KRONE

Original Operating Instructions

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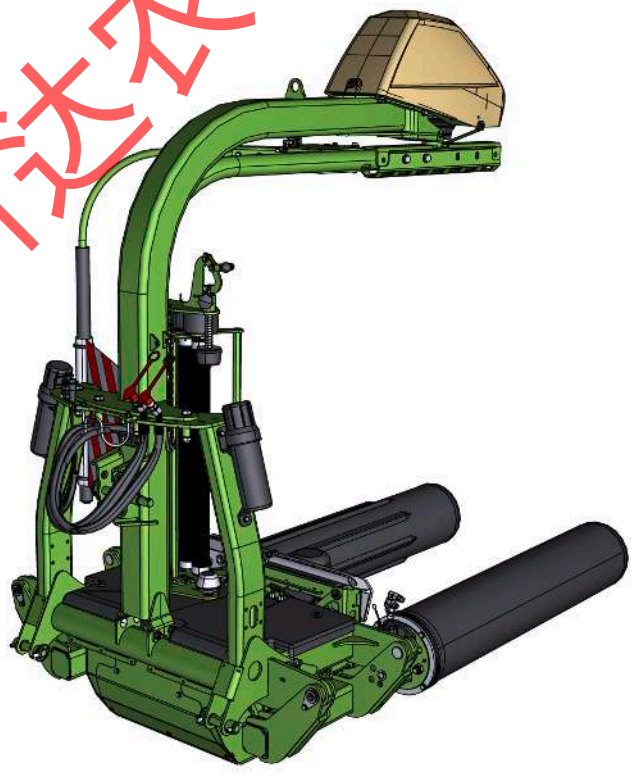
Bale Wrapper

BW201-10

From machine no.: 992636



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Information for enquiries and orders

Year	
Machine number	
Type	

Contact data of your dealer

1 Information on This Document

1.1 Validity

This document is valid for machines of type:

BW201-10
All information, illustrations and technical data in this document 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.

1.2 Re-ordering

If this document has become unusable in whole or in part, you can order a replacement, quoting the document number on the cover sheet. The document can additionally be downloaded via KRONE MEDIA https://mediathek.krone.de/.

1.3 Applicable documents

To ensure that the machine is used safely and as intended, observe the following further applicable documents.

- Operating instructions terminal
- Circuit diagram, KRONE
- Spare parts list, KRONE

1.4 Target group of this document

This document aims at the operator of the machine who fulfills the minimum requirements of personnel qualification,*refer to page 12*.

1.5 How to use this document

1.5.1 Directories and references

Contents/headers

The contents and headers in this document ensure quick orientation in the chapters.

Index

The index contains catchwords in alphabetical order which enable to find information on a desired topic easily. The index can be found on the last pages of this document.

Cross references

Cross references to another place in the document or to another document are in the text with page number.

Examples:

- Check all screws on the machine for firm attachment,*refer to page 7*. (**INFORMATION**: If you use this document in electronic form, you get to the link to the stated page by clicking with the mouse.)
- For further information, refer to the operating instructions of the universal shaft manufacturer.

1.5.2 Information on direction

Directional information in this document, such as front, rear, right and left, applies in the direction of travel of the machine.

1.5.3 Term “machine”

Throughout the rest of this document, the "bale wrapper" will also be referred to as the "machine".

1.5.4 Figures

The figures in this document do not always represent the exact machine type. The information that refers to the figure always corresponds to the machine type of this document.

1.5.5 Scope of the document

In addition to standard equipment, accessories kits and versions of the machine are described in this document. Your machine may deviate from this document.

1.5.6 Means of representation

Icons in the text

The following means of representation (icons) are used to present the text more clearly:

▶ This arrow characterizes an **action step**. Several arrows in a row identify a sequence of actions to be performed step by step.

✓ This icon identifies a **prerequisite** that has to be fulfilled to perform an action step or a sequence of actions.

⇨ This arrow marks the **intermediate result** of an action step.

➡ This arrow identifies the **result** of an action step or sequence of actions.

● This bullet point identifies an **enumeration**. If the bullet point is intended, it identifies the second level of the enumeration.

Icons in figures

The following icons can be used in illustrations:

Icon	Explanation	Icon	Explanation
①	Reference sign for part	I	Position of a part (e.g. move from position I to position II)
X	Dimensions (e. g. also W = width, H = height, L = length)		Magnification of display detail
LH	Left side of machine	RH	Right side of machine
	Direction of travel		Direction of motion
——	Reference line for visible material	-----	Reference line for covered material
-·-·-·	Centre line	——	Cable routes
	Open		Closed
	Apply liquid lubricant (e.g. lubricating oil)		Apply lubricating grease

Warning signs

Warnings of dangers are separated from the remaining text as warning signs and are identified with a danger sign and signal words.

The warning signs must be read and the measures must be observed in order to prevent personal injury.

Explanation of danger sign

This is the danger sign that warns of a risk of injury.

Please observe all notes marked with the danger sign in order to avoid injuries or death.

Explanation of signal words

⚠ *DANGER*
The signal word DANGER warns of a hazardous situation which will result in serious injuries or death if the warning sign is ignored.

⚠ *WARNING*
The signal word WARNING warns of a hazardous situation which will result in serious injuries or death if the warning sign is ignored.

⚠ *CAUTION*
The signal word CAUTION warns of a hazardous situation which will result in minor to moderate injuries if the warning sign is ignored.

Example of a warning sign:

⚠ WARNING

Eye damage caused by flying dirt particles

When cleaning with compressed air, dirt particles are ejected at high speed and could get into the eyes. Therefore eyes could be hurt.

- ▶ Keep people away from the working area.
- ▶ Wear personal protective equipment when performing cleaning work with compressed air (e.g. eye protection).

Warnings of property damage/environmental damage

Warnings of property/environmental damage are separated from the remaining text and marked with "Notice".

Example:

NOTICE

Gearbox damage due to low oil level

The gearboxes could be damaged when the oil level is too low.

- ▶ Check gear oil level at regular intervals and top up oil, if necessary.
- ▶ Check gear oil level approx. 3 to 4 hours after the machine has been switched off. Check oil level only when machine is in horizontal position.

Notes with information and recommendations

Additional information and recommendations for trouble-free and productive operation of the machine are separated from the remaining text and marked with “Information”.

Example:

INFORMATION

Each safety label is provided with an order number and can be ordered directly from the manufacturer or from the authorized specialist dealer.

1.5.7 Conversion table

The following table can be used to convert metric units into US units.

Size	SI units (metric)		Factor	Inch-pound units	
	Unit name	Abbrevi-ation		Unit name	Abbrevi-ation
Area	Hectare	ha	2.47105	Acre	acres
Volume flow	Litres per minute	L/min	0.2642	US gallons per minute	gpm
	Cubic metres per hour	m³/h	4.4029		
Force	Newton	N	0.2248	Pound force	lbf
Length	Millimetre	mm	0.03937	Inch	in.
	Metre	m	3.2808	Foot	ft.
Power	Kilowatt	kW	1.3410	Horsepower	hp

Size	SI units (metric)		Factor	Inch-pound units	
	Unit name	Abbrevi-ation		Unit name	Abbrevi-ation
Pressure	Kilopascal	kPa	0.1450	Pounds per square inch	psi
	Megapascal	MPa	145.0377		
	bar (non-SI)	bar	14.5038		
Torque	Newtonmeter	Nm	0.7376	pound-foot or foot-pound	ft·lbf
			8.8507	pound-inch or inch-pound	in·lbf
Temperature	Degrees Celsius	°C	°Cx1.8+32	Degrees Fahrenheit	°F
Velocity	Metres per minute	m/min	3.2808	Feet per minute	ft/min
	Metres per second	m/s	3.2808	Feet per second	ft/s
	Kilometres per hour	km/h	0.6215	Miles per hour	mph
Volumes	Litres	L	0.2642	US gallon	US gal.
	Millilitre	ml	0.0338	US ounce	US oz.
	Cubic centi-metre	cm^3	0.0610	Cubic inch	in^3
Weight	Kilogram	kg	2.2046	Pound	lbs

2 Safety

2.1 Intended use

This machine is a bale wrapper. It is used to wrap crops, that are pressed into round bales, with film.

The crops designated for the intended use of this machine are stalk and leaf crops pressed in round bales.

The machine is designed exclusively for use in agriculture and may only be used when

- all safety devices are available according to the operating instructions and are located in the protective position.
- all safety instructions of the operating instructions have been observed and complied with, both in chapter “Basic safety instructions”, *refer to page 12*, and directly in the chapters of the operating instructions.

The machine may be used only by people who satisfy the personnel qualification requirements designated by the machine manufacturer, *refer to page 12*.

These operating instructions are part of the machine and must therefore be at hand when the machine is in use. The machine may be operated only when the operator has received training and in compliance with these operating instructions.

If the machine is used for applications which are not described in these operating instructions, this may result in serious injuries or death and damage to the machine and other property.

Unauthorised modifications to the machine may affect the properties of the machine or disrupt the proper operation. For this reason, unauthorised modifications shall exclude any liability of the manufacturer for consequential damage.

The intended use shall also include the adherence to the operating, maintenance and repair conditions set by the manufacturer.

2.2 Reasonably foreseeable misuse

Any use beyond the intended use*refer to page 11* is regarded as improper use and is therefore misuse according to the Machinery Directive. The manufacturer is not liable for damage resulting from this, the user alone bears the risk.

Such misuse is for example:

- Processing of crops which are outside the intended use of the machine,*refer to page 11*
- Transport of people
- Transport of goods
- Exceeding the permitted technical gross weight
- Non-compliance with the safety labels on the machine and safety notes in the operating instructions
- Performing troubleshooting, setting, cleaning, repair and maintenance work contrary to the information in the operating instructions
- Unauthorised modifications to the machine
- Attachment of unauthorised or unapproved additional equipment
- Use of spare parts which are not KRONE original spare parts
- Stationary operation of the machine
- Road travel with front-mounted machine
- Operating the machine not close to the ground

Unauthorised modifications to the machine may affect the properties of the machine or disrupt proper operation. For this reason, unauthorised modifications will exclude any liability of the manufacturer for consequential damage.

2.3 Service life of the machine

- The service life of this machine depends on its proper operation and maintenance as well as the operating and harvesting conditions.
- By heeding the instructions and information in these operating instructions, permanent operational readiness and a long service life of the machine can be achieved.
- After each operating season, inspect the entire machine for wear and other damage.
- Replace damaged and worn components before recommissioning the machine.
- Carry out a full technical inspection of the machine after five years of machine operation and make a decision on further machine usage taking the results of this inspection into account.
- Theoretically, the service life of this machine is unlimited as all worn or damaged components can be replaced.

2.4 Basic safety instructions

Non-compliance with the safety instructions and warnings

Non-compliance with the safety instructions and warnings may result in injuries and damage to the environment and property.

2.4.1 Importance of operating instructions

The operating instructions are an important document and a part of the machine. They are intended for the user and contain information relevant to safety.

Only the procedures indicated in the operating instructions are reliable. If the operating instructions are not followed, people may be seriously injured or killed.

- ▶ Before using the machine for the first time, read and follow all the "Basic safety instructions".
- ▶ Before working, also read and observe the respective sections in the operating instructions.
- ▶ Keep the operating instructions ready to hand for the user of the machine in the document storage tube, *refer to page 30*.
- ▶ Hand over the operating instructions to subsequent users.

2.4.2 Personnel qualification of the operating personnel

If the machine is not used properly, people may be seriously injured or killed. To avoid accidents, each person who works with the machine must satisfy the following minimum requirements:

- He is physically capable of controlling the machine.
- He can work safely with the machine in accordance with these operating instructions.
- He understands the method of operation of the machine within the scope of his work and can identify and avoid the dangers associated with the work.
- He has read the operating instructions and can implement the information in the operating instructions accordingly.
- He is familiar with driving vehicles safely.
- For road travel he has adequate knowledge of the highway code and has the stipulated driving licence.

2.4.3 Personnel qualification of the technicians

If the work (assembly, conversion, modification, extension, repairs, retrofitting) is performed improperly on the machine, people may be seriously or fatally injured. To avoid accidents, everyone who performs work according to these instructions must meet the following minimum requirements:

- Qualified professional, with relevant training.
- Capable of assembling the (partially) disassembled machine according to the assembly instructions provided by the manufacturer.
- Capable of extending, modifying or repairing the function of the machine according to the relevant instructions provided by the manufacturer.
- Ability to perform the work safely according to these instructions.
- Understands the mode of operation of the work to be performed and the machine and is able to identify and avoid risk in carrying out the necessary work.
- Has read these instructions and is able to implement the information explained in these instructions accordingly.

2.4.4 Children in danger

Children are not in a position to assess dangers and behave unpredictably.

Thus children are particularly at risk.

▶ Keep children away from the machine.

▶ Keep children away from consumables.

▶ Make sure that there are no children in the danger zone, especially when starting and triggering machine movements.

2.4.5 Connecting the machine

When tractor and machine are not correctly connected, there is a risk of causing serious accidents.

▶ When connecting, follow all operating instructions:

- the operating instructions of the tractor
- the operating instructions of the machine, *refer to page 35*

▶ Observe the changed driving behaviour of the combination.

2.4.6 Structural modifications on the machine

Structural changes and enhancements may impair the functionality and operational safety of the machine. People may be seriously injured or killed as a result.

Structural changes and enhancements are not permitted.

2.4.7 Additional equipment and spare parts

Additional equipment and spare parts that do not correspond to the requirements of the manufacturer may affect the operational safety of the machine and cause accidents.

▶ To ensure operational safety, use original parts or standard parts which correspond to the requirements of the manufacturer.

2.4.8 Jobs on the machine

Passengers

Passengers may be seriously injured by the machine or fall off the machine and run over. Ejected objects may strike and injure passengers.

- ▶ Never carry passengers on the machine.

2.4.9 Operational safety: Technically sound condition

Operation only after proper commissioning

The operational safety of the machine is not guaranteed without proper commissioning in accordance with these operating instructions. This may result in accidents and people may be seriously or fatally injured.

- ▶ Use the machine only after proper commissioning, *refer to page 35*.

Technically sound state of the machine

Improper maintenance and setting could influence the operational safety of the machine and cause accidents. Thus there is a risk of serious injuries or death.

- ▶ All maintenance and setting work must be performed according to the chapters “Maintenance and Setting”.
- ▶ Before performing any maintenance and setting work, shut down and safeguard the machine, *refer to page 22*.

Danger resulting from damage to the machine

Damage to the machine may impair the operational safety of the machine and cause accidents. As a result, people may be seriously injured or killed. The following parts of the machine are particularly important for safety:

- Safety Devices
- Connecting devices
- Lighting
- Hydraulics

If there are doubts about the operational safety of the machine, for example due to an unexpected change to the operational behaviour, visible damage or leaking consumables:

- ▶ Shut down and safeguard the machine, *refer to page 22*.
- ▶ Immediately eliminate potential causes of damage, for example heavy soiling, or tighten slack screws.
- ▶ Determine the cause of damage according to these operating instructions and repair the damage, if possible, *refer to page 113*.
- ▶ In case of damage which may affect operational safety and cannot be repaired according to these operating instructions: Have damage repaired by a qualified service centre.

Technical limit values

If the technical limit values of the machine are not observed, the machine may be damaged. As a result, accidents may occur and people may be seriously or fatally injured. With regard to safety, it is especially important to observe the following technical limit values:

- maximum permitted operating pressure of the hydraulics
- maximum permitted drive speed
- maximum permitted axle loads of the tractor
- maximum permitted transport height and width

▶ Comply with limit values, *refer to page 32*.

2.4.10 Danger zones

If the machine is switched on, its surrounding can present a danger zone.

Avoid entering the danger zone of the machine by observing the minimum safety distance.

If the safety distance is not observed, people may be seriously injured or killed.

▶ Do not switch on the drives and engine if the minimum safety distance has not been observed.

▶ If people fail to observe the minimum safety distance, switch off the drives.

▶ Switch the machine off in shunting and field mode.

The safety distance is:

For machine in shunting and field mode	
In front of the machine	3 m
Behind the machine	5 m
On either side of the machine	3 m

For machine switched on without driving motion	
In front of the machine	3 m
Behind the machine	5 m
On either side of the machine	3 m

The safety distances specified here are minimum distances in terms of intended use. If necessary, these safety distances must be increased according to the operating and ambient conditions.

▶ Before working in front of and behind the tractor and in the danger zone of the machine: Shut down and secure the machine, *refer to page 22*. This also applies to brief inspection work.

▶ Consider the information in all relevant operating instructions:

- the operating instructions of the tractor
- the operating instructions of the machine

Danger zone between tractor and machine

People standing between the tractor and machine may be seriously injured or killed if the tractor rolls away or by carelessness or machine movements:

▶ Before carrying out any work between the tractor and the machine: Always turn off and secure the machine, *refer to page 22*. This also applies to brief inspection work.

▶ If the lifting device must be actuated, instruct all people to keep away from the range of movement of the lifting device.

Danger zone when drive is switched on

When the drive is switched on, there is a danger to life caused by rotating machine parts. Ensure that there are no persons in the danger zone of the machine.

- ▶ Before starting the machine, instruct all people to leave the danger zone of the machine.
- ▶ In case of dangerous situations, immediately switch off drives and instruct people to leave the danger zone.

2.4.11 Ensuring functionality of safety devices

If safety devices are missing or damaged, people may be seriously injured or killed by moving machine parts.

- ▶ Replace damaged safety devices.
- ▶ Mount dismounted safety devices and machine parts again before start-up and move them to protective position.
- ▶ If it is doubtful whether all safety devices have been correctly installed and are functional, have a service centre check them.

2.4.12 Personal protective equipment

The wearing of personal protective equipment is an important safety measure. Missing or unsuitable personal protective equipment increases health risks and injuries.

Personal protective equipment is for example:

- Suitable protective gloves
- Safety boots
- Close fitting protective clothing
- Hearing protection
- Safety glasses

- ▶ Specify and provide personal protective equipment for the particular job.
- ▶ Use only personal protective equipment which is in proper condition and offers effective protection.
- ▶ Adjust personal protective equipment to the person, for example the size.
- ▶ Remove unsuitable clothing and jewellery (e.g. rings, necklaces) and cover long hair with a hairnet.

2.4.13 Safety markings on the machine

Safety labels on the machine caution against dangers at danger areas and represent an important part of the safety equipment of the machine. Missing safety labels increase the risk of serious and fatal injuries.

- ▶ Clean dirty safety labels.
- ▶ Make sure every time after cleaning the safety labels that they are complete and legible.
- ▶ Immediately replace missing, damaged and unrecognizable safety labels.
- ▶ Provide spare parts with intended safety labels.

Descriptions, explanations and order numbers of safety labels,*refer to page 23*.

2.4.14 Road safety

Dangers during road travel

Other road users can be put at risk when you drive on public roads and the machine is not properly illuminated and/or exceeds the maximum dimensions and weights laid down by national law.

- Prior to driving on public roads, ensure that the maximum permissible dimensions, weights and axle, support and trailer loads are not exceeded which are applicable under national law for driving on public roads.
- Before driving on roads, switch on the road travel lighting and ensure that it functions properly.
- Before driving on roads, close all stop cocks for the hydraulic supply to the machine between tractor and machine.
- Before driving on roads, move the tractor control units to the neutral position and lock them.

Danger when driving on road and field

Hitched and mounted machines change the handling characteristics of the tractor. The handling characteristics depend for instance on operating state and ground. If changed handling characteristics are not considered, the driver may cause accidents.

- Observe measures for driving on road and field, *refer to page 95*.

Dangers if the machine is not prepared properly for road travel

If the machine is not prepared properly for road travel, serious accidents may occur with traffic.

- Before driving on roads, prepare the machine for road travel, *refer to page 95*.

Danger when cornering with a hitched machine and due to the overall width

Accidents may occur when cornering due to the machine swinging out and also due to the overall width.

- Consider the overall width of the combined tractor and machine.
- Consider the larger swivel range when cornering.
- Consider people, oncoming traffic and obstacles when turning.

Dangers when operating the machine on slopes

The machine may tilt when it is used on slopes. As a result, accidents may occur and people may be seriously injured or killed.

- Do not work and drive on a slope unless the ground of the slope is flat and the adhesion of the tyres to the ground is ensured.
- Turn the machine at low speed. Turn in a large arc.
- Avoid driving across a slope because the centre of gravity of the machine will be changed by payload and by executing machine functions.
- Avoid abrupt steering movements on slopes.
- On slopes always deposit a round bale in such a way that it cannot move on its own.
- Do not park the machine on slopes.

2.4.15 Parking the machine safely

An incorrectly parked and insufficiently safeguarded machine can represent a danger for people, especially children, and can be set into motion or fall over in an uncontrolled manner. People may be injured or killed.

- Park the machine on a horizontal and level ground capable of bearing the load.
- Before adjusting, repairing, servicing and cleaning the machine, ensure that it is securely positioned.
- Observe section “Parking the Machine” in chapter Driving and Transport.*refer to page 96*
- Before parking: Shut down and safeguard the machine, *refer to page 22*.

2.4.16 Consumables

Unsuitable consumables

Consumables which do not comply with the requirements of the manufacturer may impair the operational safety of the machine and cause accidents.

- Use only consumables which comply with the requirements of the manufacturer.

For requirements on consumables, *refer to page 33*.

Environmental protection and disposal

Consumables such as diesel fuel, brake fluid, antifreeze and lubricants (e.g. gearbox oil, hydraulic oil) may damage the environment and the health of people.

- Do not release consumables into the environment.
- Fill consumables in a liquid-tight labelled container and dispose of according to the official regulations.
- Absorb leaked consumables with an absorbent material, fill them in a liquid-tight labelled container and dispose of according to the official regulations.

2.4.17 Dangers arising from environment

Fire hazard

Combustible materials may accumulate in the machine due to operation or animals, such as rodents or nesting birds, or dust resuspension.

In case of dry usage conditions, dust, impurities and crop residue may ignite on hot parts and the resulting fire may seriously injure or kill people.

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

Behavior in the case of voltage flashover of overhead lines

High electric voltage may be applied to electrically conducting parts of the machine due to voltage flashover. In case of voltage flashover, a voltage drop where major voltage differences are present is created on the ground around the machine. Due to major voltage differences in the ground, people may be killed by electric shocks when making big steps, laying on the ground or supporting themselves with their hands.

- ▶ Do not leave the cabin.
- ▶ Do not touch any metal parts.
- ▶ Do not establish any conductive connection to the ground.
- ▶ Warn people: Do not approach the machine. Electrical voltage differences on the ground may lead to severe electric shocks.
- ▶ Wait for help from professional rescue teams. The overhead line must be switched off.

If people have to leave the cabin despite the voltage flashover, for example because there is an imminent danger to life due to fire:

- ▶ Avoid simultaneous contact with machine and ground.
- ▶ Jump away from the machine. Jump into a safe standing position. Do not touch the machine from the outside.
- ▶ Move away from the machine in very small steps keeping your feet close together.

2.4.18 Sources of danger on the machine

Noise may damage your health

The noise development of the machine during operation may cause health damage such as hardness of hearing, deafness or tinnitus. When using the machine at high rotational speed, the noise level also increases. The height of the sound pressure level depends mainly on the tractor used. The emissions value was measured with closed cabin under the conditions specified in DIN EN ISO 4254-14, *refer to page 32*.

- ▶ Before starting up the machine, estimate the risk caused by noise.
- ▶ Depending on the ambient conditions, working hours and the working and operating conditions of the machine, specify and use suitable hearing protection.
- ▶ Specify rules for the use of hearing protection and for the working time.
- ▶ During operation keep windows and doors of the cabin closed.
- ▶ Remove hearing protection for road travel.

Liquids under high pressure

The following liquids are under high pressure:

- Hydraulic oil

Liquids escaping under high pressure may penetrate through the skin and cause severe injuries.

- Shut down and safeguard the machine and contact qualified specialist workshop upon suspicion of damaged hydraulic system.
- Never search for leaks with bare hands. Even a very pin-sized hole may lead to serious injuries.
- When searching for leaks, use suitable aids, e.g. a piece of cardboard to avoid injuries.
- Keep body and face away from leaks.
- If liquids penetrate the body, immediately consult a doctor. The liquid must be removed from the body as quickly as possible.

Hot liquids

Persons can suffer burns and/or scalding when hot liquids are drained.

- Wear personal protective equipment when hot consumables are drained.
- If necessary, allow liquids and machine parts to cool down before you start repair, maintenance and cleaning work.

Damaged hydraulic hoses

Damaged hydraulic hoses may tear off, burst or cause oil leaks. As a result, the machine may be damaged and people may be seriously injured.

- Shut down and safeguard the machine, *refer to page 22*.
- If it is suspected that hydraulic hoses are damaged, immediately contact a service centre, *refer to page 111*.

2.4.19 Dangers in connection with certain activities: Working on the machine

Only perform work when the machine is at standstill

If the machine is not shut down and safeguarded, parts may move unintentionally or the machine may start moving. Thus there is a risk of serious injuries or death.

- Before carrying out any repair, maintenance and cleaning work on the machine, shutdown and safeguard it, *refer to page 22*.

Maintenance and repair work

Improper maintenance and repair work endanger operational safety. Thus there is a risk of accidents, serious injuries or death.

- Only perform work which is described in this operating instructions. Prior to any work, stop and safeguard the machine, *refer to page 22*.
- All other maintenance and repair work must only be performed by qualified specialist workshop.

Working at or on heights of the machine

There is a risk of falling when working at or on heights of the machine. As a result, accidents may occur and people may be seriously or fatally injured.

- ▶ Prior to any work, stop and safeguard the machine, *refer to page 22*.
- ▶ Make sure you stand securely.
- ▶ Use a suitable fall protection.
- ▶ Secure the area below the assembly point against falling objects.

Raised machine and machine parts

The raised machine and machine parts may fall or tilt unintentionally. People may be seriously injured or killed, as a result.

- ▶ Do not stay under the raised machine or machine parts which are not safely supported, *refer to page 22*.
- ▶ Prior to all work on raised machines or machine parts, lower the machine or machine parts.
- ▶ Before performing any work under raised machines or machine parts, secure the machine or machine parts with rigid safety support or with hydraulic shut-off device or by supporting against lowering.

Danger associated with welding work

Improper welding work will endanger the operational safety of the machine. As a result, accidents may occur and people may be seriously or fatally injured.

- ▶ Never perform welding work on the following components:
  - Gearbox
  - Components of the hydraulics
  - Components of the electronics
  - Frame or supporting components
- ▶ Before carrying out welding work on the machine, obtain consent by KRONE customer service and, if required, identify alternatives.
- ▶ Before performing welding work on the machine, park the machine safely and disconnect it from the tractor.
- ▶ Welding work must only be performed by experienced qualified personnel.
- ▶ Attach the earthing of the welding device near the welding points.
- ▶ Caution when performing welding work near electric and hydraulic parts, plastic parts and pressure accumulators. The parts may be damaged, endanger people or cause accidents.

2.4.20 Behaviour in dangerous situations and in case of accidents

Any measures not taken or incorrect measures in dangerous situations can make it difficult or impossible to rescue exposed persons. Due to the impeded conditions of rescue, the chances to help and heal injured people deteriorate.

- ▶ As a matter of principle: Park the machine.
- ▶ Get an overview of the existing danger and identify the reason.
- ▶ Secure the accident site.
- ▶ Save persons from the danger zone.

- Leave danger zone and do not enter it again.
- Alarm rescue workers and seek help, if possible.
- Carry out immediate lifesaving actions.

2.5 Safety routines

2.5.1 Shutting down and safeguarding the machine

⚠ *WARNING*

Risk of injury due to movement of the machine or machine parts

If the machine has not been shut down, machine or machine parts may move unintentionally. As a result, people may be seriously injured or killed.

- Before leaving the operating position: Shut down and safeguard the machine.

To shut down and safeguard the machine:

- Park the machine on a stable, horizontal and level ground.
- Switch off the drives and wait until coasting parts have come to a complete stop.
- Lower the machine all the way to the ground.
- Switch off the tractor engine, remove the ignition key and take it with you.
- Secure the tractor against rolling away.

2.5.2 Securing raised machine and machine parts against lowering

⚠ *WARNING*

Crushing hazard due to movement of machine or machine parts

If the machine or machine parts are not secured against lowering, the machine or machine parts may roll, fall or sag. Thus people could be squeezed or killed.

- Lower the raised machine parts.
- Shut down and safeguard the machine, *refer to page 22*.
- Before working on or under raised machine parts: Secure machine or machine parts against lowering by means of hydraulic shut-off device (e.g. stop cock) on machine side.
- Before working on or under raised machine parts: Safely support machine or machine parts.

In order to safely support the machine or machine parts:

- To support, only use suitable and sufficiently dimensioned materials that do not break or yield.
- Bricks and hollow blocks are not suitable for safely supporting the machine and machine parts. Therefore they must not be used.
- Car jacks are also not suitable for safely supporting the machine and machine parts. They must not be used, as well.

2.5.3 Carrying out oil level check and oil and filter element changes safely

⚠ WARNING

Carrying out oil level check and oil and filter element changes safely

If oil level check and oil and filter element changes are not carried out safely, the operational safety of the machine may be impaired. This may result in accidents.

- ▶ Carry out oil level check and oil and filter element changes safely.

To carry out oil level check, oil and filter element changes safely:

- ▶ Lower raised machine parts or secure them against falling, *refer to page 22*.
- ▶ Shut down and safeguard the machine, *refer to page 22*.
- ▶ Observe the intervals for oil level check, oil and filter element changes, *refer to page 102*.
- ▶ Use only the oil grades and quantities specified in the consumables table, *refer to page 33*.
- ▶ Clean the area around the parts (for example gearbox, high-pressure filter) and make sure that no foreign objects get into the parts or the hydraulic system.
- ▶ Check existing seal rings for damage and replace them, if necessary.
- ▶ Collect leaking or waste oil in a container designated for the purpose and dispose of it properly, *refer to page 18*.

2.5.4 Running actuator test

⚠ WARNING

Run actuator test safely

When actuators are energised, functions are carried out directly and without a safety prompt. This may cause the unintentional movement of machine parts, trapping and seriously or fatally injuring persons.

- ✓ Only persons familiar with the machine are permitted to perform the actuator test.
- ✓ The person performing the test must know which machine parts are activated by controlling the actuators.
- ▶ Run the actuator test safely.

To run the actuator test safely:

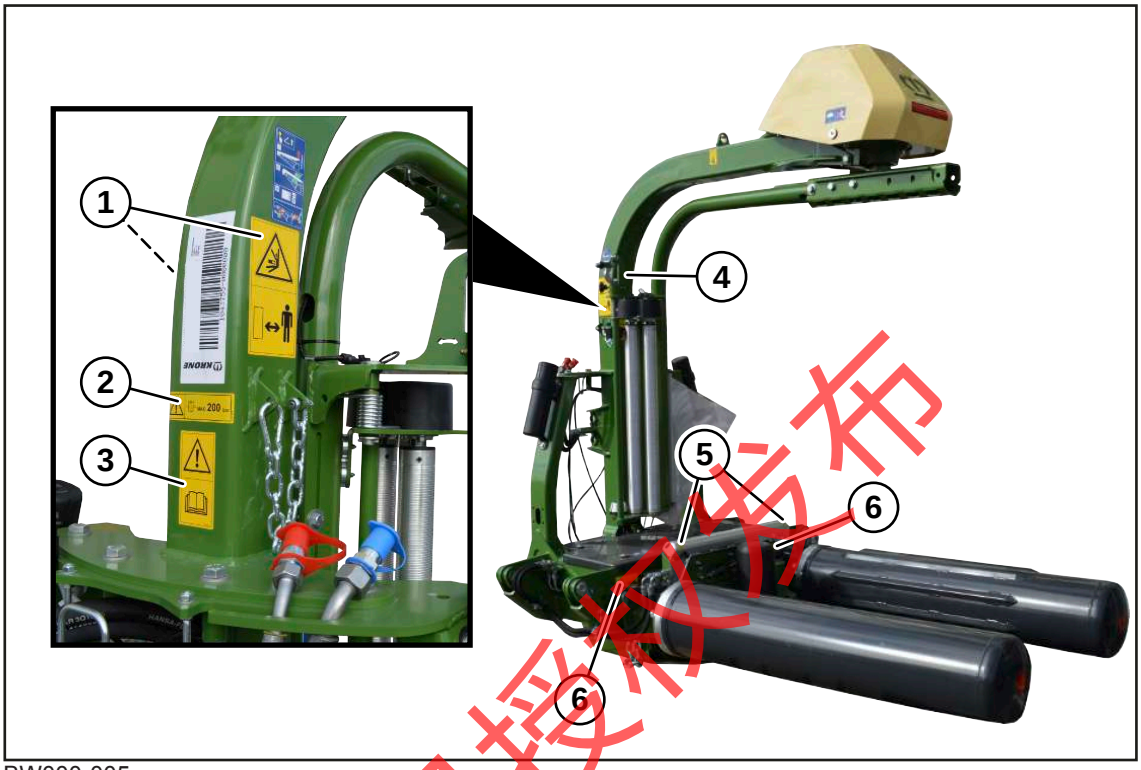
- ▶ Lower raised machine parts or secure them against falling, *refer to page 22*.
- ▶ Shut down and secure the machine, *refer to page 22*.
- ▶ Cordon off the danger zone of the actuated moving machine parts in a clearly visible manner.
- ▶ Ensure that there is nobody in the danger zone of the actuated moving machine parts.
- ▶ Switch on the ignition.
- ▶ The actuator test must only be performed from a safe position outside the area that is affected by machine parts moved by the actuators.

