Original operating instructions

KRONE

BiG PACK Baler

BiG PACK 870 HDP
BiG PACK 870 HDP XC

(from serial no.: 830852)

Order no.: 150 000 170 00 en

03.09.2014

EC Declaration of Conformity

We **Maschinenfabrik Bernard Krone GmbH**

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

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

Machine: **Krone Big Pack Baler**

Type/Types: **Big Pack 870 HDP; Big Pack 870 HDP XC**

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

EC Directive 2006/42/EC (Machinery) and EC Directive 2004/108/EC (EMC)

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

Spelle, Germany, 16.07.2014

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

Year of manufacture:	**Mach. no.:**

1 Table of Contents

2 Foreword

Dear Customer!

By purchasing your BiG PACK baler, you have acquired a quality product from KRONE.

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

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

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

Note

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

Please note:

The operating instructions are part of your machine.

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

It is essential to observe the safety instructions!

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

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

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

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

Maschinenfabrik Bernard Krone GmbH

Spelle

3 To this Document

3.1 Validity

These operating instructions apply to Big Pack Square Balers of the following types:

BiG PACK 870 HDP BiG PACK 870 HDP XC

In the HighSpeed design.

3.2 Target group of this document

This document is intended for the farmer and for other users who have no agricultural training but who have been instructed in the use of the machine.

3.3 How to use this document

Table of contents/headers:
The table of contents, as well as the headers in these instructions, are used for quick navigation in the chapters.

Index:
You can use the index to find specific information on the required subject via keywords which are in alphabetical order. The index is on the last page of these instructions.

Cross-references:
Cross-references to another place in the operating instructions or to another document are in the text and specify the chapter and subchapter or section. The name of the subchapter or section is in quotation marks.
Example:
Check that all screws on the machine are tight, see chapter Maintenance, "Tightening torques for hexagonal head screws".
The subchapter or the section can be found via an entry in the table of contents and in the index.

3.4 Directional information

3.4.1 Direction Information

Direction information in these operating instructions such as front, rear, right and left always applies in direction of travel.

Directional information in these operating instructions, such as front, rear, right and left, applies in the direction of travel of the machine.
Orientation information concerning a diagram of a machine detail refers to the diagram itself and is not relative to the direction of travel.

3.5 Identifying Symbols in the Operating Instructions

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

3.6 Identification of the hazard warnings

Danger!

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

Warning !

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

Caution!

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

General function instructions are indicated as follows:
Note!

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

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

4 Safety

4.1 Purpose of Use

KRONE Big Pack square balers are machines for collecting and baling cut crops (grass, hay, leguminous vegetation and straw, etc.) on farms. They are towed behind agricultural tractors of sufficient power that are also equipped with suitable interfaces for the installation and operation of the machine (see the introductory chapter "Technical Data" / "General Technical Description). The crop must be set down in rows on the field to be collected. Then it must only be collected with the pick-up by driving over the swath.

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

Effect: Damage to the machine

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

4.2 Intended Use

The Big Pack square baler is built exclusively for customary use in agricultural work (see the introduction "Intended Use").

The machine must only be used by persons who meet the requirements listed in the chapter on safety "Personnel Qualifications and Training".

These operating instructions are part of the machine. The machine is designed exclusively for use in accordance with these operating instructions.

Using the machine for work or applications that are not described in these operating instructions can lead to severe injuries or death of persons and damage to the machine and other property. Such work and applications are prohibited.

Any use of the machine for other purposes is deemed not to be in accordance with intended use. The manufacturer shall not be liable for any resulting damage; the user alone shall bear the risk.

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

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

4.3 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.

4.3.1 Importance of the 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" in the chapter Safety.
- Before working, also read and observe the respective sections in the operating instructions.
- Retain the operating instructions and ensure that they are always available.
- Hand over the operating instructions to subsequent users.

4.3.2 Personnel qualification

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.

4.3.3 Children in danger

Children cannot assess danger and behave unpredictably.
As a result, children are especially at risk.

- Keep children away from the machine.
- Keep children away from consumables.
- Especially before starting up and moving the machine, ensure that there are no children in the danger zone.

4.3.4 Connect the machine to the tractor

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

- When connecting front attachments or trailers, follow all operating instructions:
  - The operating instructions for the tractor
  - The operating instructions for the machine
  - The operating instructions for the universal shaft
- Follow the coupling instructions, see chapter on starting up "Connect the machine to the tractor".
- Note the modified driving behaviour of the combination.

4.3.5 Structural changes to the machine

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

- Have structural changes and enhancements performed by an authorised service centre only.

4.3.6 Additional equipment and spare parts

Additional equipment and spare parts, which do not comply with the requirements of the manufacturer, may impair the operational safety of the machine and cause accidents.

- To ensure operational safety, use original or standard parts which comply with the requirements of the manufacturer. If in doubt, have parts verified by the dealer or manufacturer.

4.3.7 Workstations and passengers

Control of the moving machine

The moving machine requires the driver to react quickly at any time. Otherwise, the machine may move in an uncontrolled manner and seriously injure or kill people.

- Start the engine from the driver's seat only.
- Never leave the driver's seat while the machine is moving.
- Never climb in or out of the machine while it is moving.

Passengers

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

- Never let people ride on the machine.

4.3.8 Operational safety: Technically perfect condition

Operation only when the machine has been started up correctly

If the machine is not started up correctly according to these operating instructions, the operational safety of the machine is not ensured. As a result, accidents may occur and people may be seriously injured or killed.

- Do not use the machine unless it has been started up correctly, see chapter Start-up.

Technically perfect condition of the machine

Improper maintenance and adjustment may affect the operational safety of the machine and cause accidents. As a result, people may be seriously injured or killed.

- Perform all maintenance and adjustment work according to the chapters Maintenance and Adjustment.
- Before performing any maintenance or adjustment work, shut down and safeguard the machine, see chapter Safety "Shutting down and safeguarding the machine".

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:

– Brakes
– Steering
– Safety devices
– Connecting devices
– Lighting
– Hydraulic system
– Tyres
– Universal shaft

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

- Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- Immediately eliminate potential causes of damage, for example heavy soiling, or tighten slack screws.
- Determine the cause of damage according to these operating instructions, see chapter Malfunctions – Cause and remedy.
- If possible, repair the damage according to these operating instructions.
- In the 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 injured or killed. Observance of the following technical limit values is particularly important for safety:

– Permitted gross weight
– Maximum axle loads
– Maximum payloads
– Maximum trailer load
– Maximum bearing load
– Maximum transport height
– Maximum speed

• Observe limit values, see chapter Description of machine, "Technical data".

4.3.9 Danger zones

Danger zones on the tractor and the machine

The area around the tractor and the machine is a danger zone.
There are the following hazards in this danger zone:

– The tractor and the machine may start moving or rolling away and run over people.
– If the power lifter is unintentionally actuated, the machine may make hazardous movements.
– Defective or insecurely attached electrical cables may cause fatal electric shocks.
– Defective or insecurely attached hydraulic or pneumatic lines may become detached and flail around. Hydraulic oil may escape under high pressure and cause serious injuries to the skin or face.
– Clothing may become caught and wrapped around an exposed PTO shaft or a damaged or incorrectly installed universal shaft.
– When the drive is switched on, machine parts may rotate or swivel.
– Hydraulically raised machine parts may descend unnoticed and slowly.

If the danger zone is not observed, people may be seriously injured or killed.

• Keep people away from the danger zone of the tractor and the machine.
• Do not switch on the drives and engine until there is nobody in the danger zone.

The safety clearance is:

– 3 metres on either side of the machine.
– 5 metres behind the machine.

• Before working in front of and behind the tractor and in the danger zone of the machine: • Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine". This also applies to brief inspection work. Many serious accidents in front of and behind the tractor and the machine occur due to negligence and running machines.
• Consider the information in all relevant operating instructions.
  – The operating instructions for the tractor
  – The operating instructions for the machine
  – The operating instructions for the universal shaft

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 machine movements:

- Before starting all work between the tractor and machine: • Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine". This also applies to brief inspection work. Many serious accidents occur due to negligence and running machines.
- If the power lifter has to be actuated, keep all people away from the area of movement of the power lifter.

Danger zone when drive switched on

When the drive is switched on, there is a danger to life from rotating and swivelling machine parts. There must be nobody in the danger zone of the machine.

- Before starting the machine, direct all people out of the danger zone of the machine.
- If a hazardous situation arises, switch off drives and diesel engine immediately.

Danger zone of the P.T.O. shaft

People may be caught, pulled in and seriously injured by the PTO shaft and the driven components.

Before engaging the PTO shaft:

- Make sure that all safety devices are fitted and in the protection position.
- Ensure that the selected speed and direction of rotation of the PTO shaft match the permitted speed and direction of rotation of the machine.
- Ensure that nobody is in the danger zone of the PTO shaft or the universal shaft.
- If the angles are too large, switch off the PTO shaft. The machine may be damaged. Parts may be flung out and cause injury to persons.
- If the PTO shaft is not required, switch off the PTO shaft.

Danger zone universal shaft

People may become caught by the universal shaft, pulled in and seriously injured.

- Ensure that the universal shaft guards are attached and functional.
- Ensure that nobody is in the danger zone of the PTO shaft or the universal shaft.
- Provide the section tube and universal shaft guards with adequate cover.
- Allow the universal shaft locks to engage.
- Attach the chains to prevent the universal shaft guards from rotating with the shaft.
- Follow the operating instructions for the universal shaft.

Danger zone due to coasting machine parts

When the drives have been switched off, the following machine parts will coast:

– Universal shaft
– Flywheel
– Baling ram
– Pick-up
– Packer
– Cutting system
– Main gearbox
– Tying
– Drive chains

When machine parts are coasting, people may be seriously injured or killed.

- Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- Do not touch machine parts until they have come to a standstill.

4.3.10 Keeping safety devices functional

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

- Replace damaged safety devices.
- Re-install all removed safety devices and all other parts and move them into protective position before starting up the machine.
- If it is doubtful whether all safety devices have been correctly installed and are functional, have a service centre check them.

4.3.11 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:

– Work gloves
– Safety boots
– Protective clothing
– Breathing protection
– Hearing protection
– Face and eye protection

- 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.

Wear suitable clothing

Loose clothing increases the risk of it becoming caught or wrapped around rotating parts and of it becoming caught on protruding parts. As a result, people may be seriously injured or killed.

- Wear tight-fitting clothing.
- Never wear rings, chains or other items of jewellery.
- Cover long hair with a hairnet.
- Wear sturdy shoes or protective work boots.

4.3.12 Safety signs on the machine

Safety stickers on the machine warn of hazards in danger areas and are an important component of the safety equipment of the machine. Missing safety stickers increase the risk of serious and fatal injuries.

- Clean dirty safety stickers.
- After cleaning, always check that safety stickers are complete and legible.
- Immediately replace missing, damaged and unrecognisable safety stickers.
- Provide spare parts with the designated safety stickers.

Description, explanation and order numbers of the safety stickers, see chapter Safety, "Safety stickers on the machine".

4.3.13 Traffic safety

Dangers when driving on roads and in fields

The attached or coupled work machine changes the handling characteristics of the tractor. The handling characteristics are also dependent on the operational state, the filling or loading and on the ground condition. If the driver does not consider changed handling characteristics, he may cause accidents.

- Observe procedures for driving on roads and in fields, see chapter "Driving and transportation".

Prepare the machine for road travel

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

- Before travelling on the road, always prepare the machine for road travel, see chapter Driving and transportation, "Preparations for road travel".

Danger of overturning

The machine may overturn when driving on slopes. As a result, accidents may occur and people may be seriously injured or killed. The risk of overturning depends on many factors.

- Observe procedures for driving, see chapter Driving and transportation.

4.3.14 Parking the machine safely

The parked machine may overturn. People may be crushed and killed.

- Park the machine on a stable and even surface.
- Before adjusting, repairing, servicing or cleaning the machine, ensure that it is securely positioned. If in doubt, support the machine.
- In the chapter Driving and transportation note the section "Parking the machine".

Unattended parking

Adults and children are at risk from an inadequately secured and unattended parked machine with or without a connected front attachment or trailer.

- Before leaving the machine: Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".

4.3.15 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.

For the requirements of fuels, see chapter Description of machine, "Consumables".

Protection of the environment and disposal

Consumables such as diesel fuel, brake fluid, antifreeze and lubricants may damage the environment and the health of people.

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

4.3.16 Dangers associated with the operational environment

Danger of fire

Combustible materials can accumulate in the machine due to operation or animals such as rodents or nesting birds. The danger of soiling applies in particular when working in dry or turbulent conditions.

Dust, soiling and harvest residues can ignite on hot parts and cause fires that can seriously injure or kill persons.

- Check and clean the machine every day before using it for the first time.
- Regularly check and clean the machine during the working day.
- Keep the fire extinguisher ready to use at all times.

4.3.17 Sources of danger on the machine

Noise may damage your health

When working continuously with the machine, health may be damaged, such as hardness of hearing, deafness or tinnitus. When the machine is used at high speed, the noise level also increases.

- Before starting up the combination of tractor and 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. In doing so, consider the sound pressure level, see chapter Description of machine, "Technical Data".
- Specify rules for the use of hearing protection and for the working time.
- During operation, keep the windows and doors of the cabin closed.
- Remove the hearing protection when travelling on the road.

Liquids under pressure

The following liquids are under high pressure:

– Hydraulic oil

Liquids under high pressure may penetrate the body through the skin and cause serious injuries.

- If a damaged pressure system is suspected, immediately contact a qualified service centre.
- Never search for leaks with bare hands. Even a pin-sized hole may cause serious 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. Danger of infection!

Hot liquids

Risk of burns and scalding from hot liquids!

- When draining hot consumables, wear protective gloves.
- If required, leave liquids and machine parts to cool down before performing repair, maintenance and cleaning work.

A damaged compressed air system may damage your health

Damaged compressed air hoses in the compressed air system may cause hoses to tear off. Flailing hoses may cause serious injuries.

- If it is suspected that the compressed air system is damaged, immediately contact a service centre.

4.3.18 Dangers associated with certain activities: Climbing up and down

Climbing up and down safely

People who behave carelessly when climbing up and down may fall off the ladder. People, who climb onto the machine without using the designated ladders, may slip, fall and seriously injure themselves.

Dirt as well as operating fluids and lubricants may cause you to lose your footing.

- Always keep the steps and platforms clean and in a proper condition to prevent people from losing their footing.
- Never climb up and down while the machine is moving.
- Face the machine when climbing up and down.
- When climbing up and down, maintain a three-point contact with the steps and hand rails (always two hands and one foot or two feet and one hand on the machine).
- When climbing up and down, never use the controls as handles. Inadvertent activation of the controls may cause functions to be unintentionally actuated which could be hazardous.
- When climbing down, never jump off the machine.
- Climb up and down using only the steps and platforms designated in these operating instructions, see chapter Description of machine, "Ladders".

4.3.19 Dangers associated with certain activities: Work on the machine

Work on the machine only when it has been shut down

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

- Before performing any work on the machine, such as making adjustments, cleaning, preparing for road travel, preparing for work, servicing or rectifying malfunctions, shut down and safeguard the machine, see chapter Safety "Shutting down and safeguarding the machine".

Maintenance and repair work

Incorrect maintenance and repair work will endanger operational safety. As a result, accidents may occur and people may be seriously injured or killed.

- Only perform work which is described in these operating instructions. Before performing any work, shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- All other maintenance and repair work may be performed by a qualified service centre only.

Raised machine and machine parts

The raised machine may accidentally drop, roll away or overturn and crush or kill people.

- Do not stand under the raised machine. First put the machine down.
- Before performing any work under the machine, securely support the machine, see chapter Safety "Securely supporting the raised machine and machine parts".
- Before performing any work on or under raised machine parts, lower the machine parts or secure them mechanically with rigid safety supports or with a hydraulic shut-off device to prevent them from dropping.

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 injured or killed.

- Before performing welding work on the machine, obtain the consent of KRONE customer service and, if required, identify alternatives.
- Have welding work performed by experienced technicians only.

4.3.20 Dangers associated with certain activities: Working on wheels and tyres

Fitting/removing wheels and tyres

Improper fitting or removal will endanger operational safety. As a result, accidents may occur and people may be seriously injured or killed.
The fitting of wheels and tyres requires adequate knowledge and approved tools.

- If there is a lack of knowledge, have the wheels and tyres fitted by the KRONE dealer or by a qualified tyre service.
- When fitting tyres on the wheel rims, never exceed the maximum permitted pressure specified by the tyre manufacturers, otherwise the tyre or even the wheel rim may explode.
- When fitting the wheels, tighten the wheel nuts to the stipulated torque, see chapter Maintenance "Tyres".

4.3.21 Behaviour in hazardous situations and when accidents occur

Neglected or incorrect procedures in hazardous situations may obstruct or prevent the rescue of people in danger. Difficult rescue conditions will impair the chances of helping and healing the injured.

- In principle: Switch off the machine.
- Gain an overview of the hazardous situation and identify the cause of the hazard.
- Safeguard the accident location.
- Rescue people from the danger zone.
- Withdraw from the danger zone and do not enter again.
- Alert rescue teams and, if possible, fetch help.
- Take immediate life-saving measures.

4.4 Safety routines

4.4.1 Stopping and securing the machine

WARNING!
Crush hazard due to movement of the machine or machine parts!
If the machine has not been shut down, the machine or machine parts may move unintentionally. As a result, people may be seriously injured or killed.
- Before and after leaving the tractor cab: Shut down and secure the machine and tractor.

To park the machine safely:
- Park the machine on a stable and even surface.
- Switch off the drives and wait until coasting parts have come to a standstill.
- Turn off the tractor engine, remove the ignition key and take it with you.
- Use the parking brakes to secure the machine and tractor from rolling away.
- Apply the flywheel brake at the machine.

4.4.2 Supporting lifted machine and machine parts securely

WARNING!
Risk of injury due to movement of the machine or machine parts
If the machine is not supported securely, the machine or machine parts may roll, fall or drop. As a result, people may be seriously injured or killed.
- Before working on or under raised components: Securely support machine or machine parts.

To securely support the machine or machine parts:
- Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- Before performing any work on or under raised machine parts, lower the machine parts or secure them mechanically with rigid safety supports (e.g. support stand, crane) or with a hydraulic shut-off device (e.g. stop cock) to prevent them from dropping.
- Never support the machine or machine parts with materials which can buckle.
- Never support the machine or machine parts with hollow blocks or bricks. Hollow blocks or bricks may break under continuous load.
- Never work under the machine or machine parts which are held up by a car jack.

4.4.3 Coupling the machine safely

WARNING!
Risk of injury when coupling the machine
The machine or machine parts may move unintentionally while the machine is coupled to the tractor. As a result, people may be seriously injured or killed.
- When coupling the machine, perform the following steps:

- Never stand between the tractor and the machine while coupling the machine to the tractor.
- Depressurise the tractor hydraulics.
- Switch off the electronic systems.
- Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- Only couple the hydraulic hoses if the hydraulic systems on the tractor and the machine are depressurised.
- Couple the compressed air braking system, depending on the version of the machine.
- Couple the hydraulic brake, depending on the version of the machine.
- Couple and secure the universal shaft.
- Connect the lighting cable.
- Connect the power cable.
- Connect the terminal.

4.4.4 Uncoupling the machine safely

WARNING!
Risk of injury when uncoupling the machine
The machine or machine parts may move unintentionally while the machine is being uncoupled. As a result, people may be seriously injured or killed.
- When uncoupling the machine, perform the following steps:

- Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- Lower the support jack.
- Depressurise the tractor hydraulics.
- Switch off the electronic systems.
- Only uncouple the hydraulic hoses if the hydraulic systems on the tractor and the machine are depressurised.
- Uncouple the compressed air brake, depending on the version of the machine.
- Uncouple the hydraulic brake, depending on the version of the machine.
- Disconnect the lighting cable from the tractor.
- Disconnect the power cable from the tractor.
- Uncouple the universal shaft and place it on the holder provided.
- Never stand between the tractor and the machine when uncoupling the machine from the tractor.

4.4.5 Preparing the machine for repair, maintenance and adjustment work

WARNING!

Risk of injury during repair, maintenance and adjustment work on the machine.

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

If the machine is not supported securely, the machine or machine parts may roll, fall or drop. As a result, people may be seriously injured or killed.

- Before starting repair, maintenance and adjustment work, perform the following steps:

- Shut down and safeguard the machine, see chapter Safety, "Shutting down and safeguarding the machine".
- The raised machine or machine parts must be securely supported, see chapter Safety "Securely supporting the raised machine and machine parts".

4.4.6 Starting the machine safely

WARNING!

Risk of injury when starting up the machine

If the machine is not started safely, the machine or machine parts may move unintentionally. As a result, people may be seriously injured or killed.

- Before starting up the machine, ensure that the following prerequisites are met:

– The hydraulic lines are coupled.
– The compressed air brake is coupled (depending on equipment).
– The hydraulic brake is connected (depending on equipment).
– The universal shaft is coupled and secured.
– The lighting system is connected.
– The terminal is connected.
– The safety chain is attached (not stipulated in all countries).
– All safety devices are fitted, in proper condition and in the protection position.
– The PTO speed of 1000 rpm is not exceeded.
– The universal shaft prescribed by the manufacturer is used.
– The hoses, cables and ropes are laid out so that they do not chafe, are not under tension, pinched or come into contact with other components (e.g. tractor tyres).
– The flywheel brake is released.
– Machine parts of the tractor do not come into contact with parts of the machine (especially when turning).
– No persons are standing in the danger zone of the machine.

4.5 Safety stickers on the machine

WARNING!

Danger of injury on machine parts if danger zones have not been marked when warning pictograms are missing, damaged or illegible.

Danger of injury due to dangerous parts and other residual risks as users or third parties enter the danger area or reach into it as they are not aware of the danger.

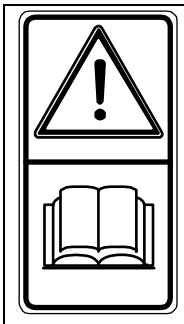
- Immediately replace damaged or illegible labels.
- Following repair work, always attach appropriate adhesive safety labels to all the replaced, modified or repaired components.
- Never clean areas carrying an adhesive safety label using a high-pressure cleaner.

  Familiarise yourself with the statement of the warning pictograms. The adjacent text and the selected location on the machine provide information on the special danger spots on the machine.

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

Fig. 1 left-hand side of the machine

1) Order no. 939 471 1 (1x)

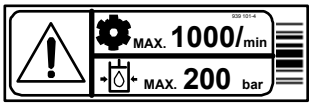


Danger due to incorrect operation and lack of knowledge

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.

2) Order no. 939 101 4 (1x)



Danger due to exceeding the maximum permissible PTO speed or the maximum permissible operating pressure.

If the permissible PTO speed is exceeded, machine parts may be destroyed or flung out.

If the maximum permissible operating pressure is exceeded, hydraulic components may be damaged.

As a result, people may be seriously or fatally injured.

- Observe the permissible PTO speed.
- Observe the permissible operating pressure.

3) Order no. 939 520 1 (1x)

Danger due to rotating auger.

There is a danger of becoming caught or wrapped around the rotating auger.

- Never reach into the rotating auger.
- Keep a sufficient distance from moving machine parts.

4) Order no. 939 407 1 (1x)

Danger due to rotating pick-up.

There is a danger of being drawn in if you approach the danger zone and if you use your hands or feet to clear clogging.

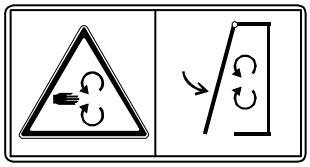
- Before working on the pick-up, switch off the PTO shaft and the engine.

Fig. 2 left-hand side of the machine

5) Order no. 939 408 2 (1x)

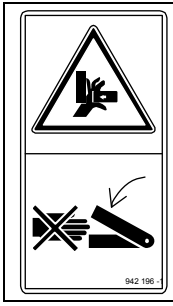
	**Danger due to rotating machine parts.** When climbing onto the machine while the PTO shaft is running, there is a risk of being pulled in by rotating machine parts. • Before climbing onto the machine, switch off the PTO shaft and the engine.

6) Order no. 942 002 4 (5x)

	**Danger due to rotating machine parts.** When the machine is running, there is a risk of injury due to rotating machine parts. • Before starting up, move the guards into their protective position.

7) Order no. 942 196 1 (1x)

Design with cutting system

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

8) Order no. 942 210 0 (1x)

For design with compressor

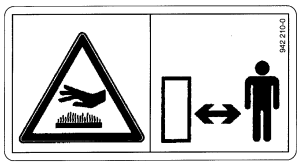
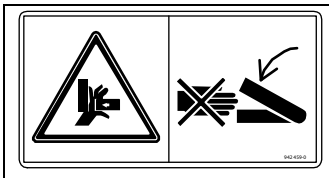
	**Danger due to hot surfaces.** There is a risk of burns from touching hot surfaces. • Keep a sufficient distance as long as surfaces are hot.

Fig. 3 left-hand side of the machine

9) Order no. 942 459 0 (3x)

	**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.

10) Order no. 939 529 0 (1x)

For France only

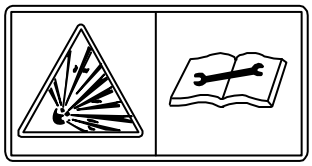
	**Danger due to high-pressure liquid.** The accumulator is under gas and oil pressure. If the accumulator is not removed or repaired properly, there is a risk of injury. • Before removing and repairing the accumulator, follow the information in the operating instructions. • The accumulator may be removed and repaired by a service centre only.

Fig. 4 Right-hand side of the machine

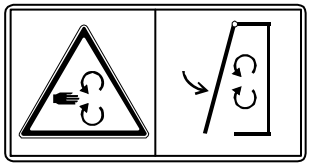
11) Order no. 939 520 1 (1x)

	**Danger due to rotating auger.** There is a danger of becoming caught or wrapped around the rotating auger. • Never reach into the rotating auger. • Keep a sufficient distance from moving machine parts.

12) Order no. 939 407 1 (1x)

	**Danger due to rotating pick-up.** There is a danger of being drawn in if you approach the danger zone and if you use your hands or feet to clear clogging. • Before working on the pick-up, switch off the PTO shaft and the engine.

13) Order no. 942 002 4 (4x)

	**Danger due to rotating machine parts.** When the machine is running, there is a risk of injury due to rotating machine parts. • Before starting up, move the guards into their protective position.

14) Order no. 942 196 1 (1x)

Design with cutting system

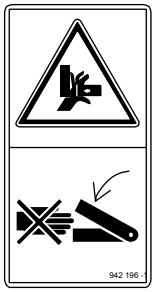
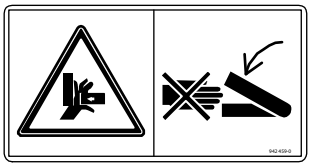
	**Danger due to crushing and shearing** Risk of injury due to crush and shear points on moving machine parts. • While parts are moving, never reach into areas where there is a risk of being crushed.

Fig. 5 Right-hand side of the machine

15) Order no. 942 459 0 (3x)

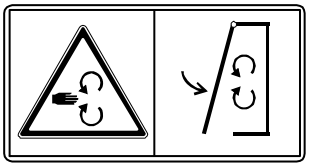
	**Danger due to crushing or shearing** Risk of injury due to crushing or shearing points on moving machine parts. • While parts are moving, never reach into areas where there is a risk of being crushed.

16) Order no. 939 469 1 (2x)

	**Danger due to impacts or crushing** Danger to life from machine parts folding down or lowering. • Ensure that there is nobody in the swivel range of the machine parts. • Maintain distance from moving machine parts.

17) Order no. 942 002 4 (1x)

For design with knotter blower

	**Danger due to rotating machine parts.** When the machine is running, there is a risk of injury due to rotating machine parts. • Before starting up, move the guards into their protective position.

4.6 Position of the General Information Labels on the Machine

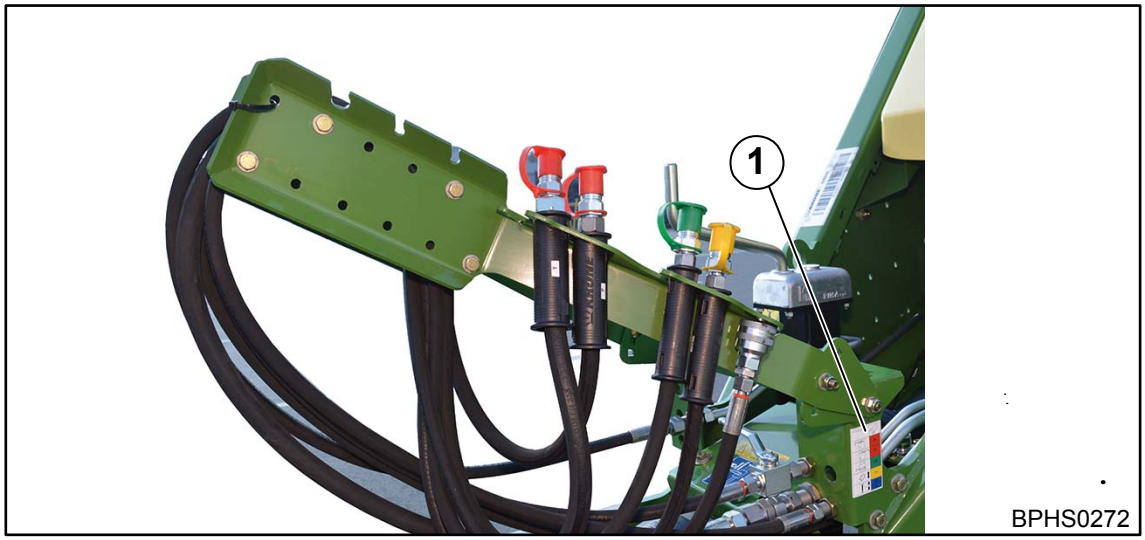
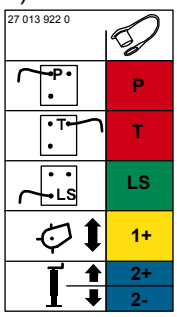


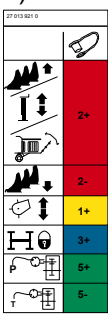
Fig. 6

1)



for Comfort Version Electronics
27 013 922 0 (1x)

1)



for Medium Version Electronics
27 013 921 0 (1x)

4.6.1 Re-Ordering the Adhesive Safety and Information Labels

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

4.6.2 Affixing the Adhesive Safety and Information Labels

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

4.6.3 Contact

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

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

4.7 Safety Equipment

4.7.1 Ladder

Fig. 7

There is a ladder (1) on the left side of the machine at the rear next to the baling channel that can be used, among other things, for maintenance work on the knotting mechanism.

4.7.2 Fire extinguisher

Fig.8

The machine is equipped with a fire distinguisher (1) ex works.
The fire extinguisher (1) is at the front of the drawbar on the left when facing in the direction of travel.

- Place the fire extinguisher (1) in the provided position on the machine before start-up

Have the fire extinguisher registered. This is the only way to ensure that all the required inspections (every two years) will be performed.

The inspection intervals may differ from one country to another. In this case, the instructions on the fire extinguisher of the respective countries shall be applicable.

- Follow the instructions of the respective countries

4.7.3 Wheel chocks

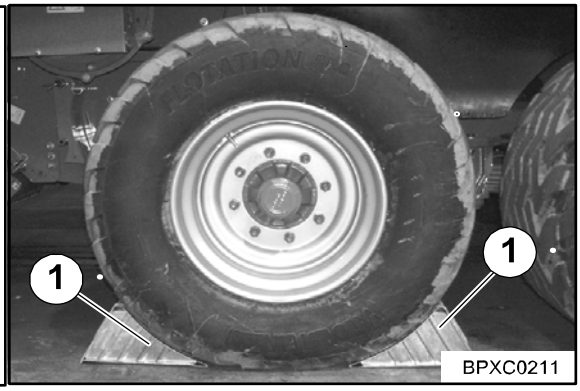


Fig. 9

The wheel chocks (1) are located at the rear on the right and left next to the bale channel chamber

- Always place the wheel chocks (1) in front of and behind the wheels (this will prevent the machine from rolling away).

Note

If the machine has a guided coast-down tandem axle (optional), it must be secured with wheel chocks on the front axle to prevent it from rolling away.

4.8 Parking brake

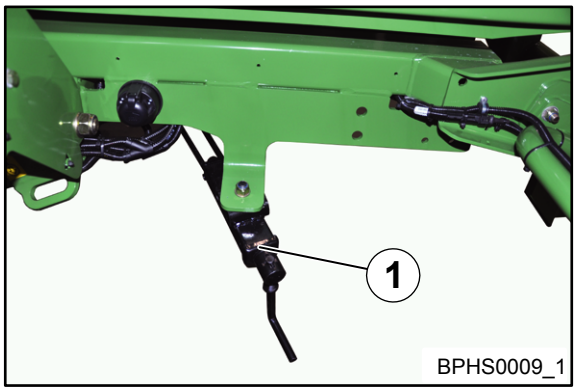


Fig. 10

The crank (1) of the parking brake is located at the rear side of the BiG PACK baler under the baling channel.

The parking brake is used to secure the machine from rolling away accidentally, especially when the machine is disconnected from the tractor.

Set the parking brake:

- Turn the crank clockwise until the resistance grows noticeably greater.

Release the parking brake:

- Turn the crank anti-clockwise until the brake cable is slightly slack.

Note

To prevent the machine from rolling away, use the wheel chocks in addition to the parking brake.

4.9 Flywheel brake

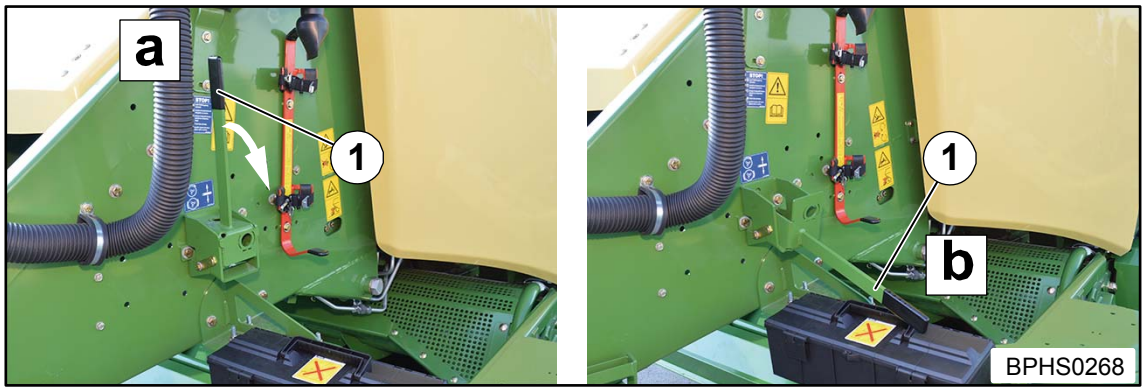


Fig. 11

Pos. a = flywheel unbraked

Pos. b = flywheel braked

The flywheel brake of the flywheel is located at the left side of the machine on the drawbar.

The flywheel brake (1) avoids an unexpected start-up of the movable parts of the baler during maintenance works. The flywheel is retained by a brake strap.

- **To activate the flywheel brake move the brake lever (1) on the flywheel from position (a = unbraked) into position (b = braked). The flywheel is now braked.**

When the electronics are turned on, the machine emits a horn signal.

4.10 Parking Jack

Note

If the ground is soft, enlarge the footprint of the parking jack by placing a wooden plank underneath.

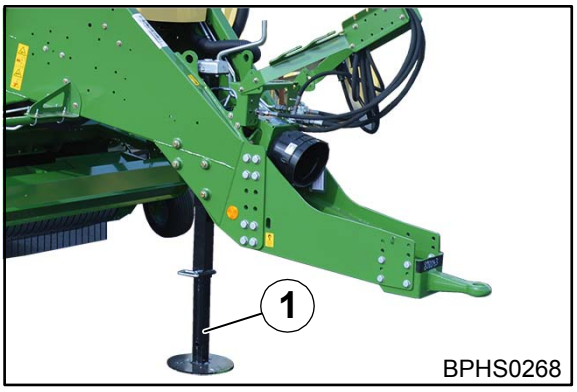


Fig. 12

As long as the machine is not connected to the tractor, the drawbar is supported on the parking support.

4.10.1 Hydraulic parking jack (optional)

Note

If the ground is soft, enlarge the footprint of the parking jack by placing a wooden plank underneath.

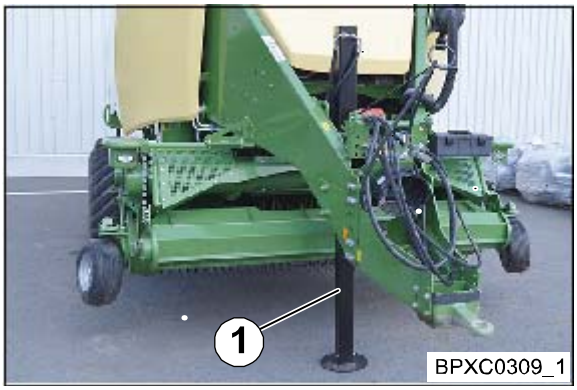
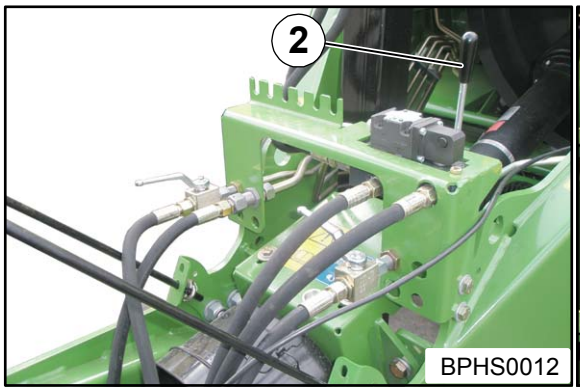


Fig. 13

As long as the machine is not connected to the tractor, the drawbar is supported on the parking support.

Medium Version Electronics



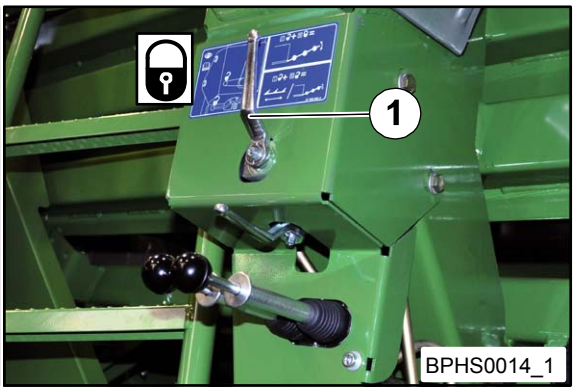


Fig.14

In order to deploy the hydraulic parking jack the shut-off valve at the rear of the machine must first be closed.

The hydraulic parking jack is retracted and extended via lever (2).

Comfort - Electronic

The hydraulic support jack is actuated from the double-acting control unit (blue 2+/blue 2-).

Stop cock on the support jack

The stop cock on the support jack is designed as a safety component to prevent the unintentional actuation of the support jack. Always close the stop cock when transporting the machine; the lever points in the direction of the line.

4.11 Shut-Off Valve Pick-up

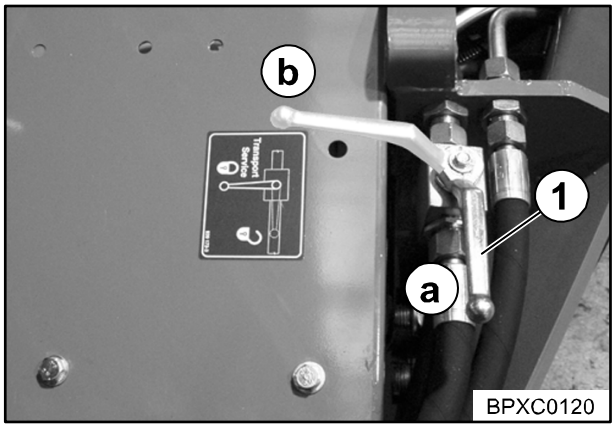


Fig. 15

Position (a) pick-up released

Position (b) pick-up locked

Always lock the pick-up via shut-off valve (1) when transporting the machine or when working under the baler.

The shut-off valve is located on the left front machine side on the drawbar.

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5 Machine Description

5.1 Machine overview

5.1.1 Left Side of the BiG Pack Baler with Tandem Axle

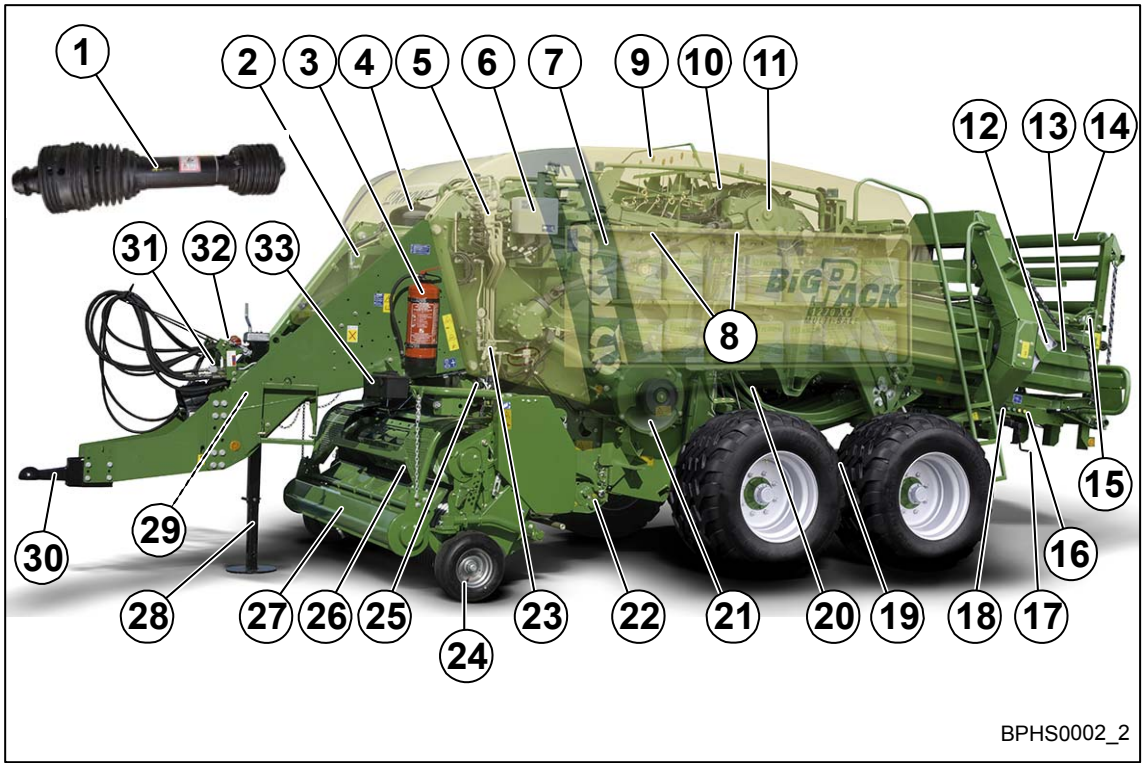


Fig. 16

1	Wide-angle universal shaft	2	Hydraulic oil storage tank
3	Fire extinguisher	4	Compressed air reservoir for the compressed air brake version
5	Control valve block (work hydraulics) for comfort version electronics design only	6	Job computer
7	Twine box left	8	Twine brake
9	Twine motion indicator (upper twine)	10	Tying unit (double knotter)
11	Manual release knotter and knotter shaft lock	12	Wheel chock
13	Moisture measurement (optional)	14	Bale chute (optionally fitted with bale balance)
15	Mechanical locking of the roller chute	16	12V socket
17	Crank for parking brake	18	Manual operation: **Comfort version electronics:** Bale chute and bale ejector **Medium version electronics:** Bale chute, bale ejector and parking jack
19	Tandem unit coaster/steering axle	20	Twine control and tensioning system (lower twine)
21	Packer drum drive	22	Cutting system (optional)
23	Pressure limiting valve on-board hydraulic system	24	Pick-up jockey wheel
25	Parking brake “flywheel”	26	Feed drive roller
27	Roller crop guide	28	Parking jack
29	Angular gear with start-up device	30	Towing eye
31	Stopcock for pick-up	32	Support for quick couplings and plug
33	Tool box		

Right-hand Side of the Machine

Fig. 17

1)	Moisture measurement (optional)	2)	Central lubrication (grease)
3)	Twine brake	4)	Twine box right
5)	Compressed air reservoir (knotter cleaning)	6)	Stopcock caster axle (optional)
7)	Drawbar	8)	Pick-up drive
9)	Cutting system drive	10)	Variable filling system (VFS)
11)	Wheel chock		

5.2 Identification Plate

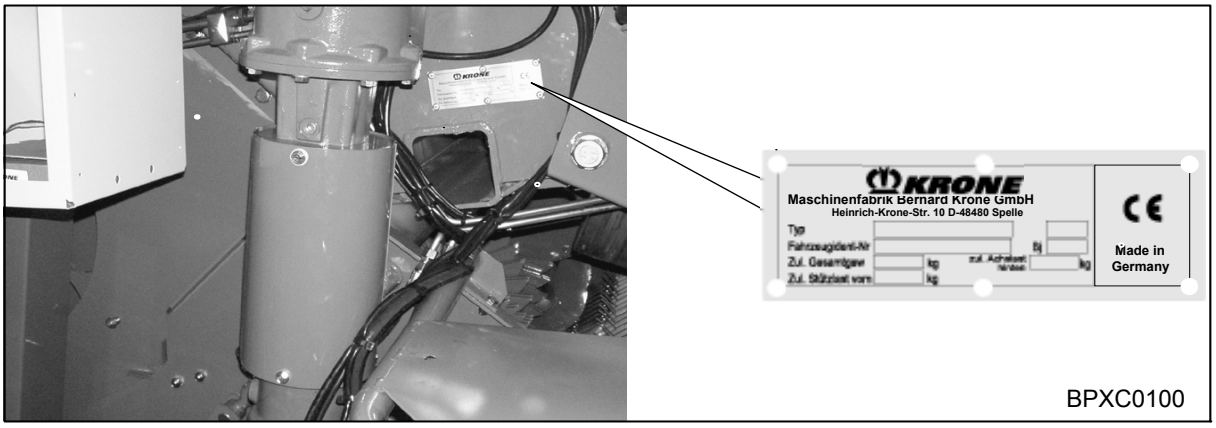


Fig. 18

The machine data are located on the type plate (1). This is located on right-hand side of the machine.

5.3 Information Required for Questions and Orders

Type	
Year of manufacture	
Vehicle ID number	

Note

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

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

Note

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

5.3.1 Contact

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

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

5.4 Description of the Baling Process

When switching on the terminal, the terminal shows at first the manual mode basic screen.

Starting with an empty bale channel

In manual mode, pre-set the target bale channel flap pressure to 50 bar / 725 PSI (in case of dry crops, e. g. straw) and to 25 bar / 362 PSI (in case of silage). Do not pick up the swath until the set target bale channel flap pressure is reached in the terminal to ensure that the bale is complete and to prevent the bale channel flaps from bending out of shape.
Press two bales in manual mode to fill the bale channel completely.

To always achieve the same solidity of bales automatically with materials of different properties (for example with differing moisture content of materials on the same field), you should then switch into Automatic mode.

In automatic mode, the target force of pressure must be set to a high enough level so that the bale has the desired bale firmness.

The contact pressure of the bale channel flaps in the bale channel is controlled automatically by the job computer so that the pre-selected baling force is reached.

As the material becomes moister, it becomes more difficult to compress the bales. Because of this, the bale channel flap pressure is reduced somewhat. As the material becomes drier, the bale channel flap pressure increases again. Thus the pressure display may deviate significantly in the display. Bale quality and bale firmness remain constant.

Starting with full bale channel

Do not switch to automatic mode until the target bale channel flap pressure has been reached in manual mode.

If baling should be done in manual mode, do only pick up the swath if the target bale channel flap pressure has been reached.

5.5 Compacting the BiG Bale

The machine enables pressing hay and straw to a highly compacted big bale (square balers). The square baler is compacted in eight steps.

1. The crop is picked up by the pick-up.
2. The roller crop guide with the feed drive roller behind ensures a trouble-free pick-up of the crop.

   Design without cutting system:

   - The integrated feed drive roller conveys the crop to the packer drum.

   Design with cutting system:

   - The integrated feed drive roller conveys the crop to the cutting rotor and then further to the packer drum.
3. The packer drum fills the packer channel as well as the conveyor channel.
4. When a determined filling level has been reached, the feeler rocker is swung back and the bale channel is filled via the feeder packer with the crop.
5. The crop is pressed in the bale channel to a highly compacted big bale.
6. The knotting mechanism is triggered and the big bale is tied after the set bale length has been reached.
7. The next big bale conveys the big bale further to the bale chute. From the bale chute, the big bale is laid down on the field.
8. The last big bale is conveyed to the bale chute via the bale ejector.

5.6 MultiBale Design

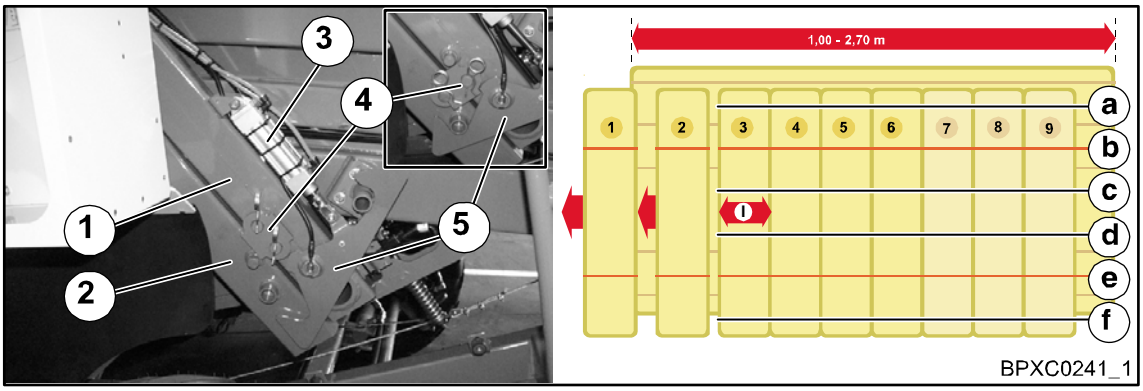


Fig. 19

For the MultiBale version, the big bales are held together by 4 twines and the small bales are held together by 2 twines each. If the MultiBale function is turned off, the conventional big bale is still bound up by 6 twines.

If the MultiBale function has been preselected, the small bales are wrapped with the front needle yoke (1). The entire bale is tied with the needle yoke (2) that is connected in the rear.

A pneumatic cylinder (3) is used to couple the individual needle yokes. The cylinder activates the interlock ratchet mechanism (5). The control block of the pneumatic cylinder (3) is controlled directly by the comfort version electronics.

In case of MultiBale design, the number of small bales is limited to six units in the factory. The minimum length of the small bales is set to 45 cm. This results in a variable length of the small bale from 45 cm to 135 cm if the total length (270 cm) of the big bale is at a maximum. Therefore, the set number of small bales depends on the bale length and the minimum length of the small bales.

If you want to increase the number of small bales to max. 9 units, please contact your KRONE dealer.

In case of 9 small bales, the variable length of the small bales is 30 cm to 135 cm.

If you have set more than 6 small bales, problems with the knotter may increasingly occur.

The bale length and the number of layers are set from the tractor via the terminal, refer to chapter Terminal “Setting the Number of MultiBales”.

Note

- To minimise wear in the single parts, lock the both needle yokes via perforated bar (4) if the MultiBale function is not required for an extended period of time.
- This function will not be executed if the MultiBale function is selected on the terminal with locked needle yoke. An error message appears in the display of the terminal.
- As the total bale is held by four twines, make sure when working with a machine with MultiBale that a high-quality twine (100-130 m/kg) is used.
- Disconnect the twines (a,c,d,f) in order to loosen the total bale into small bales.

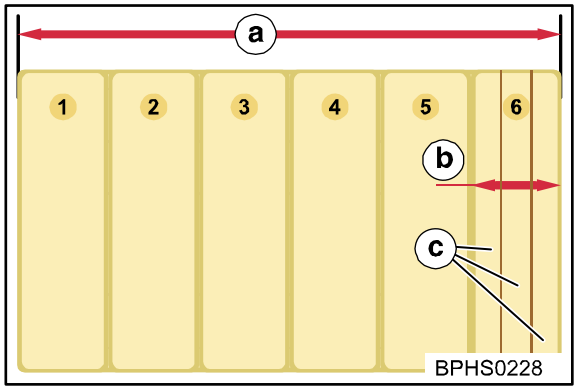


Fig. 20

a) Big bale / length of the big bale	b) Small bale / length of the small bale	c) Layer thickness of the small bale / number of layers

The bale length and the number of small bales (from 2 to 9) must only be set at the beginning of a bale to get ideal small bales. The layer thicknesses of the small bales must be a multiple of the length of the small bale. It must be read on the display while the swath is picked-up. The layer thickness depends on the travelling speed and the uniformity of the swath. The faster you drive, the thicker the layer thickness. It is more difficult to get an ideal small bale if the travelling speed is high. It is not possible to select layer thicknesses of more than 17 cm / 6.6 inch.
The determined layer thickness must be maintained during the entire baling process.
The length of the small bale is determined by the length of the big bale (a) divided by the number of small bales.

Example:

The desired bale length is 240 cm / 94 inch. The number of the desired small bales is 5 units.

Determining the length of the small bales

b = a / 5 (a= 240 cm / 5 = 48 cm)	b = a / 6 (a= 94 inch / 6 = 19 inch)

Determining the layer thickness

Based on a length of the small bale of 48 cm / 19 inch in this example, the following layer thicknesses result depending on the number of layers:

The layer thickness is calculated from the length of the small bale divided by the number (z) of the desired layers.

c = a / z

Number (z) of layers	Layer thickness (c) in cm/inch	Evaluation
2	24 cm / 9 inch	-
3	16 cm / 6 inch	o
4	12 cm / 5 inch	++
5	10 cm / 4 inch	+
6	8 cm / 3 inch	++
7	7 cm / 2.7 inch	++
8	6 cm / 2.4 inch	++
9	5 cm / 2 inch	-

5.7 Drives

5.7.1 Main drive

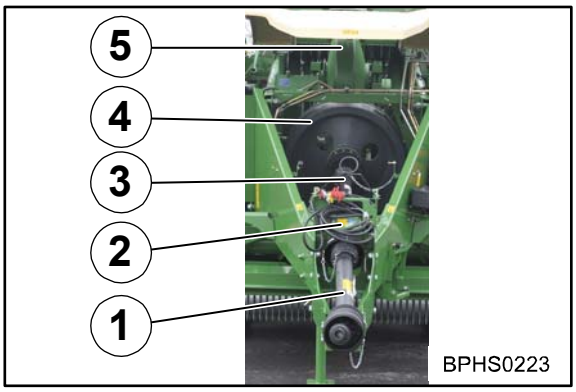


Fig. 21

The maximum drive speed must not exceed 1000 rpm.

The drive universal shaft (1) transmits the drive output of the tractor further to the intermediate bearing (2).

The intermediate bearing transmits the force further to the intermediate universal shaft (3).

The intermediate universal shaft drives the flywheel (4).

The flywheel drives the main gearbox (5).

The main gearbox

The main gearbox distributes the force further to the right and left and drives the following gearboxes:

Left-hand Side of the Machine

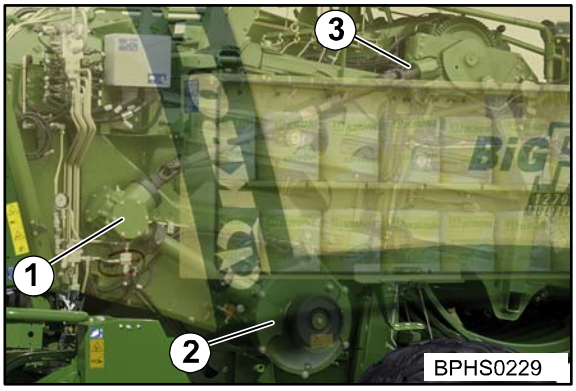


Fig. 22

The main gearbox drives the transfer gearbox (1).

The transfer gearbox drives the packer gearbox (2) and the knotter gear (3).

Right-hand Side of the Machine

Design with cutting system

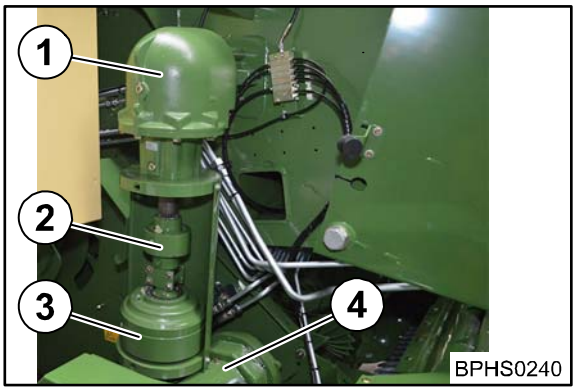


Fig. 23

The main gearbox drives the upper angular gear (1). The upper angular gear drives the intermediate shaft (2). The intermediate shaft transmits the torque via overload coupling (3) onto the cutting system gearbox (4). The cutting system gear drives the cutting system.

Design without cutting system

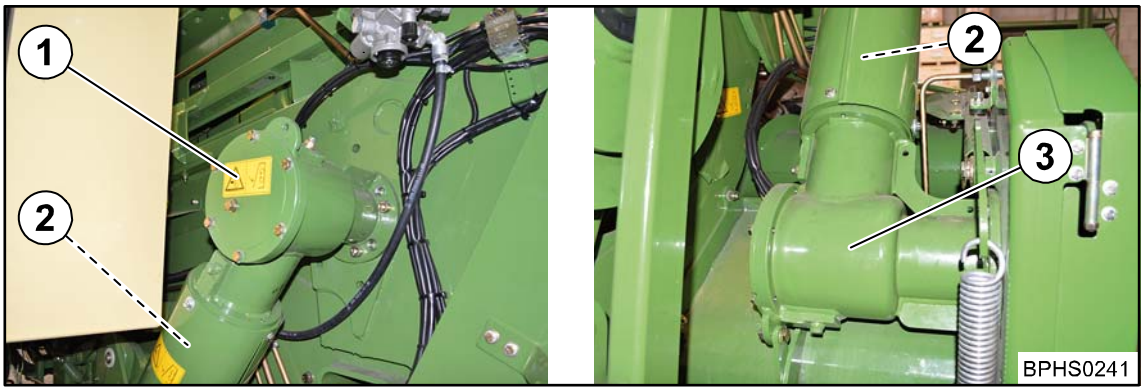


Fig. 24

The main gearbox drives the upper angular gear (1). The upper angular gear drives the universal shaft (2). The universal shaft transmits the torque to the pick-up gearbox (3). The pick-up gearbox drives the pick-up.

5.8 Overload Protections on the Machine

The following components are protected by overload protections against damages.

5.8.1 Main drive

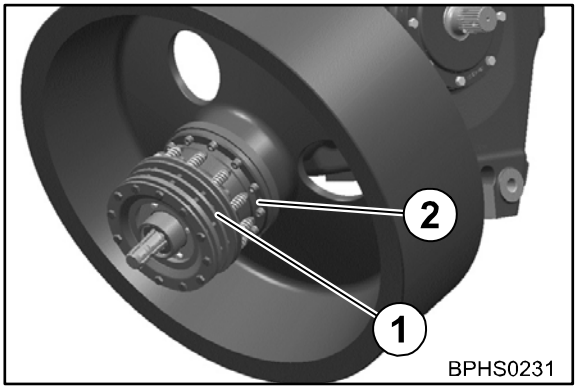


Fig. 25

A friction clutch (1) and a cam-type clutch (2) are located on the flywheel.
The friction clutch (1) protects the tractor, the drive PTO shaft and the intermediate universal shaft against load peaks.
The cam-type clutch (2) protects the machine against load peaks.

Note
As soon as the coupling responds, stop the tractor, disengage the P.T.O. shaft without delay and brake the flywheel. After the fault is rectified, the cam-type clutch engages again automatically.

5.8.2 Feeder Packer

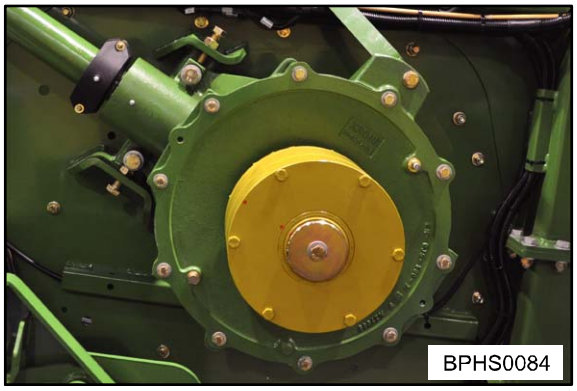


Fig. 26

A cam-type clutch is located on the packer gearbox.
The cam-type clutch protects the packer gearbox against load peaks.

Note
As soon as the overload coupling responds, stop the tractor and reduce the speed until the machine has cleared itself again. The overload coupling now automatically resumes its work.
An error message appears in the display of the control unit.

5.8.3 Cutting System Drive for the Design with XC Cutting System

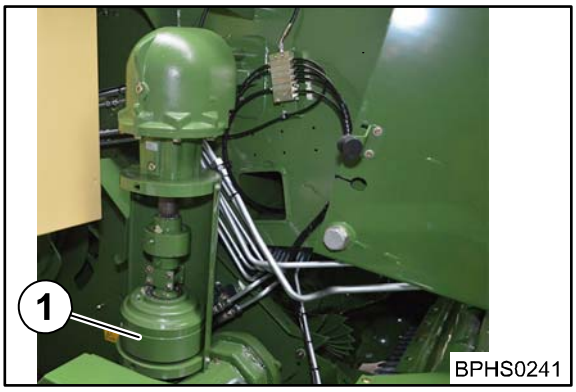


Fig. 27

A cam-type clutch is located over the cutting system gearbox.

The cam-type clutch protects cutting system and pick-up drive against load peaks.

5.8.4 Pick-up Drive

Fig. 28

With cutting system

Without cutting system

For design with cutting system:

A cam-type clutch, star ratchet (1) design, can be found on the chain drive of the pick-up.

The cam-type clutch protects the chain drive of the pick-up against load peaks.

For design without cutting system

A cam-type clutch, star ratchet (1) design, is located on the lower pick-up gearbox on the lower end of the drive PTO shaft.

The cam-type clutch protects the pick-up drive against load peaks.

Note

As soon as the overload coupling responds, stop the tractor and reduce the speed until the machine has cleared itself again. The overload coupling now automatically resumes its work.

An error message appears in the display of the control unit.

5.8.5 Needle Yoke

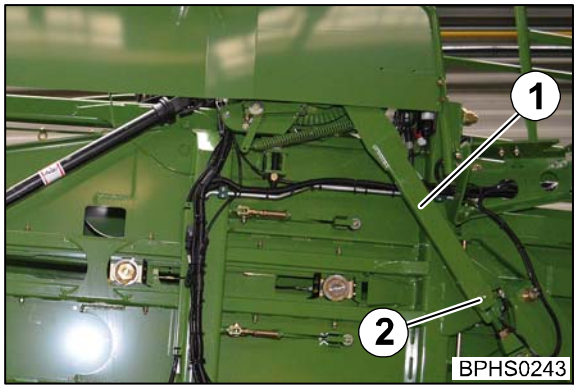


Fig. 29

Shear screw

The connecting rod (1) of the needle yoke is secured by a shear screw, left-hand side of the machine.

The shear screw protects the needles and the needle yokes against load peaks.

5.9 Pick-up

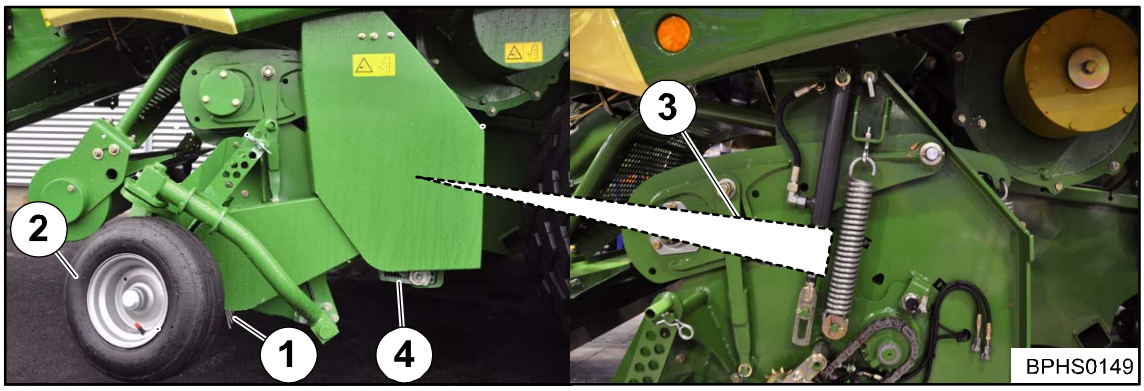


Fig. 30

1) Pick-up
2) Guide wheel
3) Spring
4) Depth limiter

The pick-up is used to pick up the crop.

The pick-up starts to rotate by turning on the PTO shaft.

The pick-up is lifted and lowered by the single-acting control unit on the tractor. The pick-up is equipped with guide wheels. The working height of the pick-up is adjusted via these guide wheels.

The working height of the pick-up can be limited downwards on both sides of the machine via the depth limiter. This makes it possible to drive the machine without guide wheels with the pick-up in fixed position.

The ground pressure of the guide wheels can be adapted to the ground conditions via the spring.

5.10 Roller crop guide

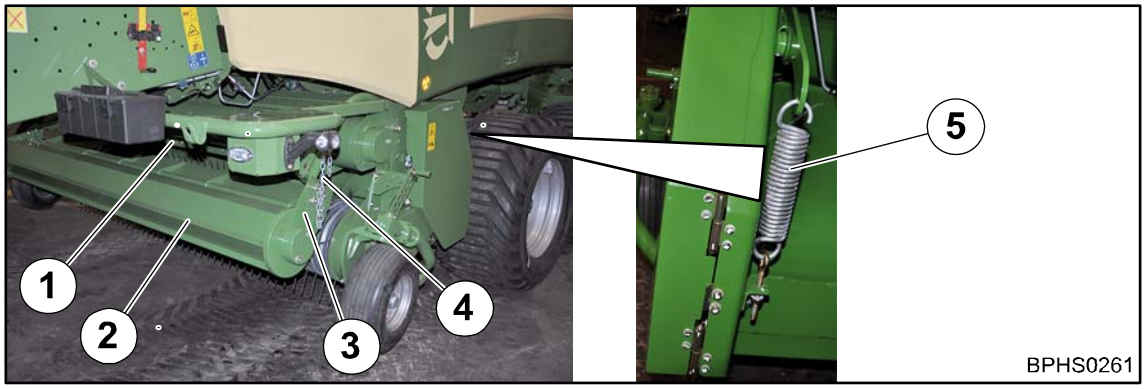


Fig. 31

1) Feed drive roller
2) Holding-down device roller
3) Roller crop guide
4) Retaining chain
5) Spring

The roller crop guide and the feed drive roller ensure the regulation when conveying the crop. They ensure a continuous crop collection by the pick-up. The height of the roller crop guide can be adjusted via retaining chain (height of the swath).

Much crops: **Hook in roller crop guide higher**

Less crops: **Hook in roller crop guide lower**

The ground pressure of the holding-down device roller on the swath is set by the spring.

Dry crops: **Increase ground pressure**

Moist crops: **Reduce ground pressure**

5.11 Cutting system

5.11.1 General

The Big Pack XC has a cutting system with a cutting cylinder and fixed blades. Cutting allows for improved further processing of the big pack and makes it possible to increase the density of baled material. The blades can be swivelled out of the conveyor channel from the tractor hydraulically if there are blockages. Each blade is separately protected against overload. The machine can also be used without blades. The cutting cylinder then takes over the function of a conveyor between the pick-up and the pre-baling channel.

5.11.2 Cutting Length

The cutting system can be fitted with max. 16 blades.
The blades are subdivided into two groups (upper blade control system and lower blade control system).
The theoretical cutting length is, with full equipping, 44 mm. The cutting length is determined by the number of used blades and the position of blade control systems.
In case of full equipping, 0, 8, 8 or 16 blades can optionally be set via the upper and the lower blade control system.

5.12 Hydraulic system

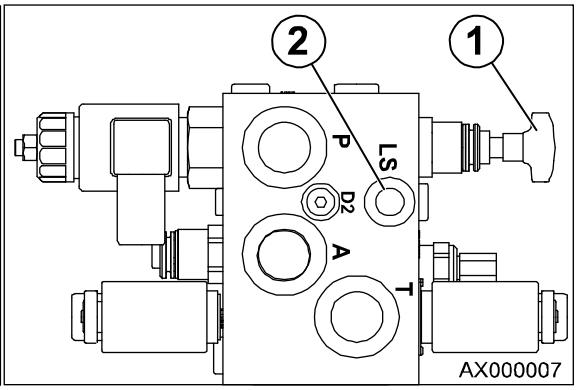


Fig.32

The hydraulic system of the machine is designed ex works for continuous circulation (the system screw (1) is completely screwed out).

The hydraulic system of the machine is Load-Sensing capable.

When using the Load Sensing system, oil is supplied via the Power Beyond system of the tractor hydraulics (further information can be obtained from the operating instructions provided by the manufacturer of the tractor).

When operating the machine via the Load Sensing system, the message line must be connected between message connection (LS) on the control valve block of the machine and the message line of the tractor. Moreover, the system screw (1) must be screwed in until the stop is reached.

The adaption of the hydraulic system to the tractor hydraulics is made via the system screw (1) on the control valve block of the machine. The control valve block is located front left under the side hood next to the electronics box.

Note

The system screw (1) must only be set when the machine is depressurized and the tractor engine is switched off.

5.13 Pressure Limiting Valve Block (On-Board Hydraulic System)

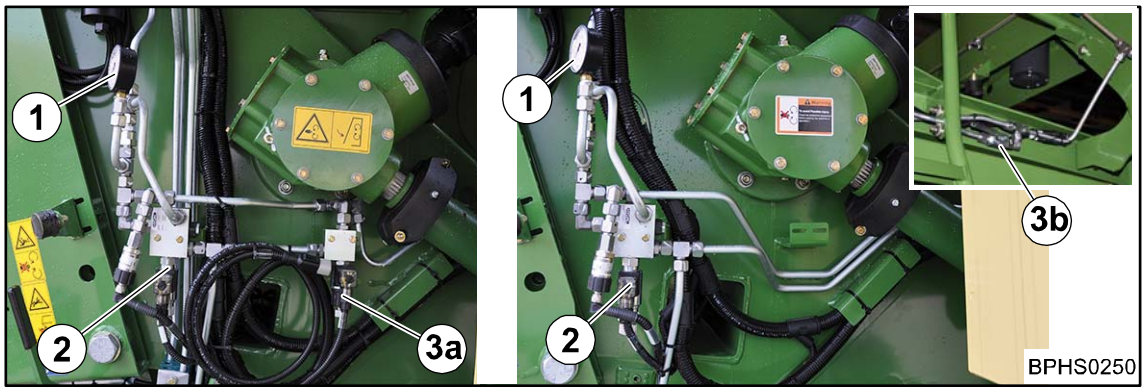


Fig. 33 Comfort version electronics design Medium version electronics design

Depending on the equipment of the machine, the following valves are located on the pressure limiting valve block:

1) Pressure gauge

2) Pressure limiting valve to adjust the baling pressure.

3a) Valve to loosen the bale channel flaps

3b Stopcock to loosen the bale channel flaps

The baling force in the bale channel is controlled by an electronic/hydraulic system. The baling force is set directly by the terminal from the tractor.

The pressure can be ordered directly via the display of the terminal.

You can find a further pressure gauge (1) to read off the baling pressure on the pressure limiting valve block.

Note

In order to conserve the baling pressure in the bale channel with machine switched off, the terminal may be switched off only after the machine or the flywheel has come to a complete standstill.

5.14 Twine

Left-hand Side of the Machine

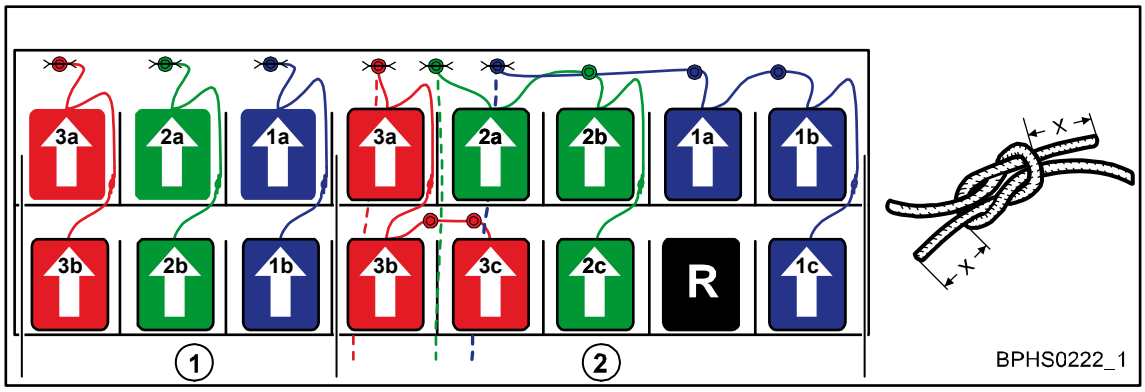


Fig. 34

1) Twine rolls for upper twine
2) Twine rolls for lower twine

Right-hand Side of the Machine

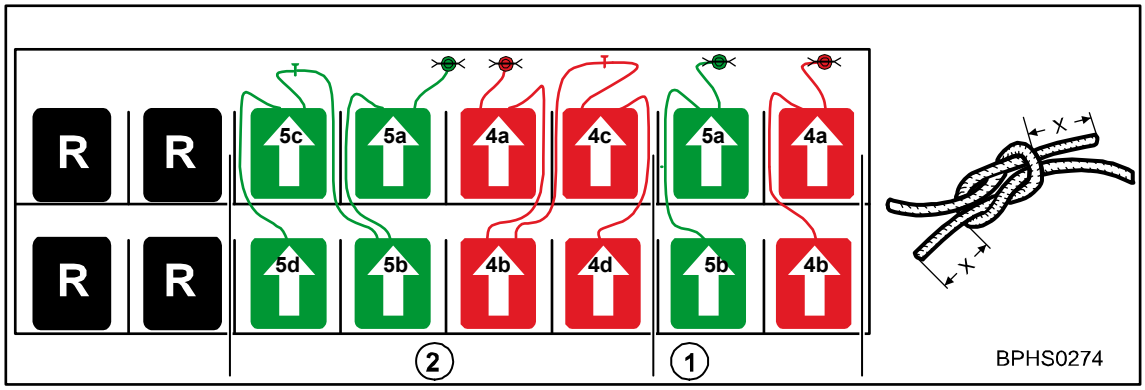


Fig. 35

1) Twine rolls for upper twine
2) Twine rolls for lower twine

The large-square baler is equipped with twine boxes on both sides of the machine. Each is capable of holding 16 rolls of tying twine. Of these, the twine rolls identified with an (R) are spare rolls.

Each of the five knotters is fed with an upper twine and a lower twine.

The five knotters are numbered from left to right.

From the left twine box, three upper twines and three lower twines are fed to the knotters (1, 2, 3). One upper twine and one lower twine is fed to each knotter (1, 2, 3).

From the right-hand twine box, two upper twines and two lower twines are feed to the knotters (4, 5). One upper twine and one lower twine is fed to each of the knotters (4, 5).

Twice as many twine rolls are provided for the lower twine because approx. double the amount of lower twine is required to reach around the underside and both ends of the bale. The upper twine only encompasses the upper side of the bale.

To ensure sufficient tying safety, you must be careful only to use synthetic twine that has a running length of 100-130 m/kg.

Note

Only use original KRONE twine

5.14.1 Electrical twine empty display for lower thread

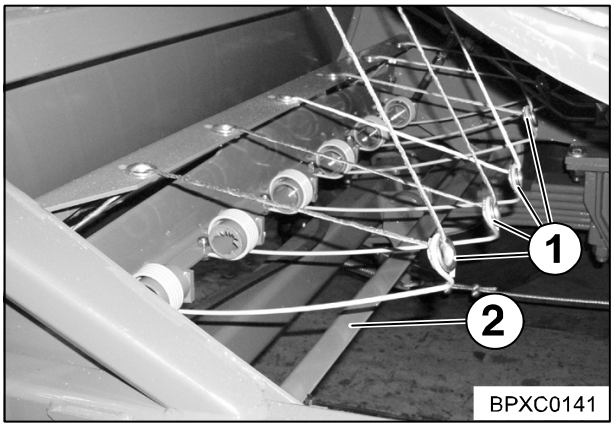


Fig. 36

If the end of the lower twine is reached or has been torn, the stretching twine tensioners (1) come to rest on the pivoting angle (2). An acoustic warning signal sounds on the terminal. An error message will appear in the display.

Note

The acoustic warning signal can be switched off while the twine is threaded in, see chapter KRONE ISOBUS Terminal "Alarm message".

5.14.2 Twine motion indicator upper twine (double knotter)

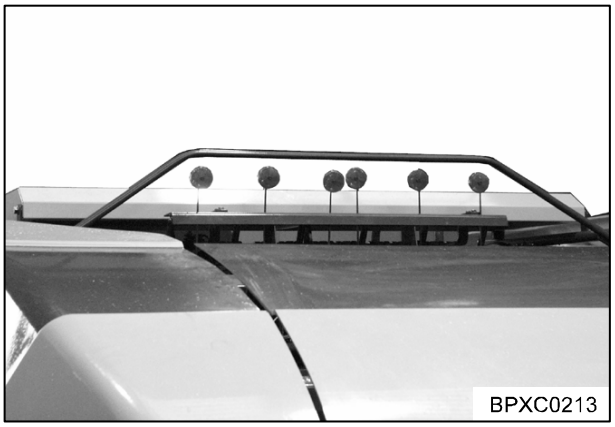


Fig. 37

The upper twine motion is monitored by reflectors (twine motion indicator) positioned above the machine. While the bale is being formed, the twine motion indicator should move back and forth in a pulsing cycle. All indicators generally rise and lower at the same time except in the event of a malfunction. A malfunction of this nature is indicated by the fact that the twine motion indicator that is featuring a malfunction will not be in the same position as the other indicators.

The following malfunctions can be indicated:

The twine motion indicators are staying up:

- Twine has wound around the knotter hook
- The needle has not caught the upper strand of twine (twine will not be cut through)
- The knot has been left hanging on the knotter hook (after the tying is complete, one twine motion indicator remains down longer than the other)

The twine motion indicators are staying down:

- Twine tension is too low
- The upper twine strand is torn
- The knotter hook has not tied a knot

5.14.3 Electrical Knotter Monitoring

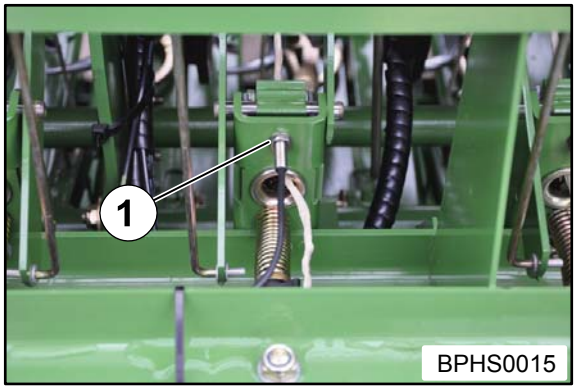


Fig. 38

The machine is equipped with an electrical knotter monitoring. In this process, each knotter is monitored individually by a sensor (1). If an error occurs on the knotter, the appropriate error message appears in the display of the operation terminal.
The knotters are numbered in direction of travel from the left to the right from 1 to 8.

5.15 Knotter Gear

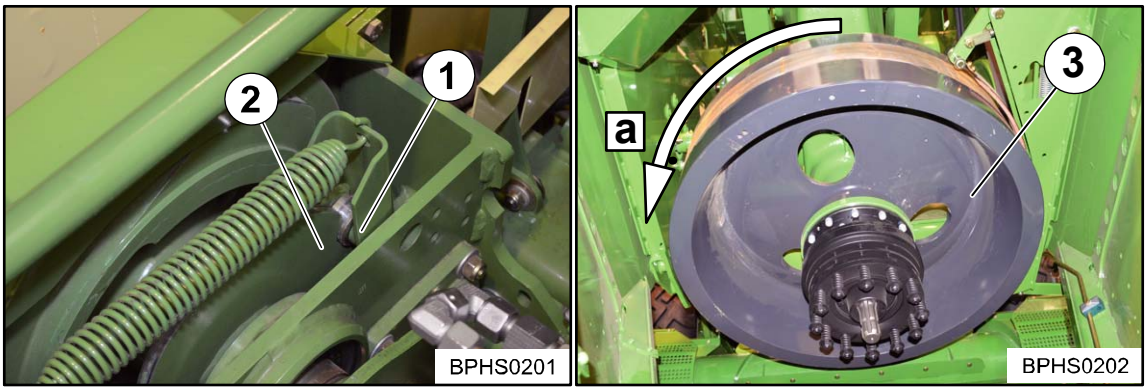


Fig. 39

Knotter gear in idle position

The knotter gear is in idle position if the trigger roller (1) is located in the recess of the cam disc (2) of the knotter gear.

The tying process

The tying process consists of a rotation of the cam disc (2).

The system automatically triggers the knotting mechanism after the set bale length has been reached. In this process, the cam disc rotates, presses the trigger roller out of the recess and continues to rotate until the trigger roller slides into the recess again. While the cam disc rotates, the first knot (closing knot) is tied at first and immediately after that, the second knot (starting knot) is tied.

First knot = closing knot, ties the pressed bale

Second knot = starting knot, ties the starting knot for the next bale

Initiating the tying process manually

In case of maintenance, setting or repair work, the tying process can be manually initiated when the tractor is not connected. The tying process is carried out by manually turning the flywheel (3) in the direction of working (a); refer to chapter Operation “Initiating Tying Process Manually”.

5.16 Bale Ejector / Bale Chute

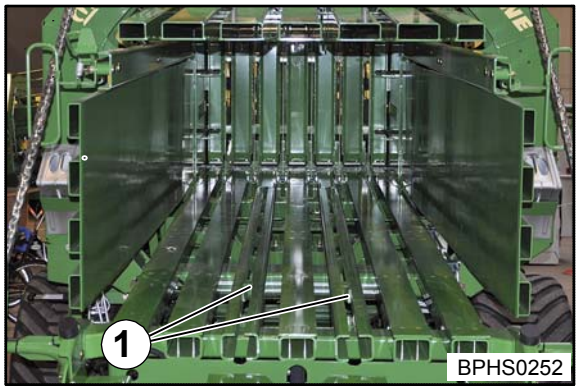


Fig. 40 Bale ejector (1)

The operation of the bale ejector or the bale chute depends on the machine design (medium version electronics or comfort version electronics), refer to chapter Operation “Operating the Bale Chute”.

5.16.1 Medium Version Electronics Design

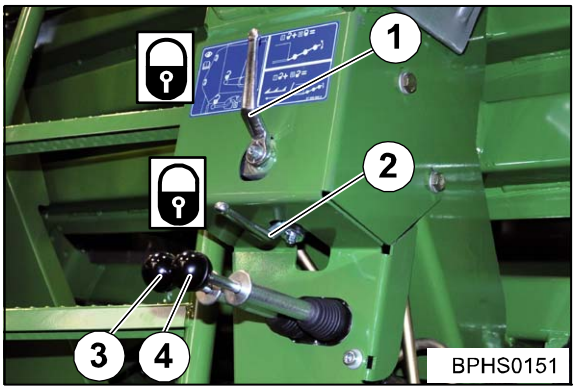


Fig. 41

The operating control device is located on the rear left machine side on the yoke.

The control levers (3, 4) are released or locked via shut-off valves (1, 2).

The bale chute is lowered or lifted via control lever (3).

The bale ejector is moved to the rear or to the front via control lever (4).

5.16.2 For Comfort Version Electronics Design:

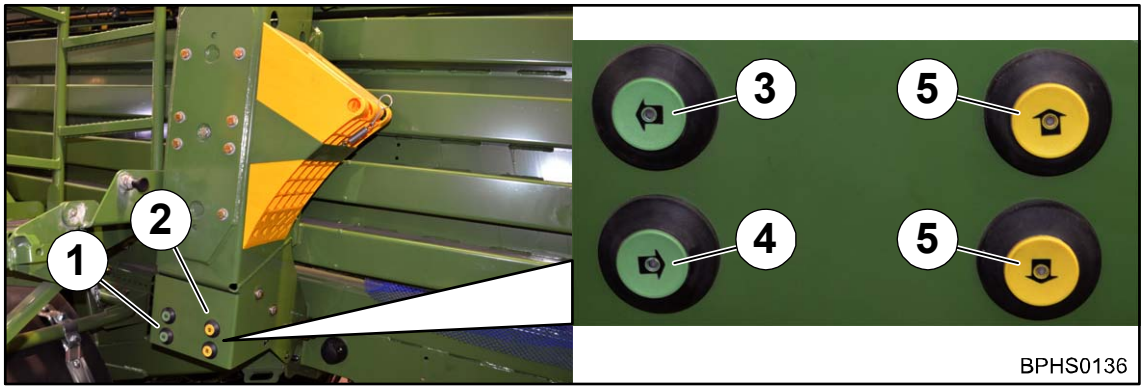


Fig. 42

On machines with comfort version electronics, external buttons (1, 2) are installed on the rear left machine side. The bale ejector is manually actuated via the buttons (3, 4). The bale chute is, however, manually actuated via the buttons (5, 6).

Actuating the bale ejector

The bale ejector is moved to the front via button (3).

Button (4) has several functions.

If the bale channel flaps have not been released, then they can be released now by pressing the button.

If the bale channel flaps have been released, 10 bale ejection processes are carried out by pressing the button.

The bale ejector moves backward when the bale channel flaps are released and the button is pressed and held.

Activating bale chute

The bale chute is lifted to transport position via button (5).

The bale chute is lowered into working position via button (6).

5.17 Compressed-air reservoir

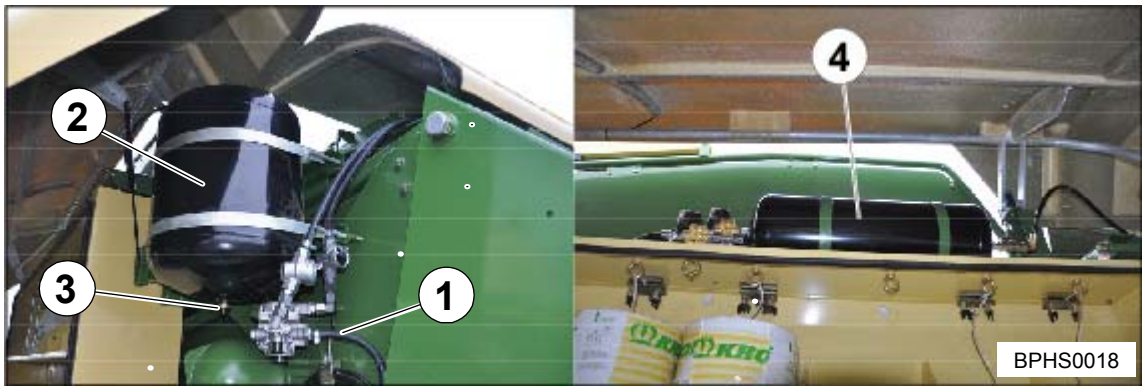


Fig.43

- Big pack square balers equipped with a compressed air brake have two compressed air storage tank (1x compressed air storage tank (2) for the compressed air brake / 1x compressed air storage tank (4) for knotter cleaning).
- Big pack square balers equipped with a hydraulic brake have one compressed air storage tank (4) (1x for knotter cleaning).
- For big pack square balers equipped with a pressurized air brake the compressed air storage tank (2) for the brake system is on the right hand side of the machine. It is connected with the compressed air storage tank (4) for knotter cleaning through a compressed air line (1).

