equipped) are shown in the top line of the display:

Alarm message is pending

Blades are swivelled in

Blades are not swivelled in

Description of the symbols (II) for the function keys (F1 to F6)

	Net feeding manual mode	Net is fed when actuating the function key
	Pre-select Pick-up valve	The activated setting is shown
	Pre-select valve cutter base adjustment	
	Pre-select manual mode	The activated mode is shown
	Pre-select automatic mode	
	Setting the customer counter	The menu 2-1 "Customer counter" is displayed (for settings see menu 2-1 "Customer counter") when actuating the function key.
	Menu level of the machine	By actuating the function key the menu level of the machine will be called.

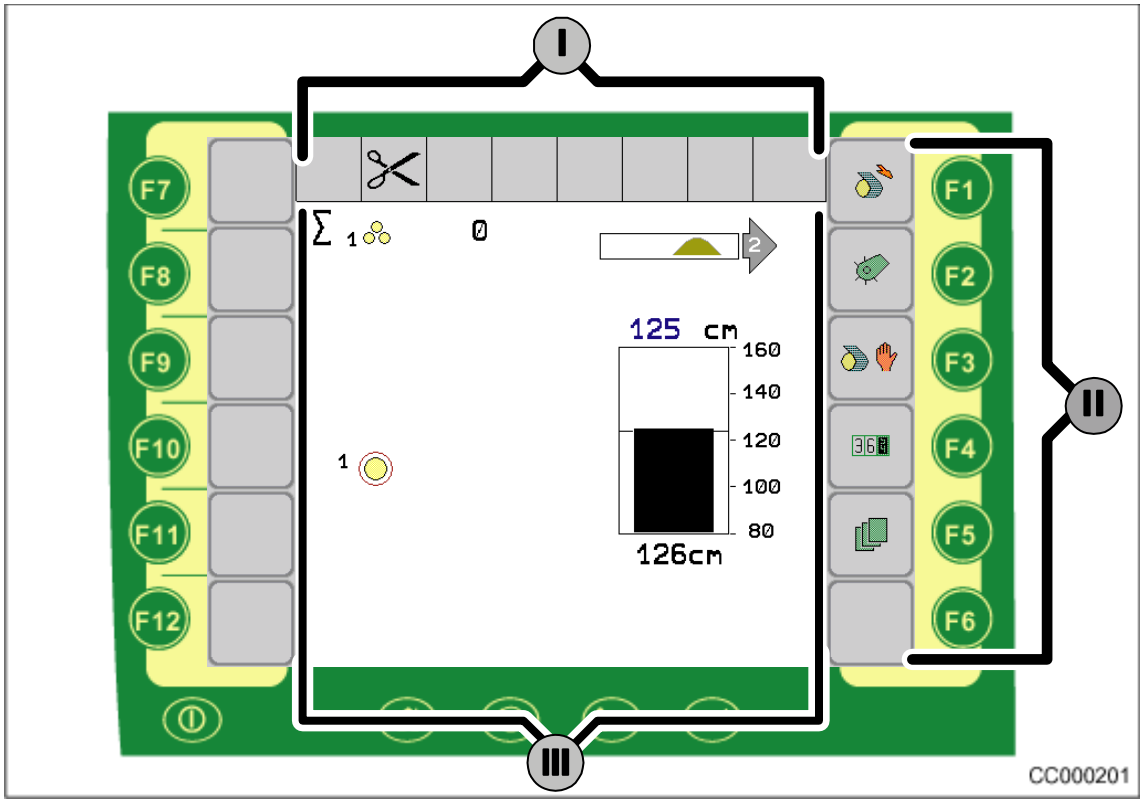


Fig.95

Displays on the main window (III) (depending on the machine configuration)

	Customer counter
	Value of bale diameter/bale firmness reached (flashing)
2N / 2G	Net/Twine is fed
3N / 3G	Net/Twine has not been tied
4N / 4G	Net/Twine wrapping process is active
5N / 5G	Net/Twine wrapping process is stopped
6N / 6G	Net/Twine wrapping cut off
7N / 7G	Net/Twine wrapping not cut off
8N / 8G	Net/Twine wrapping finished

7.3.1 Setting the Setpoint Bale Firmness

Fortima F

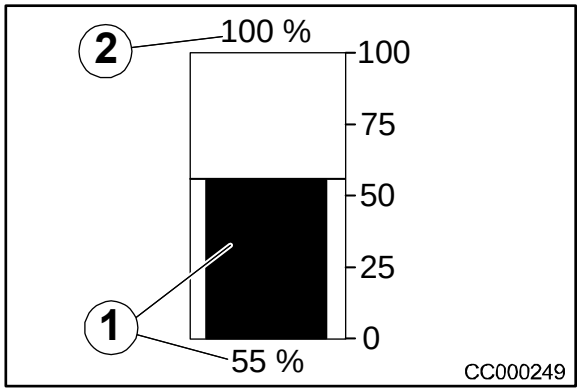


Fig. 96

Display Bale Firmness

The value (1) under the bar display and the height of the bar (1) indicate the current actual bale firmness as a %.
The value (2) above the bar display (2) shows the setpoint bale firmness set in per cent.

The bale firmness is specified by the user in the basic screen.

- You can use the scroll wheel to select the desired value (the selection box is highlighted in colour)
- Pressing the scroll wheel allows you to jump into the selection box (the selection box is highlighted in colour)
- Turning the scroll wheel increases or reduces the value
- Pressing the scroll wheel causes the setting to be applied and returns you from the selection box

Note
The values can also be set via the touchscreen.

7.3.1 Setting the Target Bale Diameter

Fortima V

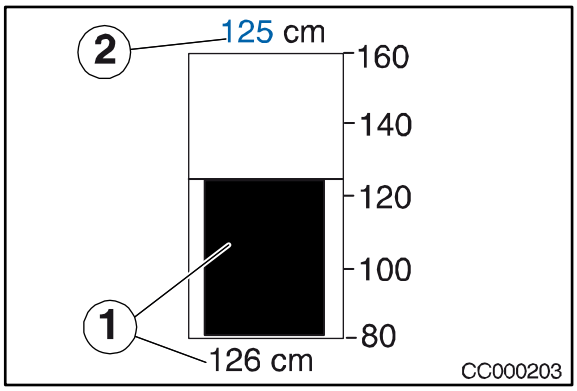


Fig. 97

Display Bale Diameter

The value (1) under the bar display and the height of the bar (1) indicate the current actual bale diameter in cm.
The value (2) above the bar display (2) shows the setpoint bale diameter set in cm.

The bale diameter is specified by the user in the basic screen.

- Select the desired value with the scroll wheel (the selection box is highlighted in colour)
- Pressing the scroll wheel allows you to jump into the selection box (the selection box is highlighted in colour)
- Turning the scroll wheel increases or reduces the value
- Pressing the scroll wheel causes the setting to be applied and returns you from the selection box

Note
The values can also be set via the touchscreen.

7.4 Messages

Information message

The information message will appear only, if the main operation display has been set. The message will disappear automatically, when the cause for the information message has been removed.

Message bale chamber has not been closed

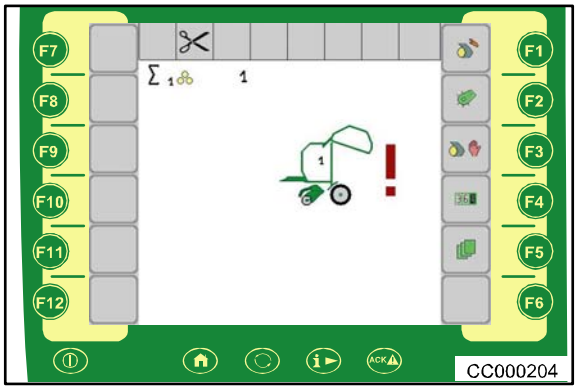


Fig.98

The softkeys in the lower line continue to be active whilst the information message is displayed.

7.5 Menu Level

7.5.1 Short Overview

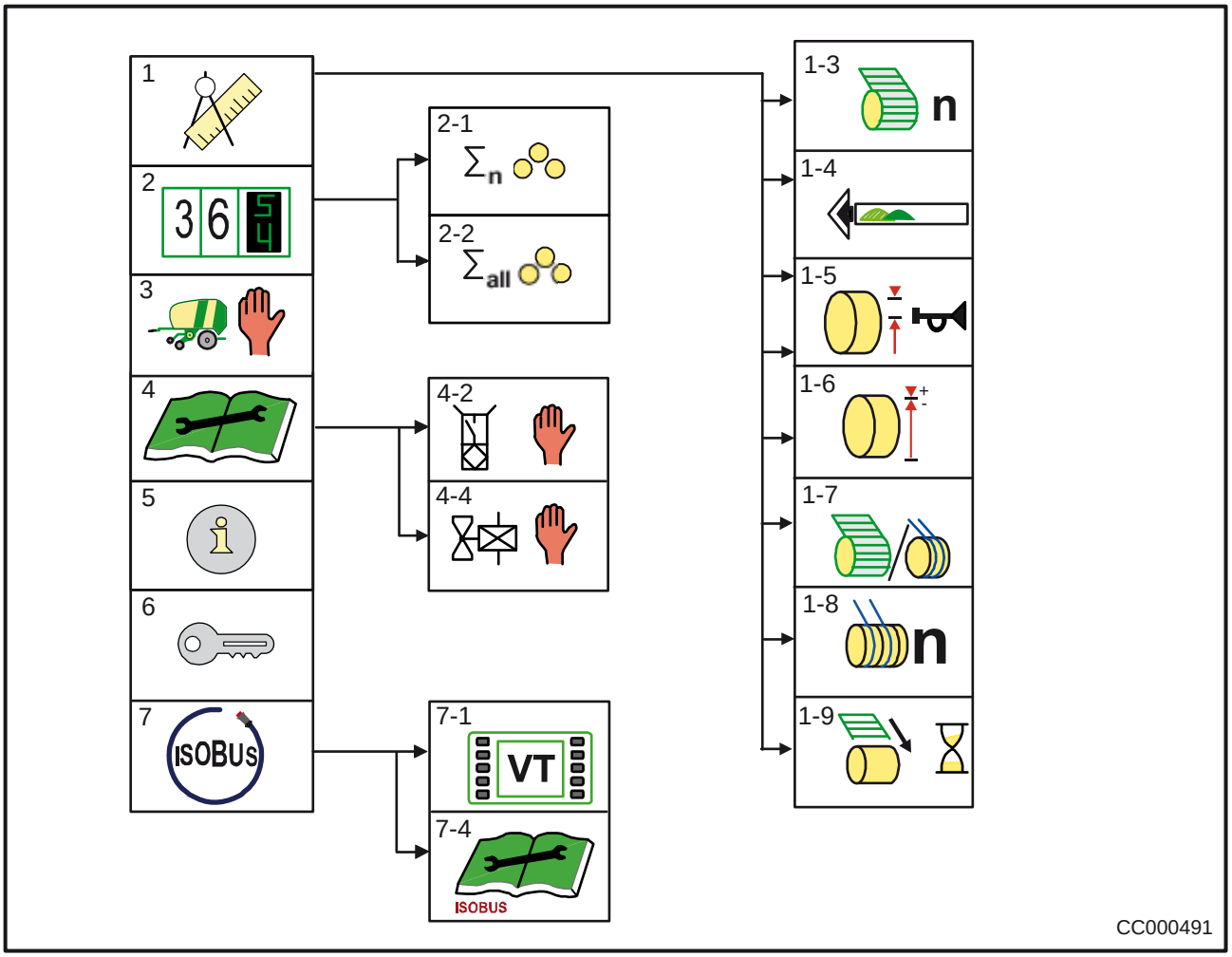
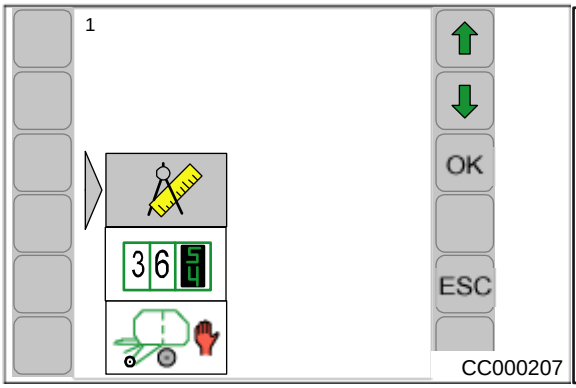


Fig. 99

1	**Settings**
1-3	Number of net wrappings
1-4	Sensitivity of direction display
1-5	Pre-signalling
1-6	Correction filling
1-7	Selection type of tying
1-8	Number of twine wraps (only twine tying with magnetic coupling)
1-9	Tying start delay
2	**Counter**
2-1	Customer counter
2-2	Total counter
3	**Manual operation**
4	**Service**
4-2	Manual sensor test
4-4	Manual actuator test
5	**Info**
6	**Technician**
	ISOBUS
7-1	Virtual Terminal
7-4	ISOBUS diagnostics

7.5.2 Calling up the menu level



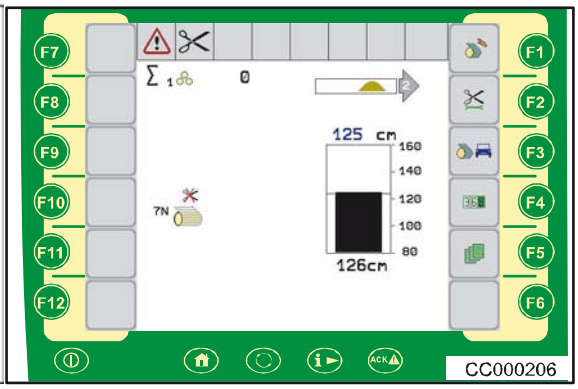


Fig.100

By pressing the function key in the main window you get into the menu level of the machine.

The menu level is shown in the display.

The menu level is divided into six main menus:

	= main menu 1 "Settings"
	= main menu 2 "Counters"
	= main menu 3 "Manual operation"
	= main menu 4 "Service"
	= main menu 5 "Info"
	= main menu 6 “Technician"

Select the desired main menu by pressing the function key or . The selected symbol is shown in reverse colours.

- Pressing the function key **OK** brings up the menu level of the main menu that is selected.
- Pressing the function key **ESC** closes the called up menu.
- Pressing the function key **ESC** and holding it down brings up the basic screen.

7.6 Main Menu 1 „Settings“

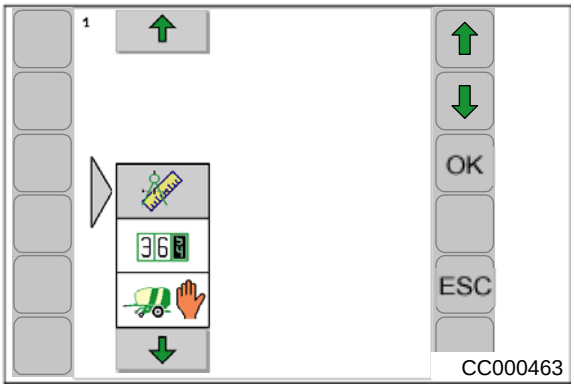


Fig. 101

- By pressing the function key in the basic screen you get into the menu level of the machine
- Select main menu 1 ( ) by pressing function key or , the symbol is shown in reverse colours
- Press function key **OK**

The display shows menu level 1 "Settings". The menu level 1 "Settings" is divided into the following menus, depending on how the machine is equipped:

Menu 1-3 “Number of Net Winds”

Menu 1-4 “Sensitivity of direction display”

Menu 1-5 “Pre-Signalling”

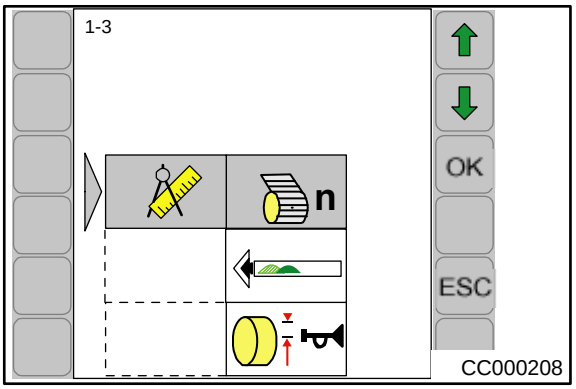
Menu 1-6 “Filling Correction“

Menu 1-7 "Selection type of tying”

Menu 1-8 "Number of Twine Wraps”

Menu 1-9 “Tying Start Deceleration”

7.6.1 Menu 1-3 "Number of net winds"



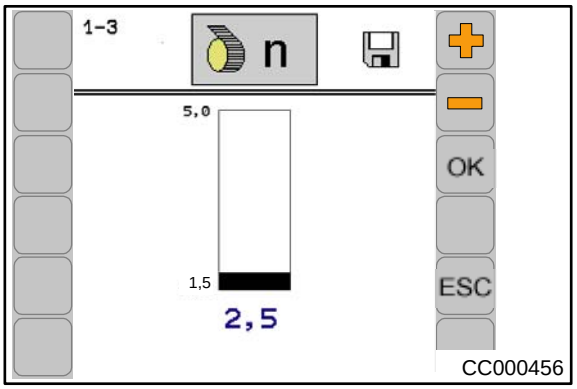


Fig. 102

Calling the menu

Main menu 1 "Settings" appears.

- Press function key ↑ or ↓ to select menu 1-3 n. The symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 1-3 "Number of net winds".

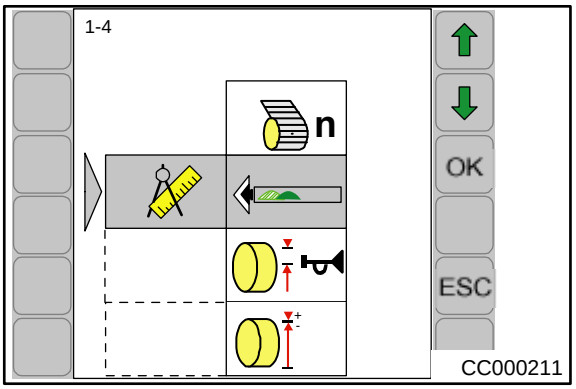
The 💾 icon in the upper line indicates that the displayed status has been saved.

Setting the number of net winds

The number of net winds is displayed in wraps (e.g. 2,5 equals 2,5 wraps).

- Use the function key + or − to set the desired number of net winds. The 💾 icon in the upper line disappears
- Press function key **OK**. The set status is saved, the 💾 icon appears in the upper line
- Press function key **ESC** to close the currently displayed menu
- Press function key **ESC** a little longer to call the basic screen

7.6.2 Menu 1-4 "Sensitivity of direction display"



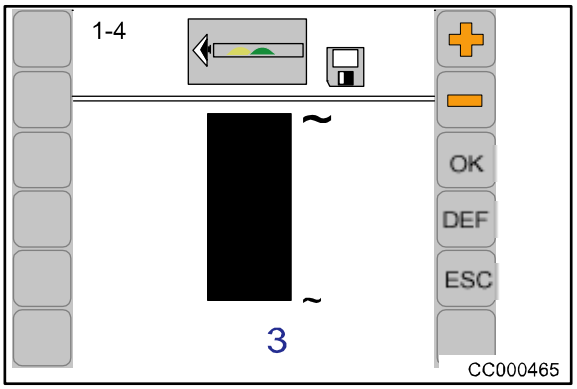


Fig. 103
Setting the sensitivity of the direction display

Calling the menu

Main menu 1 "Settings" appears.

- Press function key ↑ or ↓ to select menu 1-4  . The symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 1-4 "Sensitivity of direction display".

The progress bar indicates the set sensitivity. The higher the bar, the greater the sensitivity of the direction display. The  icon in the upper line indicates that the displayed value has been saved.

Setting and saving the sensitivity of direction display

The higher the sensitivity of direction display is set, the stronger the motion indication in the form of arrows (1) ().

- Use function key  or to set the sensitivity. The  icon in the upper line disappears
- Press function key **OK**. The set sensitivity is saved, the  icon appears in the upper line
- Press function key **ESC** to close the currently displayed menu
- Press function key **ESC** a little longer to call the basic screen



Note

An even filling of the bale chamber ensures optimally shaped bales and additionally protects the floor conveyor chains of the machine. Therefore it is recommended to set the sensitivity of direction display.

7.6.3 Menu 1-5 „Pre-Signalling"

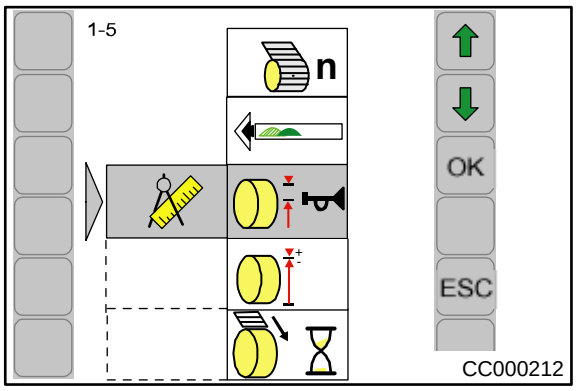


Fig. 104

Note

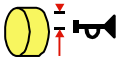
Pre-signalling indicates how far in advance it is signaled that the setpoint value

– of bale diameter (Fortima V) or
– of bale firmness (Fortima F)

will be reached shortly.

Calling the menu

Main menu 1 “Settings” is called.

- Select menu 1-5  by pressing function key ↑ or ↓, the symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 1-5 “Pre-signalling”.

The symbol  in the upper line indicates that the displayed value is saved.

Setting pre-signalling:

Fortima F

The value is displayed as percentage.

Fortima V

The value is displayed in cm.

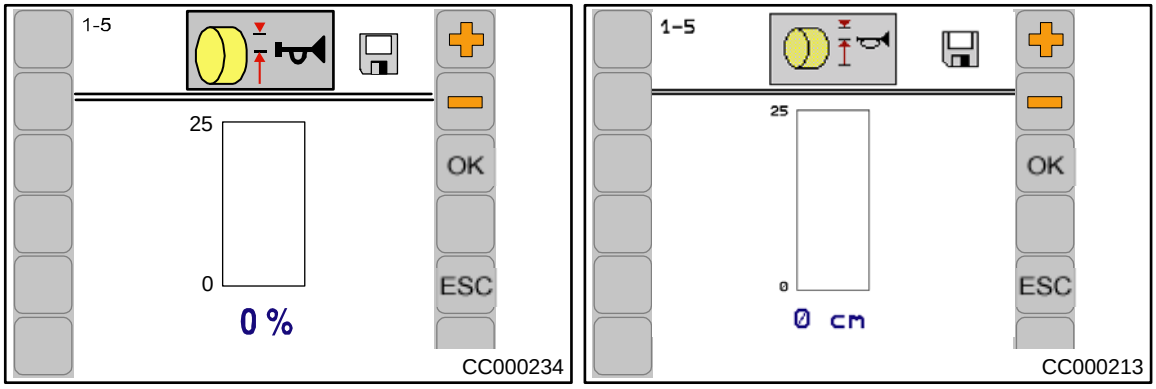


Fig. 105

- Set the desired time delay by using function keys + or −, symbol in the upper line goes out
- Press function key **OK**, the set time delay is saved, the symbol appears in the upper line.
- Pressing function key **ESC** closes the called up menu
- Pressing function key **ESC** and holding it down brings up the basic screen

Example

Set target value of bale diameter: 1.50 m

Set value of pre-signalling: 25 cm

The audio signal sound can be heard if the actual value of the bale diameter is 1.25 m.

7.6.4 Menu 1-6 „Filling Correction"

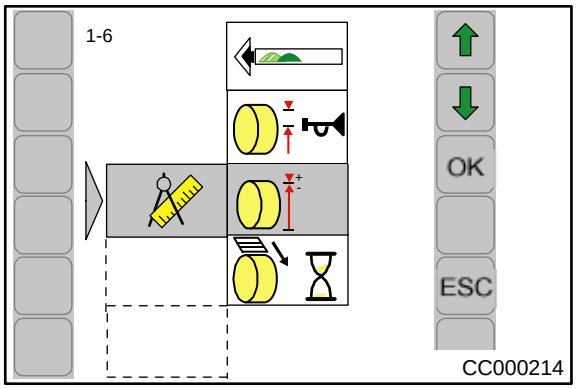


Fig. 106

Note
If the bale size or firmness is too great or not great enough, bale size and firmness can be corrected within a predefined range via menu 1-6 "Filling Correction".

Calling the Menu

Main menu 1 “Settings” is called.

- Select menu 1-6 by pressing function key or , The symbol is highlighted in grey.
- Press function key **OK**

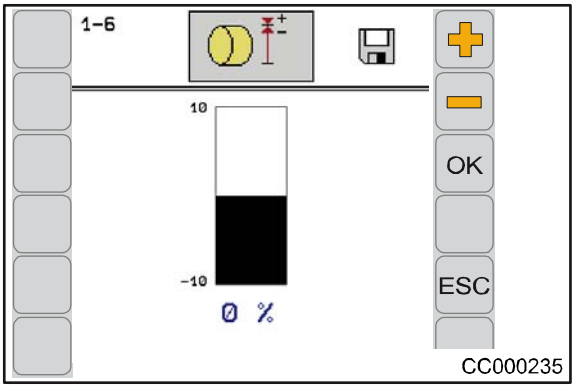
The display shows menu 1-6 “Filling Correction".

The symbol in the upper line indicates that the displayed value is saved.

The values can be corrected in the following areas:

Fortima F

Bale firmness: -10 % to +10 %



Fortima V

Bale size: -10 cm to +10 cm

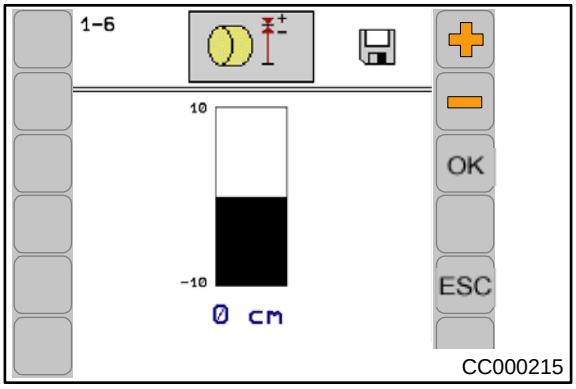


Fig. 107

- Increase or reduce the desired value by using function key + or −, the symbol in the upper line goes out
- Press function key **OK**

The symbol in the upper line indicates that the displayed value is saved.

- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

7.6.5 Menu 1-7 "Select type of tying"

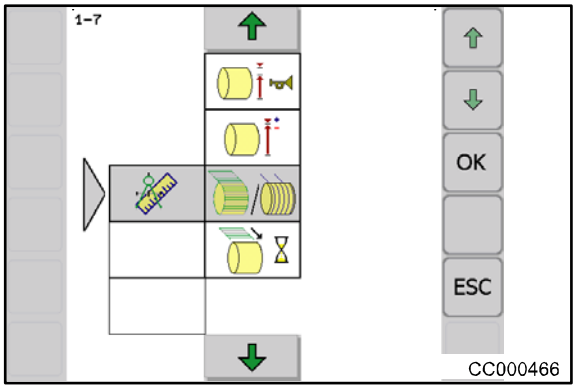
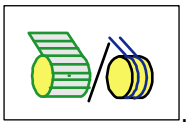


Fig. 108

Calling the menu

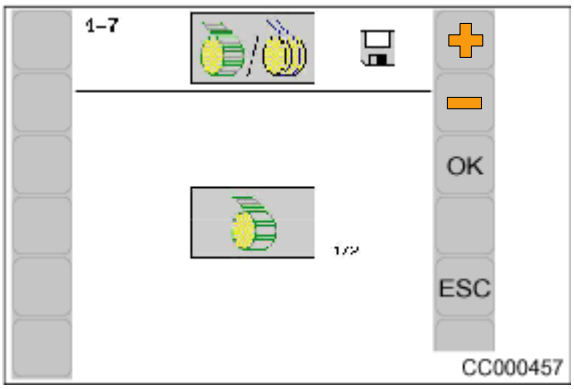
Main menu 1 "Settings" appears.

- Press function key ↑ or ↓ to select menu 1-7  . The icon is colour highlighted
- Press function key **OK**

The display shows menu 1-7 "Type of tying".

Setting the type of tying

Net wrapping



Twine tying

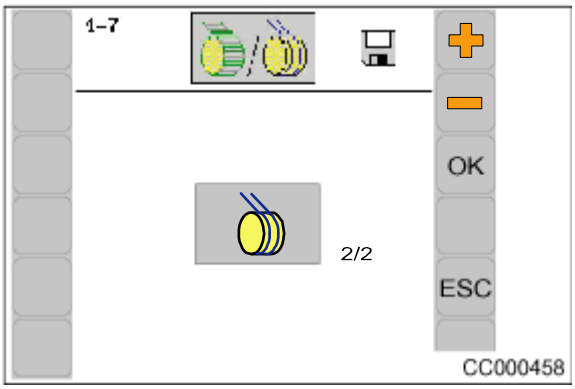


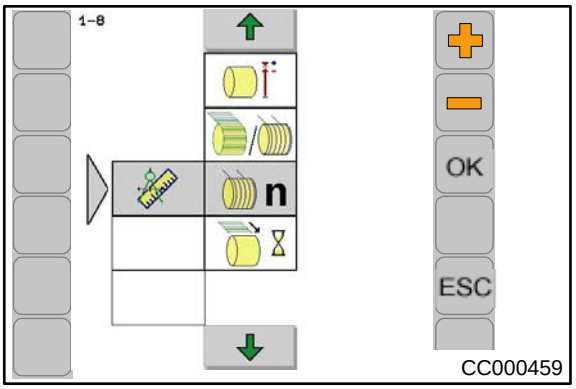
Fig. 109

- Press function key ↑ or ↓ to set the desired type of tying. The  icon in the upper line disappears.
- Press function key **OK**

The  icon in the upper line indicates that the displayed value has been saved.

- Press function key **ESC** to close the currently displayed menu
- Press function key **ESC** a little longer to call the basic screen

7.6.6 Menu 1-8 „Number of Twine Wraps"



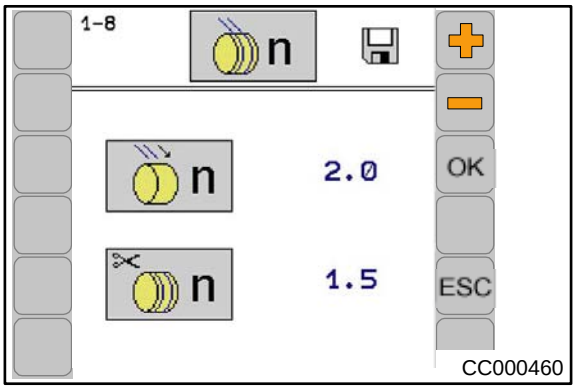


Fig. 110

The number of twine wraps can be entered via menu 1-8 “Number of Twine Wraps”.

Calling the Menu

Main menu 1 “Settings” is called.

- Select menu 1-8  by pressing function key ↑ or ↓, the symbol is highlighted in colour.
- Press function key **OK**

The display shows menu 1-8 “Number of Twine Wraps”. The following functions can be adjusted in the menu:

 “Inserting Twine Wraps”

 “Cutting Off Twine Wraps”

Note

The settings in the menu 1-8 “Number of Twine Wraps” can only be changed via touch screen or by using the scroll wheel.

7.6.7 Menu 1-9 „Tying Start Delay"

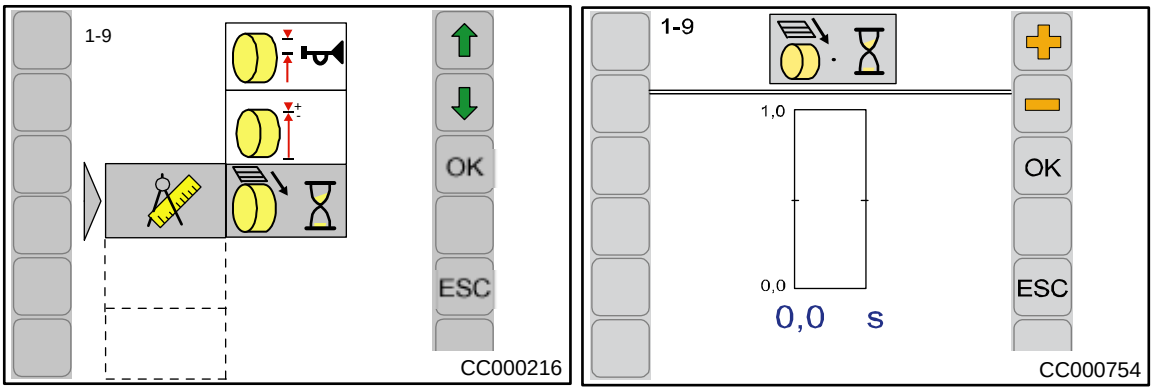
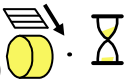


Fig. 111

Calling the menu

Main menu 1 “Settings” is called.

- Select menu 1-9  by pressing function key ↑ or ↓, the symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 1-9 “Tying Start Delay”.

Setting the tying start delay

The time delay is displayed in seconds.

Note

Tying start delay indicates how much time there is between

– “Setpoint value of bale diameter reached” (Fortima V) or

– “Setpoint value of bale firmness reached” (Fortima F)

and “Triggering tying process” (in automatic mode).

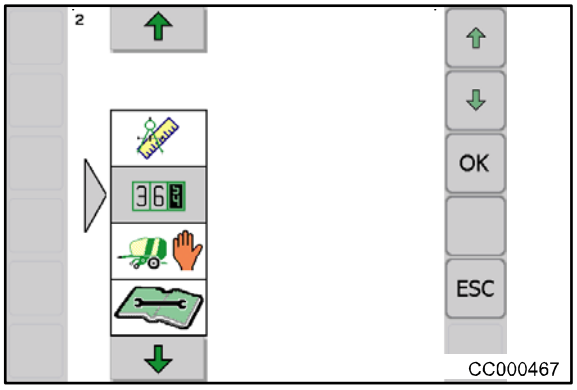
Due to this function, the driver gets sufficient time to move tractor and machine to a complete standstill before tying process starts automatically.

- Use function key + or − to set the desired time delay, the symbol  in the upper line will disappear
- Press function key **OK**

The symbol  in the upper line indicates that the displayed value is saved.

- Pressing function key **ESC** and holding it down closes the called up menu
- Pressing function key **ESC** and holding it down brings up the basic screen

7.7 Main menu 2 "Counters"



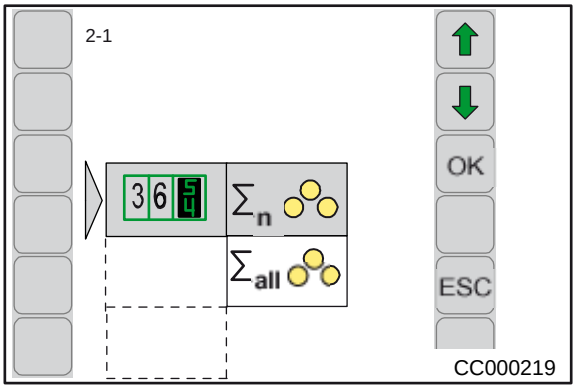


Fig. 112

Calling the main menu

- Press function key to access the menu level via the basic screen
- Press function key or to select main menu 2 . The symbol is highlighted in grey.
- Press function key **OK**

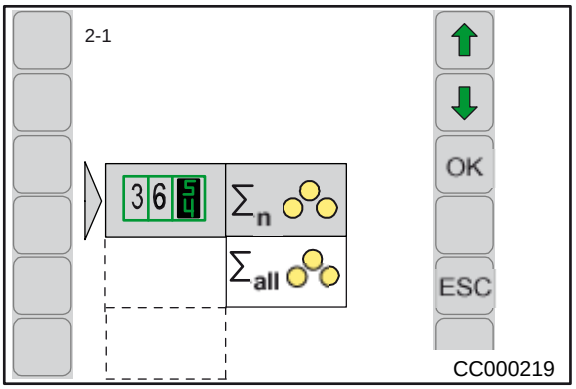
The display shows menu level 2 "Counters".

Menu level 2 "Counters" is divided into two menus:

Σ_n = Menu 2-1 "Customer counters"

Σ_{all} = Menu 2-2 "Total counters"

7.7.1 Menu 2-1 „Customer Counter“



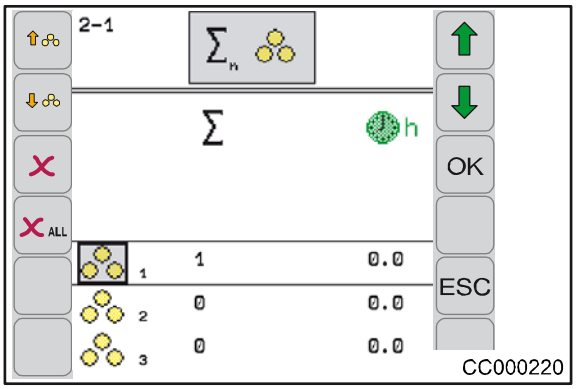


Fig. 113

Calling the menu

Main menu 2 “Counters” is called

- Select menu 2-1 Σ_n by pressing function key ⬆ or ⬇, the symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 2-1 “Customer Counter”.

Meaning of the symbols:

Σ = Total number of bales

1 = Active customer counter (1 - 20)

h = Operating hours counter (counts only when the terminal is switched on)

Activating customer counters

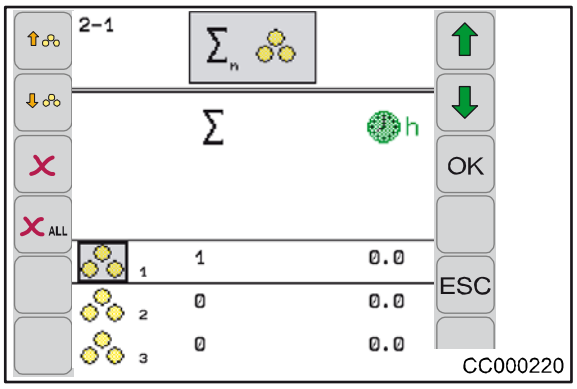


Fig.114

- Press function key ↑ or ↓ to select the desired customer counter and activate by pressing the function key **OK**. The desired customer counter (in this case customer counter 1) is highlighted in grey.

Changing the number of bales

- Press function key ↑ or ↓ to select the desired customer counter (the customer counter must not be activated)
- Increase the number of bales by pressing the function key ↑
- Reduce the number of bales by pressing the function key ↓

Deleting the customer counter

- Press function key ↑ or ↓ to select the desired customer counter (the customer counter must not be activated)
- By pressing the function key X the selected customer counter is set to zero
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

7.7.2 Menu 2-2 „Total Bale Counter“

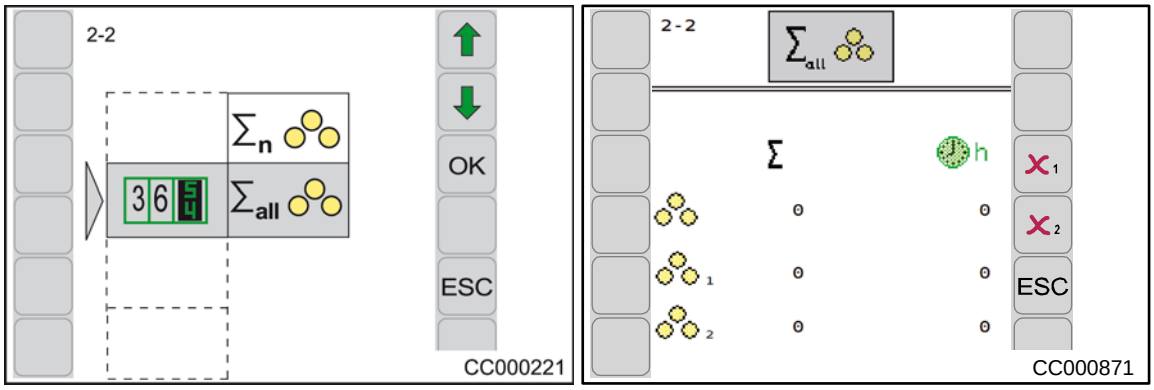


Fig. 115

Calling the menu

Main menu 2 “Counters” is called

- Select menu 2-2 Σ_{all} by pressing function key ↑ or ↓, the symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 2-2 “Total Bale Counter”. The total number of bales is the sum of all pressed bales. They are not assigned to any customer counter.

Meaning of the symbols:

= Bale counter (cannot be deleted)

= Operating hours counter (counts only when the terminal is switched on)

= Season counter 1 (can be deleted)

= Season counter 2 (can be deleted)

Deleting season counter 1 or daily counter 2

- Season counter is set to zero by pressing function key X1.
- Season counter 2 is set to zero by pressing function key X2.
- Pressing function key **ESC** closes the called up menu.
- Pressing function key **ESC** and holding it down brings up the basic screen.

7.8 Main menu 3 "Manual operation"

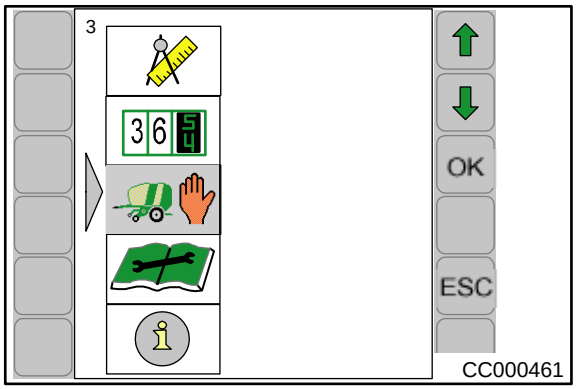


Fig. 116

Calling the menu

- Press function key to access the menu level via the basic screen
- Press function key or to select main menu 3 ( ) . The symbol is highlighted in grey.
- Press function key **OK**

The display shows menu level 3 "Manual operation".

7.8.1 Menu 3-2 "Position of net motor"

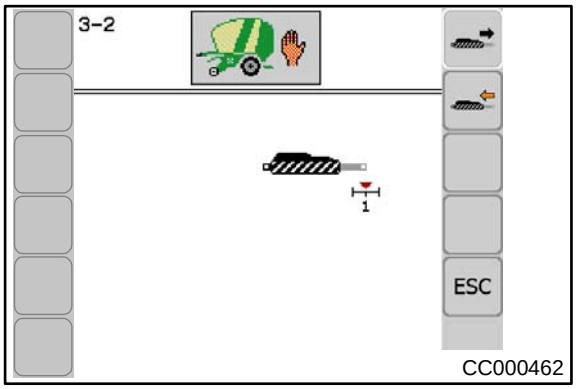


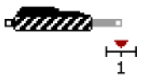
Fig. 117

Calling the menu

Main menu 3 "Manual operation" is called

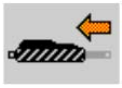
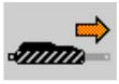
- Press function key ⬆ or ⬇ to select menu 3-2 (). The symbol is highlighted in grey.
- Press function key **OK**

The following current states of the machine are shown in the display:

 = Motor in the centre position

 = Positions not defined

Moving the motor

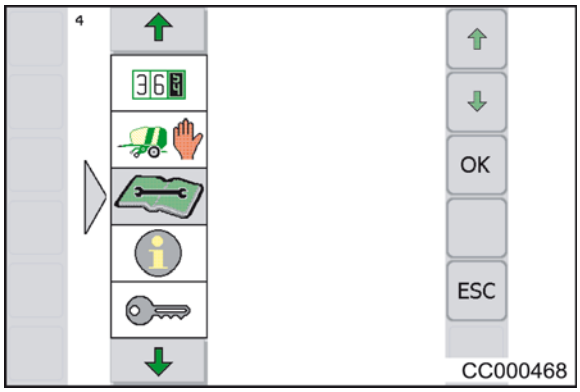
- Press function key  to move the motor in.
- Press function key  to move the motor out.
- Press function key **ESC** to close the currently displayed menu
- Press function key **ESC** a little longer to call the basic screen

WARNING! – Crush hazard due to moving motor!

Personal injury.

- To prevent injury, do not stand in the area of the extending or retracting motor.

7.9 Main menu 4 "Service"



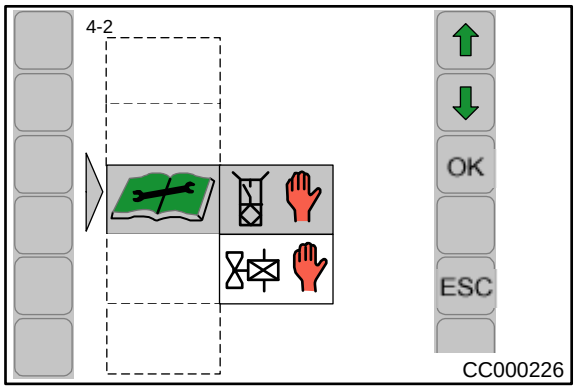


Fig.118

Calling the main menu

- Press function key to access the menu level via the basic screen
- Press function key or to select main menu 4 ( ) . The icon is shown inverted
- Press function key **OK**

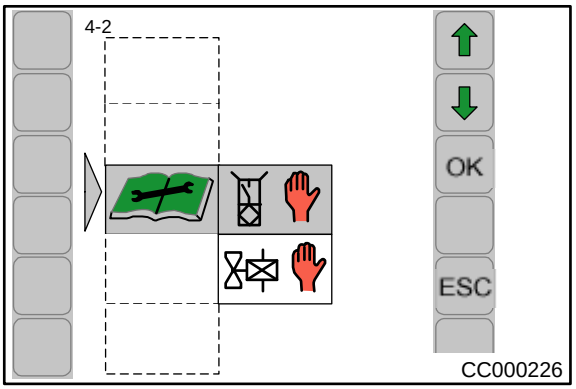
The display shows menu level 4 "Service".

Menu level 4 "Service" is divided into two menus:

= Menu 4-2 "Manual sensor test"

= Menu 4-4 "Manual actuator test"

7.9.1 Menu 4-2 "Manual sensor test"



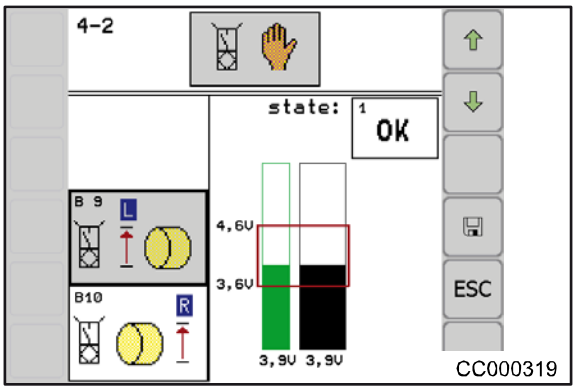


Fig.119

In the manual sensor test, the sensors that are installed on the machine are checked for errors. In addition, the sensors can be correctly adjusted in the manual sensor test. There is no guarantee the machine is working correctly until after the sensors have been adjusted.

Caution!
The P.T.O. shaft must not be turning during the sensor test.

Displaying the menu

Main menu 4 "Service" is called.

- You can select menu 4-2 by pressing the function key or . The symbol is highlighted in grey.
- Press the rotary potentiometer
- Press function key **OK**

Selecting the sensor

- Select the sensor by pressing the function key or

The selected sensor is displayed inversely and is tested.

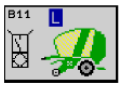
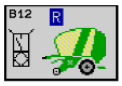
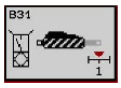
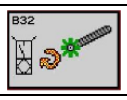
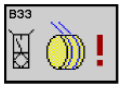
Setting values:

The minimum and maximum setting values with the sensor alive (metal in front of the sensor) are shown in the upper part of the bar display. The current setting value (actual value) is displayed under the bar display.
The distance from the sensor to the metal must be adjusted so that in the alive state the bar is in the upper mark. Next check whether the bar is in non-alive state in the lower marked area.

To adjust the sensors, refer to chapter Maintenance “Setting the Sensors”.

Diagnostics – Namur sensors

Possible sensors (depending on how the machine is equipped)

No.	Sensor symbol	Description
B11		Bale chamber closed left
B12		Bale chamber closed right (Fortima V)
B30		Blade monitoring
B31		Engine tying centre
B32		Tying runs
B33		Twine stop

State:

1  Alive (iron)

2  Not alive (no iron)

3  Broken cable

4  Short circuit

For information on the position of the sensors, please refer to chapter Maintenance “Position of Sensors”.

Diagnostics – analogue sensors

Setting values:

The bar must be inside the marked area of the bar display.