2.6 Safety labels on the machine

Every safety label is provided with an order number and can be ordered directly from the authorised KRONE dealer. Immediately replace missing, damaged and unrecognisable safety labels.

When attaching safety labels, the contact surface on the machine must be clean and free of dirt, oil and grease to ensure optimum adhesion of the labels.

Position and meaning of safety labels



BW000-005

1. Ord. no. 942 235 0 (2x)

	**Danger due to impact** There is danger to life due to the swivel movement of the machine. ▶ Ensure that there is no one in the swivel range of the machine. ▶ Maintain an adequate distance from moving machine parts.

2. Ord. no. 27 027 207 0 (1x)

	**Danger from exceeding the maximum admissible operating pressure** If the maximum permitted operating pressure is exceeded, hydraulic parts may be damaged. ▶ Observe the permitted operating pressure.

3. Ord. no. 939 471 1 (1x)

	**Danger due to incorrect operation and lack of knowledge** Incorrect operation and lack of knowledge of the machine as well as incorrect behaviour in hazardous situations is risking the life of the operator and third parties. ▶ Before starting up the machine, read and follow the operating instructions and safety instructions.

4. Ord. no. 27 013 422 0 (1x)

	**Danger due to impact** Risk of injury from the rolling bale. ▶ Ensure that no one remains in the danger zone.

5. Ord. no. 27 014 591 0 (2x)

	**Danger from sharp blades.** There is danger of being cut when reaching into the danger zone of the blades ▶ Wear cut-resistant protective gloves.

6. Ord. no. 942 459 0 (2x)

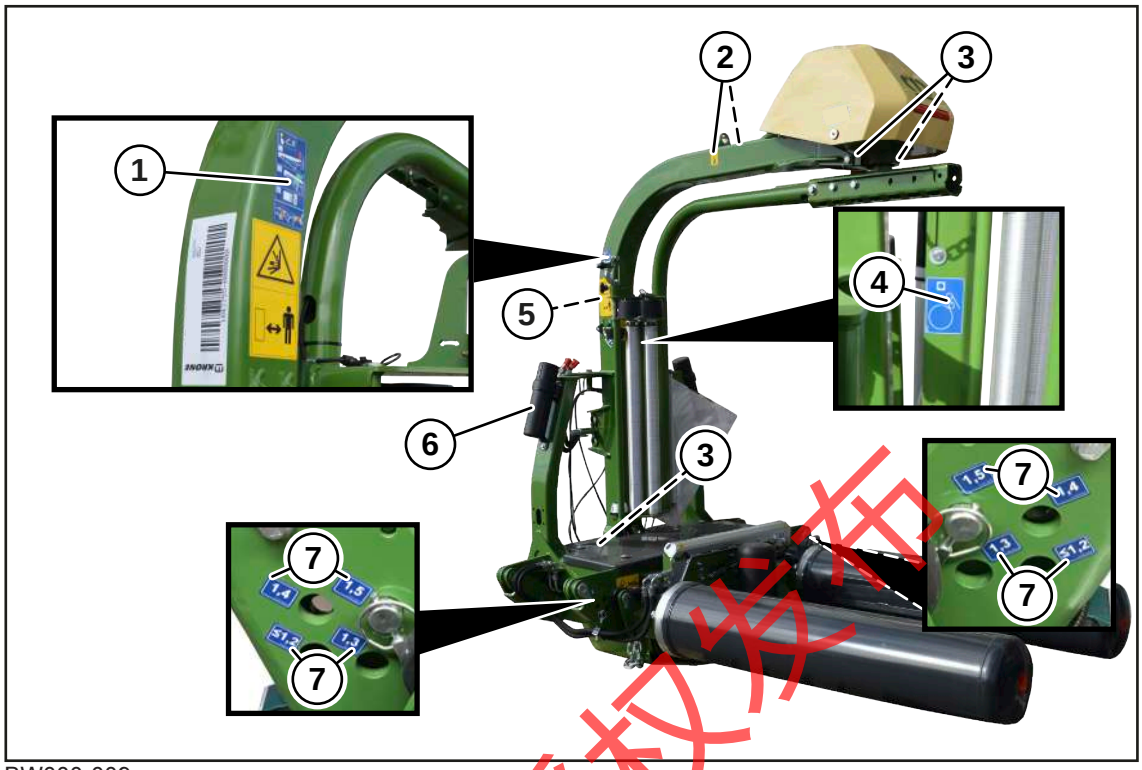
	**Danger due to crushing or shearing** Risk of injury due to crushing or shearing points on moving machine parts. ▶ While parts are moving, never reach into areas where there is a risk of being crushed.

2.7 Information labels on the machine

Each information label has an order number. You can order the labels directly from your KRONE dealer. Replace missing, damaged and illegible information labels immediately.

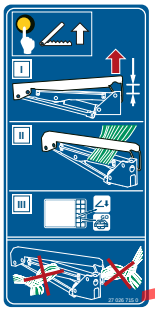
Prior to attaching an information label, ensure that the contact surface on the machine is clean and free of dirt, oil and grease so that the label can adhere to properly.

Location and meaning of the information labels

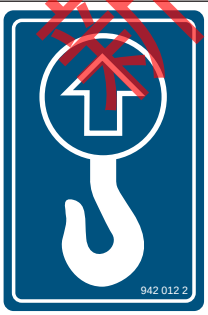


BW000-009

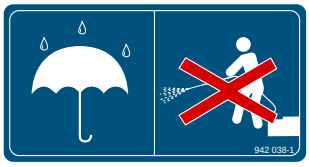
1. Ord. no. 27 026 715 0 (1x)

	To reinsert the film into the holding and cutting device, you can release the holding arm either with the key on the machine or via the terminal, *refer to page 47*. Subsequently, close the holding and cutting device via the terminal. Never knot the film to the holding and cutting device.

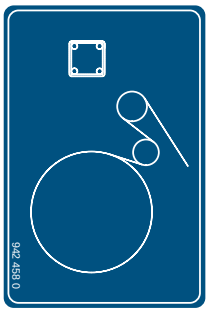
2. Ord. no. 942 012 2 (2x)

	The lifting points on the machine are marked with this label, *refer to page 98*.

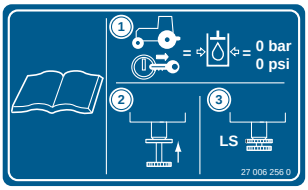
3. Ord. no. 942 038 1 (3x)

	Areas marked with this label shall be protected against splashing water. Never direct the water jet of a high-pressure cleaner at bearings and electric/electronic components.

4. Ord. no. 942 458 0 (1x)

	The film path shows how the film is to be inserted into the film stretching device, *refer to page 46*.

5. Ord. no. 27 006 256 0 (1x)

	The machine can be operated with Load Sensing. This requires the following procedure: ▶ Switch off the tractor engine, remove the ignition key and take it with you (1). ⇨ The hydraulic system is depressurised. ▶ Screw in the system screw until it hits the stop (2). ➡ The machine can only be operated with tractors that are equipped with a Load Sensing system (3). For details *refer to page 40*.

6. Ord. no. 27 027 206 0 (1x)

	This label marks the waste container that can be used to store film residues for disposal, *refer to page 51*.

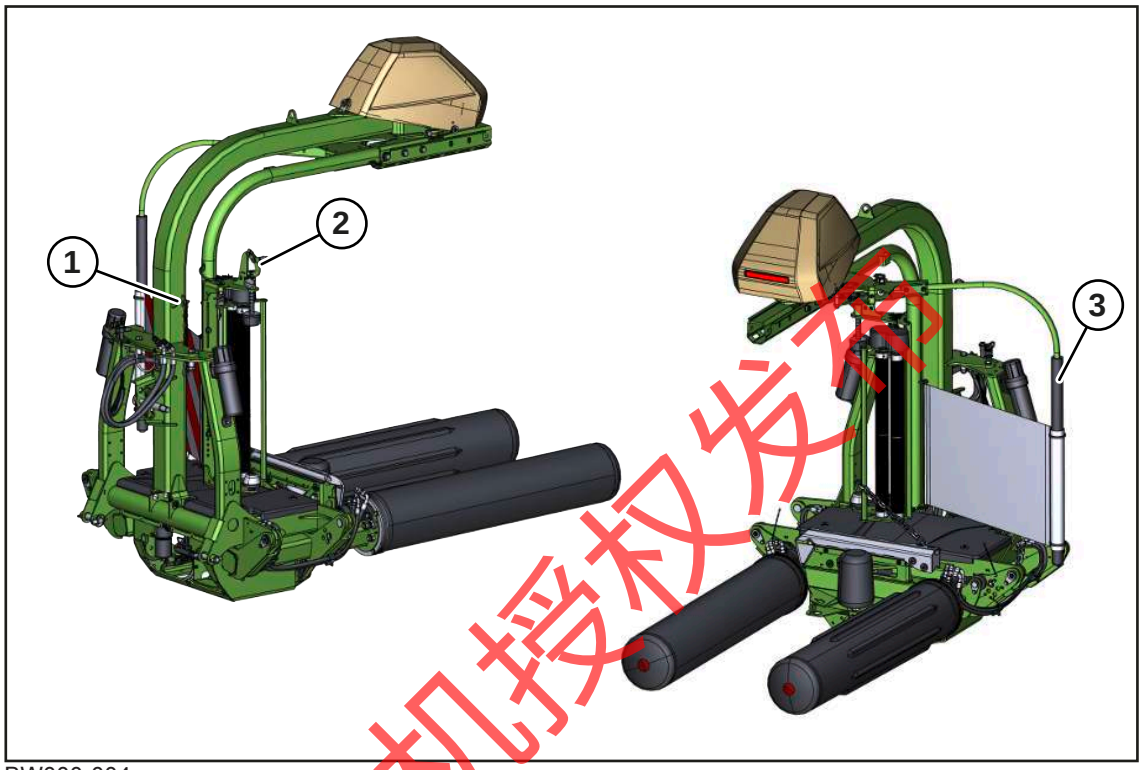
7. Ord. no. 27 027 436 0, 27 027 437 0, 27 027 438 0, 27 027 439 0 (2x each)

	These labels mark the positions to select the bale diameter of the round bales that are to be wrapped, *refer to page 100*.

- Ord. no. 27 021 260 0

	There are several lubrication points on the machine which must be lubricated at regular intervals, *refer to page 103*. Lubrication points that are not directly visible are additionally marked with this information label.

2.8 Safety equipment



BW000-004

Pos.	Designation	Explanation
1	Supporting chain for the wrapping arm	• Secure the wrapping arm with the supporting chain when you drive on a road, *refer to page 97*.
2	Securing the film roll	• The film roll must be secured after it has been inserted, *refer to page 46*.
3	Safety bracket	• If the safety bracket hits an obstacle, the complete wrapping process is stopped immediately and the wrapping arm stops, *refer to page 44*.

3 Data memory

A variety of electronic components of the machine contains data memories which save temporarily and permanently technical information on machine condition, events and errors. This technical information generally documents the condition of a part, module, system or of the environment:

- Operating states of system components (e.g. filling levels)
- Status messages of the machine and its single components (e.g. number of revolutions of wheel, wheel speed, motion delay, lateral acceleration)
- Malfunctions and defects in important system components (e.g. light and brakes)
- Reactions of machine in special driving situations (e.g. actuation of airbag, installing stability control systems)
- Ambient conditions (e.g. temperature)

These data are exclusively of a technical nature. They are used to detect and remedy errors as well as to optimize machine functions. There is no possibility to create motion profiles on driven routes from these data.

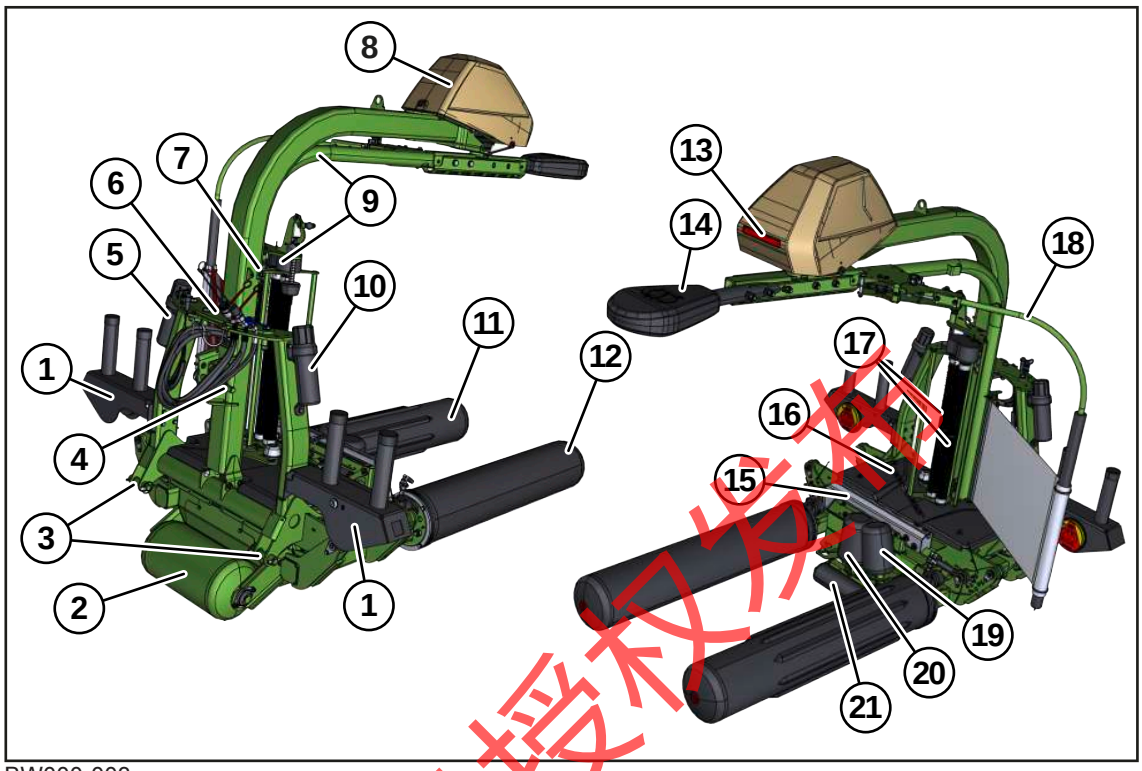
If services are used (e.g. repair services, service processes, warranty cases, quality assurance), this technical information can be read out by employees of service network (including manufacturer) from the event and error data memories by means of special diagnostic units. There you receive further information, if necessary. After the error has been remedied, the information in the error storage is either deleted or continuously overwritten.

When using the machine, situations are possible in which these technical data in connection with other information (accident protocol, damage to the machine, testimonies etc.) could become transferable to people - if applicable in consultation with an expert.

Additional functions regulated by a contractual agreement with the customer (e.g. remote maintenance) permit the transmission of certain machine data from the machine.

4 Machine description

4.1 Machine overview



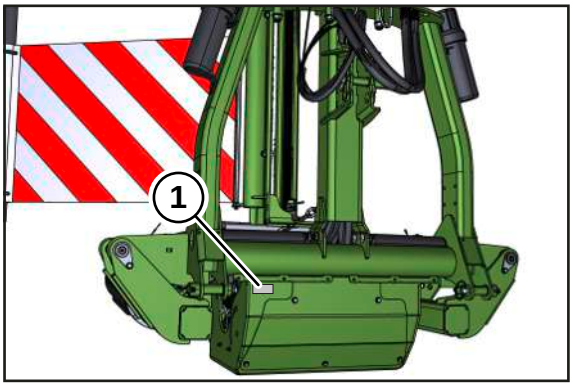
BW000-003

1 Film roll holder (in "film roll holder" version)
2 Ground roll (in "ground roll" version)
3 Hitch for the lower link
4 Hitch for the top link
5 Document storage tube
6 Hose and cable support
7 Supporting chain for the wrapping arm
8 Gearbox of the wrapping arm with brake
9 Wrapping arm with film stretching device
10 Waste container for film residues
11 Corrugated roller (loading arm)
12 Flat roller (loading arm)
13 Rear brake light
14 Counterweight (in "counterweight" version)
15 Holding and cutting device
16 Safety chain to restrict the oscillation of the loading arms
17 Stretch rolls
18 Safety bracket with safety cut-off
19 Additional bale roll (in "additional bale roll" version)
20 Bale roll
21 Bale turner (in "bale turner" version)

4.2 Marking

INFORMATION

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



BW000-020

The machine data is specified on a type plate (1). It sits on the right-hand machine side.

Information for enquiries and orders

DVG000-004

Example image

1 Type
2 Machine number (Masch.Nr.)
3 Model year
4 Year of manufacture

For inquiries about the machine and for ordering spare parts, please specify type (1), machine number (2) and year of manufacture (4) of the particular machine. To ensure that the data is always available, KRONE recommends that you enter it in the boxes on the front cover of these operating instructions.

5 Technical data

Dimensions	
Width in transport position	1,430 mm
Height	2,390 mm
Length	2375 mm

Weights	
Total weight of the machine (incl. all accessories kits)	945 kg

Round bales	
Round bale size (max. diameter)	1500 mm
Round bale size (max. width)	1250 mm
Round bales max. permissible weight	1600 kg

Film for the wrapping device	
Film width	750 mm
Film pre-stretching	55% or 70%
Film core diameter	Ø 75 ... 80 mm
Film roll diameter	Ø 225 mm

Minimum requirements for the tractor	
Operating pressure of hydraulic system (min.)	140 bar
Operating pressure of hydraulic system (max.)	200 bar
Max. oil temperature	80° C
Minimum oil quality	Oil ISO VG 46
Delivery capacity hydraulics (min.)	25 L/min
Delivery capacity hydraulics (max.)	60 L/min

Electrical connections	
Electr. connection for road travel lighting (7-pole plug)	12 volts
Electr. connection for operation (3-pole plug)	12 volts

Necessary hydraulic connections at the tractor	
Hydraulic connection (T)/depressurised return in the tank	1x
Single-acting hydraulic connection	1x

In "connection hydraulics LS" version

Necessary hydraulic connections at the tractor	
Pressure connection Power Beyond (P)	1x
Load Sensing connection Power Beyond (LS)	1x
Pressureless return connection Power Beyond (T)	1x

Airborne noise emission	
Emissions value (sound pressure level)	63.9 dB
Measurement device	Bruel & Kjaer, Type 2236
Accuracy class	2
Measurement uncertainty (according to DIN EN ISO 11201)	4 dB

Ambient temperature	
Temperature range for machine operation	-5 to +45 °C

5.1 Consumables

NOTICE

Complying with change intervals for biooils

To ensure high life expectancy of the machine, it is absolutely necessary to comply with change intervals for biooils due to the ageing of the oils.

NOTICE

Machine damage due to mixing of oil

If oils, which have different specifications, are mixed with each other, the machine may be damaged.

- ▶ Never mix oils, which have different specifications, with each other.
- ▶ Contact your KRONE service partner before using an oil with a different specification after changing the oil.

Biodegradable consumables can be used on request.

5.1.1 Oils

Designation	Filling quantity	Specification
Gearbox wrapping arm	750 g	GFO 35

5.1.2 Lubricating greases

A lubricating grease according to DIN 51818 of NLGI class 2 (Li soap with EP additives) must be used for the lubrication points. KRONE recommends not using lubricating greases with any other base material.

The filling quantity is as required. Lubricate the lubrication points until lubricating grease comes out of the bearing position. After lubricating, remove the grease coming out of the bearing position.

6 Initial operation

This chapter describes assembly and adjustment work on the machine which may be carried out by qualified technicians only. Here, the notice “Personnel qualification of technicians” applies,*refer to page 13*.

⚠ WARNING

Risk of injury or damage to the machine due to faulty initial operation

If the initial operation is carried out incorrectly or incompletely, the machine may present defects. As a result, people may be injured or killed or the machine may be damaged.

- ▶ Initial operation must only be carried out by authorised technicians.
- ▶ Read in full and observe the “Personnel qualification of technicians”,*refer to page 13*.

⚠ WARNING

Risk of injury due to non-observance of relevant safety notices

If the relevant safety notices are not observed, persons may get seriously injured or killed.

- ▶ To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING

Risk of injury due to non-observance of safety instructions

If the relevant safety routines are not observed, persons may be seriously injured or killed.

- ▶ The safety routines must be read and observed to avoid accidents, *refer to page 22*.

6.1 Checklist for initial operation

- ✓ All the screws and nuts have been checked to make certain they are tight and tightened to the specified tightening torques, *refer to page 106*.
- ✓ The safety devices are mounted and checked for completeness and damage.
- ✓ The machine is fully lubricated, *refer to page 103*.
- ✓ The hydraulic system has been checked for leaks.
- ✓ The tractor corresponds to the machine requirements, *refer to page 32*.

7 Commissioning

⚠ WARNING

Risk of injury due to non-observance of relevant safety notices

If the relevant safety notices are not observed, persons may get seriously injured or killed.

- To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING

Risk of injury due to non-observance of safety instructions

If the relevant safety routines are not observed, persons may be seriously injured or killed.

- The safety routines must be read and observed to avoid accidents, *refer to page 22*.

⚠ WARNING

Risk of injury or damage to the machine due to connection lines which have been incorrectly connected, interchanged or improperly installed

If the connection lines of the machine have been incorrectly connected to the tractor or have been improperly installed, they may pull off or be damaged. This may result in serious accidents. If connection lines are interchanged, functions may inadvertently be actuated which may also result in serious accidents.

- Correctly connect and secure the hoses and cables.
- Lay the hoses, cables and ropes so that they do not scrape, come under tension or become jammed or come into contact with other components (e.g. tractor tyres).
- Couple and connect the hoses and cables to the designated connections as described in the operating instructions.

7.1 Calculating the ballasting of the tractor-machine combination

⚠ WARNING

Danger due to wrong weight distribution in the tractor-machine combination

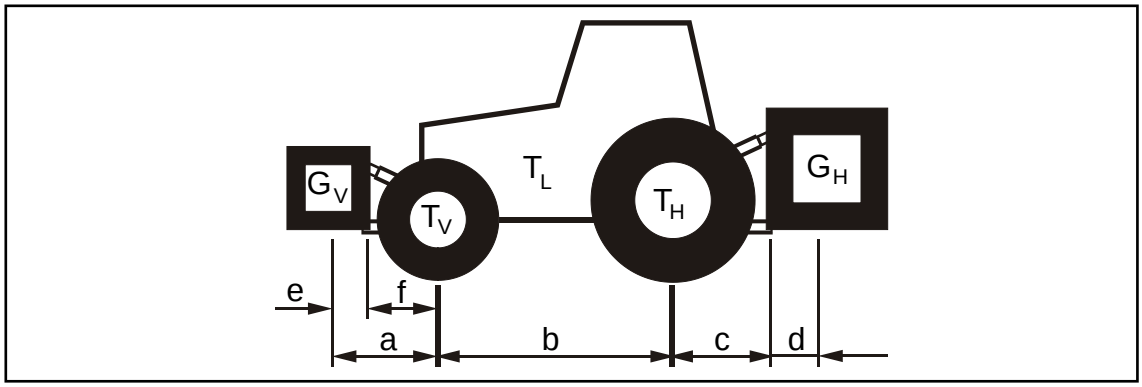
Due to wrong weight distribution in the tractor-machine combination, people may be seriously or fatally injured.

- Before starting up the tractor-machine combination, check the following requirements and, if required, adjust according to the operating instructions.

When attaching implements at the front and rear, the permitted total weight, the permitted axle loads and the tyre load capacity of the tractor must not be exceeded. These specifications can be found on the type plate, in the vehicle registration document or in the operating instructions for the tractor.

Even with an implement mounted at the rear, the front axle of the tractor must always be loaded with at least 20% of the tare weight of the tractor.

- To ensure the suitability of the tractor, perform the following calculation before mounting the implement on the tractor:



Abbreviations for calculating the ballasting			
TL	[kg]	Tare weight of the tractor	See operating instructions for the tractor
TV	[kg]	Front axle load of the empty tractor	See operating instructions for the tractor
TH	[kg]	Rear axle load of the empty tractor	See operating instructions for the tractor
GH	[kg]	Total weight implement mounted at the rear/rear weight	See price list and/or operating instructions for the machine
GV	[kg]	Total weight of implement mounted at the front/front ballast	See price list and/or operating instructions for the machine
a	[m]	Distance between centre of gravity of implement mounted at the front/ front ballast and middle of front axle	See price list and/or operating instructions for the machine Measuring
b	[m]	Wheel base of the tractor	See operating instructions for the tractor Measuring
c	[m]	Distance between middle of rear axle and middle of lower link ball	See operating instructions for the tractor Measuring
d	[m]	Distance between middle of lower link ball and centre of gravity of implement mounted at the rear/rear weight	See price list and/or operating instructions for the implement
e	[m]	Distance between middle of lower link ball and centre of gravity of implement mounted at the front	
f	[m]	Distance between front axle and middle of lower link ball	

Calculation of the minimum ballasting at front $G_{V\ min}$ for implements mounted at the rear and front and rear combinations

$$G_{V\ min} = \frac{G_H \bullet (c+d) - T_V \bullet b + 0{,}2 \bullet T_L \bullet b}{(e+f)+b}$$

- Enter the calculated minimum ballasting, which is required at the front of the tractor, in the table.

Calculation of the minimum ballasting at rear $G_{H\ min}$ for implements mounted at the front

$$G_{H\ min} = \frac{G_V \bullet (e+f) - T_H \bullet b + x \bullet T_L \bullet b}{b+c+d}$$

- For "x" observe the technical data of the tractor manufacturer. If "x" is not indicated, insert the value 0.45.
- Enter the calculated minimum ballasting, which is required at the rear of the tractor, in the table.

Calculation of the actual front axle load $T_{V\ tat}$

$$T_{V\ tat} = \frac{G_V \bullet (e+f+b) + T_V \bullet b - G_H \bullet (c+d)}{b}$$

- Enter the actual front axle load and the permitted front axle load, indicated in the operating instructions for the tractor, in the table.

Calculation of the actual total weight G_{tat}

$$G_{tat} = G_V + T_L + G_H$$

- If the required minimum ballasting at rear ($G_{H\ min}$) is not reached with the implement mounted at the rear (G_H), the weight of the implement mounted at the rear must be increased to the weight of the minimum ballasting at rear.
- Enter the calculated, actual total weight and the permitted total weight, indicated in the operating instructions for the tractor, in the table.

Calculation of the actual rear axle load $T_{H\ tat}$

$$T_{H\ tat} = G_{tat} - T_{V\ tat}$$

- Enter the calculated, actual rear axle load and the permitted rear axle load, indicated in the operating instructions for the tractor, in the table.

Tyre load capacity

- Enter double the value (two tyres) of the permitted tyre load capacity (see e.g. documents of the tyre manufacturers) in the table.

Table

The minimum ballasting must be attached to the tractor as a mounted implement or ballast weight. The calculated values must be less than/equal to (≤) the permitted values.

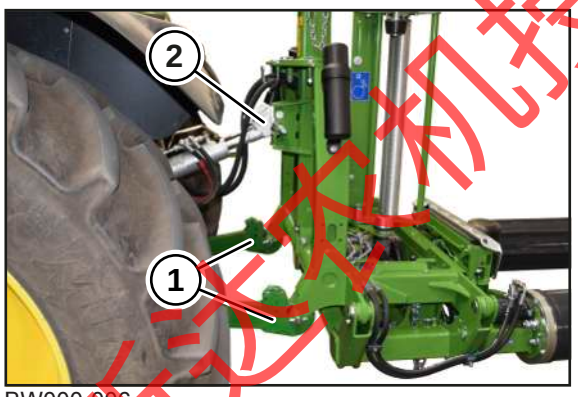
	Actual value according to calculation		Permitted value according to operating instructions for the tractor		Double permitted tyre load capacity (two tyres)
Minimum ballasting Front/rear	/ kg		—		—
Total weight	kg	≤	kg		—
Front axle load	kg	≤	kg	≤	kg
Rear axle load	kg	≤	kg	≤	kg

7.2 Connecting machine to the tractor

NOTICE

When attaching implements at the front and rear, the permitted total weight, the permitted axle loads and the tyre load capacity of the tractor must not be exceeded. Even with an implement mounted at the rear, the front axle of the tractor must always be loaded with at least 20% of the tare weight of the tractor.

- Prior to starting the trip, ensure that these conditions are met, *refer to page 35*.



BW000.006

WARNING! Increased risk of injury! Ensure that there is no one between the tractor and the machine while connecting the machine (especially while driving the tractor backwards).

- Reverse the tractor to the machine and position the lower links (1) underneath the lower link pins of the machine.
- Raise the lower links (1) until they engage in the ball sleeves and lock.
- Switch off the tractor, remove the ignition key and take it with you.
- Secure the tractor against rolling away.
- Engage the top link (2) at the three-point hitch, and secure it.
- Fix the lower links to avoid that the machine swivels sideways when driving on a road and when working on the field.

7.3 Connecting hydraulic hoses

⚠ WARNING

Risk of injury from escaping hydraulic oil

The hydraulic system operates at very high pressure. Escaping hydraulic oil may seriously injure skin, limbs and eyes.

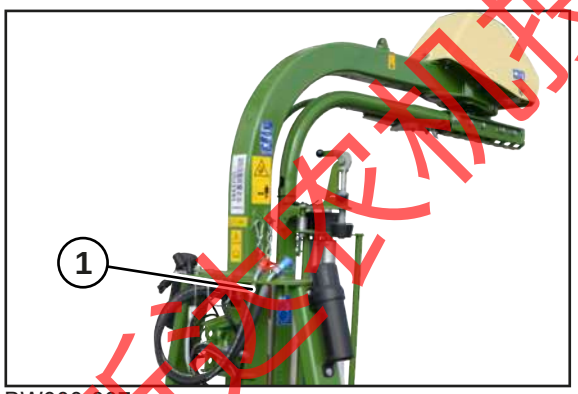
- ▶ Before connecting the hydraulic hoses to the machine, depressurise the hydraulic system on both sides.
- ▶ Before uncoupling the hoses and performing work on the hydraulic system, depressurise the hydraulic system.
- ▶ When connecting the quick couplings, ensure that they are clean and dry.
- ▶ Check hydraulic hoses at regular intervals *refer to page 111* and replace them if they are damaged (e.g chafing areas or points of contact) or aged. The replacement lines must comply with the technical requirements of the device manufacturer.

NOTICE

Damage to the machine due to soiling of the hydraulic system

If foreign objects or liquids get into the hydraulic system, the hydraulic system may be severely damaged.