The compressed air storage tank (4) for knotter cleaning (compressed air brake / hydraulic brake) can be found on the right hand side above the twine box on the frame.

5.18 Technical data

Dimensions	
Height	3075 mm
Length of transport position	7930 mm
Length of working position	9180 mm
Width with tyres 710/45-22.5 single axle	2600 mm
Width with tyres 500/50-17 tandem axle	2550 mm
Width with tyres 550/45-22.5 tandem axle	2600 mm
Width with tyres 620/40- R22.5 tandem axle	2670 mm

Weight*	
Tandem axle without cutting system	9050 kg
Tandem axle with cutting system	9600 kg

*) depending on how the machine is fitted

Track width	
Tandem axle	2040 mm

Maximum permissible speed *	
Tandem axle, compressed air brake	50 km/h/60 km/h**
Tandem axle, hydraulic brake	50 km/h

*) The maximum speed depends on the statutory regulations in each country.

**) Depending on tyres

Active pick-up	
Scattering width	1950 mm
Scattering width (wide pick-up optional)	2350 mm
Tine carrier	5 units
Number of tines (double tines per tine carrier)	16 units
Feed	Roller crop guide and intake roller
Feed lateral (right / left)	Conveyor auger
Height adjustment via perforated bar on the supporting wheel	

XC Cutting System	
Number of blades	16
Blade group control system	0, 8, 8, 16
Minimum cutting length	44 mm
Single blade locking device	Standard
Fitting via lateral extending cutting system inlet trays	Standard

Crop feed / Variable filling system	
Self feed	Through packer drum
Packer drum	4x feed rakes 1x switchable feeder strip
On XC design, a cutting system is also connected ahead.	

Baling ram	
Stroke length	750 mm
Strokes per minute	49
Bearing (rollers)	4 units.
Blade on the plunger	6 units.
Setting the baling density	Electronic-hydraulic force control (can be set from the tractor).

Bale channel / bale dimensions	
Height	700 mm
Width	800 mm
Bale length (continuously adjustable)	1000 mm to 2700 mm

Tying unit	
Twine box on both sides	For 16 twine rolls
Twine (synthetic twines)	100-130 m/kg
Knotter monitoring Twine empty display (lower twine / upper twine)	Electrical control with acoustic signal.
Twine motion indicator upper twine	Visual via reflectors
Starting the tying process	Automatic or manual
Number of knotter apparatus	5
Knotter cleaning	Compressed air

Overload protection	
Friction clutch drive	2400 Nm
Overload coupling flywheel	5500 Nm
Overload coupling pick-up without cutting system	1000 Nm
Overload coupling pick-up with cutting system	1200 Nm
Overload coupling cutting system	7000 Nm
Overload coupling packer	14500 Nm
Shear screw (cheese head screw) on the left needle connecting rod	M10 x 70-12.9 DIN EN ISO 4762

Universal shaft	
Wide-angle (mount on tractor side) series	1 3/8“, Z=6
	1 3/8“, Z=21
Wide-angle (mount on tractor side) optional	1 3/4“, Z=6
	1 3/4“, Z=20

Hitch	Permissible supported load
Towing eye Ø 40 mm ISO 5692-2 / like DIN 11026	2000 kg
Ball head hitch (K80)	2500 kg
Turnable towing eye Ø 76.2 mm CUNA F3 (only export)	2000 kg
Hitch connection Ø 50 mm ISO 20019 / like DIN 9678 (only export)	2000 kg
Ball Hitch (only export)	2500 kg

Brakes	
Hydraulic brake (depending on country)	Connection for hydraulic brake system required (max. operating pressure 120 bar / 1740 PSI)
Compressed air brake	Dual-line brake system
Parking brake	Operation by hand crank

Minimum tractor requirements	
Power requirement without cutting system	88 kW (120 PS)
Power requirement with cutting system	103 kW (140 PS)
PTO speed	max. 1000 rpm
Max. operating pressure of the hydraulic system	200 bar

Electrical connections	
Lighting	12 V 7-pin socket
Power supply of the machine	12 V 3-pin socket
ISOBUS capable	yes

Hydraulic connections for medium version electronics	
Control valve block	1x double-action control unit
Pick-up lifting	1x single-action control unit
With coaster/steering axle	1x single-action control unit

Hydraulic connections for comfort version electronics	
Control-valve block	1x double-action control unit
Alternatively	1x single-action control unit 1x unpressurised return flow to the tank
Raising the pick-up	1x single-action control unit
Raising/lowering support jack	1x double-action control unit
Load Sensing connection on the machine	Standard

Tyre identification	Minimum pressure [bar] Vmax<= 10 km/h	Maximum pressure [bar]	Recommended tyre pressure* (bar)
Guide wheels:			
15x6.00 - 6 10 PR		3.7	1.5
Tandem Axle:			
500/50-17 149 A8	1.2	3.5	3.5
550/45-22.5 16 PR	1.2	2.8	2.8
620/40 R 22.5 148 D	1.0	3.2	2.0

*) This recommendation applies especially to the typical mixture of operation (field/road) at the maximum permitted machine speed.
If necessary, the tyre air pressure can be reduced to the minimum air pressure. However, the associated maximum speed must then be observed.

Equipment of the maschine (optional)
Additional working floodlights
Moisture measurement
Special marking (France)
ISOBUS cable
Video system
Second camera
CCI terminal 100
Cable set for CCI terminal 100
Multi-function lever ISOBUS AUX

Airborne Sound Emission	
Equivalent continuous pneumatic level recorder	less than 70 d B(A)

5.19 Consumables

5.19.1 Filling Quantities and Lubrication Designations for Gearboxes

ENVIRONMENT! - Disposal and storage of lubricants
Effect: Environmental damage
- Store lubricants in eligible containers according to statutory provisions
- Dispose used lubricants according to statutory provisions

Designation		Filling quantity [litres]	Filtered lubricants	Bio-degradable lubricants
Main gearbox		15.5 l	**SAE 90 GL 4 or** Esso-Spartan EP 150 EP 150 Shell Omala Oil 150 Fuchs – EP 85 W90 Castrol EPX 90	**On request**
Packer gearbox		4 l		
Knotter/packer transfer gearbox		1 l		
Pick-up gearbox	top bottom	0.5 l		
Cutting system gear	top bottom	2.8 l 2.7 l		

5.19.2 Oil quantities and designations for the on-board hydraulic system

ENVIRONMENT! - Disposal and storage of used lubricants and oil filters
Effect: Environmental damage
Store or dispose used oil and oil filters according to statutory provisions.

Note - Observe maintenance intervals
Effect: Long expected service life of machine
- With bio-degradable oils always observe the change intervals because of the ageing of the oils.

	Quantity ltr.	Designation/brand	Bio-degradable lubricants
Oil container on baler	15	Fuchs Renolin MR 46 MC BP Energol SHF 46 Shell Tellus 46 Esso Univis N 46 Aral Vitan VS 46	**on request**

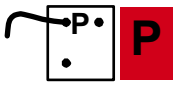
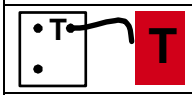
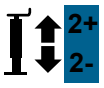
5.19.3 Oil quantities and designations for the compressor

	Quantity ltr.	Designation/brand	Bio-degradable lubricants
	Up to the top dipstick marking (0.2)	Standard engine oil SAE 20 or 20 W 40	**on request**

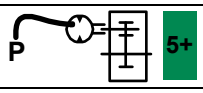
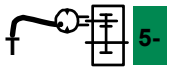
6 Control and Display Elements

6.1 Connecting the hydraulic lines

Comfort - Electronic

	
	Connection for control block – Red P: Pressure line, nominal width 15
	Connection for control block – Red T: Return line, nominal width 18
	Connection for control block – Green LS: Load-sensing line, nominal width 12 For additional information, please refer to the tractor manufacturer's operating instructions.
	Single-action control unit (yellow 1+): Yellow 1+: – Pressure: Raising the pick-up – Float position: Lower pick-up
	Double-action control unit (blue 2+ / blue 2-) – Blue 2+: Raising support jack – Blue 2-: Lowering support jack

Medium Version Electronics

	
	Connection for control block – Red 2+: Close blade bar, raise/lower support jack, open/close roller chute, deploy/retract bale ejector
	Connection for control block – Red 2-: Open blade bar
	Single-action control unit (yellow 1+): Yellow 1+: – Pressure: Raising the pick-up – Float position: Lower pick-up
	Single-action control unit (blue 3+): Blue 3+: – Pressure: Locking the steering axle – Float position: • Releasing the steering axle
	Connection for starting aid – Green 5+: Single-action control unit
	Connection for starting aid – Green 5-: Return line

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7 Commissioning

WARNING!
Risk of accident or damage to the machine due to an incorrect initial operation!
Only an authorized service technician is permitted to carry out the initial operation.

WARNING!
If the basic safety instructions are not followed, people may be seriously injured or killed.
- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!
If the safety routines are not adhered to, people may be seriously injured or killed.
- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

WARNING!
Risk of injury due to the unsecured machine rolling away!
If the machine is not secured against rolling away when it has been switched off, there is a risk of people being injured by the machine rolling away in an uncontrolled manner.
- Secure the machine against rolling away with the parking brake and wheel chocks.
- Apply the flywheel brake at the machine.

WARNING!
There is an increased risk of injury if the flywheel brake is not applied.
If the flywheel brake is not applied, parts may start to move unexpectedly. As a result, people may be seriously injured or killed.
Always apply the flywheel brake before
- coupling or uncoupling the universal shaft.
- carrying out maintenance, adjustment or repair work.
- rectifying malfunctions.

The following work steps are described in this chapter:
– Attaching the hydraulic parking jack.
– Attaching the power supply to the tractor.
– Height adaption of the drawbar.
– Height adaption of the drive train.
– Length adaption of the universal shaft to the tractor.
– Adapting the hydraulic system.
– Setting the bale chute.

7.1 Attaching Hydraulic Parking Jack

With hydraulic parking jack design.

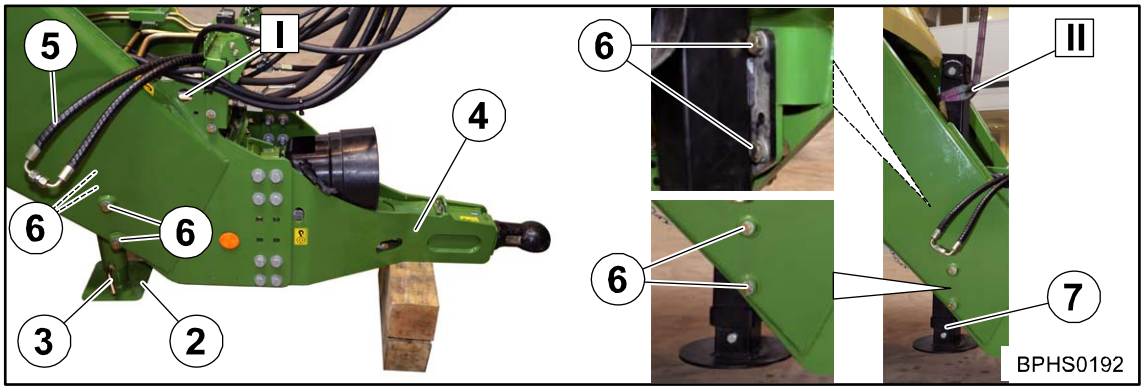


Fig. 44

- Attach the crane to the suspension point (I) on the drawbar.
- To lift the parking jack (2), slightly raise the drawbar, shift parking jack entirely upwards and secure with socket pin (3).
- To lower the drawbar down onto the ground, lay adequately dimensioned square blocks under the front drawbar beam (4) and lower the drawbar.
- Lay the hydraulic hoses (5) to the outside.
- To remove the parking jack, screw out the four screws (6), remove the parking jack and put it aside.
- Insert the hydraulic parking jack (7) on the same position.
- To lift the hydraulic parking jack, attach the parking jack with the crane (II) and raise it.
- Mount screws (6) and detent edged washers and secure with detent edged washers and nuts.

Tighten the screws with an appropriate tightening torque.

Attaching hydraulic hoses.

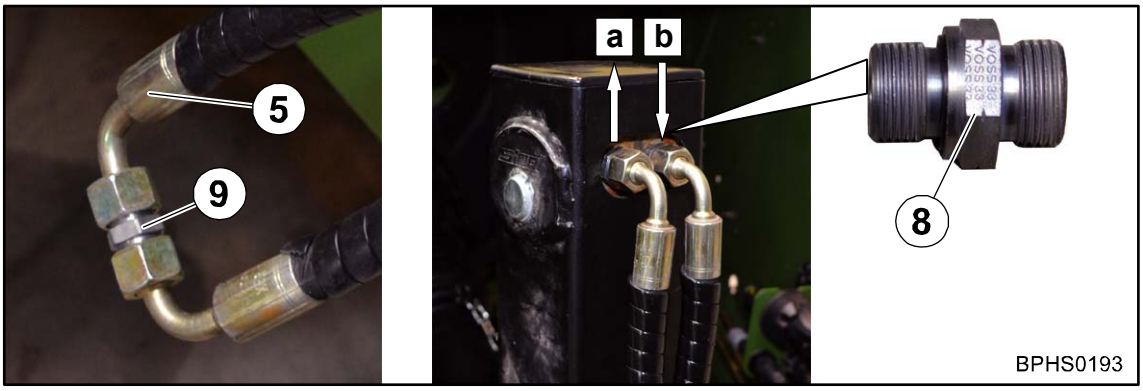


Fig. 45

a) Retracting parking jack connection b) Extending parking jack connection

Collect escaping oil in a suitable container.

- Screw provided unions (8) in the parking jack.
- Unscrew the hydraulic hoses from the double nipple (9).

Note

With comfort version electronics design

The upper line is screwed on connection “a”.

The lower line is screwed on connection “b”.

For medium version electronics design

The hydraulic line marked with S1 on the hydraulic block is screwed on connection “a”.

The hydraulic line marked with S2 on the hydraulic block is screwed on connection “a”.

- Screw the hydraulic hoses (5) on the unions (8).
- Connect the hydraulic hoses on tractor side.

Checking the “Lifting / lowering drawbar” function. The hydraulic hoses (5) on the parking jack must be replaced if the “Lifting /lowering” functions are interchanged.

- Lower the parking jack until the machine is in horizontal position.

7.2 Electrical power supply

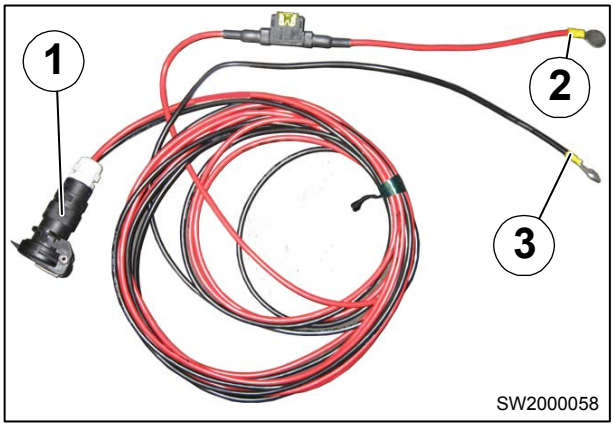


Fig. 46

The machine requires a voltage source for the power supplyof the on-board computer (control unit). A socket (12V DIN 9680) for installation on the tractor is part of the scope of supply. The socket has to be attached in order to provide the machine with the required electricity for start-up.

Connect the socket included with delivery (1) directly to the 12V battery of the tractor

- Connect the connector terminal (2) of the red cable (+) directly to the “+” terminal of the tractor battery.
- Connect the connector terminal (3) of the black cable (-) directly to the “-” terminal of the tractor battery.

7.3 Adjusting the drawbar height

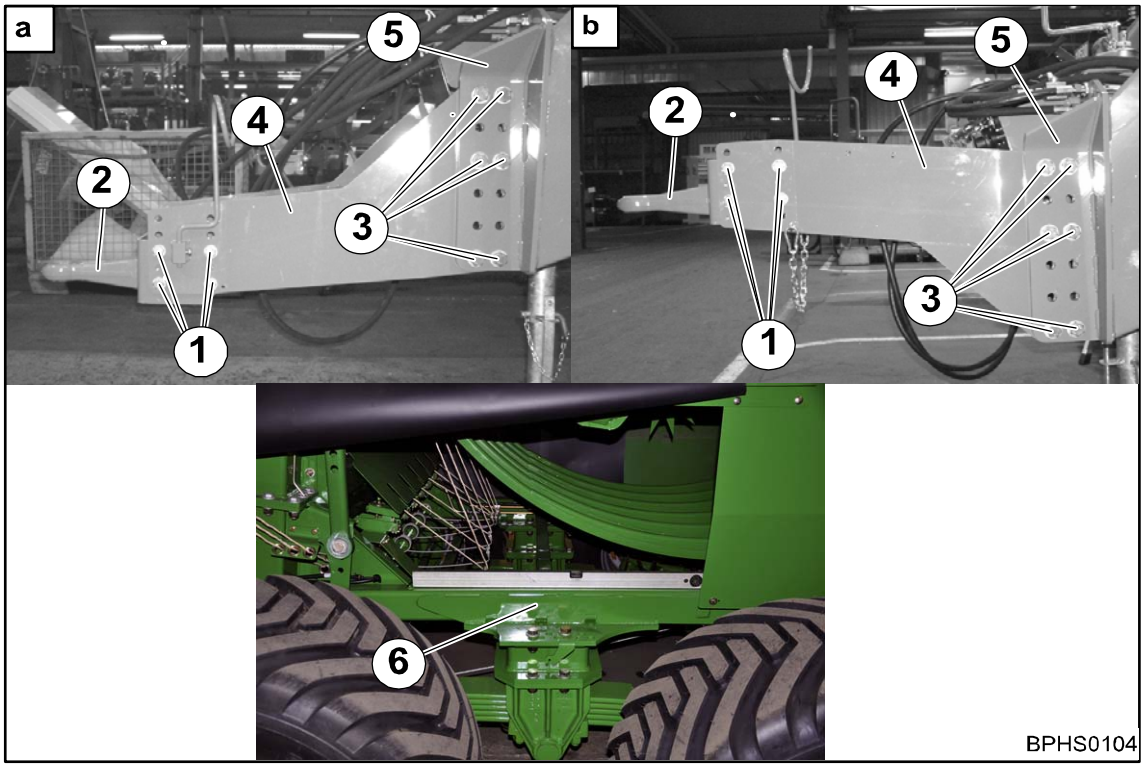


Fig. 47

Always adjust the hitching device of the machine to the tractor used. Always couple the machine horizontally to ensure that the pick-up collects the crop evenly. The cross-member is used as a reference edge to align the machine (6).

Before making the setting:

- Place the machine on the parking support
- Secure the machine against the possibility of rolling back.
- Uncouple the machine from the tractor
- Using a spirit level, align the machine horizontally

Setting the towing ring:

- Unscrew the screws (1)
- Adjust the height of the towing ring (2) to the height of the tractor hitch
- Fit and tighten the screws (1)

If the adjustment of the towing ring is not adequate, adjust the side parts (4).

To do this:

- Unscrew the screws (3)
- Adjust the height of the front parts of the drawbar (4) to the height of the tractor hitch
- Fit and tighten the screws (3)

Changing the drawbar hitch

The drawbar is set as standard as the bottom hitch (a). To set as top attachment (b), rotate both front parts of the drawbar (4) by 180 degrees.

To do this:

- Unscrew the screws (3)
- Remove the front parts of the drawbar (4) and rotate by 180 degrees
- Using the screws (3), attach the turned front parts of the drawbar between the drawbar (5) and tighten the screws

Note

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

7.4 Adjusting the height of the drive train

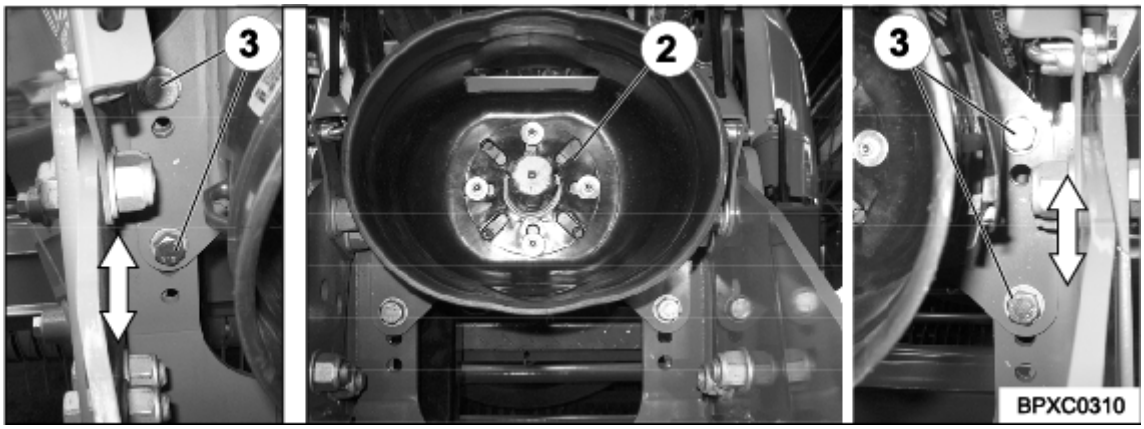


Fig. 48

The universally-jointed drive shaft (1) between the intermediate bearing (2) and the tractor transfuses the power of the tractor to the intermediate bearing. In order to have an ideal power transmission the articulation angle of the universally-jointed drive shaft must be as small as possible in the range of the intermediate bearing. After adjusting the height of the drawbar check the articulation angle of the universally-jointed drive shaft in the range of the intermediate bearing, and if necessary adapt it.

To do this:

- Use an eligible auxiliary means in order to support the intermediate bearing during the whole adjustment process
- Remove the screws (3) of the intermediate bearing
- Move intermediate bearing (2) in the hole pattern
- Assemble and tighten the screws (3)

7.5 Shortening Universal Shaft

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

The both PTO shaft halves must let push together in the narrowest position (turn with maximum steering angle and simultaneous driving a slope up or down). The ends of the both section tubes must not touch each other in this process. In this process, the displacement path (overlapping) must at least be 220 mm, both in straight-ahead driving and when cornering.

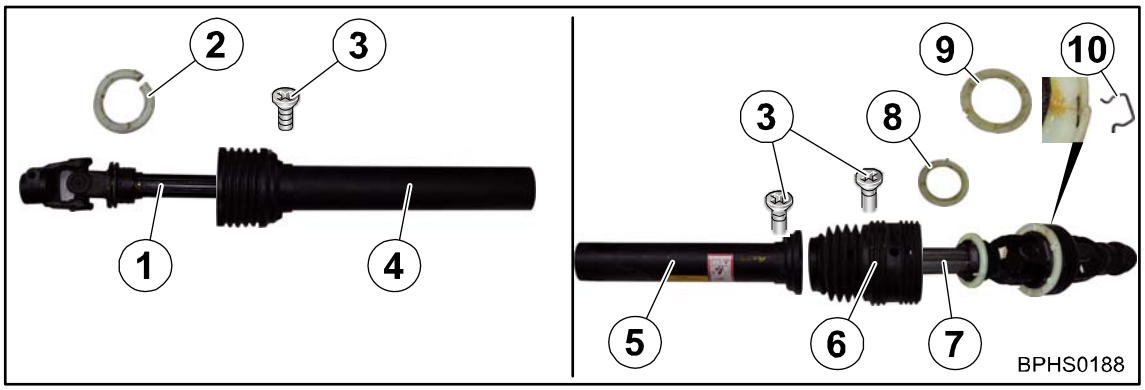


Fig. 49 Inner PTO shaft half Outer PTO shaft half

1)	Section tube inside	2)	Raceway inside
3)	Fastening screw	4)	Guard tube inside
5)	Guard tube outside	6)	Protective sleeve
7)	Section tube outside	8)	Raceway outside
9)	Slide ring	10)	Retaining spring

- Disassemble the PTO shaft halves.

Inner PTO shaft half

- Screw out the fastening screws and remove the inner protective tube.
- Widen the raceway inside and remove it.

Outer PTO shaft half

- Screw out the screws of the protective sleeve as well as the screws of the protective tube outside.
- Remove the protective tube outside.
- Remove the protective sleeve.
- Unhook the retaining spring and leave it in one of the two bore holes of the slide ring to ensure that the retaining spring does not get lost.
- Widen the raceway outside and the slide ring and remove them.

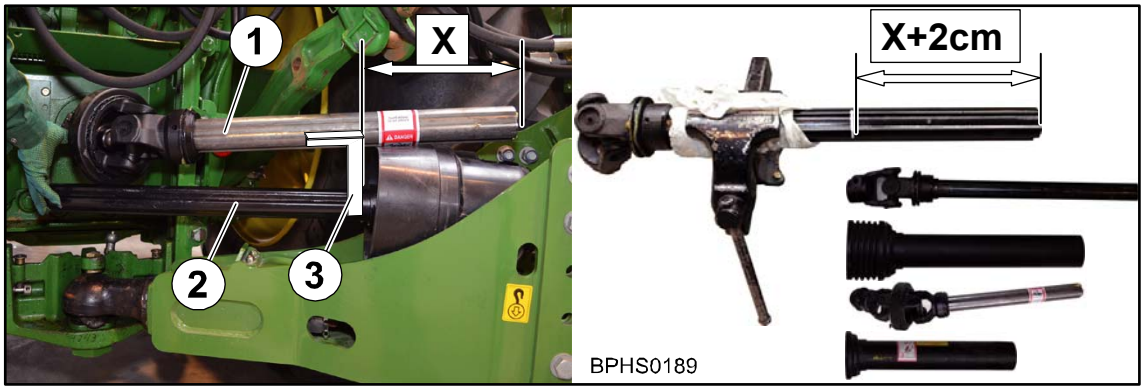


Fig. 50

- Connect the machine without universal shaft to the tractor
- Move the machine to the narrowest position (driving around curves).
- Switch off the engine of the tractor, remove the ignition key and secure the tractor and the machine from rolling away.
- Attach the PTO shaft halves on tractor side and on machine side.

Determining the overlap (X)

- Determine the dimension “X”.
- The determined dimension „X+2cm“ must be transferred to the protective tubes and to the section tubes of the PTO shaft halves.

CAUTION!

The carry over dimension X+2cm must not pass the grease emersion bore holes (a) at the section tube inside as the end piece is destroyed when shortening.

Increase the dimension x+2cm by 2cm if it passes the grease emersion bore holes.

- Shorten the protective tubes and the section tubes, deburr them from the outside and from the inside and remove the chips.
- To obtain a complete Teflon coating, melt the Teflon coating at the end of the section tubes somewhat with the lighter.

With inner lubrication line

The inner lubrication lines may be cut when shortening the section tube inside. If this is the case, the lubrication lines must be removed and adjusted and a new access hole must be drilled.

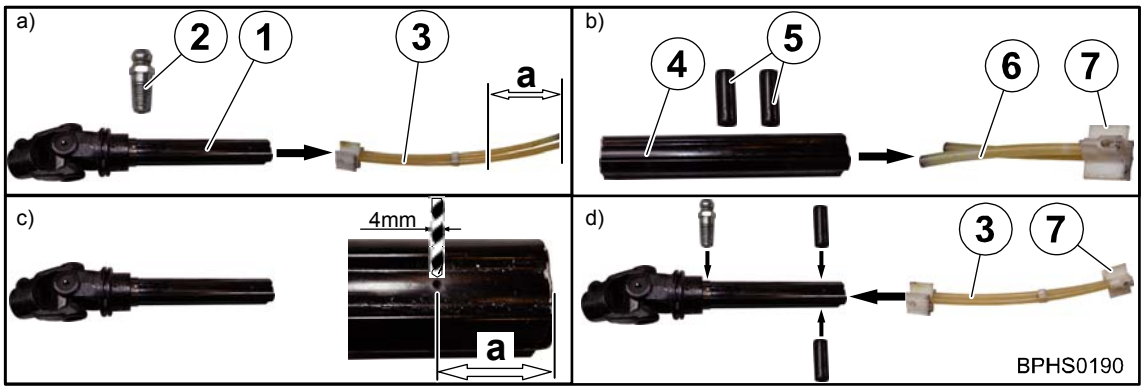


Fig. 51

1)	Section tube inside	2)	Grease nipple
3)	Lubrication line (I)	4)	Separated section tube inside
5)	Roll pins	6)	Lubrication line (II)
7)	End piece		

- Screw out the grease nipple and pull the lubrication line (I) out of the section tube.
- Shorten the lubrication line (I) by a = 5 cm.

From the separated section tube

- Tap out the roll pins to the inside.
- Pull the lubrication line (II) out of the section tube and remove the end piece.
- Attach the end piece onto the shortened lubrication line (I).
  Drill a bore hole Ø 4 mm with a distance of a = 5 cm into the section tube, top and bottom.

Make certain the bore holes and the bore hole of the grease nipple are on the same side.

- Insert the lubrication line, screw in the grease nipple and drive in the roll pins.

Installing the PTO shaft halves

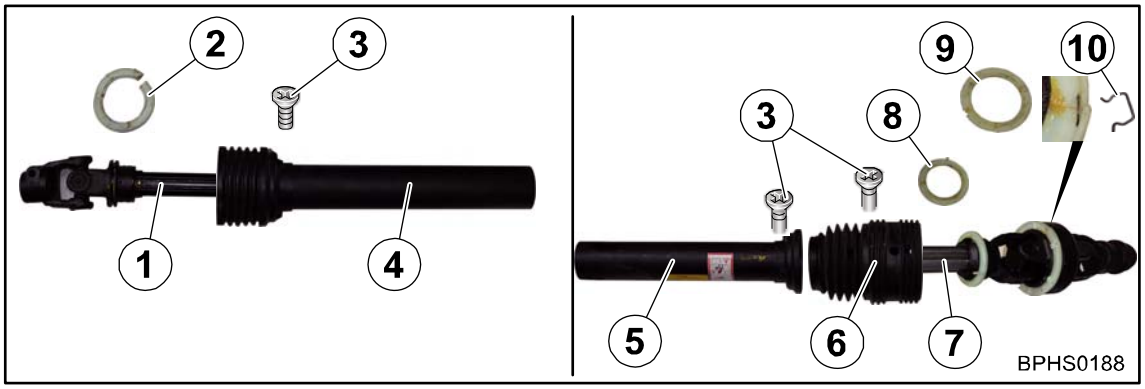


Fig. 52 Inner PTO shaft half Outer PTO shaft half

1)	Section tube inside	2)	Raceway inside
3)	Fastening screw	4)	Guard tube inside
5)	Guard tube outside	6)	Protective sleeve
7)	Section tube outside	8)	Raceway outside
9)	Slide ring	10)	Retaining spring

Inner PTO shaft half

- Grease the raceway seat.
- Insert the raceway inside into the groove.
- Slide on the protective tube inside and secure with fastening screws.

Outer PTO shaft half

- Grease the raceway seat and the slide ring seat.
- Insert the raceway outside into the groove.
- Position the slide ring and hook the retaining spring in place in the both bore holes of the slide ring.
- Slide on the protective sleeve and secure with fastening screws.
- Slide on the protective tube outside and secure with fastening screws.

Determining the displacement path (overlapping)

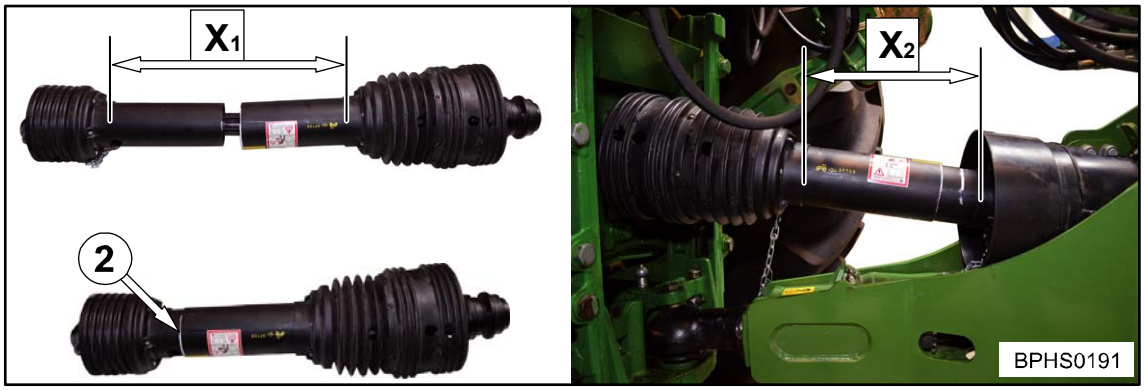


Fig. 53

- Lay the both PTO shaft halves in front of one another, the outer section tube is in front of the inner section tube.
- Determine dimension X_1.
- Slide PTO shaft halves into one another as far as they will go and attach a marking (2) at the end of the protective tube outside.
- Connect the universal shaft on tractor and on machine side, move the machine to the farthest position (straight-ahead driving).
- Determine dimension X_2.

Calculating the displacement path “V” (overlapping):

$V = X_1 - X_2$

The displacement path (overlapping) must be at least V ≥ 220 mm.

Check the shortened universal shaft when driving around curves.

- Perform the right and left turn slowly with the tractor. In this process, mind the marking (2).

The protective tube outside must not touch the marking (2) in the narrowest position (turn with maximum steering angle and simultaneous driving up and driving down a slope). If the protective tube outside touches the marking, shorten the both PTO shaft halves by the same length as described above until the protective tube outside does not touch the marking any more.

7.6 Adjusting the hydraulic system

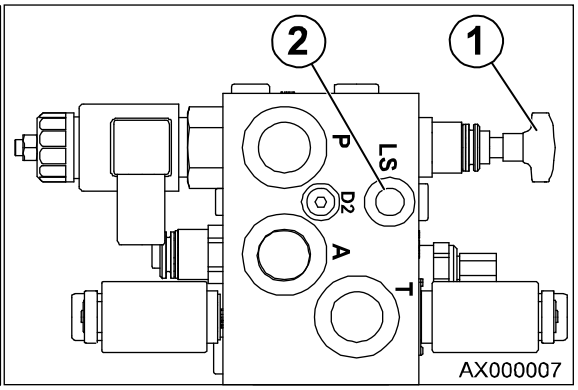


Fig.54

- Switch the control units on the tractor to float position.
- Depressurise the hydraulic system on the tractor and the machine.
- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

7.6.1 Operating the Machine without LS (Load-Sensing Connection)

Unscrew the system screw (1) as far as it will go for:

- Tractor with an open (constant-current) hydraulic system (for additional information, please refer to the tractor manufacturer's operating instructions)
- Tractors with LS pump and non-activated load-sensing system

Note
This adjustment is set when the unit leaves the factory.

7.6.2 Operating the Machine via LS (Load-Sensing Connection)

Screw the system screw (1) as far as it will go for:

- Tractors with closed (constant pressure or load sensing) Hydraulic system (For more information, please refer to the tractor manufacturer's operating instructions)
- Tractors with LS pump and message line that is connected

7.7 Setting the bale chute

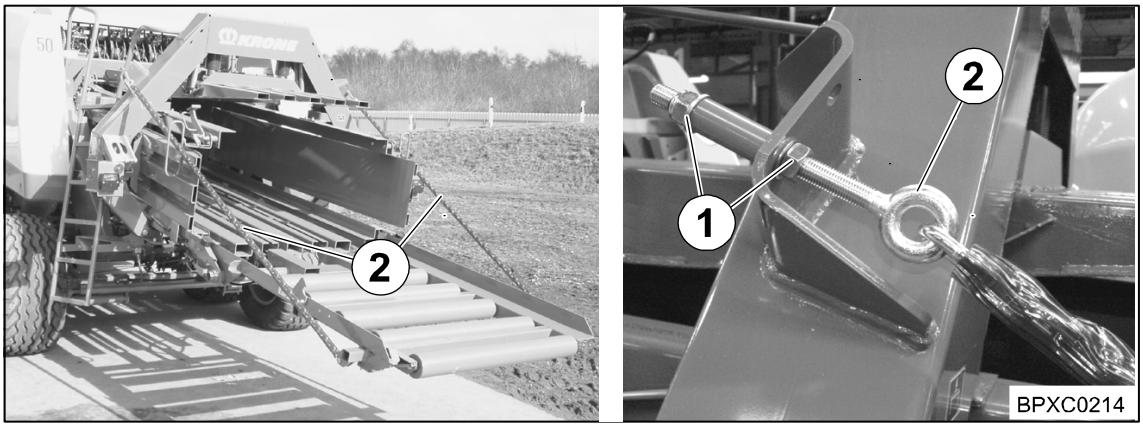


Fig. 55

When it is unfolded, the bale chute represents an extension of the bale channel chamber. For big bales to be set down on the ground correctly, the back edge of the bale chute must not be too high above the ground. Otherwise the bales will be damaged when they are placed on the ground.

- The inclination of the bale chute to the ground can be sued to adjust the length of the retaining chain (2) of the bale chute
- To do this, adjust the nut (1) on either side of the baling channel

Note

If the inclination of the bale chute is changed, the bale scale must be recalibrated if the machine has one (see chapter on KRONE ISOBUS terminal CCI "Calibrating the Bale Scale").

8 Start-up

WARNING!
If the basic safety instructions are not followed, people may be seriously injured or killed.
- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!
If the safety routines are not adhered to, people may be seriously injured or killed.
- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

The following work steps are described in this chapter:
– Mounting onto the tractor.
– Installing PTO shaft.
– Connecting the hydraulic lines.
– Connecting the hydraulic brake, export
– Connecting the hydraulic brake, export France
– Connecting the hydraulic connection for locking the coaster/steering axle.
– Connecting the compressed air connections for the compressed air brake.
– Connecting the terminal.
– Connecting the lighting.

8.1 Connect the machine to the tractor

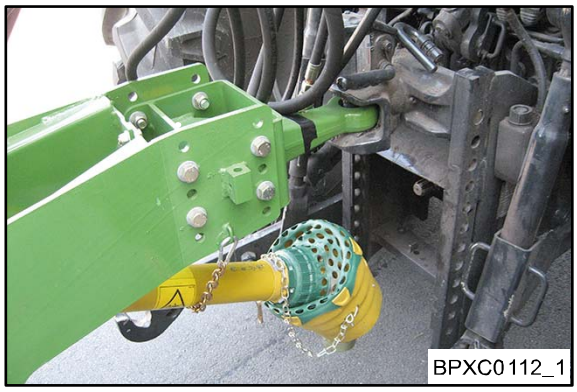


Fig. 56

Prerequisite:

– The hitching device of the machine is adapted to the hitching device of the tractor; refer to chapter Initial Operation „Height Adaption of the Drawbar“.
– The height of the drive train of the machine to the tractor is adapted; refer to chapter Initial Operation “Height Adaption of the Drive Train”.
– The universal shaft is adapted to the tractor; refer to chapter Initial Operation “Universal Shaft”.
– The hydraulic system is adapted to the tractor; refer to chapter Initial Operation “Adapting the Hydraulic System”.
– The machine is in horizontal position.

• Hitch and secure the machine according to the operating instructions of the tractor manufacturer to the hitching device of the tractor.

8.1.1 Install the PTO shaft

WARNING!
There is an increased risk of injury if the flywheel brake is not applied.
If the flywheel brake is not applied, parts may start to move unexpectedly. As a result, people may be seriously injured or killed.
Always apply the flywheel brake before
- coupling or uncoupling the universal shaft.
- carrying out maintenance, adjustment or repair work.
- rectifying malfunctions.

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

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

CAUTION! - The universal shaft is not put on correctly.
Effect: Damage to the universal shaft or the machine
- Make certain that the universal shaft is properly secured after installation and locked into place
- Use only the universal shaft included with delivery from the factory
- Before engaging the P.T.O always release the flywheel parking brake first

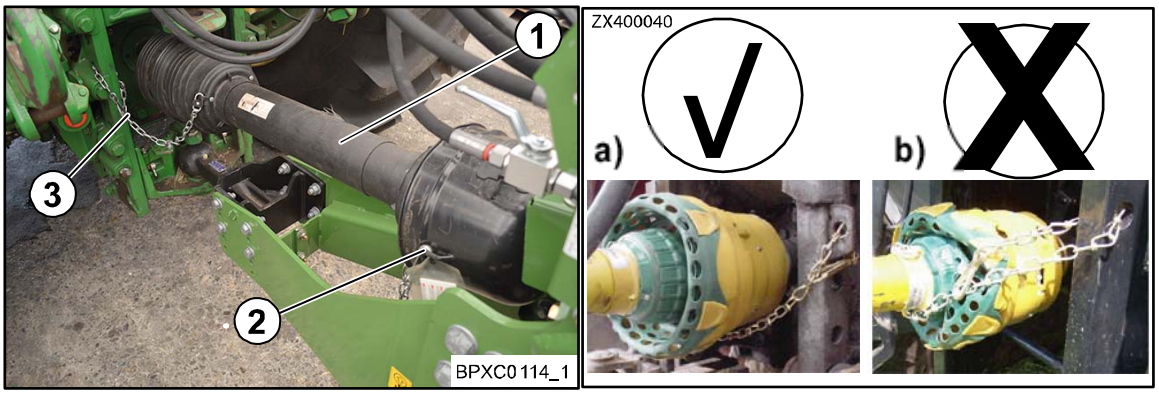


Fig. 57

The wide-angle coupling is attached on tractor side.
On machine side
- Install the universal shaft (1) on the drive journal of the angular gear.
- Fasten the retaining chain (2) on the guard cup.

On tractor side
- Slide the wide-angle coupling onto the tractor PTO shaft and secure it.
- Fasten the retaining chain (3) on the tractor.

CAUTION!

Material damages if the retaining chain coils up.

Fasten the retaining chain so that it surrounds the guard funnel in each working position by maximum 90°.

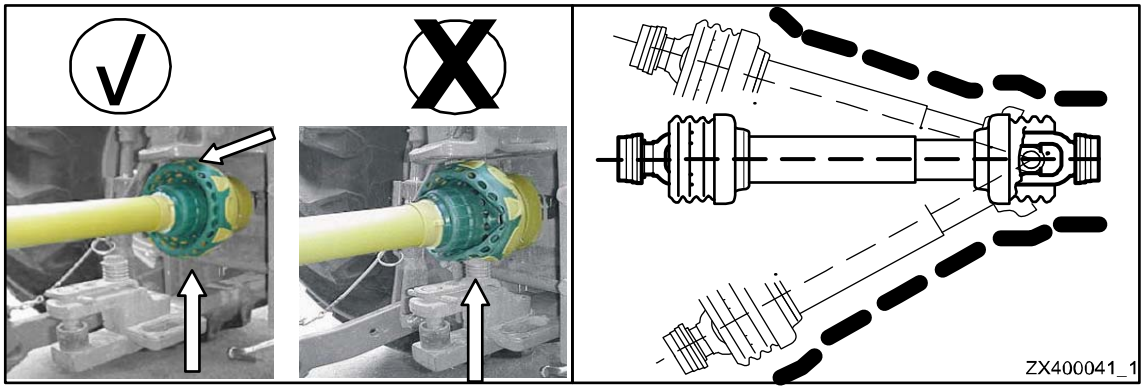


Fig. 58

- Make certain there is sufficient free room in the swivel range of the universal shaft in all operating states. Contact with parts of the tractor or device may result in destruction.

Caution! - Swivel range of the PTO shaft

Effect: Damage to the tractor or the machine

- Check the swivel range and clearance of the PTO shaft!

8.2 Hydraulics

WARNING! - If the hydraulic hoses are interchanged when connecting them to the hydraulic system of the tractor, the functions will be interchanged as well.

Effect: Injuries, serious damage to the machine

- Identify the hydraulic connections.
- Always ensure correct connection between the machine and the tractor.
- When connecting and removing the hydraulic hoses to and from the tractor hydraulics take care that the hydraulics are pressureless both on the tractor side and the machine side.

Caution! - Soiling of the hydraulic system

Effect: Damages to the machine

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

Note

Connect hydraulic hoses correctly.

- The hydraulic hoses are marked with numbers and coloured dust caps.

8.2.1 Connecting the hydraulic lines

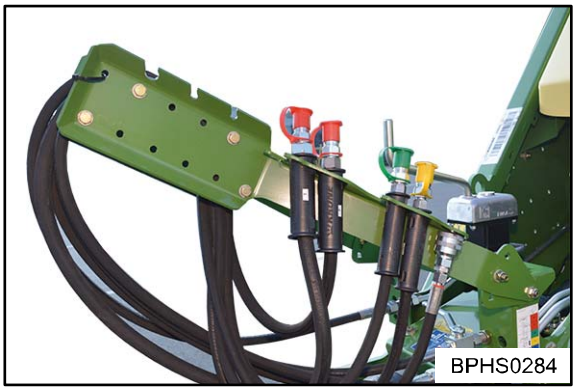


Fig. 59

Comfort - Electronic

- Switch the control units on the tractor to float position.
- Depressurise the hydraulic system on the tractor and the machine.
- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Tractor with Load Sensing pump and connected signal line (LS):

- Connect the pressure line (red P) to the Power Beyond system connection on the tractor.
- Connect the return-flow line (red T) to the unpressurised return flow on the tractor.
- Tighten the system screw on the control-valve block all the way.
- Connect the signal line (green LS) to the Load Sensing connection on the tractor.

Tractor with constant pressure pump:

- Connect the pressure line (red P) to a single-action control unit on the tractor.
- Connect the return-flow line (red T) to the unpressurised return flow on the tractor.

Alternatively, the pressure line and the return-flow line can be connected to a double-action control unit.

- Unscrew the system screw on the control-valve block all the way.
- Place the signal line (green LS) into the retainer on the machine.

Tractor with constant flow pump:

- Connect the pressure line (red P) to a single-action control unit on the tractor.
- Connect the return-flow line (red T) to the unpressurised return flow on the tractor.

Alternatively, the pressure line and the return-flow line can be connected to a double-action control unit.

- Unscrew the system screw on the control-valve block all the way.
- Place the signal line (green LS) into the retainer on the machine.

- Connect the hydraulic coupling (yellow 1+) on the machine to a single-action control unit on the tractor.
- Connect the hydraulic couplings (blue 2+ / blue 2-) of the machine to a double-action control unit of the tractor.

Medium Version Electronics

- Switch the control units on the tractor to float position.
- Depressurise the hydraulic system on the tractor and the machine.
- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

- Connect the hydraulic couplings (red 2+/red 2-) on the machine to a double-action control unit on the tractor.
- Connect the hydraulic coupling (yellow 1+) on the machine to a single-action control unit on the tractor.
- Connect the hydraulic coupling (blue 3+) on the machine to a single-action control unit on the tractor.

Starting aid

- Connect the hydraulic coupling (green 5+) to a single-action control unit on the tractor.
- Connect the hydraulic line (green 5-) to the unpressurised return flow on the tractor.

Alternatively, the hydraulic couplings (green 5+/green 5-) can be connected to a double-action control unit.

8.3 Hydraulic brake (Export)

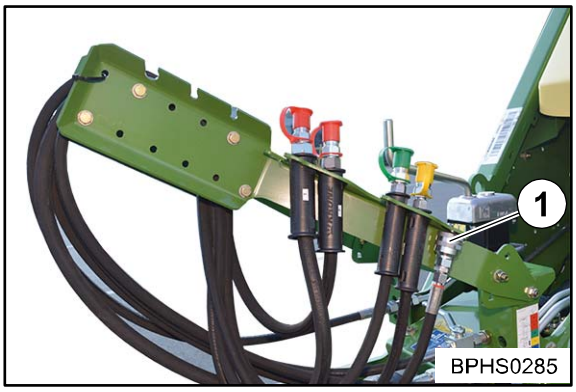


Fig. 60

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

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

8.4 Hydraulic Brake (Export France)

WARNING!
Risk of injury and serious material damages due to unintentional braking of the machine
If the safety chain is too short, it can tear off and lead to an emergency braking.

- Make certain that the length of the safety chain is adapted to the tractor.
- A specialist workshop (service technician) must adapt the length of the safety chain
- When changing the tractor, make certain that the safety chain has still the correct length

WARNING!
Risk of injury and serious material damages due to the safety valve of the hydraulic brake which is not functioning.
To guarantee the functionality of the safety valve for the hydraulic emergency brake,

- make certain that the safety chain is fastened free of tension on the tractor. A safety chain which is wrapped to strong around the hydraulic hose prevents the functionality of the safety valve
- the brake pedal of the service brake must be actuated completely once before starting driving. By activating the service brake, the accumulator on the safety valve is pressurised.

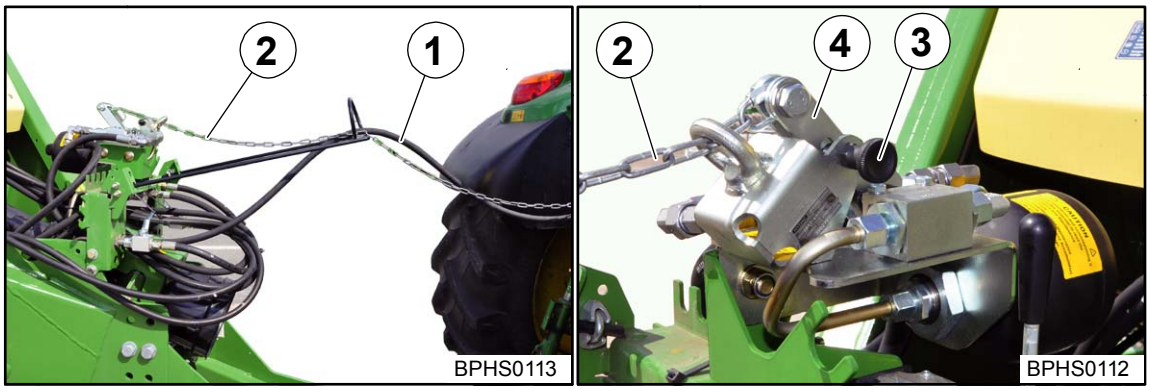


Fig. 61

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".
- Connect the hydraulic hose (1) of the hydraulic brake to the connection for the hydraulic brake on the tractor
- Fasten the safety chain (2) securely on the tractor

The safety chain is laid out with a set brake (weaker chain link). If the machine uncouples itself unintentionally, the safety valve triggers the emergency braking and the safety chain tears off on the weaker chain link . The chain link is destroyed in this process and must be replaced.

Unlocking the Safety Valve:

- Keep the safety chain (2) under tension and release the safety valve by pulling on the locking bolt (3). In this process, move the locking lever (4) slowly in its initial position with the help of the spring force.

8.5 Compressed Air Connections for the Compressed Air Brake

The machine features a dual-line compressed-air braking system.

- The coupling heads are connected to the machine for attachment of the reservoir (red) and brake line (yellow) of the tractor.
- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

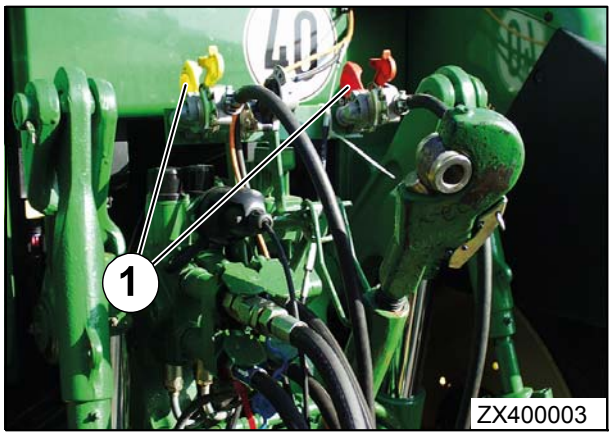


Figure 62

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

Note

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

8.6 Electrical connections

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

8.6.1 Connecting the terminal (on tractors without ISOBUS system)

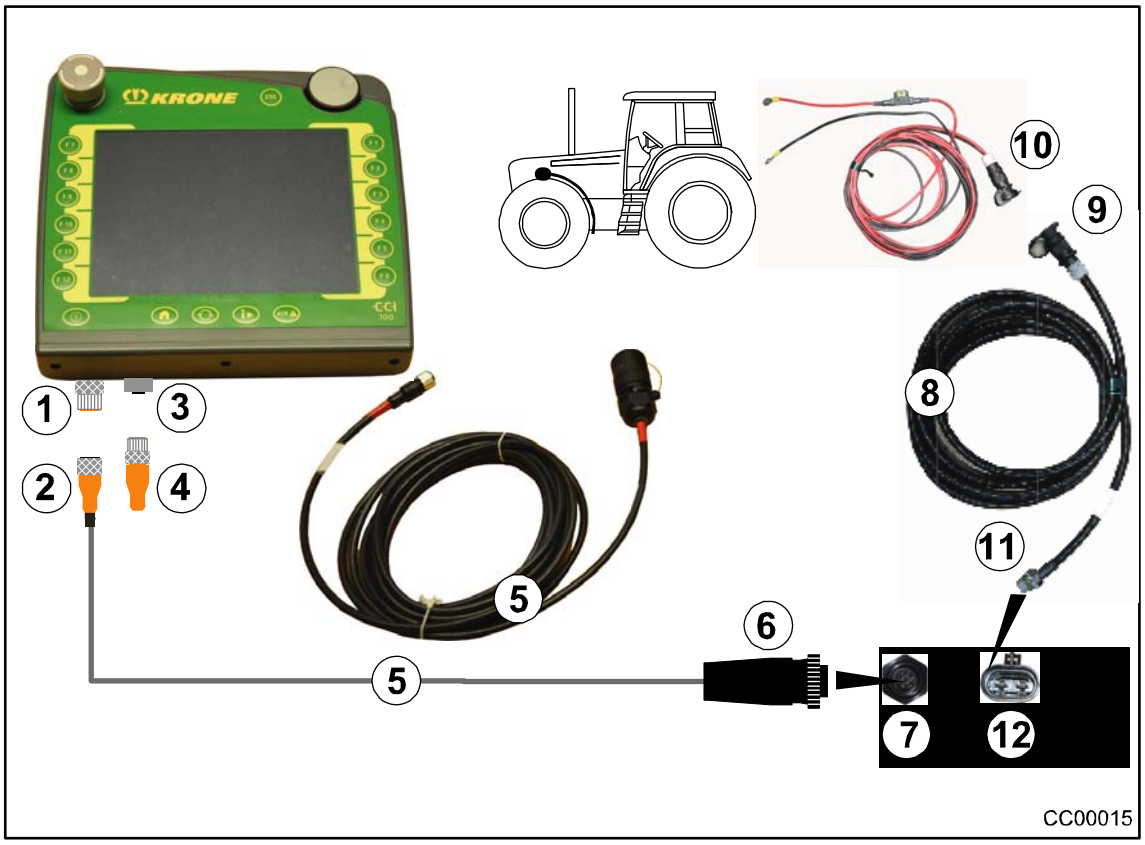


Fig. 63

Connection terminal to machine

Note

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

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

Connection tractor to machine

Note

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

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

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

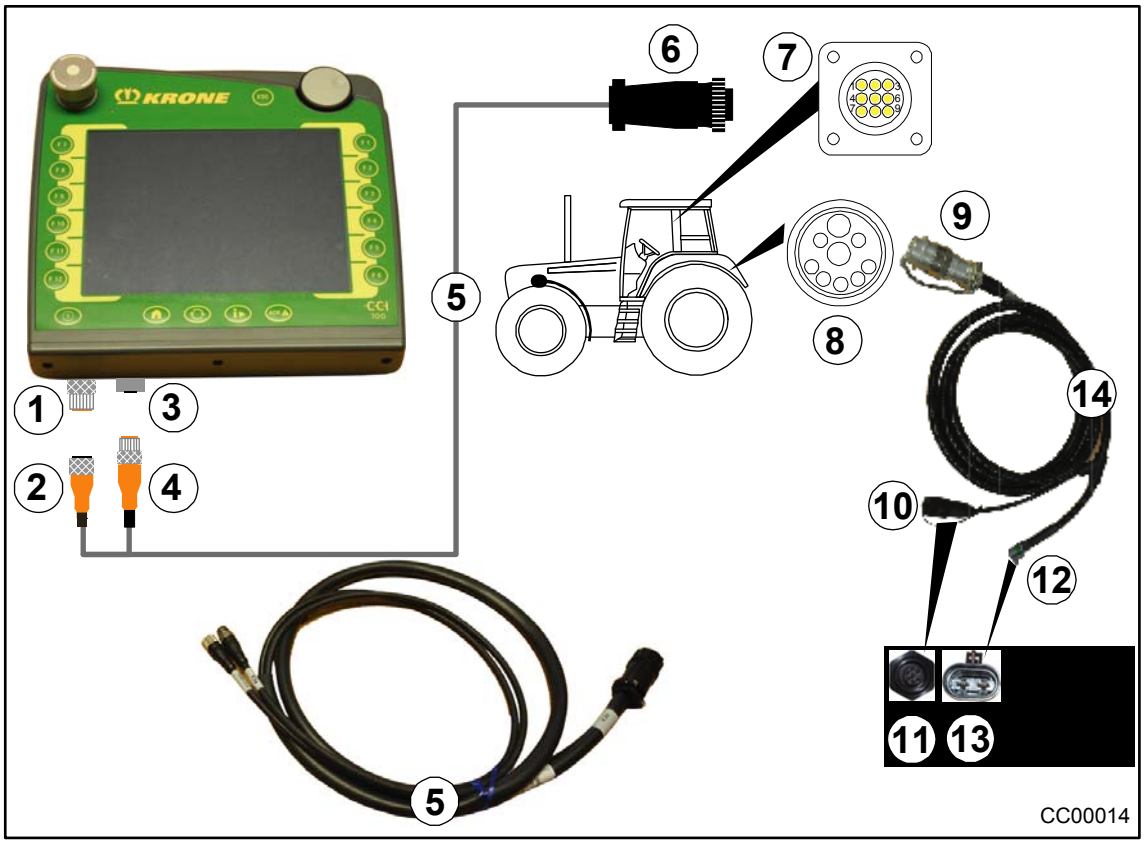


Fig. 64

Connection terminal to tractor

Note

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

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

Connection tractor to machine

Note

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

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

8.7 Lighting

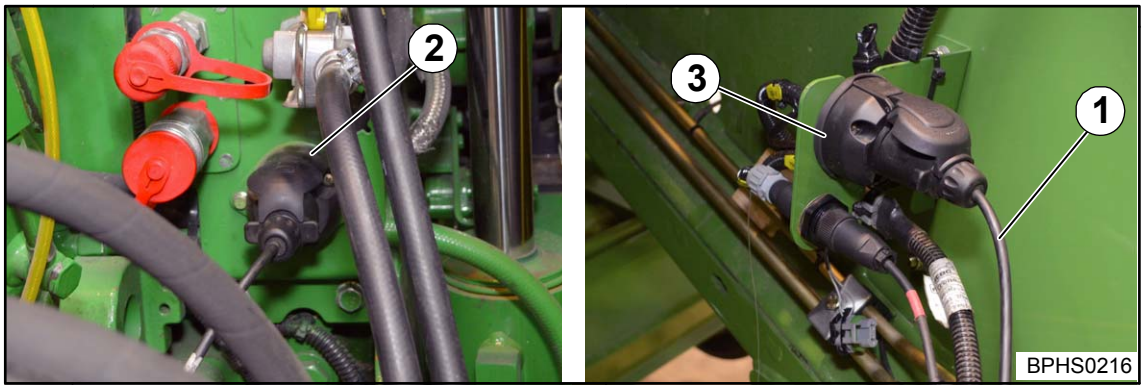


Fig. 65

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

The lighting system is connected via the 7-pin connection cable (1).
To do this:

- Insert the 7-pin plug of the connection cable (1) into the relevant socket (2) of the tractor.
- Insert the 7-pin connection cable plug (1) into the appropriate socket (3) of the machine.
- Position the cable so that it will not come in contact with the wheels.

Note
Before inserting the plugs, make certain the plugs and sockets are clean and dry. Dirt and moisture may result in short circuits!

8.8 Using the safety chain

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

- Always use a safety chain with a minimum tensile strength of 178 kN (40.000 lbf).

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

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

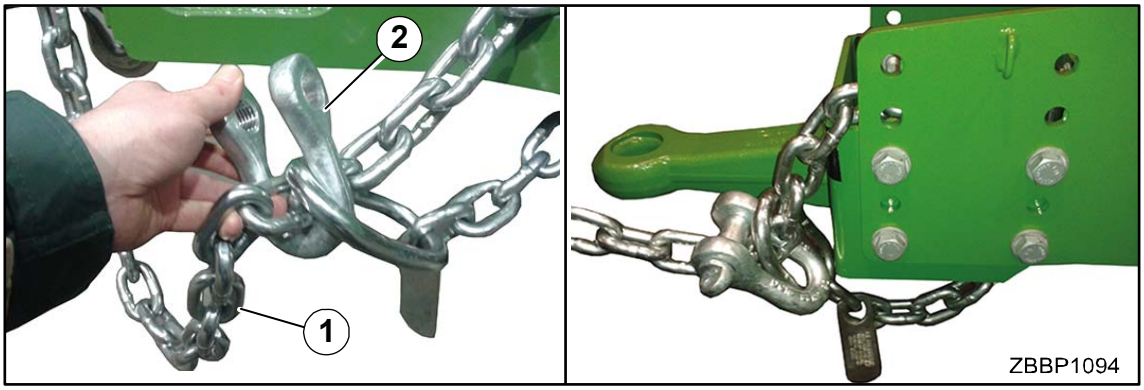


Fig. 66

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".
- Install safety chain (1) with shackle (2) on the big pack baler.

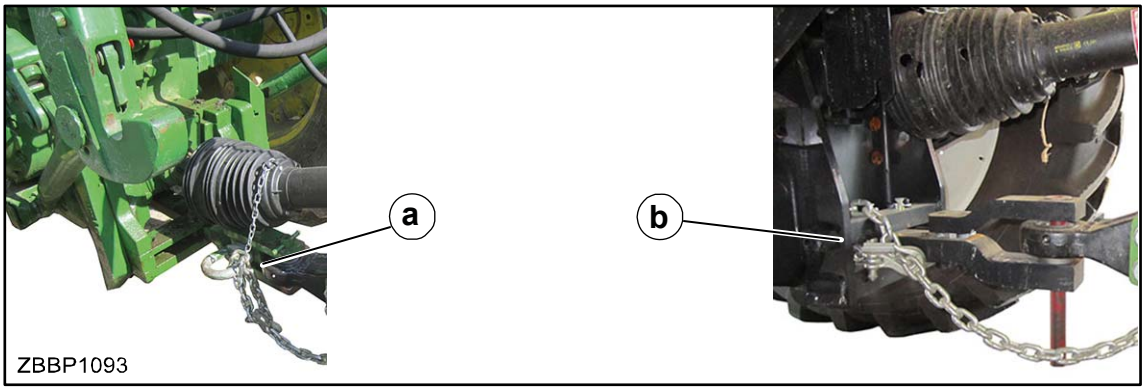


Fig. 67

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

9 Driving and Transport

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

WARNING!

There is a risk of accidents if the control valves on the tractor are not locked.

If the control valves are not locked, machine components may be activated unintentionally. This can result in serious accidents.

- To prevent functions being triggered accidentally, the control valves on the tractor must be switched to neutral and locked during road transport journeys.

WARNING!

Danger when cornering with a machine hitched

When cornering, the hitched machine swings out further than the tractor. This can lead to accidents.

- Take the greater swivel range into account.
- When turning, take account of people, oncoming traffic and obstacles.

9.1 Preparations for road travel

Before road travel, make certain

- the PTO shaft is switched off.
- the machine is fully and correctly hitched to the tractor; refer to chapter “Start-Up”.
- all guards are closed and locked.
- the folding ladder is folded in; refer to chapter Machine Description “Ladder”, only with 13t axle.
- the bale channel is empty.
- the pick-up is lifted and secured by the stopcock; refer to chapter Operation “Pick-up”.
- the bale chute is raised into transport position and secured; refer to chapter Operation “Lifting / Lowering Bale Chute”.
- the parking jack is retracted; refer to chapter Operation “Hydraulic Parking Jack”.
- the parking brake is released; refer to chapter Driving and Transport “Parking Brake”.
- the control valves on the tractor are in neutral position and locked.
- the brake is working properly.
- the lighting is working properly; refer to chapter Driving and Transport “Checking Lighting System”.
- the tyres do not show any cuts or breaks.
- the tyres have the correct tyre pressure.

The following work steps are described in this chapter:

- Checking the lighting system.
- Releasing the parking brake.
- Handling of the trailing axle, medium electronics or comfort electronics.
- Moving the machine without hydraulic connection.
- Moving the machine without connected compressed air brake.
- Switching off the machine.
- Applying the parking brake.
- Fitting wheel chocks.

9.1.1 Roller chute hydraulically activated

Fig. 68

- Fold in the hydraulically activated roller chute (1) hydraulically

After it is folded in, make certain that the mechanical lock (2) has snapped into place.

9.1.2 Bale chute in transport position (optional)

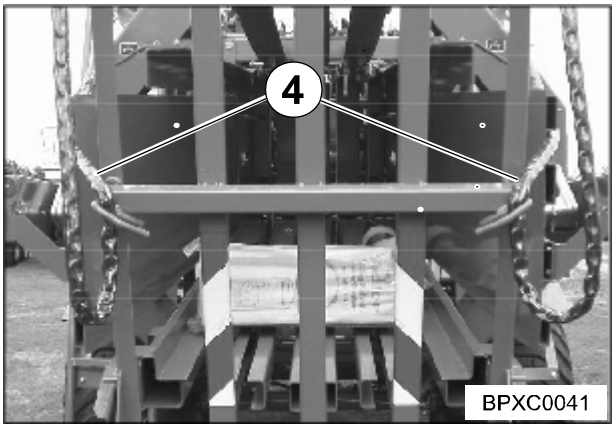


Fig. 69

- To bring the bale chute into the transport position, the unfolded chute must be folded up and secured with the retaining chains (4)

9.1.3 Checking the lighting system

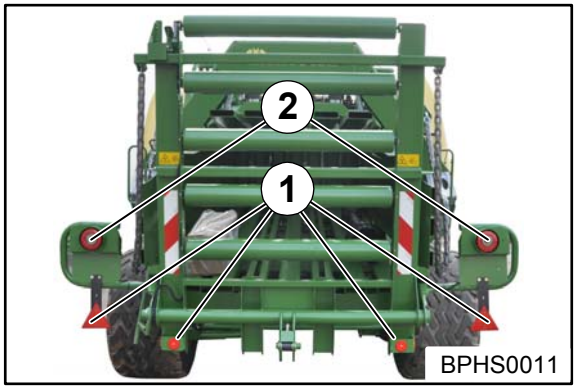


Fig.70

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

9.1.4 Parking brake

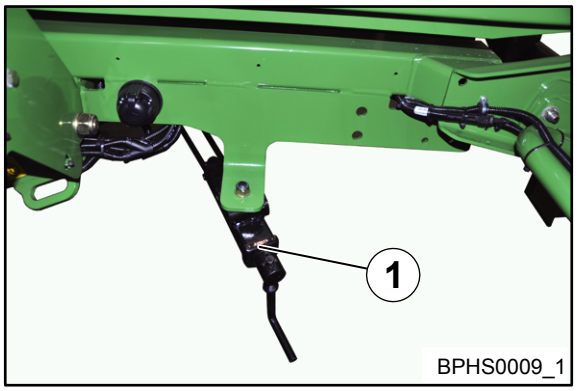


Fig. 71

Release the parking brake:

- Turn the crank anti-clockwise until the brake cable is slightly slack.

9.2 Handling the Coaster/Steering Axle (Special Equipment)

Note
Observe the user instructions provided by the tractor manufacturer for parallel operation of the tractor control units! The locking cylinder of the steering axle must be connected before or at the same time as the other hydraulic supply elements of the machine!

Before reversing, move coaster/steering axle to a straight position and lock.

Note
On the coaster/steering axle, the rear wheels are turned in by friction between the wheels and the soil. In critical driving situations (e.g. driving over a bunker silo, reversing or driving on slopes) where a straight line cannot be maintained, the wheels must be prevented from turning in by locking the locking cylinder.

Critical driving situations could include:

- driving on steep slopes
- driving on soil that is not solid enough
- driving fast and straight ahead at speeds in excess of 30 km/h

Locking the coaster/steering axle

To lock the coaster/steering axle:

Medium Version Electronics

With single action hydraulic connection

- Pressurise the single action control unit and drive the tractor a short distance straight forward until the steered wheels are straight
- Leave the single action control unit for the coaster/steering axle pressurised (the locking cylinder prevents the wheels from turning in)

Note

The current status is shown in the status line (I) of the display.

= Axle locked = Axle released

Unlocking the coaster/steering axle with a single action hydraulic connection

When driving forwards, the locking cylinder for the coaster/steering axle can be released:

- Depressurise the single action control unit for the coaster/steering axle (locking cylinder) and set the hydraulic control lever to "Lower"

This can largely prevent scraping of the tyres when cornering.

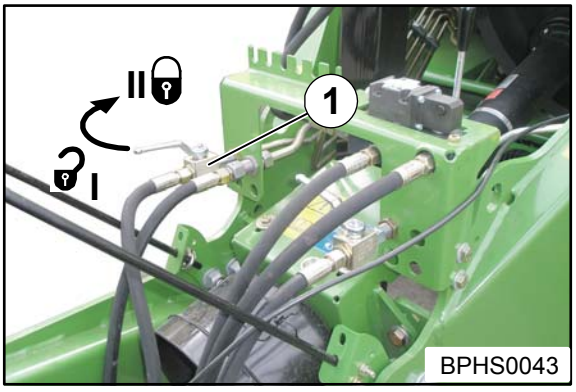


Fig.72

Note

Make certain, that the shut-off valve (1) is in position (I) (opened) during use of machine.

Comfort - Electronic

9.2.1 Operating the Machine via LS (Load-Sensing Connection)

- Press the function key for  and drive the tractor a short distance straight forward until the steered wheels are straight. The  symbol appears on the display (coaster/steering axle locked).

Note
The current status is shown in the status line (I) of the display.

 = Axle locked  = Axle released

Note
While the pressure is increasing in the locking cylinders the softkey flashes. As soon as the pressure has built up the softkey  freezes and the coaster/steering axle is locked.

9.2.2 Operating the Machine without LS (Load-Sensing Connection)

- Pressurise the pressure line.
- Press the function key for  and drive the tractor a short distance straight forward until the steered wheels are straight. Leave the pressure on the pressure line until the  icon appears in the display (coaster/steering axle locked)
- The hydraulic system (pressure line) can now be switched to depressurised

Note
The current status is shown in the status line (I) of the display.

 = Axle locked  = Axle released

Note
While the pressure is increasing in the locking cylinders the softkey flashes. As soon as the pressure has built up the softkey  freezes and the coaster/steering axle is locked.

Unlocking the coaster/steering axle for Comfort version Electronics

- The coaster/steering axle is released by pressing the function key for  . The  symbol appears on the display (coaster/steering axle released).

Note
The current status is shown in the status line (I) of the display.

 = Axle locked  = Axle released

9.2.3 Moving the machine without hydraulic connections

In order to be able to move the machine even when the hydraulic lines are not connected, the locking cylinder of the coaster/steering axle must be supplied with pressure before disconnection and the steered wheels aligned by driving straight ahead.

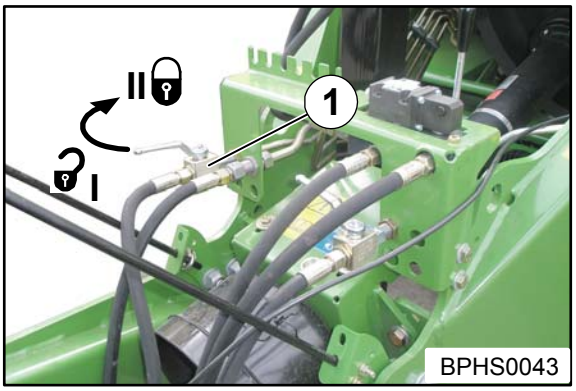


Fig.73

In addition for the Medium Electronics version, the shut-off valve (1) for the coaster/steering axle must be closed (setting II) before disconnection.

9.3 Moving

With compressed air brake design

WARNING!

There is a risk of injury when manoeuvring the machine without the compressed air braking system connected.

A machine without a connected compressed air braking system loses its braking characteristics. As a result, people may be seriously injured or killed.

- Moving the machine in public road traffic without the compressed air braking system connected is prohibited.

It is not easy to move the machine if the hoses of the compressed air brake are not connected to a brake system.

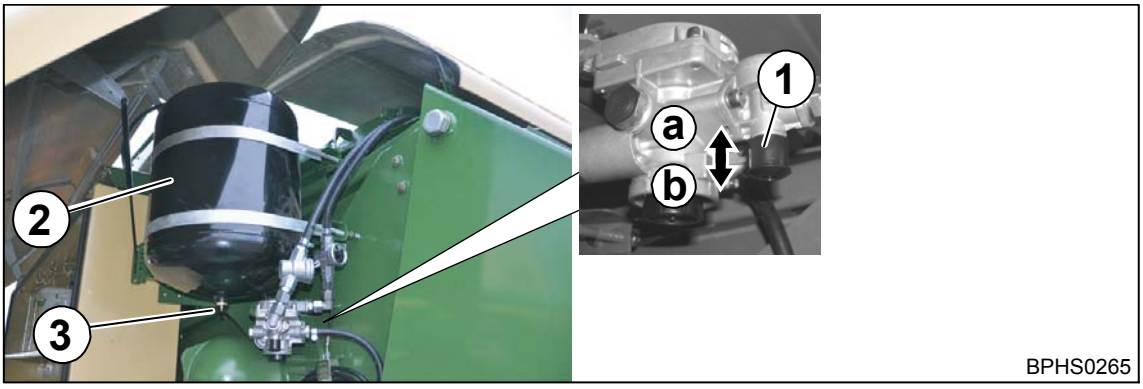


Fig. 74

The release valve is on the front right under the side hood. If a minimum pressure of 4 bar (58 PSI) is available in the reservoir (2) of the brake system of the machine, then the brake can be released by pressing the push button (1) on the release valve into the position (a). As soon as the hoses are again connected to a compressed air brake system, the push button is pushed back automatically into its starting position (b).

If the air pressure in the storage tank (2) has dropped below 4 bar (58 PSI) , the residual pressure must also be let off by operating the drain valve (3). Only now can the machine be moved.

9.4 Switching off the machine

WARNING!
Risk of injury due to the unsecured machine rolling away!
If the machine is not secured against rolling away when it has been switched off, there is a risk of people being injured by the machine rolling away in an uncontrolled manner.
- Secure the machine against rolling away with the parking brake and wheel chocks.
- Apply the flywheel brake at the machine.

- Switch off the tractor engine, remove the ignition key and secure the tractor from rolling away.
- Wait until all moving parts stop.
- Apply the flywheel brake.
- Apply the parking brake.
- Fit the wheel chock.
- Parking jack has to be lowered until the towing eye of the ball attachment Ø80 does not rest on the hitch of the tractor any more.
- Loosen safety chains of the universal shaft on tractor side.
- Disconnect the universal shaft on tractor side and put it down on the holder provided for that purpose.
- Pull off the lighting cable.
- Remove the power supply cable for the terminal.
- Disconnect the hydraulic lines and attach them to the support of the machine.

With compressed air brake design:
- Disconnect the red coupling head and attach it to the support of the machine.
- Disconnect the yellow coupling head and attach it to the support of the machine.

With hydraulic brake design (export):
- Disconnect the connection for hydraulic brake and attach it to the support of the machine

With hydraulic brake design (export France):
- Loosen safety chain on tractor side.
- Disconnect the connection for the hydraulic brake and attach it to the support of the machine.

9.4.1 Stowing the compressed air hoses

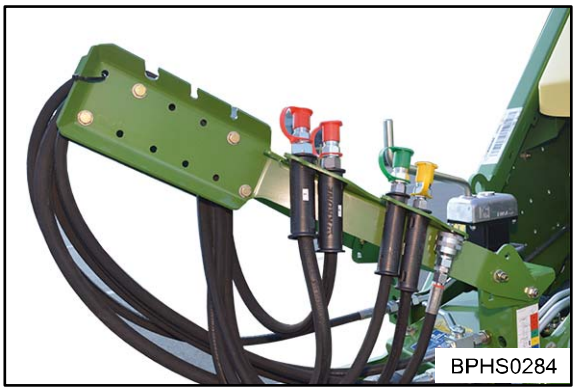


Fig. 75

- Hang the compressed air hose (1) onto the holder (2).

9.4.2 Parking brake

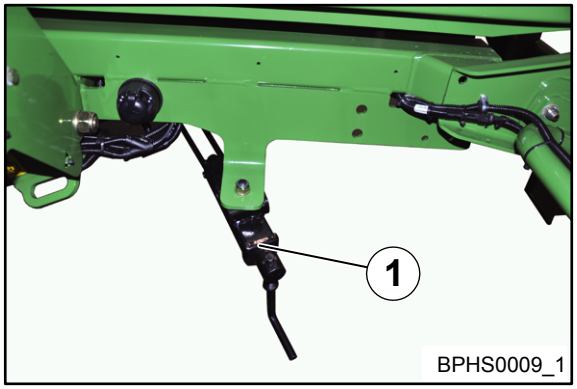


Fig. 76

Set the parking brake:

- Turn the crank clockwise until the resistance grows noticeably greater.

Note

To prevent the machine from rolling away, use the wheel chocks in addition to the parking brake.

9.4.3 Wheel chocks

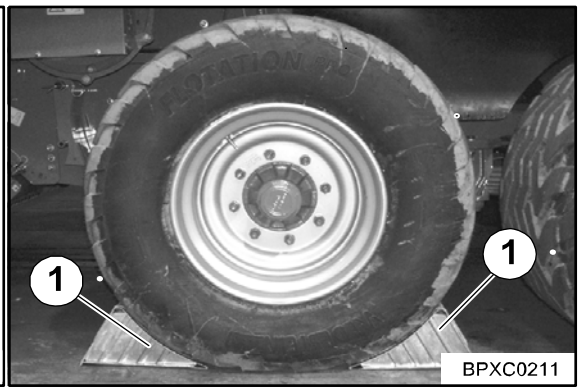


Fig.77

The wheel chocks (1) are located at the rear on the right and left next to the bale channel chamber

- Always place the wheel chocks (1) in front of and behind the wheels (this will prevent the machine from rolling away).

Note

If the machine has a guided coast-down tandem axle (optional), it must be secured with wheel chocks on the front axle to prevent it from rolling away.

10 KRONE ISOBUS Terminal

Note

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

Caution! - Protect Control Unit.

Effect: Damage to the control unit

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

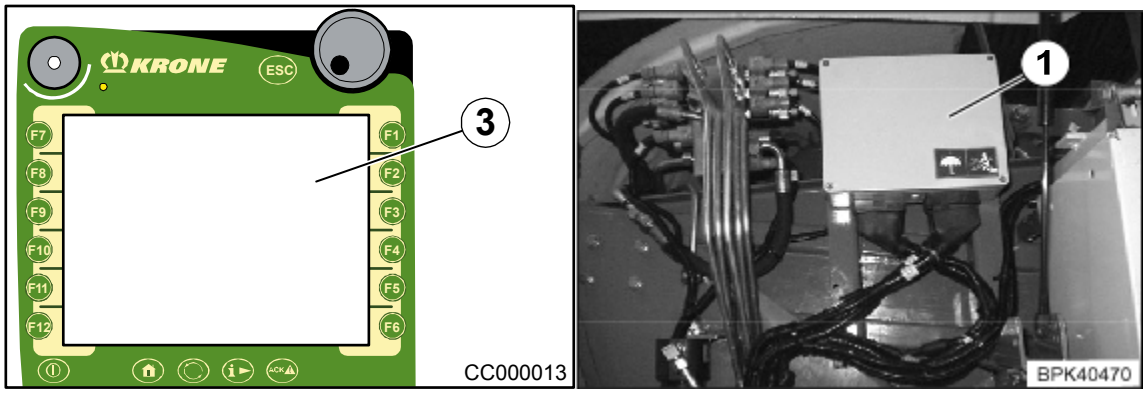


Fig. 78

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

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

Its functions are:

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

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

10.1 Installing the terminal into cabin

Note

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

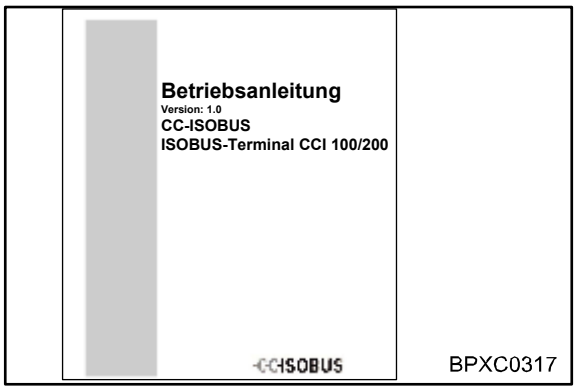


Fig. 79

10.2 ISOBUS Short Cut Button

DANGER! – risk of injury by running machine!

Your machine supports the ISOBUS short cut button.

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

By hitting the ISOBUS Short Cut Button (as emergency pushbutton) (1) on the terminal a STOP signal is sent to the ISOBUS. This signal is evaluated by your connected ISOBUS machine in order to trigger automatic measures in a hazard situation.

Activating the ISOBUS Short Cut Button will call up the appropriate alarm screen on the display.

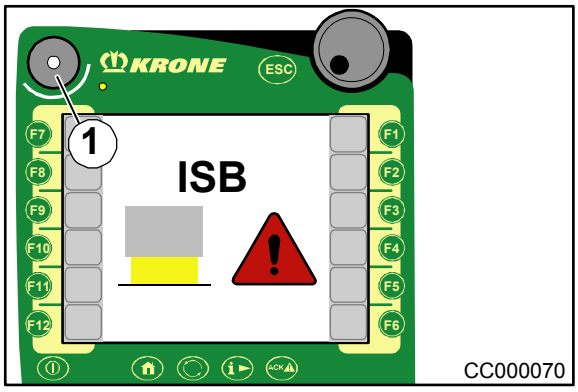


Fig.80

The job computer will then block the following functions on the machine side.

- Lift/Lower blade bar (depending on machine configuration)
- Retract/Extend/Automatic bale ejector (depending on machine configuration)
- Lift/Lower bale chute (depending on machine configuration)
- Trigger knotting motor
- MultiBale switchover (for MultiBale)
- Knotter cleaning mechanism

CAUTION!

Process oriented operations (e.g baling operation) run on until completed even when the ISOBUS Short Cut Button is hit. This is potentially hazardous.

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

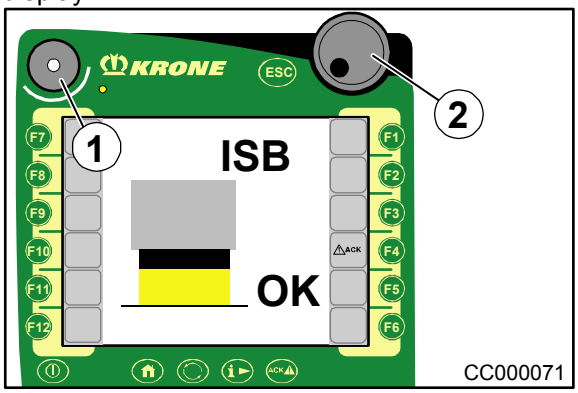


Fig. 81

The alarm mask is exited by actuating the function key ACK. It is only now that all functions of the machine are available again.

10.2.1 Connecting the Multi-Function Lever to the CCI Terminal (on tractors without ISOBUS system)

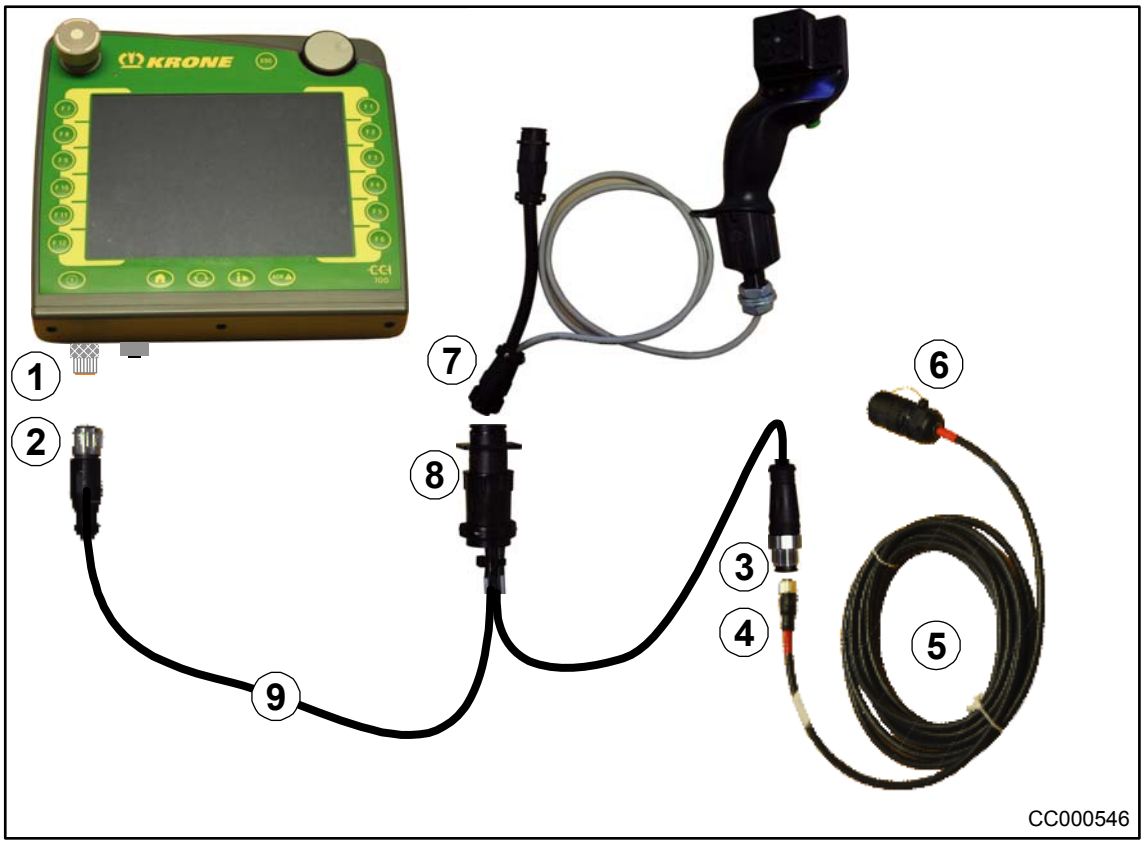


Fig. 82

Note
The terminal is connected to the multi-function lever via a special cable set (9) which can be ordered by stating the Krone product no. 20 081 676 0.