Possible analogue sensors (depending on how the machine is equipped)

No.	Sensor symbol	Description
B9		Bale diameter left (Fortima V) Bale firmness left (Fortima F)
B10		Bale diameter right (Fortima V) Bale firmness right (Fortima F)

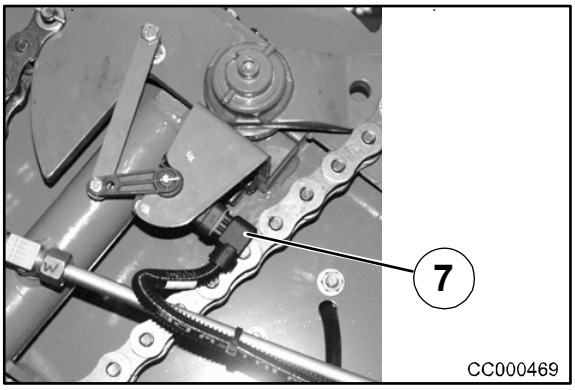
State:

⑦ Broken cable or short circuit

⑧ Error Defect in the sensor or job computer

For information on the position of the sensors, please refer to chapter Maintenance “Position of Sensors”.

Sensor B9/B10 Setting Bale Diameter (Fortima V)



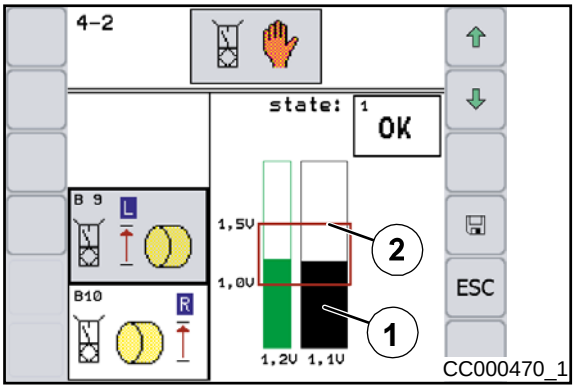


Fig. 120

Caution!
The bale chamber must be closed and empty.

If the bar (1) is not inside the rectangle (2) when the bale chamber is closed and emptied, the corresponding sensor (7) must be adjusted mechanically.
To do this:

- Loosen the sensor (7) and turn it in the oblong hole until the bar (1) is positioned inside the rectangle (2) of the bar display.

Note
An audio signal sounds if the bar (1) is inside the rectangle (2).

- Tighten the sensor (7).

Note
Saving is only possible if the bar (1) is inside the rectangle (2) of the bar display.

Saving Value:

- Press function key **OK**

The symbol in the upper line indicates that the displayed value is saved.

Setting sensor B9/B10 bale firmness (Fortima F)

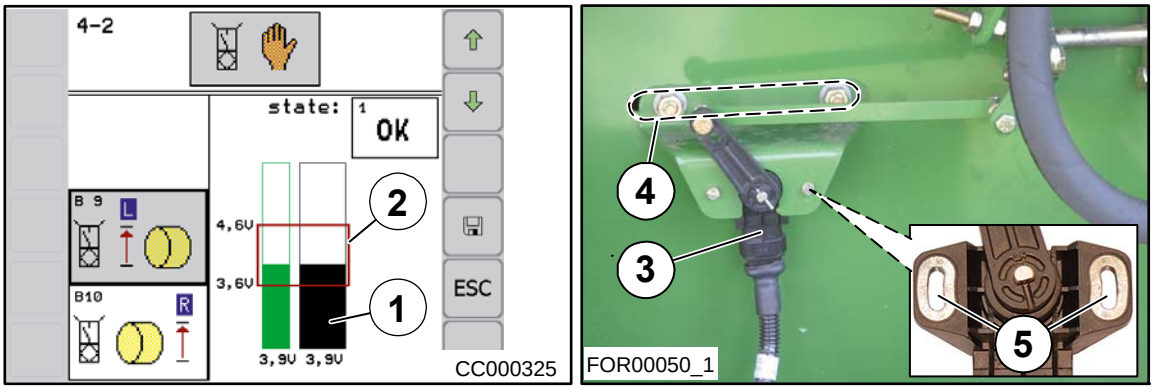


Fig. 121

Caution!
The bale chamber must be open and empty.

If the bar (1) is not inside the rectangle (2) when the bale chamber is open and empty, the respective sensor (2) must be adjusted mechanically.
To do this:

- Loosen the sensor and move it in the oblong hole (4) until the bar (1) in the display is inside the rectangle (2).
- If necessary, move sensor additionally in the oblong holes (5).

Note
An audio signal will be heard if the bar (1) in the display is inside the rectangle (2).

- Tighten the screw connections of sensor (3).

Note
Saving is only possible if the bar (1) in the display is inside the rectangle (2).

Saving value:

- Press function key **OK**

The symbol in the upper line indicates that the displayed value is saved.

Diagnostics – power supply voltage

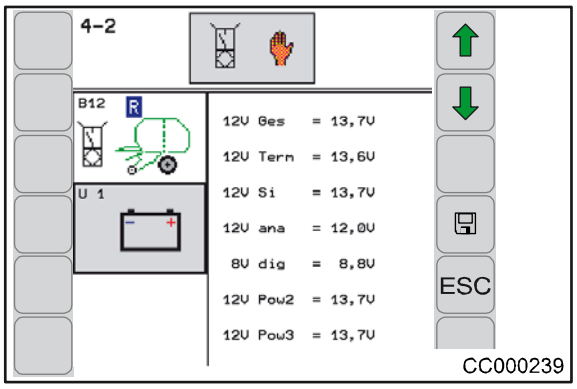
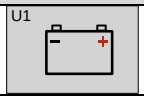


Fig. 122

No.	Sensor icon	Description
B1		power supply voltage

Nominal voltages:

12V Ges:	12 - 14,5 V
12V Ter:	12 - 14,5 V
SS_5V:	4,5 - 5,5 V
8V ana:	8,5 - 9,1 V
8V dig:	8,5 - 9,1 V
12V P2:	12 - 14,5 V

- Pressing the function key **ESC** closes the called up menu

The display shows menu level 4 "Service".

- Pressing the function key **ESC** and holding it down brings up the basic screen

7.9.2 Menu 4-4 Manual actuator test

Danger! - Unexpected actions on the machine.
Effect: Danger to life or serious injuries.

- Only persons familiar with the machine are permitted to perform the actuator test
- The person performing the test must know which machine parts are moved by actuating the actuators. If necessary, secure the actuated machine components against unintentional lowering
- The actuator test must only be performed from a safe position outside the area that is affected by machine parts moved by the actuators
- Make certain there are no persons, animals or objects in the danger zone

The actuator test is used to test the actuators installed on the machine. An actuator can only be tested if power is flowing through it. In the manual actuator test the actuator must therefore be controlled manually for a short time to be able to determine if there are any errors in the actuator system.

CAUTION! - Unexpected actions on the machine.
The P.T.O. shaft must not be turning during the actuator test. The tractor hydraulics must be deactivated.

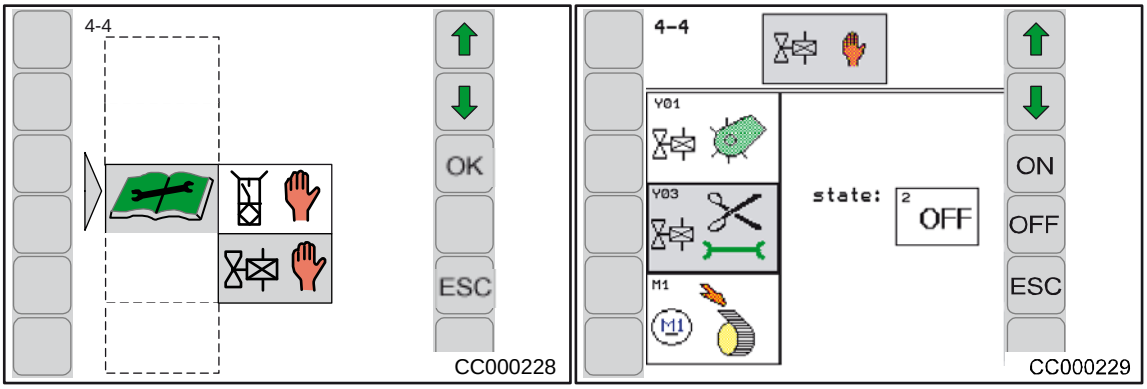


Fig. 123

Calling the menu

Main menu 4 "Service" is called.

- Pressing the function key ⬆ or ⬇ to select Menu 4-4  . The symbol is highlighted in grey.
- Pressing the function key **OK**

The display shows menu level 4-4 „Manual actuator test"

Selecting the actuator

- Pressing the function key ⬆ or ⬇ to select Actuor.

The symbol is highlighted in grey.

- Pressing the function key **ESC** closes the called up menu

The display shows menu level 4 "Service".

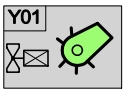
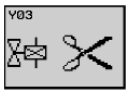
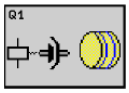
- Pressing the function key **ESC** and holding it down brings up the basic screen

Diagnostics – digital actuators

Errors are only displayed if the actuator is turned on and a test is possible for the actuator (see the table called "Possible digital actuators"). The actuators can also be checked on the LED at the plug, if necessary.

- Press function key **ON**

Possible digital actuators (depending on how the machine is equipped)

No.	Actuator symbol	Description
Y01		Pick-up valve
Y03		Blade base position valve
Q1		Coupling (twine tying)

State:

① ON Actuator on

② OFF Actuator off

③ General actuator error

④ FUSE No power supply; fuse is probably defective

- Pressing the function key **ESC** closes the called up menu

The display shows menu level 4 "Service".

- Pressing the function key **ESC** and holding it down brings up the basic screen

Possible engines (depending on how the machine is equipped)

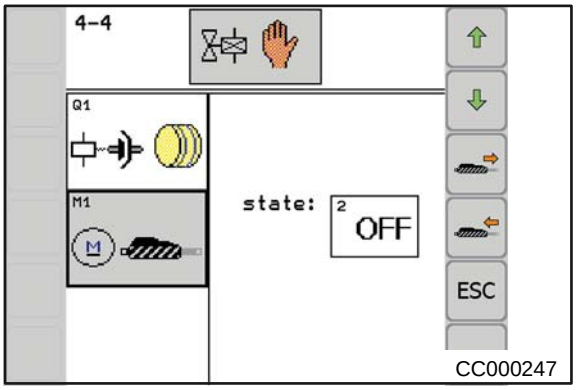
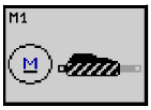


Fig. 124

- Extend engine by pressing function key  . The function is only momentary-action.
- Retract engine by pressing function key  . The function is only momentary-action.

No.	Actuator symbol	Description
M1		Setting motor net tying / twine tying

State:

① ON Actuator on

② OFF Actuator off

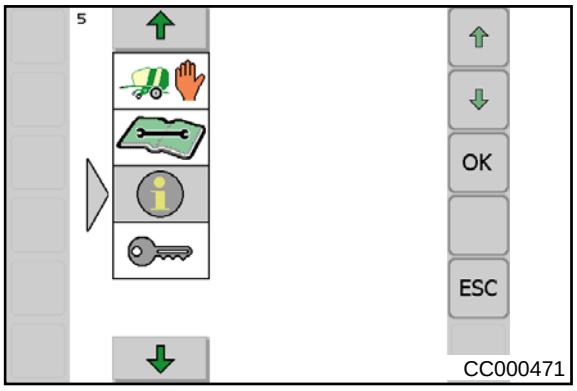
③ --/ϟ General actuator error

- Pressing the function key **ESC** closes the called up menu

The display shows menu level 4 "Service".

- Pressing the function key **ESC** and holding it down brings up the basic screen

7.10 Main Menu 5 „Information“



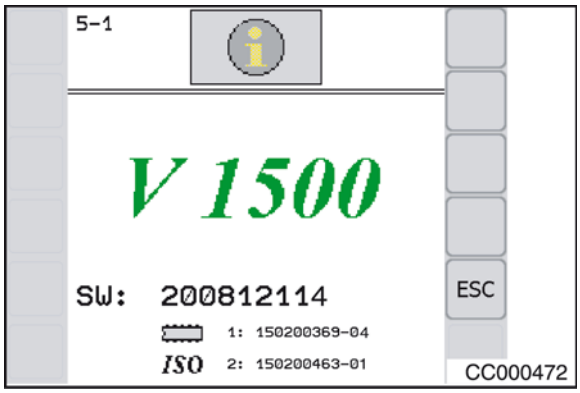


Fig. 125

Calling the Main Menu

- By pressing the function key in the basic screen you get into the menu level of the machine
- Select main menu 5 ( ) by pressing function key or , the symbol is shown in reverse colours
- Press function key **OK**

The display shows menu 5 "Info".

Complete software version of the machine

SW	= Complete software version of the machine
	= Software of the job computer
ISO	= ISO software version of the job computer

- Pressing the function key **ESC** closes the called up menu

The display shows menu level 5 "Info".

- Pressing the function key **ESC** and holding it down brings up the basic screen

7.11 Main Menu 6 Technician

Calling the Main Menu

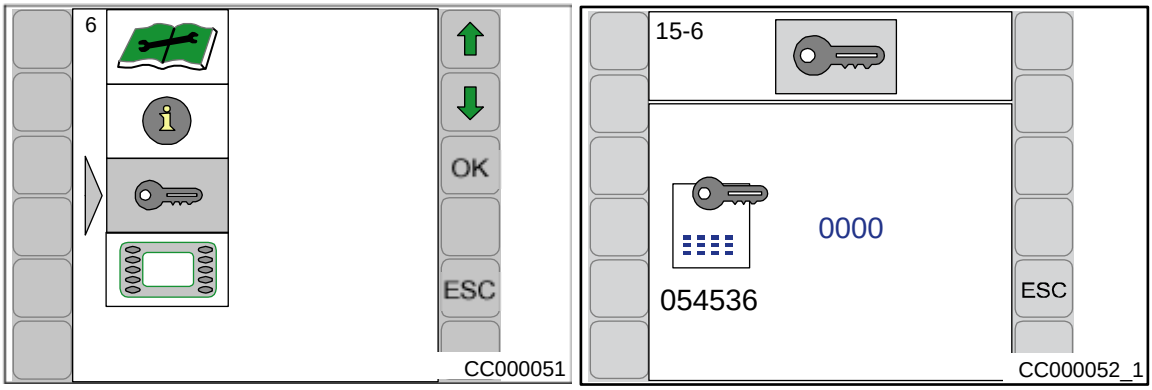


Fig. 126

- By pressing function key in the basic screen you get into the menu level
- Select main menu 6 by pressing function key or . The symbol is highlighted in grey.
- Press function key **OK**

Main menu 6 "Technician" is password-protected.

The display shows the password query.

7.12 Main Menu 7 ISOBUS

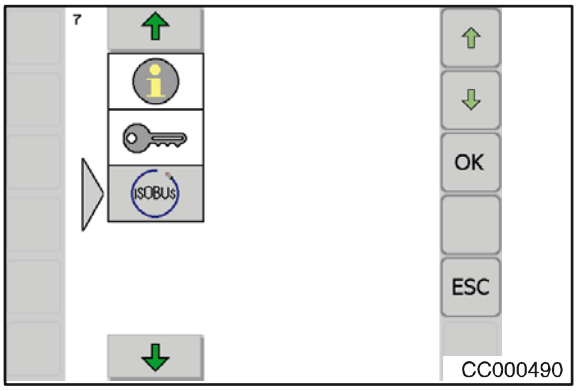


Fig. 127

Calling the Main Menu

- By pressing the function key  from the basic screen you get into the menu level of the machine
- Select main menu 7 () by pressing function key  or  , the symbol is highlighted in colours
- Press function key **OK**

The display shows menu level 7 “ISOBUS”.

7.12.1 Menu 7-1 Virtual Terminal (VT)

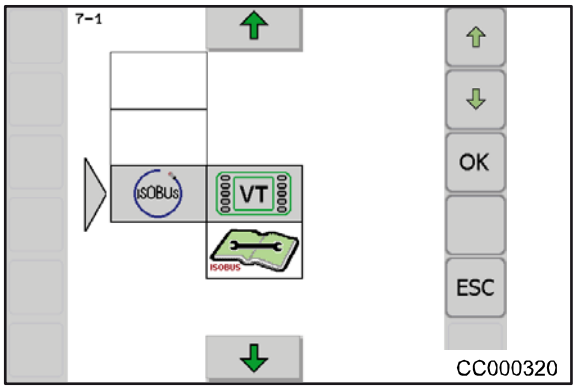
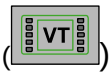


Fig. 128

Calling the Main Menu

Main menu 7 “ISOBUS” is called.

- Select menu 7-1 () by pressing function key ↑ or ↓, the symbol is highlighted in colours
- Press function key **OK**

The display shows menu level 7-1 “Virtual Terminal (VT)”.

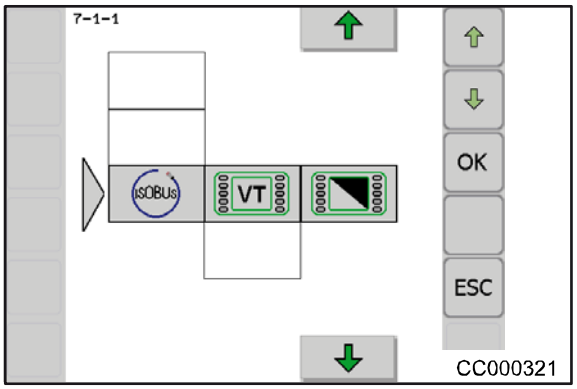
The menu “Virtual Terminal (VT)” is divided into the following menus:

 = Menu 1-7-1 “Switching day-night lighting”

 = Menu 1-7-4 „Switching to a further terminal”

- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

7.12.2 Menu 7-1-1 Switching Day-Night Lighting Display



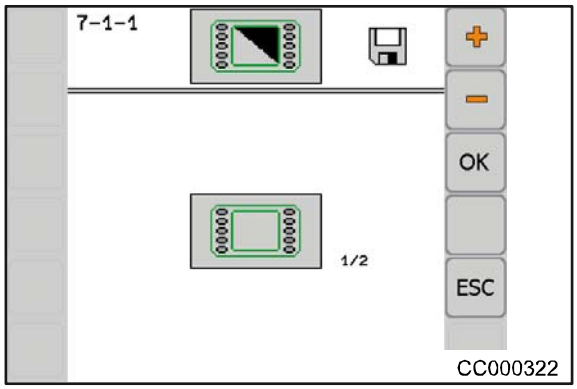
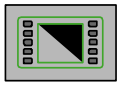
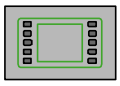


Fig. 129

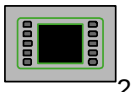
The brightness of the display can be adjusted in the menu “Switching Day-Night Lighting Display”

Menu 7-1 “Virtual Terminal (VT)” is called.

- Select menu 7-1-1  by pressing function key ↑ or ↓, the symbol is highlighted in colours
- Press function key **OK**

The display shows page  1/2 “Day Lighting” in the menu 7-1-1 „Switching Day-Night Lighting Display”.

- Changing the page  is possible by activating  key

The display shows page  2/2 “Day Lighting” in the menu 7-1-1 „Switching Day-Night Lighting Display”.

7.12.3 Menu 7-1-4 Switch to different terminal

Note

- Menu 7-1-4 only appears if several ISO terminals are connected.
- Menu 7-1-4 can be used to switch to the next connected terminal (depending on how many terminals are connected).
- The first time you switch, the configuration of the machine is loaded to the next terminal. Loading may take a few minutes. The configuration is saved in the memory of the next terminal.

Note

The next time a call is made, the machine is no longer available in the previous terminal.

Note

When restarting, the system first attempts to start the last terminal used. If the last terminal used is no longer available, the restart is delayed as the system looks for a new terminal and loads the specific menus to that terminal. Loading may take a few minutes.

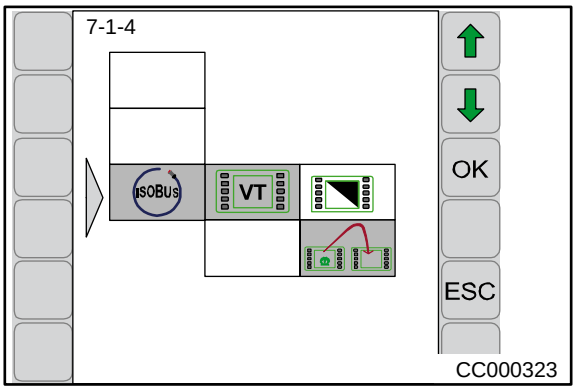


Fig. 130

Opening the menu

Main menu 7-1 "Virtual terminal (VT)" is opened.

- Press the ↑ or ↓ function button to select menu 7-1-4 (); the icon is highlighted in colour.
- Press the **OK** function button

The displays shows menu level 7-1-4 "Switch to different terminal".

Press the function key **OK** or () on the touch screen to switch to a different connected terminal.

- Pressing the **ESC** function button closes the open menu.
- Pressing and holding the **ESC** function button opens the home screen.

7.13 Menu 7-4 ISOBUS Diagnostics

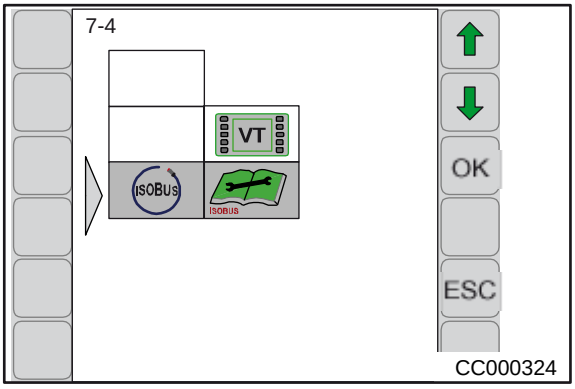


Fig. 131

Calling the Menu

Main menu 7 “ISOBUS” is called.

- Select menu 7-4  by pressing function key ↑ or ↓, the symbol is shown in reverse colours
- Press function key **OK**

The display shows menu 7-4 “ISOBUS diagnostics”.

7.13.1 Menu 7-4-2 Diagnostics Auxiliary Functions (AUX)

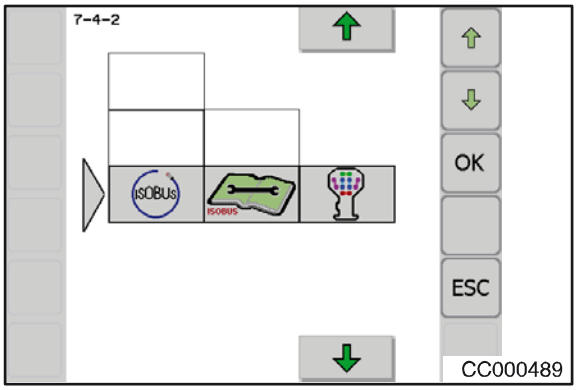


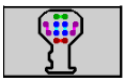
Fig. 132

Note
When carrying out auxiliary function via joystick, net or twine is shot in depending on how the machine is fitted and depending on the type of tying that is set.

Calling the Menu

Menu 7-4 “ISOBUS diagnostics” is called.

The menu 7-4-2 “Diagnostics Auxiliary Function” shows you with which key on the joystick the auxiliary function is carried out.

- Select menu 7-4-2  by pressing function key ⇧ or ⇩, the symbol is highlighted in colours
- Press function key **OK**

The display shows menu 7-4-2 “Diagnostics Auxiliary Functions”.

When activating a function on the joystick, only the assigned symbol will appear in the display. The function itself is not performed.

- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

7.14 Alarm messages

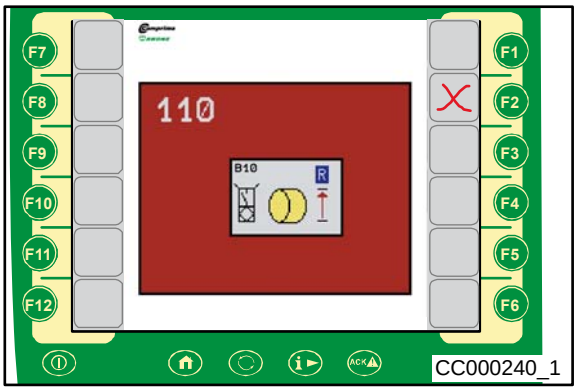


Fig. 133

Alarm message

If a fault occurs on the machine, an alarm message appears in the display and an acoustic signal sounds at the same time (continuous horn). Descriptions of the faults, their possible causes and how to resolve them are described in the "Alarm messages" chapter.

Note

All functions in the menu that is covered over are still active. The softkeys that are covered by the alarm message are disabled.

To reset the alarm:

- Briefly press the ✕ function button; the alarm is reset and the acoustic signal is stopped.

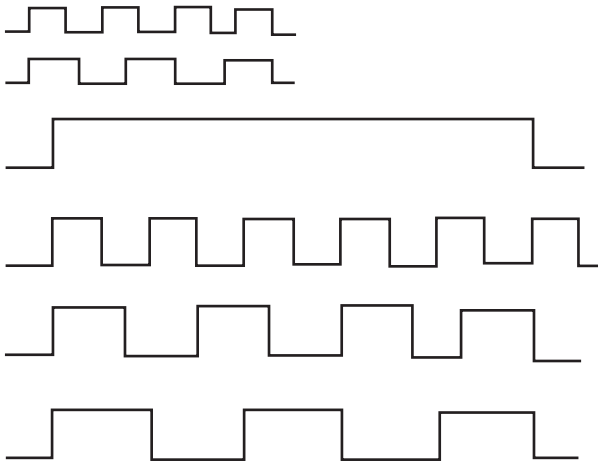
If the fault occurs again, the alarm message will appear again.

To delete an alarm:

- Hold down the B button for the ✕ softkey for 5 seconds; the acoustic signal stops immediately and the alarm is deleted.

If the fault occurs again, no alarm message will appear. The alarm message does not appear when the fault occurs until after the control unit is turned off and back on.

7.14.1 Acoustic warnings



Wrapping is triggered

Filling reached, pre-signal reached, wrapping complete, bale chamber closed

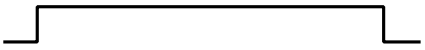
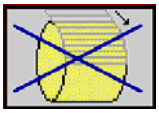
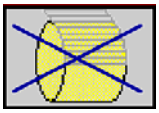
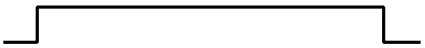
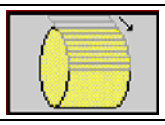
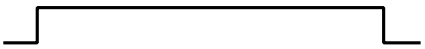
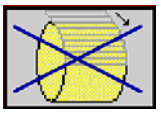
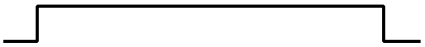
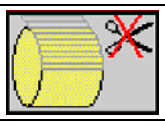
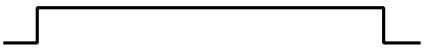
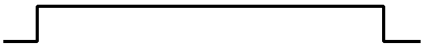
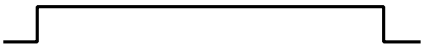
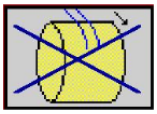
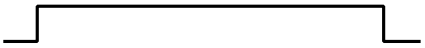
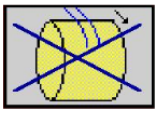
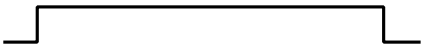
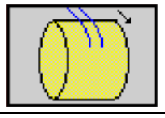
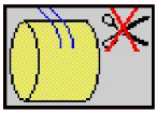
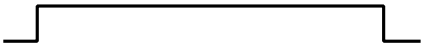
Continuous tone

Rapid interval

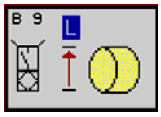
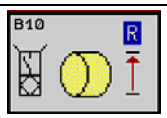
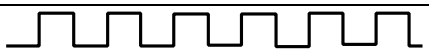
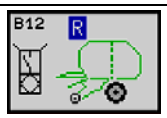
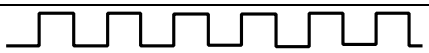
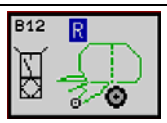
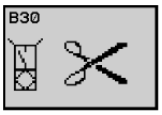
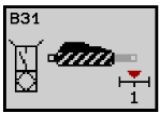
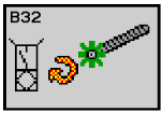
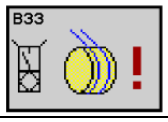
Medium interval

Long interval

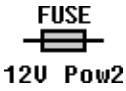
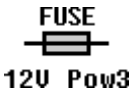
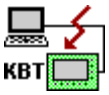
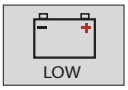
7.14.2 Note and messages

No.	Symbol	Acoustic signal	Description
2			The maximum filling has been reached
5			Net has not been trailed
6			Net stopped
7			Net runs
8			Error while inserting the net
9			No net separation done
10			Bale chamber not closed
14			Blade bottom
23			Twine has not been trailed
24			Filling problem – left too small
25			Filling problem – right too small
26			Twine is not trailed
27			Twine runs
29			No cutting of twine in progress

7.14.3 Physical messages

No.	Symbol	Acoustic signal	Description
109			Sensor for “bale diameter left” defective (Fortima V) Sensor for “bale firmness left” defective (Fortima F)
110			Sensor for “bale diameter right” defective (Fortima V) Sensor for “bale firmness right” defective (Fortima F)
111			Sensor for “bale chamber closed left” defective
112			Sensor for “bale chamber closed right” defective
130			Sensor for “blade base control” defective
131			Sensor for “position engine centre” defective
132			Net length sensor defective
133			Sensor for “twine stop” defective

7.14.4 General Messages

No.	Icon	Acoustic signal	Description
A01			Fuse 2 defective (job computer)
A02			Fuse 3 defective (self-repairing)
A03			No connection to control unit
A04			EEPROM faulty
A14			Power supply too low
A15			Power supply too high
A16			Access to protected storage cell 0
A17			Access to protected storage cells 0-

8 ISOBUS operation

General aspects

The ISOBUS system is an internationally standardized communication system for agricultural machines and systems. The designation of the related series of standards is: ISO 11783. The agricultural ISOBUS system makes an information and data exchange between tractor and device of different manufacturers possible. To this end, both, the necessary plug connections and the signals are standardized which are necessary for the communication and command transmission. The system also enables the operation of machines with control units (terminal) which are already existent on the tractor or have been attached in the tractor cabin. The relevant details can be found in the technical documentation of the control unit or on the device itself.
Those KRONE machines which are ISOBUS equipped are adapted to this system.

Note

The KRONE ISOBUS systems pass the ISOBUS COMPATIBILITY TEST (DLG/VDMA) on a regular basis. The operation of this machine requires at least implementation level 3 of the ISOBUS system.

DANGER!

When using terminals and other control units which have not been delivered by KRONE mind that the user:

- has to take the responsibility for the use of KRONE machines when using the machine on control units (terminal / other control elements) which have not been delivered by KRONE
- must check the machine before operation on all machine functions, if they are performed as described in the enclosed operating instructions
- as possible, should only couple those systems to each other which have passed a DLG/VDMA test (so called ISOBUS COMPATIBILITY TEST) before
- has to follow the operating and safety instructions of the supplier of the ISOBUS control unit (e.g. terminal)
- must guarantee that the control elements and machine control systems fit together according to the IL (IL= Implementation Level; describes the compatibility status of the different software versions) (requirement: IL same or higher)

8.1 Mounting ISOBUS Terminal

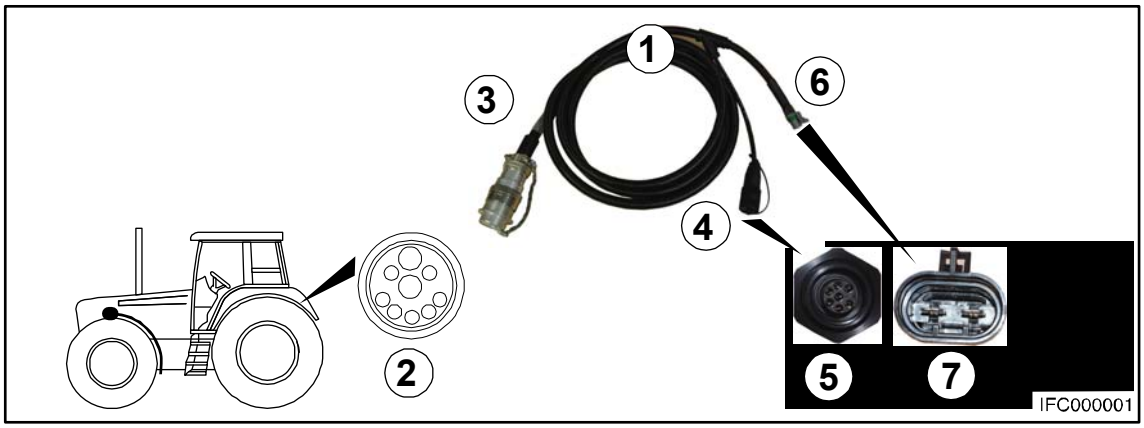


Fig. 134

CAUTION!
Failure of control unit.
When installing, make certain that the connection cables are not tight when cornering and that they do not touch the tractor wheels or any other parts of tractor or machine.

8.1.1 Connection Terminal to Tractor

Note
For further details on the attachment, consult the operating instructions of the ISOBUS terminal manufacturer.

8.1.2 Connection Tractor to Machine

- Connect ISO-plug (3) (9-pole) of cable set (1) with outer ISO-socket (2) (9-pole) on tractor side
- Connect plug (4) (7-pole) of cable set (1) with socket (5) (7-pole) of the machine
- Connect plug (6) (2-pole) of cable set (1) with socket (7) (2-pole) of the machine

8.2 Differing functions to KRONE ISOBUS terminal CCI

Via the accessory unit, the ISO control unit will provide information and control functions to the display of the ISO terminal. Operation with an ISO terminal is analogue to the KRONE ISOBUS terminal CCI. Prior to start-up, refer to the operating instructions for the method of operation of the KRONE ISOBUS terminal CCI.
A fundamental difference to the KRONE ISOBUS terminal CCI is the arrangement of the softkeys, which are determined by the selected ISO terminal.
Only the functions that differ from the KRONE ISOBUS terminal CCI are described in the following.



Note

The values for the "bale size", which are set via the scroll wheel for the KRONE ISOBUS - terminal CCI, are carried out at the ISO terminal via the selection key specified by the ISO terminal (refer to the operating instructions of the ISO terminal manufacturer).



Note

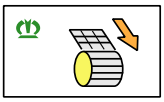
Menu item 1-4 "Contrast" of the KRONE control cannot be called up on the ISO terminal. A setting is performed directly via the ISO terminal (if applicable) (refer to operating instructions of the ISO terminal manufacturer).
If necessary, acoustic signals must be enabled from the terminal (refer to operating instructions of the ISO terminal manufacturer).

8.3 ISOBUS „Auxiliary“-function (AUX)

Note

There are terminals which support the additional function “auxiliary” (AUX). With this function, programmable keys of the peripheral equipment (e.g. multi-function levers ...) can be assigned with functions of the connected job computers. A programmable key can also be assigned with several different functions. If key assignments are saved, accordant menus will appear on the screen when switching on the terminal.

The following functions are available in the Auxiliary (AUX) menu:

Auxiliary functions:	**Function in loading mode:**
Graphic display	
	Insert net

Note

For further guidelines, please refer to the operating instructions of the terminal being used.

8.3.1 Example of joystick assignment for Fendt (default setting)

Note
For further guidelines, please refer to the operating instructions of the terminal being used.

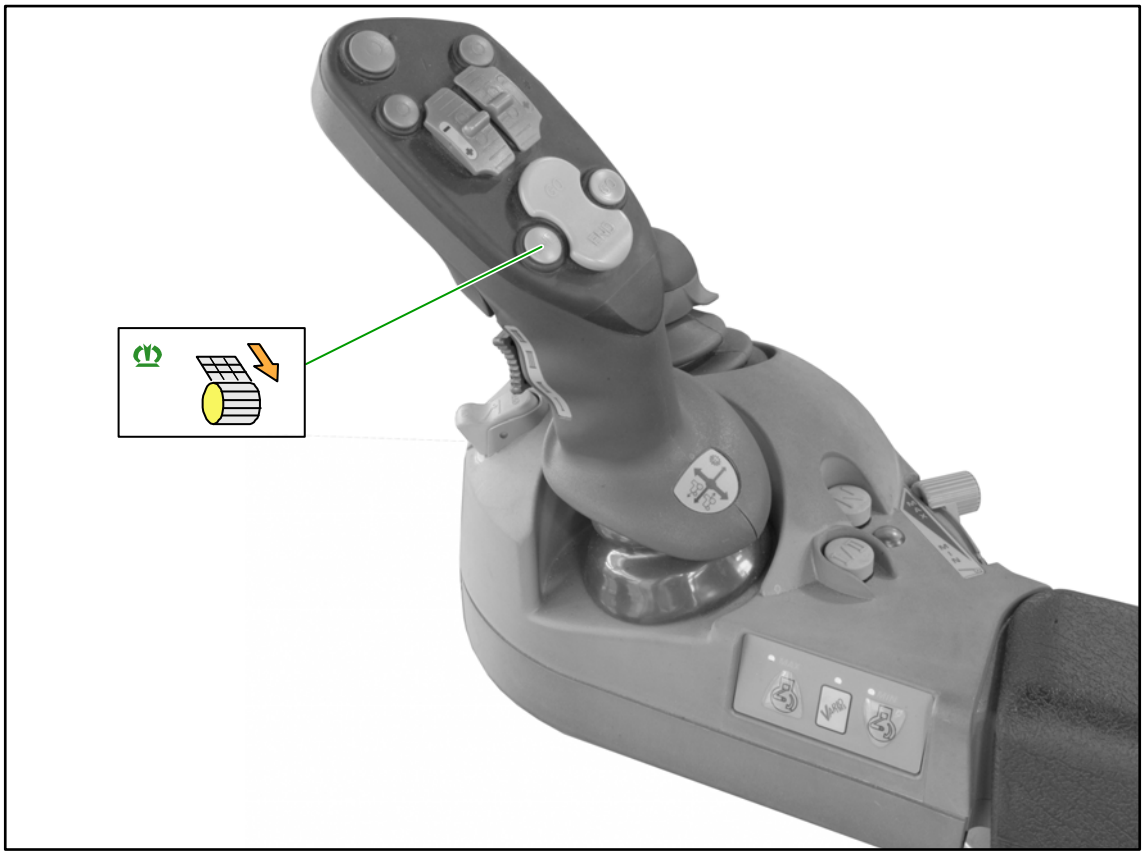


Fig. 135

9 Start-up

DANGER! - Unintentional starting, moving machine components and / or unexpected machine movement!

Effect: Risk of death, injuries or damage to the machine.

- Special caution is required when hitching and unhitching the machine on the tractor. No one may be standing between the tractor and machine. After hitching, turn off the engine and remove the ignition key and take it with you.
- For care, maintenance, adjustment and repair work on the machine, always turn off the PTO shaft, turn off the engine, remove the ignition key and take it with you.
- Only start the machine if all safety devices are fitted and in protection position.
- The machine can be operated with a maximum PTO shaft speed of 540 rpm.
- Only the universal shaft specified by the manufacture should be used, with an appropriate overload coupling.
- The universal shaft may only be fitted and removed when the PTO shaft is turned off, the engine is turned off and the ignition key is removed.
- Install hoses and connection cables so that they will not be under tension or come into contact with the tractor wheels when cornering.
- Check hydraulic hoses regularly and replace if there are any signs of damage or ageing.
- When connecting and removing the hydraulic hoses on the tractor hydraulics, make sure that the hydraulic system on both the tractor and the machine is depressurised.
- If any hazardous situations arise, immediately turn off the PTO shaft and stop the machine.
- Never leave the machine running with no operating personnel on the tractor.

9.1 Mounting onto the Tractor

DANGER! - Attaching / removing the machine

Effect: Danger to life or serious injuries.

- The machine must only be connected to tractors that are equipped with a matching hitch
- When the tractor is put back in front of the machine, there must be no one between the tractor and the machine
- Observe the maximum supporting and tensile load of the hitch on the tractor

The machine comes standard equipped with a hitch of Ø 40 mm (DIN 11 026). Depending on the specific requirement, the following hitches are also available:

- Ball-head hitch (K 80),
- Rotating hitch (export only),
- Hitch connection (export only).

Hitch and secure the machine according to regulations on the hitch of the tractor.

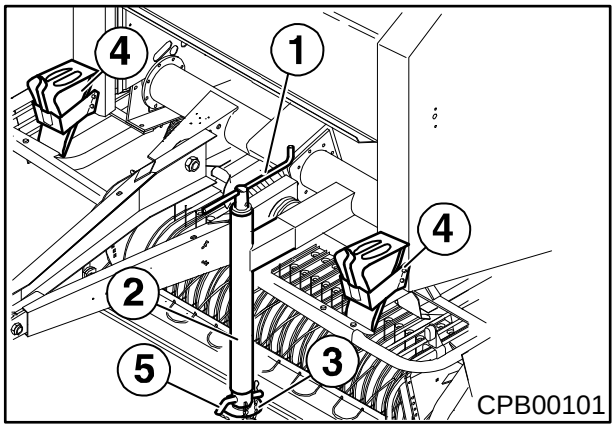


Fig. 136

To raise the parking support:

- As soon as the machine is connected to the tractor, turn the crank (1) several revolutions clockwise until there is no more weight on the parking jack (3).
- Withdraw the locking bolt (5) on the lower part of the parking support (2), push in the parking support (2) and secure it in position with the locking bolt (5).
- Then crank the parking support (2) up all the way.
- Turn the parking jack (3) so that the flat side is facing the pick-up.

9.2 Hydraulics

9.2.1 Special Safety Instructions

Warning ! - Connection of the hydraulic line

Effect: severe injuries due to penetration of hydraulic oil under the skin.

- When connecting the hydraulic hoses to the hydraulic system of the tractor, the system must be relieved of the pressure on either side.
- Due to the risk of injury when searching for leaks, always use suitable tools and wear protective goggles.
- Seek medical help immediately should injuries occur! Danger of infection.
- Depressurise prior to uncoupling the hydraulic hoses and working on the hydraulic system!
- Check the hydraulic hose lines at regular intervals and replace them if damaged or worn! The replacement hoses must fulfil the technical requirements set by the equipment manufacturer.

WARNING! – Hydraulic hose lines are subject to ageing

Effect: Danger to life or serious injuries

The characteristics of the lines change depending on pressure, heat load and the effect of UV rays.

The date of manufacture appears on the hydraulic hoses. This way the age can be ascertained quickly.

By law the hydraulic lines must be replaced after six years.

Use original spare parts when replacing hydraulic hoses!

Caution! - Soiling of the hydraulic system

Effect: Damages to the machine

- When connecting the quick couplings, ensure that these are clean and dry.
- Note chafing areas or points of contact.

9.2.2 Connecting the hydraulic lines

Note

Connect the hydraulic lines correctly

- The hydraulic hoses are identified by coloured hose clips.

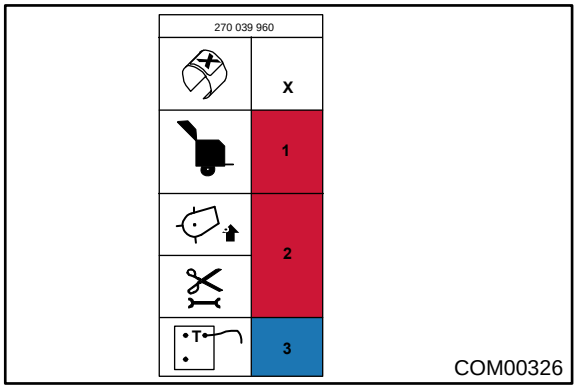


Fig. 137

- Set the single-action control units of the tractor to float position.
- Turn off the tractor and secure it against the possibility of rolling back.
- Remove the hydraulic hoses from their support on the drawbar.
- Remove the cover caps on the hose couplings.
- Guide hydraulic hoses through hose bracket.
- Connect hydraulic couplings according to their colour coding to tractor hydraulics:
  - Connect hydraulic coupling (red1) of the machine to a single-action control unit of the tractor.
  - Connect hydraulic coupling (red2) of the machine to a single-action control unit of the tractor.

Fortima V 1500 (MC) / V 1800 (MC)

  - Connect hydraulic coupling (blue3) of the machine to the depressurised return of the tractor.

9.3 Hydraulic brake (Export)

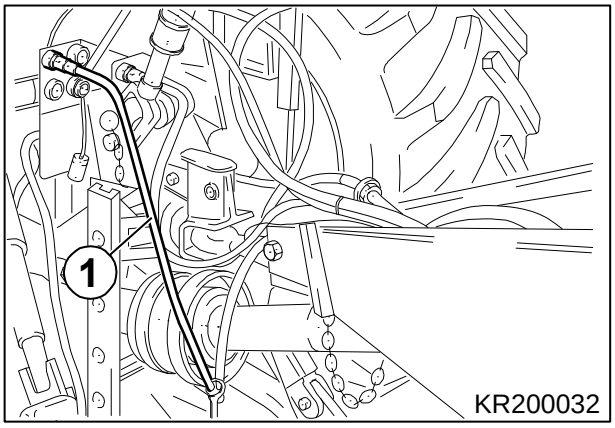


Fig. 138

A hydraulic brake is provided for certain export versions. In this version, the corresponding hydraulic hose is connected with the control valve on the tractor side. The brake is activated by actuating the tractor brake pedal.

9.4 Hydraulic brake (auxiliary brake)

For certain operating conditions it is advisable to install a hydraulic auxiliary brake to machines which normally do not require a separate brake for road transport.

These models require an additional single-action control valve. The brake is activated by actuating the control valve.

The pressure can be adjusted with the machine's pressure limiting valve. The pressure limiting valve is set to approx. 50 bar.

9.4.1 Install the PTO shaft

DANGER! – Rotating universal shaft!
Effect: Risk of death or serious injuries
- Before pushing the universal shaft onto the PTO shaft of the tractor, switch off the PTO shaft, turn off the engine and remove the ignition key.
- Secure the tractor and machine against unintentional rolling away.

Caution! - Changing the tractor
Effect: Damage to the machine
When using the machine for the first time and whenever changing the tractor Check PTO shaft for the correct length. If the length of the PTO shaft does not match the tractor, always observe the chapter entitled "Adjusting the length of the PTO shaft".

Caution! - Swivel range of the PTO shaft
Effect: Damage to the tractor or the machine
- Check the swivel range and clearance of the PTO shaft!

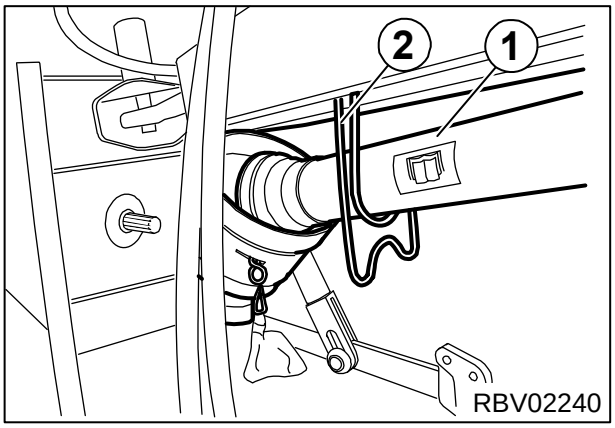


Fig. 139
- Remove the universal shaft (1) from the PTO shaft support (2)

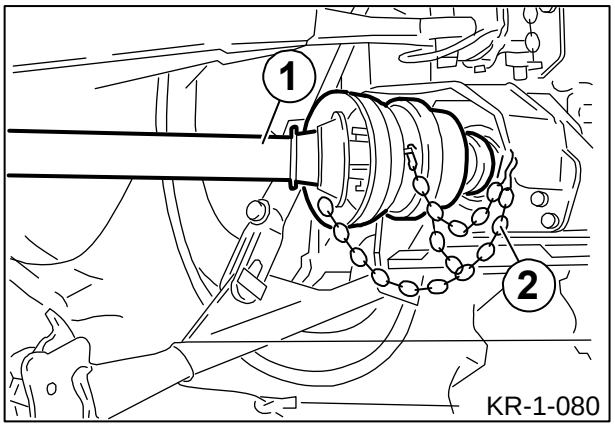


Fig. 140

CAUTION!

Contact with parts of the tractor or the machine may result in damages to the machine or to the universal shaft

- Make certain there is sufficient free space in the swivel range of the PTO shaft in all operating states.

Tractor Side:

- Slide universal shaft (1) on the tractor PTO shaft and secure it
- To prevent the PTO shaft from turning, guide the safety chain (2) under the universal shaft guard and insert it onto the tractor

ATTENTION! - Universal shaft not correctly attached.

Effect: Damage to the universal shaft or to the machine

- Ensure that the safety device of the universal shaft is locked into place after installation.
- Use only the universal shaft supplied by the factory.

9.5 Compressed Air Connections for the Compressed Air Brake

Danger! - Failure of the brake system
Effect: Danger to life, injuries or damage to the machine.
Hose lines which become detached will cause the machine brake system to fail.
After connecting the quick-release couplings , check that they are seated correctly.
Check hose installation to ensure that hose lines cannot be abraded or become trapped.

The machine can optionally be equipped with a dual-line compressed air braking system.
The coupling heads are connected to the machine for attachment of the reservoir (red) and brake line (yellow) of the tractor.