- ▶ When connecting the quick couplings, ensure that they are clean and dry.
- ▶ Check the hydraulic hoses for abrasion and pinch point and replace if required.



BW000-007

- ▶ Depressurise the tractor hydraulics.
- ▶ Shut down and safeguard the machine, *refer to page 22*.
- ▶ Clean and dry the connections of the hydraulic quick connector.

Hydraulic connection for the return flow to the tank (T)

- ▶ Connect the hydraulic hose (blue) to the pressureless return line of the tractor.

Pump / pressure hydraulic connection (P)

- ▶ Connect the hydraulic hose (red) to a single-acting control unit of the tractor.

In "connection hydraulics LS" version

For tractors with Load Sensing system

✓ The system screw of the hydraulic system has been fully screwed in, *refer to page 40*.

- ▶ Connect the hydraulic hose (red, P) to the Power Beyond pressure connection of the tractor.
- ▶ Connect the hydraulic hose (blue, T) to the pressureless Power Beyond return connection.
- ▶ Connect the hydraulic hose (green, LS) to the Power Beyond Load Sensing connection on the tractor.

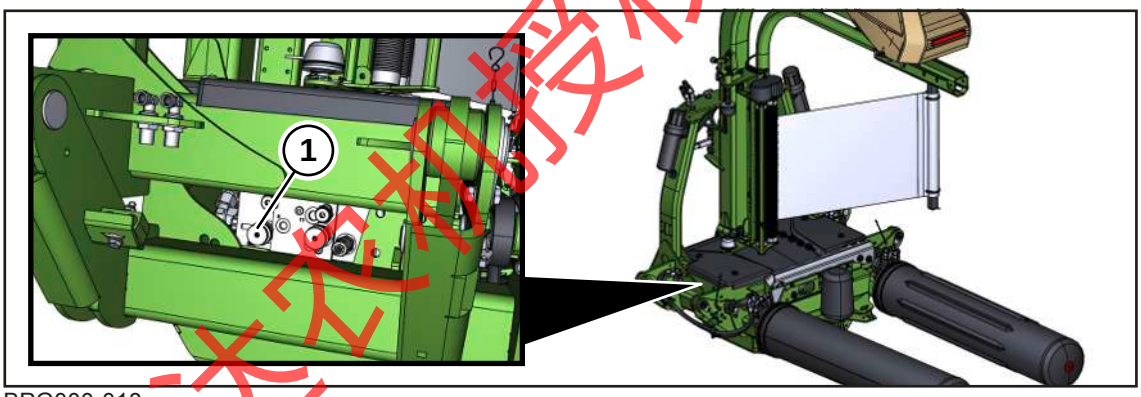
For tractors with constant flow system

✓ The system screw of the hydraulic system has been fully unscrewed, *refer to page 40*.

- ▶ Connect the hydraulic hose (red, P) to the pressure connection of the tractor.
- ▶ Connect the hydraulic hose (blue, T) to the pressureless return connection.
- ▶ Do not use the hydraulic connection (green, LS) and place in the holder on the machine.

7.4 Adapting hydraulic system

In "connection hydraulics LS" version



BPG000-018

- ▶ Move the control units on the tractor into float position.
- ▶ Depressurise the hydraulic system on the tractor and the machine.

Operation of the machine on tractors with constant flow system

For tractors with open hydraulic system:

- ▶ Unscrew the system screw (1) up to the stop.

Operation of the machine on tractors with Load Sensing system

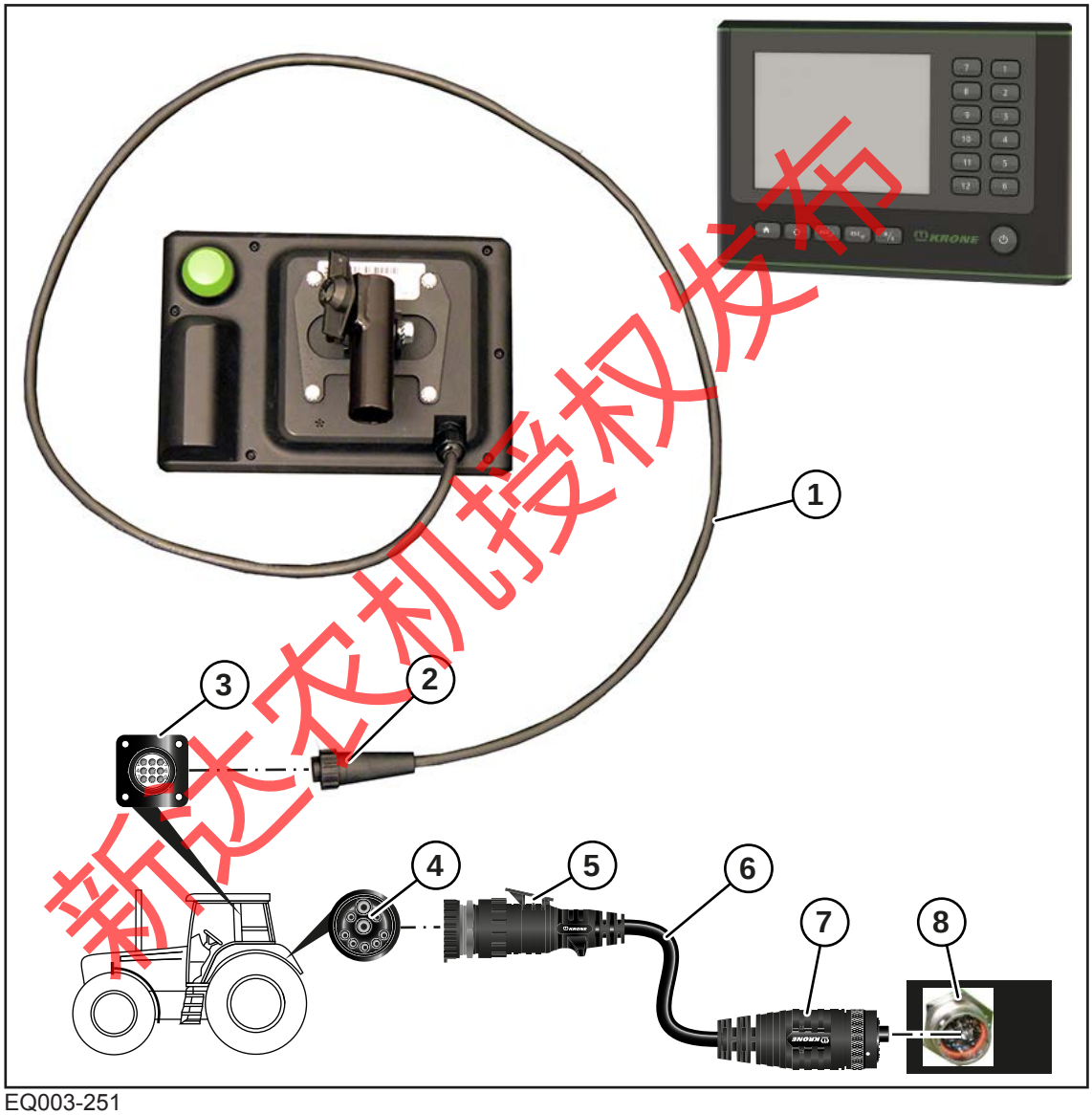
For tractors with closed hydraulic system (signal line is connected):

- ▶ Screw in the system screw (1) up to the stop.

7.5 Connecting KRONE terminal DS 500

NOTICE
Short circuit caused by impurities and moisture in the plug connection The machine may be damaged by a short circuit. ▶ Make sure that the plugs and sockets are clean and dry.

Tractors with integrated ISOBUS system



EQ003-251

✓ The machine is shut down and safeguarded, *refer to page 22*.

Connection terminal to tractor

▶ Connect the 9-pin plug (2) of the cable (1) to the 9-pin socket (3) (In-cab).

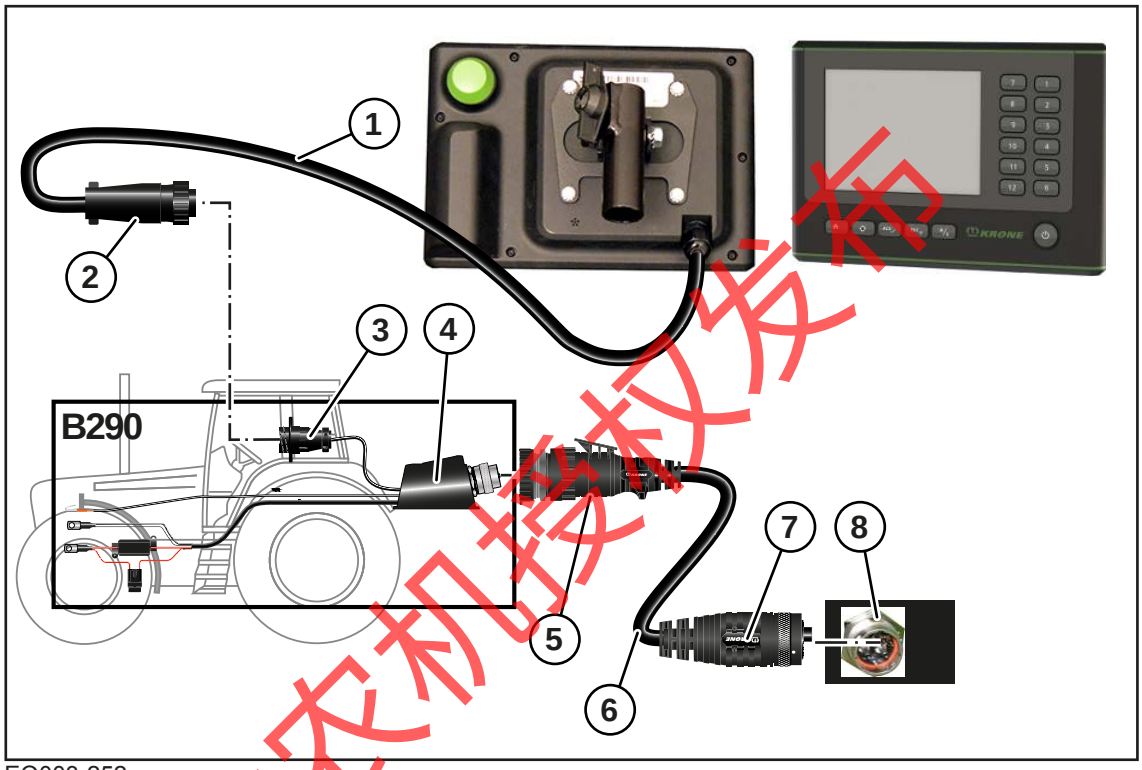
Connection tractor to machine

INFORMATION

The cable (6) can be ordered by quoting the order number 20 086 886 *.

- ▶ Connect the 9-pin plug (5) of the cable (6) to the 9-pin ISOBUS socket (4) of the tractor.
- ▶ Connect the 11-pin plug (7) of the cable (6) to the 11-pin socket (8) of the machine.

Tractors without ISOBUS system



EQ003-252

- ✓ The machine is shut down and safeguarded, *refer to page 22*.
- ✓ The accessories kit B290 “KRONE tractor retrofitting” is mounted.

Connection terminal to tractor

- ▶ Connect the 9-pin plug (2) of the cable (1) to the 9-pin socket (3) (In-cab).

Connection tractor to machine

INFORMATION

The cable (6) can be ordered by quoting the order number 20 086 886 *.

- ▶ Connect the 9-pin plug (5) of the cable (6) to the 9-pin ISOBUS socket (4) of the tractor.
- ▶ Connect the 11-pin plug (7) of the cable (6) to the 11-pin socket (8) of the machine.

7.6 Connecting the KRONE ISOBUS terminal (CCI 800, CCI 1200)

NOTICE

Short circuit caused by impurities and moisture in the plug connection

The machine may be damaged by a short circuit.

- ▶ Make sure that the plugs and sockets are clean and dry.

INFORMATION

To mount the terminal in the tractor cabin, observe the provided operating instructions of terminal.

Connecting and operating the CCI 800 or CCI 1200 does not require an ISOBUS socket in the tractor. The CCI 800 or CCI 1200 is connected directly with the cables of the machine.

- ▶ Connect the power supply cable for the terminal and the terminal connection cable from the machine directly with the terminal in the tractor.

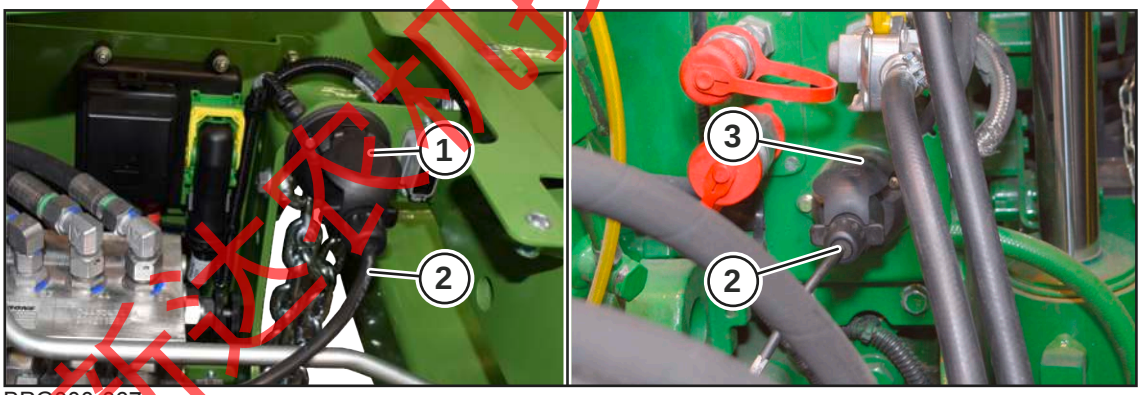
7.7 Connecting the road lighting

NOTICE

Short circuit caused by impurities and moisture in the plug connection

The machine may be damaged by a short circuit.

- ▶ Make sure that the plugs and sockets are clean and dry.

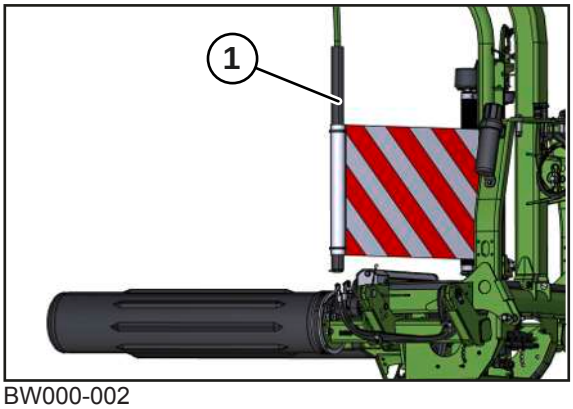


BPG000-067

The road travel lighting is connected by means of the enclosed 7-pin lighting cable (2).

- ✓ The machine is shut down and safeguarded, *refer to page 22*.
- ▶ Connect the 7-pin plug of the lighting cable (2) to the 7-pin socket (1) of the machine.
- ▶ Connect the 7-pin plug of the lighting cable (2) to the 7-pin socket (3) of the tractor.
- ▶ Lay the lighting cable (2) so that it does not touch the tractor wheels.

7.8 Check safety bracket



BW000-002

Prior to each start-up, ensure that the safety bracket (1) is functioning properly.

- Switch on the terminal.
- Move the safety bracket and check whether an error message is displayed on the terminal.
- Acknowledge the error message on the terminal.

If there is no error message displayed on the terminal during the check, have the safety brackets checked by a KRONE service partner. Do not put the machine into operation.

For an overview of the error messages*refer to page 116.*

8 Operation

⚠ WARNING

Risk of injury due to non-observance of relevant safety notices

If the relevant safety notices are not observed, persons may get seriously injured or killed.

- To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING

Risk of injury due to non-observance of safety instructions

If the relevant safety routines are not observed, persons may be seriously injured or killed.

- The safety routines must be read and observed to avoid accidents, *refer to page 22*.

⚠ WARNING

Risk of injury due to unpredictable movement of the round bales when the machine is operating on a slope

If round bales are deposited on a slope, they may start moving on their own. Once round bales have started moving, their weight and cylindrical shape may cause serious accidents and injure people.

- On slopes, deposit round bales in manual mode only.
- On slopes, always deposit round bales in such a way that they cannot start moving on their own.

8.1 Picking up a round bale, starting the wrapping process and putting down the round bale

NOTICE

Too large or too heavy round bales can damage the machine

Too large or too heavy round bales can damage the machine.

- Wrap only round bales that do not exceed the maximum size and weight specified in the technical data, *refer to page 32*.

NOTICE

Inferior silage bales caused by wrapping wet crops

- Do not wrap wet crops and do not wrap round bales in the rain.
- Leave the crops to dry before pressing them into round bales and wrapping them.

- Reverse the tractor to the tied round bale in the field such that the round bale is centred between the loading arms.
- Depending on the setting in the terminal, pick up the round bale in automatic operation  or in manual operation  , *refer to page 65*.

Automatic operation

- **In "bale turner" version:** When automatic bale pick-up is activated, the loading arms automatically move together when they detect the round bale.
- The wrapping process starts automatically as soon as the round bale rests on the loading arms. The round bale is wrapped with the selected number of film layers.
- At the end of the wrapping process, the holding and cutting device automatically cuts off the film.
- If automatic bale discharge is active, the loading arms automatically move apart after the film has been cut off, and the round bale is put down.

Manual operation

▶ Press  on the terminal to start bale pick-up. Ensure that you press and hold the key until the loading arms have reached their end position after they have picked up the round bale.

▶ Press  on the terminal to start the wrapping process.

⇨ The round bale is wrapped with the selected number of film layers. At the end of the wrapping process, the holding and cutting device automatically cuts off the film.

▶ Press  on the terminal to start bale discharge. Ensure that you press and hold the key until the loading arms have reached their end position after they have put down the round bale.

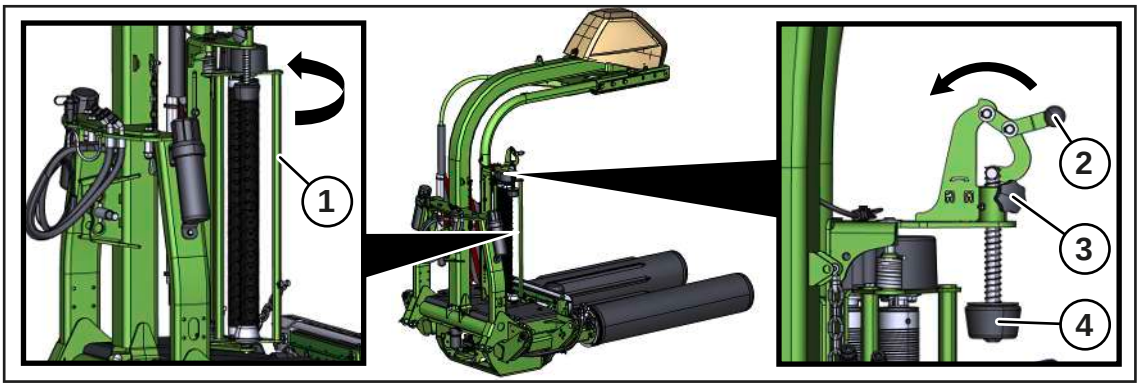
Further information about the keys on the terminal *refer to page 60*.

8.2 Inserting the film roll in the film stretching device

INFORMATION

To ensure smooth field operation, KRONE recommends one of the "KRONE excellent" films. Contact your KRONE service partner for details.

Unlocking the film holding arm



BW000-010

✓ The machine is shut down and safeguarded, *refer to page 22*.

- ▶ Move the locking handle (1) in the direction of the arrow and let it engage.
- ▶ To unlock the support roll (4), turn the star knob (3) anticlockwise.
- ▶ Move the lever (2) in the direction of the arrow and let it engage.
  - ⇨ The support roll (4) moves upwards.
- ▶ To lock the support roll (4), turn the star knob (3) clockwise.

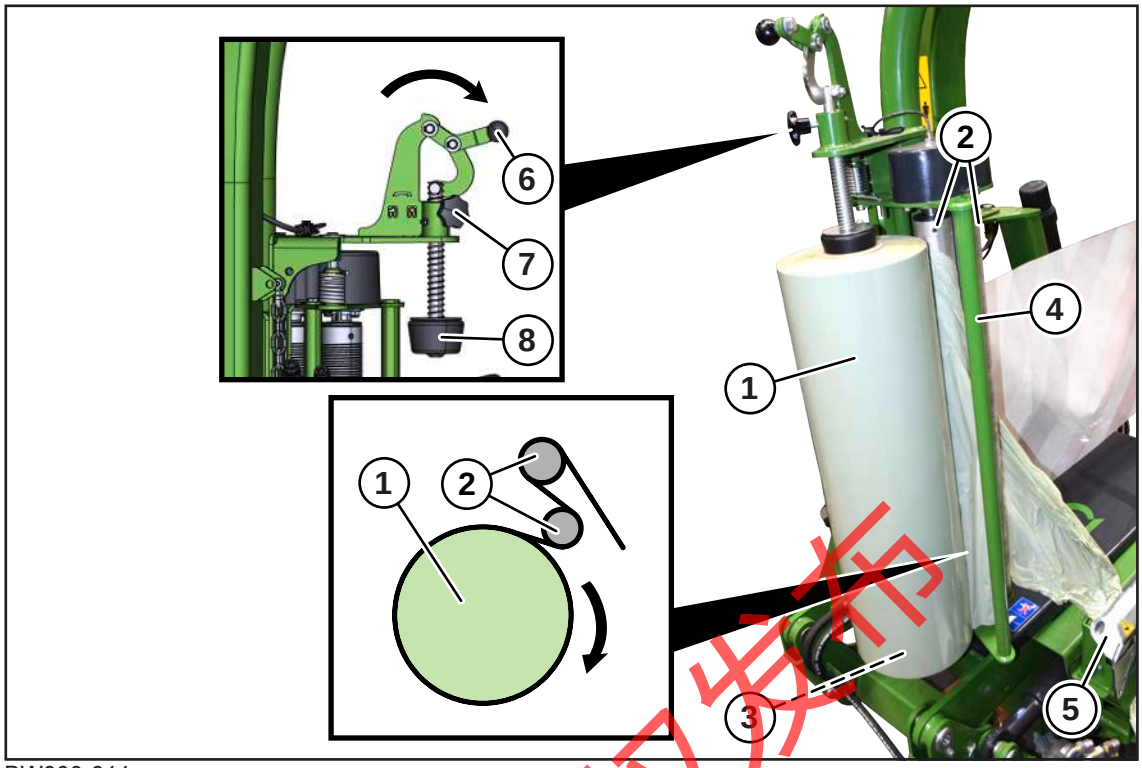
Inserting the film roll and threading the film

⚠ WARNING

Risk of injury from unforeseeable machine movements

If you stand between the loading arms to insert the film roll from the rear, there is a risk that you can be injured by moving machine parts.

- ▶ Shut down and safeguard the machine, *refer to page 22*.
- ▶ Never enter the danger zone between the loading arms.
- ▶ Always insert the film roll from the left, standing next to the machine.



BW000-011

✓ The machine is shut down and safeguarded, *refer to page 22*.

▶ To unlock the top support roll (8), turn the star knob (7) anticlockwise.

▶ Position the new film roll (1) with the core on the lower support roll (3). Ensure that the front end of the film can be unrolled as shown in the figure.

WARNING! Risk of injury or machine damage due to loss of the film roll! Clamp the film roll (1) as described below. Lock the support roll (8) and the film holding arm.

▶ To fix the film roll (1), move the lever (6) downwards to lower the top support roll (8). Ensure that the support roll (8) engages exactly in the core of the film roll (1).

▶ To lock the support roll (8), turn the star knob (7) clockwise.

▶ Move the locking handle (4) to the front and let it engage.

WARNING! Risk of injury on the stretch rolls (2)! Wear protective gloves and work carefully to avoid that your fingers are pinched at the stretch rolls when you insert the film.

▶ Thread the film between the stretch rolls (2) as shown in the figure.

▶ To operate the terminal, start the machine.

▶ To open the holding and cutting device (5), press  in the manual operation menu, *refer to page 72*.

Alternatively in the "film roll holder" version:

▶ To open the holding and cutting device (5), press  on the keypad in the machine, *refer to page 50*.

▶ Shut down and safeguard the machine, *refer to page 22*.

▶ Raise the holding arm a short way and insert the front end of the film into the holding and cutting device (5).

- ▶ Ensure that the film does not protrude by more than 10 cm from the holding and cutting device.
- ▶ To operate the terminal, start the machine.
- ▶ To close the holding and cutting device (5), press  in the manual operation menu, *refer to page 72*.

Alternatively in the "film roll holder" version:

- ▶ To close the holding and cutting device (5), press  on the keypad in the machine, *refer to page 50*.

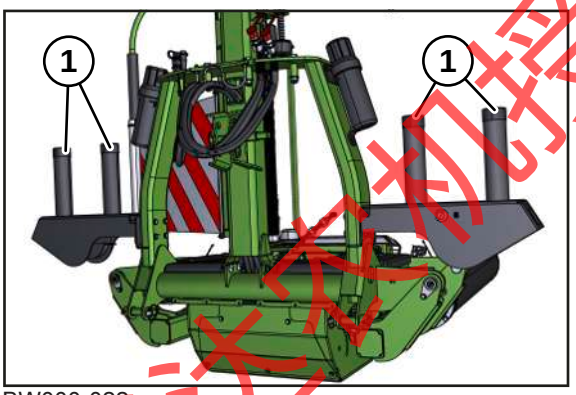
➡ After the first round bale has been wrapped, the holding arm holds the film in position.

To adjust film tear detection in the terminal *refer to page 76*.

Film residues can be collected in the waste container on the left side of the machine, *refer to page 51*.

8.3 Using the film roll holder

In "film roll holder" version



BW000-022

4 additional film rolls can be carried along on the film roll holders (1). KRONE recommends to leave the film rolls in the cardboard box to avoid damage and to protect them against the weather.

- ▶ Plug the film roll in the cardboard box with the core onto the film roll holder (1).

8.4 Checking the film of the silage bales

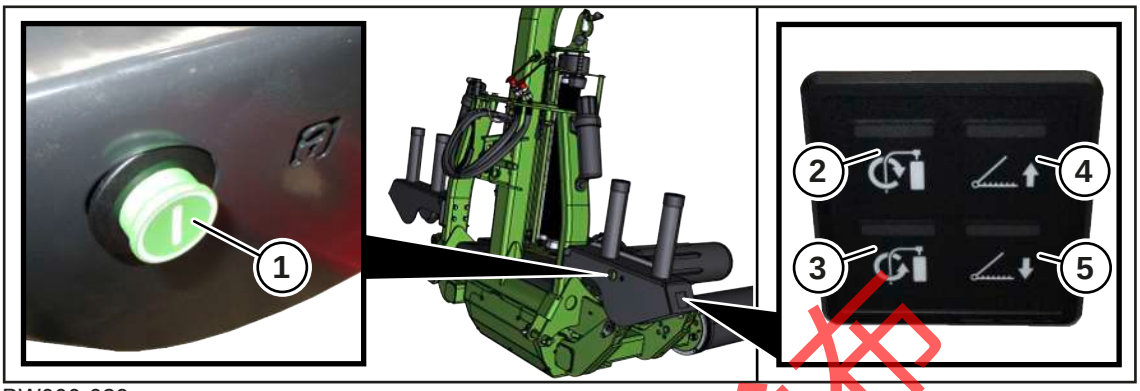
INFORMATION

KRONE is unable to honour claims for damages due to spoiling of silage because numerous factors involved are beyond the control of the manufacturer.

- ▶ After the round bales have been wrapped, check the wrapping film on the deposited silage bales for damage.
- ▶ If required, repair the wrapping film with insulating tape.

8.5 Operating the keypad (in "film roll holder" version)

Using the keypad on the film roll holder on the left side of the machine, you can move the wrapping arm or open or close the holding and cutting device. This permits these functions to be operated directly on the machine via two-hand operation. Thus, they do not have to be operated via the terminal in the tractor. Be aware that the movement of the components is slower than with operation via the terminal.



BW000-023

Icon	Explanation
(2)	Rotating the wrapping arms clockwise
(3)	Rotating the wrapping arms anticlockwise
(4)	Opening the holding and cutting device
(5)	Closing the holding and cutting device

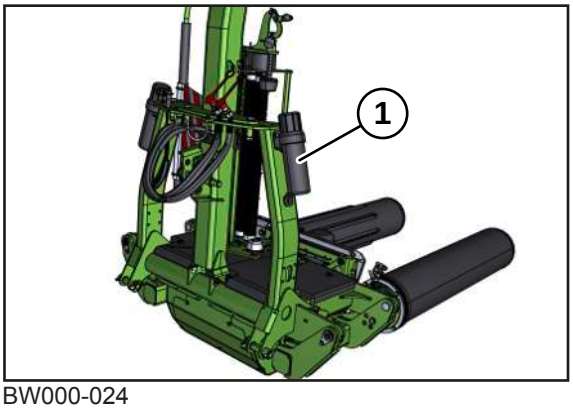
- First, press and hold the release button (1) with one hand.
- Next, using your other hand, press and hold the desired key (2), (3), (4) or (5) until the corresponding function is completed.

8.6 Using the bale turner (in "bale turner" version)

The bale turner is provided to set the round bale down on the ground on its front side after it has been wrapped. After the film has been cut, the bale turner extends automatically, thus turning the round bale onto its end face.

To activate the bale turner in the terminal *refer to page 79*.

8.7 Using the waste container on the machine



BW000-024

The waste container (1) on the left-hand side of the machine is used to deposit film residues, that are produced when loading the film, for disposal.

- ▶ Unscrew the lid of the waste container (1) and put the film residues in it.

9 KRONE Terminal DS 500

NOTICE
Penetration of water in the terminal could lead to malfunction. As a result, the machine can no longer be operated safely. ▶ Protect the terminal from water. ▶ If the machine is not used for an extended period of time (for example in winter), the terminal 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 terminal.

9.1 Touchable display

To provide menu guidance and entry of values/data, the terminal is equipped with a touch-capable display. By touching the display, you can call up and change values in blue font.

9.2 Switching terminal on/off

EQ003-253

▶ Before switching on the terminal for the first time, check that the connections are correct and tight.

INFORMATION
When the terminal is switched on for the first time, the machine configuration is loaded into the terminal and saved in the terminal memory. Loading may take a few minutes.

Switching ON

▶ Press and hold down the key (1).

⇨ If the machine is not connected, the display shows the main menu after switching on.

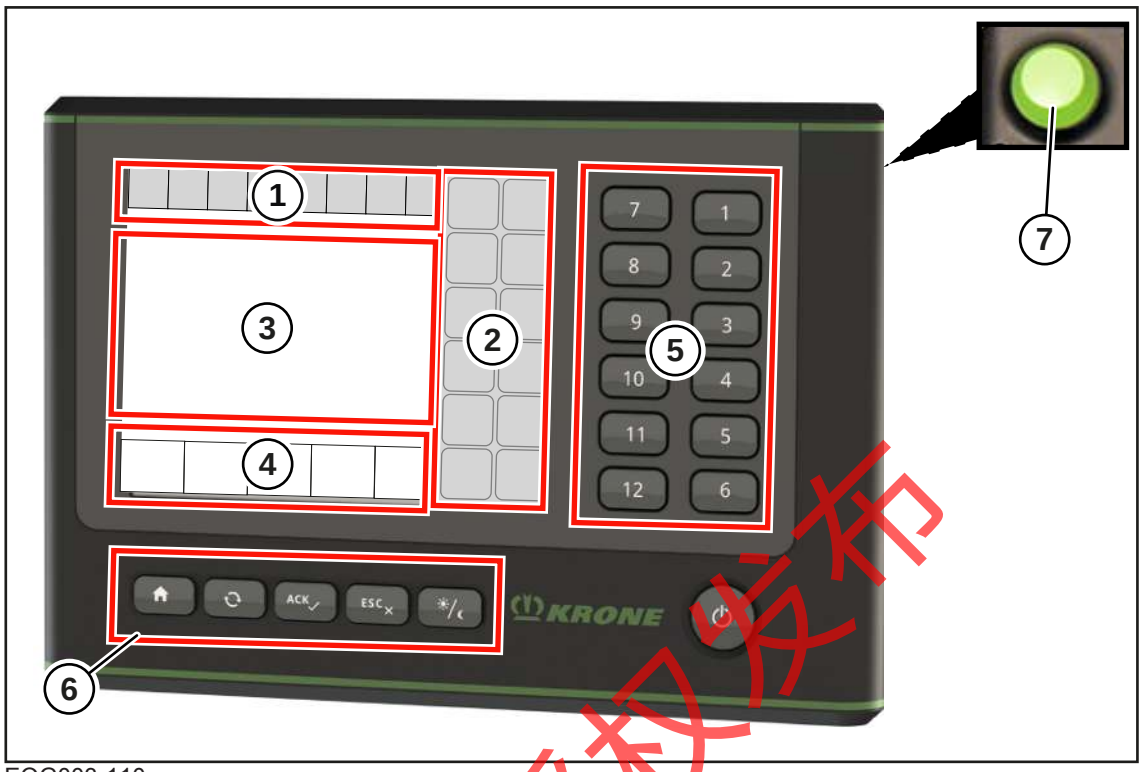
⇨ If the machine is connected, the display shows the road travel screen after switching on.