- Connect plug (2) of cable set (9) with the socket (1) (CAN1-IN) of the terminal
- Connect socket (3) of cable set (9) with the plug (4) of the cable set (5)
- Connect ISO plug (8) (9-pole) of cable set (9) with the ISO socket (7) (9-pole) of the multi-function lever
- Connect plug (6) (7-pole) of cable set (5) with the socket (7) (7-pole) of the machine

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

Fig. 83

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

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

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

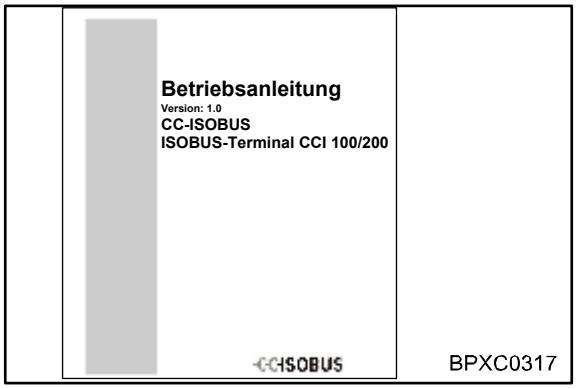


Fig. 84

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

10.2.3.1 Start screen

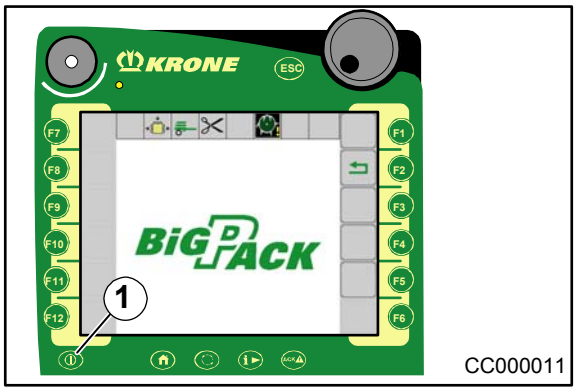


Fig. 85

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

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

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

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

The terminal is now ready for operation.

10.3 Display design

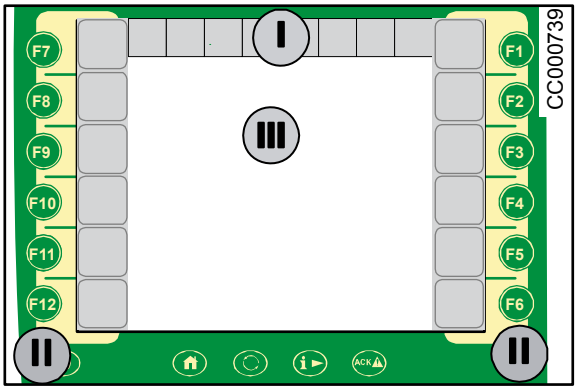


Fig. 86

The display on the operator terminal is divided into the following areas:

Status line (I)

– The status displays for the machine.

Function keys (II) (F1 to F12)

The machine is operated using the function keys. The softkeys (graphics) associated with the function keys are touch-enabled.

Main window (III)

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

There are three main window views:

– The start screen.
– The manual mode home screen.
– The automatic mode home screen.

Status Line

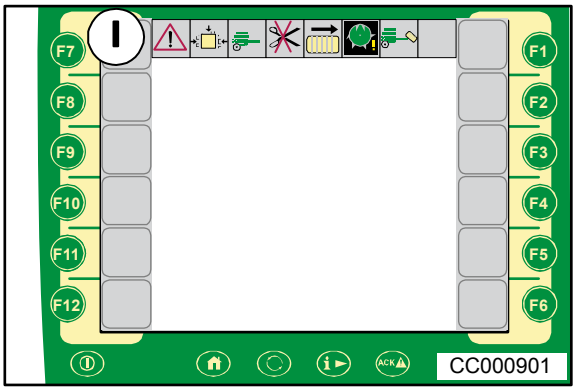


Fig. 87

Status line (I)

The top line (I) of the display shows current status indicators for the machine (depending on equipment):

Graphics	Meaning	Information
	Alarm message is pending	
	Bale chute up	
	Bale chute down	
	Blades are active:	– Cutting in progress
	Blades are inactive	– Cutting not in progress.
	Axle locked	
	Axle released	
	Deploy bale ejector	
	Retract bale ejector	
	Machine duty	Flashing: – Low load Inverted: – Max. load – If not inverted during baling => check packer feed sensor
		
	Silage additive system off	
	Silage additive system on	
	Bale channel flaps open	– The graphic flashes.
	Bale channel flaps closed	

Description of the symbols (II) for the function keys (F1 to F12)

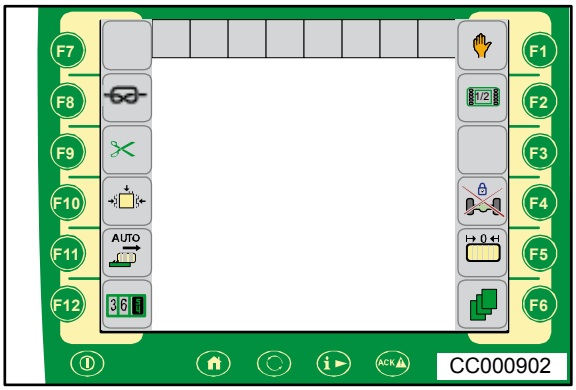
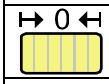


Fig. 88

Softkey	Meaning	Information
	Switch off warning beacon	– Warning beacon is switched on.
	Switch on warning beacon	– Warning beacon is switched off.
	Open second page of function keys	– When the PTO shaft is running, the display switches automatically to the second page to make the operational function keys available.
	Open first page of function keys	– When the PTO shaft is not running, the display switches automatically to the first page to make the maintenance function keys available.
	Switch working light off	– Working lights are switched on.
	Switch working light on	– Working lights are switched off.
	Releasing the steering axle	– Softkey flashing: Steering axle will be locked. – Softkey solid: Steering axle is locked.
	Locking the steering axle	– Softkey flashing: Steering axle will be released. – Softkey solid: Steering axle is released.

Softkey	Meaning	Information
	Release starting aid	– Starting aid is deactivated.
	Activate starting aid	– Starting aid is released, softkey is solid. – If the starting aid is not activated within 5 seconds, the system switches off the release.
	Switch off starting aid	– The starting aid runs, the softkey flashes. – If the speed of the starting aid is reached, the system switches the starting aid off.
	Call up the machine menu level	
	Lower bale chute	
	Automatic bale ejection	– Press once, bale channel flaps are opened. – Press twice, 10 bale ejection operations are carried out
	Open the customer counter menu	
	Switch to automatic mode	– The machine is in manual mode
	Switch to manual mode	– The machine is in automatic mode
	Reset current bale length to zero.	– Keep softkey pressed down for 2 seconds.
	Trigger knotter	
	Release blade bar	– The softkeys  ,  are released in the display.
	Raising the blade bar	
	Lower blade bar	
	Close bale channel flaps	– Bale channel flaps are opened
	Open bale channel flaps	– Bale channel flaps are closed

10.3.1 Displays in the main window

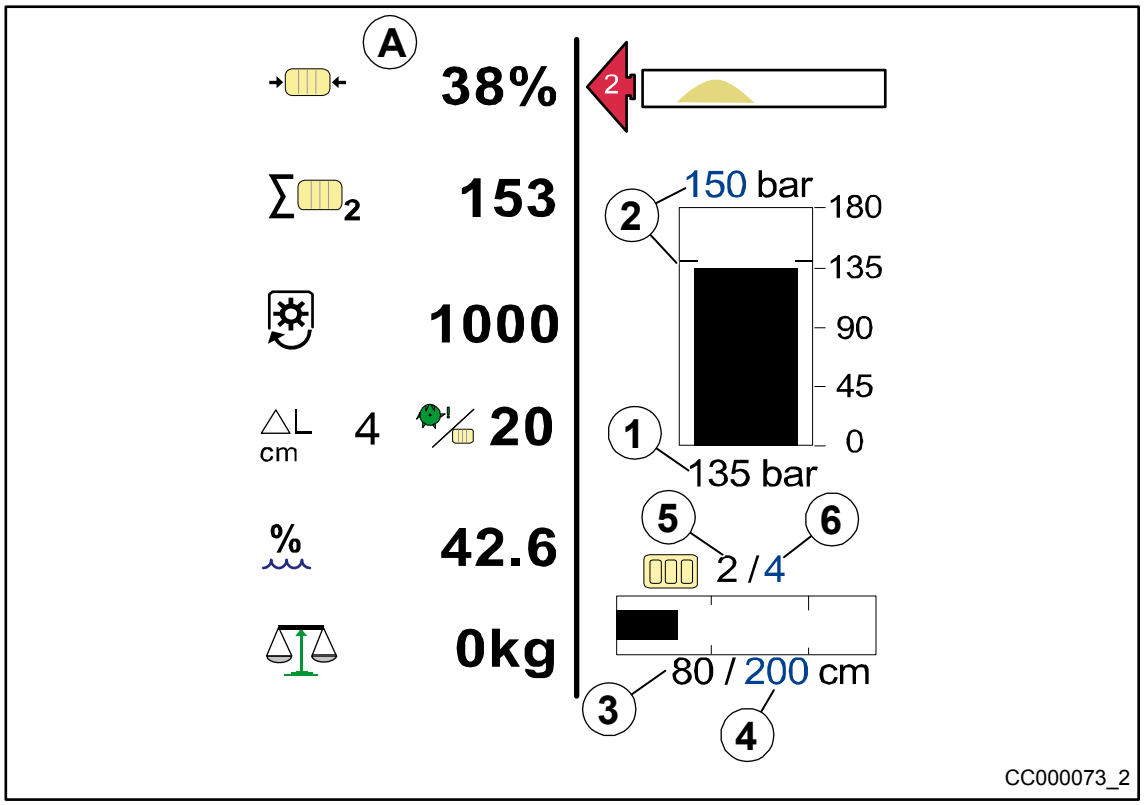


Fig. 89

Left column (A):

Graphics	Meaning	Information
	Current force of pressure	– Only in manual mode – In % (100% = max.).
	Current bale channel flap pressure	– Only in automatic mode – In bar or PSI, depending on set unit of measure Metric/US
2	Total number of bales	– The adjoining number indicates the current customer counter.
	Current PTO speed	– rpm
cm	Current layer thickness	– In cm or inch (only for electr. bale length setting)
20	Number of layers per bale	
%	Crop humidity	
	Bale weight	– of the bale last weighed
Ø	Average weight of the weighed bales	
∑	Total weight of all bales	

Graphics	Meaning	Information
	Bale length counter	– Metric in metres
		– US unit of measure in feet
	Number of uncut bales	
	Number of cut bales	– Only for machines equipped with a cutting system
	Appears briefly after a knot is tied	– If activated, a horn sound is heard for approx. one second, see chapter Menu 1-2 "Knotter signal"
	Operating hours counter	– Counts only when PTO shaft is running.

The displays in the main window (left column (A)) can be arranged individually. The procedure is described in the chapter menu 9-3 “Configuration Main Window”.

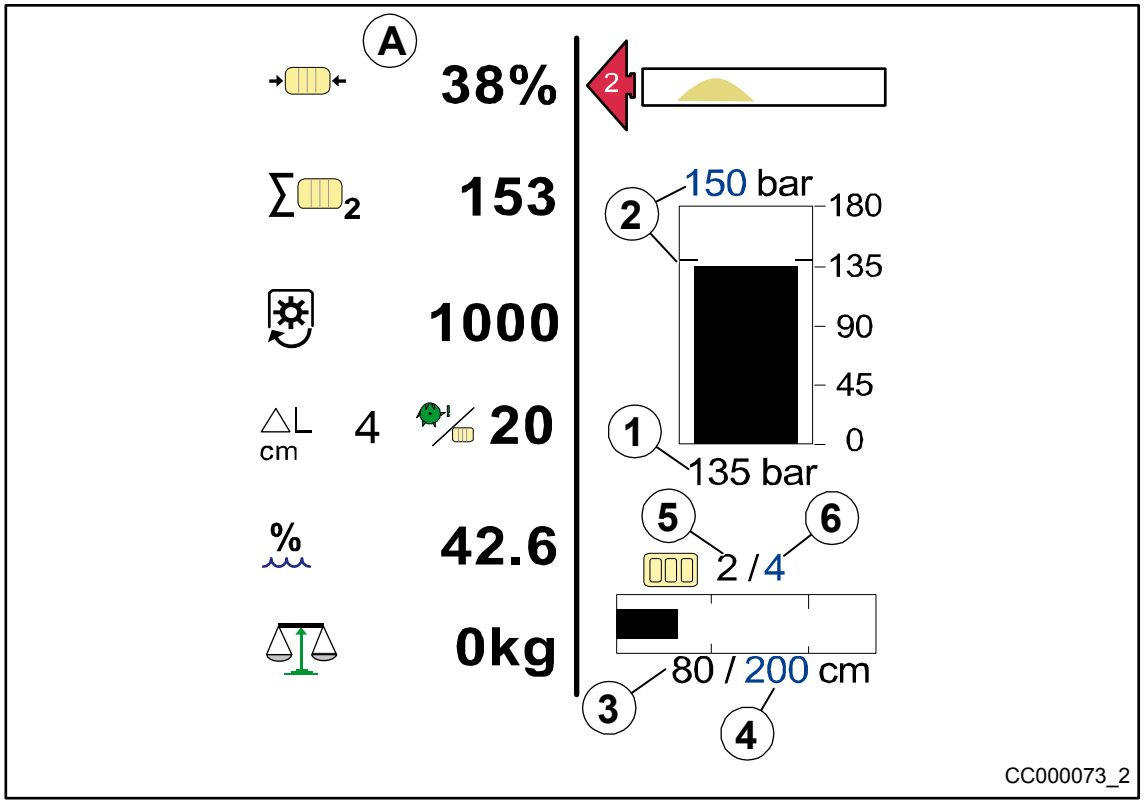
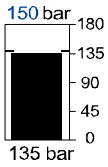
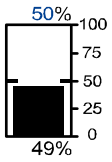
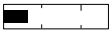
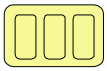


Fig. 90

Right column

Graphics	Meaning	Information
	Bale channel flap pressure	Manual mode (A) – In bar or PSI, depending on set unit of measure Metric/US. – The value (1) in the bar display indicates the current bale channel flap pressure. – The value (2) in the bar display and the marks (2) in the bar display indicate the set target bale channel flap pressure. – The value (2) is touch-enabled.
	Force of pressure	Automatic mode (B) – In % – The value (1) in the bar display indicates the current force of pressure. – The value (2) in the bar display and the marks (2) in the bar display indicate the set target force of pressure. – The pressure indication in the display can fluctuate significantly. The control system will not work unless the packer is supplying forage to the plunger. – The bale channel flap pressure is automatically set by the system based on the measured plunger force. – The value (2) is touch-enabled.

Graphics	Meaning	Information
	Direction of travel indicator	Arrows in front of the display. – The arrows have three different sizes, numbered 1-3. The arrows (left/right) indicate to the driver the side he/she should correct towards and by how much when driving over the swath so that the bale chamber will be evenly filled.
 80/200 cm	Bale length display	– The first value (3) indicates the current bale length. – The second value (4) indicates the set target bale length.
2/4 	MultiBale	– Optional – The first value (5) indicates the current number of small bales. – The second value (6) indicates the target number of small bales. – A brief horn sound is heard after each small bale is bound. – If the entire bale is ready, a longer and louder horn sound is heard.

Note
If the direction of travel indicators are too strong or too weak, they can still be adjusted, see chapter KRONE ISOBUS Terminal Menu 1-3 "Sensitivity of direction display".

10.4 Bringing up the Basic Screens

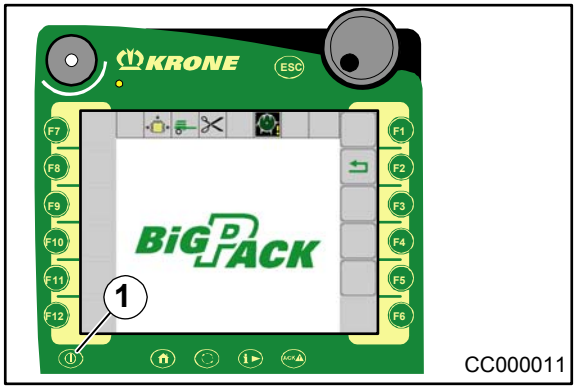
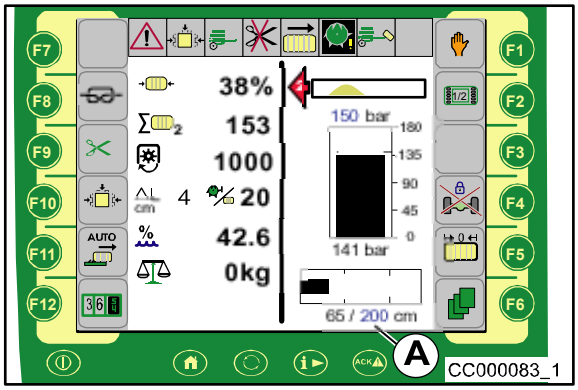


Fig. 91

- To select the home screen, press ⮌.

Either the "Manual mode" or the "Automatic mode" home screen is displayed.

Depending on whether the system was running in manual or automatic mode the last time the terminal was switched off.



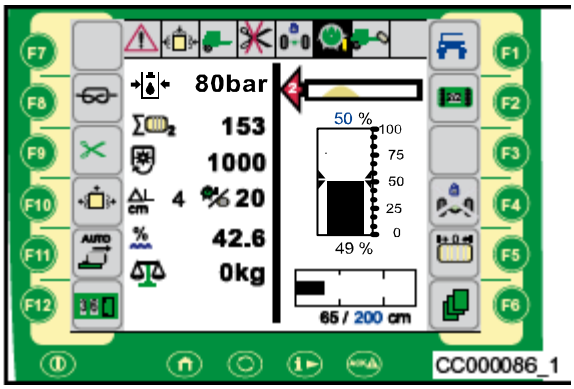


Fig. 92

The manual mode home screen

Automatic mode basic screen

Automatic Mode

- To select the "Automatic mode" home screen, press  .

The display switches from  to  .

Manual mode

- To select the "Manual mode" home screen, press  .

The display switches from  to  .

11 KRONE ISOBUS Terminal - Machine Functions

11.1.1 Switching the warning beacon on/off

Switching ON

- To switch on the warning beacon, press  .

The display switches from  to  .

Switching off

- To switch off the warning beacon, press  .

The display switches from  to  .

11.1.2 Bringing up the Second Page of the Function Keys

- Press the function key for softkey  to bring up further functions for the machine.

11.1.3 Bringing up the First Page of the Function Keys

- Press the function key for softkey  to bring up the previous functions for the machine.

11.1.4 Switching Working Floodlights On and Off

Switching ON

- To switch on the working lights, press  .

The display switches from  to  .

Switching off

- To switch off the working lights, press  .

The display switches from  to  .

11.1.5 Locking / Releasing Steering Axle

Releasing

- Press the function key for softkey  to release the coaster/steering axle.

The softkey flashes until the coaster/steering axle is released. In the display, the softkey changes from  to  .

Locking

- Press the function key for softkey  to lock the coaster/steering axle.

The softkey flashes until the coaster/steering axle is locked. In the display, the softkey changes from  to  .

11.1.6 Switching the starting aid on/off

Release

- To release the starting aid, press  .

The display switches from  to  . The softkey  is solid.

Switching on

- To switch on the starting aid, press  .

The softkey  flashes.

Switching off

- To switch off the starting aid, press  .

The display switches from  to  .

11.1.7 Bringing up a Menu Level

- To bring up the menu level of the machine, press the function key for softkey  , the menu level of the machine is displayed.

If you need any further information, refer to chapter “Bringing up Menu Level”.

11.1.8 Opening/closing the bale channel flaps

Releasing

- To loosen the bale channel flaps, press  .

The display switches from  to  .

Closing

- To close the bale channel flaps, press  .

The display switches from  to  .

11.1.9 Lower bale chute

- To lower the bale chute, press  .

11.1.10 Automatic bale ejection

- To execute bale ejections, press 

1x.

The bale channel flaps are opened.

- To execute 10 bale ejections, press 

again.

The symbol is highlighted in grey.

11.1.11 Bringing up “Customer Counter” Menu

Press the function key for softkey 

to bring up the “Customer Counter” menu, the “Customer Counter” menu is displayed.

For information regarding the settings, refer to menu 2-1 “Customer Counter”.

11.1.12 Open the automatic/manual mode home screen

Automatic Mode

- To select the "Automatic mode" home screen, press  .

The display switches from  to  .

Manual mode

- To select the "Manual mode" home screen, press  .

The display switches from  to  .

11.1.13 Reset bale length to zero

- To reset the current bale length to zero, keep 

pressed for approx. 2 seconds.

11.1.14 Trigger knotter

- To trigger the knotter, press  .

11.1.15 Release/lower/raise blade bar

Release

- To release the blade bar, press  .
  The softkeys  ,  are shown in the display.

Raise

- To raise the blade bar, press  .

Lower

- To lower the blade bar, press  .

11.1.16 Setting the target bale channel flap pressure

WARNING! – Pressure too high!
Effect: Damage to the machine

- If the pressure is set too high, the machine could be subjected to a mechanical overload during baling that could result in destroying it To avoid this, the bale channel flap pressure should be reduced to a non-critical value just before the overload. After a few seconds, it is possible to return to the pressure set by the user.
- If overload occurs the target bale channel flap pressure must be reduced

The user will give the pressure in the manual mode. The pressure is built up immediately if the P.T.O. shaft is running and the machine is stopped. The pressure display barely fluctuates in the display.

Setting the target bale channel flap pressure

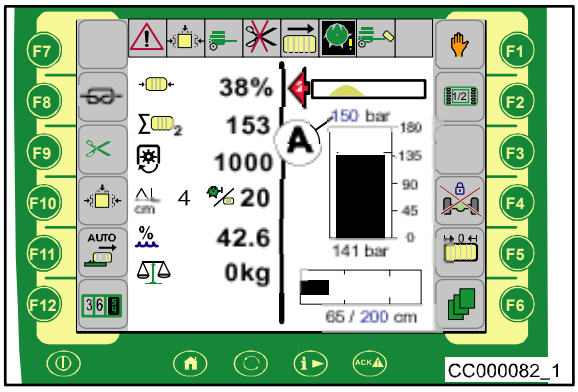


Fig.93

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

Note
The values can also be set via the touchscreen.

11.1.17 Setting the bale length

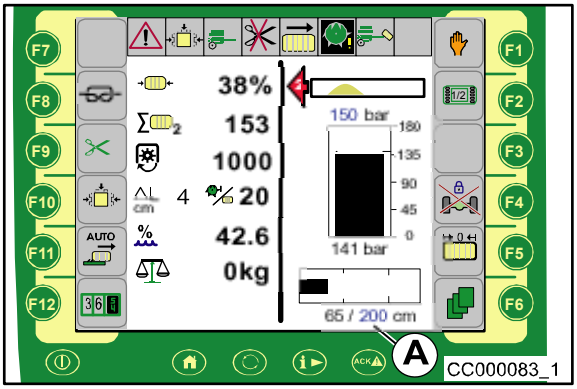


Fig.94

Note

(BP 890;1270;1290)

The bale length can be set in the range from 100 - 270 cm (39 - 106 inches).

(BP 1290 HDP; BP 4x4)

The bale length can be set in the range from 100 - 320 cm (39 - 126 inch).

Note

Only adjust the bale length at the start of a bale, otherwise in-between lengths could arise.

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

Note

The values can also be set via the touchscreen.

11.1.18 Setting the number of MultiBales (MultiBale only)

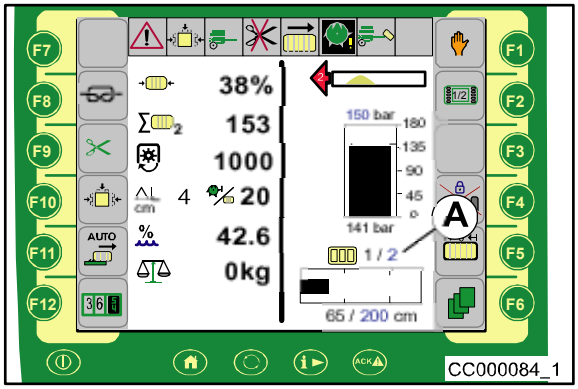


Fig.95

CAUTION! - Mixture of total bale and MultiBale

The MultiBale number should only be changed at the beginning of a bale. Doing so could result in a mixture of total bale and MultiBale.

Note

First, set the bale length. Minimum length of the MultiBale: 45 cm (17.7 inches).

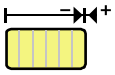
- You can use the scroll wheel to select the desired selection (A) (the selection box is highlighted in color)
- Pressing the scroll wheel allows you to jump to the selection box (the selection box is highlighted in color)
- Turning the scroll wheel increases or reduces the value
- Pressing the scroll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

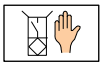
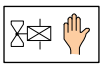
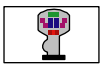
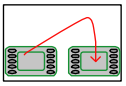
Note

The values can also be set via the touchscreen.

12 KRONE ISOBUS Terminal - Menus

12.1 Menu level

Main menu	Sub-menu	Sub-menu	Designation
1 			Settings
	1-1 		Knotter settings
		1-1-1 	Bale length correction value
		1-1-2 	Knotter signal
		1-1-3 CHECK 	Knotter monitoring
		1-1-5 	Bales/blowing
		1-1-6 	Blow time
	1-2 		Silage additive system
	1-3 		Sensitivity of direction display
	1-4 		Central lubrication system
	1-5 		Humidity measurement
	1-6 		Bale scales
	1-8 % 		Set correction value for humidity measurement
2 			Counter
	2-1 Σ_n 		Customer counter
	2-2 Σ_{all} 		Total counter

Main menu	Sub-menu	Sub-menu	Designation
4 			Service
	4-2 		Manual sensor test
	4-4 		Manual actuator test
	4-6 		Diagnostics for travelling speed/direction of travel indicator
	4-7 		Auxiliary diagnostics (AUX)
5 			Info
6 			Technician
9 			Virtual terminal (VT)
	9-1 		ISOBUS terminal softkeys
	9-2 		Switching between terminals
	9-3 		Main window configuration

12.1.1 Calling up the menu level

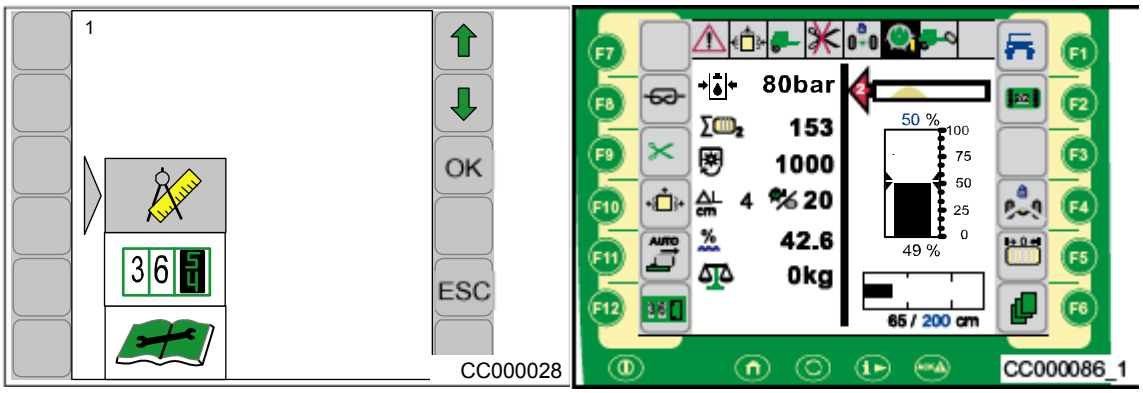


Fig.96

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

The menu level is shown in the display.

The menu level is divided into six main menus:

	= Main menu 1 "Settings"
	= Main menu 2 "Counter"
	= Main menu 4 "Service"
	= Main menu 5 "Information"
	= Main menu 6 "Technician"
	= Main menu 9 "Virtual Terminal (VT)"

Select the desired main menu by pressing function key  or  . The symbol is highlighted in grey.

- Pressing function key **OK** brings up the menu level of the selected main menu
- Pressing function key **ESC** closes the menu currently displayed
- Pressing function key **ESC** and holding it down brings up the basic screen

12.2 Main menu 1 "Settings"

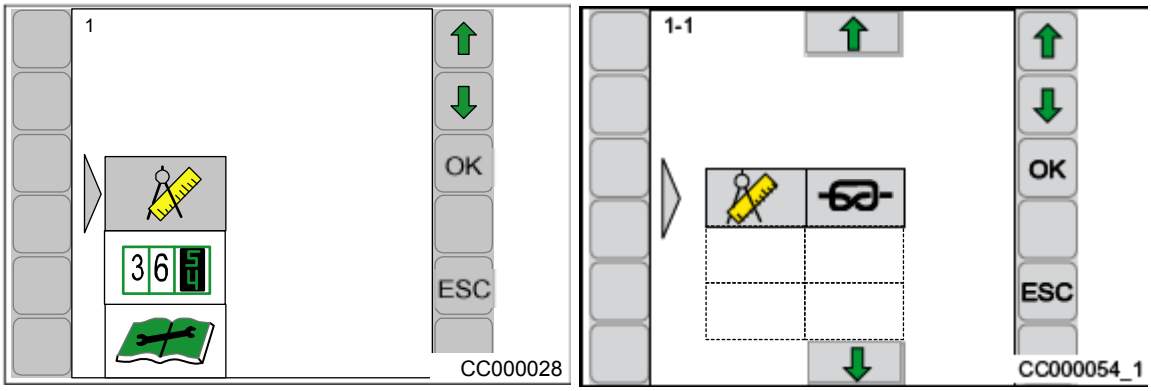


Fig. 97

- To select the menu level, press from the home screen.
- Use or to select the main menu 1 ( ), the symbol is highlighted in grey
- Press **OK**

The display shows menu level 1 "Settings". Menu level 1 "Settings" is divided into up to 6 menus, depending on the configuration of the machine:

= Menu 1-1 "Knotter settings"

= Menu 1-2 "Silage agent"

= Menu 1-3 "Sensitivity of direction display"

= Menu 1-4 "Central lubrication"

= Menu 1-5 "Humidity measurement"

= Menu 1-6 "Bale scales"

= Menu 1-8 "Humidity measurement correction value"

12.2.1 Menu 1-1 „Knotter Settings“

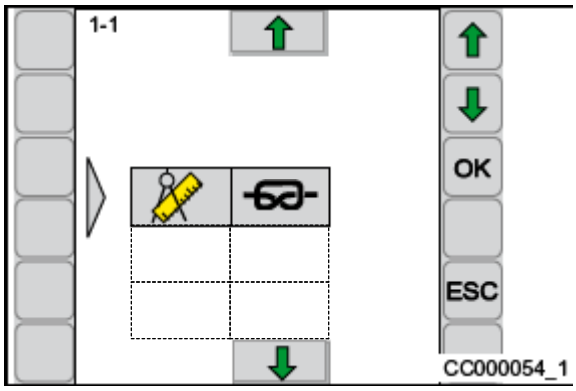


Fig. 98

Calling the Menu

Main menu 1 “Settings” is called.

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

The display shows menu 1-1 “Knotter Settings”.

The menu level 1-1 “Knotter Settings" is divided into up to 5 menus, depending on how the machine is equipped:

Menu 1-1-1 “Correction value for bale length”

Menu 1-1-2 “Knotter signal”

Menu 1-1-3 “Knotter monitoring”

Menu 1-1-5 “Bales / blow” (with electronic knotter triggering)

Menu 1-1-6 "Blow time"

12.2.2 Menu 1-1-1 „Correction Value for Bale Length“

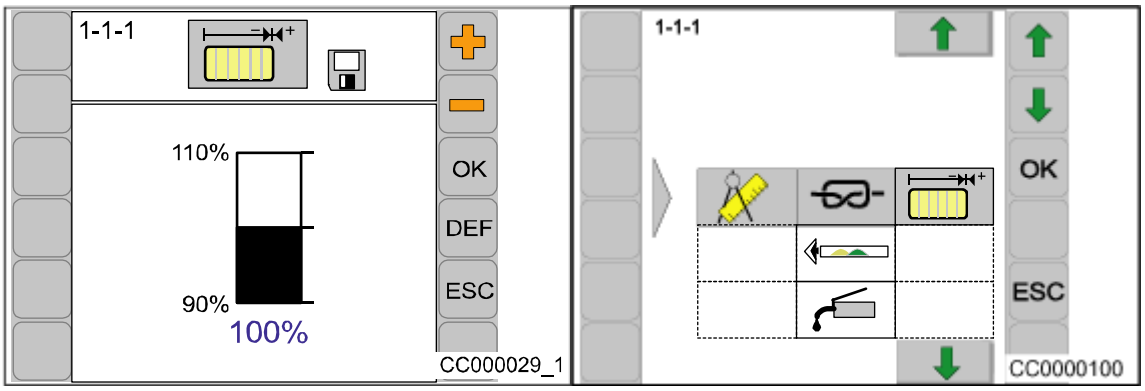


Fig. 99

Because of different properties of materials (for example straw or silage), the actual bale length can differ from the pre-set setpoint. The correction value can be used to correct this deviation.

Factory setting: 100%

Calling the Menu

The main menu 1-1 “Knotter Setting” is called.

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

The display shows menu 1-1-1 “Correction Value Bale Length”.

The bar display and the percentage value show the set correction value. The symbol in the upper line indicates that the displayed value is saved.

Setting and Saving the Correction Value

If the bale is too long, reduce the correction value. If the bale is too short, increase the correction value.

- Set the desired correction value with the function key or . The symbol in the top line goes out
- Press the function key **OK**. The set correction value is saved and the symbol appears in the upper line
- By pressing the function key **DEF**, the value of the factory setting is displayed (press function key **OK**, the value of the factory setting is saved, the symbol in the upper line appears)
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

12.2.3 Menu 1-1-2 „Knotter Signal“

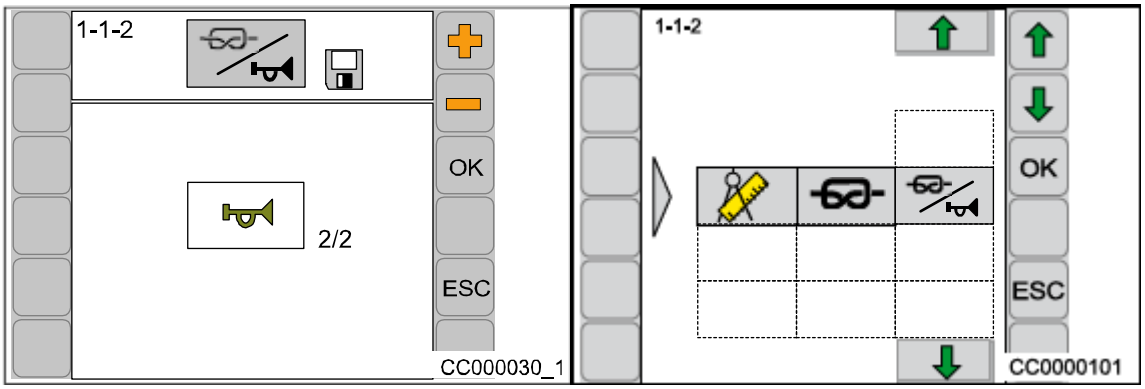


Fig. 100

Activation/deactivation of the audio signal when a knot has been completed.

Calling the Menu

The main menu 1-1 “Knotter Settings” is called up.

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

The display shows menu 1-1-2 “Knotter signal".

The current status is displayed as an icon:

= Knotter signal activated

= Knotter signal deactivated

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

Changing and Saving Status

- Set the status accordingly via function key or , the symbol in the upper line goes out
- Press function key **OK**, the set status is saved, the symbol in the upper line appears
- The called up menu is closed by pressing function key **ESC**
- Pressing the **ESC** function key and holding it down brings up the basic screen

12.2.4 Menu 1-1-3 "Knotter control"

Fitted as standard only on the Comfort version electronics.
The knotters are numbered from left to right as viewed in the direction of travel.

Type	Numbering from left to right
BiG PACK 890	From 1 to 4
BiG PACK 870	From 1 to 5
BiG PACK 1270/4x4 BiG PACK 1290/1290 HDP	From 1 to 6

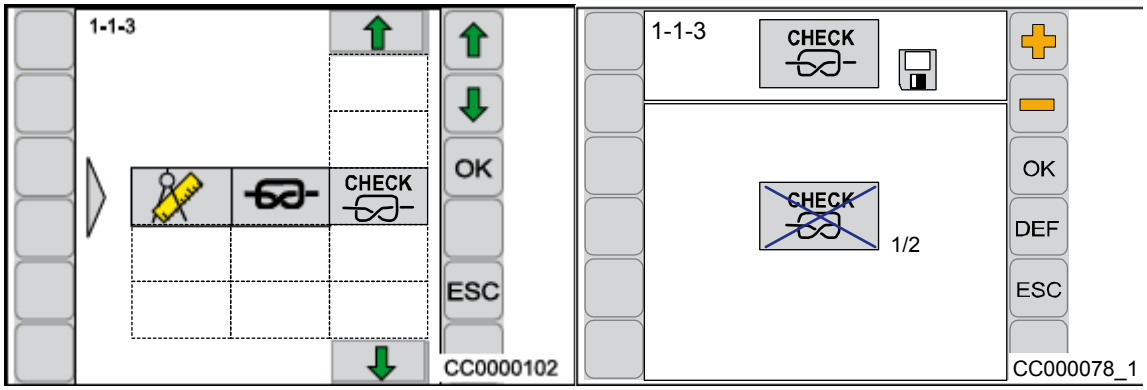


Fig. 101

Opening the menu

– Main menu 1-1 "Knotter settings" is opened.

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

The display shows menu 1-1-3 "Knotter control".
The current status is displayed as a symbol:

Symbol	Meaning	Information
CHECK	Knotter control activated	– The upper twines are individually monitored.
CHECK	Knotter control deactivated	– The upper twines are not monitored.

Changing and saving status

- Press the function key for softkey ✚ or ▬ to change the status.

The symbol 💾 in the upper line disappears.

- Press function key for softkey **OK** to save the status.

The symbol 💾 appears in the upper line.

- Press function key **ESC** to leave the menu.
- Press function key **ESC** multiple times in succession to bring up the basic screen.

12.2.4.1 Menu 1-1-5 „Bales / Blow“

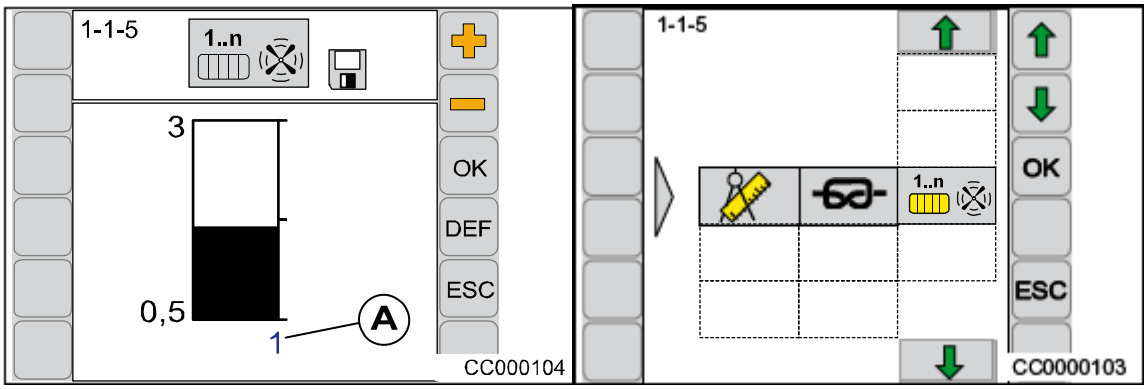


Fig. 102

(For machines with electronic knotter triggering)

Dust and accumulated crop material is removed from the knotters by compressed air at regular intervals (depending on the number of bales produced). 0.5 to 3 bales can be set. If the setting 0.5 is selected, blowing is carried out at the half of the bale and at the end of the bale.

Setting the Number of Bales

Calling the Menu

The main menu 1-1 “Knotter Settings” is called up.

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

The display shows menu 1-1-5 "Bales / blow".

The bar display and the value (A) show the preselected bale number.

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

- Set the desired number of bales with function key or . The symbol in the top line disappears
- Press function key **OK**, the set value is saved, the symbol appears in the upper line
- By pressing the function key **DEF**, the value of the factory setting is displayed (press function key **OK**, the value of the factory setting is saved, the symbol in the upper line appears)
- Pressing the function key **ESC** closes the called up menu
- Pressing the **ESC** function key and holding it down brings up the basic screen

12.2.4.2 Menu 1-1-6 „Blow Time“

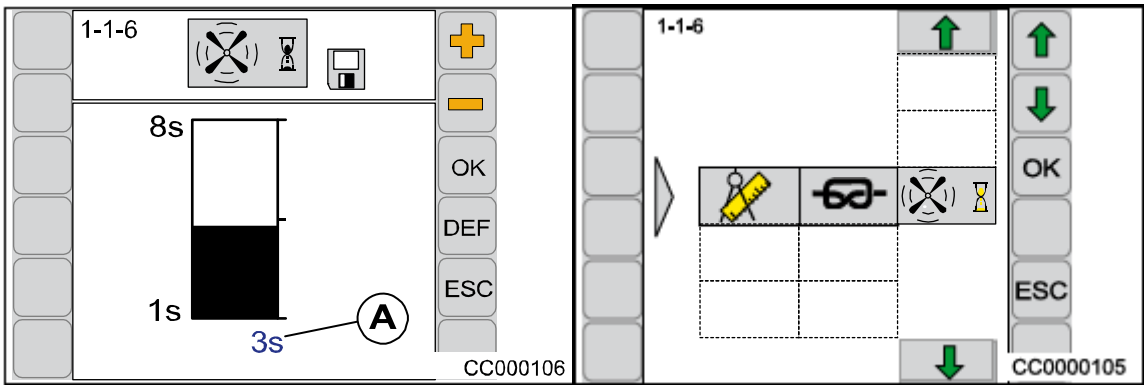


Fig. 103

The blowing time on the knotter is set in this menu.

Calling the Menu

The main menu 1-1 “Knotter Settings” is called up.

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

The display shows menu 1-1-6 "Blow time".

The bar display and the value (A) show the preselected cleaning time (blow time) in seconds.

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

- Set the desired blow time with the function key or , the symbol in the top line goes out

  Press function key **OK**, the set correction value is saved, the symbol in the upper line appears
- By pressing the function key **DEF** the value of the factory setting appears (press function key **OK**, the value of the factory setting will be saved, the symbol appears in the upper line)
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** longer and holding it down brings up the basic screen

12.2.5 Menu 1-2 silage agents / optional

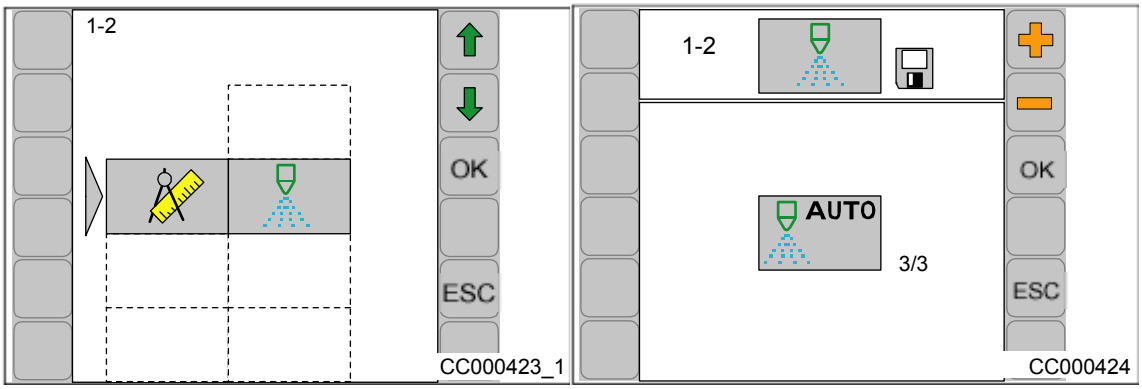
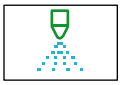


Fig. 104

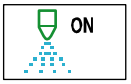
Note
The connection (max. 2 amperes) for the silage agent device is located close to the job computer. (approx. 0.5 m in cable harness 1X1).

Displaying the menu
Main menu 1 “Settings” is displayed.

- You can select menu 1-2  with the function key or . The symbol is highlighted in grey.
- Press function key **OK**

The display shows menu 1-2 “Silage agents".
The current status is displayed as an icon:

Silage agents off



Silage agents on (continuous operation)

Silage agents automatic mode (silage agents on if the pick-up is in float position)

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

Changing and saving status

- Set the status with the function key or in a way that the symbol in the top line goes out
- Press the function key **OK**. The set status is saved and the symbol appears in the upper line
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

12.2.6 Menu 1-3 „Sensitivity of the Direction Display“

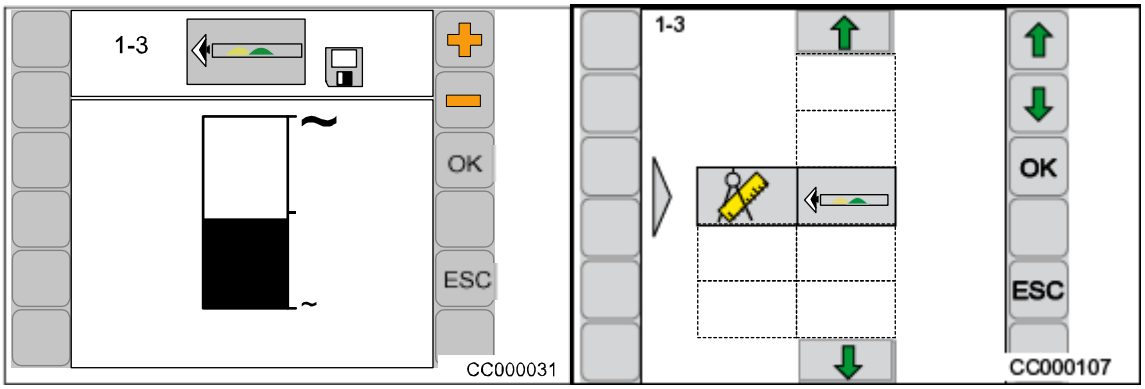


Fig. 105

Setting the sensitivity of the direction display.

Calling the Menu

Main menu 1 “Settings” is called.

- Select menu 1-3 by pressing function key or , the symbol is highlighted in grey
- Press function key **OK**

The display shows menu 1-3 “Sensitivity of the Direction Display”.

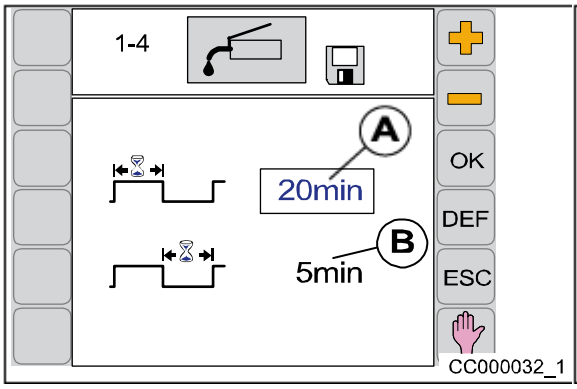
The bar display shows the set sensitivity. The higher the bar, the greater the sensitivity of the direction display. The symbol in the upper line indicates that the displayed value is saved.

Setting and saving the sensitivity of the direction display.

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

- Set the sensitivity by using function key or , the symbol in the upper line goes out
- Press function key **OK**, the set sensitivity is saved, the symbol in the upper line appears
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** longer and holding it down brings up the basic screen

12.2.7 Menu 1-4 „Central Lubrication“



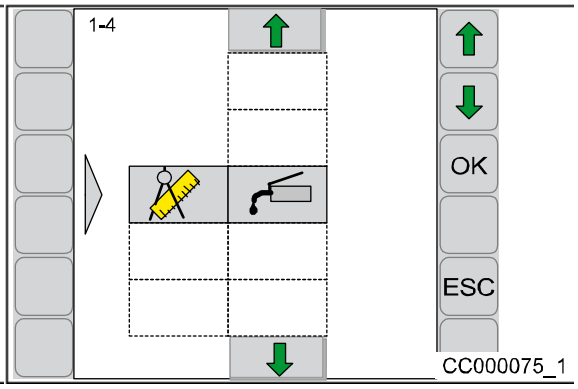


Fig. 106

(For machines with central lubrication)

Setting of the lubrication intervals and the lubrication duration.

Calling the Menu

Main menu 1 “Settings” is called.

- By pressing function key ↑ or ↓, select menu 1-4  , the symbol is highlighted in grey
- Press function key **OK**

The display shows menu 1-4 “Central Lubrication”.

The current status is displayed as an icon:

The display shows menu 1-4 “Central Lubrication”.

The upper value (A) indicates the time for the lubrication duration whereas the lower value (B) shows the time for the lubrication pause.

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

The lubrication duration can be increased by some minutes. Central lubrication is set to optimal levels at the factory.

Factory Setting:

Lubrication duration: 20 min (A)
Lubrication pause: 5 min (B)
Capacity of the container 4.5 kg

- Set the lubrication duration with the function key  or  , the symbol  in the top line goes out
- Press the function key **OK**. The set time is saved and the symbol  appears in the upper line
- By pressing the function key **DEF** the value of the factory setting appears (press function keyv, the value of the factory setting will be saved, the symbol  appears in the upper line)

Initiate the lubrication process manually

- By pressing the function key  the lubrication process is started for the set duration of lubrication
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

12.2.8 Menu 1-5 „Moisture Measuring“

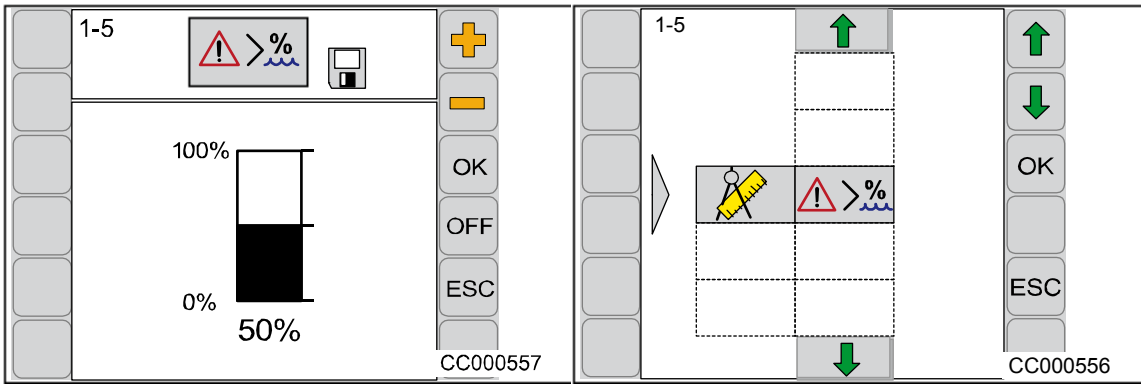


Fig. 107

In the menu 1-5 “Moisture Measuring” the value is set starting at which the message “136 crop too moist” appears in the display. Moreover the message for the display can be deactivated or activated in this menu.

Calling the Menu

Main menu 1 “Settings” is displayed.

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

The display shows menu 1-5 “Moisture Measuring”.

The bar display and the percentage value show the set value. The symbol in the upper line indicates that the displayed value is saved.

Changing and Saving the Value

- Set the value via function key + or −, the symbol in the upper line goes out
- Press function key **OK**, the set value is saved, the symbol in the upper line appears
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

Activating / Deactivating Message “136 Crop Too Moist”
OFF / ON = Deactivating / Activating the Message

- Press function key ON to deactivate the message (the symbol OFF appears in the display)
- Press function key OFF to activate the message (the symbol ON appears in the display)

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12.2.9 Menu 1-6 „Bale Balance“

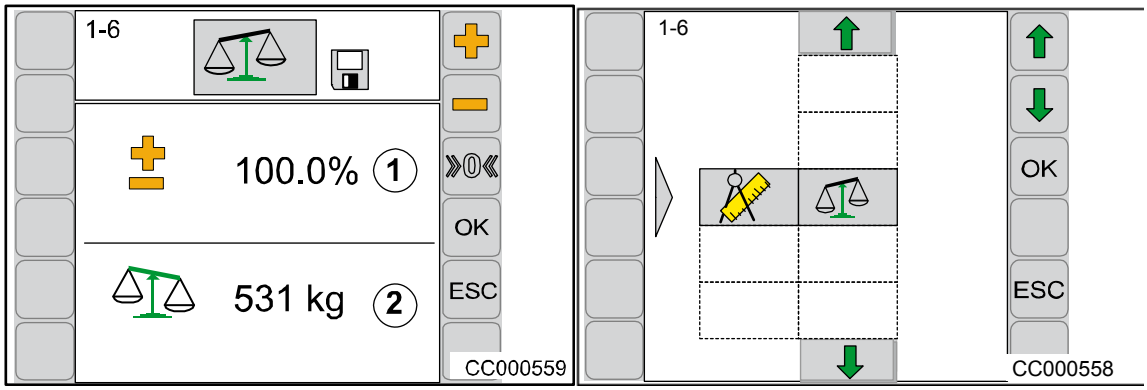


Fig. 108

Calling the Menu

Main menu 1 “Settings” is called.

- By pressing the function key ↑ or ↓, select menu 1-6 ⚖, the symbol is highlighted in grey
- Press function key **OK**

The display shows menu 1-6 “Bale Balance”.

The percentage value (1) shows the set limit range. The symbol 💾 in the upper line indicates that the displayed value is saved.

12.2.9.1 Adjusting the Bale Balance

The bale balance can be readjusted in the limit range from 95% to 105%

To do this:

- Stop the machine
- Fit a calibrated sample weight (250 to 300 kg) onto the empty bale balance

Readjust the bale balance if the display value (2) in the display deviates from the sample weight

To do this:

- Change value (1) via function key + or − until the value (2) corresponds to the weight of the sample weight (the symbol in the upper line goes out)

Note

If the limit range is not sufficient to adjust the bale balance, please contact the customer service.

- Press function key **OK**, the set value is saved, the symbol in the upper line appears
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

12.2.9.2 Zeros

“Zero” the force sensor if no bale (weight) is on the bale balance but a value is displayed in line (2)

Note

Resetting (zeros) may only be made if the bale balance is without load.

- Set the force sensor back to zero by pressing the function key »0«

12.2.10 Menu 1-8 "Set correction value for humidity measurement"

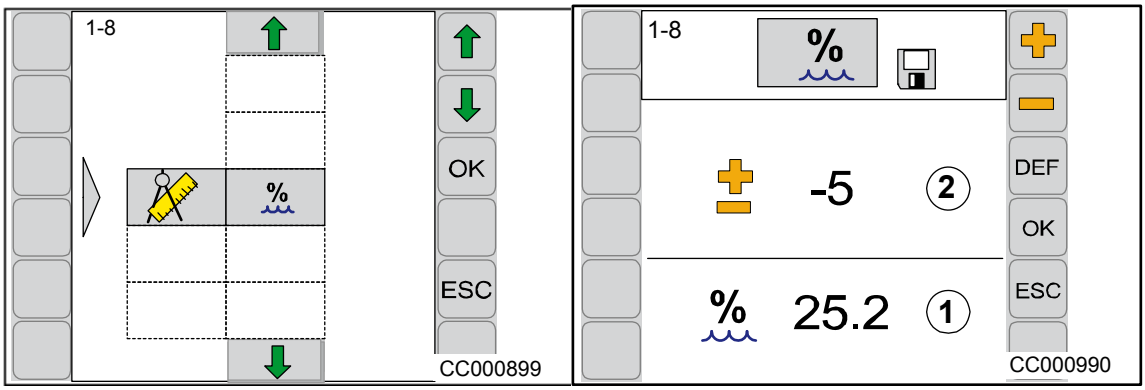


Fig. 109

The value (1) displayed may deviate due to different measurement procedures. The correction value (2) can be used to correct this deviation. A correction value of +10 to -10 can be entered for the humidity measurement.

Opening the menu

Main menu 1 "Settings" appears.

- Use ↑ or ↓ to select the menu 1-8 %, the symbol is highlighted in grey.
- Press **OK**.

The display shows the menu 1-8 "Set correction value for humidity measurement".

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

Change and save value

- To increase the correction value, press ±.
- To reduce the correction value, press −.
- To reset the correction value to zero, press **DEF**.

The 💾 symbol in the upper line disappears

- To save the correction value, press **OK**.

The 💾 symbol in the top line appears.

12.3 main menu 2 „counters“

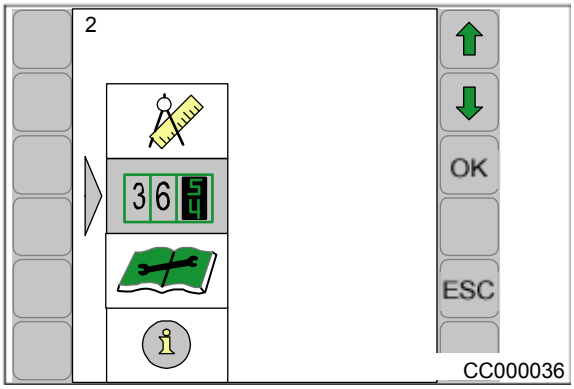


Fig. 110

Calling the main menu

- By pressing the function key in the basic screen you get into the menu level of the machine
- You can select main menu 2 ( ) with function key or . The symbol is highlighted in grey.
- Press function key **OK**

The display shows menu level 2 "Counters".

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

$\sum_{n}$ = menu 2-1 "Customer counter"

$\sum_{all}$ = menu 2-2 "Total counter"

12.3.1 Menu 2-1 "Customer counter"

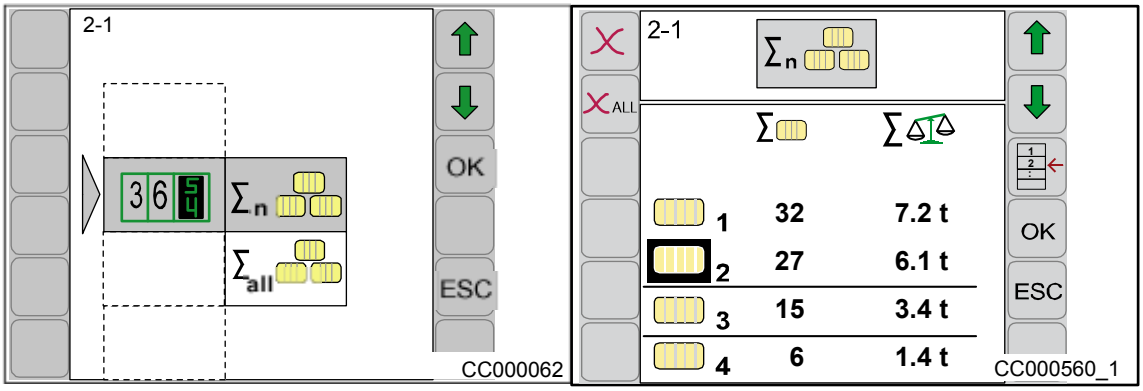


Fig. 111

Opening the menu

Main menu 2 "Counter" is opened

- Use ↑ or ↓ to select the menu 2-1 Σn, the symbol is highlighted in grey
- Press **OK**

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

Symbol	Meaning	Information
	Selected customer counter	– 1 to 20 customer counters. – The activated customer counter is highlighted in grey. – The selected customer counter is the one between the lines. – The selected customer counter does not have to be activated. – The customer counter is activated in the menu 2-1-1 "Detailed counter". – In the menu 2-1-1 "Detailed counter", additional data records for the customer counter are displayed.

Softkey	Meaning	Information
	Scroll up	
	Scroll down	
	Display detailed counter	– Additional counter information for the selected customer counter is displayed.
OK	Confirm selection	– Activate customer counter
ESC	Exit menu	– Pressing the key and holding it down brings up the home screen.
	Delete data records	– All data records for the selected customer counter are set to zero.
ALL	Delete all data records	– All data records for all customer counters are set to zero.

Deleting the Customer Counter

The customer counter to be deleted must not be the activated customer counter.

- Press function key  or  to position the customer counter to be deleted between the two crossbars (in this case customer counter 3)
- By pressing function key  , all datasets from the selected customer counter are set to 0

Deleting all Customer Counters

- By pressing function key (for approx. 2 sec.) for  , all datasets of all customer counters are set to zero

Opening the detailed counter

- To select the detailed counter, press  .

12.3.1.1 Menu 2-1-1 Detailed counter

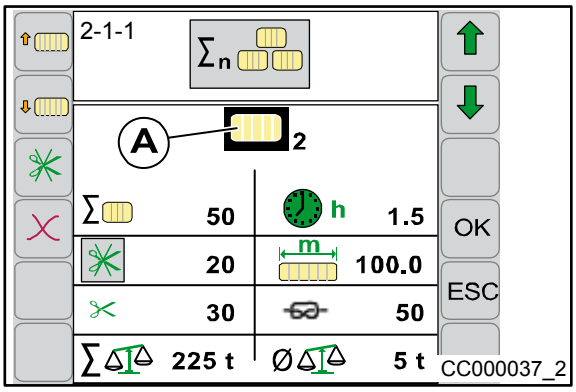


Fig. 112

Prerequisite: The menu 2-1 "Customer counter" is opened.

- To select the detailed counter, press
- To select the customer counter, press **ESC**

Graphic	Meaning	Information
∑	Total number of bales	
	Number of uncut bales	
	Number of cut bales	Only for machines equipped with a cutting system
h	Operating hours counter	Counts only when the PTO shaft is running.
2	Selected customer counter	– 1 to 20 customer counters. – The activated customer counter is highlighted in grey. – The selected customer counter is the one between the lines. – The selected customer counter does not have to be activated. – The customer counter is activated in the menu 2-1-1 "Detailed counter". – In the menu 2-1-1 "Detailed counter", additional data records for the customer counter are displayed.
m	Bale length counter	– Metric in metres
ft		– US unit of measure in feet
	Knot counter	For the MultiBale version – incl. MultiBale knots
∑	Total weight of all bales	– For the bale scales version
ø	Average weight of the weighed bales	– For the bale scales version

Softkeys	Meaning	Information
	Scroll up	
	Scroll down	
OK	Confirm selection	
ESC	Exit menu	– Pressing the key and holding it down brings up the home screen.
	Increase number of bales	
	Decrease number of bales	
	Uncut bales	
	Cut bales	

Activating customer counter

- Select the desired customer counter (A) by pressing the function key for softkey  or  .
- Press the function key for softkey OK.

The desired customer counter (here customer counter 2) is highlighted in grey.

Changing the Bale Number

- Press function key  or  to select the desired customer counter (A) (the customer counter must not be activated)
- Select the counter to be changed (cut bale, uncut bale) via function key  or 
- Increase the number of bales by pressing function key 
- Reduce the number of bales by pressing function key 

At the same time, the season and daily counters are also changed in menu 2-2 "Total Bale Counter", as well as the length counter, the knot counter and the bale weight (for bale balance design).

Deleting the customer counter

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

12.3.2 Menu 2-2 „Total Bale Counter“

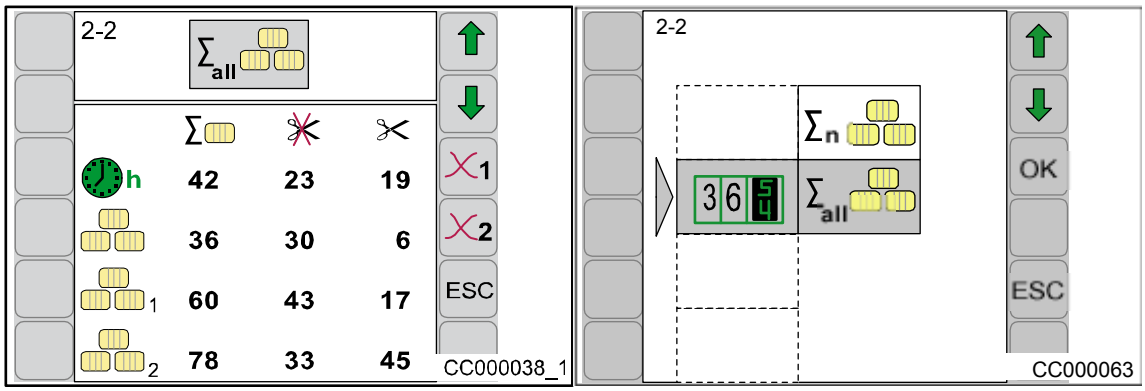


Fig. 113

Calling the Menu

Main menu 2 “Counter” is called

- By pressing function key ⬆ or ⬇, select menu 2-2 Σ_{all}, the symbol is highlighted in grey
- Press function key **OK**

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

Meaning of the Symbols:

Σ = Total number of bales

= Number of uncut bales

= Number of cut bales (only for machines with X-Cut)

h = Operating hours counter (counts only when P.T.O. shaft is running)

= Bale counter (cannot be deleted)

1 = Season counter 1 (can be deleted)

2 = Daily counter 2 (can be deleted)

Total Bale Counter for Bale Balance Design

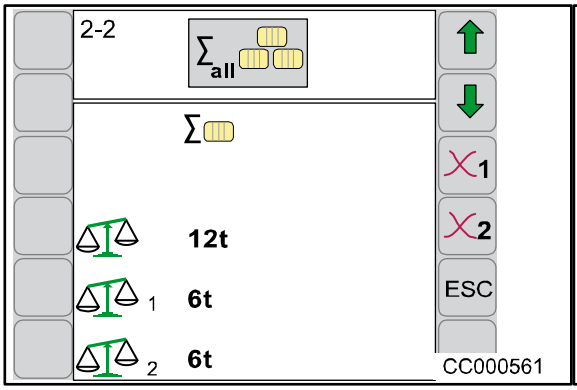


Fig. 114

For bale balance design, the total bale counter is divided into two pages. The second page of the total bale counter is displayed by pressing the function key for . You can get one page back by activating the function key .

Meaning of the Symbols Page 2 (Optional):

= Total counter (total weight of all pressed bales, cannot be deleted)

= Season counter 1 (can be deleted)

= Daily counter 2 (can be deleted)

Deleting season counter 1 or daily counter 2

- Pressing the function key 1 sets season counter 1 to zero
- Pressing the function key 2 sets season counter 2 to zero
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

12.4 Main menu 4 "Service"

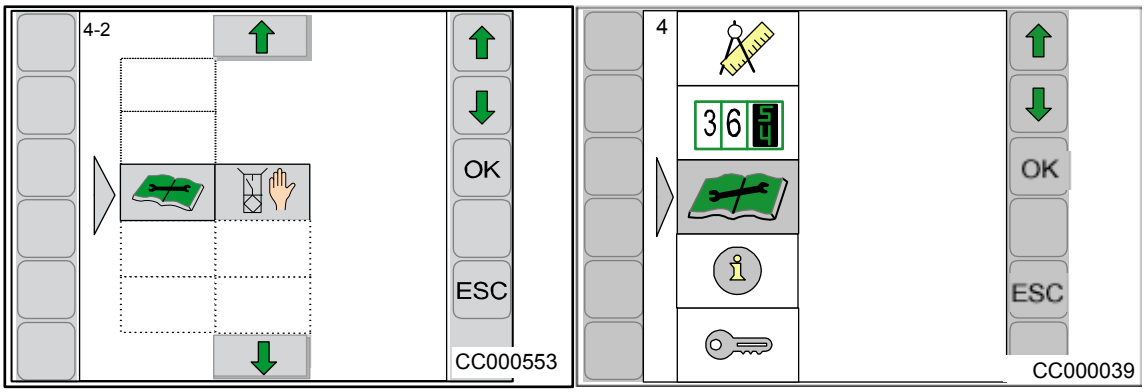


Fig. 115

Calling the Main Menu

- Call up menu level by pressing the function key in the basic screen
- By pressing function key or , select main menu 4 ( ), the symbol is highlighted in grey
- Press function key **OK**

The display shows menu level 4 “Service”.

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

= Menu 4-2 “Manual sensor test”

= Menu 4-4 “Manual actuator test”

= Menu 4-6 "Diagnostics of driving speed/motion direction display"

= Menu 4-7 “Diagnostics Auxiliary (AUX)“

12.4.1 Menu 4-2 „Manual sensor test“

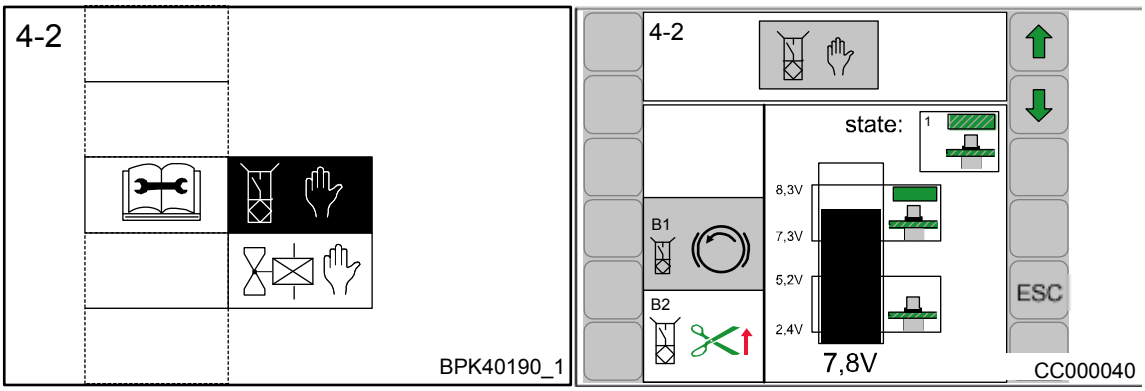


Fig. 116

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

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

Calling the menu
Main menu 4 "Service" is called.

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

Selecting the sensor

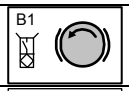
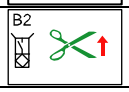
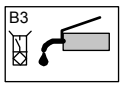
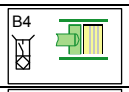
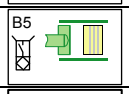
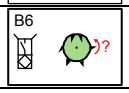
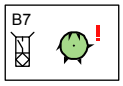
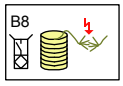
- Select the sensor by pressing the function key ↑ or ↓

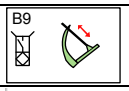
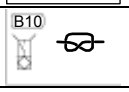
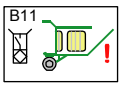
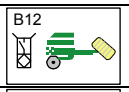
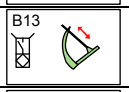
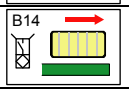
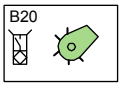
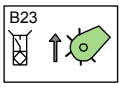
The selected sensor is displayed inversely and is tested.

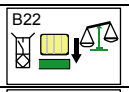
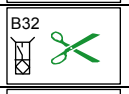
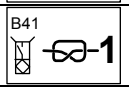
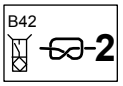
Setting values:
The minimum and maximum setting values with the sensor alive (metal in front of the sensor) are shown in the upper part of the bar display. The current setting value (actual value) is displayed under the bar display.
The distance from the sensor to the metal must be adjusted so that in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

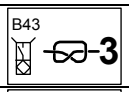
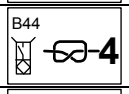
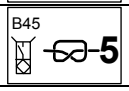
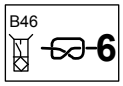
Diagnostics – Namur sensors

Possible sensors (depending on how the machine is equipped)

No.	Sensor symbol	Description
B1		Flywheel brake
B2		Blade bar up
B3		Central lubrication
B4		Measuring
B5		Calibration
B6		Packer monitoring
B7		Packer feed
B8		Twine monitoring

No.	Sensor symbol	Description
B9		Needle connecting rod on left
B10		Knotter monitoring
B11		Bale chute
B12		Setting down bales
B13		Needle connecting rod on right
B14		Bale ejector
B20		Pick-up
B23		Pick-up position

No.	Sensor symbol	Description
B22		Bale on chute
B32		Blades active
B41		Knotter 1
B42		Knotter 2

No.	Sensor symbol	Description
B43		Knotter 3
B44		Knotter 4
B45		Knotter 5
B46		Knotter 6

State:

1  Alive (iron)

2  Not alive (no iron)

3  Broken cable

4  Short circuit

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

The display shows menu level 4 "Service".

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

Diagnostics for buttons

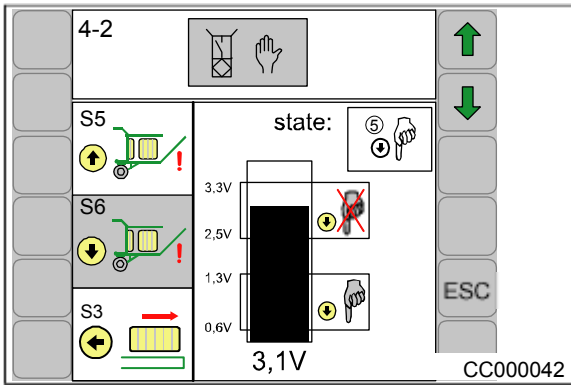
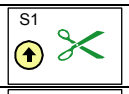
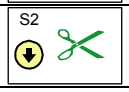
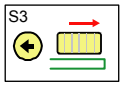


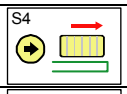
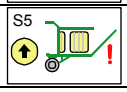
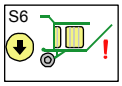
Fig. 117

Setting values:

When the button is pressed, the bar must be in the lower marked area of the bar display. When the button is released, it should be in the upper area.

Possible buttons (depending on how the machine is equipped)

No.	Symbol	Description
S1		Blade bar up button
S2		Blade bar down button
S3		Bale ejector in button

No.	Symbol	Description
S4		Bale ejector out button
S5		Bale chute button up
S6		Bale chute down button

State :

③	Cable brake	⑤	Pressed
④	Short circuit	⑥	Not pressed

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

The display shows menu level 4 "Service".

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

Diagnostics – analogue sensors

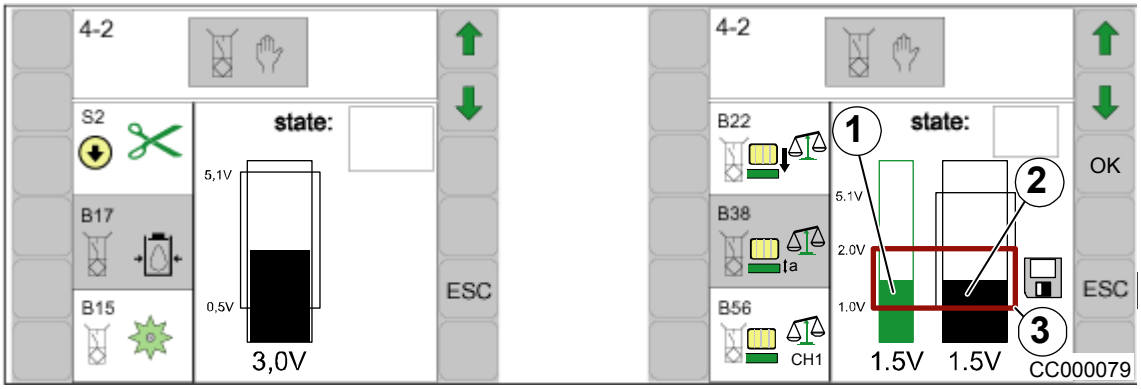
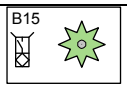
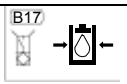
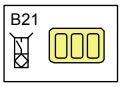


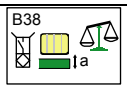
Fig.118

Setting values:

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

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

No.	Symbol	Description
B15		Star wheel (rotate star wheel: The bar must always be in the marked area for a full rotation)
B17		Bale channel flap pressure (the bar must be in the lower marked area at 0 bar)
B21		MultiBale (the system tests whether the sensor is defective. The setting must be made in the fitter settings)

No.	Symbol	Description
B38		Acceleration sensor (to compensate for shocks)

Sensor B 38 (acceleration sensor)

The sensor B38 for detecting acceleration is pre-set in the factory. The two bars (1, 2) must be inside the marked area (3) of the bar display. Heavy loads and the settling of components may give rise to the need for subsequent calibration if the bar (2) within the marked area (3) is larger or smaller than the bar (1) while the chute is lowered.

To do this:

- Lower the bale chute.
- Keep function key **OK** pressed down for about 2 seconds.

The left hand bar (1) takes on the value of the right hand bar (2). The symbol shows that the value has been stored.

State:

⑦ -/ϟ Broken cable or short circuit

⑧ Error Defect in the sensor or job computer

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

The display shows menu level 4 "Service".

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

Diagnostics – force sensors

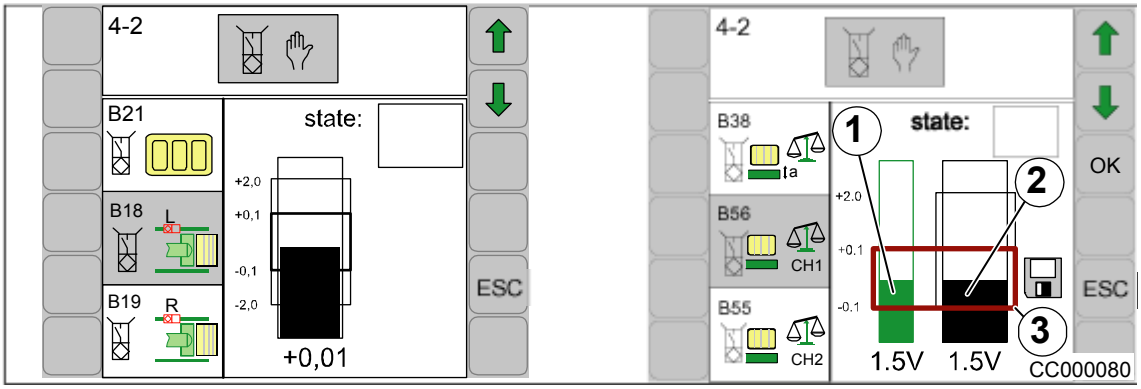
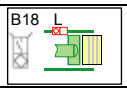
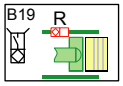


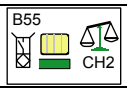
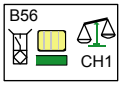
Fig.119

Setting values:

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

Force sensors (depending on machine configuration)

No.	Symbol	Description
B18		Plunger force, left
B19		Plunger force, right

No.	Symbol	Description
B55		Rear bale chute
B56		Front bale chute

Sensor B55 / B56

The sensors B55 / B56 for weighing the bale on the chute are pre-set in the factory. The two bars (1, 2) must be inside the marked area (3) of the bar display. Heavy loads and the settling of components may give rise to the need for subsequent calibration if the bar (2) within the marked area (3) is larger or smaller than the bar (1).

To do this:

- Keep function key **OK** pressed down for about 2 seconds.

The left hand bar (1) takes on the value of the right hand bar (2). The symbol shows that the value has been stored.

State:

⑦ -/ϟ Broken cable or short circuit

⑧ Error Defect in the sensor / force measurement amplifier or job computer

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

The display shows menu level 4 "Service".

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

Diagnostics power supply voltages

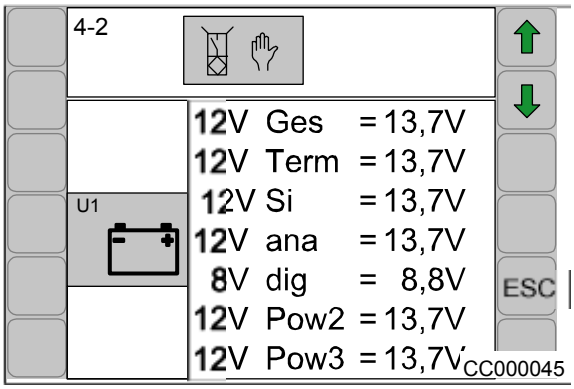
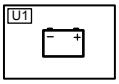


Fig. 120

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

Nominal voltages:

- 12V Ges: 12 - 14.5 V
- 12V Term: 12 - 14.5 V
- 12V Si: 12 – 14.5 V
- 12V ana: 12 – 14.5 V
- 8V dig: 8.5 - 9.1 V
- 12V Pow2: 12 - 14.5 V
- 12V Pow3: 12 - 14.5 V

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

The display shows menu level 4 "Service".

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

12.4.2 Actuator test

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

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

12.4.3 Menu 4-4 Manual actuator test

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

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

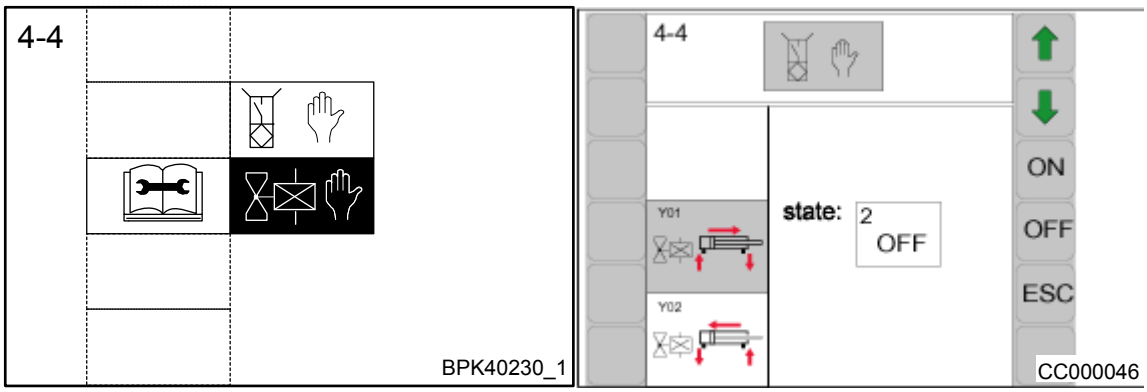


Fig. 121

Calling the menu
Main menu 4 "Service" is called.

- You can select menu 4-4 by pressing function key ↑ or ↓. The symbol is highlighted in grey.
- Press function key **OK**

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

Selecting the actuator

- Select the actuator by pressing the function key ↑ or ↓

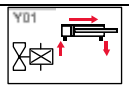
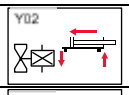
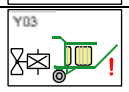
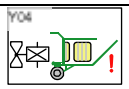
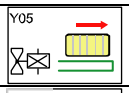
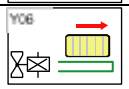
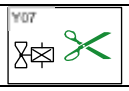
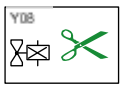
The symbol is highlighted in grey.

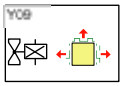
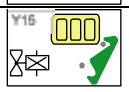
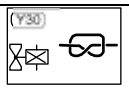
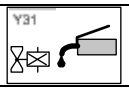
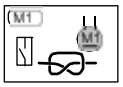
Diagnostics – digital actuators

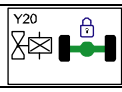
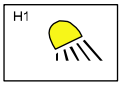
Errors are only displayed if the actuator is turned on and a test is possible for the actuator (see the table called "Possible digital actuators"). The actuators can also be checked on the LED at the plug, if necessary.

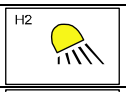
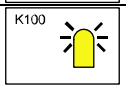
- Press function key **ON**

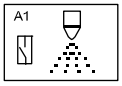
Possible digital actuators (depending on how the machine is equipped)

No.	Sensor symbol	Description
Y01		Main valve
Y02		Main valve
Y03		Bale chute
Y04		Bale chute
Y05		Bale ejector
Y06		Bale ejector
Y07		Blade bar
Y08		Blade bar

No.	Sensor symbol	Description
Y09		Valve to open bale channel flaps
Y14		BigBale (error detection is not possible)
Y15		MultiBale (error detection is not possible)
Y30		Knotter cleaning (error detection is not possible)
Y31		Central lubrication
M1		Knotter triggering (error detection is not possible)

No.	Actuator symbol	Description
Y20		Lock axle
H1		Working light (pick-up area)

No.	Actuator symbol	Description
H2		Working light (knotter area)
K100		

No.	Actuator symbol	Description
A1		Lubricant system

No.	Actuator symbol	Description

State:

① ON Actuator on

② OFF Actuator off

③ --/↯ General actuator error

④ FUSE ↯ No power supply; fuse is probably defective

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

The display shows menu level 4 "Service".

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

Diagnostics analogue actuators

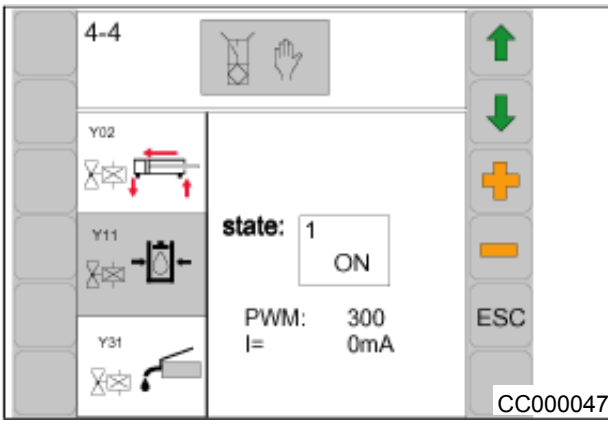


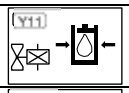
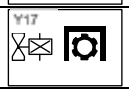
Fig.122

A current (in mA) can be created with the PWM value (in parts per thousand).

With a value of PWM = 500, the current should be between 500 mA and 3000 mA (depending on the valve that is used and the operating temperature).

- Pressing the function key + increases the PWM.
- Pressing the function key − decreases the PWM.

Possible analogue actuators

No.	Symbol	Description
Y11		Pressure limitation valve
Y17		Start-up aid

State:

① ON actuator ON

② OFF actuator OFF

③ -/ϟ No power supply; fuse is probably defective

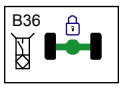
- Pressing the function key **ESC** closes the called up menu

The display shows menu level 4 "Service".

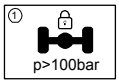
- Pressing the function key **ESC** and holding it down brings up the basic screen

Diagnostics Pressure Sensors

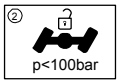
Possible sensors (depending on how the machine is equipped)

No.	Sensor symbol	Description
B36		Axle locked

State:



Axle locked



Axle released

12.4.4 Menu 4-6 „Diagnostics Driving Speed / Motion Direction Display“

The tractor must transfer the driving speed and the direction of travel onto the ISO-Bus.