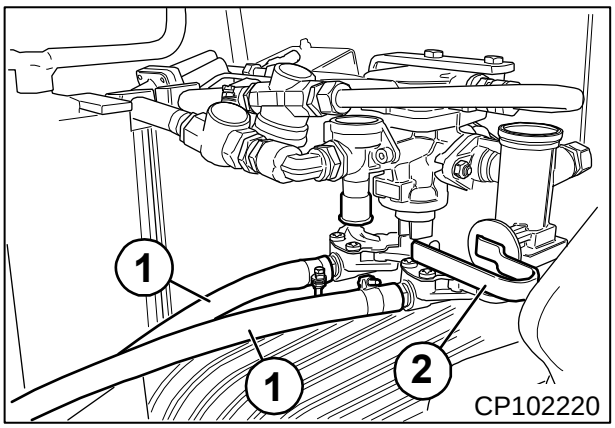


Fig. 141

- Insert the coloured compressed air hose couplings (1) into the correspondingly coloured couplings on the tractor.

Note
Always connect the yellow coupling head first, then the red one. Detach the couplings in reverse order.

DANGER! – Insufficient brake load!
Risk of accidents caused by insufficient braking force.
- For road driving, drive in the "Full Load" position (2) only.
- In the "half load" or "zero load" position, the braking effect can be adapted (reduced), e.g. when working on wet fields.

9.6 Electrical connections

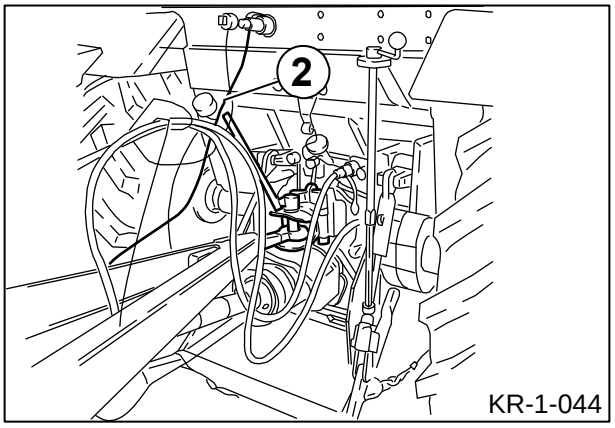


Fig. 142

- Connect the connection cable (2) for the lighting to the 7-pin plug-in connector of the tractor electrical system
- Position the connection cable (2) 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 (according to DIN 9680) to the 3-pin power supply socket

Note

Request the 3-pin power supply socket with connection cable from the spare parts service (spare parts no. 0303-914-0) if the connection is not available on the tractor.

9.7 Using the safety chain

WARNING!

When using a wrongly dimensioned safety chain, the safety chain may tear if the machine loosens unintentionally. This can result in serious accidents.

- Always use a safety chain with a minimum tensile strength of 89 kN (20.000 lbf).

WARNING!

If the safety chain is layed so that it is too tight or too loose, then it may tear. As a result, serious injuries or damage to tractor and machine may be caused.

- Position the safety chain so that it does not tension when cornering. Also make sure when laying it that it does not touch the tractor wheels or other parts of tractor or machine.

Note

Using the safety chain

Attachment of the safety chain is not stipulated in all countries.

The safety chain is used as an additional safety precaution for trailed devices, should they become detached from the drawbar during transport. Attach the safety chain with the respective mounting parts to the hitching device on the tractor or to another specified connection point. The safety chain should have just enough play to be able to go around curves.

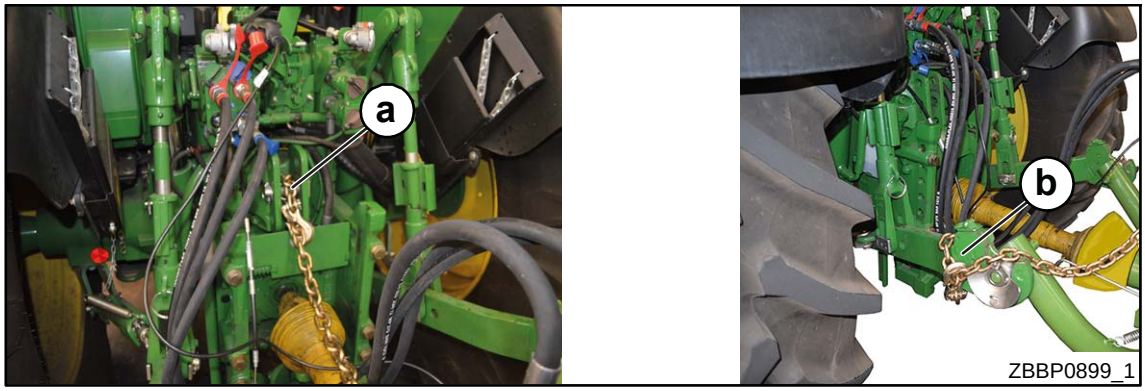


Fig. 143

- Install safety chain (1) on an eligible position (for example: a or b) on the tractor.

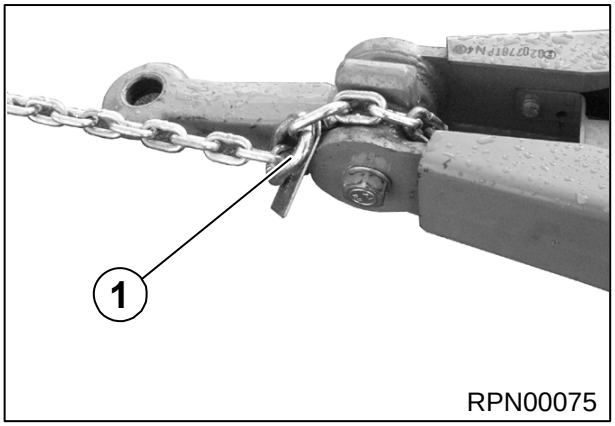


Fig. 144

- Install the safety chain (1) on the machine.

10 Driving and Transport

10.1 Preparations for road travel



DANGER! - Road driving, riding, driving behaviour

Effect: Risk of death, injuries or damage to the machine.

The following conditions must be met for road travel:

- Driving on public roads is permitted only if the bale chamber is empty and locked.
- When driving on roads, the blades must be retracted and secured, and the blade base must be raised.
- If the machine is not braked, the tractor must have at least the unladen weight of the machine as specified by road traffic regulations (the unladen weight of the baler is set out in the "Technical data" chapter).
- To prevent functions from inadvertently being initiated, the control unit must always be turned off when transporting the machine.
- Do not exceed the maximum speed (see type plate).
- Riding on the machine is not permitted.
- Observe the maximum supporting and tensile load of the hitching device on the tractor.
- The traffic safety of the machine, especially the lighting, locked protective covers and twine box flaps, raised and secured pick-up must be checked and guaranteed.
- Before driving, ensure that there is good visibility on and around the tractor and to the machine.
- In the case of machines with operating permission, observe the requirements in the operating permission!

The following tasks must be performed on the machine and tractor before road travel:

10.1.1 Raise the pick-up

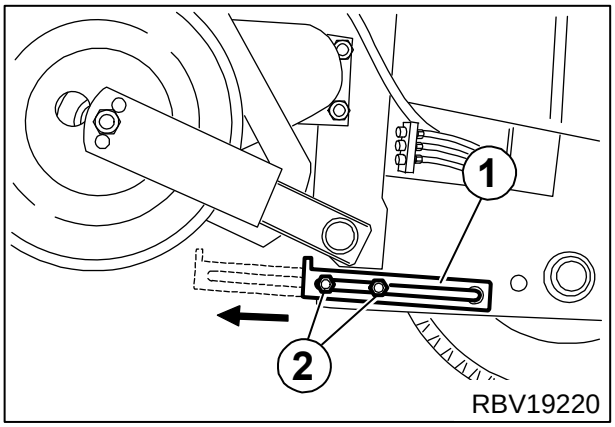


Fig. 145

- Check raised and secured pick-up.
- If necessary secure the pick-up (make the setting on both sides):
  1. Unscrew the nuts (2).
  2. Push the height restriction (1) forward.
  3. Tighten nuts (2).
  4. Switch off the control unit.

10.1.2 Checking the parking support

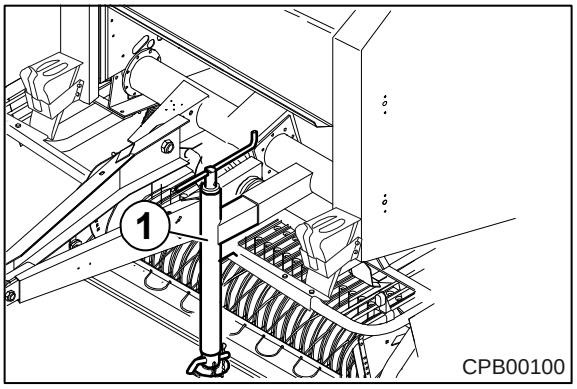


Fig. 146

- Disconnect the electrical power supply to the control unit
- Check that the parking support (1) is in transport position

10.1.3 Checking the lighting system

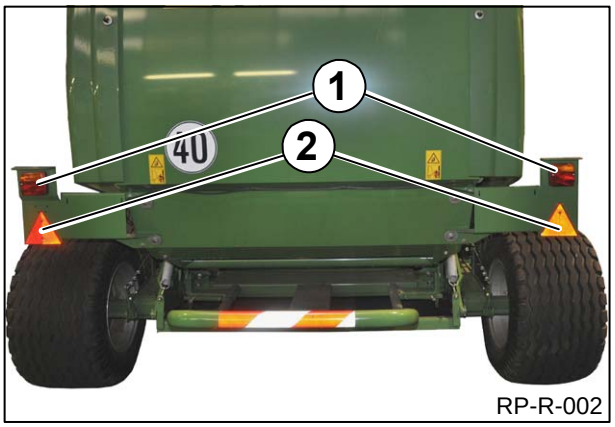


Fig. 147

- Connect the lighting system to the tractor electrical system.
- Check the function of the tail lights (2) and rear reflectors (1) and clean them
- The same applies to the yellow reflectors located on the sides of the machine and the front white side lights

10.2 Parking

DANGER! – Unexpected movement of machine
Effect: Risk of death, serious injuries

- No one is permitted inside the danger zone.
- Only unhitch when the engine is turned off the ignition key has been removed.
- Only park the machine on a level and solid surface. If parked on soft ground, enlarge the base area of the parking support.
- Before unhitching, secure the machine against rolling with wheel chocks.
- Take care when cranking down the parking support. There is danger of crushing your feet!
- The universal shaft may only be removed when the PTO shaft is turned off, the engine is turned off and the ignition key is removed.
- Place the universal shaft in the holder provided.
- The tailgate may only be operated if the baler is properly hitched to the tractor.
- When connecting and disconnecting the hydraulic hose on the tractor hydraulics, both the tractor system and the machine system must be depressurised! Move the appropriate control valves into the float position.

10.2.1 Secure the machine against the possibility of rolling back.

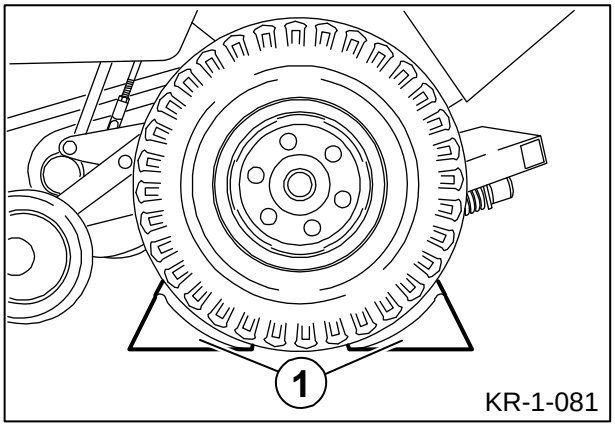


Fig. 148

- Park the machine on firm, level ground.
- Place two wheel chocks (1) under the wheels to prevent the machine from rolling away. The wheel chocks are located in front on both sides of the machine.
  Always place wheel chocks (1) in front of and behind the tyres. (This will prevent the machine from rolling away).

10.2.2 Lowering the parking support

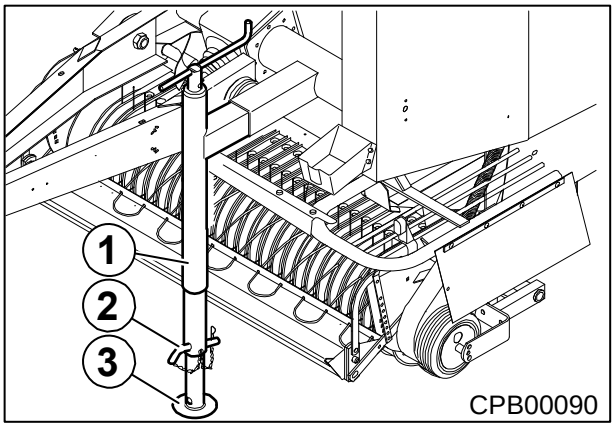


Fig. 149

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

10.2.3 Disconnecting the PTO shaft from the tractor

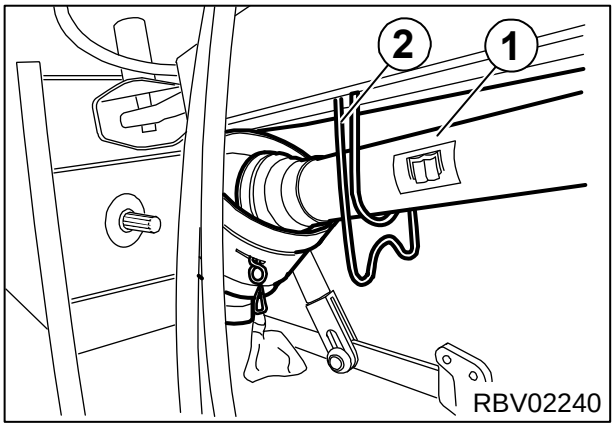


Fig. 150

- Disconnect the PTO shaft (1) on the tractor side.
- Place the PTO shaft (1) inside the PTO shaft support (2).

10.2.4 Disconnecting the supply lines

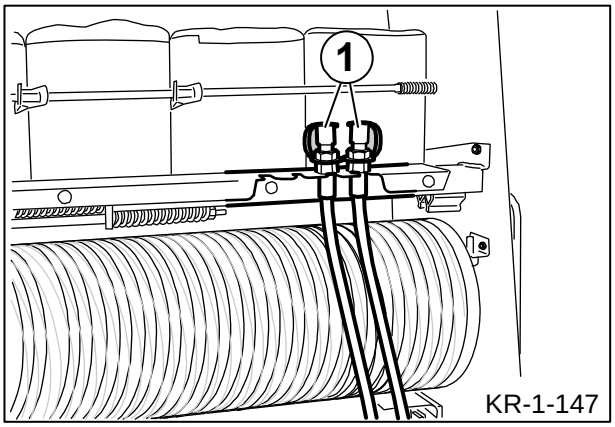


Fig. 151

- Disconnect the hydraulic hoses (1) and electrical connecting cables and store them properly in the corresponding receptacle on the twine box.
- Disengage the hitch coupling or pull the bolt.
- Drive the tractor away slowly.

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11 Operation

Danger! - Maintenance, installation, repair and adjustment work, troubleshooting and fault resolution

Effect: Risk of death, injuries or damage to the machine.

For all maintenance, installation, repair and adjustment work, troubleshooting and fault resolution:

- Turn off the PTO shaft, turn off the engine, remove the ignition key and take it with you.
- Secure the machine against rolling with wheel chocks.
- During operation, maintain a sufficient safety distance from all moving parts of the machine. This applies especially to the crop collecting mechanism (pick-up).
- Only remove blockages when the machine is stationary. Switch off the engine and remove the ignition key.
- Only start the machine if all safety devices are fitted and in sound condition.
- If any hazardous situations arise, immediately turn off the PTO shaft and stop the machine.
- Never leave the machine running with no operating personnel on the tractor.

DANGER! – Uncontrolled movement of round bales

Effect: Injuries to persons

- On slopes, always deposit the round bales in such a way that they cannot move on their own. Should the bales start to move, they could cause serious accidents due to their weight and cylindrical shape.

11.1 Settings Before Starting Work

Before starting work, perform or check the following settings for all machine types:

- Working height of the pick-up
- Position of the baffle plate
- Switching on or switching off cutting system (special equipment)
- Cutting length of the cutting system (special equipment)
- Using a bale ejector (special equipment)
- Selecting twine tying or net tying (depending on the design)
- Inserting twine or net (depending on the design)
- Function of chain lubrication, topping up oil, if necessary
- Resetting bale counter

For Fortima V 1500 (MC)/V 1800 (MC), the following settings must be made additionally:

- Tighten the floor conveyor of the bale chamber

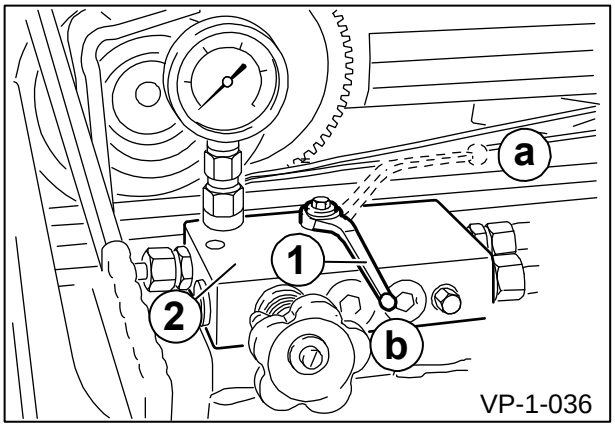


Fig. 152

- Swivel stop cock (1) of control valve (2) from position “a” to position “b”. Lifting tailgate
- Use of additional tappet strips (depending on the crop)
- Preselect bale size

For Fortima V 1250 (MC)/V 1600 (MC), the following settings must be made additionally:

- Preselect bale firmness

The necessary working steps are described in the chapters entitled “Settings” and “Operation”.

If the cutting system is switched on during baling, the bale density will increase substantially, which makes it necessary to reduce the baling pressure.

To do this:

Short, crumbly straw:

- Reduce the number of cutting blades or turn off the cutting system or remove the cutters. The blades can be stored on the right-hand side of the machine.
- Switch off P.T.O. shaft in headland position.

Small, flat swaths:

- Reduce PTO speed

or

- Increase travelling speed

Straw varies greatly in its structure. Even if no cutting system is used, it is not always possible to work with the highest possible pressure. Tappet strips can be installed additionally on Fortima V1500 (MC) and Fortima V1800 (MC) (refer to chapter entitled “Floor Conveyor Chain”).

Adapt the round baler setting to prevailing conditions.

11.2 Travelling speed

The forward speed during use depends on the following factors:

- type of crops
- moisture content of the crops
- height of swaths
- ground conditions

Note

The recommended travelling speed is 5 - 12 km/h and must be adapted to local conditions in actual practice.

- Do not overload the round baler.
- When baling a round bale, reduce speed at the start and end of the baling process.

11.3 Filling the Bale Chamber

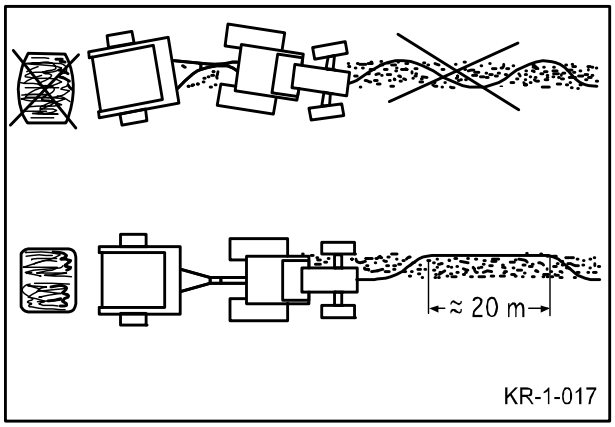


Fig. 153

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.

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

If the swath is wider than this swath width, an exact design of the round bales is not ensured any more. 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). However, do not zigzag: drive long distances on the left and right side of the swath as shown in the adjacent illustration. Too frequent changes and uneven filling of the bale chamber will produce barrel-shaped round bales, uneven baling density and higher wear of the floor conveyor chains.

The reached diameter or baling pressure can be read off on the monitor of the operation terminal.

Note

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

Note

To prevent overload on the round baler when handling certain types of crop (e. g. wet silage), the baling pressure should be reduced. The baling pressure must never be adjusted over 200 bar or over 100 % baling pressure.

Fortima F 1250 (MC) / Fortima F 1600 (MC)

Note

The binding process should be started at the latest when the baling pressure indicators reach the red range (the buzzer sounds if the comfort electronic system is fitted).

Note

To prevent overload on the machine when handling certain types of crop (e.g. wet silage), the binding process should already be started at an earlier point.

Permanent overload of the machine can drastically reduce the service life.

11.4 Wrapping and Depositing Bales

- Start tying or wrapping process (refer to the chapter entitled “Operation”), continue crop collection until tying or wrapping material is transported from crops into the bale chamber and covered from the round bale. To do this, always observe the nominal speed of 540 rpm until tying process is complete.
- Stop the tractor and wait until the tying or the wrapping process has been finished.
- Eject the round bales by opening the bale chamber. Always open the tailgate of Fortima V1500 (MC) and Fortima V1800 (MC) completely, as enough pressure can only be built up for sufficient floor conveyor tension when the cylinders are fully extended.
- Always close the bale chamber of Fortima V1500 (MC) and Fortima V1800 (MC) just with idle speed and start the next baling process.

11.5 After Baling

Fortima V 1500 (MC) / V 1800 (MC)

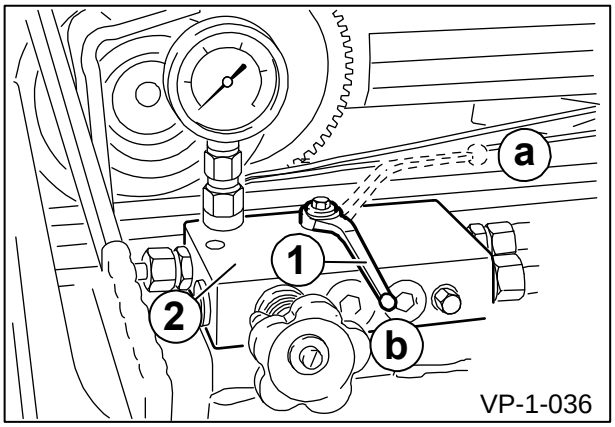


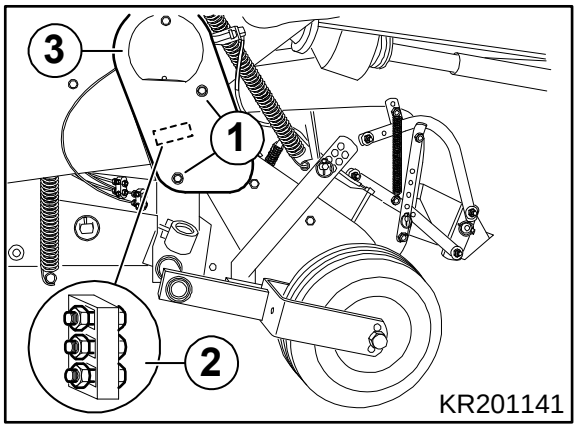
Fig. 154

To relieve the load on the floor conveyor, the tension of the front and the rear floor conveyor must be released when baling work is complete.

- Swivel stop cock (1) of control valve (2) from position “b” to position “a”.

The clamping cylinders of the floor conveyors are depressurised.

11.6 Shear screw for pick-up drive



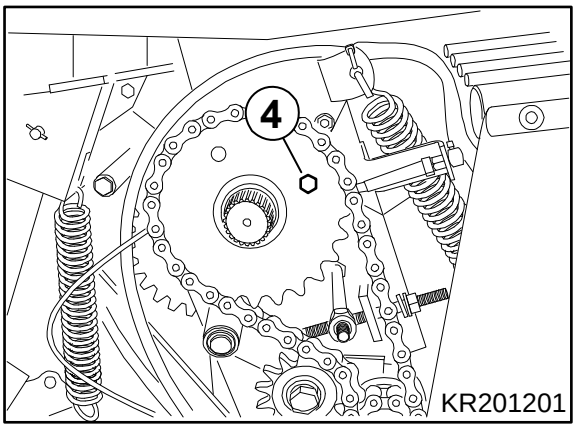


Fig. 155

To protect against overload the pick-up drive and the feed auger drive, which is located behind the guard (3), are secured with a shear screw at the upper chain wheel.

- If a malfunction occurs, dismantle the fastening nuts (1). Remove the protective cover (3).
- Check condition of shear screw (4) and replace if necessary.

Note

There are 3 spare screws (2) on the inside of the protective cover (3) M10 x 35 single-action 24017, DIN 933 8.8 (Order No. 900 638).

- Attach protective cover (3).

11.7 Splash guard

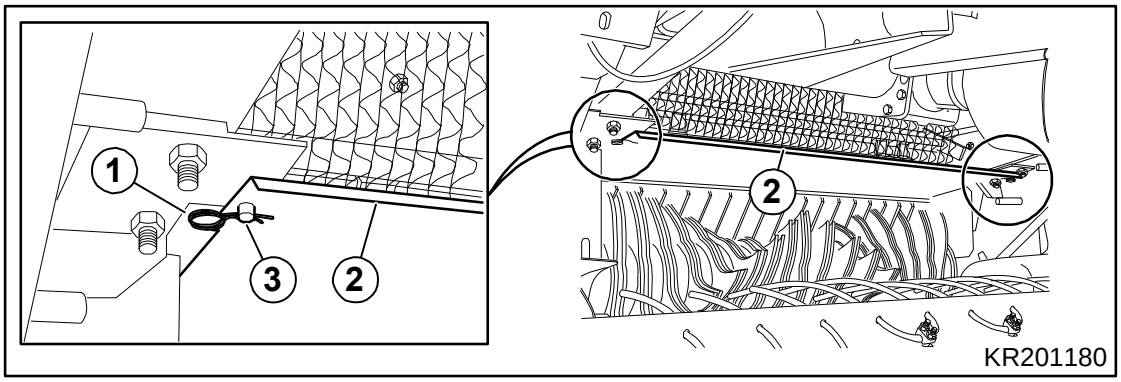


Fig. 156

For use in straw the splash guard should be removed (2).

To do this:

- Remove the spring cotter pin (1) from the attachment bolt (3) (on both sides).
- Remove the splash guard (2).

For use in silage or hay, remount the splash guard (2).

11.8 Pick-up

11.9 Default Setting (Working Height Setting)

Note
Lift the Pick-up for driving in the headland or when driving backward!

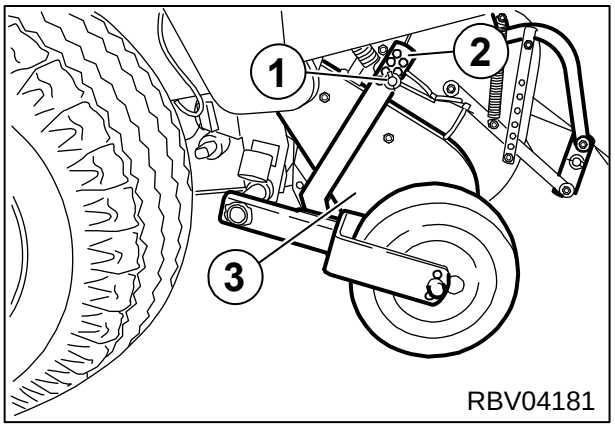


Fig. 157

Note
When adjusting the pick-up, the drawbar height of the machine must be adjusted to the tractor (see chapter "Initial start-up").

The distance from the tines to the ground must be about 20 – 30 mm.
Adjust the pick-up working height according to the prevailing ground conditions.
Default setting (the setting must always be the same on both sides):

- Raise the pick-up (3) hydraulically
- Remove the linch pin (2)
- Set the perforated bar (1) in the required position
- Secure in place using the linch pin (2)

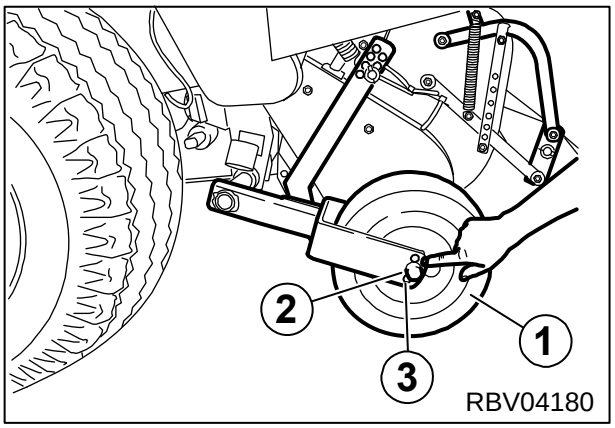


Fig. 158

Additional setting (the setting must always be the same on both sides):

1. Raise the pick-up hydraulically.
2. Unscrew the nut (2).
3. Insert the guide wheel (1) in the new position on the receiving fork (3).
4. Tighten nut (2).

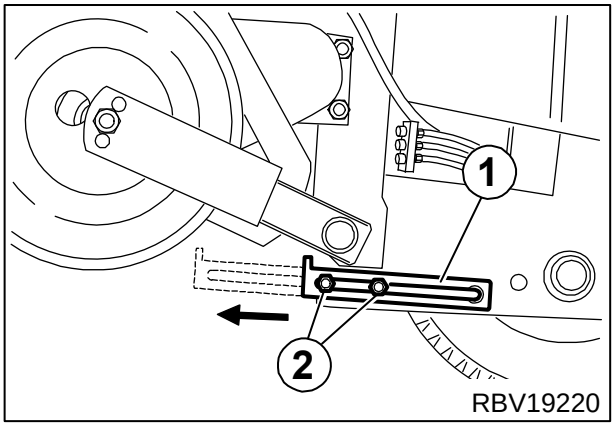


Fig. 159

For extreme soil conditions, regulate the raking height with the depth limiter (setting must be the same on both sides):

1. Raise the pick-up hydraulically.
2. Move the guide wheels (3) up.
3. Unscrew the nuts (2).
4. Push the height restriction (1) forward.
5. Tighten nuts (2).

11.10 Roller crop guide

DANGER! - Operation of the machine without roller crop guide!
Effect: Danger to life or serious injuries
The roller crop guide is used for accident protection and must not be removed during operation.

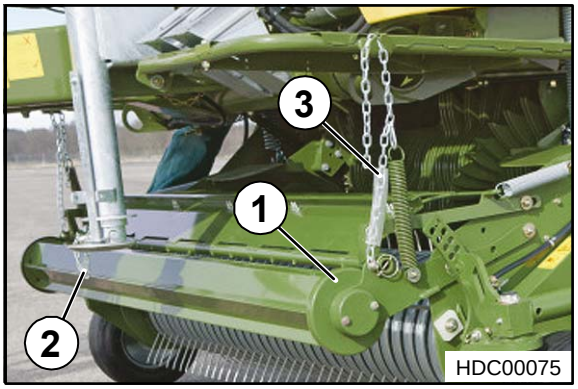


Fig. 160

The roller crop guide (1) makes it possible to regulate how crop is moved. It ensures that the pick-up collects crop evenly.
Adjust the height of the roller crop guide (1) so that the holding-down roller (2) runs continuously above the swath.

Height of the roller crop guide:
For large swaths, the roller crop guide (1) can be adjusted to forage weights.
To do this, hook in the chains (3) correspondingly higher.

Note
The setting must be the same on both sides of the roller crop guide.

11.11 Adjusting the baffle plate

Fortima F 1250 (MC) / F 1600 (MC)

The height of the baffle plate (1) can be adjusted to the swath. Position I is the factory default setting. If the crop is very moist, moving the baffle plate to position II is recommended.

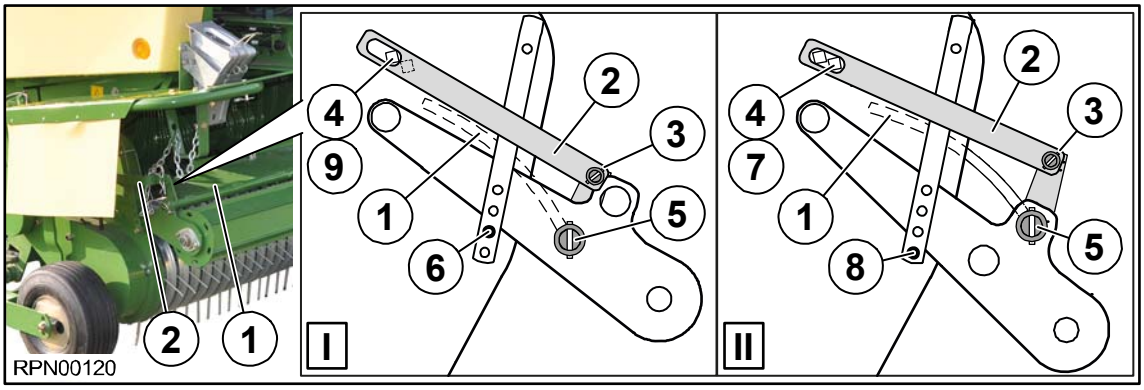


Fig. 161

Moving baffle plate (1) from position I to position II

On the left-hand and right-hand side of the machine

- To dismount the bar (2),
  - pull out linch pin (3).
  - loosen coach bolt (4).
  - remove bar.
- Pull out linch pin (5).
- Move screw connection (6) one hole deeper.
- Move baffle plate (1) in the upper bore hole and secure with linch pin (5).
- To mount the bar,
  - insert coach bolt (4) into the front rectangular bore hole (7) and fasten with spacer tube, disc and locknut.
  - place the bar onto the bolt (3) and secure with linch pin (3).

Moving baffle plate (1) from position II to position I

On the left-hand and right-hand side of the machine

- To dismount the bar (2),
  - pull out linch pin (3).
  - loosen coach bolt (4).
  - remove bar.
- Pull out linch pin (5).
- Move screw connection (8) one hole up.
- Move baffle plate (1) into the lower bore hole and secure with linch pin (5).
- To mount the bar,
  - insert coach bolt (4) into the rear rectangular bore hole (9) and fasten with spacer tube, disc and locknut.
  - place the bar onto the bolt (3) and secure with linch pin (3).

11.12 Preselecting Baling Pressure

Fortima V 1500 (MC) / Fortima V 1800 (MC)

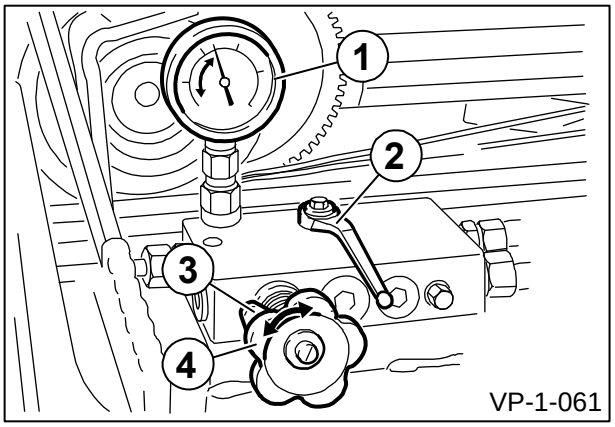


Fig. 162

Relieve the pressure from the clamping cylinders of the floor conveyor after every use.

The shut-off valve (2) is moved in the shown position to set the baling pressure.

A pressure range of 50 - 200 bar is provided for baling pressure adjustment.

Crop	Pressure range (bar)
Hay	low
Straw	medium / high
Silage	high

Setting the Baling Pressure:

1. Loosen anti-twist lock (3)
2. Screw in the handwheel (4) completely clockwise.
3. Open the tailgate of the round baler completely. (The hydraulic system of the machine is pressurised in this process). The indicator on the pressure gauge (1) stops when the highest pressure is reached.)
4. Close tailgate again (tractor hydraulics on “Lowering”).
5. Rotate the handwheel slowly anticlockwise until the indicator on the pressure gauge shows the desired baling pressure.
6. Tighten anti-twist lock (3) again.

11.13 Cutting system

WARNING! – Maintenance, assembly, repair and adjustment work as well as troubleshooting and fault clearance

Effect: Danger to life, injuries or damage to the machine.
The following general rules apply to all maintenance, assembly, repair and adjustment work as well as for troubleshooting and fault clearance:

- Bring the machine to a complete stop.
- Switch off PTO shaft. Switch off engine, remove the ignition key and carry it with you.
- Secure tractor and machine against the possibility of rolling back.
- Secure pick-up by depth limiter.
- Risk of injury when attaching or removing the blades. The blades should only be touched with suitable gloves.
- When working within the bale chamber, always secure the open tailgate on the stop cock against lowering.

11.13.1 General Aspects

The machine is equipped with a cutting system with cutting roller and fixed blades. Cutting allows for improved further processing of the round bales and makes it possible to increase the density of baled material. From the tractor, the blades can be swivelled hydraulically out of the conveyor channel if there are any blockages. The blade safety device prevents the blades from being damaged by foreign objects.

The cutting system can be switched off mechanically.

11.13.2 Chop length

Chop length is determined by the number of blades used.
The number of blades used can be read on the selector disc (1).

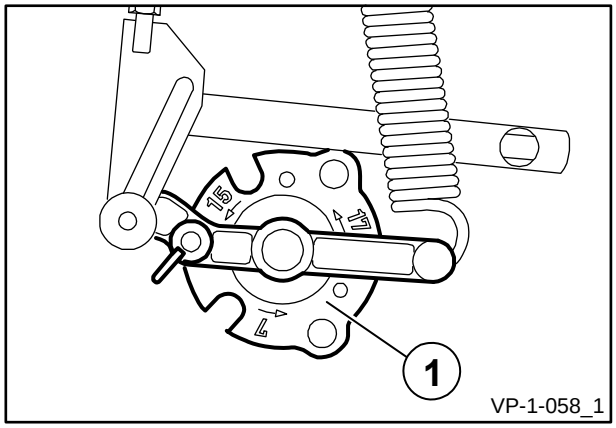


Fig. 163

Table cutting length depending on blade equipping

Cutting length	Number of blades	Setting
	0	"0"
128 mm	7	„7“
64 mm	15*	„15“
64 mm	17	„17“

* The two outer cutters are turned off.

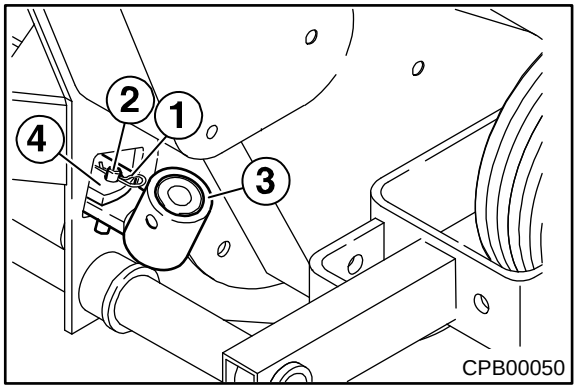


Fig. 164

Setting is carried out via multipurpose keys (3) or (4).
These are located in a support on the right side of the machine.

1. Remove spring cotter pin (1)
2. Pull multipurpose key (3) or (4) off from the retaining bolt (2).

Make setting

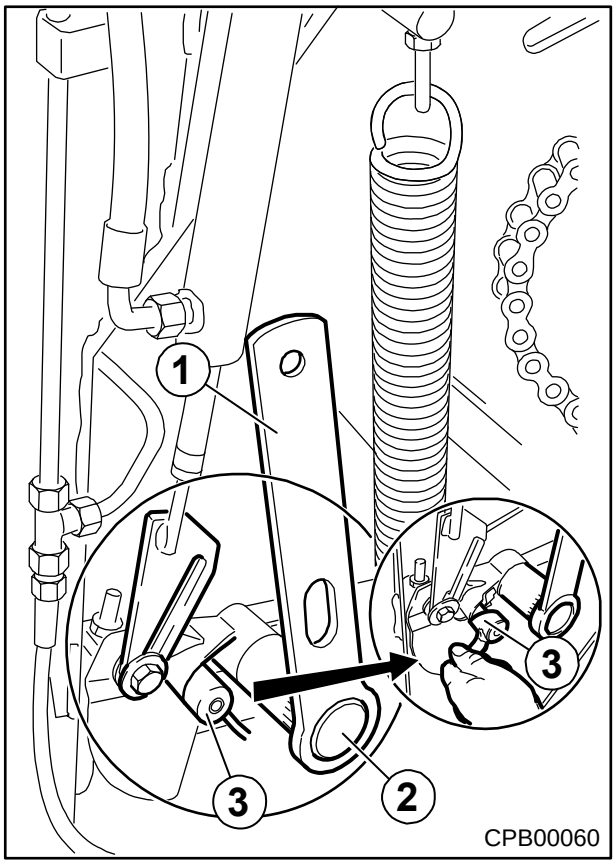


Fig. 165

The setting is performed on the right-hand side of the machine:

1. Turn the locking lever (3) clockwise, unlock blade control shaft.
2. Place multipurpose key (1) on blade control shaft (2).

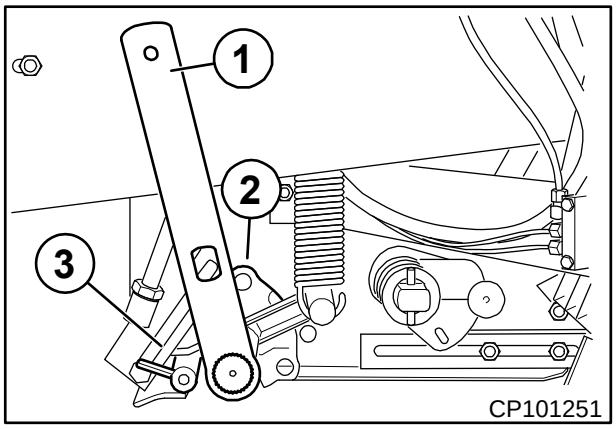


Fig. 166

3. Turn blade control shaft with multipurpose key (1) counter-clockwise into the desired position (2).
4. Turn locking lever (3) counter-clockwise until it engages.

Note

Do not turn locking lever in the other direction (clockwise). In doing so, the possibility exists that the cutters **are not** located in working position.

5. Remove the multipurpose key (1), put it correctly down into transport support and secure it with spring cotter pin.

Note

After adjusting make certain that the cutters are located in working position.

11.13.3 Zero position of the cutter

Switch off cutters mechanically

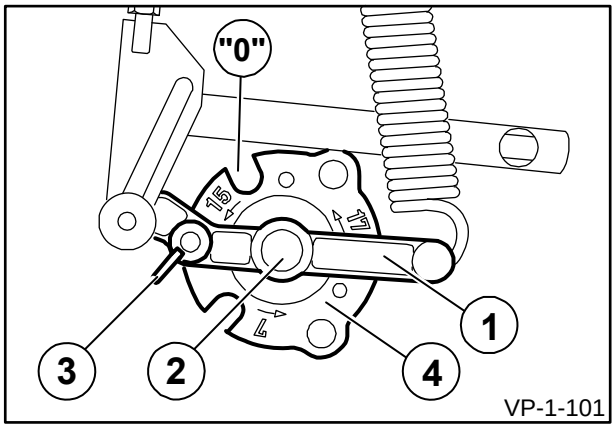


Fig. 167

1. Unlock the locking lever (3).
2. Place multipurpose key (1) on blade control shaft (2).
3. Turn blade control shaft (2) with multipurpose key (1) until selector disc (4) is on position “0”. Position „0“ is located respectively between two settings of cutters.
4. Lock blade control shaft (4) with locking lever (3).

Note

If the round baler is to be operated without cutting system for a long period, it is recommended to remove the cutters (see Chapter “Change cutters”).

Turn off the blades hydraulically

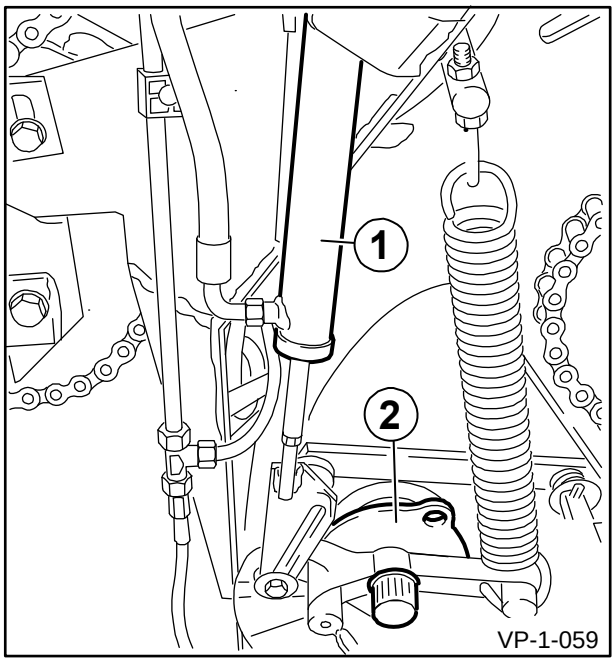


Fig. 168

Note
The purpose of the hydraulic knife retraction is to make it possible to eliminate any blockages or foreign objects.

The blade control shaft (2) can be hydraulically switched via cylinder (1) into zero position of the cutter.

Note
Switch on blades hydraulically only when cutting roller is running.

11.13.4 Blade Quick-Fit Device Blade

The single blade locking device prevents the blades from being damaged by foreign objects.The locking device for individual blades is optimally adjusted before the unit leaves the factory.

Should a separate setting be necessary in particular cases (for example for ductile crops), the response threshold can be increased or reduced.

This adjustment of blades has to be made if the blade shafts are installed at the bottom.

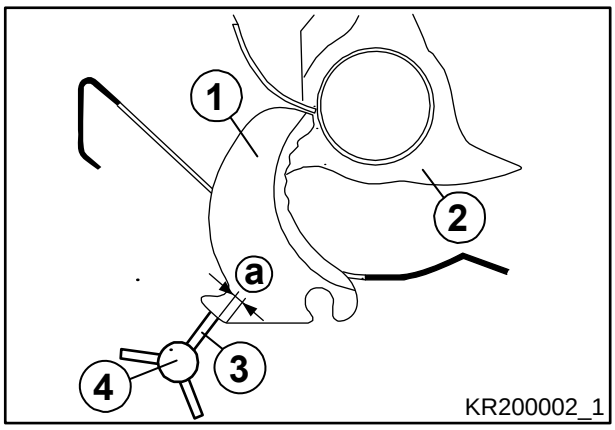


Fig. 169

The overhand (a) of the edge at the underside of the blade (1) and the cams (3) at the blade control shaft (4) must be between a = 10-14 mm.

Increase dimension a = increase response threshold

Reduce dimension b = response threshold weaker

Adjusting the locking device for blades

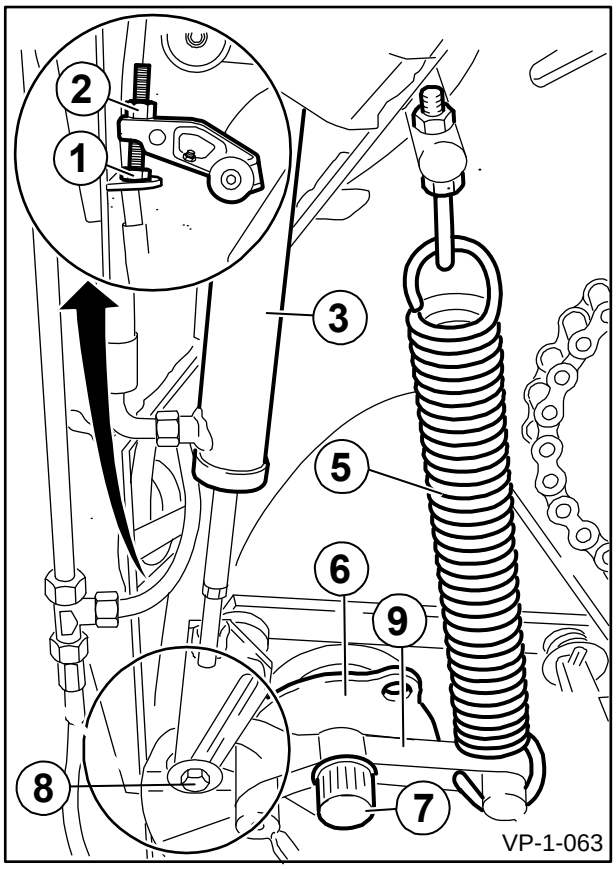


Fig. 170

1. Lowering the cutting system
2. Switch off the control unit and remove the ignition key
3. Secure the machine against the possibility of rolling back
4. Unscrew the counter nut (2).
5. Turn adjusting screw (1) far enough so that the dimension you require is reached
6. Tighten counter nut (2)

If an adjustment by adjusting screw is not possible:

1. Detach the spring at the pivoted lever (9)
2. Remove the screw (8)
3. Swing the cylinder (3) laterally aside
4. Remove pivoted lever (9)
5. Pull off selector disc (6) of the toothed blade control shaft (7)
6. Slide on selector disc (6) again offset one tooth

Note
Install the grooved ball bearing in reverse order to the removal procedure.