➡ The terminal is ready to operate.

Switching off

▶ Press and hold down the key (1).

9.3 Design DS 500



EQG003-110

The KRONE machine application is divided into the following areas:

Status line (1)

The status line (1) indicates current states of the machine (depending on how it is equipped), *refer to page 59*.

Keys (2)

The machine is operated by pressing the keys (2) via touch function, *refer to page 60*.

Main window (3)

Values (figures) shown in blue in the main window can be selected using the touch function.

There are the following main window views:

- Road travel screen, *refer to page 64*
- Working screen, *refer to page 62*
- Menu level, *refer to page 70*

Information bar (4)

The information bar shows information on the working screen, *refer to page 63*.

Keys (5)

Alternatively, the machine is operated by pressing the keys (5) without the touch function.

Keys (6)

The keys (6) can be used to open the main menu or the working screen and to confirm the error messages and set the brightness.

Icon	Designation	Explanation
	Main menu	Open the main menu of the terminal.
	Swap key	Switch between the main menu and the working screen of the terminal. With more than one machine mask, the views switches to the next one.
	ACK (acknowledgement key)	Confirm error messages.
	ESC (back key)	Leave the menu without saving.
	Brightness	Switch from day to night design and vice versa.

Scroll wheel (7)

Alternatively, the values (figures) shown in the main window (3) can be selected and set using the scroll wheel (7). The scroll wheel (7) can also be used to navigate between the individual menus.

Turning the scroll wheel to the right:

- Increase the value.
- Navigate to the next value in the menu.
- Navigate to the next menu.

Turning the scroll wheel to the left:

- Reduce the value.
- Navigate to the previous value in the menu.
- Navigate to the previous menu.

Press the scroll wheel:

- Select the value.
- Save the value.
- Open the menu.

10 KRONE ISOBUS terminal (CCI 800, CCI 1200)

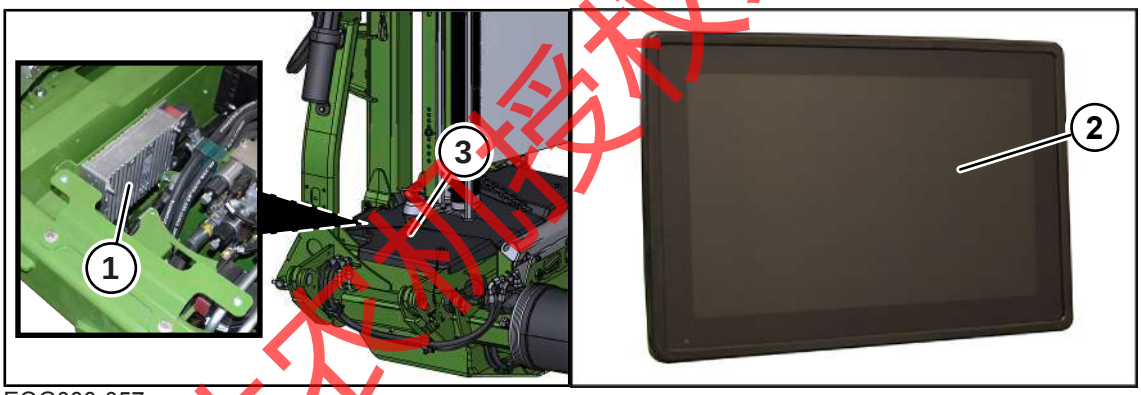
NOTICE

Penetration of water in the terminal could lead to malfunction. As a result, the machine can no longer be operated safely.

- ▶ Protect the terminal from water.
- ▶ If the machine is not used for an extended period of time (for example in winter), the terminal 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 terminal.

The ISOBUS system is an internationally standardised communications system for agricultural machines and systems. The designation of the associated series of standards is: ISO 11783. The agricultural ISOBUS system enables information and data to be exchanged between tractor and unit of different manufacturers. For this purpose, both the required plug connections and the signals are standardised which are required for the communication and transmission of commands. The system also enables machines to be operated with operation units (terminals) which are already available on the tractor or have been attached e.g. to the tractor cabin. The relevant information can be found in the technical documents of the operation device or on the units themselves.

KRONE machines, which have ISOBUS equipment, are coordinated with this system.



EQG000-057

The electronic equipment of the machine consists essentially of the job computer (1), the terminal (2) and the control and function elements.

The job computer (1) sits on the front left of the machine, behind the twine box.

The job computer (1) sits below the protective hood (3).

Functions of the job computer (1):

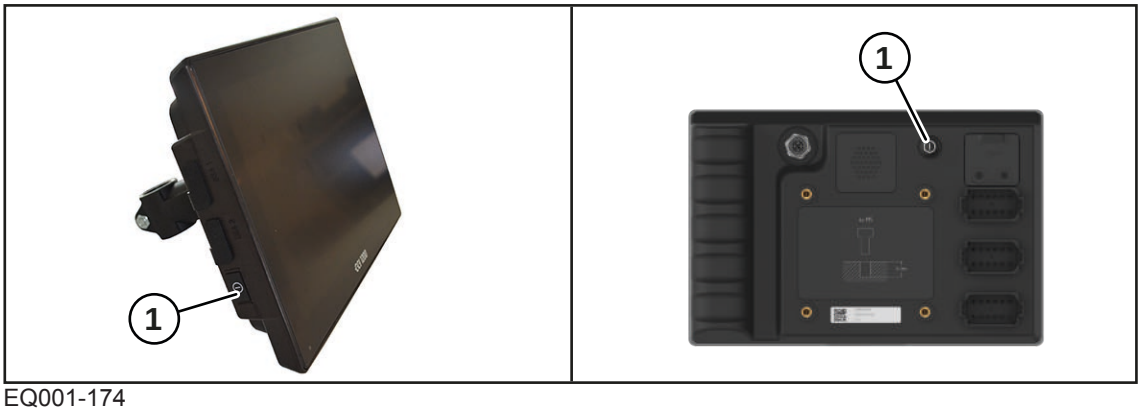
- Control of actuator system installed on the machine.
- Transmission of error messages.
- Evaluation of sensor system.
- Diagnostics of sensor system and actuator system.

The driver gets information by means of the terminal (2) and settings for the operation of the machine are performed which are gathered by the job computer and further processed.

10.1 Touchable display

To provide menu guidance and entry of values/data, the terminal is equipped with a touch-capable display. By touching the display, you can call up and change values in blue font.

10.2 Switching terminal on/off



EQ001-174

KRONE ISOBUS terminal CCI 1200	KRONE ISOBUS terminal CCI 800

- Before switching on the terminal for the first time, check that the connections are correct and tight.

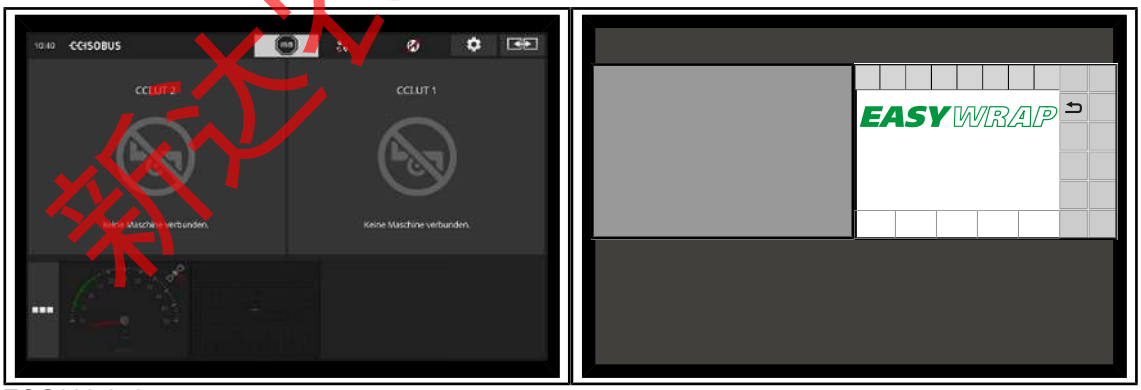
INFORMATION

When the terminal is switched on for the first time, the machine configuration is loaded into the terminal and saved in the terminal memory. Loading may take a few minutes.

Switching ON

- Press and hold down the key (1).
  - ⇨ If the machine is not connected, the display shows the main menu after switching on.
  - ⇨ If the machine is connected, the display shows the road travel screen after switching on.
- ➡ The terminal is ready to operate.

If machine is not connected: “Main menu” If machine is connected: “Road travel screen”



EQG000-056

The display appears in landscape mode after starting the terminal. Refer to the CCI terminal operating instructions if you want the display in portrait rather than landscape mode or if you wish to expand the terminal applications to full view.

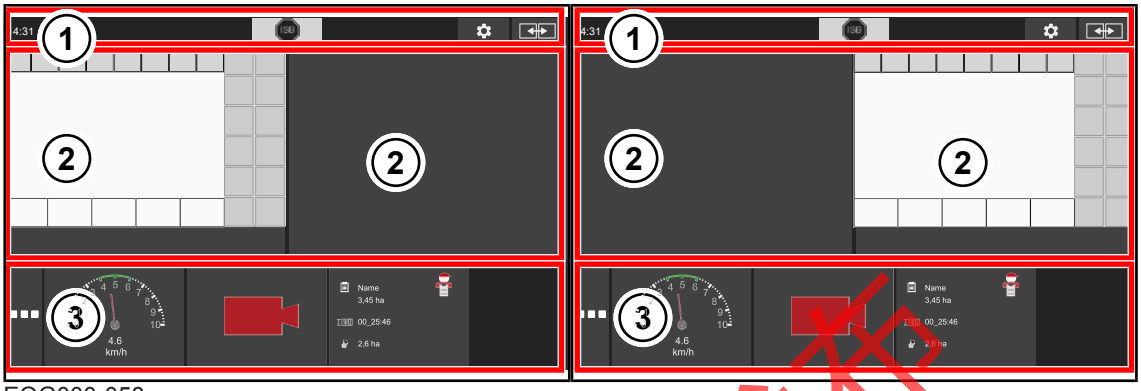
Switching off

- Press and hold down the key (1).

INFORMATION

- For more details on how the terminal functions, follow the terminal operating instructions.

10.3 Design of display



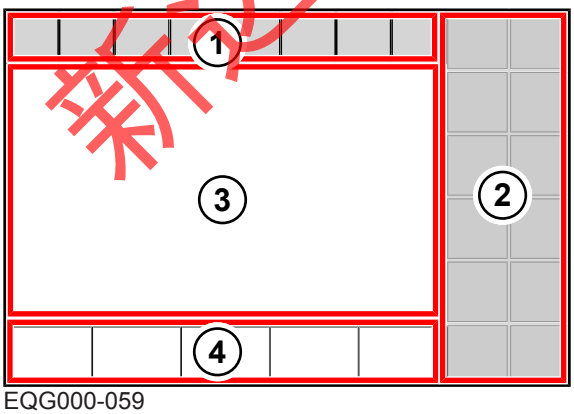
EQG000-058

Pos.	Designation	Explanation
1	Status line	
2	Main view left/right	When operating the machine, KRONE recommends positioning the machine application in the main view.
3	Information view	Additional applications (apps) can be selected from the App menu and displayed in the Information view. The apps can be dragged and dropped into the Main view.

INFORMATION

- For more details on how the terminal functions, follow the terminal operating instructions.

10.4 Design of the KRONE machine application



EQG000-059

The KRONE machine application is divided into the following areas:

Status line (1)

The status line (1) indicates current states of the machine (depending on how it is equipped), *refer to page 59*.

Keys (2)

The machine is operated by pressing the keys (2) via touch function, *refer to page 60*.

Main window (3)

Values (figures) shown in blue in the main window can be selected using the touch function.

There are the following main window views:

- Road travel screen, *refer to page 64*
- Working screen, *refer to page 62*
- Menu level, *refer to page 70*

Information bar (4)

The information bar shows information on the working screen, *refer to page 63*.

11 Terminal – Machine functions

⚠ WARNING

Personal injuries and/or machine damage caused by non-compliance of error messages

If error messages are ignored and the malfunction is not remedied, people may be injured and/or the machine may be damaged seriously.

- ▶ Remedy the malfunction when the error message is displayed, *refer to page 114*.
- ▶ If the malfunction cannot be remedied, consult a KRONE service partner.

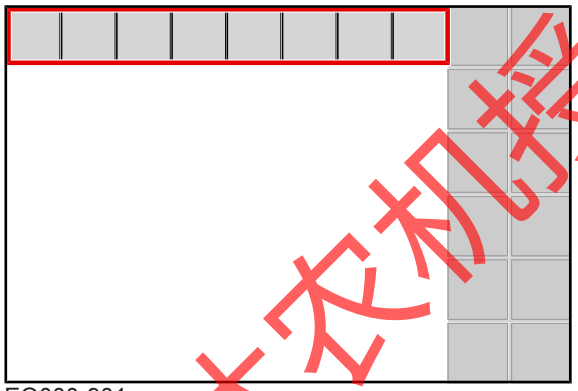
11.1 Status line

INFORMATION

Using a terminal with a resolution of less than 480x480 pixels.

On terminals with a resolution of less than 480x480 pixels, only 7 fields are displayed in the status line. Thus, not all icons for the status line are shown.

On terminal with a resolution of more than/equal to 480x480 pixels, 8 fields are shown in the status line.



EQ000-901

Icons displayed with shading ( ) can be selected. If an icon with shading is selected:

- a window with further information opens or
- a function is activated or deactivated.

The status line shows the current states of the machine (depending on how it is equipped):

Icon	Explanation
	There are one or more error messages. For version with "Touch-capable display": If this icon is pressed, the pending error messages open in sequence, *refer to page 114*.
	The bale turner is activated, *refer to page 79*
	All hydraulic functions of the machine are stopped. Either the key  was pressed or the safety bracket was actuated.

Icon	Explanation
	Bale discharge is in manual operation, *refer to page 73*
	Bale discharge is in automatic operation, *refer to page 73*
	Bale pick-up is in manual operation, *refer to page 74*
	Bale pick-up is in automatic operation, *refer to page 74*
	Film tear detection is deactivated, *refer to page 76*.
	Additional rotation of loading arms is activated, *refer to page 77*.

11.2 Keys

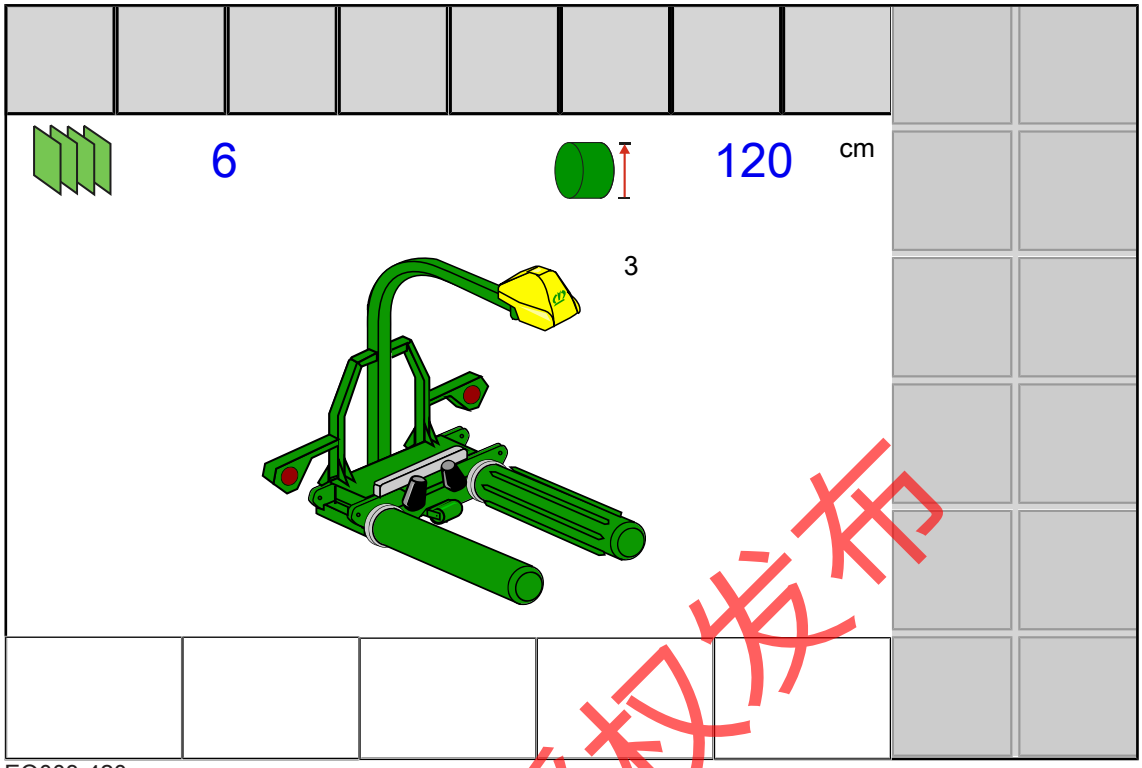
The keys that are available depend on the machine configuration. The keys listed below are not always available.

Dimmed keys are currently not available.

Icon	Designation	Explanation
	Manual operation	The selected mode of operation "Manual operation" or "Automatic operation" is shown on the key. Press the key to change the mode of operation.
	Automatic operation	
	Starting the wrapping process	Press the key to start the wrapping process. The wrapping arm rotates.
	Aborting the wrapping process	Press the key to stop the wrapping process and to cut the film.
	The wrapping arm rotates in the opposite direction	Press the key to reverse the sense of rotation of the wrapping arm. Press and hold the key until the wrapping arm reaches the desired position.
	Starting bale pick-up	Pressing the key causes the loading arms to move together. A round bale is picked up. Press and hold the key until the loading arms have reached their end position after they have picked up the round bale.
	Starting bale pick-up automatically	Only available in automatic operation. Pressing the key causes the loading arms to move together. A round bale is picked up. The time for retracting the loading arms in automatic operation can be set, *refer to page 74*.

Icon	Designation	Explanation
	Starting bale discharge	Pressing the key causes the loading arms to move apart. The wrapped round bale is put down. Press and hold the key until the loading arms have reached their end position after they have put down the round bale.
	Starting bale discharge automatically	Only available in automatic operation. Pressing the key causes the loading arms to move apart. The wrapped round bale is put down. The time for extending the loading arms in automatic operation can be set, *refer to page 74*
	Stopping the loading arms	This key appears during the wrapping process. Pressing the key causes the loading arms to stop. The round bale area currently being wrapped is wrapped repeatedly. Press and hold the key until the desired additional wrapping is completed and the loading arms shall start moving again.
	Adding additional wrapping	Only available during an active wrapping process. Pressing the key adds another wrap to the wraps already selected.
	Stopping the machine functions	Pressing the key stops all hydraulic functions, *refer to page 66*.
	Switching the machine to the road travel screen	Press the key to transfer the machine to the road travel screen, *refer to page 64*. This moves the wrapping arm to the road travel position.
	Menu level on the terminal	Press the key to open the menu level on the terminal, *refer to page 70*.
	Open the Counters menu.	Press the key to open the "Counters" menu, *refer to page 80*.

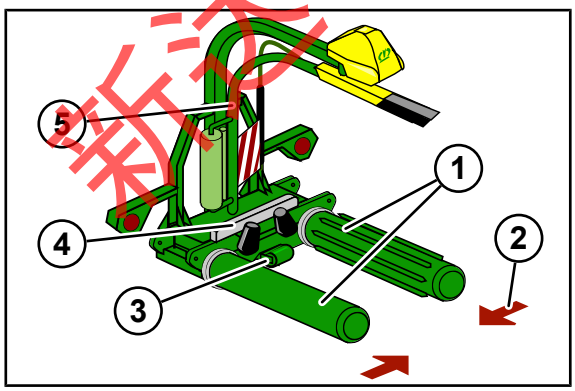
11.3 Displays on the working screen



EQ003-420

Icon	Explanation
	Selected number of film layers. Press on the blue figure to select the number of film layers in steps of 2 directly from the working screen.
	Set bale diameter. Press on the blue figure to select the bale diameter directly from the working screen.

Bale wrapper

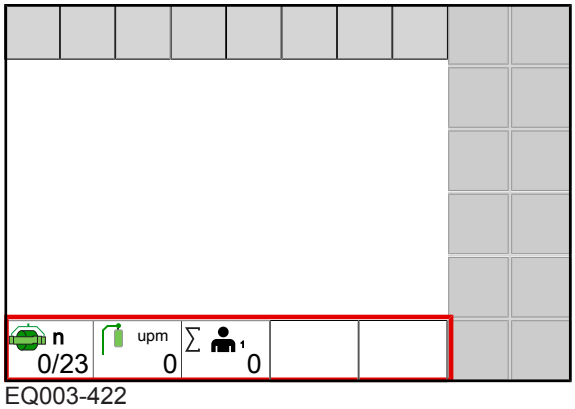


EQ003-421

The bale wrapper in the middle of the working screen shows the following positions, movements, states:

- The current positions of the loading arms (1)
- The current hydraulic movement of the machine (red arrows) (2)
- The state of the bale turner (3) (in "bale turner" version)
- The current position of the holding and cutting device (4)
- The current position of the wrapping arm (5)

11.4 Displays on the information bar



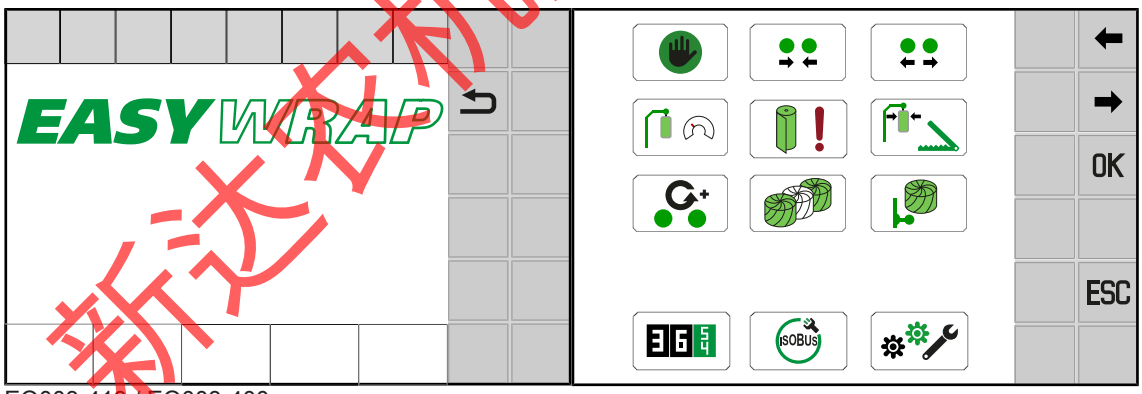
EQ003-422

Icon	Designation	Explanation
n 0/23	Number of wrappings	The status of the wrappings is displayed. In the present example, 0 of 23 wrappings are done.
upm 0	Speed of the wrapping arm	The current speed of the wrapping arm is shown in rpm (revolutions per minute).
Σ 0	Customer counter	The selected customer counter and the current total of wrapped round bales are shown.

11.5 Accessing the working screen

Road travel screen

Example menu



EQ003-419 / EQ003-400

From the road travel screen

- ▶ Press .
- ➡ The working screen is shown, *refer to page 62*.

In each menu

✓ A menu is displayed.

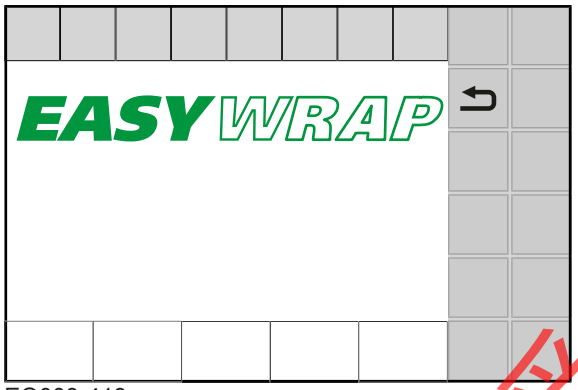
▶ Press and hold ESC for a moment.

➡ The working screen is shown, *refer to page 62*.

11.6 Call road travel screen

The road travel screen opens either automatically or can be called up manually.

Automatic call



EQ003-419

The terminal switches automatically to the Road travel screen after roughly five minutes when the following requirements are met:

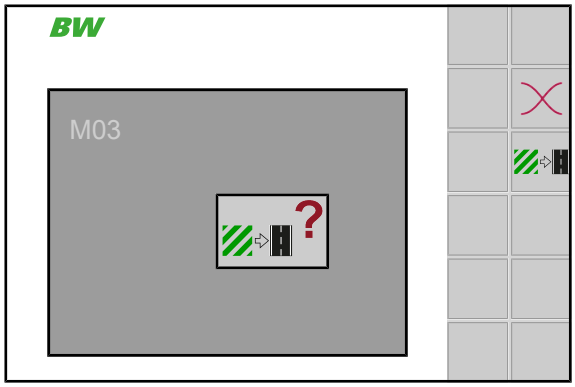
✓ There is no round bale on the loading arms.
✓ The wrapping arm is in the transport position.
✓ The machine is in field mode.

Calling the road travel screen manually

When the road travel screen is called up manually, the machine moves to road travel position.

▶ Press on the terminal to change from the working screen to the road travel screen.

⇨ The terminal displays the following prompt:



EQ003-427

- ▶ Press  to acknowledge the prompt.
- ➡ The wrapping arm moves to road travel position.
- ➡ The holding and cutting device is closed.
- ➡ The loading arms move inwards.
- ➡ The bale turner is retracted.

11.7 Activating automatic or manual operation

Activating automatic operation

In automatic operation, all functions can either run automatically or semi-automatically. In semi-automatic operation, bale pick-up and/or bale discharge can be operated manually.

If automatic bale pick-up is activated (*refer to page 74*), the loading arms automatically move together when the tractor moves with the machine to the next round bale and the loading arms detect the round bale in front of them.

The wrapping process starts automatically as soon as the round bale rests on the loading arms. The round bale is wrapped with the selected number of film layers, and the film is cut.

If automatic bale discharge is active (*refer to page 73*), the loading arms automatically move apart after the film has been cut off, and the round bale is put down. An acoustic signal sounds during this process. If subsequent rotation of the loader arms has been selected, the loading arms will move apart after a corresponding delay, *refer to page 77*.

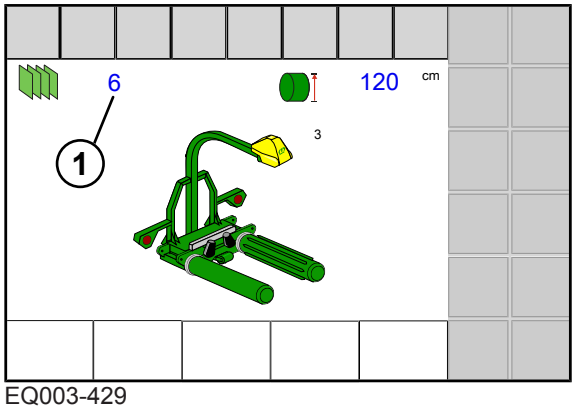
- ▶ Press  to change to automatic operation.
- ➡  appears on the key.

Activating manual operation

In manual operation, all functions for a wrapping process are triggered individually via the keys, *refer to page 60*.

- ▶ Press  to change to manual operation.
- ➡  appears on the key.

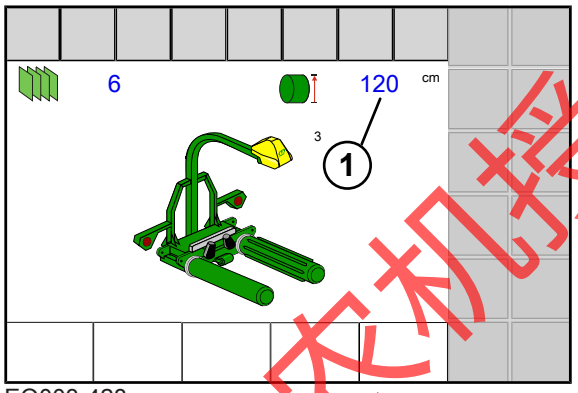
11.8 Setting the number of film layers



EQ003-429

- To select the number of film layers for a wrapping process, change the value (1) next to the icon  in the working screen, *refer to page 71*.

11.9 Specifying the bale diameter



EQ003-428

- To specify the bale diameter of the round bales that are to be wrapped, change the value (1) next to the icon  in the working screen, *refer to page 71*.

In addition, the bale diameter must be selected on the machine, *refer to page 100*.

11.10 Stopping all machine functions

If necessary, you can stop all hydraulic machine functions at the same time.

- Press the  key.

- ➡  appears in the status line. The keys for operation are dimmed as long as the key is pressed and held.

- ➡ All hydraulic machine functions are stopped. If wrapping a round bale was just in progress, the wrapping process is stopped and reset.
- ➡ Subsequently, the machine functions are available again. Stopped machine functions do not restart automatically.

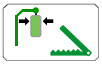
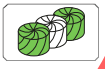
After the cause for pressing  has been eliminated:

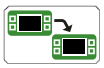
- Select the desired machine functions.

12 Terminal – Menus

12.1 Menu structure

The menu structure is divided into the following menus depending on the machine configuration.

Menu	Sub-menu	Designation
1 		Manual operation, *refer to page 72*
2 		Bale discharge, *refer to page 73*
8 		Bale pick-up (in "bale turner" version), *refer to page 74*
3 		Wrapping arm rotational speed, *refer to page 75*
4 		Film tear detection, *refer to page 76*"
5 		Correction of cutting position, *refer to page 77*
6 		Subsequent rotation of the loading arm rollers, *refer to page 77*
7 		Round bales row discharge, *refer to page 78*
9 		Bale turner (in "bale turner" version), *refer to page 79*
13 		Counter, *refer to page 80*
	13-1 	Customer counter, *refer to page 80*
	13-2 	Total counter, *refer to page 82*

Menu	Sub-menu	Designation
14 		ISOBUS settings, *refer to page 83*
	14-1 	Background colour setting, *refer to page 84*
	14-9 	Switching between terminals, *refer to page 85*
15 		Settings, *refer to page 85*
	15-1 	Sensor test, *refer to page 86*
	15-2 	Actuator test, *refer to page 88*
	15-3 	Software information, *refer to page 90*
	15-4 	Error list, *refer to page 91*
	15-5 	Manual operation without confirmation prompt, *refer to page 92*
	15-6 	Calibration, *refer to page 93*

12.2 Recurrent icons

To navigate in the menu level/menus, the following icons appear again and again.

Icon	Designation	Explanation
	Up arrow	Move up to select something.
	Down arrow	Move down to select something.
	Right arrow	Move right to select something.

Icon	Designation	Explanation
	Left arrow	Move left to select something.
	Disk	Save the setting.
	ESC	Leave the menu without saving. By pressing the key a little longer, the previously viewed working screen is selected.
	DEF	Reset to factory setting.
	Disk	The mode or value is saved.
	Plus	Increase the value.
	Minus	Reduce the value.