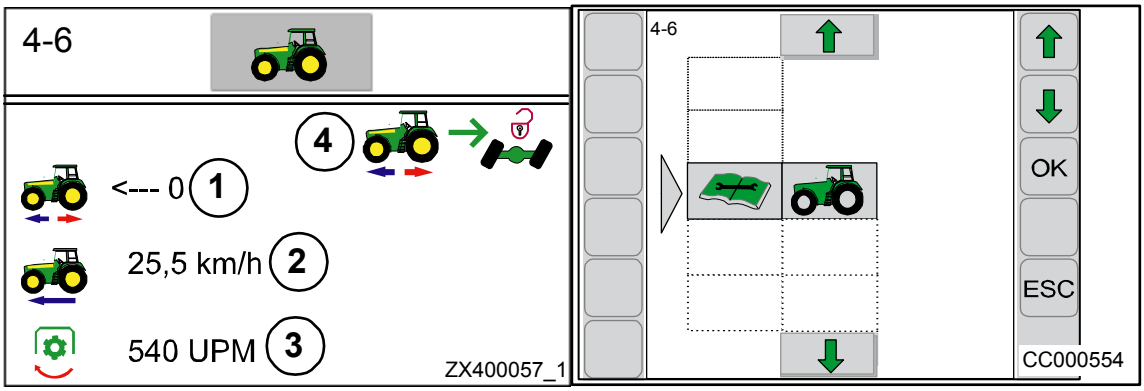


Fig. 123

Calling the Menu

Main menu 4 “Service” is called

- By pressing function key ↑ or ↓, select menu 4-6  , the symbol is highlighted in grey
- Press function key **OK**

The display shows menu 4-6 „Diagnostics Driving Speed/Motion Direction Display“.

Explanation of Symbols:

1)
<--- 0 = Forward travel
0 ---> = Reverse travel
2)
25.5 km/h= Speed when driving forward
-25.5 km/h= Speed when driving backward
3)
540 RPM = PTO speed
4)
→ Parameter (ISO-Bus evaluation) selected
Parameter (ISO-Bus evaluation) not selected

- Use the **ESC** key to close the menu currently displayed

The display shows menu level 4 “Service”.

12.4.5 Menu 4-7 „Diagnostics Auxiliary (AUX)“

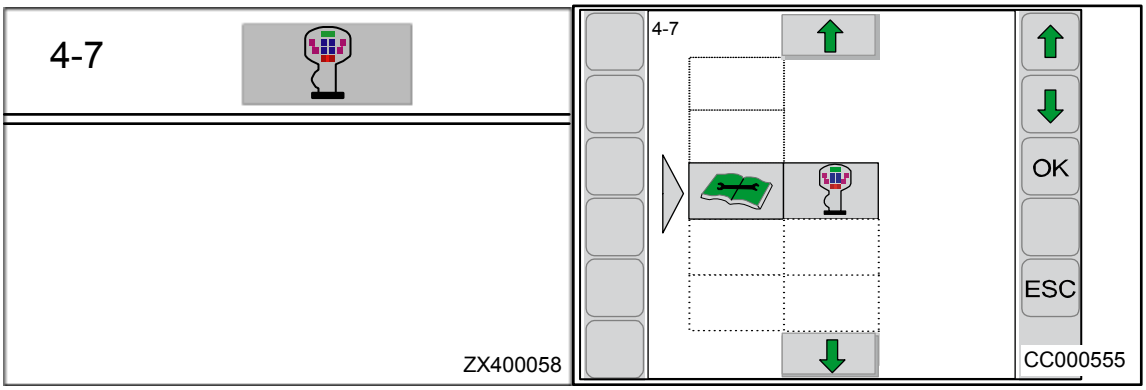


Fig. 124

Calling the Menu

Main menu 4 “Serice” is called

- By pressing function key ⬆ or ⬇, select menu 4-7  , the symbol is highlighted in grey
- Press function key **OK**

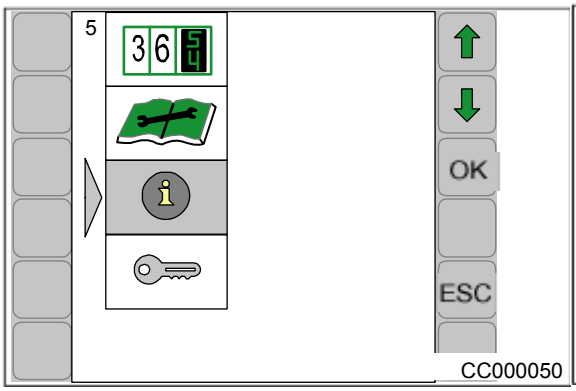
The display shows menu 4-7 “Diagnostics Auxiliary (AUX)”.

A figure of the multi-function lever appears in the display. When activating a function on the multi-function lever, only the assigned symbol will appear in the display. The function itself is not performed.

- Use the **ESC** key to close the menu currently displayed

The display shows menu level 4 “Service”.

12.5 Main menu 5 'Information'



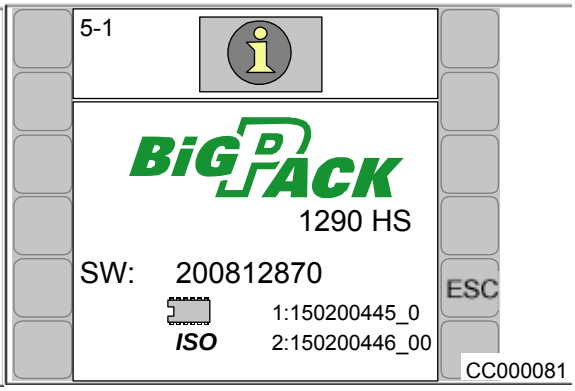


Fig.125

Calling the main menu

- Access the menu level by pressing the function key on the basic screen.
- Select the main menu 5 ( )by pressing the function key or . The symbol is highlighted in grey.
- Press function key **OK**.

The display shows menu 5 'Information'.

Page 5-1:

Complete software version of the machine

- 1290 HS = machine type
- SW = complete software version of the machine
- = job computer version
- ISO= ISO software version

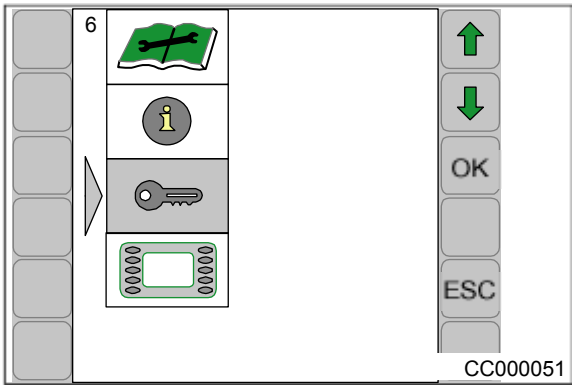
- Pressing the function key**ESC** closes the called up menu

The display shows menu level 5 "Info".

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

12.6 Main Menu 6 Technician

Calling the Main Menu



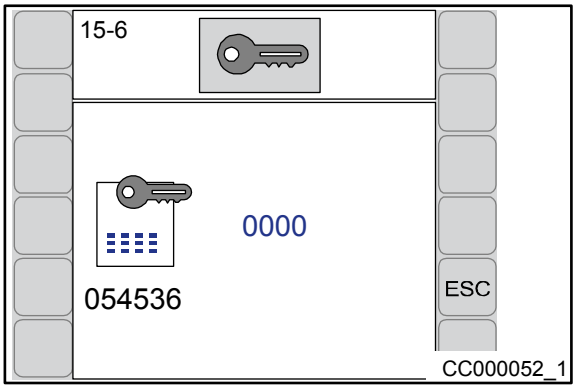


Fig. 126

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

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

12.7 Main menu 9 "Virtual Terminal (VT)"

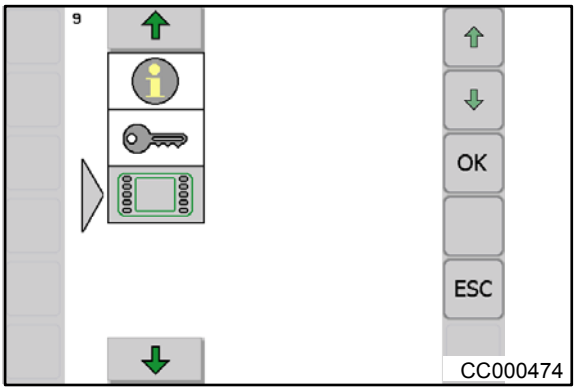


Fig. 127

Calling the main menu

- Press function key to access the menu level via the basic screen
- Press function key or to select main menu 9 ( ). The icon is colour highlighted
- Press function key **OK**

The display shows menu level 9 "Virtual Terminal (VT)".

The menu level 9 “Virtual Terminal (VT)„ shows the following menus depending on how the machine is equipped:

	= Menu 9-1	“Softkeys ISO Terminal” (appears only in case of terminals with less than 10 keys)
	= Menu 9-2	Switching between Terminals” (appears only if several ISO terminals are connected)
	= Menu 9-3	Configuration Basic Screen

12.7.1 Menu 9-2 „Switching Between the Terminals“

Note

- Menu 9-2 appears only if several ISO terminals are connected.
- Changing to the next connected terminal is possible via menu 9-2 (depending on how many terminals are connected).
- When switching for the first time, the configuration of the machine is loaded into the next terminal. The loading process may take a few minutes. The configuration is laid down in the accumulator of the next terminal.

Note

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

Note

In case of a restart, the system tries at first to start the last used terminal. If the last used terminal is not available any longer, the restart is delayed as the system is searching for a new terminal and loads the specific menus into the terminal. The loading process may take a few minutes.

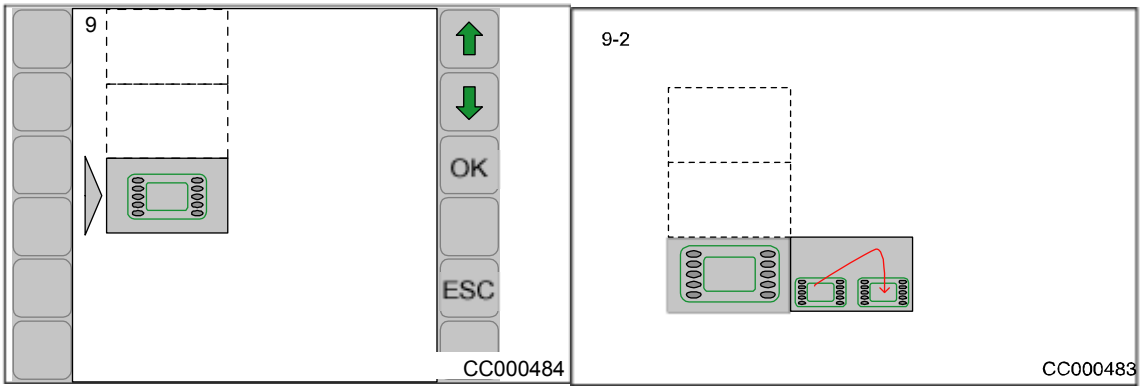


Fig. 128

- Bring up the menu level by pressing function key from the basic screen
- Select main menu 9 ( ) by pressing function key or , the symbol is highlighted in grey.
- Pressing the function key **OK** brings up the menu level 9-2 ( ) . The symbol is highlighted in grey.
- Changing to the next connected terminal is possible by pressing the key **OK** once again
- Pressing the function key **ESC** closes the menu currently displayed
- Pressing the function key **ESC** and holding it down brings up the basic screen

12.7.2 Menu 9-3 „Configuration Main Window“

In menu 9-3 you can determine which displays shall be shown in the main window (left column). Up to 7 display elements can be displayed at the same time in the main window. Depending on how the machine is equipped, you can select from up to 13 display elements which 7 display elements shall be shown in the main window.

Moreover you can configure the main window individually on 2 pages (for example for 2 drivers).

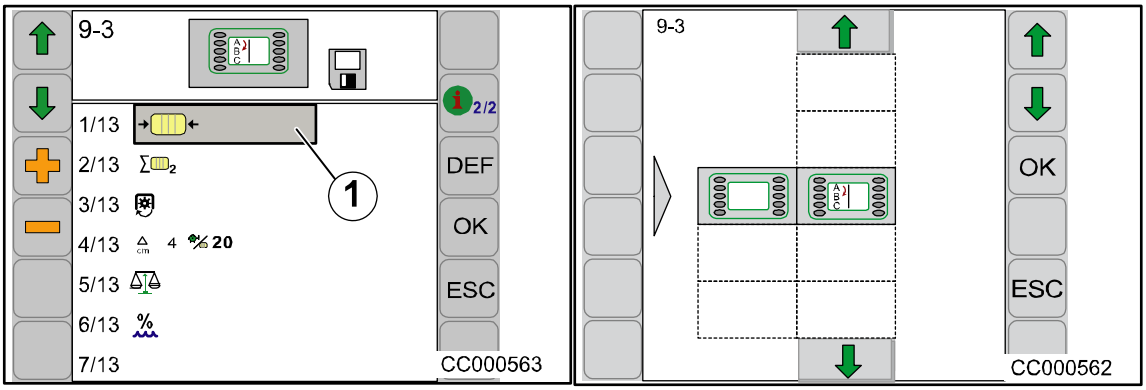


Fig. 129

The main menu 9 „Virtual Terminal (VT)“ is called

- Select menu 9-3 ( ) by pressing function key or , the symbol is highlighted in colour
- Press function key **OK**

The display shows menu 9-3 “Configuration Main Window”.

Configuring Main Window:

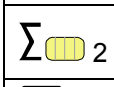
- Call up the page to be configured by pressing function key 1/2 or 2/2
- By pressing function key or , move the rectangle (1) into the desired row (1-7)
- Select the desired selection element via function key or , the new display element appears in the display and the symbol in the upper line goes out
- Press function key **OK**, the display symbol is saved, the symbol in the upper line appears
- Pressing the function key **ESC** closes the called up menu
- Pressing the function key **ESC** and holding it down brings up the basic screen

Bringing up the Factory Setting:

- The factory setting is called up and saved by pressing and holding the function key **DEF** (for approx. 2 seconds)

Possible selection elements for the main window (depending on how the machine is equipped)

Left column (A):

Graphics	Meaning	Information
	Current force of pressure	– Only in manual mode – In % (100% = max.).
	Current bale channel flap pressure	– Only in automatic mode – In bar or PSI, depending on set unit of measure Metric/US
	Total number of bales	– The adjoining number indicates the current customer counter.
	Current PTO speed	– rpm
	Current layer thickness	– In cm or inch (only for electr. bale length setting)
	Number of layers per bale	
	Crop humidity	
	Bale weight	– of the bale last weighed
	Average weight of the weighed bales	
	Total weight of all bales	

Graphics	Meaning	Information
	Bale length counter	– Metric in metres
		– US unit of measure in feet
	Number of uncut bales	
	Number of cut bales	– Only for machines equipped with a cutting system
	Appears briefly after a knot is tied	– If activated, a horn sound is heard for approx. one second, see chapter Menu 1-2 "Knotter signal"
	Operating hours counter	– Counts only when PTO shaft is running.

12.8 Alarm Message

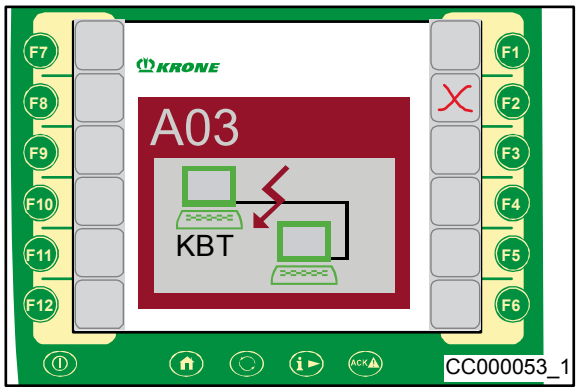


Fig. 130

Alarm message

If a malfunction occurs on the machine, an alarm message appears in the display and an audio signal is heard at the same time (constant horn signal). Description, possible cause and remedy are shown in the chapter entitled “Alarm Messages”.

Note

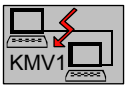
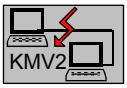
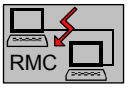
All functions in the covered menu are still active. The softkeys covered by the alarm message are deactivated.

To reset alarm:

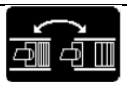
- To reset the alarm, press function key for softkey X, the acoustic signal is stopped.

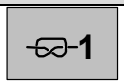
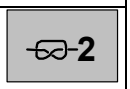
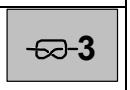
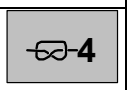
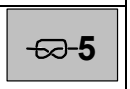
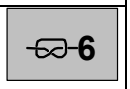
If the malfunction occurs again, the alarm message will also appear again.

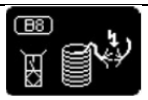
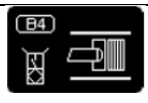
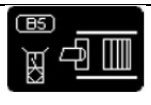
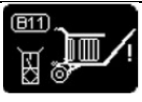
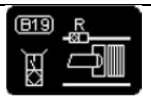
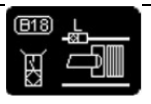
12.8.1 Alarm messages

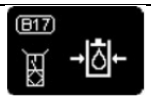
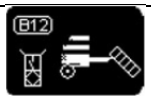
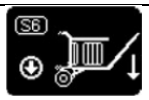
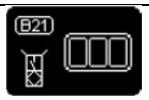
No.	Screen	Description	Possible cause	Remedy
A01		Fuse 2 defective	Short circuit at the outputs	Replace the fuse and then test all actuators in the actuator test to determine whether an actuator has a short circuit.
A02		Fuse 3 defective (self-repairing)	Short circuit in electrical power supply for sensors.	Check wiring to Multi-Bale potentiometer, star wheel, pressure sensor and force measurement amplifier.
A03		CAN connection between terminal and job computer interrupted	CAN wiring defective	Check the CAN wiring
A04		EEPROM error	Job computer defective	Replace the job computer
A05		CAN connection broken between job computer and Krone I/O computer	CAN wiring defective Krone I/O computer inactive	Check the CAN wiring Check the cables. Replace Krone I/O computer
A11		CAN connection broken between job computer and Krone measurement force computer (KMV1)	CAN wiring defective Krone measurement force computer (KMV1) inactive	Check the CAN wiring Check the cables. Replace Krone measurement force computer (KMV1).
A12		CAN connection broken between job computer and Krone measurement force computer (KMV2)	CAN wiring defective Krone measurement force computer (KMV2) inactive	Check the CAN wiring Check the cables. Replace Krone measurement force computer (KMV2).
A14		Undervoltage	- Tractor battery defective - Tractor dynamo too weak - 12-V power supply too weak on the tractor side or not correctly connected with the battery	Connect the KRONE connection cable directly to the tractor battery
A15		Overvoltage	Tractor dynamo defective	Check dynamo
A17		CAN connection broken between job computer and Krone humidity measurement computer (RMC)	CAN wiring defective Krone humidity measurement computer (RMC) inactive	Check the CAN wiring Check the cables. Replace Krone humidity measurement computer (RMC).

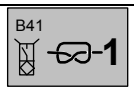
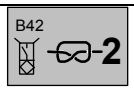
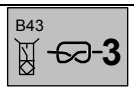
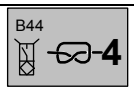
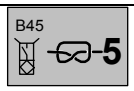
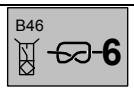
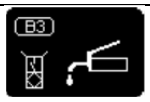
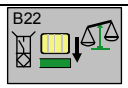
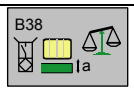
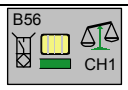
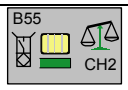
No.	Image	Description	Possible cause	Remedy
0		Twine monitoring	- Twine torn - Twine end	Checking the twine and twine tensioner
1		Packer monitoring	Blockage in the intake area of the packer	Stop the traction drive immediately Reduce P.T.O. speed until the blockage is cleared
2		Pressing force exceeded, left sensor	**Pressing force exceeded** If the machine could be subject to a mechanical overload because the pressure is too high, the bale channel flap pressure is lowered to a non-critical value just before the overload. The amount of reduction depends on the material being baled. The reduction is less for straw than for silage.	The following measures must be taken: 1**. In manual mode:** -Lower the pressure 2**. In Automatic mode:** If the alarm occurs quite frequently, reduce the pressing force setting slightly
3		Force of pressure exceeded, right sensor		
4		Knotter monitoring	- Knotter is not functioning properly - Sensor set incorrectly	- Check the knotter and knotter triggering - Set the knotter monitoring sensor correctly
5		Measurement monitoring	Sensor measuring defective or set incorrectly	Adjust the sensor correctly
6		Calibration monitoring	Sensor calibration defective or set incorrectly	Adjust the sensor correctly
7		Flywheel brake	Flywheel brake applied	Release the flywheel brake
8		Needle connecting rod	Shear screw ruptured	- Replace the shear screw - Check needles - Check the swivel range of the needles - Check the twine guide
9		Bale chute	Bale chute up and P.T.O. shaft is turning	- Lower bale chute

No.	Figure	Possible cause	Remedy
10		– An error on the pressure limiting valve. – The pressure sensor is defective.	– Switch off the PTO shaft. – Check the pressure limiting valve for blockage.
11		– The PTO shaft is turning upon entry into sensor or actuator diagnostics or during diagnostics.	– Switch off the PTO shaft immediately. – Perform diagnostics with the PTO shaft stopped.
12		– The blade bar is down during baling.	– Raise the blade bar.
16		– The pick-up or the cutting system does not turn. – Blockage in the area of the pick-up or the cutting system.	– Check mechanics. – Remove the blockage.
17		– The knotter motor has not triggered any knots or the knotter sensor is not set correctly.	– Check the electrical system of the knotter motor. – Check the mechanics in the area of the knotter triggering. – Adjust the knotter sensor correctly.
18		– It is not possible to set the both positions Multibale or total bale.	– No compressed air present. – Adjust the Multibale sensor correctly. – Check the mechanics in the area of the knotter triggering. – Error on the Multibale valve (valve jammed, coil defective). – Check the electronics in the area of the multibale interlock.
19		– The packer feed sensor is adjusted incorrectly.	– Adjust the sensor correctly.
20		– The bale ejector has been activated even though the bale chute is still up.	– Lower the bale chute first and then activate the bale ejector.
21		– The sensors for measuring and calibrating are probably mixed up.	– Exchange the plug for the sensors for measuring and calibrating.

No.	Figure	Possible cause	Remedy
22		– The knotter is not functioning properly. – The sensor is not adjusted incorrectly.	– Check knotter and knotter triggering. – Adjust the knotter monitoring sensor correctly.
23			
25			
25			
26			
27			
28		The central lubrication – does not have any grease. – is blocked. – The pump is not running.	– Add grease. – Clean the central lubrication. – Check electrical system and pump.
37		– The PTO speed is too high.	– Switch off PTO shaft.

No.	Image	Description	Possible cause	Remedy
101		Twine monitoring sensor	Sensor or line defective	Perform a sensor test Check the sensor and line for damage -
102		Packer monitoring sensors		
103		Packer feed sensor		
104		Upper blade bar sensor, top		
105		Cutter sensor active		
106		Knotter monitoring sensor		
107		Measuring force sensor		
108		Calibration force sensor		
109		Sensor flywheel brake		
110		Needle connecting rod sensor		
111		Bale chute sensor		
112		Force sensor, right	Sensor, measurement amplifier or line defective	Check the sensor and line for damage
113		Force sensor, left	Sensor, measurement amplifier or line defective	Check the sensor and line for damage

No.	Screen	Description	Possible cause	Remedy
114		Hydraulic pressure sensor	Sensor or supply line defective	-Perform a sensor test -Check the sensor and line for damage.
115		Sensor for setting down bales	Sensor or supply line defective	-Perform a sensor test -Check the sensor and line for damage.
116		Sensor for bale ejector	Sensor or supply line defective	-Perform a sensor test -Check the sensor and line for damage.
117		Star wheel sensor	Sensor (rotary potentiometer) or line defective	-Perform a sensor test -Check the sensor and line for damage.
118		Pick-up sensor	Sensor or supply line defective	-Perform a sensor test -Check the sensor and line for damage.
119		Bale chute up feeler	Feeler or supply line defective	-Perform a sensor test -Check the feeler and line for damage.
120		Bale chute down feeler	Feeler or supply line defective	-Perform a sensor test -Check the feeler and line for damage.
121		Bale ejector feeler out	Feeler or supply line defective	-Perform a sensor test -Check the feeler and line for damage.
122		Bale ejector feeler in	Feeler or supply line defective	-Perform a sensor test -Check the feeler and line for damage.
123		Blade bar up feeler	Feeler or supply line defective	-Perform a sensor test -Check the feeler and line for damage.
124		Blade bar down feeler	Feeler or supply line defective	-Perform a sensor test -Check the feeler and line for damage.
125		MultiBale sensor	Sensor (rotary potentiometer) or line defective	-Perform a sensor test -Check the sensor and line for damage.

No.	Screen	Description	Possible cause	Remedy
126		Sensor knotter 1	Sensor or supply line defective	-Perform a sensor test -Check the sensor and line for damage.
127		Sensor knotter 2		
128		Sensor knotter 3		
129		Sensor knotter 4		
130		Sensor knotter 5		
131		Sensor knotter 6		
132		Sensor - central lubrication		
146		Sensor bale on chute		
147		Sensor acceleration		
148		Force sensor front bale chute		
149		Force sensor rear bale chute		

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13 ISOBUS operation

General aspects

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

Those KRONE machines which are ISOBUS equipped are adapted to this system.

Note

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

DANGER!

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

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

13.1 Mounting ISOBUS Terminal

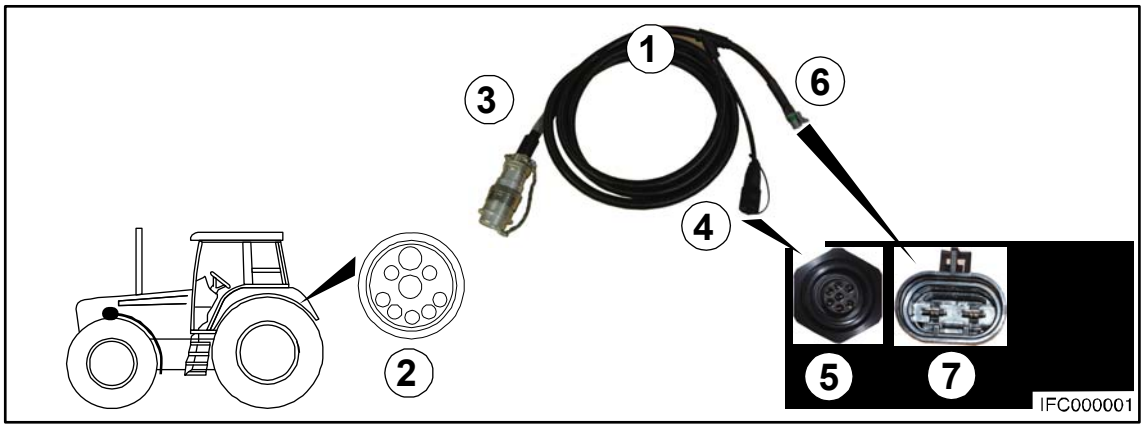


Fig. 131

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

13.1.1 Connection Terminal to Tractor

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

13.1.2 Connection Tractor to Machine

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

13.2 Differing functions to KRONE ISOBUS terminal CCI

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

Note

The values for “Bale channel flap pressure/force”, “Bale length” and “Number of MultiBales” which are set by the scroll wheel in the basic screen on the KRONE ISOBUS terminal CCI, are set on the ISO terminal with the selection key predetermined by the ISO terminal (refer to the operating instructions of the ISO terminal manufacturer).

Note

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

13.2.1 Menu 4-6 “Diagnostics driving speed display/direction of travel display”

The tractor must transfer the travelling speed and direction of travel on the ISO bus.

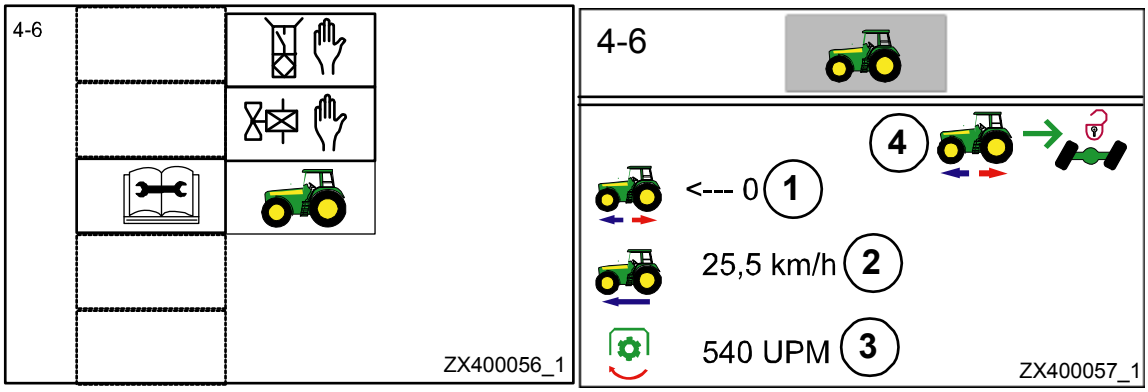
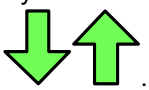


Fig. 132

Call up main menu "Maintenance" with the key 

- You can select menu 4-6 with the keys  . The symbol is highlighted in grey.
- Call up the menu with the **OK** key.

The display shows menu 4-6 "Driving speed display / direction of travel display".

Explanation of symbols:

1)
<--- 0 = Driving forward
0 ---> = Reversing
2)
25.5 km/h= Speed driving forward
-25.5 km/h= Reversing speed
3)
540 RPM= PTO speed
4)
Parameter (ISO-Bus Evaluation) selected
Parameter (ISO-Bus Evaluation) not selected

- You can use the key **ESC** to close the menu currently displayed.

The display shows menu level 4 "Service".

13.2.2 Menu 4-7 “Diagnostics Auxiliary (AUX)”

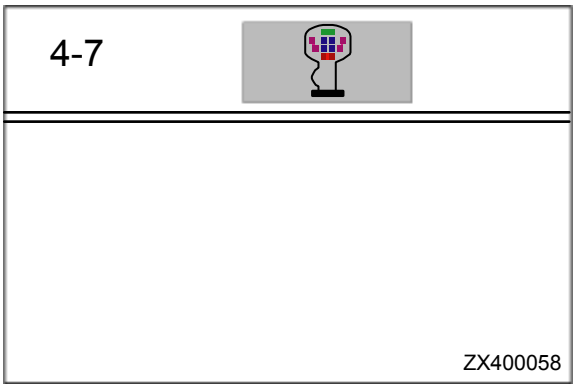


Fig. 133

Call up main menu "Maintenance" with the key 

- You can select menu 4- by pressing the keys  . The symbol is highlighted in grey.
- Call up the menu with the **OK** key.

The display shows menu 4-7 “Diagnostics Auxiliary (AUX)” .

A representation of the multi-function lever appears in the display. When activating a function on the multi-function lever, only the assigned symbol will appear in the display. The function itself is not performed.

- You can use the key **ESC** to close the menu currently displayed.

The display shows menu level 4 "Service".

13.3 Main menu 9 "ISO settings info"

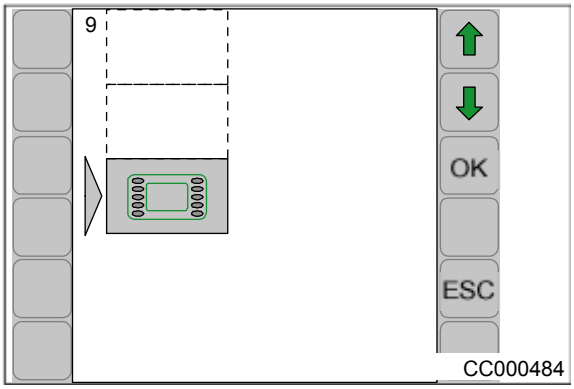


Fig. 134

Calling the main menu

- Press function key to access the menu level via the basic screen
- Press function key or to select main menu 9 ( ).το σύμβολο επισημαίνεται με γκρι χρώμα.
- Press function key **OK**

The display shows menu level 9 "ISO settings". Menu level 9 "SO settings" optionally displays the following menus:

= Menu 9-1 "Softkeys ISO terminal" (appears only on terminals with less than 10 keys"

or

= Menu 9-2 Switching between terminals" (appears only when multiple ISO terminals are connected)

13.3.1 Menu 9-1 "Softkeys ISO terminal"

Note
The menu 9-1 only appears on ISO terminals with less than 10 keys

In menu 9-1, the basic screen (for ISO terminals with less than 10 keys) is set to 5 or 10 softkey buttons. During the change-over to 10 softkey buttons, additional softkeys will be virtually included and can be reached by scrolling.

Note
For ISO terminals with less than 10 keys, an additional ISO joystick is recommended for the convenient operation of the attached machines. For the assignment of the joystick, please refer to Section "Example of a joystick assignment".

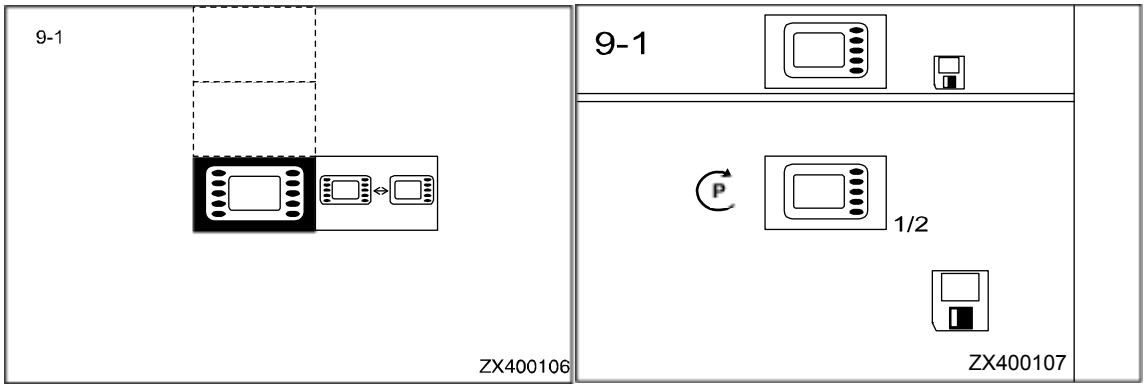
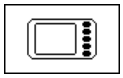
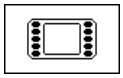


Fig. 135
Main menu 9 "ISO Settings" appears.

- Press the **OK** key to open menu 9-1 ( )

The display shows menu 9-1 "Softkeys ISO terminal".
The current status is displayed as a symbol:

 Change the basic screen to 5 softkey buttons

 Change the basic screen to 10 softkey buttons

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

Change and save status

- Set the desired status with the ↑ or ↓ key. The icon in the top line goes out.
- Press the **OK** key. The set status is saved and the icon appears in the upper line.
- You can use the **ESC** key to close the menu currently displayed.
- Pressing the **ESC** key for a little longer calls up the basic screen

13.3.2 Menu 9-2 „Switching Between the Terminals“

Note

- Menu 9-2 appears only if several ISO terminals are connected.
- Changing to the next connected terminal is possible via menu 9-2 (depending on how many terminals are connected).
- When switching for the first time, the configuration of the machine is loaded into the next terminal. The loading process may take a few minutes. The configuration is laid down in the accumulator of the next terminal.

Note

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

Note

In case of a restart, the system tries at first to start the last used terminal. If the last used terminal is not available any longer, the restart is delayed as the system is searching for a new terminal and loads the specific menus into the terminal. The loading process may take a few minutes.

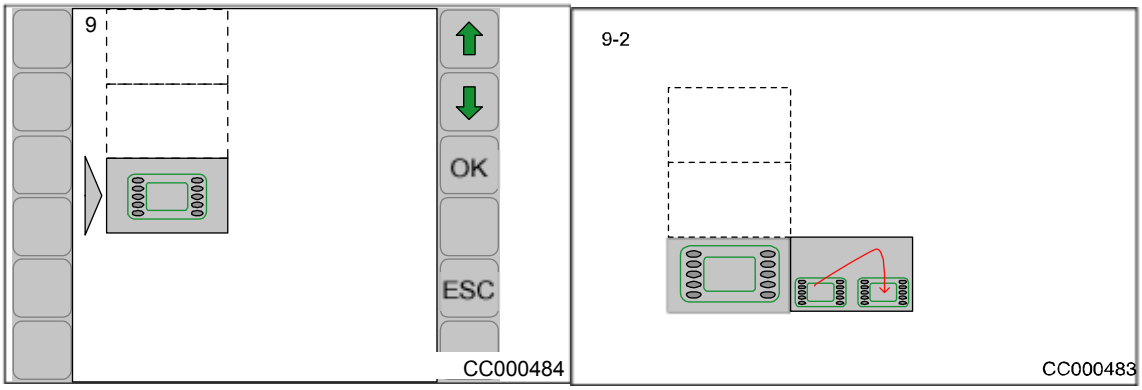


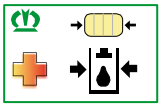
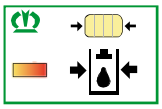
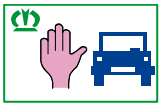
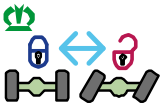
Fig. 136

- Bring up the menu level by pressing function key from the basic screen
- Select main menu 9 ( ) by pressing function key or , the symbol is highlighted in grey.
- Pressing the function key **OK** brings up the menu level 9-2 ( ) . The symbol is highlighted in grey.
- Changing to the next connected terminal is possible by pressing the key **OK** once again
- Pressing the function key **ESC** closes the menu currently displayed
- Pressing the function key **ESC** and holding it down brings up the basic screen

13.4 ISOBUS „Auxiliary“-function (AUX)

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

Depending on how the machine is fitted, the following functions are available in the Auxiliary menu (AUX):

Auxiliary Functions (Graphic display):	**Function:**
	Lift blade bar
	Lower blade bar
	Increase baling pressure / baling force
	Reduce baling pressure / baling force
	Switching between manual/automatic mode
	Starting aid start / stop
	Lock / release steering axle

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

13.4.1 Example of a joystick assignment for Fendt (default setting)

CAUTION!
For the remainder of the procedure, refer to the operating instructions of the operating terminal manufacturer.

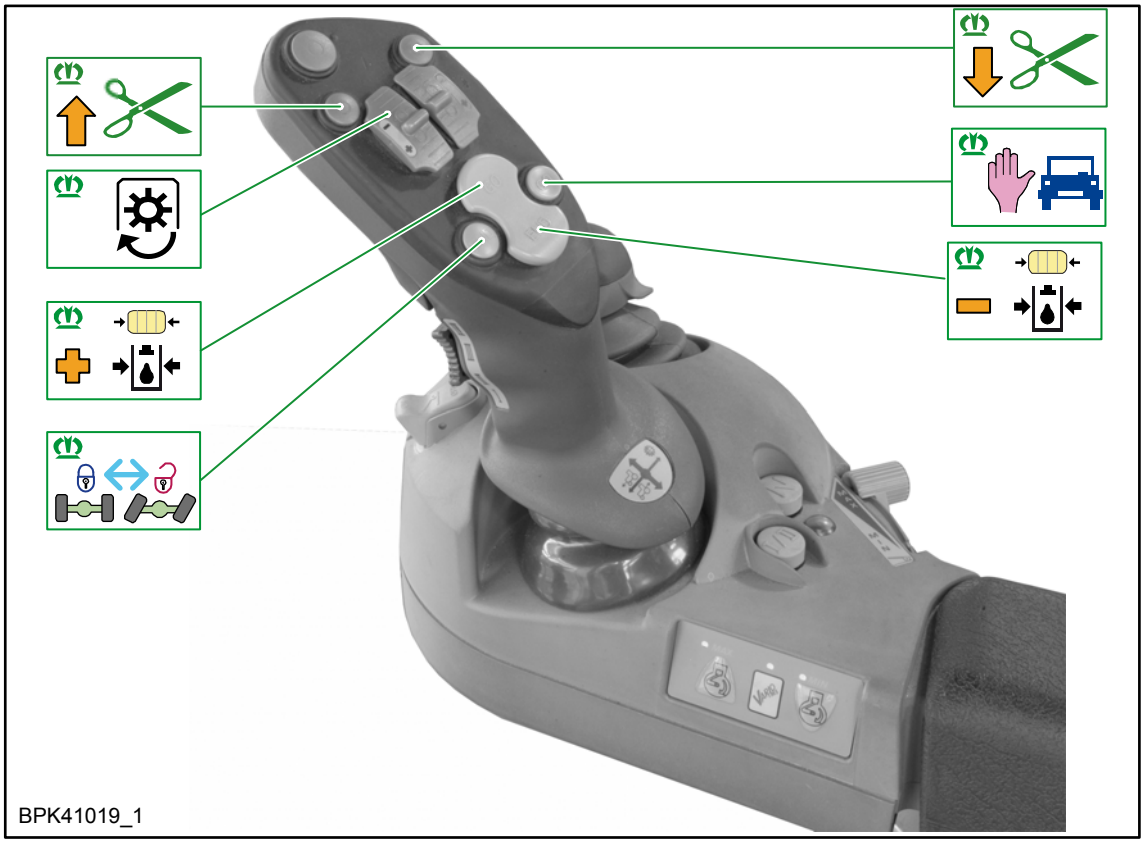


Fig. 137

13.4.2 Recommended assignment of a WTK- multi-function lever

CAUTION!
For the remainder of the procedure, refer to the operating instructions of the operating terminal manufacturer.

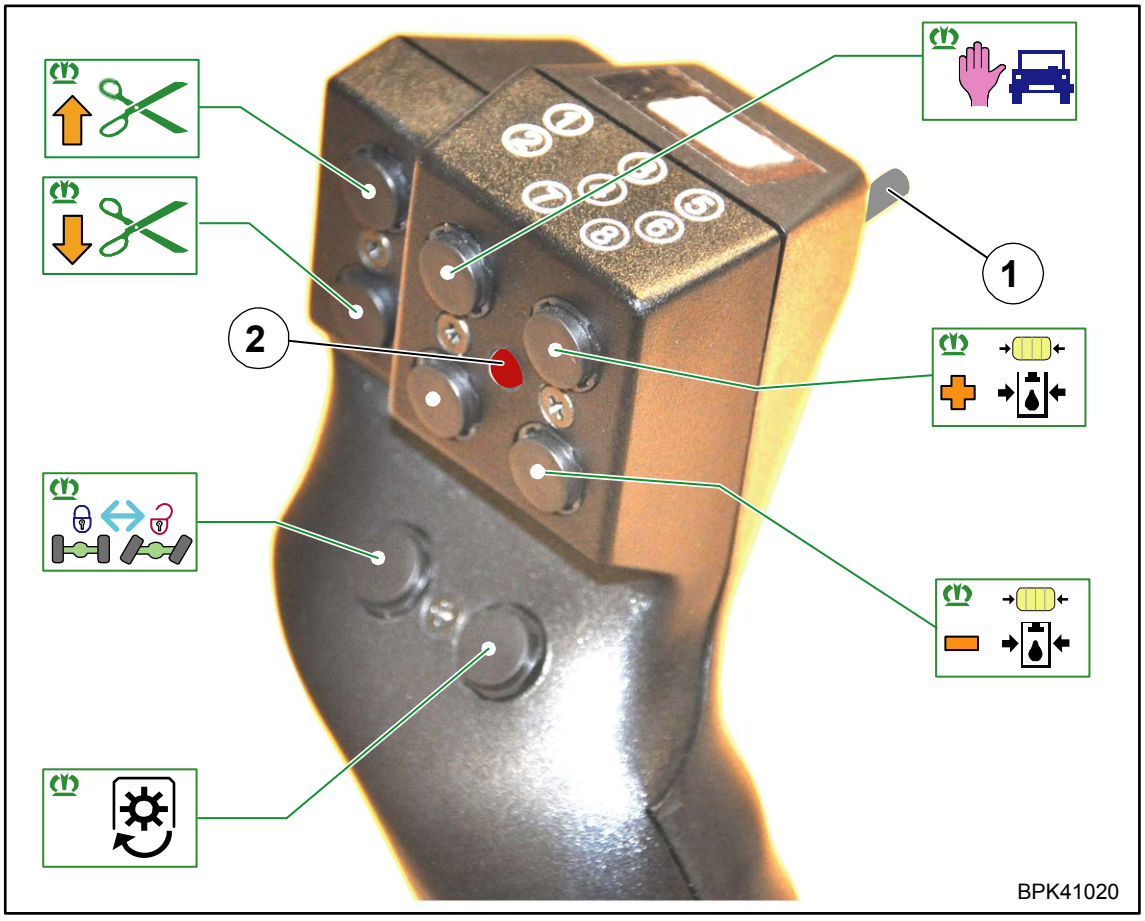


Fig. 138

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14 Operation

WARNING!
If the basic safety instructions are not followed, people may be seriously injured or killed.
- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!
If the safety routines are not adhered to, people may be seriously injured or killed.
- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

14.1 Preparation for Baling

Before starting baling, check to make certain
– the residual bale ejector is in the front position.
– the bale brake is locked.
– the twine reserves are adequate.
– the correct cutting length is set, for the cutting system version.
– the working height of the pick-up is set.
– the correct bale length is set via the terminal.
– the knotter shaft is unlocked as otherwise an endless bale will be pressed.

- Lower the bale chute to working position.
- Lower the pick-up to working position.
- Set the bale length as well as the baling pressure via the terminal.

Starting baling

Prerequisite:

– The conditions mentioned in “Preparation for Baling” and “Before starting baling, check to make certain ...” are fulfilled.

Baling

- Turn on the P.T.O. shaft at minimum speed.
- Slowly increase the P.T.O. speed to 1000 min^{-1}.
- Wait until the pre-selected bale channel flap pressure is reached in the terminal before driving up into the swath for the first time.

The bale channel must be completely filled in order to bale in automatic mode. This is best accomplished by baling the first two bales in manual mode.

- Switch to automatic mode in the terminal after the second bale has been baled.
- Adjust the baling force in automatic mode.

After baling

- Release the bale brake on the bale chute for the bales which have been tied at last, optional.
- Lay down the bales being tied at last on the field.
- Clean the machine.
- Prepare the machine for road travel.

14.2 Tying unit

14.2.1 Setting the tying twine in place

The process of setting the tying twine in place is identical for the left and right side of the baler. The procedure described below for setting the tying twines in place therefore applies to both side of the baler.

The machine must be stopped while the twine is prepared and inserted:

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".
- Secure the knotter shaft by moving the safety lever (1).

Secure knotter shaft

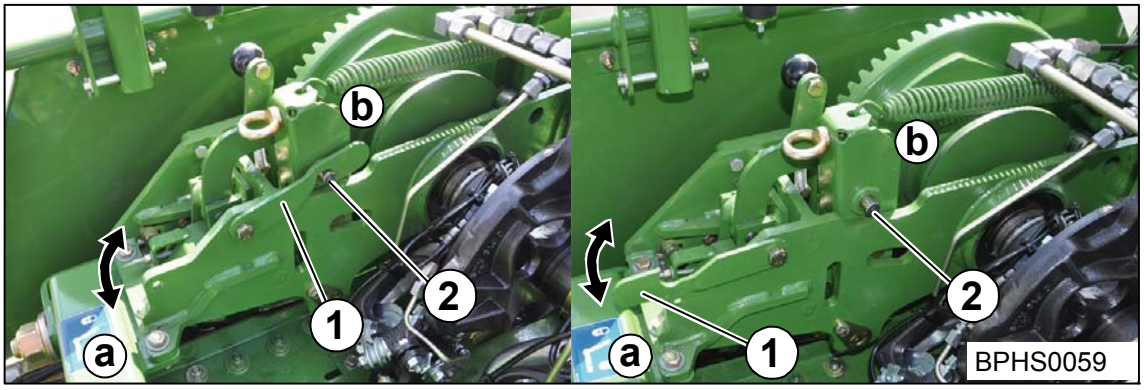


Fig. 139

Each time before you set new tying twine in place, the knotter shaft must be secured so that the needle yoke cannot be put in motion.

To do this:

- To do this, move the safety lever (1) from position (a) to position (b) and set it down on the journal (2)

Note

When placing the tying twine in the twine box, make certain that the labeling on the rolls can be read. Make certain the side marked "Up" is facing up.

Note

The safety lever (2) must be in position (a) for the baling process! Otherwise an endless bale will be formed when the knotter shaft is secured.

Left-hand Side of the Machine

Connecting twine

Each of the front six twine rolls (1) provides three upper twines.
Each of the rear nine twine rolls (2) provides three lower twines.
During the baling process, each knotter is fed with an upper twine and a lower twine.

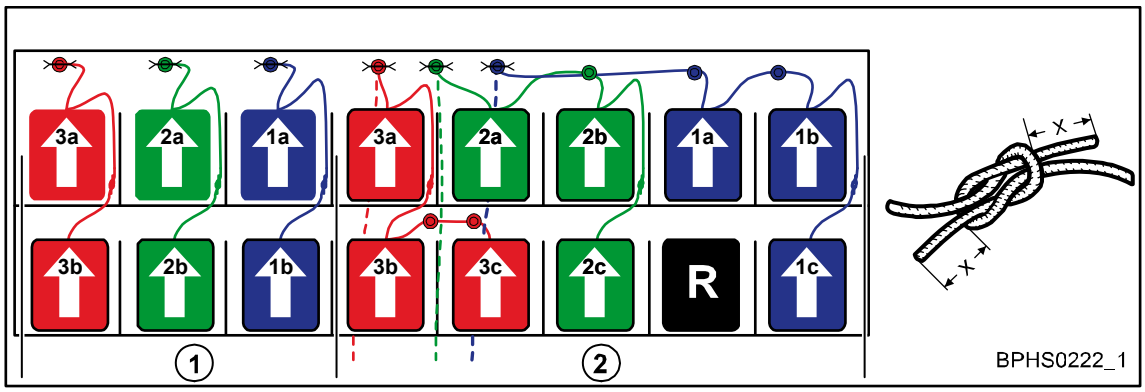


Fig. 140

1) Twine rolls for upper twine
2) Twine rolls for lower twine

Connecting upper twine (1)
Make certain the upper twines never cross.

Connecting twine roll 1a with twine roll 1b

1 Guide the beginning of the twine roll (1a) over the upper eye through the twine brake out of the twine box.
2 Connect the beginning of the twine of twine roll (1b) by a reef knot with the end of the twine of twine roll (1a).
3 Shorten the end of the reef knot to x = 15 - 20 mm.

Connecting twine roll 2a with twine roll 2b

1 Guide the beginning of the twine of twine roll (2a) over the upper eye through the twine brake out of the twine box.
2 Connect the beginning of the twine roll (2b) by a reef knot with the end of the twine of twine roll (2a).
3 Shorten the end of the reef knot to x = 15 - 20 mm.

Connecting twine roll 3a with twine roll 3b

1 Guide the beginning of the twine of twine roll (3a) over the upper eye through the twine brake out of the twine box.
2 The beginning of the twine of twine roll (3b) must be connected with the end of the twine of the twine roll (3a) by a reef knot.
3 Shorten the ends of the reef knot to x = 15 - 20 mm.

Connecting lower twine (2)

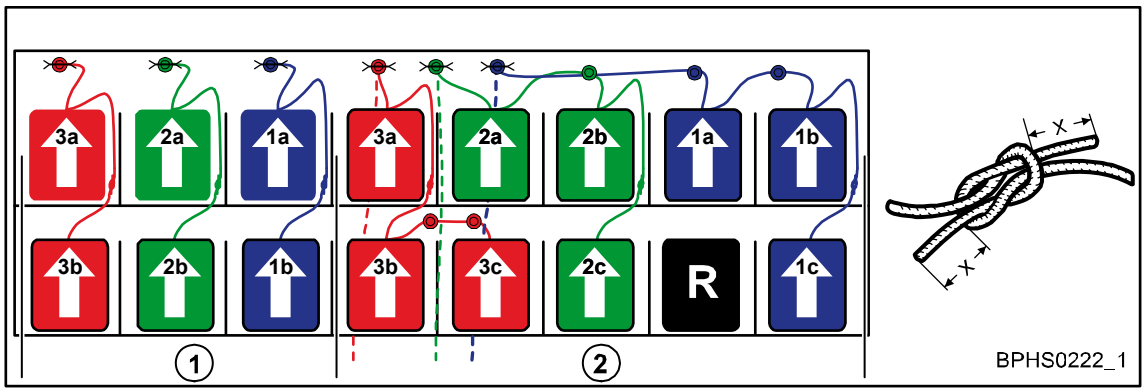


Fig. 141

1) Twine rolls for upper twine
2) Twine rolls for lower twine

Connecting twine rolls 1a, 1b, and 1c with each other

1 Guide the beginning of the twine of twine roll (1a) over the blue eye above and further to the front to the next blue eye. From the blue eye, guide the twine further through the twine brake out of the twine box.
2 Guide the beginning of the twine of twine roll (1b) through the blue eye above and connect it with the end of the twine on twine roll (1a) by a reef knot.
3 Connect the beginning of the twine of twine roll (1c) with the end of the twine of twine roll (1b) by a reef knot.
4 Shorten the ends of all reef knots to x = 15 - 20 mm.

Connecting twine rolls 2a, 2b, 3c and 2c with each other

1 Guide the beginning of the twine of twine roll (2a) over the green eye above through the twine brake out of the twine box.
2 Guide the beginning of the twine of twine roll (2b) through the green eye above and connect it with the end of the twine of twine roll (2a) by a reef knot.
3 Connect the beginning of the twine of twine roll (2c) with the end of the twine of twine roll (2b) by a reef knot.
4 Shorten the ends of all reef knots to x = 15 - 20 mm.

Connecting twine rolls 3a, 3b, and 3c with each other

1 Guide the beginning of the twine of twine roll (3a) over the red eye above through the twine brake out of the twine box.

2 Connect the beginning of the twine of twine roll (3b) with the end of the twine of twine roll (3a) by a reef knot.

3 Guide the beginning of the twine of twine roll (3c) through the red eye above further to the front to the next red eye and connect it with the end of the twine on twine roll (3b) by a reef knot.

4 Shorten the ends of all reef knots to x = 15 - 20 mm.

Note

The twine rolls (R) are auxiliary rolls. They must not be connected with other rolls.

14.2.2 Threading in the Lower Twine

Then guide the lower twine from the twine box to the lower twine guide.

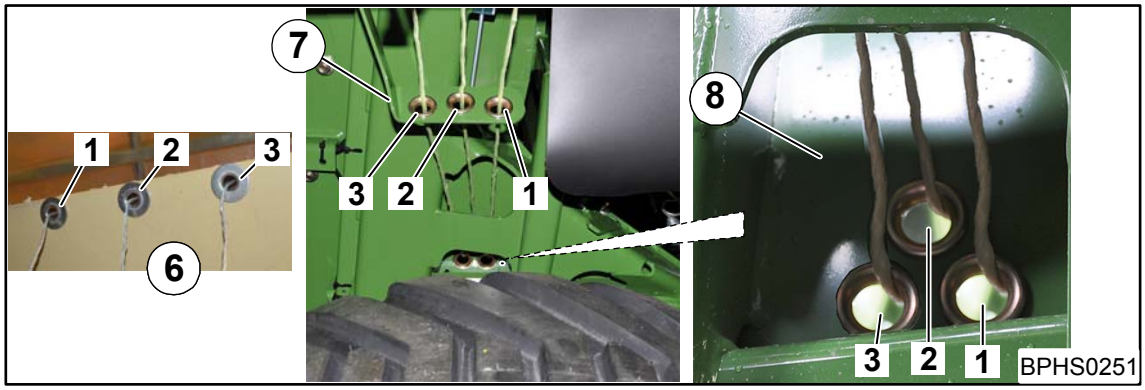


Fig. 142

Make certain the lower twines never cross.

- Then guide the three lower twines (1, 2, 3) coming from the twine box (6) to the twine guide top (7).
- Guide the three lower twines from the top through the eyes of the twine guide top and further to the twine guide frame (8).
- Guide the three lower twines from the outside through the eyes of the twine guide frame and then guide them to the lower twine brake.

Then guide the lower twine from the lower twine guide to the needles.

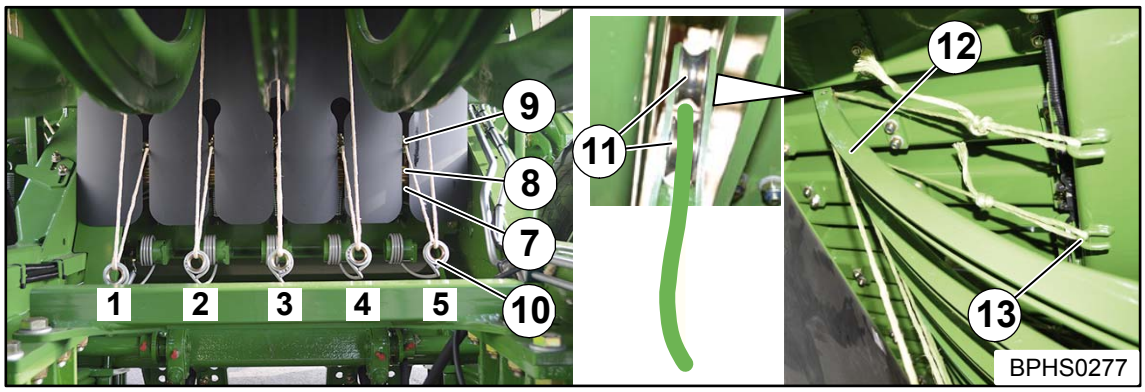


Fig. 143

- Guide the lower twine coming from the twine guide frame through the lower eye (7) of the twine brake (8) through the twine brake and then to the upper eye (9) of the twine brake.
- Guide the lower twine further through the eye of the twine tension springs (10).
- Pull the lower twine upwards and guide it between the rollers (11) of the needle (12).
- Pull the lower twine down to the frame (13) and knot it on the frame.

14.2.3 Threading in the Upper Twine

Then guide the upper twine from the twine box to the upper twine guide.

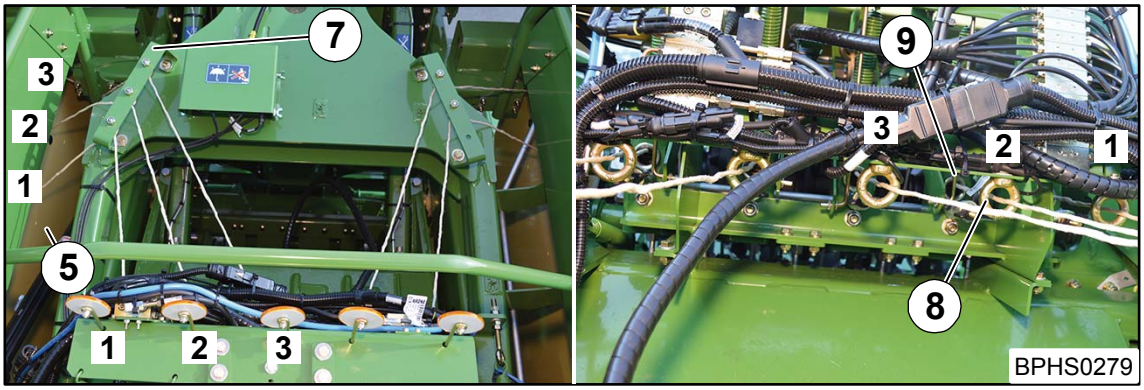


Fig. 144

Make certain the upper twines never cross.

- Guide the three upper twines (1, 2, 3) coming from the twine box (5) to the upper twine guide (7).
- Guide the three upper twines through the eyes of the upper twine guide and guide them further to the twine brakes on the knotters.

Guide the upper twine from the upper twine guide to the upper needles

- Guide the four upper twines coming from the upper twine guide (7) through the rear eyes (8) and then through the twine brake (9).

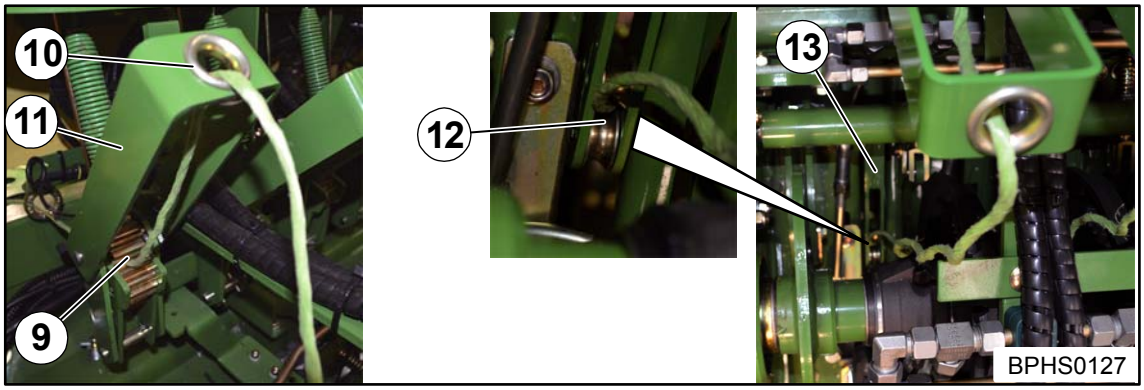


Fig. 145

- Guide the upper twine from the twine brake (9) through the eye (10) of the tensioning arm (11).
- Pull the upper twine towards the bottom and guide it between the rollers (12) of the upper needle (13).

If the bale channel is empty

- Knot the upper twine with the lower twine in the middle of the bale chamber.

Or

- Guide the upper twine under the crossbeam of the knotting mechanism and knot it on the crossbeam of the upper bale channel flap.
- To tension the tensioning arm (11), pull back the upper twine in front of the twine eye (8).

If the bale channel is filled

- Read the actual bale length on the terminal.

If the difference between actual bale length and target bale length is > 50 cm

- Let the loose twine end of the upper twine hang down approx. 50cm in the bale channel.

The tensioning arm (11) is tensioned when the twine is caught in the crop at subsequent baling.

If the difference between actual bale length and target bale length is < 50 cm

- Guide the upper twine under the crossbeam of the knotting mechanism and knot it on the crossbeam of the upper bale channel flap.
- To tension the tensioning arm (11), pull back the upper twine in front of the twine eye (8).

Right-hand Side of the Machine

Connecting twine

Each of the front four twine rolls (1) provides two upper twines.
Each of the rear eight twine rolls (2) provides two lower twines.
During the baling process, each knotter is fed with an upper twine and a lower twine.

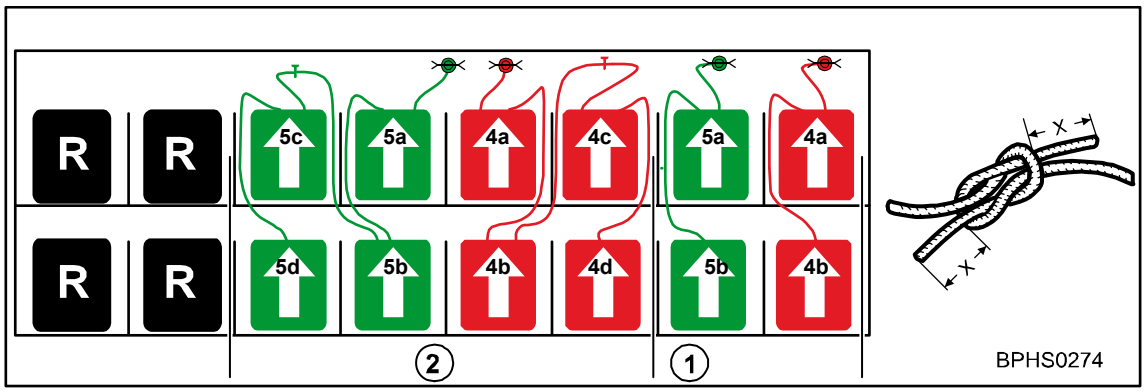


Fig. 146

1) Twine rolls for upper twine
2) Twine rolls for lower twine

Connecting upper twine (1)
Make certain the both upper twines never cross.

Connecting twine roll 4a to twine roll 4b

1 Thread the start of the twine from twine roll (4a) through the upper eye through the twine brake and out of the twine boxes.
2 Tie the start of the twine from the twine roll (4b) in a reef knot to the end of the twine from the twine roll (4a).
3 Shorten the ends of the reef knot to x = 15 - 20 mm.

Connecting twine roll 5a to twine roll 5b

1 Thread the start of the twine from twine roll (5a) through the upper eye through the twine brake and out of the twine boxes.
2 Tie the start of the twine from the twine roll (5b) in a reef knot to the end of the twine from the twine roll (5a).
3 Shorten the ends of the reef knot to x = 15 - 20 mm.

Connecting lower twine (2)

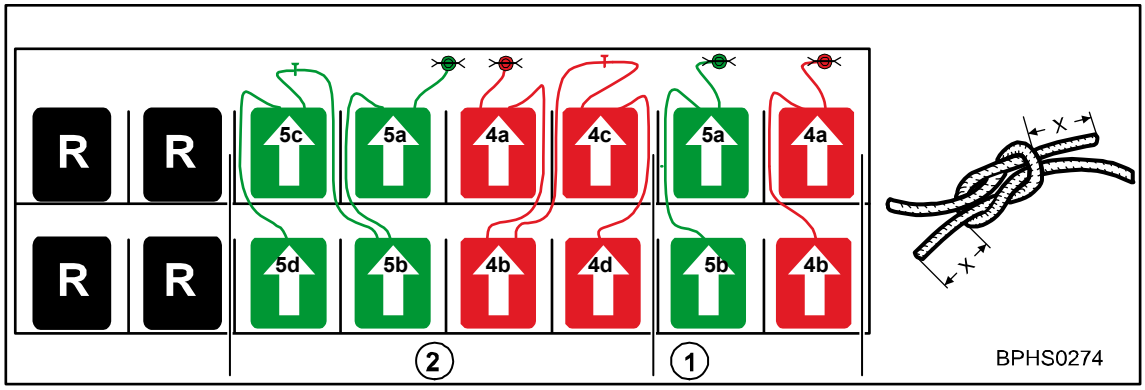


Fig. 147

1) Twine rolls for upper twine
2) Twine rolls for lower twine

Connecting twine rolls 4a, 4b, 4c and 4d to each other

1 Thread the start of the twine from twine roll (4a) out of the twine box through the green eye above and through the twine brake.
2 Tie the start of the twine from the twine roll (4b) in a reef knot to the end of the twine from the twine roll (4a).
3 Thread the start of the twine from the twine roll (4c) through the green eye above and tie it in a reef knot to the end of the twine from the twine roll (4b).
4 Tie the start of the twine from the twine roll (4d) in a reef knot to the end of the twine from the twine roll (4c).
5 Shorten the ends of all reef knots to x = 15 - 10 mm.

Connecting twine rolls 5a, 5b, 5c and 5d to each other

1 Thread the start of the twine from twine roll (5a) out of the twine box through the green eye above and through the twine brake.
2 Tie the start of the twine from the twine roll (5b) in a reef knot to the end of the twine from the twine roll (5a).
3 Thread the start of the twine from the twine roll (5c) through the red eye above and tie it in a reef knot to the end of the twine from the twine roll (5b).
4 Tie the start of the twine from the twine roll (5d) in a reef knot to the end of the twine from the twine roll (5c).
5 Shorten the ends of all reef knots to x = 15 - 20 mm.

Note
The twine rolls (R) are auxiliary rolls. They must not be connected with other rolls.

14.2.4 Threading in the Lower Twine

Then guide the lower twine from the twine box to the lower twine guide.

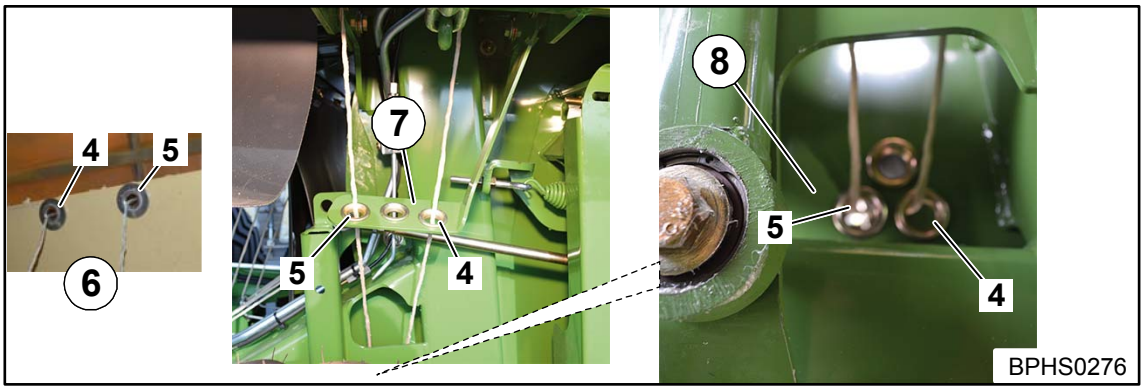


Fig. 148

Make sure that the lower twines never cross over each other.

- Thread the two lower twines (4, 5) coming from the twine box (6) onwards to the upper twine guide (7).
- Thread the two lower twines from above through the eyes in the twine guide above and onwards to the twine guide on the frame (8).
- Thread the two lower twines from the outside through the eyes on the twine guide on the frame and onwards to the lower twine brakes.

Then guide the lower twine from the lower twine guide to the needles.

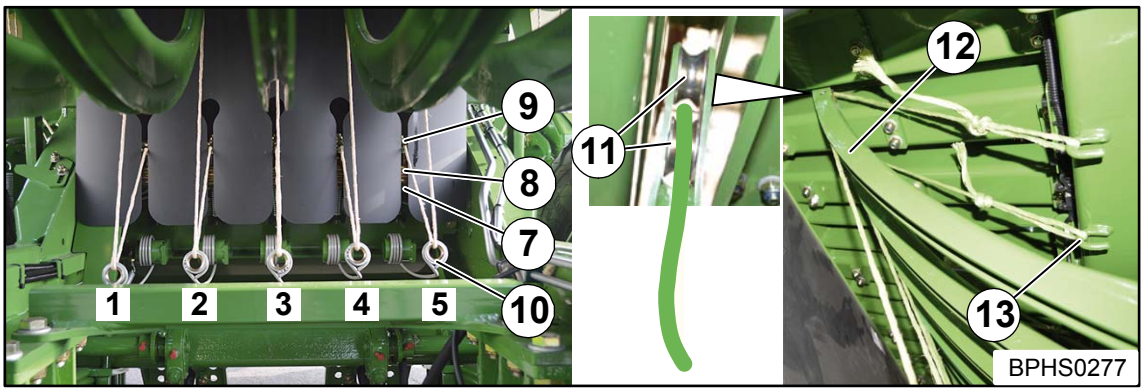


Fig. 149

- Guide the lower twine coming from the twine guide frame through the lower eye (7) of the twine brake (8) through the twine brake and then to the upper eye (9) of the twine brake.
- Guide the lower twine further through the eye of the twine tension springs (10).
- Pull the lower twine upwards and guide it between the rollers (11) of the needle (12).
- Pull the lower twine down to the frame (13) and knot it on the frame.

14.2.5 Threading in the Upper Twine

Then guide the upper twine from the twine box to the upper twine guide.

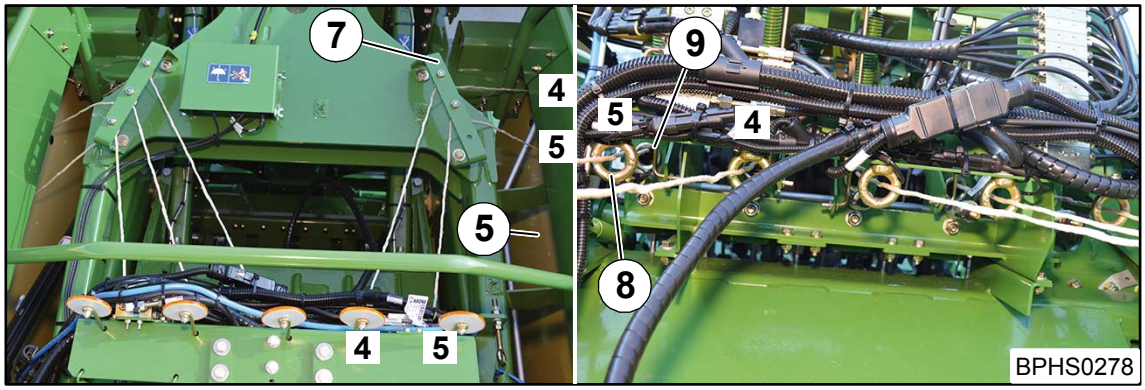


Fig. 150

Make sure that the upper twines never cross over each other.

- Thread the two upper twines (4, 5) coming from the twine box (5) onwards to the upper twine guide (7).
- Thread the two upper twines through the eyes on the upper twine guide and onwards to the twine brakes at the knotters.

Guide the upper twine from the upper twine guide to the upper needles

- Guide the both upper twines coming from the upper twine guide (7) through the rear eyes (8) and through the twine brake (9).

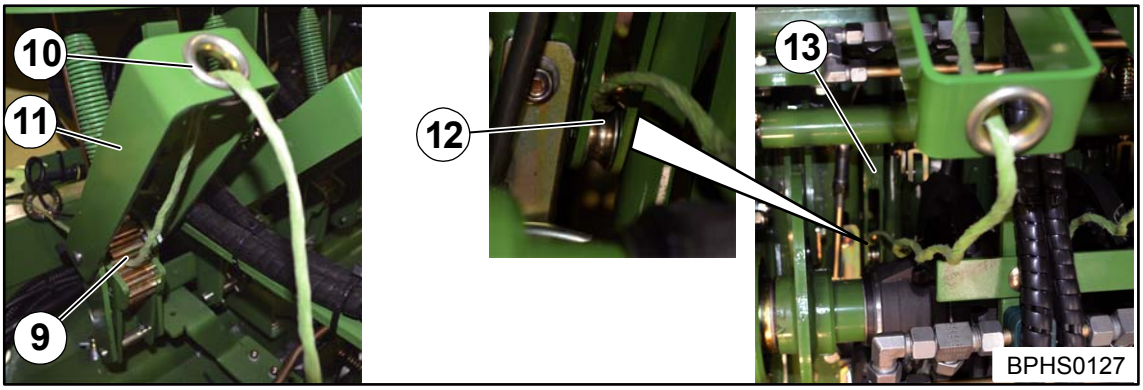


Fig. 151

- Guide the upper twine from the twine brake (9) through the eye (10) of the tensioning arm (11).
- Pull the upper twine towards the bottom and guide it between the rollers (12) of the upper needle (13).

If the bale channel is empty

- Knot the upper twine with the lower twine in the middle of the bale chamber.

Or

- Guide the upper twine under the crossbeam of the knotting mechanism and knot it on the crossbeam of the upper bale channel flap.
- To tension the tensioning arm (11), pull back the upper twine in front of the twine eye (8).

If the bale channel is filled

- Read the actual bale length on the terminal.

If the difference between actual bale length and target bale length is > 50 cm

- Let the loose twine end of the upper twine hang down approx. 50cm in the bale channel.

The tensioning arm (11) is tensioned when the twine is caught in the crop at subsequent baling.

If the difference between actual bale length and target bale length is < 50 cm

- Guide the upper twine under the crossbeam of the knotting mechanism and knot it on the crossbeam of the upper bale channel flap.
- To tension the tensioning arm (11), pull back the upper twine in front of the twine eye (8).

14.3 Pick-up

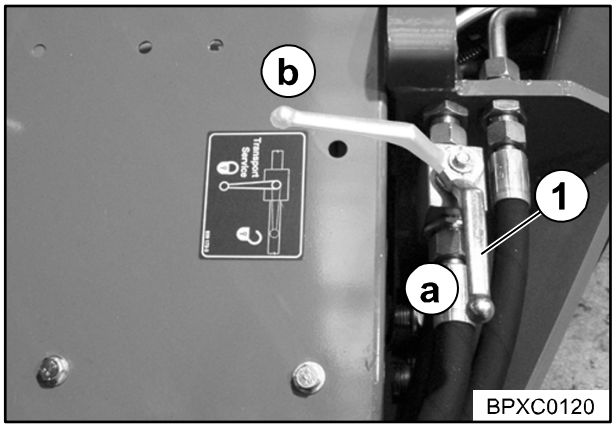


Fig. 152

Position (a) pick-up released Position (b) pick-up locked

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".
- Reverse the shut-off valve (1) from position “b” to position “a” to release the pick-up.
- Reverse the shut-off valve (1) from position “a” to position “b” to lock the pick-up.

Lowering the pick-up

- Move the single-acting control unit (red 2) to float position to move the pick-up to working position.

Lifting the pick-up

- Activate the single-acting control unit (red 2) to move the pick-up to transport position.

Note

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

14.4 Lifting / Lowering Bale Chute

WARNING!

There is an increased risk of injury if functions are performed directly at the machine while the tractor engine is running.

If functions are performed directly at the machine while the tractor engine is running, people standing in the danger zone can be crushed or killed.

- Only operate the machine while the tractor engine is running if
  - The PTO shaft is switched off and coasting machine parts have come to a standstill.
  - The tractor is secured to prevent it rolling away.
  - The parking brake and the flywheel brake on the machine are applied.
  - The person operating the machine knows which functions are executed by the various operations.
  - The person operating the machine is standing outside the radius of action of the moving parts of the machine.
  - No other persons are standing in the danger zone.

The operation of the bale chute (1) depends on the version you have (medium version electronics or comfort version electronics).

Medium Design

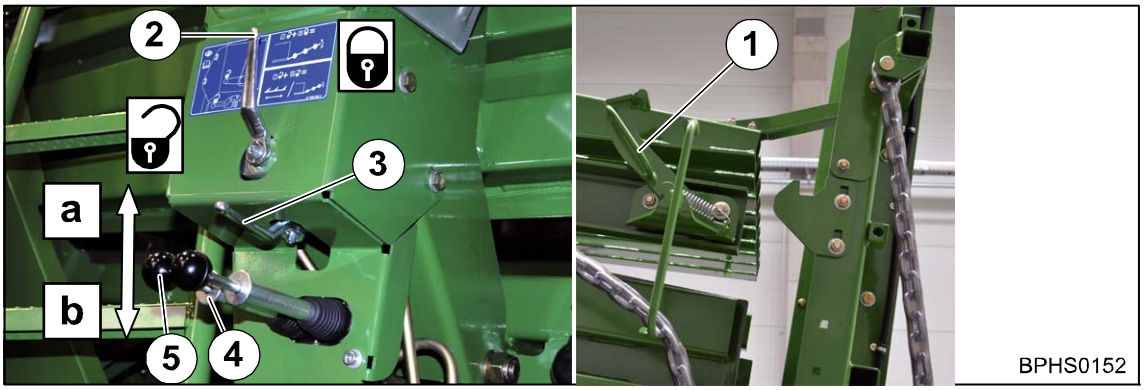


Fig. 153

Position a = fold up bale chute

Position b = fold down bale chute

The shut-off valve (3) must be closed.

- Actuate the control unit (red 4).
- Unlock the mechanical locking (1) of the bale chute.
- Open the shut-off valve (2).

Lowering into working position

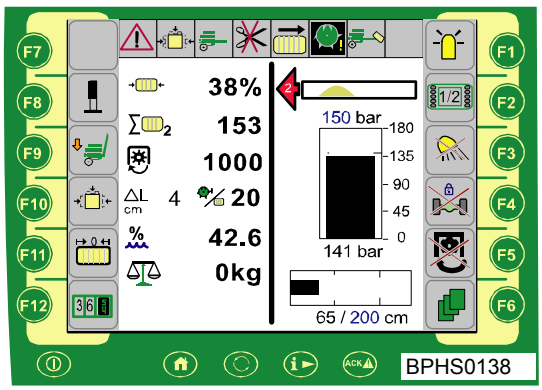
- Tighten the safety sleeve (4) and move the control lever (5) towards the bottom into position (b).

Lifting into transport position

- Tighten the safety sleeve (4) and move the control lever (5) towards the top into position (a) until the locking closes.

Comfort Design

Via the terminal



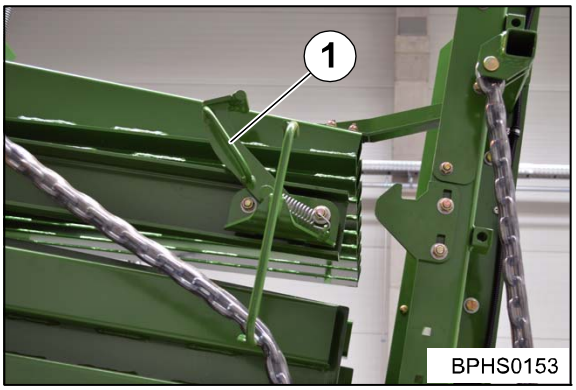


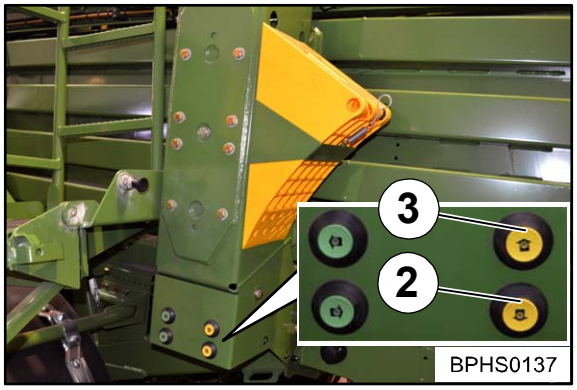
Fig. 154

Via the terminal, the bale chute can be lowered merely into working position.

- Activate the control unit (red 1).
- Unlock the mechanical locking (1) of the bale chute.
- Press „  “ function key to lower the bale chute to working position.

To lift the bale chute into transport position, an external button has to be used.

Via the external buttons



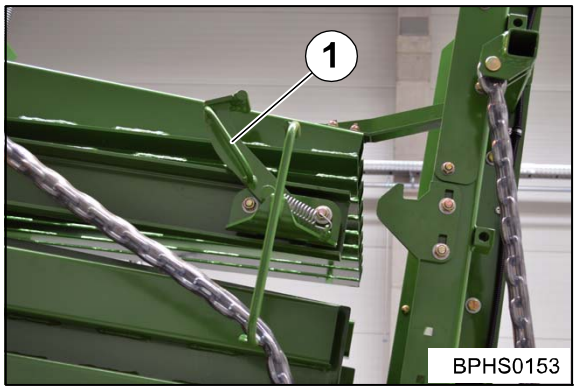


Fig. 155

- Activate the control unit (red 1).
- Release the mechanical locking (1) of the bale chute.

Lowering into working position.

- Press button (2) to lower the bale chute into working position.

Lifting into transport position.

- Press button (3) until the locking closes.

14.5 Operating Bale Ejector

WARNING!

There is an increased risk of injury if functions are performed directly at the machine while the tractor engine is running.

If functions are performed directly at the machine while the tractor engine is running, people standing in the danger zone can be crushed or killed.

- Only operate the machine while the tractor engine is running if
  - The PTO shaft is switched off and coasting machine parts have come to a standstill.
  - The tractor is secured to prevent it rolling away.
  - The parking brake and the flywheel brake on the machine are applied.
  - The person operating the machine knows which functions are executed by the various operations.
  - The person operating the machine is standing outside the radius of action of the moving parts of the machine.
  - No other persons are standing in the danger zone.

Operating the bale ejector (medium version electronics design)

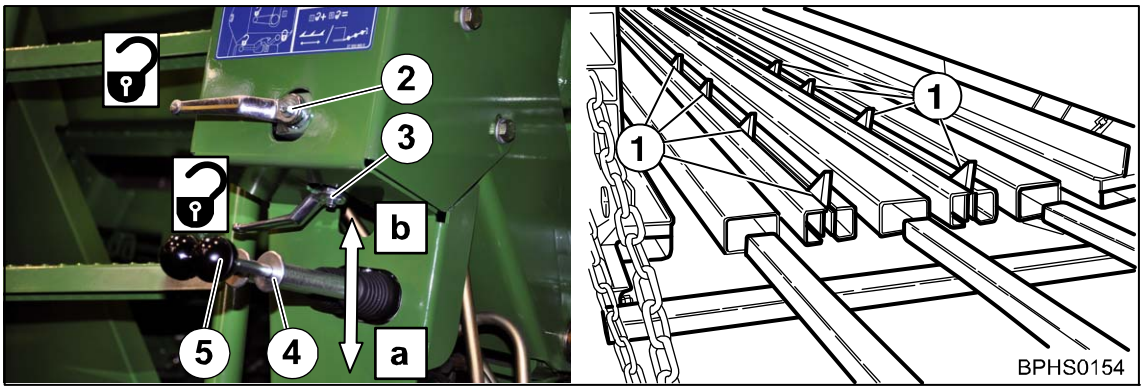


Fig. 156

Position a = move bale ejector forward

Position b = move bale ejector backward

- Activate the control unit (red 4).
- Open shut-off valves (2) and (3).

Moving bale ejector forward

- Tighten safety sleeve (4) and move the control lever (5) upwards into position (a).

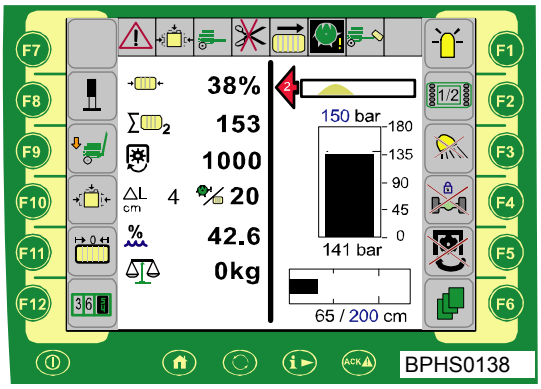
Moving bale ejector backward

- Tighten safety sleeve (4) and move the control lever (5) towards the bottom into position (b).

Note

After ejection of the bale it is absolutely essential to move the bale ejector to the forward position and to close the shut-off valves (2 and 3).

Operating the bale ejector via the operation terminal, for comfort version electronics design



When activating the bale ejector, 10 bales are always ejected via the terminal.

- Activate the control unit (red 1).

If the bale channel flaps are not released

- Press AUTO function key to release the bale channel flaps.

If the bale channel flaps are released

- Press AUTO function key to eject 10 bales.

Repeat the process until every tied bale is out of the bale channel.

Push the bale that has been tied at last manually from the bale chute.

Operate the bale ejector via the external buttons.

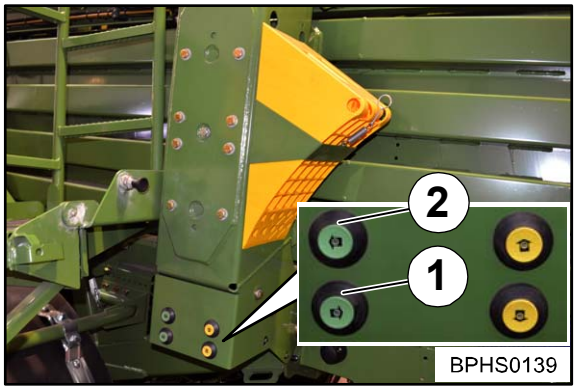


Fig. 157

- Activate the control unit (red 1).

The button (1) has several functions.

If the bale channel flaps are not loosened

- Press button (1) once to release the bale channel flaps.

If the bale channel flaps are released

- Press button (1) to eject 10 bales.

Moving bale ejector backward

- Press button (1) and hold it to move the bale ejector backward.

Moving bale ejector forward

- Press button (2) and hold it to move the bale ejector forward.

14.6 Parking Jack

Note
If the ground is soft, enlarge the footprint of the parking jack by placing a wooden plank underneath.