11.13.5 Adjust blade control shaft

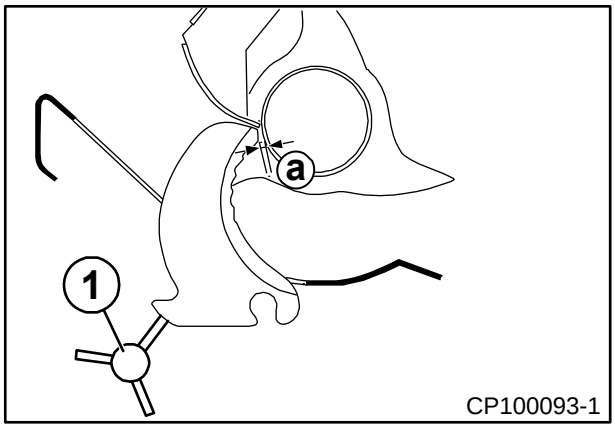


Fig. 171

If the blades are worn, the blade control shaft (1) can be adjusted.

Note

The distance (a) has to be at least 5 mm.

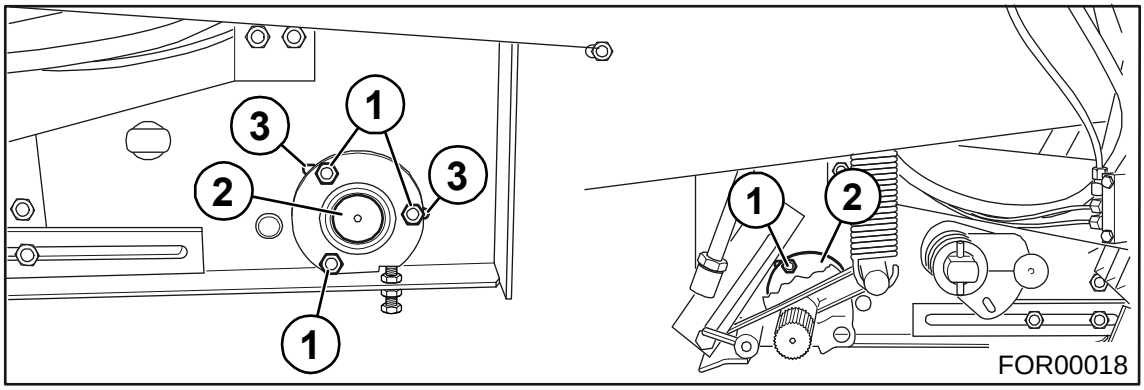


Fig. 172

- Release screws (1) of the bearing housing (3) of the blade control shaft (2) on the left-hand side of the machine
- Release screws (1) of the bearing housing (2) of the blade control shaft on the right-hand side of the machine.

Make the adjustment of the blade control shaft (1) using the oblong holes:

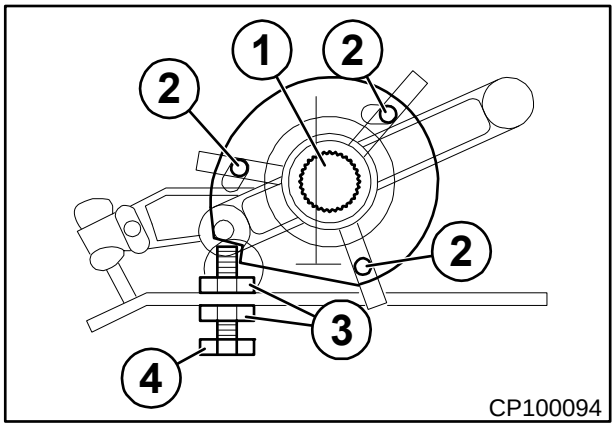


Fig. 173

1. Release counter nuts (3) on both sides and readjust blade control shaft (1) with the adjusting screws (4) to the cutting rotor.
   Make the adjustment identical on both sides.
2. On both sides of the machine, tighten fastening bolts (2) of the bearing case.
3. Initialize the blade control shaft again when using **new blades**.

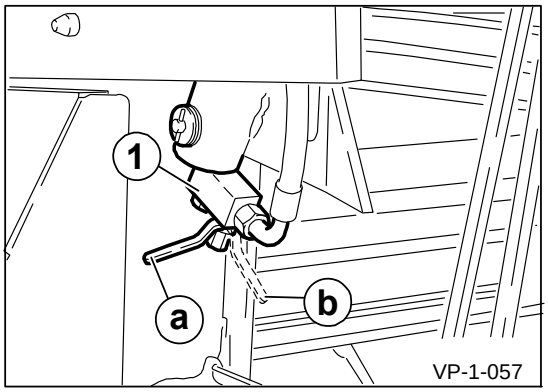
11.13.6 Zero position of the cutter

WARNING! - Blade changing
Effect: Severe injuries to fingers and hands
- Wear protective gloves to remove / install blades!

The cutting system cutters are accessible from the bale chamber.
- Open tailgate

DANGER! – Unintentional closing of tailgate!
Effect: severe injuries.
- Secure the open tailgate against unintentional shutting.

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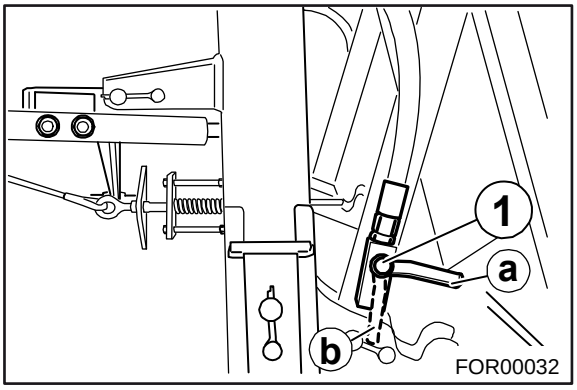


Fig. 174
- Swivel shut-off valve (1) in the return of the left lifting cylinder from position (b) to position (a), the tailgate is locked hydraulically.

Switch off cutters mechanically

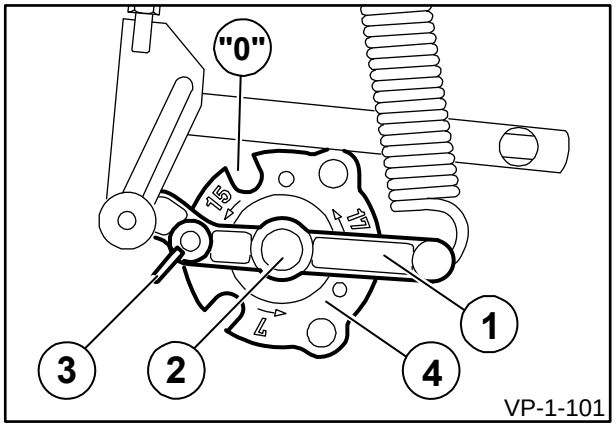


Fig. 175
1. Unlock the locking lever (3).
2. Place multipurpose key (1) on blade control shaft (2).
3. Turn blade control shaft (2) with multipurpose key (1) until selector disc (4) is on position “0”. Position „0“ is located respectively between two settings of cutters.

Unlocking the Blade Shaft

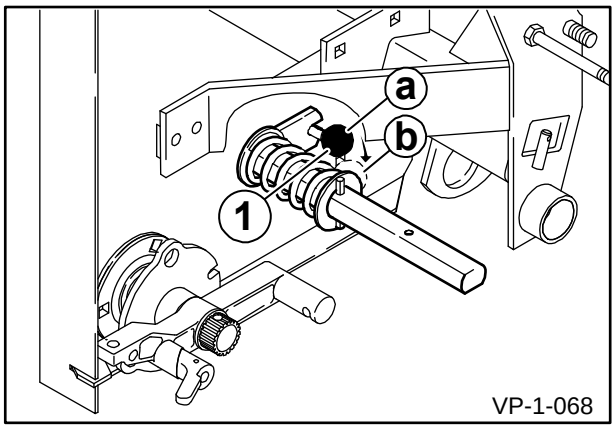


Fig. 176

- Pull the locking bolt out of the locking by pulling the button (1) and swivel it in position (b).

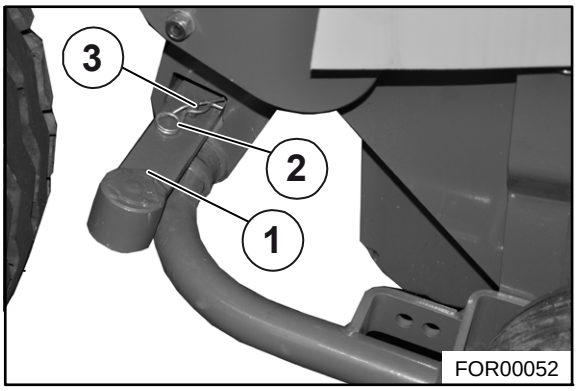


Fig. 177

The supplied key (1) can also be used for locking/unlocking the blade shaft. It is stored right front behind the pick-up.

Pull the cotter pin (2) out off the bolt (3) to remove the key (1). After complete work, attach key (1) to bolt (3) again and secure with cotter pin (2).

Changing Blades

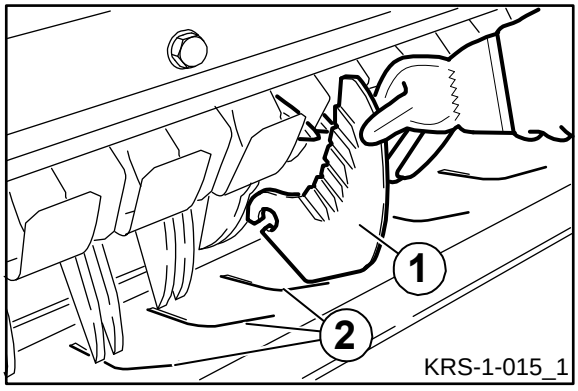


Abb. 178

- Remove the blades (1)

Note

When inserting the blades (1), ensure that they are located correctly on the blade shaft and centred in the slot (2).

- Insert a new or a ground blade (1)

Note

Before the cutter base is raised, check if all blades (1) form a straight line and if they are thus correctly installed.

3. Secure blade shaft and lock it.

Storage of the Replacement Blades

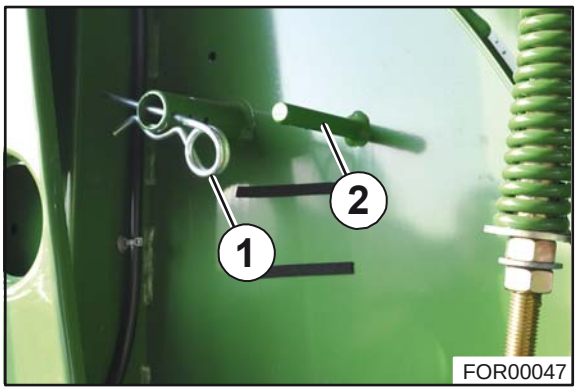


Fig. 179

The replacement blades are stored on the right machine side under the side guard.

1. For removing the blades, pull the spring clip (1) and remove the required number of blades from the support (2).
2. Secure the remaining blades on the support (2) again with the spring clip (1).

Note

Always secure the blades with the spring clip (1) as it may otherwise be possible that a blade is lost.

11.14 Removing the Crop Blockages in the Crop Collection Area

WARNING! – Unexpected movements of the machine!
Effect: Injuries or damage to the machine
- Eliminate blockages only when the machine is stopped. Switch off the engine and remove the ignition key.
- Start up the machine only when all safety devices are mounted and in proper working order.

CAUTION! - Sharp parts
Effect: severe risk of injury
Always wear protective gloves when removing blockages.



Fig. 180

Crop blockages can occur in the following areas:
– Depending on the machine configuration:
  (1) Under the feed rotor or under the cutting rotor
– (2) at the pick-up.

Note
If there is a crop blockage under the feed rotor or under the cutting rotor, also check the pick-up for a possible crop blockage.

11.14.1 Crop blockage under feed rotor/cutting rotor

Depending on How the Machine is Fitted

Proceed as follows to remove the accumulated crop:

Feed rotor

- Turn off the PTO shaft.
- Drive backwards.
- Raise the pick-up.
- Engage the PTO shaft and test whether the blockage clears while idling.

If the blockage is not removed due to this:

- Depending on the machine configuration, reverse manually or hydraulically, see chapter on "Reversing".

If the blockage is not removed due to this:

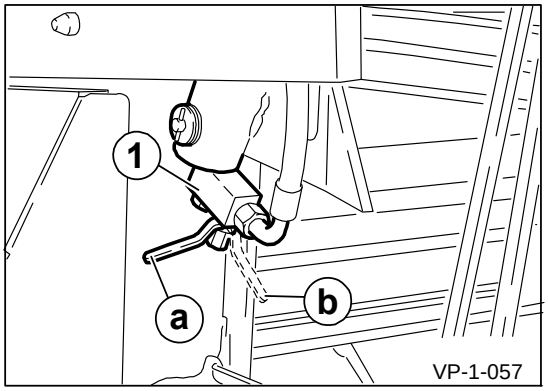
- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.

– Remove the accumulated crop manually.

If the blockage is not removed due to this:

- Start the tractor engine.
- Switch on the PTO shaft.
- Open the bale chamber using the tractor hydraulics.
- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.

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Fortima F1250 (MC)/F1600 (MC)

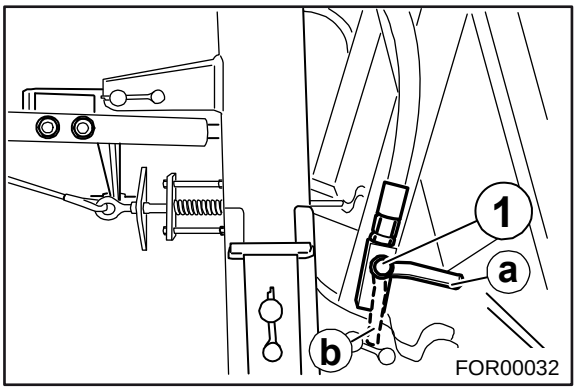


Fig. 181

- Swivel shut-off valve (1) in the return of the left lifting cylinder from position (b) to position (a), the tailgate is locked hydraulically.

- Remove the bale from the bale chamber (roll it out to the swath, if necessary).

– Remove accumulated crop manually.

- Swivel stop cock (1) of left lifting cylinder from position (a) to position (b). The tailgate is unlocked hydraulically.
- Start the tractor engine.
- Switch on the PTO shaft.
- Start the engine of the tractor.
- Open the bale chamber via tractor hydraulics.
- Activate the PTO shaft.

Cutting rotor

- Turn off the PTO shaft.
- Drive backwards.
- Raise the pick-up.
- Engage the PTO shaft and test whether the blockage clears while idling.

If the blockage is not removed due to this:

- Turn off the PTO shaft.
- Hydraulically lower the blade base.

If the blockage is not removed due to this:

- Also move the blades to zero position.

a) For version with manual blade control system

- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.
- Move the blade control shafts to the blade zero position (setting A/B: -/-) see "Changing the blade" chapter.

b) For version with hydraulic blade control system

- Turn off the PTO shaft.
- Hydraulically lower the blade base.
- Engage the PTO shaft and test whether the blockage clears while idling.

If the blockage is not removed due to this:

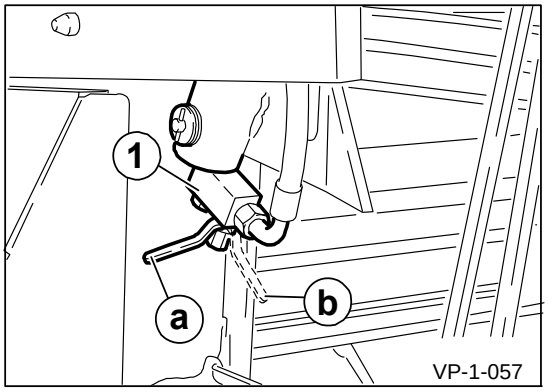
- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.

– Remove the accumulated crop manually.

If the blockage is not removed due to this:

- Start the tractor engine.
- Switch on the PTO shaft.
- Open the bale chamber using the tractor hydraulics.
- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.

Fortima V1500 (MC)/V1800 (MC)



Fortima F1250 (MC)/F1600 (MC)

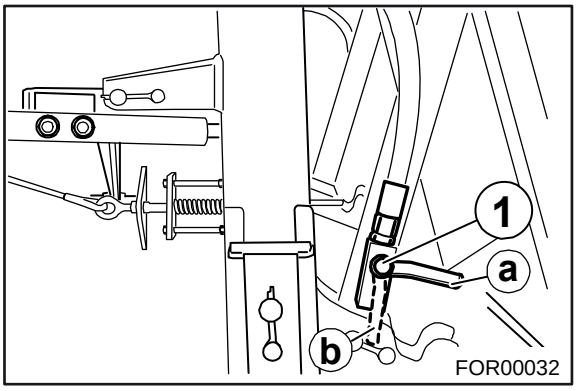


Fig. 182

- Swivel shut-off valve (1) in the return of the left lifting cylinder from position (b) to position (a), the tailgate is locked hydraulically.

- Remove the bale from the bale chamber (roll it out to the swath, if necessary).

– Remove accumulated crop manually.

- Swivel stop cock (1) of left lifting cylinder from position (a) to position (b). The tailgate is unlocked hydraulically.
- Start the tractor engine.
- Switch on the PTO shaft.
- Start the engine of the tractor.
- Open the bale chamber via tractor hydraulics.
- Activate the PTO shaft.

11.14.2 Crop blockage at pick-up

Proceed as follows to remove the accumulated crop:

a) If crop accumulates on the right/left edge of the pick-up

- When the PTO shaft is running, drive backward. In doing so, lift/lower the pick-up several times.

If the blockage is not removed due to this:

- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.

– Remove the accumulated crop manually.

b) In case of a crop blockage of the pick-up

- When the PTO shaft is running, drive backward. In doing so, lift/lower the pick-up several times.

If the blockage is not removed due to this:

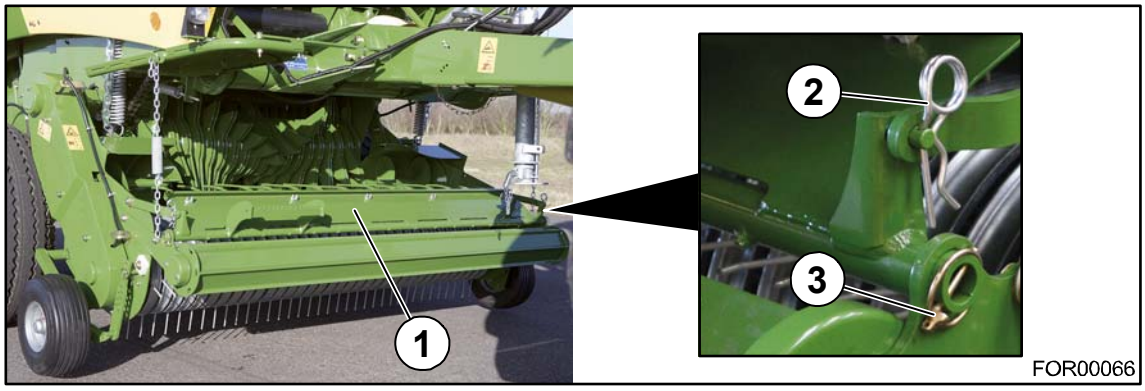


Fig. 183

- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.
- Remove the baffle plate (1):
  - Loosen the spring cotter pin (2) and the linch pin (3) on the right and left.
  - Remove the baffle plate.
  - Manually remove the accumulated crop.
  - Secure the baffle plate on the right and left with the linch pin and spring cotter pin.

11.15 Reversing

(feed rotor produced from 2013 onwards)

WARNING! – Unexpected movements of the machine!
Effect: Injuries or damage to the machine
- Eliminate blockages only when the machine is stopped. Switch off the engine and remove the ignition key.
- Start up the machine only when all safety devices are mounted and in proper working order.

a) For version with manual reversing device

- Switch off the PTO shaft and the engine of the tractor.
- Remove the ignition key.

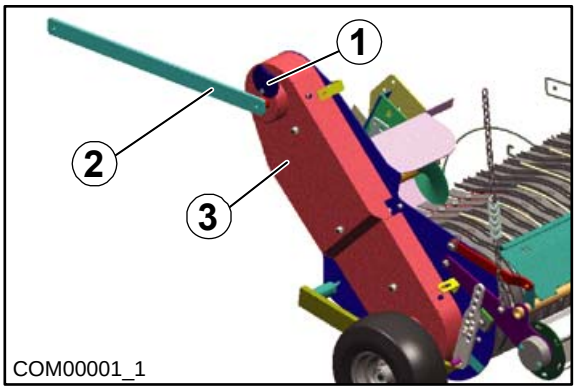


Fig. 184

- Move the cover (1) to the side.
- Remove the actuating lever (2) from the twine box and attach to the drive shaft for the pick-up (3) on the right-hand side of the machine.
- Manually turn back the feed rotor with the actuating lever.
- Reset the machine and manually remove any remaining crops from the feed rotor or the pick-up.

WARNING! - Actuating lever on drive shaft when restarting machine!
Risk of death or serious injuries, significant property damage.
- Detach actuating lever and place in twine box before restarting the machine.

- Remove the actuating lever (2) and place in the twine box.
- Close the cover (1).

b) For version with hydraulic reversing device

- Turn off the PTO shaft.
- Wait until all machine parts are stationary.
- Open the stop cock in the control valve hydraulic hose.
- Apply pressure to the hydraulic cylinder; the cylinder extends.
  Depressurise the hydraulic cylinder; the cylinder retracts.
- Repeat this operation around 4-5 times to turn back the feed rotor by around ¼ turn.
- Reset the machine.
- Turn off the tractor engine and remove the ignition key.
- Manually remove any remaining crops from the feed rotor or the pick-up.
- Depressurise the hydraulic cylinder.
- Check that the reversing device is in idle position.
- Close the stop cock in the control valve hydraulic hose.
- Start the engine and turn on the PTO shaft.

11.16 Assembly and disassembly of the bale ejector

WARNING! – Maintenance, assembly, repair and adjustment work as well as troubleshooting and fault clearance

Effect: Danger to life, injuries or damage to the machine.

The following general rules apply to all maintenance, assembly, repair and adjustment work as well as for troubleshooting and fault clearance:

- Switch off PTO shaft and engine, remove the ignition key and carry it with you.
- Secure the machine against rolling by using wheel chocks.
- During the operation, maintain an adequate safety distance from all movable parts of the machine. This applies especially to the collecting mechanism (pick-up) of the crop.
- Before starting assembly work, it is absolutely necessary to move stop cock on the left lifting cylinder of the tailgate into locking position so that assembly work can be carried out when the tailgate is open.

Fortima F 1250 (MC) / F 1600 (MC)

Under some working conditions, e. g. on slopes, it is advisable to dismount the bale ejector (3).

Caution! – Bale ejector moves upward!

Risk of injury

- When carrying out assembly or disassembly work, do not stay in the area above the bale ejector.

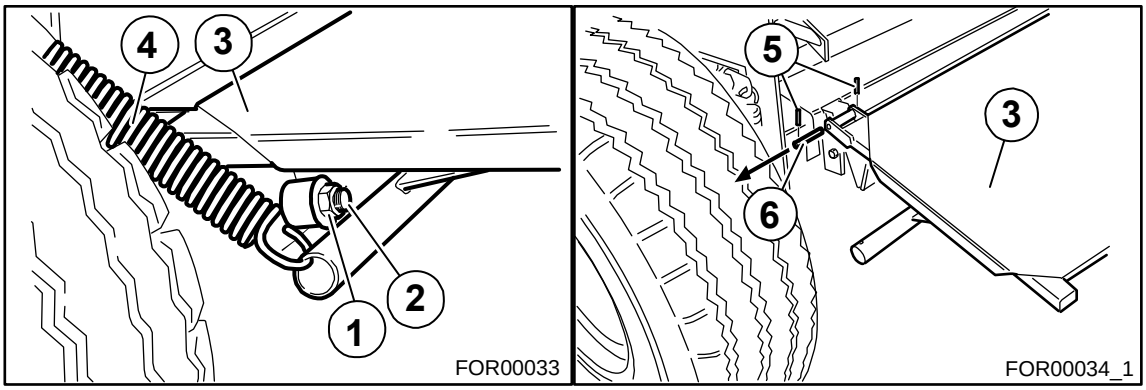


Fig. 185

1. Unscrew the nuts (1) on both sides from the threaded rod (2).
2. Lift bale ejector (3) upward and unhook the springs (4) right and left.
3. Remove roll pins (5) on both sides and pull out bolts (6).
4. Dismount bale ejector (3) to the rear.

Assembly of bale ejector (3) is in reverse order to the removal procedure.

Fortima V 1500 (MC) / V 1800 (MC)

DANGER! – Crush hazard!

Effect: Injuries to persons.

- Use suitable means to move the bale ejector (weight about 40 kg). Do not walk under the bale ejector.

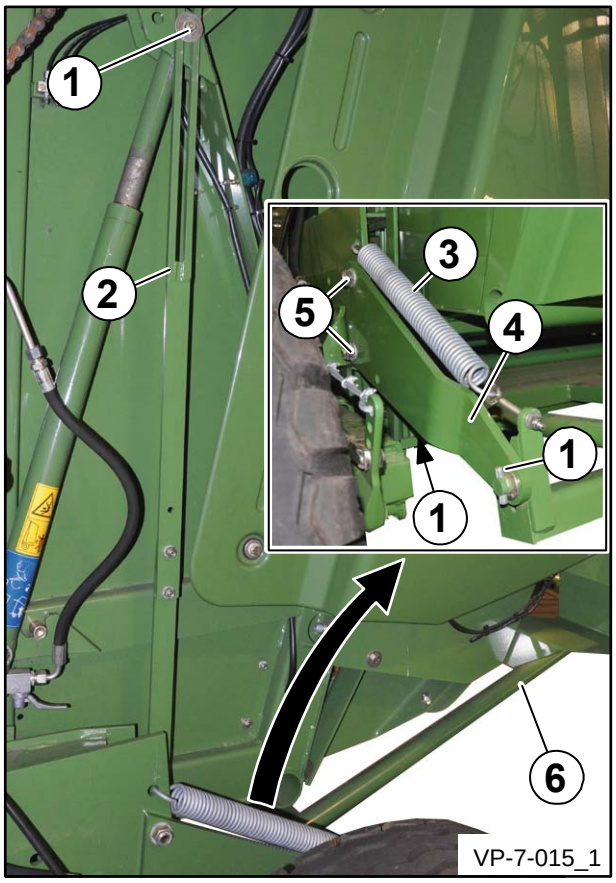


Fig. 186

Under some working conditions, for example on slopes, it is advisable to remove the bale ejector (6).

To do this:

1. Open the front protective covers on the left and right-hand side of the machine.
2. Remove the clamping sleeves (1) on both sides of the support (2) and the bale ejector support (4).
3. Remove the spring (3) and screws (5) on both sides.
4. Remove the bale ejector towards the back.

For assembly of the bale ejector see chapter "Initial start-up".

11.17 Floor conveyor chain

Fortima V 1500 (MC) / V 1800 (MC)

WARNING! – Maintenance, assembly, repair and adjustment work as well as troubleshooting and fault clearance

Effect: Danger to life, injuries or damage to the machine.

The following general rules apply to all maintenance, assembly, repair and adjustment work as well as for troubleshooting and fault clearance:

- Switch off PTO shaft and engine, remove the ignition key and carry it with you.
- Secure the machine against rolling by using wheel chocks.
- During the operation, maintain an adequate safety distance from all movable parts of the machine. This applies especially to the collecting mechanism (pick-up) of the crop.
- Before starting assembly work, it is absolutely necessary to move stop cock on the left lifting cylinder of the tailgate into locking position so that assembly work can be carried out when the tailgate is open.

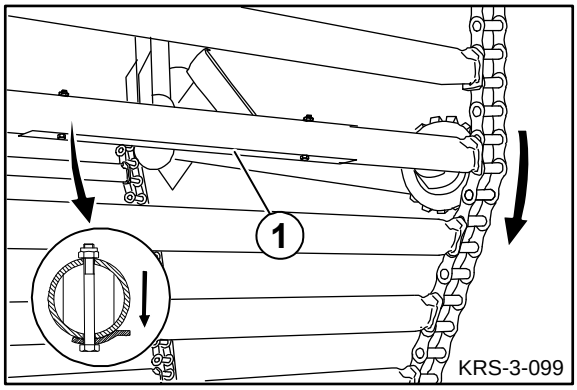


Fig. 187

To ensure immediate bale starting when the crop is very dry and smooth, the front floor conveyor chain can be fitted with additional driver guide rails.

Note

Observe running direction of floor conveyor chains!

- Mount driver guide rails (1) on the floor conveyor chain rods pre-drilled for that purpose.

11.18 Twine tying/twine tying and net wrapping

The machine is equipped with a twine box. This twine box is capable of holding 10 rolls of tying twine.

To ensure sufficient tying safety, make certain that only synthetic twines are used which have a running length of 750- 1000 m/kg.

11.18.1 Twine tying parts

Note

Use only KRONE original tying twine. The tying twine must be ordered via KRONE spare parts department under spare parts number: 00 929 949 0 (750 m/kg) or 00 929 951 0 (1000 m/kg).

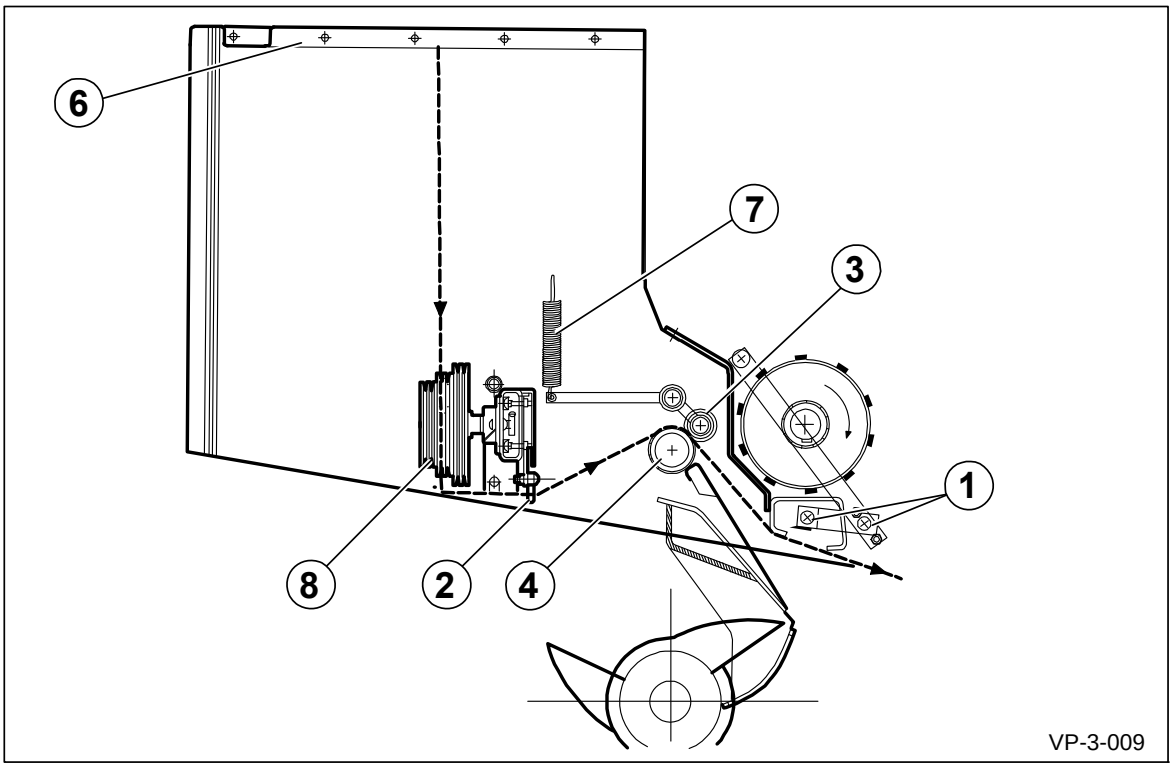


Fig. 188

1 Blade bar
2 Twine tying
3 Idler roller
4 Rubber roller
6 Twine box
7 Tension spring of idler roller
8 Stepped pulley

11.18.2 Twine tying and net wrapping parts

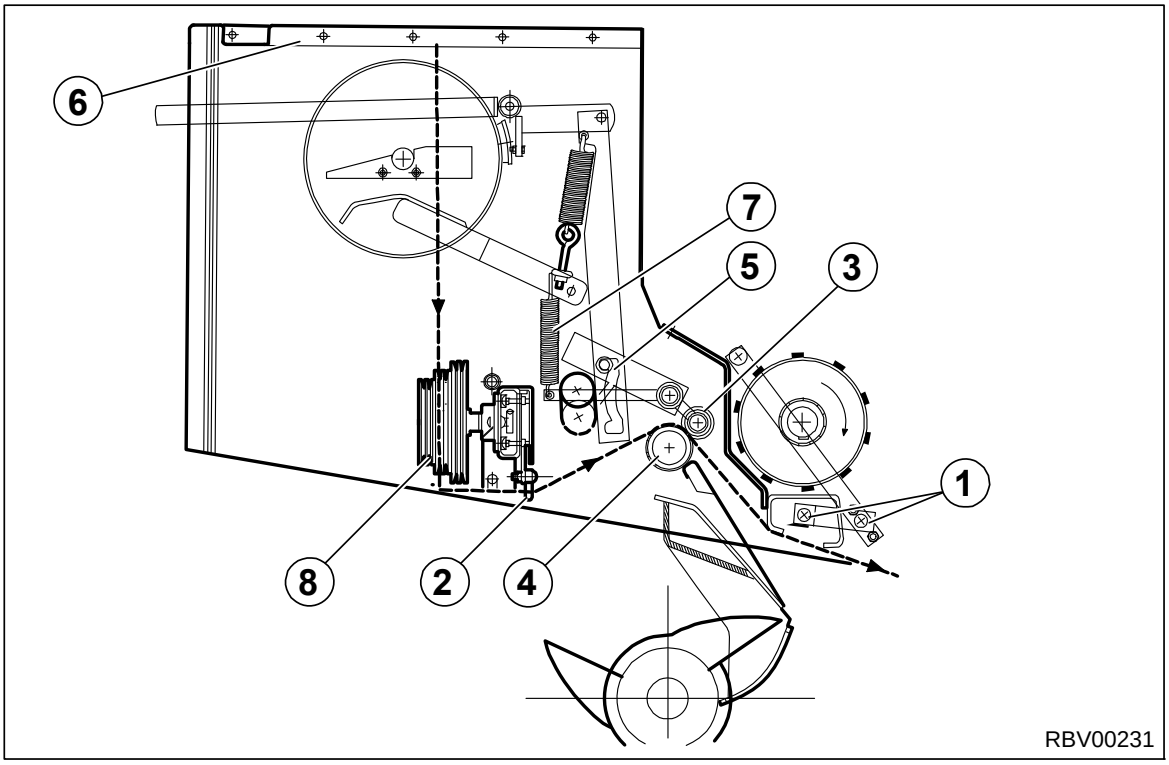


Fig. 189

1 Blade bar
2 Twine tying
3 Idler roller
4 Rubber roller
5 Sliding block guide
6 Twine box
7 Tension spring of idler roller
8 Stepped pulley

11.18.3 Tying function

The upper twines are guided out of the twine box through the twine eye and twine brake to the stepped pulley (8); the two lower twines are guided by the twine brake directly to the twine tying. From there they are moved through the twine tying (2) between the rubber roller (4) and the idler roller (3) to the area of the blade bar (1).

At the start of a wrapping process the rubber roller (4) is driven and moves the twine into the area of the feed channel chamber and rotating round bale. The twine is received with the round bale together with the crops as they move through the machine. Twine tying (2) guides two twines from inside to outside and then back inside around the round bale. At the same time twine tying guides the other twines from outside to inside and then back around the round bale.

A sensor on the twine tying reports when the wrapping process is complete. The twine is cut off and the wrapping process is complete.

11.19 Setting the tying twine in place

DANGER! - Unexpected movement of a machine component.
Effect: Danger to life, injuries.
- The net may only be inserted by one person.
- Make sure that there is no other person in the movement area of the machine.
- Switch off PTO shaft and engine, remove the ignition key and carry it with you.
- Switch off control unit.

Note
When placing the tying twine in the twine box, make certain that the labeling on the rolls can be read. Make certain the side marked "Up" is facing up.

CAUTION! – Contamination of the twine and tying mechanism by oil and grease
Effect: Machine damage and problems when unrolling twine
- The twine, twine tensioner and eyes must not be contaminated by oil or grease.
- The parts of the tying unit through which twine or net run must not be contaminated by oil or grease.

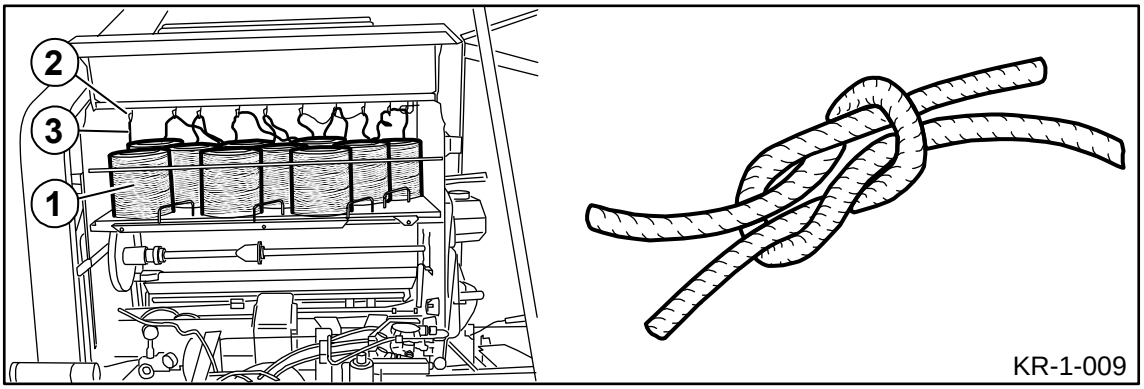


Fig. 190

The machine must be stopped while the twine is prepared and inserted:
- turn off the tractor PTO
- turn off the tractor motor
- Before knotting the twine rolls (1), draw the twine (3) through the corresponding twine guide (2).
- Knot the twine as shown in the illustration.

- Connect the twine rolls with each other according to the following diagram:

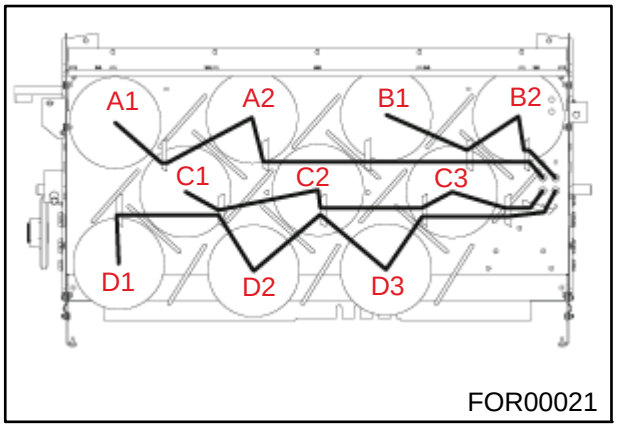


Fig. 191

	End of the twine roll	with beginning of twine roll
Twine A	A1	A2
Twine B	B1	B2
Twine C	C1	C2
	C2	C3
Twine D	D1	D2
	D2	D3

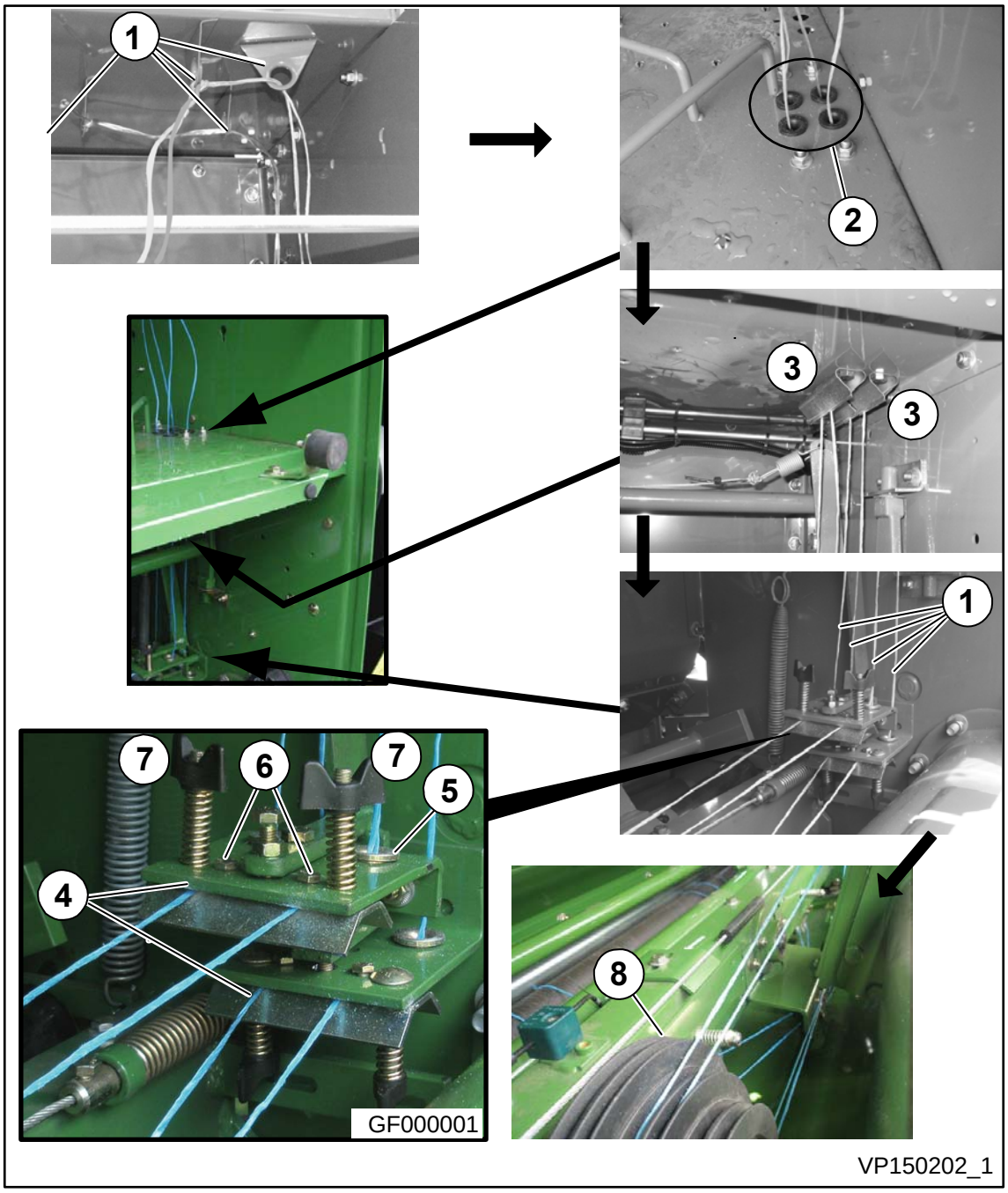


Fig. 192

- Guide the 4 twines through the twine guides (1) vertically downward without crossing in the twine box. Thread one twine into each eye (2).
- Guide the twines coming from above through the twine holders (3) and continue down to the two twine brakes (4).
- Guide two twines each through the eyes (5) of both twine brakes (4) and continue as shown in the detail GF000001.

Note
Ensure that the twine is between the screws (6) and the spring compressors (7).

- Guide both twines out of the upper twine brake to the stepped pulley (8).

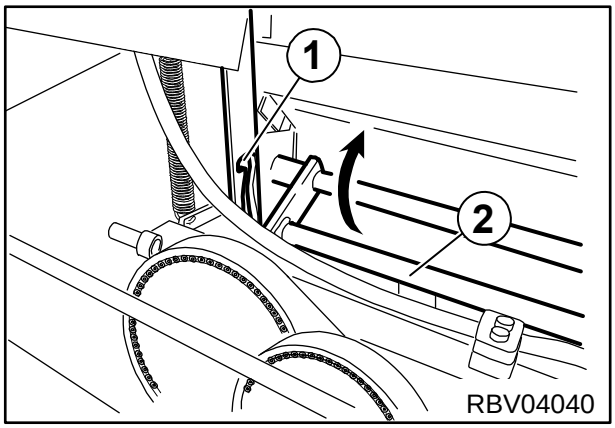


Fig. 193

Note

If net wrapping is available, the net spreader (2) must be rotated to the upper position if twine tying is being used.

The net spreader (2) is held in position by the link in the guide iron (1).

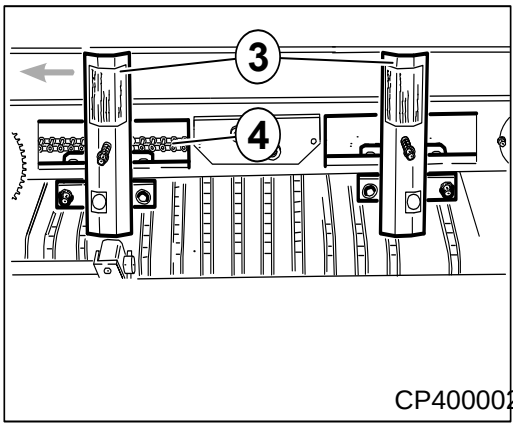


Fig. 194

- Open the cord tying cleaning flaps (3).
- Turn the cord tying around manually in the direction of operation on the stepped pulley (see arrow).
- Remove impurities in the area (4).

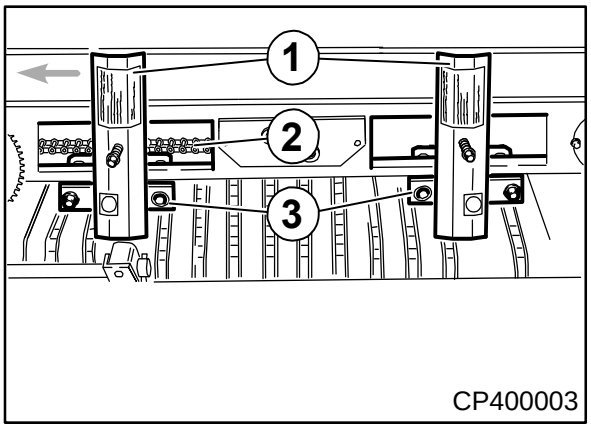


Fig. 195

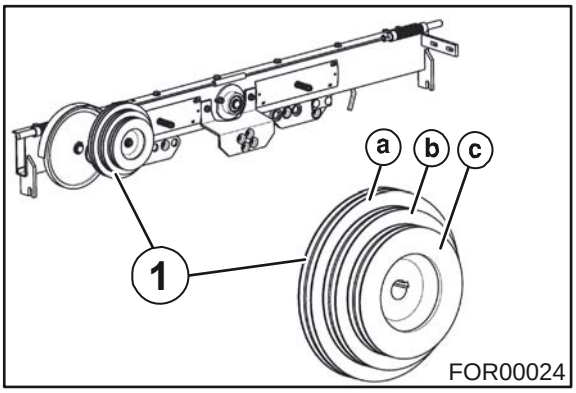
- Close the cleaning flaps (1) again.
- Turn the stepped pulley in the direction of the arrow until the twine guiding slides (3) move from the outside to the middle.

Note

The twine guiding slides (3) must move to the middle as the stepped pulley is turned. Otherwise continue turning the stepped pulley in the direction of the arrow until the starting position is reached (see picture).

Distance of the twine wraps on the bale

Length of crop material	Ø of the stepped pulley (1)	Wrapping distance
Short	Large (a)	Narrow
Medium	Medium (b)	Medium
Long	Small (c)	Wide



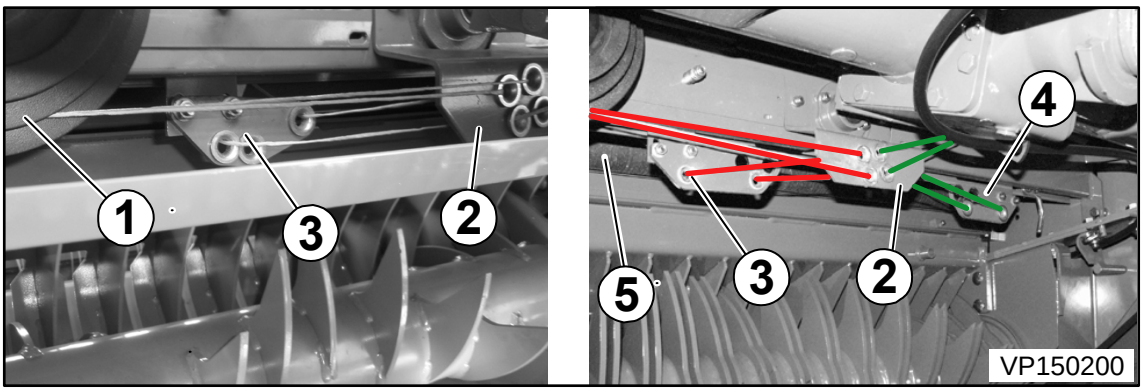


Fig. 196

- Guide the twines coming from the upper twine brake around the cone pulley (1), through the distributor eyelets (2) and further through the distributor eyelets (3)
- Guide the twines coming from the lower twine brake directly through the distributor eyelets (2) and further through the distributor eyelets (4)
- Place the twine ends over the rubber roller (5)

Note

The twine must at least be routed 25 cm beyond the rubber roller (5).