12.3 Selecting a menu Level

▶ To bring up the menu level from the working screen, press  .

➡ The display indicates the menu level.

12.4 Selecting a menu

Calling up menu

The menus are selected depending on used terminal (touch sensitive or not touch sensitive).

For version with "Touch-sensitive and not touch-sensitive terminal"

By means of adjacent keys

▶ To select a menu, press the keys next to  or  until the desired menu is selected.

⇨ The selected menu is highlighted in colour.

▶ To call up the menu, press the key next to  .

➡ The menu opens.

> ***INFORMATION***
>
> For version with "Touch-sensitive terminal", the icons can be pressed directly.

By means of the scroll wheel

- ▶ Select the desired menu by means of scroll wheel.
  - ⇨ The selected menu is highlighted in colour.
- ▶ To call up the menu, press the scroll wheel.
- ➡ The menu opens.

For version with touch-sensitive terminal

By pressing the icons

- ▶ To call up a menu, press the icon (e.g. ) in the display.
- ➡ The menu opens.

Leaving the menu

- ▶  or press the adjacent key.
- ➡ The menu closes.

12.5 Changing value

Values must be entered or changed for the settings in the menus. The values are selected depending on used terminal (touch-sensitive or not touch-sensitive).

For version with "Touch-sensitive" and "Not touch-sensitive terminal"

- Via scroll wheel.

Additionally for "Touch-sensitive terminal" version

- By pressing  or  .
- By tipping the blue value on the display.
  If a numerical value is tapped, an input mask opens. For further information on entering values see the supplied terminal operating instructions.

Examples:

By means of the scroll wheel

- ▶ Choose the desired value by using the scroll wheel.
  - ⇨ The value is highlighted in colour.
- ▶ Press the scroll wheel.
  - ⇨ An input mask opens.
- ▶ Turn the scroll wheel to increase or reduce the value.
- ▶ Press scroll wheel to save the value.
- ➡ The setting is saved and the input mask closes.

Using the value

- ▶ Tap on the value.
  - ⇨ An input mask opens.
- ▶ Increase or reduce the value.
- ▶ In order to save the value, press OK.
- ➡ The setting is saved and the input mask closes.

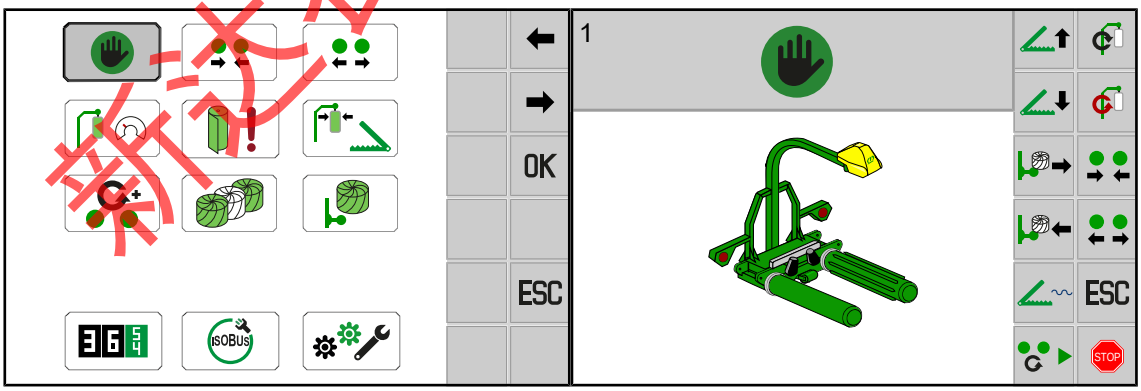
12.6 Changing mode

It is possible to select between different modes in individual menus.

- ▶ To select the next mode, press ➡.
- ▶ To select the previous mode, press ⬅.
- ▶ To save, press 💾.
- ➡ An acoustic signal sounds, the set mode is saved and the 💾 icon is briefly displayed in the upper line.
- ▶ To leave the menu, press ESC.

12.7 Menu 1 "Manual operation"

This menu permits various machine sections to be operated individually.



EQ003-400 / EQ003-401

✓ For The menu level is active, *refer to page 70*.

- ▶ To open the menu, press ✋.
- ➡ The display shows the "Manual operation" menu.

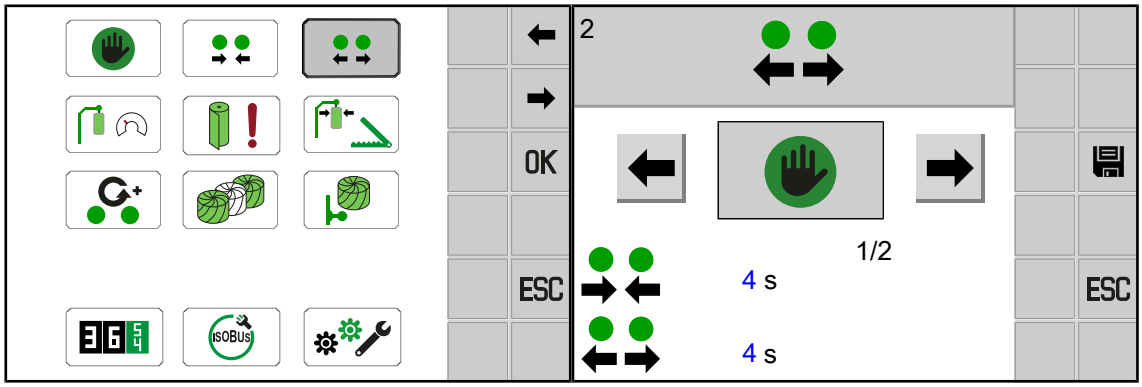
The following sections can be operated individually via the keys:

Icon	Explanation
	To open the holding and cutting device: ▶ Press and hold the key until the holding and cutting device is open.
	To close the holding and cutting device: ▶ Press and hold the key until the holding and cutting device is closed.
	To extend / advance the bale turner: ▶ Press the key briefly to extend the bale turner.
	To retract / reverse the bale turner: ▶ Press the key briefly to retract the bale turner.
	To move the holding arms in float position: ▶ Press the key briefly to move the holding and cutting device in float position.
	To rotate the wrapping arms: ▶ Press and hold the key until the wrapping arm reaches the desired position.
	To trigger additional rotation of the loading arms: ▶ Press the key briefly to trigger additional rotation of the loading arms.
	To retract the loading arms (bale pick-up): ▶ Press and hold the key until the loading arms are retracted.
	To extend the loading arms (bale discharge): ▶ Press and hold the key until the loading arms are extended.
	To stop a movement: ▶ Press the key briefly. ⇨ All currently active hydraulic functions are stopped.

The bale wrapper in the centre of the display shows the individual functions in a movement.

12.8 Menu 2 "Bale discharge"

In this menu you can select whether the round bales are to be put down manually or automatically. In addition, you can set the time during which the loading arms extend and retract. This time must be set in accordance with the bale size and the oil supply of the tractor.



EQ003-400 / EQ003-403

✓ For The menu level is active, *refer to page 70*.

▶ To open the menu, press

➡ The display shows the "Bale discharge" menu.

Changing the mode

▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

Symbol	Explanation
	Putting down the round bale manually
A	Putting down the round bale automatically

Setting the time for bale pick-up and bale discharge in automatic operation

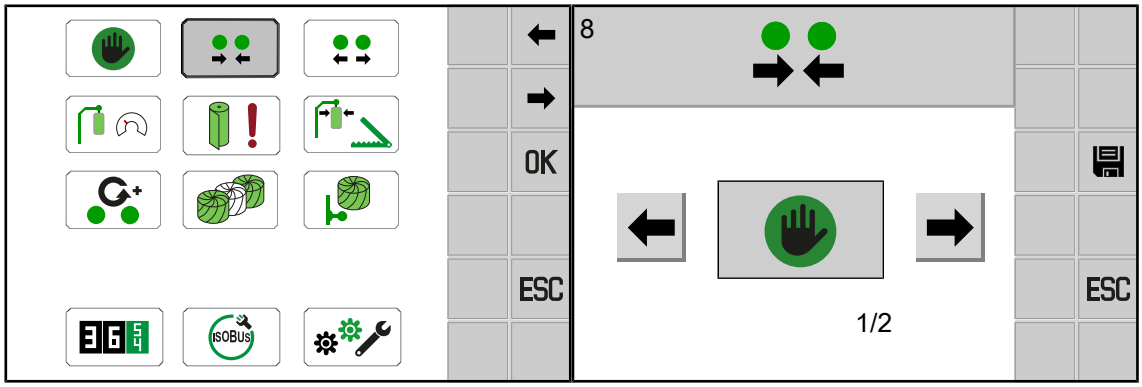
The time it takes for retracting (bale pick-up) and extending (bale discharge) the loading arms can be set.

▶ **To set the "bale pick-up" time:** Change the value next to , *refer to page 71*.

▶ **To set the "bale discharge" time:** Change the value next to , *refer to page 71*.

12.9 Menu 8 "Bale pick-up (in "bale turner" version)

In this menu you can select whether the round bales are to be picked up manually or automatically.



EQ003-400 / EQ003-402

✓ For The menu level is active, *refer to page 70*.

▶ To open the menu, press .

➡ The display shows the "Bale pick-up" menu.

Changing the mode

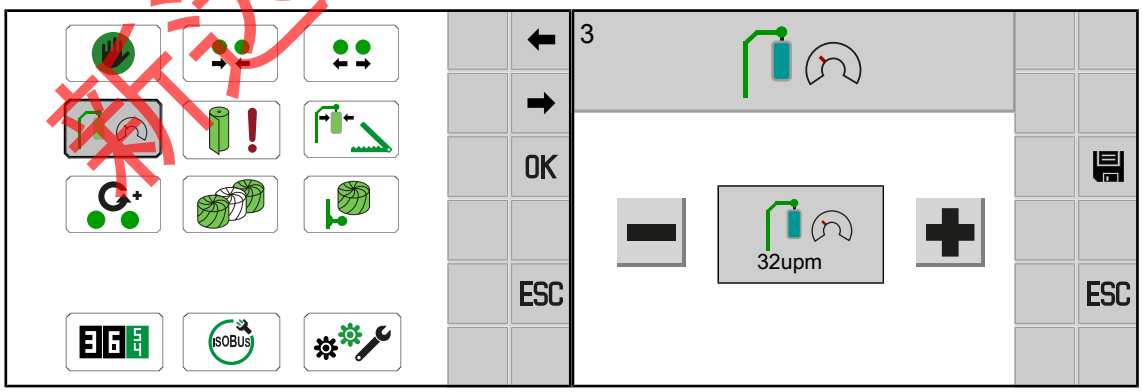
▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

Symbol	Explanation
	Picking up round bales manually
A	Picking up round bales automatically

12.10 Menu 3 "Wrapping arm rotational speed"

In this menu you can select the rotational speed at which the wrapping arm shall rotate during the wrapping process.



EQ003-400 / EQ003-404

✓ For The menu level is active, *refer to page 70*.

▶ To open the menu, press .

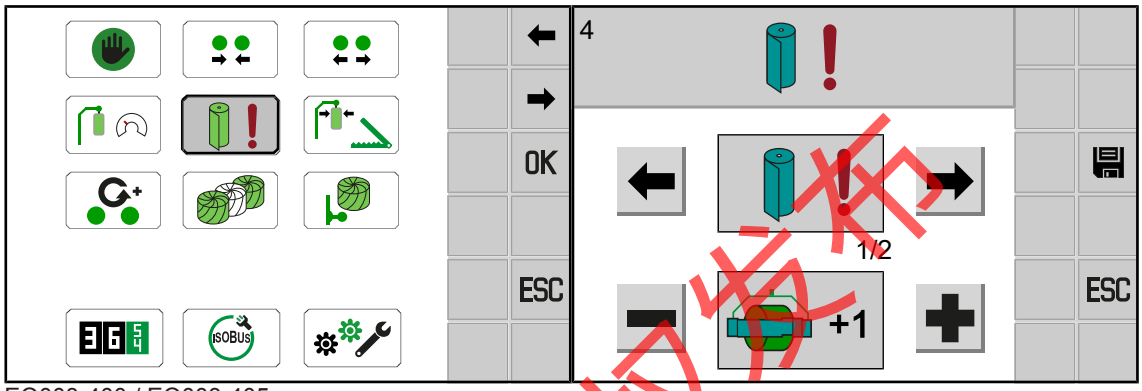
➡ The display shows the "Wrapping arm rotational speed" menu.

Setting the rotational speed of the wrapping arm

- ▶ Select and save the mode, *refer to page 72*.
- ▶ In the "Calibration" menu, check whether the hydraulic output of the tractor can provide the selected rotational speed, *refer to page 93*.

12.11 Menu 4 "Film tear detection"

In this menu you can select whether or not the wrapping process is stopped when the film breaks. In addition, you can select the number of additional corrective wraps that are to be applied after a film tear.



EQ003-400 / EQ003-405

✓ For The menu level is active, *refer to page 70*.

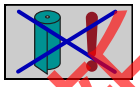
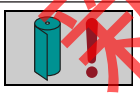
- ▶ To open the menu, press  .

➡ The display shows the "Film tear detection" menu.

Changing the mode

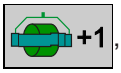
- ▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

Symbol	Explanation
	No stop upon film tear detection
	Stop upon film tear detection

Selecting the corrective wraps

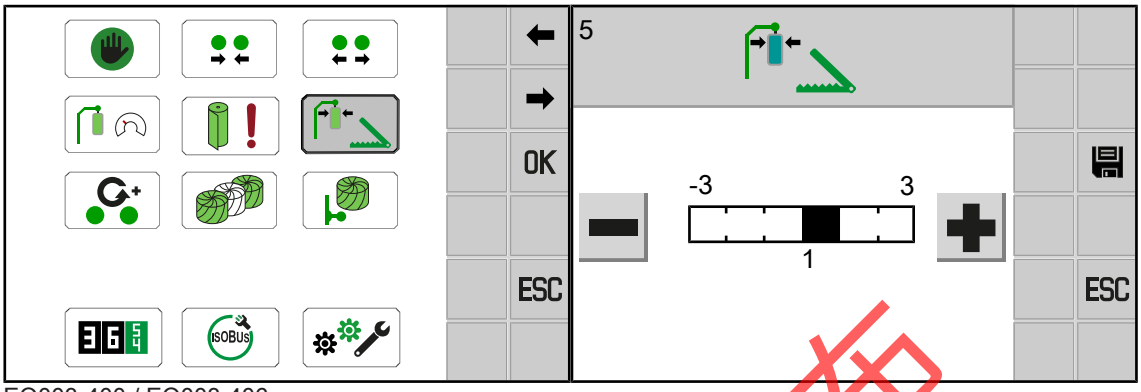
Here you can set the number of additional film layers that are to be wrapped additionally around the round bale after a film tear.

- ▶ Change the value at  , *refer to page 71*.

To insert a new film after film tear detection *refer to page 46*.

12.12 Menu 5 "Cutting position correction"

In this menu you can set the position of the wrapping arm for the cutting process. With different bale diameters, a correction of the cutting position may be necessary to achieve a better cutting result. The wrapping arm moves closer towards the holding and cutting device as the value selected here increases.



EQ003-400 / EQ003-406

✓ For The menu level is active, *refer to page 70*.

▶ To open the menu, press .

➡ The display shows the "Cutting position correction" menu.

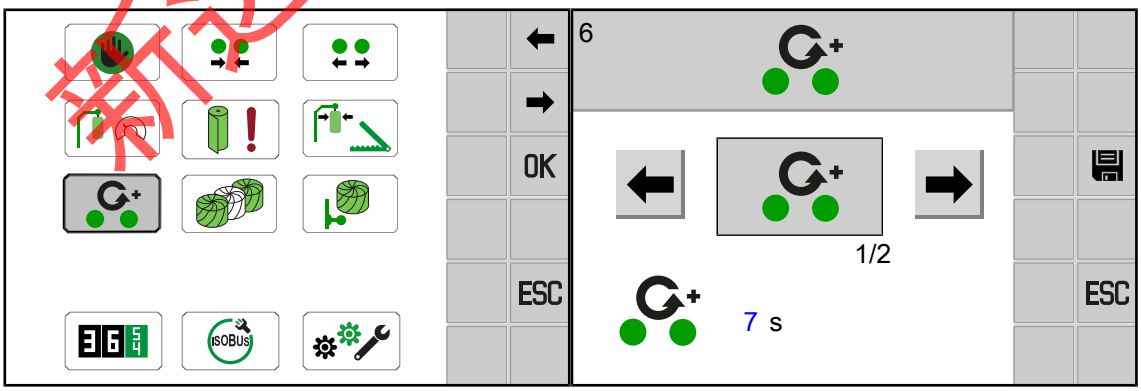
Setting the cutting position

▶ Increase or reduce the value, *refer to page 71*.

▶ In order to save the value, press .

12.13 Menu 6 "Subsequent rotation of the loading arm rollers"

In this menu you can set whether and how long the rollers of the loading arms shall continue to rotate after the wrapping process. This presses the film layers around the round bale together to reduce air pockets between the film layers.



EQ003-400 / EQ003-407

✓ For The menu level is active, *refer to page 70*.

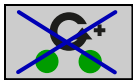
▶ To open the menu, press .

➡ The display shows the "Subsequent rotation of the loading arms rollers" menu.

Changing the mode

▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

Symbol	Explanation
	Subsequent rotation of the loading arms rollers deactivated
	Subsequent rotation of the loading arms rollers activated

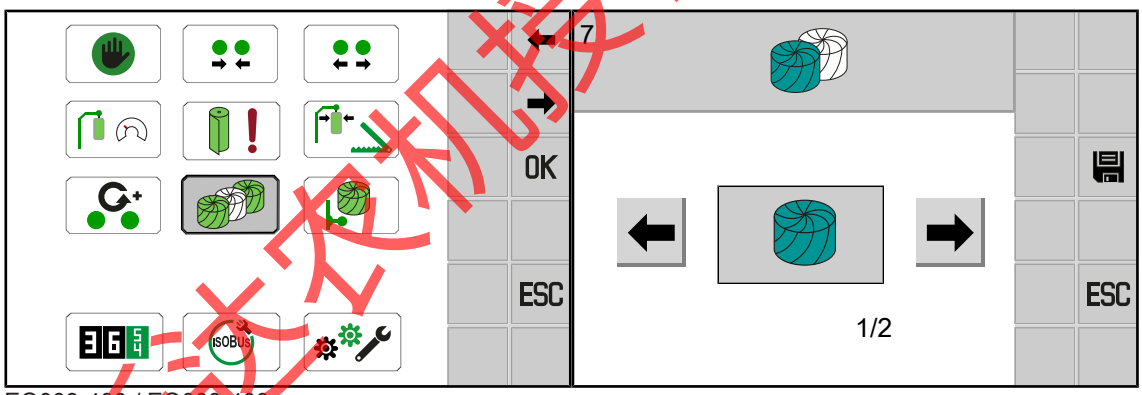
Selecting the time

In addition, you can select the time during which the rollers of the loading arms shall continue to rotate after the wrapping process.

▶ Select the value next to  , *refer to page 71*.

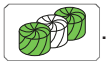
12.14 Menu 7 "Round bales row discharge"

The wrapped round bales can be put down in a double row. To ensure that the wrapping arm is in a suitable position for this operation, you can select in this menu whether the round bales are to be put down individually or in a double row.



EQ003-400 / EQ003-408

✓ For The menu level is active, *refer to page 70*.

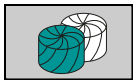
▶ To open the menu, press  .

➡ The display shows the "Round bales row discharge" menu.

Changing the mode

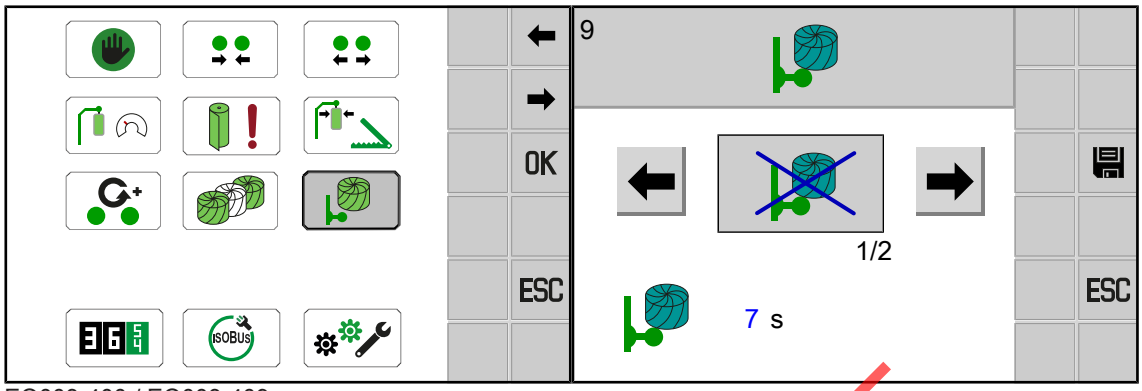
▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

Symbol	Explanation
	Putting down wrapped round bales individually
	Putting down wrapped round bales in a double row

12.15 Menu 9 "Bale turner" (in "bale turner" version)

In this menu, the bale turner can be activated or deactivated. In addition, you can set the time during which the bale turner is extended.



EQ003-400 / EQ003-409

✓ For The menu level is active, *refer to page 70*.

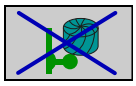
▶ To open the menu, press  .

➡ The display shows the "Bale turner" menu.

Changing the mode

▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

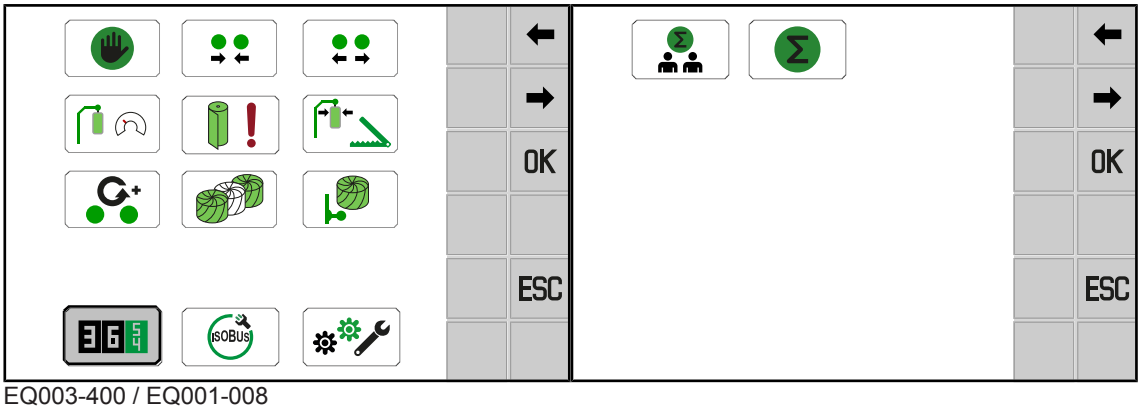
Symbol	Explanation
	Bale turner deactivated
	Bale turner activated

Selecting the time

In addition, you can set the time during which the bale turner is extended.

▶ Select the value next to  , *refer to page 71*.

12.16 Menu 13 "Counters"



EQ003-400 / EQ001-008

✓ For The menu level is active, *refer to page 70*.

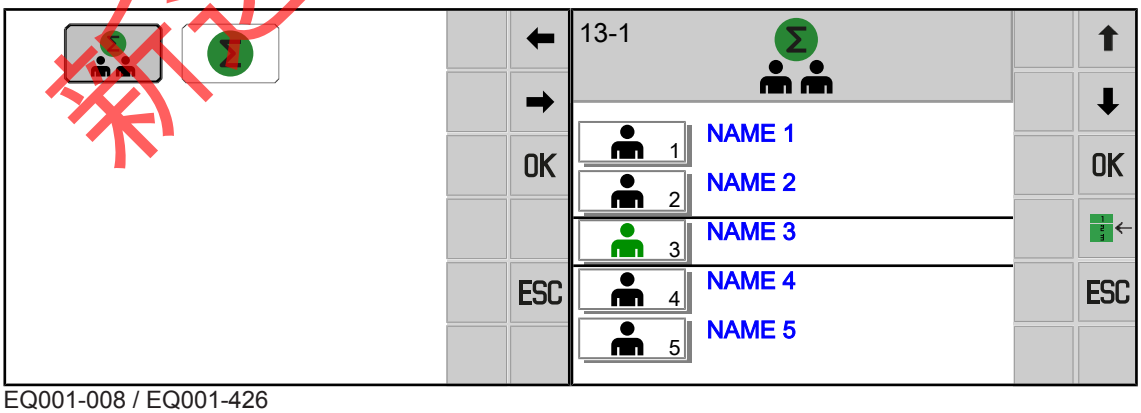
▶ To open the menu, press .

➡ The display shows the "Counter" menu.

The "Counter" menu is divided into the following submenus:

Menu	Sub-menu	Designation
13		Counter, *refer to page 80*
	13-1	Customer counter, *refer to page 80*
	13-2	Total counter, *refer to page 82*

12.16.1 Menu 13-1 "Customer counter"



EQ001-008 / EQ001-426

✓ Menu 13 “Counter” is called.“ *refer to page 80*.

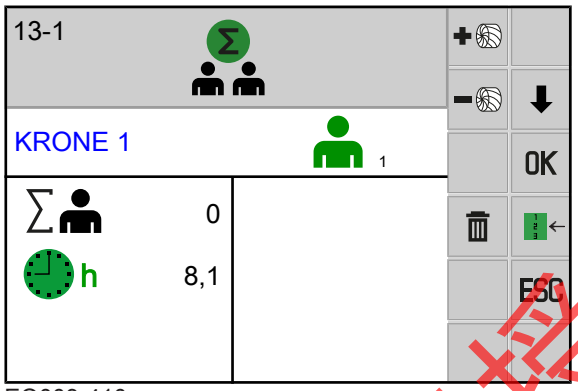
▶ To open the menu, press .

➡ The display shows the “Customer Counter” menu.

A customer list can be seen in the menu. The names shown in blue can be adjusted, *refer to page 71*.

- ▶ Navigate through the customer list using ⬆ and ⬇.
- ▶ To activate a customer counter, navigate to the required customer and press OK.
  - ⇨ The activated customer counter is represented by 👤.
- ▶ To open the detailed view of a customer, navigate to the required customer and press 123←.

Detailed view of a customer



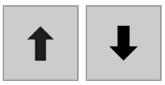
EQ003-410

The icons displayed in the menu have the following meaning:

Icon	Explanation
1 1	Customer counter 1 ... 20 (the activated customer counter is green)
Σ	Total number of wrapped round bales for the corresponding customer
h	Operating hours counter for the corresponding customer

The keys can be used to operate the following functions:

Icon	Explanation
+	Increasing the number of wrapped round bales
−	Reducing the number of wrapped round bales
🗑	Setting displayed customer counter to zero

Icon	Explanation
	Navigating between the detailed views of the customers
	Activating displayed customer counter
	Returning to the complete overview of all customers

Changing the number of wrapped bales

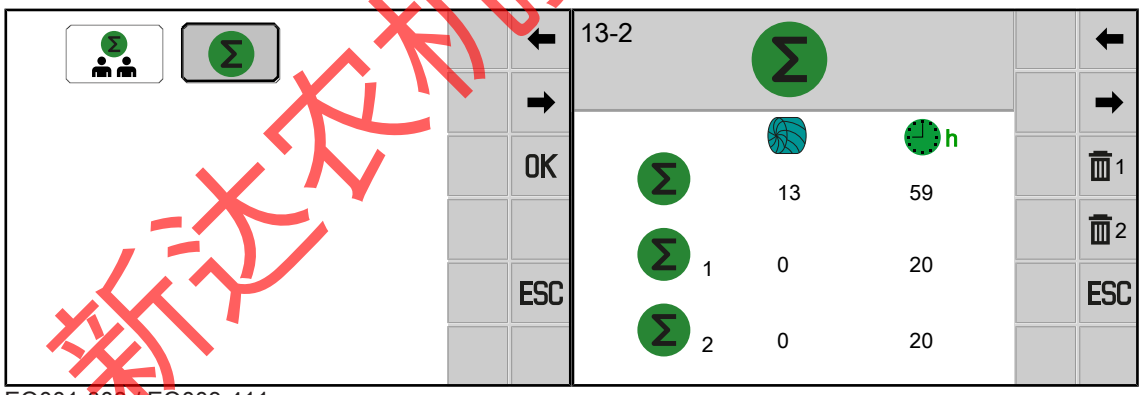
The number of wrapped bales can be changed manually in the customer counter. The particular customer counter does not have to be activated for this.

- ▶ Press  to increase the number of wrapped bales.
- ▶ Press  to reduce the number of wrapped bales.

Setting customer counters to zero

- ▶ To reset the customer counter to zero, press and hold  for at least 2 seconds.

12.16.2 Menu 13-2 "Total counter"



EQ001-008 / EQ003-411

✓ Menu 13 “Counter” is called.“ *refer to page 80*.

- ▶ To open the menu, press  .

➡ The display shows the "Total Counter" menu.

The icons displayed in the menu have the following meaning:

Icon	Explanation
Σ	Total counter (cannot be deleted)
Σ 1	Season counter 1 (can be deleted)
Σ 2	Season counter 2 (can be deleted)
	Number of wrapped round bales
h	Operating hours counter

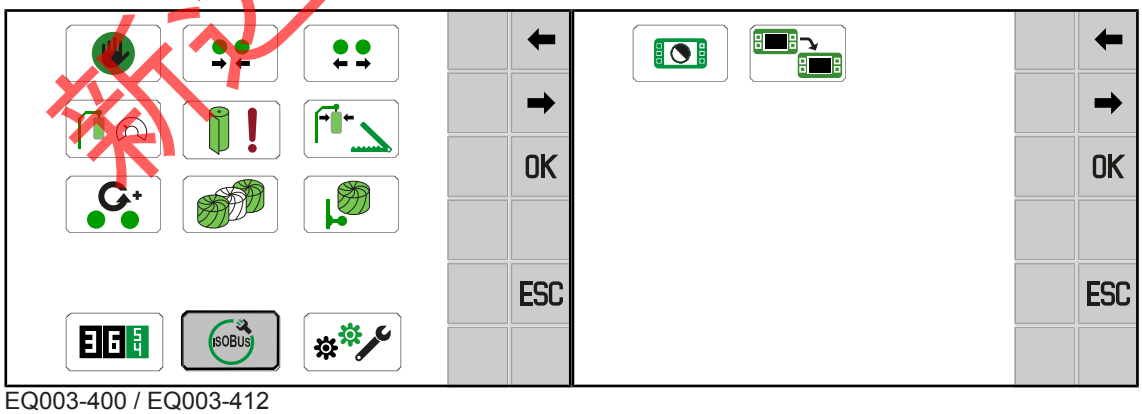
The keys can be used to operate the following functions:

Icon	Explanation
1	Setting season counter 1 to zero
2	Setting season counter 2 to zero

Set season counter 1 or 2 to zero

- ▶ To set season counter 1 to zero, press 1.
- ▶ To set season counter 2 to zero, press 2.

12.17 Menu 14 "ISOBUS settings"



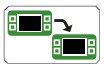
EQ003-400 / EQ003-412

✓ For The menu level is active, *refer to page 70*.

- ▶ To open the menu, press ISOBUS.