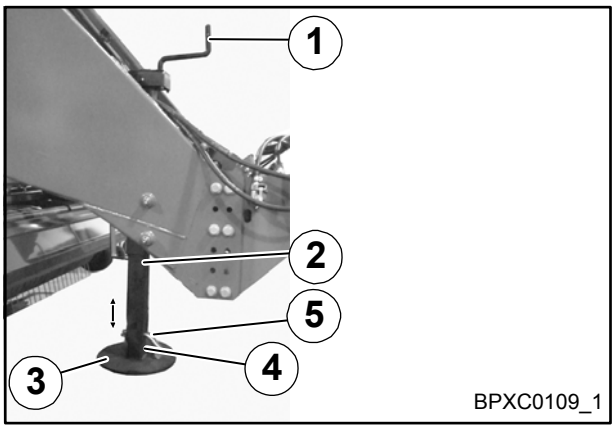


Fig. 158

To raise the parking support:

- As soon as the machine is connected to the tractor, turn the crank (1) several revolutions clockwise until there is no more weight on the parking jack (3)
- Withdraw the locking bolt (5) on the lower part of the parking support (2), push in the parking support and secure it in position (4) with the bolt
- Then crank the parking support up all the way

To lower the parking support (to support the drawbar):

- To disconnect the machine from the tractor, first lower the raised parking support (2) a few revolutions with the crank (1)
- Pull out the bolt (5) and extend the lower part of the parking support. Secure with the bolt (5)

14.7 Hydraulic parking jack

Note
If the ground is soft, enlarge the footprint of the parking jack by placing a wooden plank underneath.

Comfort - Electronic

Fig. 159

Extending/retracting the support jack:

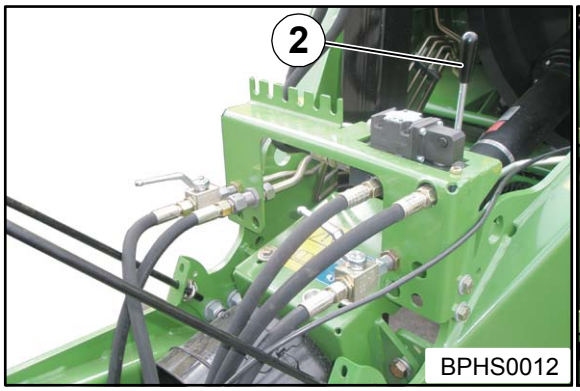
Extend

- Activate the double-acting control unit (blue 2+) until the support jack comes firmly to rest on the ground.

Retract

- Activate the double-acting control unit (blue 2-) until the support jack is retracted.

Medium Version Electronics



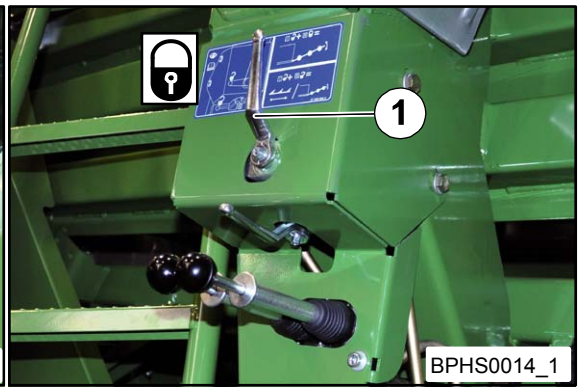


Fig.160

Extending/retracting the support jack:

- Close the stop cock (1).
- To apply pressure to the control block, activate the control unit (red P).

Extend

- Operate the lever (2) until the support jack comes firmly to rest on the ground.

Retract

- Operate the lever (2) until the support jack is retracted.

14.8 Bale brake

Only in connection with bale scale

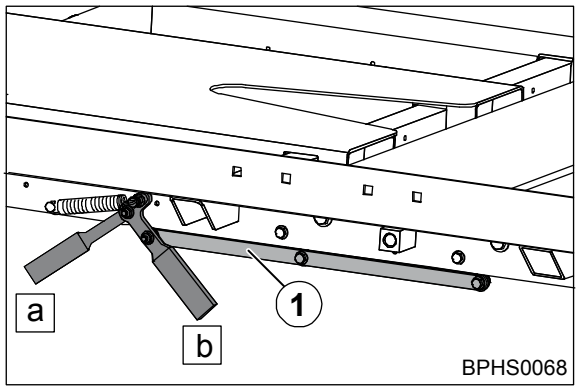


Fig. 161

The bale brake (1) is used to lock the first two rollers of the roller chute. This is necessary to achieve accurate weight recording of bales.

Lever in position a = rollers locked

Lever in position b = rollers rotate freely

Note

The bale brake must be released for the last bale to ensure it can be set down with no problems.

14.8.1 Working floodlight

The working floodlight is switched on and off via the operating terminal. The activated state is indicated on the display.

Switching the working floodlight on

Press the function key for  .

Switching the working floodlight off

Press the function key for  .

LED strips

The LED strips are switched on or switched off via the operation terminal.

Switching on the LED strips

- Press the function key for softkey  to switch on the LED strip.

In the display, the softkey changes from  to  .

Switching off LED strips

Press the function key for softkey  to switch off the LED strip.

In the display, the softkey changes from  to  .

14.9 Initiating the Tying Process Manually

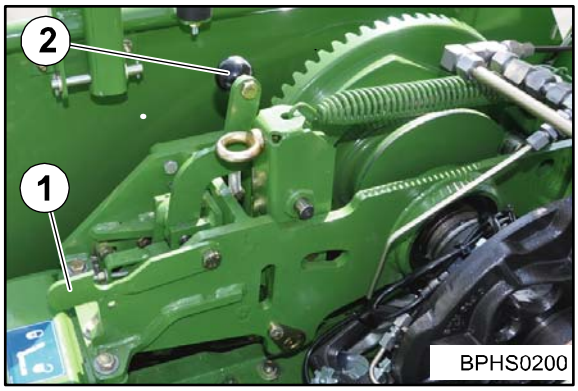


Fig. 162

It is only necessary to trigger the tying process manually when performing maintenance, adjustment and repair tasks.

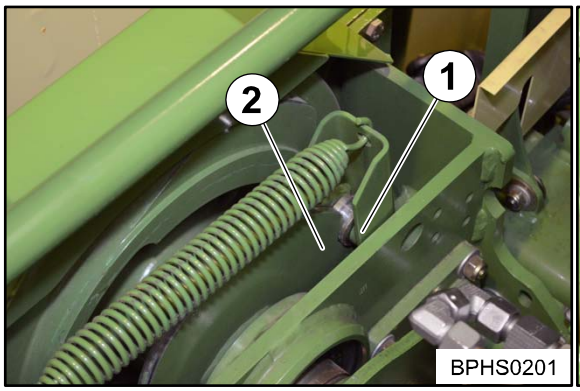
Prerequisite:

– The tractor is disconnected.

Initiating the tying process:

- Swivel the safety lever (1) down.
- Move lever (2) to the rear to initiate the tying process.

14.10 Finishing Tying Process Manually



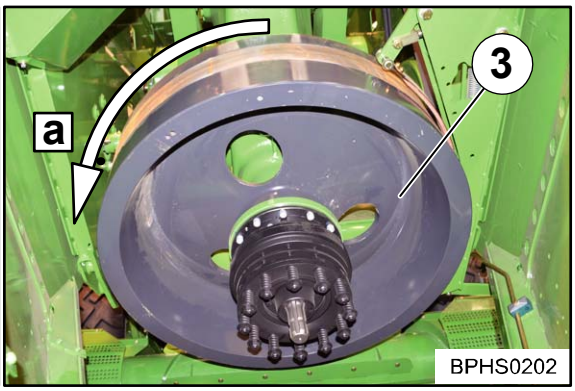


Fig. 163

Prerequisite:

– The tractor is disconnected.

– The tying process has been initiated; refer to chapter Operation “Initiating Tying Process Manually”.

A tying process consists of a rotation of the cam track.

- Turn the flywheel (3) manually in the working direction (a) until the trigger roller (1) slides in the recess of the cam disc (2).

Knotter gear in idle position

The knotter gear is in idle position if the trigger roller (1) is in the recess of the cam track (2) of the knotter gear.

14.11 Removing blockages

- Wait until all moving components stop
- Apply the flywheel brake
- Lower the cutting system with the tractor hydraulics (with the Comfort electronics system: Activate the tractor hydraulics and hold down “Lower blade bar” on the control unit display or on the machine buttons until the cutting system is lowered all the way down)

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

Note
Due to too low ground clearance, the cutting system must immediately be lifted after removal of the blockage, otherwise the cutting system inlet tray will be damaged. Should the cutting system inlet tray be extremely dirty, clean it before lifting.

- Remove blockage
- Raise the cutting system with the tractor hydraulics (with the comfort electronics system: Activate the tractor hydraulics and hold down “Lift blade bar” on the control unit display or on the machine buttons until the cutting system is lifted all the way).

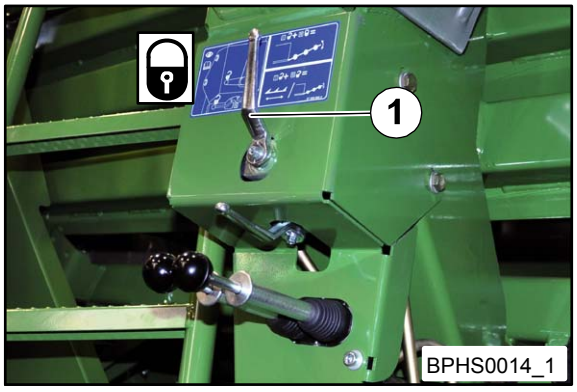


Fig. 164

Note
With the Medium electronics version the shut-off valve (1) must be closed so that the cutting system can be lowered or raised via the tractor's hydraulic system.
The shut-off valve is to be found on the rear left-hand side of the machine, near the parking brake.

15 Settings

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

The following work steps are described in this chapter:

– Adjusting the pick-up working height.
– Adjusting the ground pressure of the guide wheels.
– Driving with a fixed pick-up.
– Adjusting the roller crop guide.
– Adjusting the side needles.
– Checking/adjusting the needle yoke brake.
– Checking/adjusting the needles – baling ram position.
– Checking/adjusting the upper needles.
– Checking/adjusting the twine bar.
– Checking/adjusting the twine bar relative to the channel slot.
– Checking the encroachment of the twine bar at the second knot.
– Tensioning/relieving the upper needle shaft.
– Tensioning/relieving the twine locking shaft.
– Adjusting the knotter shaft brake.
– Adjusting the twine brake.
– Adjusting the knotter.
– Adjusting the baling ram.
– Adjusting the packer relative to the baling ram.
– Checking the packer coupling.
– Adjusting the Variable Fill System (VFS).
– The default setting of the belt brake.
– Adjusting the chop length, with the knife drawers fully equipped
– Adjusting the chop length, depending on the number of knives in the drawers.

15.1 Pick-up

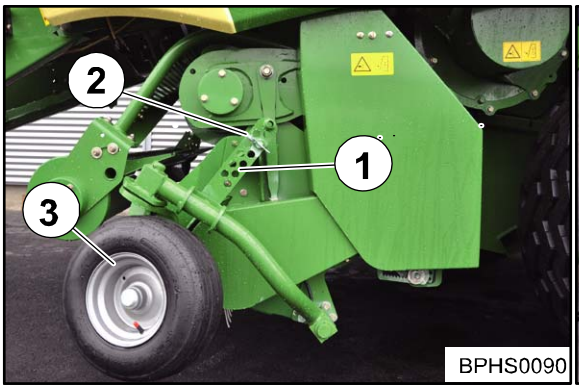
WARNING!

Risk of injury due to unintentional movement of the pick-up!

If the pick-up is not secured by the stop cock, the pick-up may move unintentionally. As a result, people may be seriously injured.

- When working on or under the pick-up, always secure the pick-up by moving the stop cock on the left side of the machine to prevent it from being unintentionally lowered, see chapter Safety "Stop cock for pick-up".

15.2 Default Setting (Working Height Setting)



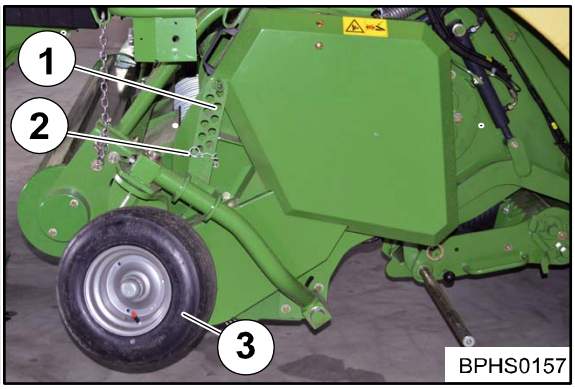


Fig. 165 Without cutting system With cutting system

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

The working height can be adjusted on the guide wheels (3) on either side of the pick-up. In order to carry out the adjustment, lift and secure the pick-up. Pull the spring cotter pin (2) and move the guide wheels into the desired position on the perforated bar (1). Secure the guide wheels in place with the spring cotter pin.

Note

Make certain that the guide wheels on either side of the pick-up are in the same position on the perforated bar.

15.2.1 Setting the Ground Pressure of the Guide Wheels

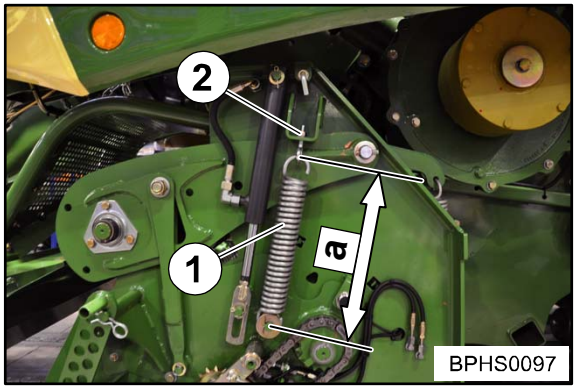


Fig. 166

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Note

Increasing dimension a => Ground pressure of the guide wheels becomes less

Reducing dimension a => Ground pressure of the guide wheels becomes greater

Adjust dimension “a” equally for both springs (right and left sides of the machine).

- Open protective cover.
- Increase or reduce the dimension a via nut (2).
- Close protective cover.

15.2.2 Driving with Pick-up in fixed position

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

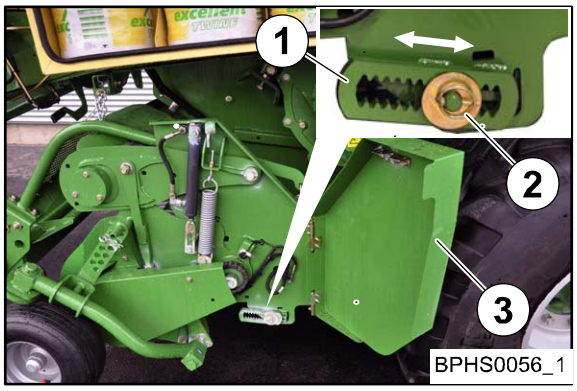


Fig. 167

The working height of the pick-up can be manually limited downwards by moving the depth limiters (1) on both sides of the machine. This makes it possible to drive the machine without guide wheels with the pick-up in fixed position.

To perform a setting:

- Open twine box (only model BiG PACK 4x4)
- Open pick-up guard (3)
- Remove the cotter pin 2 with washer
- By moving the depth limiter (1), set the required position
- Secure depth limiter with washer and cotter pin

Note

Make certain that the depth limiter is in the same position on both sides of the pick-up.

15.3 Roller crop guide

WARNING!
Risk of injury if the machine is used without a roller crop guide!
If the machine is operated without a roller crop guide, people can be seriously injured or killed.
- The roller crop guide is used for accident protection and must not be removed during operation.

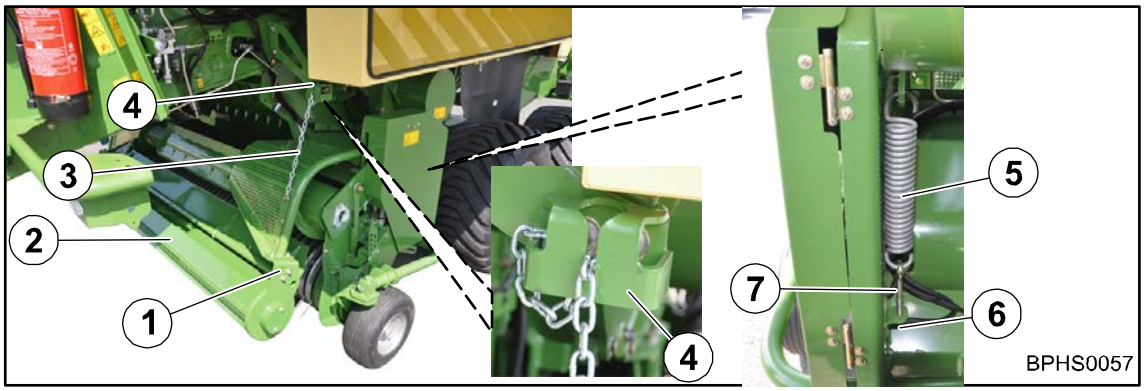


Fig. 168

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

The roller crop guide (1) provides for the regulation during conveyance of the crop. It provides for a continuous crop collection by the Pick-up.

Adjust the height of the roller crop guides (1) so that the roller of the holding-down device (2) continuously runs above the swath.

The height adjustment of the roller crop guide (1) can be made on the retaining chains (3) that are suspended on the support (4) on either side of the machine.

Note
Make certain that the chains in the supports are of the same length.

The spring (5) sets the ground pressure of the holding-down roller (2) to the swath.
- By tightening or loosening the nut (6) on the eye screw (7), set the required ground pressure

Dry forage: Increase ground pressure
Moist forage: Reduce ground pressure

15.4 Setting the needles

15.4.1 Lateral setting of the needles

CAUTION! – After setting the needles / needle yoke not checked

Effect: Considerable damages to the machine

After setting the needles pass once manually through the tying process. In doing so, the needles and needle yoke must not come in contact with the frame, baling ram or other parts during the upward or downward motion.

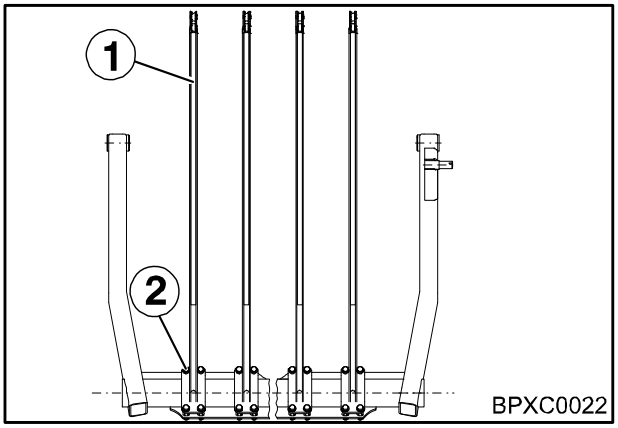


Fig. 169

Place the needles (1) so they are centered in the oblong holes of the needle yoke, align then with the needle slots in the bale channel chamber floor and fasten them in place with the screws (2).

- Trigger the tying process manually with machine at a standstill
- Turn the needle yoke manually on the flywheel in working direction upwards until the needles are taken up into the needle slots of the baling ram
- Tighten the flywheel brake to lock the needles in this position
- In this position move the baling ram to the side with a mounting lever to check whether the needle may possibly be touching the needle slots of the baling ram on the side
  - If necessary, loosen the screws (2)
  - Align the needles to the needle slots of the baling ram and tighten the screws (2)
- Loosen the flywheel and turn the needle yoke manually on the flywheel further upwards into working position (the needles must be taken up in the centre of the channel slots during rising and they must slightly be positioned on the knotter blocks in direction of travel lateral right)

If that is not the case:

- Tighten the flywheel brake to lock the needles in this position
- Loosen the screws (2)
- Align the needles to the channel slots and tighten the screws (2)

15.4.2 Setting the height of the needles on the knotter

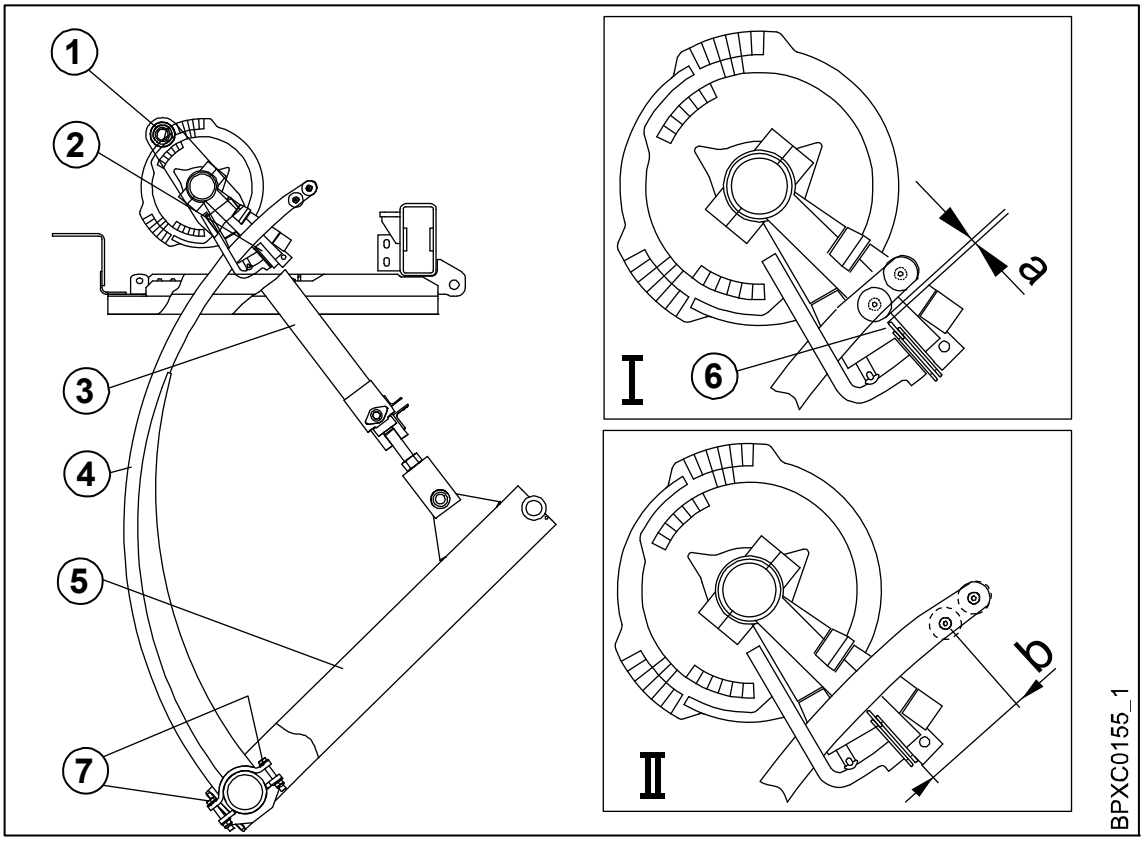


Fig. 170

Note
Only make adjustments with the twine threaded in!

- Trigger the tying process manually with machine at a standstill
- Turn the needle yoke on the flywheel manually upwards into working position until the lower roll in the needle tip is located above the cleaners (6) of the tappet (2) **(I)**
- Tighten the flywheel brake to lock the needles (4) in this position

Note
The distance "a" from the lower edge of the needle roll to the upper edge of the cleaning disc with twine must be between 1 and 3 mm.

If this dimension ”a” is not reached, it can be corrected by adjusting the screws (7). When the needles enter the knotter, they should touch the knotter on the right in the driving direction.

15.4.3 Top dead centre of the needles

To be able to check the upper dead point of the needles, turn the needle yoke up to its highest position (dead centre point) (II). The needles (4) protrude out from the knotter. The distance "b" between the upper edge of the drive disc (2) and the mid-point of the lower roll on the needle point should be at least b = x mm with twine. If the setting is not correct, it should be corrected by shortening or lengthening the needle connecting rod (3). The needles should not touch the cleaners (6) of the tappet (2) in their highest position.

Double knotter: b = 105 - 115 mm

15.5 Adjusting the MultiBale

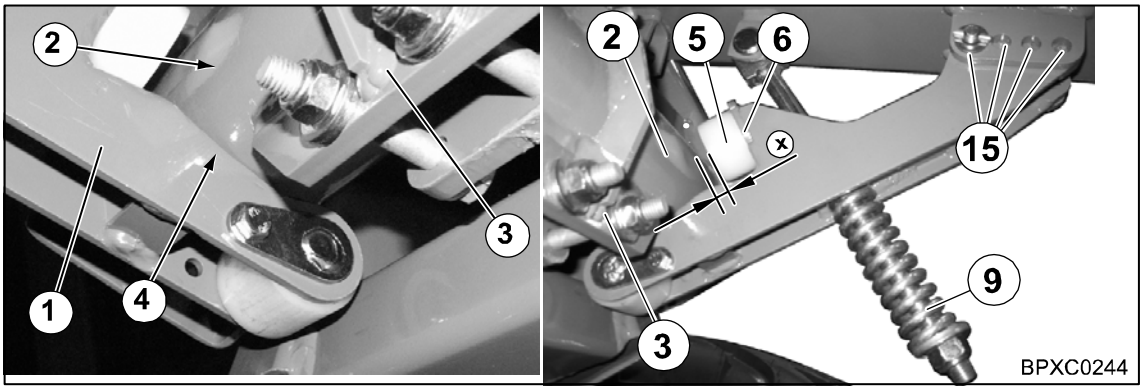


Fig. 171

15.5.1 Setting the position of the second needle yoke

The tube (2) of the needle yoke (3) has to be located in the trough (4). If this is not the case, please proceed as follows:

- Check the knotter needle setting relative to the knotter, and adjust, if and when necessary (refer to chapter Settings "Needle setting").
- Adjust the needle yoke brake (1) in longitudinal position in the oblong hole (15) so that the tube (2) of the needle yoke (3) is in the end setting of the tie immediately after the trough (4) of the needle yoke brake (1)

15.5.2 Setting the stop

- In this setting the distance between the tube (2) of the needle yoke (3) and the obstruction should be (5) x = 8 - 15 mm. Adjust the stop (5) if necessary using washers (6)

15.5.3 Setting the height of the needle yoke brake

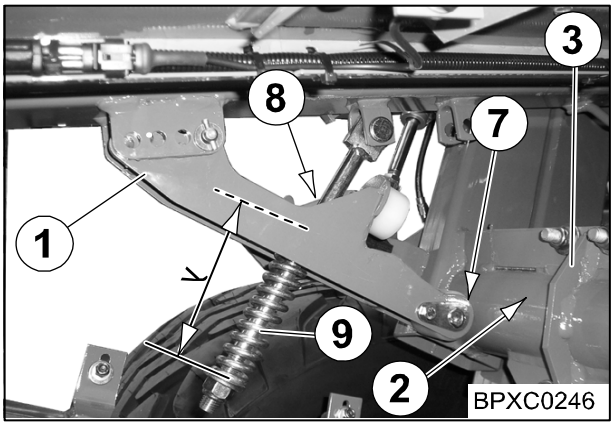


Fig. 172

- During the infeed of the needle yoke (3), the roller (7) of the needle yoke brake (1) has to make contact with the lower third of the tube (2). The height of the needle yoke brake (1) can be changed by placing washers under the clamping screw stop (8).
- Pre-tension the spring (9) of the needle yoke brake (1) to a dimension y = 115 - 120 mm

15.5.4 Setting the locking (frame)

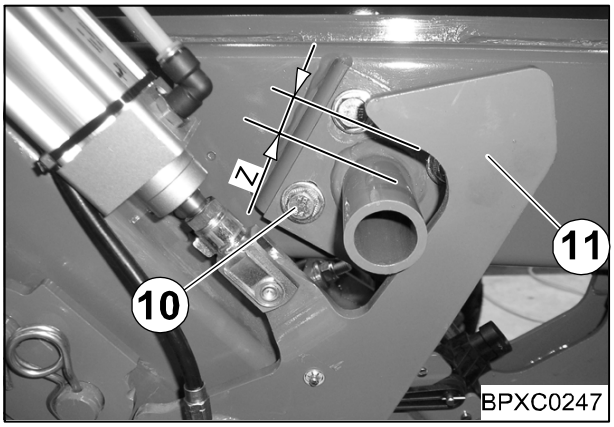


Fig. 173

- Set the support tube (10) so that the distance between the locking (11) and the support tube (10) is Z = 15-35 mm

15.5.5 Setting the lockings of the needle yoke

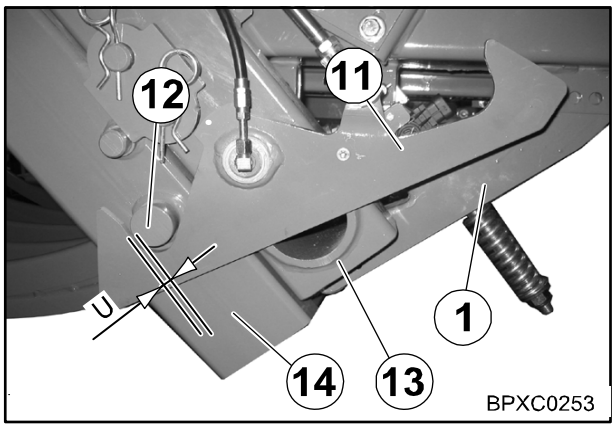


Fig. 174

In order to ensure a safe lock of the second needle yoke (13), the locking (11) (as shown in the figure above) has to have a distance of U = 3 – 7 mm to the pin (12) of the needle yoke (14).

15.5.6 Setting the rubber pad between the needle yokes

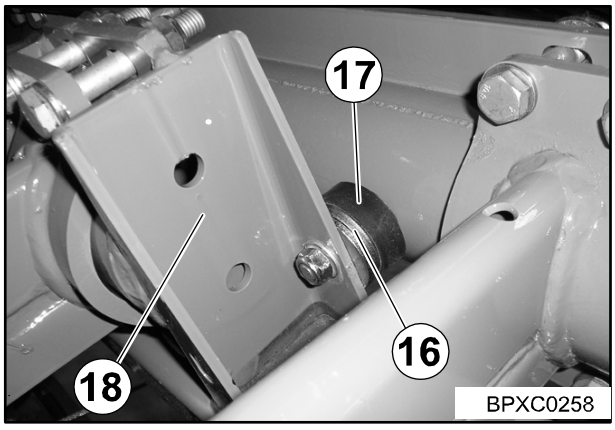


Fig. 175

Setting the distance U

By adding or removing compensation washers (16) between the rubber pad (17) and the needle yoke (18) the spacing is increased or decreased.

Note

After having set the rubber pads, the setting of the stop has to be checked (refer to chapter "Setting the stop").

15.5.7 Possible setting errors and their elimination (MultiBale)

Malfunction	Possible cause	Remedy
Needle yoke (2) recoils back out forward from the needle yoke brake (1).	The spring (9) of the needle yoke brake (1) is too weakly tightened.	Tighten spring with more torque.
	Needle yoke brake (1) is installed too far forward in the direction of travel.	Install the needle yoke brake further to the rear.
	The stop (5) of the needle yoke brake (1) is installed too far forward.	Install the stop (5) further to the rear
The tube (2) of the needle yoke (3) is not running over the infeed surface (7) into the needle yoke brake (1).	Spring (9) of the needle yoke brake (1) is overtightened.	Tighten spring less tightly.
	Needle yoke brake (1) is installed too far back in the direction of travel.	Install the needle yoke brake further forward.
The journal (12) of the needle yoke (14) is not reliably seized by the locking (11).	The needle yoke brake (1) or the stop (5) is installed too far back in the direction of travel.	Install the needle yoke brake (1) or the stop (5) further forward.
	Setting of needle connecting rod not correct.	Correct the setting of the needle connecting rod.

15.6 Checking / adjusting position of needles – baling ram

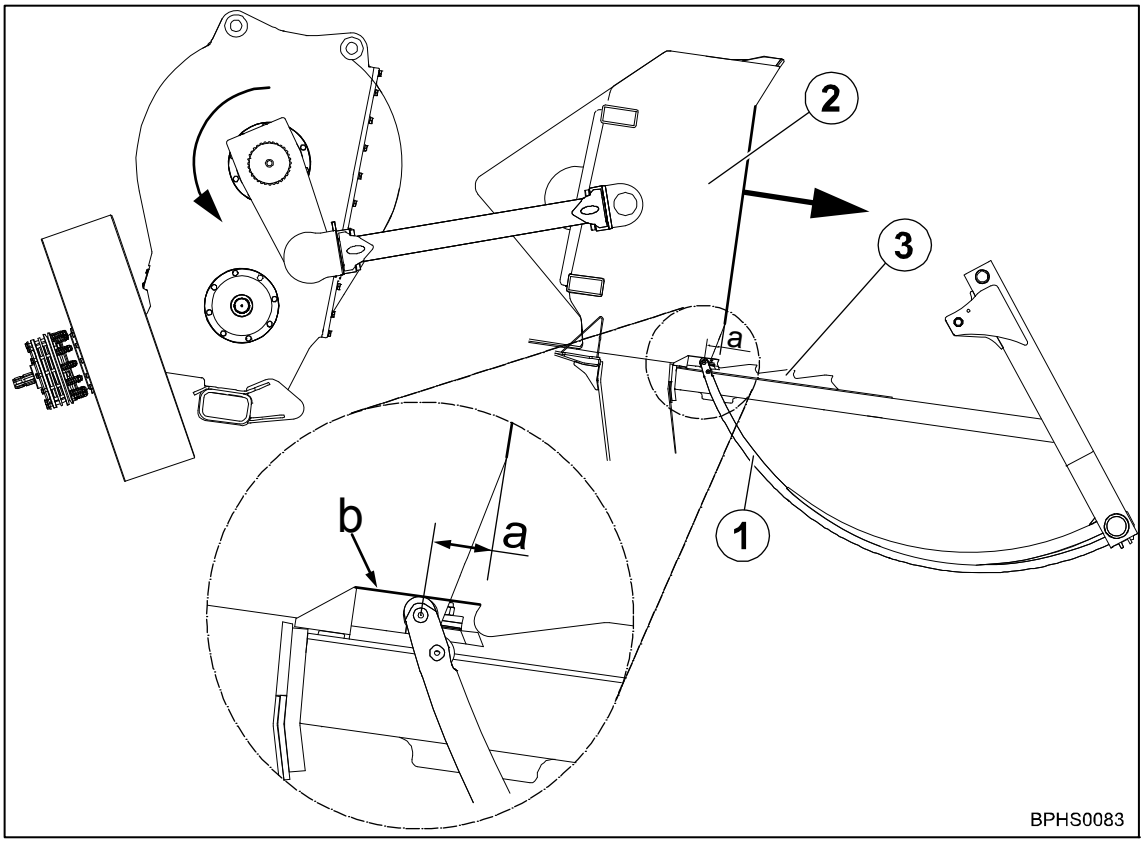


Fig. 176

Check:

- Completely release spring tension of the needle yoke brake
- Manually actuate the tying process while the machine is at a standstill
- Manually rotate flywheel mass until the needle points (1) have reached the upper edge (b) of the fixed retainers (3) in the bale channel floor
- Block the needles in this position and apply the flywheel brake
- The dimension “a” (baling ram front edge to needle tip) must be 60 – 90 mm

If this is not the case:

Note
Set dimension "a" only in baling direction of the baling ram (2) (see arrow in fig.).

- Remove drive cardan shaft from the knotter gear
- Manually rotate flywheel mass (baling ram moves in baling direction) until dimension a = 60 – 90 mm
- Attach drive cardan shaft to the knotter shaft and secure
- Manually actuate the tying process again while the machine is at a standstill
- Check position of needles – baling ram again
- Set spring tension of the needle yoke brake

15.7 Checking / Setting Upper Needle

Prerequisite:

– The upper needle is tensioned, see chapter Settings "Tensioning/relieving the upper needle".
– The twine locking shaft is tensioned, see chapter Settings "Tensioning/relieving the twine locking shaft".

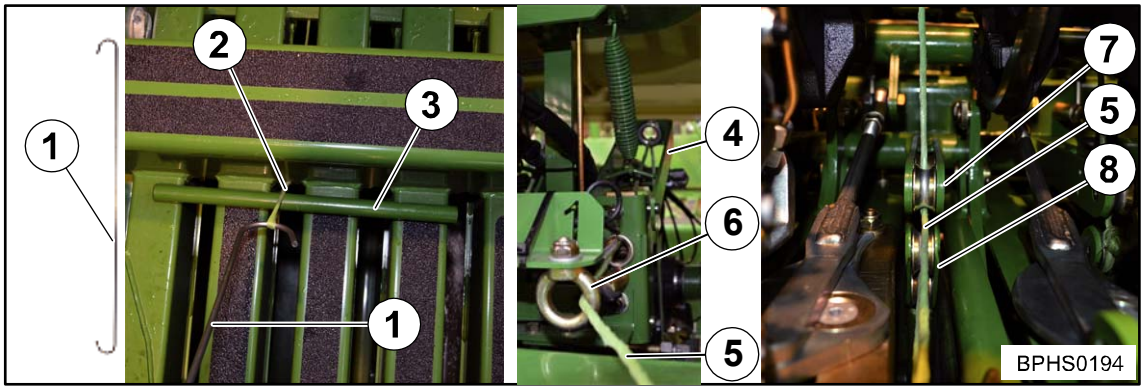


Fig. 177

- Make a catch hook (1).
- In order to simulate a tied bale, pull the twine (2) with the catch hook out of the bale channel and fix it on the top on the bale channel flap with a shaft (3) (screwdriver).
- To tighten the tensioning arm (4), pull back the upper twine (5) in front of the twine eye (6).
- Initiate the baling process manually when the machine is at a standstill.
- Turn the flywheel manually to the working direction until the upper needle (7) raises.
- Turn the flywheel manually in the direction of working until the needle (8) nearly touches the upper twine (5).

At this point in time, the upper twine (5) must be centred in front of the needle (8).

If the upper twine is not centred in front of the needle:

- If the upper twine is centred in front of the needle, align the upper needle by using a mounting lever.

If the upper twine is centred in front of the needle:

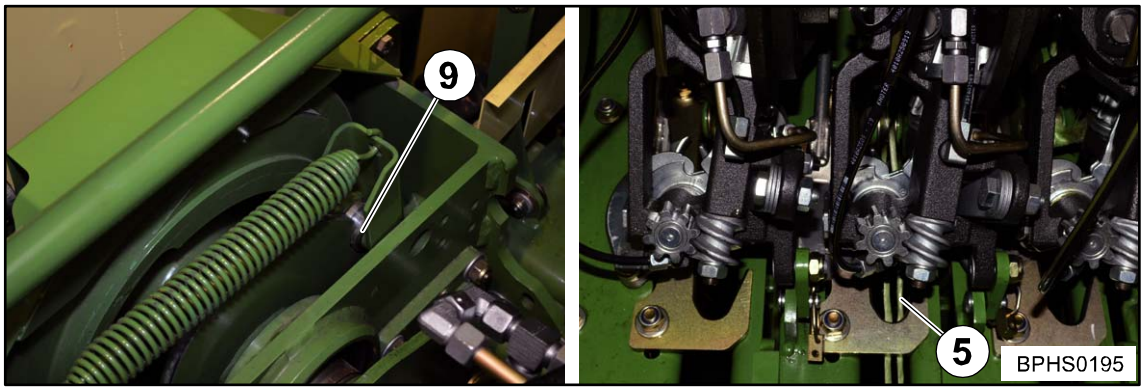


Fig. 178

- Turn the flywheel manually to the direction of working until the trigger roller (9) is in the recess of the knotter gear (idle position).

The knotting process is finished now. The upper twine moves slightly to the right while the flywheel continues to rotate. This is structurally determined as the needle guides the upper twine into the blade lever.

15.8 Checking / Setting Twine Bar

The twine bar moves the twine away from the needle and pushes it against the knotter hook. If the twine is not grasped by the twine bar, the knotter hook cannot pick-up the twine.

15.8.1 Checking / Setting the Twine Bar to the Lower Needle (Needle Yoke)

If the twine bar to the lower needle is set, the settings described in chapter Settings “Checking / Setting Twine Bar to the Channel Slot” and “Checking Twine Bar Overreach on the Second Knot” must be performed.

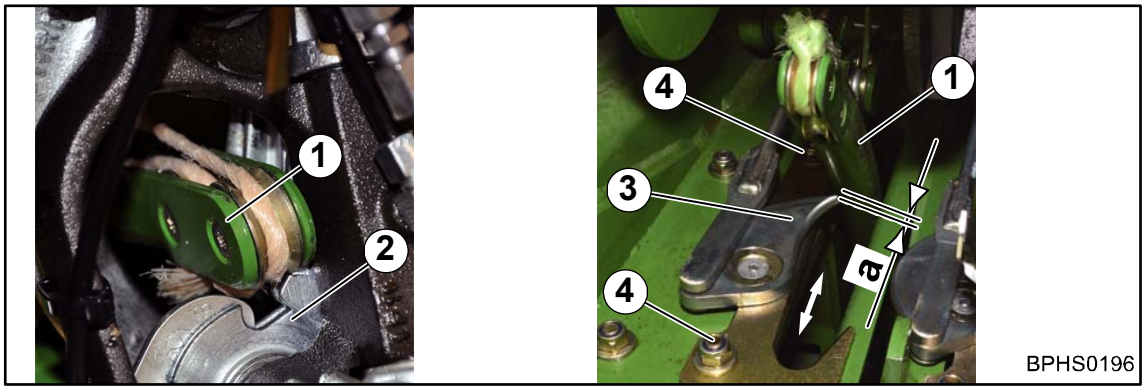


Fig. 179

Prerequisite:

– The twine shaft is released, refer to chapter Settings “Tensioning / Releasing Twine Bar Shaft”.

– The tying process is triggered manually; refer to chapter Operation “Triggering Tying Process Manually”.

Checking twine bar

- Turn the flywheel manually in the working direction until the lower needle (1) (needle yoke) is just in front of the twine driver (2).
- Tighten the flywheel brake.
- Pull the cotter pin and swing up the knotter, repeat the process for all knotters.
- Swivel the twine bar (3) to the middle of the lower needle (1) by turning the twine bar shaft and measure the dimension “a”.

If the dimension “a” is 2 - 4 mm, the twine bar is correctly set.

If the dimension “a” is not 2 - 4 mm, the twine bar must be set.

Setting twine bar

To do this:

- Loosen the nuts (4)
- Move the twine bar (3) until the dimension “a” is 2 to 4 mm.
- Tighten the nuts (4).
- Swivel the knotter down and secure with cotter pin.

Repeat this process for all twine bars.

- Release the flywheel brake.
- Finish the tying process manually; refer to chapter Operation “Finishing Tying Process Manually”.
- Tighten the flywheel brake.
- Tighten twine bar shaft, refer to chapter Settings “Tightening / Releasing Twine Bar Shaft”.

15.9 Checking / Setting Twine Bar to the Channel Slot

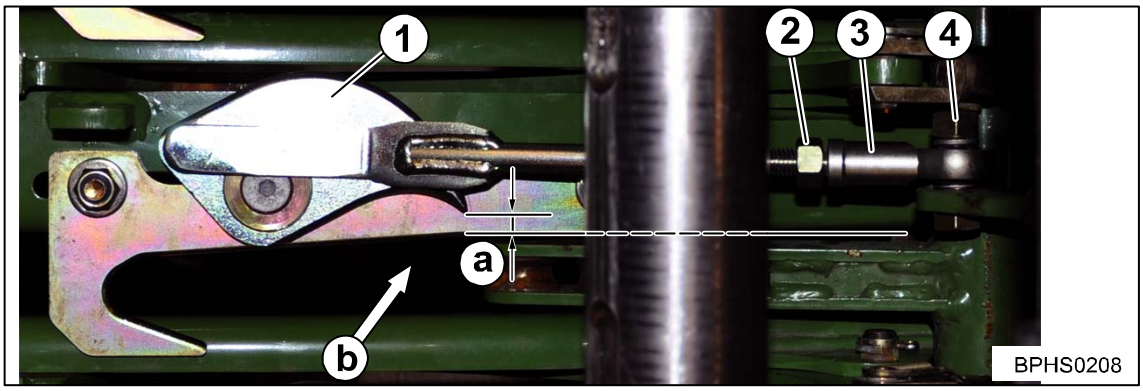


Fig. 180

Prerequisite:

– The machine is disconnected from the tractor.
– The flywheel brake is applied.
– The knotter gear is in idle position; refer to chapter Operation “Finishing Knotter Process Manually”.

Checking the twine bar to the channel slot

- Pull the cotter pin and swing up the knotter, repeat the process for all knotters.
- Press the twine bar (1) manually to the channel slot (b).
- Measure dimension “a”, measured between twine bar tip and channel slot.

If dimension “a” is 0 - 5 mm, the twine bar is correctly set.

If dimension “a” is not 0 - 5 mm, the twine bar must be set.

Setting twine bar

To do this:

- Unscrew counter nut (2) and screw (4) of the joint bearing.
- Turn joint head (3) until dimension “a” is 0 - 5 mm.
- Tighten counter nut (2) and screw (4).

Repeat this process for all twine bars.

Check that the twine bar moves easily.

- Release the twine bar shaft, refer to chapter Settings “Tensioning / Releasing Twine Bar Shaft”.
- Rotate the twine bar back and forth manually.

The twine bar is correctly set if it is easy to rotate the twine bar back and forth.

If it is hard to rotate the twine bar back and forth, there are several causes:

1. The control linkage is crooked, replace the control linkage.
2. The joint bearing is rusted, replace the joint bearing.
3. The axial play in the twine bar shaft is too low, remove the shim ring.

Remedy cause 1 to 3 and check or set the twine bar again, refer to chapter Settings “Checking / Setting the Twine Bar to the Lower Needle”.

- Swivel the knotter down and secure with cotter pin. Repeat this process for all knotters.

Repeat this process for all twine bars.

- Tighten twine bar shaft, refer to chapter Settings “Tightening / Releasing Twine Bar Shaft”.

Checking the overreach of the twine bars on the second knot

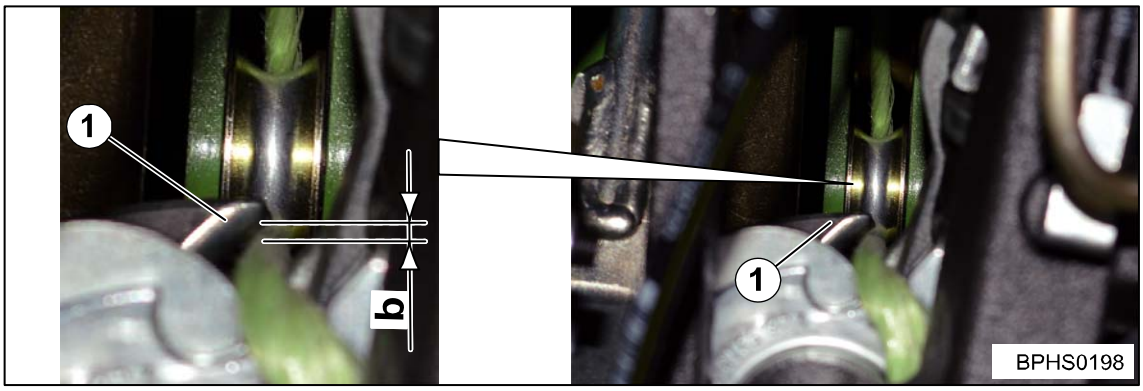


Fig. 181

Prerequisite:

– The first knot (closing knot) must have been made manually.

Checking

- Turn the flywheel manually in the working direction until the twine bar (1) swivels over the channel slots for the second time.
- As soon as the twine bar grasps the twine, tighten the flywheel brake to lock the needles in this position.

Measuring the overreach (distance twine tip to twine)

The twine bar is correctly adjusted if the dimension „a“ is between 5 and 10 mm.

If the dimension „a“ is not 5 - 10 mm, the twine bar must be re-adjusted; refer to chapter Settings “Setting Twine Bar to Lower Needle (needle yoke)”.

Check the overreach on all twine bars.

15.10 Tensioning/relieving the upper needle shaft

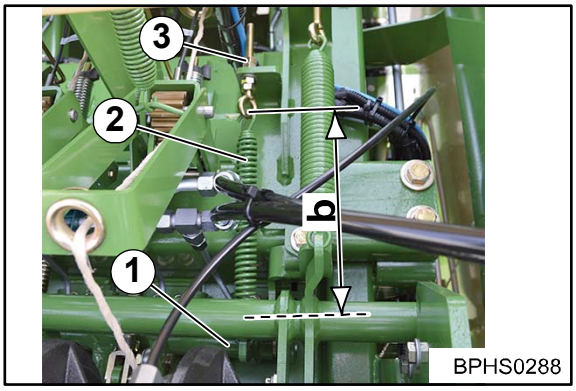


Fig. 182

The upper needle shaft (1) is tensioned or relieved by means of the spring (2).

Prerequisite:

– The knotter gear is in the idle position, see chapter Settings "Adjusting the needle yoke brake".
– The flywheel brake is applied.

Tensioning

• To tension the spring (2), tighten the nut (3) until dimension "b" = 235 mm, measured between the eyes of the spring.

Relieving

• To relieve the spring (2), unwind the nut (3) to the thread end of the eyebolt.

15.11 Tensioning/relieving the twine locking shaft

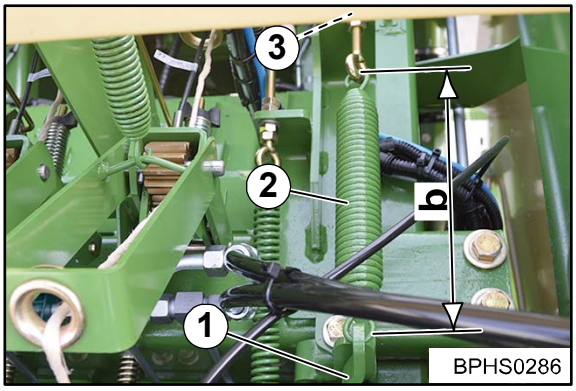


Fig. 183

The twine locking shaft (1) is tensioned or relieved by means of the spring (2).

Prerequisite:

– The knotter gear is in the idle position, see chapter Settings "Adjusting the needle yoke brake".
– The flywheel brake is applied.

Tensioning the twine locking shaft

• To tension the spring (2), tighten the nut (3) until dimension "b" = 285 mm, measured between the eyes of the spring.

Relieving the twine locking shaft

• To relieve the spring (2), unwind the nut (3) to the thread end of the eyebolt.

15.11.1 Adjusting the knotter shaft brake

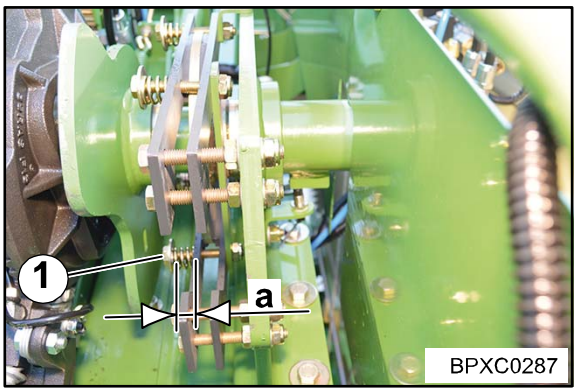


Fig. 184

• Tension the springs (1) until dimension a= approx. 20 mm.

15.12 Setting the Twine Brake

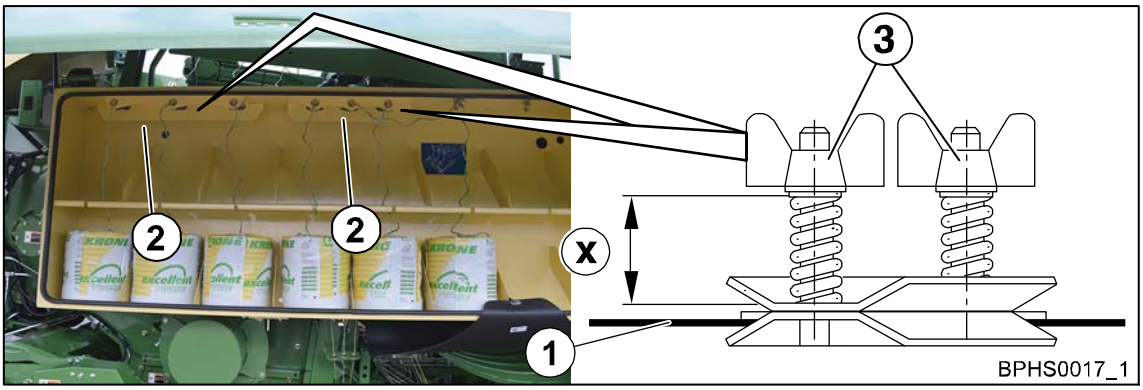


Fig. 185

The twine brakes (2) can be found in the twine boxes. The twine brakes held stiff the upper twines from the twine box to the upper twine brakes or the lower twines from the twine box to the lower twine brakes. The drawing tension of the twine brake should always be set to a high enough level so that the upper twines or lower twines are stiff but that they can be pulled easily. Different types of twine may have different friction properties. Therefore the drawing tension of the twine strand must be checked when changing the type of twine.

Pre-setting X = 30 – 35 mm

- Increase or reduce dimension “X” to increase or reduce the drawing tension.

15.12.1 Setting the twine tension on the upper twine strand (double knotter)

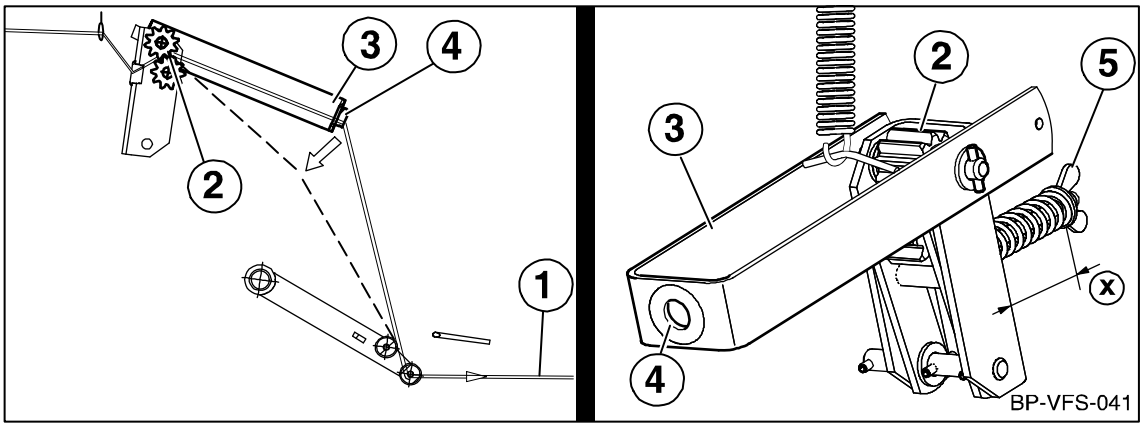


Fig. 186

The upper strands of twine (1) should be held by the brakes (2) up to a tensile force of 100 - 120 N.

Before the twine brakes will allow the twine to slip through, the twine tension arm (3) should move downward against the spring force until the twine (1) is guided through the eye of the tension arm (4) almost without moving to the side.

Testing the twine tension:

- Tie the cord (1) onto a spring balance The spring balance has to indicate 100 - 120 N shortly before the cord slips through.

You can increase the tension by turning the wing nut (5) tighter. To reduce the tension, loosen the wing nut.

The dimension "X" is based on the tying twine selected and must be determined in each individual case by testing in the twine strand. A pretension of the twine strand that is too high may cause knotter errors and place too heavy a load on the components involved.

Pre-setting X = 65 mm

15.12.2 Setting the twine tension of the lower twine strand (double knotter)

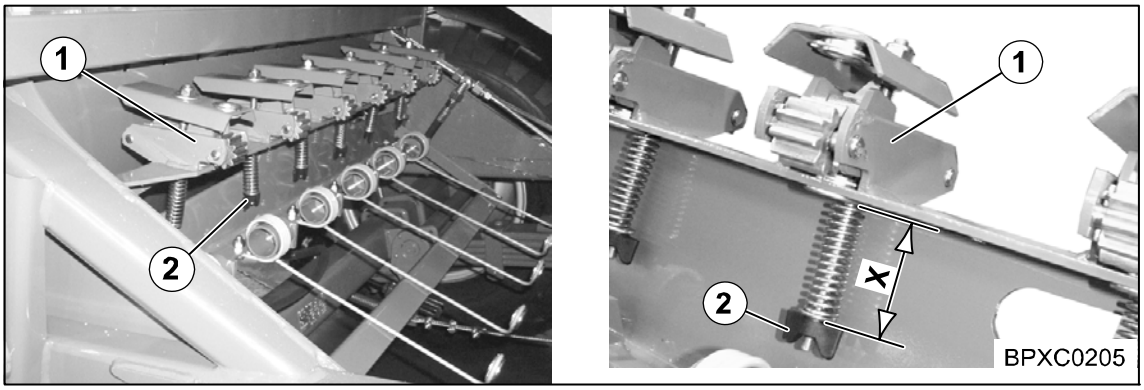


Fig. 187

The twine brakes (1) for the lower twine strand are behind the packer under the bale channel chamber.

You can increase the tension by turning the wing nut (2) tighter. To reduce the tension, loosen the wing nut.

Pre-setting X= 70 mm

Testing the drawing tension:

1. Thread in the twine according to instructions.
2. Trigger the tying process manually with machine at a standstill.
3. Turn the needle yoke manually on the flywheel in working direction upwards until the needles reached their upper dead point (refer to chapter “Upper dead point of the needles”).
4. Tighten the flywheel brake to lock the needles in this position.
5. Pull the twine about 200 mm out of the needle and cut it.
6. Pull the strand of twine slowly and evenly until the twine tension springs have reached their highest position under the channel.
7. As the twine is held, the twine tension springs must remain in this position without any twine being able to be pulled back by the brake.
8. The brake must allow twine to slip through if there is a slight increase in the tensile force.

15.13 Knotter

WARNING!

Danger to life due to unintentional triggering of the twine tying device.

If the tying process is not locked to facilitate maintenance, adjustment and repair work on the knotter, the tying process may be triggered unintentionally. As a result, people may be seriously injured or killed.

- To facilitate maintenance, adjustment and repair work on the knotter, always secure the knotter shaft with the safety lever to prevent unintentional triggering of tying.

15.13.1 Locking/releasing the tying process

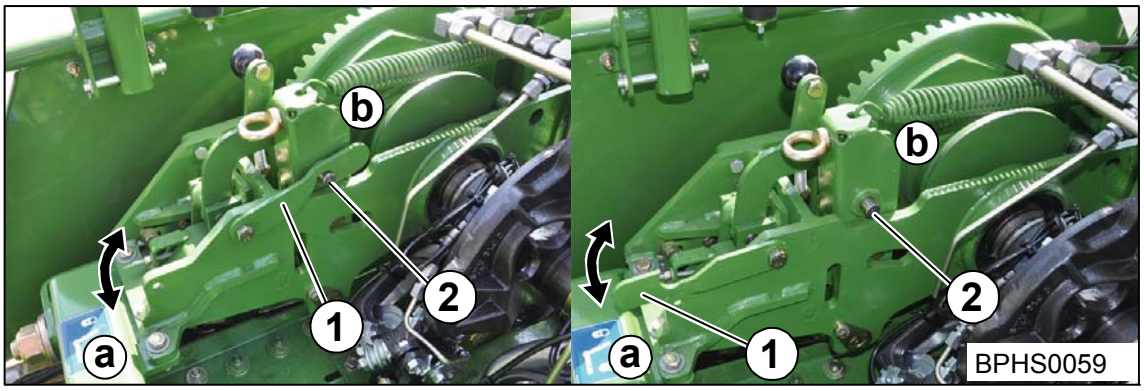


Fig. 188

To avoid unintentionally triggering the tying process during maintenance, adjustment and repair work on the knotter, the tying process must be locked.

Locking the tying process

- To lock the tying process, move the safety lever (1) from position (a) to position (b) and set it down on the journal (2).

Releasing the tying process

- To release the tying process, move the safety lever (1) from position (b) to position (a).

Note

The safety lever (2) must be in position (a) for the baling process! Otherwise an endless bale will be formed when the knotter shaft is secured.

15.13.2 Start-up

The knotter has been set and tested by the manufacturer. It should work properly without requiring any further settings. If there are problems with tying when it is placed in service for the first time, the mechanisms should not be set immediately, since this is usually caused by errors that are caused by paint, rust and bare spots. It is recommended to remove the rust protection grease from the twine retainer and knotter before start-up.

15.13.3 Double knotter

15.13.4 Setting the Knotter Hook

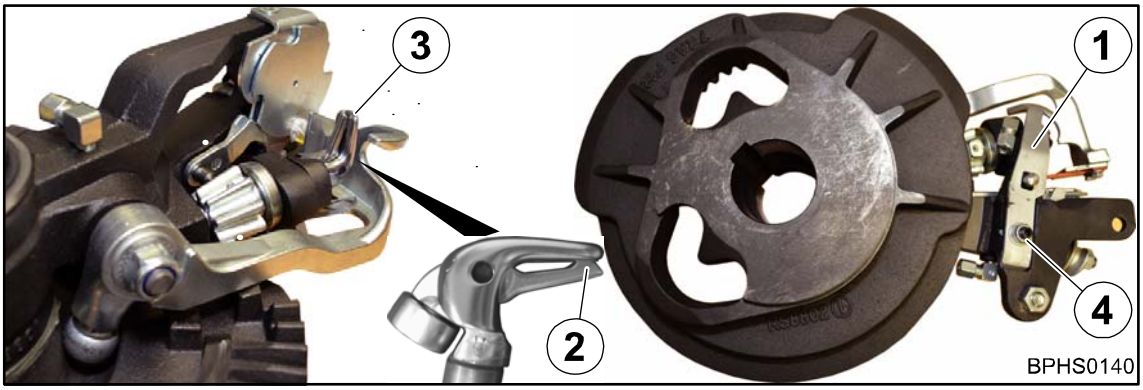


Fig. 189

The knotter tongue (2) of the knotter hook is tensioned by the closer (1).

If the clamping effect on the knotter tongue is too great, the knot will be left hanging on the knotter tongue. The twine strand will tear.

If there is not enough clamping effect on the knotter tongue, either no knot or a loose knot will form.

Set the clamping effect.

Reducing the clamping effect:

- Unscrew nut (4) on the closer by approx. 30°.

Increasing clamping effect:

- Unscrew nut (4) on the closer by approx. 30°.

Note

The knotter tongue needs a slight minimum tension. Therefore the clamping effect must never be loosened completely.

15.13.5 Setting of twine retainer

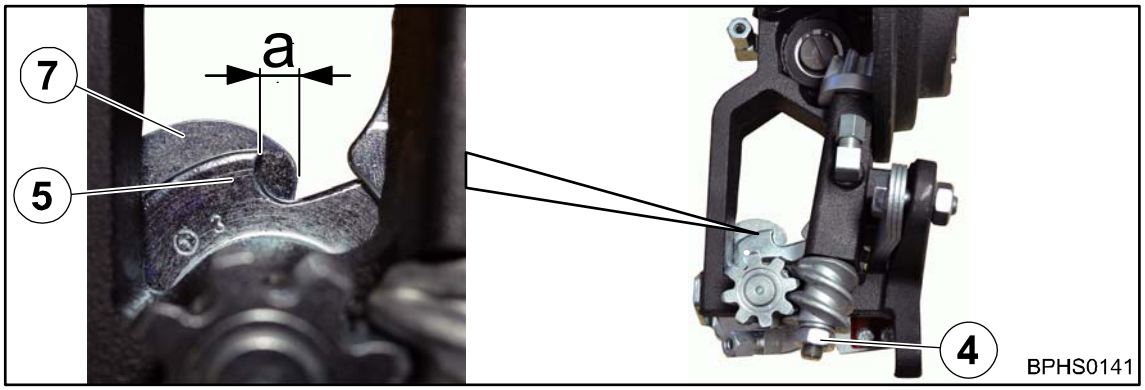


Fig. 190

Setting the twine driver

The function of the twine driver (5) depends on the position of its indentation opposite the twine disc cleaner (7). The twine driver (5) has been set to a = 0-2 mm as a default setting ex works.

- **If the indentation on the twine driver (5) is positioned too far forward (clockwise), the twine cannot be snagged by the twine driver as it is being guided along by the needle.**
- **On the other hand, if the indentation on the twine driver (5) is positioned too far back (anticlockwise), the twine strand may become wound up on the knotter hook or it may not be possible for it to be snagged by the knotter tongue.**

Setting the twine driver (5)

The indentation of the twine driver (5) has to be located at the position shown.

Then:

- Undo the nut (4) until the nut (4) is flush with the thread end of the auger
- Undo the auger by means of a slight knock against the nut (4)
- Adjust to a = 0-2 mm by turning the auger
- Tighten nut (4)

Note

At least two tying processes must be performed to check for the correct position of the indentation.

15.13.6 Setting the Holding Force of the Twine Retainer

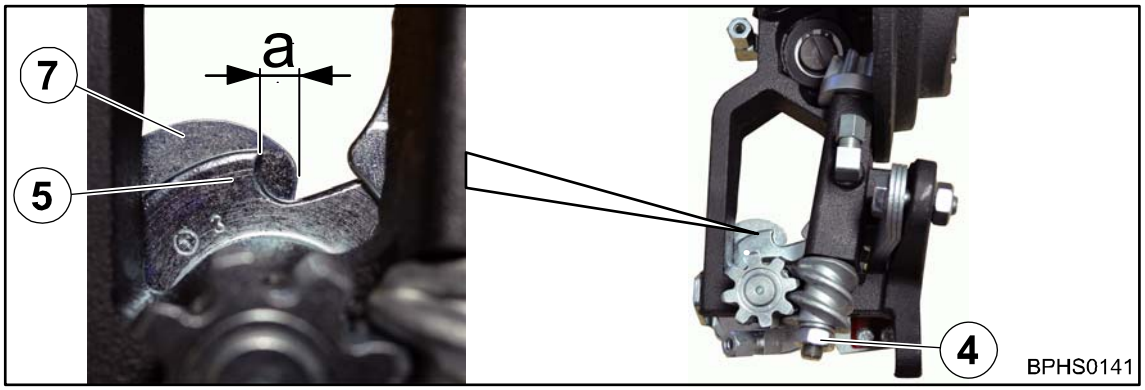


Fig. 191

The twine retainer (4) should only clamp the twine securely enough so that it is not pulled out of the twine retainer mechanism during the tying process. If the clamping effect is too great, it will tear the twine into shreds.

The setting of the holding force is preset in the factory.

The type and moisture content of baling material and its baling density as well as the tying twine that is selected all require different settings, which have to be determined by trial and error under actual working conditions.

To do this:

- Loosen the counter nut (3)
- Ensure stronger or weaker pre-tensioning of the twine retainer springs (2) via screw (1) (approx. half a turn)
- Tighten counter nut (3).

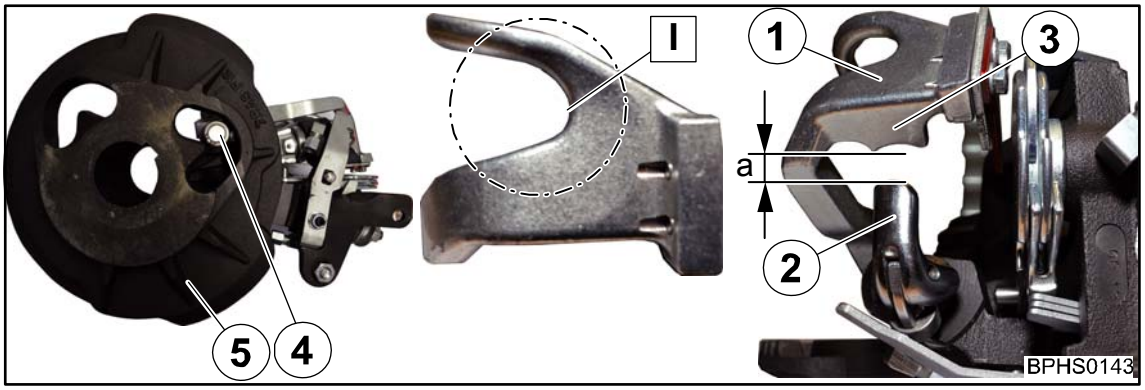


Fig. 192

The blade lever (1) must be aligned so that the knotter hook (2) can turn freely without touching the blade lever at any point on the blade lever.

However at the same time, the extractor comb (3) of the blade lever must evenly touch the back of the knotter hook (2). The distance between the extractor comb of the blade lever and the knotter hook tip should be a = 15 to 18 mm in the blade lever dead centre point.

The blade lever has reached the dead centre when the blade lever roller has reached the highest point on the cam (4) in the knotter disc (5).

The areas of the blade lever that guide the twine strands (the designated area (I)) must be smoothed and rounded to prevent the twine from tearing. The blade lever must be replaced as soon as there is wear (formation of grooves) on the marked area.

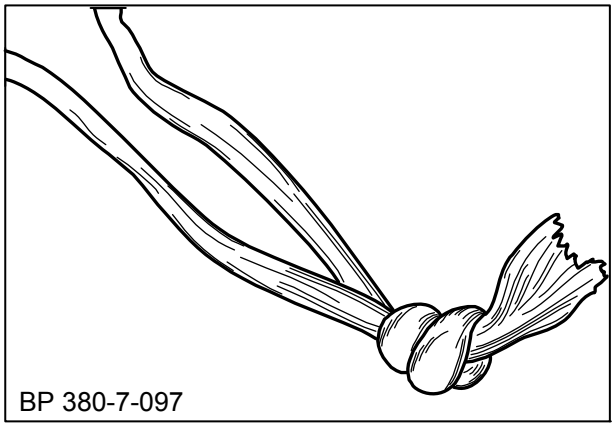


Fig. 193

It is essential to ensure that the cutting edge of the twine blade is regrounded as soon as the twine ends are being cut to unequal lengths or are frayed. The blade must be replaced if it is broken or worn too much.

15.14 Adjusting the baling ram

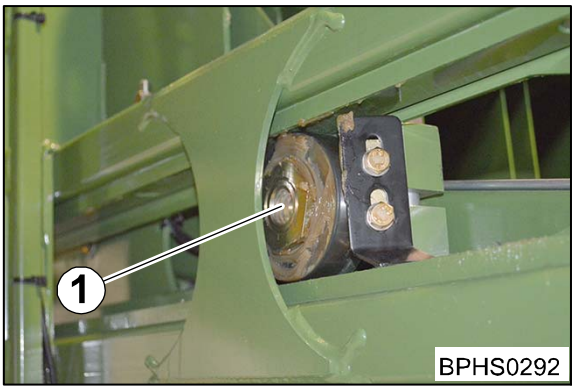


Fig. 194

The four cam rollers (1) in the baling ram must provide equal support.

15.14.1 Setting the baling ram blades

A precise setting of the baling ram blades is necessary for the underside of the big bales to have a smooth surface.

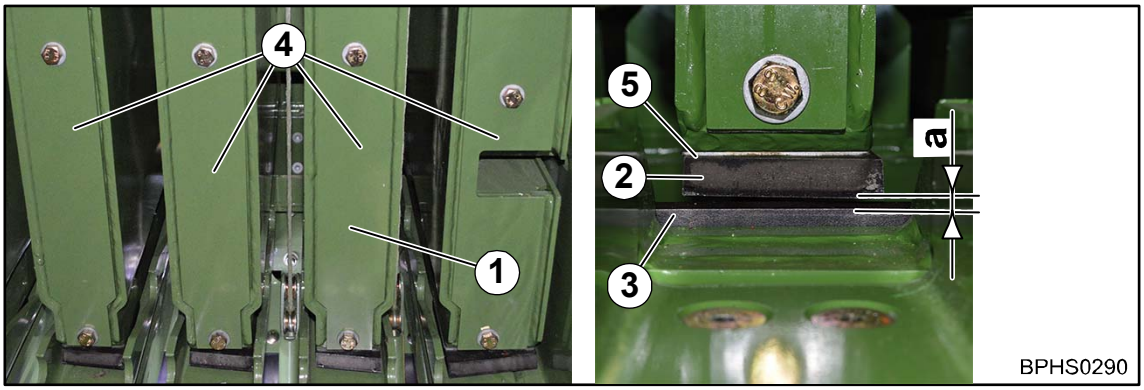


Fig. 195

1) Baling ram	2) Blades on the baling ram	3) Counterblade on the bale channel chamber
4) Front plate	5) Spacer washers	

– The bale channel chamber is equipped with two counterblades.
– The baling ram is equipped with six blades.

- Release the flywheel brake and turn the flywheel manually in the direction of operation until the blades are above the counterblade.
- To secure the baling ram, tighten the flywheel brake.
- Measure the dimension "a" between the blade and counterblade.

If the dimension "a" = 2 to 4 mm, the blades are correctly set.

If the dimension "a" is not 2 to 4 mm, spacer washers must be inserted or removed.

- Release the flywheel brake and turn the flywheel manually in the direction of operation until the blades are freely accessible.
- To secure the baling ram, tighten the flywheel brake.
- Unscrew the front plates.
- Loosen the bolts on the blade and add or remove spacer washers until the dimension "a" = 2 to 4 mm.
- Tighten the bolts and screw on the front plates.
- Release the flywheel brake and turn the flywheel manually in the direction of operation until the blades are above the counterblade.
- To secure the baling ram, tighten the flywheel brake.
- Measure the dimension "a" between the blade and counterblade.

If the dimension "a" = 2 to 4 mm, the blades are correctly set.

If the dimension "a" is not 2 to 4 mm, repeat the process until the dimension "a" = 2 to 4 mm.

15.14.2 Cleaning the running rails

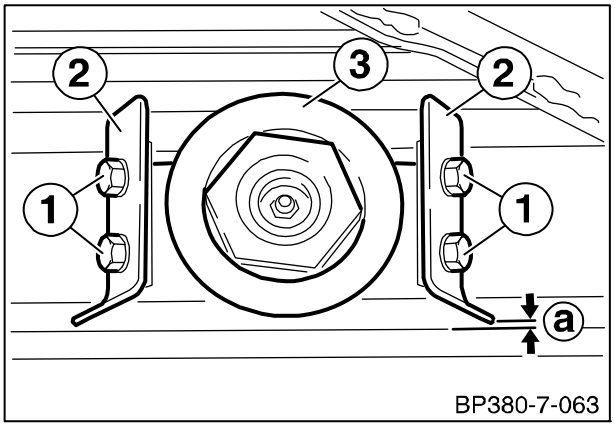


Fig. 196

The cleaning rails (2) are positioned on the four rollers (3). They remove dirt deposits from the running rails of the baling ram. To adjust, loosen the screws (1) and adjust the cleaning rails to the dimension a = 1 - 2 mm. Tighten the screws again.

Note

The cleaning rails (2) must be able to tilt easily on the roller axis!

15.14.3 Lateral setting of the plunger

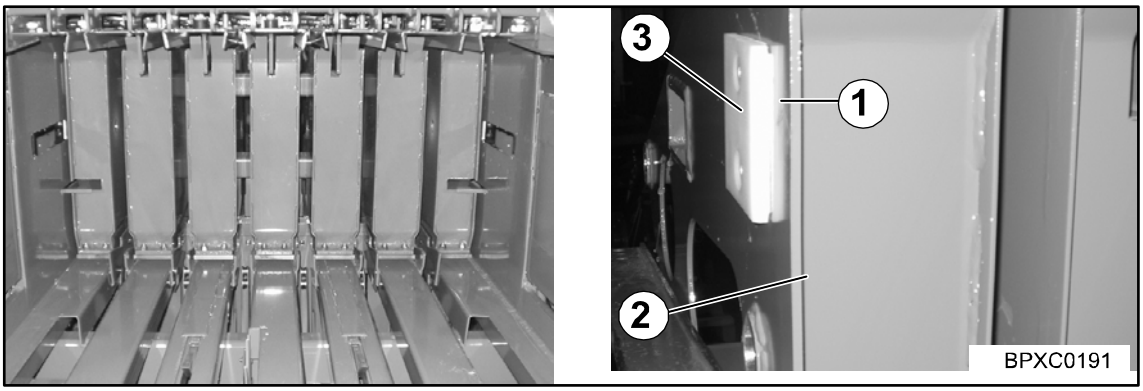


Fig. 197

The baling ram must be aligned in the centre of the bale channel chamber.
Make sure that the plunger moves freely and does not scrub against the fixed scrapers in the bottom of the channel and below the knotter mechanism.
To align the plunger laterally, the plunger (2) can be moved to its forward-most position by turning the flywheel.
The plunger (2) can be aligned laterally with compensating plates (1) (283-676-0) that are mounted between the plunger (2) and the sliding discs (3). The plunger should have a gap dimension of a = 1 - 2 mm at the narrowest point of the bale channel chamber.

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15.15 Adjusting the Packer Relative to the Plunger

15.15.1 Description of components

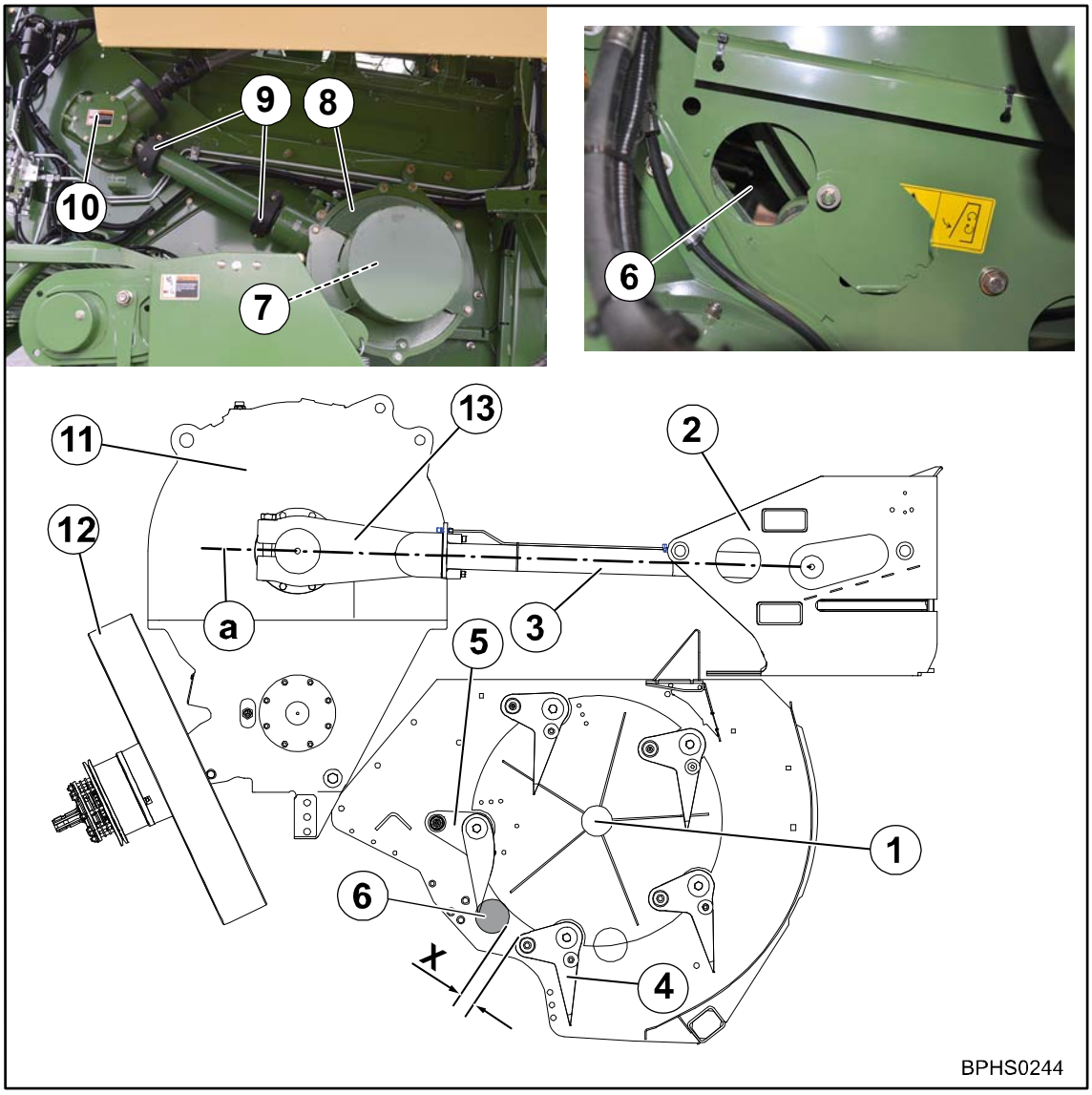


Fig. 198

1) Packer	2) Baling ram	3) Piston rod
4) Packer strip	5) Feeder strip	6) Control window
7) Packer coupling	8) Packer gearbox	9) Chain coupling
10) Transfer gearbox	11) Main gearbox	12) Flywheel
13) Crank arm		
a) Extended position (rear dead point)		

Adjusting packer to baling ram is only necessary if the following parts have been disassembled:

– Packer coupling (7), packer gearbox (8), chain coupling (9),
– Transfer gearbox (10) (or removal of the drive train transfer gearbox to main gearbox (11))
– Crank arm (13) from the main gearbox

The packer (1) is correctly set to the baling ram (2) if the piston rod (3) is in its extended position (a) and the large packer strip roller (4) running in front of the feeder strip (5) is X=6cm under the control window (6).

Prerequisites:

– The packer coupling is locked in place, refer to chapter entitled “Checking Packer Coupling”.
– The VFS system is in zero position, refer to chapter entitled Settings “Zero Position”.
– Move packer strip (4) into position, refer to chapter Settings “Moving Packer Strip into Position”.
– Move the baling ram into position, refer to chapter Settings “Moving Baling Ram into Position”.

15.15.2 Checking packer coupling

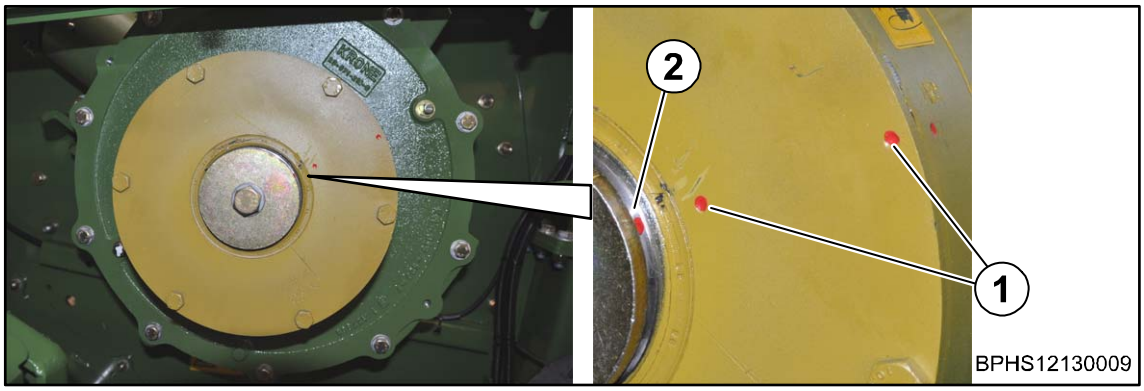


Fig. 199

Note
The packer coupling is correctly engaged when the outer marks (1) on the packer coupling are aligned with the mark (2) on the inner ring of the packer coupling.

15.15.3 Moving Packer Strip into Position

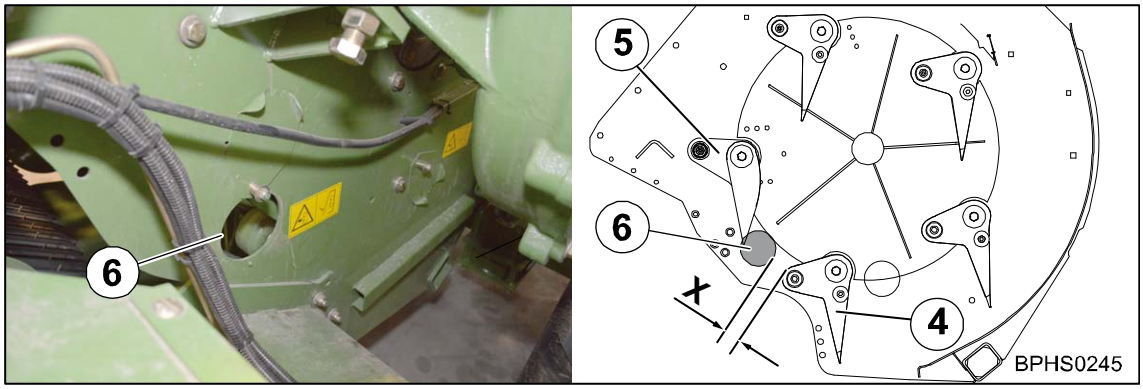


Fig. 200

- Turn the packer into working direction by turning the flywheel manually until the large packer strip roller (4) running in front of the feeder strip (5) is X=6cm below the control window (6).
- Secure the packer in this position with a mounting lever.
- Tighten the flywheel brake

15.15.4 Moving Baling Ram into Position

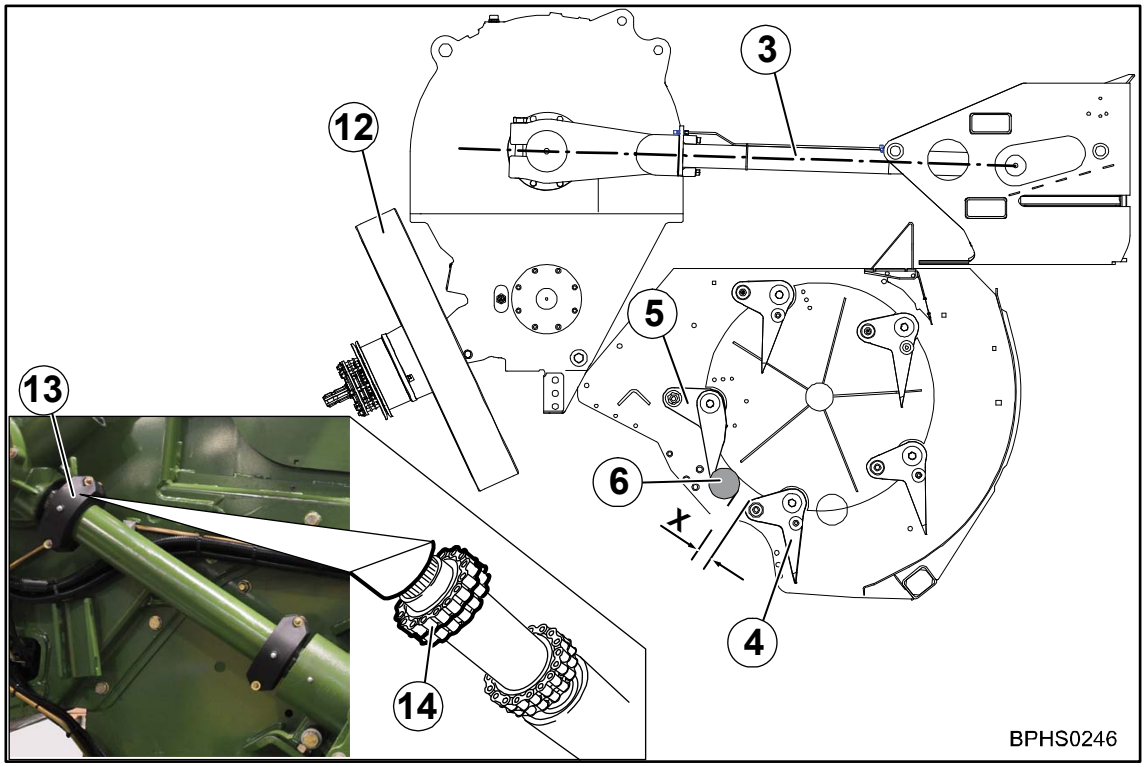


Fig. 201

Prerequisite:

– The packer strip is in position, refer to chapter Settings “Moving Packer Strip into Position”

Procedure

- Remove the protection (13) of the chain coupling.
- Remove the roller chain (14) from the chain coupling.
- Release the flywheel brake.
- Move the piston rod (3) to extended position (a) (rear dead point) by turning on the flywheel (12) in the working direction.
- Tighten the flywheel brake.
- Position the roller chain (14) of the chain coupling and secure it.
- Install the guard (13) on the chain coupling.
- Remove the mounting lever.