11.20 Net Wrapping

11.20.1 Net wrapping parts

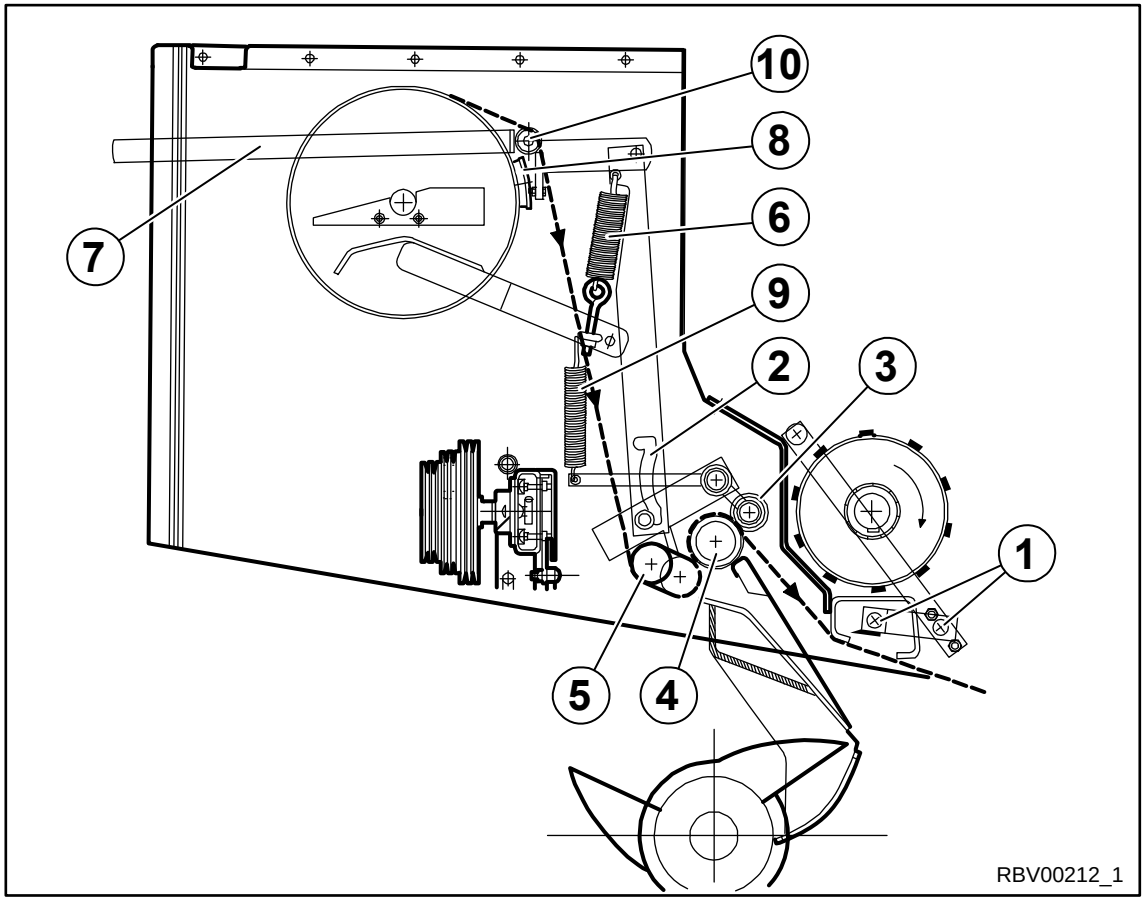


Fig. 197

1	Blade bar	2	Link guidance
3	Pressure roller	4	Rubber roller
5	Net spreader	6	Net brake spring
7	Brake lever	8	Net brake
9	Pressure roller spring	10	Deflection shaft

ATTENTION! – Net and net wrapping contaminated with oil and grease

Effect: Machine damage and problems when unrolling the net.

- Net and components of the net wrapping must not be contaminated with oil or grease.

The net is guided by the net roll over the deflection shaft (10) to the net spreader (5) and from there between the rubber roller (4) and idler roller (3) into the area of the blade bar (1).

When the wrapping process is triggered, the rubber roller (4) feeds the net into the area of the conveyor channel and rotating round bale. After the crops move through, the net is received into the round bale. By its own rotation, the round bale draws the net over the rubber roller (4) and the net spreader (5) off the net roll.

The net is held taut by the net brake (8) during the wrapping process.

After the wrapping process is complete the blade bar (1) rotates into the path of the net and the net is cut off.

11.21 Inserting the Net Roll

DANGER! - Unexpected movement of a machine component.

Effect: Danger to life, injuries.

- The net may only be inserted by one person.
- Make sure that there is no other person in the movement area of the machine.
- Switch off PTO shaft and engine, remove the ignition key and carry it with you.
- Switch off control unit.

Note

The start of the net roll must point towards the machine and it must be possible to pull it out from above.

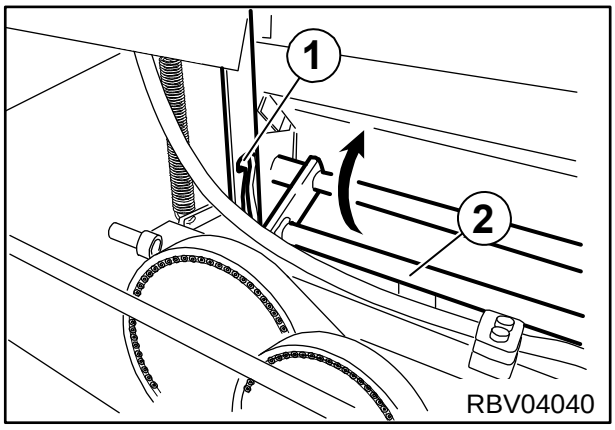


Fig. 198

Prepare net roll and insert it if the machine is at a standstill:

- Switch off tractor PTO shaft
- Switch off tractor engine.
- Pull link guide (1) to the front.
- Swivel net spreader (2) upward and let it engage in the top link.

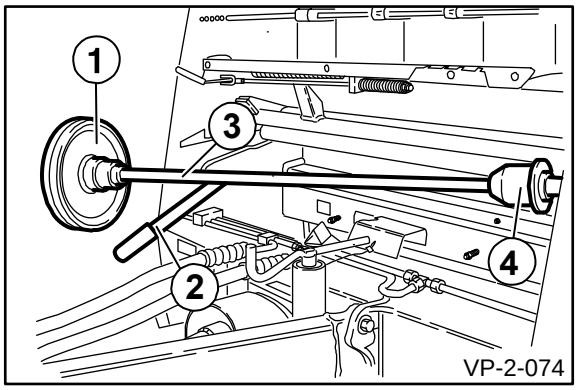


Fig. 199

- Raise the lever (2).
- Swing the brake disc (1) and the net roll mounting shaft (3) forward.
- Detach the brake disc (1).
- Slide the net roll onto the net roll mounting shaft (3) and the support (4).

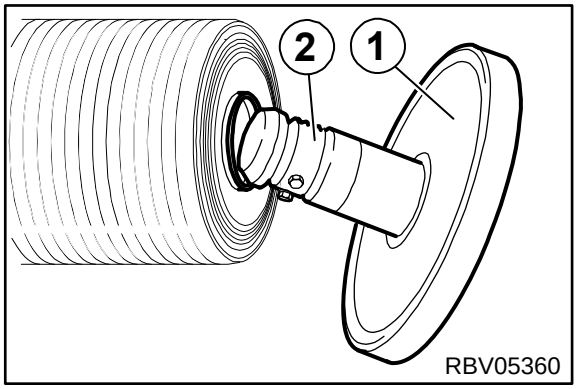


Fig. 200

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

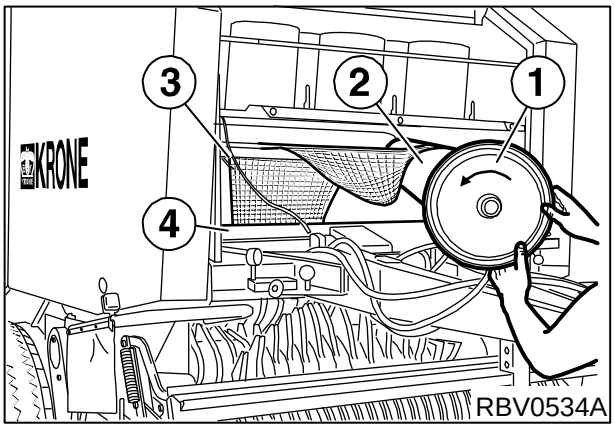


Fig. 201

- Feed the net (2) over the deflection shaft (3) to the net spreader (4).
- Swing the net roll mounting shaft back into its support.

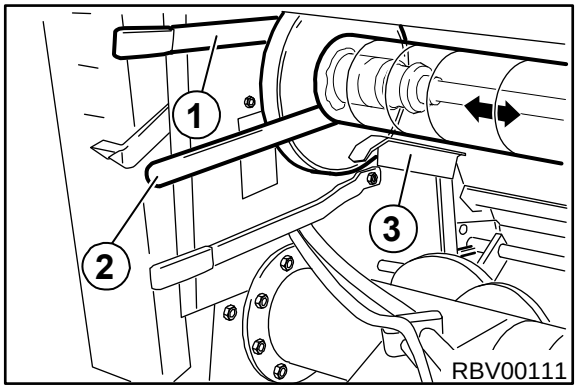


Fig. 202

- Once installed, the net roll can be aligned to the right and left in the centre to the machine using the mounting lever (2).
- To pull the net, release the brake. To do this press the lever (1) downwards.
- Place the net brake buttons (3) below the net roll.

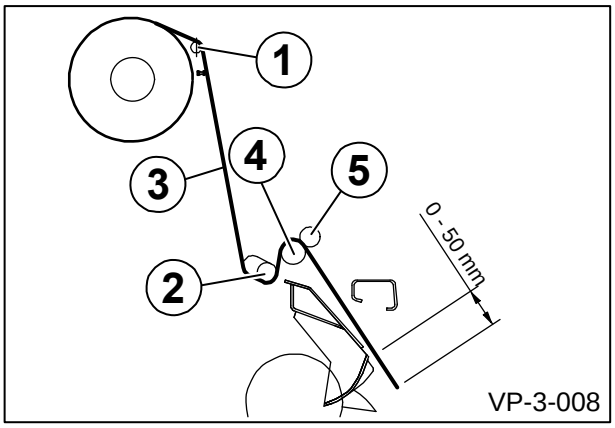


Fig. 203

- Insert the net (3) through the deflection shaft (1) under the net spreader (2) between the rubber roller (4) and idler roller (5). The net must extend about 0 - 50 mm over the scraper of the conveyor or cutting roller.

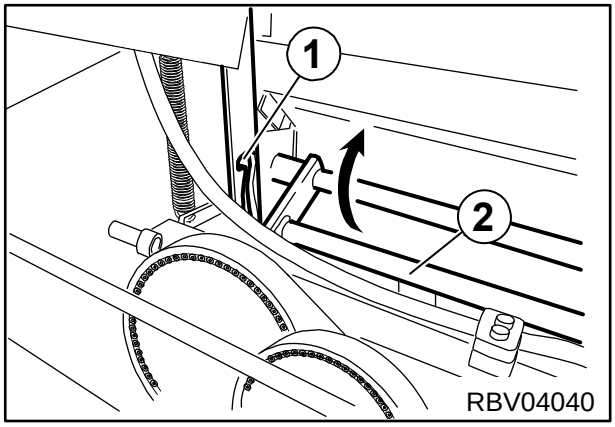


Fig. 204

- Pull the iron piece (1) forward.
- Fold the net spreader (2) down and lock it in place.

12 Settings

Danger! - Maintenance, installation, repair and adjustment work, troubleshooting and fault resolution

Effect: Risk of death, injuries or damage to the machine.

For all maintenance, installation, repair and adjustment work, troubleshooting and fault resolution:

- Turn off the PTO shaft, turn off the engine, remove the ignition key and take it with you.
- Secure the machine against rolling with wheel chocks.
- During operation, maintain a sufficient safety distance from all moving parts of the machine. This applies especially to the crop collecting mechanism (pick-up).
- Only remove blockages when the machine is stationary. Switch off the engine and remove the ignition key.
- Only start the machine if all safety devices are fitted and in sound condition.
- If any hazardous situations arise, immediately turn off the PTO shaft and stop the machine.
- Never leave the machine running with no operating personnel on the tractor.

12.1 Tying unit

12.1.1 Adjusting the twine limiter

The position of the twine limiter determines the distance from the outer wraps to the outside edge of the bale.

The setting is made according to the length and type of crops to prevent the cord from slipping off the round bale.

Length of crop material	Distance between the two twine limiters
Short	Narrow
Medium	Medium
Long	Wide

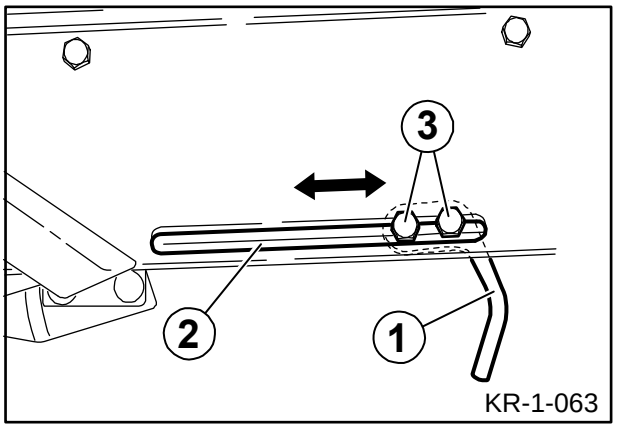


Fig. 205

Adjusting the twine limiter (setting must be the same on both sides):

1. Fold the tying unit forward.
2. Loosen the screws (3).
3. Push the twine limiter (1) into the desired position.
4. Tighten the screws (3).

12.1.2 Adjusting the twine brake

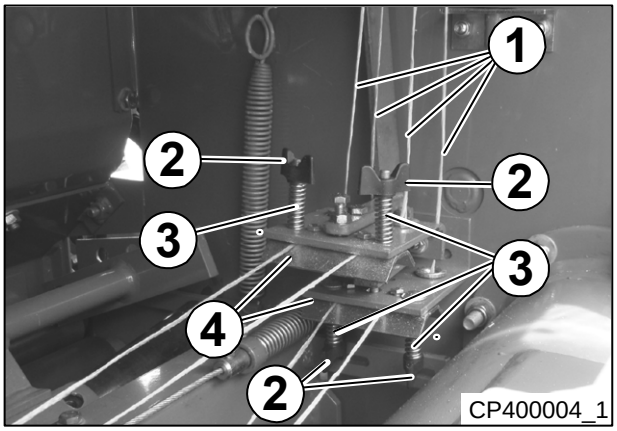


Fig. 206

The twine brakes (4) are located in the twine box. The tying twine (1) is held under tension by the setting screws (2) above and below. Different types of tying twine may have different friction properties. The drawing tension of the tying strand must be checked when you start using a different type of tying twine. The dimension of the compression spring is based on the tying twine selected and must be determined in each individual case by testing in the twine strand.

Setting the twine brake (perform setting always both sides):

1. Clockwise rotation of adjusting screws (2) (higher spring pretensioning (3), bigger braking power).
2. Antilockwise rotation of adjusting screws (2) (higher spring pretensioning (3), bigger braking power).

Note

The twine has always to be hold under tension in order that a correct cutting off by the knifes is ensured.

Do not tighten the brake to the extent that the twine slips through the rubber roller when starting.

Note

The setting of the respective compression spring has possibly to be carried out in different ways in order that the cut off twine ends indicate the same length.

12.1.3 Loosening the twine brake

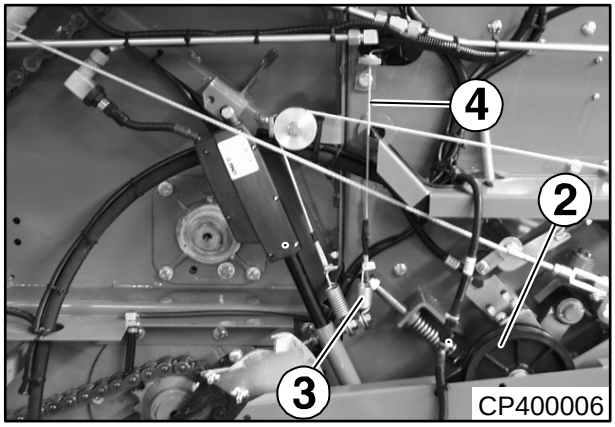


Fig. 207

1. Move the tension arm (2) from below into central position.
   In this position
   - the tension spring (3) must not be tensioned,
   - tension on the wire rope (4) must be slightly released.

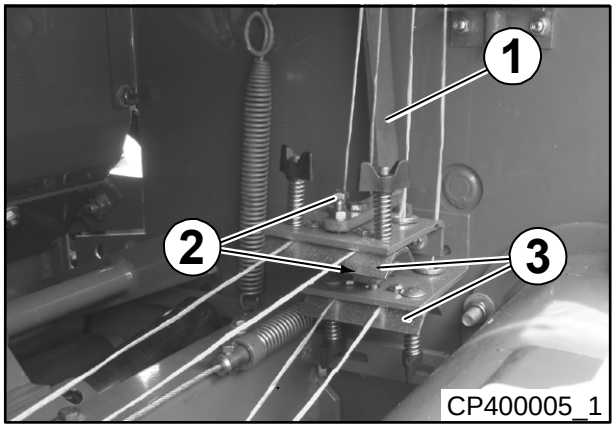


Fig. 208

The brake is released by the adjusting lever (1) when starting.

Setting the twine brake (depends on yarn count):

1. Turn the screw (2) clockwise (thicker yarn count)
2. Turn the screw (2) anticlockwise (thinner yarn count)

Note

When the adjusting lever (1) is pressed, both brake plates (3) have to be raised evenly. If this is not the case, on can adjust with screws (2).

12.1.4 Adjusting the idler roller

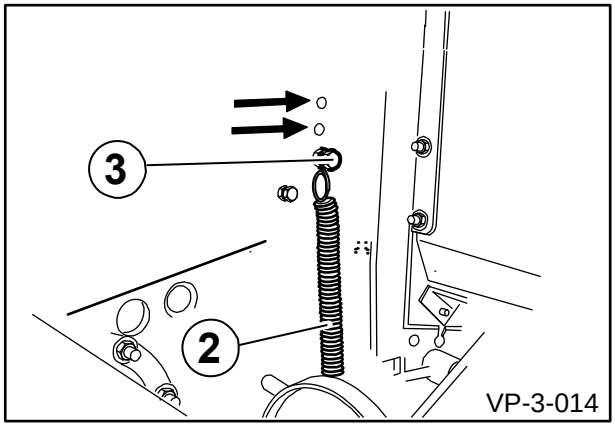


Fig. 209

If the twine is not being drawn in correctly at the start, the pressure of the idler roller can be increased with the spring (2):

Right-hand side

1. Detach spring (2).
2. Remove the screw (3) and mount it in one of the top holes.
3. Reattach the spring (2).

Left-hand side

Pressure can be increased by hooking the spring into the holes.

12.1.5 Adjusting the sensor

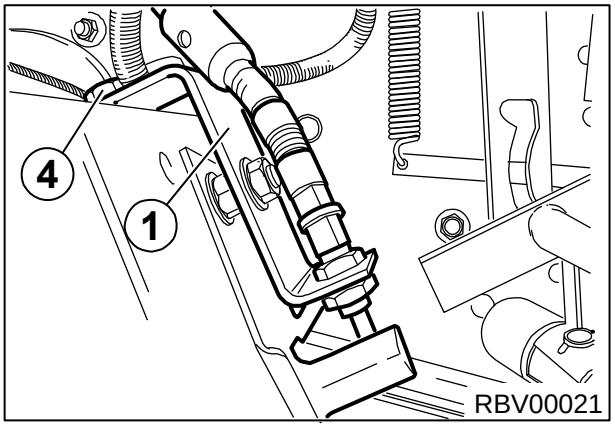
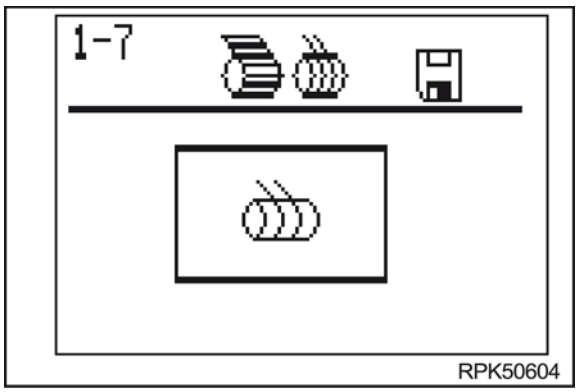


Fig. 210

To allow for the twine not always starting or being cut off in the same place, the sensor (1) can be moved left or right.

1. Loosen the screw (4).
2. Move the sensor support (1).
3. Retighten the screw.

12.1.6 Selecting the type of tying



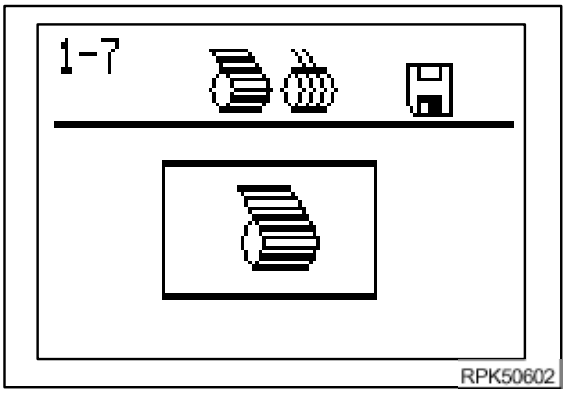


Fig. 211

In menu 1-7 "Select type of tying" activate the + or − keys to open the "Twine tying" submenu (Fig. RPK50604_2) or "Net wrapping" (Fig. RPK50602) (for additional information see chapter "In-cab Comfort kit").

12.1.7 Adjusting the net brake

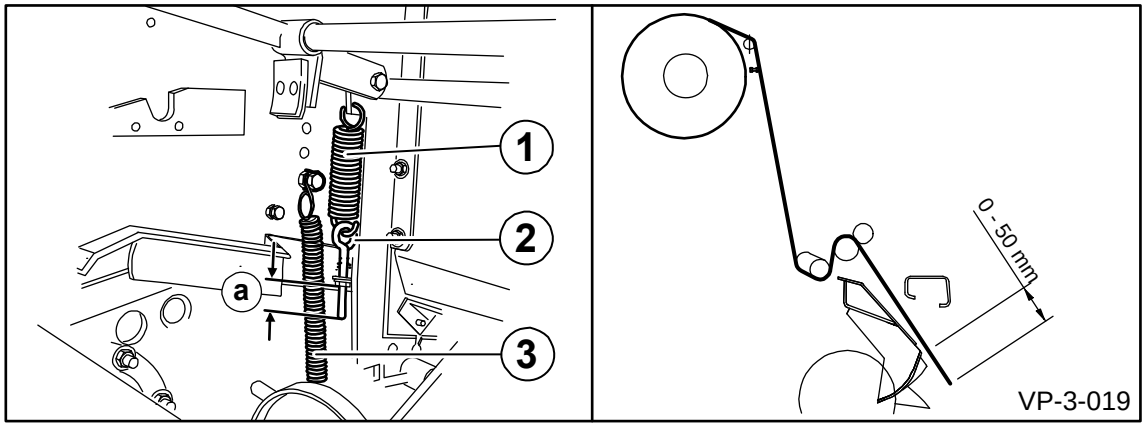


Fig. 212

Note
If the net is caught during baling, tension on the net brake spring (1) must be increased.

In the default setting the dimension of the clamping screw should be **a = 35 mm**.
The spring (1) of the brake can be adjusted on the ring bolt (2).
If the net is not being drawn in correctly at the start, the pressure of the idler roller can be increased with the spring (3).

Note
The net brake setting depends on the type of net being used. The net brake should be set in such a way that after the tying process the net hangs into the channel by approx. 0 - 50 mm over the scraper. Always use a speed of 540 rpm for wrapping.

12.1.8 Adjusting the additional net brake

Fortima V 1500 (MC) / V 1800 (MC)

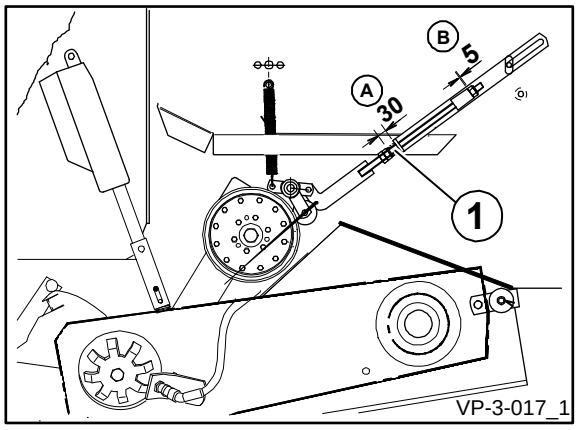


Fig. 213

In the basic setting the following dimensions must be set on the compression spring (1):

- Dimension A = 30 mm
- Dimension B = 5 mm

In the basic setting the dimension of the spring must be approx. 35 mm.

Check these values regularly and readjust if necessary.

12.1.9 Loosening the net brake

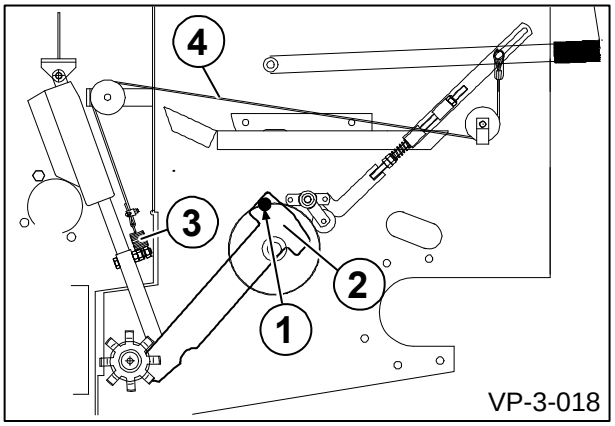


Fig. 214

1. Move the tension arm (2) from below into central position.
   In this position
   - the tension spring (3) must not be tensioned,
   - tension on the wire rope (4) must be slightly released.

12.1.10 Net spreader

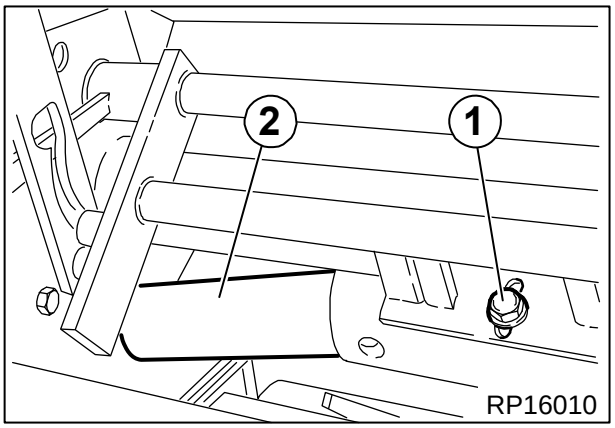


Fig. 215

In order to make use of the optimum width of the net, the net spreader (2) can be turned:

1. Loosen the right and left screw (1).
   - Turn the tube towards the back. The net is drawn extremely wide
   - Turn the tube towards the front. The net is not drawn as wide (use for types of nets that are not very wide)
2. Retighten the right and left screw (1).

12.1.11 Adjusting the Magnetic Coupling (in Case of Twine Wrapping)

The magnetic transmission must be re-adjusted if:

- the slides of the twine tying no longer stop during the start and end phase of tying, but continue to move or
- the slides do not move after the start phase

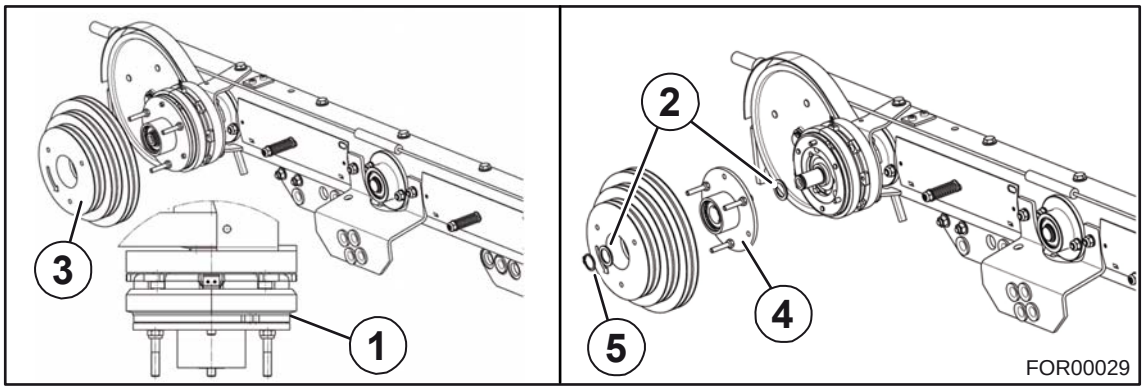


Fig. 216

To ensure correcting functioning of the magnetic transmission, use the shim rings (2) to set the dimension of the gap (1) to 0.2 mm (+0.15/-0.05):

1. Remove the plastic disc (3) and measure the gap (1)
2. If the dimension deviates, disassemble the carrier (4) of the plastic disc by removing the retaining ring (5) and taking off the carrier (4)
3. Use the shim rings (2) to set the dimension of the gap (1) to 0.2 mm (+0.15/-0.05)
4. Re-assemble the disassembled parts in reverse order

12.2 Central chain lubrication system

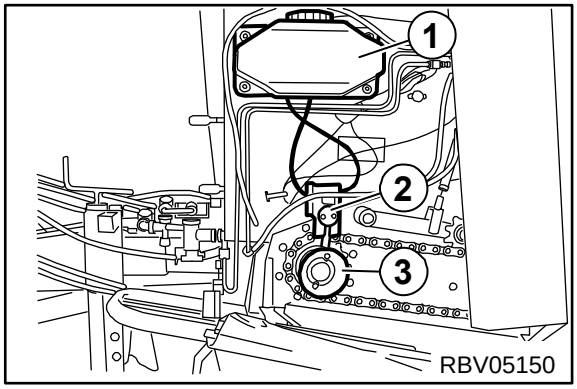


Fig. 217

The central chain lubrication system is attached to the left-hand 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 manifolds attached to the left-hand and right-hand side of the machine, and onto the brushes on the drive chains.

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

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

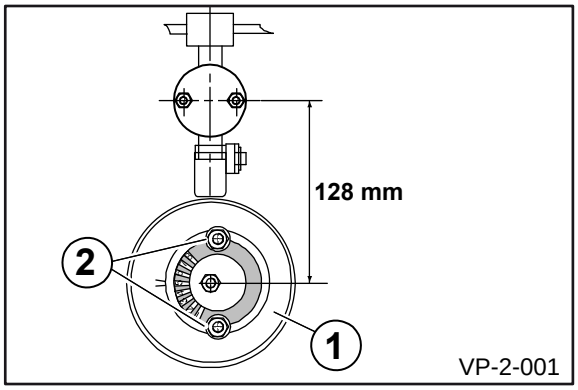


Fig. 218

- Loosen the screws (2).
- Rotate the eccentric cam disc (1).
- Retighten the screws (2).

Position of excenter discs:

- Excenter disc (1) on marking (1) correspondents little oil
- Excenter disc (1) on marking (8) correspondents much oil

Check dimension 128 mm and adjust if necessary.

Note

The amount of oil has to be adjusted to the outside temperature and the harvesting conditions. The chains have to be lubricated sufficiently.

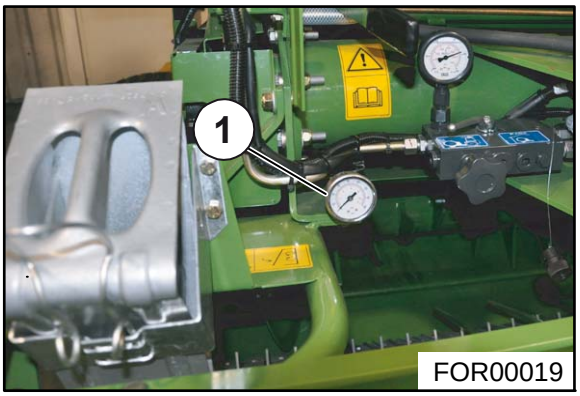


Fig. 219

A pressure gauge (1) which displays the system pressure is installed on the right-hand side of the machine. This pressure increases or decreases according to the setting of the eccentric disc.

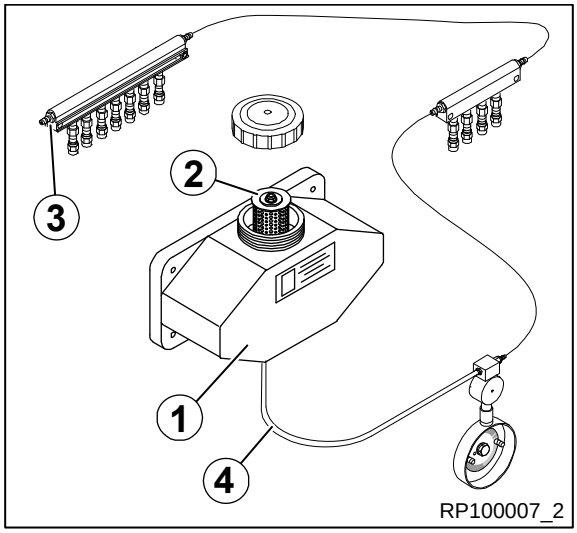


Fig. 220

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

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

- Top up the reservoir with oil.
- Remove the container hose (4) of the pump and wait until oil is leaking.
- Install the hose to the pump again.
- Open venting screw (3) and actuate the pump manually until oil flows without bubbles out of the valve block.

Note

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.

Note

It must absolutely be ensured that no water or dust can enter the tank (1).

Note

Use recommended oils only!

- Different types of oil can be used.
- The viscosity should be similar to 15W40 (cold surrounding SAE 30, warm surrounding SAE 90).
- Only use biodegradable and non-toxic oils (for example Fuchs Mineral Oil Plantogear 100 - N or Castrol Optimol Optileb GT 100).
- Do not use adhesive oils for chains since these would get stuck inside the system!

12.2.1 Display Central Chain Lubrication System

Fortima F 1250 (MC) / Fortima F 1600 (MC)

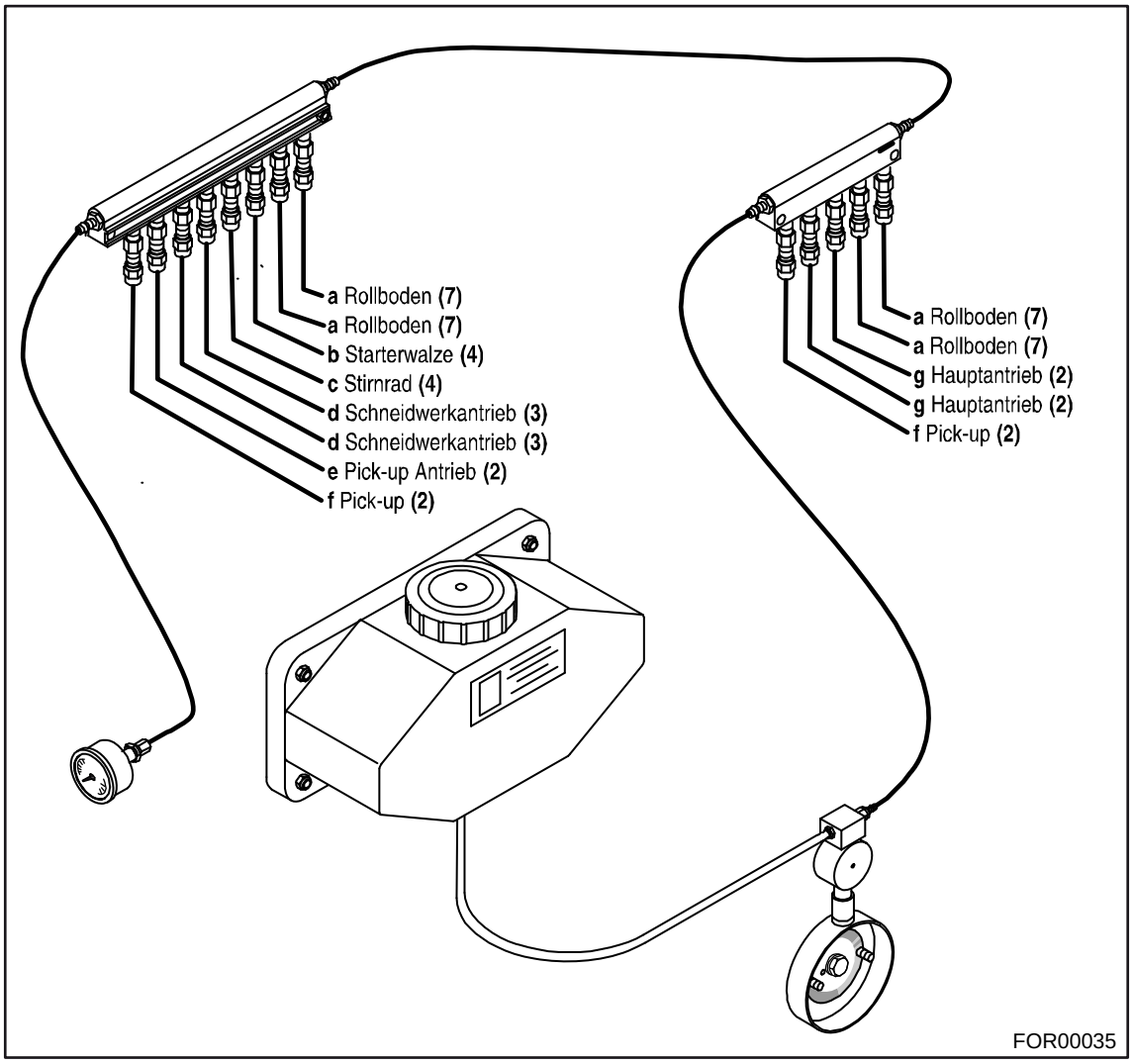


Fig. 221

a	Floor conveyor
b	Starter roller
c	Spur wheel
d	Cutting system drive
e	Pick-up drive
f	Pick-up
g	Main drive

The figures in the brackets state the size of the nozzles for the individual lubrication points.

Note

Make certain the correct sizes are used when changing the nozzles. Each size difference doubles the oil delivery rate (MM4 deliveres for example twice as much oil as MM3).

Fortima V 1500 (MC) / V 1800 (MC)

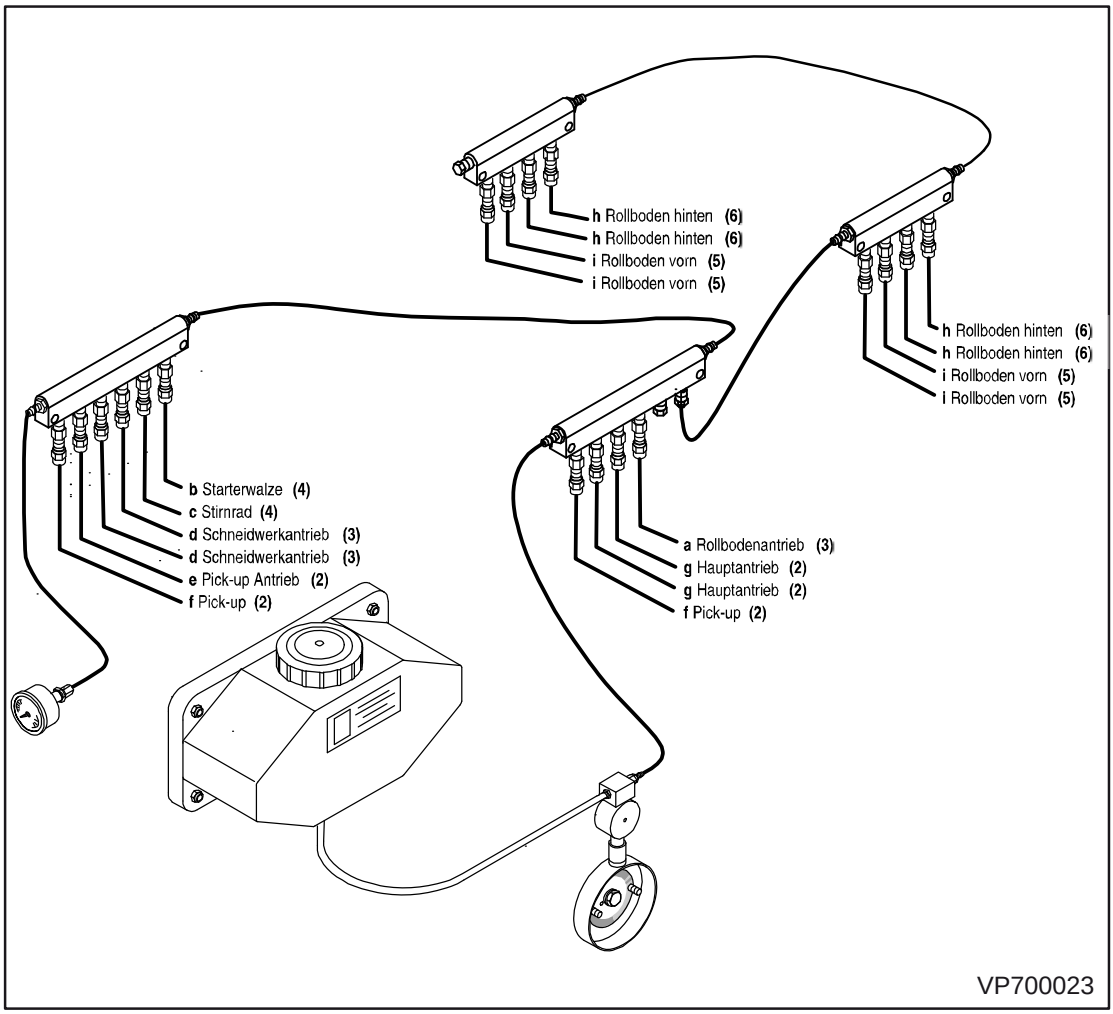


Fig. 222

a	Floor conveyor drive
b	Starter roller
c	Spur wheel
d	Cutting system drive
e	Pick-up drive
f	Pick-up
g	Main drive
h	Floor conveyor at rear
i	Floor conveyor at front

The figures in the brackets state the size of the nozzles for the individual lubrication points.

Note

Make certain the correct sizes are used when changing the nozzles. Each size difference doubles the oil delivery rate (MM4 deliveres for example twice as much oil as MM3).

12.3 Adjusting the Automatic Floor Conveyor Stop

Fortima V 1500 (MC) / V 1800 (MC)

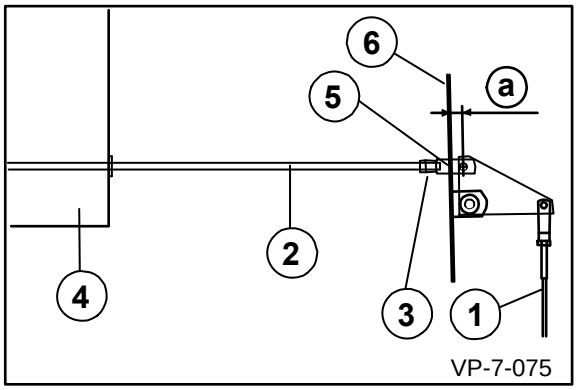


Fig. 223

When the tailgate is opened, the claw coupling (4) is activated by the cable (1) and linkage (2) and the floor conveyors are switched off.

When switched on, dimension a to the side wall (6) must be approximately 22 mm.

Setting:

- Loosen the counter nut (3).
- Remove the bolt.
- Turn the U bar (5) until dimension a is reached.
- Install the bolt and counter net and retighten.

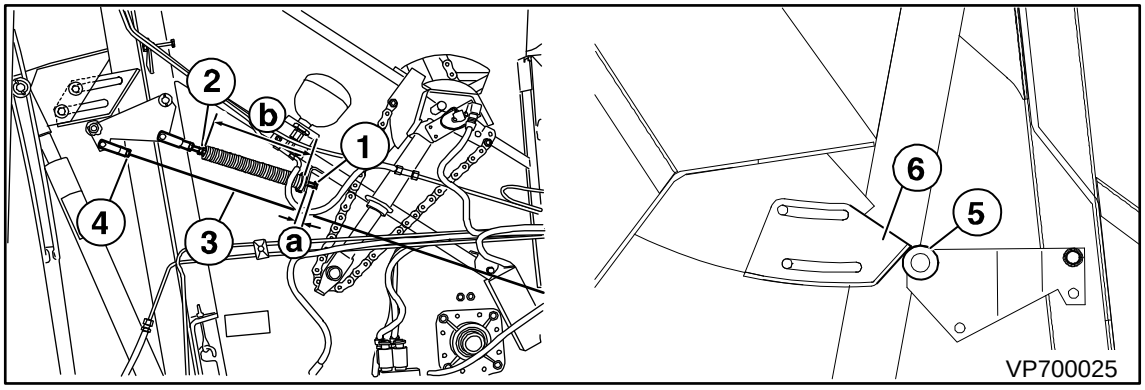


Fig. 224

The pressing force of the spring by the pull cable can be adjusted with the nuts (2).

When the tailgate is closed, dimension b must be approximately 250 mm.

To adjust switching, follow these steps:

- When the rear wall is closed, tension on the cable (3) must be slightly relieved and the claws must be engaged. The cable length can be adjusted on the bar (4).
- With the rear wall slightly opened, adjust the nut (1) so that the roller (5) closes off flush with the tip of the slotted link (6).

Note

The tip of the slotted link (6) must not be under the roller (5) when the rear wall closes.

12.3.1 Adjusting the switching time

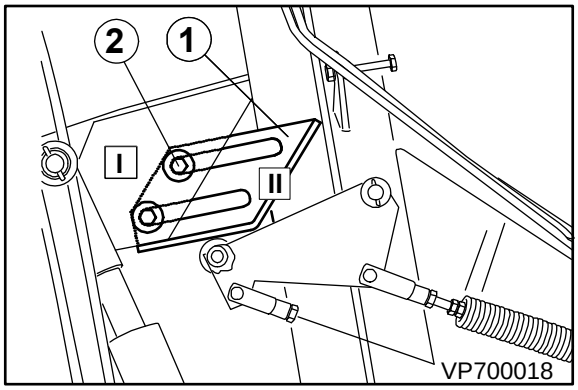


Fig. 225

The switching time for floor conveyor shutoff is pre-adjusted in the factory. It may be necessary to adjust the switching time to adjust to conditions of use in the field.

The switching time can be changed by adjusting the stop (1):

1. Loosen the countersunk screws (2)
2. To adjust the switching time, move the stop (1) in the oblong hole.

   Pos. I Floor conveyor shutoff starts later

   Pos. II Floor conveyor shutoff starts earlier

13 Maintenance

13.1 Special Safety Instructions



DANGER! - During repair, maintenance, cleaning work or technical interventions on the machine, drive elements can start moving.

Effect: Risk of death, injuries or damage to the machine.

- Turn off the tractor engine, remove the ignition key and take it with you.
- Disconnect the 12 V power supply voltage.
- Secure the machine and tractor against rolling.
- Turn off and disengage the PTO shaft
- After repair, maintenance, cleaning work or technical interventions on the machine, replace all protective covers and safety devices correctly.
- Avoid oil, grease, cleaning agents and solvents coming into contact with the skin.
- Hydraulic fluids escaping at high pressure can cause severe injuries. In the event of injuries or burns due to oils, cleaning agents or solvents, contact a physician immediately.
- To prevent injury and accidents, follow all safety instructions.



WARNING! - Risk of injury on the opened side guard!

Risk of injury of the head and the eyes in the area of the opened side guard.

- Consider the opened side guard when working in this area.

13.2 Spare Parts



Danger! - Using non-approved spare parts.

Effect: Danger to life, serious injuries or loss of warranty claims as well as exclusion of liability

- Use only authentic KRONE spare parts and accessories authorised by the manufacturer. The use of spare parts, accessories or additional equipment not manufactured, tested or approved by KRONE will exclude any liability for consequential damage.