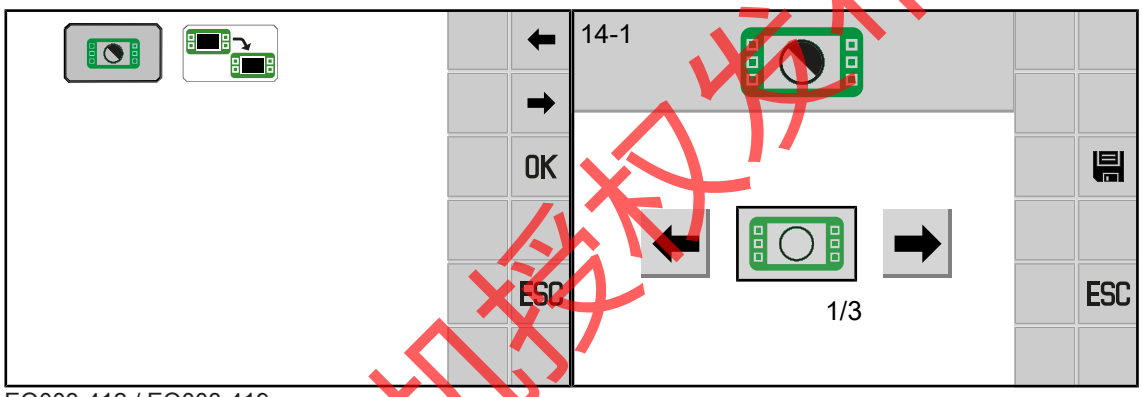
➡ The display shows the "ISOBUS" menu.

The "ISOBUS" menu is subdivided into the following submenus:

Menu	Sub-menu	Designation
14 		ISOBUS settings, *refer to page 83*
	14-1 	Background colour setting, *refer to page 84*
	14-9 	Switching between terminals, *refer to page 85*

12.17.1 Menu 14-1 "Setting background colour"

In this menu, you can adjust the background colour of the terminal. This makes it more comfortable to look at the terminal under bright or dark conditions.



EQ003-412 / EQ003-419

✓ The menu 14 “ISOBUS” has been selected, *refer to page 83*.

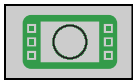
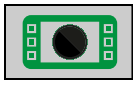
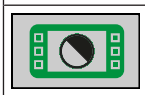
▶ To open the menu, press  .

➡ The display shows menu "Background colour ".

Changing the mode

▶ Select and save the mode, *refer to page 72*.

The following modes can be selected:

Symbol	Explanation
	Background colour white (recommended during the day)
	Background colour grey (recommended during the night)
	Automatic background colour. The tractor controls the background colour via the parking light. • Tractor parking light on: Background colour grey • Tractor parking light off: Background colour white

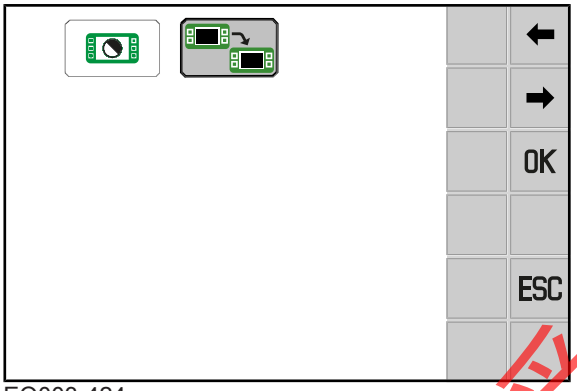
12.17.2 Menu 14-9 "Switching between the terminals"

> ***INFORMATION***
>
> This menu is only available if several ISOBUS terminals are connected.

When the user switches terminals for the first time, the configuration of the machine is loaded into the next terminal. The loading process can take a few minutes. The configuration is stored in the memory of the next terminal.

Up to the next call, the machine is no longer available in the previous terminal.

When restarting, the system makes attempts to start the last used terminal. If the last used terminal is no longer available (e.g. because it was dismounted), the restart is delayed as the system searches for a new terminal and loads the specific menus into the terminal. The loading process can take a few minutes.

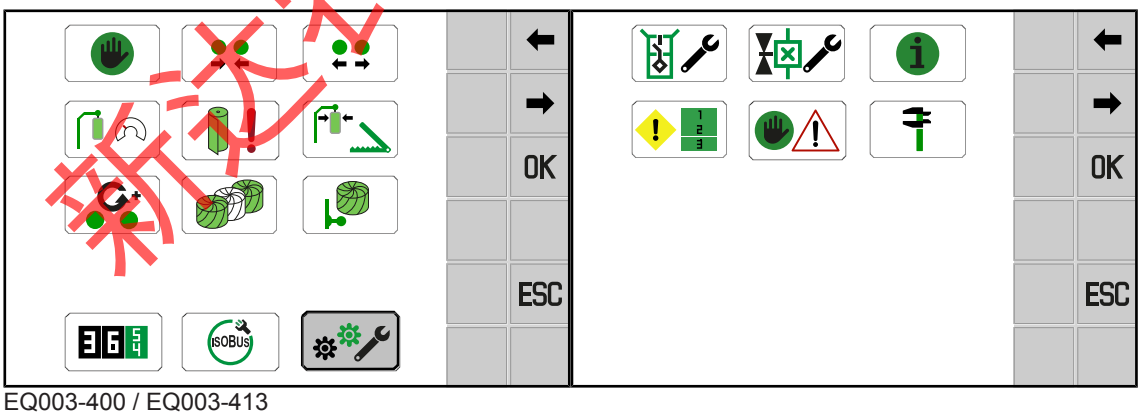


EQ003-424

✓ The menu 14 “ISOBUS” has been selected, *refer to page 83*.

▶ To change to the next terminal, press  .

12.18 Menu 15 "Settings"



EQ003-400 / EQ003-413

✓ For The menu level is active, *refer to page 70*.

▶ To open the menu, press  .

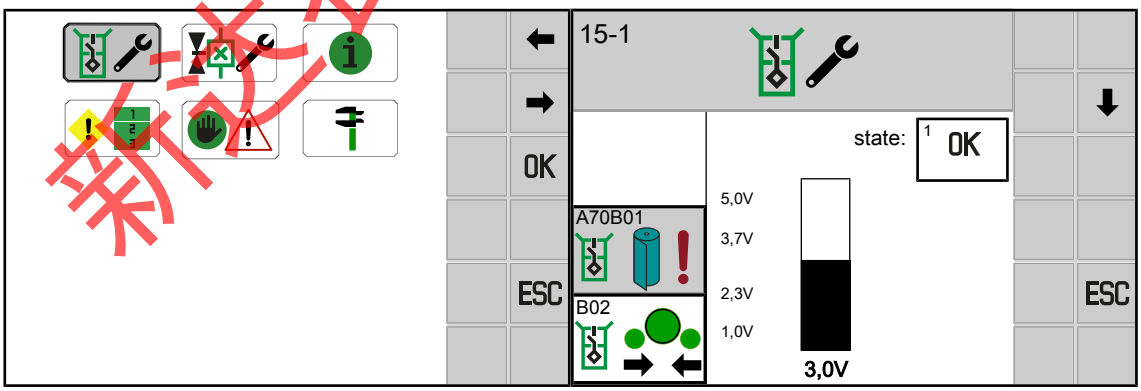
➡ The display shows the "Settings" menu.

The "Settings" menu is divided into the following submenus:

Menu	Sub-menu	Designation
15 		Settings, *refer to page 85*
	15-1 	Sensor test, *refer to page 86*
	15-2 	Actuator test, *refer to page 88*
	15-3 	Software information, *refer to page 90*
	15-4 	Error list, *refer to page 91*
	15-5 	Manual operation without confirmation prompt, *refer to page 92*
	15-6 	Calibration, *refer to page 93*

12.18.1 Menu 15-1 "Sensor test"

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



EQ003-413 / EQ003-415

✓ Menu 15 “Settings” is called, *refer to page 85*.

▶ To open the menu, press  .

➡ The display shows the "Sensor test" menu.

The keys can be used to operate the following functions:

Icon	Explanation
	Choose previous sensor
	Choose next sensor
	Leave menu

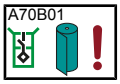
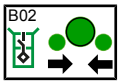
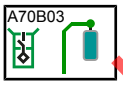
Settings for inductive proximity switches (NAMUR):

The minimum and maximum setting value with attenuated sensor (metal in front of the sensor) are shown in the upper part of the bargraph. 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 attenuated state the bar is in the upper marking. Then check whether the bar is in unattenuated state in the lower marked area.

Possible sensors (depending on the machine configuration)

An overview of the sensors, actuators and control units is in the circuit diagram.

No.	Sensor	Designation
A70 B01		Film tear detection
B02		Bale in pick-up position
B03		Corrugated roller speed
A70 B03		Position wrapping arm
B04		Holding and cutting device closed

Possible status displays of the sensors

Icon	Designation
0 	Sensor ready for operation
1 	Sensor attenuated (metal in front of the sensor)
2 	Sensor unattenuated (no metal in front of the sensor)
7 	Cable break or short circuit

Icon	Designation
8 Error	Defective sensor or job computer
20	Cable break
21	Short circuit

Buttons on the machine

No.	Sensor	Designation
S01		Safety installation wrapping arm
S06		Enable manual operation

12.18.2 Menu 15-2 "Actuator test"

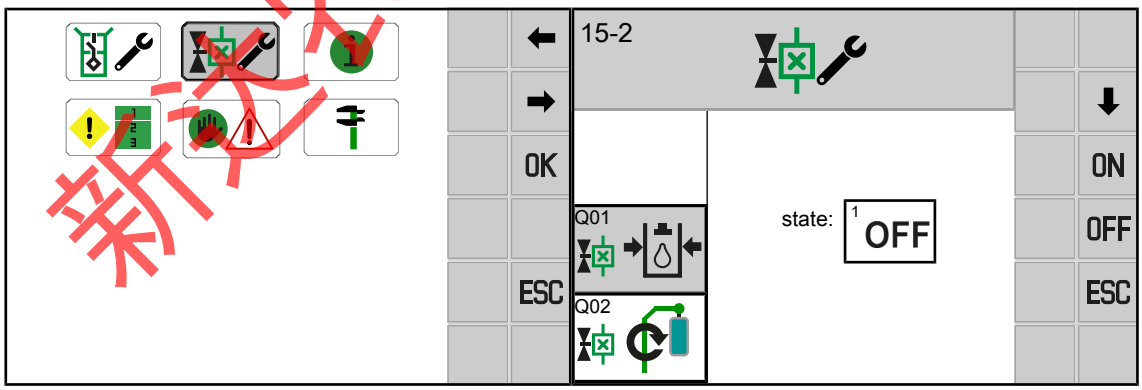
⚠ WARNING

Risk of injury due to non-observance of the safety routines

If the relevant safety routines are not observed, persons may be seriously injured or killed.

- ▶ The safety routines must be read and observed to avoid accidents, *refer to page 22*.

The actuator test is used to test the actuators installed on the machine. An actuator can only be tested when current is flowing through it. Therefore, in the "Actuator test" menu, the actuator must be controlled manually for a short time in order to determine possible errors in the actuator system.



EQ003-413 / EQ003-416

✓ Menu 15 “Settings” is called, *refer to page 85*.

- ▶ To open the menu, press  .

⇨ A message opens which refers to the operating instructions  .

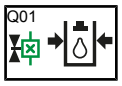
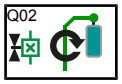
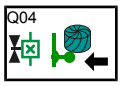
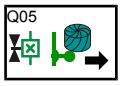
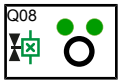
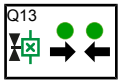
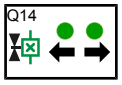
▶ Observe the safety routine "Run actuator test", *refer to page 23*.

▶ Press OK to confirm.

➡ The display shows the "Actuator test" menu.

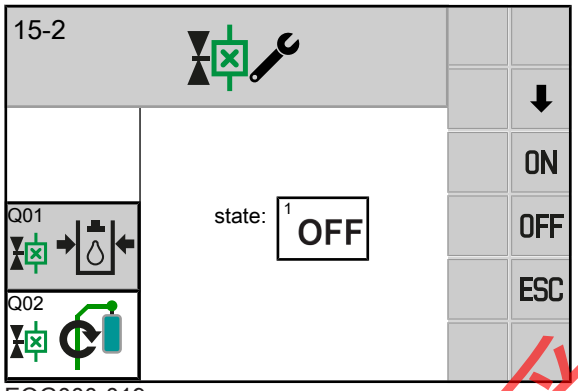
Possible actuators (depending on how the machine is equipped)

An overview of the sensors, actuators and control units is in the circuit diagram.

No.	Actuator	Designation
Q01		Load Sensing active
Q02		Speed of wrapping arm
Q03		Speed of rollers
Q04		Retract bale turner
Q05		Extend bale turner
Q08		Freewheel flat roller
Q09		Reverse wrapping arm
Q10		Pilot valve 1
Q11		Opening the holding and cutting device
Q12		Closing the holding and cutting device
Q13		Lift up bale
Q14		Put down bale

No.	Actuator	Designation
E01	Actuator is not shown on the display.	Three-chamber lamp rear left
E02	Actuator is not shown on the display.	Three-chamber lamp rear right
E03	Actuator is not shown on the display.	Rear position/brake lamps

Diagnostics for digital actuators

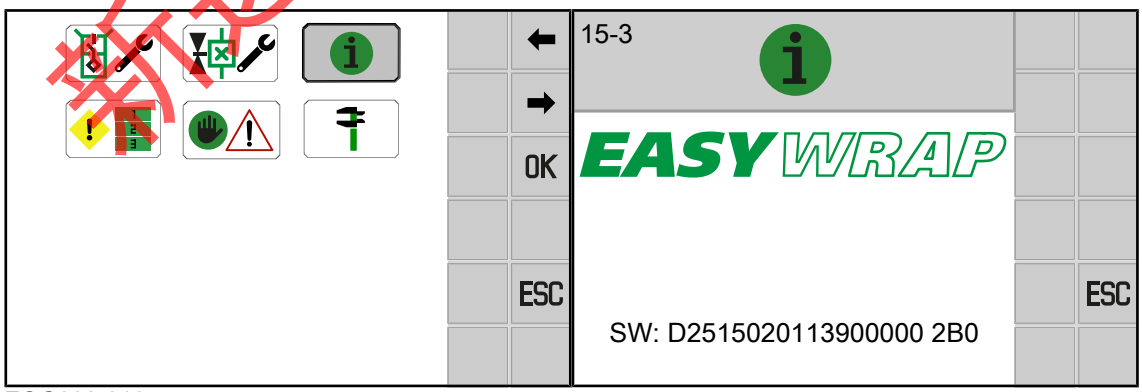


EQG000-019

Errors are only displayed if the actuator is turned on and a test for the actuator in question is available. The LED on the plug can also be checked directly on the actuator.

- ▶ Press ON to switch the actuator on.
- ▶ Press OFF to switch the actuator off.

12.18.3 Menu 15-3 "Software info"



EQG000-016

✓ Menu 15 “Settings” is called, *refer to page 85*.

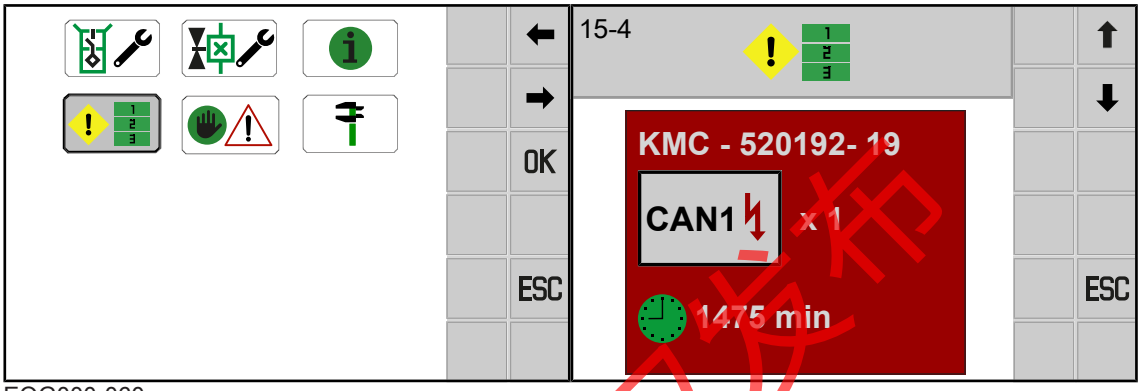
- ▶ To open the menu, press .
- ➡ The display shows the "Software info" menu.

Display area

Icon	Designation
SW	Overall software version of the machine

12.18.4 Menu 15-4 "Error list"

All active and non-active errors are shown in this menu. The errors are shown with a number indicating how often the error occurred and the time on the operating hours counter when the error last occurred.



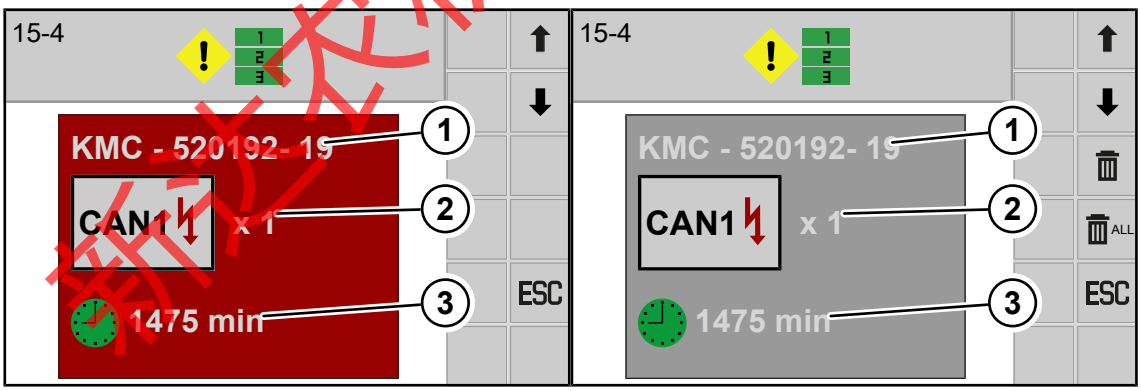
EQG000-060

✓ Menu 15 “Settings” is called, *refer to page 85*.

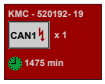
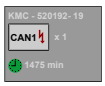
▶ To open the menu, press .

➡ The display shows menu "Error list".

Display area



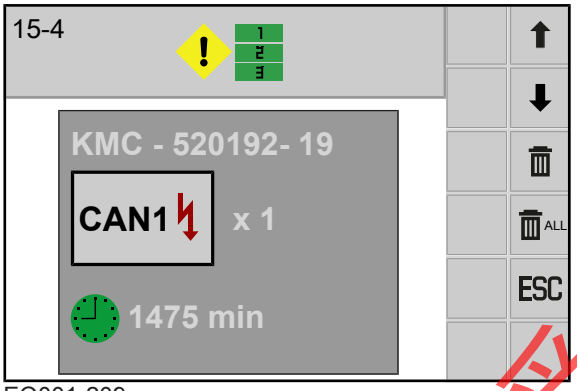
EQ001-085 / EQ001-209

Icon	Designation	Explanation
	Active error	• Cannot be deleted
	Non-active error	• Can be deleted
(1)	Error number	• Meaning, cause and remedy of error message *refer to page 116*.
(2)	Number	• How often the error has occurred.

Icon	Designation	Explanation
(3)	Operating hours counter time	• The time on the operating hours counter when the error last occurred.
	Delete individual errors	• The selected error is deleted,*refer to page 92*. • Only non-active errors can be deleted.
	Delete all errors	• All non-active errors are deleted, *refer to page 92*.

Recurring icons *refer to page 69*.

12.18.4.1 Deleting errors



EQ001-209

Delete individual errors

Only non-active errors (highlighted grey) can be deleted.

▶ To select the error to be deleted, press  or  .

▶ To delete the error, press  .

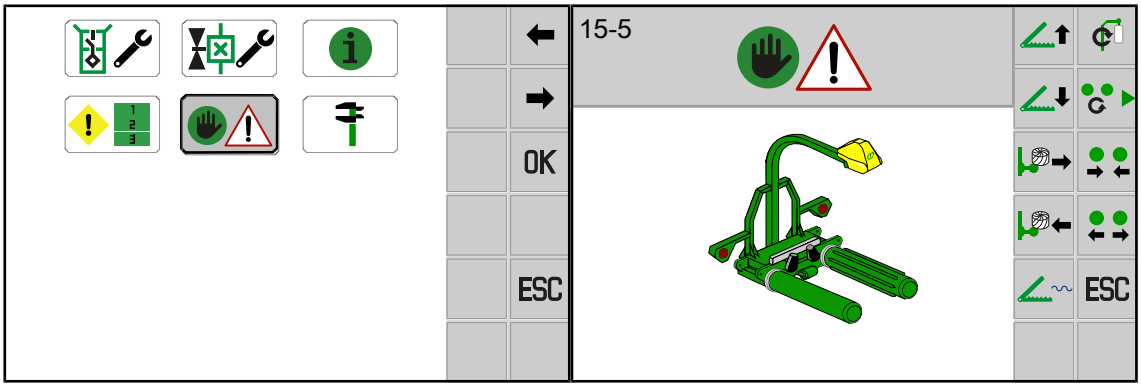
Delete all errors

Only non-active errors (highlighted grey) can be deleted.

▶ To delete all errors, press  .

12.18.5 Menu 15-5 "Manual operation without confirmation prompt"

In this menu, you can operate functions if they can no longer be started manually (due to a defective sensor, for example).



EQ003-413 / EQ003-417

✓ Menu 15 “Settings” is called, *refer to page 85*.

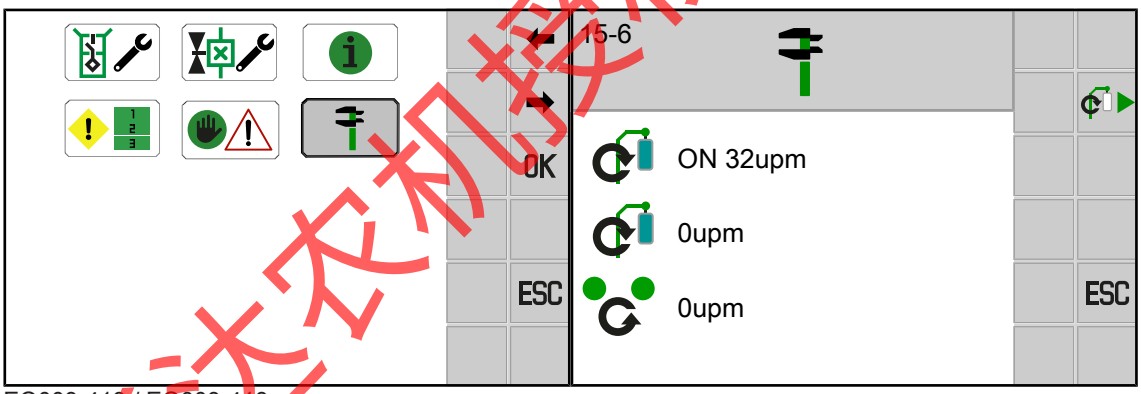
▶ To open the menu, press  .

➡ The display shows the "Manual operation without confirmation prompt" menu.

The function you can perform are the same as in the "Manual operation" menu, *refer to page 72*.

An activated functions is executed immediately, without a program-controlled confirmation prompt.

12.18.6 Menu 15-6 "Calibration"



EQ003-413 / EQ003-418

✓ Menu 15 “Settings” is called, *refer to page 85*.

▶ To open the menu, press  .

➡ The display shows the "Calibration" menu.

Testing the rotational speed of the wrapping arm

Here you can test whether it is possible to achieve the selected rotational speed of the wrapping arm with the hydraulic oil output of the tractor.

✓ The rotational speed that shall be tested was selected in the " Wrapping arm speed" menu, *refer to page 75*.

▶ Press  to start a wrapping process.

➡ Wrapping arm and loading arm try to reach the selected rotational speed. It is shown on the display.

➡ If the rotational speed is not reached, reduce the rotational speed in the " Wrapping arm speed" menu, *refer to page 75*.

13 Driving and transport

⚠ WARNING

Risk of injury due to non-observance of relevant safety notices

If the relevant safety notices are not observed, persons may get seriously injured or killed.

- ▶ To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING

Risk of injury due to non-observance of safety instructions

If the relevant safety routines are not observed, persons may be seriously injured or killed.

- ▶ The safety routines must be read and observed to avoid accidents, *refer to page 22*.

⚠ WARNING

Risk of accident caused by non-locked regulating valves of tractor

When regulating valves are not locked, machine components could be activated unintentionally. This may result in serious accidents.

- ▶ To avoid that functions are triggered by mistake, the regulating valves of the tractor must be in neutral position when performing transport journeys on the road and must be locked.

NOTICE

When attaching implements at the front and rear, the permitted total weight, the permitted axle loads and the tyre load capacity of the tractor must not be exceeded. Even with an implement mounted at the rear, the front axle of the tractor must always be loaded with at least 20% of the tare weight of the tractor.

- ▶ Prior to starting the trip, ensure that these conditions are met, *refer to page 35*.

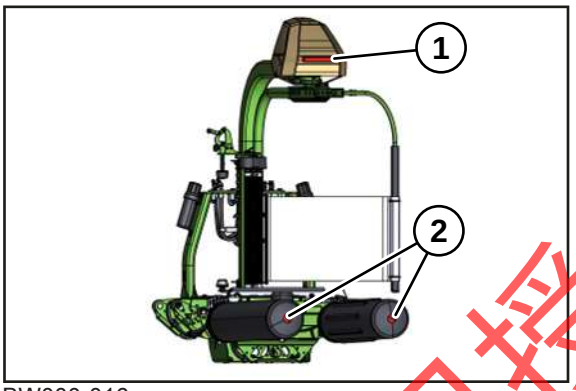
13.1 Preparing the machine for road travel

- ✓ The machine is completely and correctly hitched to the tractor, *refer to page 38*.
- ✓ The lower links of the tractor are locked.
- ✓ Ground clearance is sufficient.
- ✓ There is no round bale on the loading arms.
- ✓ The loading arms are fully moved together via  or  , *refer to page 60*.
- ✓ The wrapping arm is secured with the supporting chain, *refer to page 97*.
- ✓ The film roll is secured in the film stretching device, *refer to page 47*.
- ✓ The control units on the tractor are in neutral position and locked.
- ✓ The machine is shut down and safeguarded, *refer to page 22*.
- ✓ The road lighting has been connected, tested and is functioning properly, *refer to page 43*.
- ✓ Soiling and crop residue have been removed from the machine, in particular from the lighting and identification elements.
- ✓ Due to the manual call of the road travel screen, the machine is in road travel position, *refer to page 64*.

13.2 Parking the machine

- Park the machine on a stable, horizontal and even surface.
- Shut down and safeguard the machine, *refer to page 22*.
- Disconnect the road lighting plug, *refer to page 43*.
- Disconnect the hydraulic hose lines and hook them into the support at the machine.
- If necessary, use a suitable surface on which you can park the machine.
- Unlock the lower link hooks on the tractor.
- Detach the top link.
- Detach the lower links of the tractor and lower them so that the tractor can be driven away safely.

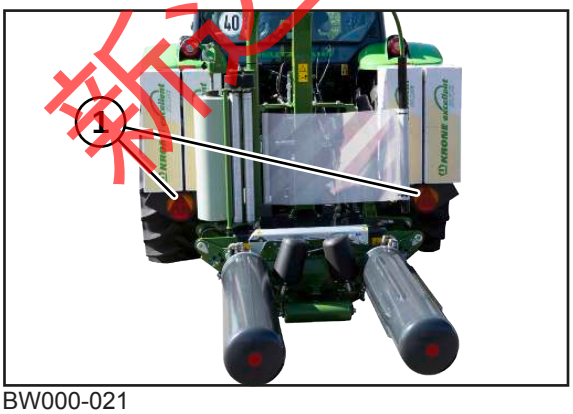
13.3 Checking road travel lighting



BW000-016

- Connecting road travel lighting to the vehicle electrical system, *refer to page 43*.
- Check whether the rear position lamp (1) is functioning.
- Clean the reflectors (2).

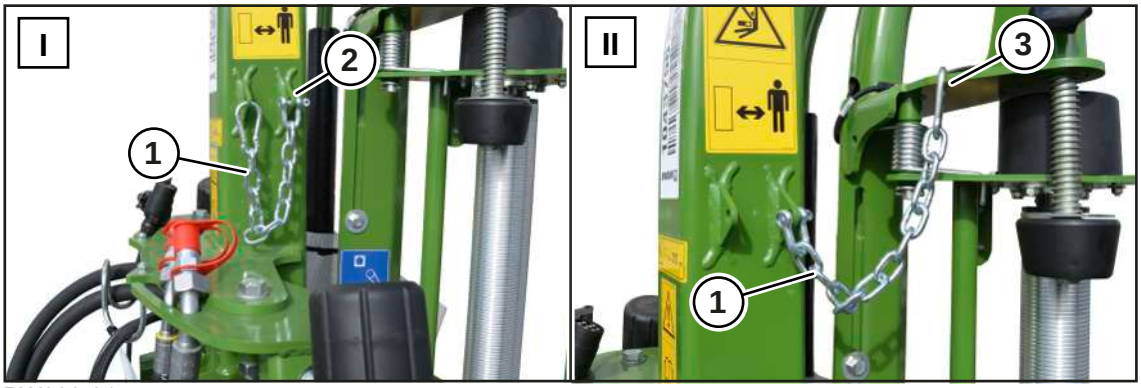
In "film roll holder" version



BW000-021

- Connecting road travel lighting to the vehicle electrical system, *refer to page 43*.
- Check whether the rear lamps (1) are functional.

13.4 Using the supporting chain for the wrapping arm



BW000-015

The supporting chain for the wrapping arm (1) secures the wrapping arm additionally when driving on the road.

Position	Description
(I)	The supporting chain (1) is released. The supporting chain is hooked into the eyelet (2) on the frame.
(II)	The supporting chain (1) secures the wrapping arm. The supporting chain (1) is hooked into the eyelet (3) on the wrapping arm.

✓ The machine is shut down and safeguarded, *refer to page 22*.

▶ For road travel, hook the supporting chain (1) from position (I) into position (II).

▶ For start-up in the field, hook the supporting chain (1) from position (II) into position (I).

13.5 Preparing the machine for shipment

⚠ *WARNING*

Risk of accident due to unsecured machine parts

If the machine is not secured properly for transportation on a lorry or train, the parts may come loose unintentionally due to the airstream. This may result in serious accidents or damage to the machine.

▶ Carry out the following measures to secure moving machine parts.

13.5.1 Checklist for the transport of the machine

✓ The manual call of the road travel screen puts the machine in transport position, *refer to page 64*.

✓ The machine was removed from the tractor.

✓ The hydraulic hoses and cables are secured in the holder.

✓ The supporting chain secures the wrapping arm, *refer to page 97*.

✓ There is no film roll in the film stretching device or on the film roll holder (in "film roll holder" version).

✓ Using a hoist with a minimum lifting capacity, the machine was lifted at the marked suspension points, *refer to page 98*. The minimum load capacity depends on the permissible total weight of the machine, *refer to page 32*.

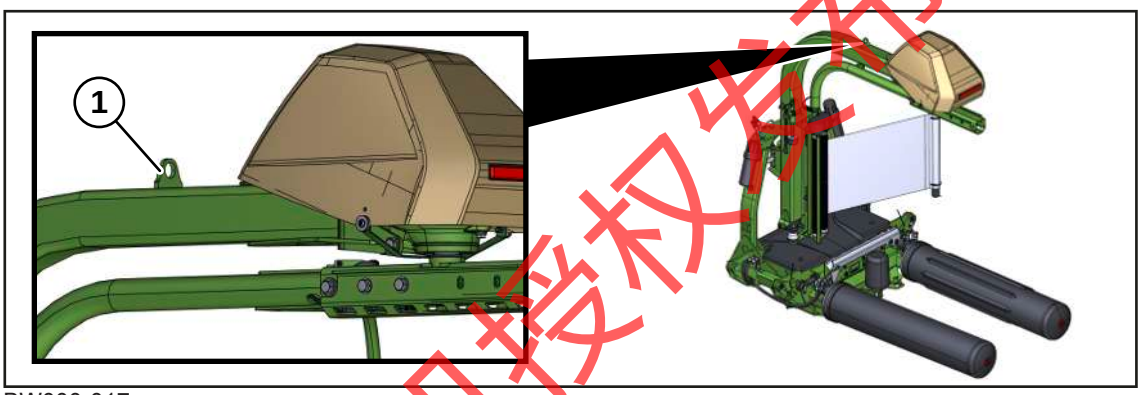
13.5.2 Lifting the machine

⚠ WARNING

Risk of injury due to raised machine

There is a risk to individuals from the machine falling and parts which are swinging in an uncontrolled manner.