Checking the setting:

- Release the flywheel brake
- Turn through the machine manually in the working direction one complete time on the flywheel until the piston rod (3) is in its extended position (a) (rear dead point).

The packer (1) is correctly set to the baling ram (2) if the piston rod (3) is in its extended position (a) and the large packer strip roller (4) running in front of the feeder strip (5) is X=6cm under the control window (6). If this is not the case, set packer to baling ram again (refer to chapter Settings “Setting Packer to Baling Ram“).

15.16 Description of components VFS system (variable filling system)

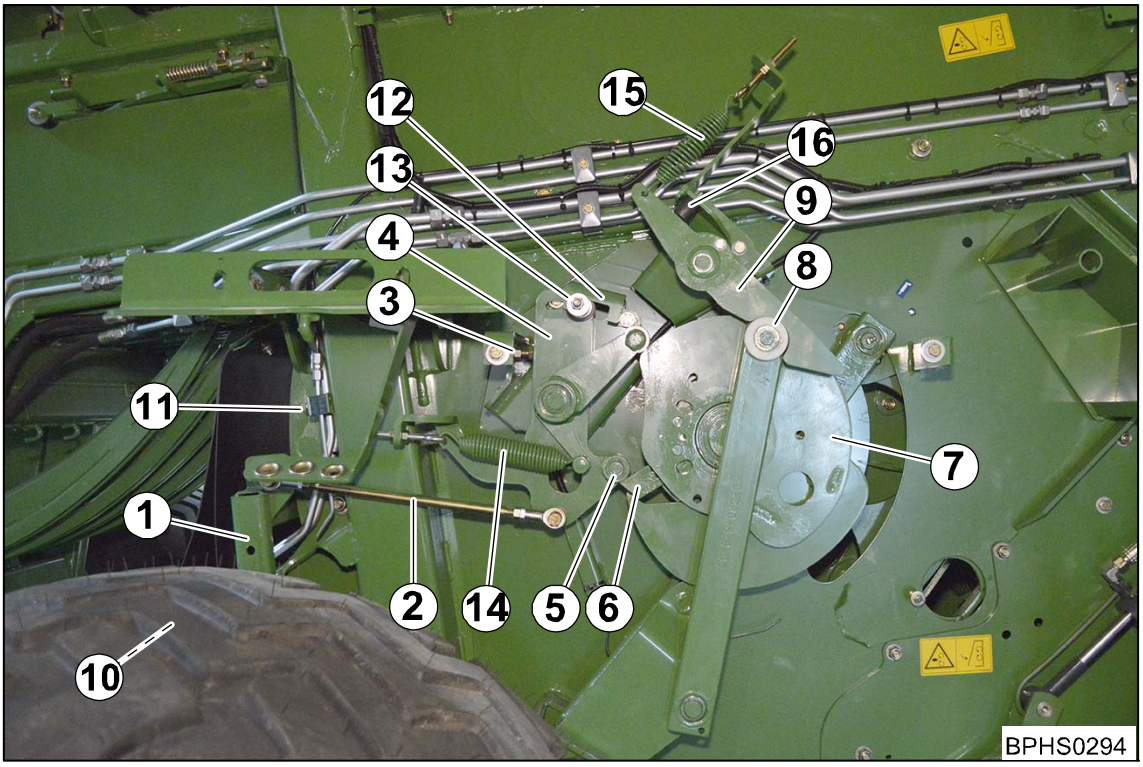


Fig. 202

Item	Designation	Item	Designation
1)	Feeler rocker	2)	Threaded rod
3)	Adjusting screw (anvil)	4	Anvil
5)	Grooved ball bearing (anvil)	6)	Trigger ratchet
7)	Cam disc	8)	Roller (zeroizing device)
9)	Zeroizing device	10)	Stop
11)	Packer tray	12)	Slotted brake jaw
13)	Brake plate	14)	Spring (triggering sensitivity)
15)	Spring (zeroizing device)	16)	Rubber pad

15.16.1 Presetting threaded rod / stop for the feeler rocker

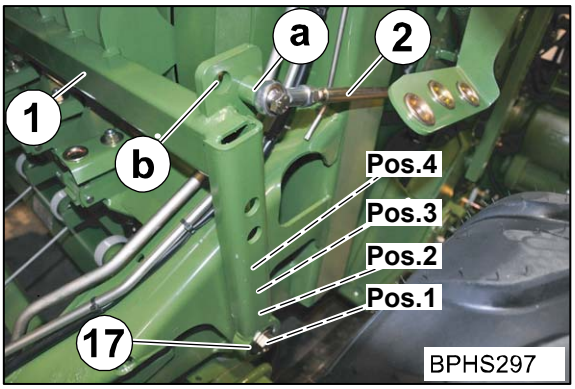


Fig. 203

ATTENTION! Damage to the machine
To avoid damaging the machine, never misplace the threaded rod (2) into the bore (b).

ATTENTION! Damage to the machine
To avoid damaging the machine, never change the position of the feeler rocker (1) on the MultiBale version.

Note
The feeler rocker (1) has been installed in position 1 at the factory.

The VFS system must be adjusted if

- the bale channel chamber does not fill up sufficiently (the filling of the bale upwards must be improved)
- the overload clutch of the packer responds too frequently

Procedure:

- Move VFS system to zero position and check settings (see chapter Settings "Zero position")
- Check and, if required, adjust triggering sensitivity (see chapter Settings "Adjusting triggering sensitivity")

15.16.2 Zero position (VFS system)

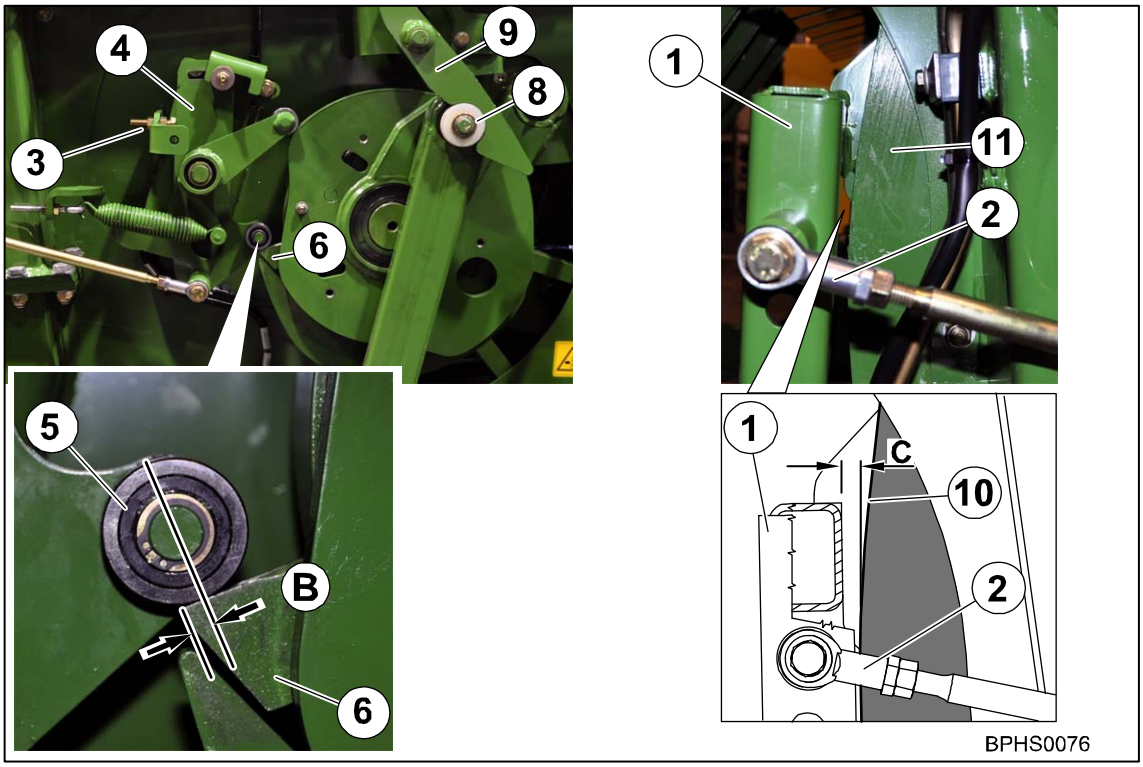


Fig. 204

Manually rotate the packer in the direction of operation by turning the flywheel until the roller (8) has engaged in the zeroizing device (9). (The VF system is now in the zero position.)

Note

The zero position has been correctly set when

- the anvil (4) is positioned on the set screw (3)
- the middle of the roller of the grooved ball bearing (5) is positioned B = 10 mm from the tip of the trigger cam disc (6) on the trigger cam disc
- the feeler rocker (1) is C = 10 – 15 mm from the edge of the packer tray (11)

Check settings and if required correct as follows:

- Adjust the set screw (3) until the middle of the roller of the grooved ball bearing (5) is positioned B = 10 mm from the tip of the trigger cam disc (6) on the trigger cam disc

Note

If dimension B cannot be set, check and, if required, adjust the absorbing mechanism (see Settings section “Adjusting the absorbing mechanism”).

- Adjust the threaded rod (2) until the feeler rocker (1) is C = 10 – 15 mm from the edge of the packer tray (11)

15.16.3 Adjusting the zeroizing device

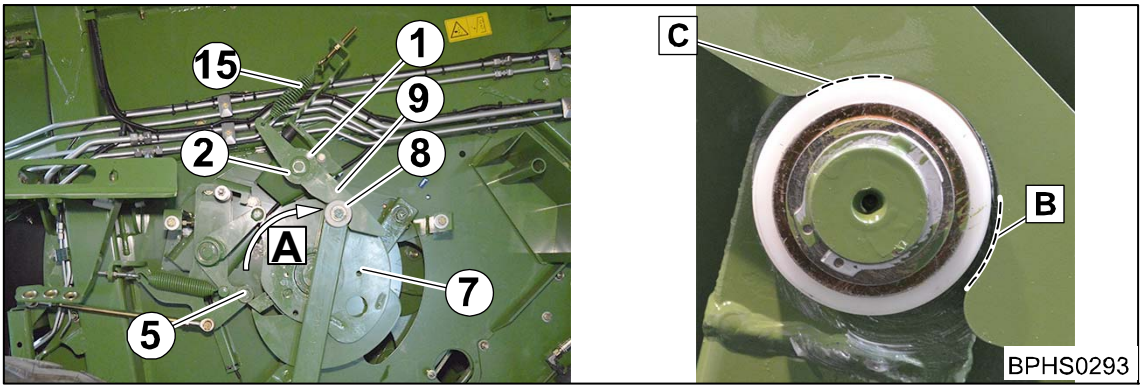


Fig. 205

Adjusting the zeroizing device

The zeroizing device is set to the zero position, see chapter Settings "Adjusting the Variable Fill System" ->"Zero position".

- Relieve the spring (15).
- Loosen the screw (1).
- Swivel the zeroizing device (9) up manually.
- Swivel the cam disc (7) manually as far as possible in direction A and hold it there.
- Swivel the zeroizing device (9) down and turn the eccentric plate (2) until the roller (8) is positioned in the lower area (B) of the zeroizing device.
- To secure the eccentric plate so that it cannot move, tighten the bolt (1).
- Release the cam disc.

The roller for the zeroizing device swivels into the upper area (C) of the zeroizing device.

- Tension the spring (15), see chapter Settings "Adjusting the spring of the zeroizing device".
- Adjust the rubber pad for the zeroizing device, see chapter Settings "Adjusting the rubber pad for the zeroizing device".

Checking the clearance of the ratchet

- Rotate the packer once completely by turning the flywheel manually in the direction of operation.

The ratchet must not move during the entire operation.

15.16.4 Adjusting the rubber pad on the zeroizing device

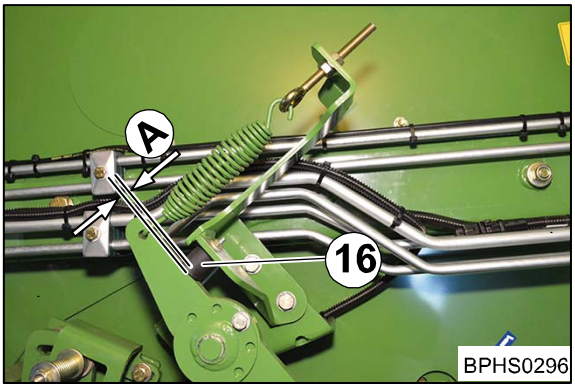


Fig. 206

- Add or remove washers under the rubber pad (16) until dimension A = 0 to 2 mm.

15.16.5 Adjusting the spring in the zeroizing device

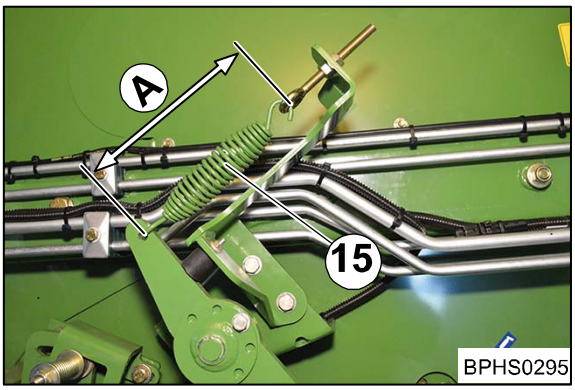


Fig. 207

The spring (15) is adjusted in the zero position (see Settings section “Zero position”).
The spring has been set to A = 185 mm at the factory.
Check and, if required, adjust dimension A:

- Pretension the spring (15) to a dimension of "A" = 185 mm

15.16.6 Adjusting the triggering sensitivity

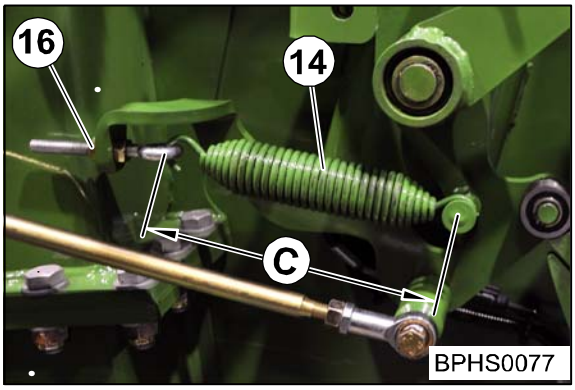


Fig. 208

The spring (14) is used to adjust the triggering sensitivity of the feeler rocker. When the feeler rocker has been swung out, the spring pulls the feeler rocker back again (zero position).
The spring length has been preset to C = 205 – 210 mm at the factory.
The higher the spring tension, the more forage is collected in the bale channel chamber.

Note

- Increase the spring tension if the bale channel chamber does not fill up sufficiently (the filling of the bale upwards must be improved)
- Reduce the spring tension if the overload coupling of the packer responds too frequently

Increasing / reducing the spring tension:

- Unscrew the screw joint (16).

Reduce dimension C (reduce spring tension)

Increase dimension C (increase spring tension)

- Tighten the screw connection (16)

hten the screw connection (16)

Note

If the bale shape is still not satisfactory after the spring has been tensioned to the maximum, install the feeler rocker in the next higher position (see Settings section “Adjusting the feeler rocker”)

If the overload protection still responds too frequently after the spring tension has been reduced to the maximum, install the feeler rocker in the next lower position (see Settings section “Adjusting the feeler rocker”)

Note

Poorly filled out bale corners are usually the result of unfavourable swath shapes or driving to one side.

If the spring tension is too high, the result may be blocking up the packer and thus reducing throughput.

15.16.7 Adjusting the feeler rocker

ATTENTION! Damage to the machine
To avoid damaging the machine, never change the position of the feeler rocker (1) on the MultiBale version.

Install the feeler rocker (1) into the positions (1-4) depending on the operating conditions.

CAUTION! Damages to the machine
Never move the threaded rod (2) into the bore hole (b) since damage to the machine may occur.

hten the screw connection (16)

Note
If the bale shape is still not satisfactory after the spring has been tensioned to the maximum, install the feeler rocker in the next higher position (see Settings section “Adjusting the feeler rocker”)
If the overload protection still responds too frequently after the spring tension has been reduced to the maximum, install the feeler rocker in the next lower position (see Settings section “Adjusting the feeler rocker”)

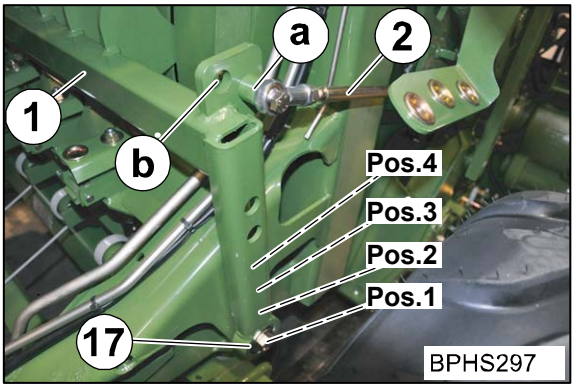


Fig. 209

Note
Only move the feeler rocker (1) if the triggering sensitivity can no longer be adjusted with the spring (14) (see Settings section “Adjusting the triggering sensitivity”).

- Loosen the hexagonal head screw (17)
- Move the feeler rocker (1) into the required position
- Tighten the hexagonal head screw (17)

Note

After moving the feeler rocker, check or if necessary adjust the following settings.

- Check the zero position (see chapter Settings “Zero Position”)
- Check the actuating sensitivity and adjust if, if necessary; refer to chapter Settings “Setting the Actuating Sensitivity”.
- Check the stop for feeler rocker and adjust it, if necessary; refer to chapter Settings “Setting Stop Feeler Rocker”.
- Check the absorbing mechanism and adjust it, if necessary, refer to chapter Settings „Setting the Absorbing Mechanism“.

15.16.8 Adjusting the feeler rocker stop

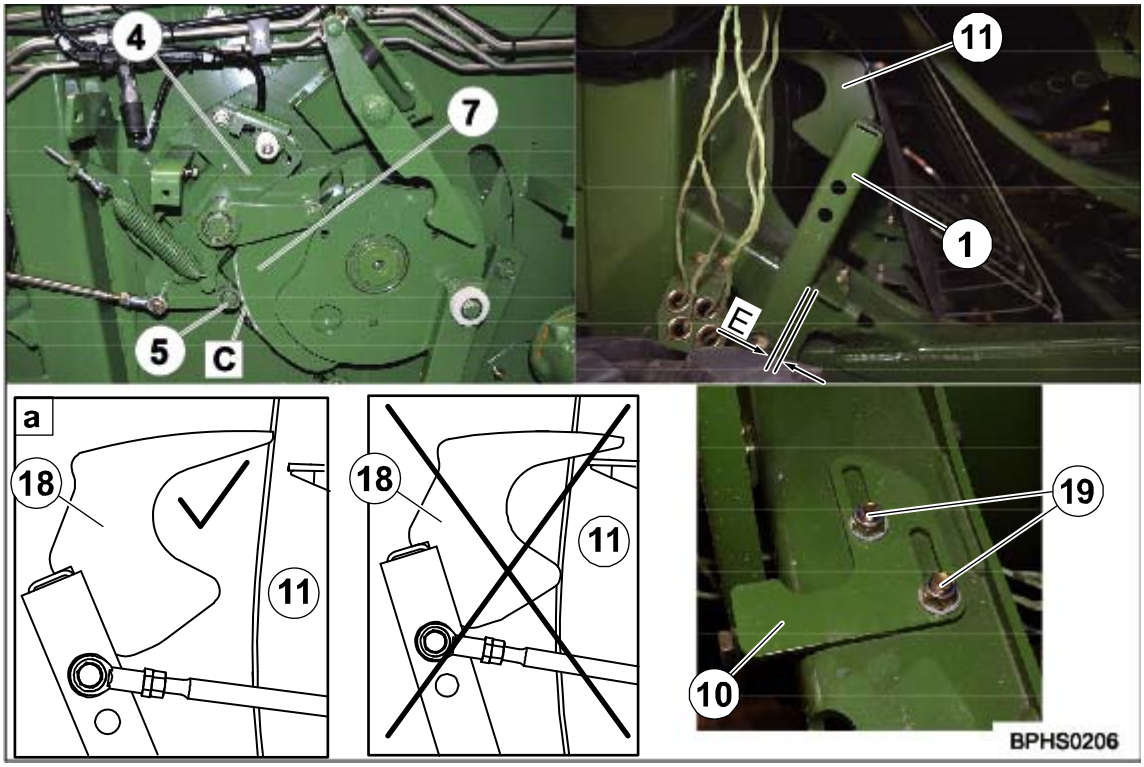


Fig. 210

- Loosen the nuts (19) and move the stop to the rear.
- Pull the feeler rocker (1) manually to the rear to initiate the VFS system.
- Turn the flywheel manually in the working direction until the grooved ball bearing (5) is on the highest position (area “C”).

In this position, the tines (18) of the feeler rocker must be outside (a) the packer tray (11).

- Check if the tines (18) are outside (a) the packer tray (11).

If the tines are not outside the packer tray:

- Correct the length of the threaded rod until the tines are outside the packer tray.

Setting the stop:

- Move the stop (10) until the dimension “E” is 2 mm.
- Tighten the nuts (19).

Checking dimension „F“:

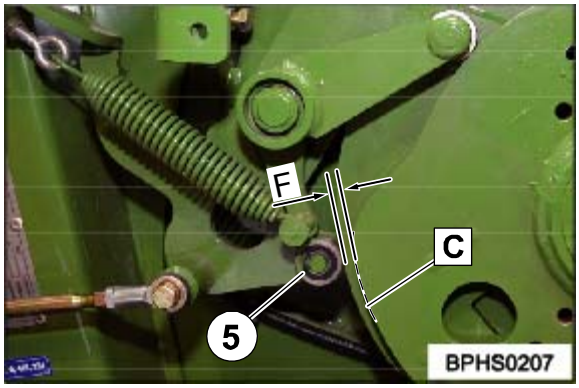


Fig. 211

- Pull the feeler rocker to the stop (10).
- Determine dimension „F“ in this position, measured between grooved ball bearing and cam disc.

The stop is adjusted properly if dimension „F“ is 5 mm.

If dimension „F“ is not 5 mm, move the stop.

If dimension “F” cannot be adjusted, the absorbing mechanism impedes the rotating path of the feeler rocker. Adjust the brake yoke of the absorbing mechanism; refer to chapter Settings “Absorbing Mechanism”.

15.16.9 Absorbing mechanism

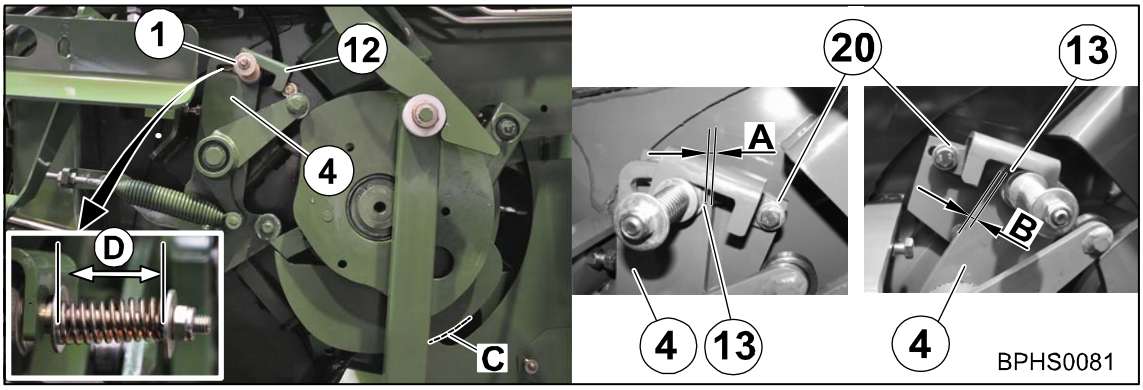


Fig. 212

The absorbing mechanism prevents the feeler rocker from triggering the VFS clutch unintentionally by recoiling back against it.

The slotted brake jaw (12) is used to adjust the length of the braking path in the two stop positions.

Stop positions mean:

Stop position A : VFS system is in zero position

Stop position B: VFS system has been actuated (the tines of the feeler rocker must be outside the packer tray).

Checking the absorbing mechanism:

- Manually move the packer to the zero position by rotating the flywheel (see Settings section “Zero position”).

Measure and note down dimension A between the edge of the anvil (4) and the brake plate (13).

- Pull the feeler rocker back, the VFS system actuates
- Rotate flywheel until the grooved ball bearing is at the highest position (area “C”) of the cam disc (see Settings section “Adjusting the feeler rocker stop”)

Measure and note down dimension B between the edge of the anvil (4) and the brake plate (13).

Dimension A and dimension B must be identical.

If dimension A and dimension B are not identical, adjust slotted brake jaw until the dimensions are identical.

To do this:

- Loosen the screw connection (20)
- Push slotted brake jaw
- Tighten screw connection

Pre-tension the spring (1) on the brake to a dimension of D = 50 mm (simple spring length).

15.17 Basic setting of the band brake (flywheel)

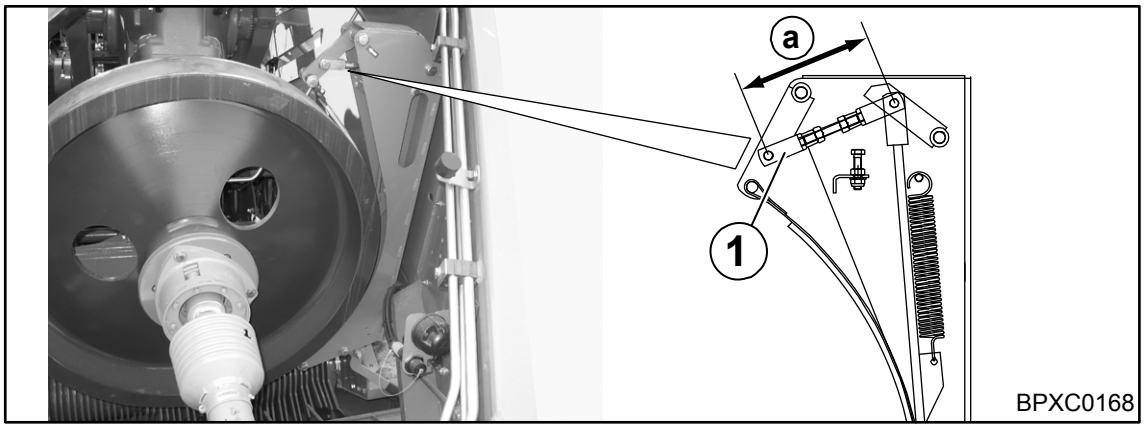


Fig. 213

The band brake is positioned on the left side of the flywheel. If the braking action is no longer adequate when the band brake is applied, it can be readjusted by lengthening the spindle (1).

Basic setting: Dimension a = 182 mm

15.18 Adjusting the chop length

The chop length is set in the same way on the right and left side of the machine. The setting procedure on the left side of the machine is described below. The same applies for the right side of the machine.

If the knife drawers are fully equipped

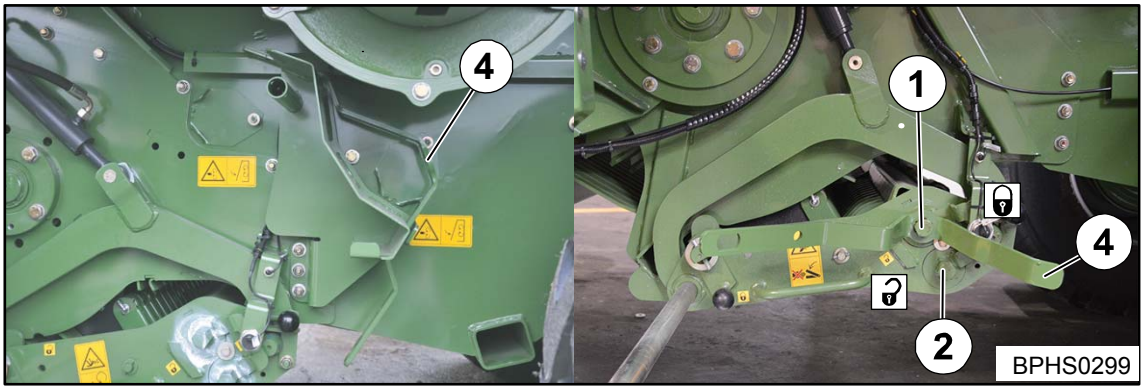


Fig. 214

The special tool (4) is to be found on the left-hand side of the machine, near the cutting system.

To set different chop lengths when the cutting system is fully equipped, the upper and lower knife selections (1, 2) must be in different positions (/) relative to one another. Chop length depending on the knife selection, see table.

Table chop length depending on the knife selection (when fully equipped)

Chop length mm	Number of blades	Upper knife selection	Lower knife selection
-	0		
88	8		
88	8		
44	16		

- Shut down and safeguard the machine, see chapter Safety -> Safety routines "Shutting down and safeguarding the machine".
- Attach the special tool (4) to the upper or knife selection (1, 2).

CAUTION! Risk of injury due to spring pressure on the special tool. If you release it too soon, you can injure yourself.

- Turn the special tool (4) until the cams on the knife selection are either in the ( ) position or in the ( ) position.

Depending on the number of knives in the drawers

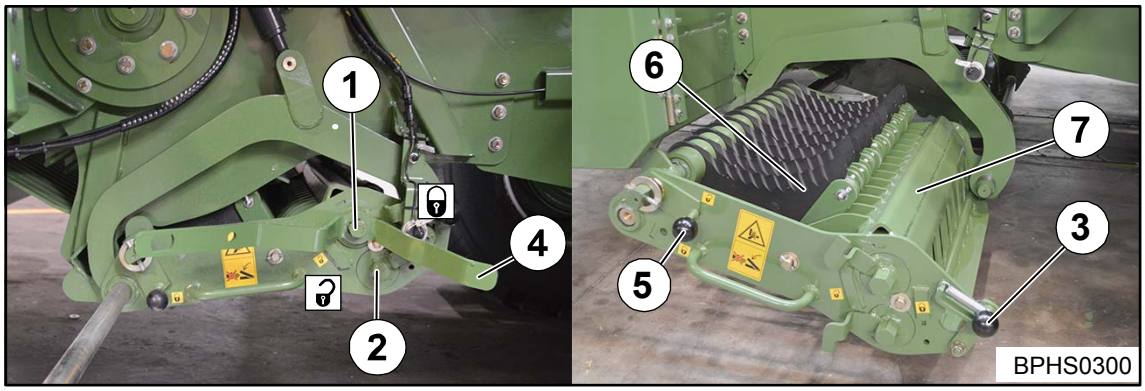


Fig. 215

To set different chop lengths using the number of knives in the drawers, a number of knives must be removed or inserted. Chop length depending on the number of knives in the drawers, see table.

Table cutting length depending on blade fitting

Cutting length mm	Number of blades	Used blade compartment
-	0	any one
44	16	each
88	8	each second
176	4	each third

Lowering the cutting system

Medium Version Electronics

- To lower the cutting system, actuate the control unit on the tractor (red 2-) until the cutting system is fully lowered.

Comfort - Electronic

Release

- To release the blade bar, press .

  The softkeys , are shown in the display.

Lower

- To lower the blade bar, press .

Using the pushbuttons on the machine

- To lower the blade bar, press the pushbutton until the blade bar is fully lowered.

Using the pushbuttons on the machine

- To lower the blade bar, press the pushbutton until the blade bar is fully lowered.

Releasing the single blade locking device

- Shut down and safeguard the machine, see chapter Safety -> Safety routines "Shutting down and safeguarding the machine".
- Attach the special tool (4) to the upper or knife selection (1, 2).

CAUTION! Risk of injury due to spring pressure on the special tool. If you release it too soon, you can injure yourself.

- Turn the special tool (4) until the cams on the upper and lower knife selection are in the ( ) position.

Removing the knife drawer (7)

- To remove the knife drawer, unlock the locking lever (3) and pull the knife drawer out sideways as far as the stop.

Unlocking the blade shaft

- To unlock the blade shaft, move the locking lever (5) to position ( ).

Removing/replacing blades

CAUTION! Danger from sharp blades. Wear gloves.

- Remove the blade (6) vertically upwards.
- Insert the new blade vertically from above.

Locking the blade shaft

- To lock the blade shaft, move the locking lever (5) to position ( ).
- Push in the knife drawer until the locking lever (3) automatically catches in place.
- Insert the special tool into the holder on the machine

Raising the cutting system

Medium Version Electronics

- To raise the cutting system, actuate the control unit on the tractor (red 2-) until the cutting system is fully raised.

Comfort - Electronic

Release

- To release the blade bar, press .

  The softkeys , are shown in the display.

Raise

- To raise the blade bar, press .

Using the pushbuttons on the machine

- To raise the blade bar, press the pushbutton until the blade bar is fully raised.

16 Maintenance

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

16.1 Spare Parts

Danger! - Using non-approved spare parts.

Effect: Danger to life, serious injuries or loss of warranty claims as well as exclusion of liability

- Use only authentic KRONE spare parts and accessories authorised by the manufacturer. The use of spare parts, accessories or additional equipment not manufactured, tested or approved by KRONE will exclude any liability for consequential damage.

Note

To ensure problem-free operation of the machine and to reduce wear and tear, specific maintenance and upkeep intervals must be observed. These include cleaning, greasing, lubricating and oiling parts and components.

ENVIRONMENT! - Disposal and storage of used lubricants and oil filters

Effect: Environmental damage

Store or dispose used oil and oil filters according to statutory provisions.

ENVIRONMENT! - Disposal and storage of lubricants

Effect: Environmental damage

- Store lubricants in eligible containers according to statutory provisions
- Dispose used lubricants according to statutory provisions

16.2 Maintenance table

Maintenance Work	Maintenance interval							
	Once after 10 hours	Before the beginning of the season	Every 10 hours but at least 1x daily	Once after 50 hours	Every 50 hours	Every 200 hours	Every 500 hours	After every season
Tightening screws / nuts								
All screws		X			X			
Main gearbox								
Oil level check		X	X					
Oil change				X		X		
Packer gearbox								
Oil level check		X	X					
Oil change				X		X		
Transfer gearbox								
Oil level check		X	X					
Oil change				X		X		
Pick-up gearbox top / bottom (without cutting system)								
Oil level check		X	X					
Oil change				X		X		
Cutting system gear top / bottom (with cutting system)								
Oil level check		X	X					
Oil change				X		X		
Angular gear on drawbar front / rear								
Oil level check		X	X					
Oil change				X		X		
On-board hydraulic system								
Change the hydraulic oil								X
Replace the filter element of the high-pressure filter								X

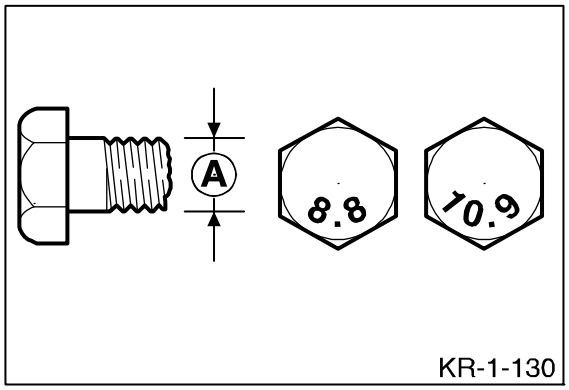
Maintenance work	Maintenance interval							
	Once after 10 hours	Before the beginning of the season	Every 10 hours but at least 1x daily	Once after 50 hours	Every 50 hours	Every 200 hours	Every 500 hours	After every season
Tyres								
Tighten wheel nuts	X	X			X			
Check tyre pressure	X	X			X			
Check tyres visually for cuts and breaks		X						
Compressor								
Clean suction air filter			X					
Oil level check			X					
Oil change				X		X		
Brake								
Check the functionality of the brake system			X					
Drain the compressed air reservoir		X			X			
Check the linkage setter	X					X		
Pneumatic brake cylinders	**Every two years**							
Have brake pads checked by a specialist workshop		X						
Check air filter for pipes		X						
Hydraulics								
Check hydraulic hoses	X							
Change high-pressure filter filter insert								X
Checking / retightening drive chains								
Conveyor roller		X						
Pick-up drive		X						
Checking / changing blades		X	X					
Checking parts								
Check the bearing play of the rollers/cam follower rollers		X						X
Check the functionality of the central lubrication		X						X
Cleaning the machine								
Knotter, packer control system, flywheel			X					
Belt drives								
Check belts visually for cracks		X						

16.3 Tightening Torques

The tightening torque M_A is stated in Nm (unless otherwise indicated).

A Ø	5.6	6.8	8.8	10.9	12.9
	M_A (Nm)				
M 4		2.2	3	4.4	5.1
M 5		4.5	5.9	8.7	10
M 6		7.6	10	15	18
M 8		18	25	36	43
M 10	29	37	49	72	84
M12	42	64	85	125	145
M14		100	135	200	235
M14x1.5			145	215	255
M 16		160	210	310	365
M16x1.5			225	330	390
M 20			425	610	710
M 24			730	1050	1220
M 24x1.5	350				
M 24x2			800	1150	1350
M 27			1100	1550	1800
M 27x2			1150	1650	1950
M30			1450	2100	2450

A = Thread size
(The stability class can be seen on the head of the screw.)



NOTE

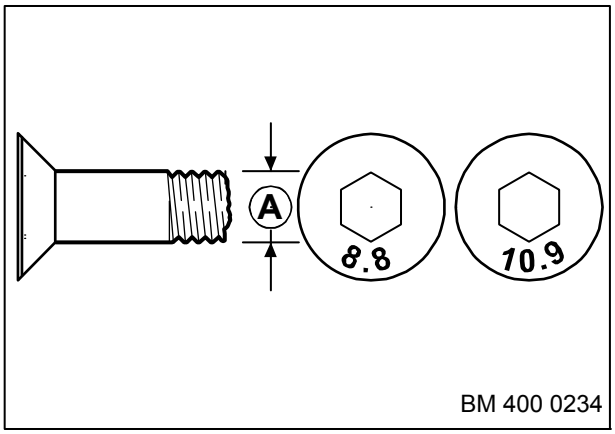
The table above does not apply to countersunk screws with a hexagonal socket head if the countersunk screw is tightened with the hexagonal socket head.

16.4 Tightening Torques (Countersunk Screws)

The tightening torque M_A is stated in Nm (unless otherwise indicated).

A Ø	5.6	8.8	10.9	12.9
	M_A (Nm)			
M 4		2.5	3.5	4.1
M 5		4.7	7	8
M 6		8	12	15
M 8		20	29	35
M 10	23	39	58	67
M 12	34	68	100	116
M 14		108	160	188
M 16		168	248	292
M 20		340	488	568

A = Thread size
(The stability class can be seen on the head of the screw.)



NOTE
The table above applies only to countersunk screws with hexagonal socket heads and metric threading that are tightened by the hexagonal socket head.

16.5 Blade Changing

Blades are changed in the same way on the right and left side of the machine. The procedure used on the left side of the machine is described below. The same applies for the right side of the machine.

ATTENTION!

You many damage the cutting system if you raise it without first retracting and locking the knife drawers.

- Ensure that both knife drawers are properly pushed in and locked before the cutting system is raised.

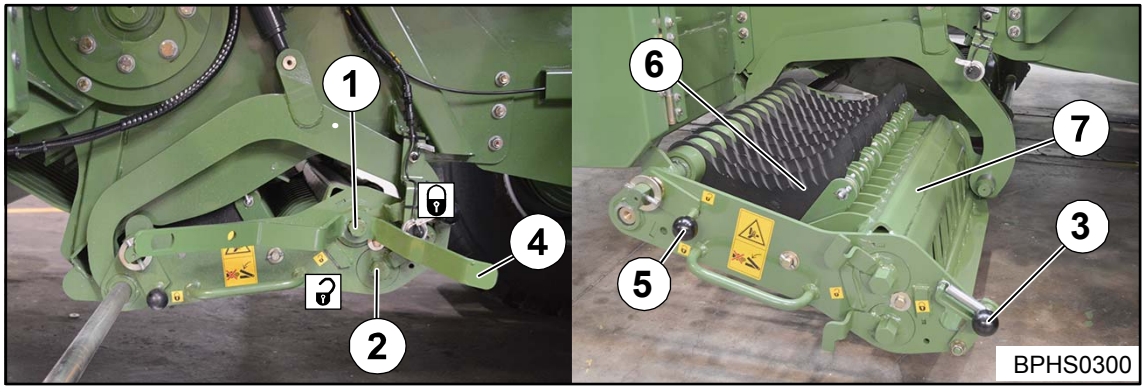


Fig. 216

Lowering the cutting system

Medium Version Electronics

- To lower the cutting system, actuate the control unit on the tractor (red 2-) until the cutting system is fully lowered.

Comfort - Electronic

Release

- To release the blade bar, press .

  The softkeys , are shown in the display.

Lower

- To lower the blade bar, press .

Using the pushbuttons on the machine

- To lower the blade bar, press the pushbutton until the blade bar is fully lowered.

Releasing the single blade locking device

- Shut down and safeguard the machine, see chapter Safety -> Safety routines "Shutting down and safeguarding the machine".
- Attach the special tool (4) to the upper or knife selection (1, 2).

CAUTION! Risk of injury due to spring pressure on the special tool. If you release it too soon, you can injure yourself.

- Turn the special tool (4) until the cams on the upper and lower knife selection are in the ( ) position.

Removing the knife drawer (7)

- To remove the knife drawer, unlock the locking lever (3) and pull the knife drawer out sideways as far as the stop.

Unlocking the blade shaft

- To unlock the blade shaft, move the locking lever (5) to position ( ).

Removing/replacing blades

CAUTION! Danger from sharp blades. Wear gloves.

- Remove the blade (6) vertically upwards.
- Insert the new blade vertically from above.

Locking the blade shaft

- To lock the blade shaft, move the locking lever (5) to position ( ).
- Push in the knife drawer until the locking lever (3) automatically catches in place.
- Insert the special tool into the holder on the machine

Raising the cutting system

Medium Version Electronics

- To raise the cutting system, actuate the control unit on the tractor (red 2-) until the cutting system is fully raised.

Comfort - Electronic

Release

- To release the blade bar, press .

  The softkeys , are shown in the display.

Raise

- To raise the blade bar, press .

Using the pushbuttons on the machine

- To raise the blade bar, press the pushbutton until the blade bar is fully raised.

Adjusting the chop length

To adjust the chop length, see chapter Settings "Adjusting the chop length".

16.6 Lifting

Fig. 217

RH = right-hand side of the machine LH = left-hand side of the machine

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

16.6.1 Eyebolts for lifting

The baler is fitted with four eyebolts for lifting:

– Two eyebolts are located in the front area of the drawbar (1), on the right and left side of the machine.
– Two eyebolts are located at the rear at the yoke (2), on the right and left side of the machine.

16.6.2 Lifting

Before lifting, make sure that

– the flywheel brake is applied.
– the parking support (support jack) is in the transport position.
– the roller chute (bale chute) is folded in.
– the pick-up is raised
– the self-steering axle is locked, optional.
– all safety devices are locked.
– the lifting beams have a minimum load-bearing capacity, depending on the permitted gross weight of the machine.

Weight of the machine, see chapter Description of machine "Technical Data".

- Attach the chains on the lifting beams to the four eyebolts on the baler.

Make sure that the chain hooks are correctly placed on the stop points.

16.7 Cleaning

Warning! - Cleaning with compressed air!
Effect: Loss of eyesight!

- Keep people well away from the working area.
- Wear suitable work clothes to perform cleaning jobs with compressed air (for example eye protection).

The BiG PACK baler, especially the knotter, must be cleaned of chaff and dust after every use. Under very dry working conditions, the cleaning must be repeated several times a day. The packer control system and the flywheel must also be cleaned daily of chaff and dust.

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

16.8 Drive chains

- Regularly check the pretension of the drive chains (especially on new drive chains)
- Shorten chains which have become too long by taking out a chain link
- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

16.8.1 Conveyor roller (I)

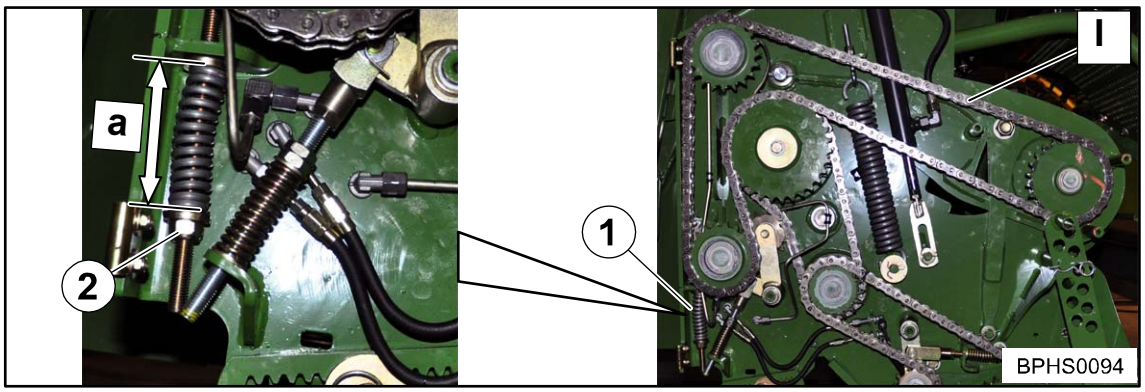


Fig. 218

Right-hand side of the machine

At the factory the spring has been preset (1) to a = 100 mm.

- Open the protective cover on the right side of the machine
- By tightening the nut (2), increase the tension of the spring (1)
- Close protective cover

16.8.2 Pick-up drive (II)

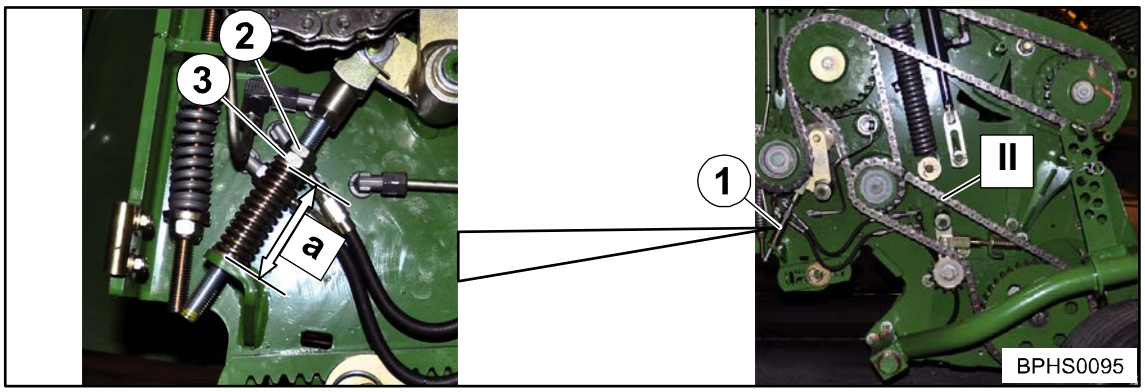


Fig. 219

Right-hand side of the machine

At the factory the spring has been preset (1) to a = 60 mm.

- Open the protective cover on the right side of the machine
- Unscrew the counter nut (2)
- By tightening the nut (3), increase the tension of the spring (1)
- Secure the nut (3) with the counter nut (2)
- Close protective cover

16.8.3 Pick-up drive (III)

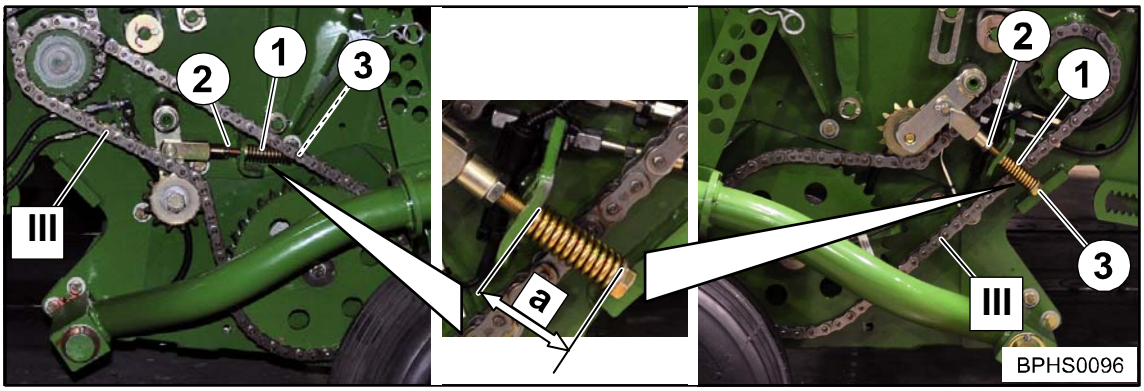


Fig. 220

Right and left sides of the machine

At the factory the spring has been preset (1) to a = 60 mm.

- Open the protective cover on the right or left side of the machine
- Unscrew the counter nut (2)
- By screwing in the bolt (3), increase the tension of the spring (1)
- Secure the bolt (3) with the counter nut (2)
- Close protective cover

16.9 Tyres

Warning! - Tyre fitting incorrect

Effect: Injuries or damage to the machine

- Fitting tyres requires sufficient knowledge and the availability of proper tools!
- If tyres are not correctly fitted, it could explode when pumped up. This can cause serious injury. If you do not have sufficient experience of fitting tyres, have tyres fitted by the KRONE dealer or a qualified tyre specialist.
- When fitting tyres on the wheel rims, the maximum pressure given by the tyre manufacturer must not be exceeded. The tyre or even the wheel rim could explode and/or burst.
- If the tyre heels do not fit properly when the maximum permitted pressure is reached, let out the air, align tyres, lubricate the tyre heels and pump up the tyre again.
- Detailed information about how to fit tyres onto agricultural machinery can be obtained from the tyre manufacturers.

Tightening Torque

Threading	Key size in mm	Number of bolts per hub - pieces	Max. tightening torque	
			black	galvan.
M12 x 1.5	19	4/5	95 Nm	95 Nm
M14 x 1.5	22	5	125 Nm	125 Nm
M18 x 1.5	24	6	290 Nm	320 Nm
M20 x 1.5	27	8	380 Nm	420 Nm
M20 x 1,5	30	8	380 Nm	420 Nm
M22 x 1.5	32	8/10	510 Nm	560 Nm
M22 x 2	32	10	460 Nm	505 Nm

16.9.1 Checking and maintaining tyres

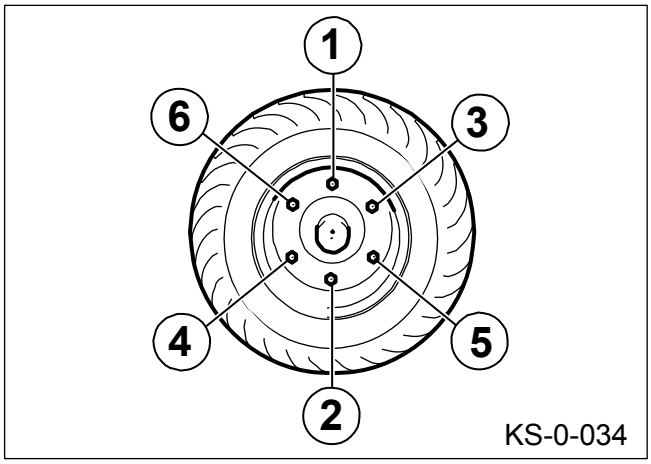


Fig. 221

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

When loosening and tightening the wheel nuts, observe the order indicated in the illustration.

Check the wheel nuts: According to the maintenance table

Check the tyre air pressure: According to the maintenance table

17 Maintenance - hydraulic system

WARNING! – Risk of injury as a result of incorrect handling of liquids under high pressure.

Effect: Escaping high-pressure liquids can penetrate the skin and cause serious injury.

Repair work on the hydraulic system may only be performed by authorised KRONE professional workshops.

- Depressurise the system before disconnecting lines.
- When searching for leaks, use suitable aids and wear protective goggles.
- High-pressure liquid that is escaping from a small opening is virtually invisible. Therefore, you should use a piece of cardboard or something similar when searching for leaks. Protect your hands and body.
- If liquid penetrates the skin, consult a doctor immediately. The liquid must be removed from the body as quickly as possible. Danger of infection! Physicians who are not familiar with this area must consult appropriate information from a competent medical source.
- Check hydraulic hoses regularly and replace if there are any signs of damage or ageing! The replacement lines must comply with the requirements of the device manufacturer.
- Ensure that all line connections are tight before the pressure in the system builds up again.

WARNING! – Hydraulic hose lines are subject to ageing

Effect: Danger to life or serious injuries

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

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

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

Use original spare parts when replacing hydraulic hoses!

Note

- When working on the hydraulic system, absolute cleanliness is essential
- Check the hydraulic oil level each time before placing the machine in operation
- Observe the intervals for replacing the hydraulic oil and hydraulic oil filter
- The used oil must be disposed of correctly

17.1.1 On-board hydraulic system

ENVIRONMENT! - Disposal and storage of used lubricants and oil filters
Effect: Environmental damage
Store or dispose used oil and oil filters according to statutory provisions.

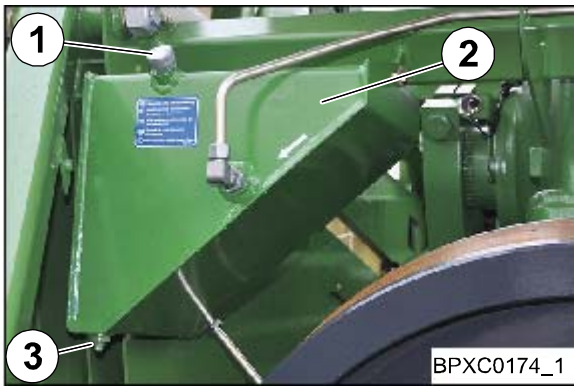


Fig. 222

1) Dipstick / oil filling hole
2) Hydraulic tank
3) Drain plug

To do this:
- Stop the machine.
- Apply the flywheel brake.
- Open bale channel flaps.

The hydraulic cylinders of the bale channel flaps must be completely retracted.
- Provide a suitable container for oil change.
- Unscrew the drain plug.
- Collect the oil in a suitable container.
- Screw in drain plug.
- Screw out dipstick and fill in hydraulic oil.
- Check the oil level with dipstick.

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Oil level check:
- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:
- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:
- Screw out filler plug.
- Top up oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

17.2 High-pressure filter

The filter takes up depositions of solid particles of the hydraulic system. The filtering of the hydraulic circuit serves as a prevention of damages on components of the circuit. The filter is equipped with an optical contamination indicator (7). The contamination indicator (7) informs optical about the degree of contamination of the filter

Note

Check the contamination indicator before the machine is used and exchange the contaminated filter element if necessary.

When starting in cold condition the button on the contamination indicator (7) could hop out. Only press the button back in after achieving the operating temperature. In case it immediately hops out again, the filter element needs to be changed.

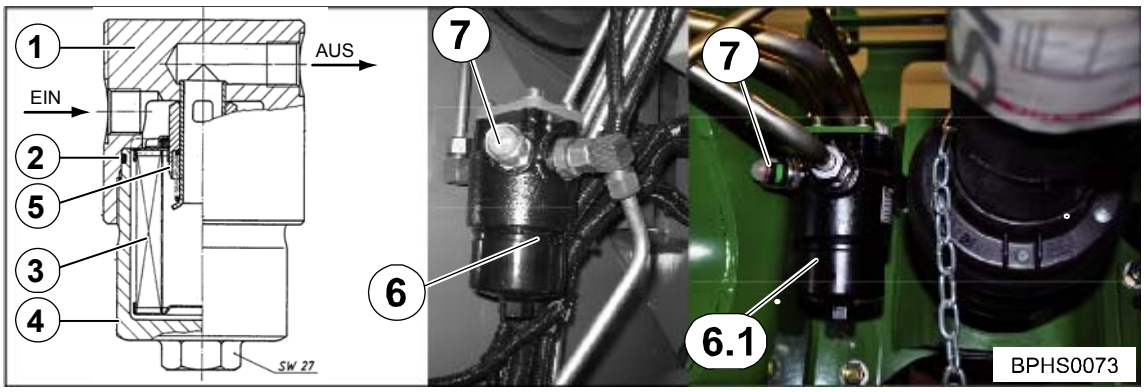


Fig. 223

Replacing the Filter Element

The filter (6) of the on-board hydraulic system is located in front of the twine box on the left side of the machine.
The filter (6.1) for the work hydraulics is located in the front area of the drawbar.

ENVIRONMENT! - Disposal and storage of used lubricants and oil filters

Effect: Environmental damage

Store or dispose used oil and oil filters according to statutory provisions.

Collect escaping oil in a suitable container.

- Relieve all pressure from the hydraulic system.
- Unscrew the bottom part of the filter (4) from the top part of the filter (1), clean it and make certain that it is not damaged.•
- Remove the filter element (3) and replace it by a new one with identical properties.
- Push a new filter element (3) onto the valve sleeve (5).
- Check the O-ring seal (2) and, if necessary, replace it by a new one with identical properties.
- Screw the bottom part of the filter (4) onto the top part of the filter until the stop is reached and turn it back one quarter of a revolution.
- Charge the hydraulic system with pressure and check it for leaks.

17.3 Emergency Manual Activation

The electromagnetic valve block for the In-cab Comfort kitis located at the front on the left under the side cover next to the electronics box.

In the event the electrical system should fail completely, the valves are equipped with an <<Emergency manual activation>>.

Comfort Electronics:

- The valves (Y3 to Y8, Y18,Y19 and Y20) are activated by turning in the knurled head screw.
- The valves (Y1,Y2 and Y17) are be activated with the help of a pointed object by pressing in on the valve.

17.4 Comfort Hydraulic Block Diagram

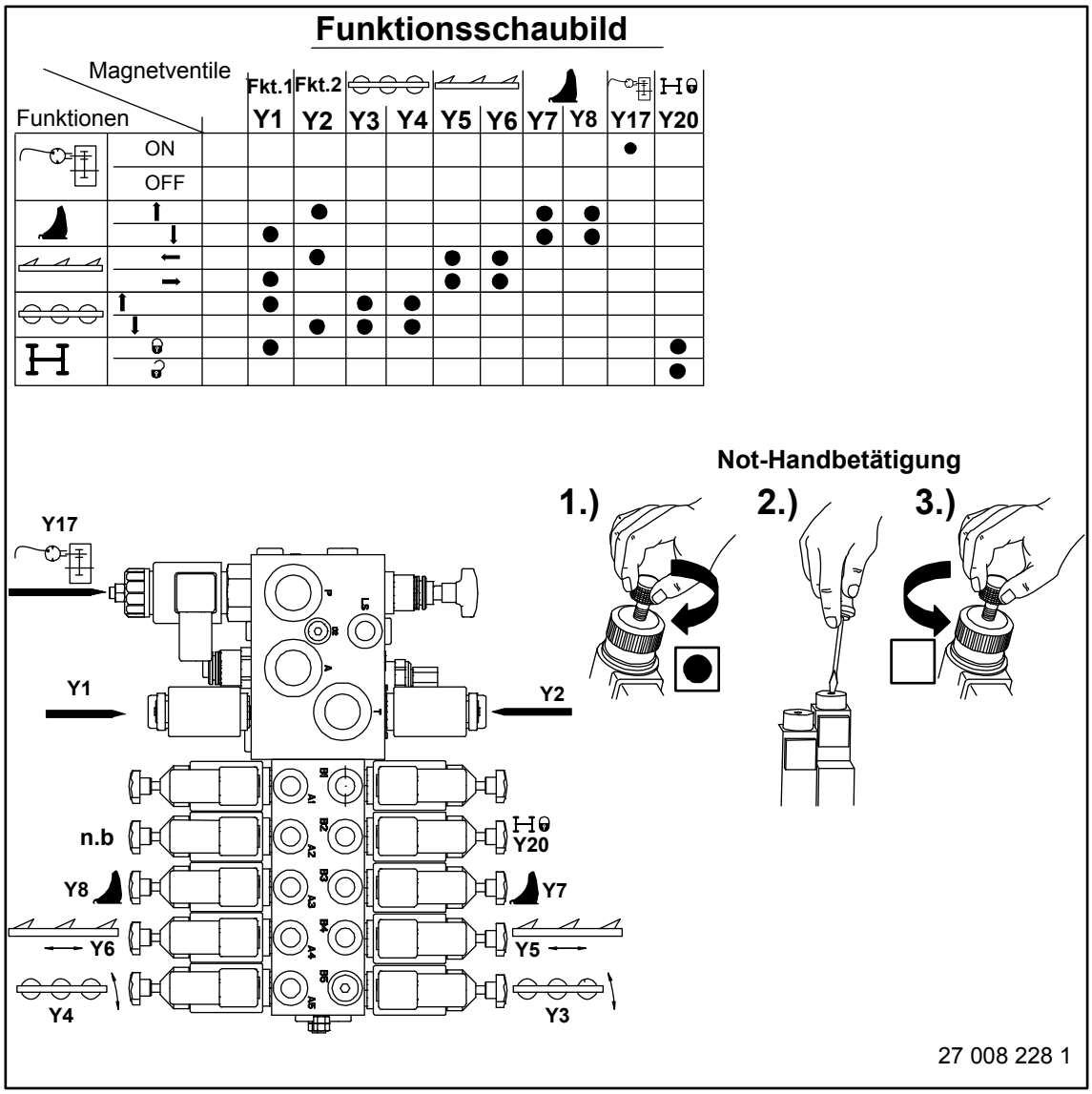


Fig.224

Y1	Raise/lower	Y7,Y8	Cutting system
Y2	Raise/lower	Y17	Start-up aid
Y3/Y4	Roller chute	Y20	Steering axle locked
Y5/Y6	Bale ejector	n.a.	not assigned

17.5 Examples of Emergency Manual Activation

WARNING!

There is an increased risk of injury if you operate the machine using the emergency manual activation.

When the machine is operated using the emergency manual activation, functions are executed immediately without safety prompts. This means there is an increased risk of injury.

- Only persons who are familiar with the machine are permitted to perform an emergency manual activation.
- The person performing the test must know which machine parts are moved by controlling the valves.
- The manipulation of the valves must only be carried out from a safe position outside the range of the machine parts which are moved by the actuators.
- Make certain there are no persons, animals or objects in the danger zone.

To perform a function (for example raising/lowering the roller chute) the correct valves must be activated. For the valves to be switched, see diagram (Comfort hydraulic block). The following section contains a description of an example based on the Comfort version.

17.5.1 Raising / Lowering the roller chute

- Screw in the starwheel screw on valve (Y03, Y04) 'roller chute'.

To raise:

- Using a pointed object, press in the magnetic plunger of valve (Y1) 'Control valve' and keep it pressed in.

To lower:

- Using a pointed object, press in the magnetic plunger of valve (Y2) 'Control valve' and keep it pressed in.

Note

After emergency manual activation has been executed, the knurled head screws for emergency manual activation must be completely screwed out again!

Note

For lifting operations (cutting system / parking jack / roller chute) the control valve must be kept pressed in after the function is executed until the knurled head screws have been completely screwed out to release the valves.

17.6 Pressing force control (with emergency manual activation)

Warning!
There is an increased risk of injury if adjust the force of pressure in emergency mode.
The force of pressure can be adjusted in emergency mode while the machine is running. As a result, people may be caught by machine components and seriously injured or killed.
- Ensure that the machine can be turned off immediately if there is danger.
- Special caution must be exercised when making the adjustment.

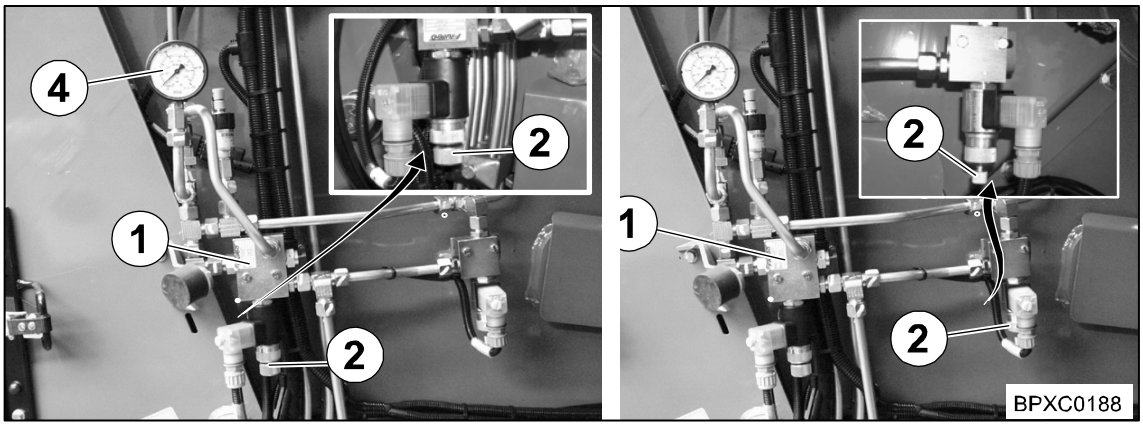


Fig. 225
Setting the baling pressure
Releasing the bale channel chamber

If the electronics fail, you can continue to work with the machine for a short time in emergency mode. The force of pressure is adjusted while the machine is running.

ATTENTION!
Exceeding the force of pressure may damage the machine.
Without electronic control, the maximum force of pressure can be exceeded. This can lead to significant damage to the machine.
- Never work for a long time without the electronic control system.

17.6.1 Setting the baling pressure

The baling pressure on the bale channel chamber flaps can be adjusted on the hydraulic control block (1) on the left side of the machine under the side hood.
To perform a setting:
- Set the desired pressure by slowly screwing in the knurled head screw (2) (the pressure is limited to a maximum of about 100 bar / 1450 PSI)
- Read the pressure on the pressure gauge (4)

Note
After emergency manual activation has been performed, the knurled head screw (2) must be completely screwed out again.

17.6.2 Releasing the bale channel chamber (comfort)

The "Release bale channel flaps" seat valve is located on the right next to the hydraulic control block (1) for pressing force control on the left side of the machine under the side hood.
To perform a setting:
- The bale channel chamber flaps loosen by slowly screwing in the knurled head screw (2) as far as it will go

18 Maintenance - Gearbox

Note
When checking the oil level on the gearboxes, make sure that the big pack baler is in horizontal position. Use the lower edges of the cross-members as a reference edge.

18.1 Main gearbox

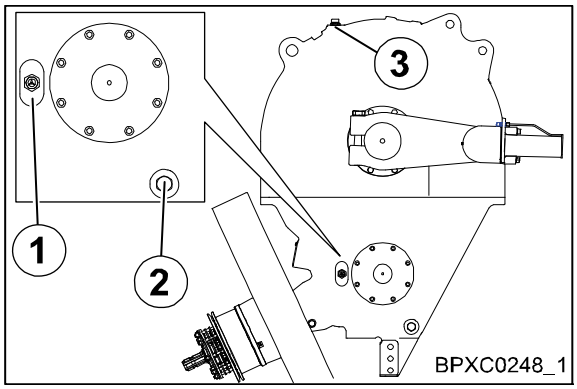


Fig. 226

1) Viewing glass
2) Drain plug
3) Filler plug / oil filling hole

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Used oil disposal: see chapter Safety "Consumables"

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Oil level check:

- Oil level to the centre of the viewing glass.

If the oil does not reach the centre of the viewing glass:

- Screw out filler plug.
- Top up oil via oil filling hole until the centre of the viewing glass is reached.
- Screw in filler plug and tighten it securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out filler plug.
- Screw out oil drain plug and drain the oil.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via oil filling hole until the centre of the viewing glass is reached.
- Screw in filler plug and tighten it securely.

18.2 Packer gearbox

The packer gearbox (3) is located on the left side of the machine.

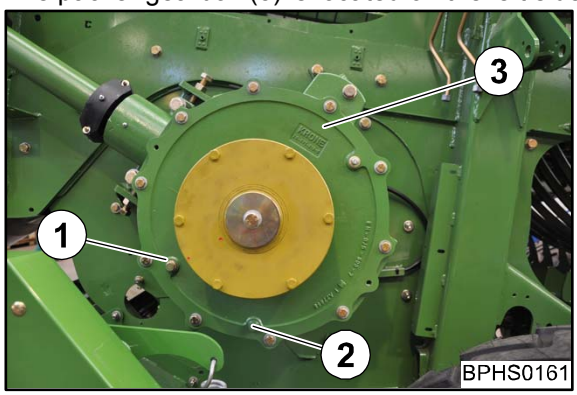


Fig. 227

1) Inspection screw / control hole
2) Drain plug

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Used oil disposal: see chapter Safety "Consumables"

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Oil level check:

- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:

- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:

- Top up oil via control hole until the control hole is reached.
- Screw in the inspection screw and tighten it securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out oil drain plug and drain the oil.
- Screw out inspection screw.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via control hole until the control hole is reached.
- Screw in the inspection screw and tighten it securely.

18.3 Transfer gearbox

The transfer gearbox (3) is located on the left side of the machine.

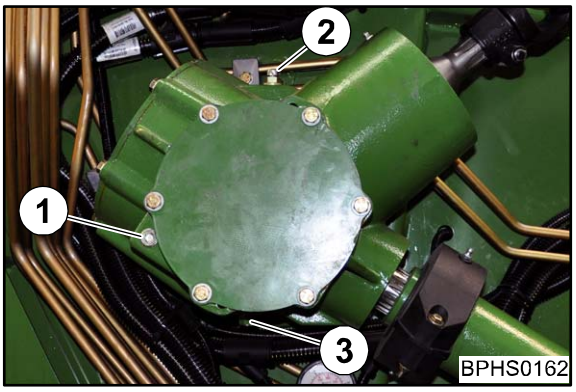


Fig. 228

1) Inspection screw / control hole
2) Filler plug / filling hole
3) Drain plug

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Used oil disposal: see chapter Safety "Consumables"

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Oil level check:

- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:

- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:

- Screw out filler plug.
- Top up oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out oil drain plug and drain the oil.
- Screw out inspection screw and filler plug.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

18.4 Pick-up gearbox

Design without cutting system

The upper (4a) and lower (4b) Pick-up gearboxes are located on the right side of the machine.

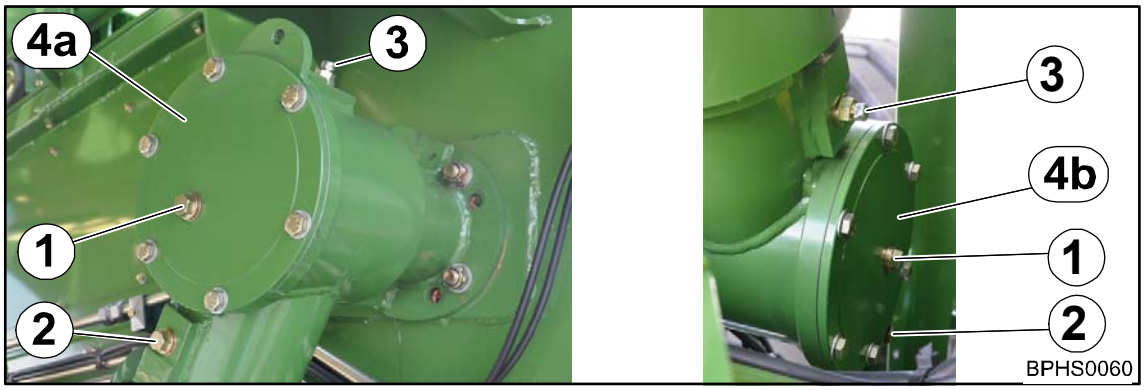


Fig. 229

1) Inspection screw / control hole
2) Drain plug
3) Filler plug / filling hole
4a) Pick-up gearbox top
4b) Pick-up gearbox bottom

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Used oil disposal: see chapter Safety "Consumables"

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Oil level check:

- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:

- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:

- Screw out filler plug.
- Top up oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out oil drain plug and drain the oil.
- Screw out inspection screw and filler plug.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

18.5 Cutting system drive gear

Design with cutting system

The cutting system gear is located on the right-hand side of the machine. It consists of the upper angular gear (4a) and the lower cutting system gear (4b).

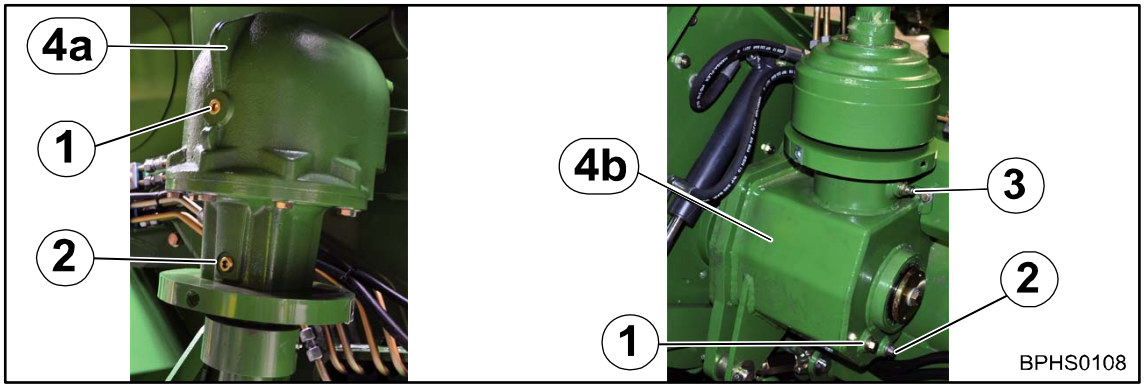


Fig. 230

1) Inspection screw / control hole
2) Drain plug
3) Filler plug / oil filling hole
4a) Angular gearbox
4b) Cutting system gear

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Used oil disposal: see chapter Safety "Consumables"

Angular gear

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Oil level check:

- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:

- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:

- Top up oil via control hole until the control hole is reached.
- Screw in the inspection screw and tighten it securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out oil drain plug and drain the oil.
- Screw out inspection screw.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via control hole until the control hole is reached.
- Screw in the inspection screw and tighten it securely.

Cutting system gear

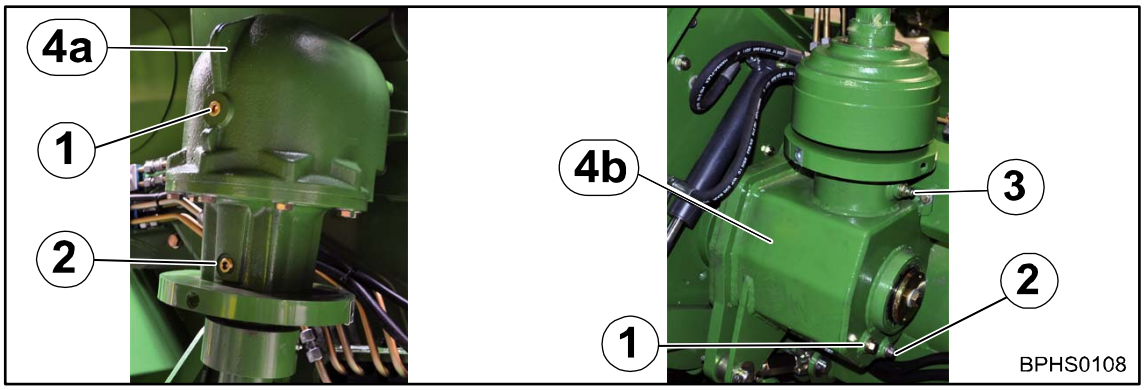


Fig. 231

1) Inspection screw / control hole
2) Drain plug
3) Filler plug / oil filling hole
4a) Angular gearbox
4b) Cutting system gear

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Used oil disposal: see chapter Safety "Consumables"

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".

Oil level check:

- Screw out inspection screw.
- Oil level up to control hole.

If the oil reaches the control hole:

- Screw in the inspection screw and tighten it securely.

If the oil does not reach the control hole:

- Screw out filler plug.
- Top up oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

Oil change:

Collect escaping oil in a suitable container.

- Screw out oil drain plug and drain the oil.
- Screw out inspection screw and filler plug.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via oil filling hole until the control hole is reached.
- Screw in the inspection screw and the filler plug and tighten them securely.

19 Maintenance - Brake System

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

WARNING!

Risk of injury resulting from damage to the brake system

Damage to the brake system may impair the operational safety of the machine and cause accidents. As a result, people may be seriously injured or killed.

- Adjustment and repair work on the brake system must only be performed by authorised professional workshops or recognised brake services.
- Have the brakes checked regularly by a specialist workshop.
- Have damaged or worn brake hoses replaced immediately by a specialist workshop.
- Irregularities or malfunctions in the brake system must be rectified immediately by a specialist workshop.
- Only a machine with an intact brake system may be used for work in the field or for travelling on roads.
- No changes may be made to the brake system without the approval of KRONE.
- KRONE is not responsible for natural wear, defects caused by overload or changes made to the brake system.

19.1 Compressed-air reservoir

WARNING!
Risk of injury from corroded or damaged compressed air reservoirs.
Damaged or corroded compressed air reservoirs may burst and cause serious injuries.
- Observe the inspection intervals according to the maintenance table, see chapter Maintenance Engine "Maintenance table".
- Have damaged or corroded compressed air reservoirs replaced immediately by a service centre.

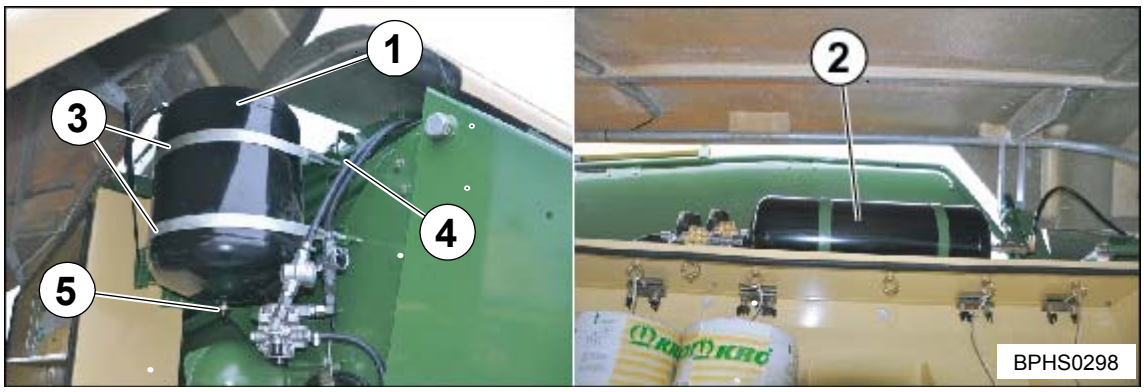


Fig. 232

1) Compressed air reservoirs, on the compressed air brake version
2) Compressed air reservoirs for knotter cleaning
3) Tensioning belts
4) Nuts
5) Drain valve

Reducing the pressure
- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".
- Activate the drain valve on the compressed air reservoir until the excess pressure is reduced.

Checking the compressed air reservoir
Have the interior area of the compressed air reservoir checked in accordance with national requirements. A check is recommended at intervals of 2 years.

19.1.1 Checking the drain valve

ATTENTION!
Water in the plant will cause corrosion damage.
- Check and clean the drain valve according to the maintenance table, see chapter Maintenance "Maintenance table".
- Immediately replace a defective drain valve.

- Shut down and safeguard the machine, see chapter Safety -> Safety routines, "Shutting down and safeguarding the machine".
- Open the drain valve and allow the condensation to run out.
- Check the drain valve, clean it and screw it back in.

19.1.2 Retighten tensioning belts

- Check the tensioning belts (3) of the compressed air reservoir to ensure they are properly seated
- If necessary, retighten the tensioning belts with the nuts (4)

19.2 Adjusting the transfer mechanism

WARNING!
Insufficient technical knowledge to carry out adjustment and repair work poses an increased risk of injury.
Insufficient knowledge of the brake system may impair the operational safety of the machine and cause accidents. As a result, people may be seriously injured or killed.

- Adjustment and repair work on the brake system must only be performed by authorised professional workshops.

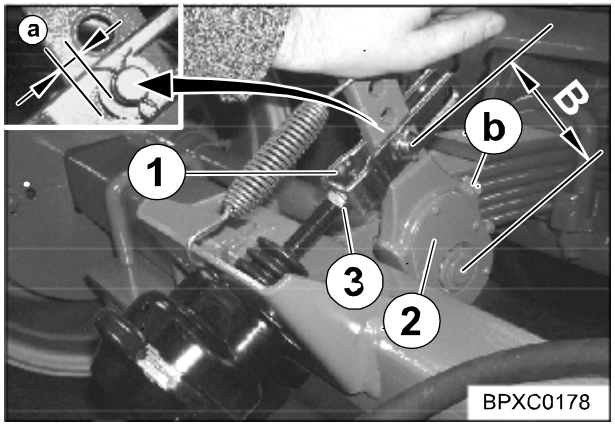


Fig. 233

After the first few kilometres of driving, the transfer mechanisms and the brake linings of the brake drum will have adjusted. The play resulting from this must be compensated for.

The setting may only be performed by authorised professional workshops.

19.2.1 Pneumatic brake cylinders

WARNING!
Insufficient technical knowledge to carry out adjustment and repair work poses an increased risk of injury.
Insufficient knowledge of the brake system may impair the operational safety of the machine and cause accidents. As a result, people may be seriously injured or killed.

- Adjustment and repair work on the brake system must only be performed by authorised professional workshops.

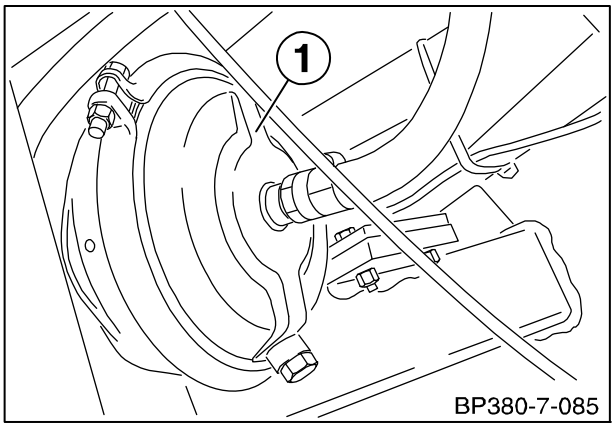


Fig. 234

No special maintenance is required for the brake cylinders (1). At least once every two years the membrane brake cylinders should be removed, disassembled, cleaned, fitted with new wear parts and reassembled.

The setting may only be performed by authorised professional workshops.

19.3 Air filter for pneumatic cylinder (only MultiBale)

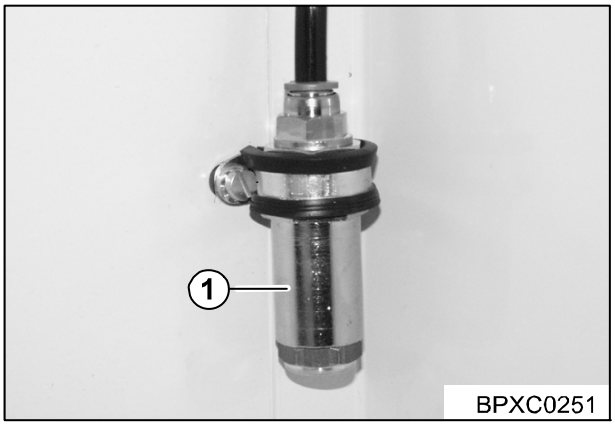


Fig. 235

The air filter (1) for pneumatic cylinders is on the left in the twine box (as seen facing direction of travel).

Note

Clean the air filter (1) once a year.

19.4 Replacing Rollers/Cam Follower Rollers

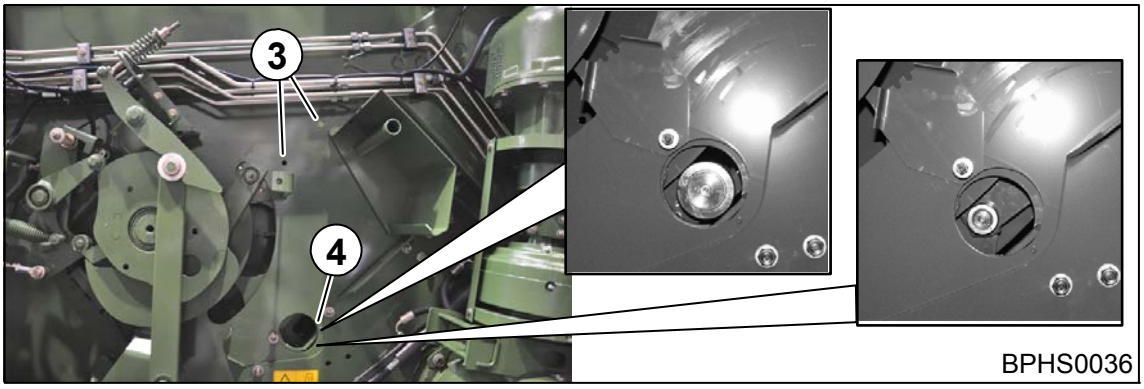


Fig.236

Rollers/Cam follower rollers are subject to high mechanical stress in the feed packer drum. Because of this, they must be replaced when there is increased wear (bearing play).

To do this:

- Turn the packer by hand until the roller or cam follower roller to be replaced can be released through the opening (3) with the help of a hexagonal socket head screw.
- Release the roller /cam follower roller
- Turn the packer further until the loosened roller / cam follower roller can be removed through the opening (4).
- Remove the roller /cam follower roller through opening (4) and install a new roller /cam follower roller in the reverse order.