13.3 Overview

Maintenance interval	Machine part	Oil change	Check	Set	Vent	Tighten
after the first 8 operating hours and every time after a wheel is changed	Wheels, wheel nuts					X
after longer downtimes	PTO shaft friction clutch (only for friction clutch)				X	
after first use and then after every 100 bales	Chain tension floor conveyor drive		X	X		
	Chain tension pick-up drive		X	X		
	Chain tension floor conveyor (Fortima F 1250 (MC)/F1600 (MC))		X	X		
when the season begins (after approx. 5 bales)	Chain tension floor conveyor drive		X	X		
	Chain tension pick-up drive		X	X		
	Chain tension roller drive		X	X		
	Chain tension pick-up drive		X	X		
after first use (approx. 30 - 50 operating hours), then annually after each season	Gearbox	X				

Note

To ensure problem-free operation of the machine and to reduce wear and tear, specific maintenance and upkeep intervals must be observed. These include cleaning, greasing, lubricating and oiling parts and components.

13.4 Setting Tailgate Catch

Fortima F 1250 (MC) / F 1600 (MC)

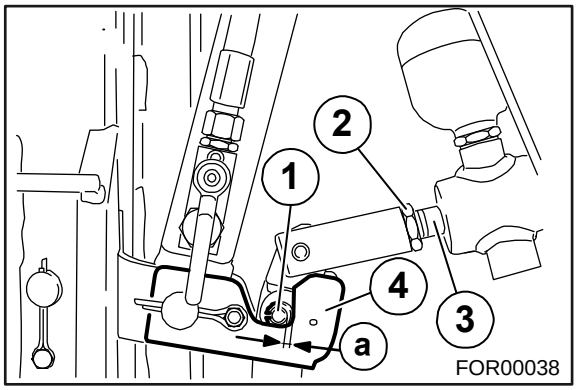


Fig. 226

The setting of the tailgate lock is made on both sides on the piston rod (3):

1. Remove the plastic guard on the tailgate, the tailgate must touch the beams on both sides.
2. Loosen the counter nut (2).
3. Turn the piston rod (3) until the distance between the lock hook (4) and the clamping sleeve (1) is a = 5 mm.
4. Tighten counter nut (2).

Fortima V 1500 (MC) / V 1800 (MC)

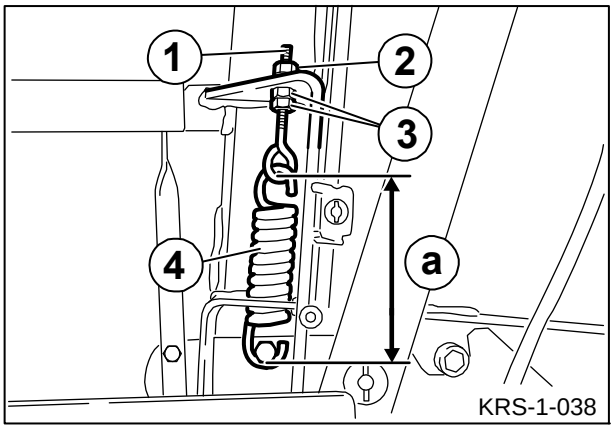


Fig. 227

The spring pretensioning on the tailgate lock must be a = 350 mm.

Retighten spring (1) if necessary:

- Loosen the counter nut (3).
- Turn the nut (2) until the dimension is a = 350 mm.
- Make the adjustment on both sides.

13.4.1 Setting Lock Hook Blocker

Fortima F 1250 (MC) / F 1600 (MC)

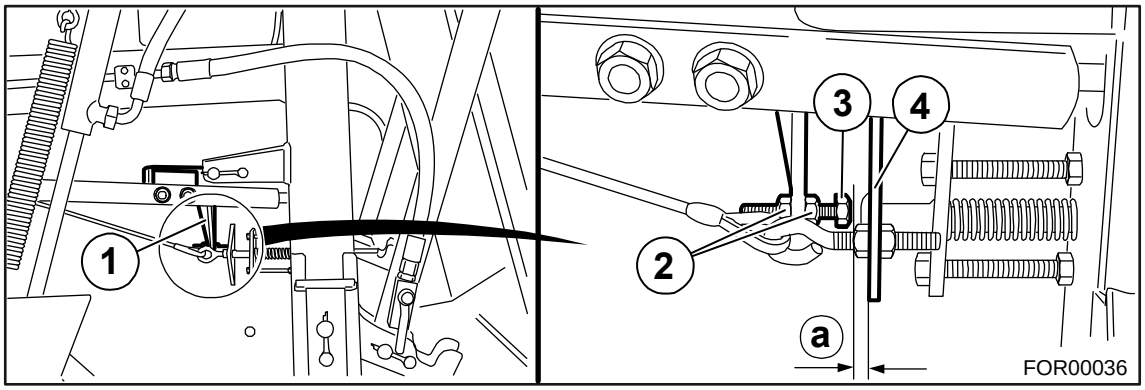


Fig. 228

The following settings of the lock hook blocker (1) must be checked and adapted, if necessary, to ensure the proper function of the lock hook blocker (with opened tailgate):

- Check whether the distance between adjusting screw (3) and button (4) is a = 2-5 mm. If this is not the case, perform the following setting:
  1. Loosen the counter nut (2)
  2. Turn the adjusting screw (3) until the distance is a = 2-5 mm.
  3. Tighten the counter nut (2).

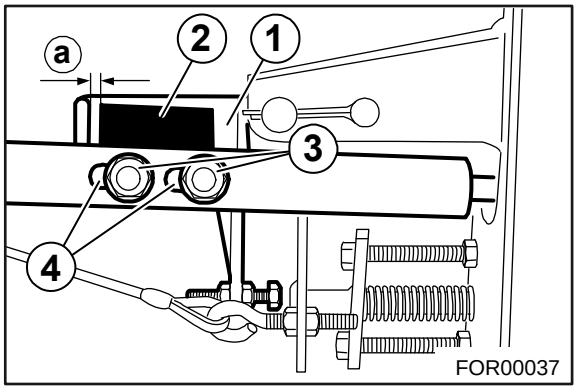


Fig. 229

- Check whether the distance between lock hook blocker (1) and stop (2) is a = 2-5 mm. If this is not the case, perform the following setting (with opened tailgate):
  1. Loosen the both nuts (3).
  2. Move the stop in the oblong holes (4) until the distance is a = 2-5 mm.
  3. Tighten the nuts (3).

13.5 Setting Cutting Blade Net Tying Device

DANGER! – Danger of cuts from sharp blades!
Serious injuries, especially to the hands.
- Wear protective gloves when performing any work in the area of the blades to avoid being cut by the blades.

13.5.1 Adjusting the cutting blades of the net wrap system

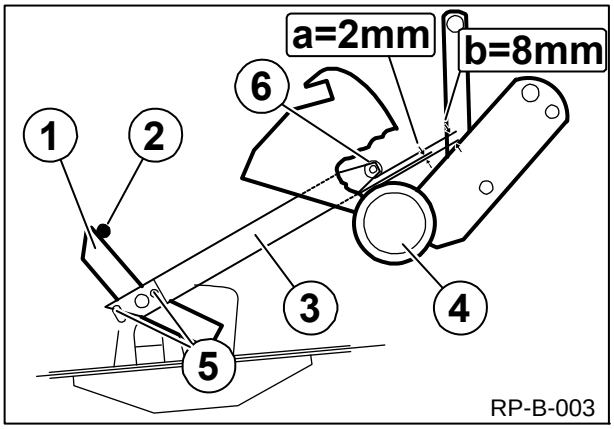


Fig. 230

If the blade bar stop (1) is resting against the stop (2), there should be a gap of a = approx. 2 mm from the spring rail (3) to the bearing tube (4) or b = 8 mm from the bearing (6) to the bearing tube (4).

Adjusting procedure:
- Loosen screw (5).
- Move until dimension a = 2 mm.
- Tighten the screw (5).

13.6 Setting of the Scraper Rail to the Upper Spiral Roller

DANGER! – Settings on the machine!
Danger to life or serious injuries.
- The shut-off valve on the left hydraulic cylinder must be closed.

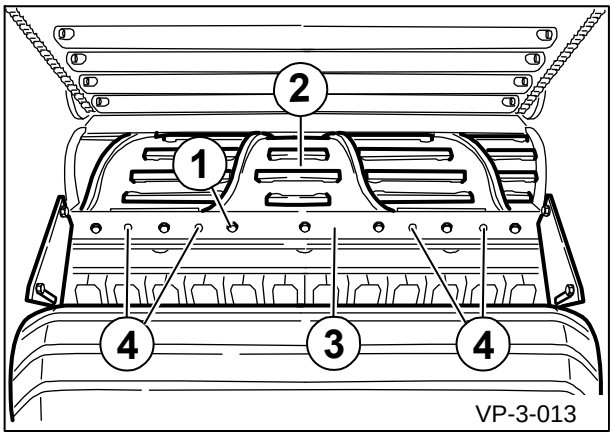


Fig. 231

To adjust the distance from the scraper rail (3) to the upper spiral roller (2):
- Loosen the nut (1) and Allen head screws (4) in the cutter bar.
- Move the scraper rail in the oblong hole until it is against the spiral roller.
- Retighten the nut and Allen head screws.

Note
After the setting is made, run the round baler manually and check whether the scraper rail comes in contact with the spiral roller.

13.7 Grinding blades

Warning!

Grinding blades Effect: Severe injuries to the eyes

- Always wear safety gloves and goggles when grinding the blades

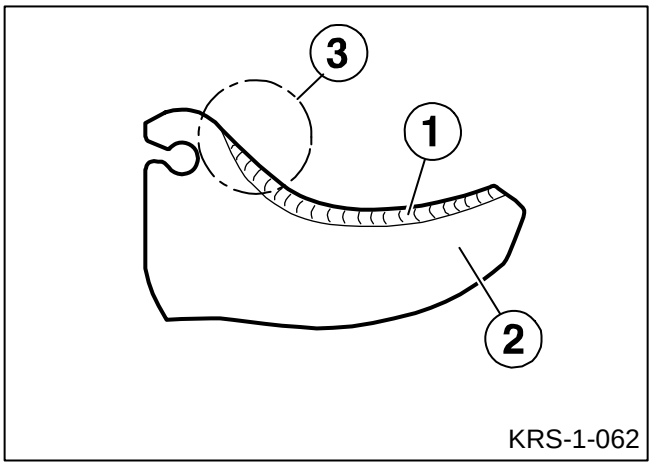


Fig. 232:

Check the sharpness of the blades (2) daily. If necessary, grind the blades after they have been removed on the back of the cutting edge (1). Grind only the ungrooved side. When grinding, make certain no notches are made in area (3).

Note

If at all possible, use the KRONE grinding mechanism for grinding. The Part No. for the blade holder for the KRONE blade grinding tool is
940 003-0.

Avoid allowing the blades to heat up too much when grinding them. The cutting blades are too hot if you can see discolouration in them. Excessive heat reduces the service life of the cutting blades.

The blades (2) must be checked before installation in area (3) (contact point to the stop bar) for accumulations and thoroughly cleaned if necessary. Otherwise it may no longer be possible to swivel the blade bar in completely.

13.8 Sensors

13.8.1 Position of the Sensors

Fortima F 1250 (MC) / F 1600 (MC)

Left Machine Side

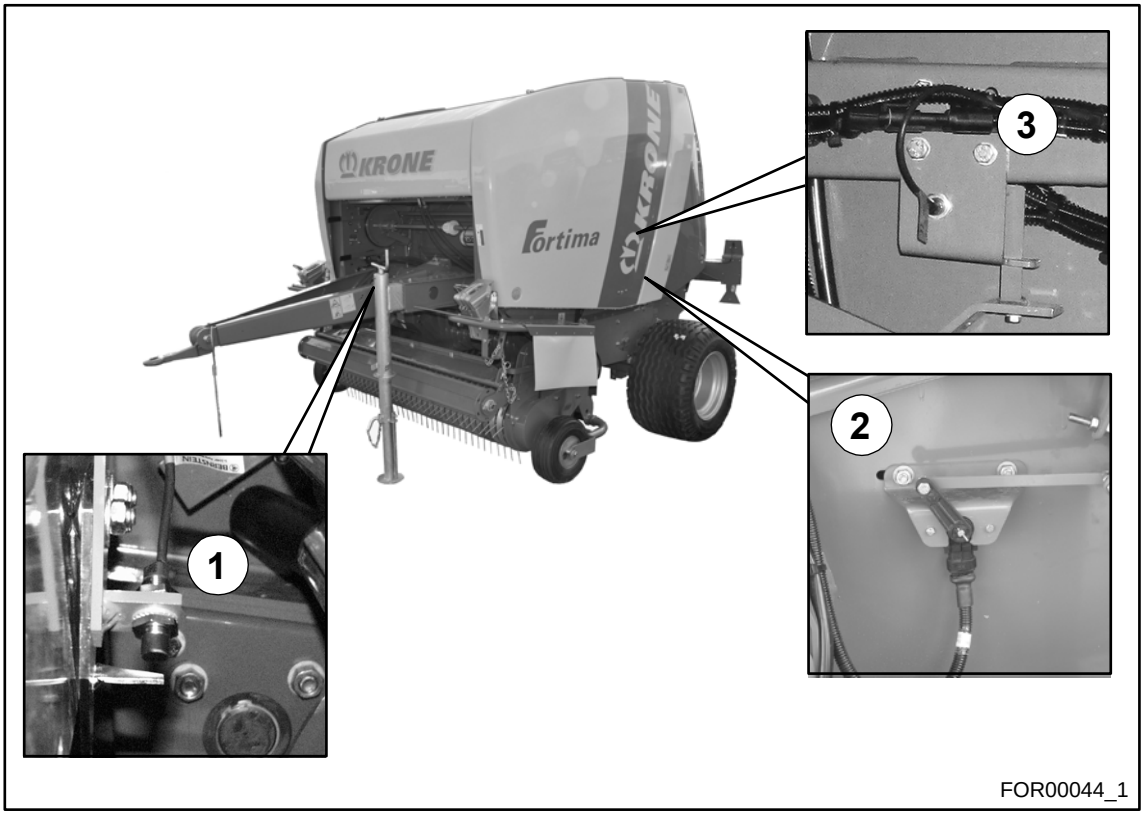


Fig. 233

Pos.	Sensor designation	Distance Transmitter/sensor	Sensor type	Tightening torque
1	Twine stop (B33)	2 mm	Namur	10 Nm
2	Filling left (B9)		Rotary potentiometer	
3	Bale chamber closed left (B11)	2 mm	Namur	10 Nm

Right Machine Side

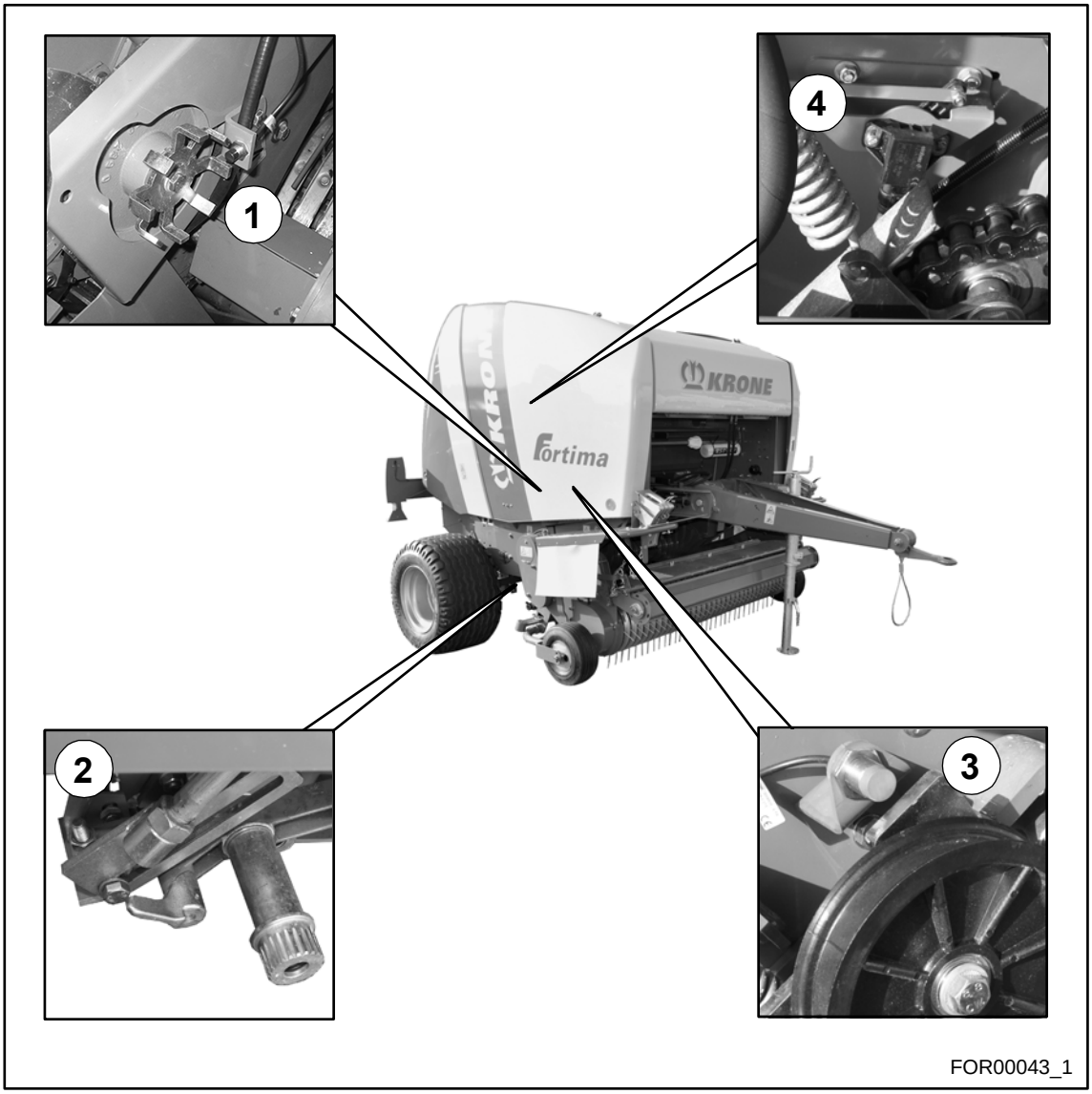


Fig. 234

Pos.	Sensor designation	Distance Transmitter/sensor	Sensor type	Tightening torque
1	Tying process active (B32)	2 mm	Namur	10 Nm
2	Blade (B30)	2 mm	Namur	10 Nm
3	Engine centre (B31)	2 mm	Namur	10 Nm
4	Filling right (B10)		Rotary potentiometer	

Fortima V 1500 (MC) / V 1800 (MC)

Left Machine Side

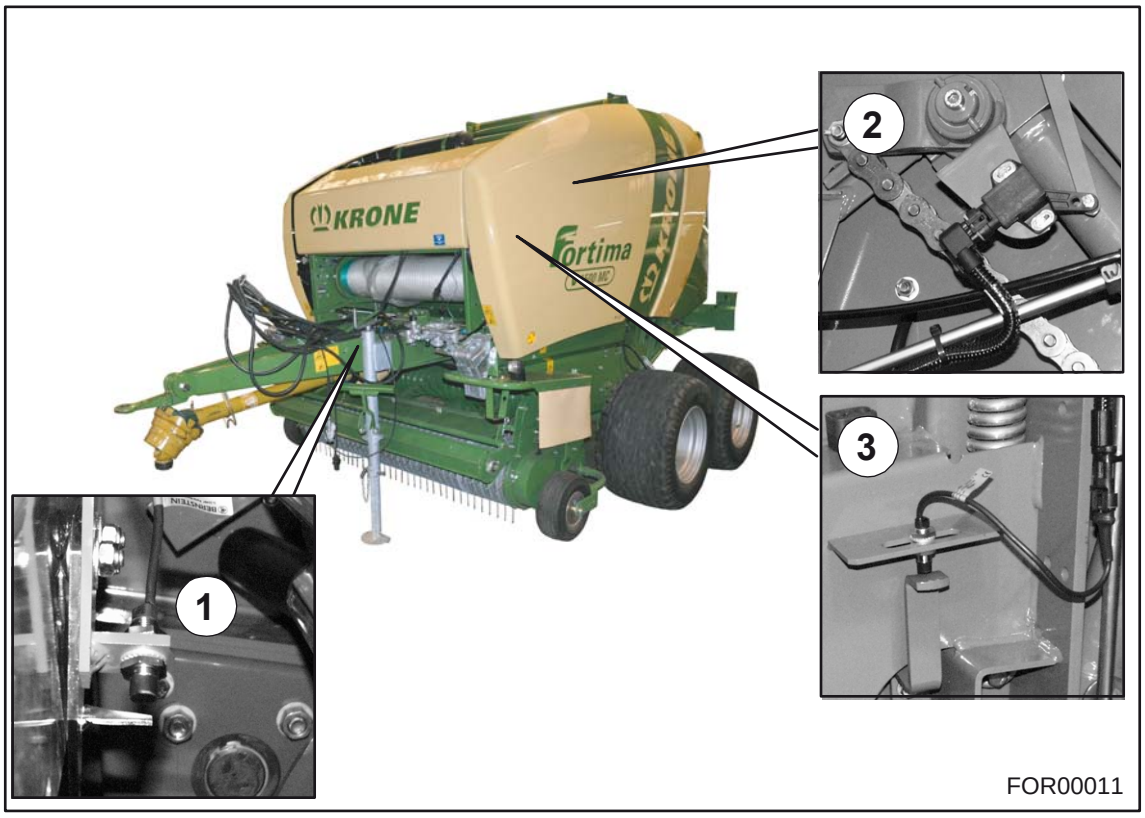


Fig. 235

Pos.	Sensor designation	Distance Transmitter/sensor	Sensor type	Tightening torque
1	Twine stop (B33)	2mm	Namur	10 Nm
2	Filling left (B9)		Rotary potentiometer	
3	Bale chamber closed left (B11)	2mm	Namur	10 Nm

Right Machine Side

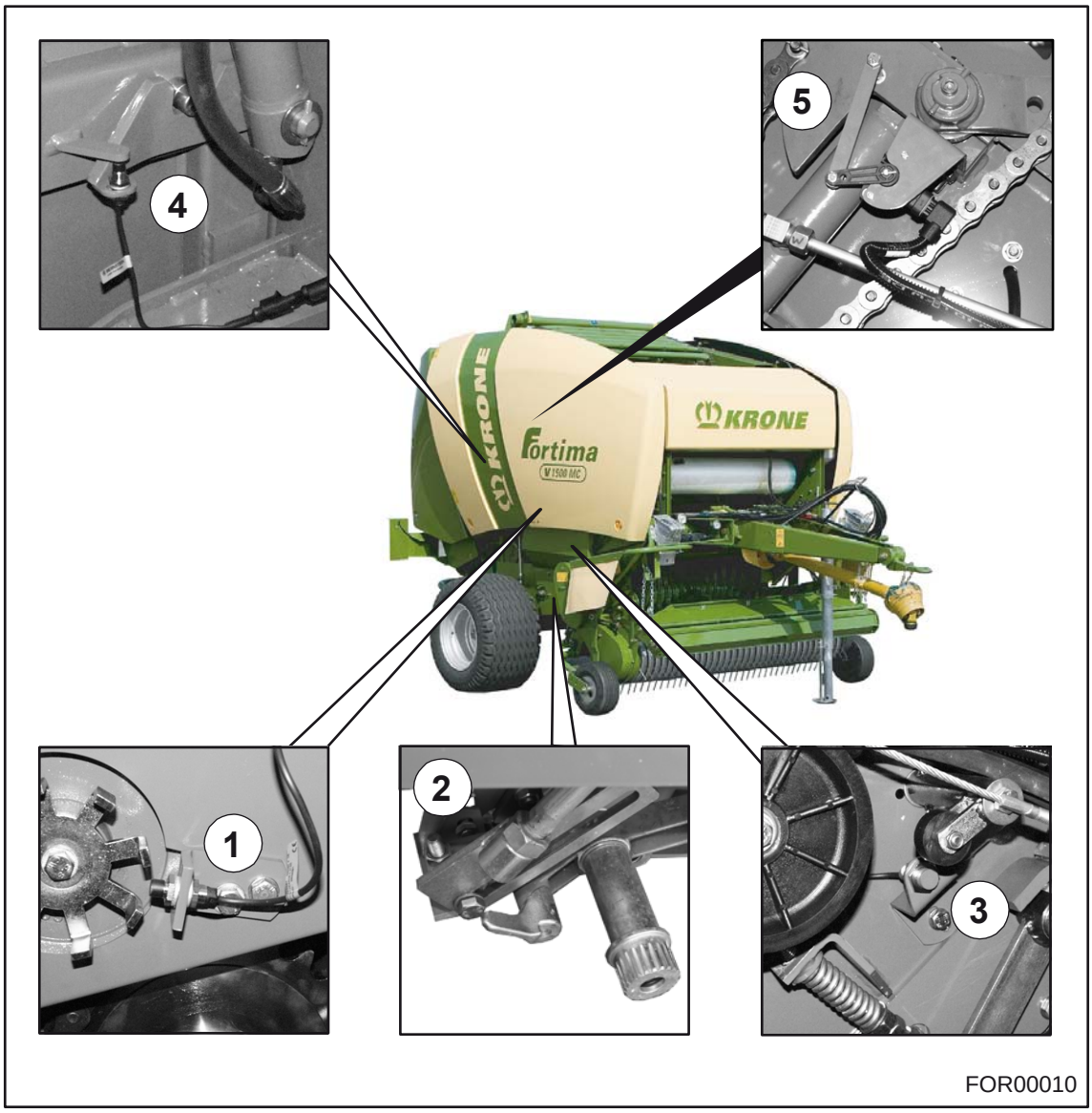


Fig. 236

Pos.	Sensor designation	Distance Transmitter/sensor	Sensor type	Tightening torque
1	Tying process is active (B32)	2mm	Namur	10 Nm
2	Blade (B30)	2mm	Namur	10 Nm
3	Engine centre (B31)	2mm	Namur	10 Nm
4	Bale chamber closed right (B12)	2mm	Namur	10 Nm
5	Filling right (B10)		Rotary potentiometer	

13.8.2 Adjusting the Sensors

13.8.2.1 Namur sensor d = 12 mm

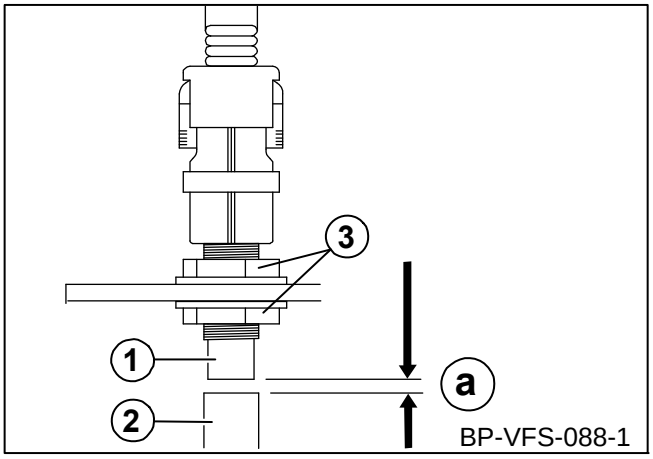


Figure 237

The dimension between the encoder (2) and the sensor (1) must be "a" = 2 mm .

Setting

- Loosen the nuts on either side of the sensor.
- Turn the nuts until dimension "a" = 2 mm is reached.
- Tighten the nuts again.

13.8.2.2 Namur sensor d = 18 mm

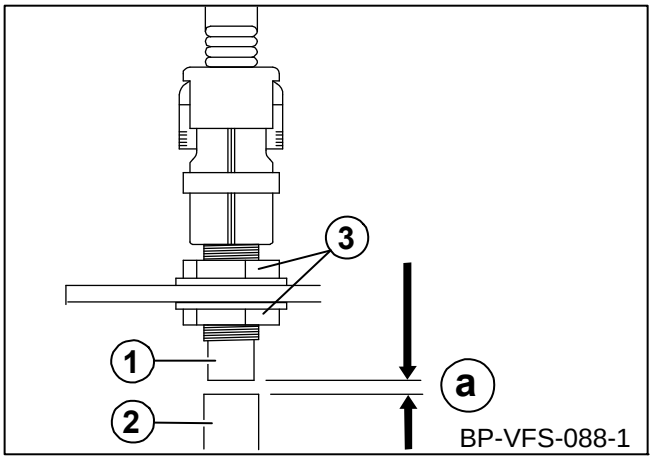


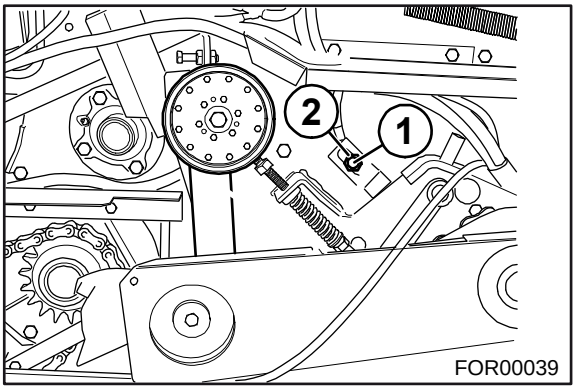
Fig. 238

The dimension between the encoder (2) and the sensor (1) must be "a" = 2 mm .

Setting

- Loosen the nuts on either side of the sensor.
- Turn the nuts until dimension "a" = 2 mm is reached.
- Tighten the nuts again.

13.8.3 Central Position of Engine Sensor



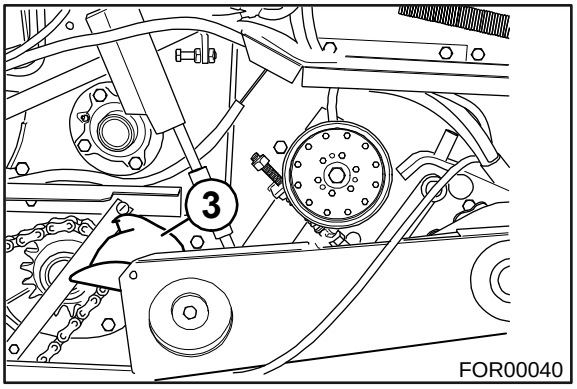


Fig. 239

The sensor “Central Position of Engine” (1) can be found on the right machine side above the V-belt and records the data for the position of the servomotor centre.

Setting:

1. Loosen the counter nut (2)
2. Adjust the sensor (1) in the oblong hole in that way that the link (3) stops in the shown position when the tension roller moves from the top to the bottom.
3. Tighten the counter nut (2)

13.8.4 Sensor Position Blade Shaft (Machines with Cutting Device)

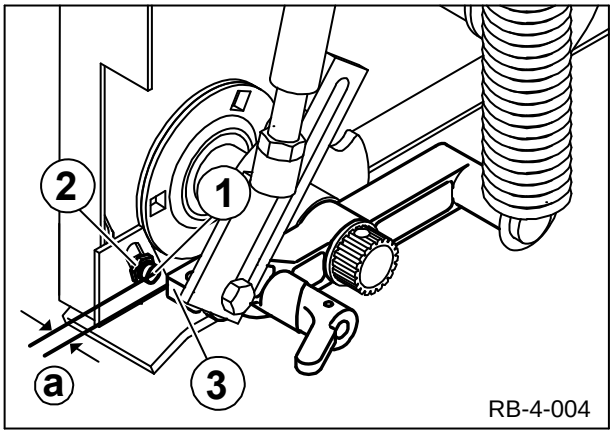


Fig. 240

The position blade shaft sensor (1) can be found on the right machine side on the blade shaft.

Setting:

1. Loosen the counter nut (2)
2. Set the sensor (1) in a distance of a = 2 mm to the lever (3) (lever swivelled upwards).
3. Tighten the counter nut (2)

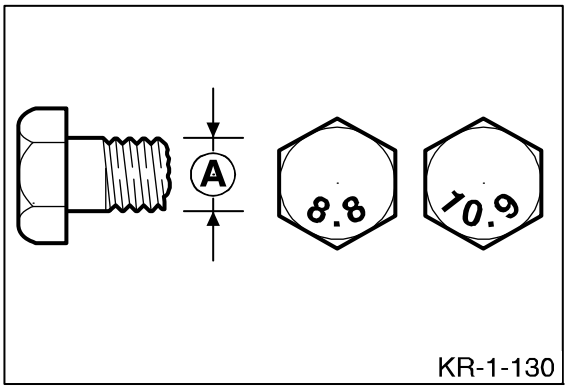
The height of the sensor (1) can also be adjusted. Adjust the sensor in that way that the sensor in the sensor test can be recognised as alive.

13.9 Tightening Torques

The tightening torque M_A is stated in Nm (unless otherwise indicated).

A Ø	5.6	6.8	8.8	10.9	12.9
	M_A (Nm)				
M 4		2.2	3	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
(The stability class can be seen on the head of the screw.)



NOTE

The table above does not apply to countersunk screws with a hexagonal socket head if the countersunk screw is tightened with the hexagonal socket head.

Note

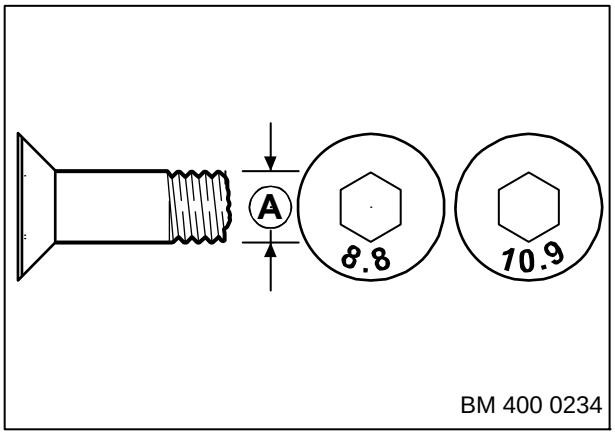
Regularly check that nuts and bolts are tightly in place (approx. every 50 hours) and tighten them if necessary.

13.10 Tightening Torques (Countersunk Screws)

The tightening torque M_A is stated in Nm (unless otherwise indicated).

A Ø	5.6	8.8	10.9	12.9
		M_A (Nm)		
M 4		2.5	3.5	4.1
M 5		4.7	7	8
M 6		8	12	15
M 8		20	29	35
M 10	23	39	58	67
M 12	34	68	100	116
M 14		108	160	188
M 16		168	248	292
M 20		340	488	568

A = Thread size
(The stability class can be seen on the head of the screw.)



NOTE
The table above applies only to countersunk screws with hexagonal socket heads and metric threading that are tightened by the hexagonal socket head.

Note
Regularly check that nuts and bolts are tightly in place (approx. every 50 hours) and tighten them if necessary.

13.11 Drawbar

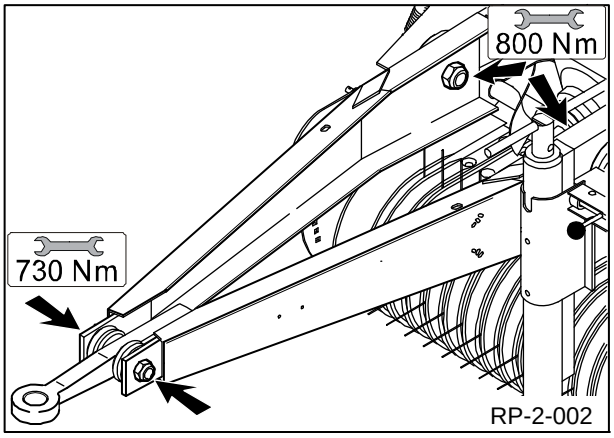


Fig. 241

- Retighten the screws after 10 operating hours.
- Check the screws every 50 operating hours.

13.11.1 Hitches on the Drawbar

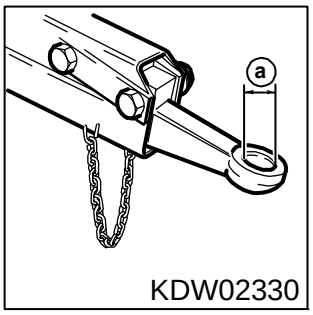


Fig. 242

Caution!
If the wear limit of the socket in the towing ring has been reached, it must be replaced. Work on the drawbar must only be performed by trained professionals.

The wear limit of the socket in the towing ring (1) is **a = 43 mm**. If this value is exceeded, the socket must be replaced. To minimise wear, clean the socket and towing ring daily and lubricate them with grease.

Note
The towing ring should be coupled always horizontally in the towing hitch. Observe the correct combination of towing ring and towing hitch (observe the specifications on the type plate!)

13.12 Main gearbox

The main gearbox is located in the front crossbeam of the round baler.

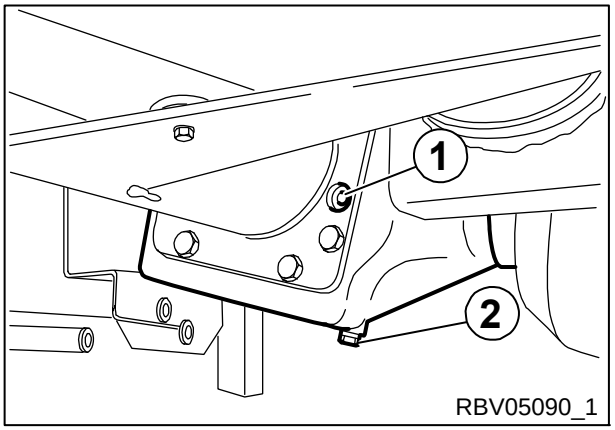


Fig. 243

1) Inspection screw / control hole
2) Drain plug

13.12.1 Oil Level Check and Oil Change on Main Gearbox

Note
Perform oil level check and change the oil while the machine is in a horizontal position!

Oil level check:

- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:

- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:

- Top up oil via control hole until the control hole is reached.
- Screw in the inspection screw and tighten it securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out oil drain plug and drain the oil.
- Screw out inspection screw.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via control hole until the control hole is reached.
- Screw in the inspection screw and tighten it securely.

Note! - Do not mix different types of oil.
Effect: Damage to the machine
- Never mix different types of oil.
- Before changing the type of oil, consult customer service. Never use engine oil.

ENVIRONMENT! - Disposal and storage of used lubricants and oil filters
Effect: Environmental damage
Store or dispose used oil and oil filters according to statutory provisions.

13.12.2 Oil Level Check and Oil Change Intervals (Gearboxes)

Note - oil level check and oil change (gearboxes) and lubricating the machine
Effect: Long expected service life of machine
- Oil change on all gearboxes after 30 to 50 operating hours and then after every season.
- Oil level check each time before using and no later than after about 500 pressed round bales.
- Compliance with the changing intervals is absolutely essential for bio-degradable oils because of ageing of the oils.

13.12.3 Filling Quantities and Lubrication Designation for Gearboxes

	Filling quantity (litres)	Refined oils Brand name	Bio-degradable lubricants Brand name
Main gearbox	approx. 1.6 l	SAE 90	on request

13.13 Drive chains

WARNING! – Danger of entanglement in the drive chains!
Effect: Risk of injury caused by entanglement of loose long hair or loose clothing.
- After working on the chains, always reassemble or close the safety devices.

All work chains, with the exception of those on the double twine guide, are supplied with oil through the central chain lubrication system.

Since the lubricating oil lines are not charged with high pressure, it may happen that they become clogged. Because of this, the lubricating oil lines should be checked daily before they are used to ensure they are working properly.

The method of operation of the central chain lubrication system is explained in section **"Default settings and operation“**.

13.13.1 Tensioning the Drive Chains

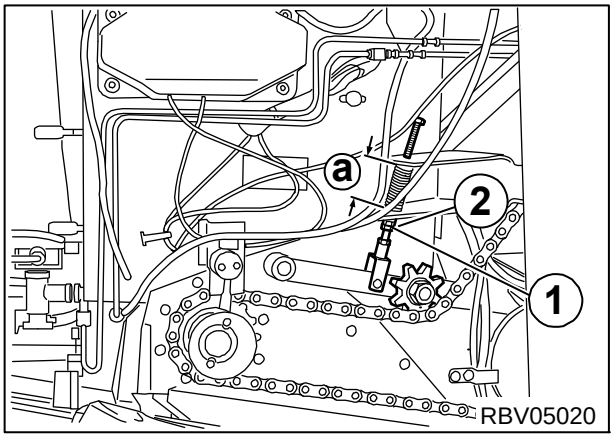


Fig. 244

Front Floor Conveyor Drive

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

To check the chain tension:

The length of the spring when tightened must be a = 80 - 90 mm

To correct the chain tension:

- Unscrew the counter nut (1).
- Turn the nut (2) until dimension a = 80 - 90 mm is set.
- Tighten the counter nut (1).

Fortima V 1500 (MC) / V 1800 (MC)

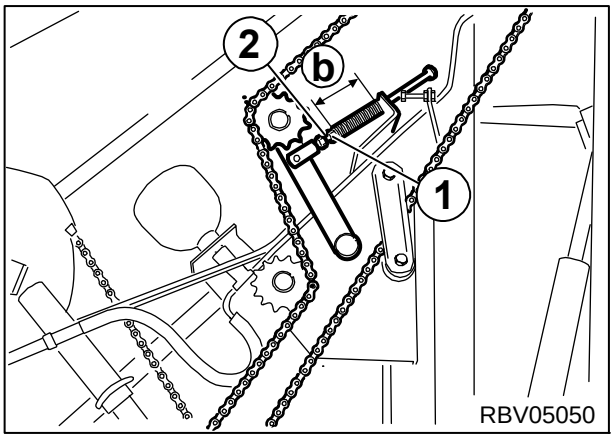


Fig. 245

Rear floor conveyor drive

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

To check the chain tension:

The length of the spring when tightened must be b = 90 mm

To correct the chain tension:

- Unscrew the counter nut (1).
- Turn the nut (2) until dimension b = 90 mm is set.
- Tighten the counter nut (1).

WARNING! – Crush hazard!
Effect: Foot injuries.
- Lower pick-up to the ground.

Pick-up

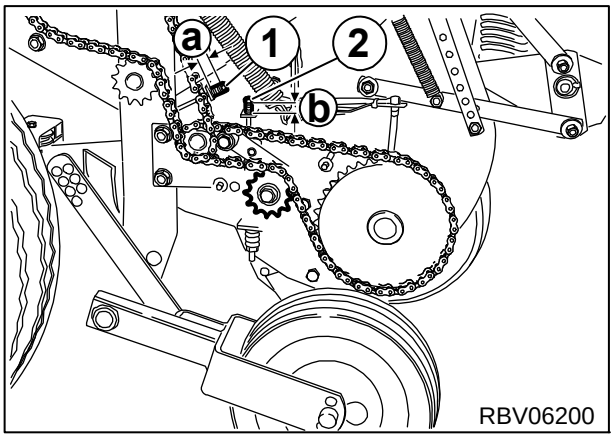


Fig. 246

Main drive pick-up

The main drive is located on the pick-up on the right side of the machine.

To check the chain tension:

The length of the spring when tensioned must be a = 30 mm.

To correct the chain tension:

- Turn the nut (1) until the dimension a = 30 mm is set.

Drive pick-up

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

To check the chain tension:

The length of the spring when tensioned must be b = 30 mm.

To correct the chain tension:

- Turn the nut (2) until the dimension b = 30 mm is set.

Fortima F 1250 (MC) / F 1600 (MC)

Roller drive

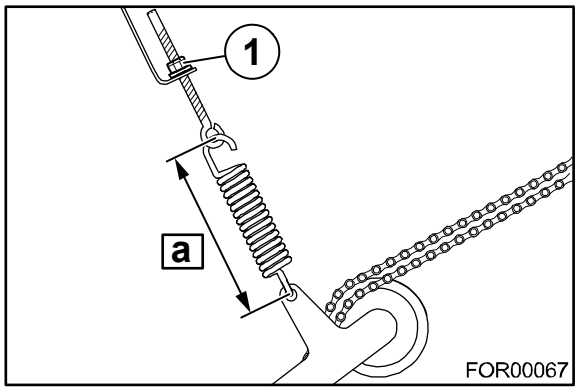


Fig. 247

The roller drive is located on the right side of the machine.

To check the chain tension:

The length of the spring when tensioned must be a = 205 mm.

To correct the chain tension:

- Turn the nut (1) until the dimension a = 205 mm is set.

Auger conveyor drive

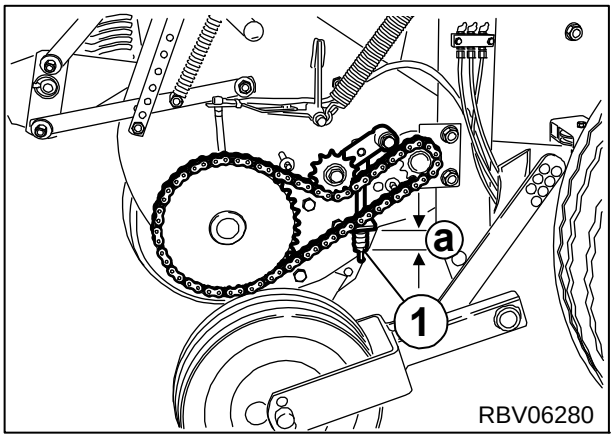


Fig. 248

The auger conveyor drive is located on the pick-up on the left side of the machine.

To check the chain tension:

The length of the spring when tensioned must be a = 30 mm.

To correct the chain tension:

- Turn the nut (1) until the dimension a = 30 mm is set.

Fortima V 1500 (MC) / V 1800 (MC)

Roller drive

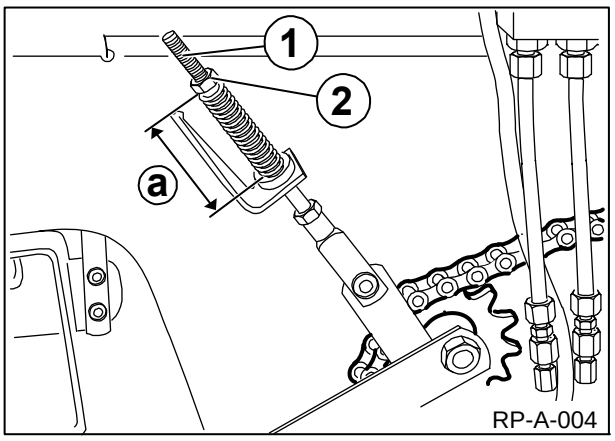


Fig. 249

The roller drive is located on the right side of the machine.

To check the chain tension:

The length of the spring when tensioned must be a = 90 mm.

To correct the chain tension:

- Turn the nut (2) until the dimension a = 90 mm is set.

Auger conveyor drive

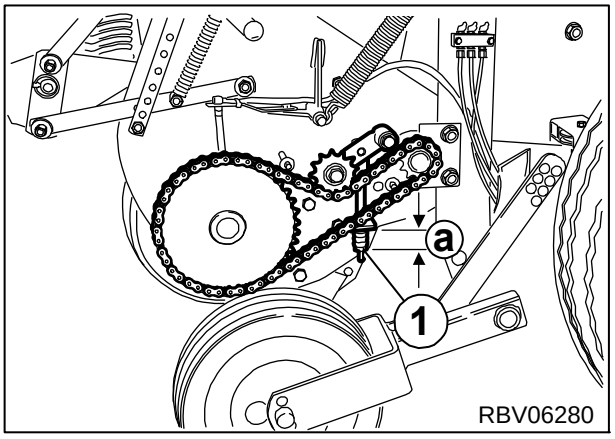


Fig. 250

The auger conveyor drive is located on the pick-up on the left side of the machine.

To check the chain tension:

The length of the spring when tensioned must be a = 30 mm.

To correct the chain tension:

- Turn the nut (1) until the dimension a = 30 mm is set.

Cutting system drive

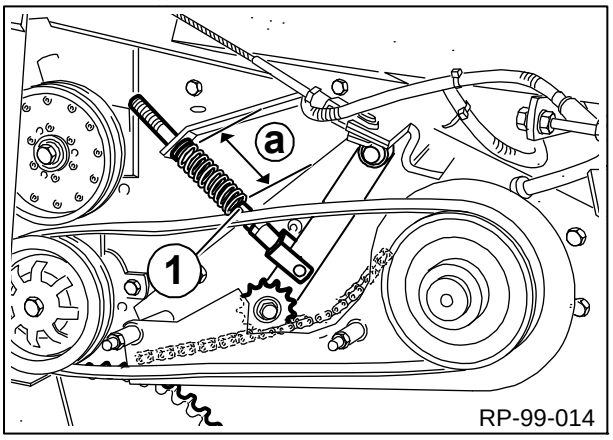


Fig. 251

The cutting system drive is located on the right side of the machine.

To check the chain tension:

The length of the spring when tightened must be a = 80 - 90 mm.

To correct the chain tension:

- Turn the nut (2) until the dimension a = 80 - 90 mm is set.