- Use only permitted hoists and slings with a sufficient load-bearing capacity. For the weights *refer to page 32*.
- Note the information on the suspension points provided.
- Make sure the lifting means are properly secured.
- Never stay under the suspended machine.
- If work has to be performed under the machine, securely support the machine, *refer to page 22*.



BW000-017

✓ The machine is shut down and safeguarded, *refer to page 22*.

✓ The machine is dismounted from the tractor.

- Disconnect the machine from the tractor, *refer to page 96*.
- Use a hoist with a minimum lifting capacity (depending on the permissible total weight of the machine), *refer to page 32*.
- Attach the hoist at the suspension point (1).

14 Settings

⚠ WARNING

Risk of injury due to non-observance of relevant safety notices

If the relevant safety notices are not observed, persons may get seriously injured or killed.

- To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING

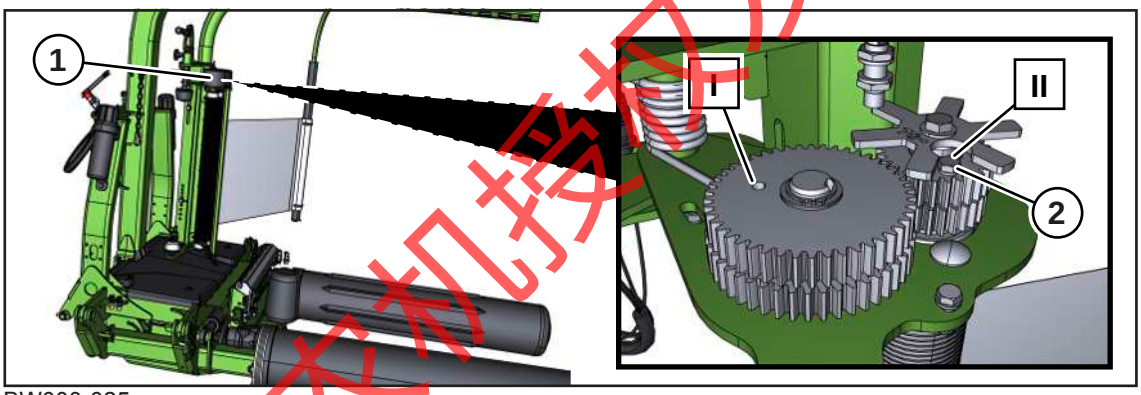
Risk of injury due to non-observance of safety instructions

If the relevant safety routines are not observed, persons may be seriously injured or killed.

- The safety routines must be read and observed to avoid accidents, *refer to page 22*.

14.1 Setting the pre-stretching of the film

The film can be pre-stretched by either 55% or 70%. This can be selected at the wrapping arm.



BW000-025

Position	Explanation
(I)	55% pre-stretching of the film
(II)	70% pre-stretching of the film

✓ The machine is shut down and safeguarded, *refer to page 22*.

- Dismount the guard (1).
- Dismount the screw connection (2) and mount it in the desired position (I) or (II).
- Mount the guard (1).

Checking pre-tension

- Mark the film on the roll with 2 lines with **100 mm** distance between them.
- After the film has been wrapped onto the round bale, measure the distance between the 2 lines.

➡ With a correctly adjusted pre-stretching of 55%, the distance is approx. **150 mm**.

➡ With a correctly adjusted pre-stretching of 70%, the distance is approx. **170 mm**.

The width of the stretched film, measured at the flat end of the round bales and having an original width of 750 mm, should not be less than 600 mm.

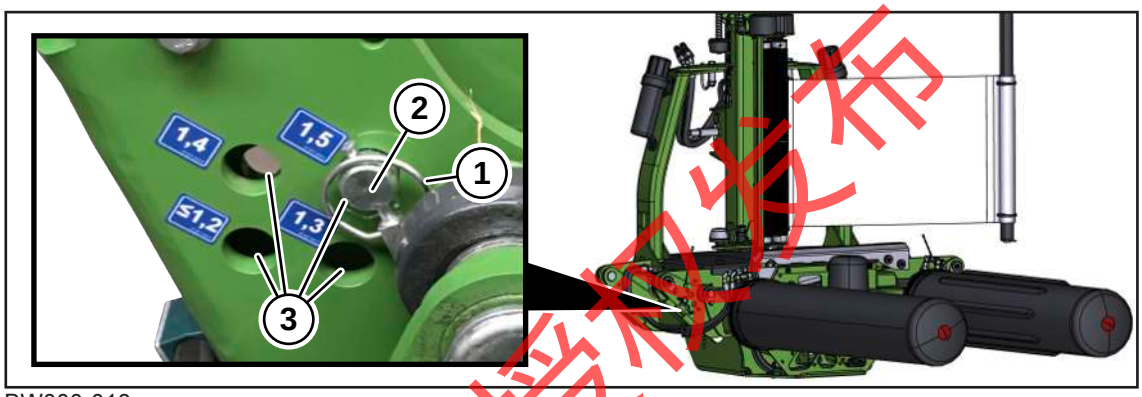
The film is over-tensioned if a significantly larger number of round bales can be wrapped with one roll or if the film becomes too narrow in the cross direction.

- If over-tension has occurred, immediately stop the wrapping process.
- Locating the cause of disturbance. If required, contact the KRONE service partner.
- Do not continue the wrapping process until the pre-tension has been correctly set.

14.2 Specifying the bale diameter on the machine

The bale diameter of the round bales to be wrapped must be specified on the machine. You can select bale diameters of ≤1.2, 1.3, 1.4 or 1.5 metres. The two loading arms are positioned narrower or wider in this process.

In addition, you must select the bale diameter in the working screen of the terminal, *refer to page 66*.



BW000-018

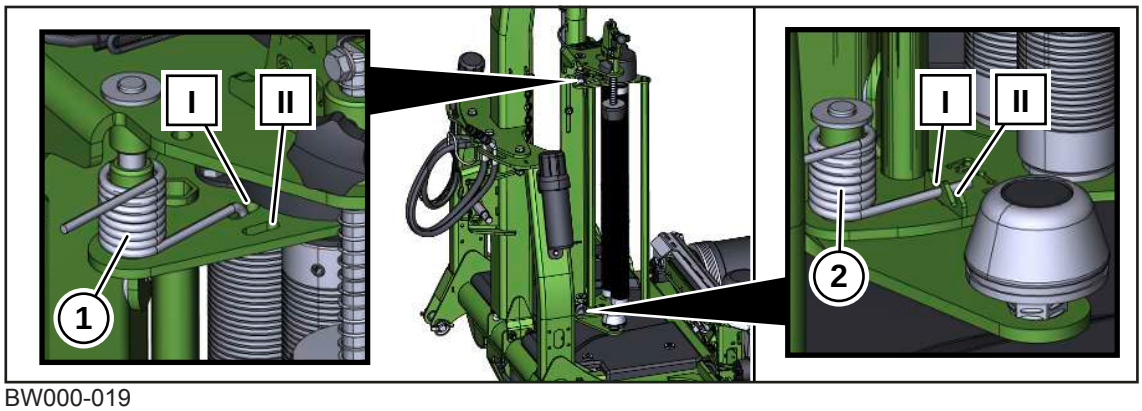
✓ The machine is shut down and safeguarded, *refer to page 22*.

Make the following setting on the right and left sides of the machine in the same way:

- Press and hold the key in the terminal for about 5 seconds to move the loading arms slightly apart.
- Dismount the linch pin (1) and the bolt (2).
- Select the desired bale size (3) and mount the bolt (2) and the linch pin (1) at this point.

14.3 Setting the film stretching device

The tension of the film rolls in the film stretching device can be adjusted.



BW000-019

Position	Description
(I)	Spring (1) or (2) more tensioned
(II)	Factory setting

✓ The machine is shut down and safeguarded, *refer to page 22*.

✓ The film stretching device is folded rearwards, *refer to page 46*.

▶ Using a suitable tool, insert the spring (1) into the desired position (I) or (II) at the top of the film stretching device.

▶ Using a suitable tool, insert the spring (2) into the same position (I) or (II) at the bottom of the film stretching device.

15 Service & maintenance

⚠ WARNING
Risk of injury due to non-observance of relevant safety notices If the relevant safety notices are not observed, persons may get seriously injured or killed. ▶ To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING
Risk of injury due to non-observance of safety instructions If the relevant safety routines are not observed, persons may be seriously injured or killed. ▶ The safety routines must be read and observed to avoid accidents, *refer to page 22*.

15.1 Maintenance table

15.1.1 Maintenance – Before the season

Components	
Tighten screws/nuts on the machine	*refer to page 106*
Lubricate the machine according to the lubrication chart	*refer to page 103*
Start the wrapping process and check the functions	
Check hydraulic hoses	*refer to page 111*
Check the electrical connection cables and, if necessary, have them repaired or changed by a KRONE service partner	

Checking oil level	
Gearbox wrapping arm	*refer to page 109*

15.1.2 Maintenance – After the season

Components	
Clean the machine	*refer to page 110*
Lubricate the machine according to the lubrication chart	*refer to page 103*
Grease the threads of the setting screws	
Grease the uncoated piston rods of all hydraulic cylinders and insert as far as possible	
Lightly coat with oil all those lever joints and bearing positions which cannot be lubricated	

Components	
Touch up damaged paint and preserve uncoated areas with rust protection agent	
Check that all moveable components move freely. If required, dismount, clean, grease and remount.	
Park the machine in a weatherproof and dry location which is not in close proximity to corrosive substances	

15.1.3 Maintenance – Once after 50 hours

Changing oil	
Gearbox wrapping arm	*refer to page 109*

15.1.4 Maintenance – Every 10 hours, at least daily

Components	
Clean the machine	*refer to page 110*

Checking oil level	
Gearbox wrapping arm	*refer to page 109*

15.1.5 Maintenance – Every 500 hours

Changing oil	
Gearbox wrapping arm	*refer to page 109*

15.2 Lubrication chart

NOTICE

Damage to bearing points

When using lubricating greases not approved and when mixing different lubricating greases, the lubricated parts may be damaged.

- ▶ Only use approved lubricating greases, *refer to page 33*.
- ▶ Do not use graphite-containing lubricating greases.
- ▶ Do not mix different lubricating greases.

NOTICE

Environmental damage caused by consumables

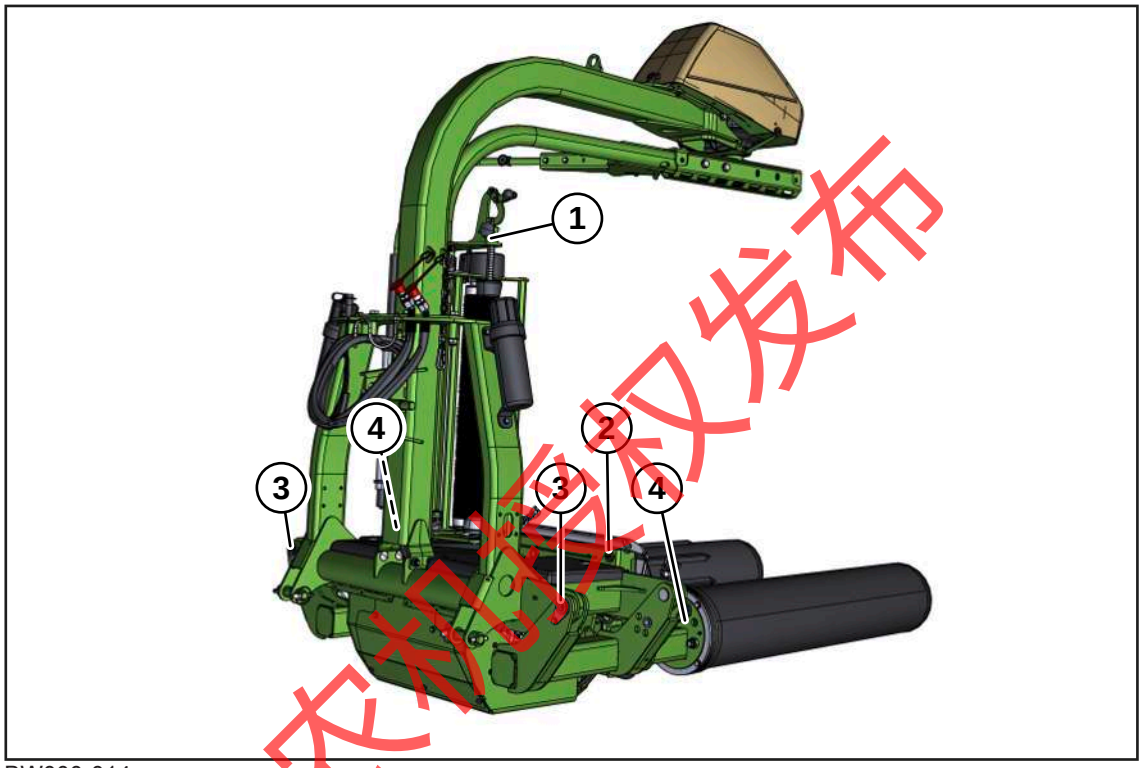
If consumables are not stored and disposed of properly, they may escape into the environment. As a result, the environment will be damaged, even by small quantities.

- ▶ Store the consumables in suitable containers according to the statutory provisions.
- ▶ Dispose of used consumables according to statutory provisions.

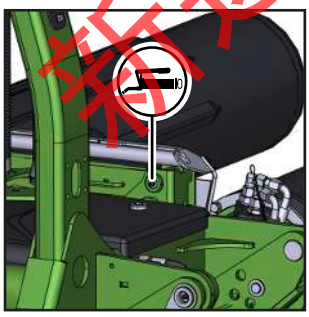
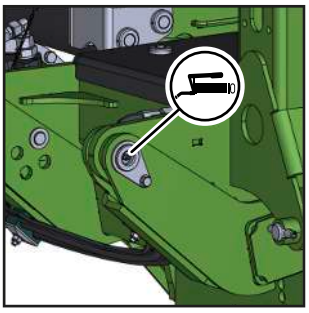
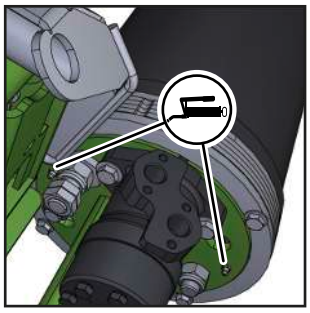
The information on maintenance intervals is based on average load of the machine. In case of an increased load and under extreme working conditions, the time periods must be reduced. The types of lubrication are marked by means of icons in the lubrication chart, refer to table.

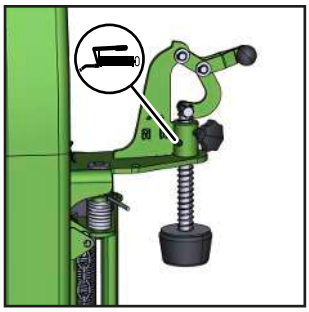
Type of lubrication	Lubricant	Comment
Grease	Multi-purpose grease	▶ Apply two strokes of lubricating grease from the grease gun per grease nipple. ▶ Remove excess lubricating grease at the grease nipple.

Front machine side

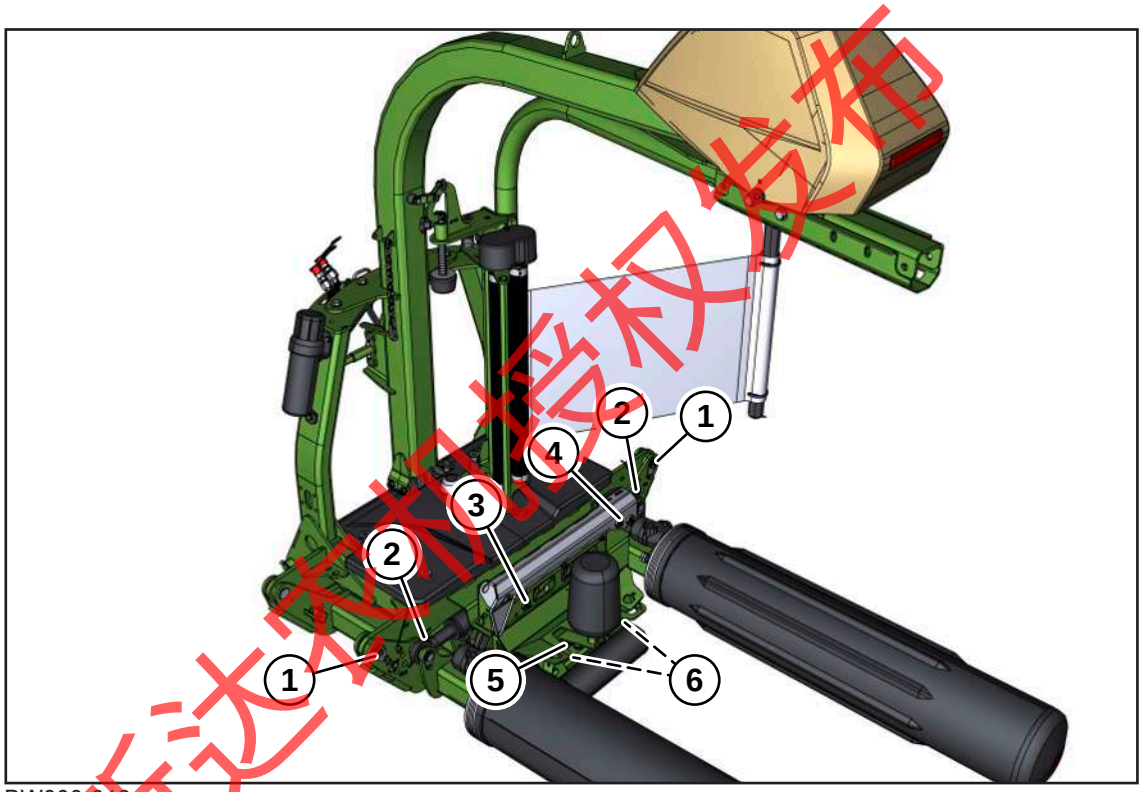


BW000-014

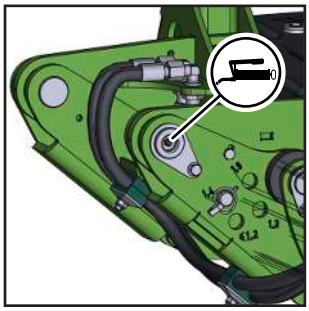
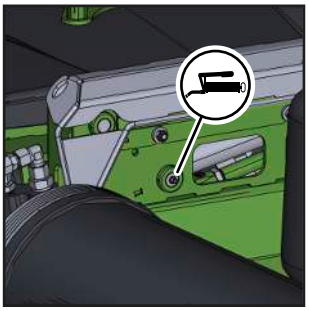
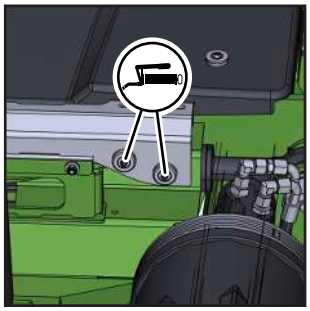
Every 250 round bales		
(2)	(3)	(4)
		

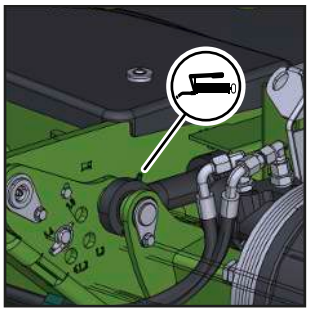
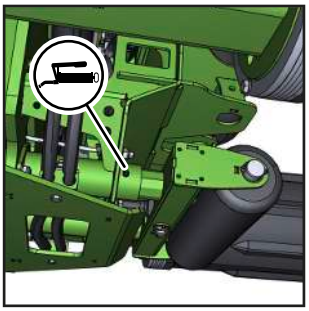
Every 2000 round bales		
(1) 		

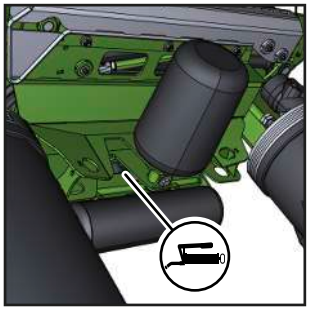
Rear side of machine



BW000-013

Every 250 round bales		
(1) 	(3) 	(4) 

Every 1000 round bales		
(2) 	(6) For version with "Bale turner" 	

Every 2000 round bales		
(5) For version with "Bale turner" 		

15.3 Tightening torques

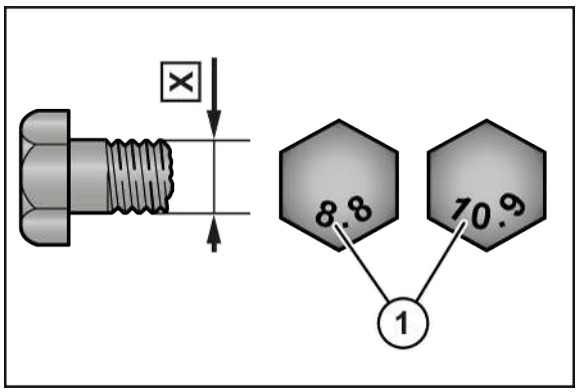
Deviating tightening torques

All screw connections must in general be tightened with the listed tightening torques following. Deviations from the tables are marked accordingly.

Metric thread screws with control thread

INFORMATION

The table does not apply to countersunk screws with hexagon socket in case the countersunk screw is tightened via hexagon socket.

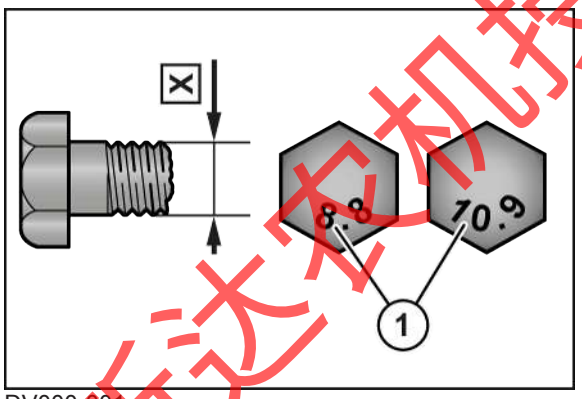


DV000-001

X Thread size 1 Strength class on screw head

X	Strength class			
	5.6	8.8	10.9	12.9
	Tightening torque (Nm)			
M4		3.0	4.4	5.1
M5		5.9	8.7	10
M6		10	15	18
M8		25	36	43
M10	29	49	72	84
M12	42	85	125	145
M14		135	200	235
M16		210	310	365
M20		425	610	710
M22		571	832	972
M24		730	1,050	1,220
M27		1,100	1,550	1,800
M30		1,450	2,100	2,450

Metric thread screws with fine thread



DV000-001

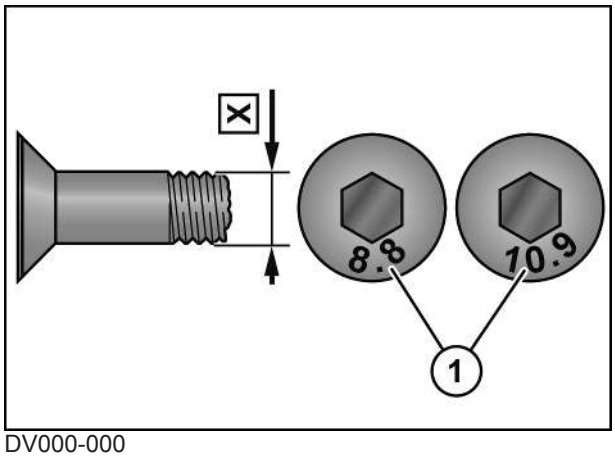
X Thread size 1 Strength class on screw head

X	Strength class			
	5.6	8.8	10.9	12.9
	Tightening torque (Nm)			
M12 x 1.5		88	130	152
M14 x 1.5		145	213	249
M16 x 1.5		222	327	382
M18 x 1.5		368	525	614
M20 x 1.5		465	662	775
M24 x 2		787	1,121	1,312
M27 x 2		1,148	1,635	1,914
M30 x 1.5		800	2,100	2,650

Metric thread screws with countersunk head and hexagon socket

INFORMATION

The table applies only to countersunk screws with hexagon socket and metric thread tightened via hexagon socket.



DV000-000

X Thread size 1 Strength class on screw head

X	Strength class			
	5.6	8.8	10.9	12.9
	Tightening torque (Nm)			
M4		2.5	3.5	4.1
M5		4.7	7	8
M6		8	12	15
M8		20	29	35
M10	23	39	58	67
M12	34	68	100	116
M14		108	160	188
M16		168	248	292
M20		340	488	568

Locking screws on the gearboxes

INFORMATION

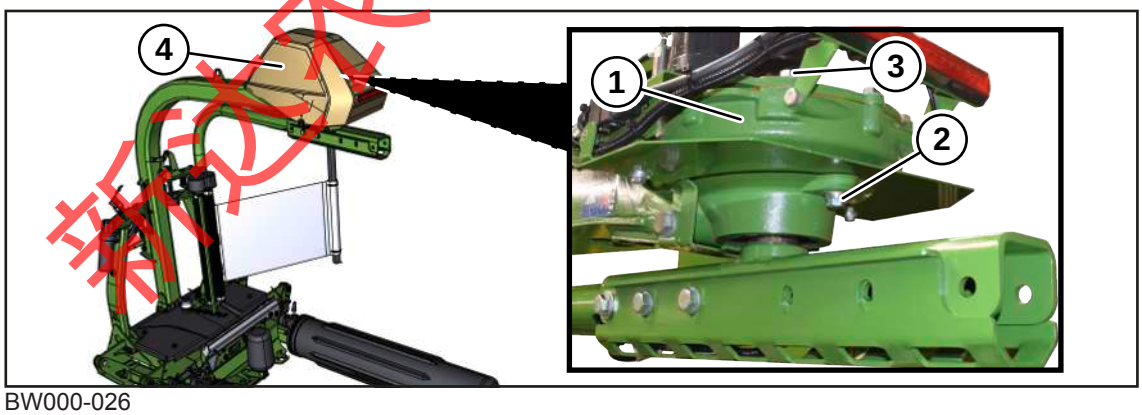
The tightening torques only apply to assembly of locking screws, viewing glasses, ventilation and breather filters and bleed valves in gearboxes with cast housings or aluminium or steel housings. The term “locking screw” includes the drain plug, the inspection screw as well as the ventilation and breather filters.

This table applies only to locking screws with external hexagon in connection with copper seal ring and for bleed valves made of brass with shaped seal ring.

Thread	Locking screw and sight glass with copper ring[1] Ventilation/breather filter made of steel		Bleed valve made of brass Ventilation/breather filter made of brass	
	Steel and cast	Aluminium	Steel and cast	Aluminium
	Maximum tightening torque (Nm) (±10%)			
M10x1			8	
M12x1.5			14	
G1/4“			14	
M14x1.5			16	
M16x1.5	45	40	24	24
M18x1.5	50	45	30	30
M20x1.5			32	
G1/2“			32	
M22x1.5			35	
M24x1.5			60	
G3/4“			60	
M33x2			80	
G1“			80	
M42x1.5			100	
G1 1/4“			100	

[1] Always replace copper rings.

15.4 Maintenance of the gearbox wrapping arm



BW000-026

The gearbox wrapping arm (1) sits below the protective hood (4).

Maintenance intervals: *refer to page 102*

Amount and type specifications of the oil: *refer to page 33*

✓ The machine is horizontal on stable and level ground.

✓ The machine is shut down and safeguarded, *refer to page 22*.

✓ The protective hood (4) is removed.

Checking oil level

- Comply with the safety routine "Safe execution of oil level check, oil and filter element exchange", *refer to page 23*.
- Remove the locking screw from the inspection and filling hole (3).
  - ⇨ The oil must reach the inspection and filling hole (3).

If the oil reaches the inspection and filling hole (3):

- Screw the locking screw into the inspection and filling hole (3), tightening torque *refer to page 108*.

If the oil does not reach the inspection and filling hole (3):

- Top up with fresh oil via the inspection and filling hole (3) up to the inspection and filling hole (3).
- Screw the locking screw into the inspection and filling hole (3), tightening torque *refer to page 108*.

Changing the oil

✓ A suitable container is available for escaping oil.

- Remove the locking screw from the inspection and filling hole (3).
- Remove the locking screw (2) from the oil drain.
- Collect the oil in a container.
- Screw in the locking screw (2), *refer to page 108*.
- Pour in fresh oil via the inspection and filling hole (3) up to the inspection and filling hole (3).
- Screw the locking screw into the inspection and filling hole (3), tightening torque *refer to page 108*.

15.5 Cleaning the machine

⚠ *WARNING*
Eye damage caused by flying dirt particles! When cleaning the machine with compressed air or with high-pressure cleaner, the dirt particles are slung away at high speed. The dirt particles may hit the eyes and hurt them. ▶ Keep persons away from working range. ▶ When performing cleaning work with compressed air or with high-pressure cleaner, wear suitable working clothes (for example eye protection).

NOTICE

Damage to the machine due to water damages with high-pressure cleaner

If the water jet from a high-pressure cleaner is aimed directly at bearings and electrical/ electronic components, these parts can be damaged.

- ▶ Do not aim the water jet from high-pressure cleaner at bearings and electrics/electronic components.

✓ The machine is shut down and safeguarded, *refer to page 22*.

- ▶ Clean the machine thoroughly after each use.
- ▶ If necessary, repeat the cleaning several times a day.
- ➡ There should be no more crops on the machine after cleaning.
- ➡ After cleaning, there should be no film residues in the holding and cutting device.

15.6 Checking hydraulic hoses

Hydraulic hoses are subject to natural aging. This limits their service life. The recommended service life is 6 years, including a maximum storage time of 2 years. The date of manufacture is printed on the hydraulic hoses. When checking hydraulic hoses, the state-specific conditions (e.g., BGVU) must be observed.

Performing a visual inspection

- ▶ Visually inspect all hydraulic hoses for damage and leaks and have them replaced by an authorised specialist if necessary.

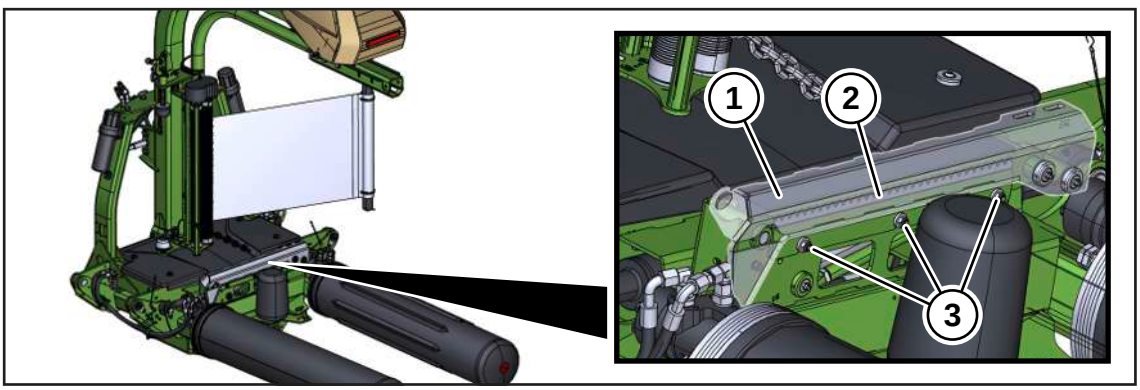
15.7 Replacing the blades of the holding and cutting device

WARNING

Risk of injury on sharp blades

During maintenance work on the holding and cutting device, the sharp blade poses a risk of injury to fingers and hands.

- ▶ Be particularly careful when you work on the holding and cutting device.
- ▶ Always wear protective gloves when you work on the holding and cutting device.
- ▶ Prior to starting work on the holding and cutting device, stop and secure the machine, *refer to page 22*.