Tightening torques:

Large guide roller: Ø 72 (M24 x 1.5) = 220 Nm

Small guide roller: Ø 47 (M 20 x 1.5) = 120 Nm

20 Maintenance Compressor

20.1 Compressor

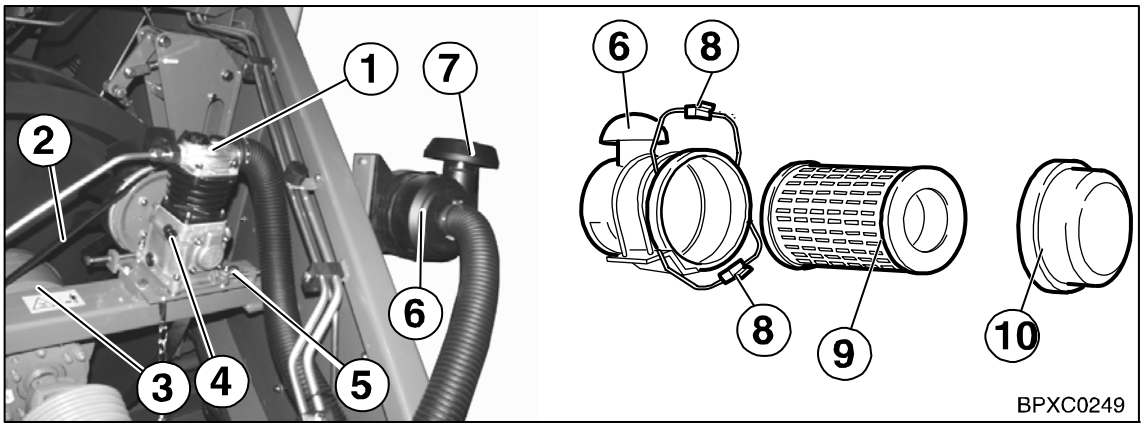


Fig. 237

The supply of compressed air for knotter cleaning is provided through a compressor (1) mounted between the drawbar beams (1) (except for balers equipped with pneumatic brakes)

Note

On balers with pneumatic brakes the pneumatic connection of the tractor undertakes the filling of the compressed air reservoir for the knotter cleaning.

The compressor is driven via a V-belt pulley (3) mounted on the flywheel and a V-belt (2). The tension on the V-belt can be changed by moving the compressor in the oblong holes (5).

The oil level in the compressor must be checked daily prior to use by means of the dipstick (4). Top up with oil (engine oil SAE 20) if necessary. The specification of the oil that is required is listed in the "Technical data".

Note

The suction air filter (6) must be cleaned at least once a day or several times a day in case of high dust load. For heavy accumulations of dirt in the filter, the aspiration port (7) can be placed directly on the cabin roof of the tractor using a retrofit kit (order no. 287 363).

Filter cleaning

- Move the retaining bracket (8) on the air filter (6) up/down
- Remove the cover (10)
- Remove the filter cartridge (9), shake it out and blow it out from the inside to the outside with an air jet
- Further dismantle the cover (10) and shake it out
- Install the filter cartridge
- Place the cover on the filter and secure it in place with retaining brackets

Note

Make sure, that the filter housing seals tightly with the air filter.

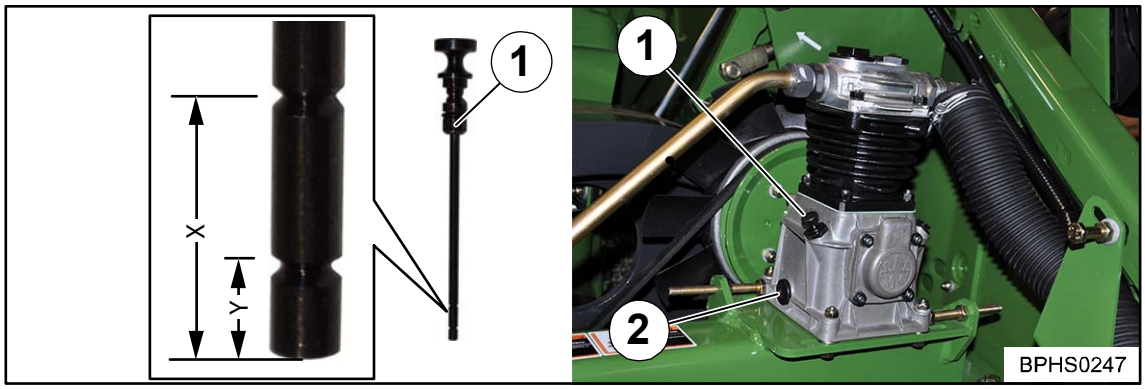


Fig. 238

1) Oil dip stick / oil filling hole 2) Drain plug

Interval for oil level check and oil change: refer to chapter Maintenance “Maintenance Table”

Oil Quality / Amount of Oil: Refer to Chapter Technical Data “Lubricants”

Clean the oil dip stick with a non-fibrous cloth.

Oil level check:

- Thoroughly clean the area around the oil dip stick.
- Pull out the oil dip stick, clean it and insert it completely.
- Pull out the oil dip stick and check the oil level.

The oil level is OK if it is between the markings „(Y)“ and „(X)“.

- Insert the oil dip stick.

Top up oil if the oil level is below the marking “(Y)”.

To do this:

- Top up the oil via filling hole until the marking “(X)” is reached.
- Insert the oil dip stick.

Oil change:

Collect escaping oil in a suitable container.

- Pull out the oil dip stick and clean it.
- Screw out oil drain plug and drain the oil.
- Screw in oil drain plug and tighten it securely.
- Top up new oil via oil filling hole until the marking “(X)” is reached.
- Insert the oil dip stick.

21 Maintenance – lubrication

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

ENVIRONMENT! - Disposal and storage of lubricants

Effect: Environmental damage

- Store lubricants in eligible containers according to statutory provisions
- Dispose used lubricants according to statutory provisions

21.1 Lubricants

21.2 General

All machines are equipped with automatic central lubrication.
Soft, supple NLGI Class 2 lithium soap greases in accordance with DIN 51825 should be used as lubricating greases. We recommend that you do not use lubricating greases with any other base material.

Note
Do not use greases containing graphite! There may be problems when different greases are mixed together!

Manufacturer	Lubricants based on mineral oil	Bio-lubricants
ARAL	Long-term grease H	On request
BP	Energrease LS-EP2	
DEA	Glissando EP2	
FINA	Marson EPL 2A	
Shell	Alvania Ep2	
ESSO	EGL 3144	

The lubrication points on the machine that are not supplied by central lubrication must be lubricated regularly. The position of the lubrication points and the lubrication intervals can be seen in the lubrication charts in the operating instructions. Remove the grease that comes out of the bearing points after lubrication.

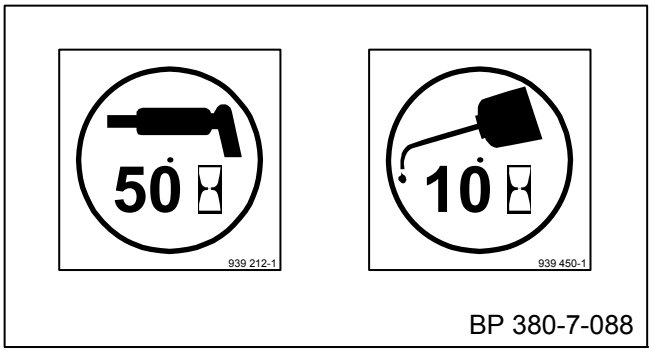


Fig. 239

Lubrication intervals:
10 h corresponds to about once a day
50 h corresponds to about once a week
200 h corresponds to about once a year

21.3 Lubricating the PTO shaft

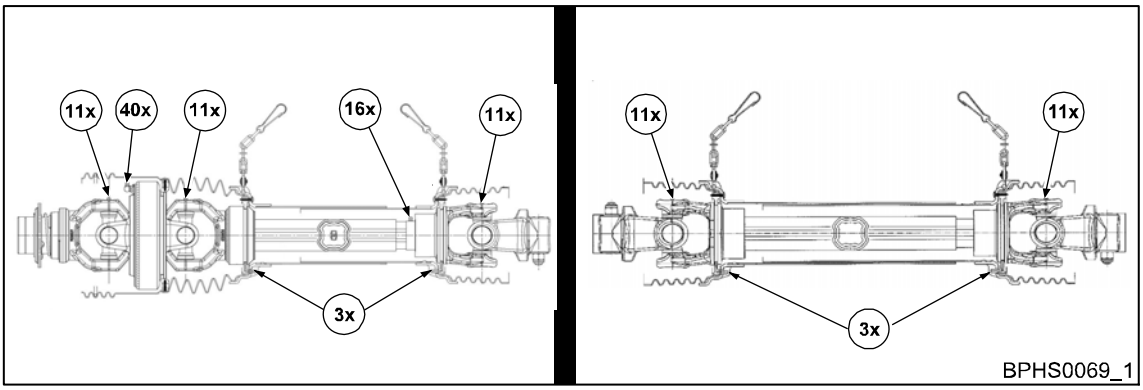


Fig. 240

Universal shafts must be lubricated with multi-purpose grease every 50 hours at designated lubrication points. The figure above shows the number of pump pulses per lubrication point. Follow the operating instructions of the universal shaft manufacturer.

One stroke corresponds to approx. 2 g grease.

21.4 Lubricating the rollers for the blade lever

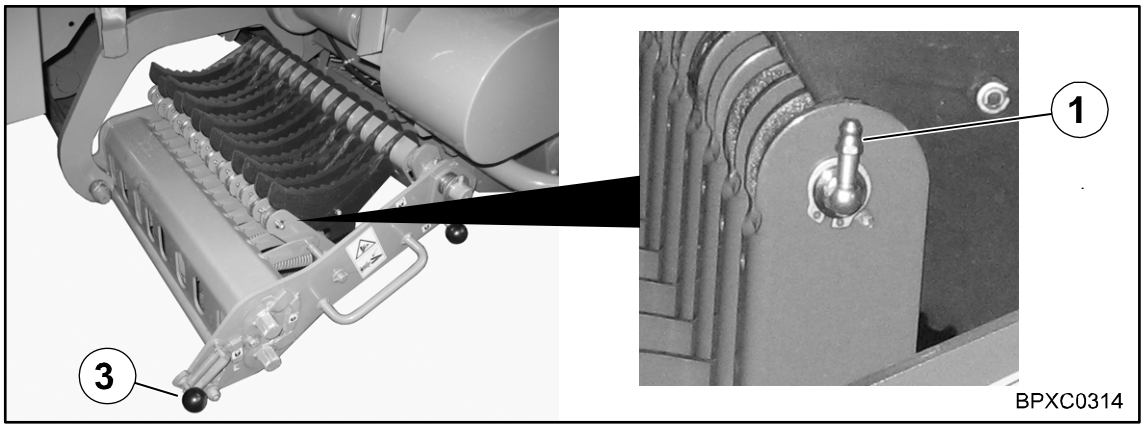


Fig. 241

- Lower the cutting system with the tractor hydraulics (with the comfort electronics system: Activate the tractor hydraulics and hold down “Lower blade bar” on the control unit display or on the machine buttons until the cutting system is lowered all the way down)
- Remove the ignition key and turn off the electrical system on the control unit
- Apply the flywheel brake
- Secure the tractor and machine against rolling
- Unlock the cutting system half and remove it as far as the stop (right hand and left hand machine side)
- Lubricate all grease nipples for the rollers of the blade levers
- Push in the half of the cutting system on the side (right hand and left hand side of the machine) until the locking lever (3) snaps into place by itself
- Raise the cutting system hydraulically

21.5 Manual lubrication points on the machine

Left-hand Side of the Machine

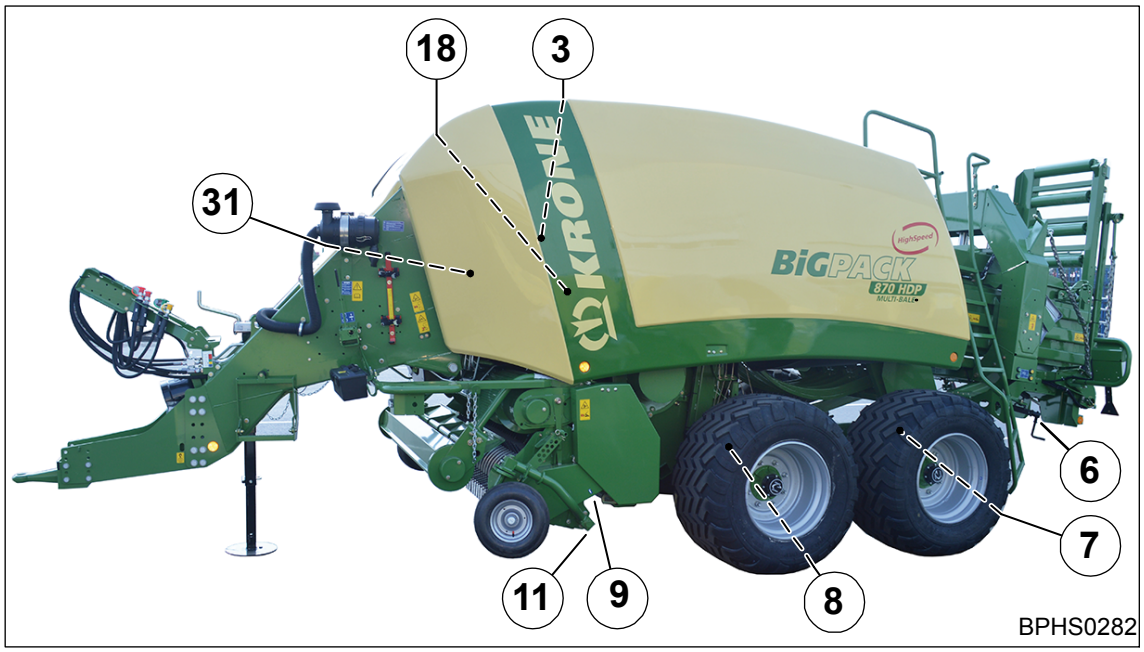
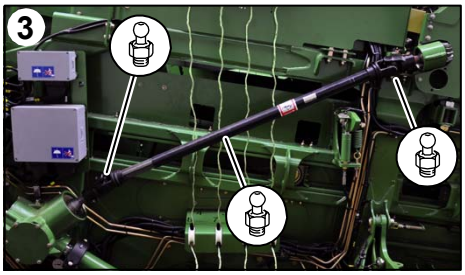
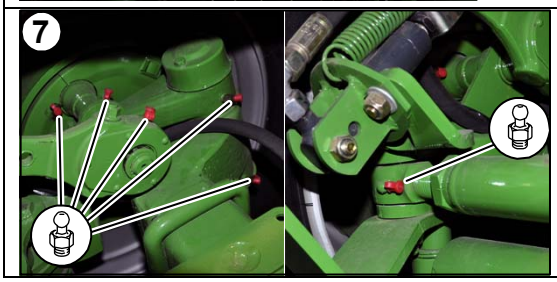
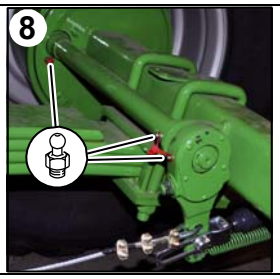
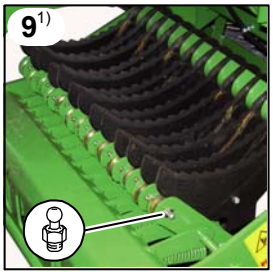
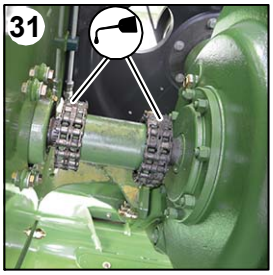


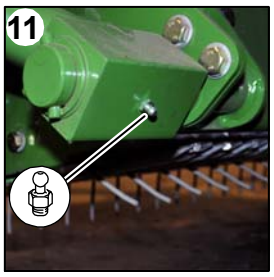
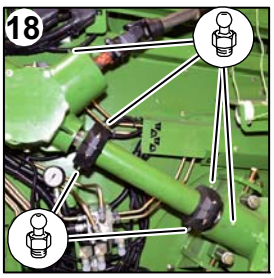
Fig. 242 Left-hand side of the machine

Every 50 hours

		
		COLAERT unit

Every 200 hours

[1]) Only for version with a cutting system

Right-hand Side of the Machine

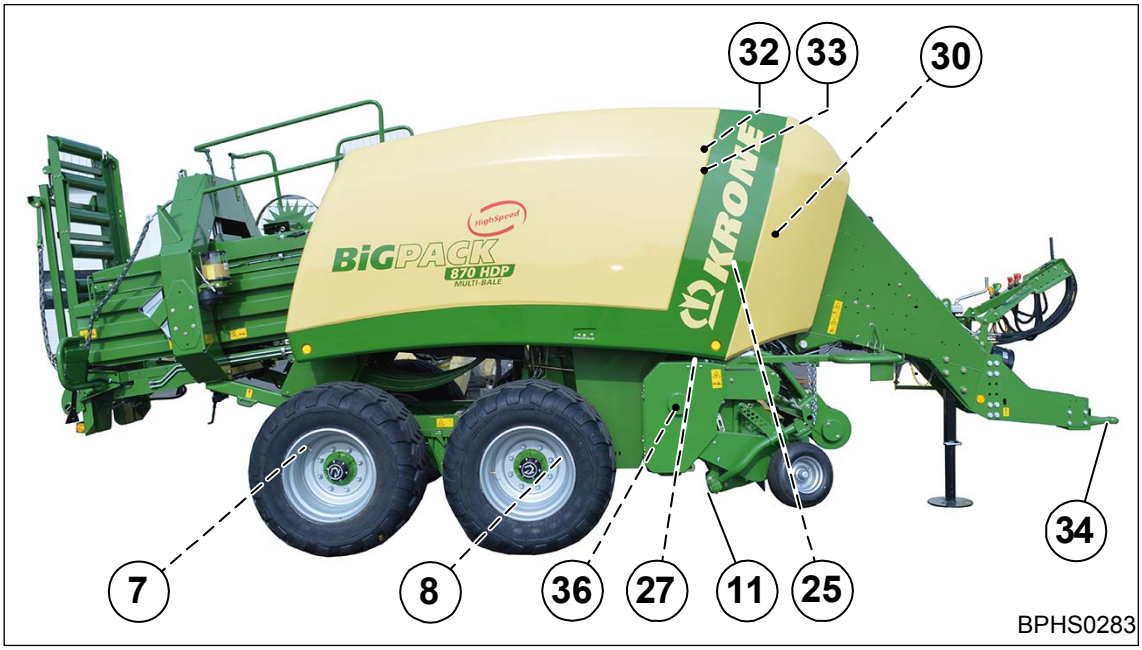
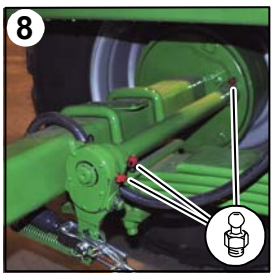
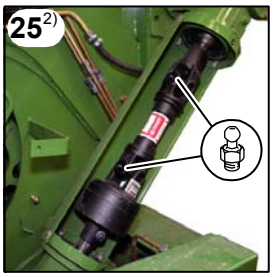
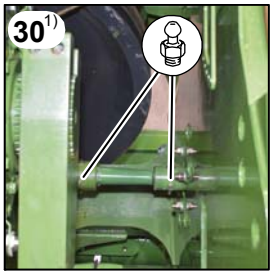
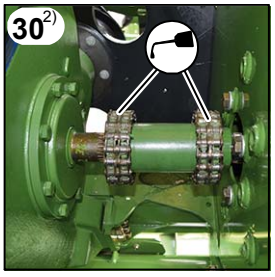
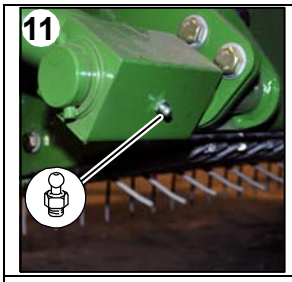


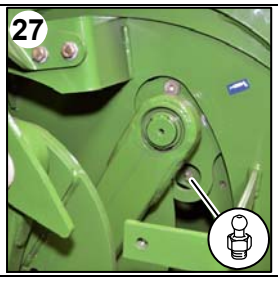
Fig. 243 Right hand side of the machine

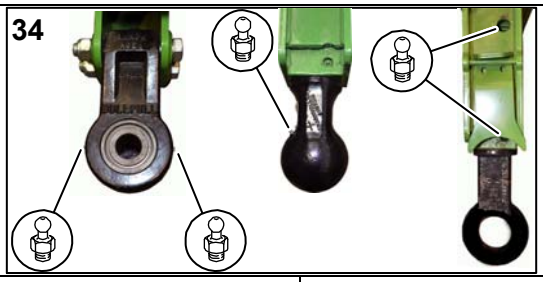
Every 50 hours

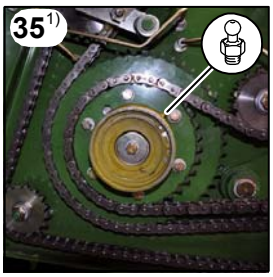
			COLAERT unit
			

Every 200 hours









[1]) Only for version with a cutting system
[2]) Only for version without a cutting system

22 Maintenance – Central Lubrication

22.1.1 Automatic centralised lubrication system (optional)

Functional description of the BEKA-MAX grease central lubrication system

The BEKA-MAX grease central lubrication system is a progressive system. Progressive means that all lubrication points included in the central lubricating system are lubricated one after the other. Lubricating the lubrication points one after the other makes it very easy to monitor a progressive central lubrication system with an excess pressure valve. If a lubrication point does not take any grease from the distributor, the progressive distributor is blocked and a pressure of 280 bar /4060 PSI builds up in the central lubrication system. Grease emerging on the excess pressure valve of the pump element indicates a blockage.

Note

An error message will appear in the display.

Layout of the BEKA-MAX grease central lubrication system

An electrically driven EP-1 plunger pump pumps lubricant to the main progressive distributor. The task of this element is to distribute grease to the sub-progressive distributors at the correct ratio. The sub-progressive distributors then pump the grease to the individual lubrication points.

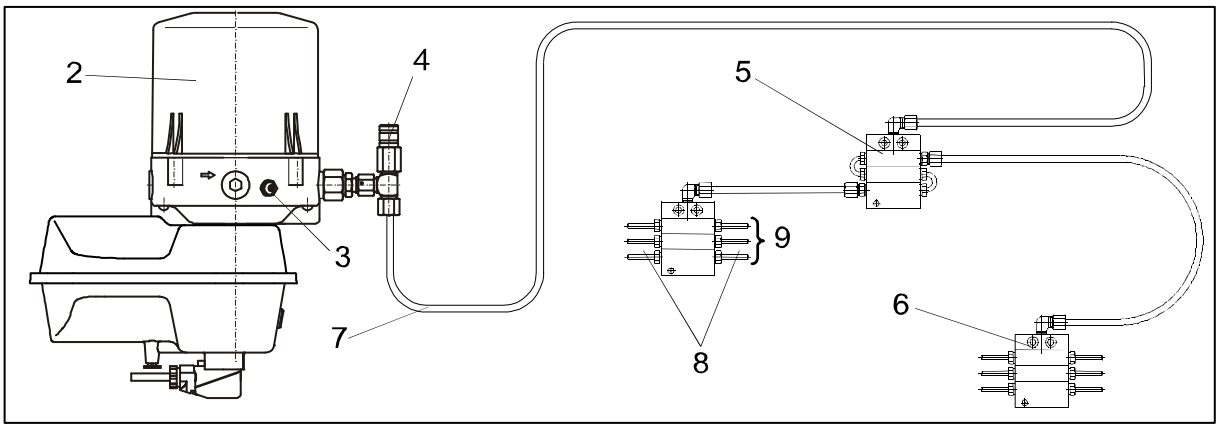


Fig. 244

2) See-through reservoir
3) Filling nipple
4) Excess pressure valve
5) Main progressive distributor
6) Auxiliary progressive distributor
7) Main line
8) Lubrication lines
9) Lubrication points

Description of the control unit

Lubricating and pause times are regulated by the control unit in the driver's cab of the tractor (refer to chapter Info-Center “Menu 1-5 central lubrication”).

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23 Maintenance – electrical system

23.1 Position of sensors (right side of the machine)

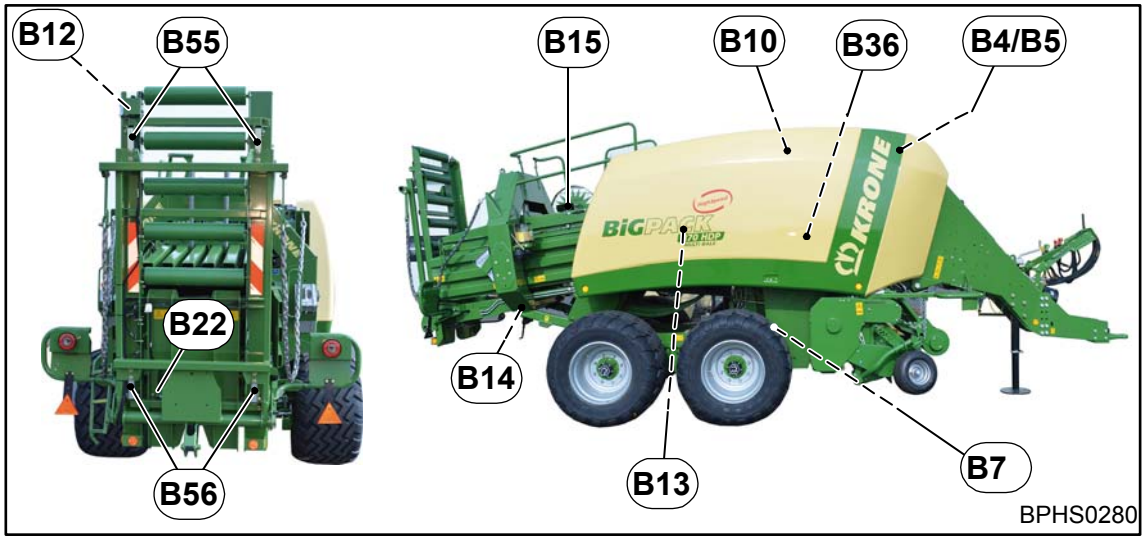
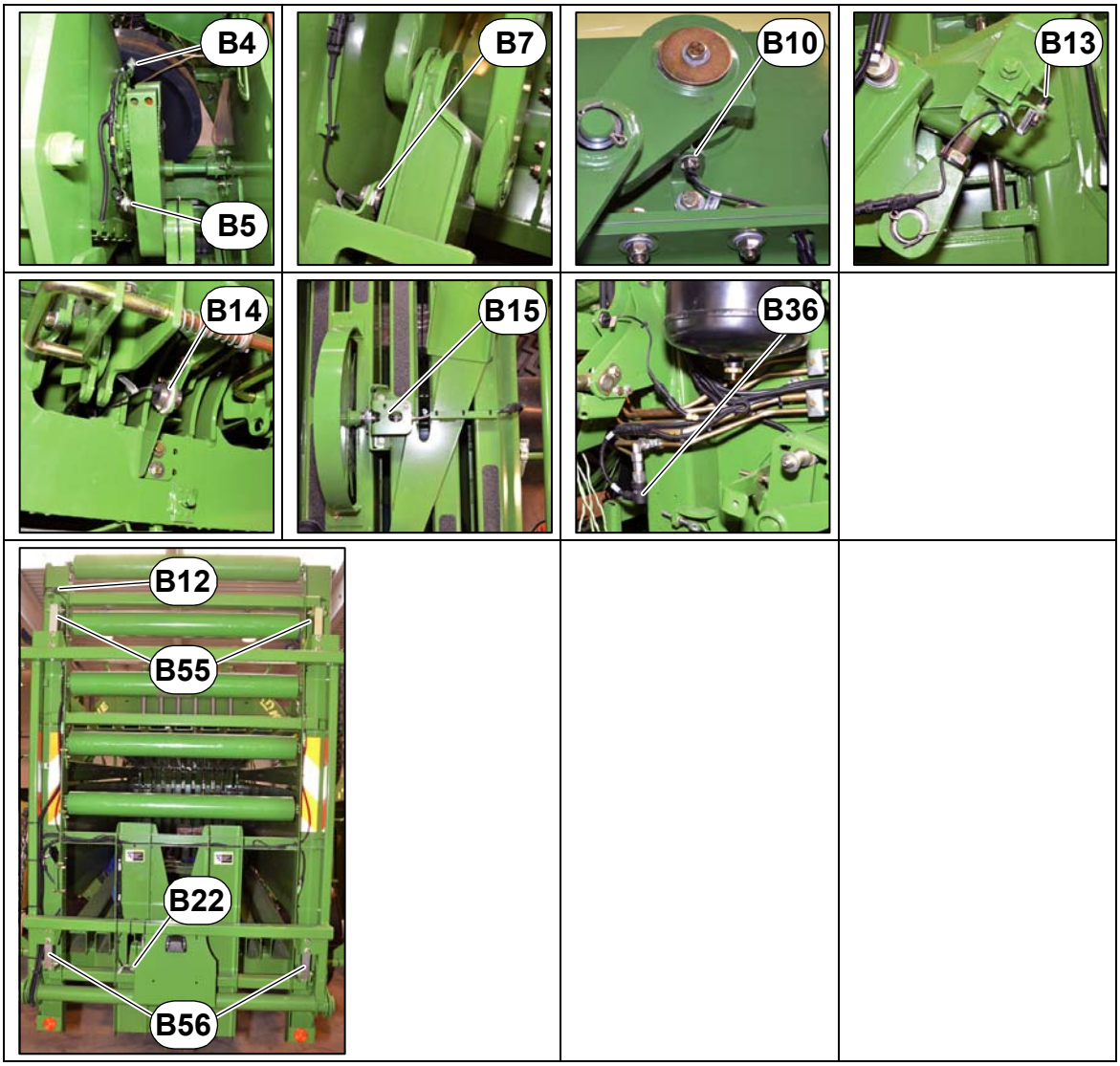


Fig. 245



No.	Sensor Designation	No.	Sensor Designation
B4	Measuring	B5	Calibration
B7	Packer feed	B10	Knotter monitoring
B12	Setting down bales	B13	Needle connecting rod on right
B14	Bale ejector	B15	Star wheel
B22	Bale on chute	B36	Steering axle
B55	Rear bale chute	B56	Front bale chute

23.2 Position of sensors (left side of machine)

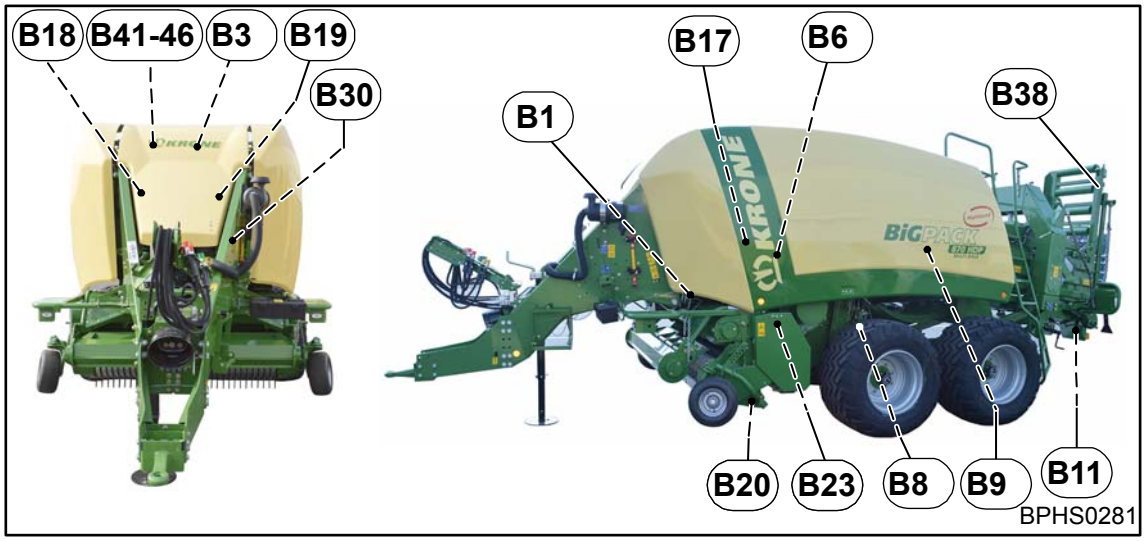
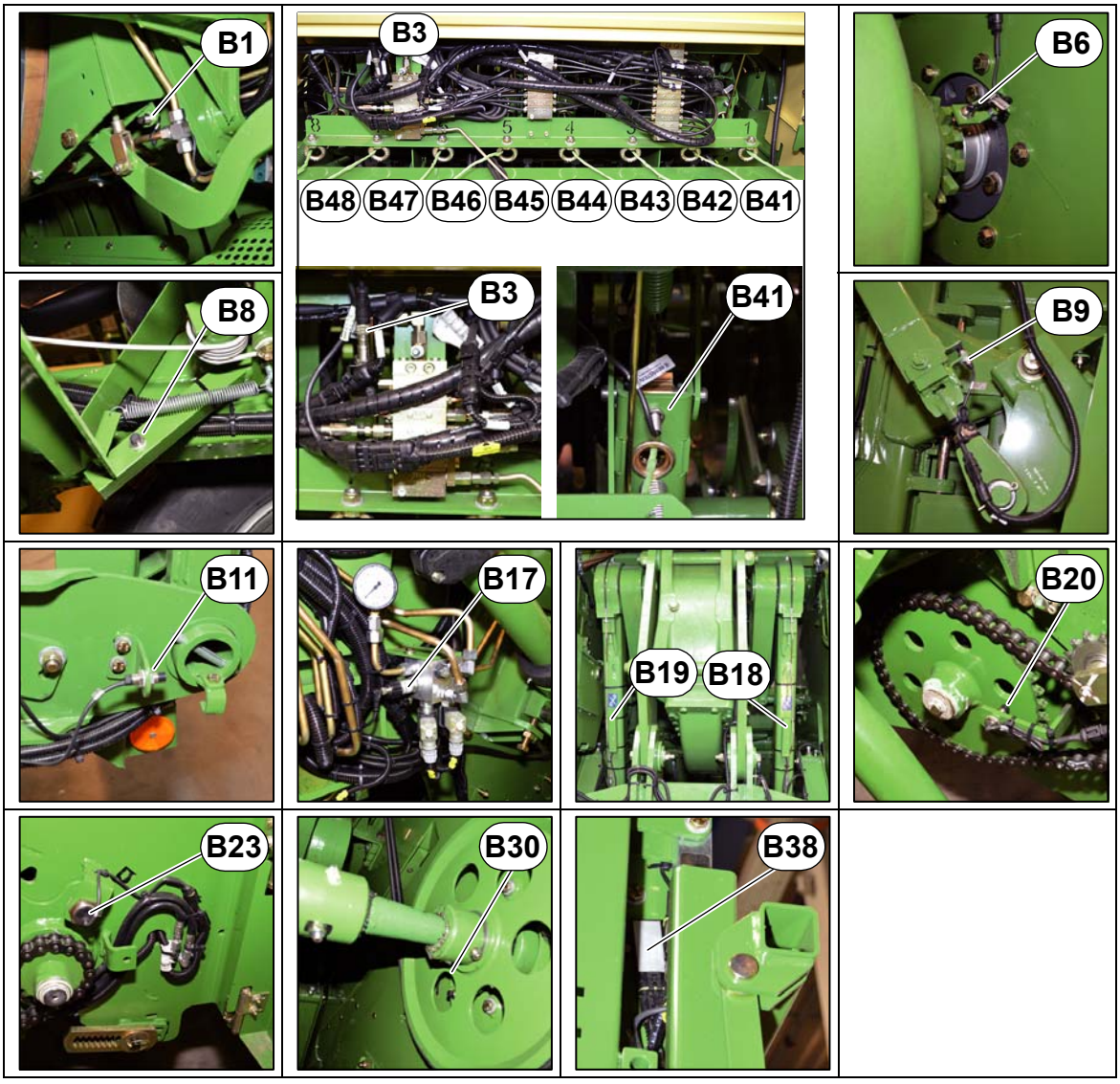


Fig. 246



No.	Sensor Designation	No.	Sensor Designation
B1	Flywheel brake	B3	Central lubrication
B6	Packer monitoring	B8	Twine monitoring
B9	Needle connecting rod on left	B11	Bale chute
B17	Bale channel flap pressure	B18	Plunger force, right
B19	Plunger force, left	B20	Pick-up
B23	Pick-up position	B30	PTO speed
B38	Acceleration sensor	B41 to B45	Upper twine monitoring

23.2.1 Adjusting the Sensors

23.2.1.1 Namur sensor d = 8 mm

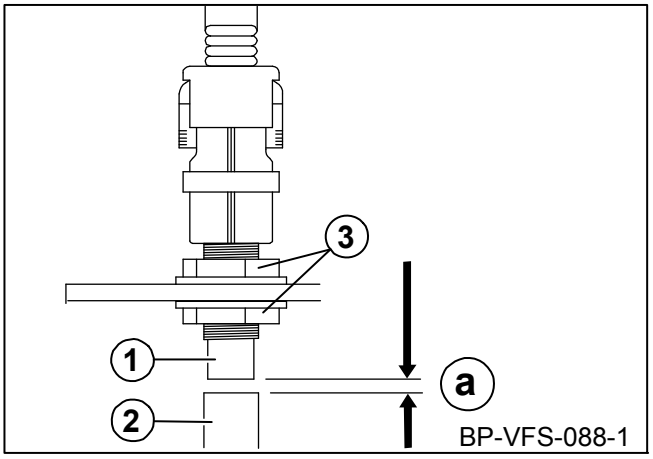


Figure 247:

The dimension between the encoder (2) and the sensor (1) must be "a" = 0,5 mm .

Setting

- Loosen the nuts on either side of the sensor.
- Turn the nuts until dimension "a" = 0,5 mm is reached.
- Tighten the nuts again.

23.2.1.2 Namur sensor d = 12 mm

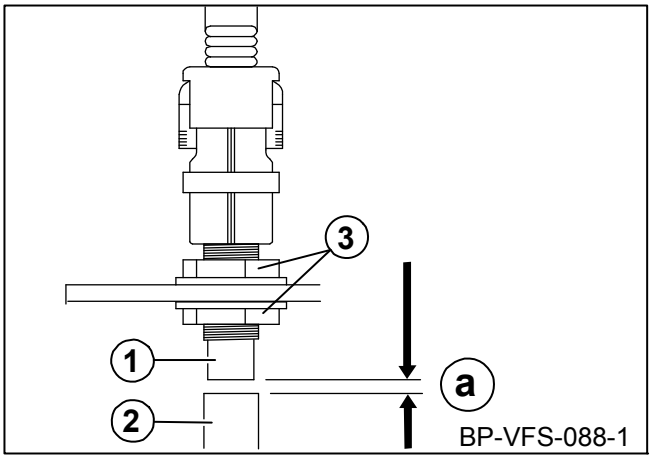


Figure 248

The dimension between the encoder (2) and the sensor (1) must be "a" = 2 mm .

Setting

- Loosen the nuts on either side of the sensor.
- Turn the nuts until dimension "a" = 2 mm is reached.
- Tighten the nuts again.

23.2.1.3 Namur sensor d = 30 mm

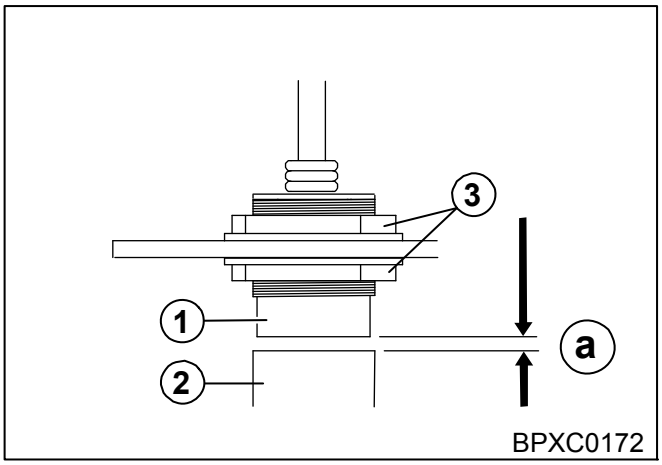


Figure 249

The dimension between the encoder (2) and the sensor (1) must be "a" = 5 mm .

Setting

- Loosen the nuts on either side of the sensor.
- Turn the nuts until dimension "a" = 5 mm is reached.
- Tighten the nuts again.

24 Placing in Storage

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

24.1 At the End of the Harvest Season

Release the parking brake and flywheel brake. Drain out condensed water from the compressed air reservoir.

Before placing the machine in winter storage, clean it inside and outside thoroughly. To do this, use a high-pressure cleaner. Do not hold the stream of water directly on the bearing points. After cleaning is completed, lubricate all grease nipples. Do not wipe off any grease that comes out of bearing points. The hardened grease will provide additional protection against moisture.

Check chains and sprocket wheels for wear. Oil and tighten cleaned chains.

Check all movable parts such as deflection rolls, joints, tensioning rolls, etc. to make certain they move easily. If necessary, dismount, clean, grease and remount. If necessary, replace with new parts.

Only use original KRONE spare parts.

Disassemble the universal shaft. Lubricate the inner tubes and the guard tubes with grease. Grease the lubrication nipples on the universal joint and grease the bearing rings of the protective tubes.

Park the machine in a dry location, but not in the vicinity of artificial fertilisers or livestock buildings. Repair places with damaged paint and preserve all bare metal places thoroughly with rust protection agent.

Caution!

The machine should only be placed on blocks with a suitable vehicle lifting device. Make certain that the machine is stable and safe when it is on blocks.

To remove load from the tyres, set the machine on blocks. Protect the tyres against external influences such as oil, grease and direct sunlight, etc.

Perform the necessary repair tasks during the time immediately after the harvest season. Draw up a list of all spare parts you will need. This will make it easier for your KRONE dealer to process your orders and you will be certain that your machine will be ready for use at the beginning of the next season.

24.2 Before the Start of the New Season

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

- Before placing the machine into service again, initiate the knotting process manually and run through the baler manually. As you do so, check the functionality of the knotter and the needles
- Clean the knotter of materials used to preserve it during storage (vegetable oils)
- Remove the grease from the twine retainer drive disc and clean
- Grease all lubrication points and oil the chains. Wipe away grease that has come out of lubrication points
- Replace the oil in all gearboxes
- Check hydraulic hoses and lines for leaks and replace them if necessary
- Check the air pressure in the tyres and refill if necessary.
- Check all screws to make certain they are tight or retighten them if necessary
- Check all electrical connection cables and the lighting. Repair or replace if necessary
- Check the entire setting of the machine and correct if necessary
- Check the operating functions
- Check the functionality of the knotter shaft brake (to the right on the knotter shaft)
- Re-read the operating instructions thoroughly

24.2.1 Overload coupling on flywheel

Note
After the machine has been idle for long periods of time, the linings of the overload coupling (1) may adhere to friction surfaces. Vent the overload coupling before use.

Procedure for types BiG Pack 890 (XC) BiG Pack 1270 (XC) and BiG Pack 1290(XC)

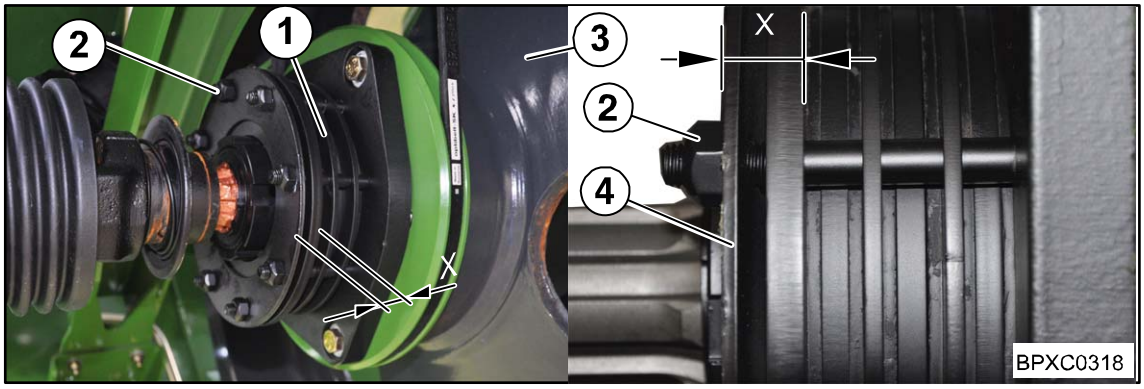


Fig. 250

- The overload coupling is on the flywheel (3)
- To vent it, release the nuts (2) on the overload coupling (1) until the disc spring (4) is released
- Turn the universal shaft manually around once
- Afterwards, retighten the nuts crosswise until the setting dimension X = 16,6 mm is set

Procedure for types BiG Pack 1290 HDP/XC / Big Pack 4x4 and BiG Pack 12130

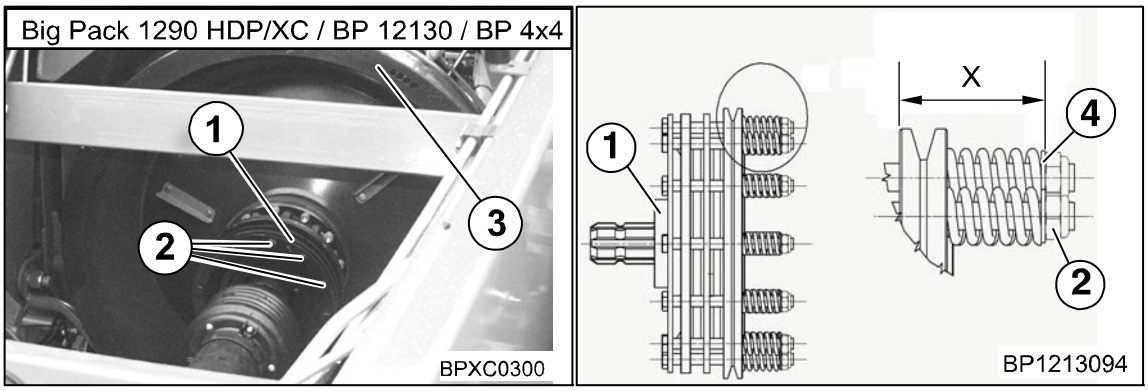


Fig. 251

- The overload coupling is located on the flywheel (3)
- To vent it, release the nuts (2) on the overload coupling (1) until the compression springs are released
- Turn the universal shaft manually around once
- Afterwards, retighten the nuts crosswise until the setting dimension X = 75.8 mm is set (measured from the outer edge of the disc (4))

25 Malfunctions - Causes and Remedies

WARNING!

If the basic safety instructions are not followed, people may be seriously injured or killed.

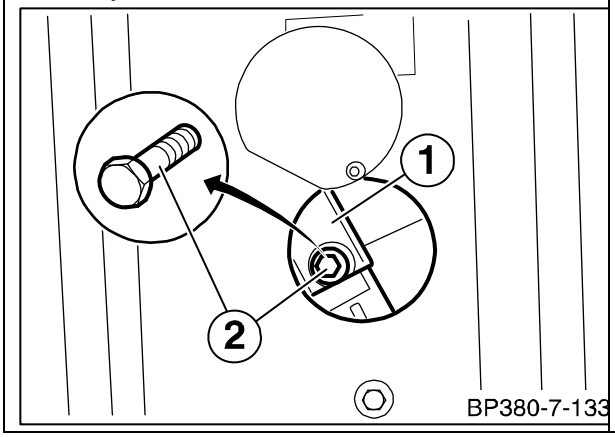
- To avoid accidents, the basic safety instructions in the chapter Safety must have been read and followed, see chapter Safety "Basic safety instructions".

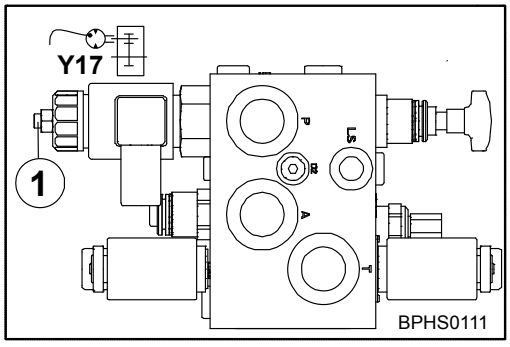
WARNING!

If the safety routines are not adhered to, people may be seriously injured or killed.

- To avoid accidents, the safety routines in the chapter Safety must be read and followed, see chapter Safety "Safety routines".

25.1 General malfunctions

Malfunction	Cause and/or remedy
Baling ram/tying unit does not move.	1. Bring the tractor to a stop immediately. 2. The cam-type clutch is engaging again at a low speed. 3. Reduce the pressing force. 4. Check the speed of the tractor universal shaft. 5. Remove the needle from the bale channel chamber and replace the shear screw in the knotter and needle drive if necessary.
Knotter needles fall back.	1. Apply the knotter shaft brake securely.
Bale too loose.	1. Increase the pressing force.
Bale too tight.	1. Reduce the pressing force.
Packer does not move.	1. Overload coupling slips - reduce the engine speed. 2. Bring the tractor and machine to a stop and clear the blockage. 3. Reduce travelling speed.
Pick-up does not move.	1. Overload coupling slips - turn off P.T.O. drive and clear blockage. 2. Reduce travelling speed. 3. Drive over the swath in the centre.
Cutting rotor and Pick-up do not move.	1. Blockage in the area of the rotor, cam-type clutch in the rotor drive train slips. 2. Reduce the engine speed. Coupling is engaging again at low speed. 3. Swivelling out the blades. 4. If the rotor does not start running free by itself, stop the tractor and machine and clear the blockage. 5. Reduce travelling speed.
Needle yoke does not move. 	1. The connecting rod (1) of the needle yoke is secured by a shear screw (2). 2. Check whether the shear screw is broken. 3. If necessary, replace with a M10 x 55, DIN 931-10.9 screw.

Malfunction	Cause and/or remedy
The tractor does not start or starts just badly if the Load Sensing line is connected. 	**Cause:** Air in the hydraulic system of the machine **Remedy:** Vent the hydraulic block comfort

Prerequisite:

- Turn off the PTO shaft
- Secure the machine and the tractor against rolling
- Apply the flywheel brake

If the tractor starts badly

To do this:

- Remove the plastic cover (1) on the valve (Y17)
- Loosen the inner threaded pin M4 with two revolutions
- Collect escaping hydraulic oil in a suitable container and dispose of it correctly
- Start the tractor engine and charge the hydraulic system with pressure
- Switch on the terminal and execute the function “remaining bale ejector” via the terminal until the escaping oil is free of bubbles
- Tighten the threaded pin M4 when the escaping oil is free of bubbles
- Attach plastic cover on the valve (Y17)

If the tractor does not start

To do this:

- Switch on the terminal
  - Execute several functions one after another (e.g. remaining bale ejector, chute) to release the hydraulic system
- Start the engine of the tractor
  - Should the tractor engine still not start yet, please contact your KRONE dealer or KRONE customer service
  - Charge the hydraulic system with pressure when the tractor engine starts
- Remove the plastic cover (1) on the valve (Y17)
- Loosen the inner threaded pin M4 with two revolutions
- Collect escaping hydraulic oil in a suitable container and dispose of it correctly
- Execute function “remaining bale ejector” via the terminal until the escaping hydraulic oil is free of bubbles
- Screw in the threaded pin M4 when the escaping hydraulic oil is free of bubbles
- Attach plastic cover on the valve (Y17)

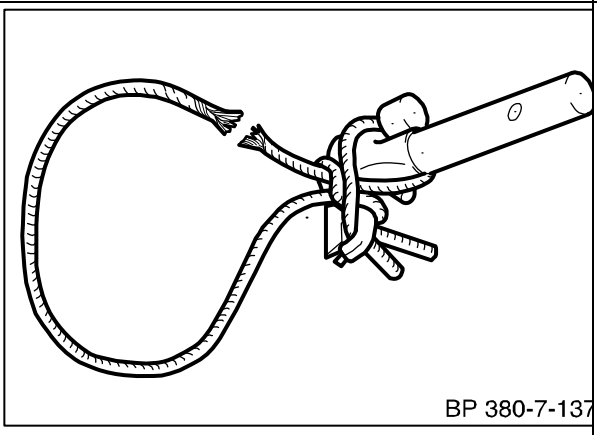
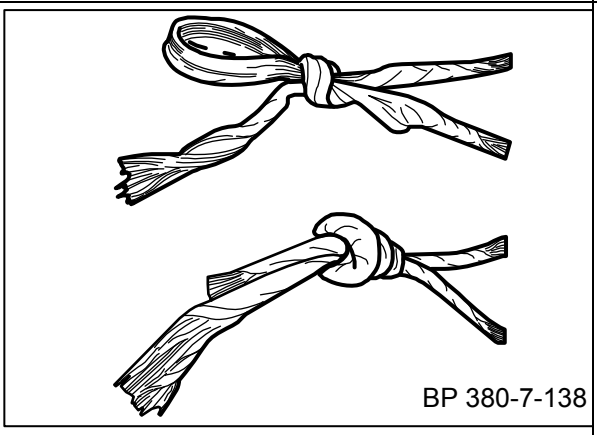
Malfunction	Cause and/or remedy
Hydraulic functions do not move up to the final position (for example hydraulic parking jack, bale ejector etc.)	**Cause:** Some tractors have a compensation bore hole on tractor side for Load Sensing function. In combination with the comfort hydraulic block, the tractor cannot build up the required hydraulic pressure. **Remedy:** Contact an authorized service technician as the compensation drill hole must be locked on tractor side to solve this problem.

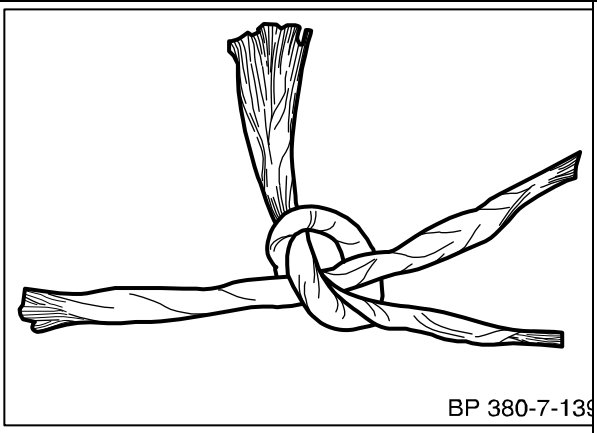
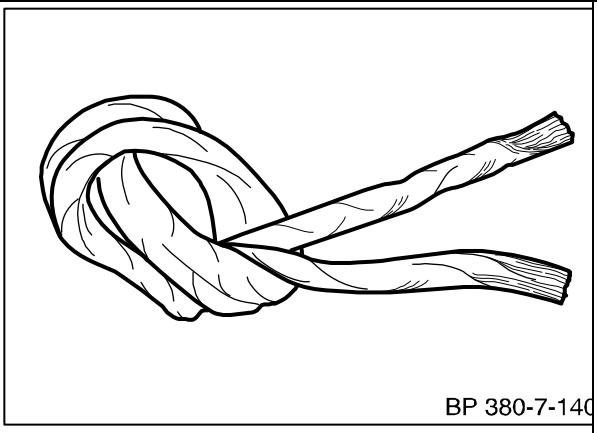
25.2 Malfunctions on the knotter

25.2.1 Single knotter

Note

The most frequent knotter malfunctions are caused by minor problems that you can eliminate yourself in most cases. The errors may often be found in twine quality, twine guide, twine tension, position of the tying needles or twine bar. The following illustrations of faults are intended to help you recognise the causes of malfunctions.

Malfunction	Cause and/or remedy
 BP 380-7-137 **Knotter coil:** (twine has wound around the knotter hook and is torn)	1. Readjust the twine brake. Clean or replace if necessary. 2. Readjust the knotter shaft brake. 3. Remove wound up twine. 4. Check and readjust the twine bar.
 BP 380-7-138 **Knot tied:** one end of the knot is longer than the other or the longer end is tied into the knot.	1. Sharpen or replace dull or nicked twine blade. 2. Not enough tension on the closer — tension the spring with the hexagonal head screw (do not tighten on block). 3. Not enough tension on the twine retainer — tension the spring with the hexagonal head screw (do not tighten on block). 4. Replace worn twine drivers or twine retainer parts. 5. If the packing density is too great — reduce the baling pressure. 6. If twine tension is too great — loosen twine brake on the twine box.
Knot too loose with two cleanly cut ends.	1. Increase the tension on the knotter hook or replace it.
Ends of knots frayed. Knots only in the twine strand guided up by the knotter needle.	1. Dull twine blade — sharpen the cutting edge of the twine blade or replace the blade. 2. Not enough tension on the twine retainer — tension the spring by tightening the hexagonal head screw (do not tighten on block). 3. If the packing density is too great — reduce the baling pressure. 4. Replace worn twine driver or twine retainer parts.

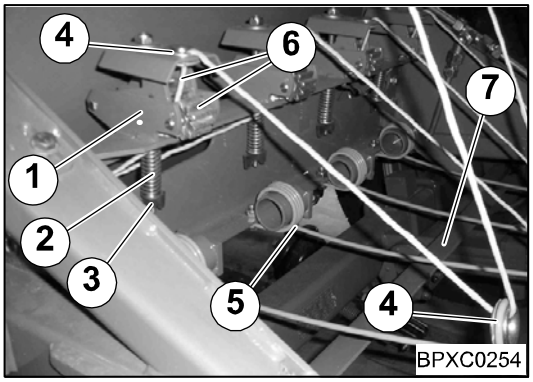
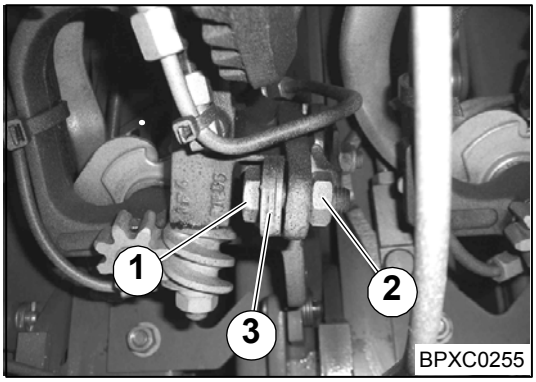
Malfunction	Cause and/or remedy
 BP 380-7-139 Knots only in the twine strand that runs over the upper bale side.	1. Incorrect position of knotter needle — change seating of knotter needle on the yoke. 2. Incorrect position of twine bar — adjust the position of the twine bar on the knotting mechanism. 3. Incorrect swivel range of the twine bar — adjust the linkage to the twine bar. 4. Broken or deformed retainer springs in the knotting mechanism — replace springs. 5. Not enough twine tension — tension the twine brake springs.
 BP 380-7-140 No knot or a knot with very short ends that usually slip through the knot loop.	1. Not enough tension on the knotter hook closer — tension closer for knotter hook. 2. Knotter hook worn — replace knotter hook. 3. Too much tension on the twine retainer — reduce tension on springs by loosening the hexagonal head screws.
Knots are left hanging on the knotter hook.	1. Too high tension on the knotter hook closer — release closer for knotter hook. 2. Too much distance between the extractor comb on the blade lever and the back of the knotter hook — align the blade lever with a light tap of the hammer. 3. Surface of the knotter hook is rough — replace the knotter hook. 4. Incorrect setting for the twine bar — correct it. 5. If the scraper path of the blade lever is not long enough (the blade lever can be deformed by a dull twine blade) — remove the blade lever and align it, or replace it if necessary. Check the cams on the knotter disc for wear and replace the disc, if necessary. 6. Twine tension too low — increase the baling density. Set the twine brakes on the twine box (1 - 2 revolutions), increase the baling length.

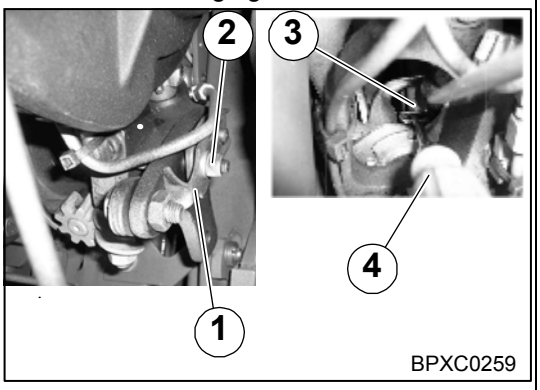
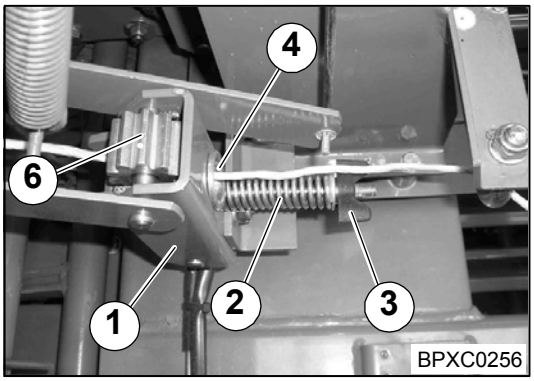
Malfunction	Cause and/or remedy
Twine is tearing or shows signs of abrasion in places: 1. Right next to the knot. 2. At a distance of 40-50 mm from the knot. 3. At a distance of 60-80 mm from the knot. 4. At a distance of 800-1000 mm from the knot.	1. Rough twine guiding edges on the blade lever — smooth the edges. 2. Rough twine guide edges. 3. Rough or worn knotter needle roll — smooth the edges. Smooth the rough rear side of the twine bar. 4. Rough twine guide edges in the lower area of the baling needle — smooth the edges.
Twine around an improperly tied bale is knotted around the twine strand of the bale that immediately preceded it.	1. The twine has not been inserted in the twine retainer because the distance between the needle and twine driver is too great — correct the position of the knotter needle. 2. The twine driver and twine retainer do not form an opening for receiving the twine — correct the position of the twine driver and replace the worn driver.
Twine is tearing inside the knot.	1. Too big a gap between the scraper comb on the blade lever and the back of the knotter hook — align the blade lever with a light tap of the hammer. 2. Too much tension on the twine retainer — reduce tension on springs by loosening the hexagonal head screw. 3. Too much force of pressure.

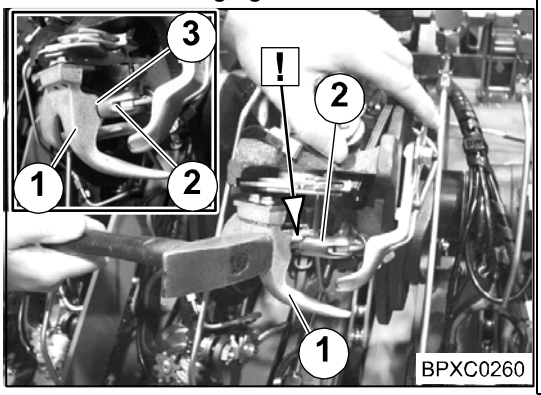
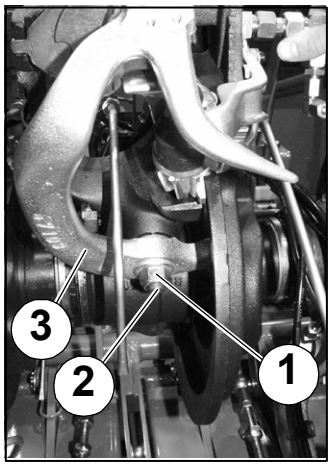
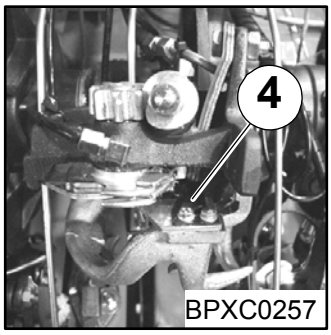
25.2.2 Double knotter

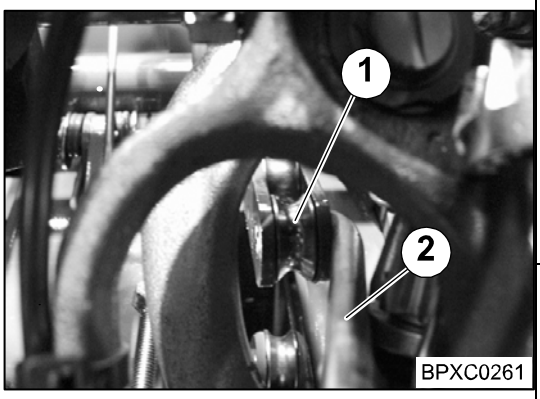
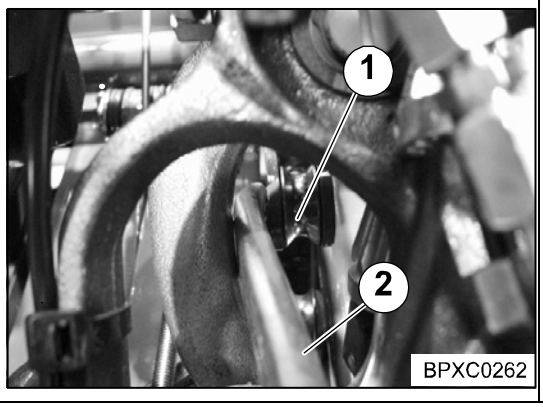
Experience has shown that a majority of tying problems are the result of insufficient twine tension. Check the twine path and twine tension before starting work.

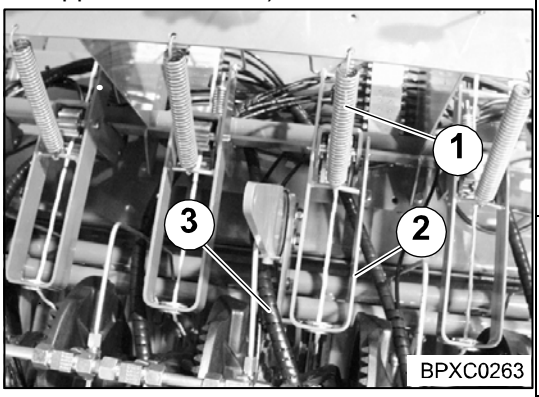
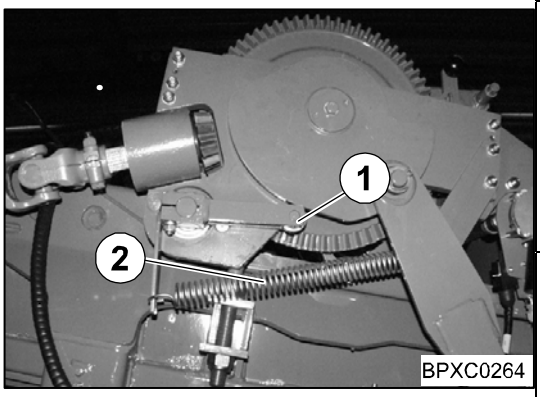
The following list shows the most frequent malfunctions, their cause and a note on how to eliminate them. Otherwise reference is made to the chapter in which the topic in question is explained in greater detail.

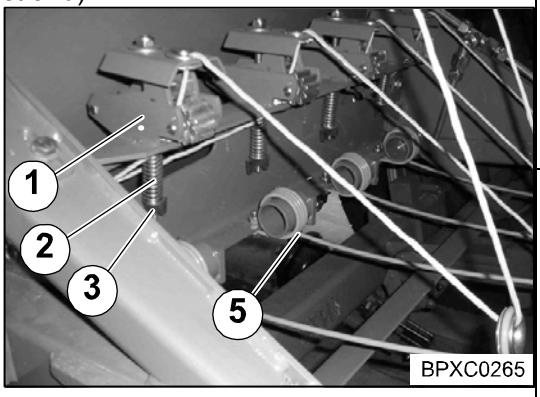
No.	Malfunction	Cause and/or remedy
1	Knotter tongue bends or frequent rupture of the knotter tongue.	1.1 **Cause:** Second knot remains hanging on the knotter tongue. **Remedy:** See no.2
2	Knot remains hanging on the knotter hook.	2.1 **Cause:** Worn or rough spots on the knotter hook or bent knotter hook or knotter tongue. **Remedy:** Check lower twine path and correct, if and when necessary.
		2.2 **Cause:** Not enough twine tension on the lower twine strand. **Remedy:** Tighten the twine brake (1) by: • tightening the spring (2) by about one to two turns of the winged nut (3) • removing any dirt deposits in all twine eyes (4), the twine brake (1) and on the swing angle (7) • replace broken springs (2), twine tension springs (5) or worn twine eyes (4) • replace broken or worn brake wheels (6)
		2.3 **Cause:** Holding force of the twine retainer is too low. **Remedy:** Readjust the twine retainer: • Undo the counter nut (2) • Ensure stronger pre-tensioning of the twine retainer spring (3) with the screw (1) (approx. half a turn) • Tightening the counter nut (2) Degrease the twine retainer

No.	Malfunction	Cause and/or remedy
2	Knot remains hanging on the knotter hook.  	2.4 **Cause:** Excessive tension on the knotter tongue. **Remedy:** Undo the knotter tongue (3) in the following way: • First use a screwdriver to get a feel for the pretensioning force present Place the screwdriver (4) below the knotter tongue (3) and determine the tension present by turning the screwdriver). • Undo nut (2) on the leaf spring (1) by about 60° • Place the screwdriver (4) below the knotter tongue (3) and determine the newly set tension present by turning the screwdriver The knotter tongue (3) needs a slight minimum tension, for this reason never undo completely.
	 	2.5 **Cause:** Not enough twine tension on the upper twine strand. **Remedy:** Tighten the twine brake (1) by: • tightening the spring (2) by about one to two turns of the winged nut (3) • removing any dirt deposits in all twine eyes (4) and the twine brake (1) • replacing broken springs (2) or worn twine eyes (4) • replacing broken or worn brake wheels (6) • checking the free movement of the tensioning arm (5) (cf. malfunction No. 6.3, picture BPXC0263)

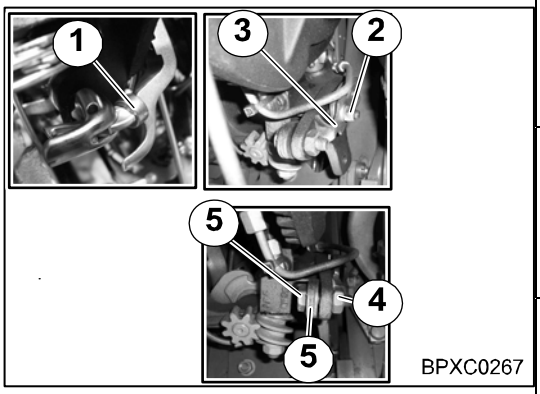
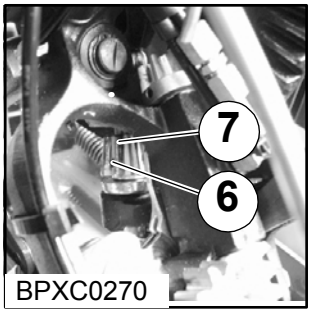
No.	Malfunction	Cause and/or remedy
2	Knot remains hanging on the knotter hook.  	2.6 **Cause:** Blade lever too far away from the knotter hook. **Remedy:** Adjusting the blade lever: • Swivel the knotter block up until the blade lever (1) passes beyond the knotter hook (2) • Use a hammer to carefully set the blade lever (1) so that the extractor comb (3) of the blade lever evenly touches the back of the knotter hook (2) **When swinging the knotter up, a slight resistance has to be noticeable when the blade lever passes over the knotter nib**
	 	2.7 **Cause:** Blade lever has axial play. **Remedy:** Tighten the nut (1) of the blade lever bolt (2); otherwise replace the blade lever (3) or the bearing sleeve of the blade lever bolt.
		2.8 **Cause:** The extractor comb of the blade lever does not run over the centre of the knotter hook. **Remedy:** Adjusting the blade lever: (cf. malfunction no. 2.5; picture BPXC0260) • Replace the blade lever
	 	2.9 **Cause:** Blunt extractor blade of the blade lever. **Remedy:** Adjust or sharpen the cutting blade (4) or replace the blade, if and when necessary.
		2.10 **Cause:** Twine driver disc set to far ahead. Check the setting and readjust it if necessary (refer to chapter Settings double knotter “Twine retainer”).

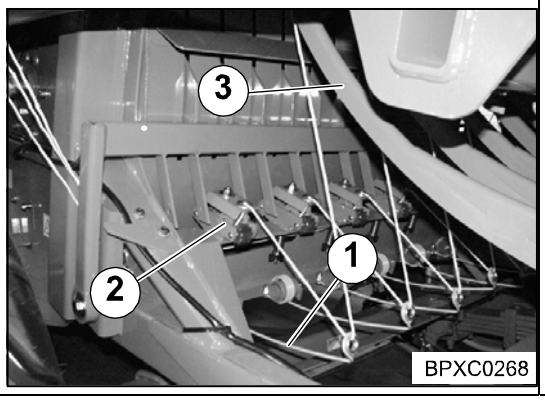
No.	Malfunction	Cause and/or remedy
3	First knot: (closing knot): Present only in the upper twine strand.	3.1 **Cause:** The twine bar has not caught the lower twine strand. **Remedy:** Readjust the twine bar(refer to chapter "Setting the twine bar (double knotter)") Checking the needle setting (refer to chapter settings "Needle setting").
4	First knot: (closing knot) twine winds around the knotter hook.  	4.1 **Cause:** The lower needle grasps to the left on the upper twine. **Remedy:** Align the upper needle slightly to the left: • Release the knotter and turn the flywheel until the upper needle lifts • Use a mounting lever (2) to align the upper needle (1) to the left by about 1 - 2 mm
		4.2 **Cause:** Twine driver disc starts working too late. **Remedy:** Put the twine driver disc forward by turning clockwise (see chapter Settings double knotter "Twine retainer"). **Please ensure that the knotter needle makes contact to the knotter in the topmost position (refer to chapter Settings "Upper dead point of the needles" (double knotter))**
5	First knot: (Schließknoten) Upper twine is running through from one bale to the next. Knot in the lower twine strand  	5.1 **Cause:** The lower needle grasps to the right on the upper twine: **Remedy:** Align the upper needle slightly to the right: • Release the knotter and turn the flywheel until the upper needle lifts • Use a mounting lever (2) to align the upper needle (1) to the right by about 1 - 2 mm

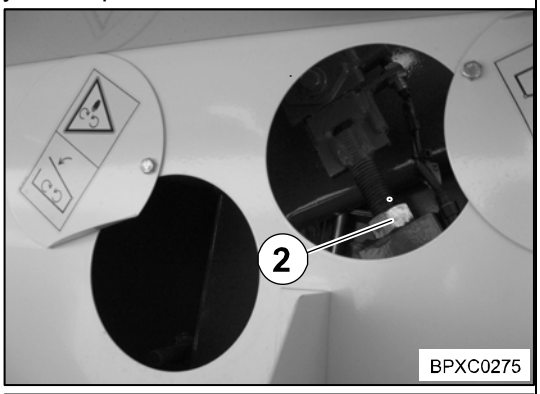
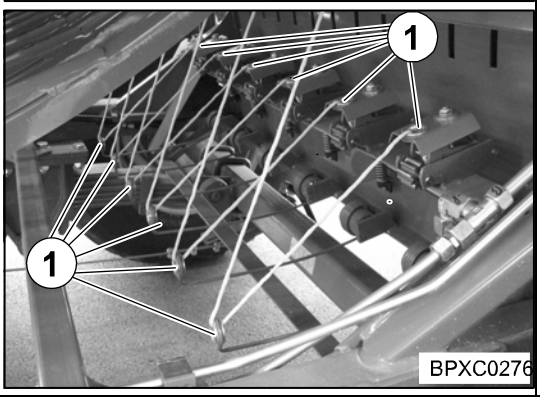
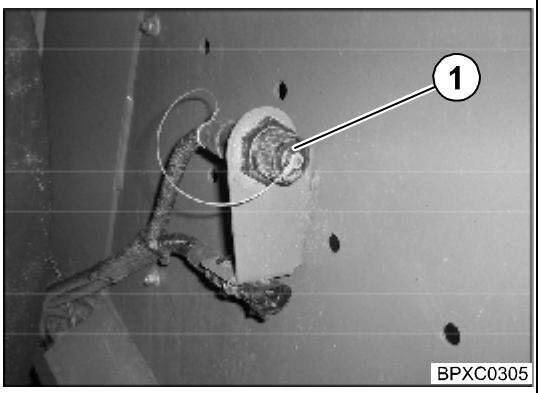
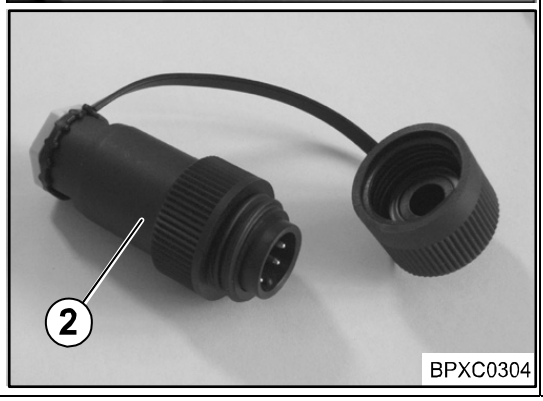
No.	Malfunction	Cause and/or remedy
6	Second knot: (Starting knot) Knot is present only on the lower twine strand (no knot on the upper twine strand).  	6.1 **Cause:** The twine bar is adjusted too far away from the upper needle and was unable to catch the upper twine strand. **Remedy:** Set the twine bar in the direction of the upper needle. **CAUTION:** When setting the twine bar, check for collision with the upper needle and the knotter needle (refer to chapter "Setting the twine bar (double knotter)").
		6.2 **Cause:** Spring of the upper tensioning arm broken or disconnected. **Remedy:** Replace the spring (1) or fasten it in place again.
		6.3 **Cause:** The tensioning arm does not work correctly. **Remedy:** Check the tensioning arm (2) for free space from top to bottom, and align, if and when necessary or place the central lubrication line (3) elsewhere.
	 	6.4 **Cause:** Control unit in upper needle defective. Roller is not following the cam disc. The upper needle does not move down far enough. **Remedy:** Replace the roller (1) or ensure the upper needle is running easily. Check the spring (2).
		6.5 **Cause:** Blockage of the upper twine run. **Remedy:** Check the twine run from the knotter to the twine roller in the twine box inclusively.
		6.6 **Cause:** Twine tension on the upper twine strand **Remedy:** Undo the twine brake (1) in the following way: • undoing the spring (2) by about one to two turns of the winged nut (3) (cf. malfunction no. 2.2.)
		6.7. **Cause:** Holding force of the twine retainer is too low. **Remedy:** Readjust the twine retainer (cf. malfunction no. 2.2).

No.	Malfunction	Cause and/or remedy
7	Second knot: (Starting knot) Knot is present only on the upper twine strand (no knot on the lower twine strand).  	7.1 **Cause:** The lower twine tension springs are not working properly. **Remedy:** Ensure free room for the lower twine tension springs (5). Tighten the twine brake (1) by: • tightening the spring (2) by about one to two turns of the winged nut (3)
		7.2 **Cause:** Not enough needle overrun in the upper dead point. **Remedy:** Check the needle setting (refer to chapter settings "Needle setting").
		7.3 **Cause:** The twine bar is not working precisely or is adjusted incorrectly. **Remedy:** Check the twine bar settings (refer to chapter "Setting the twine bar (double knotter)").

No.	Malfunction	Cause and/or remedy
8	Second knot: (Starting knot) Twine winds around the knotter hook.	8.1 **Cause:** The upper tensioning arms are not working properly. • Tension path is blocked • Tension is not sufficient **Remedy:** Check the upper tensioning arms for easy running. • Clear the tension path (cf. malfunction no. 6; picture BPXC0263) • Increase the tension (cf. malfunction No. 2; picture BPXC0256)
		8.2 **Cause:** Lower twine tension spring broken or released. **Remedy:** Replace the spring or mount it securely again (cf. malfunction no. 2.1; picture BPXC0254).
		8.3 **Cause:** Insufficient twine tension on the lower twine strand. **Remedy:** Increase the tension (cf. malfunction no. 2.1; picture BPXC0254).
		8.4 **Cause:** Twine driver disc starts working too late. **Remedy:** Put the twine driver disc forward by turning clockwise (refer to chapter Settings double knotter “Twine retainer”).
		8.5 **Cause:** Needle overrun in the upper dead point is too big. **Remedy:** Check the needle settings (refer to chapter Settings "Setting the upper dead centre of the needles (double knotter)").

No.	Malfunction	Cause and/or remedy
9	No knot present, neither on the upper nor on the lower twine strand.  BPXC0267  BPXC0270	9.1 **Cause:** Twine bar is not activated. **Remedy:** Check the twine bar mechanism and its settings (refer to chapter Settings "Setting the twine bar (double knotter)”).
		9.2 **Cause:** Damaged knotter tongue. **Remedy:** Replace the knotter tongue (1).
		9.3 **Cause:** Insufficient tension on the knotter tongue. **Remedy:** Increase the tension on the knotter tongue (1). To do this: • Tighten nut (2) on the leaf spring (3) by about 60° (cf. malfunction no. 2.3)
		9.4 **Cause:** Twine retainer springs too tight or Twine strands are cut through in the twine retainer **Remedy:** Loosen the twine retainer spring setting. To do this: • Undo the counter nut (4) • Ensure weaker pre-tensioning of the twine retainer spring (5) with the screw (6) (approx. half a turn) Remove accumulations of dirt or chaff under the twine retainer springs (5).
		9.5 **Cause:** The knotter hook is not turning. **Remedy:** Exchange the pin (6) of the knotter hook drive wheel (7).

No.	Malfunction	Cause and/or remedy
10	Knot ends too short. The knot often gets wound up (generally the second knot).	10.1 **Cause:** Insufficient tension on the knotter tongue. **Remedy:** Increase the tension on the knotter tongue (1) (cf. malfunction no. 9 picture BPXC0267).
		10.2 **Cause:** Incorrect twine tension. **Remedy:** • Check the twine path To make the knot ends longer, the lower twine tension should generally be increased first (cf. malfunction no. 2 picture BPXC0254). • In case this is not enough the upper twine tension must be increased
11	Twine is no longer threaded through the knotter needle, but it is tied to the last bale. 	11.1 **Cause:** Twine tension spring is bent **Remedy:** Align the twine spring (1) centrically to the twine brake (2) and the knotter needle (3).

No.	Malfunction	Cause and/or remedy
12	Shear screw on the needle connecting rod breaks frequently. As a result the needle yoke stops.  	**Cause:** Strong wear of the twine guide eyes. **Remedy:** Exchange the twine guide eyes (1) and replace the shear screw (2) on the needle connecting rod.
13	The baler can no longer be operated via the terminal.  	**Cause:** Faulty operation or faulty connection for operation. **Remedy:** Unscrew the terminal cable from the socket (1) located to the left (as seen in direction of travel) on the metal cover close to the flywheel. Connect the plug for emergency mode (2) to the socket (1). After 10 seconds, emergency mode is activated with the following settings: • Old nominal length • Automatic mode • Last target force to be set

25.3 Troubleshooting in the central lubrication

Malfunction	Cause and/or remedy
Blockage in the system or in any bearing connected to it. Manually activated systems. The hand lever cannot be moved or is hard to move.	**Find out what is causing the blockage and eliminate the cause.** **PROCEDURE** First check whether the conveyor pump is working and is supplying lubricant to the main distributor. To do this, loosen the pump outlet and activate the pump. When the pump is working properly, connect the pump outlet again. (Conclusion: there is no problem with the pump). Let the pump work until the next blockage or until the next time the pressure rises inadmissibly. Leave the pressure level as is. One after the other, loosen the threaded input connections on the subdistributors or on the main distributor, and for single-level systems the threaded input connections. The distributor from which lubricant suddenly leaks when the threaded input connection is loosened under pressure will lead to the source of the fault. The threaded input connections have to be screwed tight again. The corresponding threaded bearing input connections should be loosened one after the other. The bearing from which lubricant suddenly leaks when its threaded input connection is loosened under pressure is the blocked bearing. Eliminate the blockage on the bearing.
Blockage in the distributor After you have loosened all outlets of the main distributor and/or the subdistributors, no lubricant leaks from the outlets. The distributor is blocked.	Replace the blocked distributor. If necessary, the distributor can be cleaned if the following conditions are met. The workplace must be clean. Remove all tube end screwed pieces. Remove the plunger lock screws with a strong screwdriver. If necessary loosen them by tapping with a hammer. Drive out the plungers with a soft mandrel (with a diameter of less than 6 mm, if possible made of plastic). **Very important:** You must keep a record of which plunger belongs in which drill hole, since the plungers must not be interchanged. Thoroughly rinse the distributor body several times in grease-dissolving agent and blow it out with compressed air. There are diagonal channels with a diameter of 1.5 mm on the ends of the threading. You can press through them with a wire or pin. Rinse and blow out the distributor several times. There could be hardened grease in the plunger lock screws. This must be removed. Assemble the distributor. All the copper discs must be replaced. Before screwing in the tube outlet threaded pieces, you should pump out the distributor with a hand pump or similar tool, if possible pumping oil through it several times. The counter pressure in the distributor should not be any greater than 25 bar as you do this. Any higher counter pressure means that the distributor is not clean or than the plunger drill hole is damaged. If the operating pressure of the distributor does not sink below 25 bar / 362,5 PSI in spite of all your efforts, the distributor should be replaced.