Fortima F 1250 (MC) / F 1600 (MC)

Floor Conveyor Tension

The floor conveyor tensioner is located right and left on the rear bale chamber housing below the rear side guards.

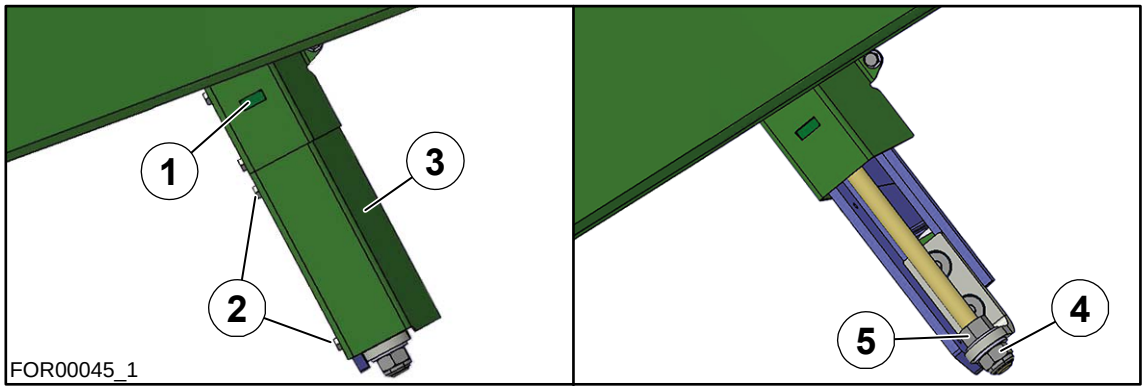


Fig. 252

Note

A yellow marking can be seen in the plate cut out (1) when the new machine is delivered. The green marking can be seen after the floor conveyor has set down.

Checking floor conveyor tension:

The floor conveyor tension is OK if a green marking can be seen in the plate cut out (1).

The floor conveyor tension must be corrected if a red marking can be seen in the plate cut out.

Correcting floor conveyor tension (right-hand and left-hand sides of the machine):

- Unscrew screw connections (2) and remove the lower guard (3) of the tensioning device.
- Loosen counter nut (4).
- Turn nut (5) until the green marking can be seen in the plate cut out.
- Firmly tighten counter nut.
- Mount the lower guard of the clamping device.

13.14 Cleaning the Tensioning Arm Floor Conveyor Rear

Fortima V 1500 (MC) / V 1800 (MC)

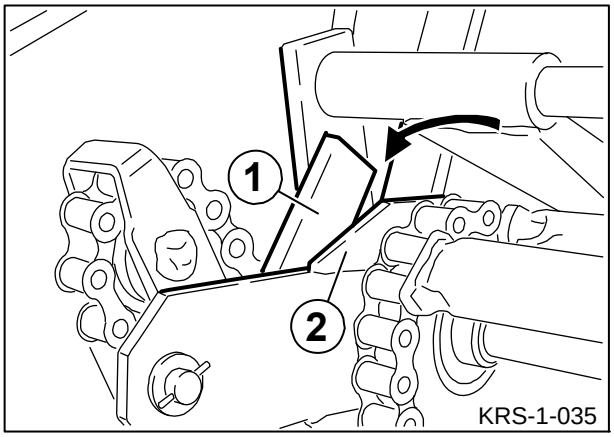


Fig. 253

If the chain tensioner of the floor conveyor chain is not working properly and the tension deminishes:

- Check whether litter or other material has set down in the gap marked by the arrow which is located between metal strut (1) and (2).
- Clean the gap, if necessary.

13.15 Shortening the floor conveyor chain

Fortima V 1500 (MC) / V 1800 (MC)

Checking the length of the rear floor conveyor chain

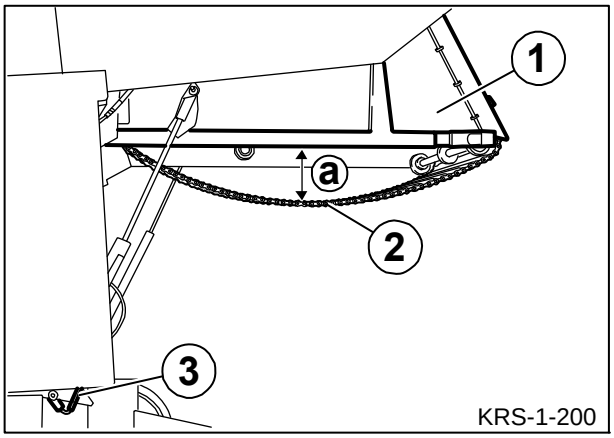


Fig. 254

Note

Before checking the chain length, the rear tension arms must be cleaned. (see chapter Cleaning the tension arm of the rear floor conveyor).

- Completely open the tailgate (1).
- Secure the tailgate with the shut-off valve (3) (see chapter Shut-off valve for tailgate).

DANGER! – Settings on the machine!

Danger to life or serious injuries.

- The shut-off valve on the left hydraulic cylinder must be closed.

- Check the distance "a" between the tailgate (1) and roller chain. If the distance is greater than 220 mm, shorten the roller chain.
- Release the tension on the floor conveyor (see chapter Control block front right).

Shortening the rear floor conveyor chain

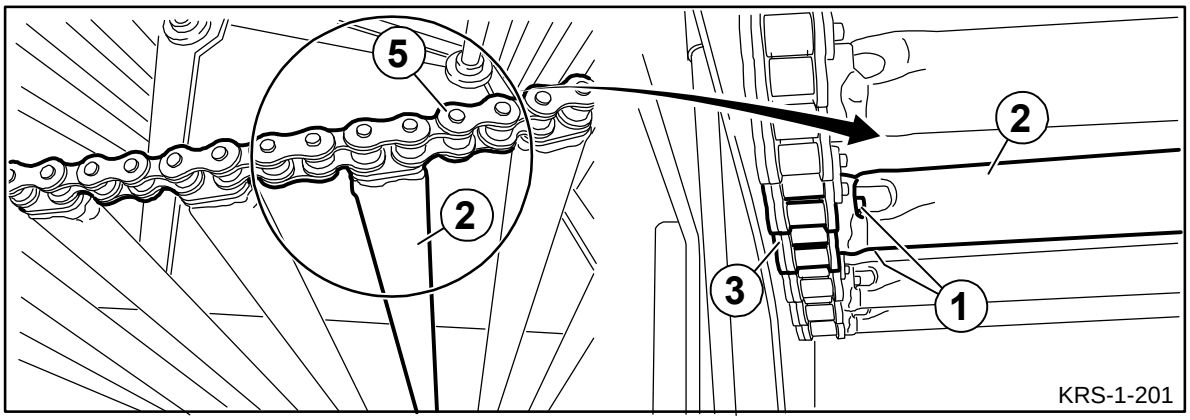


Fig. 255

- Remove the wire pins (1) on either side.
- Remove the strip (2).
- Remove two chain links (3) from the floor conveyor chain (5).
- Connect the floor conveyor chain (5) with a chain lock.

Shortening the front floor conveyor chain

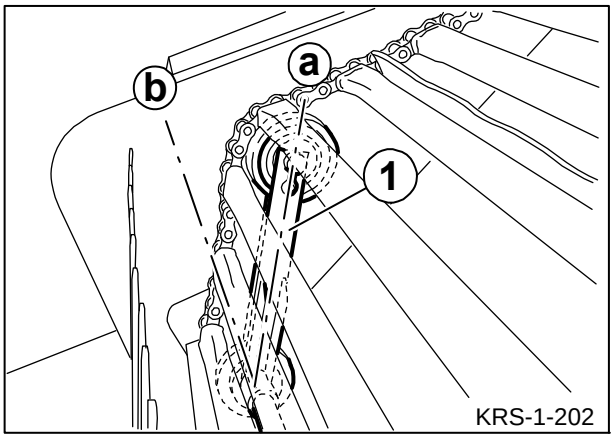


Fig. 256

- Move the chain tension lever to position "b".
- Shorten the front floor conveyor chain as described in chapter "Shortening the rear floor conveyor chain".
- Move the chain tension lever to position **"a"**.

13.16 Tyres



Warning! - Tyre fitting incorrect

Effect: Injuries or damage to the machine

- Fitting tyres requires sufficient knowledge and the availability of proper tools!
- If tyres are not correctly fitted, it could explode when pumped up. This can cause serious injury. If you do not have sufficient experience of fitting tyres, have tyres fitted by the KRONE dealer or a qualified tyre specialist.
- When fitting tyres on the wheel rims, the maximum pressure given by the tyre manufacturer must not be exceeded. The tyre or even the wheel rim could explode and/or burst.
- If the tyre heels do not fit properly when the maximum permitted pressure is reached, let out the air, align tyres, lubricate the tyre heels and pump up the tyre again.
- Detailed information about how to fit tyres onto agricultural machinery can be obtained from the tyre manufacturers.

13.16.1 Checking and maintaining tyres

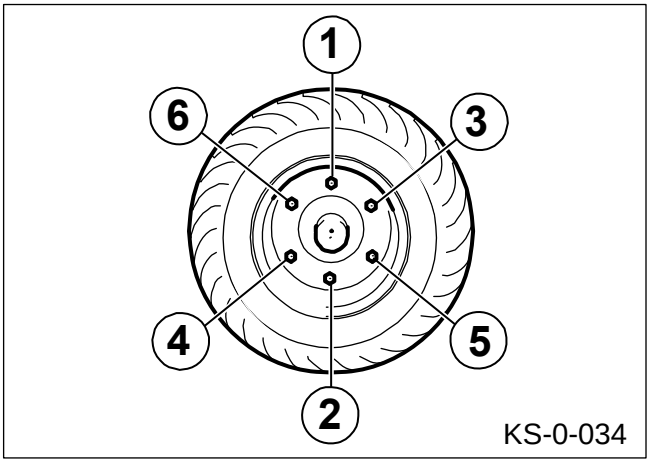


Fig. 257

When loosening and tightening the wheel nuts, observe the order indicated in the illustration. 10 operating hours after they have been mounted, check the wheel nuts and retighten them if necessary. After that, check them every 50 operating hours to make certain they are tight. Check the tyre pressure at regular intervals and refill if necessary. The tyre pressure depends on the size of the tyres. The values are listed in the table.

Tightening Torque

Threading	Key size in mm	Number of bolts per hub - pieces	Max. tightening torque	
			black	galvan.
M12 x 1.5	19	4/5	95 Nm	95 Nm
M14 x 1.5	22	5	125 Nm	125 Nm
M18 x 1.5	24	6	290 Nm	320 Nm
M20 x 1.5	27	8	380 Nm	420 Nm
M20 x 1,5	30	8	380 Nm	420 Nm
M22 x 1.5	32	8/10	510 Nm	560 Nm
M22 x 2	32	10	460 Nm	505 Nm

13.16.2 Tyre air pressure

Check the tyre pressure at regular intervals and refill if necessary. The tyre pressure depends on the size of the tyres. The values are listed in the table.

Fortima F 1250 (MC) / Fortima F 1600 (MC)

	Single axle		
	Air pressure (bar)		
	min.	**recommended ***	**max.**
Tyre type	**V max = 10 km**	**V max = 40 km**	
15x6.00-6 PR	-	-	3.2
11.5/80-15.3 10 PR	1.5	2.8	4.7
15.0/55-17 10 PR	1.0	2.0	3.7
19.0/45-17 14 PR	1.0	1.5	3.7
500/50-17 10 PR	1.0	1.5	2.7

	Tandem axle		
	Air pressure (bar)		
	min.	**recommended ***	**max.**
Tyre type	**V max = 10 km**	**V max = 40 km**	
15x6.00-6 PR	-	-	3.2
11.5/80-15.3 10 PR	1.0	1.5	4.7
15.0/55-17 10 PR	1.0	1.5	3.7
19.0/45-17 14 PR	1.0	1.5	3.7

*) This recommendation applies especially to the typical mixture of operation (field/road) at the maximum permitted machine speed.

If necessary, the tyre air pressure can be reduced to the minimum air pressure. However, the associated maximum speed must then be observed.

Fortima V 1500 (MC) / V 1800 (MC)

	Single axle		
	Tyre pressure (bar)		
	min.	**recommended ***	**max.**
Tyre designation	**V max = 10 km**	**V max = 40 km**	
15x6.00-6 PR	-	-	3,2
11.5/80-15.3 10 PR	2,8	4,0	4,5
15.0/55-17 10 PR	2,6	2,6	3,6
19.0/45-17 14 PR	2,8	2,8	3,8
500/50-17 10 PR	1,0	1,5	2,5

	Tandem axle		
	Tyre pressure (bar)		
	min.	**recommended ***	**max.**
Tyre designation	**V max = 10 km**	**V max = 40 km**	
15x6.00-6 PR	-	-	3,2
11.5/80-15.3 10 PR	1,0	2,0	4,5
15.0/55-17 10 PR	1,0	1,5	2,8
19.0/45-17 14 PR	1,0	1,5	2,8

*) This recommendation applies especially to the typical mixture of operation (field/road) at the maximum permitted machine speed.
If necessary, the tyre air pressure can be reduced to the minimum air pressure. However, the associated maximum speed must then be observed.

13.17 Brakes



Danger! - Unexpected movement of the machine

Effect: Danger to life or serious injuries.

- Setting tasks must only be performed when the drive is switched off and the engine is at a standstill!
- Switching off the engine
- Secure the machine against the possibility of rolling back
- Remove the ignition key.
- Switch off the main battery switch.

13.17.1 Checking the brake setting

Natural wear of the brake drum and brake pad makes it necessary to readjust the wheel brakes frequently to maintain the full stroke of the brake cylinder. To achieve good speed reduction from braking, the air gap between the lining and brake drum must be kept as small as possible.

13.17.2 Adjusting the cam brake

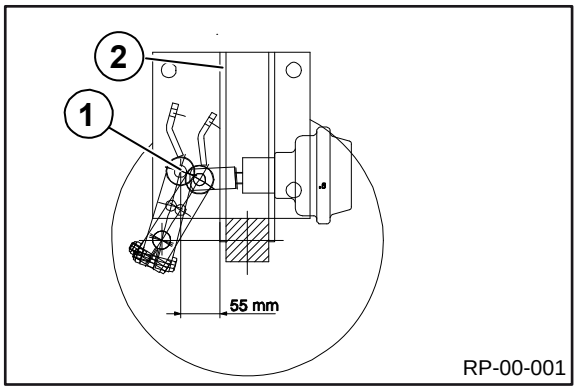
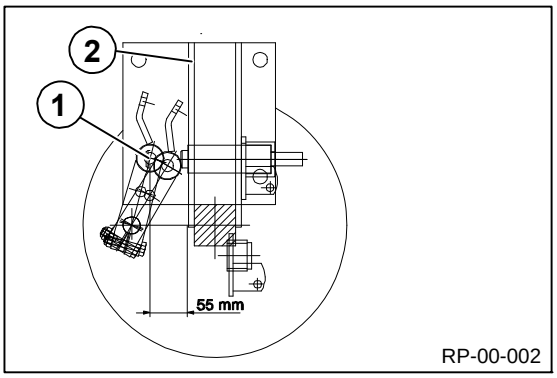


Fig. 258

Single axle - compressed air system

At approx. 6 bar of compressed air the brake lever (1) must be located approx. 55 mm from the plate (2) in brake position.



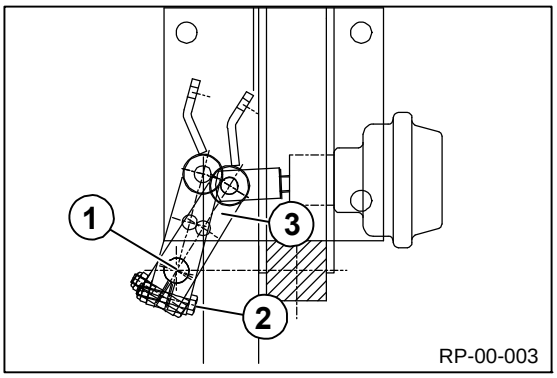


Fig. 259

Single axle - hydraulic brake

At approx. 100 bar of oil pressure the brake lever (1) must be located approx. 55 mm from the plate (2) in brake position.

This setting can be adjusted on the profile of the brake shaft (Fig. RP-00-003):

1. Remove the snap ring (1) and push the brake shaft in as far as possible.
2. Loosen the screw (2).
3. Remove the brake lever (3) and adjust.
4. Tighten the screw (2).
5. Install the snap ring (1).

Adjusting the brake activation

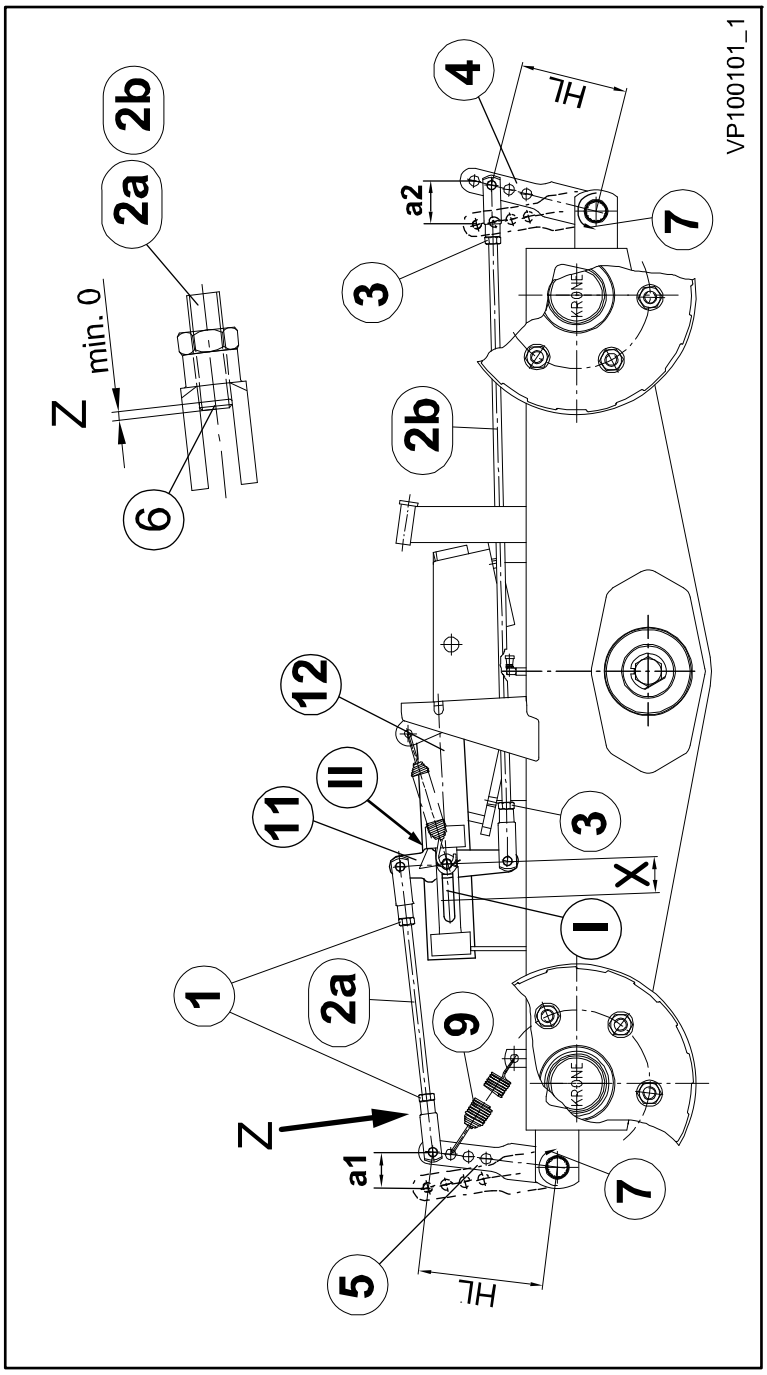


Fig. 260

Note

The brake activation has been adjusted in the factory.

The brake must be readjusted:

- if the braking effect diminishes (for example due to wear on the brake shoes)
- if the activation path of the brake cylinder "X" is greater than 50 mm.

Note
Each time before you readjust the brake linkage (2a, 2b), the thickness of the lining on the brake shoes must be checked. The thickness of the lining must still be at least 2 mm.

1. Disconnect the brake linkage (2b) from the brake lever (4).
2. Loosen the counter nuts (1) on the brake linkage (2a).
3. Turn the brake linkage (2a) until the brake lever path a1 is about 30 mm on activation.

Note
The compensation lever (11) must be flush both in the oblong hole (I), and in the upper part (II) of the support (12) for the following settings.

4. Disconnect the brake linkage (2a) from the brake lever (5).
5. Then mount the brake linkage (2b) on the brake lever (4) again (note the length of the brake lever (RL)).
6. Loosen the counter nuts (3) on the brake linkage (2b)
7. Turn the brake linkage (2b) until the brake lever path a2 is about 30 mm on activation.
8. Then mount the brake linkage (2a) on the brake lever (5) again (note the length of the brake lever (RL)).
9. Activate the brake. When you do this, the cylinder stroke X must be between 25 mm and 50 mm.

Note
If the cylinder stroke X is too great, readjust the brake linkage (2a and 2b) (increase the length of the brake linkage).

After the brake linkage (2a, 2b) has been readjusted, check whether

- the wheels turn freely when the brake is released. If they do not, the brake linkage (2a, 2b) must be readjusted (shorten the brake linkage),
- until the threading overhang (6) of the brake linkage (2a, 2b) on the clevises is min.=0 mm.
  If the minimum threading length (6) (min. = 0 mm) cannot be reached, the brake lever (4, 5) should be moved on the brake shafts against the operating direction (7).

10. Tighten counter nuts (1, 3) on the brake linkages (2a, 2b).

Note
Make certain that all safety equipment is mounted.

13.18 Maintenance – brake system (special equipment)

13.18.1 Special Safety Instructions

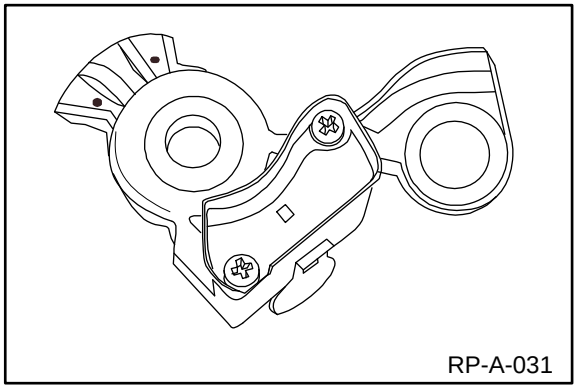


Danger! - Irregular maintenance of brakes

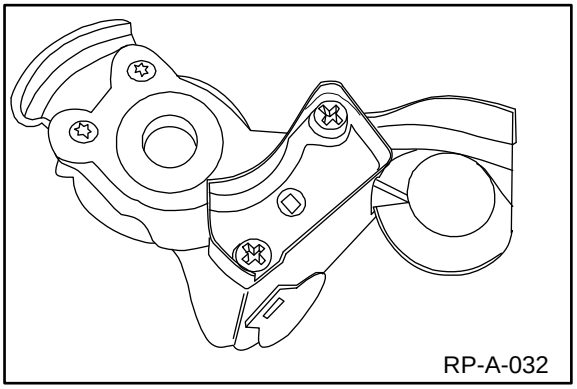
Effect: Danger to life, injuries or damage to the machine.

- Adjustment and repair work on the brake system must only be performed by authorised professional workshops or recognised brake services.
- Only a machine with an intact brake system may be used for work in the field or for travelling on roads.
- Irregularities or malfunctions in the brake system must be eliminated immediately.
- No changes may be made to the brake system without the approval of KRONE.
- Have the brakes checked regularly by a specialist workshop.
- Replace worn or damaged brake hoses immediately.
- KRONE is not responsible for natural wear, defects caused by overload or changes made to the brake system.

13.18.2 Coupling heads (non-interchangeable)



"RESERVOIR" coupling head **(colour red)**



"BRAKE" coupling head **(colour yellow)**

Fig. 261

The coupling heads are installed in the dual-line compressed air braking system to connect the reservoir and brake line of the tractor with the machine.

- After uncoupling, close the cover or connect the coupling heads in the empty couplings provided for this purpose so that no dirt can get in them.
- Replace damaged sealing rings.
- Check whether the coupling heads lock into place and make certain there are no leaks.
- Replace faulty heads.

13.18.3 Air filter for pipelines

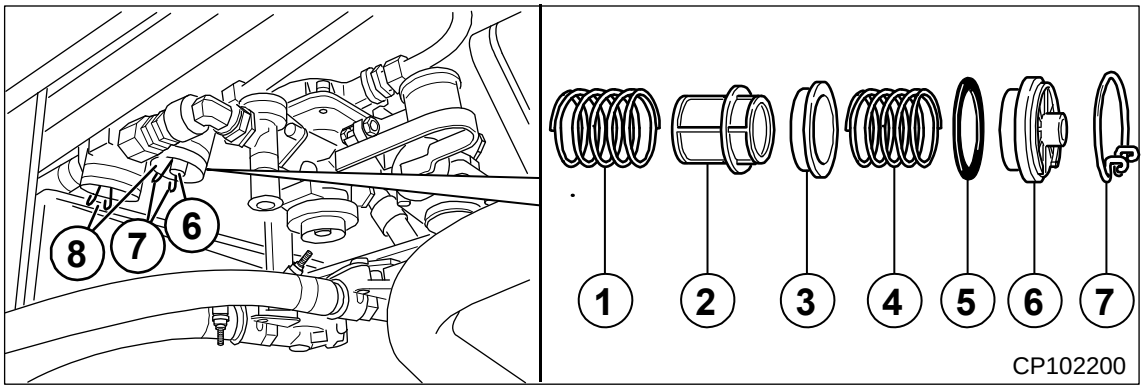


Fig. 262

(1) Spring
(2) Filter
(3) Spacer
(4) Spring
(5) Sealing ring
(6) Cover cap
(7) Clasp locking ring

The air filter (8) cleans the compressed air and protects the brake system from malfunctions.

Note
The brake system is ready for operation even when the filter insert is clogged in both directions of flow.

Removing the Filter Insert

- Press cover cap (6) and loosen the clasp locking ring (7)
- Remove the filter insert

Maintenance of the Air Filter

Clean the filter insert before the beginning of the season.

Installation of the filter insert

Installation is in reverse order to removal.

Note
Observe the correct sequence when assembling the filter insert.

13.18.4 Compressed-air reservoir

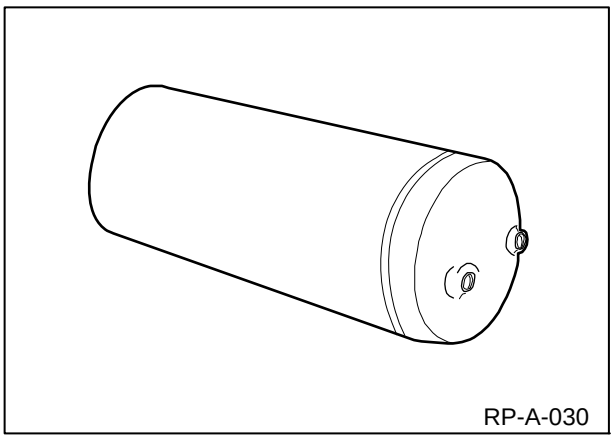


Fig. 263

The compressed-air reservoir stores the compressed air that is pumped by the compressor. Therefore condensation water may settle in the compressed air reservoir during operation. The compressed-air reservoir must be emptied regularly. Specifically, it must be emptied:

- daily in winter (when being used),
- otherwise weekly and
- at least after 20 operating hours.

The drain valve on the bottom of the compressed-air reservoir is used for draining.

- Switch off and secure the machine.
- Open the drain valve and allow the condensation to run out.
- Check the drain valve, clean it and screw it back in.

Note

If the drain valve has a heavy accumulation of dirt or is leaking, it must be replaced by a new one.

Note

Have damaged compressed air reservoirs replaced by a specialist's workshop

13.19 Hydraulics

DANGER! – Risk of injury caused by hydraulic oil spraying out!

Effect: Danger to life, injuries or damage to the machine.

- Before working on the hydraulic system, reduce the pressure. Hydraulic oil escaping under high pressure can cause severe injuries. In the event of injuries, find a physician immediately. There is danger of infection.
- Work on the hydraulic system, especially on the pressure accumulators, must only be performed by trained and authorised personnel.
- The pressure accumulator must only be filled with the gas intended for it.

Danger! - Caution with leaking lines

Effect: Danger to life, injuries or damage to the machine.

- When searching for leaks, use suitable aids, always use suitable tools and wear protective goggles to avoid the risk of injury!
- Escaping high-pressure fluids can penetrate the skin and cause serious injury. Therefore, you must depressurise the system before disconnecting lines.
- Hydraulic oil escaping from a small opening can barely be seen. Because of this you should use a piece of cardboard or something similar when searching for leaks. Protect your hands and body.
- If any fluid penetrates the skin, it must be removed immediately by a doctor who is familiar with this kind of injury; serious infections could otherwise result. Physicians who are not familiar with this area should consult appropriate information from a competent medical source.
- Check the hydraulic hose lines at regular intervals and replace them if damaged or worn! The replacement lines must comply with the requirements of the device manufacturer.
- Ensure that all line connections are tight before the pressure in the system builds up again.
- Repair work on the hydraulic system must only be performed by authorised KRONE professional workshops.

WARNING! – Hydraulic hose lines are subject to ageing

Effect: Danger to life or serious injuries

The characteristics of the lines change depending on pressure, heat load and the effect of UV rays.

The date of manufacture appears on the hydraulic hoses. This way the age can be ascertained quickly.

By law the hydraulic lines must be replaced after six years.

Use original spare parts when replacing hydraulic hoses!

Note

- When working on the hydraulic system, absolute cleanliness is essential
- Check the hydraulic oil level each time before placing the machine in operation
- Observe the intervals for replacing the hydraulic oil and hydraulic oil filter
- The used oil must be disposed of correctly

13.19.1 Shut-off valve for tailgate

Fortima V1500 (MC)/V1800 (MC) **Fortima F1250 (MC)/F1600 (MC)**

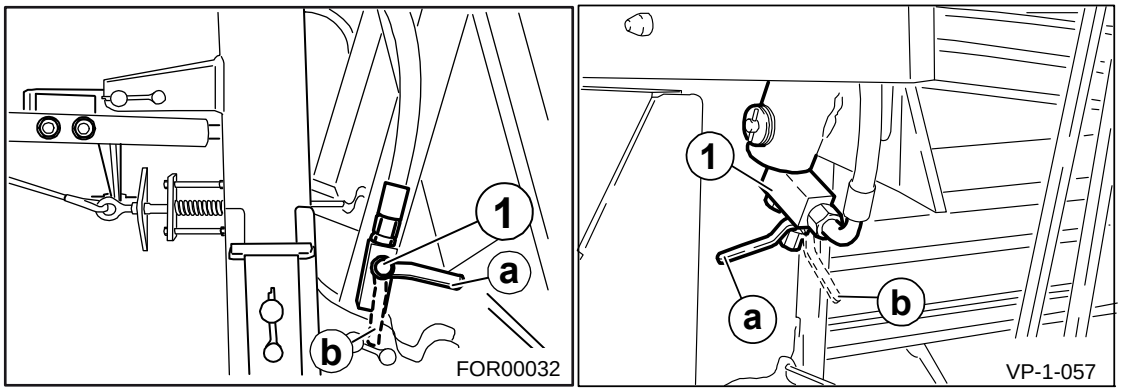


Fig. 264

Pressure is supplied to the machine hydraulics through hoses from the tractor. Along with various parts, the shut-off valve (1) on the left hydraulic cylinder should be mentioned.

It is designed as a safety component to prevent the tailgate from closing unintentionally.

Position "a"

Hydraulic cylinder return locked. The tailgate cannot be closed.

Always move the shut-off valve to position **"a"** for work inside the bale chamber and on the open tailgate.

Position "b"

Hydraulic cylinder return opened. The tailgate can be closed.

To close the tailgate always return the shut-off valve to position **"b"** after working inside the bale chamber or on the tailgate.

13.19.2 Control block

Fortima V 1500 (MC) / V 1800 (MC)

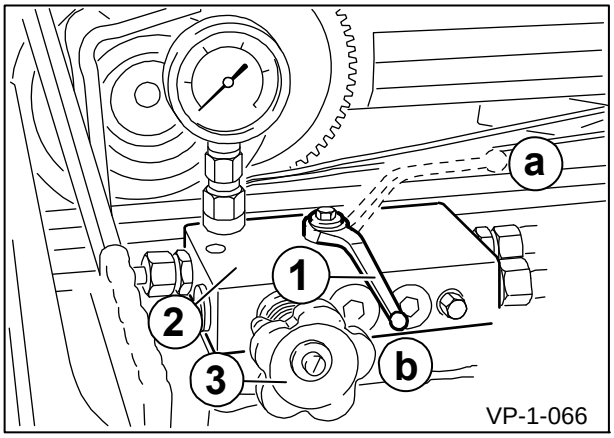


Fig. 265

The control block (2) is located on the right front side. The baling pressure is set on the handwheel (3) before starting work.

Position **"a"** Parking position - release pressure from the clamping cylinders.

Position **"b"** Work position

Note

Before starting maintenance move the shut-off valve to position "a" to relieve the clamping cylinders.

13.19.3 Emergency Manual Activation Electromagnetic Valves (MC Cutting System)

Danger! - Unexpected actions on the machine.
Effect: Danger to life or serious injuries.

- Only persons who are confident with the machine may perform emergency manual activation.
- The person performing the activation must know which machine parts are affected by controlling the valves.
- The manipulation of the valves must only be carried out from a safe position outside the range of the machine parts which are moved by the actuators.
- Ensure that no persons, animals or objects are within this danger zone.

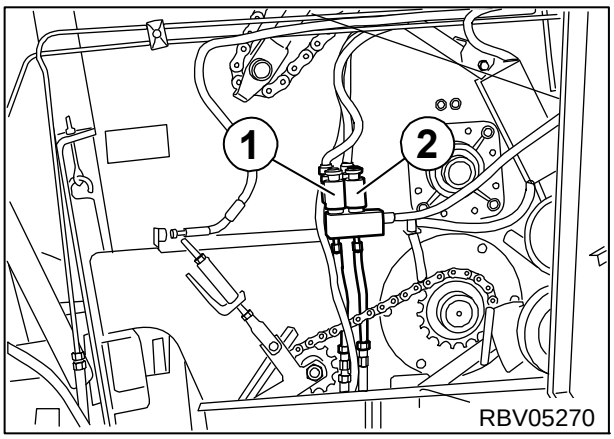


Fig. 266

The electromagnetic valves (2) are located on the right-hand side of the machine behind the guard.

An emergency hand operation of the motional function of the pick-up and the zero setting of blades can be carried out at the electromagnetic valves, if the comfort controls fails.

To do this:

- Screw in the subjacent slot screw (1) or the knurled head screw until the pick-up can be lifted or lowered directly from the position of the control valve at the tractor.

Note
As soon as the comfort controls works correctly again, the slot screw or the knurled head screw at the electromagnetic valve have to be screwed out. The operation of the pick-up via comfort controls is only ensured in this way.

13.19.4 Replacing the Hydraulic Oil Filter

Fortima V 1500 (MC) / V 1800 (MC)

ENVIRONMENT! - Disposal and storage of used lubricants and oil filters
Effect: Environmental damage
Store or dispose used oil and oil filters according to statutory provisions.

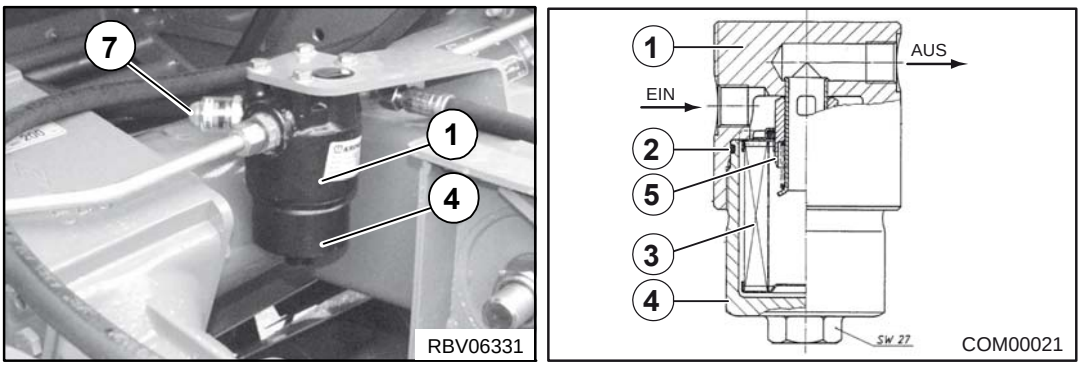


Fig. 267

The filter takes up depositions of solid particles of the hydraulic system. The filtering of the hydraulic circuit serves as a prevention of damages on components of the circuit. The filter is equipped with an optical contamination indicator (7). The contamination indicator (7) informs optically about the degree of contamination of the filter.

Note
Check the contamination indicator before the machine is used. If the display field is green, the filter element is OK; if the display field is red, the filter has to be changed.

When starting in cold condition the button on the contamination indicator (7) can hop out. Only insert the button after achieving the operating temperature. In case it immediately hops out again, the filter element needs to be changed.

Replacing the filter element

Note
Store or dispose used oil and oil filters according to statutory provisions.

- Relieve all pressure from the hydraulic system.
- Screw the bottom of the filter (4) off the filter head piece (1) and clean it.
- Remove the filter element (3) and replace it by a new filter element (Order no. 919 730 0).
- Push a new filter element (3) onto the valve sleeve (5).
- Check the O-ring seal (2) and replace it, if necessary, by a new O-ring seal with identical characteristics.
- Screw bottom of the filter (4) back onto the filter head piece.
- Charge the hydraulic system with pressure and check for leaks.

13.20 Lifting

13.20.1 Lifting Eyes

The baler is equipped with three suspension points:

- A suspension point is located in the front area of the drawbar.
- Two suspension points can be found rear on the yoke (right and left upper machine side).

13.20.2 Lifting

- Use a lifting traverse with a minimum load-bearing capacity (depending on the permitted gross weight of the machine) (refer to Chapter entitled Introduction “Identification”)
- Close the tailgate
- Swivel the parking support (parking jack) into transport position
- Lift the pick-up
- Make certain all safety devices are locked
- Attach the chains of the lifting traverse to the four suspension points of the machine
- Make sure that the hooks of the chains are attached correctly on the suspension points

14 Maintenance – lubrication

14.1 Special Safety Instructions



Danger! - Maintenance, installation, repair and adjustment work, troubleshooting and fault resolution

Effect: Risk of death, injuries or damage to the machine.

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

- Switch off the PTO shaft.
- Turn off the engine, remove the ignition key and take it with you.
- Disconnect the 12 V power supply voltage.
- Secure the machine against rolling away with wheel chocks and by applying the parking brake.
- Only start the machine if all safety devices are fitted and in sound condition.
- If any hazardous situations arise, immediately turn off the PTO shaft and stop the machine.
- Never leave the machine running with no operating personnel on the tractor.
- Avoid skin contact with oils and greases.



ENVIRONMENT! - Disposal and storage of lubricants

Effect: Environmental damage

- Store lubricants in eligible containers according to statutory provisions
- Dispose used lubricants according to statutory provisions

14.2 Lubricants

14.3 General aspects

Depending on the design, the machine may be equipped with different lubrication systems. Soft, supple NLGI Class 2 lithium soap greases in accordance with DIN 51825 should be used as lubricating greases. We recommend that you do not use lubricating greases with any other base material.

Note

Do not use greases containing graphite! There may be problems when different greases are mixed together!

Manufacturer	Lubricants based on mineral oil	Bio-lubricants
ARAL	Long-term grease H	On request
BP	Energrease LS-EP2	
DEA	Glissando EP2	
FINA	Marson EPL 2A	
Shell	Alvania Ep2	
ESSO	EGL 3144	

Lubrication points on the machine must be lubricated at regular intervals. The position of the lubrication points and the lubrication intervals can be seen in the lubrication plans in the operating instructions. Remove the grease that comes out of the bearing points after lubrication.

14.4 Lubricating the PTO shaft

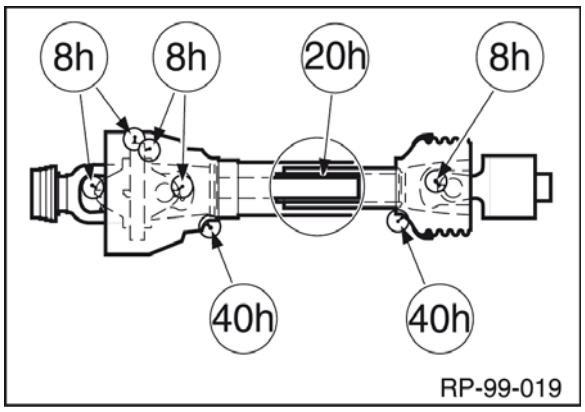


Fig. 268

Lubricate the PTO shafts at the intervals indicated in the drawing with a multi-purpose grease. Follow the operating instructions of the PTO shaft manufacturer.

14.5 Lubrication points

The following tables contain a list of lubrication points on the machine and the number of lubrication nipples.

Fortima F 1250 (MC) / F 1600 (MC)

Lubrication points	Number of grease nipples
Support jack	1
Floor conveyor inside front	2
Cylinder for tailgate (right + left)	2
Tailgate bearing (right + left)	2
Floor conveyor deflection rear	2
Tandem axle pendulum arm bearing (right + left)	2
Floor conveyor shaft bearing (right)	1
Spiral roller bearing (right)	1
Nipple block left: Cutting system bearing Floor conveyor drive (bearing) Spiral roller bearing	 1 1 1
Nipple block right: Cutting roller Intermediate gear inside Intermediate gear outside	 1 1 1
Chain drives: Floor conveyor drive (left) Pick-up drive (right + left) Roller drive (right) Cutting system drive (right) Floor conveyor chain (left + right)	Central lubrication *

* special equipment

Left Machine Side

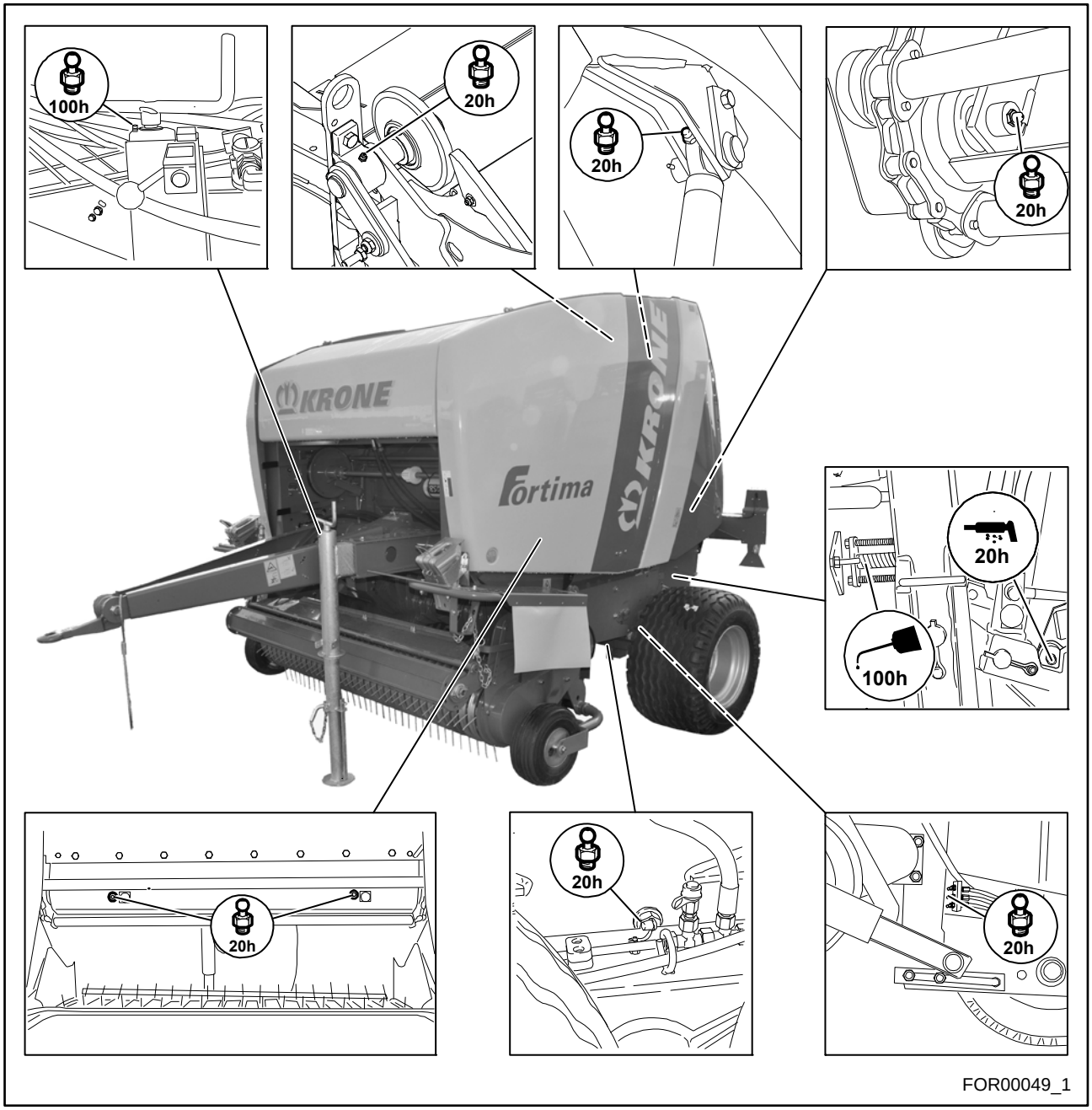


Fig. 269

Right Machine Side

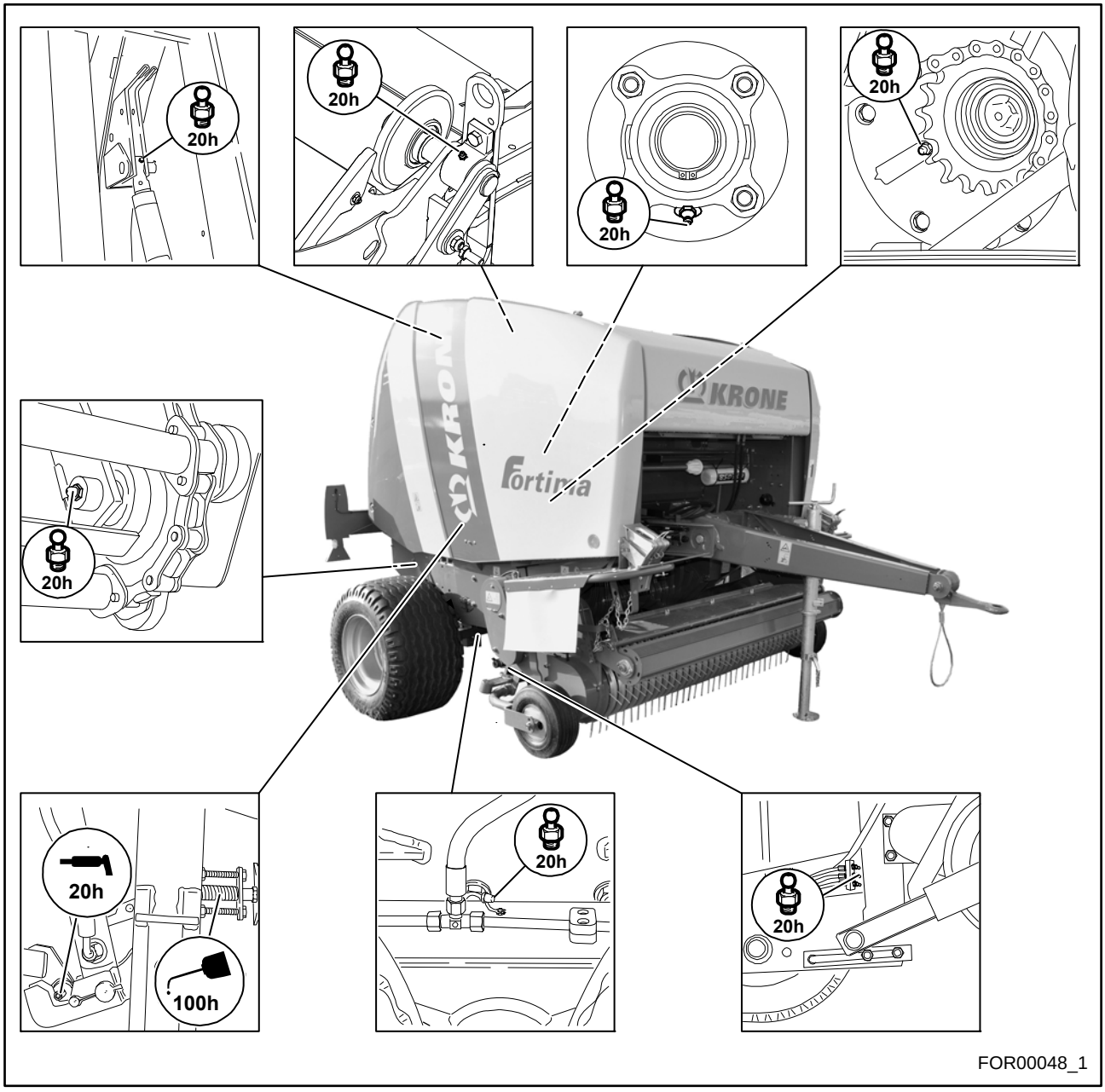


Fig. 270

Fortima V 1500 (MC) / V 1800 (MC)