BW000-012

The blade (2) of the holding and cutting device can be replaced if it does no longer cut the film properly.

- To open the holding and cutting device (1), press  in the manual operation menu, *refer to page 72*.
- Shut down and safeguard the machine, *refer to page 22*.
- Safely support the lifted holding and cutting device.
- Remove the 3 screw connections (3).
- Remove the blade (2).
- Put a new blade on the screw connections and mount it with the 3 screw connections (3).

For an overview of the tightening torques, *refer to page 106*.

16 Disturbance, cause and remedy

⚠ WARNING
Risk of injury due to non-observance of relevant safety notices If the relevant safety notices are not observed, persons may get seriously injured or killed. ▶ To avoid accidents, the basic safety instructions must be read and observed, *refer to page 12*.

⚠ WARNING
Risk of injury due to non-observance of safety instructions If the relevant safety routines are not observed, persons may be seriously injured or killed. ▶ The safety routines must be read and observed to avoid accidents, *refer to page 22*.

16.1 Disturbances while picking up or discharging bales

Disturbance: The round bale is not picked up properly.

Possible cause	Remedy
The loading arms move together too slowly.	▶ Increase the "Bale pick-up" time in the bale discharge menu in the terminal, *refer to page 74*

16.2 Disturbances during the wrapping process

Disturbance: The film is wrinkled.

Possible cause	Remedy
The pre-tension of the film is too low.	▶ Check and adjust the pre-tension of the film, *refer to page 99*.

Disturbance: The wrapping process does not start.

Possible cause	Remedy
The safety bracket was actuated.	▶ Check the area of the wrapping arm for disturbances. ▶ Confirm the error message on the terminal.
A sensor or actuator is defective.	▶ Check that various sensors and actuators function, *refer to page 116*.

Disturbance: The film is not cut.

Possible cause	Remedy
The blades of the holding and cutting device are blunt.	▶ Replace the blades of the holding and cutting device, *refer to page 111*.

Disturbance: The film breaks.

Possible cause	Remedy
The stretch rolls rotate too sluggishly.	▶ Adjust the film stretching device, *refer to page 100*.
The stretch rolls are damaged.	▶ Have the stretch rolls replaced by a KRONE service partner.
The film roll has not been inserted correctly.	▶ Insert the film roll properly into the film stretching device, *refer to page 46*.
The outside temperature is too high, or the film quality is not adequate.	▶ Reduce the pre-tension of the film to 55%, *refer to page 99*.

16.3 Disturbances in the electric/electronic system

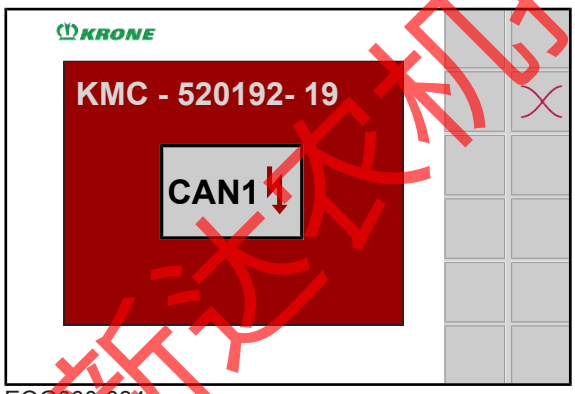
16.3.1 Error Messages

⚠ WARNING

Personal injuries and/or machine damage caused by non-compliance of error messages

If error messages are ignored and the malfunction is not remedied, people may be injured and/or the machine may be damaged seriously.

- ▶ Remedy the malfunction when the error message is displayed, *refer to page 116*.
- ▶ If the malfunction cannot be remedied, contact KRONE Customer Service.



EQG000-034

The display shows an error message if a malfunction occurs on the machine. At the same time, an audio signal will be heard (continuous horn sound). Description of malfunction, possible cause and remedy, *refer to page 116*.

Configuration of an error message

The error message is configured according to the following sample: e.g. error message

"520192-19 CAN1 "

520192	19	CAN1
SPN (Suspect Parameter Number) = error number	FMI = type of error, *refer to page 115*	Icon

Acknowledging error message

- ▶ Note down the error message.
- ▶ Briefly press on  .
- ➡ The acoustic signal stops and the error display is no longer indicated. If the fault occurs again, the error message will be displayed again.
- ▶ Rectify the error, *refer to page 116*.

Error messages that have already been acknowledged and error messages that are still pending can be displayed again via the “Error list” menu (*refer to page 91*) or via the status line (*refer to page 59*).

16.3.1.1 Possible error types (FMI)

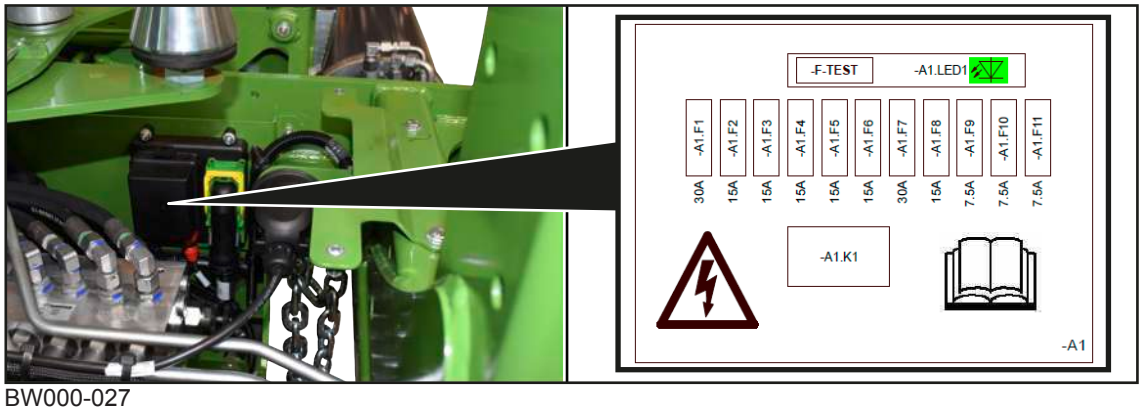
There are different types of errors which are shown under the term FMI (Failure Mode Identification) with an appropriate code.

FMI	Meaning
0	The upper limit value was greatly exceeded.
1	The lower limit value was far below the required one.
2	The data is not permitted.
3	There is an overvoltage or a short circuit to supply voltage.
4	There is an undervoltage or a short circuit to ground.
5	A cable is broken or amperage is too low.
6	There is a short circuit to ground or amperage is too low.
7	The mechanics do not respond or the expected result was not achieved.
8	The frequency is not permitted.
9	There is an abnormal update rate.
10	There is an abnormal rate of change.
11	The error cause is unknown.
12	There is an internal error.
13	The values of the calibration are outside the value range.
14	Particular instructions are required.
15	The upper limit value has been reached.
16	The upper limit value has been exceeded.
17	The lower limit value has been reached.
18	The lower limit value has not been reached.
19	There is a CAN communication failure.
20	The data deviates upwards.
21	The data deviates downwards.
31	The condition has been fulfilled.

16.3.2 Overview of fuses

The circuit board with the fuses sits under the cover for the hydraulic and electronic systems.

As indicated on the circuit diagram, the following fuses are on the circuit board:



BW000-027

Designation	Explanation	Designation	Explanation
A1.F1	Reserve 30 A	A1.F7	Reserve 30 A
A1.F2	KMC 50 UB1 15 A	A1.F8	Reserve 15 A
A1.F3	KMC 50 UB2 15 A	A1.F9	KMC 50, ISOBUS In-cab 7.5 A
A1.F4	Diagnostics socket 15 A	A1.F10	KRONE SmartConnect, key module 7.5 A
A1.F5	KMB reserve UB1 15 A	A1.F11	KMB 7.5 A
A1.F6	KMB reserve UB2 15 A		

16.3.3 Remedying sensor/actuator error

Components must be repaired or replaced by a qualified specialist workshop only.

Before contacting the dealer, collect the following information about the error message:

- ▶ Note the error number and the respective FMI (*refer to page 114*) that are shown on the display.
- ▶ Shut down and safeguard the machine, *refer to page 22*.
- ▶ Check sensor/actuator externally for damage.
- ➡ If the sensor/actuator is damaged, replace the sensor/actuator.
- ➡ If the sensor/actuator is not damaged, continue with the next test step.
- ▶ Check connector cable and plug connection for damage and tightness.
- ➡ If the connector cable/plug connection is damaged, replace the connector cable/plug connection.
- ➡ If the sensor/actuator is not damaged, continue with the next test step.
- ▶ Perform an actuator test in case of an actuator error to identify the actuator status, *refer to page 88*.
- ▶ If a sensor is defective, run a sensor test to identify the sensor status, *refer to page 86*.

The more information the dealer has, the easier it is to eliminate the cause of the error.

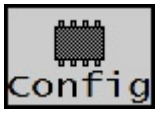
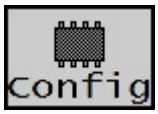
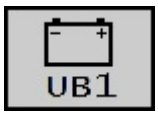
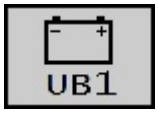
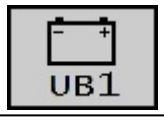
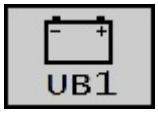
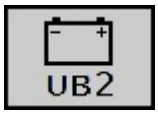
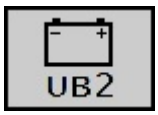
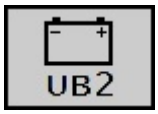
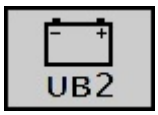
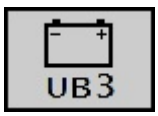
16.3.4 Error list

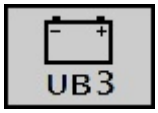
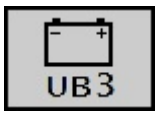
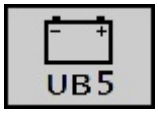
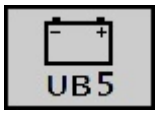
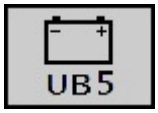
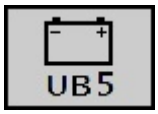
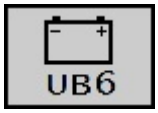
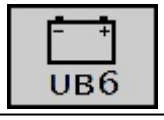
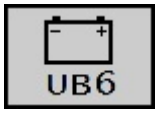
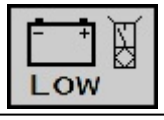
>>>

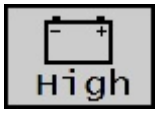
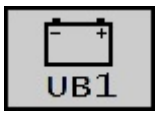
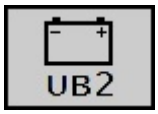
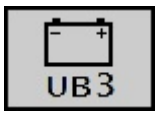
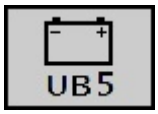
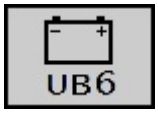
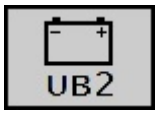
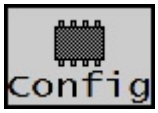
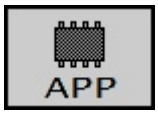
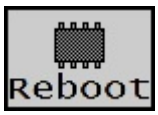
Fehlerliste_BW_D2515020114000001_en-gb [▶ 117]

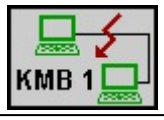
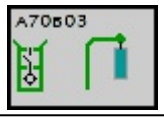
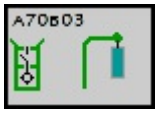
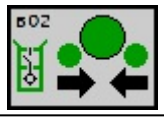
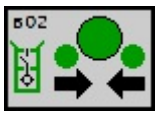
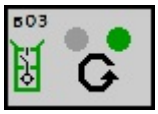
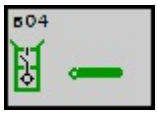
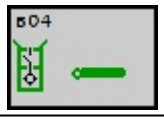
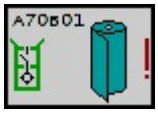
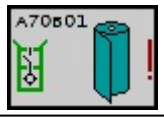
Error list

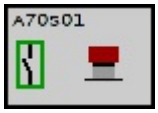
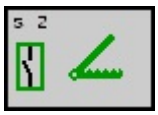
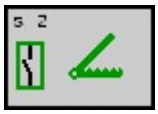
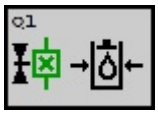
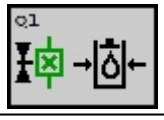
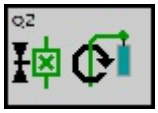
Software version: D25150201139000001_500
Control unit: KMC

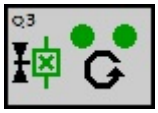
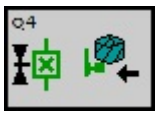
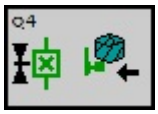
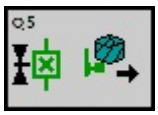
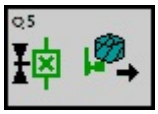
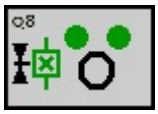
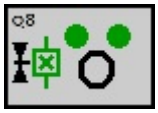
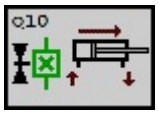
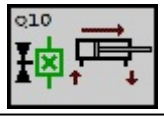
Error number	Error text	Description	Figure
KMC-520192-19	CAN1 - CAN disturbance between control units	There is a CAN disturbance between control units on CAN 1.	
KMC-520193-19	CAN2 - CAN disturbance between control units	There is a CAN disturbance between control units on CAN 2.	
KMC-520194-19	CAN3 - CAN disturbance between control units	There is a CAN disturbance between control units on CAN 3.	
KMC-520195-19	CAN4 - CAN disturbance between control units	There is a CAN disturbance between control units on CAN 4.	
KMC-520198-12	Control unit - Internal Error	An internal error in the control unit which was actuated by defective software or hardware.	
KMC-520232-12	Vehicle Identification Number - Internal Error	The vehicle identification number has not been initialised.	
KMC-520234-31	System check with KMC failed - Condition is available	With the KMC the cross-controller adjustment of system-relevant machine data has failed.	
KMC-521100-3	Voltage group UB1 - Overvoltage	The input voltage of the corresponding voltage group is too high.	
KMC-521100-4	Voltage group UB1 - Undervoltage detected	The input voltage of the corresponding voltage group is too low.	
KMC-521100-5	Voltage group UB1 - Ground fault	A ground fault has occurred on the supply voltage.	
KMC-521100-6	Voltage group UB1 - Overload	The maximum load on the supply voltage has been exceeded.	
KMC-521101-3	Voltage group UB2 - Overvoltage	The input voltage of the corresponding voltage group is too high.	
KMC-521101-4	Voltage group UB2 - Undervoltage detected	The input voltage of the corresponding voltage group is too low.	
KMC-521101-5	Voltage group UB2 - Ground fault	The maximum load on the supply voltage has been exceeded.	
KMC-521101-6	Voltage group UB2 - Overload	The maximum load on the supply voltage has been exceeded.	
KMC-521102-3	Voltage group UB3 - Overvoltage	The input voltage of the corresponding voltage group is too high.	

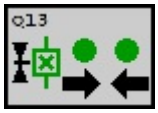
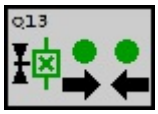
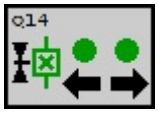
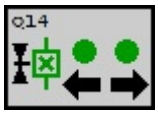
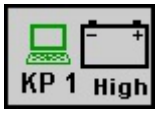
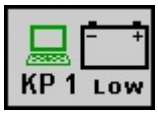
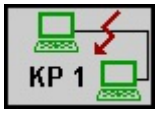
Error number	Error text	Description	Figure
KMC-521102-4	Voltage group UB3 - Undervoltage detected	The input voltage of the corresponding voltage group is too low.	
KMC-521102-5	Voltage group UB3 - Ground fault	A ground fault has occurred on the supply voltage.	
KMC-521102-6	Voltage group UB3 - Overload	The maximum load on the supply voltage has been exceeded.	
KMC-521103-3	Voltage group UB4 - Overvoltage	The input voltage of the corresponding voltage group is too high.	
KMC-521103-4	Voltage group UB4 - Undervoltage detected	The input voltage of the corresponding voltage group is too low.	
KMC-521103-5	Voltage group UB4 - Ground fault	A ground fault has occurred on the supply voltage.	
KMC-521103-6	Voltage group UB4 - Overload	The maximum load on the supply voltage has been exceeded.	
KMC-521104-3	Voltage group UB5 - Overvoltage	The input voltage of the corresponding voltage group is too high.	
KMC-521104-4	Voltage group UB5 - Undervoltage detected	The input voltage of the corresponding voltage group is too low.	
KMC-521104-5	Voltage group UB5 - Ground fault	A ground fault has occurred on the supply voltage.	
KMC-521104-6	Voltage group UB5 - Overload	The maximum load on the supply voltage has been exceeded.	
KMC-521105-3	Voltage group UB6 - Overvoltage	The input voltage of the corresponding voltage group is too high.	
KMC-521105-4	Voltage group UB6 - Undervoltage detected	The input voltage of the corresponding voltage group is too low.	
KMC-521105-5	Voltage group UB6 - Ground fault	A ground fault has occurred on the supply voltage.	
KMC-521105-6	Voltage group UB6 - Overload	The maximum load on the supply voltage has been exceeded.	
KMC-521106-11	Supply voltage sensors - General disturbance	The voltage has been switched off due to an overload or a short circuit on the supply voltage of the sensors.	

Error number	Error text	Description	Figure
KMC-521107-3	Supply voltage - Overvoltage	The power supply on the UE connection is too high.	
KMC-521107-4	Supply voltage - Undervoltage detected	The power supply on the UE connection is too low.	
KMC-521108-11	Control unit - General disturbance	The voltage group relay UB1 has not passed the self-test.	
KMC-521109-11	Control unit - General disturbance	The voltage group relay UB2 has not passed the self-test.	
KMC-521110-11	Control unit - General disturbance	The voltage group relay UB3 has not passed the self-test.	
KMC-521111-11	Control unit - General disturbance	The voltage group relay UB4 has not passed the self-test.	
KMC-521112-11	Control unit - General disturbance	The voltage group relay UB5 has not passed the self-test.	
KMC-521113-11	Control unit - General disturbance	The voltage group relay UB6 has not passed the self-test.	
KMC-521114-11	Sensor supply voltage U1 - General disturbance	The voltage group Uext1 for supplying the sensors is defective, for example due to overload or short circuit.	
KMC-521115-11	Sensor supply voltage U2 - General disturbance	The voltage group Uext2 for supplying the sensors is defective, for example due to overload or short circuit.	
KMC-521116-11	Sensor supply voltage U3 - General disturbance	The voltage group Uext3 for supplying the sensors is defective, for example due to overload or short circuit.	
KMC-521117-11	Sensor supply voltage U4 - General disturbance	The voltage group Uext4 for supplying the sensors is defective, for example due to overload or short circuit.	
KMC-521118-11	Voltage group relay UB2 - General disturbance	Platform error only for BiG X: A disturbance has been detected at the intake/header. Therefore the voltage group relay UB2 was switched off.	
KMC-521320-2	Machine configuration - Logic error electronics	Configuration of the machine is not compatible with the hardware.	
KMC-521350-11	Control unit - General disturbance		
KMC-521351-11	Control unit - General disturbance		

Error number	Error text	Description	Figure
KMC-522001-7	Logic fault mechanics		
KMC-522002-19	Timeout KMB 1 - CAN disturbance between control units	Timeout KMB 1	
KMC-522007-7	Logic fault mechanics		
KMC-522010-7	Logic fault mechanics		
KMC-522011-2	Timeout automatic - Logic error electronics	An automatic process takes longer than expected	
KMC-522012-7	Rotational speed deviation of rollers - Logic fault mechanics	The rotational speed deviation of the rollers to the wrapping arm is too high.	
KMC-522101-3	Sensor A70.B3 Position wrapping arm - Cable break		
KMC-522101-4	Sensor A70.B3 Position wrapping arm - Short circuit to ground or UB		
KMC-522102-3	Sensor B2 Bale in pick-up position - Cable break		
KMC-522102-4	Sensor B2 Bale in pick-up position - Short circuit to ground or UB		
KMC-522103-3	Sensor B3 Corrugated roller speed - Cable break		
KMC-522103-4	Sensor B3 Corrugated roller speed - Short circuit to ground or UB		
KMC-522104-3	Sensor B4 Holding and cutting device closed - Cable break		
KMC-522104-4	Sensor B4 Holding and cutting device closed - Short circuit to ground or UB		
KMC-522107-3	Sensor A70.B1 Film tear detection 1 - Cable break		
KMC-522107-4	Sensor A70.B1 Film tear detection 1 - Short circuit to ground or UB		

Error number	Error text	Description	Figure
KMC-522150-3	Switch/momentary switch A70.S1 Safety installation wrapping arm - Cable break		
KMC-522150-4	Switch/momentary switch A70.S1 Safety installation wrapping arm - Short circuit to ground or UB		
KMC-522151-3	Switch/momentary switch S2 Move wrapping table - Cable break		
KMC-522151-4	Switch/momentary switch S2 Move wrapping table - Short circuit to ground or UB		
KMC-522152-3	Switch/momentary switch S3 Move right holding and cutting device - Cable break		
KMC-522152-4	Switch/momentary switch S3 Move right holding and cutting device - Short circuit to ground or UB		
KMC-522153-3	Switch/momentary switch S4 Turn wrapping arm forward - Cable break		
KMC-522153-4	Switch/momentary switch S4 Turn wrapping arm forward - Short circuit to ground or UB		
KMC-522154-3	Switch/momentary switch S5 Turn wrapping arm backward - Cable break		
KMC-522154-4	Switch/momentary switch S5 Turn wrapping arm backward - Short circuit to ground or UB		
KMC-522155-3	Switch/momentary switch S6 Enable manual operation - Cable break		
KMC-522155-4	Switch/momentary switch S6 Enable manual operation - Short circuit to ground or UB		
KMC-522301-3	Valve Q1 Load Sensing active - Cable break or short circuit to UB		
KMC-522301-6	Valve Q1 Load Sensing active - Short Cut to Ground		
KMC-522302-3	Valve Q2 Drive wrapping arm - Cable break or short circuit to UB		
KMC-522302-6	Valve Q2 Drive wrapping arm - Short Cut to Ground		

Error number	Error text	Description	Figure
KMC-522303-3	Valve Q3 Speed of rollers - Cable break or short circuit to UB		
KMC-522303-6	Valve Q3 Speed of rollers - Short Cut to Ground		
KMC-522304-3	Valve Q4 retract bale turner - Cable break or short circuit to UB		
KMC-522304-6	Valve Q4 retract bale turner - Short Cut to Ground		
KMC-522305-3	Valve Q5 Extend bale turner - Cable break or short circuit to UB		
KMC-522305-6	Valve Q5 Extend bale turner - Short Cut to Ground		
KMC-522307-3	Valve Q7 - Cable break or short circuit to UB		
KMC-522307-6	Valve Q7 - Short Cut to Ground		
KMC-522308-3	Valve Q8 Freewheel flat roller - Cable break or short circuit to UB		
KMC-522308-6	Valve Q8 Freewheel flat roller - Short Cut to Ground		
KMC-522309-3	Valve Q9 Reverse wrapping arm - Cable break or short circuit to UB		
KMC-522309-6	Valve Q9 Reverse wrapping arm - Short Cut to Ground		
KMC-522310-3	Valve Q10 Pilot valve 1 - Cable break or short circuit to UB		
KMC-522310-6	Valve Q10 Pilot valve 1 - Short Cut to Ground		
KMC-522311-3	Valve Q11 Move wrapping table - Cable break or short circuit to UB		
KMC-522311-6	Valve Q11 Move wrapping table - Short Cut to Ground		

Error number	Error text	Description	Figure
KMC-522312-3	Valve Q12 Move right holding and cutting device - Cable break or short circuit to UB		
KMC-522312-6	Valve Q12 Move right holding and cutting device - Short Cut to Ground		
KMC-522313-3	Valve Q13 lift up bale - Cable break or short circuit to UB		
KMC-522313-6	Valve Q13 lift up bale - Short Cut to Ground		
KMC-522314-3	Valve Q14 put down bale - Cable break or short circuit to UB		
KMC-522314-6	Valve Q14 put down bale - Short Cut to Ground		
KMC-522501-2	Logic error electronics		
KMC-522650-3	KP1 - Overvoltage		
KMC-522650-4	KP1 - Undervoltage detected		
KMC-522650-19	KP1 - Disturbance		

16.4 Emergency manual operation

⚠ WARNING

Increased risk of injury when operating the machine via emergency manual operation

If the machine is operated via emergency manual operation, functions are executed immediately and without confirmation prompts. Thus there is an increased risk of injury.

✓ Only persons who are familiar with the machine are permitted to perform an emergency manual operation.

✓ The executing person must know which machine parts are actuated by controlling the valves.

▶ Ensure that there is nobody in the danger zone.

▶ The valves must only be controlled from a safe position outside the area that is affected by machine parts moved by the valves.

In the event of a complete failure of the electric system, you can actuate the valves on the control block manually.

The following table explains the actuator valves that must be operated together to start the functions. An overview of the sensors, actuators and control units can be found in the circuit diagram.

Function	Q01 "Load Sensing active"	Q02 "Speed of wrapping arm"	Q03 "Speed of rollers"
Turn wrapping arm	x	x	
Additional rotation of the loading arms	x		x

Turn wrapping arm

▶ Screw in the setting screw on the actuator valve Q01.

▶ Carefully screw in the setting screw on the actuator valve Q02. Ensure that the setting screw is not screwed in too rapidly.

▶ Once the wrapping arm has reached the desired position, turn the setting screws of the actuator valves Q01 and Q02 back to their initial position.

Additional rotation of the loading arms

▶ Screw in the setting screw on the actuator valve Q01.

▶ Press on the cover of the actuator valve Q03.

▶ Once the loading arms have reached the desired position, turn the setting screw of the actuator valve Q03 back to its initial position.

17 Waste disposal

After the service life of the machine has expired, the individual components of the machine must be disposed of properly. The currently applicable country-specific waste disposal directives and the concerning valid laws must be observed.

Metal parts

- All metal parts must be brought to a metal recycling centre.
- The parts must be freed from operating fluids and lubricants (gearbox oil, oil from hydraulic system, ...) before being scrapped.
- The operating fluids and lubricants must be brought separately to an environmentally friendly disposal point or recycling centre.

Operating fluids and lubricants

- Operating fluids and lubricants (diesel fuel, coolant, gearbox oil, oil from hydraulic system, …) must be brought to a disposal point for waste oil.

Synthetic materials

- All synthetic materials must be brought to a recycling centre for synthetic materials.

Rubber

- Rubber parts (hoses, tyres, …) must be brought to a rubber recycling centre.

Electronic scrap

- All electronic parts must be brought to a disposal point for electronic scrap.

18 Appendix

18.1 Hydraulic diagram

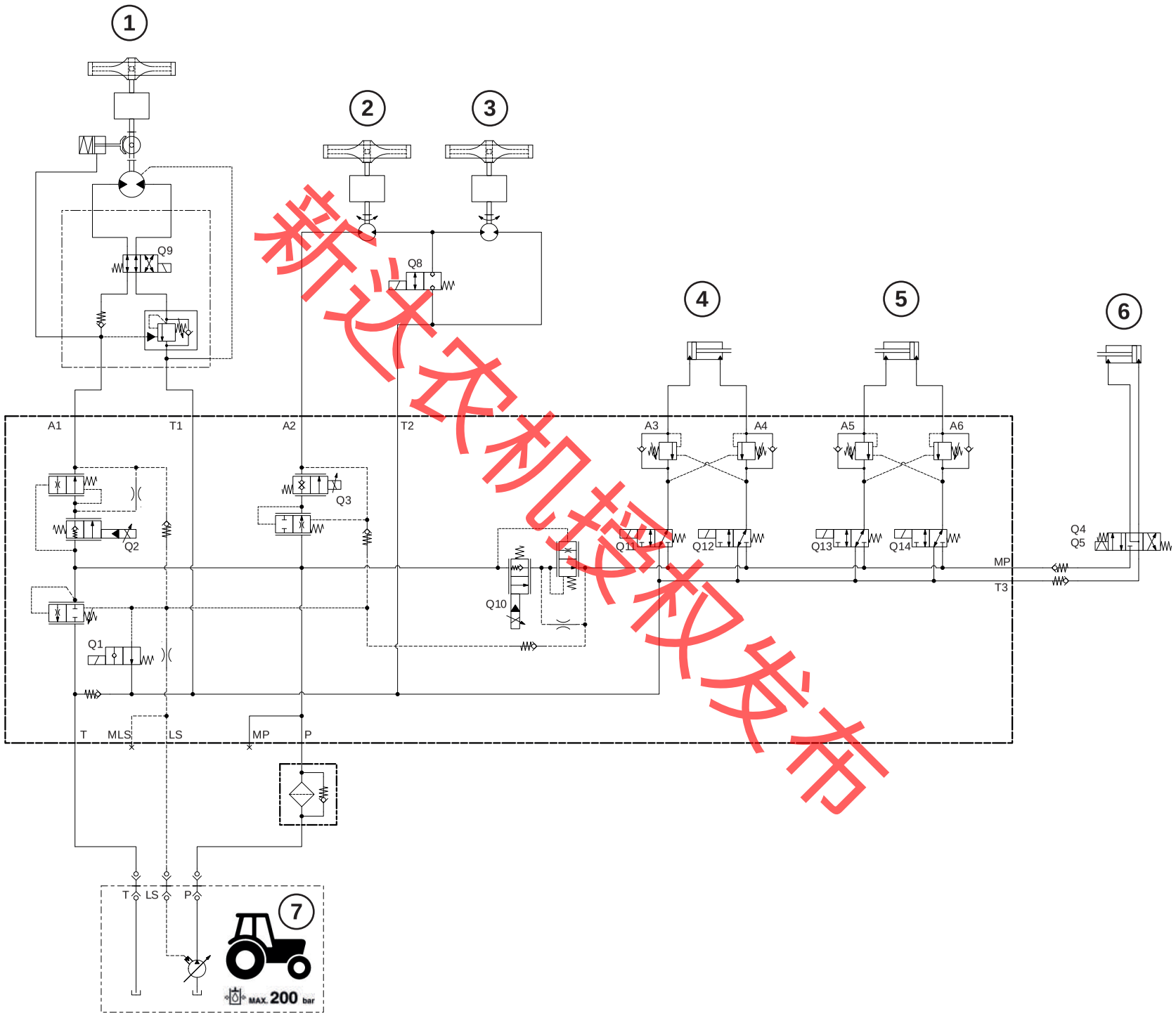
Legend for the following hydraulic diagram

No.	Description
1	Wrapping arm
2	Corrugated roller (loading arm)
3	Flat roller (loading arm)
4	Holding and cutting device
5	Bale pick-up (in "bale turner" version)
6	Bale turner (in "bale turner" version)
7	Load Sensing

A list of the sensors, actuators and control units can be found in the circuit diagram.

>>>

Hydraulikschaltplan_BW201-10 [▶ 128]


1
2
3
4
5
6
7
Q9
Q8
A1
T1
A2
T2
A3
A4
A5
A6
Q3
Q2
Q1
Q10
Q11
Q12
Q13
Q14
Q4
Q5
MP
T3
T
MLS
LS
MP
P
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LS
P
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W

19 Declaration of conformity

EC Declaration of Conformity

We

Maschinenfabrik Krone Beteiligungs-GmbH

Heinrich-Krone-Straße 10, D-48480 Spelle

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

Machine: Bale Wrapper
Type: BW201-10

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

- EC Directive 2006/42/EC (Machinery)
- EU Directive 2014/30/EU (EMC) The harmonised standard EN ISO 14982:2009 has been applied in accordance with the directive.

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

Spelle, dated 28/02/2020

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

Year of manufacture:

Machine no.:

KRONE

THE POWER OF GREEN

Maschinenfabrik

Bernard Krone GmbH & Co. KG

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V.1