26 Appendix

26.1 Hydraulic System Circuit Diagrams

26.2 On-Board Hydraulic System for Medium Version Electronics

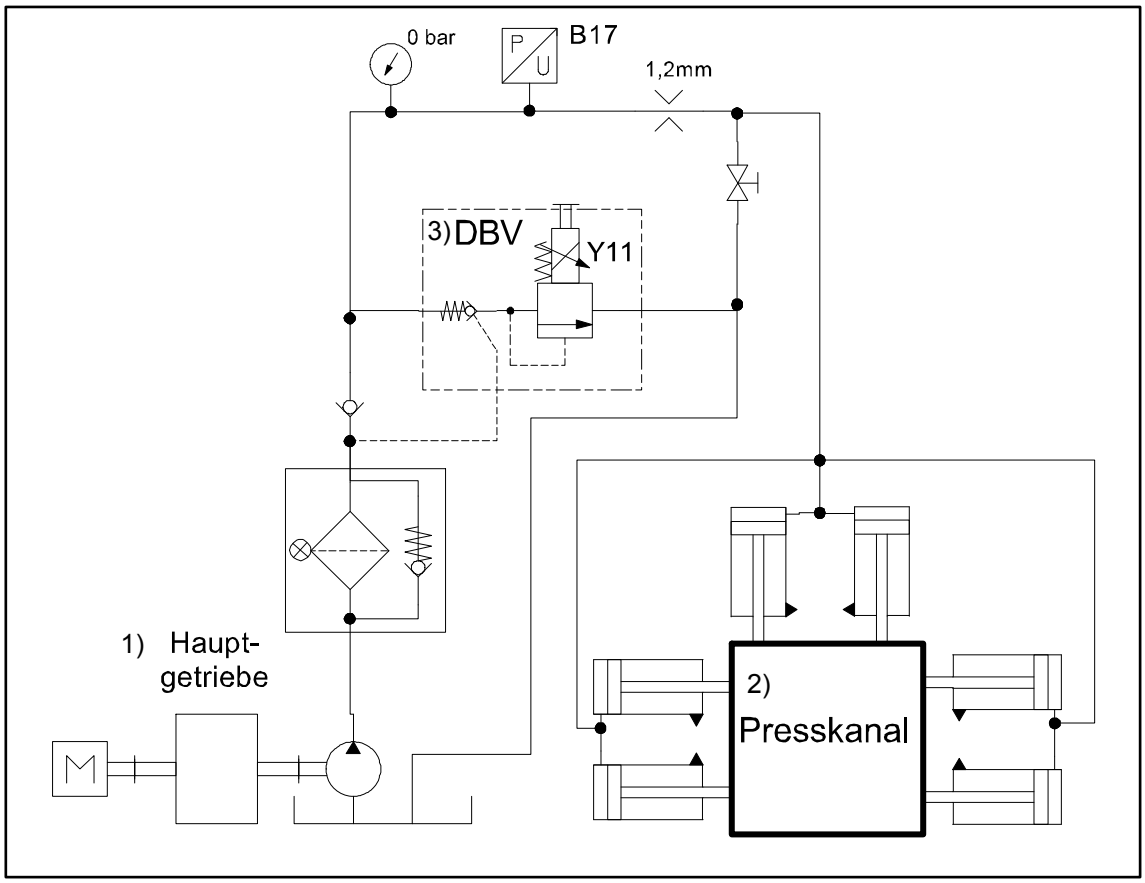


Fig. 252

1. Main gearbox	2. Bale channel
3. Pressure limiting valve	

26.3 On-Board Hydraulic System for Comfort Version Electronics

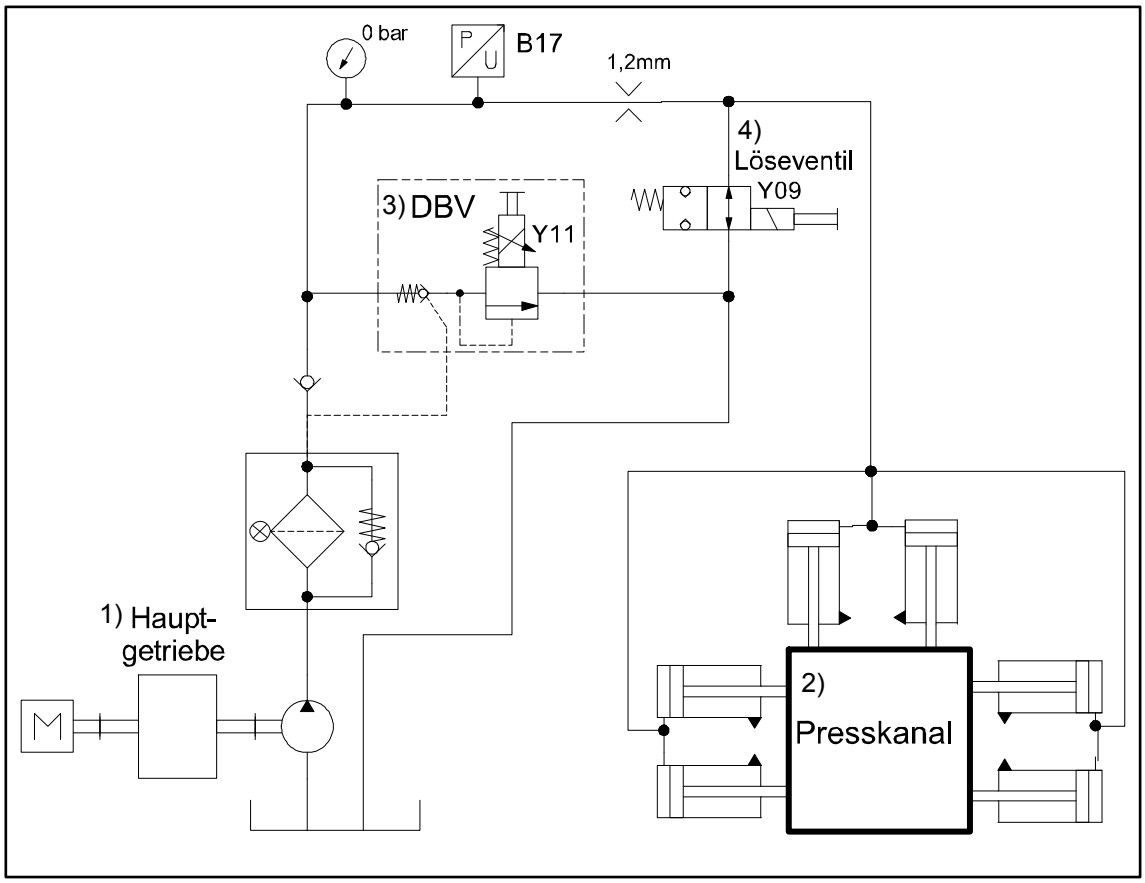


Fig. 253

1. Main gearbox	2. Bale channel
3. Pressure limiting valve	4. Release valve

26.4 Work Hydraulics Medium Version Electronics

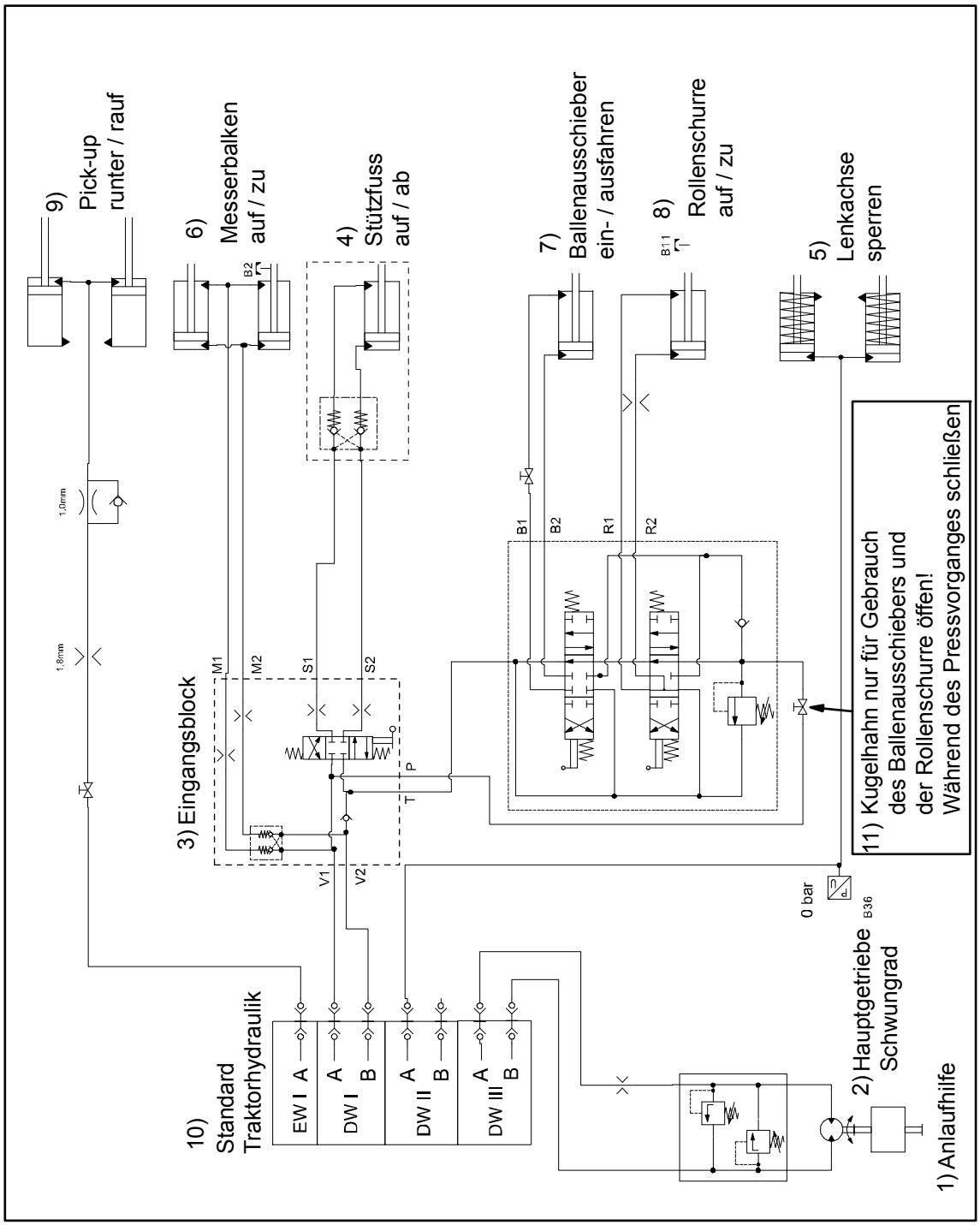


Fig. 254

1. Start-up device	2. Main gearbox flywheel
3. Input block	4. Parking jack up / down
5. Locking the steering axle	6. Blade bar open / closed
7. Retracting / extending bale ejector	8. Roller chute open / closed
9. Pick-up up / down	10. Standard tractor hydraulics
11. Only open the ball valve for using bale ejector and roller chute! Close it during baling process	

26.5 Work Hydraulics Comfort Version Electronics

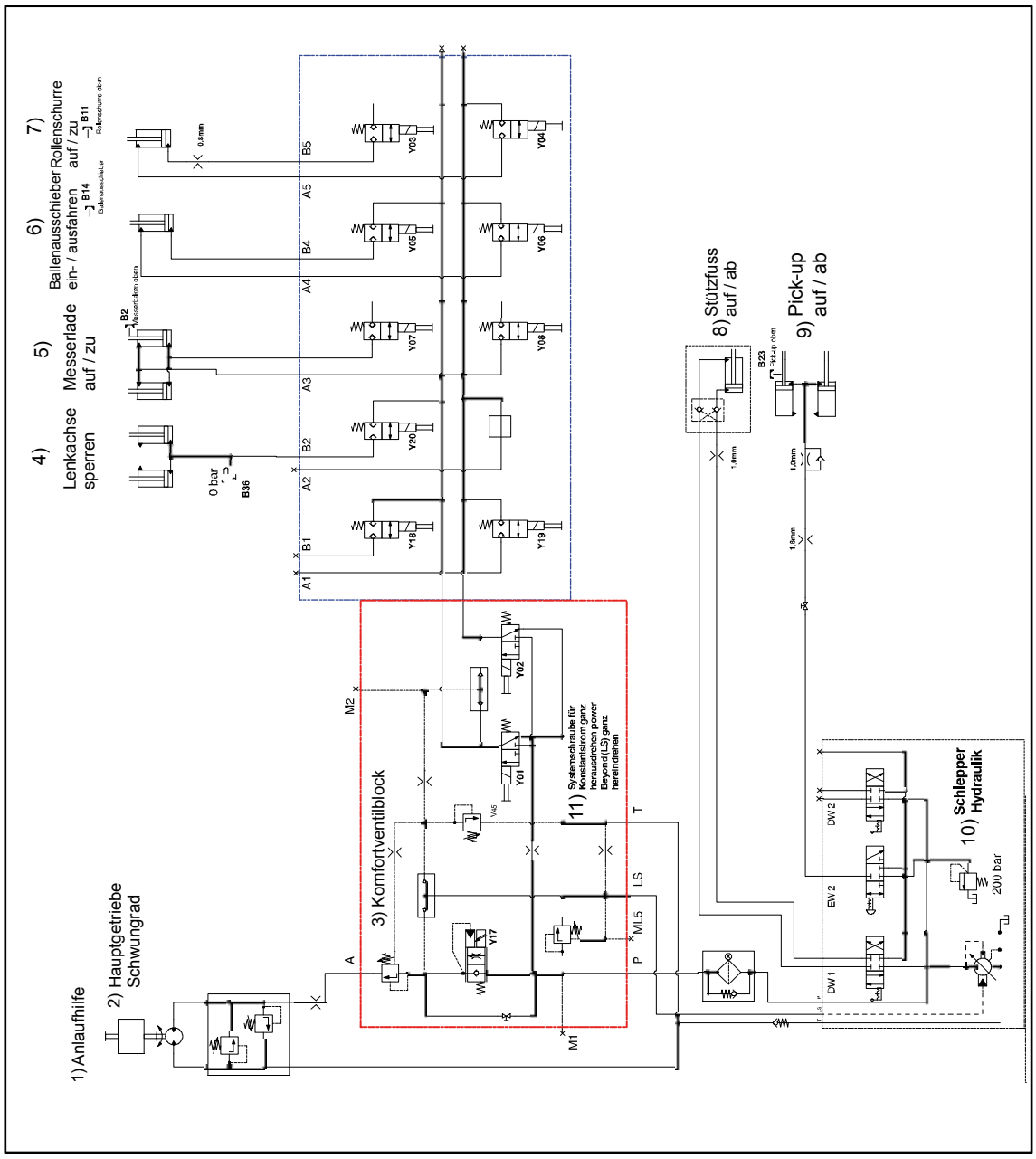


Fig. 255

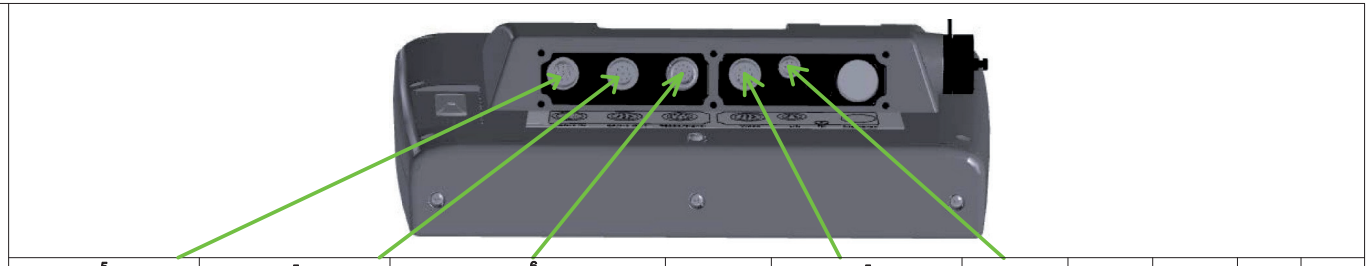
1. Starting aid	2. Main gearbox flywheel
3. Comfort block	4. Locking the steering axle
5. Blade bar open/closed	6. Bale ejector deploy/retract
7. Roller chute open/closed	8. Support jack up/down
9. Pick-up down/up	10. Standard tractor hydraulics
11. Unscrew the system screw fully for constant flow. Turn Power Beyond system and (LS) all the way in.	

26.6 Electrical circuit diagram

You will find the electrical circuit diagram for the machine in the appendix.

A

-2
Terminal CCI200
8,4 " TFT
640 x 480(VGA)



	CAN-1 IN	CAN-1 OUT	RS232/Signal		Video	LIN	(Bluetooth)	(Ethernet)	(WLAN)	(USB)
	Versorgungsspannung	Versorgungsspannung	Versorgungsspannung durchgeschaltet		Video Signal	Versorgungsspannung durchgeschaltet				
	Not-Stop-Eingang	Not-Stop-Ausgang	Masse		EIA RS-485 B	nicht belegt				
	ECU- oder externes Ein-Ausschaltsignal	ECU- oder externes Ein-Ausschaltsignal	ISO11786 "Zapfwellengeschwindigkeit"		EIA RS-485 A	Masse				
	Not-Stop-Versorgung	Not-Stop-Versorgung	ISO11786 "Hubwerksposition"		Versorgungsspannung durchgeschaltet	LIN-Bus				
	CAN1-L	CAN1-L	ISO11786 "Radgeschwindigkeit"		EIA RS-485 A					
	Masse	Masse	Fahrtrichtung		Versorgungsspannung durchgeschaltet					
	CAN1-H	CAN1-H	ISO11786 "Geschwindigkeit Schlupffrei"		Video Masse					
	Schirm entkoppelt zur Masse	Schirm entkoppelt zur Masse	RS232 1 RxD (Eingang)		Schirm entkoppelt zur Masse					
	+Ub	+Ub	COM0_RxD_IN	RS232 1 TxD (Ausgang)	Video_IN	+Ub sw				
	Not-Aus-B	Not-Aus-B	COM0_TxD_OUT	Zündungssignal / Klemme 15	RS485_B	N.C.				
	+Uon	+Uon	IGN	RS232 2 RxD	RS485_A	GND				
	Not-Aus-V	Not-Aus-V	COM1_RxD_IN	RS232 2 TxD	+Ub sw	LIN				
	CAN0L	CAN0L	COM1_TxD_OUT		VGND					
	GND	GND			Schirm					
	CAN0H	CAN0H								
	Schirm	Schirm								

-X5.1Bb

WS BR GN GE GR RS BL RT

120 Ohm

-X5.1a

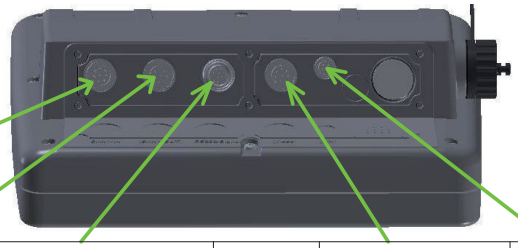
-X5.1b

CAN1 H /4.A3
GND Termi. /4.A2
CAN1 L /4.A4
SS_5V /4.A1
+12VFU_Term /4.A1

C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Terminal CCI 200
B				Datum			Anlage
A	Terminal CCI 200 eingefügt, Komfortbedienung entfernt	08.11.2013	R. Löcken	Bearb.			Ort
	Änderung	Datum	Name	Gepr.	Ursp. / Ers. f. / Ers. d.		Blatt 1 / von Bl.

A

-8
Terminal Delta
5,6 " TFT
640 x 480(VGA)



	CAN-1 IN	CAN-1 OUT	RS232/Signal		Video	LIN	(USB)	(Ethernet)
	Versorgungsspannung	Versorgungsspannung	Versorgungsspannung durchgeschaltet		Video Signal	Versorgungsspannung durchgeschaltet		
	Not-Stop-Eingang	Not-Stop-Ausgang	Masse		EIA RS-485 B	nicht belegt		
	ECU- oder externes Ein-Ausschaltsignal	ECU- oder externes Ein-Ausschaltsignal	ISO11786 "Zapfwellengeschwindigkeit"		EIA RS-485 A	Masse		
	Not-Stop-Versorgung	Not-Stop-Versorgung	ISO11786 "Hubwerksposition"		Versorgungsspannung durchgeschaltet	LIN-Bus		
	CAN1-L	CAN1-L	ISO11786 "Radgeschwindigkeit"		EIA RS-485 A			
	Masse	Masse	Fahrtrichtung		Versorgungsspannung durchgeschaltet			
	CAN1-H	CAN1-H	ISO11786 "Geschwindigkeit Schlupffrei"		Video Masse			
	Schirm entkoppelt zur Masse	Schirm entkoppelt zur Masse	RS232 1 RxD (Eingang)		Schirm entkoppelt zur Masse			
	+Ub	+Ub	+Ub sw		Video_IN	+Ub sw		
	Not-Aus-B	Not-Aus-B	GND		RS485_B	N.C.		
	+Uon	+Uon	SMFQ_IN 2		RS485_A	GND		
	Not-Aus-V	Not-Aus-V	SAN_IN0		+Ub sw	LIN		
	CAN0L	CAN0L	SMFQ_IN 3		RS485_A			
	GND	GND	SMFQ_IN 4		+Ub sw			
	CANOH	CANOH	SMFQ_IN 1		VGND			
	Schirm	Schirm	COM0_RxD_IN		Schirm			
			COM0_TxD_OUT					
			RS232 1 TxD (Ausgang)					
			IGN					
			Zündungssignal / Klemme 15					
			COM1_RxD_IN					
			RS232 2 RxD					
			COM1_TxD_OUT					
			RS232 2 TxD					

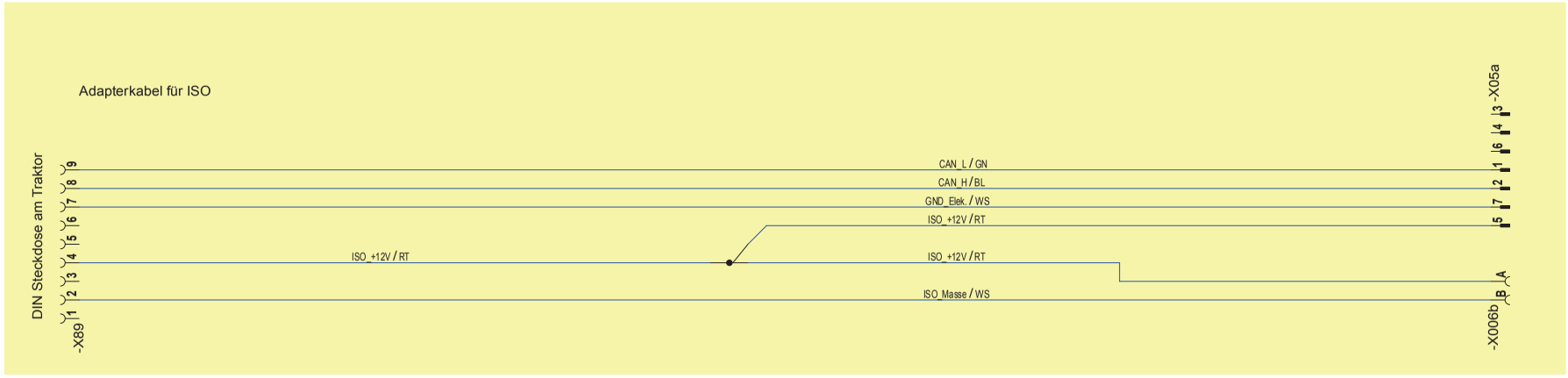
-X5.1Bb

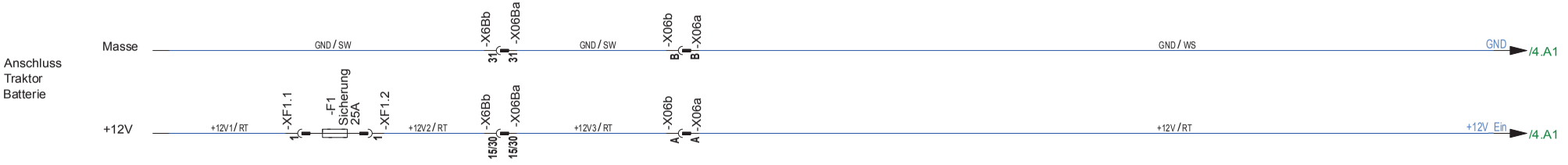
120 Ohm

-X5.1a

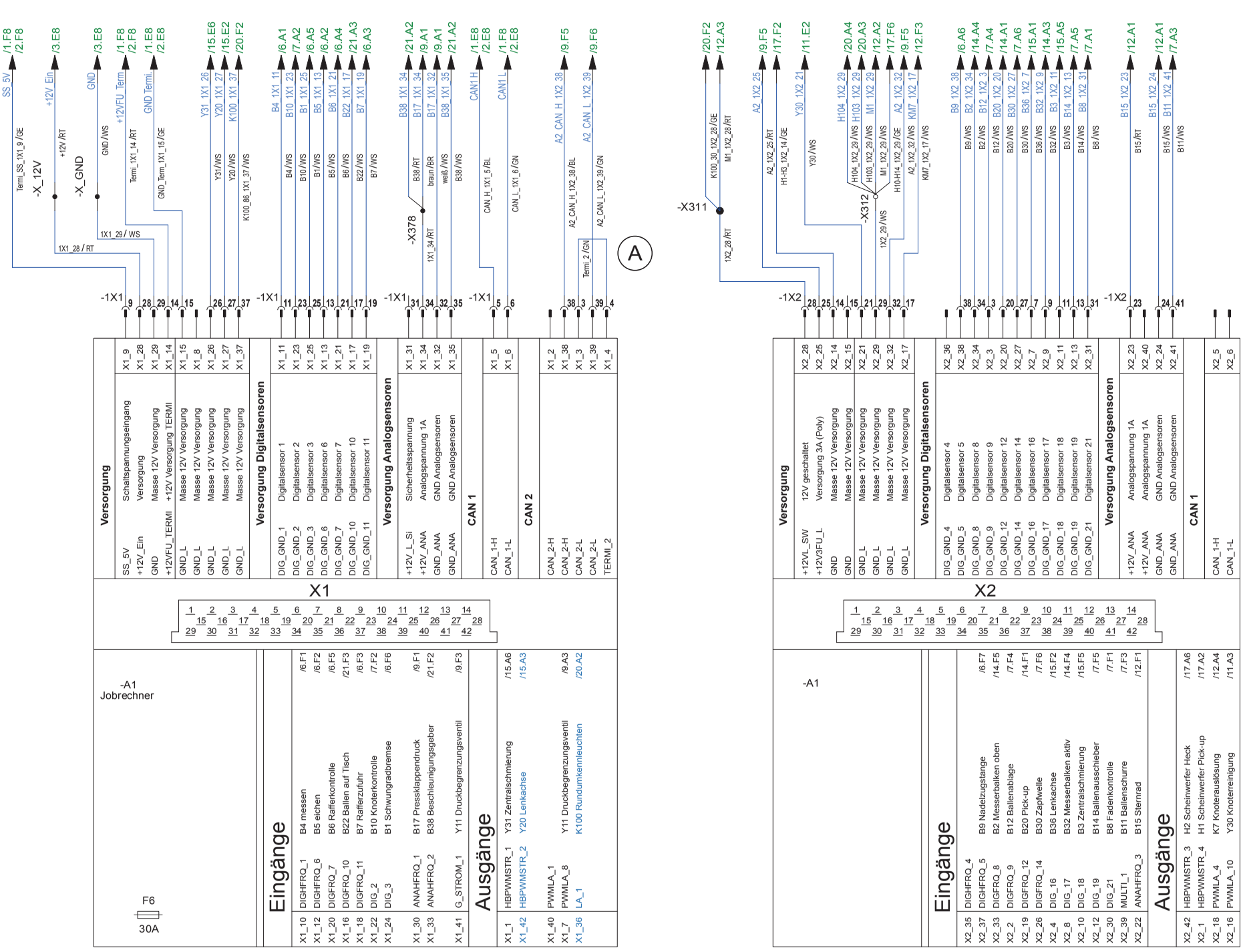
CAN_H_1X1_5 / BL → CAN1 H /4.A3
GND_Term_1X1_15 / GE → GND Termi. /4.A2
CAN_L_1X1_6 / GN → CAN1 L /4.A4
Termi_SS_1X1_9 / GE → SS_5V /4.A1
Termi_1X1_14 / RT → +12VFU_Term /4.A1

C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP	Anlage
B			Datum	10.11.2010			Terminal Delta	Ort
A	Terminal Delta eingefügt, ISO-Bus Terminal CCI 100 entfernt	8.11.2013	R. Löcken	Bearb.	Wesselkämper			Blatt 2
	Änderung	Datum	Name	Gepr.		Ursp. / Ers. f. / Ers. d.		von Bl.

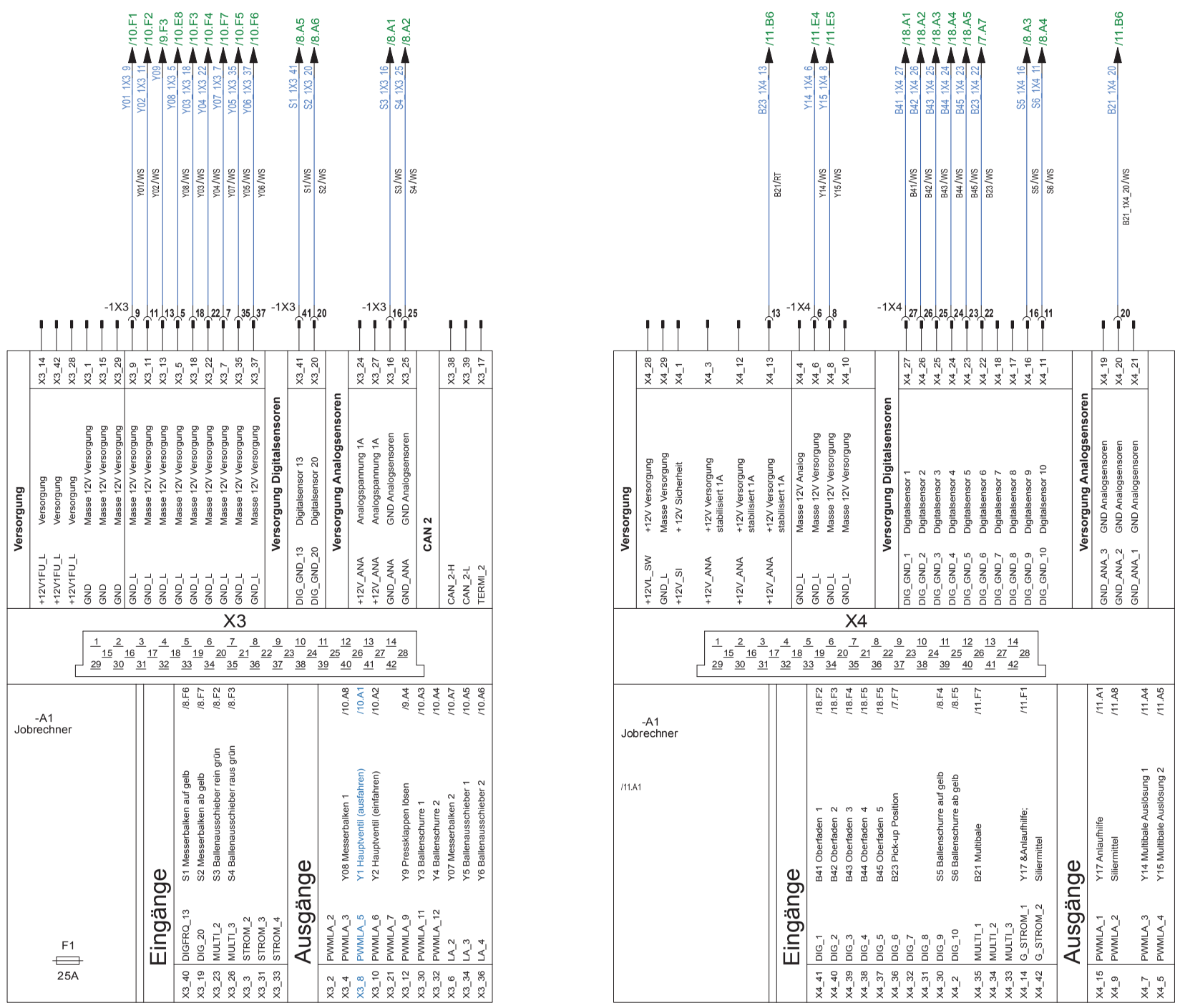




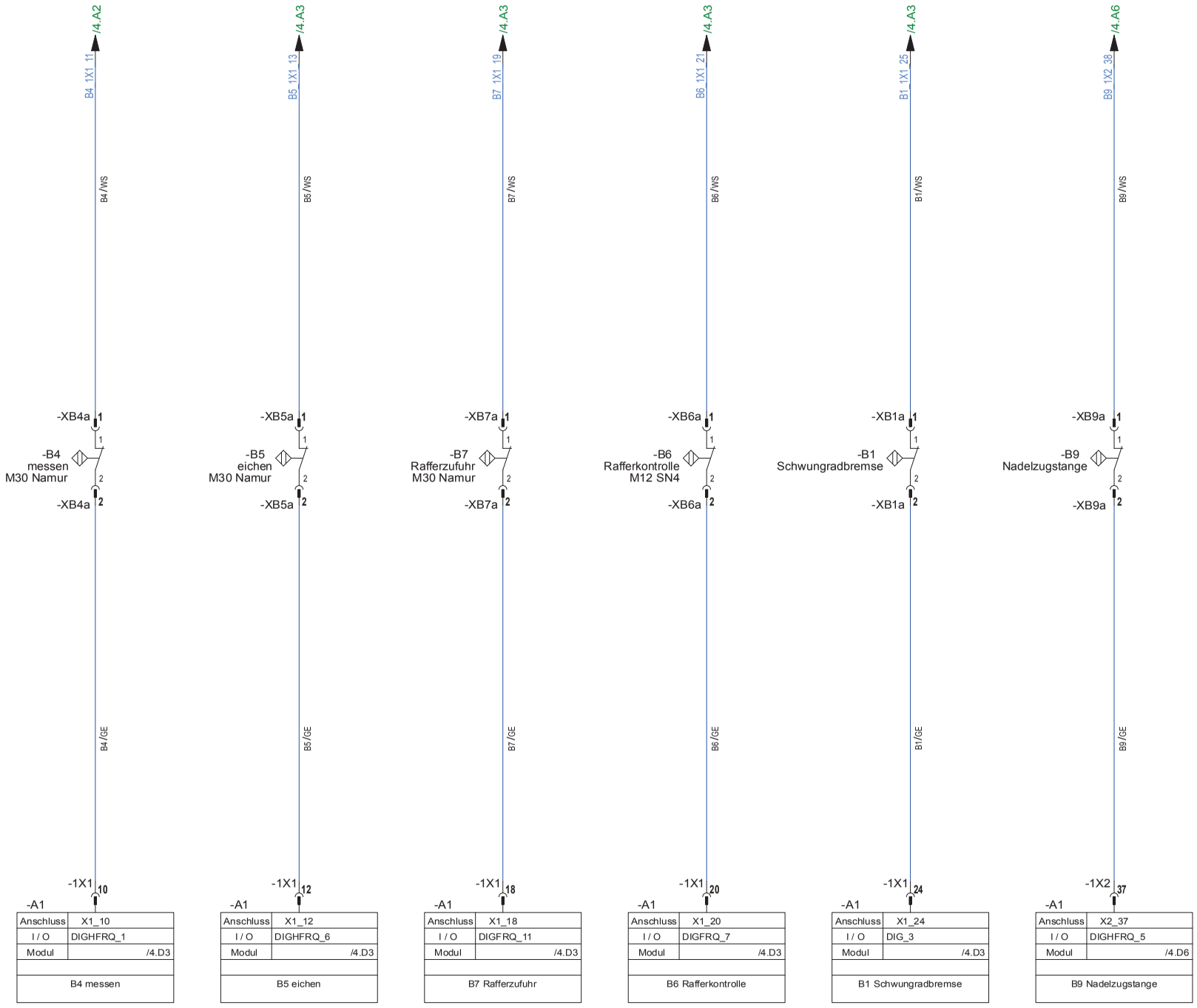
C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Terminal / Spannungsversorgung	Anlage
B				Datum					Ort
A				Bearb.	Loeckenr				Blatt 3
Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.		von Bl.



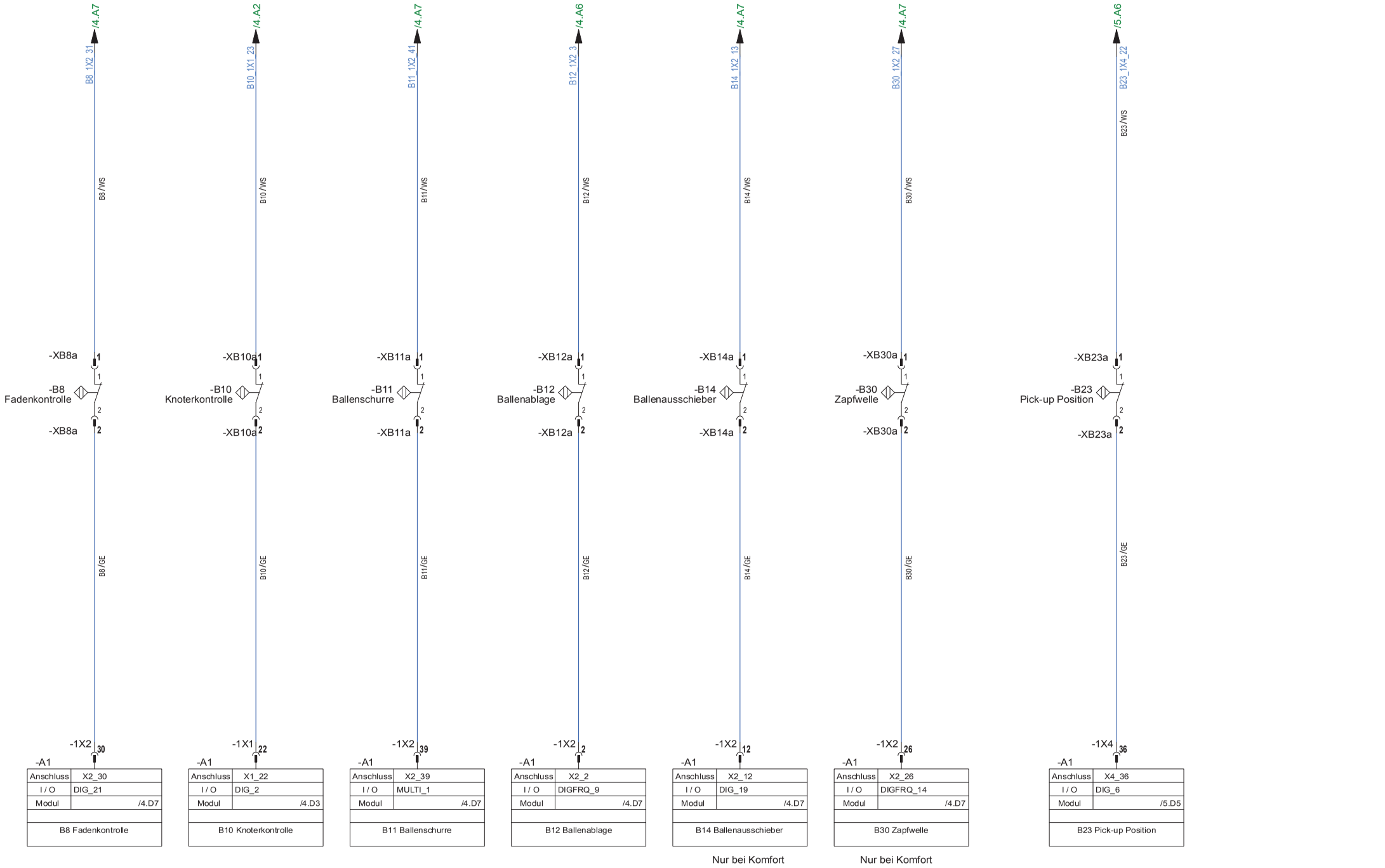
				Erstellt		Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP	Anlage
				Datum			Jobrechner X1 / X2	Ort
A	Terminierungswiderstand eingeschaltet	02.04.2014	R. Löcken	Bearb.	albers			Blatt 4
Änderung		Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



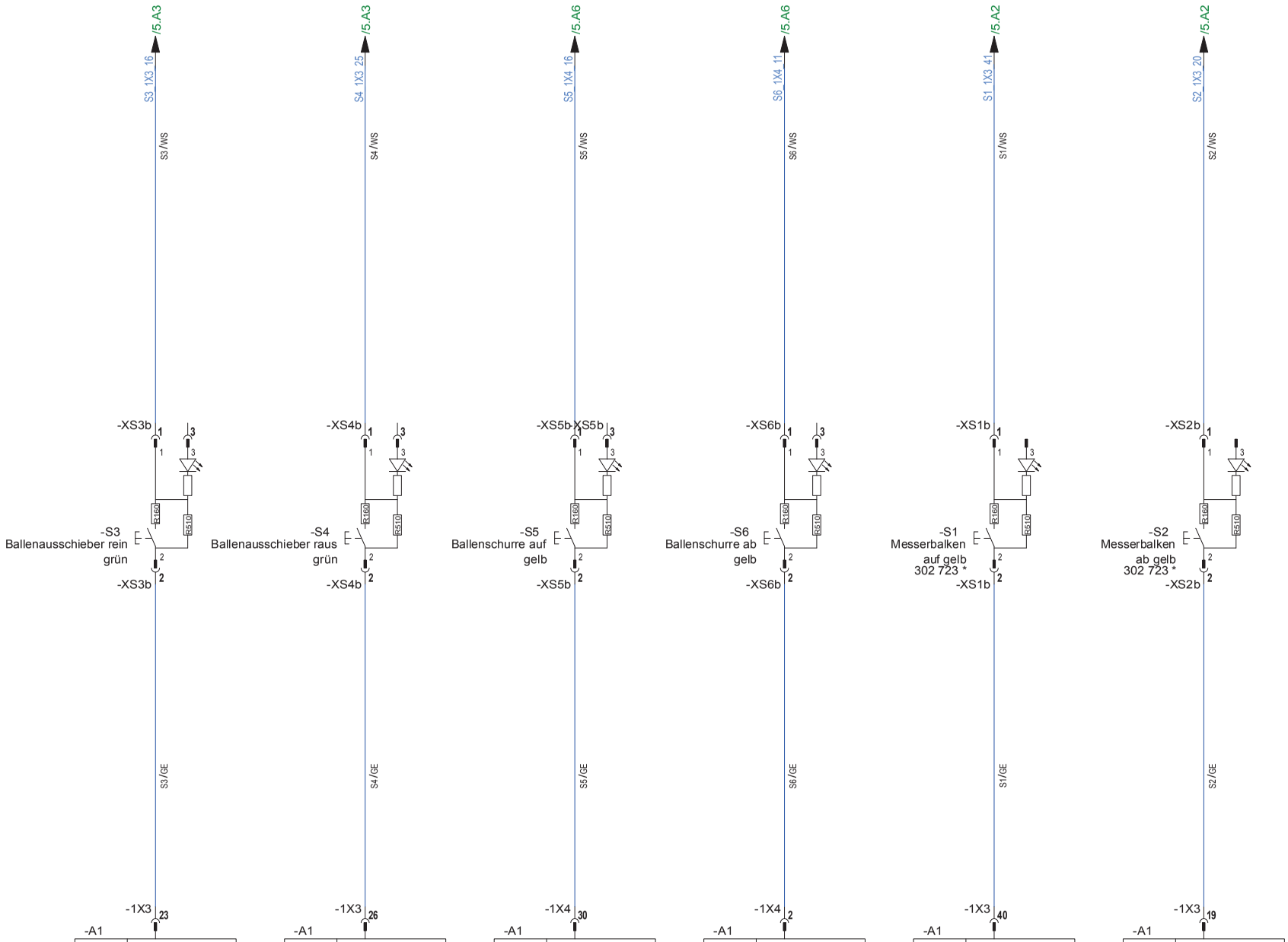
C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP	Anlage
B					Datum			Jobrechner X3 / X4	Ort
A					Bearb. albers				Blatt 5
Änderung		Datum	Name		Gepr.	Ursp.	Ers. f.	Ers. d.	von Bl.



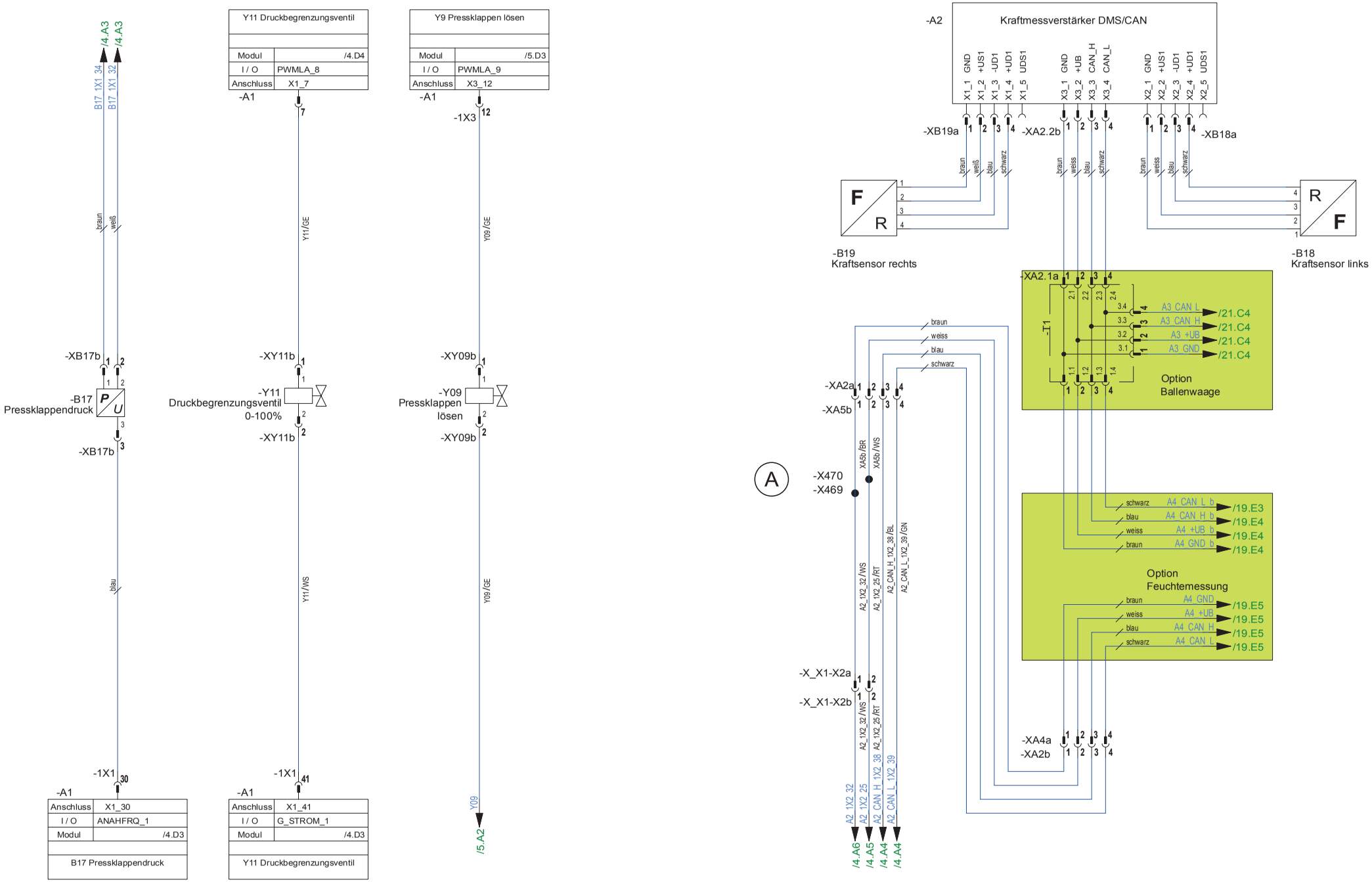
C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP	Anlage
B				Datum			Sensoren allgemein 1	Ort
A				Bearb.	Albers			Blatt 6
Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



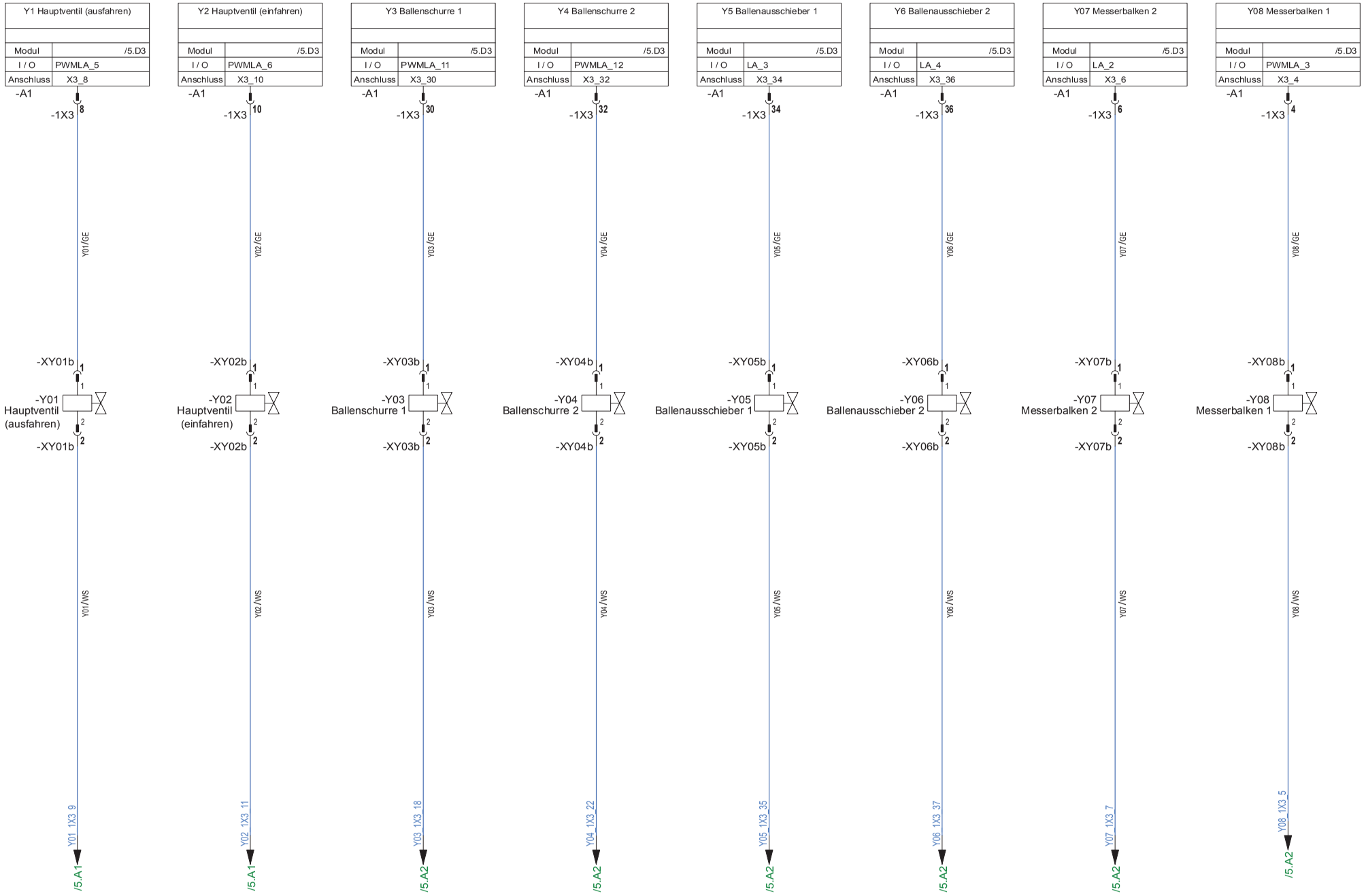
C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Sensoren allgemein 2	Anlage
B				Datum					Ort
A				Bearb.	Albers				Blatt 7
Änderung		Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



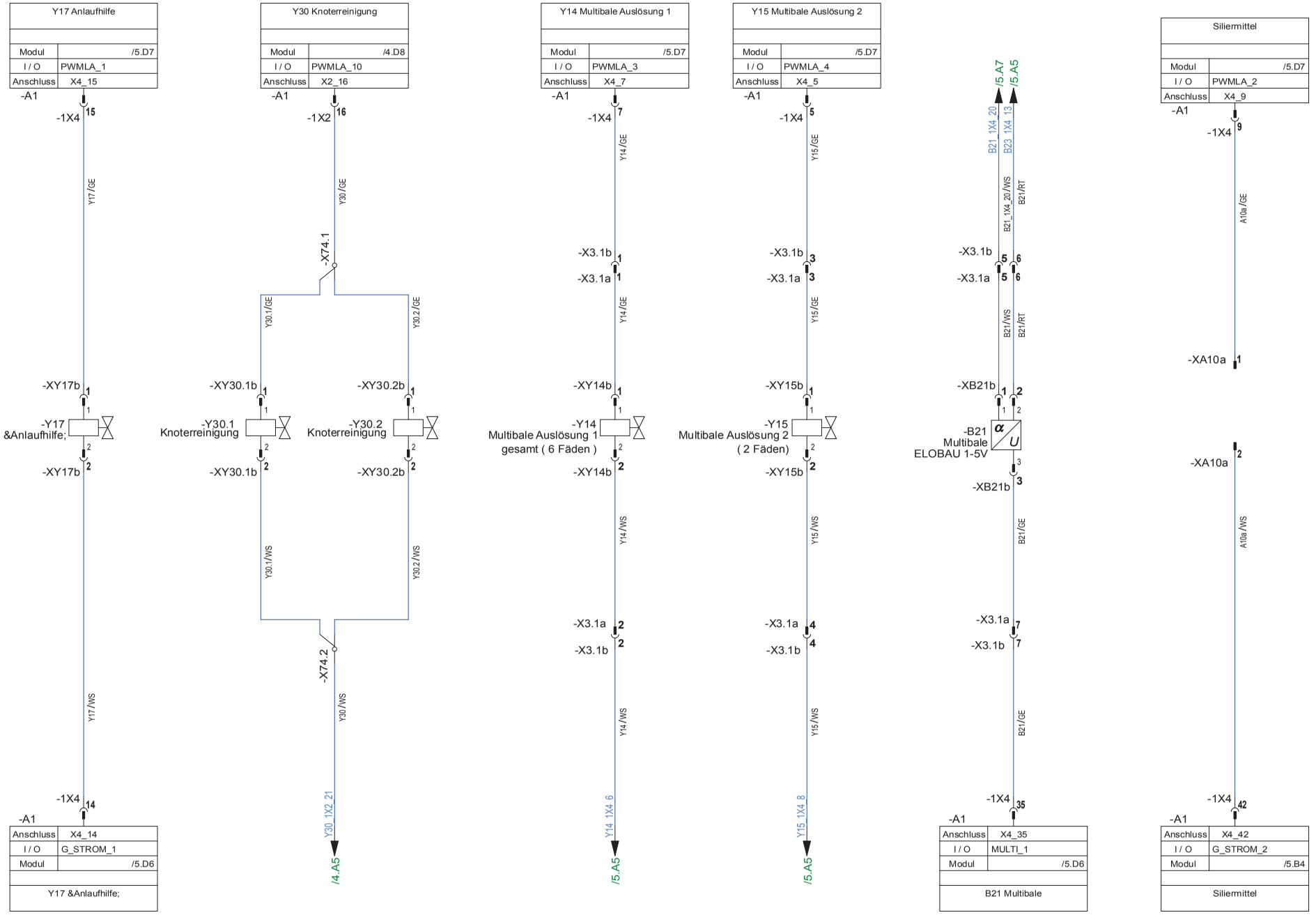
C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Taster	Anlage
B			Datum					Ort
A			Bearb.	Albers				Blatt 8
Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



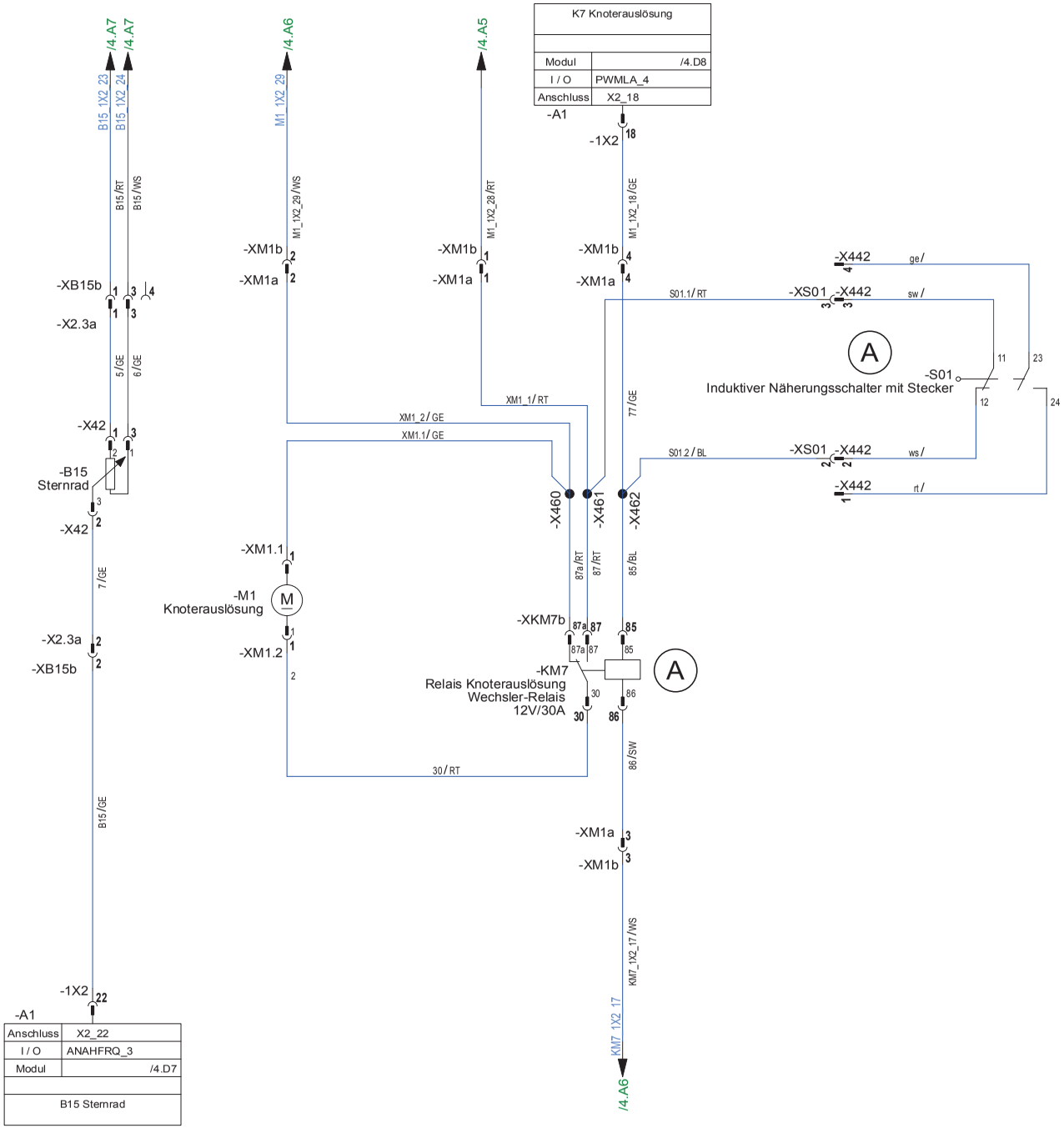
C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Kraftmessung und Regelung	Anlage
B					Datum				Ort
A	Splicepunkt X469 und X470 hinzugefügt	02.04.2014	R. Löcken	Bearb.	Albers				Blatt 9
	Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP	Anlage
B				Datum			Ventil 1 Nur bei Komfort	Ort
A				Bearb.	Albers			Blatt 10
Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

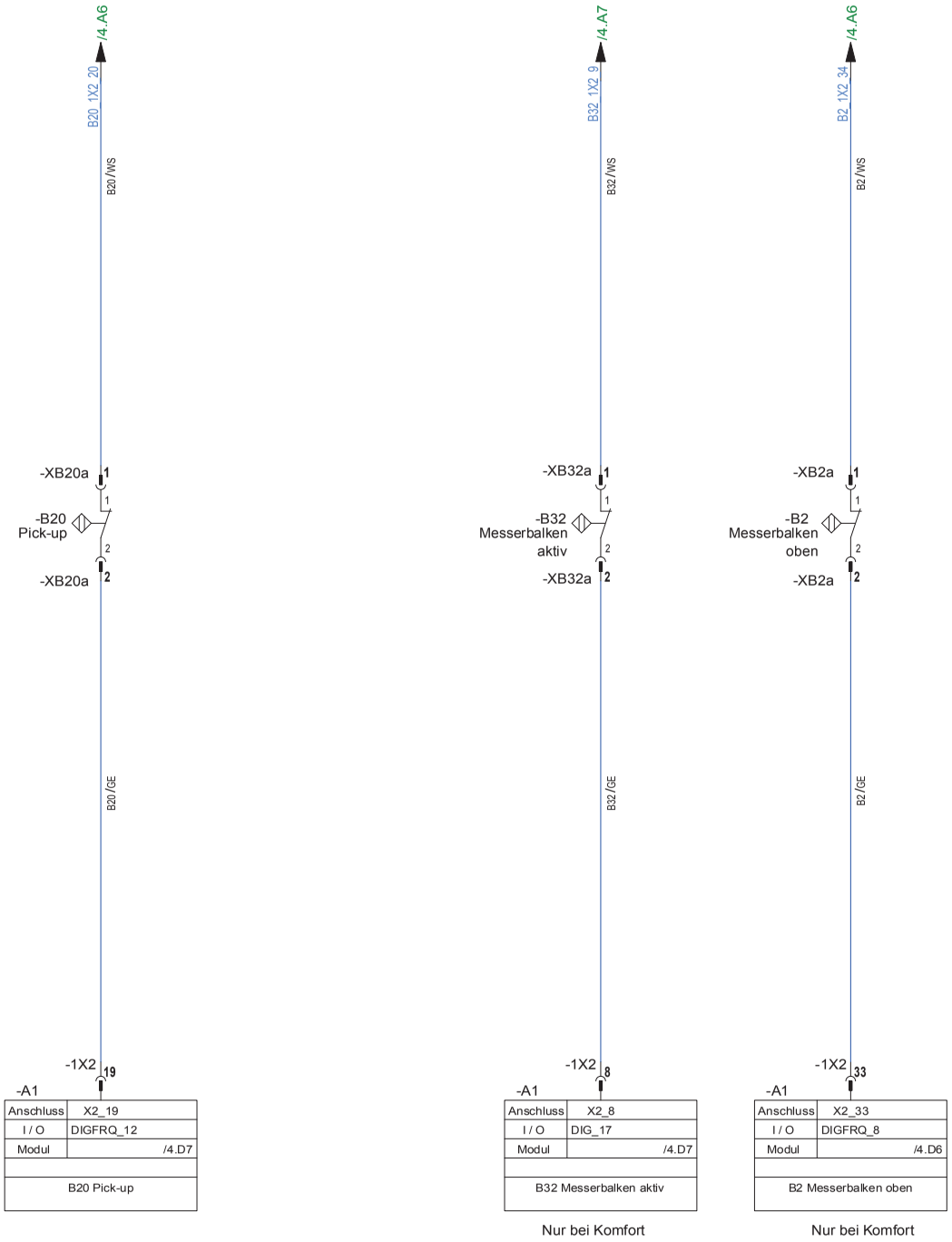


C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Ventil 2	Anlage
B					Datum				Ort
A					Bearb.	Albers			Blatt 11
	Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

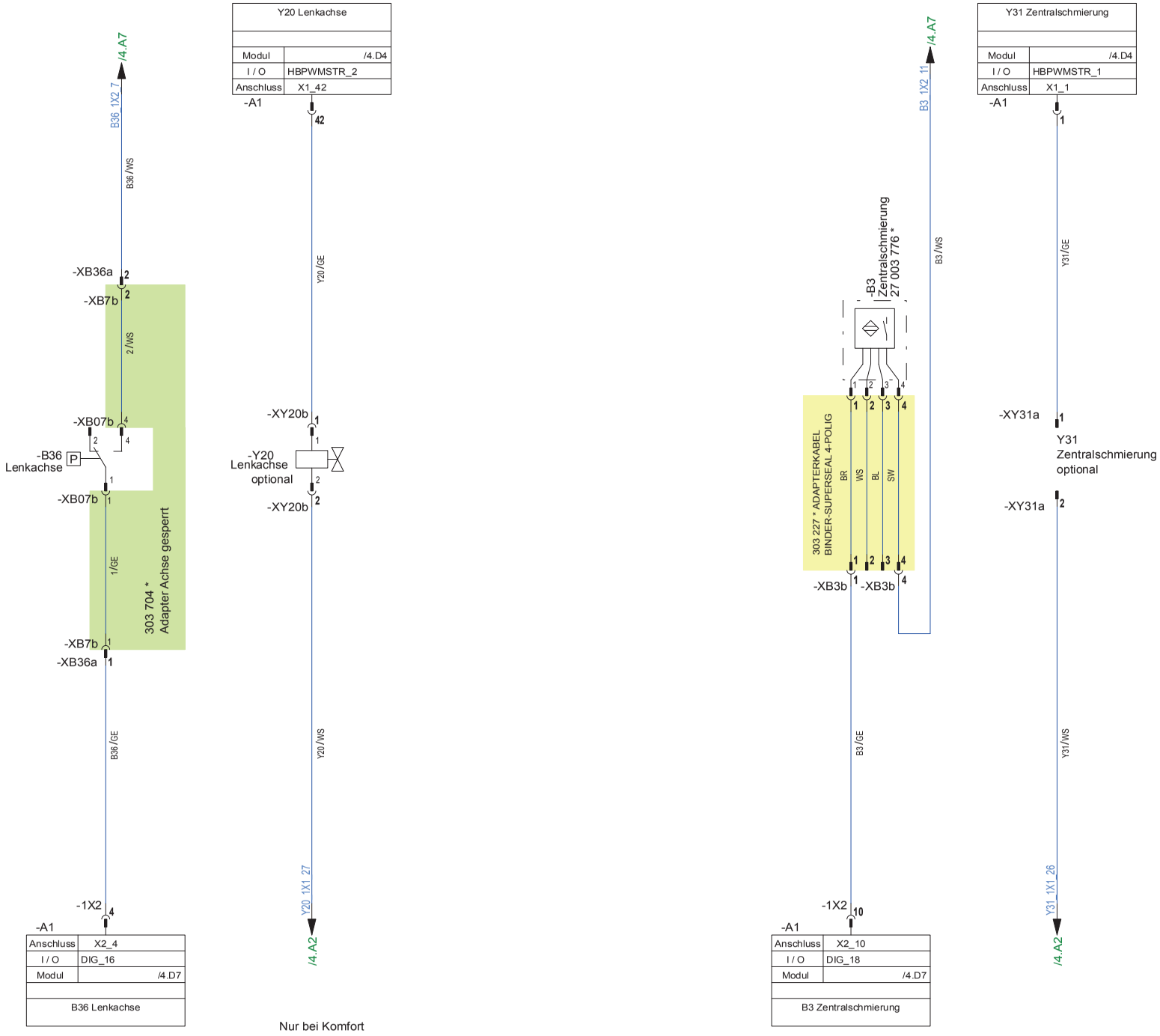


C	3				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Knoterauslösung	Anlage
B	2			Datum					Ort
A	Endschalter geändert	02.04.2014	R. Löcken	Bearb.	Albers				Blatt 12
	Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Förderrotor Nur bei Komfort	Anlage
B				Datum					Ort
A				Bearb.	Albers				Blatt 13
Änderung		Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

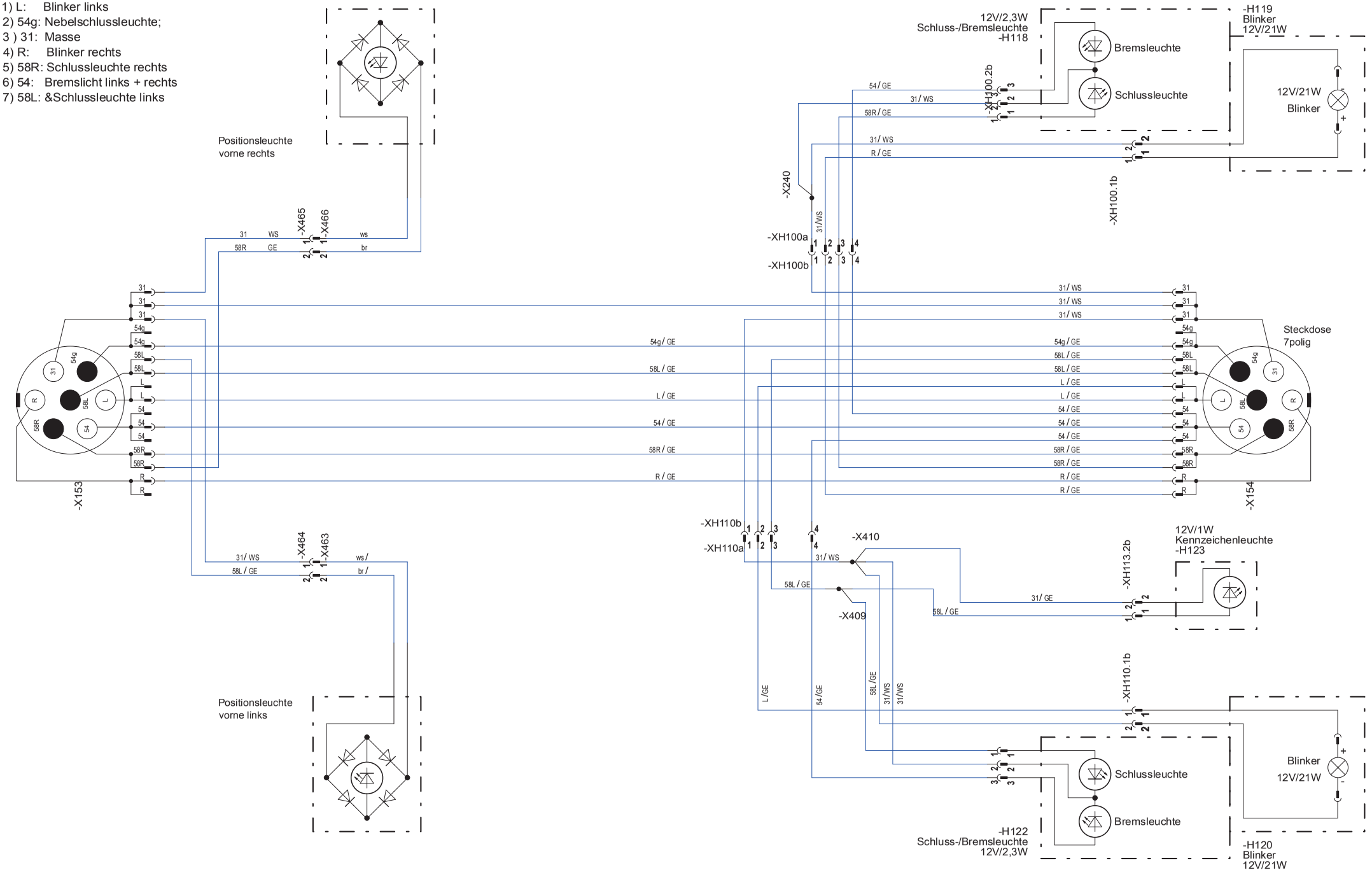


C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Schneidwerk	Anlage
B					Datum				Ort
A					Bearb.	albers			Blatt 14
	Änderung	Datum	Name		Gepr.	Ursp.	Ers. f.	Ers. d.	von Bl.

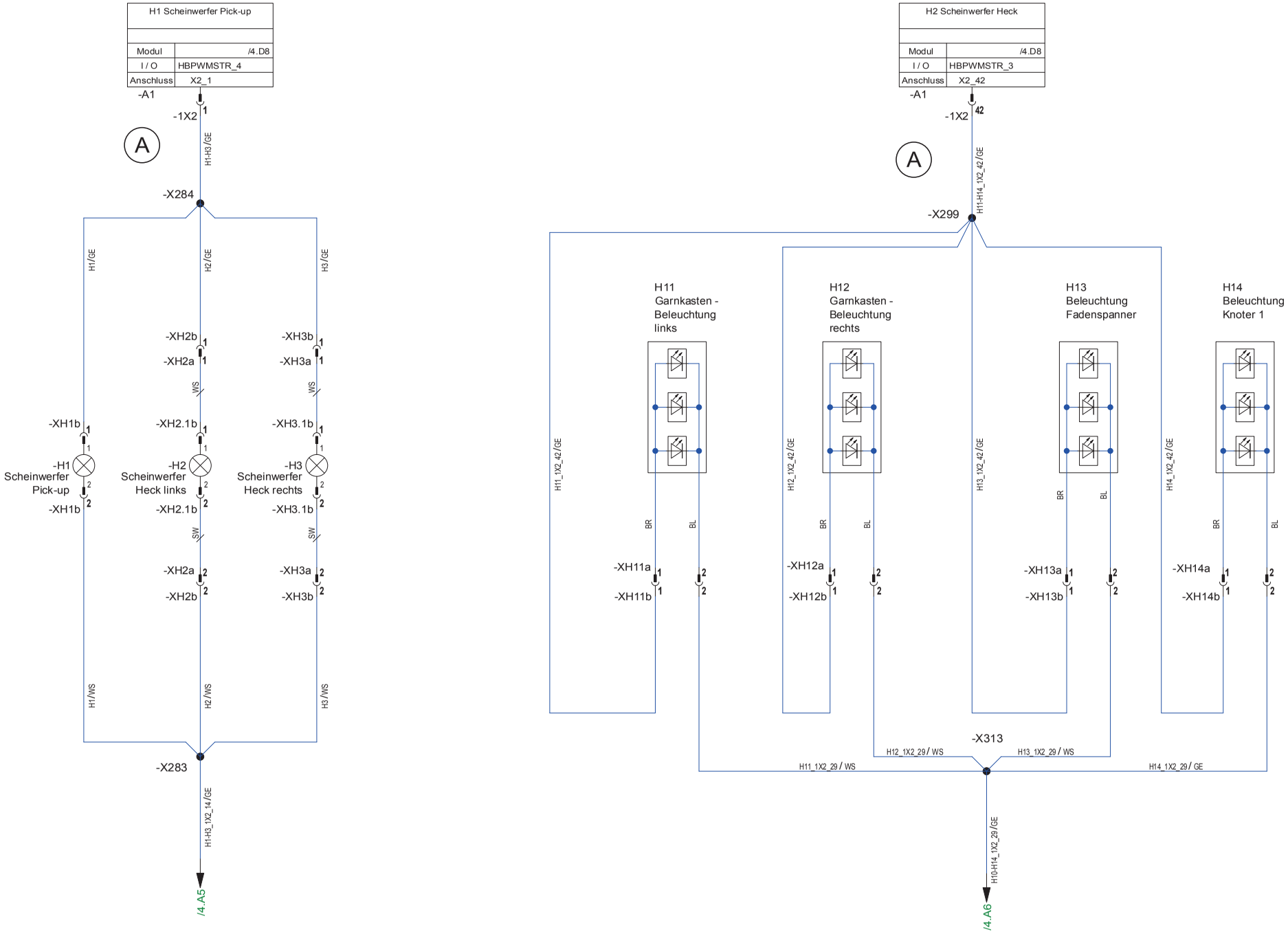


C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Lenkachse / Zentralschmierung	Anlage
B				Datum				Ort
A				Bearb.	albers			Blatt 15
Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

Steckerbelegung Steckdose 7polig
1) L: Blinker links
2) 54g: Nebelschlussleuchte;
3) 31: Masse
4) R: Blinker rechts
5) 58R: Schlussleuchte rechts
6) 54: Bremslicht links + rechts
7) 58L: &Schlussleuchte links

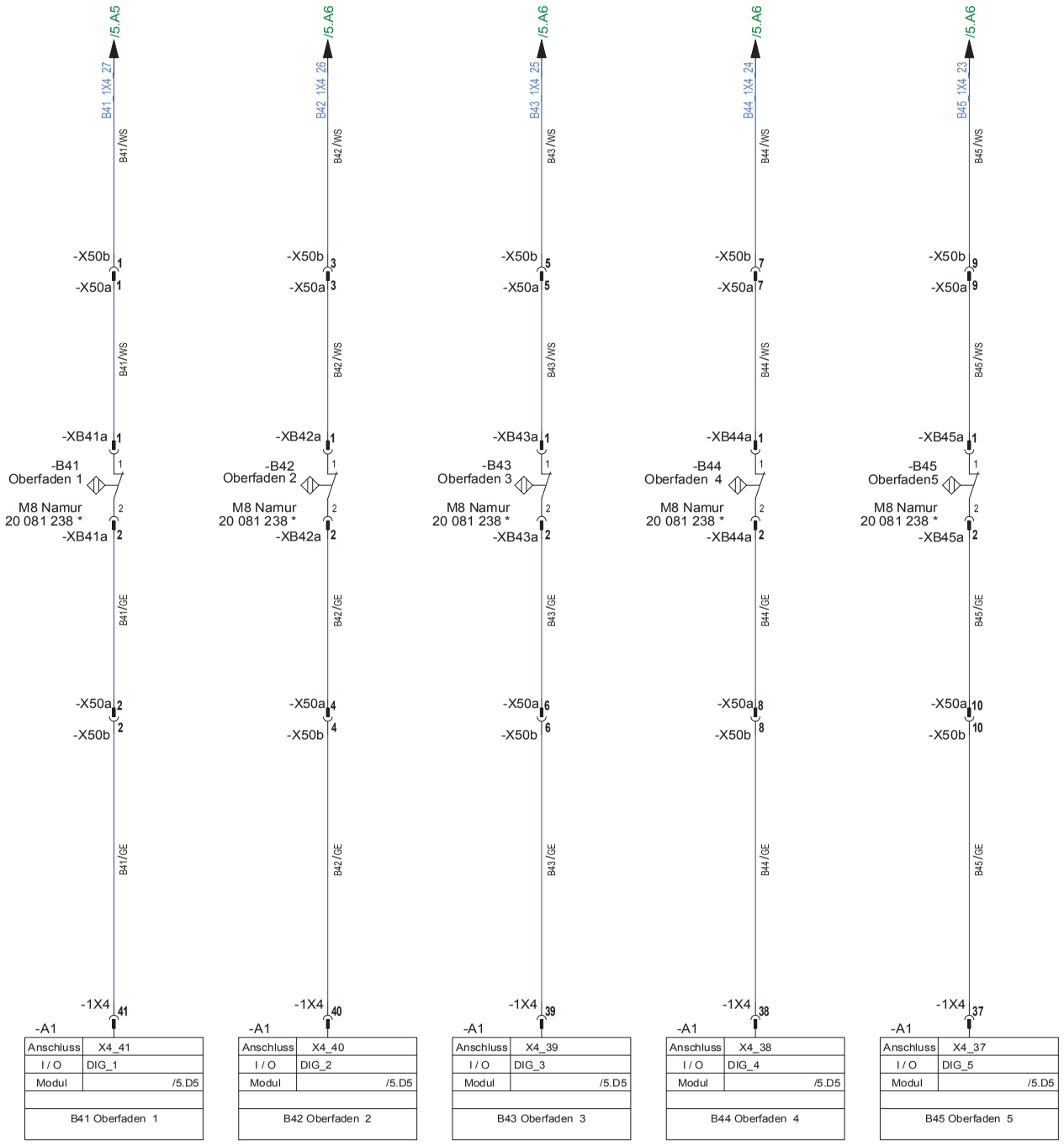


C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Beleuchtung	Anlage
B					Datum				Ort
A					Bearb.	Albers			Blatt 16
Änderung		Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

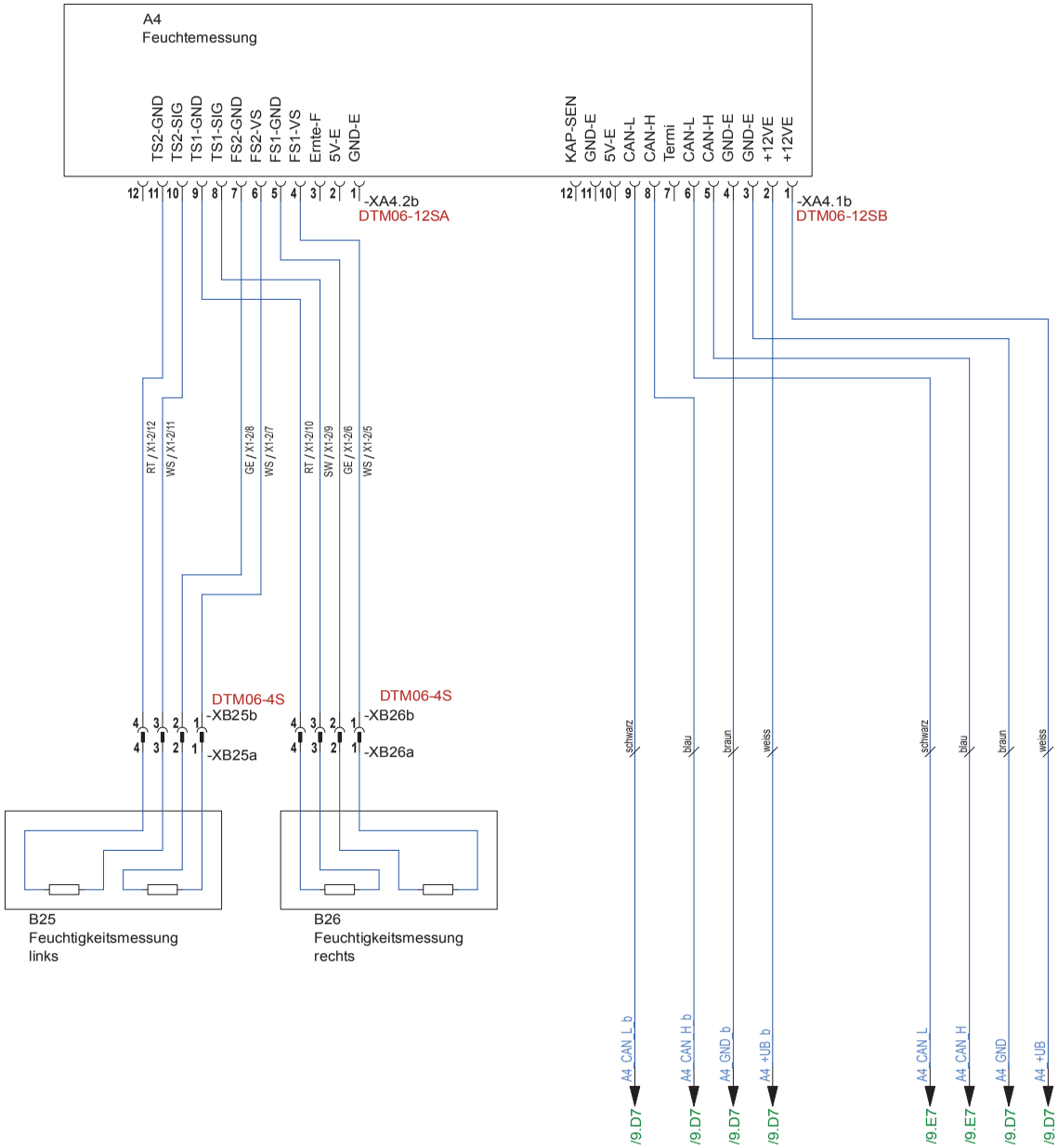


C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Arbeitsscheinwerfer Garnkasten / Fadenspanner
B					Datum			
A	Einschalten der Arbeitsscheinwerfer und LED-Leisten über Bedienterminal	8.11.2013	R. Löcken	Bearb.	Albers			
	Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.

Anlage
Ort
Blatt 17
von Bl.



C				Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Knoterkontrolle (bei Komfort)	Anlage
B				Datum				Ort
A				Bearb.	Albers			Blatt 18
Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Feuchtigkeitsmessung	Anlage
B					Datum				Ort
A	Drahtbrücke für Terminierungswiderstand eingefügt	7.06.2013	R. Löcken	Bearb.	Albers				Blatt 19
	Änderung	Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

K100 Rundumkennleuchten	
Modul	/4.D4
I / O	LA_1
Anschluss	X1_36

-A1

36

K100_85_1X1_36 / GE

-XK100.1b 1
-XK100.1a 1

-XK100.2b C
-XK100a B C

85 / BL

85 87 87a

85 87 87a

-K101

Wechsler-Relais
12V/30A

86 30

86 30

30 / RT

-XK100.1a SW / 86 2
-XK100.1b 2

-XK100a A
-XK100.2b A

K100_1X1_37

K100_86_1X1_37 / WS

K100_30_1X2_28 / GE

/4.A2

/4.A5

/4.A6

H103_1X2_29

H103_1X2_29 / WS

-XH103b 1
-XH103a 1

WS

-H103
Rundumkennleuchte
vorne

SW

-XH103a 2
-XH103b 2

-X335

K100_87a / GE

H103_87a / GE

H104_87a / GE

/4.A6

H104_1X2_29

H104_1X2_29 / WS

-XH104b 1
-XH104a 1

WS

-H104
Rundumkennleuchte
hinten

SW

-XH104a 2
-XH104b 2

-H117
LED-Umrißleuchte rechts

ws /
br /

Option
Positionsleuchte
hinten Rechts

58R/L / GE

31 / WS

-X242

GE / 58R/L

-X247

WS / 31

GE / 54

-H116
LED-Umrißleuchte links

58L/R / GE

-X297

WS / 31

-X248

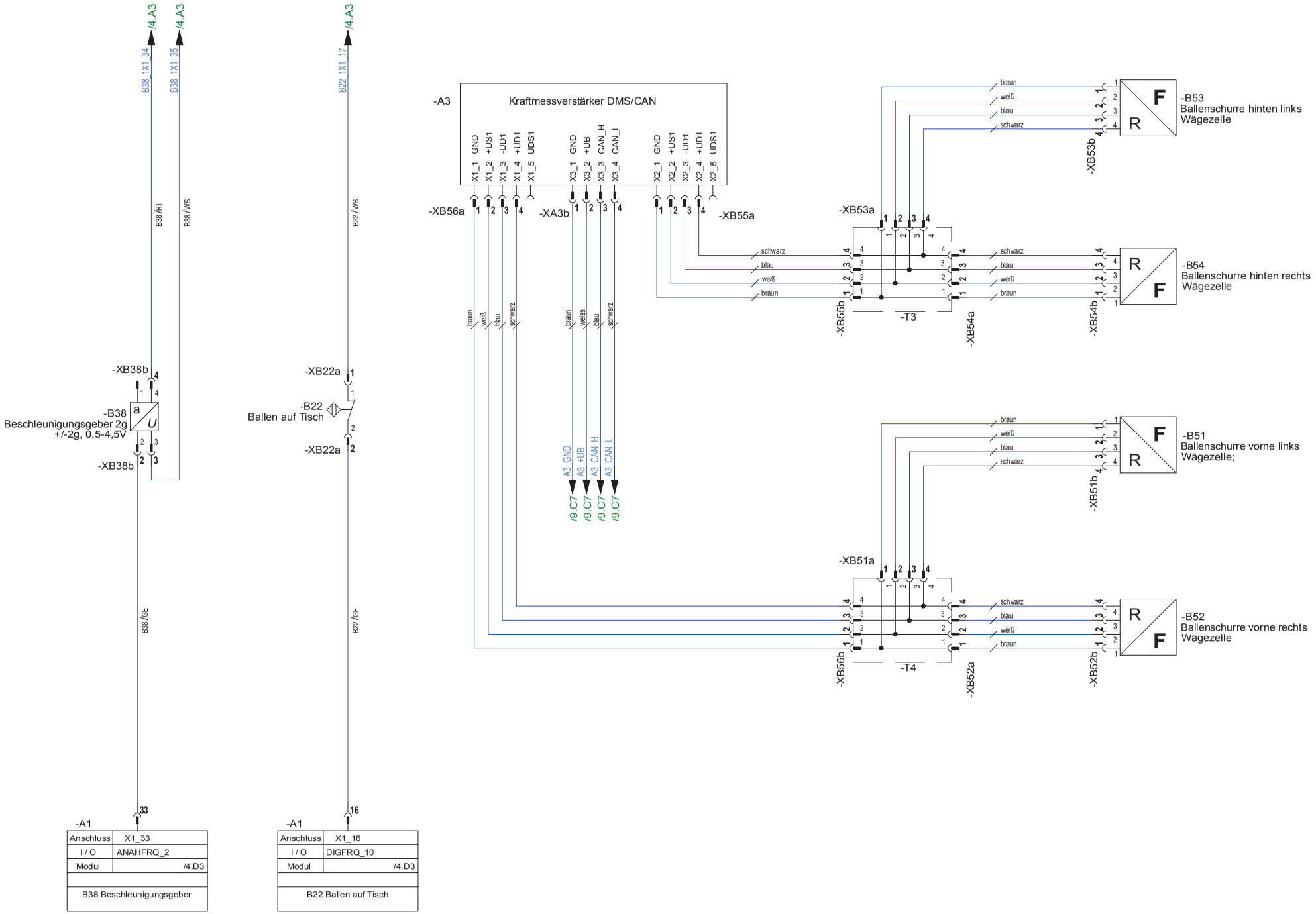
31 / WS

54 / GE

br /
ws /

Option
Positionsleuchte
hinten Links

C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP	Anlage
B					Datum			Option Rundumkennleuchten	Ort
A					Bearb.	Albers			Blatt 20
Änderung		Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.



C					Erstellt	KRONE	Dokument-Nr.: D24 150100732 - 02	BiG Pack 870 HDP Optionen Ballenwaage	Anlage
B					Datum				Ort
A					Bearb.	Albers			Blatt 21
Änderung		Datum	Name	Gepr.		Ursp.	Ers. f.	Ers. d.	von Bl.

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M

N

O

P

R

S

T

KRONE

THE POWER OF GREEN

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