Lubrication points	Number of grease nipples
Parking jack	1
Drive shaft and bearing of rear floor conveyor (right + left)	5
Deflection shaft top front on the tensioning system (right + left)	2
Cylinders for tailgate (right + left)	2
Tandem axle pendulum arm bearing (right + left)	2
Floor conveyor shaft bearing (right)	1
Spiral roller bearing (right)	1
Nipple block left: Cutting system bearing Floor conveyor drive (bearing) Spiral roller bearing	 1 1 1
Nipple block right: Cutting roller Intermediate gear inner Intermediate gear outer	 1 1 1
Chain drives: Floor conveyor drive left Pick-up drive right and left Roller drive right Cutting system drive right Floor conveyor chain left and right	Central lubrication

Left Machine Side

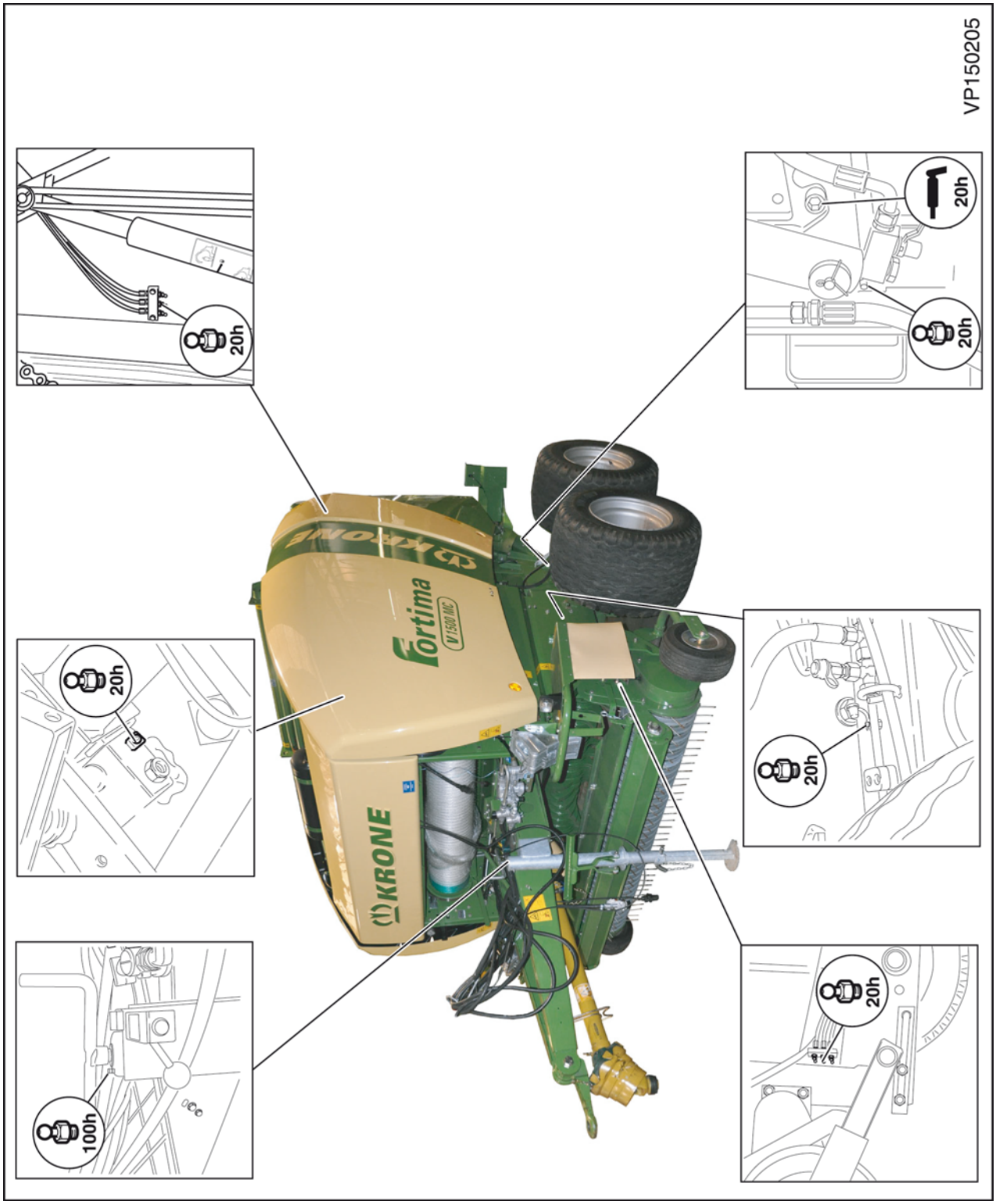


Fig. 271

Right Machine Side

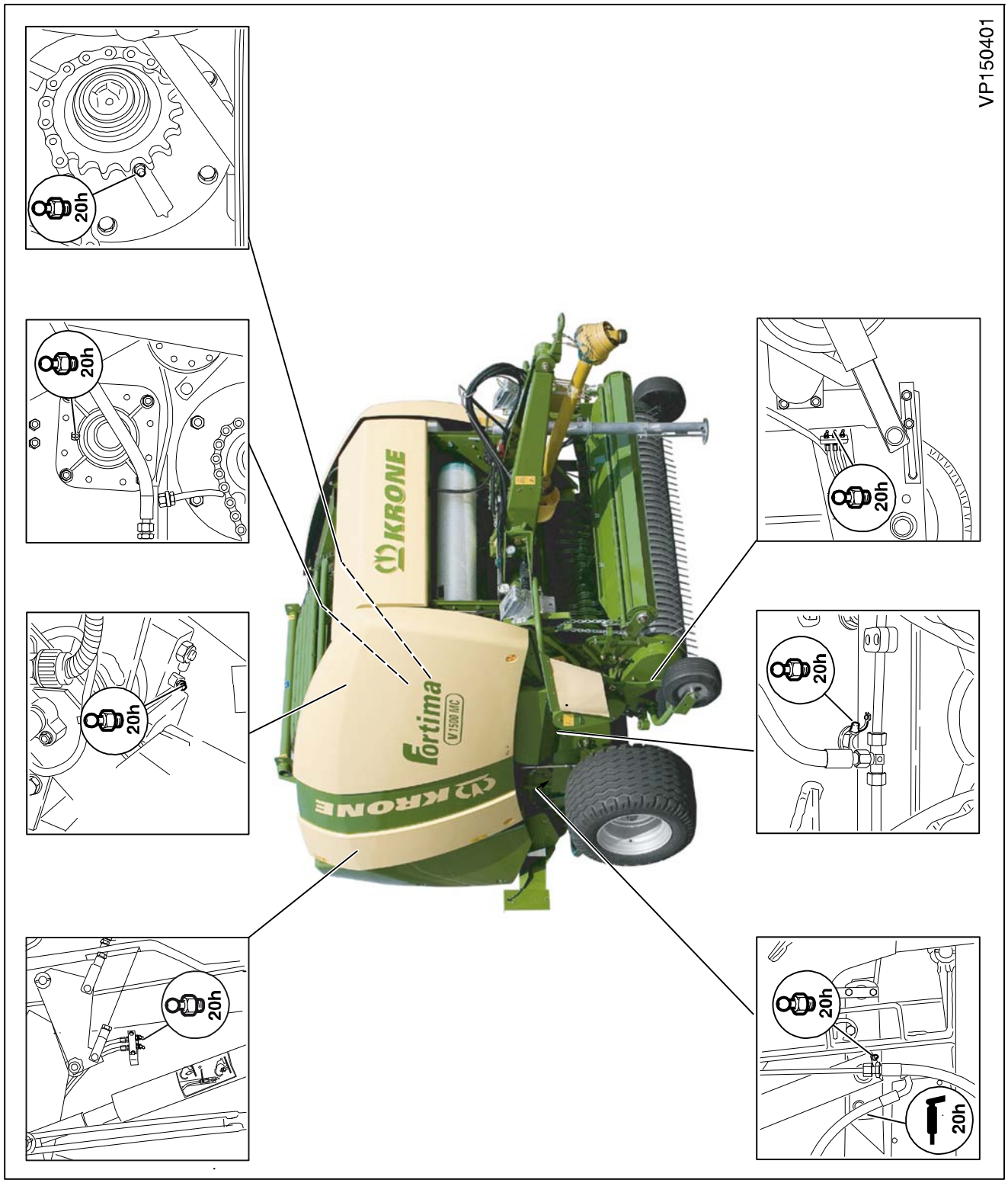


Fig. 272

14.5.1 Chain Lubrication System

Fortima F 1250 (MC) / Fortima F 1600 (MC)

Note
The following lubrication points must only be lubricated if there is no central lubrication available.

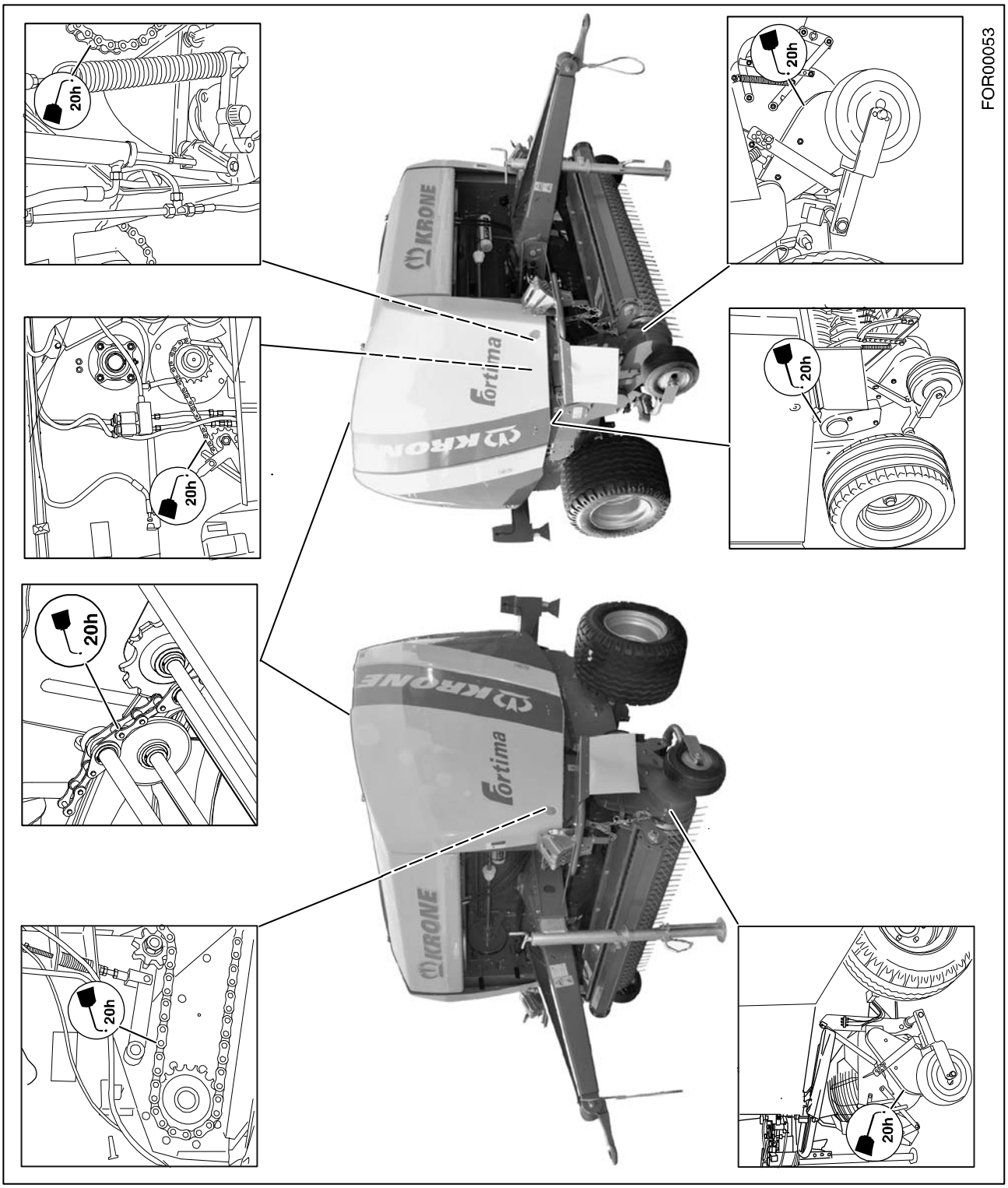


Fig. 273

15 Placing in Storage

15.1 Special Safety Instructions



DANGER! - During repair, maintenance, cleaning work or technical interventions on the machine, drive elements can start moving.

Effect: Risk of death, injuries or damage to the machine.

- Turn off the tractor engine, remove the ignition key and take it with you.
- Disconnect the 12 V power supply voltage.
- Secure the machine and tractor against rolling.
- Turn off and disengage the PTO shaft
- After repair, maintenance, cleaning work or technical interventions on the machine, replace all protective covers and safety devices correctly.
- Avoid oil, grease, cleaning agents and solvents coming into contact with the skin.
- Hydraulic fluids escaping at high pressure can cause severe injuries. In the event of injuries or burns due to oils, cleaning agents or solvents, contact a physician immediately.
- To prevent injury and accidents, follow all safety instructions.

15.2 At the End of the Harvest Season

Before placing the machine in winter storage, clean inside and outside thoroughly. If you use a high-pressure cleaner to do this. do not keep a stream of water directed at bearing points. After cleaning is completed, lubricate all lubrication points. Do not wipe off any grease that comes out of bearing points. The hardened grease will provide additional protection against moisture.

Remove the drive chains and wash them out in petroleum (do not use any other solvent). At the same time, check the chains and chain wheels for wear. Oil the chains after they are cleaned, mount them and place them under tension.

Check all movable components such as deflector rollers, joints, tension rollers, etc. to make certain they move easily. If necessary remove, clean, grease and remount. If necessary, replace with new parts.

Use only original KRONE replacement parts.

Disassemble the PTO shaft. Lubricate the inner tubes and the guard tube with grease. Grease the lubrication points on the cross joint and grease the bearing rings of the guard tube.

Park the machine in a dry location, but not in the vicinity of artificial fertilisers or livestock buildings. Repair places with damaged paint and preserve all bare metal places thoroughly with rust protection agent.



Caution!
The machine should only be placed on blocks with a suitable vehicle lifting device. Make certain that the machine is stable and safe when it is on blocks.

To remove load from the tyres, set the machine on blocks. Protect the tyres against external influences such as oil, grease, direct sunlight, etc

Perform the necessary repair tasks during the time immediately after the harvest season. Draw up a list of all replacement parts you will need. This will make it easier for your KRONE dealer to process your orders and you will be certain that your machine will be ready for use at the beginning of the next season.

15.3 Before the Start of the New Season



DANGER! - During repair, maintenance, cleaning work or technical interventions on the machine, drive elements can start moving.

Effect: Risk of death, injuries or damage to the machine.

- Turn off the tractor engine, remove the ignition key and take it with you.
- Disconnect the 12 V power supply voltage.
- Secure the machine and tractor against rolling.
- Turn off and disengage the PTO shaft
- After repair, maintenance, cleaning work or technical interventions on the machine, replace all protective covers and safety devices correctly.
- Avoid oil, grease, cleaning agents and solvents coming into contact with the skin.
- Hydraulic fluids escaping at high pressure can cause severe injuries. In the event of injuries or burns due to oils, cleaning agents or solvents, contact a physician immediately.
- To prevent injury and accidents, follow all safety instructions.

- Before placing the machine in service again, trigger a tying or wrapping process and run through it manually. As you do, check the functions of the starting devices of the tying or wrapping process.
- Grease all lubrication points and oil the chains. Wipe away grease that comes out of lubrication points.
- Check the oil level in the main drive gearbox and top up if necessary.
- Check hydraulic hoses and lines for leaks and replace them if necessary.
- Check all screws to make certain they are tight or retighten them if necessary.
- Check all electrical connection cables and the lighting. Repair or replace if necessary.
- Check the entire setting of the machine and correct if necessary.
- Check the operating functions.
- Re-read the operating instructions thoroughly.

15.3.1 Maintenance work before the beginning of the new season

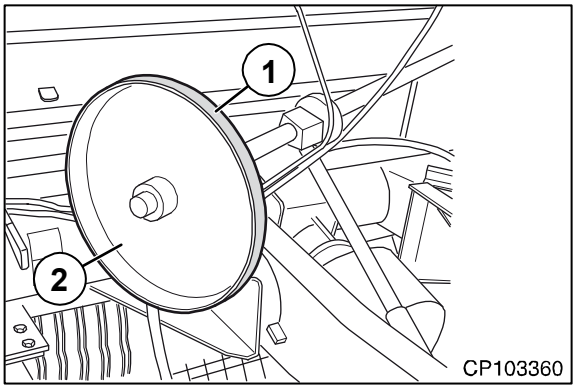


Fig. 274

- Clean the rust off the brake disc (2) on the running surface (1).

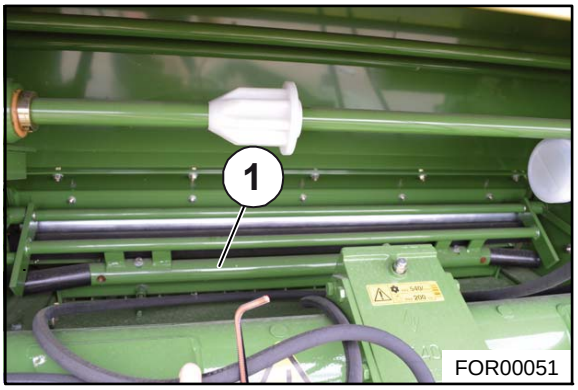


Fig. 275

- Remove the grill on the spreading bracket (1) (for net tying).

15.3.2 Venting the overload coupling on the PTO shaft

Friction clutch only

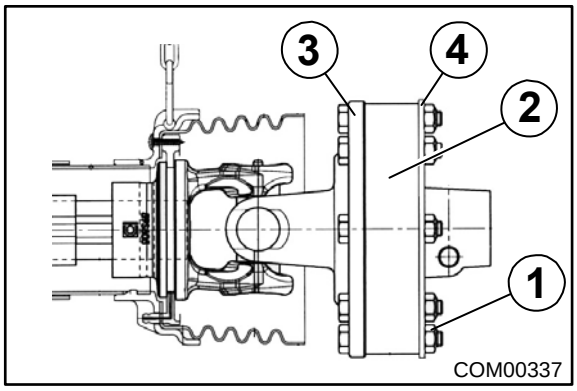


Fig. 276

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

Vent the overload coupling before use.

- Loosen the eight screws (1) to release the spring pressure from the outside washers (3, 4).
- Turn the PTO shaft manually.
- Tighten the screws until the covering ring (2) is lying directly against the outside washers (3, 4).

Note

Do not tighten the screws (1) too tight. The coupling must still be able to slip.

- Then turn the screws (1) one sixth of a revolution back.

16 Malfunctions - Causes and Remedies

16.1 Special Safety Instructions



DANGER! - During repair, maintenance, cleaning work or technical interventions on the machine, drive elements can start moving.

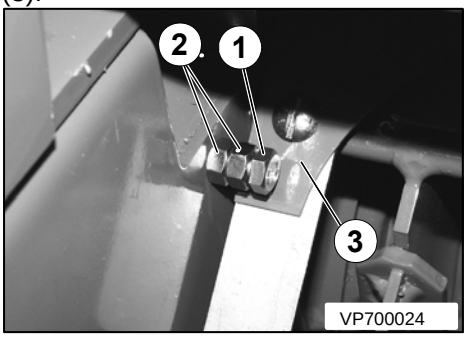
Effect: Risk of death, injuries or damage to the machine.

- Turn off the tractor engine, remove the ignition key and take it with you.
- Secure the machine and tractor against rolling.
- Turn off and disengage the PTO shaft.
- With the tailgate open, secure it against being lowered by adjusting the stop cock.
- After repair, maintenance, cleaning work or technical interventions on the machine, replace all protective covers and safety devices correctly.
- Avoid oil, grease, cleaning agents and solvents coming into contact with the skin.
- Hydraulic fluids escaping at high pressure can cause severe injuries. In the event of injuries or burns due to oils, cleaning agents or solvents, contact a physician immediately.
- To prevent injury and accidents, follow all safety instructions.

16.2 General malfunctions

Malfunction	Possible cause	Remedy
Pick-up cannot be lowered.	Hydraulic hose is not inserted.	Insert hydraulic hose into the appropriate coupling.
Blockages in the feed area. In case of blockages, stop immediately and turn off the PTO shaft as the floor conveyor strips can be damaged otherwise. Remove blockages.	Swaths are of uneven height or too large.	Divide swaths.
	Travelling speed too high.	Reduce travelling speed. Slow down at the beginning of the baling process until the picked up crop rolls in the bale chamber.
	The machine is not hitched horizontally.	Hook in machine higher at the front. Adjust drawbar height so that the transfer from the pick-up to the channel is more even.
The transfer of short crop from pick-up to cutting roller is poor.	The machine is too low at front.	Hook in machine higher at the front. Adjust drawbar height so that the transfer from the pick-up to the channel is more even.
The wrapping material tears in the middle if the bales are barrel-shaped.	The bale chamber is filled unevenly.	Drive over the swath on alternate sides.
	The number of wrappings is too low.	Increase number of wrappings.
	Net brake is too tight.	Loosen net brake.
	Net spreader is aggressive.	Adjust wide spreader.
	Floor conveyor switches too late.	Change switching time.
Bale is formed conically.	The bale chamber is filled one-sided.	Make sure when baling that the bale chamber is filled evenly. Slow down especially at the end of the bale.
	Speed is too high at the end of baling process.	Slow down at the end of baling process.
	Twine or wrapping material torn.	Just use twine or wrapping material of specified quality.
	The number of wrappings is not sufficient. Twine or wrapping material loosens.	The tying distance of twine tying system must be set closer or the number of wrappings of the wrapping material must be increased.
When starting, twine is not shot in.	Pressure rollers on the starter are too stiff.	Oil bearing or slightly loosen screw on pressure rollers and lock them again.
Twine slips off the bale edges.	Crop is very dry and crumbly.	Position twine limiter on tying unit further to the inside.
Twine guide slide of double tying is not transported.	Chain of double tying is too loose.	Retighten chain with chain tensioner.
Net tears off directly after starting process or during the wrapping process.	Blade bar has fallen down again immediately after starting process.	Remove impurities.
	Setting of roller brake is too strong.	Check setting of braking device.
	Blade bar is too low.	Check blade bar setting.

Malfunction	Possible cause	Remedy
Net is not transported during starting process.	The dimensions of the net are incorrect.	Just use net rollers with prescribed dimensions.
	The tension wheel is not pressed against the V-belt or the freewheel jams in the coupling wheel.	Check setting motor or make freewheel move smoothly. Remove any potentially available soilings.
	Net rollers are not inserted correctly in the collecting mechanism and / or the roller braking device is not set correctly.	Insert net roll according to operating instructions. Set roller brake.
	Net has not been inserted correctly in the wrapping device.	Pull the net out of the film wrapping device and reinsert it in accordance with the operating instructions.
	Impurities in front of the starter rollers and on the starter rollers may cause the net to slip through.	When the twine tying device has been used for a longer period of time, remove accumulations of dirt in the wrapping mechanism.
	Channel is blocked with straw.	Remove cutting blade and clean it.
	The tension roller of the V-belt is not able to move downward far enough.	Remove crop between guard support and flat bar from the tensioning roller.
Net wraps around rubber roller.	Net is not hanging far enough in the channel.	Loosen net brake. When tying, always drive with a PTO speed of 540 rpm.
	After an extended standstill time, the net sticks on the rubber roller	After an extended standstill time, insert net again.
Net is not cut off neatly.	Blade bar does not fall completely down.	Remove impurities.
	Dull blades	Change blades
Net does not reach the outside edges of the bale.	Net is not decelerated correctly during wrapping process.	Check setting of braking device.
	Net has got caught on the cutting blades.	Check setting of cutting blades.
	Starter rollers of film wrapping device are bent.	Check wrapping device and replace it, if necessary.
	Crop between spiral roller and scraper	Readjust scraper.
	Net spreader does not work.	Rotate the net spreader.
	The scrapers of cutting roller and conveyor roller are blocked.	Change once again the side in the swath before the net is shot in.
Tailgate cannot be opened correctly.	Hydraulic hose is not inserted.	Insert hydraulic hose into the appropriate coupling.
The bale does not roll or it just rolls slowly out of the bale chamber.	The sides are filled too strong or the baling pressure is too high.	Do not drive too far to the side.
Twine is not cut off.	Net spreader is folded down.	Fold up net spreader.
Net is drawn in during baling	The net hangs too far in the channel.	Increase the tension on the spring for net brake.
		When tying, always drive with a PTO speed of 540 rpm.

Malfunction	Possible cause	Remedy
The net does not reach the bale.	If the crop is crumbly, the deflector plate (3) is pressed upward.	Mount screw (1) M8 x 40 with nuts (2) right and left of the deflector plate (3). 

16.3 Malfunctions on the central chain lubrication system

Malfunction	Possible cause	Remedy
Low oil consumption	Low pressure	Pump works with difficulty, dirt in the pump area • Clean Pump is not pressed to a full stroke • Adjust according to the operating instructions Pump valve does not close correctly • Remove and clean or replace
	Oil is too thick	• Replace with recommended oil
	System contaminated	• Clean or replace all measuring valves
Oil consumption too high	Main pipe torn	• Repair or replace
	Oil too thin	• Drive with thicker oil • Reduce the pump stroke
Machine is dry	No pressure	Pump not running • Repair, adjust or replace Main pipe torn • Repair or replace System has no oil • Vent the system (see chapter Central chain lubrication system)
	System blocked	Dirt • Clean the system and clean or replace all measuring valves. Pipe jammed • Repair or replace
Pump is not pressed to a full stroke.	Oil is too thick, nozzles clogged.	• Replace with recommended oil • Clean nozzles

16.4 Error Messages of KRONE Operation Terminal

The error messages in the display are described depending on how the machine is fitted in the Chapters "KRONE ISOBUS-Terminal" or "KRONE Operation Terminal Beta".

17 Appendix

17.1 Hydraulic System Circuit Diagrams

Fortima F 1250 (MC) / Fortima F 1600 (MC)

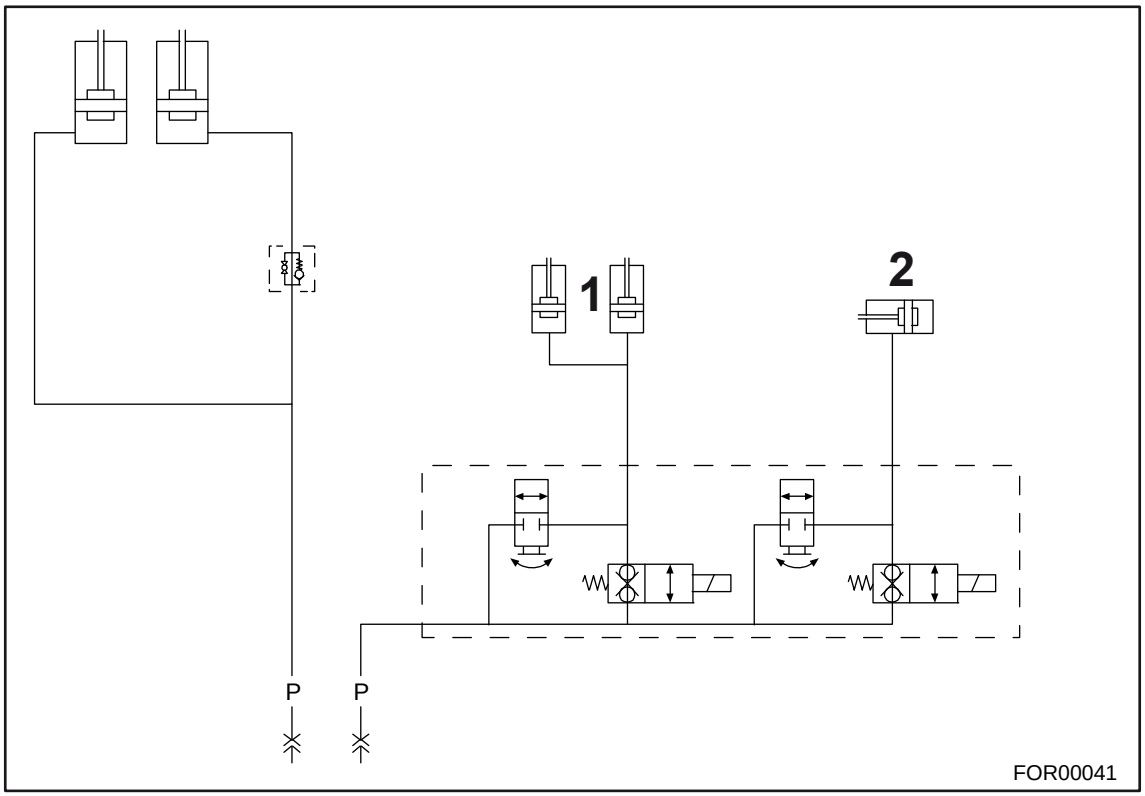


Fig. 277

1	Pick-up
2	Blade 0

Fortima V 1500 (MC) / Fortima V 1800 (MC)

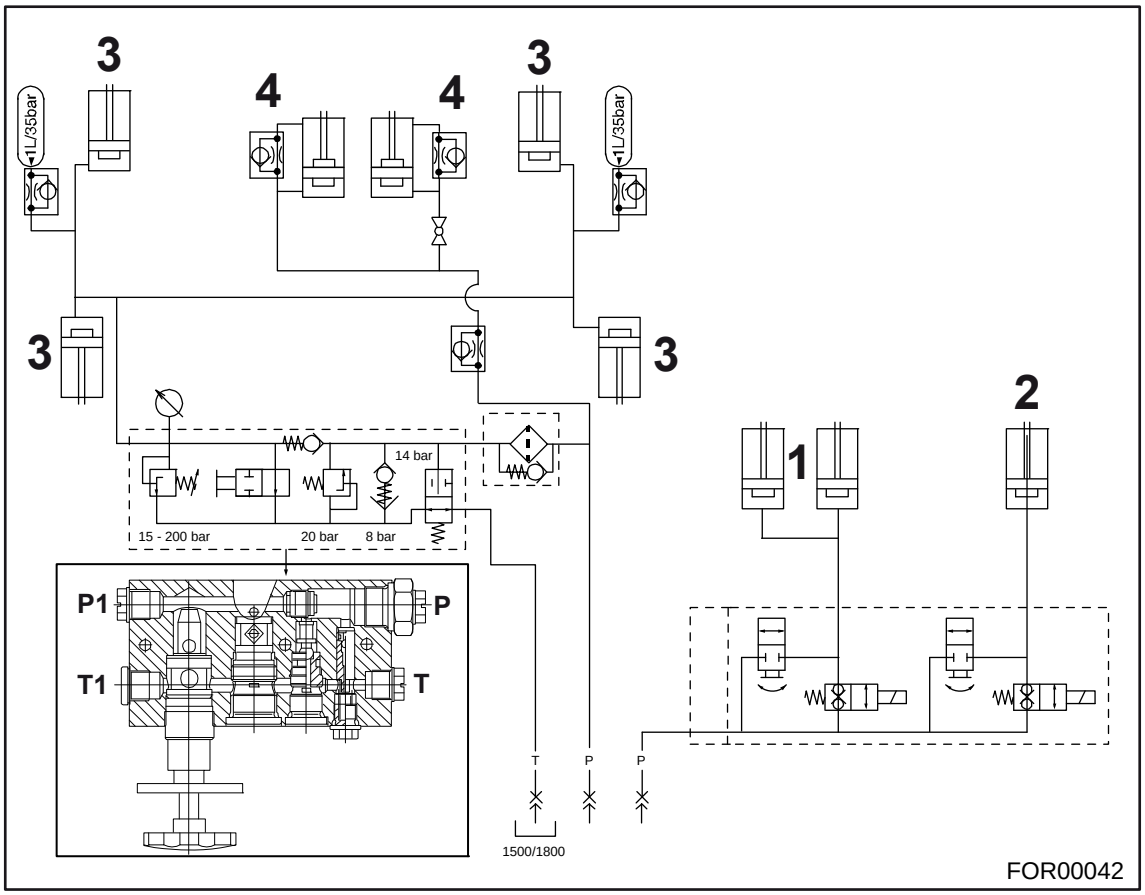
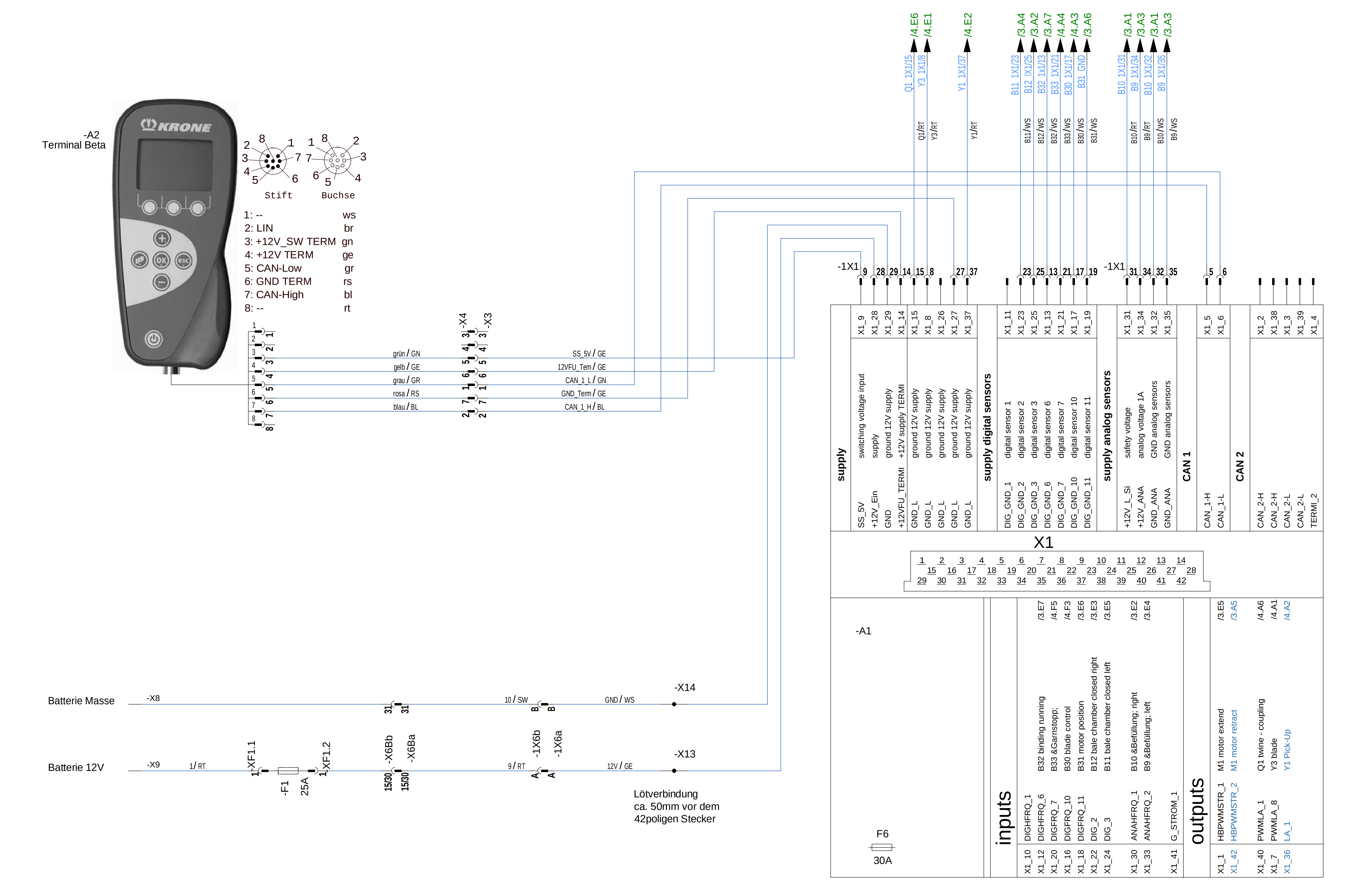


Fig. 278

1	Pick-up
2	Blade 0
3	Clamping cylinder
4	Tailgate

17.2 Electrical circuit diagram



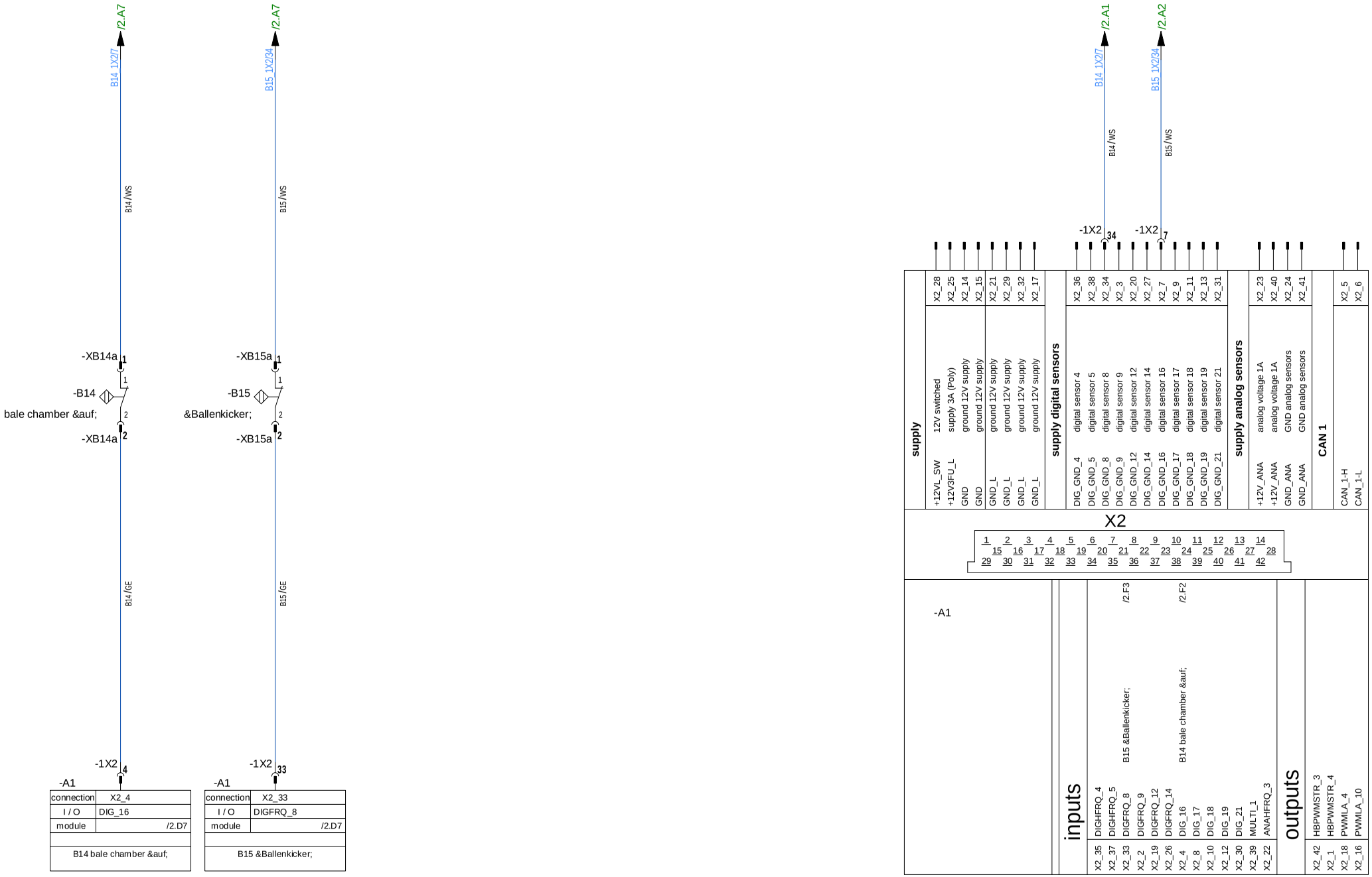
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B			User	Albers			
A			Proved				

KRONE

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Fortima F / V comfort
1X1; Schaltplan

plant
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sheet 1
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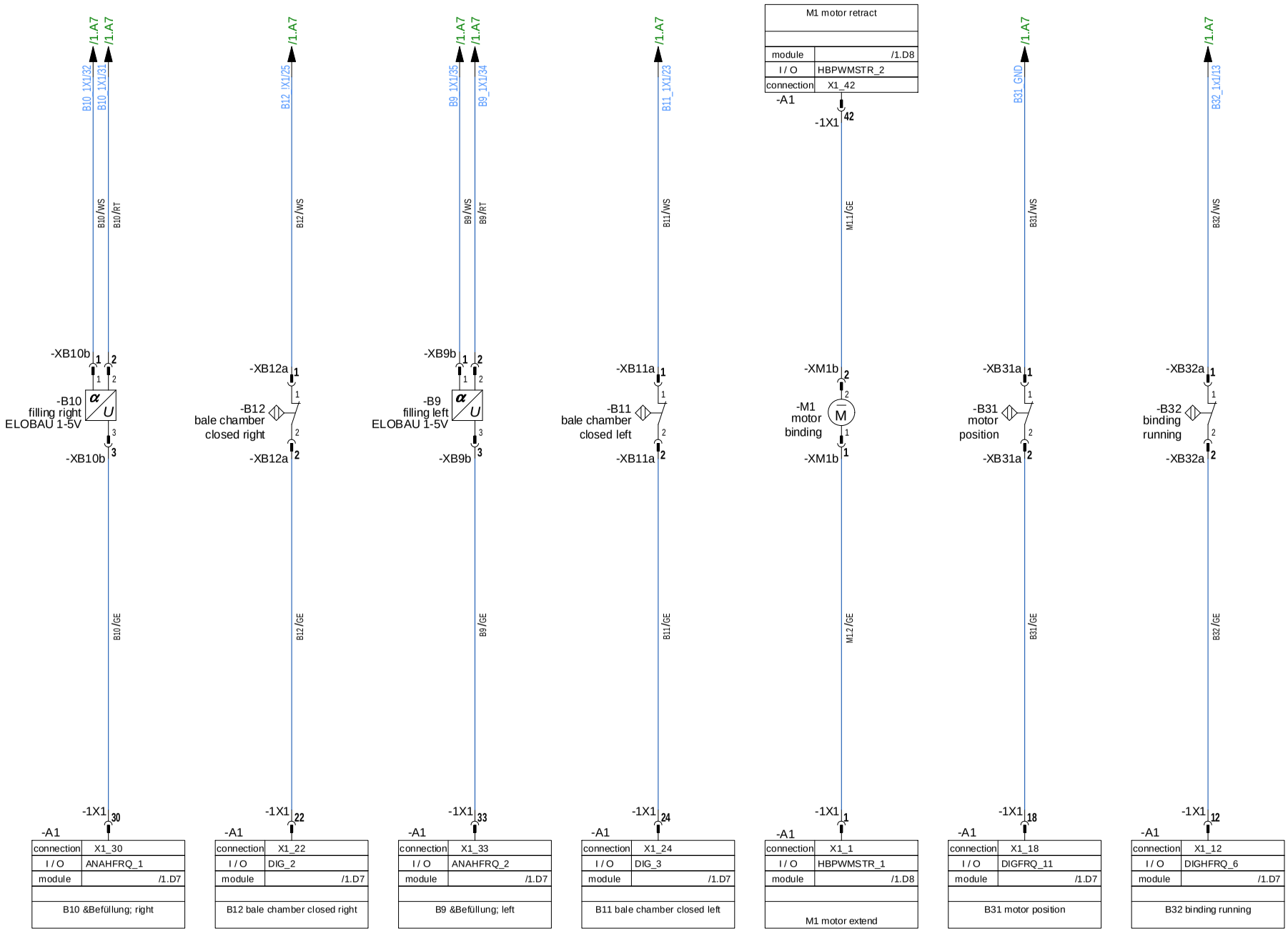
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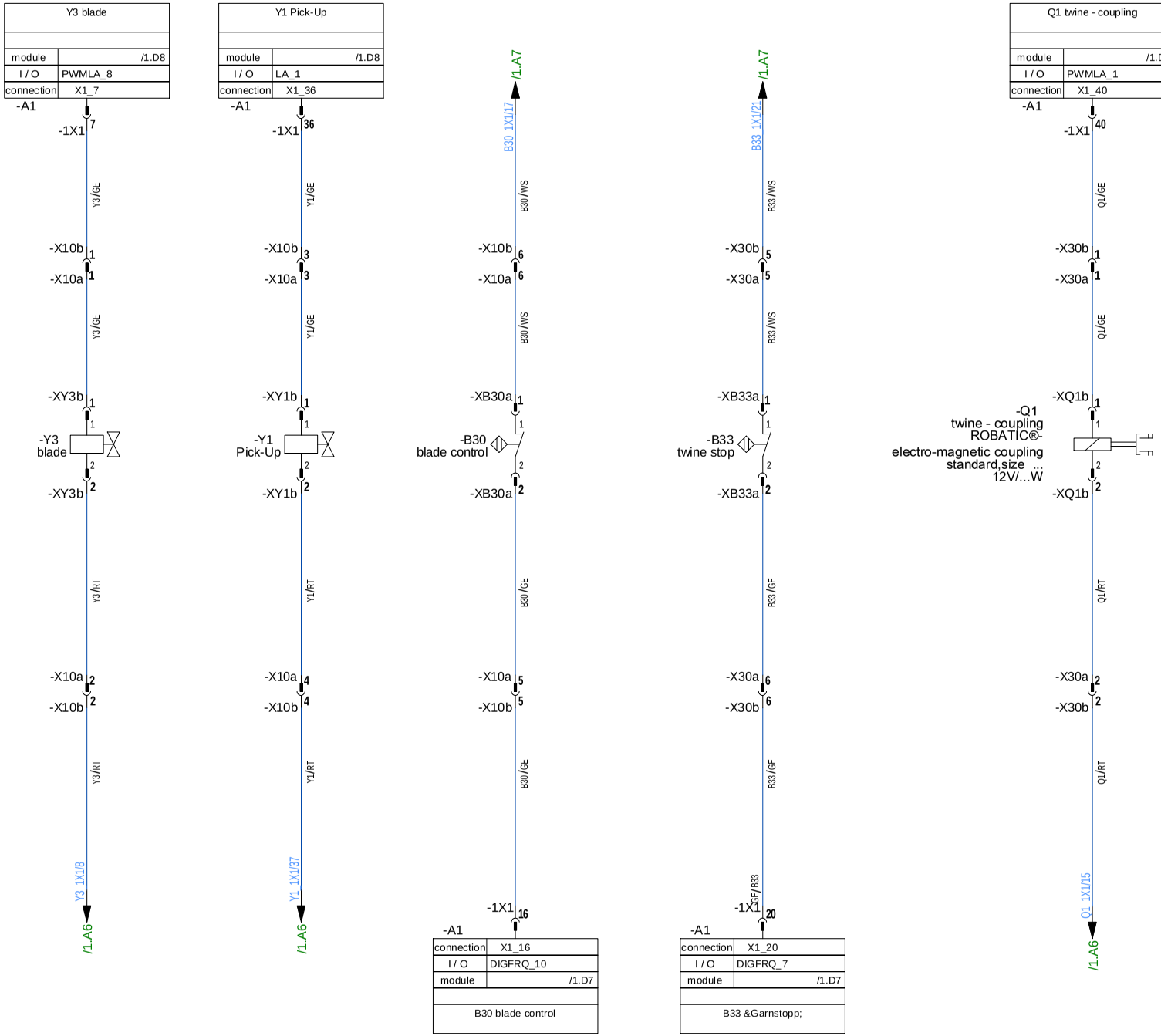
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150100407 - 02

Fortima F / V comfort
1X2; TIM Funktion

plant	
location	
sheet	2
from	Sh.



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B				date	26.10.2009				location
A				User	Albers				sheet 3
change		date	name	Proved		Origin	Repl. f.	Repl. by	from Sh.



C					Created	KRONE	document-no.: D24	Fortima F / V comfort	plant
B				date	26.10.2009		150100407 - 02	circuit diagram	location
A				User	Albers				sheet 4
change		date	name	Proved		Origin	Repl. f.	Repl. by	from Sh.

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